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Final Report

Hot Mix Asphalt Plants
Truck Loading and Silo Filling
Manual Methods Testing

Asphalt Plant C
Los Angeles, California

Volume 4 of 8

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FINAL REPORT

HOT MIX ASPHALT PLANTS
TRUCK LOADING AND SILO FILLING
MANUAL METHODS TESTING
ASPHALT PLANT C, LOS ANGELES, CALIFORNIA

VOLUME 4 OF 8
APPENDICES G.1 AND G.2

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Prepared for:

Mr. Michael L. Toney (MD-19)
Work Assignment Manager
SMTG, EMC, OAQPS
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

May 2000

Submitted by

PACIFIC ENVIRONMENTAL SERVICES, INC.
5001 S. Miami Blvd., Suite 300
Post Office Box 12077
Research Triangle Park, NC 27709-2077
(919) 941-0333
FAX (919) 941-0234

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GLOSSARY OF TERMS

ASTM – American Society for Testing and Materials
CEMS – Continuous Emissions Monitoring System
CTS – Calibration Transfer Standard
EMC – Emissions Measurement Center
EMAD – Emission Monitoring and Analysis Division
ESP – Electrostatic Precipitator
FID – Flame Ionization Detector
FTIR – Fourier Transform Infrared Spectroscopy
HAP – Hazardous Air Pollutant
MCEM – Methylene Chloride Extractable Matter
MRI – Midwest Research Institute
PES – Pacific Environmental Services
PM – Particulate Matter
PTE – Permanent Total Enclosure
RAP – Recycled Asphalt
RTFOT – Rolling Thin Film Oven Test
SED – Silo Exhaust Duct

GLOSSARY OF TERMS (CONTINUED)

SMTG – Source Measurement Technology Group
SVOHAP – Semi-Volatile Organic Hazardous Air Pollutant
TED – Tunnel Emissions Duct
TFOT – Thin Film Oven Test
THC – Total Hydrocarbons
VOHAP – Volatile Organic Hazardous Air Pollutant
VOST – Volatile Organic Sampling Train

VOLUME 4

APPENDIX G

ANALYTICAL DATA

G.1 PM AND MCEM DATA
G.2 PAH/SVOHAPS CASE NARRATIVE AND PAH DATA

APPENDIX G.1

PM AND MCEM DATA

EASTERN RESEARCH GROUP, INC.

P.O. Box 2010
Morrisville, NC 27560
Ph. (919) 468-7800

Narrative

Site: *Asphalt Plant C*
Prepared for: *Frank Phoenix* **(PES)**
Prepared by: *Linh Nguyen*

Description of Procedures for EPA Method 315 and Observations:

Filters -

Procedure:
The filters (including any loose particles) were transferred to a tared amber jar. The amber jars were placed into a desiccator overnight in a temperature controlled environment. The following day, the samples were weighed and initial weights were taken. To ensure that all conditions remained the same, the samples were placed back into the desiccator and allowed to sit overnight and the second weighings were taken at the same time the next day. Once constant weight had been attained, 100 mL of methylene chloride was added to each jar. The jars were placed in a sonicator and allowed to sonicate for 3 minutes. After sonication was complete, the samples were taken out of the sonicator. Each sample was filtered through a buchner funnel reinforced with an additional Whatman 934-AH filter to prevent cross contamination on the buchner funnels. Once the solutions were vacuum filtered, the extract was placed into a triple rinsed beaker (methylene chloride solvent). The beaker containing the extract was placed onto a hotplate at low heat and the solvent was allowed to evaporate. Once the samples almost reached dryness, the samples were taken off the hotplate and poured into a tared aluminum pan. The beakers were triple rinsed with methylene chloride and then the solvent was poured into the aluminum pan. The rinse was performed to ensure that no material remained in the beaker. The aluminum weighing pan was heated to complete dryness, placed into a desiccator and allowed to sit in the desiccator overnight. The following day, the samples were weighed and the weights recorded.

Observations:
The filters had dark gray/black discoloration, especially in places where the air flowed through the filters. All contents of the filters and any loose particles were transferred to a tared 250 mL amber jar.

Acetone Front Half Rinse-

Procedure:
The rinses were poured into 400 mL tared beakers that were triple rinsed with methylene chloride. The weights of the beakers including the rinses were taken to give an initial and a final weight from which the volumes of the rinses were calculated. A separate sheet (attached) explains how the volumes were calculated. The beakers containing the rinses were allowed to sit overnight in a hood to allow the acetone solvent to evaporate. The next day the beakers, which now contained no solvent, were placed into the desiccator and allowed to sit in the desiccator overnight. The next day, initial weighings for the samples were taken. The samples were then allowed to sit in the desiccator again for 24 hours. The next day at approximately the same time, the samples were weighed again for the second weighings. Once constant weight was attained, the weights were recorded for the

Particulate Mass (PM) portion of the analysis. Next, 25 mL of methylene chloride was added to each beaker. Aluminum foil was placed over the tops of the beakers. The beakers were then placed into a sonicator and allowed to sonicate for 3 minutes. This fraction was combined with the methylene chloride Front Half Rinse.

Observations:
There were some particulates present in the rinse.

Methylene Chloride Front Half Rinse-

Procedure:
The rinses were poured into 400 mL tared beakers triple rinsed with methylene chloride. The weights of the beakers including the rinses were taken to give an initial and a final weight from which the volumes of the rinses were calculated. At this point, the extracts from the Acetone Front Half Rinse were combined with this fraction. The combined fractions were placed onto a hotplate and allowed to heat gently at a low temperature setting. Once the solution had almost reached dryness, the solution was poured into a tared aluminum pan. The pan was then placed back onto the hotplate and taken to complete dryness. The pans were then transferred to the desiccator and allowed to sit overnight. The following day, the samples were weighed and the weights recorded for the MCEM analysis.

Observations:
No conditions out of the ordinary were noted.

Impinger, Back Half Water-

Procedure:
The samples were poured into a clean, pre-weighed, 500 mL amber jar. After the impinger contents had been emptied into the jar, a second weight was obtained. The difference was then used to calculate the volume of the sample. Once the volume had been determined, each sample was poured into a clean, 1000 mL separatory funnel. Once in the separatory funnel, the amber jars containing the original samples were triple rinsed with methylene chloride and the rinses poured into the separatory funnel. The approximate volume of this rinse was 50 mL. The samples were then shaken for 1 minute. After 1 minute, the bottom methylene chloride layer was drained into a clean, 250 mL beaker. After the methylene chloride was drained, an additional 25 mL of $MeCl_2$ was added. The solution was then shaken for another minute and the bottom methylene chloride layer drained into the same 250 mL beaker. This process was repeated once more. Once the third shake was completed and the methylene chloride drained into the 250 mL beaker, the beaker was placed onto a hotplate and gently heated to evaporate the solvent. Once the solution was evaporated almost to dryness, the solution was transferred to a tared aluminum pan. The pan was then placed back onto the hotplate and heated to complete dryness. After heating, the pans were placed into the desiccator to sit overnight. The following day, the pans were weighed and the weights recorded for the MCEM analysis of the Impinger, Back Half Water Rinse.

Observations:
The samples looked cloudy upon initial inspection. They did not seem to consist solely of water. During the extraction of these samples, the solution formed what seemed like an emulsion between the water and methylene chloride layer. When the methylene chloride was drained, this emulsion layer was left behind, so that only the methylene chloride layer was taken.

Solvent, Back Half Rinse-

Procedure:

The exact same procedure was used for the Back Half Rinse as was used for the Front Half Rinse. The only difference was that since PM analysis was not required, when the solvent dried down in the beaker, constant weight was not taken for these samples. After the solvent had evaporated, 25 mL of methylene chloride was added to each beaker and sonicated for 3 minutes each. The rest of the procedure was the same as the Acetone Front Half Rinse.

Observations:

There didn't seem to be total miscibility with the solvents. It seemed that there might have been some water in the solvent rinse.

Field Reagent Blanks-

Procedure:

The samples were poured into tared beakers. Weights were taken after the reagent blank rinses were poured in. These final weights were used to calculated the volumes of the reagent blanks. The reagent blanks were allowed to sit on a hotplate at low heat. After the solvents had evaporated, the final weights of the beakers with any contents remaining were taken. Particulate Mass was calculated. For the filter blank, 100 mL of methylene chloride was added to the beaker and sonicated for 3 minutes. Afterwards, the methylene chloride was filtered and poured into a clean beaker. The beaker containing the solvent was heated down to near dryness. The solvent was then transferred to a tared aluminum pan. The pan was placed onto the hotplate and reduced to dryness. The pan was desiccated and weighed the next day for Particulate Mass.

Observations:

No observations out of the ordinary were noticed.

Laboratory Reagent Blanks-

Procedure:

The same procedures were used for Laboratory Reagent blanks as for the Field Reagent Blanks. Solvents that were used during the extraction process were tested in the reagent blank. A filter from the same lot that was sent to the field was used to go through the extraction process.

Observations:

No observations out of the ordinary were noticed

Deposition Samples-

Procedure:

Initial inspection of the deposition samples showed them to have a lot of sedimentation and particulate matter at the bottom of each of the jars. Each one of the deposition samples was poured into a pre-weighed beaker. If the entire sample did not fit into one beaker, then it was separated into 2 or more beakers. The samples were allowed to sit in the hood overnight to allow the solvent to evaporate. Once the solvent had evaporated, the

remaining sample had to be heated very gently to allow the sample to go to dryness. The next day, initial weights were taken on the beakers containing the samples. The samples were allowed to sit overnight before a second weighing was taken. Once the samples had attained constant weights, the weights were recorded for the Particulate Mass (PM) analysis. Once the PM analyses were finished, 25 mL of methylene chloride was added to each beaker. The samples were covered with aluminum foil and placed into a sonicator to sonicate for 3 minutes. After sonication was complete, the samples were filtered through a buchner funnel and MCEM analysis was done using the same method as described in methylene chloride FHR (for MCEM analysis).

Observations:

Some of the samples had very high volumes and so they had to be separated into 2 or more beakers. Slow heating of the samples had to be performed to prevent any of the samples from popping or cracking. Once all the solvent had evaporated, there remained a large amount particulate deposit. It resembled ground sedimentation deposits. The samples had to be slow heated over a 6-8 hour period with constant supervision, because as the sample volumes decreased, the samples started to crack and pop. Some of the samples had very high masses, so longer periods of heating were required. Since the samples had to be completely dry, the samples were initially allowed to sit on the hotplate at low heat. After this period of time, some of the sample still had some "tar-like" properties, which indicated that the sample was still not completely dry. This coagulation into a tar-like property raised the question of how long to heat the samples since low heat would not cause the "tar" to evaporate. Eventually, the heat was increased in order to drive the samples to complete dryness. Once the judgment was made that the samples were dry, the samples were desiccated overnight to get constant weights. For the MCEM analysis portion of the extraction process, the same complications arose. Once the samples had evaporated to almost dryness, there remained a small portion of a "tar-like" residue. The samples would not produce a valid weight when weighed "as is" because in doing so, some samples produced an MCEM value which was greater than the PM value, which is not possible. Upon observation of this anomaly, the samples were allowed to sit at high heat until all the "tar-like" appearance had evaporated leaving only a black organic residue. During the evaporation process of this stage, the sample produced smoke, indicating that there might be some organics being driven off as aerosolized particles. One can not conclude, however, how much, if any, organic analytes are being driven off. In conclusion, the values produced for the MCEM analysis for the deposition samples represent minimum values for this analysis.

1d

EASTERN RESEARCH GROUP, INC.

P.O. Box 2010
Morrisville, NC 27560
Ph. (919) 468-7800

Phoenix (Asphalt Plant C)

Notes on Samples:

The volumes for the Methylene Chloride FHR and the Water Rinses were not taken. This was due to the fact that it was not known that volumes would be used for these samples. For this reason the volumes were not taken. For future samples, all volumes will be taken for any rinses. This includes both the Acetone and Methylene Chloride FHR, the Water Rinse as well as the Solvent BHR.

Although actual volumes for the MeCl2 FHR rinse was not taken, approximate volumes for these samples are about 100-120 mL for each of the Rinses. The conclusion came from the fact that each of the rinses were in 250 mL jars and the almost all the jars were less than half full. This approximates the volumes to be ~100-120 mL per rinse.

The Water Rinses were not taken as well. Volume approximations ranged from 400-1000 mL. The volumes for the Water Rinses were fairly large. The volumes for each of these rinses were not consistent and so the approximation of volumes for these fractions would be difficult.

Calculations for volumes were done gravimetrically. The initial mass of the container is taken, the rinse is poured into the container, then a final mass is taken. The final mass is subtracted from the initial mass to obtain the mass of the Rinse. Depending on the identity of the Rinse (i.e. Acetone or MeCl2), the proper density is used to calculate the volume.

Calculation:

Volume = Mass of rinse / density of rinse

For the Solvent Rinse, this procedure had to be changed since the density of the rinse was not known. In order to obtain the density of the rinse, three arbitrary Solvent Rinse samples were taken and one mL aliquots were taken from each Rinse. Masses for each of these rinses were taken and averaged together to obtain a calculated average for the density of the Solvent Rinse. Using this calculated average for the density of the Solvent Rinse, the volumes were then determined gravimetrically using the above calculation. The calculated average density for the Solvent Rinse was 1.1555 g/mL.

1e

ERG
EASTERN RESEARCH GROUP, INC

P.O. Box 2010
Morrisville, NC 27560
Ph. (919) 468-7800

Phoenix (Asphalt Plant C)

Matrix = ***FILTERS***

Method = **PM**

Sample ID:	Weight of Petri dish (g)	Filter Pre-weight (g)	Avg. wt. Of filter+dish (g)	Final Weight of PM (g)
T-M315-1-F	146.9268	0.4491	147.37945	0.0036
T-M315-2-F	202.8661	0.4489	203.31780	0.0028
T-M315-3-F	162.1919	0.4530	162.64775	0.0028
T-M315-4-F	157.3657	0.4527	157.82035	0.0020
T-M315-FB-F	155.6757	0.4463	156.12630	0.0043
S-M315-1-F	156.5417	0.4481	157.08355	0.0938
S-M315-2-F	187.4323	0.4466	187.93760	0.0587
S-M315-4-F	165.7223	0.4494	166.21560	0.0439
S-M315-FB-F	166.5507	0.4500	167.00225	0.0015

Method = **MCEM**

Sample ID:		Weight of Alum. pan (g)	Weight after evaporation (g)	Final weight of MCEM (g)
T-M315-1-F	1	1.6303	1.6326	0.0023
T-M315-2-F	2	1.6458	1.6459	0.0001
T-M315-3-F	3	1.6390	1.6396	0.0006
T-M315-4-F	4	1.6384	1.6384	0.0000
T-M315-FB-F	5	1.6474	1.6474	0.0000
S-M315-1-F	6	1.6478	1.6484	0.0006
S-M315-2-F	7	1.6454	1.6461	0.0007
S-M315-4-F	8	1.6501	1.6516	0.0015
S-M315-FB-F	9	1.6501	1.6504	0.0003

Note: Due to rounding and use of additional significant figures by the software, reported final weights may differ slightly from calculated results derived from the displayed values.

1F

ERG
EASTERN RESEARCH GROUP, INC

P.O. Box 2010
Morrisville, NC 27560
Ph. (919) 468-7800

Phoenix (Asphalt Plant C)

Matrix = ***Acetone Rinses***

Method = **PM**

Sample ID:		Volume of liquid (mL)	Weight of beaker (g)	Avg. wt. of beaker+cont. (g)	Final weight of PM (g)
Old SED Acet Rins	1	943.0			98.5125
New SED Acet Rin:	1	1876.0			188.0179
CPE	3	65.2927	102.9535	102.96775	0.0142
CPC	4	143.6877	108.4430	108.50105	0.0580
CPW	5	91.1349	111.1123	111.14225	0.0299
T1	1A	241.6473	177.5570	182.04745	4.4905
	2A	229.0183	177.5465	195.26995	17.7235
T2	3A	244.7422	186.6089	187.30955	0.7006
	4A	209.1469	173.2648	187.02055	13.7558
T3	5A	338.1920	177.8901	185.32105	7.4310
	6A	311.4067	177.9773	186.33975	8.3624
	7A	332.3489	177.8120	178.14335	0.3313
TP Blank	6	76.5556	113.6445	113.67305	0.0285
Box WN	8A	274.3465	164.9919	165.20975	0.2178
Box WC	7	135.2032	111.8543	111.98480	0.1305
Box WS	9A	257.1522	162.8926	162.92600	0.0334
	10A	216.4568	163.0827	164.05875	0.9761
Box EN	11A	232.5808	167.1286	167.25685	0.1282
Box EC	8	97.2118	104.8055	104.92560	0.1201
Box ES	12A	250.9097	137.6304	140.02965	2.3992
	13A	269.1434	177.7076	177.79090	0.0833
TP Acetone Blank	14A	208.7190	173.0033	173.00340	0.0001
CP Blank	9	40.4942	107.0691	107.07590	0.0068
Box Pipe Blank	10	126.2837	104.9096	104.95170	0.0421

See Note on page 1f.

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Morrisville, NC 27560
Ph. (919) 468-7800

Phoenix (Asphalt Plant C)

Matrix = ***Acetone Rinses***

Method = **MCEM**

Sample ID:		Volume of liquid (mL)	Weight of Alum. pan (g)	Weight after evaporation (g)	Final weight of MCEM (g)
Old SED Acet Rins	1	943.0	0.9989	1.2878	7.2225
New SED Acet Rin:	1	1876.0	0.9935	1.0778	2.9505
CPE	3	65.2927	1.6361	1.6451	0.0090
CPC	4	143.6877	1.6348	1.6480	0.0132
CPW	5	91.1349	1.6172	1.6259	0.0087
T1	6	241.6473	1.6063	1.9269	0.3206
	7	229.0183	1.6060	2.1379	0.5319
T2	8	244.7422	1.6263	1.6589	0.0326
	9	209.1469	1.6369	1.7848	0.1479
T3	10	338.1920	1.6265	1.7776	0.1511
	11	311.4067	1.6288	1.7784	0.1496
	12	332.3489	1.6067	1.6157	0.0090
TP Blank	13	76.5556	1.6557	1.6658	0.0101
Box WN	14	274.3465	1.5922	1.5964	0.0042
Box WC	15	135.2032	1.6528	1.6540	0.0012
Box WS	16	257.1522	1.6529	1.6650	0.0121
	17	216.4568	1.6298	1.6513	0.0215
Box EN	18	232.5808	1.6400	1.6459	0.0059
Box EC	19	97.2118	1.6739	1.6763	0.0024
Box ES	20	250.9097	1.6492	1.7300	0.0808
	21	269.1434	1.5927	1.6053	0.0126
TP Acetone Blank	22	208.7190	1.6196	1.6196	0.0000
CP Blank	1	40.4942	1.6207	1.6219	0.0012
Box Pipe Blank	2	126.2837	1.6314	1.6396	0.0082

See Note on page 1F.

1h

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P.O. Box 2010
Morrisville, NC 27560
Ph. (919) 468-7800

Phoenix (Asphalt Plant C)

Matrix = ***Acetone FHR***

Method = **PM**

Sample ID:	Volume of liquid (mL)	Weight of beaker (g)	Avg. wt. Of beaker+cont. (g)	Final weight of PM (g)
T-M315-1-FH-A	55.1	175.6216	175.63080	0.0092
T-M315-2-FH-A	40.9	165.8707	165.87565	0.0050
T-M315-3-FH-A	125.4	164.9791	164.98480	0.0057
T-M315-4-FH-A	136.0	177.8025	177.80915	0.0066
T-M315-FB-FH-A	213.4	183.1263	183.13095	0.0046
S-M315-1-FH-A	46.0	167.6280	167.66835	0.0404
S-M315-2-FH-A	71.1	178.6901	178.72105	0.0309
S-M315-4-FH-A	141.7	179.7039	179.71340	0.0095
S-M315-FB-FH-A	79.7	170.4733	170.47540	0.0021

Matrix = ***Methylene Chloride FHR***

Method = **MCEM**

Sample ID:		Weight of Alum. pan (g)	Weight after evaporation (g)	Final weight of MCEM (g)
T-M315-1-FH-M	1	1.6209	1.6262	0.0053
T-M315-2-FH-M	2	1.6273	1.6294	0.0021
T-M315-3-FH-M	3	1.6402	1.6420	0.0018
T-M315-4-FH-M	4	1.6392	1.6422	0.0030
T-M315-FB-FH-M	5	1.6299	1.6340	0.0041
S-M315-1-FH-M	6	1.6363	1.6760	0.0397
S-M315-2-FH-M	7	1.6599	1.6874	0.0275
S-M315-4-FH-M	8	1.6598	1.6671	0.0073
S-M315-FB-FH-M	9	1.6511	1.6531	0.0020

See Note on page 1F

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P.O. Box 2010
Morrisville, NC 27560
Ph. (919) 468-7800

Phoenix (Asphalt Plant C)

Matrix = ***H20 Impinger rinses***

Method = **MCEM**

Sample ID:		Weight of Alum. pan (g)	Weight after evaporation (g)	Final weight of MCEM (g)
T-M315-1-BH-W	1	1.6620	1.6621	0.0001
T-M315-2-BH-W	2	1.6373	1.6374	0.0001
T-M315-3-BH-W	3	1.6064	1.6065	0.0001
T-M315-4-BH-W	4	1.5923	1.5927	0.0004
T-M315-FB-BH-W	5	1.5989	1.5989	0.0000
S-M315-1-BH-W	6	1.6170	1.6210	0.0040
S-M315-2-BH-W	7	1.6145	1.6180	0.0035
S-M315-4-BH-W1	8	1.6000	1.6011	0.0011
S-M315-4-BH-W2	9	1.6061	1.6064	0.0003
S-M315-4-BH-W3	10	1.6134	1.6139	0.0005
S-M315-4-BH-W4	11	1.5936	1.5938	0.0002
S-M315-FB-BH-W	12	1.6239	1.6240	0.0001

Matrix = ***Acetone & MeCl2 Impinger rinses***

Method = **MCEM**

Sample ID:		Volume of liquid (mL)	Weight of Alum. pan (g)	Weight after evaporation (g)	Final weight of MCEM (g)
T-M315-1-BH-S	13	238.2	1.0200	1.0236	0.0036
T-M315-2-BH-S	14	181.0	1.0227	1.0229	0.0002
T-M315-3-BH-S	15	258.6	1.0258	1.0261	0.0003
T-M315-4-BH-S	16	199.0	1.0267	1.0274	0.0007
T-M315-FB-BH-S	17	125.9	1.0268	1.0268	0.0000
S-M315-1-BH-S	18	258.3	1.0189	1.0212	0.0023
S-M315-2-BH-S	19	186.8	1.0281	1.0292	0.0011
S-M315-4-BH-S	20	226.0	1.0291	1.0305	0.0014
S-M315-FB-BH-S	21	148.2	1.0197	1.0198	0.0001

See Note on page 17.

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APPENDIX G.2

PAH/SVOHAPS CASE NARRATIVE AND PAH DATA

Quanterra

.orporated
.de Parkway
.ramento, California 95605

373-5600 Telephone
16 372-1059 Fax

October 22, 1998
QUANTERRA INCORPORATED PROJECT NUMBER: **300681**
PO/CONTRACT: **104-98-0239**

Frank Phoenix
Pacific Environmental Services
5001 South Miami Boulevard
Suite 300
Research Triangle Park, NC 277092077

Dear Mr. Phoenix:

This report contains the analytical results for the eleven samples which were received under chain of custody by Quanterra Incorporated on 30 July 1998.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call.

Sincerely,

Robert Weidenfeld
Project Manager
Advanced Technology

RW/tw

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Polynuclear Aromatic Hydrocarbons - Method HRGC/HRMS 78-658
Sample(s): 1, 3-6, 8-11
- Method Blank Raw Data
- Sample Raw Data
- Laboratory Control Sample Data
- Initial Calibration
- Continuing Calibration
- Sample Extraction/Preparation Log Copies

Semivolatile Organics - Method 0010/8270 659-1794
Sample(s): 1 - 11
- Sample Raw Data
- Initial Calibration
- Continuing Calibration
- Method Blank Raw Data
- Laboratory/Duplicate Control Sample Data
- Sample Extraction/Preparation Log Copies
- Analysis Log Copies
- Instrument Tune

PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Sample Chain of Custody Record

PLANT: US EPA HOT MIX ASPHALT PLANT C	PROJECT NO.: R012.001
RECOVERY PERSON: D.D. Holzschuh	SAMPLERS: J. Rubio, D.D. Holzschuh

Sample Identification	Collection Date	Collection Time	Sample Name	Number of Containers	Analytical Request					Comments
S-MM5-1-F	7/24/98		Filter	1						
S-MM5-1-FH	7/24/98		Front Half/MeOH $MeCl_2$	1						
S-MM5-1-XAD	7/24/98		XAD Trap	1						
S-MM5-1-COND	7/24/98		Condensate and Rinses	1						
S-MM5-1-BH	7/24/98		Back Half Rinse	1						
T-MM5-1-F	7/24/98		Filter	1						
T-MM5-1-FH	7/24/98		Front Half/MeOH $MeCl_2$	1						
T-MM5-1-XAD	7/24/98		XAD Trap	1						
T-MM5-1-COND	7/24/98		Condensate and Rinses	1						
T-MM5-1-BH	7/24/98		Back Half Rinse	1						
S-MM5-2-F	7/25/98		Filter	1						
S-MM5-2-FH	7/25/98		Front Half/MeOH $MeCl_2$	1						
S-MM5-2-XAD	7/25/98		XAD Trap	1						
S-MM5-2-COND	7/25/98		Condensate and Rinses	1						
S-MM5-2-BH	7/25/98		Back Half Rinse	1						
S-MM5-1B-F	7/25/98		Filter	1						
S-MM5-1B-FH	7/25/98		Front Half/MeOH $MeCl_2$	1						
S-MM5-1B-XAD	7/25/98		XAD Trap	1						
S-MM5-1B-COND	7/25/98		Condensate and Rinses	1						
S-MM5-1B-BH	7/25/98		Back Half Rinse	1						
T-MM5-2-F	7/25/98		Filter	1						
T-MM5-2-FH	7/25/98		Front Half/MeOH $MeCl_2$	1						
T-MM5-2-XAD	7/25/98		XAD Trap	1						
T-MM5-2-COND	7/25/98		Condensate and Rinses	1						
T-MM5-2-BH	7/25/98		Back Half Rinse	1						
T-MM5-FB-F	7/25/98		Filter	1						
T-MM5-FB-FH	7/25/98		Front Half/MeOH $MeCl_2$	1						
T-MM5-FB-XAD	7/25/98		XAD Trap	1						
T-MM5-FB-COND	7/25/98		Condensate and Rinses	1						
T-MM5-FB-BH	7/25/98		Back Half Rinse	1						
T-MM5-4-F	7/26/98		Filter	1						

PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Sample Chain of Custody Record

PLANT: US EPA HOT MIX ASPHALT PLANT C
RECOVERY PERSON: D.D. Holzschuh

PROJECT NO.: R012.001
SAMPLERS: J. Rubio, D.D. Holzschuh

Sample Identification	Collection Date	Collection Time	Sample Name	Number of Containers	Analytical Request					Comments
T-MM5-4-FH	7/26/98		Front Half/MeOH $MeCl_2$	1						
T-MM5-4-XAD ✓	7/26/98		XAD Trap	1						
T-MM5-4-COND	7/26/98		Condensate and Rinses	1						
T-MM5-4-BH	7/26/98		Back Half Rinse	1						
T-MM5-3-F	7/27/98		Filter	1						
T-MM5-3-FH	7/27/98		Front Half/MeOH $MeCl_2$	1						
T-MM5-3-XAD ✓	7/27/98		XAD Trap	1						
T-MM5-3-COND	7/27/98		Condensate and Rinses	2 3						
T-MM5-3-BH	7/27/98		Back Half Rinse	1						
S-MM5-3-F	7/27/98		Filter	1						
S-MM5-3-FH	7/27/98		Front Half/MeOH $MeCl_2$	1						
S-MM5-3-XAD ✓	7/27/98		XAD Trap	1						
S-MM5-3-COND	7/27/98		Condensate and Rinses	1						
S-MM5-3-BH	7/27/98		Back Half Rinse	1						
S-MM5-FB-F	7/26/98		Filter	1						Field Blank
S-MM5-FB-FH	7/26/98		Front Half/MeOH $MeCl_2$	1						Field Blank
S-MM5-FB-XAD	7/26/98		XAD Trap	1						Field Blank
S-MM5-FB-COND	7/26/98		Condensate and Rinses	1						Field Blank
S-MM5-FB-BH	7/26/98		Back Half Rinse	1						Field Blank
S-MM5-RB-F	7/25/98		Filter	1						Reagent Blank
S-MM5-RB-FH	7/25/98		Front Half/MeOH $MeCl_2$	1						Reagent Blank
S-MM5-RB-XAD	7/25/98		XAD Trap	1						Reagent Blank
S-MM5-RB-COND	7/25/98		Condensate and Rinses	1						Reagent Blank
S-MM5-RB-BH	7/25/98		Back Half Rinse	1						Reagent Blank
S-MM5-4-F	7/28/98		Filter	1						
S-MM5-4-FH	7/28/98		Front Half/MeOH $MeCl_2$	1						
S-MM5-4-XAD ✓	7/28/98		XAD Trap	1						
S-MM5-4-COND	7/28/98		Condensate and Rinses	2 3						
S-MM5-4-BH	7/28/98		Back Half Rinse	1						
S-MM5-5-F	7/28/98		Filter	1						
S-MM5-5-FH	7/28/98		Front Half/MeOH $MeCl_2$	1						

CW

PACIFIC ENVIRONMENTAL SERVICES, INC.

Central Park West
5001 South Miami Boulevard, P.O. Box 12077
Research Triangle Park, North Carolina 27709-2077
(919) 941-0333 FAX: (919) 941-0234

Sample Chain of Custody Record

PLANT: US EPA HOT MIX ASPHALT PLANT C RECOVERY PERSON: D.D. Holzschuh	PROJECT NO.: R012.001 SAMPLERS: J. Rubio, D.D. Holzschuh

Sample Identification	Collection Date	Collection Time	Sample Name	Number of Containers	Analytical Request					Comments
S-MM5-5-XAD ✓	7/28/98		XAD Trap	1						
S-MM5-5-COND	7/28/98		Condensate and Rinses	~~2~~ 3						
S-MM5-5-BH	7/28/98		Back Half Rinse	1						

	Date	Time	
Relinquished by: Dennis Holzschuh	7/30/98	1150	Received by:
Relinquished by	073098	1150	Received for Lab by: MCDyer

Received in good condition.
MCD 073098

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CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 300681

All air train samples were split after extraction into three equal aliquots for analysis by 8270, PAH analysis by HRGC/HRMS, and archive.

Polynuclear Aromatic Hydrocarbons - Method HRGC/HRMS

Initial analysis of samples 300681-1, 2, 7, 10 and 11 (referenced in subsequent telephone conversations as 'Silo' samples) were significantly compromised by extensive matrix interferences, including retention-time shifts and co-eluting interferences, and saturated analyte levels. No usable data could be obtained from the initial analysis. Although matrix intereferences and some high analyte levels were also observed in samples 3, 4, 5, 6, 8, and 9 (referenced as 'Tunnel' samples) the impact was substantially less. Selected 'Silo' sample extracts (1, 10, and 11) were therefore diluted 1000X relative to the 'Tunnel' samples and reanalyzed. Since the originally spiked internal standards (IS) used for quantitation were diluted out, the IS were respiked at normal levels for calculation of target analyte levels. The adverse consequence of re-spiking the ISs into the final extract is the loss of the 'recovery correction' feature of the isotope dilution technique as well as information regarding the efficiency of sample extraction and cleanup. The net result is a potential low bias in the reported concentrations for samples 1, 10, and 11.

Some (IS) recoveries in multiple field samples are outside the method recovery goals of 50-150%, as noted on the data sheets. IS recoveries in laboratory QC aliquots are within these limits and the anomalous sample recoveries are attributed to matrix related interferences. For recoveries that are above the upper limit, quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated internal standard recoveries. For recoveries below the lower control limit, data quality is not considered affected if internal standard signal-to-noise is greater than 10:1, which is achieved for all internal standards in all samples.

Detectable concentrations of Naphthalene, 2-Methylnaphthalene, Acenaphthene, Fluorene, and Fluoranthene are reported in the Method Blank associated with these samples. These concentrations are consistent with levels routinely determined in XAD resin. Positives for these analytes in the associated samples are flagged with "B" qualifier and should be reviewed for significance

The concentration of several analytes in multiple samples exceeds the method calibration range, as indicated with an "E" footnote on the appropriate data sheets. The concentration of these analytes are within then linear response range of the detector and dilutions were not performed.

CASE NARRATIVE
Continued
QUANTERRA INCORPORATED PROJECT NUMBER 300681

Semivolatiles by Method 8270C

Sample Surrogate recoveries-Samples 300681-1, 2, 7, 10, and 11 all had severe matrix interferences that required dilutions. As a consequence, the surrogates spiked at the time of extraction, were diluted to the point where they could not be quantitated and are reported as ND. Samples300681-0003 and 0006 have a 2, 4, 6-Tribromophenol recovery that is slightly below the targeted limits. Re-injection of the sample extracts confirmed the original resuls which are reported.

QC Samples-Two procedures (Soxhlet and Seperatory funnel) were utilized in the extraction of these airtrains. Each procedure generated a method blank and DCS pair (duplicate control samples). The DCS and method blank associated with the Soxhlet extraction is labeled 31 JUL 98-16A and is part of the summary package. This set of QC is associated with the extraction of the XAD resin and filter. All of the surrogates associated with this QC set have recoveries within control limits. One of the DCS spike components (Pentachlorophenol) has an RPD of 12 which is slightly above the target limit of 10. The QC set associated with the aqueous samples is found only in the raw data. The method blank has two components with recoveries below targeted limits and the DCS has one surrogate recovery below limits. Re-injection of the QC sample extracts confirmed the original results.

J Values-Due to the difficulty of the matrix, samples 300681-0001,0010, and 0010 all required high dilutions which resulted in mostly non-detects for the analytes of interest. Per client request, the data aquired for these samples were re-processed and recalculated to include J values. This re-processing allowed the laboratory to report positives down to the method detection limit (MDL). Results reported in this manner are flagged with a "J" indicating that the result is reported below the reporting limit and should be considered an estimated concentration.

QUANTERRA INCORPORATED QUALITY CONTROL PROGRAM

Quanterra has implemented an extensive Quality Control (QC) program to ensure the production of scientifically sound, legally defensible data of known documentable quality. This QC program is based upon requirements in "Test Methods for Evaluating Solid Waste", USEPA SW-846, Third Edition. It applies whenever SW-846 analytical methods are used. It also applies in whole or in part whenever project requirements fail to specify some aspect of QC practices described here. It does not apply when other well defined QC programs (e.g. CLP or CLP-like) are specified. This is Quanterra's base QC program for environmental analysis.

Definitions:

Quality Control Batch. The quality control (QC) batch is a set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.

Surrogate. A surrogate (or internal standard) is an organic compound similar in chemical behavior to the target analyte, but not normally found in environmental samples. Surrogates (or IS) are added to all samples in a batch to monitor the effects of both the matrix and the analytical process on accuracy.

Method Blank. A method blank (MB) is a control sample prepared using the same reagents used for the samples. As part of the QC batch, it accompanies the samples through all steps of the sample extraction and cleanup procedure. The method blank is used to monitor the level of contamination introduced to a batch of samples as a result of processing in the laboratory.

Laboratory Control Sample. A laboratory control sample (LCS) is prepared using a well characterized matrix (e.g., reagent water or Ottawa sand) that is spiked with known amounts of representative analytes. Alternate matrices (e.g., glass beads) may be used for soil analyses when Ottawa sand is not appropriate. As part of a QC batch, it accompanies the samples through all steps of the sample extraction and cleanup process. The LCS is used to monitor the accuracy of the analytical process independent of possible interference effects due to sample matrix.

Duplicate Control Sample. A duplicate laboratory control sample (DCS) consists of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects.

SAMPLE DESCRIPTION INFORMATION
for
Pacific Environmental Services

Lab ID	Client ID	Matrix	Sampled Date	Sampled Time	Received Date
300681-0001-SA	S-MM5-2-F,FH,XAD,COND,BH	AIRTRAIN	25 JUL 98		30 JUL 98
300681-0001-MB	Method Blank	AIRTRAIN	25 JUL 98		30 JUL 98
300681-0002-SA	S-MM5-1B-F,FH,XAD,COND,BH	AIRTRAIN	25 JUL 98		30 JUL 98
300681-0003-SA	T-MM5-2-F,FH,XAD,COND,BH	AIRTRAIN	25 JUL 98		30 JUL 98
300681-0004-SA	T-MM5-FB-F,FH,XAD,COND,BH	AIRTRAIN	25 JUL 98		30 JUL 98
300681-0005-SA	T-MM5-4-F,FH,XAD,COND,BH	AIRTRAIN	26 JUL 98		30 JUL 98
300681-0006-SA	T-MM5-3-F,FH,XAD,COND,BH	AIRTRAIN	27 JUL 98		30 JUL 98
300681-0007-SA	S-MM5-3-F,FH,XAD,COND,BH	AIRTRAIN	27 JUL 98		30 JUL 98
300681-0008-SA	S-MM5-FB-F,FH,XAD,COND,BH	AIRTRAIN	26 JUL 98		30 JUL 98
300681-0009-SA	S-MM5-RB-F,FH,XAD,COND,BH	AIRTRAIN	25 JUL 98		30 JUL 98
300681-0010-SA	S-MM5-4-F,FH,XAD,COND,BH	AIRTRAIN	25 JUL 98		30 JUL 98
300681-0011-SA	S-MM5-5-F,FH,XAD,COND,BH	AIRTRAIN	28 JUL 98		30 JUL 98

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0001-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	3000	GR
bis(2-Chloroethyl)ether	ND	ug/Sample	3000	
2-Chlorophenol	ND	ug/Sample	3000	
1,3-Dichlorobenzene	ND	ug/Sample	3000	
1,4-Dichlorobenzene	ND	ug/Sample	3000	
Benzyl alcohol	ND	ug/Sample	3000	
1,2-Dichlorobenzene	ND	ug/Sample	3000	
2-Methylphenol	ND	ug/Sample	3000	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	3000	
3/4-Methylphenol	ND	ug/Sample	3000	
N-Nitroso-di-n-propylamine	ND	ug/Sample	3000	
Hexachloroethane	ND	ug/Sample	3000	
Nitrobenzene	ND	ug/Sample	3000	
Isophorone	ND	ug/Sample	3000	
2-Nitrophenol	ND	ug/Sample	3000	
2,4-Dimethylphenol	ND	ug/Sample	3000	
Benzoic acid	ND	ug/Sample	15000	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	3000	
2,4-Dichlorophenol	ND	ug/Sample	3000	
1,2,4-Trichlorobenzene	ND	ug/Sample	3000	
Naphthalene	1600	ug/Sample	3000	J
4-Chloroaniline	ND	ug/Sample	3000	
Hexachlorobutadiene	ND	ug/Sample	3000	
4-Chloro-3-methylphenol	ND	ug/Sample	3000	
2-Methylnaphthalene	3600	ug/Sample	3000	
Hexachlorocyclopentadiene	ND	ug/Sample	3000	
2,4,6-Trichlorophenol	ND	ug/Sample	3000	
2,4,5-Trichlorophenol	ND	ug/Sample	15000	
2-Chloronaphthalene	ND	ug/Sample	3000	
2-Nitroaniline	ND	ug/Sample	3000	
Dimethyl phthalate	ND	ug/Sample	3000	
Acenaphthylene	ND	ug/Sample	3000	
3-Nitroaniline	ND	ug/Sample	15000	
Acenaphthene	ND	ug/Sample	3000	
2,4-Dinitrophenol	ND	ug/Sample	15000	

Note G = Reporting limit(s) raised due to matrix interference.
Note J = Result is detected below the reporting limit or is an estimated concentration.
Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

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Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: S-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0001-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
4-Nitrophenol	ND	ug/Sample	15000	
Dibenzofuran	ND	ug/Sample	3000	
2,4-Dinitrotoluene	ND	ug/Sample	3000	
2,6-Dinitrotoluene	ND	ug/Sample	3000	
Diethyl phthalate	ND	ug/Sample	3000	
4-Chlorophenyl phenyl ether	ND	ug/Sample	3000	
Fluorene	ND	ug/Sample	3000	
4-Nitroaniline	ND	ug/Sample	15000	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	15000	
N-Nitrosodiphenylamine	ND	ug/Sample	3000	
4-Bromophenyl phenyl ether	ND	ug/Sample	3000	
Hexachlorobenzene	ND	ug/Sample	3000	
Pentachlorophenol	ND	ug/Sample	15000	
Phenanthrene	950	ug/Sample	3000	J
Anthracene	ND	ug/Sample	3000	
Di-n-butyl phthalate	ND	ug/Sample	3000	
Fluoranthene	ND	ug/Sample	3000	
Pyrene	ND	ug/Sample	3000	
Butyl benzyl phthalate	ND	ug/Sample	3000	
3,3'-Dichlorobenzidine	ND	ug/Sample	6000	
Benzo(a)anthracene	ND	ug/Sample	3000	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	3000	
Chrysene	ND	ug/Sample	3000	
Di-n-octyl phthalate	ND	ug/Sample	3000	
Benzo(b)fluoranthene	ND	ug/Sample	3000	
Benzo(k)fluoranthene	ND	ug/Sample	3000	
Benzo(a)pyrene	ND	ug/Sample	3000	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	3000	
Dibenz(a,h)anthracene	ND	ug/Sample	3000	
Benzo(g,h,i)perylene	ND	ug/Sample	3000	
Acetophenone	ND	ug/Sample	3000	
4-Aminobiphenyl	ND	ug/Sample	15000	
Aniline	ND	ug/Sample	3000	
Benzidine	ND	ug/Sample	30000	
3,3'-Dimethylbenzidine	ND	ug/Sample	6000	
N-Nitrosodimethylamine	ND	ug/Sample	3000	
N-Nitrosomorpholine	ND	ug/Sample	3000	

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

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The cover letter is an integral part of this report.
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Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0001-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	15000	
o-Toluidine	ND	ug/Sample	6000	
2-Methoxybenzenamine	ND	ug/Sample	--	
Biphenyl	ND	ug/Sample	--	
Chloroacetophenone	ND	ug/Sample	--	
Cumene	ND	ug/Sample	--	
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	
Benzo(e)pyrene	ND	ug/Sample	--	
N-N-Diethylaniline	ND	ug/Sample	--	
Dimethylaniline	ND	ug/Sample	--	
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	
Hydroquinone	ND	ug/Sample	--	
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	
4-Nitrodiphenyl	ND	ug/Sample	--	
Trifluralin	ND	ug/Sample	--	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	ND %	45 - 107
2-Fluorobiphenyl	ND %	62 - 110
Terphenyl-d14	ND %	58 - 135
Phenol-d5	ND %	43 - 130
2-Fluorophenol	ND %	36 - 111
2,4,6-Tribromophenol	ND %	58 - 131

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

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Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0001-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Result	Units	Reporting Limit	Qualifier
Unknown alkane	7900	ug/Sample	--	
Unknown	13000	ug/Sample	--	
Unknown PAH	15000	ug/Sample	--	
Unknown alkene	8900	ug/Sample	--	
Undecane	8600	ug/Sample	--	0
Unknown	8400	ug/Sample	--	
Dodecane, 2,6,10-trimethyl-	17000	ug/Sample	--	0
Tetradecane	22000	ug/Sample	--	0
Unknown alkene	12000	ug/Sample	--	
Heptadecane, 2,6,10,14 -tetramethyl-	18000	ug/Sample	--	0
Undecane, 2-methyl-	19000	ug/Sample	--	0
Unknown alkane	13000	ug/Sample	--	
Nonadecane	24000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	15000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	32000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	10000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	14000	ug/Sample	--	0
Nonadecane	7700	ug/Sample	--	0
Heptadecane, 2,6,10,14 -tetramethyl-	9700	ug/Sample	--	0
Nonadecane	7500	ug/Sample	--	0

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-1B-F,FH,XAD,COND,BH
LAB ID: 300681-0002-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	3000	RG
bis(2-Chloroethyl)ether	ND	ug/Sample	3000	
2-Chlorophenol	ND	ug/Sample	3000	
1,3-Dichlorobenzene	ND	ug/Sample	3000	
1,4-Dichlorobenzene	ND	ug/Sample	3000	
Benzyl alcohol	ND	ug/Sample	3000	
1,2-Dichlorobenzene	ND	ug/Sample	3000	
2-Methylphenol	ND	ug/Sample	3000	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	3000	
3/4-Methylphenol	ND	ug/Sample	3000	
N-Nitroso-di-n-propylamine	ND	ug/Sample	3000	
Hexachloroethane	ND	ug/Sample	3000	
Nitrobenzene	ND	ug/Sample	3000	
Isophorone	ND	ug/Sample	3000	
2-Nitrophenol	ND	ug/Sample	3000	
2,4-Dimethylphenol	ND	ug/Sample	3000	
Benzoic acid	ND	ug/Sample	15000	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	3000	
2,4-Dichlorophenol	ND	ug/Sample	3000	
1,2,4-Trichlorobenzene	ND	ug/Sample	3000	
Naphthalene	ND	ug/Sample	3000	
4-Chloroaniline	ND	ug/Sample	3000	
Hexachlorobutadiene	ND	ug/Sample	3000	
4-Chloro-3-methylphenol	ND	ug/Sample	3000	
2-Methylnaphthalene	4700	ug/Sample	3000	
Hexachlorocyclopentadiene	ND	ug/Sample	3000	
2,4,6-Trichlorophenol	ND	ug/Sample	3000	
2,4,5-Trichlorophenol	ND	ug/Sample	15000	
2-Chloronaphthalene	ND	ug/Sample	3000	
2-Nitroaniline	ND	ug/Sample	3000	
Dimethyl phthalate	ND	ug/Sample	3000	
Acenaphthylene	ND	ug/Sample	3000	
3-Nitroaniline	ND	ug/Sample	15000	
Acenaphthene	ND	ug/Sample	3000	
2,4-Dinitrophenol	ND	ug/Sample	15000	
4-Nitrophenol	ND	ug/Sample	15000	

Note G = Reporting limit(s) raised due to matrix interference.
Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

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Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-1B-F,FH,XAD,COND,BH
LAB ID: 300681-0002-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Dibenzofuran	ND	ug/Sample	3000	
2,4-Dinitrotoluene	ND	ug/Sample	3000	
2,6-Dinitrotoluene	ND	ug/Sample	3000	
Diethyl phthalate	ND	ug/Sample	3000	
4-Chlorophenyl phenyl ether	ND	ug/Sample	3000	
Fluorene	ND	ug/Sample	3000	
4-Nitroaniline	ND	ug/Sample	15000	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	15000	
N-Nitrosodiphenylamine	ND	ug/Sample	3000	
4-Bromophenyl phenyl ether	ND	ug/Sample	3000	
Hexachlorobenzene	ND	ug/Sample	3000	
Pentachlorophenol	ND	ug/Sample	15000	
Phenanthrene	ND	ug/Sample	3000	
Anthracene	ND	ug/Sample	3000	
Di-n-butyl phthalate	ND	ug/Sample	3000	
Fluoranthene	ND	ug/Sample	3000	
Pyrene	ND	ug/Sample	3000	
Butyl benzyl phthalate	ND	ug/Sample	3000	
3,3'-Dichlorobenzidine	ND	ug/Sample	6000	
Benzo(a)anthracene	ND	ug/Sample	3000	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	3000	
Chrysene	ND	ug/Sample	3000	
Di-n-octyl phthalate	ND	ug/Sample	3000	
Benzo(b)fluoranthene	ND	ug/Sample	3000	
Benzo(k)fluoranthene	ND	ug/Sample	3000	
Benzo(a)pyrene	ND	ug/Sample	3000	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	3000	
Dibenz(a,h)anthracene	ND	ug/Sample	3000	
Benzo(g,h,i)perylene	ND	ug/Sample	3000	
Acetophenone	ND	ug/Sample	3000	
4-Aminobiphenyl	ND	ug/Sample	15000	
Aniline	ND	ug/Sample	3000	
Benzidine	ND	ug/Sample	30000	
3,3'-Dimethylbenzidine	ND	ug/Sample	6000	
N-Nitrosodimethylamine	ND	ug/Sample	3000	
N-Nitrosomorpholine	ND	ug/Sample	3000	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	15000	
o-Toluidine	ND	ug/Sample	6000	

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

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Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-1B-F,FH,XAD,COND,BH
LAB ID: 300681-0002-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	
Biphenyl	ND	ug/Sample	--	
Chloroacetophenone	ND	ug/Sample	--	
Cumene	ND	ug/Sample	--	
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	
Benzo(e)pyrene	ND	ug/Sample	--	
N-N-Diethylaniline	ND	ug/Sample	--	
Dimethylaniline	ND	ug/Sample	--	
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	
Hydroquinone	ND	ug/Sample	--	
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	
4-Nitrodiphenyl	ND	ug/Sample	--	
Trifluralin	ND	ug/Sample	--	

Surrogate	Recovery	Acceptable Range	
Nitrobenzene-d5	ND %	45 - 107	H
2-Fluorobiphenyl	ND %	62 - 110	
Terphenyl-d14	ND %	58 - 135	
Phenol-d5	ND %	43 - 130	
2-Fluorophenol	ND %	36 - 111	
2,4,6-Tribromophenol	ND %	58 - 131	

Note H = Spiked analyte not detected because of required sample dilution.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-1B-F,FH,XAD,COND,BH
LAB ID: 300681-0002-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Result	Units	Reporting Limit	Qualifier
Unknown alkane	7800	ug/Sample	--	
Dodecane	7800	ug/Sample	--	0
Unknown	15000	ug/Sample	--	
Unknown hydrocarbon	17000	ug/Sample	--	
3-Hexadecene, (z)-	10000	ug/Sample	--	0
Undecane	11000	ug/Sample	--	0
Unknown alkane	20000	ug/Sample	--	
Unknown alkane	26000	ug/Sample	--	
Unknown	14000	ug/Sample	--	
Heptadecane, 2,6,10,14 -tetramethyl-	22000	ug/Sample	--	0
Dodecane, 3-methyl-	22000	ug/Sample	--	0
Unknown alkane	9900	ug/Sample	--	
Nonadecane	26000	ug/Sample	--	0
Nonadecane	18000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	40000	ug/Sample	--	0
Unknown alkane	12000	ug/Sample	--	
Nonadecane	17000	ug/Sample	--	0
Nonadecane	8100	ug/Sample	--	0
Nonadecane	9800	ug/Sample	--	0
Nonadecane	7800	ug/Sample	--	0

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0003-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	30	R
bis(2-Chloroethyl)ether	ND	ug/Sample	30	
2-Chlorophenol	ND	ug/Sample	30	
1,3-Dichlorobenzene	ND	ug/Sample	30	
1,4-Dichlorobenzene	ND	ug/Sample	30	
Benzyl alcohol	ND	ug/Sample	30	
1,2-Dichlorobenzene	ND	ug/Sample	30	
2-Methylphenol	ND	ug/Sample	30	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	30	
3/4-Methylphenol	ND	ug/Sample	30	
N-Nitroso-di-n-propylamine	ND	ug/Sample	30	
Hexachloroethane	ND	ug/Sample	30	
Nitrobenzene	ND	ug/Sample	30	
Isophorone	ND	ug/Sample	30	
2-Nitrophenol	ND	ug/Sample	30	
2,4-Dimethylphenol	ND	ug/Sample	30	
Benzoic acid	ND	ug/Sample	150	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	30	
2,4-Dichlorophenol	ND	ug/Sample	30	
1,2,4-Trichlorobenzene	ND	ug/Sample	30	
Naphthalene	ND	ug/Sample	30	
4-Chloroaniline	ND	ug/Sample	30	
Hexachlorobutadiene	ND	ug/Sample	30	
4-Chloro-3-methylphenol	ND	ug/Sample	30	
2-Methylnaphthalene	60	ug/Sample	30	
Hexachlorocyclopentadiene	ND	ug/Sample	30	
2,4,6-Trichlorophenol	ND	ug/Sample	30	
2,4,5-Trichlorophenol	ND	ug/Sample	150	
2-Chloronaphthalene	ND	ug/Sample	30	
2-Nitroaniline	ND	ug/Sample	30	
Dimethyl phthalate	ND	ug/Sample	30	
Acenaphthylene	ND	ug/Sample	30	
3-Nitroaniline	ND	ug/Sample	150	
Acenaphthene	ND	ug/Sample	30	
2,4-Dinitrophenol	ND	ug/Sample	150	
4-Nitrophenol	ND	ug/Sample	150	
Dibenzofuran	ND	ug/Sample	30	

Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0003-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2,4-Dinitrotoluene	ND	ug/Sample	30	
2,6-Dinitrotoluene	ND	ug/Sample	30	
Diethyl phthalate	ND	ug/Sample	30	
4-Chlorophenyl phenyl ether	ND	ug/Sample	30	
Fluorene	ND	ug/Sample	30	
4-Nitroaniline	ND	ug/Sample	150	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	150	
N-Nitrosodiphenylamine	ND	ug/Sample	30	
4-Bromophenyl phenyl ether	ND	ug/Sample	30	
Hexachlorobenzene	ND	ug/Sample	30	
Pentachlorophenol	ND	ug/Sample	150	
Phenanthrene	ND	ug/Sample	30	
Anthracene	ND	ug/Sample	30	
Di-n-butyl phthalate	ND	ug/Sample	30	
Fluoranthene	ND	ug/Sample	30	
Pyrene	ND	ug/Sample	30	
Butyl benzyl phthalate	ND	ug/Sample	30	
3,3'-Dichlorobenzidine	ND	ug/Sample	60	
Benzo(a)anthracene	ND	ug/Sample	30	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	30	
Chrysene	ND	ug/Sample	30	
Di-n-octyl phthalate	ND	ug/Sample	30	
Benzo(b)fluoranthene	ND	ug/Sample	30	
Benzo(k)fluoranthene	ND	ug/Sample	30	
Benzo(a)pyrene	ND	ug/Sample	30	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	30	
Dibenz(a,h)anthracene	ND	ug/Sample	30	
Benzo(g,h,i)perylene	ND	ug/Sample	30	
Acetophenone	ND	ug/Sample	30	
4-Aminobiphenyl	ND	ug/Sample	150	
Aniline	ND	ug/Sample	30	
Benzidine	ND	ug/Sample	300	
3,3'-Dimethylbenzidine	ND	ug/Sample	60	
N-Nitrosodimethylamine	ND	ug/Sample	30	
N-Nitrosomorpholine	ND	ug/Sample	30	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	150	
o-Toluidine	ND	ug/Sample	60	

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: T-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0003-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	K
Biphenyl	ND	ug/Sample	--	K
Chloroacetophenone	ND	ug/Sample	--	K
Cumene	ND	ug/Sample	--	K
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	K
Benzo(e)pyrene	ND	ug/Sample	--	K
N-N-Diethylaniline	ND	ug/Sample	--	K
Dimethylaniline	ND	ug/Sample	--	K
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	K
Hydroquinone	ND	ug/Sample	--	K
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	K
4-Nitrodiphenyl	ND	ug/Sample	--	K
Trifluralin	ND	ug/Sample	--	K

Surrogate	Recovery	Acceptable Range	
Nitrobenzene-d5	87 %	45 - 107	
2-Fluorobiphenyl	105 %	62 - 110	
Terphenyl-d14	78 %	58 - 135	
Phenol-d5	67 %	43 - 130	
2-Fluorophenol	62 %	36 - 111	
2,4,6-Tribromophenol	49 %	58 - 131	i

Note i = Surrogate recovery is outside of control limits.
Note K = Identified by mass spectrum only; quantitation based on 1:1 response with internal standard.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-2-F,FH,XAD,COND,BH
LAB ID: 300681-0003-SA
Matrix: AIRTRAIN
Authorized: 30 JUL 98

Sampled: 25 JUL 98
Prepared: NA

Received: 30 JUL 98
Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
4-Hydroxy-4-methyl-2-pentanone	450	ug/Sample	--	0
n-Nonane	370	ug/Sample	--	0
Unknown alkane	180	ug/Sample	--	
1H-Indene, 1-ethylidene-	240	ug/Sample	--	0
Undecane	180	ug/Sample	--	0
Heptadecane, 2,6,10,14 -tetramethyl-	220	ug/Sample	--	0
Unknown alkane	320	ug/Sample	--	
Unknown	200	ug/Sample	--	
Heptadecane, 2,6,10,14 -tetramethyl-	260	ug/Sample	--	0
Pentadecane	320	ug/Sample	--	0
Nonadecane	290	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	190	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	460	ug/Sample	--	0
Unknown alkane	160	ug/Sample	--	
Nonadecane	200	ug/Sample	--	0
Nonadecane	110	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	130	ug/Sample	--	0
Nonadecane	110	ug/Sample	--	0
3-Octadecene, (E)-	160	ug/Sample	--	0
Unknown	120	ug/Sample	--	

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer

Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-FB-F,FH,XAD,COND,BH
LAB ID: 300681-0004-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	30	R
bis(2-Chloroethyl)ether	ND	ug/Sample	30	
2-Chlorophenol	ND	ug/Sample	30	
1,3-Dichlorobenzene	ND	ug/Sample	30	
1,4-Dichlorobenzene	ND	ug/Sample	30	
Benzyl alcohol	ND	ug/Sample	30	
1,2-Dichlorobenzene	ND	ug/Sample	30	
2-Methylphenol	ND	ug/Sample	30	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	30	
3/4-Methylphenol	ND	ug/Sample	30	
N-Nitroso-di-n-propylamine	ND	ug/Sample	30	
Hexachloroethane	ND	ug/Sample	30	
Nitrobenzene	ND	ug/Sample	30	
Isophorone	ND	ug/Sample	30	
2-Nitrophenol	ND	ug/Sample	30	
2,4-Dimethylphenol	ND	ug/Sample	30	
Benzoic acid	ND	ug/Sample	150	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	30	
2,4-Dichlorophenol	ND	ug/Sample	30	
1,2,4-Trichlorobenzene	ND	ug/Sample	30	
Naphthalene	ND	ug/Sample	30	
4-Chloroaniline	ND	ug/Sample	30	
Hexachlorobutadiene	ND	ug/Sample	30	
4-Chloro-3-methylphenol	ND	ug/Sample	30	
2-Methylnaphthalene	ND	ug/Sample	30	
Hexachlorocyclopentadiene	ND	ug/Sample	30	
2,4,6-Trichlorophenol	ND	ug/Sample	30	
2,4,5-Trichlorophenol	ND	ug/Sample	150	
2-Chloronaphthalene	ND	ug/Sample	30	
2-Nitroaniline	ND	ug/Sample	30	
Dimethyl phthalate	ND	ug/Sample	30	
Acenaphthylene	ND	ug/Sample	30	
3-Nitroaniline	ND	ug/Sample	150	
Acenaphthene	ND	ug/Sample	30	
2,4-Dinitrophenol	ND	ug/Sample	150	
4-Nitrophenol	ND	ug/Sample	150	
Dibenzofuran	ND	ug/Sample	30	

Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
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Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-FB-F,FH,XAD,COND,BH
LAB ID: 300681-0004-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Qualifier
2,4-Dinitrotoluene	ND	ug/Sample	30
2,6-Dinitrotoluene	ND	ug/Sample	30
Diethyl phthalate	ND	ug/Sample	30
4-Chlorophenyl phenyl ether	ND	ug/Sample	30
Fluorene	ND	ug/Sample	30
4-Nitroaniline	ND	ug/Sample	150
4,6-Dinitro-2-methylphenol	ND	ug/Sample	150
N-Nitrosodiphenylamine	ND	ug/Sample	30
4-Bromophenyl phenyl ether	ND	ug/Sample	30
Hexachlorobenzene	ND	ug/Sample	30
Pentachlorophenol	ND	ug/Sample	150
Phenanthrene	ND	ug/Sample	30
Anthracene	ND	ug/Sample	30
Di-n-butyl phthalate	ND	ug/Sample	30
Fluoranthene	ND	ug/Sample	30
Pyrene	ND	ug/Sample	30
Butyl benzyl phthalate	ND	ug/Sample	30
3,3'-Dichlorobenzidine	ND	ug/Sample	60
Benzo(a)anthracene	ND	ug/Sample	30
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	30
Chrysene	ND	ug/Sample	30
Di-n-octyl phthalate	ND	ug/Sample	30
Benzo(b)fluoranthene	ND	ug/Sample	30
Benzo(k)fluoranthene	ND	ug/Sample	30
Benzo(a)pyrene	ND	ug/Sample	30
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	30
Dibenz(a,h)anthracene	ND	ug/Sample	30
Benzo(g,h,i)perylene	ND	ug/Sample	30
Acetophenone	ND	ug/Sample	30
4-Aminobiphenyl	ND	ug/Sample	150
Aniline	ND	ug/Sample	30
Benzidine	ND	ug/Sample	300
3,3'-Dimethylbenzidine	ND	ug/Sample	60
N-Nitrosodimethylamine	ND	ug/Sample	30
N-Nitrosomorpholine	ND	ug/Sample	30
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	150
o-Toluidine	ND	ug/Sample	60

ND = Not Detected

Reported By: Emily Jebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
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Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-FB-F,FH,XAD,COND,BH
LAB ID: 300681-0004-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	K
Biphenyl	ND	ug/Sample	--	K
Chloroacetophenone	ND	ug/Sample	--	K
Cumene	ND	ug/Sample	--	K
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	K
Benzo(e)pyrene	ND	ug/Sample	--	K
N-N-Diethylaniline	ND	ug/Sample	--	K
Dimethylaniline	ND	ug/Sample	--	K
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	K
Hydroquinone	ND	ug/Sample	--	K
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	K
4-Nitrodiphenyl	ND	ug/Sample	--	K
Trifluralin	ND	ug/Sample	--	K

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	60 %	45 - 107
2-Fluorobiphenyl	85 %	62 - 110
Terphenyl-d14	94 %	58 - 135
Phenol-d5	65 %	43 - 130
2-Fluorophenol	56 %	36 - 111
2,4,6-Tribromophenol	70 %	58 - 131

Note K = Identified by mass spectrum only; quantitation based on 1:1 response with internal standard.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
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(cont.)

Semivolatiles Library Search (20 Compound TID)
Method 8270

Pacific Environmental Services
T-MM5-FB-F,FH,XAD,COND,BH
300681-0004-SA
AIRTRAIN Sampled: 25 JUL 98 Received:
ed: 30 JUL 98 Prepared: NA Analyzed:

ion Factor: 1.0

Parameter	Result	Reporting	Qu
4-Hydroxy-4-methyl-2-pentanone	260	ug/Sample	
n-Nonane	260	ug/Sample	
Benzaldehyde	22	ug/Sample	
Unknown	23	ug/Sample	
Hexadecanoic acid	[illegible]	ug/Sample	
Unknown	[illegible]	ug/Sample	
Unknown	[illegible]	ug/Sample	
Unknown	[illegible]	ug/Sample	
Unknown	62	ug/Sample	
5-Eiconsene,(E) -	160	ug/Sample	
Unknown	55	ug/Sample	
Unknown	40	ug/Sample	
Unknown	20	ug/Sample	
Unknown	58	ug/Sample	
Unknown	73	ug/Sample	
Unknown alkene	75	ug/Sample	
Unknown	74	ug/Sample	
Unknown alkene	46	[illegible]	
Unknown	40	[illegible]	
Unknown	[illegible]	[illegible]	

Note 0 = Or structurally similar compound (is [illegible]
NA = Not Applicable

Reported By: Emily Uebelhoer [illegible]

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Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0005-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	30	R
bis(2-Chloroethyl)ether	ND	ug/Sample	30	
2-Chlorophenol	ND	ug/Sample	30	
1,3-Dichlorobenzene	ND	ug/Sample	30	
1,4-Dichlorobenzene	ND	ug/Sample	30	
Benzyl alcohol	ND	ug/Sample	30	
1,2-Dichlorobenzene	ND	ug/Sample	30	
2-Methylphenol	ND	ug/Sample	30	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	30	
3/4-Methylphenol	ND	ug/Sample	30	
N-Nitroso-di-n-propylamine	ND	ug/Sample	30	
Hexachloroethane	ND	ug/Sample	30	
Nitrobenzene	ND	ug/Sample	30	
Isophorone	ND	ug/Sample	30	
2-Nitrophenol	ND	ug/Sample	30	
2,4-Dimethylphenol	ND	ug/Sample	30	
Benzoic acid	ND	ug/Sample	150	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	30	
2,4-Dichlorophenol	ND	ug/Sample	30	
1,2,4-Trichlorobenzene	ND	ug/Sample	30	
Naphthalene	ND	ug/Sample	30	
4-Chloroaniline	ND	ug/Sample	30	
Hexachlorobutadiene	ND	ug/Sample	30	
4-Chloro-3-methylphenol	ND	ug/Sample	30	
2-Methylnaphthalene	ND	ug/Sample	30	
Hexachlorocyclopentadiene	ND	ug/Sample	30	
2,4,6-Trichlorophenol	ND	ug/Sample	30	
2,4,5-Trichlorophenol	ND	ug/Sample	150	
2-Chloronaphthalene	ND	ug/Sample	30	
2-Nitroaniline	ND	ug/Sample	30	
Dimethyl phthalate	ND	ug/Sample	30	
Acenaphthylene	ND	ug/Sample	30	
3-Nitroaniline	ND	ug/Sample	150	
Acenaphthene	ND	ug/Sample	30	
2,4-Dinitrophenol	ND	ug/Sample	150	
4-Nitrophenol	ND	ug/Sample	150	
Dibenzofuran	ND	ug/Sample	30	

Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
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Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: T-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0005-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2,4-Dinitrotoluene	ND	ug/Sample	30	
2,6-Dinitrotoluene	ND	ug/Sample	30	
Diethyl phthalate	ND	ug/Sample	30	
4-Chlorophenyl phenyl ether	ND	ug/Sample	30	
Fluorene	ND	ug/Sample	30	
4-Nitroaniline	ND	ug/Sample	150	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	150	
N-Nitrosodiphenylamine	ND	ug/Sample	30	
4-Bromophenyl phenyl ether	ND	ug/Sample	30	
Hexachlorobenzene	ND	ug/Sample	30	
Pentachlorophenol	ND	ug/Sample	150	
Phenanthrene	ND	ug/Sample	30	
Anthracene	ND	ug/Sample	30	
Di-n-butyl phthalate	ND	ug/Sample	30	
Fluoranthene	ND	ug/Sample	30	
Pyrene	ND	ug/Sample	30	
Butyl benzyl phthalate	ND	ug/Sample	30	
3,3'-Dichlorobenzidine	ND	ug/Sample	60	
Benzo(a)anthracene	ND	ug/Sample	30	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	30	
Chrysene	ND	ug/Sample	30	
Di-n-octyl phthalate	ND	ug/Sample	30	
Benzo(b)fluoranthene	ND	ug/Sample	30	
Benzo(k)fluoranthene	ND	ug/Sample	30	
Benzo(a)pyrene	ND	ug/Sample	30	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	30	
Dibenz(a,h)anthracene	ND	ug/Sample	30	
Benzo(g,h,i)perylene	ND	ug/Sample	30	
Acetophenone	ND	ug/Sample	30	
4-Aminobiphenyl	ND	ug/Sample	150	
Aniline	ND	ug/Sample	30	
Benzidine	ND	ug/Sample	300	
3,3'-Dimethylbenzidine	ND	ug/Sample	60	
N-Nitrosodimethylamine	ND	ug/Sample	30	
N-Nitrosomorpholine	ND	ug/Sample	30	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	150	
o-Toluidine	ND	ug/Sample	60	

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0005-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	K
Biphenyl	ND	ug/Sample	--	K
Chloroacetophenone	ND	ug/Sample	--	K
Cumene	ND	ug/Sample	--	K
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	K
Benzo(e)pyrene	ND	ug/Sample	--	K
N-N-Diethylaniline	ND	ug/Sample	--	K
Dimethylaniline	ND	ug/Sample	--	K
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	K
Hydroquinone	ND	ug/Sample	--	K
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	K
4-Nitrodiphenyl	ND	ug/Sample	--	K
Trifluralin	ND	ug/Sample	--	K

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	62 %	45 - 107
2-Fluorobiphenyl	86 %	62 - 110
Terphenyl-d14	110 %	58 - 135
Phenol-d5	61 %	43 - 130
2-Fluorophenol	54 %	36 - 111
2,4,6-Tribromophenol	65 %	58 - 131

Note K = Identified by mass spectrum only; quantitation based on 1:1 response with internal standard.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0005-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
Benzaldehyde	43	ug/Sample	--	0
Pentadecane	61	ug/Sample	--	0
Nonadecane	66	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	41	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	120	ug/Sample	--	0
Nonadecane	45	ug/Sample	--	0
Nonadecane	36	ug/Sample	--	0
Unknown	36	ug/Sample	--	
Unknown	97	ug/Sample	--	
Unknown	40	ug/Sample	--	
Tricosane	37	ug/Sample	--	0
4-Hydroxy-4-methyl-2-pentanone	320	ug/Sample	--	0
Unknown	63	ug/Sample	--	
Unknown	58	ug/Sample	--	
5-Eiconsene,(E) -	120	ug/Sample	--	0
Unknown	42	ug/Sample	--	
n-Nonane	350	ug/Sample	--	0
Unknown	63	ug/Sample	--	
3-Octadecene, (E)-	38	ug/Sample	--	0
Unknown	47	ug/Sample	--	

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
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Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0006-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	53	ug/Sample	30	R
bis(2-Chloroethyl)ether	ND	ug/Sample	30	
2-Chlorophenol	ND	ug/Sample	30	
1,3-Dichlorobenzene	ND	ug/Sample	30	
1,4-Dichlorobenzene	ND	ug/Sample	30	
Benzyl alcohol	ND	ug/Sample	30	
1,2-Dichlorobenzene	ND	ug/Sample	30	
2-Methylphenol	ND	ug/Sample	30	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	30	
3/4-Methylphenol	ND	ug/Sample	30	
N-Nitroso-di-n-propylamine	ND	ug/Sample	30	
Hexachloroethane	ND	ug/Sample	30	
Nitrobenzene	ND	ug/Sample	30	
Isophorone	ND	ug/Sample	30	
2-Nitrophenol	ND	ug/Sample	30	
2,4-Dimethylphenol	ND	ug/Sample	30	
Benzoic acid	ND	ug/Sample	150	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	30	
2,4-Dichlorophenol	ND	ug/Sample	30	
1,2,4-Trichlorobenzene	ND	ug/Sample	30	
Naphthalene	39	ug/Sample	30	
4-Chloroaniline	ND	ug/Sample	30	
Hexachlorobutadiene	ND	ug/Sample	30	
4-Chloro-3-methylphenol	ND	ug/Sample	30	
2-Methylnaphthalene	74	ug/Sample	30	
Hexachlorocyclopentadiene	ND	ug/Sample	30	
2,4,6-Trichlorophenol	ND	ug/Sample	30	
2,4,5-Trichlorophenol	ND	ug/Sample	150	
2-Chloronaphthalene	ND	ug/Sample	30	
2-Nitroaniline	ND	ug/Sample	30	
Dimethyl phthalate	ND	ug/Sample	30	
Acenaphthylene	ND	ug/Sample	30	
3-Nitroaniline	ND	ug/Sample	150	
Acenaphthene	ND	ug/Sample	30	
2,4-Dinitrophenol	ND	ug/Sample	150	
4-Nitrophenol	ND	ug/Sample	150	
Dibenzofuran	ND	ug/Sample	30	

Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
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Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: T-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0006-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2,4-Dinitrotoluene	ND	ug/Sample	30	
2,6-Dinitrotoluene	ND	ug/Sample	30	
Diethyl phthalate	ND	ug/Sample	30	
4-Chlorophenyl phenyl ether	ND	ug/Sample	30	
Fluorene	ND	ug/Sample	30	
4-Nitroaniline	ND	ug/Sample	150	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	150	
N-Nitrosodiphenylamine	ND	ug/Sample	30	
4-Bromophenyl phenyl ether	ND	ug/Sample	30	
Hexachlorobenzene	ND	ug/Sample	30	
Pentachlorophenol	ND	ug/Sample	150	
Phenanthrene	ND	ug/Sample	30	
Anthracene	ND	ug/Sample	30	
Di-n-butyl phthalate	ND	ug/Sample	30	
Fluoranthene	ND	ug/Sample	30	
Pyrene	ND	ug/Sample	30	
Butyl benzyl phthalate	ND	ug/Sample	30	
3,3'-Dichlorobenzidine	ND	ug/Sample	60	
Benzo(a)anthracene	ND	ug/Sample	30	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	30	
Chrysene	ND	ug/Sample	30	
Di-n-octyl phthalate	ND	ug/Sample	30	
Benzo(b)fluoranthene	ND	ug/Sample	30	
Benzo(k)fluoranthene	ND	ug/Sample	30	
Benzo(a)pyrene	ND	ug/Sample	30	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	30	
Dibenz(a,h)anthracene	ND	ug/Sample	30	
Benzo(g,h,i)perylene	ND	ug/Sample	30	
Acetophenone	ND	ug/Sample	30	
4-Aminobiphenyl	ND	ug/Sample	150	
Aniline	ND	ug/Sample	30	
Benzidine	ND	ug/Sample	300	
3,3'-Dimethylbenzidine	ND	ug/Sample	60	
N-Nitrosodimethylamine	ND	ug/Sample	30	
N-Nitrosomorpholine	ND	ug/Sample	30	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	150	
o-Toluidine	ND	ug/Sample	60	

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

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Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0006-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	K
Biphenyl	ND	ug/Sample	--	K
Chloroacetophenone	ND	ug/Sample	--	K
Cumene	ND	ug/Sample	--	K
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	K
Benzo(e)pyrene	ND	ug/Sample	--	K
N-N-Diethylaniline	ND	ug/Sample	--	K
Dimethylaniline	ND	ug/Sample	--	K
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	K
Hydroquinone	ND	ug/Sample	--	K
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	K
4-Nitrodiphenyl	ND	ug/Sample	--	K
Trifluralin	ND	ug/Sample	--	K

Surrogate	Recovery	Acceptable Range	
Nitrobenzene-d5	78 %	45 - 107	
2-Fluorobiphenyl	106 %	62 - 110	
Terphenyl-d14	80 %	58 - 135	
Phenol-d5	69 %	43 - 130	
2-Fluorophenol	71 %	36 - 111	
2,4,6-Tribromophenol	52 %	58 - 131	i

Note i = Surrogate recovery is outside of control limits.
Note K = Identified by mass spectrum only; quantitation based on 1:1 response with internal standard.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: T-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0006-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
n-Nonane	390	ug/Sample	--	0
Unknown	270	ug/Sample	--	
Undecane	180	ug/Sample	--	0
Dodecane	160	ug/Sample	--	0
Unknown alkane	240	ug/Sample	--	
1H-Indene, 1-ethylidene-	170	ug/Sample	--	0
Undecane,4,7-dimethyl-	240	ug/Sample	--	0
4-Hydroxy-4-methyl-2-pentanone	350	ug/Sample	--	0
Heptadecane, 2,6,10,14 -tetramethyl-	250	ug/Sample	--	0
Tetradecane	430	ug/Sample	--	0
Unknown aromatic hydrocarbon	230	ug/Sample	--	
Heptadecane, 2,6,10,14 -tetramethyl-	300	ug/Sample	--	0
Pentadecane	440	ug/Sample	--	
Nonadecane	400	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	230	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	520	ug/Sample	--	0
Nonadecane	170	ug/Sample	--	0
Nonadecane	180	ug/Sample	--	0
Nonadecane	150	ug/Sample	--	0
9-Eicosene (E)-	240	ug/Sample	--	0

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Karin Yee

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The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0007-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	3000	GR
bis(2-Chloroethyl)ether	ND	ug/Sample	3000	
2-Chlorophenol	ND	ug/Sample	3000	
1,3-Dichlorobenzene	ND	ug/Sample	3000	
1,4-Dichlorobenzene	ND	ug/Sample	3000	
Benzyl alcohol	ND	ug/Sample	3000	
1,2-Dichlorobenzene	ND	ug/Sample	3000	
2-Methylphenol	ND	ug/Sample	3000	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	3000	
3/4-Methylphenol	ND	ug/Sample	3000	
N-Nitroso-di-n-propylamine	ND	ug/Sample	3000	
Hexachloroethane	ND	ug/Sample	3000	
Nitrobenzene	ND	ug/Sample	3000	
Isophorone	ND	ug/Sample	3000	
2-Nitrophenol	ND	ug/Sample	3000	
2,4-Dimethylphenol	ND	ug/Sample	3000	
Benzoic acid	ND	ug/Sample	15000	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	3000	
2,4-Dichlorophenol	ND	ug/Sample	3000	
1,2,4-Trichlorobenzene	ND	ug/Sample	3000	
Naphthalene	3200	ug/Sample	3000	
4-Chloroaniline	ND	ug/Sample	3000	
Hexachlorobutadiene	ND	ug/Sample	3000	
4-Chloro-3-methylphenol	ND	ug/Sample	3000	
2-Methylnaphthalene	6300	ug/Sample	3000	
Hexachlorocyclopentadiene	ND	ug/Sample	3000	
2,4,6-Trichlorophenol	ND	ug/Sample	3000	
2,4,5-Trichlorophenol	ND	ug/Sample	15000	
2-Chloronaphthalene	ND	ug/Sample	3000	
2-Nitroaniline	ND	ug/Sample	3000	
Dimethyl phthalate	ND	ug/Sample	3000	
Acenaphthylene	ND	ug/Sample	3000	
3-Nitroaniline	ND	ug/Sample	15000	
Acenaphthene	ND	ug/Sample	3000	
2,4-Dinitrophenol	ND	ug/Sample	15000	
4-Nitrophenol	ND	ug/Sample	15000	

Note G = Reporting limit(s) raised due to matrix interference.
Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: S-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0007-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Dibenzofuran	ND	ug/Sample	3000	
2,4-Dinitrotoluene	ND	ug/Sample	3000	
2,6-Dinitrotoluene	ND	ug/Sample	3000	
Diethyl phthalate	ND	ug/Sample	3000	
4-Chlorophenyl phenyl ether	ND	ug/Sample	3000	
Fluorene	ND	ug/Sample	3000	
4-Nitroaniline	ND	ug/Sample	15000	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	15000	
N-Nitrosodiphenylamine	ND	ug/Sample	3000	
4-Bromophenyl phenyl ether	ND	ug/Sample	3000	
Hexachlorobenzene	ND	ug/Sample	3000	
Pentachlorophenol	ND	ug/Sample	15000	
Phenanthrene	ND	ug/Sample	3000	
Anthracene	ND	ug/Sample	3000	
Di-n-butyl phthalate	ND	ug/Sample	3000	
Fluoranthene	ND	ug/Sample	3000	
Pyrene	ND	ug/Sample	3000	
Butyl benzyl phthalate	ND	ug/Sample	3000	
3,3'-Dichlorobenzidine	ND	ug/Sample	6000	
Benzo(a)anthracene	ND	ug/Sample	3000	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	3000	
Chrysene	ND	ug/Sample	3000	
Di-n-octyl phthalate	ND	ug/Sample	3000	
Benzo(b)fluoranthene	ND	ug/Sample	3000	
Benzo(k)fluoranthene	ND	ug/Sample	3000	
Benzo(a)pyrene	ND	ug/Sample	3000	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	3000	
Dibenz(a,h)anthracene	ND	ug/Sample	3000	
Benzo(g,h,i)perylene	ND	ug/Sample	3000	
Acetophenone	ND	ug/Sample	3000	
4-Aminobiphenyl	ND	ug/Sample	15000	
Aniline	ND	ug/Sample	3000	
Benzidine	ND	ug/Sample	30000	
3,3'-Dimethylbenzidine	ND	ug/Sample	6000	
N-Nitrosodimethylamine	ND	ug/Sample	3000	
N-Nitrosomorpholine	ND	ug/Sample	3000	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	15000	
o-Toluidine	ND	ug/Sample	6000	

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

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Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0007-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	
Biphenyl	ND	ug/Sample	--	
Chloroacetophenone	ND	ug/Sample	--	
Cumene	ND	ug/Sample	--	
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	
Benzo(e)pyrene	ND	ug/Sample	--	
N-N-Diethylaniline	ND	ug/Sample	--	
Dimethylaniline	ND	ug/Sample	--	
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	
Hydroquinone	ND	ug/Sample	--	
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	
4-Nitrodiphenyl	ND	ug/Sample	--	
Trifluralin	ND	ug/Sample	--	

Surrogate	Recovery	Acceptable Range	
Nitrobenzene-d5	ND %	45 - 107	H
2-Fluorobiphenyl	ND %	62 - 110	
Terphenyl-d14	ND %	58 - 135	
Phenol-d5	ND %	43 - 130	
2-Fluorophenol	ND %	36 - 111	
2,4,6-Tribromophenol	ND %	58 - 131	

Note H = Spiked analyte not detected because of required sample dilution.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-3-F,FH,XAD,COND,BH
LAB ID: 300681-0007-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Result	Units	Reporting Limit	Qualifier
Undecane	10000	ug/Sample	--	0
Decane, 2,5,6-trimethyl-	12000	ug/Sample	--	0
Undecane, 2,6-dimethyl-	9900	ug/Sample	--	0
Unknown	11000	ug/Sample	--	
Heptadecane, 2,6-dimethyl-	19000	ug/Sample	--	0
Unknown	13000	ug/Sample	--	
Decane, 2,4-dimethyl	19000	ug/Sample	--	0
Unknown	9100	ug/Sample	--	
Unknown alkane	22000	ug/Sample	--	
Unknown alkane	36000	ug/Sample	--	
Naphthalene, 1,3-dimethyl-	16000	ug/Sample	--	0
Heptadecane, 2,6,10,14 -tetramethyl-	26000	ug/Sample	--	0
Dodecane, 3-methyl-	35000	ug/Sample	--	0
Unknown alkane	11000	ug/Sample	--	
Nonadecane	35000	ug/Sample	--	0
Nonadecane	22000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	46000	ug/Sample	--	0
Unknown alkane	14000	ug/Sample	--	
Nonadecane	17000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	10000	ug/Sample	--	0

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-FB-F,FH,XAD,COND,BH
LAB ID: 300681-0008-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	30	R
bis(2-Chloroethyl)ether	ND	ug/Sample	30	
2-Chlorophenol	ND	ug/Sample	30	
1,3-Dichlorobenzene	ND	ug/Sample	30	
1,4-Dichlorobenzene	ND	ug/Sample	30	
Benzyl alcohol	ND	ug/Sample	30	
1,2-Dichlorobenzene	ND	ug/Sample	30	
2-Methylphenol	ND	ug/Sample	30	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	30	
3/4-Methylphenol	ND	ug/Sample	30	
N-Nitroso-di-n-propylamine	ND	ug/Sample	30	
Hexachloroethane	ND	ug/Sample	30	
Nitrobenzene	ND	ug/Sample	30	
Isophorone	ND	ug/Sample	30	
2-Nitrophenol	ND	ug/Sample	30	
2,4-Dimethylphenol	ND	ug/Sample	30	
Benzoic acid	ND	ug/Sample	150	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	30	
2,4-Dichlorophenol	ND	ug/Sample	30	
1,2,4-Trichlorobenzene	ND	ug/Sample	30	
Naphthalene	ND	ug/Sample	30	
4-Chloroaniline	ND	ug/Sample	30	
Hexachlorobutadiene	ND	ug/Sample	30	
4-Chloro-3-methylphenol	ND	ug/Sample	30	
2-Methylnaphthalene	ND	ug/Sample	30	
Hexachlorocyclopentadiene	ND	ug/Sample	30	
2,4,6-Trichlorophenol	ND	ug/Sample	30	
2,4,5-Trichlorophenol	ND	ug/Sample	150	
2-Chloronaphthalene	ND	ug/Sample	30	
2-Nitroaniline	ND	ug/Sample	30	
Dimethyl phthalate	ND	ug/Sample	30	
Acenaphthylene	ND	ug/Sample	30	
3-Nitroaniline	ND	ug/Sample	150	
Acenaphthene	ND	ug/Sample	30	
2,4-Dinitrophenol	ND	ug/Sample	150	
4-Nitrophenol	ND	ug/Sample	150	
Dibenzofuran	ND	ug/Sample	30	

Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: S-MM5-FB-F,FH,XAD,COND,BH
LAB ID: 300681-0008-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2,4-Dinitrotoluene	ND	ug/Sample	30	
2,6-Dinitrotoluene	ND	ug/Sample	30	
Diethyl phthalate	ND	ug/Sample	30	
4-Chlorophenyl phenyl ether	ND	ug/Sample	30	
Fluorene	ND	ug/Sample	30	
4-Nitroaniline	ND	ug/Sample	150	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	150	
N-Nitrosodiphenylamine	ND	ug/Sample	30	
4-Bromophenyl phenyl ether	ND	ug/Sample	30	
Hexachlorobenzene	ND	ug/Sample	30	
Pentachlorophenol	ND	ug/Sample	150	
Phenanthrene	ND	ug/Sample	30	
Anthracene	ND	ug/Sample	30	
Di-n-butyl phthalate	ND	ug/Sample	30	
Fluoranthene	ND	ug/Sample	30	
Pyrene	ND	ug/Sample	30	
Butyl benzyl phthalate	ND	ug/Sample	30	
3,3'-Dichlorobenzidine	ND	ug/Sample	60	
Benzo(a)anthracene	ND	ug/Sample	30	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	30	
Chrysene	ND	ug/Sample	30	
Di-n-octyl phthalate	ND	ug/Sample	30	
Benzo(b)fluoranthene	ND	ug/Sample	30	
Benzo(k)fluoranthene	ND	ug/Sample	30	
Benzo(a)pyrene	ND	ug/Sample	30	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	30	
Dibenz(a,h)anthracene	ND	ug/Sample	30	
Benzo(g,h,i)perylene	ND	ug/Sample	30	
Acetophenone	ND	ug/Sample	30	
4-Aminobiphenyl	ND	ug/Sample	150	
Aniline	ND	ug/Sample	30	
Benzidine	ND	ug/Sample	300	
3,3'-Dimethylbenzidine	ND	ug/Sample	60	
N-Nitrosodimethylamine	ND	ug/Sample	30	
N-Nitrosomorpholine	ND	ug/Sample	30	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	150	
o-Toluidine	ND	ug/Sample	60	

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: S-MM5-FB-F,FH,XAD,COND,BH
LAB ID: 300681-0008-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	K
Biphenyl	ND	ug/Sample	--	K
Chloroacetophenone	ND	ug/Sample	--	K
Cumene	ND	ug/Sample	--	K
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	K
Benzo(e)pyrene	ND	ug/Sample	--	K
N-N-Diethylaniline	ND	ug/Sample	--	K
Dimethylaniline	ND	ug/Sample	--	K
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	K
Hydroquinone	ND	ug/Sample	--	K
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	K
4-Nitrodiphenyl	ND	ug/Sample	--	K
Trifluralin	ND	ug/Sample	--	K

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	58 %	45 - 107
2-Fluorobiphenyl	79 %	62 - 110
Terphenyl-d14	101 %	58 - 135
Phenol-d5	59 %	43 - 130
2-Fluorophenol	54 %	36 - 111
2,4,6-Tribromophenol	74 %	58 - 131

Note K = Identified by mass spectrum only; quantitation based on 1:1 response with internal standard.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-FB-F,FH,XAD,COND,BH
LAB ID: 300681-0008-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
n-Nonane	360	ug/Sample	--	0
Benzaldehyde	29	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	52	ug/Sample	--	0
4-Hydroxy-4-methyl-2-pentanone	380	ug/Sample	--	0
Hexadecanoic acid	33	ug/Sample	--	0
Unknown alkane	51	ug/Sample	--	
Tricosane	31	ug/Sample	--	0
Unknown alkane	30	ug/Sample	--	
Unknown	36	ug/Sample	--	
Unknown alkane	45	ug/Sample	--	
5-Eiconsene,(E) -	150	ug/Sample	--	0
Unknown	49	ug/Sample	--	
Unknown	34	ug/Sample	--	
Unknown alkane	26	ug/Sample	--	
Unknown	57	ug/Sample	--	
Unknown	77	ug/Sample	--	
Unknown	58	ug/Sample	--	
Unknown	42	ug/Sample	--	
Unknown alkene	30	ug/Sample	--	
Unknown	27	ug/Sample	--	

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-RB-F,FH,XAD,COND,BH
LAB ID: 300681-0009-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	30	R
bis(2-Chloroethyl)ether	ND	ug/Sample	30	
2-Chlorophenol	ND	ug/Sample	30	
1,3-Dichlorobenzene	ND	ug/Sample	30	
1,4-Dichlorobenzene	ND	ug/Sample	30	
Benzyl alcohol	ND	ug/Sample	30	
1,2-Dichlorobenzene	ND	ug/Sample	30	
2-Methylphenol	ND	ug/Sample	30	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	30	
3/4-Methylphenol	ND	ug/Sample	30	
N-Nitroso-di-n-propylamine	ND	ug/Sample	30	
Hexachloroethane	ND	ug/Sample	30	
Nitrobenzene	ND	ug/Sample	30	
Isophorone	ND	ug/Sample	30	
2-Nitrophenol	ND	ug/Sample	30	
2,4-Dimethylphenol	ND	ug/Sample	30	
Benzoic acid	ND	ug/Sample	150	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	30	
2,4-Dichlorophenol	ND	ug/Sample	30	
1,2,4-Trichlorobenzene	ND	ug/Sample	30	
Naphthalene	ND	ug/Sample	30	
4-Chloroaniline	ND	ug/Sample	30	
Hexachlorobutadiene	ND	ug/Sample	30	
4-Chloro-3-methylphenol	ND	ug/Sample	30	
2-Methylnaphthalene	ND	ug/Sample	30	
Hexachlorocyclopentadiene	ND	ug/Sample	30	
2,4,6-Trichlorophenol	ND	ug/Sample	30	
2,4,5-Trichlorophenol	ND	ug/Sample	150	
2-Chloronaphthalene	ND	ug/Sample	30	
2-Nitroaniline	ND	ug/Sample	30	
Dimethyl phthalate	ND	ug/Sample	30	
Acenaphthylene	ND	ug/Sample	30	
3-Nitroaniline	ND	ug/Sample	150	
Acenaphthene	ND	ug/Sample	30	
2,4-Dinitrophenol	ND	ug/Sample	150	
4-Nitrophenol	ND	ug/Sample	150	
Dibenzofuran	ND	ug/Sample	30	

Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-RB-F,FH,XAD,COND,BH
LAB ID: 300681-0009-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2,4-Dinitrotoluene	ND	ug/Sample	30	
2,6-Dinitrotoluene	ND	ug/Sample	30	
Diethyl phthalate	ND	ug/Sample	30	
4-Chlorophenyl phenyl ether	ND	ug/Sample	30	
Fluorene	ND	ug/Sample	30	
4-Nitroaniline	ND	ug/Sample	150	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	150	
N-Nitrosodiphenylamine	ND	ug/Sample	30	
4-Bromophenyl phenyl ether	ND	ug/Sample	30	
Hexachlorobenzene	ND	ug/Sample	30	
Pentachlorophenol	ND	ug/Sample	150	
Phenanthrene	ND	ug/Sample	30	
Anthracene	ND	ug/Sample	30	
Di-n-butyl phthalate	ND	ug/Sample	30	
Fluoranthene	ND	ug/Sample	30	
Pyrene	ND	ug/Sample	30	
Butyl benzyl phthalate	ND	ug/Sample	30	
3,3'-Dichlorobenzidine	ND	ug/Sample	60	
Benzo(a)anthracene	ND	ug/Sample	30	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	30	
Chrysene	ND	ug/Sample	30	
Di-n-octyl phthalate	ND	ug/Sample	30	
Benzo(b)fluoranthene	ND	ug/Sample	30	
Benzo(k)fluoranthene	ND	ug/Sample	30	
Benzo(a)pyrene	ND	ug/Sample	30	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	30	
Dibenz(a,h)anthracene	ND	ug/Sample	30	
Benzo(g,h,i)perylene	ND	ug/Sample	30	
Acetophenone	ND	ug/Sample	30	
4-Aminobiphenyl	ND	ug/Sample	150	
Aniline	ND	ug/Sample	30	
Benzidine	ND	ug/Sample	300	
3,3'-Dimethylbenzidine	ND	ug/Sample	60	
N-Nitrosodimethylamine	ND	ug/Sample	30	
N-Nitrosomorpholine	ND	ug/Sample	30	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	150	
o-Toluidine	ND	ug/Sample	60	

ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-RB-F,FH,XAD,COND,BH
LAB ID: 300681-0009-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
2-Methoxybenzenamine	ND	ug/Sample	--	K
Biphenyl	ND	ug/Sample	--	K
Chloroacetophenone	ND	ug/Sample	--	K
Cumene	ND	ug/Sample	--	K
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	K
Benzo(e)pyrene	ND	ug/Sample	--	K
N-N-Diethylaniline	ND	ug/Sample	--	K
Dimethylaniline	ND	ug/Sample	--	K
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	K
Hydroquinone	ND	ug/Sample	--	K
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	K
4-Nitrodiphenyl	ND	ug/Sample	--	K
Trifluralin	ND	ug/Sample	--	K

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	61 %	45 - 107
2-Fluorobiphenyl	86 %	62 - 110
Terphenyl-d14	97 %	58 - 135
Phenol-d5	67 %	43 - 130
2-Fluorophenol	62 %	36 - 111
2,4,6-Tribromophenol	84 %	58 - 131

Note K = Identified by mass spectrum only; quantitation based on 1:1 response with internal standard.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-RB-F,FH,XAD,COND,BH
LAB ID: 300681-0009-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
n-Nonane	400	ug/Sample	--	0
Unknown	51	ug/Sample	--	
Unknown	77	ug/Sample	--	
Unknown	71	ug/Sample	--	
Unknown	42	ug/Sample	--	
Unknown	63	ug/Sample	--	
Unknown	99	ug/Sample	--	
5-Eiconsene,(E) -	250	ug/Sample	--	0
Unknown	94	ug/Sample	--	
Unknown	63	ug/Sample	--	
Unknown alkane	27	ug/Sample	--	
Unknown	35	ug/Sample	--	
Unknown	140	ug/Sample	--	
4-Hydroxy-4-methyl-2-pentanone	270	ug/Sample	--	0
Unknown	110	ug/Sample	--	
Unknown	81	ug/Sample	--	
Unknown	26	ug/Sample	--	
9-Eicosene (E)-	57	ug/Sample	--	0
Unknown	61	ug/Sample	--	
Unknown	72	ug/Sample	--	

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Karin Yee

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0010-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	3000	GR
bis(2-Chloroethyl)ether	ND	ug/Sample	3000	
2-Chlorophenol	ND	ug/Sample	3000	
1,3-Dichlorobenzene	ND	ug/Sample	3000	
1,4-Dichlorobenzene	ND	ug/Sample	3000	
Benzyl alcohol	ND	ug/Sample	3000	
1,2-Dichlorobenzene	ND	ug/Sample	3000	
2-Methylphenol	ND	ug/Sample	3000	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	3000	
3/4-Methylphenol	ND	ug/Sample	3000	
N-Nitroso-di-n-propylamine	ND	ug/Sample	3000	
Hexachloroethane	ND	ug/Sample	3000	
Nitrobenzene	ND	ug/Sample	3000	
Isophorone	ND	ug/Sample	3000	
2-Nitrophenol	ND	ug/Sample	3000	
2,4-Dimethylphenol	ND	ug/Sample	3000	
Benzoic acid	ND	ug/Sample	15000	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	3000	
2,4-Dichlorophenol	ND	ug/Sample	3000	
1,2,4-Trichlorobenzene	ND	ug/Sample	3000	
Naphthalene	1500	ug/Sample	3000	J
4-Chloroaniline	ND	ug/Sample	3000	
Hexachlorobutadiene	ND	ug/Sample	3000	
4-Chloro-3-methylphenol	ND	ug/Sample	3000	
2-Methylnaphthalene	2300	ug/Sample	3000	J
Hexachlorocyclopentadiene	ND	ug/Sample	3000	
2,4,6-Trichlorophenol	ND	ug/Sample	3000	
2,4,5-Trichlorophenol	ND	ug/Sample	15000	
2-Chloronaphthalene	ND	ug/Sample	3000	
2-Nitroaniline	ND	ug/Sample	3000	
Dimethyl phthalate	ND	ug/Sample	3000	
Acenaphthylene	ND	ug/Sample	3000	
3-Nitroaniline	ND	ug/Sample	15000	
Acenaphthene	ND	ug/Sample	3000	
2,4-Dinitrophenol	ND	ug/Sample	15000	

Note G = Reporting limit(s) raised due to matrix interference.
Note J = Result is detected below the reporting limit or is an estimated concentration.
Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0010-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
4-Nitrophenol	ND	ug/Sample	15000	
Dibenzofuran	ND	ug/Sample	3000	
2,4-Dinitrotoluene	ND	ug/Sample	3000	
2,6-Dinitrotoluene	ND	ug/Sample	3000	
Diethyl phthalate	ND	ug/Sample	3000	
4-Chlorophenyl phenyl ether	ND	ug/Sample	3000	
Fluorene	ND	ug/Sample	3000	
4-Nitroaniline	ND	ug/Sample	15000	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	15000	
N-Nitrosodiphenylamine	ND	ug/Sample	3000	
4-Bromophenyl phenyl ether	ND	ug/Sample	3000	
Hexachlorobenzene	ND	ug/Sample	3000	
Pentachlorophenol	ND	ug/Sample	15000	
Phenanthrene	590	ug/Sample	3000	J
Anthracene	ND	ug/Sample	3000	
Di-n-butyl phthalate	ND	ug/Sample	3000	
Fluoranthene	ND	ug/Sample	3000	
Pyrene	ND	ug/Sample	3000	
Butyl benzyl phthalate	ND	ug/Sample	3000	
3,3'-Dichlorobenzidine	ND	ug/Sample	6000	
Benzo(a)anthracene	ND	ug/Sample	3000	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	3000	
Chrysene	ND	ug/Sample	3000	
Di-n-octyl phthalate	ND	ug/Sample	3000	
Benzo(b)fluoranthene	ND	ug/Sample	3000	
Benzo(k)fluoranthene	ND	ug/Sample	3000	
Benzo(a)pyrene	ND	ug/Sample	3000	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	3000	
Dibenz(a,h)anthracene	ND	ug/Sample	3000	
Benzo(g,h,i)perylene	ND	ug/Sample	3000	
Acetophenone	ND	ug/Sample	3000	
4-Aminobiphenyl	ND	ug/Sample	15000	
Aniline	ND	ug/Sample	3000	
Benzidine	ND	ug/Sample	30000	
3,3'-Dimethylbenzidine	ND	ug/Sample	6000	
N-Nitrosodimethylamine	ND	ug/Sample	3000	
N-Nitrosomorpholine	ND	ug/Sample	3000	

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

(cont.)

Client Name: Pacific Environmental Services
Client ID: S-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0010-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	15000	
o-Toluidine	ND	ug/Sample	6000	
2-Methoxybenzenamine	ND	ug/Sample	--	
Biphenyl	ND	ug/Sample	--	
Chloroacetophenone	ND	ug/Sample	--	
Cumene	ND	ug/Sample	--	
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	
Benzo(e)pyrene	ND	ug/Sample	--	
N-N-Diethylaniline	ND	ug/Sample	--	
Dimethylaniline	ND	ug/Sample	--	
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	
Hydroquinone	ND	ug/Sample	--	
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	
4-Nitrodiphenyl	ND	ug/Sample	--	
Trifluralin	ND	ug/Sample	--	

Surrogate	Recovery	Acceptable Range	
Nitrobenzene-d5	ND %	45 - 107	H
2-Fluorobiphenyl	ND %	62 - 110	
Terphenyl-d14	ND %	58 - 135	
Phenol-d5	ND %	43 - 130	
2-Fluorophenol	ND %	36 - 111	
2,4,6-Tribromophenol	ND %	58 - 131	

Note H = Spiked analyte not detected because of required sample dilution.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-4-F,FH,XAD,COND,BH
LAB ID: 300681-0010-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Result	Units	Reporting Limit	Qualifier
Undecane	7600	ug/Sample	--	0
Unknown	7500	ug/Sample	--	
Unknown alkane	7100	ug/Sample	--	
Decane, 2,5,9-Trimethyl-	6200	ug/Sample	--	0
Unknown	12000	ug/Sample	--	
Unknown alkane	12000	ug/Sample	--	
Unknown hydrocarbon	6900	ug/Sample	--	
Octane, 3,5-dimethyl-	9800	ug/Sample	--	0
Unknown	6400	ug/Sample	--	
Heptadecane, 2,6-dimethyl-	13000	ug/Sample	--	0
Tetradecane	18000	ug/Sample	--	0
Unknown	8600	ug/Sample	--	
Heptadecane, 2,6,10,14 -tetramethyl-	12000	ug/Sample	--	0
Pentadecane	14000	ug/Sample	--	0
Unknown	6400	ug/Sample	--	
Nonadecane	16000	ug/Sample	--	
Undecane, 2,6-dimethyl-	13000	ug/Sample	--	0
Heptadecane, 2,6-dimethyl-	28000	ug/Sample	--	0
Unknown alkane	7600	ug/Sample	--	
Heptadecane, 2,6-dimethyl-	9800	ug/Sample	--	0

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-5-F,FH,XAD,COND,BH
LAB ID: 300681-0011-SA
Matrix: AIRTRAIN Sampled: 28 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	3000	GR
bis(2-Chloroethyl)ether	ND	ug/Sample	3000	
2-Chlorophenol	ND	ug/Sample	3000	
1,3-Dichlorobenzene	ND	ug/Sample	3000	
1,4-Dichlorobenzene	ND	ug/Sample	3000	
Benzyl alcohol	ND	ug/Sample	3000	
1,2-Dichlorobenzene	ND	ug/Sample	3000	
2-Methylphenol	ND	ug/Sample	3000	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	3000	
3/4-Methylphenol	ND	ug/Sample	3000	
N-Nitroso-di-n-propylamine	ND	ug/Sample	3000	
Hexachloroethane	ND	ug/Sample	3000	
Nitrobenzene	ND	ug/Sample	3000	
Isophorone	ND	ug/Sample	3000	
2-Nitrophenol	ND	ug/Sample	3000	
2,4-Dimethylphenol	ND	ug/Sample	3000	
Benzoic acid	ND	ug/Sample	15000	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	3000	
2,4-Dichlorophenol	ND	ug/Sample	3000	
1,2,4-Trichlorobenzene	ND	ug/Sample	3000	
Naphthalene	2600	ug/Sample	3000	J
4-Chloroaniline	ND	ug/Sample	3000	
Hexachlorobutadiene	ND	ug/Sample	3000	
4-Chloro-3-methylphenol	ND	ug/Sample	3000	
2-Methylnaphthalene	4400	ug/Sample	3000	
Hexachlorocyclopentadiene	ND	ug/Sample	3000	
2,4,6-Trichlorophenol	ND	ug/Sample	3000	
2,4,5-Trichlorophenol	ND	ug/Sample	15000	
2-Chloronaphthalene	ND	ug/Sample	3000	
2-Nitroaniline	ND	ug/Sample	3000	
Dimethyl phthalate	ND	ug/Sample	3000	
Acenaphthylene	ND	ug/Sample	3000	
3-Nitroaniline	ND	ug/Sample	15000	
Acenaphthene	ND	ug/Sample	3000	
2,4-Dinitrophenol	ND	ug/Sample	15000	

Note G = Reporting limit(s) raised due to matrix interference.
Note J = Result is detected below the reporting limit or is an estimated concentration.
Note R = Reporting limit(s) raised due to sample volume limitations.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
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Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-5-F,FH,XAD,COND,BH
LAB ID: 300681-0011-SA
Matrix: AIRTRAIN Sampled: 28 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
4-Nitrophenol	ND	ug/Sample	15000	
Dibenzofuran	ND	ug/Sample	3000	
2,4-Dinitrotoluene	ND	ug/Sample	3000	
2,6-Dinitrotoluene	ND	ug/Sample	3000	
Diethyl phthalate	ND	ug/Sample	3000	
4-Chlorophenyl phenyl ether	ND	ug/Sample	3000	
Fluorene	560	ug/Sample	3000	J
4-Nitroaniline	ND	ug/Sample	15000	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	15000	
N-Nitrosodiphenylamine	ND	ug/Sample	3000	
4-Bromophenyl phenyl ether	ND	ug/Sample	3000	
Hexachlorobenzene	ND	ug/Sample	3000	
Pentachlorophenol	ND	ug/Sample	15000	
Phenanthrene	1200	ug/Sample	3000	J
Anthracene	ND	ug/Sample	3000	
Di-n-butyl phthalate	ND	ug/Sample	3000	
Fluoranthene	ND	ug/Sample	3000	
Pyrene	ND	ug/Sample	3000	
Butyl benzyl phthalate	ND	ug/Sample	3000	
3,3'-Dichlorobenzidine	ND	ug/Sample	6000	
Benzo(a)anthracene	ND	ug/Sample	3000	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	3000	
Chrysene	ND	ug/Sample	3000	
Di-n-octyl phthalate	ND	ug/Sample	3000	
Benzo(b)fluoranthene	ND	ug/Sample	3000	
Benzo(k)fluoranthene	ND	ug/Sample	3000	
Benzo(a)pyrene	ND	ug/Sample	3000	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	3000	
Dibenz(a,h)anthracene	ND	ug/Sample	3000	
Benzo(g,h,i)perylene	ND	ug/Sample	3000	
Acetophenone	ND	ug/Sample	3000	
4-Aminobiphenyl	ND	ug/Sample	15000	
Aniline	ND	ug/Sample	3000	
Benzidine	ND	ug/Sample	30000	
3,3'-Dimethylbenzidine	ND	ug/Sample	6000	
N-Nitrosodimethylamine	ND	ug/Sample	3000	
N-Nitrosomorpholine	ND	ug/Sample	3000	

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatile Organics (cont.)
Method 0010/8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-5-F,FH,XAD,COND,BH
LAB ID: 300681-0011-SA
Matrix: AIRTRAIN Sampled: 28 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Wet wt. Result	Units	Reporting Limit	Qualifier
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	15000	
o-Toluidine	ND	ug/Sample	6000	
2-Methoxybenzenamine	ND	ug/Sample	--	
Biphenyl	ND	ug/Sample	--	
Chloroacetophenone	ND	ug/Sample	--	
Cumene	ND	ug/Sample	--	
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	
Benzo(e)pyrene	ND	ug/Sample	--	
N-N-Diethylaniline	ND	ug/Sample	--	
Dimethylaniline	ND	ug/Sample	--	
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	
Hydroquinone	ND	ug/Sample	--	
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	
4-Nitrodiphenyl	ND	ug/Sample	--	
Trifluralin	ND	ug/Sample	--	

Surrogate	Recovery	Acceptable Range	
Nitrobenzene-d5	ND %	45 - 107	H
2-Fluorobiphenyl	ND %	62 - 110	
Terphenyl-d14	ND %	58 - 135	
Phenol-d5	ND %	43 - 130	
2-Fluorophenol	ND %	36 - 111	
2,4,6-Tribromophenol	ND %	58 - 131	

Note H = Spiked analyte not detected because of required sample dilution.
ND = Not Detected

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

Semivolatiles Library Search (20 Compound TID)
Method 8270

Client Name: Pacific Environmental Services
Client ID: S-MM5-5-F,FH,XAD,COND,BH
LAB ID: 300681-0011-SA
Matrix: AIRTRAIN Sampled: 28 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: NA Analyzed: 31 AUG 98

Dilution Factor: 100

Parameter	Result	Units	Reporting Limit	Qualifier
Unknown	11000	ug/Sample	--	
Unknown	13000	ug/Sample	--	
Decane. 2,9-dimethyl-	9200	ug/Sample	--	0
Undecane, 2,6-dimethyl-	9500	ug/Sample	--	0
Unknown	15000	ug/Sample	--	
Unknown alkane	20000	ug/Sample	--	
Unknown	12000	ug/Sample	--	
Unknown alkane	11000	ug/Sample	--	
Unknown	10000	ug/Sample	--	
Unknown	12000	ug/Sample	--	
Dodecane, 2,6,10-trimethyl-	19000	ug/Sample	--	0
Tetradecane	25000	ug/Sample	--	0
Unknown	15000	ug/Sample	--	
Heptadecane, 2,6,10,14 -tetramethyl-	22000	ug/Sample	--	0
Dodecane, 3-methyl-	25000	ug/Sample	--	0
Oxirane, hexadecyl-	13000	ug/Sample	--	0
Unknown alkane	27000	ug/Sample	--	
Unknown alkane	14000	ug/Sample	--	
Heptadecane, 2,6-dimethyl-	28000	ug/Sample	--	0
Nonadecane	11000	ug/Sample	--	0

Note 0 = Or structurally similar compound (isomer).
NA = Not Applicable

Reported By: Emily Uebelhoer Approved By: Mike Orbanosky

The cover letter is an integral part of this report.
Rev 230787

QC LOT ASSIGNMENT REPORT - MS QC
Semivolatile Organics by GC/MS

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (SCS/BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
300681-0003-SA	FILTER	8270-G	31 JUL 98-16A	31 JUL 98-16A	-
300681-0004-SA	FILTER	8270-G	31 JUL 98-16A	31 JUL 98-16A	-
300681-0005-SA	FILTER	8270-G	31 JUL 98-16A	31 JUL 98-16A	-
300681-0006-SA	FILTER	8270-G	31 JUL 98-16A	31 JUL 98-16A	-
300681-0008-SA	FILTER	8270-G	31 JUL 98-16A	31 JUL 98-16A	-
300681-0009-SA	FILTER	8270-G	31 JUL 98-16A	31 JUL 98-16A	-

METHOD BLANK REPORT
Semivolatile Organics by GC/MS
Project: 300681

Test: 8270-TCL-G Semivolatile Organics
Method: 0010/8270
Matrix: FILTER
QC Lot: 31 JUL 98-16A QC Run: 31 JUL 98-16A
Analyzed: 31 AUG 98 Time: 16:02

Analyte	Result	Units	Reporting Limit	Qualifier
Phenol	ND	ug/Sample	10	
bis(2-Chloroethyl)ether	ND	ug/Sample	10	
2-Chlorophenol	ND	ug/Sample	10	
1,3-Dichlorobenzene	ND	ug/Sample	10	
1,4-Dichlorobenzene	ND	ug/Sample	10	
Benzyl alcohol	ND	ug/Sample	10	
1,2-Dichlorobenzene	ND	ug/Sample	10	
2-Methylphenol	ND	ug/Sample	10	
2,2'-Oxybis(1-chloropropane)	ND	ug/Sample	10	
3/4-Methylphenol	ND	ug/Sample	10	
N-Nitroso-di-n-propylamine	ND	ug/Sample	10	
Hexachloroethane	ND	ug/Sample	10	
Nitrobenzene	ND	ug/Sample	10	
Isophorone	ND	ug/Sample	10	
2-Nitrophenol	ND	ug/Sample	10	
2,4-Dimethylphenol	ND	ug/Sample	10	
Benzoic acid	ND	ug/Sample	50	
bis(2-Chloroethoxy)-methane	ND	ug/Sample	10	
2,4-Dichlorophenol	ND	ug/Sample	10	
1,2,4-Trichlorobenzene	ND	ug/Sample	10	
Naphthalene	ND	ug/Sample	10	
4-Chloroaniline	ND	ug/Sample	10	
Hexachlorobutadiene	ND	ug/Sample	10	
4-Chloro-3-methylphenol	ND	ug/Sample	10	
2-Methylnaphthalene	ND	ug/Sample	10	
Hexachlorocyclopentadiene	ND	ug/Sample	10	
2,4,6-Trichlorophenol	ND	ug/Sample	10	
2,4,5-Trichlorophenol	ND	ug/Sample	50	
2-Chloronaphthalene	ND	ug/Sample	10	
2-Nitroaniline	ND	ug/Sample	10	
Dimethyl phthalate	ND	ug/Sample	10	
Acenaphthylene	ND	ug/Sample	10	
3-Nitroaniline	ND	ug/Sample	50	
Acenaphthene	ND	ug/Sample	10	
2,4-Dinitrophenol	ND	ug/Sample	50	
4-Nitrophenol	ND	ug/Sample	50	
Dibenzofuran	ND	ug/Sample	10	
2,4-Dinitrotoluene	ND	ug/Sample	10	
2,6-Dinitrotoluene	ND	ug/Sample	10	
Diethyl phthalate	ND	ug/Sample	10	
4-Chlorophenyl phenyl ether	ND	ug/Sample	10	
Fluorene	ND	ug/Sample	10	
4-Nitroaniline	ND	ug/Sample	50	
4,6-Dinitro-2-methylphenol	ND	ug/Sample	50	
N-Nitrosodiphenylamine	ND	ug/Sample	10	

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 300681

Test: 8270-TCL-G Semivolatile Organics
Method: 0010/8270
Matrix: FILTER
QC Lot: 31 JUL 98-16A QC Run: 31 JUL 98-16A
Analyzed: 31 AUG 98 Time: 16:02

Analyte	Result	Units	Reporting Limit	Qualifier
4-Bromophenyl phenyl ether	ND	ug/Sample	10	
Hexachlorobenzene	ND	ug/Sample	10	
Pentachlorophenol	ND	ug/Sample	50	
Phenanthrene	ND	ug/Sample	10	
Anthracene	ND	ug/Sample	10	
Di-n-butyl phthalate	ND	ug/Sample	10	
Fluoranthene	ND	ug/Sample	10	
Pyrene	ND	ug/Sample	10	
Butyl benzyl phthalate	ND	ug/Sample	10	
3,3'-Dichlorobenzidine	ND	ug/Sample	20	
Benzo(a)anthracene	ND	ug/Sample	10	
bis(2-Ethylhexyl)-phthalate	ND	ug/Sample	10	
Chrysene	ND	ug/Sample	10	
Di-n-octyl phthalate	ND	ug/Sample	10	
Benzo(b)fluoranthene	ND	ug/Sample	10	
Benzo(k)fluoranthene	ND	ug/Sample	10	
Benzo(a)pyrene	ND	ug/Sample	10	
Indeno(1,2,3-cd)pyrene	ND	ug/Sample	10	
Dibenz(a,h)anthracene	ND	ug/Sample	10	
Benzo(g,h,i)perylene	ND	ug/Sample	10	
Acetophenone	ND	ug/Sample	10	
4-Aminobiphenyl	ND	ug/Sample	50	
Aniline	ND	ug/Sample	10	
Benzidine	ND	ug/Sample	100	
3,3'-Dimethylbenzidine	ND	ug/Sample	20	
N-Nitrosodimethylamine	ND	ug/Sample	10	
N-Nitrosomorpholine	ND	ug/Sample	10	
Pentachloronitrobenzene (PCNB)	ND	ug/Sample	50	
o-Toluidine	ND	ug/Sample	20	
2-Methoxybenzenamine	ND	ug/Sample	--	
Biphenyl	ND	ug/Sample	--	
Chloroacetophenone	ND	ug/Sample	--	
Cumene	ND	ug/Sample	--	
DBCP (1,2-Dibromo-3-chloropropane)	ND	ug/Sample	--	
Benzo(e)pyrene	ND	ug/Sample	--	
N-N-Diethylaniline	ND	ug/Sample	--	
Dimethylaniline	ND	ug/Sample	--	
3,3'-Dimethoxybenzidine	ND	ug/Sample	--	
Hydroquinone	ND	ug/Sample	--	
4,4'-Methyl-bis(2-chloroaniline)	ND	ug/Sample	--	
4-Nitrodiphenyl	ND	ug/Sample	--	
Trifluralin	ND	ug/Sample	--	

ND = Not Detected

METHOD BLANK REPORT (cont.)
Semivolatile Organics by GC/MS
Project: 300681

Surrogate	% Recovery	Acceptable Range
Nitrobenzene-d5	86	45 -107
2-Fluorobiphenyl	102	62 -110
Terphenyl-d14	106	58 -135
Phenol-d5	85	43 -130
2-Fluorophenol	82	36 -111
2,4,6-Tribromophenol	94	58 -131

DUPLICATE CONTROL SAMPLE REPORT
Semivolatile Organics by GC/MS
Project: 300681

Category: 8270-G Acid, Base and Neutrals by GC/MS.
Testcode: 8270-TCL-G Method: 0010/8270
Matrix: FILTER Concentration Units: ug/sample
QC Lot: 31 JUL 98-16A Analyzed Date: 31 AUG 98 Time: 18:30

Analyte	Concentration Spiked	Measured DCS1	Measured DCS2	Accuracy (%) DCS1	Accuracy (%) DCS2	Limits	Precision (RPD) DCS	Limit	
Phenol	100	83.4	87.9	83	88	47-108	5.3	18	
2-Chlorophenol	100	83.7	87.9	84	88	47-113	4.9	20	
1,4-Dichlorobenzene	50.0	43.4	44.9	87	90	42-114	3.4	22	
N-Nitroso-di-n-propylamine	50.0	38.3	40.9	77	82	46-107	6.6	15	
1,2,4-Trichlorobenzene	50.0	43.1	45.9	86	92	45-118	6.3	16	
4-Chloro-3-methylphenol	100	78.6	85.8	79	86	55-118	8.8	13	
Acenaphthene	50.0	46.6	50.2	93	100	54-119	7.4	10	
4-Nitrophenol	100	78.8	89.6	79	90	43-166	13	17	
2,4-Dinitrotoluene	50.0	45.3	49.0	91	98	59-113	7.8	10	
Pentachlorophenol	100	83.4	93.6	83	94	59-128	12	10	*
Pyrene	50.0	48.0	50.7	96	101	45-140	5.5	11	

Surrogate	Concentration Spiked	Measured DCS1	Measured DCS2	Accuracy(%) DCS1	Accuracy(%) DCS2	Limits
Nitrobenzene-d5	50	40	40	79	79	45-107
2-Fluorobiphenyl	50	45	46	90	92	62-110
Terphenyl-d14	50	40	40	79	80	58-135
Phenol-d5	100	80	81	80	81	43-130
2-Fluorophenol	100	77	74	77	74	36-111
2,4,6-Tribromophenol	100	84	84	84	84	58-131

Note *: Outside of RPD limits.
Calculations are performed before rounding to avoid round-off errors in calculated results.

POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: Method Blank
Lab ID: 300681-0001-MB
Matrix: AIRTRAIN Sampled: NA Received: NA
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 20 AUG 98

Parameter	Result	Units	Reporting Limit
Naphthalene	280	ng/sample	--
2-Methylnaphthalene	120	ng/sample	--
Acenaphthylene	ND	ng/sample	6.6
Acenaphthene	43	ng/sample	--
Fluorene	43	ng/sample	--
Phenanthrene	82	ng/sample	--
Anthracene	ND	ng/sample	7.2
Fluoranthene	16	ng/sample	--
Pyrene	ND	ng/sample	8.6
Benzo(a)anthracene	ND	ng/sample	0.85
Chrysene	ND	ng/sample	1.4
Benzo(b)fluoranthene	ND	ng/sample	2.8
Benzo(k)fluoranthene	ND	ng/sample	2.2
Benzo(e)pyrene	ND	ng/sample	4.3
Benzo(a)pyrene	ND	ng/sample	3.2
Perylene	ND	ng/sample	2.5
Indeno(1,2,3-cd)pyrene	ND	ng/sample	5.5
Dibenz(a,h)anthracene	ND	ng/sample	3.1
Benzo(g,h,i)perylene	ND	ng/sample	3.7

Surrogate	Recovery	
Naphthalene-d8	86	%
Acenaphthylene-d8	62	%
Acenaphthene-d10	71	%
Fluorene-d10	77	%
Phenanthrene-d10	72	%
Fluoranthene-d10	82	%
Pyrene-d10	84	%
Benzo(a)anthracene-d12	77	%
Chrysene-d12	92	%
Benzo(b)fluoranthene-d12	92	%
Benzo(k)fluoranthene-d12	100	%
Benzo(a)pyrene-d12	80	%
Perylene-d12	87	%
Indeno(123-cd)pyrene-d12	92	%
Dibenz(a,h)anthracene-d14	84	%
Benzo(g,h,i)perylene-d12	98	%

Field Surrogate		
13C-Fluorene	96	%

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-2-F,FH,XAD,COND,BH
Lab ID: 300681-0001-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 06 OCT 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	800	ug/sample	15	
2-Methylnaphthalene	2800	ug/sample	15	
Acenaphthylene	ND	ug/sample	15	
Acenaphthene	190	ug/sample	15	
Fluorene	600	ug/sample	15	
Phenanthrene	970	ug/sample	15	
Anthracene	57	ug/sample	15	
Fluoranthene	55	ug/sample	15	
Pyrene	230	ug/sample	15	
Benzo(a)anthracene	17	ug/sample	15	
Chrysene	64	ug/sample	15	
Benzo(b)fluoranthene	ND	ug/sample	15	
Benzo(k)fluoranthene	ND	ug/sample	15	
Benzo(e)pyrene	ND	ug/sample	15	
Benzo(a)pyrene	ND	ug/sample	15	
Perylene	21	ug/sample	15	
Indeno(1,2,3-cd)pyrene	ND	ug/sample	15	
Dibenz(a,h)anthracene	ND	ug/sample	15	
Benzo(g,h,i)perylene	ND	ug/sample	15	
Surrogate	**Recovery**			
Naphthalene-d8	90	%		
Acenaphthylene-d8	140	%		
Acenaphthene-d10	127	%		
Fluorene-d10	96	%		
Phenanthrene-d10	102	%		
Fluoranthene-d10	34	%		m
Pyrene-d10	33	%		m
Benzo(a)anthracene-d12	38	%		m
Perylene-d12	98	%		
Indeno(123-cd)pyrene-d12	95	%		
Chrysene-d12	32	%		m
Benzo(b)fluoranthene-d12	128	%		
Benzo(k)fluoranthene-d12	101	%		
Benzo(a)pyrene-d12	98	%		
Dibenz(a,h)anthracene-d14	87	%		
Benzo(g,h,i)perylene-d12	86	%		

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ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Eric Redman

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-2-F,FH,XAD,COND,BH
Lab ID: 300681-0001-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 06 OCT 98

Field Surrogate

13C-Fluorene	NA	%

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Eric Redman

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-2-F,FH,XAD,COND,BH
Lab ID: 300681-0003-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 21 AUG 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	19000	ng/sample	--	EB
2-Methylnaphthalene	38000	ng/sample	--	EB
Acenaphthylene	470	ng/sample	--	
Acenaphthene	4500	ng/sample	--	EB
Fluorene	21000	ng/sample	--	EB
Phenanthrene	21000	ng/sample	--	EB
Anthracene	1700	ng/sample	--	E
Fluoranthene	1200	ng/sample	--	EB
Pyrene	3200	ng/sample	--	E
Benzo(a)anthracene	370	ng/sample	--	
Chrysene	2100	ng/sample	--	E
Benzo(b)fluoranthene	160	ng/sample	--	
Benzo(k)fluoranthene	47	ng/sample	--	
Benzo(e)pyrene	180	ng/sample	--	
Benzo(a)pyrene	48	ng/sample	--	
Perylene	530	ng/sample	--	
Indeno(1,2,3-cd)pyrene	20	ng/sample	--	
Dibenz(a,h)anthracene	16	ng/sample	--	
Benzo(g,h,i)perylene	44	ng/sample	--	

Surrogate	Recovery		
Naphthalene-d8	65	%	
Acenaphthylene-d8	73	%	
Acenaphthene-d10	56	%	
Fluorene-d10	42	%	m
Phenanthrene-d10	61	%	
Fluoranthene-d10	30	%	m
Pyrene-d10	30	%	m
Benzo(a)anthracene-d12	62	%	
Chrysene-d12	52	%	
Benzo(b)fluoranthene-d12	101	%	
Benzo(k)fluoranthene-d12	67	%	
Benzo(a)pyrene-d12	83	%	
Perylene-d12	62	%	
Indeno(123-cd)pyrene-d12	174	%	m
Dibenz(a,h)anthracene-d14	181	%	m
Benzo(g,h,i)perylene-d12	177	%	m

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ND = Not detected
NA = Not applicable

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-2-F,FH,XAD,COND,BH
Lab ID: 300681-0003-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 21 AUG 98

Field Surrogate

13C-Fluorene	134	%

Note E : Concentration exceeds calibration range. Value is estimated.

Note B : Compound is also detected in the blank.

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-FB-F,FH,XAD,COND,BH
Lab ID: 300681-0004-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 24 AUG 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	290	ng/sample	--	B
2-Methylnaphthalene	280	ng/sample	--	B
Acenaphthylene	ND	ng/sample	6.1	
Acenaphthene	60	ng/sample	--	B
Fluorene	160	ng/sample	--	B
Phenanthrene	320	ng/sample	--	B
Anthracene	ND	ng/sample	11	
Fluoranthene	42	ng/sample	--	B
Pyrene	40	ng/sample	--	
Benzo(a)anthracene	ND	ng/sample	3.7	
Chrysene	22	ng/sample	--	
Benzo(b)fluoranthene	ND	ng/sample	4.5	
Benzo(k)fluoranthene	ND	ng/sample	2.3	
Benzo(e)pyrene	ND	ng/sample	5.0	
Benzo(a)pyrene	ND	ng/sample	2.2	
Perylene	ND	ng/sample	3.8	
Indeno(1,2,3-cd)pyrene	ND	ng/sample	4.2	
Dibenz(a,h)anthracene	ND	ng/sample	2.9	
Benzo(g,h,i)perylene	ND	ng/sample	5.6	

Surrogate	Recovery		
Naphthalene-d8	54	%	
Acenaphthylene-d8	78	%	
Acenaphthene-d10	84	%	
Fluorene-d10	60	%	
Phenanthrene-d10	77	%	
Fluoranthene-d10	105	%	
Pyrene-d10	104	%	
Benzo(a)anthracene-d12	157	%	m
Chrysene-d12	145	%	
Benzo(b)fluoranthene-d12	104	%	
Benzo(k)fluoranthene-d12	105	%	
Benzo(a)pyrene-d12	85	%	
Perylene-d12	79	%	
Indeno(123-cd)pyrene-d12	107	%	
Dibenz(a,h)anthracene-d14	110	%	
Benzo(g,h,i)perylene-d12	108	%	

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ND = Not detected
NA = Not applicable

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-FB-F,FH,XAD,COND,BH
Lab ID: 300681-0004-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 24 AUG 98

Field Surrogate

13C-Fluorene	102	%

Note B : Compound is also detected in the blank.

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-4-F,FH,XAD,COND,BH
Lab ID: 300681-0005-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 24 AUG 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	1400	ng/sample	--	EB
2-Methylnaphthalene	2600	ng/sample	--	EB
Acenaphthylene	80	ng/sample	--	
Acenaphthene	550	ng/sample	--	EB
Fluorene	1600	ng/sample	--	EB
Phenanthrene	4000	ng/sample	--	EB
Anthracene	220	ng/sample	--	
Fluoranthene	300	ng/sample	--	B
Pyrene	600	ng/sample	--	E
Benzo(a)anthracene	15	ng/sample	--	
Chrysene	310	ng/sample	--	
Benzo(b)fluoranthene	18	ng/sample	--	
Benzo(k)fluoranthene	ND	ng/sample	4.8	
Benzo(e)pyrene	13	ng/sample	--	
Benzo(a)pyrene	ND	ng/sample	2.0	
Perylene	ND	ng/sample	3.4	
Indeno(1,2,3-cd)pyrene	ND	ng/sample	3.4	
Dibenz(a,h)anthracene	ND	ng/sample	3.3	
Benzo(g,h,i)perylene	7.5	ng/sample	--	

Surrogate	Recovery	
Naphthalene-d8	90	%
Acenaphthylene-d8	88	%
Acenaphthene-d10	86	%
Fluorene-d10	62	%
Phenanthrene-d10	74	%
Fluoranthene-d10	100	%
Pyrene-d10	98	%
Benzo(a)anthracene-d12	148	%
Chrysene-d12	130	%
Benzo(b)fluoranthene-d12	108	%
Benzo(k)fluoranthene-d12	94	%
Benzo(a)pyrene-d12	90	%
Perylene-d12	82	%
Indeno(123-cd)pyrene-d12	90	%
Dibenz(a,h)anthracene-d14	84	%
Benzo(g,h,i)perylene-d12	94	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-4-F,FH,XAD,COND,BH
Lab ID: 300681-0005-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 24 AUG 98

Field Surrogate

13C-Fluorene	104	%

Note E : Concentration exceeds calibration range. Value is estimated.

Note B : Compound is also detected in the blank.

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-3-F,FH,XAD,COND,BH
Lab ID: 300681-0006-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 25 AUG 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	24000	ng/sample	--	EB
2-Methylnaphthalene	47000	ng/sample	--	EB
Acenaphthylene	590	ng/sample	--	
Acenaphthene	5000	ng/sample	--	EB
Fluorene	9800	ng/sample	--	EB
Phenanthrene	13000	ng/sample	--	EB
Anthracene	1100	ng/sample	--	
Fluoranthene	930	ng/sample	--	EB
Pyrene	2700	ng/sample	--	E
Benzo(a)anthracene	310	ng/sample	--	
Chrysene	1900	ng/sample	--	E
Benzo(b)fluoranthene	130	ng/sample	--	
Benzo(k)fluoranthene	34	ng/sample	--	
Benzo(e)pyrene	120	ng/sample	--	
Benzo(a)pyrene	35	ng/sample	--	
Perylene	280	ng/sample	--	
Indeno(1,2,3-cd)pyrene	ND	ng/sample	11	
Dibenz(a,h)anthracene	ND	ng/sample	7.6	
Benzo(g,h,i)perylene	33	ng/sample	--	

Surrogate	Recovery		
Naphthalene-d8	25	%	m
Acenaphthylene-d8	57	%	
Acenaphthene-d10	40	%	m
Fluorene-d10	49	%	m
Phenanthrene-d10	61	%	
Fluoranthene-d10	96	%	
Pyrene-d10	80	%	
Benzo(a)anthracene-d12	121	%	
Chrysene-d12	103	%	
Benzo(b)fluoranthene-d12	97	%	
Benzo(k)fluoranthene-d12	89	%	
Benzo(a)pyrene-d12	73	%	
Perylene-d12	67	%	
Indeno(123-cd)pyrene-d12	95	%	
Dibenz(a,h)anthracene-d14	103	%	
Benzo(g,h,i)perylene-d12	92	%	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: T-MM5-3-F,FH,XAD,COND,BH
Lab ID: 300681-0006-SA
Matrix: AIRTRAIN Sampled: 27 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 25 AUG 98

Field Surrogate

13C-Fluorene	85	%

Note E : Concentration exceeds calibration range. Value is estimated.

Note B : Compound is also detected in the blank.

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-FB-F,FH,XAD,COND,BH
Lab ID: 300681-0008-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 25 AUG 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	410	ng/sample	--	B
2-Methylnaphthalene	490	ng/sample	--	B
Acenaphthylene	ND	ng/sample	11	
Acenaphthene	150	ng/sample	--	B
Fluorene	420	ng/sample	--	B
Phenanthrene	1600	ng/sample	--	B
Anthracene	100	ng/sample	--	
Fluoranthene	130	ng/sample	--	B
Pyrene	350	ng/sample	--	
Benzo(a)anthracene	53	ng/sample	--	
Chrysene	300	ng/sample	--	
Benzo(b)fluoranthene	26	ng/sample	--	
Benzo(k)fluoranthene	ND	ng/sample	4.5	
Benzo(e)pyrene	25	ng/sample	--	
Benzo(a)pyrene	ND	ng/sample	7.8	
Perylene	70	ng/sample	--	
Indeno(1,2,3-cd)pyrene	ND	ng/sample	6.0	
Dibenz(a,h)anthracene	ND	ng/sample	2.4	
Benzo(g,h,i)perylene	21	ng/sample	--	

Surrogate	Recovery		
Naphthalene-d8	61	%	
Acenaphthylene-d8	77	%	
Acenaphthene-d10	80	%	
Fluorene-d10	62	%	
Phenanthrene-d10	77	%	
Fluoranthene-d10	113	%	
Pyrene-d10	111	%	
Benzo(a)anthracene-d12	151	%	m
Chrysene-d12	125	%	
Benzo(b)fluoranthene-d12	106	%	
Benzo(k)fluoranthene-d12	101	%	
Benzo(a)pyrene-d12	93	%	
Perylene-d12	90	%	
Indeno(123-cd)pyrene-d12	118	%	
Dibenz(a,h)anthracene-d14	124	%	
Benzo(g,h,i)perylene-d12	115	%	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-FB-F,FH,XAD,COND,BH
Lab ID: 300681-0008-SA
Matrix: AIRTRAIN Sampled: 26 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 25 AUG 98

Field Surrogate

13C-Fluorene	94	%

Note B : Compound is also detected in the blank.

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-RB-F,FH,XAD,COND,BH
Lab ID: 300681-0009-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 25 AUG 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	270	ng/sample	--	B
2-Methylnaphthalene	140	ng/sample	--	B
Acenaphthylene	ND	ng/sample	6.1	
Acenaphthene	38	ng/sample	--	B
Fluorene	43	ng/sample	--	B
Phenanthrene	110	ng/sample	--	B
Anthracene	ND	ng/sample	7.9	
Fluoranthene	26	ng/sample	--	B
Pyrene	18	ng/sample	--	
Benzo(a)anthracene	ND	ng/sample	1.1	
Chrysene	ND	ng/sample	4.6	
Benzo(b)fluoranthene	ND	ng/sample	1.7	
Benzo(k)fluoranthene	ND	ng/sample	0.58	
Benzo(e)pyrene	ND	ng/sample	1.2	
Benzo(a)pyrene	ND	ng/sample	0.85	
Perylene	ND	ng/sample	1.1	
Indeno(1,2,3-cd)pyrene	ND	ng/sample	0.57	
Dibenz(a,h)anthracene	ND	ng/sample	0.31	
Benzo(g,h,i)perylene	ND	ng/sample	1.3	

Surrogate	Recovery	
Naphthalene-d8	59	%
Acenaphthylene-d8	71	%
Acenaphthene-d10	74	%
Fluorene-d10	63	%
Phenanthrene-d10	75	%
Fluoranthene-d10	86	%
Pyrene-d10	88	%
Benzo(a)anthracene-d12	139	%
Chrysene-d12	127	%
Benzo(b)fluoranthene-d12	105	%
Benzo(k)fluoranthene-d12	102	%
Benzo(a)pyrene-d12	93	%
Perylene-d12	90	%
Indeno(123-cd)pyrene-d12	121	%
Dibenz(a,h)anthracene-d14	120	%
Benzo(g,h,i)perylene-d12	119	%

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Andre Algazi

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-RB-F,FH,XAD,COND,BH
Lab ID: 300681-0009-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 25 AUG 98

Field Surrogate

13C-Fluorene	113	%

Note B : Compound is also detected in the blank.

ND = Not detected
NA = Not applicable

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-4-F,FH,XAD,COND,BH
Lab ID: 300681-0010-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 06 OCT 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	720	ug/sample	15	
2-Methylnaphthalene	2000	ug/sample	15	
Acenaphthylene	ND	ug/sample	15	
Acenaphthene	170	ug/sample	15	
Fluorene	340	ug/sample	15	
Phenanthrene	640	ug/sample	15	
Anthracene	56	ug/sample	15	
Fluoranthene	67	ug/sample	15	
Pyrene	170	ug/sample	15	
Benzo(a)anthracene	26	ug/sample	15	
Chrysene	97	ug/sample	15	
Benzo(b)fluoranthene	ND	ug/sample	15	
Benzo(k)fluoranthene	ND	ug/sample	15	
Benzo(e)pyrene	ND	ug/sample	15	
Benzo(a)pyrene	ND	ug/sample	15	
Perylene	ND	ug/sample	15	
Indeno(1,2,3-cd)pyrene	ND	ug/sample	15	
Dibenz(a,h)anthracene	ND	ug/sample	15	
Benzo(g,h,i)perylene	ND	ug/sample	15	

Surrogate	Recovery		
Naphthalene-d8	85	%	
Acenaphthylene-d8	121	%	
Acenaphthene-d10	113	%	
Fluorene-d10	92	%	
Phenanthrene-d10	98	%	
Fluoranthene-d10	49	%	m
Pyrene-d10	47	%	m
Benzo(a)anthracene-d12	52	%	
Perylene-d12	94	%	
Indeno(123-cd)pyrene-d12	85	%	
Chrysene-d12	44	%	m
Benzo(b)fluoranthene-d12	134	%	
Benzo(k)fluoranthene-d12	98	%	
Benzo(a)pyrene-d12	98	%	
Dibenz(a,h)anthracene-d14	80	%	
Benzo(g,h,i)perylene-d12	78	%	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Eric Redman

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-4-F,FH,XAD,COND,BH
Lab ID: 300681-0010-SA
Matrix: AIRTRAIN Sampled: 25 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 06 OCT 98

Field Surrogate

13C-Fluorene	NA	%

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Eric Redman

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-5-F,FH,XAD,COND,BH
Lab ID: 300681-0011-SA
Matrix: AIRTRAIN Sampled: 28 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 06 OCT 98

Parameter	Result	Units	Reporting Limit	
Naphthalene	1300	ug/sample	15	
2-Methylnaphthalene	3400	ug/sample	15	
Acenaphthylene	22	ug/sample	15	
Acenaphthene	370	ug/sample	15	
Fluorene	640	ug/sample	15	
Phenanthrene	1200	ug/sample	15	
Anthracene	94	ug/sample	15	
Fluoranthene	100	ug/sample	15	
Pyrene	290	ug/sample	15	
Benzo(a)anthracene	43	ug/sample	15	
Chrysene	160	ug/sample	15	
Benzo(b)fluoranthene	ND	ug/sample	15	
Benzo(k)fluoranthene	ND	ug/sample	15	
Benzo(e)pyrene	15	ug/sample	15	
Benzo(a)pyrene	ND	ug/sample	15	
Perylene	28	ug/sample	15	
Indeno(1,2,3-cd)pyrene	ND	ug/sample	15	
Dibenz(a,h)anthracene	ND	ug/sample	15	
Benzo(g,h,i)perylene	ND	ug/sample	15	

Surrogate	Recovery		
Naphthalene-d8	84	%	
Acenaphthylene-d8	122	%	
Acenaphthene-d10	108	%	
Fluorene-d10	88		
Phenanthrene-d10	93	%	
Fluoranthene-d10	50	%	
Pyrene-d10	48	%	m
Benzo(a)anthracene-d12	51	%	
Perylene-d12	94	%	
Indeno(123-cd)pyrene-d12	82	%	
Chrysene-d12	42	%	m
Benzo(b)fluoranthene-d12	125	%	
Benzo(k)fluoranthene-d12	96	%	
Benzo(a)pyrene-d12	95	%	
Dibenz(a,h)anthracene-d14	76	%	
Benzo(g,h,i)perylene-d12	73	%	

(continued on following page)

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Eric Redman

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POLYNUCLEAR AROMATIC HYDROCARBONS
HIGH RESOLUTION GC/MS (CONT.)
Method HRGC/HRMS

Client Name: Pacific Environmental Services
Client ID: S-MM5-5-F,FH,XAD,COND,BH
Lab ID: 300681-0011-SA
Matrix: AIRTRAIN Sampled: 28 JUL 98 Received: 30 JUL 98
Authorized: 30 JUL 98 Prepared: 31 JUL 98 Analyzed: 06 OCT 98

Field Surrogate

13C-Fluorene	NA	%

Note m : Internal Standard recovery is outside method recovery goal.

ND = Not detected
NA = Not applicable

Reported By: Mike Flournoy Approved By: Eric Redman

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Method Blank

Results : 20AU98U071.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U 300681-1MS :Method Blank Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMP	Rec/ MDL
d10-2-Methylnaphthalene	160610600	1.00	Y	11: 8	Y	1.00	50.00	
d8-Naphthalene	172466600	1.00	Y	8: 56	Y	1.25	43.10	86
Naphthalene	343308000	1.00	Y	9: 0	Y	1.05	283.71	
2-Methylnaphthalene	103999400	1.00	Y	11: 15	Y	0.77	117.47	
d8-Acenaphthylene	154601600	1.00	Y	14: 13	Y	1.55	31.05	62
Acenaphthylene	5844000	1.00	Y	14: 15	Y	0.86	6.57=DL	
d10-Acenaphthene	99425200	1.00	Y	14: 46	Y	0.88	35.28	71
Acenaphthene	26403400	1.00	Y	14: 52	Y	0.93	42.88	
d10-Anthracene	101642400	1.00	Y	19: 47	Y	1.00	50.00	
d10-Fluorene	88692000	1.00	Y	16: 28	Y	1.13	38.63	77
Fluorene	26730400	1.00	Y	16: 34	Y	1.05	43.10	
d10-Phenanthrene	193517000	1.00	Y	19: 37	Y	2.63	36.21	72
Phenanthrene	89206800	1.00	Y	19: 42	Y	0.84	82.19	
Anthracene	7740000	1.00	Y	19: 50	Y	0.83	7.24=DL	
d12-Benzo(e)pyrene	294980000	1.00	Y	32: 38	Y	1.00	50.00	
d10-Fluoranthene	193255000	1.00	Y	23: 32	Y	0.80	40.78	82
Fluoranthene	20916800	1.00	Y	23: 35	Y	1.04	25.62	
d10-Pyrene	201750000	1.00	Y	24: 14	Y	0.81	42.23	84
Pyrene	12764140	1.00	Y	24: 18	Y	1.11	8.58=DL	
d12-Benzo(a)anthracene	148246400	1.00	Y	28: 6	Y	0.65	38.64	77
Benzo(a)anthracene	888458	1.00	Y	28: 10	Y	1.06	0.85=DL	
d12-Chrysene	230106000	1.00	Y	28: 13	Y	0.85	45.98	92
Chrysene	2039180	1.00	Y	28: 18	Y	0.97	1.37=DL	
d12-Benzo(e)pyrene	294980000	1.00	Y	32: 38	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	169046000	1.00	Y	31: 39	Y	0.63	45.77	92
Benzo(b)fluoranthene	3413480	1.00	Y	31: 44	Y	1.07	2.84=DL	
d12-Benzo(k)fluoranthene	263266000	1.00	Y	31: 44	Y	0.90	49.80	100
Benzo(k)fluoranthene	4565960	1.00	Y	31: 49	Y	1.16	2.25=DL	
d12-Benzo(a)pyrene	178354000	1.00	Y	32: 51	Y	0.75	40.25	80
Benzo(e)pyrene	7488380	1.00	Y	32: 45	Y	1.46	4.31=DL	
Benzo(a)pyrene	3851580	1.00	Y	32: 57	Y	1.02	3.17=DL	
d12-Perylene	157592000	1.00	Y	33: 9	Y	0.61	43.47	87
Perylene	4200000	1.00	Y	33: 16	Y	1.62	2.47=DL	
d12-Indeno(123-cd)pyrene	192155200	1.00	Y	38: 0	Y	0.71	46.10	92
Indeno(123-cd)pyrene	4320000	1.00	Y	38: 9	Y	0.61	5.52=DL	
d14-Dibenz(ah)anthracene	109863200	1.00	Y	38: 1	Y	0.44	42.21	84
Dibenz(ah)anthracene	2523940	1.00	Y	38: 13	Y	1.11	3.10=DL	
d12-Benzo(ghi)perylene	182400000	1.00	Y	39: 19	N	0.63	49.05	98
Benzo(ghi)perylene	4460000	1.00	Y	39: 28	N	0.99	3.71=DL	
d8-Naphthalene	172466600	1.00	Y	8: 56	Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00	N	8: 60	N	1.00	0.00	0

mm/SMA 9-2-98

d10-Fluorene	88692000	1.00	Y	16: 28	Y	1.00	50.00	
13C-Fluorene	72085200	1.00	Y	16: 34	Y	~~0.81~~ 0.85	~~50.36~~ 47.99	~~101~~ 96

HX.TRG
-AUG-98 0.333
HX081998U.RRF

ng/ SAMP	Rec/ MDL		
50.00		80305300	80305300
43.10	86	86233300	86233300
283.77	0.000	171654000	171654000
117.47	0.000	51999700	51999700
31.05	62	77300800	77300800
6.57	0.000	2922000	2922000
35.28	71	49712600	49712600
42.88	0.000	13201700	13201700
50.00		50821200	50821200
38.63	77	44346000	44346000
43.10	0.000	13365200	13365200
36.21	72	96758500	96758500
82.19	0.000	44603400	44603400
7.24	0.000	3870000	3870000
50.00		147490000	147490000
40.78	82	96627500	96627500
15.62	0.000	10458400	10458400
42.23	84	100875000	100875000
8.58	0.000	6382070	6382070
38.64	77	74123200	74123200
0.85	0.000	444229	444229
45.98	92	115053000	115053000
1.37	0.000	1019590	1019590
50.00		147490000	147490000
45.77	92	84523000	84523000
2.84	0.000	1706740	1706740
49.80	100	131633000	131633000
2.25	0.000	2282980	2282980
40.25	80	89177000	89177000
4.31	0.000	3744190	3744190
3.17	0.000	1925790	1925790
43.47	87	78796000	78796000
2.47	0.000	2100000	2100000
46.10	92	96077600	96077600
5.52	0.000	2160000	2160000
42.21	84	54931600	54931600
3.10	0.000	1261970	1261970
49.05	98	91200000	91200000
3.71	0.000	2230000	2230000

01-SEP-1998 05:51:12 PM Dioxin Furan Unknown RESULTS

50.00		44346000	44346000
50.36	101	36042600	36042600

Mass Spec : ULTIMA Results : 20AU98U071.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U 300681-1MS :Method Blank Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMP	Rec/ MDL
d10-2-Methylnaphthalene	160610600	1.00 Y	11: 8 Y	1.00	50.00	
d8-Naphthalene	172466600	1.00 Y	8: 56 Y	1.25	43.10	86
Naphthalene	343308000	1.00 Y	9: 0 Y	1.05	283.77	0.000
2-Methylnaphthalene	103999400	1.00 Y	11: 15 Y	0.77	117.47	0.000
d8-Acenaphthylene	154601600	1.00 Y	14: 13 Y	1.55	31.05	62
Acenaphthylene	5844000	1.00 Y	14: 15 Y	0.86	6.57	0.000
d10-Acenaphthene	99425200	1.00 Y	14: 46 Y	0.88	35.28	71
Acenaphthene	26403400	1.00 Y	14: 52 Y	0.93	42.88	0.000
d10-Anthracene	101642400	1.00 Y	19: 47 Y	1.00	50.00	
d10-Fluorene	88692000	1.00 Y	16: 28 Y	1.13	38.63	77
Fluorene	26730400	1.00 Y	16: 34 Y	1.05	43.10	0.000
d10-Phenanthrene	193517000	1.00 Y	19: 37 Y	2.63	36.21	72
Phenanthrene	89206800	1.00 Y	19: 42 Y	0.84	82.19	0.000
Anthracene	* No Peak	0.00 N	19: 50 N	0.83	0.00	0.000
d12-Benzo(e)pyrene	294980000	1.00 Y	32: 38 Y	1.00	50.00	
d10-Fluoranthene	193255000	1.00 Y	23: 32 Y	0.80	40.78	82
Fluoranthene	20916800	1.00 Y	23: 35 Y	1.04	15.62	0.000
d10-Pyrene	201750000	1.00 Y	24: 14 Y	0.81	42.23	84
Pyrene	12764140	1.00 Y	24: 18 Y	1.11	8.58	0.000
d12-Benzo(a)anthracene	148246400	1.00 Y	28: 6 Y	0.65	38.64	77
Benzo(a)anthracene	888458	1.00 Y	28: 10 Y	1.06	0.85	0.000
d12-Chrysene	230106000	1.00 Y	28: 13 Y	0.85	45.98	92
Chrysene	2039180	1.00 Y	28: 18 Y	0.97	1.37	0.000
d12-Benzo(e)pyrene	294980000	1.00 Y	32: 38 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	169046000	1.00 Y	31: 39 Y	0.63	45.77	92
Benzo(b)fluoranthene	3413480	1.00 Y	31: 44 Y	1.07	2.84	0.000
d12-Benzo(k)fluoranthene	263266000	1.00 Y	31: 44 Y	0.90	49.80	100
Benzo(k)fluoranthene	4565960	1.00 Y	31: 49 Y	1.16	2.25	0.000
d12-Benzo(a)pyrene	178354000	1.00 Y	32: 51 Y	0.75	40.25	80
Benzo(e)pyrene	7488380	1.00 Y	32: 45 Y	1.46	4.31	0.000
Benzo(a)pyrene	3851580	1.00 Y	32: 57 Y	1.02	3.17	0.000
d12-Perylene	157592000	1.00 Y	33: 9 Y	0.61	43.47	87
Perylene	3314100	1.00 Y	33: 16 Y	1.62	1.95	0.000
d12-Indeno(123-cd)pyrene	192155200	1.00 Y	38: 0 Y	0.71	46.10	92
Indeno(123-cd)pyrene	* No Peak	0.00 N	38: 2 N	0.61	0.00	0.000
d14-Dibenz(ah)anthracene	109863200	1.00 Y	38: 1 Y	0.44	42.21	84
Dibenz(ah)anthracene	2523940	1.00 Y	38: 13 Y	1.11	3.10	0.000
d12-Benzo(ghi)perylene	* No Peak	0.00 N	39: 19 N	0.63	0.00	0
Benzo(ghi)perylene	* No Peak	0.00 N	39: 28 N	0.99	*NoINOIS	
d8-Naphthalene	172466600	1.00 Y	8: 56 Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00 N	8: 60 N	1.00	0.00	0

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24-AUG-1998 01:05:53 PM PAH Unknown RESULTS

d10-Fluorene	88692000	1.00	Y	16: 28	Y	1.00	50.00	
13C-Fluorene	72085200	1.00	Y	16: 34	Y	0.81	50.36	101

Mass Spec : ULTIMA Results : 20AU98U071.RES : PAHPRESPIKED.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U 300681-1MS :Method Blank Ex Cal : PAHAIR081998U.RR
Weight : 0.333

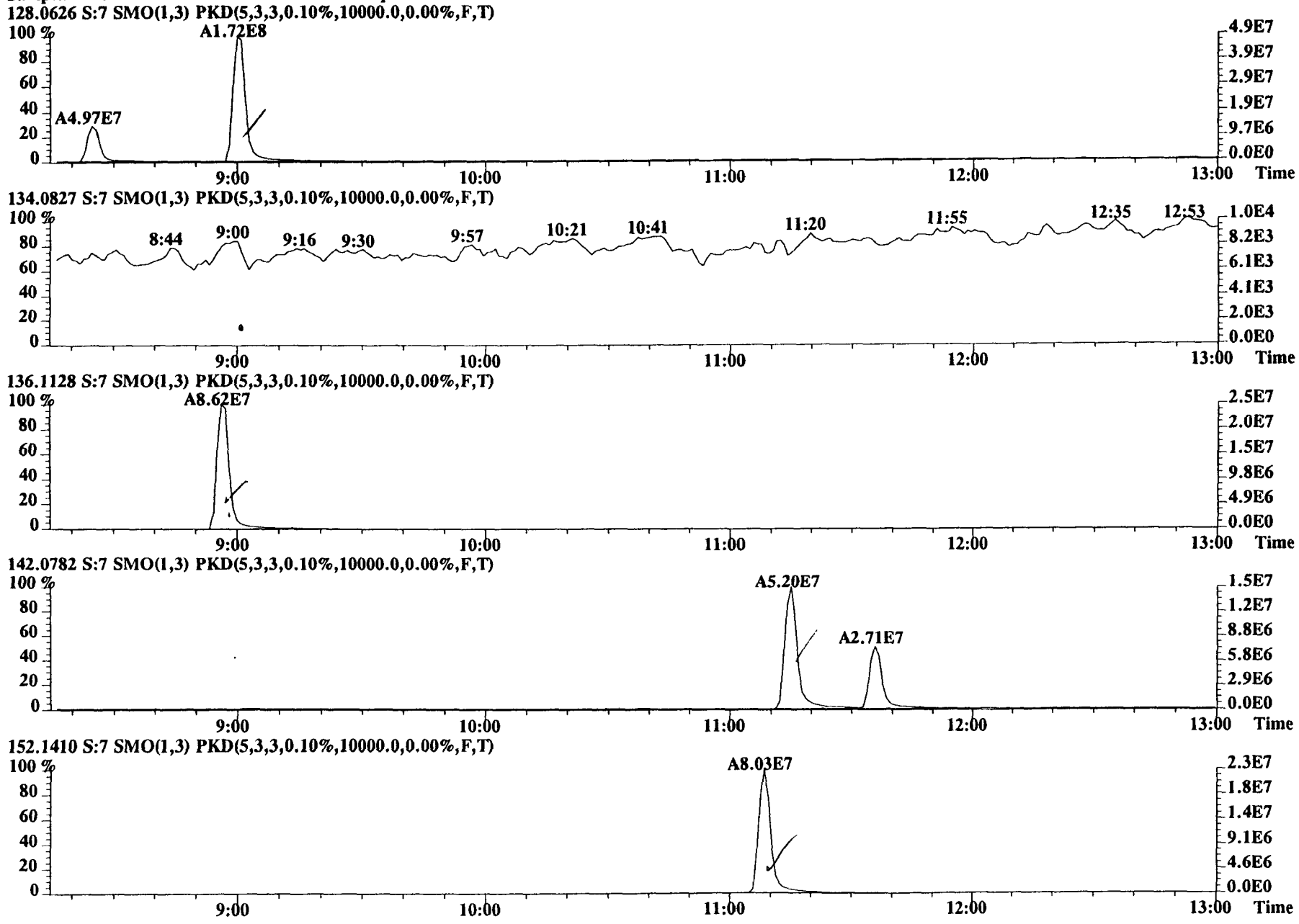
Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMP	Rec/ MDL
d10-2-Methylnaphthalene	160610600	1.00	Y	11: 8	Y	1.00	50.00	
d8-Naphthalene	172466600	1.00	Y	8: 56	Y	1.25	43.10	86
Naphthalene	343308000	1.00	Y	9: 0	Y	1.05	283.77	0.000
2-Methylnaphthalene	103999400	1.00	Y	11: 15	Y	0.77	117.47	0.000
d8-Acenaphthylene	154601600	1.00	Y	14: 13	Y	1.55	31.05	62
Acenaphthylene	5844000	1.00	Y	14: 15	Y	0.86	6.57	0.000
d10-Acenaphthene	99425200	1.00	Y	14: 46	Y	0.88	35.28	71
Acenaphthene	26403400	1.00	Y	14: 52	Y	0.93	42.88	0.000
d10-Anthracene	101642400	1.00	Y	19: 47	Y	1.00	50.00	
d10-Fluorene	88692000	1.00	Y	16: 28	Y	1.13	38.63	77
Fluorene	26730400	1.00	Y	16: 34	Y	1.05	43.10	0.000
d10-Phenanthrene	193517000	1.00	Y	19: 37	Y	2.63	36.21	72
Phenanthrene	89206800	1.00	Y	19: 42	Y	0.84	82.19	0.000
Anthracene	* No Peak	0.00	N	19: 51	N	0.83	0.00	0.000
d14-Terphenyl	214170000	1.00	Y	24: 53	Y	1.00	50.00	
d10-Fluoranthene	193255000	1.00	Y	23: 32	Y	1.01	44.83	90
Fluoranthene	20916800	1.00	Y	23: 35	Y	1.04	15.62	0.000
d10-Pyrene	201750000	1.00	Y	24: 14	Y	1.01	46.54	93
Pyrene	12764140	1.00	Y	24: 18	Y	1.11	8.58	0.000
d12-Benzo(a)anthracene	148246400	1.00	Y	28: 6	Y	0.82	42.46	85
Benzo(a)anthracene	888458	1.00	Y	28: 10	Y	1.06	0.85	0.000
d12-Chrysene	230106000	1.00	Y	28: 13	Y	1.06	50.47	101
Chrysene	2039180	1.00	Y	28: 18	Y	0.97	1.37	0.000
d12-Benzo(e)pyrene	294980000	1.00	Y	32: 38	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	169046000	1.00	Y	31: 39	Y	0.63	45.77	92
Benzo(b)fluoranthene	3413480	1.00	Y	31: 44	Y	1.07	2.84	0.000
d12-Benzo(k)fluoranthene	263266000	1.00	Y	31: 44	Y	0.90	49.80	100
Benzo(k)fluoranthene	4565960	1.00	Y	31: 49	Y	1.16	2.25	0.000
d12-Benzo(a)pyrene	178354000	1.00	Y	32: 51	Y	0.75	40.25	80
Benzo(e)pyrene	7488380	1.00	Y	32: 45	Y	1.46	4.31	0.000
Benzo(a)pyrene	3851580	1.00	Y	32: 57	Y	1.02	3.17	0.000
d12-Perylene	157592000	1.00	Y	33: 9	Y	0.61	43.47	87
Perylene	3314100	1.00	Y	33: 16	Y	1.62	1.95	0.000
d12-Indeno(123-cd)pyrene	192155200	1.00	Y	38: 0	Y	0.71	46.10	92
Indeno(123-cd)pyrene	4324000	1.00	Y	38: 9	Y	0.61	5.53	0.000
d14-Dibenz(ah)anthracene	109863200	1.00	Y	38: 1	Y	0.44	42.21	84
Dibenz(ah)anthracene	2523940	1.00	Y	38: 13	Y	1.11	3.10	0.000
d12-Benzo(ghi)perylene	182477600	1.00	Y	39: 24	Y	0.63	49.07	98
Benzo(ghi)perylene	4459200	1.00	Y	39: 35	Y	0.99	3.70	0.000
d8-Naphthalene	172466600	1.00	Y	8: 56	Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00	N	8: 60	N	1.00	0.00	0

85

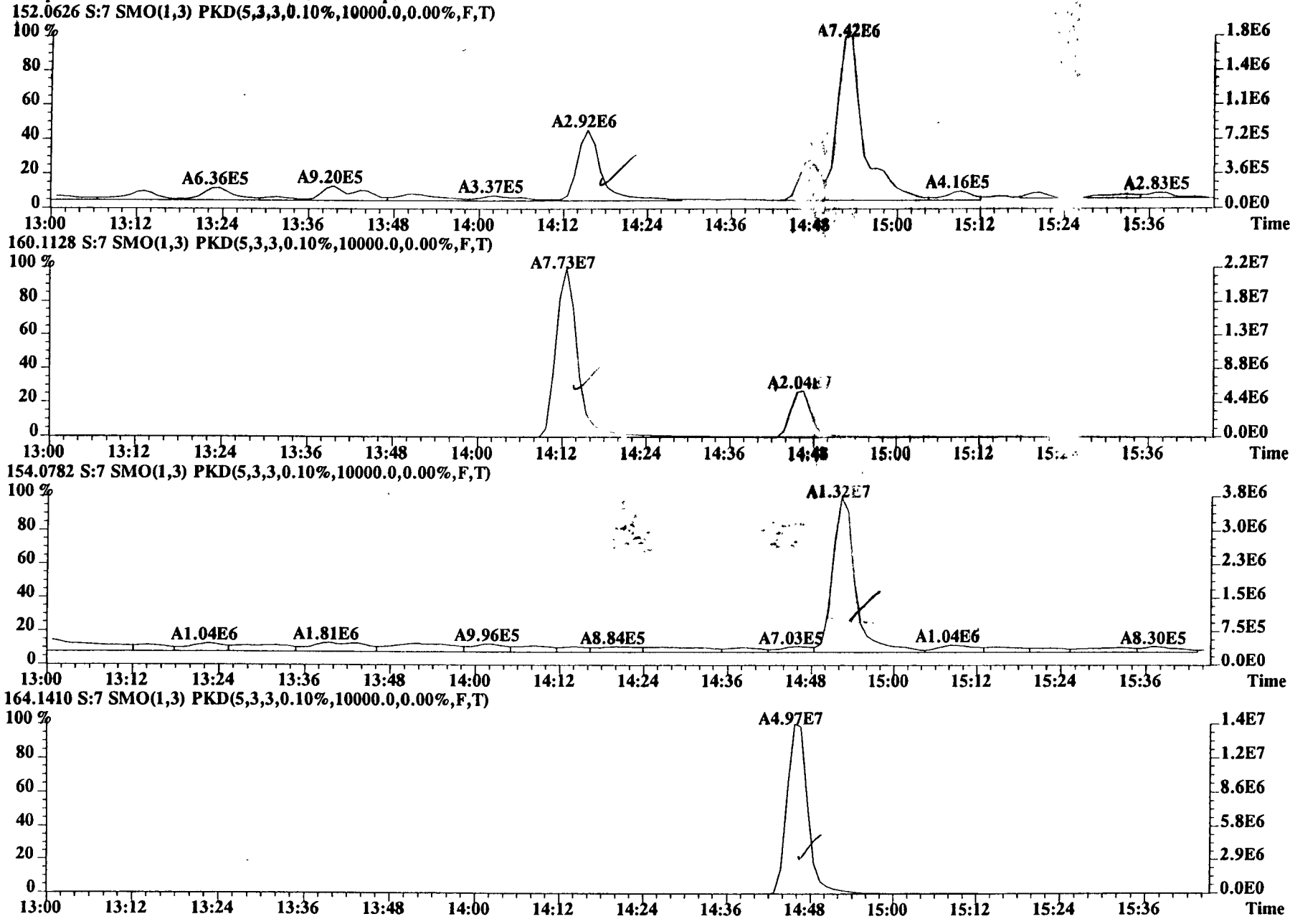
24-AUG-1998 12:39:59 PM PAH Unknown RESULTS

d10-Fluorene	88692000	1.00	Y	16: 28	Y	1.00	50.00	
13C-Fluorene	72085200	1.00	Y	16: 34	Y	1.00	40.64	81

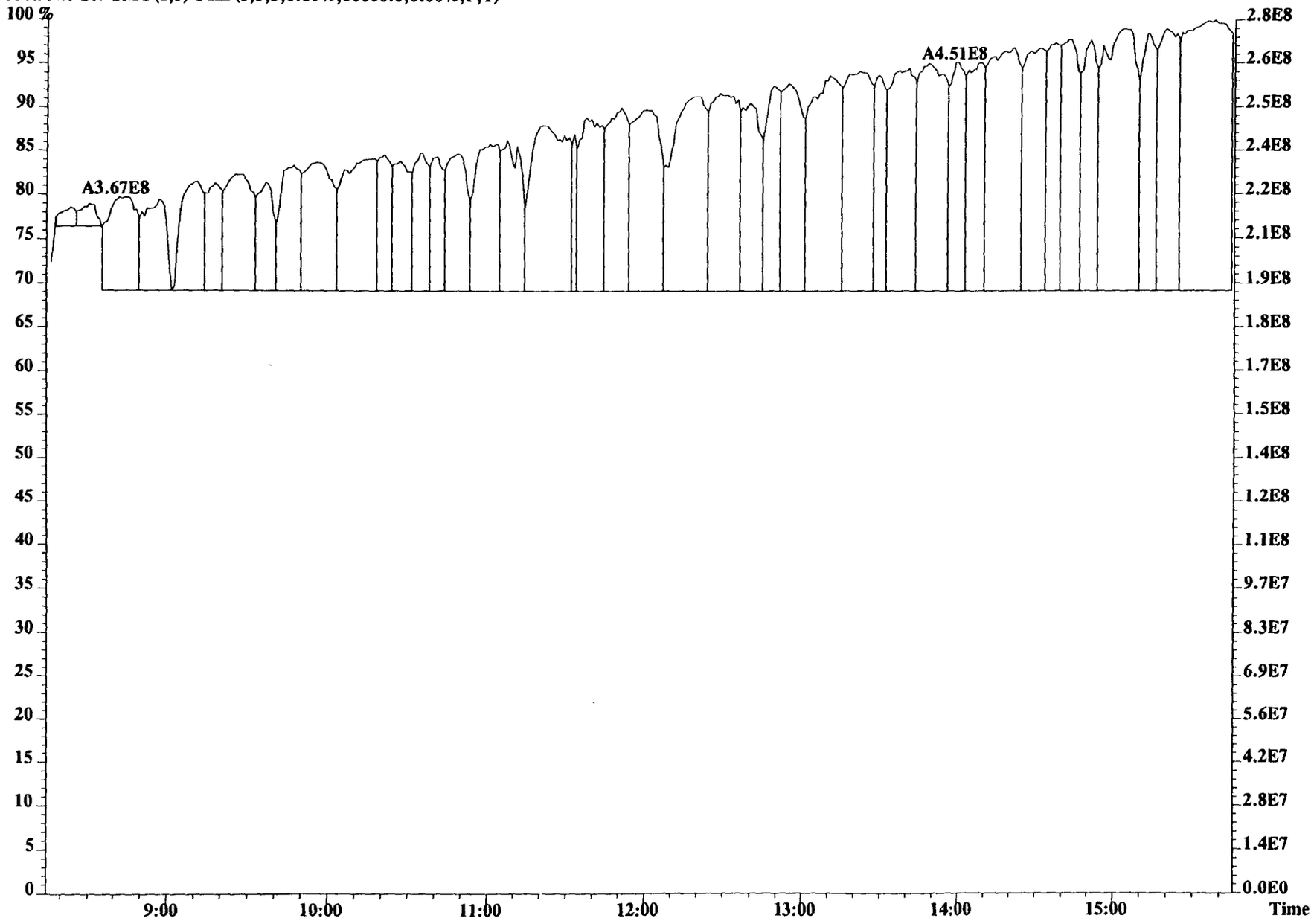
File:20AU98U #1-476 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR



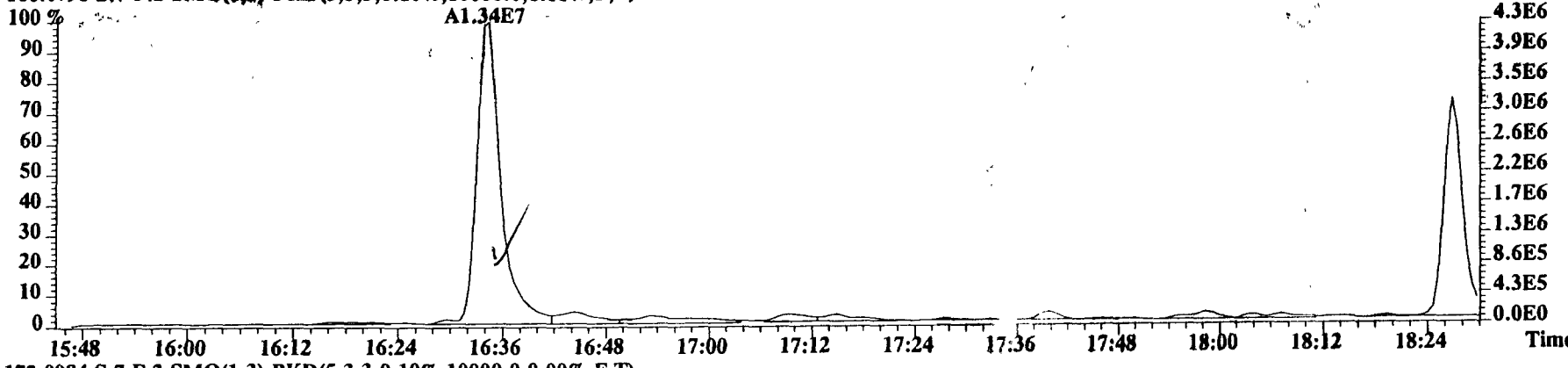
File:20AU98U #1-476 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR



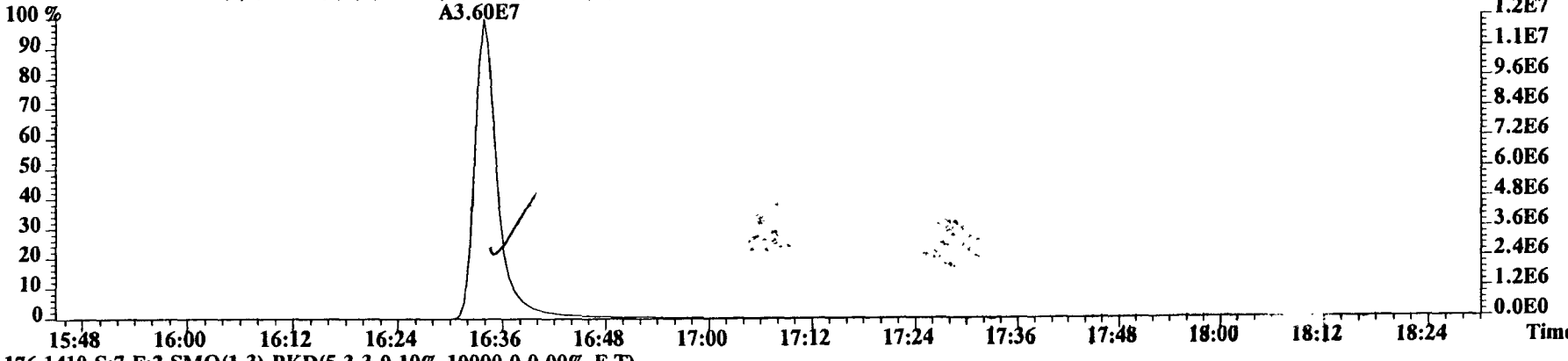
File:20AU98U #1-476 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
130.9920 S:7 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



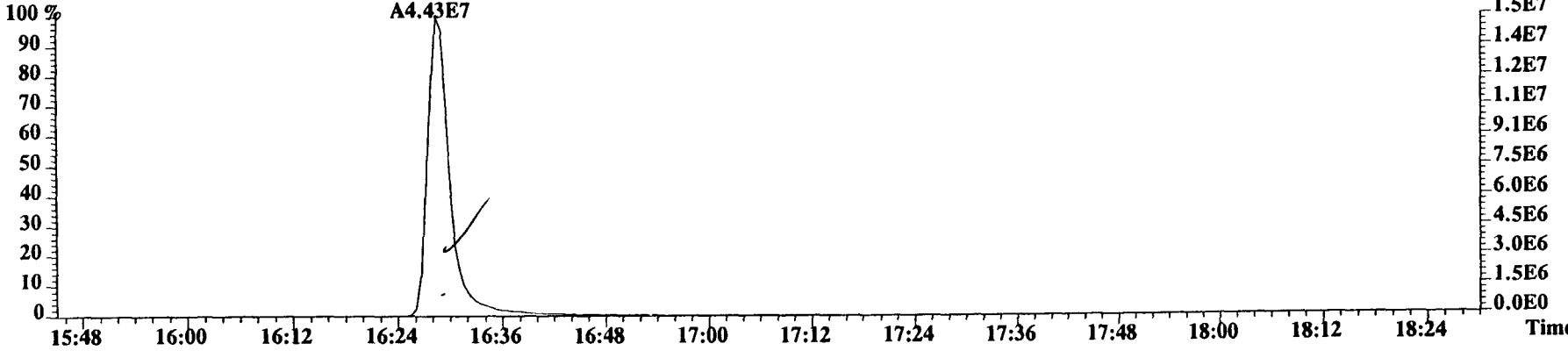
File:20AU98U #1-666 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
166.0798 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



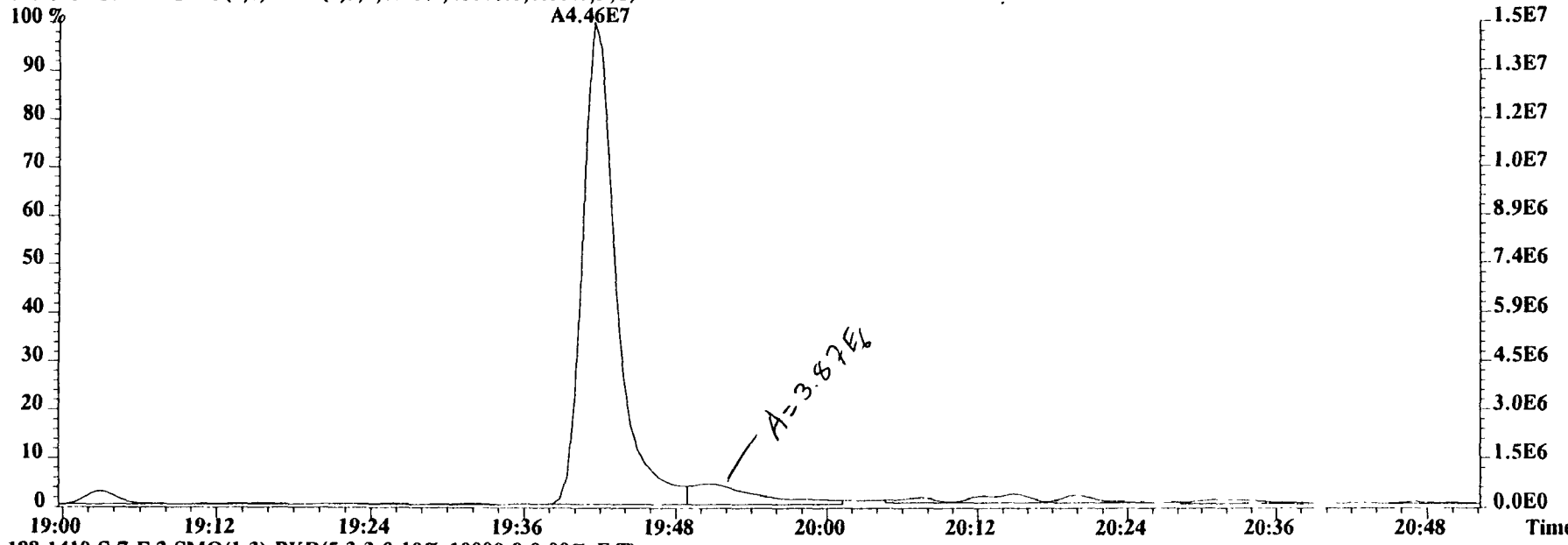
172.0984 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



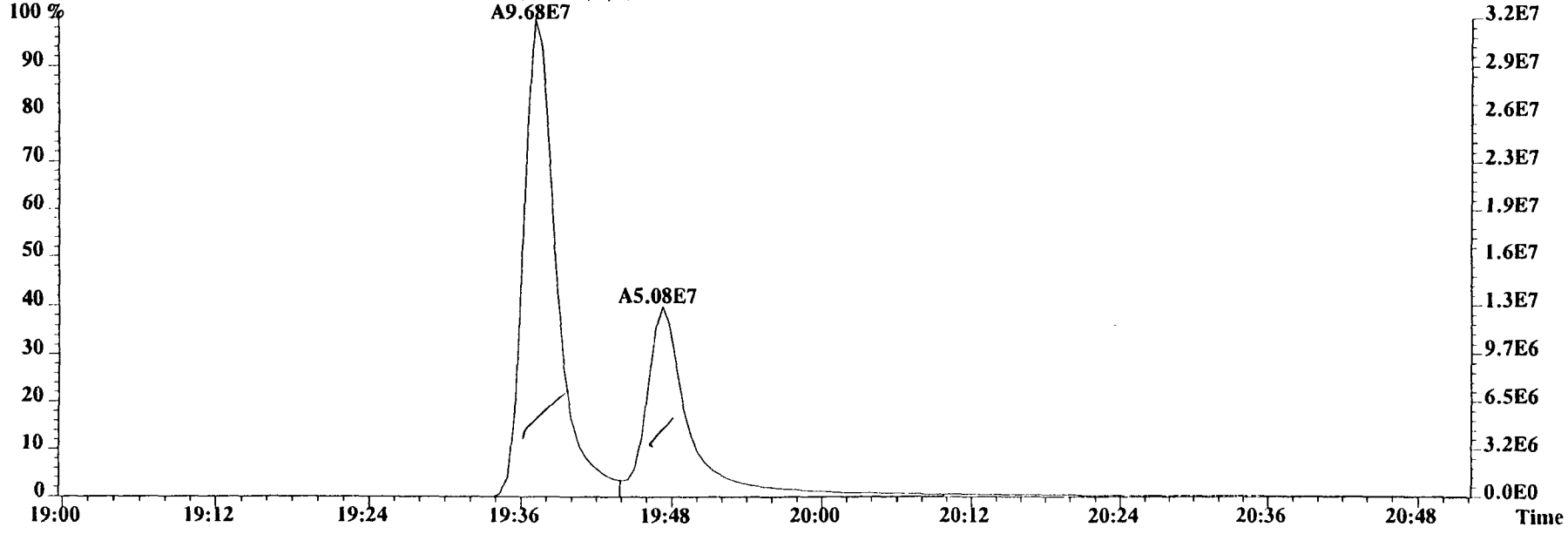
176.1410 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



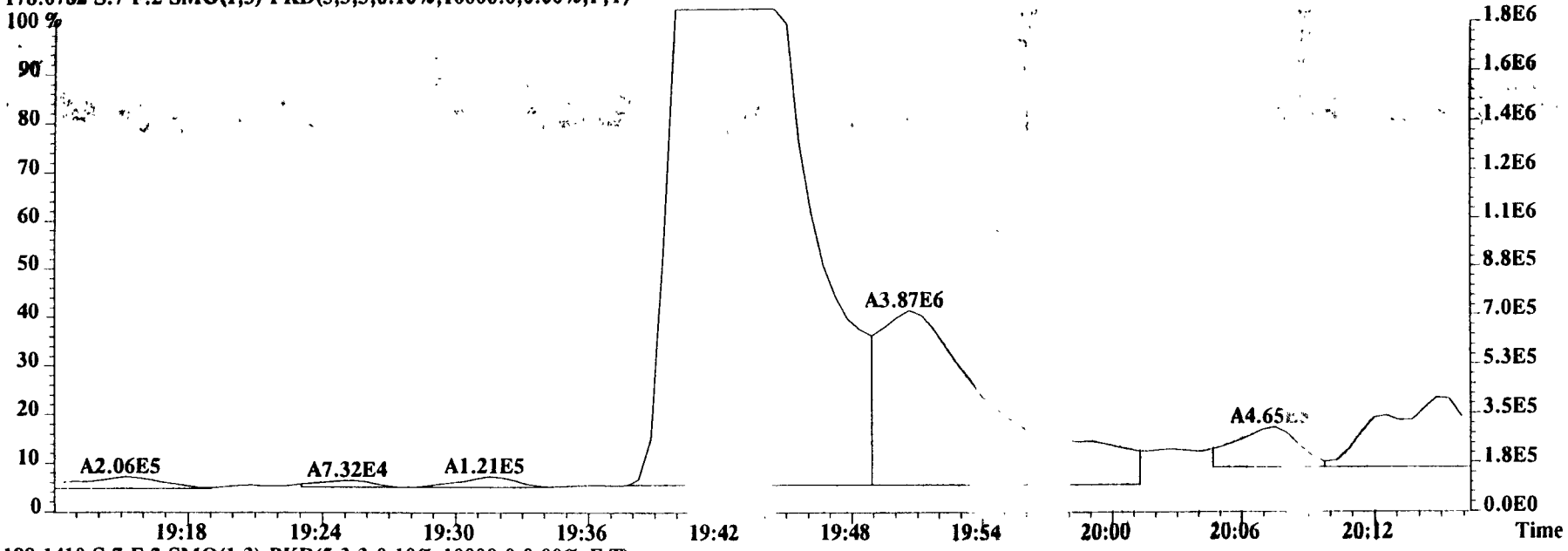
File:20AU98U #1-666 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
178.0782 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



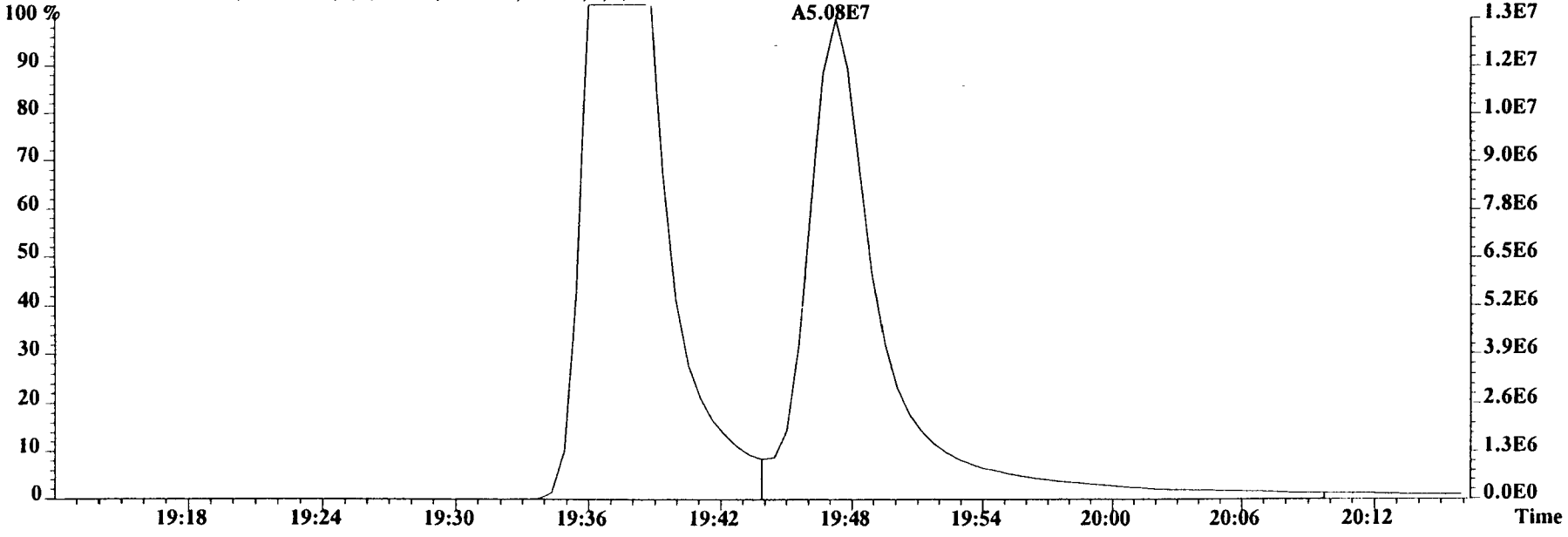
188.1410 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



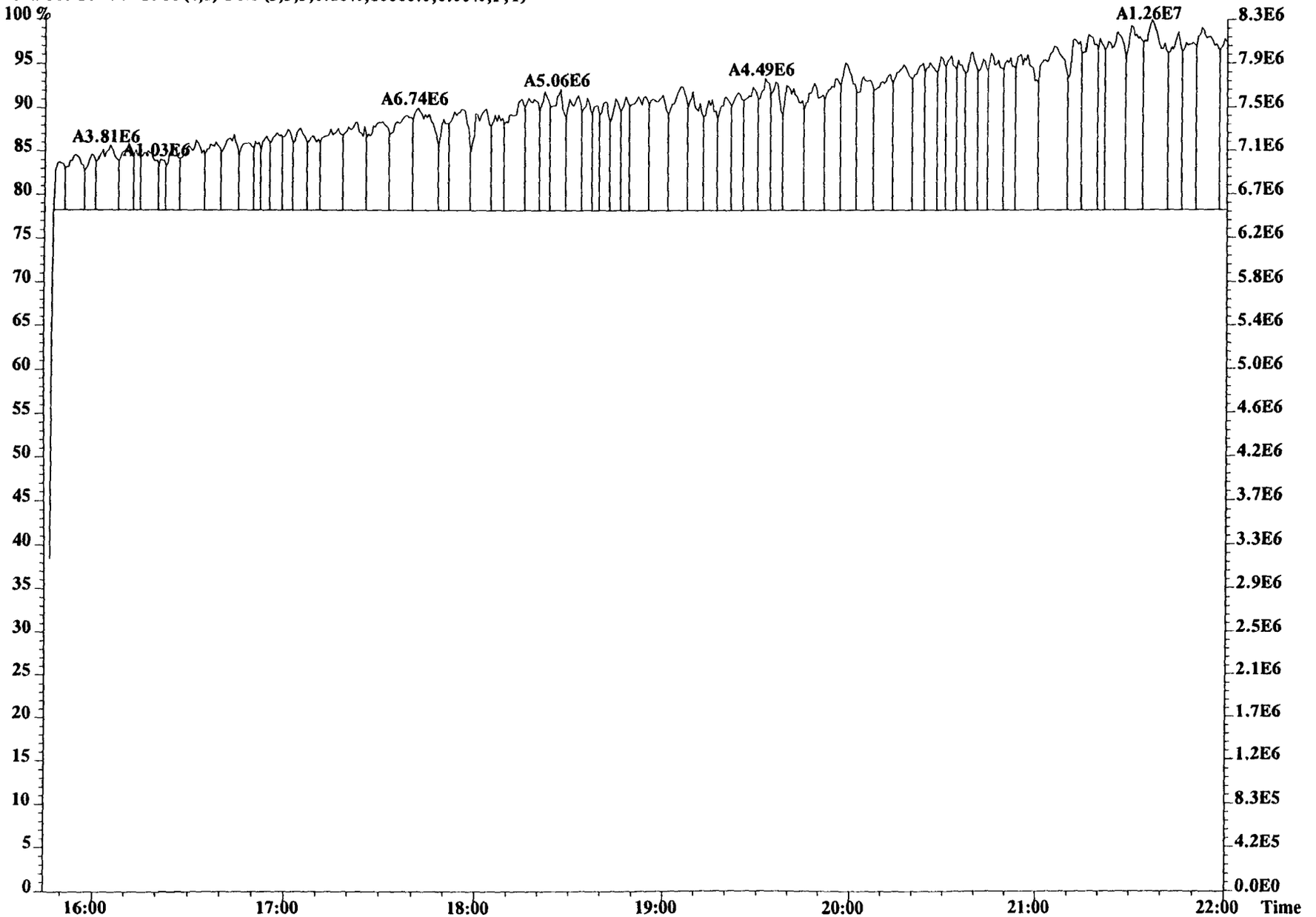
File:20AU98U #1-666 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
178.0782 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



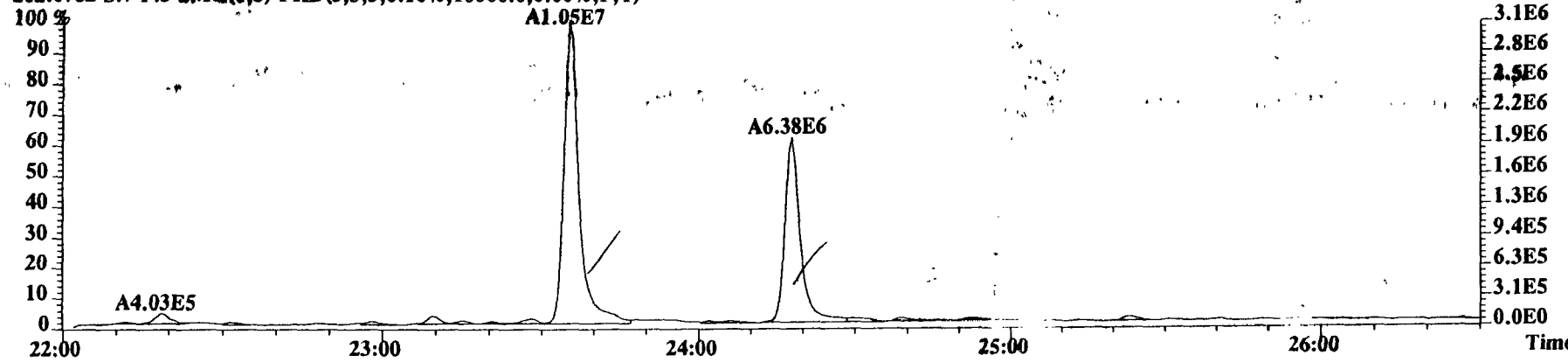
188.1410 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



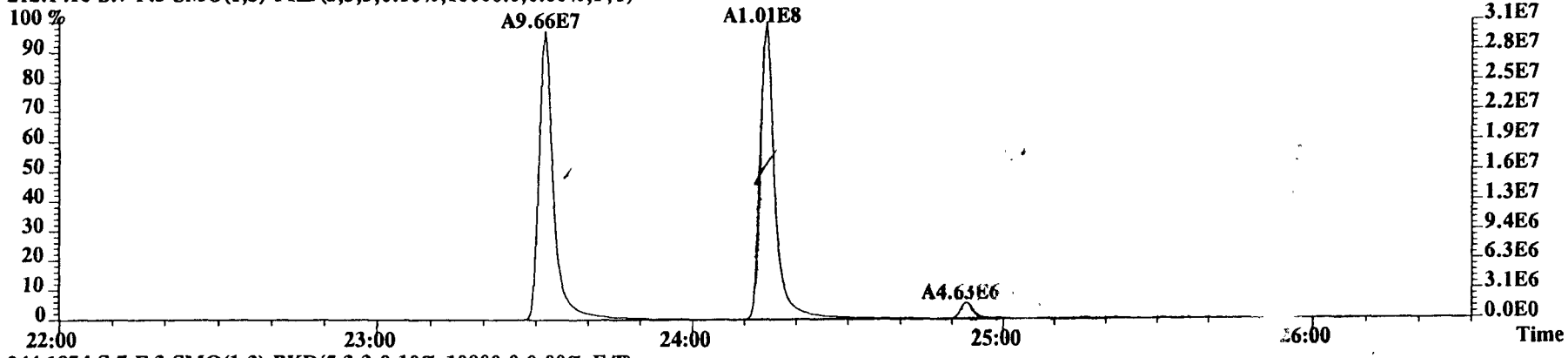
File:20AU98U #1-666 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
204.9888 S:7 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



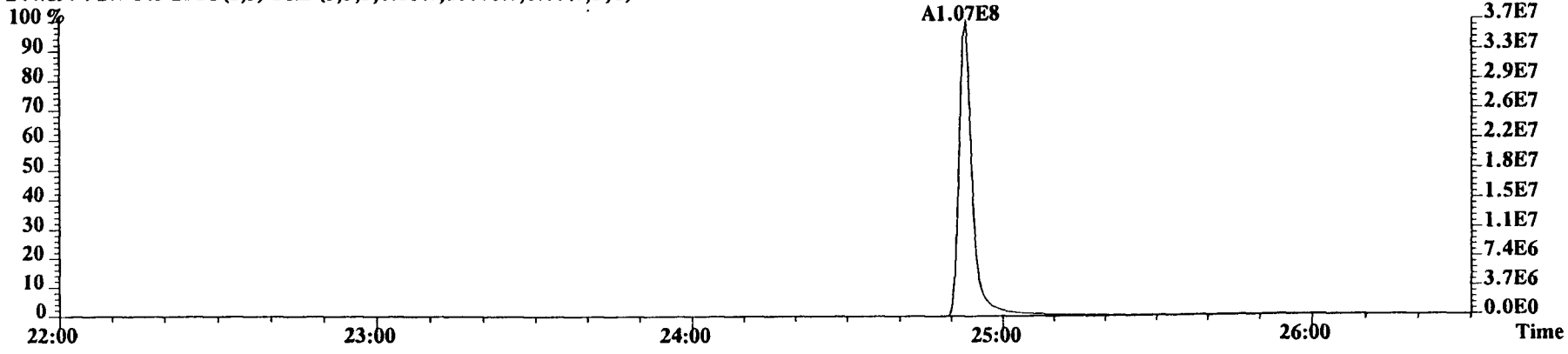
File:20AU98U #1-934 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
202.0782 S:7 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



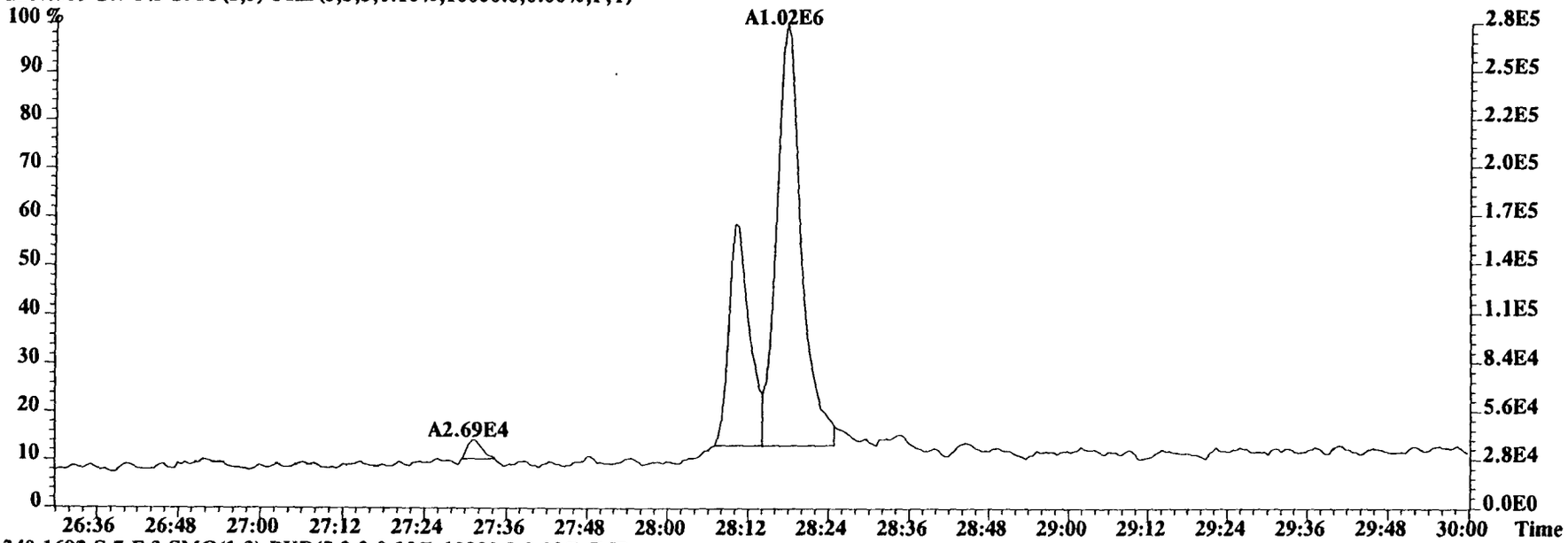
212.1410 S:7 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



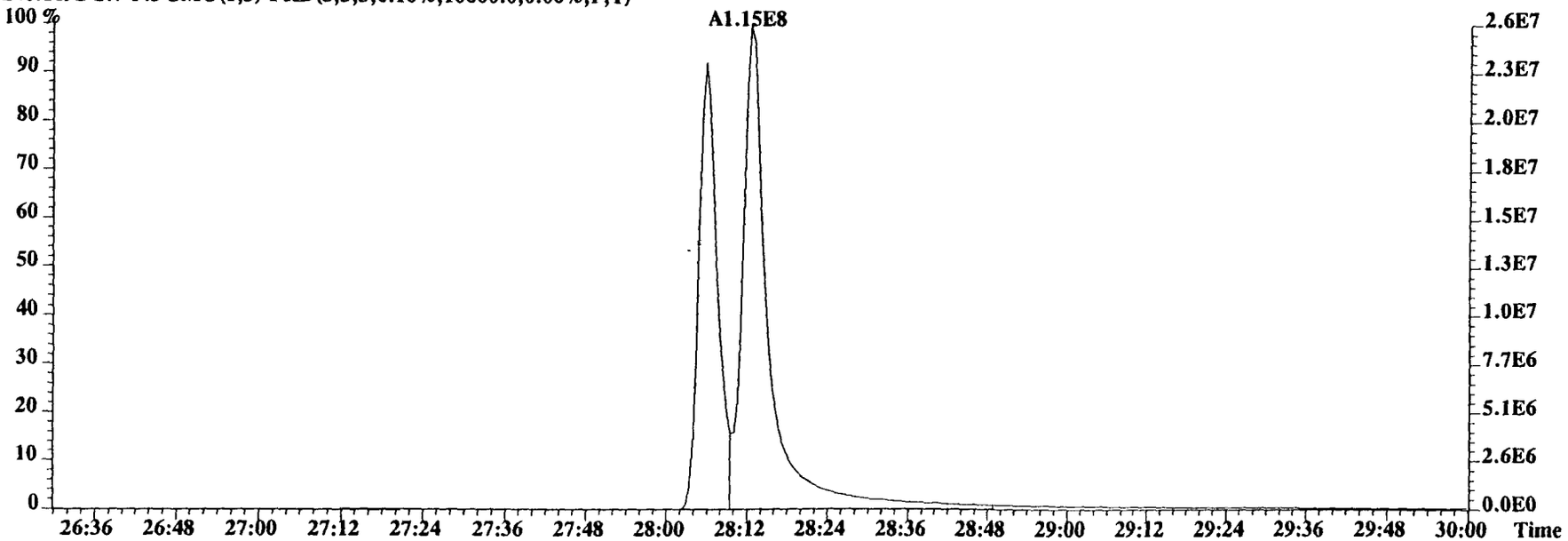
244.1974 S:7 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



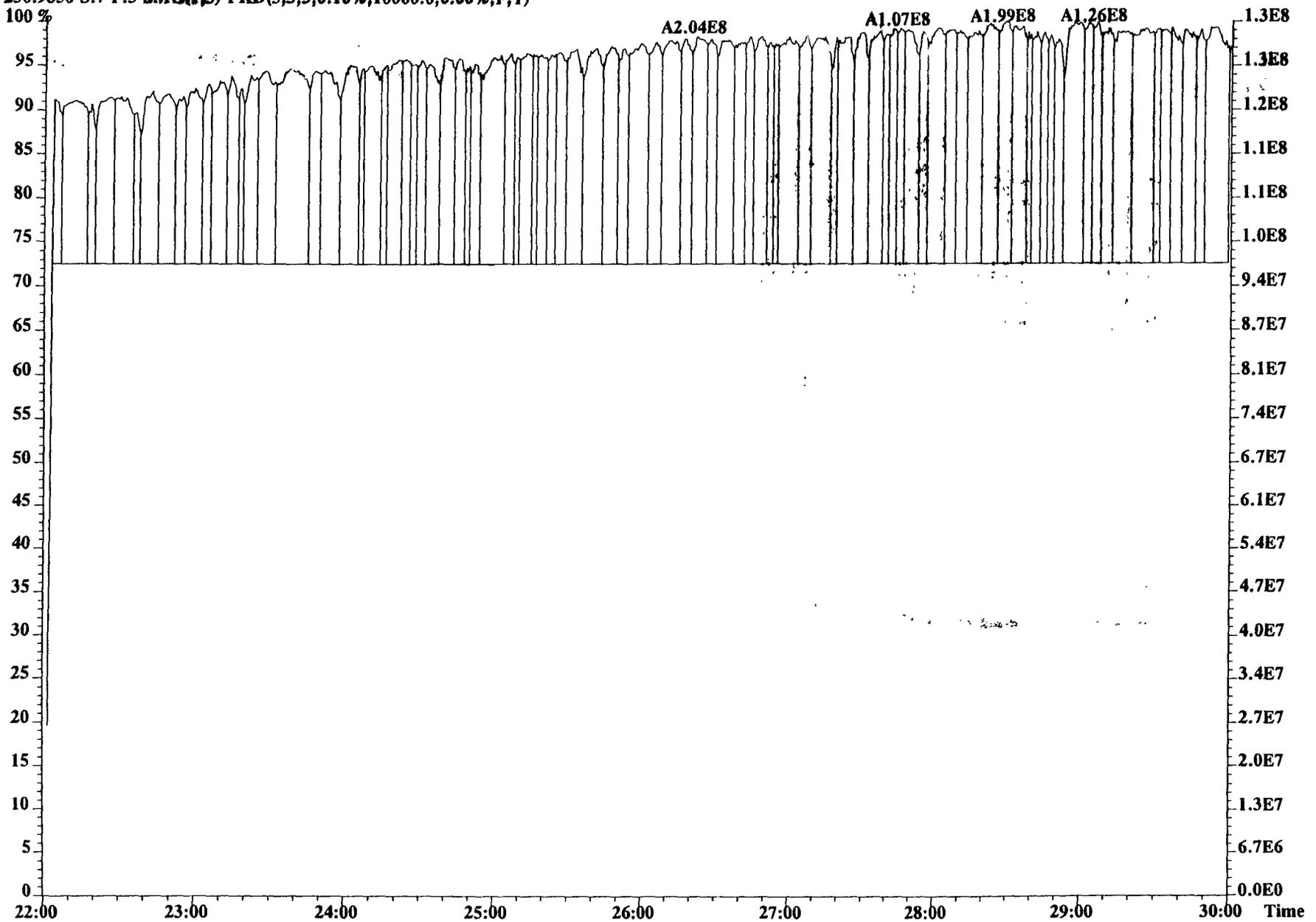
File:20AU98U #1-934 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
228.0939 S:7 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



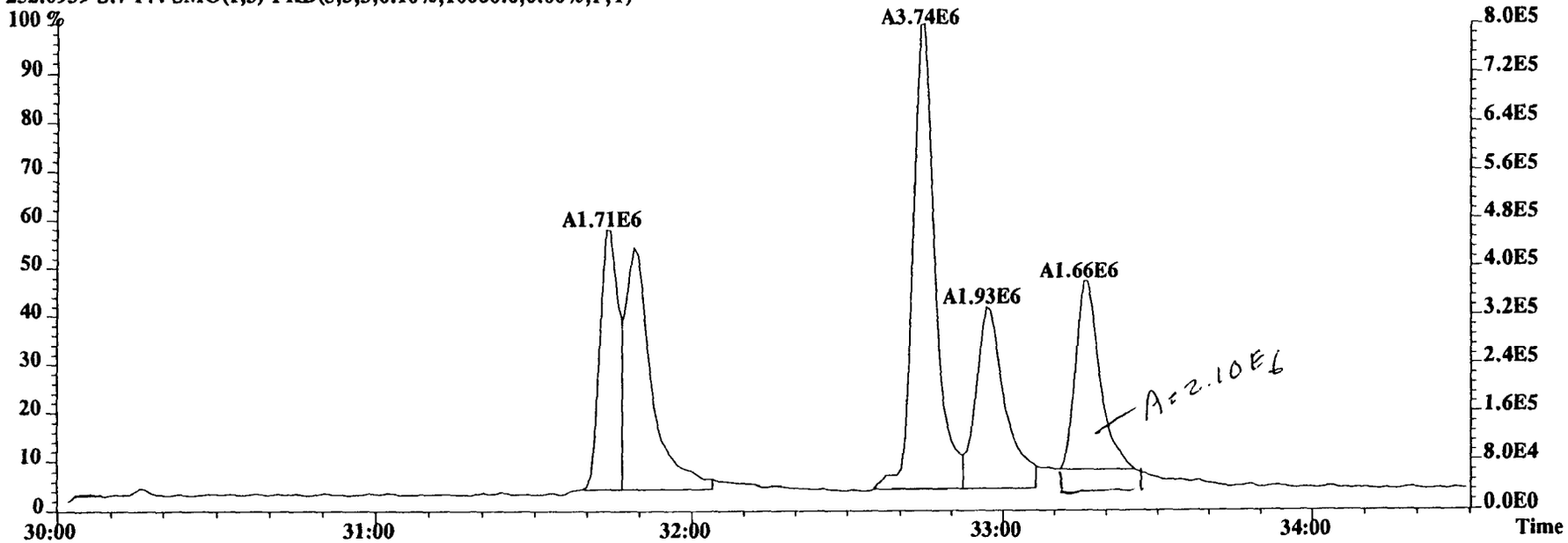
240.1692 S:7 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



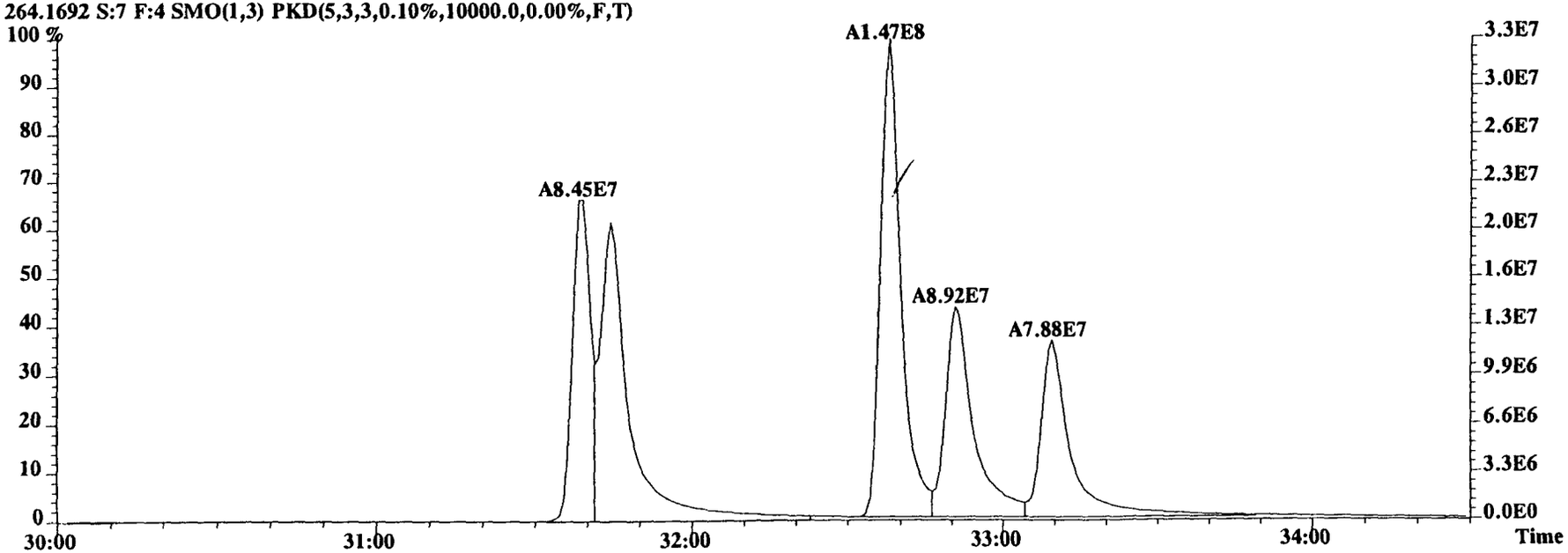
File:20AU98U #1-934 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
230.9856 S:7 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



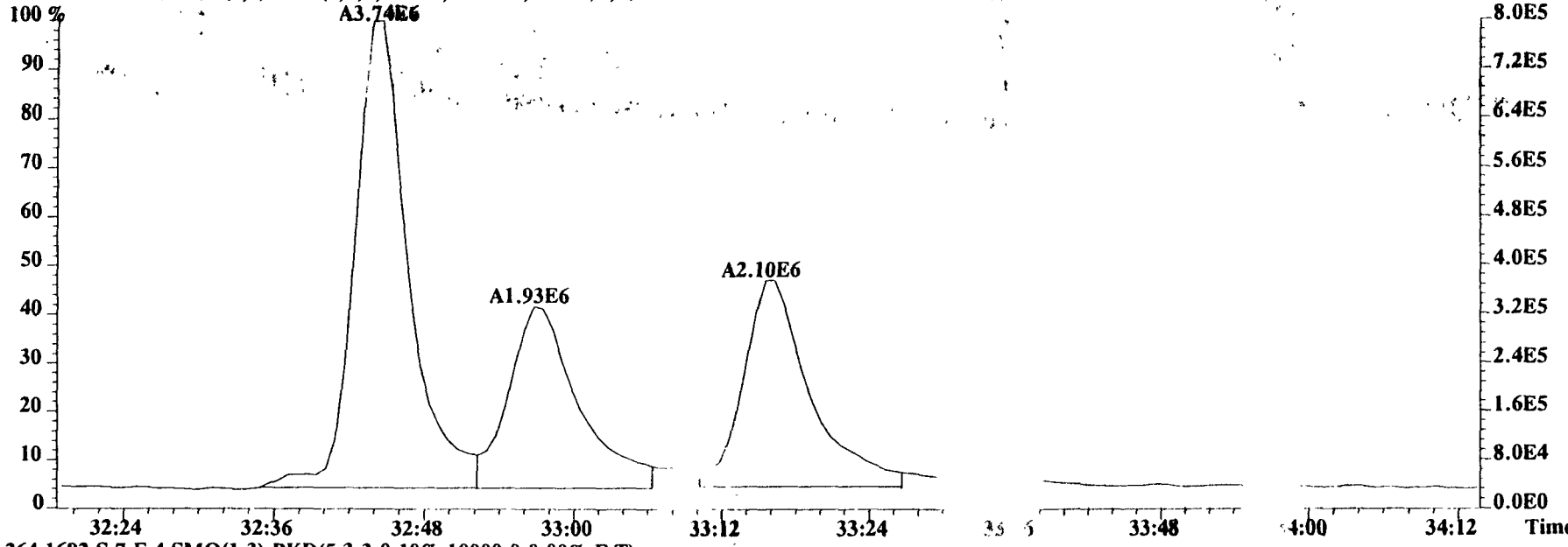
File:20AU98U #1-955 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
252.0939 S:7 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



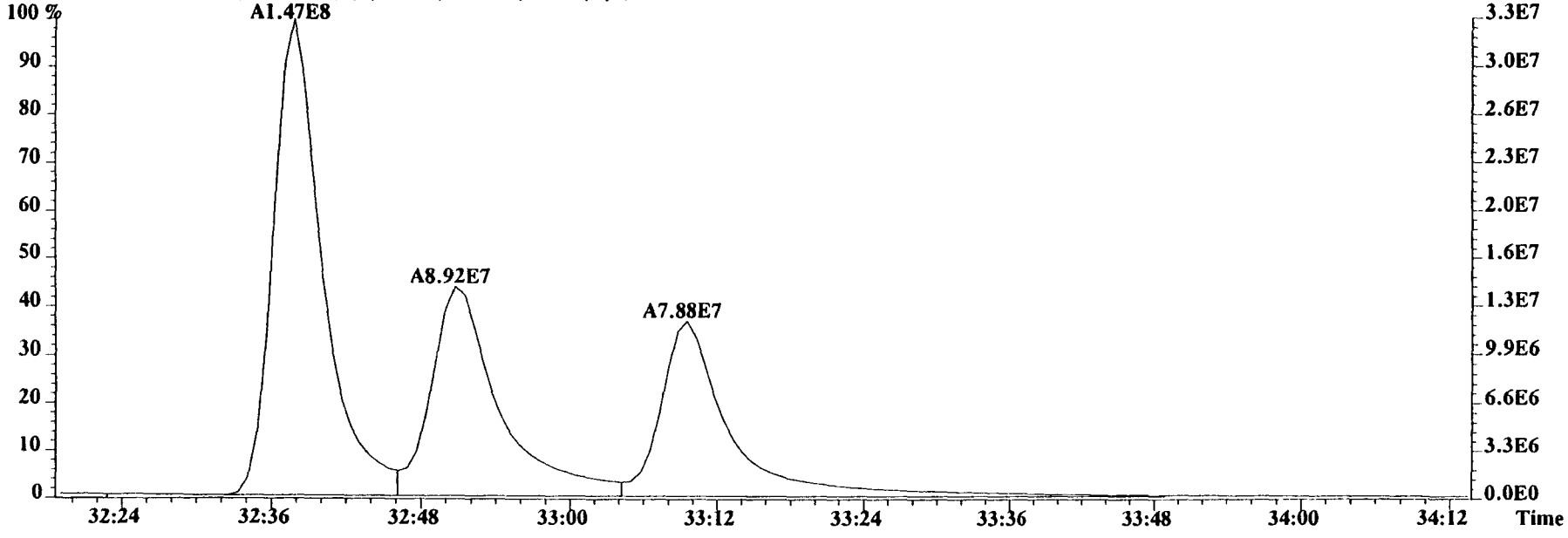
264.1692 S:7 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



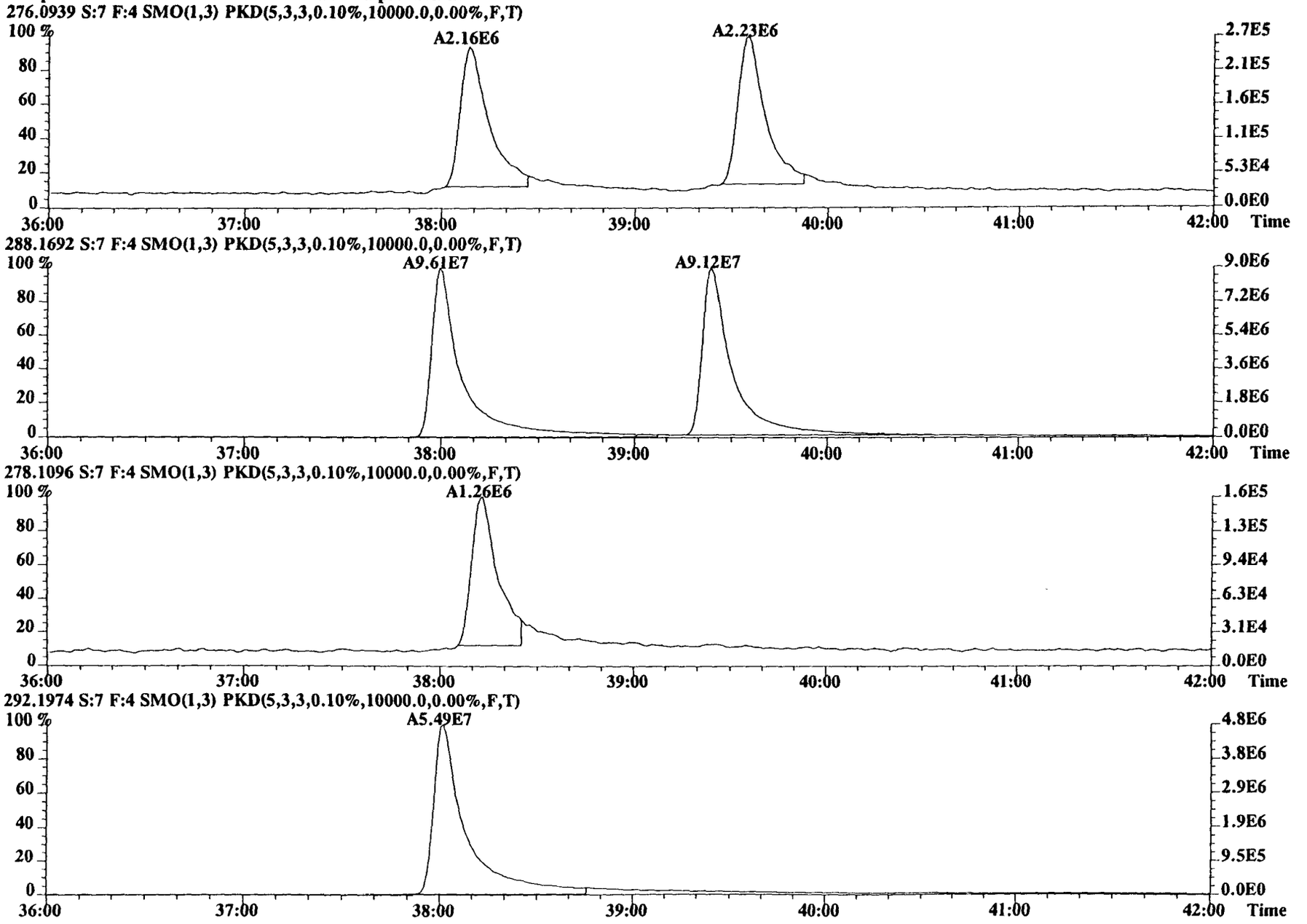
File:20AU98U #1-955 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
252.0939 S:7 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



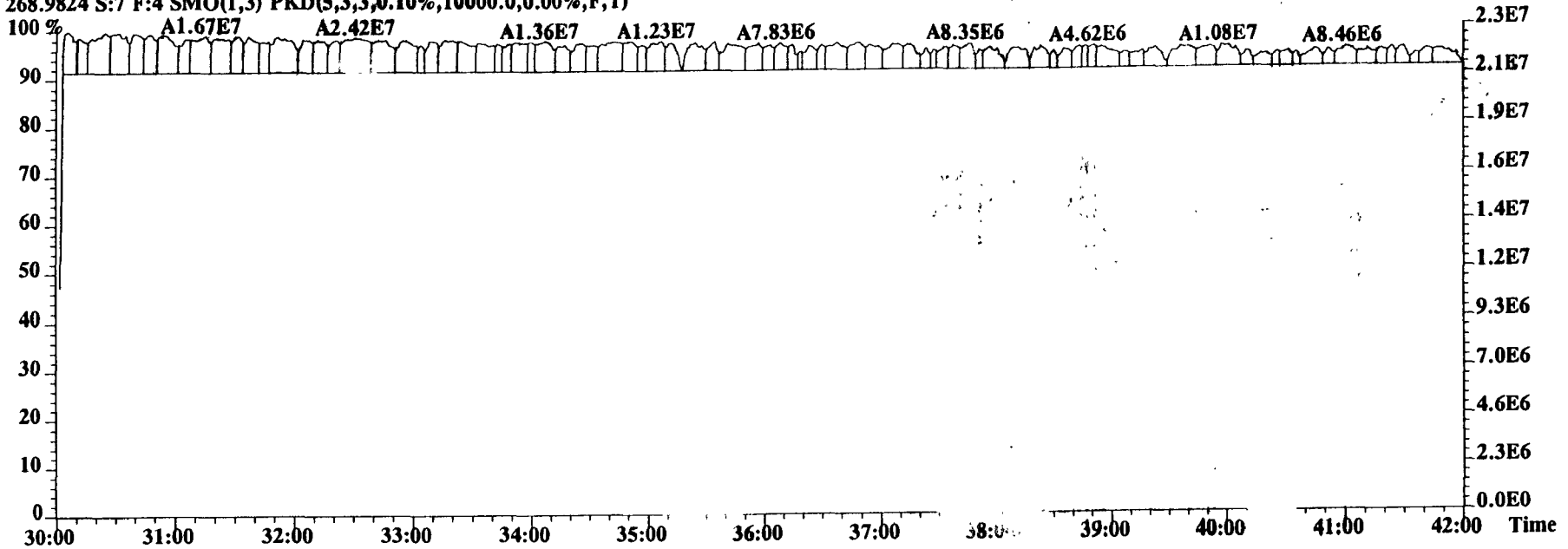
264.1692 S:7 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



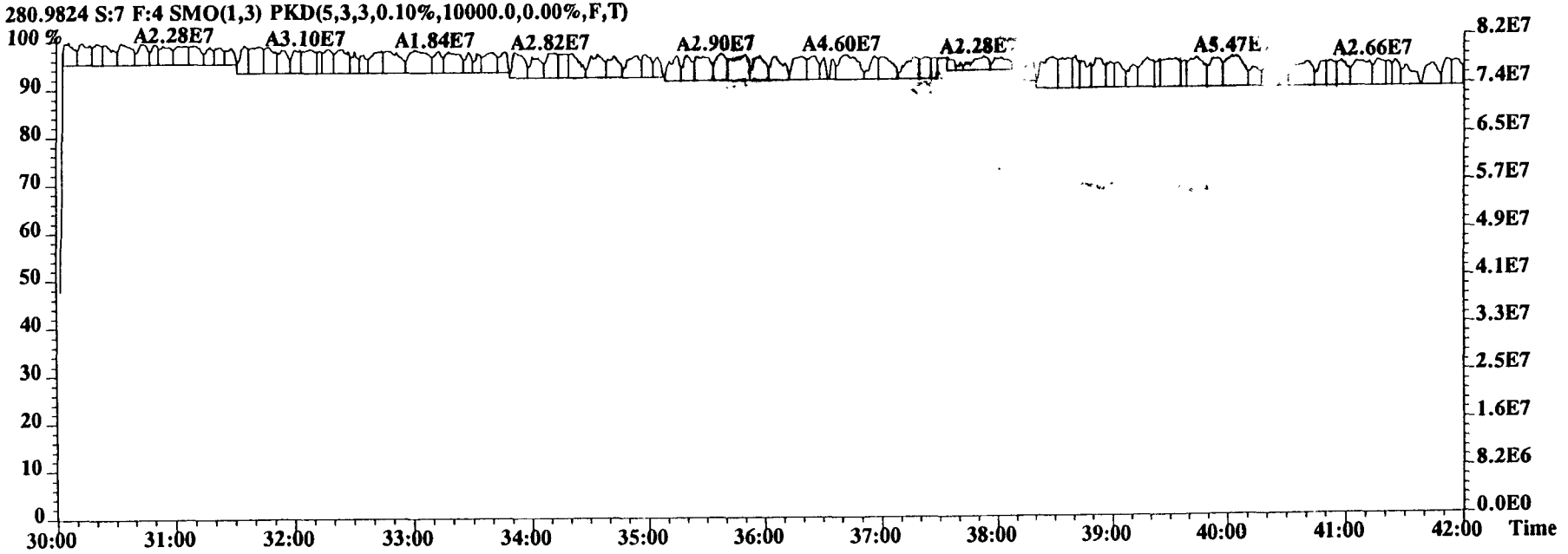
File:20AU98U #1-955 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR



File:20AU98U #1-955 Acq:20-AUG-1998 20:00:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#7 Text:300681-1MS :Method Blank Exp:PAHAIR
268.9824 S:7 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:7 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Sample Data

15-OCT-1998 10:26:08 AM Dioxin Furan Unknown RESULTS

Results : 05OC98U271.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U 300681-1DI :1000X S-MM5-2- Ex Cal : PAHAIR100198U.RR
Weight : 0.00033

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ug/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	87453800	1.00 Y	10: 27 Y	1.00	0.05	
d8-Naphthalene	139709200	1.00 Y	8: 18 Y	1.78	0.04	90
Naphthalene	889458000	1.00 Y	8: 21 Y	1.20	803.60	
2-Methylnaphthalene	1719680000	1.00 Y	10: 34 Y	0.66	2839.41	
d8-Acenaphthylene	142923600	1.00 Y	13: 29 Y	1.16	0.07	140
Acenaphthylene	13040000	1.00 Y	13: 31 Y	1.02	13.49	<RL=15
d10-Acenaphthene	75989000	1.00 Y	14: 3 Y	0.68	0.06	127
Acenaphthene	111200000	1.00 Y	14: 10 Y	1.14	194.56	
d10-Anthracene	58496600	1.00 Y	19: 2 Y	1.00	0.05	
d10-Fluorene	76622400	1.00 Y	15: 45 Y	1.36	0.05	96
Fluorene	348000000	1.00 Y	15: 51 Y	1.15	600.56	
d10-Phenanthrene	163762800	1.00 Y	18: 52 Y	2.74	0.05	102
Phenanthrene	994324000	1.00 Y	18: 57 Y	0.95	965.90	
Anthracene	59600000	1.00 Y	19: 5 Y	0.97	56.71	
d14-Terphenyl	352630000	1.00 Y	24: 10 Y	1.00	0.05	
d10-Fluoranthene	177834000	1.00 Y	22: 46 Y	1.49	0.02	34
Fluoranthene	79386200	1.00 Y	22: 49 Y	1.23	54.91	
d10-Pyrene	182455600	1.00 Y	23: 28 Y	1.58	0.02	33
Pyrene	347368000	1.00 Y	23: 31 Y	1.26	229.43	
d12-Benzo(a)anthracene	108326400	1.00 Y	27: 20 Y	0.81	0.02	38
Benzo(a)anthracene	15560000	1.00 Y	27: 24 Y	1.28	17.00	
d12-Chrysene	130275400	1.00 Y	27: 26 Y	1.17	0.02	32
Chrysene	63800000	1.00 Y	27: 31 Y	1.16	63 94	
d12-Benzo(e)pyrene	152767800	1.00 Y	31: 40 Y	1.00	0.05	
d12-Benzo(b)fluoranthene	94234800	1.00 Y	30: 45 Y	0.48	0.06	128
Benzo(b)fluoranthene	5460000	1.00 Y	30: 50 Y	1.30	6.76	<RL=15
d12-Benzo(k)fluoranthene	151677600	1.00 Y	30: 51 Y	0.99	0.05	101
Benzo(k)fluoranthene	3720000	1.00 Y	30: 50 Y	1.20	3.09	<RL=15
d12-Benzo(a)pyrene	110385800	1.00 Y	31: 51 Y	0.74	0.05	98
Benzo(e)pyrene	9983200	1.00 Y	31: 46 Y	1.62	8.45	<RL=15
Benzo(a)pyrene	3086660	1.00 Y	31: 56 Y	1.11	3.81	<RL=15
d12-Perylene	96580200	1.00 Y	32: 9 Y	0.65	0.05	98
Perylene	23538200	1.00 Y	32: 14 Y	1.74	21.18	
d12-Indeno(123-cd)pyrene	53871600	1.00 Y	36: 33 Y	0.37	0.05	95
Indeno(123-cd)pyrene	944000	1.00 Y	36: 41 Y	0.60	4.40	<RL=15
d14-Dibenz(ah)anthracene	27068800	1.00 Y	36: 39 Y	0.20	0.04	87
Dibenz(ah)anthracene	548000	1.00 Y	36: 49 Y	1.28	2.39	<RL=15
d12-Benzo(ghi)perylene	53827000	1.00 Y	37: 49 Y	0.41	0.04	86
Benzo(ghi)perylene	1138000	1.00 Y	37: 58 Y	1.11	2.90	<RL=15

05OC98U271.RES : PAHAIR.TRG
Date analyzed : 05-OCT-98 0.00033
1000X S-MM5-2- Ex Cal : PAHAIR100198U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ug/ SAMPLE	Rec/ MDL		
1.00 Y	10: 27 Y	1.00	0.05		43726900	43726900
1.00 Y	8: 18 Y	1.78	0.04	90	69854600	69854600
1.00 Y	8: 21 Y	1.20	803.60		444729000	444729000
1.00 Y	10: 34 Y	0.66	2839.41		859840000	859840000
1.00 Y	13: 29 Y	1.16	0.07	140	71461800	71461800
1.00 Y	13: 31 Y	1.02	13.49<RL=15		6520000	6520000
1.00 Y	14: 3 Y	0.68	0.06	127	37994500	37994500
1.00 Y	14: 10 Y	1.14	194.56		55600000	55600000
1.00 Y	19: 2 Y	1.00	0.05		29248300	29248300
1.00 Y	15: 45 Y	1.36	0.05	96	38311200	38311200
1.00 Y	15: 51 Y	1.15	600.56		174000000	174000000
1.00 Y	18: 52 Y	2.74	0.05	102	81881400	81881400
1.00 Y	18: 57 Y	0.95	965.90		497162000	497162000
1.00 Y	19: 5 Y	0.97	56.71		29800000	29800000
1.00 Y	24: 10 Y	1.00	0.05		176315000	176315000
1.00 Y	22: 46 Y	1.49	0.02	34	88917000	88917000
1.00 Y	22: 49 Y	1.23	54.91		39693100	39693100
1.00 Y	23: 28 Y	1.58	0.02	33	91227800	91227800
1.00 Y	23: 31 Y	1.26	229.43		173684000	173684000
1.00 Y	27: 20 Y	0.81	0.02	38	54163200	54163200
1.00 Y	27: 24 Y	1.28	17.00		7780000	7780000
1.00 Y	27: 26 Y	1.17	0.02	32	65137700	65137700
1.00 Y	27: 31 Y	1.16	63.94		31900000	31900000
1.00 Y	31: 40 Y	1.00	0.05		76383900	76383900
1.00 Y	30: 45 Y	0.48	0.06	128	47117400	47117400
1.00 Y	30: 50 Y	1.30	6.76<RL=15		2730000	2730000
1.00 Y	30: 51 Y	0.99	0.05	101	75838800	75838800
1.00 Y	30: 50 Y	1.20	3.09<RL=15		1860000	1860000
1.00 Y	31: 51 Y	0.74	0.05	98	55192900	55192900
1.00 Y	31: 46 Y	1.62	8.45<RL=15		4991600	4991600
1.00 Y	31: 56 Y	1.11	3.81<RL=15		1543330	1543330
1.00 Y	32: 9 Y	0.65	0.05	98	48290100	48290100
1.00 Y	32: 14 Y	1.74	21.18		11769100	11769100
1.00 Y	36: 33 Y	0.37	0.05	95	26935800	26935800
1.00 Y	36: 41 Y	0.60	4.40<RL=15		472000	472000
1.00 Y	36: 39 Y	0.20	0.04	87	13534400	13534400
1.00 Y	36: 49 Y	1.28	2.39<RL=15		274000	274000
1.00 Y	37: 49 Y	0.41	0.04	86	26913500	26913500
1.00 Y	37: 58 Y	1.11	2.90<RL=15		569000	569000

10 ng/µl x 500µl = 5ng/sample .005 = [illegible] = 10ng

15ng

13-OCT-1998 10:37:32 AM Dioxin Furan Unknown RESULTS

Results : 05OC98U271.RES : PAHAIR.TRG

GC Column : DB-5 Date analyzed : 05-OCT-98

Data file : 05OC98U 300681-1DI :1000X S-MM5-2- Ex Cal : PAHAIR100198U.RRF

Weight : 0.000533

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ug/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	87453800	1.00	Y	10: 27	Y	1.00	0.05	
d8-Naphthalene	139709200	1.00	Y	8: 18	Y	1.78	0.04	90
Naphthalene	889458000	1.00	Y	8: 21	Y	1.20	530.38	
2-Methylnaphthalene	1719680000	1.00	Y	10: 34	Y	0.66	1874.01	
d8-Acenaphthylene	142923600	1.00	Y	13: 29	Y	1.16	0.07	140
Acenaphthylene	13040000	1.00	Y	13: 31	Y	1.02	8.90	<~~RL=100~~ = DL
d10-Acenaphthene	75989000	1.00	Y	14: 3	Y	0.68	0.06	127
Acenaphthene	111200000	1.00	Y	14: 10	Y	1.14	128.41	
d10-Anthracene	58496600	1.00	Y	19: 2	Y	1.00	0.05	
d10-Fluorene	76622400	1.00	Y	15: 45	Y	1.36	0.05	96
Fluorene	348000000	1.00	Y	15: 51	Y	1.15	396.37	
d10-Phenanthrene	163762800	1.00	Y	18: 52	Y	2.74	0.05	102
Phenanthrene	994324000	1.00	Y	18: 57	Y	0.95	637.50	
Anthracene	59600000	1.00	Y	19: 5	Y	0.97	37.43	<~~RL=100~~
d14-Terphenyl	352630000	1.00	Y	24: 10	Y	1.00	0.05	
d10-Fluoranthene	177834000	1.00	Y	22: 46	Y	1.49	0.02	34
Fluoranthene	79386200	1.00	Y	22: 49	Y	1.23	36.24	<~~RL=100~~
d10-Pyrene	182455600	1.00	Y	23: 28	Y	1.58	0.02	33
Pyrene	347368000	1.00	Y	23: 31	Y	1.26	151.42	
d12-Benzo(a)anthracene	108326400	1.00	Y	27: 20	Y	0.81	0.02	38
Benzo(a)anthracene	15560000	1.00	Y	27: 24	Y	1.28	11.22	<~~RL=100~~
d12-Chrysene	130275400	1.00	Y	27: 26	Y	1.17	0.02	32
Chrysene	63800000	1.00	Y	27: 31	Y	1.16	42.20	<~~RL=100~~
d12-Benzo(e)pyrene	152767800	1.00	Y	31: 40	Y	1.00	0.05	
d12-Benzo(b)fluoranthene	94234800	1.00	Y	30: 45	Y	0.48	0.06	128
Benzo(b)fluoranthene	5460000	1.00	Y	30: 50	Y	1.30	4.46	<~~RL=100~~
d12-Benzo(k)fluoranthene	151677600	1.00	Y	30: 51	Y	0.99	0.05	101
Benzo(k)fluoranthene	3720000	1.00	Y	30: 50	Y	1.20	2.04	<~~RL=100~~
d12-Benzo(a)pyrene	110385800	1.00	Y	31: 51	Y	0.74	0.05	98
Benzo(e)pyrene	9983200	1.00	Y	31: 46	Y	1.62	5.58	<~~RL=100~~
Benzo(a)pyrene	3086660	1.00	Y	31: 56	Y	1.11	2.52	<~~RL=100~~
d12-Perylene	96580200	1.00	Y	32: 9	Y	0.65	0.05	98
Perylene	23538200	1.00	Y	32: 14	Y	1.74	13.98	<~~RL=100~~
d12-Indeno(123-cd)pyrene	53871600	1.00	Y	36: 33	Y	0.37	0.05	95
Indeno(123-cd)pyrene	944000	1.00	Y	36: 41	Y	0.60	2.90	<~~RL=100~~
d14-Dibenz(ah)anthracene	27068800	1.00	Y	36: 39	Y	0.20	0.04	87
Dibenz(ah)anthracene	548000	1.00	Y	36: 49	Y	1.28	1.58	<~~RL=100~~
d12-Benzo(ghi)perylene	53827000	1.00	Y	37: 49	Y	0.41	0.04	86
Benzo(ghi)perylene	1138000	1.00	Y	37: 58	Y	1.11	1.91	<~~RL=100~~

MAT 10-13-98

13-OCT-1998 10:37:26 AM Dioxin Furan Unknown RESULTS

05OC98U271.RES : PAHAIR.TRG
Date analyzed : 05-OCT-98 0.0005
1000X S-MM5-2- Ex Cal : PAHAIR100198U.RRF

Isotope Ratio	R. T. mm:ss		RRF	ug/ SAMPLE	Rec/ MDL		
1.00 Y	10: 27	Y	1.00	0.05		43726900	43726900
1.00 Y	8: 18	Y	1.78	0.04	90	69854600	69854600
1.00 Y	8: 21	Y	1.20	530.38		444729000	444729000
1.00 Y	10: 34	Y	0.66	1874.01		859840000	859840000
1.00 Y	13: 29	Y	1.16	0.07	140	71461800	71461800
1.00 Y	13: 31	Y	1.02	8.90	<RL=100	6520000	6520000
1.00 Y	14: 3	Y	0.68	0.06	127	37994500	37994500
1.00 Y	14: 10	Y	1.14	128.41		55600000	55600000
1.00 Y	19: 2	Y	1.00	0.05		29248300	29248300
1.00 Y	15: 45	Y	1.36	0.05	96	38311200	38311200
1.00 Y	15: 51	Y	1.15	396.37		174000000	174000000
1.00 Y	18: 52	Y	2.74	0.05	102	81881400	81881400
1.00 Y	18: 57	Y	0.95	637.50		497162000	497162000
1.00 Y	19: 5	Y	0.97	37.43	<RL=100	29800000	29800000
1.00 Y	24: 10	Y	1.00	0.05		176315000	176315000
1.00 Y	22: 46	Y	1.49	0.02	34	88917000	88917000
1.00 Y	22: 49	Y	1.23	36.24	<RL=100	39693100	39693100
1.00 Y	23: 28	Y	1.58	0.02	33	91227800	91227800
1.00 Y	23: 31	Y	1.26	151.42		173684000	173684000
1.00 Y	27: 20	Y	0.81	0.02	38	54163200	54163200
1.00 Y	27: 24	Y	1.28	11.22	<RL=100	7780000	7780000
1.00 Y	27: 26	Y	1.17	0.02	32	65137700	65137700
1.00 Y	27: 31	Y	1.16	42.20	<RL=100	31900000	31900000
1.00 Y	31: 40	Y	1.00	0.05		76383900	76383900
1.00 Y	30: 45	Y	0.48	0.06	128	47117400	47117400
1.00 Y	30: 50	Y	1.30	4.46	<RL=100	2730000	2730000
1.00 Y	30: 51	Y	0.99	0.05	101	75838800	75838800
1.00 Y	30: 50	Y	1.20	2.04	<RL=100	1860000	1860000
1.00 Y	31: 51	Y	0.74	0.05	98	55192900	55192900
1.00 Y	31: 46	Y	1.62	5.58	<RL=100	4991600	4991600
1.00 Y	31: 56	Y	1.11	2.52	<RL=100	1543330	1543330
1.00 Y	32: 9	Y	0.65	0.05	98	48290100	48290100
1.00 Y	32: 14	Y	1.74	13.98	<RL=100	11769100	11769100
1.00 Y	36: 33	Y	0.37	0.05	95	26935800	26935800
1.00 Y	36: 41	Y	0.60	2.90	<RL=100	472000	472000
1.00 Y	36: 39	Y	0.20	0.04	87	13534400	13534400
1.00 Y	36: 49	Y	1.28	1.58	<RL=100	274000	274000
1.00 Y	37: 49	Y	0.41	0.04	86	26913500	26913500
1.00 Y	37: 58	Y	1.11	1.91	<RL=100	569000	569000

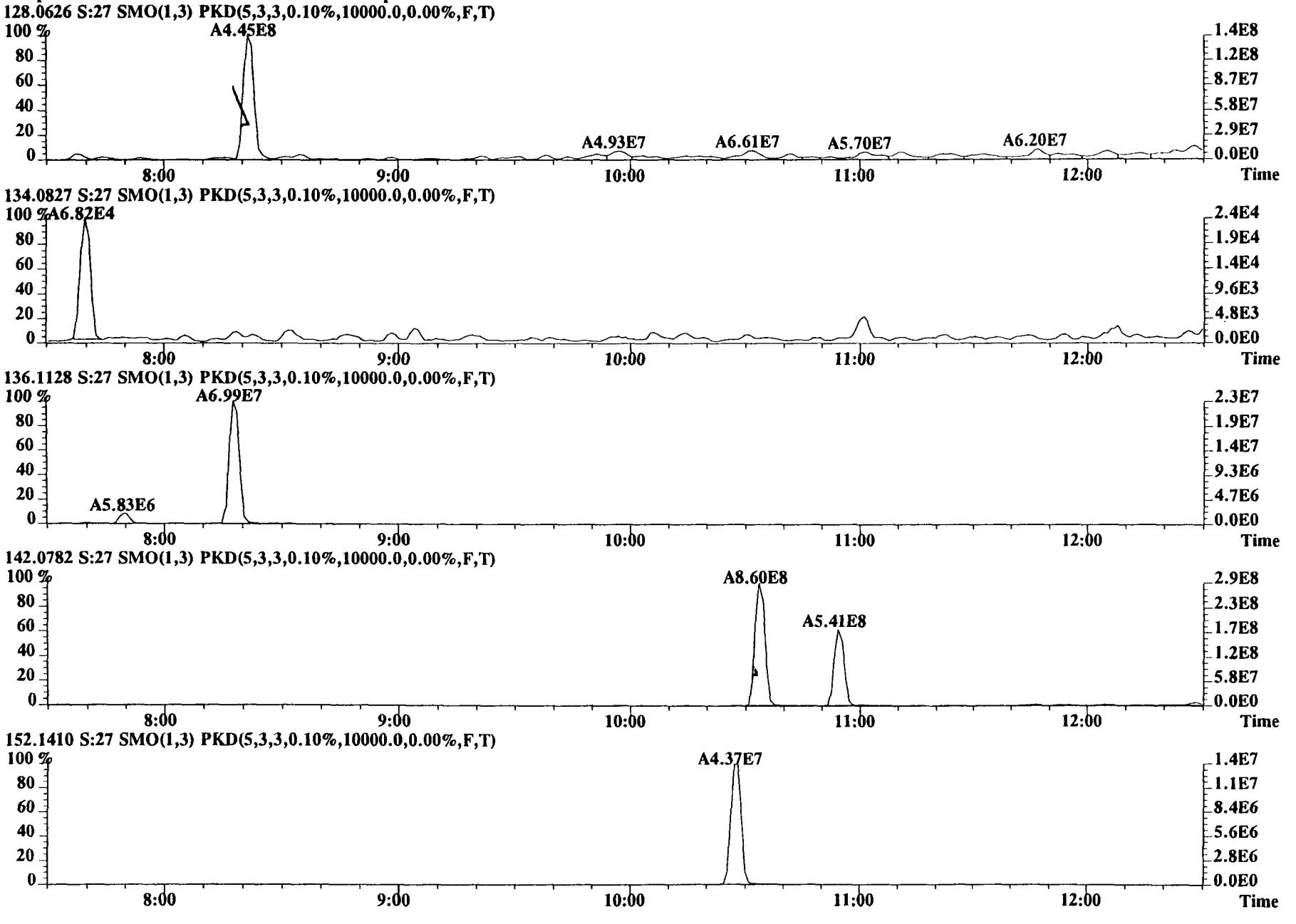
07-OCT-1998 05:13:25 PM Dioxin Furan Unknown RESULTS

Mass Spec : ULTIMA Results : 05OC98U271.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U 300681-1DI :100X S-MM5-2- Ex Cal : PAHAIR100198U.RR
Weight : 0.5

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	87453800	1.00	Y	10: 27	Y	1.00	50.00	
d8-Naphthalene	139709200	1.00	Y	8: 18	Y	1.78	44.79	90
Naphthalene	889458000	1.00	Y	8: 21	Y	1.20	530.38	0.000
2-Methylnaphthalene	1719680000	1.00	Y	10: 34	Y	0.66	1874.01	0.000
d8-Acenaphthylene	142923600	1.00	Y	13: 29	Y	1.16	70.22	140
Acenaphthylene	* No Peak	0.00	N	13: 31	Y	1.02	0.00	0.000
d10-Acenaphthene	75989000	1.00	Y	14: 3	Y	0.68	63.70	127
Acenaphthene	120826600	1.00	Y	14: 10	Y	1.14	139.53	0.000
d10-Anthracene	58496600	1.00	Y	19: 2	Y	1.00	50.00	
d10-Fluorene	76622400	1.00	Y	15: 45	Y	1.36	48.08	96
Fluorene	363956000	1.00	Y	15: 51	Y	1.15	414.54	0.000
d10-Phenanthrene	163762800	1.00	Y	18: 52	Y	2.74	51.12	102
Phenanthrene	994324000	1.00	Y	18: 57	Y	0.95	637.50	0.000
Anthracene	* No Peak	0.00	N	19: 5	N	0.97	0.00	0.000
d14-Terphenyl	352630000	1.00	Y	24: 10	Y	1.00	50.00	
d10-Fluoranthene	177834000	1.00	Y	22: 46	Y	1.49	16.91	34
Fluoranthene	79386200	1.00	Y	22: 49	Y	1.23	36.24	0.000
d10-Pyrene	182455600	1.00	Y	23: 28	Y	1.58	16.42	33
Pyrene	347368000	1.00	Y	23: 31	Y	1.26	151.42	0.000
d12-Benzo(a)anthracene	108326400	1.00	Y	27: 20	Y	0.81	18.91	38
Benzo(a)anthracene	23512800	1.00	Y	27: 24	Y	1.28	16.95	0.000
d12-Chrysene	130275400	1.00	Y	27: 26	Y	1.17	15.82	32
Chrysene	78755600	1.00	Y	27: 31	Y	1.16	52.10	0.000
d12-Benzo(e)pyrene	152767800	1.00	Y	31: 40	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	94234800	1.00	Y	30: 45	Y	0.48	64.12	128
Benzo(b)fluoranthene	9206940	1.00	Y	30: 50	Y	1.30	7.52	0.000
d12-Benzo(k)fluoranthene	151677600	1.00	Y	30: 51	Y	0.99	50.34	101
Benzo(k)fluoranthene	9206940	1.00	Y	30: 50	Y	1.20	5.05	0.000
d12-Benzo(a)pyrene	110385800	1.00	Y	31: 51	Y	0.74	48.90	98
Benzo(e)pyrene	9983200	1.00	Y	31: 46	Y	1.62	5.58	0.000
Benzo(a)pyrene	3086660	1.00	Y	31: 56	Y	1.11	2.52	0.000
d12-Perylene	96580200	1.00	Y	32: 9	Y	0.65	48.90	98
Perylene	23538200	1.00	Y	32: 14	Y	1.74	13.98	0.000
d12-Indeno(123-cd)pyrene	53871600	1.00	Y	36: 33	Y	0.37	47.36	95
Indeno(123-cd)pyrene	439952	1.00	Y	36: 41	Y	0.60	1.35	0.000
d14-Dibenz(ah)anthracene	27068800	1.00	Y	36: 39	Y	0.20	43.56	87
Dibenz(ah)anthracene	338982	1.00	Y	36: 49	Y	1.28	0.98	0.000
d12-Benzo(ghi)perylene	53827000	1.00	Y	37: 49	Y	0.41	43.05	86
Benzo(ghi)perylene	685812	1.00	Y	37: 58	Y	1.11	1.15	0.000

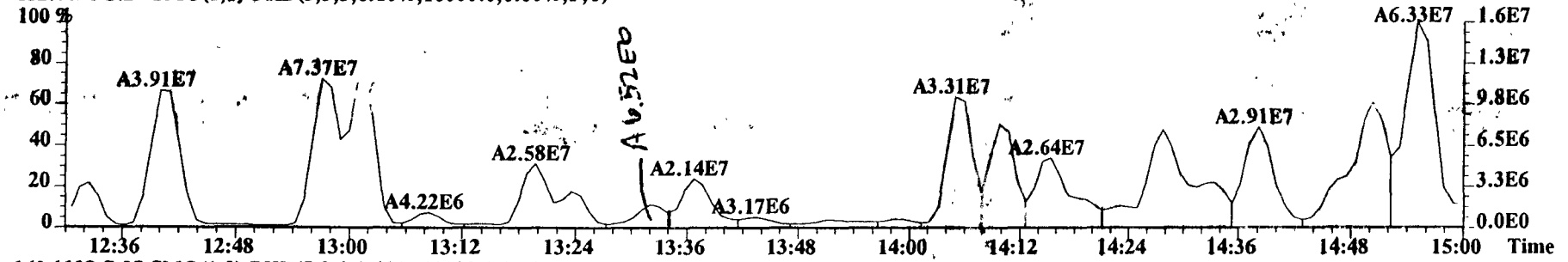
100

File:05OC98U #1-509 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR

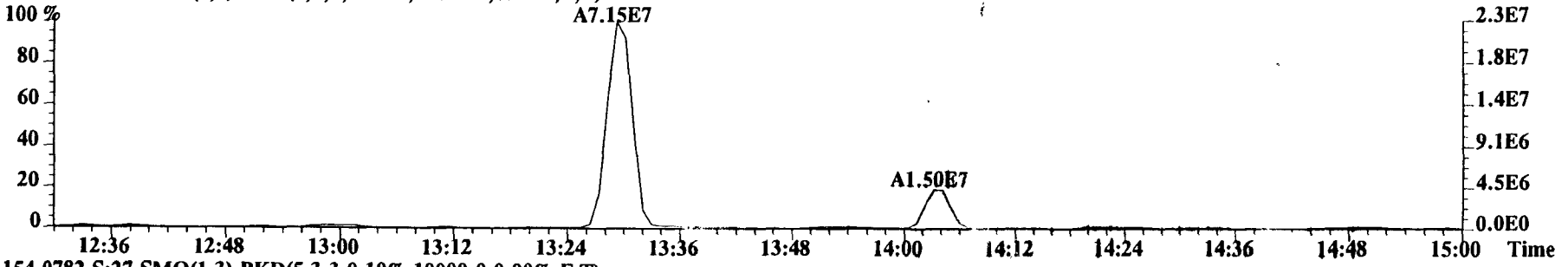


108

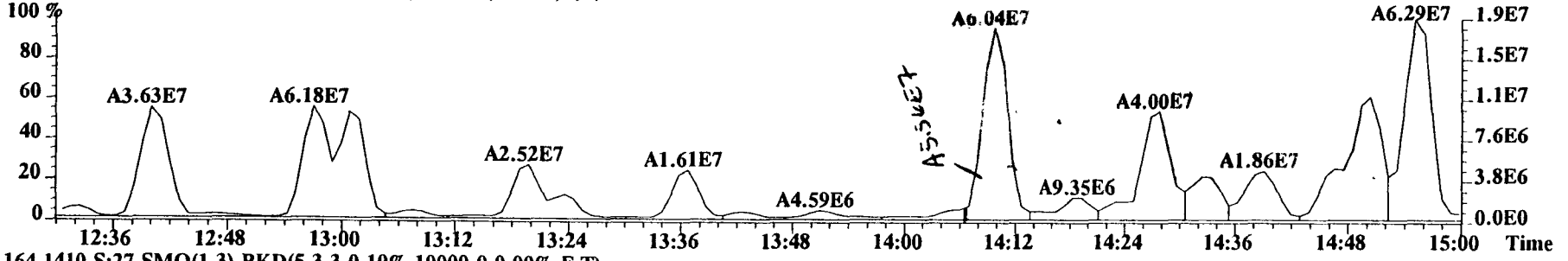
File:05OC98U #1-509 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
152.0626 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



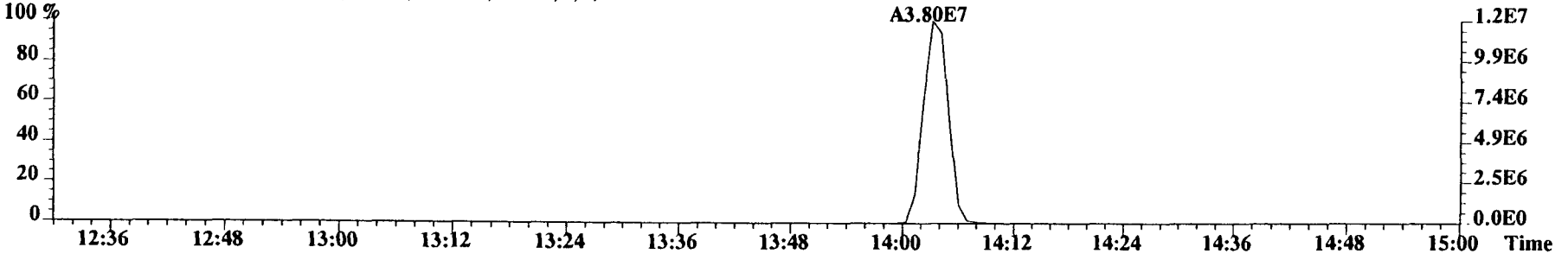
160.1128 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



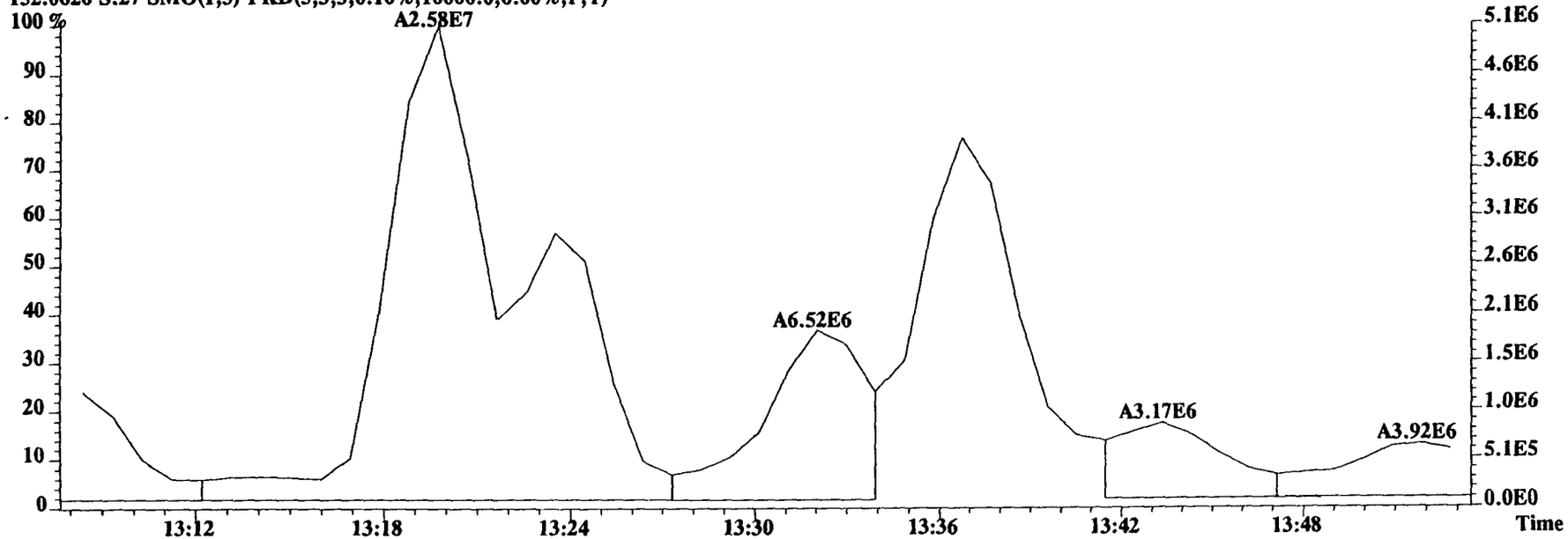
154.0782 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



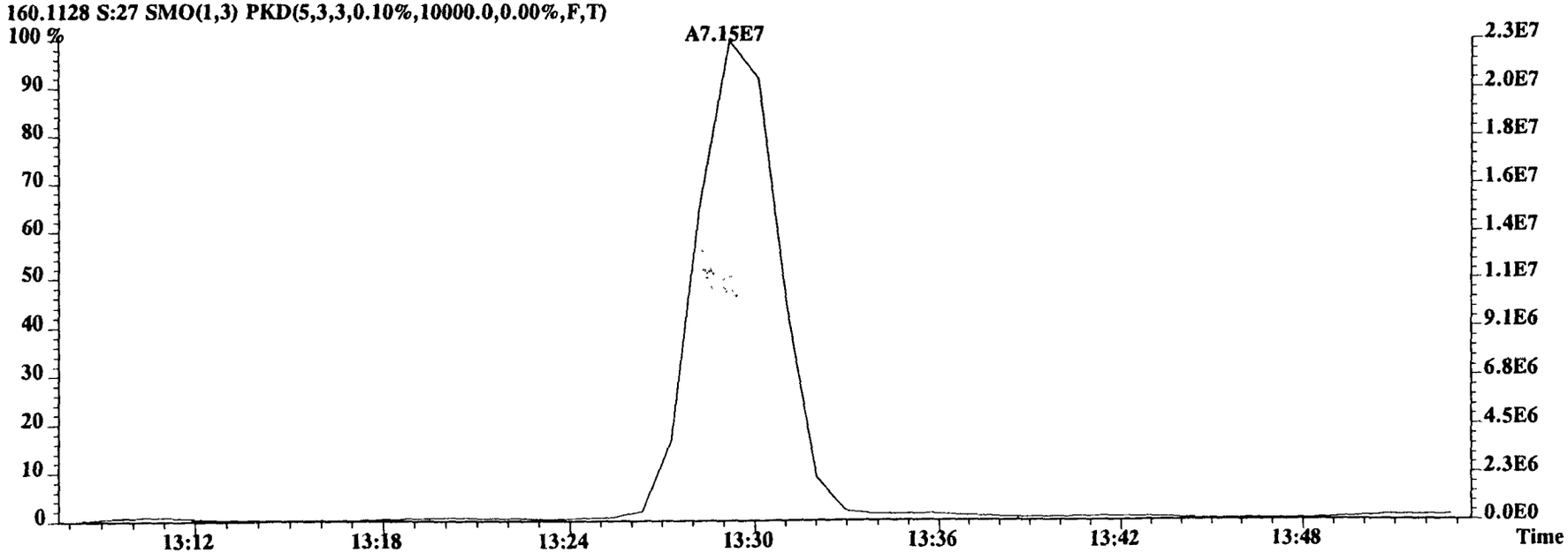
164.1410 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



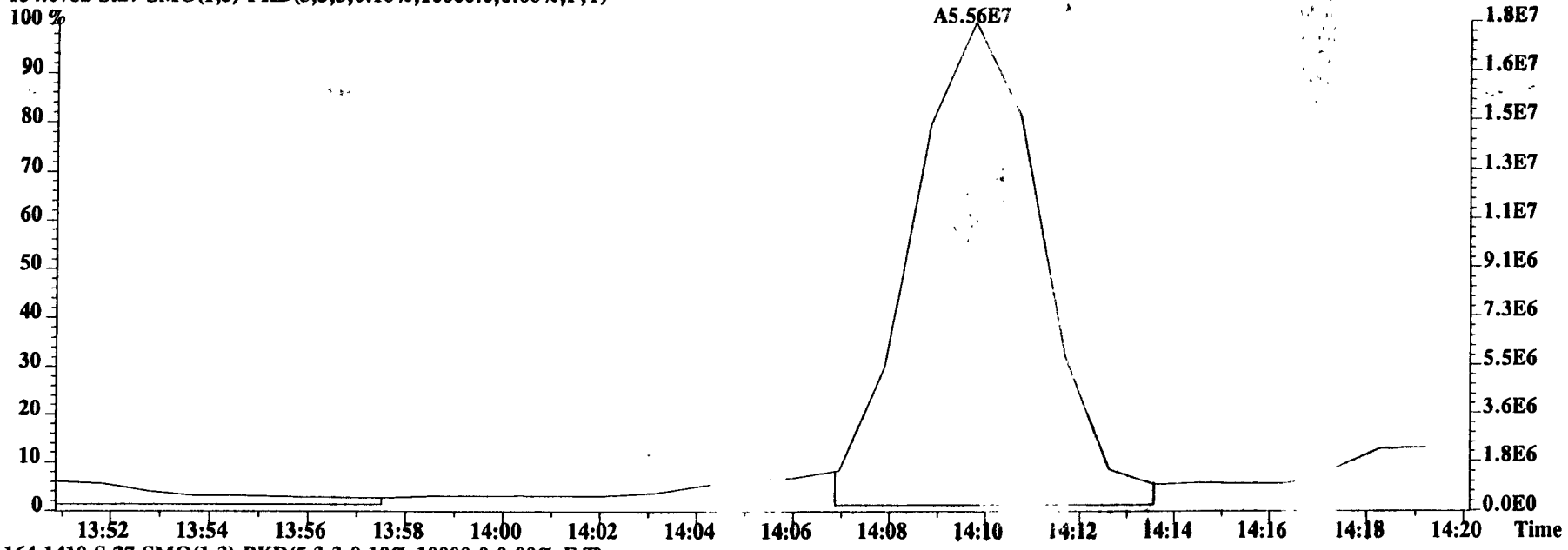
File:05OC98U #1-509 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
152.0626 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



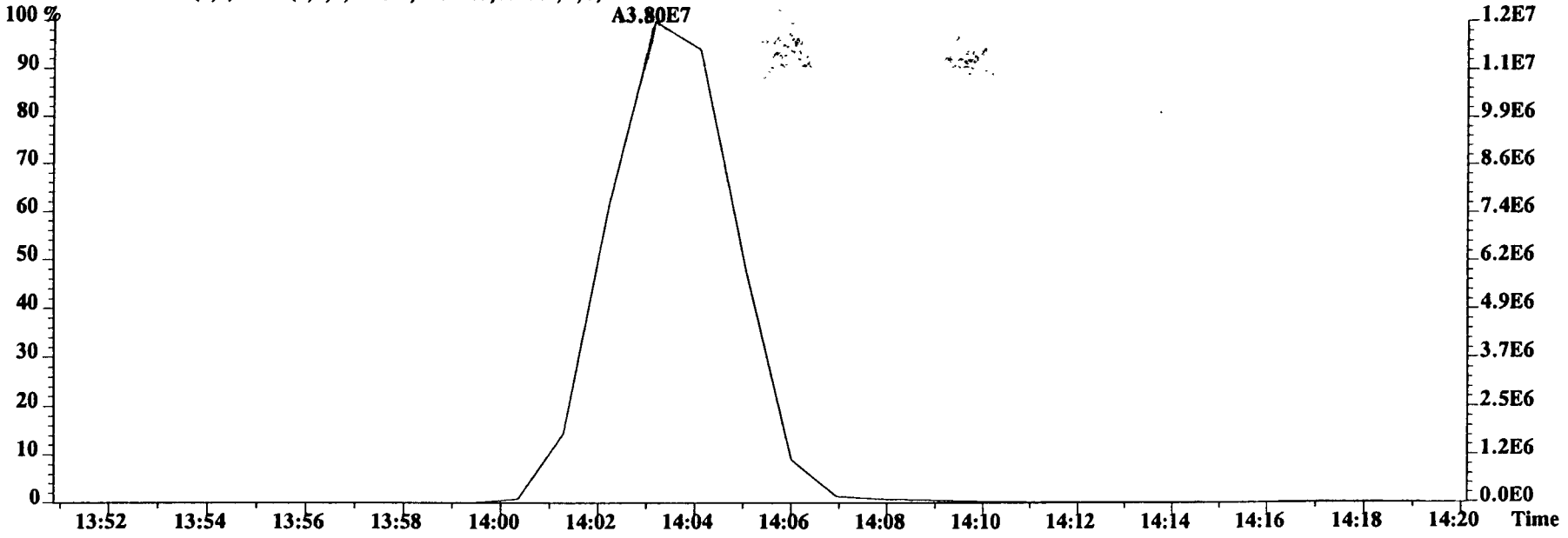
160.1128 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



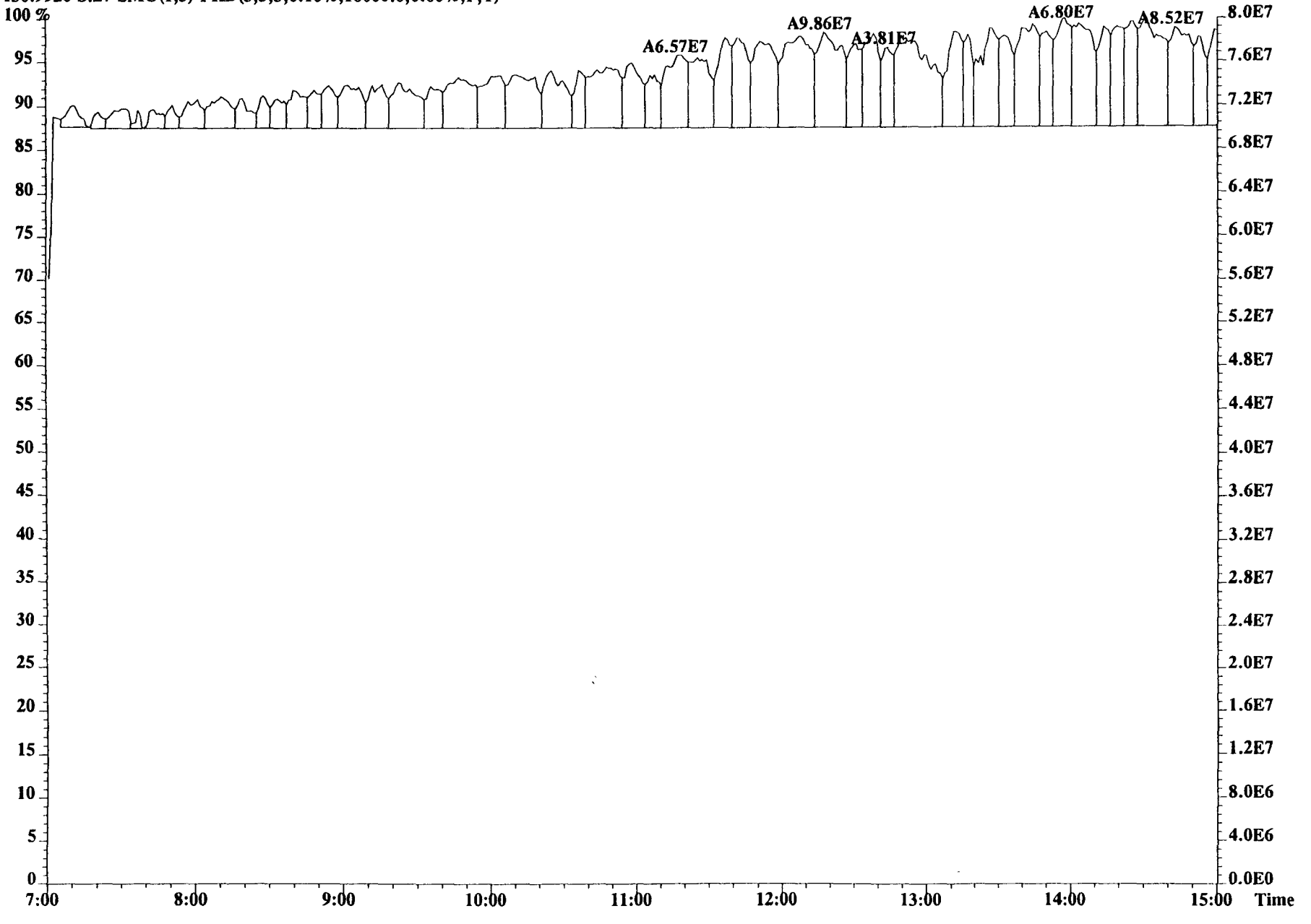
File:05OC98U #1-509 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
154.0782 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



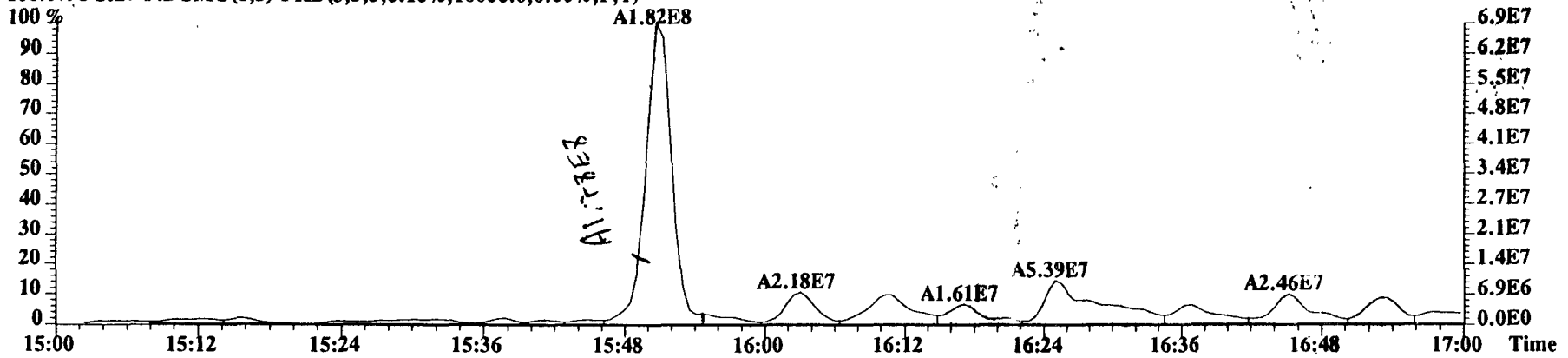
164.1410 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



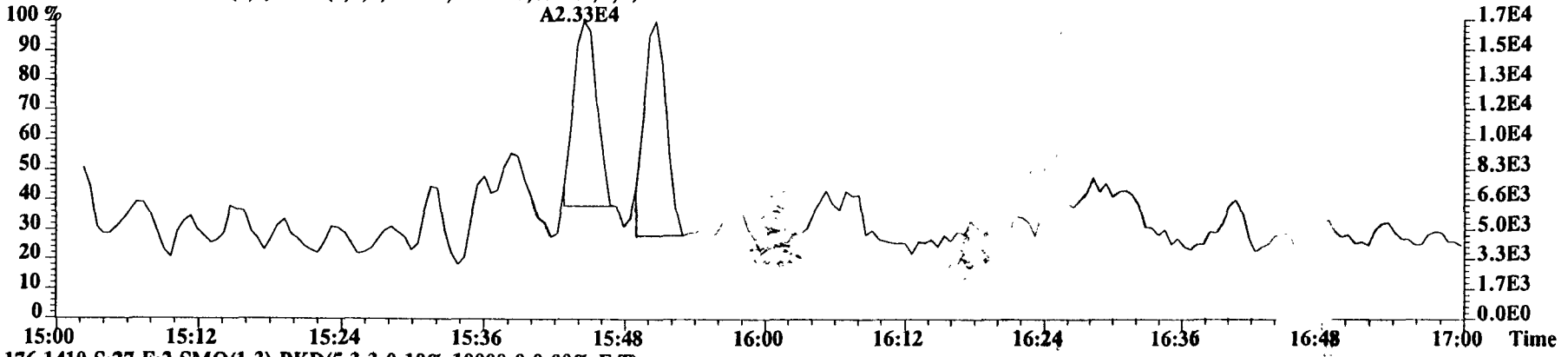
File:05OC98U #1-509 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
130.9920 S:27 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



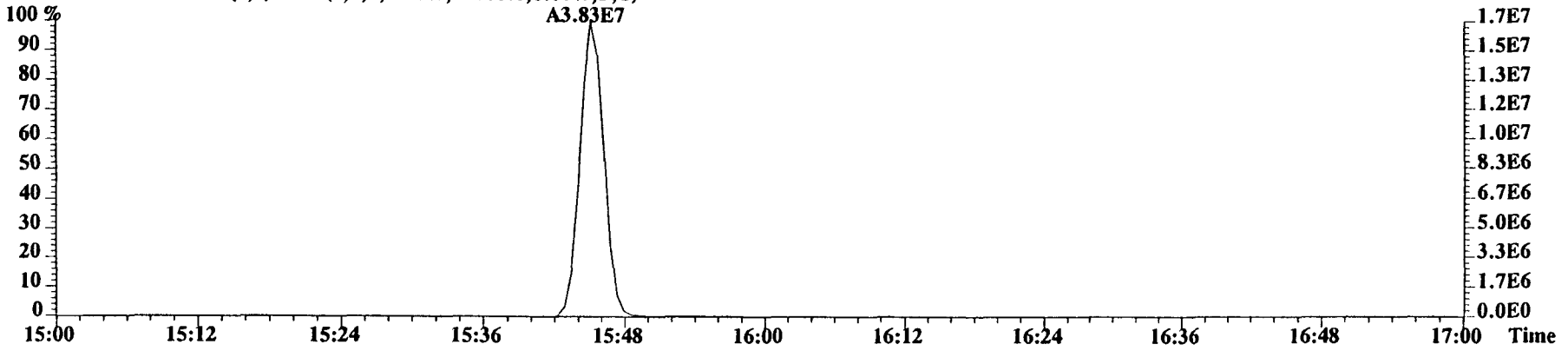
File:05OC98U #1-585 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
166.0798 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



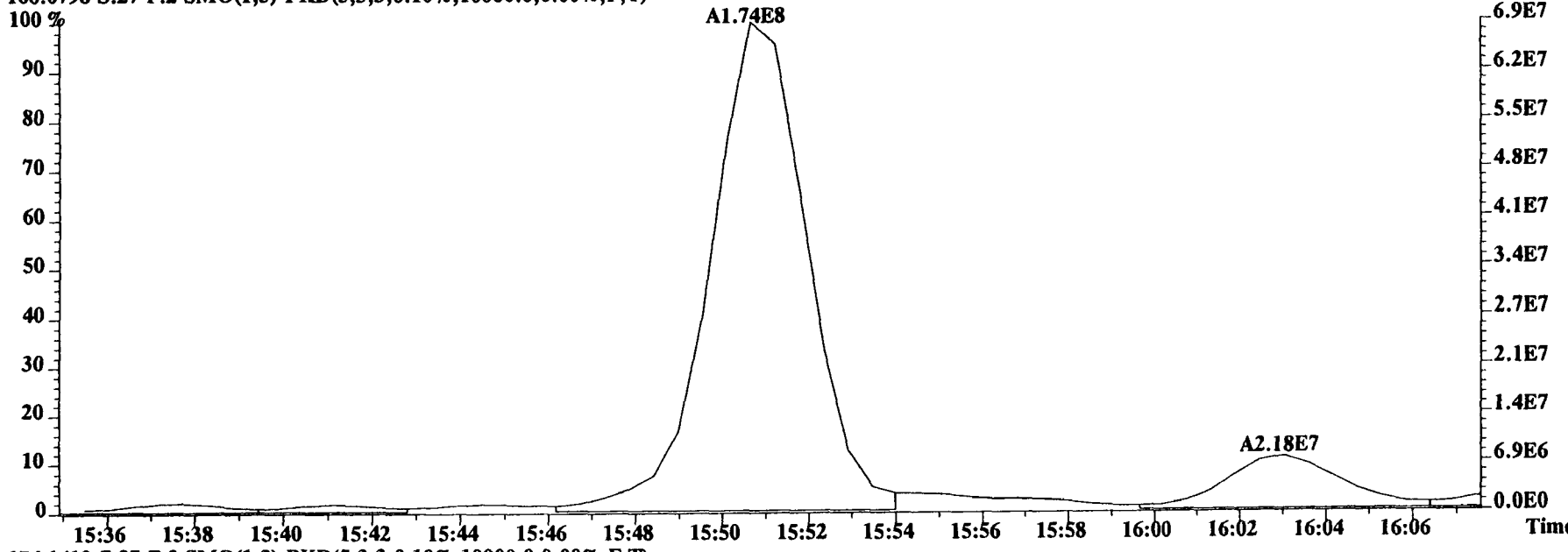
172.0984 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



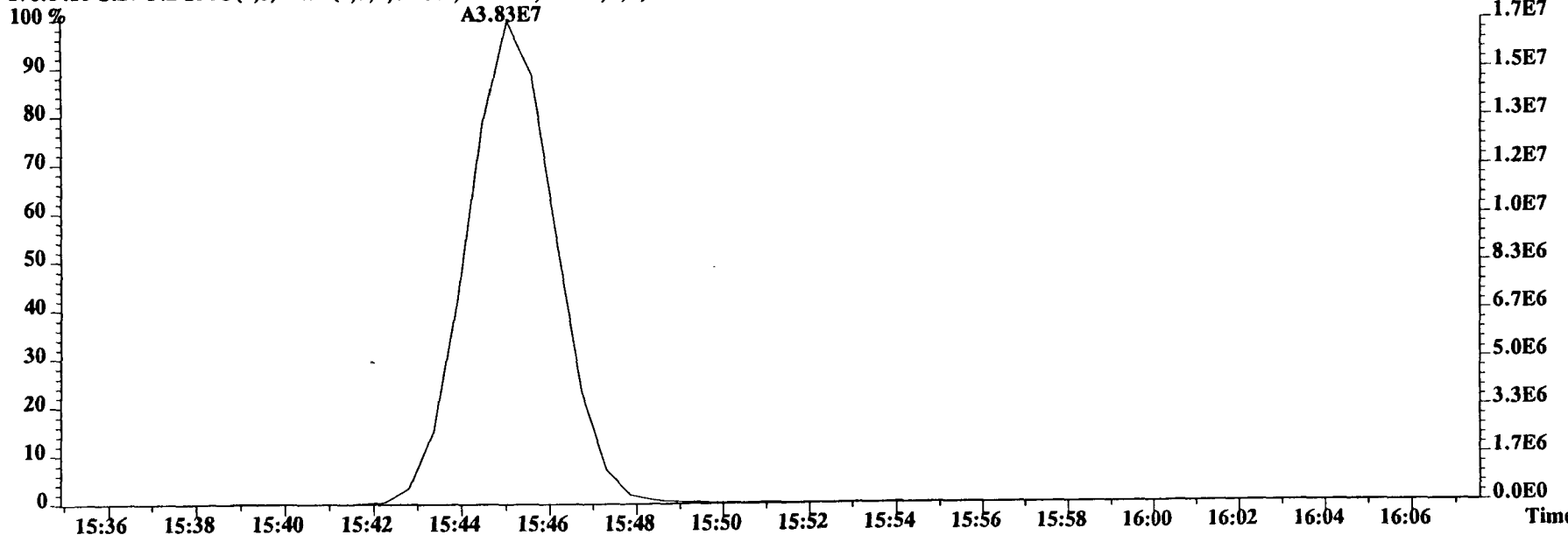
176.1410 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



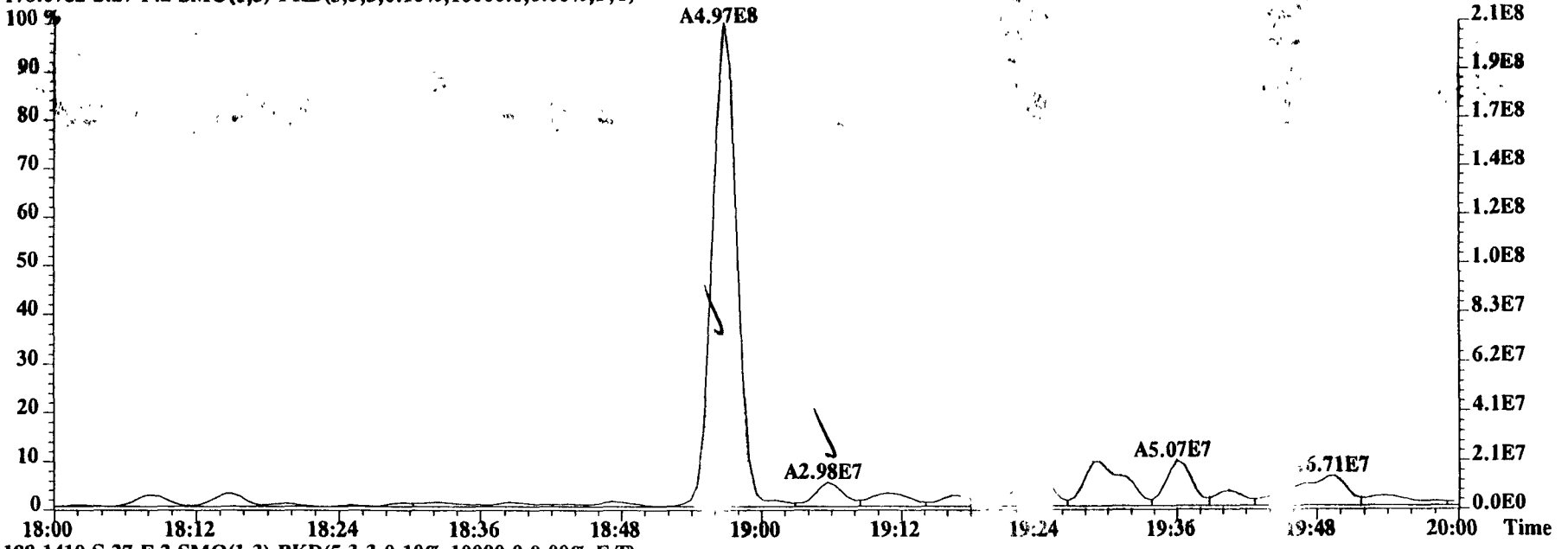
File:05OC98U #1-585 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
166.0798 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



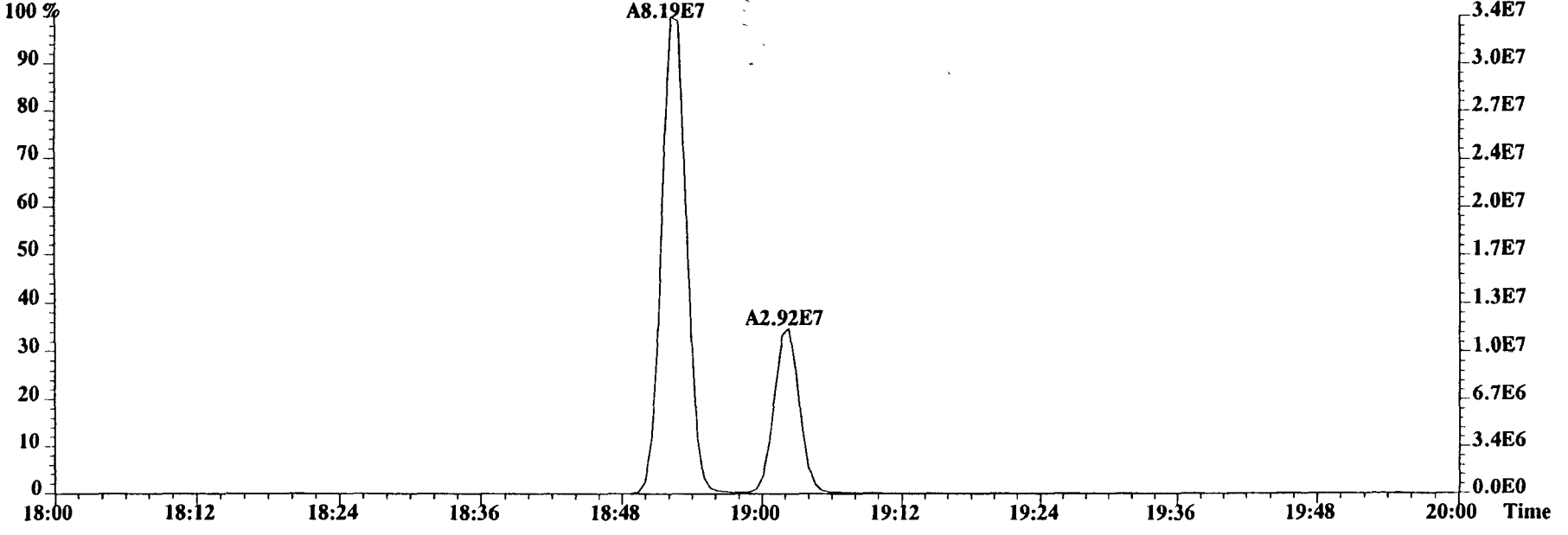
176.1410 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:05OC98U #1-585 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
178.0782 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

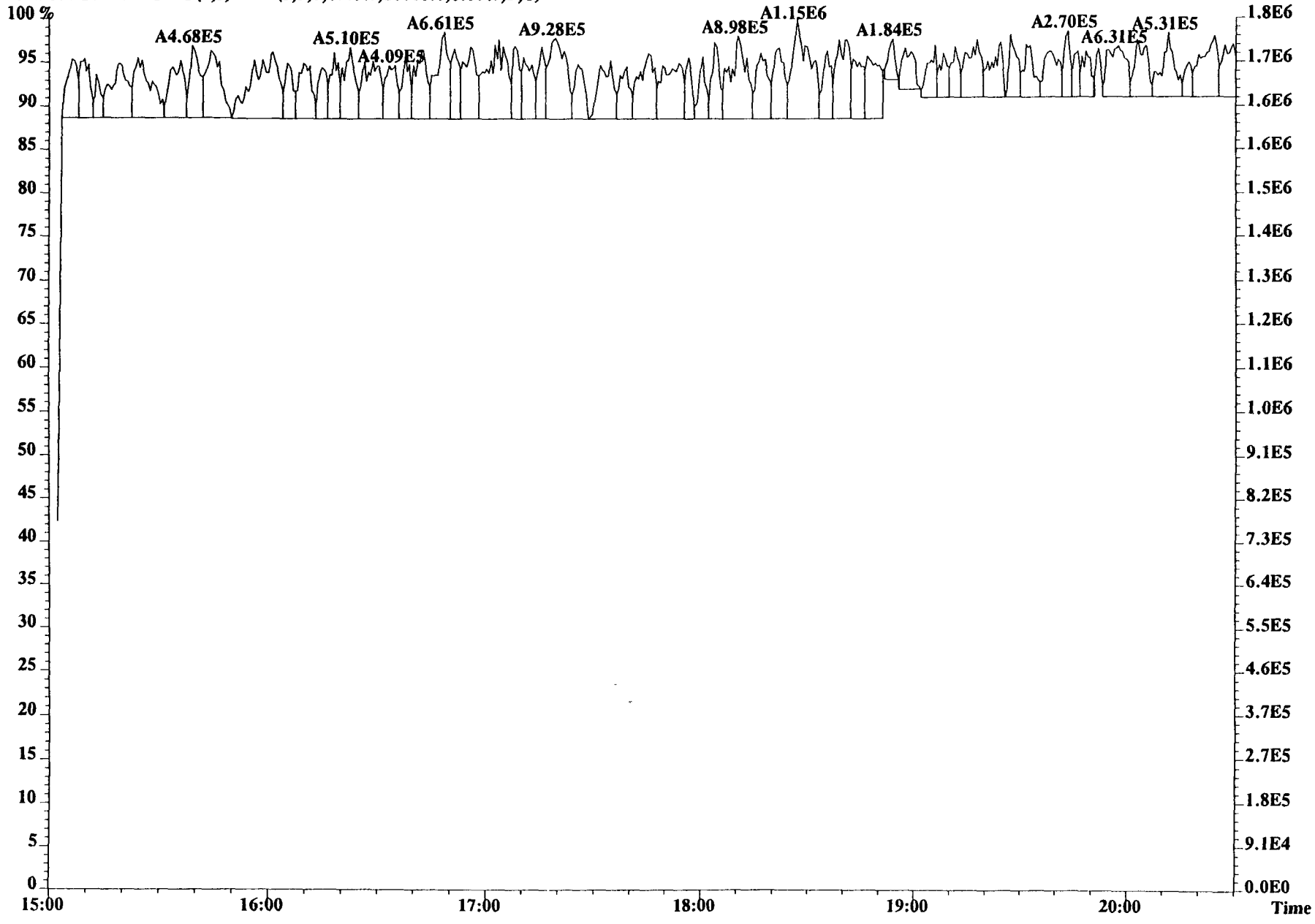


188.1410 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

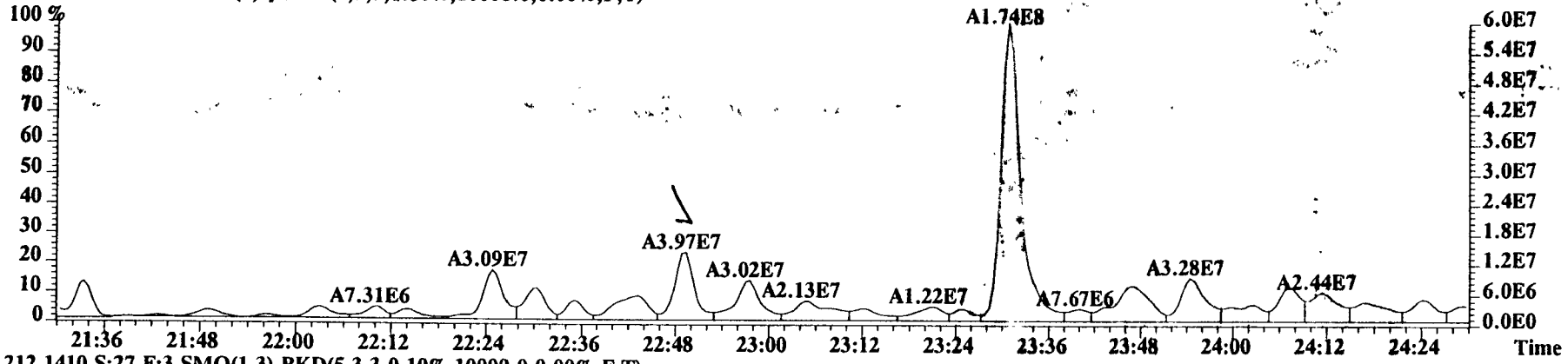


115

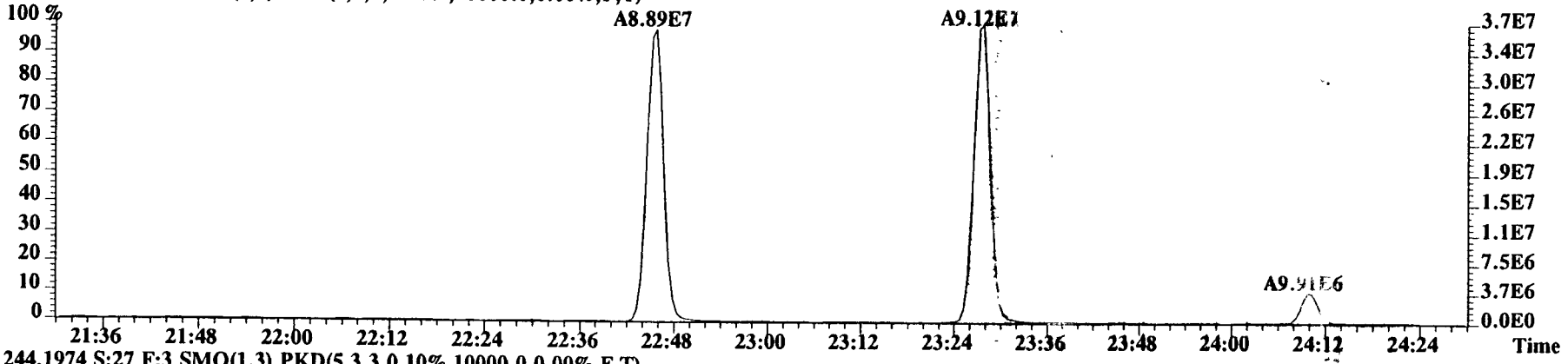
File:05OC98U #1-585 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
204.9888 S:27 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



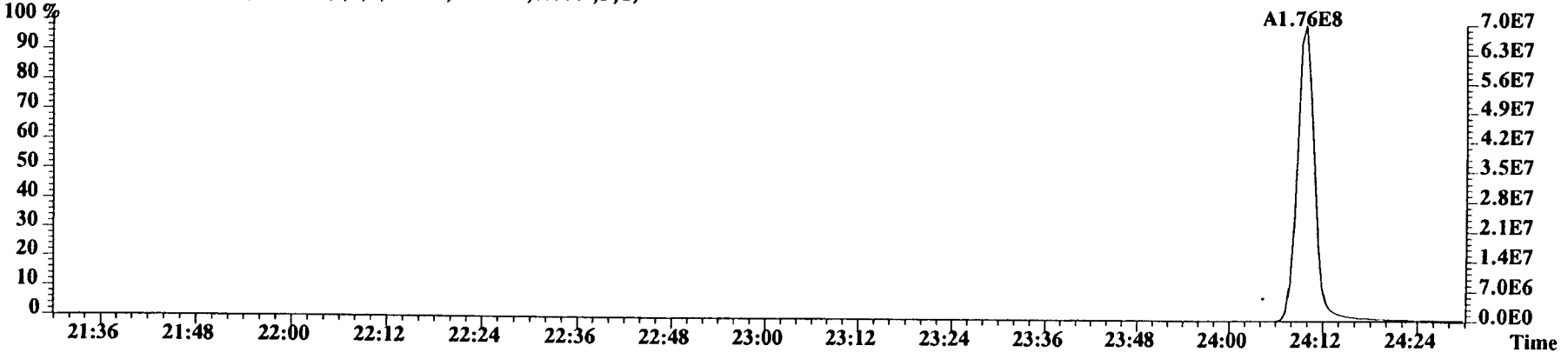
File:05OC98U #1-1052 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
202.0782 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



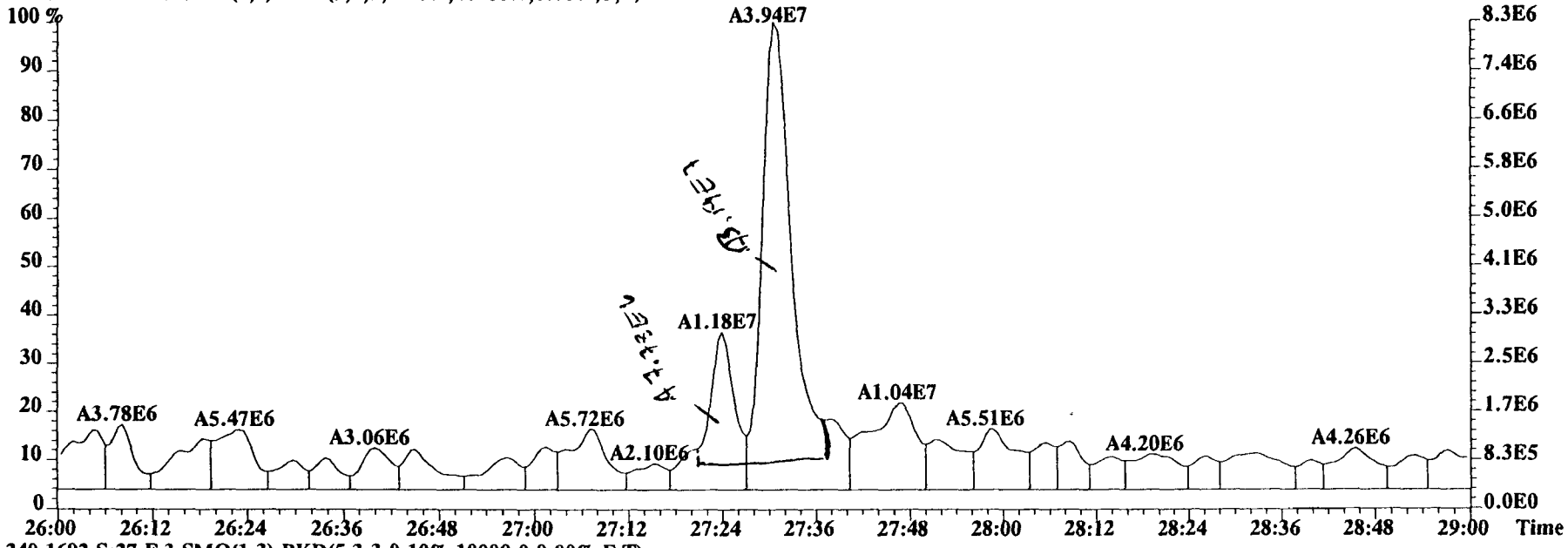
212.1410 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



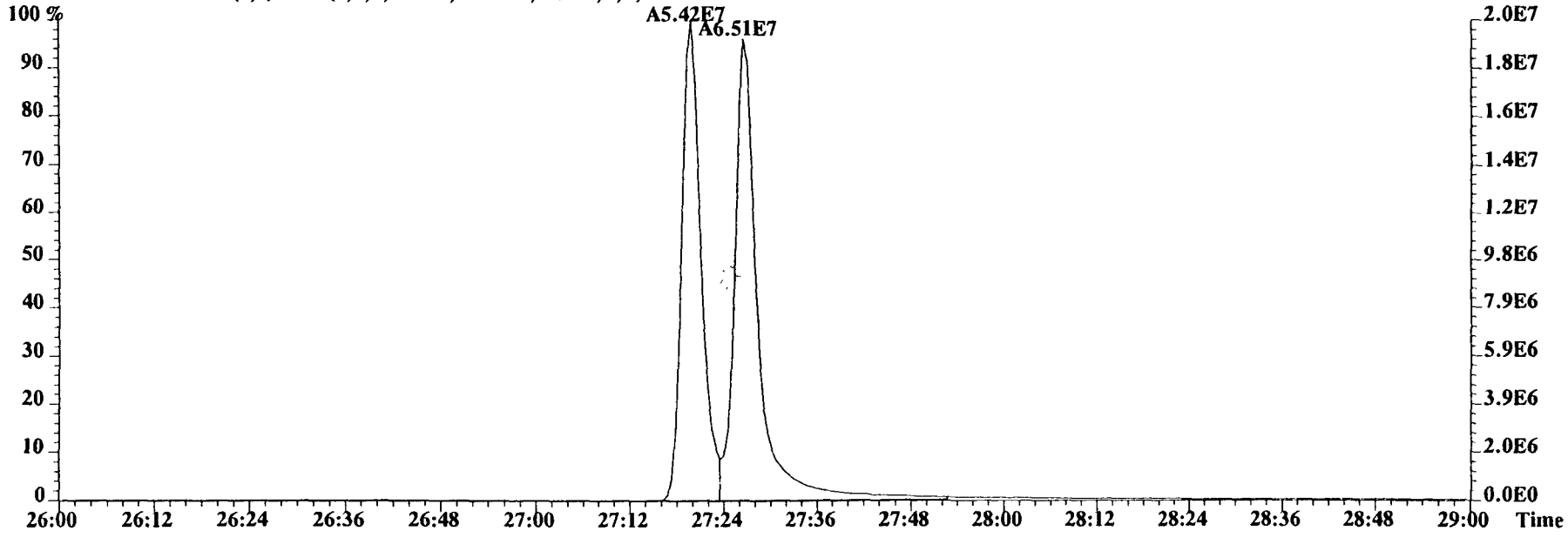
244.1974 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



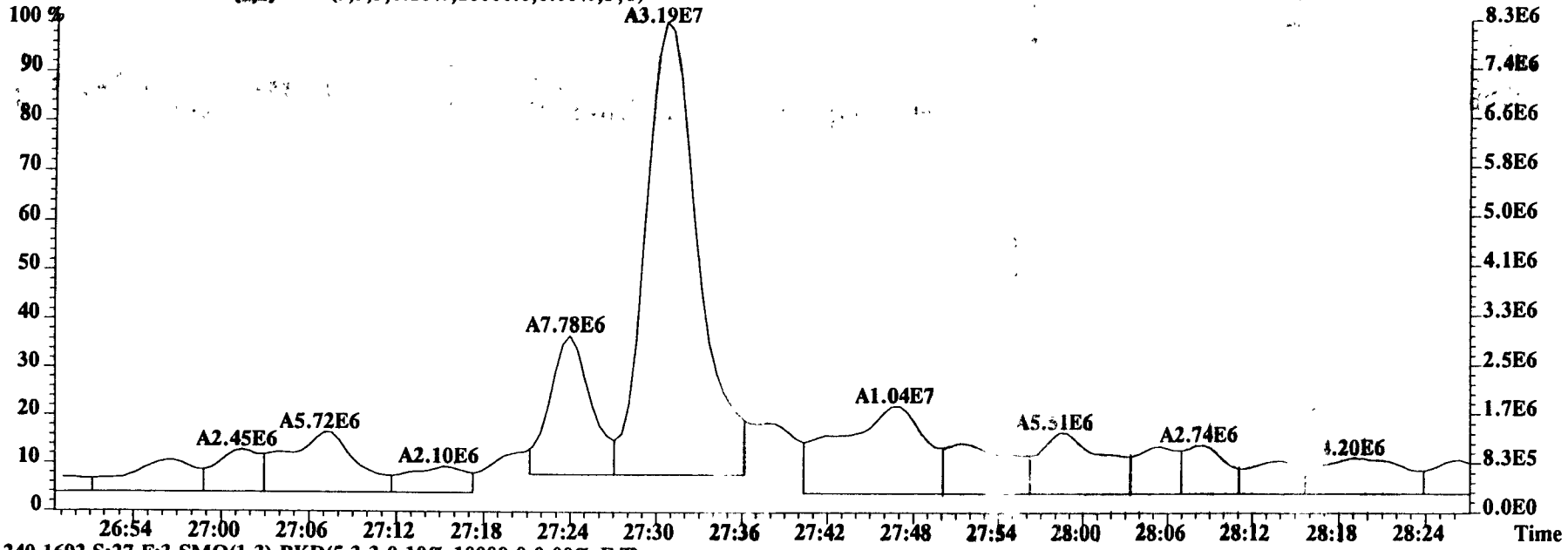
File:05OC98U #1-1052 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
228.0939 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



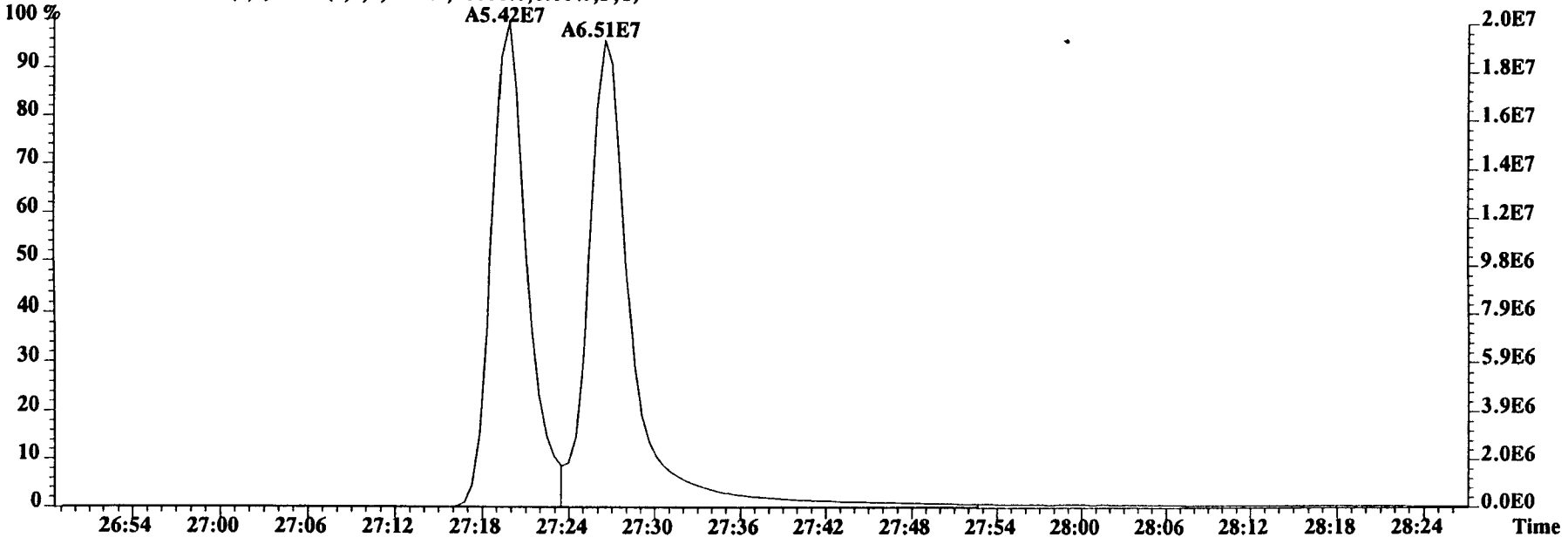
240.1692 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



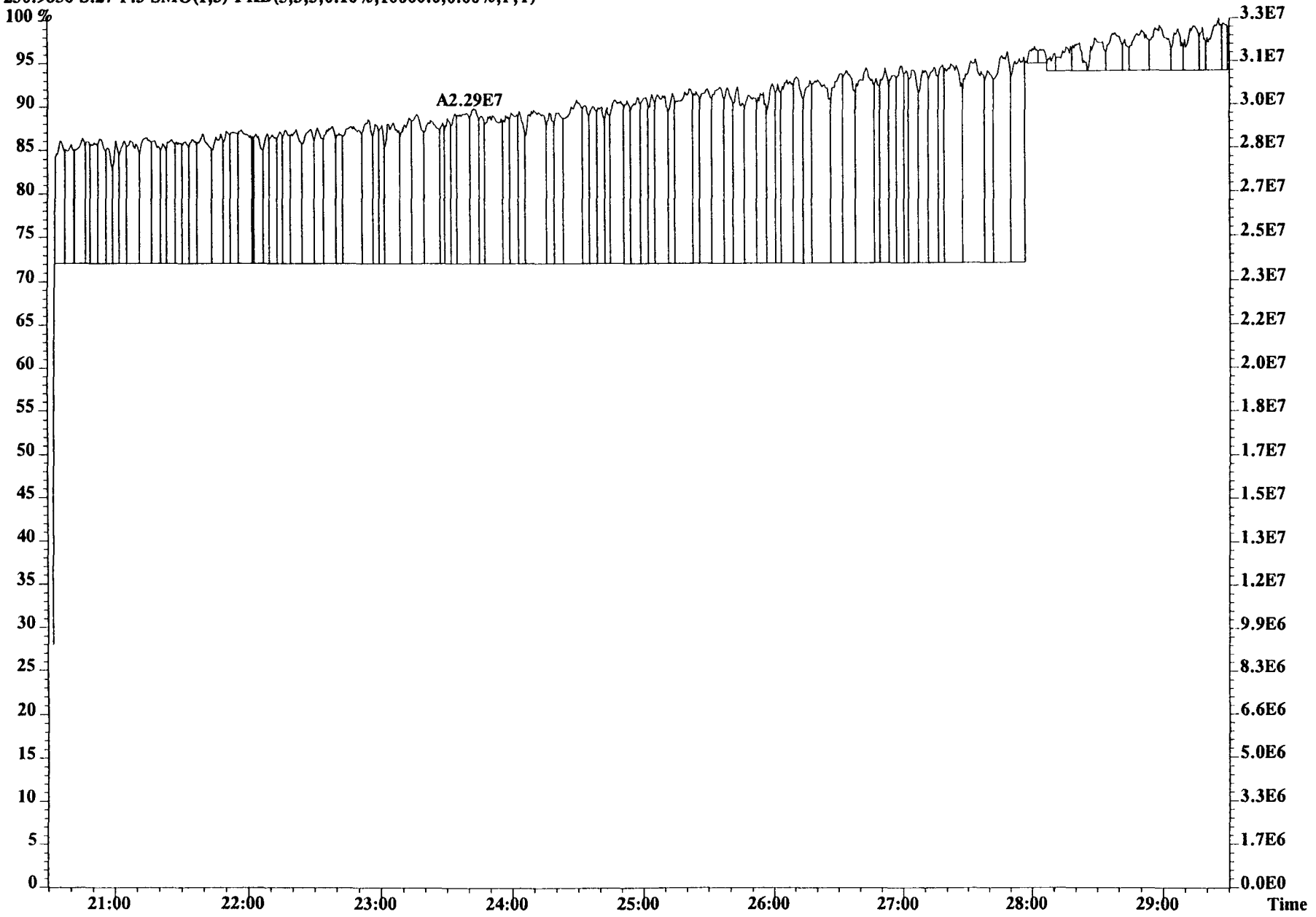
File:05OC98U #1-1052 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
228.0939 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



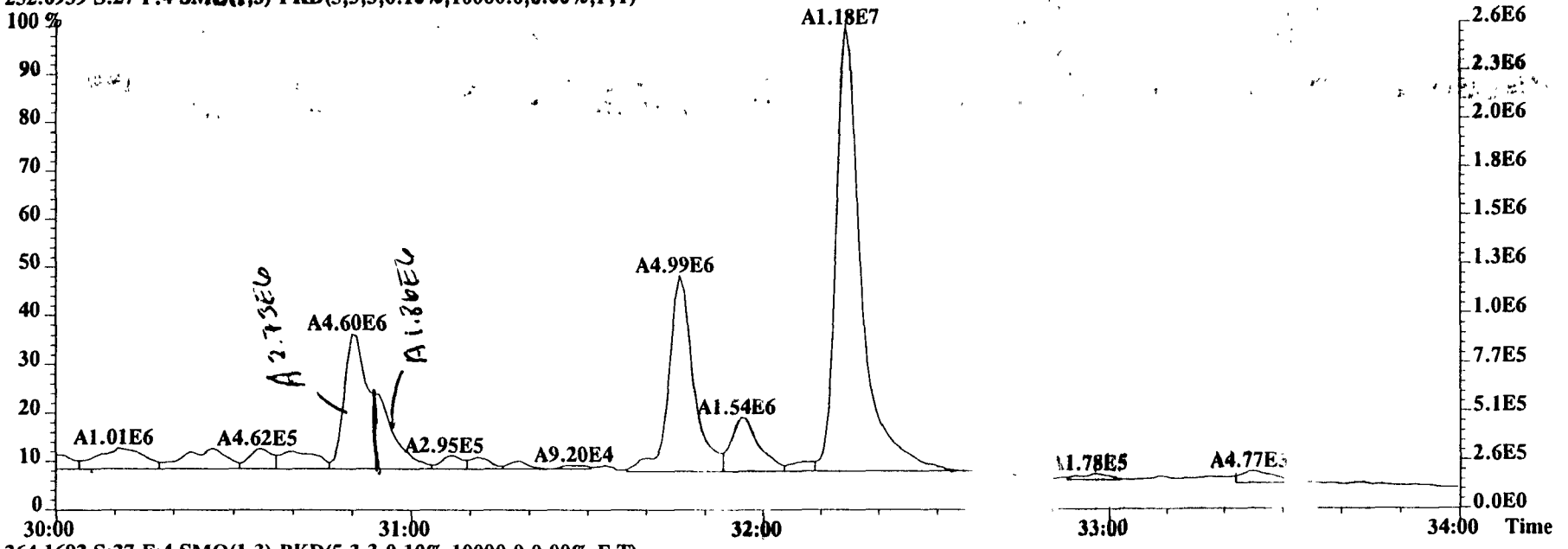
240.1692 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



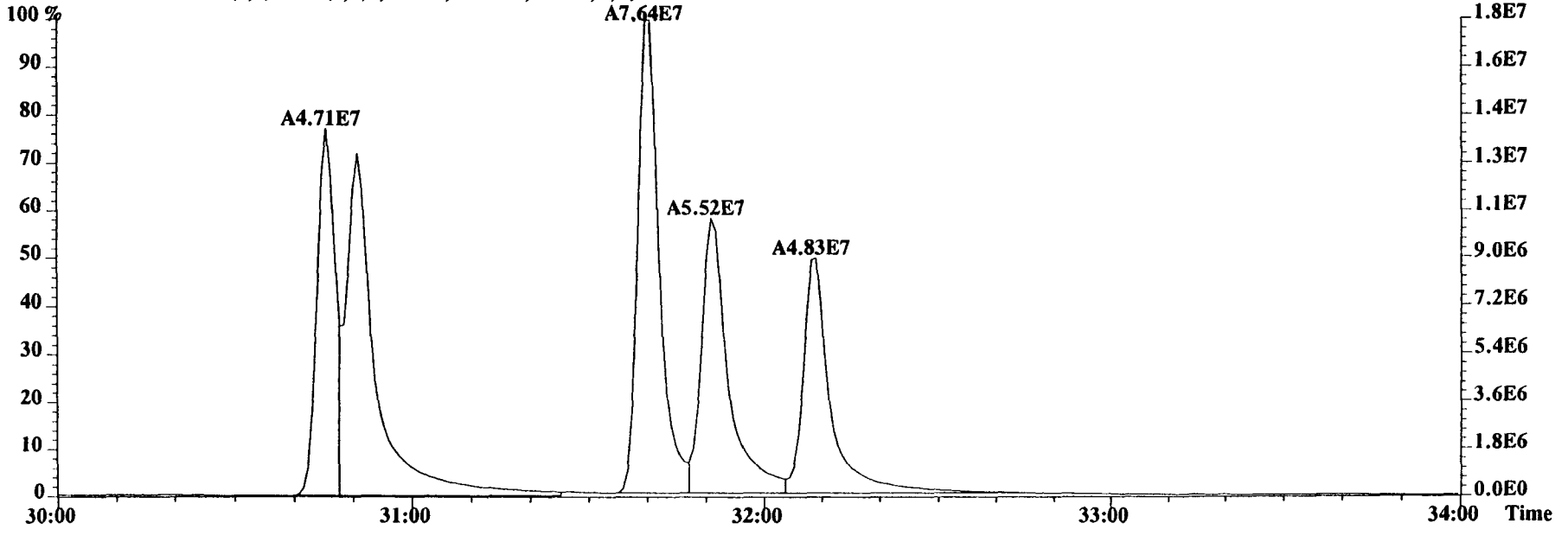
File:05OC98U #1-1052 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
230.9856 S:27 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



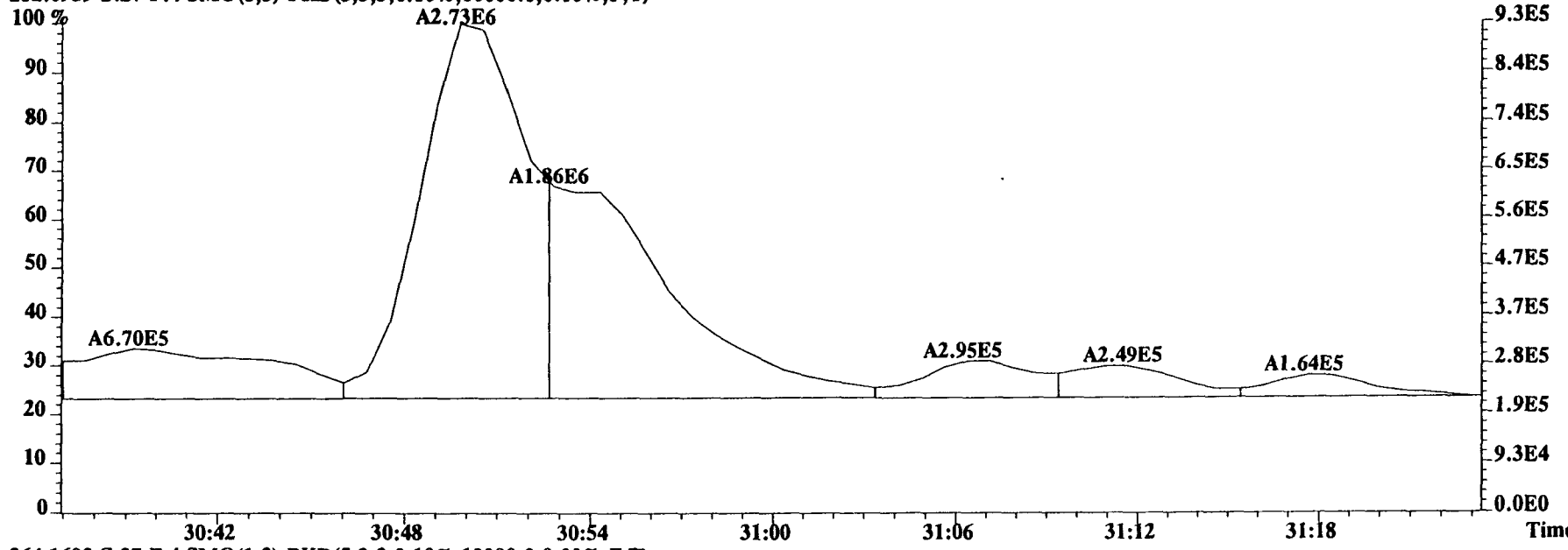
File:05OC98U #1-915 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
252.0939 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



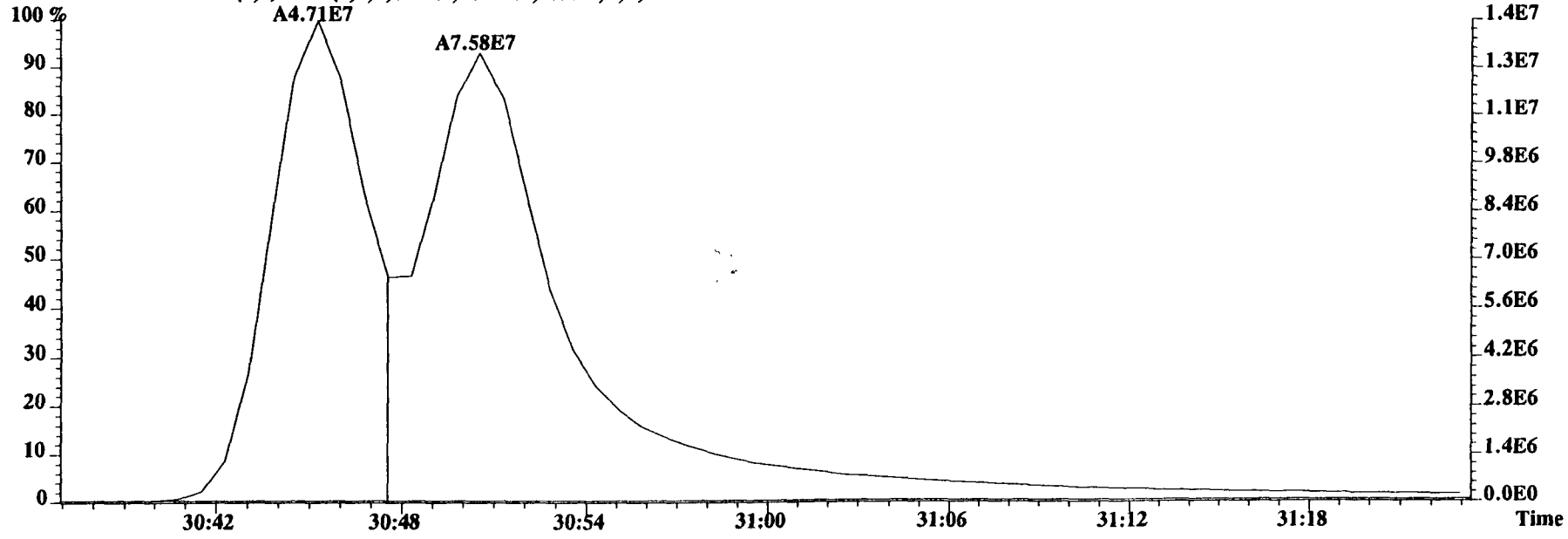
264.1692 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:05OC98U #1-915 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
252.0939 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

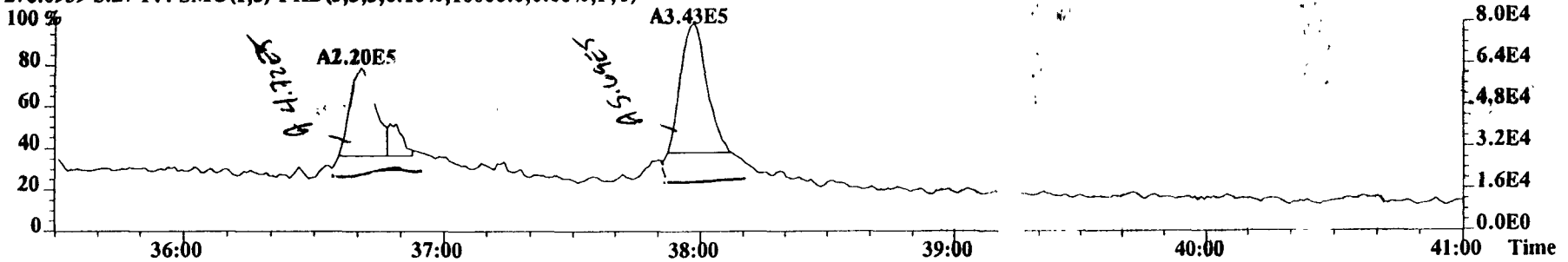


264.1692 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

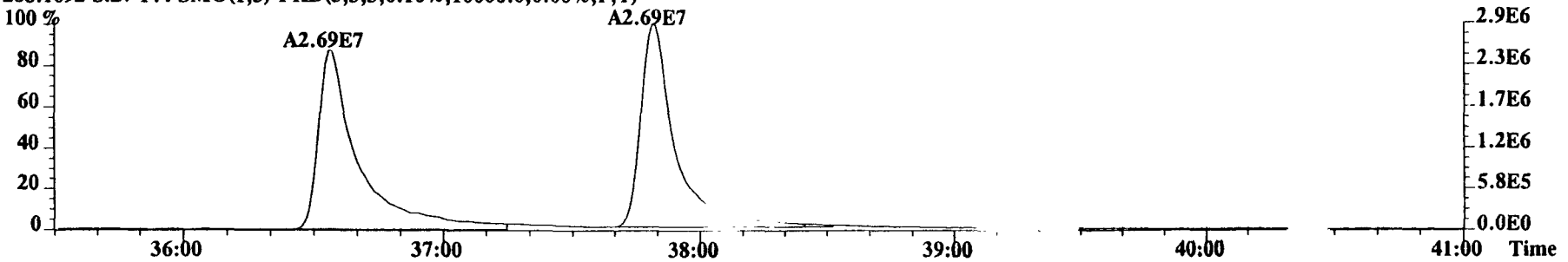


File:05OC98U #1-915 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-IDI :100X S-MM5-2- Exp:PAHAIR

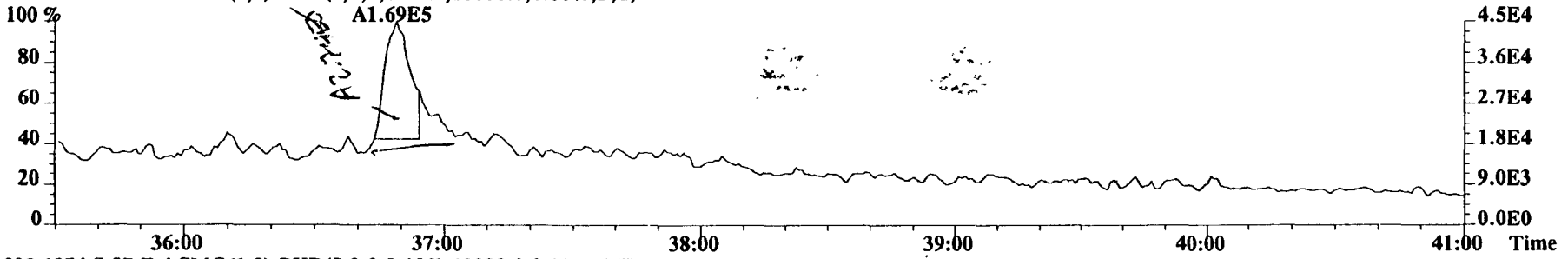
276.0939 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



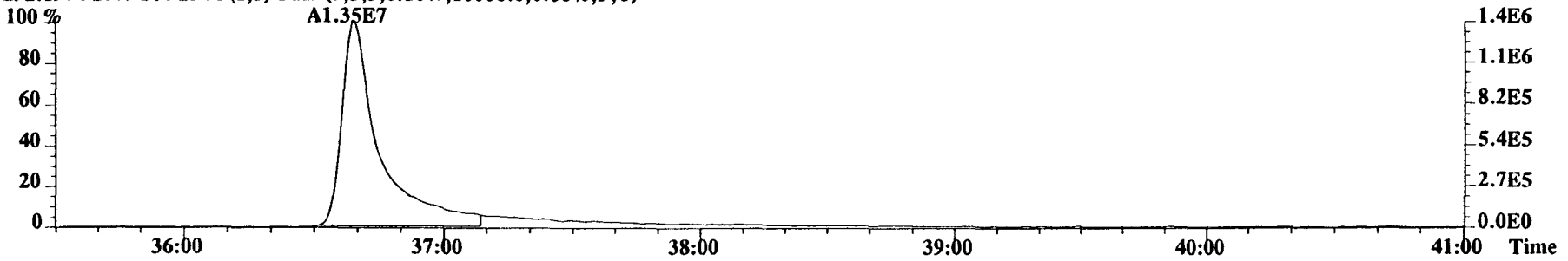
288.1692 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



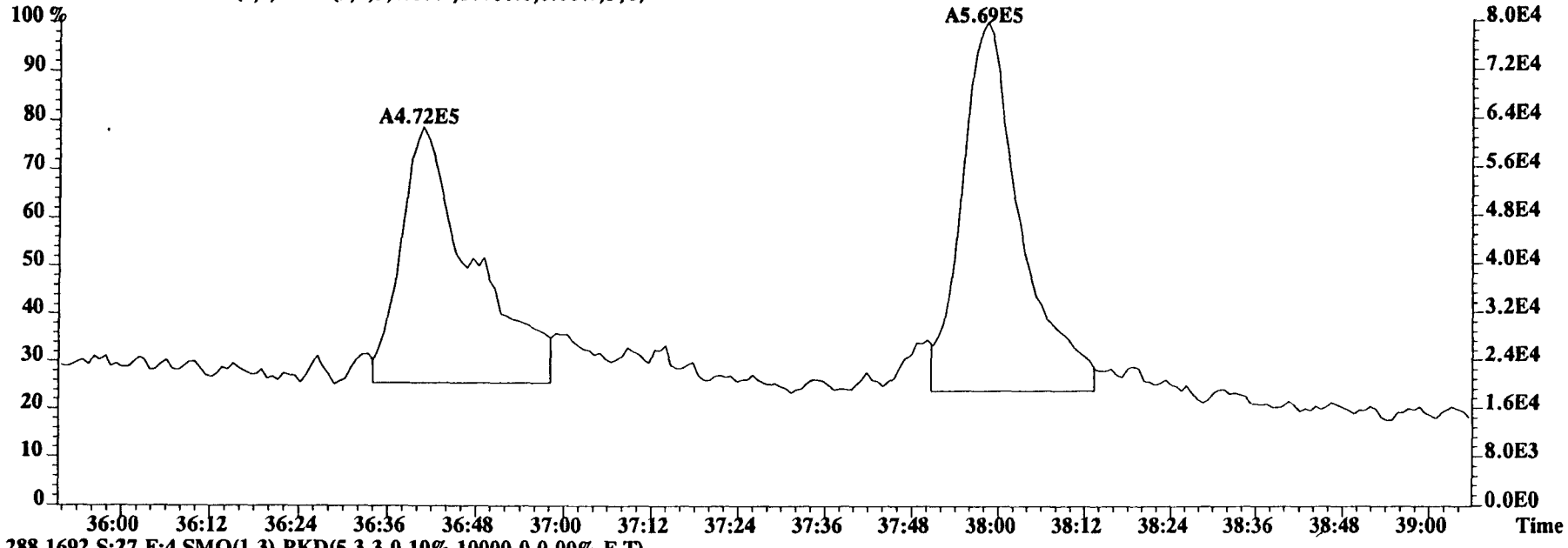
278.1096 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



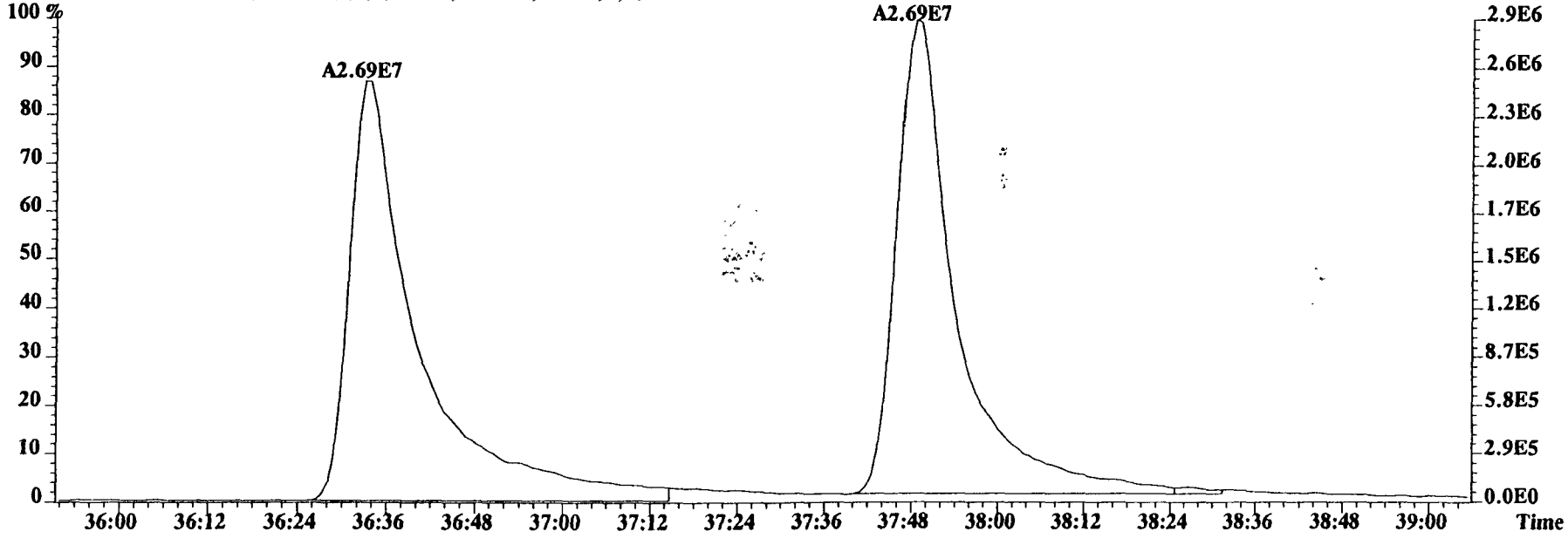
292.1974 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



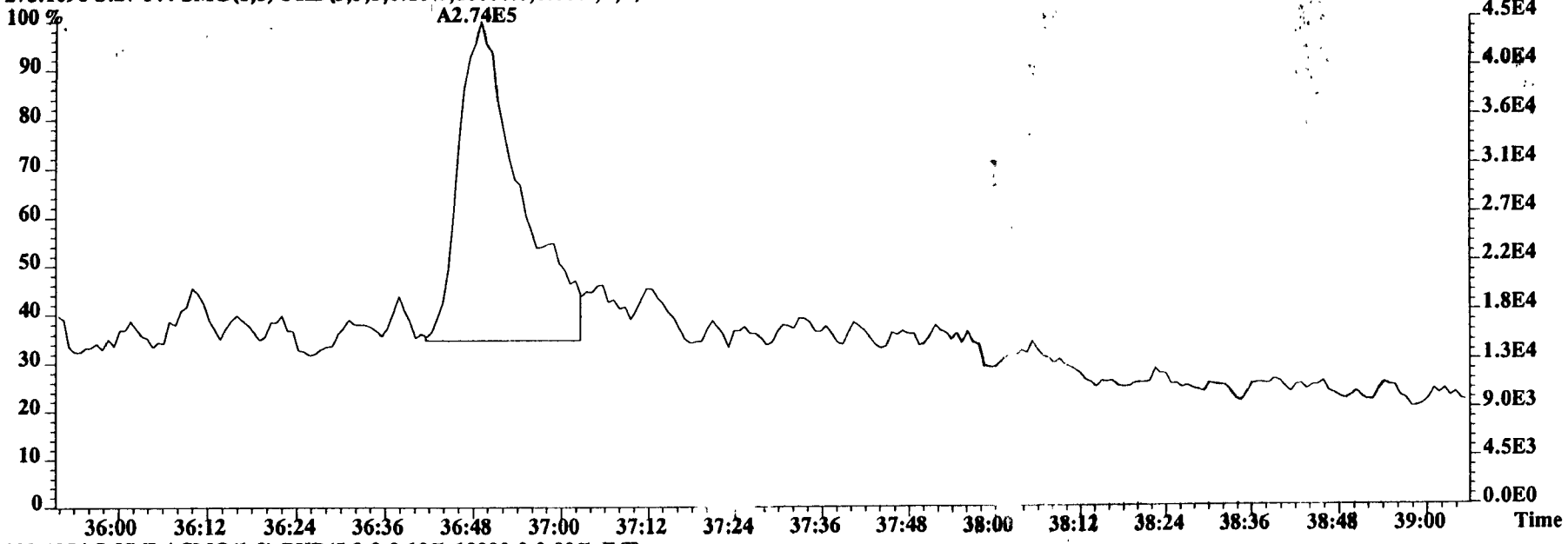
File:05OC98U #1-915 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
276.0939 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



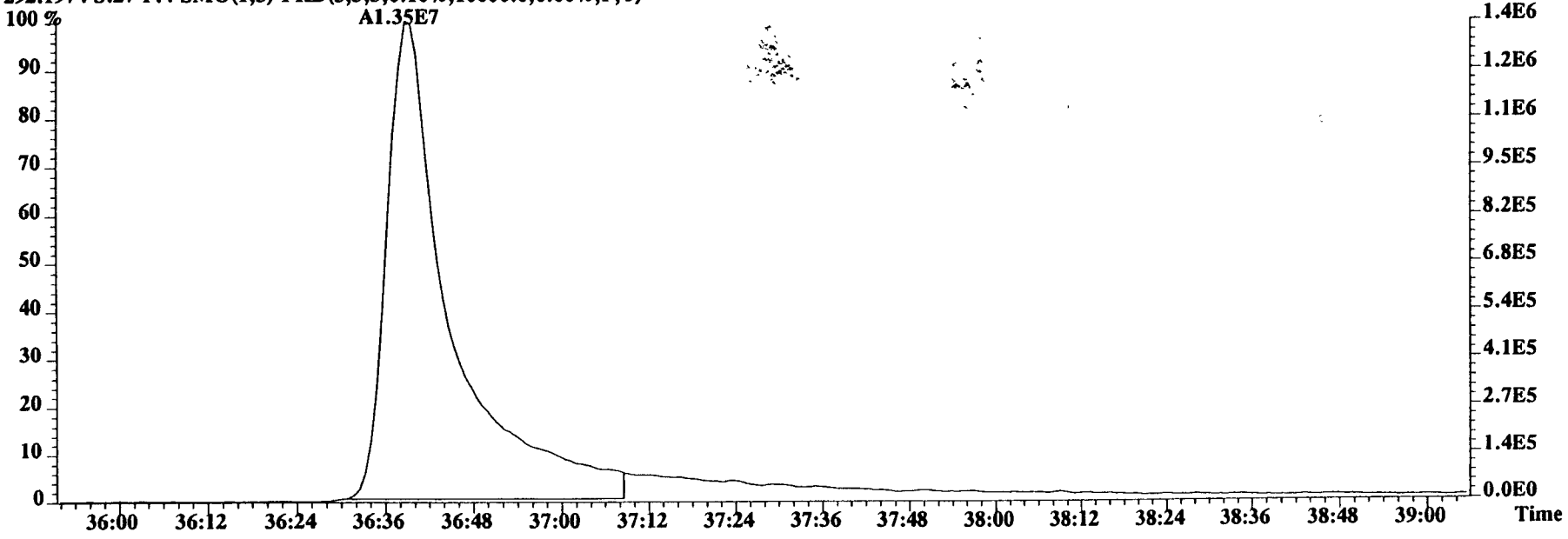
288.1692 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



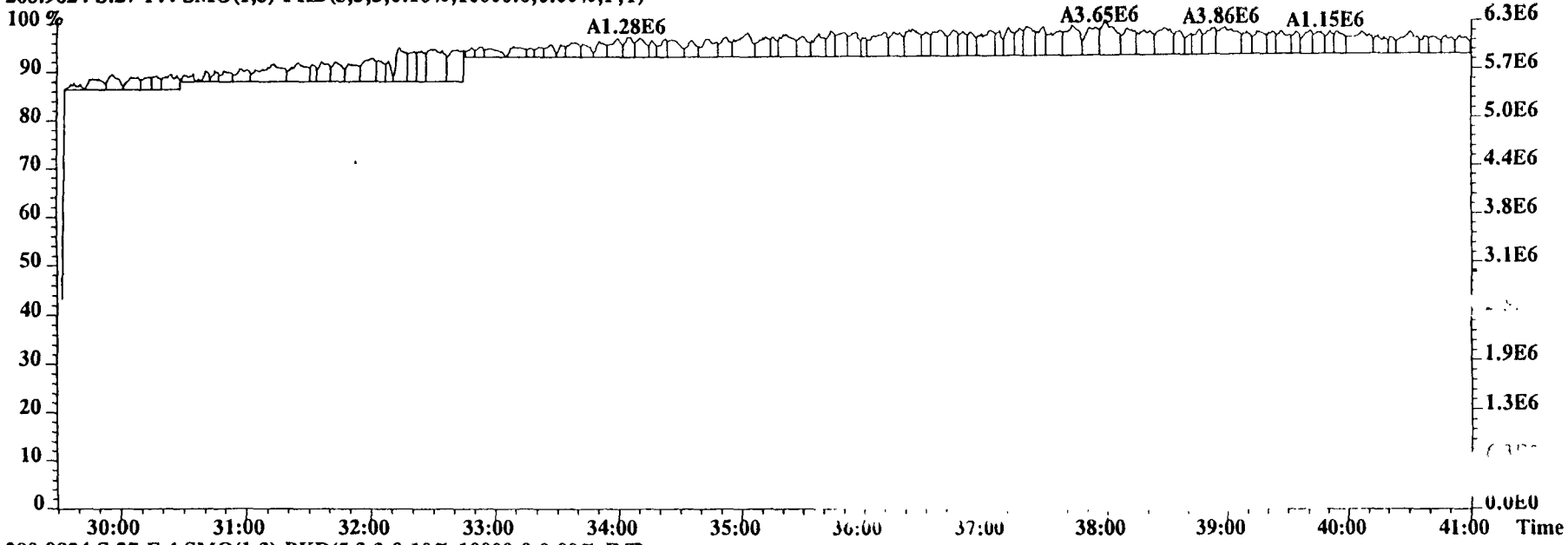
File:05OC98U #1-915 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
278.1096 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



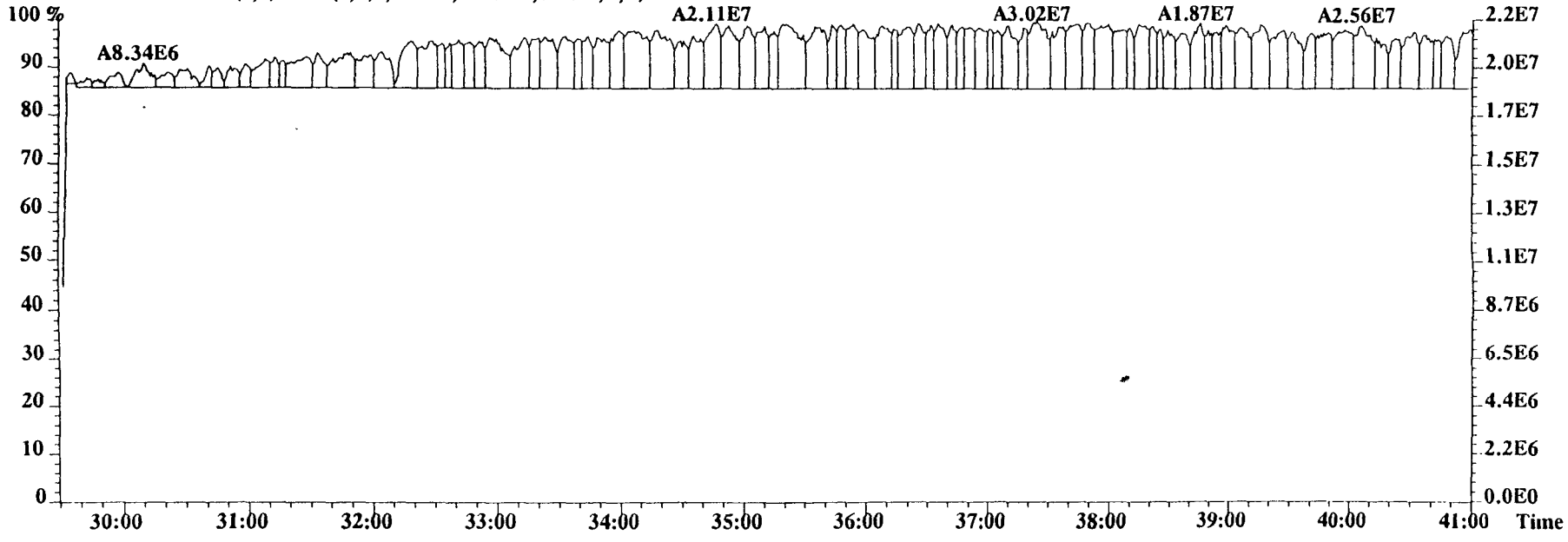
292.1974 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:05OC98U #1-915 Acq: 6-OCT-1998 13:56:44 GC EI+ Voltage SIR Autospec-Ultima
Sample#27 Text:300681-1DI :100X S-MM5-2- Exp:PAHAIR
268.9824 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:27 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



02-SEP-1998 07:05:35 PM Dioxin Furan Unknown RESULTS

Results : 20AU98U171.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U 300681-3 :T-MM5-2-F :Trai Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMP		Rec/ MDL
d10-2-Methylnaphthalene	65564600	1.00	Y	11: 11	Y	1.00	50.00		
d8-Naphthalene	53317400	1.00	Y	8: 57	Y	1.25	32.64		65
Naphthalene	6996500000	1.00	Y	9: 1	Y	1.05	1.9e+04	E	B
2-Methylnaphthalene	10409320000	1.00	Y	11: 17	Y	0.77	3.8e+04	E	B
d8-Acenaphthylene	~~118503200~~ 74400000	1.00	Y	14: 16	Y	1.55	~~58.30~~ 36.60		73
Acenaphthylene	202000000	1.00	Y	14: 18	Y	0.86	~~296.45~~ 472.18		
d10-Acenaphthene	32254800	1.00	Y	14: 49	Y	0.88	28.04		56
Acenaphthene	900880000	1.00	Y	14: 55	Y	0.93	4510.28	E	B
d10-Anthracene	27200000	1.00	Y	19: 46	Y	1.00	50.00		
d10-Fluorene	12997740	1.00	Y	16: 31	Y	1.13	21.15		42
Fluorene	1880666000	1.00	Y	16: 37	Y	1.05	2.1e+04	E	B
d10-Phenanthrene	43964200	1.00	Y	19: 41	Y	2.63	30.74		61
Phenanthrene	5240000000	1.00	Y	19: 40	Y	0.84	2.1e+04	E	B
Anthracene	424000000	1.00	Y	19: 46	Y	0.83	1746.65	E	
d12-Benzo(e)pyrene	198459000	1.00	Y	32: 39	Y	1.00	50.00		
d10-Fluoranthene	47800000	1.00	Y	23: 33	Y	0.80	14.99		30
Fluoranthene	402000000	1.00	Y	23: 38	Y	1.04	1213.66	E	B
d10-Pyrene	48600000	1.00	Y	24: 16	Y	0.81	15.12		30
Pyrene	1140000000	1.00	Y	24: 20	Y	1.11	3180.44	E	
d12-Benzo(a)anthracene	80200000	1.00	Y	28: 7	Y	0.65	31.07		62
Benzo(a)anthracene	206000000	1.00	Y	28: 11	Y	1.06	365.48		
d12-Chrysene	88200000	1.00	Y	28: 14	Y	0.85	26 20		52
Chrysene	1206000000	1.00	Y	28: 18	Y	0.97	2113.76	E	
d12-Benzo(e)pyrene	198459000	1.00	Y	32: 39	Y	1.00	50.00		
d12-Benzo(b)fluoranthene	125629800	1.00	Y	31: 39	Y	0.63	50.56		101
Benzo(b)fluoranthene	142400000	1.00	Y	31: 45	Y	1.07	159.19		
d12-Benzo(k)fluoranthene	119946200	1.00	Y	31: 45	Y	0.90	33.72		67
Benzo(k)fluoranthene	43000000	1.00	Y	31: 48	Y	1.16	46.58		
d12-Benzo(a)pyrene	123865000	1.00	Y	32: 51	Y	0.75	41.54		83
Benzo(e)pyrene	218000000	1.00	Y	32: 45	Y	1.46	180.47		
Benzo(a)pyrene	40200000	1.00	Y	32: 57	Y	1.02	47.60		
d12-Perylene	75828400	1.00	Y	33: 10	Y	0.61	31.09		62
Perylene	434000000	1.00	Y	33: 15	Y	1.62	531.08		
d12-Indeno(123-cd)pyrene	244686000	1.00	Y	37: 58	Y	0.71	87.24		174
Indeno(123-cd)pyrene	20200000	1.00	Y	38: 6	Y	0.61	20.27		
d14-Dibenz(ah)anthracene	158472400	1.00	Y	37: 59	Y	0.44	90.50		181
Dibenz(ah)anthracene	18280000	1.00	Y	38: 9	Y	1.11	15.57		
d12-Benzo(ghi)perylene	220988000	1.00	Y	39: 22	Y	0.63	88.30		177
Benzo(ghi)perylene	64842800	1.00	Y	39: 31	Y	0.99	44.47		
d8-Naphthalene	53317400	1.00	Y	8: 57	Y	1.00	50.00		
13C-Naphthalene	446652	1.00	Y	9: 1	Y	1.00	0.42		1

MAT 9-2-98

d10-Fluorene	12997740	1.00	Y	16: 31	Y	1.00	50.00	
13C-Fluorene	14759680	1.00	Y	16: 37	Y	~~0.81~~ 0.85	~~70.36~~ 67.05	~~141~~ 134

02-SEP-1998 07:05:33 PM Dioxin Furan Unknown RESULTS

20AU98U171.RES : PAHX.TRG
Date analyzed : 20-AUG-98 0.333
MM5-2-F :Trai Ex Cal : PAHX081998U.RRF

Isotope Ratio	R. T. mm:ss		RRF	ng/ SAMP	Rec/ MDL		
1.00 Y	11: 11	Y	1.00	50.00		32782300	32782300
1.00 Y	8: 57	Y	1.25	32.64	65	26658700	26658700
1.00 Y	9: 1	Y	1.05	1.9e+04		3498250000	3498250000
1.00 Y	11: 17	Y	0.77	3.8e+04		5204660000	5204660000
1.00 Y	14: 16	Y	1.55	58.30	117	59251600	59251600
1.00 Y	14: 18	Y	0.86	296.45		101000000	101000000
1.00 Y	14: 49	Y	0.88	28.04	56	16127400	16127400
1.00 Y	14: 55	Y	0.93	4510.28		450440000	450440000
1.00 Y	19: 46	Y	1.00	50.00		13600000	13600000
1.00 Y	16: 31	Y	1.13	21.15	42	6498870	6498870
1.00 Y	16: 37	Y	1.05	2.1e+04		940333000	940333000
1.00 Y	19: 41	Y	2.63	30.74	61	21982100	21982100
1.00 Y	19: 40	Y	0.84	2.1e+04		2620000000	2620000000
1.00 Y	19: 46	Y	0.83	1746.65		212000000	212000000
1.00 Y	32: 39	Y	1.00	50.00		99229500	99229500
1.00 Y	23: 33	Y	0.80	14.99	30	23900000	23900000
1.00 Y	23: 38	Y	1.04	1213.66		201000000	201000000
1.00 Y	24: 16	Y	0.81	15.12	30	24300000	24300000
1.00 Y	24: 20	Y	1.11	3180.44		570000000	570000000
1.00 Y	28: 7	Y	0.65	31.07	62	40100000	40100000
1.00 Y	28: 11	Y	1.06	365.48		103000000	103000000
1.00 Y	28: 14	Y	0.85	26.20	52	44100000	44100000
1.00 Y	28: 18	Y	0.97	2113.76		603000000	603000000
1.00 Y	32: 39	Y	1.00	50.00		99229500	99229500
1.00 Y	31: 39	Y	0.63	50.56	101	62814900	62814900
1.00 Y	31: 45	Y	1.07	159.19		71200000	71200000
1.00 Y	31: 45	Y	0.90	33.72	67	59973100	59973100
1.00 Y	31: 48	Y	1.16	46.58		21500000	21500000
1.00 Y	32: 51	Y	0.75	41.54	83	61932500	61932500
1.00 Y	32: 45	Y	1.46	180.47		109000000	109000000
1.00 Y	32: 57	Y	1.02	47.60		20100000	20100000
1.00 Y	33: 10	Y	0.61	31.09	62	37914200	37914200
1.00 Y	33: 15	Y	1.62	531.08		217000000	217000000
1.00 Y	37: 58	Y	0.71	87.24	174	122343000	122343000
1.00 Y	38: 6	Y	0.61	20.27		10100000	10100000
1.00 Y	37: 59	Y	0.44	90.50	181	79236200	79236200
1.00 Y	38: 9	Y	1.11	15.57		9140000	9140000
1.00 Y	39: 22	Y	0.63	88.33	177	110494000	110494000
1.00 Y	39: 31	Y	0.99	44.47		32421400	32421400
1.00 Y	8: 57	Y	1.00	50.00		26658700	26658700
1.00 Y	9: 1	Y	1.00	0.42	1	223326	223326

1.00	Y	16: 31	Y	1.00	50.00		6498870	6498870
1.00	Y	16: 37	Y	0.81	70.36	141	7379840	7379840

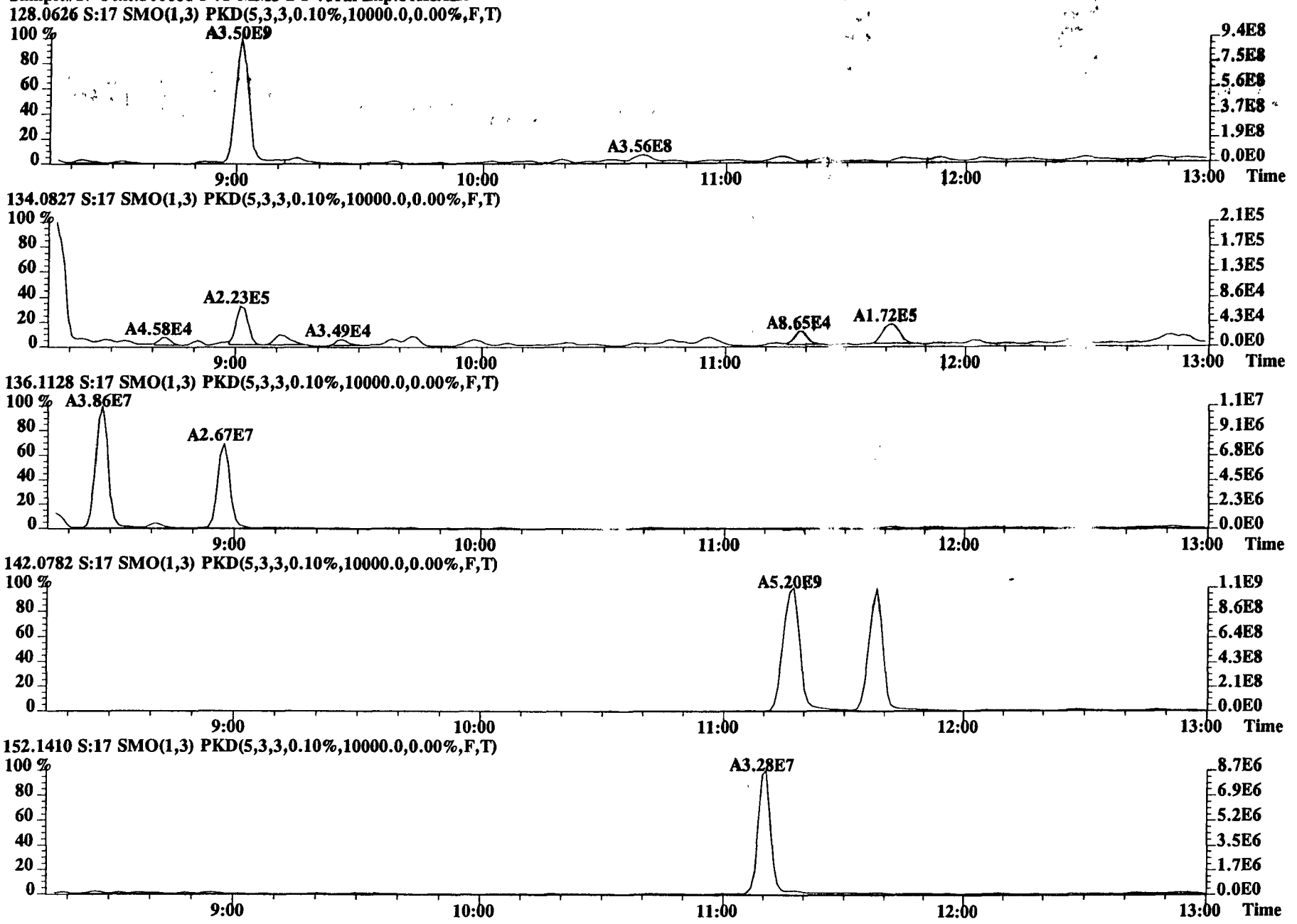
24-AUG-1998 01:10:32 PM PAH Unknown RESULTS

Mass Spec : ULTIMA Results : 20AU98U171.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U 300681-3 :T-MM5-2-F :Trai Ex Cal : PAHX081998U.RRF
Weight : 0.333

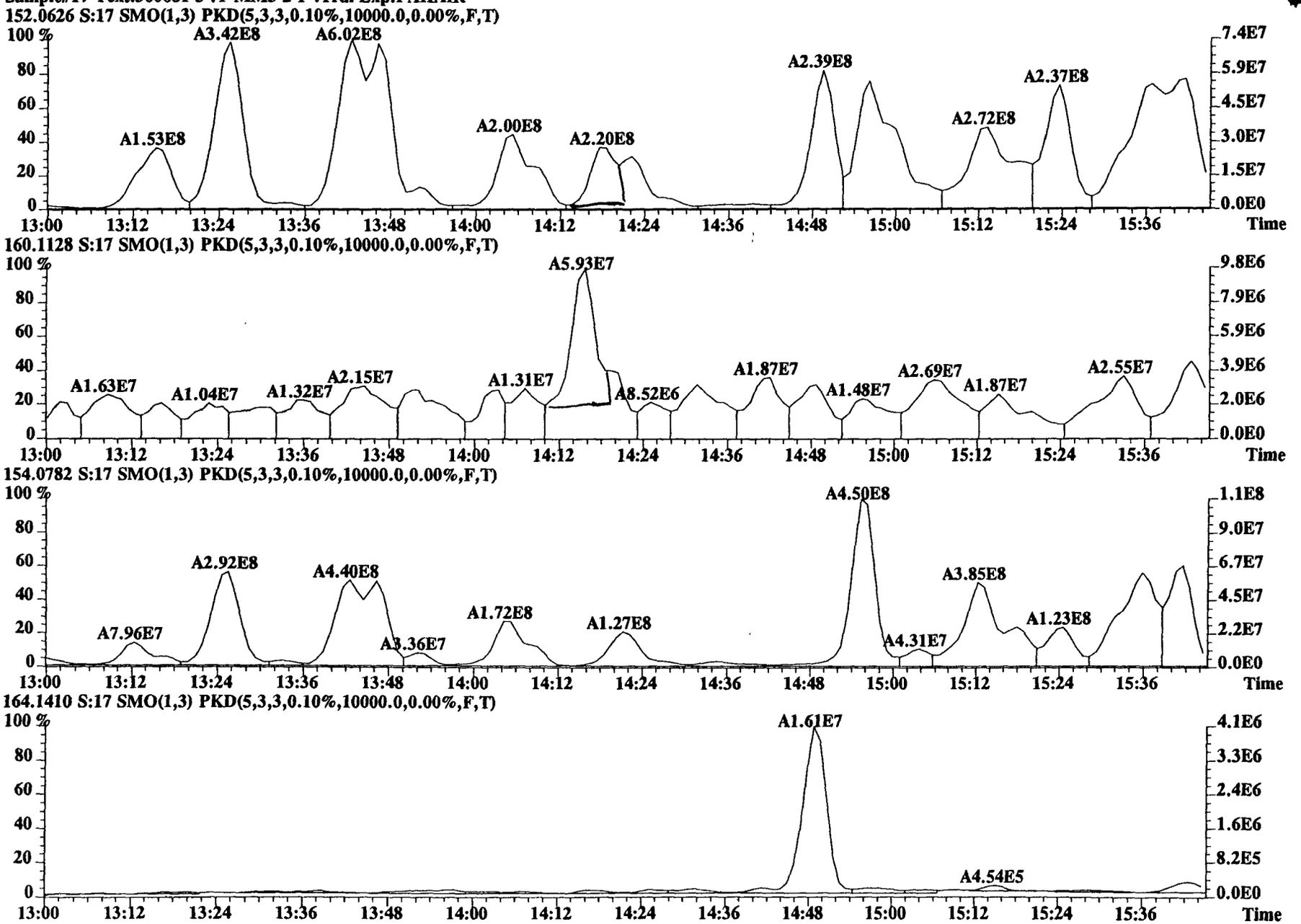
Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMP	Rec/ MDL
d10-2-Methylnaphthalene	65564600	1.00	Y	11: 11	Y	1.00	50.00	
d8-Naphthalene	53317400	1.00	Y	8: 57	Y	1.25	32.64	65
Naphthalene	6996500000	1.00	Y	9: 1	Y	1.05	1.9e+04	0.000
2-Methylnaphthalene	10409320000	1.00	Y	11: 17	Y	0.77	3.8e+04	0.000
d8-Acenaphthylene	118503200	1.00	Y	14: 16	Y	1.55	58.30	117
Acenaphthylene	440010000	1.00	Y	14: 18	Y	0.86	645.74	0.000
d10-Acenaphthene	32254800	1.00	Y	14: 49	Y	0.88	28.04	56
Acenaphthene	900880000	1.00	Y	14: 55	Y	0.93	4510.28	0.000
d10-Anthracene	* No Peak	0.00	N	19: 46	N	1.00	50.00	
d10-Fluorene	12997740	1.00	Y	16: 31	Y	1.13	*NoR?	
Fluorene	1880666000	1.00	Y	16: 37	Y	1.05	2.1e+04	0.000
d10-Phenanthrene	43964200	1.00	Y	19: 41	Y	2.63	*NoR?	
Phenanthrene	* No Peak	0.00	N	19: 40	Y	0.84	0.00	0.000
Anthracene	5239680000	1.00	Y	19: 46	Y	0.83	2.2e+04	0.000
d12-Benzo(e)pyrene	198459000	1.00	Y	32: 39	Y	1.00	50.00	
d10-Fluoranthene	* No Peak	0.00	N	23: 33	N	0.80	0.00	0
Fluoranthene	488552000	1.00	Y	23: 38	Y	1.04	*NoINoIs	
d10-Pyrene	* No Peak	0.00	N	24: 16	N	0.81	0.00	0
Pyrene	1270632000	1.00	Y	24: 20	Y	1.11	*NoINoIs	
d12-Benzo(a)anthracene	75165200	1.00	Y	28: 7	Y	0.65	29.12	58
Benzo(a)anthracene	379224000	1.00	Y	28: 11	Y	1.06	717.87	0.000
d12-Chrysene	80027800	1.00	Y	28: 14	Y	0.85	23.77	48
Chrysene	1438530000	1.00	Y	28: 18	Y	0.97	2778.78	0.000
d12-Benzo(e)pyrene	198459000	1.00	Y	32: 39	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	125629800	1.00	Y	31: 39	Y	0.63	50.56	101
Benzo(b)fluoranthene	206552000	1.00	Y	31: 45	Y	1.07	230.91	0.000
d12-Benzo(k)fluoranthene	119946200	1.00	Y	31: 45	Y	0.90	33.72	67
Benzo(k)fluoranthene	206552000	1.00	Y	31: 45	Y	1.16	223.77	0.000
d12-Benzo(a)pyrene	123865000	1.00	Y	32: 51	Y	0.75	41.54	83
Benzo(e)pyrene	270934000	1.00	Y	32: 45	Y	1.46	224.28	0.000
Benzo(a)pyrene	107968000	1.00	Y	32: 57	Y	1.02	127.84	0.000
d12-Perylene	75828400	1.00	Y	33: 10	Y	0.61	31.09	62
Perylene	494680000	1.00	Y	33: 15	Y	1.62	605.33	0.000
d12-Indeno(123-cd)pyrene	244686000	1.00	Y	37: 58	Y	0.71	87.24	174
Indeno(123-cd)pyrene	27197600	1.00	Y	38: 6	Y	0.61	27.29	0.000
d14-Dibenz(ah)anthracene	158472400	1.00	Y	37: 59	Y	0.44	90.50	181
Dibenz(ah)anthracene	41365000	1.00	Y	38: 9	Y	1.11	35.23	0.000
d12-Benzo(ghi)perylene	220988000	1.00	Y	39: 22	Y	0.63	88.33	177
Benzo(ghi)perylene	64842800	1.00	Y	39: 31	Y	0.99	44.47	0.000
d8-Naphthalene	53317400	1.00	Y	8: 57	Y	1.00	50.00	
13C-Naphthalene	446652	1.00	Y	9: 1	Y	1.00	0.42	1

d10-Fluorene	12997740	1.00	Y	16: 31	Y	1.00	50.00	
13C-Fluorene	14759680	1.00	Y	16: 37	Y	0.81	70.36	141

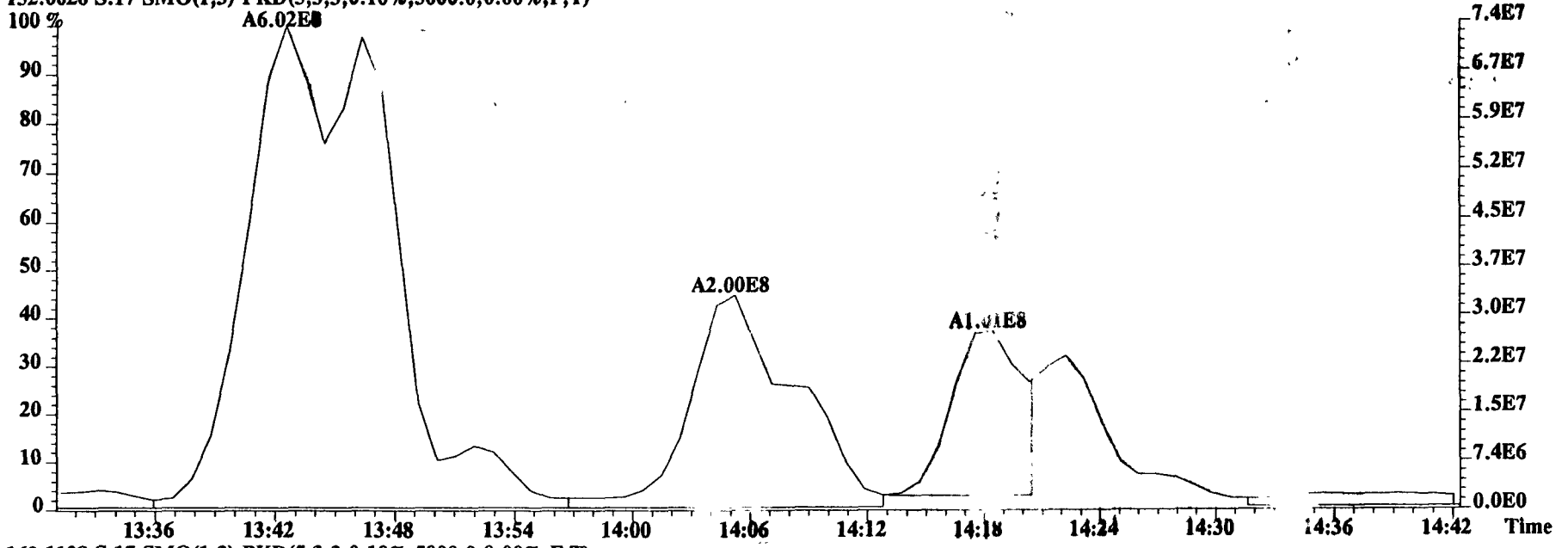
File:20AU98U #1-476 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR



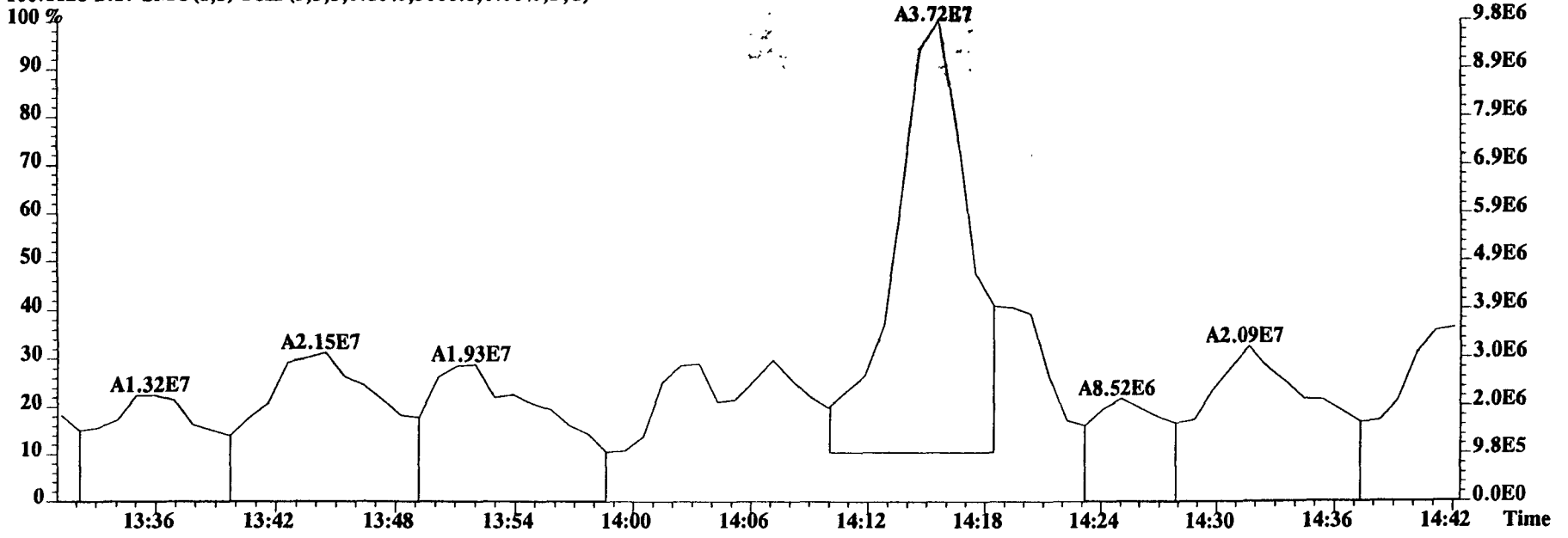
File:20AU98U #1-476 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR



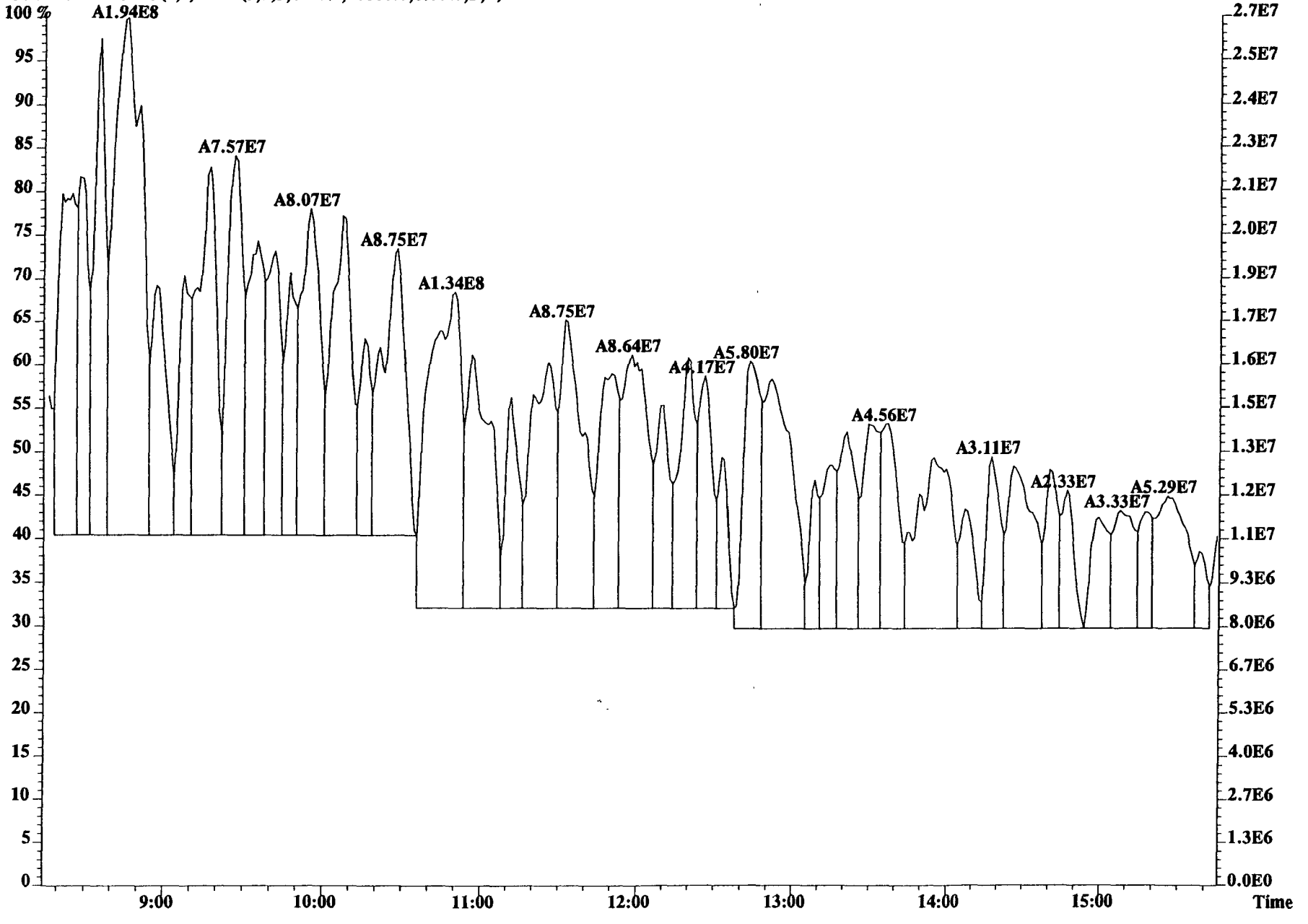
File:20AU98U #1-476 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F ;Trai Exp:PAHAIR
152.0626 S:17 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



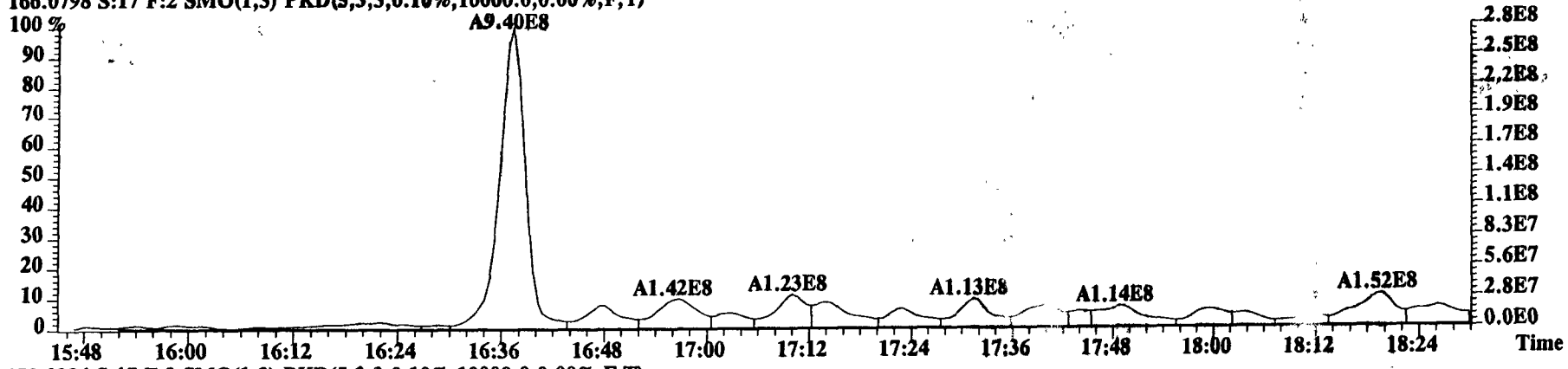
160.1128 S:17 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



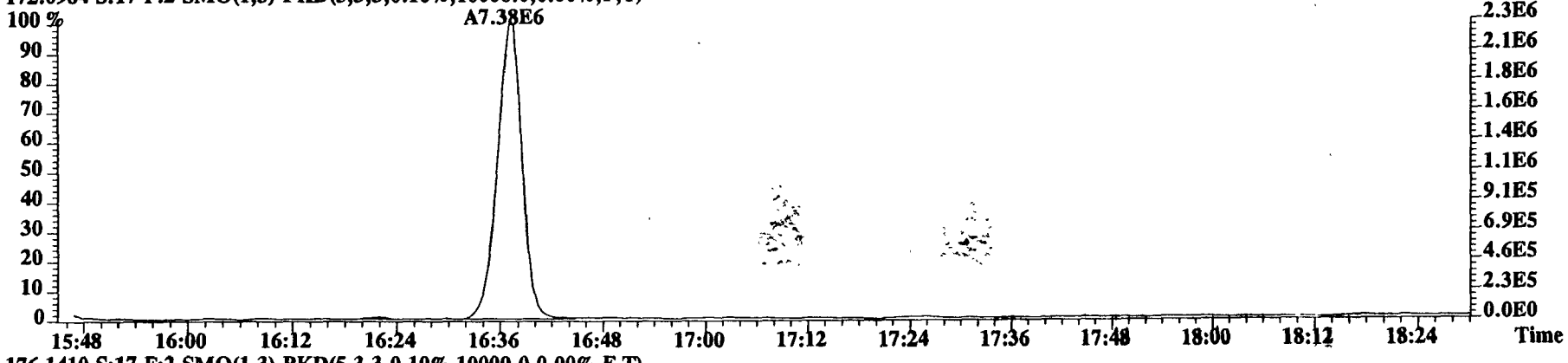
File:20AU98U #1-476 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
130.9920 S:17 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



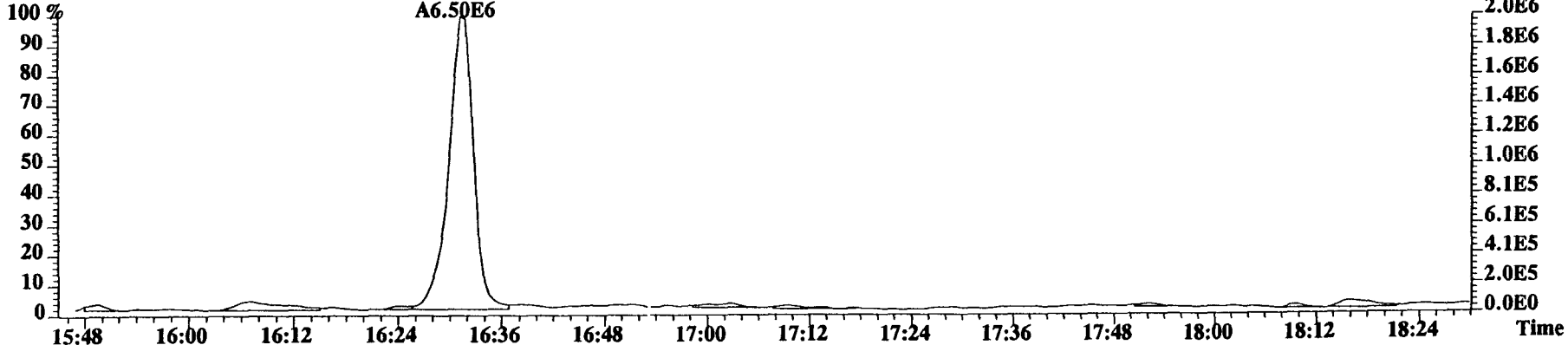
File:20AU98U #1-666 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F ;Trai Exp:PAHAIR
166.0798 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



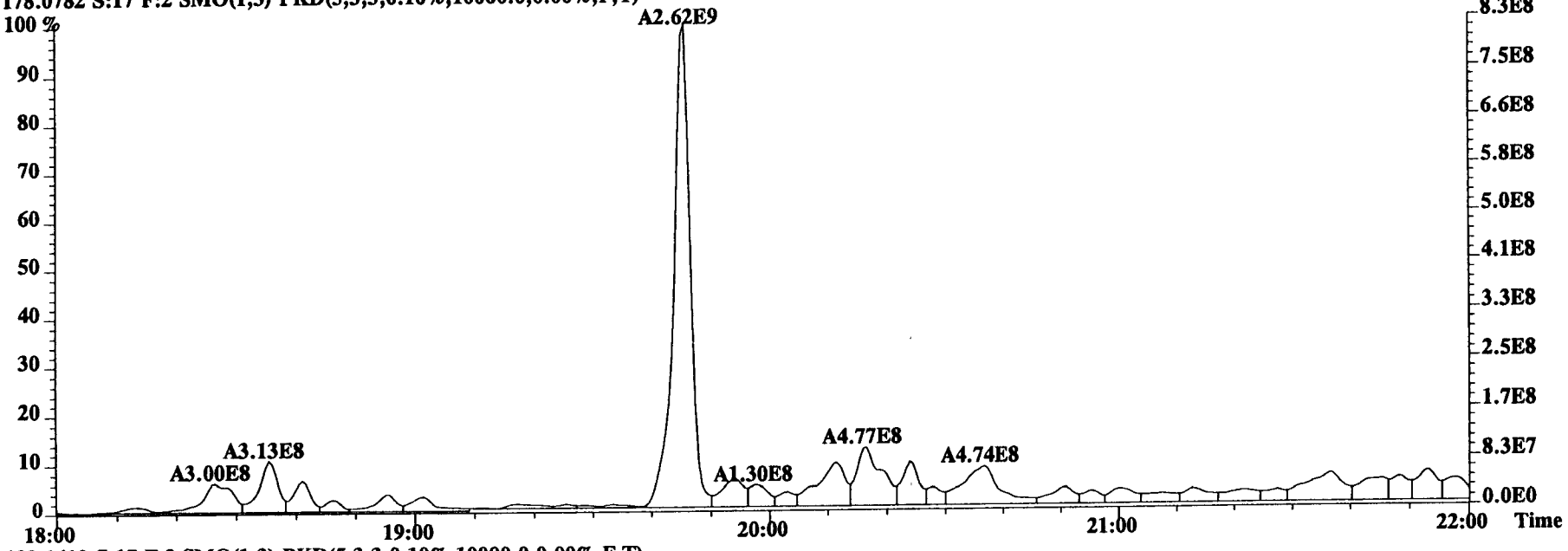
172.0984 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



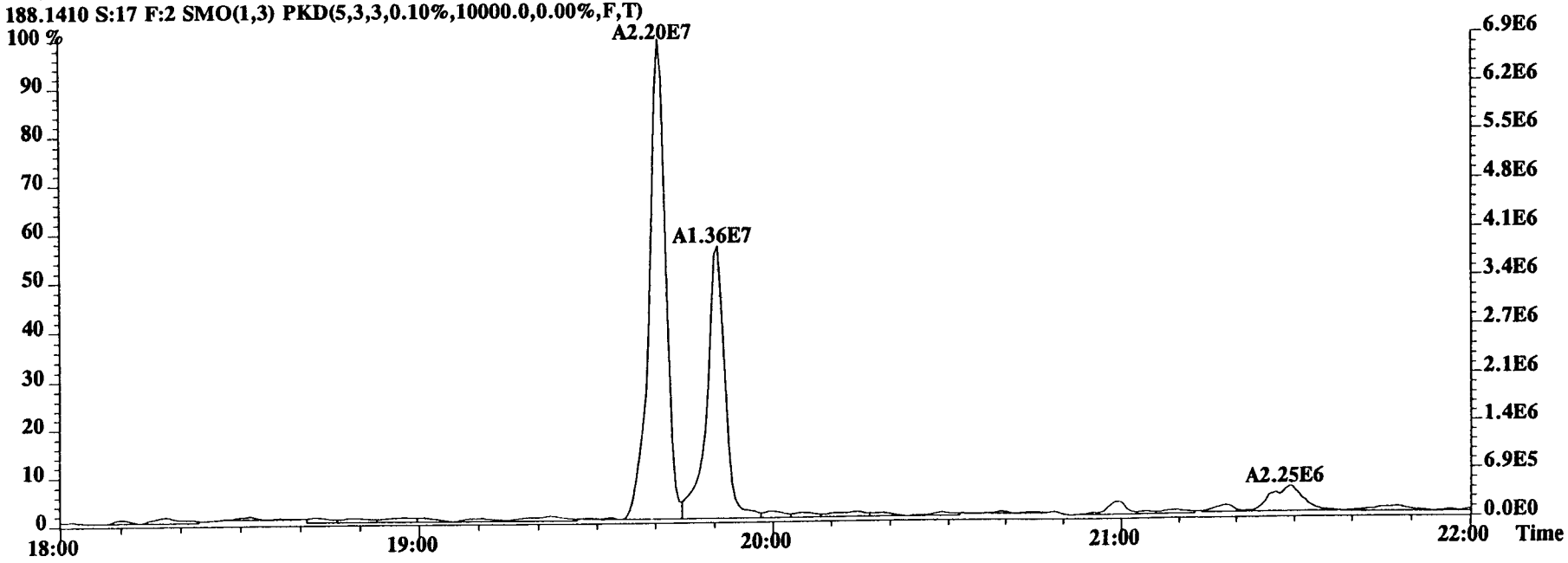
176.1410 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



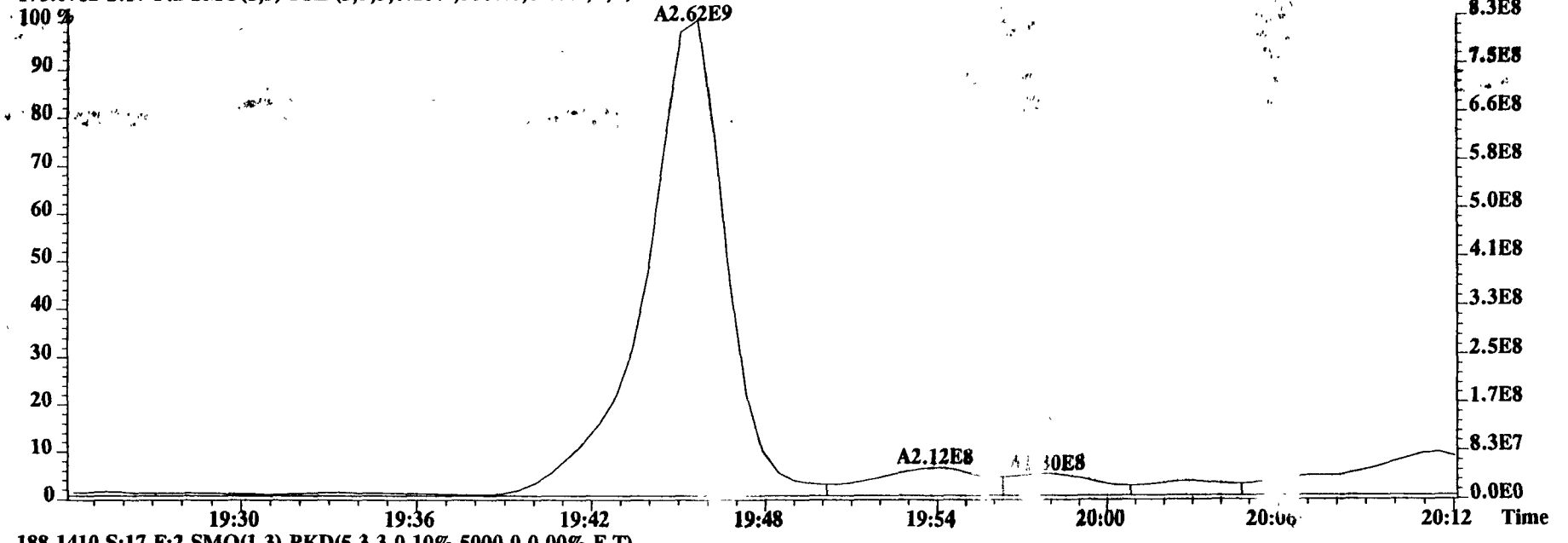
File:20AU98U #1-666 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
178.0782 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



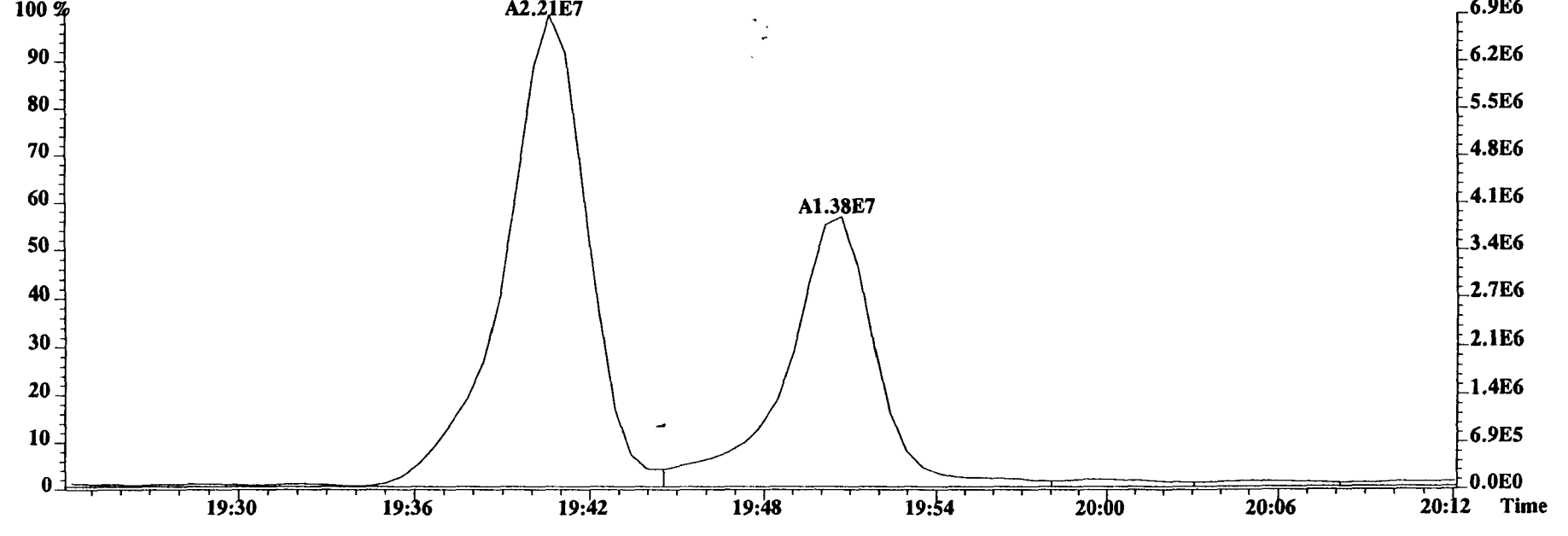
188.1410 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



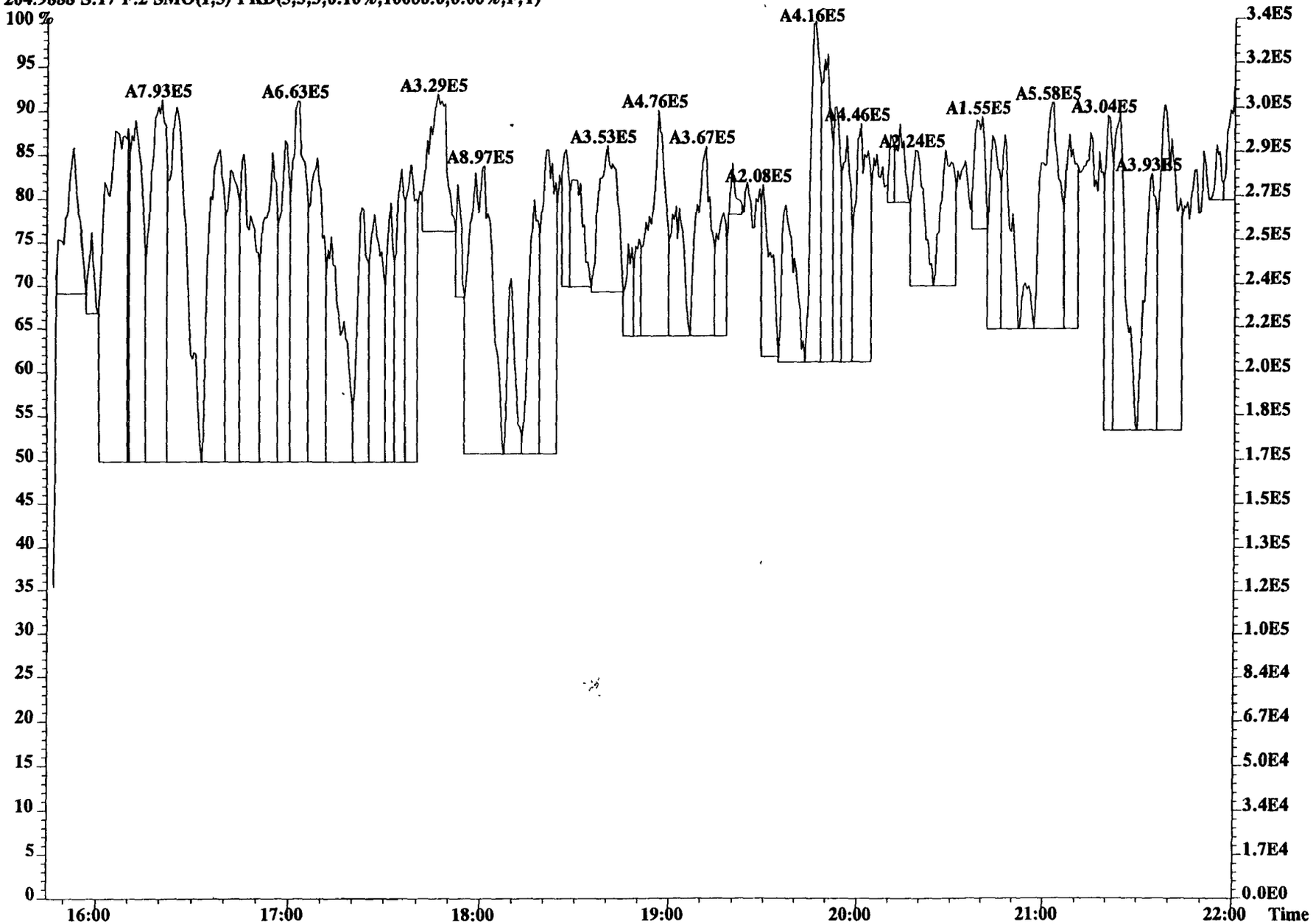
File:20AU98U #1-666 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
178.0782 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



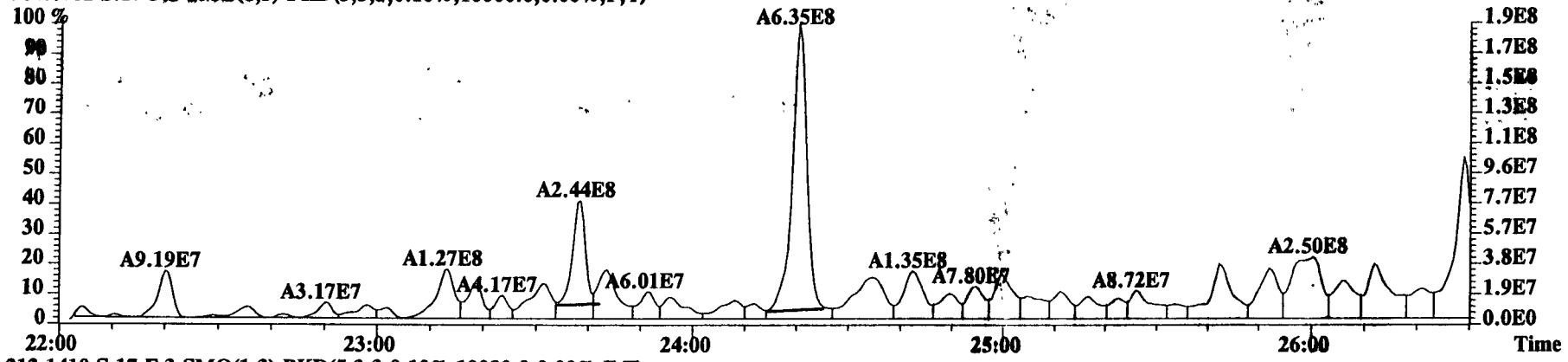
188.1410 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



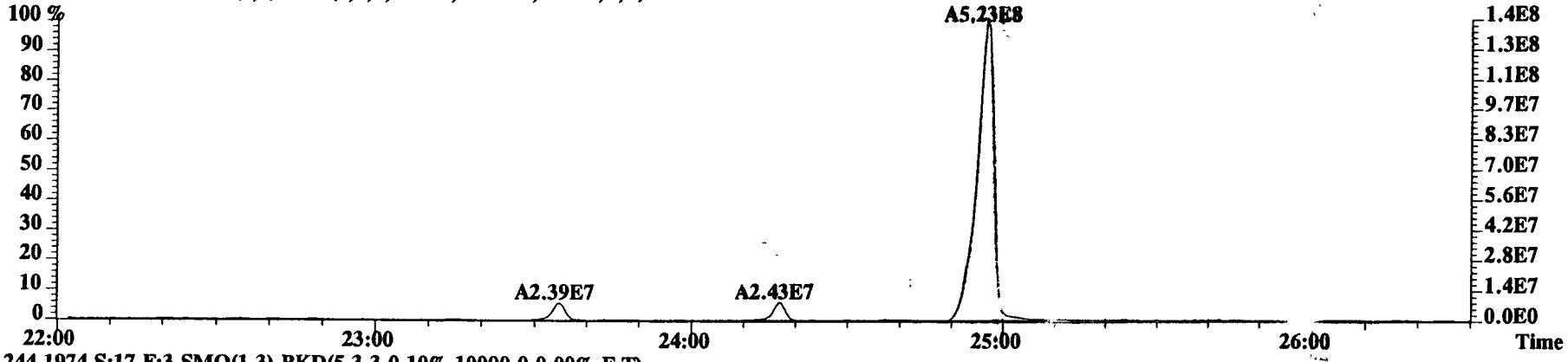
File:20AU98U #1-666 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
204.9888 S:17 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



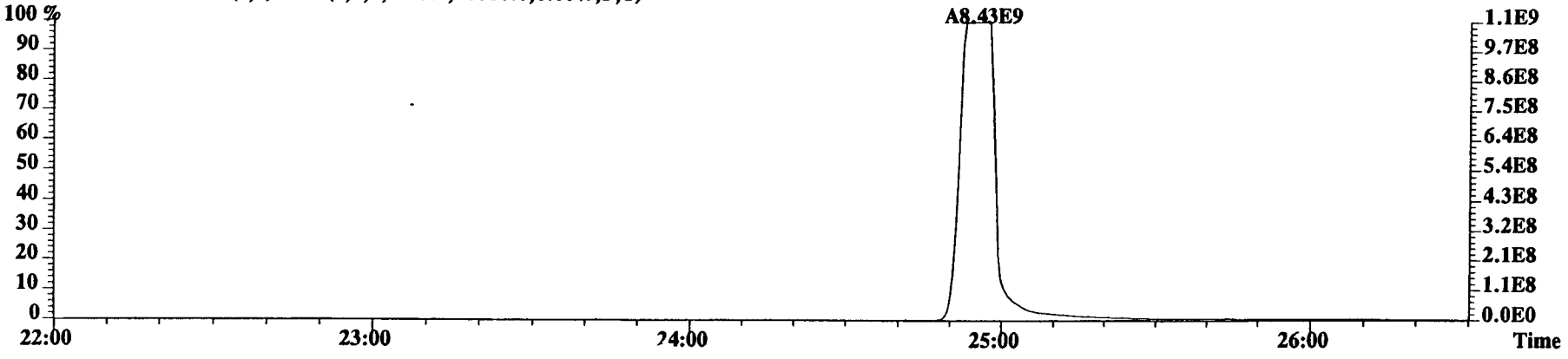
File:20AU98U #1-935 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 ;T-MM5-2-F ;Trai Exp:PAHAIR
202.0782 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



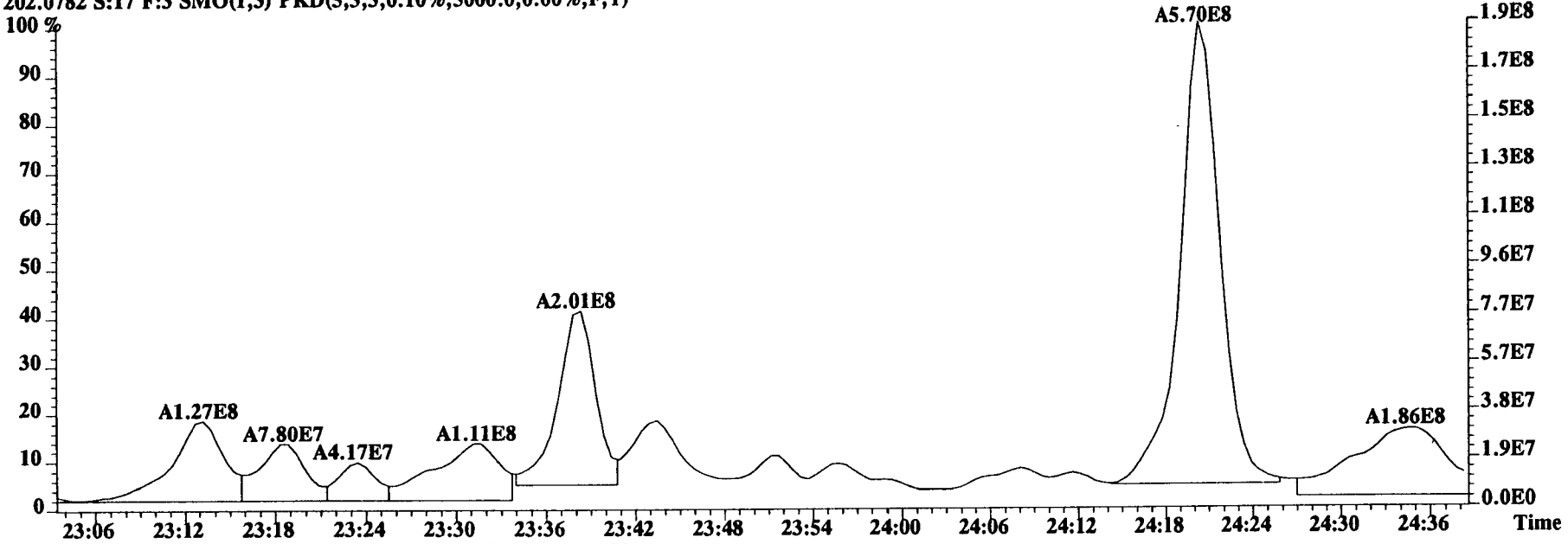
212.1410 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



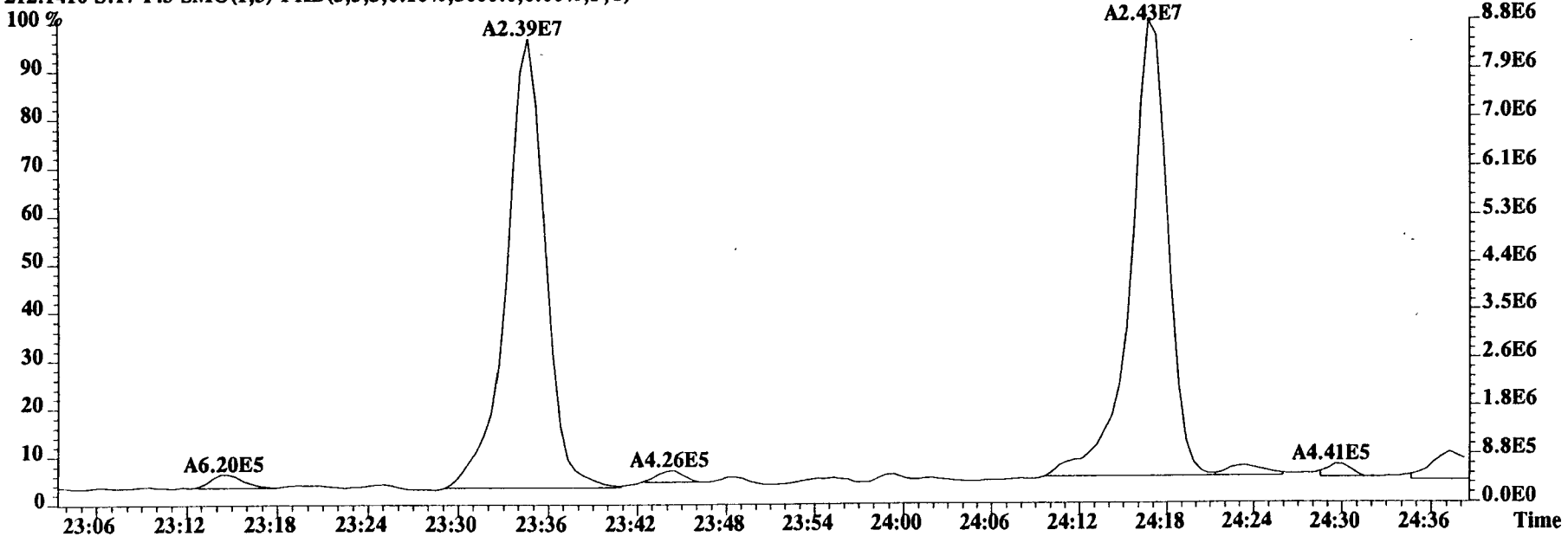
244.1974 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



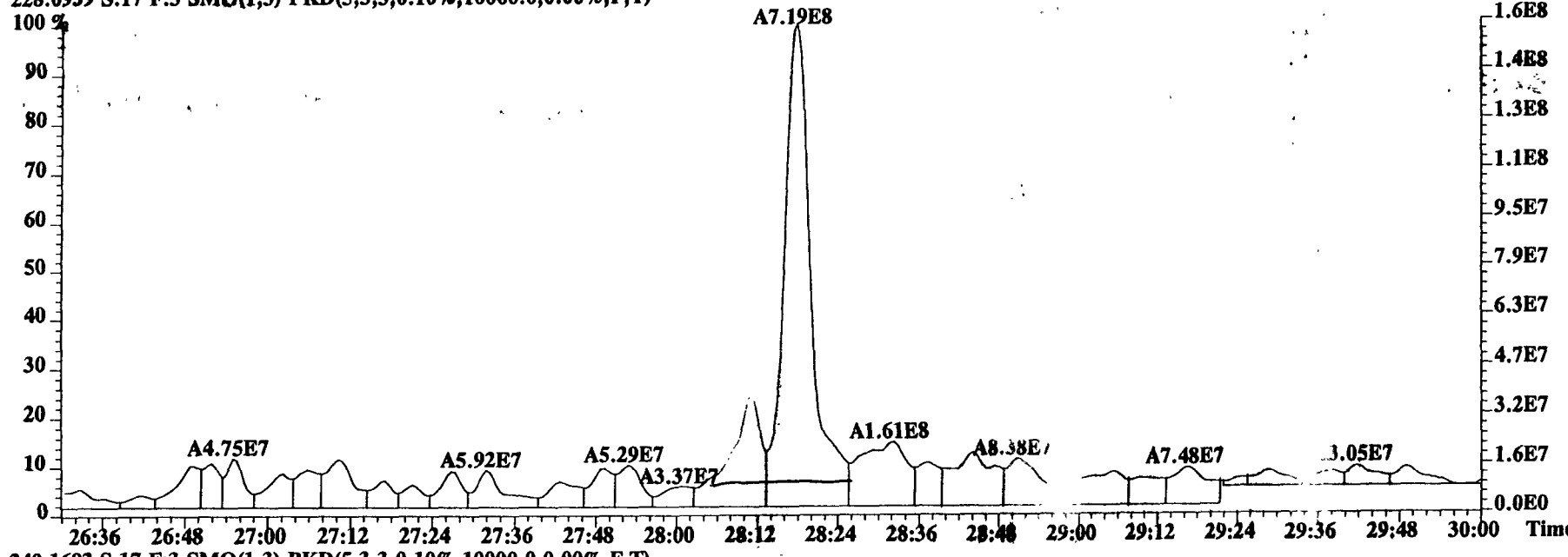
File:20AU98U #1-935 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
202.0782 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



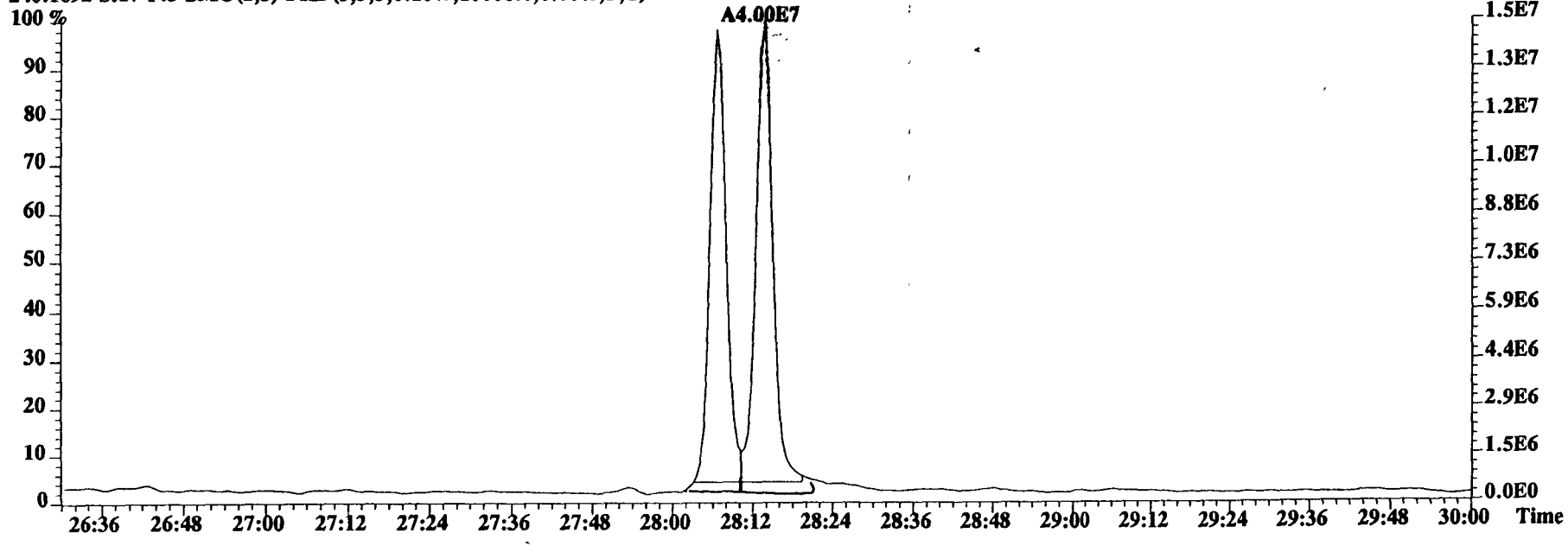
212.1410 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



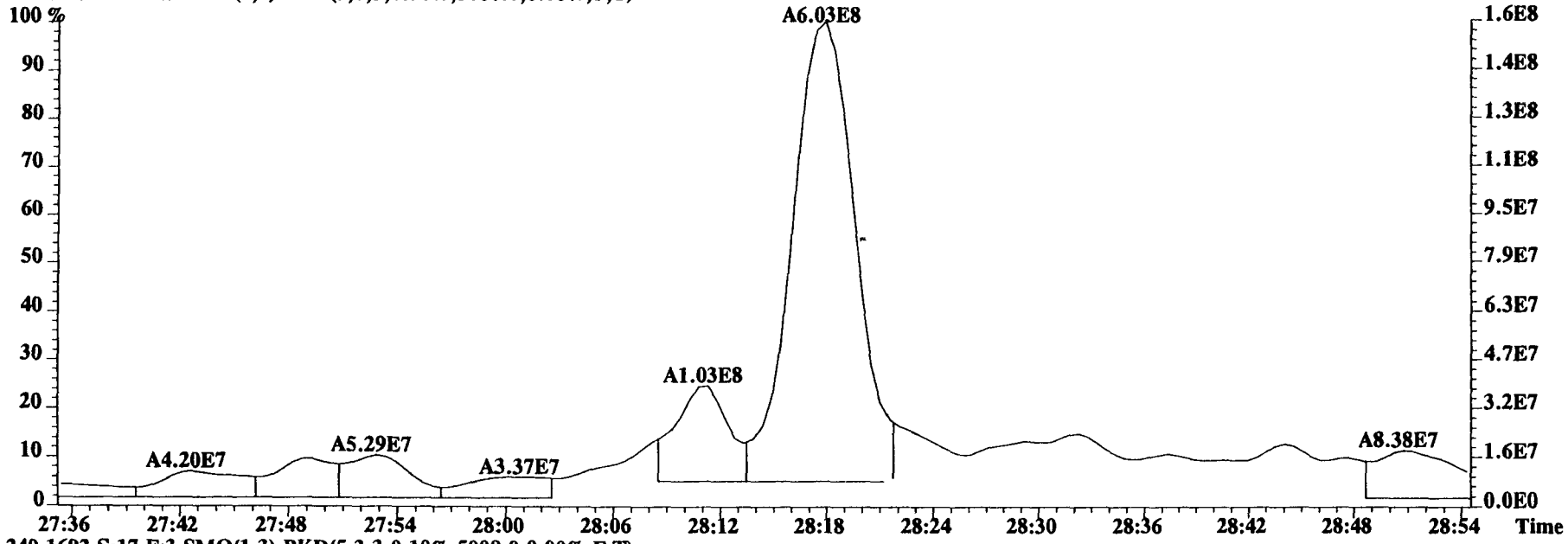
File:20AU98U #1-935 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 ;T-MM5-2-F ;Trai Exp:PAHAIR
228.0939 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



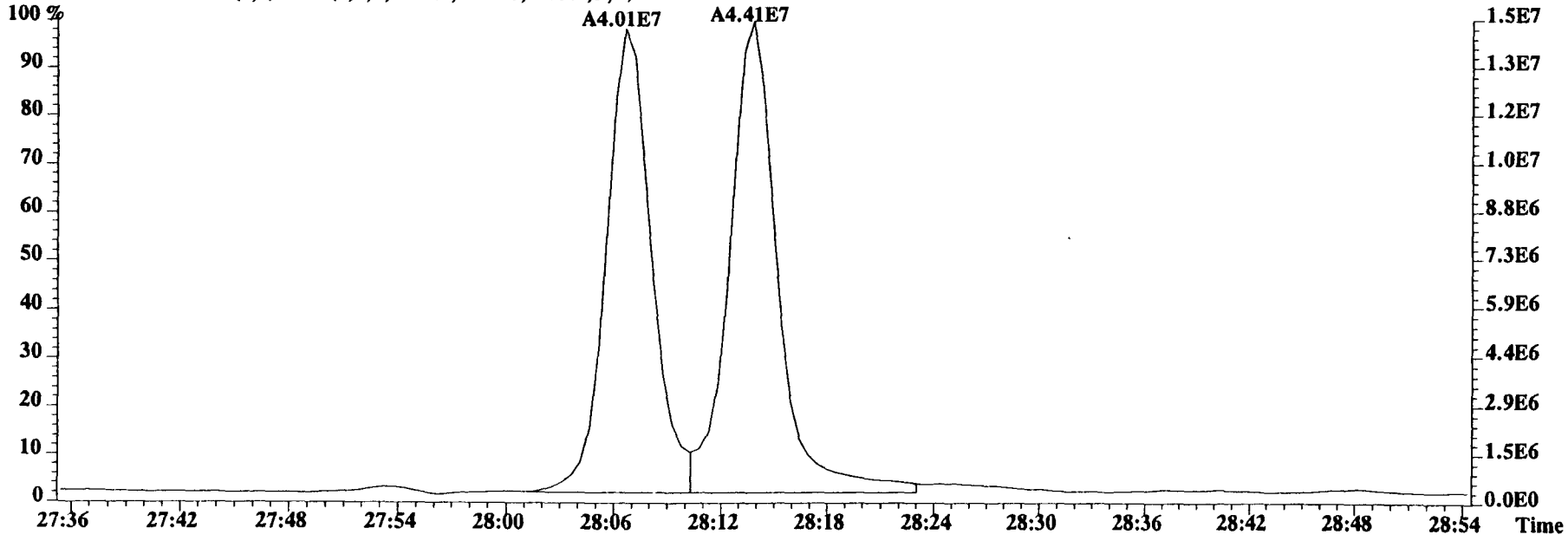
240.1692 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



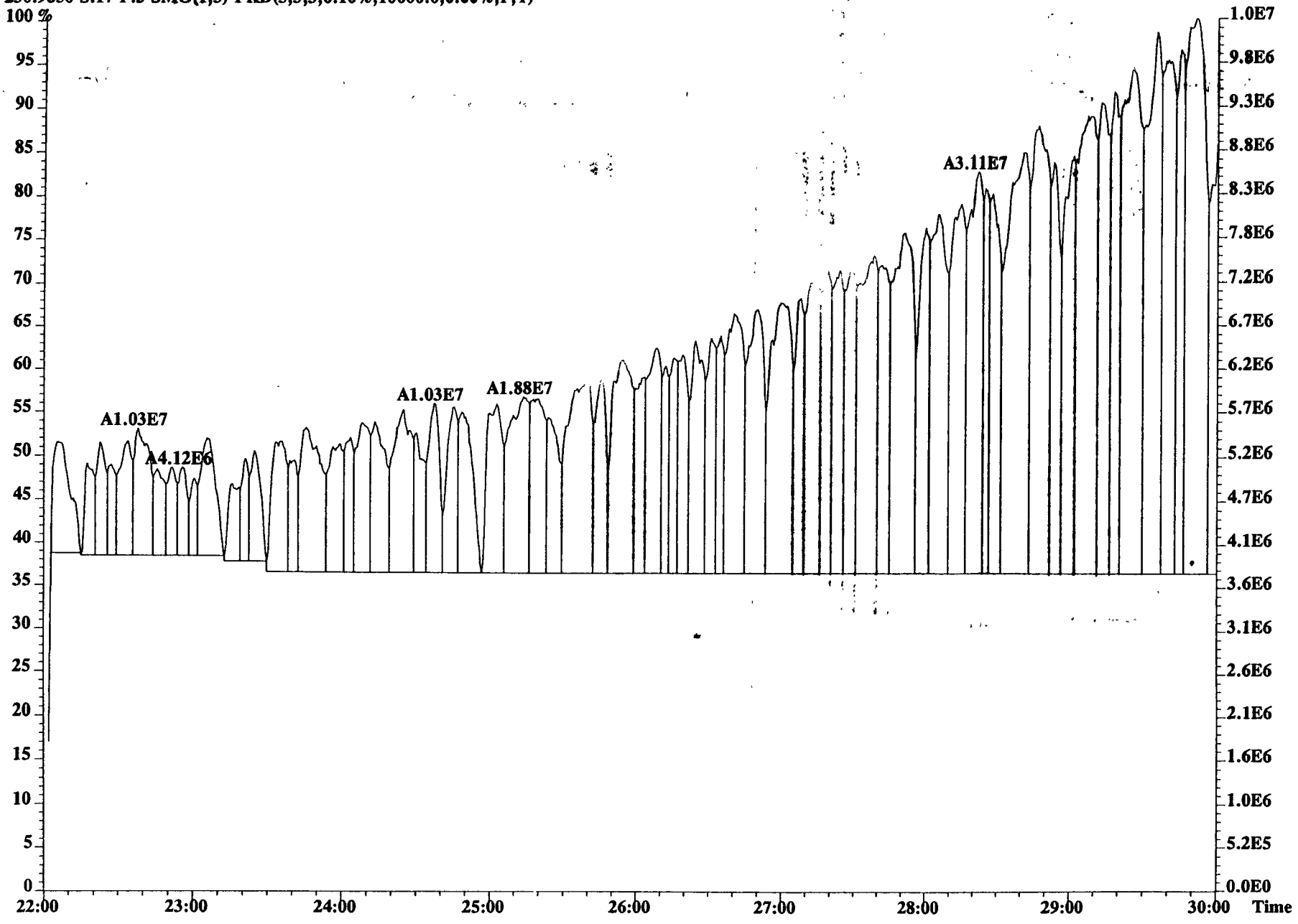
File:20AU98U #1-935 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
228.0939 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



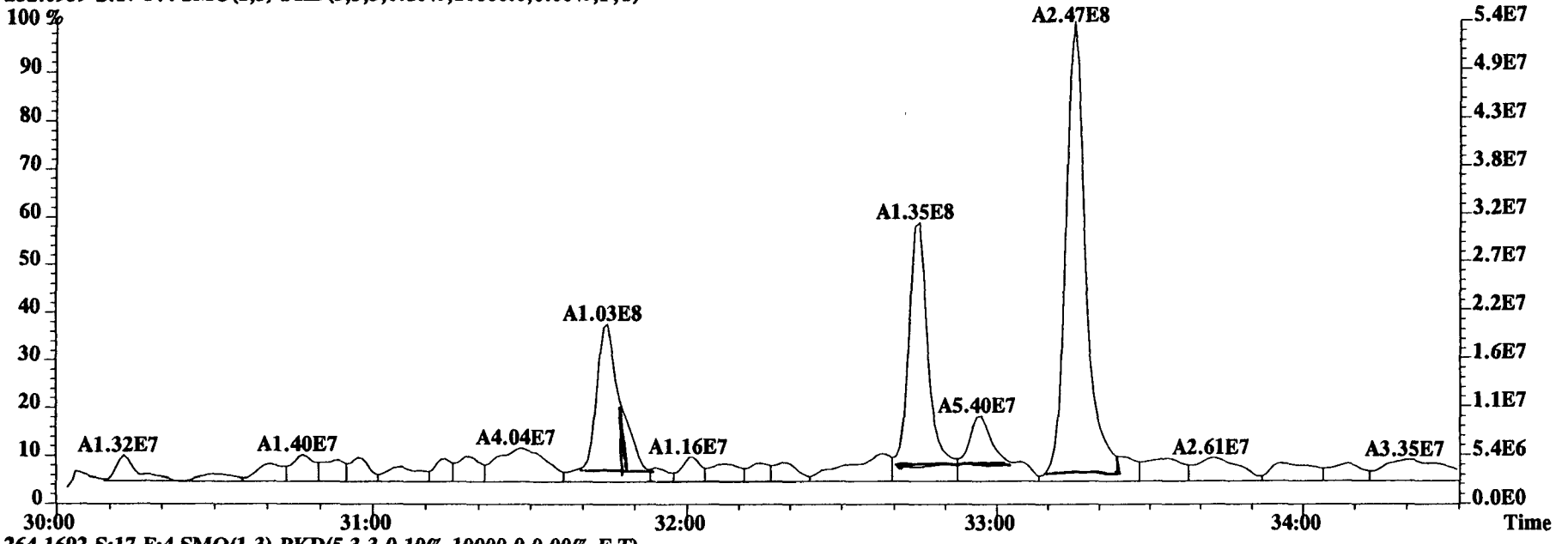
240.1692 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



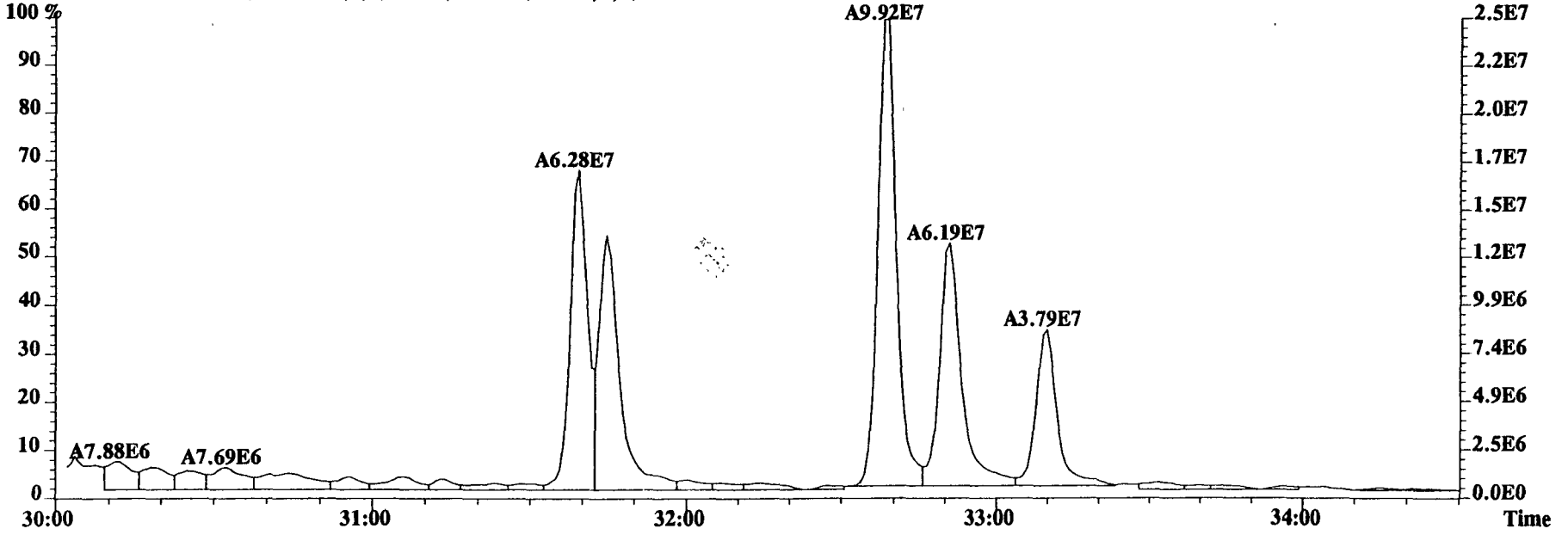
File:20AU98U #1-935 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
230.9856 S:17 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



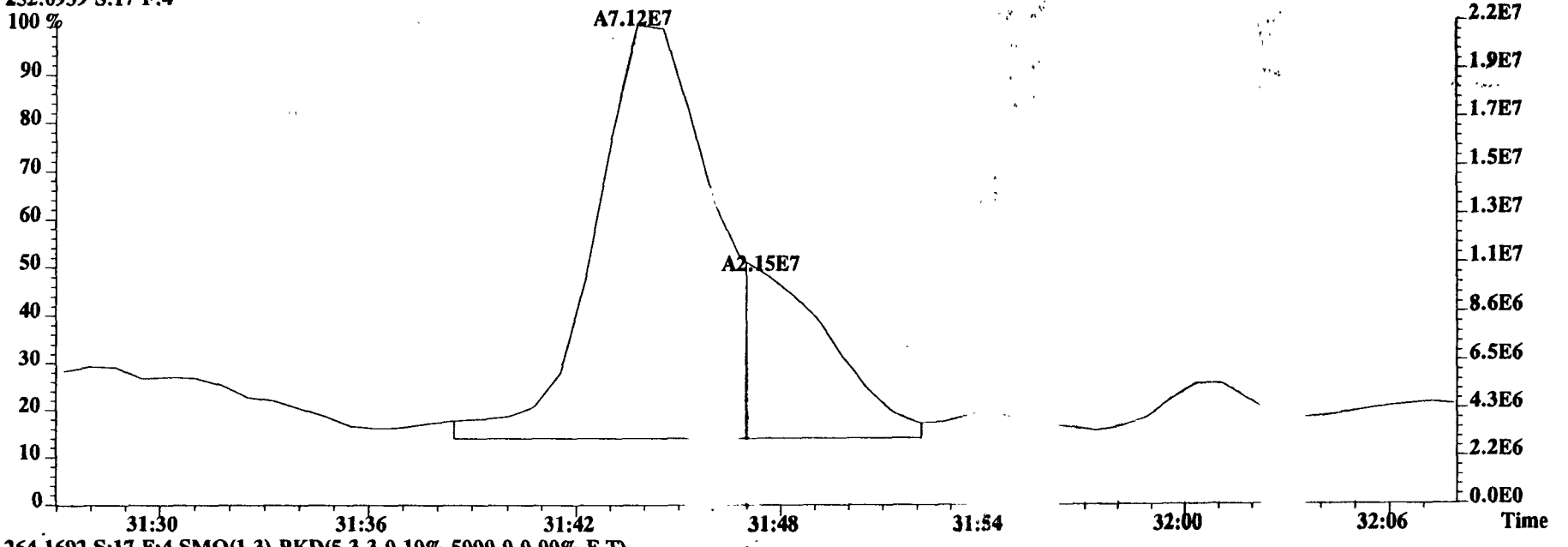
File:20AU98U #1-955 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
252.0939 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



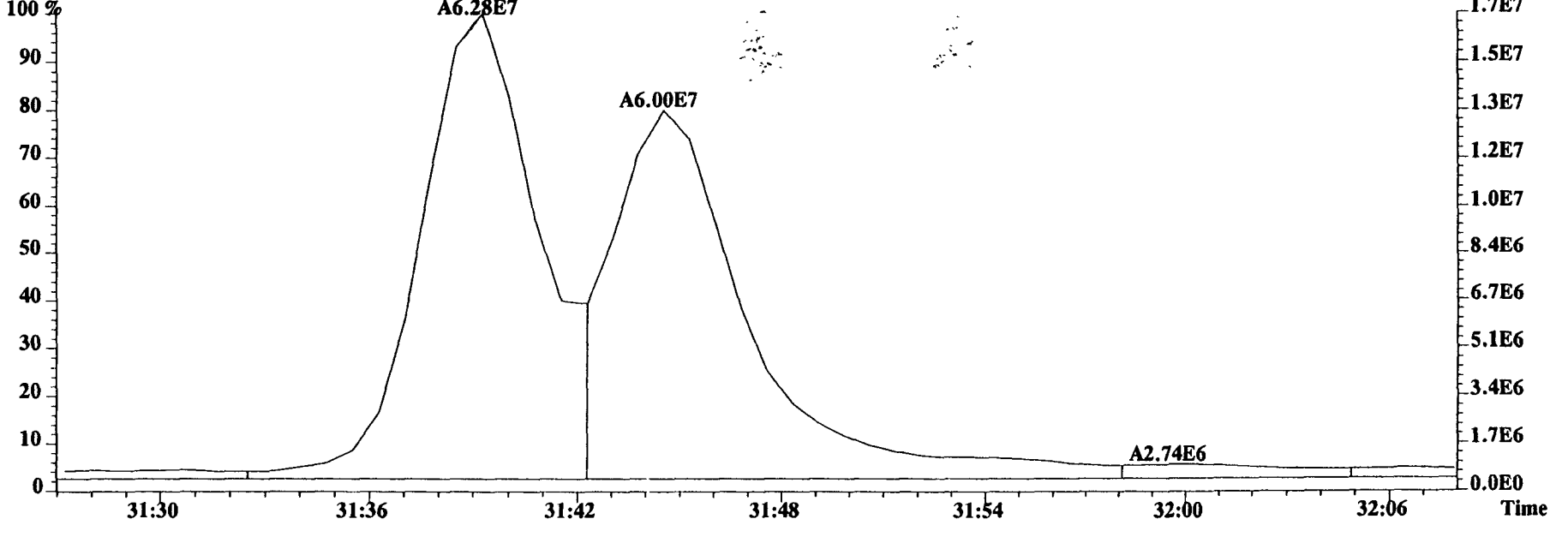
264.1692 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



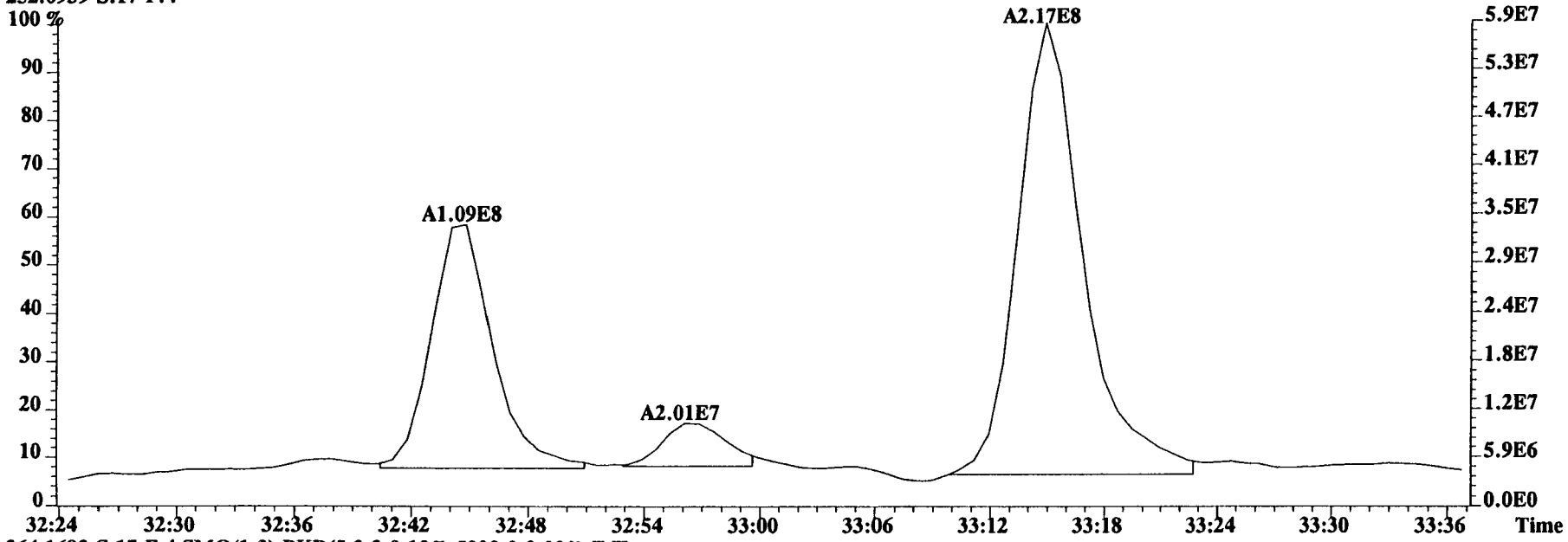
File:20AU98U #1-955 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F ;Trai Exp:PAHAIR
252.0939 S:17 F:4



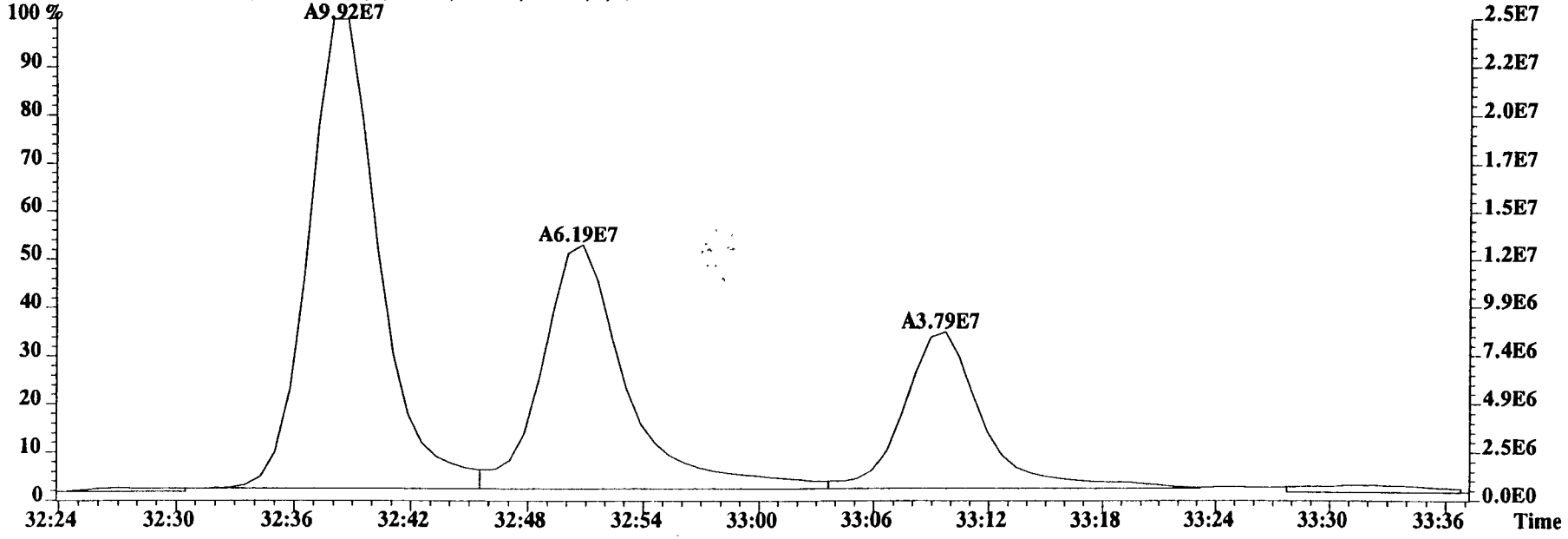
264.1692 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:20AU98U #1-955 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
252.0939 S:17 F:4

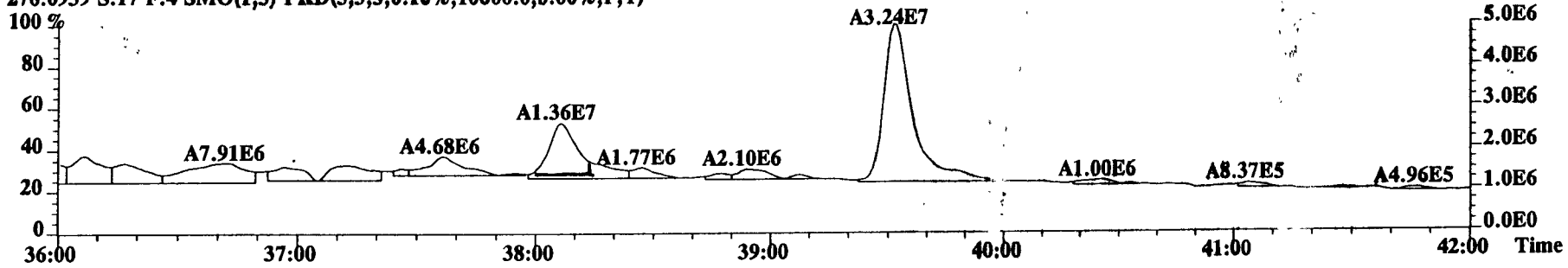


264.1692 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)

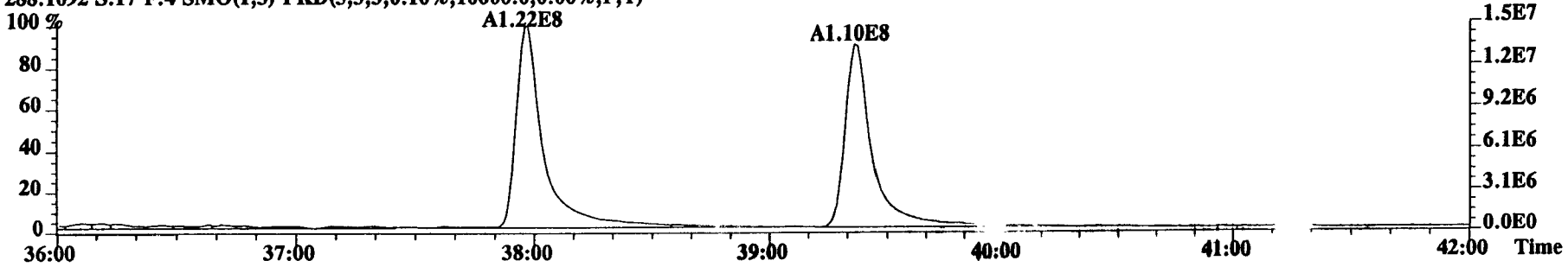


File:20AU98U #1-955 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR

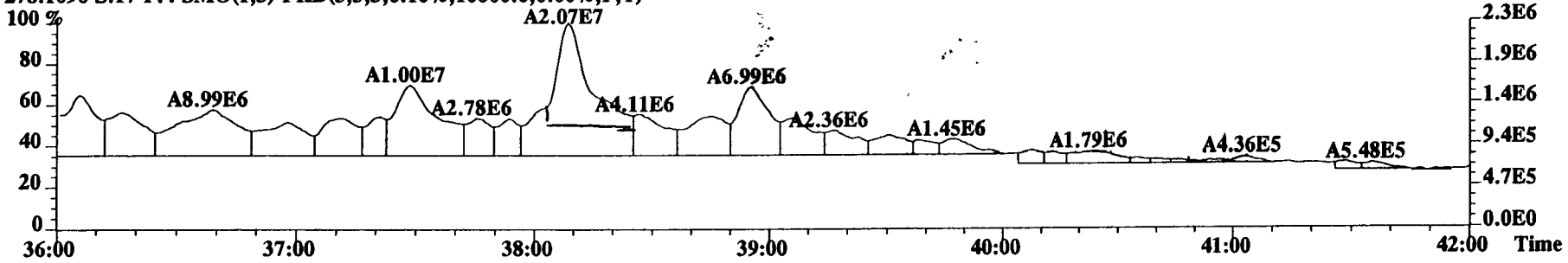
276.0939 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



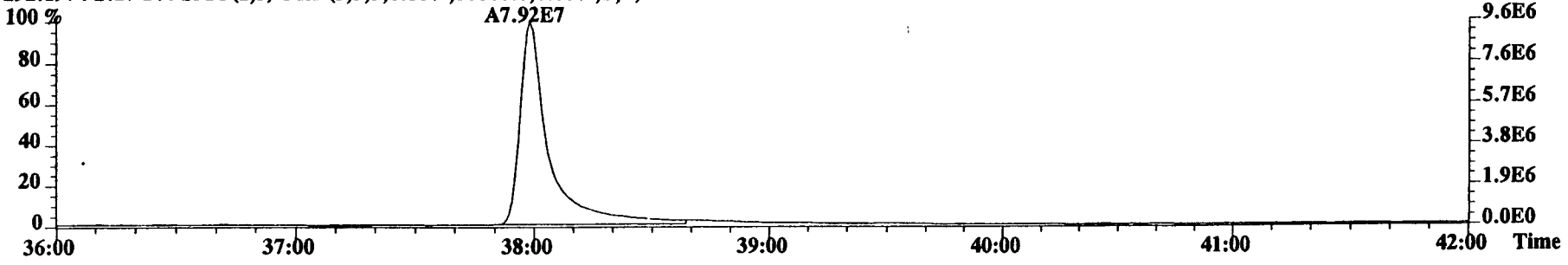
288.1692 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



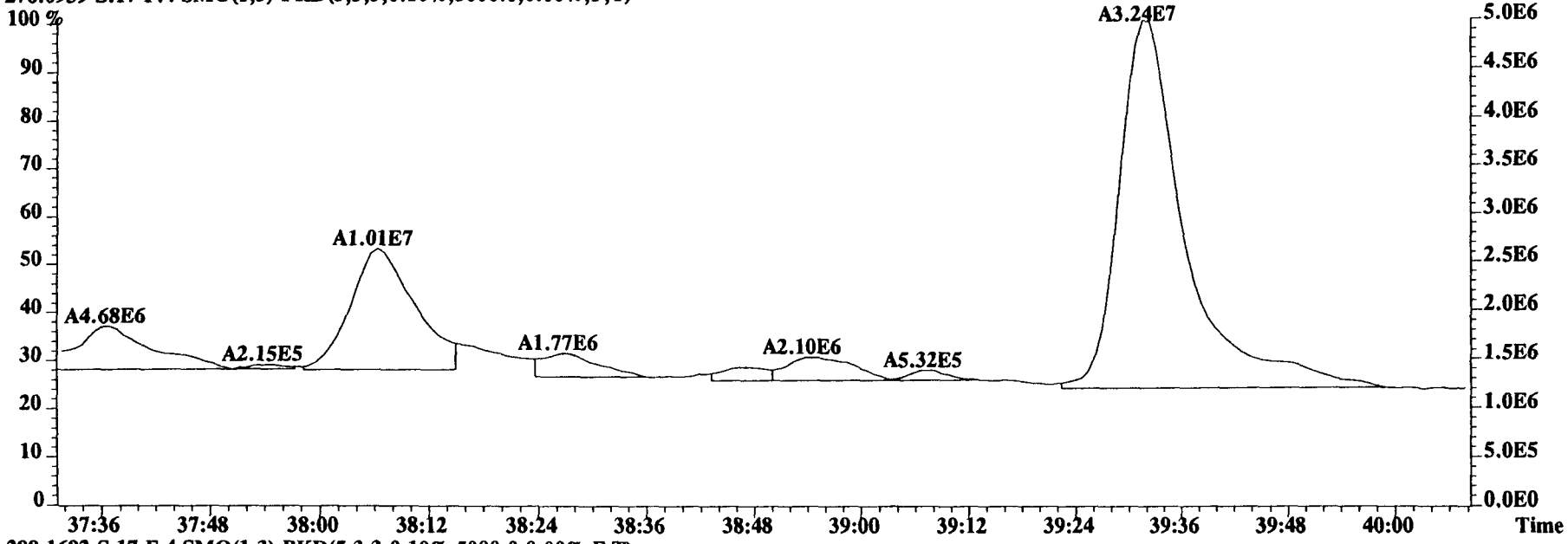
278.1096 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



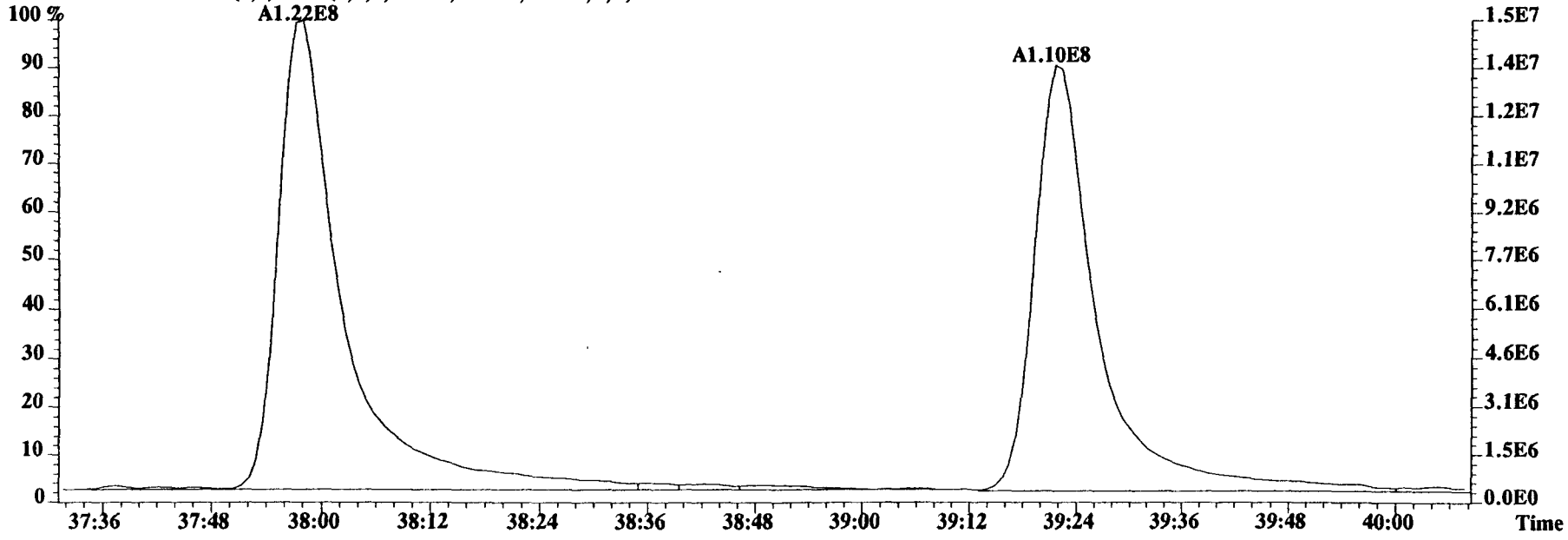
292.1974 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



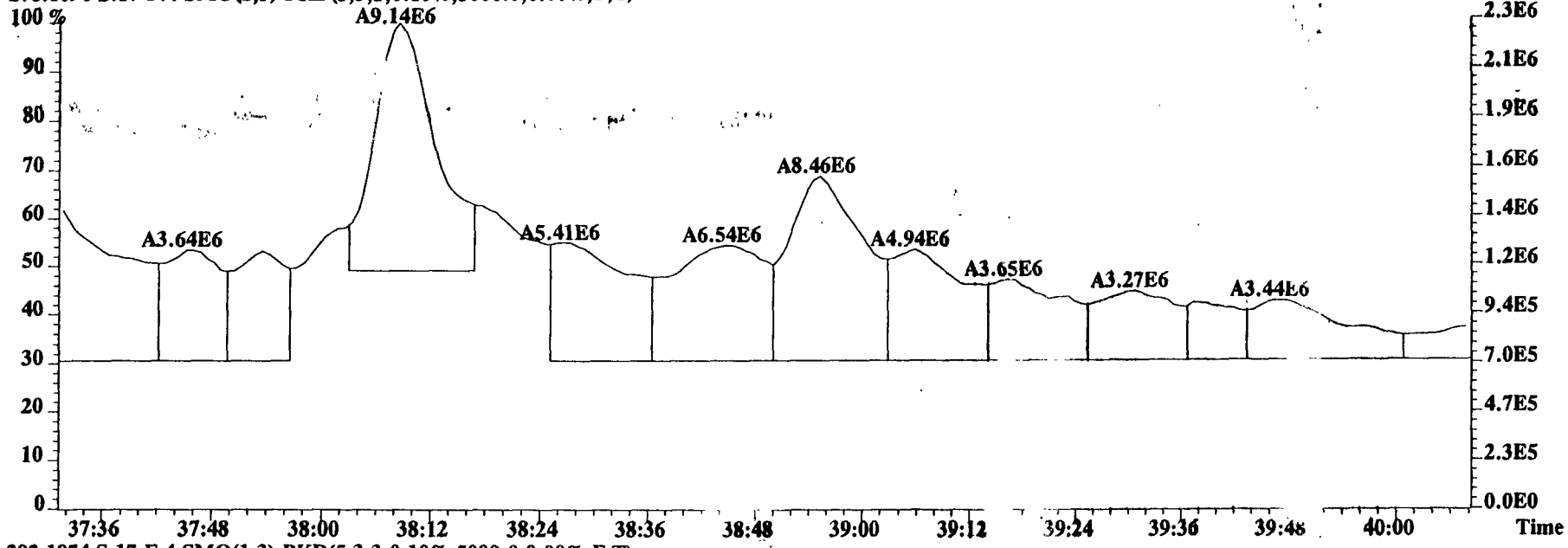
File:20AU98U #1-955 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
276.0939 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



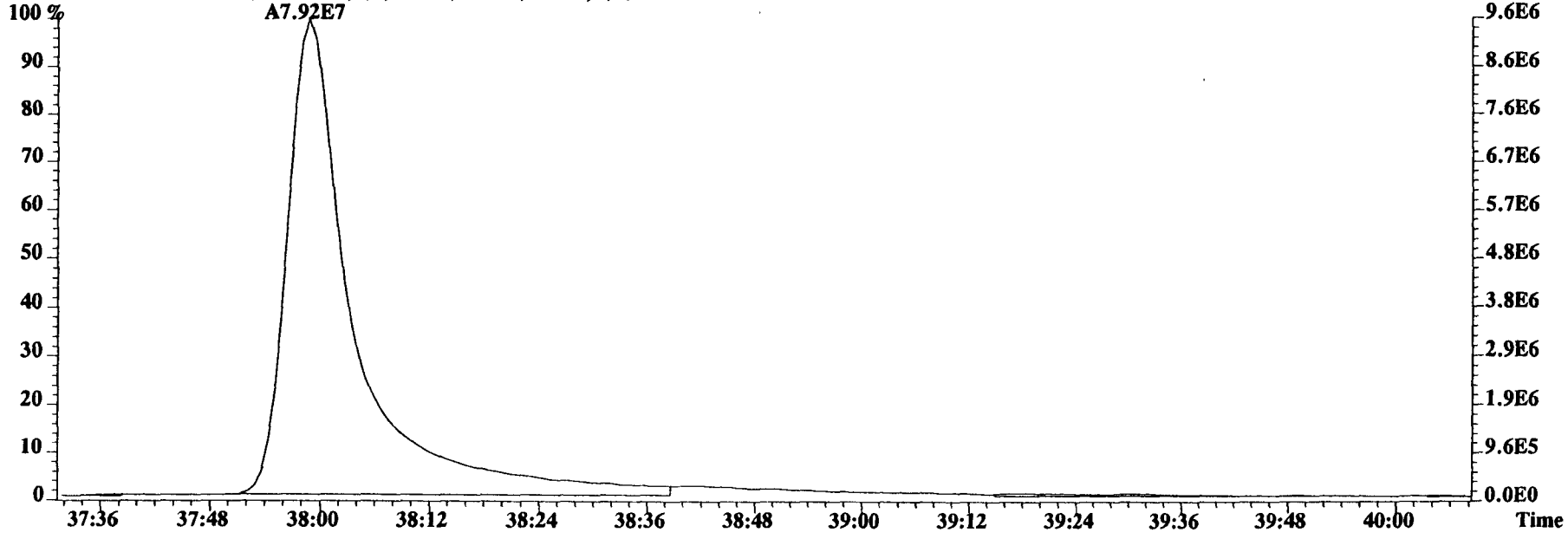
288.1692 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



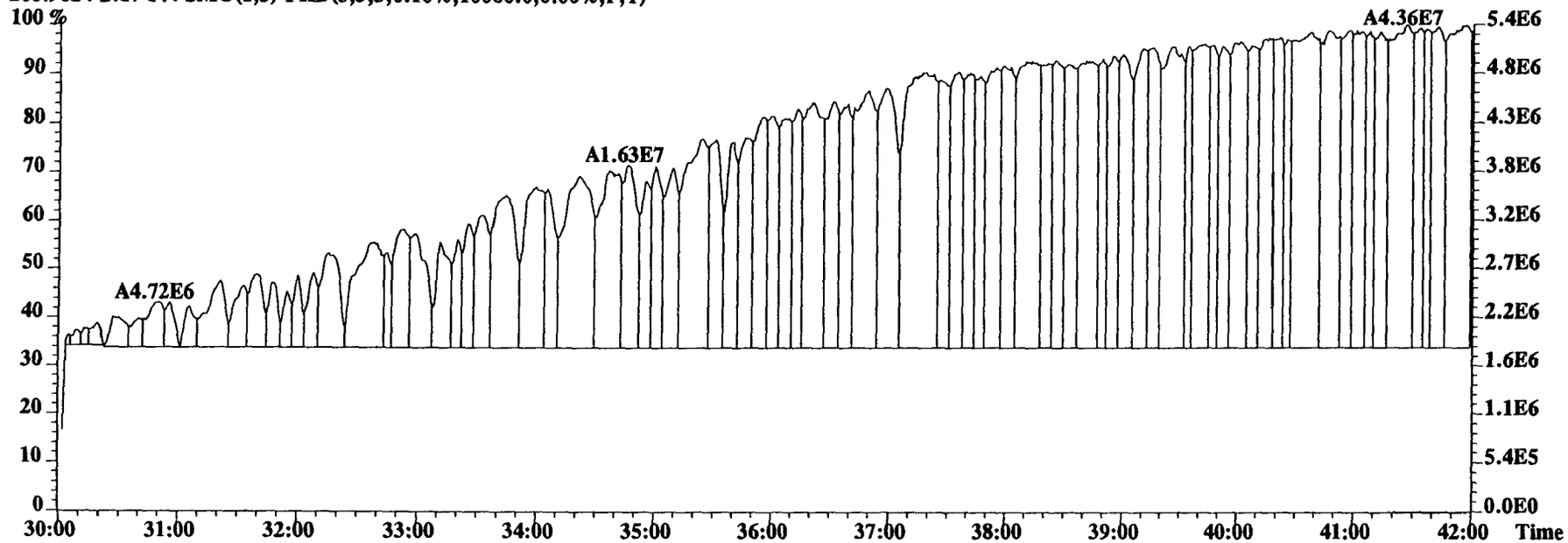
File:20AU98U #1-955 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F ;Trai Exp:PAHAIR
278.1096 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



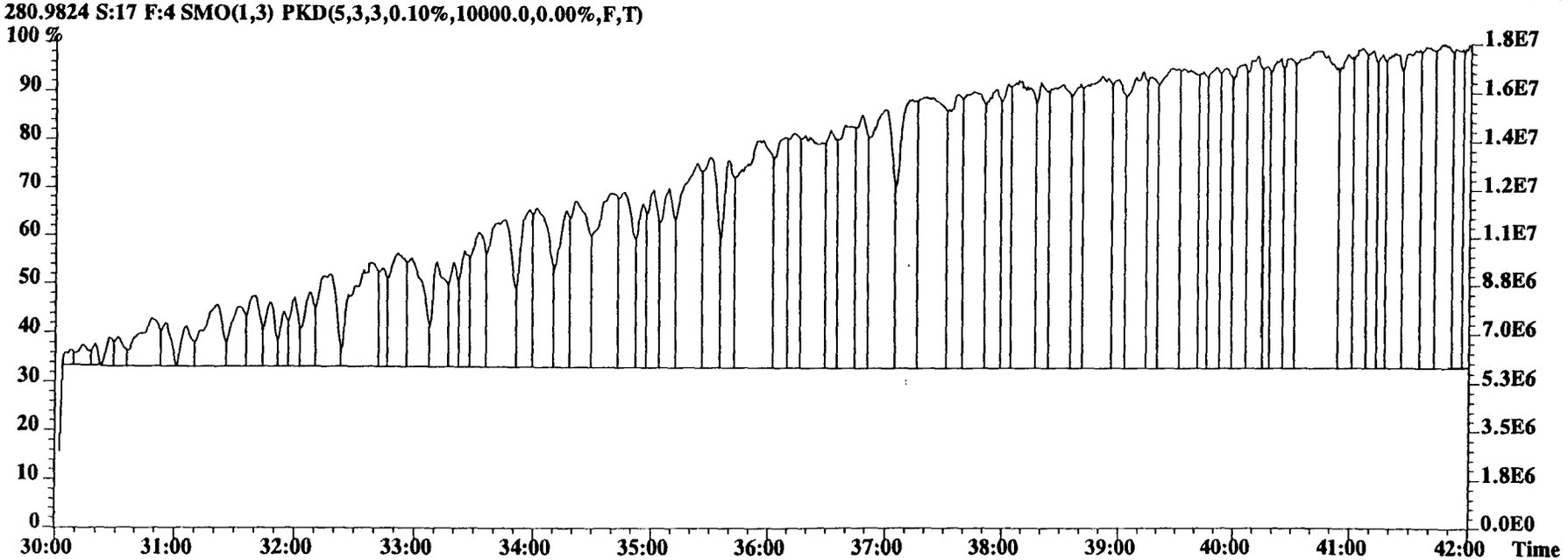
292.1974 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:20AU98U #1-955 Acq:21-AUG-1998 03:44:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#17 Text:300681-3 :T-MM5-2-F :Trai Exp:PAHAIR
268.9824 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:17 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



02-SEP-1998 07:11:04 PM Dioxin Furan Unknown RESULTS

Results : 24AU98U081.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-4 :T-MM5-FB-F :Tra Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	104767800	1.00 Y	11: 10 Y	1.00	50.00	
d8-Naphthalene	70141200	1.00 Y	8: 57 Y	1.25	26.87	54
Naphthalene	140673800	1.00 Y	9: 1 Y	1.05	285.91 B	
2-Methylnaphthalene	102381200	1.00 Y	11: 15 Y	0.77	284.35 B	
d8-Acenaphthylene	126385800	1.00 Y	14: 13 Y	1.55	38.91	78
Acenaphthylene	4460000	1.00 Y	14: 17 Y	0.86	6.14=DL	
d10-Acenaphthene	77644800	1.00 Y	14: 47 Y	0.88	42.23	84
Acenaphthene	29066000	1.00 Y	14: 53 Y	0.93	60.45 B	
d10-Anthracene	80746800	1.00 Y	19: 48 Y	1.00	50.00	
d10-Fluorene	54876400	1.00 Y	16: 29 Y	1.13	30.09	60
Fluorene	60400000	1.00 Y	16: 35 Y	1.05	157.40 B	
d10-Phenanthrene	164315400	1.00 Y	19: 38 Y	2.63	38.70	77
Phenanthrene	294000000	1.00 Y	19: 42 Y	0.84	319.02 B	
Anthracene	10300000	1.00 Y	19: 51 Y	0.83	11.35=DL	
d12-Benzo(e)pyrene	142613400	1.00 Y	32: 39 Y	1.00	50.00	
d10-Fluoranthene	120354200	1.00 Y	23: 32 Y	0.80	52.53	105
Fluoranthene	35000000	1.00 Y	23: 36 Y	1.04	41.97 B	
d10-Pyrene	120510200	1.00 Y	24: 14 Y	0.81	52.18	104
Pyrene	36000000	1.00 Y	24: 18 Y	1.11	40.50	
d12-Benzo(a)anthracene	145946000	1.00 Y	28: 6 Y	0.65	78.69	157
Benzo(a)anthracene	3840000	1.00 Y	28: 11 Y	1.06	3.74=DL	
d12-Chrysene	175288800	1.00 Y	28: 13 Y	0.85	72.45	145
Chrysene	24800000	1.00 Y	28: 17 Y	0.97	21.87	
d12-Benzo(e)pyrene	142613400	1.00 Y	32: 39 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	93249400	1.00 Y	31: 39 Y	0.63	52.22	104
Benzo(b)fluoranthene	2960000	1.00 Y	31: 45 Y	1.07	4.46=DL	
d12-Benzo(k)fluoranthene	133766000	1.00 Y	31: 45 Y	0.90	52.34	105
Benzo(k)fluoranthene	2340000	1.00 Y	31: 51 Y	1.16	2.27=DL	
d12-Benzo(a)pyrene	90750000	1.00 Y	32: 52 Y	0.75	42.36	85
Benzo(e)pyrene	4420000	1.00 Y	32: 45 Y	1.46	4.99=DL	
Benzo(a)pyrene	1370000	1.00 Y	32: 58 Y	1.02	2.21=DL	
d12-Perylene	69289800	1.00 Y	33: 11 Y	0.61	39.53	79
Perylene	2820000	1.00 Y	33: 17 Y	1.62	3.78=DL	
d12-Indeno(123-cd)pyrene	107388200	1.00 Y	38: 1 Y	0.71	53.28	107
Indeno(123-cd)pyrene	1848000	1.00 Y	38: 4 Y	0.61	4.23=DL	
d14-Dibenz(ah)anthracene	69200000	1.00 Y	38: 2 Y	0.44	55.00	110
Dibenz(ah)anthracene	1496000	1.00 Y	38: 13 Y	1.11	2.92=DL	
d12-Benzo(ghi)perylene	96800000	1.00 Y	39: 20 Y	0.63	53.84	108
Benzo(ghi)perylene	3560000	1.00 Y	39: 29 Y	0.99	5.17=DL	
d8-Naphthalene	70141200	1.00 Y	8: 57 Y	1.00	50.00	152
13C-Naphthalene	* No Peak	0.00 N	9: 1 N	0.98	0.00	0

MAT 9-2-98

d10-Fluorene	54876400	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	42566400	1.00	Y	16: 34	Y	0.76	51.17	**102**

02-SEP-1998 07:11:00 PM Dioxin Furan Unknown RESULTS

24AU98U081.RES : PAHX.TRG
Date analyzed : 24-AUG-98 0.333
MM5-FB-F :Tra Ex Cal : PAHX081998U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL		
1.00 Y	11: 10 Y	1.00	50.00		52383900	52383900
1.00 Y	8: 57 Y	1.25	26.87	54	35070600	35070600
1.00 Y	9: 1 Y	1.05	285.91		70336900	70336900
1.00 Y	11: 15 Y	0.77	284.35		51190600	51190600
1.00 Y	14: 13 Y	1.55	38.91	78	63192900	63192900
1.00 Y	14: 17 Y	0.86	6.14=DL		2230000	2230000
1.00 Y	14: 47 Y	0.88	42.23	84	38822400	38822400
1.00 Y	14: 53 Y	0.93	60.45		14533000	14533000
1.00 Y	19: 48 Y	1.00	50.00		40373400	40373400
1.00 Y	16: 29 Y	1.13	30.09	60	27438200	27438200
1.00 Y	16: 35 Y	1.05	157.40		30200000	30200000
1.00 Y	19: 38 Y	2.63	38.70	77	82157700	82157700
1.00 Y	19: 42 Y	0.84	319.02		147000000	147000000
1.00 Y	19: 51 Y	0.83	11.35=DL		5150000	5150000
1.00 Y	32: 39 Y	1.00	50.00		71306700	71306700
1.00 Y	23: 32 Y	0.80	52.53	105	60177100	60177100
1.00 Y	23: 36 Y	1.04	41.97		17500000	17500000
1.00 Y	24: 14 Y	0.81	52.18	104	60255100	60255100
1.00 Y	24: 18 Y	1.11	40.50		18000000	18000000
1.00 Y	28: 6 Y	0.65	78.69	157	72973000	72973000
1.00 Y	28: 11 Y	1.06	3.74=DL		1920000	1920000
1.00 Y	28: 13 Y	0.85	72.45	145	87644400	87644400
1.00 Y	28: 17 Y	0.97	21.87		12400000	12400000
1.00 Y	32: 39 Y	1.00	50.00		71306700	71306700
1.00 Y	31: 39 Y	0.63	52.22	104	46624700	46624700
1.00 Y	31: 45 Y	1.07	4.46=DL		1480000	1480000
1.00 Y	31: 45 Y	0.90	52.34	105	66883000	66883000
1.00 Y	31: 51 Y	1.16	2.27=DL		1170000	1170000
1.00 Y	32: 52 Y	0.75	42.36	85	45375000	45375000
1.00 Y	32: 45 Y	1.46	4.99=DL		2210000	2210000
1.00 Y	32: 58 Y	1.02	2.21=DL		685000	685000
1.00 Y	33: 11 Y	0.61	39.53	79	34644900	34644900
1.00 Y	33: 17 Y	1.62	3.78=DL		1410000	1410000
1.00 Y	38: 1 Y	0.71	53.28	107	53694100	53694100
1.00 Y	38: 4 Y	0.61	4.23=DL		924000	924000
1.00 Y	38: 2 Y	0.44	55.00	110	34600000	34600000
1.00 Y	38: 13 Y	1.11	2.92=DL		748000	748000
1.00 Y	39: 20 Y	0.63	53.84	108	48400000	48400000
1.00 Y	39: 29 Y	0.99	5.57=DL		1780000	1780000
1.00 Y	8: 57 Y	1.00	50.00		35070600	35070600
0.00 N	9: 1 N	0.98	0.00	0	0	0

1.00	Y	16: 29	Y	1.00	50.00		27438200	27438200
1.00	Y	16: 34	Y	0.76	51.17	102	21283200	21283200

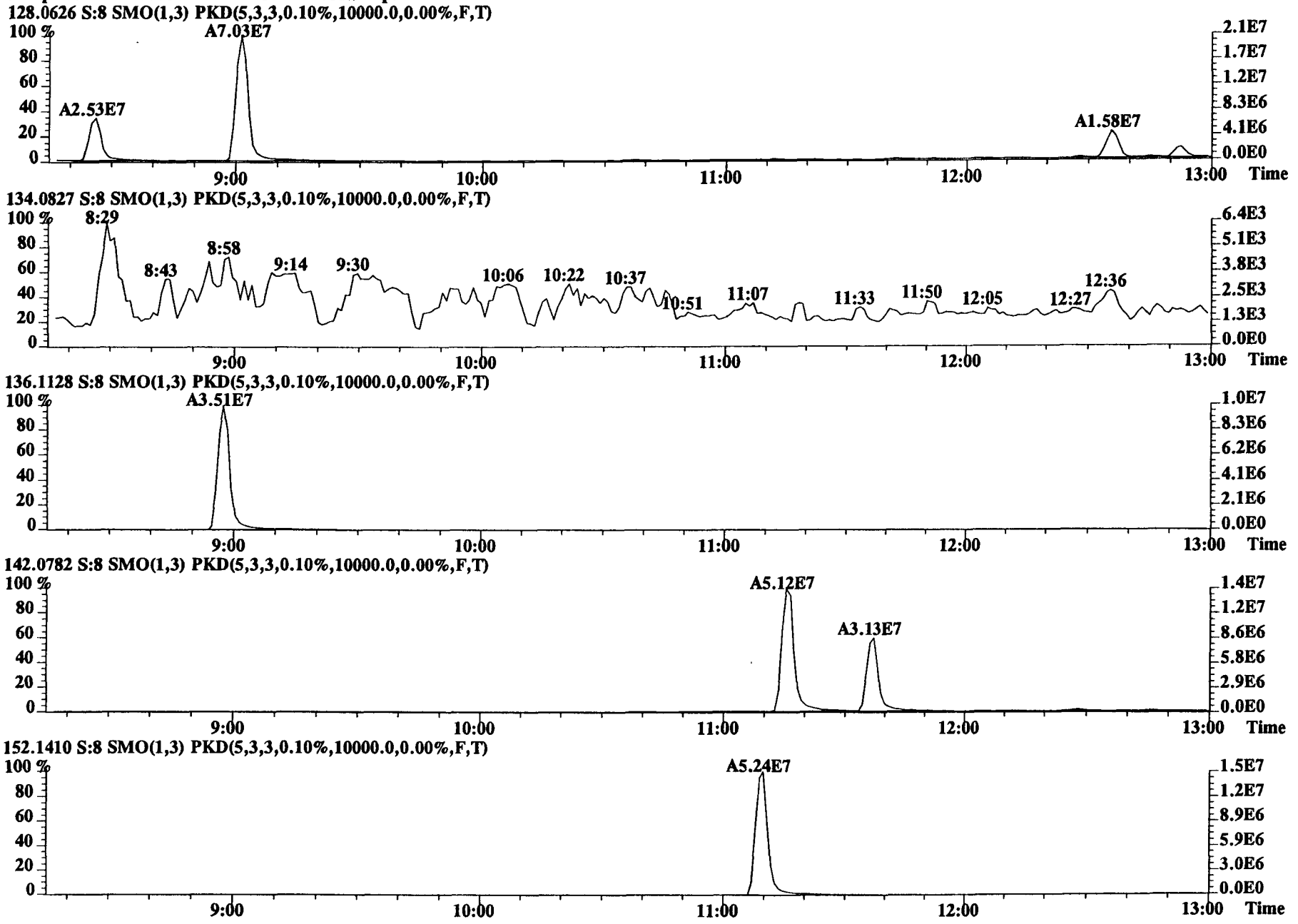
25-AUG-1998 09:28:32 AM PAH Unknown RESULTS

Mass Spec : ULTIMA Results : 24AU98U081.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-4 :T-MM5-FB-F :Tra Ex Cal : PAHX081998U.RRF
Weight : 0.333

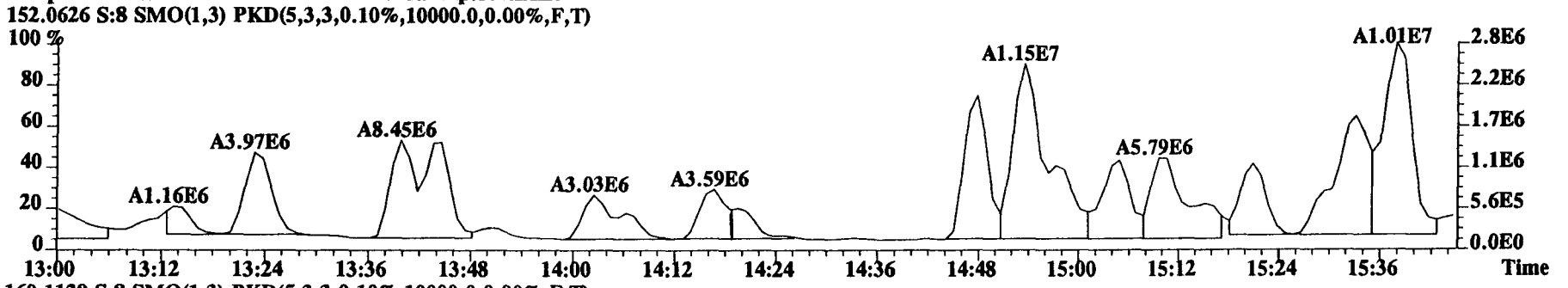
Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	104767800	1.00 Y	11: 10 Y	1.00	50.00	
d8-Naphthalene	70141200	1.00 Y	8: 57 Y	1.25	26.87	54
Naphthalene	140673800	1.00 Y	9: 1 Y	1.05	285.91	0.000
2-Methylnaphthalene	102381200	1.00 Y	11: 15 Y	0.77	284.35	0.000
d8-Acenaphthylene	126385800	1.00 Y	14: 13 Y	1.55	38.91	78
Acenaphthylene	7182220	1.00 Y	14: 17 Y	0.86	9.88	0.000
d10-Acenaphthene	77644800	1.00 Y	14: 47 Y	0.88	42.23	84
Acenaphthene	29066000	1.00 Y	14: 53 Y	0.93	60.45	0.000
d10-Anthracene	80746800	1.00 Y	19: 48 Y	1.00	50.00	
d10-Fluorene	54876400	1.00 Y	16: 29 Y	1.13	30.09	60
Fluorene	64376000	1.00 Y	16: 35 Y	1.05	167.76	0.000
d10-Phenanthrene	164315400	1.00 Y	19: 38 Y	2.63	38.70	77
Phenanthrene	308956000	1.00 Y	19: 42 Y	0.84	335.25	0.000
Anthracene	* No Peak	0.00 N	19: 51 N	0.83	0.00	0.000
d12-Benzo(e)pyrene	142613400	1.00 Y	32: 39 Y	1.00	50.00	
d10-Fluoranthene	120354200	1.00 Y	23: 32 Y	0.80	52.53	105
Fluoranthene	42686600	1.00 Y	23: 36 Y	1.04	51.18	0.000
d10-Pyrene	120510200	1.00 Y	24: 14 Y	0.81	52.18	104
Pyrene	40310800	1.00 Y	24: 18 Y	1.11	45.35	0.000
d12-Benzo(a)anthracene	145946000	1.00 Y	28: 6 Y	0.65	78.69	157
Benzo(a)anthracene	4884160	1.00 Y	28: 11 Y	1.06	4.76	0.000
d12-Chrysene	175288800	1.00 Y	28: 13 Y	0.85	72.45	145
Chrysene	25155800	1.00 Y	28: 17 Y	0.97	22.19	0.000
d12-Benzo(e)pyrene	142613400	1.00 Y	32: 39 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	93249400	1.00 Y	31: 39 Y	0.63	52.22	104
Benzo(b)fluoranthene	5083260	1.00 Y	31: 45 Y	1.07	7.66	0.000
d12-Benzo(k)fluoranthene	133766000	1.00 Y	31: 45 Y	0.90	52.34	105
Benzo(k)fluoranthene	5083260	1.00 Y	31: 45 Y	1.16	4.94	0.000
d12-Benzo(a)pyrene	90750000	1.00 Y	32: 52 Y	0.75	42.36	85
Benzo(e)pyrene	4472620	1.00 Y	32: 45 Y	1.46	5.05	0.000
Benzo(a)pyrene	1319906	1.00 Y	32: 58 Y	1.02	2.13	0.000
d12-Perylene	69289800	1.00 Y	33: 11 Y	0.61	39.53	79
Perylene	2398900	1.00 Y	33: 17 Y	1.62	3.21	0.000
d12-Indeno(123-cd)pyrene	107388200	1.00 Y	38: 1 Y	0.71	53.28	107
Indeno(123-cd)pyrene	* No Peak	0.00 N	38: 4 N	0.61	0.00	0.000
d14-Dibenz(ah)anthracene	66604400	1.00 Y	38: 2 Y	0.44	52.93	106
Dibenz(ah)anthracene	1052704	1.00 Y	38: 13 Y	1.11	2.13	0.000
d12-Benzo(ghi)perylene	* No Peak	0.00 N	39: 20 N	0.63	0.00	0
Benzo(ghi)perylene	* No Peak	0.00 N	39: 29 N	0.99	*NoINoIs	
d8-Naphthalene	70141200	1.00 Y	8: 57 Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00 N	9: 1 N	0.98	0.00	0

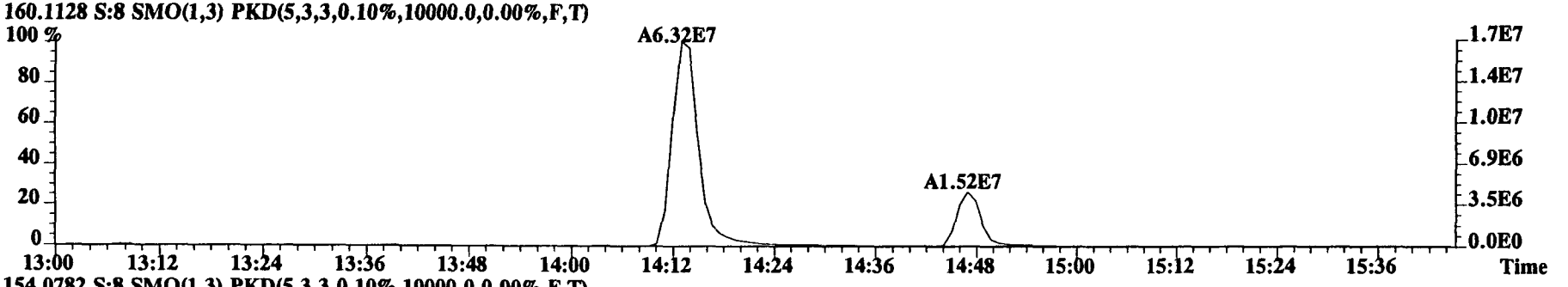
d10-Fluorene	54876400	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	42566400	1.00	Y	16: 34	Y	0.76	51.17	102

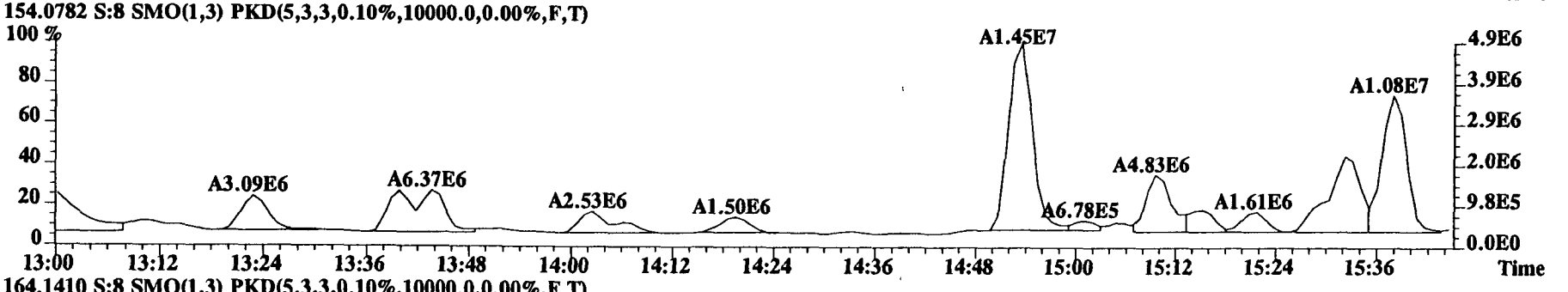
File:24AU98U #1-476 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR

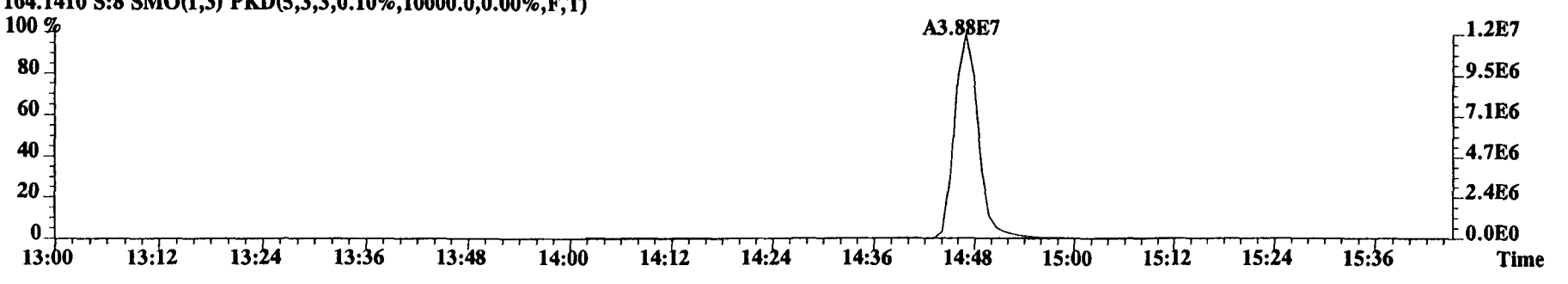


File:24AU98U #1-476 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR

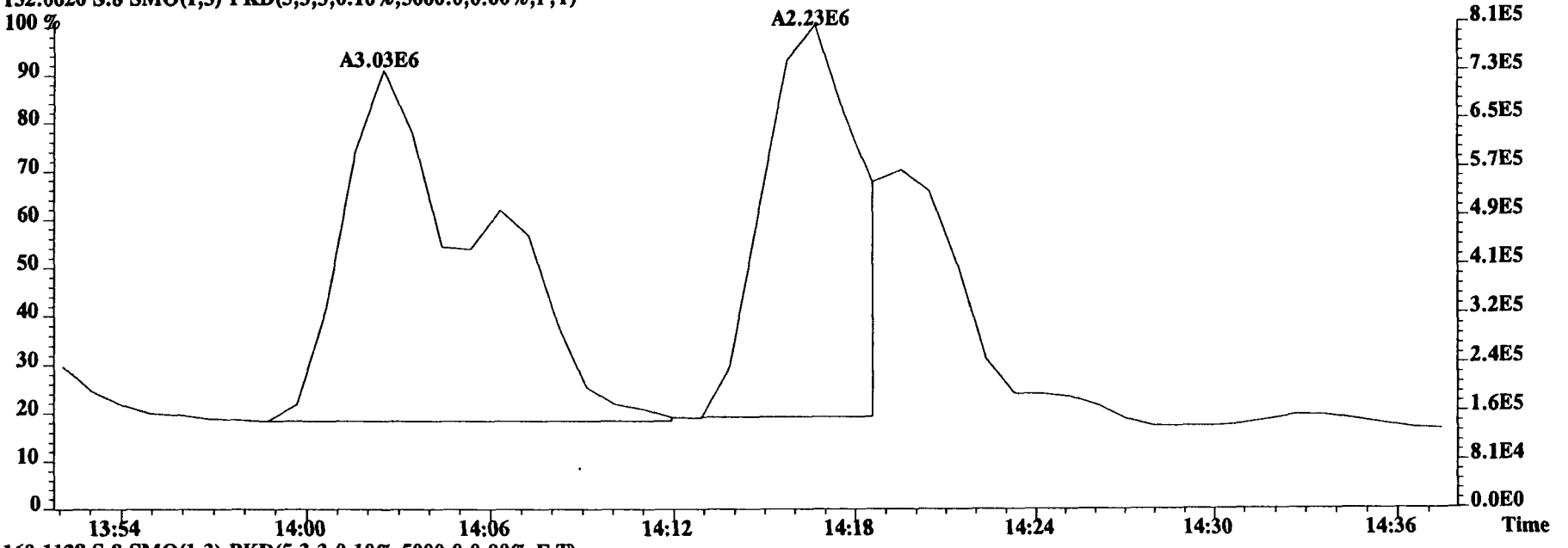




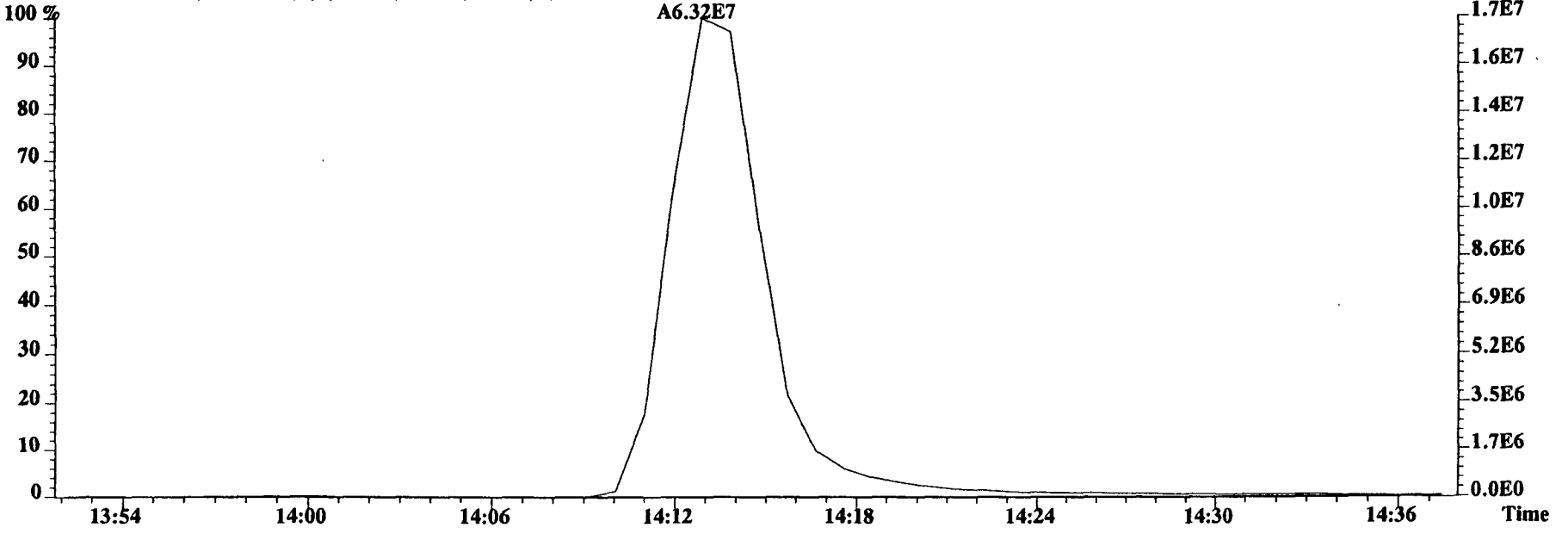




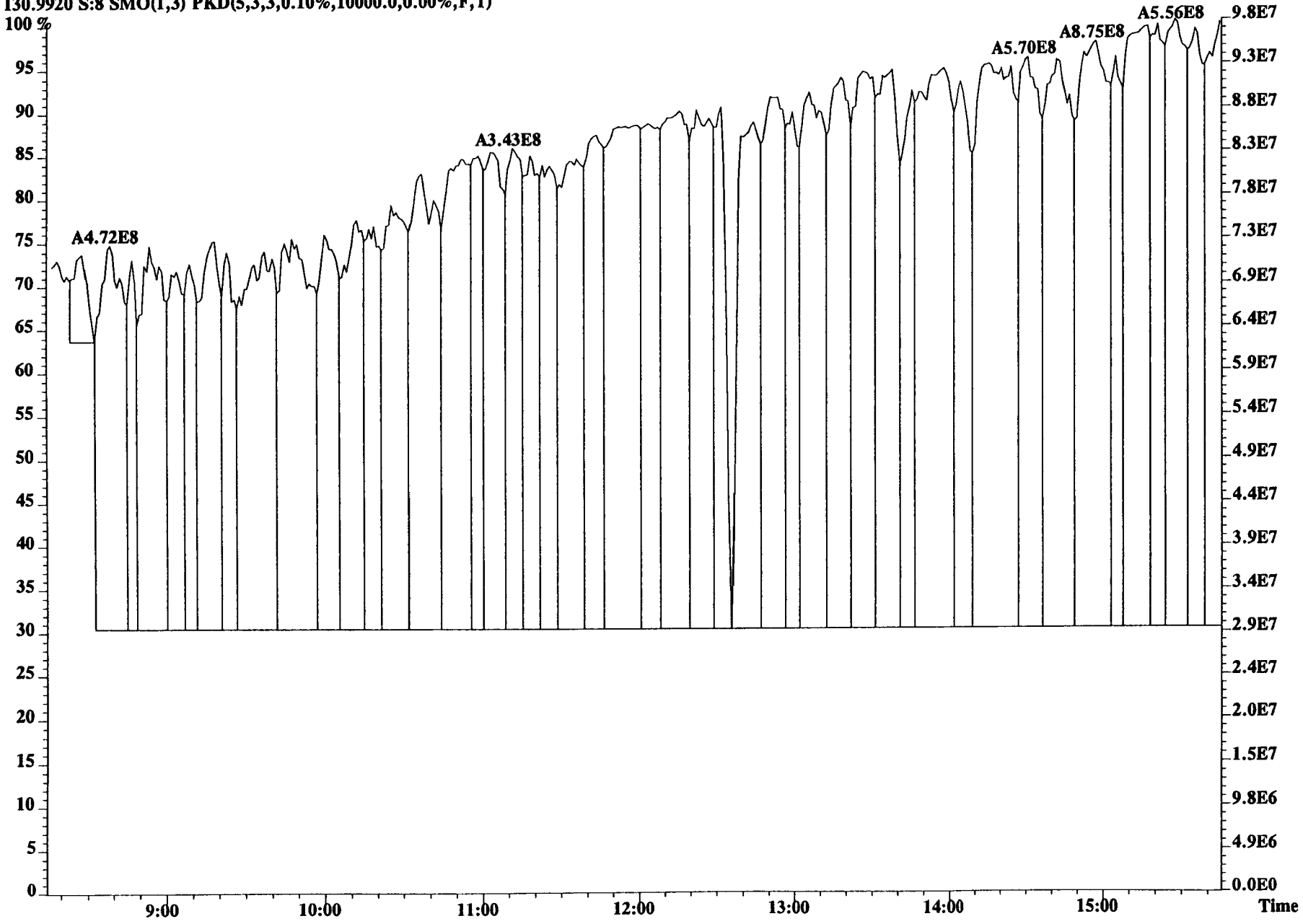
File:24AU98U #1-476 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
152.0626 S:8 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



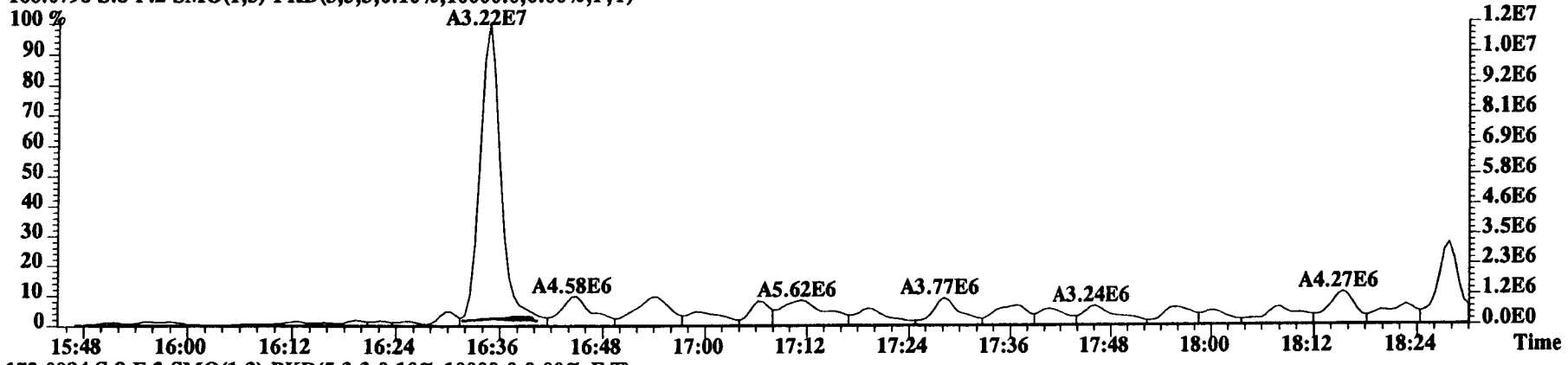
160.1128 S:8 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



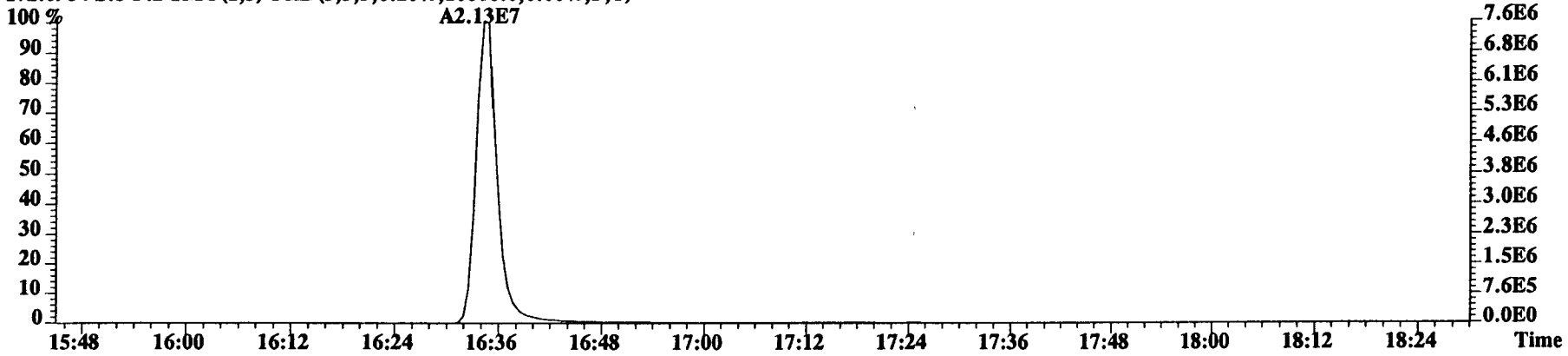
File:24AU98U #1-476 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
130.9920 S:8 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



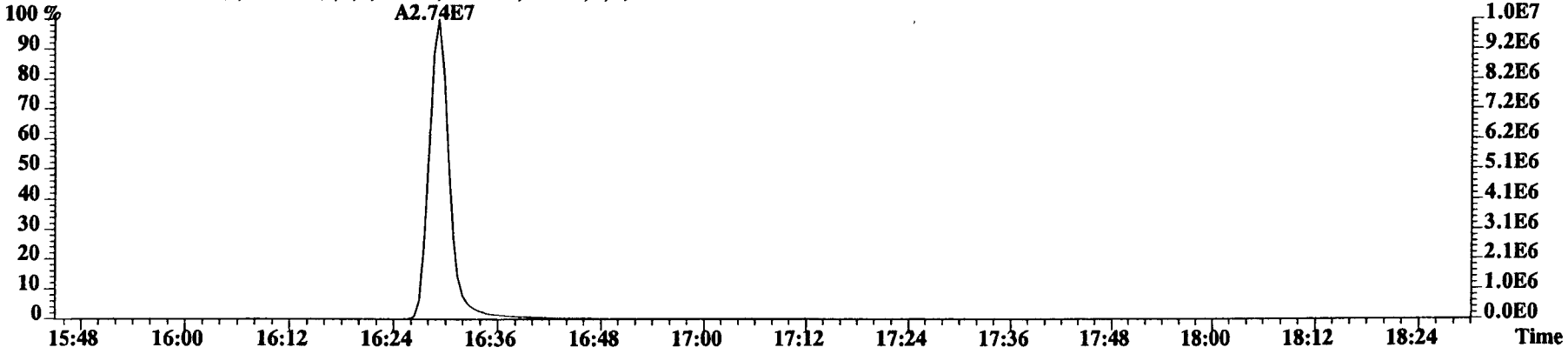
File:24AU98U #1-665 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
166.0798 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



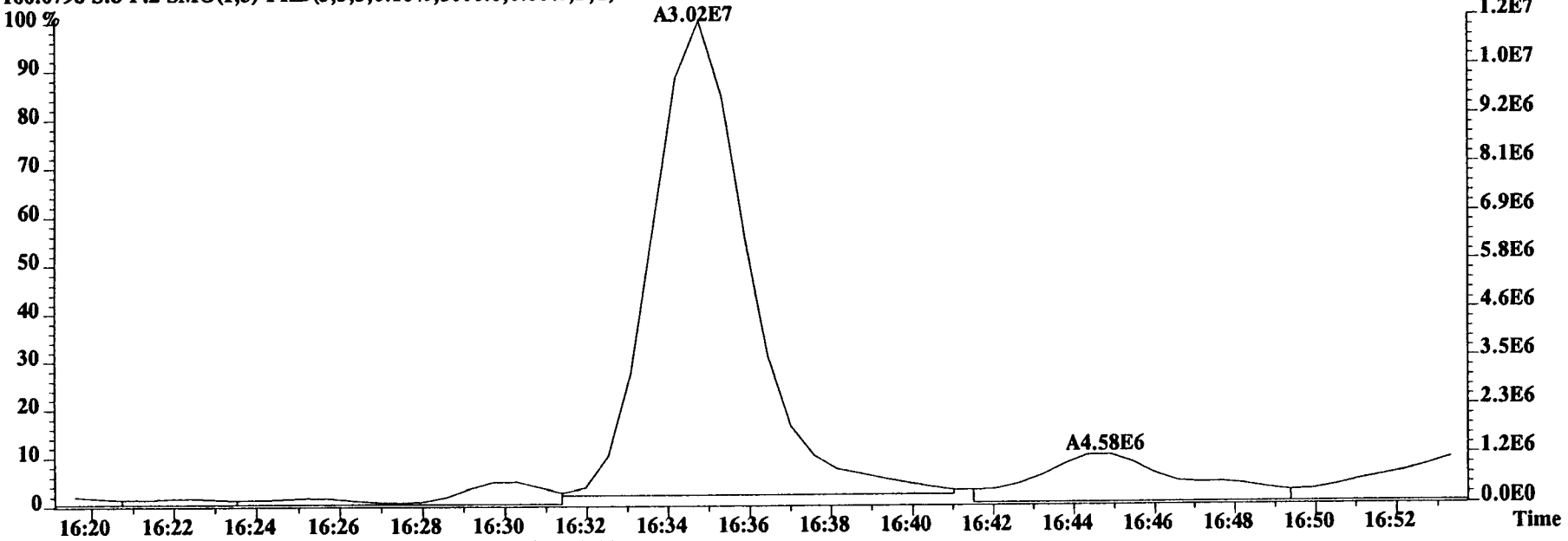
172.0984 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



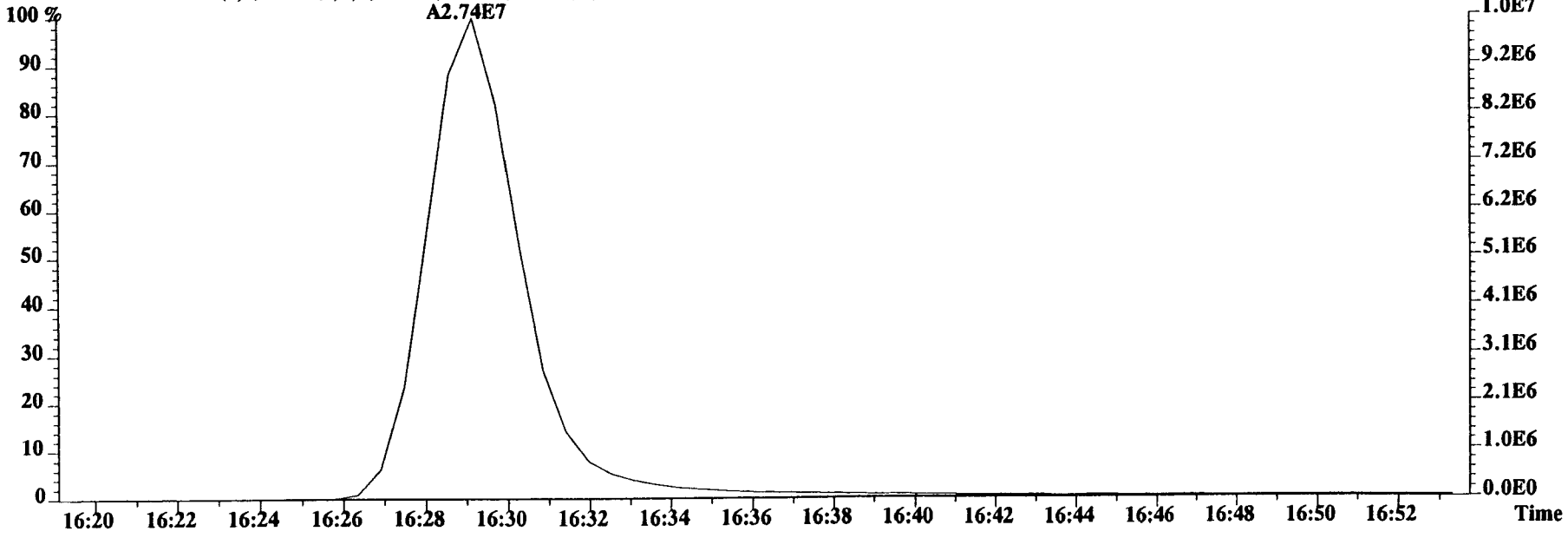
176.1410 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



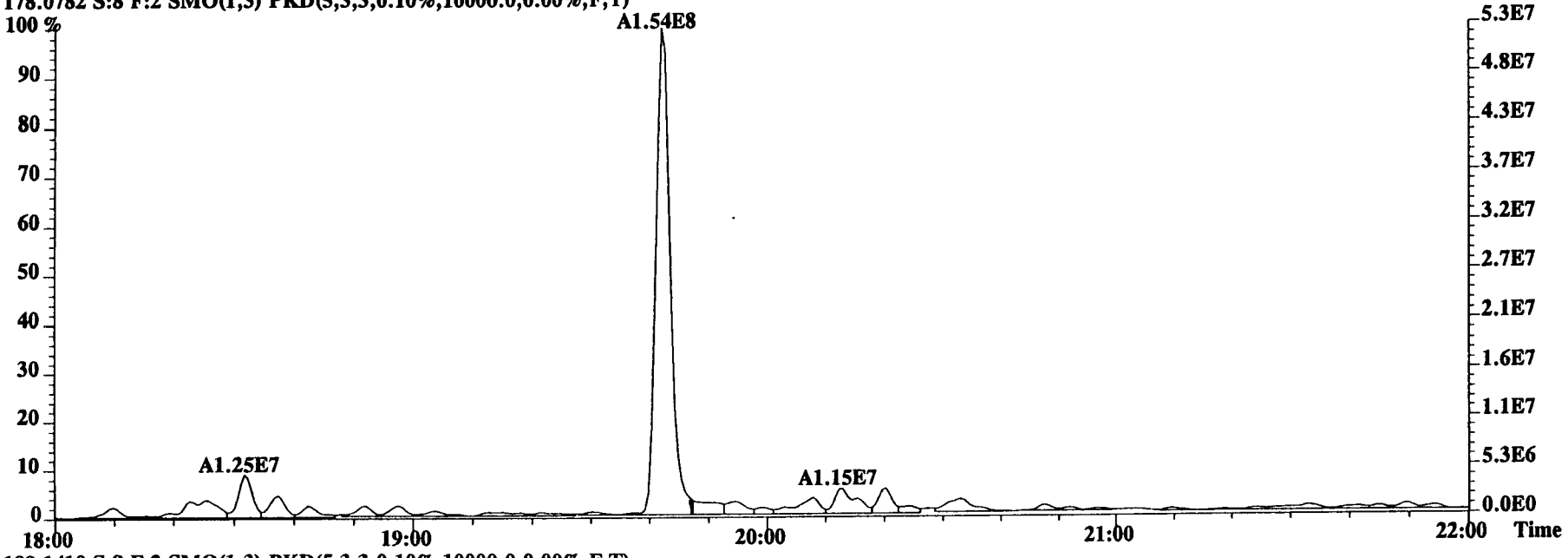
File:24AU98U #1-665 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
166.0798 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



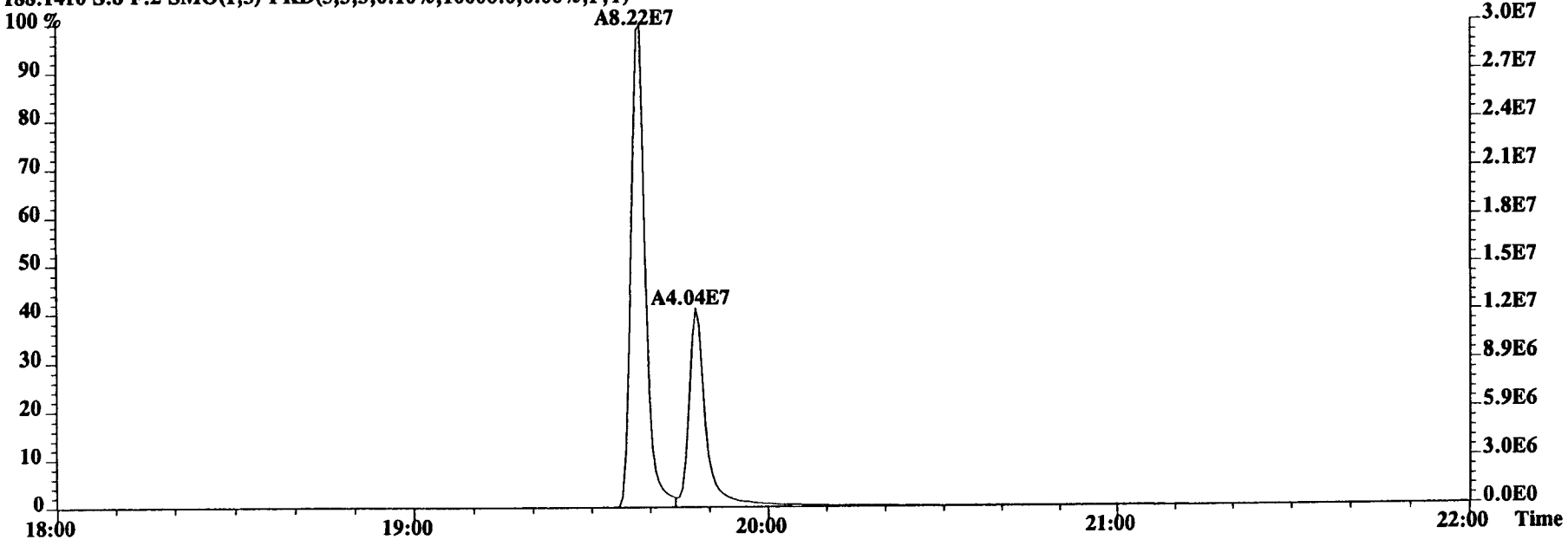
176.1410 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



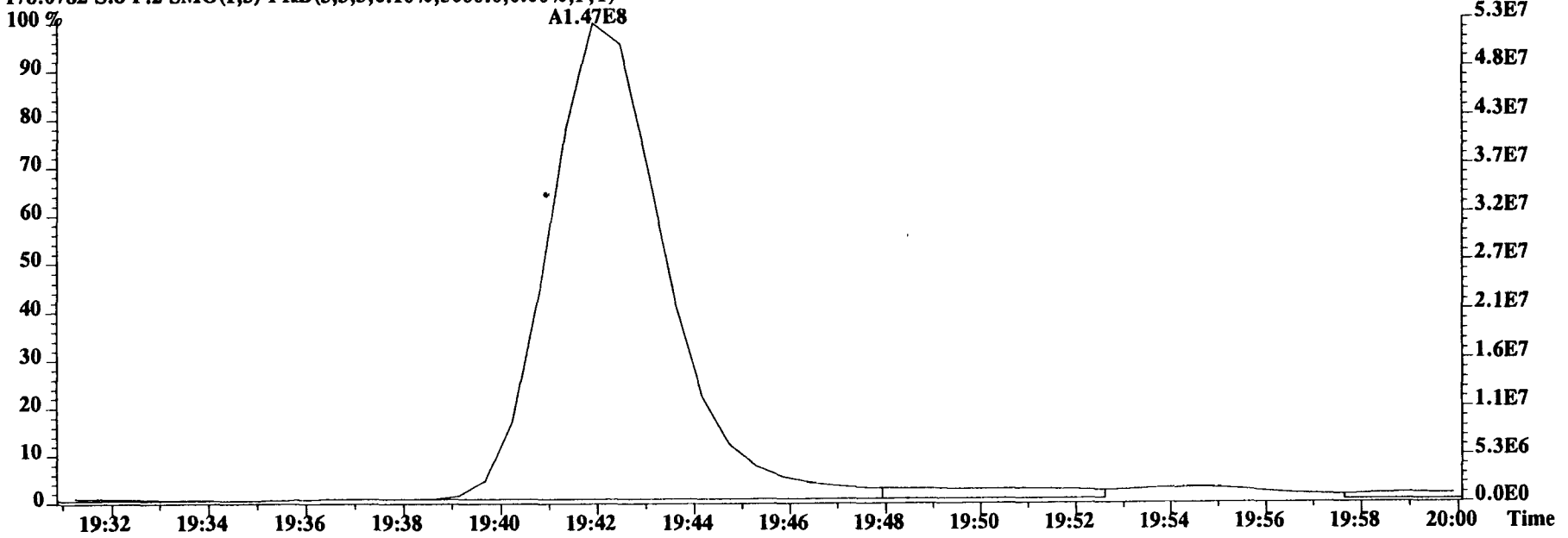
File:24AU98U #1-665 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
178.0782 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



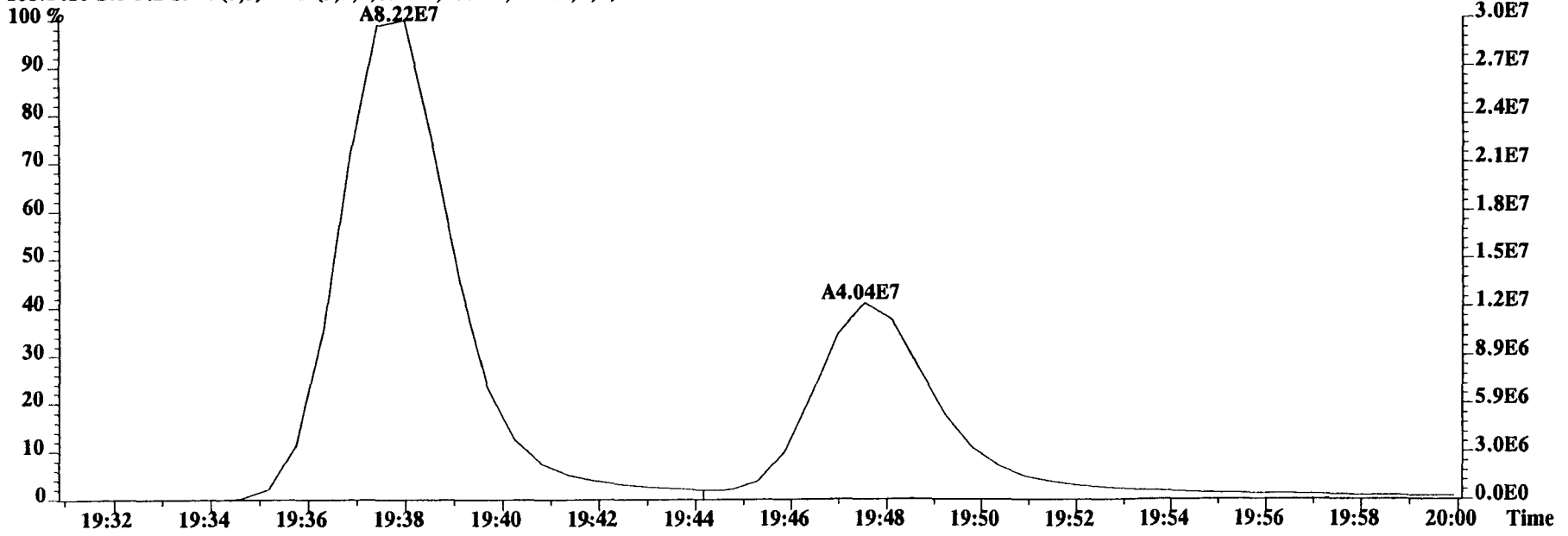
188.1410 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



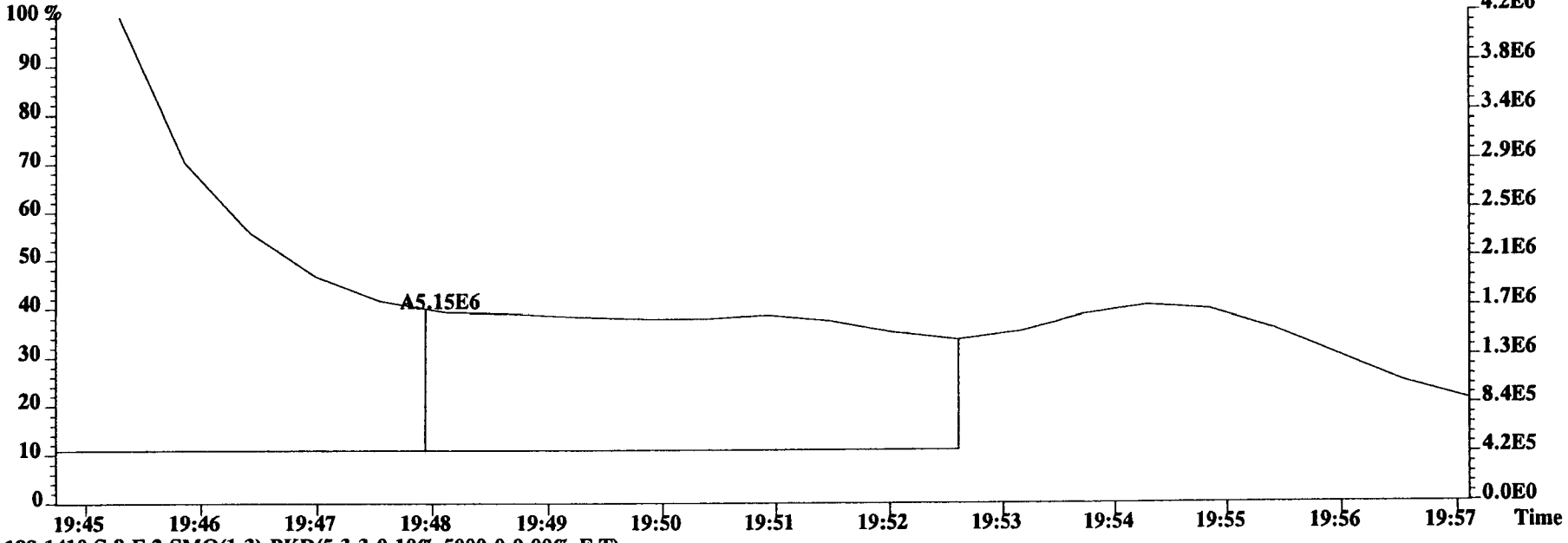
File:24AU98U #1-665 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
178.0782 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



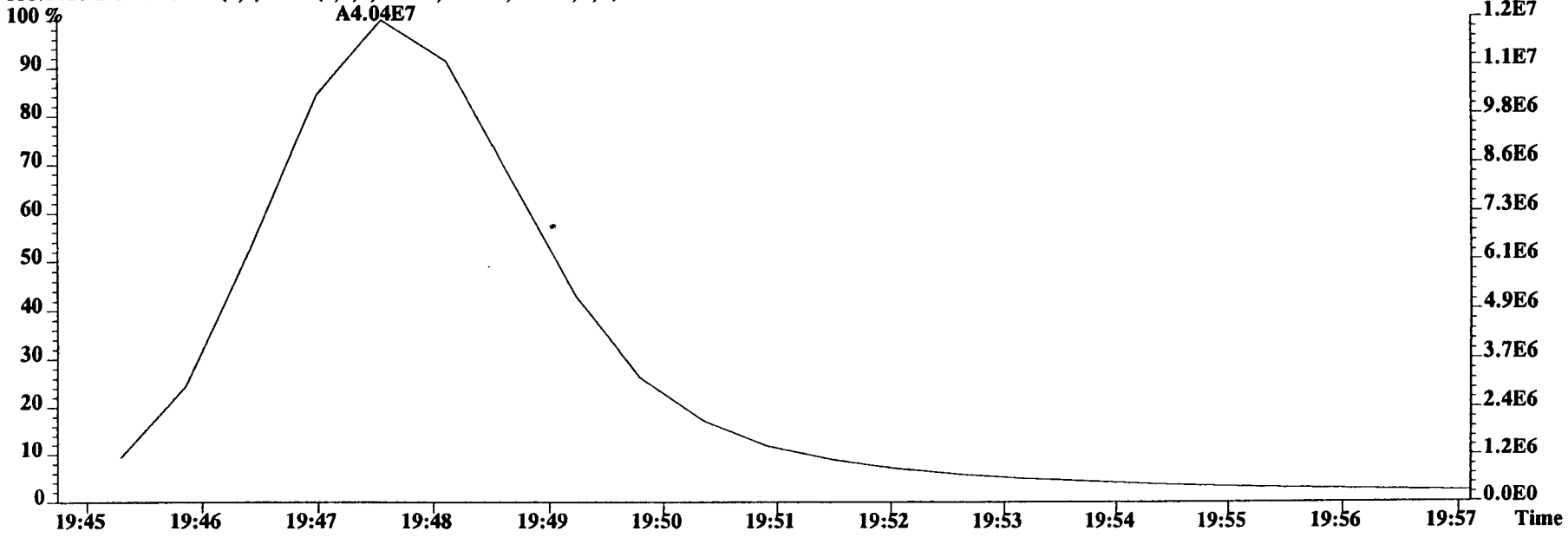
188.1410 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



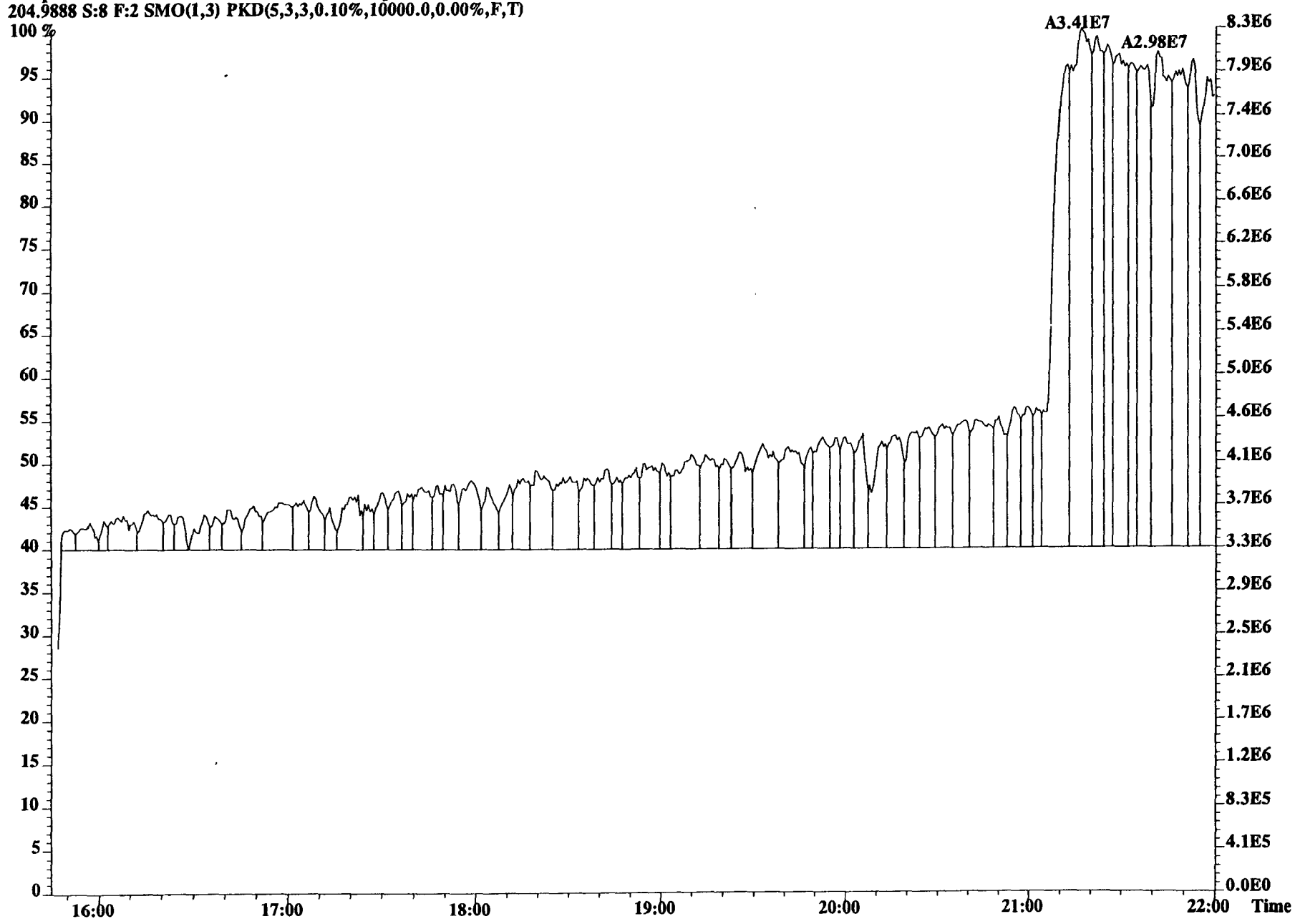
File:24AU98U #1-665 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
178.0782 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



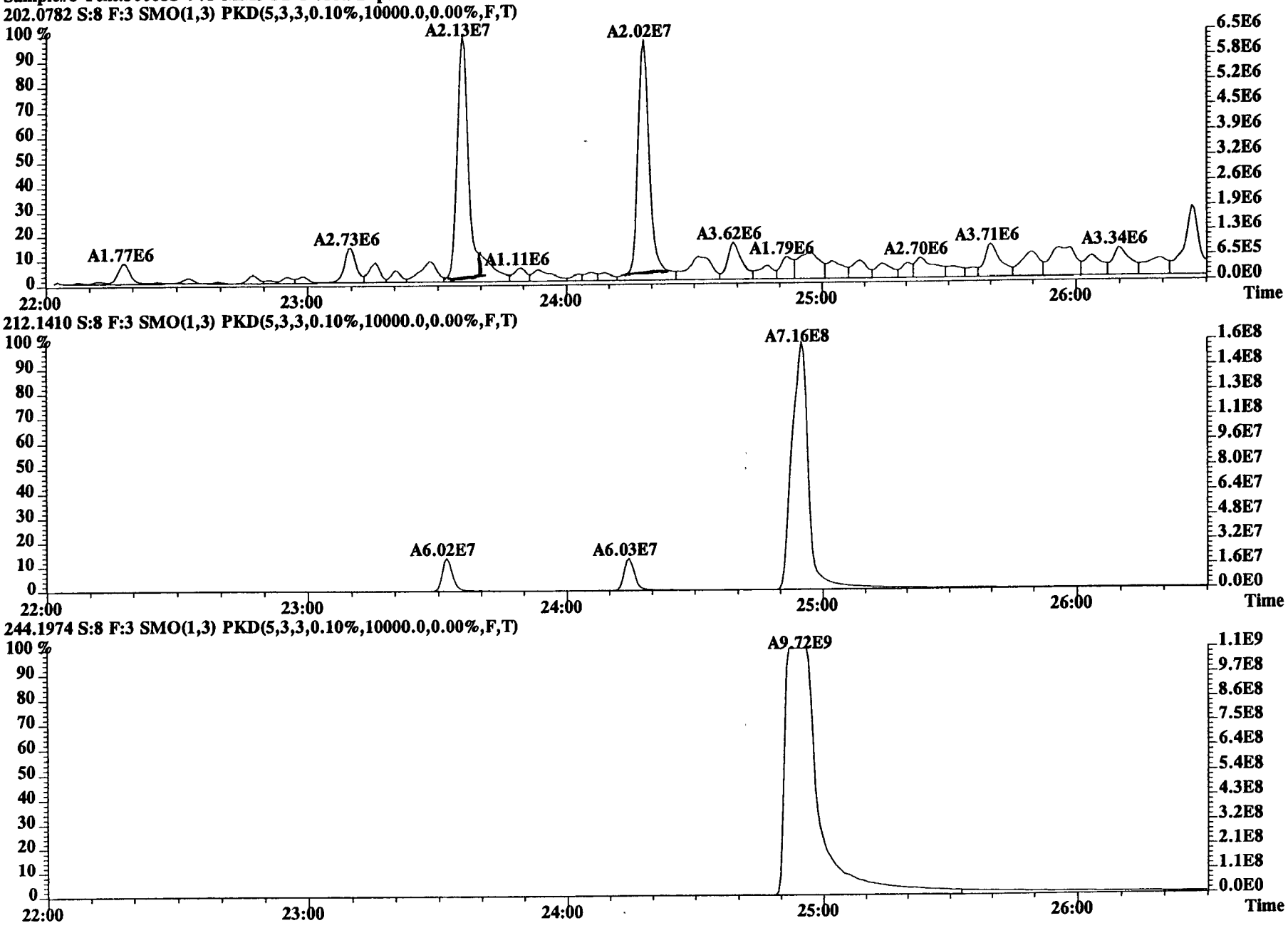
188.1410 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



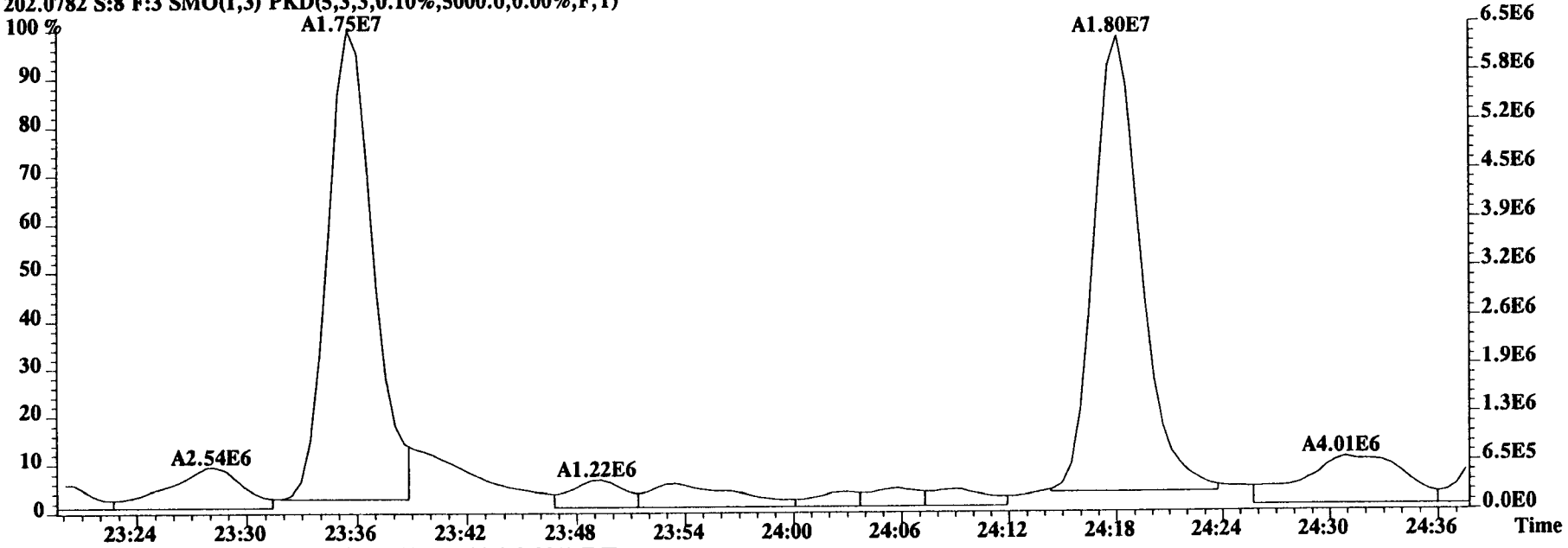
File:24AU98U #1-665 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
204.9888 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



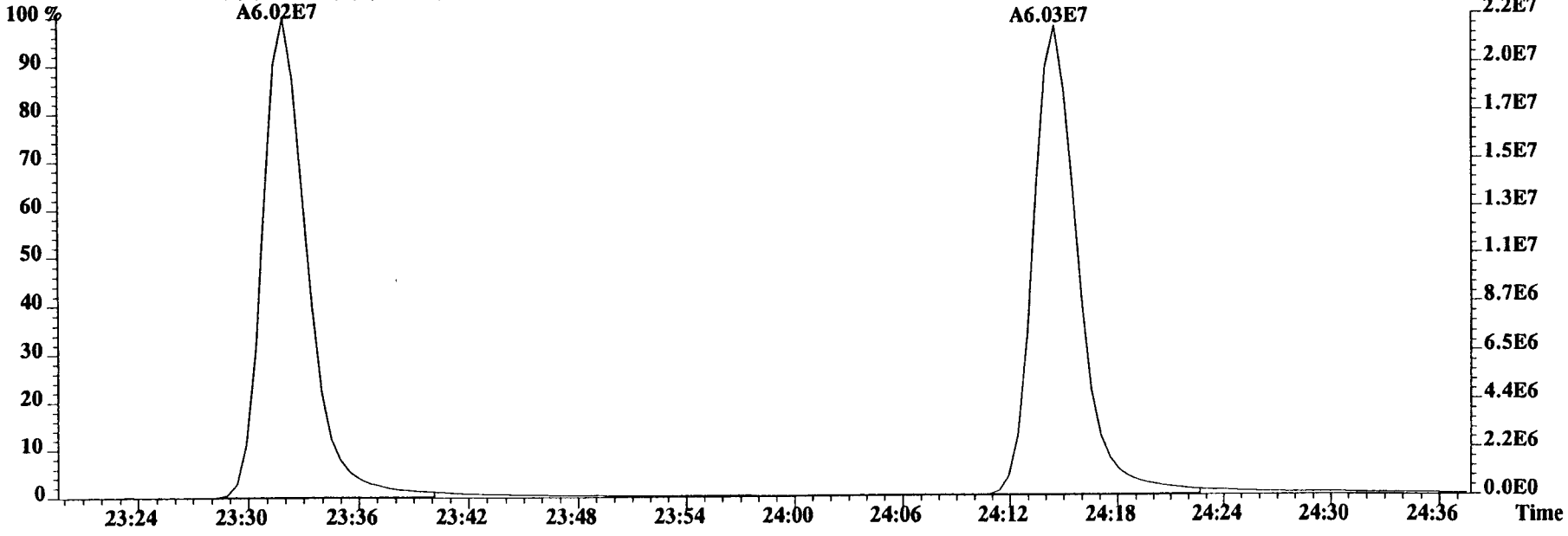
File:24AU98U #1-935 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR



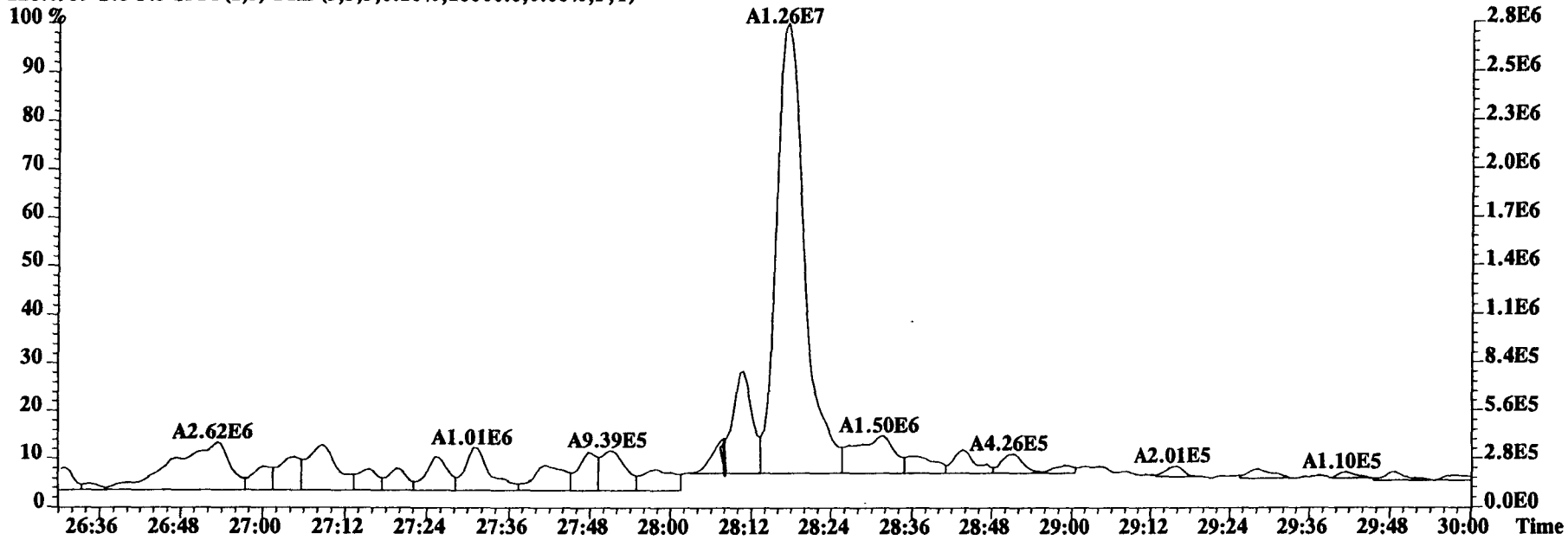
File:24AU98U #1-935 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
202.0782 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



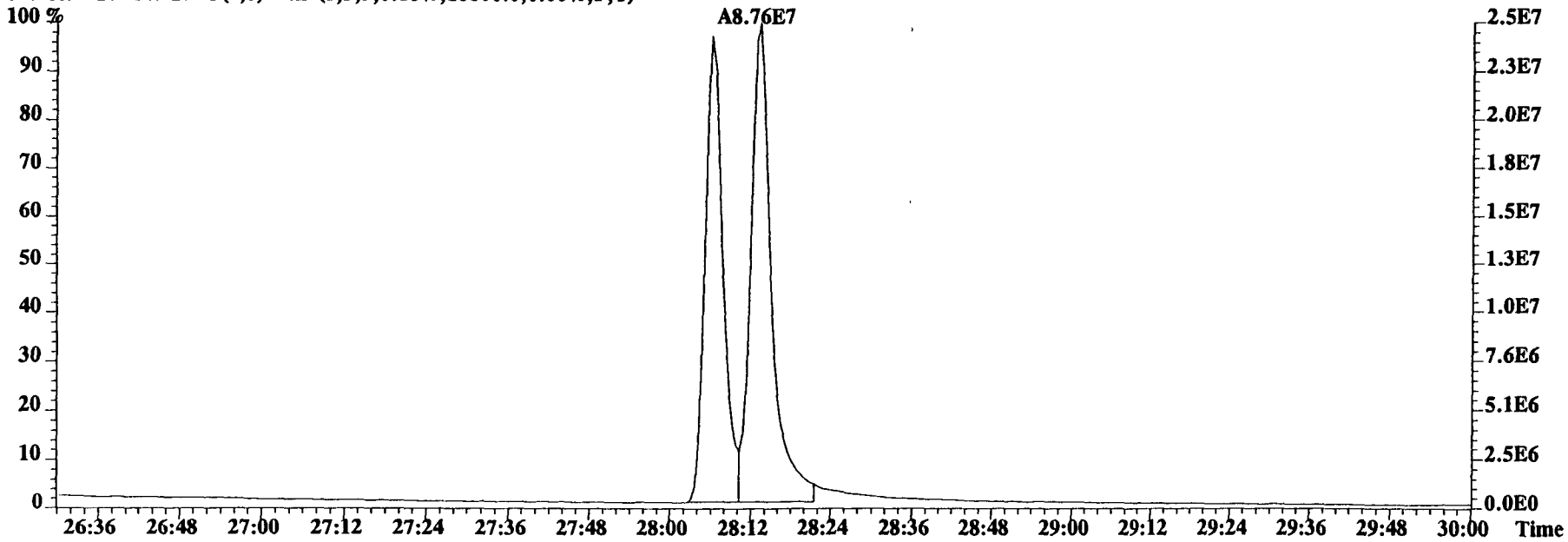
212.1410 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



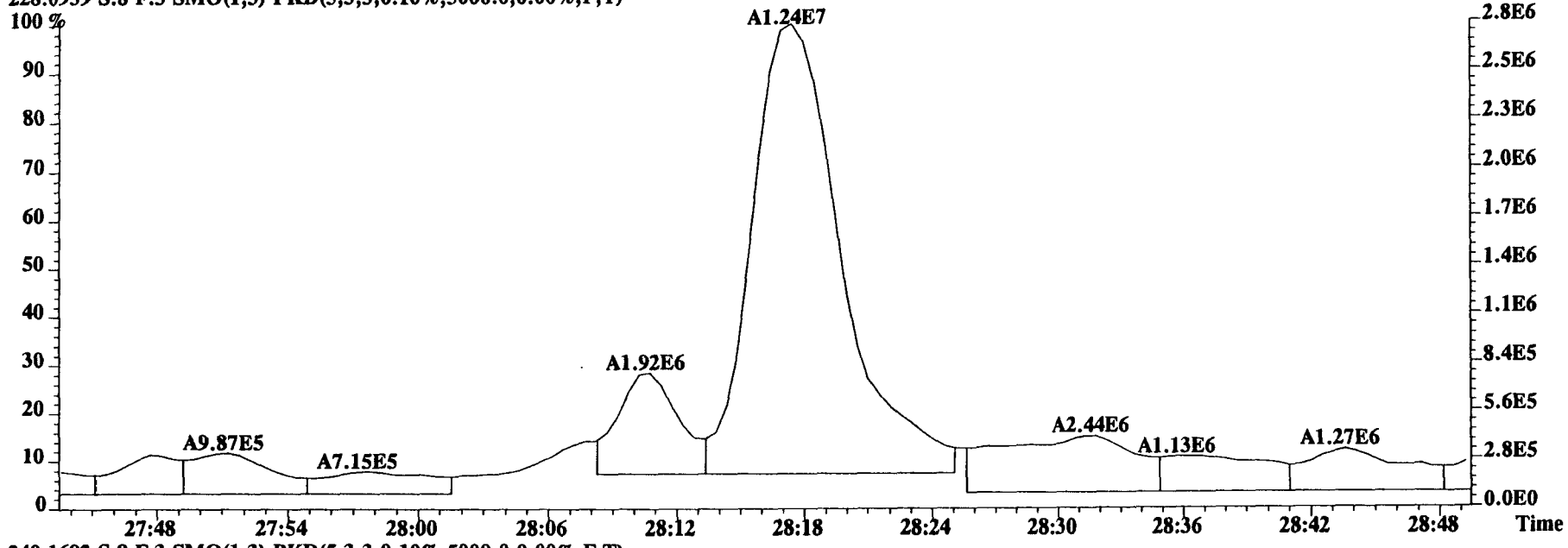
File:24AU98U #1-935 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
228.0939 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



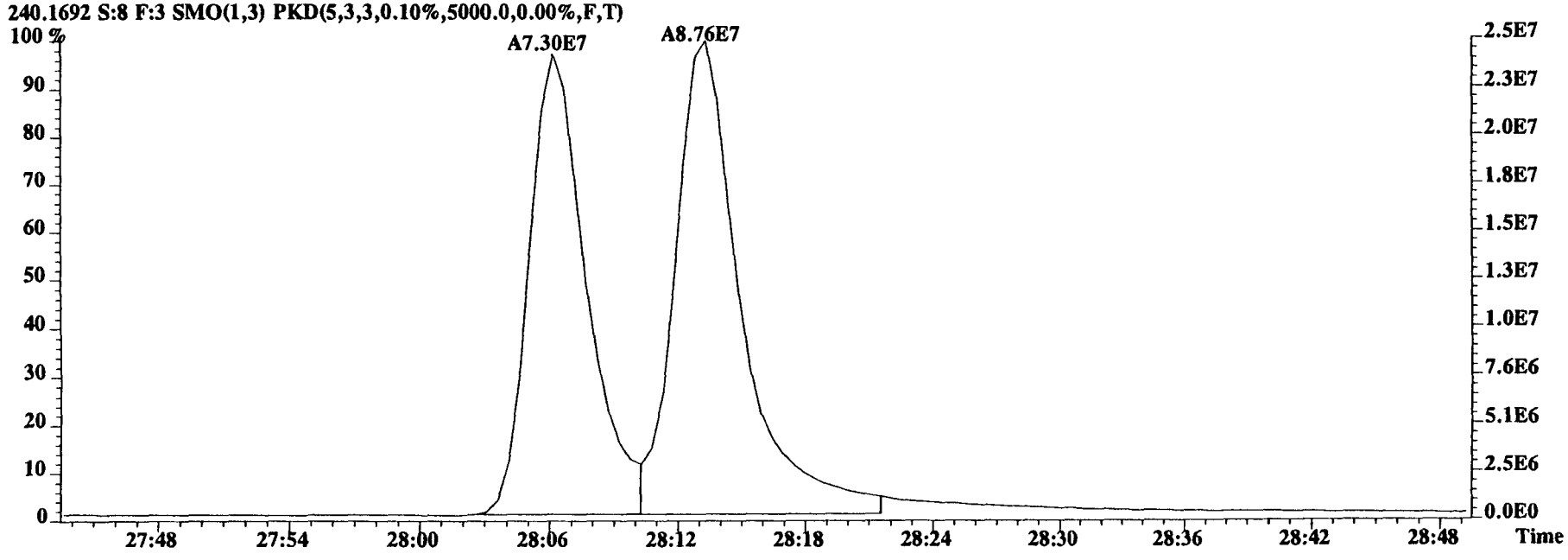
240.1692 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



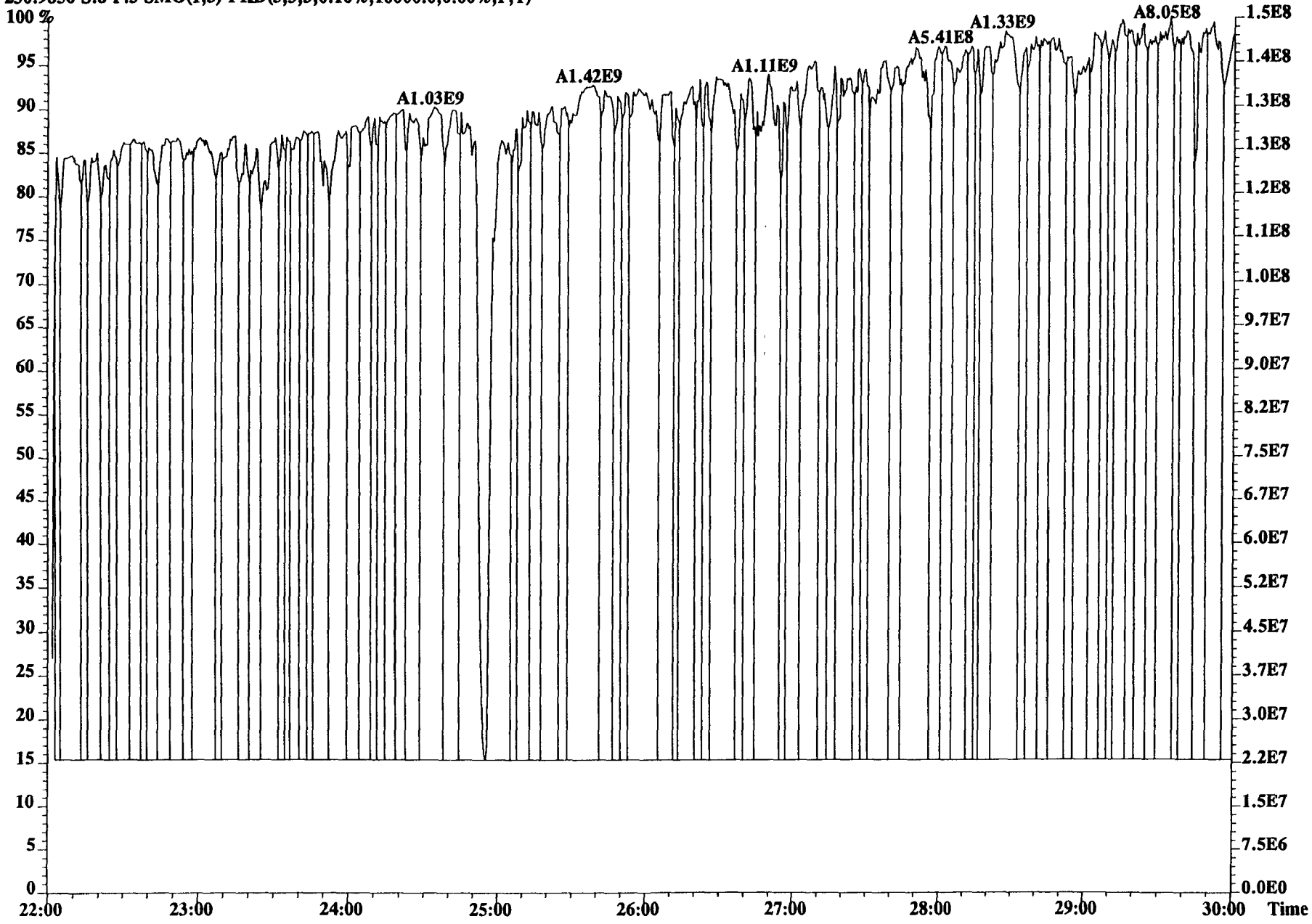
File:24AU98U #1-935 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
228.0939 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



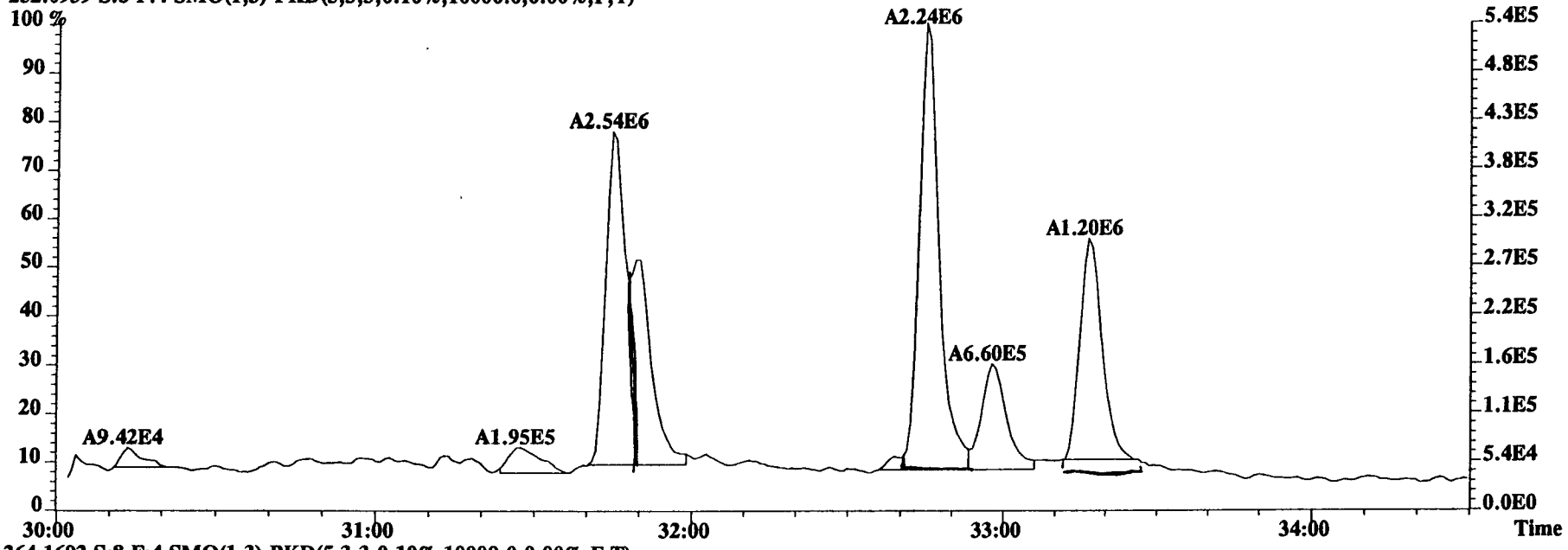
240.1692 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



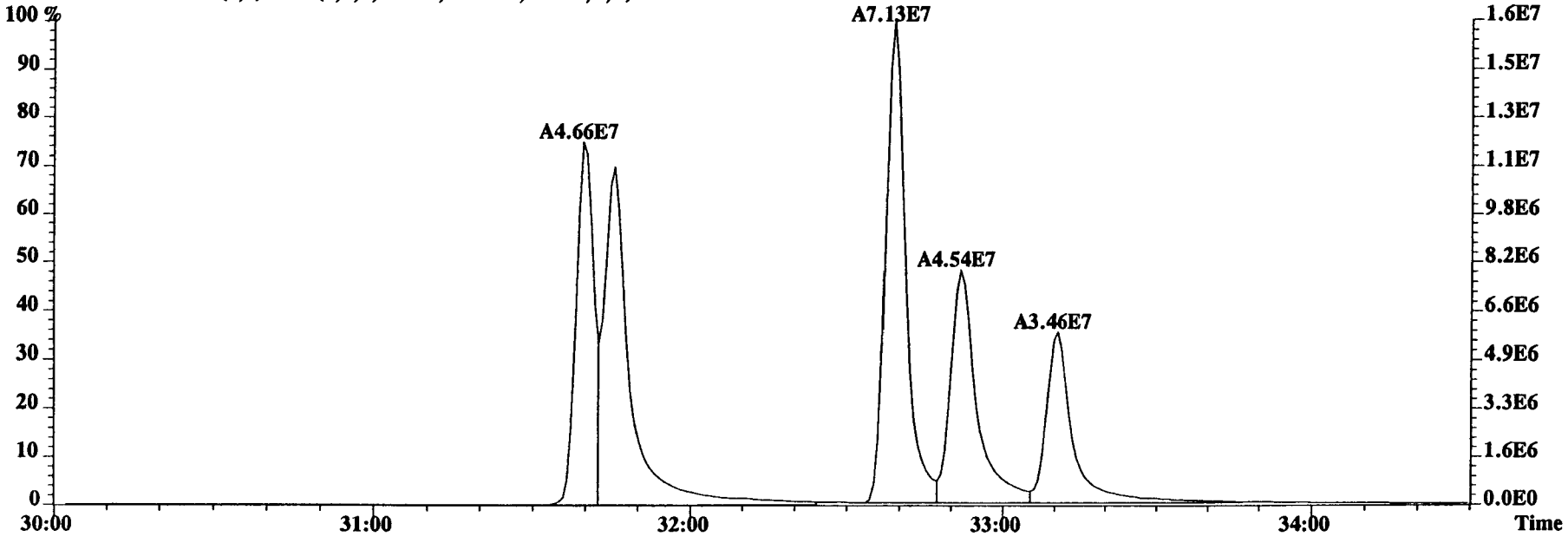
File:24AU98U #1-935 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
230.9856 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



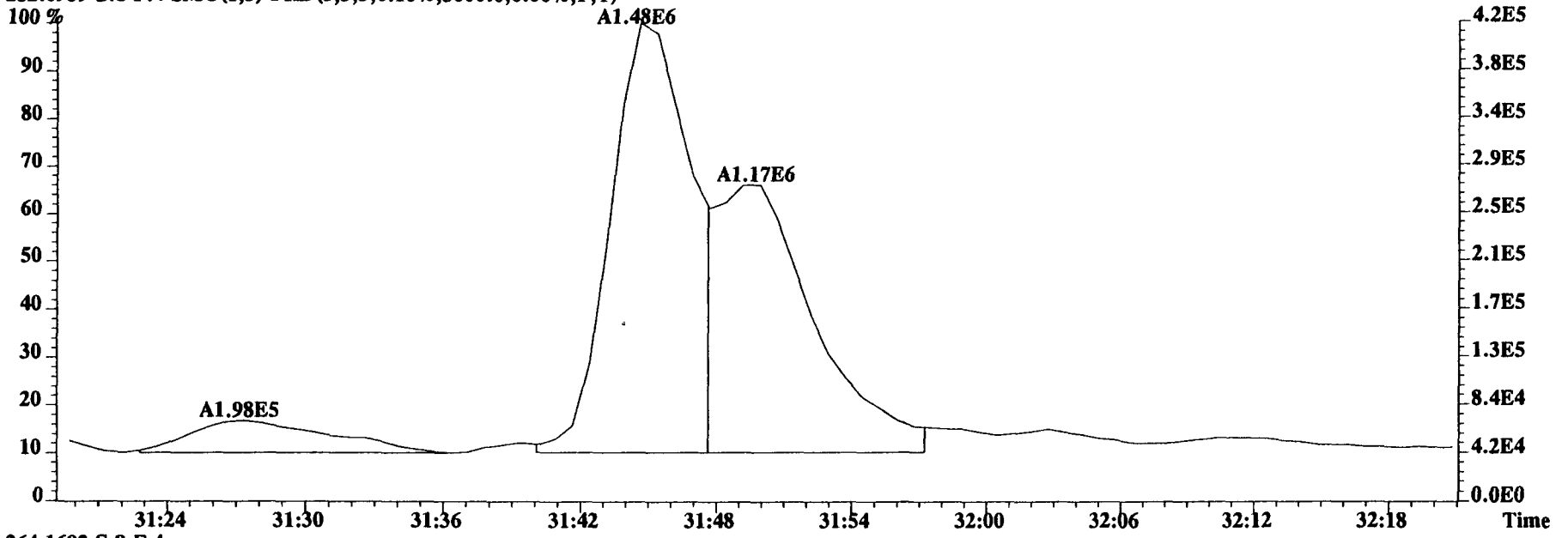
File:24AU98U #1-954 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
252.0939 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



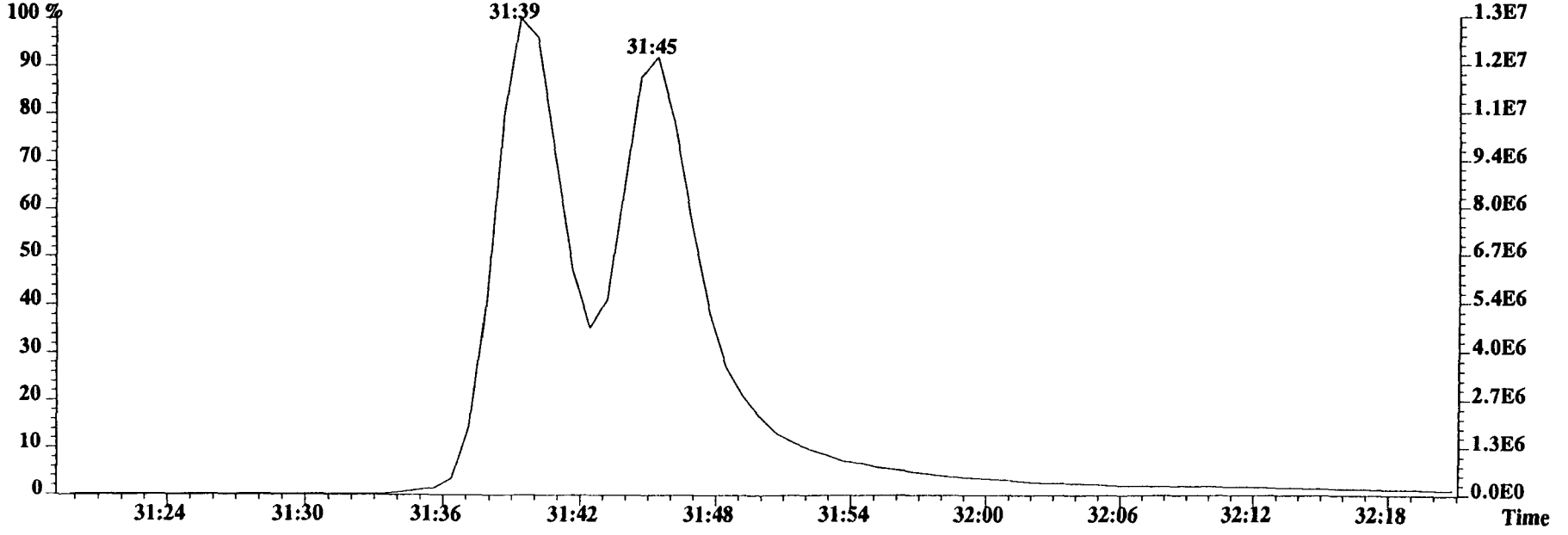
264.1692 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



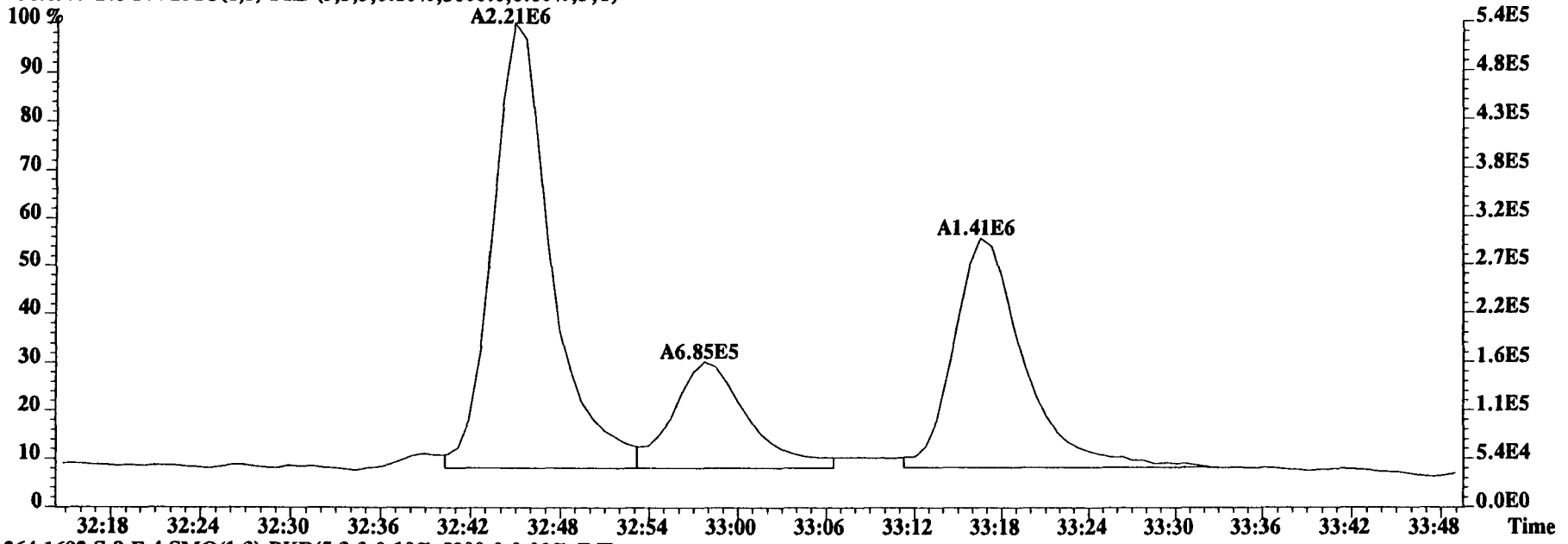
File:24AU98U #1-954 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
252.0939 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



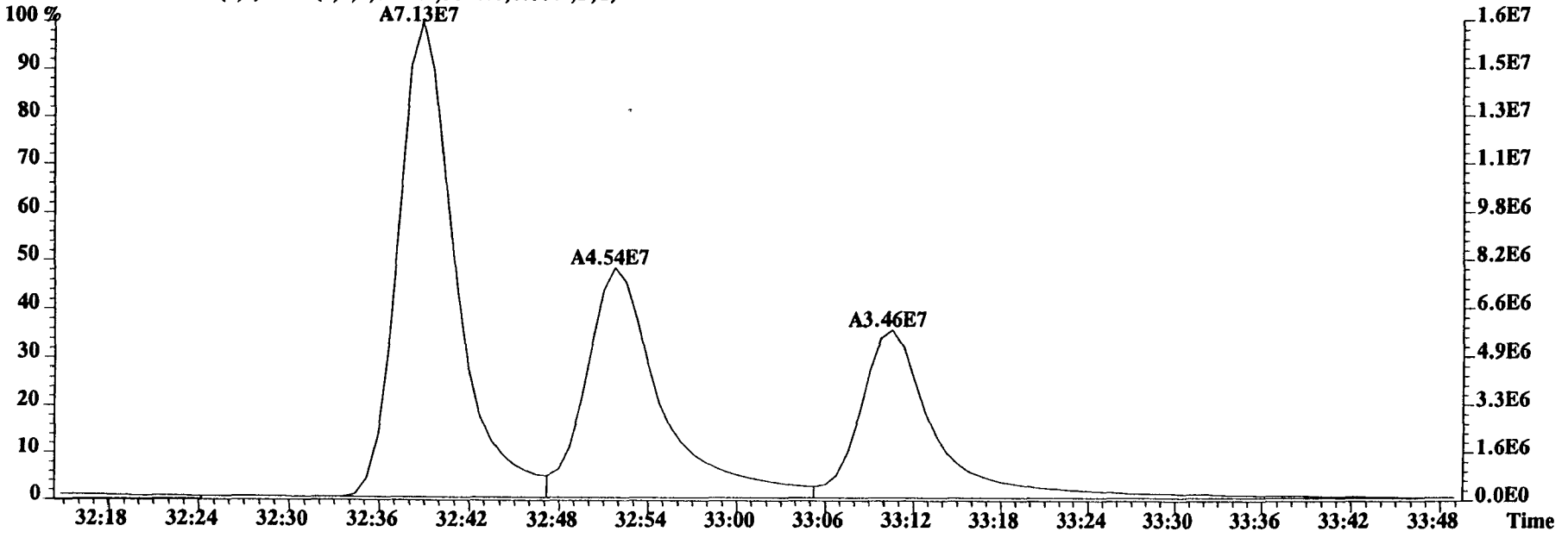
264.1692 S:8 F:4



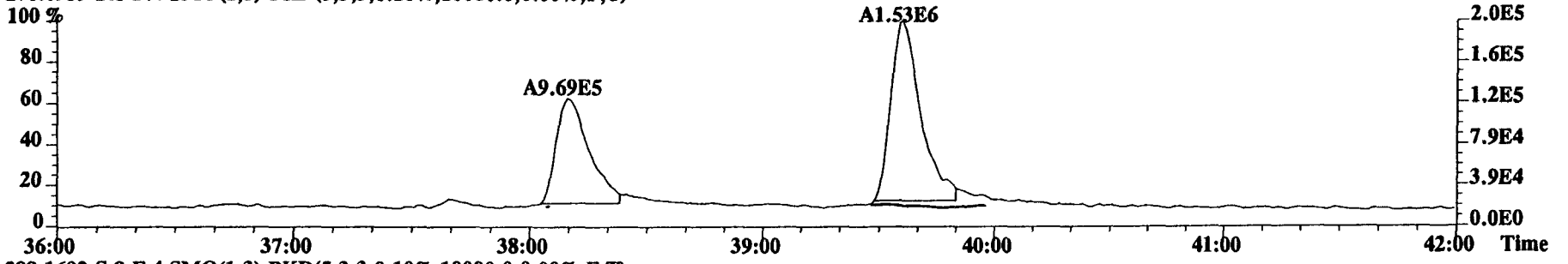
File:24AU98U #1-954 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
252.0939 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



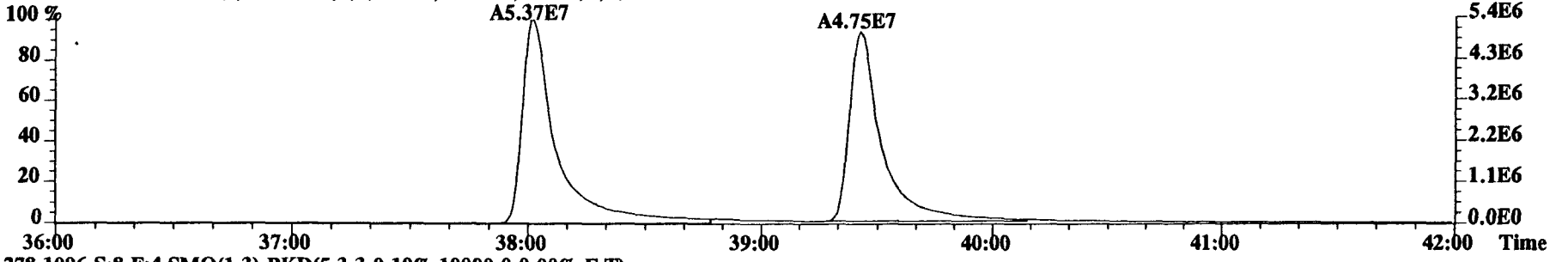
264.1692 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



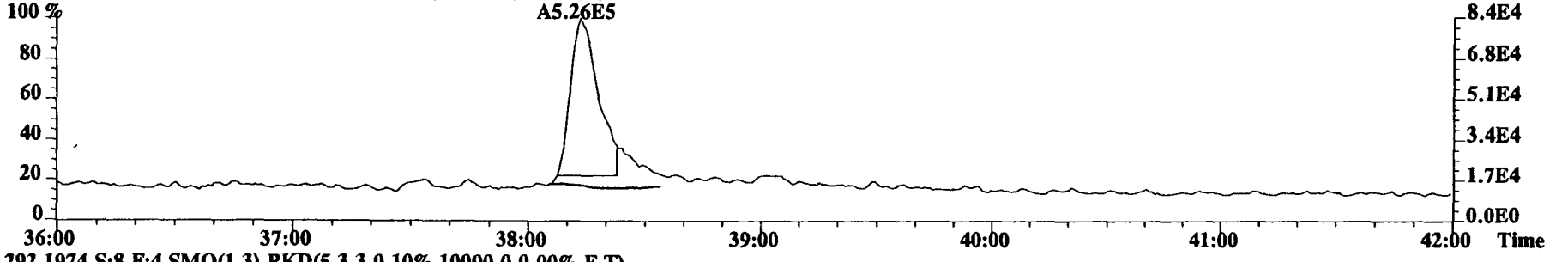
File:24AU98U #1-954 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
276.0939 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



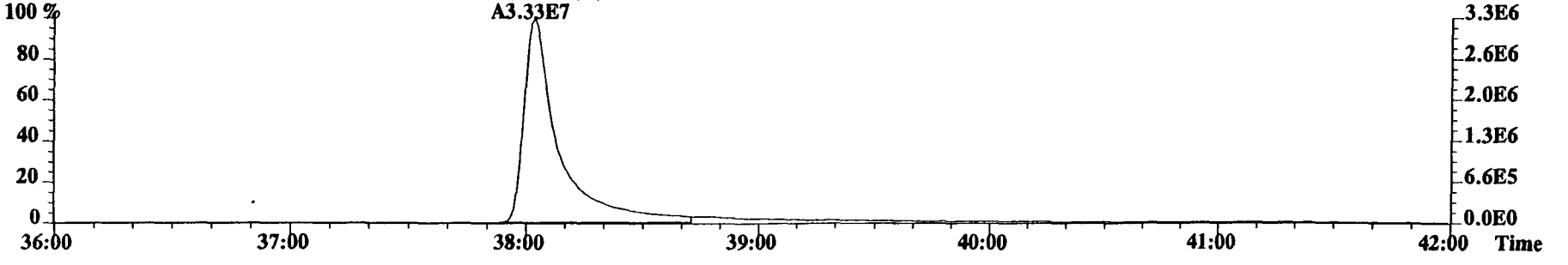
288.1692 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



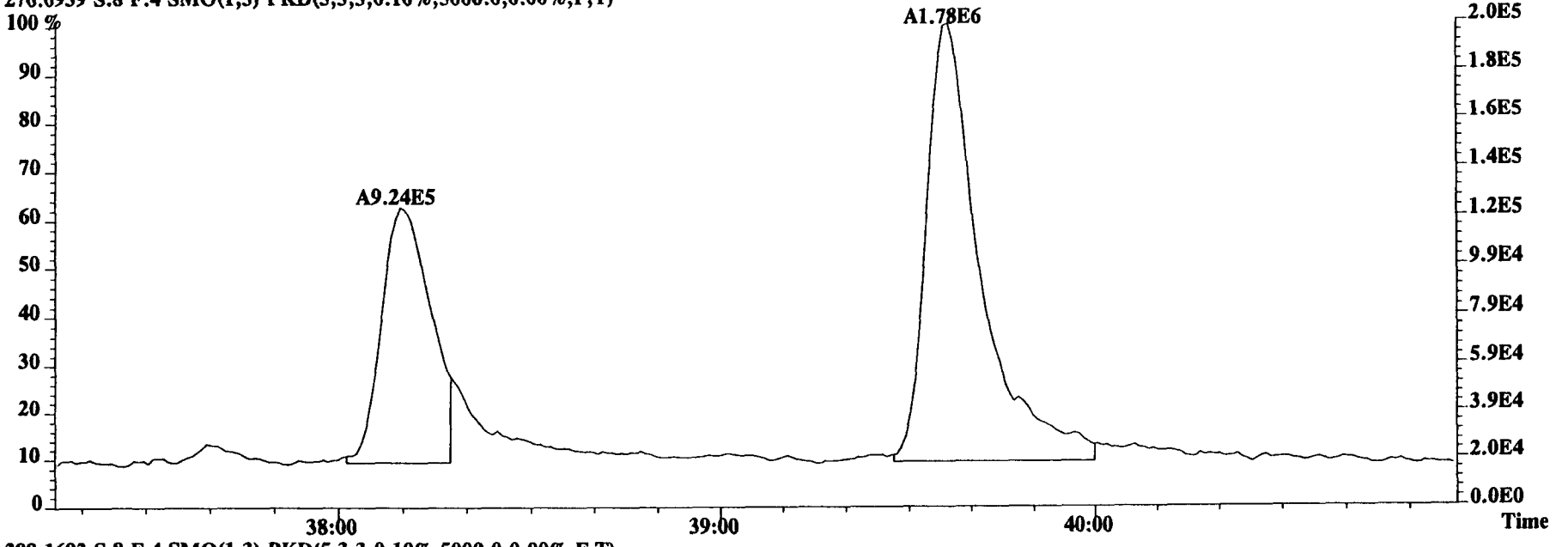
278.1096 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



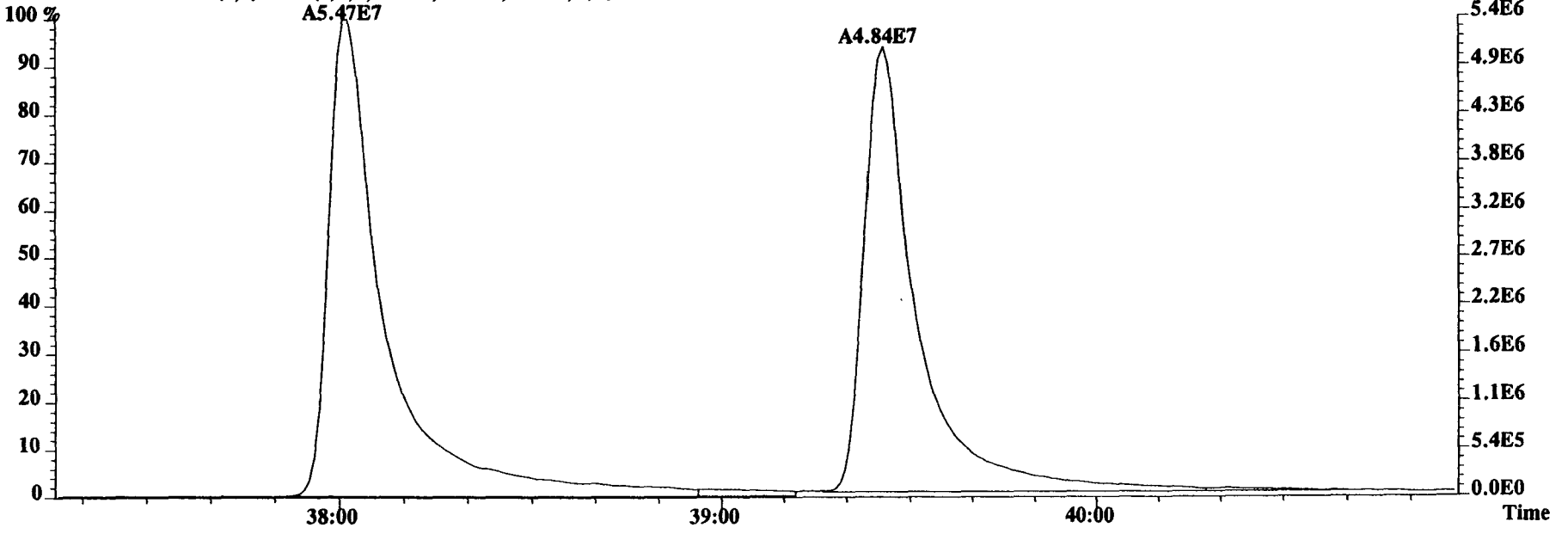
292.1974 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:24AU98U #1-954 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
276.0939 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)

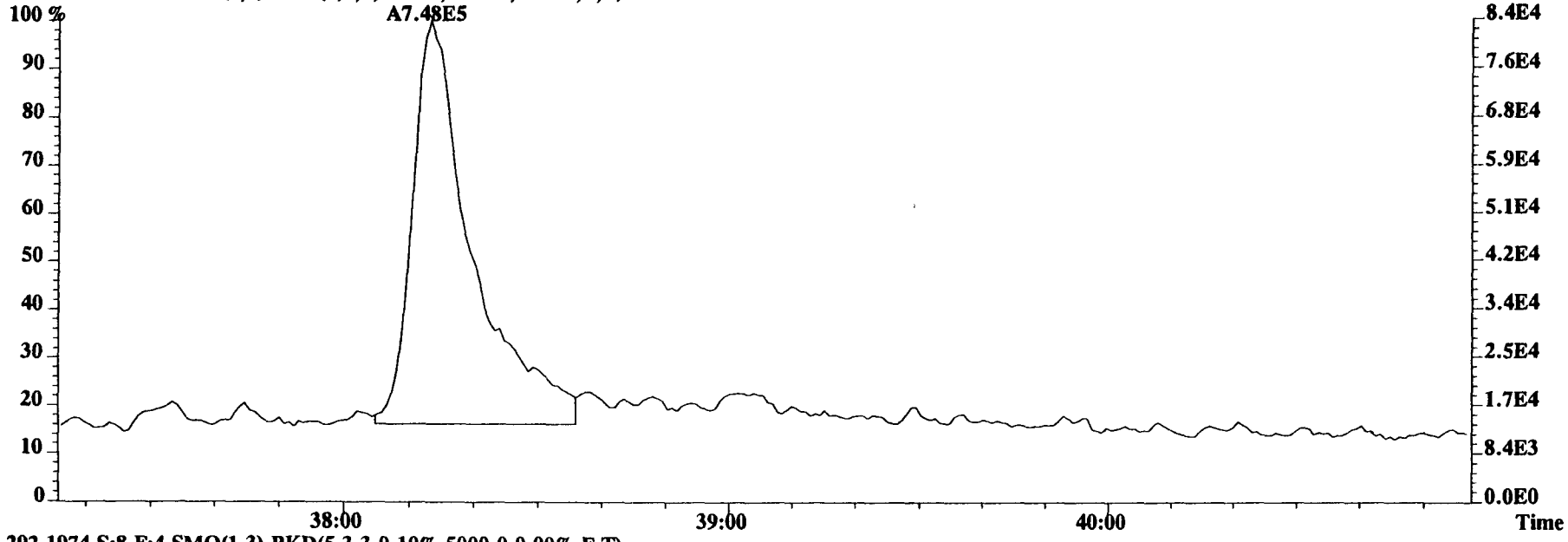


288.1692 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)

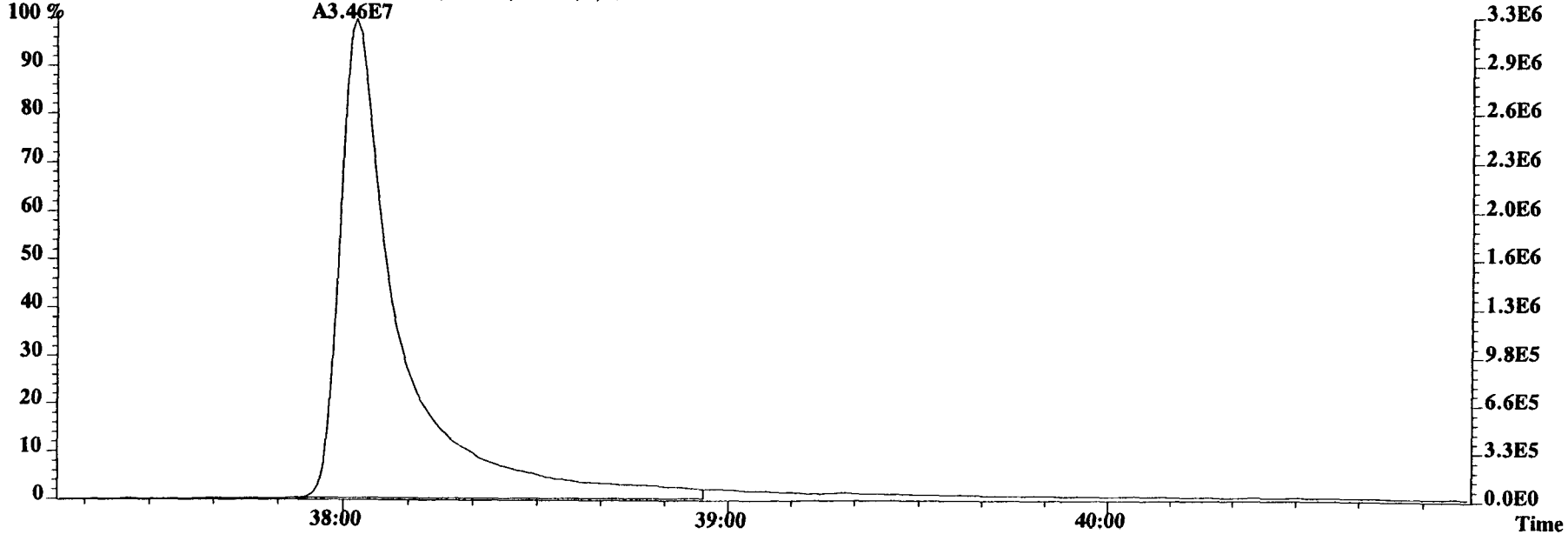


178

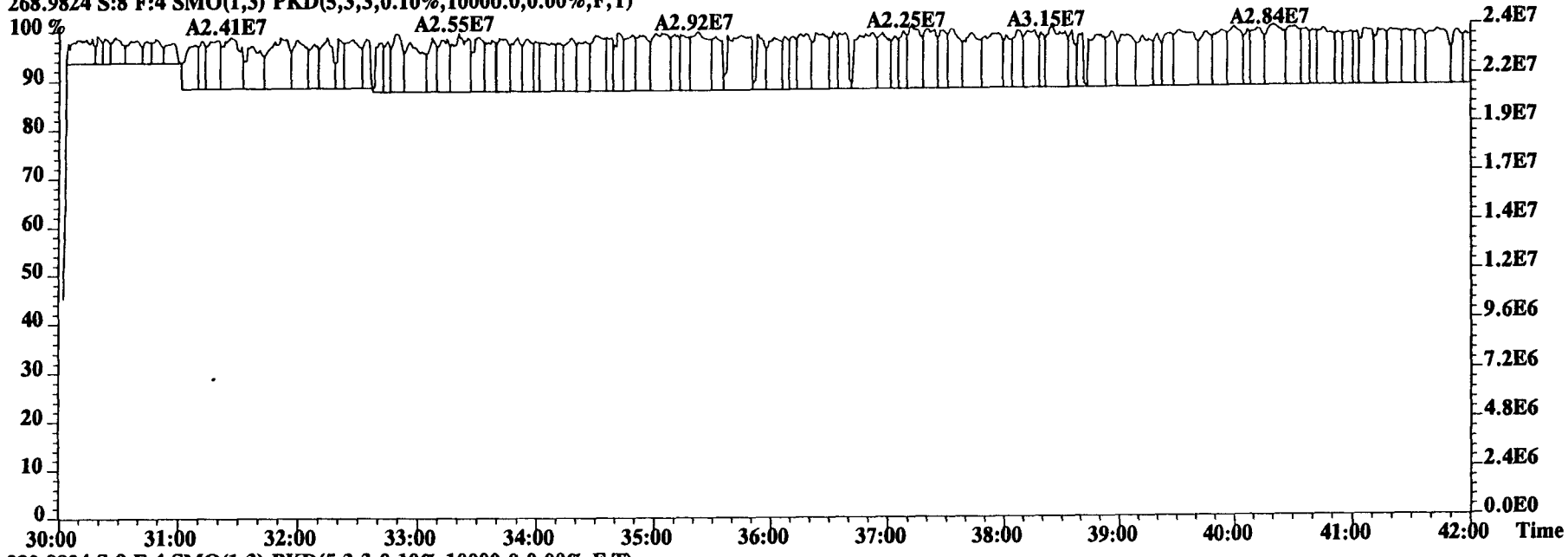
File:24AU98U #1-954 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
278.1096 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



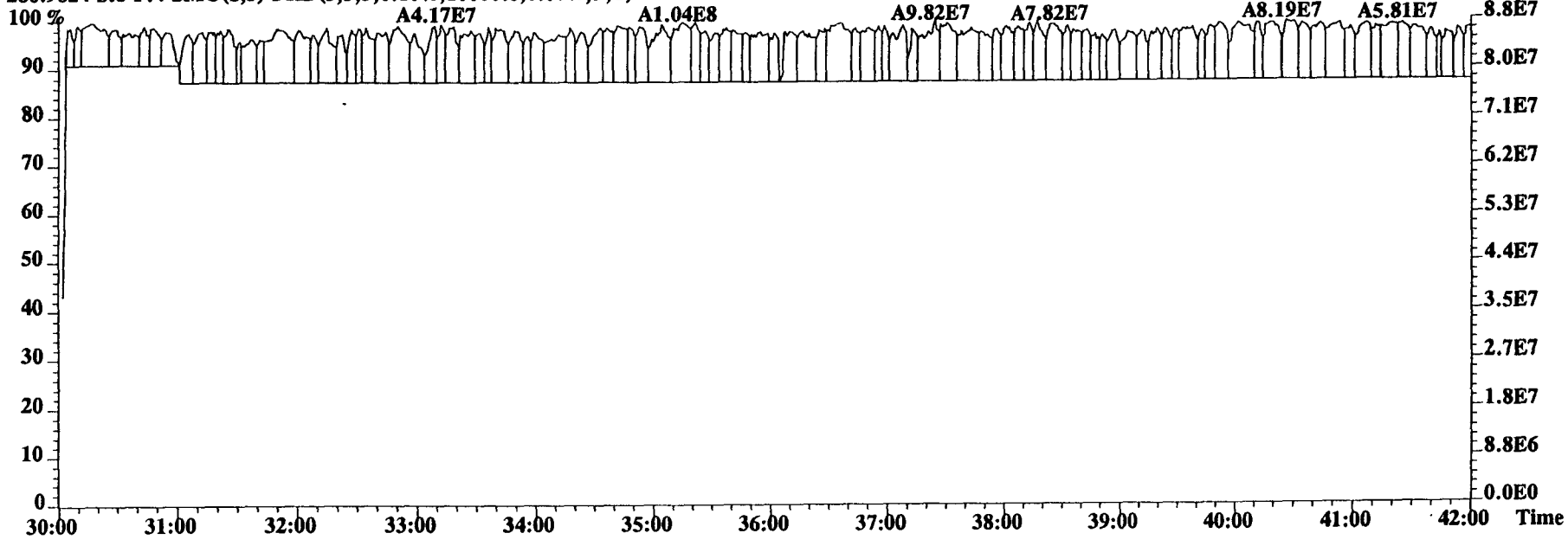
292.1974 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:24AU98U #1-954 Acq:24-AUG-1998 23:01:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-4 :T-MM5-FB-F :Tra Exp:PAHAIR
268.9824 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Results : 24AU98U091.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-5 :T-MM5-4-F :Trai Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL	
d10-2-Methylnaphthalene	99343800	1.00 Y	11: 9 Y	1.00	50.00		
d8-Naphthalene	55920200	1.00 Y	8: 57 Y	1.25	22.59	45	m
Naphthalene	1115000000	1.00 Y	9: 1 Y	1.05	2842.50	E B	
2-Methylnaphthalene	1454668000	1.00 Y	11: 15 Y	0.77	5067.60	E B	
d8-Acenaphthylene	68118600	1.00 Y	14: 13 Y	1.55	22.12	44	m
Acenaphthylene	64000000	1.00 Y	14: 16 Y	0.86	163.40		
d10-Acenaphthene	37745000	1.00 Y	14: 46 Y	0.88	21.65	43	m
Acenaphthene	249634000	1.00 Y	14: 53 Y	0.93	1068.01	E B	
d10-Anthracene	73659200	1.00 Y	19: 47 Y	1.00	50.00		
d10-Fluorene	26158200	1.00 Y	16: 29 Y	1.13	15.72	31	m
Fluorene	594000000	1.00 Y	16: 34 Y	1.05	3247.36	E B	
d10-Phenanthrene	71184000	1.00 Y	19: 38 Y	2.63	18.38	37	m
Phenanthrene	3224660000	1.00 Y	19: 42 Y	0.84	8077.06	E B	
Anthracene	167600000	1.00 Y	19: 50 Y	0.83	426.41		
d12-Benzo(e)pyrene	156000600	1.00 Y	32: 39 Y	1.00	50.00		
d10-Fluoranthene	62400000	1.00 Y	23: 33 Y	0.80	24.90	50	
Fluoranthene	264000000	1.00 Y	23: 35 Y	1.04	610.55	B	
d10-Pyrene	62200000	1.00 Y	24: 16 Y	0.81	24.62	49	m
Pyrene	566000000	1.00 Y	24: 18 Y	1.11	1233.80	E	
d12-Benzo(a)anthracene	74666000	1.00 Y	28: 6 Y	0.65	36.80	74	
Benzo(a)anthracene	15780000	1.00 Y	28: 16 Y	1.06	30.07		
d12-Chrysene	85421400	1.00 Y	28: 13 Y	0.85	32.28	65	
Chrysene	342000000	1.00 Y	28: 16 Y	0.97	618.92		
d12-Benzo(e)pyrene	156000600	1.00 Y	32: 39 Y	1.00	50.00		
d12-Benzo(b)fluoranthene	52330400	1.00 Y	31: 40 Y	0.63	26.79	54	
Benzo(b)fluoranthene	13460000	1.00 Y	31: 45 Y	1.07	36.12		
d12-Benzo(k)fluoranthene	65366400	1.00 Y	31: 45 Y	0.90	23.38	47	m
Benzo(k)fluoranthene	4860000	1.00 Y	31: 45 Y	1.16	9.66=DL		
d12-Benzo(a)pyrene	52342800	1.00 Y	32: 51 Y	0.75	22.33	45	m
Benzo(e)pyrene	13380000	1.00 Y	32: 45 Y	1.46	26.21		
Benzo(a)pyrene	1384000	1.00 Y	32: 57 Y	1.02	3.88=DL		
d12-Perylene	39740800	1.00 Y	33: 10 Y	0.61	20.73	41	m
Perylene	2880000	1.00 Y	33: 16 Y	1.62	6.72=DL		
d12-Indeno(123-cd)pyrene	50000000	1.00 Y	37: 57 Y	0.71	22.68	45	m
Indeno(123-cd)pyrene	1340000	1.00 Y	38: 4 Y	0.61	6.58=DL		
d14-Dibenz(ah)anthracene	29212000	1.00 Y	38: 3 Y	0.44	21.22	42	m
Dibenz(ah)anthracene	566000	1.00 Y	38: 13 Y	1.11	2.61=DL		
d12-Benzo(ghi)perylene	45800000	1.00 Y	39: 20 Y	0.63	23.29	47	m
Benzo(ghi)perylene	4660000	1.00 Y	39: 29 Y	0.99	15.42		
d8-Naphthalene	55920200	1.00 Y	8: 57 Y	1.00	50.00		
13C-Naphthalene	* No Peak	0.00 N	9: 1 N	0.98	0.00	0	

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mAr 9-2-98

d10-Fluorene	26158200	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	41184800	1.00	Y	16: 34	Y	0.76	103.86	208

24AU98U091.RES : PAHX.TRG
Date analyzed : 24-AUG-98 0.333
MM5-4-F :Trai Ex Cal : PAHX081998U.RRF

Isotope Ratio	R. T. mm:ss		RRF	ng/ SAMPLE	Rec/ MDL		
1.00 Y	11: 9	Y	1.00	50.00		49671900	49671900
1.00 Y	8: 57	Y	1.25	22.59	45	27960100	27960100
1.00 Y	9: 1	Y	1.05	2842.50		557500000	557500000
1.00 Y	11: 15	Y	0.77	5067.60		727334000	727334000
1.00 Y	14: 13	Y	1.55	22.12	44	34059300	34059300
1.00 Y	14: 16	Y	0.86	163.40		32000000	32000000
1.00 Y	14: 46	Y	0.88	21.65	43	18872500	18872500
1.00 Y	14: 53	Y	0.93	1068.01		124817000	124817000
1.00 Y	19: 47	Y	1.00	50.00		36829600	36829600
1.00 Y	16: 29	Y	1.13	15.72	31	13079100	13079100
1.00 Y	16: 34	Y	1.05	3247.36		297000000	297000000
1.00 Y	19: 38	Y	2.63	18.38	37	35592000	35592000
1.00 Y	19: 42	Y	0.84	8077.06		1612330000	1612330000
1.00 Y	19: 50	Y	0.83	426.41		83800000	83800000
1.00 Y	32: 39	Y	1.00	50.00		78000300	78000300
1.00 Y	23: 33	Y	0.80	24.90	50	31200000	31200000
1.00 Y	23: 35	Y	1.04	610.55		132000000	132000000
1.00 Y	24: 16	Y	0.81	24.62	49	31100000	31100000
1.00 Y	24: 18	Y	1.11	1233.80		283000000	283000000
1.00 Y	28: 6	Y	0.65	36.80	74	37333000	37333000
1.00 Y	28: 16	Y	1.06	30.07		7890000	7890000
1.00 Y	28: 13	Y	0.85	32.28	65	42710700	42710700
1.00 Y	28: 16	Y	0.97	618.92		171000000	171000000
1.00 Y	32: 39	Y	1.00	50.00		78000300	78000300
1.00 Y	31: 40	Y	0.63	26.79	54	26165200	26165200
1.00 Y	31: 45	Y	1.07	36.12		6730000	6730000
1.00 Y	31: 45	Y	0.90	23.38	47	32683200	32683200
1.00 Y	31: 45	Y	1.16	9.66=DL		2430000	2430000
1.00 Y	32: 51	Y	0.75	22.33	45	26171400	26171400
1.00 Y	32: 45	Y	1.46	26.21		6690000	6690000
1.00 Y	32: 57	Y	1.02	3.88=DL		692000	692000
1.00 Y	33: 10	Y	0.61	20.73	41	19870400	19870400
1.00 Y	33: 16	Y	1.62	6.72=DL		1440000	1440000
1.00 Y	37: 57	Y	0.71	22.68	45	25000000	25000000
1.00 Y	38: 4	Y	0.61	6.58=DL		670000	670000
1.00 Y	38: 3	Y	0.44	21.22	42	14606000	14606000
1.00 Y	38: 13	Y	1.11	2.61=DL		283000	283000
1.00 Y	39: 20	Y	0.63	23.29	47	22900000	22900000
1.00 Y	39: 29	Y	0.99	15.42		2330000	2330000
1.00 Y	8: 57	Y	1.00	50.00		27960100	27960100
0.00 N	9: 1	N	0.98	0.00	0	0	0

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02-SEP-1998 07:16:46 PM Dioxin Furan Unknown RESULTS

1.00	Y	16: 29	Y	1.00	50.00		13079100	13079100
1.00	Y	16: 34	Y	0.76	103.86	208	20592400	20592400

Mass Spec : ULTIMA Results : 24AU98U091.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-5 :T-MM5-4-F :Trai Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	99343800	1.00	Y	11: 9	Y	1.00	50.00	
d8-Naphthalene	55920200	1.00	Y	8: 57	Y	1.25	22.59	45
Naphthalene	1115000000	1.00	Y	9: 1	Y	1.05	2842.50	0.000
2-Methylnaphthalene	1454668000	1.00	Y	11: 15	Y	0.77	5067.60	0.000
d8-Acenaphthylene	68118600	1.00	Y	14: 13	Y	1.55	22.12	44
Acenaphthylene	114581800	1.00	Y	14: 16	Y	0.86	292.54	0.000
d10-Acenaphthene	37745000	1.00	Y	14: 46	Y	0.88	21.65	43
Acenaphthene	249634000	1.00	Y	14: 53	Y	0.93	1068.01	0.000
d10-Anthracene	73659200	1.00	Y	19: 47	Y	1.00	50.00	
d10-Fluorene	26158200	1.00	Y	16: 29	Y	1.13	15.72	31
Fluorene	646362000	1.00	Y	16: 34	Y	1.05	3533.62	0.000
d10-Phenanthrene	71184000	1.00	Y	19: 38	Y	2.63	18.38	37
Phenanthrene	3224660000	1.00	Y	19: 42	Y	0.84	8077.06	0.000
Anthracene	* No Peak	0.00	N	19: 50	N	0.83	0.00	0.000
d12-Benzo(e)pyrene	156000600	1.00	Y	32: 39	Y	1.00	50.00	
d10-Fluoranthene	* No Peak	0.00	N	23: 33	N	0.80	0.00	0
Fluoranthene	292896000	1.00	Y	23: 35	Y	1.04	*NoINoIs	
d10-Pyrene	* No Peak	0.00	N	24: 16	N	0.81	0.00	0
Pyrene	622024000	1.00	Y	24: 18	Y	1.11	*NoINoIs	
d12-Benzo(a)anthracene	74666000	1.00	Y	28: 6	Y	0.65	36.80	74
Benzo(a)anthracene	368396000	1.00	Y	28: 16	Y	1.06	702.03	0.000
d12-Chrysene	85421400	1.00	Y	28: 13	Y	0.85	32.28	65
Chrysene	368396000	1.00	Y	28: 16	Y	0.97	666.69	0.000
d12-Benzo(e)pyrene	156000600	1.00	Y	32: 39	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	52330400	1.00	Y	31: 40	Y	0.63	26.79	54
Benzo(b)fluoranthene	18821300	1.00	Y	31: 45	Y	1.07	50.51	0.000
d12-Benzo(k)fluoranthene	65366400	1.00	Y	31: 45	Y	0.90	23.38	47
Benzo(k)fluoranthene	18821300	1.00	Y	31: 45	Y	1.16	37.41	0.000
d12-Benzo(a)pyrene	52342800	1.00	Y	32: 51	Y	0.75	22.33	45
Benzo(e)pyrene	15255920	1.00	Y	32: 45	Y	1.46	29.89	0.000
Benzo(a)pyrene	2425520	1.00	Y	32: 57	Y	1.02	6.80	0.000
d12-Perylene	39740800	1.00	Y	33: 10	Y	0.61	20.73	41
Perylene	4054260	1.00	Y	33: 16	Y	1.62	9.47	0.000
d12-Indeno(123-cd)pyrene	* No Peak	0.00	N	37: 57	N	0.71	0.00	0
Indeno(123-cd)pyrene	* No Peak	0.00	N	38: 4	N	0.61	*NoINoIs	
d14-Dibenz(ah)anthracene	29212000	1.00	Y	38: 3	Y	0.44	21.22	42
Dibenz(ah)anthracene	380264	1.00	Y	38: 13	Y	1.11	1.76	0.000
d12-Benzo(ghi)perylene	* No Peak	0.00	N	39: 20	N	0.63	0.00	0
Benzo(ghi)perylene	* No Peak	0.00	N	39: 29	N	0.99	*NoINoIs	
d8-Naphthalene	55920200	1.00	Y	8: 57	Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00	N	9: 1	N	0.98	0.00	0

d10-Fluorene	26158200	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	41184800	1.00	Y	16: 34	Y	0.76	103.86	208

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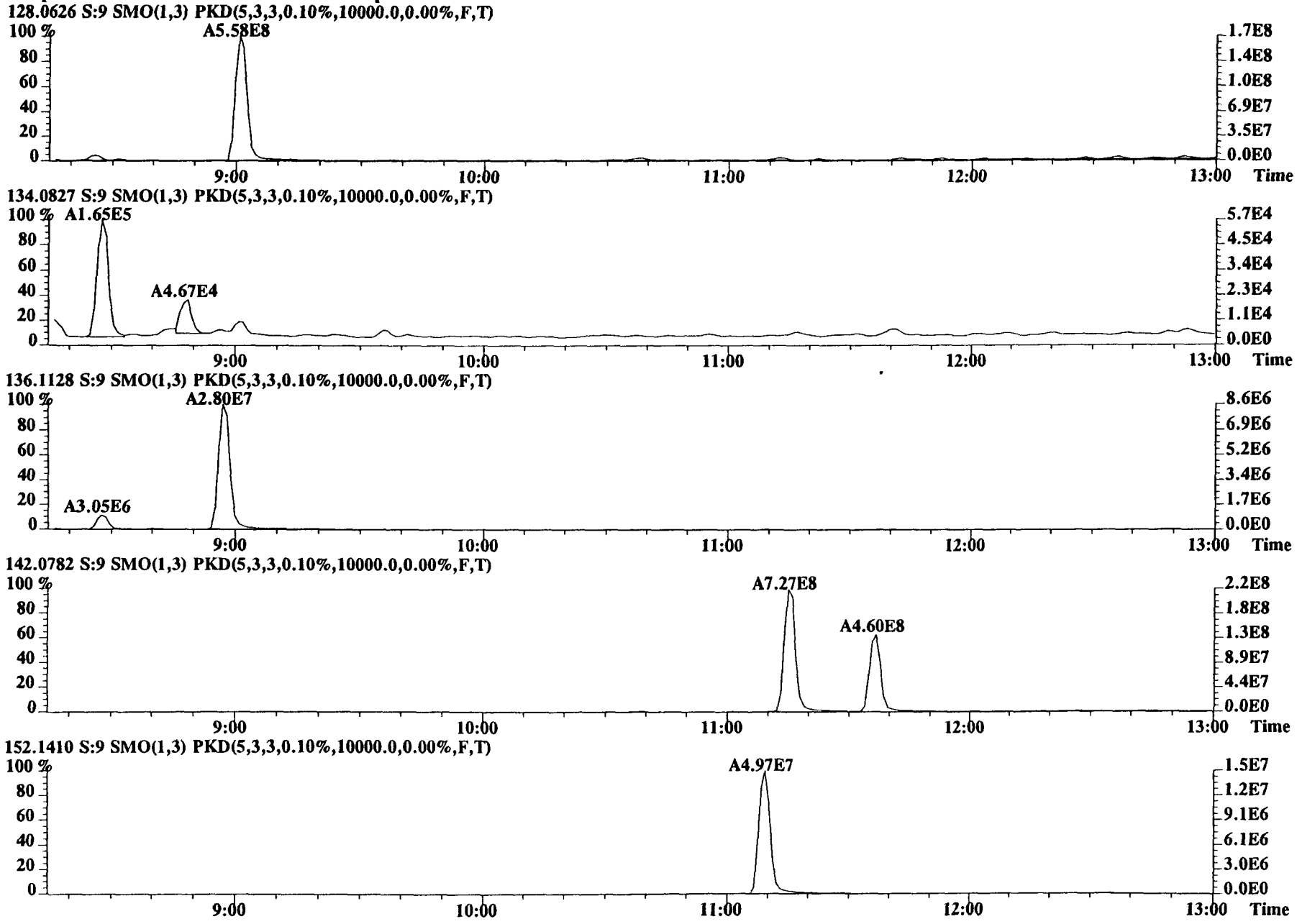
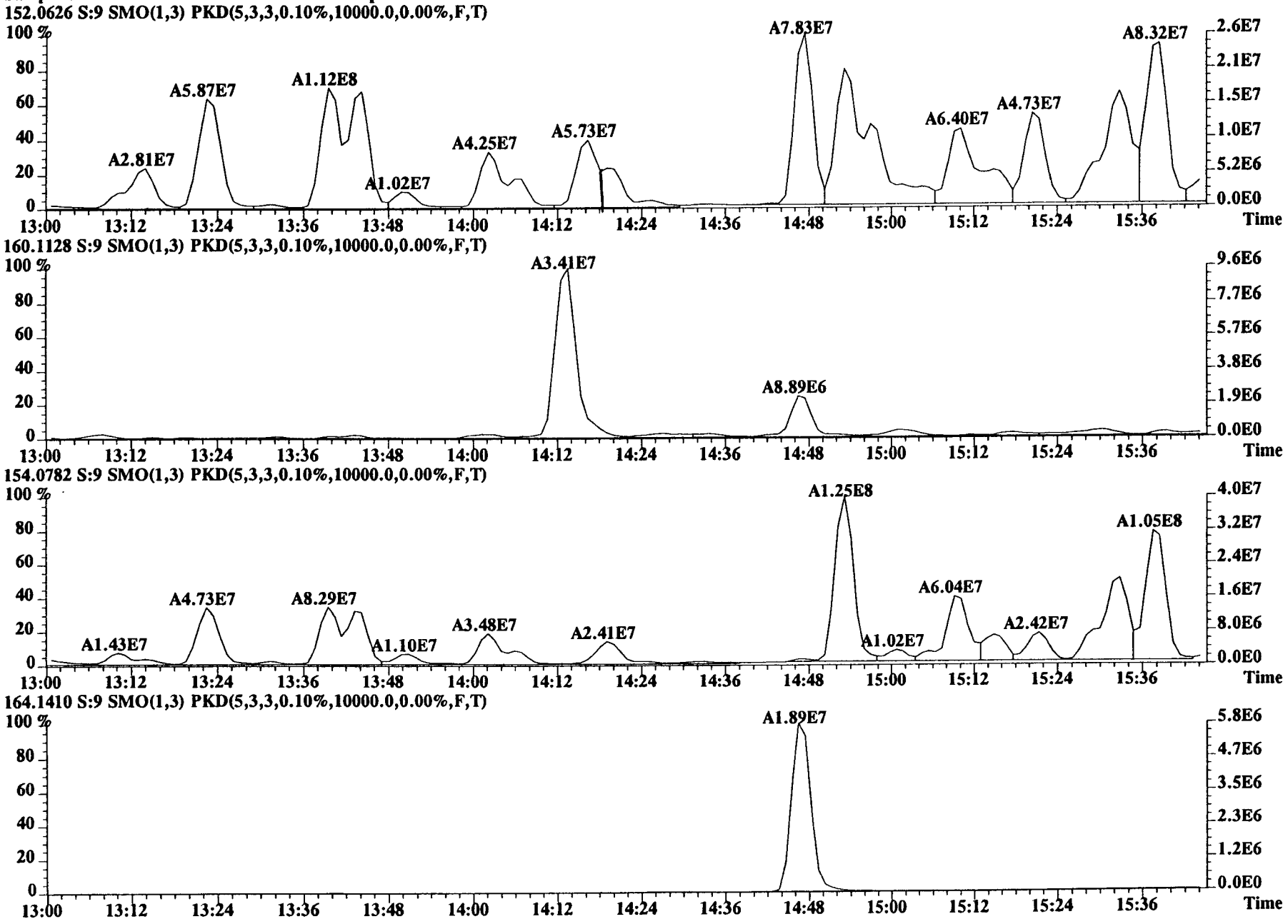
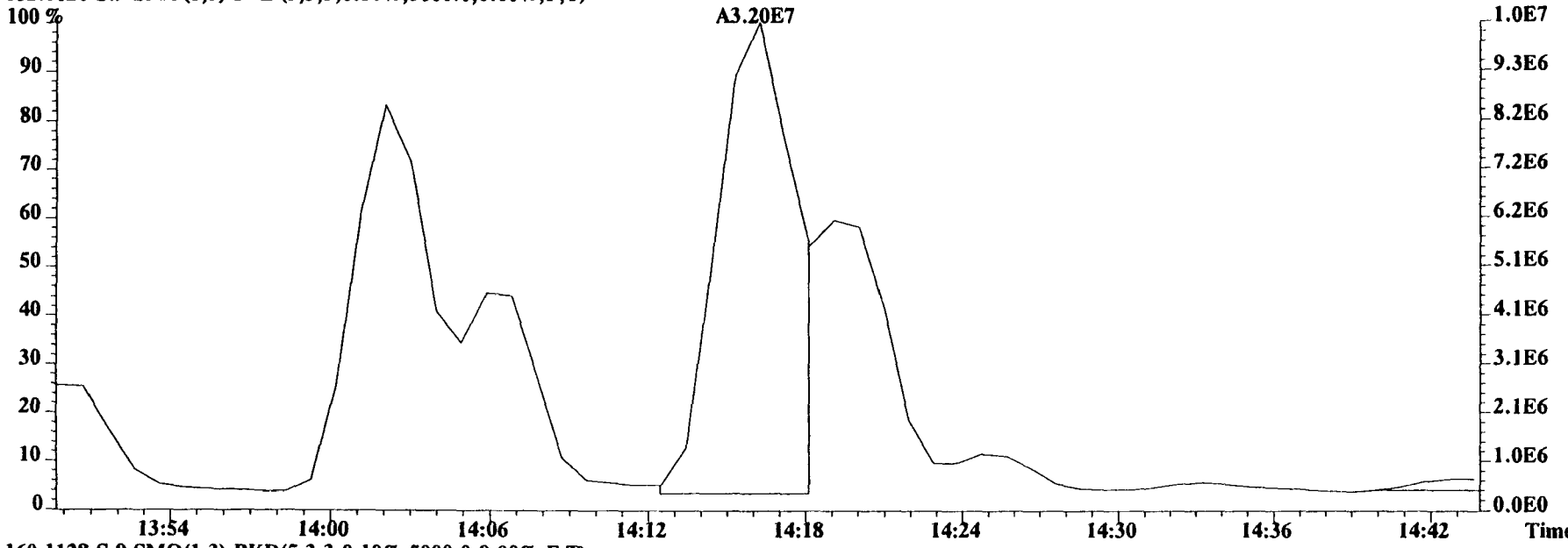
File:24AU98U #1-476 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR



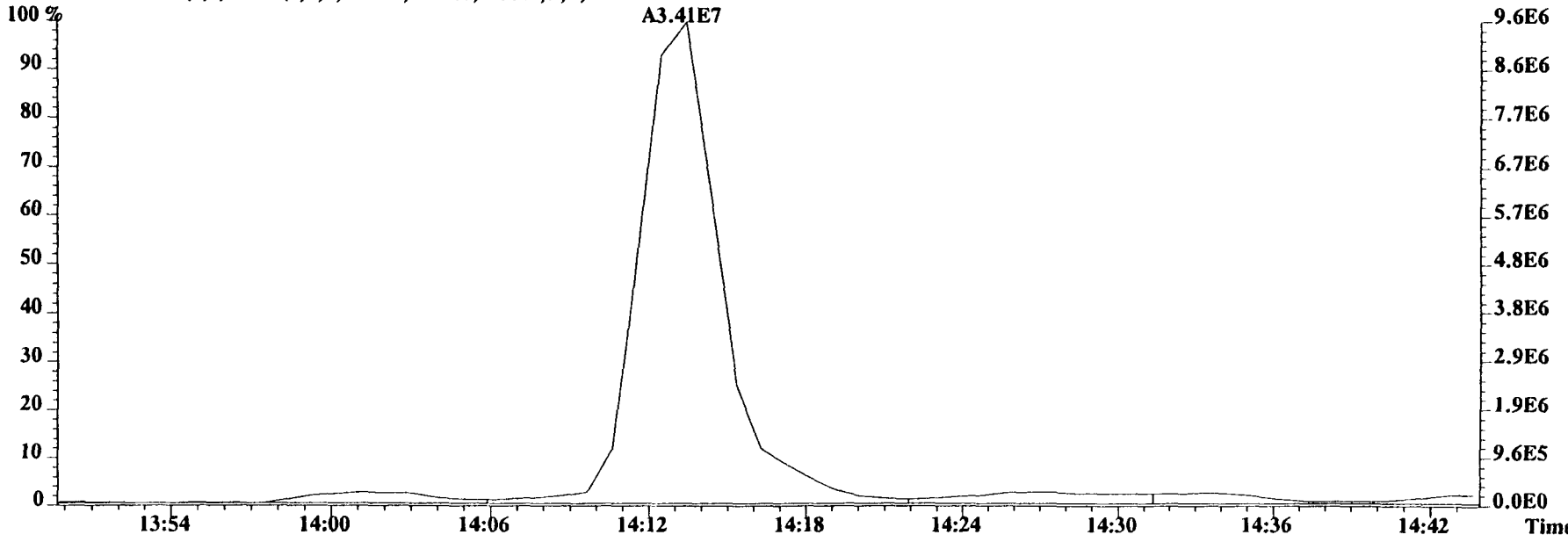
File:24AU98U #1-476 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR



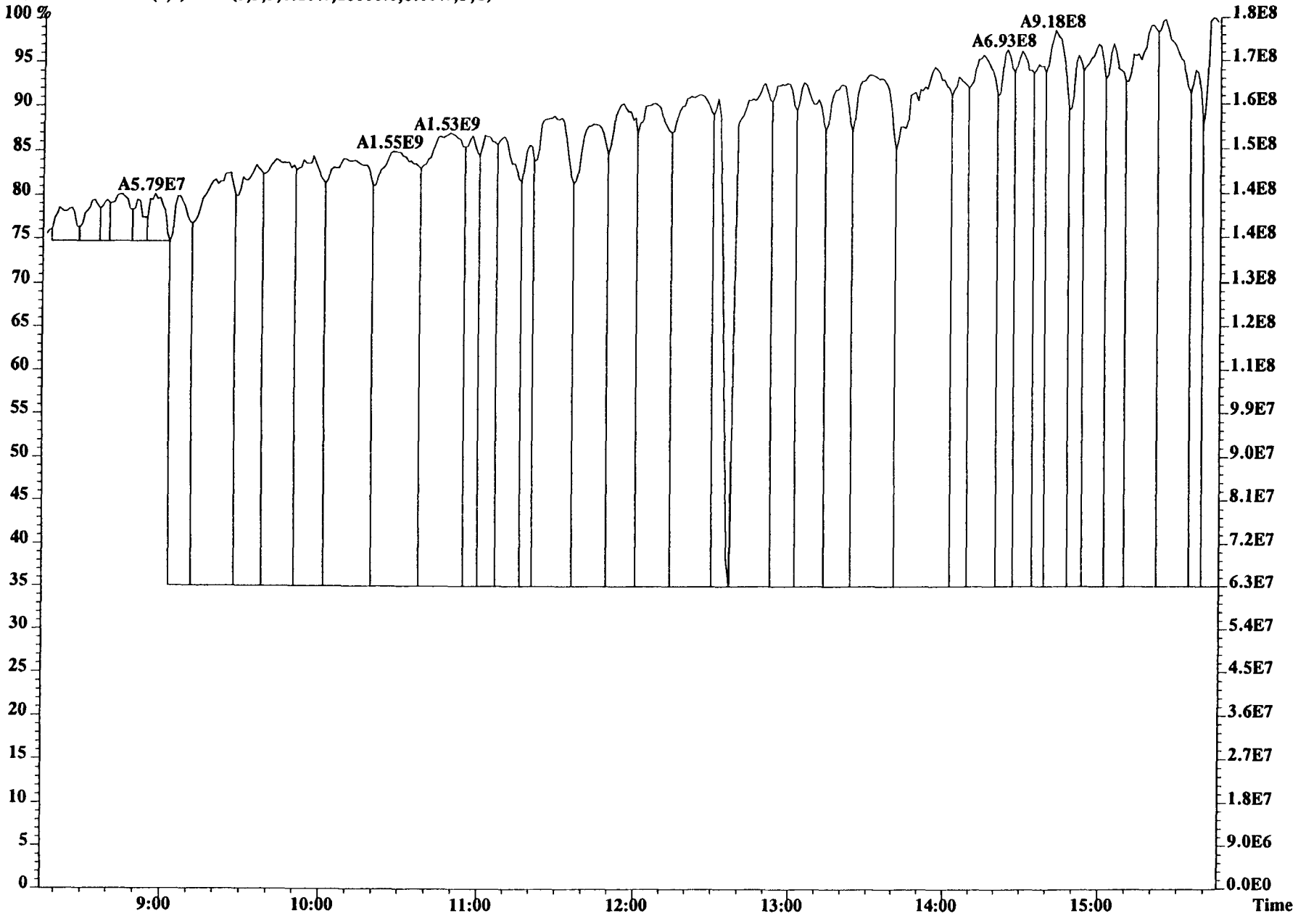
File:24AU98U #1-476 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
152.0626 S:9 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



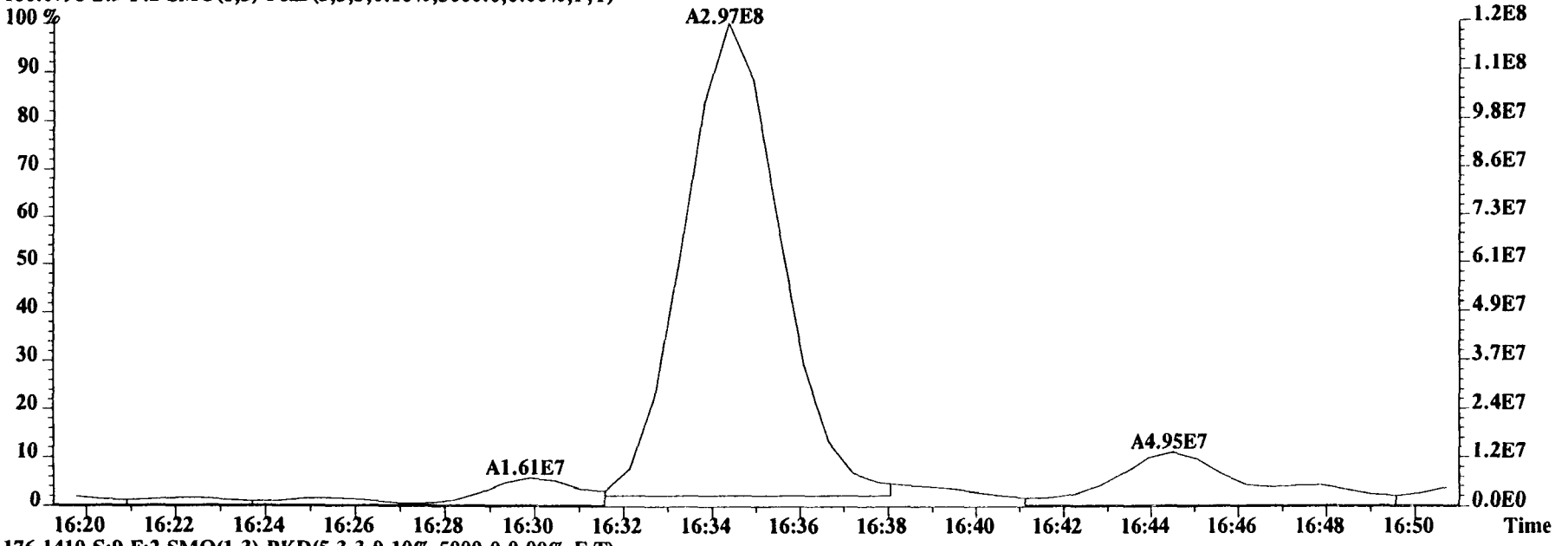
160.1128 S:9 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



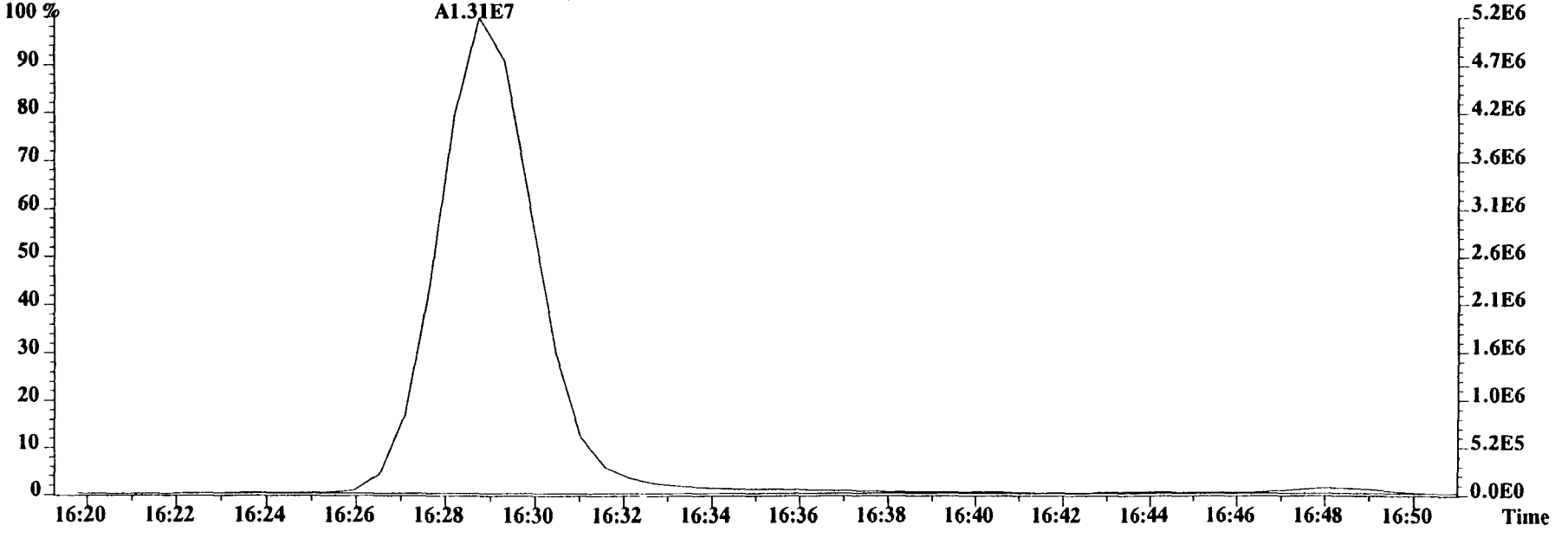
File:24AU98U #1-476 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
130.9920 S:9 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:24AU98U #1-666 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
166.0798 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)

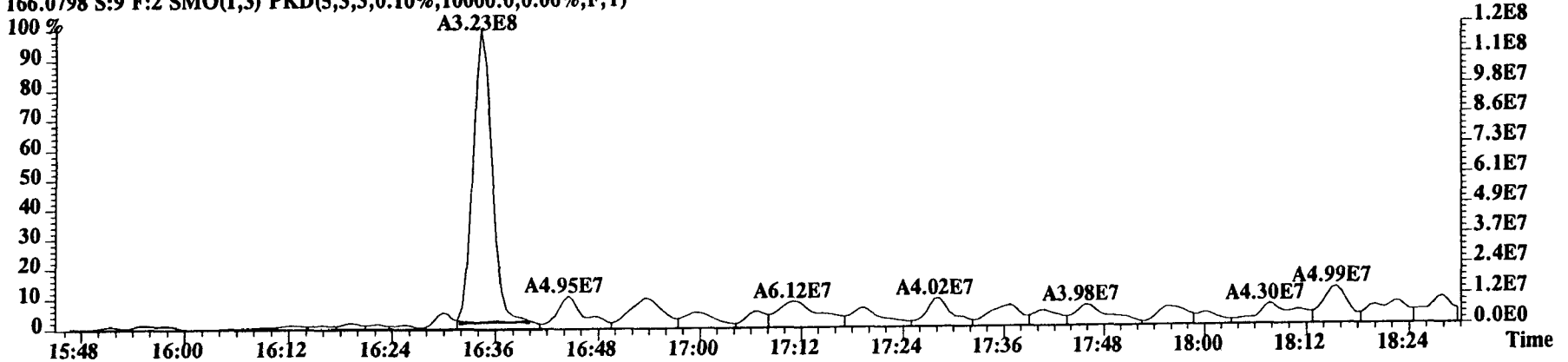


176.1410 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)

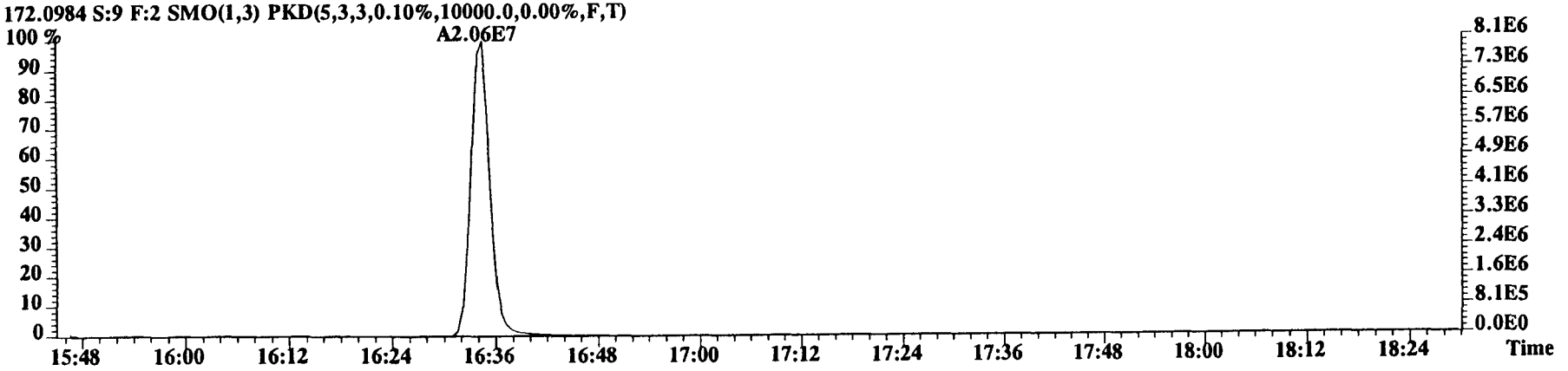


File:24AU98U #1-666 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR

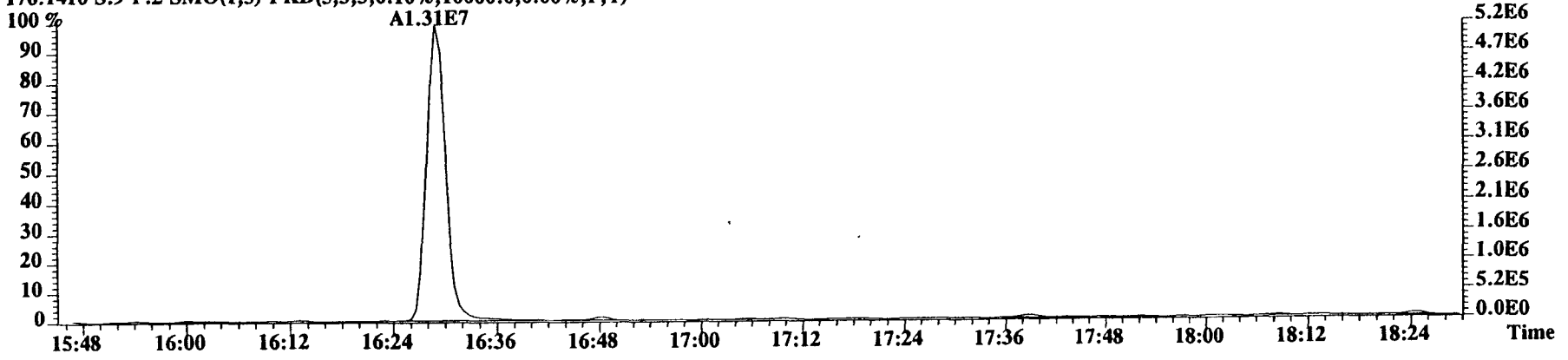
166.0798 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



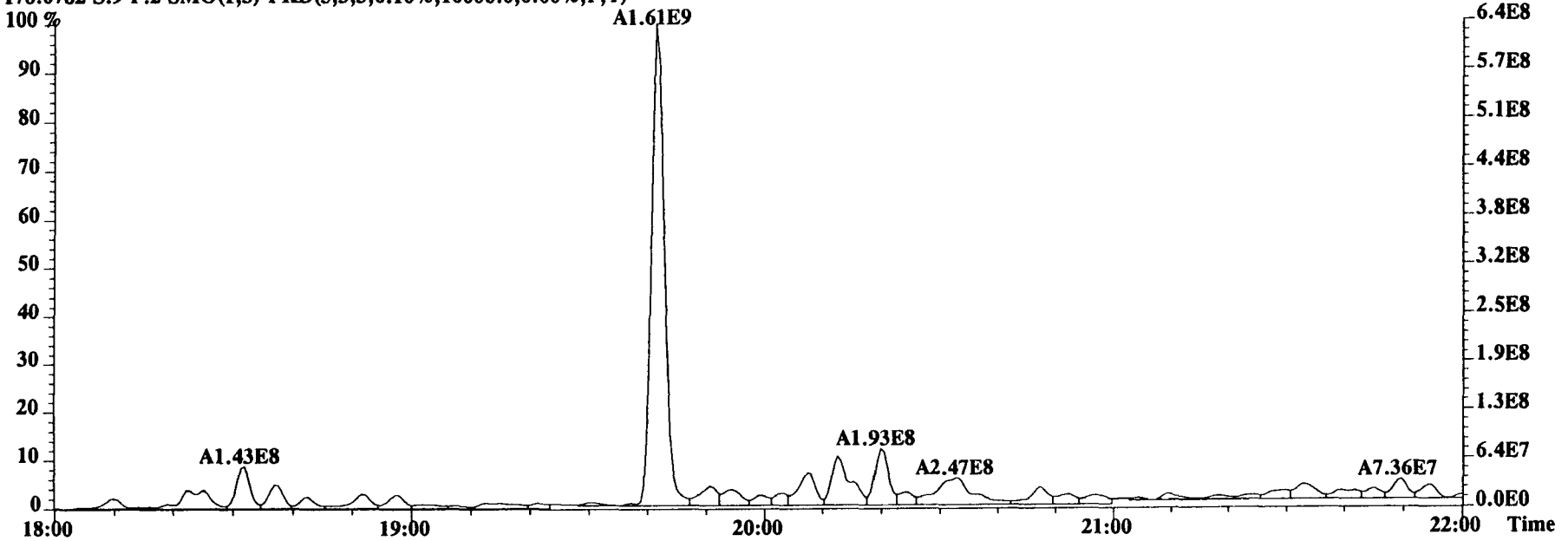
172.0984 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



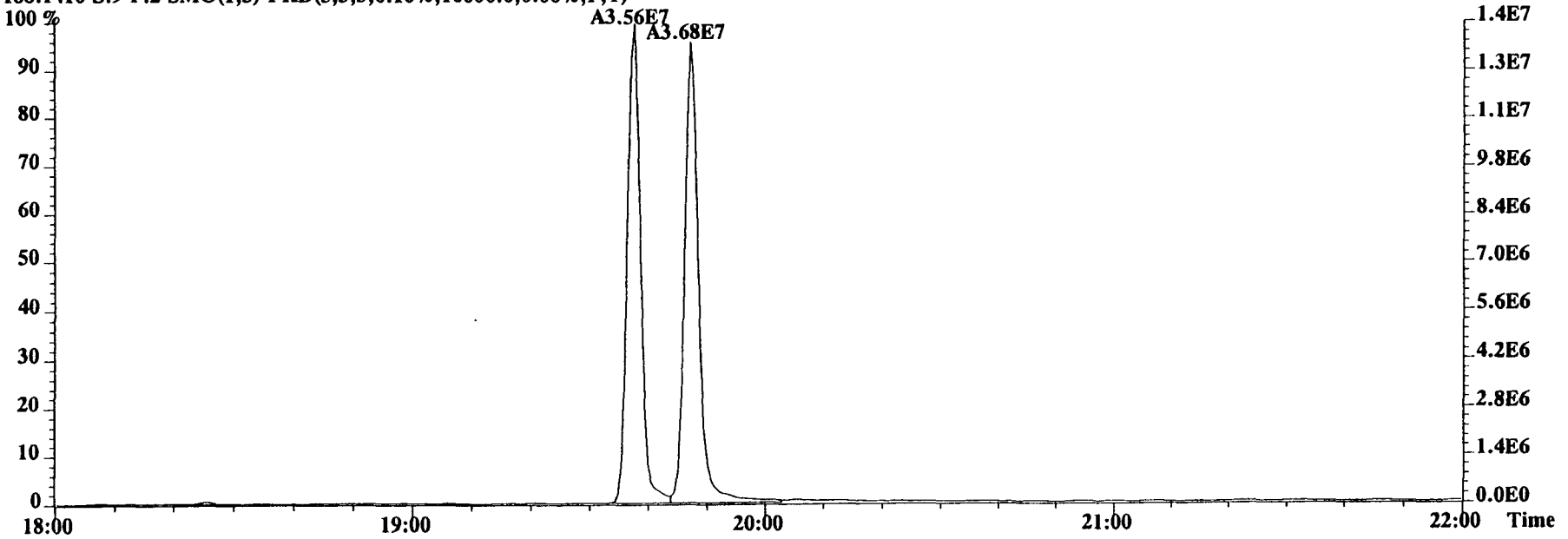
176.1410 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



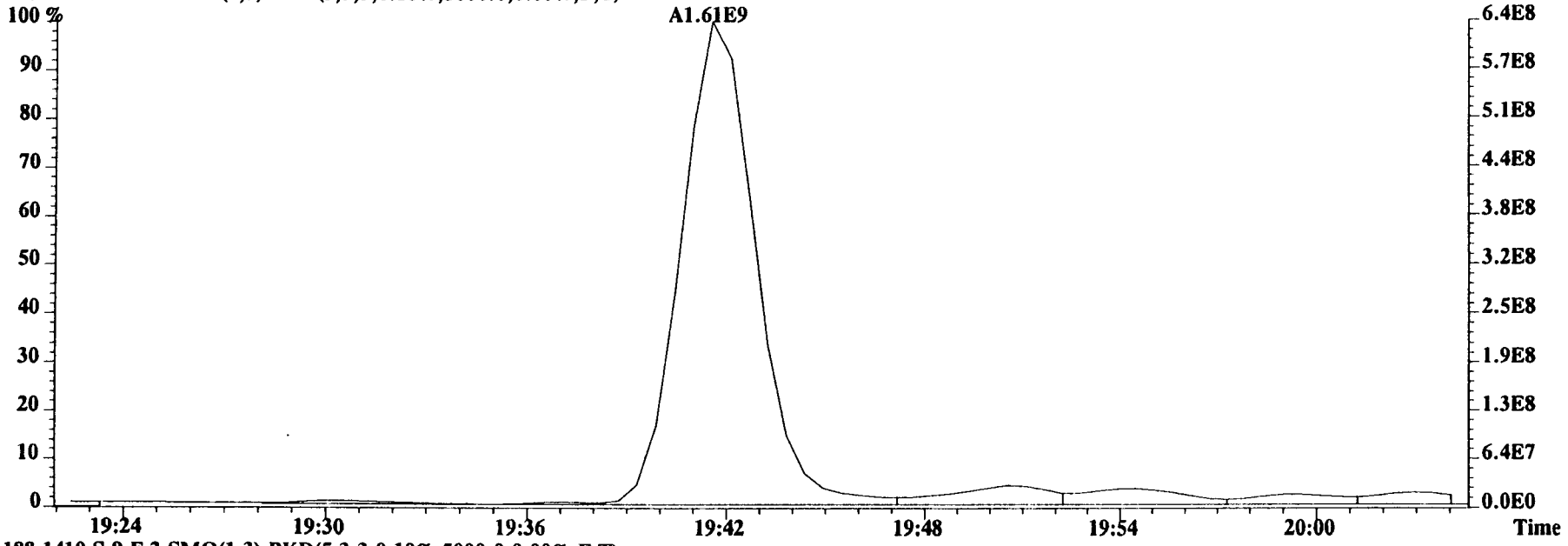
File:24AU98U #1-666 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
178.0782 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



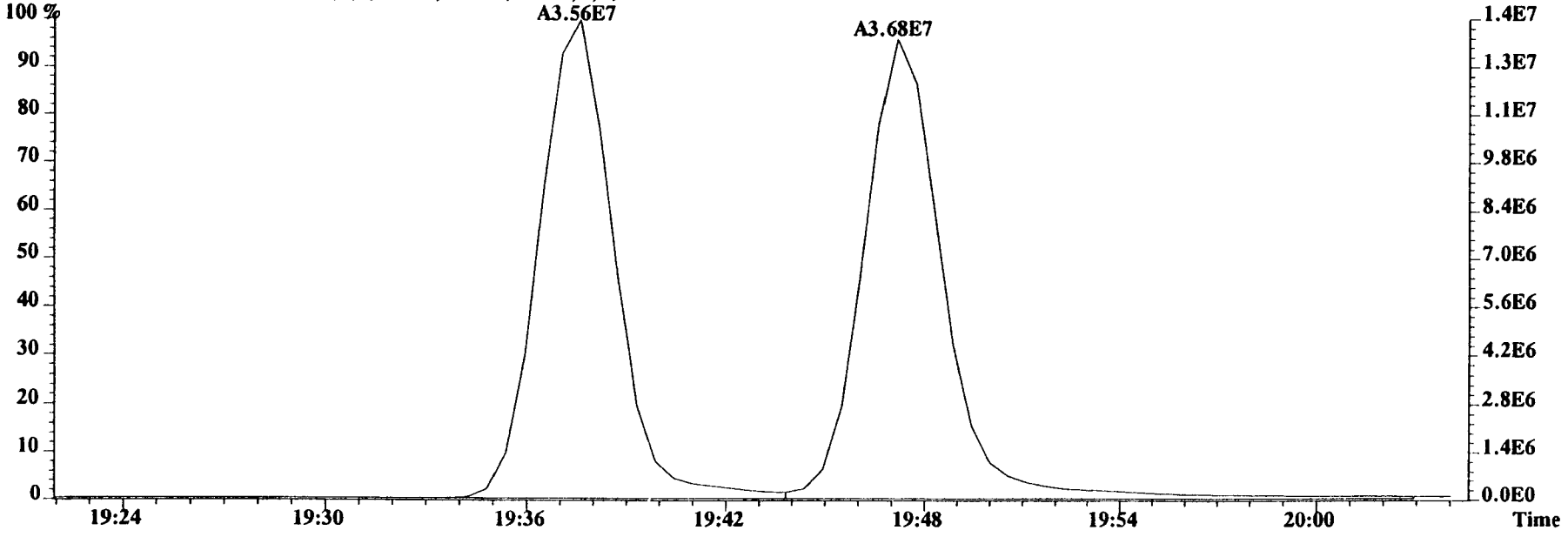
188.1410 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



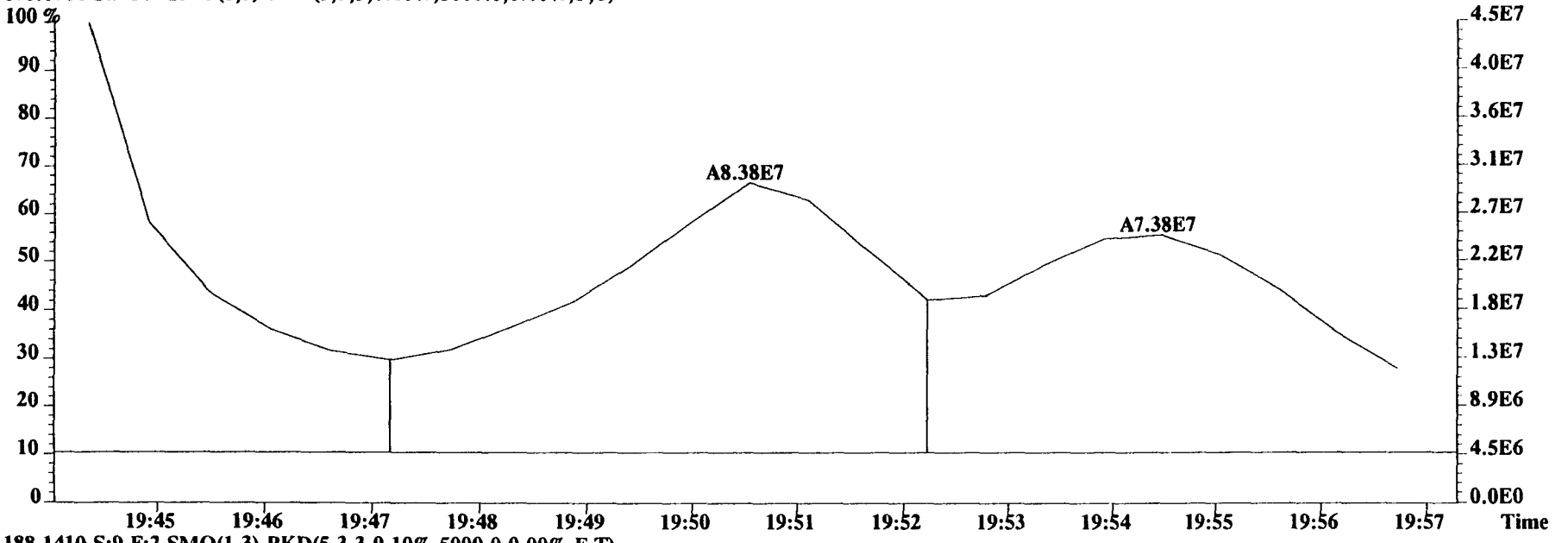
File:24AU98U #1-666 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
178.0782 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



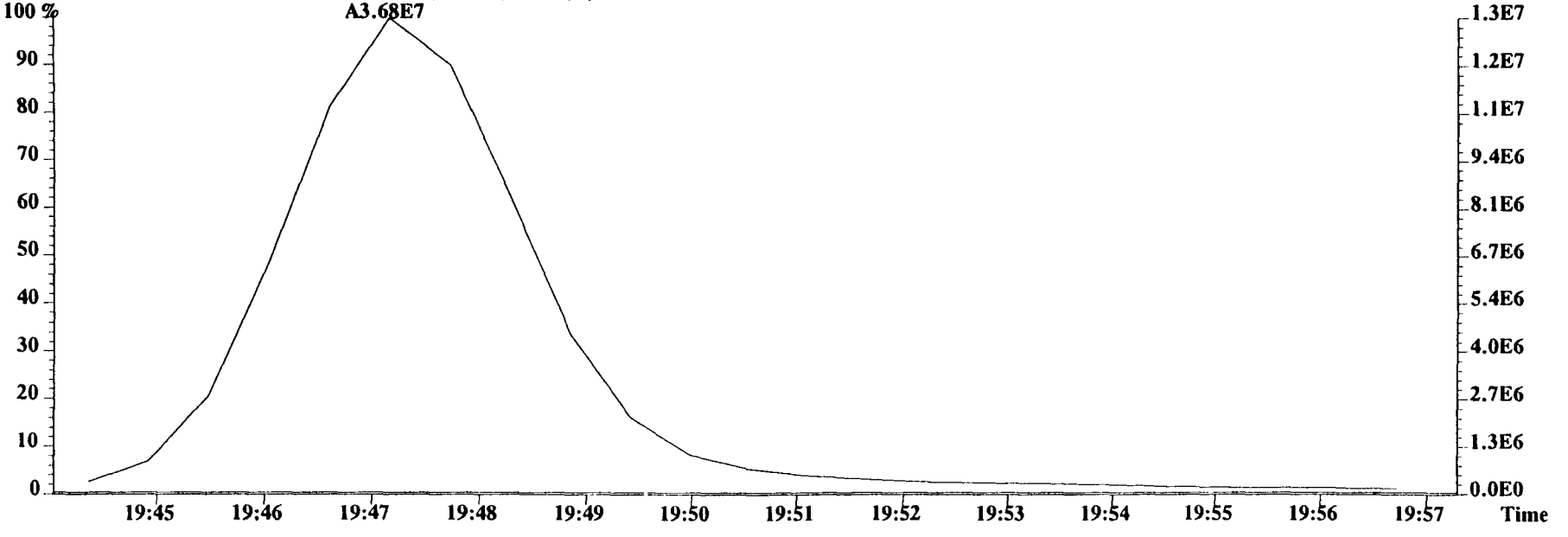
188.1410 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



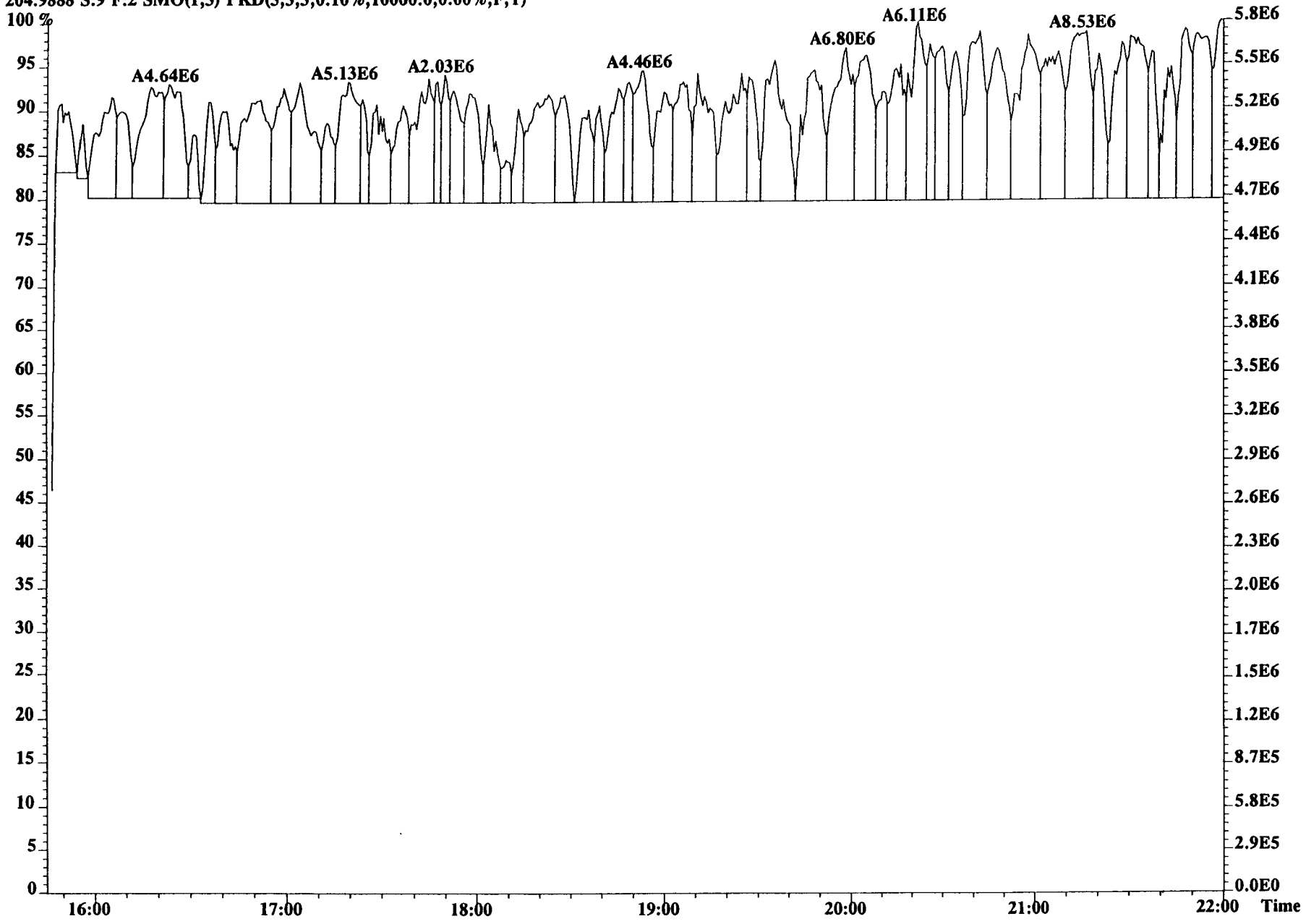
File:24AU98U #1-666 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
178.0782 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



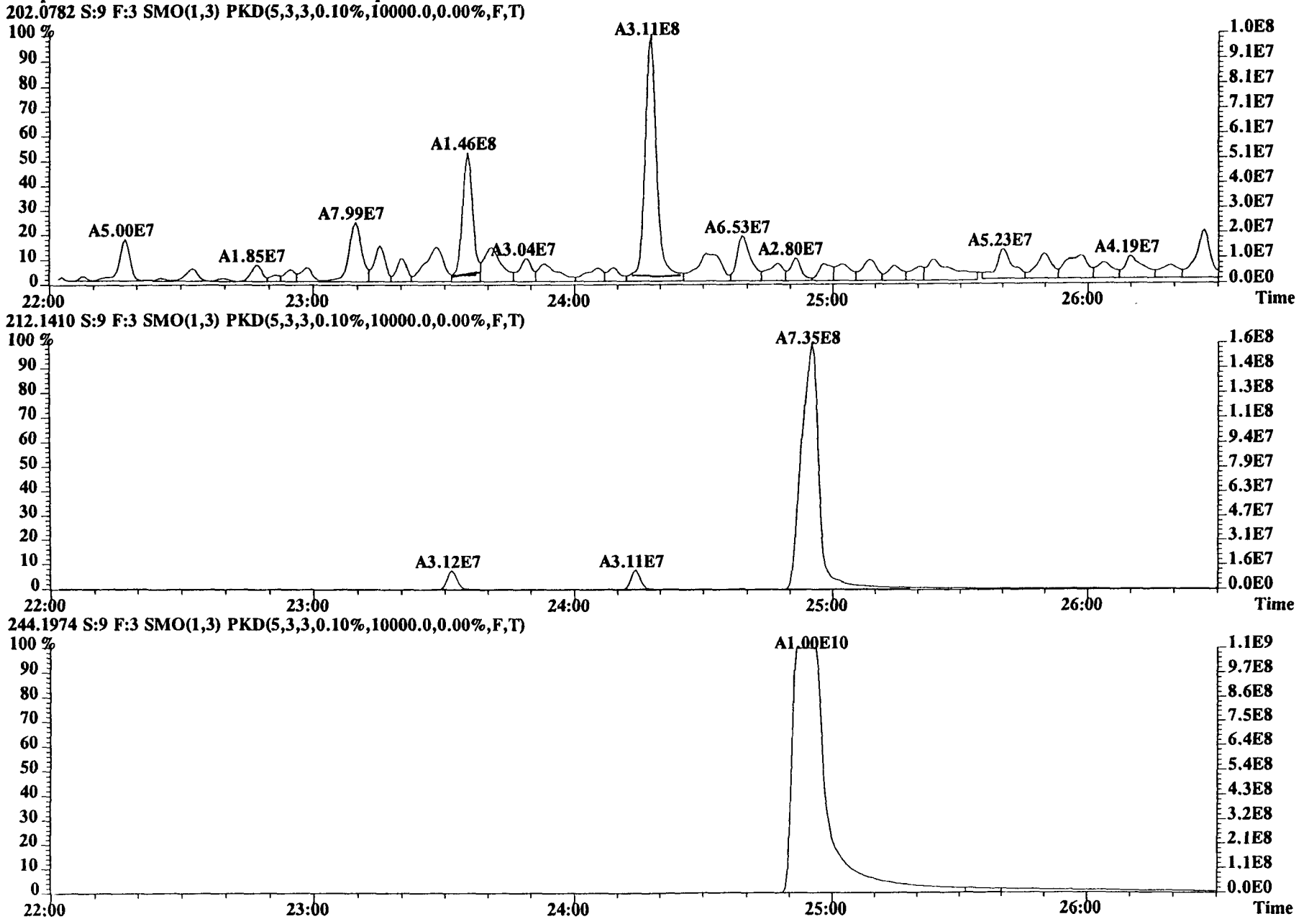
188.1410 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



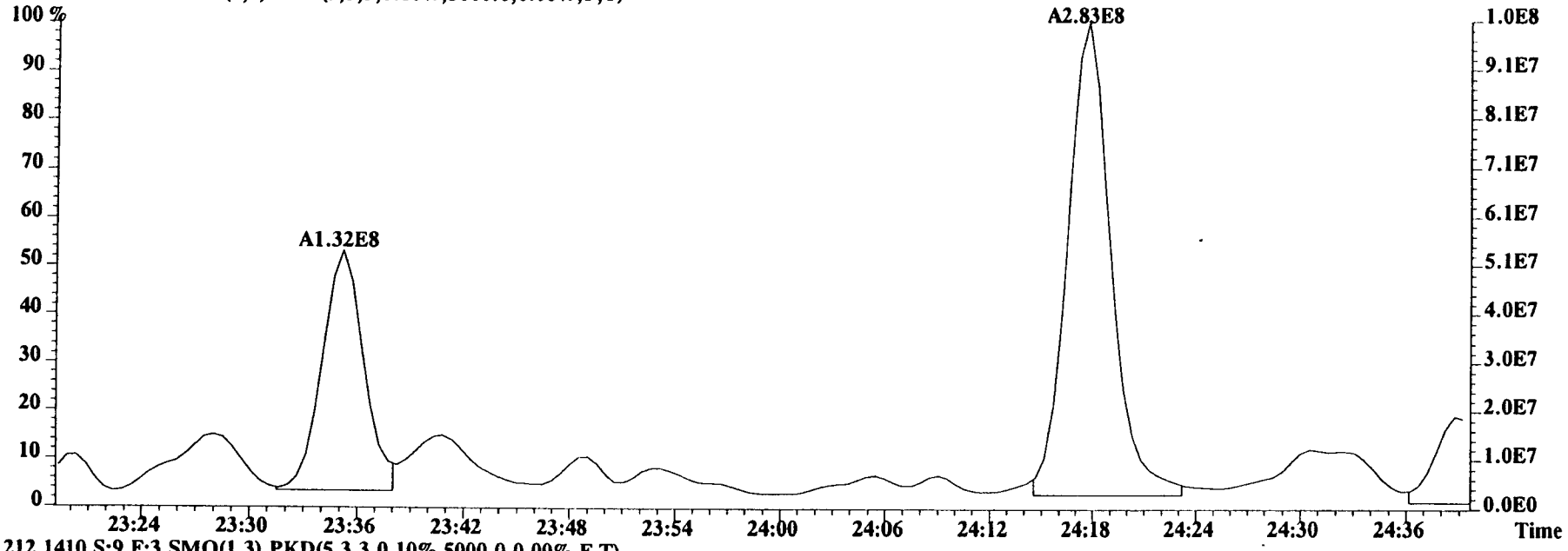
File:24AU98U #1-666 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
204.9888 S:9 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



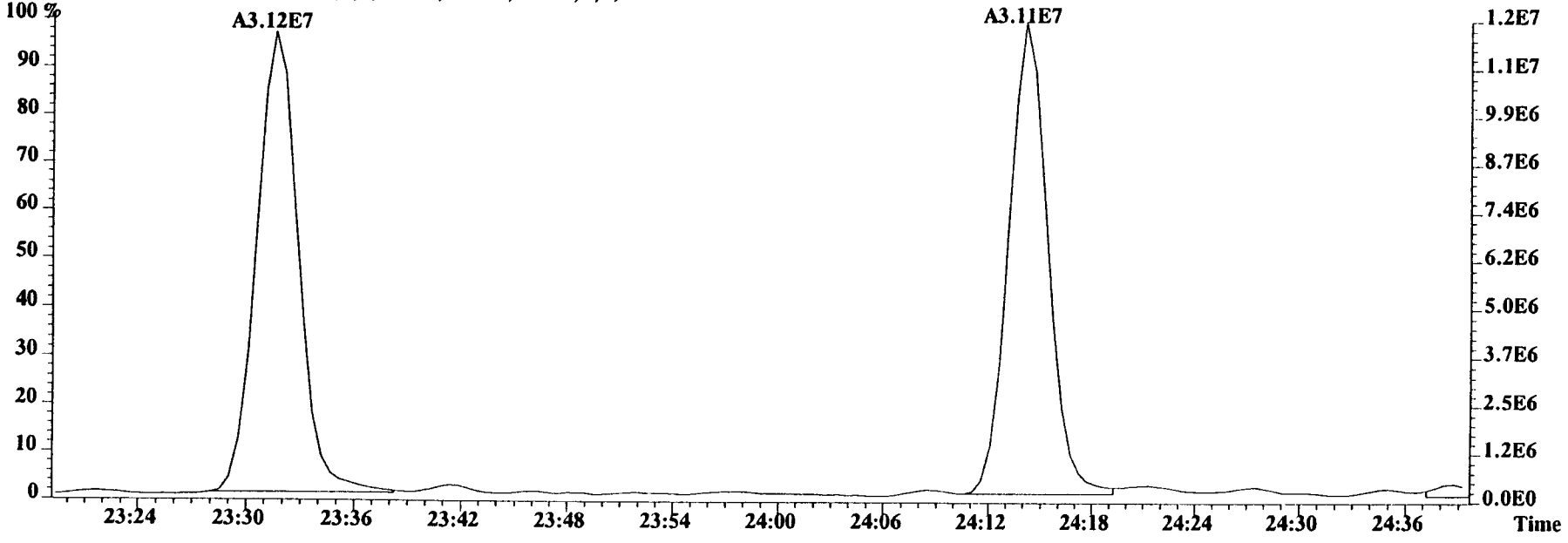
File:24AU98U #1-934 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR



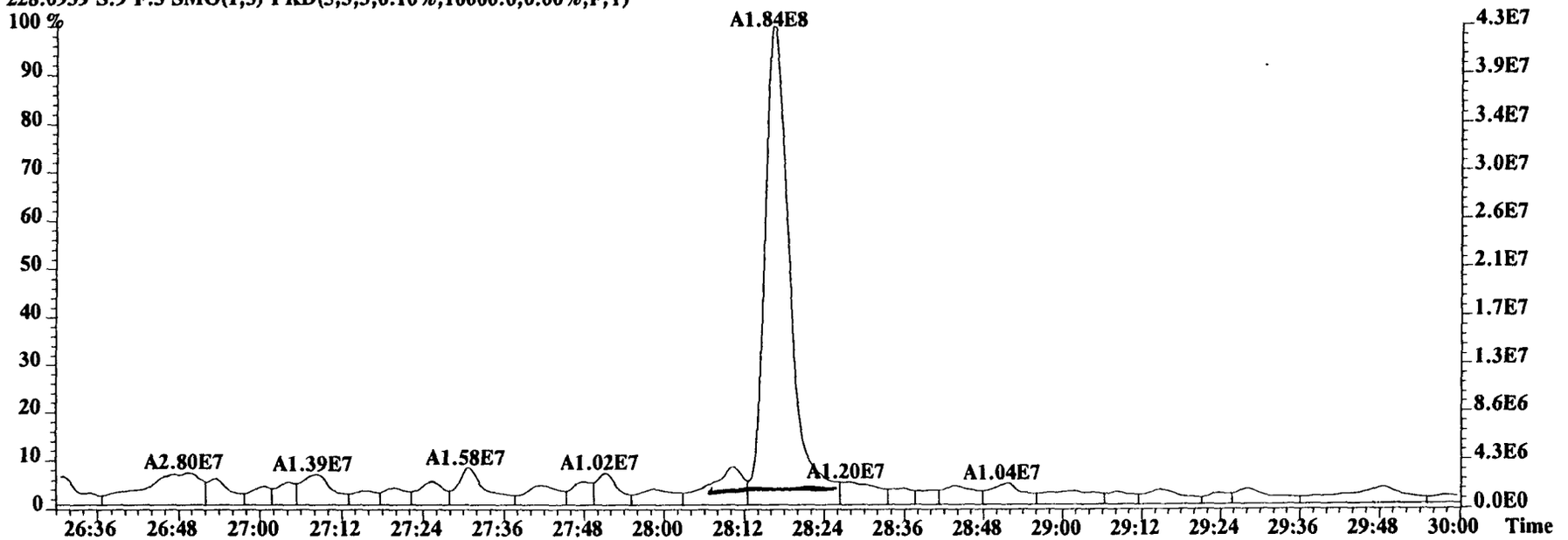
File:24AU98U #1-934 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
202.0782 S:9 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



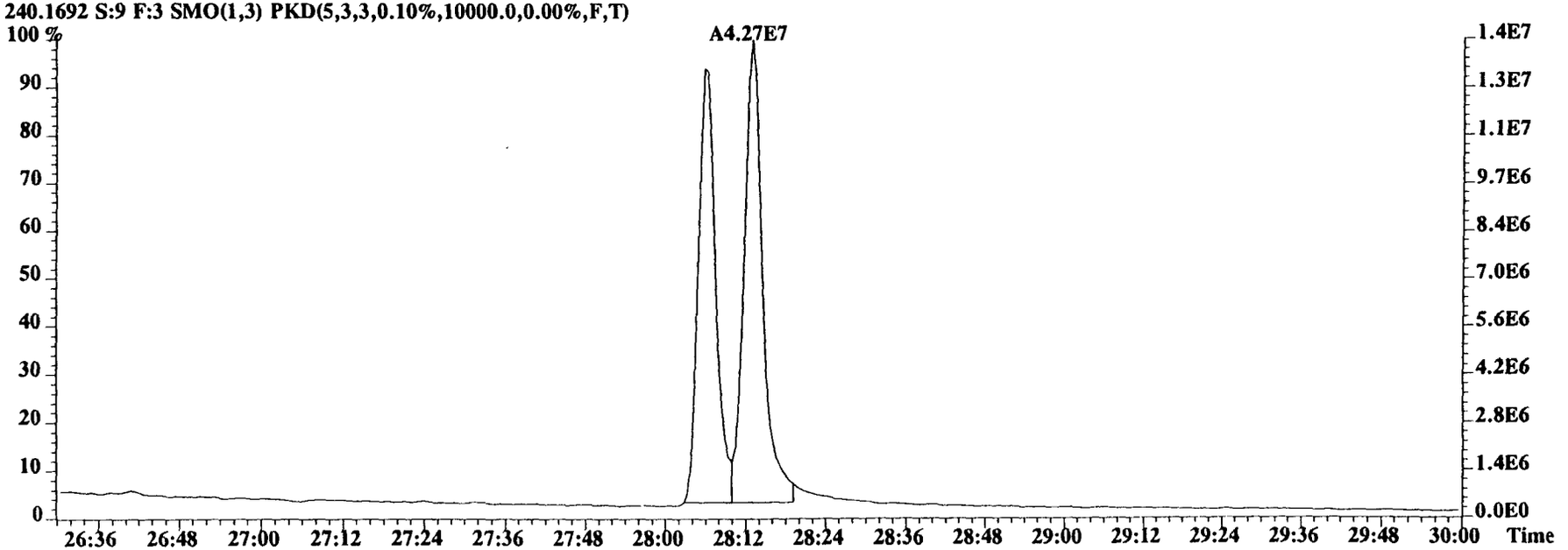
212.1410 S:9 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



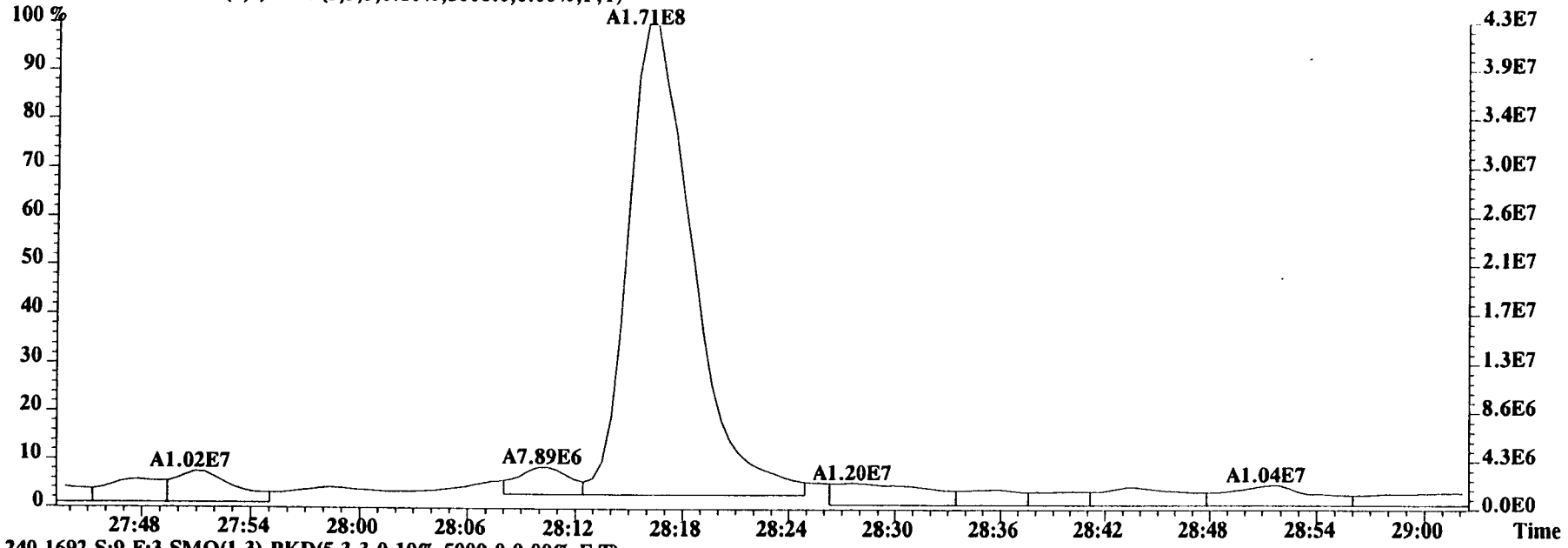
File:24AU98U #1-934 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
228.0939 S:9 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



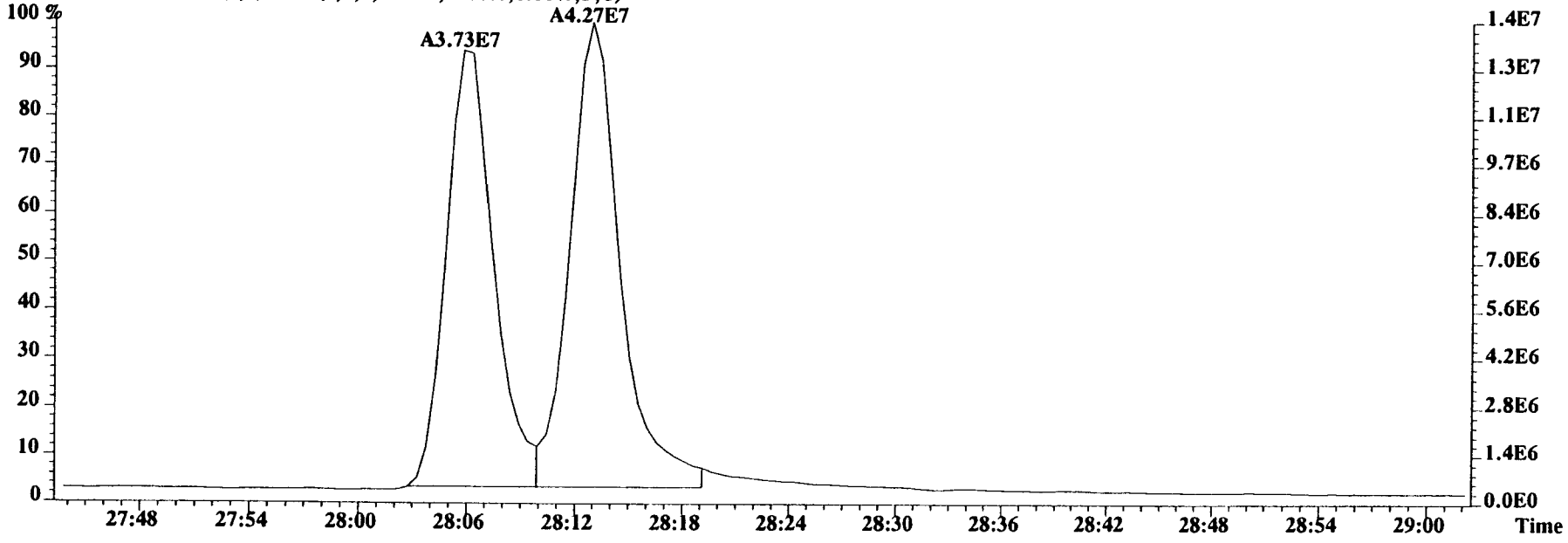
240.1692 S:9 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



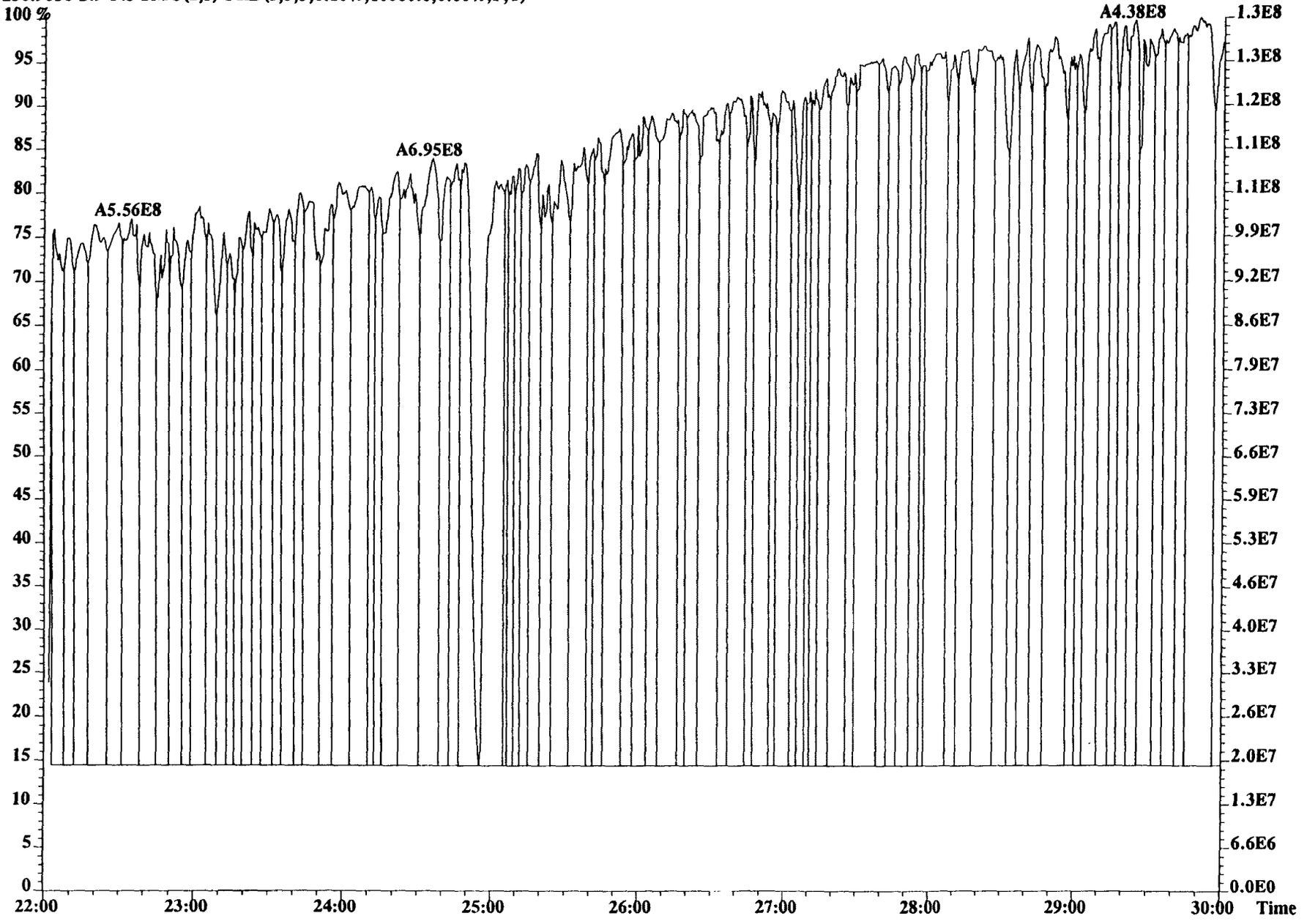
File:24AU98U #1-934 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
228.0939 S:9 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



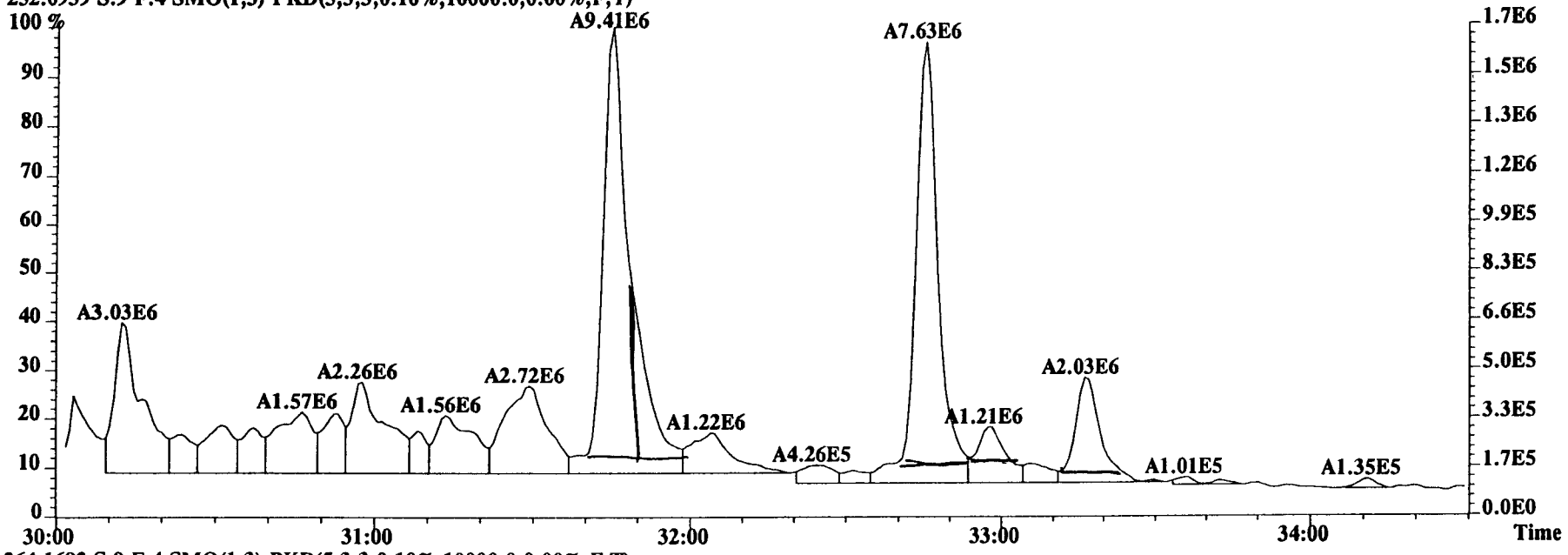
240.1692 S:9 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



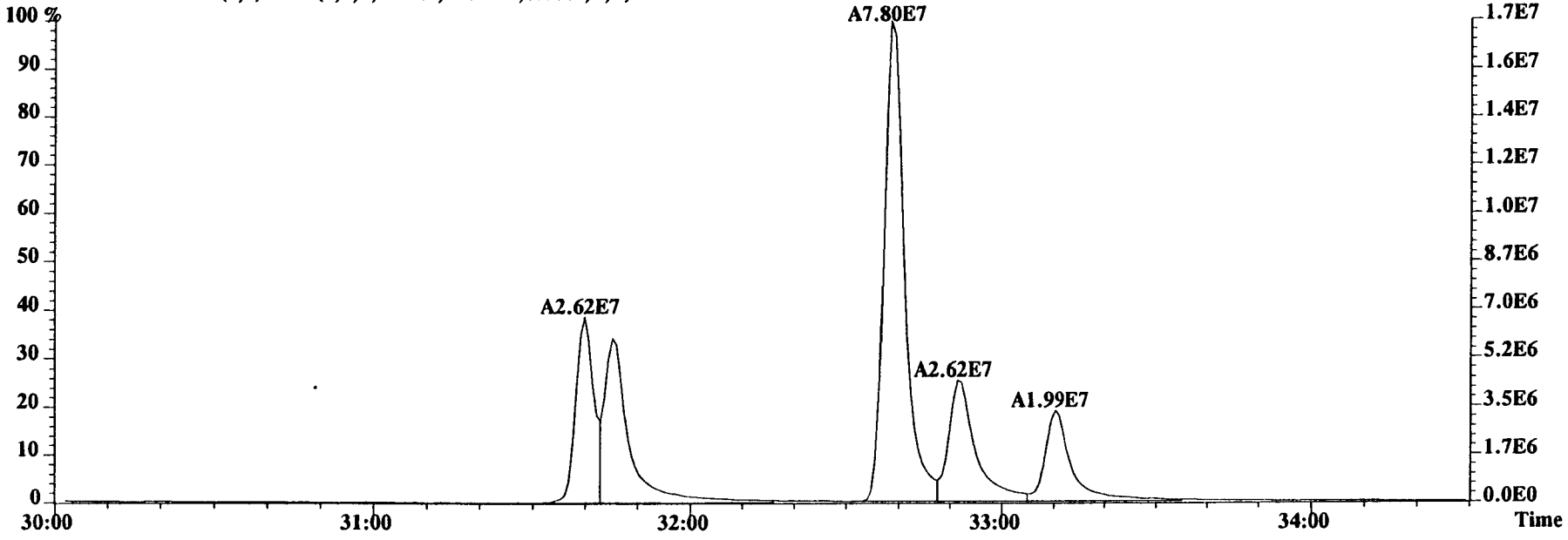
File:24AU98U #1-934 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
230.9856 S:9 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



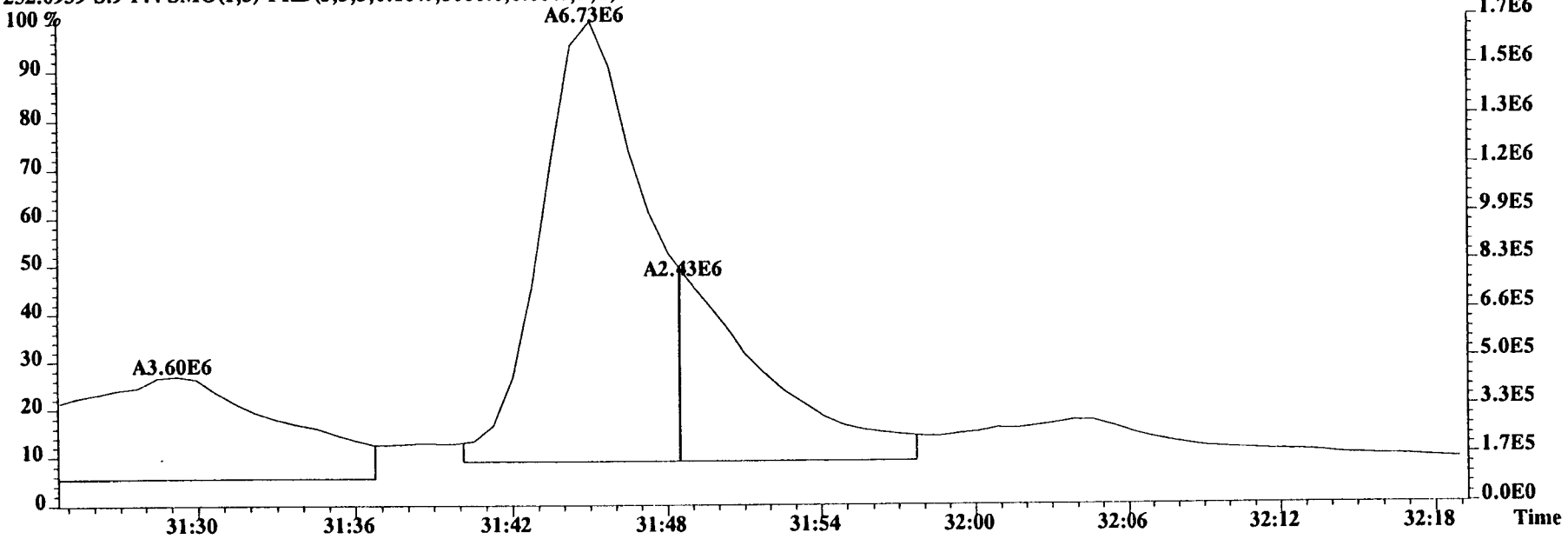
File:24AU98U #1-955 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
252.0939 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



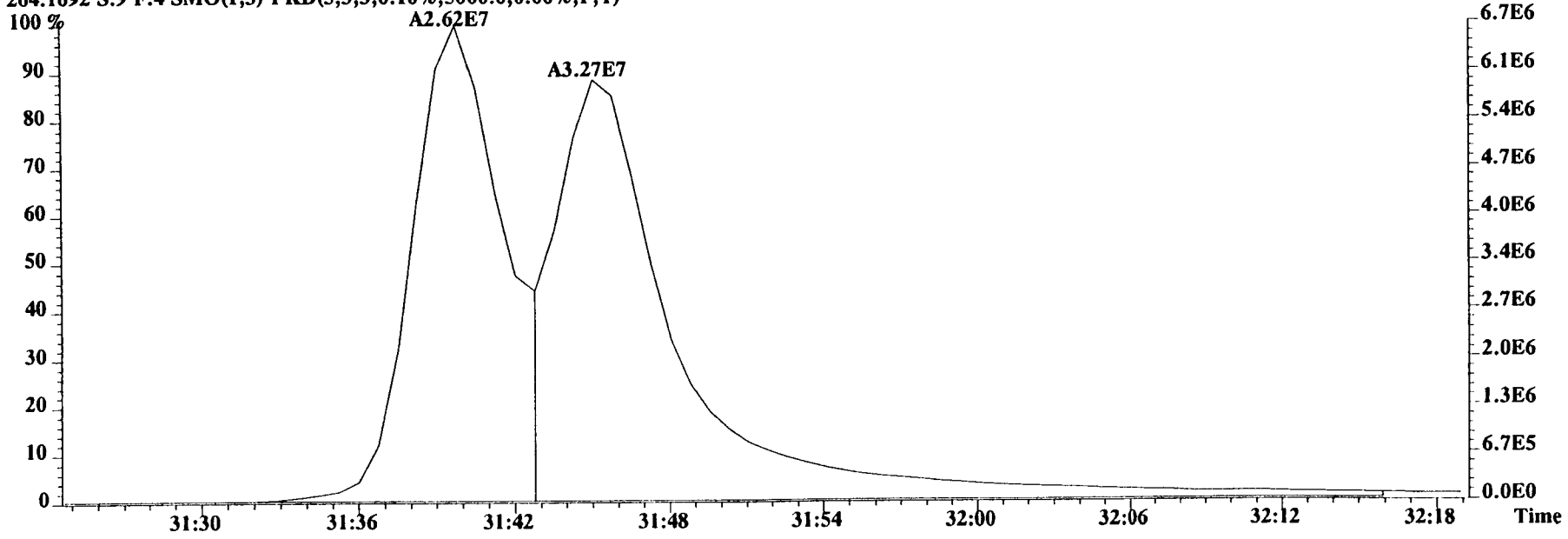
264.1692 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



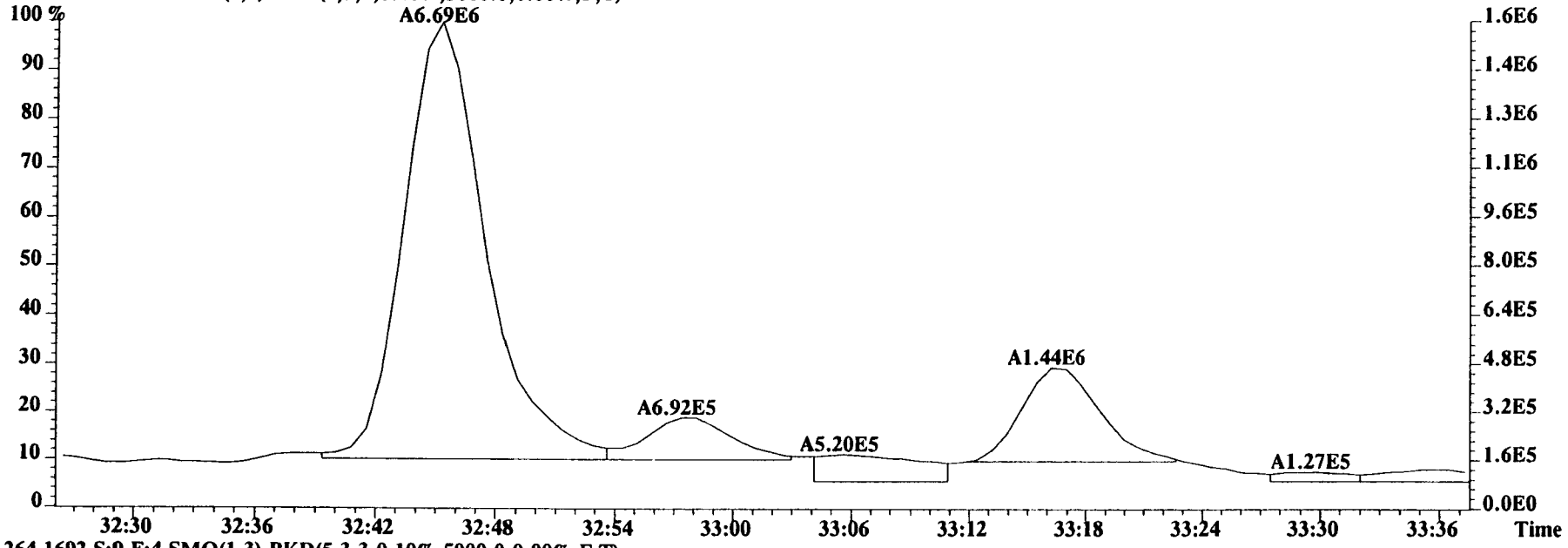
File:24AU98U #1-955 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
252.0939 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



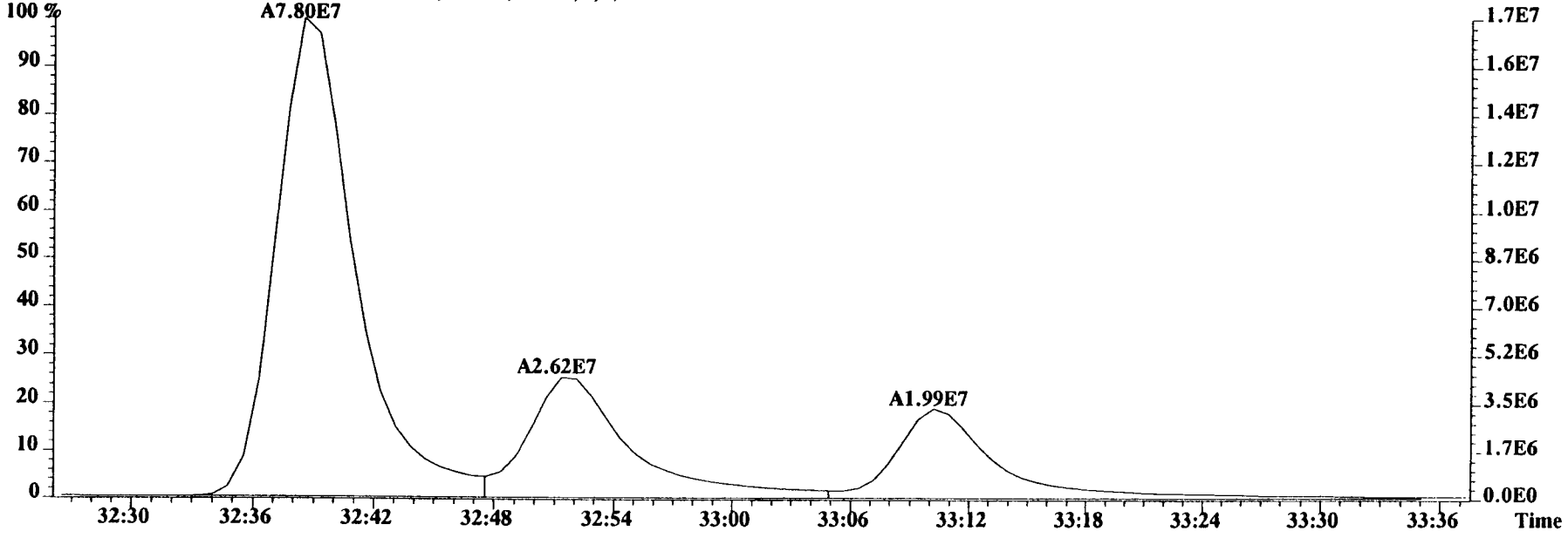
264.1692 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



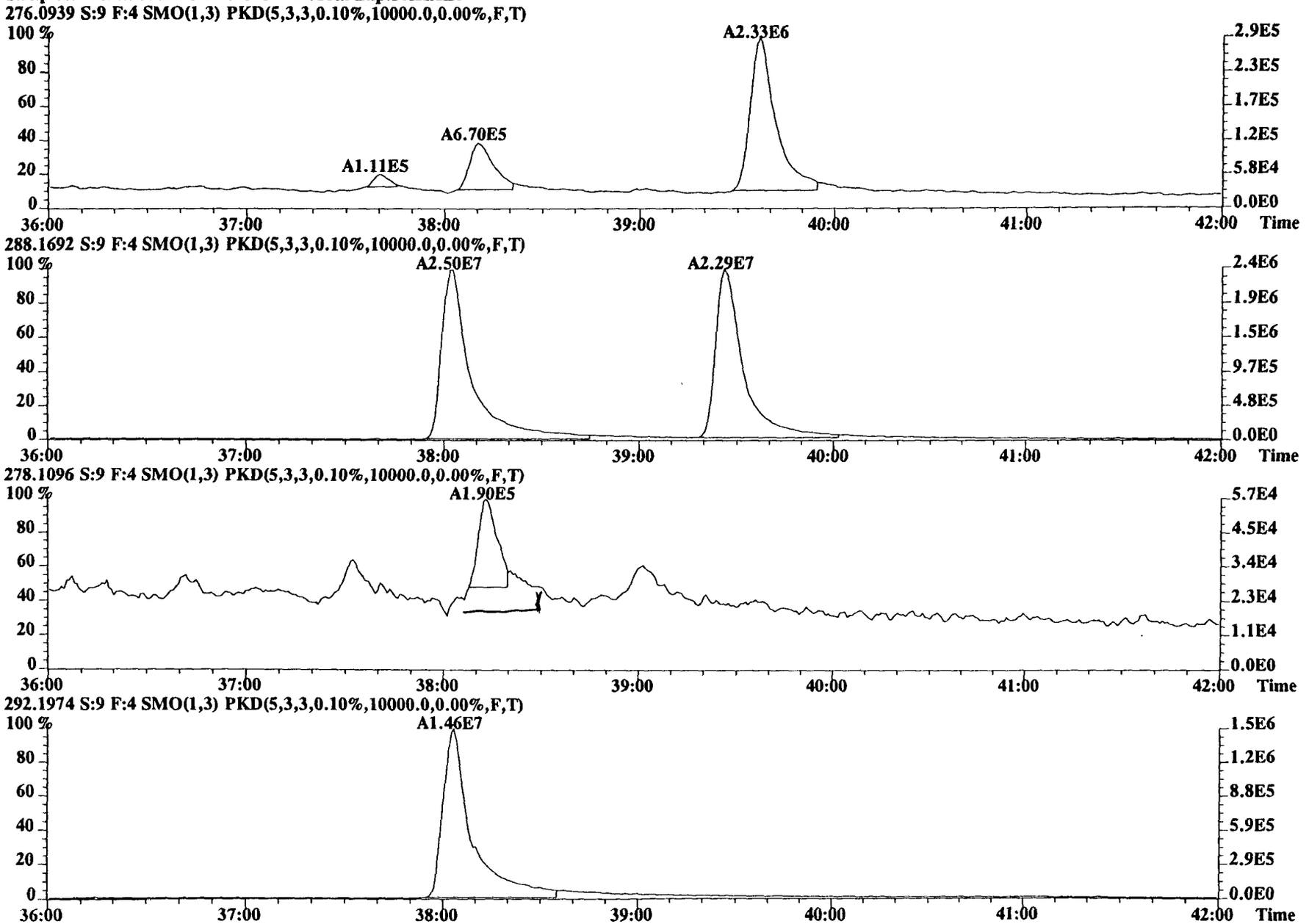
File:24AU98U #1-955 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
252.0939 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



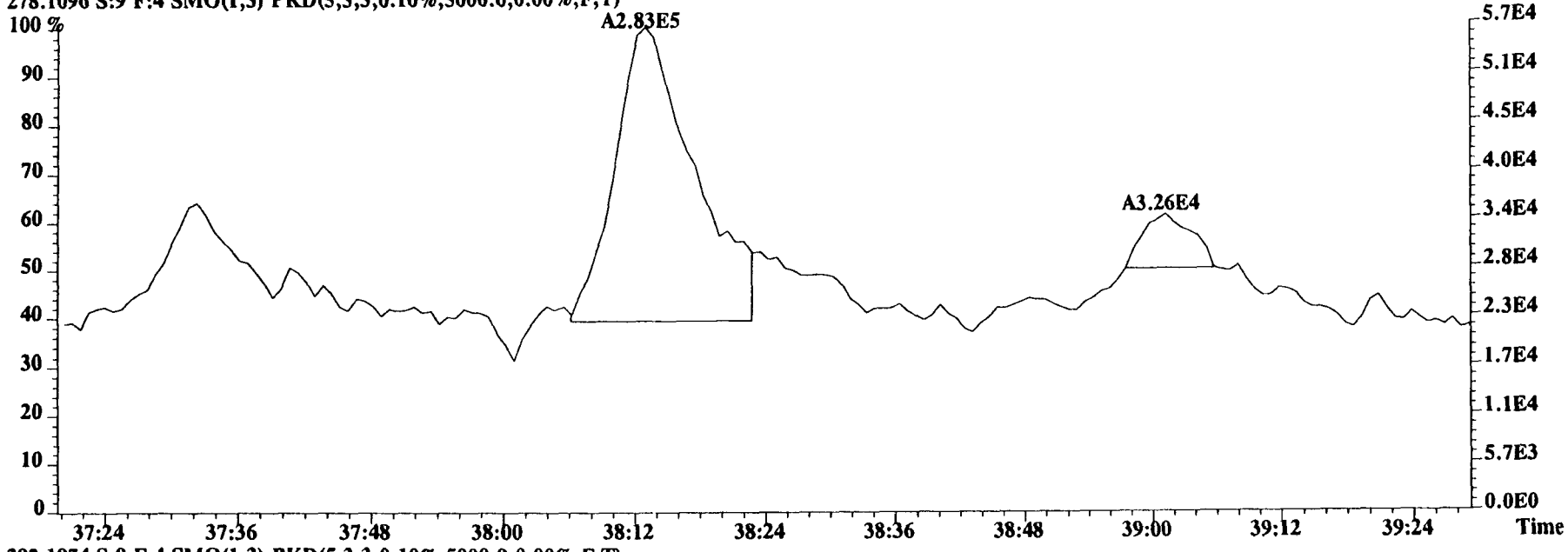
264.1692 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



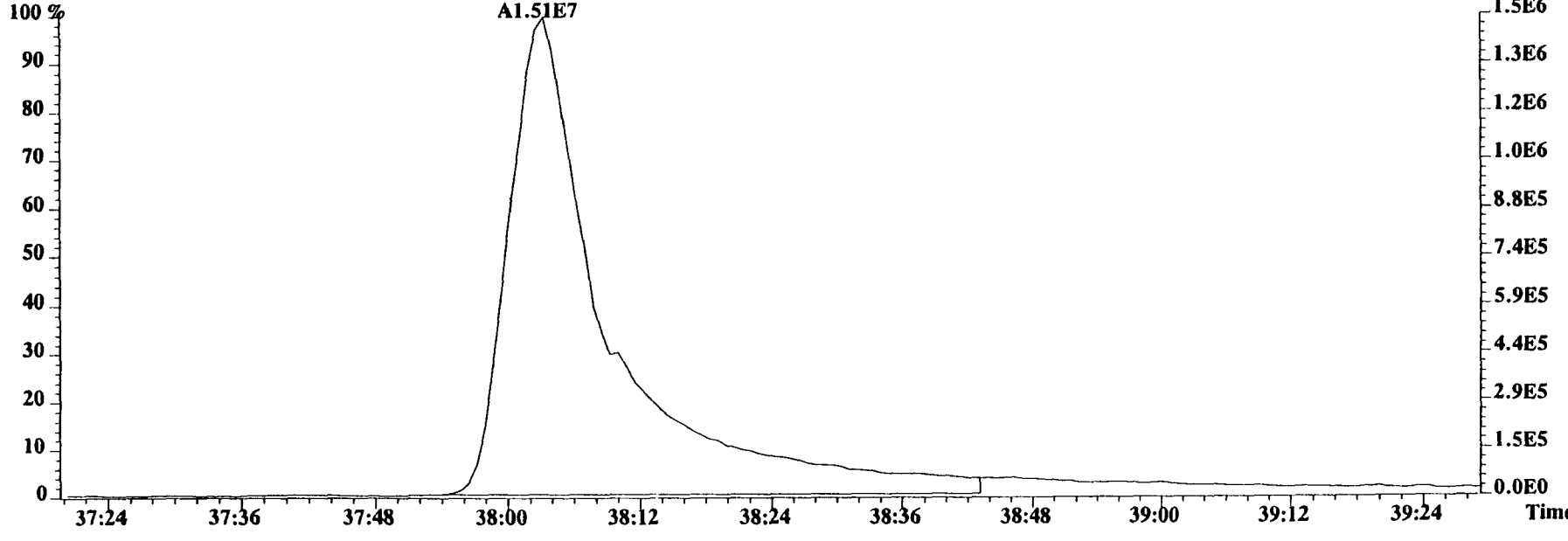
File:24AU98U #1-955 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR



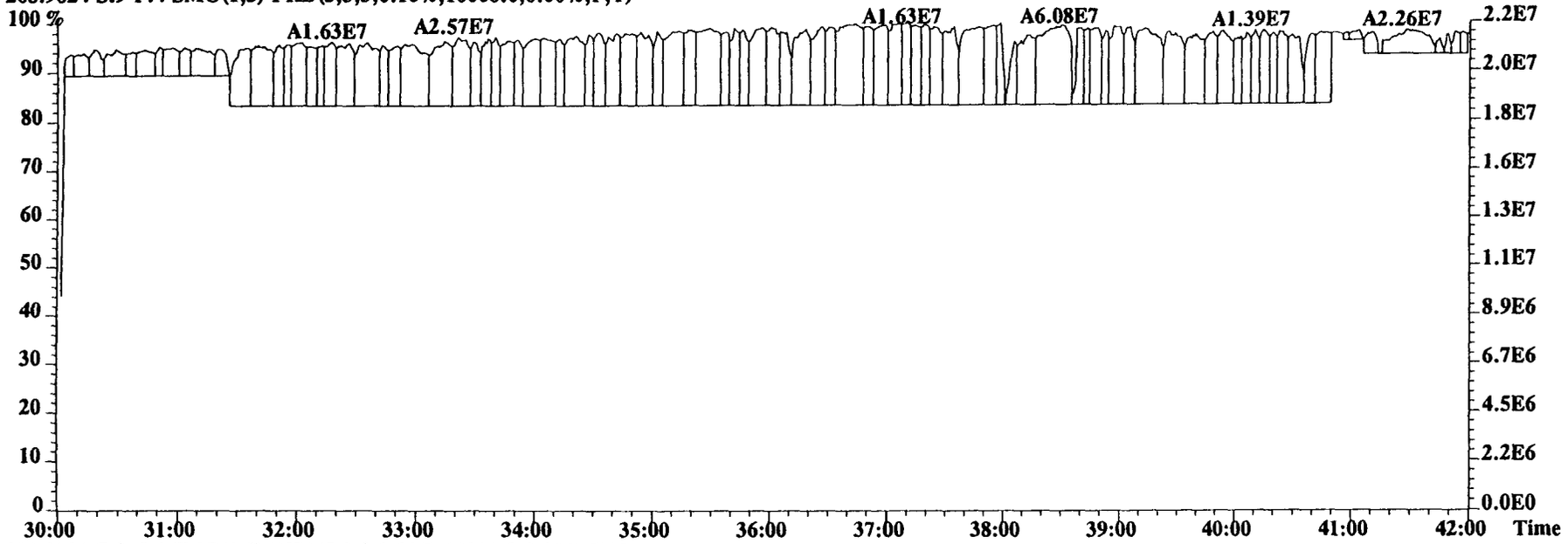
File:24AU98U #1-955 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
278.1096 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



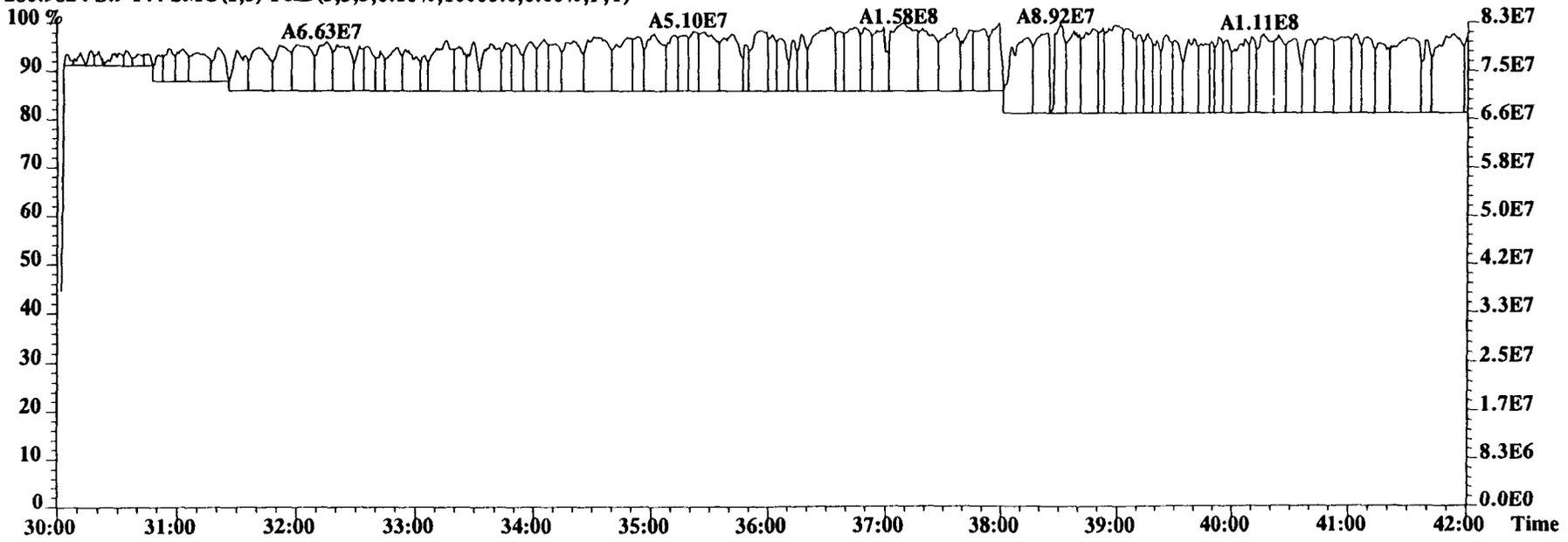
292.1974 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:24AU98U #1-955 Acq:24-AUG-1998 23:47:39 GC EI+ Voltage SIR Autospec-Ultima
Sample#9 Text:300681-5 :T-MM5-4-F :Trai Exp:PAHAIR
268.9824 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:9 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



02-SEP-1998 07:25:03 PM Dioxin Furan Unknown RESULTS

Results : 24AU98U101.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-6 :T-MM5-3-F :Trai Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMPLE	Rec/ MDL	
d10-2-Methylnaphthalene	87413600	1.00	Y	11: 9	Y	1.00	50.00		
d8-Naphthalene	26897800	1.00	Y	8: 58	Y	1.25	12.35	25	
Naphthalene	4466820000	1.00	Y	9: 2	Y	1.05	2.4e+04		E B
2-Methylnaphthalene	6528200000	1.00	Y	11: 16	Y	0.77	4.7e+04		E B
d8-Acenaphthylene	77362800	1.00	Y	14: 13	Y	1.55	28.55	57	
Acenaphthylene	264000000	1.00	Y	14: 16	Y	0.86	593.47		
d10-Acenaphthene	30784800	1.00	Y	14: 47	Y	0.88	20.07	40	
Acenaphthene	945242000	1.00	Y	14: 53	Y	0.93	4958.36		E B
d10-Anthracene	59406600	1.00	Y	19: 47	Y	1.00	50.00		
d10-Fluorene	32678000	1.00	Y	16: 29	Y	1.13	24.35	49	
Fluorene	2240000000	1.00	Y	16: 35	Y	1.05	9802.67		E B
d10-Phenanthrene	94854200	1.00	Y	19: 37	Y	2.63	30.37	61	
Phenanthrene	6888660000	1.00	Y	19: 42	Y	0.84	1.3e+04		E (BNT
Anthracene	570000000	1.00	Y	19: 50	Y	0.83	1088.32		E
d12-Benzo(e)pyrene	119666800	1.00	Y	32: 38	Y	1.00	50.00		
d10-Fluoranthene	92488200	1.00	Y	23: 32	Y	0.80	48.11	96	
Fluoranthene	598000000	1.00	Y	23: 35	Y	1.04	933.07		E B
d10-Pyrene	77570800	1.00	Y	24: 14	Y	0.81	40.03	80	
Pyrene	1562000000	1.00	Y	24: 17	Y	1.11	2730.25		E
d12-Benzo(a)anthracene	94022600	1.00	Y	28: 5	Y	0.65	60.42	121	
Benzo(a)anthracene	204000000	1.00	Y	28: 10	Y	1.06	308.72		
d12-Chrysene	104285400	1.00	Y	28: 13	Y	0.85	51.37	103	
Chrysene	1310000000	1.00	Y	28: 16	Y	0.97	1941.89		E
d12-Benzo(e)pyrene	119666800	1.00	Y	32: 38	Y	1.00	50.00		
d12-Benzo(b)fluoranthene	72696800	1.00	Y	31: 39	Y	0.63	48.52	97	
Benzo(b)fluoranthene	67200000	1.00	Y	31: 44	Y	1.07	129.82		
d12-Benzo(k)fluoranthene	94960600	1.00	Y	31: 44	Y	0.90	44.28	89	
Benzo(k)fluoranthene	25000000	1.00	Y	31: 50	Y	1.16	34.21		
d12-Benzo(a)pyrene	65459600	1.00	Y	32: 51	Y	0.75	36.41	73	
Benzo(e)pyrene	78800000	1.00	Y	32: 45	Y	1.46	123.43		
Benzo(a)pyrene	15600000	1.00	Y	32: 57	Y	1.02	34.95		
d12-Perylene	49583200	1.00	Y	33: 9	Y	0.61	33.71	67	
Perylene	149800000	1.00	Y	33: 15	Y	1.62	280.34		
d12-Indeno(123-cd)pyrene	80130600	1.00	Y	38: 0	Y	0.71	47.38	95	
Indeno(123-cd)pyrene ana 9/3/98	~~5080000~~ 3560000	1.00	Y	38: 2	Y	0.61	~~15.57~~ 10.91=DL		ana 9/3/
d14-Dibenz(ah)anthracene	54138400	1.00	Y	38: 1	Y	0.44	51.28	103	
Dibenz(ah)anthracene	3040000	1.00	Y	38: 10	Y	1.11	7.58=DL		
d12-Benzo(ghi)perylene	69200000	1.00	Y	39: 19	Y	0.63	45.87	92	
Benzo(ghi)perylene	15040000	1.00	Y	39: 28	Y	0.99	32.94		20;
d8-Naphthalene	26897800	1.00	Y	8: 58	Y	1.00	50.00		
13C-Naphthalene	* No Peak	0.00	N	9: 2	N	0.98	0.00	0	

mAr 9-2-98

d10-Fluorene	32678000	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	20996200	1.00	Y	16: 35	Y	0.76	42.38	85

02-SEP-1998 07:25:01 PM Dioxin Furan Unknown RESULTS

24AU98U101.RES : PAHX.TRG
Date analyzed : 24-AUG-98 0.333
MM5-3-F :Trai Ex Cal : PAHX081998U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL		
1.00 Y	11: 9 Y	1.00	50.00		43706800	43706800
1.00 Y	8: 58 Y	1.25	12.35	25	13448900	13448900
1.00 Y	9: 2 Y	1.05	2.4e+04		2233410000	2233410000
1.00 Y	11: 16 Y	0.77	4.7e+04		3264100000	3264100000
1.00 Y	14: 13 Y	1.55	28.55	57	38681400	38681400
1.00 Y	14: 16 Y	0.86	593.47		132000000	132000000
1.00 Y	14: 47 Y	0.88	20.07	40	15392400	15392400
1.00 Y	14: 53 Y	0.93	4958.36		472621000	472621000
1.00 Y	19: 47 Y	1.00	50.00		29703300	29703300
1.00 Y	16: 29 Y	1.13	24.35	49	16339000	16339000
1.00 Y	16: 35 Y	1.05	9802.67		1120000000	1120000000
1.00 Y	19: 37 Y	2.63	30.37	61	47427100	47427100
1.00 Y	19: 42 Y	0.84	1.3e+04		3444330000	3444330000
1.00 Y	19: 50 Y	0.83	1088.32		285000000	285000000
1.00 Y	32: 38 Y	1.00	50.00		59833400	59833400
1.00 Y	23: 32 Y	0.80	48.11	96	46244100	46244100
1.00 Y	23: 35 Y	1.04	933.07		299000000	299000000
1.00 Y	24: 14 Y	0.81	40.03	80	38785400	38785400
1.00 Y	24: 17 Y	1.11	2730.25		781000000	781000000
1.00 Y	28: 5 Y	0.65	60.42	121	47011300	47011300
1.00 Y	28: 10 Y	1.06	308.72		102000000	102000000
1.00 Y	28: 13 Y	0.85	51.37	103	52142700	52142700
1.00 Y	28: 16 Y	0.97	1941.89		655000000	655000000
1.00 Y	32: 38 Y	1.00	50.00		59833400	59833400
1.00 Y	31: 39 Y	0.63	48.52	97	36348400	36348400
1.00 Y	31: 44 Y	1.07	129.82		33600000	33600000
1.00 Y	31: 44 Y	0.90	44.28	89	47480300	47480300
1.00 Y	31: 50 Y	1.16	34.21		12500000	12500000
1.00 Y	32: 51 Y	0.75	36.41	73	32729800	32729800
1.00 Y	32: 45 Y	1.46	123.43		39400000	39400000
1.00 Y	32: 57 Y	1.02	34.95		7800000	7800000
1.00 Y	33: 9 Y	0.61	33.71	67	24791600	24791600
1.00 Y	33: 15 Y	1.62	280.34		74900000	74900000
1.00 Y	38: 0 Y	0.71	47.38	95	40065300	40065300
1.00 Y	38: 2 Y	0.61	15.57		2540000	2540000
1.00 Y	38: 1 Y	0.44	51.28	103	27069200	27069200
1.00 Y	38: 10 Y	1.11	7.58=DL		1520000	1520000
1.00 Y	39: 19 Y	0.63	45.87	92	34600000	34600000
1.00 Y	39: 28 Y	0.99	32.94		7520000	7520000
1.00 Y	8: 58 Y	1.00	50.00		13448900	13448900
0.00 N	9: 2 N	0.98	0.00	0	0	0

208

1.00	Y	16: 29	Y	1.00	50.00		16339000	16339000
1.00	Y	16: 35	Y	0.76	42.38	85	10498100	10498100

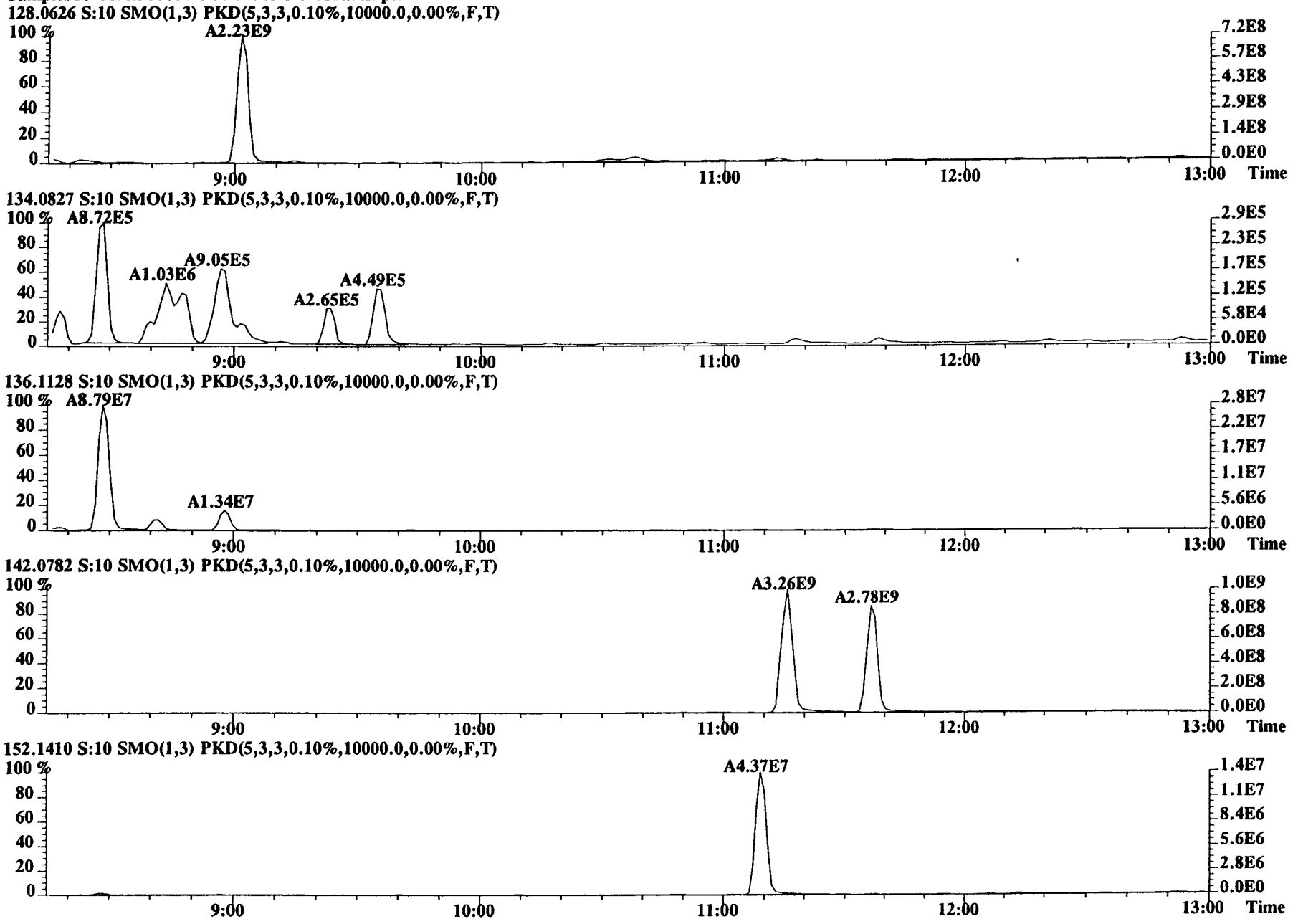
25-AUG-1998 09:31:13 AM PAH Unknown RESULTS

Mass Spec : ULTIMA Results : 24AU98U101.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-6 :T-MM5-3-F :Trai Ex Cal : PAHX081998U.RRF
Weight : 0.333

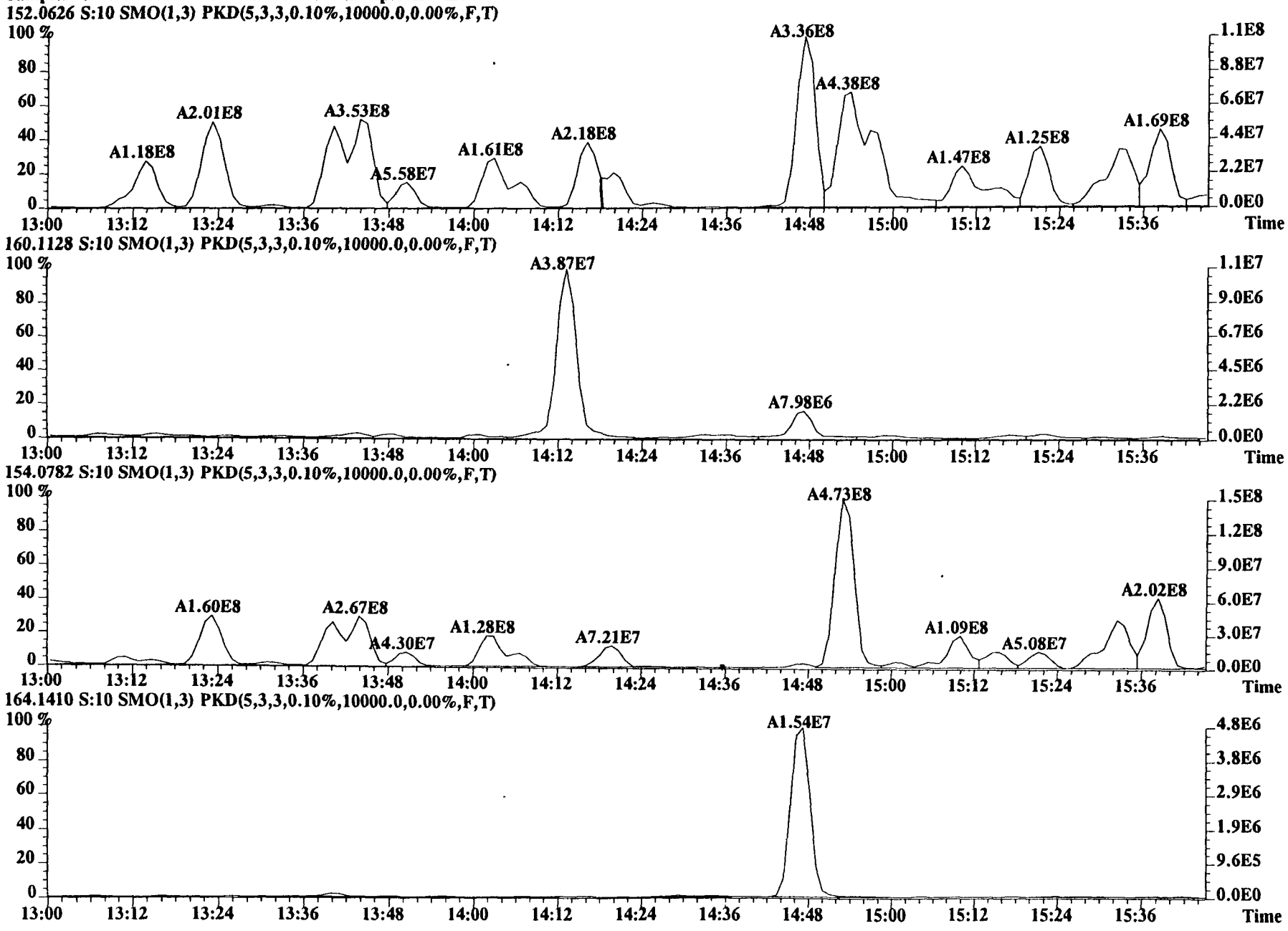
Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	87413600	1.00 Y	11: 9 Y	1.00	50.00	
d8-Naphthalene	26897800	1.00 Y	8: 58 Y	1.25	12.35	25
Naphthalene	4466820000	1.00 Y	9: 2 Y	1.05	2.4e+04	0.000
2-Methylnaphthalene	6528200000	1.00 Y	11: 16 Y	0.77	4.7e+04	0.000
d8-Acenaphthylene	77362800	1.00 Y	14: 13 Y	1.55	28.55	57
Acenaphthylene	436756000	1.00 Y	14: 16 Y	0.86	981.83	0.000
d10-Acenaphthene	30784800	1.00 Y	14: 47 Y	0.88	20.07	40
Acenaphthene	945242000	1.00 Y	14: 53 Y	0.93	4958.36	0.000
d10-Anthracene	59406600	1.00 Y	19: 47 Y	1.00	50.00	
d10-Fluorene	32678000	1.00 Y	16: 29 Y	1.13	24.35	49
Fluorene	2352100000	1.00 Y	16: 35 Y	1.05	1.0e+04	0.000
d10-Phenanthrene	94854200	1.00 Y	19: 37 Y	2.63	30.37	61
Phenanthrene	6888660000	1.00 Y	19: 42 Y	0.84	1.3e+04	0.000
Anthracene	* No Peak	0.00 N	19: 50 N	0.83	0.00	0.000
d12-Benzo(e)pyrene	119666800	1.00 Y	32: 38 Y	1.00	50.00	
d10-Fluoranthene	92488200	1.00 Y	23: 32 Y	0.80	48.11	96
Fluoranthene	697630000	1.00 Y	23: 35 Y	1.04	1088.52	0.000
d10-Pyrene	77570800	1.00 Y	24: 14 Y	0.81	40.03	80
Pyrene	1734654000	1.00 Y	24: 17 Y	1.11	3032.03	0.000
d12-Benzo(a)anthracene	94022600	1.00 Y	28: 5 Y	0.65	60.42	121
Benzo(a)anthracene	404070000	1.00 Y	28: 10 Y	1.06	611.49	0.000
d12-Chrysene	104285400	1.00 Y	28: 13 Y	0.85	51.37	103
Chrysene	1508610000	1.00 Y	28: 16 Y	0.97	2236.30	0.000
d12-Benzo(e)pyrene	119666800	1.00 Y	32: 38 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	72696800	1.00 Y	31: 39 Y	0.63	48.52	97
Benzo(b)fluoranthene	124186600	1.00 Y	31: 44 Y	1.07	239.92	0.000
d12-Benzo(k)fluoranthene	94960600	1.00 Y	31: 44 Y	0.90	44.28	89
Benzo(k)fluoranthene	124186600	1.00 Y	31: 44 Y	1.16	169.93	0.000
d12-Benzo(a)pyrene	65459600	1.00 Y	32: 51 Y	0.75	36.41	73
Benzo(e)pyrene	104472800	1.00 Y	32: 45 Y	1.46	163.65	0.000
Benzo(a)pyrene	36812400	1.00 Y	32: 57 Y	1.02	82.48	0.000
d12-Perylene	49583200	1.00 Y	33: 9 Y	0.61	33.71	67
Perylene	188974400	1.00 Y	33: 15 Y	1.62	353.65	0.000
d12-Indeno(123-cd)pyrene	80130600	1.00 Y	38: 0 Y	0.71	47.38	95
Indeno(123-cd)pyrene	* No Peak	0.00 N	38: 2 N	0.61	0.00	0.000
d14-Dibenz(ah)anthracene	54138400	1.00 Y	38: 1 Y	0.44	51.28	103
Dibenz(ah)anthracene	5245900	1.00 Y	38: 10 Y	1.11	13.08	0.000
d12-Benzo(ghi)perylene	* No Peak	0.00 N	39: 19 N	0.63	0.00	0
Benzo(ghi)perylene	* No Peak	0.00 N	39: 28 N	0.99	*NoINoIs	
d8-Naphthalene	26897800	1.00 Y	8: 58 Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00 N	9: 2 N	0.98	0.00	0

d10-Fluorene	32678000	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	20996200	1.00	Y	16: 35	Y	0.76	42.38	85

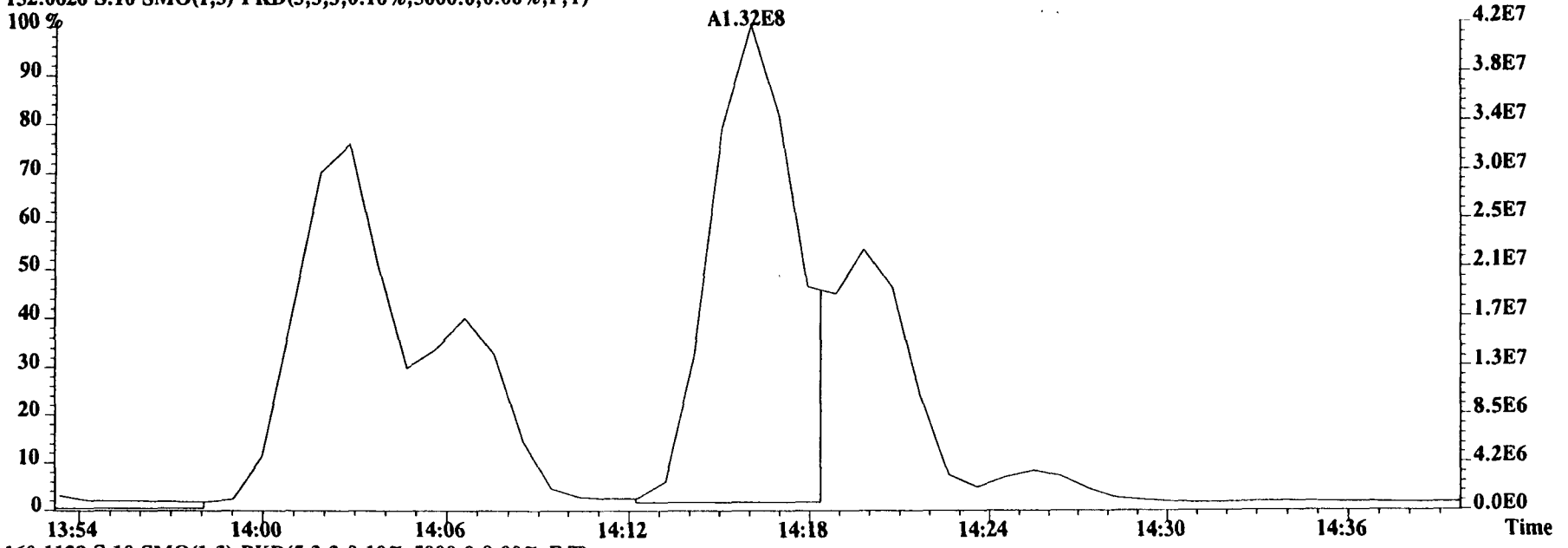
File:24AU98U #1-477 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR



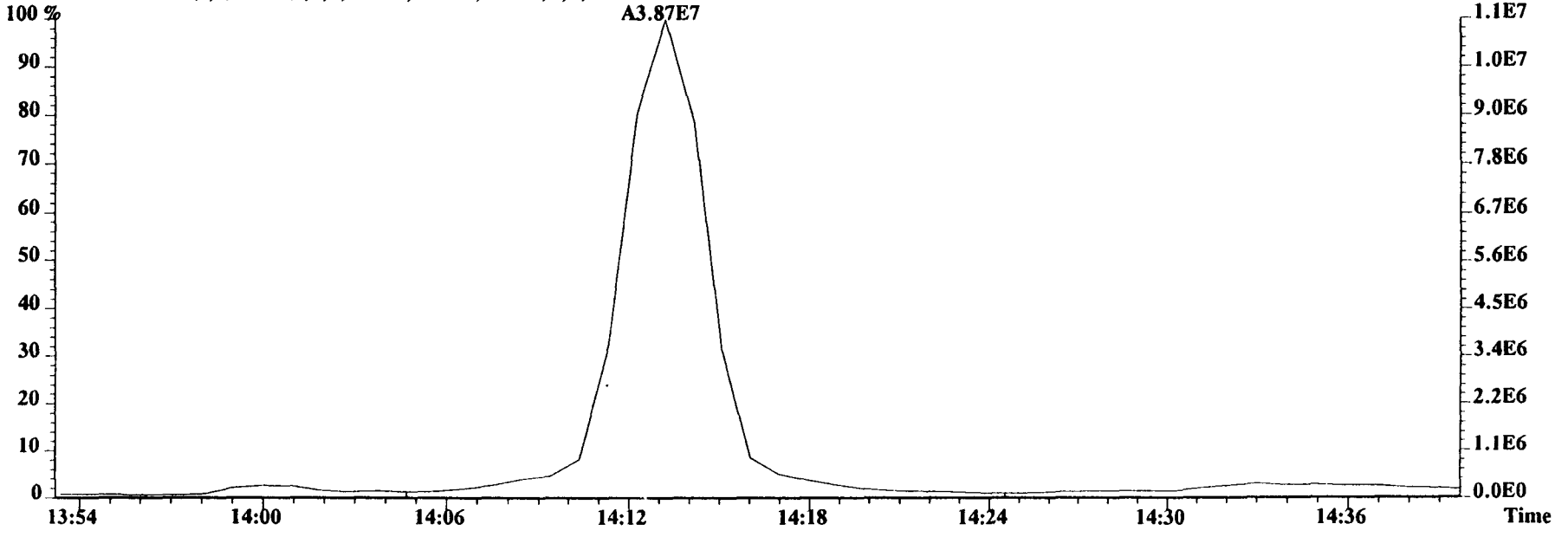
File:24AU98U #1-477 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR



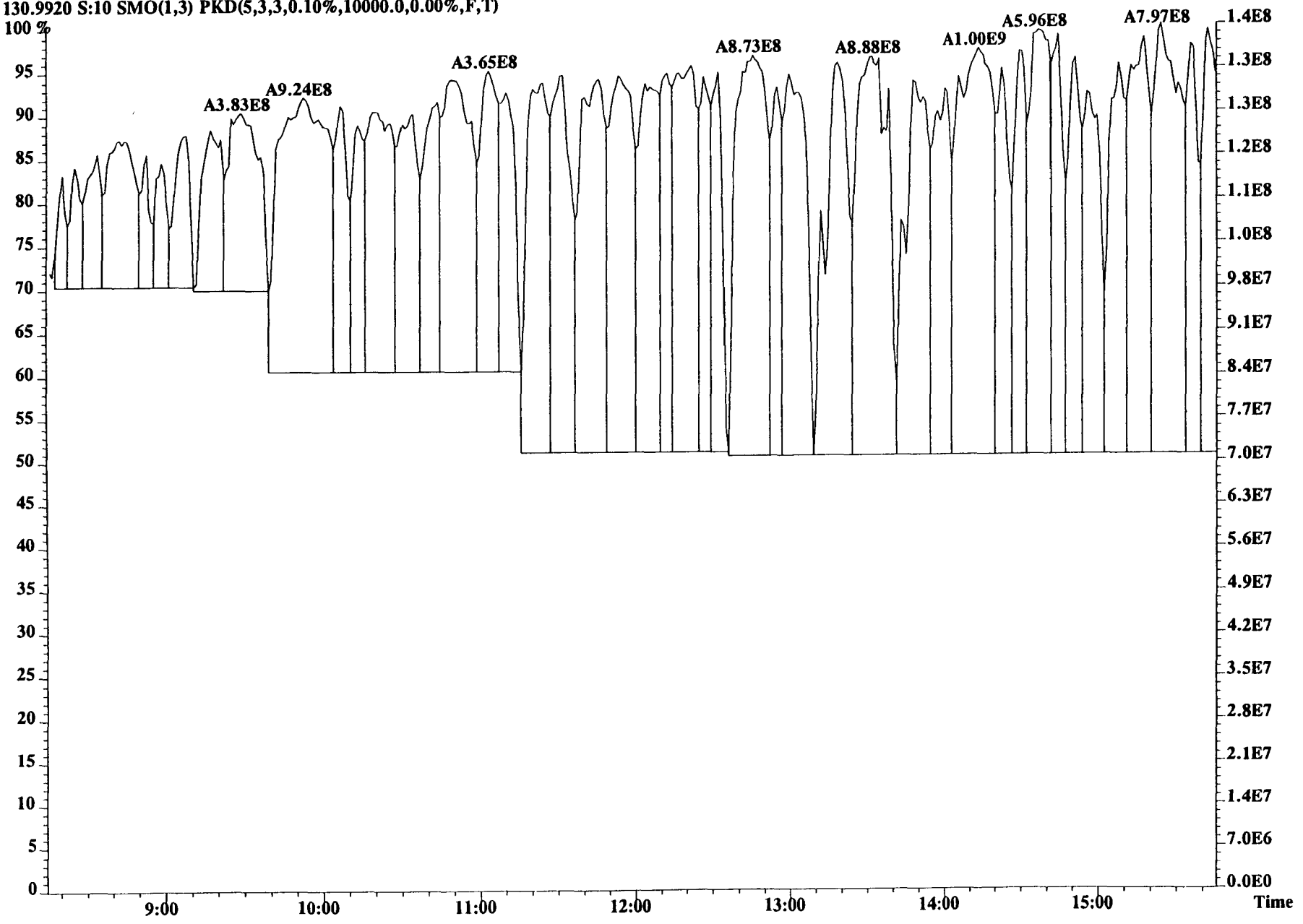
File:24AU98U #1-477 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
152.0626 S:10 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



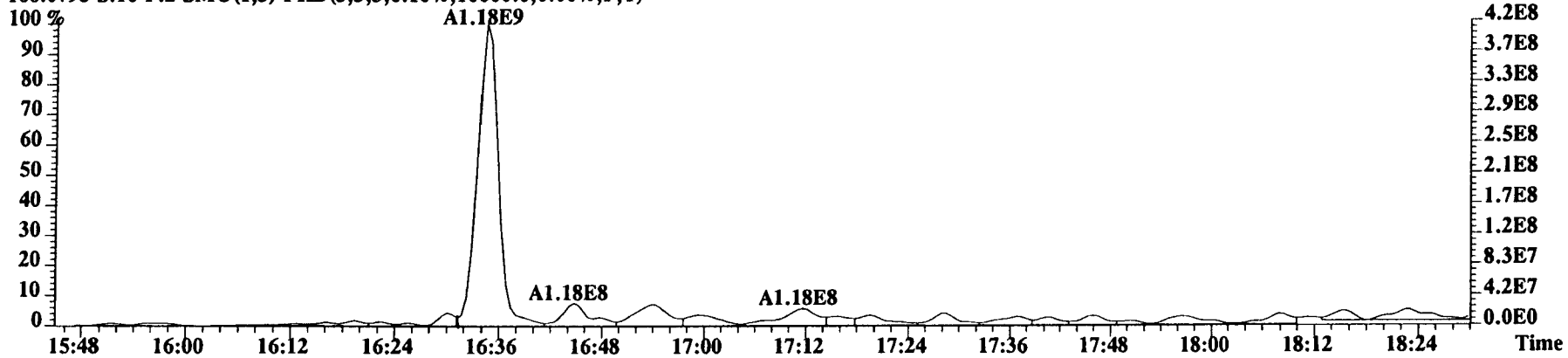
160.1128 S:10 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



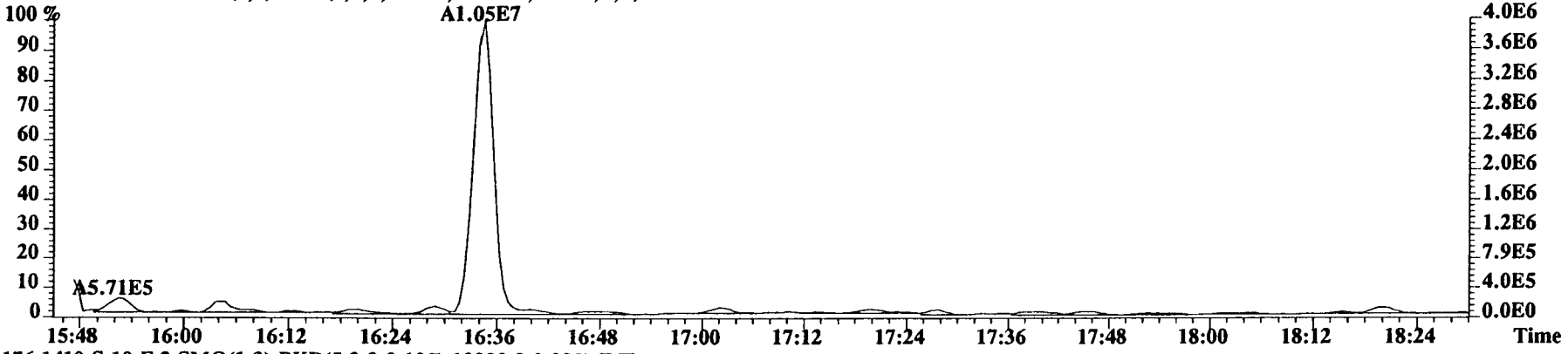
File:24AU98U #1-477 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
130.9920 S:10 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



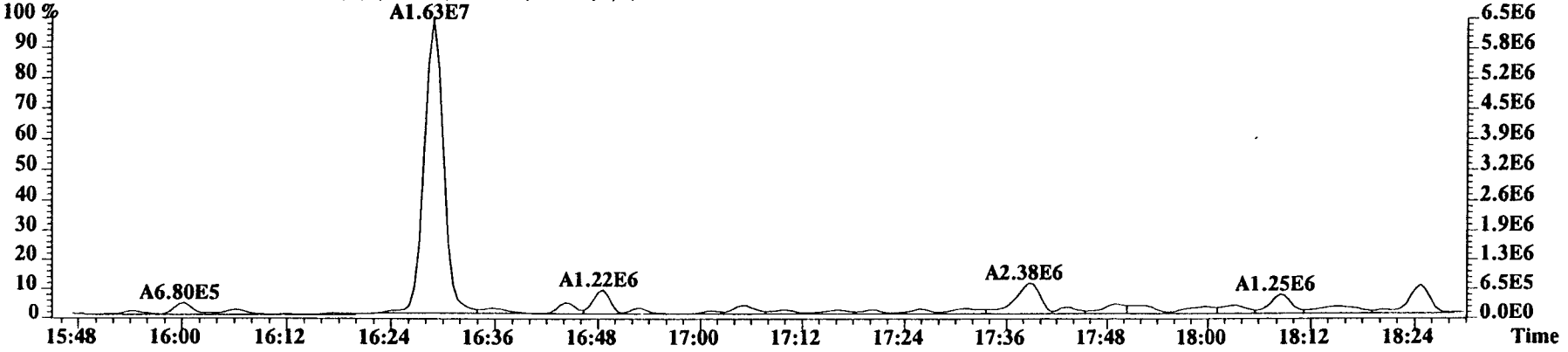
File:24AU98U #1-665 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
166.0798 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



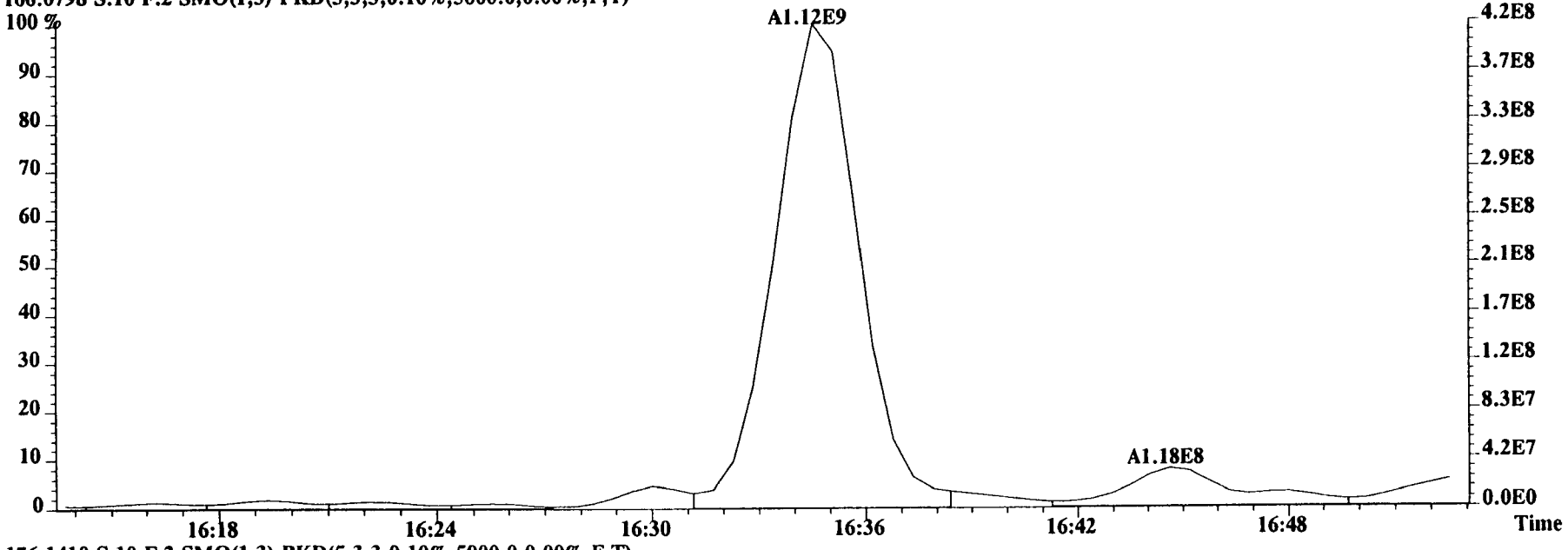
172.0984 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



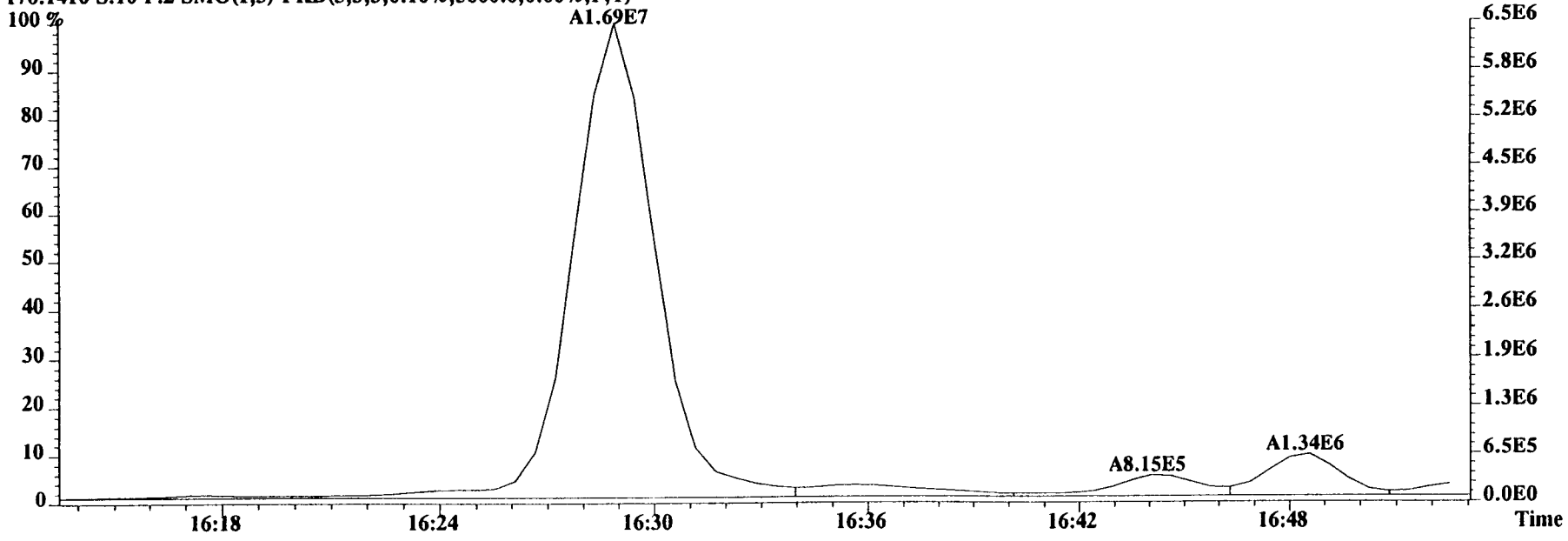
176.1410 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



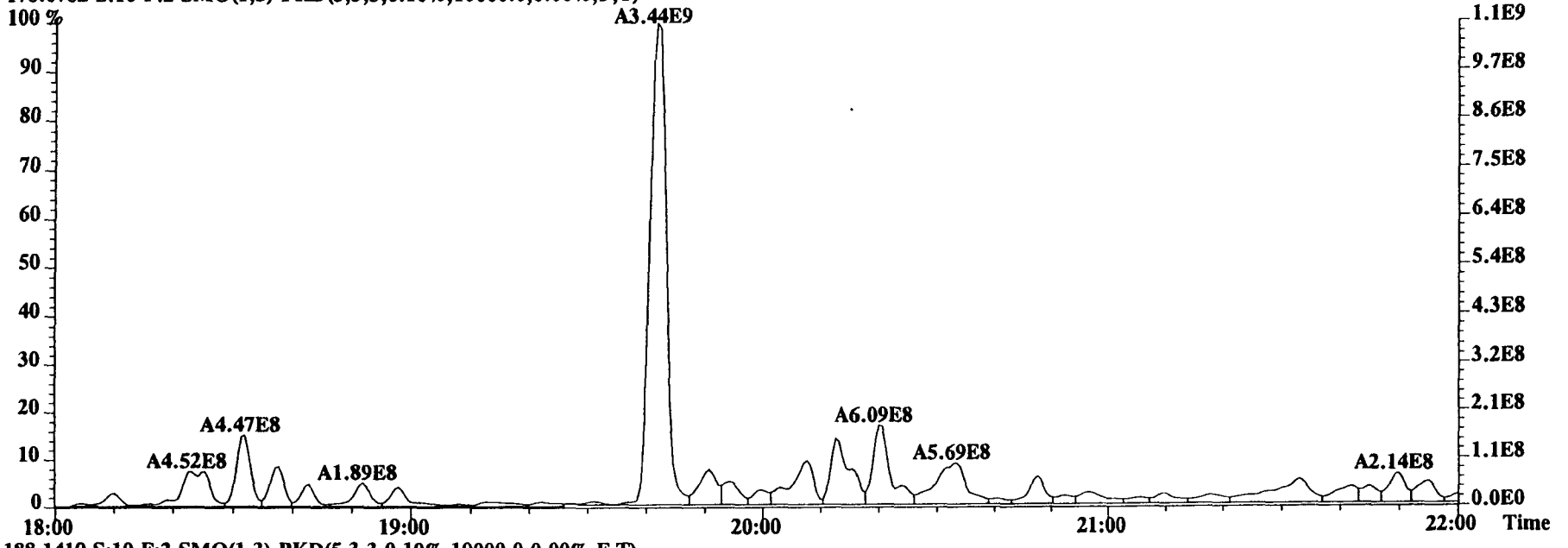
File:24AU98U #1-665 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
166.0798 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



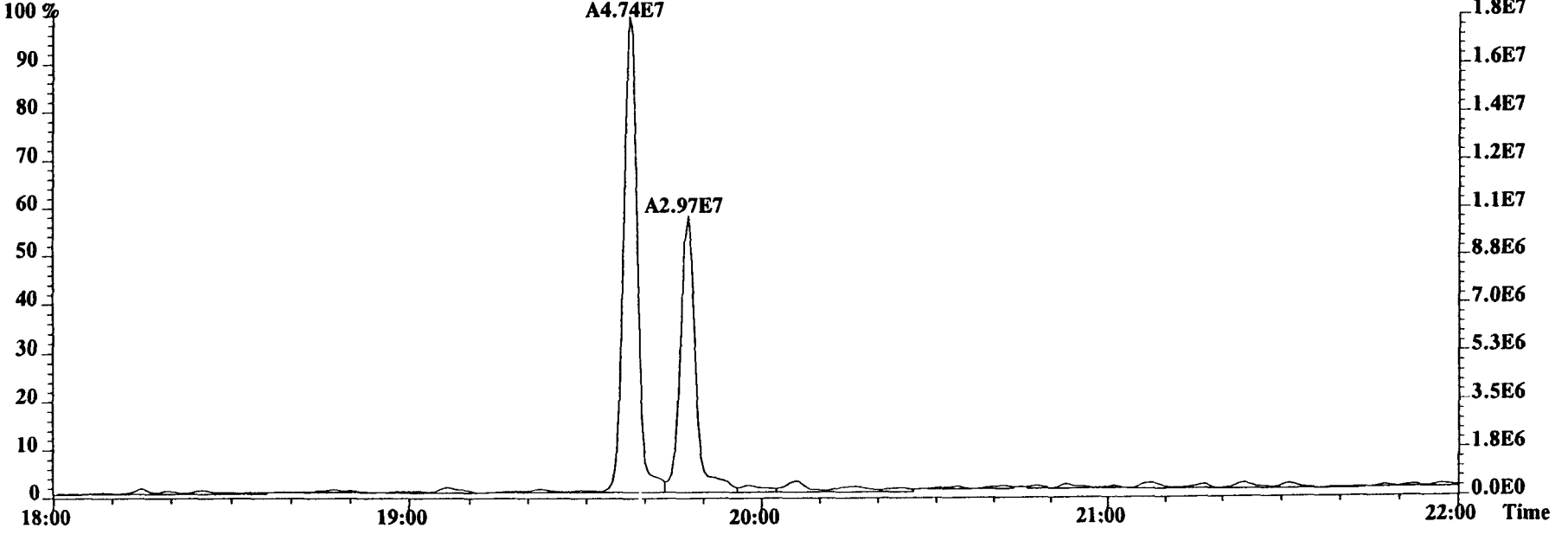
176.1410 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



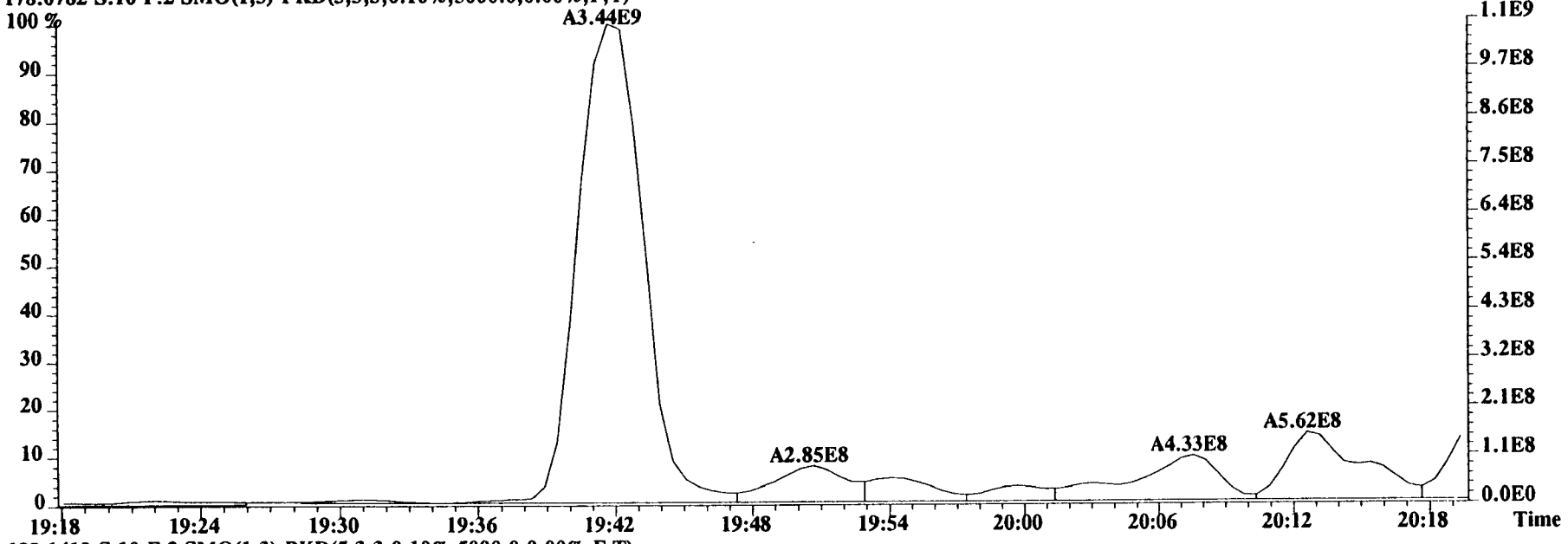
File:24AU98U #1-665 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
178.0782 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



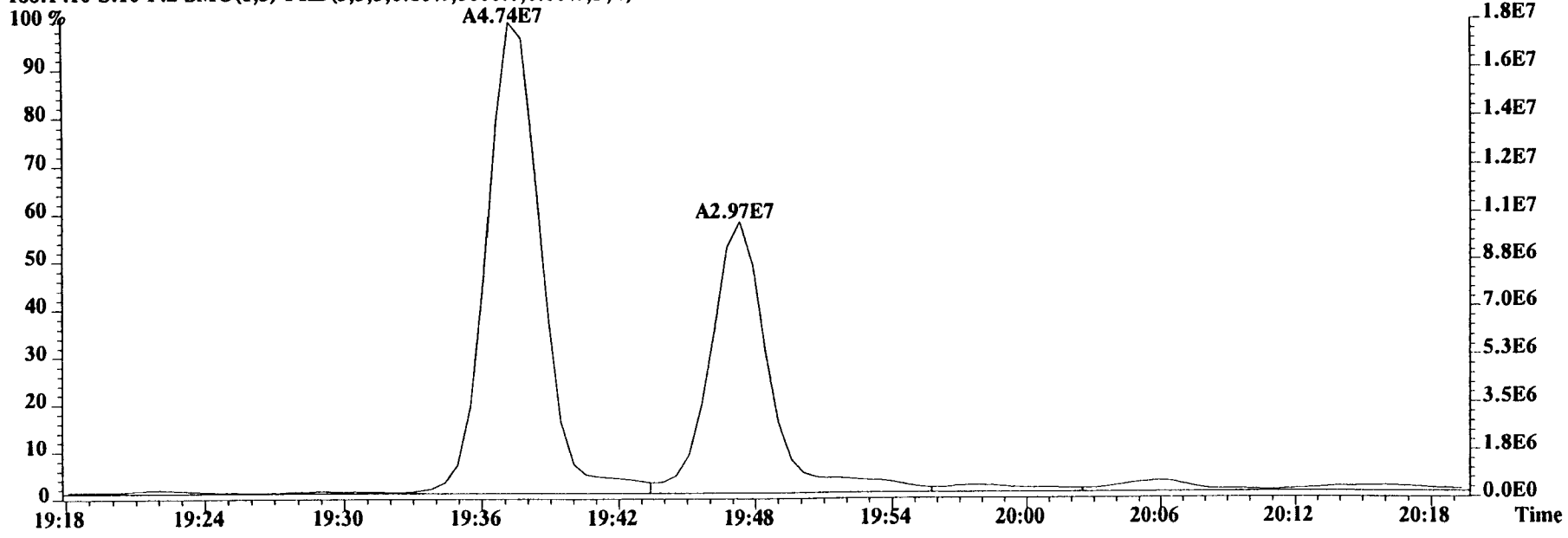
188.1410 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



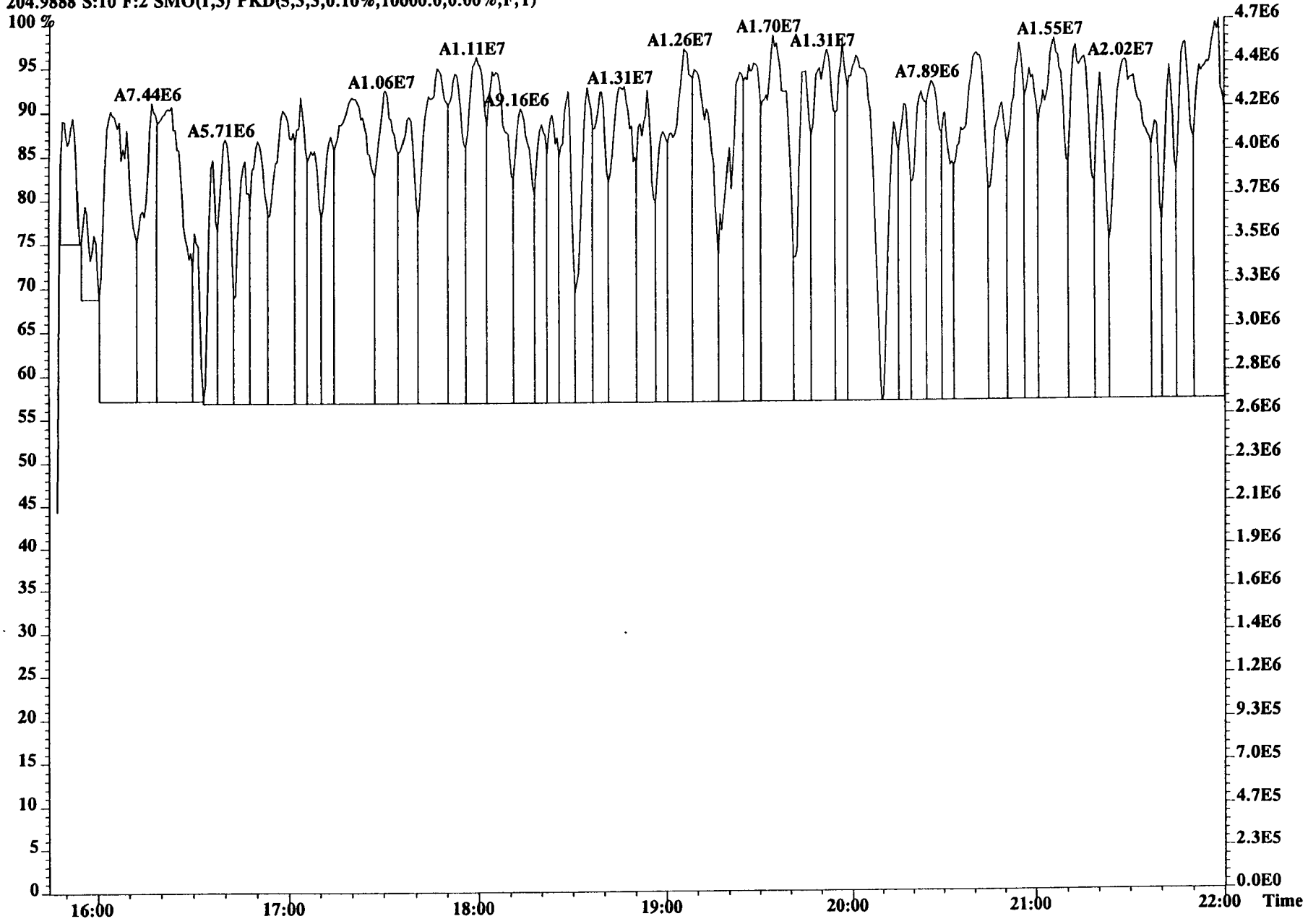
File:24AU98U #1-665 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
178.0782 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



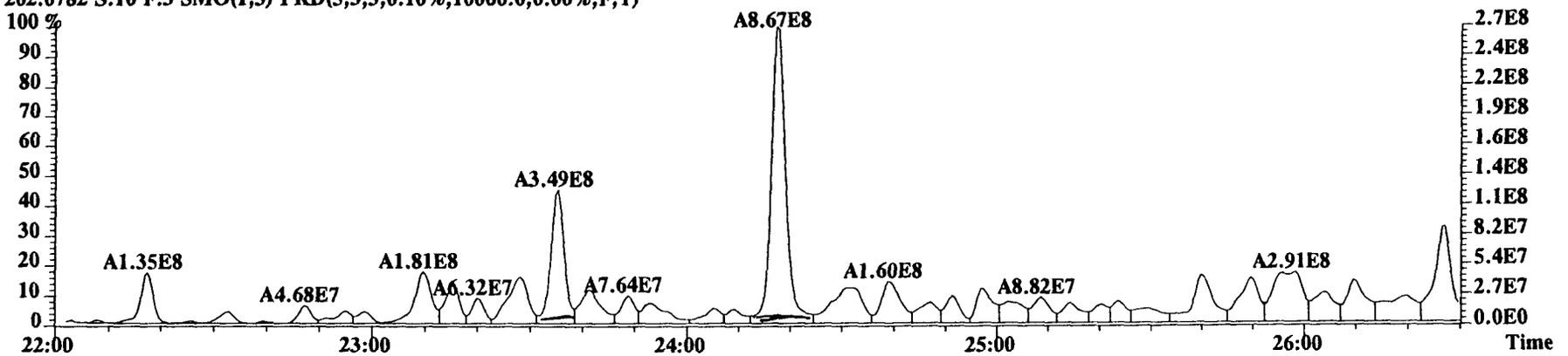
188.1410 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



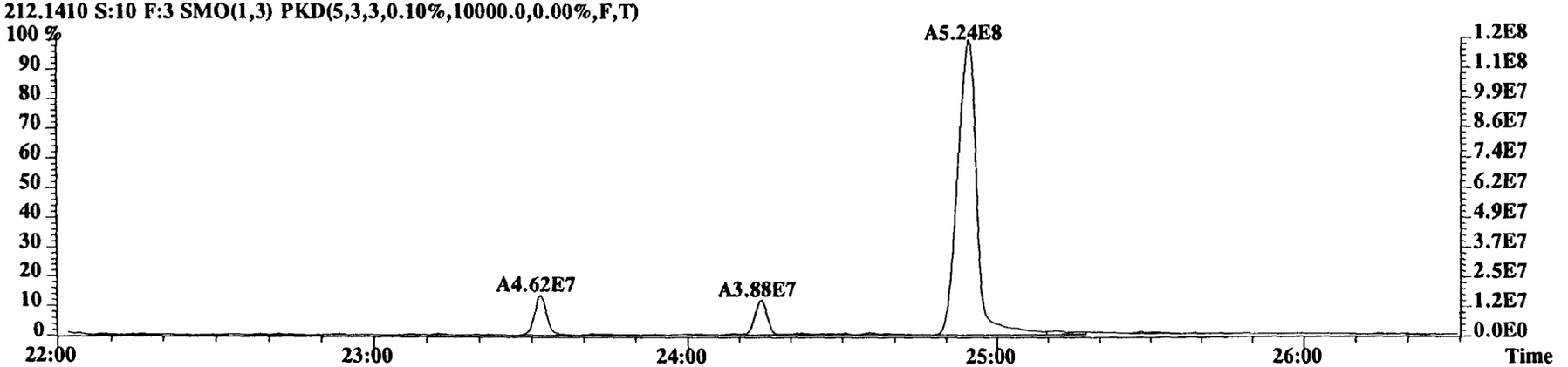
File:24AU98U #1-665 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
204.9888 S:10 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



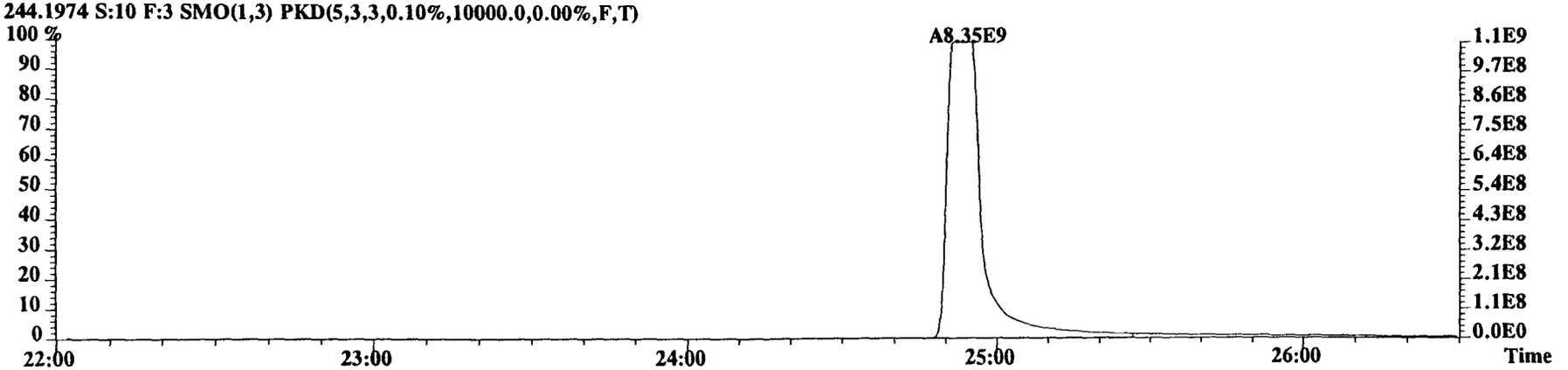
File:24AU98U #1-934 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
202.0782 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



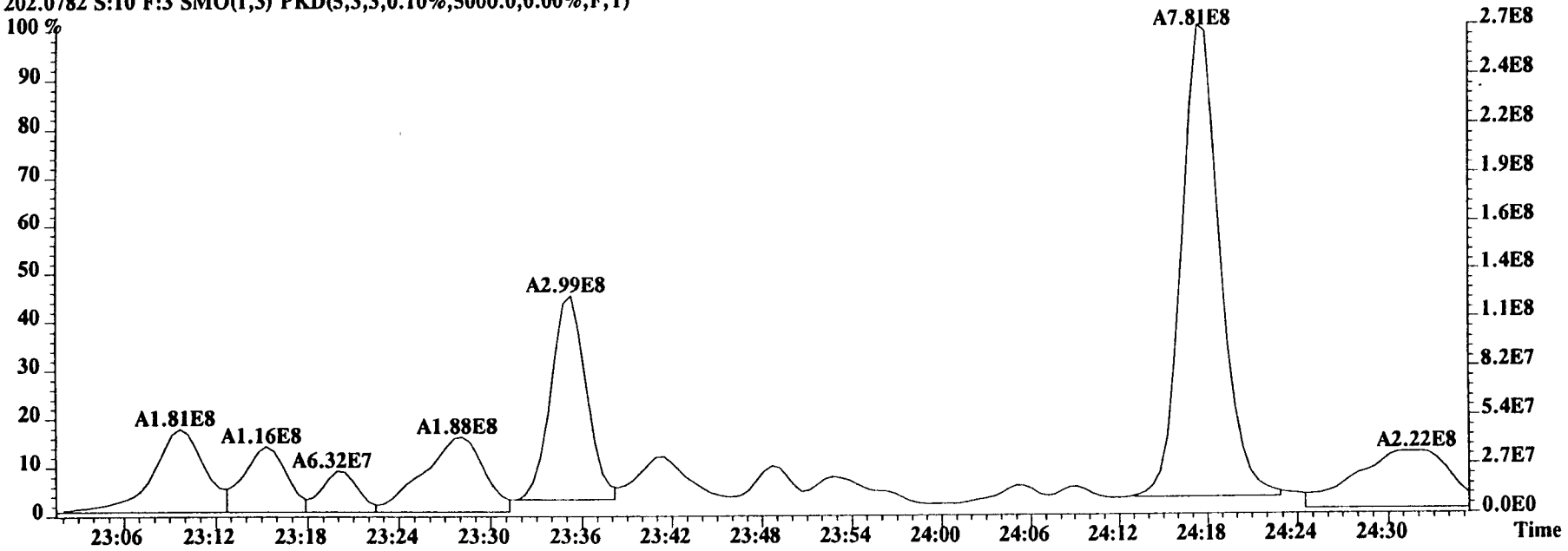
212.1410 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



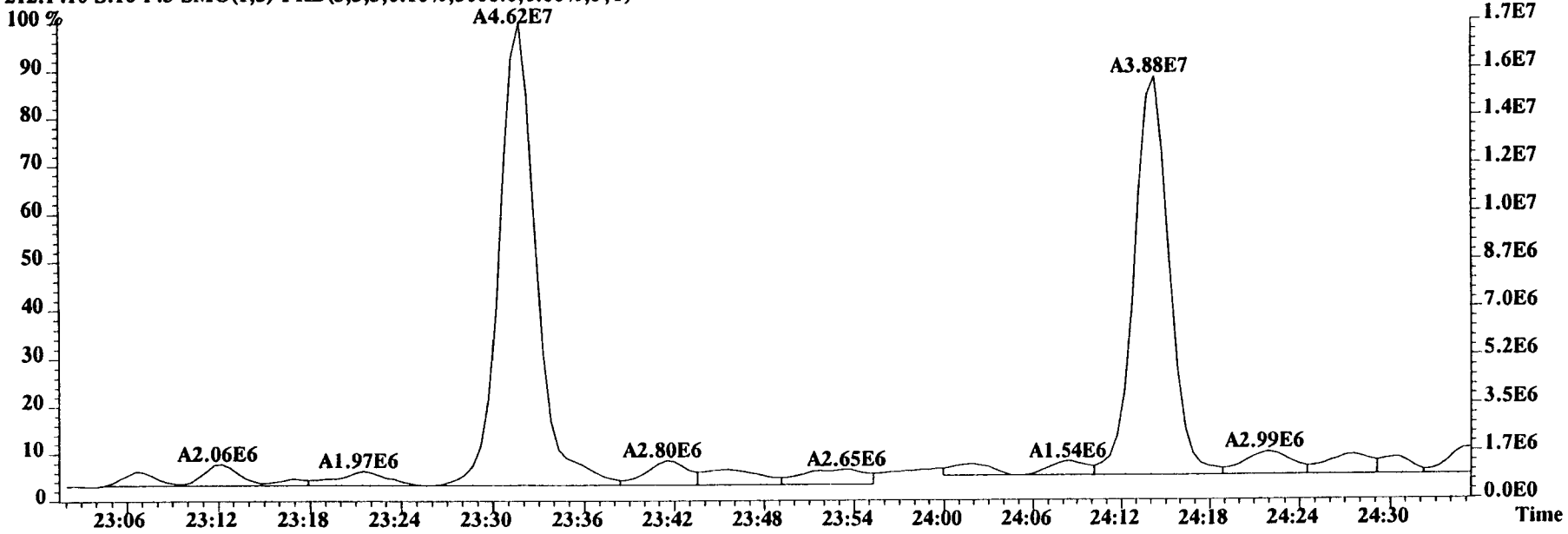
244.1974 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



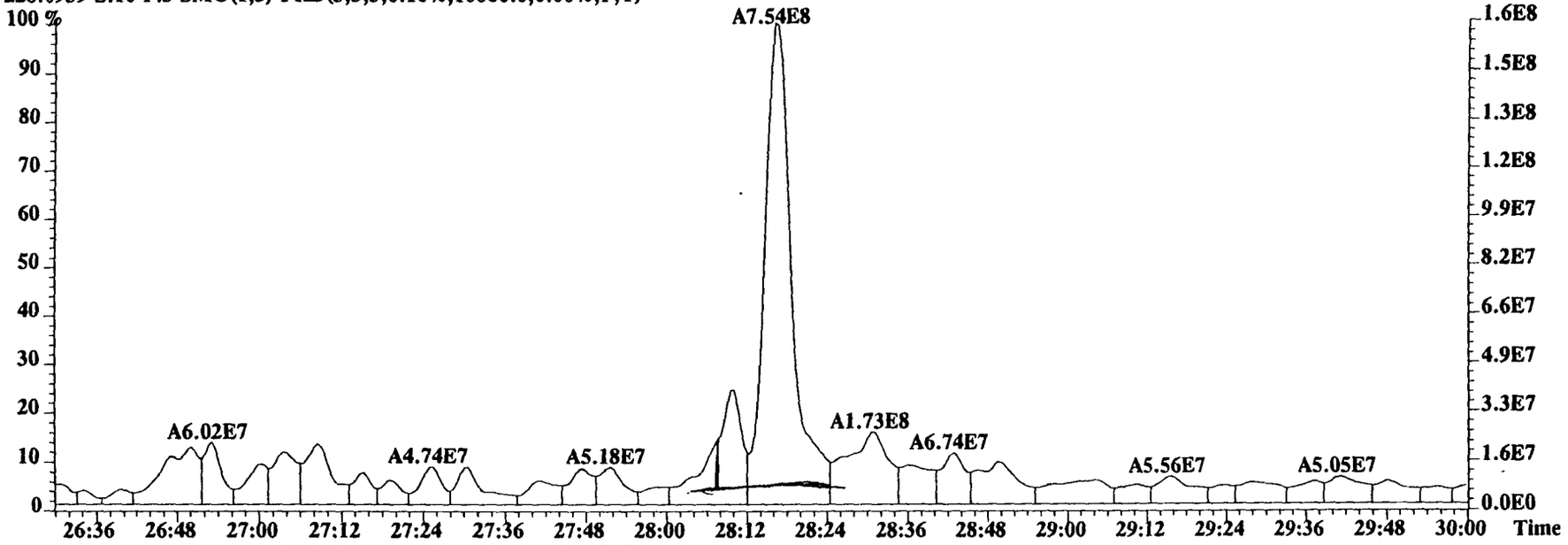
File:24AU98U #1-934 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
202.0782 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



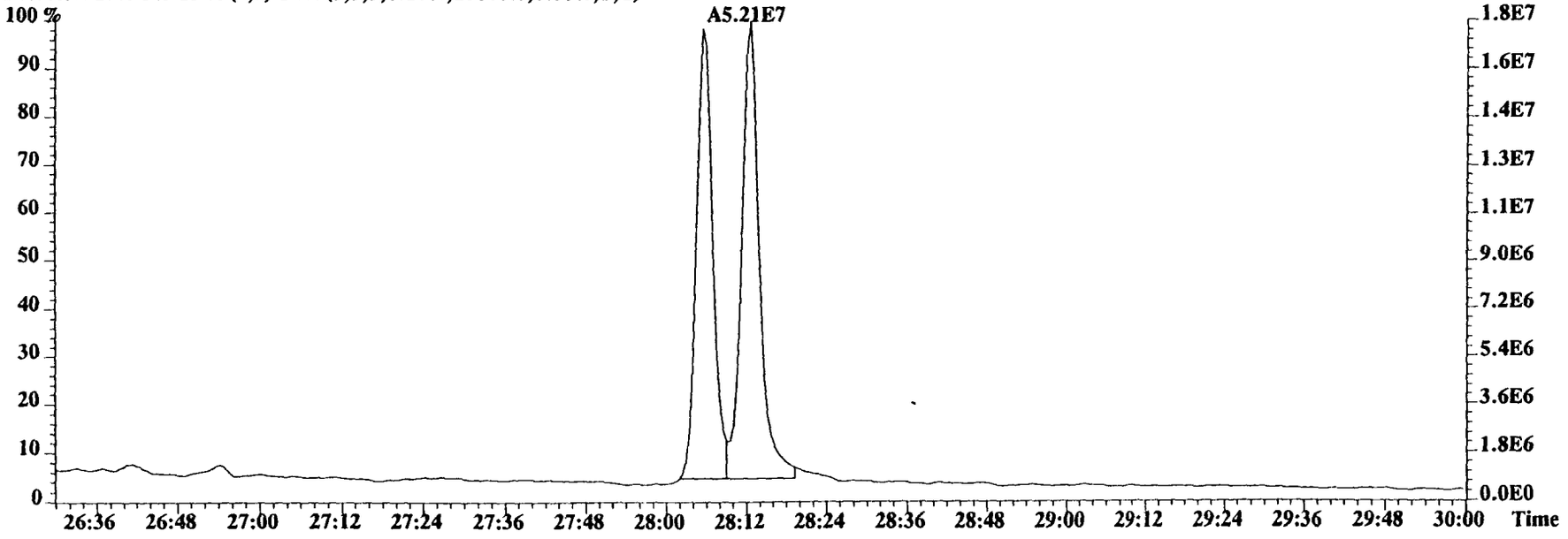
212.1410 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



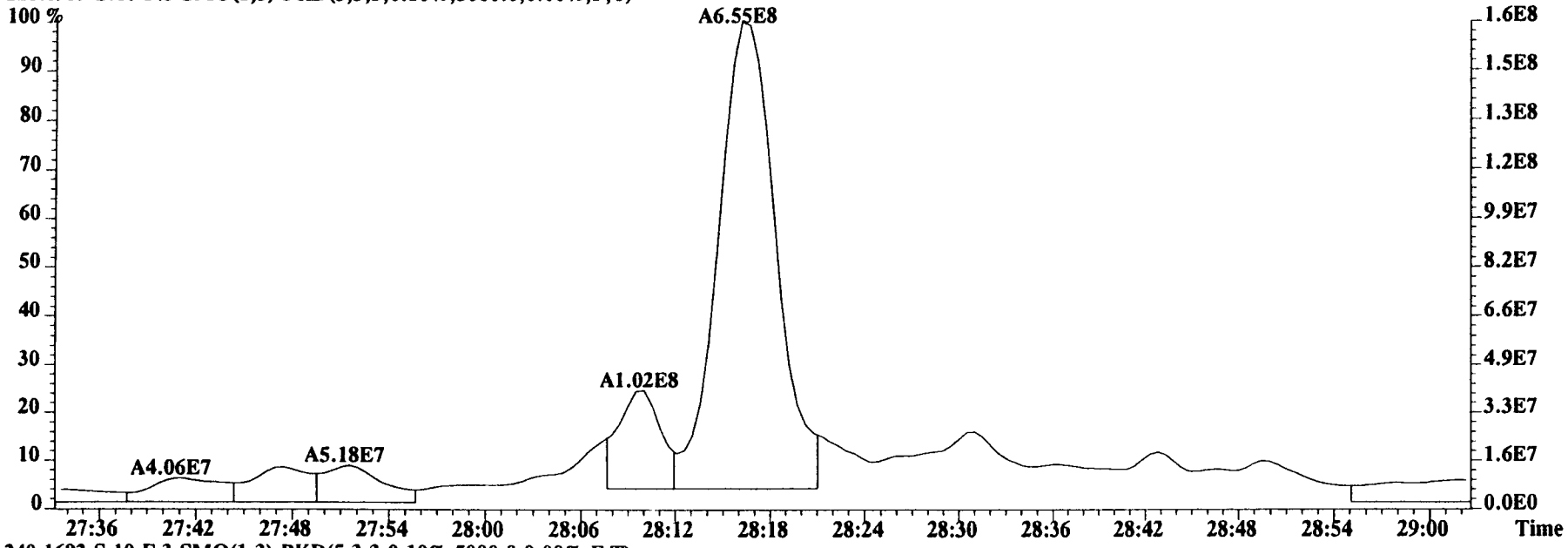
File:24AU98U #1-934 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
228.0939 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



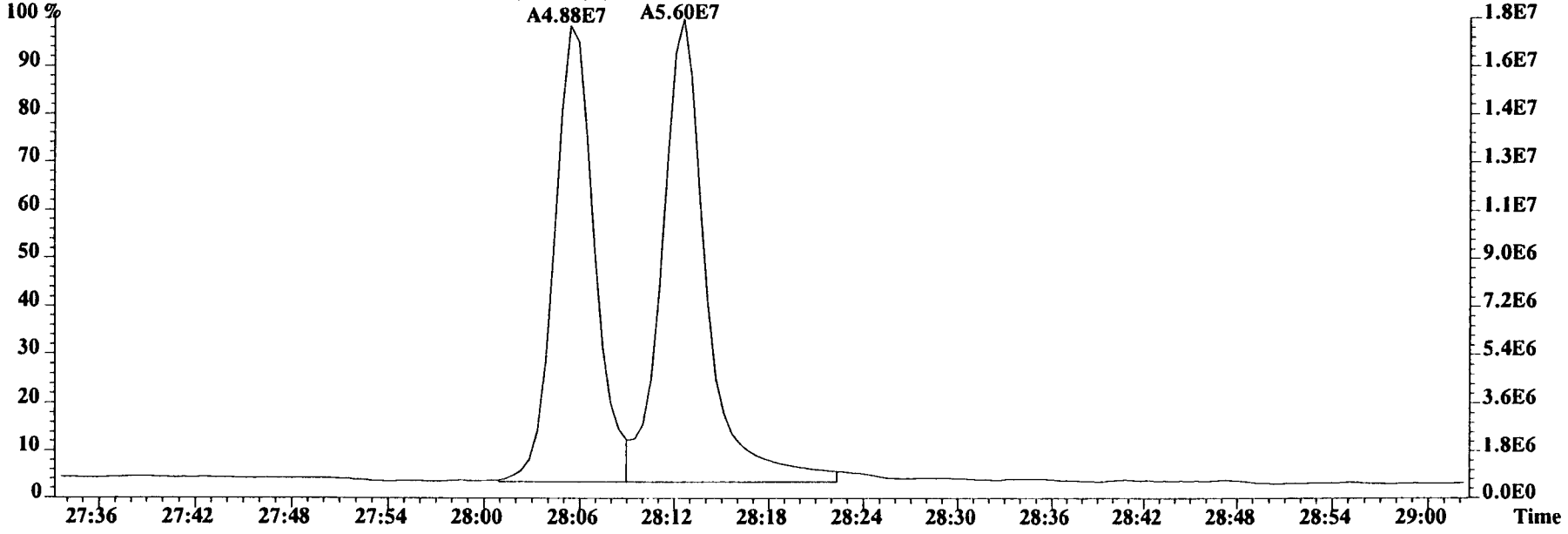
240.1692 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



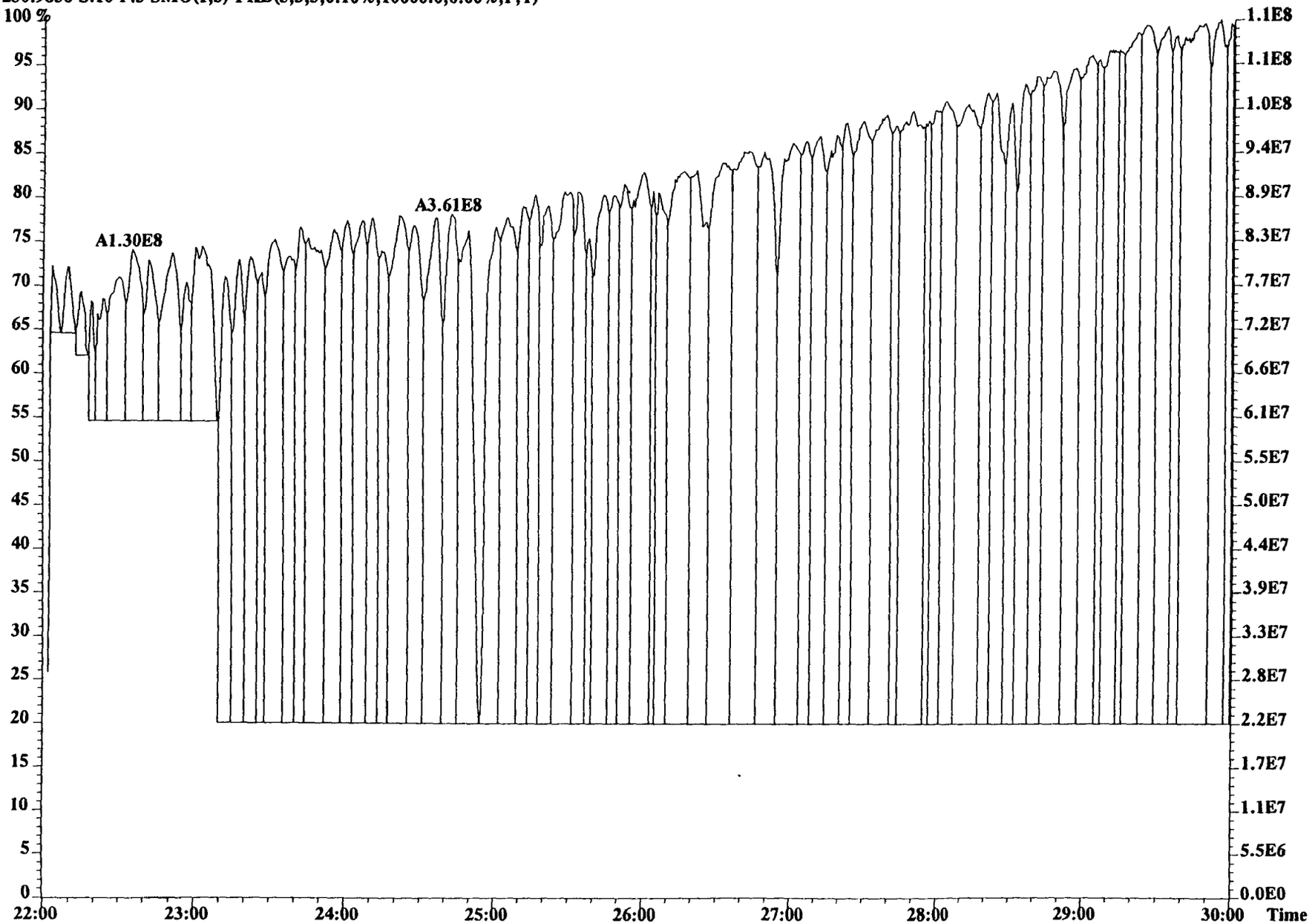
File:24AU98U #1-934 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
228.0939 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



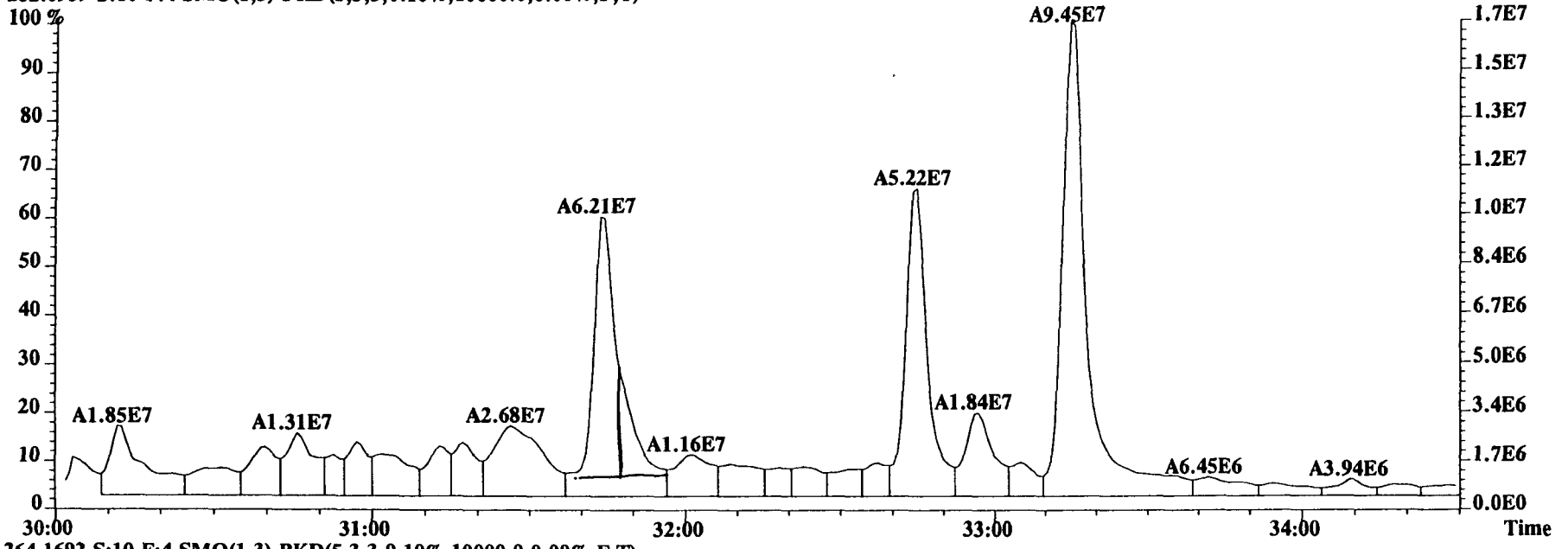
240.1692 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



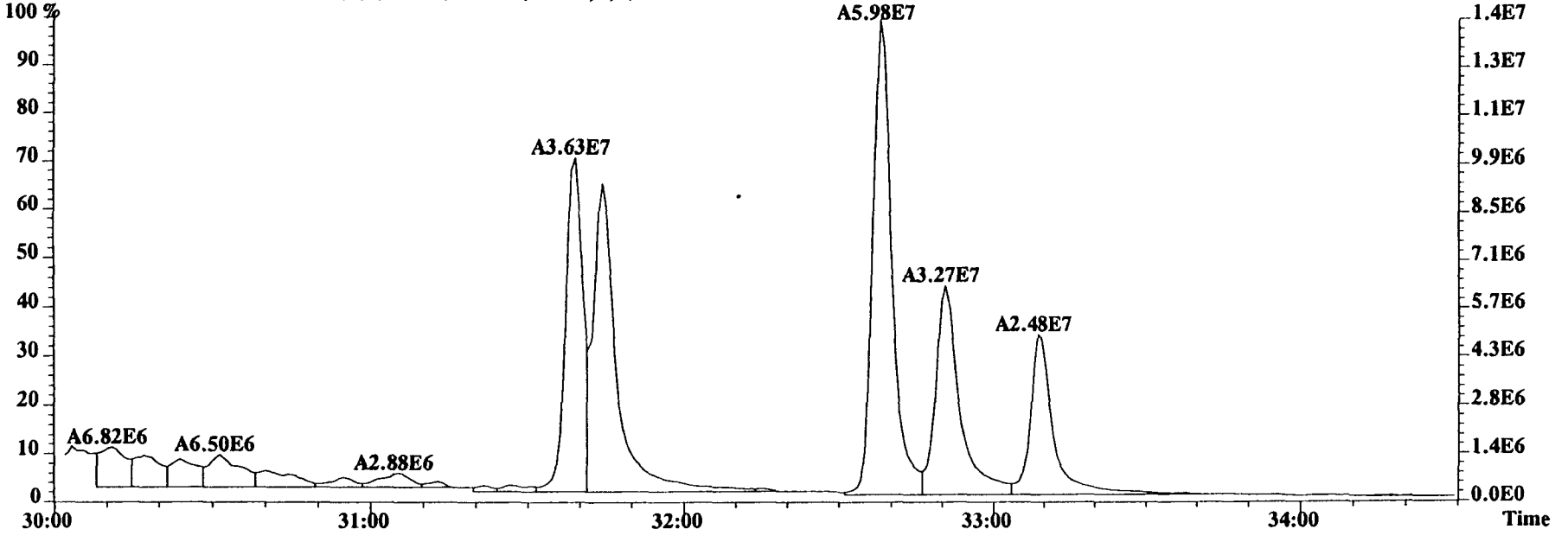
File:24AU98U #1-934 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
230.9856 S:10 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:24AU98U #1-955 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
252.0939 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



264.1692 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



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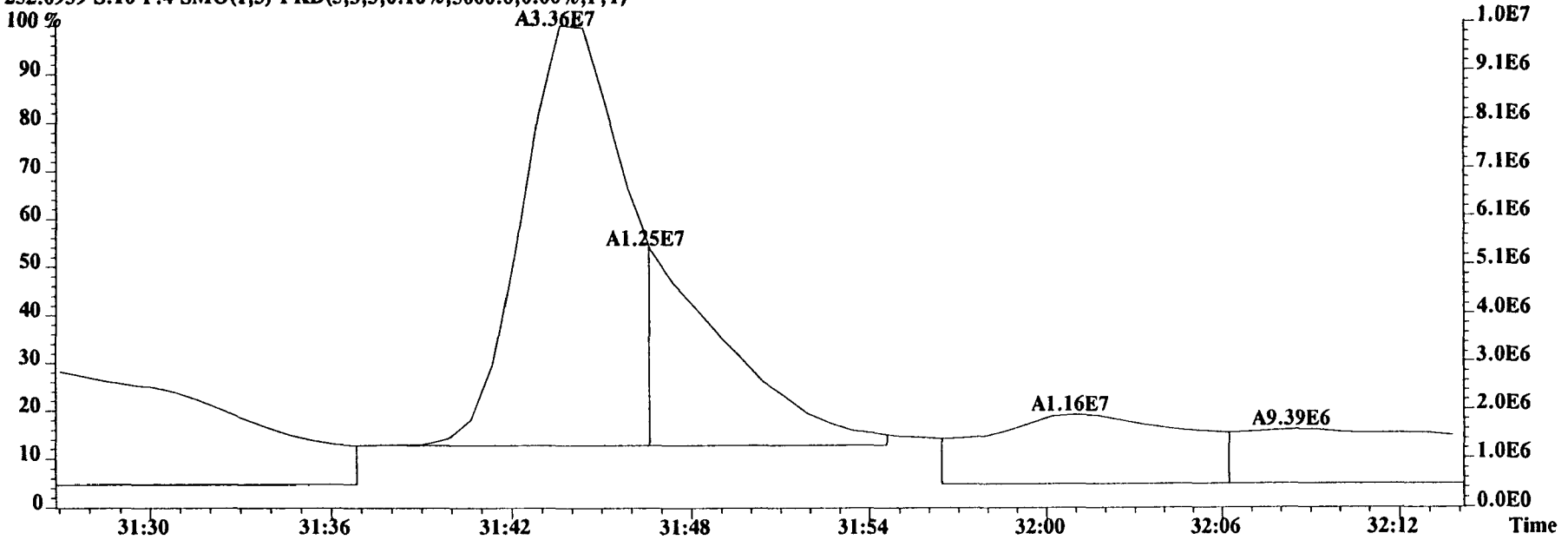
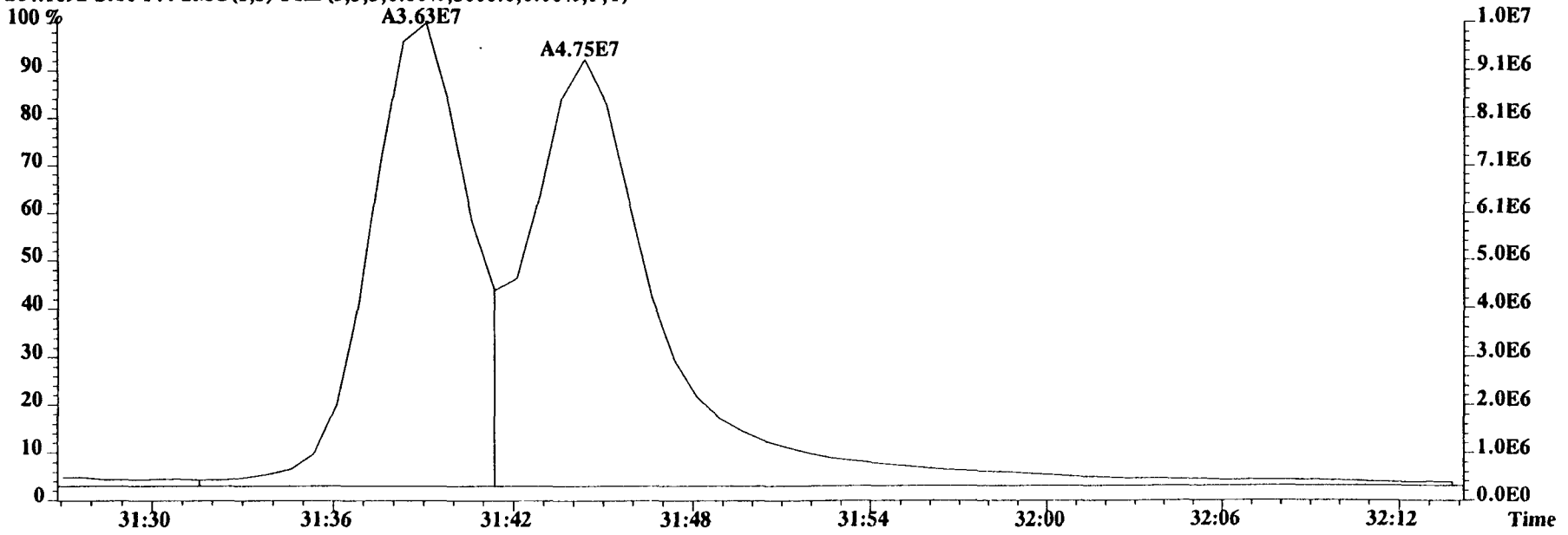
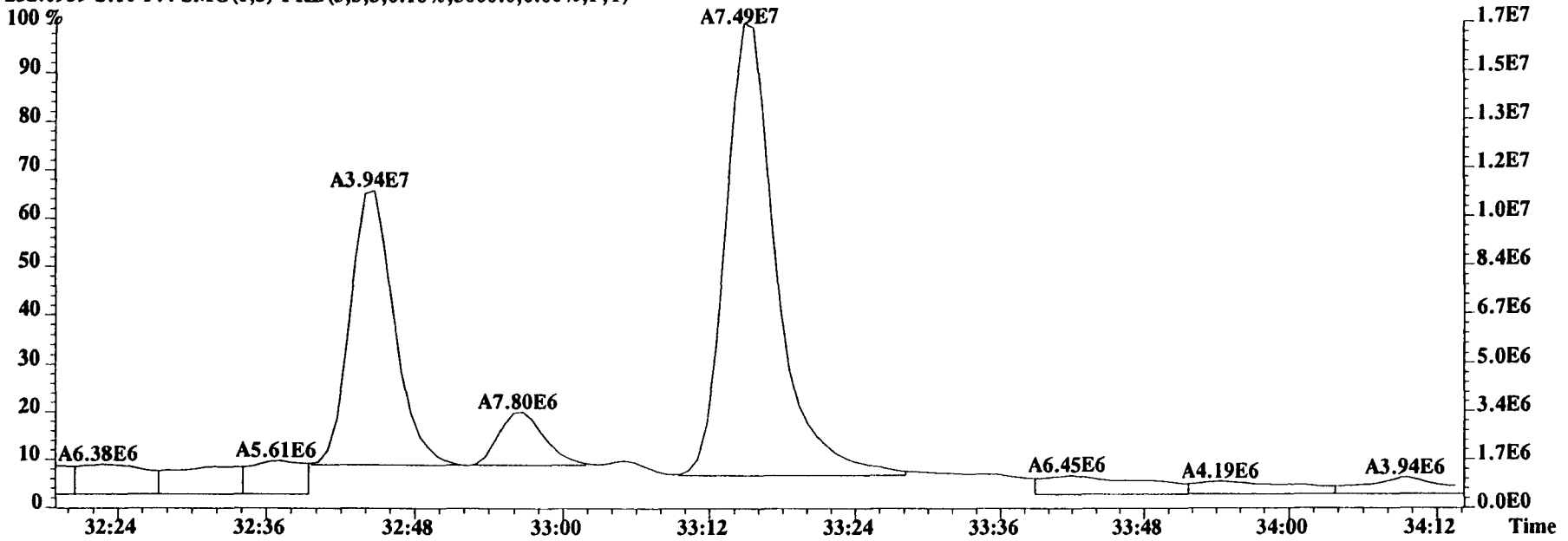
File:24AU98U #1-955 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
252.0939 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



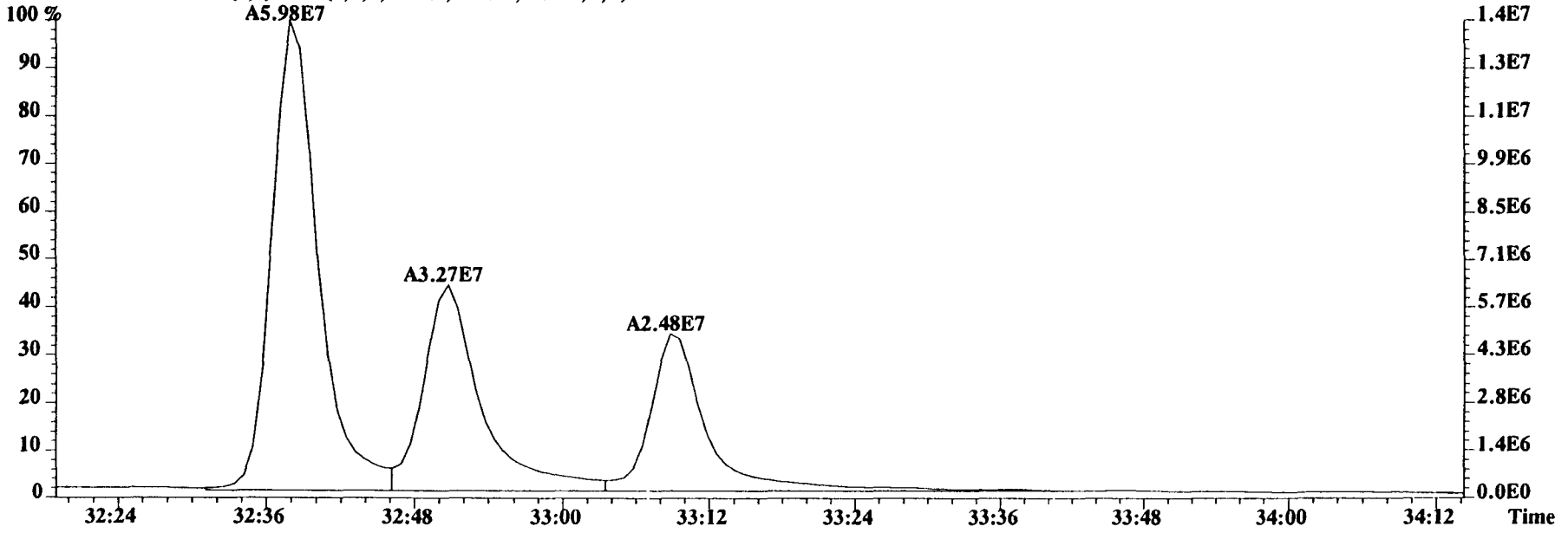
264.1692 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



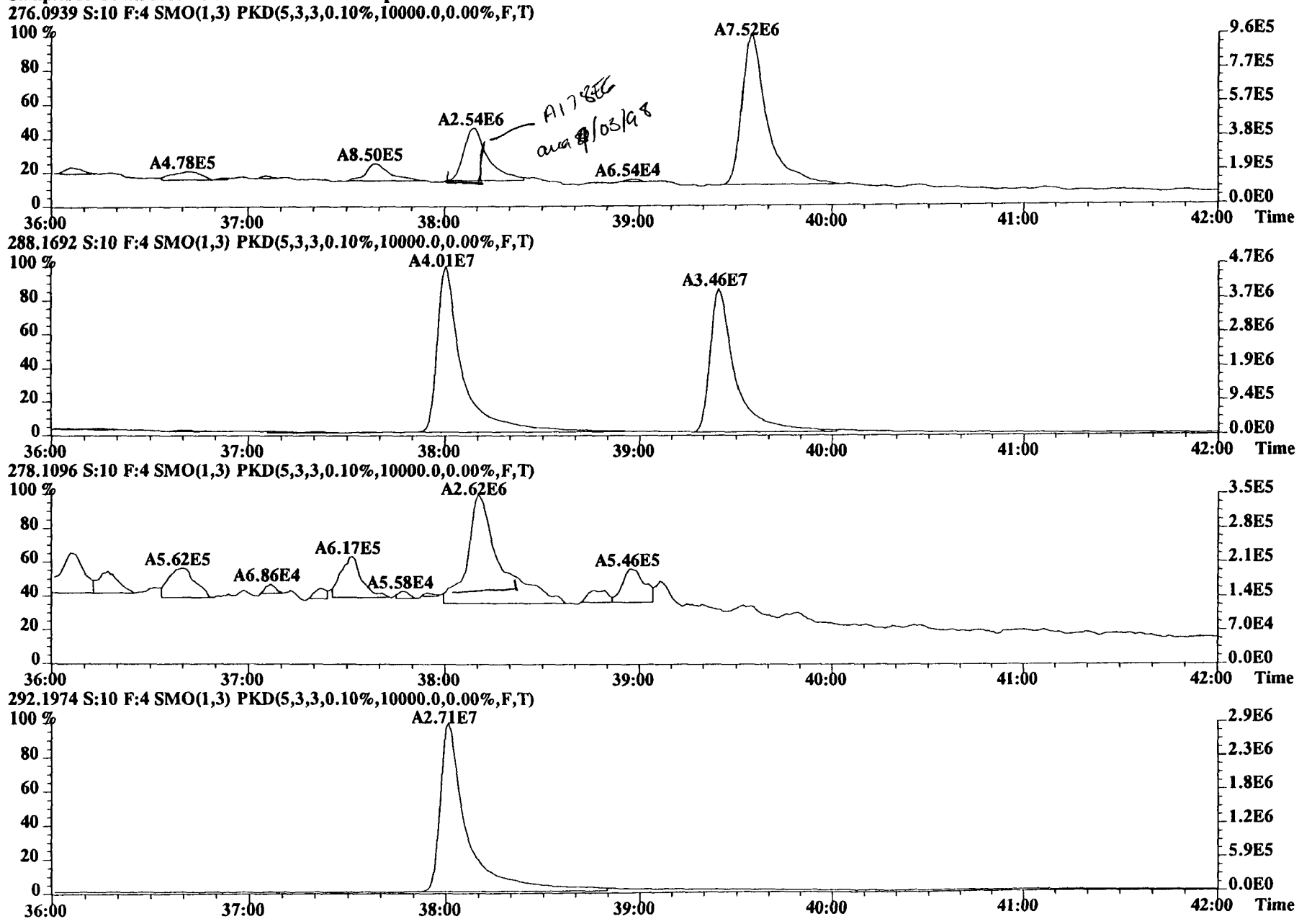
File:24AU98U #1-955 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
252.0939 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



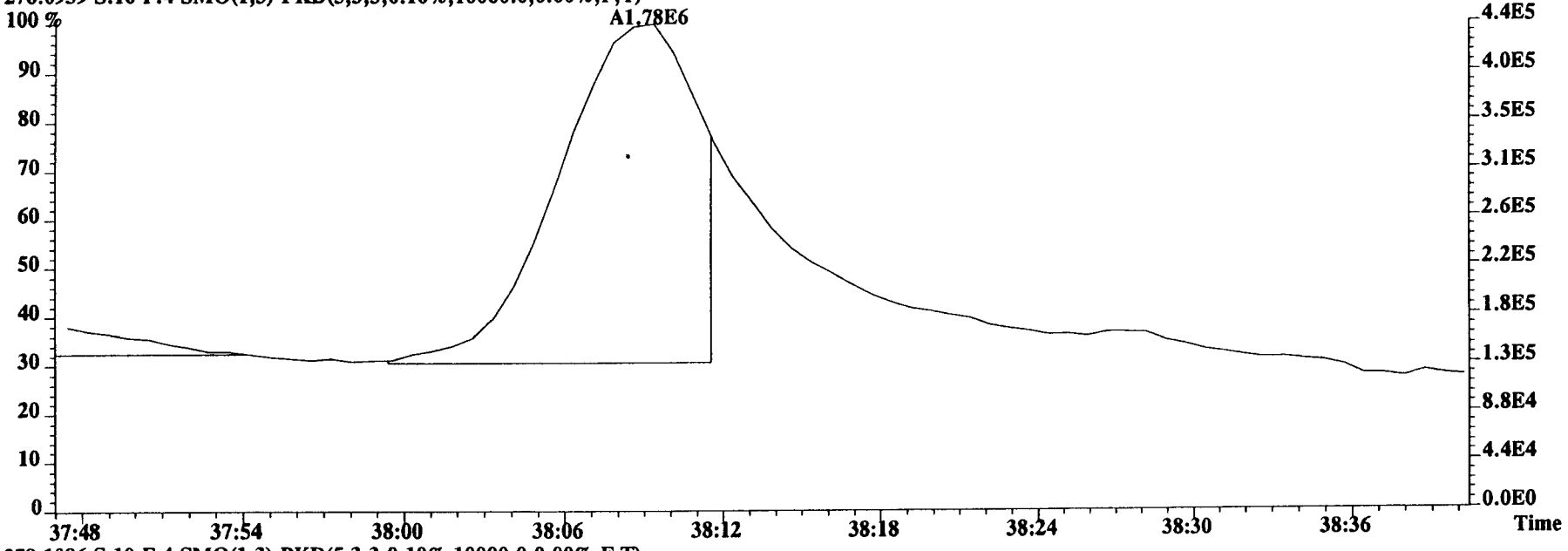
264.1692 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



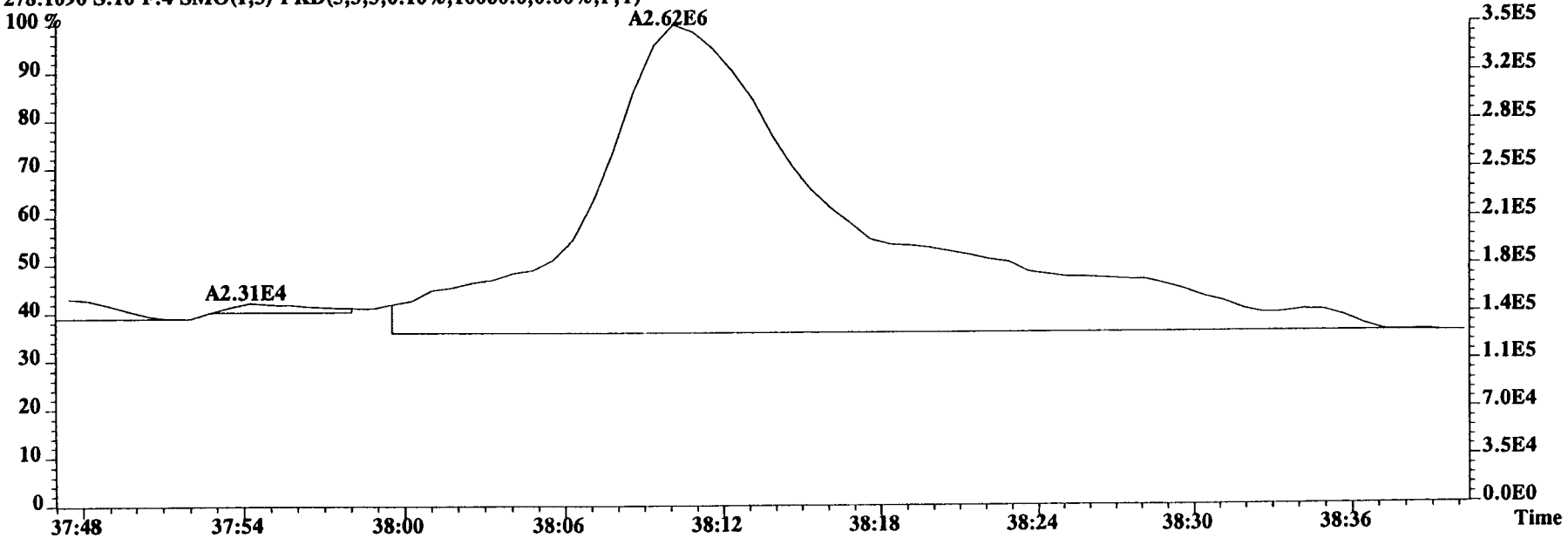
File:24AU98U #1-955 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR



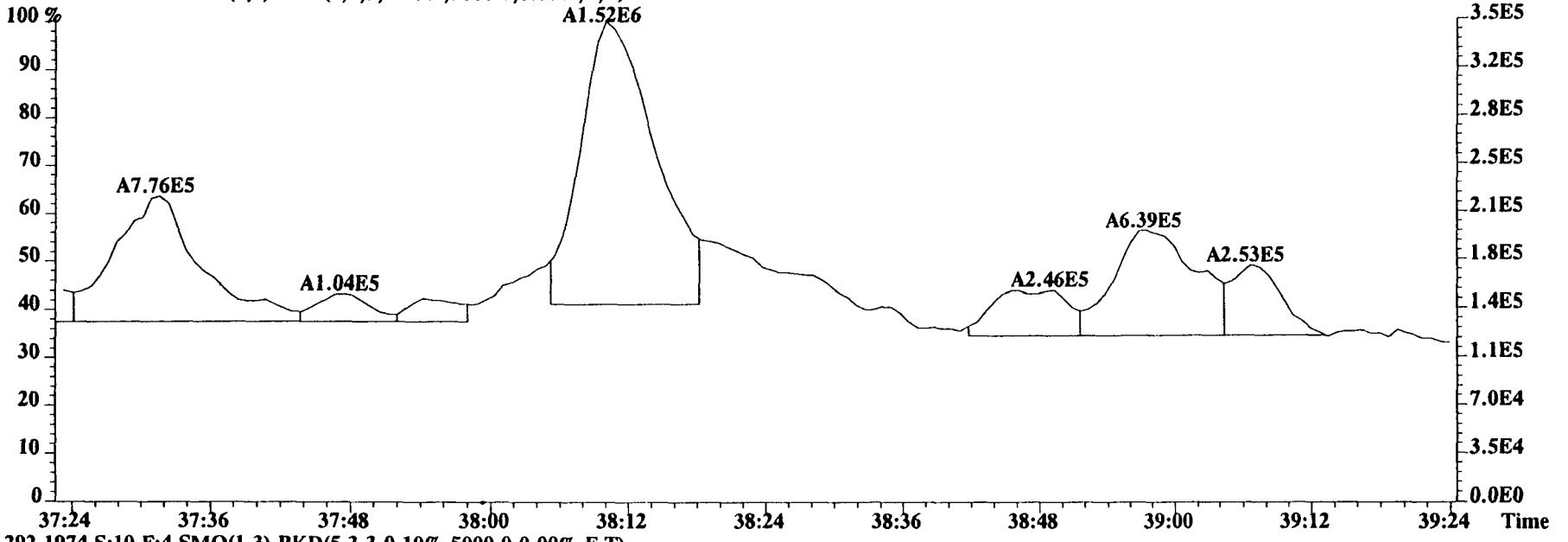
File:24AU98U #1-955 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
276.0939 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



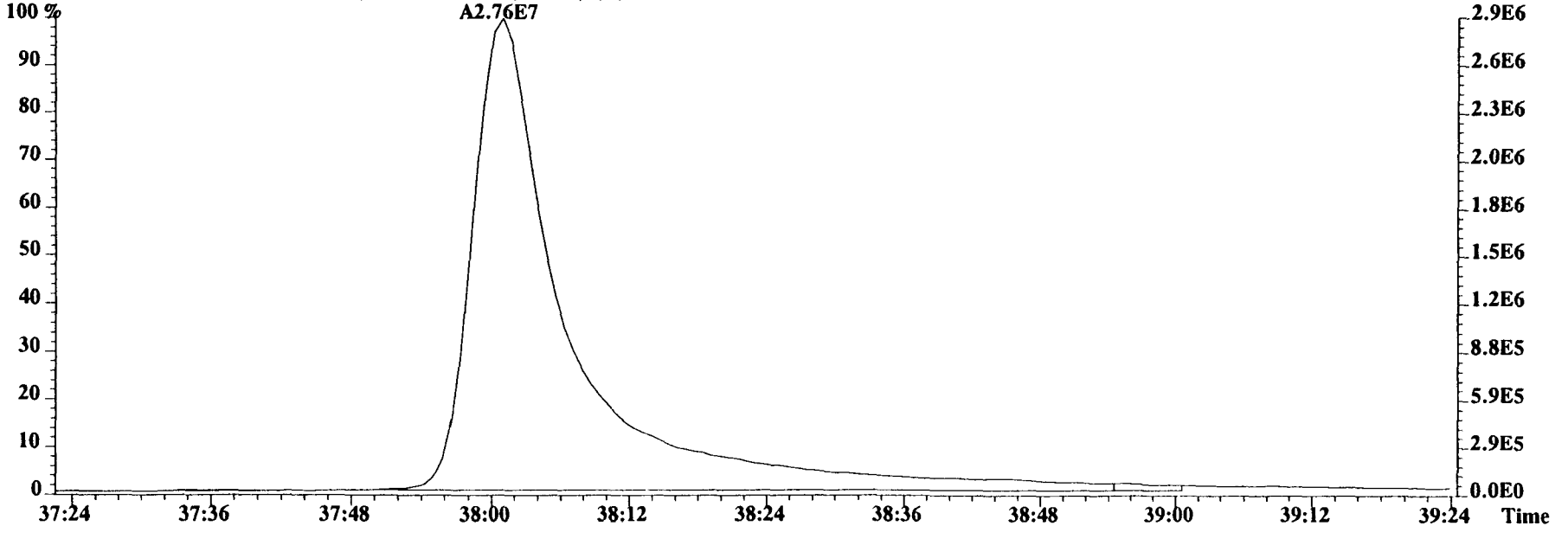
278.1096 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



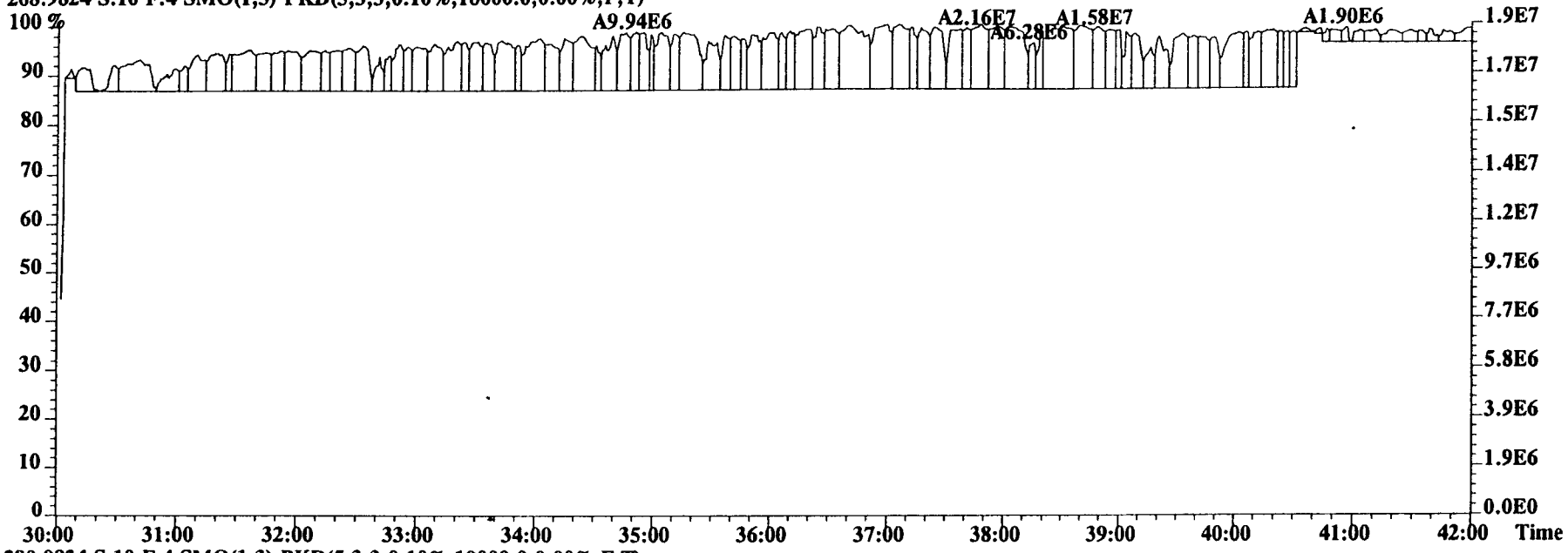
File:24AU98U #1-955 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
278.1096 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



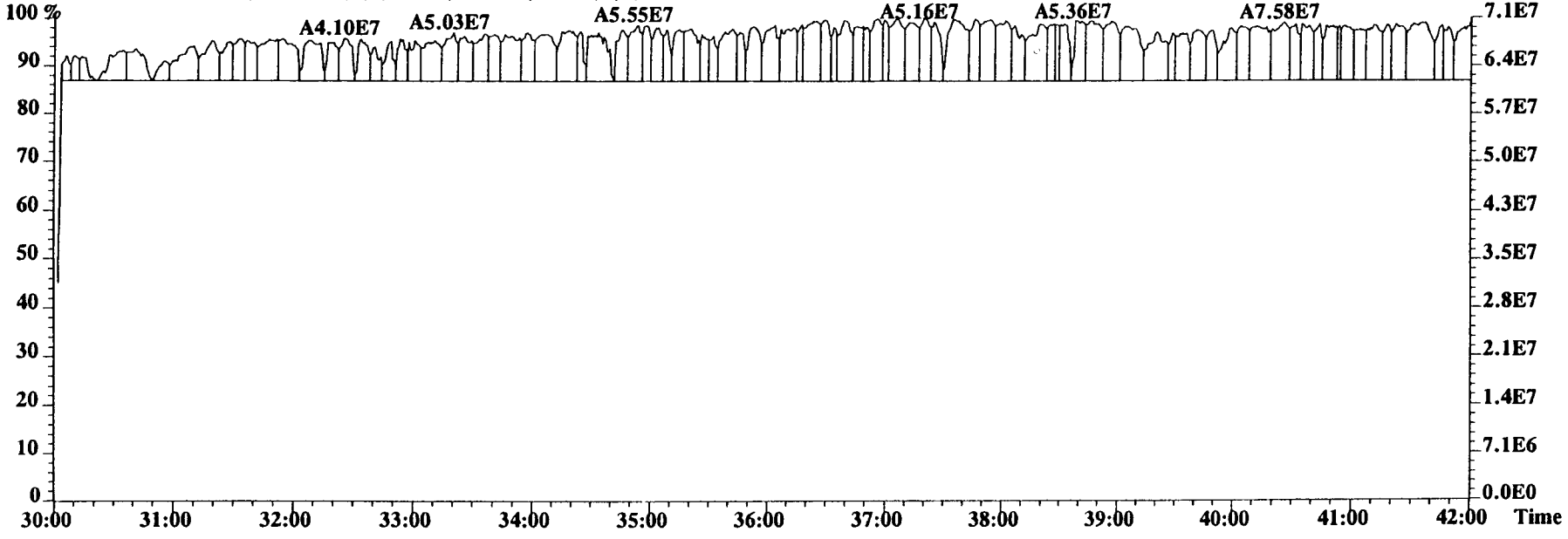
292.1974 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:24AU98U #1-955 Acq:25-AUG-1998 00:34:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#10 Text:300681-6 :T-MM5-3-F :Trai Exp:PAHAIR
268.9824 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:10 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Results : 24AU98U121.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-8 :T-MM5-FB-F :Tra Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	127604400	1.00 Y	11: 8 Y	1.00	50.00	
d8-Naphthalene	96473200	1.00 Y	8: 57 Y	1.25	30.35	61
Naphthalene	276950000	1.00 Y	9: 1 Y	1.05	409.25 B	
2-Methylnaphthalene	243898000	1.00 Y	11: 15 Y	0.77	492.50 B	
d8-Acenaphthylene	152959000	1.00 Y	14: 13 Y	1.55	38.67	77
Acenaphthylene	9800000	1.00 Y	14: 15 Y	0.86	11.14=DL	
d10-Acenaphthene	89953800	1.00 Y	14: 47 Y	0.88	40.17	80
Acenaphthene	83223400	1.00 Y	14: 53 Y	0.93	149.40 B	
d10-Anthracene	106331600	1.00 Y	19: 47 Y	1.00	50.00	
d10-Fluorene	74490000	1.00 Y	16: 28 Y	1.13	31.01	62
Fluorene	220950000	1.00 Y	16: 35 Y	1.05	424.18 B	
d10-Phenanthrene	216098000	1.00 Y	19: 37 Y	2.63	38.65	77
Phenanthrene	1968318000	1.00 Y	19: 42 Y	0.84	1624.04 B	
Anthracene	119800000	1.00 Y	19: 50 Y	0.83	100.40	
d12-Benzo(e)pyrene	201406000	1.00 Y	32: 38 Y	1.00	50.00	
d10-Fluoranthene	183424000	1.00 Y	23: 31 Y	0.80	56.69	113
Fluoranthene	169600000	1.00 Y	23: 35 Y	1.04	133.43 B	
d10-Pyrene	180294600	1.00 Y	24: 14 Y	0.81	55.28	111
Pyrene	464000000	1.00 Y	24: 17 Y	1.11	348.94	
d12-Benzo(a)anthracene	197985600	1.00 Y	28: 5 Y	0.65	75.59	151 m
Benzo(a)anthracene	73800000	1.00 Y	28: 10 Y	1.06	53.04	
d12-Chrysene	213452000	1.00 Y	28: 13 Y	0.85	62.47	125
Chrysene	412000000	1.00 Y	28: 16 Y	0.97	298.38	
d12-Benzo(e)pyrene	201406000	1.00 Y	32: 38 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	133893000	1.00 Y	31: 39 Y	0.63	53.10	106
Benzo(b)fluoranthene	24400000	1.00 Y	31: 44 Y	1.07	25.59	
d12-Benzo(k)fluoranthene	182007200	1.00 Y	31: 44 Y	0.90	50.43	101
Benzo(k)fluoranthene	6280000	1.00 Y	31: 51 Y	1.16	4.48=DL	
d12-Benzo(a)pyrene	140511400	1.00 Y	32: 51 Y	0.75	46.44	93
Benzo(e)pyrene	33600000	1.00 Y	32: 45 Y	1.46	24.52	
Benzo(a)pyrene	7500000	1.00 Y	32: 57 Y	1.02	7.83=DL	
d12-Perylene	111083000	1.00 Y	33: 9 Y	0.61	44.87	90
Perylene	83400000	1.00 Y	33: 16 Y	1.62	69.67	
d12-Indeno(123-cd)pyrene	167561800	1.00 Y	38: 0 Y	0.71	58.87	118
Indeno(123-cd)pyrene	4120000	1.00 Y	38: 2 Y	0.61	6.04=DL	
d14-Dibenz(ah)anthracene	110062000	1.00 Y	38: 1 Y	0.44	61.94	12
Dibenz(ah)anthracene	1930082	1.00 Y	38: 12 Y	1.11	2.37=DL	
d12-Benzo(ghi)perylene	145600000	1.00 Y	39: 19 Y	0.63	57.34	115
Benzo(ghi)perylene	20000000	1.00 Y	39: 28 Y	0.99	20.82	
d8-Naphthalene	96473200	1.00 Y	8: 57 Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00 N	9: 1 N	0.98	0.00	0

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mAT 9-2-98

d10-Fluorene	74490000	1.00	Y	16: 28	Y	1.00	50.00	
13C-Fluorene	52979000	1.00	Y	16: 34	Y	0.76	46.91	94

24AU98U121.RES : PAHX.TRG
Date analyzed : 24-AUG-98 0.333
MM5-FB-F :Tra Ex Cal : PAHX081998U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL		
1.00 Y	11: 8 Y	1.00	50.00		63802200	63802200
1.00 Y	8: 57 Y	1.25	30.35	61	48236600	48236600
1.00 Y	9: 1 Y	1.05	409.25		138475000	138475000
1.00 Y	11: 15 Y	0.77	492.50		121949000	121949000
1.00 Y	14: 13 Y	1.55	38.67	77	76479500	76479500
1.00 Y	14: 15 Y	0.86	11.14=DL		4900000	4900000
1.00 Y	14: 47 Y	0.88	40.17	80	44976900	44976900
1.00 Y	14: 53 Y	0.93	149.40		41611700	41611700
1.00 Y	19: 47 Y	1.00	50.00		53165800	53165800
1.00 Y	16: 28 Y	1.13	31.01	62	37245000	37245000
1.00 Y	16: 35 Y	1.05	424.18		110475000	110475000
1.00 Y	19: 37 Y	2.63	38.65	77	108049000	108049000
1.00 Y	19: 42 Y	0.84	1624.04		984159000	984159000
1.00 Y	19: 50 Y	0.83	100.40		59900000	59900000
1.00 Y	32: 38 Y	1.00	50.00		100703000	100703000
1.00 Y	23: 31 Y	0.80	56.69	113	91712000	91712000
1.00 Y	23: 35 Y	1.04	133.43		84800000	84800000
1.00 Y	24: 14 Y	0.81	55.28	111	90147300	90147300
1.00 Y	24: 17 Y	1.11	348.94		232000000	232000000
1.00 Y	28: 5 Y	0.65	75.59	151	98992800	98992800
1.00 Y	28: 10 Y	1.06	53.04		36900000	36900000
1.00 Y	28: 13 Y	0.85	62.47	125	106726000	106726000
1.00 Y	28: 16 Y	0.97	298.38		206000000	206000000
1.00 Y	32: 38 Y	1.00	50.00		100703000	100703000
1.00 Y	31: 39 Y	0.63	53.10	106	66946500	66946500
1.00 Y	31: 44 Y	1.07	25.59		12200000	12200000
1.00 Y	31: 44 Y	0.90	50.43	101	91003600	91003600
1.00 Y	31: 51 Y	1.16	4.48=DL		3140000	3140000
1.00 Y	32: 51 Y	0.75	46.44	93	70255700	70255700
1.00 Y	32: 45 Y	1.46	24.52		16800000	16800000
1.00 Y	32: 57 Y	1.02	7.83=DL		3750000	3750000
1.00 Y	33: 9 Y	0.61	44.87	90	55541500	55541500
1.00 Y	33: 16 Y	1.62	69.67		41700000	41700000
1.00 Y	38: 0 Y	0.71	58.87	118	83780900	83780900
1.00 Y	38: 2 Y	0.61	6.04=DL		2060000	2060000
1.00 Y	38: 1 Y	0.44	61.94	124	55031000	55031000
1.00 Y	38: 12 Y	1.11	2.37=DL		965041	965041
1.00 Y	39: 19 Y	0.63	57.34	115	72800000	72800000
1.00 Y	39: 28 Y	0.99	20.82		10000000	10000000
1.00 Y	8: 57 Y	1.00	50.00		48236600	48236600
0.00 N	9: 1 N	0.98	0.00	0	0	0

02-SEP-1998 07:30:49 PM Dioxin Furan Unknown RESULTS

1.00	Y	16: 28	Y	1.00	50.00		37245000	37245000
1.00	Y	16: 34	Y	0.76	46.91	94	26489500	26489500

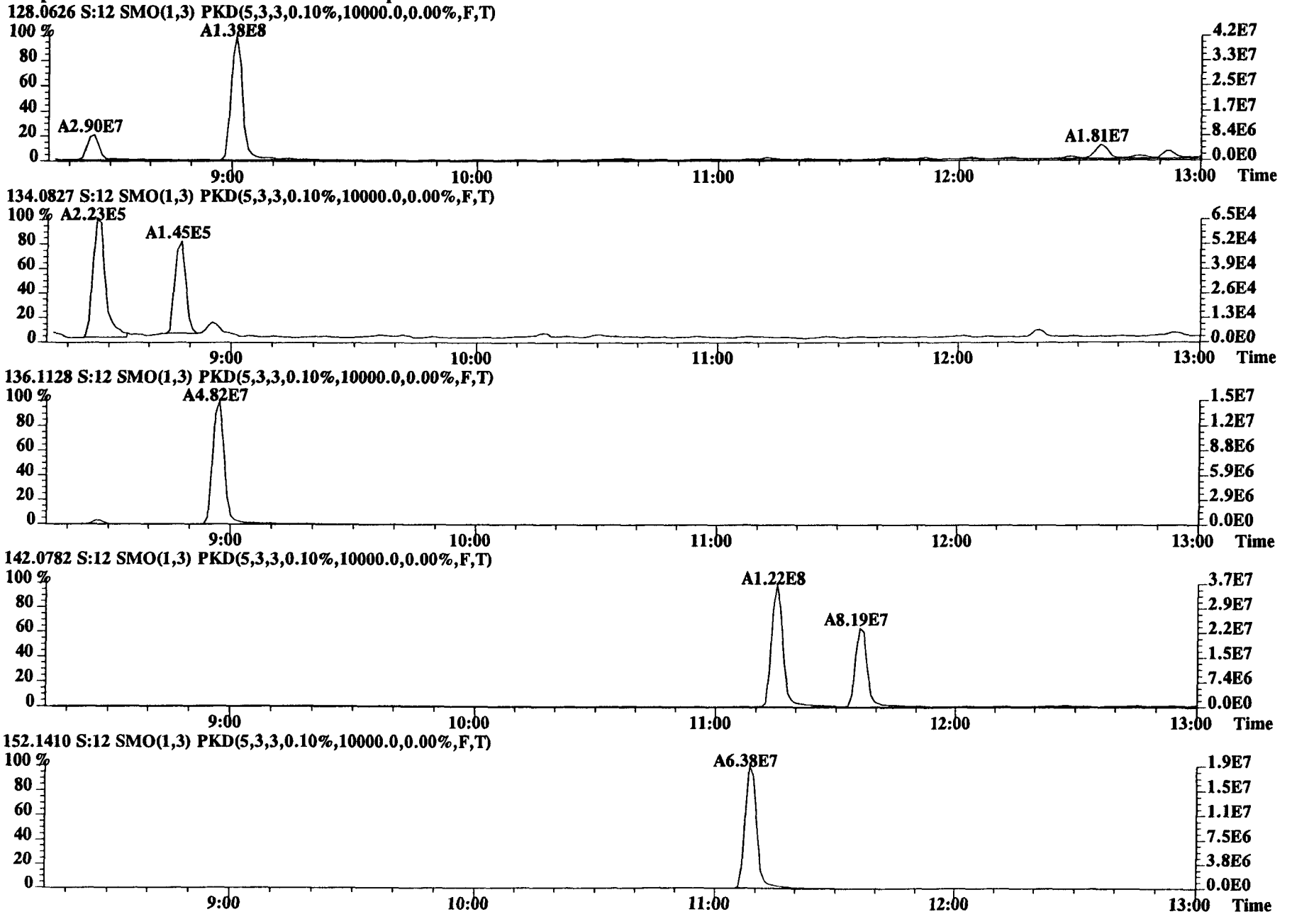
Mass Spec : ULTIMA Results : 24AU98U121.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-8 :T-MM5-FB-F :Tra Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	127604400	1.00	Y	11: 8	Y	1.00	50.00	
d8-Naphthalene	96473200	1.00	Y	8: 57	Y	1.25	30.35	61
Naphthalene	276950000	1.00	Y	9: 1	Y	1.05	409.25	0.000
2-Methylnaphthalene	243898000	1.00	Y	11: 15	Y	0.77	492.50	0.000
d8-Acenaphthylene	152959000	1.00	Y	14: 13	Y	1.55	38.67	77
Acenaphthylene	19471860	1.00	Y	14: 15	Y	0.86	22.14	0.000
d10-Acenaphthene	89953800	1.00	Y	14: 47	Y	0.88	40.17	80
Acenaphthene	83223400	1.00	Y	14: 53	Y	0.93	149.40	0.000
d10-Anthracene	106331600	1.00	Y	19: 47	Y	1.00	50.00	
d10-Fluorene	74490000	1.00	Y	16: 28	Y	1.13	31.01	62
Fluorene	220950000	1.00	Y	16: 35	Y	1.05	424.18	0.000
d10-Phenanthrene	216098000	1.00	Y	19: 37	Y	2.63	38.65	77
Phenanthrene	1968318000	1.00	Y	19: 42	Y	0.84	1624.04	0.000
Anthracene	* No Peak	0.00	N	19: 50	N	0.83	0.00	0.000
d12-Benzo(e)pyrene	201406000	1.00	Y	32: 38	Y	1.00	50.00	
d10-Fluoranthene	183424000	1.00	Y	23: 31	Y	0.80	56.69	113
Fluoranthene	195685400	1.00	Y	23: 35	Y	1.04	153.96	0.000
d10-Pyrene	180294600	1.00	Y	24: 14	Y	0.81	55.28	111
Pyrene	553542000	1.00	Y	24: 17	Y	1.11	416.28	0.000
d12-Benzo(a)anthracene	197985600	1.00	Y	28: 5	Y	0.65	75.59	151
Benzo(a)anthracene	170168000	1.00	Y	28: 10	Y	1.06	122.30	0.000
d12-Chrysene	213452000	1.00	Y	28: 13	Y	0.85	62.47	125
Chrysene	521800000	1.00	Y	28: 16	Y	0.97	377.90	0.000
d12-Benzo(e)pyrene	201406000	1.00	Y	32: 38	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	133893000	1.00	Y	31: 39	Y	0.63	53.10	106
Benzo(b)fluoranthene	45782600	1.00	Y	31: 44	Y	1.07	48.02	0.000
d12-Benzo(k)fluoranthene	182007200	1.00	Y	31: 44	Y	0.90	50.43	101
Benzo(k)fluoranthene	45782600	1.00	Y	31: 44	Y	1.16	32.69	0.000
d12-Benzo(a)pyrene	140511400	1.00	Y	32: 51	Y	0.75	46.44	93
Benzo(e)pyrene	44698200	1.00	Y	32: 45	Y	1.46	32.62	0.000
Benzo(a)pyrene	15387420	1.00	Y	32: 57	Y	1.02	16.06	0.000
d12-Perylene	111083000	1.00	Y	33: 9	Y	0.61	44.87	90
Perylene	100512800	1.00	Y	33: 16	Y	1.62	83.96	0.000
d12-Indeno(123-cd)pyrene	167561800	1.00	Y	38: 0	Y	0.71	58.87	118
Indeno(123-cd)pyrene	* No Peak	0.00	N	38: 2	N	0.61	0.00	0.000
d14-Dibenz(ah)anthracene	110062000	1.00	Y	38: 1	Y	0.44	61.94	124
Dibenz(ah)anthracene	1930082	1.00	Y	38: 12	Y	1.11	2.37	0.000
d12-Benzo(ghi)perylene	* No Peak	0.00	N	39: 19	N	0.63	0.00	0
Benzo(ghi)perylene	* No Peak	0.00	N	39: 28	N	0.99	*NoINoIs	
d8-Naphthalene	96473200	1.00	Y	8: 57	Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00	N	9: 1	N	0.98	0.00	0

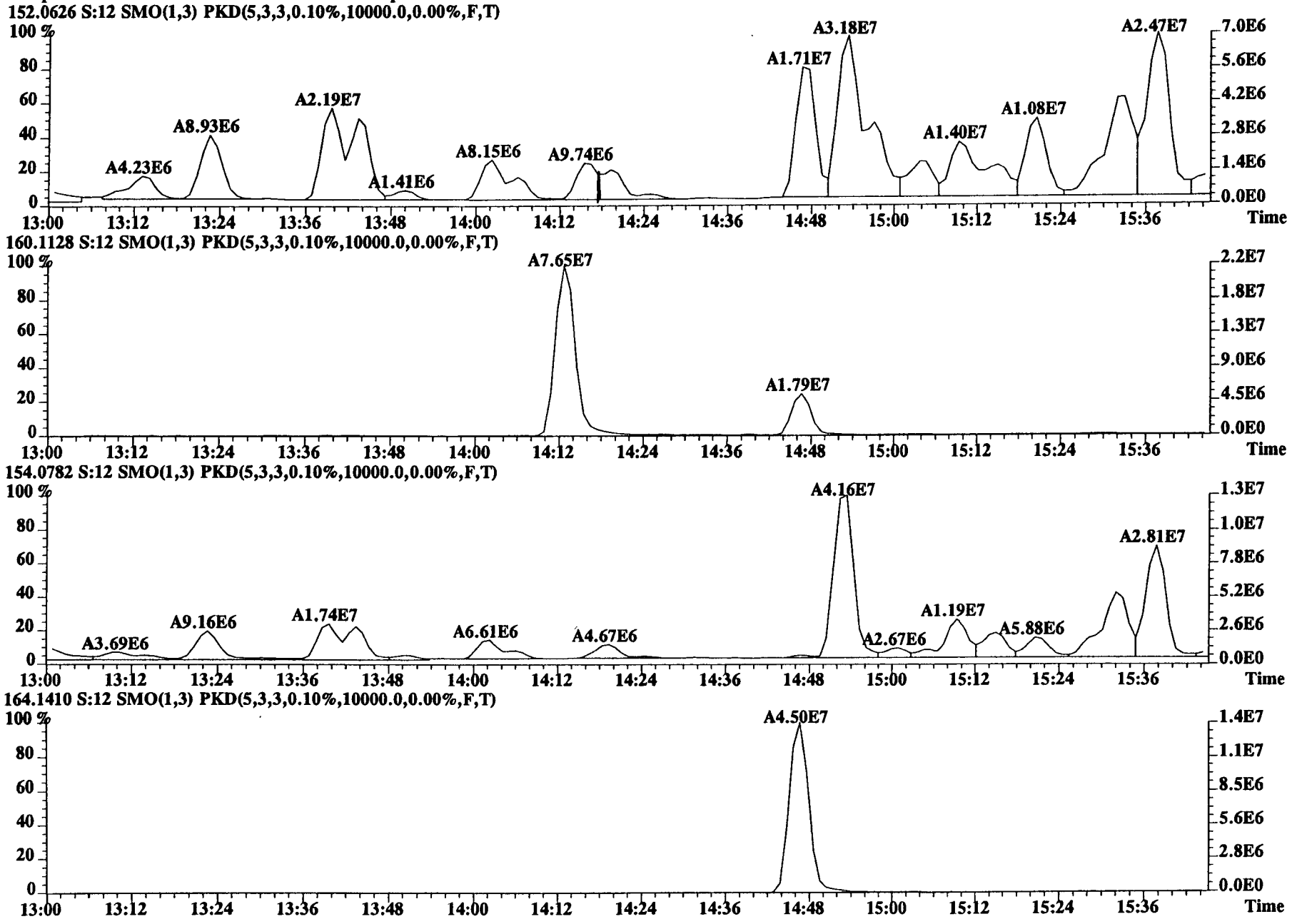
25-AUG-1998 09:34:36 AM PAH Unknown RESULTS

d10-Fluorene	74490000	1.00	Y	16: 28	Y	1.00	50.00	
13C-Fluorene	52979000	1.00	Y	16: 34	Y	0.76	46.91	94

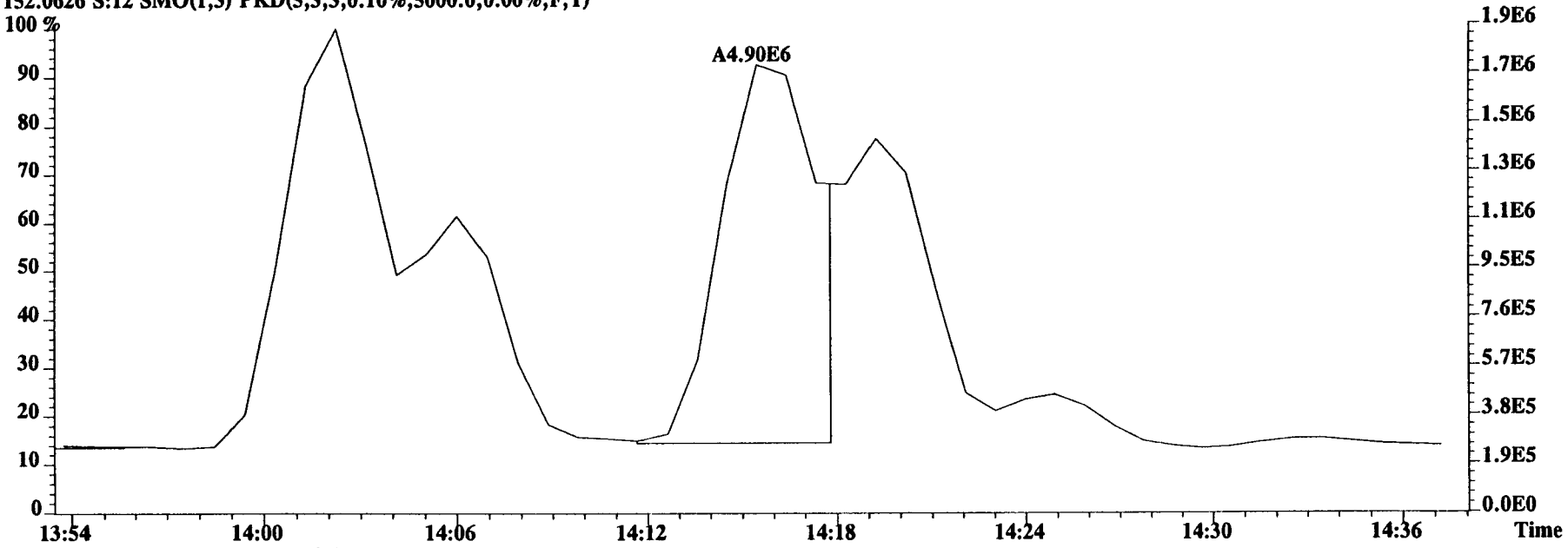
File:24AU98U #1-476 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR



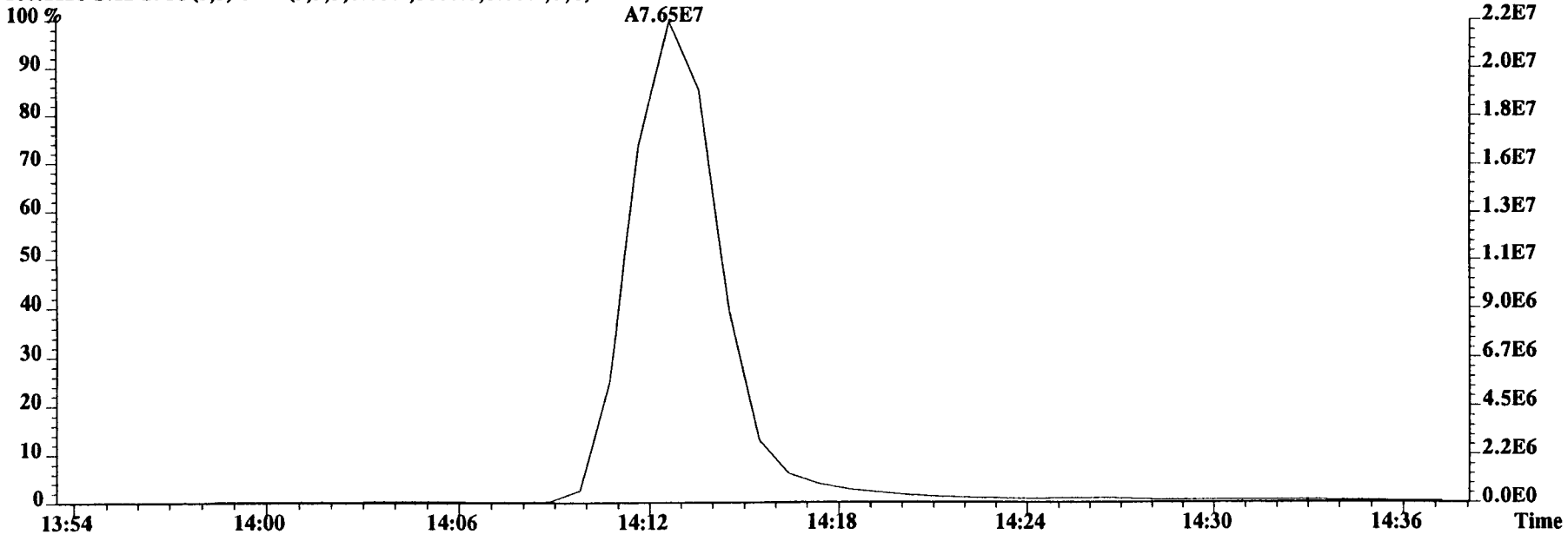
File:24AU98U #1-476 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR



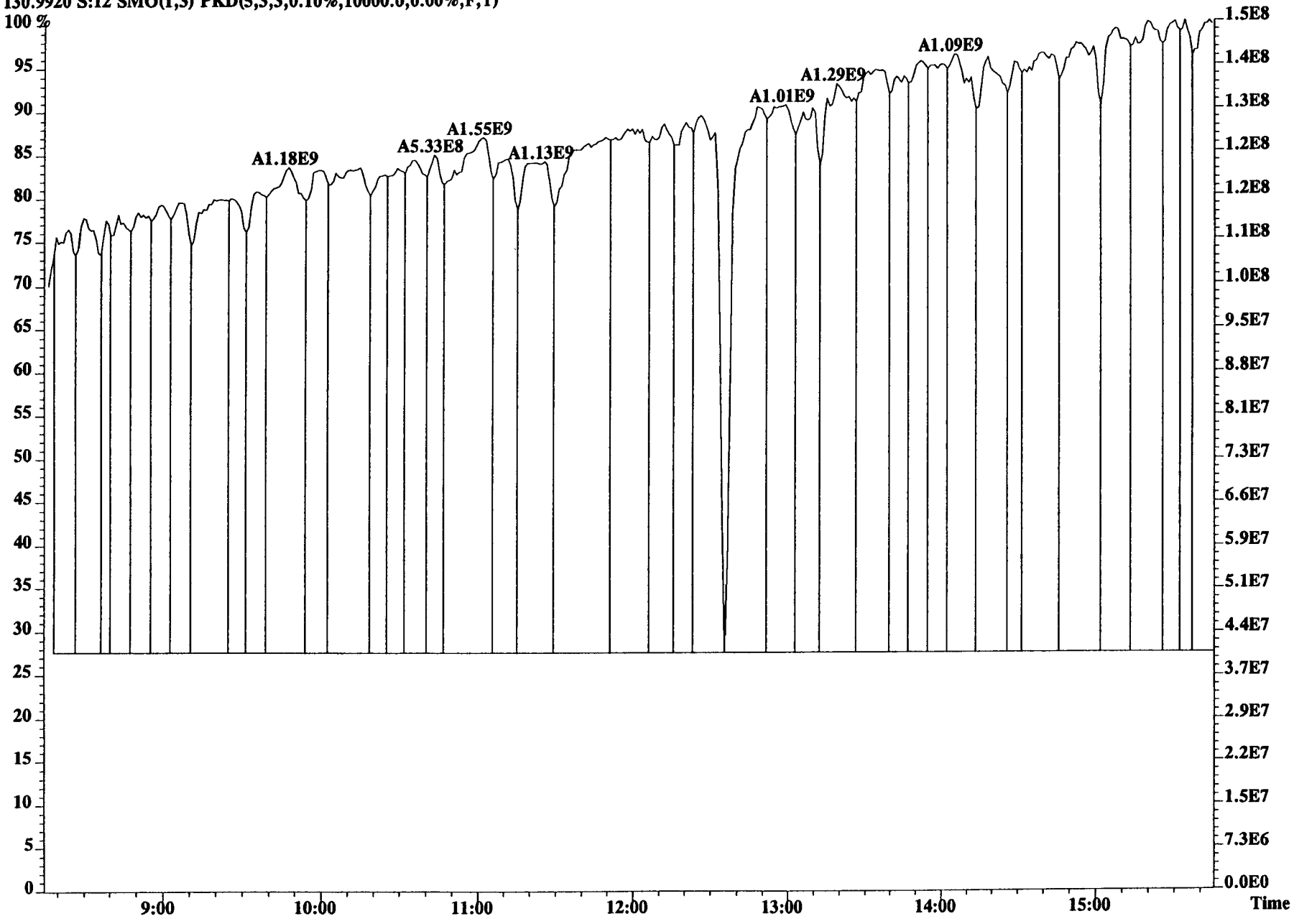
File:24AU98U #1-476 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
152.0626 S:12 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



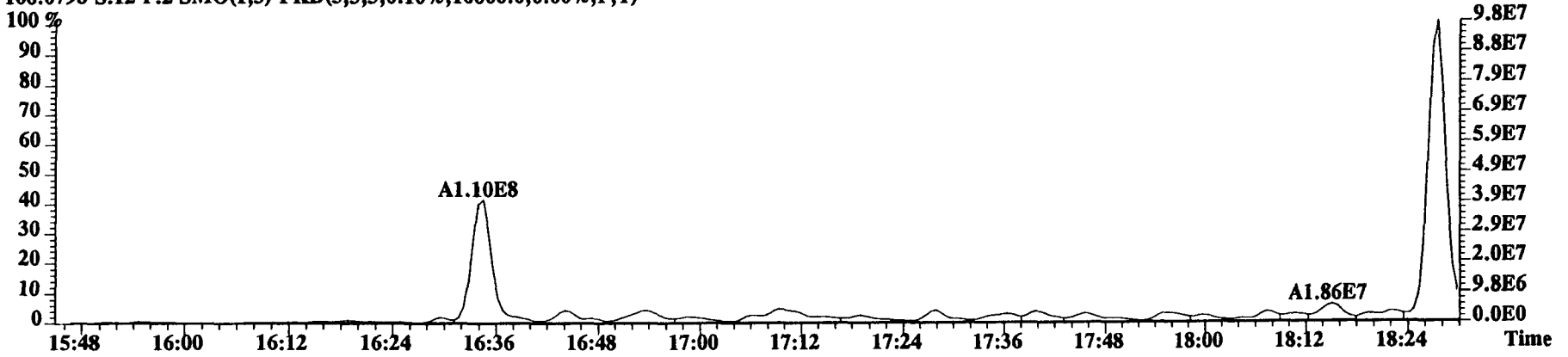
160.1128 S:12 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



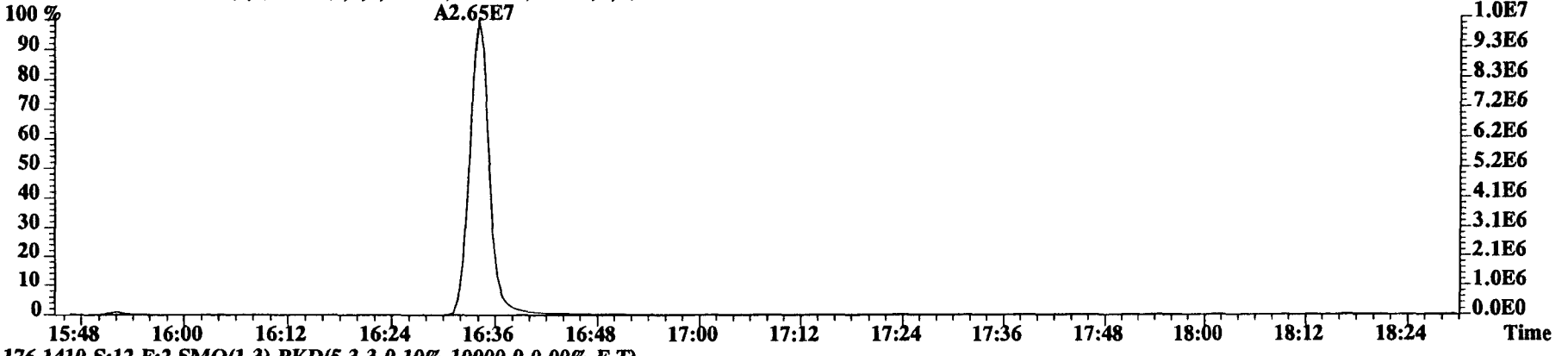
File:24AU98U #1-476 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
130.9920 S:12 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



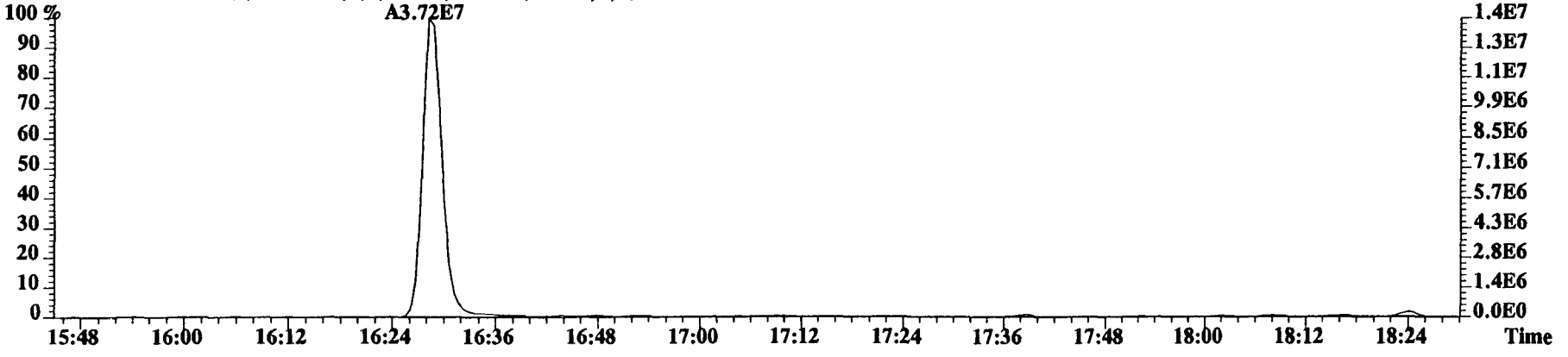
File:24AU98U #1-666 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
166.0798 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



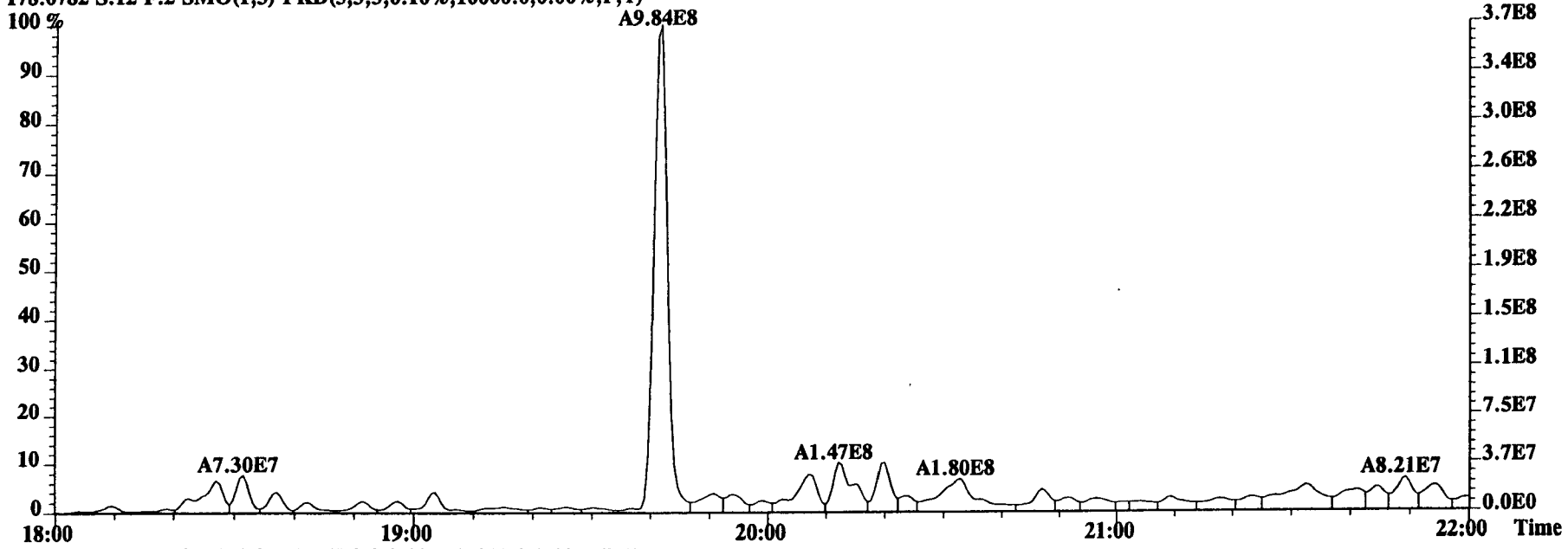
172.0984 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



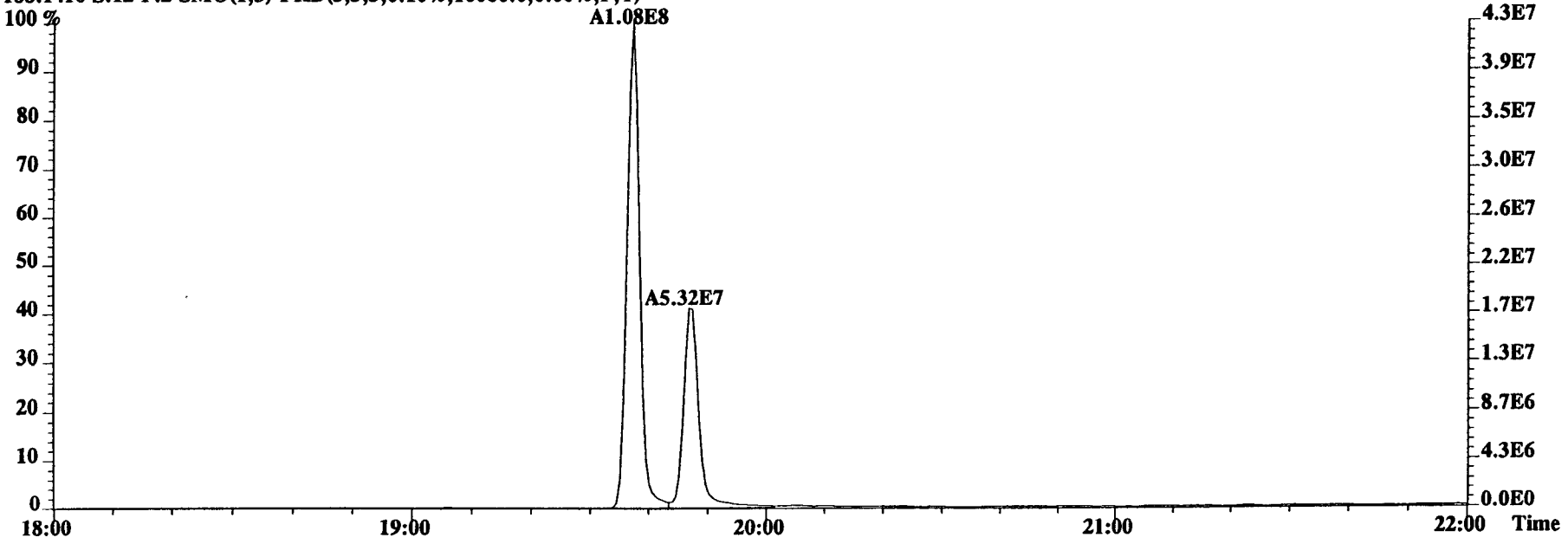
176.1410 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:24AU98U #1-666 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
178.0782 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

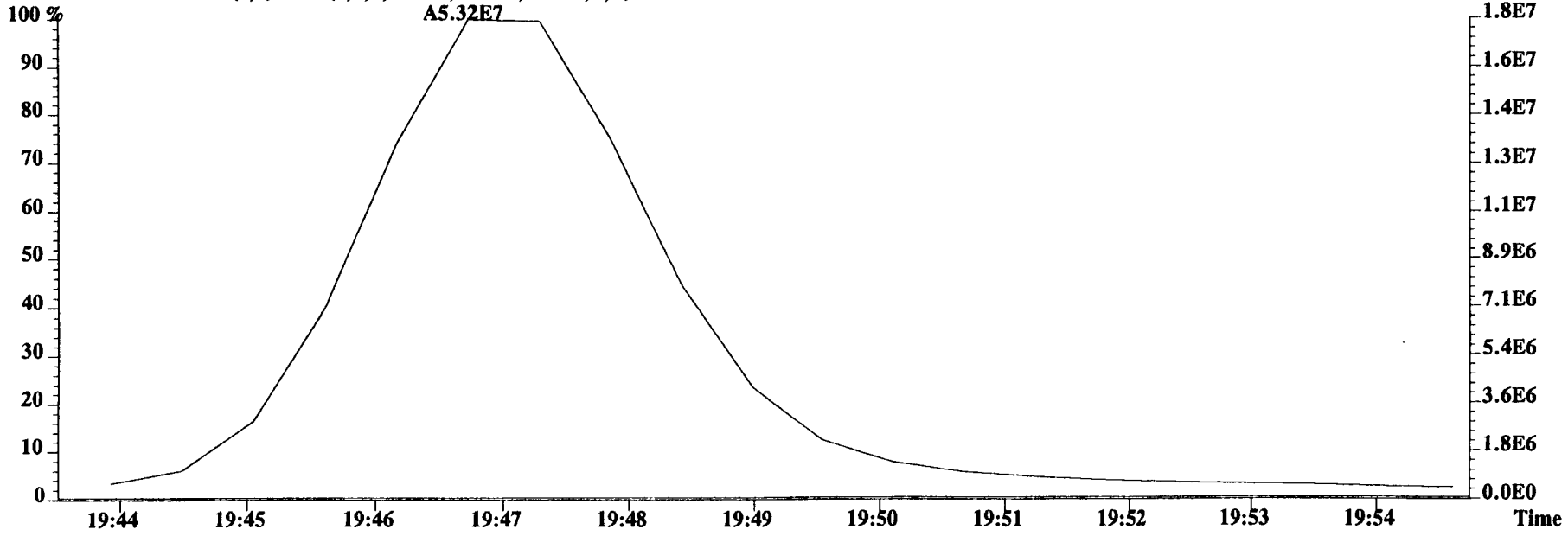


188.1410 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

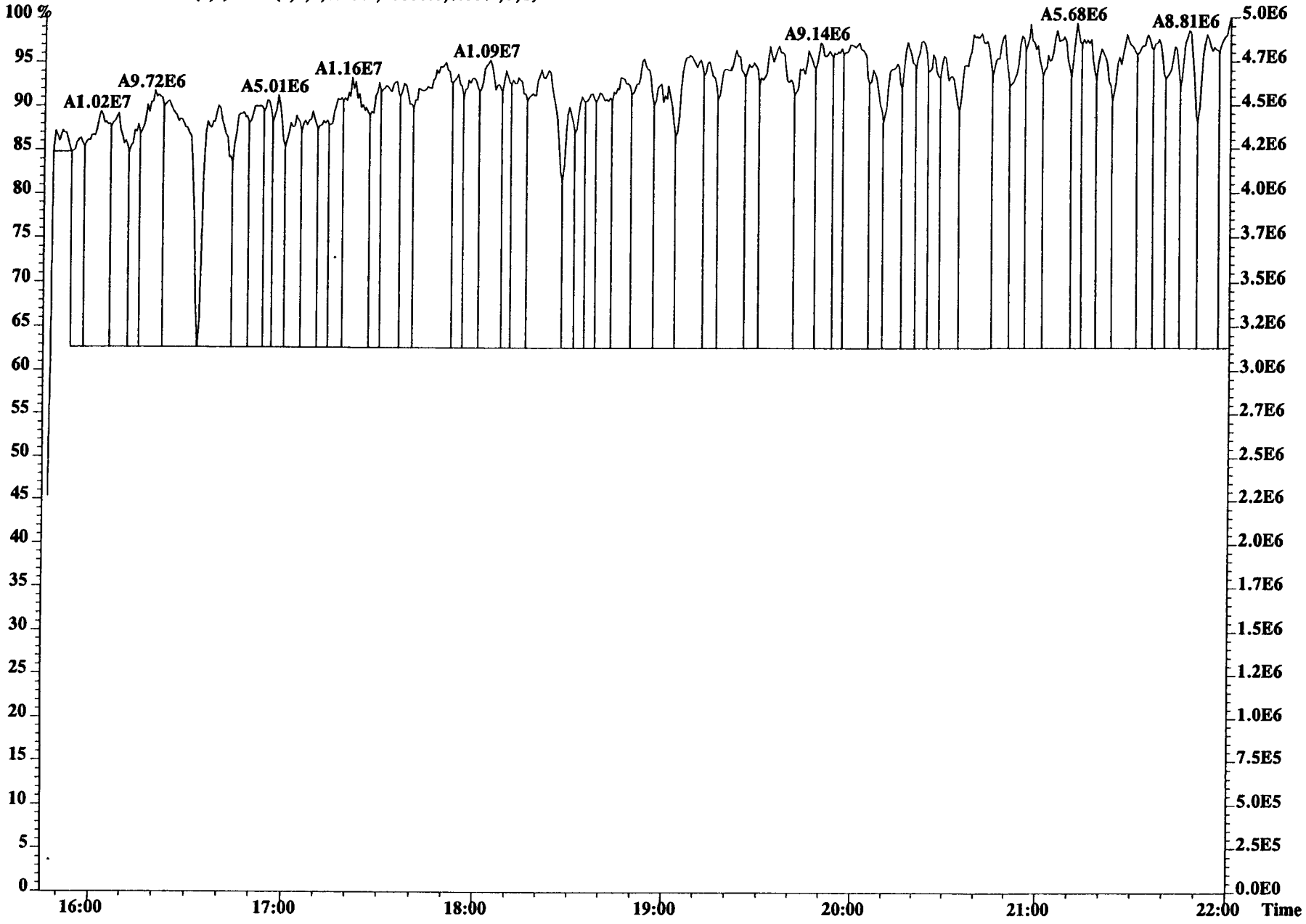


File:24AU98U #1-666 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
178.0782 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)

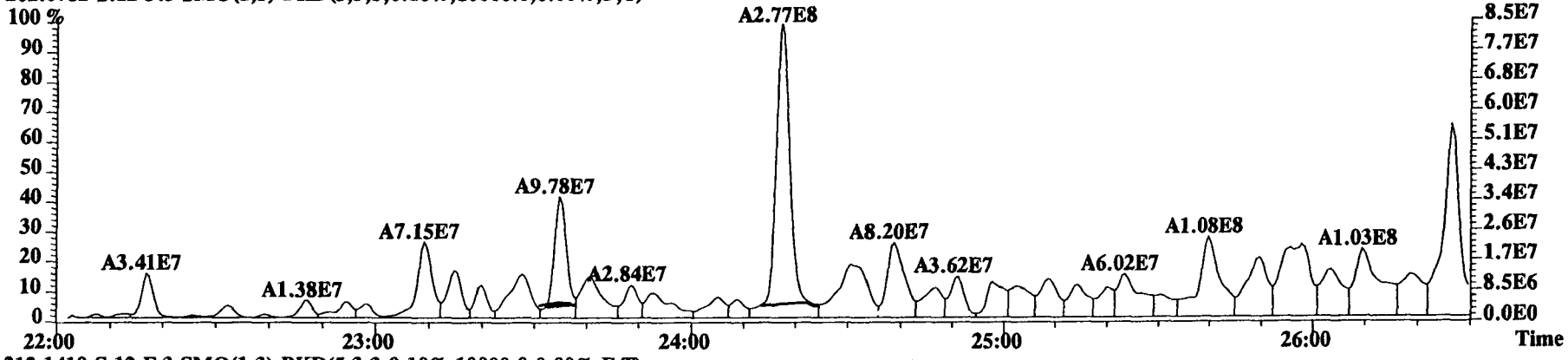
188.1410 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



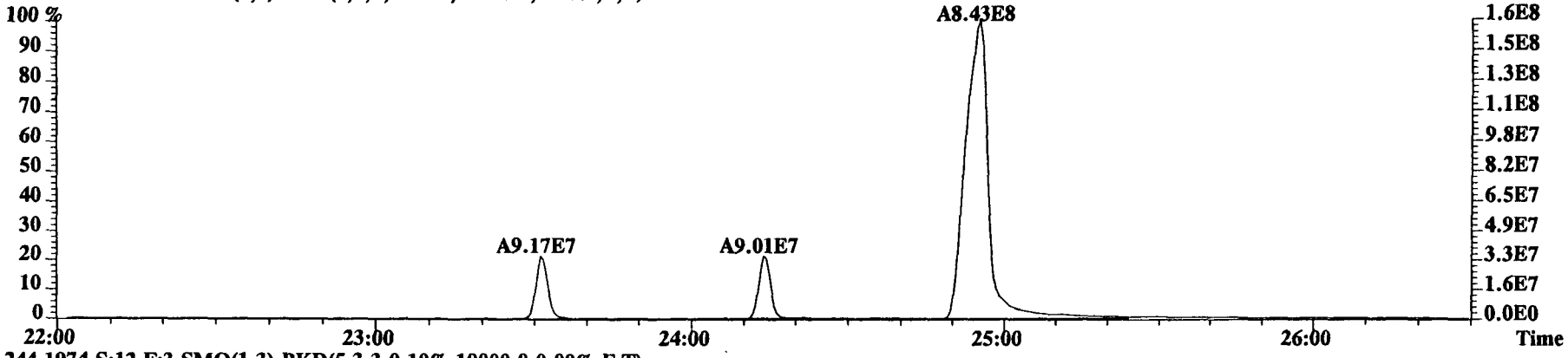
File:24AU98U #1-666 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
204.9888 S:12 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



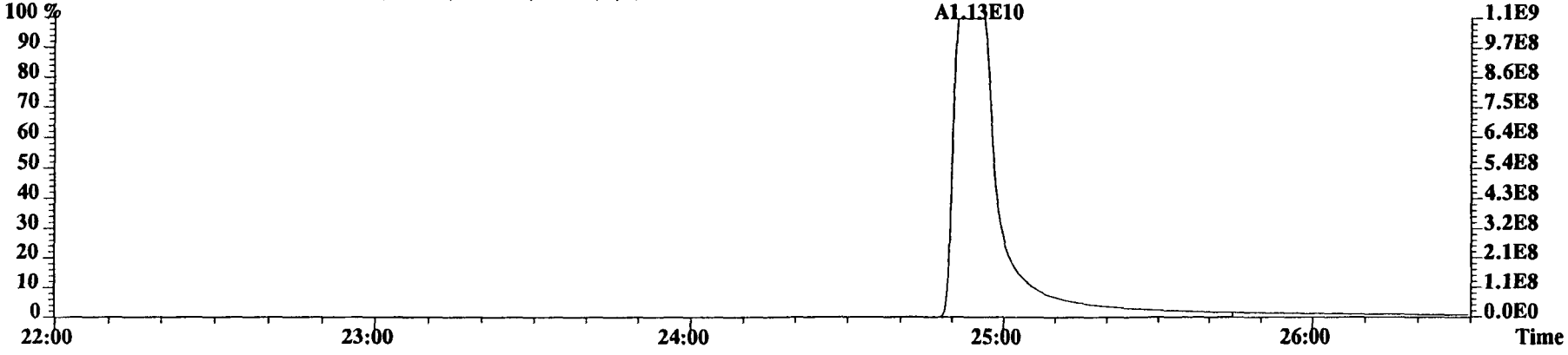
File:24AU98U #1-934 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
202.0782 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



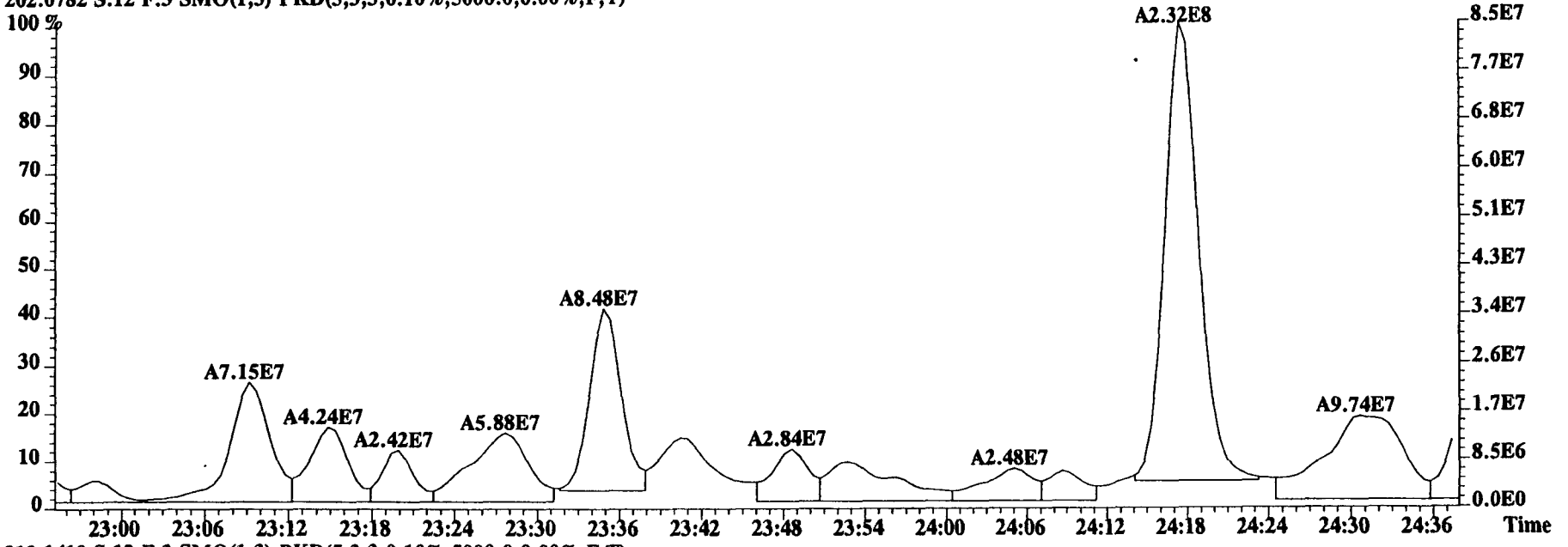
212.1410 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



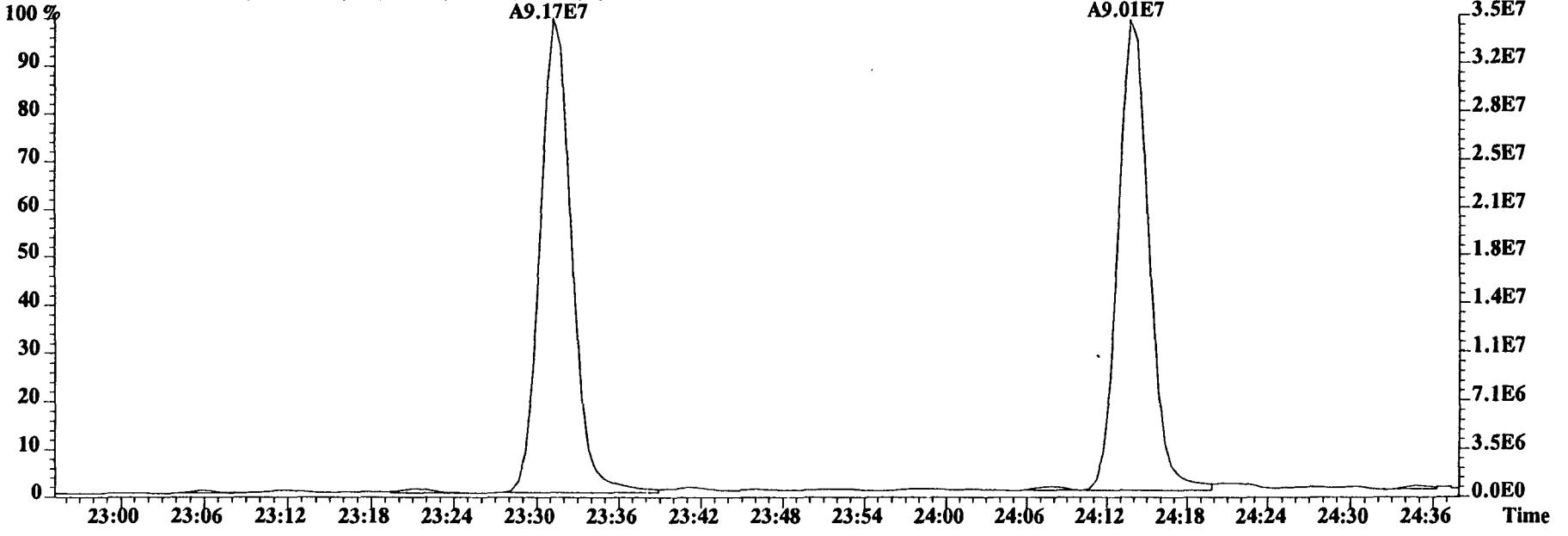
244.1974 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



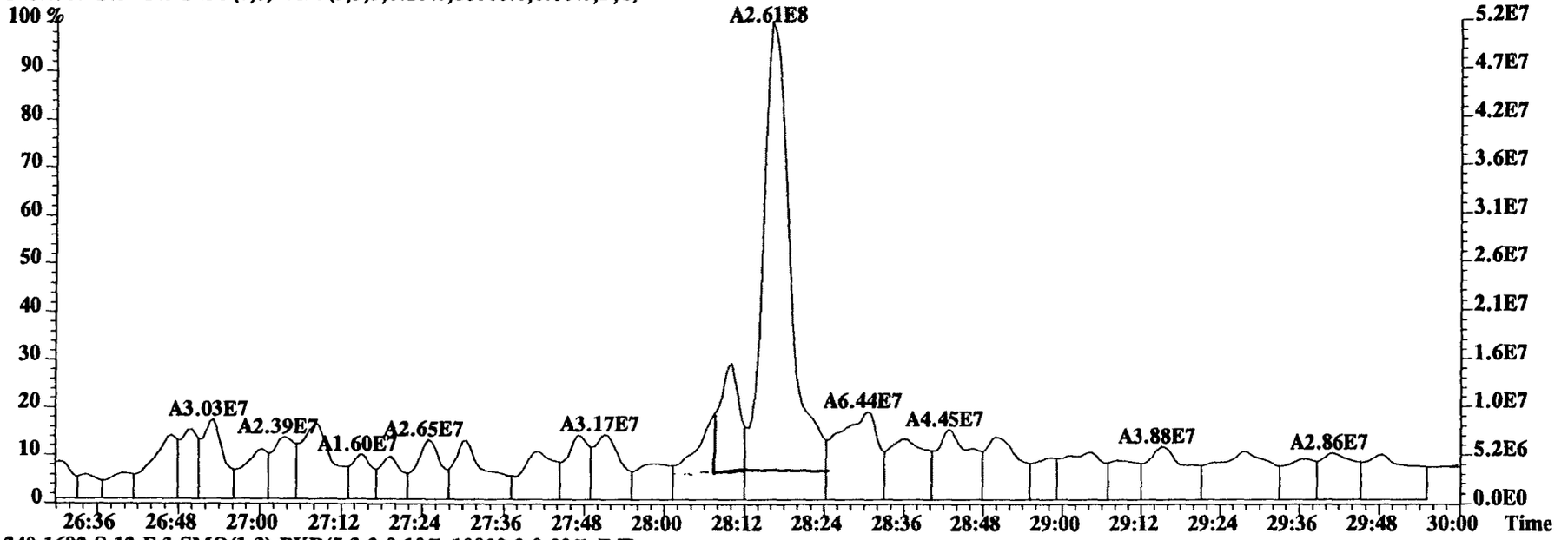
File:24AU98U #1-934 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
202.0782 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



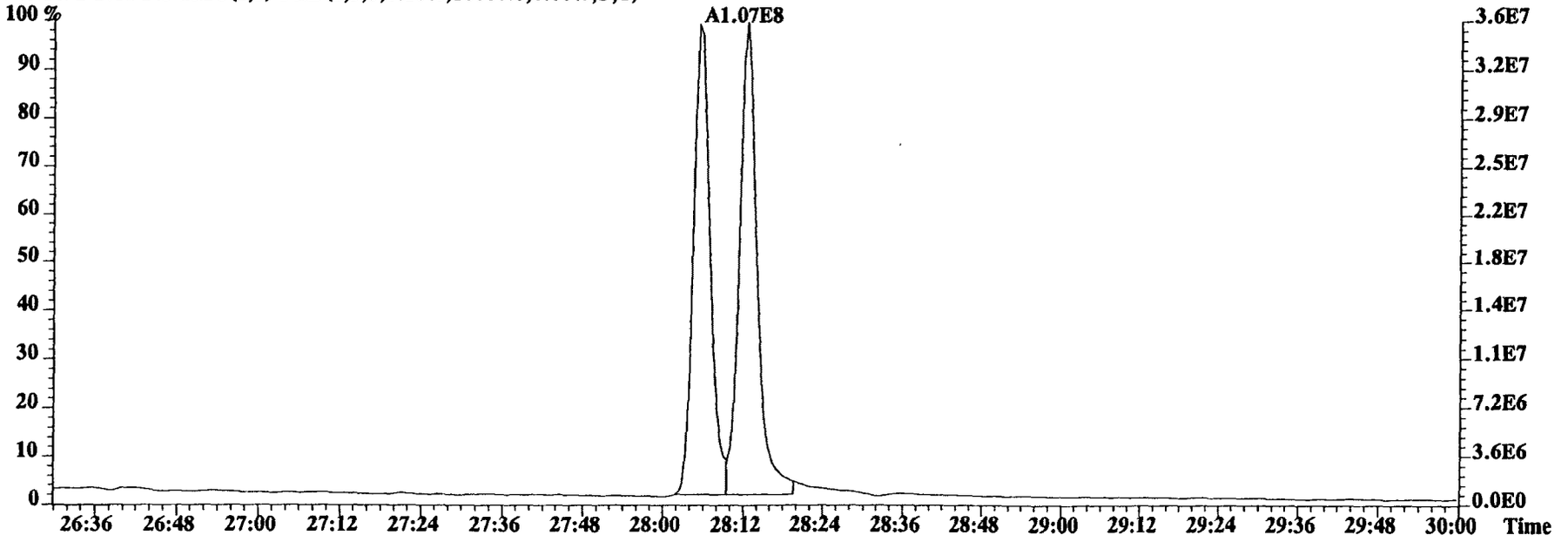
212.1410 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:24AU98U #1-934 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
228.0939 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

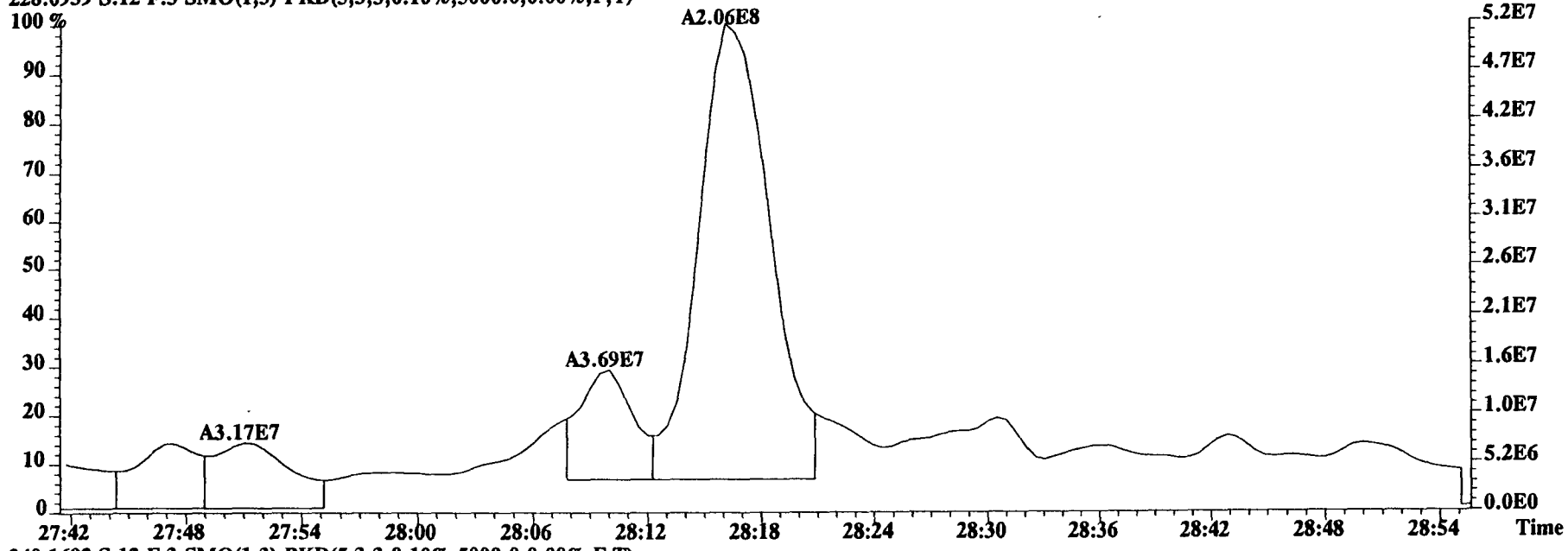


240.1692 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

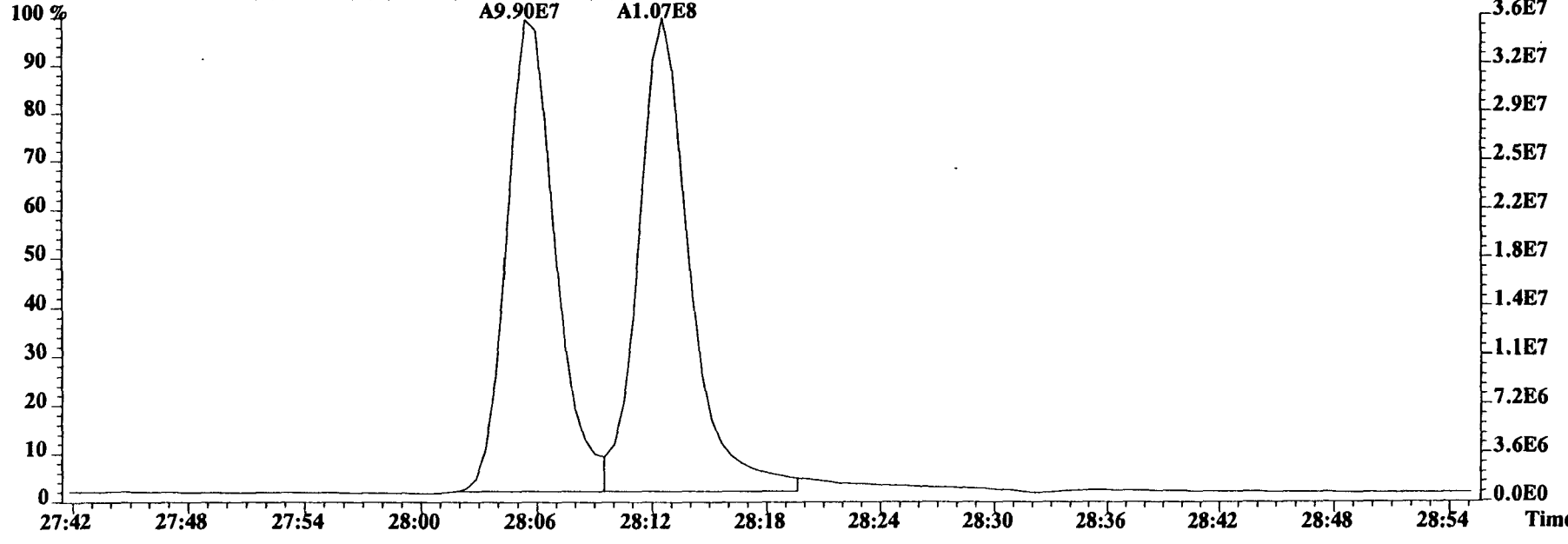


251

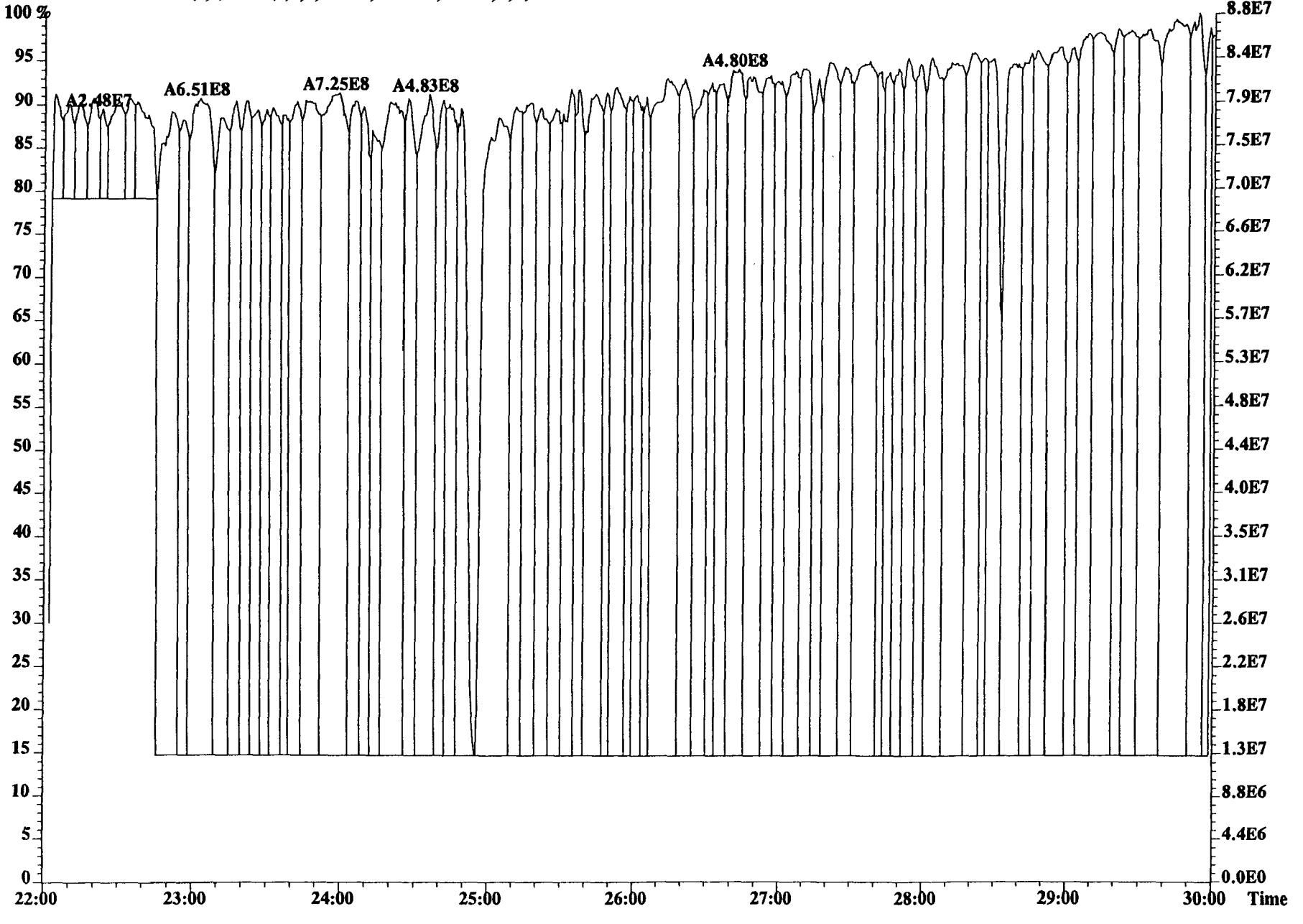
File:24AU98U #1-934 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
228.0939 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



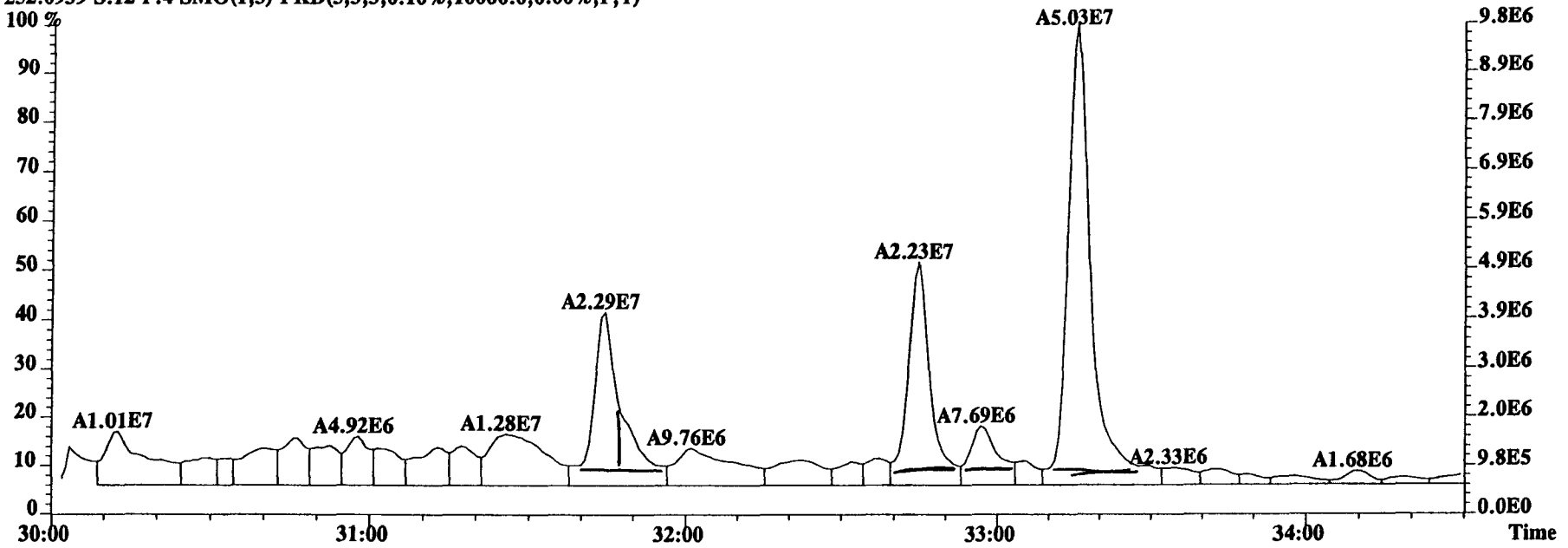
240.1692 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



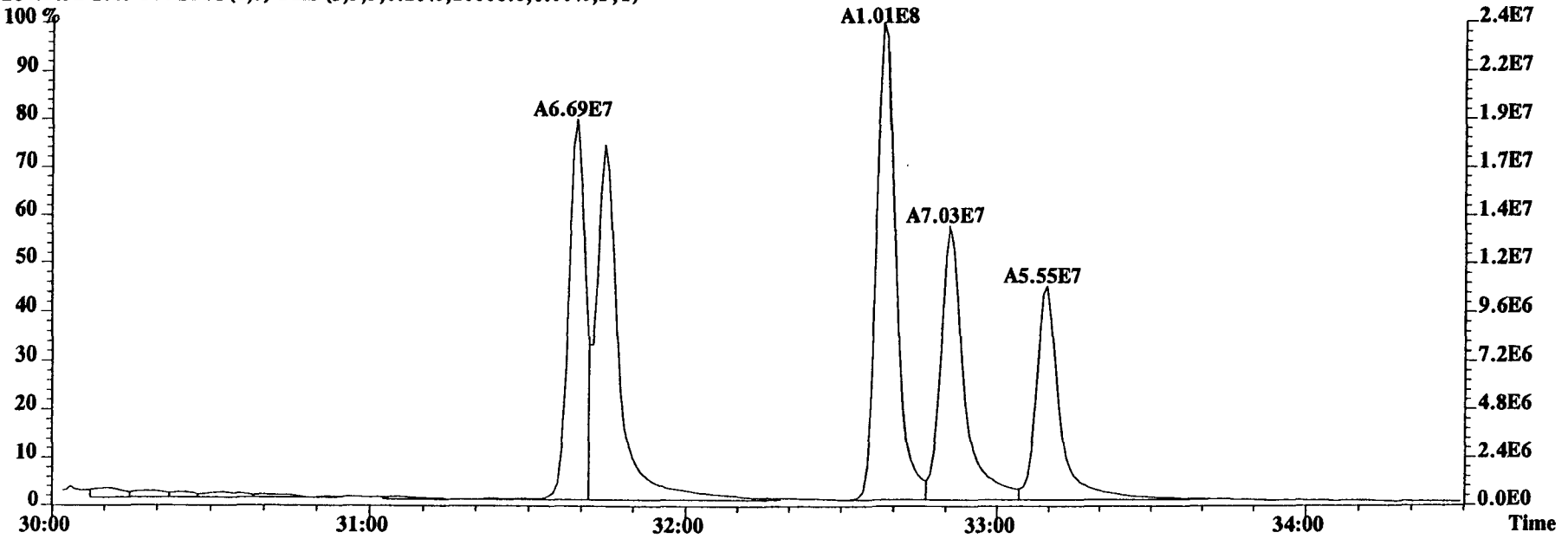
File:24AU98U #1-934 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
230.9856 S:12 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



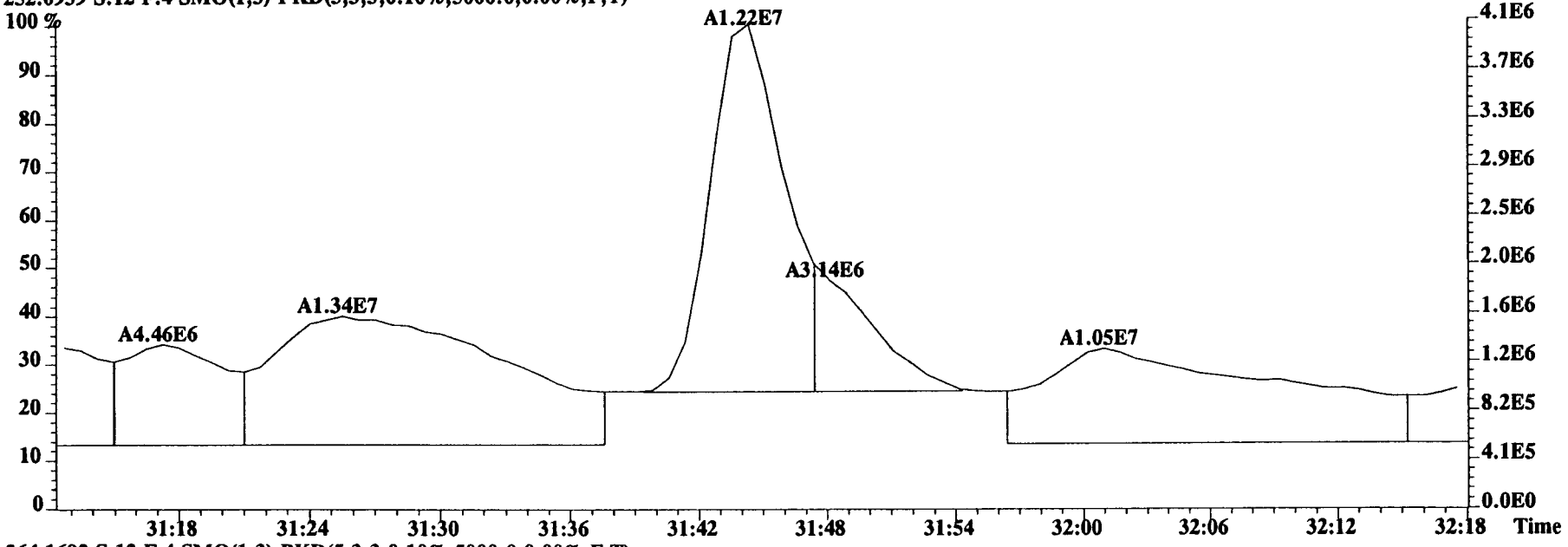
File:24AU98U #1-955 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
252.0939 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



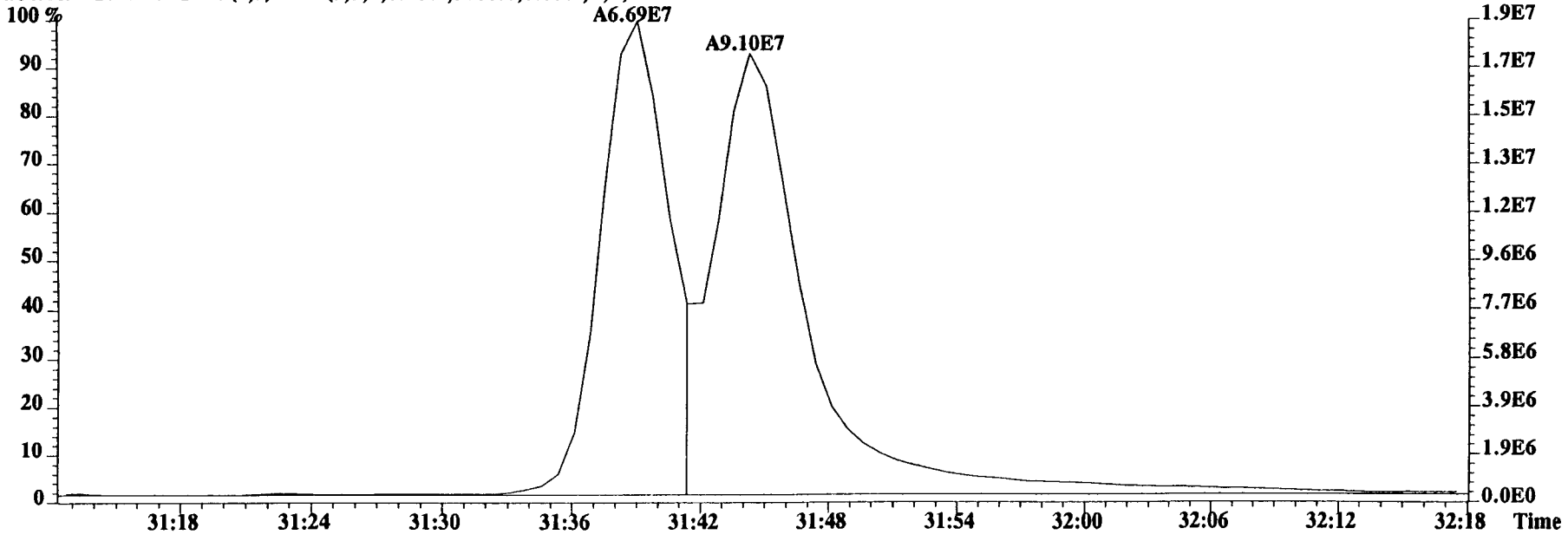
264.1692 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



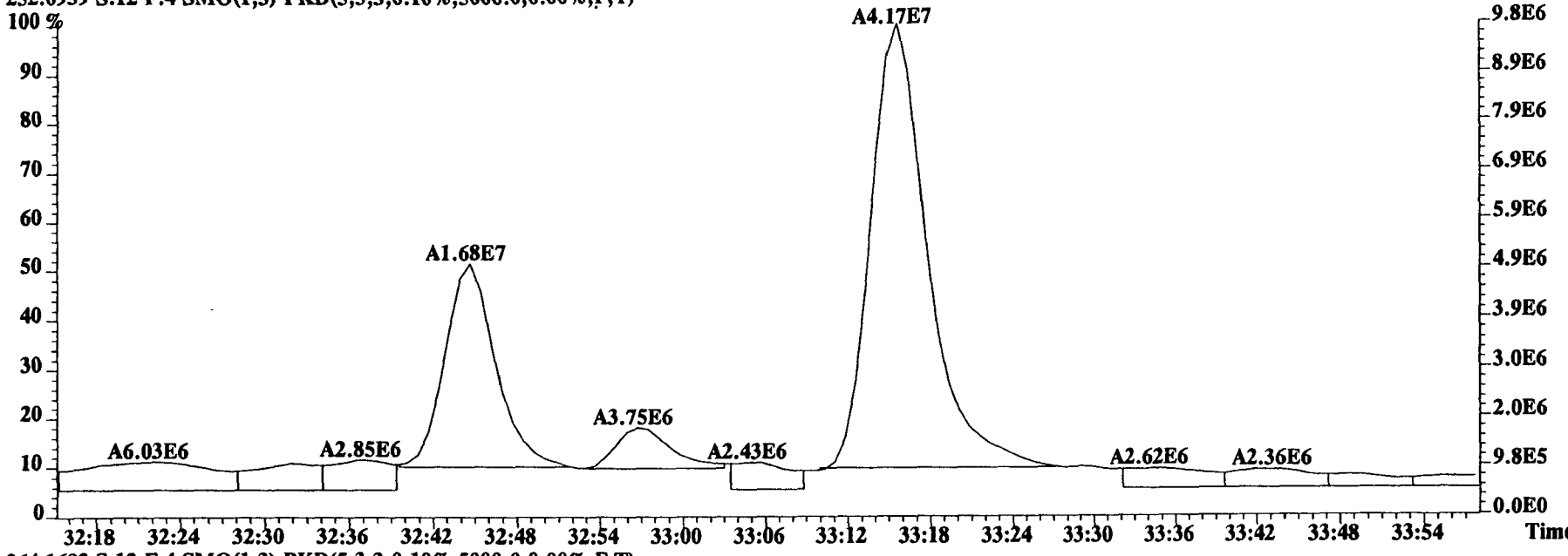
File:24AU98U #1-955 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
252.0939 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



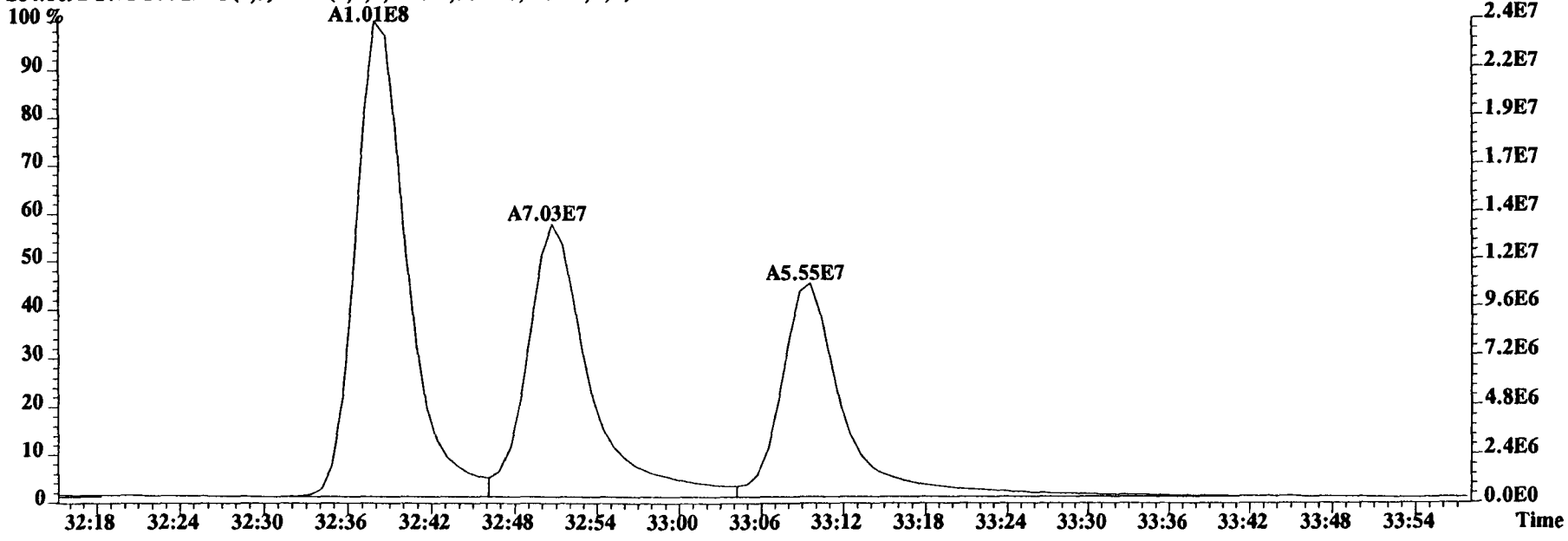
264.1692 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



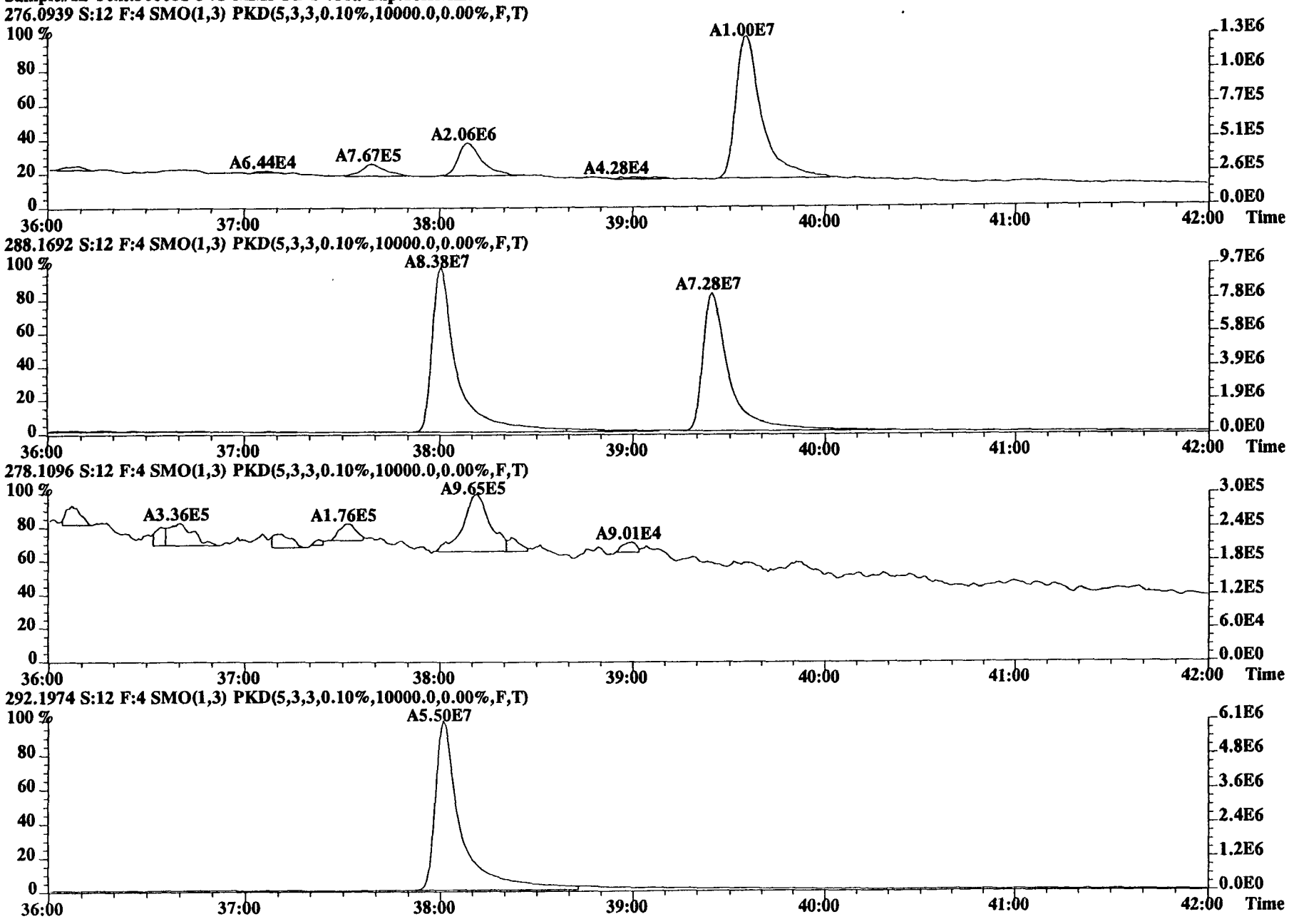
File:24AU98U #1-955 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
252.0939 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



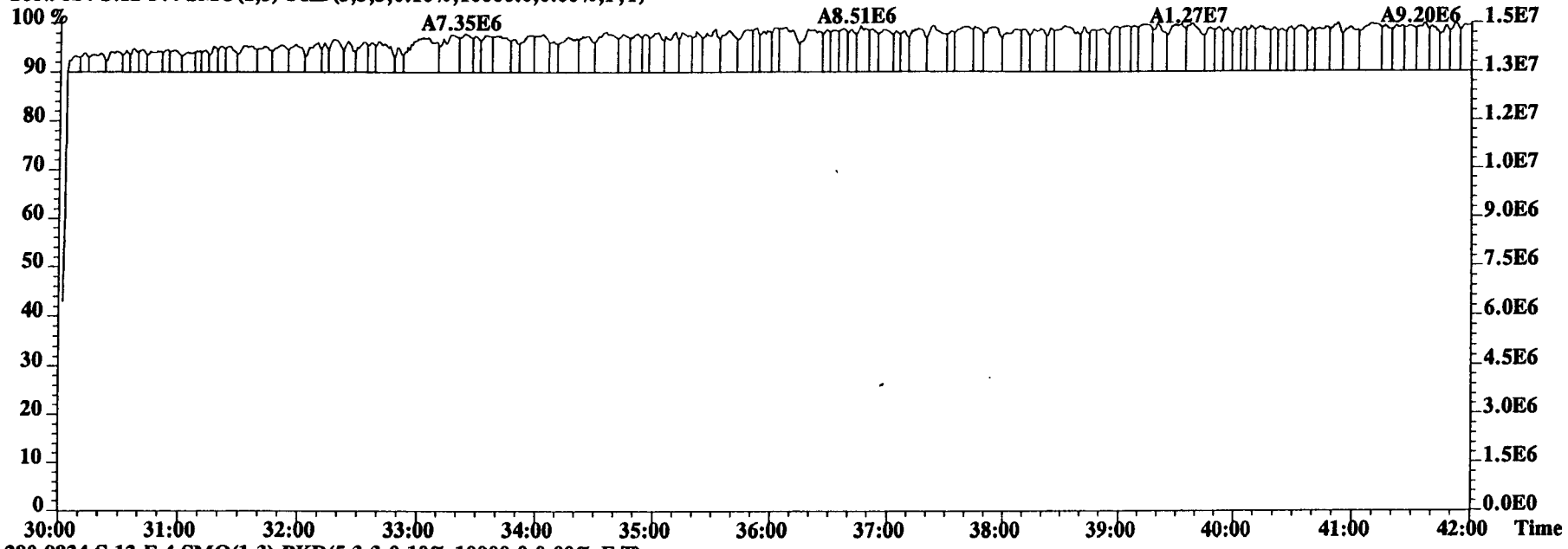
264.1692 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



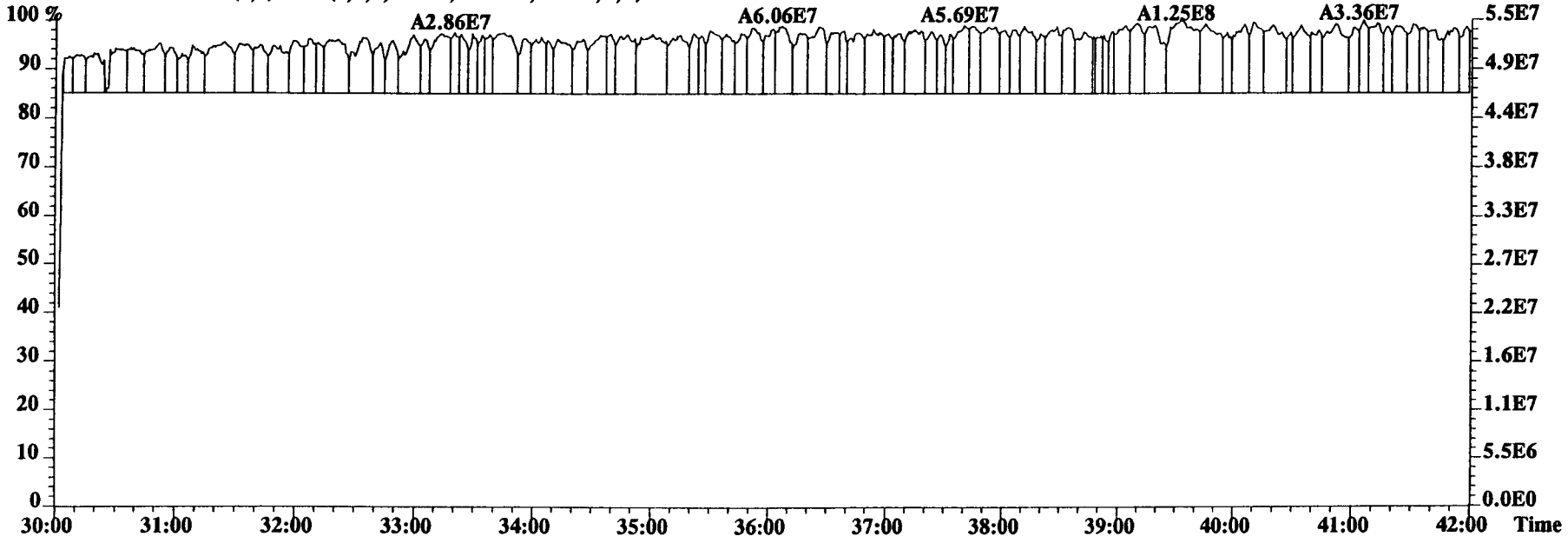
File:24AU98U #1-955 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR



File:24AU98U #1-955 Acq:25-AUG-1998 02:07:07 GC EI+ Voltage SIR Autospec-Ultima
Sample#12 Text:300681-8 :T-MM5-FB-F :Tra Exp:PAHAIR
268.9824 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:12 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Results : 24AU98U131.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-9 :T-MM5-RB-F :Tra Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	113045000	1.00 Y	11: 9 Y	1.00	50.00	
d8-Naphthalene	82611800	1.00 Y	8: 57 Y	1.25	29.33	59
Naphthalene	156143800	1.00 Y	9: 1 Y	1.05	269.45 B	
2-Methylnaphthalene	60369000	1.00 Y	11: 16 Y	0.77	142.36 B	
d8-Acenaphthylene	123628200	1.00 Y	14: 14 Y	1.55	35.28	71
Acenaphthylene	4333480	1.00 Y	14: 16 Y	0.86	6.10=DL	
d10-Acenaphthene	73728400	1.00 Y	14: 47 Y	0.88	37.17	74
Acenaphthene	17222860	1.00 Y	14: 53 Y	0.93	37.72 B	
d10-Anthracene	79508400	1.00 Y	19: 47 Y	1.00	50.00	
d10-Fluorene	56298800	1.00 Y	16: 29 Y	1.13	31.35	63
Fluorene	17037640	1.00 Y	16: 35 Y	1.05	43.28 B	
d10-Phenanthrene	157294800	1.00 Y	19: 38 Y	2.63	37.63	75
Phenanthrene	97862800	1.00 Y	19: 42 Y	0.84	110.93 B	
Anthracene	6840000	1.00 Y	19: 50 N	0.83	7.88=DL	
d12-Benzo(e)pyrene	203564000	1.00 Y	32: 39 Y	1.00	50.00	
d10-Fluoranthene	139915800	1.00 Y	23: 32 Y	0.80	42.78	86
Fluoranthene	25211800	1.00 Y	23: 36 Y	1.04	26.00 B	
d10-Pyrene	144803200	1.00 Y	24: 14 Y	0.81	43.93	88
Pyrene	18780600	1.00 Y	24: 18 Y	1.11	17.59 Bara 9/3/98	
d12-Benzo(a)anthracene	183998400	1.00 Y	28: 6 Y	0.65	69.50	139
Benzo(a)anthracene	1364272	1.00 Y	28: 11 Y	1.06	1.06=DL	
d12-Chrysene	219514000	1.00 Y	28: 13 Y	0.85	63.57	127
Chrysene	6599460	1.00 Y	28: 18 Y	0.97	4.65=DL	
d12-Benzo(e)pyrene	203564000	1.00 Y	32: 39 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	134007000	1.00 Y	31: 40 Y	0.63	52.58	105
Benzo(b)fluoranthene	1586000	1.00 Y	31: 45 Y	1.07	1.66=DL	
d12-Benzo(k)fluoranthene	186158600	1.00 Y	31: 45 Y	0.90	51.03	102
Benzo(k)fluoranthene	838000	1.00 Y	31: 45 Y	1.16	0.58=DL	
d12-Benzo(a)pyrene	142422000	1.00 Y	32: 51 Y	0.75	46.57	93
Benzo(e)pyrene	1700000	1.00 Y	32: 45 Y	1.46	1.22=DL	
Benzo(a)pyrene	830000	1.00 Y	32: 57 Y	1.02	0.85=DL	
d12-Perylene	112626400	1.00 Y	33: 10 Y	0.61	45.02	90
Perylene	1316000	1.00 Y	33: 16 Y	1.62	1.08=DL	
d12-Indeno(123-cd)pyrene	173347200	1.00 Y	38: 1 Y	0.71	60.26	121
Indeno(123-cd)pyrene	400000	1.00 Y	38: 4 Y	0.61	0.57=DL	
d14-Dibenz(ah)anthracene	107648800	1.00 Y	38: 2 Y	0.44	59.94	120
Dibenz(ah)anthracene	* No Peak	0.00 N	38: 10 N	1.11	EDL=0.31	
d12-Benzo(ghi)perylene	152800000	1.00 Y	39: 20 Y	0.63	59.54	119
Benzo(ghi)perylene	1308000	1.00 Y	39: 29 Y	0.99	1.30=DL 208	
d8-Naphthalene	82611800	1.00 Y	8: 57 Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00 N	9: 1 N	0.98	0.00	0

mAT 9-2-98

02-SEP-1998 07:36:11 PM Dioxin Furan Unknown RESULTS

d10-Fluorene	56298800	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	48381200	1.00	Y	16: 35	Y	0.76	56.69	113

24AU98U131.RES : PAHX.TRG
Date analyzed : 24-AUG-98 0.333
MM5-RB-F :Tra Ex Cal : PAHX081998U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL		
1.00 Y	11: 9 Y	1.00	50.00		56522500	56522500
1.00 Y	8: 57 Y	1.25	29.33	59	41305900	41305900
1.00 Y	9: 1 Y	1.05	269.45		78071900	78071900
1.00 Y	11: 16 Y	0.77	142.36		30184500	30184500
1.00 Y	14: 14 Y	1.55	35.28	71	61814100	61814100
1.00 Y	14: 16 Y	0.86	6.10=DL		2166740	2166740
1.00 Y	14: 47 Y	0.88	37.17	74	36864200	36864200
1.00 Y	14: 53 Y	0.93	37.72		8611430	8611430
1.00 Y	19: 47 Y	1.00	50.00		39754200	39754200
1.00 Y	16: 29 Y	1.13	31.35	63	28149400	28149400
1.00 Y	16: 35 Y	1.05	43.28		8518820	8518820
1.00 Y	19: 38 Y	2.63	37.63	75	78647400	78647400
1.00 Y	19: 42 Y	0.84	110.93		48931400	48931400
1.00 Y	19: 50 N	0.83	7.88=DL		3420000	3420000
1.00 Y	32: 39 Y	1.00	50.00		101782000	101782000
1.00 Y	23: 32 Y	0.80	42.78	86	69957900	69957900
1.00 Y	23: 36 Y	1.04	26.00		12605900	12605900
1.00 Y	24: 14 Y	0.81	43.93	88	72401600	72401600
1.00 Y	24: 18 Y	1.11	17.59		9390300	9390300
1.00 Y	28: 6 Y	0.65	69.50	139	91999200	91999200
1.00 Y	28: 11 Y	1.06	1.06=DL		682136	682136
1.00 Y	28: 13 Y	0.85	63.57	127	109757000	109757000
1.00 Y	28: 18 Y	0.97	4.65=DL		3299730	3299730
1.00 Y	32: 39 Y	1.00	50.00		101782000	101782000
1.00 Y	31: 40 Y	0.63	52.58	105	67003500	67003500
1.00 Y	31: 45 Y	1.07	1.66=DL		793000	793000
1.00 Y	31: 45 Y	0.90	51.03	102	93079300	93079300
1.00 Y	31: 45 Y	1.16	0.58=DL		419000	419000
1.00 Y	32: 51 Y	0.75	46.57	93	71211000	71211000
1.00 Y	32: 45 Y	1.46	1.22=DL		850000	850000
1.00 Y	32: 57 Y	1.02	0.85=DL		415000	415000
1.00 Y	33: 10 Y	0.61	45.02	90	56313200	56313200
1.00 Y	33: 16 Y	1.62	1.08=DL		658000	658000
1.00 Y	38: 1 Y	0.71	60.26	121	86673600	86673600
1.00 Y	38: 4 Y	0.61	0.57=DL		200000	200000
1.00 Y	38: 2 Y	0.44	59.94	120	53824400	53824400
0.00 N	38: 10 N	1.11	EDL=0.31		0	0
1.00 Y	39: 20 Y	0.63	59.54	119	76400000	76400000
1.00 Y	39: 29 Y	0.99	1.30=DL		654000	654000
1.00 Y	8: 57 Y	1.00	50.00		41305900	41305900
0.00 N	9: 1 N	0.98	0.00	0	0	0

02-SEP-1998 07:36:09 PM Dioxin Furan Unknown RESULTS

1.00 Y	16: 29 Y	1.00	50.00		28149400	28149400
1.00 Y	16: 35 Y	0.76	56.69	113	24190600	24190600

Mass Spec : ULTIMA Results : 24AU98U131.RES : PAHX.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U 300681-9 :T-MM5-RB-F :Tra Ex Cal : PAHX081998U.RRF
Weight : 0.333

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	113045000	1.00 Y	11: 9 Y	1.00	50.00	
d8-Naphthalene	82611800	1.00 Y	8: 57 Y	1.25	29.33	59
Naphthalene	156143800	1.00 Y	9: 1 Y	1.05	269.45	0.000
2-Methylnaphthalene	60369000	1.00 Y	11: 16 Y	0.77	142.36	0.000
d8-Acenaphthylene	123628200	1.00 Y	14: 14 Y	1.55	35.28	71
Acenaphthylene	4333480	1.00 Y	14: 16 Y	0.86	6.10	0.000
d10-Acenaphthene	73728400	1.00 Y	14: 47 Y	0.88	37.17	74
Acenaphthene	17222860	1.00 Y	14: 53 Y	0.93	37.72	0.000
d10-Anthracene	79508400	1.00 Y	19: 47 Y	1.00	50.00	
d10-Fluorene	56298800	1.00 Y	16: 29 Y	1.13	31.35	63
Fluorene	17037640	1.00 Y	16: 35 Y	1.05	43.28	0.000
d10-Phenanthrene	157294800	1.00 Y	19: 38 Y	2.63	37.63	75
Phenanthrene	97862800	1.00 Y	19: 42 Y	0.84	110.93	0.000
Anthracene	* No Peak	0.00 N	19: 50 N	0.83	0.00	0.000
d12-Benzo(e)pyrene	203564000	1.00 Y	32: 39 Y	1.00	50.00	
d10-Fluoranthene	139915800	1.00 Y	23: 32 Y	0.80	42.78	86
Fluoranthene	25211800	1.00 Y	23: 36 Y	1.04	26.00	0.000
d10-Pyrene	144803200	1.00 Y	24: 14 Y	0.81	43.93	88
Pyrene	18780600	1.00 Y	24: 18 Y	1.11	17.59	0.000
d12-Benzo(a)anthracene	183998400	1.00 Y	28: 6 Y	0.65	69.50	139
Benzo(a)anthracene	1364272	1.00 Y	28: 11 Y	1.06	1.06	0.000
d12-Chrysene	219514000	1.00 Y	28: 13 Y	0.85	63.57	127
Chrysene	6599460	1.00 Y	28: 18 Y	0.97	4.65	0.000
d12-Benzo(e)pyrene	203564000	1.00 Y	32: 39 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	134007000	1.00 Y	31: 40 Y	0.63	52.58	105
Benzo(b)fluoranthene	2372980	1.00 Y	31: 45 Y	1.07	2.49	0.000
d12-Benzo(k)fluoranthene	186158600	1.00 Y	31: 45 Y	0.90	51.03	102
Benzo(k)fluoranthene	2372980	1.00 Y	31: 45 Y	1.16	1.66	0.000
d12-Benzo(a)pyrene	142422000	1.00 Y	32: 51 Y	0.75	46.57	93
Benzo(e)pyrene	1475188	1.00 Y	32: 45 Y	1.46	1.06	0.000
Benzo(a)pyrene	784302	1.00 Y	32: 57 Y	1.02	0.81	0.000
d12-Perylene	112626400	1.00 Y	33: 10 Y	0.61	45.02	90
Perylene	1310596	1.00 Y	33: 16 Y	1.62	1.08	0.000
d12-Indeno(123-cd)pyrene	173347200	1.00 Y	38: 1 Y	0.71	60.26	121
Indeno(123-cd)pyrene	* No Peak	0.00 N	38: 4 N	0.61	0.00	0.000
d14-Dibenz(ah)anthracene	107648800	1.00 Y	38: 2 Y	0.44	59.94	120
Dibenz(ah)anthracene	* No Peak	0.00 N	38: 10 N	1.11	0.00	0.000
d12-Benzo(ghi)perylene	* No Peak	0.00 N	39: 20 N	0.63	0.00	0
Benzo(ghi)perylene	* No Peak	0.00 N	39: 29 N	0.99	*NoINCIS	
d8-Naphthalene	82611800	1.00 Y	8: 57 Y	1.00	50.00	
13C-Naphthalene	* No Peak	0.00 N	9: 1 N	0.98	0.00	0

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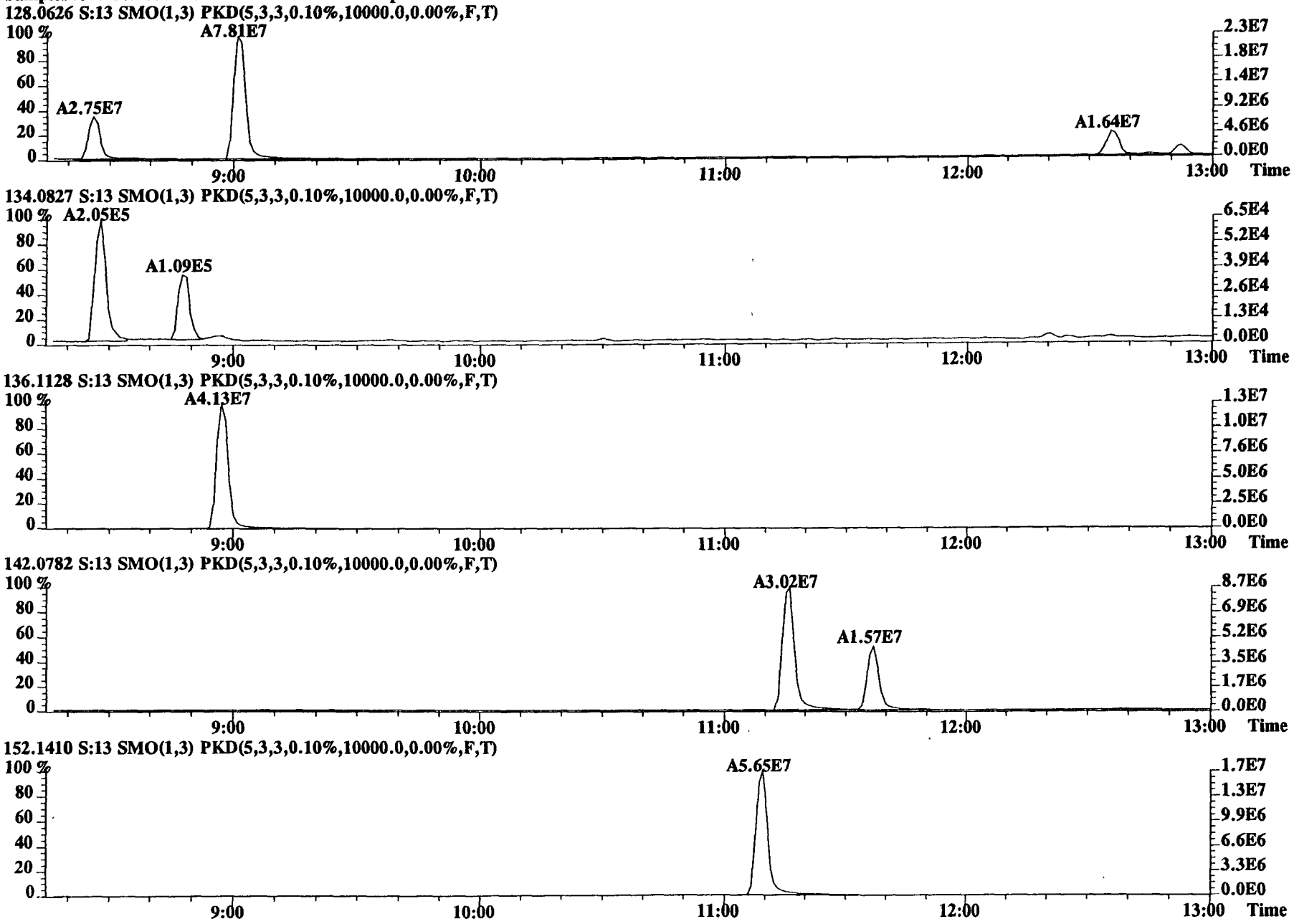
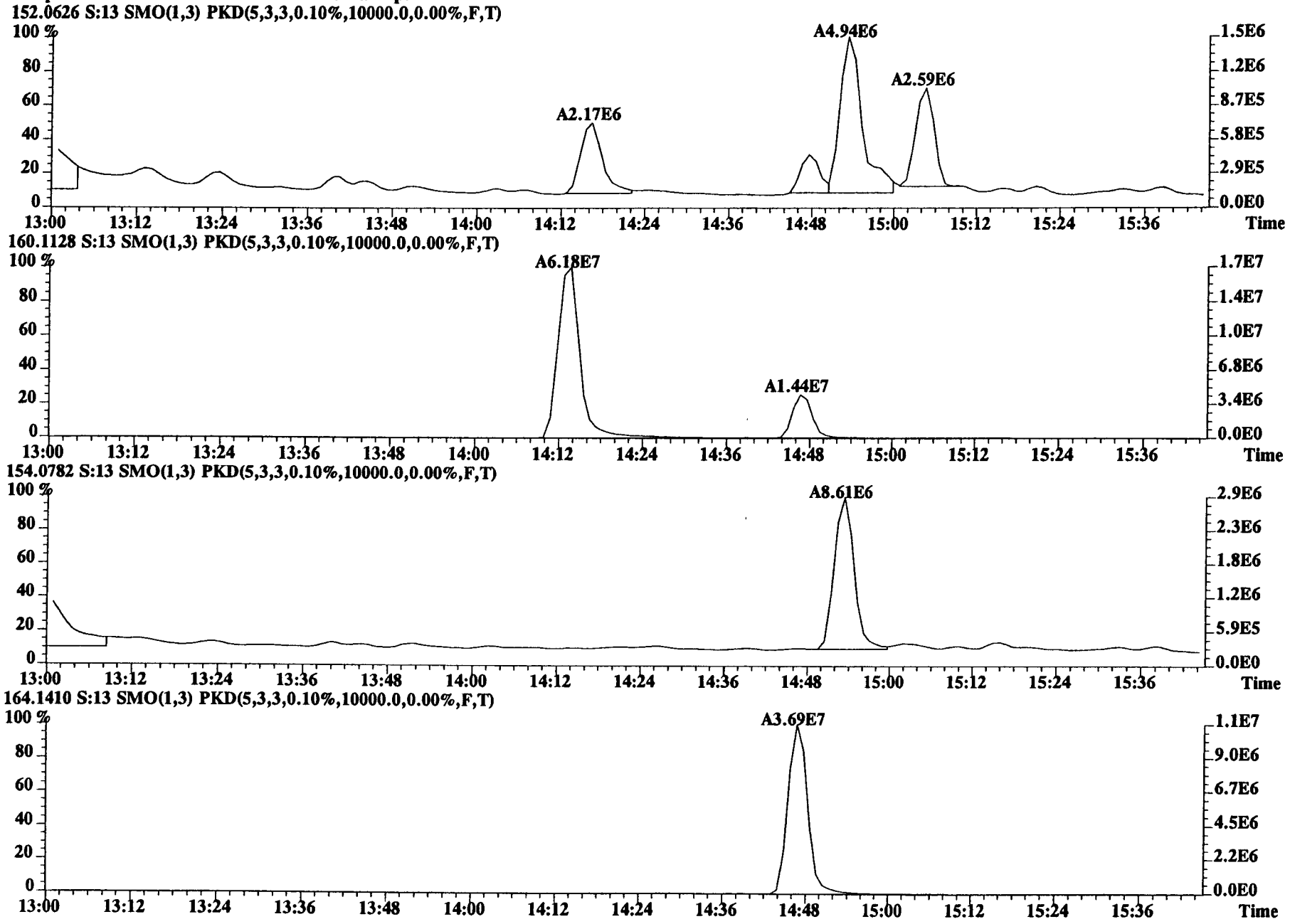
d10-Fluorene	56298800	1.00	Y	16: 29	Y	1.00	50.00	
13C-Fluorene	48381200	1.00	Y	16: 35	Y	0.76	56.69	113

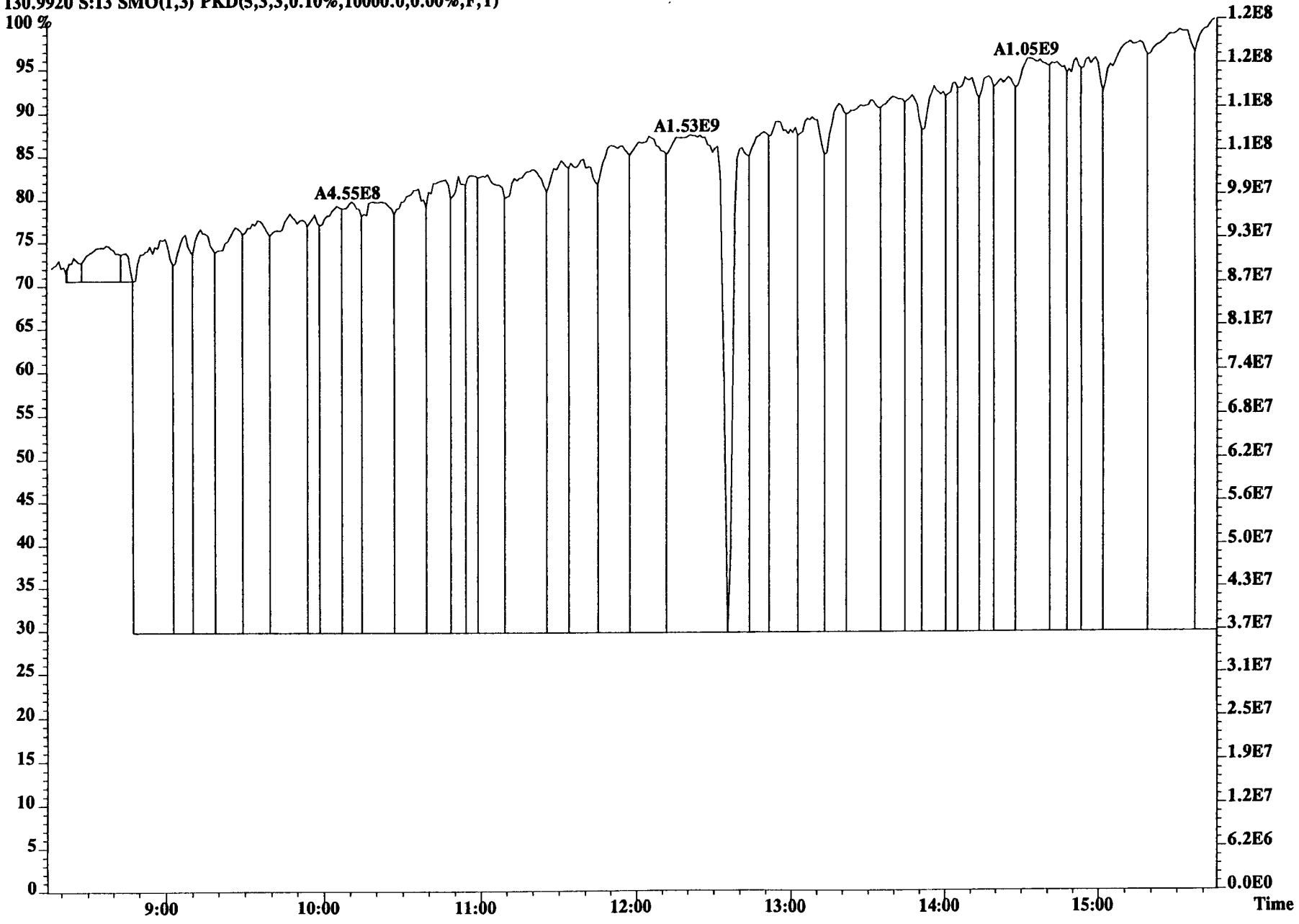
File:24AU98U #1-476 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR



File:24AU98U #1-476 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR

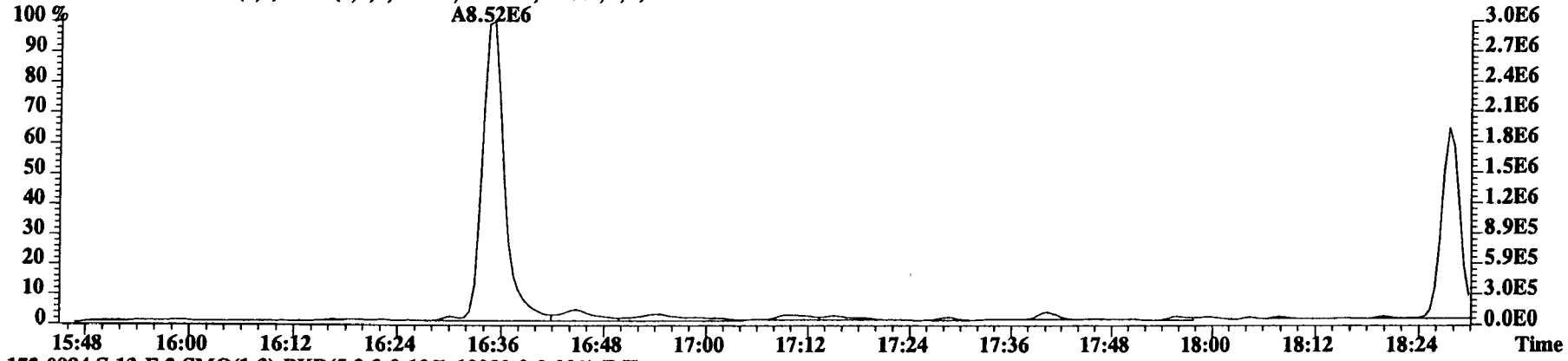


File:24AU98U #1-476 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
130.9920 S:13 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

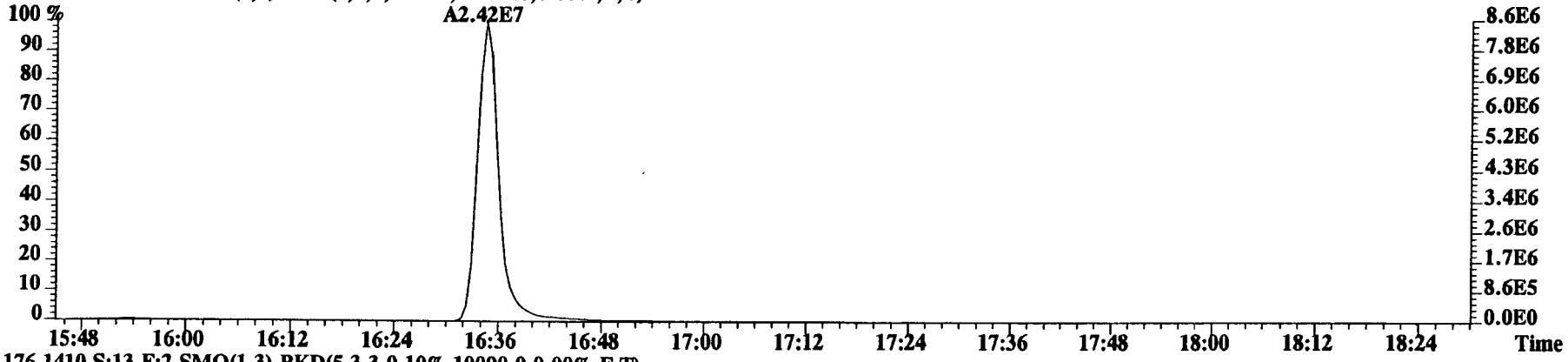


267

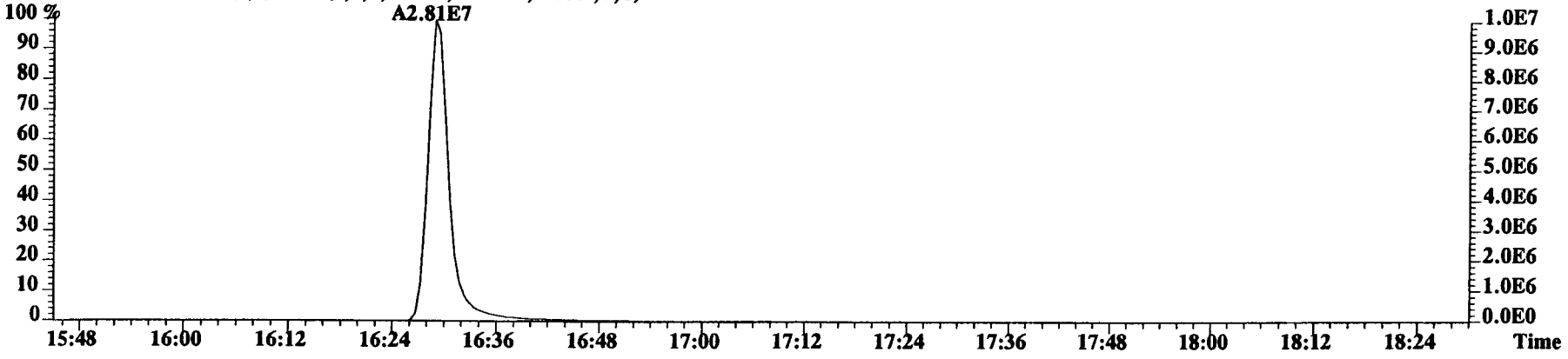
File:24AU98U #1-666 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
166.0798 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



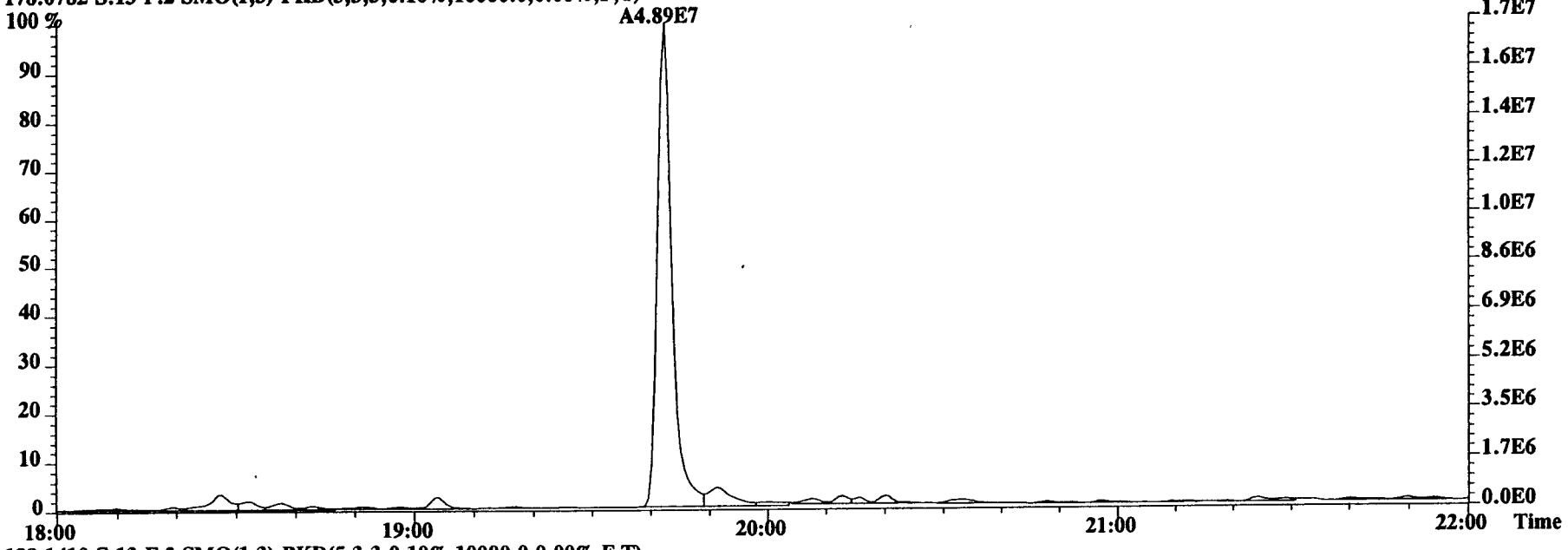
172.0984 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



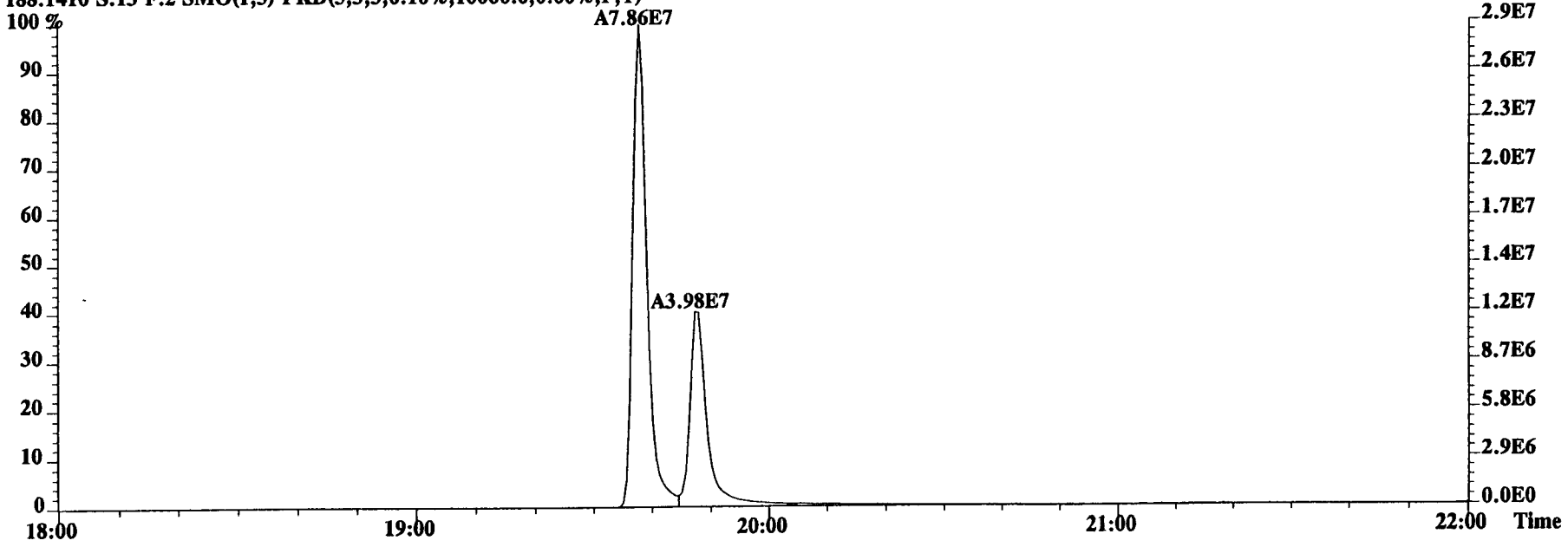
176.1410 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



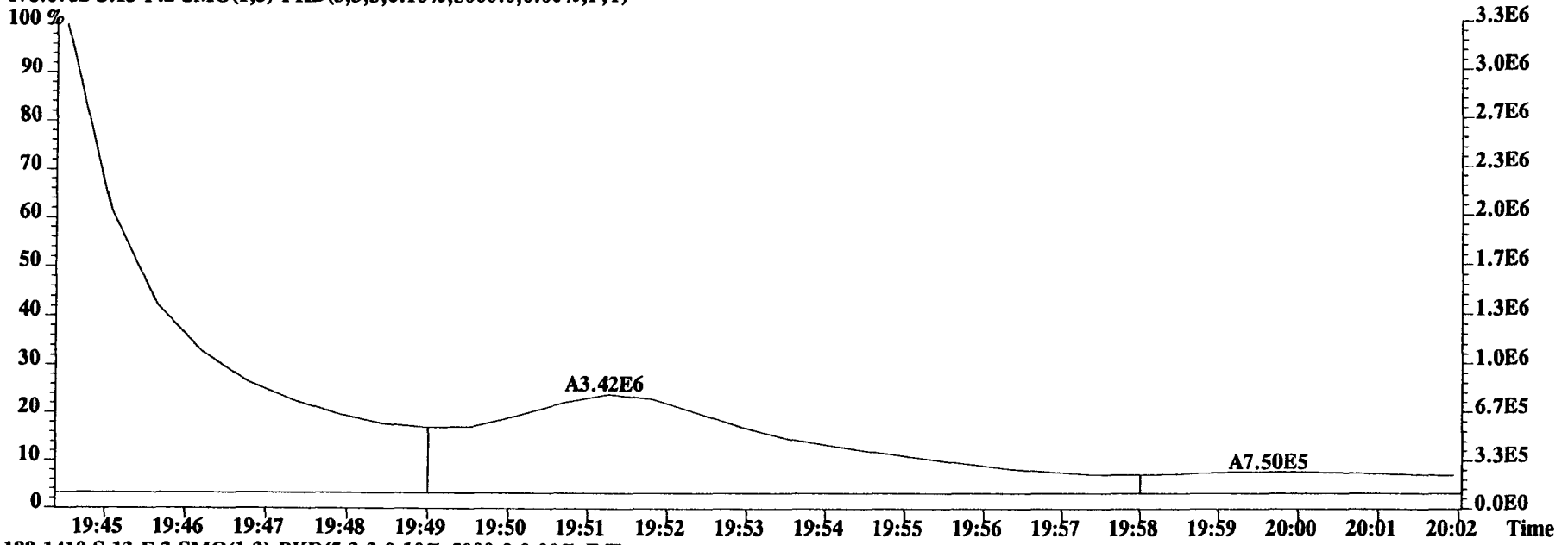
File:24AU98U #1-666 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
178.0782 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



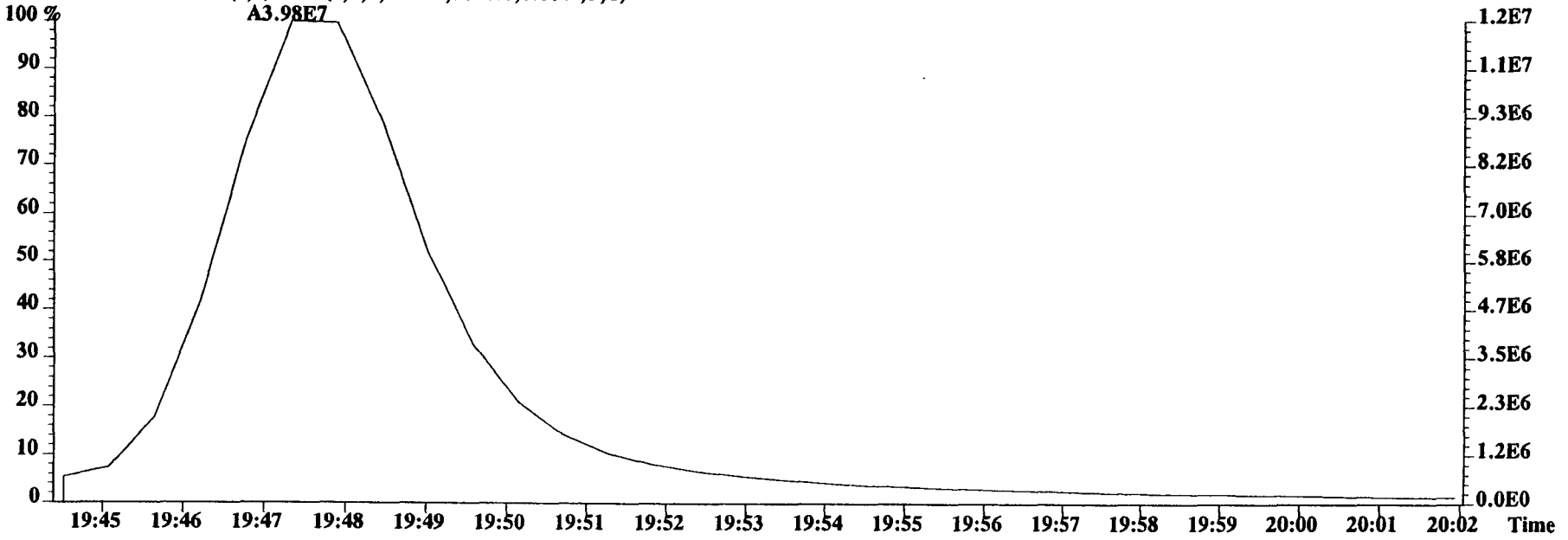
188.1410 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



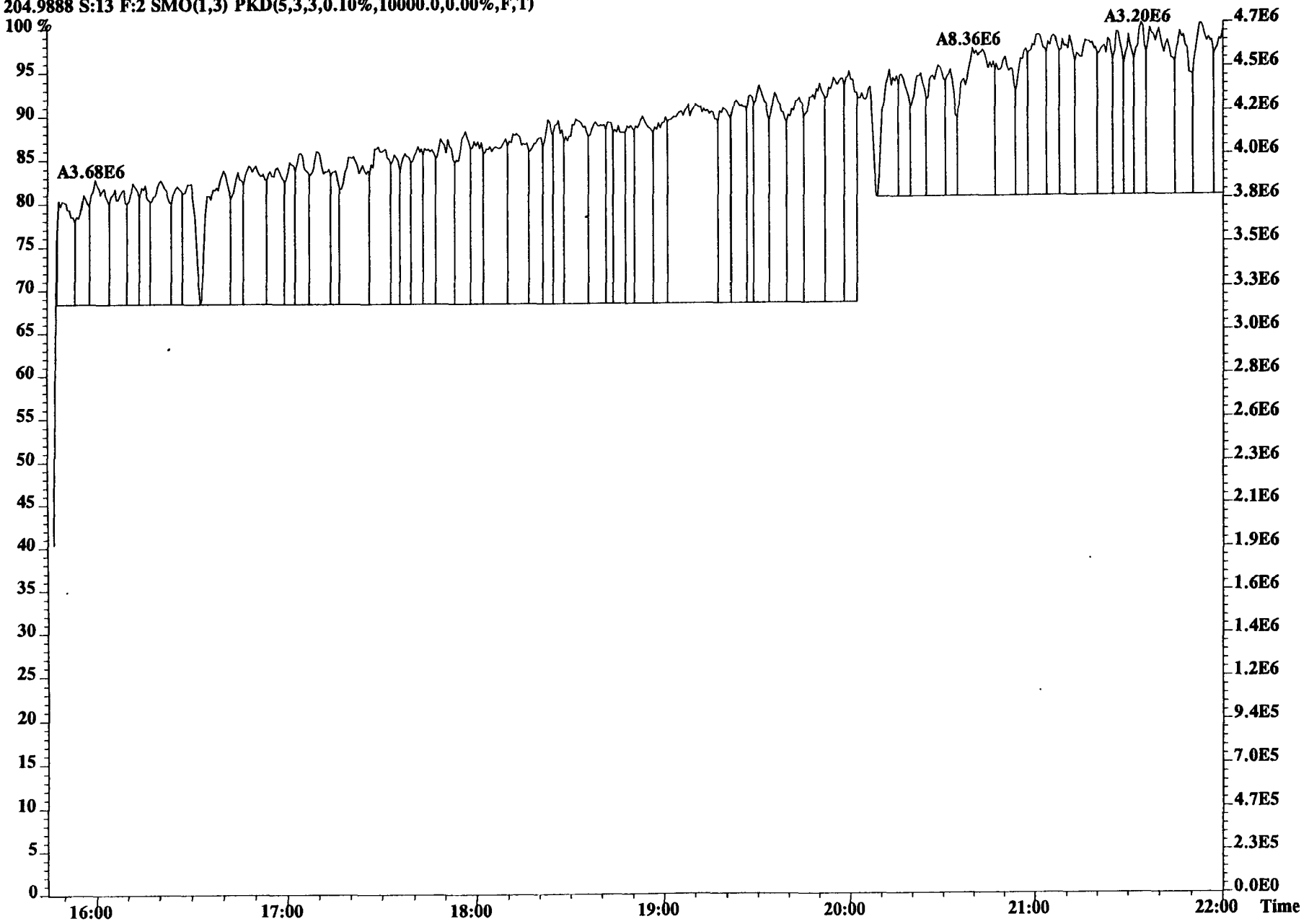
File:24AU98U #1-666 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
178.0782 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



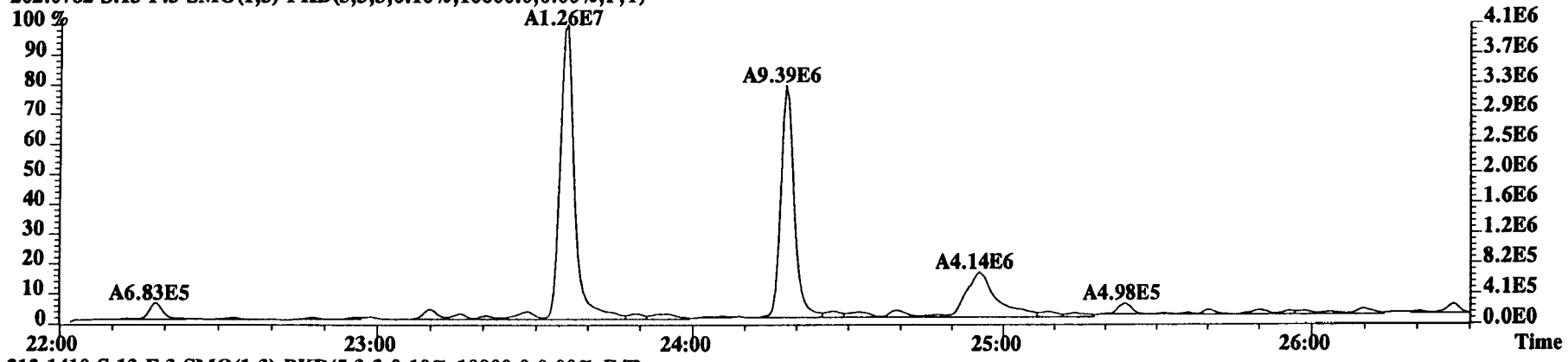
188.1410 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



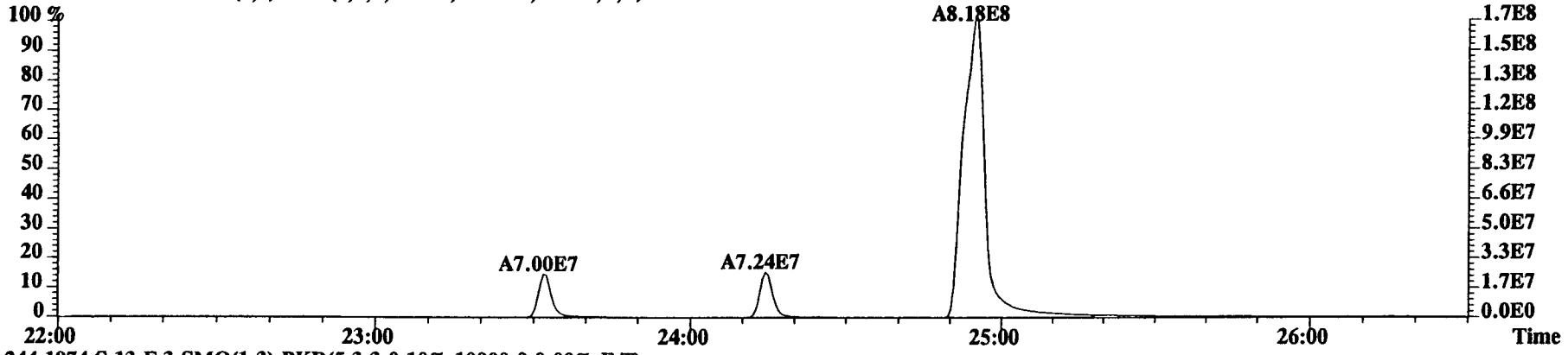
File:24AU98U #1-666 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
204.9888 S:13 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



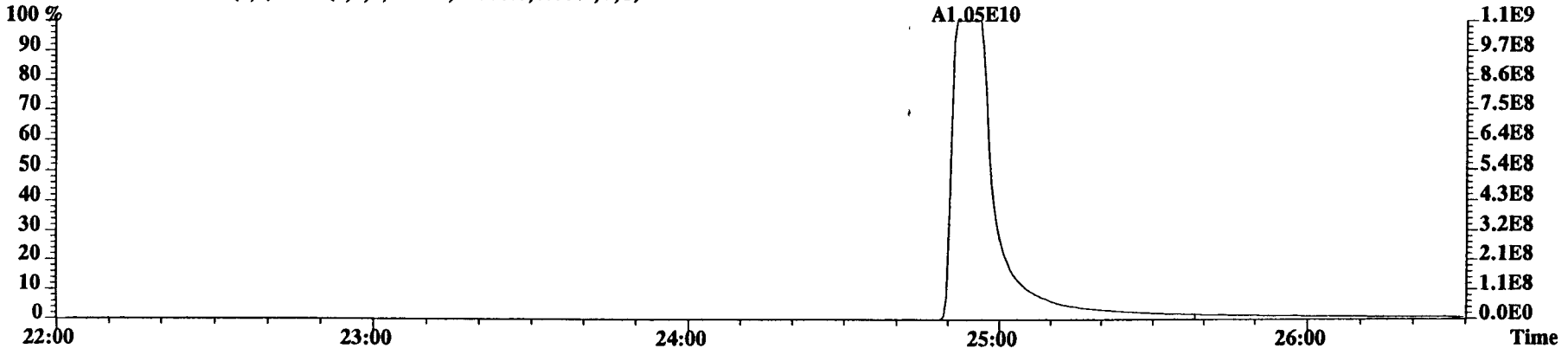
File:24AU98U #1-934 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
202.0782 S:13 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



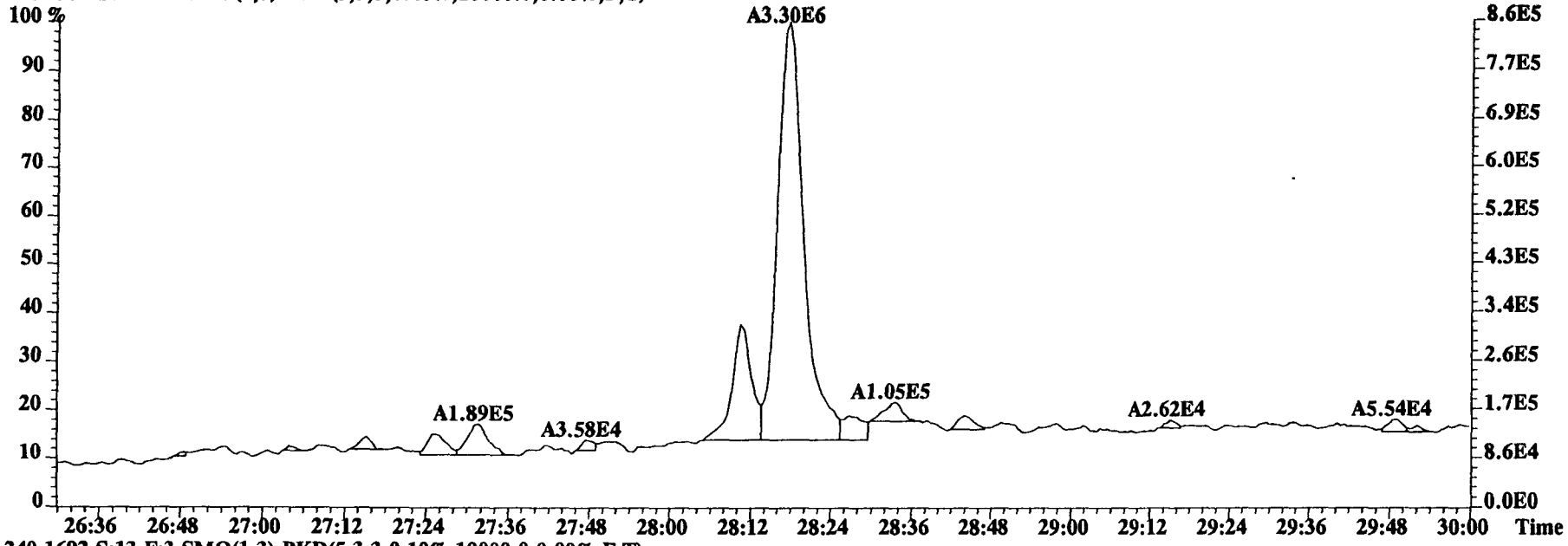
212.1410 S:13 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



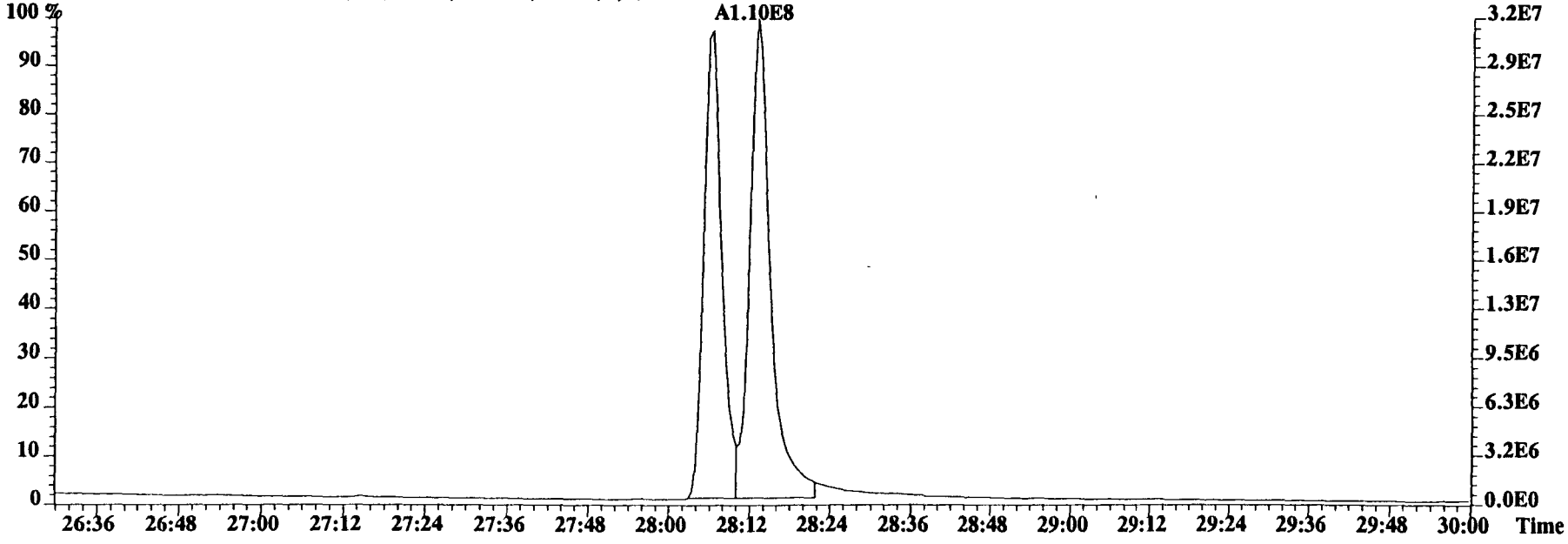
244.1974 S:13 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



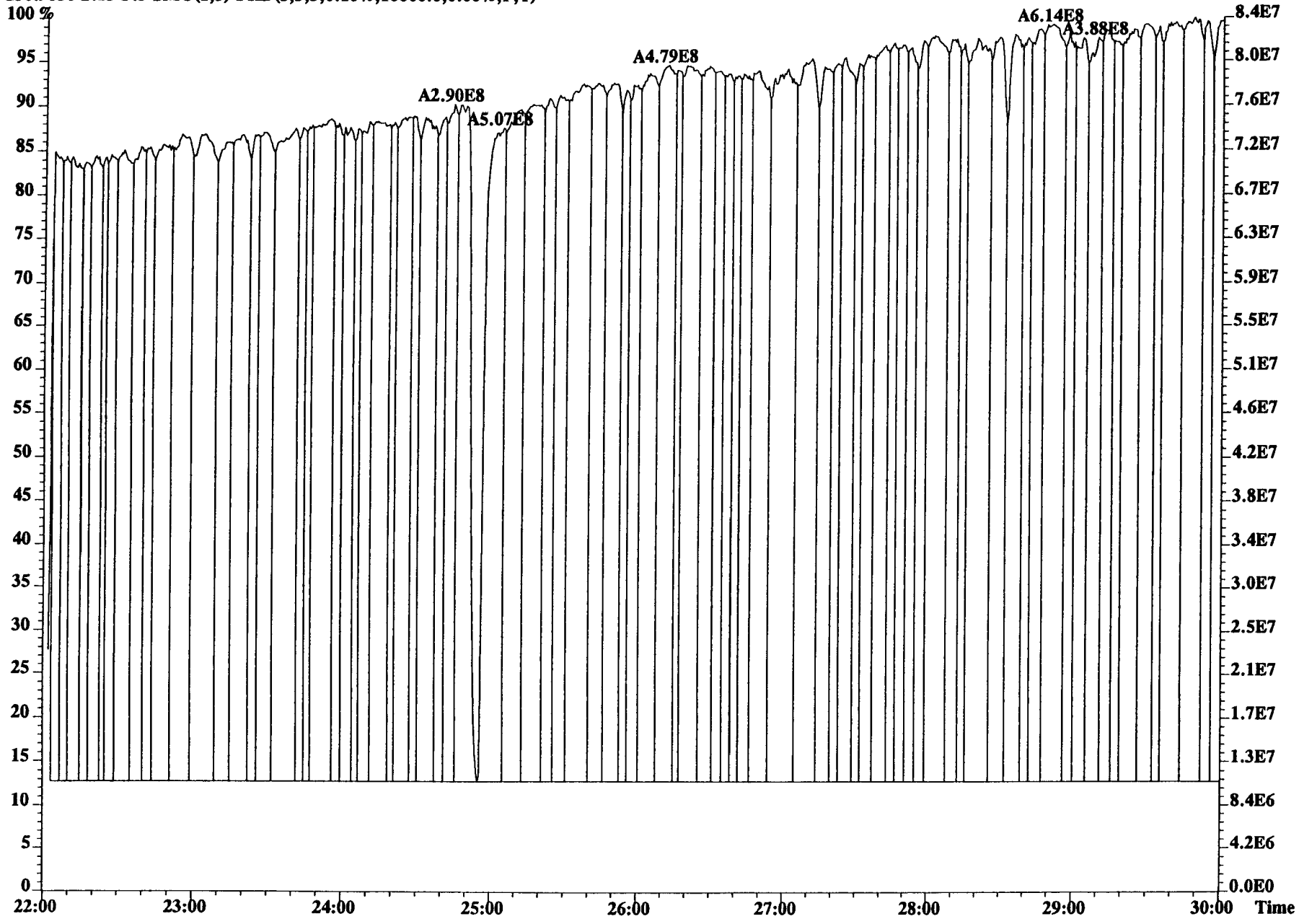
File:24AU98U #1-934 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
228.0939 S:13 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



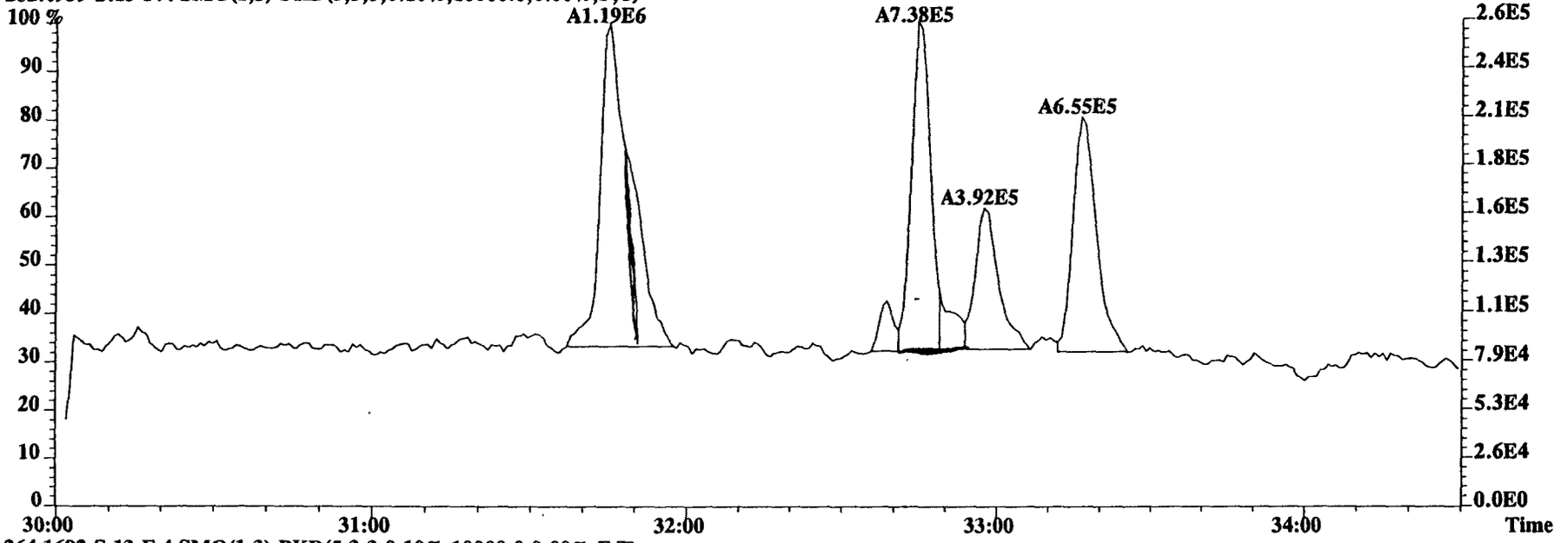
240.1692 S:13 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



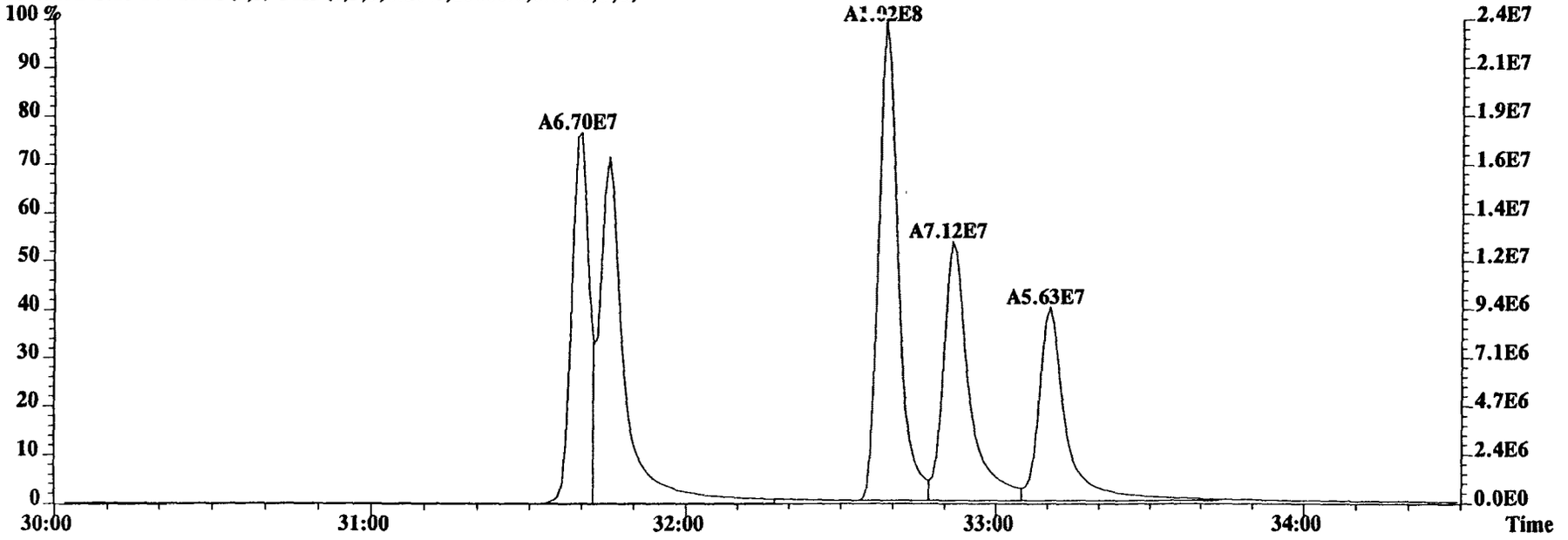
File:24AU98U #1-934 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
230.9856 S:13 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



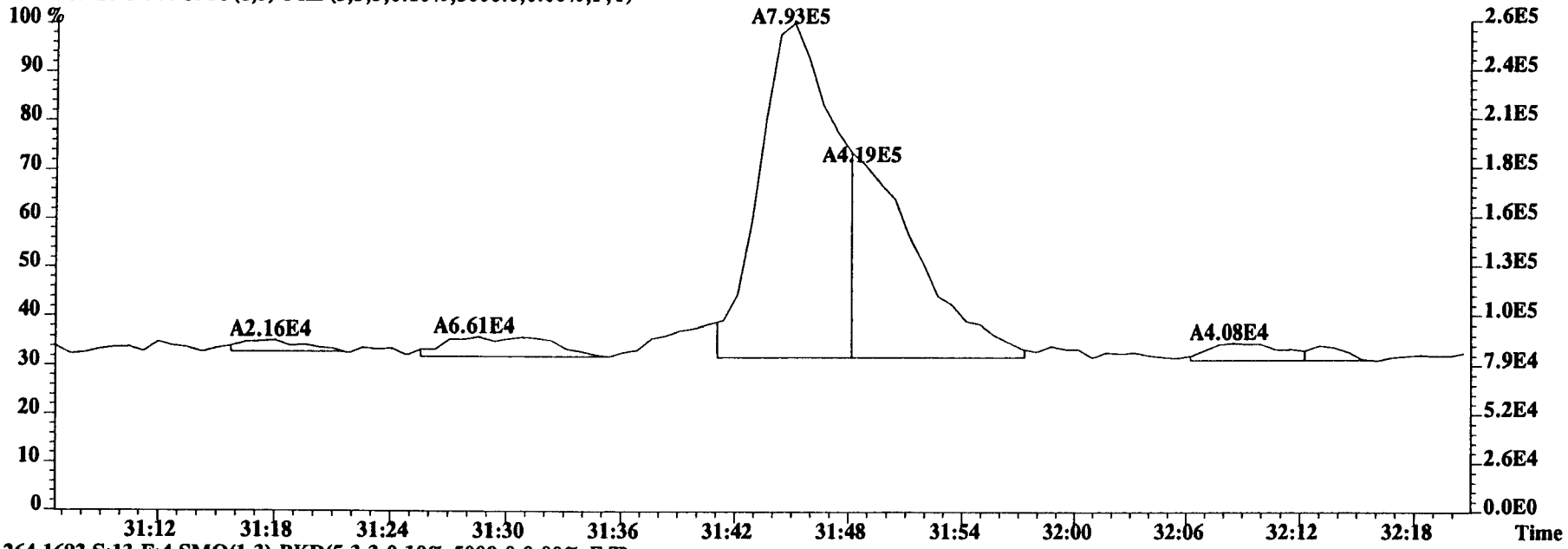
File:24AU98U #1-955 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
252.0939 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



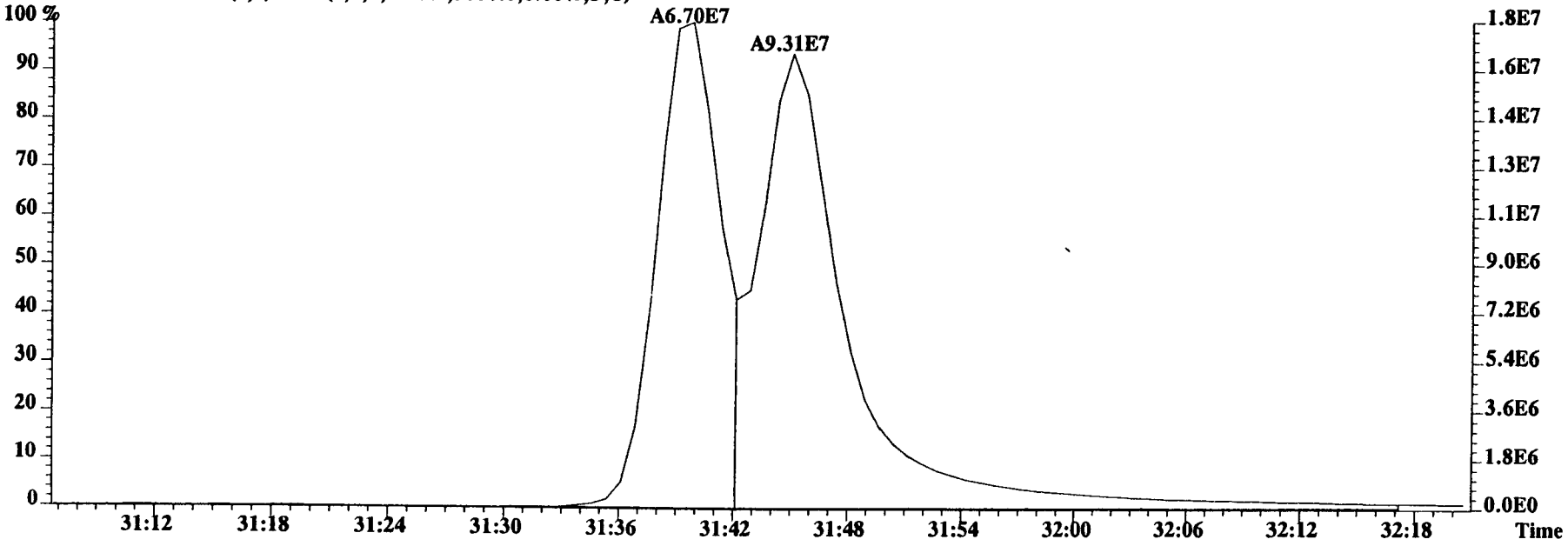
264.1692 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



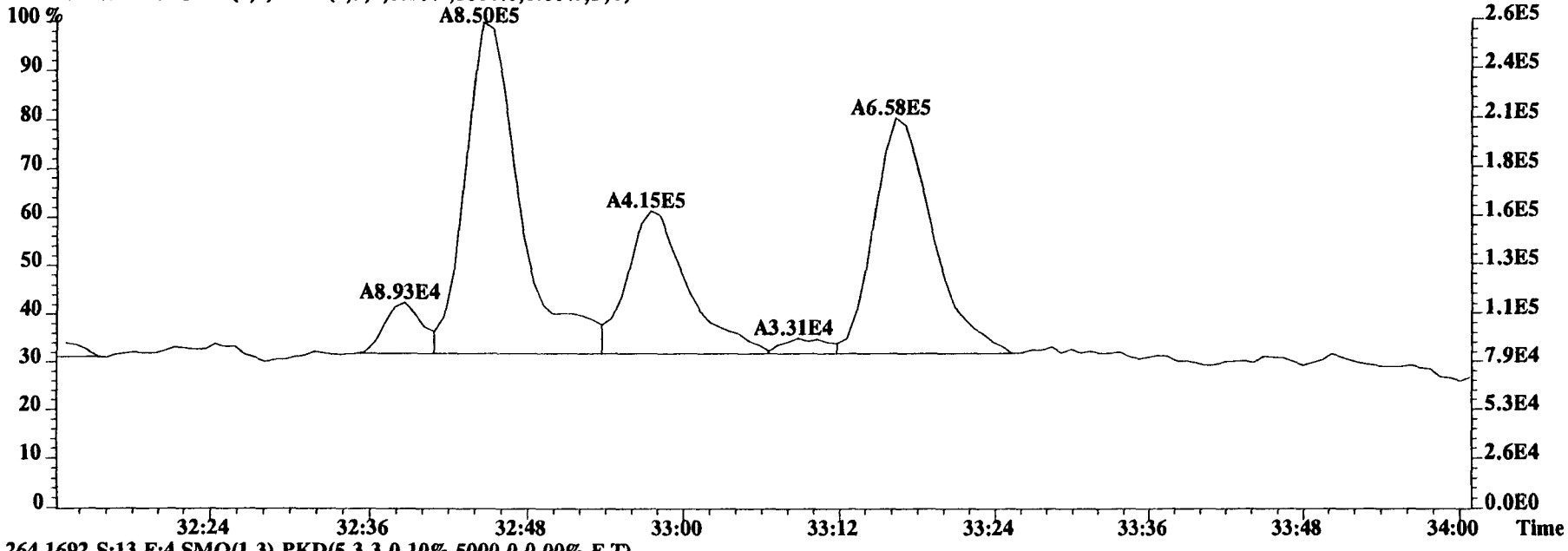
File:24AU98U #1-955 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
252.0939 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



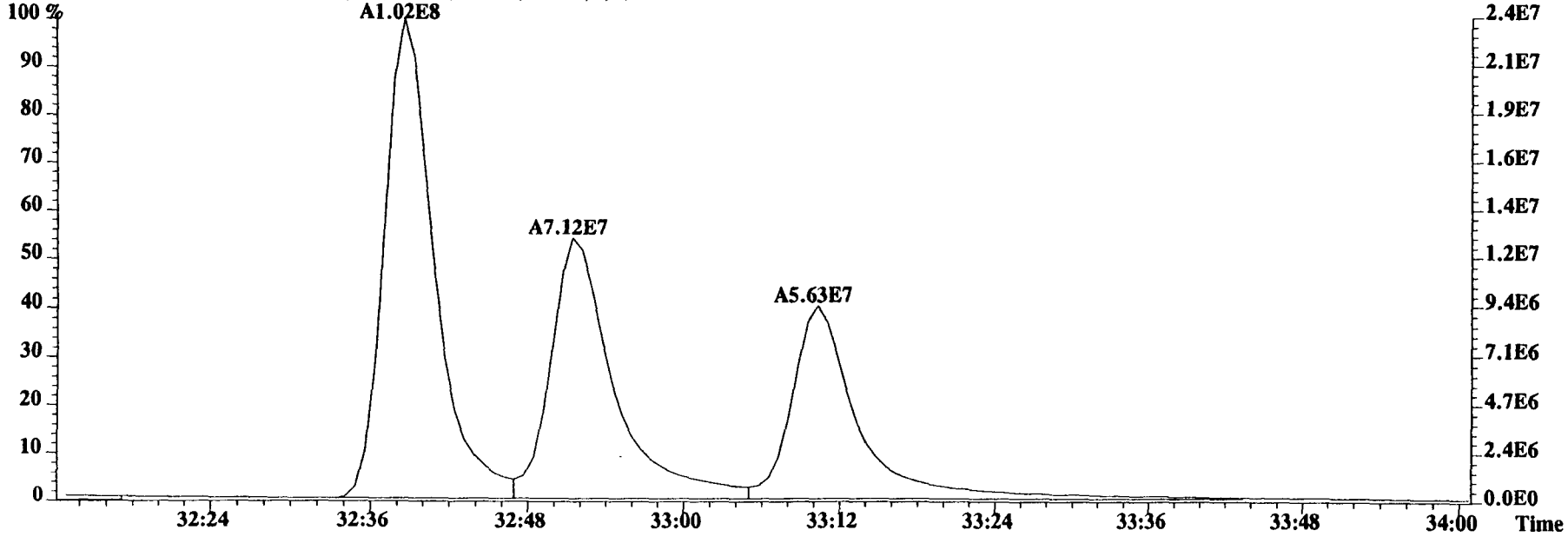
264.1692 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:24AU98U #1-955 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
252.0939 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



264.1692 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



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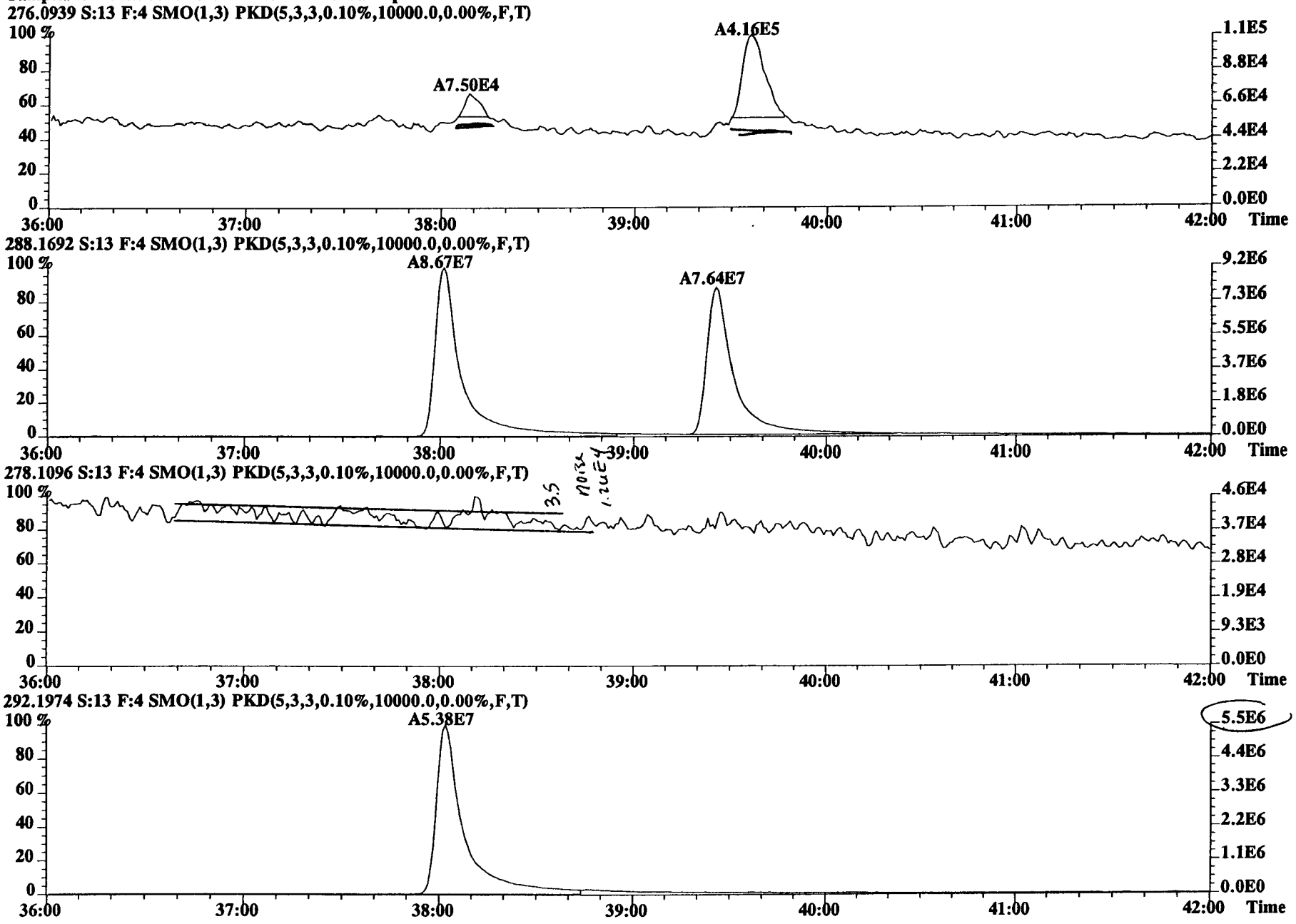
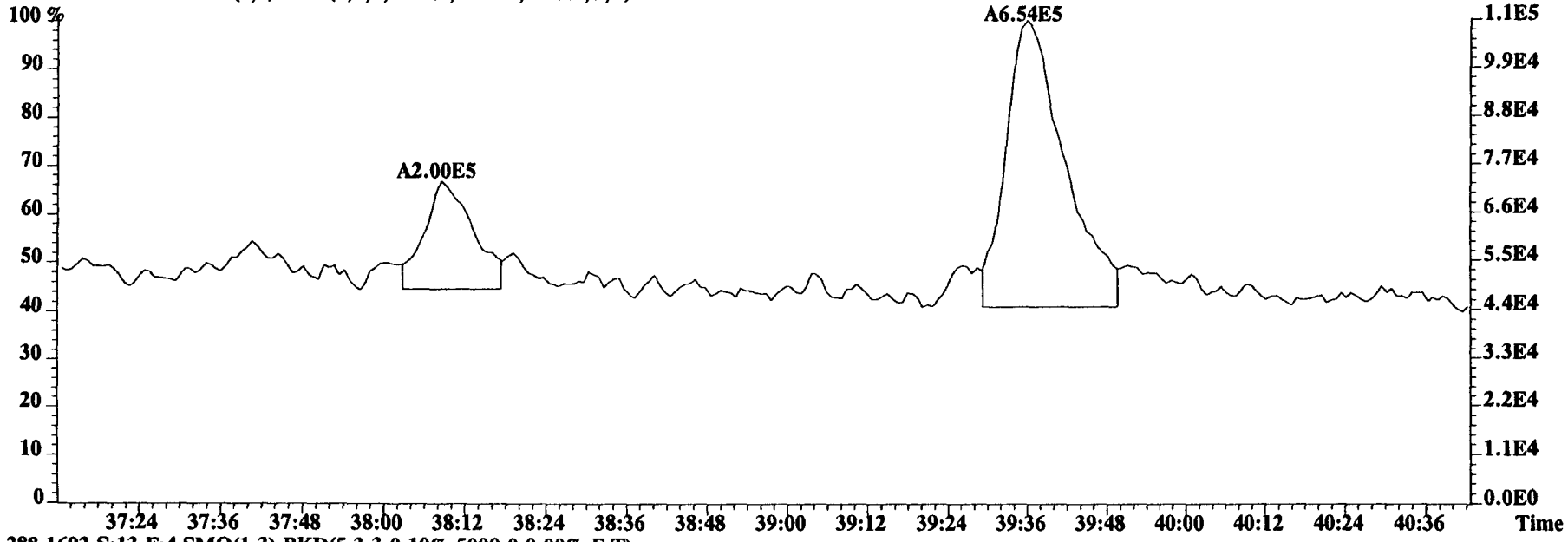
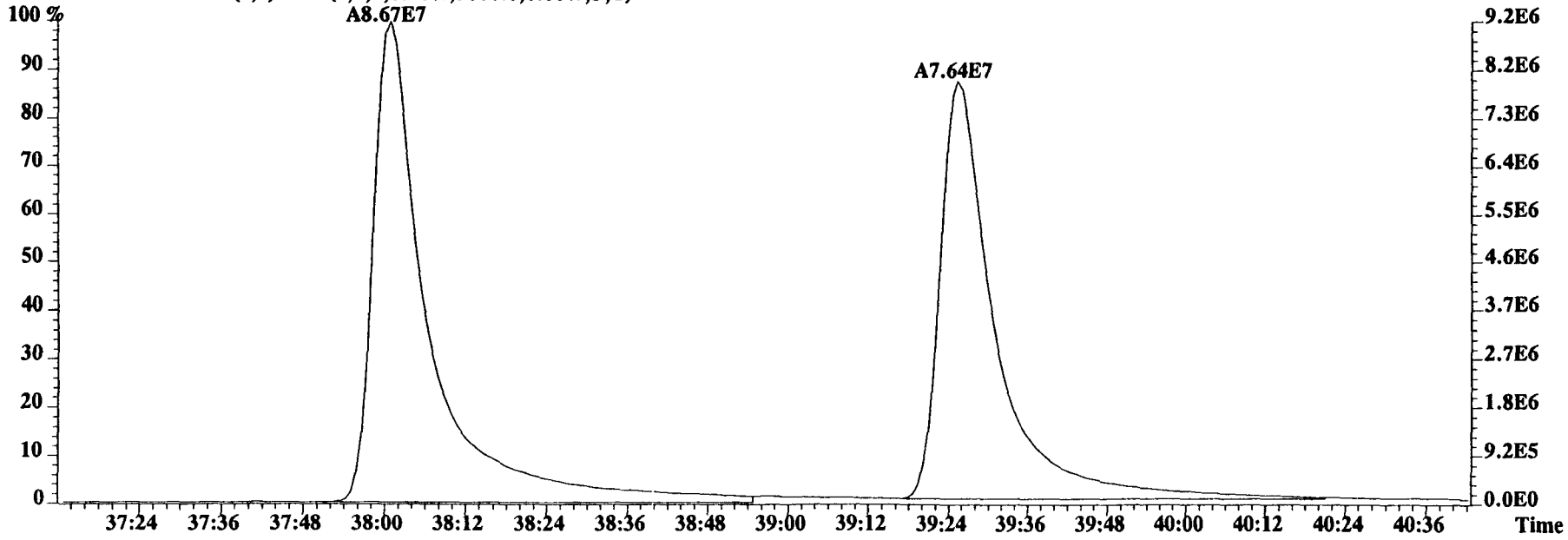
File:24AU98U #1-955 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR



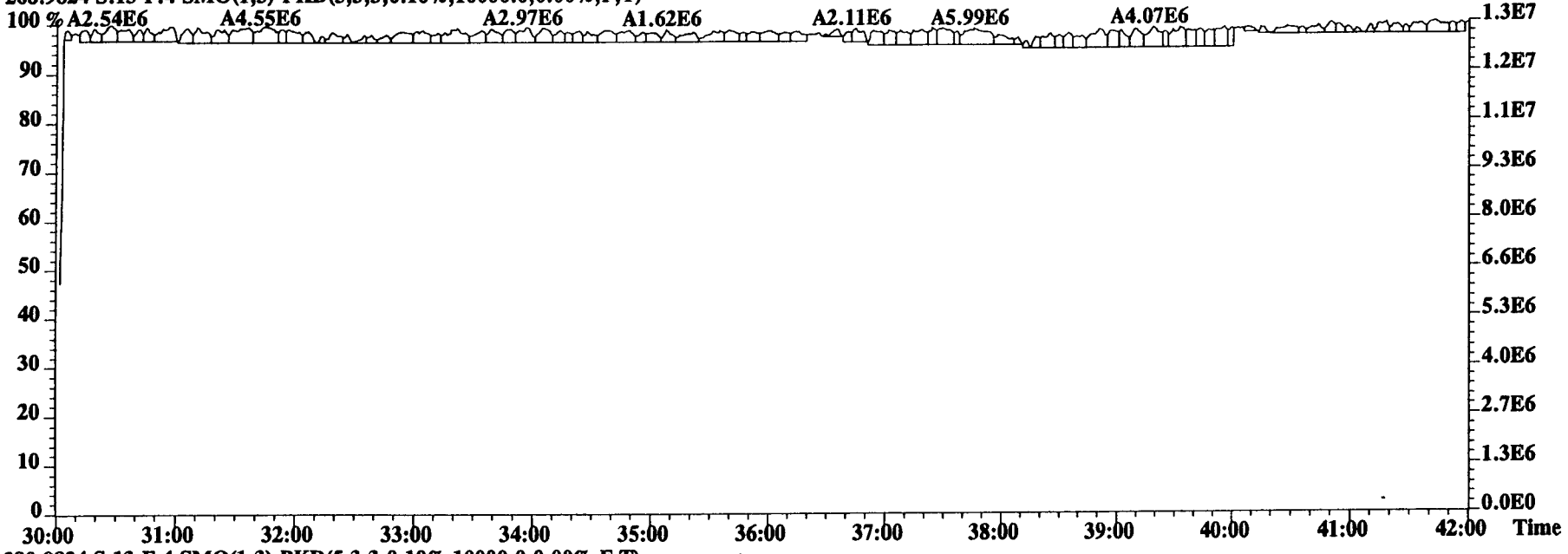
File:24AU98U #1-955 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
276.0939 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



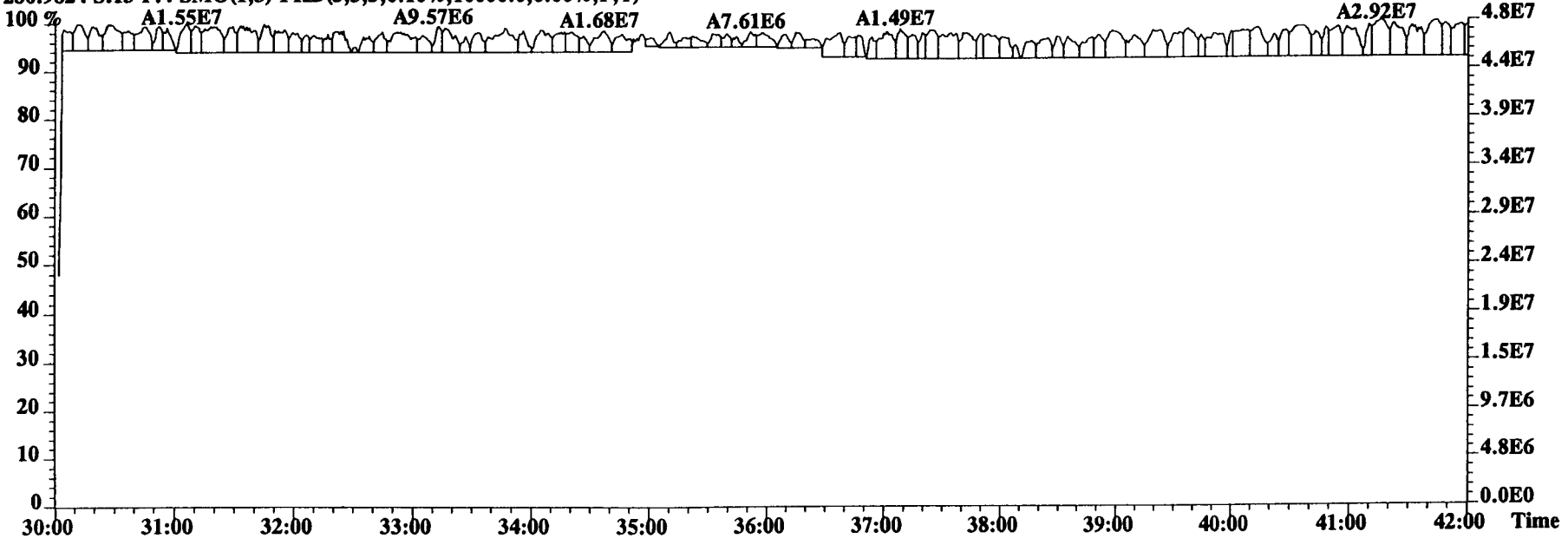
288.1692 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,5000.0,0.00%,F,T)



File:24AU98U #1-955 Acq:25-AUG-1998 02:53:36 GC EI+ Voltage SIR Autospec-Ultima
Sample#13 Text:300681-9 :T-MM5-RB-F :Tra Exp:PAHAIR
268.9824 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:13 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Results : 05OC98U301.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U 300681-10DI :1000X S-MM5-4 Ex Cal : PAHAIR100198U.RR
Weight : 0.00033

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ug/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	95034400	1.00	Y	10: 27	Y	1.00	0.05	RL=15
d8-Naphthalene	144626200	1.00	Y	8: 18	Y	1.78	0.04	85
Naphthalene	828332000	1.00	Y	8: 21	Y	1.20	722.94	
2-Methylnaphthalene	1266176000	1.00	Y	10: 34	Y	0.66	2019.54	
d8-Acenaphthylene	133899800	1.00	Y	13: 29	Y	1.16	0.06	121
Acenaphthylene	9160000	1.00	Y	13: 31	Y	1.02	10.12	<RL=15
d10-Acenaphthene	73552600	1.00	Y	14: 3	Y	0.68	0.06	113
Acenaphthene	91400000	1.00	Y	14: 10	Y	1.14	165.22	
d10-Anthracene	62004600	1.00	Y	19: 2	Y	1.00	0.05	
d10-Fluorene	78009600	1.00	Y	15: 45	Y	1.36	0.05	92
Fluorene	202000000	1.00	Y	15: 51	Y	1.15	342.40	
d10-Phenanthrene	166579800	1.00	Y	18: 52	Y	2.74	0.05	98
Phenanthrene	666000000	1.00	Y	18: 57	Y	0.95	636.02	
Anthracene	60000000	1.00	Y	19: 5	Y	0.97	56.13	
d14-Terphenyl	255524000	1.00	Y	24: 10	Y	1.00	0.05	
d10-Fluoranthene	185352800	1.00	Y	22: 46	Y	1.49	0.02	49 m
Fluoranthene	100800000	1.00	Y	22: 49	Y	1.23	66.89	
d10-Pyrene	190982600	1.00	Y	23: 28	Y	1.58	0.02	47 m
Pyrene	274000000	1.00	Y	23: 31	Y	1.26	172.89	
d12-Benzo(a)anthracene	106954200	1.00	Y	27: 20	Y	0.81	0.03	52
Benzo(a)anthracene	23200000	1.00	Y	27: 24	Y	1.28	25.67	
d12-Chrysene	130870600	1.00	Y	27: 27	Y	1.17	0.02	44 m
Chrysene	97000000	1.00	Y	27: 31	Y	1.16	96.78	
d12-Benzo(e)pyrene	146982000	1.00	Y	31: 40	Y	1.00	0.05	
d12-Benzo(b)fluoranthene	94644600	1.00	Y	30: 46	Y	0.48	0.07	134
Benzo(b)fluoranthene	7300000	1.00	Y	30: 50	Y	1.30	8.99	<RL=15
d12-Benzo(k)fluoranthene	142458400	1.00	Y	30: 51	Y	0.99	0.05	98
Benzo(k)fluoranthene	3080000	1.00	Y	30: 50	Y	1.20	2.72	<RL=15
d12-Benzo(a)pyrene	105998000	1.00	Y	31: 51	Y	0.74	0.05	98
Benzo(e)pyrene	10380000	1.00	Y	31: 46	Y	1.62	9.15	<RL=15
Benzo(a)pyrene	2560000	1.00	Y	31: 56	Y	1.11	3.29	<RL=15
d12-Perylene	89078400	1.00	Y	32: 8	Y	0.65	0.05	94
Perylene	14880000	1.00	Y	32: 14	Y	1.74	14.51	<RL=15
d12-Indeno(123-cd)pyrene	46754200	1.00	Y	36: 34	Y	0.37	0.04	85
Indeno(123-cd)pyrene	* No Peak	0.00	N	36: 37	N	0.60	0.00	<RL=15
d14-Dibenz(ah)anthracene	23771000	1.00	Y	36: 40	Y	0.20	0.04	80
Dibenz(ah)anthracene	* No Peak	0.00	N	36: 45	N	1.28	0.00	<RL=15
d12-Benzo(ghi)perylene	46992600	1.00	Y	37: 50	Y	0.41	0.04	280 78
Benzo(ghi)perylene	* No Peak	0.00	N	37: 54	N	1.11	0.00	<RL=15

mtt 10-15-98

15-OCT-1998 10:29:32 AM Dioxin Furan Unknown RESULTS

05OC98U301.RES : PAHAIR.TRG
Date analyzed : 05-OCT-98 0.00033
:1000X S-MM5-4 Ex Cal : PAHAIR100198U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ug/ SAMPLE	Rec/ MDL		
1.00 Y	10: 27 Y	1.00	0.05		47517200	47517200
1.00 Y	8: 18 Y	1.78	0.04	85	72313100	72313100
1.00 Y	8: 21 Y	1.20	722.94		414166000	414166000
1.00 Y	10: 34 Y	0.66	2019.54		633088000	633088000
1.00 Y	13: 29 Y	1.16	0.06	121	66949900	66949900
1.00 Y	13: 31 Y	1.02	10.12<RL=15		4580000	4580000
1.00 Y	14: 3 Y	0.68	0.06	113	36776300	36776300
1.00 Y	14: 10 Y	1.14	165.22		45700000	45700000
1.00 Y	19: 2 Y	1.00	0.05		31002300	31002300
1.00 Y	15: 45 Y	1.36	0.05	92	39004800	39004800
1.00 Y	15: 51 Y	1.15	342.40		101000000	101000000
1.00 Y	18: 52 Y	2.74	0.05	98	83289900	83289900
1.00 Y	18: 57 Y	0.95	636.02		333000000	333000000
1.00 Y	19: 5 Y	0.97	56.13		30000000	30000000
1.00 Y	24: 10 Y	1.00	0.05		127762000	127762000
1.00 Y	22: 46 Y	1.49	0.02	49	92676400	92676400
1.00 Y	22: 49 Y	1.23	66.89		50400000	50400000
1.00 Y	23: 28 Y	1.58	0.02	47	95491300	95491300
1.00 Y	23: 31 Y	1.26	172.89		137000000	137000000
1.00 Y	27: 20 Y	0.81	0.03	52	53477100	53477100
1.00 Y	27: 24 Y	1.28	25.67		11600000	11600000
1.00 Y	27: 27 Y	1.17	0.02	44	65435300	65435300
1.00 Y	27: 31 Y	1.16	96.78		48500000	48500000
1.00 Y	31: 40 Y	1.00	0.05		73491000	73491000
1.00 Y	30: 46 Y	0.48	0.07	134	47322300	47322300
1.00 Y	30: 50 Y	1.30	8.99<RL=15		3650000	3650000
1.00 Y	30: 51 Y	0.99	0.05	98	71229200	71229200
1.00 Y	30: 50 Y	1.20	2.72<RL=15		1540000	1540000
1.00 Y	31: 51 Y	0.74	0.05	98	52999000	52999000
1.00 Y	31: 46 Y	1.62	9.15<RL=15		5190000	5190000
1.00 Y	31: 56 Y	1.11	3.29<RL=15		1280000	1280000
1.00 Y	32: 8 Y	0.65	0.05	94	44539200	44539200
1.00 Y	32: 14 Y	1.74	14.51<RL=15		7440000	7440000
1.00 Y	36: 34 Y	0.37	0.04	85	23377100	23377100
0.00 N	36: 37 N	0.60	0.00<RL=15		0	0
1.00 Y	36: 40 Y	0.20	0.04	80	11885500	11885500
0.00 N	36: 45 N	1.28	0.00<RL=15		0	0
1.00 Y	37: 50 Y	0.41	0.04	78	23496300	23496300
0.00 N	37: 54 N	1.11	0.00<RL=15		0	0

13-OCT-1998 11:01:55 AM Dioxin Furan Unknown RESULTS

Results : 05OC98U301.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U 300681-10DI :1000X S-MM5-4 Ex Cal : PAHAIR100198U.RRF
Weight : 0.000~~833~~

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	µg ~~ng~~/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	95034400	1.00 Y	10: 27 Y	1.00	0.05	
d8-Naphthalene	144626200	1.00 Y	8: 18 Y	1.78	0.04	85
Naphthalene	828332000	1.00 Y	8: 21 Y	1.20	477.14	
2-Methylnaphthalene	1266176000	1.00 Y	10: 34 Y	0.66	1332.90	
d8-Acenaphthylene	133899800	1.00 Y	13: 29 Y	1.16	0.06	121
Acenaphthylene	9160000	1.00 Y	13: 31 Y	1.02	6.68 ~~<RL=100~~ =DL	
d10-Acenaphthene	73552600	1.00 Y	14: 3 Y	0.68	0.06	113
Acenaphthene	91400000	1.00 Y	14: 10 Y	1.14	109.04	
d10-Anthracene	62004600	1.00 Y	19: 2 Y	1.00	0.05	
d10-Fluorene	78009600	1.00 Y	15: 45 Y	1.36	0.05	92
Fluorene	202000000	1.00 Y	15: 51 Y	1.15	225.98	
d10-Phenanthrene	166579800	1.00 Y	18: 52 Y	2.74	0.05	98
Phenanthrene	666000000	1.00 Y	18: 57 Y	0.95	419.78	
Anthracene	60000000	1.00 Y	19: 5 Y	0.97	37.05 ~~<RL=100~~	
d14-Terphenyl	255524000	1.00 Y	24: 10 Y	1.00	0.05	
d10-Fluoranthene	185352800	1.00 Y	22: 46 Y	1.49	0.02	49 m
Fluoranthene	100800000	1.00 Y	22: 49 Y	1.23	44.15 ~~<RL=100~~	
d10-Pyrene	190982600	1.00 Y	23: 28 Y	1.58	0.02	47 m
Pyrene	274000000	1.00 Y	23: 31 Y	1.26	114.11	
d12-Benzo(a)anthracene	106954200	1.00 Y	27: 20 Y	0.81	0.03	52
Benzo(a)anthracene	23200000	1.00 Y	27: 24 Y	1.28	16.94 ~~<RL=100~~	
d12-Chrysene	130870600	1.00 Y	27: 27 Y	1.17	0.02	44 m
Chrysene	97000000	1.00 Y	27: 31 Y	1.16	63.87 ~~<RL=100~~	
d12-Benzo(e)pyrene	146982000	1.00 Y	31: 40 Y	1.00	0.05	
d12-Benzo(b)fluoranthene	94644600	1.00 Y	30: 46 Y	0.48	0.07	134
Benzo(b)fluoranthene	7300000	1.00 Y	30: 50 Y	1.30	5.94 ~~<RL=100~~ =DL	
d12-Benzo(k)fluoranthene	142458400	1.00 Y	30: 51 Y	0.99	0.05	98
Benzo(k)fluoranthene	3080000	1.00 Y	30: 50 Y	1.20	1.80 ~~<RL=100~~ =DL	
d12-Benzo(a)pyrene	105998000	1.00 Y	31: 51 Y	0.74	0.05	98
Benzo(e)pyrene	10380000	1.00 Y	31: 46 Y	1.62	6.04 ~~<RL=100~~ =DL	
Benzo(a)pyrene	2560000	1.00 Y	31: 56 Y	1.11	2.17 ~~<RL=100~~ =DL	
d12-Perylene	89078400	1.00 Y	32: 8 Y	0.65	0.05	94
Perylene	14880000	1.00 Y	32: 14 Y	1.74	9.58 ~~<RL=100~~ =DL	
d12-Indeno(123-cd)pyrene	46754200	1.00 Y	36: 34 Y	0.37	0.04	85
Indeno(123-cd)pyrene	* No Peak	0.00 N	36: 37 N	0.60	0.00 ~~<RL=100~~ <10 =DL	
d14-Dibenz(ah)anthracene	23771000	1.00 Y	36: 40 Y	0.20	0.04	80
Dibenz(ah)anthracene	* No Peak	0.00 N	36: 45 N	1.28	0.00 ~~<RL=100~~ <10=DL	
d12-Benzo(ghi)perylene	46992600	1.00 Y	37: 50 Y	0.41	0.04	78
Benzo(ghi)perylene	* No Peak	0.00 N	37: 54 N	1.11	0.00 ~~<RL=100~~ <10=DL	

MJP 10-13-98

13-OCT-1998 11:01:49 AM Dioxin Furan Unknown RESULTS

05OC98U301.RES : PAHAIR.TRG
Date analyzed : 05-OCT-98 0.0005
:1000X S-MM5-4 Ex Cal : PAHAIR100198U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL		
1.00 Y	10: 27 Y	1.00	0.05		47517200	47517200
1.00 Y	8: 18 Y	1.78	0.04	85	72313100	72313100
1.00 Y	8: 21 Y	1.20	477.14		414166000	414166000
1.00 Y	10: 34 Y	0.66	1332.90		633088000	633088000
1.00 Y	13: 29 Y	1.16	0.06	121	66949900	66949900
1.00 Y	13: 31 Y	1.02	6.68	<RL=100	4580000	4580000
1.00 Y	14: 3 Y	0.68	0.06	113	36776300	36776300
1.00 Y	14: 10 Y	1.14	109.04		45700000	45700000
1.00 Y	19: 2 Y	1.00	0.05		31002300	31002300
1.00 Y	15: 45 Y	1.36	0.05	92	39004800	39004800
1.00 Y	15: 51 Y	1.15	225.98		101000000	101000000
1.00 Y	18: 52 Y	2.74	0.05	98	83289900	83289900
1.00 Y	18: 57 Y	0.95	419.78		333000000	333000000
1.00 Y	19: 5 Y	0.97	37.05	<RL=100	30000000	30000000
1.00 Y	24: 10 Y	1.00	0.05		127762000	127762000
1.00 Y	22: 46 Y	1.49	0.02	49	92676400	92676400
1.00 Y	22: 49 Y	1.23	44.15	<RL=100	50400000	50400000
1.00 Y	23: 28 Y	1.58	0.02	47	95491300	95491300
1.00 Y	23: 31 Y	1.26	114.11		137000000	137000000
1.00 Y	27: 20 Y	0.81	0.03	52	53477100	53477100
1.00 Y	27: 24 Y	1.28	16.94	<RL=100	11600000	11600000
1.00 Y	27: 27 Y	1.17	0.02	44	65435300	65435300
1.00 Y	27: 31 Y	1.16	63.87	<RL=100	48500000	48500000
1.00 Y	31: 40 Y	1.00	0.05		73491000	73491000
1.00 Y	30: 46 Y	0.48	0.07	134	47322300	47322300
1.00 Y	30: 50 Y	1.30	5.94	<RL=100	3650000	3650000
1.00 Y	30: 51 Y	0.99	0.05	98	71229200	71229200
1.00 Y	30: 50 Y	1.20	1.80	<RL=100	1540000	1540000
1.00 Y	31: 51 Y	0.74	0.05	98	52999000	52999000
1.00 Y	31: 46 Y	1.62	6.04	<RL=100	5190000	5190000
1.00 Y	31: 56 Y	1.11	2.17	<RL=100	1280000	1280000
1.00 Y	32: 8 Y	0.65	0.05	94	44539200	44539200
1.00 Y	32: 14 Y	1.74	9.58	<RL=100	7440000	7440000
1.00 Y	36: 34 Y	0.37	0.04	85	23377100	23377100
0.00 N	36: 37 N	0.60	0.00	<RL=100	0	0
1.00 Y	36: 40 Y	0.20	0.04	80	11885500	11885500
0.00 N	36: 45 N	1.28	0.00	<RL=100	0	0
1.00 Y	37: 50 Y	0.41	0.04	78	23496300	23496300
0.00 N	37: 54 N	1.11	0.00	<RL=100	0	0

Mass Spec : ULTIMA Results : 05OC98U301.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U 300681-10DI :100X S-MM5-4 Ex Cal : PAHAIR100198U.RR
Weight : 0.5

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	95034400	1.00	Y	10: 27	Y	1.00	50.00	
d8-Naphthalene	144626200	1.00	Y	8: 18	Y	1.78	42.67	85
Naphthalene	828332000	1.00	Y	8: 21	Y	1.20	477.14	0.000
2-Methylnaphthalene	1266176000	1.00	Y	10: 34	Y	0.66	1332.90	0.000
d8-Acenaphthylene	133899800	1.00	Y	13: 29	Y	1.16	60.54	121
Acenaphthylene	* No Peak	0.00	N	13: 31	Y	1.02	0.00	0.000
d10-Acenaphthene	73552600	1.00	Y	14: 3	Y	0.68	56.74	113
Acenaphthene	100862800	1.00	Y	14: 10	Y	1.14	120.33	0.000
d10-Anthracene	62004600	1.00	Y	19: 2	Y	1.00	50.00	
d10-Fluorene	78009600	1.00	Y	15: 45	Y	1.36	46.18	92
Fluorene	222580000	1.00	Y	15: 51	Y	1.15	249.01	0.000
d10-Phenanthrene	166579800	1.00	Y	18: 52	Y	2.74	49.06	98
Phenanthrene	701316000	1.00	Y	18: 57	Y	0.95	442.04	0.000
Anthracene	* No Peak	0.00	N	19: 5	N	0.97	0.00	0.000
d14-Terphenyl	255524000	1.00	Y	24: 10	Y	1.00	50.00	
d10-Fluoranthene	185352800	1.00	Y	22: 46	Y	1.49	24.32	49
Fluoranthene	122494000	1.00	Y	22: 49	Y	1.23	53.65	0.000
d10-Pyrene	190982600	1.00	Y	23: 28	Y	1.58	23.72	47
Pyrene	372234000	1.00	Y	23: 31	Y	1.26	155.02	0.000
d12-Benzo(a)anthracene	106954200	1.00	Y	27: 20	Y	0.81	25.77	52
Benzo(a)anthracene	36411400	1.00	Y	27: 24	Y	1.28	26.59	0.000
d12-Chrysene	130870600	1.00	Y	27: 27	Y	1.17	21.94	44
Chrysene	106381400	1.00	Y	27: 31	Y	1.16	70.05	0.000
d12-Benzo(e)pyrene	146982000	1.00	Y	31: 40	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	94644600	1.00	Y	30: 46	Y	0.48	66.93	134
Benzo(b)fluoranthene	13066720	1.00	Y	30: 50	Y	1.30	10.63	0.000
d12-Benzo(k)fluoranthene	142458400	1.00	Y	30: 51	Y	0.99	49.14	98
Benzo(k)fluoranthene	13066720	1.00	Y	30: 50	Y	1.20	7.63	0.000
d12-Benzo(a)pyrene	105998000	1.00	Y	31: 51	Y	0.74	48.80	98
Benzo(e)pyrene	13246580	1.00	Y	31: 46	Y	1.62	7.71	0.000
Benzo(a)pyrene	3693180	1.00	Y	31: 56	Y	1.11	3.14	0.000
d12-Perylene	89078400	1.00	Y	32: 8	Y	0.65	46.88	94
Perylene	17416420	1.00	Y	32: 14	Y	1.74	11.21	0.000
d12-Indeno(123-cd)pyrene	46754200	1.00	Y	36: 34	Y	0.37	42.72	85
Indeno(123-cd)pyrene	* No Peak	0.00	N	36: 37	N	0.60	0.00	0.000
d14-Dibenz(ah)anthracene	23771000	1.00	Y	36: 40	Y	0.20	39.76	80
Dibenz(ah)anthracene	* No Peak	0.00	N	36: 45	N	1.28	0.00	0.000
d12-Benzo(ghi)perylene	46992600	1.00	Y	37: 50	Y	0.41	39.06	78
Benzo(ghi)perylene	* No Peak	0.00	N	37: 54	N	1.11	0.00	0.000

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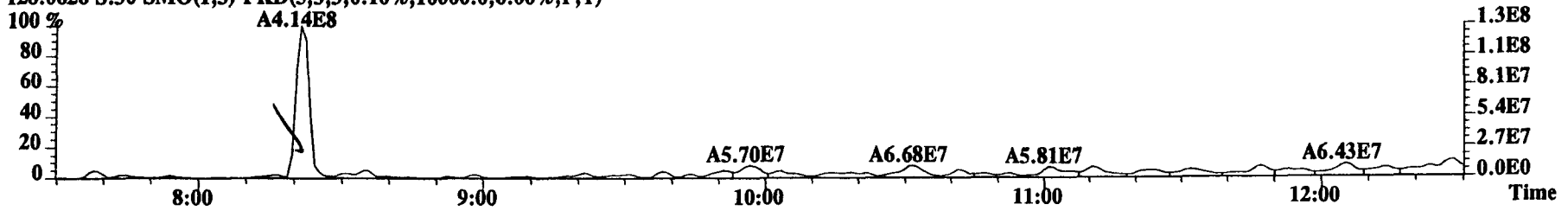
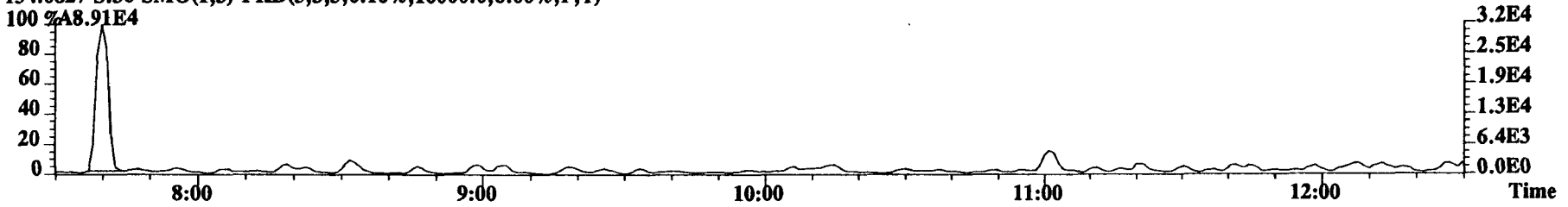
File:05OC98U #1-509 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR

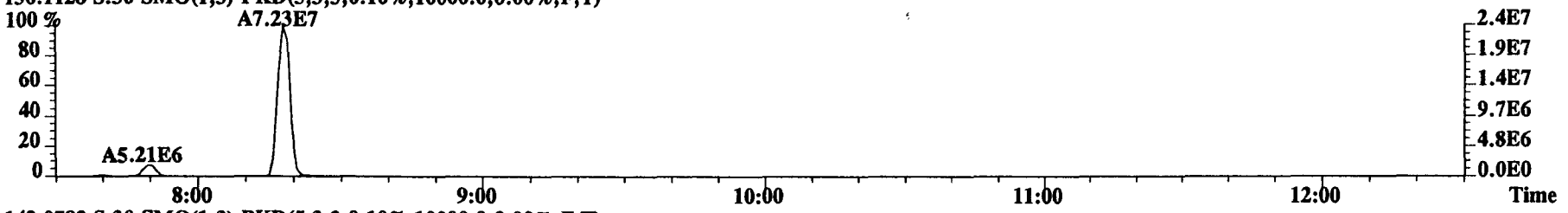
128.0626 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



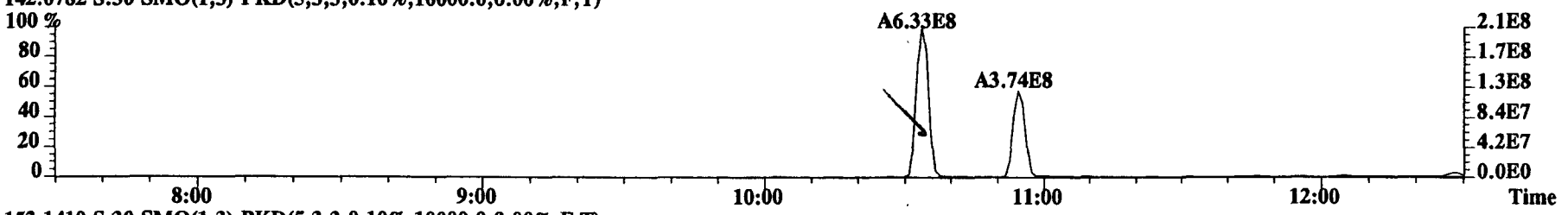
134.0827 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



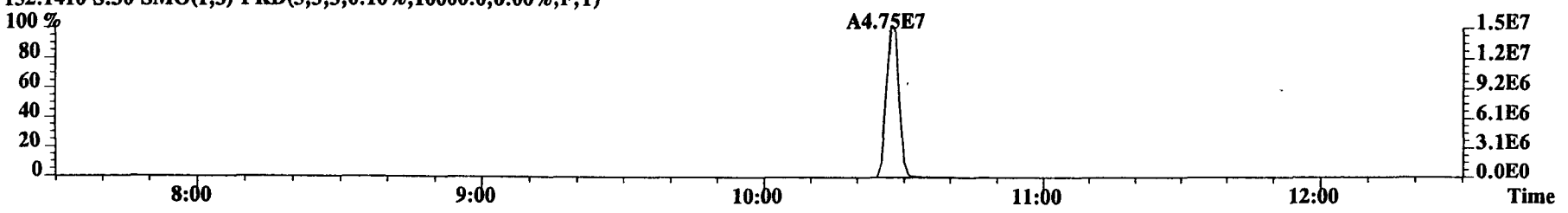
136.1128 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



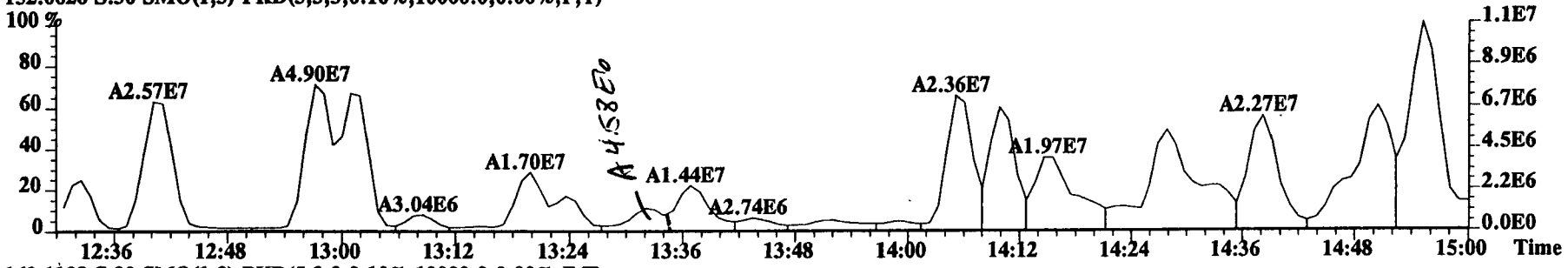
142.0782 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



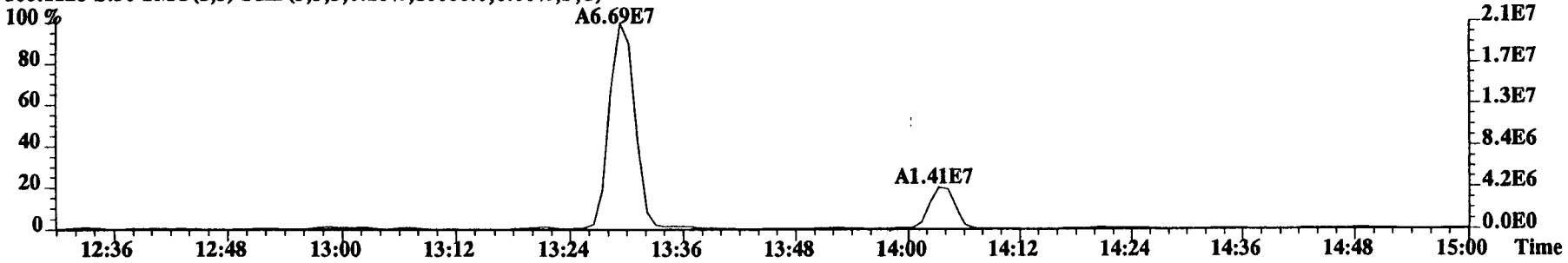
152.1410 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



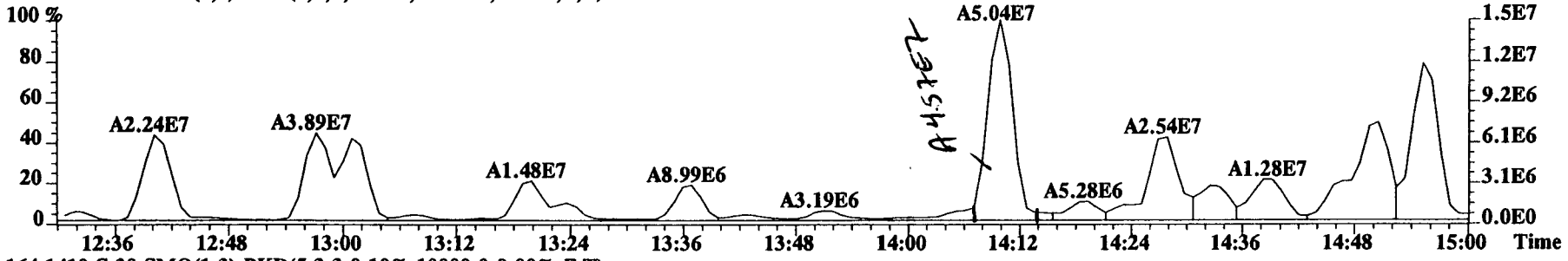
File:05OC98U #1-509 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
152.0626 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



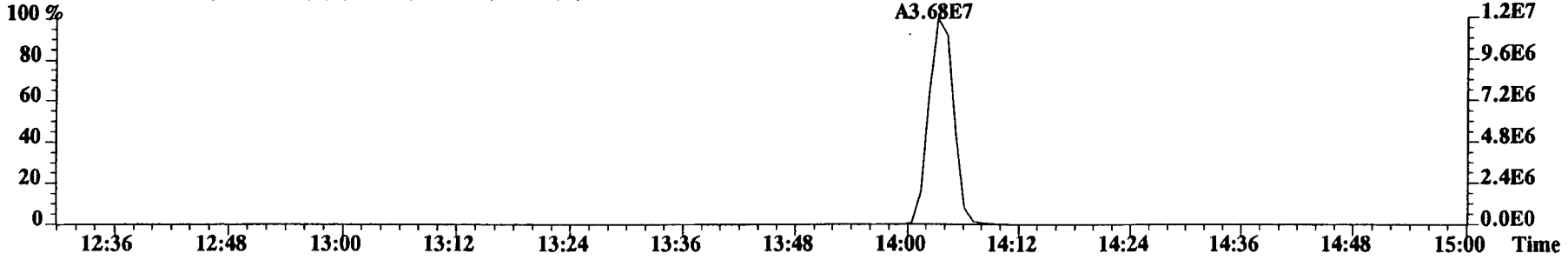
160.1128 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



154.0782 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

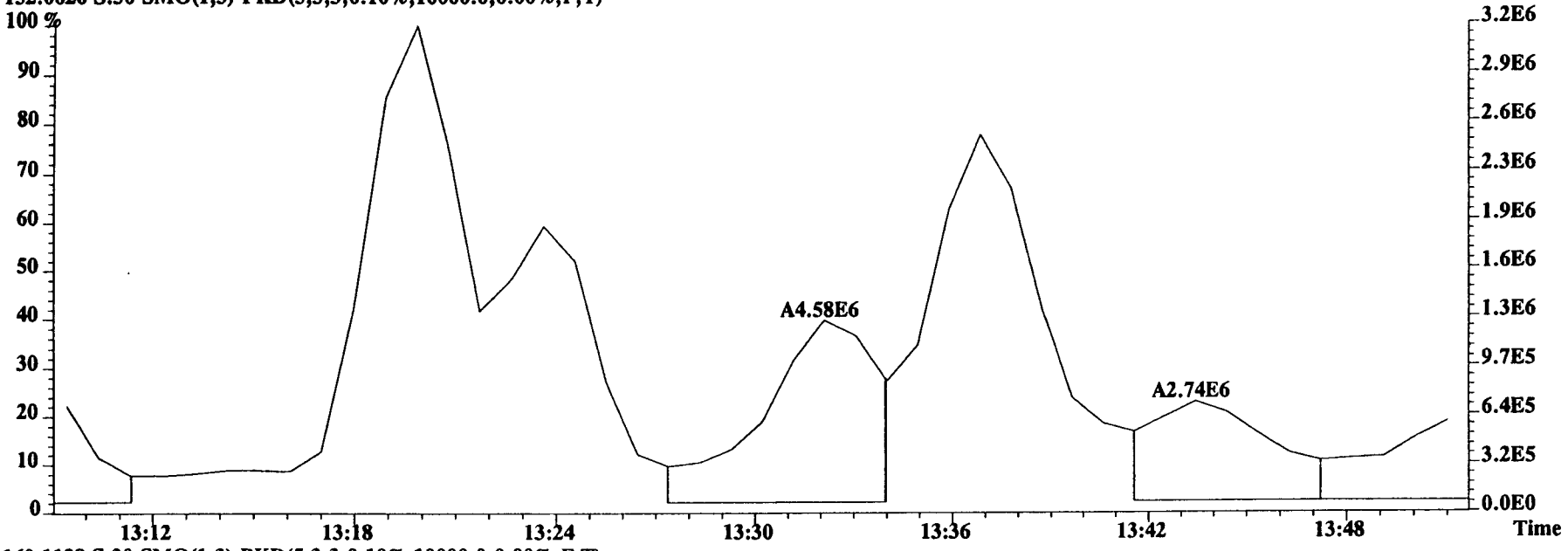


164.1410 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

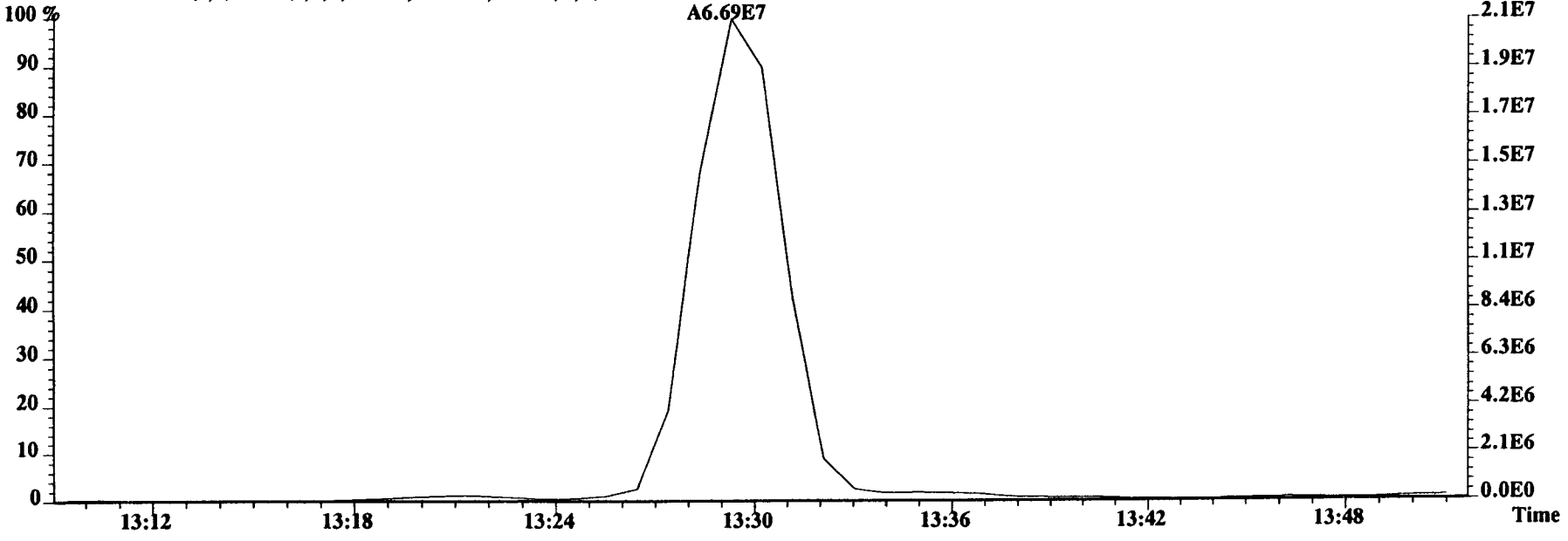


287

File:05OC98U #1-509 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
152.0626 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

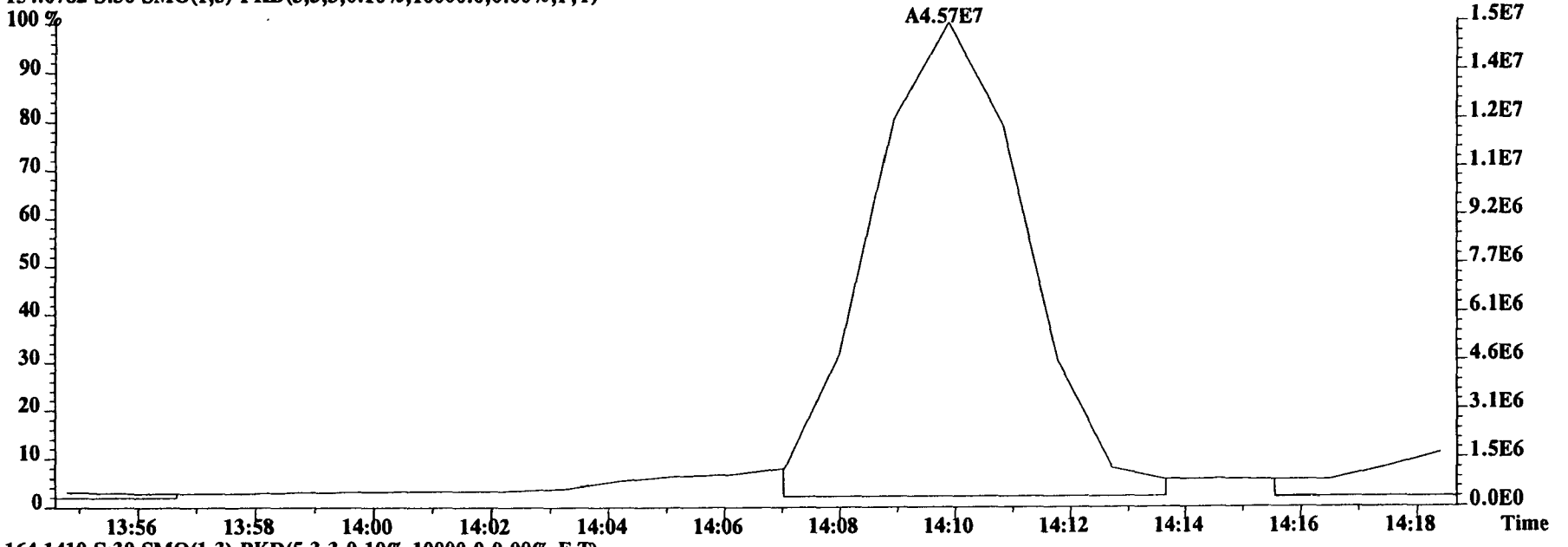


160.1128 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

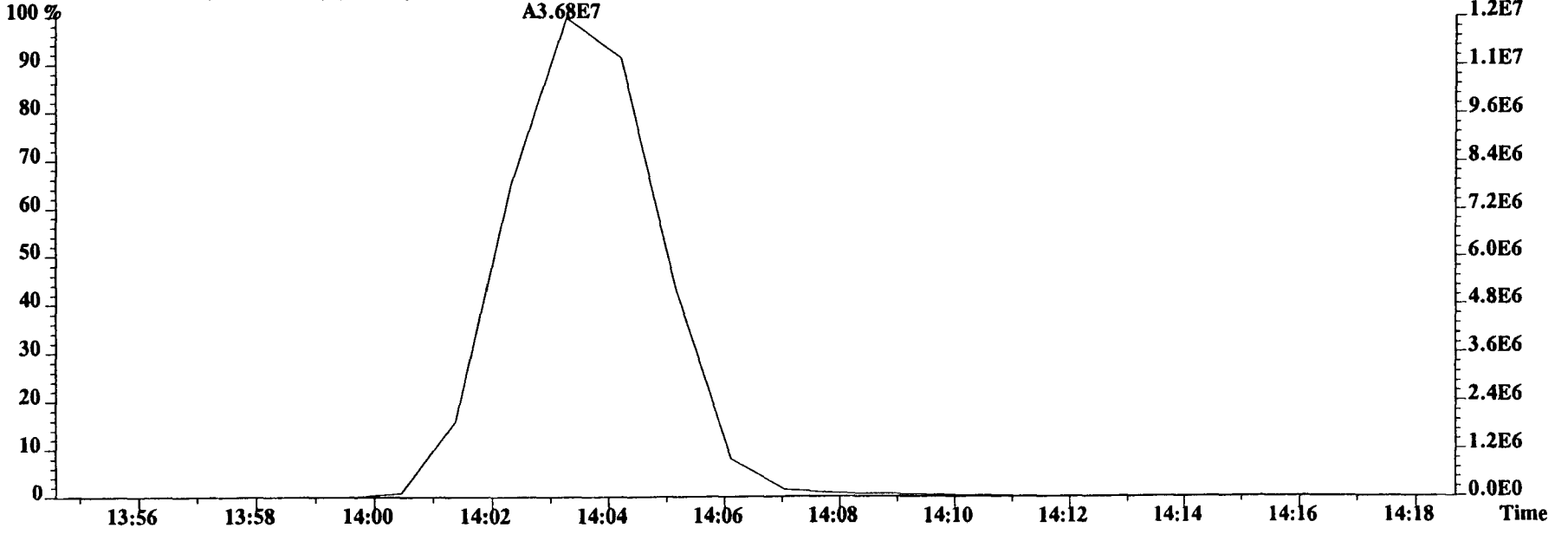


288

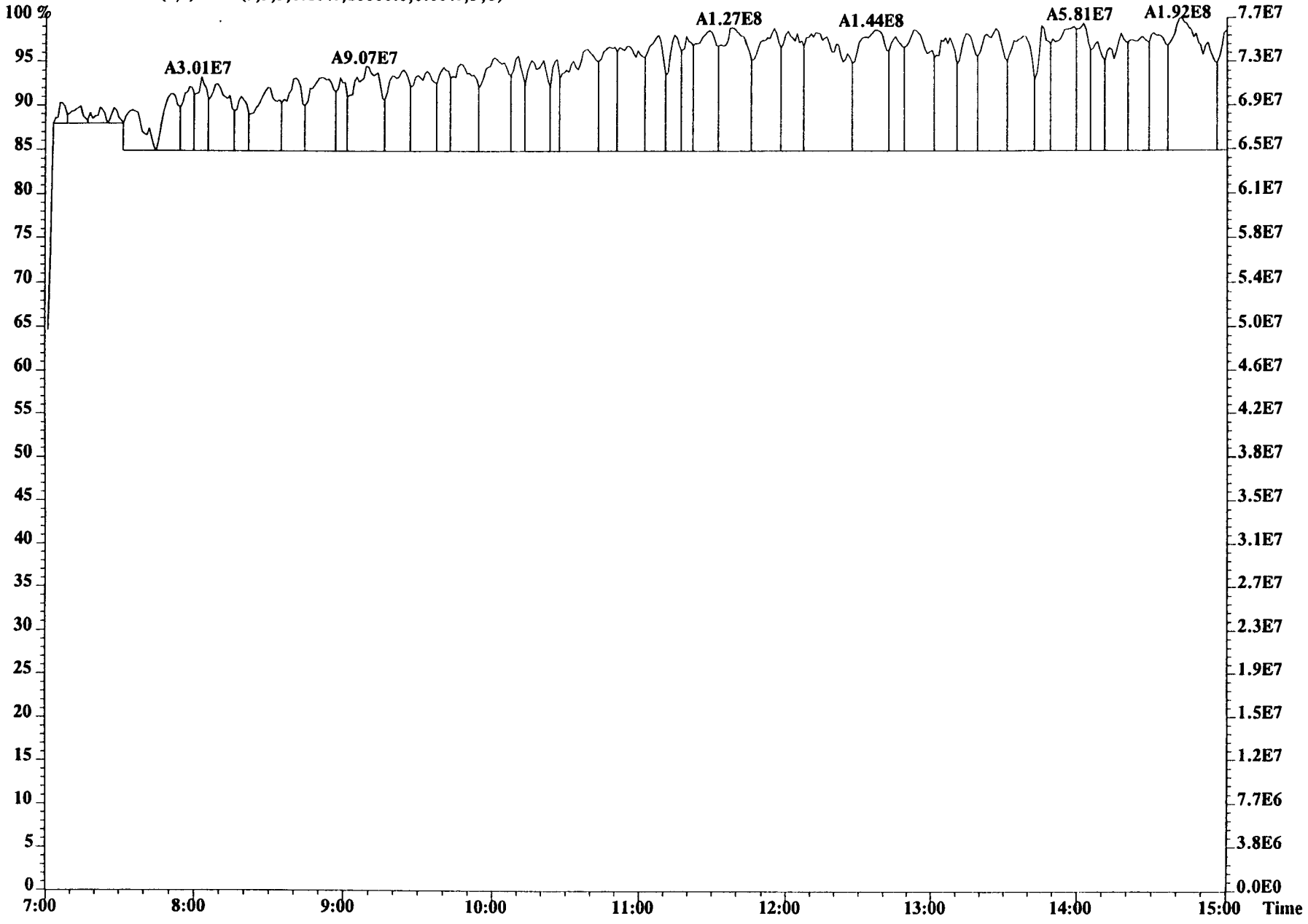
File:05OC98U #1-509 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
154.0782 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



164.1410 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

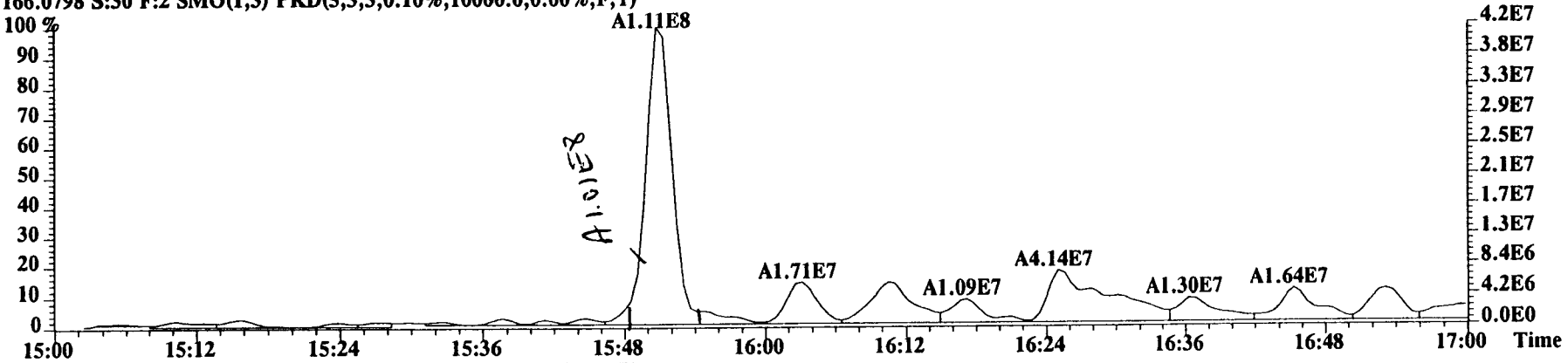


File:05OC98U #1-509 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
130.9920 S:30 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

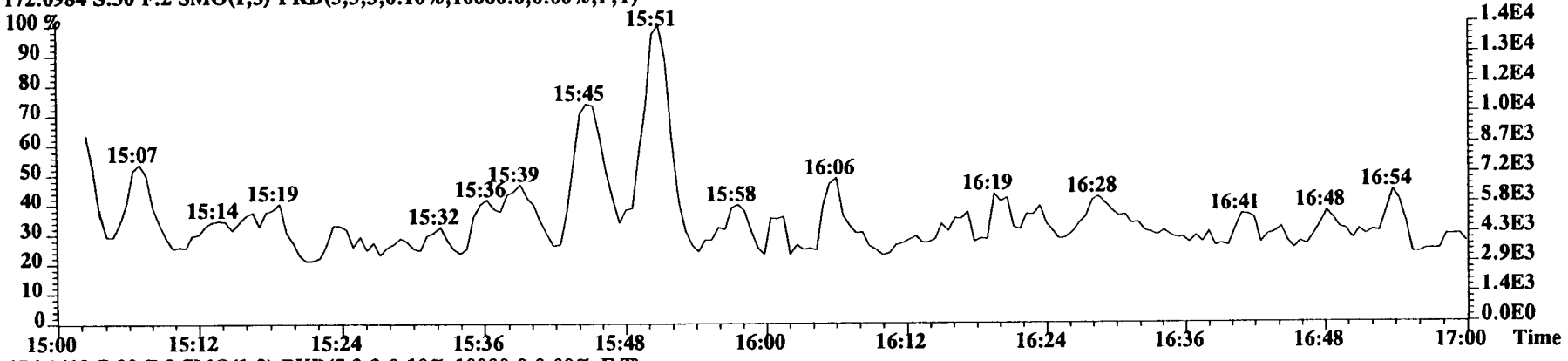


290

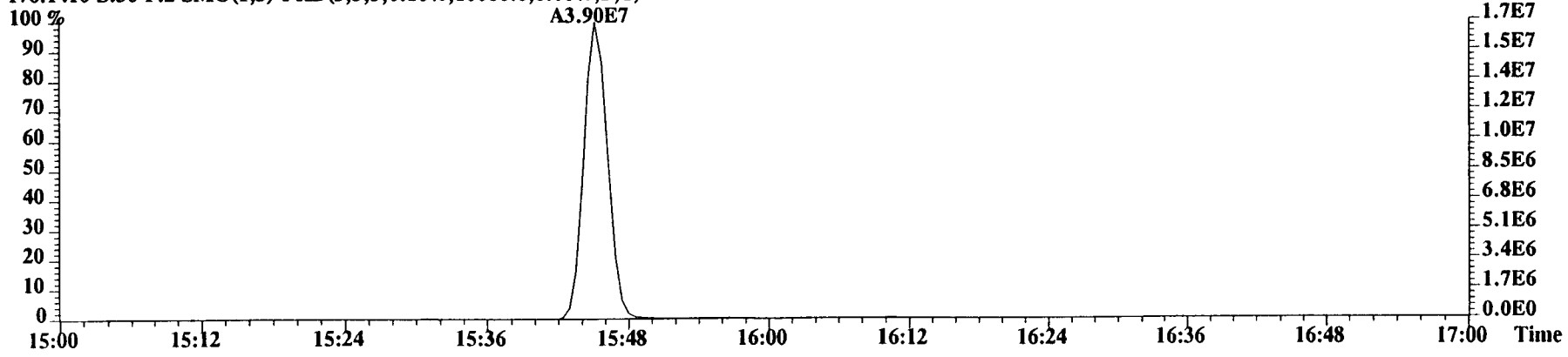
File:05OC98U #1-584 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
166.0798 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



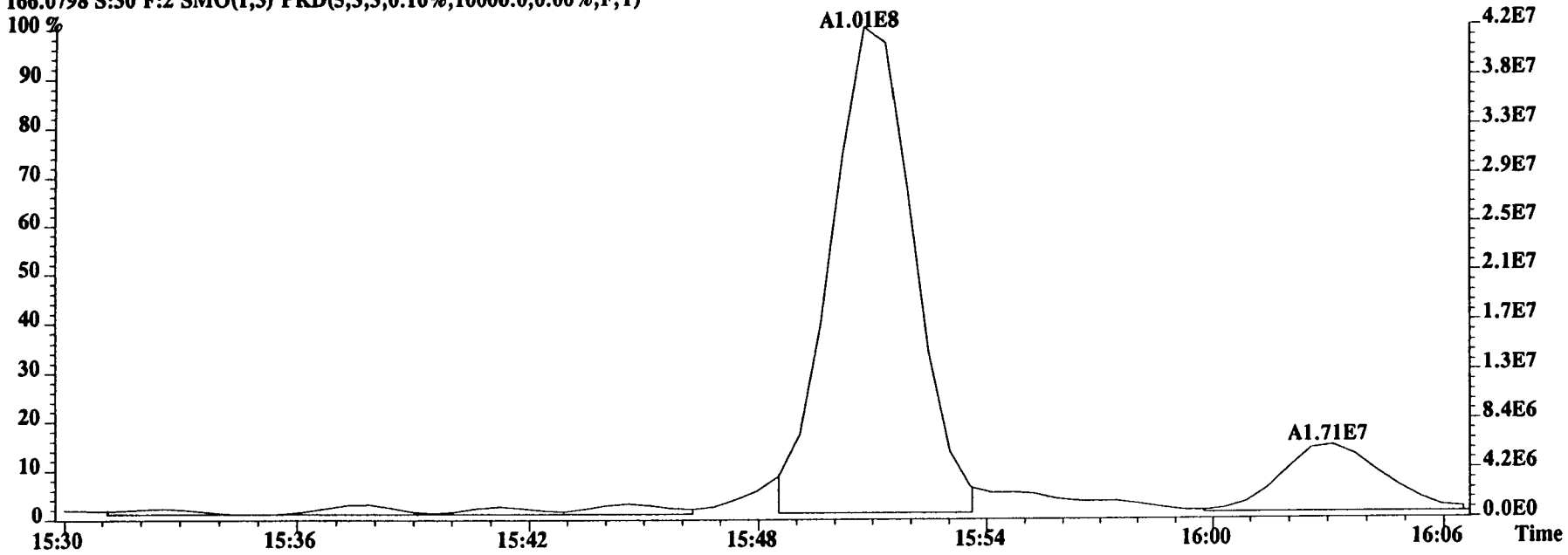
172.0984 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



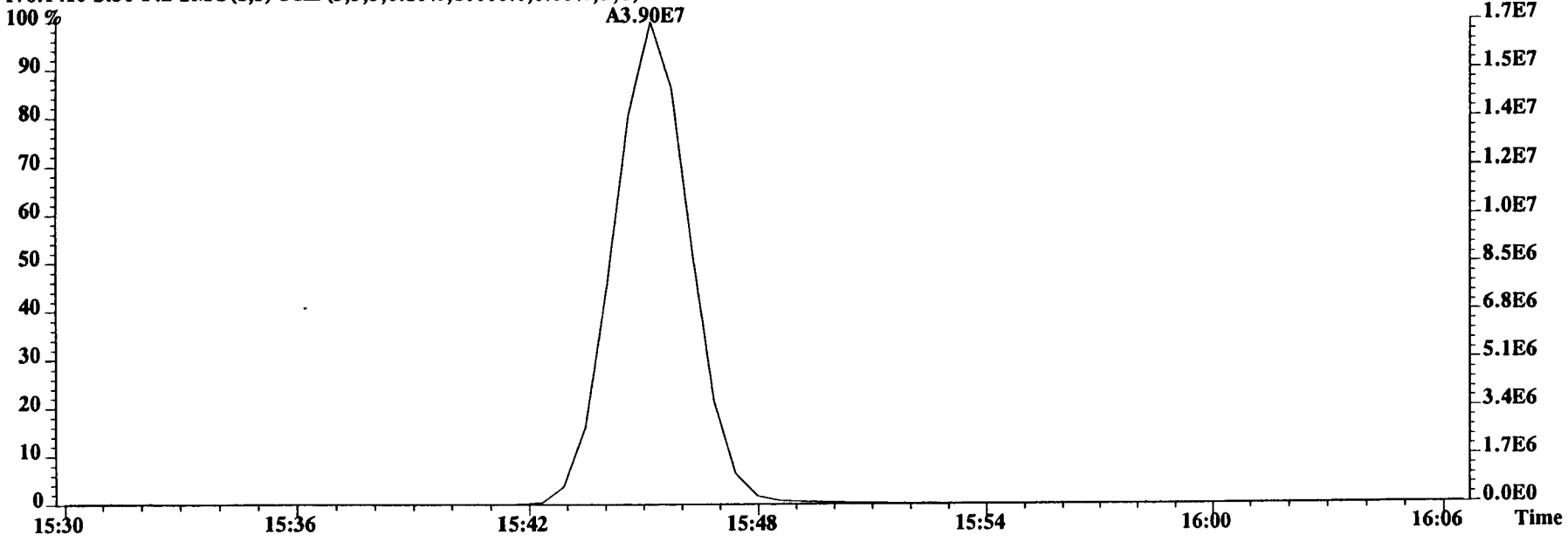
176.1410 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



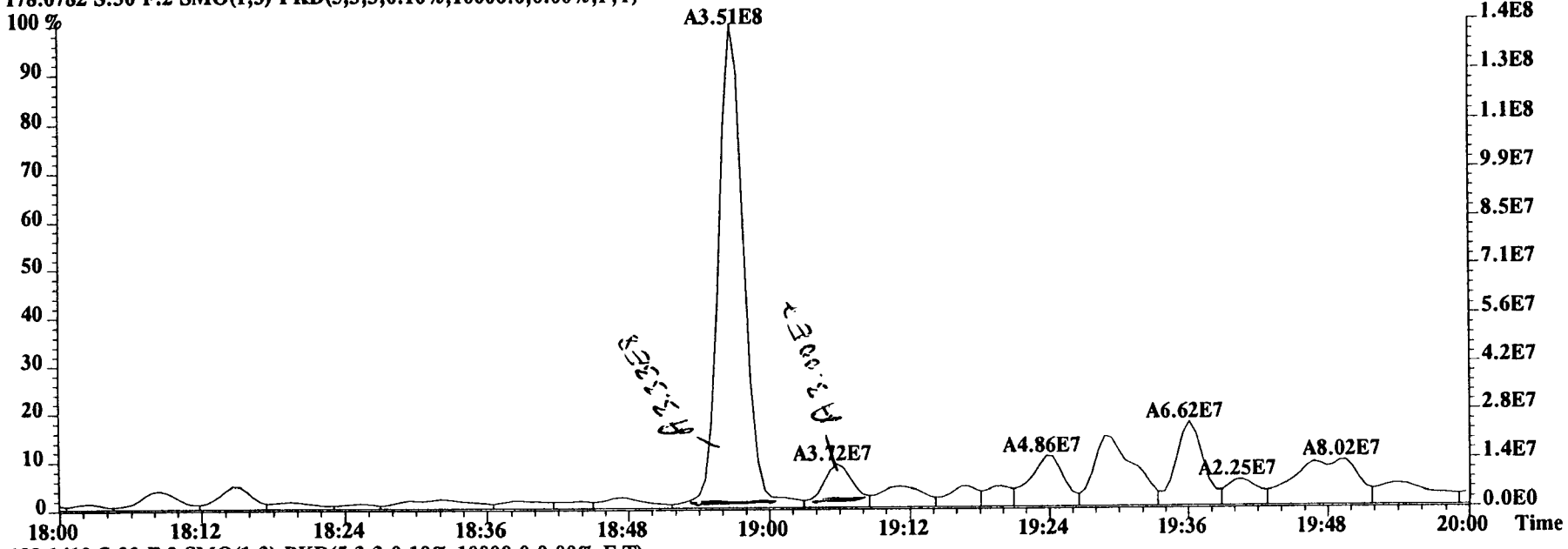
File:05OC98U #1-584 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
166.0798 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



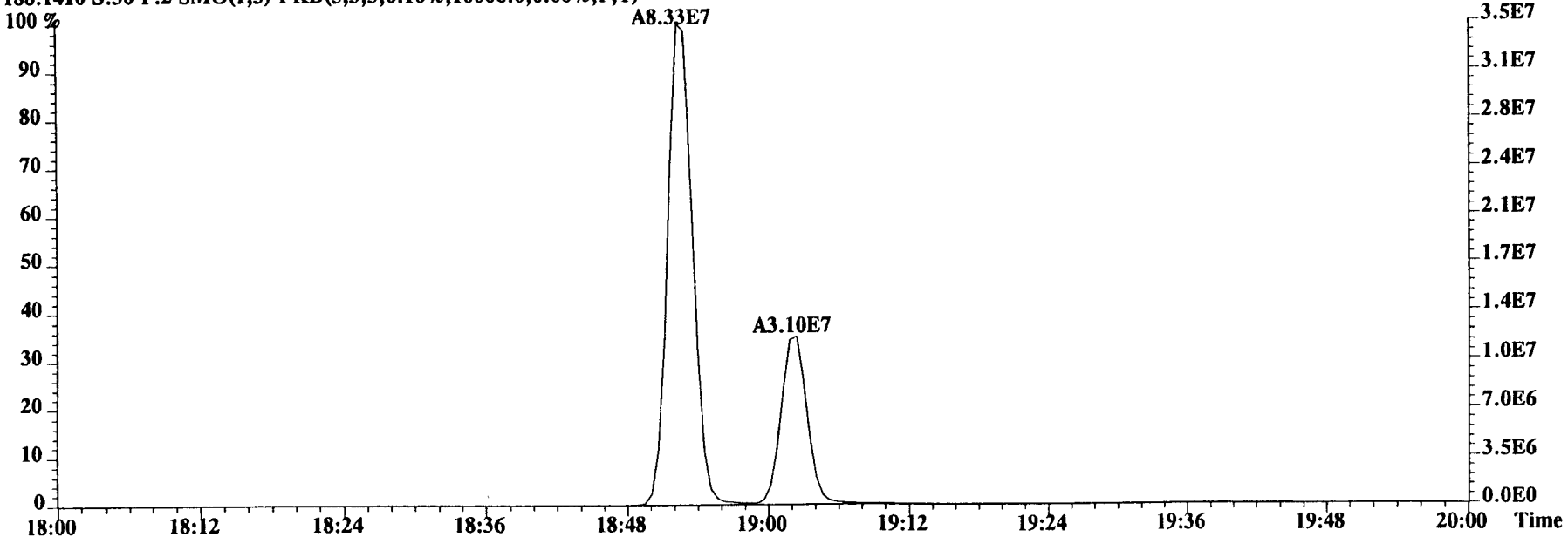
176.1410 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



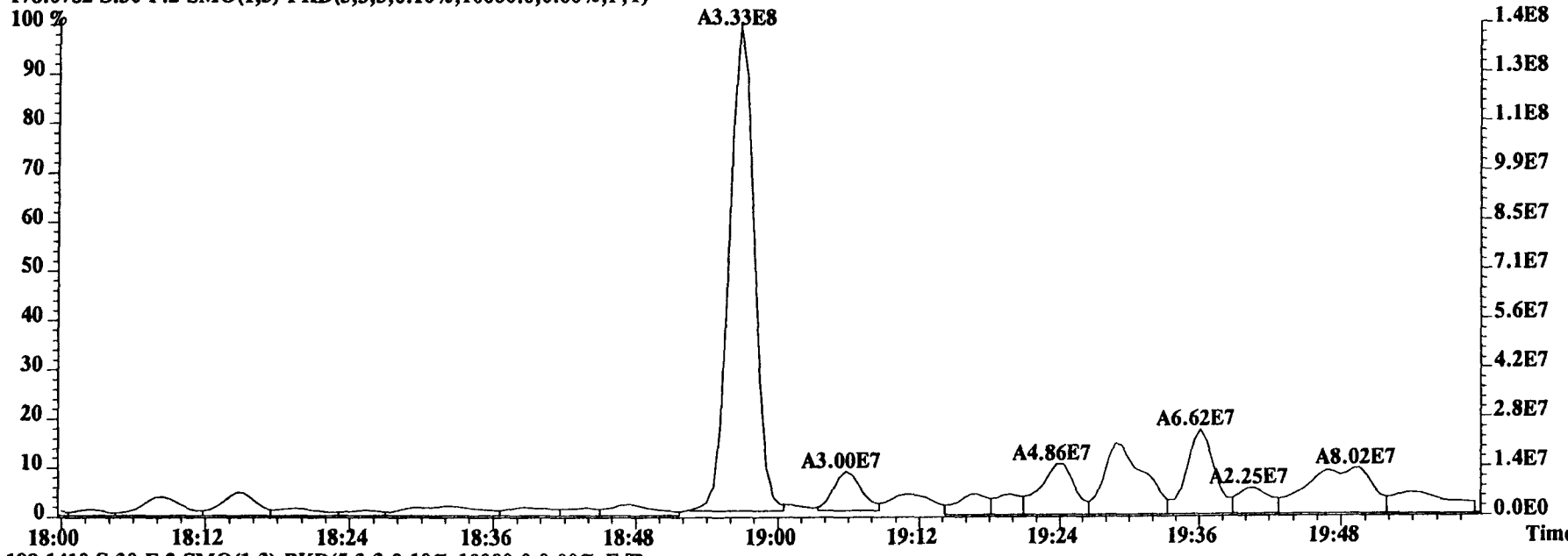
File:05OC98U #1-584 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
178.0782 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



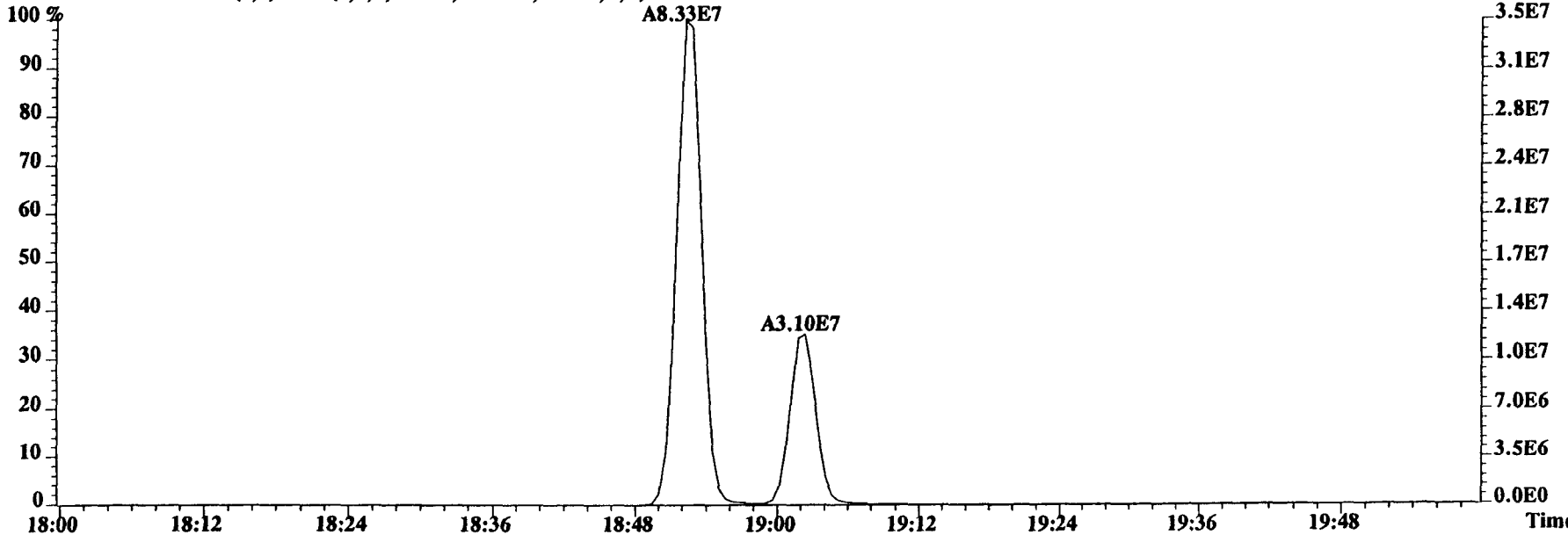
188.1410 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:05OC98U #1-584 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
178.0782 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



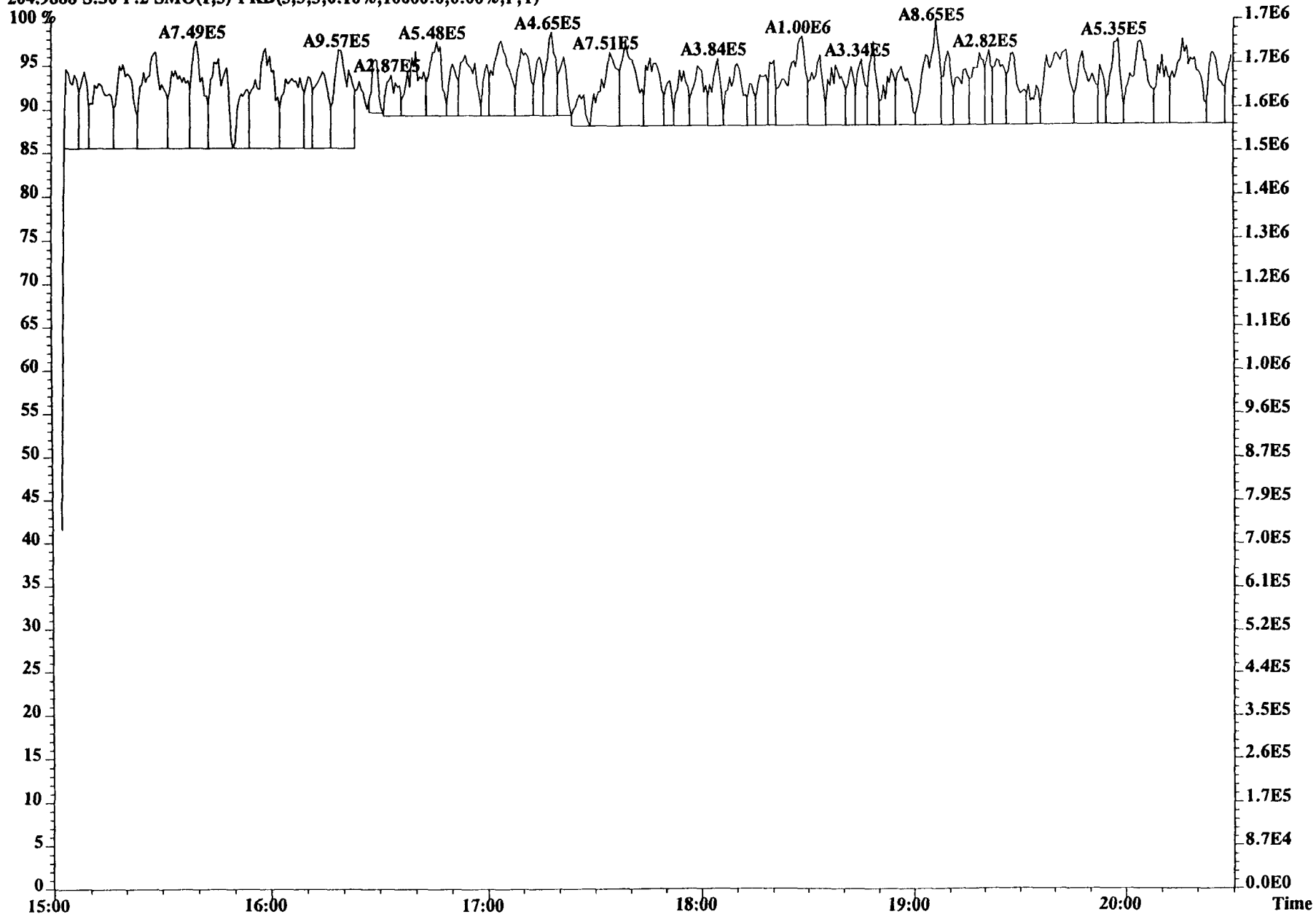
188.1410 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



294

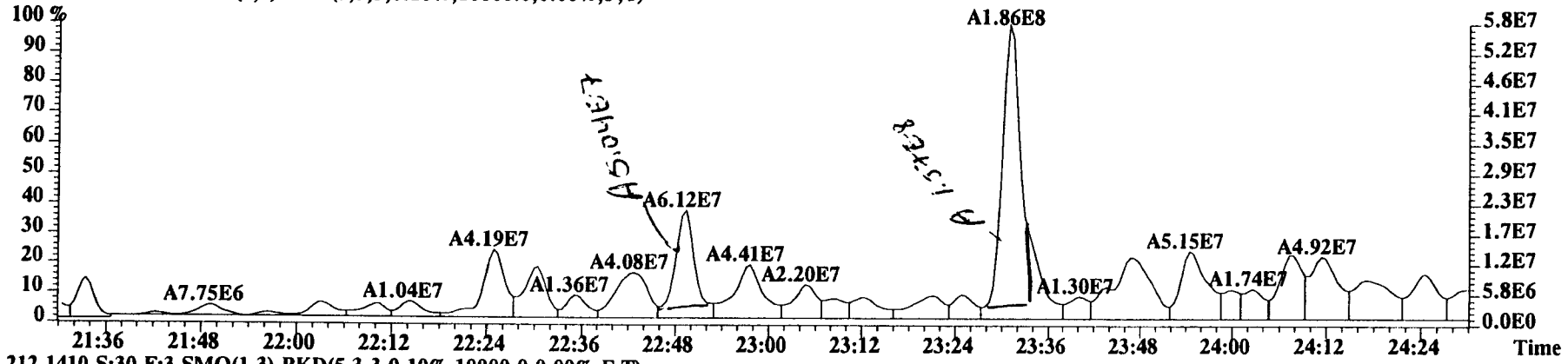
4320 J

File:05OC98U #1-584 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
204.9888 S:30 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

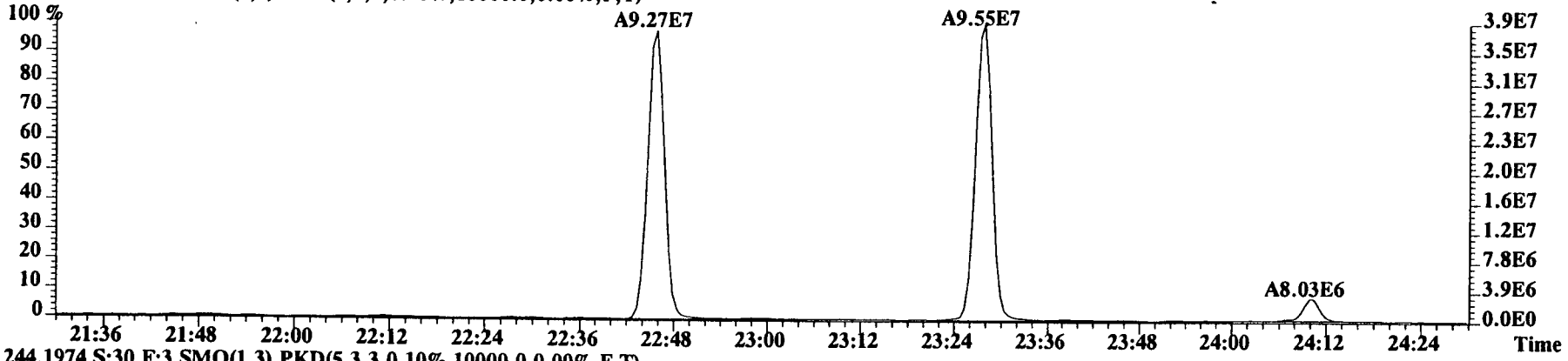


205

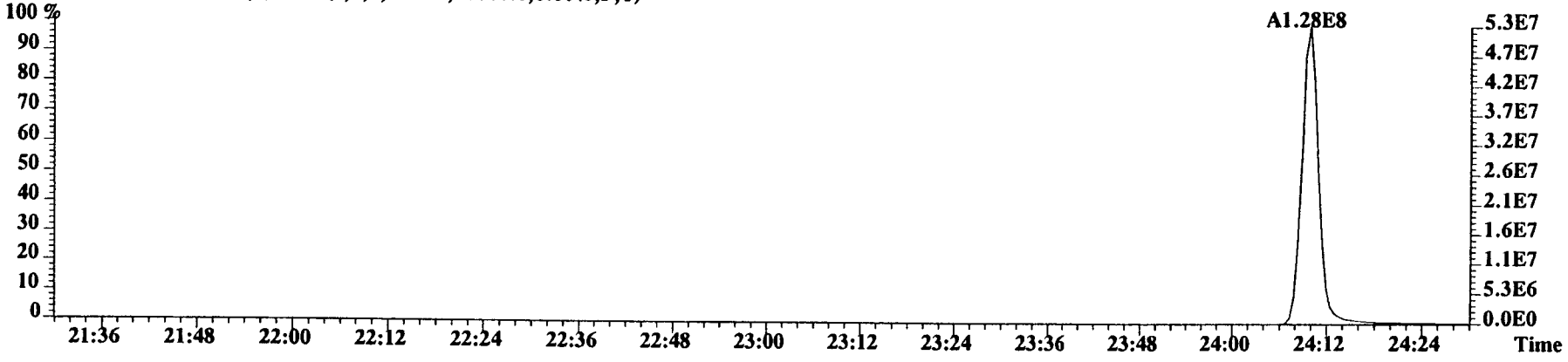
File:05OC98U #1-1052 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
202.0782 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



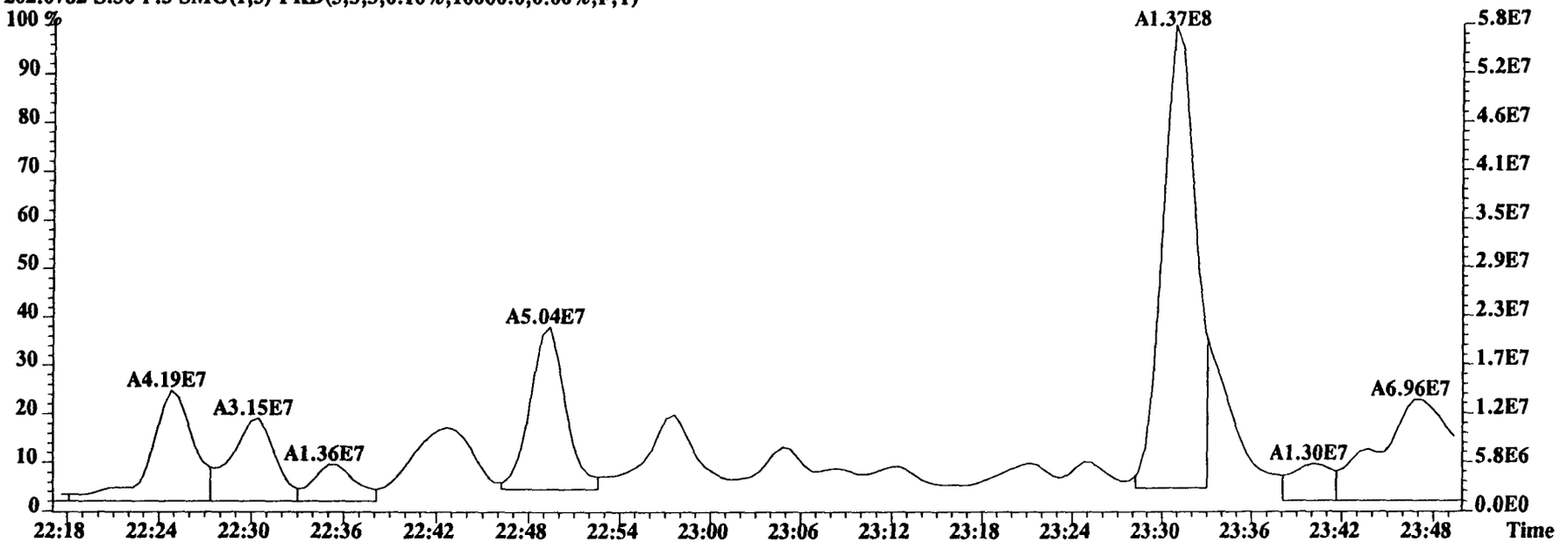
212.1410 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



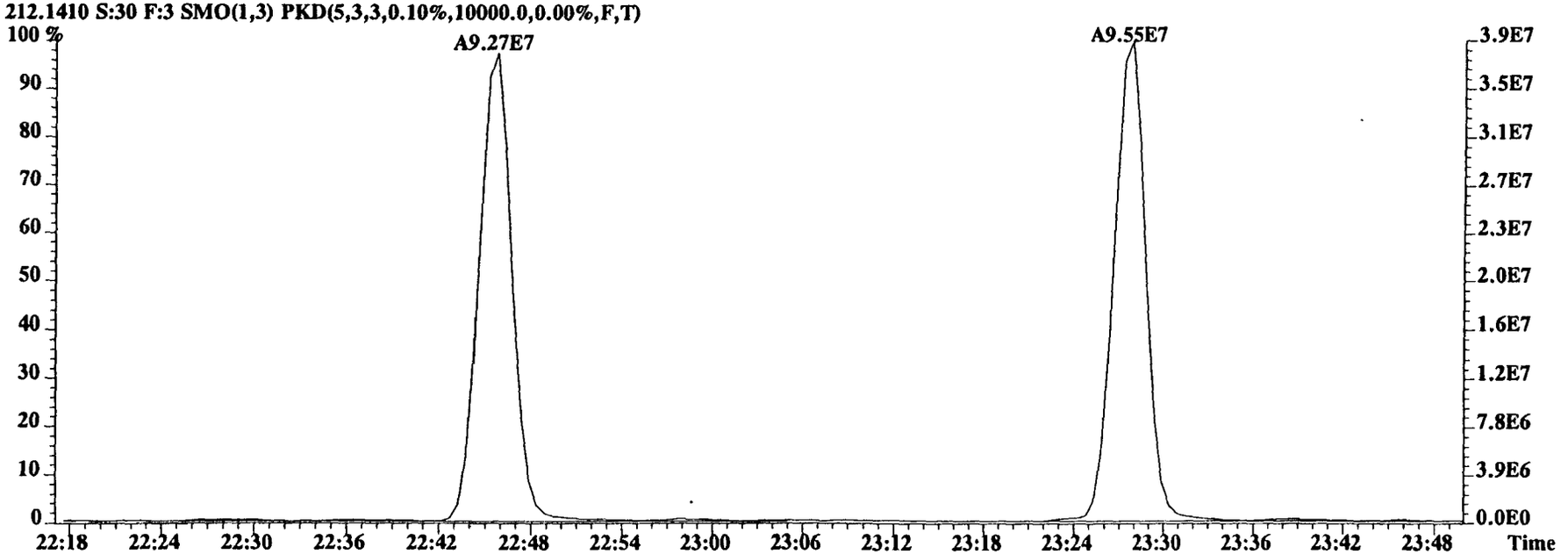
244.1974 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



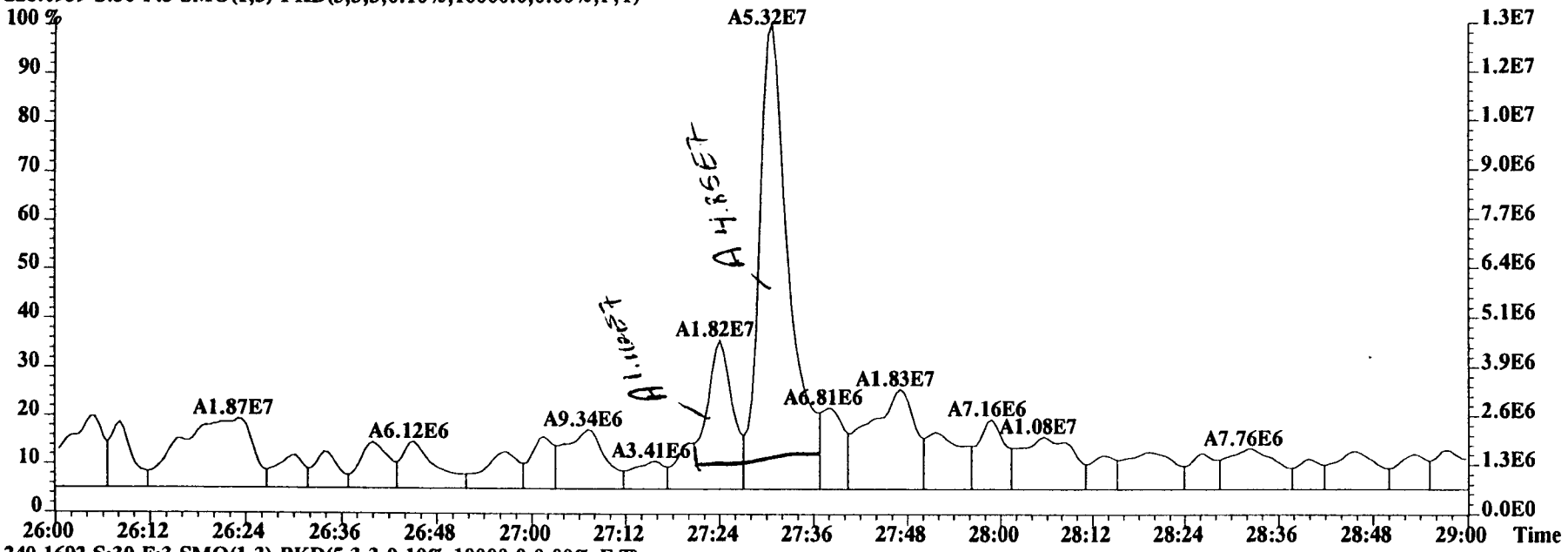
File:05OC98U #1-1052 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
202.0782 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



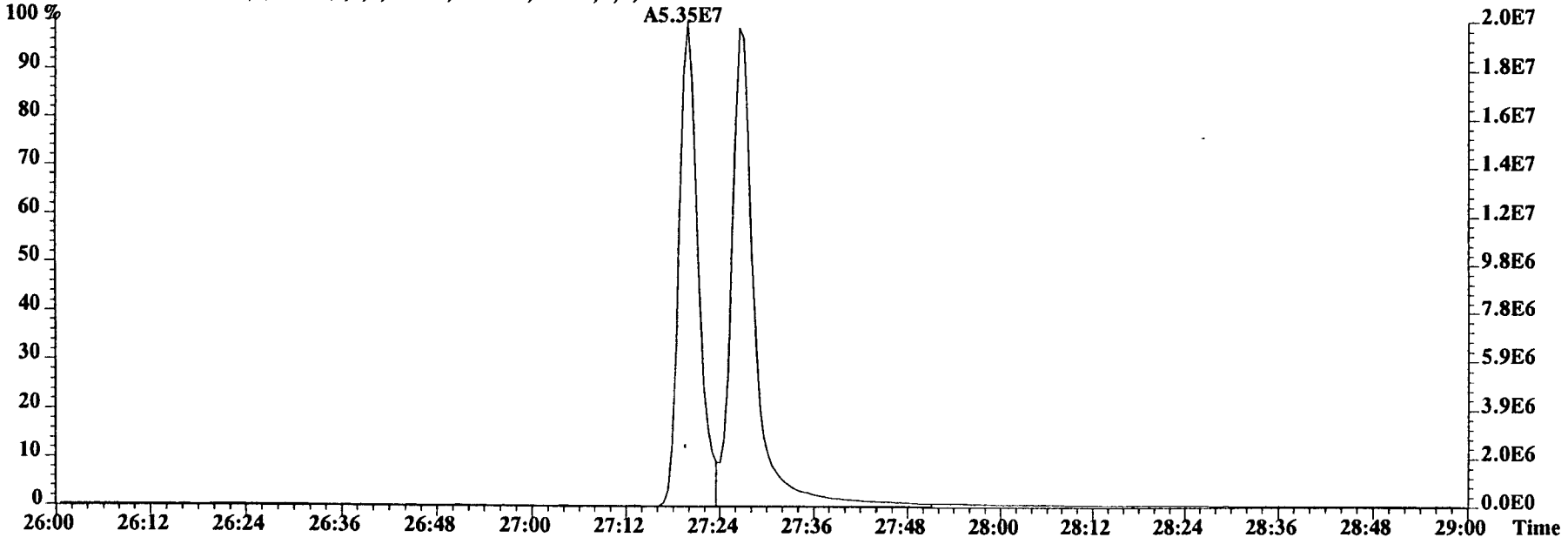
212.1410 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



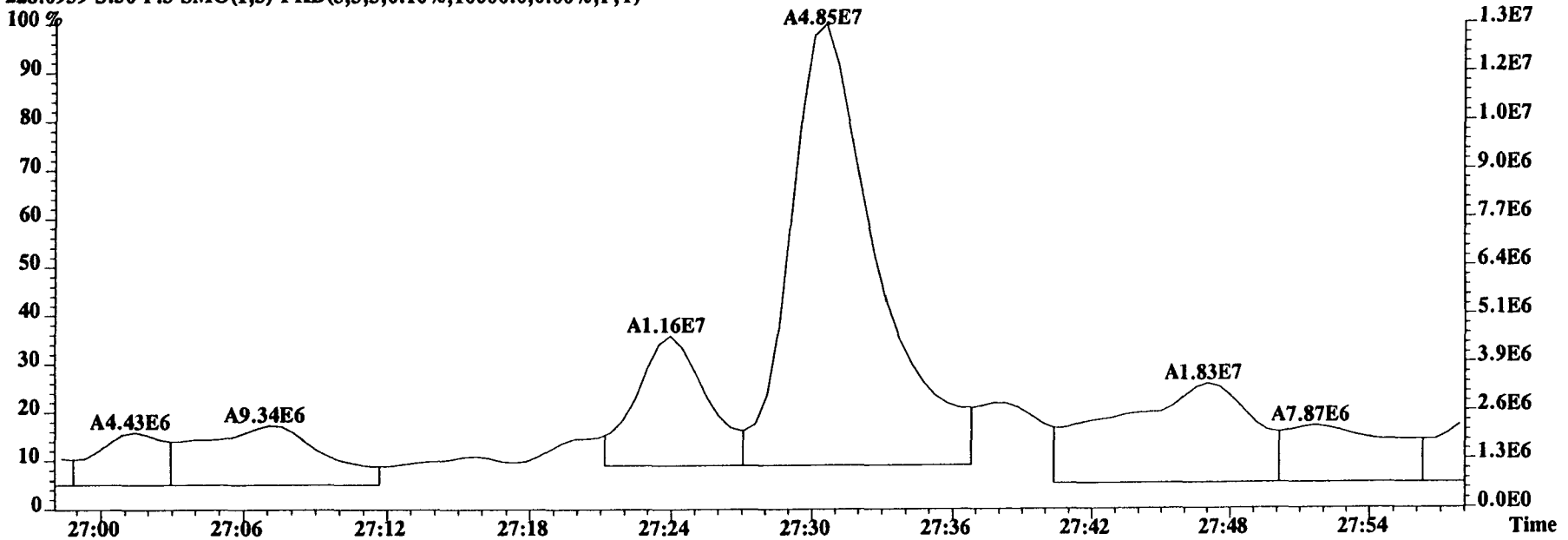
File:05OC98U #1-1052 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
228.0939 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



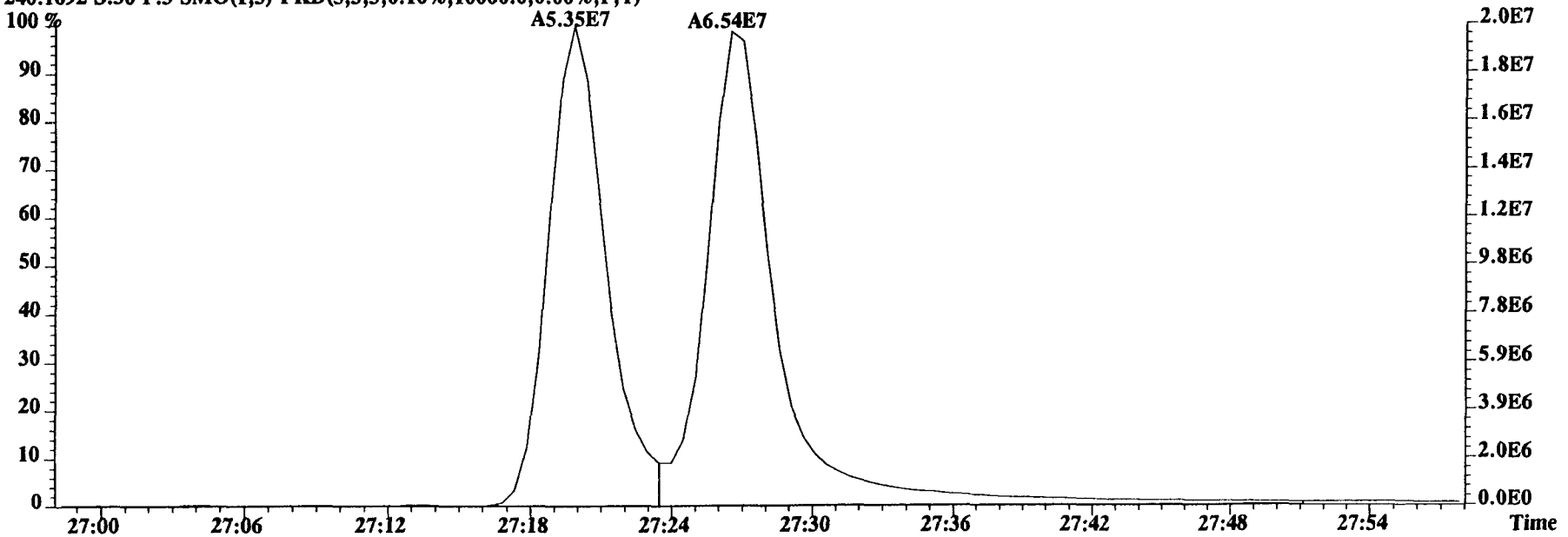
240.1692 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



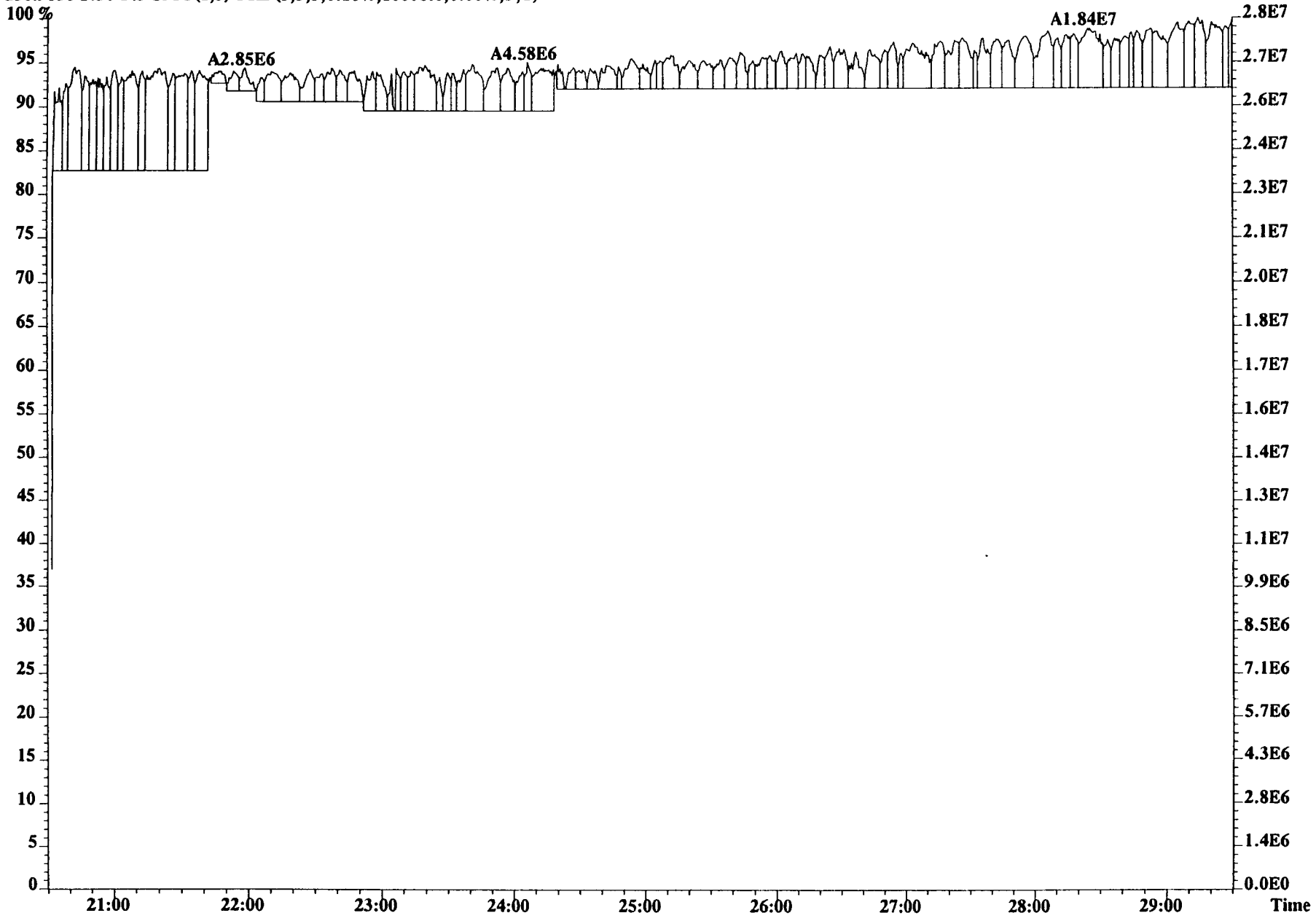
File:05OC98U #1-1052 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
228.0939 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



240.1692 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

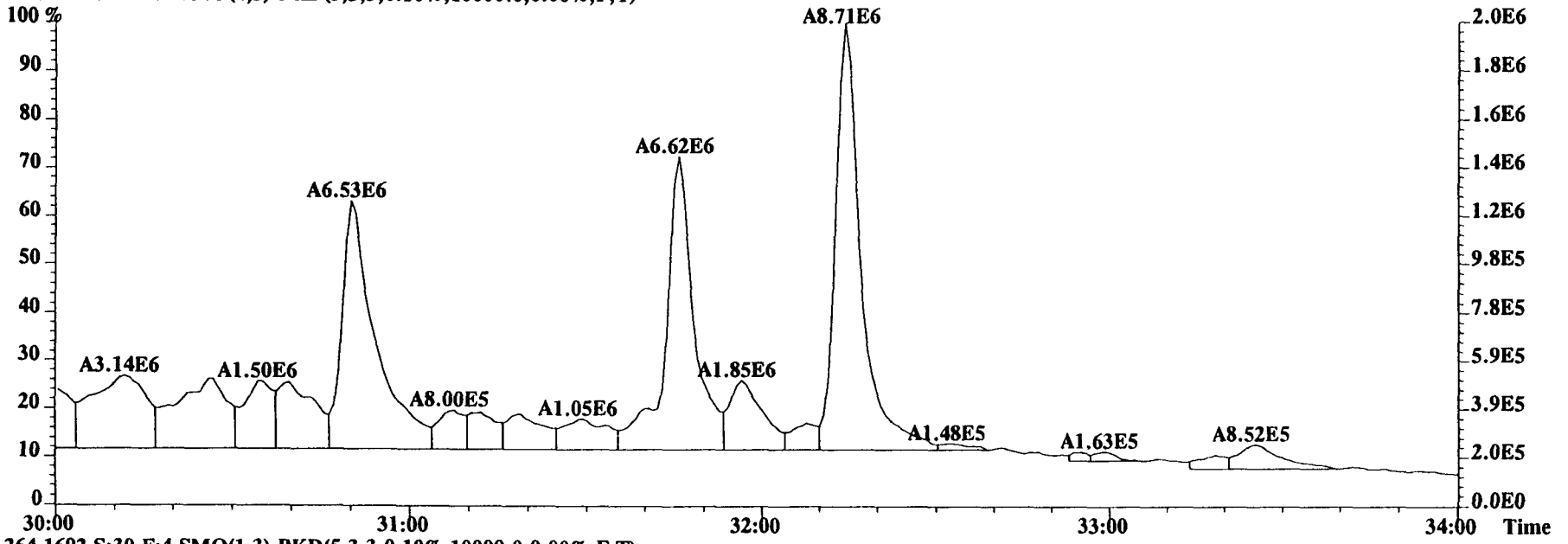


File:05OC98U #1-1052 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
230.9856 S:30 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

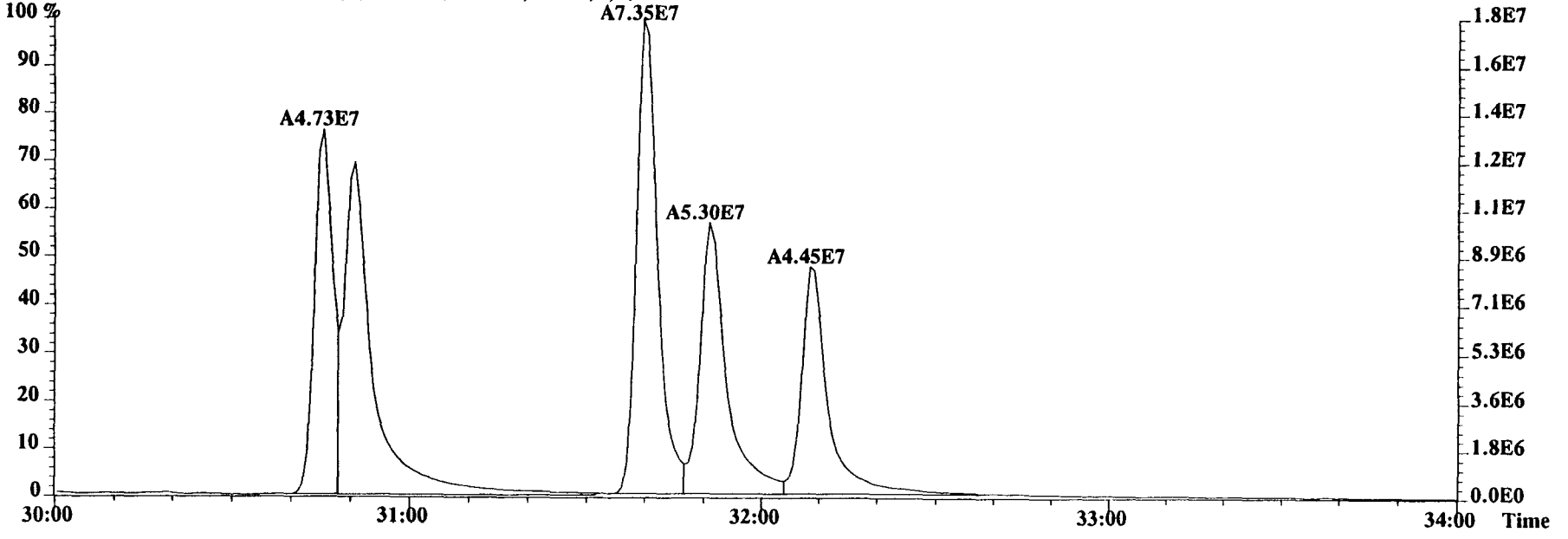


300

File:05OC98U #1-915 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
252.0939 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

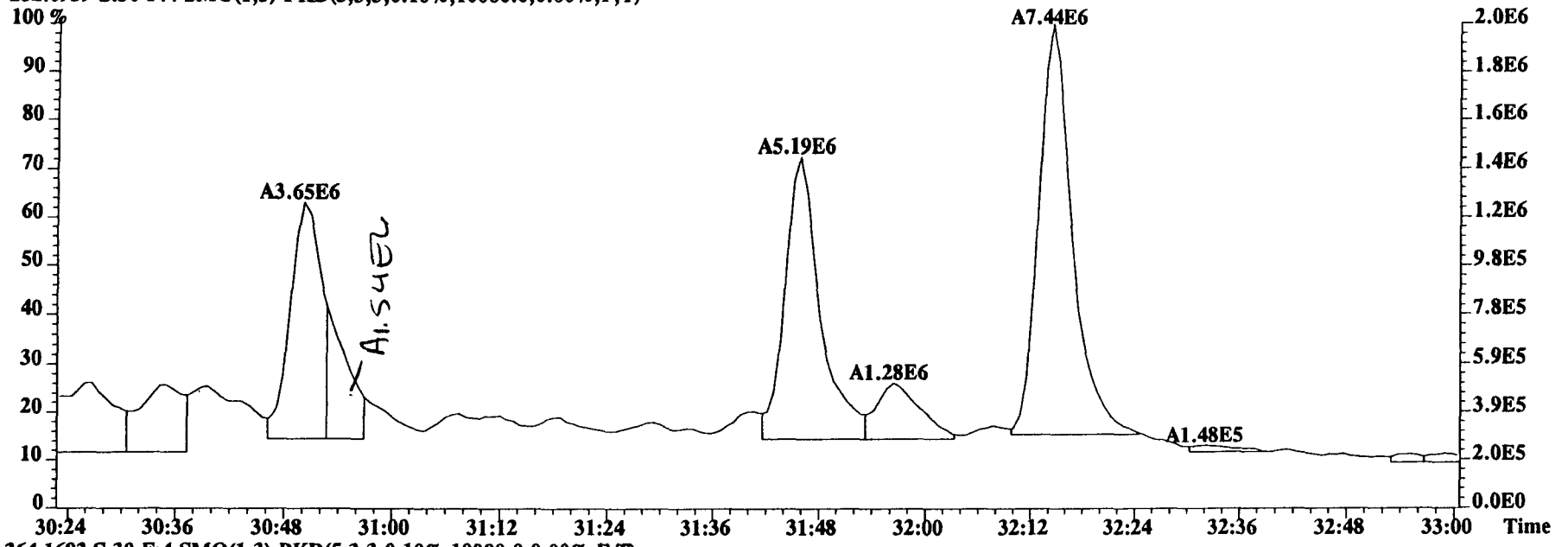


264.1692 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

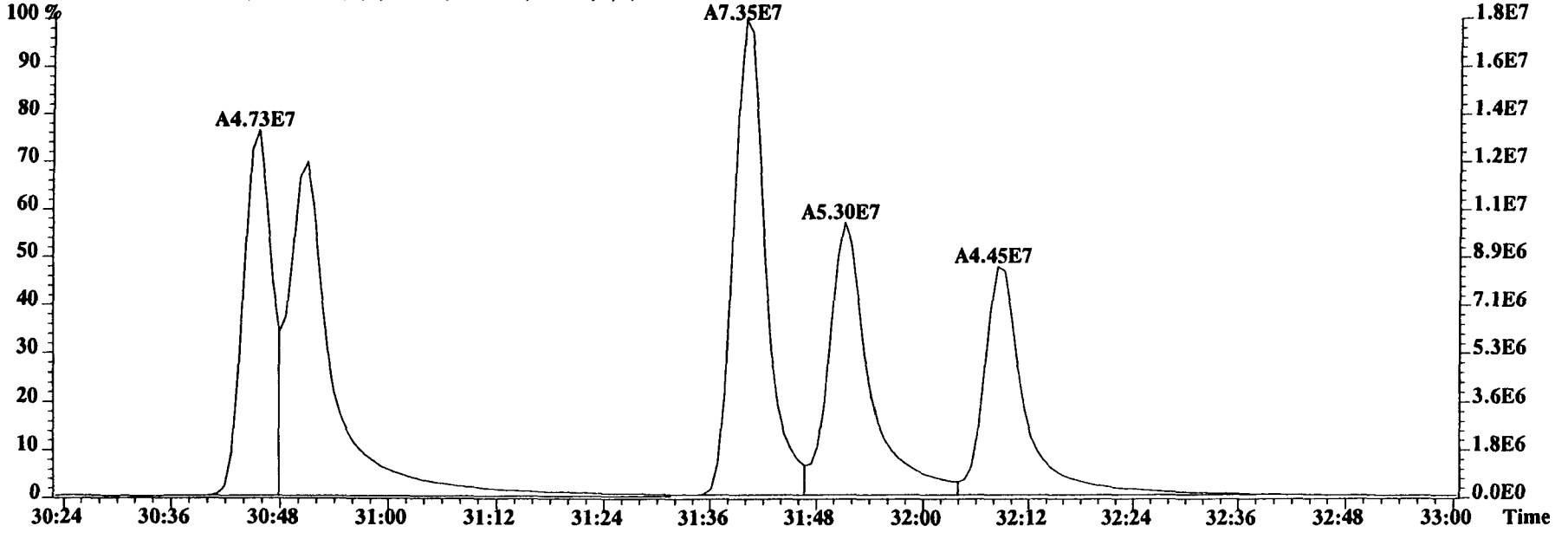


301

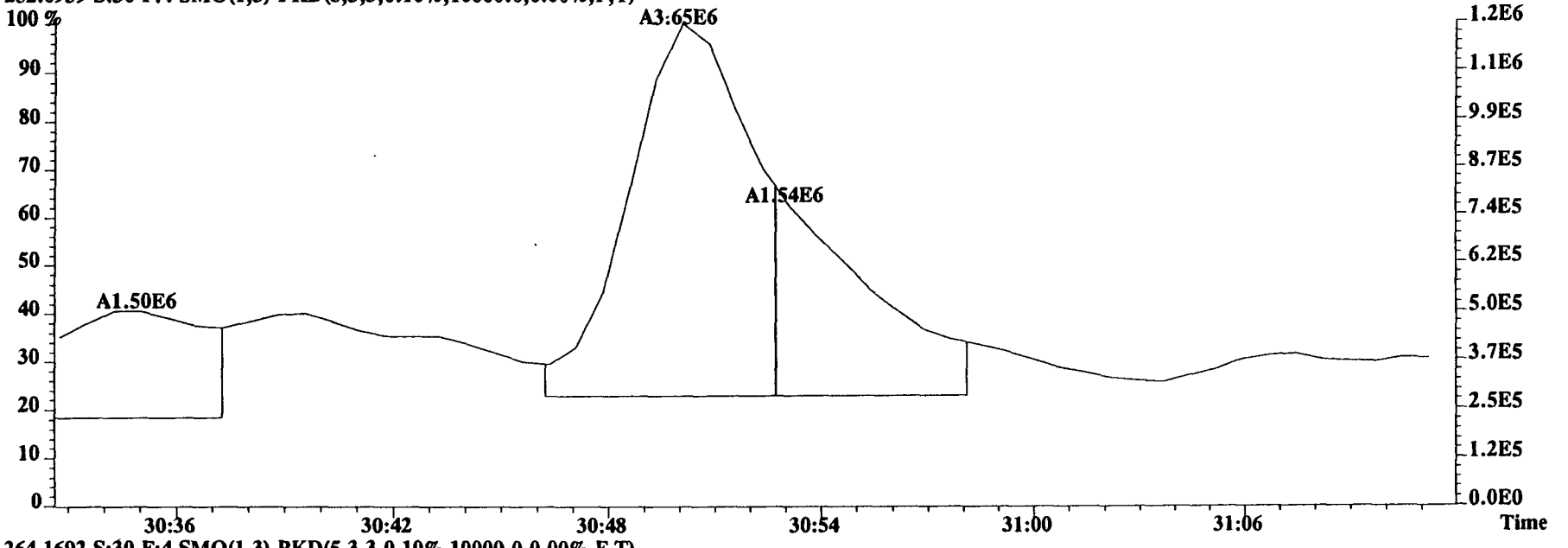
File:05OC98U #1-915 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
252.0939 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



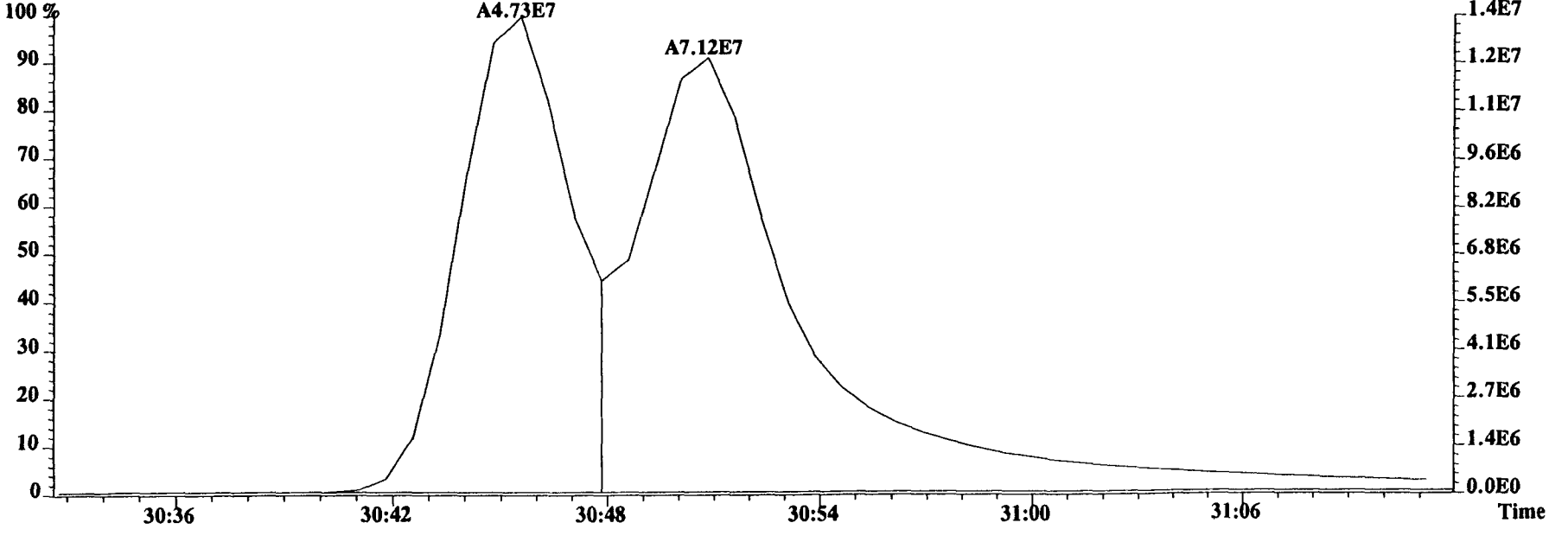
264.1692 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



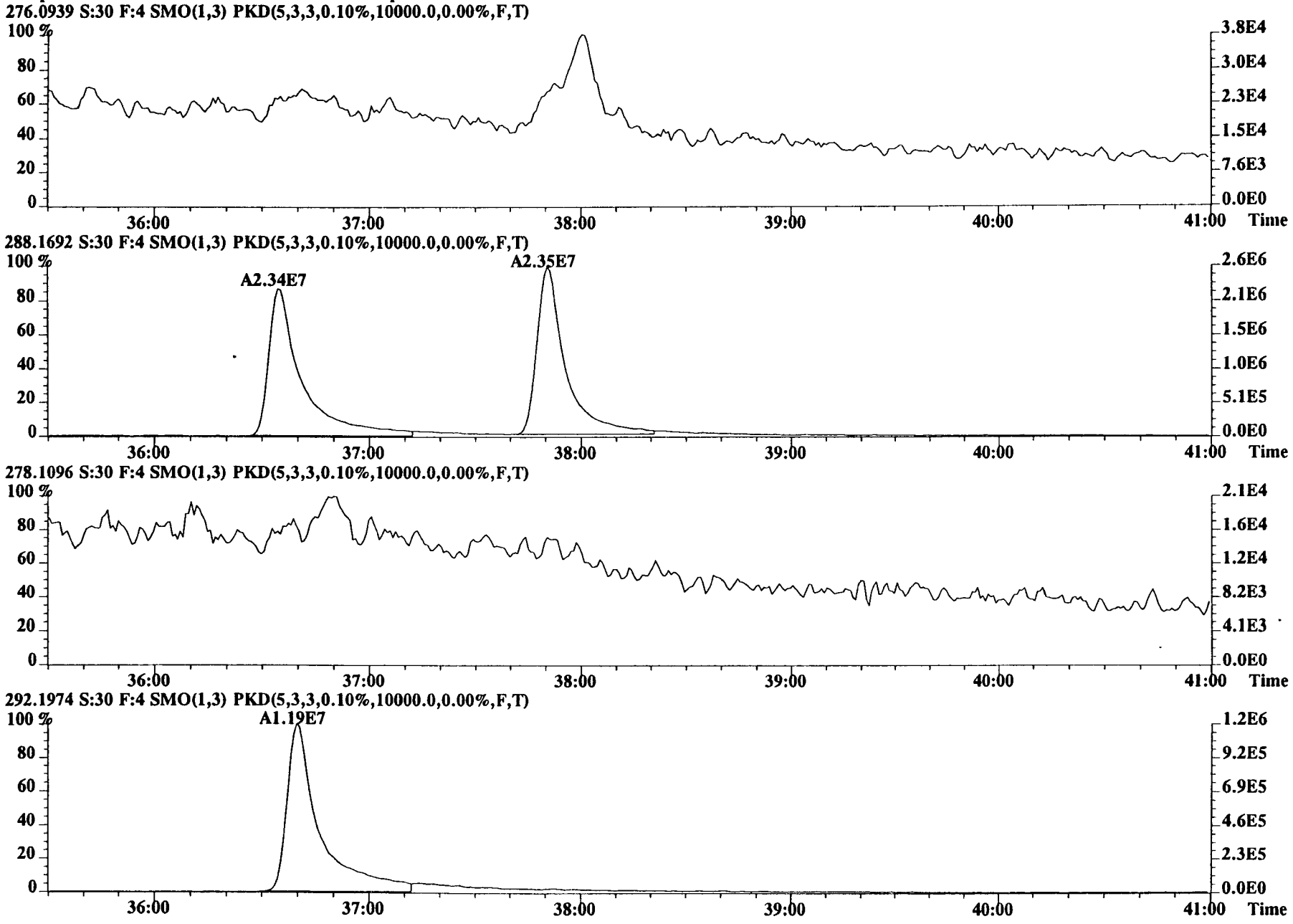
File:05OC98U #1-915 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
252.0939 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



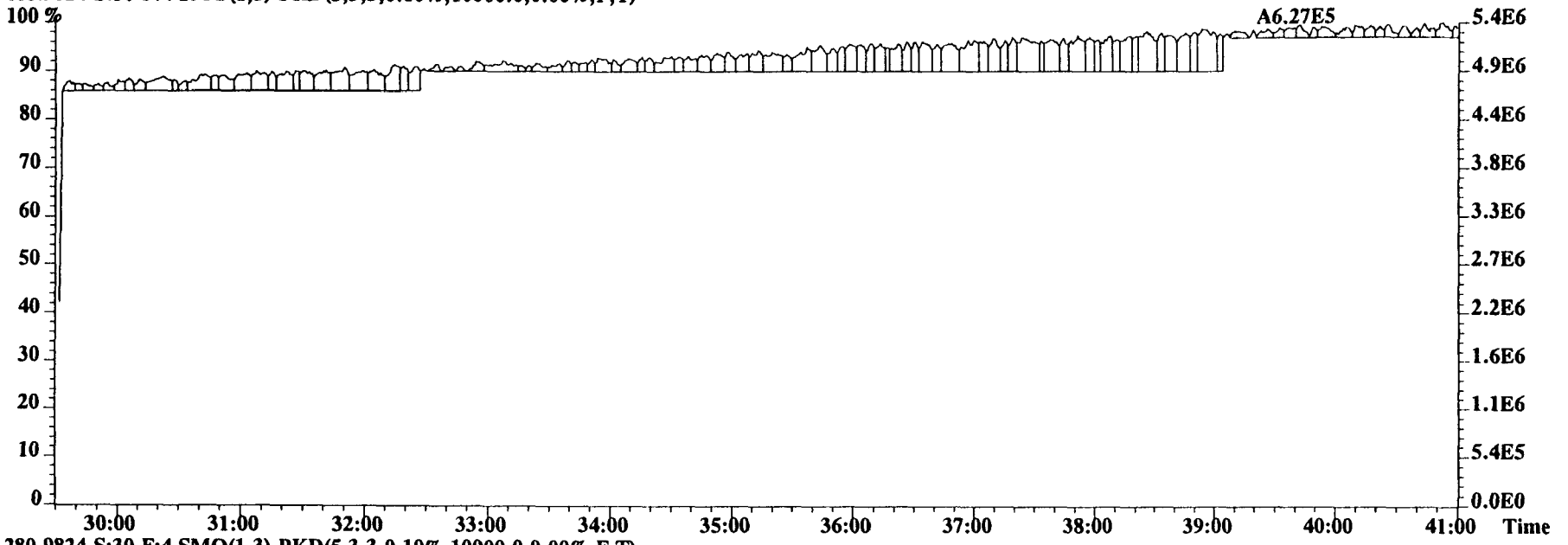
264.1692 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



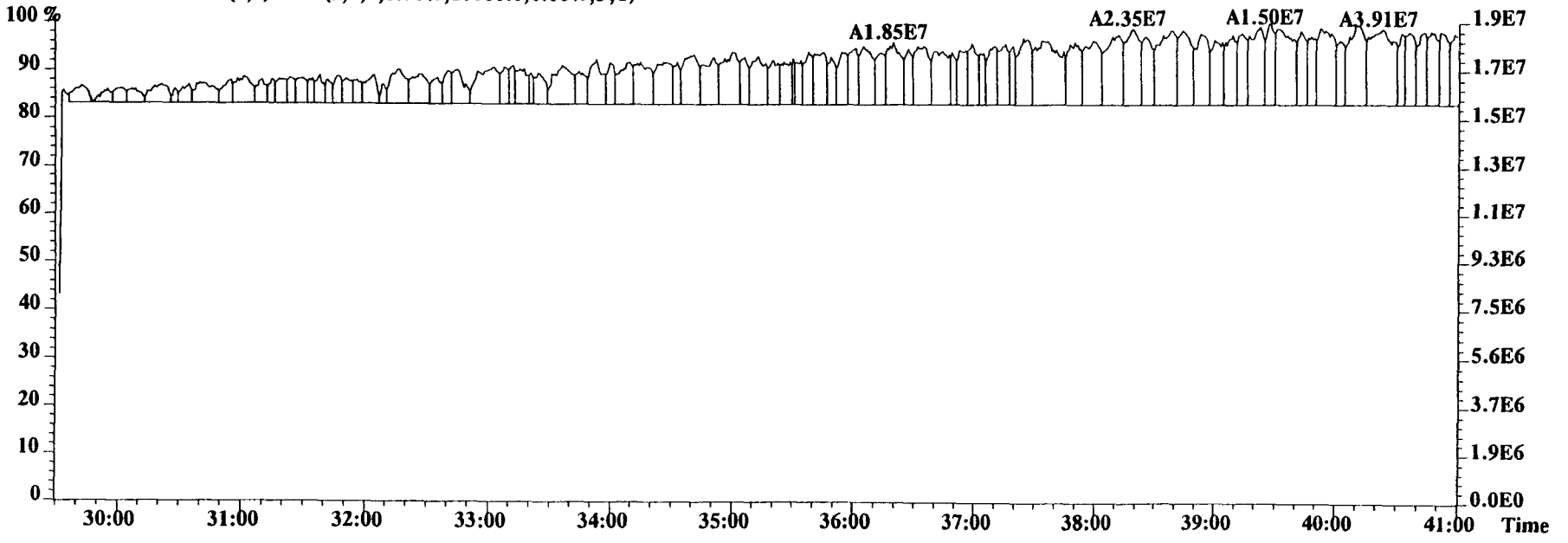
File:05OC98U #1-915 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR



File:05OC98U #1-915 Acq: 6-OCT-1998 16:15:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#30 Text:300681-10DI :100X S-MM5-4 Exp:PAHAIR
268.9824 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:30 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



15-OCT-1998 10:33:06 AM Dioxin Furan Unknown RESULTS

Results : 05OC98U311.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U 300681-11DI :100X S-MM5-5 Ex Cal : PAHAIR100198U.RR
Weight : 0.00033

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ug/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	91866200	1.00 Y	10: 27 Y	1.00	0.05	
d8-Naphthalene	137456400	1.00 Y	8: 18 Y	1.78	0.04	84
Naphthalene	1369832000	1.00 Y	8: 22 Y	1.20	1257.90	
2-Methylnaphthalene	2033900000	1.00 Y	10: 34 Y	0.66	3413.27	
d8-Acenaphthylene	130839800	1.00 Y	13: 30 Y	1.16	0.06	122
Acenaphthylene	19200000	1.00 Y	13: 31 Y	1.02	21.70	
d10-Acenaphthene	67575400	1.00 Y	14: 4 Y	0.68	0.05	108
Acenaphthene	189400000	1.00 Y	14: 10 Y	1.14	372.64	
d10-Anthracene	65326000	1.00 Y	19: 2 Y	1.00	0.05	
d10-Fluorene	78420200	1.00 Y	15: 45 Y	1.36	0.04	88
Fluorene	380000000	1.00 Y	15: 51 Y	1.15	640.75	
d10-Phenanthrene	166487400	1.00 Y	18: 53 Y	2.74	0.05	93
Phenanthrene	1240000000	1.00 Y	18: 57 Y	0.95	1184.85	
Anthracene	100400000	1.00 Y	19: 5 Y	0.97	93.97	
d14-Terphenyl	252396000	1.00 Y	24: 10 Y	1.00	0.05	
d10-Fluoranthene	188868000	1.00 Y	22: 46 Y	1.49	0.03	50
Fluoranthene	161000000	1.00 Y	22: 49 Y	1.23	104.85	
d10-Pyrene	191930200	1.00 Y	23: 28 Y	1.58	0.02	48
Pyrene	456000000	1.00 Y	23: 31 Y	1.26	286.31	
d12-Benzo(a)anthracene	105184000	1.00 Y	27: 20 Y	0.81	0.03	51
Benzo(a)anthracene	38400000	1.00 Y	27: 24 Y	1.28	43.20	
d12-Chrysene	123979800	1.00 Y	27: 27 Y	1.17	0.02	42
Chrysene	153800000	1.00 Y	27: 31 Y	1.16	161.97	
d12-Benzo(e)pyrene	144089800	1.00 Y	31: 41 Y	1.00	0.05	
d12-Benzo(b)fluoranthene	86927800	1.00 Y	30: 46 Y	0.48	0.06	125
Benzo(b)fluoranthene	10420000	1.00 Y	30: 50 Y	1.30	13.98	<RL=15
d12-Benzo(k)fluoranthene	136496800	1.00 Y	30: 51 Y	0.99	0.05	96
Benzo(k)fluoranthene	4880000	1.00 Y	30: 56 N	1.20	4.50	<RL=15
d12-Benzo(a)pyrene	100709800	1.00 Y	31: 51 Y	0.74	0.05	95
Benzo(e)pyrene	16420000	1.00 Y	31: 46 Y	1.62	15.23	
Benzo(a)pyrene	4730780	1.00 Y	31: 56 Y	1.11	6.40	<RL=15
d12-Perylene	87642800	1.00 Y	32: 9 Y	0.65	0.05	94
Perylene	28257400	1.00 Y	32: 15 Y	1.74	28.01	
d12-Indeno(123-cd)pyrene	43906200	1.00 Y	36: 35 Y	0.37	0.04	82
Indeno(123-cd)pyrene	* No Peak	0.00 N	36: 38 N	0.60	0.00	<RL=15
d14-Dibenz(ah)anthracene	22166000	1.00 Y	36: 40 Y	0.20	0.04	76
Dibenz(ah)anthracene	* No Peak	0.00 N	36: 46 N	1.28	0.00	<RL=15
d12-Benzo(ghi)perylene	43166400	1.00 Y	37: 51 Y	0.41	0.04	73
Benzo(ghi)perylene	* No Peak	0.00 N	37: 56 N	1.11	0.00	<RL=15

RL=5

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mM 10-15-98

05OC98U311.RES : PAHAIR.TRG
Date analyzed : 05-OCT-98 0.00033
:100X S-MM5-5 Ex Cal : PAHAIR100198U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ug/ SAMPLE	Rec/ MDL		
1.00 Y	10: 27 Y	1.00	0.05		45933100	45933100
1.00 Y	8: 18 Y	1.78	0.04	84	68728200	68728200
1.00 Y	8: 22 Y	1.20	1257.90		684916000	684916000
1.00 Y	10: 34 Y	0.66	3413.27		1016950000	1016950000
1.00 Y	13: 30 Y	1.16	0.06	122	65419900	65419900
1.00 Y	13: 31 Y	1.02	21.70		9600000	9600000
1.00 Y	14: 4 Y	0.68	0.05	108	33787700	33787700
1.00 Y	14: 10 Y	1.14	372.64		94700000	94700000
1.00 Y	19: 2 Y	1.00	0.05		32663000	32663000
1.00 Y	15: 45 Y	1.36	0.04	88	39210100	39210100
1.00 Y	15: 51 Y	1.15	640.75		190000000	190000000
1.00 Y	18: 53 Y	2.74	0.05	93	83243700	83243700
1.00 Y	18: 57 Y	0.95	1184.85		620000000	620000000
1.00 Y	19: 5 Y	0.97	93.97		50200000	50200000
1.00 Y	24: 10 Y	1.00	0.05		126198000	126198000
1.00 Y	22: 46 Y	1.49	0.03	50	94434000	94434000
1.00 Y	22: 49 Y	1.23	104.85		80500000	80500000
1.00 Y	23: 28 Y	1.58	0.02	48	95965100	95965100
1.00 Y	23: 31 Y	1.26	286.31		228000000	228000000
1.00 Y	27: 20 Y	0.81	0.03	51	52592000	52592000
1.00 Y	27: 24 Y	1.28	43.20		19200000	19200000
1.00 Y	27: 27 Y	1.17	0.02	42	61989900	61989900
1.00 Y	27: 31 Y	1.16	161.97		76900000	76900000
1.00 Y	31: 41 Y	1.00	0.05		72044900	72044900
1.00 Y	30: 46 Y	0.48	0.06	125	43463900	43463900
1.00 Y	30: 50 Y	1.30	13.98<RL=15		5210000	5210000
1.00 Y	30: 51 Y	0.99	0.05	96	68248400	68248400
1.00 Y	30: 56 N	1.20	4.50<RL=15		2440000	2440000
1.00 Y	31: 51 Y	0.74	0.05	95	50354900	50354900
1.00 Y	31: 46 Y	1.62	15.23		8210000	8210000
1.00 Y	31: 56 Y	1.11	6.40<RL=15		2365390	2365390
1.00 Y	32: 9 Y	0.65	0.05	94	43821400	43821400
1.00 Y	32: 15 Y	1.74	28.01		14128700	14128700
1.00 Y	36: 35 Y	0.37	0.04	82	21953100	21953100
0.00 N	36: 38 N	0.60	0.00<RL=15		0	0
1.00 Y	36: 40 Y	0.20	0.04	76	11083000	11083000
0.00 N	36: 46 N	1.28	0.00<RL=15		0	0
1.00 Y	37: 51 Y	0.41	0.04	73	21583200	21583200
0.00 N	37: 56 N	1.11	0.00<RL=15		0	0

13-OCT-1998 12:01:40 PM Dioxin Furan Unknown RESULTS

10/14/98 ER

Results : 050C98U311.RES : PAHAIR.TRG

GC Column : DB-5 Date analyzed : 05-OCT-98

Data file : 050C98U 300681-11DI :100X S-MM5-5 Ex Cal : PAHAIR100198U.RRF

Weight : 0.5 .0009533

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	91866200	1.00	Y	10: 27	Y	1.00	.050.00	
d8-Naphthalene	137456400	1.00	Y	8: 18	Y	1.78	.041.95	84
Naphthalene	1369832000	1.00	Y	8: 22	Y	1.20	830.21	
2-Methylnaphthalene	2033900000	1.00	Y	10: 34	Y	0.66	2252.76	
d8-Acenaphthylene	130839800	1.00	Y	13: 30	Y	1.16	.061.19	122
Acenaphthylene	19200000	1.00	Y	13: 31	Y	1.02	14.32	<~~RL=100~~
d10-Acenaphthene	67575400	1.00	Y	14: 4	Y	0.68	.053.92	108
Acenaphthene	189400000	1.00	Y	14: 10	Y	1.14	245.95	
d10-Anthracene	65326000	1.00	Y	19: 2	Y	1.00	.050.00	
d10-Fluorene	78420200	1.00	Y	15: 45	Y	1.36	.044.06	88
Fluorene	380000000	1.00	Y	15: 51	Y	1.15	422.89	
d10-Phenanthrene	166487400	1.00	Y	18: 53	Y	2.74	.046.54	93
Phenanthrene	1240000000	1.00	Y	18: 57	Y	0.95	782.00	
Anthracene	100400000	1.00	Y	19: 5	Y	0.97	62.02	<~~RL=100~~
d14-Terphenyl	252396000	1.00	Y	24: 10	Y	1.00	.050.00	
d10-Fluoranthene	188868000	1.00	Y	22: 46	Y	1.49	25.09	50
Fluoranthene	161000000	1.00	Y	22: 49	Y	1.23	69.20	<~~RL=100~~
d10-Pyrene	191930200	1.00	Y	23: 28	Y	1.58	.024.14	48
Pyrene	456000000	1.00	Y	23: 31	Y	1.26	188.96	
d12-Benzo(a)anthracene	105184000	1.00	Y	27: 20	Y	0.81	.025.65	51
Benzo(a)anthracene	38400000	1.00	Y	27: 24	Y	1.28	28.51	<~~RL=100~~
d12-Chrysene	123979800	1.00	Y	27: 27	Y	1.17	.021.04	42
Chrysene	153800000	1.00	Y	27: 31	Y	1.16	106.90	
d12-Benzo(e)pyrene	144089800	1.00	Y	31: 41	Y	1.00	.050.00	
d12-Benzo(b)fluoranthene	86927800	1.00	Y	30: 46	Y	0.48	62.71	125
Benzo(b)fluoranthene	10420000	1.00	Y	30: 50	Y	1.30	9.23	<~~RL=100~~
d12-Benzo(k)fluoranthene	136496800	1.00	Y	30: 51	Y	0.99	.048.03	96
Benzo(k)fluoranthene	4880000	1.00	Y	30: 56	N	1.20	2.97	<~~RL=100~~
d12-Benzo(a)pyrene	100709800	1.00	Y	31: 51	Y	0.74	.047.30	95
Benzo(e)pyrene	16420000	1.00	Y	31: 46	Y	1.62	10.05	<~~RL=100~~
Benzo(a)pyrene	4730780	1.00	Y	31: 56	Y	1.11	4.23	<~~RL=100~~
d12-Perylene	87642800	1.00	Y	32: 9	Y	0.65	.047.05	94
Perylene	28257400	1.00	Y	32: 15	Y	1.74	18.49	<~~RL=100~~
d12-Indeno(123-cd)pyrene	43906200	1.00	Y	36: 35	Y	0.37	.040.92	82
Indeno(123-cd)pyrene	* No Peak	0.00	N	36: 38	N	0.60	0.00	<~~RL=100~~
d14-Dibenz(ah)anthracene	22166000	1.00	Y	36: 40	Y	0.20	.037.82	76
Dibenz(ah)anthracene	* No Peak	0.00	N	36: 46	N	1.28	0.00	<~~RL=100~~
d12-Benzo(ghi)perylene	43166400	1.00	Y	37: 51	Y	0.41	.036.60	73
Benzo(ghi)perylene	* No Peak	0.00	N	37: 56	N	1.11	0.00	<~~RL=100~~

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MAT 10-13-98

13-OCT-1998 12:01:35 PM Dioxin Furan Unknown RESULTS

05OC98U311.RES : PAHAIR.TRG
Date analyzed : 05-OCT-98 0.5
:100X S-MM5-5 Ex Cal : PAHAIR100198U.RRF

Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL		
1.00 Y	10: 27 Y	1.00	50.00		45933100	45933100
1.00 Y	8: 18 Y	1.78	41.95	84	68728200	68728200
1.00 Y	8: 22 Y	1.20	830.21		684916000	684916000
1.00 Y	10: 34 Y	0.66	2252.76		1016950000	1016950000
1.00 Y	13: 30 Y	1.16	61.19	122	65419900	65419900
1.00 Y	13: 31 Y	1.02	14.32	<RL=100	9600000	9600000
1.00 Y	14: 4 Y	0.68	53.92	108	33787700	33787700
1.00 Y	14: 10 Y	1.14	245.95		94700000	94700000
1.00 Y	19: 2 Y	1.00	50.00		32663000	32663000
1.00 Y	15: 45 Y	1.36	44.06	88	39210100	39210100
1.00 Y	15: 51 Y	1.15	422.89		190000000	190000000
1.00 Y	18: 53 Y	2.74	46.54	93	83243700	83243700
1.00 Y	18: 57 Y	0.95	782.00		620000000	620000000
1.00 Y	19: 5 Y	0.97	62.02	<RL=100	50200000	50200000
1.00 Y	24: 10 Y	1.00	50.00		126198000	126198000
1.00 Y	22: 46 Y	1.49	25.09	50	94434000	94434000
1.00 Y	22: 49 Y	1.23	69.20	<RL=100	80500000	80500000
1.00 Y	23: 28 Y	1.58	24.14	48	95965100	95965100
1.00 Y	23: 31 Y	1.26	188.96		228000000	228000000
1.00 Y	27: 20 Y	0.81	25.65	51	52592000	52592000
1.00 Y	27: 24 Y	1.28	28.51	<RL=100	19200000	19200000
1.00 Y	27: 27 Y	1.17	21.04	42	61989900	61989900
1.00 Y	27: 31 Y	1.16	106.90		76900000	76900000
1.00 Y	31: 41 Y	1.00	50.00		72044900	72044900
1.00 Y	30: 46 Y	0.48	62.71	125	43463900	43463900
1.00 Y	30: 50 Y	1.30	9.23	<RL=100	5210000	5210000
1.00 Y	30: 51 Y	0.99	48.03	96	68248400	68248400
1.00 Y	30: 56 N	1.20	2.97	<RL=100	2440000	2440000
1.00 Y	31: 51 Y	0.74	47.30	95	50354900	50354900
1.00 Y	31: 46 Y	1.62	10.05	<RL=100	8210000	8210000
1.00 Y	31: 56 Y	1.11	4.23	<RL=100	2365390	2365390
1.00 Y	32: 9 Y	0.65	47.05	94	43821400	43821400
1.00 Y	32: 15 Y	1.74	18.49	<RL=100	14128700	14128700
1.00 Y	36: 35 Y	0.37	40.92	82	21953100	21953100
0.00 N	36: 38 N	0.60	0.00	<RL=100	0	0
1.00 Y	36: 40 Y	0.20	37.82	76	11083000	11083000
0.00 N	36: 46 N	1.28	0.00	<RL=100	0	0
1.00 Y	37: 51 Y	0.41	36.60	73	21583200	21583200
0.00 N	37: 56 N	1.11	0.00	<RL=100	0	0

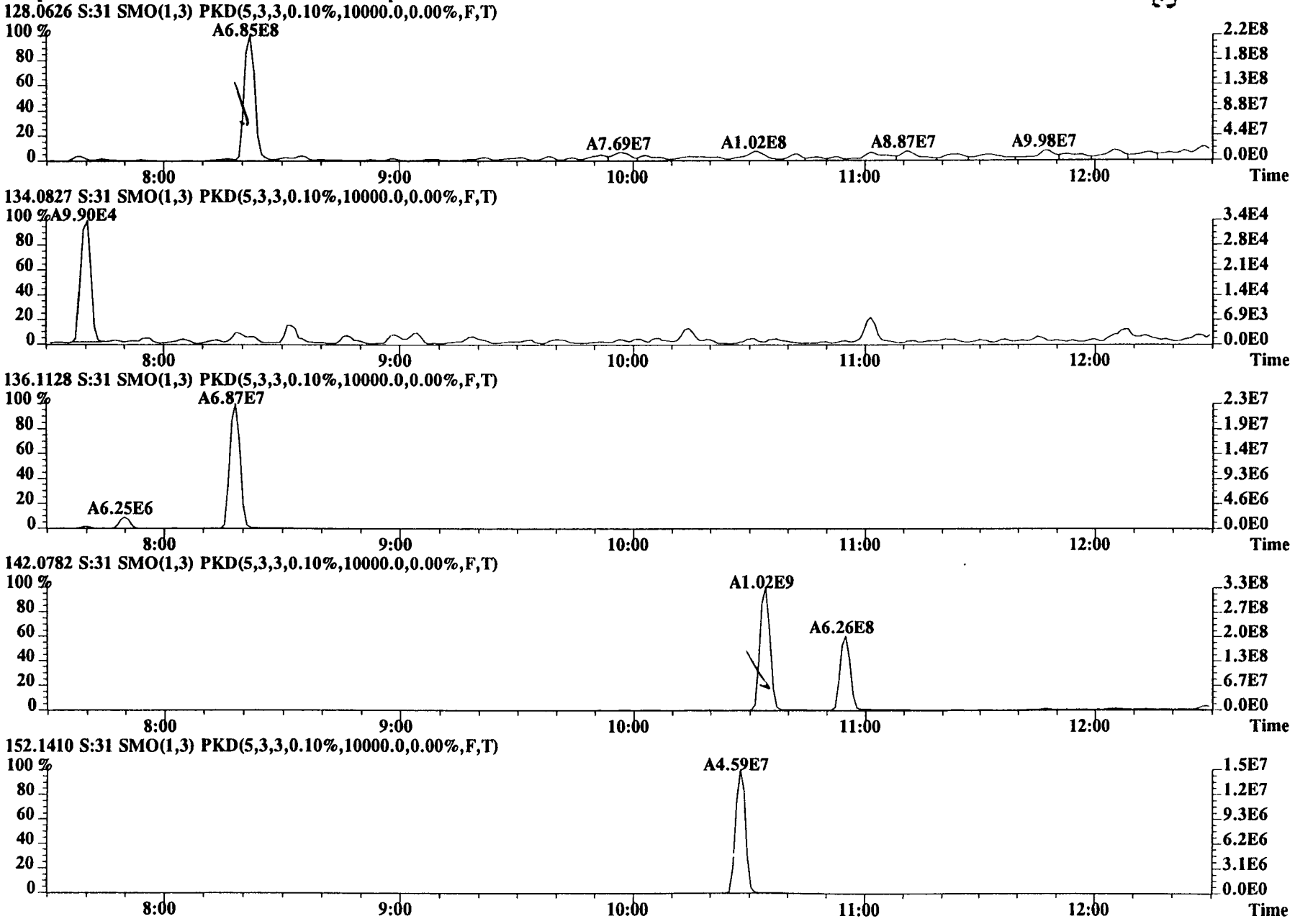
07-OCT-1998 05:18:37 PM Dioxin Furan Unknown RESULTS

Mass Spec : ULTIMA Results : 05OC98U311.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U 300681-11DI :100X S-MM5-5 Ex Cal : PAHAIR100198U.RR
Weight : 0.5

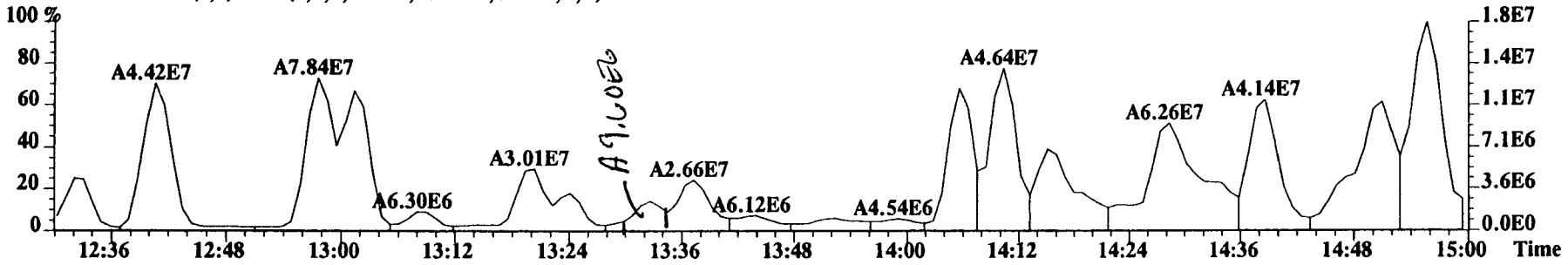
Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng/ SAMPLE	Rec/ MDL
d10-2-Methylnaphthalene	91866200	1.00 Y	10: 27 Y	1.00	50.00	
d8-Naphthalene	137456400	1.00 Y	8: 18 Y	1.78	41.95	84
Naphthalene	1369832000	1.00 Y	8: 22 Y	1.20	830.21	0.000
2-Methylnaphthalene	2033900000	1.00 Y	10: 34 Y	0.66	2252.76	0.000
d8-Acenaphthylene	130839800	1.00 Y	13: 30 Y	1.16	61.19	122
Acenaphthylene	* No Peak	0.00 N	13: 31 Y	1.02	0.00	0.000
d10-Acenaphthene	67575400	1.00 Y	14: 4 Y	0.68	53.92	108
Acenaphthene	207610000	1.00 Y	14: 10 Y	1.14	269.59	0.000
d10-Anthracene	65326000	1.00 Y	19: 2 Y	1.00	50.00	
d10-Fluorene	78420200	1.00 Y	15: 45 Y	1.36	44.06	88
Fluorene	415472000	1.00 Y	15: 51 Y	1.15	462.37	0.000
d10-Phenanthrene	166487400	1.00 Y	18: 53 Y	2.74	46.54	93
Phenanthrene	1300970000	1.00 Y	18: 57 Y	0.95	820.45	0.000
Anthracene	* No Peak	0.00 N	19: 5 N	0.97	0.00	0.000
d14-Terphenyl	252396000	1.00 Y	24: 10 Y	1.00	50.00	
d10-Fluoranthene	188868000	1.00 Y	22: 46 Y	1.49	25.09	50
Fluoranthene	184300800	1.00 Y	22: 49 Y	1.23	79.22	0.000
d10-Pyrene	191930200	1.00 Y	23: 28 Y	1.58	24.14	48
Pyrene	553388000	1.00 Y	23: 31 Y	1.26	229.32	0.000
d12-Benzo(a)anthracene	105184000	1.00 Y	27: 20 Y	0.81	25.65	51
Benzo(a)anthracene	53193800	1.00 Y	27: 24 Y	1.28	39.50	0.000
d12-Chrysene	123979800	1.00 Y	27: 27 Y	1.17	21.04	42
Chrysene	162916600	1.00 Y	27: 31 Y	1.16	113.24	0.000
d12-Benzo(e)pyrene	144089800	1.00 Y	31: 41 Y	1.00	50.00	
d12-Benzo(b)fluoranthene	86927800	1.00 Y	30: 46 Y	0.48	62.71	125
Benzo(b)fluoranthene	15492440	1.00 Y	30: 50 Y	1.30	13.72	0.000
d12-Benzo(k)fluoranthene	136496800	1.00 Y	30: 51 Y	0.99	48.03	96
Benzo(k)fluoranthene	* No Peak	0.00 N	30: 56 N	1.20	0.00	0.000
d12-Benzo(a)pyrene	100709800	1.00 Y	31: 51 Y	0.74	47.30	95
Benzo(e)pyrene	17986300	1.00 Y	31: 46 Y	1.62	11.01	0.000
Benzo(a)pyrene	4730780	1.00 Y	31: 56 Y	1.11	4.23	0.000
d12-Perylene	87642800	1.00 Y	32: 9 Y	0.65	47.05	94
Perylene	28257400	1.00 Y	32: 15 Y	1.74	18.49	0.000
d12-Indeno(123-cd)pyrene	43906200	1.00 Y	36: 35 Y	0.37	40.9[illegible]	82
Indeno(123-cd)pyrene	* No Peak	0.00 N	36: 38 N	0.60	0.00	0.000
d14-Dibenz(ah)anthracene	22166000	1.00 Y	36: 40 Y	0.20	37.82	76
Dibenz(ah)anthracene	* No Peak	0.00 N	36: 46 N	1.28	0.00	0.000
d12-Benzo(ghi)perylene	43166400	1.00 Y	37: 51 Y	0.41	36.60	73
Benzo(ghi)perylene	* No Peak	0.00 N	37: 56 N	1.11	0.00	0.000

310

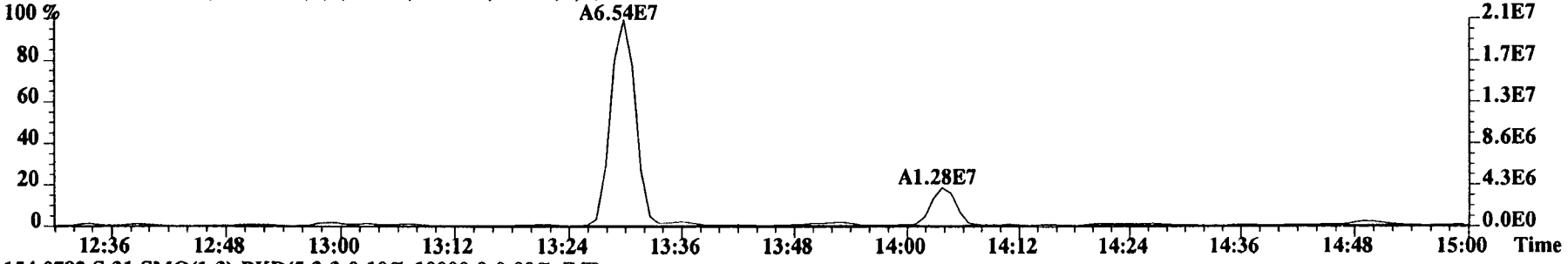
File:05OC98U #1-508 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR



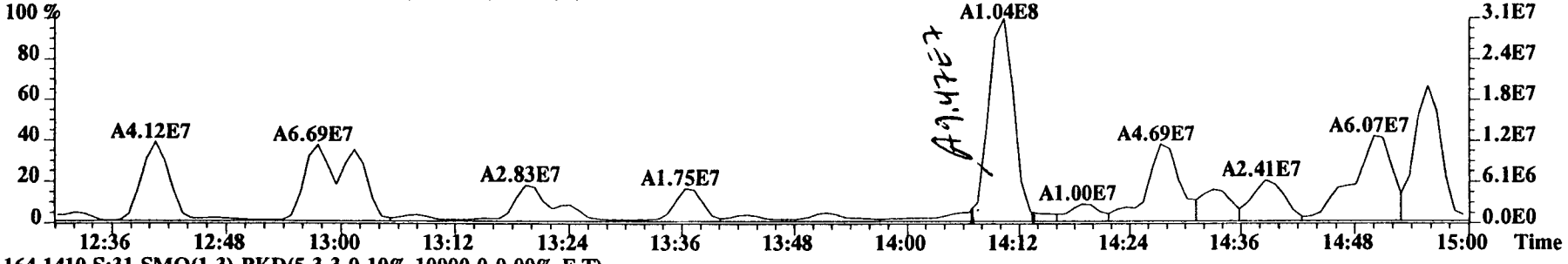
File:05OC98U #1-508 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
152.0626 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



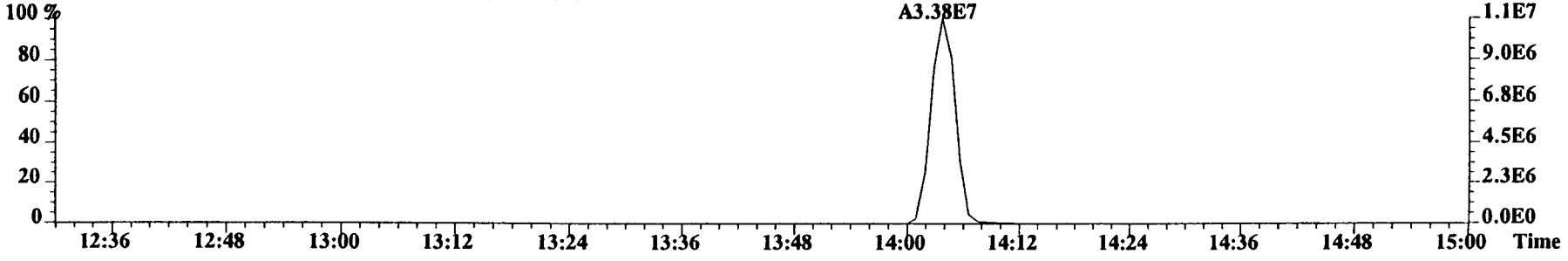
160.1128 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



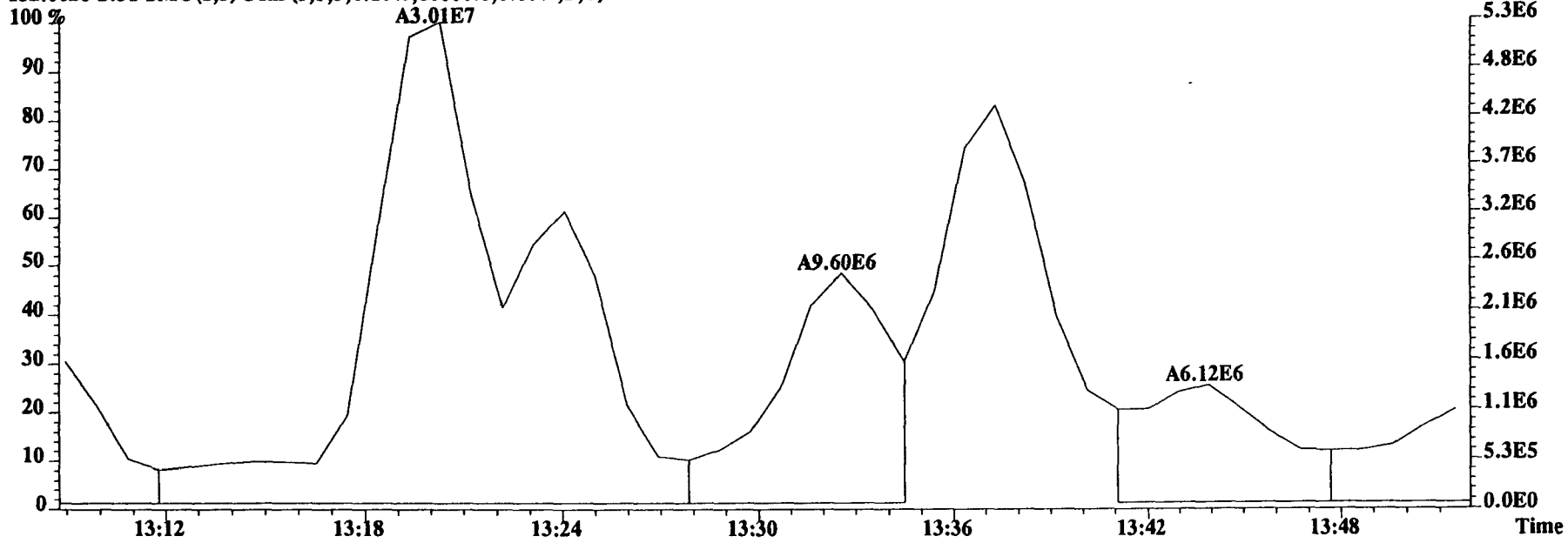
154.0782 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



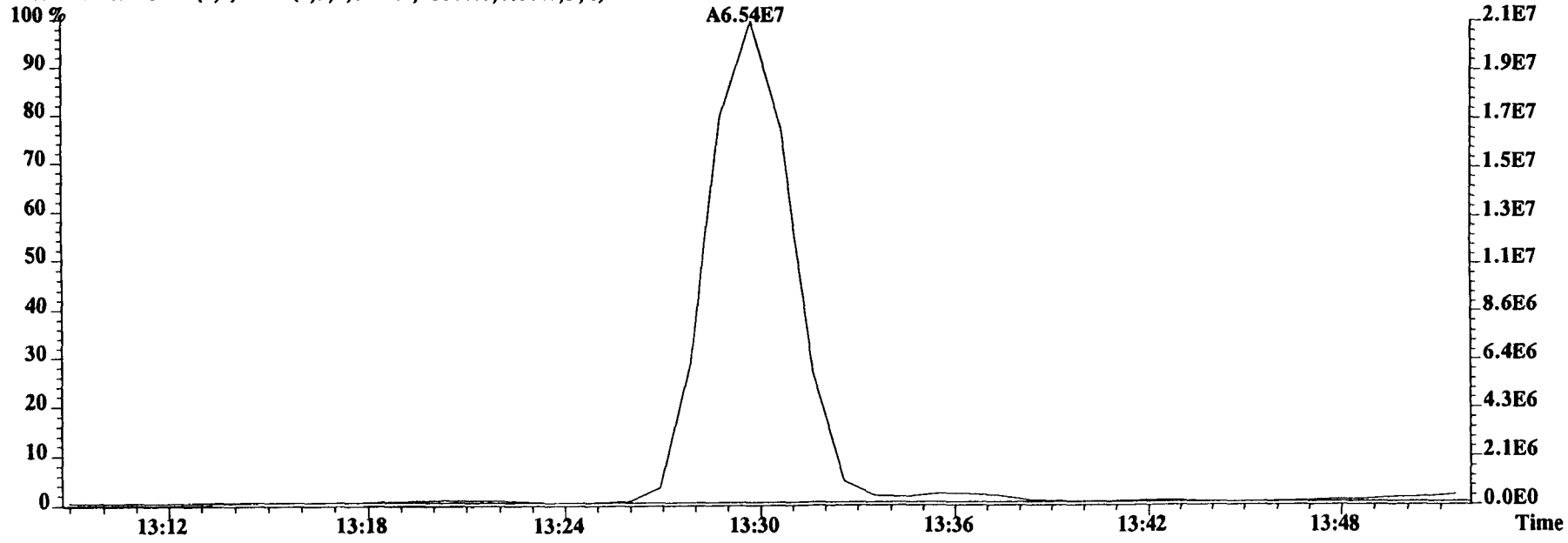
164.1410 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



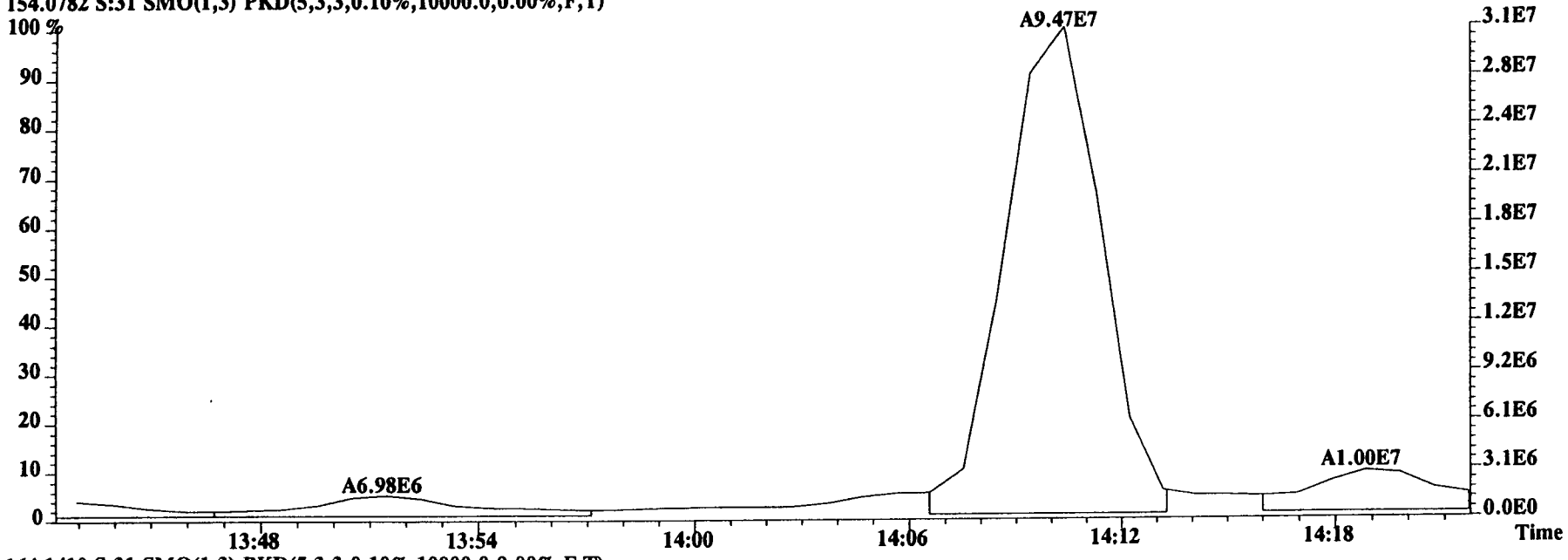
File:05OC98U #1-508 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
152.0626 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



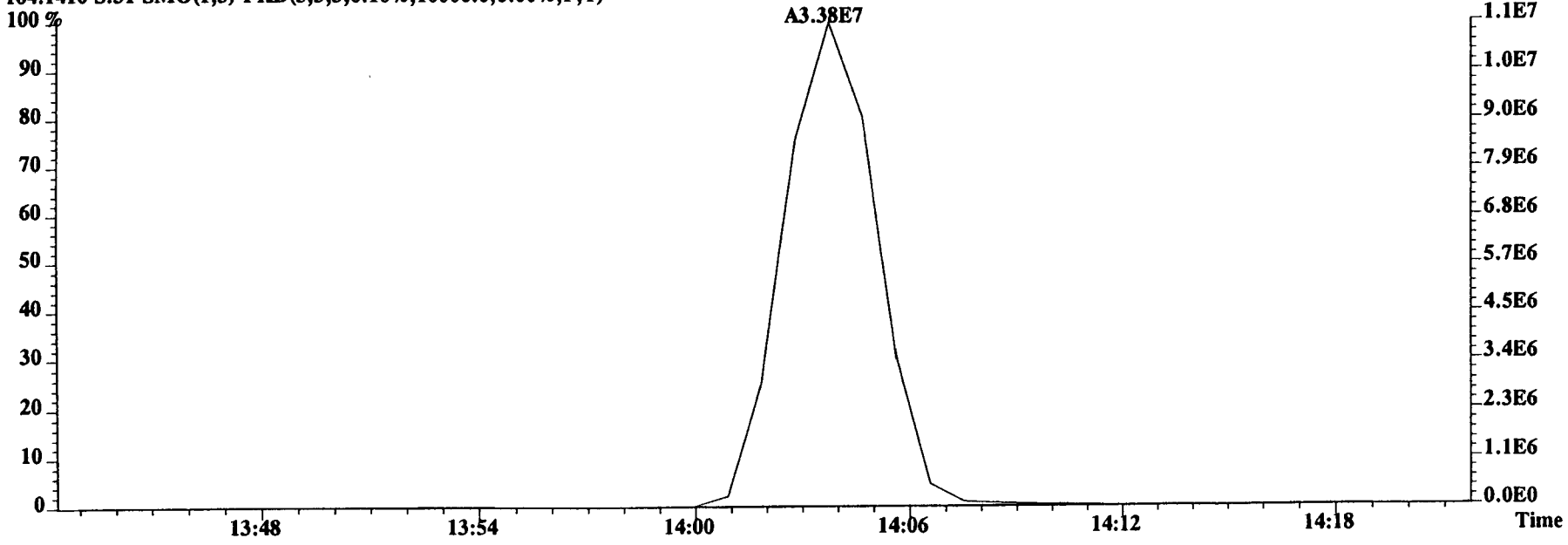
160.1128 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:05OC98U #1-508 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
154.0782 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

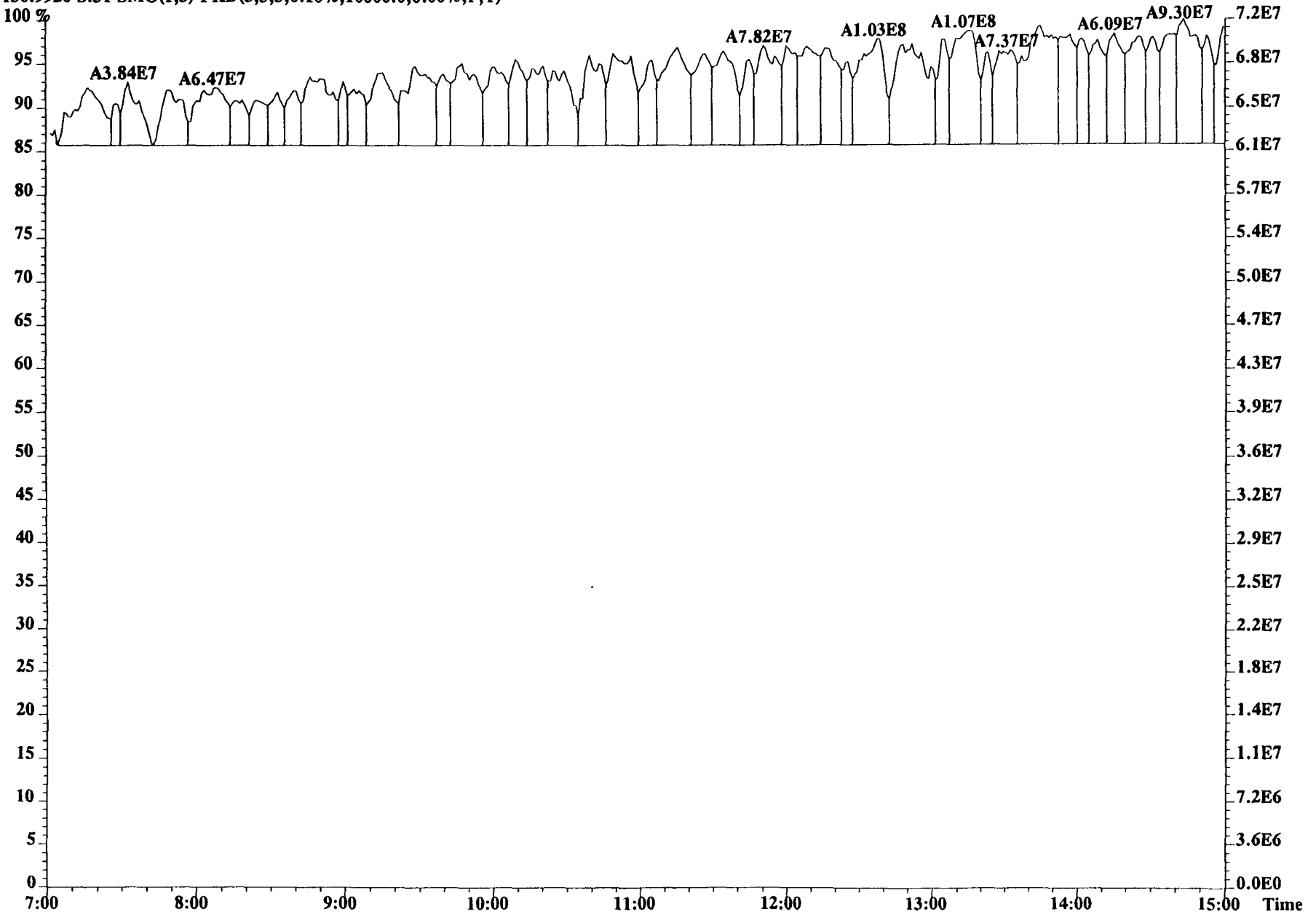


164.1410 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

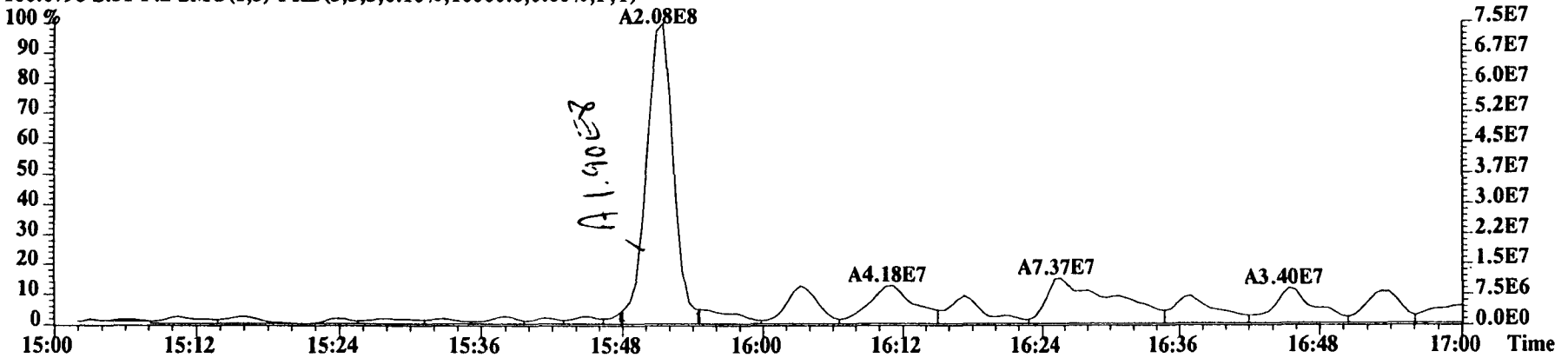


31d

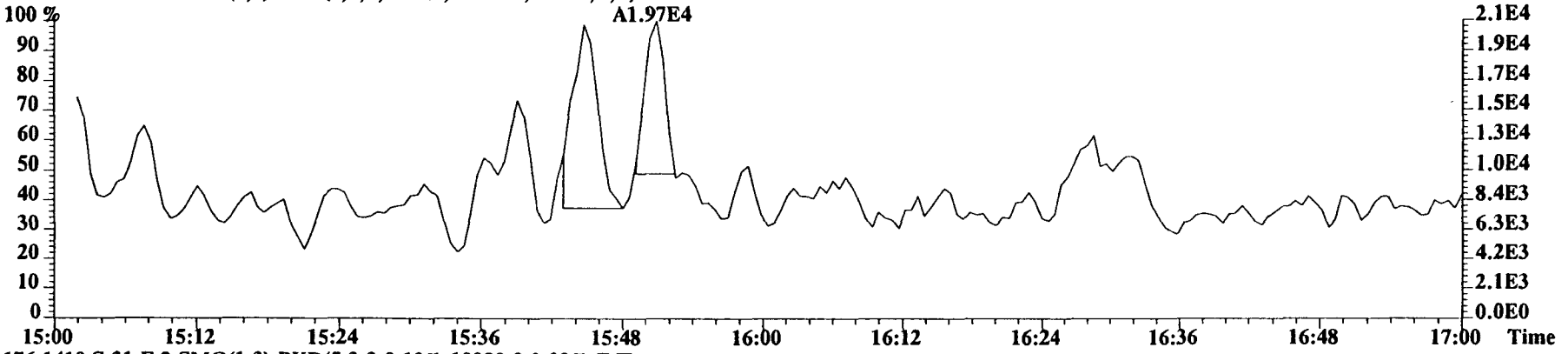
File:05OC98U #1-508 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
130.9920 S:31 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



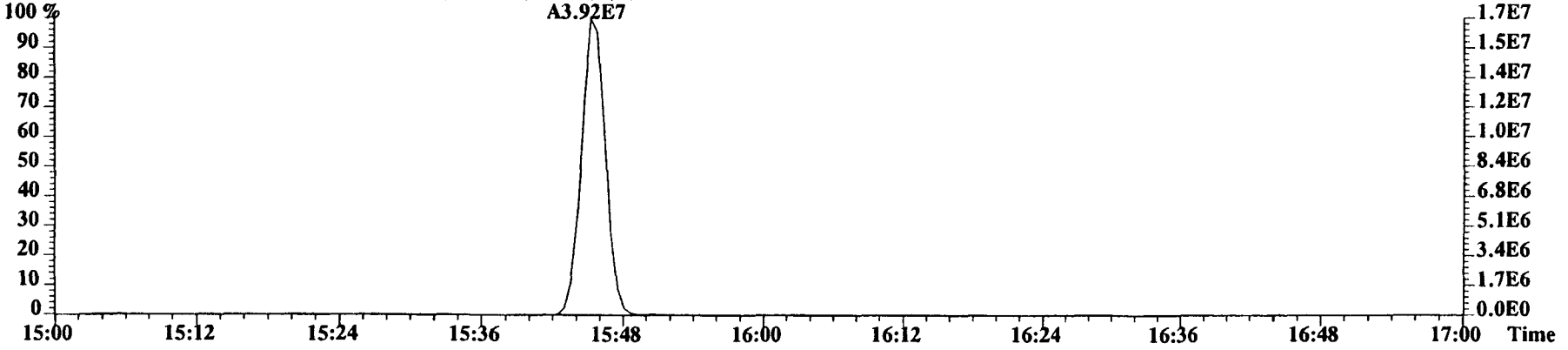
File:05OC98U #1-585 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
166.0798 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



172.0984 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

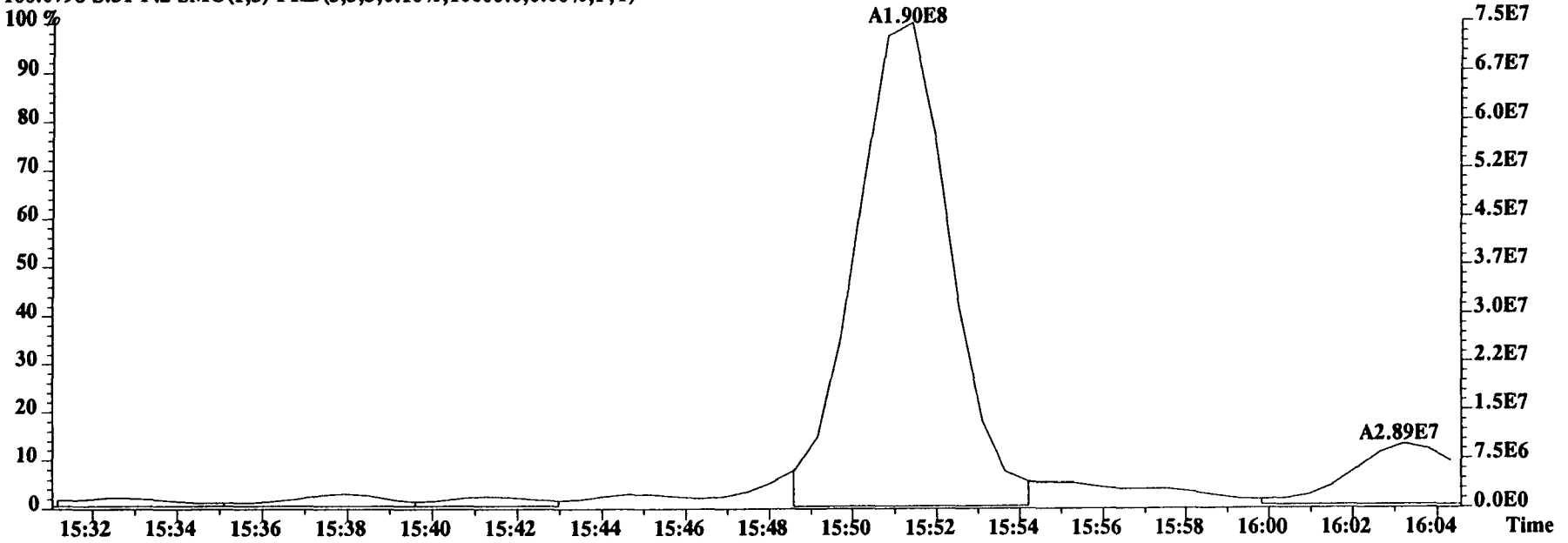


176.1410 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

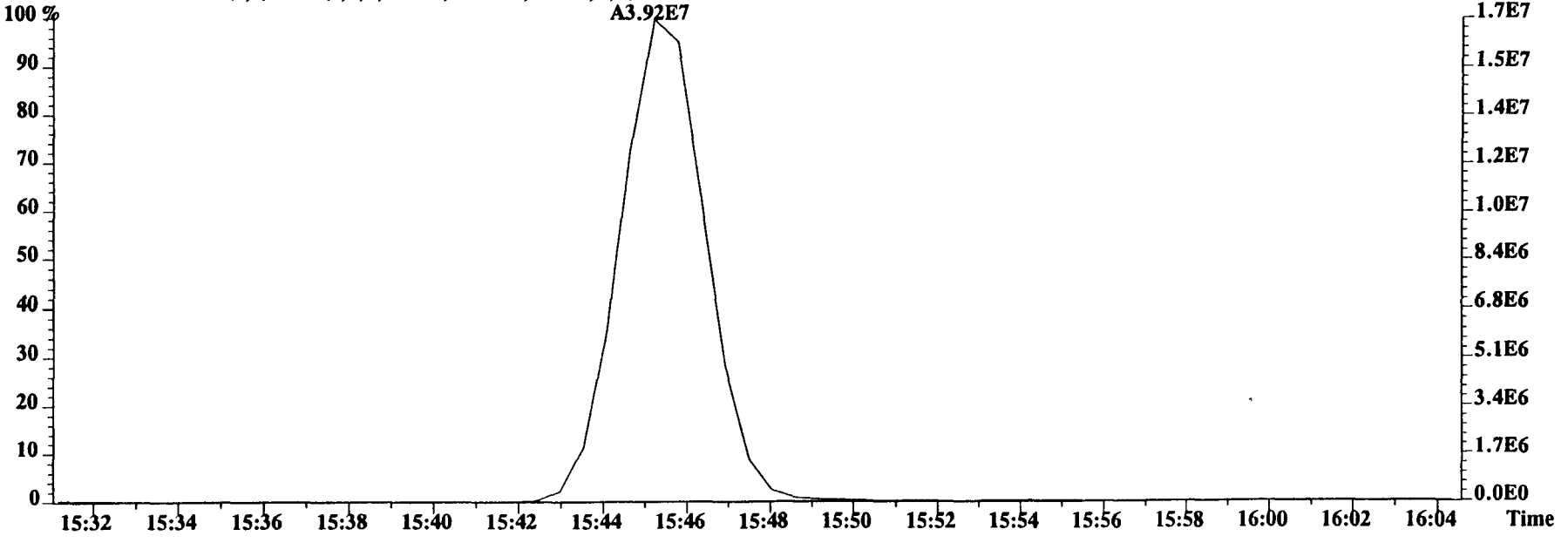


316

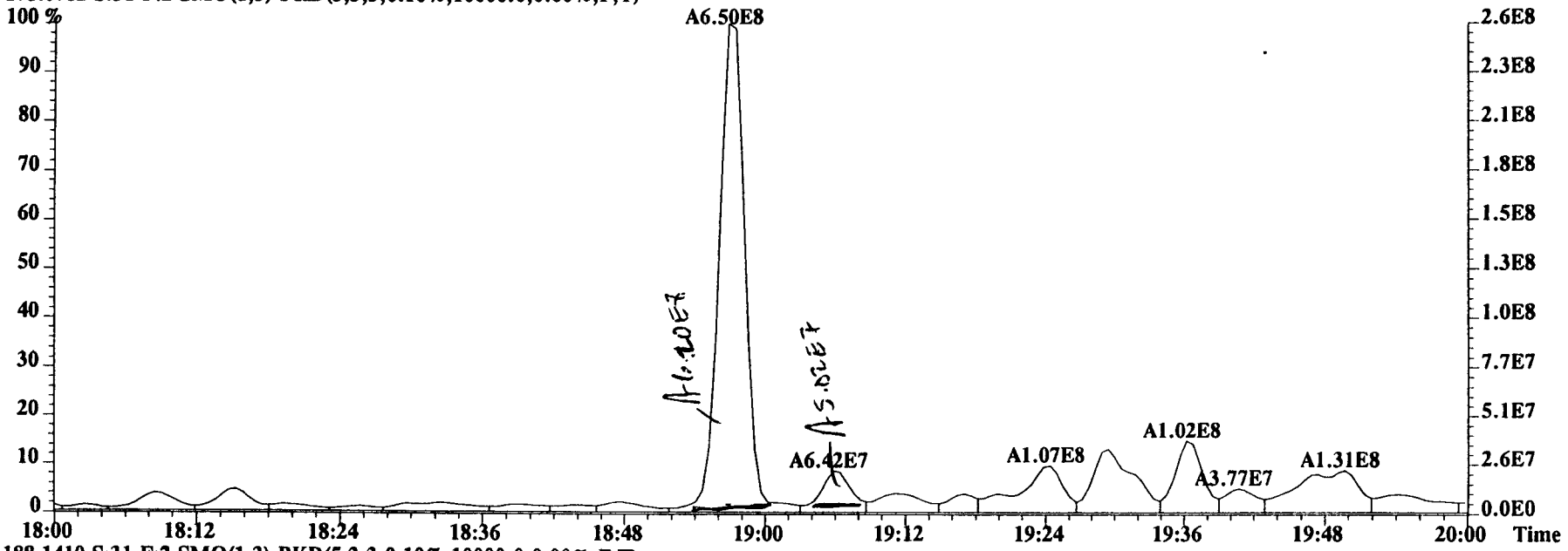
File:05OC98U #1-585 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
166.0798 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



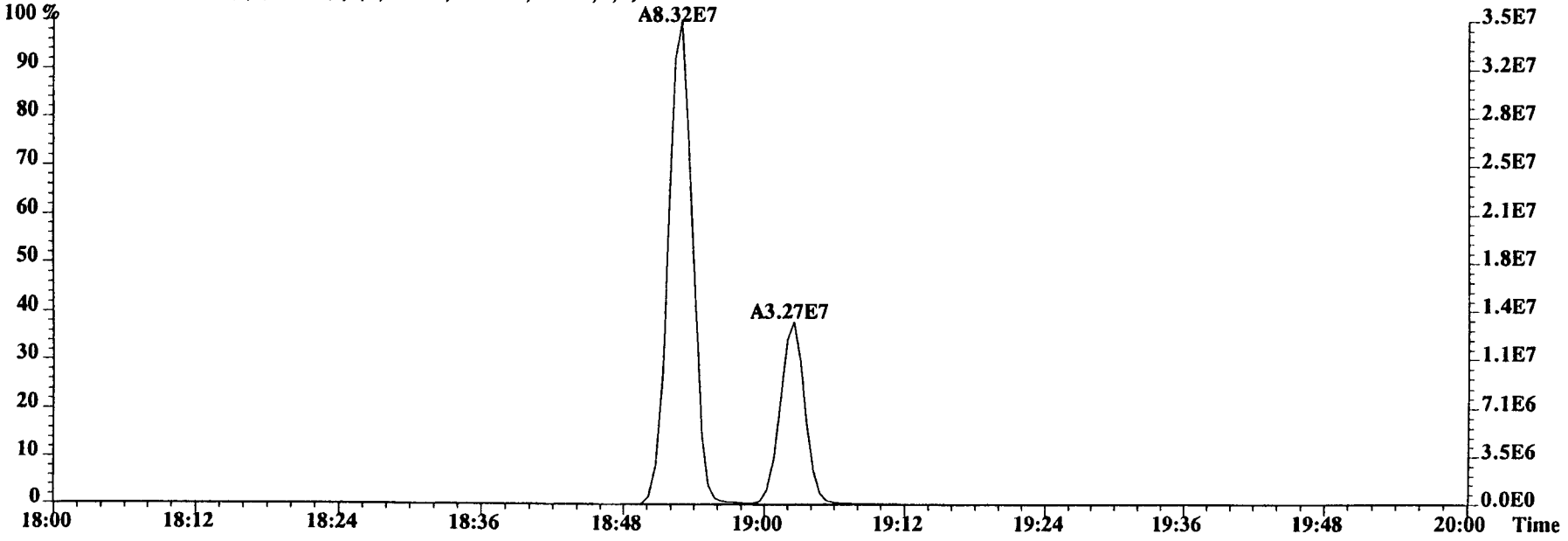
176.1410 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



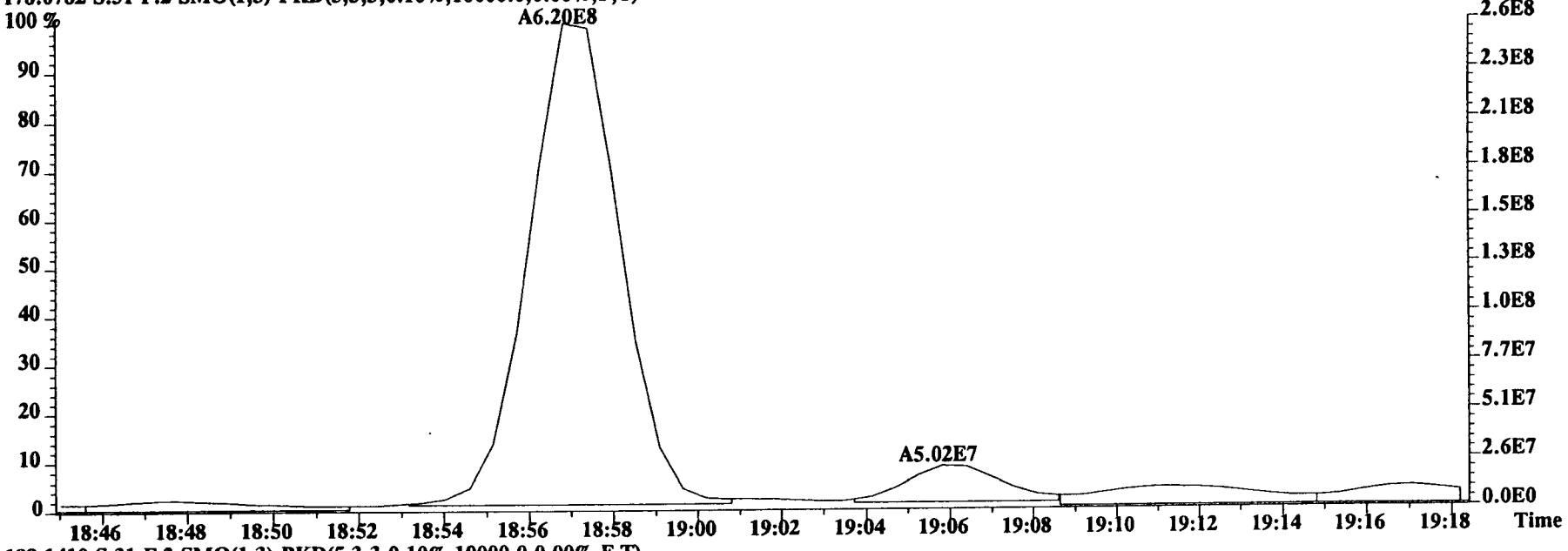
File:05OC98U #1-585 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
178.0782 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



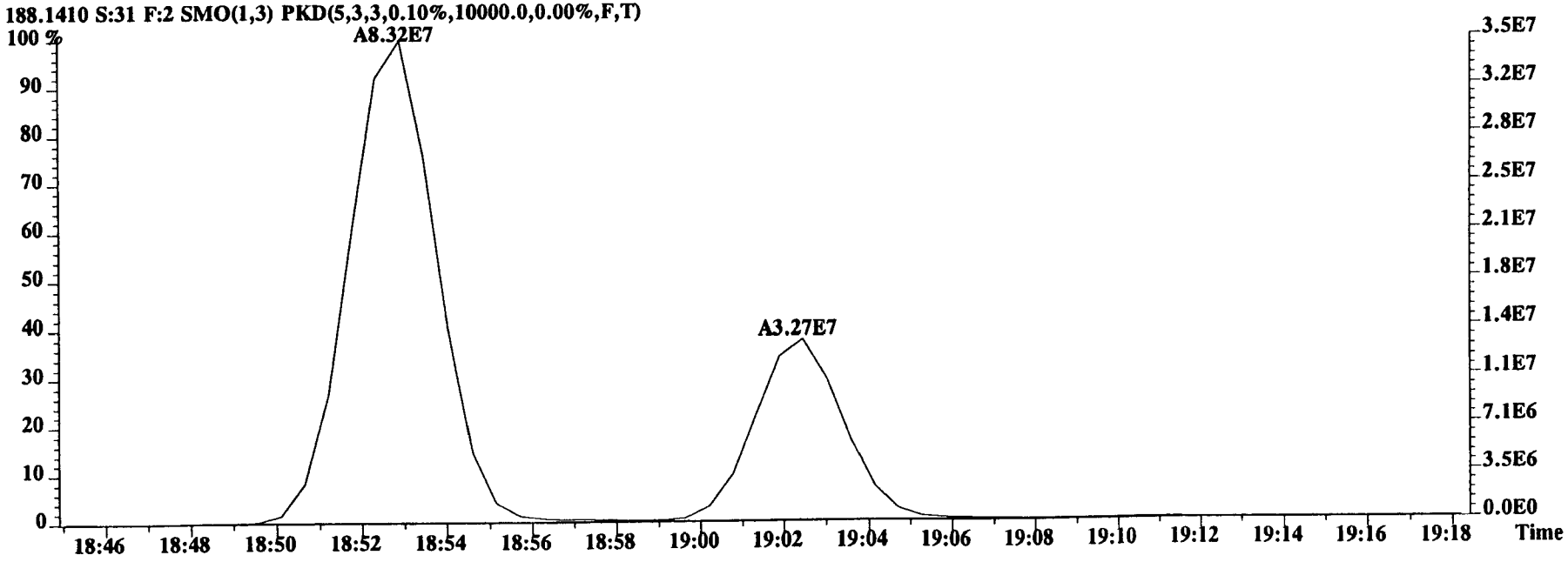
188.1410 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



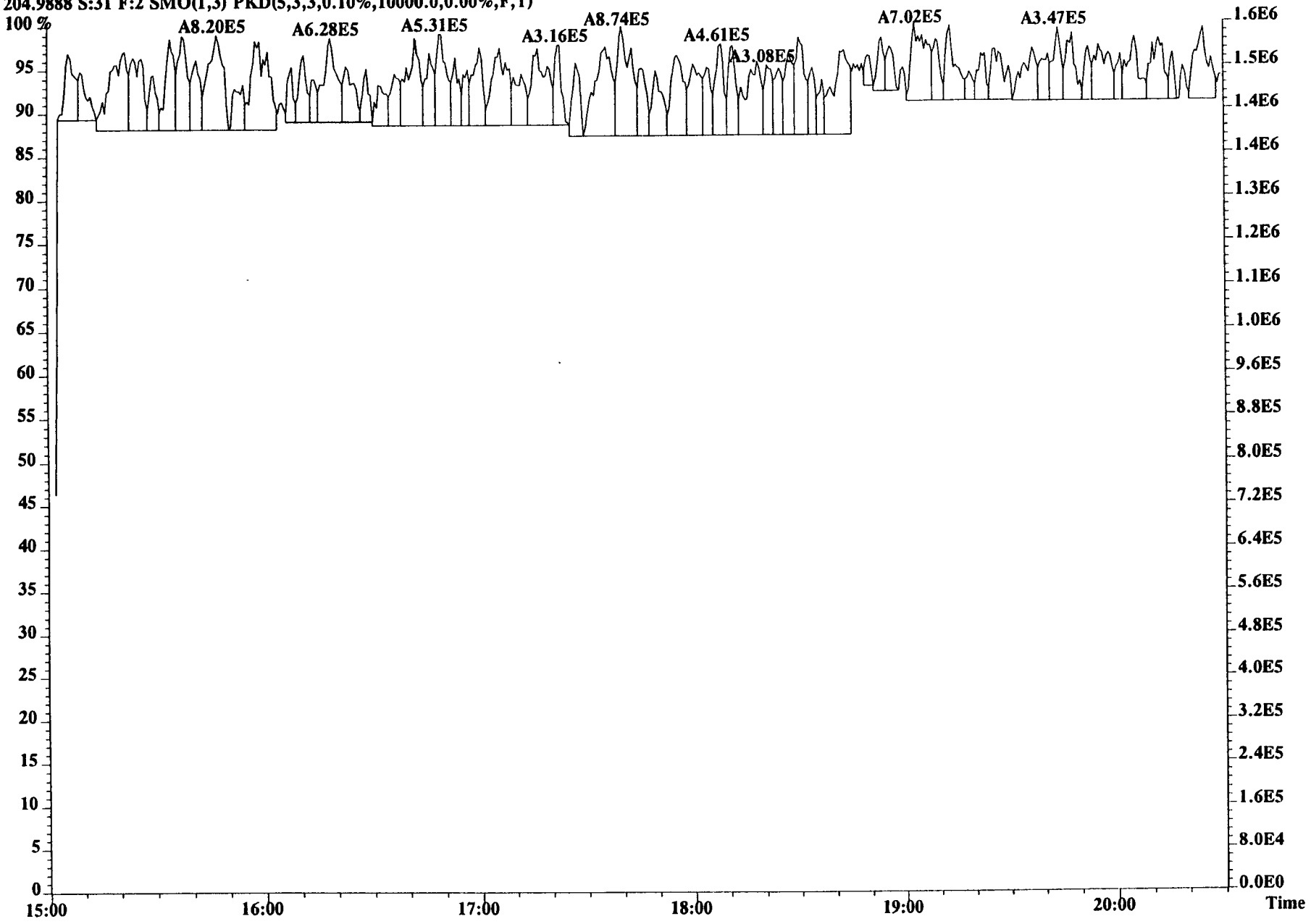
File:05OC98U #1-585 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
178.0782 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



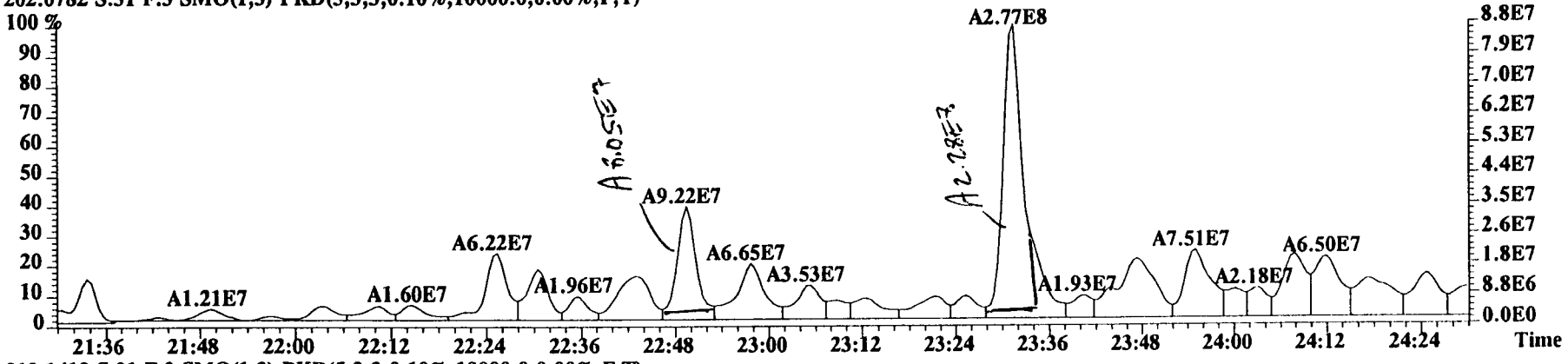
188.1410 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



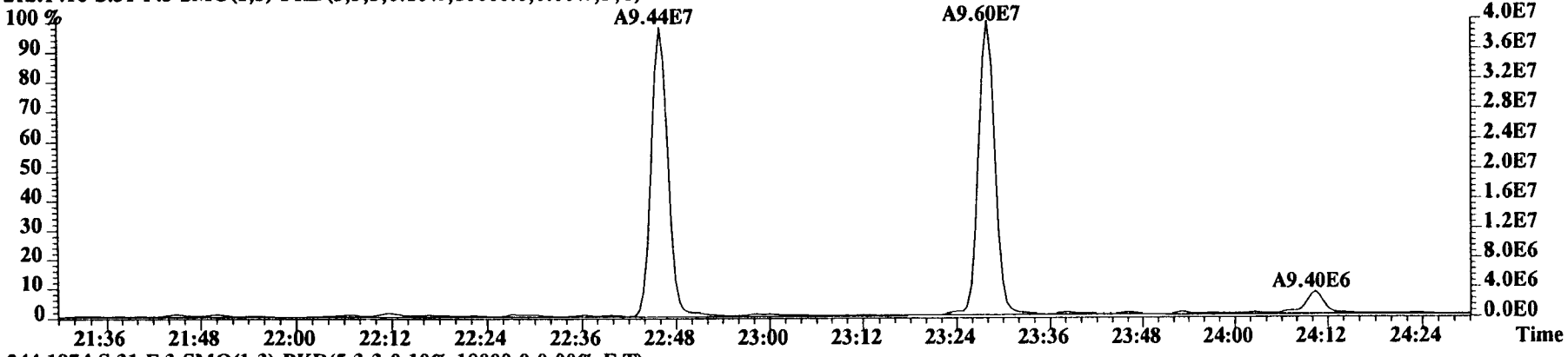
File:05OC98U #1-585 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
204.9888 S:31 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



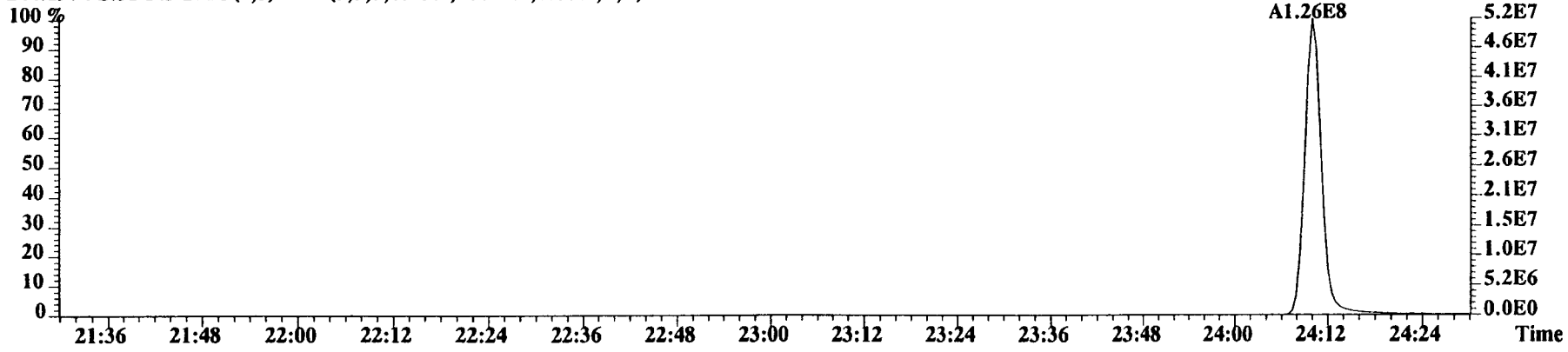
File:05OC98U #1-1052 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
202.0782 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



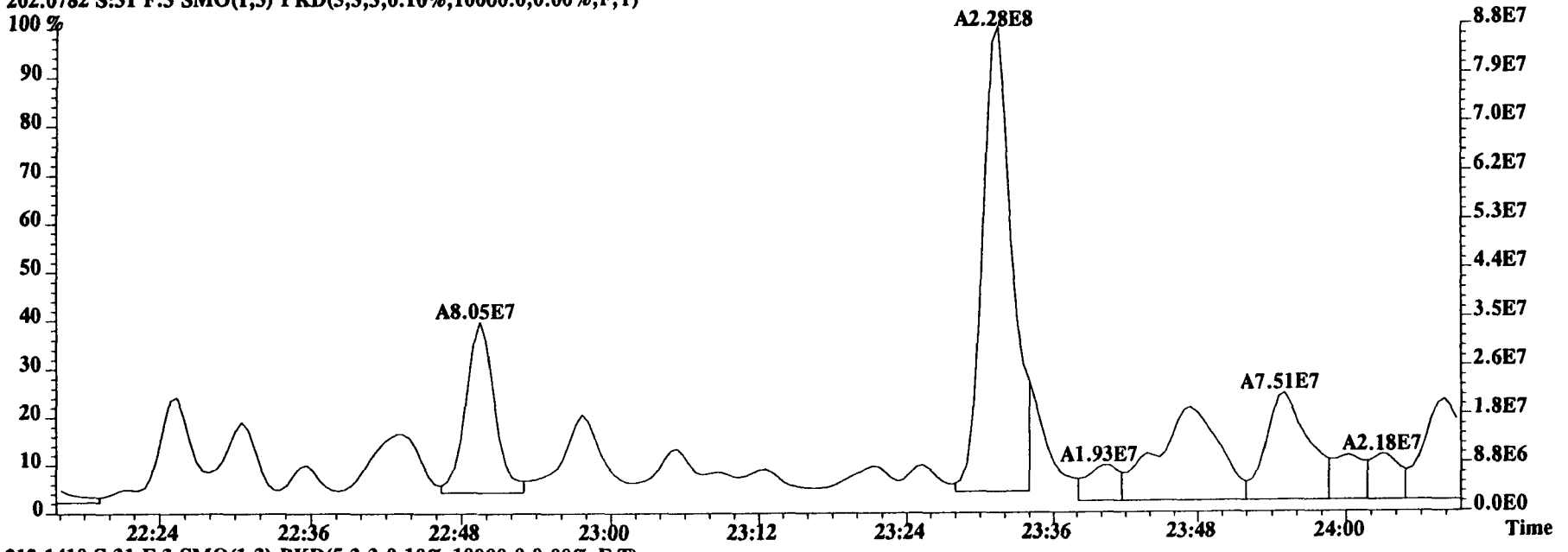
212.1410 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



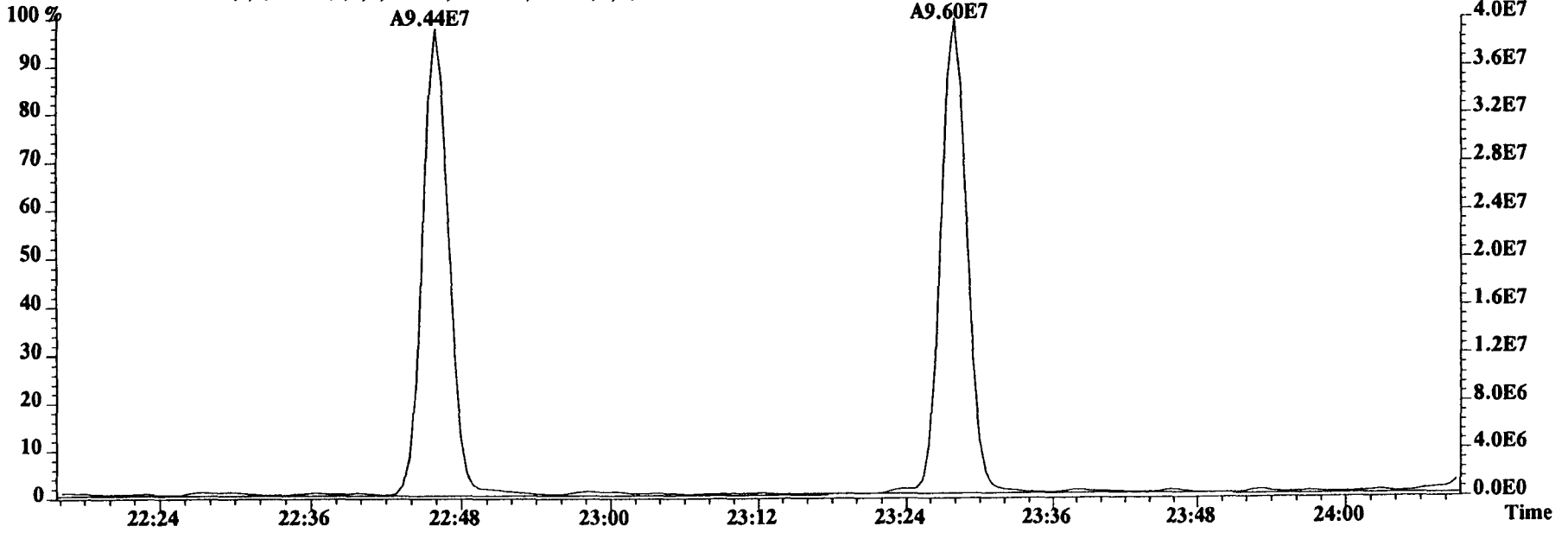
244.1974 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



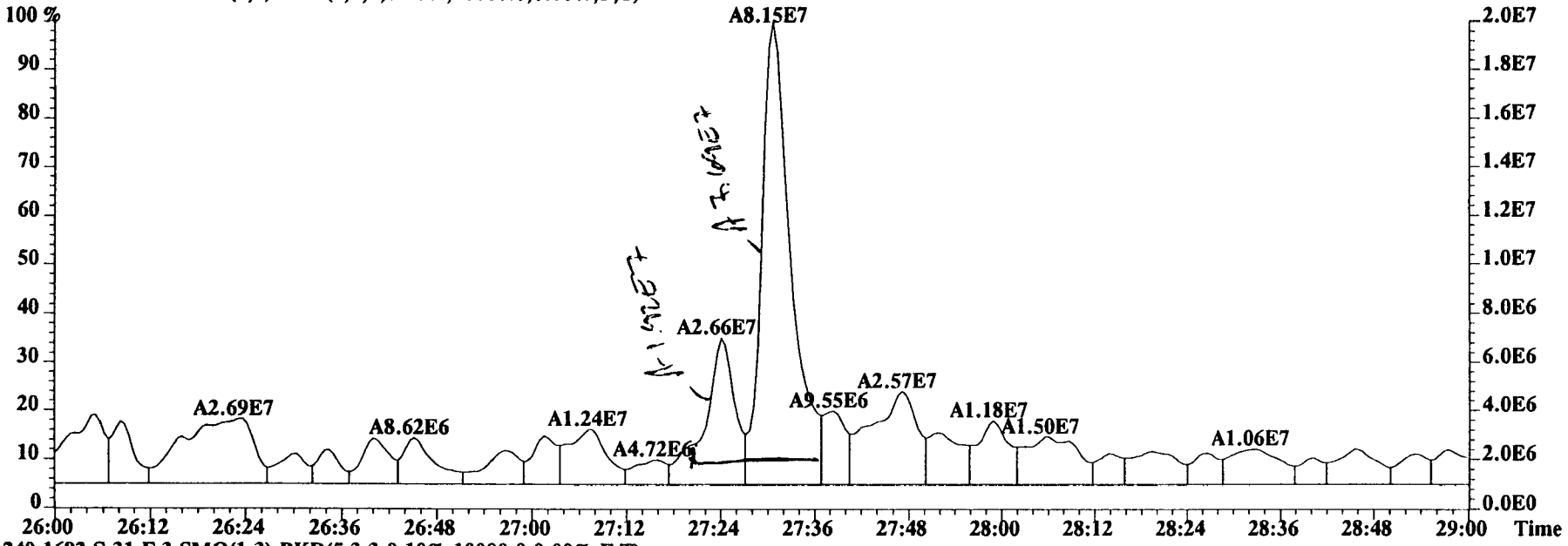
File:05OC98U #1-1052 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
202.0782 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



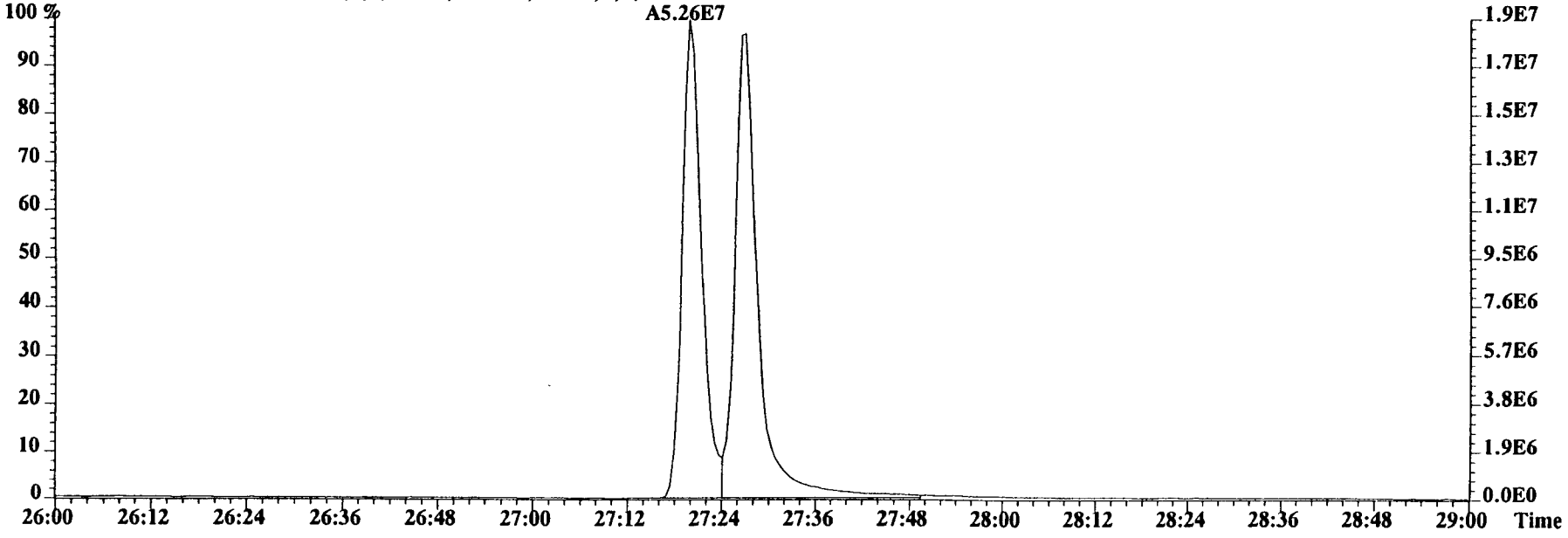
212.1410 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



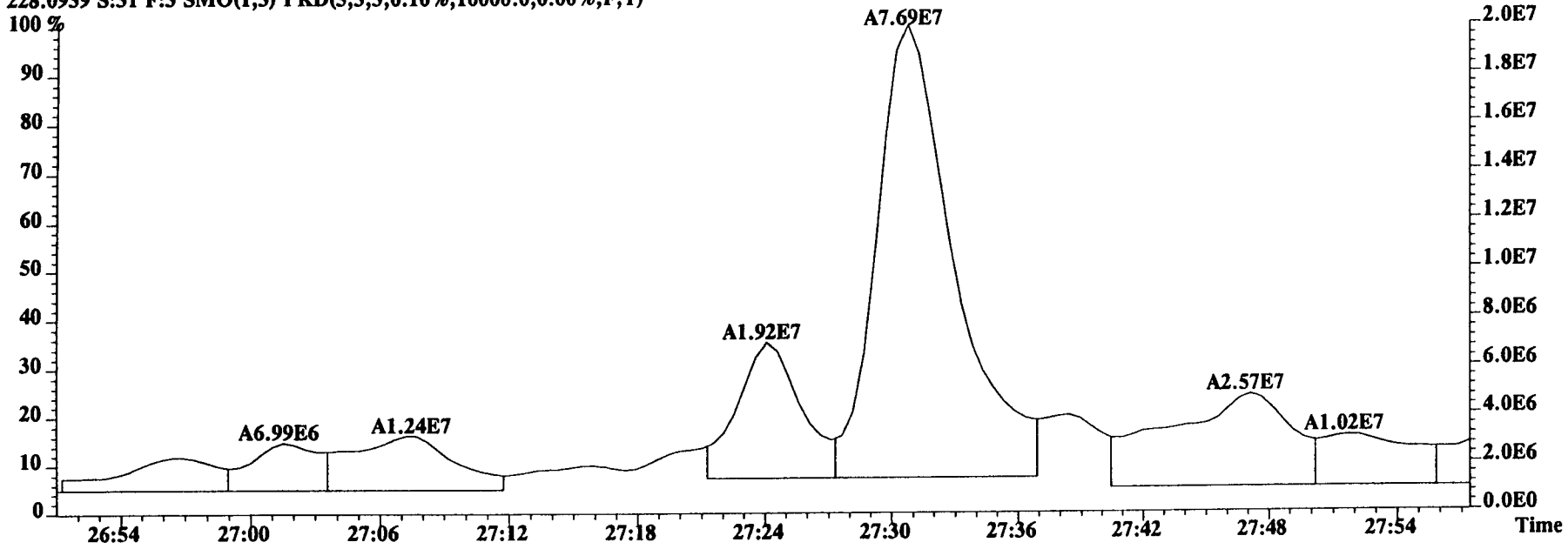
File:05OC98U #1-1052 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
228.0939 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



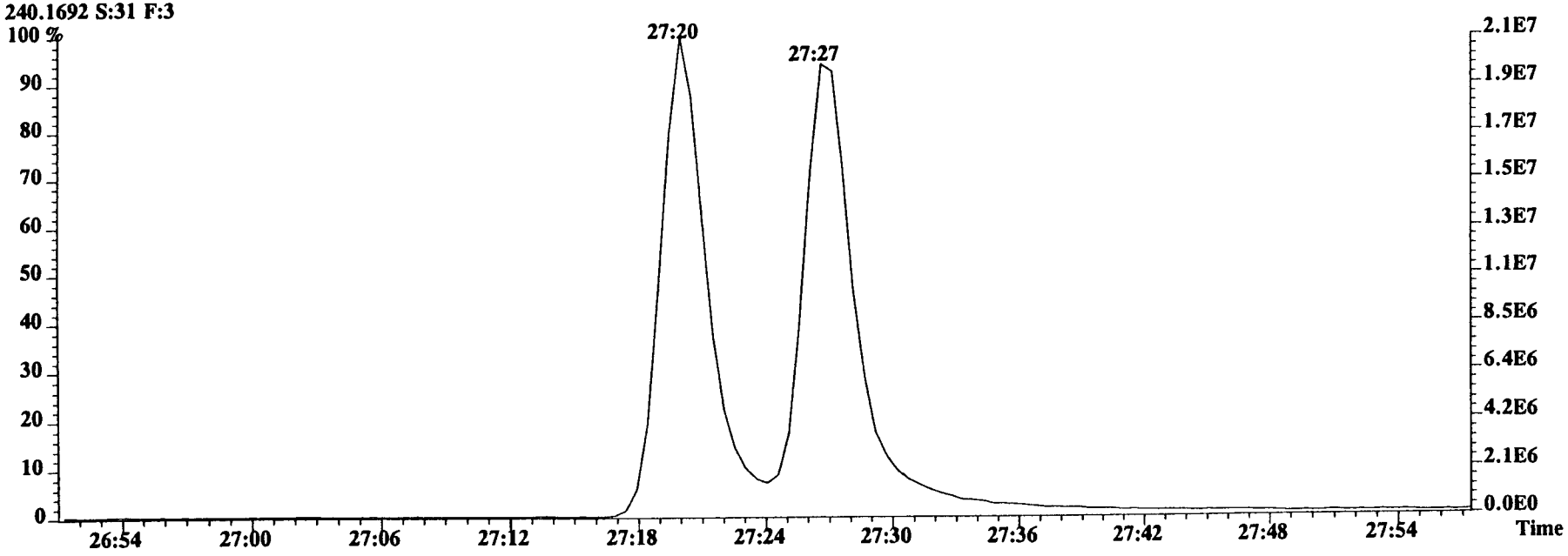
240.1692 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



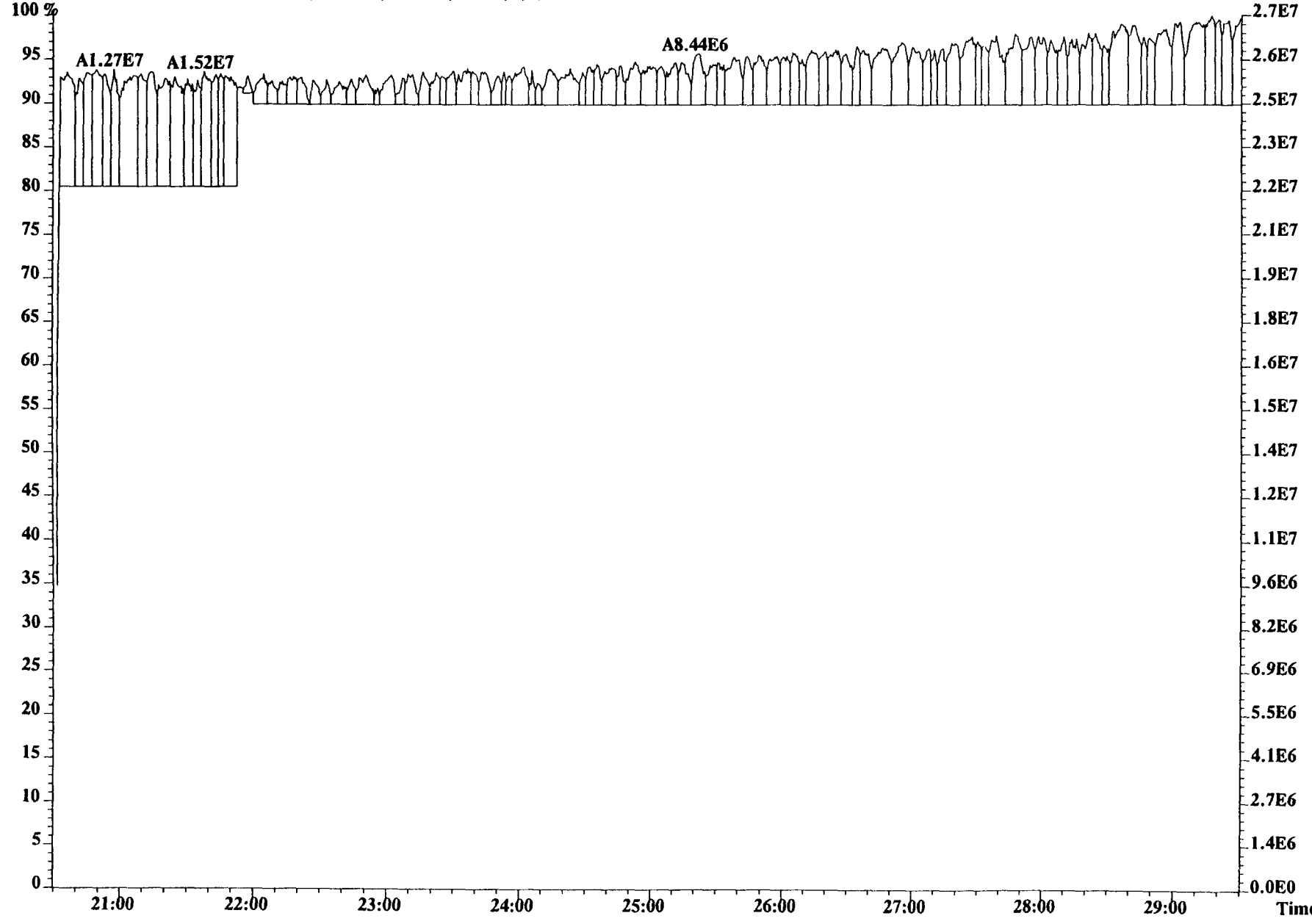
File:05OC98U #1-1052 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
228.0939 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



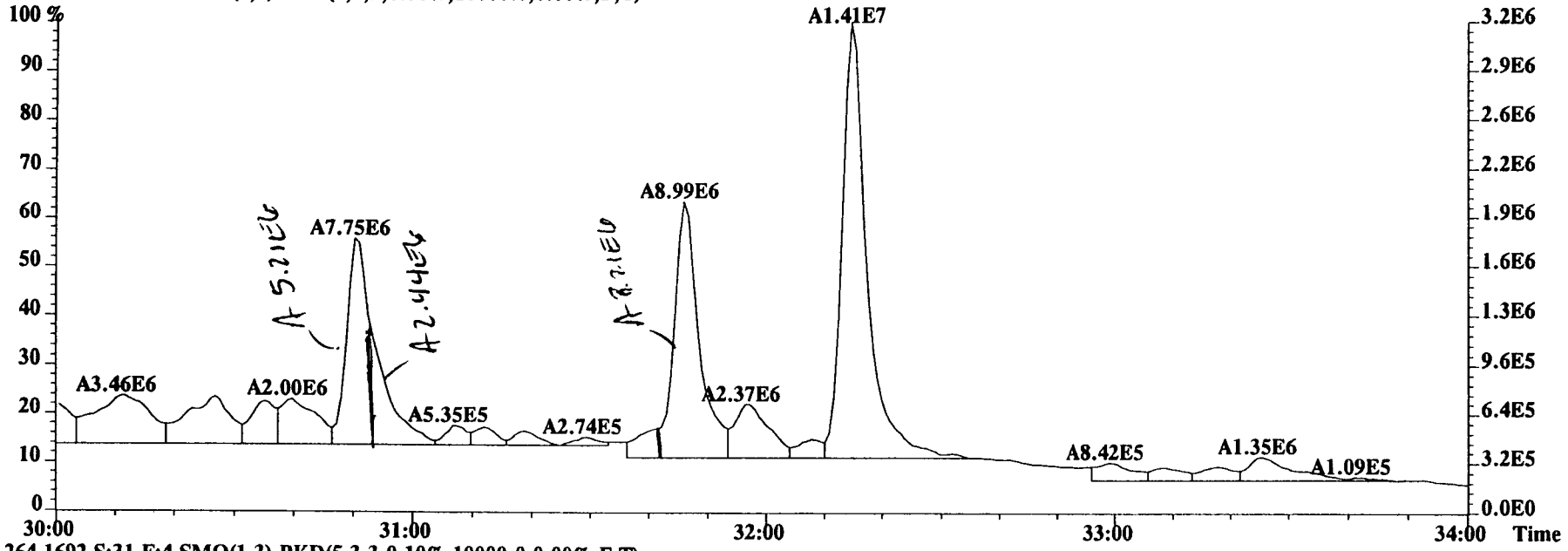
240.1692 S:31 F:3



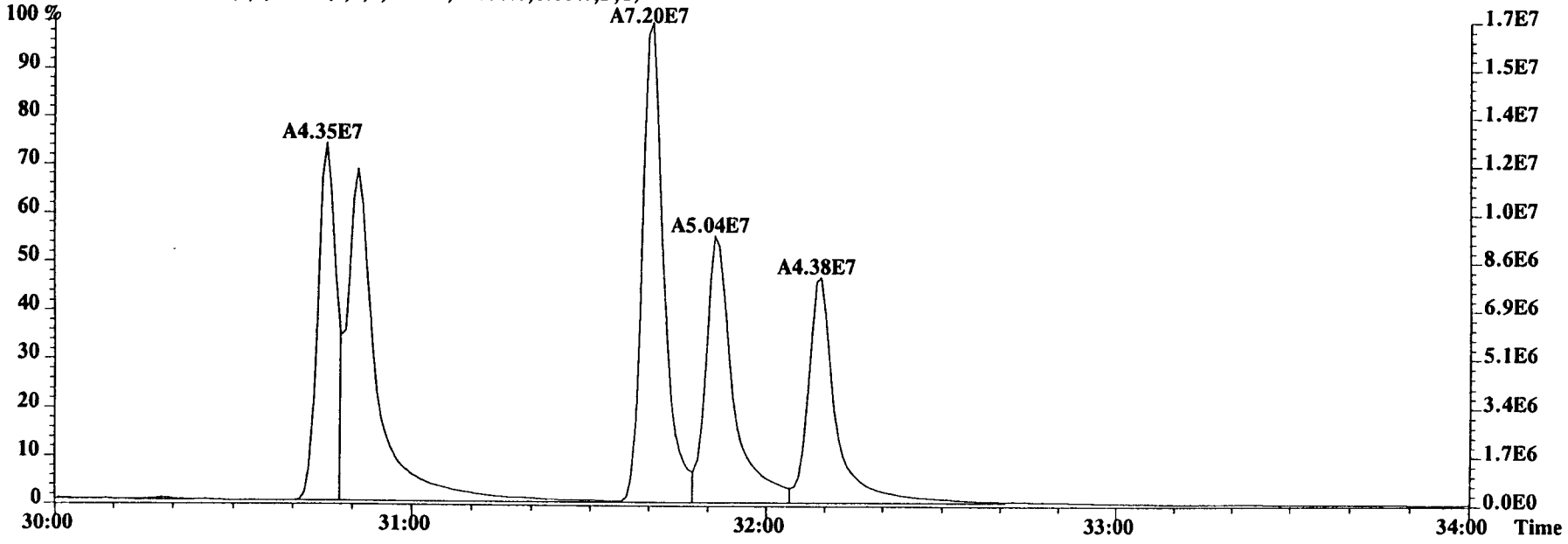
File:05OC98U #1-1052 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
230.9856 S:31 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



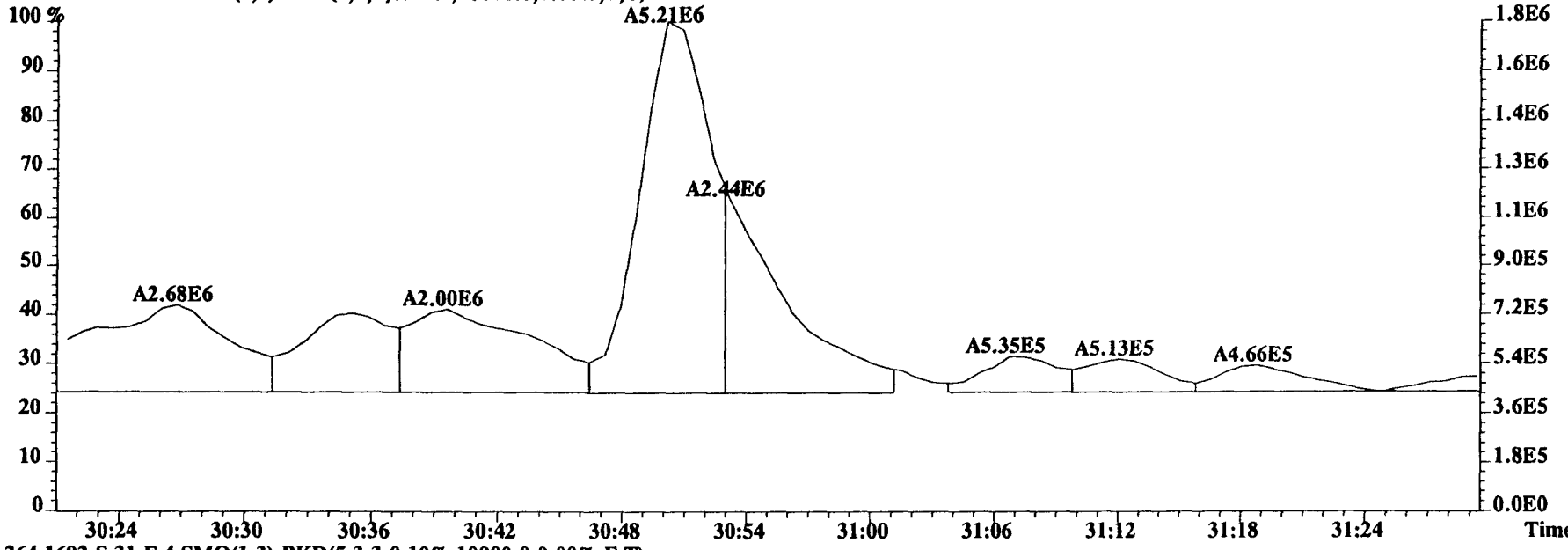
File:05OC98U #1-915 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
252.0939 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



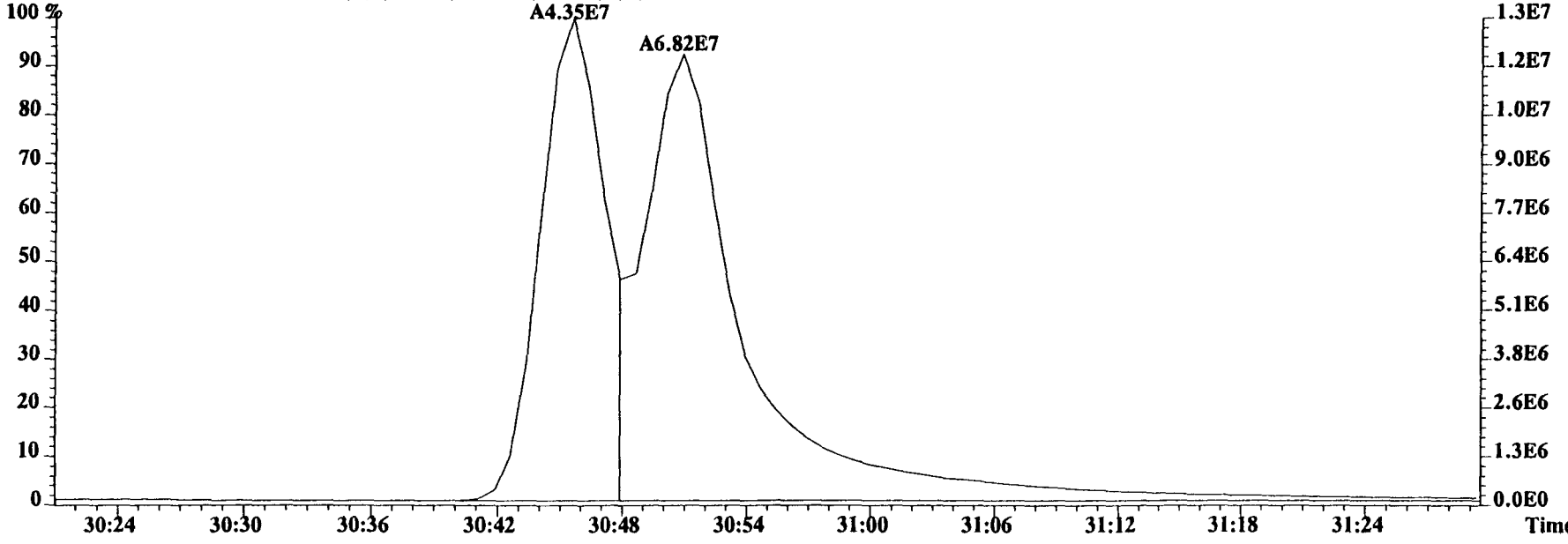
264.1692 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



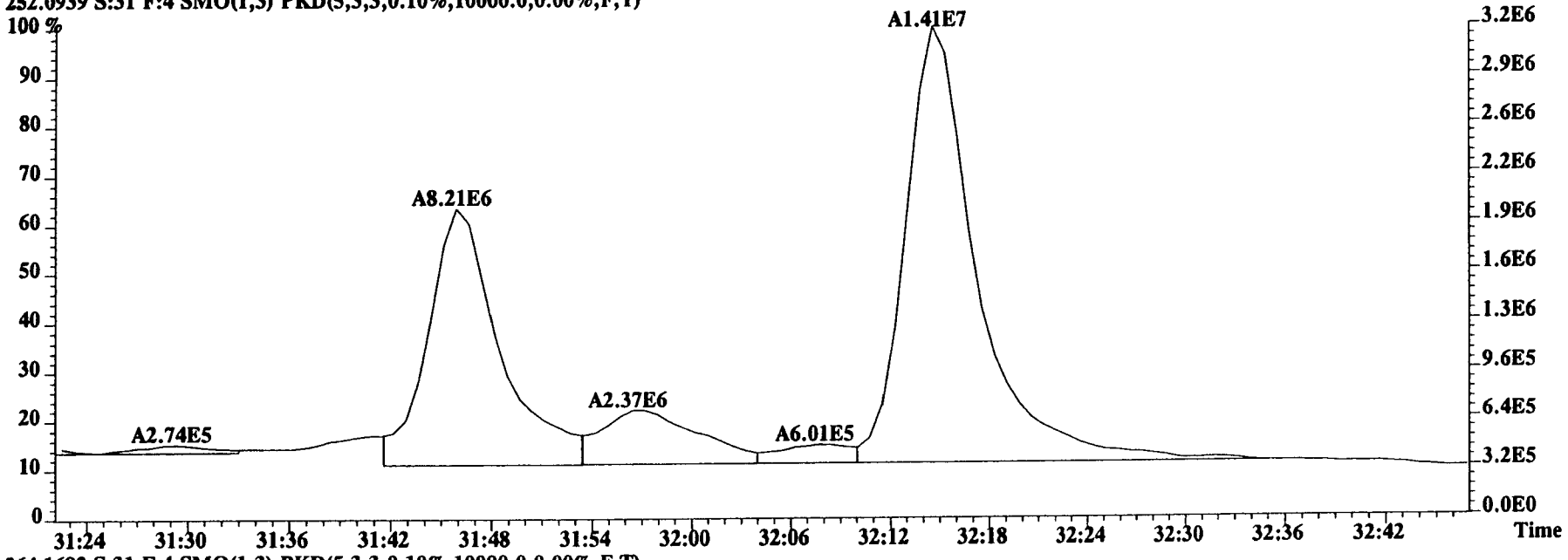
File:05OC98U #1-915 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
252.0939 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



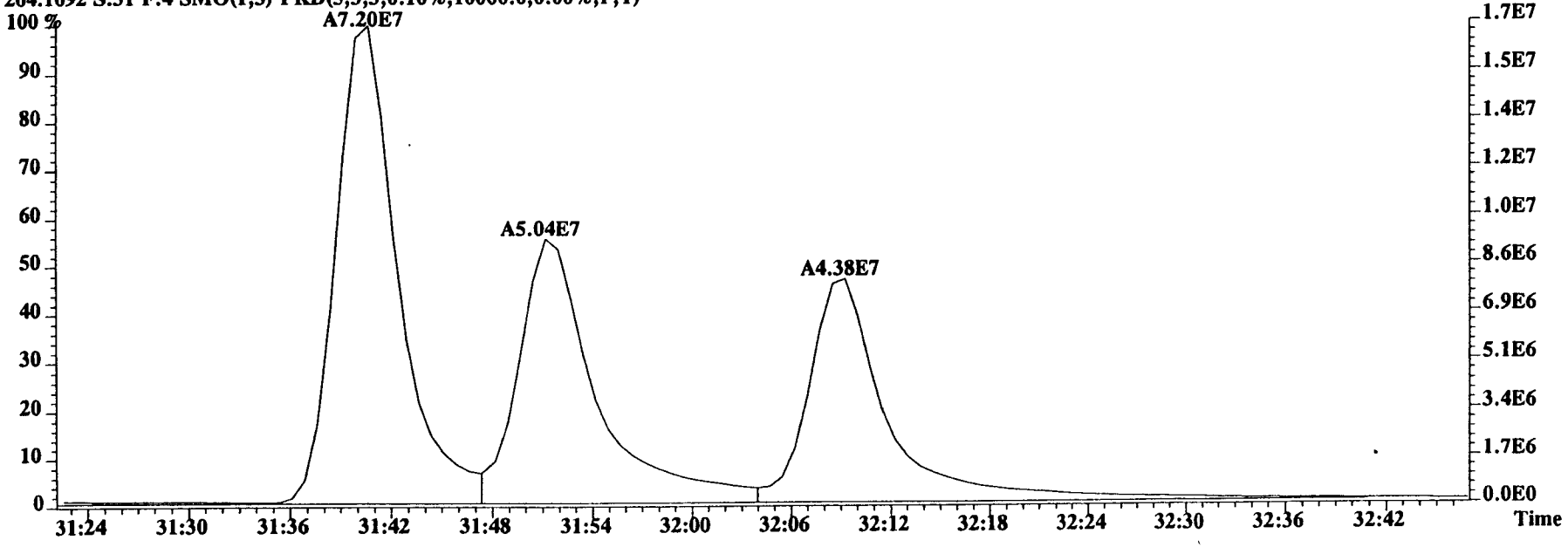
264.1692 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



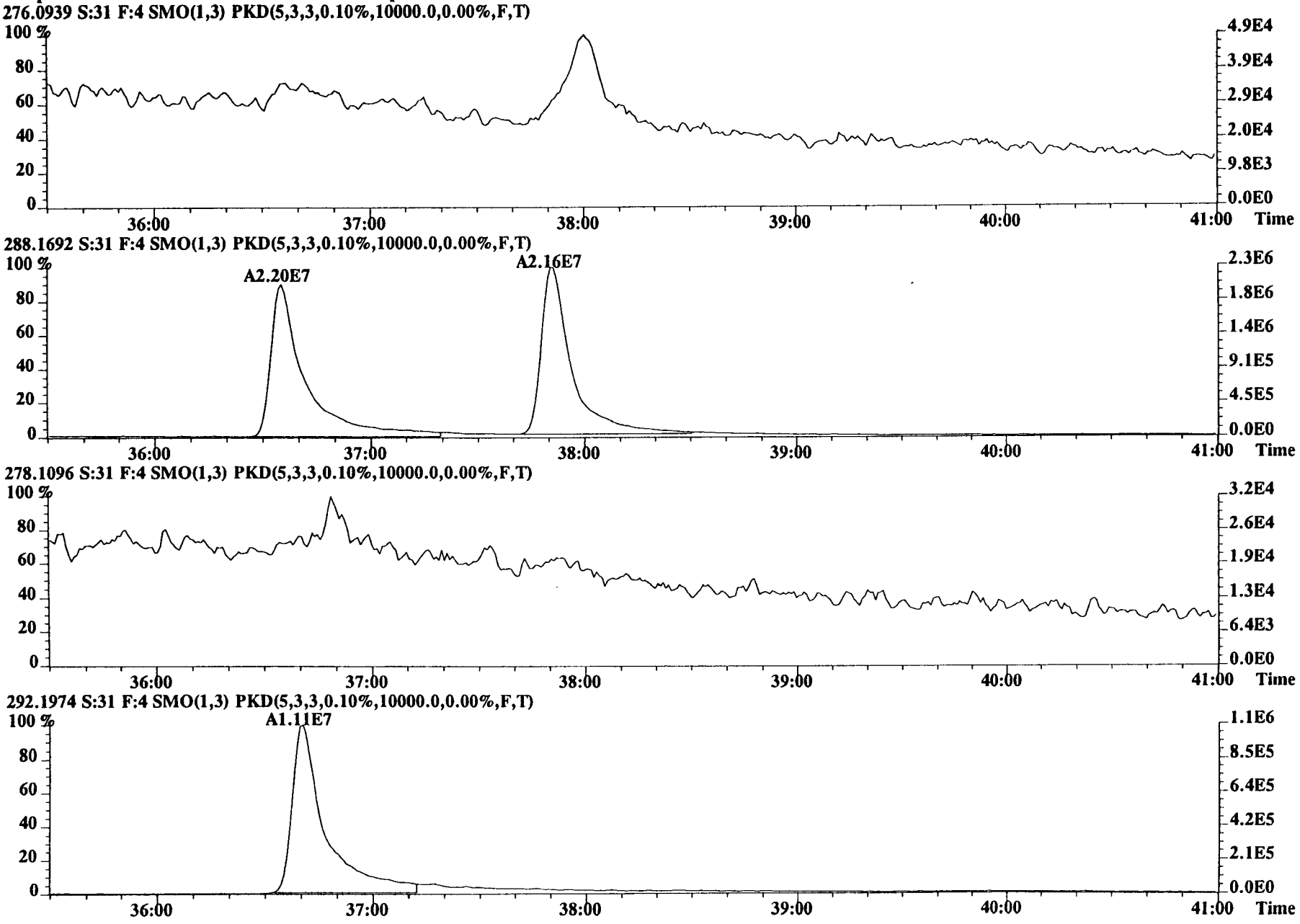
File:05OC98U #1-915 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
252.0939 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



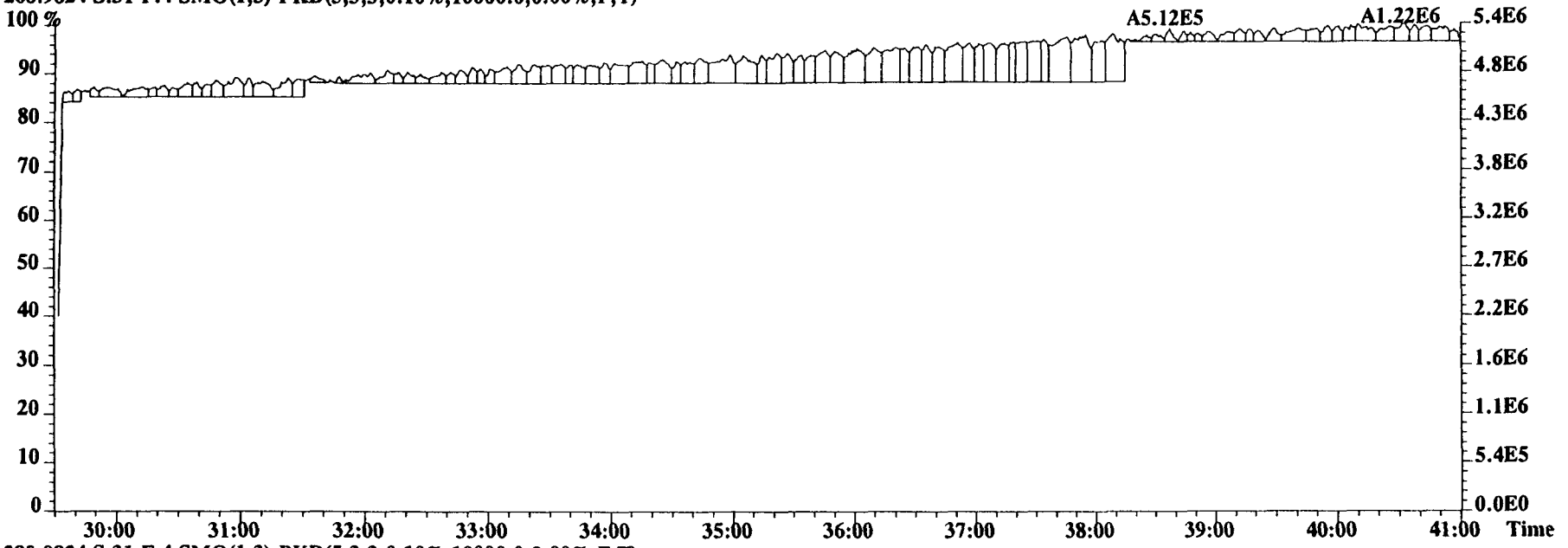
264.1692 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



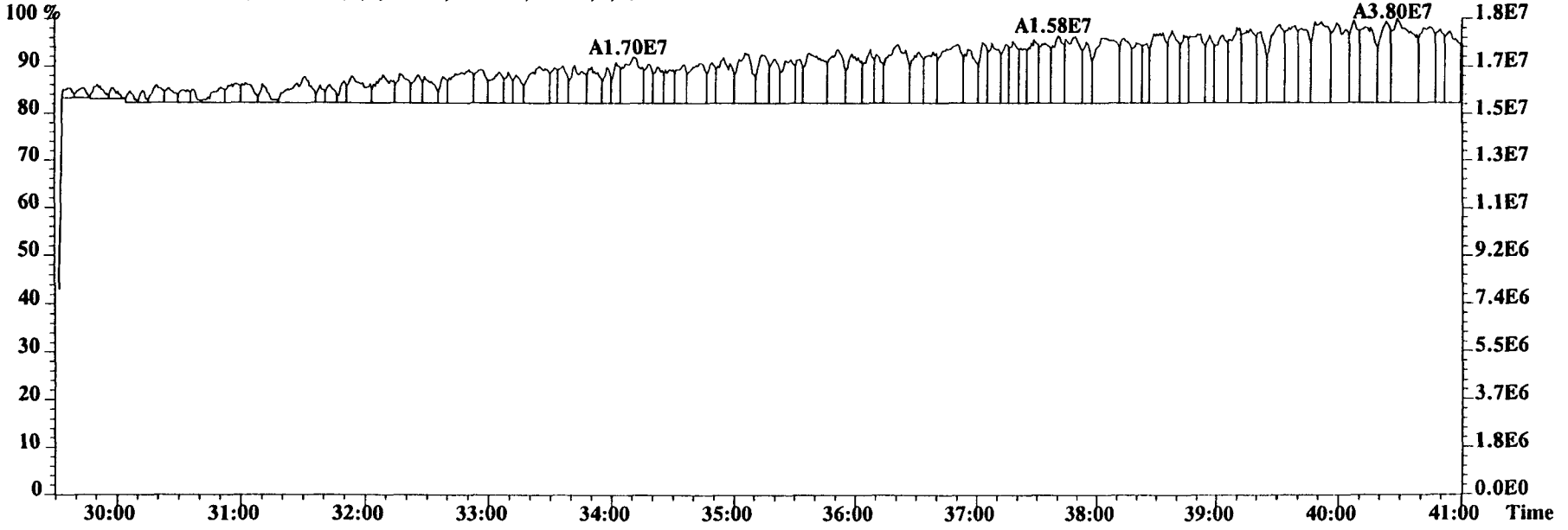
File:05OC98U #1-915 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR



File:05OC98U #1-915 Acq: 6-OCT-1998 17:02:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#31 Text:300681-11DI :100X S-MM5-5 Exp:PAHAIR
268.9824 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:31 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Laboratory Control Sample

LABORATORY CONTROL SAMPLE REPORT
Advanced Technology Group - High Resolution
Project: 300681

Category: PAH-HR-AIR PAH by HRGC/HRMS
Test: PAH-HR-AIR
Matrix: AIR
QC Lot: 18 AUG 98-A QC Run: 20 AUG 98-A
Concentration Units: ng/sample

Analyte	Concentration Spiked	Concentration Measured	Accuracy(%) LCS	Accuracy(%) Limits
Naphthalene	200	170	85	50-150
2-Methylnaphthalene	200	130	67	50-150
Acenaphthylene	200	170	83	50-150
Acenaphthene	200	170	85	50-150
Fluorene	200	210	107	50-150
Phenanthrene	200	160	79	50-150
Anthracene	200	160	79	50-150
Fluoranthene	200	150	77	50-150
Pyrene	200	160	79	50-150
Benzo(a)anthracene	200	150	77	50-150
Chrysene	200	160	82	50-150
Benzo(b)fluoranthene	200	140	70	50-150
Benzo(k)fluoranthene	200	140	72	50-150
Benzo(e)pyrene	200	160	82	50-150
Benzo(a)pyrene	200	140	72	50-150
Perylene	200	120	58	50-150
Indeno(1,2,3-cd)pyrene	200	140	69	50-150
Dibenz(a,h)anthracene	200	160	81	50-150
Benzo(g,h,i)perylene	200	150	77	50-150
Naphthalene-d8	100	107	107	50-150
Acenaphthylene-d8	100	83	83	50-150
Acenaphthene-d10	100	85	85	50-150
Fluorene-d10	100	86	86	50-150
Phenanthrene-d10	100	85	85	50-150
Fluoranthene-d10	100	106	106	50-150
Pyrene-d10	100	110	110	50-150
Benzo(a)anthracene-d12	100	97	97	50-150
Chrysene-d12	100	106	106	50-150
Benzo(b)fluoranthene-d12	100	98	98	50-150
Benzo(k)fluoranthene-d12	100	99	99	50-150
Benzo(a)pyrene-d12	100	88	88	50-150
Perylene-d12	100	92	92	50-150
Indeno(123-cd)pyrene-d12	100	96	96	50-150
Dibenz(a,h)anthracene-d14	100	89	89	50-150
Benzo(g,h,i)perylene-d12	100	105	105	50-150

Calculations are performed before rounding to avoid round-off errors in calculated results

Results : 20AU98U081.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U 300681-1LS :LCS :Train :P Ex Cal : PAHAIR081998U.RR
Weight : 0.333

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMP	Rec/ MDL
d10-2-Methylnaphthalene	124826200	1.00	Y	11: 9	Y	1.00	50.00	
d8-Naphthalene	165852400	1.00	Y	8: 56	Y	1.25	53.33	107
Naphthalene	196776400	1.00	Y	9: 0	Y	1.05	169.14	
2-Methylnaphthalene	114115800	1.00	Y	11: 15	Y	0.77	134.04	
d8-Acenaphthylene	160170400	1.00	Y	14: 13	Y	1.55	41.39	83
Acenaphthylene	153484800	1.00	Y	14: 16	Y	0.86	166.65	
d10-Acenaphthene	92737800	1.00	Y	14: 46	Y	0.88	42.34	85
Acenaphthene	97812800	1.00	Y	14: 52	Y	0.93	170.32	
d10-Anthracene	81470000	1.00	Y	19: 47	Y	1.00	50.00	
d10-Fluorene	78697000	1.00	Y	16: 28	Y	1.13	42.76	86
Fluorene	117807400	1.00	Y	16: 34	Y	1.05	214.08	
d10-Phenanthrene	183094800	1.00	Y	19: 37	Y	2.63	42.74	85
Phenanthrene	163132000	1.00	Y	19: 42	Y	0.84	158.86	
Anthracene	160563400	1.00	Y	19: 51	Y	0.83	158.82	
d14-Terphenyl	161216800	1.00	Y	24: 53	Y	1.00	50.00	
d10-Fluoranthene	172409400	1.00	Y	23: 32	Y	1.01	53.13	106
Fluoranthene	183518800	1.00	Y	23: 35	Y	1.04	153.61	
d10-Pyrene	179174800	1.00	Y	24: 14	Y	1.01	54.91	110
Pyrene	207492000	1.00	Y	24: 17	Y	1.11	157.02	
d12-Benzo(a)anthracene	127227200	1.00	Y	28: 5	Y	0.82	48.41	97
Benzo(a)anthracene	137158200	1.00	Y	28: 10	Y	1.06	153.39	
d12-Chrysene	182689000	1.00	Y	28: 13	Y	1.06	53.23	106
Chrysene	194576400	1.00	Y	28: 18	Y	0.97	164.65	
d12-Benzo(e)pyrene	229824000	1.00	Y	32: 37	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	141316600	1.00	Y	31: 38	Y	0.63	49.11	98
Benzo(b)fluoranthene	140955000	1.00	Y	31: 44	Y	1.07	140.08	
d12-Benzo(k)fluoranthene	204608000	1.00	Y	31: 44	Y	0.90	49.68	99
Benzo(k)fluoranthene	226856000	1.00	Y	31: 49	Y	1.16	144.07	
d12-Benzo(a)pyrene	151954400	1.00	Y	32: 50	Y	0.75	44.01	88
Benzo(e)pyrene	244286000	1.00	Y	32: 44	Y	1.46	164.84	
Benzo(a)pyrene	148278000	1.00	Y	32: 56	Y	1.02	143.12	
d12-Perylene	129968400	1.00	Y	33: 9	Y	0.61	46.01	92
Perylene	163100800	1.00	Y	33: 15	Y	1.62	116.45	
d12-Indeno(123-cd)pyrene	156502800	1.00	Y	37: 59	Y	0.71	48.19	96
Indeno(123-cd)pyrene	87400000	1.00	Y	38: 7	Y	0.61	137.12	
d14-Dibenz(ah)anthracene	90660000	1.00	Y	38: 0	Y	0.44	44.71	382
Dibenz(ah)anthracene	109157800	1.00	Y	38: 12	Y	1.11	162.49	
d12-Benzo(ghi)perylene	151570800	1.00	Y	39: 23	Y	0.63	52.31	105
Benzo(ghi)perylene	154271200	1.00	Y	39: 33	Y	0.99	154.27	

MAP 9-2-98

02-SEP-1998 06:58:28 PM Dioxin Furan Unknown RESULTS

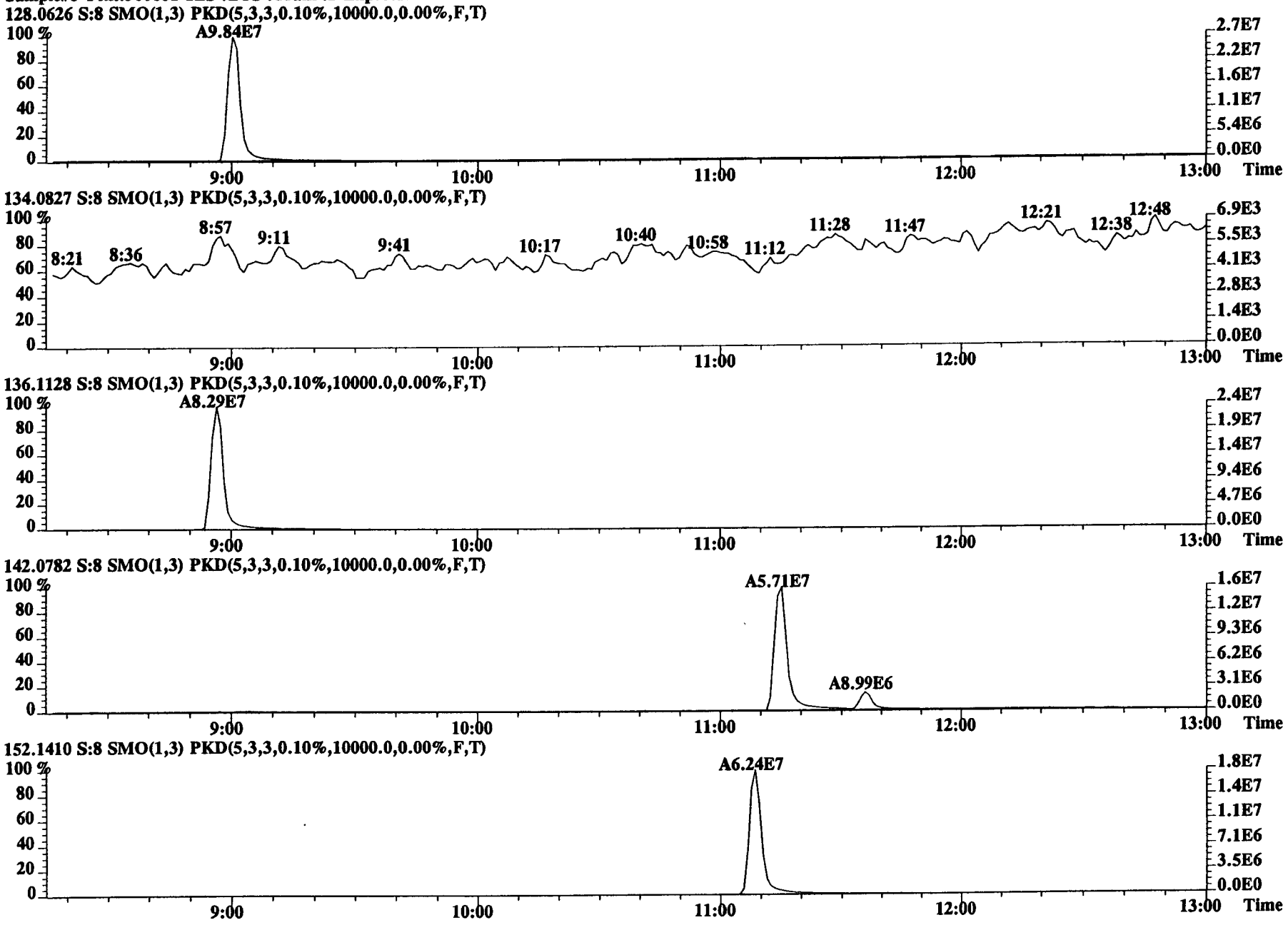
20AU98U081.RES : PAHAIR.TRG
Date analyzed : 20-AUG-98 0.333
LCS :Train :P Ex Cal : PAHAIR081998U.RRF

Isotope Ratio	R. T. mm:ss		RRF	ng/ SAMP	Rec/ MDL		
1.00 Y	11: 9	Y	1.00	50.00		62413100	62413100
1.00 Y	8: 56	Y	1.25	53.33	107	82926200	82926200
1.00 Y	9: 0	Y	1.05	169.14		98388200	98388200
1.00 Y	11: 15	Y	0.77	134.04		57057900	57057900
1.00 Y	14: 13	Y	1.55	41.39	83	80085200	80085200
1.00 Y	14: 16	Y	0.86	166.65		76742400	76742400
1.00 Y	14: 46	Y	0.88	42.34	85	46368900	46368900
1.00 Y	14: 52	Y	0.93	170.32		48906400	48906400
1.00 Y	19: 47	Y	1.00	50.00		40735000	40735000
1.00 Y	16: 28	Y	1.13	42.76	86	39348500	39348500
1.00 Y	16: 34	Y	1.05	214.08		58903700	58903700
1.00 Y	19: 37	Y	2.63	42.74	85	91547400	91547400
1.00 Y	19: 42	Y	0.84	158.86		81566000	81566000
1.00 Y	19: 51	Y	0.83	158.82		80281700	80281700
1.00 Y	24: 53	Y	1.00	50.00		80608400	80608400
1.00 Y	23: 32	Y	1.01	53.13	106	86204700	86204700
1.00 Y	23: 35	Y	1.04	153.61		91759400	91759400
1.00 Y	24: 14	Y	1.01	54.91	110	89587400	89587400
1.00 Y	24: 17	Y	1.11	157.02		103746000	103746000
1.00 Y	28: 5	Y	0.82	48.41	97	63613600	63613600
1.00 Y	28: 10	Y	1.06	153.39		68579100	68579100
1.00 Y	28: 13	Y	1.06	53.23	106	91344500	91344500
1.00 Y	28: 18	Y	0.97	164.65		97288200	97288200
1.00 Y	32: 37	Y	1.00	50.00		114912000	114912000
1.00 Y	31: 38	Y	0.63	49.11	98	70658300	70658300
1.00 Y	31: 44	Y	1.07	140.08		70477500	70477500
1.00 Y	31: 44	Y	0.90	49.68	99	102304000	102304000
1.00 Y	31: 49	Y	1.16	144.07		113428000	113428000
1.00 Y	32: 50	Y	0.75	44.01	88	75977200	75977200
1.00 Y	32: 44	Y	1.46	164.84		122143000	122143000
1.00 Y	32: 56	Y	1.02	143.12		74139000	74139000
1.00 Y	33: 9	Y	0.61	46.01	92	64984200	64984200
1.00 Y	33: 15	Y	1.62	116.45		81550400	81550400
1.00 Y	37: 59	Y	0.71	48.19	96	78251400	78251400
1.00 Y	38: 7	Y	0.61	137.12		43700000	43700000
1.00 Y	38: 0	Y	0.44	44.71	89	45330000	45330000
1.00 Y	38: 12	Y	1.11	162.49		54578900	54578900
1.00 Y	39: 23	Y	0.63	52.31	105	75785400	75785400
1.00 Y	39: 33	Y	0.99	154.27		77135600	77135600

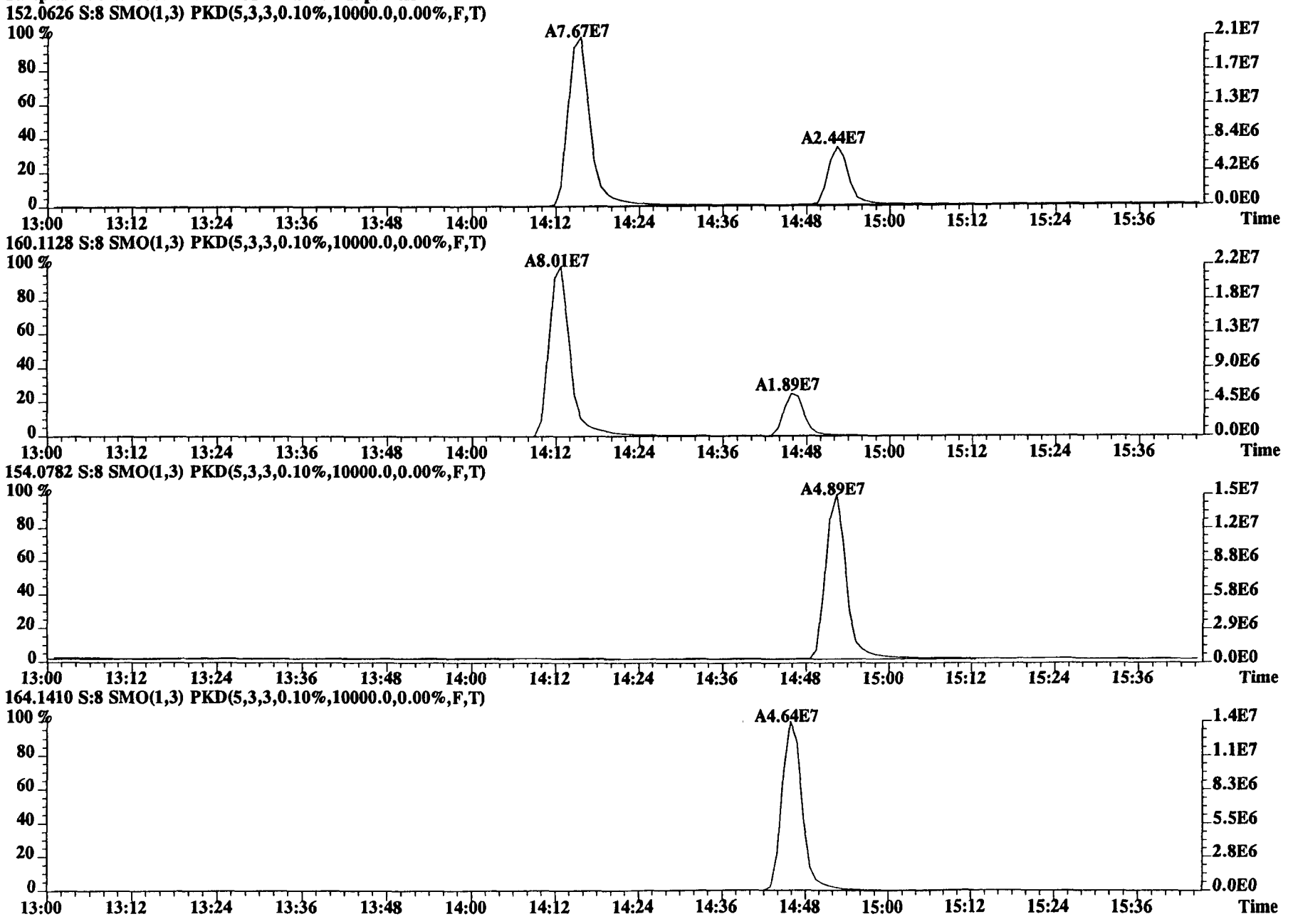
Mass Spec : ULTIMA Results : 20AU98U081.RES : PAHAIR.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U 300681-1LS :LCS :Train :P Ex Cal : PAHAIR081998U.RR
Weight : 0.333

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	ng/ SAMP	Rec/ MDL
d10-2-Methylnaphthalene	124826200	1.00	Y	11: 9	Y	1.00	50.00	
d8-Naphthalene	165852400	1.00	Y	8: 56	Y	1.25	53.33	107
Naphthalene	196776400	1.00	Y	9: 0	Y	1.05	169.14	0.000
2-Methylnaphthalene	114115800	1.00	Y	11: 15	Y	0.77	134.04	0.000
d8-Acenaphthylene	160170400	1.00	Y	14: 13	Y	1.55	41.39	83
Acenaphthylene	153484800	1.00	Y	14: 16	Y	0.86	166.65	0.000
d10-Acenaphthene	92737800	1.00	Y	14: 46	Y	0.88	42.34	85
Acenaphthene	97812800	1.00	Y	14: 52	Y	0.93	170.32	0.000
d10-Anthracene	81470000	1.00	Y	19: 47	Y	1.00	50.00	
d10-Fluorene	78697000	1.00	Y	16: 28	Y	1.13	42.76	86
Fluorene	117807400	1.00	Y	16: 34	Y	1.05	214.08	0.000
d10-Phenanthrene	183094800	1.00	Y	19: 37	Y	2.63	42.74	85
Phenanthrene	163132000	1.00	Y	19: 42	Y	0.84	158.86	0.000
Anthracene	160563400	1.00	Y	19: 51	Y	0.83	158.82	0.000
d14-Terphenyl	161216800	1.00	Y	24: 53	Y	1.00	50.00	
d10-Fluoranthene	172409400	1.00	Y	23: 32	Y	1.01	53.13	106
Fluoranthene	183518800	1.00	Y	23: 35	Y	1.04	153.61	0.000
d10-Pyrene	179174800	1.00	Y	24: 14	Y	1.01	54.91	110
Pyrene	207492000	1.00	Y	24: 17	Y	1.11	157.02	0.000
d12-Benzo(a)anthracene	127227200	1.00	Y	28: 5	Y	0.82	48.41	97
Benzo(a)anthracene	137158200	1.00	Y	28: 10	Y	1.06	153.39	0.000
d12-Chrysene	182689000	1.00	Y	28: 13	Y	1.06	53.23	106
Chrysene	194576400	1.00	Y	28: 18	Y	0.97	164.65	0.000
d12-Benzo(e)pyrene	229824000	1.00	Y	32: 37	Y	1.00	50.00	
d12-Benzo(b)fluoranthene	141316600	1.00	Y	31: 38	Y	0.63	49.11	98
Benzo(b)fluoranthene	140955000	1.00	Y	31: 44	Y	1.07	140.08	0.000
d12-Benzo(k)fluoranthene	204608000	1.00	Y	31: 44	Y	0.90	49.68	99
Benzo(k)fluoranthene	226856000	1.00	Y	31: 49	Y	1.16	144.07	0.000
d12-Benzo(a)pyrene	151954400	1.00	Y	32: 50	Y	0.75	44.01	88
Benzo(e)pyrene	244286000	1.00	Y	32: 44	Y	1.46	164.84	0.000
Benzo(a)pyrene	148278000	1.00	Y	32: 56	Y	1.02	143.12	0.000
d12-Perylene	129968400	1.00	Y	33: 9	Y	0.61	46.01	92
Perylene	163100800	1.00	Y	33: 15	Y	1.62	116.45	0.000
d12-Indeno(123-cd)pyrene	156502800	1.00	Y	37: 59	Y	0.71	48.19	96
Indeno(123-cd)pyrene	159101000	1.00	Y	38: 7	Y	0.61	249.61	0.000
d14-Dibenz(ah)anthracene	90660000	1.00	Y	38: 0	Y	0.44	44.71	89
Dibenz(ah)anthracene	109157800	1.00	Y	38: 12	Y	1.11	162.49	0.000
d12-Benzo(ghi)perylene	151570800	1.00	Y	39: 23	Y	0.63	52.31	105
Benzo(ghi)perylene	154271200	1.00	Y	39: 33	Y	0.99	154.27	0.000

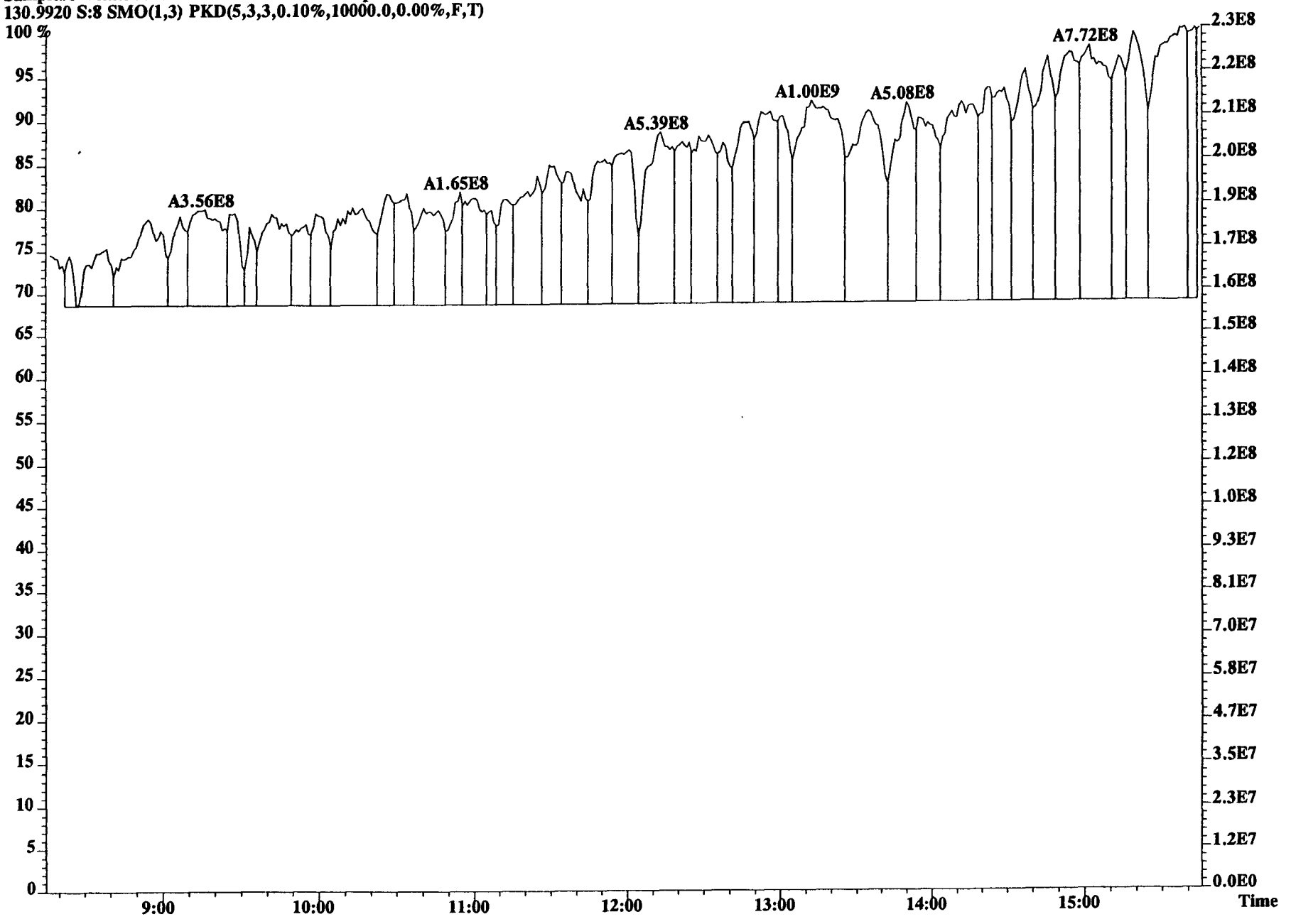
File:20AU98U #1-476 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR



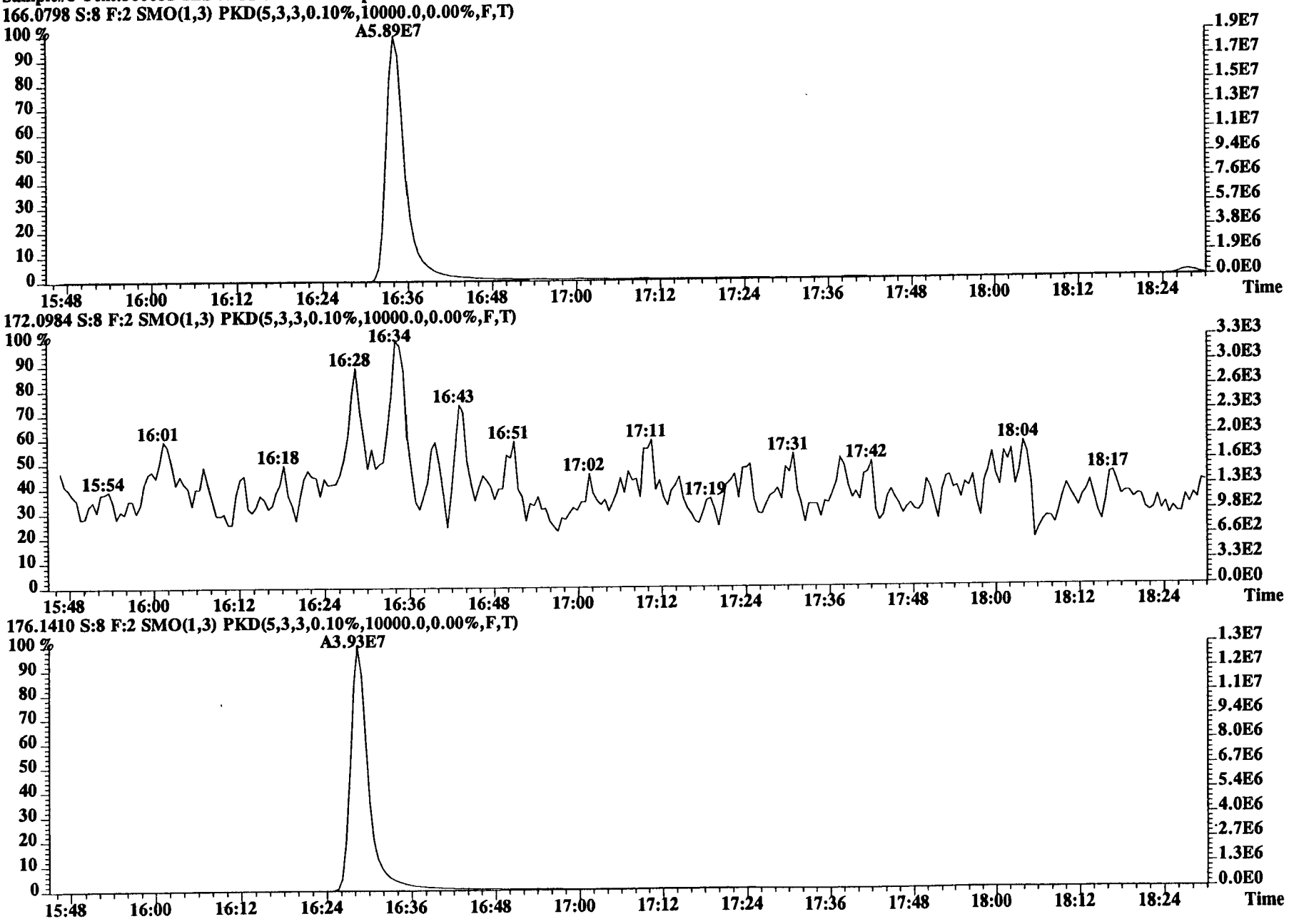
File:20AU98U #1-476 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR



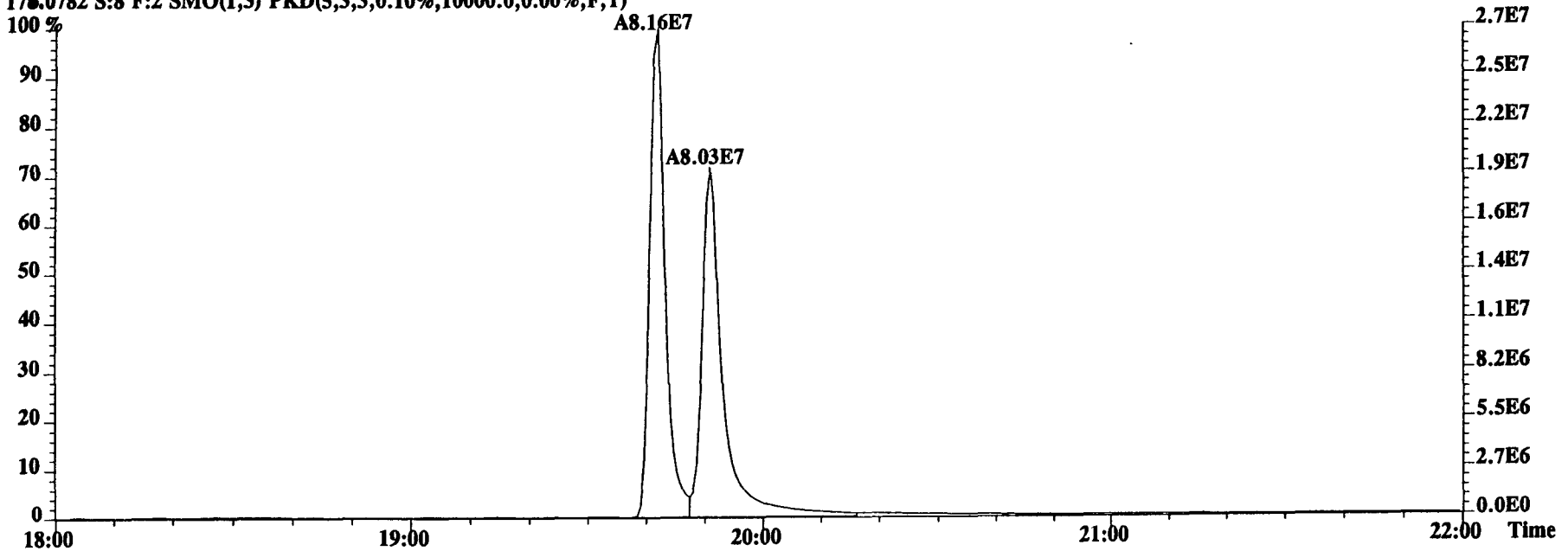
File:20AU98U #1-476 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
130.9920 S:8 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



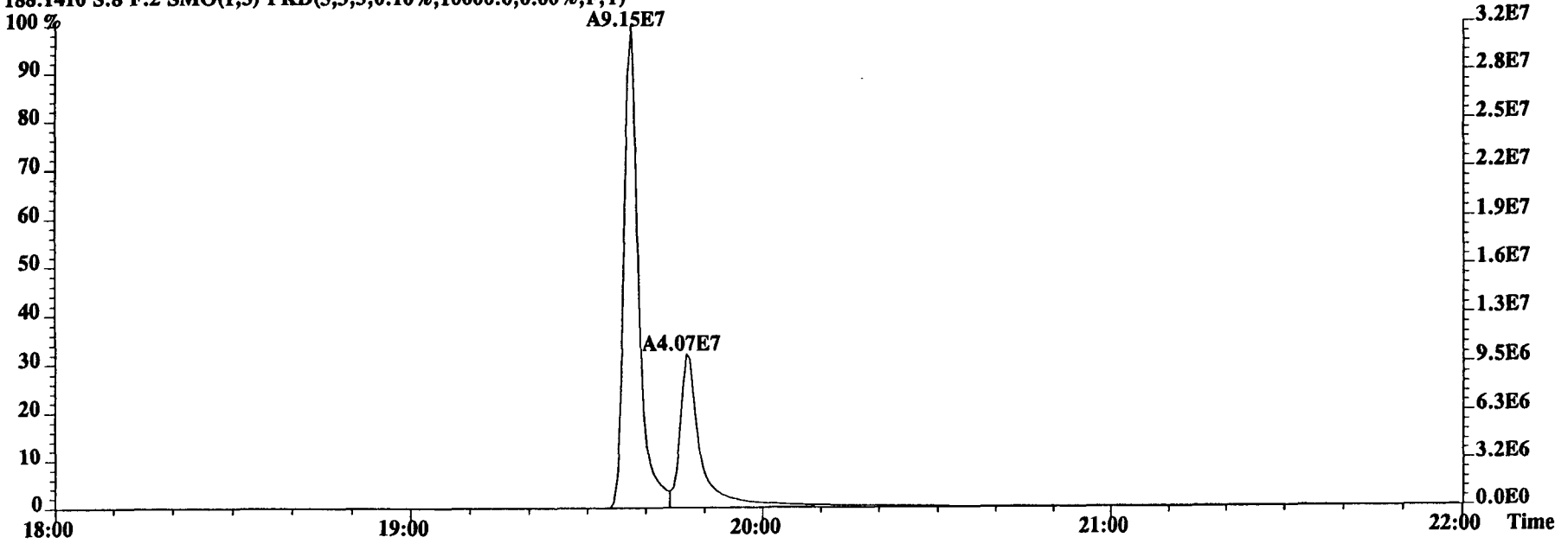
File:20AU98U #1-665 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR



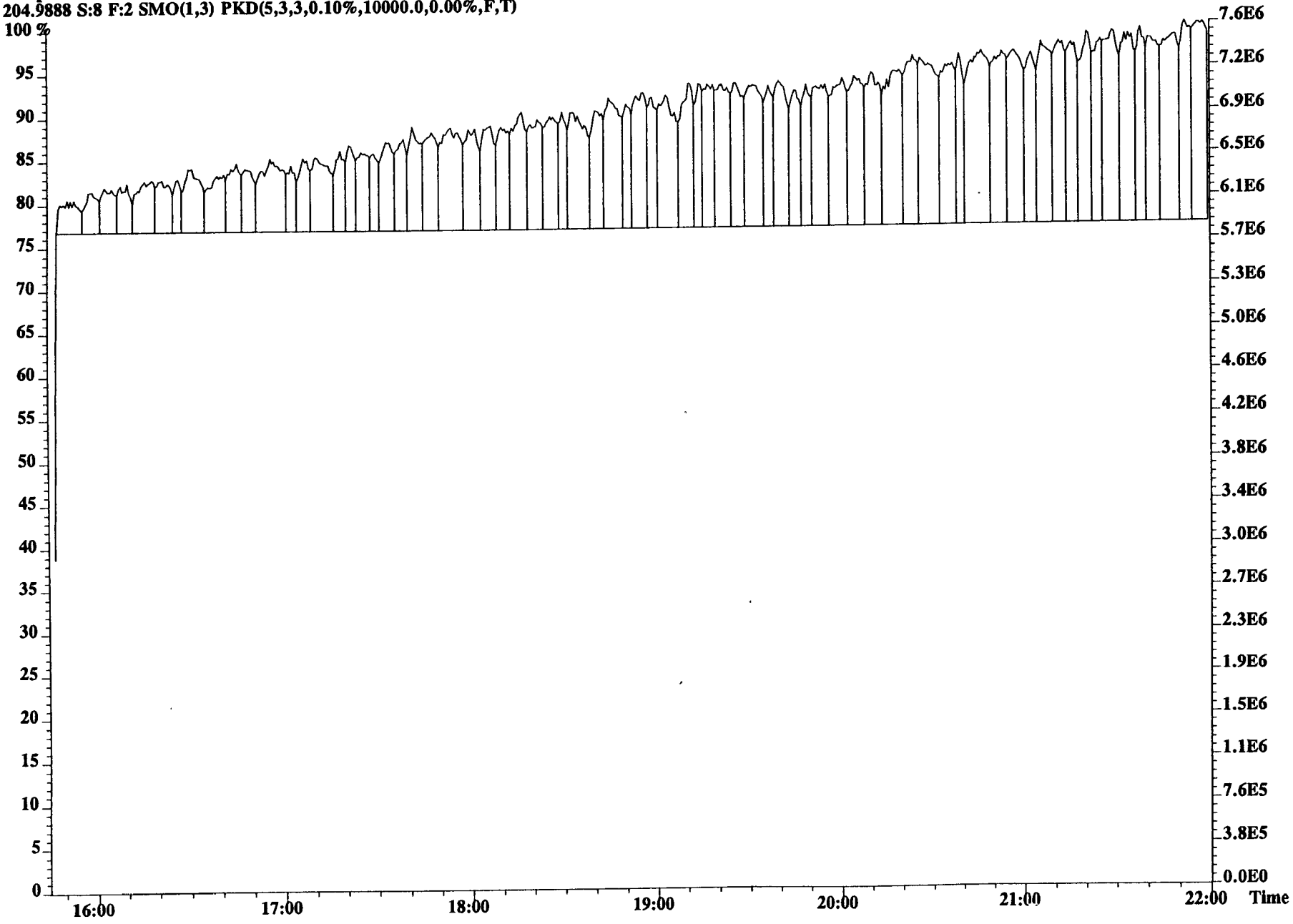
File:20AU98U #1-665 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
178.0782 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



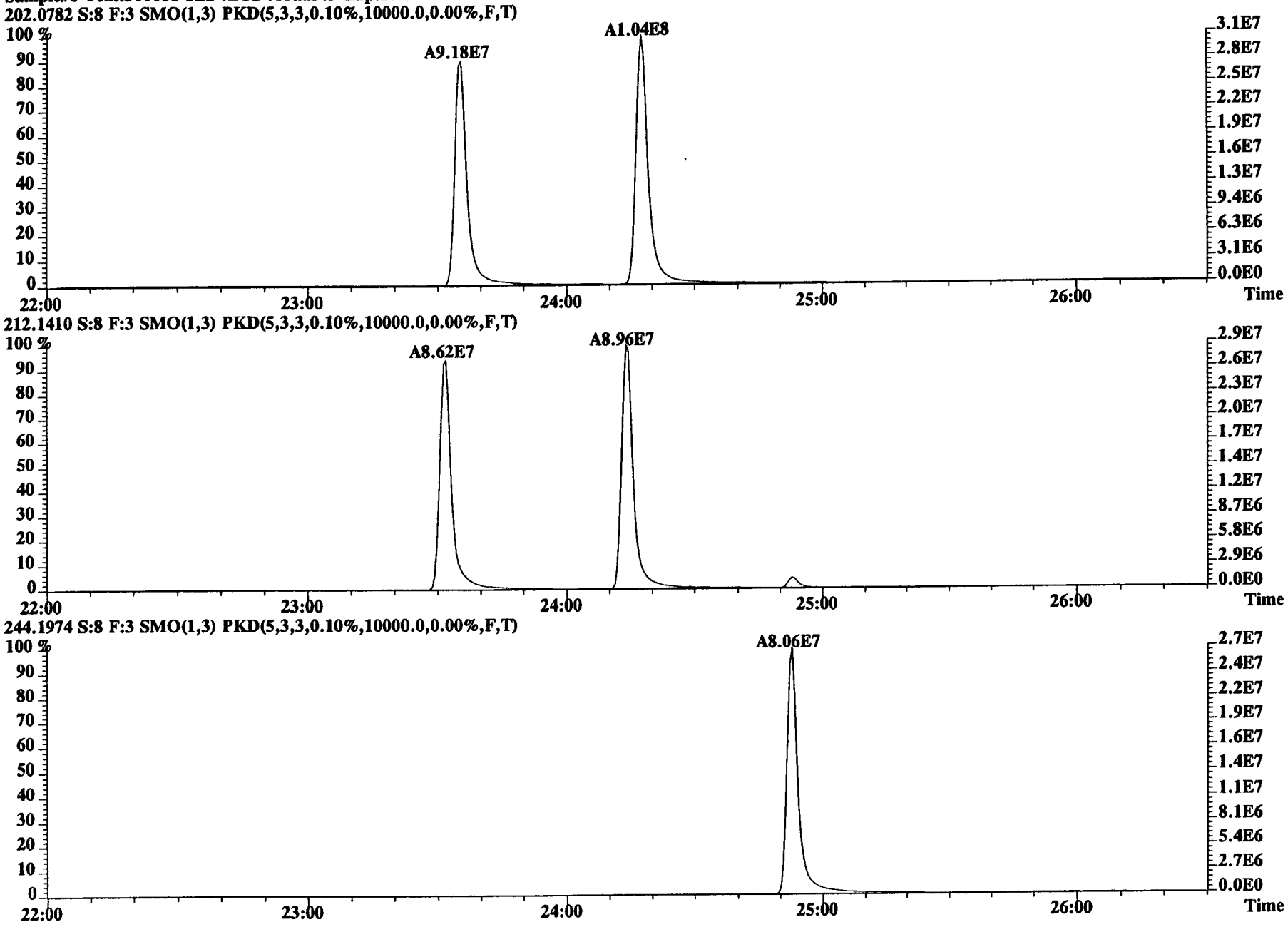
188.1410 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



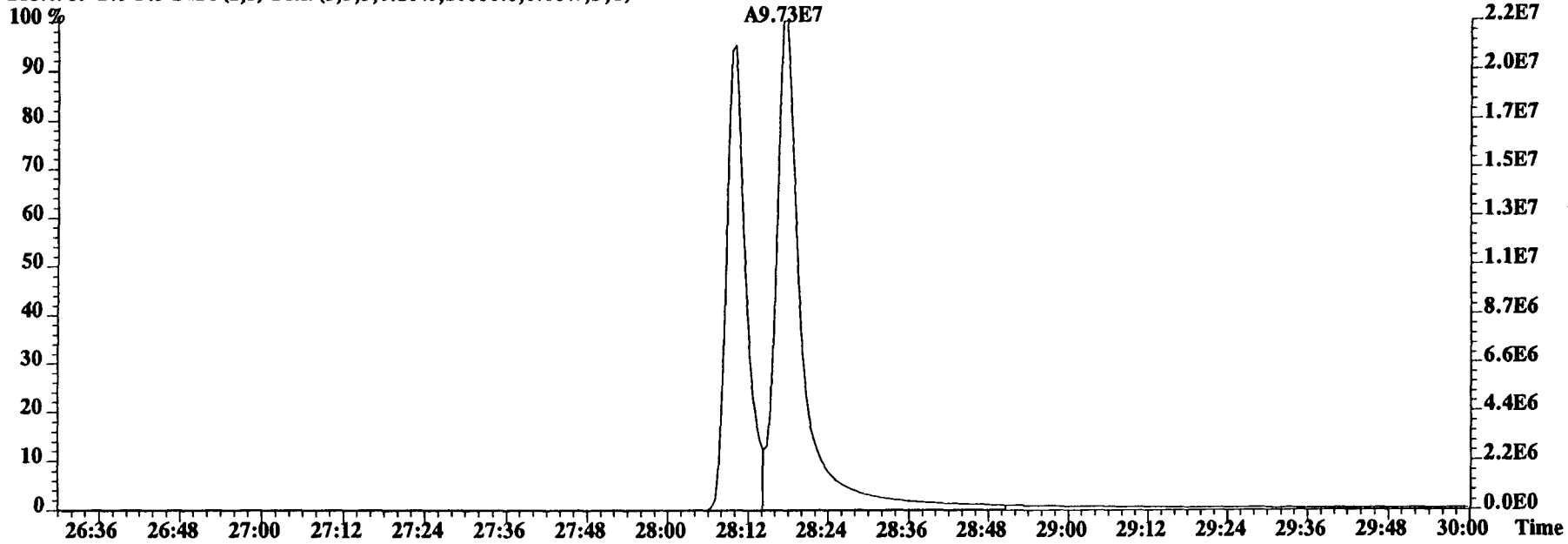
File:20AU98U #1-665 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
204.9888 S:8 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



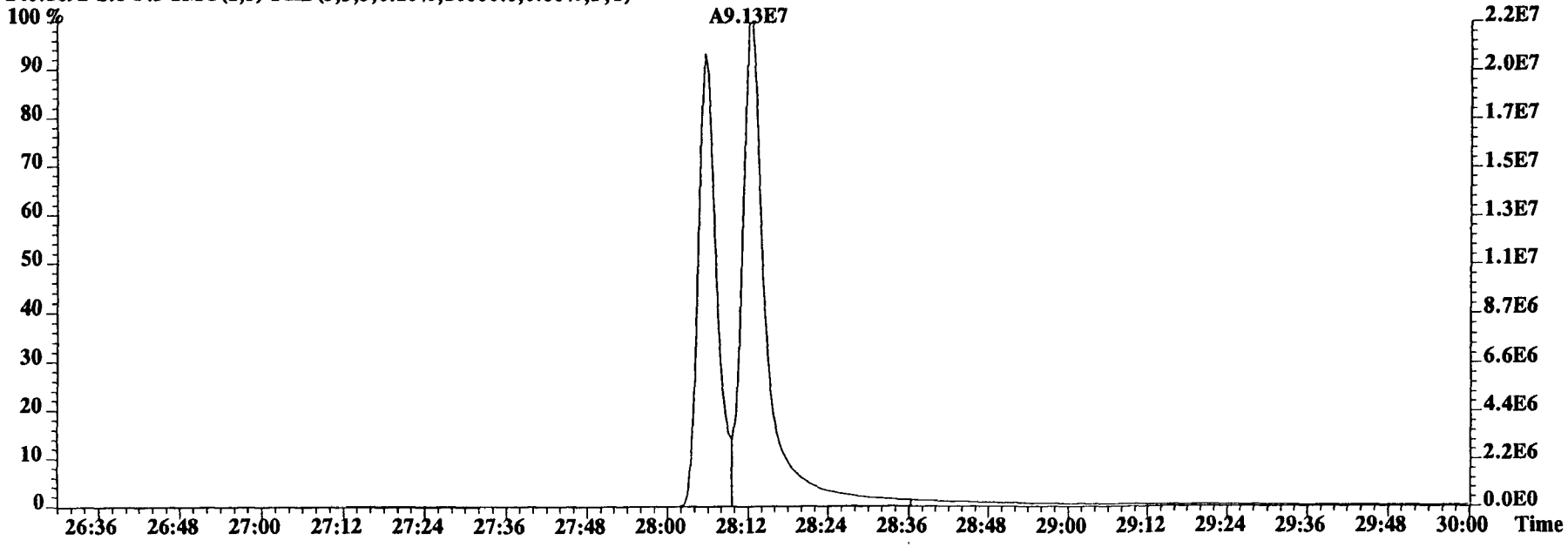
File:20AU98U #1-935 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR



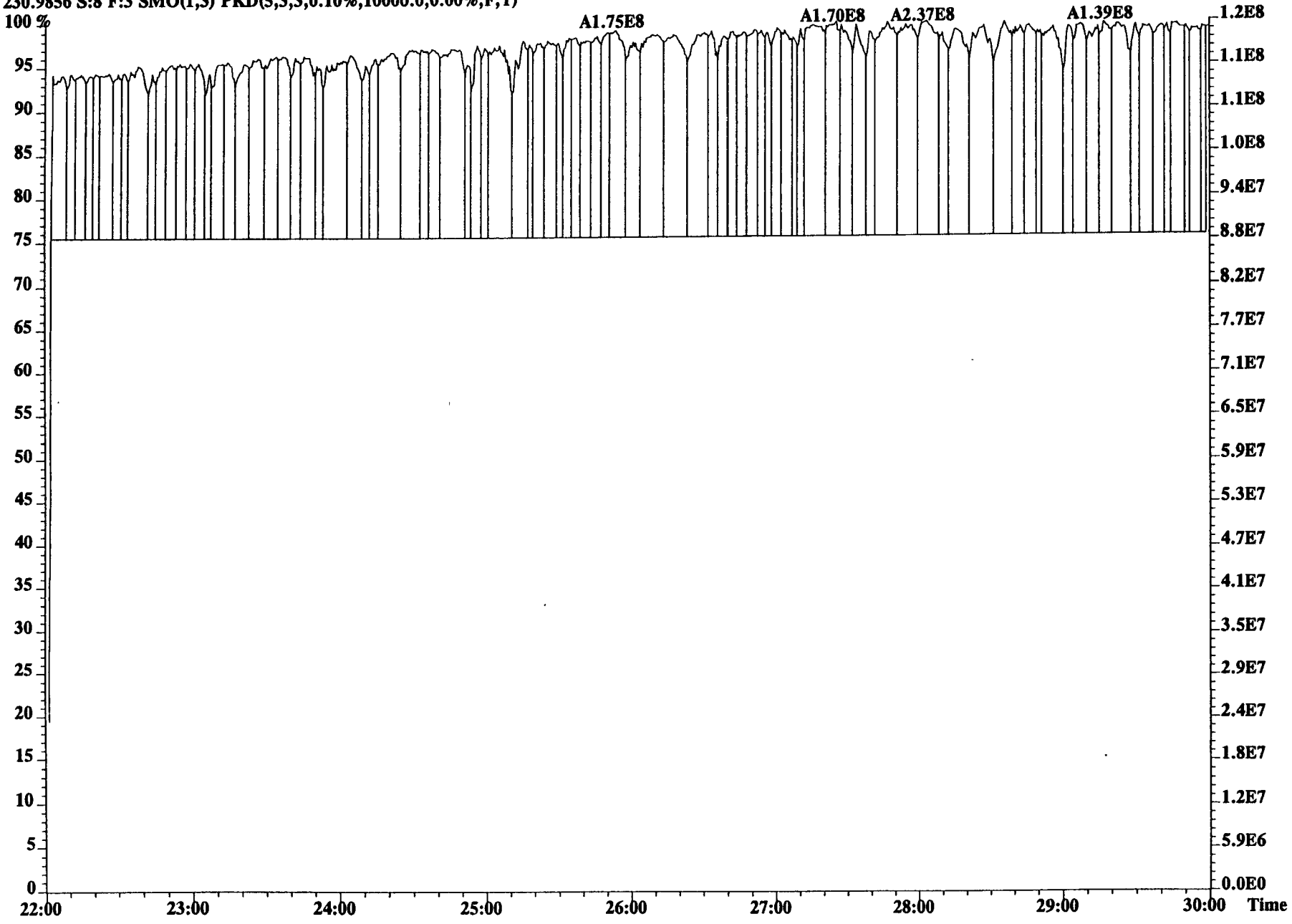
File:20AU98U #1-935 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
228.0939 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



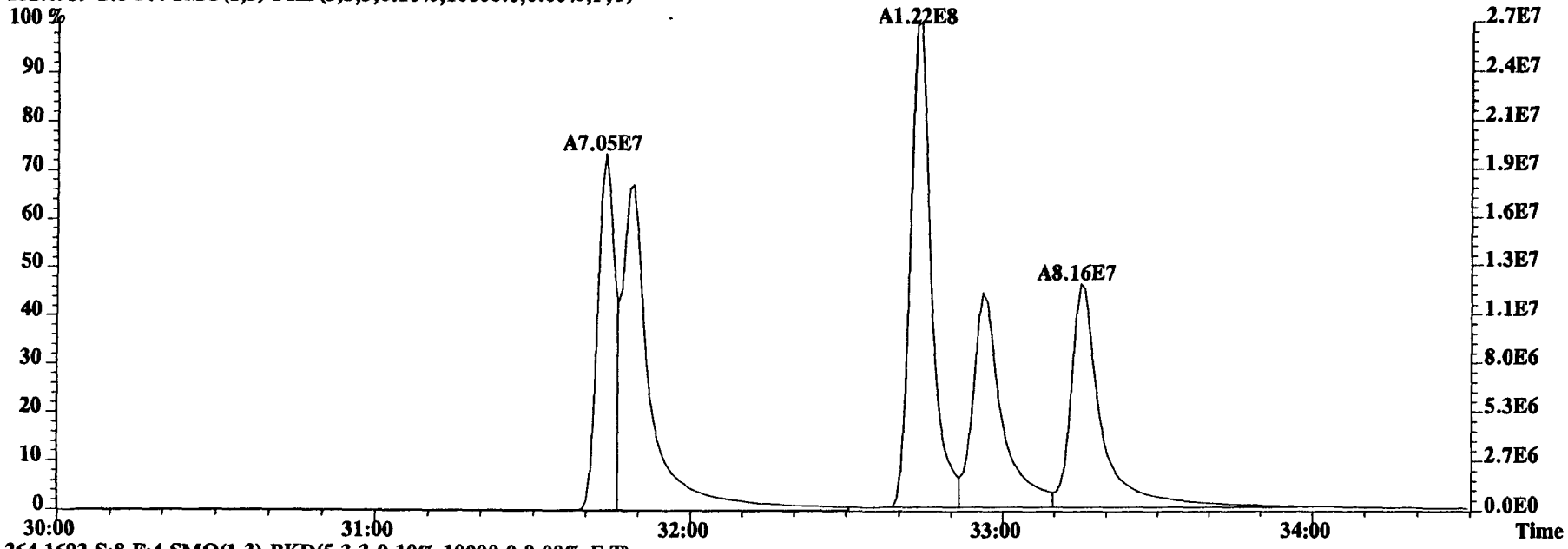
240.1692 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



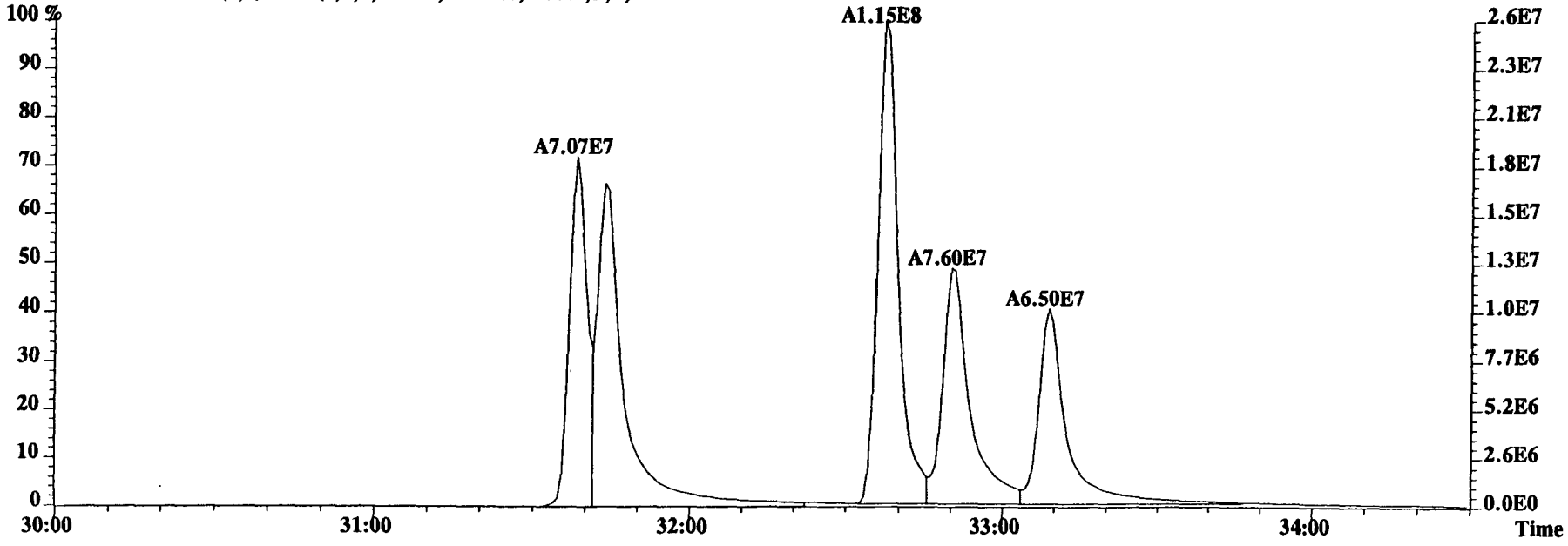
File:20AU98U #1-935 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
230.9856 S:8 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



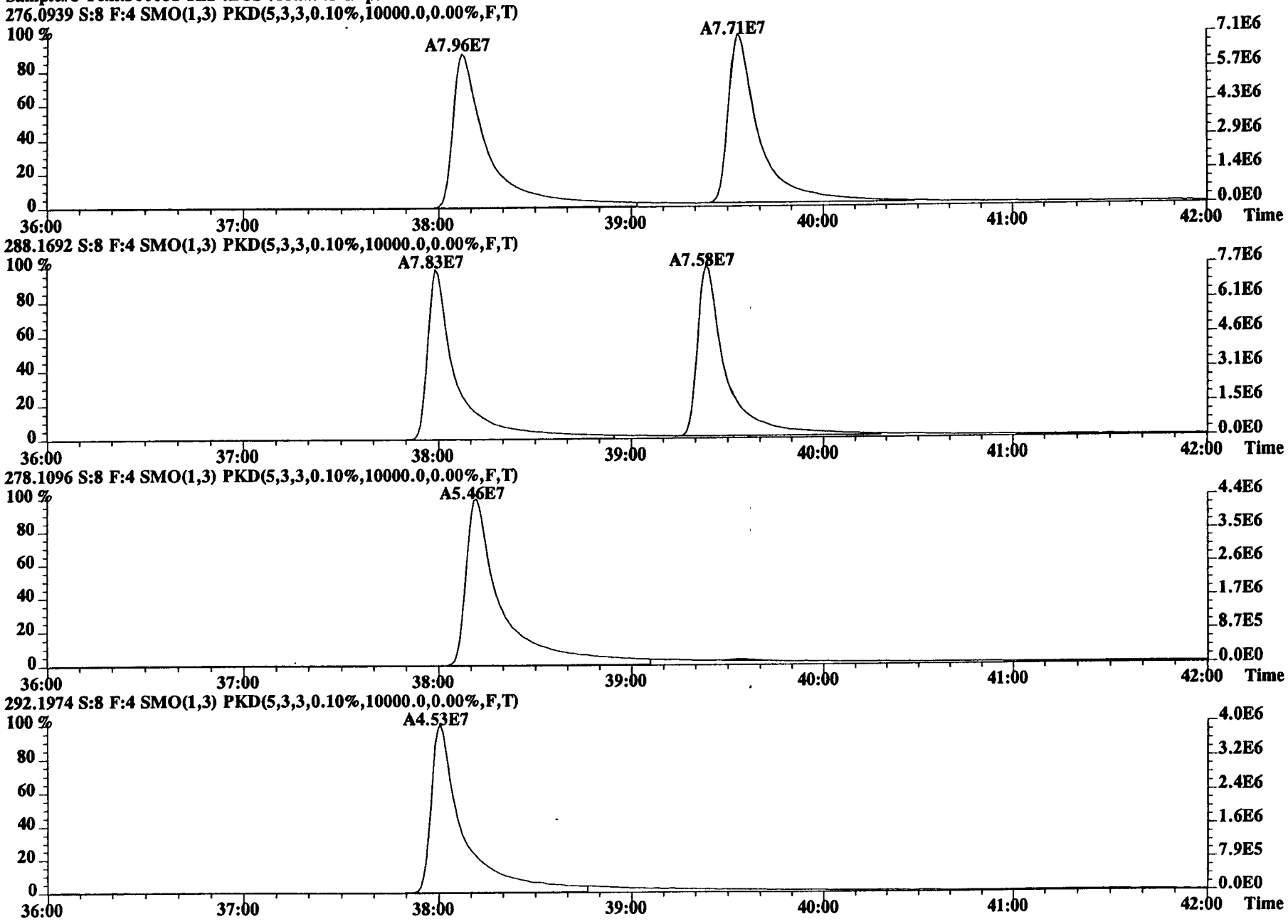
File:20AU98U #1-955 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
252.0939 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



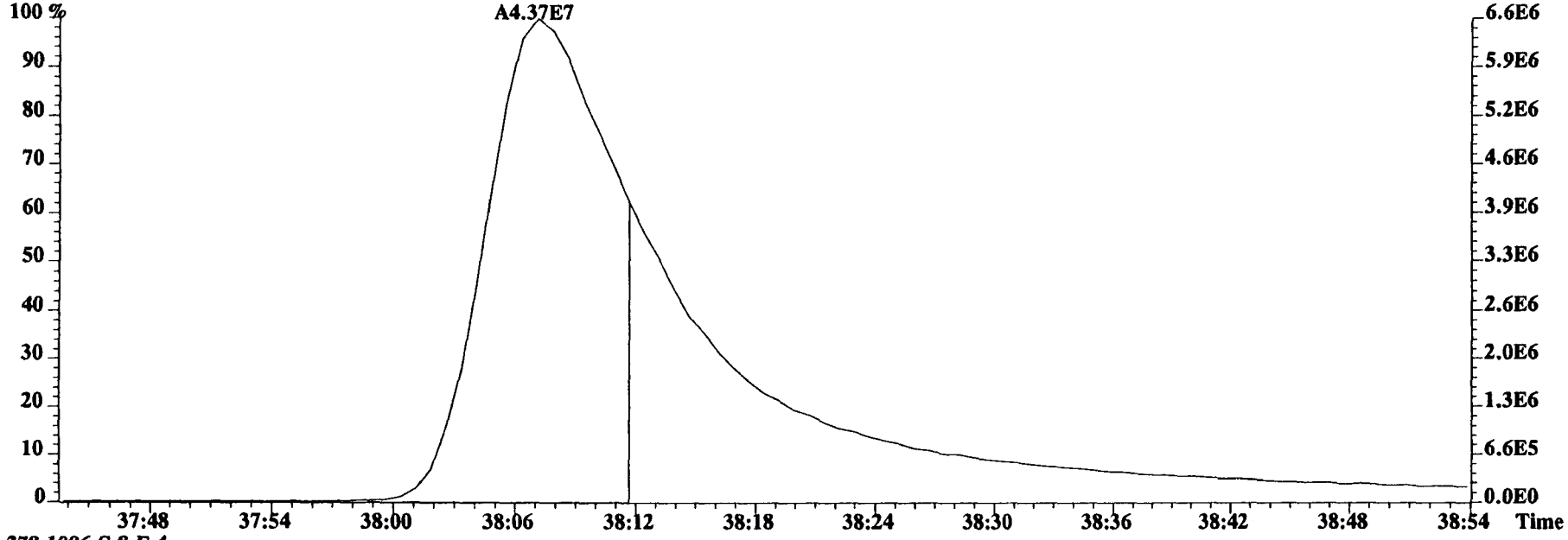
264.1692 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



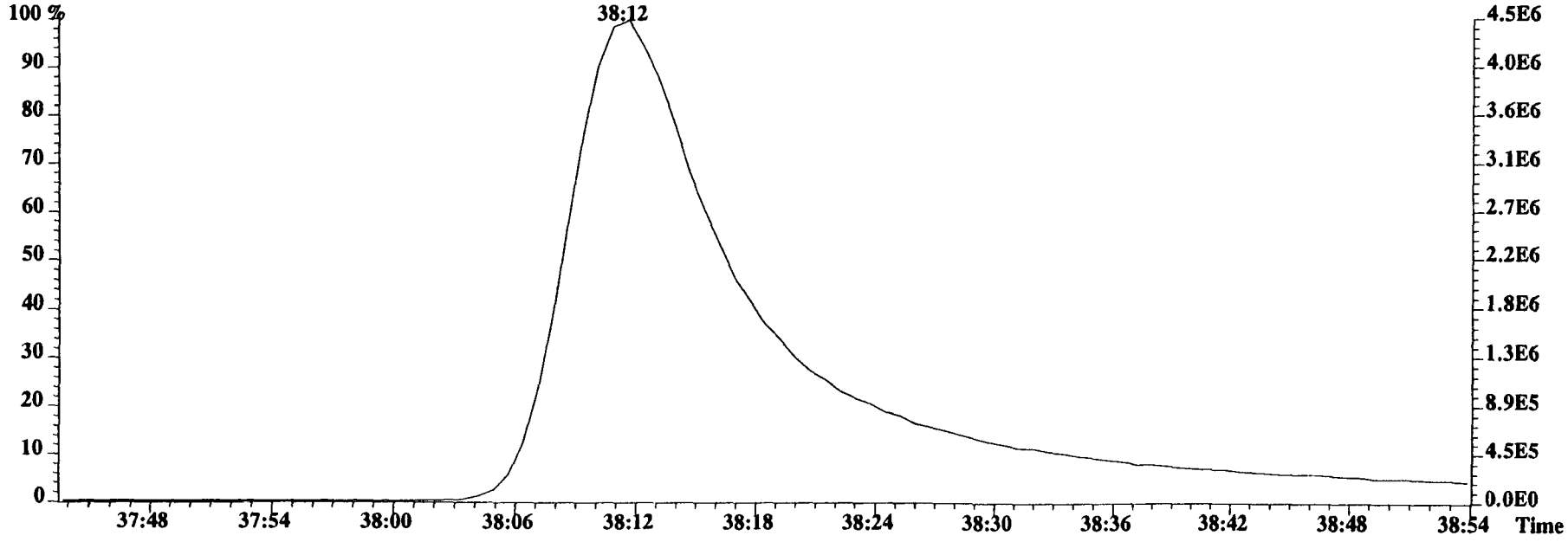
File:20AU98U #1-955 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR



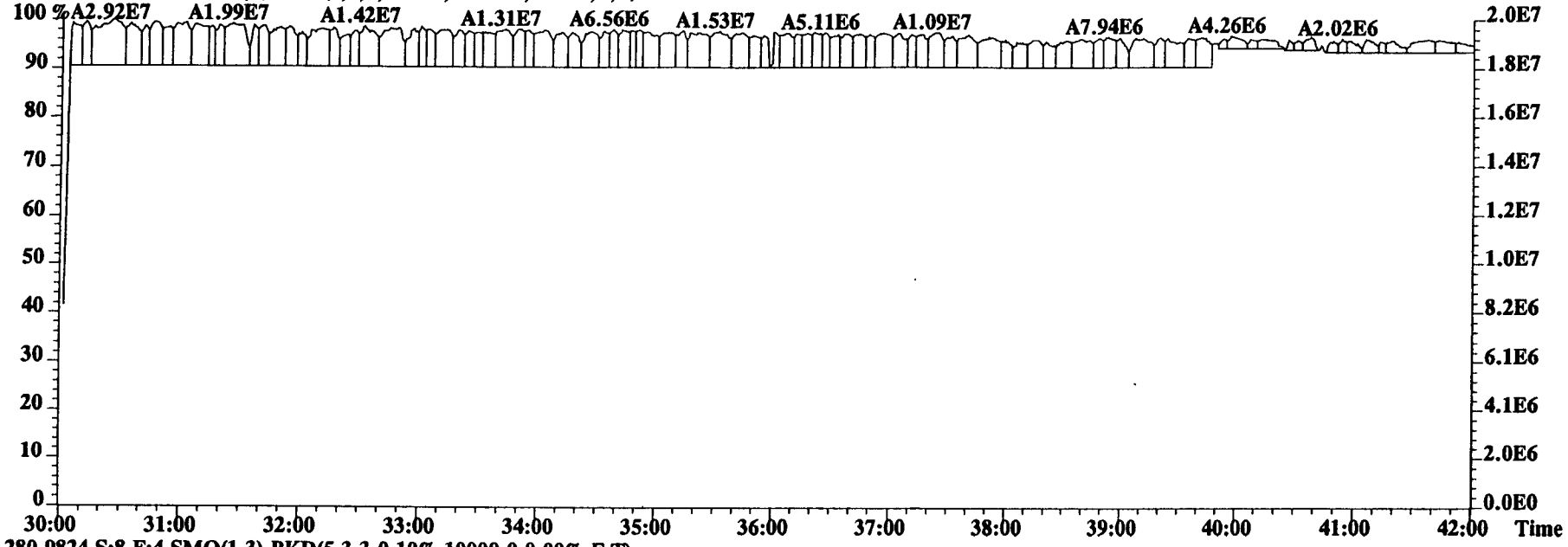
File:20AU98U #1-955 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
276.0939 S:8 F:4



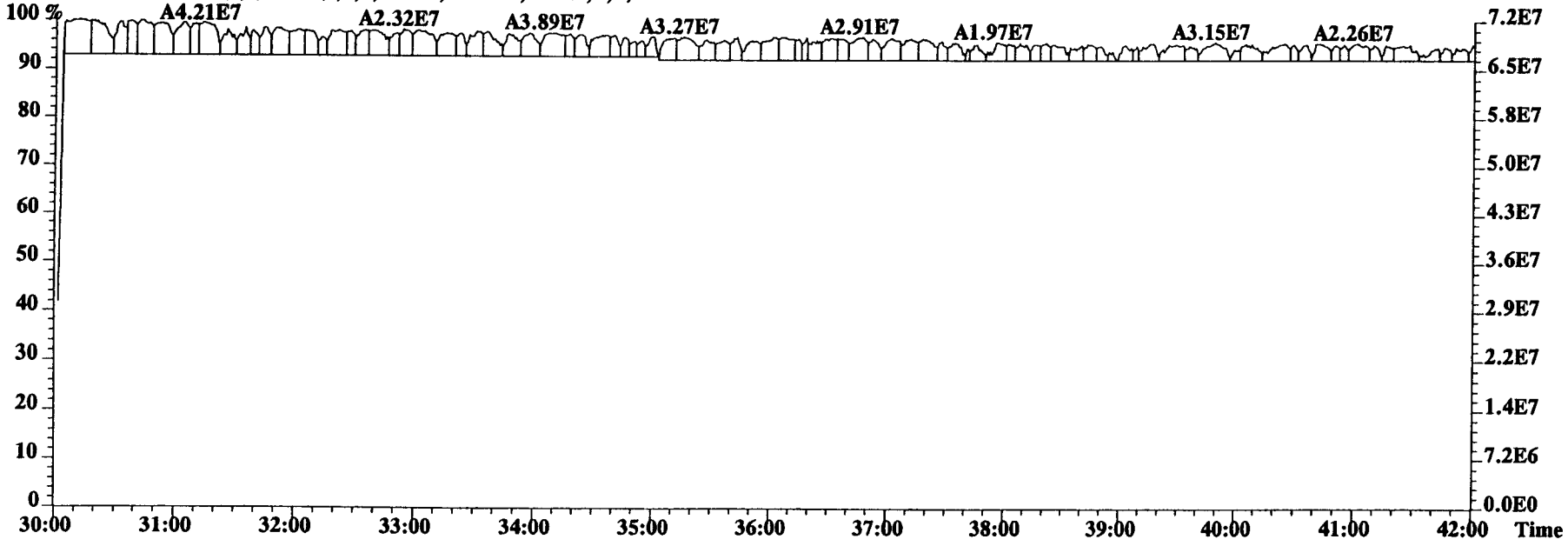
278.1096 S:8 F:4



File:20AU98U #1-955 Acq:20-AUG-1998 20:46:35 GC EI+ Voltage SIR Autospec-Ultima
Sample#8 Text:300681-1LS :LCS :Train :P Exp:PAHAIR
268.9824 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:8 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Initial Calibration

Quanterra
Environmental Services

QUANTERRA INCORPORATED

West Sacramento

Initial Calibration Checklist
High Resolution

PAHAIR081998U.RRF

ICAL ID PAHX081998U.RRF **Method ID** PAH

Column ID DB-5 **Instrument ID** Ultima

STD ID's 265-04A, -04B, 651-21, 265-04D, -04E **Multiplier Setting** 260 V.

Analyzed By A. Algazi **Date Analyzed** 8/19/98 → 8/20/98

Prepared By A. Algazi **Date Prepared** 8/20/98

Reviewed By [illegible] **Date Reviewed** 8.20.98

ANALYSIS OF ICAL	INITIATED	REVIEWED
Curve summary present?	✓	✓
CS1-CS5, CPSM, solvent blank present?	✓ ① ②	✓ ① ②
Copy of logfile present?	✓	✓
CPSM Blow-up/Static resolution check present?	NA ① / ✓	NA ① / ✓
Target file RT's correct?	✓	✓
%RSDs ~~RRFs~~ within method-specified limits?	✓	✓
Signal-to-noise criteria met?	✓	✓
Isotopic ratios within limits?	NA	NA
High point free of saturation?	✓	✓
Chromatographic windows correct?	✓	✓
CPSM valley < 25%?	① ③	① ③
Manual reintegrations checked and hardcopies included?	✓	✓

COMMENTS: ① No PAH CPSM is used.
② No solvent blank analyzed prior to PAH curves.
③ PAH GC criteria from CARB method 429 met:
<50% valley between phenanthrene and anthracene,
<60% valley between benzo(b)fluoranthene and benzo(k)fluoranthene.
④ Original injection of CS-2 (second sample in the sequence) was not usable: low response in first group. CS-2 was reanalyzed at the end of the sequence. data is usable for this second CS-2. It has been incorporated into the cu

Method 8290: %RSD ≤ 20% for natives, ≤ 30% for labelled analytes: S/N ≥ 10
Method 1613A: %CV ≤ 35% (See Table 7, Method 1613A); S/N ≥ 10
Method 23: %RSD ≤ values specified in Table 5, Method 23; S/N > 2.5
PAH: %RSD ≤ 30% for natives and labelled compounds: S/N ≥ 10
PCB: %RSD ≤ 25% for natives, ≤ 30% for labelled compounds: S/N ≥ 2.5
NCASI 551: %RSD ≤ 20% for natives and labelled compounds: ≥ 5
DBD/DBF: %RSD ≤ 30% for natives and labelled compounds; S/N ≥ 10

QA-384 NE 2/97

20-AUG-1998 02:19:36 PM

PAH CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHAIR081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d8-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				125.13	138.22	111.61	124.70	123.18					
	RRF	1.25	0.094	7.579	1.25	1.38	1.12	1.25	1.23					
Naphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				13.58	54.09	96.37	186.59	464.77					
	RRF	1.05	0.181	17.228	1.36	1.08	0.96	0.93	0.93					
2-Methylnaphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.29	33.88	84.95	139.99	349.03					
	RRF	0.77	0.112	14.514	0.93	0.68	0.85	0.70	0.70					
d8-Acenaphthylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				168.75	145.20	148.35	158.01	154.72					
	RRF	1.55	0.092	5.934	1.69	1.45	1.48	1.58	1.55					
Acenaphthylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.55	44.41	94.74	162.62	406.40					
	RRF	0.86	0.057	6.560	0.86	0.89	0.95	0.81	0.81					
d10-Acenaphthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				86.37	89.70	82.92	92.67	87.02					
	RRF	0.88	0.037	4.178	0.86	0.90	0.83	0.93	0.87					
Acenaphthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.16	47.71	101.30	157.44	439.22					
	RRF	0.93	0.097	10.478	1.02	0.95	1.01	0.79	0.88					
d10-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				129.53	105.98	113.84	108.38	107.00					
	RRF	1.13	0.098	8.636	1.30	1.06	1.14	1.08	1.07					
Fluorene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.18	43.83	114.84	210.00	528.30					
	RRF	1.05	0.105	10.040	1.12	0.88	1.15	1.05	1.06					
d10-Phenanthrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				262.09	260.96	265.51	269.74	256.17					
	RRF	2.63	0.051	1.934	2.62	2.61	2.66	2.70	2.56					
Phenanthrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.04	42.04	90.20	150.57	405.42					
	RRF	0.84	0.064	7.599	0.90	0.84	0.90	0.75	0.81					
Anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.68	40.93	88.77	149.97	410.83					
	RRF	0.83	0.053	6.428	0.87	0.82	0.89	0.75	0.82					
d10-Fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				95.14	113.27	96.06	99.58	99.18					
	RRF	1.01	0.073	7.268	0.95	1.13	0.96	1.00	0.99					
Fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.95	51.53	111.98	199.62	479.64					
	RRF	1.04	0.067	6.394	1.09	1.03	1.12	1.00	0.96					
d10-Pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				98.59	109.02	97.52	102.26	98.62					
	RRF	1.01	0.047	4.667	0.99	1.09	0.98	1.02	0.99					
Pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.51	55.06	117.00	212.11	527.05					
	RRF	1.11	0.052	4.714	1.15	1.10	1.17	1.06	1.05					

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Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHAIR081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d12-Benzo(a)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				85.14	89.67	71.73	77.77	83.24					
	RRF	0.82	0.069	8.507	0.85	0.90	0.72	0.78	0.83					
Benzo(a)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.53	52.92	110.29	207.09	513.26					
	RRF	1.06	0.030	2.804	1.05	1.06	1.10	1.04	1.03					
d12-Chrysene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				101.98	115.07	91.74	107.75	115.66					
	RRF	1.06	0.100	9.360	1.02	1.15	0.92	1.08	1.16					
Chrysene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.59	50.08	103.60	175.51	441.04					
	RRF	0.97	0.086	8.856	1.06	1.00	1.04	0.88	0.88					
d12-Benzo(b)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				64.51	65.70	63.39	63.02	56.40					
	RRF	0.63	0.036	5.785	0.65	0.66	0.63	0.63	0.56					
Benzo(b)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.81	52.02	111.29	212.98	523.15					
	RRF	1.07	0.029	2.735	1.08	1.04	1.11	1.06	1.05					
d12-Benzo(k)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				88.20	82.16	90.16	93.02	94.50					
	RRF	0.90	0.048	5.393	0.88	0.82	0.90	0.93	0.94					
Benzo(k)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.74	59.99	120.61	217.66	504.85					
	RRF	1.16	0.105	9.104	1.27	1.20	1.21	1.09	1.01					
d12-Benzo(a)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				75.48	74.11	74.28	75.01	76.69					
	RRF	0.75	0.010	1.385	0.75	0.74	0.74	0.75	0.77					
Benzo(e)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				15.21	74.22	153.41	287.46	672.30					
	RRF	1.46	0.077	5.243	1.52	1.48	1.53	1.44	1.34					
Benzo(a)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.13	51.09	105.82	197.36	469.69					
	RRF	1.02	0.066	6.478	1.11	1.02	1.06	0.99	0.94					
d12-Perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.89	60.89	60.17	61.91	63.41					
	RRF	0.61	0.013	2.048	0.61	0.61	0.60	0.62	0.63					
Perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				17.58	80.54	145.64	332.88	800.43					
	RRF	1.62	0.110	6.792	1.76	1.61	1.46	1.66	1.60					
d12-Indeno(123-cd)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				68.59	72.80	69.80	62.67	79.43					
	RRF	0.71	0.061	8.681	0.69	0.73	0.70	0.63	0.79					
Indeno(123-cd)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				6.33	33.45	62.76	113.23	281.17					
	RRF	0.61	0.046	7.531	0.63	0.67	0.63	0.57	0.56					
d14-Dibenz(ah)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				43.73	43.81	44.28	38.06	50.69					
	RRF	0.44	0.045	10.143	0.44	0.44	0.44	0.38	0.51					

352

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHAIR081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
Dibenz(ah)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.79	56.20	115.84	225.91	535.81					
	RRF	1.11	0.036	3.270	1.08	1.12	1.16	1.13	1.07					
d12-Benzo(ghi)perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.66	64.91	61.14	56.21	72.26					
	RRF	0.63	0.060	9.532	0.61	0.65	0.61	0.56	0.72					
Benzo(ghi)perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.00	50.38	103.43	190.98	478.29					
	RRF	0.99	0.034	3.467	1.00	1.01	1.03	0.95	0.96					
13C-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				1.00	1.00	1.00	1.00	1.00					
	RRF	1.00	0.000	0.000	1.00	1.00	1.00	1.00	1.00					
13C-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				1.00	1.00	1.00	1.00	1.00					
	RRF	1.00	0.000	0.000	1.00	1.00	1.00	1.00	1.00					

20-AUG-1998 09:38:36 AM PAH Ical RESULTS

Mass Spec : ULTIMA Results : 19AU98U011.RES : PAHAIRCAL1.TRG
GC Column : DB-5 Date analyzed : 19-AUG-98
Data file : 19AU98U ST0819 :PAH CS-1 :265-4A Ex
Weight : 1

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	384118000	1.00	Y	11: 9	Y	0.00	100.00	
d8-Naphthalene	480650000	1.00	Y	8: 58	Y	1.25	100.00	
Naphthalene	65289400	1.00	Y	9: 2	Y	1.36	10.00	0.000
2-Methylnaphthalene	44629600	1.00	Y	11: 16	Y	0.93	10.00	0.000
d8-Acenaphthylene	648198000	1.00	Y	14: 13	Y	1.69	100.00	
Acenaphthylene	55444200	1.00	Y	14: 16	Y	0.86	10.00	0.000
d10-Acenaphthene	331750000	1.00	Y	14: 47	Y	0.86	100.00	
Acenaphthene	33717200	1.00	Y	14: 53	Y	1.02	10.00	0.000
d10-Anthracene	241516000	1.00	Y	19: 47	Y	0.00	100.00	
d10-Fluorene	312842000	1.00	Y	16: 29	Y	1.30	100.00	
Fluorene	34982600	1.00	Y	16: 35	Y	1.12	10.00	0.000
d10-Phenanthrene	632978000	1.00	Y	19: 38	Y	2.62	100.00	
Phenanthrene	57229600	1.00	Y	19: 42	Y	0.90	10.00	0.000
Anthracene	54911200	1.00	Y	19: 51	Y	0.87	10.00	0.000
d14-Terphenyl	596780000	1.00	Y	24: 54	Y	0.00	100.00	
d10-Fluoranthene	567796000	1.00	Y	23: 32	Y	0.95	100.00	
Fluoranthene	62147000	1.00	Y	23: 35	Y	1.09	10.00	0.000
d10-Pyrene	588356000	1.00	Y	24: 14	Y	0.99	100.00	
Pyrene	67727800	1.00	Y	24: 18	Y	1.15	10.00	0.000
d12-Benzo(a)anthracene	508128000	1.00	Y	28: 5	Y	0.85	100.00	
Benzo(a)anthracene	53508800	1.00	Y	28: 10	Y	1.05	10.00	0.000
d12-Chrysene	608616000	1.00	Y	28: 12	Y	1.02	100.00	
Chrysene	64472400	1.00	Y	28: 18	Y	1.06	10.00	0.000
d12-Benzo(e)pyrene	705306000	1.00	Y	32: 37	Y	-1.00	100.00	
d12-Benzo(b)fluoranthene	454992000	1.00	Y	31: 38	Y	0.65	100.00	
Benzo(b)fluoranthene	49181800	1.00	Y	31: 43	Y	1.08	10.00	0.000
d12-Benzo(k)fluoranthene	622060000	1.00	Y	31: 43	Y	0.88	100.00	
Benzo(k)fluoranthene	79232400	1.00	Y	31: 49	Y	1.27	10.00	0.000
d12-Benzo(a)pyrene	532350000	1.00	Y	32: 49	Y	0.75	100.00	
Benzo(e)pyrene	80983000	1.00	Y	32: 44	Y	1.52	10.00	0.000
Benzo(a)pyrene	59236000	1.00	Y	32: 55	Y	1.11	10.00	0.000
d12-Perylene	429470000	1.00	Y	33: 8	Y	0.61	100.00	
Perylene	75514600	1.00	Y	33: 15	Y	1.76	10.00	0.000
d12-Indeno(123-cd)pyrene	483778000	1.00	Y	37: 56	Y	0.69	100.00	
Indeno(123-cd)pyrene	30600000	1.00	Y	38: 4	Y	0.63	10.00	0.000
d14-Dibenz(ah)anthracene	308436000	1.00	Y	37: 58	Y	0.44	100.00	
Dibenz(ah)anthracene	33295000	1.00	Y	38: 9	Y	1.08	10.00	0.000
d12-Benzo(ghi)perylene	427814000	1.00	Y	39: 19	Y	0.61	100.00	
Benzo(ghi)perylene	42781000	1.00	Y	39: 30	Y	1.00	10.00	0.000
d10-Fluorene	312842000	1.00	Y	16: 29	Y	0.00	100.00	
13C-Fluorene	* No Peak	0.00	N	16: 34	N	0.00	100.00	

Mass Spec : ULTIMA Results : 19AU98U261.RES : PAHAIRCAL2.TRG
GC Column : DB-5 Date analyzed : 19-AUG-98
Data file : 19AU98U ST0819G :PAH CS-2 :265-4B Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	70655800	1.00 Y	11: 8 Y	-1.00	100.00	
d8-Naphthalene	97661000	1.00 Y	8: 58 Y	1.38	100.00	
Naphthalene	52821400	1.00 Y	9: 2 Y	1.08	50.00	0.000
2-Methylnaphthalene	33092000	1.00 Y	11: 15 Y	0.68	50.00	0.000
d8-Acenaphthylene	102593200	1.00 Y	14: 12 Y	1.45	100.00	
Acenaphthylene	45561000	1.00 Y	14: 15 Y	0.89	50.00	0.000
d10-Acenaphthene	63379400	1.00 Y	14: 45 Y	0.90	100.00	
Acenaphthene	30235400	1.00 Y	14: 52 Y	0.95	50.00	0.000
d10-Anthracene	41622200	1.00 Y	19: 46 Y	-1.00	100.00	
d10-Fluorene	44113200	1.00 Y	16: 28 Y	1.06	100.00	
Fluorene	19334800	1.00 Y	16: 34 Y	0.88	50.00	0.000
d10-Phenanthrene	108617000	1.00 Y	19: 37 Y	2.61	100.00	
Phenanthrene	45664000	1.00 Y	19: 41 Y	0.84	50.00	0.000
Anthracene	44457200	1.00 Y	19: 50 Y	0.82	50.00	0.000
d14-Terphenyl	93803800	1.00 Y	24: 52 Y	-2.00	100.00	
d10-Fluoranthene	106255000	1.00 Y	23: 31 Y	1.13	100.00	
Fluoranthene	54752600	1.00 Y	23: 34 Y	1.03	50.00	0.000
d10-Pyrene	102265800	1.00 Y	24: 13 Y	1.09	100.00	
Pyrene	56310800	1.00 Y	24: 17 Y	1.10	50.00	0.000
d12-Benzo(a)anthracene	84111400	1.00 Y	28: 5 Y	0.90	100.00	
Benzo(a)anthracene	44511000	1.00 Y	28: 9 Y	1.06	50.00	0.000
d12-Chrysene	107935800	1.00 Y	28: 12 Y	1.15	100.00	
Chrysene	54051800	1.00 Y	28: 17 Y	1.00	50.00	0.000
d12-Benzo(e)pyrene	144534400	1.00 Y	32: 37 Y	0.00	100.00	
d12-Benzo(b)fluoranthene	94962200	1.00 Y	31: 38 Y	0.66	100.00	
Benzo(b)fluoranthene	49402200	1.00 Y	31: 43 Y	1.04	50.00	0.000
d12-Benzo(k)fluoranthene	118742400	1.00 Y	31: 44 Y	0.82	100.00	
Benzo(k)fluoranthene	71234400	1.00 Y	31: 48 Y	1.20	50.00	0.000
d12-Benzo(a)pyrene	107118000	1.00 Y	32: 49 Y	0.74	100.00	
Benzo(e)pyrene	79505400	1.00 Y	32: 43 Y	1.48	50.00	0.000
Benzo(a)pyrene	54722200	1.00 Y	32: 55 Y	1.02	50.00	0.000
d12-Perylene	88007400	1.00 Y	33: 8 Y	0.61	100.00	
Perylene	70882600	1.00 Y	33: 14 Y	1.61	50.00	0.000
d12-Indeno(123-cd)pyrene	105228000	1.00 Y	37: 58 Y	0.73	100.00	
Indeno(123-cd)pyrene	35200000	1.00 Y	38: 6 Y	0.67	50.00	0.000
d14-Dibenz(ah)anthracene	63324600	1.00 Y	37: 59 Y	0.44	100.00	
Dibenz(ah)anthracene	35590600	1.00 Y	38: 10 Y	1.12	50.00	0.000
d12-Benzo(ghi)perylene	93810400	1.00 Y	39: 22 Y	0.65	100.00	
Benzo(ghi)perylene	47258200	1.00 Y	39: 32 Y	1.01	50.00	0.000

20-AUG-1998 09:56:11 AM PAH Ical RESULTS

Mass Spec : ULTIMA Results : 19AU98U031.RES : PAHAIRCAL3.TRG
GC Column : DB-5 Date analyzed : 19-AUG-98
Data file : 19AU98U ST0819B :PAH CS-3 :651-21 Ex
Weight : 1

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	422174000	1.00	Y	11: 8	Y	-1.00	100.00	
d8-Naphthalene	471190000	1.00	Y	8: 58	Y	1.12	100.00	
Naphthalene	454076000	1.00	Y	9: 2	Y	0.96	100.00	0.000
2-Methylnaphthalene	400296000	1.00	Y	11: 15	Y	0.85	100.00	0.000
d8-Acenaphthylene	626304000	1.00	Y	14: 12	Y	1.48	100.00	
Acenaphthylene	593376000	1.00	Y	14: 15	Y	0.95	100.00	0.000
d10-Acenaphthene	350080000	1.00	Y	14: 46	Y	0.83	100.00	
Acenaphthene	354614000	1.00	Y	14: 52	Y	1.01	100.00	0.000
d10-Anthracene	251124000	1.00	Y	19: 46	Y	-1.00	100.00	
d10-Fluorene	285868000	1.00	Y	16: 28	Y	1.14	100.00	
Fluorene	328294000	1.00	Y	16: 34	Y	1.15	100.00	0.000
d10-Phenanthrene	666764000	1.00	Y	19: 36	Y	2.66	100.00	
Phenanthrene	601400000	1.00	Y	19: 41	Y	0.90	100.00	0.000
Anthracene	591890000	1.00	Y	19: 50	Y	0.89	100.00	0.000
d14-Terphenyl	699008000	1.00	Y	24: 52	Y	-2.00	100.00	
d10-Fluoranthene	671478000	1.00	Y	23: 30	Y	0.96	100.00	
Fluoranthene	751932000	1.00	Y	23: 34	Y	1.12	100.00	0.000
d10-Pyrene	681704000	1.00	Y	24: 13	Y	0.98	100.00	
Pyrene	797574000	1.00	Y	24: 16	Y	1.17	100.00	0.000
d12-Benzo(a)anthracene	501406000	1.00	Y	28: 4	Y	0.72	100.00	
Benzo(a)anthracene	553002000	1.00	Y	28: 8	Y	1.10	100.00	0.000
d12-Chrysene	641272000	1.00	Y	28: 11	Y	0.92	100.00	
Chrysene	664328000	1.00	Y	28: 16	Y	1.04	100.00	0.000
d12-Benzo(e)pyrene	748758000	1.00	Y	32: 35	Y	-2.00	100.00	
d12-Benzo(b)fluoranthene	474608000	1.00	Y	31: 36	Y	0.63	100.00	
Benzo(b)fluoranthene	528214000	1.00	Y	31: 42	Y	1.11	100.00	0.000
d12-Benzo(k)fluoranthene	675052000	1.00	Y	31: 42	Y	0.90	100.00	
Benzo(k)fluoranthene	814150000	1.00	Y	31: 46	Y	1.21	100.00	0.000
d12-Benzo(a)pyrene	556188000	1.00	Y	32: 47	Y	0.74	100.00	
Benzo(e)pyrene	853248000	1.00	Y	32: 41	Y	1.53	100.00	0.000
Benzo(a)pyrene	588556000	1.00	Y	32: 53	Y	1.06	100.00	0.000
d12-Perylene	450492000	1.00	Y	33: 6	Y	0.60	100.00	
Perylene	656086000	1.00	Y	33: 12	Y	1.46	100.00	0.000
d12-Indeno(123-cd)pyrene	522654000	1.00	Y	37: 52	Y	0.70	100.00	
Indeno(123-cd)pyrene	328000000	1.00	Y	38: 0	Y	0.63	100.00	0.000
d14-Dibenz(ah)anthracene	331568000	1.00	Y	37: 55	Y	0.44	100.00	
Dibenz(ah)anthracene	384096000	1.00	Y	38: 6	Y	1.16	100.00	0.000
d12-Benzo(ghi)perylene	457822000	1.00	Y	39: 16	Y	0.61	100.00	
Benzo(ghi)perylene	473540000	1.00	Y	39: 25	Y	1.03	100.00	0.000
d10-Fluorene	285868000	1.00	Y	16: 28	Y	-1.00	100.00	
13C-Fluorene	* No Peak	0.00	N	16: 33	N	0.00	100.00	

Mass Spec : ULTIMA Results : 19AU98U041.RES : PAHAIRCAL4.TRG
GC Column : DB-5 Date analyzed : 19-AUG-98
Data file : 19AU98U ST0819C :PAH CS-4 :265-4D Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	258178000	1.00 Y	11: 9 Y	0.00	100.00	
d8-Naphthalene	321956000	1.00 Y	8: 57 Y	1.25	100.00	
Naphthalene	600734000	1.00 Y	9: 1 Y	0.93	200.00	0.000
2-Methylnaphthalene	450720000	1.00 Y	11: 15 Y	0.70	200.00	0.000
d8-Acenaphthylene	407948000	1.00 Y	14: 12 Y	1.58	100.00	
Acenaphthylene	663388000	1.00 Y	14: 15 Y	0.81	200.00	0.000
d10-Acenaphthene	239254000	1.00 Y	14: 46 Y	0.93	100.00	
Acenaphthene	376688000	1.00 Y	14: 53 Y	0.79	200.00	0.000
d10-Anthracene	157468200	1.00 Y	19: 46 Y	-1.00	100.00	
d10-Fluorene	170668400	1.00 Y	16: 28 Y	1.08	100.00	
Fluorene	358400000	1.00 Y	16: 34 Y	1.05	200.00	0.000
d10-Phenanthrene	424762000	1.00 Y	19: 36 Y	2.70	100.00	
Phenanthrene	639548000	1.00 Y	19: 41 Y	0.75	200.00	0.000
Anthracene	637000000	1.00 Y	19: 50 Y	0.75	200.00	0.000
d14-Terphenyl	393644000	1.00 Y	24: 52 Y	-2.00	100.00	
d10-Fluoranthene	391988000	1.00 Y	23: 30 Y	1.00	100.00	
Fluoranthene	782484000	1.00 Y	23: 34 Y	1.00	200.00	0.000
d10-Pyrene	402524000	1.00 Y	24: 12 Y	1.02	100.00	
Pyrene	853790000	1.00 Y	24: 16 Y	1.06	200.00	0.000
d12-Benzo(a)anthracene	306152000	1.00 Y	28: 4 Y	0.78	100.00	
Benzo(a)anthracene	634006000	1.00 Y	28: 8 Y	1.04	200.00	0.000
d12-Chrysene	424138000	1.00 Y	28: 11 Y	1.08	100.00	
Chrysene	744400000	1.00 Y	28: 16 Y	0.88	200.00	0.000
d12-Benzo(e)pyrene	493252000	1.00 Y	32: 35 Y	-2.00	100.00	
d12-Benzo(b)fluoranthene	310836000	1.00 Y	31: 36 Y	0.63	100.00	
Benzo(b)fluoranthene	662032000	1.00 Y	31: 42 Y	1.06	200.00	0.000
d12-Benzo(k)fluoranthene	458844000	1.00 Y	31: 42 Y	0.93	100.00	
Benzo(k)fluoranthene	998720000	1.00 Y	31: 46 Y	1.09	200.00	0.000
d12-Benzo(a)pyrene	370004000	1.00 Y	32: 47 Y	0.75	100.00	
Benzo(e)pyrene	1063608000	1.00 Y	32: 41 Y	1.44	200.00	0.000
Benzo(a)pyrene	730246000	1.00 Y	32: 53 Y	0.99	200.00	0.000
d12-Perylene	305370000	1.00 Y	33: 6 Y	0.62	100.00	
Perylene	1016530000	1.00 Y	33: 12 Y	1.66	200.00	0.000
d12-Indeno(123-cd)pyrene	309102000	1.00 Y	37: 53 Y	0.63	100.00	
Indeno(123-cd)pyrene	350000000	1.00 Y	38: 0 Y	0.57	200.00	0.000
d14-Dibenz(ah)anthracene	187749200	1.00 Y	37: 54 Y	0.38	100.00	
Dibenz(ah)anthracene	424146000	1.00 Y	38: 6 Y	1.13	200.00	0.000
d12-Benzo(ghi)perylene	277246000	1.00 Y	39: 16 Y	0.56	100.00	
Benzo(ghi)perylene	529478000	1.00 Y	39: 25 Y	0.95	200.00	0.000
d10-Fluorene	170668400	1.00 Y	16: 28 Y	-1.00	100.00	
13C-Fluorene	* No Peak	0.00 N	16: 33 N	0.00	100.00	

20-AUG-1998 09:59:14 AM PAH Ical RESULTS

Mass Spec : ULTIMA Results : 19AU98U051.RES : PAHAIRCAL5.TRG
GC Column : DB-5 Date analyzed : 19-AUG-98
Data file : 19AU98U ST0819D :PAH CS-5 :265-4E Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	312318000	1.00 Y	11: 8 Y	-1.00	100.00	
d8-Naphthalene	384698000	1.00 Y	8: 58 Y	1.23	100.00	
Naphthalene	1787952000	1.00 Y	9: 2 Y	0.93	500.00	0.000
2-Methylnaphthalene	1342716000	1.00 Y	11: 15 Y	0.70	500.00	0.000
d8-Acenaphthylene	483206000	1.00 Y	14: 12 Y	1.55	100.00	
Acenaphthylene	1963764000	1.00 Y	14: 14 Y	0.81	500.00	0.000
d10-Acenaphthene	271792000	1.00 Y	14: 46 Y	0.87	100.00	
Acenaphthene	1193762000	1.00 Y	14: 52 Y	0.88	500.00	0.000
d10-Anthracene	196074200	1.00 Y	19: 45 Y	-2.00	100.00	
d10-Fluorene	209792000	1.00 Y	16: 28 Y	1.07	100.00	
Fluorene	1108328000	1.00 Y	16: 33 Y	1.06	500.00	0.000
d10-Phenanthrene	502286000	1.00 Y	19: 36 Y	2.56	100.00	
Phenanthrene	2036380000	1.00 Y	19: 40 Y	0.81	500.00	0.000
Anthracene	2063520000	1.00 Y	19: 49 Y	0.82	500.00	0.000
d14-Terphenyl	451978000	1.00 Y	24: 52 Y	-2.00	100.00	
d10-Fluoranthene	448256000	1.00 Y	23: 30 Y	0.99	100.00	
Fluoranthene	2150020000	1.00 Y	23: 34 Y	0.96	500.00	0.000
d10-Pyrene	445760000	1.00 Y	24: 13 Y	0.99	100.00	
Pyrene	2349400000	1.00 Y	24: 16 Y	1.05	500.00	0.000
d12-Benzo(a)anthracene	376244000	1.00 Y	28: 4 Y	0.83	100.00	
Benzo(a)anthracene	1931110000	1.00 Y	28: 8 Y	1.03	500.00	0.000
d12-Chrysene	522746000	1.00 Y	28: 11 Y	1.16	100.00	
Chrysene	2305500000	1.00 Y	28: 15 Y	0.88	500.00	0.000
d12-Benzo(e)pyrene	571326000	1.00 Y	32: 35 Y	-2.00	100.00	
d12-Benzo(b)fluoranthene	322248000	1.00 Y	31: 36 Y	0.56	100.00	
Benzo(b)fluoranthene	1685828000	1.00 Y	31: 41 Y	1.05	500.00	0.000
d12-Benzo(k)fluoranthene	539896000	1.00 Y	31: 42 Y	0.94	100.00	
Benzo(k)fluoranthene	2725660000	1.00 Y	31: 46 Y	1.01	500.00	0.000
d12-Benzo(a)pyrene	438166000	1.00 Y	32: 47 Y	0.77	100.00	
Benzo(e)pyrene	2945800000	1.00 Y	32: 41 Y	1.34	500.00	0.000
Benzo(a)pyrene	2058000000	1.00 Y	32: 52 Y	0.94	500.00	0.000
d12-Perylene	362286000	1.00 Y	33: 5 Y	0.63	100.00	
Perylene	2899860000	1.00 Y	33: 11 Y	1.60	500.00	0.000
d12-Indeno(123-cd)pyrene	453826000	1.00 Y	37: 51 Y	0.79	100.00	
Indeno(123-cd)pyrene	1276000000	1.00 Y	37: 59 Y	0.56	500.00	0.000
d14-Dibenz(ah)anthracene	289594000	1.00 Y	37: 54 Y	0.51	100.00	
Dibenz(ah)anthracene	1551682000	1.00 Y	38: 4 Y	1.07	500.00	0.000
d12-Benzo(ghi)perylene	412828000	1.00 Y	39: 15 Y	0.72	100.00	
Benzo(ghi)perylene	1974510000	1.00 Y	39: 24 Y	0.96	500.00	0.000
d10-Fluorene	209792000	1.00 Y	16: 28 Y	-1.00	100.00	
13C-Fluorene	60319	1.00 Y	16: 33 Y	0.00	100.00	

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FILE	SAMP No. (1)	LAB. SAMP No	CUSTOMER ID	CLEAN UP 1 (SDS)	CLEAN UP 2 (D2)	TYPE (1)	CONCn.
19AU98U	1	ST0819	PAH CS-1	265-4A			1
19AU98U	2	ST0819A	PAH CS-2	265-4B			1
19AU98U	3	ST0819B	PAH CS-3	651-21			1
19AU98U	4	ST0819C	PAH CS-4	265-4D			1
19AU98U	5	ST0819D	PAH CS-5	265-4E			1
19AU98U	6	SB0819	Solvent Blank	C8			1
19AU98U	7	ST0819E	PAH CS-3	651-21			1
19AU98U	8	ST0819F	Prespike Cal Std				1
19AU98U	9	SB0819A	Solvent Blank	C8			1
19AU98U	10	300569-1MB	Method Blank	Soil	PAH	VSE-22	5.0
19AU98U	11	300569-1LC	LCS	Soil	PAH		5.0
19AU98U	12	300533-1	G-2056,58	Air	PAH	VSE-22	0.50
19AU98U	13	300533-3	G-2059,61	Air	PAH		0.50
19AU98U	14	300533-6	G-2072,74	Air	PAH		0.50
19AU98U	15	300533-2	G-2057	Air	PAH	VSE-22	0.50
19AU98U	16	300533-5	G-2060	Air	PAH		0.50
19AU98U	17	300533-8	G-2073	Air	PAH		0.50
19AU98U	18	300569-1	ARF-001-05	Soil	PAH		5.01
19AU98U	19	300569-2	ARF-001-06	Soil	PAH		5.00
19AU98U	20	300569-3	ARF-001-07	Soil	PAH		5.01
19AU98U	21	300569-4	ARF-001-08	Soil	PAH		5.02
19AU98U	22	300569-5	ARF-001-09	Soil	PAH		5.00
19AU98U	23	300569-6	ARF-001-10	Soil	PAH		5.05
19AU98U	24	300569-7	ARR-001-01	Soil	PAH		5.02
19AU98U	25	SB0819B	Solvent Blank	C8			1
19AU98U	26	ST0819G	PAH CS-2	265-4B			1
19AU98U	27						
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19AU98U	44						
19AU98U	45		AMA 08/19/98				
19AU98U	46						
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19AU98U	48						
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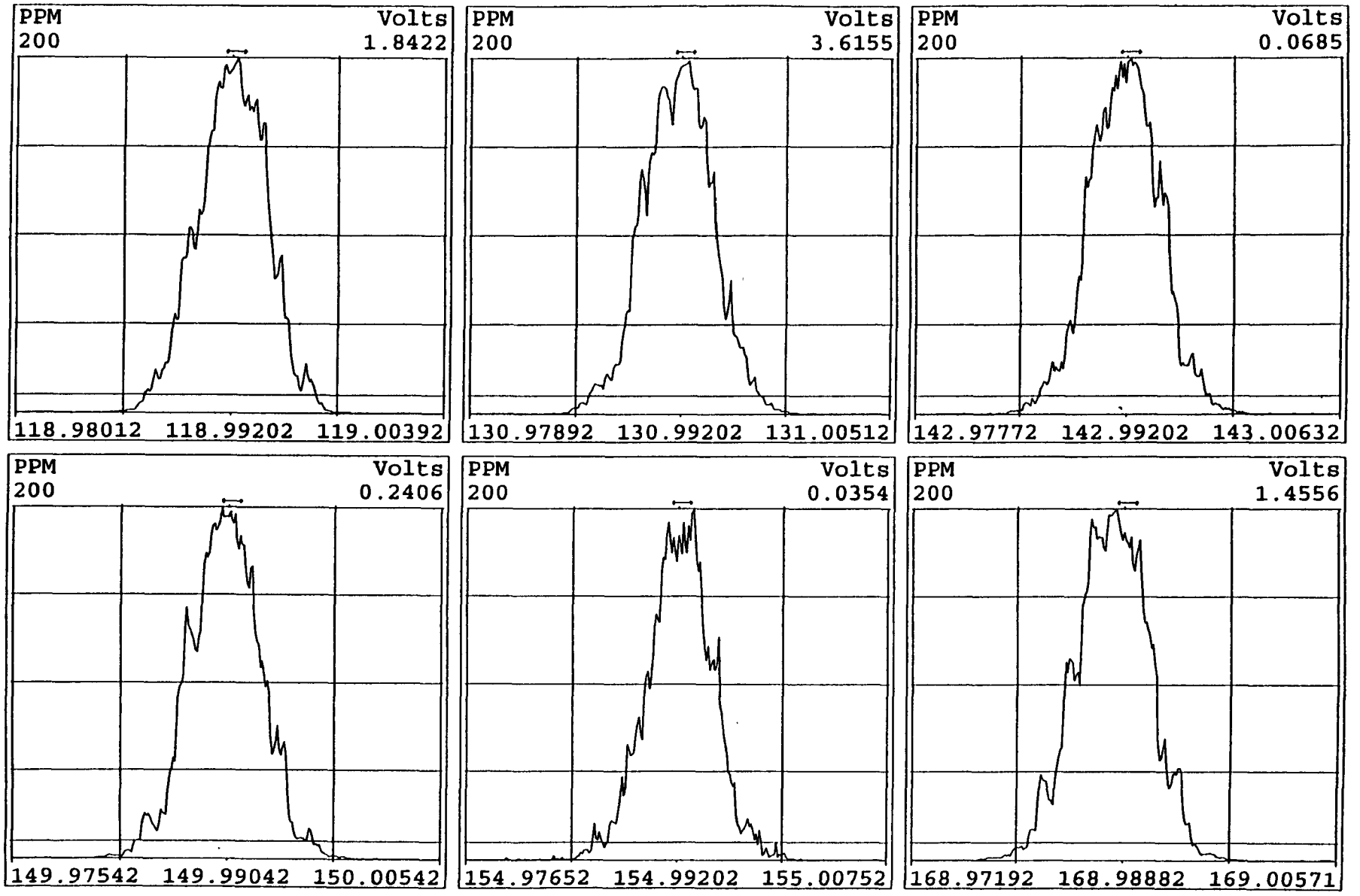
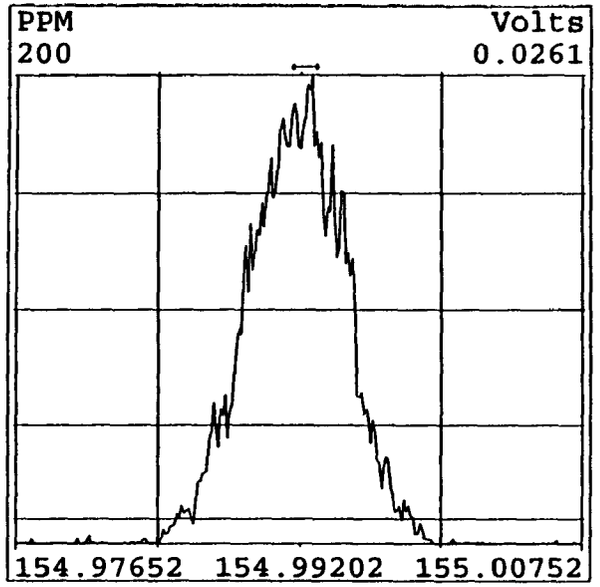
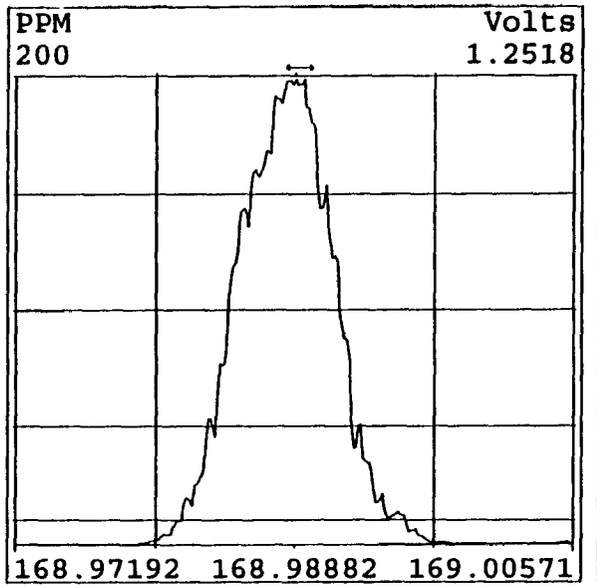
19AU98U	50						

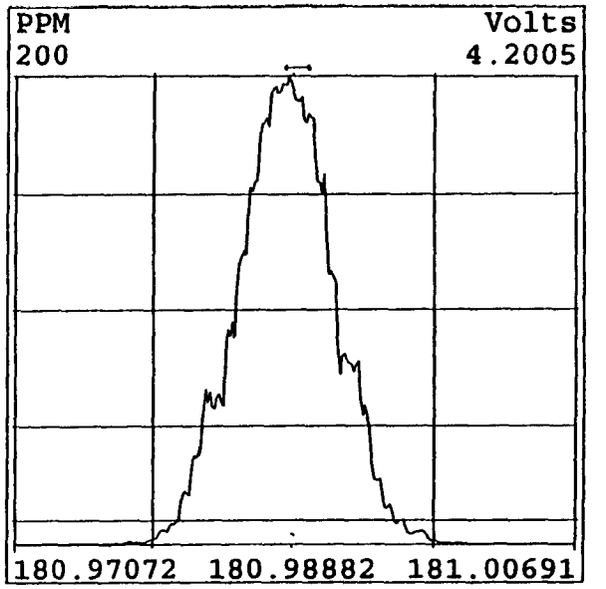
Peak Locate Examination:19-AUG-1998:15:44 File:19AU98U
Experiment:PAHAIR Function:1 Reference:PFK

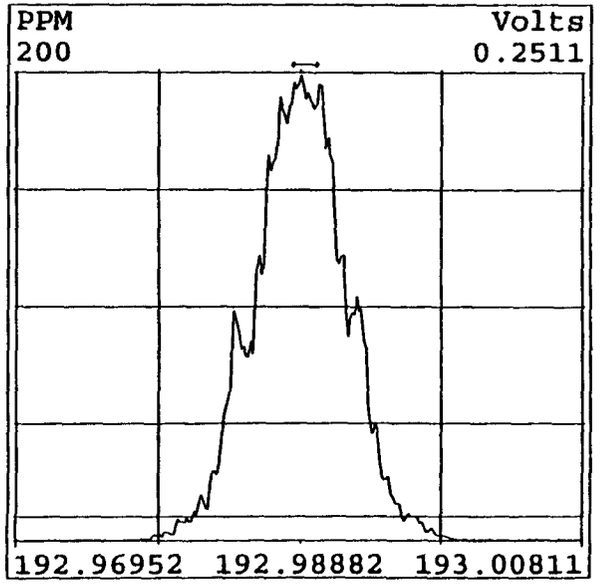


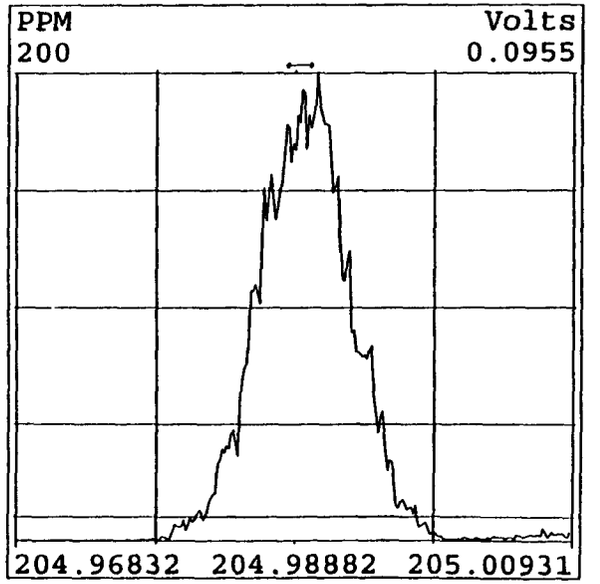
Peak Locate Examination:19-AUG-1998:15:46 File:19AU98U
Experiment:PAHAIR Function:2 Reference:PFK



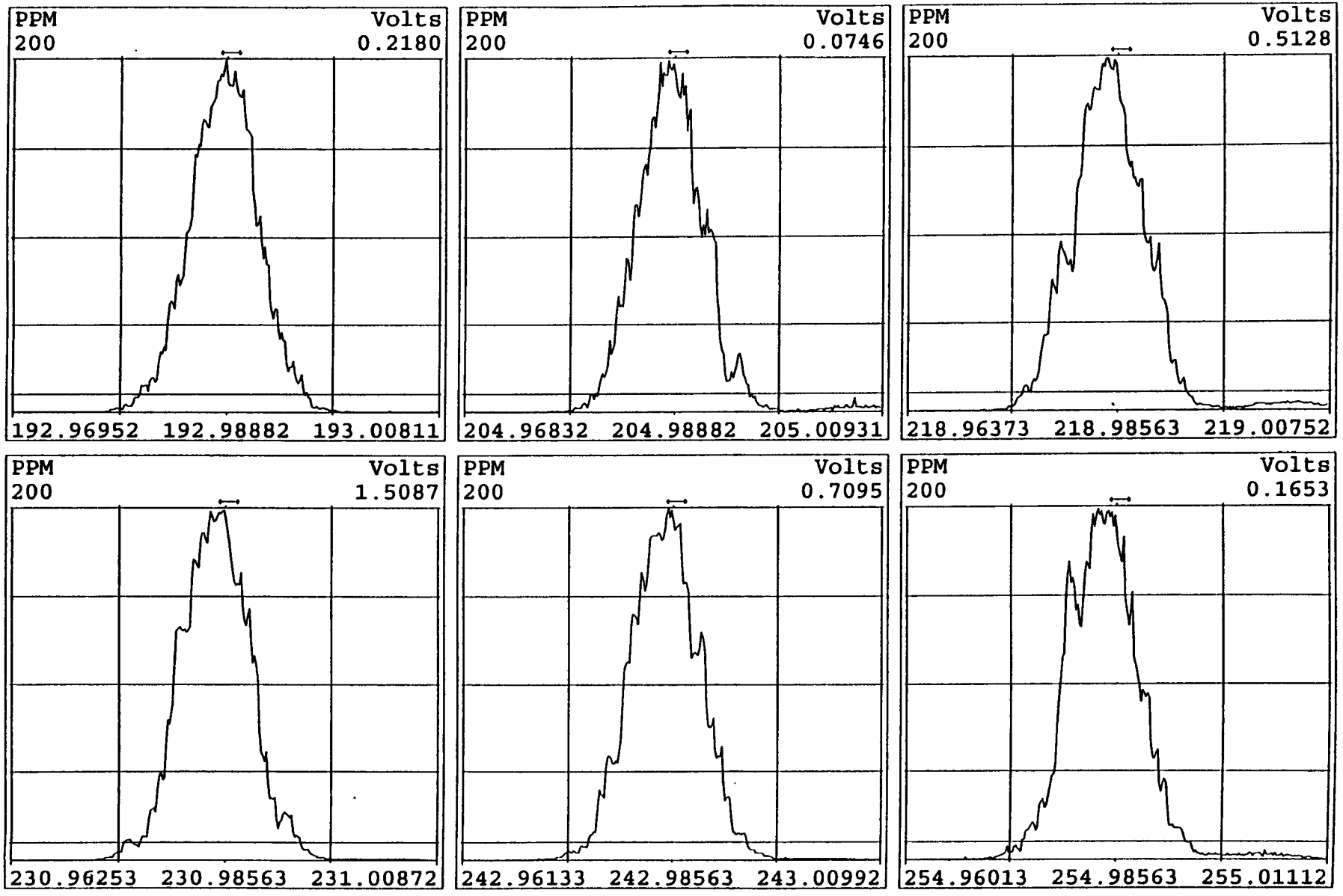




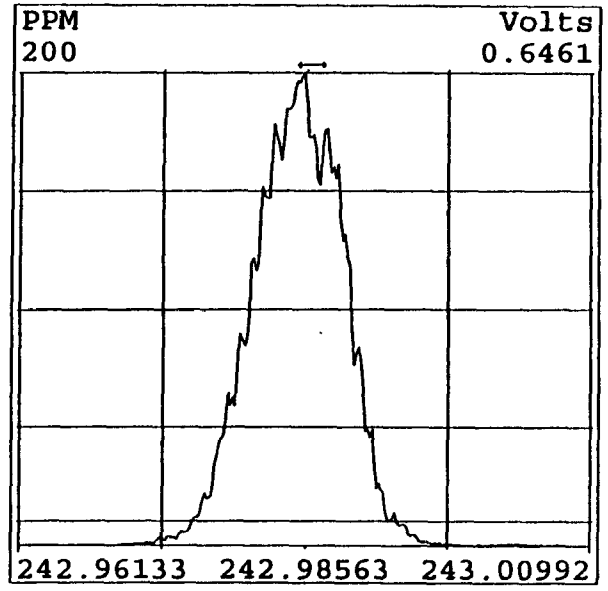


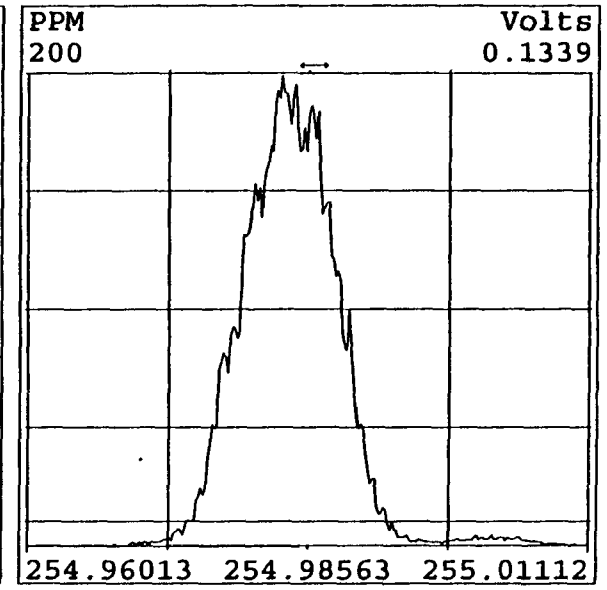


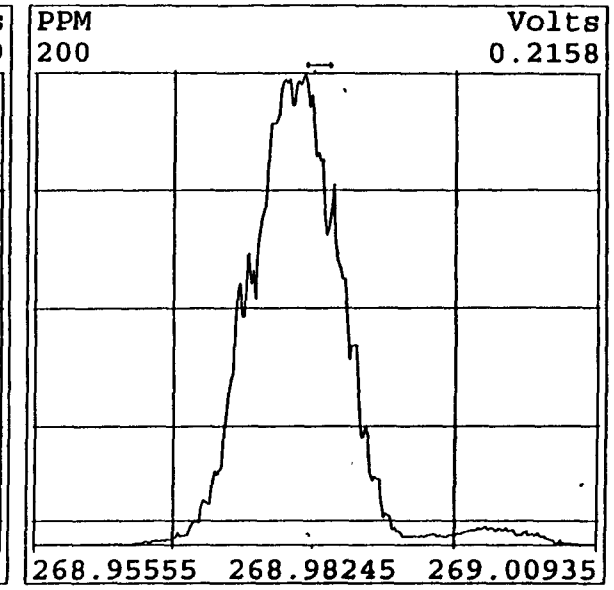
Peak Locate Examination:19-AUG-1998:15:47 File:19AU98U
Experiment:PAHAIR Function:3 Reference:PFK

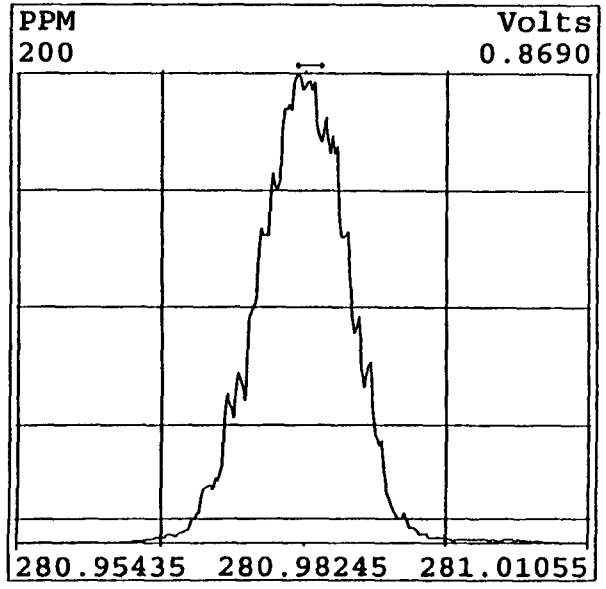


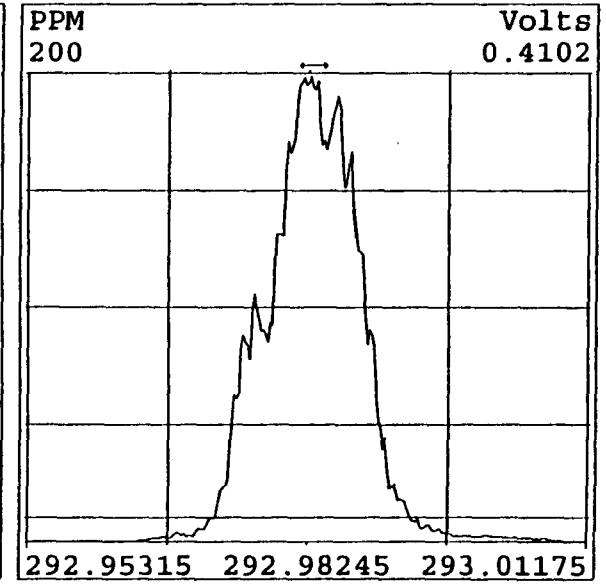
Peak Locate Examination:19-AUG-1998:15:50 File:19AU98U
Experiment:PAHAIR Function:4 Reference:PFK



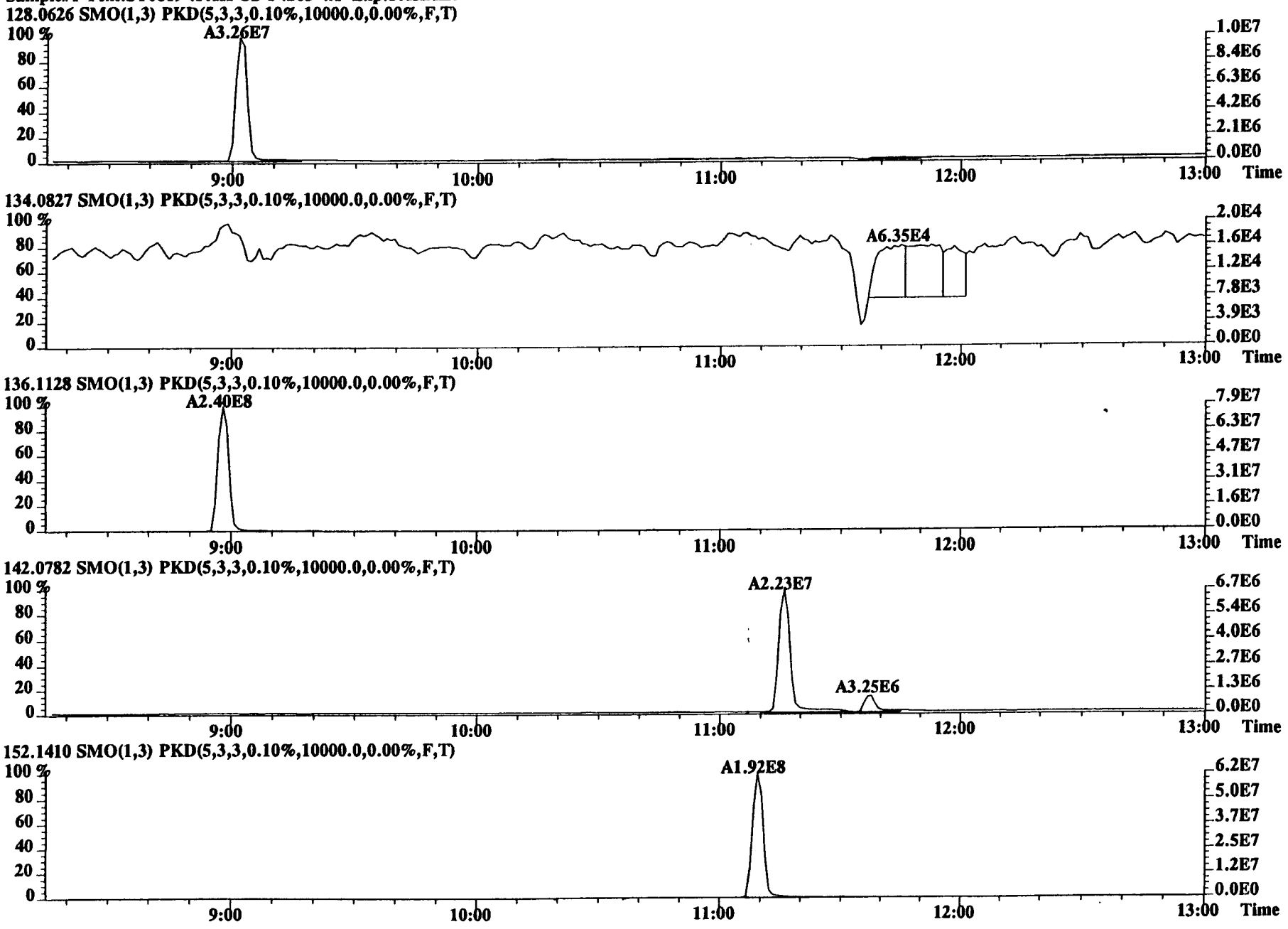




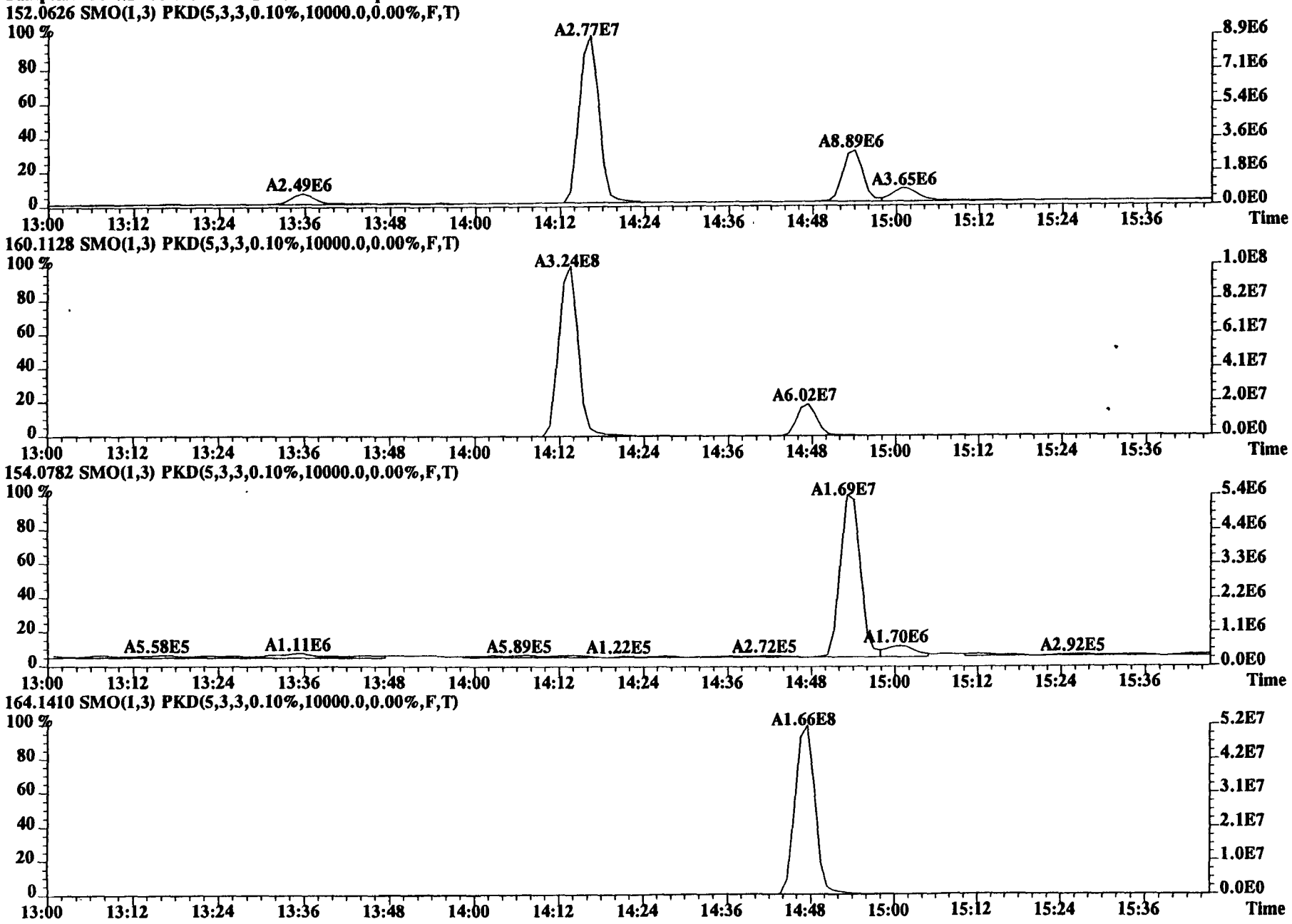




File:19AU98U #1-476 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR

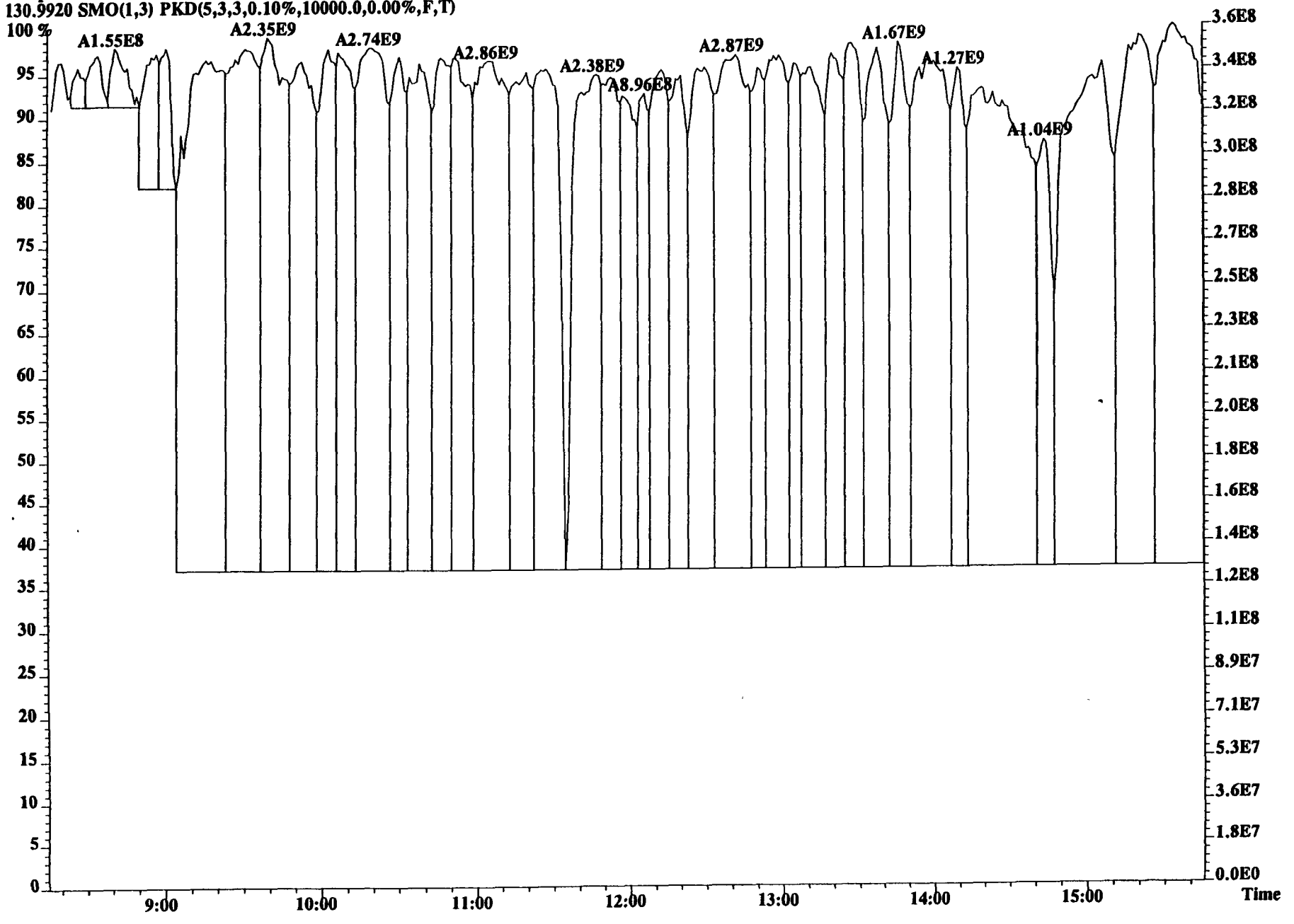


File:19AU98U #1-476 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR

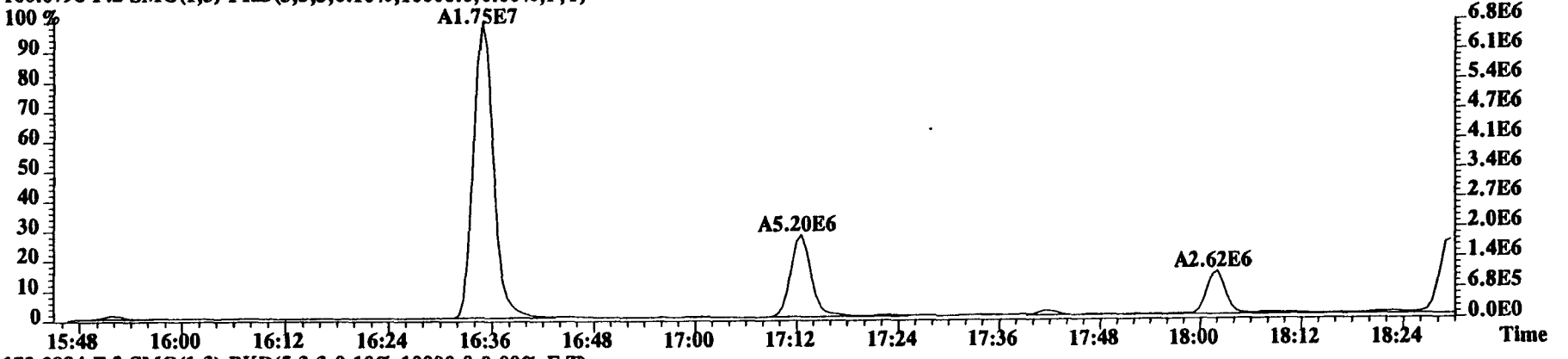


365

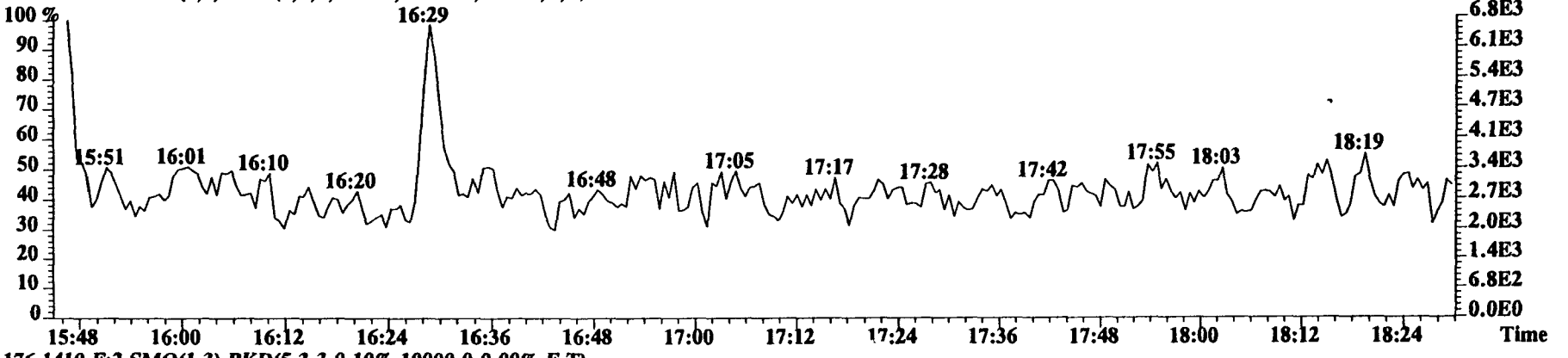
File:19AU98U #1-476 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
130.9920 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



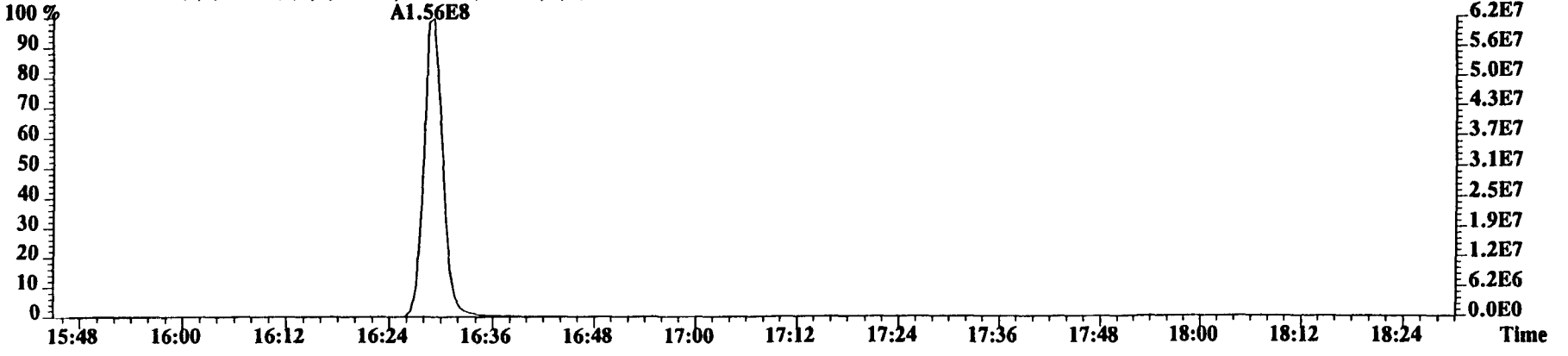
File:19AU98U #1-666 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
166.0798 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



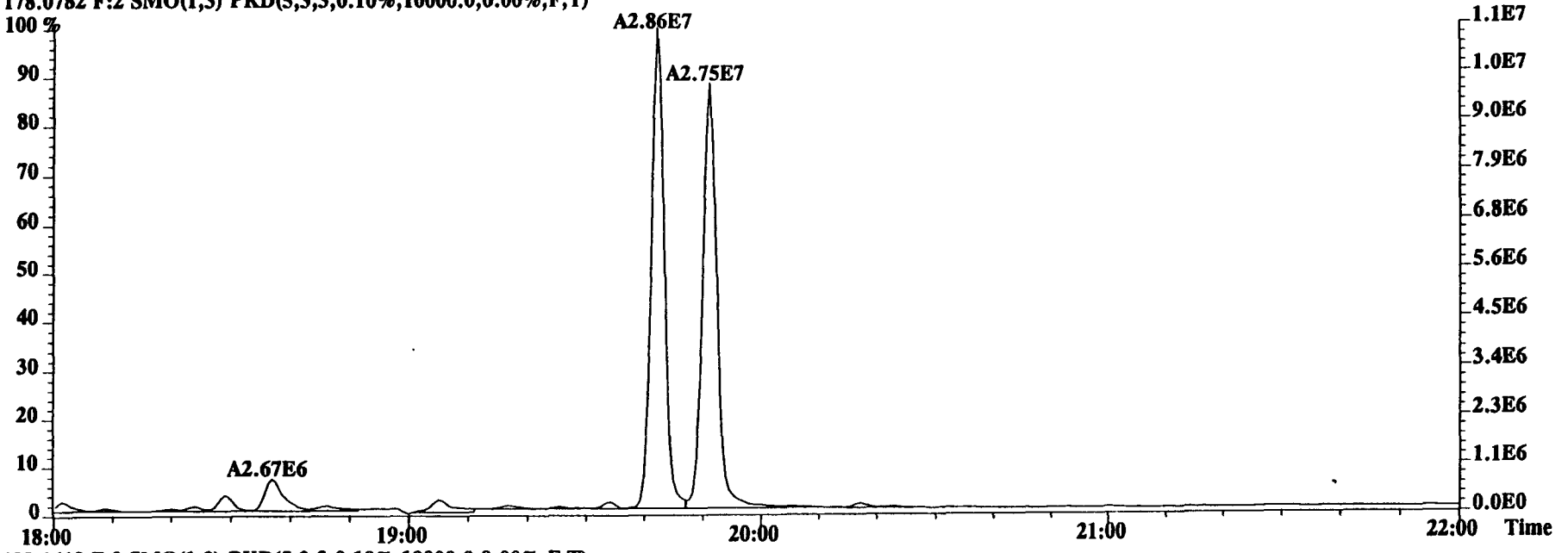
172.0984 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



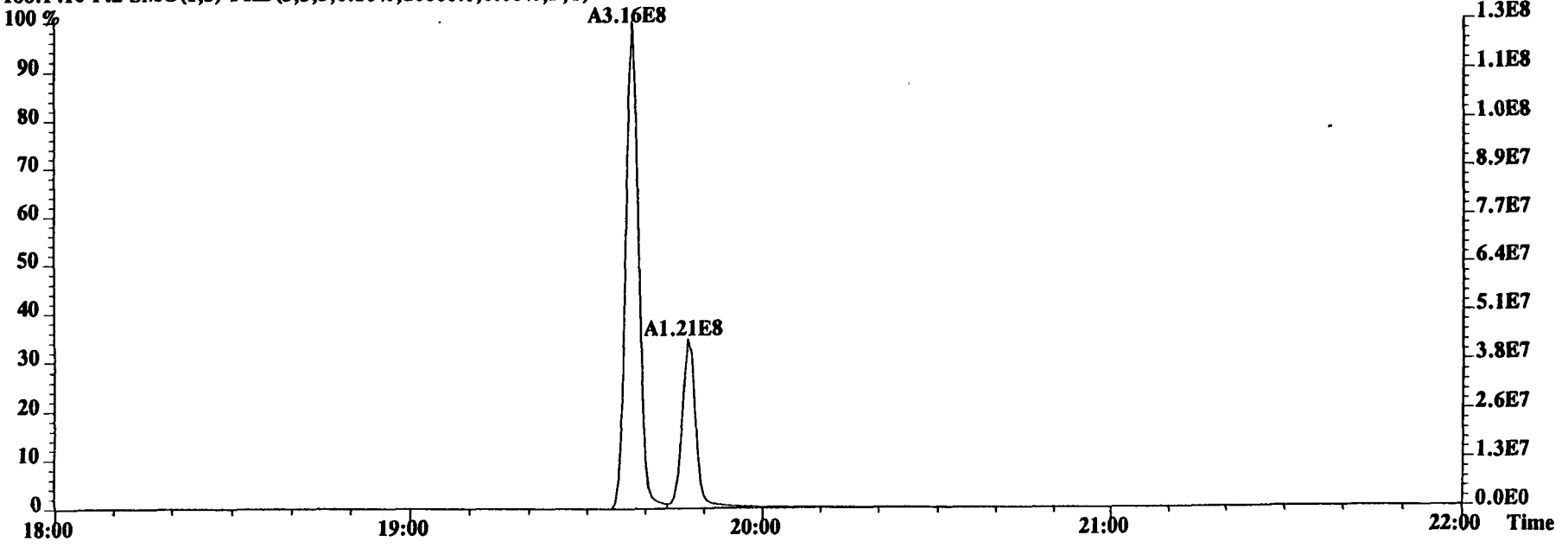
176.1410 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



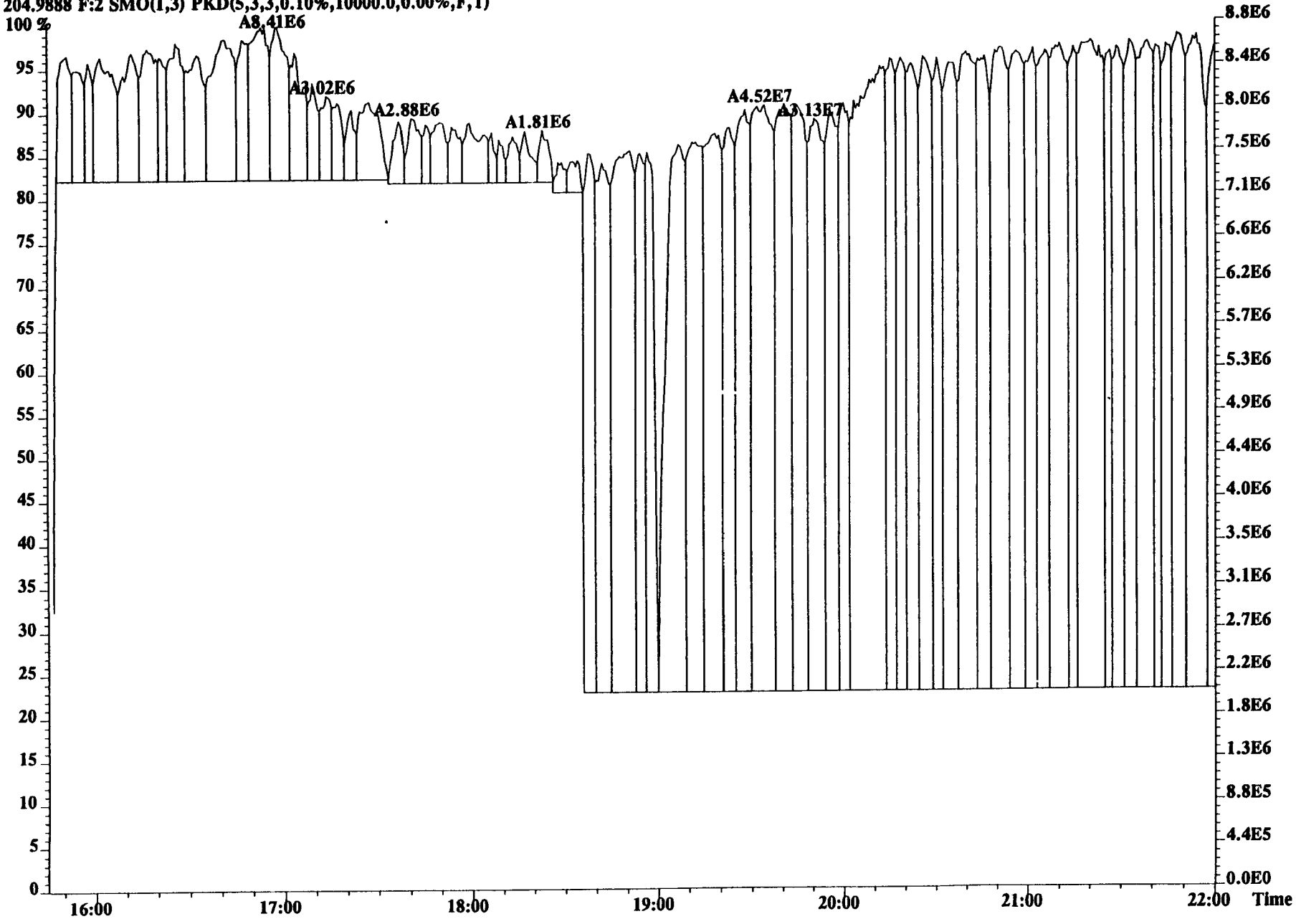
File:19AU98U #1-666 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
178.0782 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



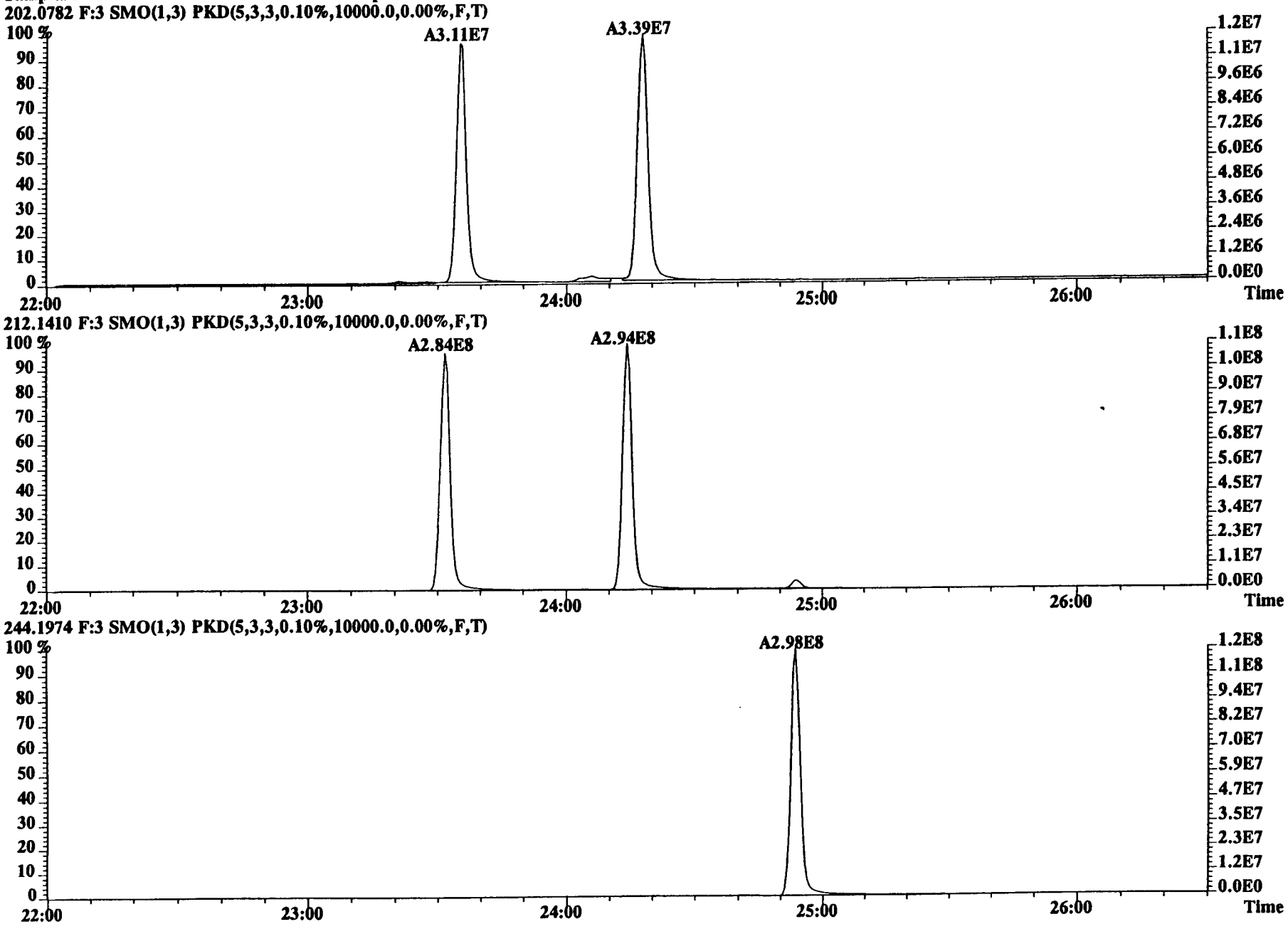
188.1410 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



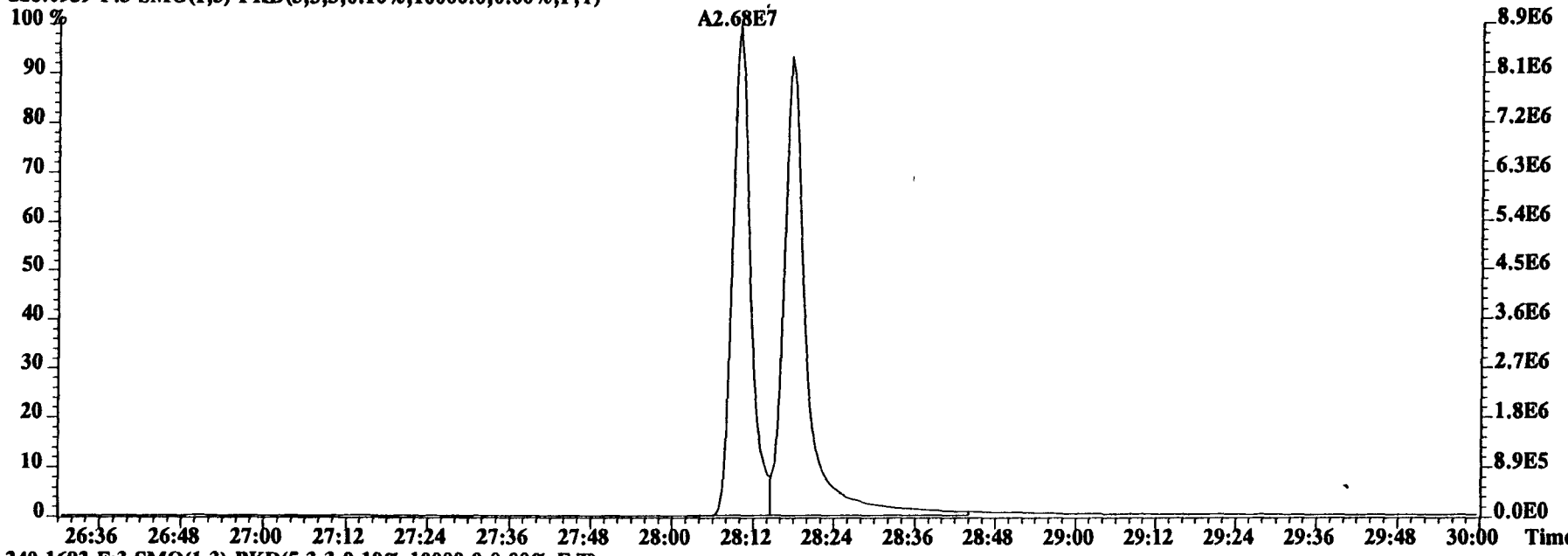
File:19AU98U #1-666 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
204.9888 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



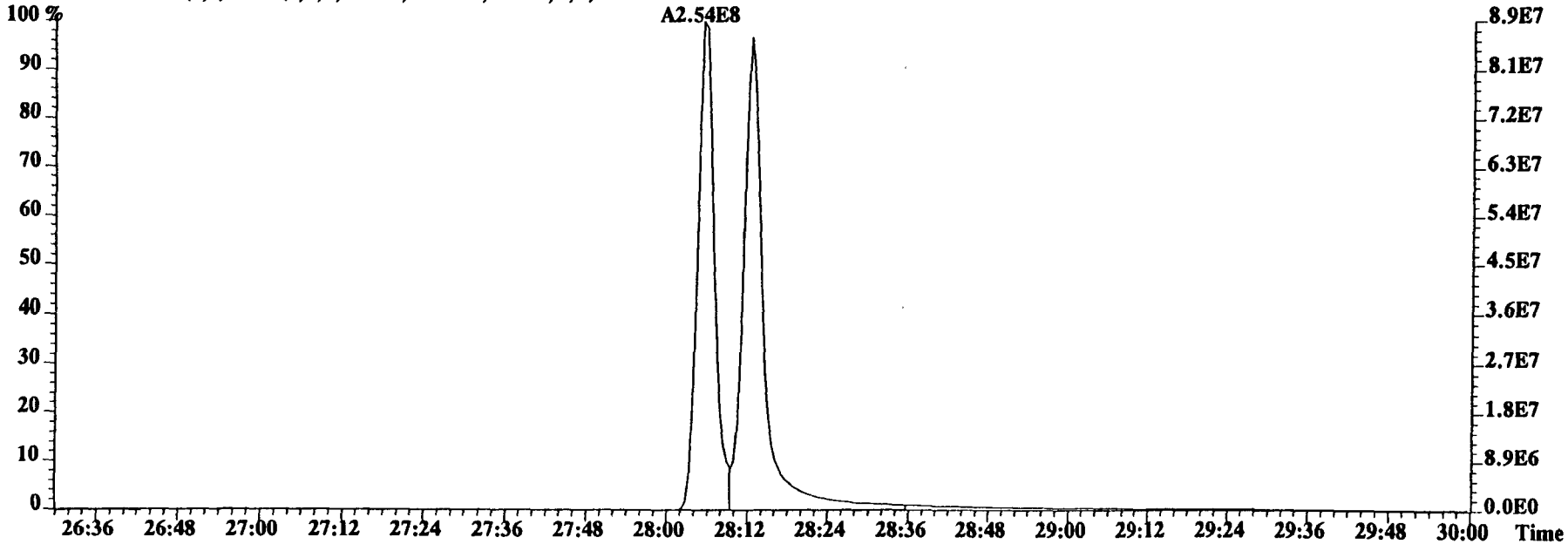
File:19AU98U #1-934 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR



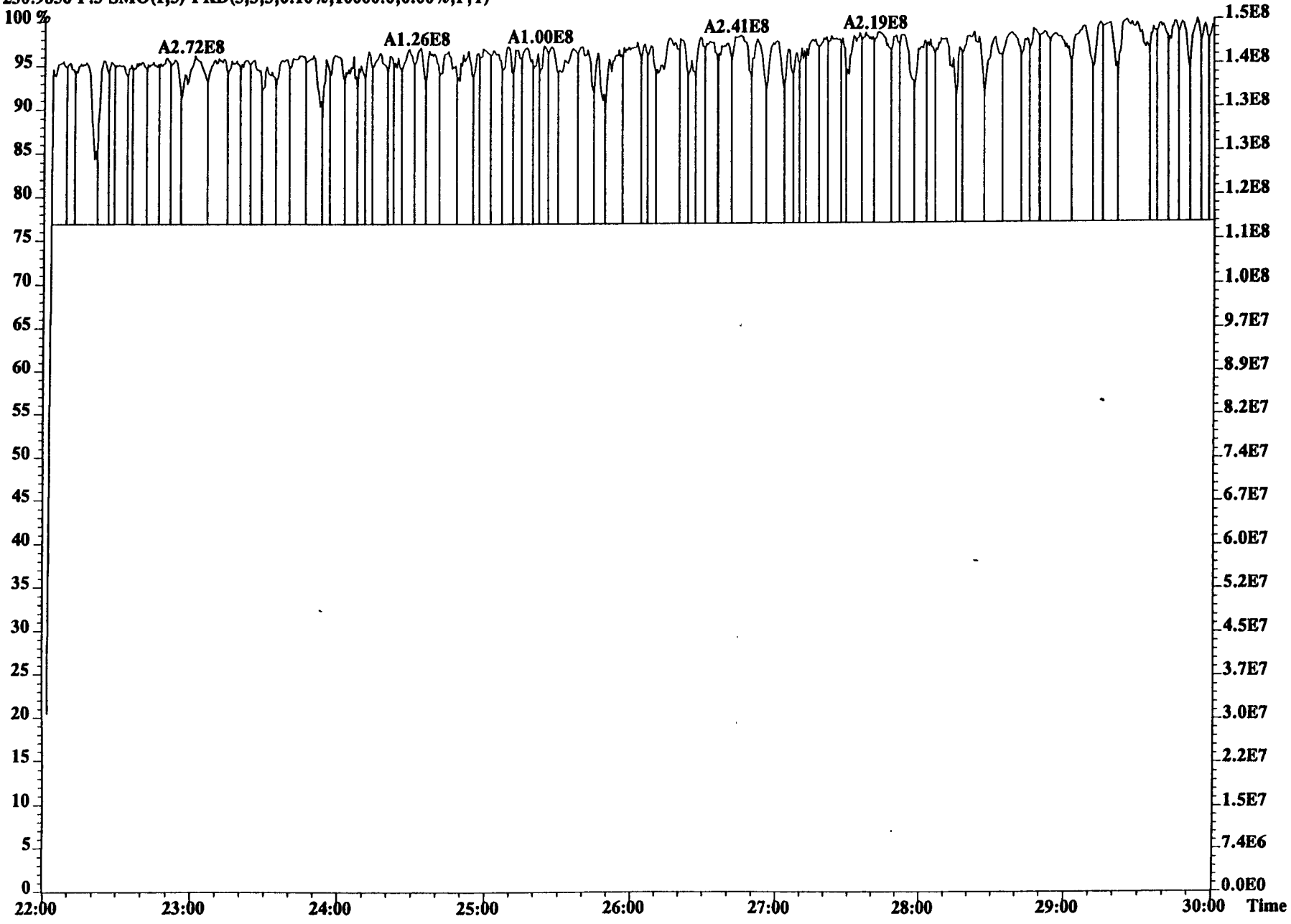
File:19AU98U #1-934 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
228.0939 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



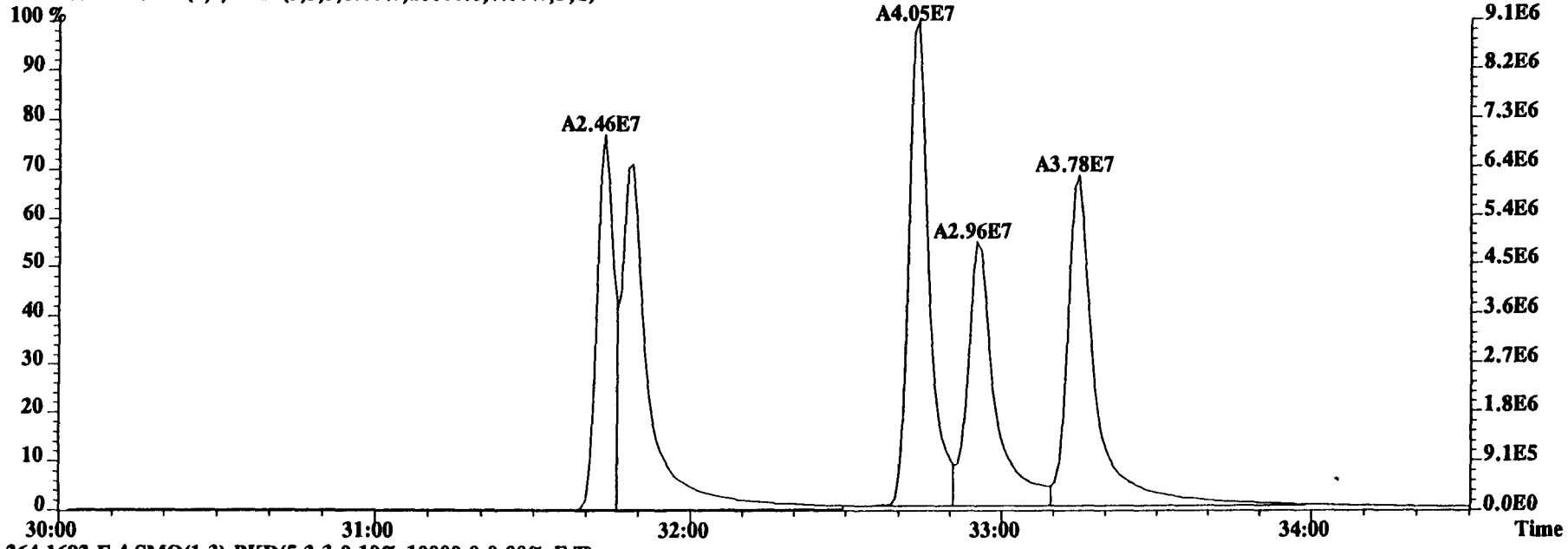
240.1692 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



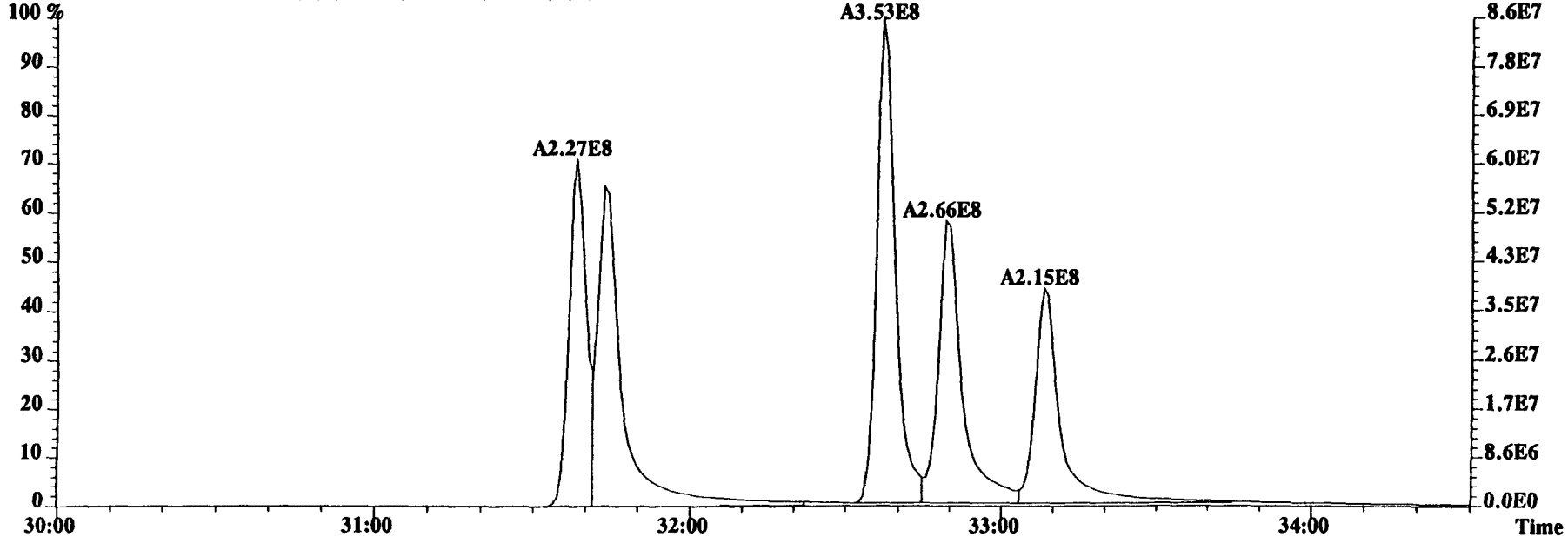
File:19AU98U #1-934 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
230.9856 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



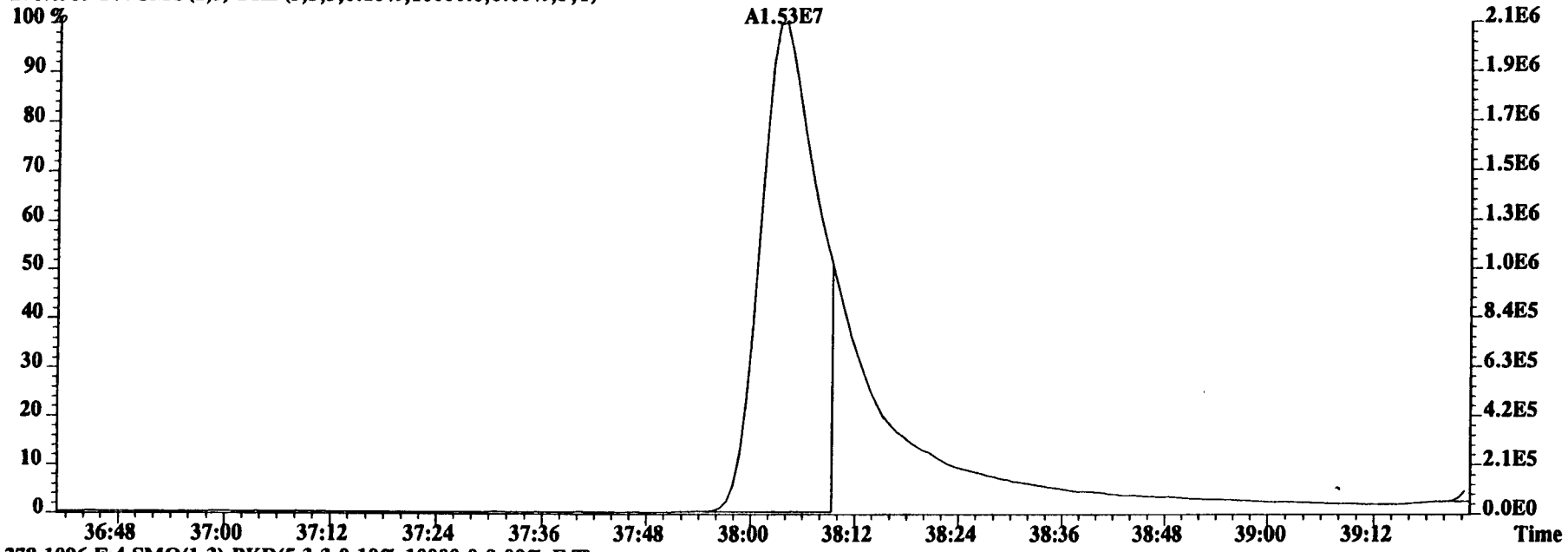
File:19AU98U #1-955 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
252.0939 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



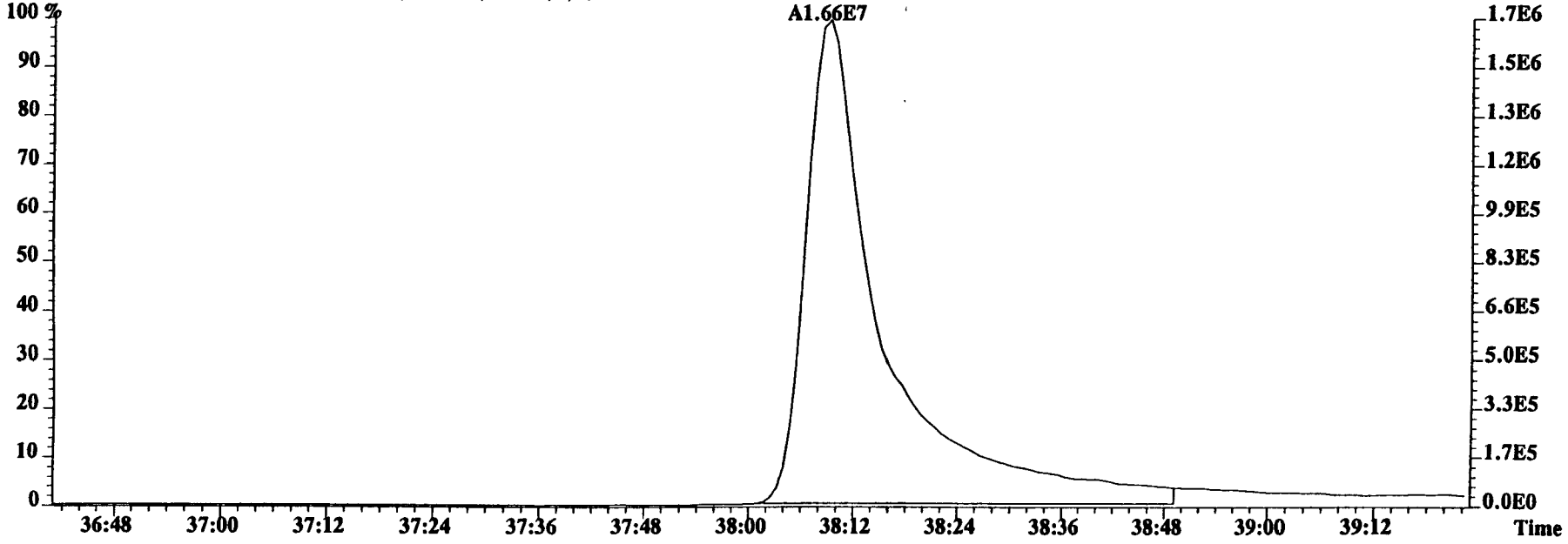
264.1692 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



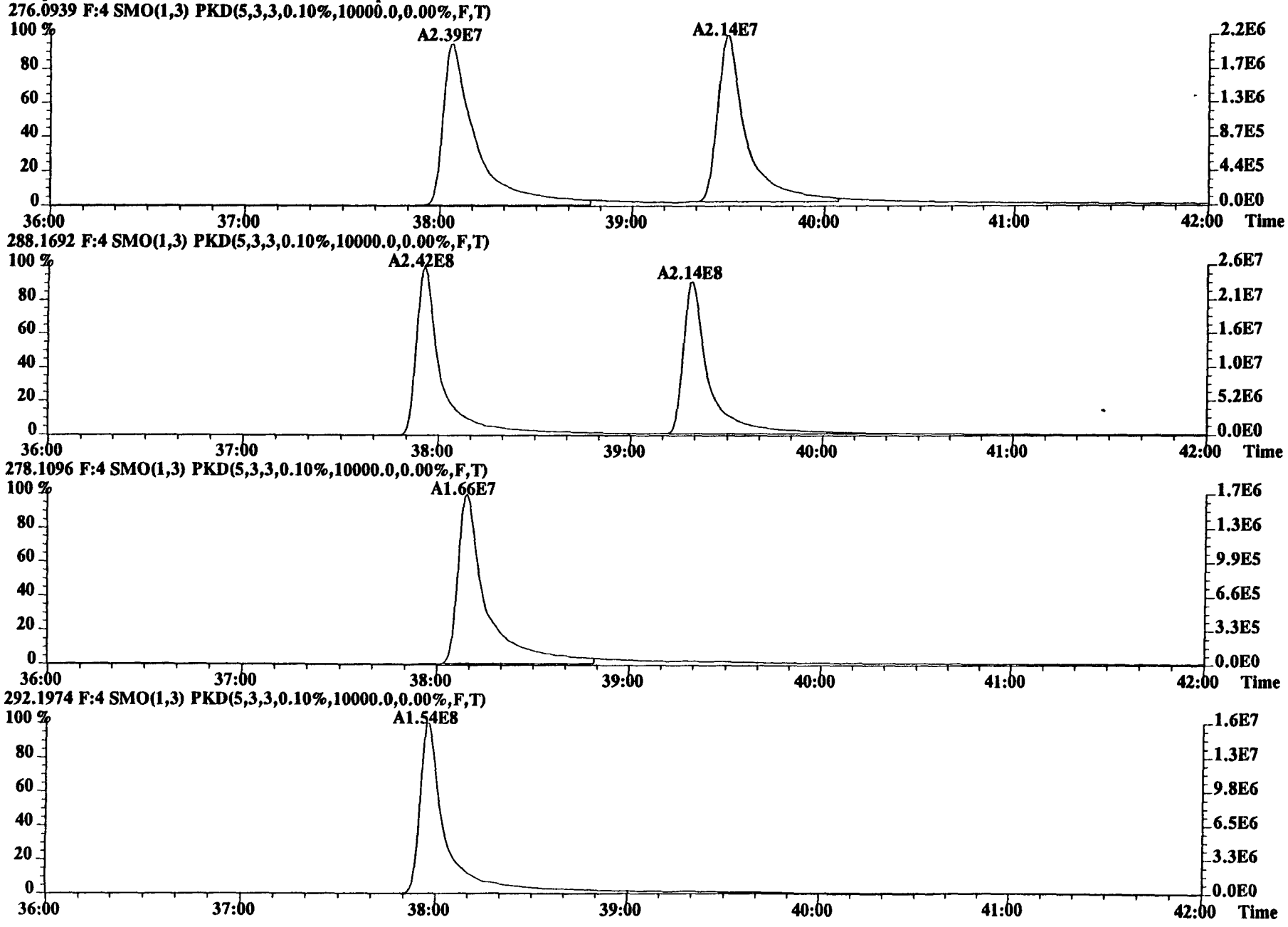
File:19AU98U #1-955 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
276.0939 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



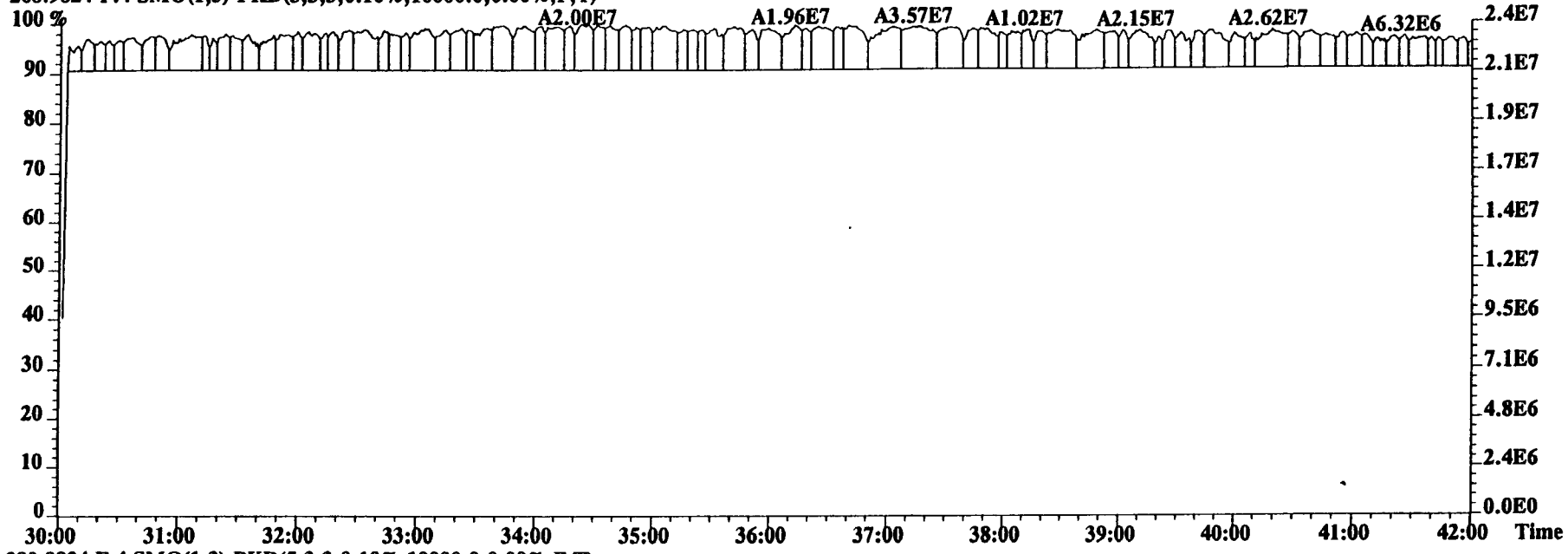
278.1096 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



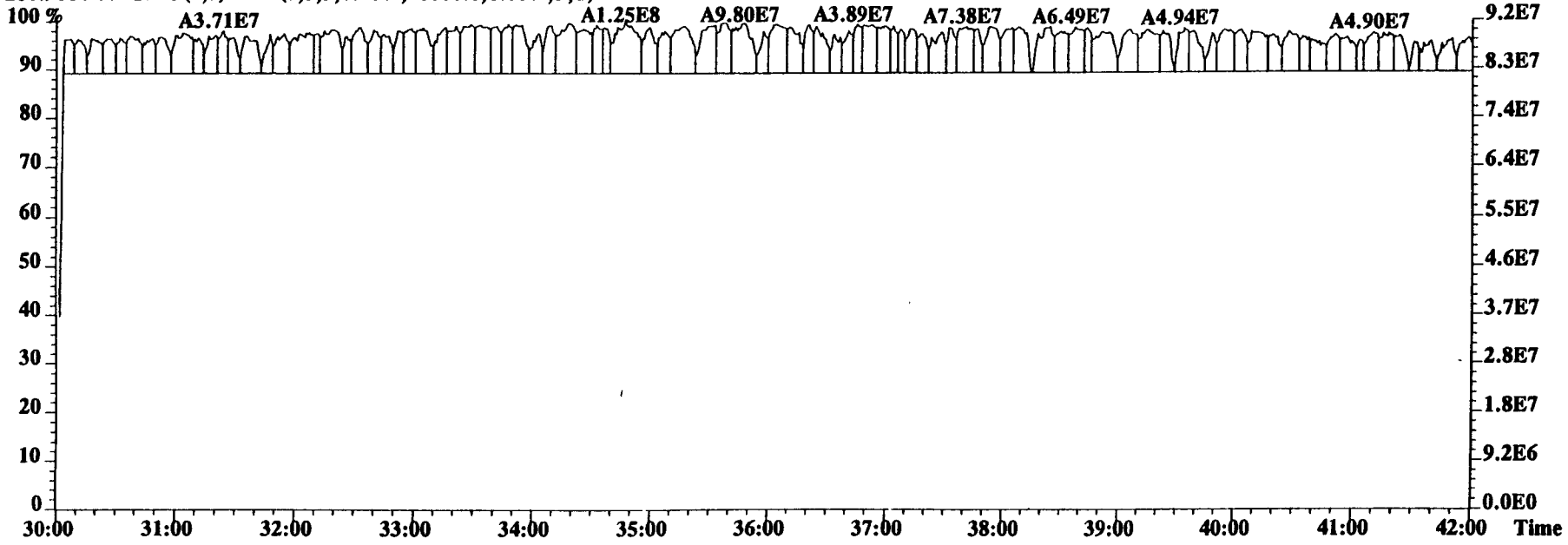
File:19AU98U #1-955 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR



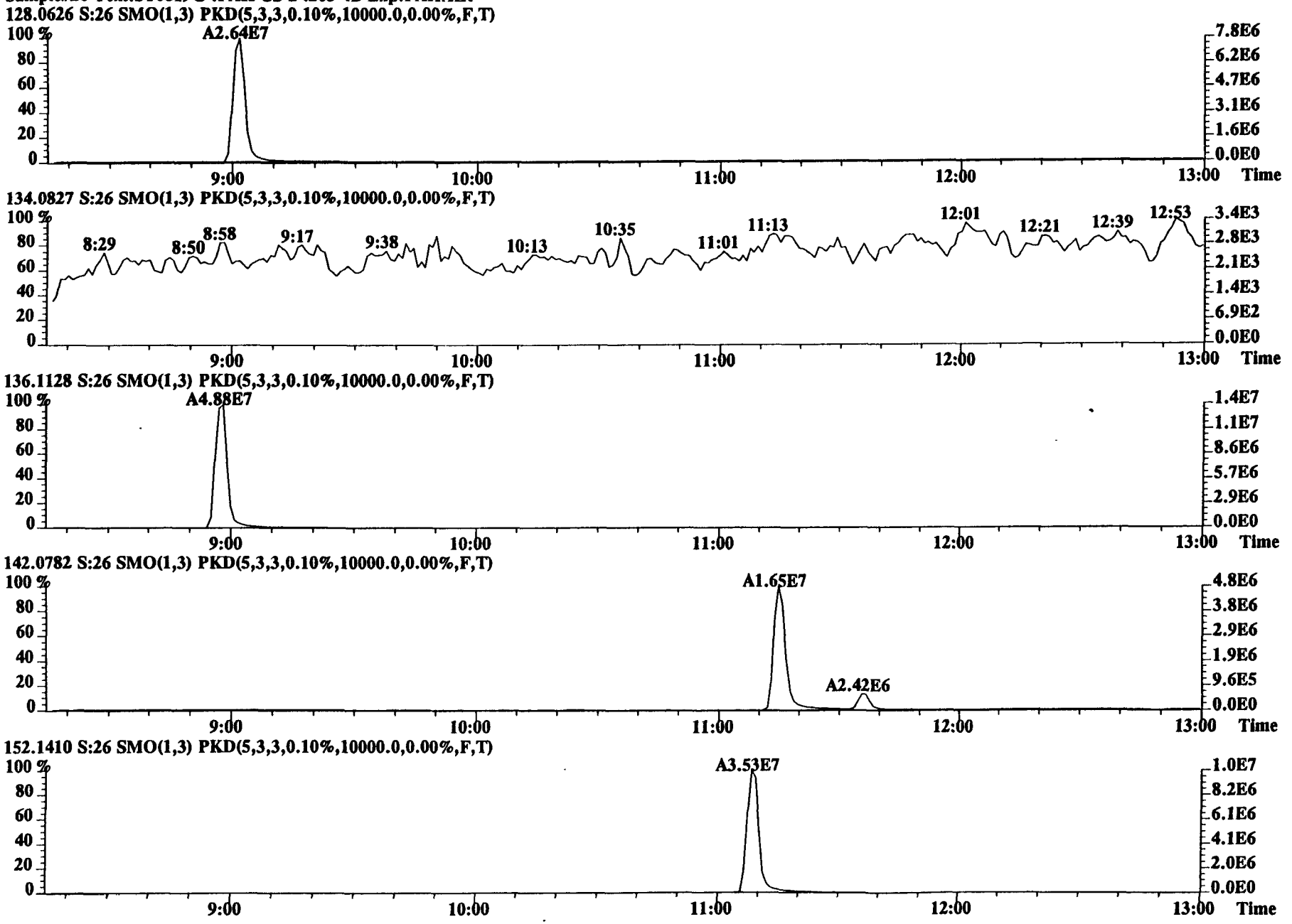
File:19AU98U #1-955 Acq:19-AUG-1998 15:50:38 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0819 :PAH CS-1 :265-4A Exp:PAHAIR
268.9824 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



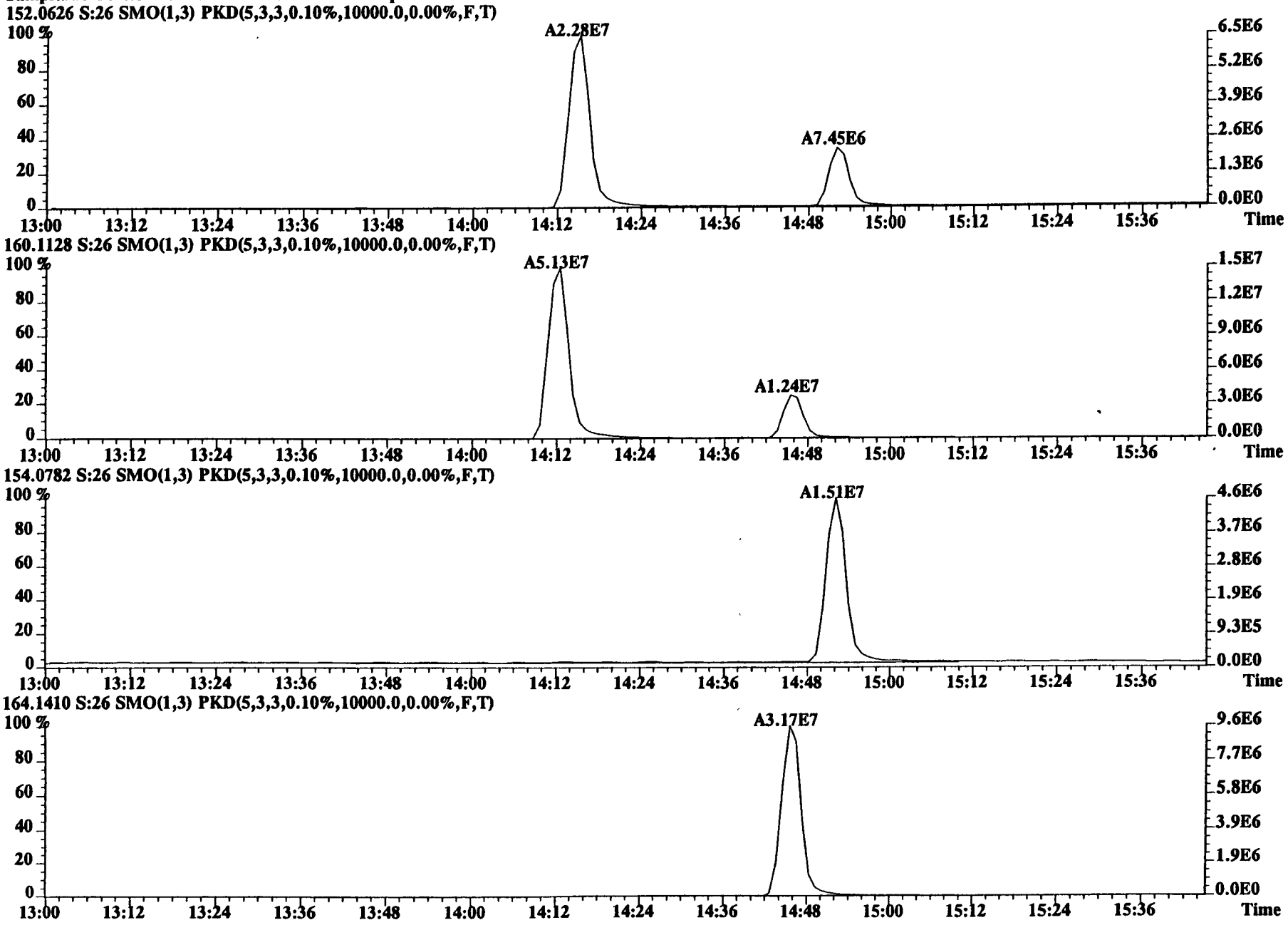
280.9824 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



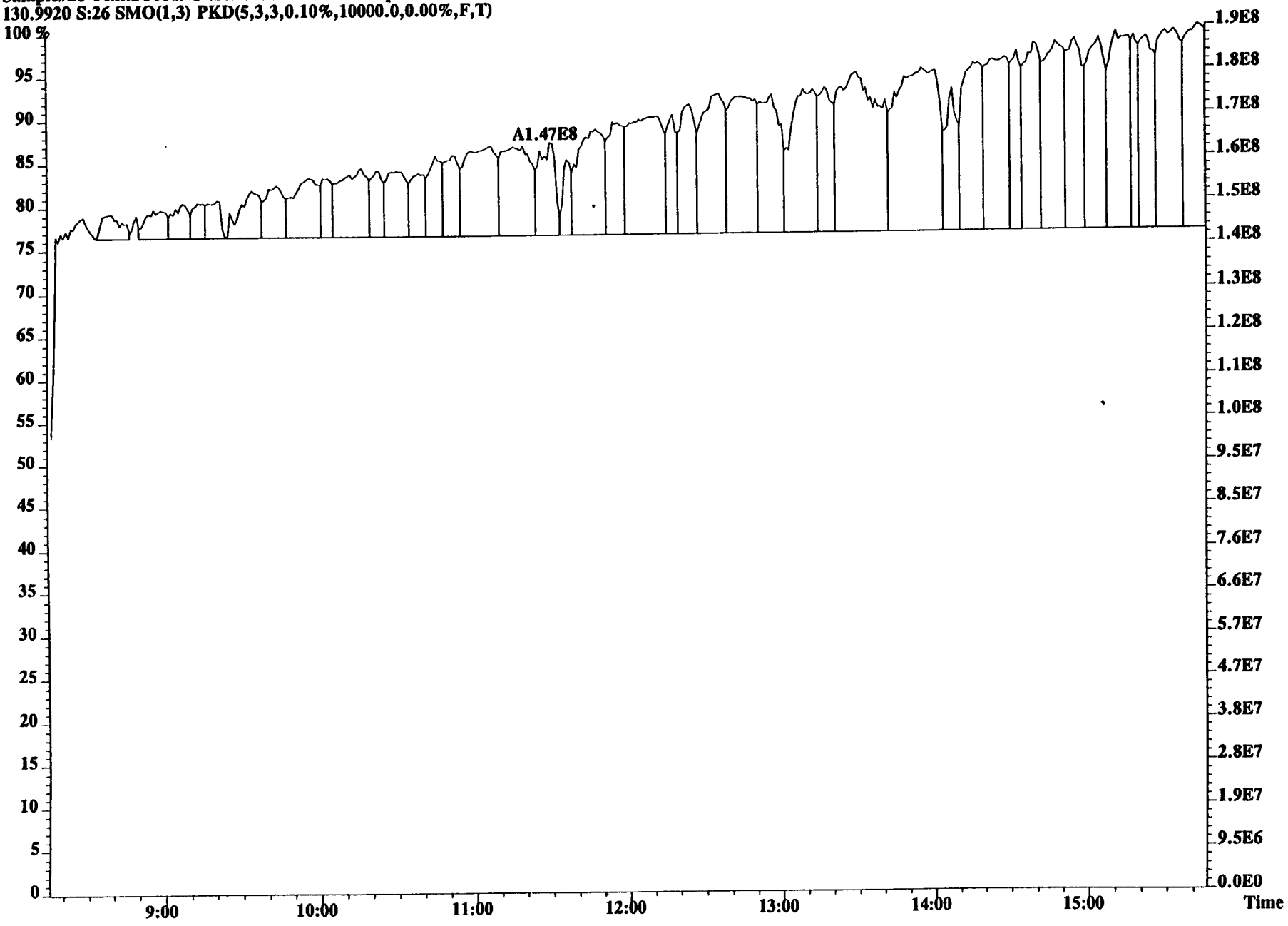
File:19AU98U #1-477 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR



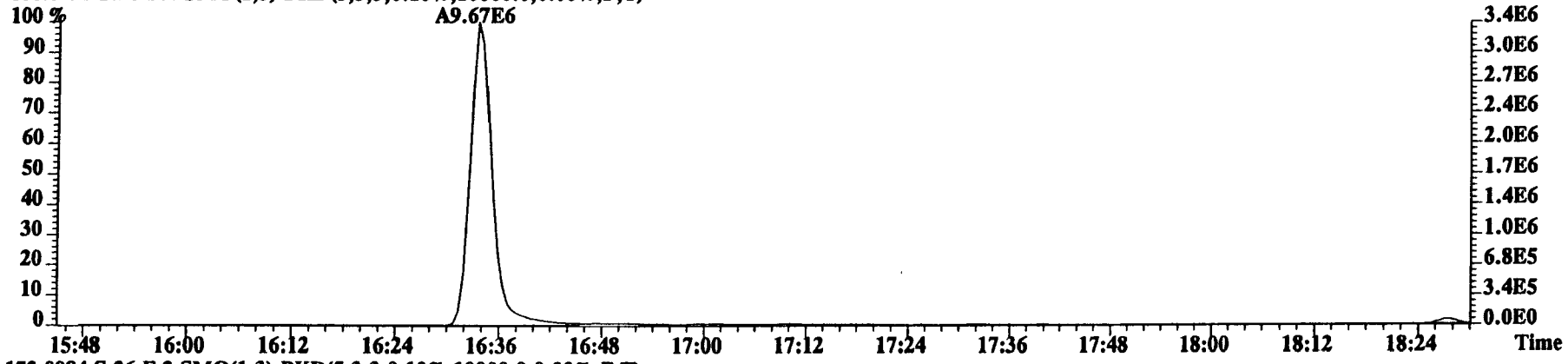
File:19AU98U #1-477 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR



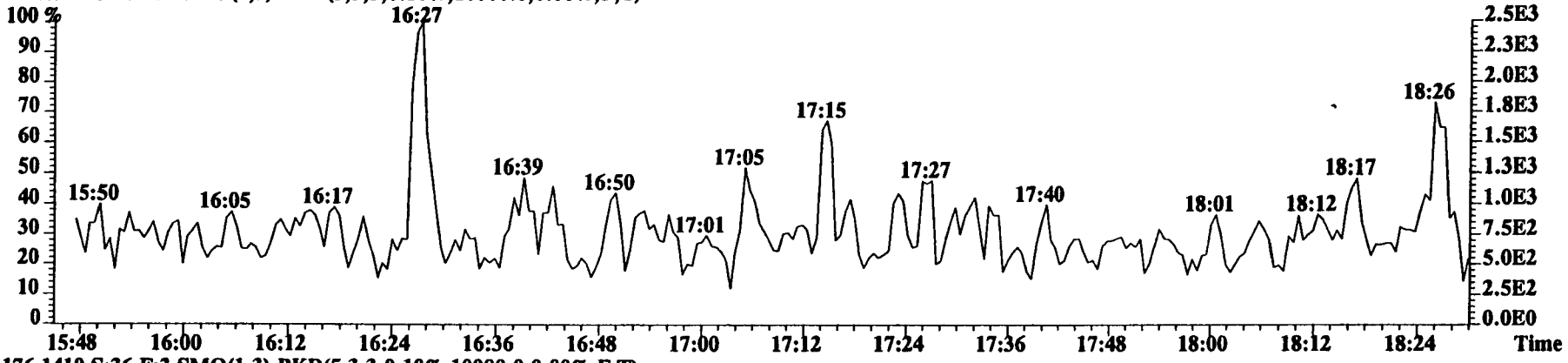
File:19AU98U #1-477 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
130.9920 S:26 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



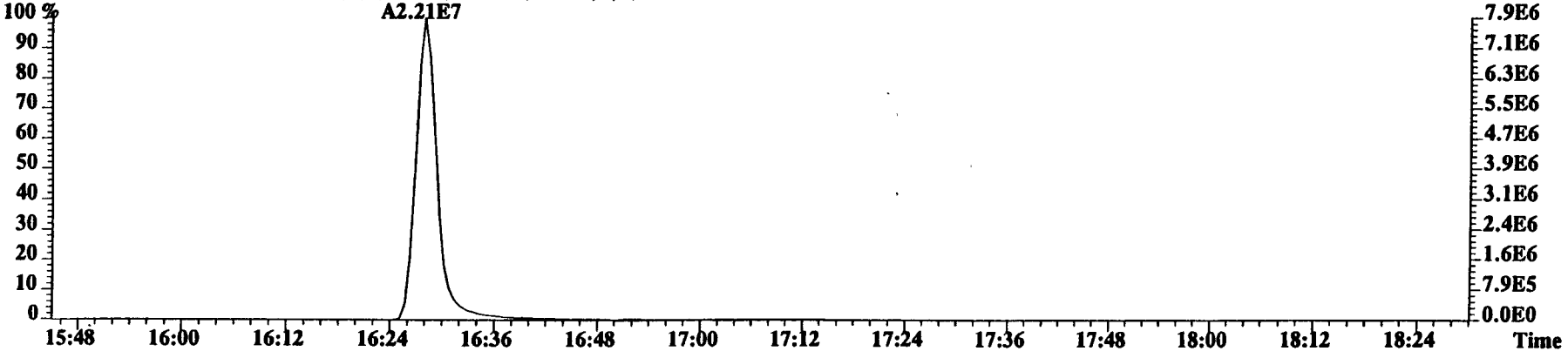
File:19AU98U #1-664 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
166.0798 S:26 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



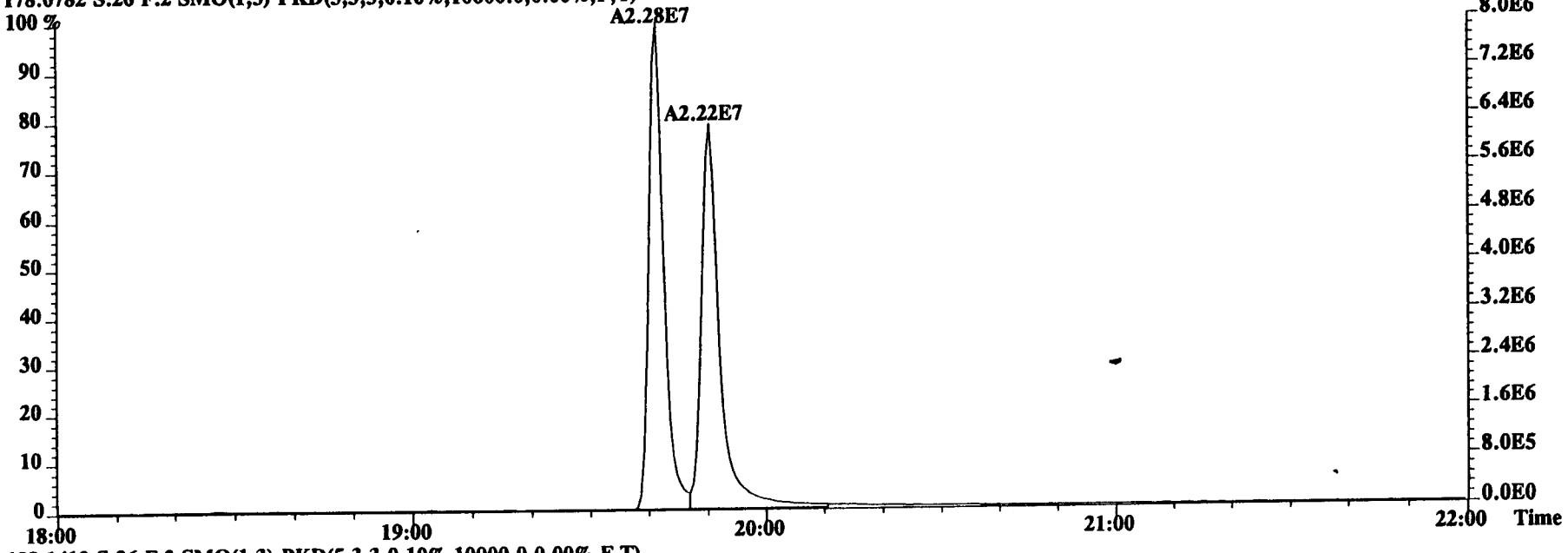
172.0984 S:26 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



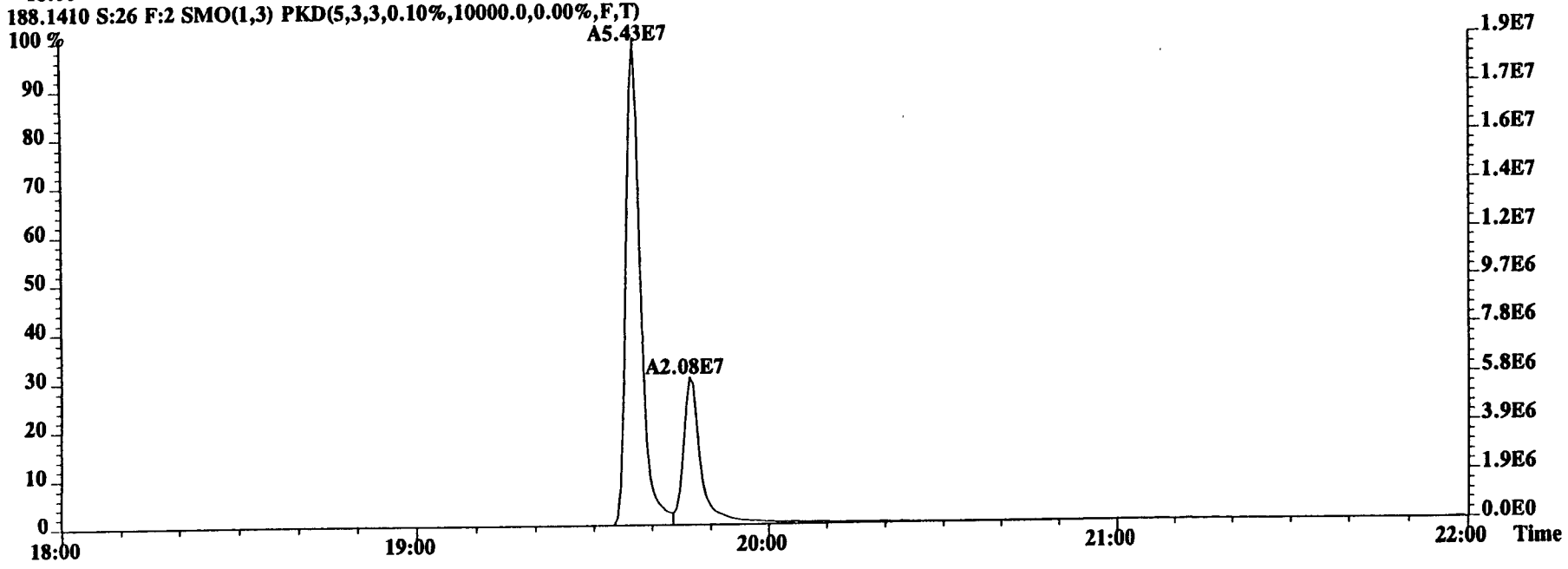
176.1410 S:26 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



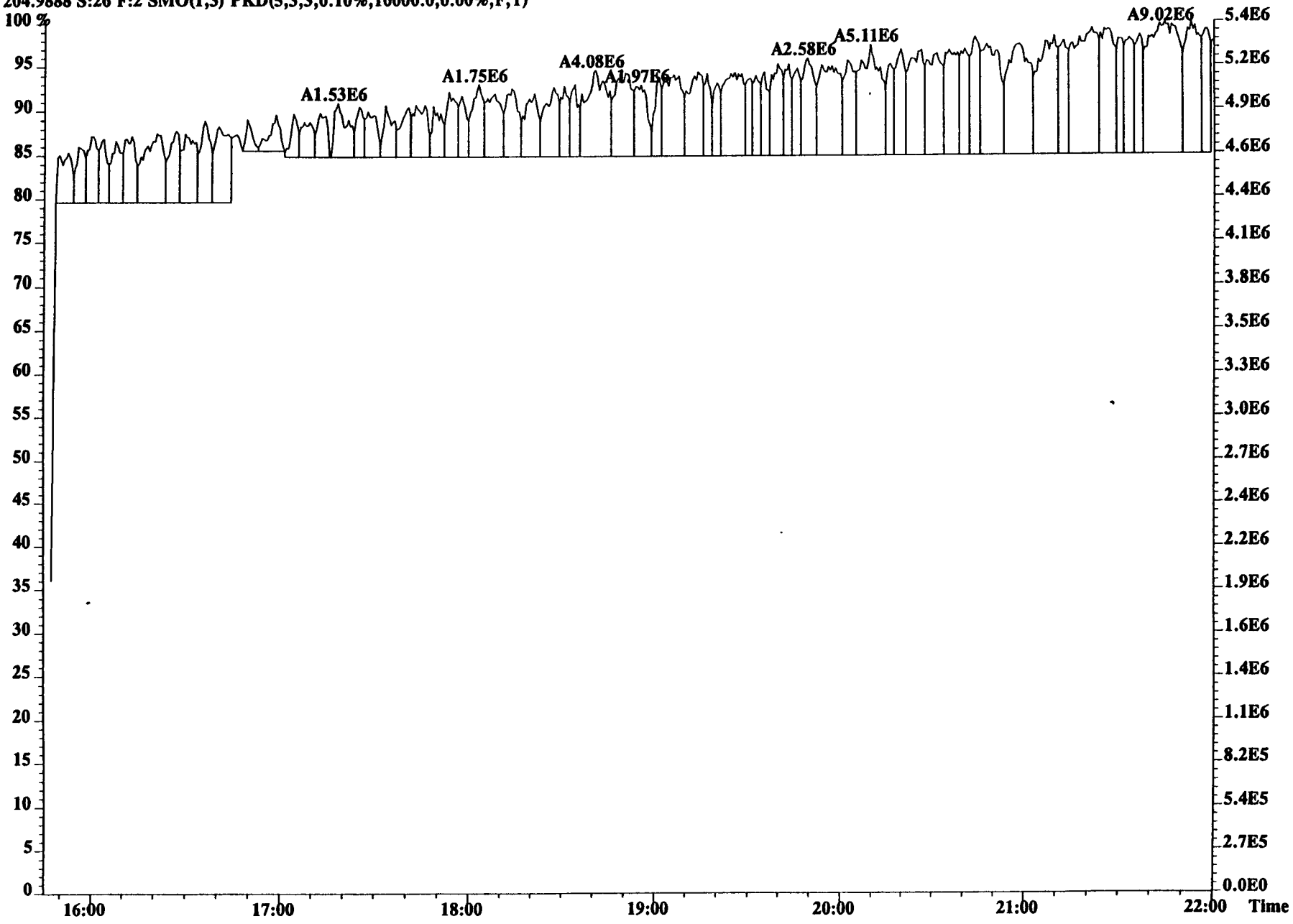
File:19AU98U #1-664 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
178.0782 S:26 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



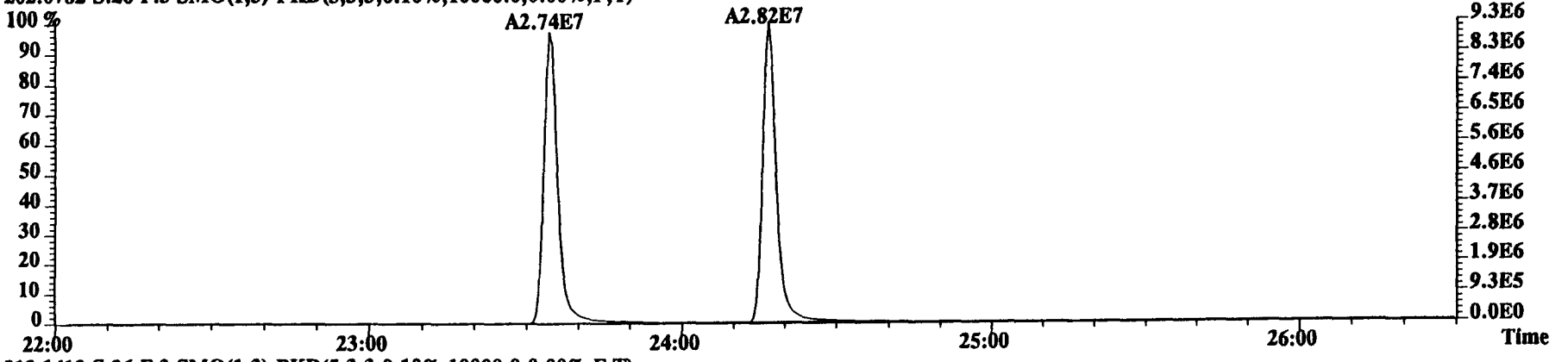
188.1410 S:26 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



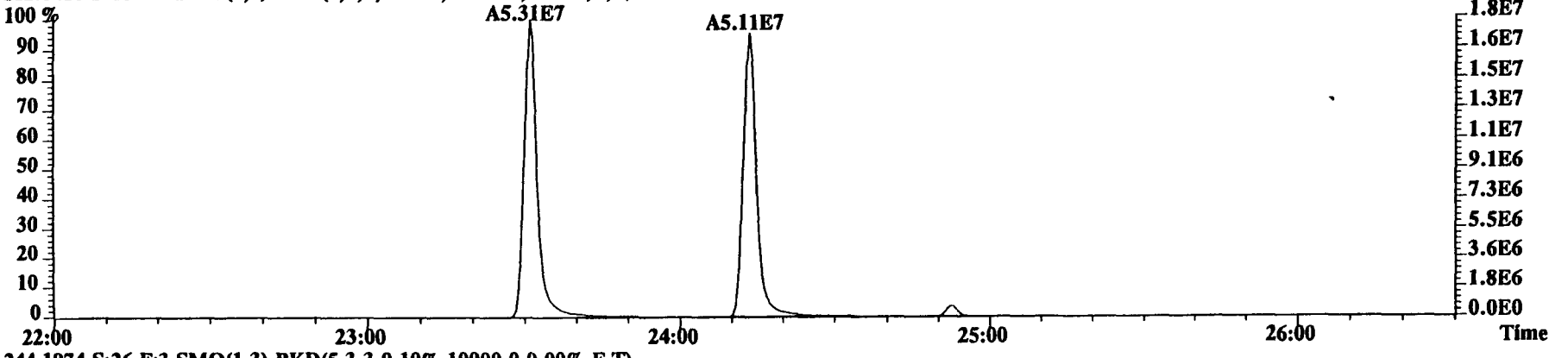
File:19AU98U #1-664 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
204.9888 S:26 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



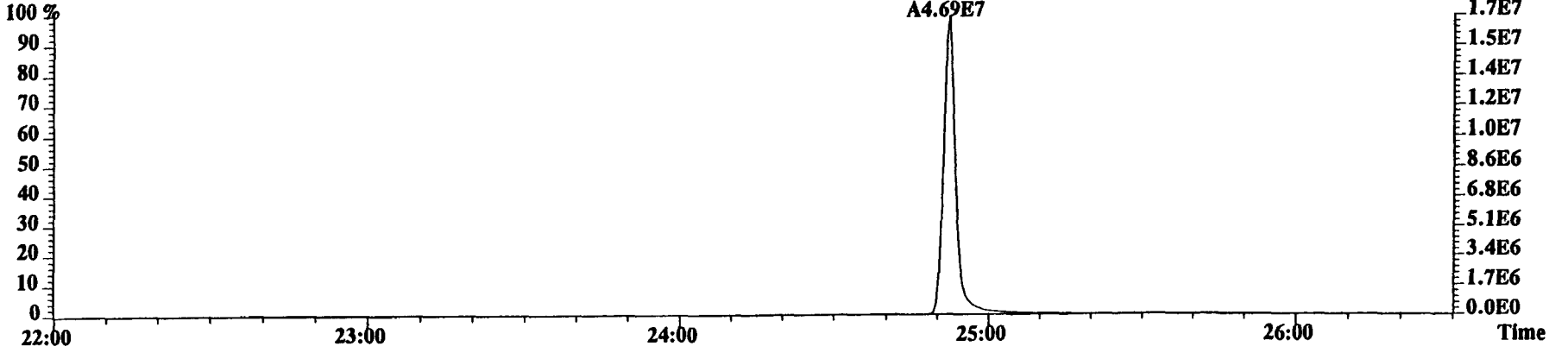
File:19AU98U #1-935 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
202.0782 S:26 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



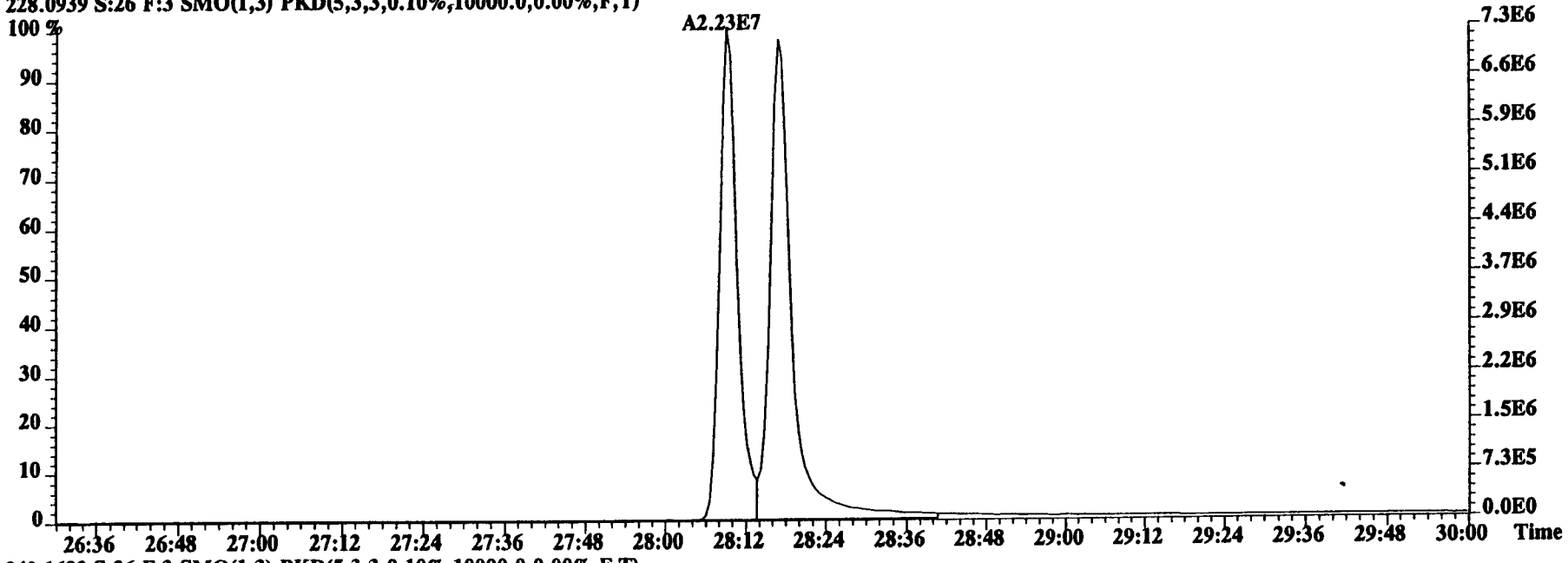
212.1410 S:26 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



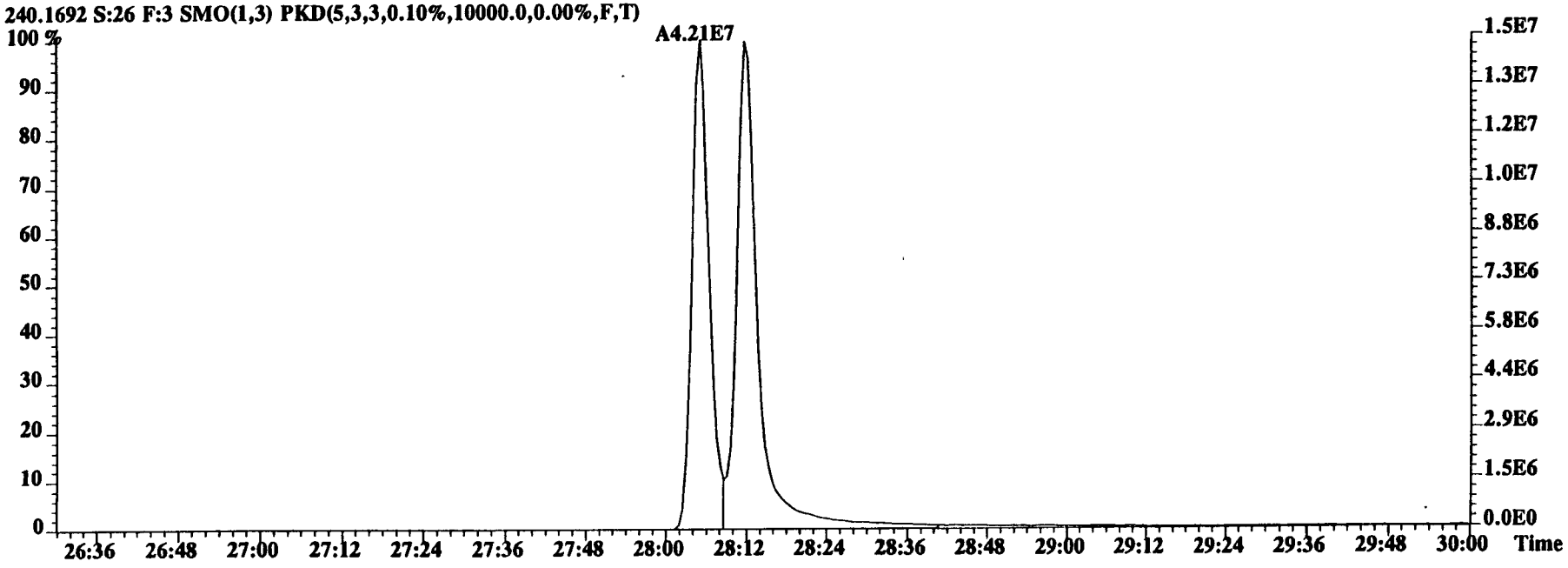
244.1974 S:26 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



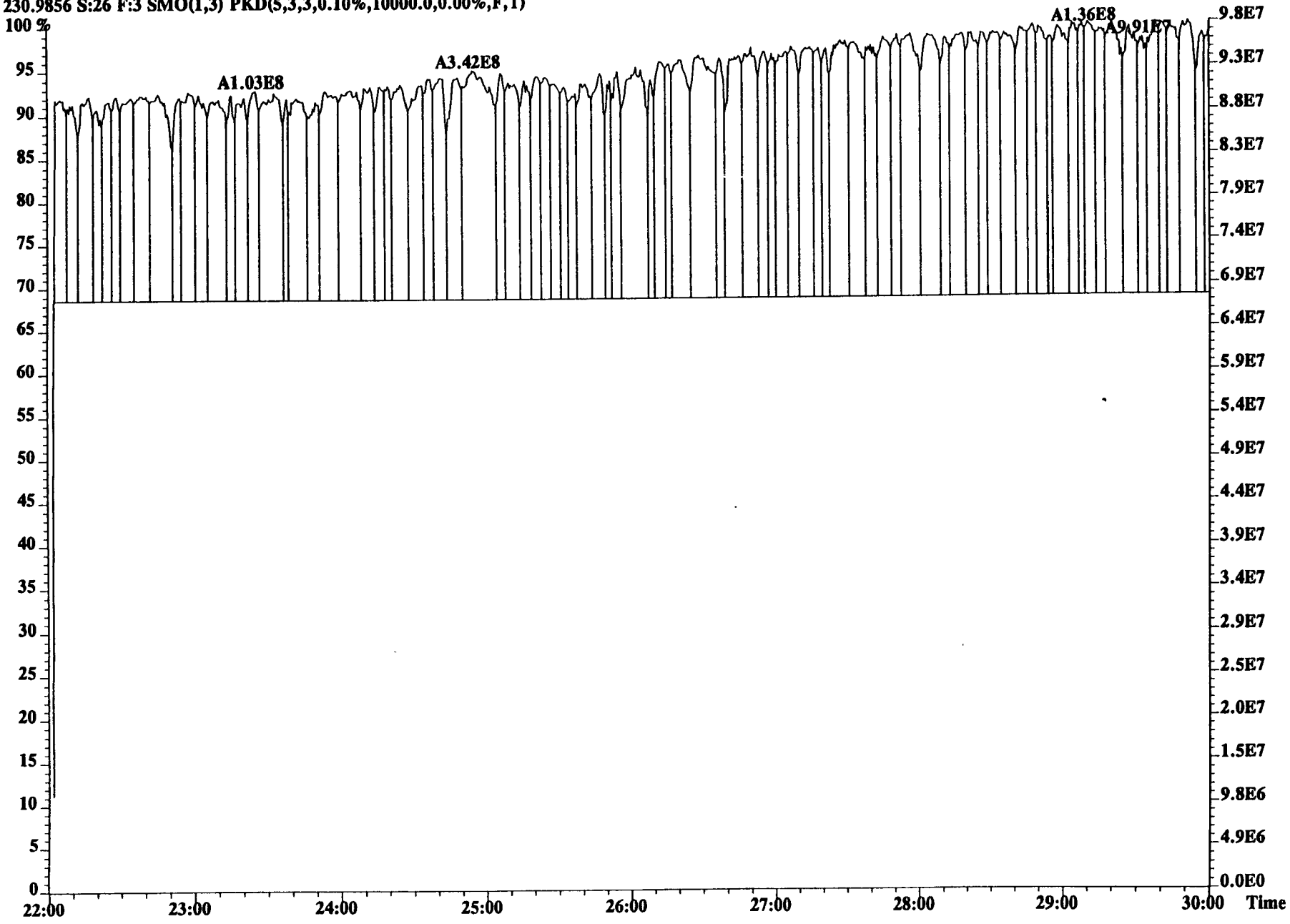
File:19AU98U #1-935 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
228.0939 S:26 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



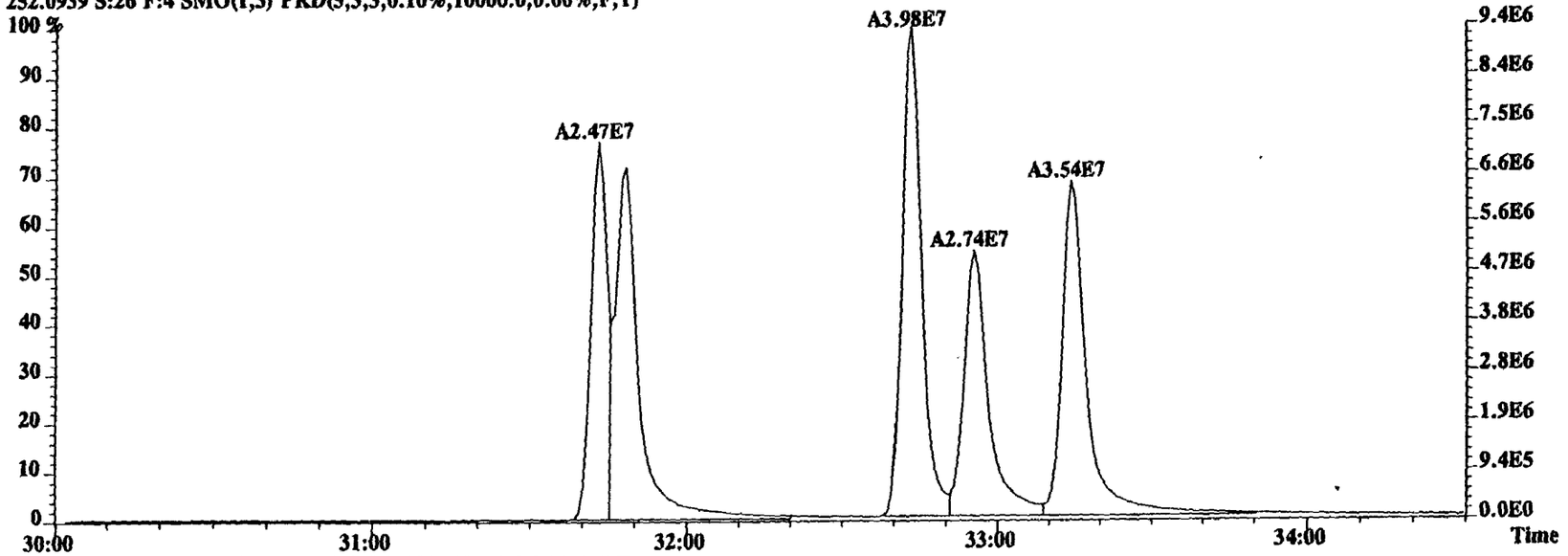
240.1692 S:26 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



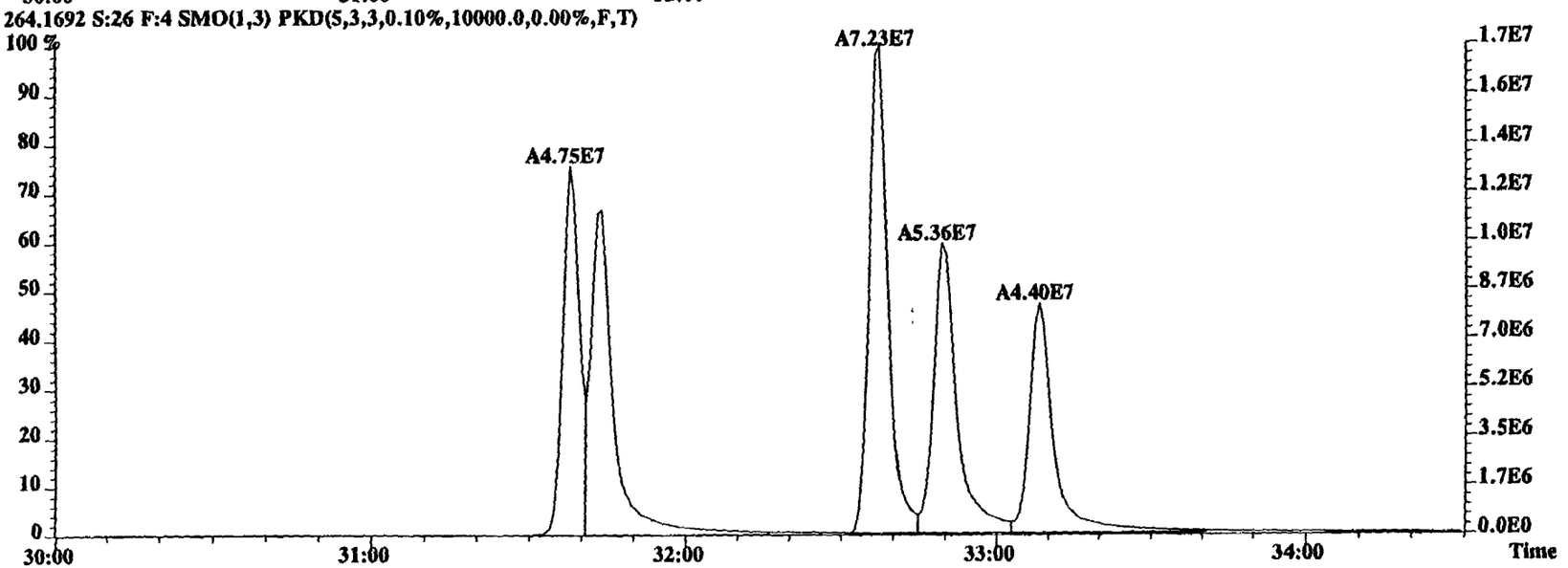
File:19AU98U #1-935 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
230.9856 S:26 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



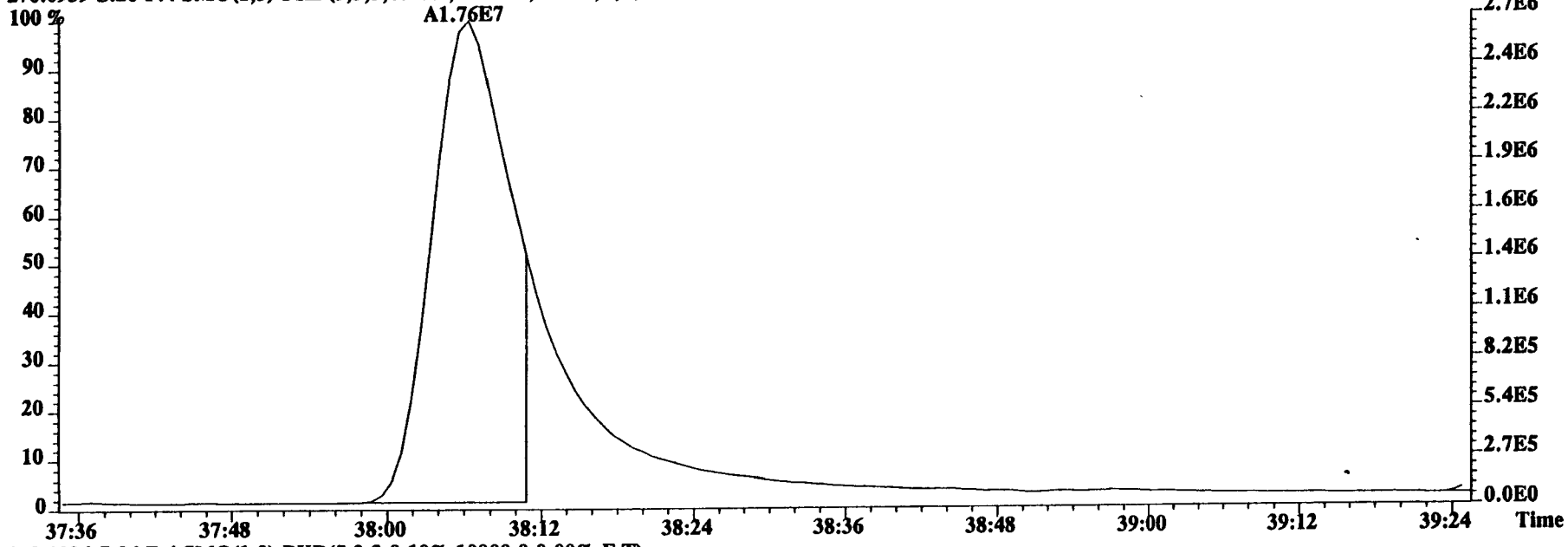
File:19AU98U #1-955 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
252.0939 S:26 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



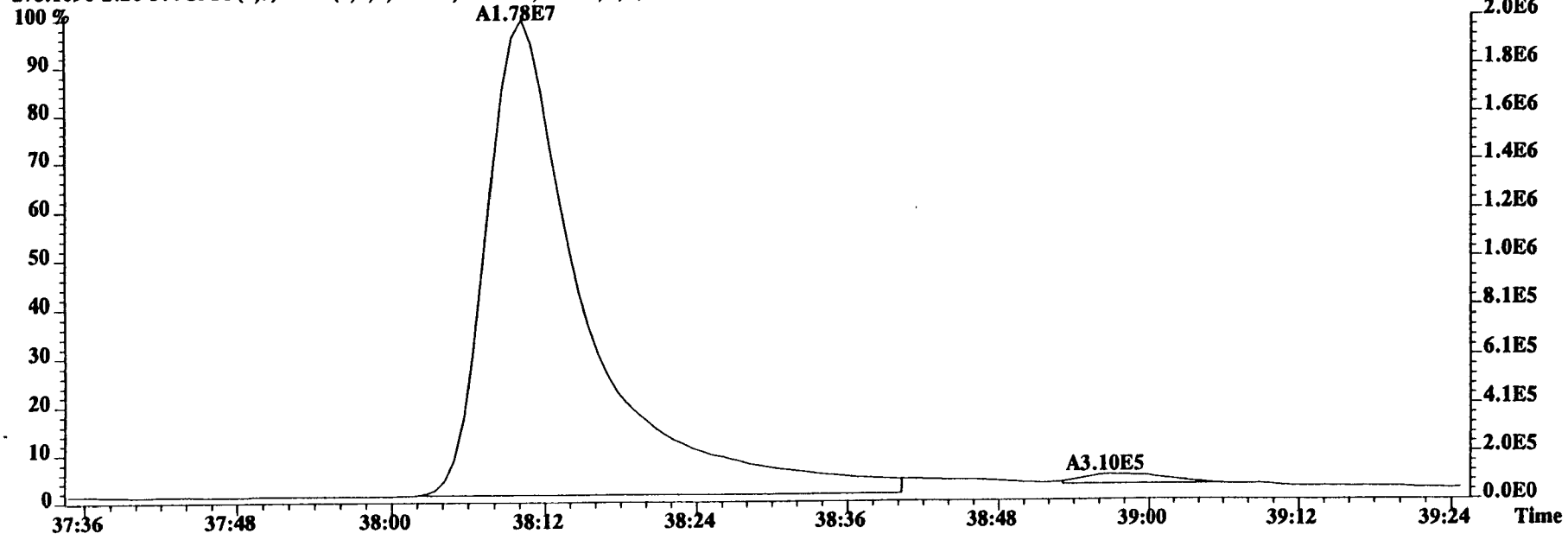
264.1692 S:26 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



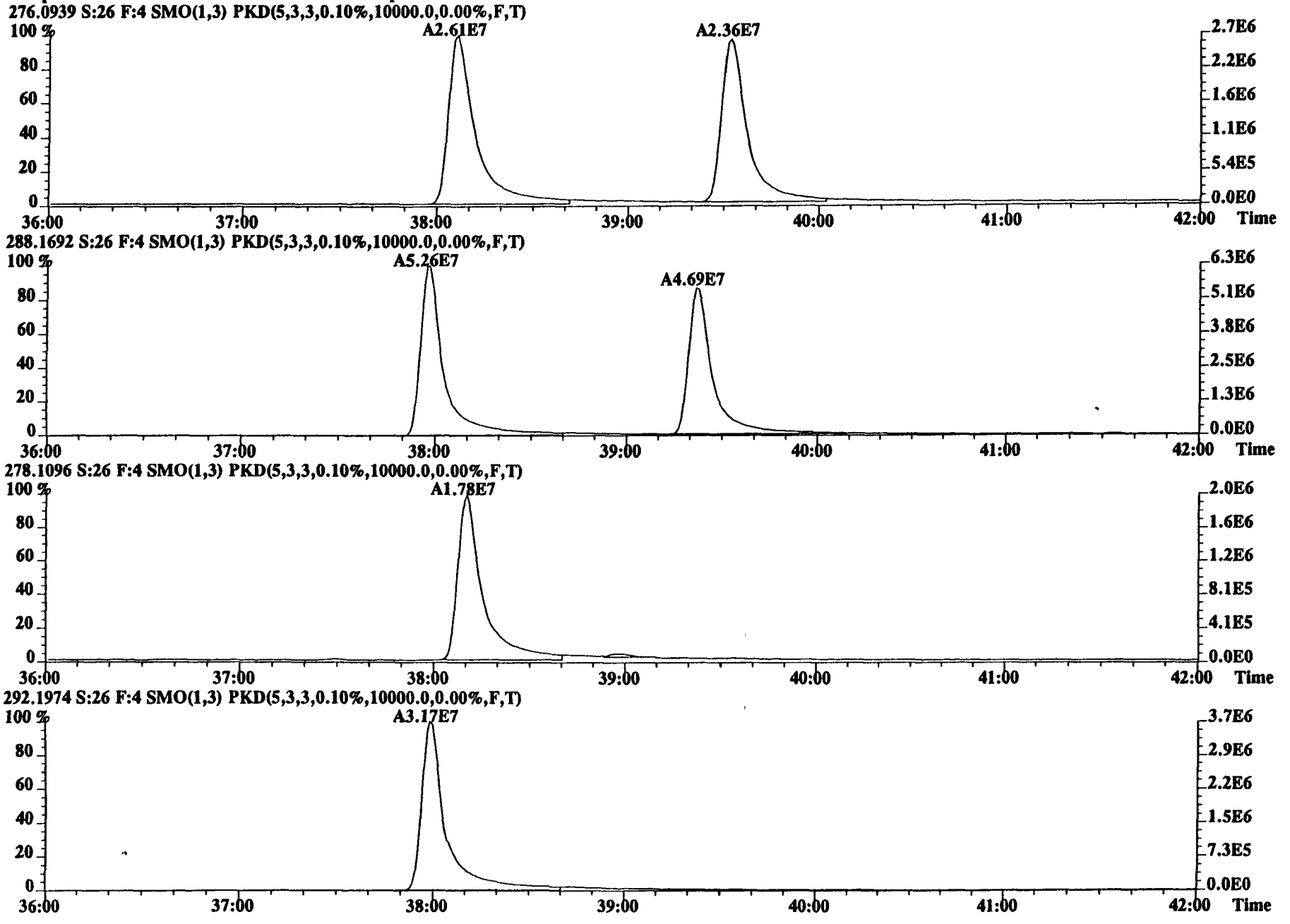
File:19AU98U #1-955 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
276.0939 S:26 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



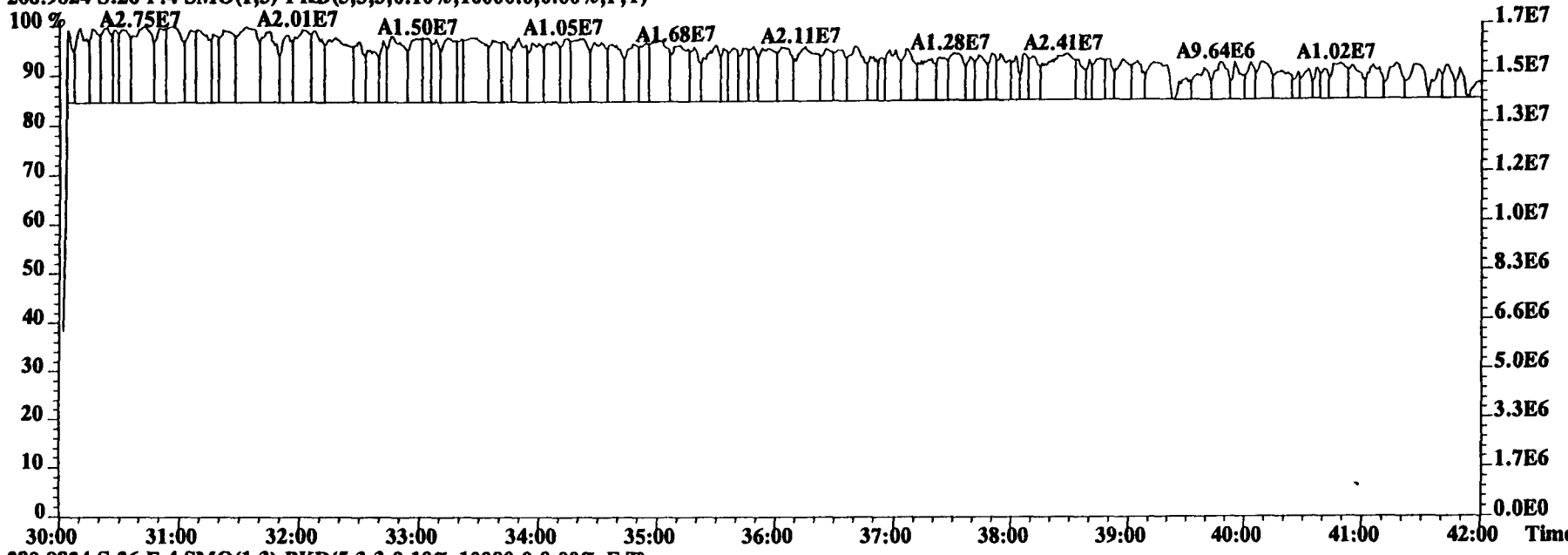
278.1096 S:26 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



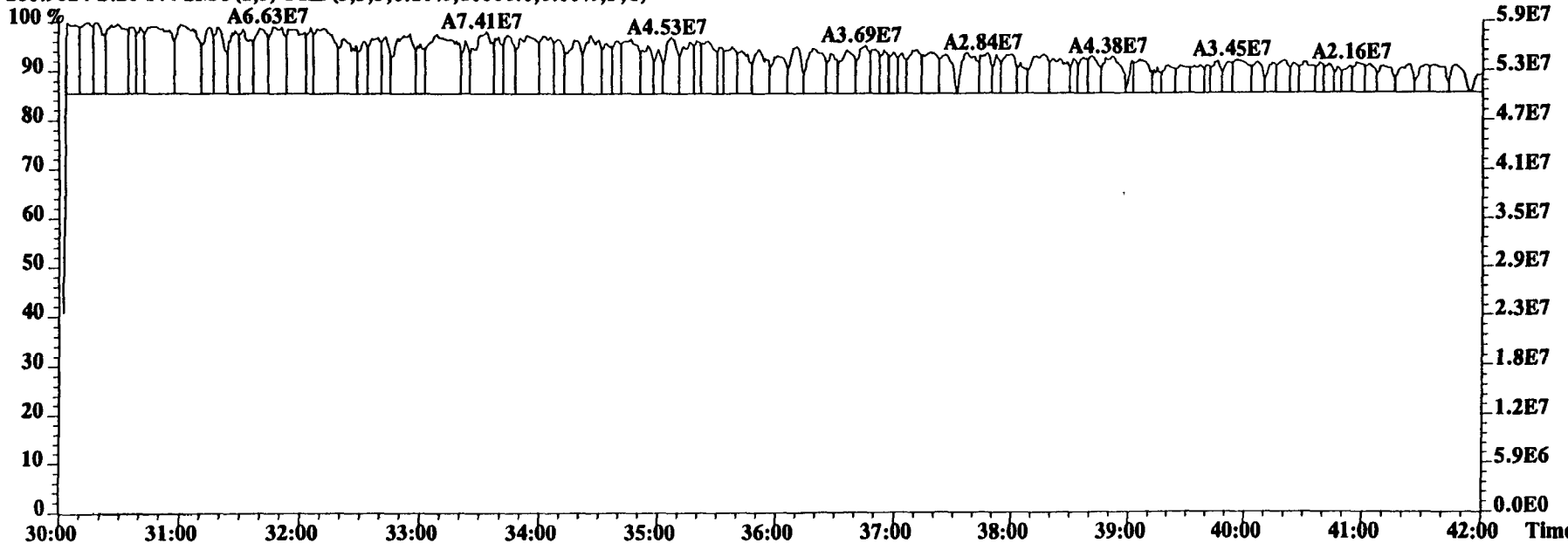
File:19AU98U #1-955 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR



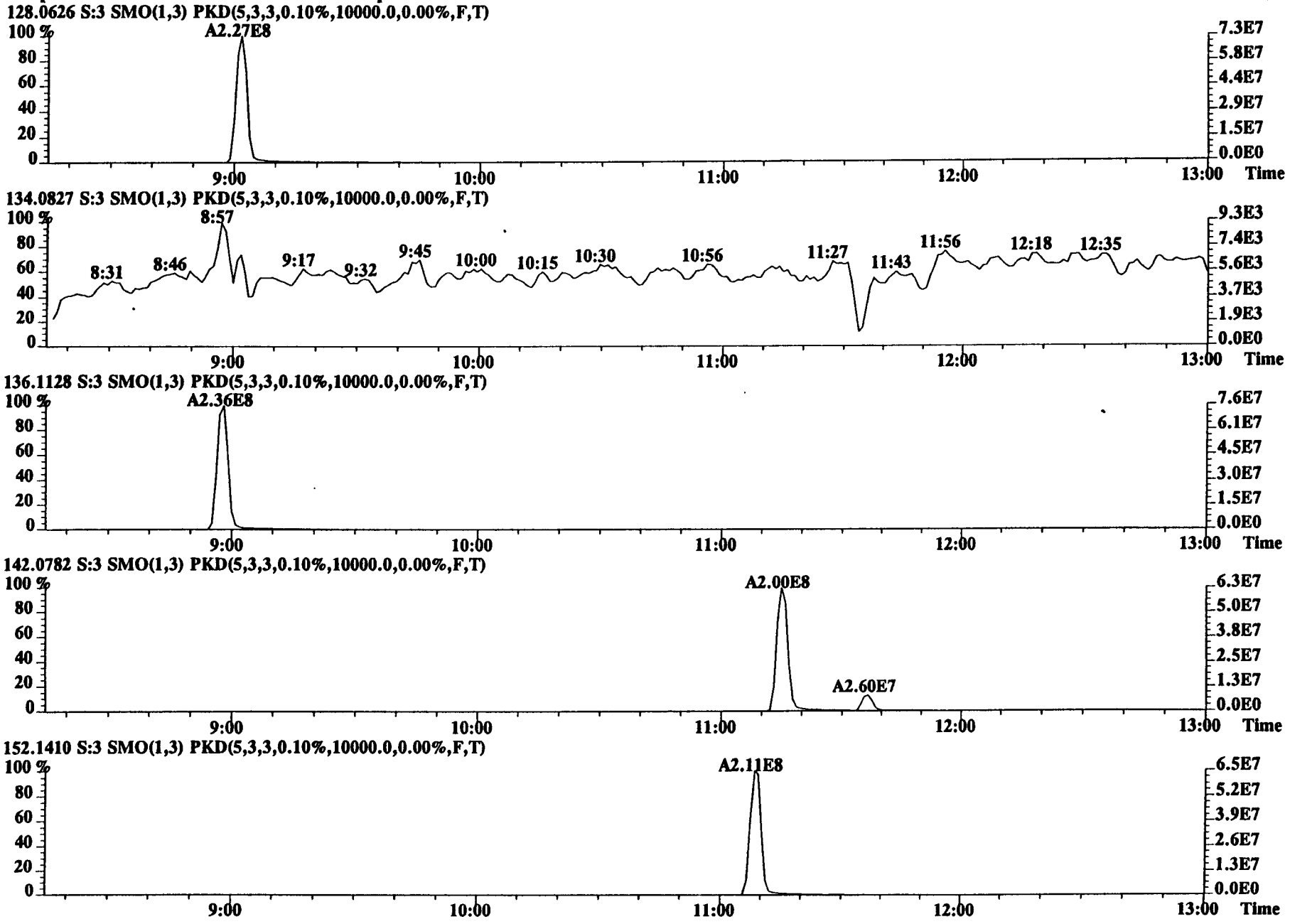
File:19AU98U #1-955 Acq:20-AUG-1998 11:12:26 GC EI+ Voltage SIR Autospec-Ultima
Sample#26 Text:ST0819G :PAH CS-2 :265-4B Exp:PAHAIR
268.9824 S:26 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



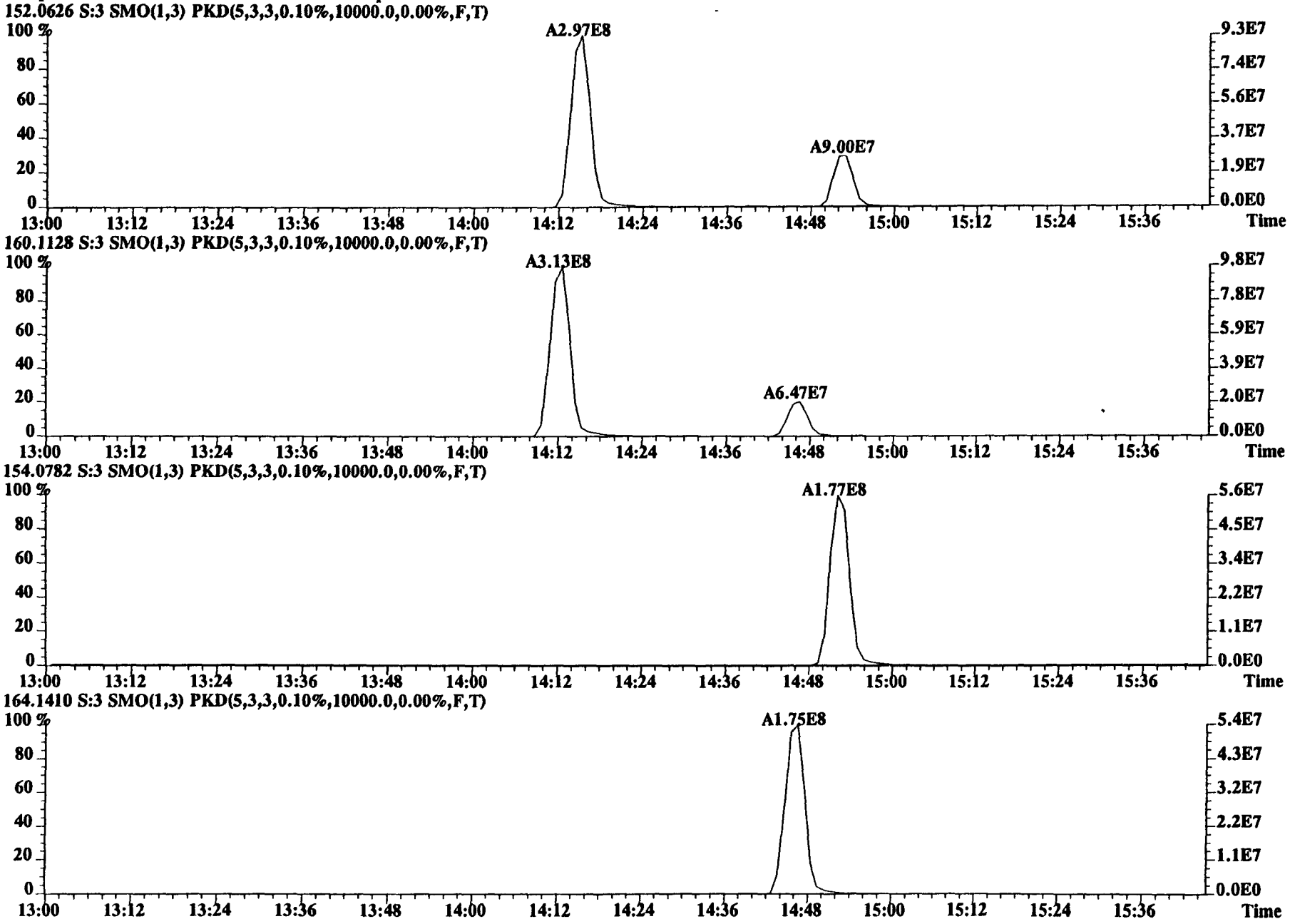
280.9824 S:26 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



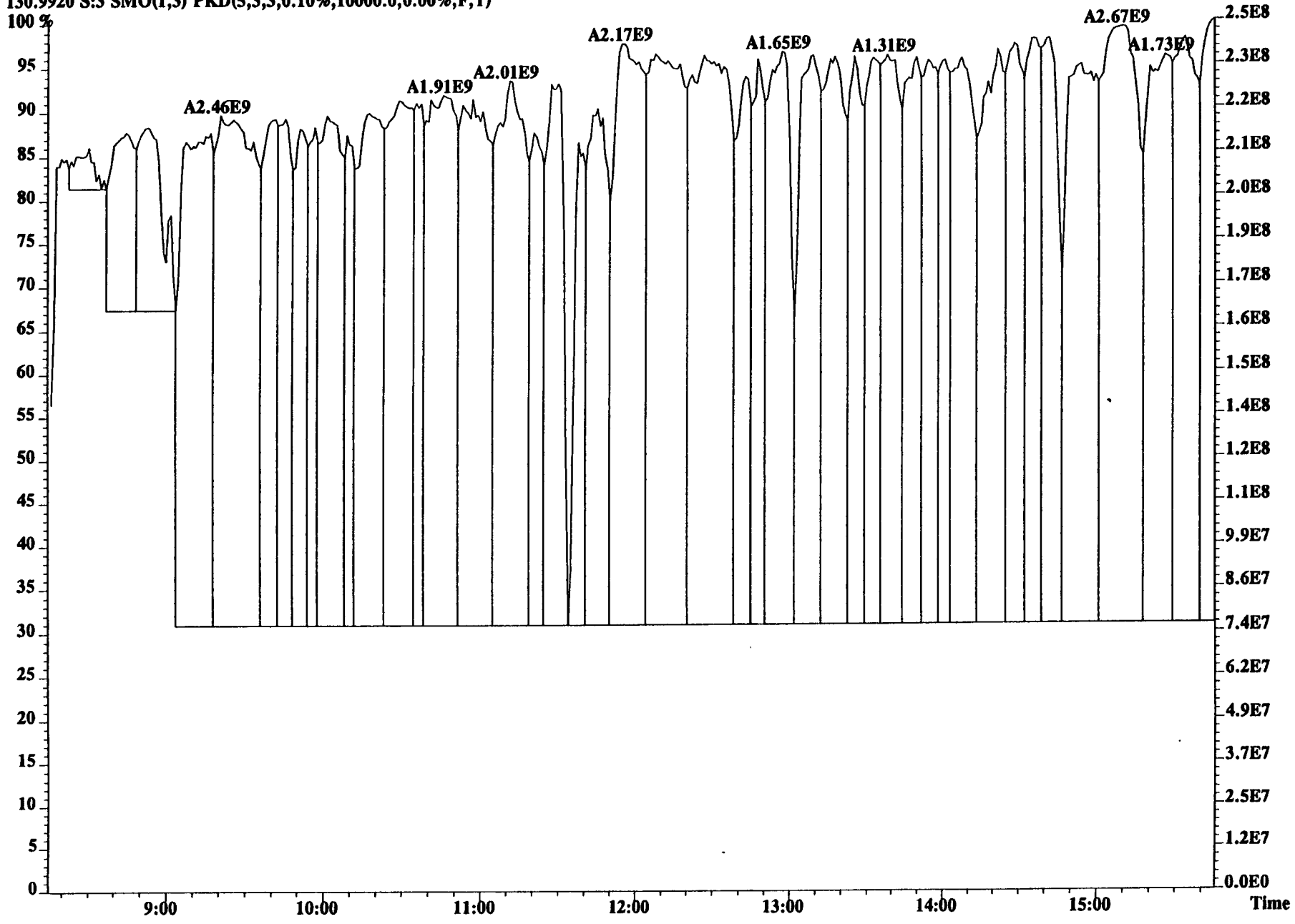
File:19AU98U #1-476 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR



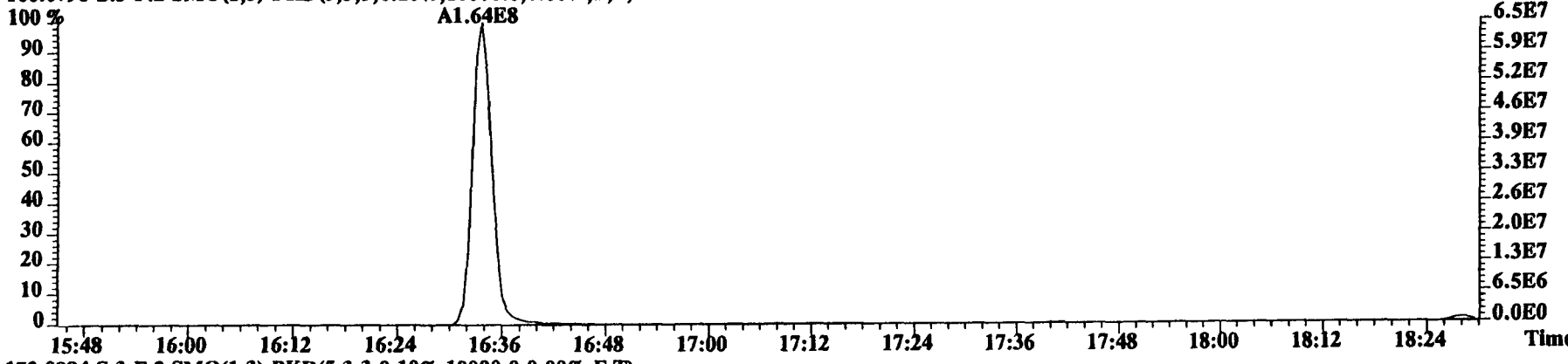
File:19AU98U #1-476 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR



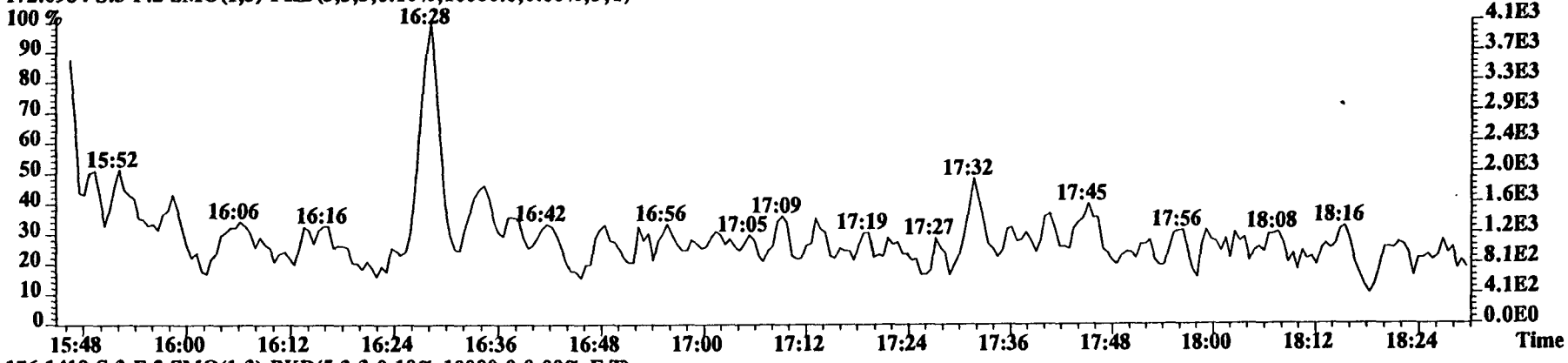
File:19AU98U #1-476 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
130.9920 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



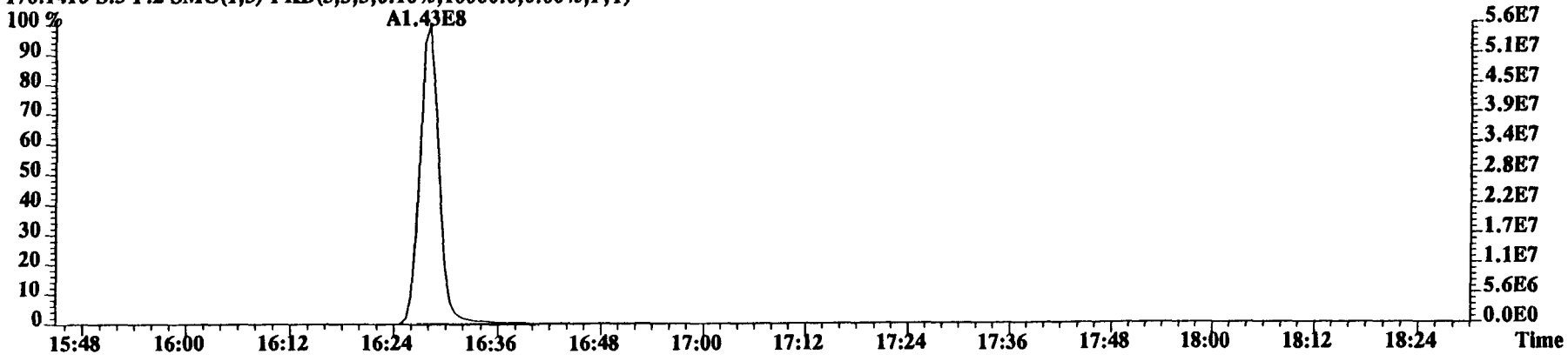
File:19AU98U #1-666 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
166.0798 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



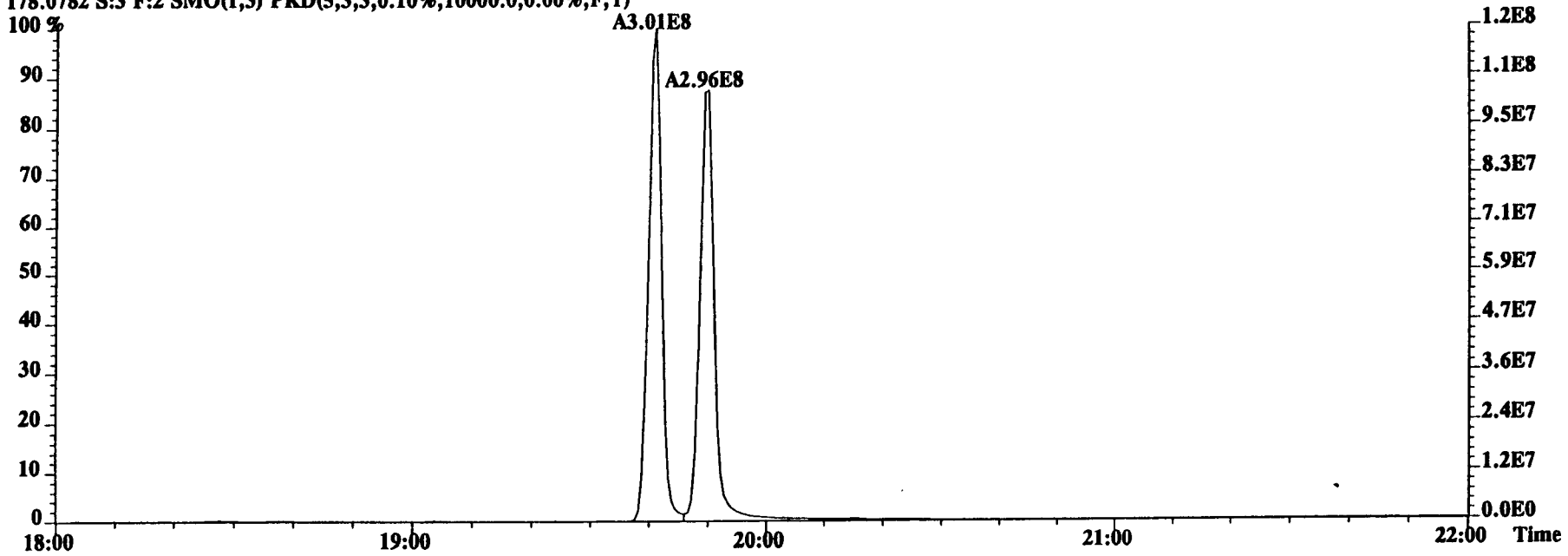
172.0984 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



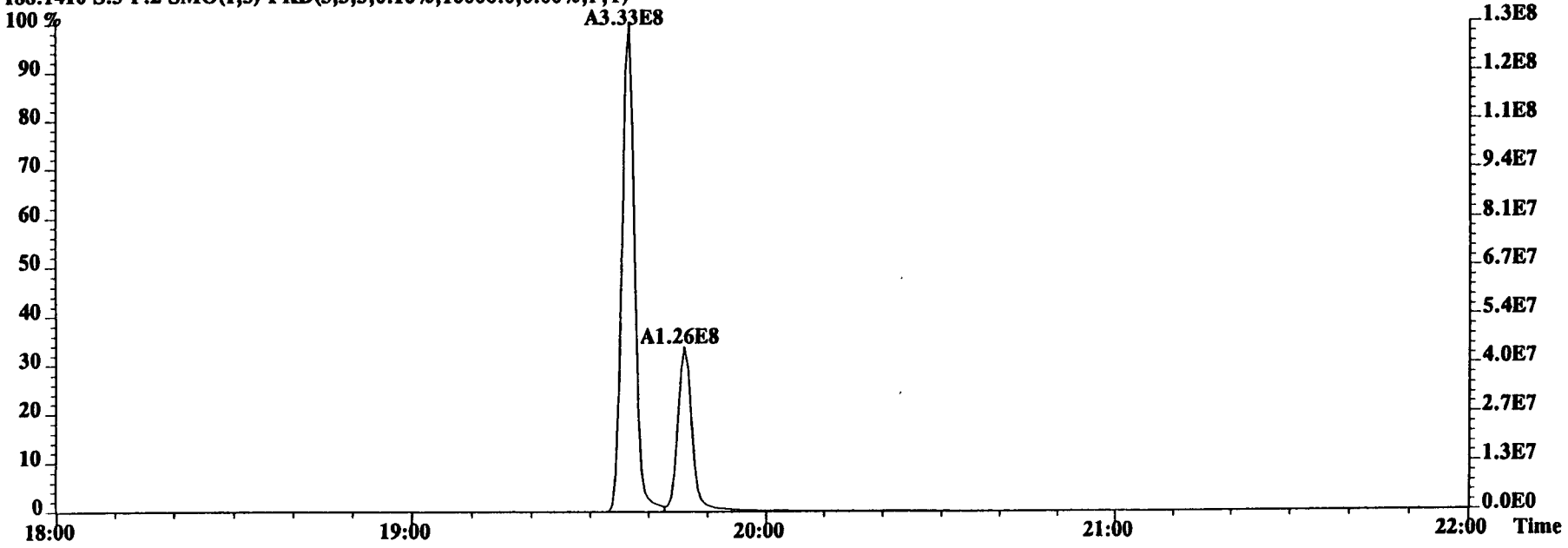
176.1410 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



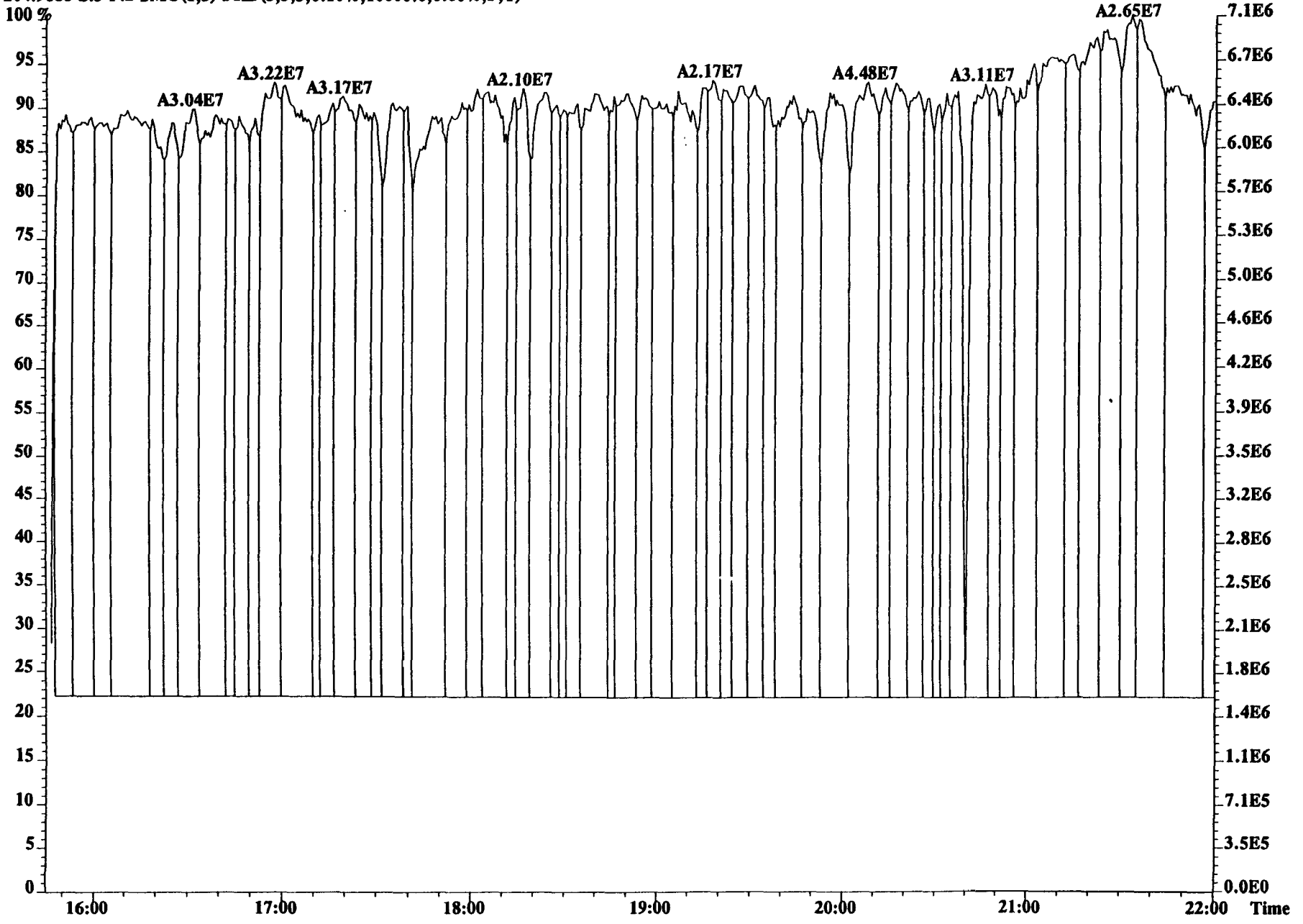
File:19AU98U #1-666 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
178.0782 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



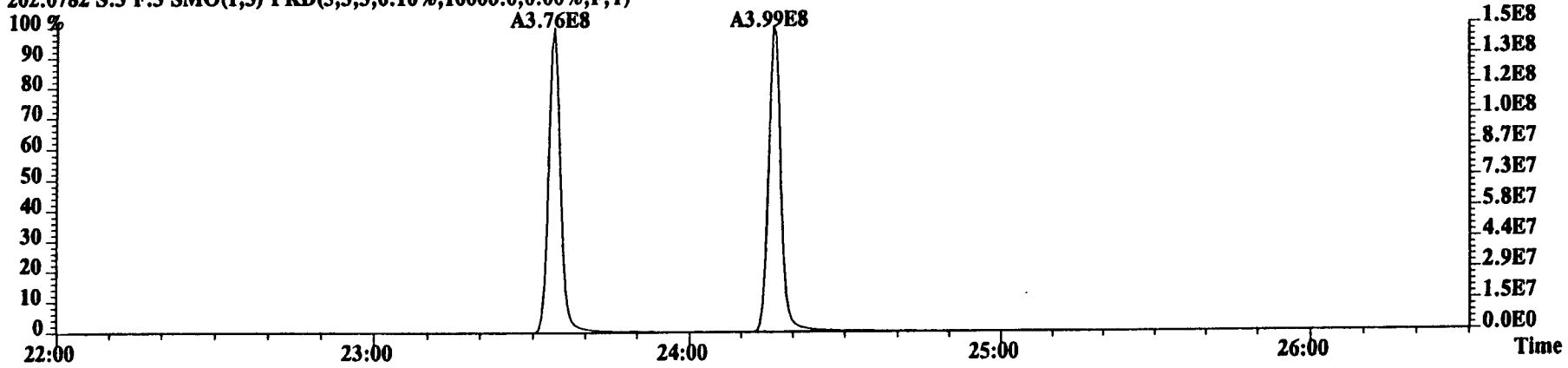
188.1410 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



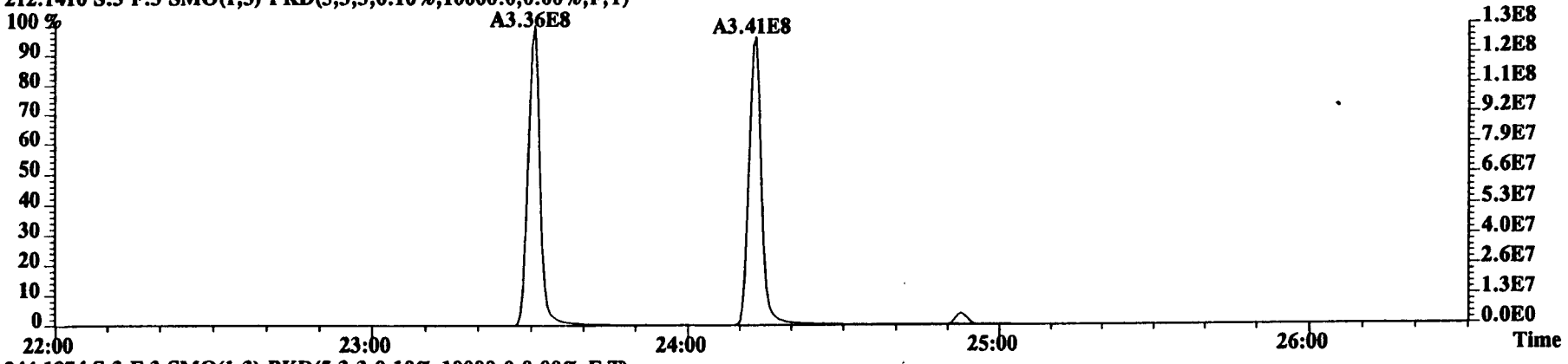
File:19AU98U #1-666 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
204.9888 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



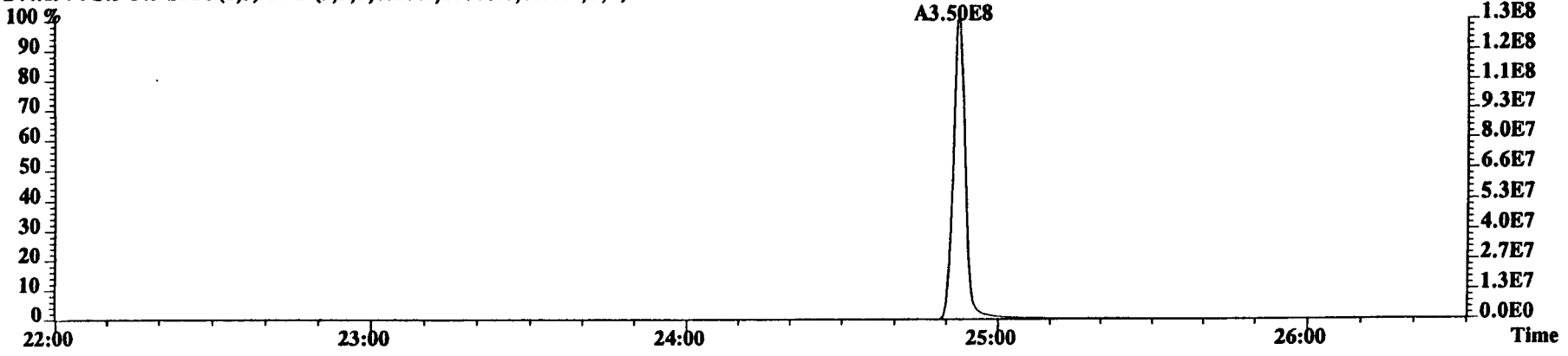
File:19AU98U #1-935 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
202.0782 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



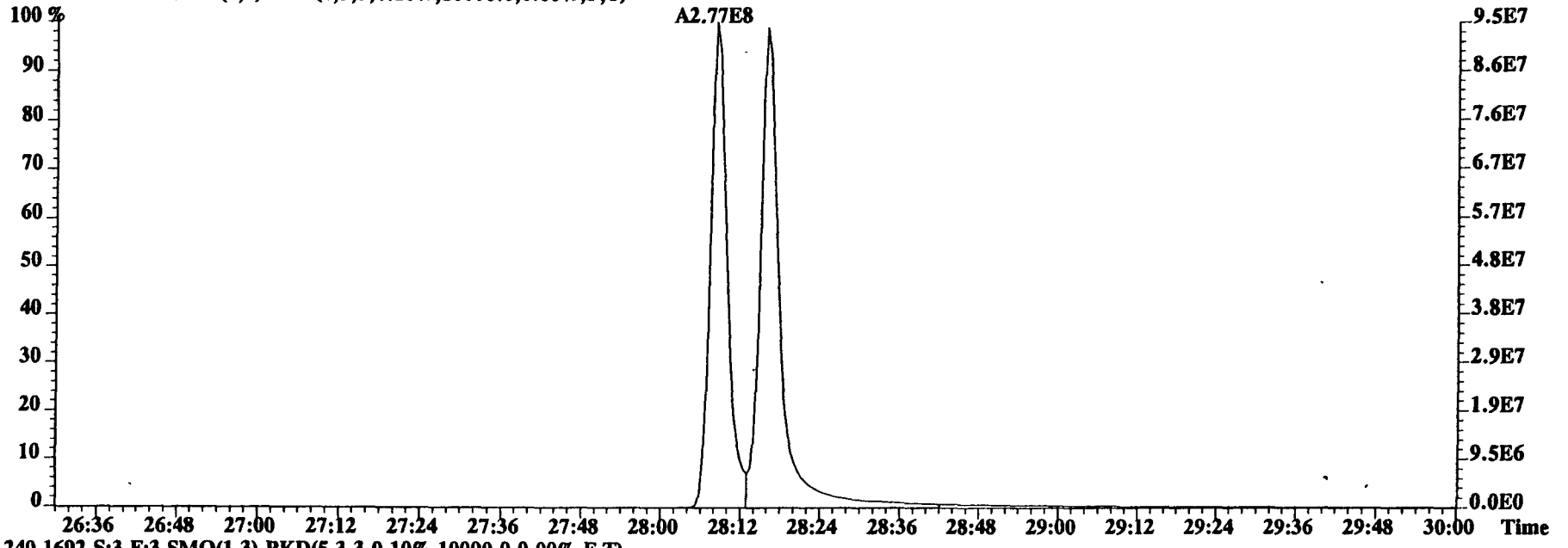
212.1410 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



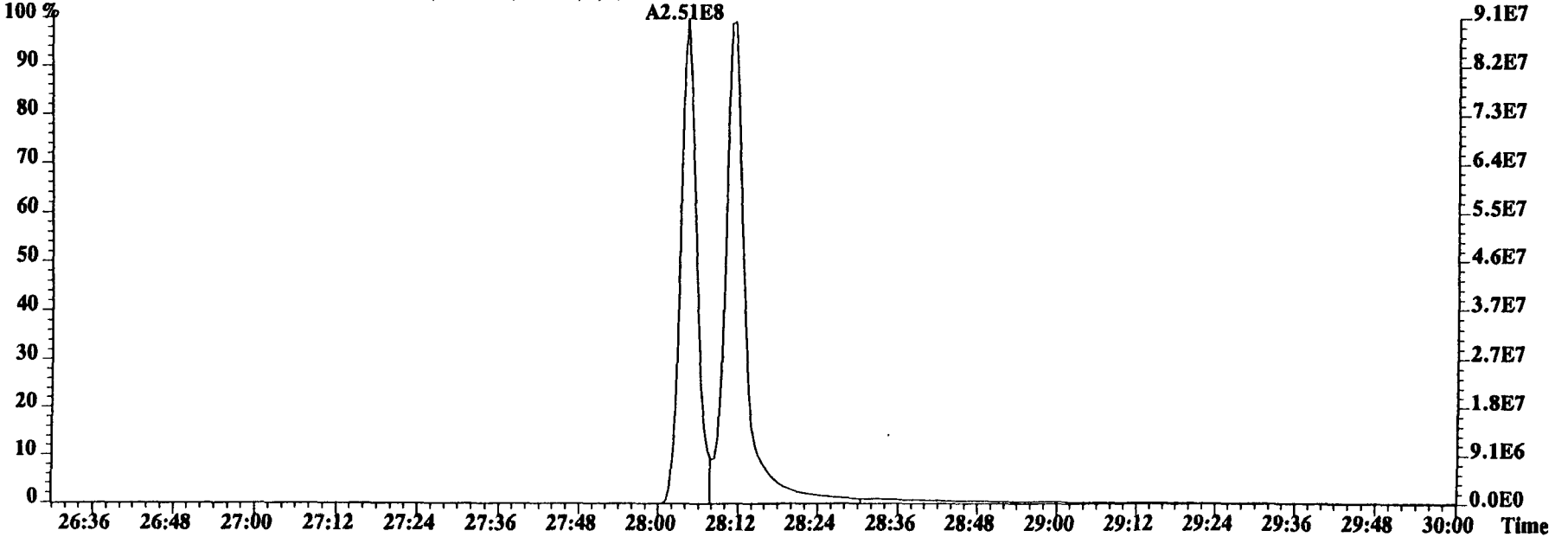
244.1974 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



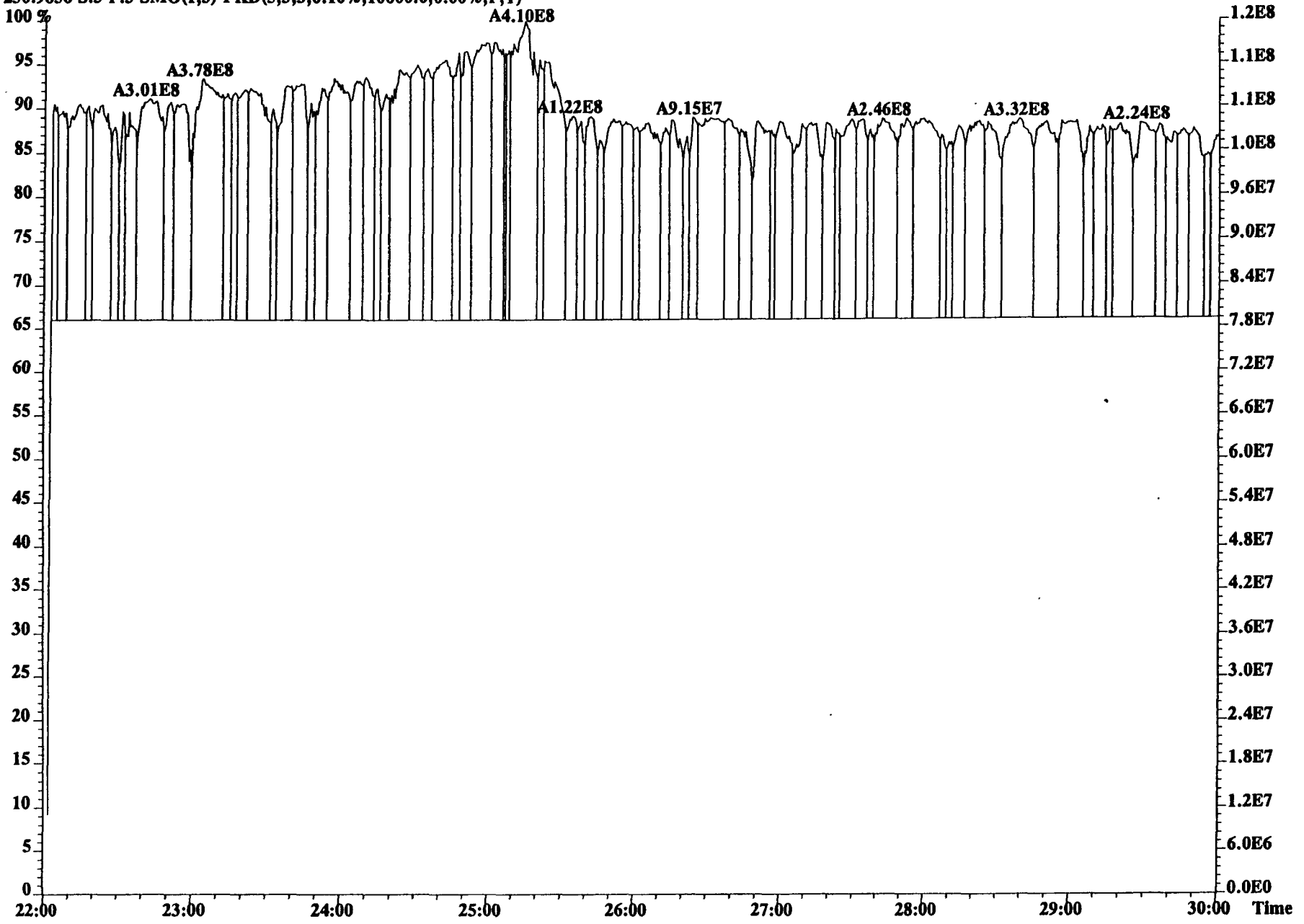
File:19AU98U #1-935 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
228.0939 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



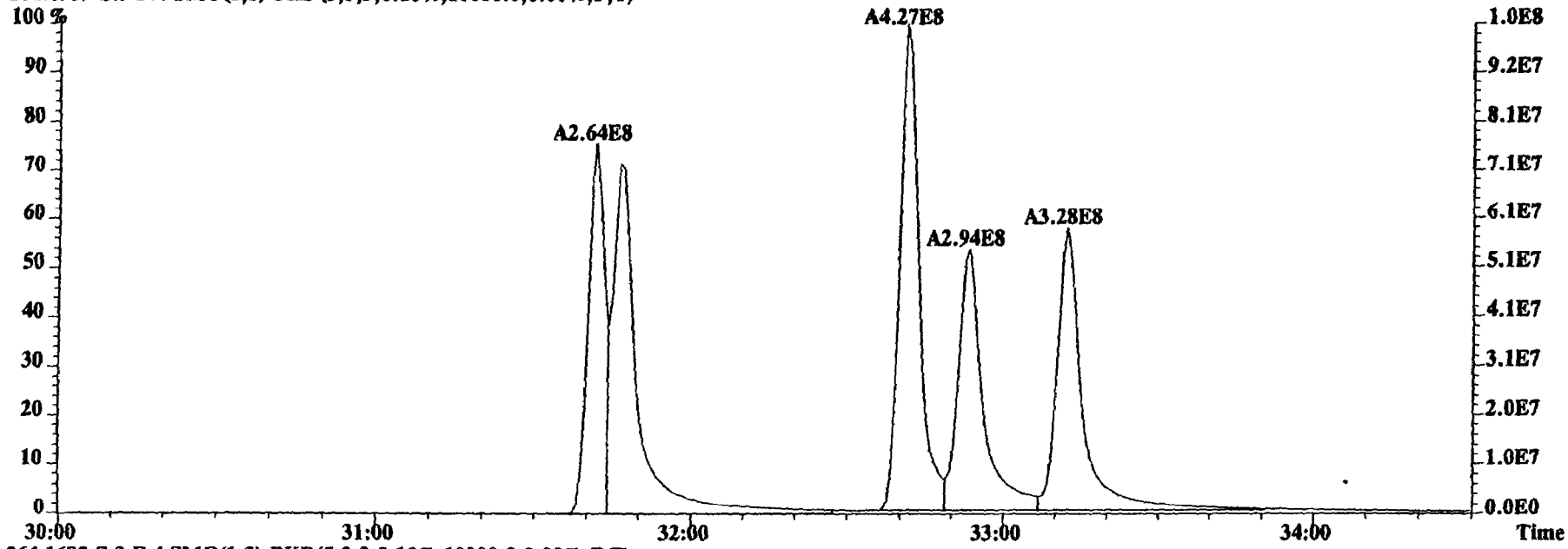
240.1692 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



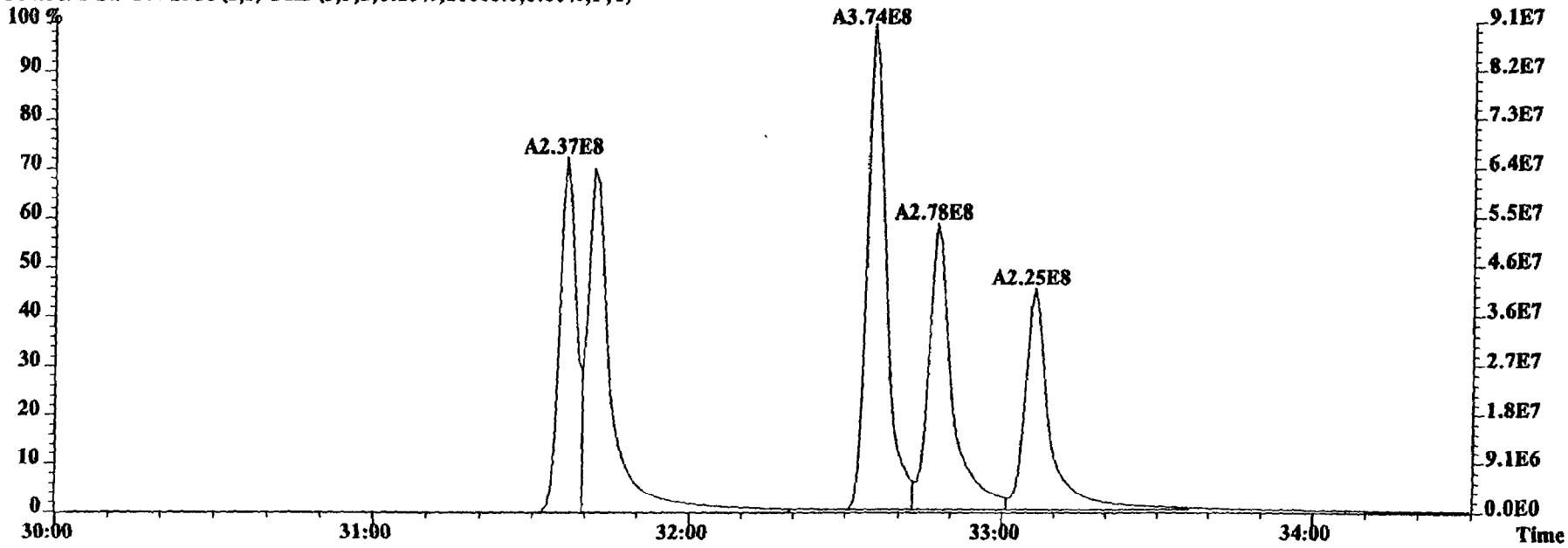
File:19AU98U #1-935 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
230.9856 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



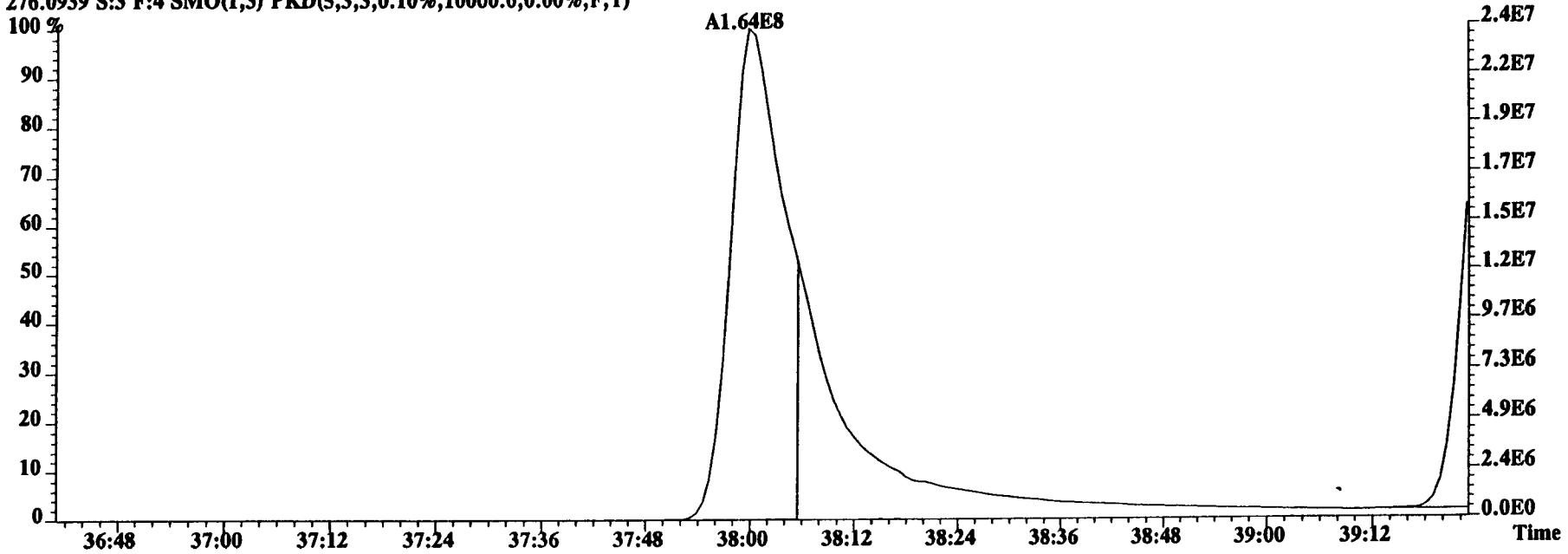
File:19AU98U #1-954 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
252.0939 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



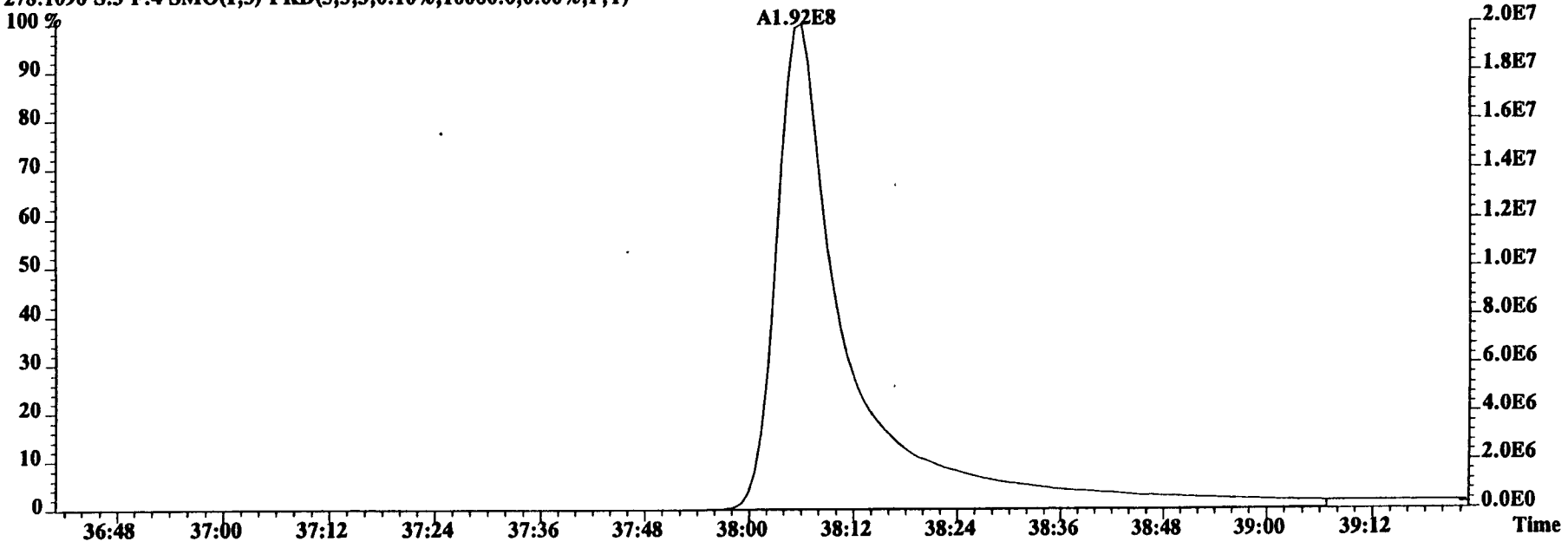
264.1692 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



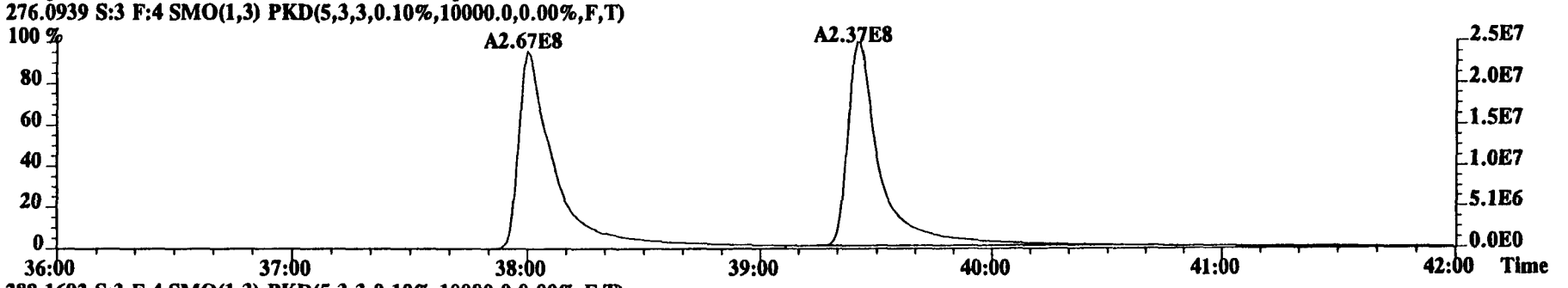
File:19AU98U #1-954 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
276.0939 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

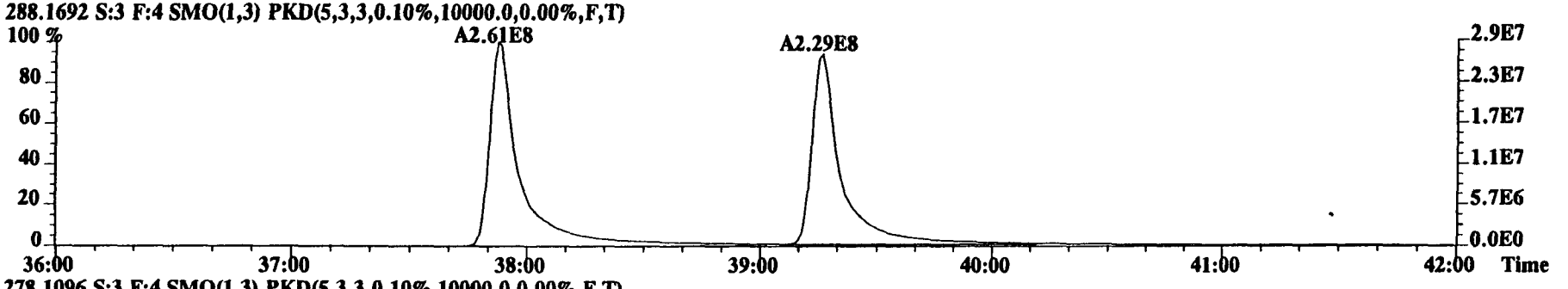


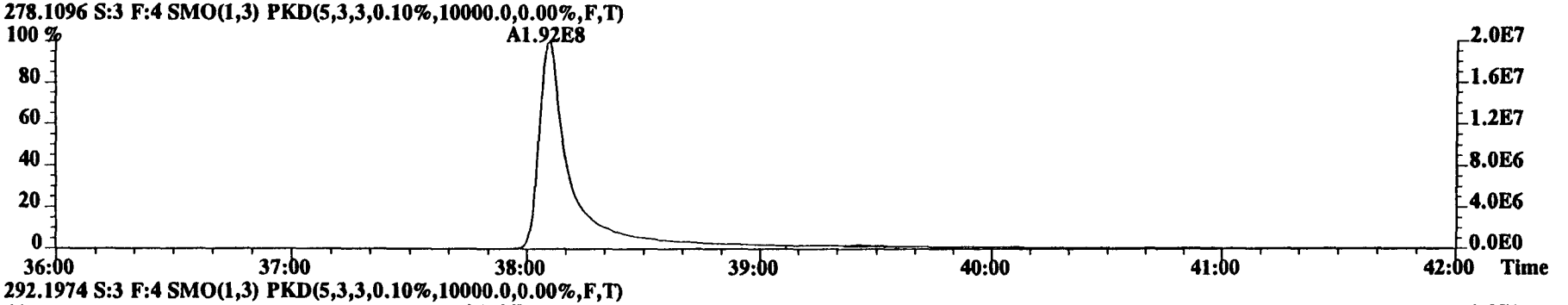
278.1096 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

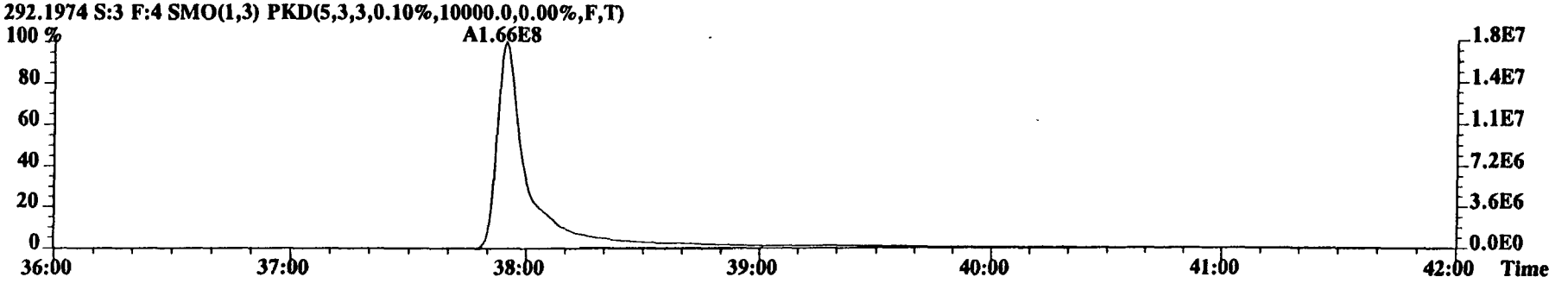


File:19AU98U #1-954 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR

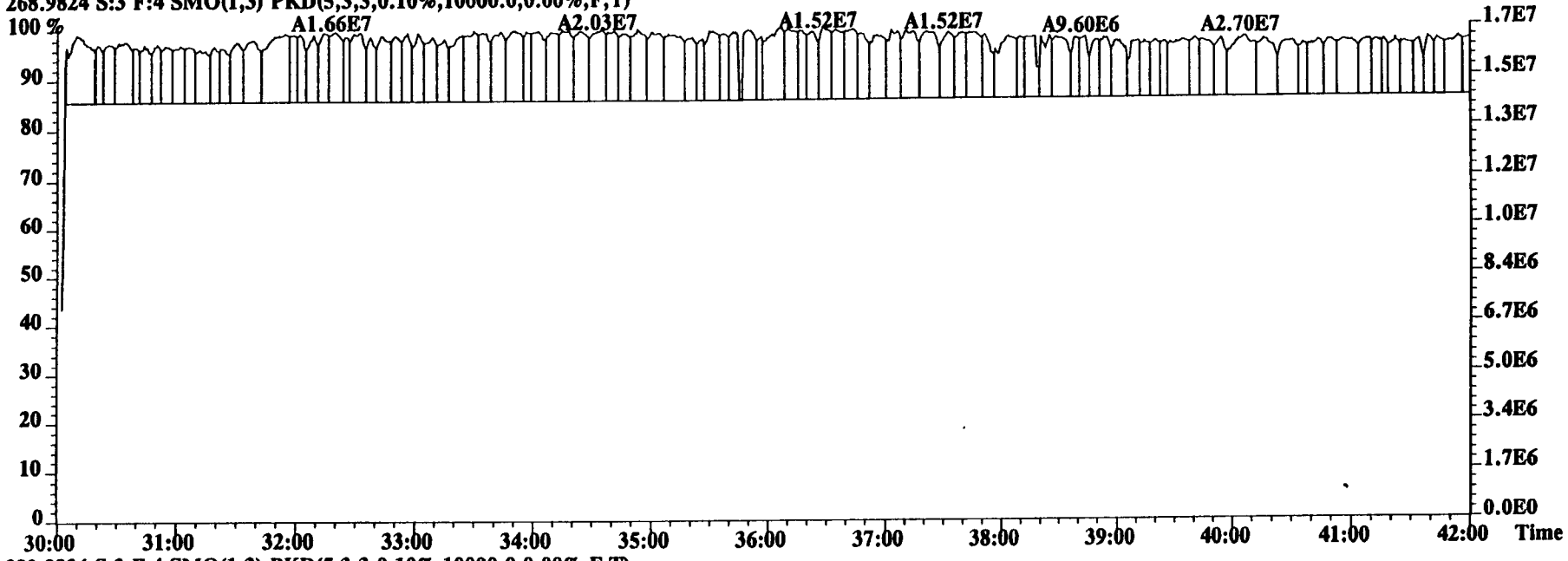




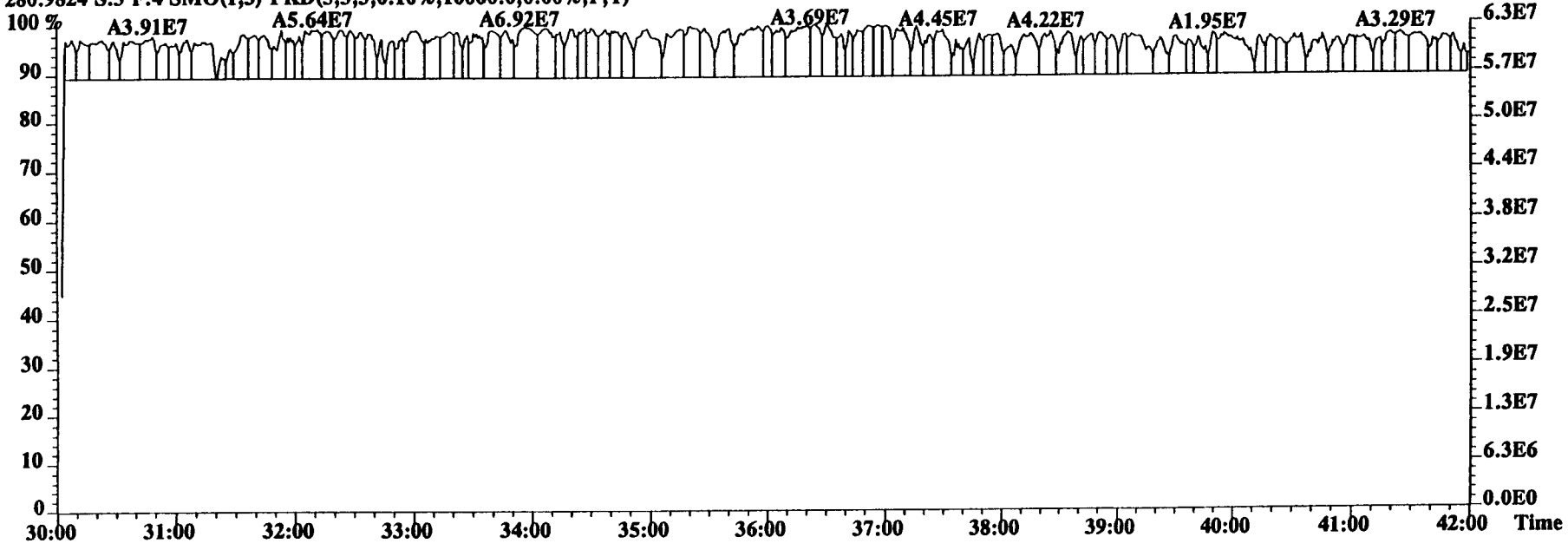




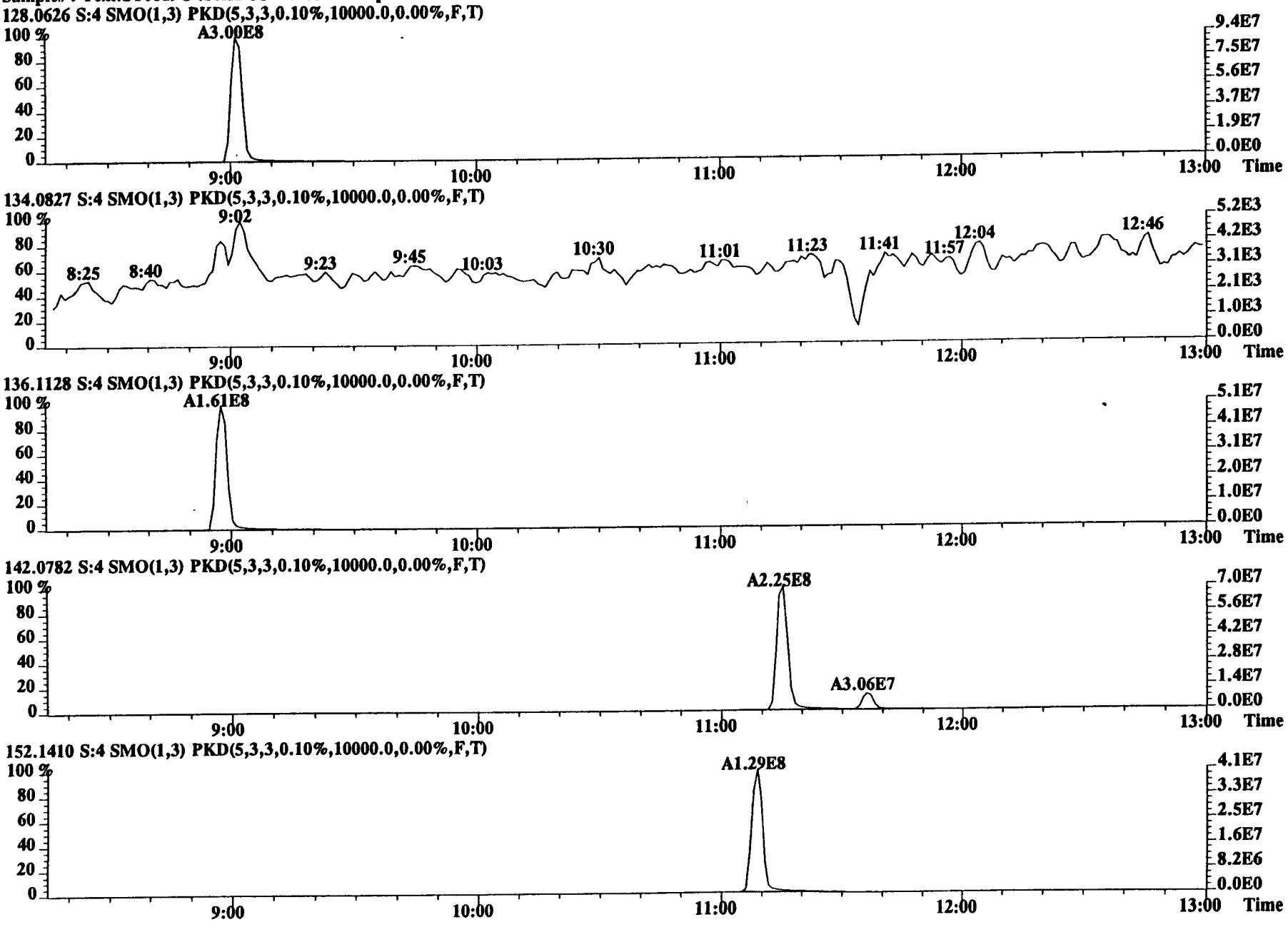
File:19AU98U #1-954 Acq:19-AUG-1998 17:23:34 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0819B :PAH CS-3 :651-21 Exp:PAHAIR
268.9824 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



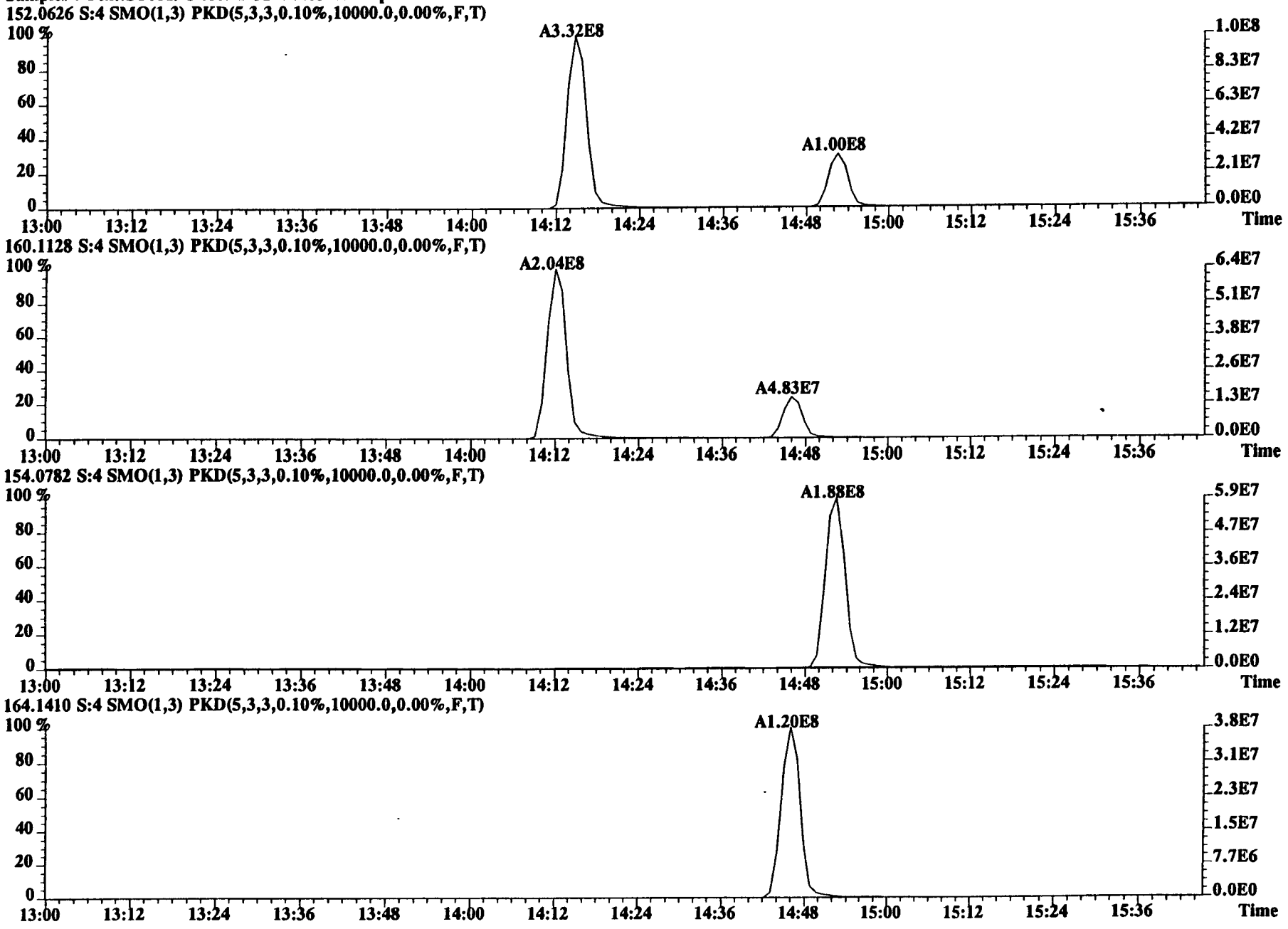
280.9824 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



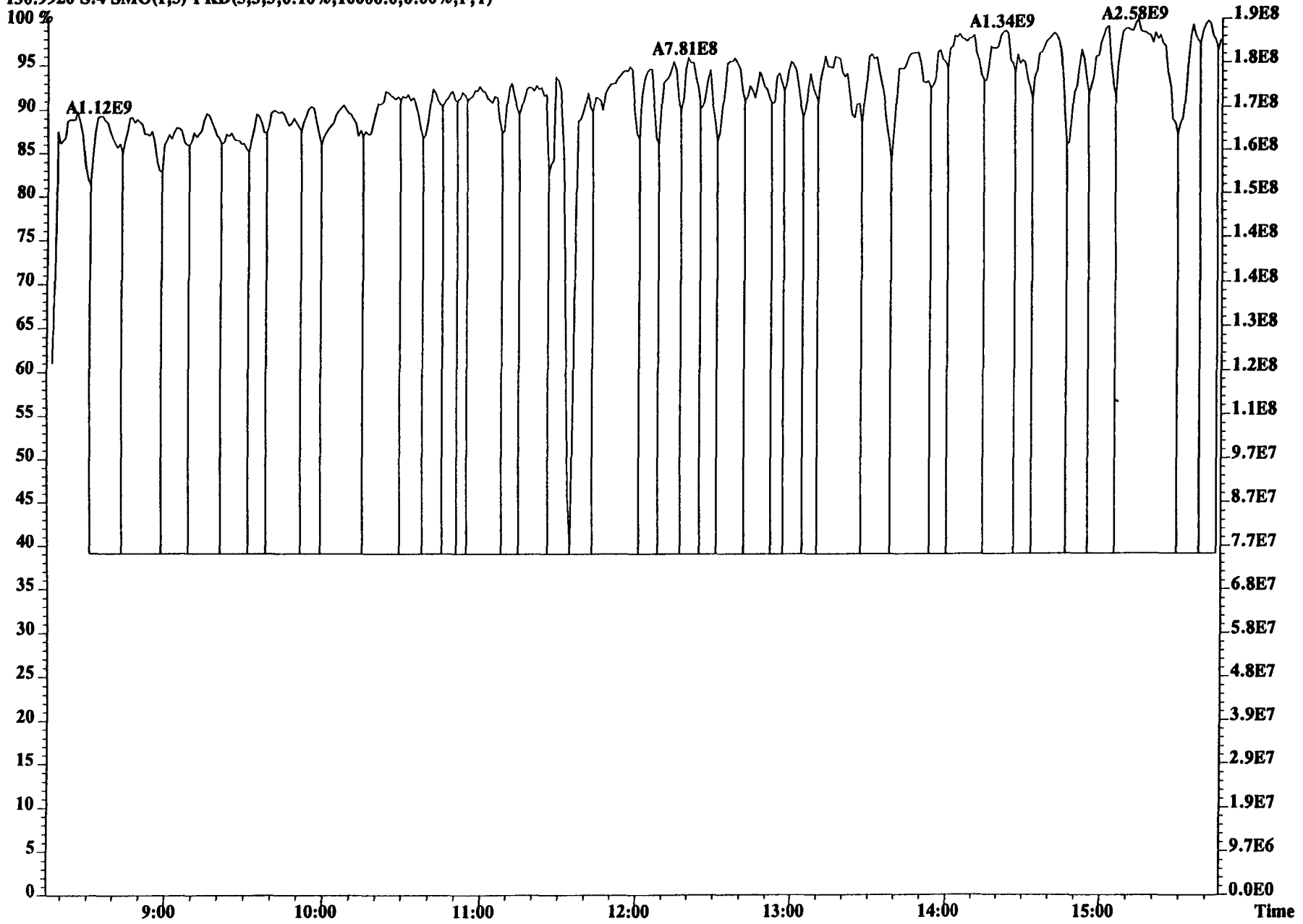
File:19AU98U #1-476 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR



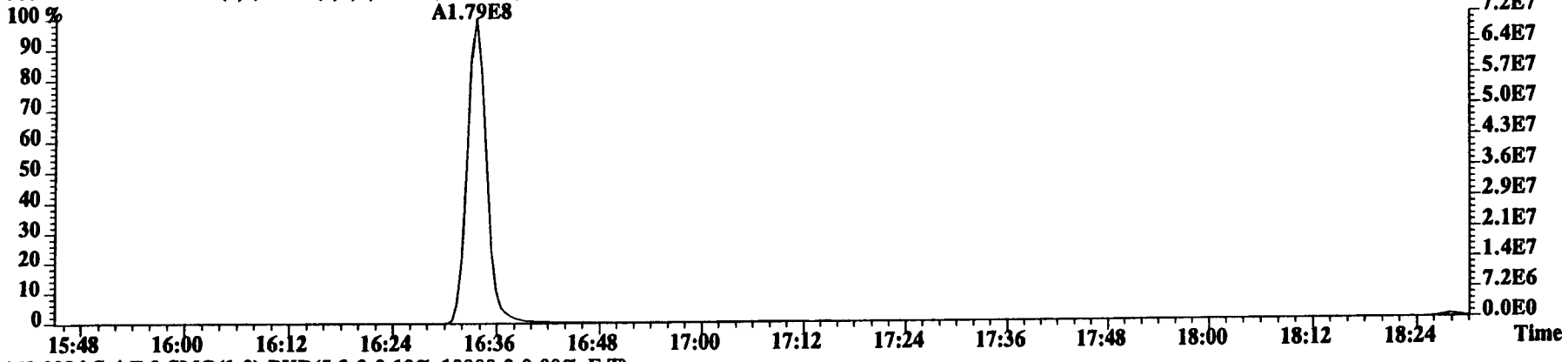
File:19AU98U #1-476 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR



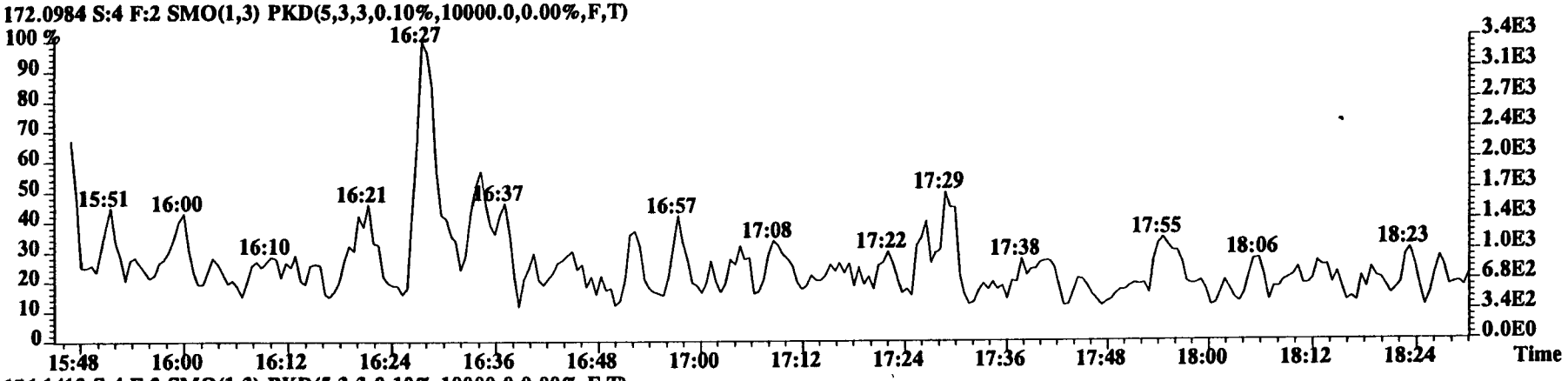
File:19AU98U #1-476 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
130.9920 S:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



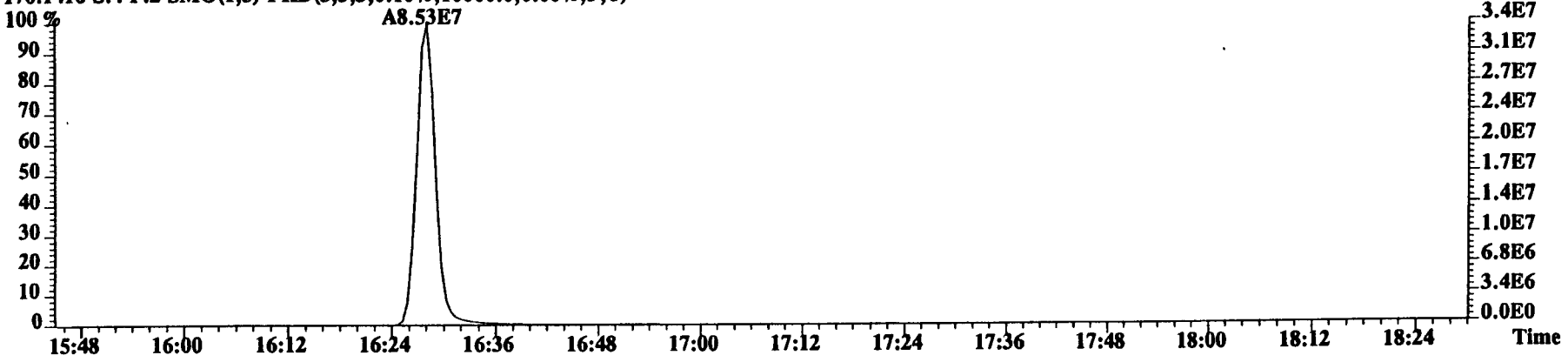
File:19AU98U #1-665 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
166.0798 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



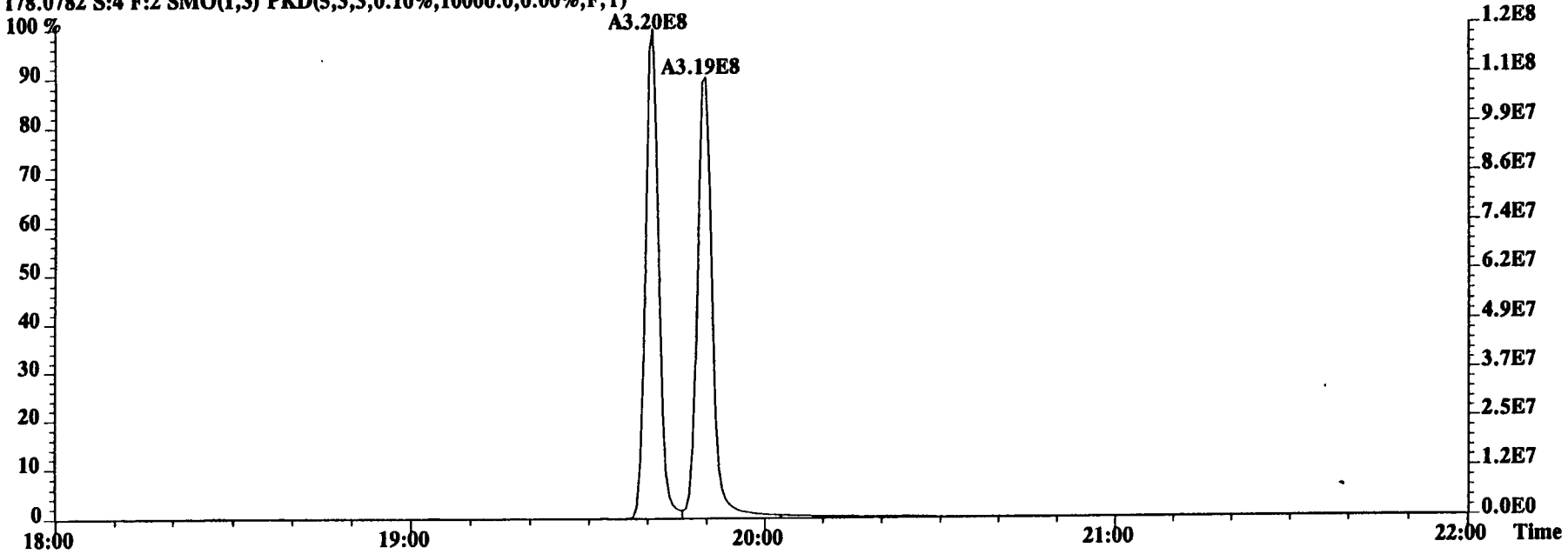
172.0984 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



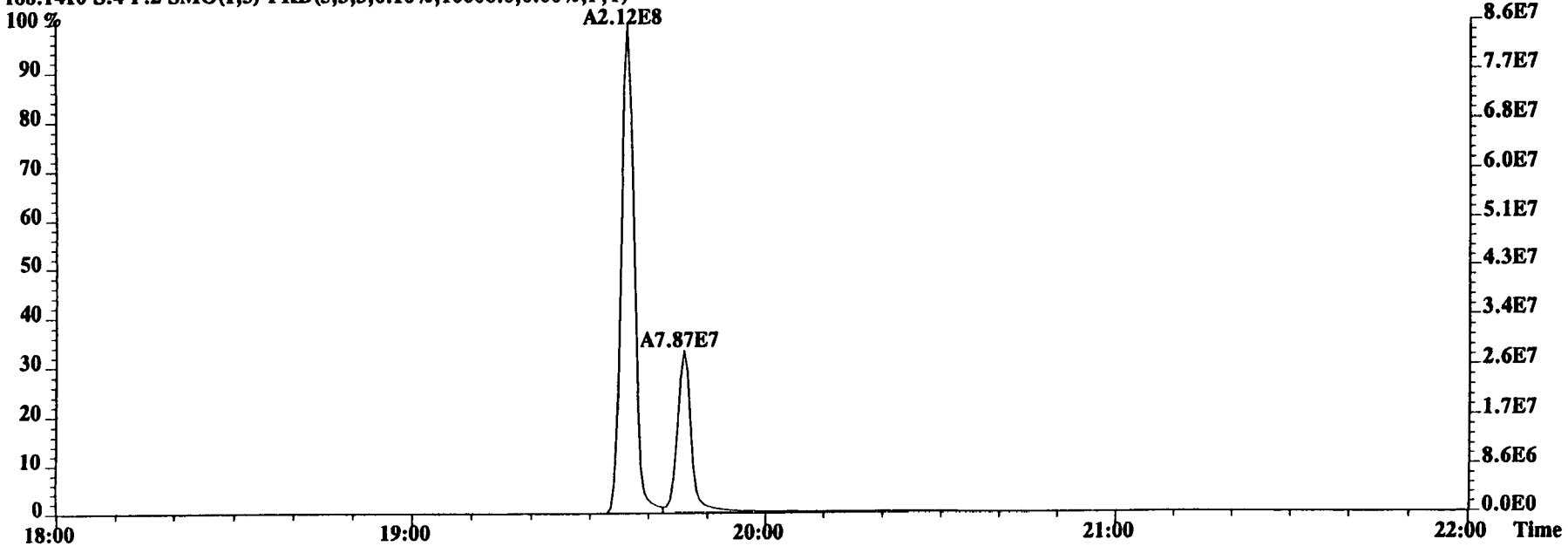
176.1410 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



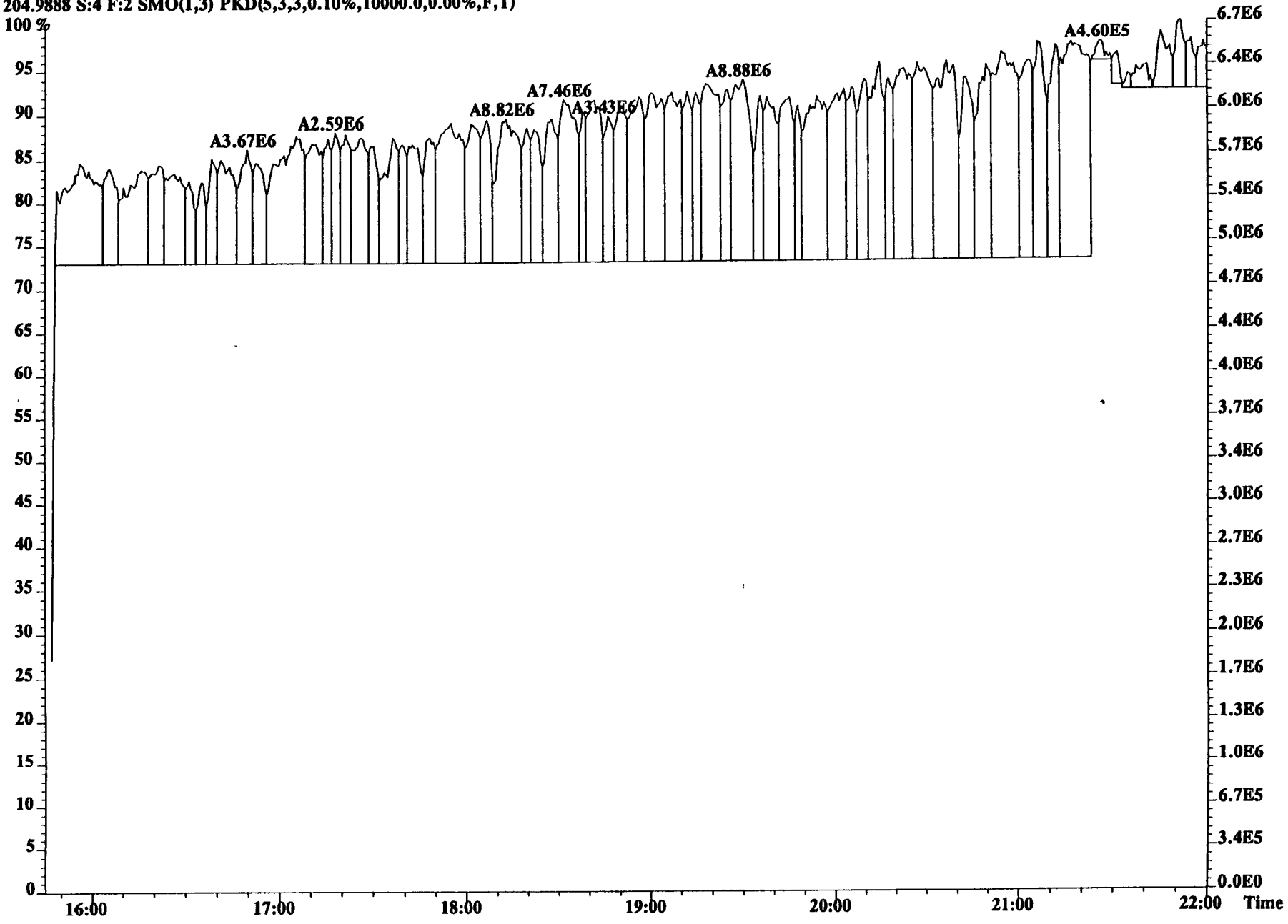
File:19AU98U #1-665 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
178.0782 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



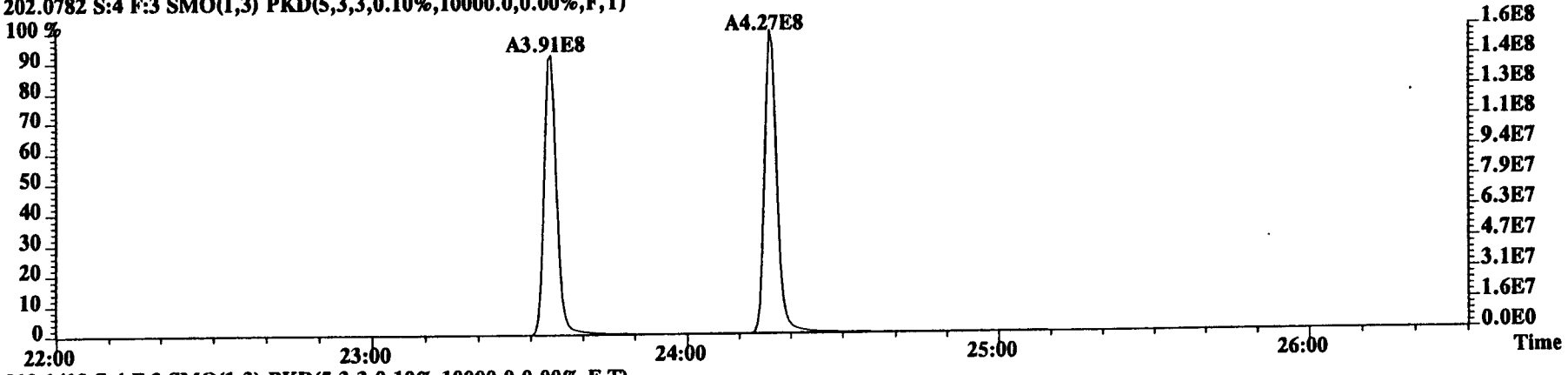
188.1410 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



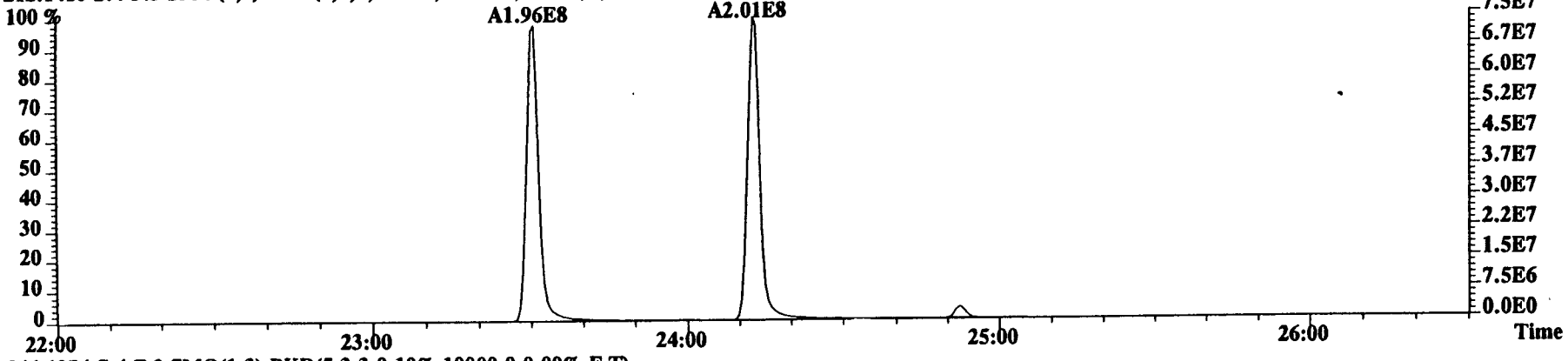
File:19AU98U #1-665 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
204.9888 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



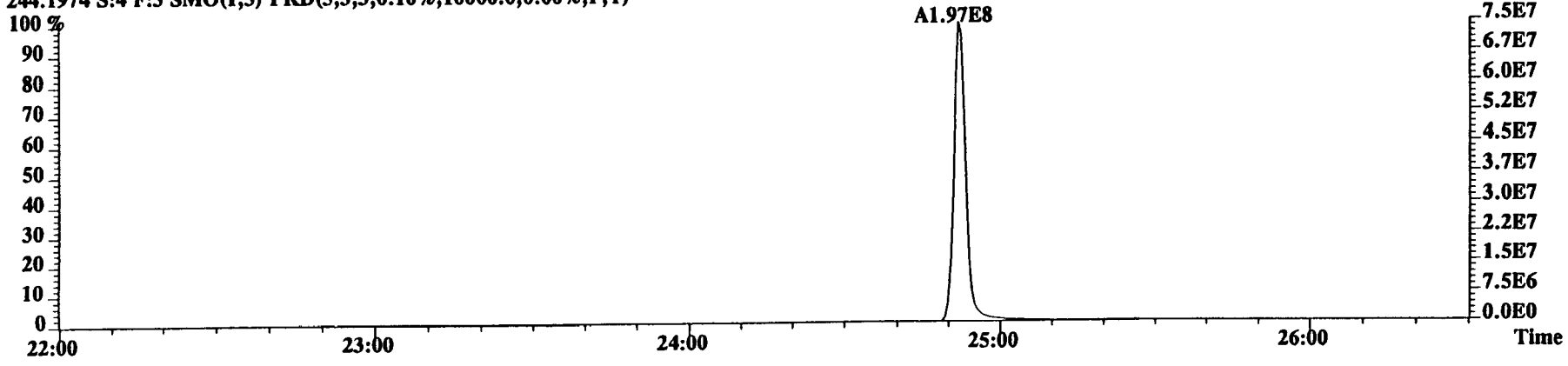
File:19AU98U #1-935 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
202.0782 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



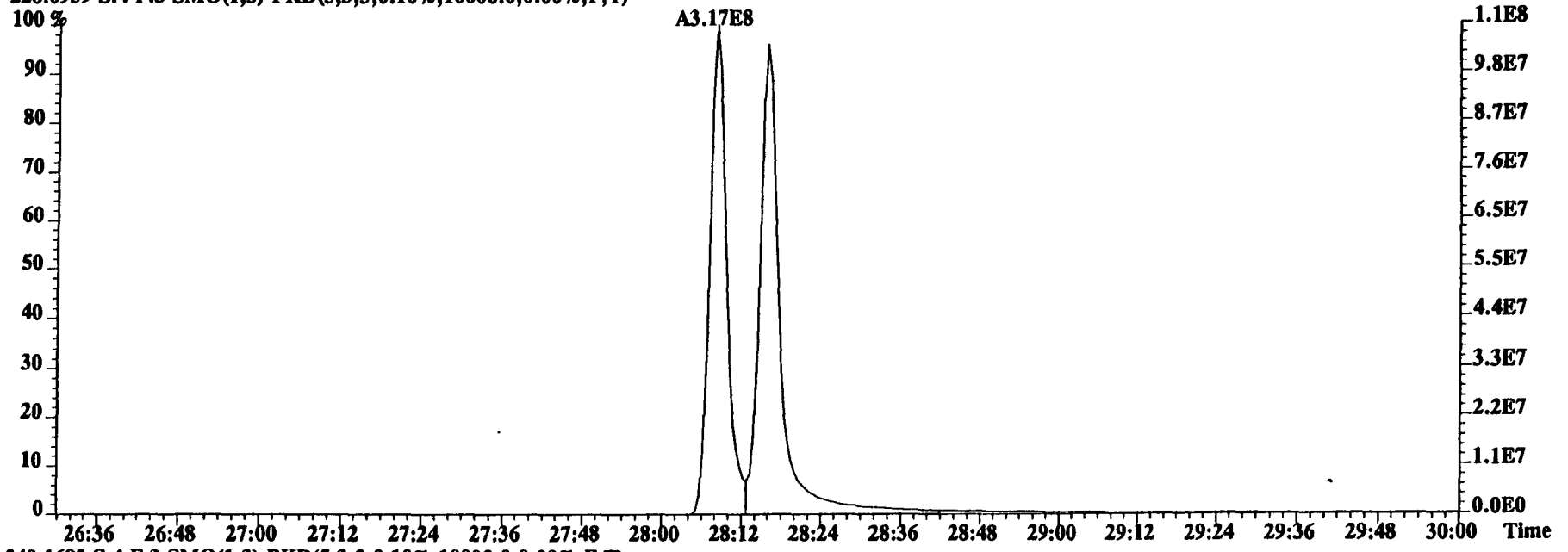
212.1410 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



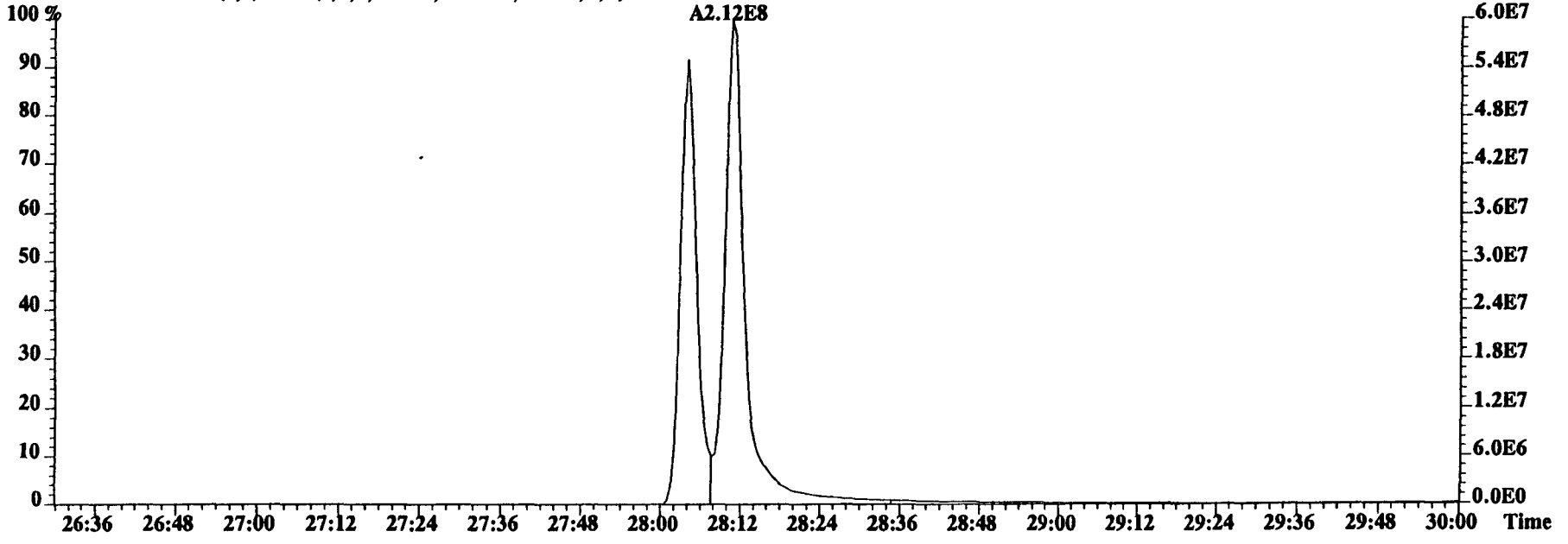
244.1974 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



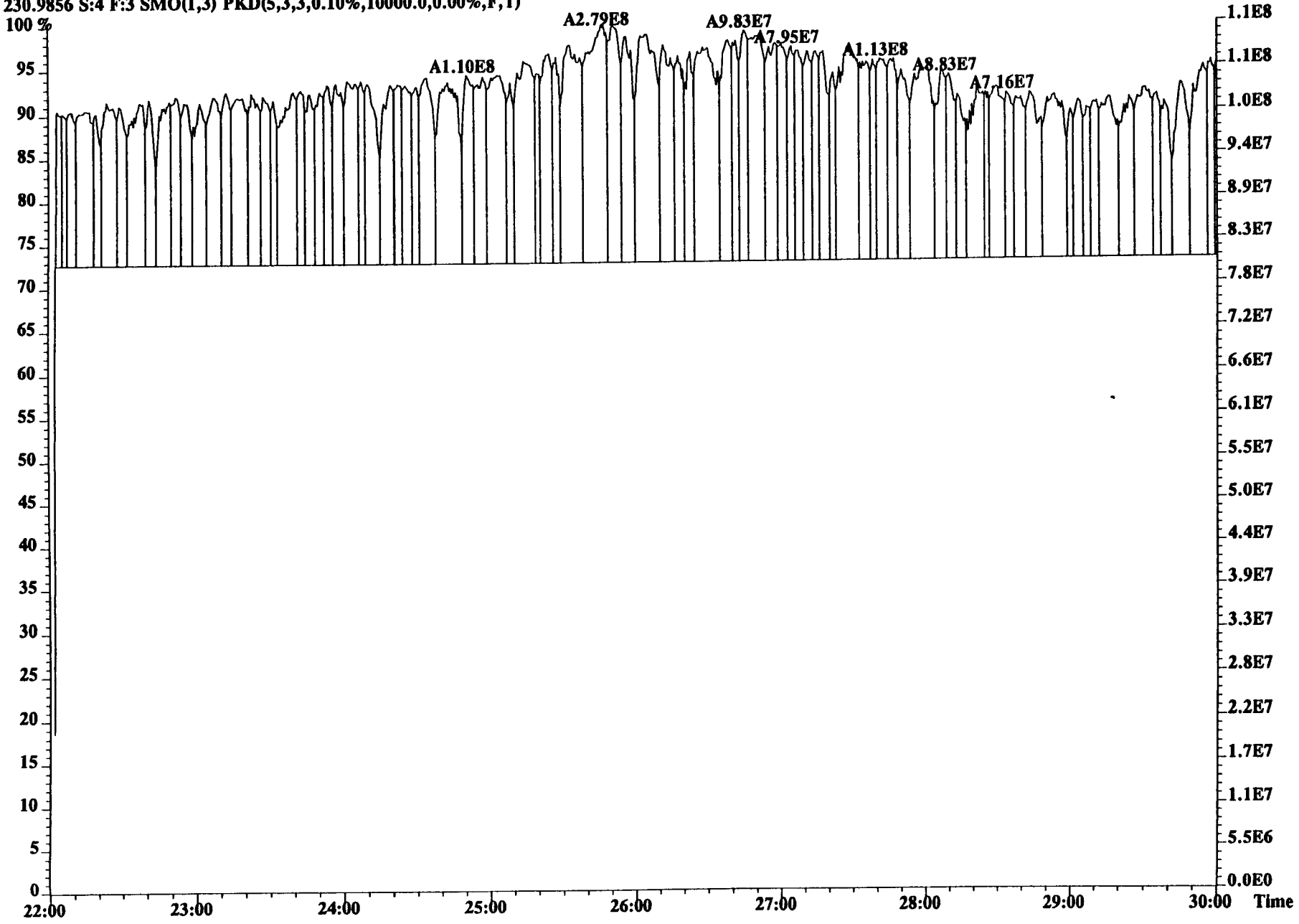
File:19AU98U #1-935 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
228.0939 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



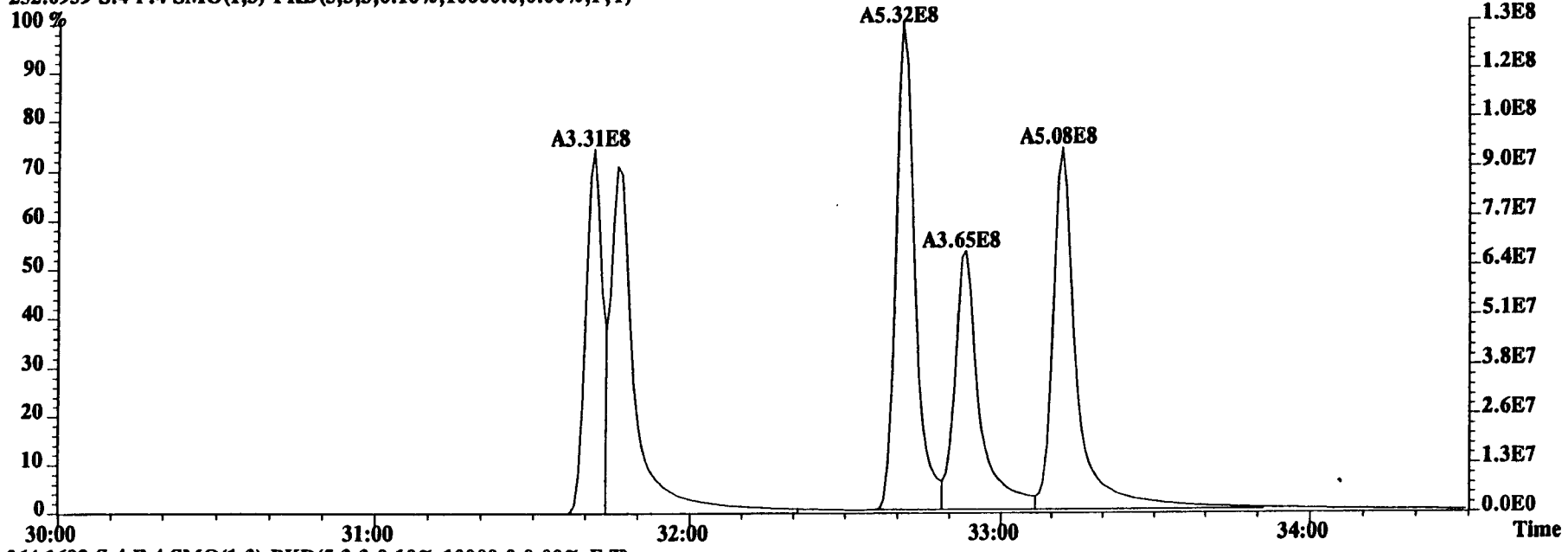
240.1692 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



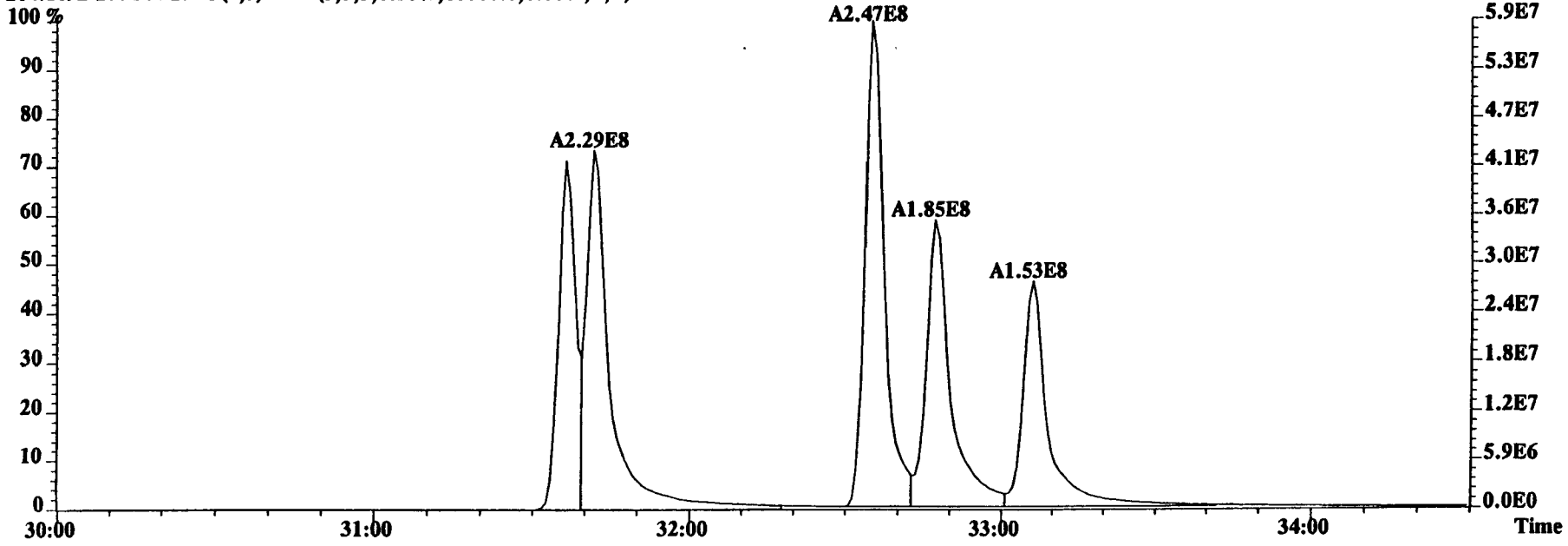
File:19AU98U #1-935 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
230.9856 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:19AU98U #1-955 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
252.0939 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

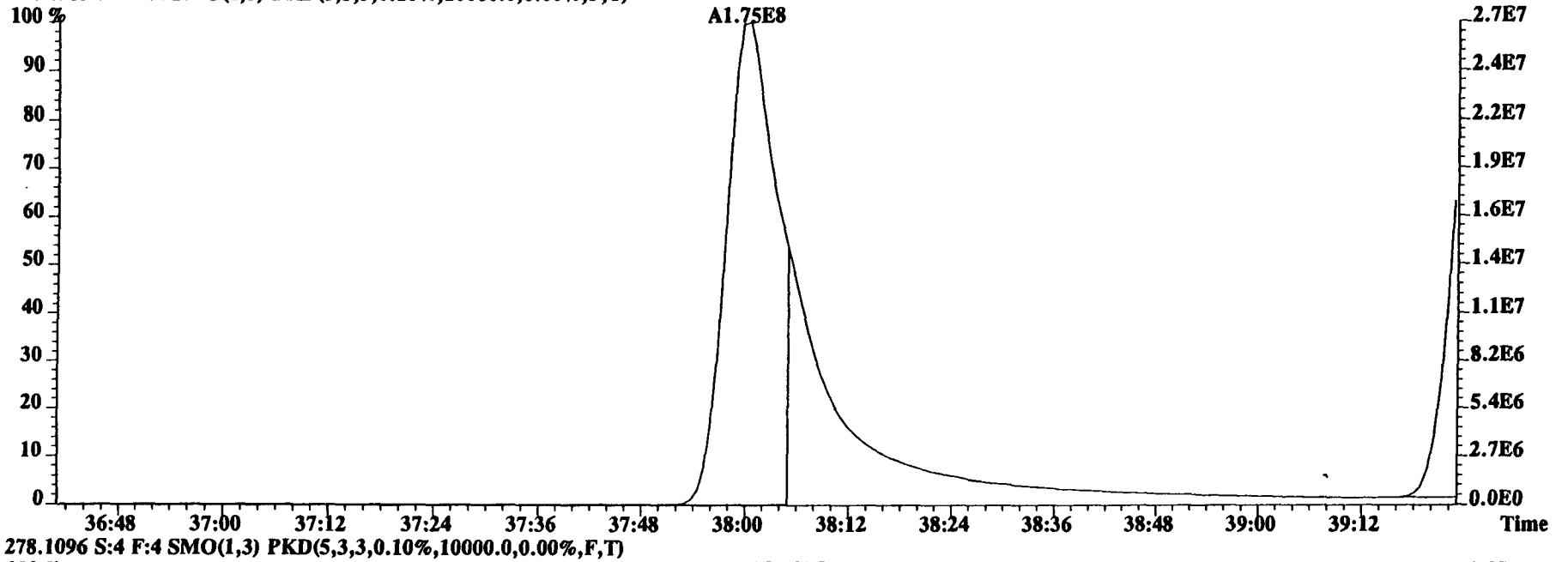


264.1692 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

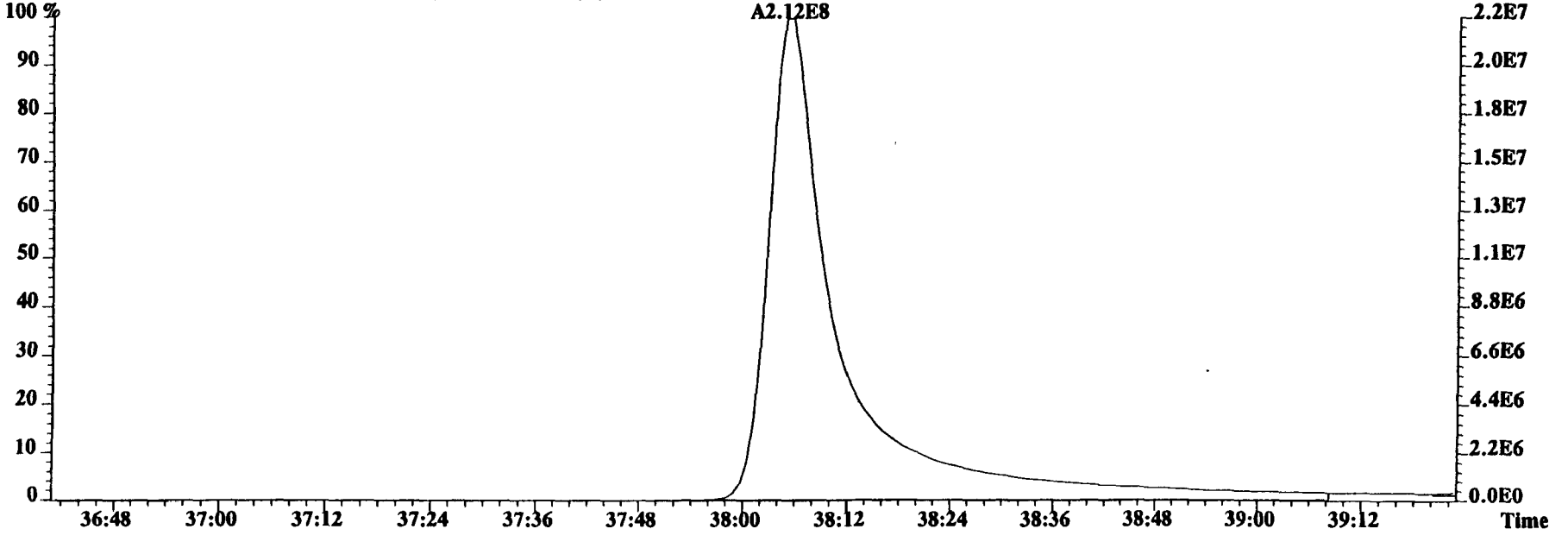


412

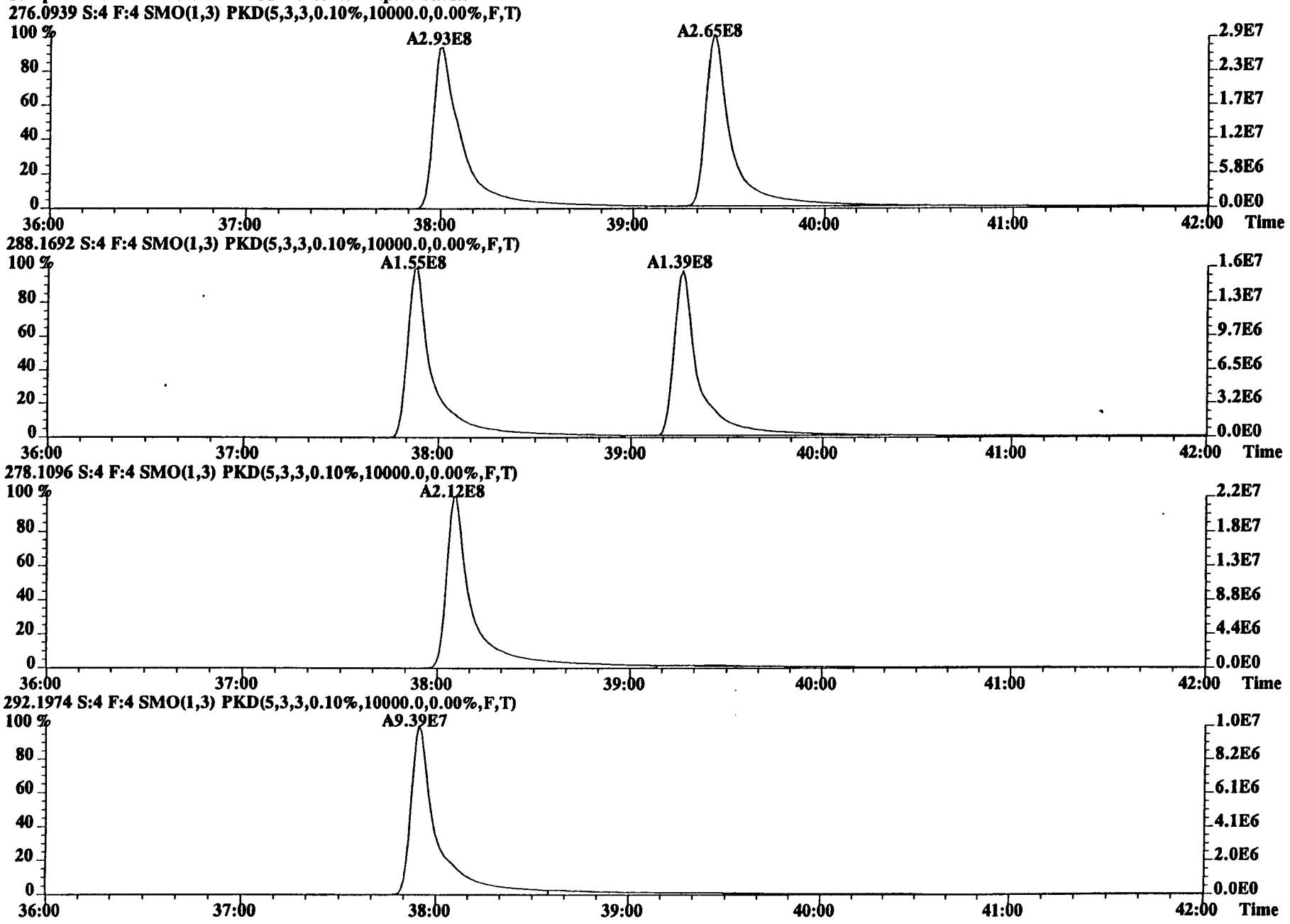
File:19AU98U #1-955 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
276.0939 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



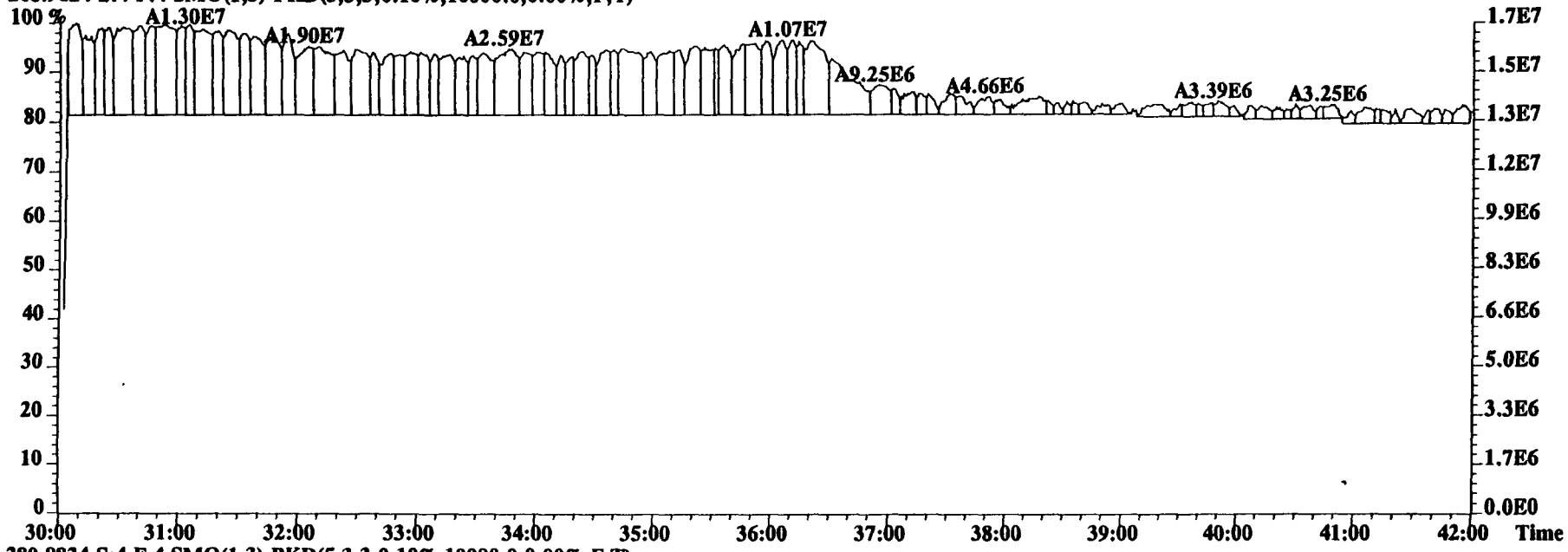
278.1096 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



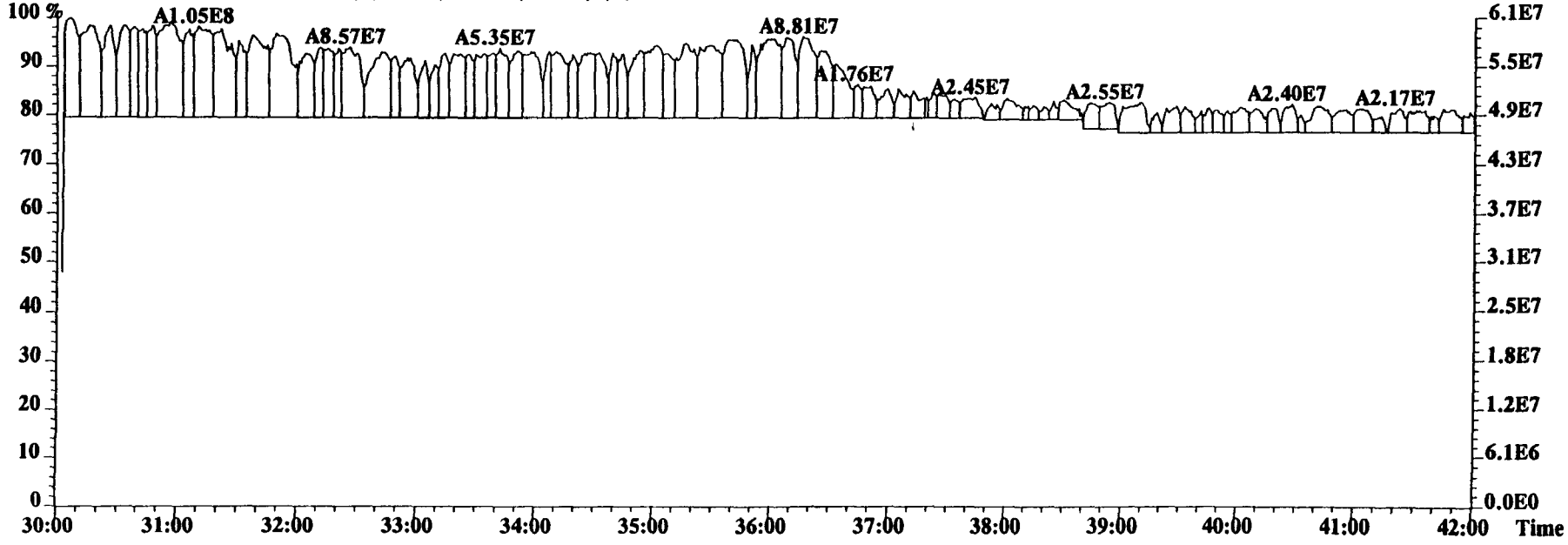
File:19AU98U #1-955 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR



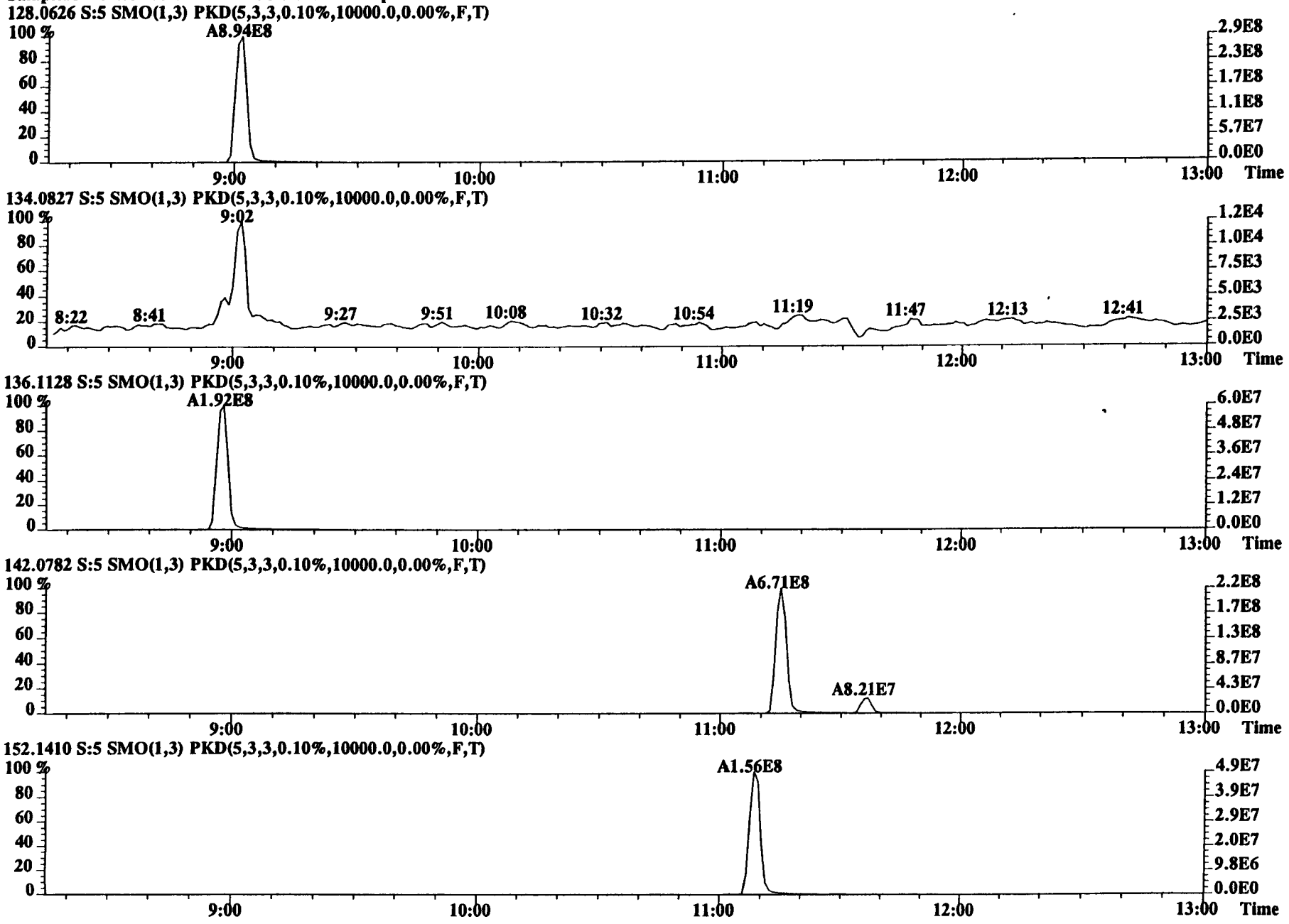
File:19AU98U #1-955 Acq:19-AUG-1998 18:10:03 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST0819C :PAH CS-4 :265-4D Exp:PAHAIR
268.9824 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



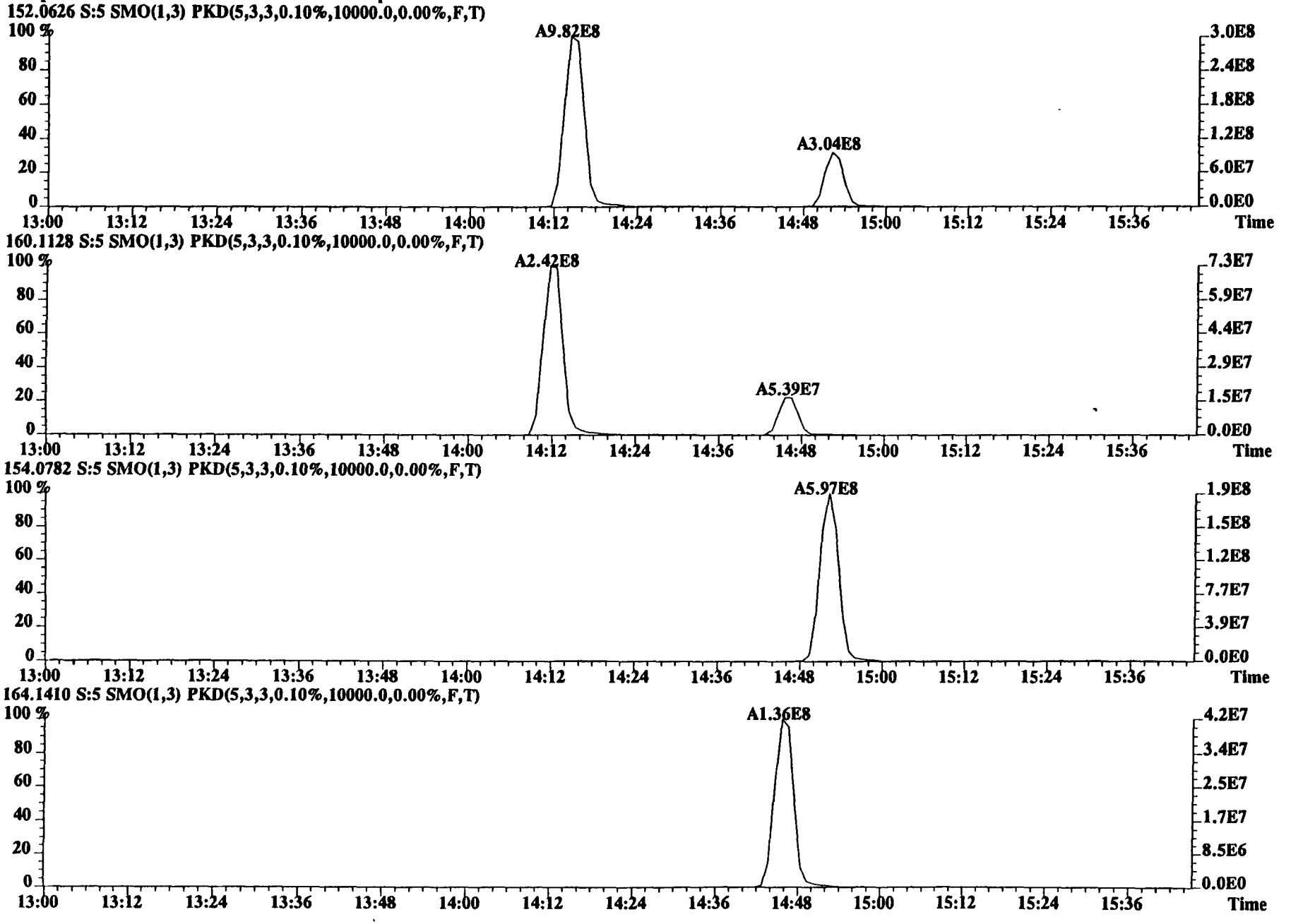
280.9824 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



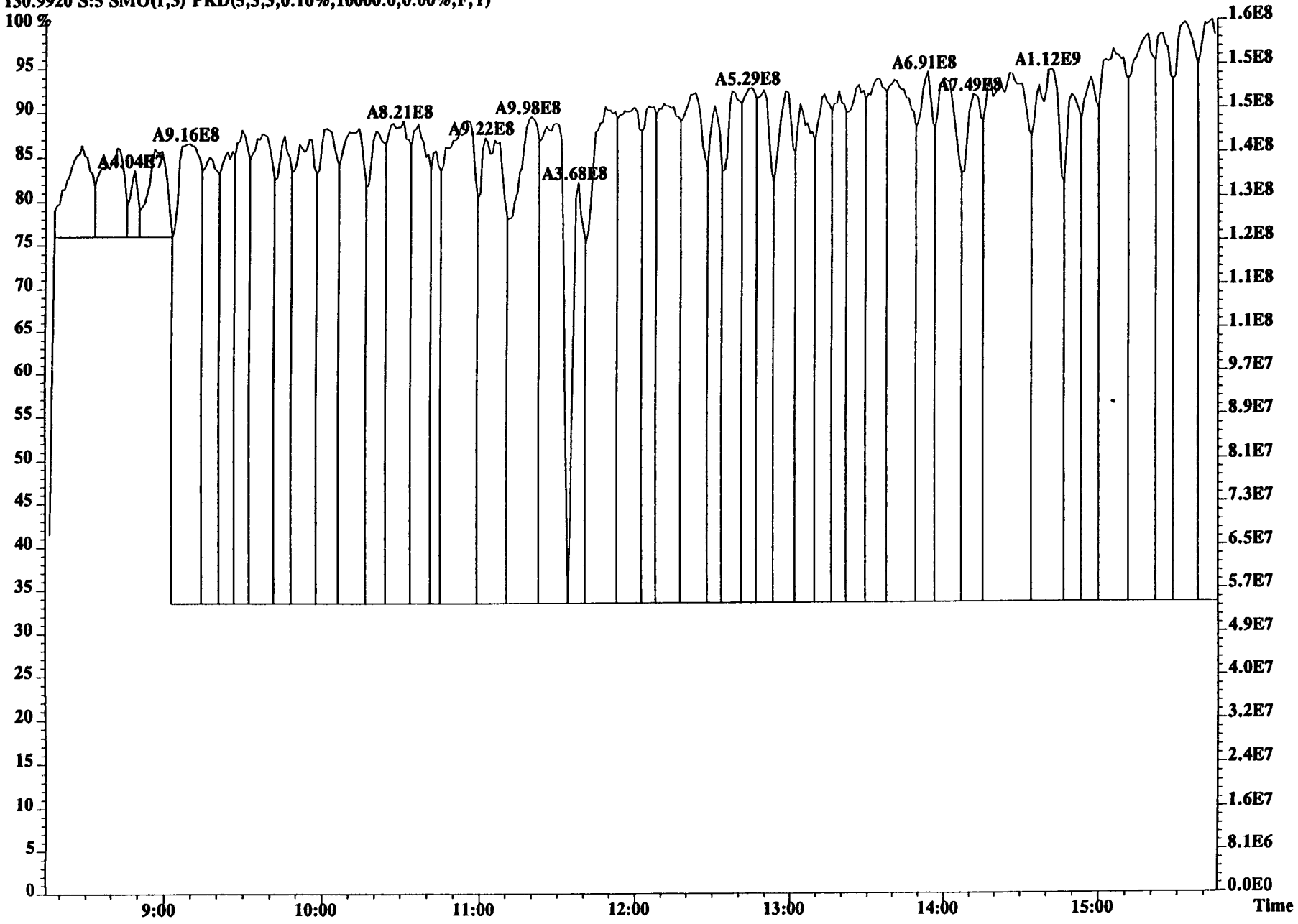
File:19AU98U #1-476 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR



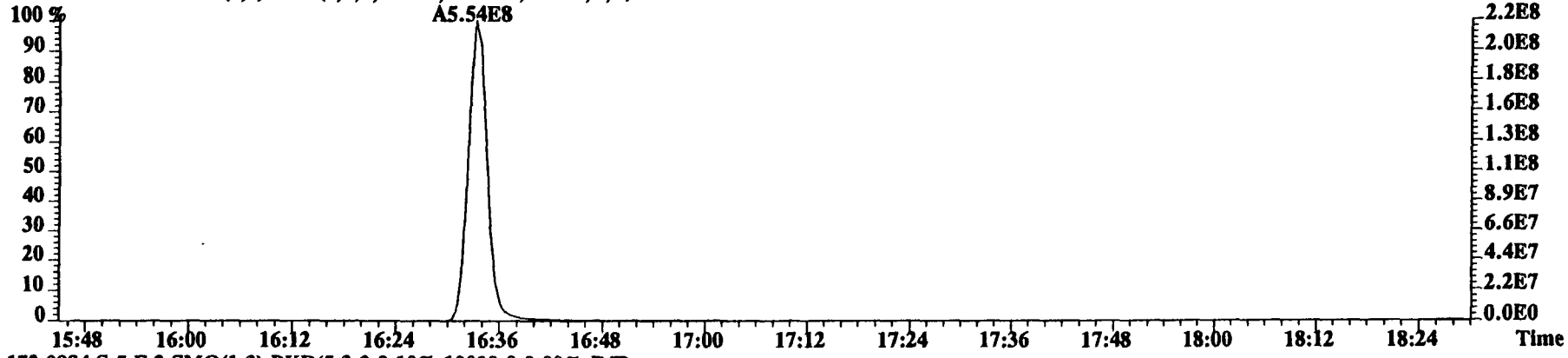
File:19AU98U #1-476 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR



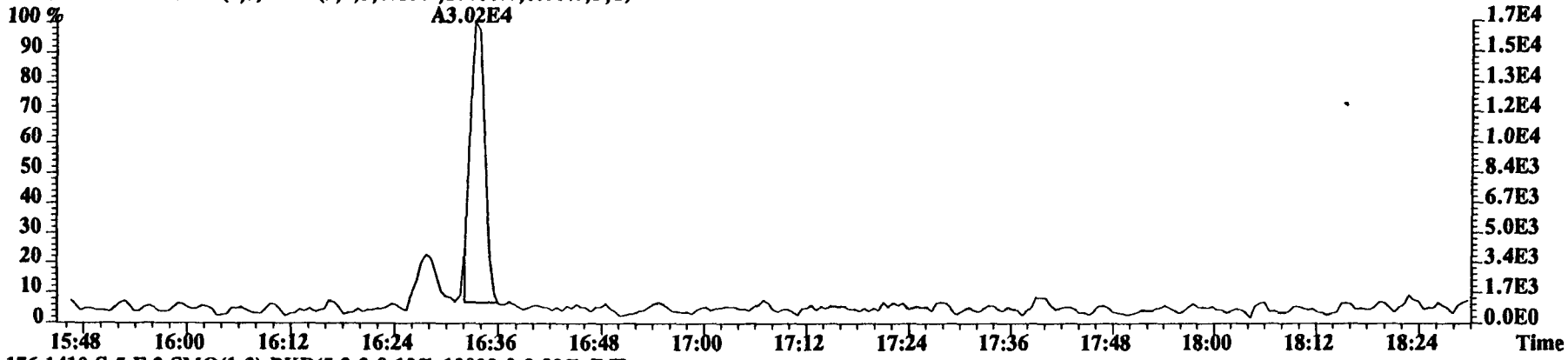
File:19AU98U #1-476 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
130.9920 S:5 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



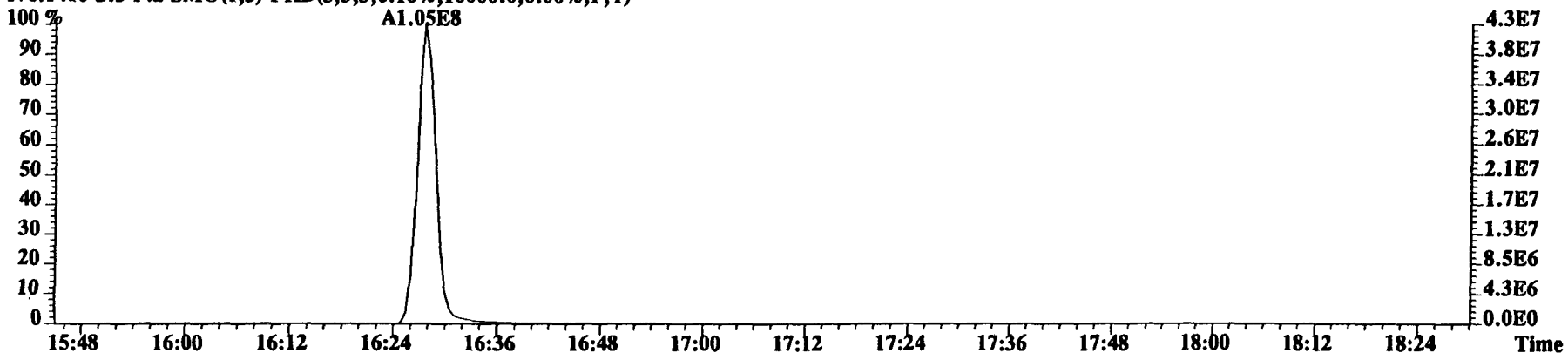
File:19AU98U #1-666 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
166.0798 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



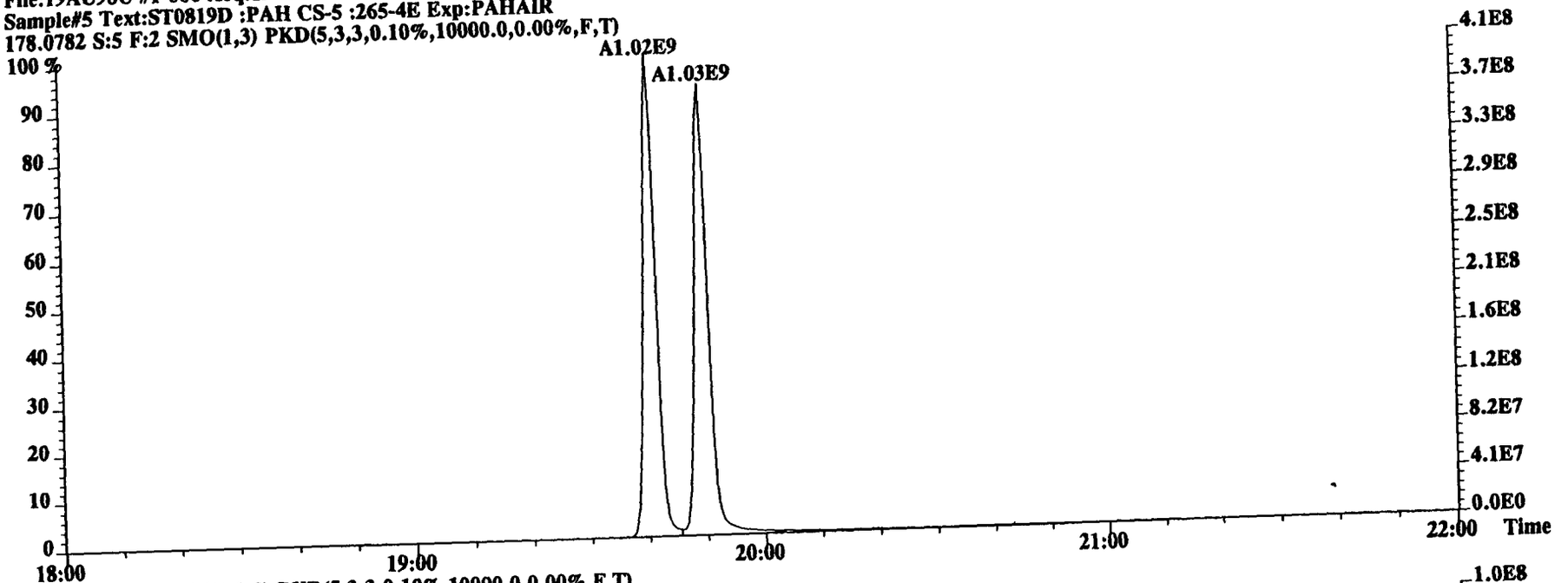
172.0984 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



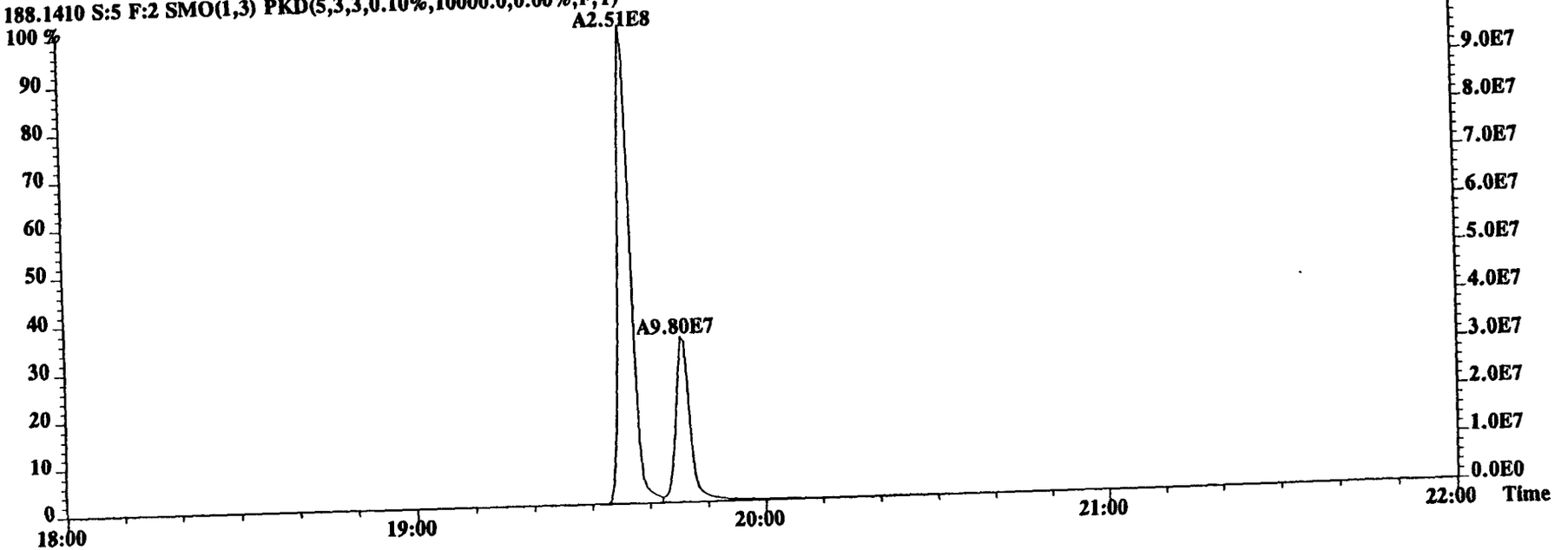
176.1410 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



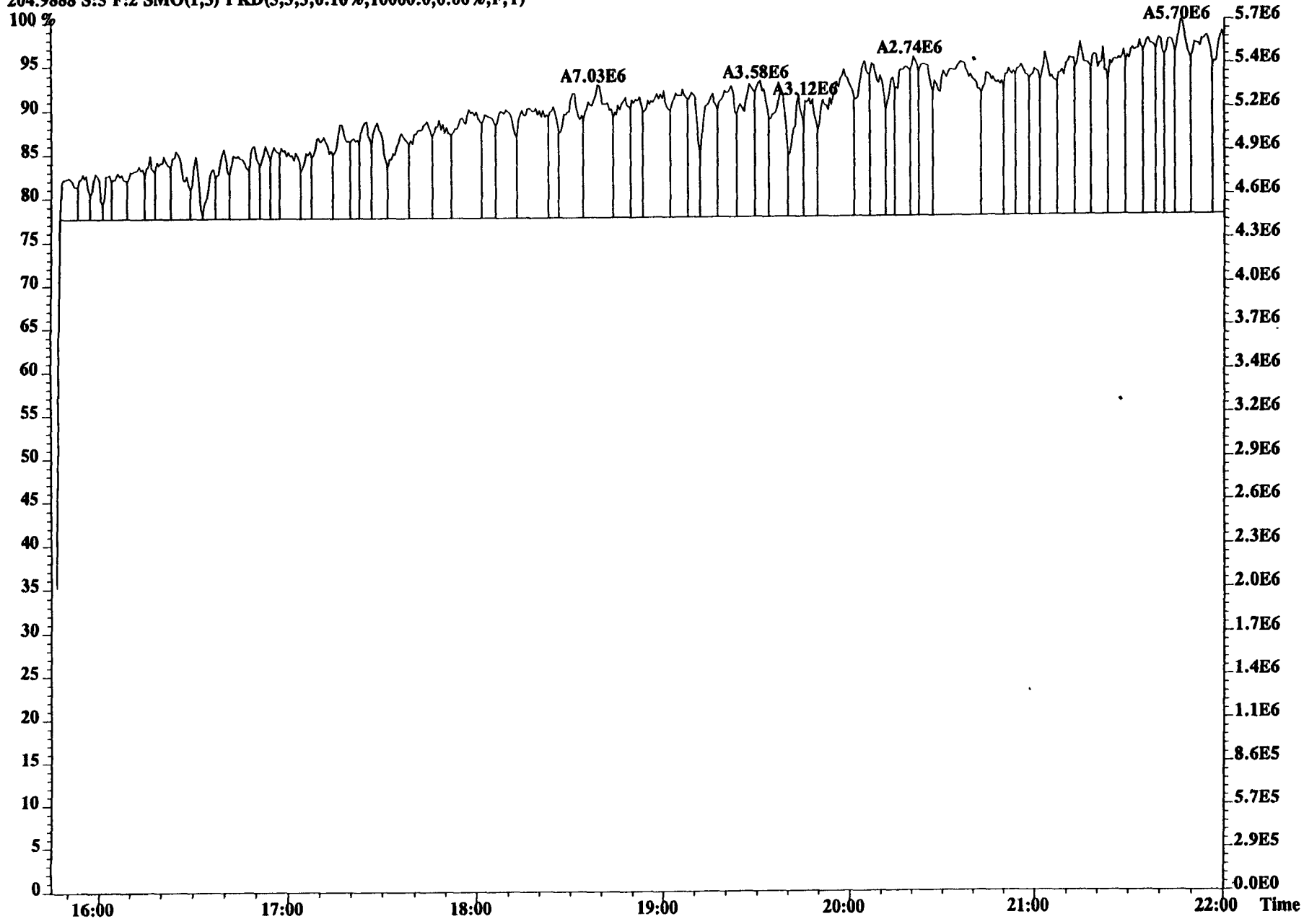
File:19AU98U #1-666 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
178.0782 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



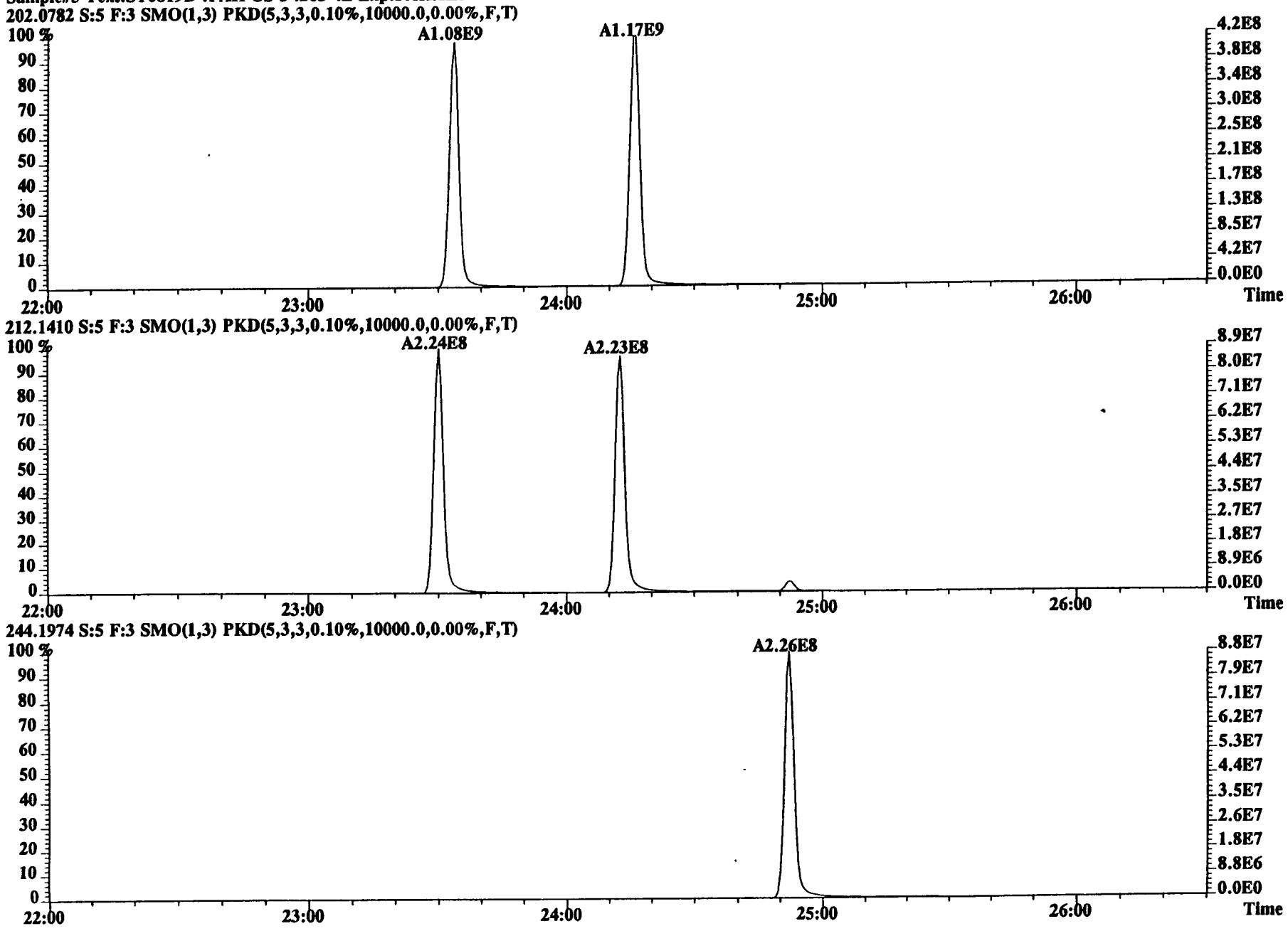
188.1410 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



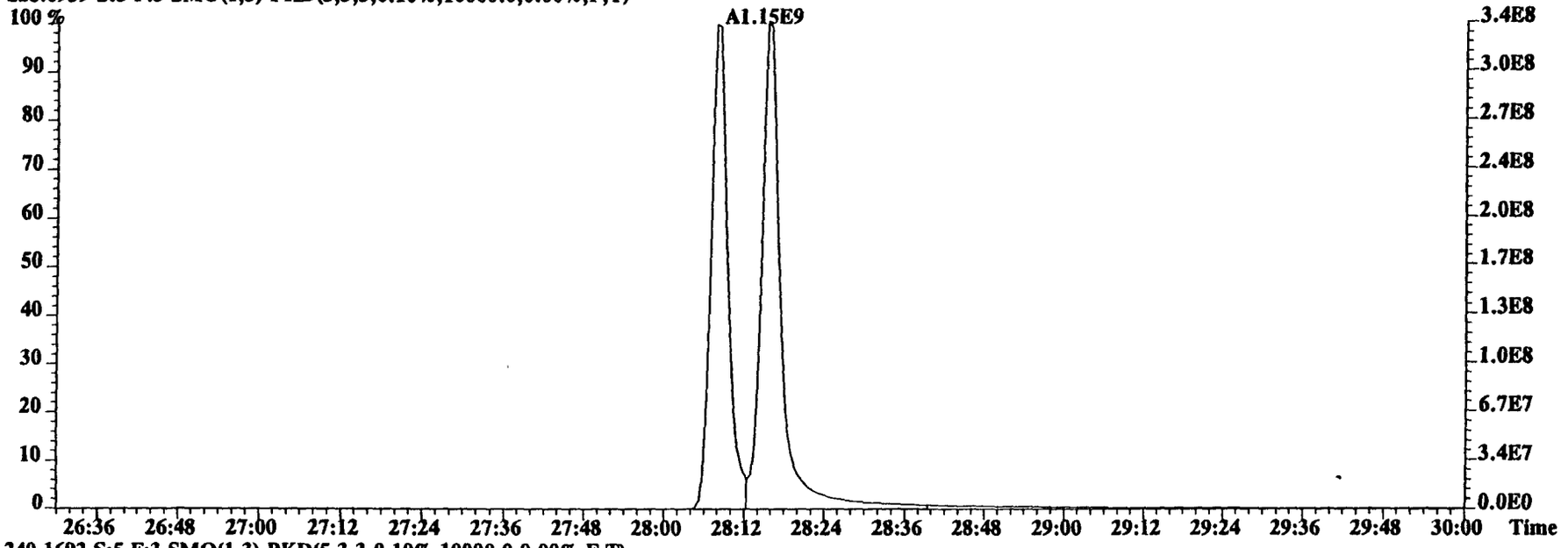
File:19AU98U #1-666 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
204.9888 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



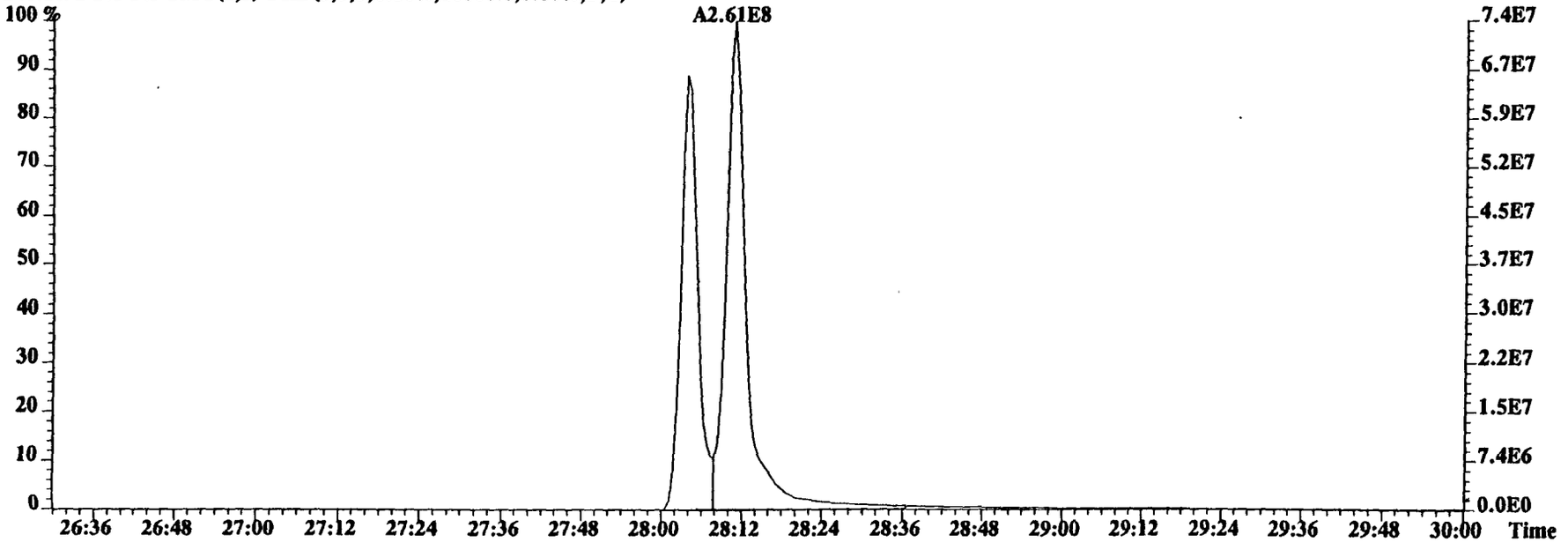
File:19AU98U #1-935 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR



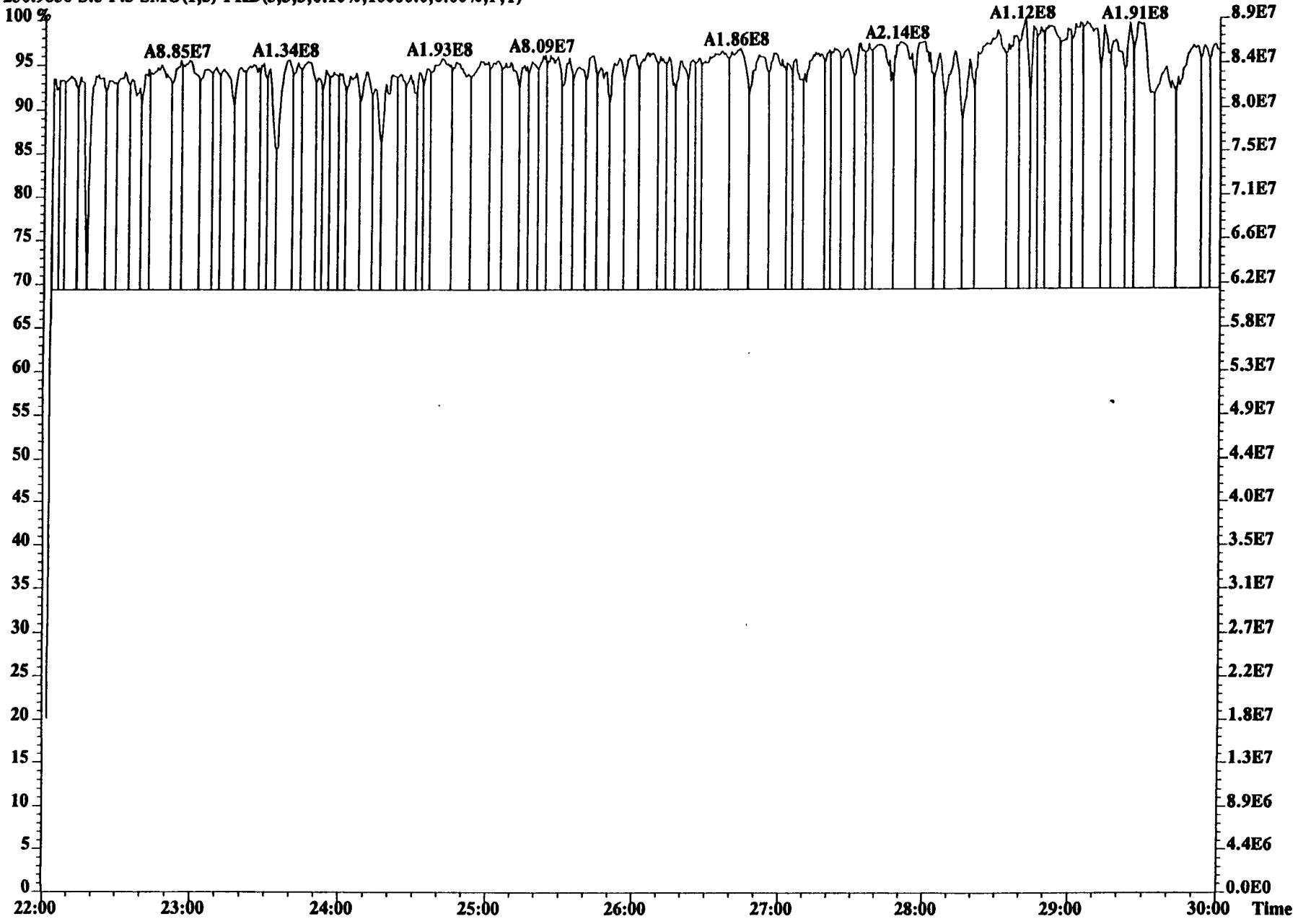
File:19AU98U #1-935 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
228.0939 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



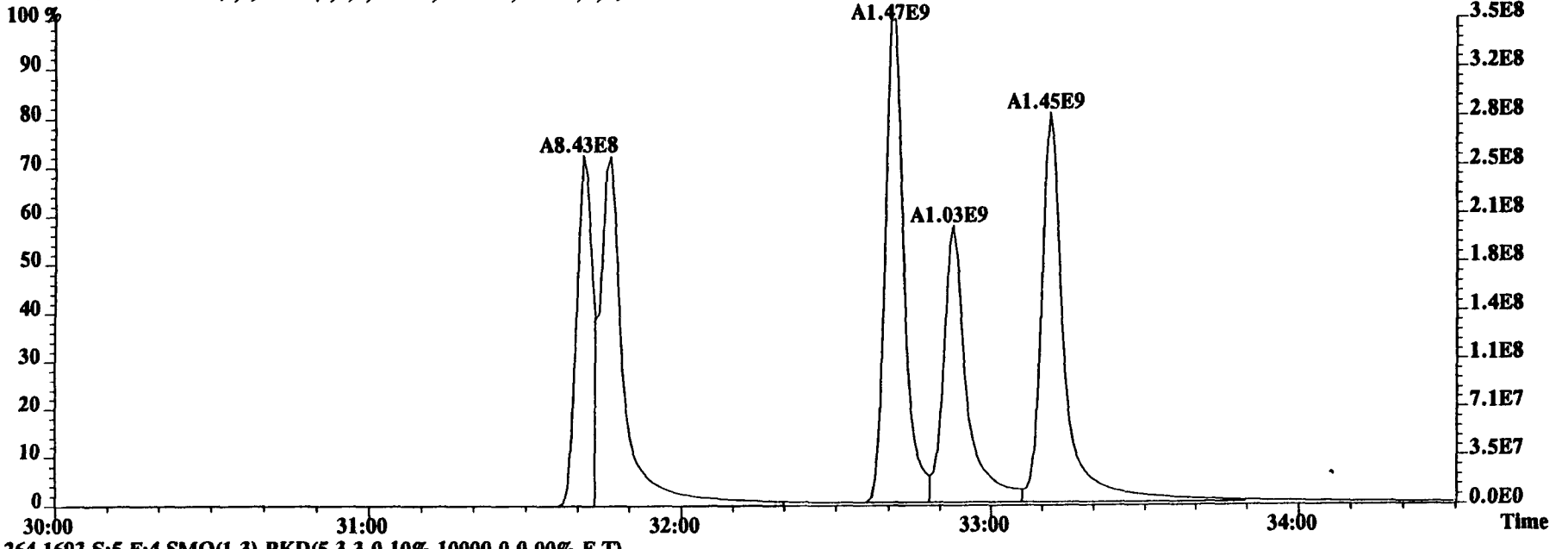
240.1692 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



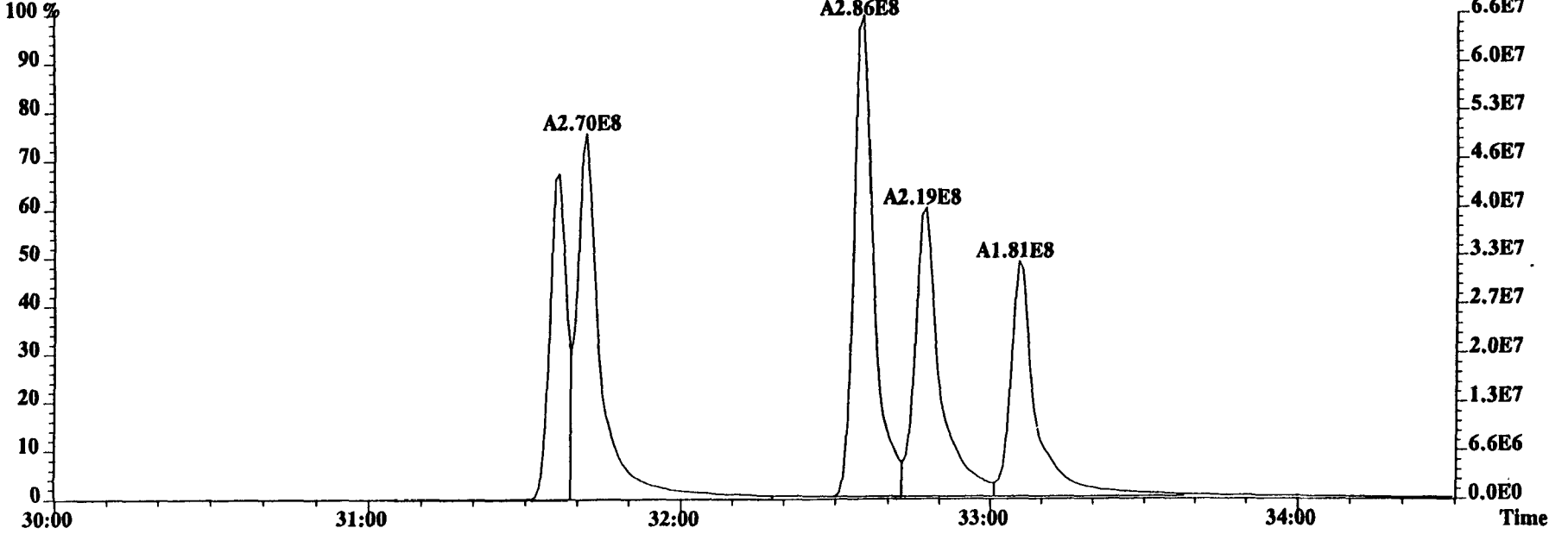
File:19AU98U #1-935 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
230.9856 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



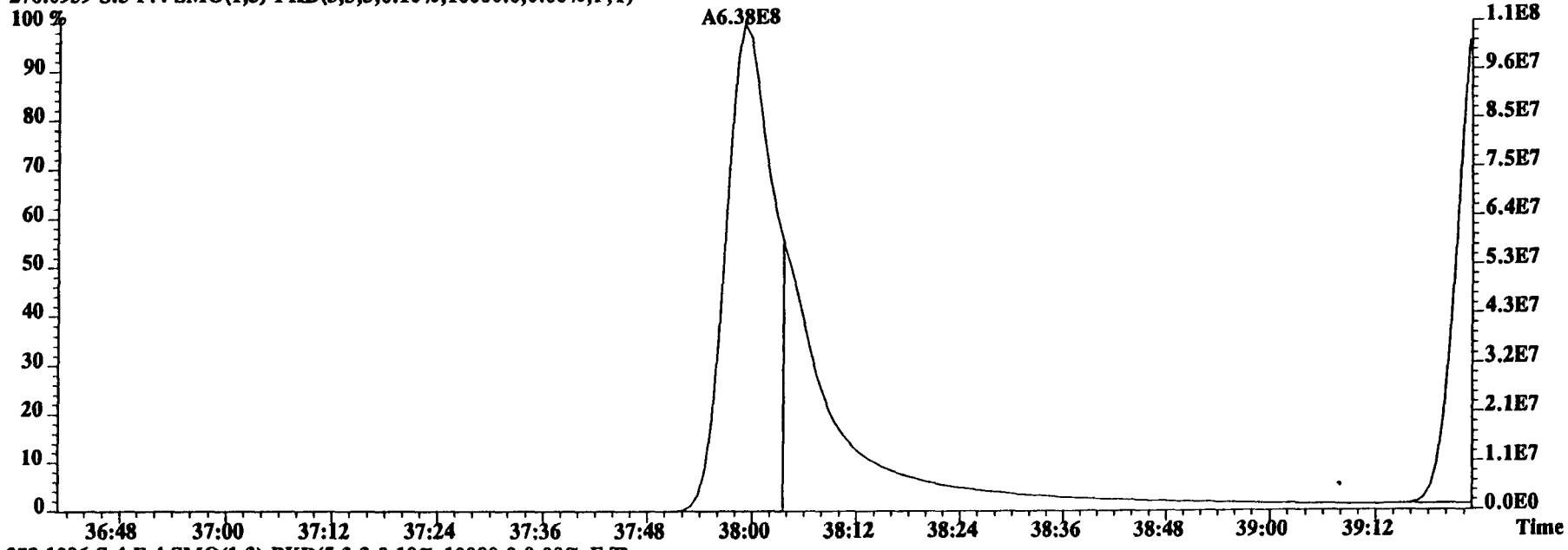
File:19AU98U #1-954 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
252.0939 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



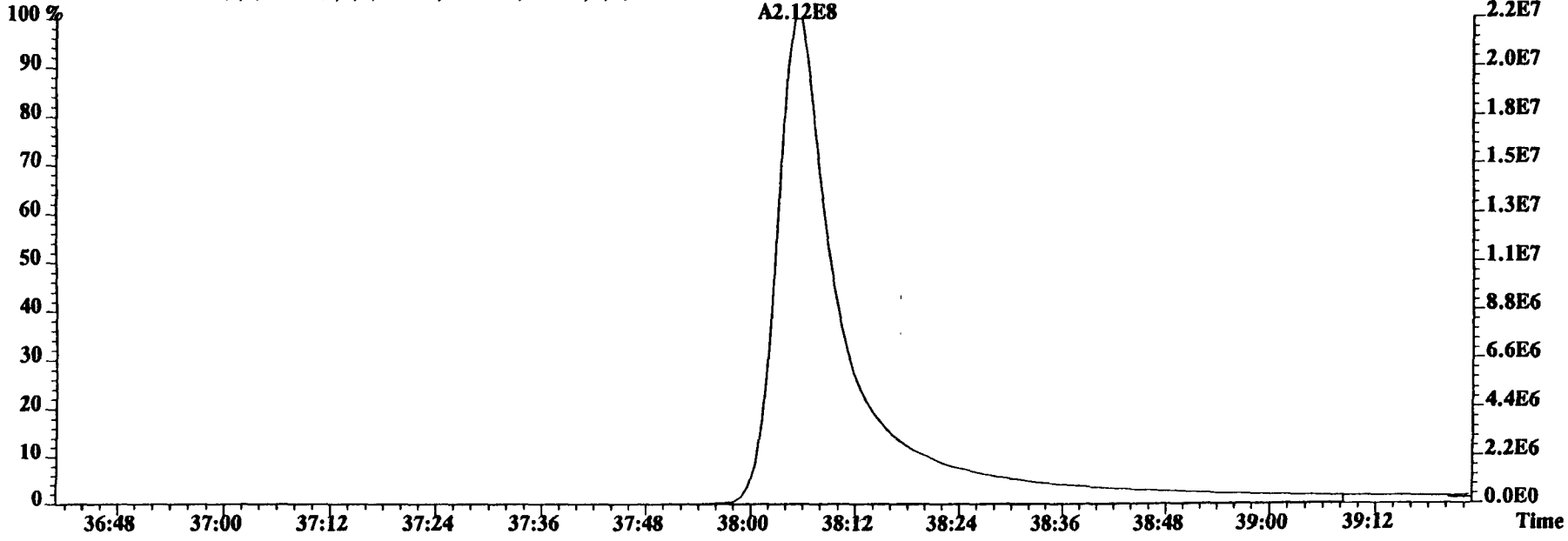
264.1692 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



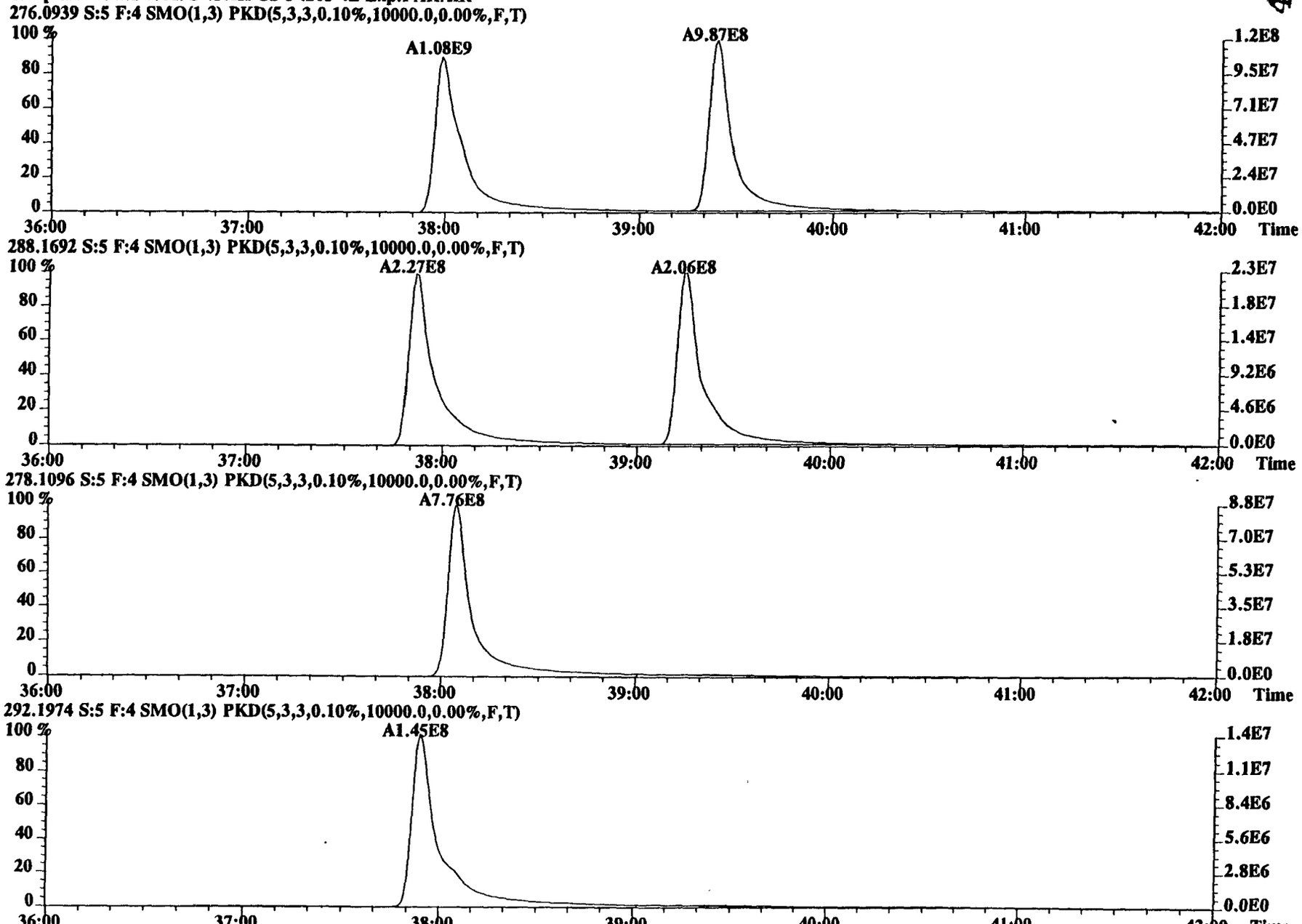
File:19AU98U #1-954 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
276.0939 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



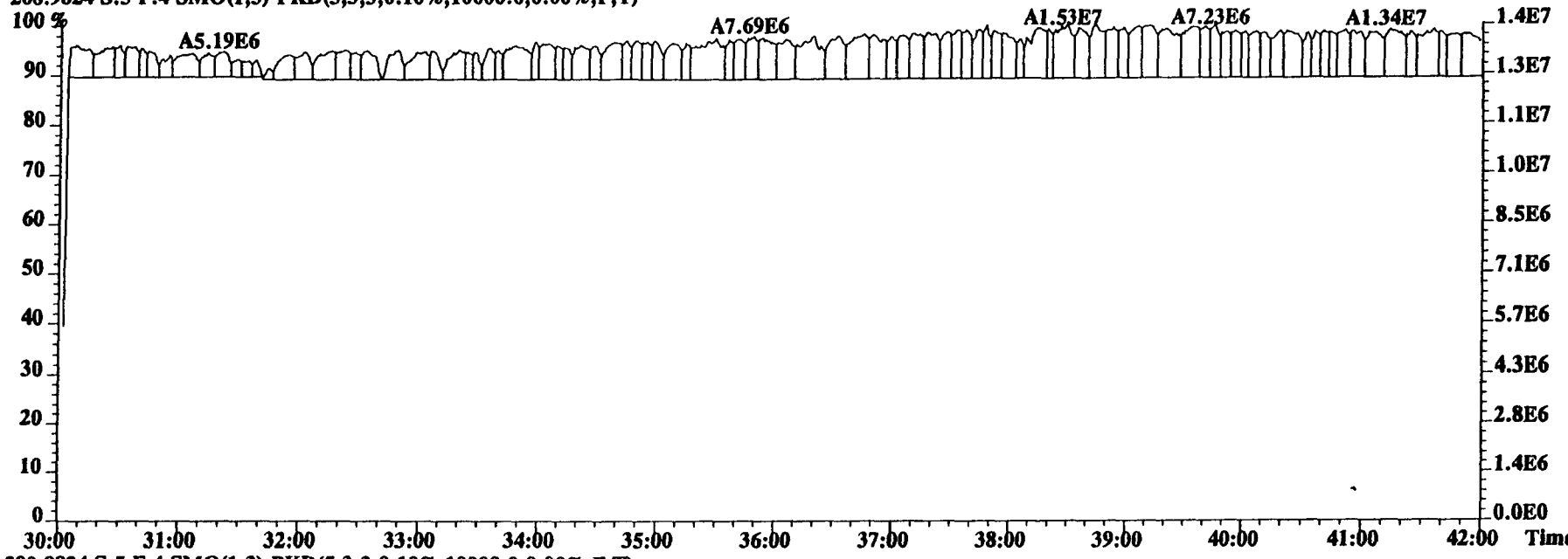
278.1096 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



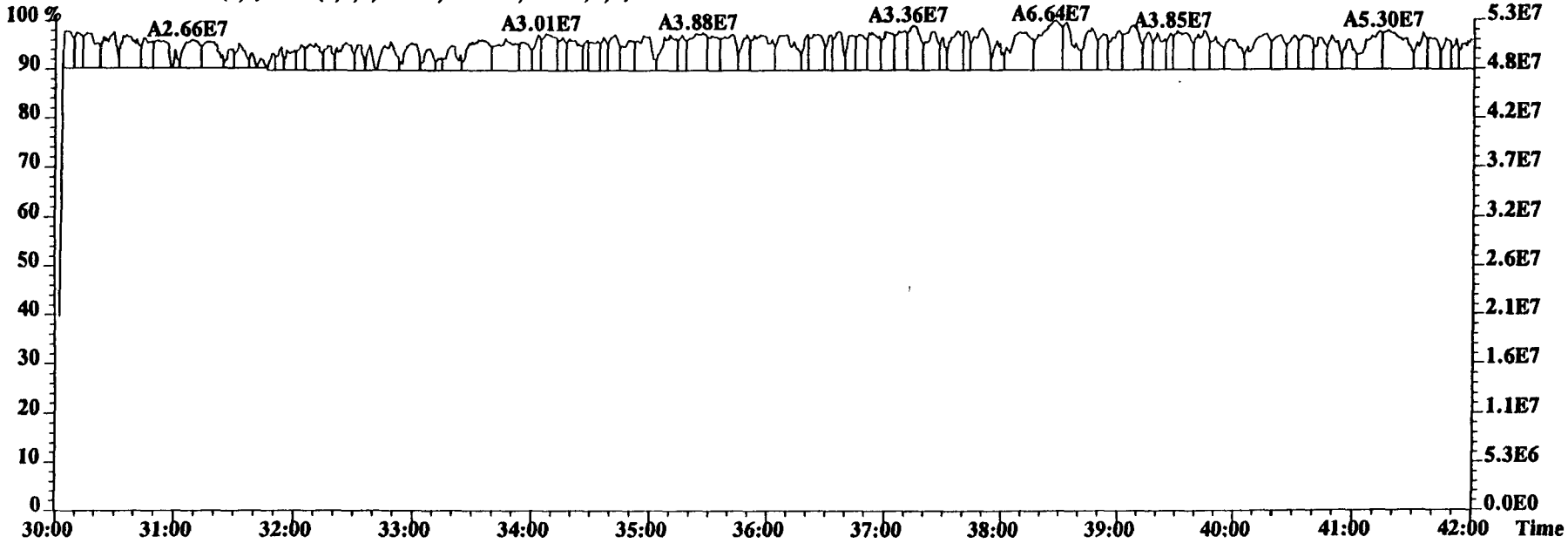
File:19AU98U #1-954 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR



File:19AU98U #1-954 Acq:19-AUG-1998 18:56:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST0819D :PAH CS-5 :265-4E Exp:PAHAIR
268.9824 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Quanterra
Environmental Services

QUANTERRA INCORPORATED

West Sacramento

Initial Calibration Checklist
High Resolution

ICAL ID PAHAIR100198V.RRF Method ID PAH

Column ID DB-5 Instrument ID Ultima

STD ID's 265-04A → 265-04E Multiplier Setting 260V.

Analyzed By A. Alapaz Date Analyzed 10/01/98

Prepared By A. Alapaz Date Prepared 10/02/98

Reviewed By SMA Date Reviewed 10/02/98

ANALYSIS OF ICAL	INITIATED	REVIEWED
Curve summary present?	✓	✓
CS1-CS5, CPSM, solvent blank present?	✓ (1)(2)	✓ (1)(2)
Copy of logfile present?	✓	✓
CPSM Blow-up/Static resolution check present?	NA(1)/✓	NA(1)/✓
Target file RT's correct?	✓	✓
%RSD ~~RRFs~~ within method-specified limits?	✓	✓
Signal-to-noise criteria met?	✓	✓
Isotopic ratios within limits?	NA	NA
High point free of saturation?	✓	✓
Chromatographic windows correct?	✓	✓
CPSM valley < 25%?	NA (1)	NA (1)
Manual reintegrations checked and hardcopies included?	✓	✓

COMMENTS: (1) No PAH CPSM is used.
(2) ~0.1% Carryover seen in the solvent blank following CS-5. ~~Not~~ No solvent blank is analyzed prior to PAH curves.

*Method 8290: %RSD ≤ 20% for natives, ≤ 30% for labelled analytes; S/N ≥ 10
Method 1613A: %CV ≤ 35% (See Table 7, Method 1613A); S/N ≥ 10
Method 23: %RSD ≤ values specified in Table 5, Method 23; S/N > 2.5
PAH: %RSD ≤ 30% for natives and labelled compounds; S/N ≥ 10
PCB: %RSD ≤ 25% for natives, ≤ 30% for labelled compounds; S/N ≥ 2.5
NCASI 551: %RSD ≤ 20% for natives and labelled compounds; ≥ 5
DBD/DBF: %RSD ≤ 30% for natives and labelled compounds; S/N ≥ 10

425

Mass Spec : ULTIMA
GC Column : DB-5
265-04A --> 265-04E; Multiplier @ 260V.

File name : PAHAIR100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d8-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				171.18	160.04	180.53	181.12	198.82					
	RRF	1.78	0.143	8.020	1.71	1.60	1.81	1.81	1.99					
Naphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				15.52	59.91	112.12	218.51	518.93					
	RRF	1.20	0.205	17.067	1.55	1.20	1.12	1.09	1.04					
2-Methylnaphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.86	34.41	57.75	113.66	282.14					
	RRF	0.66	0.138	21.003	0.89	0.69	0.58	0.57	0.56					
d8-Acenaphthylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				123.71	113.60	106.71	114.85	122.99					
	RRF	1.16	0.071	6.092	1.24	1.14	1.07	1.15	1.23					
Acenaphthylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.33	53.17	98.02	200.11	523.04					
	RRF	1.02	0.034	3.301	1.03	1.06	0.98	1.00	1.05					
d10-Acenaphthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				73.42	68.27	62.70	66.67	69.97					
	RRF	0.68	0.040	5.815	0.73	0.68	0.63	0.67	0.70					
Acenaphthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.61	55.92	108.02	226.76	552.29					
	RRF	1.14	0.071	6.206	1.26	1.12	1.08	1.13	1.10					
d10-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				144.89	152.54	146.61	124.50	112.61					
	RRF	1.36	0.169	12.415	1.45	1.53	1.47	1.24	1.13					
Fluorene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.96	61.81	104.48	217.93	581.04					
	RRF	1.15	0.078	6.809	1.20	1.24	1.04	1.09	1.16					
d10-Phenanthrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				304.73	301.29	297.96	241.46	223.55					
	RRF	2.74	0.383	13.988	3.05	3.01	2.98	2.41	2.24					
Phenanthrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.77	48.56	88.92	186.76	495.42					
	RRF	0.95	0.041	4.325	0.98	0.97	0.89	0.93	0.99					
Anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.51	44.48	80.92	215.19	618.06					
	RRF	0.97	0.179	18.441	0.85	0.89	0.81	1.08	1.24					
d10-Fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				122.27	157.80	158.48	157.22	149.99					
	RRF	1.49	0.154	10.335	1.22	1.58	1.58	1.57	1.50					
Fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.21	64.63	118.10	241.31	629.15					
	RRF	1.23	0.044	3.570	1.22	1.29	1.18	1.21	1.26					
d10-Pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				130.84	165.10	166.15	169.44	156.09					
	RRF	1.58	0.157	9.978	1.31	1.65	1.66	1.69	1.56					
Pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.63	63.04	116.69	248.31	676.95					
	RRF	1.26	0.067	5.306	1.26	1.26	1.17	1.24	1.35					

430

Mass Spec : ULTIMA
GC Column : DB-5
265-04A --> 265-04E; Multiplier @ 260V.

File name : PAHAIR100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d12-Benzo(a)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				81.86	73.87	80.14	82.24	88.02					
	RRF	0.81	0.051	6.243	0.82	0.74	0.80	0.82	0.88					
Benzo(a)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.57	65.11	117.72	260.77	680.79					
	RRF	1.28	0.069	5.356	1.26	1.30	1.18	1.30	1.36					
d12-Chrysene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				115.99	107.11	112.39	122.50	125.72					
	RRF	1.17	0.075	6.438	1.16	1.07	1.12	1.23	1.26					
Chrysene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.72	62.55	112.19	221.26	575.40					
	RRF	1.16	0.057	4.881	1.17	1.25	1.12	1.11	1.15					
d12-Benzo(b)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				48.56	46.43	46.37	46.62	52.52					
	RRF	0.48	0.026	5.475	0.49	0.46	0.46	0.47	0.53					
Benzo(b)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				13.55	66.19	117.89	249.84	695.00					
	RRF	1.30	0.085	6.540	1.35	1.32	1.18	1.25	1.39					
d12-Benzo(k)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				96.32	96.76	98.32	100.62	101.05					
	RRF	0.99	0.022	2.196	0.96	0.97	0.98	1.01	1.01					
Benzo(k)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.67	63.60	115.65	233.26	575.34					
	RRF	1.20	0.061	5.111	1.27	1.27	1.16	1.17	1.15					
d12-Benzo(a)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				71.22	75.03	71.96	74.50	76.72					
	RRF	0.74	0.023	3.065	0.71	0.75	0.72	0.74	0.77					
Benzo(e)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				17.26	82.73	150.84	313.45	826.10					
	RRF	1.62	0.085	5.216	1.73	1.65	1.51	1.57	1.65					
Benzo(a)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.23	58.74	104.99	205.81	539.70					
	RRF	1.11	0.084	7.550	1.22	1.17	1.05	1.03	1.08					
d12-Perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.50	67.68	66.13	66.18	62.72					
	RRF	0.65	0.029	4.558	0.60	0.68	0.66	0.66	0.63					
Perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				18.19	93.11	154.60	326.69	929.14					
	RRF	1.74	0.145	8.315	1.82	1.86	1.55	1.63	1.86					
d12-Indeno(123-cd)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				37.05	32.97	34.97	37.60	43.56					
	RRF	0.37	0.040	10.705	0.37	0.33	0.35	0.38	0.44					
Indeno(123-cd)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				5.81	32.63	58.18	117.22	308.65					
	RRF	0.60	0.031	5.150	0.58	0.65	0.58	0.59	0.62					
d14-Dibenz(ah)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				19.47	17.67	18.57	20.38	25.60					
	RRF	0.20	0.031	15.283	0.19	0.18	0.19	0.20	0.26					

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Mass Spec : ULTIMA
GC Column : DB-5
265-04A --> 265-04E; Multiplier @ 260V.

File name : PAHAIR100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
Dibenz(ah)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.64	60.24	129.39	268.11	651.39					
	RRF	1.28	0.051	3.957	1.26	1.20	1.29	1.34	1.30					
d12-Benzo(ghi)perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				45.17	37.67	38.08	39.49	44.20					
	RRF	0.41	0.035	8.601	0.45	0.38	0.38	0.39	0.44					
Benzo(ghi)perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.73	56.16	107.43	227.28	559.79					
	RRF	1.11	0.030	2.671	1.07	1.12	1.07	1.14	1.12					

Mass Spec : ULTIMA Results : 010C98U011.RES : PAHAIRCAL1.TRG
GC Column : DB-5 Date analyzed : 01-OCT-98
Data file : 010C98U ST1001 :CS-1 :265-04A : : Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	110799200	1.00 Y	10: 28 Y	0.00	100.00	
d8-Naphthalene	189666000	1.00 Y	8: 19 Y	1.71	100.00	
Naphthalene	29434600	1.00 Y	8: 23 Y	1.55	10.00	0.000
2-Methylnaphthalene	16800660	1.00 Y	10: 35 Y	0.89	10.00	0.000
d8-Acenaphthylene	137066800	1.00 Y	13: 31 Y	1.24	100.00	
Acenaphthylene	14160260	1.00 Y	13: 33 Y	1.03	10.00	0.000
d10-Acenaphthene	81344200	1.00 Y	14: 5 Y	0.73	100.00	
Acenaphthene	10258380	1.00 Y	14: 11 Y	1.26	10.00	0.000
d10-Anthracene	66290800	1.00 Y	19: 3 Y	0.00	100.00	
d10-Fluorene	96050000	1.00 Y	15: 47 Y	1.45	100.00	
Fluorene	11491020	1.00 Y	15: 52 Y	1.20	10.00	0.000
d10-Phenanthrene	202010000	1.00 Y	18: 54 Y	3.05	100.00	
Phenanthrene	19738800	1.00 Y	18: 58 Y	0.98	10.00	0.000
Anthracene	17184620	1.00 Y	19: 7 Y	0.85	10.00	0.000
d14-Terphenyl	223606000	1.00 Y	24: 11 Y	-1.00	100.00	
d10-Fluoranthene	273396000	1.00 Y	22: 47 Y	1.22	100.00	
Fluoranthene	33374600	1.00 Y	22: 50 Y	1.22	10.00	0.000
d10-Pyrene	292556000	1.00 Y	23: 29 Y	1.31	100.00	
Pyrene	36964000	1.00 Y	23: 32 Y	1.26	10.00	0.000
d12-Benzo(a)anthracene	183043000	1.00 Y	27: 21 Y	0.82	100.00	
Benzo(a)anthracene	23008400	1.00 Y	27: 25 Y	1.26	10.00	0.000
d12-Chrysene	259364000	1.00 Y	27: 28 Y	1.16	100.00	
Chrysene	30400400	1.00 Y	27: 33 Y	1.17	10.00	0.000
d12-Benzo(e)pyrene	371336000	1.00 Y	31: 41 Y	0.00	100.00	
d12-Benzo(b)fluoranthene	180333000	1.00 Y	30: 46 Y	0.49	100.00	
Benzo(b)fluoranthene	24427600	1.00 Y	30: 51 Y	1.35	10.00	0.000
d12-Benzo(k)fluoranthene	357682000	1.00 Y	30: 51 Y	0.96	100.00	
Benzo(k)fluoranthene	45322800	1.00 Y	30: 55 Y	1.27	10.00	0.000
d12-Benzo(a)pyrene	264468000	1.00 Y	31: 51 Y	0.71	100.00	
Benzo(e)pyrene	45637600	1.00 Y	31: 46 Y	1.73	10.00	0.000
Benzo(a)pyrene	32356800	1.00 Y	31: 56 Y	1.22	10.00	0.000
d12-Perylene	224648000	1.00 Y	32: 9 Y	0.60	100.00	
Perylene	40866400	1.00 Y	32: 15 Y	1.82	10.00	0.000
d12-Indeno(123-cd)pyrene	137581800	1.00 Y	36: 31 Y	0.37	100.00	
Indeno(123-cd)pyrene	8000000	1.00 Y	36: 39 Y	0.58	10.00	0.000
d14-Dibenz(ah)anthracene	72286600	1.00 Y	36: 37 Y	0.19	100.00	
Dibenz(ah)anthracene	9140000	1.00 Y	36: 46 Y	1.26	10.00	0.000
d12-Benzo(ghi)perylene	167734200	1.00 Y	37: 47 Y	0.45	100.00	
Benzo(ghi)perylene	18000000	1.00 Y	37: 56 Y	1.07	10.00	0.000

02-OCT-1998 09:37:59 AM PAH Ical RESULTS

Mass Spec : ULTIMA Results : 01OC98U021.RES : PAHAIRCAL2.TRG
GC Column : DB-5 Date analyzed : 01-OCT-98
Data file : 01OC98U ST1001A :CS-2 :265-04B : Ex
Weight : 1

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	134307600	1.00	Y	10: 28	Y	0.00	100.00	
d8-Naphthalene	214944000	1.00	Y	8: 19	Y	1.60	100.00	
Naphthalene	128782200	1.00	Y	8: 23	Y	1.20	50.00	0.000
2-Methylnaphthalene	73971800	1.00	Y	10: 35	Y	0.69	50.00	0.000
d8-Acenaphthylene	152576600	1.00	Y	13: 31	Y	1.14	100.00	
Acenaphthylene	81117800	1.00	Y	13: 34	Y	1.06	50.00	0.000
d10-Acenaphthene	91695800	1.00	Y	14: 5	Y	0.68	100.00	
Acenaphthene	51273200	1.00	Y	14: 11	Y	1.12	50.00	0.000
d10-Anthracene	75224800	1.00	Y	19: 3	Y	0.00	100.00	
d10-Fluorene	114746200	1.00	Y	15: 46	Y	1.53	100.00	
Fluorene	70928400	1.00	Y	15: 52	Y	1.24	50.00	0.000
d10-Phenanthrene	226644000	1.00	Y	18: 54	Y	3.01	100.00	
Phenanthrene	110062200	1.00	Y	18: 58	Y	0.97	50.00	0.000
Anthracene	100803600	1.00	Y	19: 7	Y	0.89	50.00	0.000
d14-Terphenyl	143463400	1.00	Y	24: 11	Y	0.00	100.00	
d10-Fluoranthene	226392000	1.00	Y	22: 47	Y	1.58	100.00	
Fluoranthene	146312600	1.00	Y	22: 51	Y	1.29	50.00	0.000
d10-Pyrene	236858000	1.00	Y	23: 28	Y	1.65	100.00	
Pyrene	149305600	1.00	Y	23: 32	Y	1.26	50.00	0.000
d12-Benzo(a)anthracene	105981000	1.00	Y	27: 21	Y	0.74	100.00	
Benzo(a)anthracene	69000600	1.00	Y	27: 25	Y	1.30	50.00	0.000
d12-Chrysene	153666800	1.00	Y	27: 28	Y	1.07	100.00	
Chrysene	96114400	1.00	Y	27: 32	Y	1.25	50.00	0.000
d12-Benzo(e)pyrene	228652000	1.00	Y	31: 40	Y	-1.00	100.00	
d12-Benzo(b)fluoranthene	106163600	1.00	Y	30: 46	Y	0.46	100.00	
Benzo(b)fluoranthene	70270400	1.00	Y	30: 50	Y	1.32	50.00	0.000
d12-Benzo(k)fluoranthene	221236000	1.00	Y	30: 51	Y	0.97	100.00	
Benzo(k)fluoranthene	140696200	1.00	Y	30: 55	Y	1.27	50.00	0.000
d12-Benzo(a)pyrene	171550000	1.00	Y	31: 51	Y	0.75	100.00	
Benzo(e)pyrene	141922600	1.00	Y	31: 46	Y	1.65	50.00	0.000
Benzo(a)pyrene	100767200	1.00	Y	31: 56	Y	1.17	50.00	0.000
d12-Perylene	154760400	1.00	Y	32: 9	Y	0.68	100.00	
Perylene	144099400	1.00	Y	32: 14	Y	1.86	50.00	0.000
d12-Indeno(123-cd)pyrene	75380600	1.00	Y	36: 32	Y	0.33	100.00	
Indeno(123-cd)pyrene	24600000	1.00	Y	36: 38	Y	0.65	50.00	0.000
d14-Dibenz(ah)anthracene	40401400	1.00	Y	36: 36	Y	0.18	100.00	
Dibenz(ah)anthracene	24336000	1.00	Y	36: 46	Y	1.20	50.00	0.000
d12-Benzo(ghi)perylene	86132400	1.00	Y	37: 47	Y	0.38	100.00	
Benzo(ghi)perylene	48371600	1.00	Y	37: 56	Y	1.12	50.00	0.000

Mass Spec : ULTIMA Results : 01OC98U031.RES : PAHAIRCAL3.TRG
GC Column : DB-5 Date analyzed : 01-OCT-98
Data file : 01OC98U ST1001B :CS-3 :265-04C : Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	132646200	1.00 Y	10: 29 Y	1.00	100.00	
d8-Naphthalene	239460000	1.00 Y	8: 19 Y	1.81	100.00	
Naphthalene	268480000	1.00 Y	8: 23 Y	1.12	100.00	0.000
2-Methylnaphthalene	138281000	1.00 Y	10: 35 Y	0.58	100.00	0.000
d8-Acenaphthylene	141540200	1.00 Y	13: 30 Y	1.07	100.00	
Acenaphthylene	138743400	1.00 Y	13: 33 Y	0.98	100.00	0.000
d10-Acenaphthene	83168600	1.00 Y	14: 4 Y	0.63	100.00	
Acenaphthene	89837400	1.00 Y	14: 11 Y	1.08	100.00	0.000
d10-Anthracene	74035200	1.00 Y	19: 3 Y	0.00	100.00	
d10-Fluorene	108542800	1.00 Y	15: 47 Y	1.47	100.00	
Fluorene	113410400	1.00 Y	15: 52 Y	1.04	100.00	0.000
d10-Phenanthrene	220596000	1.00 Y	18: 54 Y	2.98	100.00	
Phenanthrene	196147600	1.00 Y	18: 58 Y	0.89	100.00	0.000
Anthracene	178499800	1.00 Y	19: 7 Y	0.81	100.00	0.000
d14-Terphenyl	155127000	1.00 Y	24: 11 Y	0.00	100.00	
d10-Fluoranthene	245840000	1.00 Y	22: 47 Y	1.58	100.00	
Fluoranthene	290336000	1.00 Y	22: 50 Y	1.18	100.00	0.000
d10-Pyrene	257736000	1.00 Y	23: 29 Y	1.66	100.00	
Pyrene	300752000	1.00 Y	23: 32 Y	1.17	100.00	0.000
d12-Benzo(a)anthracene	124313600	1.00 Y	27: 20 Y	0.80	100.00	
Benzo(a)anthracene	146343000	1.00 Y	27: 24 Y	1.18	100.00	0.000
d12-Chrysene	174354000	1.00 Y	27: 27 Y	1.12	100.00	
Chrysene	195614600	1.00 Y	27: 32 Y	1.12	100.00	0.000
d12-Benzo(e)pyrene	268388000	1.00 Y	31: 40 Y	0.00	100.00	
d12-Benzo(b)fluoranthene	124457200	1.00 Y	30: 45 Y	0.46	100.00	
Benzo(b)fluoranthene	146725000	1.00 Y	30: 50 Y	1.18	100.00	0.000
d12-Benzo(k)fluoranthene	263876000	1.00 Y	30: 51 Y	0.98	100.00	
Benzo(k)fluoranthene	305166000	1.00 Y	30: 54 Y	1.16	100.00	0.000
d12-Benzo(a)pyrene	193132800	1.00 Y	31: 51 Y	0.72	100.00	
Benzo(e)pyrene	291316000	1.00 Y	31: 46 Y	1.51	100.00	0.000
Benzo(a)pyrene	202776000	1.00 Y	31: 55 Y	1.05	100.00	0.000
d12-Perylene	177478000	1.00 Y	32: 8 Y	0.66	100.00	
Perylene	274382000	1.00 Y	32: 13 Y	1.55	100.00	0.000
d12-Indeno(123-cd)pyrene	93849400	1.00 Y	36: 31 Y	0.35	100.00	
Indeno(123-cd)pyrene	54600000	1.00 Y	36: 38 Y	0.58	100.00	0.000
d14-Dibenz(ah)anthracene	49851200	1.00 Y	36: 36 Y	0.19	100.00	
Dibenz(ah)anthracene	64502600	1.00 Y	36: 45 Y	1.29	100.00	0.000
d12-Benzo(ghi)perylene	102197600	1.00 Y	37: 46 Y	0.38	100.00	
Benzo(ghi)perylene	109793600	1.00 Y	37: 55 Y	1.07	100.00	0.000

02-OCT-1998 09:49:30 AM PAH Ical RESULTS

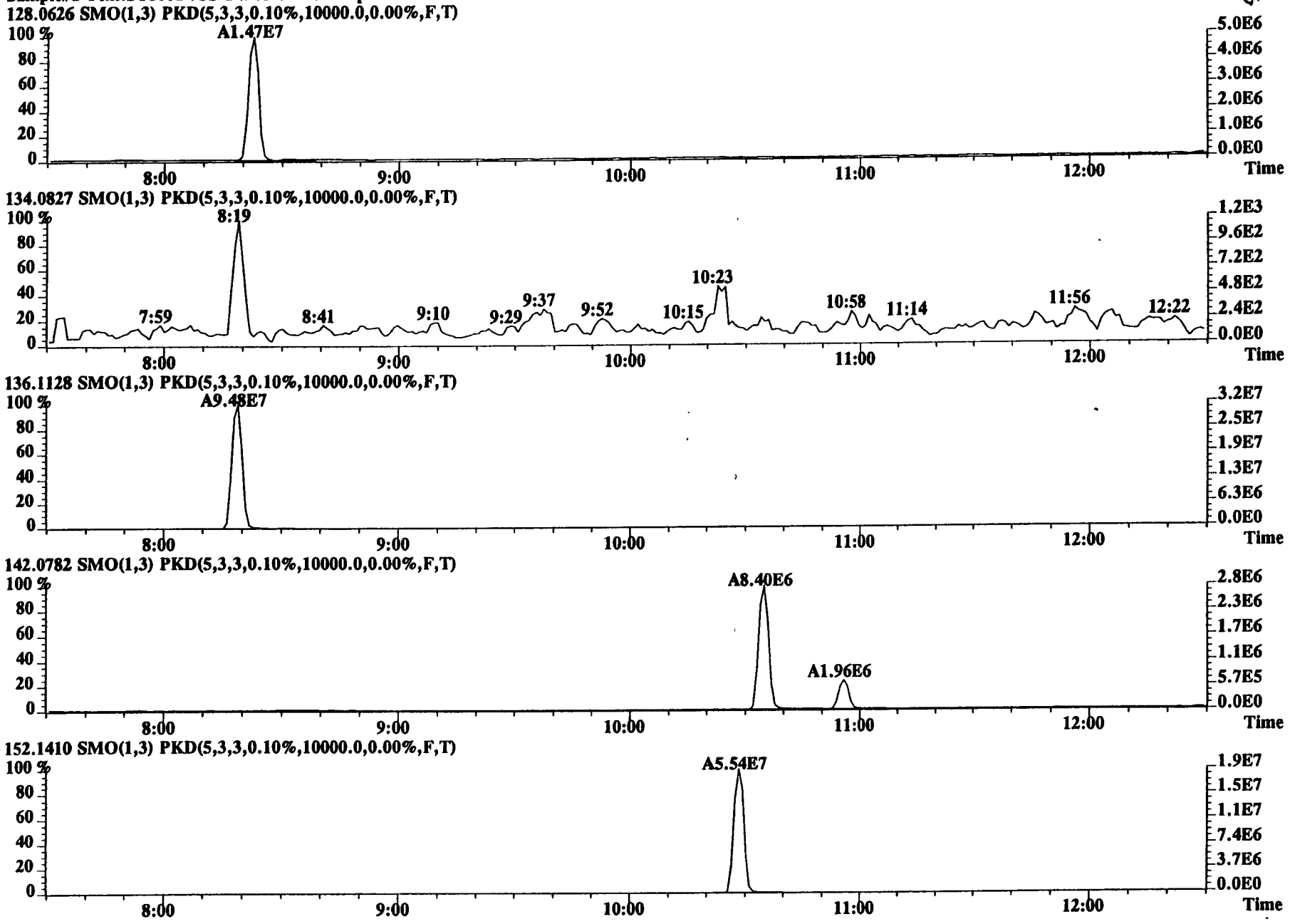
Mass Spec : ULTIMA Results : 01OC98U041.RES : PAHAIRCAL4.TRG
GC Column : DB-5 Date analyzed : 01-OCT-98
Data file : 01OC98U ST1001C :CS-4 :265-04D : Ex
Weight : 1

Name	Total Response	Isotope Ratio		R. T. mm:ss		RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	110680200	1.00	Y	10: 28	Y	-1.00	100.00	
d8-Naphthalene	200462000	1.00	Y	8: 19	Y	1.81	100.00	
Naphthalene	438038000	1.00	Y	8: 23	Y	1.09	200.00	0.000
2-Methylnaphthalene	227838000	1.00	Y	10: 35	Y	0.57	200.00	0.000
d8-Acenaphthylene	127112400	1.00	Y	13: 31	Y	1.15	100.00	
Acenaphthylene	254366000	1.00	Y	13: 33	Y	1.00	200.00	0.000
d10-Acenaphthene	73792200	1.00	Y	14: 5	Y	0.67	100.00	
Acenaphthene	167331600	1.00	Y	14: 11	Y	1.13	200.00	0.000
d10-Anthracene	78481800	1.00	Y	19: 3	Y	0.00	100.00	
d10-Fluorene	97709200	1.00	Y	15: 46	Y	1.24	100.00	
Fluorene	212938000	1.00	Y	15: 52	Y	1.09	200.00	0.000
d10-Phenanthrene	189505800	1.00	Y	18: 53	Y	2.41	100.00	
Phenanthrene	353918000	1.00	Y	18: 58	Y	0.93	200.00	0.000
Anthracene	407796000	1.00	Y	19: 7	Y	1.08	200.00	0.000
d14-Terphenyl	166994600	1.00	Y	24: 11	Y	0.00	100.00	
d10-Fluoranthene	262546000	1.00	Y	22: 46	Y	1.57	100.00	
Fluoranthene	633544000	1.00	Y	22: 50	Y	1.21	200.00	0.000
d10-Pyrene	282962000	1.00	Y	23: 28	Y	1.69	100.00	
Pyrene	702634000	1.00	Y	23: 32	Y	1.24	200.00	0.000
d12-Benzo(a)anthracene	137340200	1.00	Y	27: 20	Y	0.82	100.00	
Benzo(a)anthracene	358144000	1.00	Y	27: 25	Y	1.30	200.00	0.000
d12-Chrysene	204576000	1.00	Y	27: 27	Y	1.23	100.00	
Chrysene	452646000	1.00	Y	27: 32	Y	1.11	200.00	0.000
d12-Benzo(e)pyrene	308084000	1.00	Y	31: 40	Y	0.00	100.00	
d12-Benzo(b)fluoranthene	143642200	1.00	Y	30: 45	Y	0.47	100.00	
Benzo(b)fluoranthene	358870000	1.00	Y	30: 49	Y	1.25	200.00	0.000
d12-Benzo(k)fluoranthene	310008000	1.00	Y	30: 50	Y	1.01	100.00	
Benzo(k)fluoranthene	723118000	1.00	Y	30: 55	Y	1.17	200.00	0.000
d12-Benzo(a)pyrene	229512000	1.00	Y	31: 50	Y	0.74	100.00	
Benzo(e)pyrene	719408000	1.00	Y	31: 45	Y	1.57	200.00	0.000
Benzo(a)pyrene	472362000	1.00	Y	31: 56	Y	1.03	200.00	0.000
d12-Perylene	203898000	1.00	Y	32: 8	Y	0.66	100.00	
Perylene	666124000	1.00	Y	32: 14	Y	1.63	200.00	0.000
d12-Indeno(123-cd)pyrene	115847600	1.00	Y	36: 31	Y	0.38	100.00	
Indeno(123-cd)pyrene	135800000	1.00	Y	36: 37	Y	0.59	200.00	0.000
d14-Dibenz(ah)anthracene	62783600	1.00	Y	36: 35	Y	0.20	100.00	
Dibenz(ah)anthracene	168330400	1.00	Y	36: 45	Y	1.34	200.00	0.000
d12-Benzo(ghi)perylene	121648200	1.00	Y	37: 46	Y	0.39	100.00	
Benzo(ghi)perylene	276482000	1.00	Y	37: 54	Y	1.14	200.00	0.000
d10-Fluorene	97709200	1.00	Y	15: 46	Y	-1.00	100.00	
13C-Fluorene	* No Peak	0.00	N	15: 51	N	0.00	100.00	

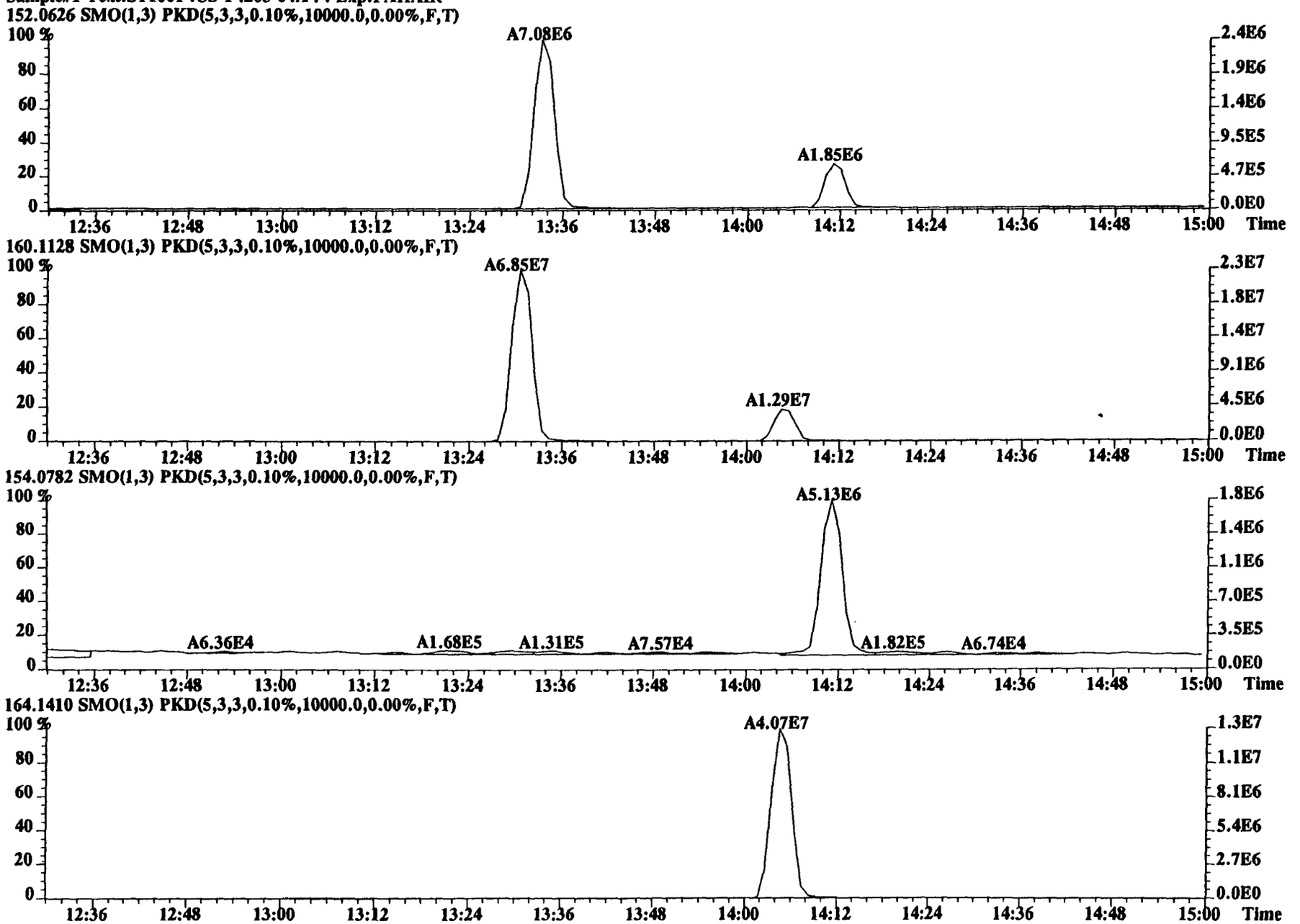
Mass Spec : ULTIMA Results : 01OC98U051.RES : PAHAIRCAL5.TRG
GC Column : DB-5 Date analyzed : 01-OCT-98
Data file : 01OC98U ST1001D :CS-5 :265-04E : Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	pg	Rec/ MDL
d10-2-Methylnaphthalene	107764600	1.00 Y	10: 29 Y	1.00	100.00	
d8-Naphthalene	214262000	1.00 Y	8: 18 Y	1.99	100.00	
Naphthalene	1111880000	1.00 Y	8: 23 Y	1.04	500.00	0.000
2-Methylnaphthalene	604524000	1.00 Y	10: 34 Y	0.56	500.00	0.000
d8-Acenaphthylene	132535200	1.00 Y	13: 31 Y	1.23	100.00	
Acenaphthylene	693206000	1.00 Y	13: 33 Y	1.05	500.00	0.000
d10-Acenaphthene	75400800	1.00 Y	14: 5 Y	0.70	100.00	
Acenaphthene	416428000	1.00 Y	14: 11 Y	1.10	500.00	0.000
d10-Anthracene	90130400	1.00 Y	19: 3 Y	0.00	100.00	
d10-Fluorene	101497800	1.00 Y	15: 46 Y	1.13	100.00	
Fluorene	589742000	1.00 Y	15: 52 Y	1.16	500.00	0.000
d10-Phenanthrene	201484000	1.00 Y	18: 53 Y	2.24	100.00	
Phenanthrene	998200000	1.00 Y	18: 58 Y	0.99	500.00	0.000
Anthracene	1245296000	1.00 Y	19: 7 Y	1.24	500.00	0.000
d14-Terphenyl	185488200	1.00 Y	24: 11 Y	0.00	100.00	
d10-Fluoranthene	278218000	1.00 Y	22: 46 Y	1.50	100.00	
Fluoranthene	1750396000	1.00 Y	22: 50 Y	1.26	500.00	0.000
d10-Pyrene	289520000	1.00 Y	23: 28 Y	1.56	100.00	
Pyrene	1959900000	1.00 Y	23: 32 Y	1.35	500.00	0.000
d12-Benzo(a)anthracene	163268600	1.00 Y	27: 20 Y	0.88	100.00	
Benzo(a)anthracene	1111520000	1.00 Y	27: 24 Y	1.36	500.00	0.000
d12-Chrysene	233188000	1.00 Y	27: 27 Y	1.26	100.00	
Chrysene	1341774000	1.00 Y	27: 32 Y	1.15	500.00	0.000
d12-Benzo(e)pyrene	345112000	1.00 Y	31: 39 Y	-1.00	100.00	
d12-Benzo(b)fluoranthene	181269200	1.00 Y	30: 45 Y	0.53	100.00	
Benzo(b)fluoranthene	1259814000	1.00 Y	30: 50 Y	1.39	500.00	0.000
d12-Benzo(k)fluoranthene	348738000	1.00 Y	30: 50 Y	1.01	100.00	
Benzo(k)fluoranthene	2006440000	1.00 Y	30: 54 Y	1.15	500.00	0.000
d12-Benzo(a)pyrene	264770000	1.00 Y	31: 50 Y	0.77	100.00	
Benzo(e)pyrene	2187260000	1.00 Y	31: 45 Y	1.65	500.00	0.000
Benzo(a)pyrene	1428976000	1.00 Y	31: 55 Y	1.08	500.00	0.000
d12-Perylene	216440000	1.00 Y	32: 8 Y	0.63	100.00	
Perylene	2011040000	1.00 Y	32: 13 Y	1.86	500.00	0.000
d12-Indeno(123-cd)pyrene	150332800	1.00 Y	36: 30 Y	0.44	100.00	
Indeno(123-cd)pyrene	464000000	1.00 Y	36: 38 Y	0.62	500.00	0.000
d14-Dibenz(ah)anthracene	88335000	1.00 Y	36: 35 Y	0.26	100.00	
Dibenz(ah)anthracene	575408000	1.00 Y	36: 45 Y	1.30	500.00	0.000
d12-Benzo(ghi)perylene	152552400	1.00 Y	37: 45 Y	0.44	100.00	
Benzo(ghi)perylene	853976000	1.00 Y	37: 55 Y	1.12	500.00	0.000

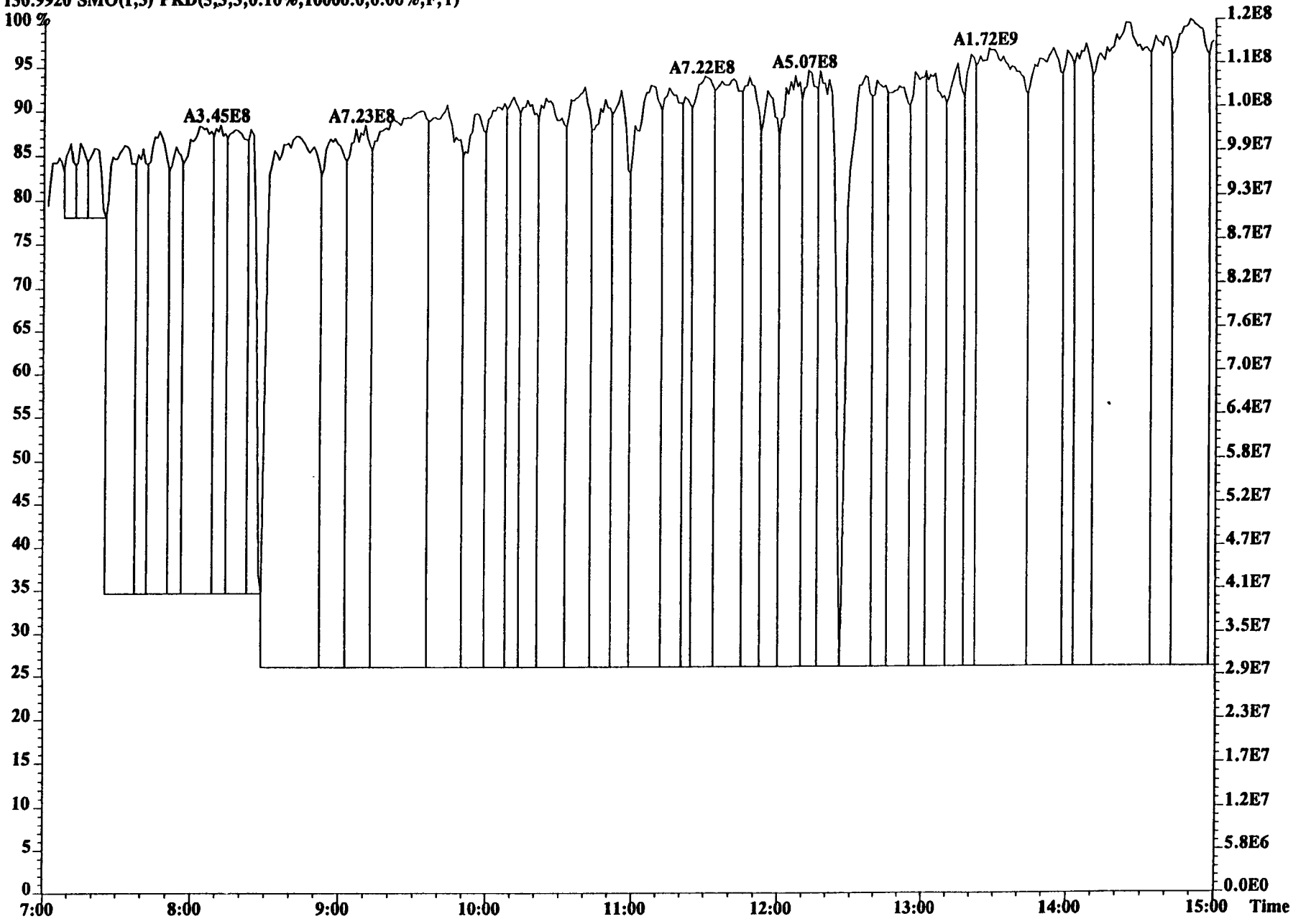
File:01OC98U #1-508 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR



File:01OC98U #1-508 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR

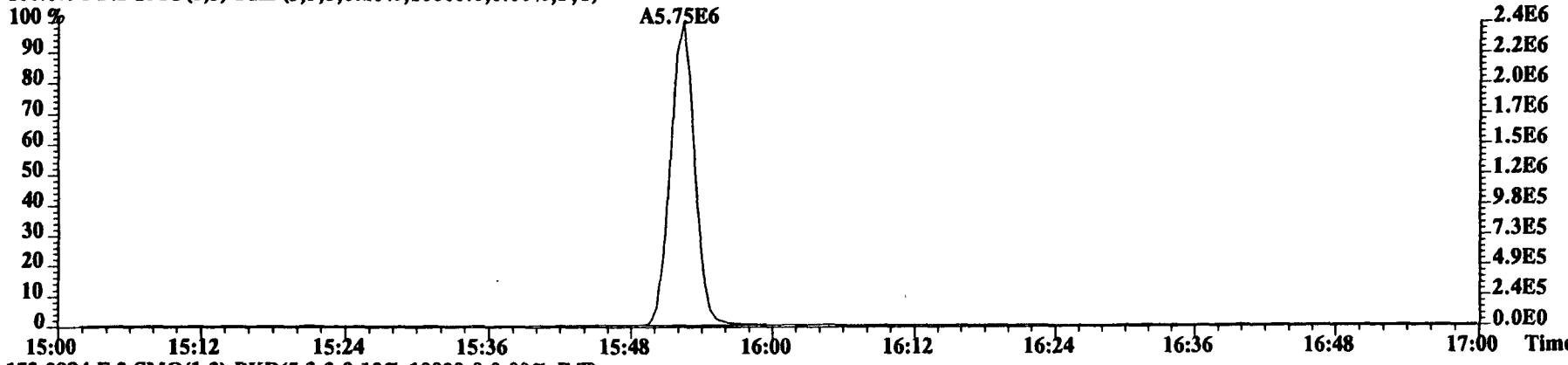


File:01OC98U #1-508 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
130.9920 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

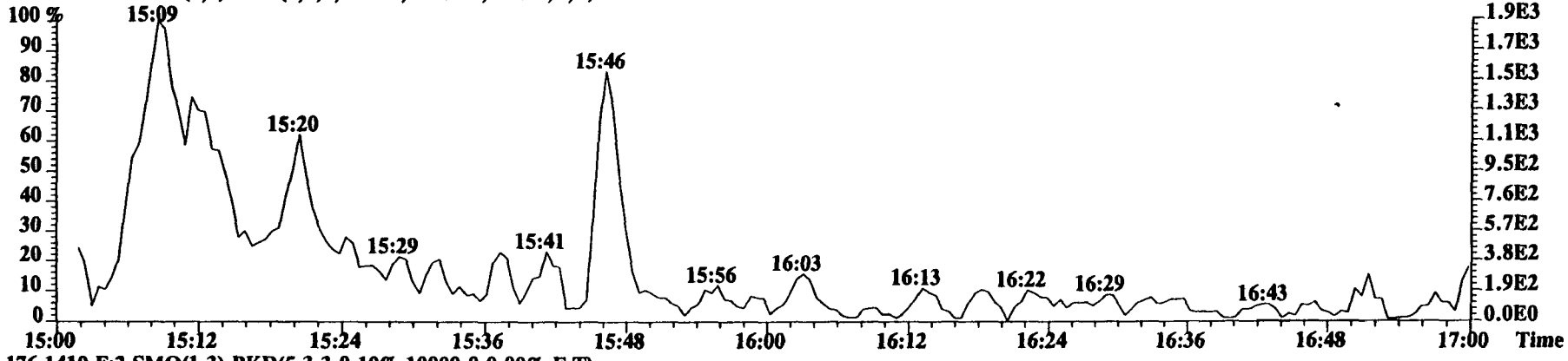


44C

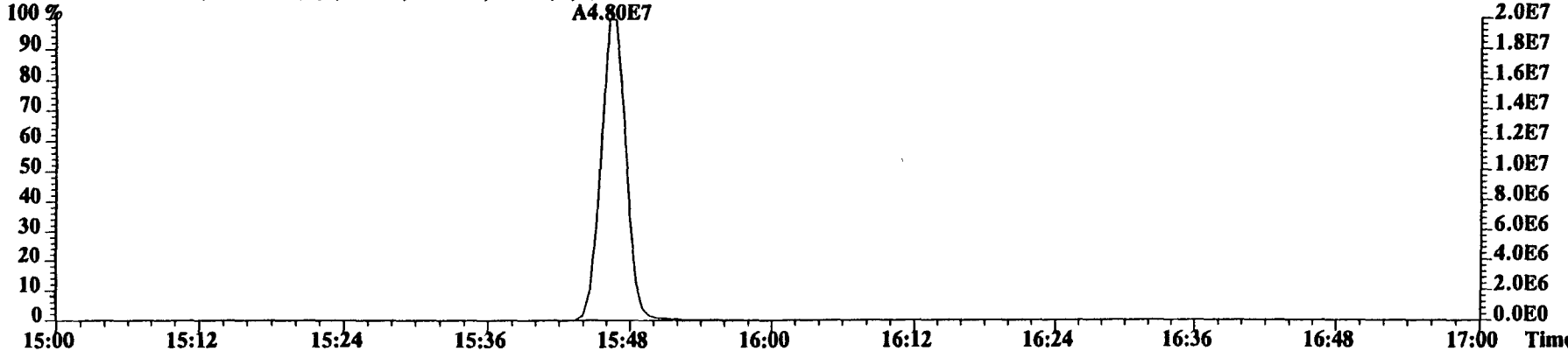
File:01OC98U #1-586 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
166.0798 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



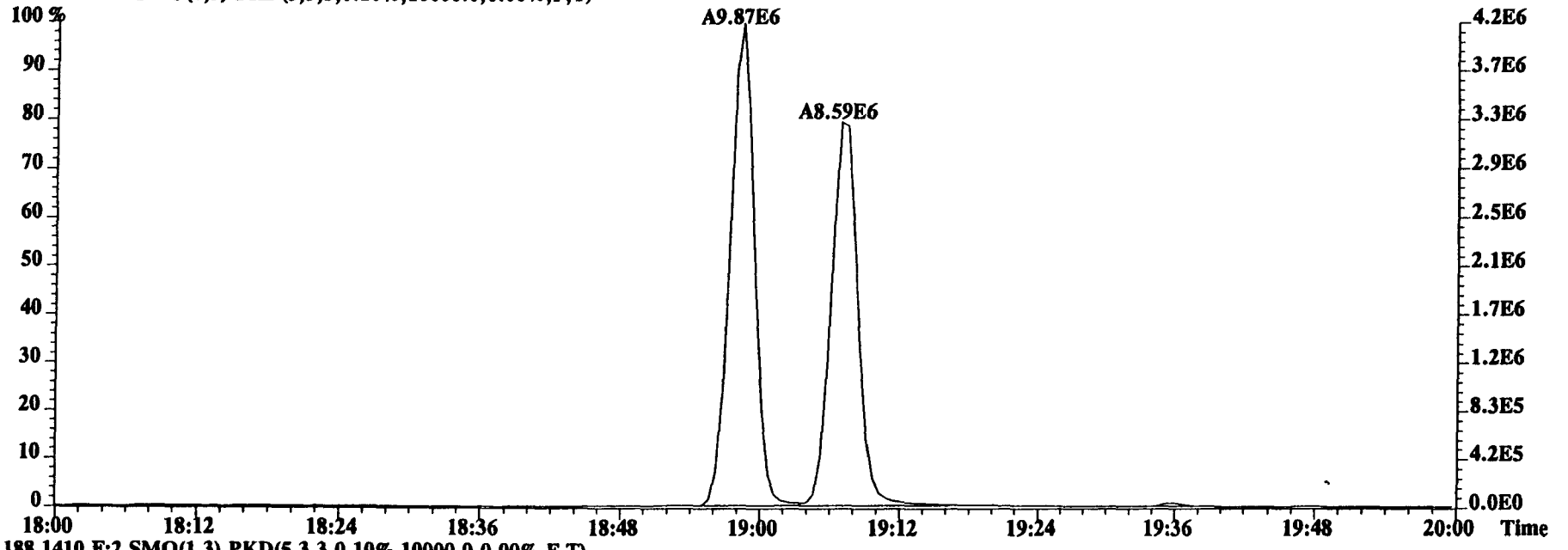
172.0984 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



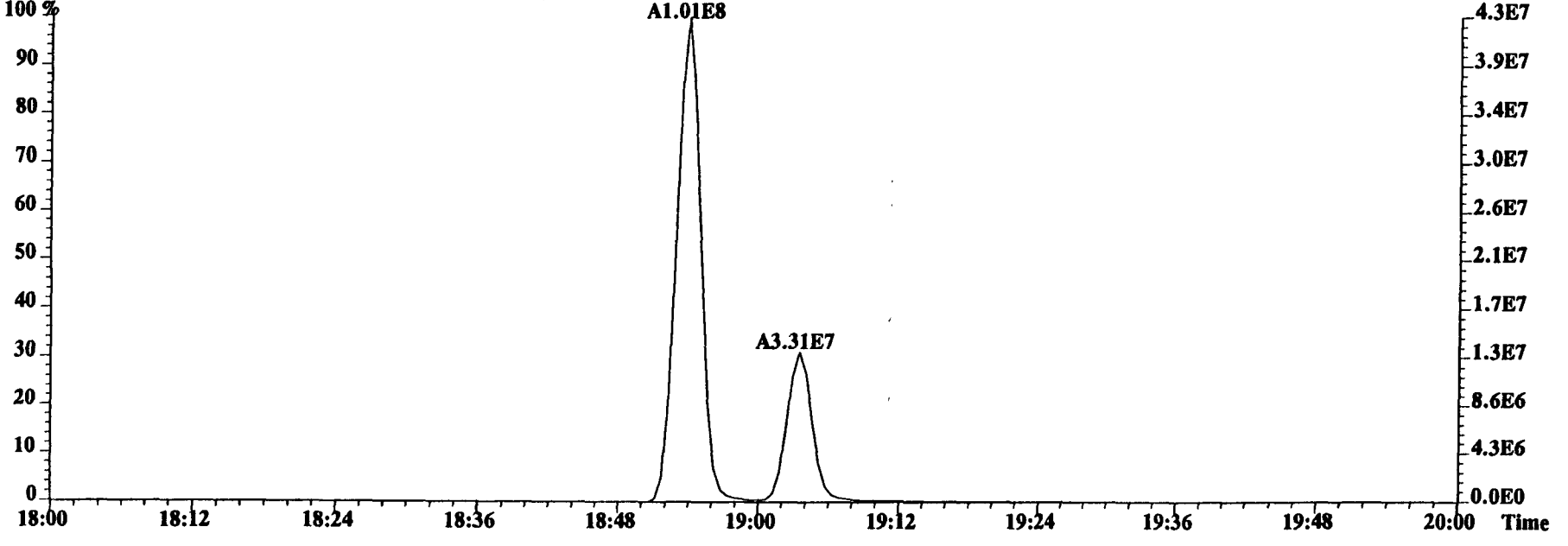
176.1410 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



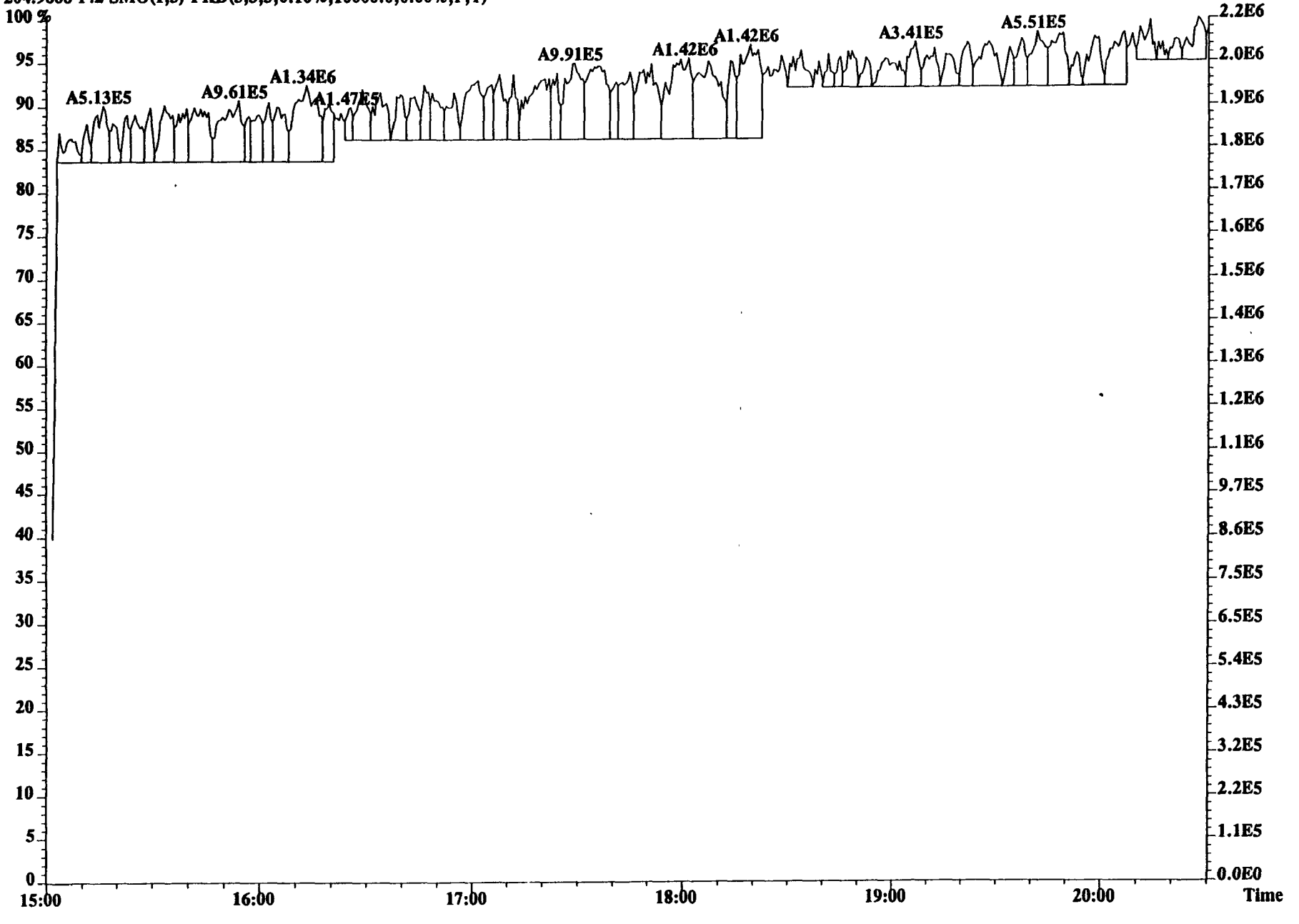
File:01OC98U #1-586 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
178.0782 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



188.1410 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

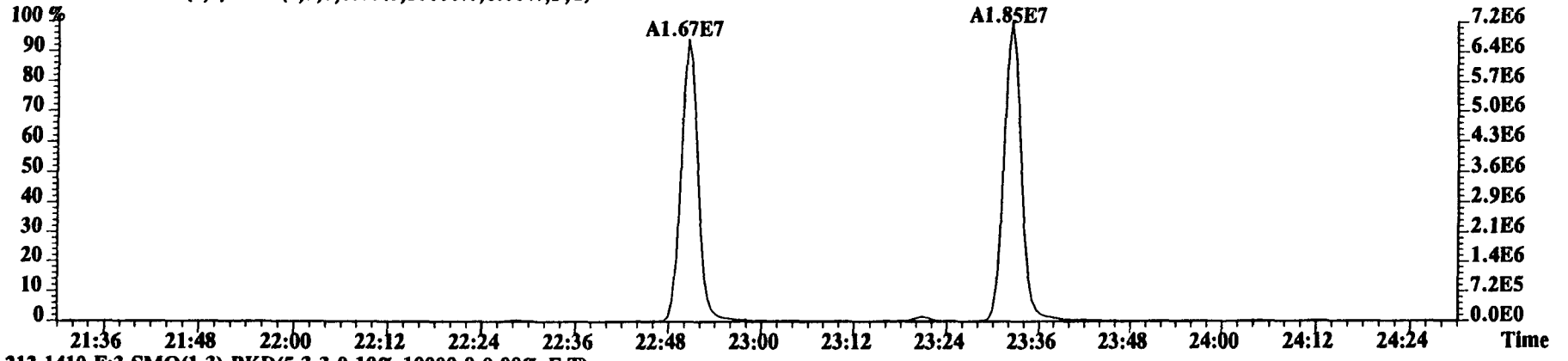


File:01OC98U #1-586 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
204.9888 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

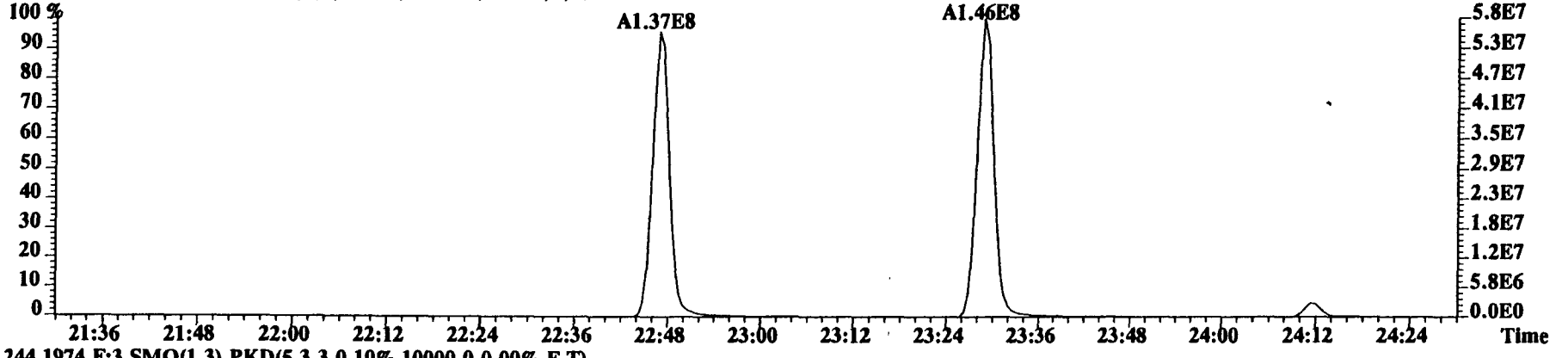


443

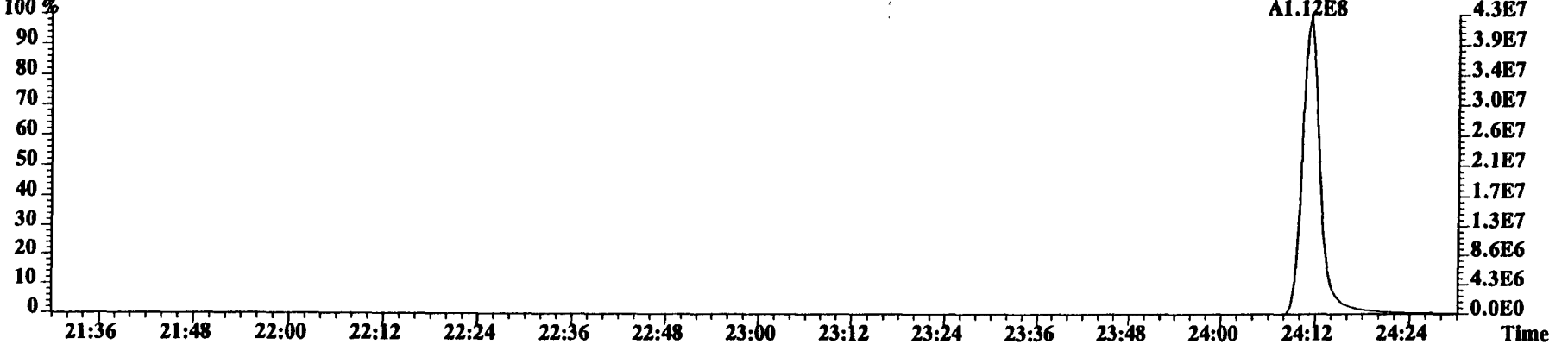
File:01OC98U #1-1051 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
202.0782 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



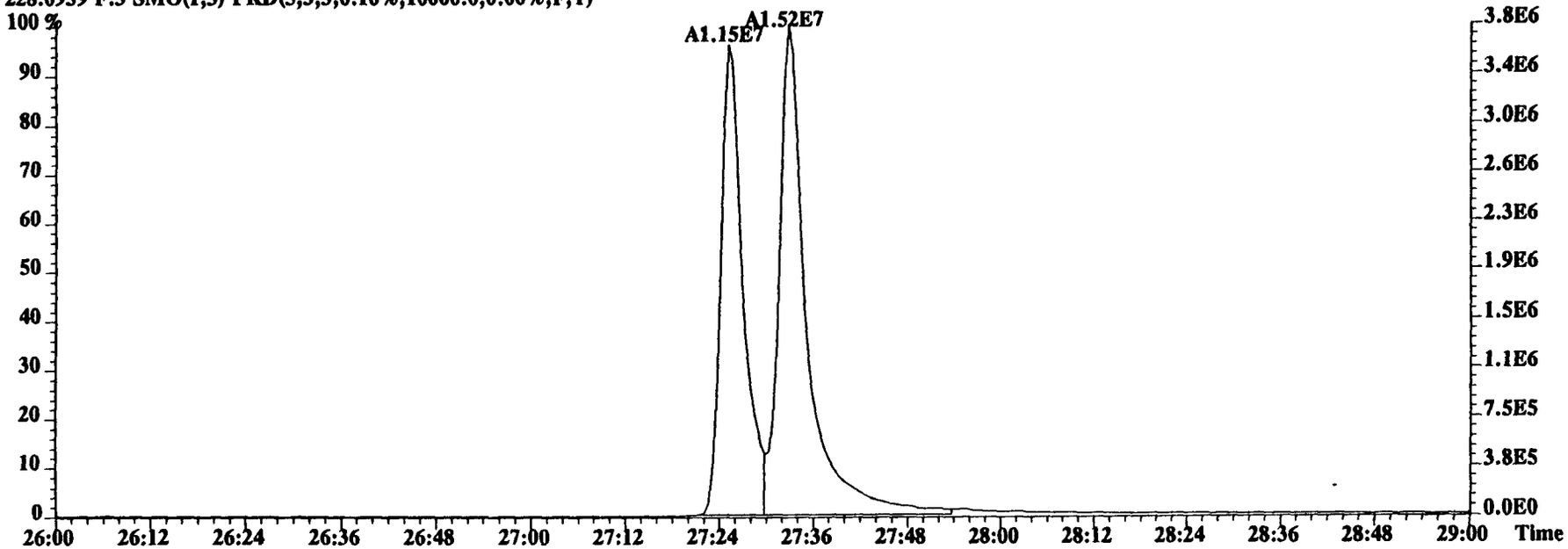
212.1410 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



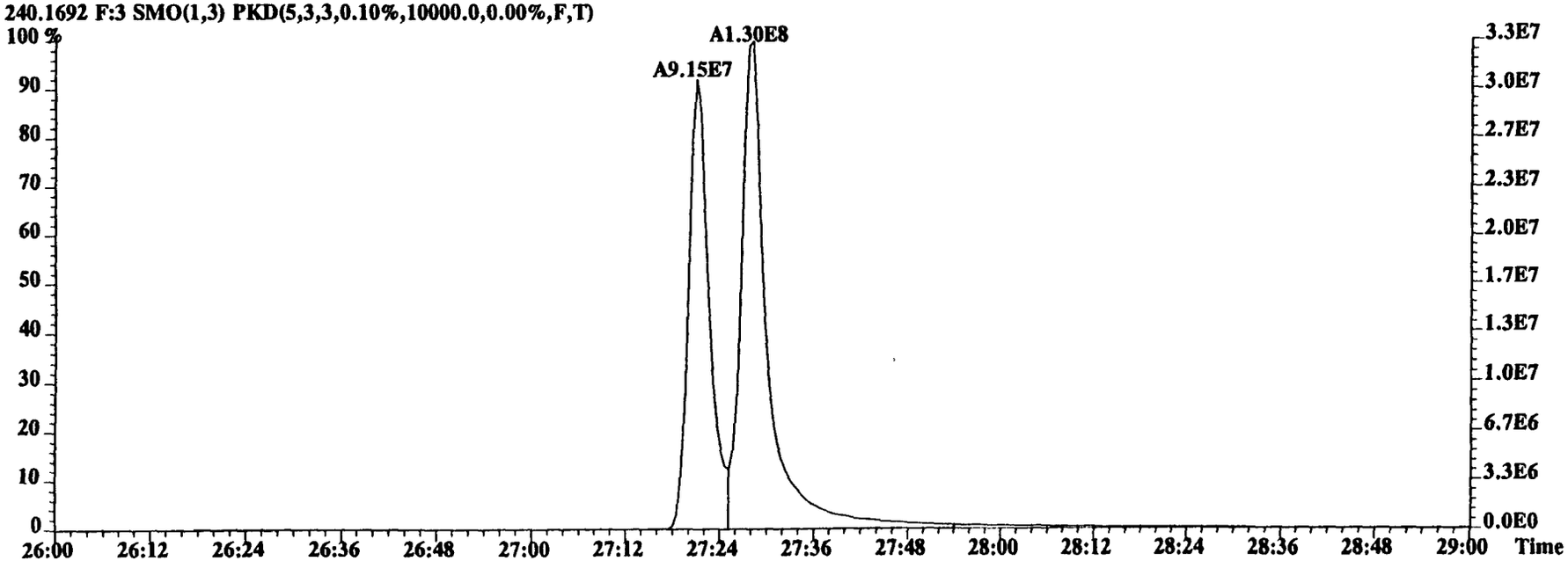
244.1974 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



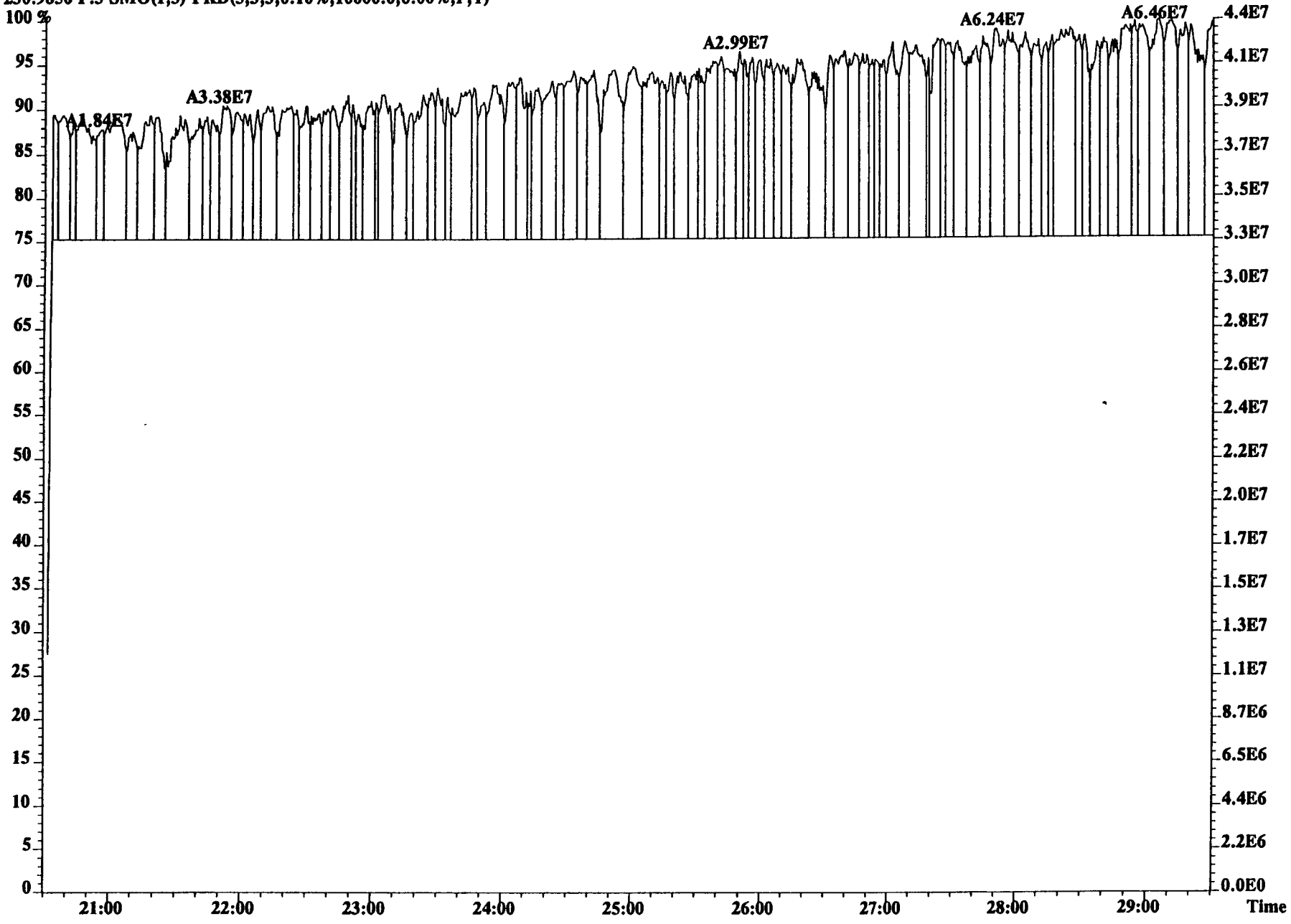
File:01OC98U #1-1051 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
228.0939 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



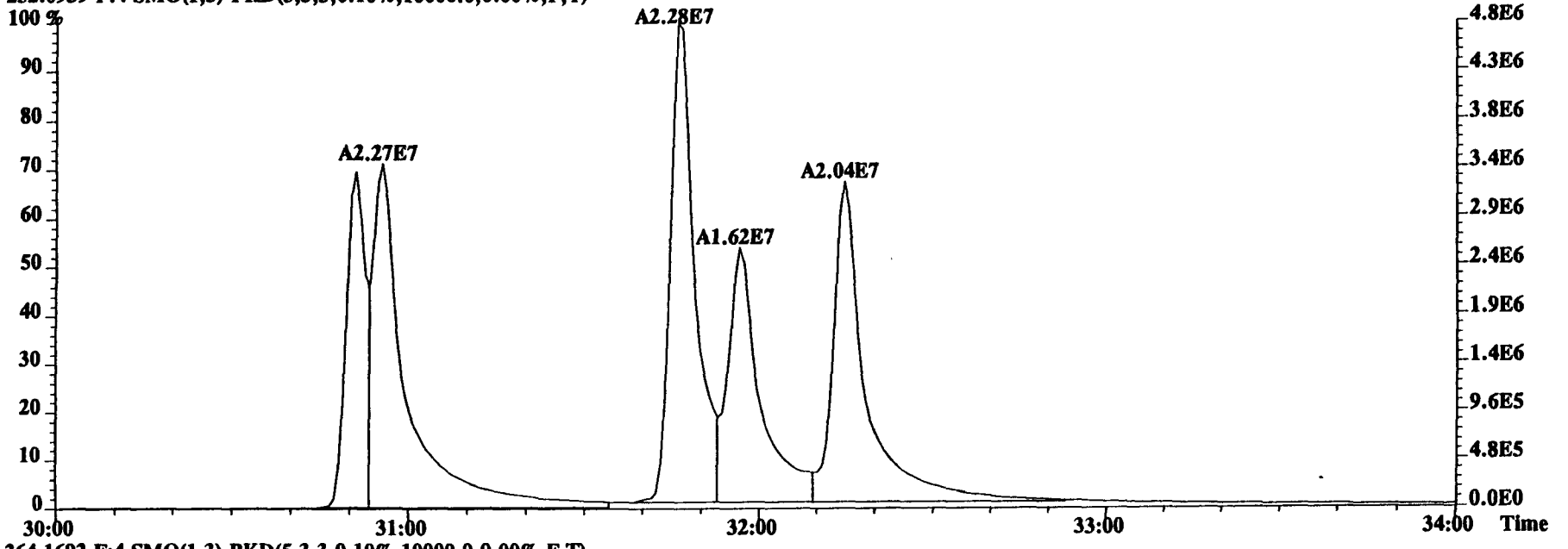
240.1692 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



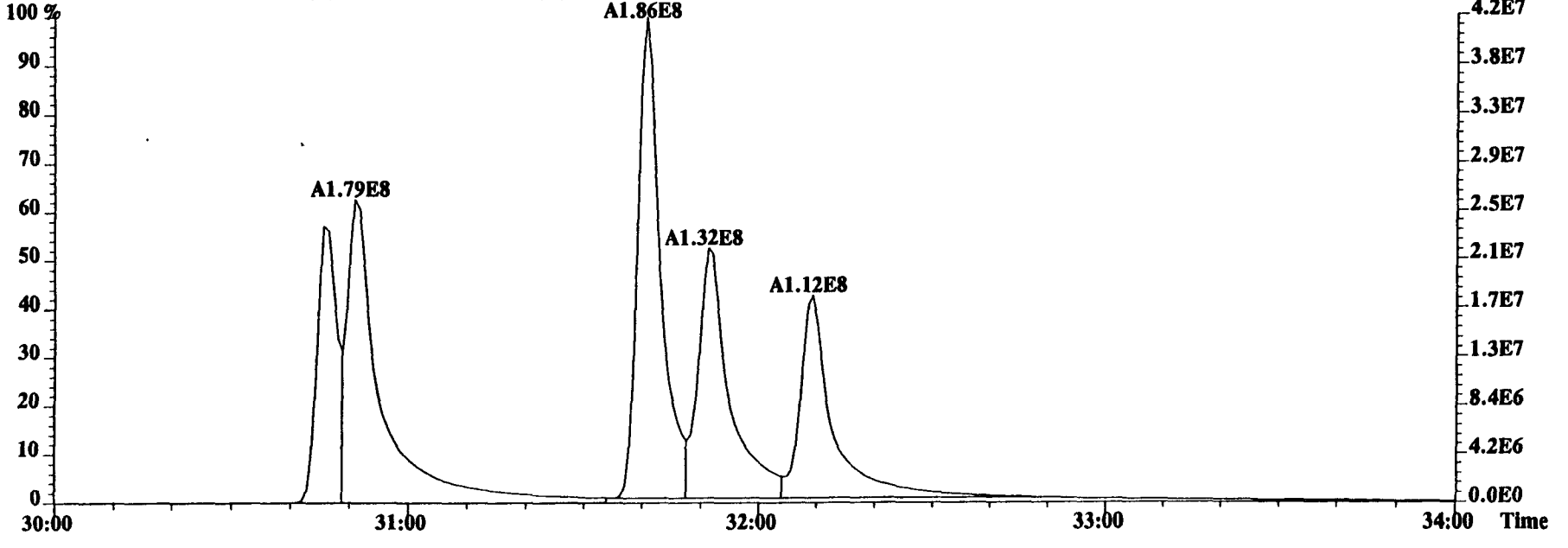
File:01OC98U #1-1051 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
230.9856 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



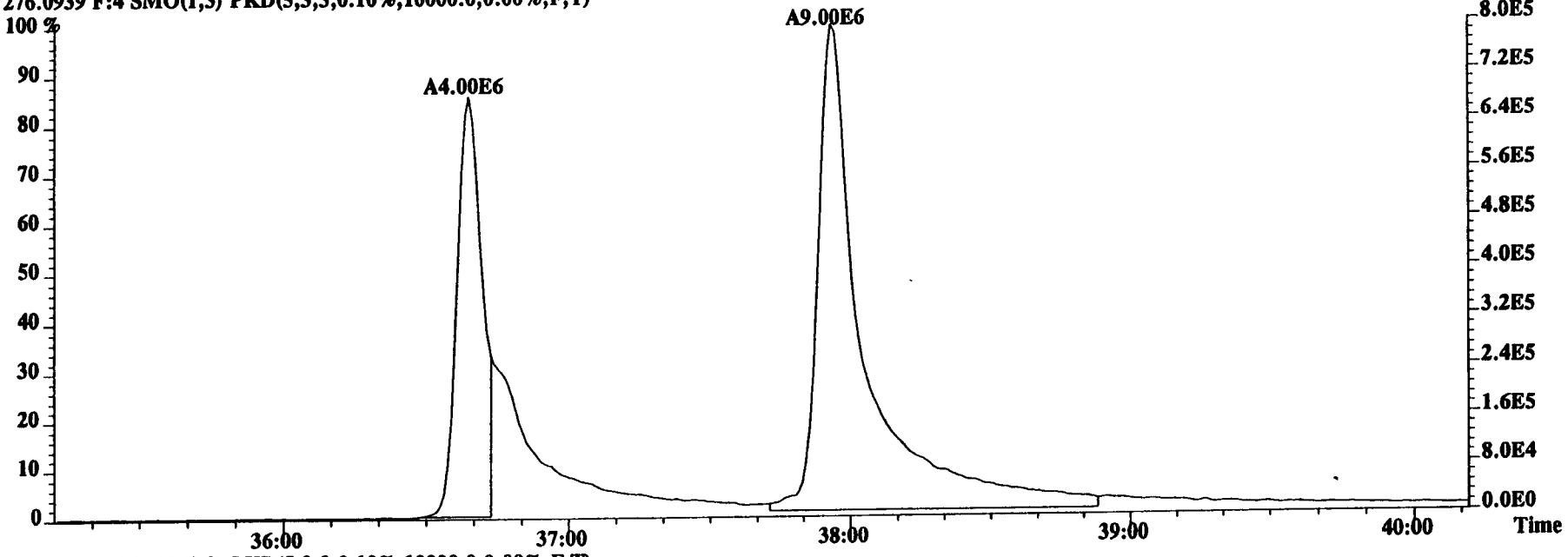
File:01OC98U #1-915 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
252.0939 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



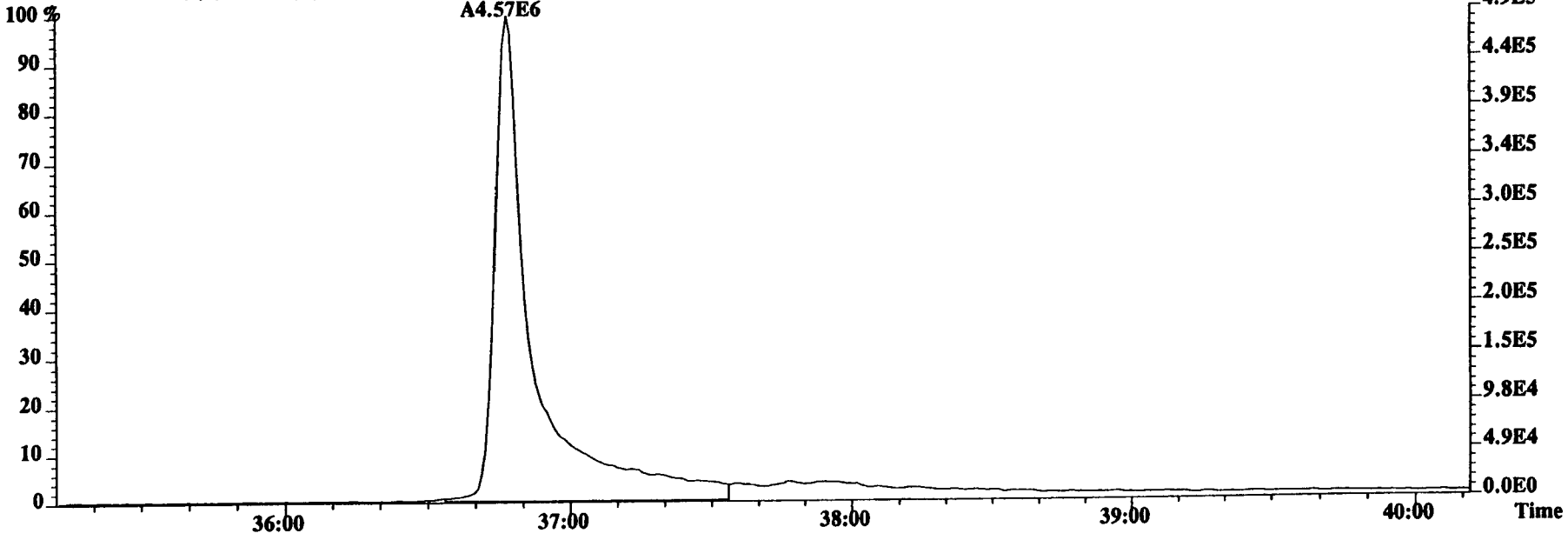
264.1692 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



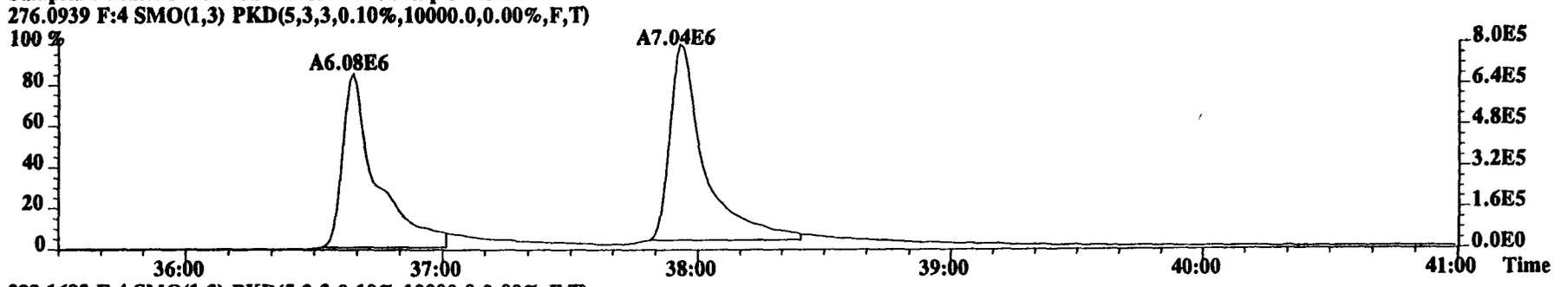
File:01OC98U #1-915 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
276.0939 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

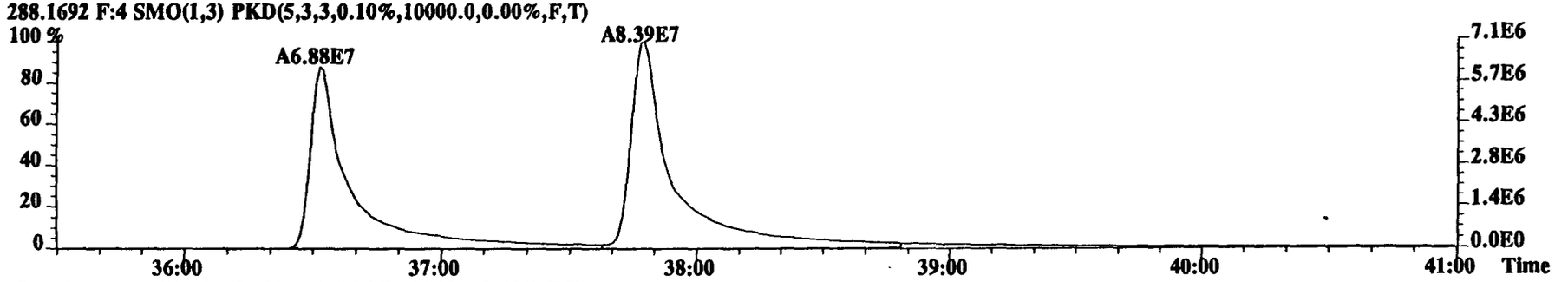


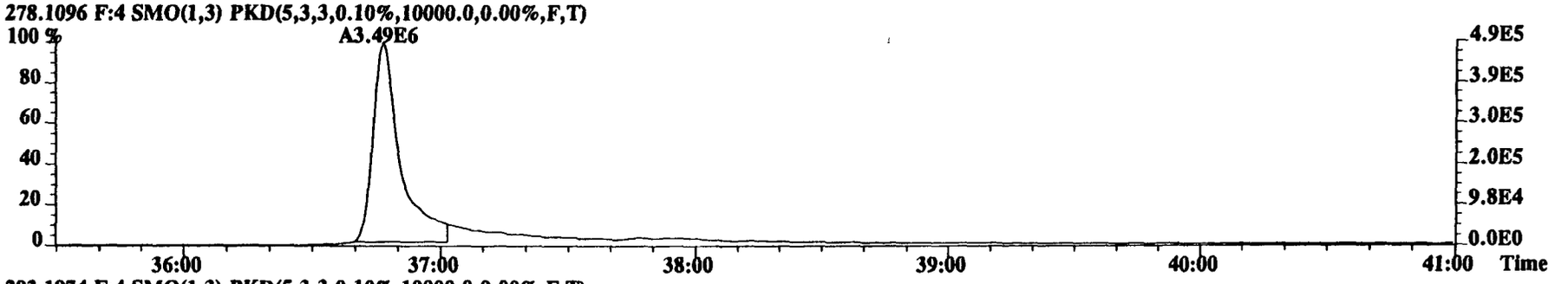
278.1096 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

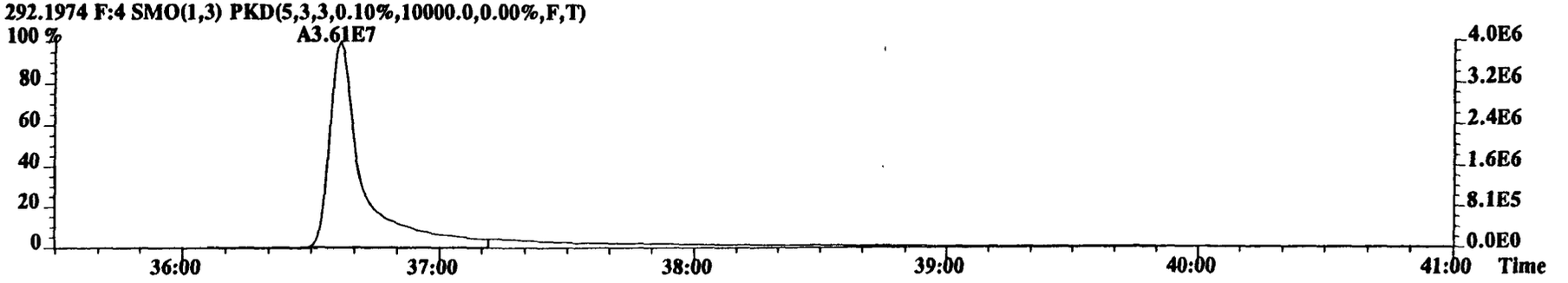


File:01OC98U #1-915 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR

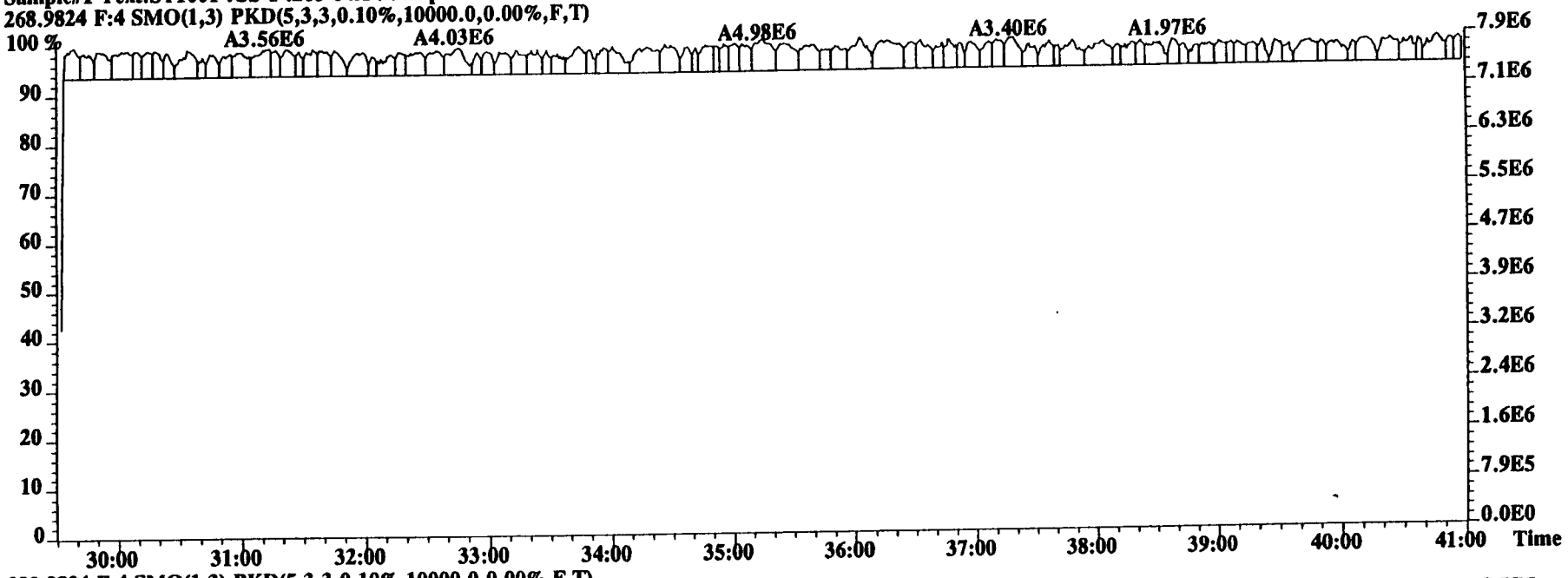




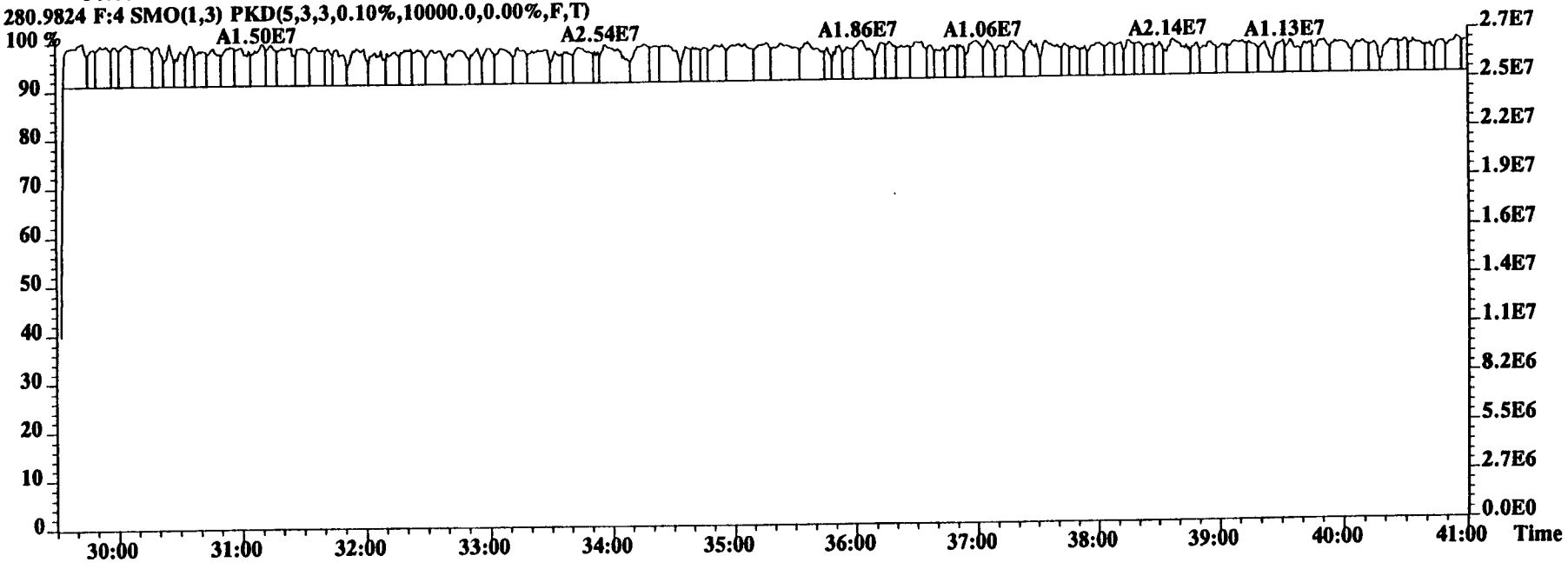




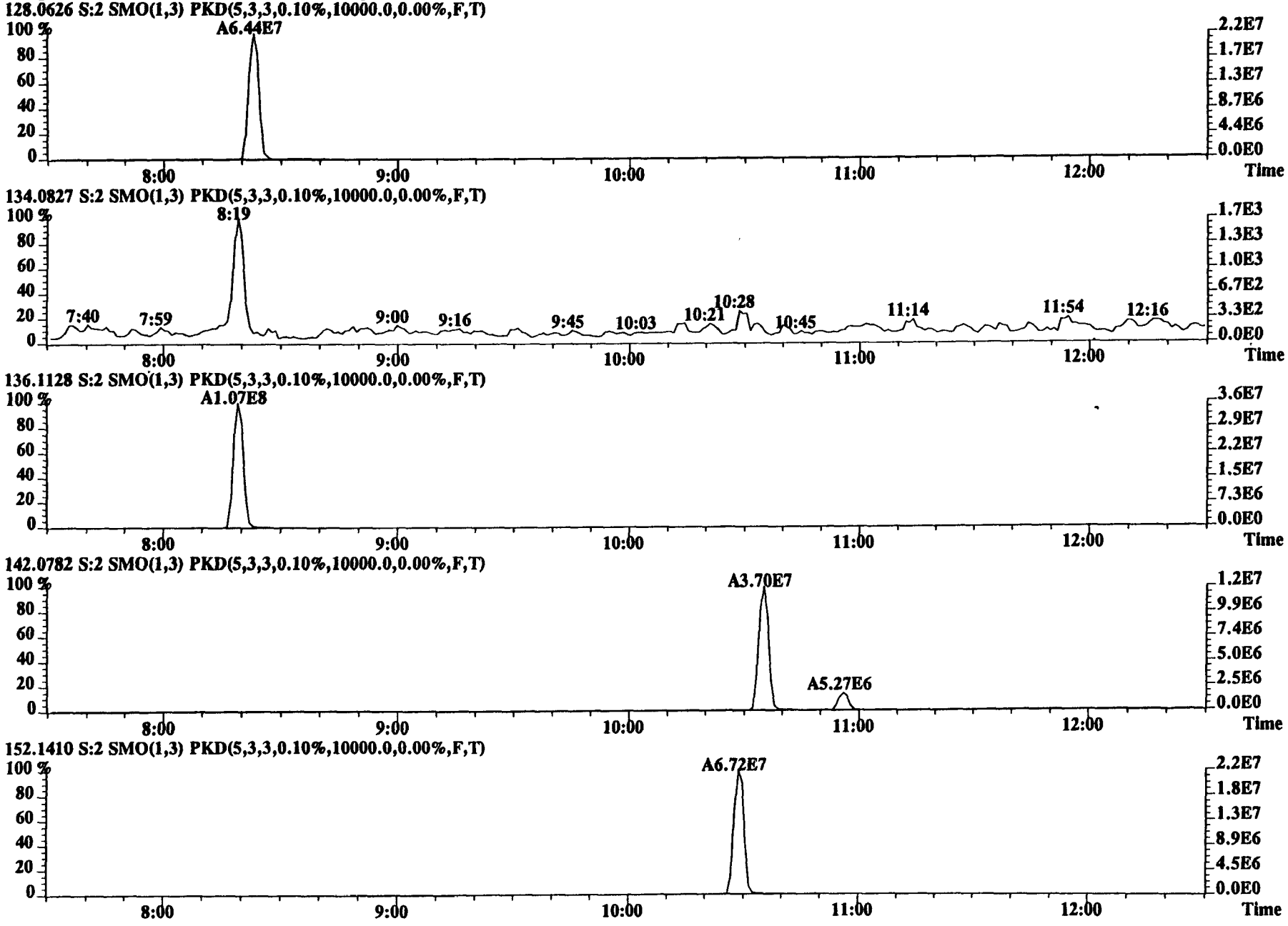
File:01OC98U #1-915 Acq: 1-OCT-1998 17:35:45 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST1001 :CS-1 :265-04A : : Exp:PAHAIR
268.9824 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



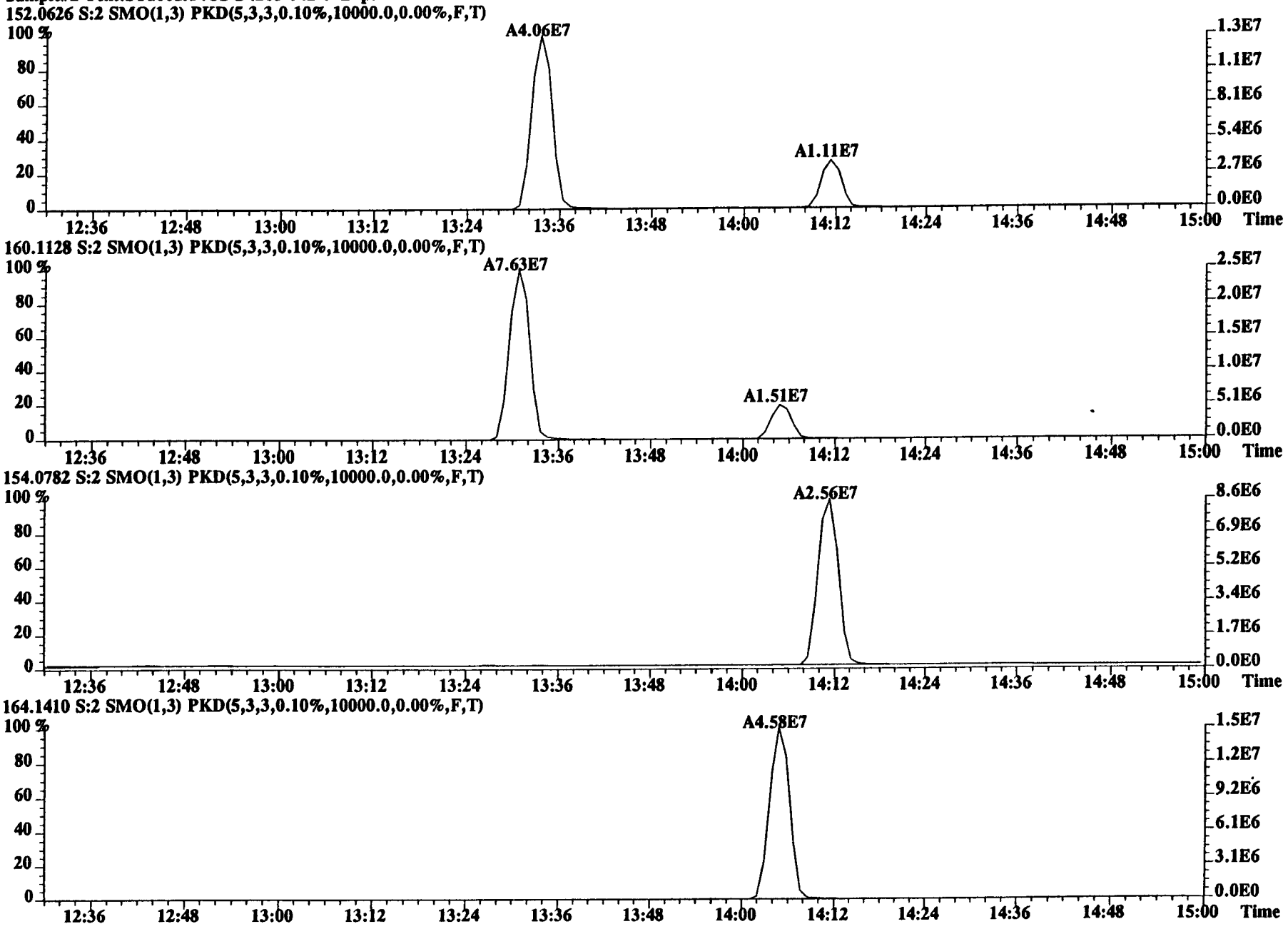
280.9824 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



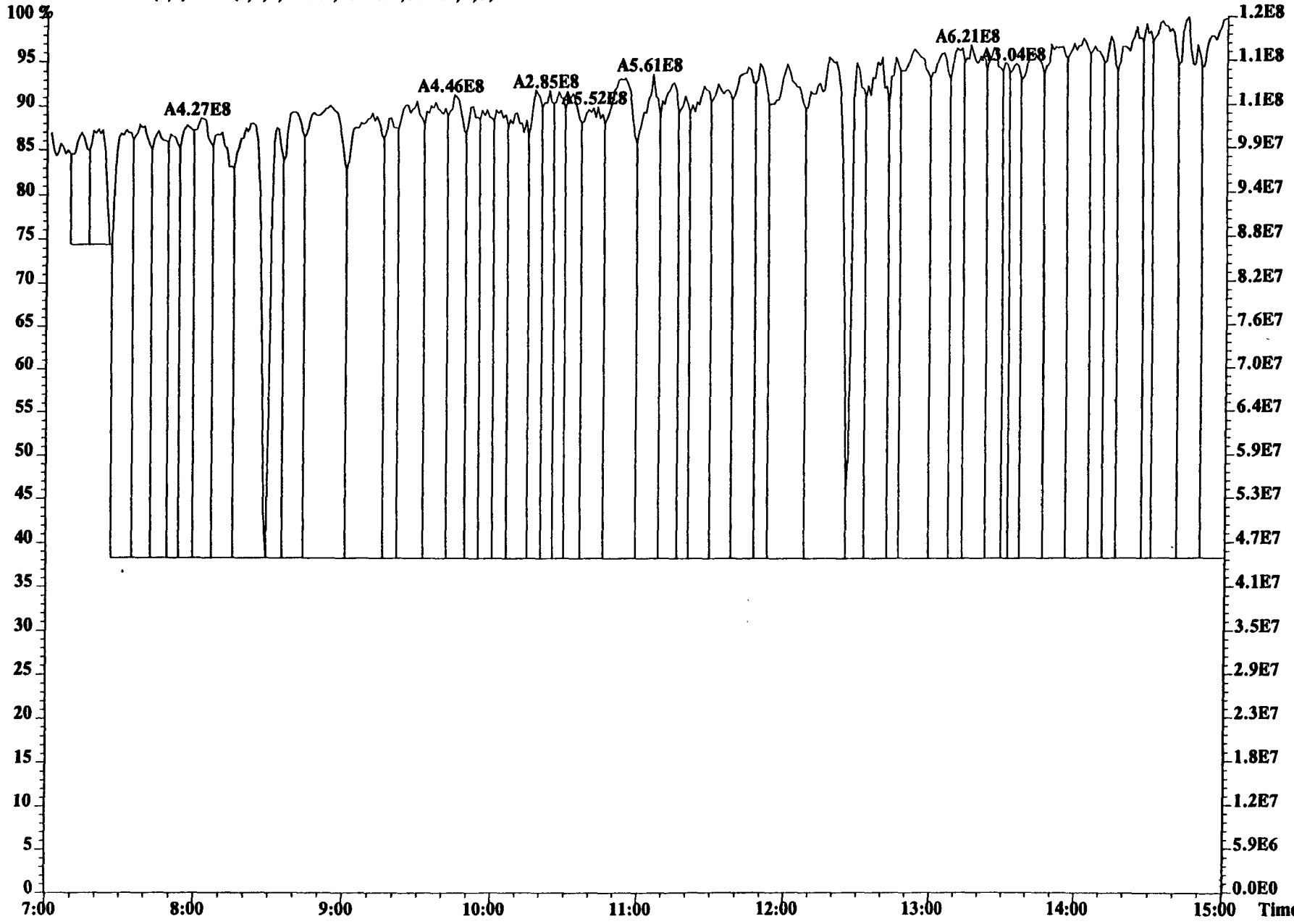
File:01OC98U #1-508 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR



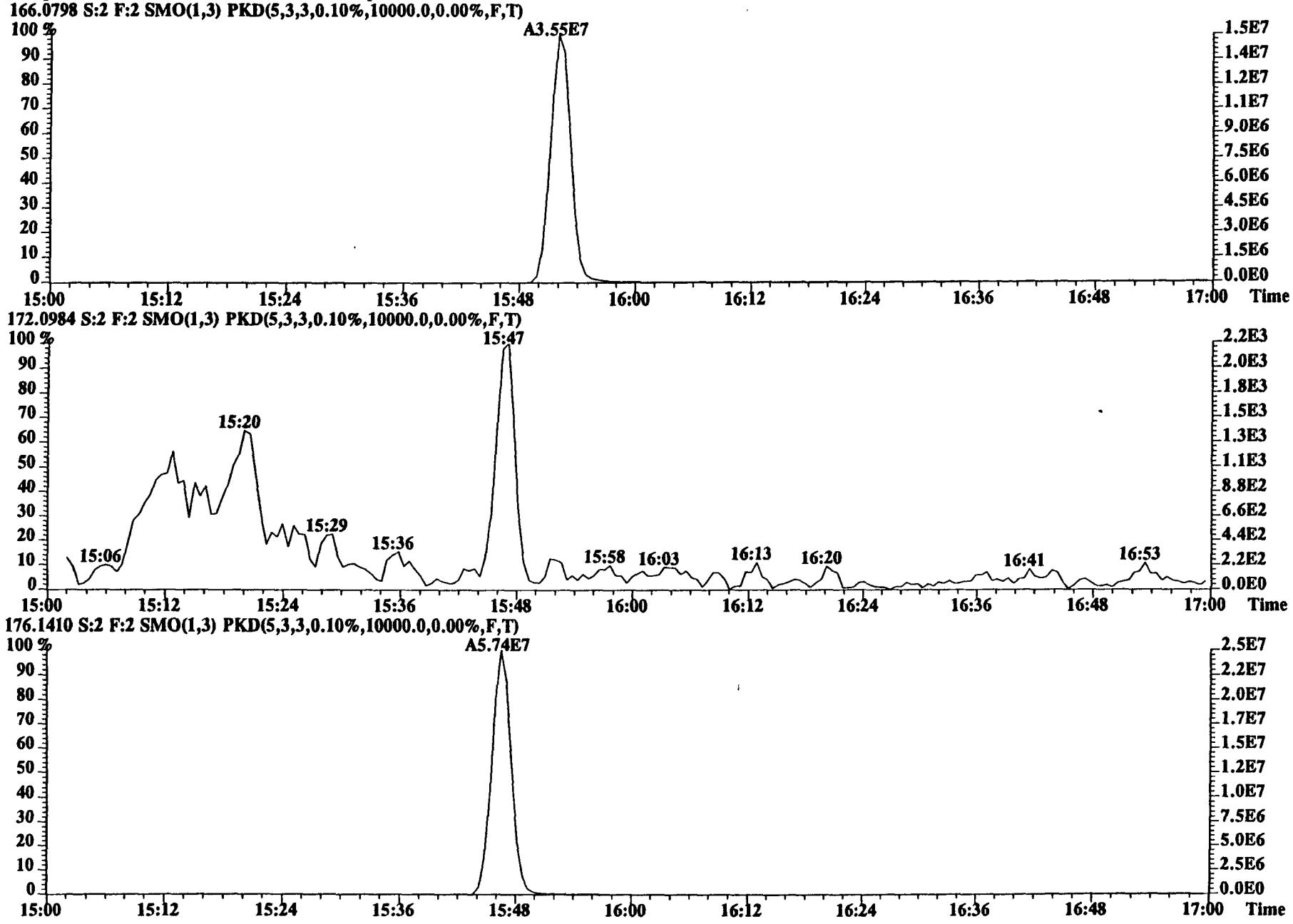
File:01OC98U #1-508 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR



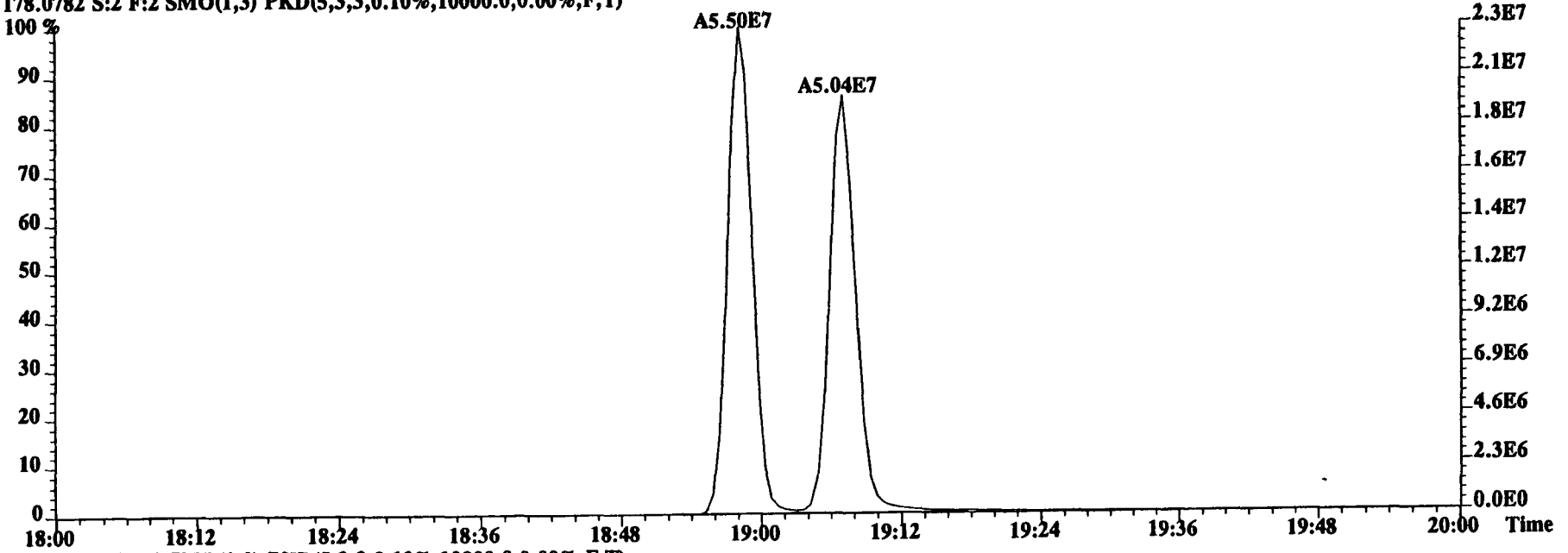
File:01OC98U #1-508 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
130.9920 S:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



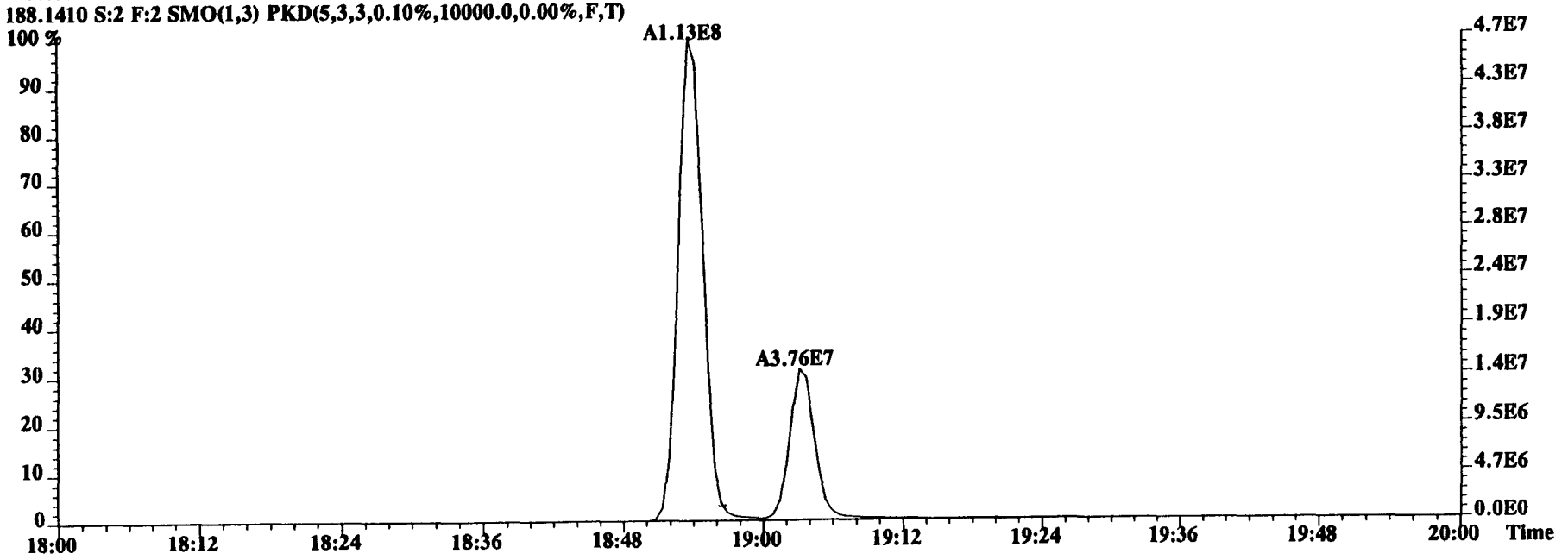
File:01OC98U #1-585 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR



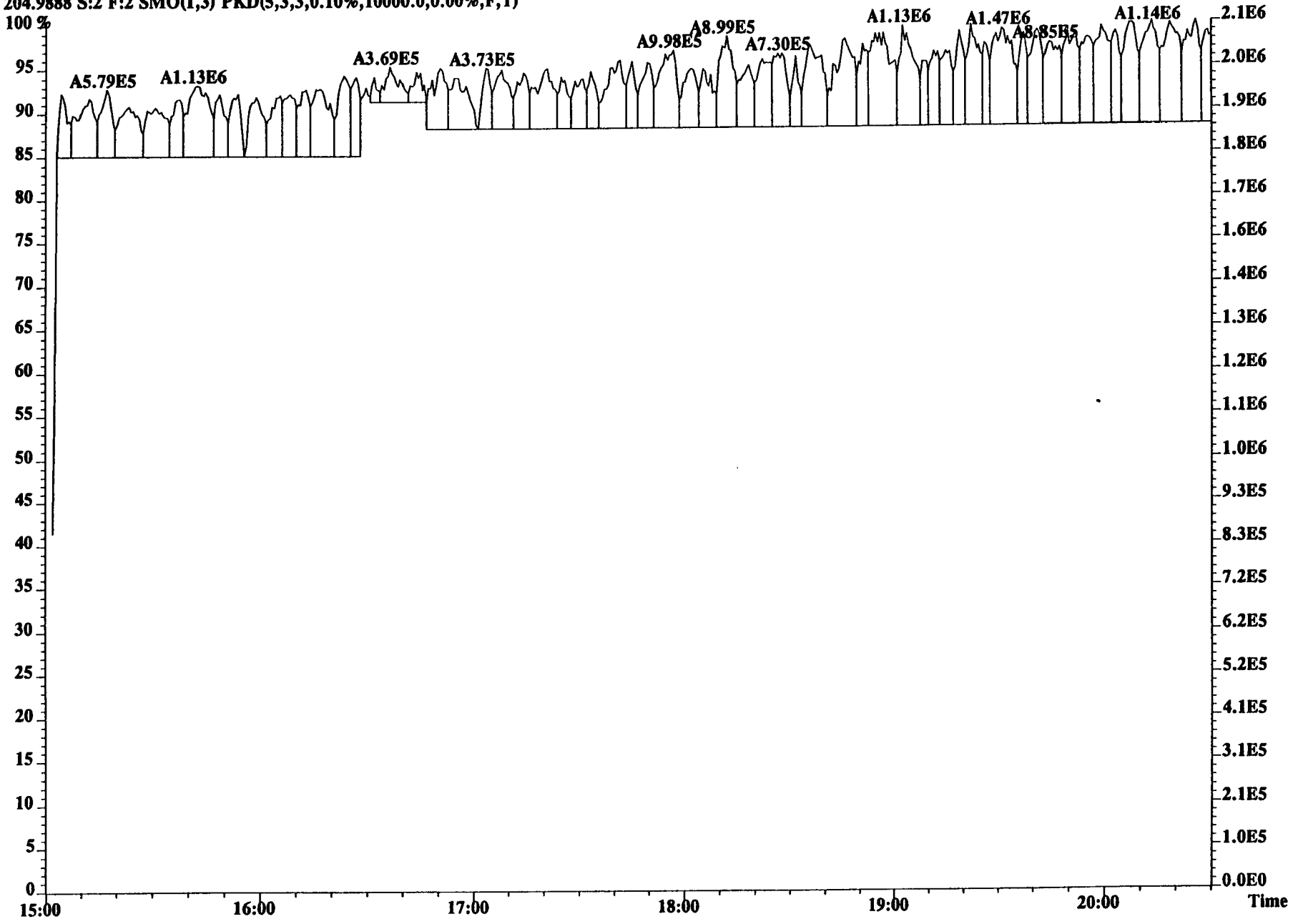
File:01OC98U #1-585 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
178.0782 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



188.1410 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:01OC98U #1-585 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
204.9888 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



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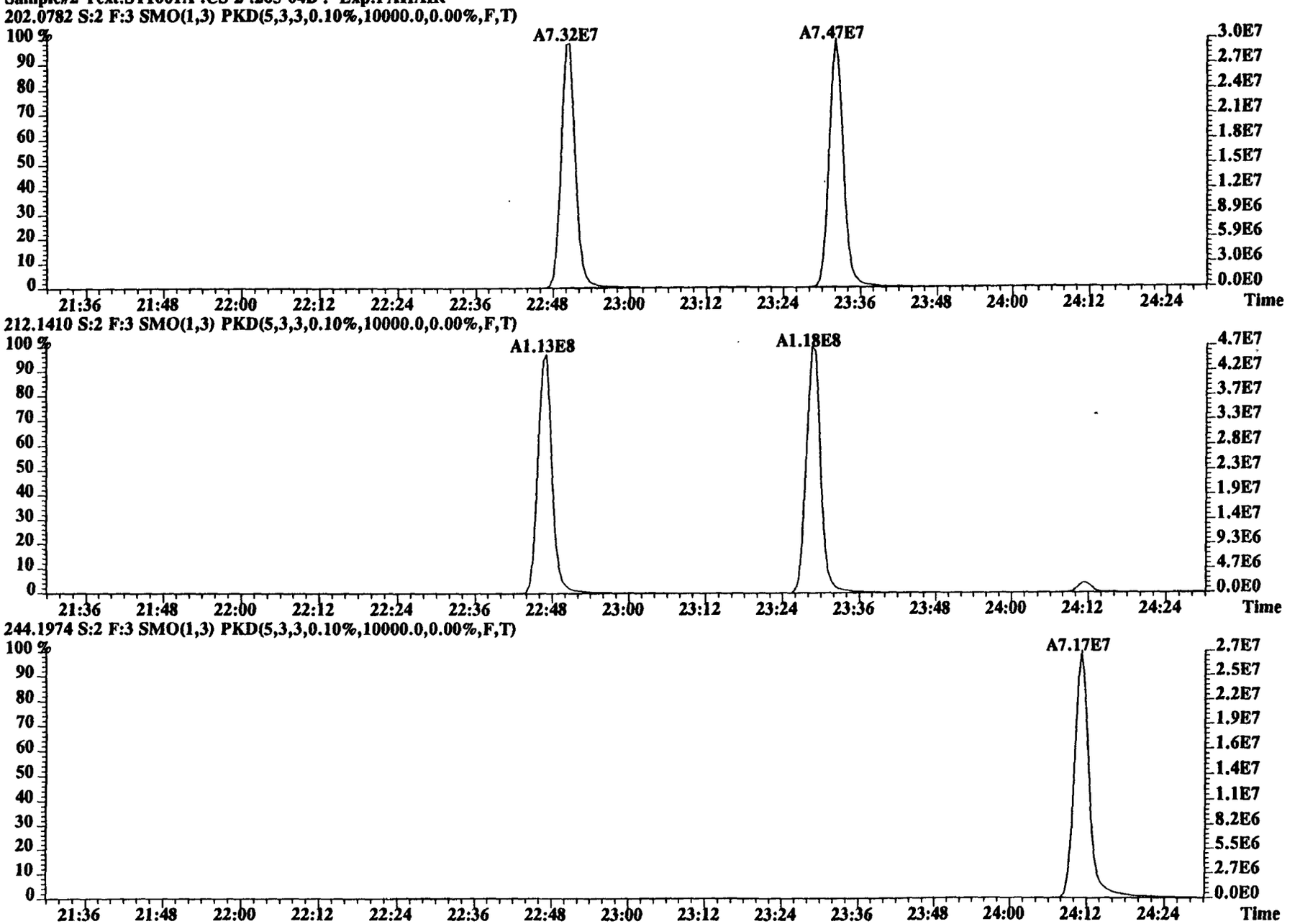
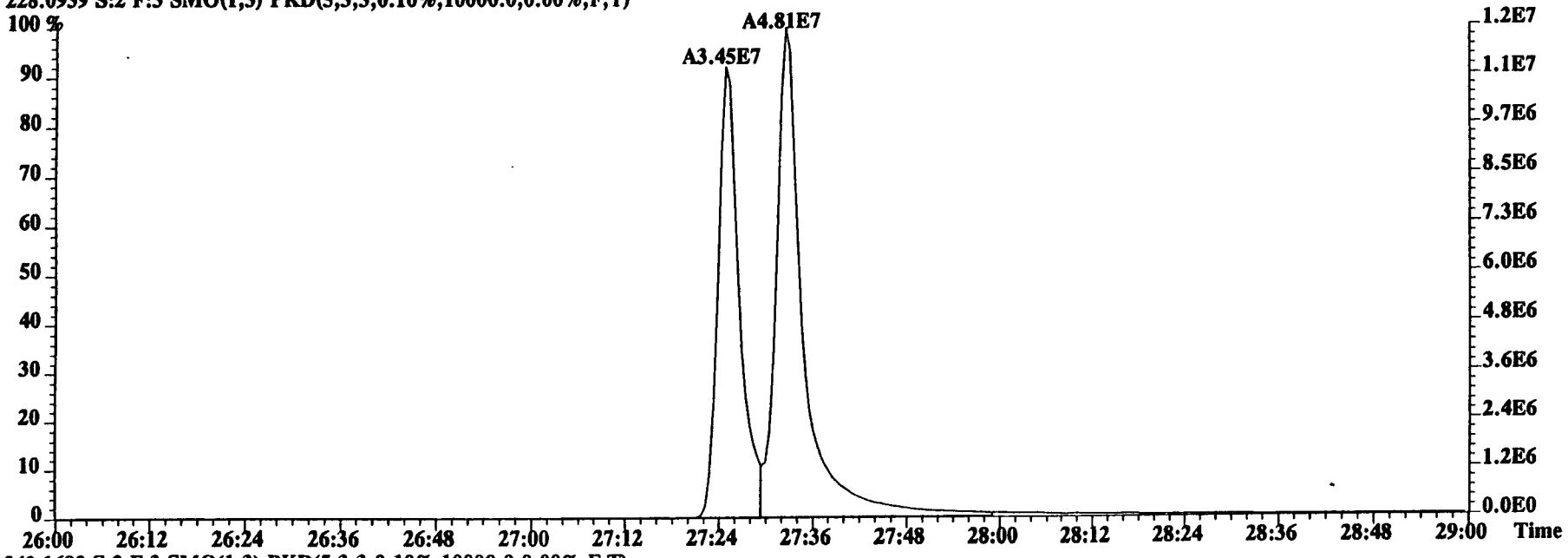
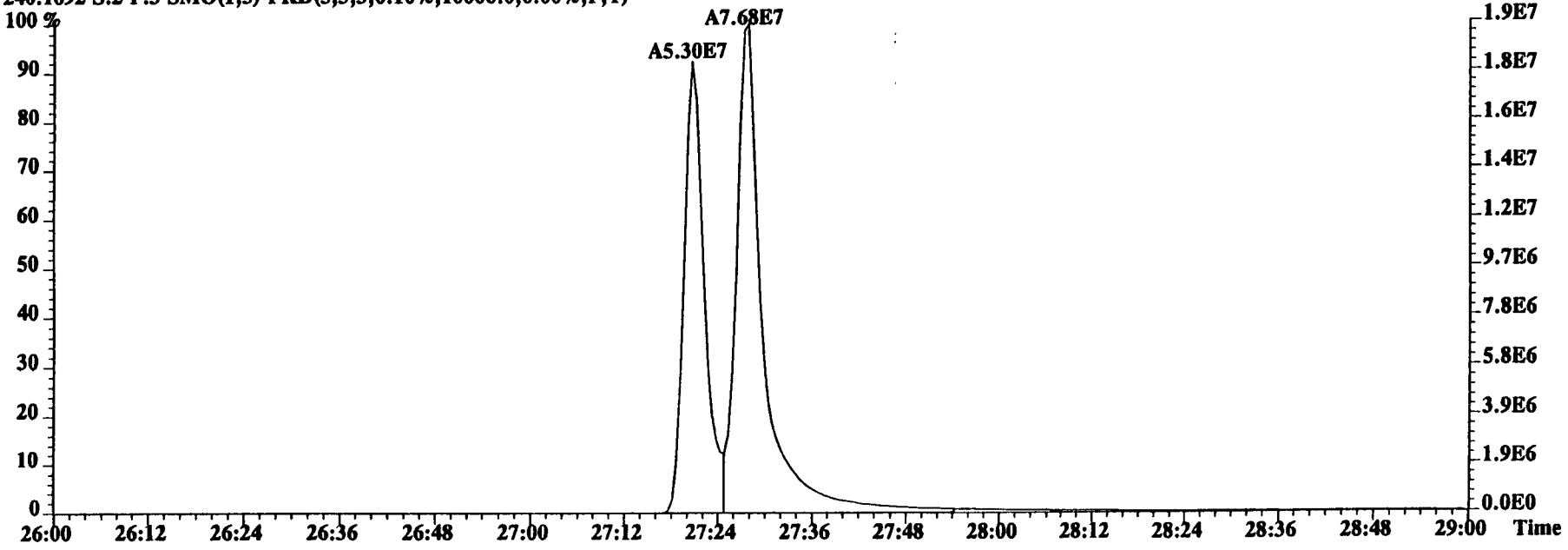
File:01OC98U #1-1052 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR



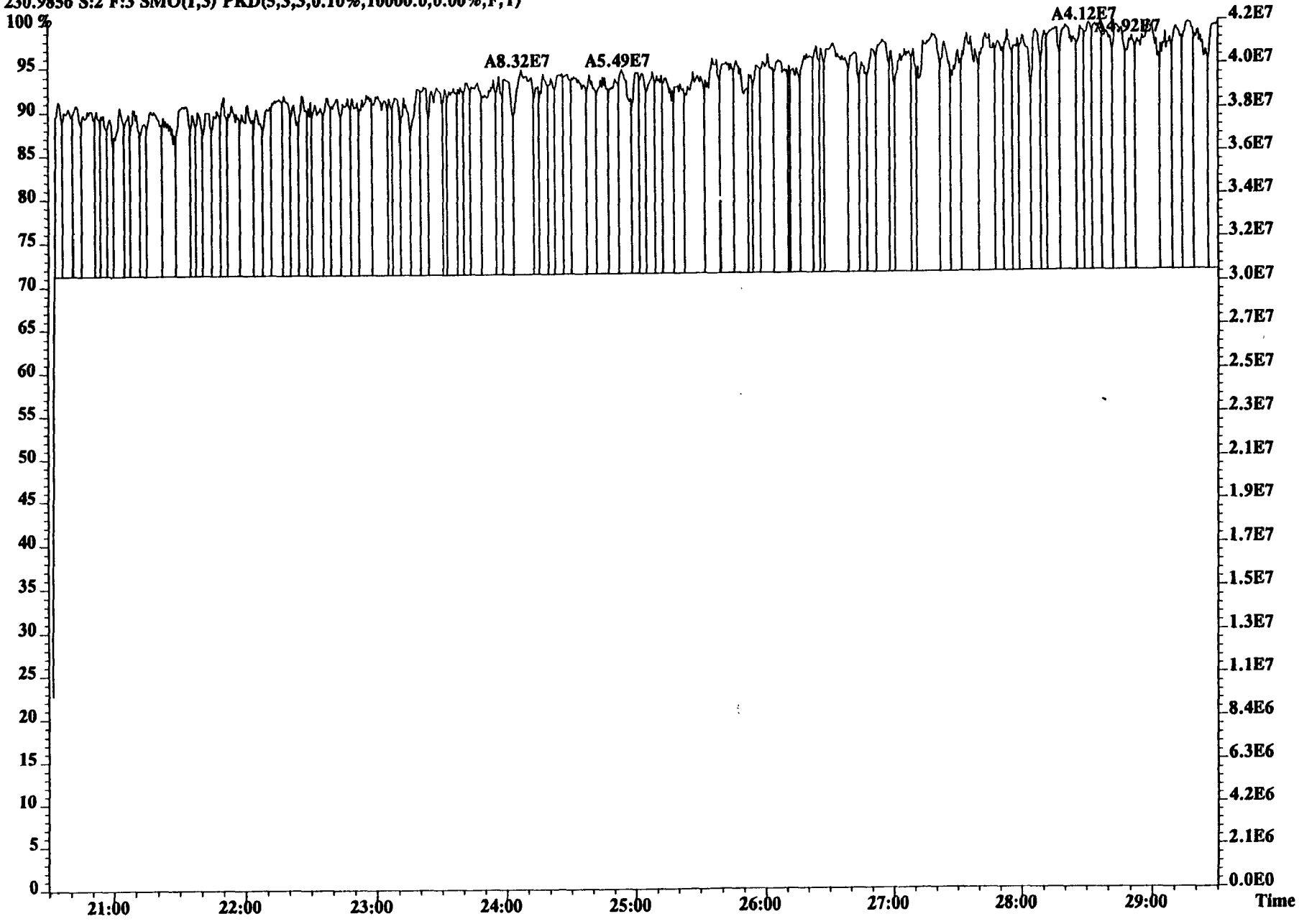
File:01OC98U #1-1052 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
228.0939 S:2 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



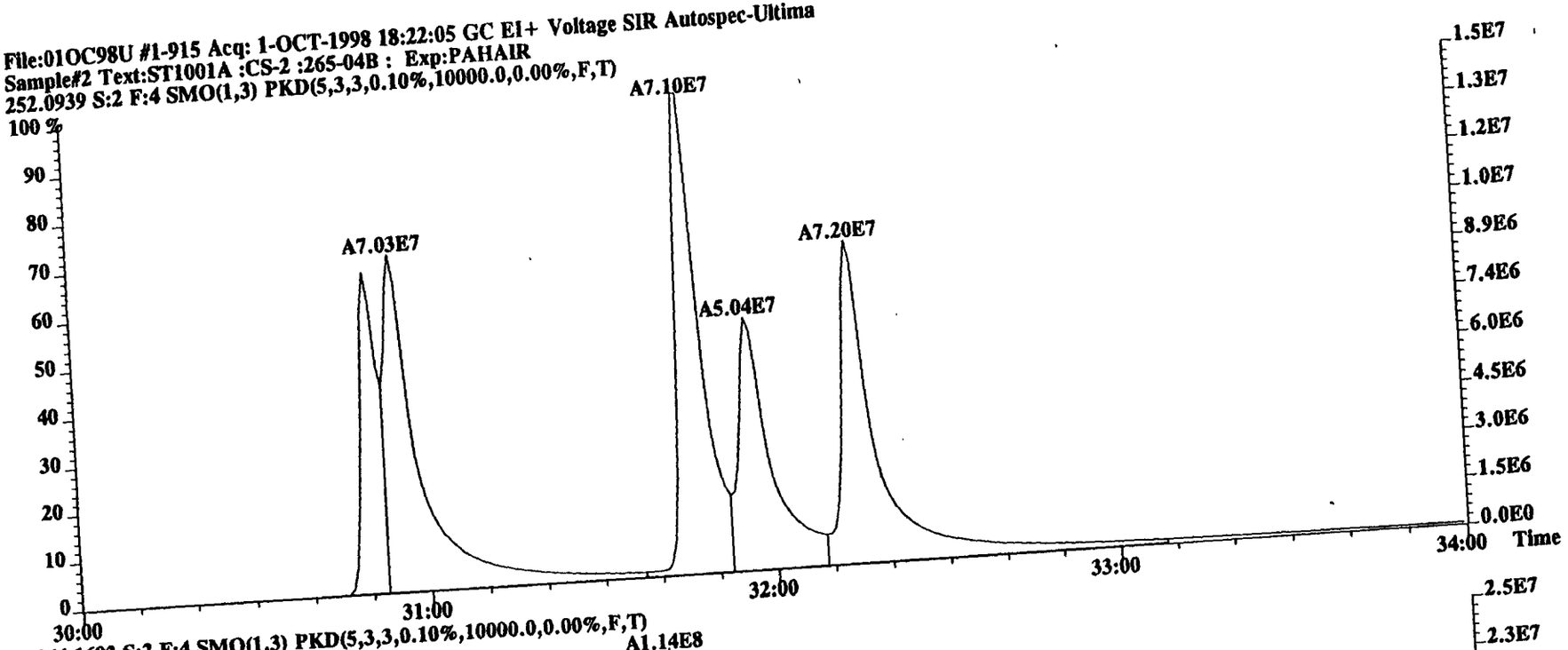
240.1692 S:2 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



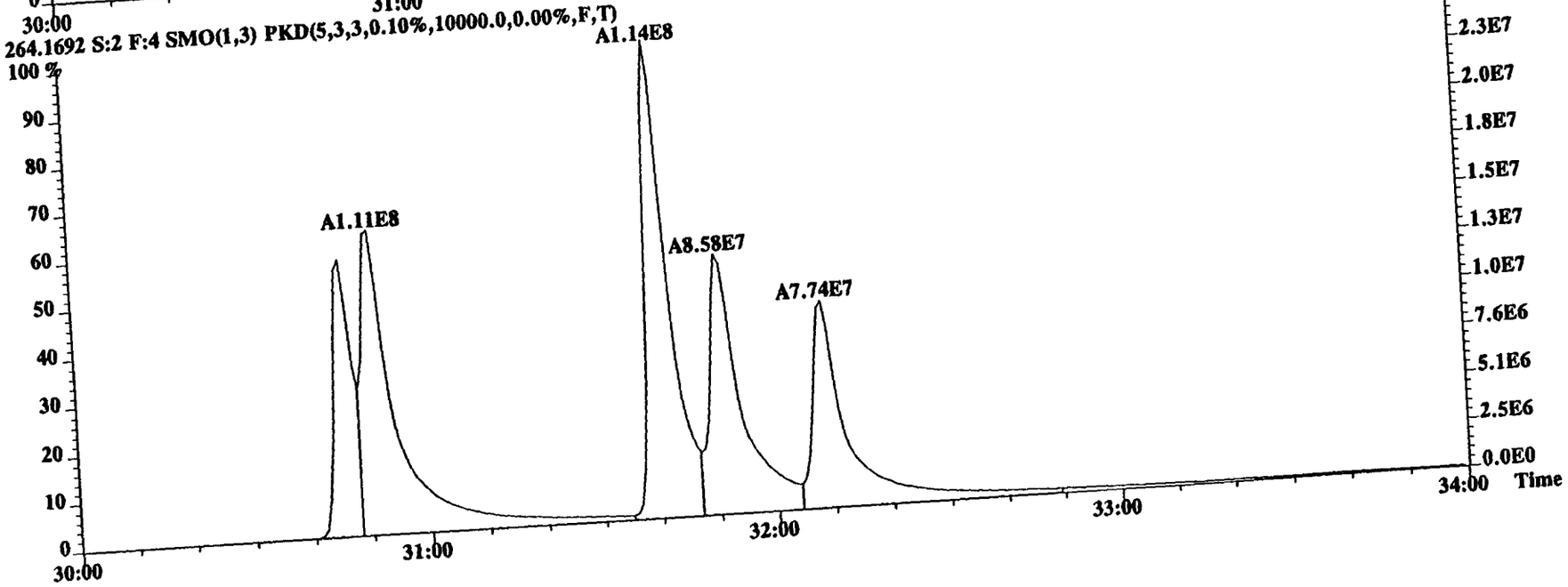
File:01OC98U #1-1052 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
230.9856 S:2 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



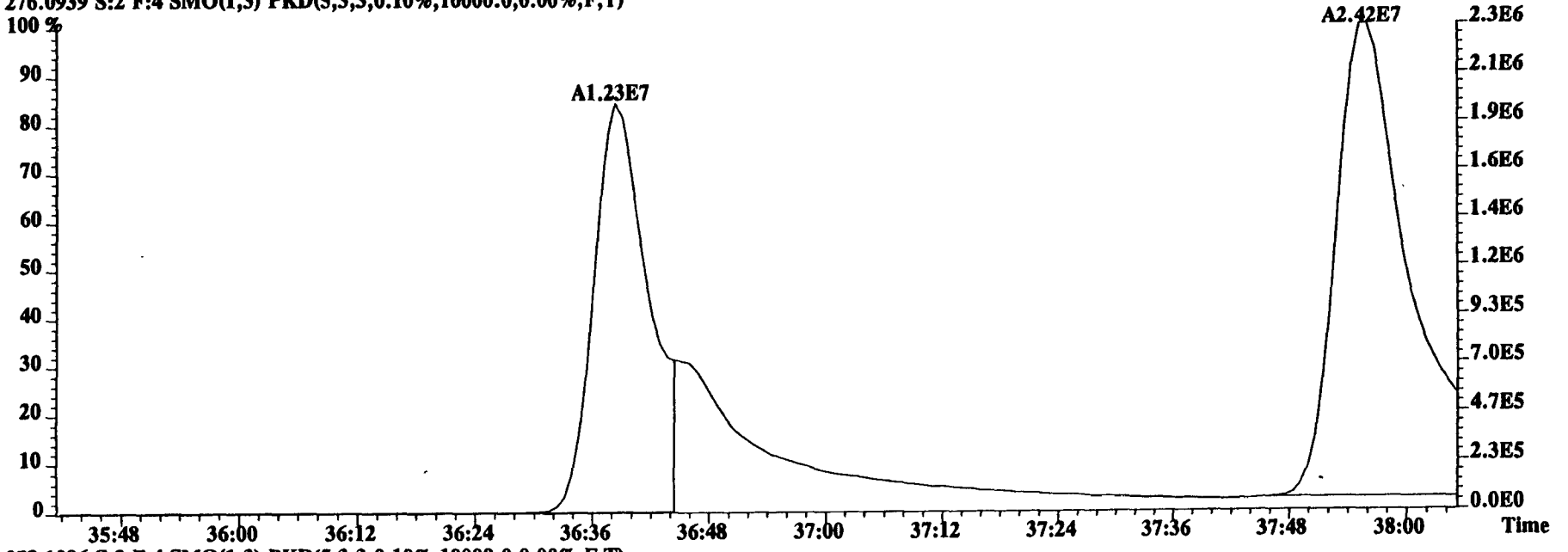
File:01OC98U #1-915 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
252.0939 S:2 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



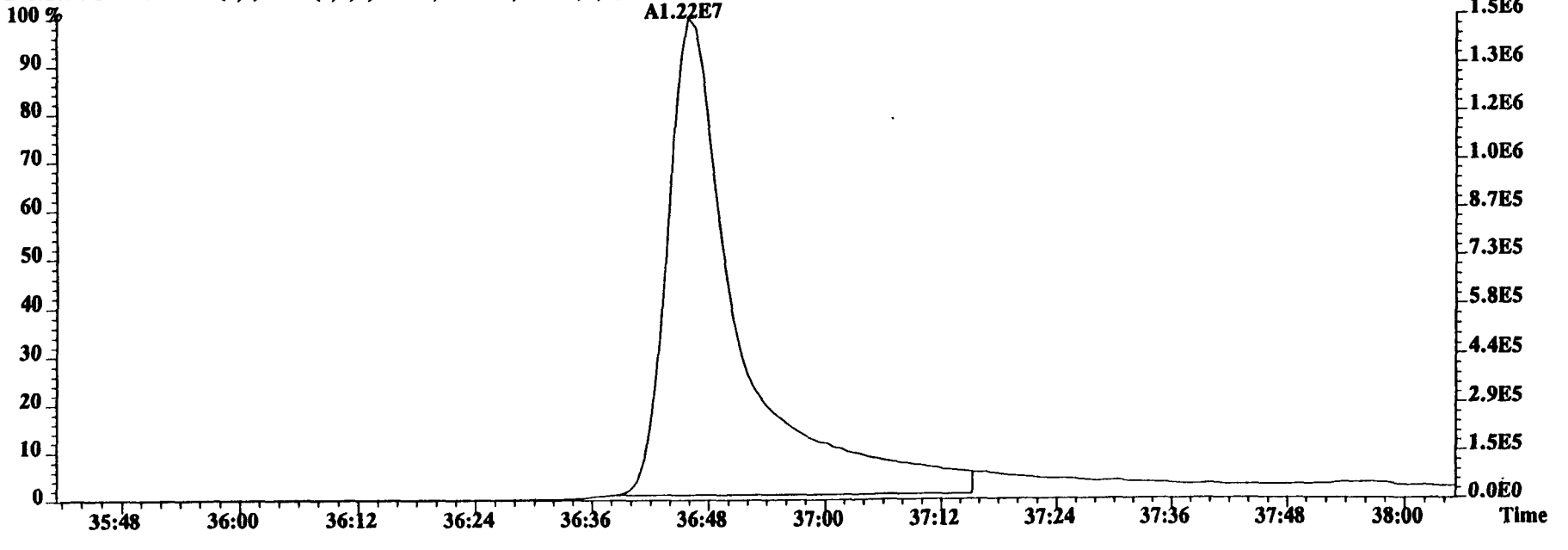
264.1692 S:2 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



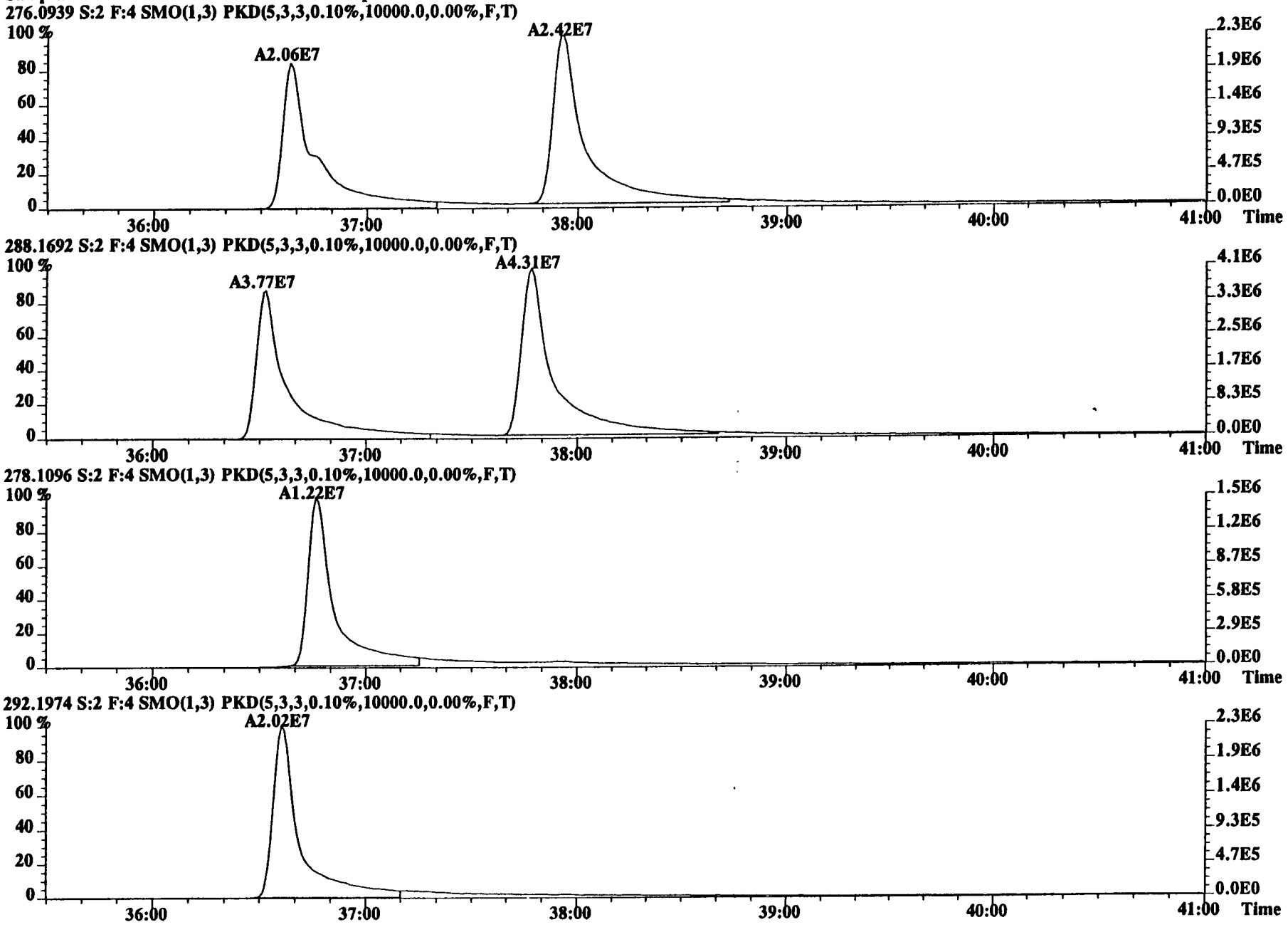
File:01OC98U #1-915 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
276.0939 S:2 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



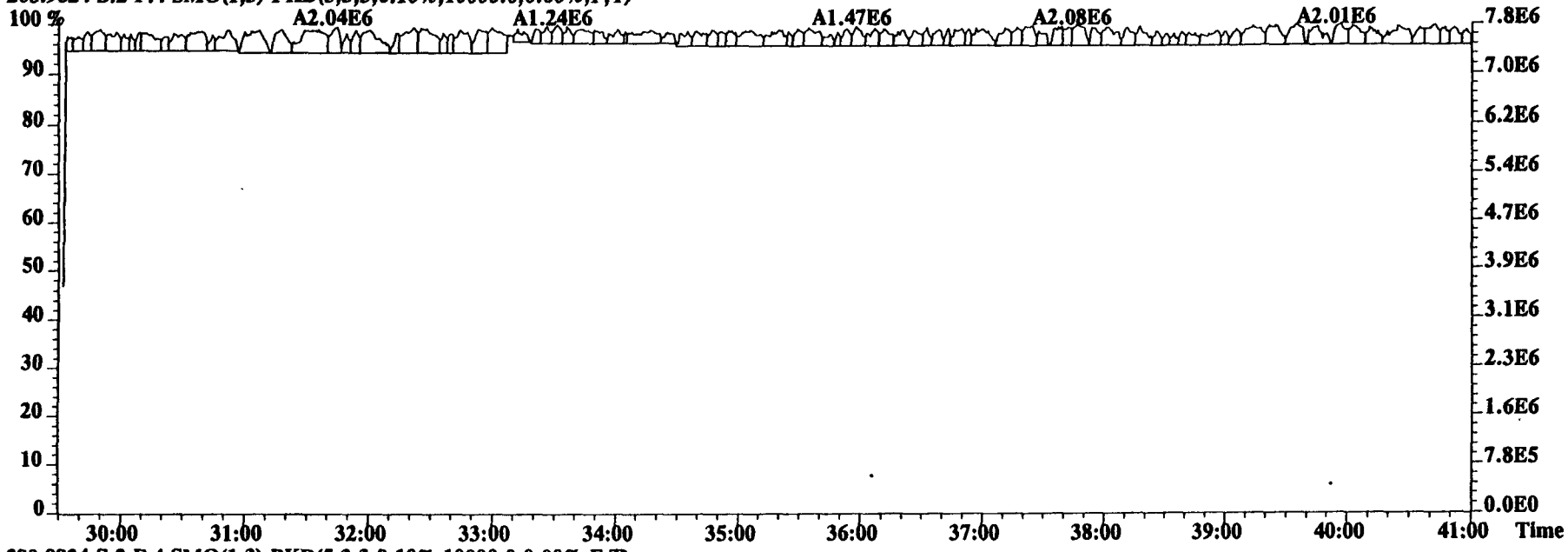
278.1096 S:2 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



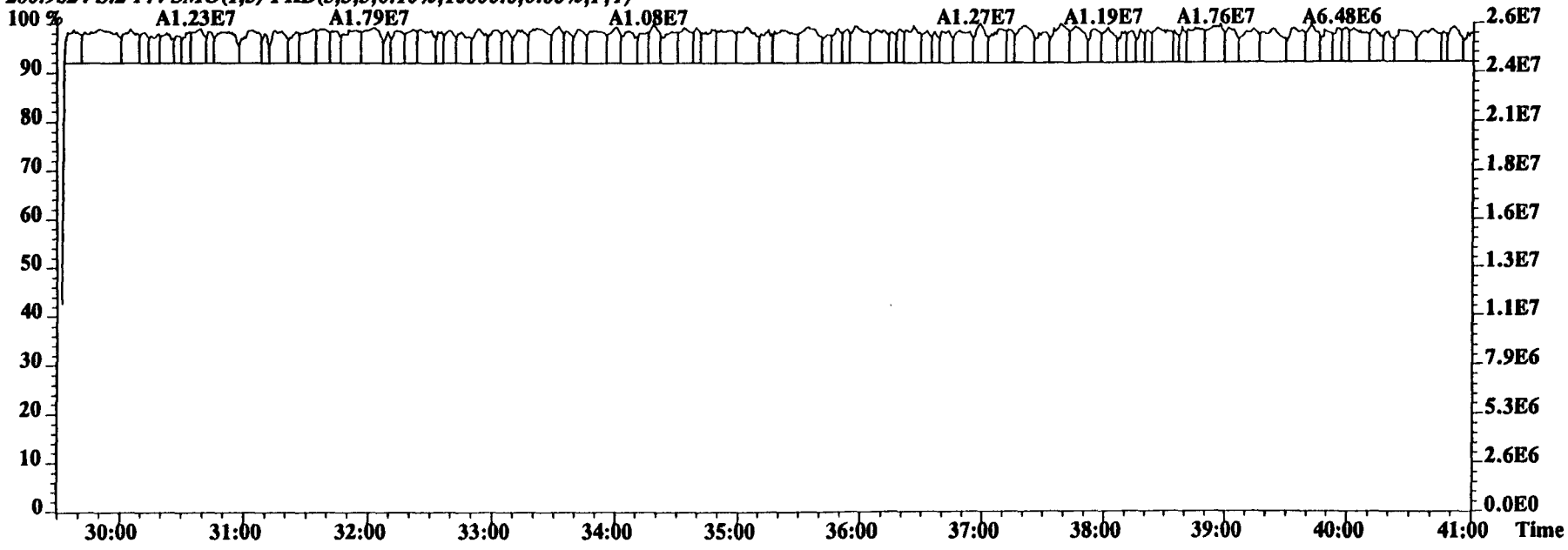
File:01OC98U #1-915 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR



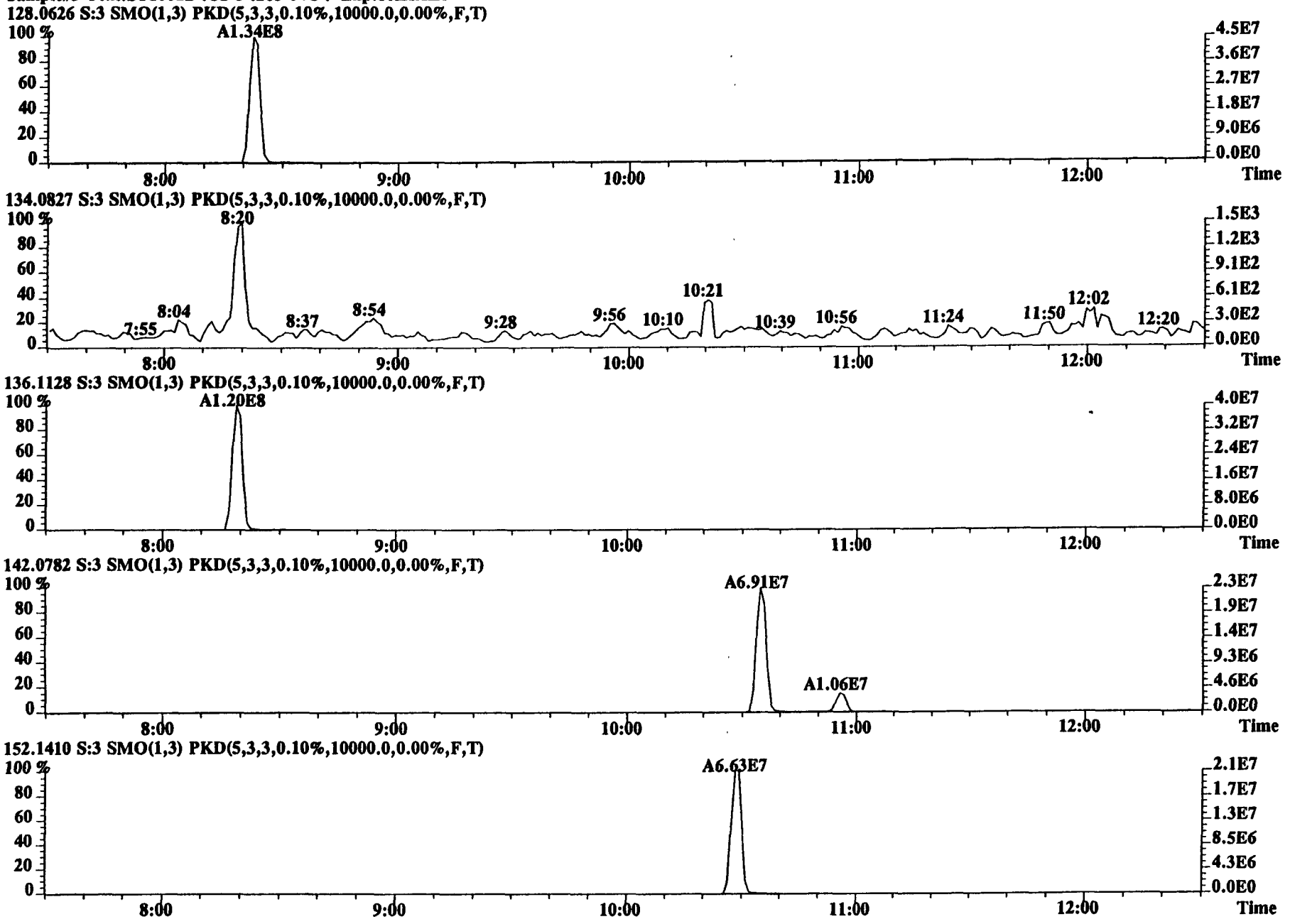
File:01OC98U #1-915 Acq: 1-OCT-1998 18:22:05 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST1001A :CS-2 :265-04B : Exp:PAHAIR
268.9824 S:2 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



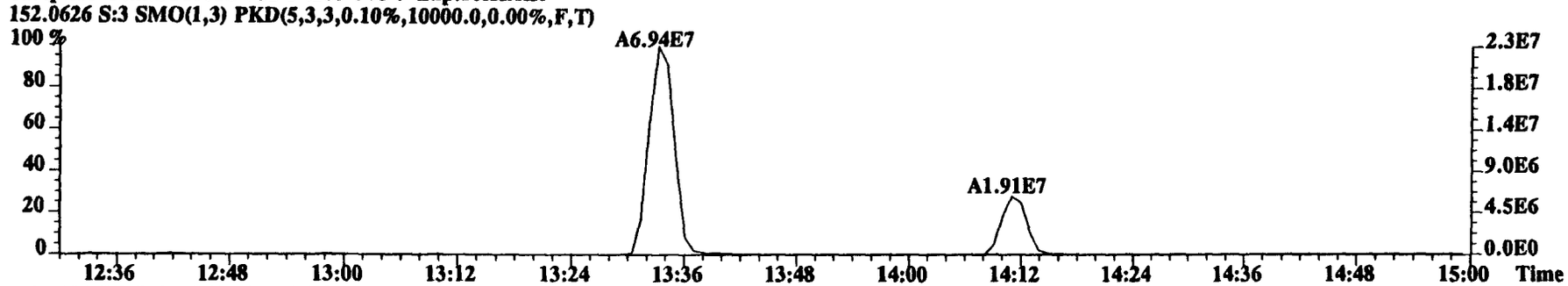
280.9824 S:2 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

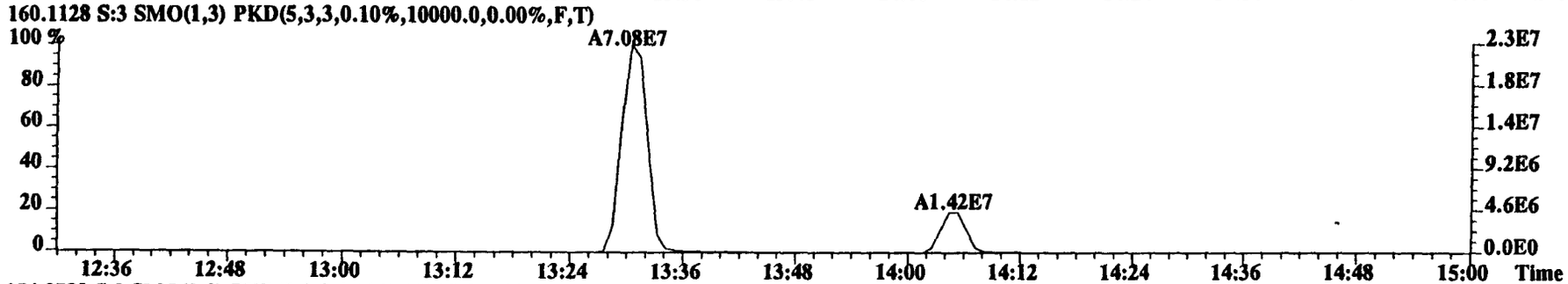


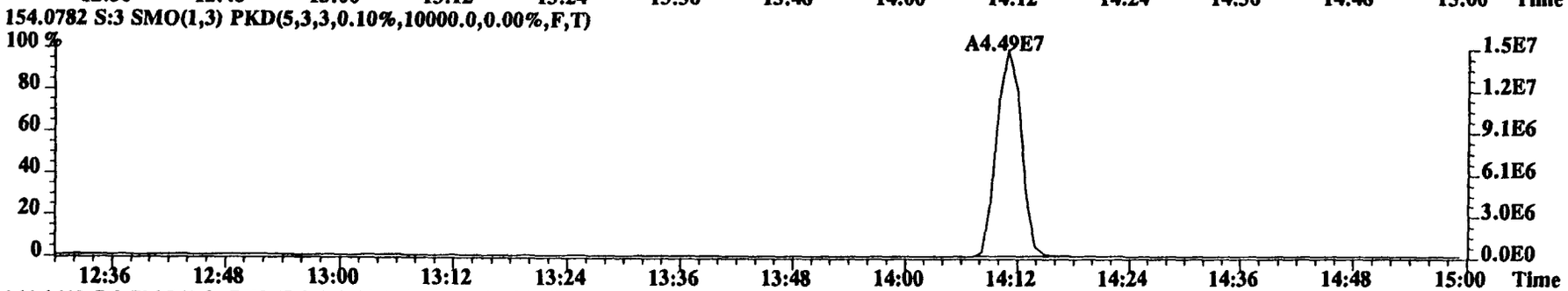
File:01OC98U #1-508 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR

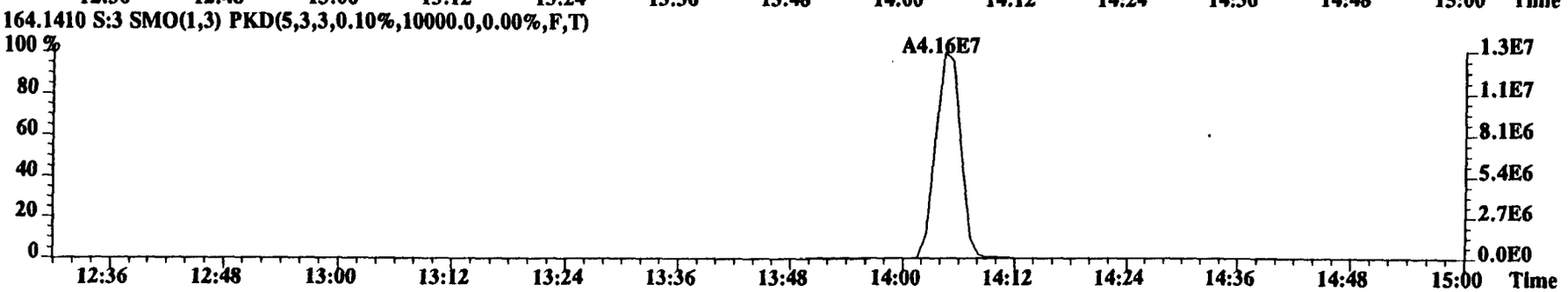


File:01OC98U #1-508 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR

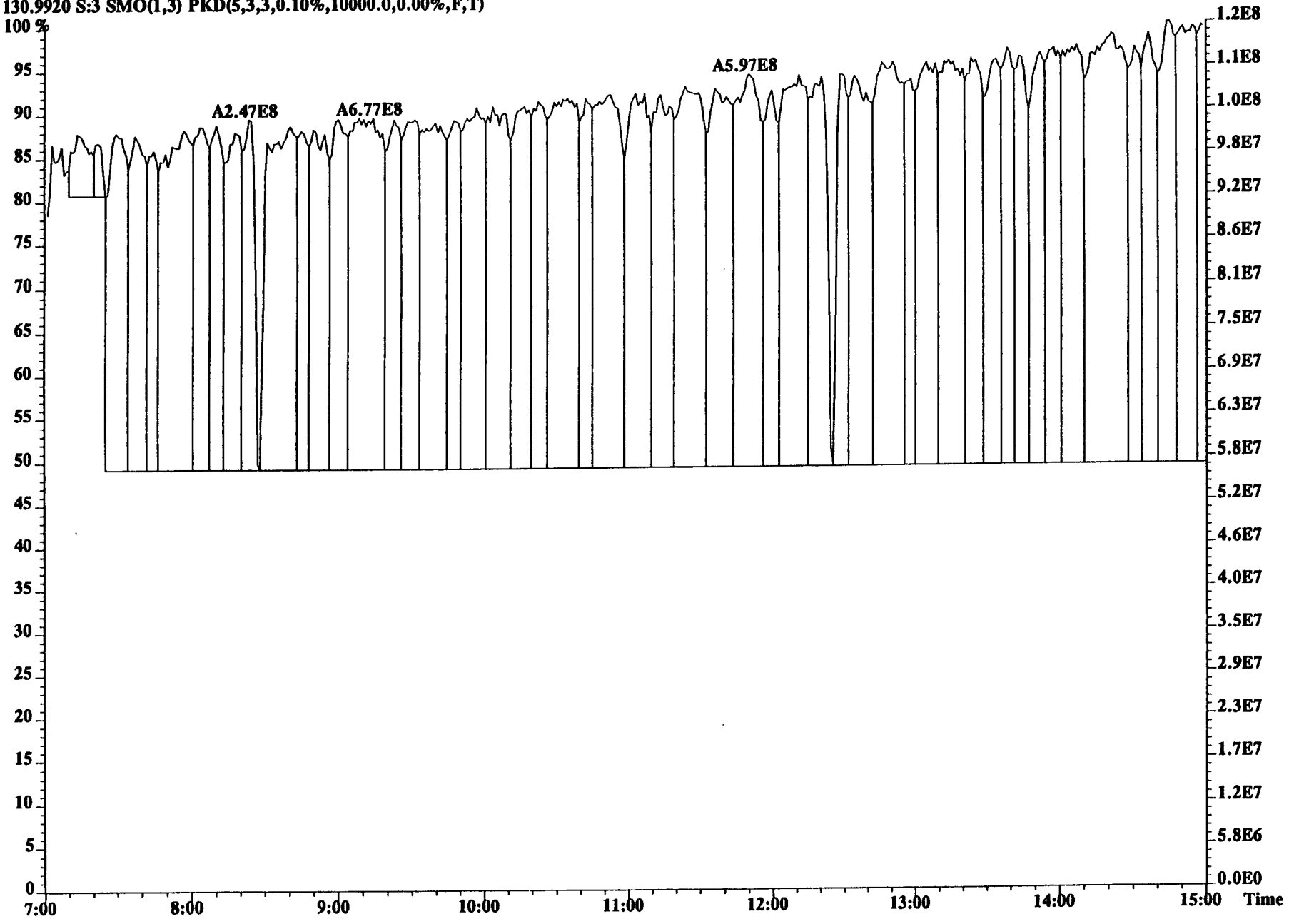




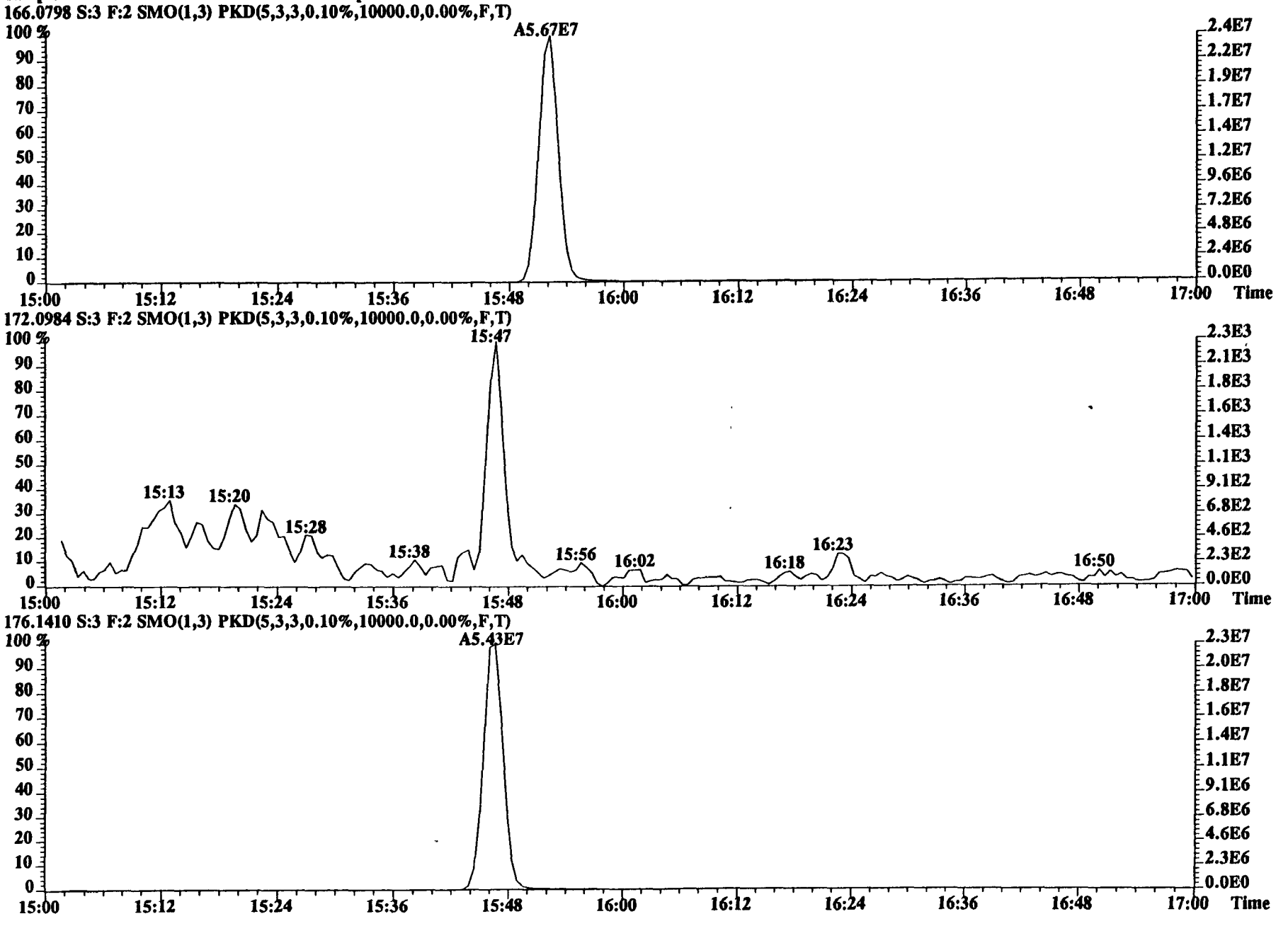




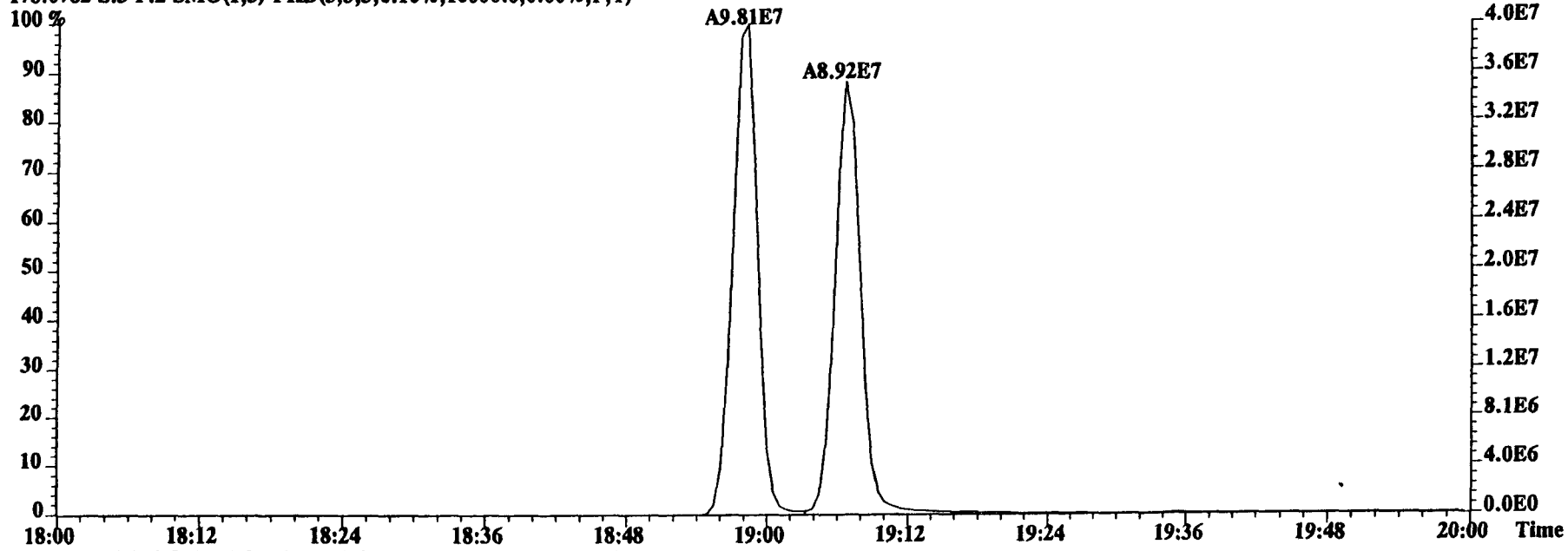
File:01OC98U #1-508 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
130.9920 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



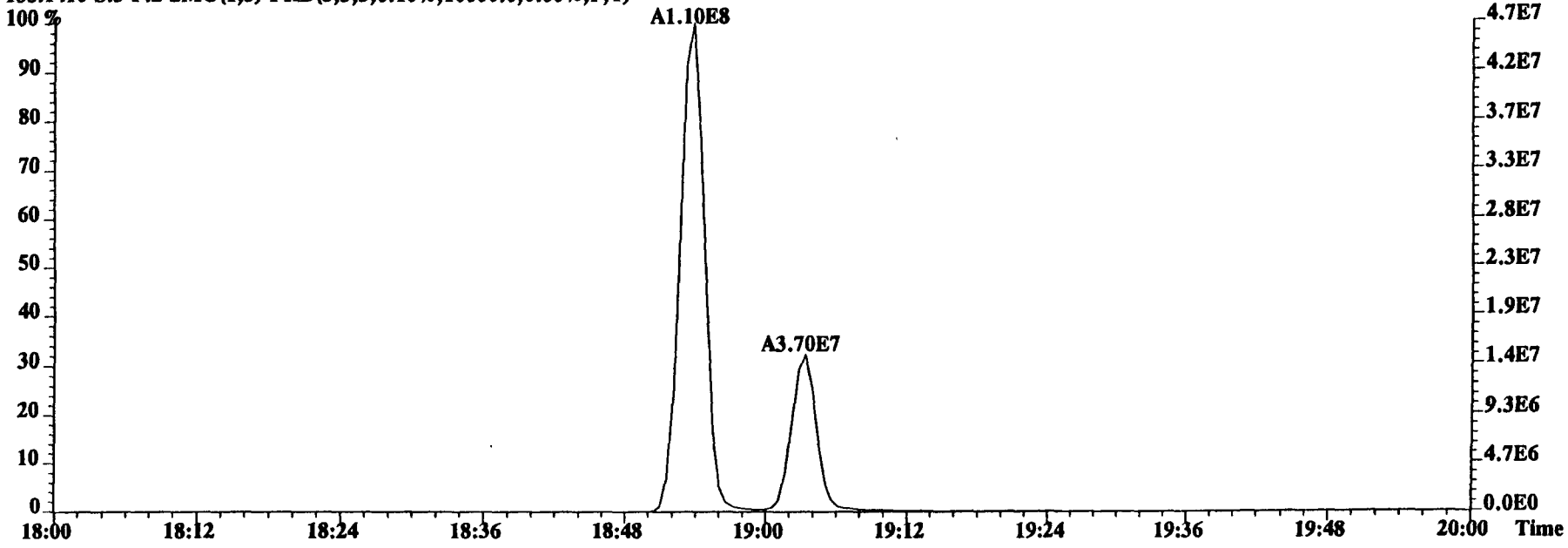
File:01OC98U #1-586 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR



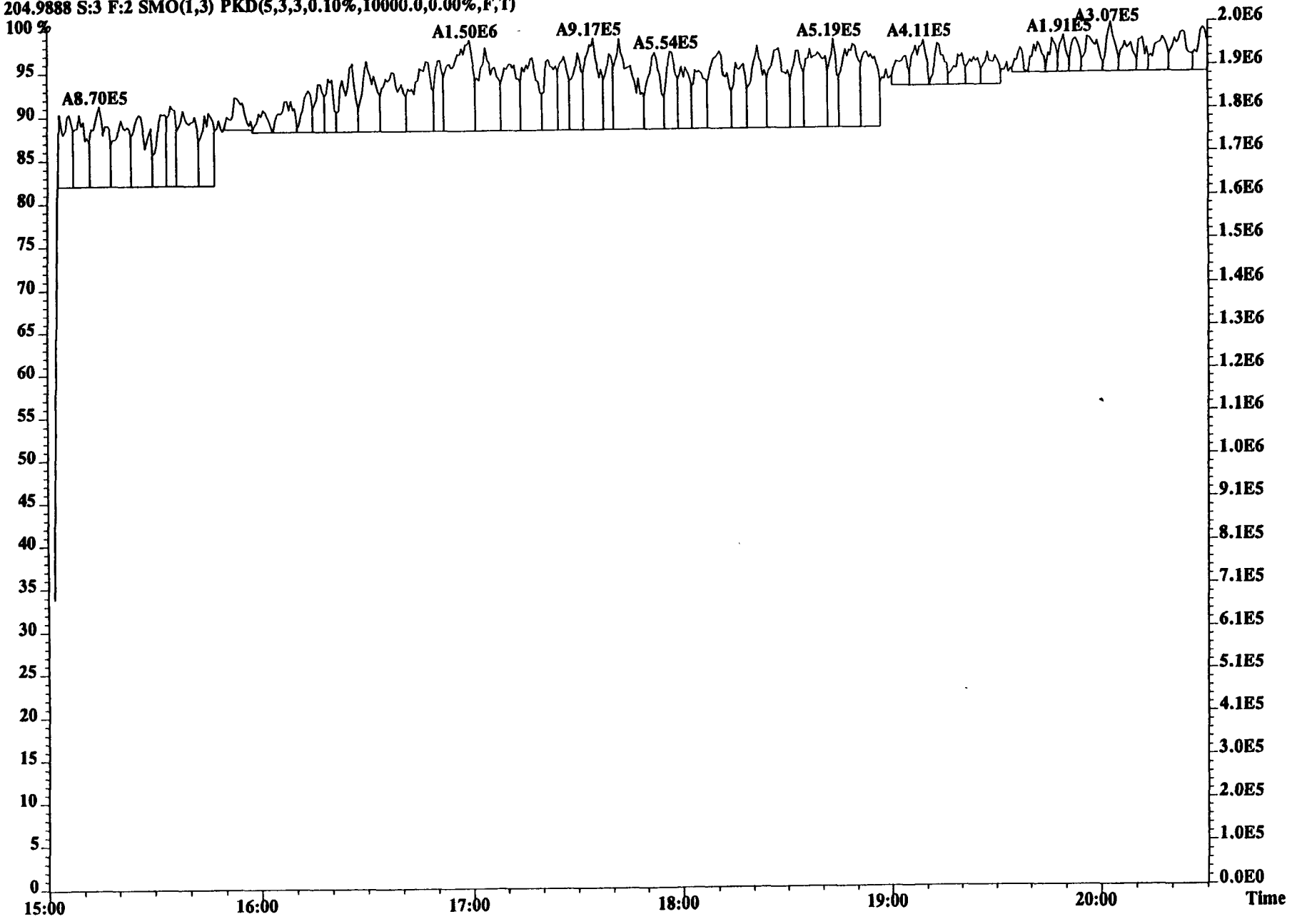
File:01OC98U #1-586 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
178.0782 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



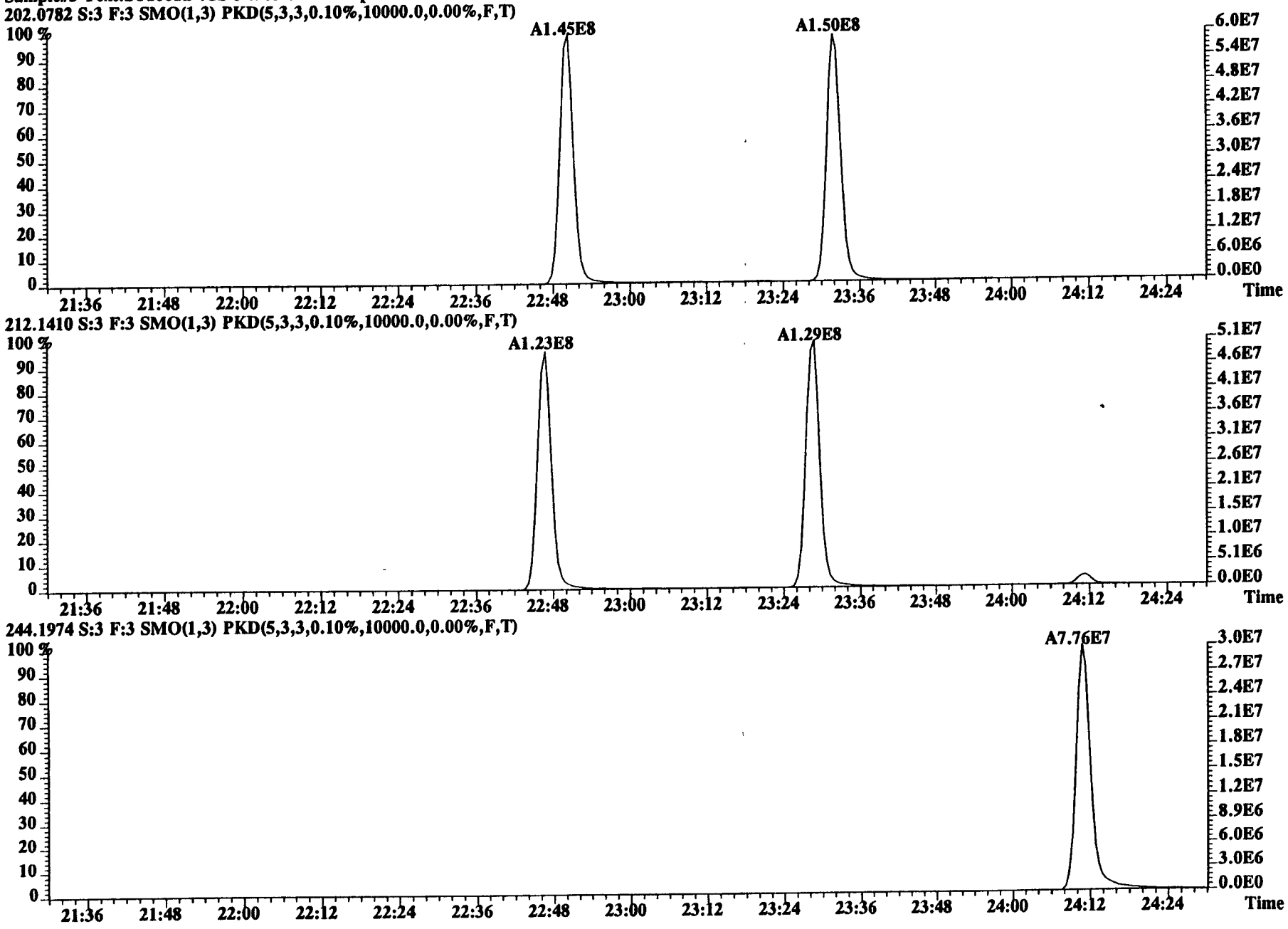
188.1410 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



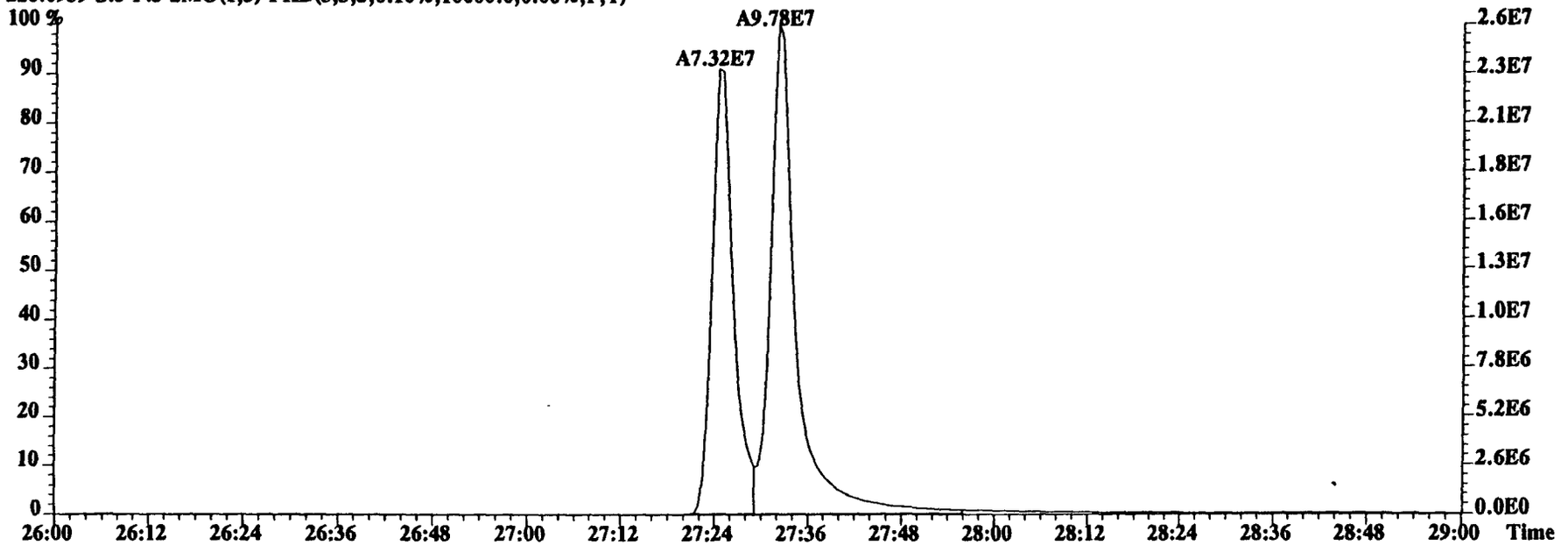
File:01OC98U #1-586 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
204.9888 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



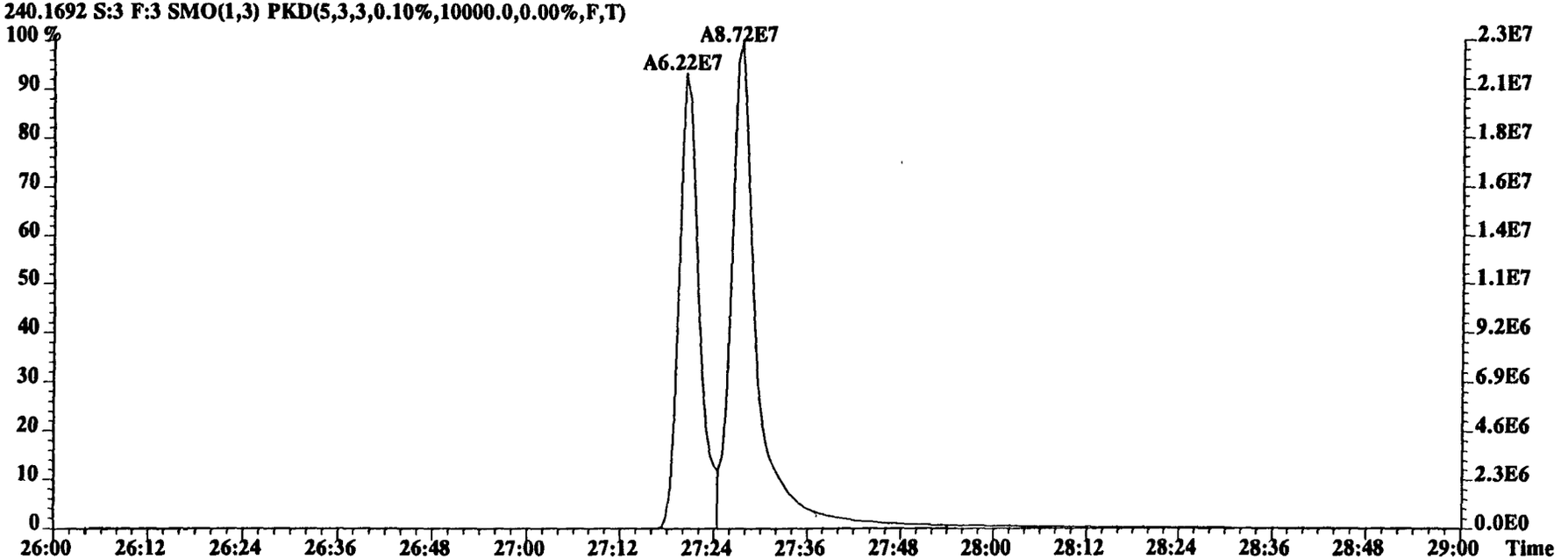
File:01OC98U #1-1052 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR



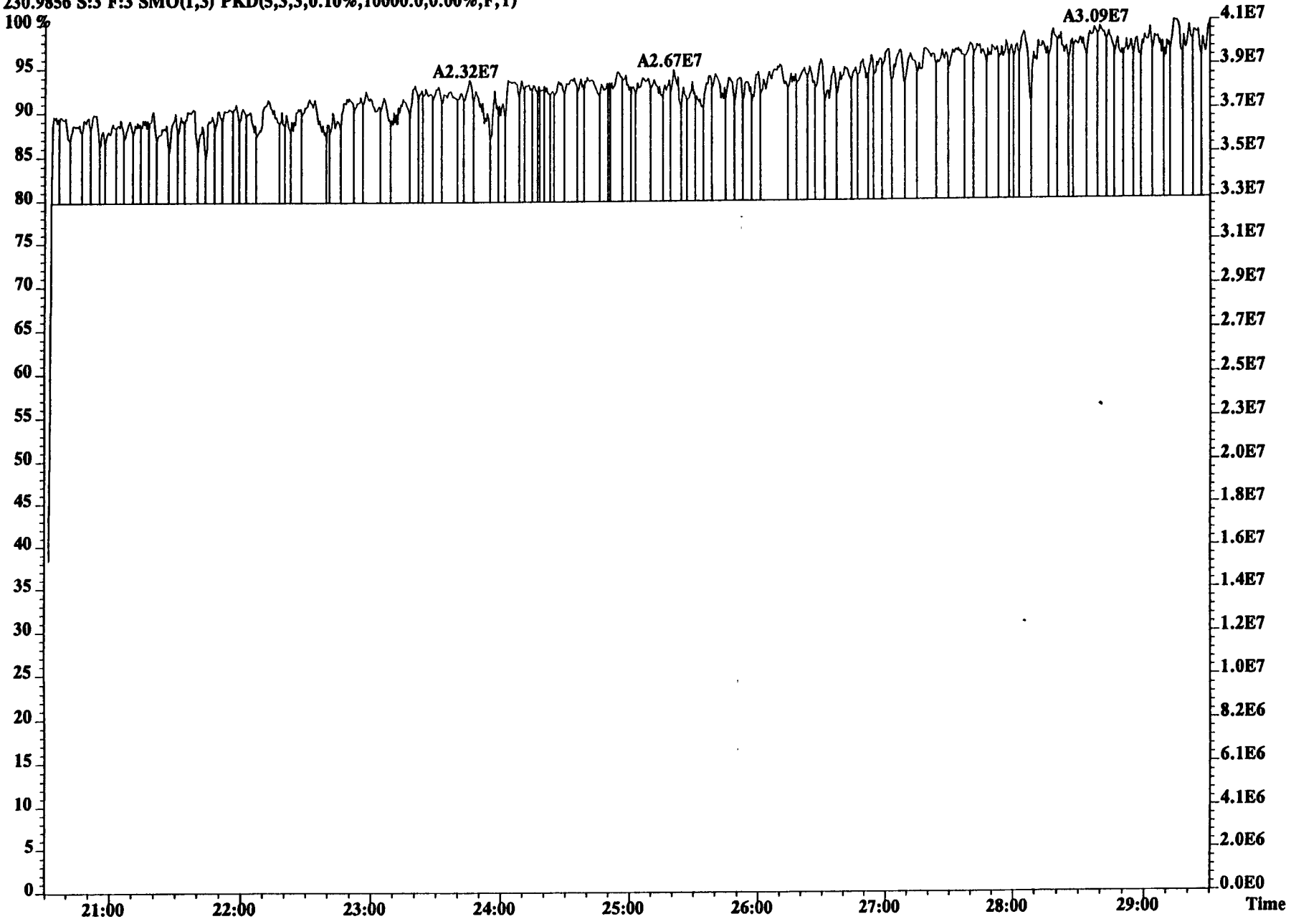
File:01OC98U #1-1052 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
228.0939 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



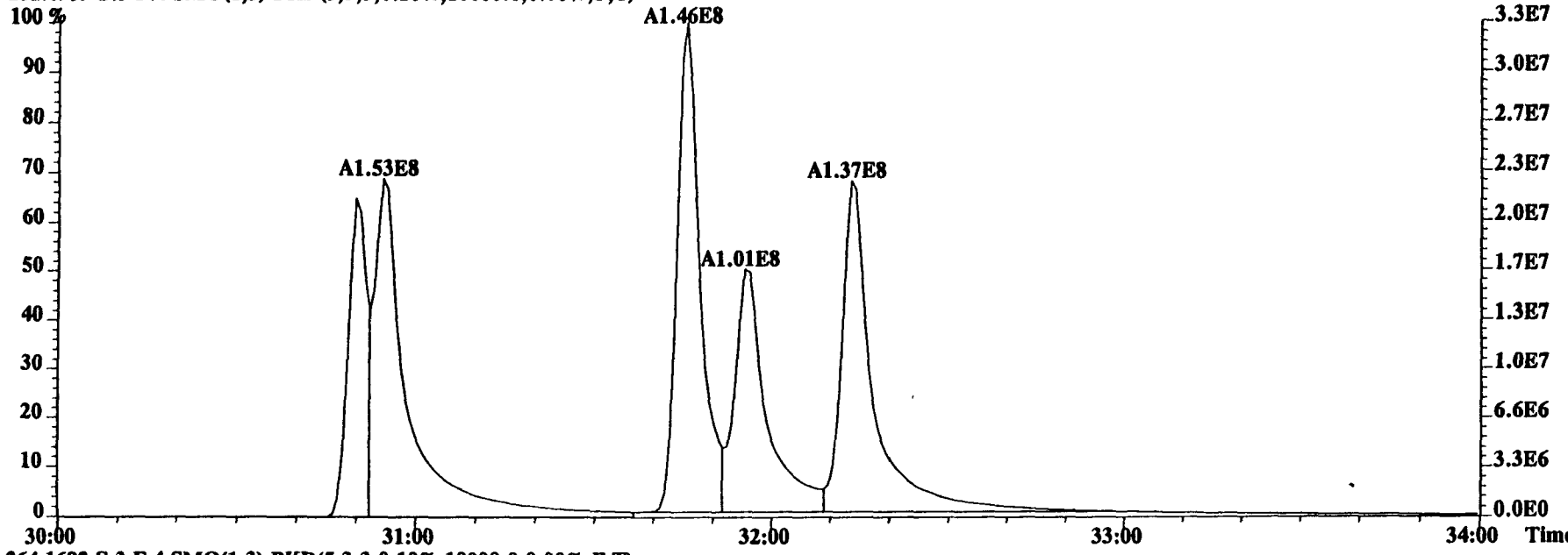
240.1692 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



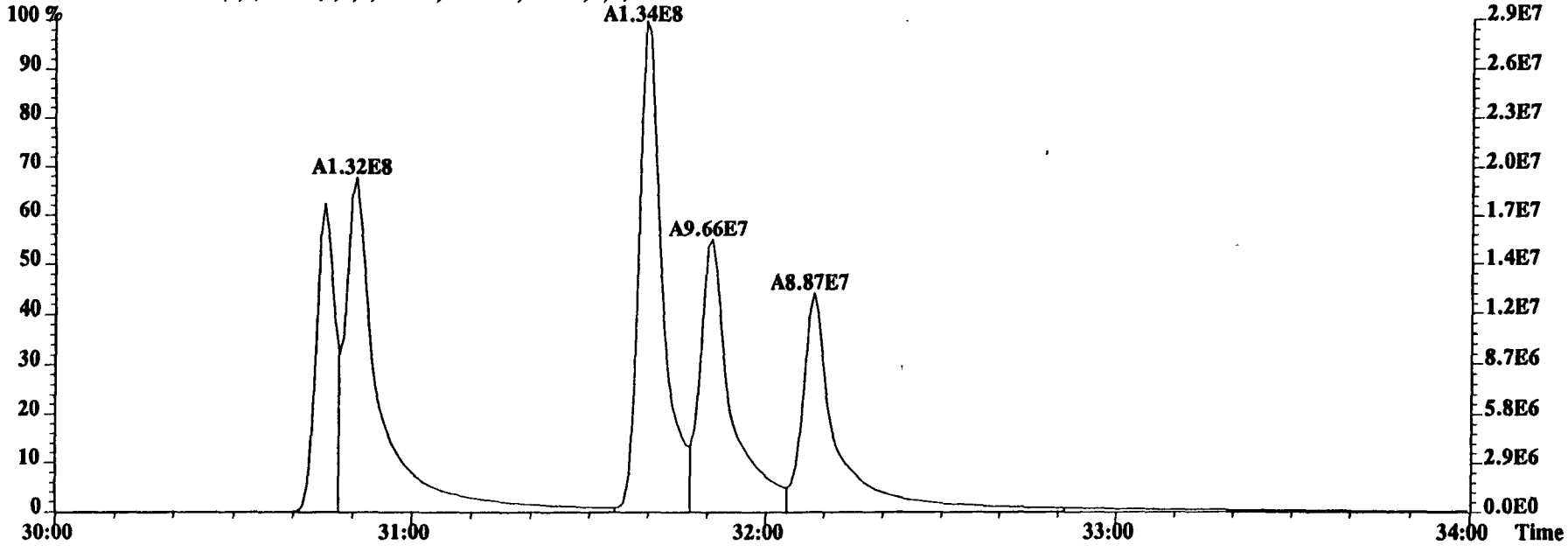
File:01OC98U #1-1052 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
230.9856 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



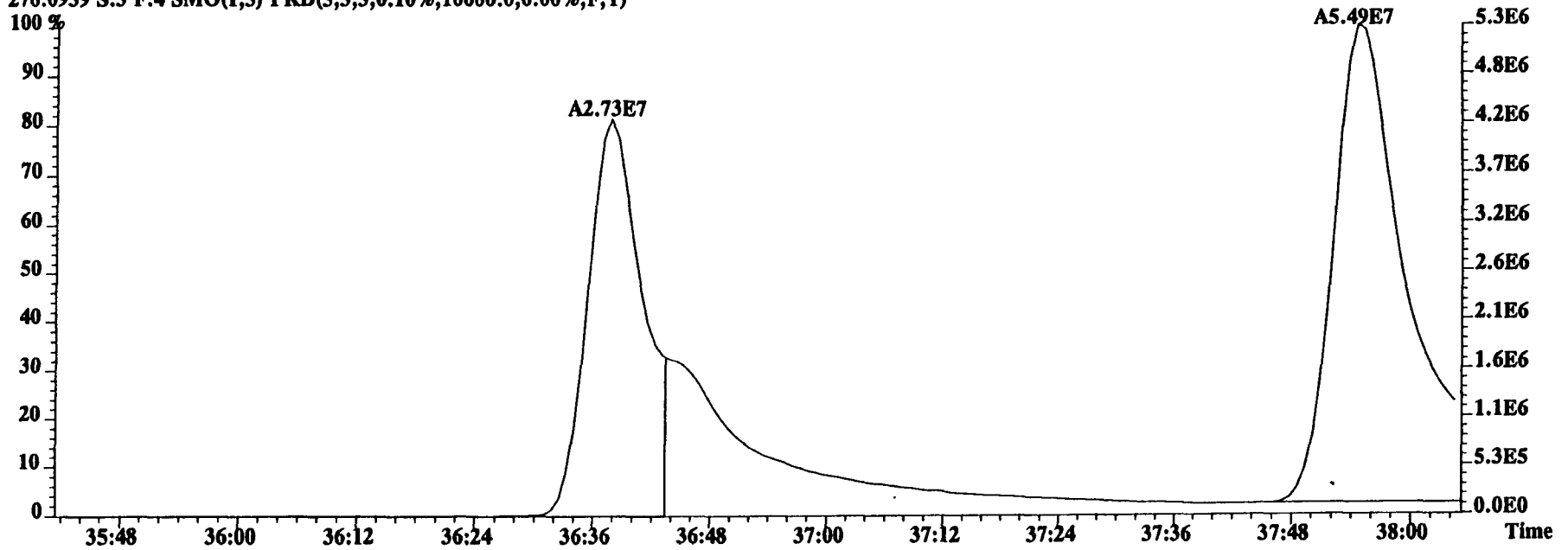
File:01OC98U #1-915 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
252.0939 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



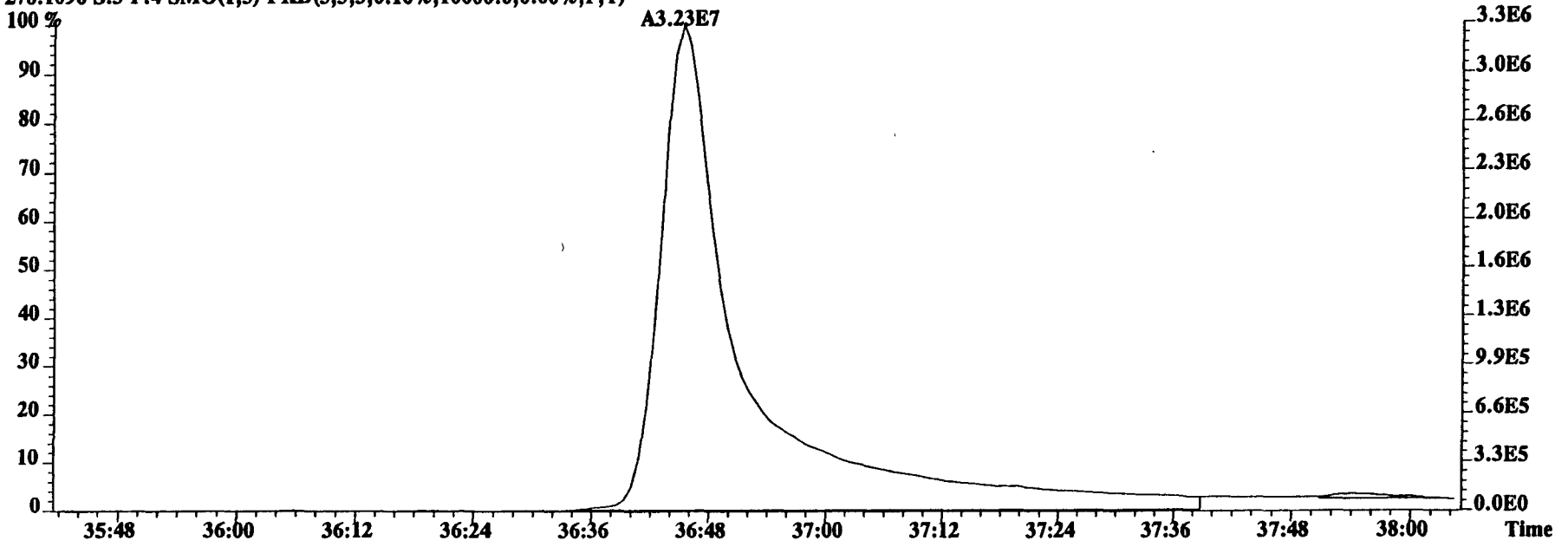
264.1692 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:01OC98U #1-915 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
276.0939 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

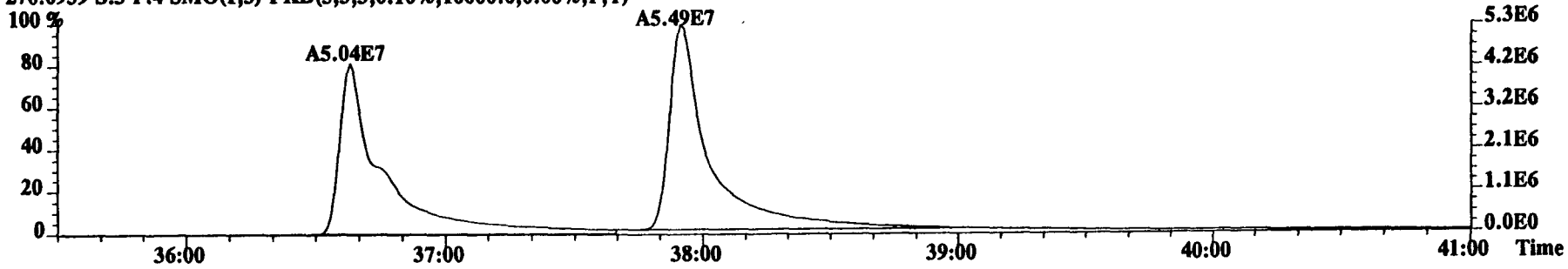


278.1096 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

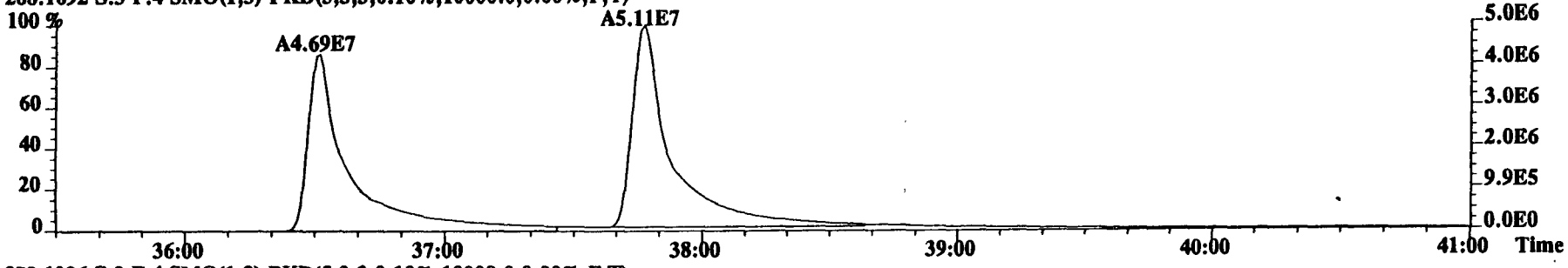


File:01OC98U #1-915 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR

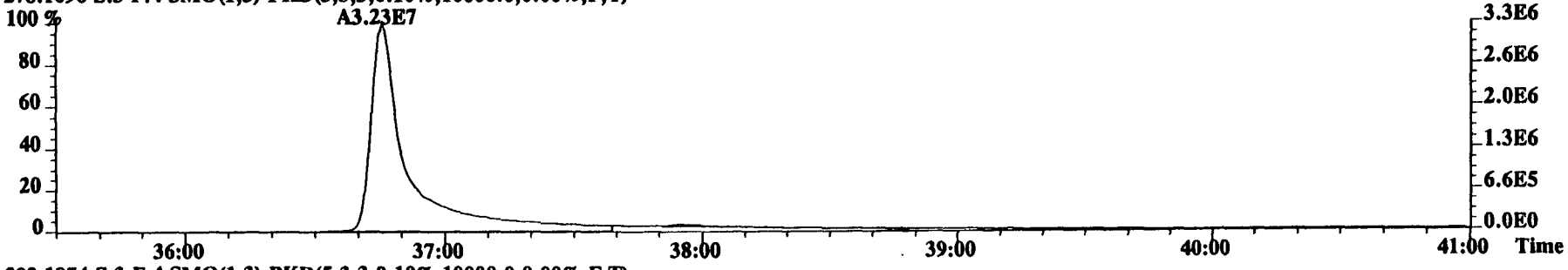
276.0939 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



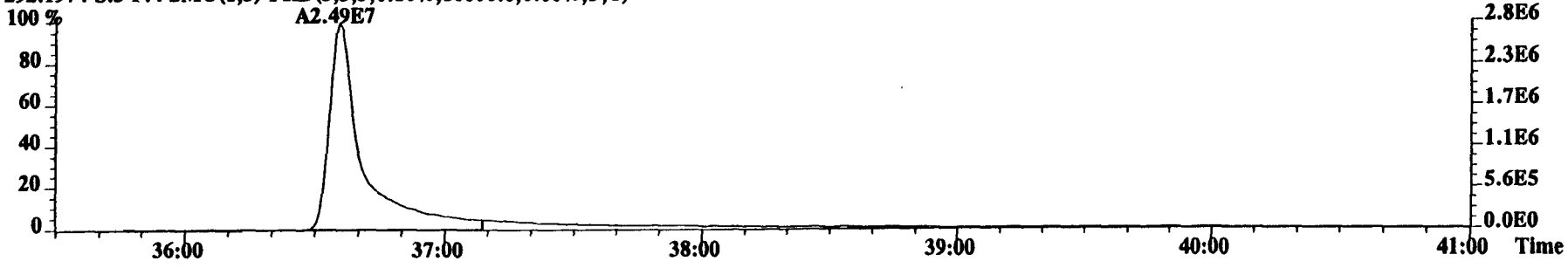
288.1692 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



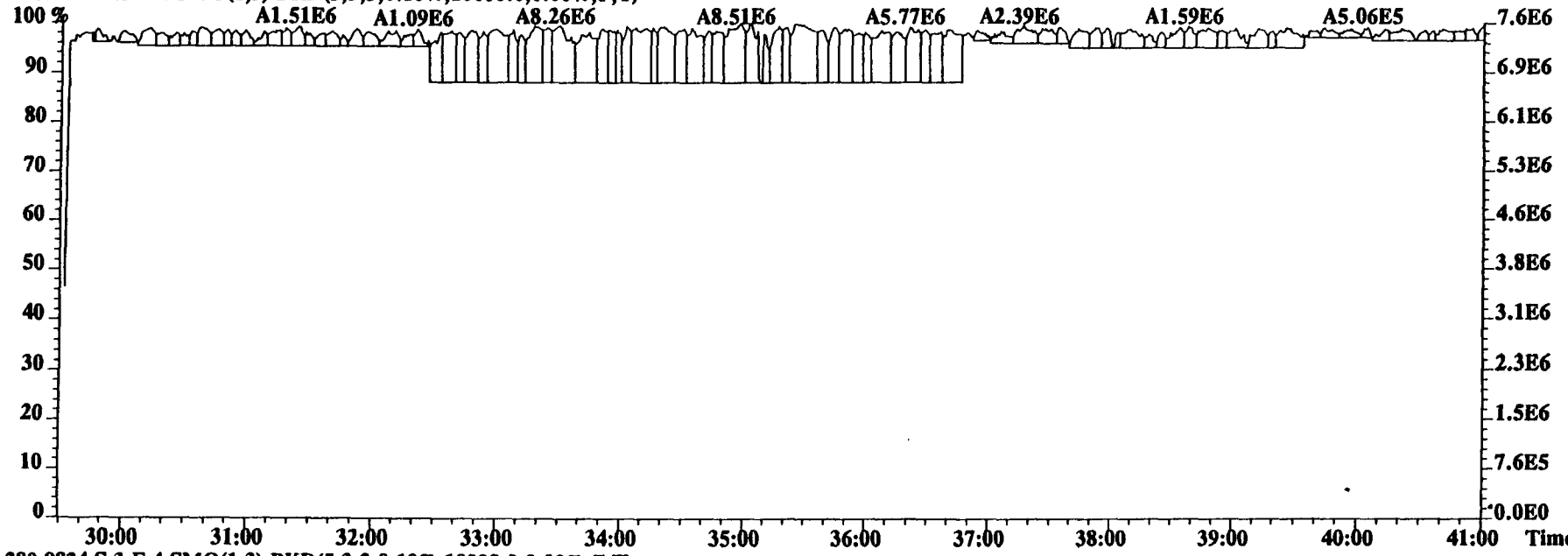
278.1096 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



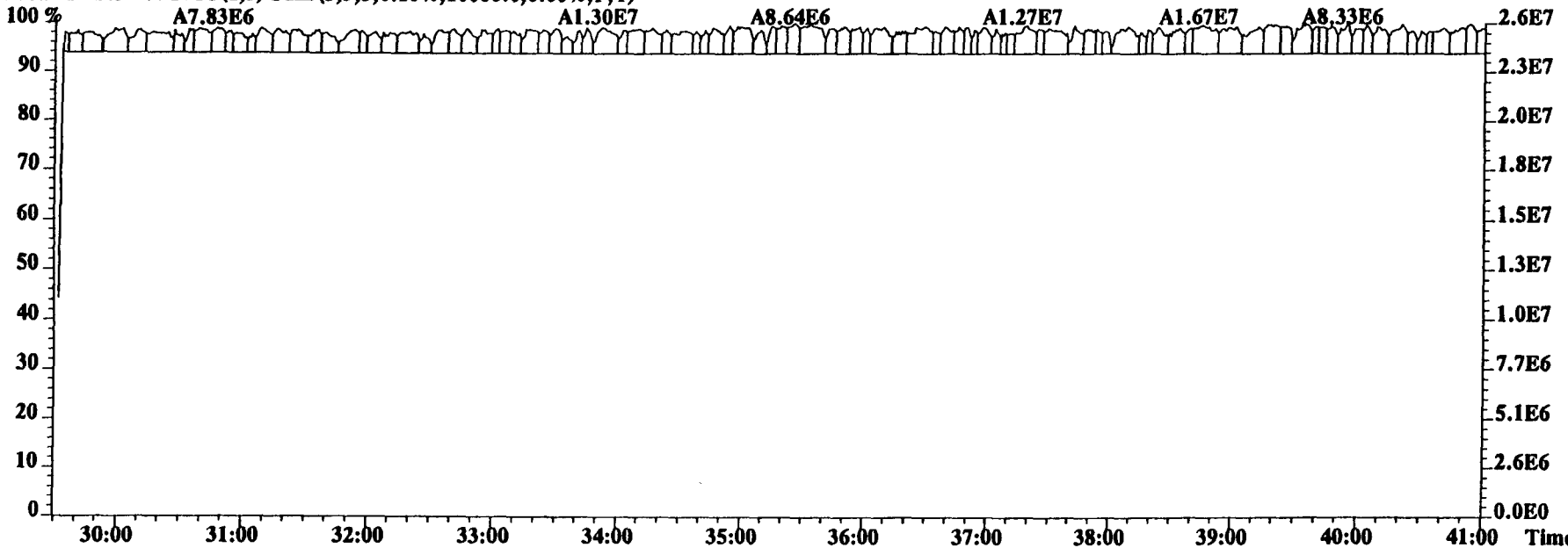
292.1974 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



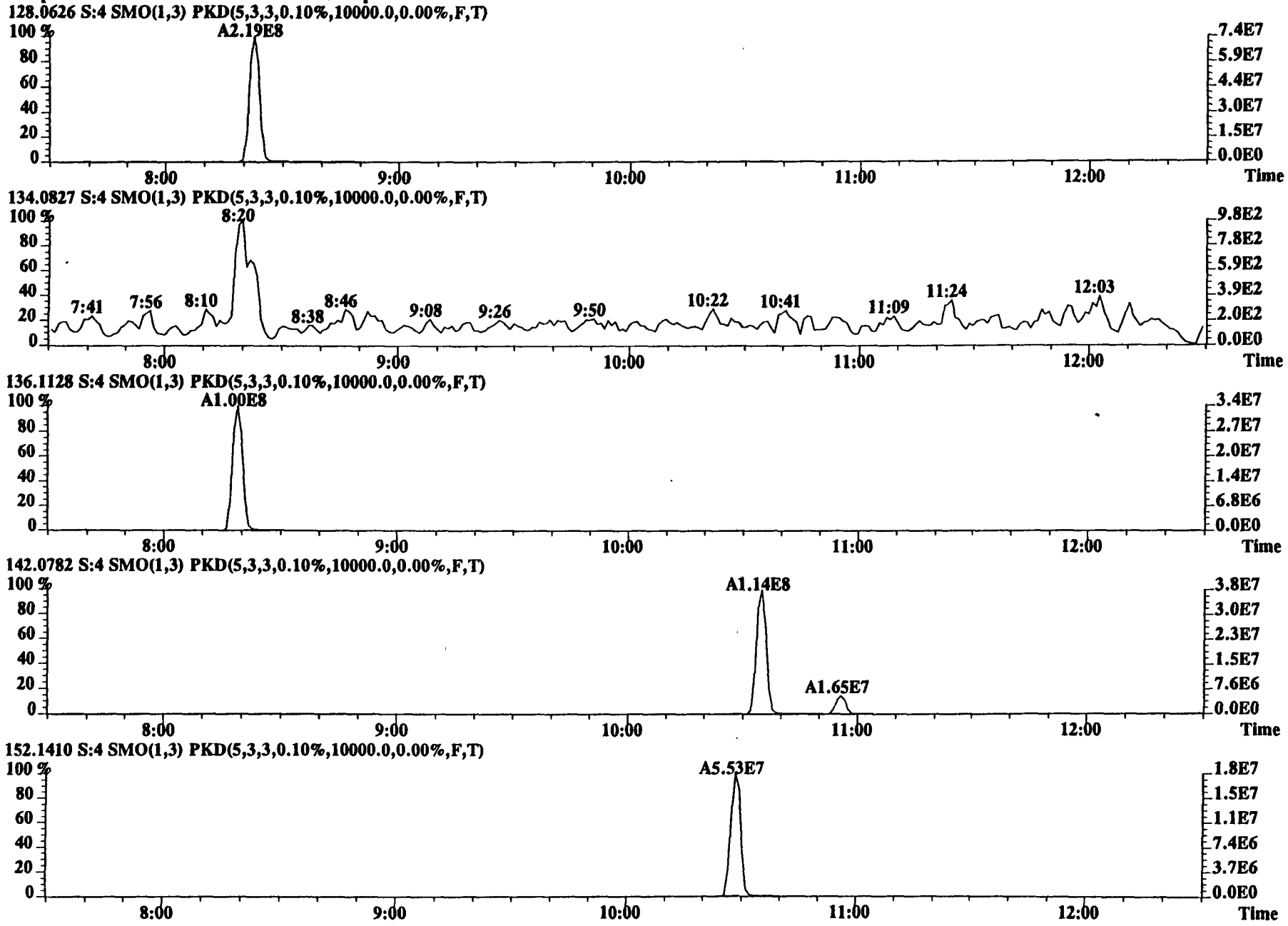
File:01OC98U #1-915 Acq: 1-OCT-1998 19:08:27 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST1001B :CS-3 :265-04C : Exp:PAHAIR
268.9824 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



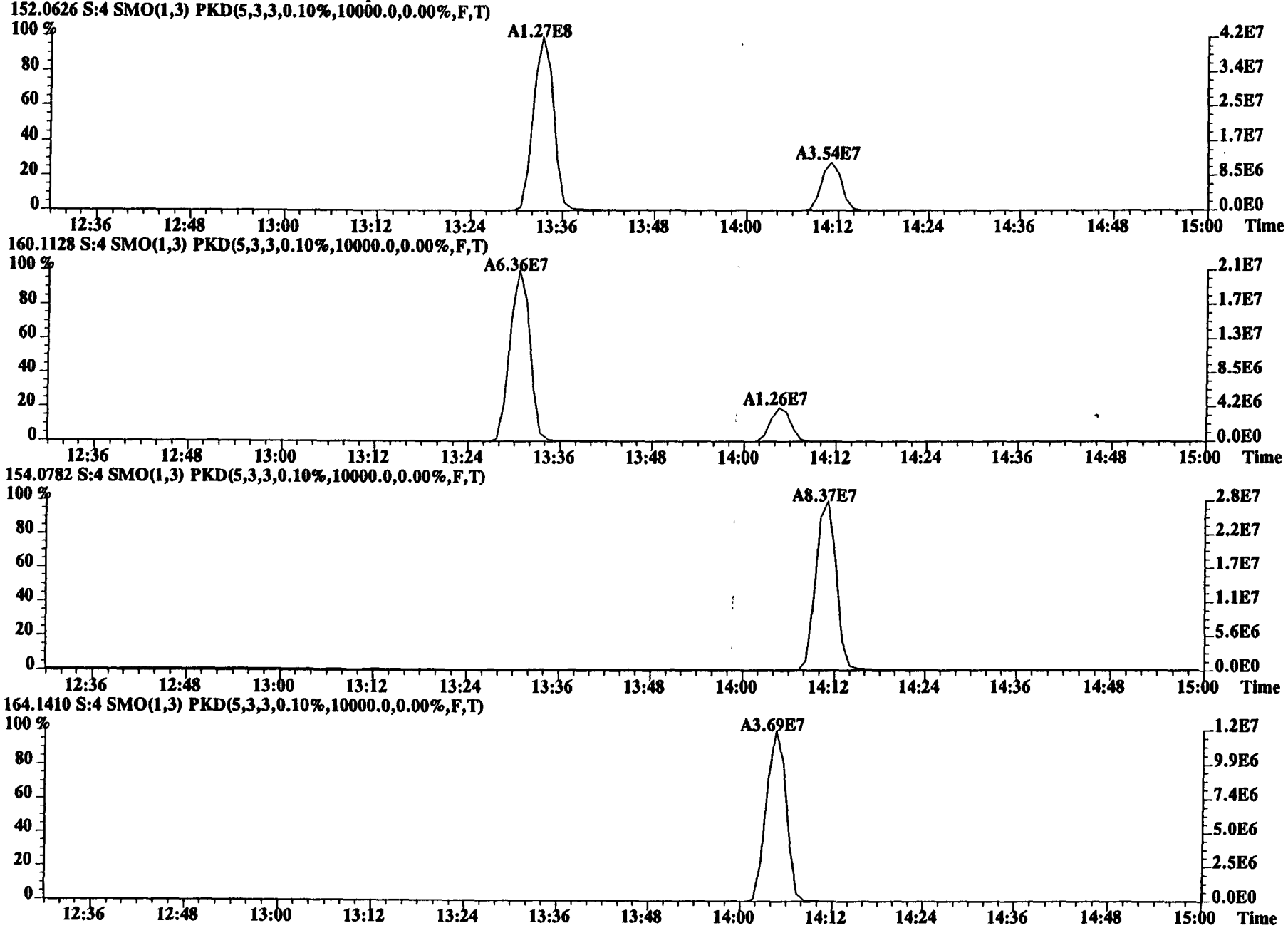
280.9824 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



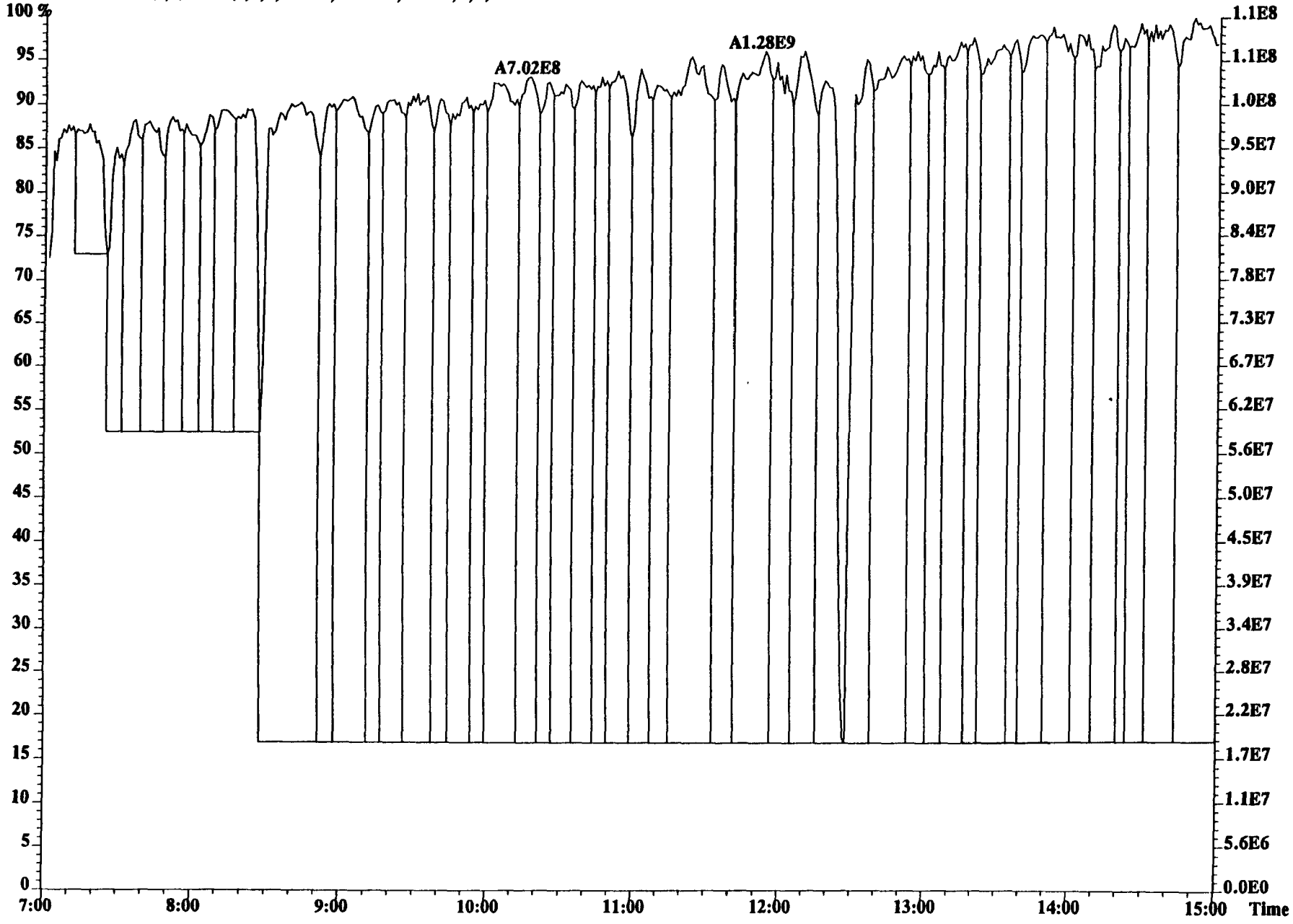
File:01OC98U #1-508 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR



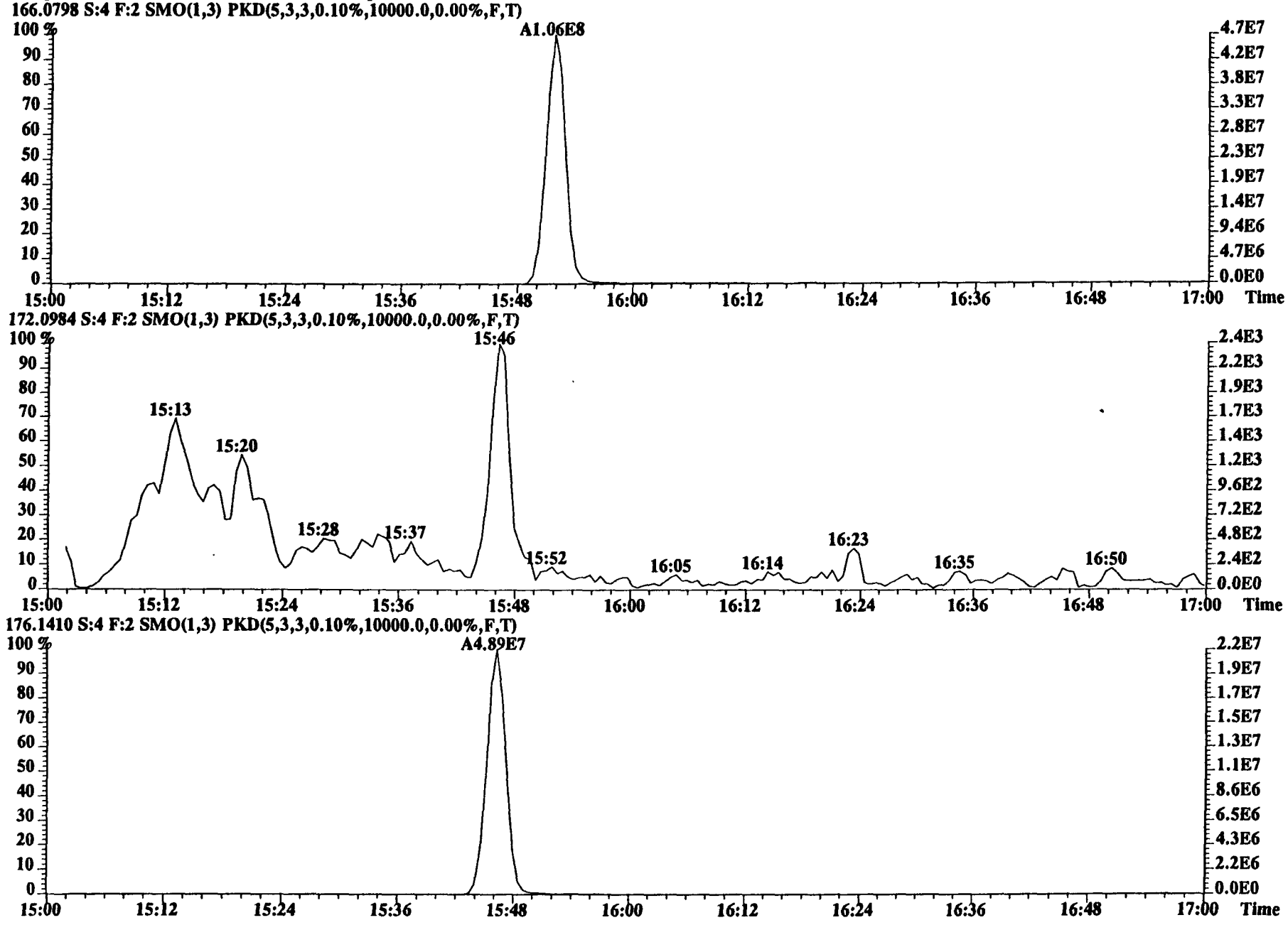
File:01OC98U #1-508 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR



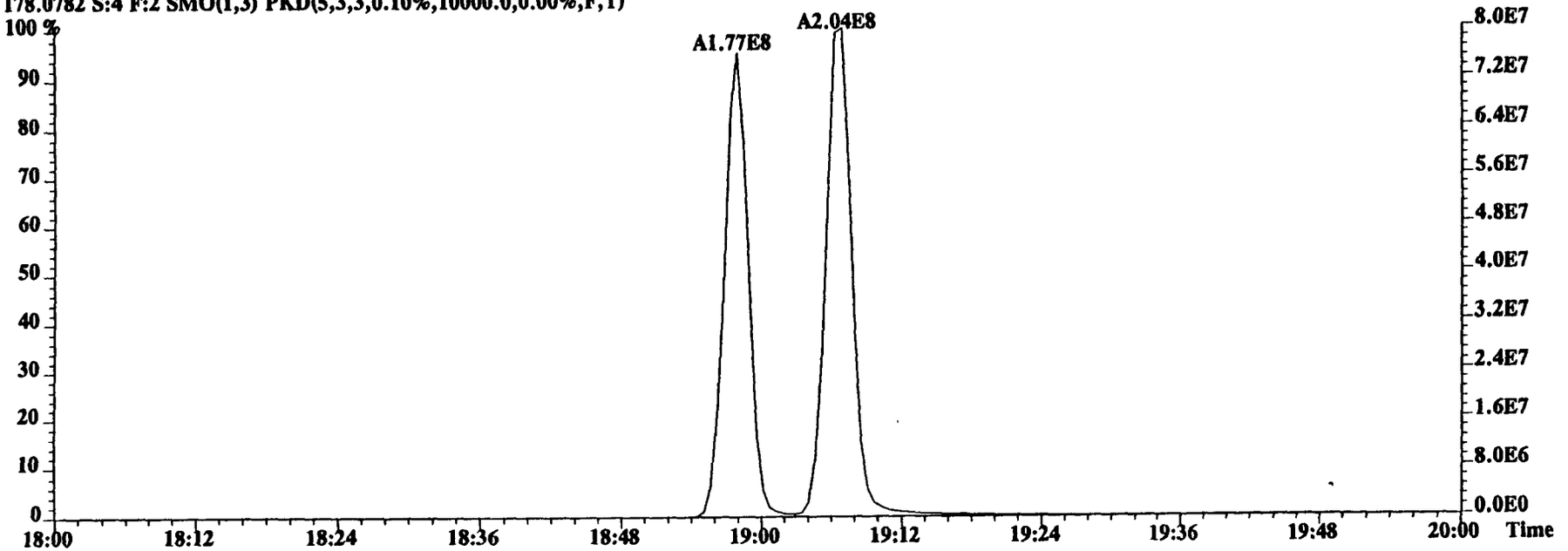
File:01OC98U #1-508 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
130.9920 S:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



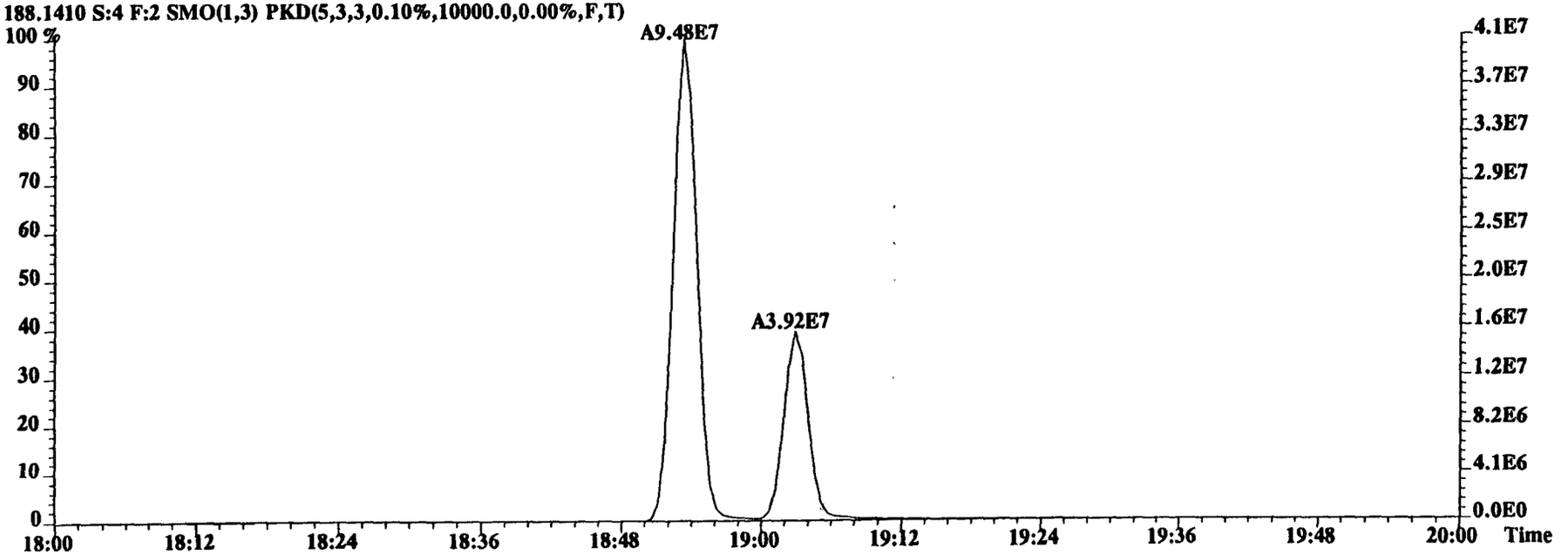
File:01OC98U #1-586 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR



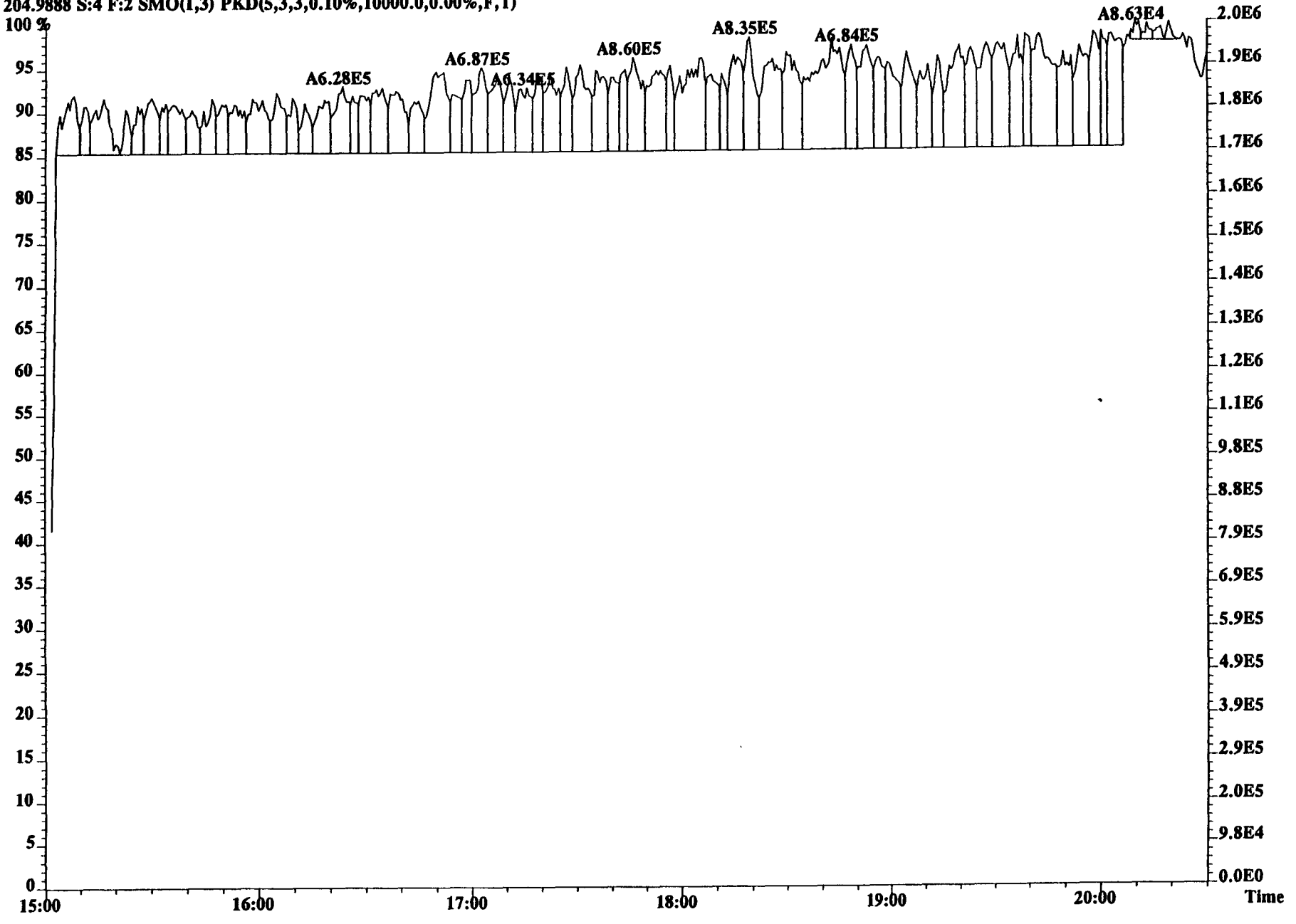
File:01OC98U #1-586 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
178.0782 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



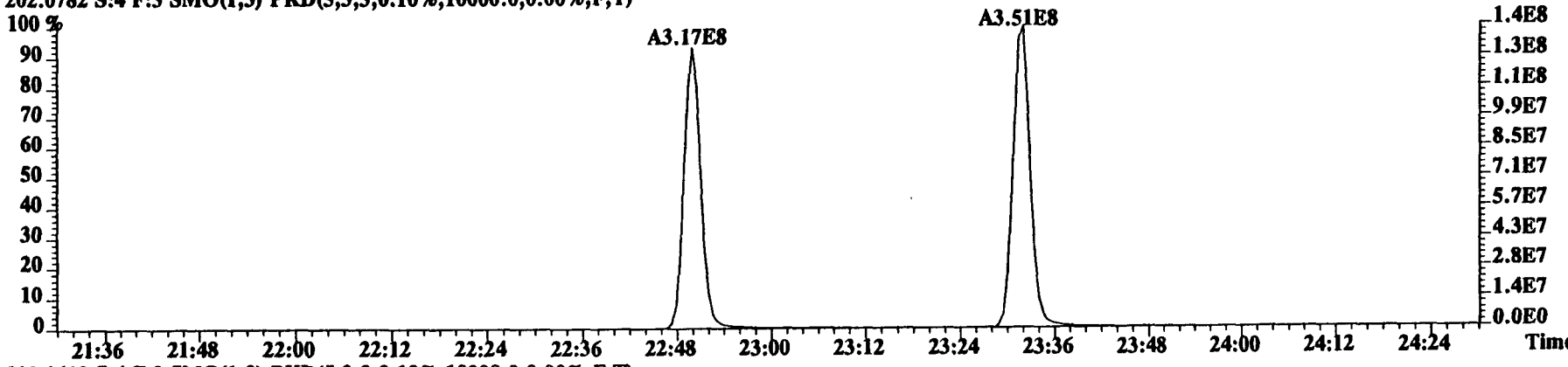
188.1410 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



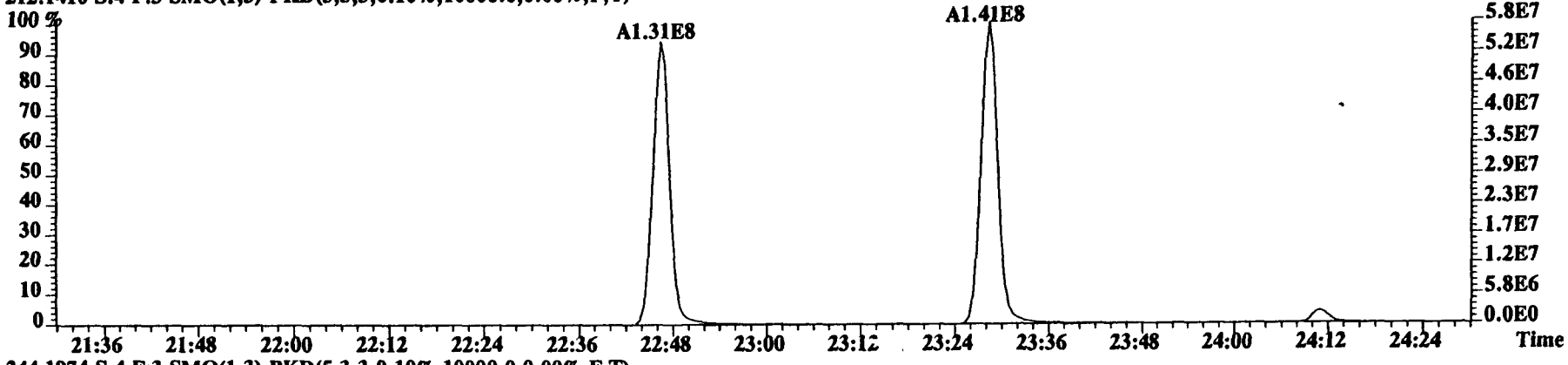
File:01OC98U #1-586 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
204.9888 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



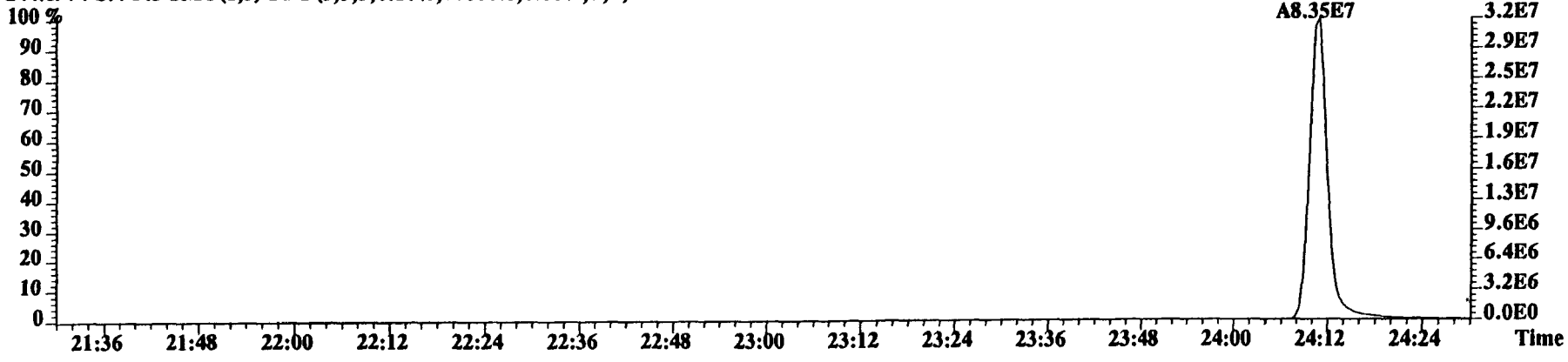
File:01OC98U #1-1051 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
202.0782 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



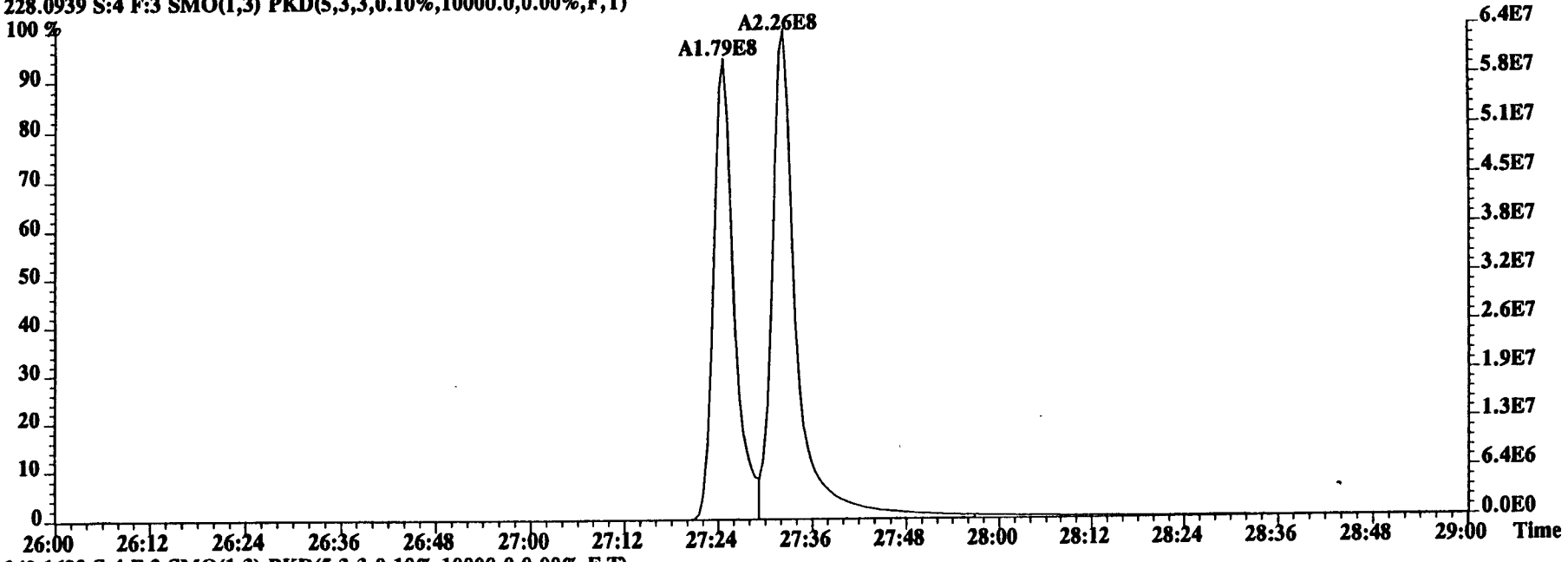
212.1410 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



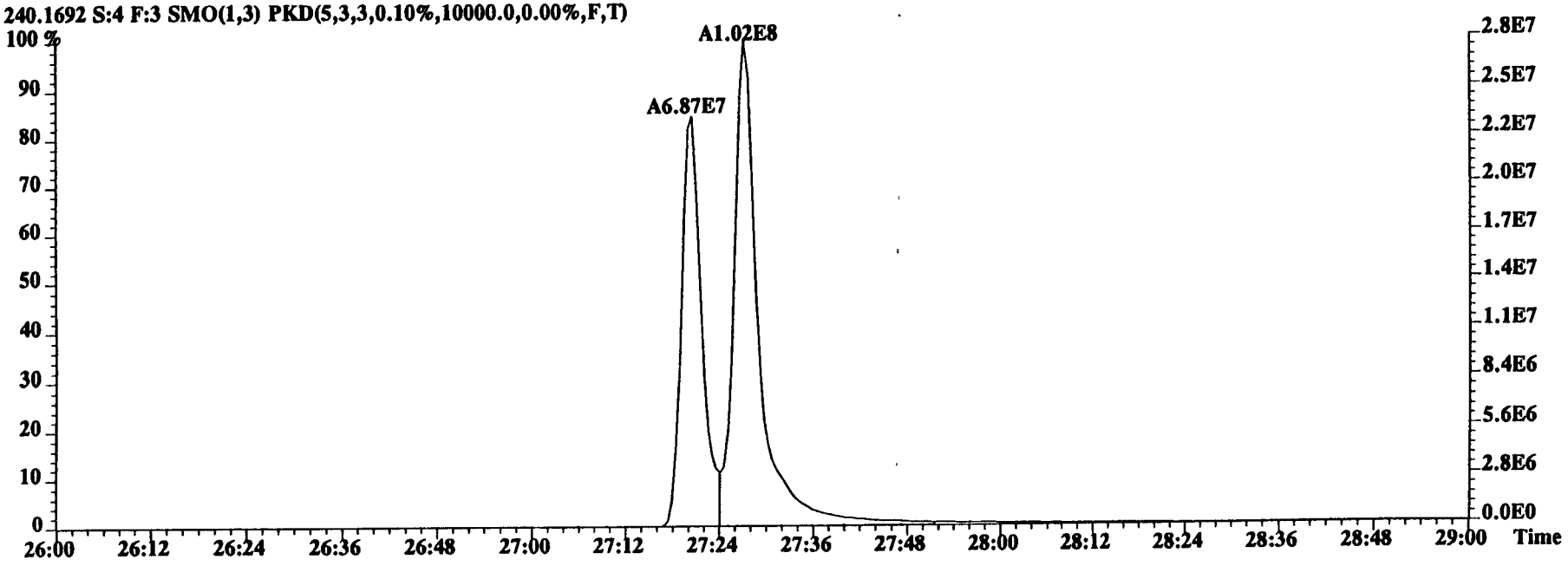
244.1974 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



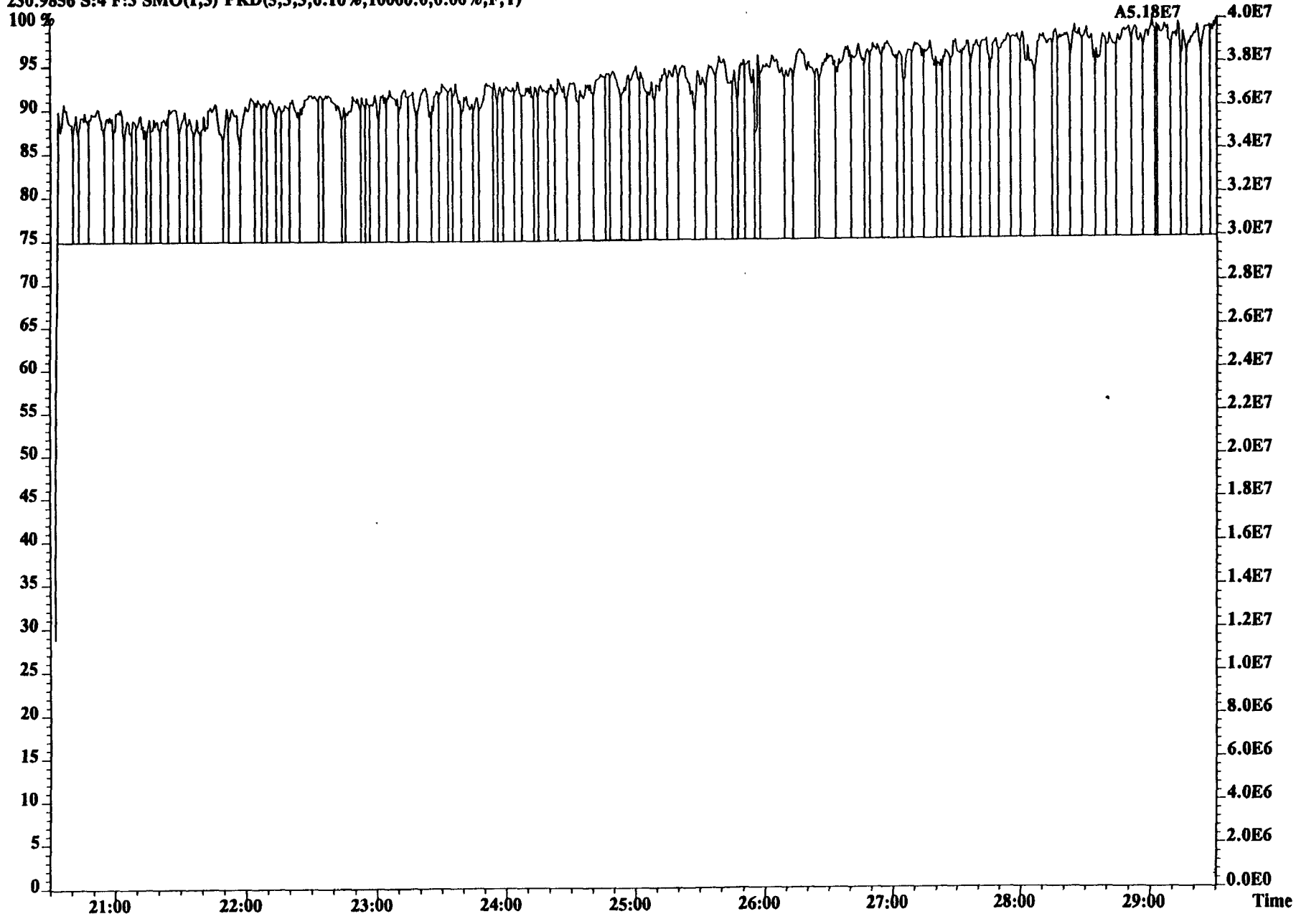
File:01OC98U #1-1051 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
228.0939 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



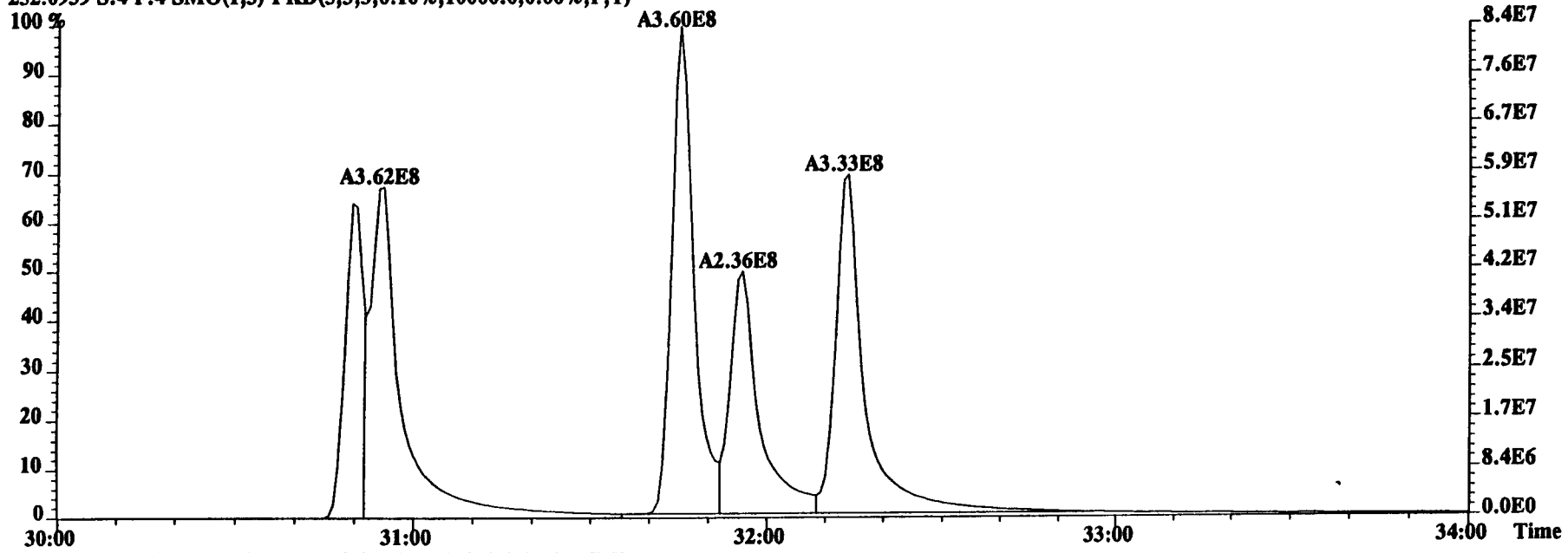
240.1692 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



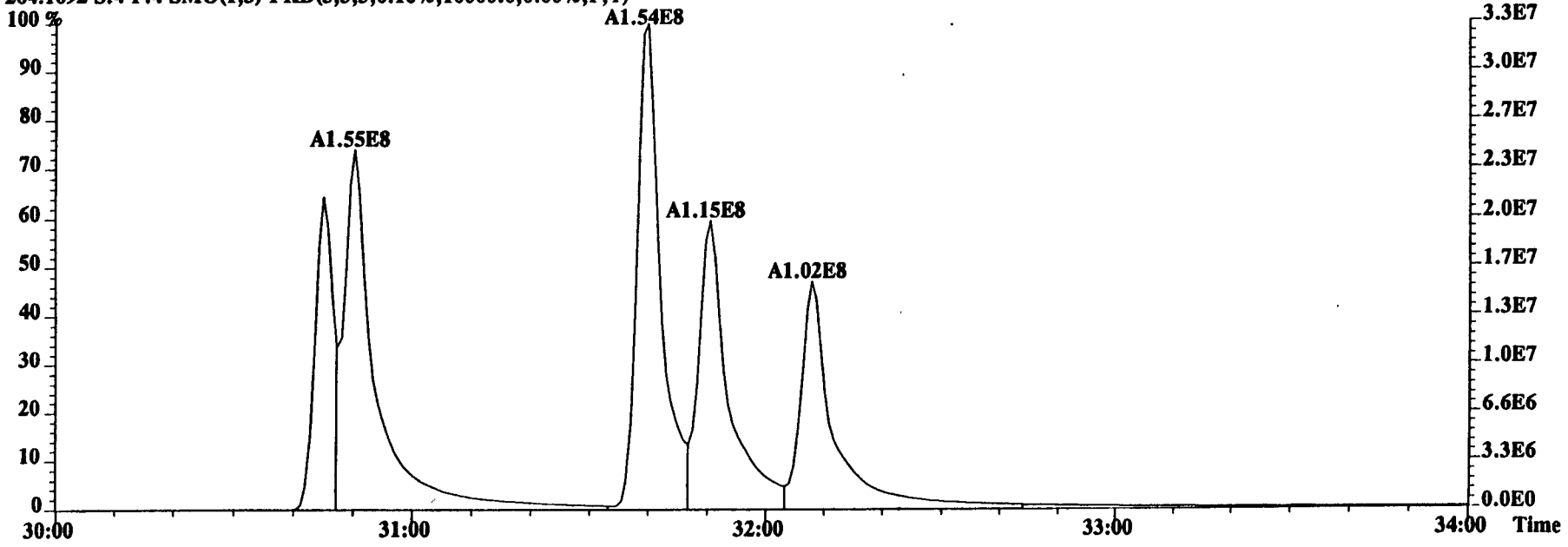
File:01OC98U #1-1051 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
230.9856 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



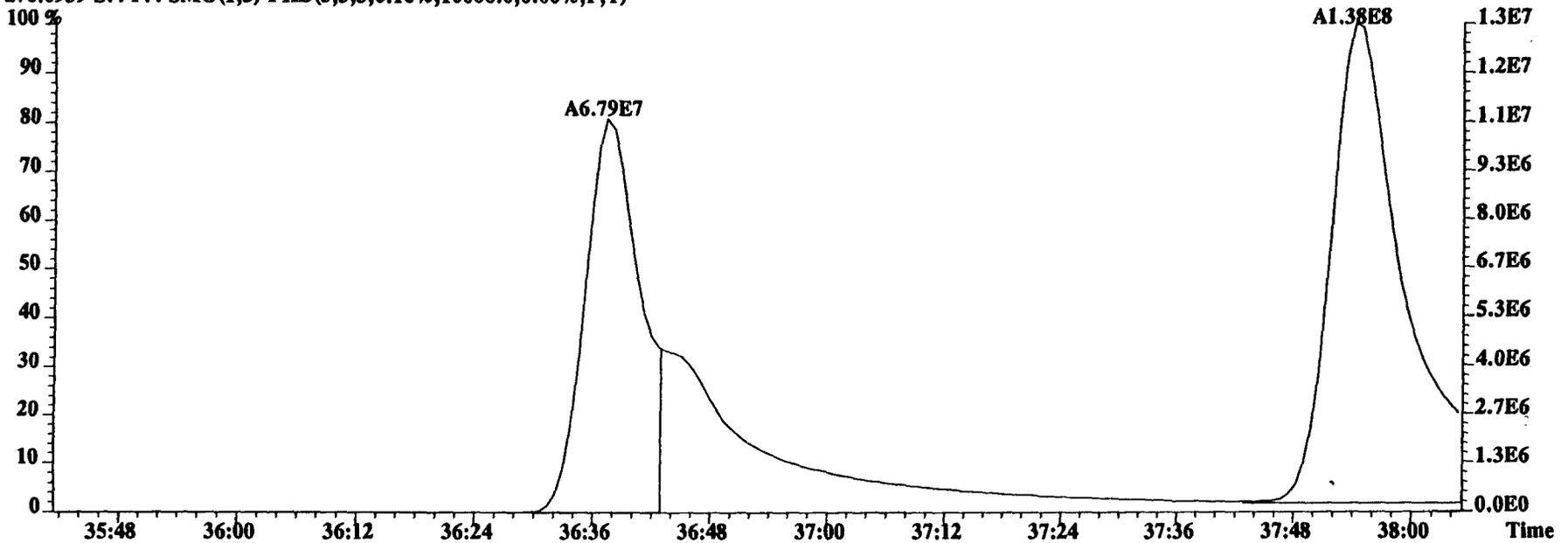
File:01OC98U #1-915 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
252.0939 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



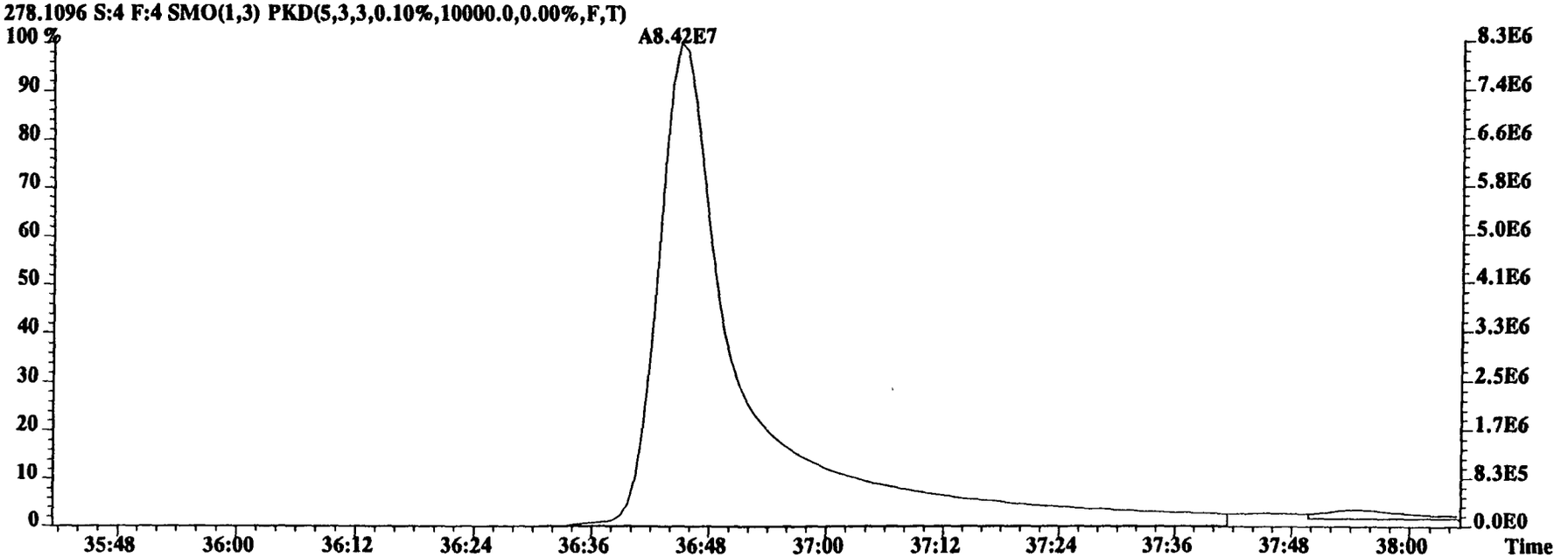
264.1692 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



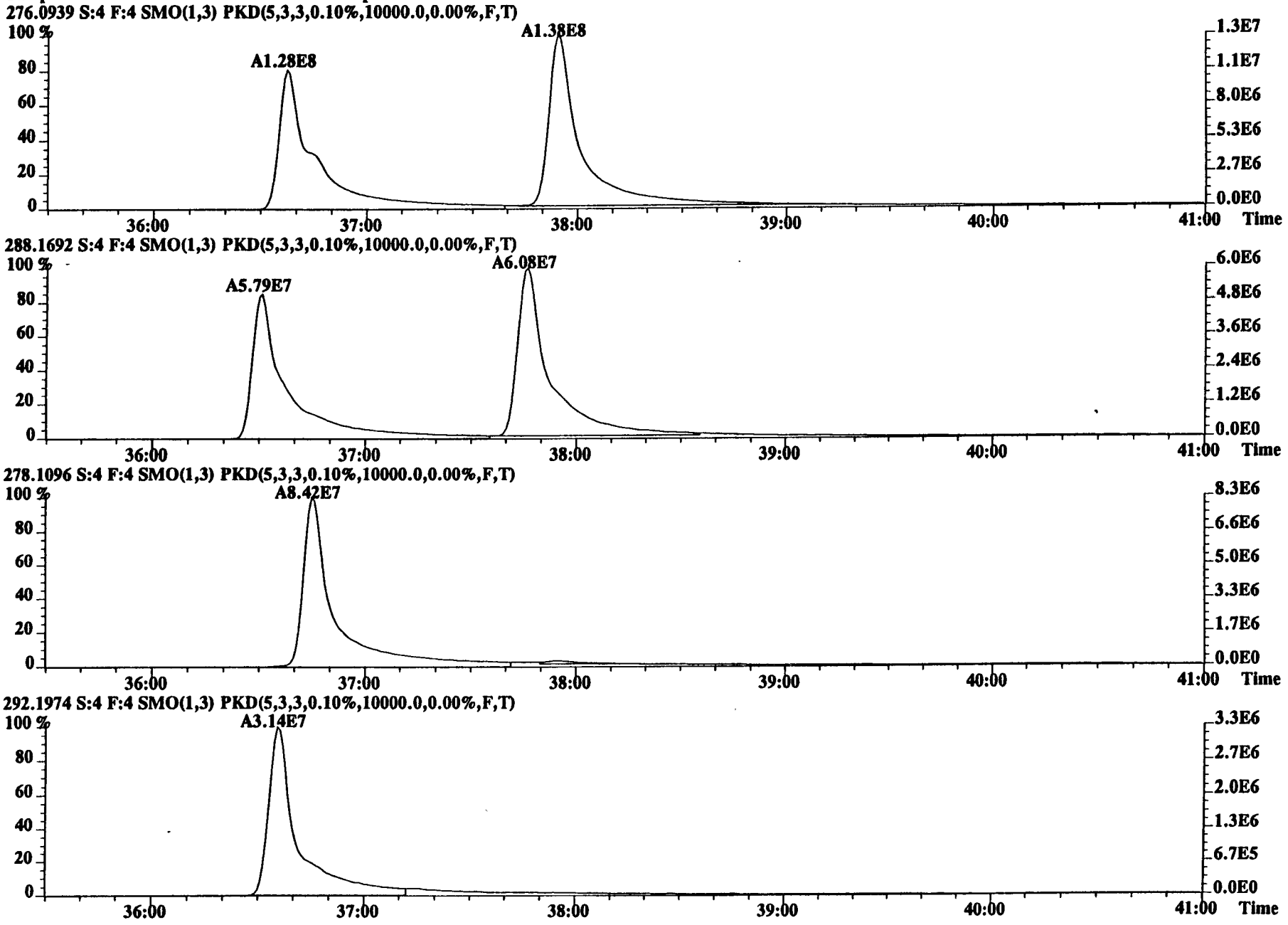
File:01OC98U #1-915 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
276.0939 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



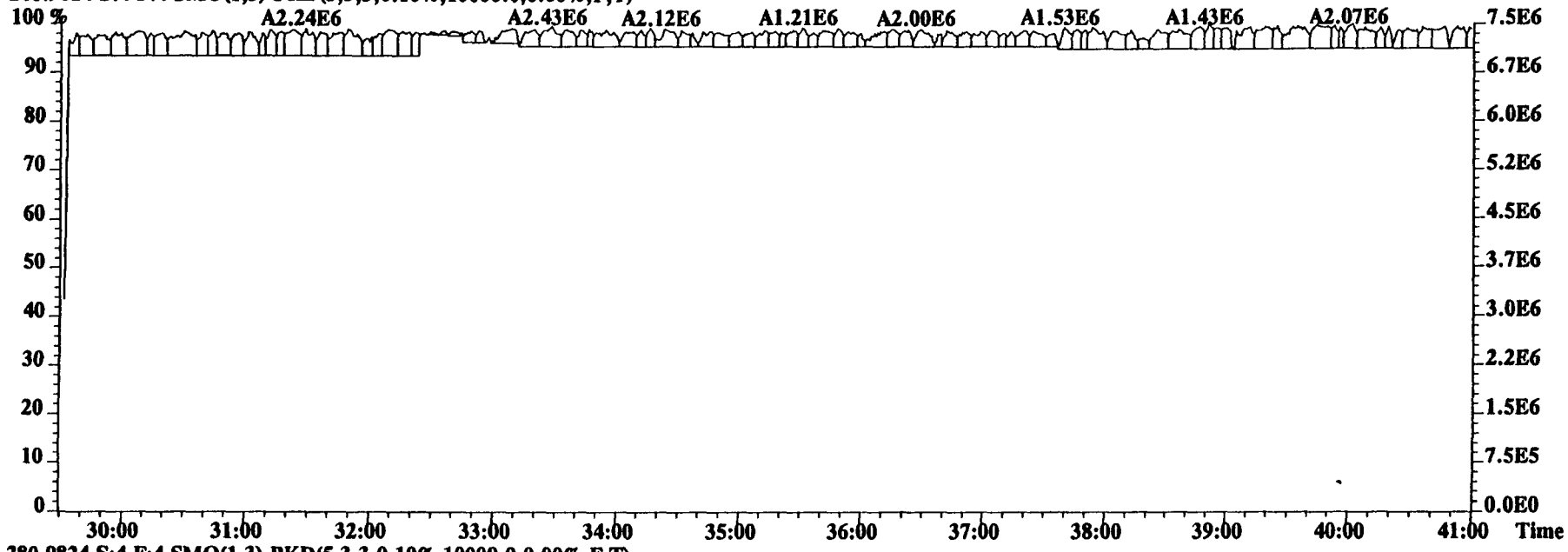
278.1096 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



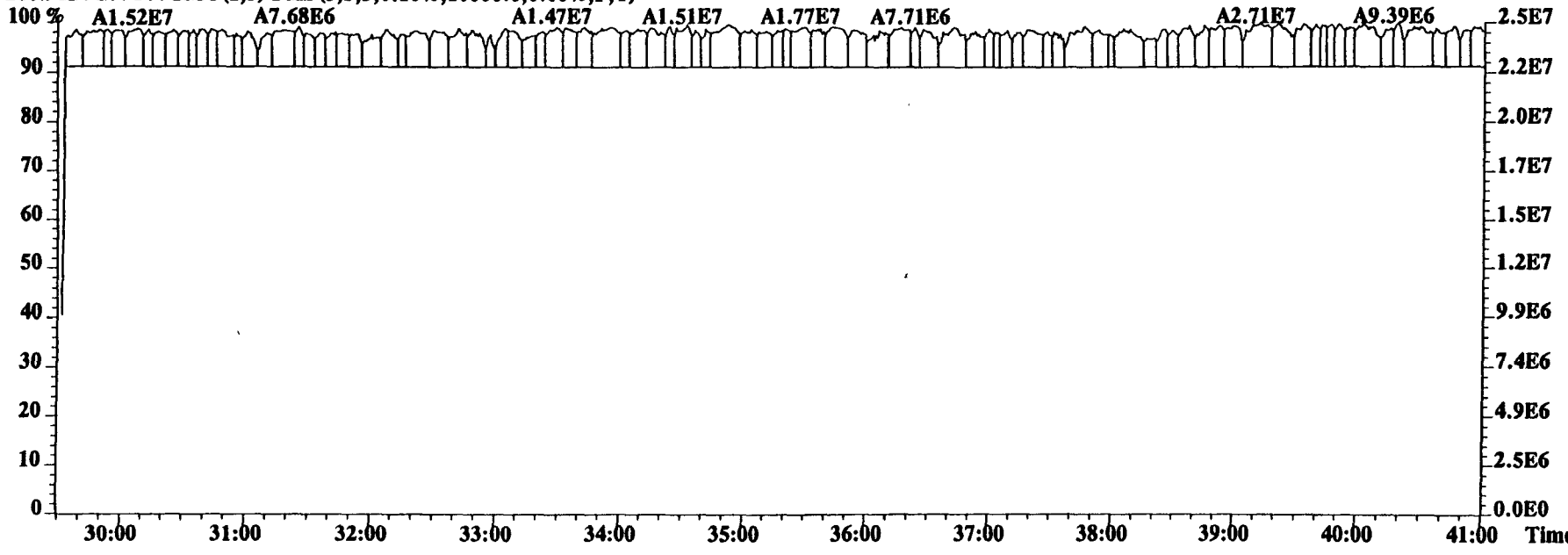
File:01OC98U #1-915 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR



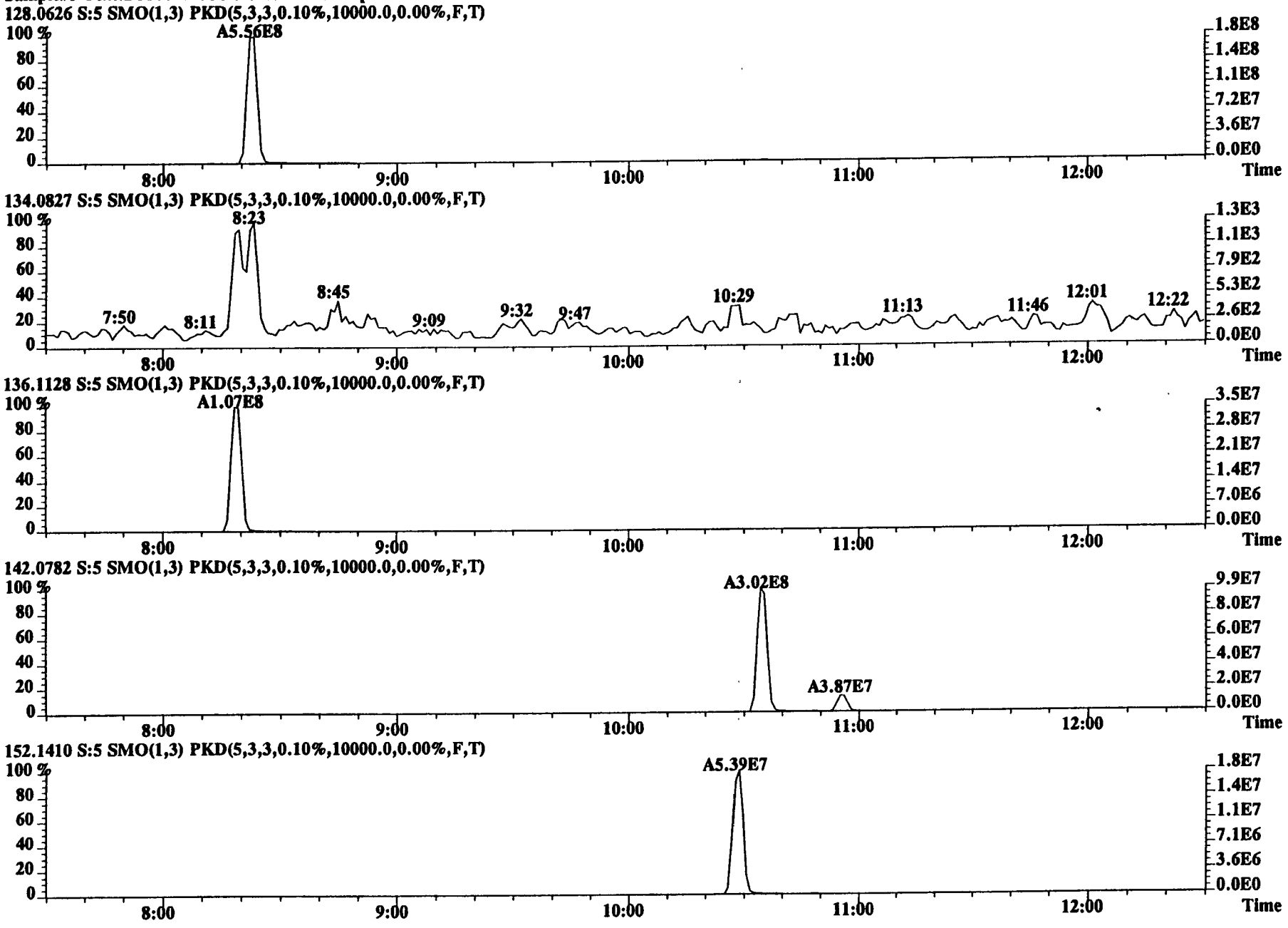
File:01OC98U #1-915 Acq: 1-OCT-1998 19:54:48 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:ST1001C :CS-4 :265-04D : Exp:PAHAIR
268.9824 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



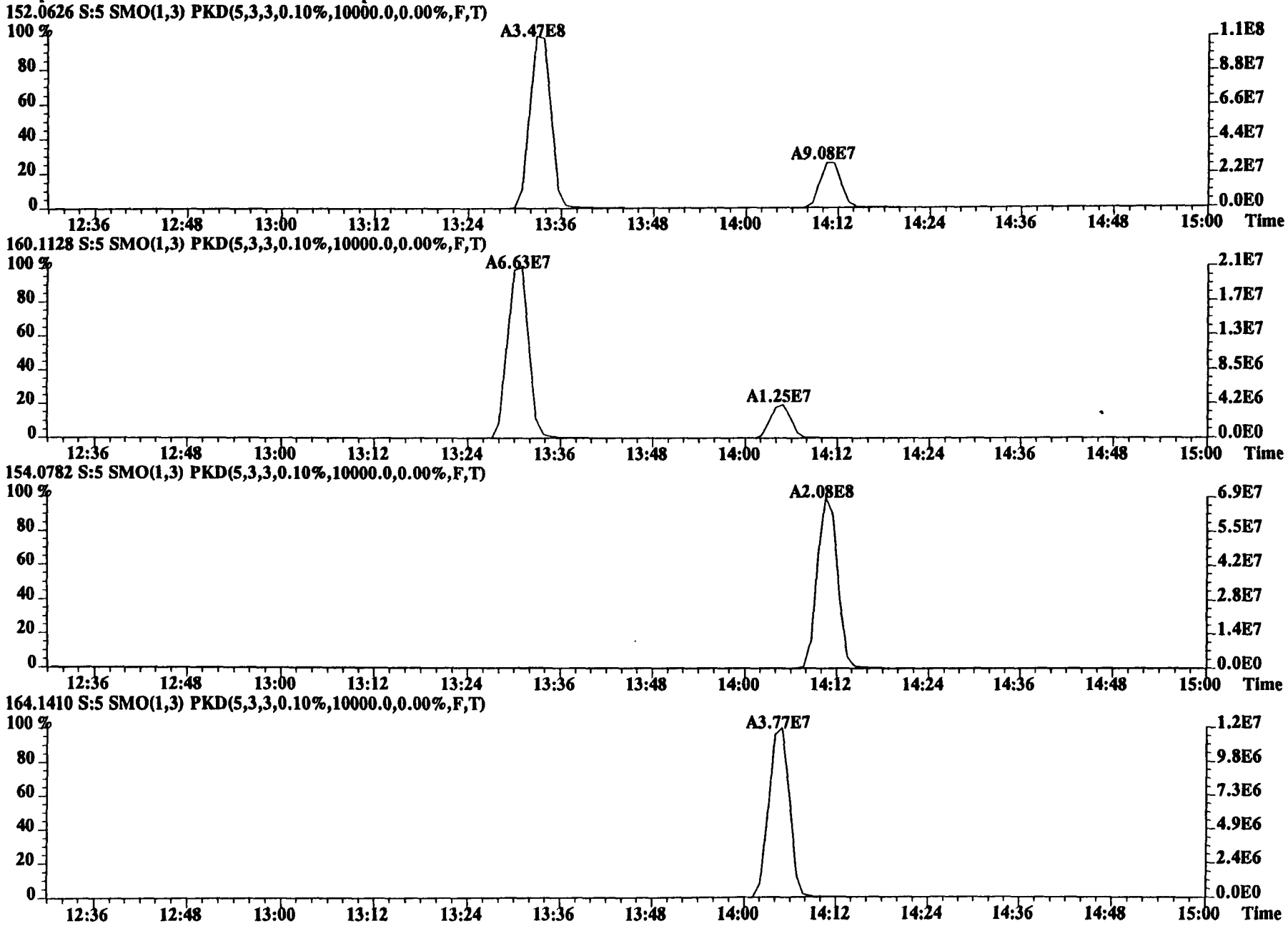
280.9824 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



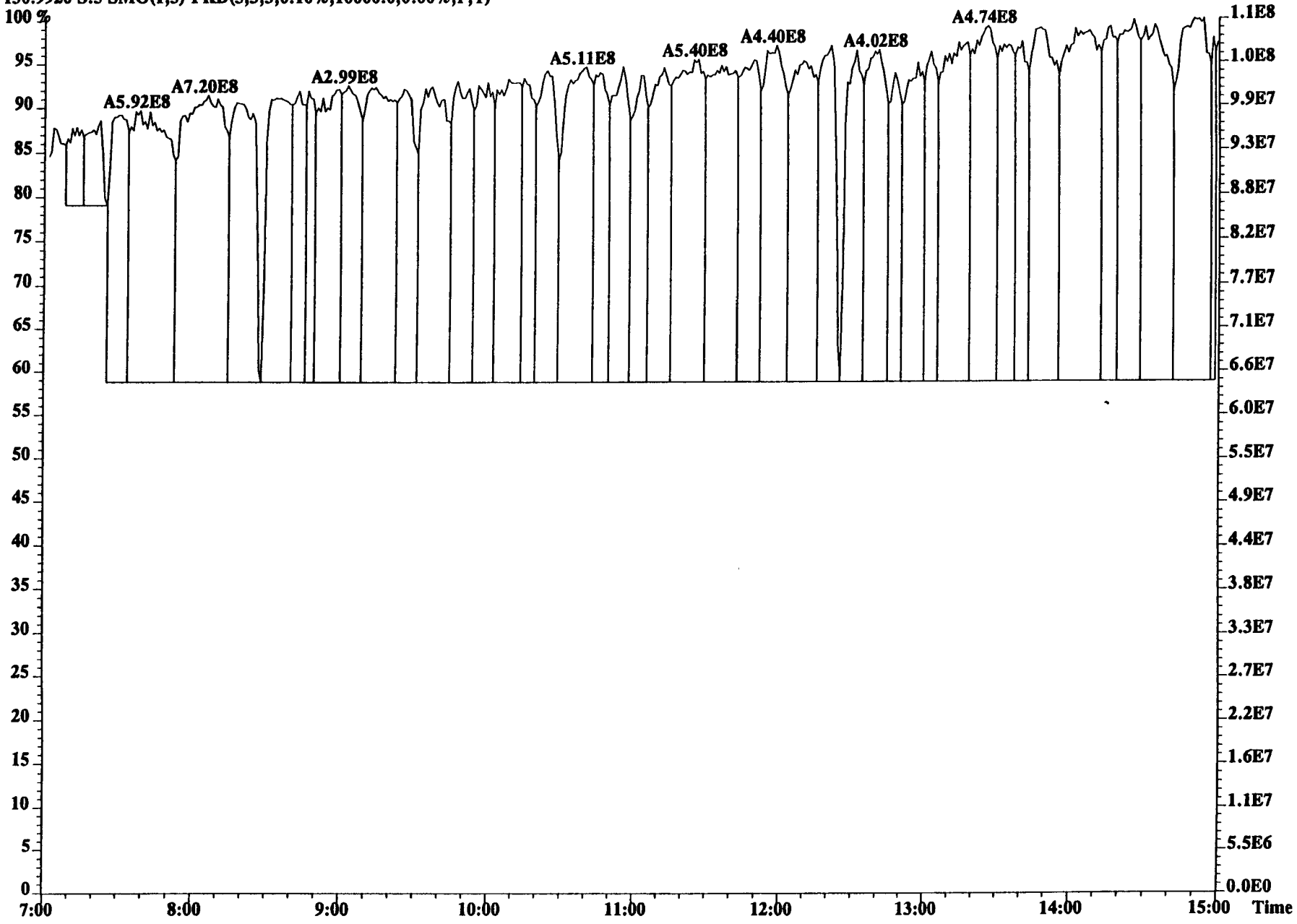
File:01OC98U #1-508 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR



File:01OC98U #1-508 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR

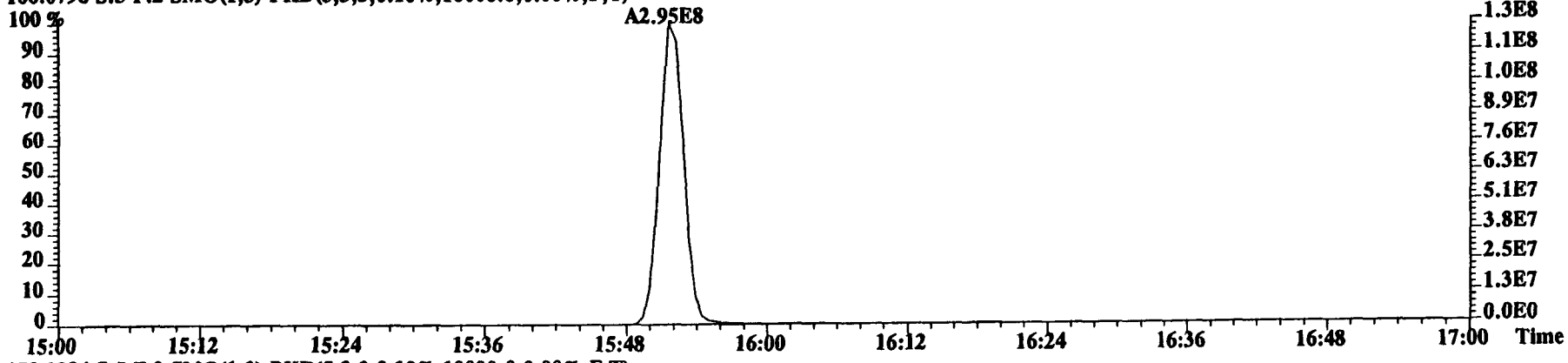


File:01OC98U #1-508 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
130.9920 S:5 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

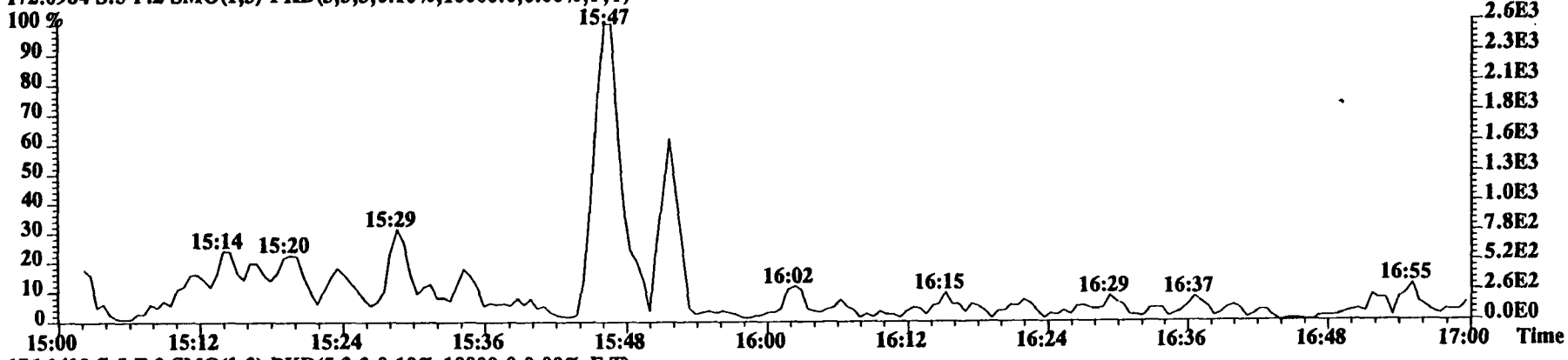


File:01OC98U #1-585 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR

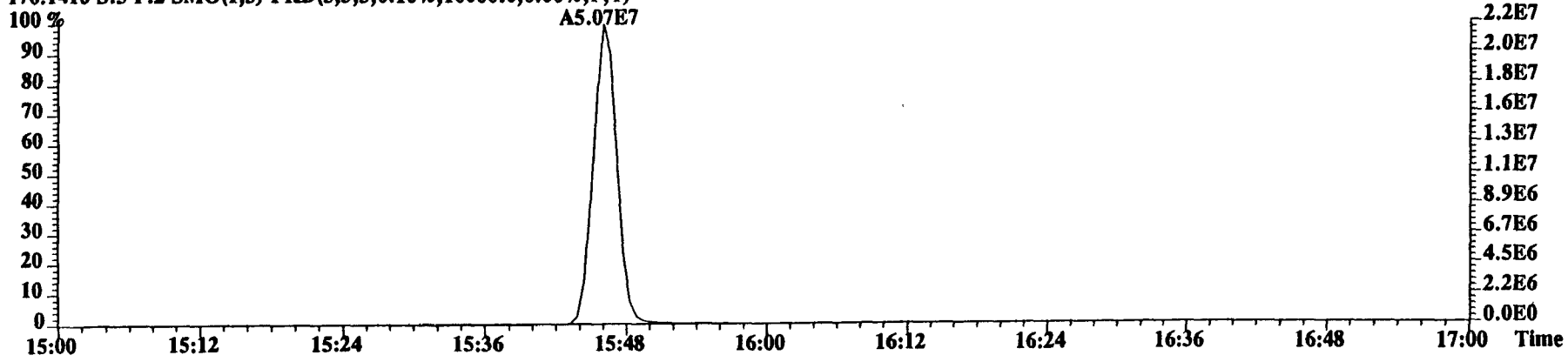
166.0798 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



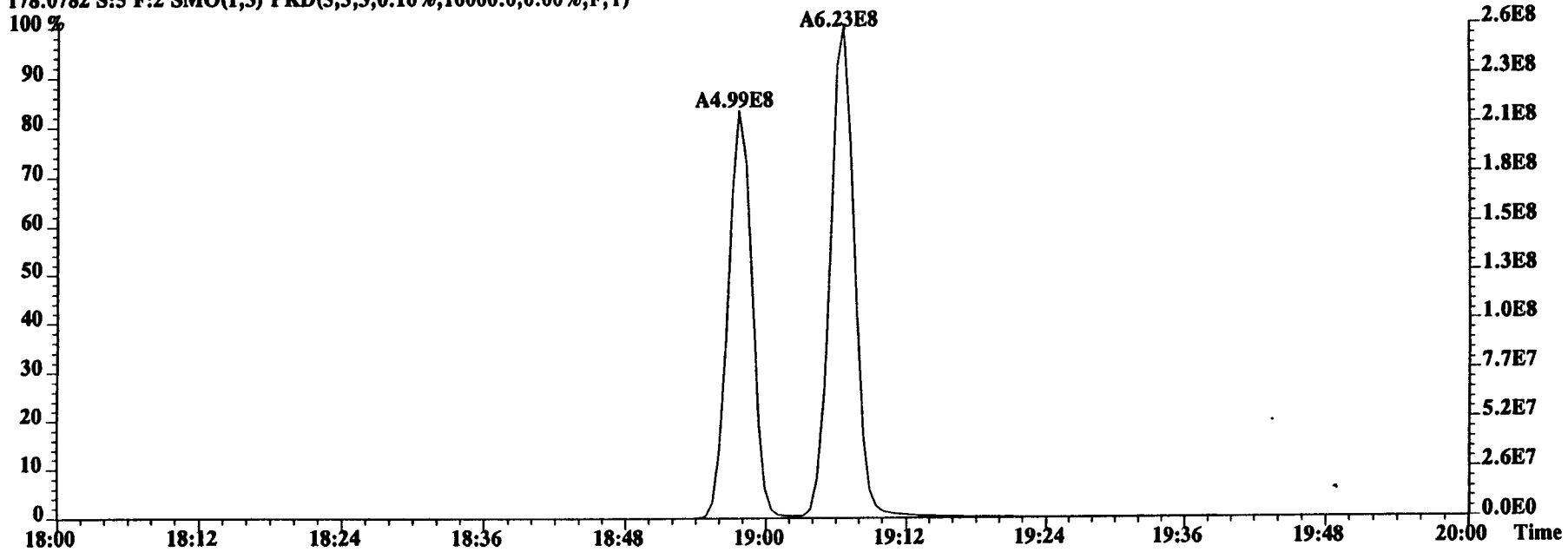
172.0984 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



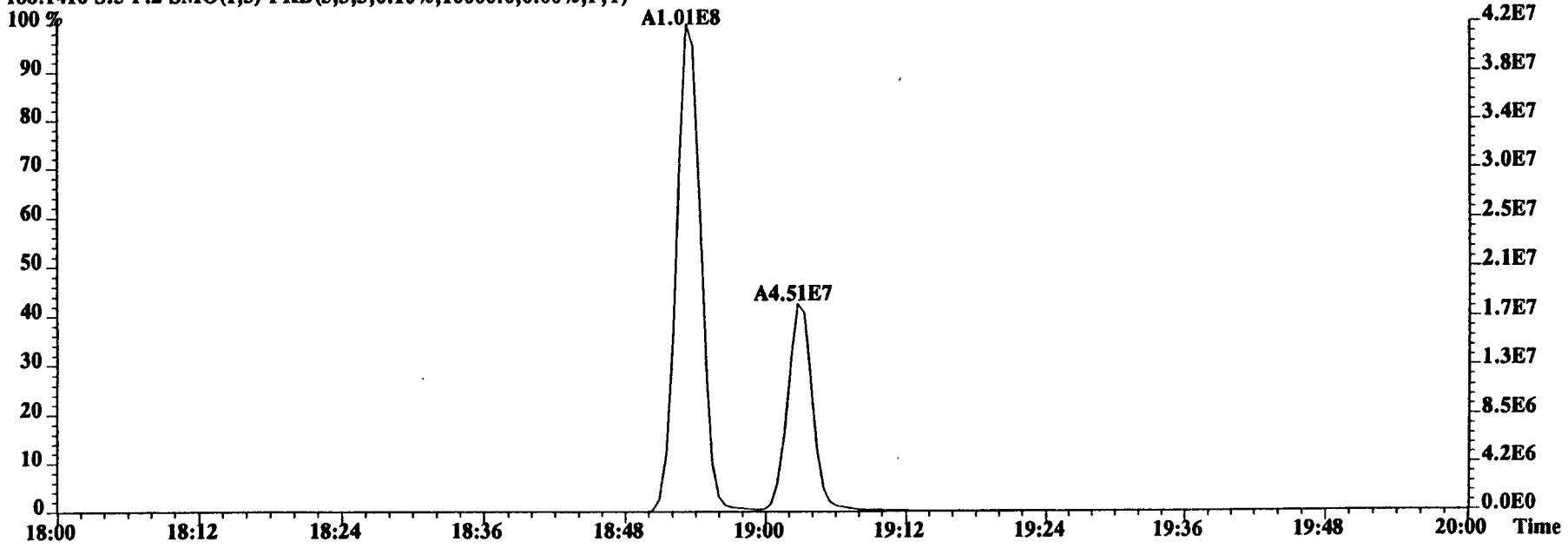
176.1410 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



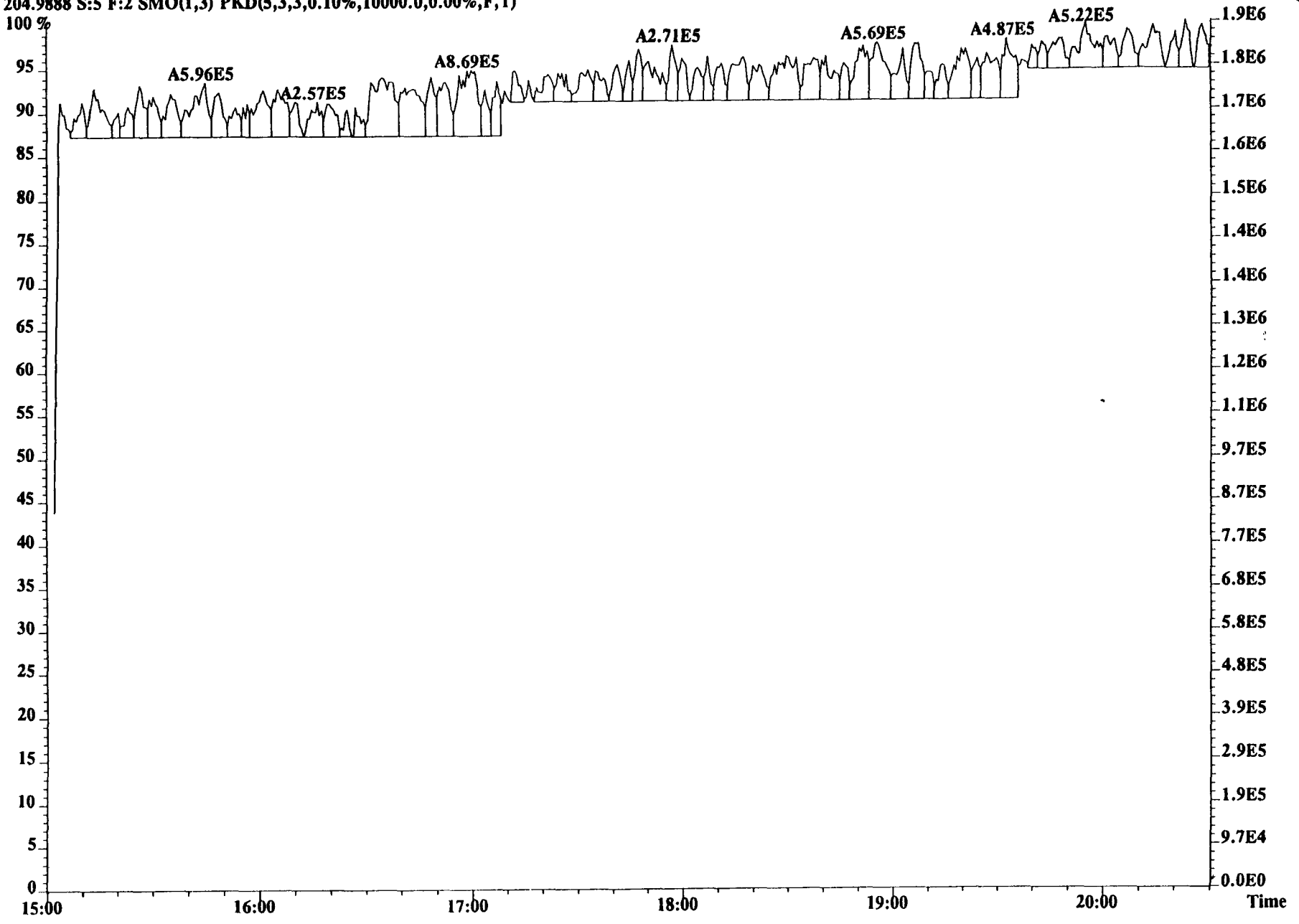
File:01OC98U #1-585 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
178.0782 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



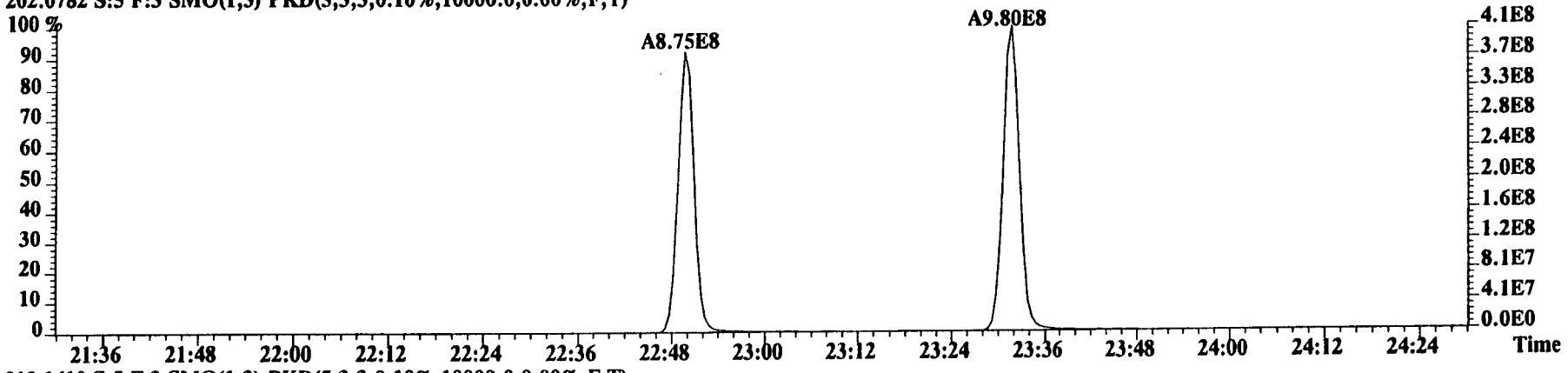
188.1410 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



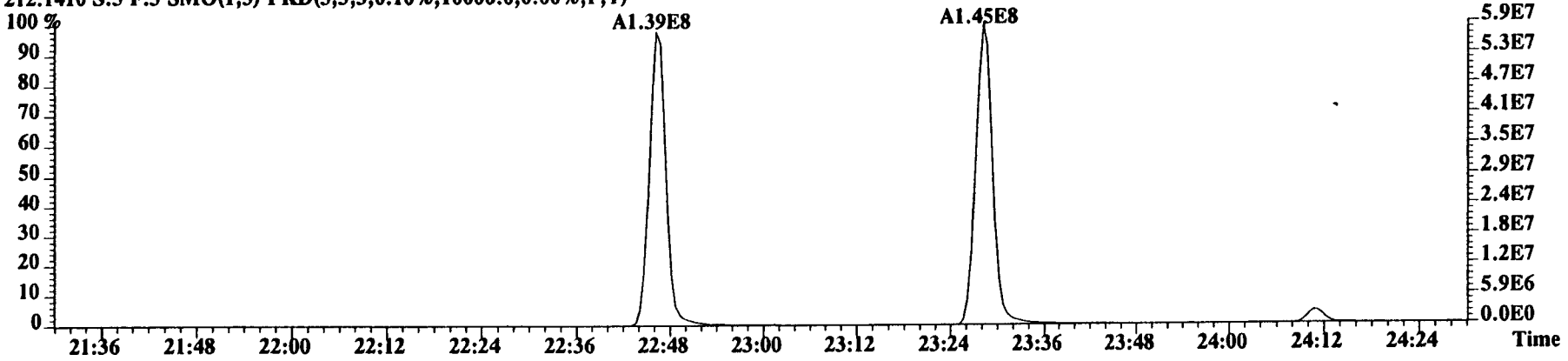
File:01OC98U #1-585 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
204.9888 S:5 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



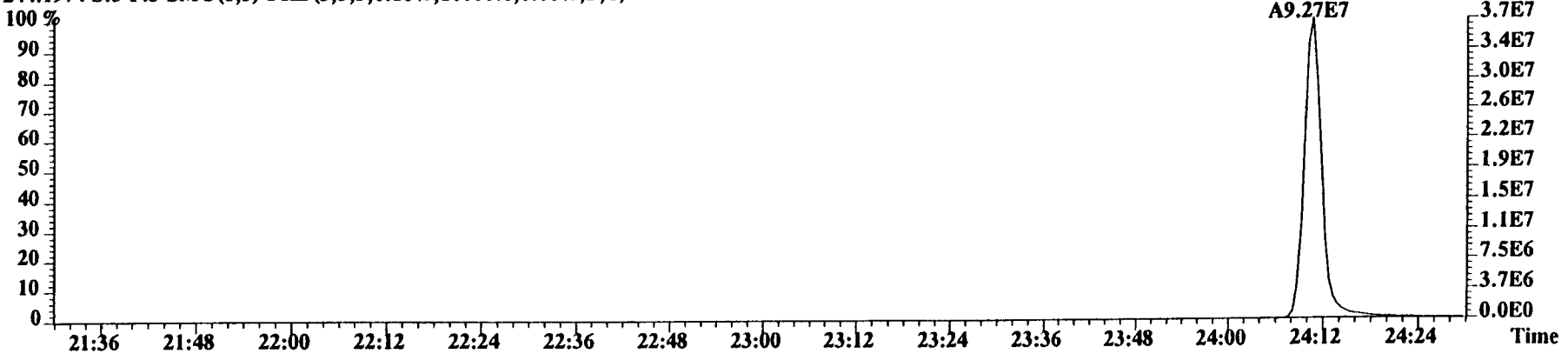
File:01OC98U #1-1052 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
202.0782 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



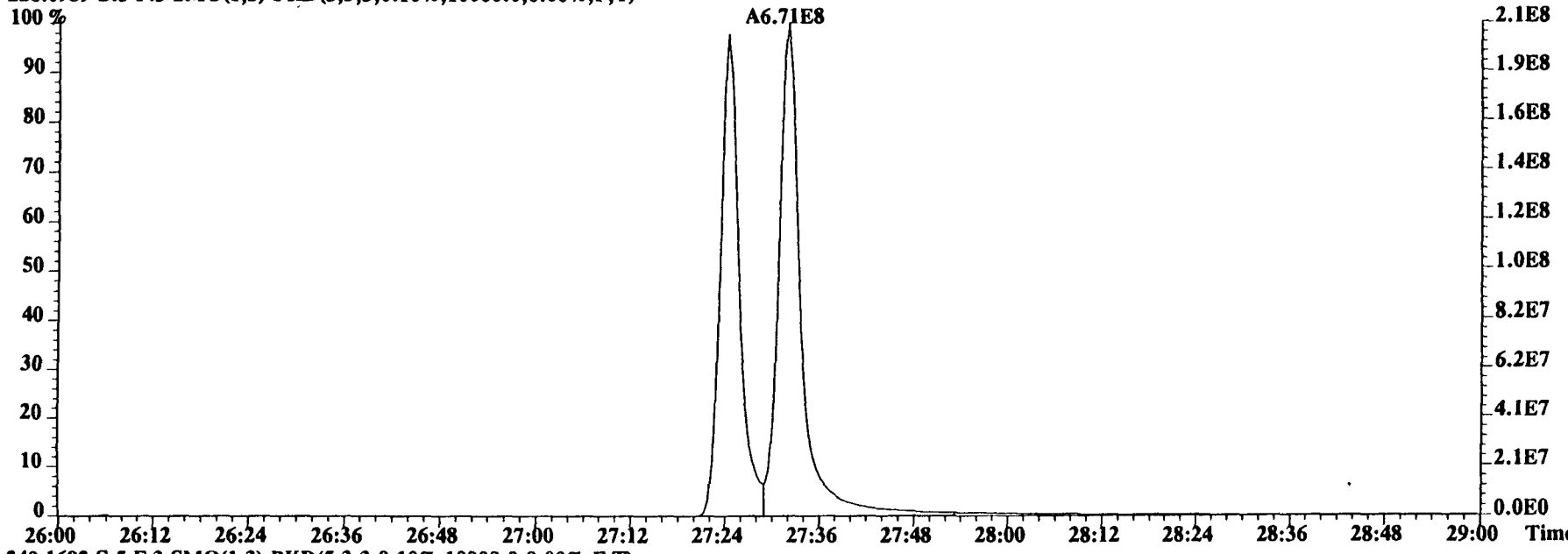
212.1410 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



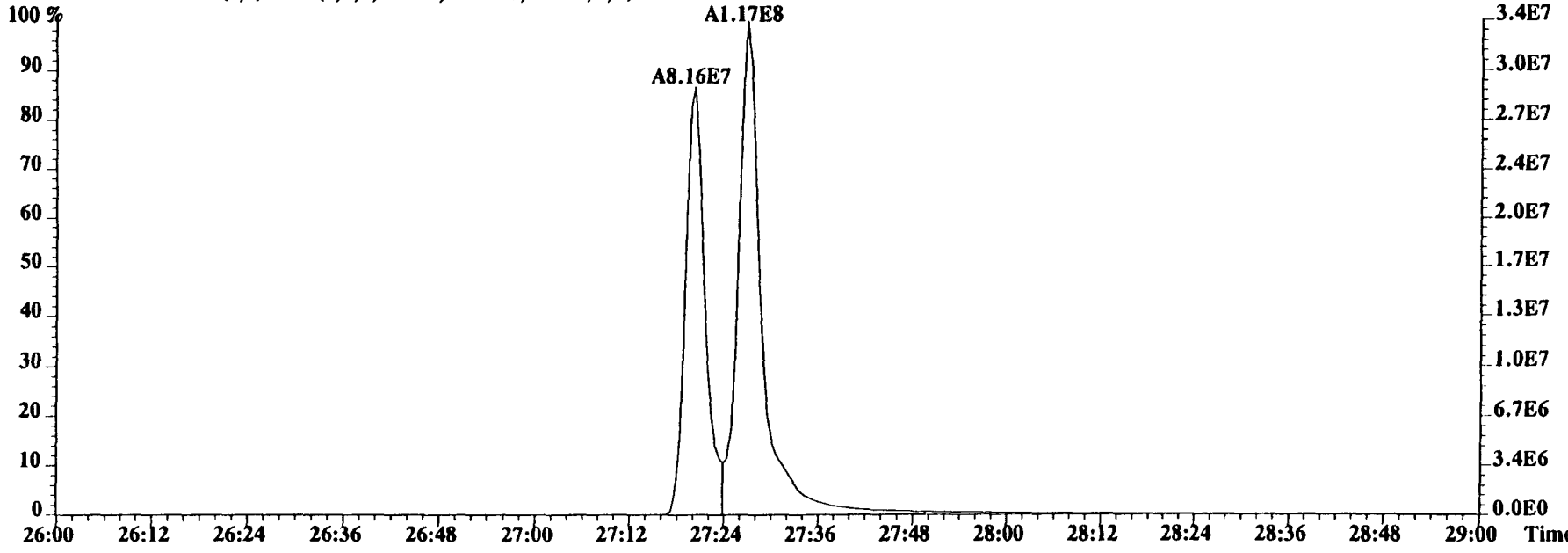
244.1974 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



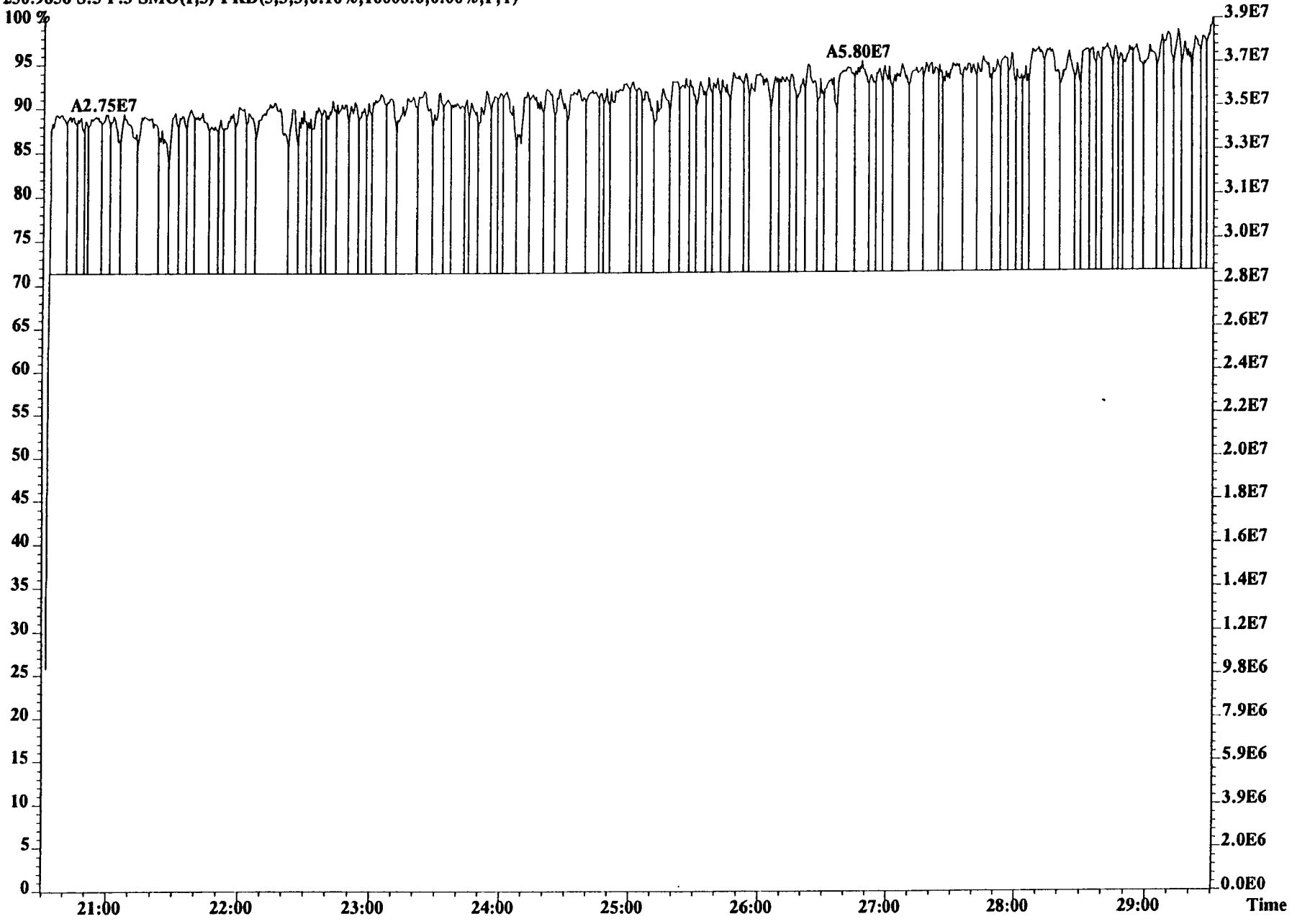
File:01OC98U #1-1052 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
228.0939 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



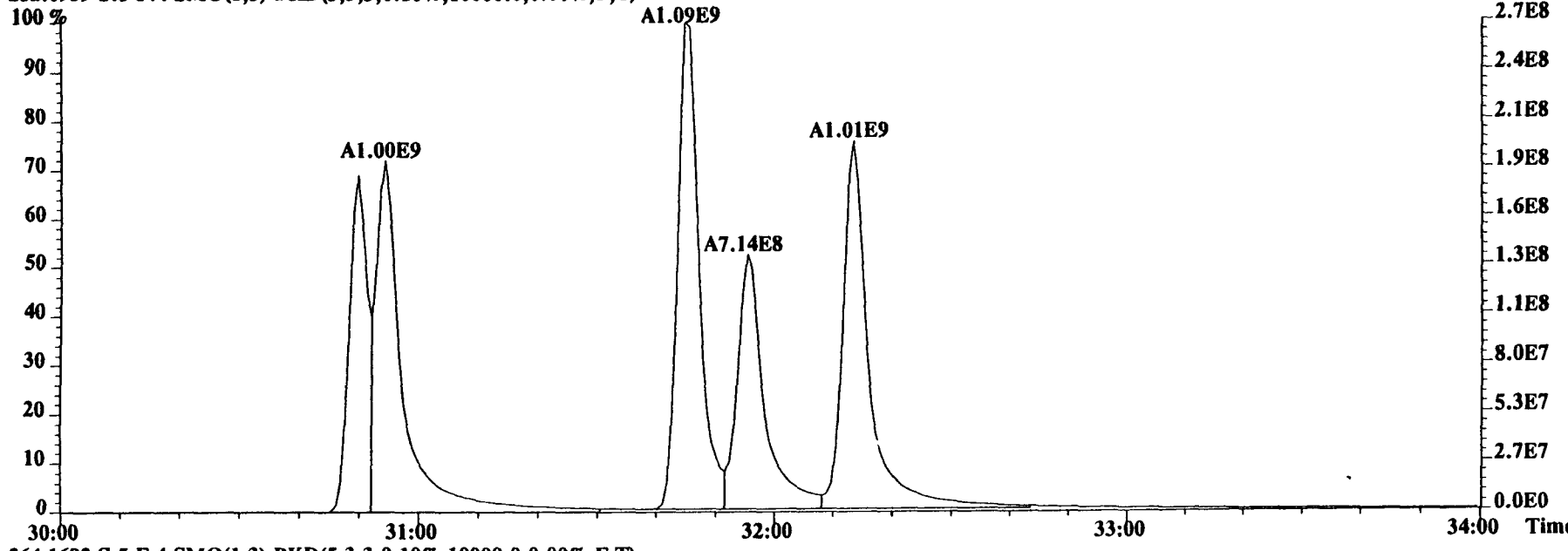
240.1692 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



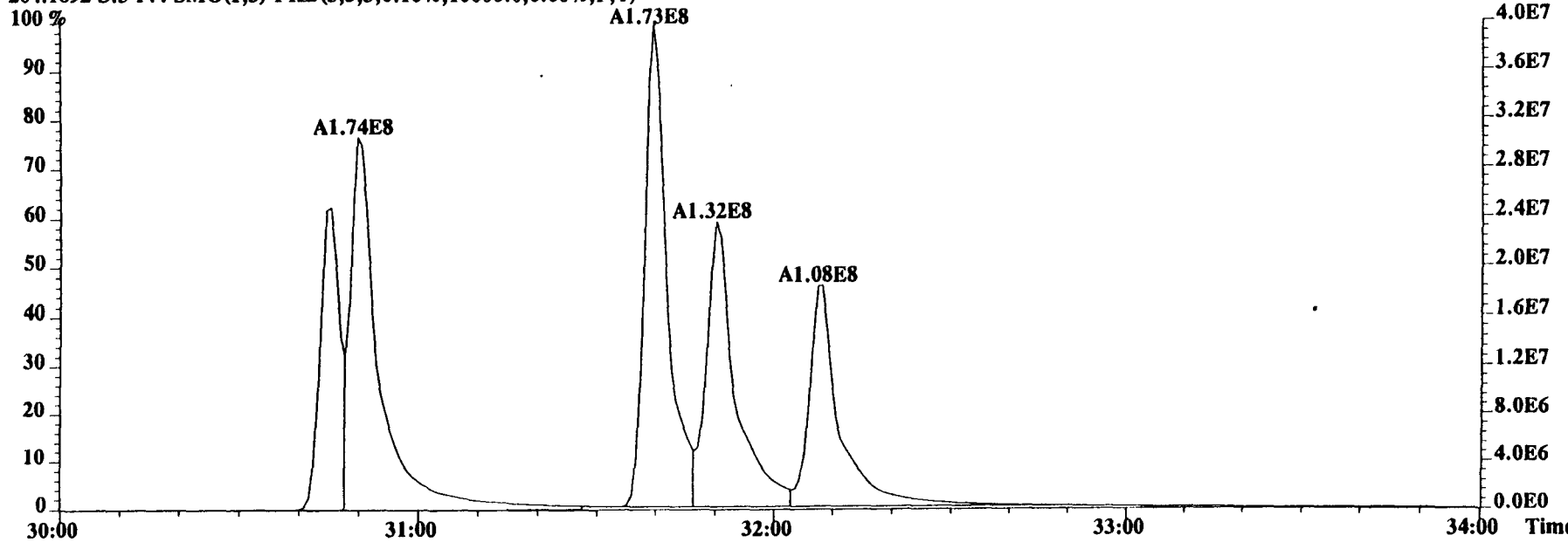
File:01OC98U #1-1052 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
230.9856 S:5 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



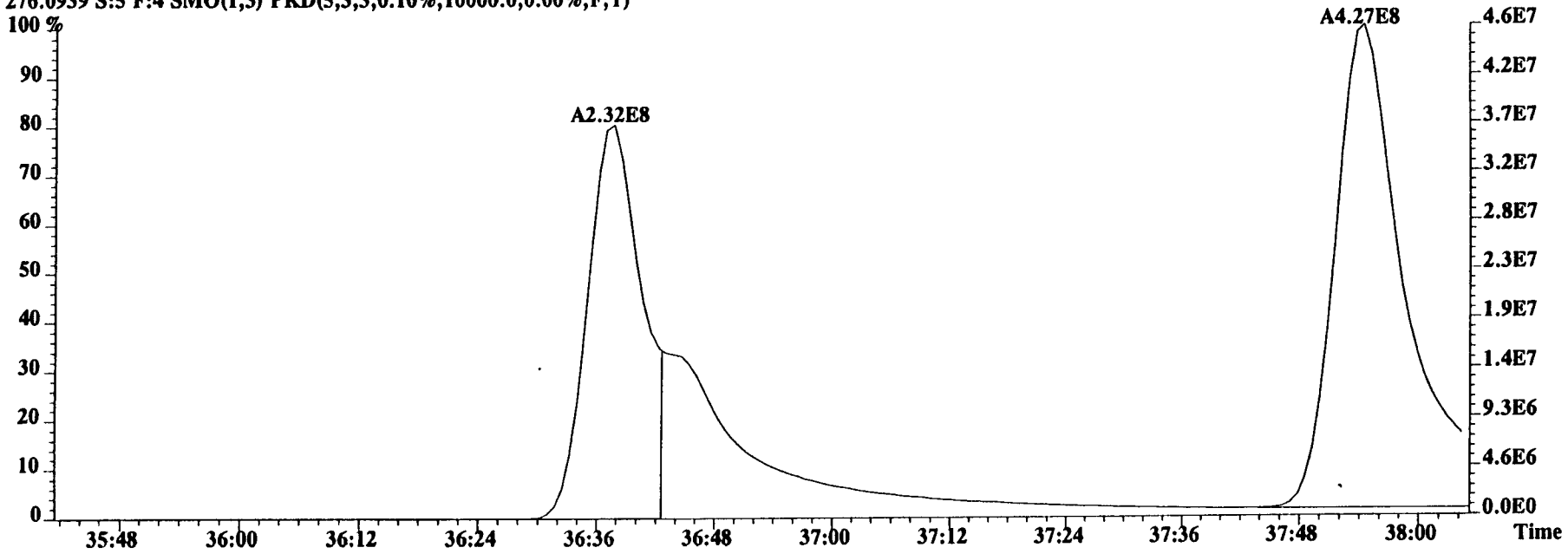
File:01OC98U #1-915 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
252.0939 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



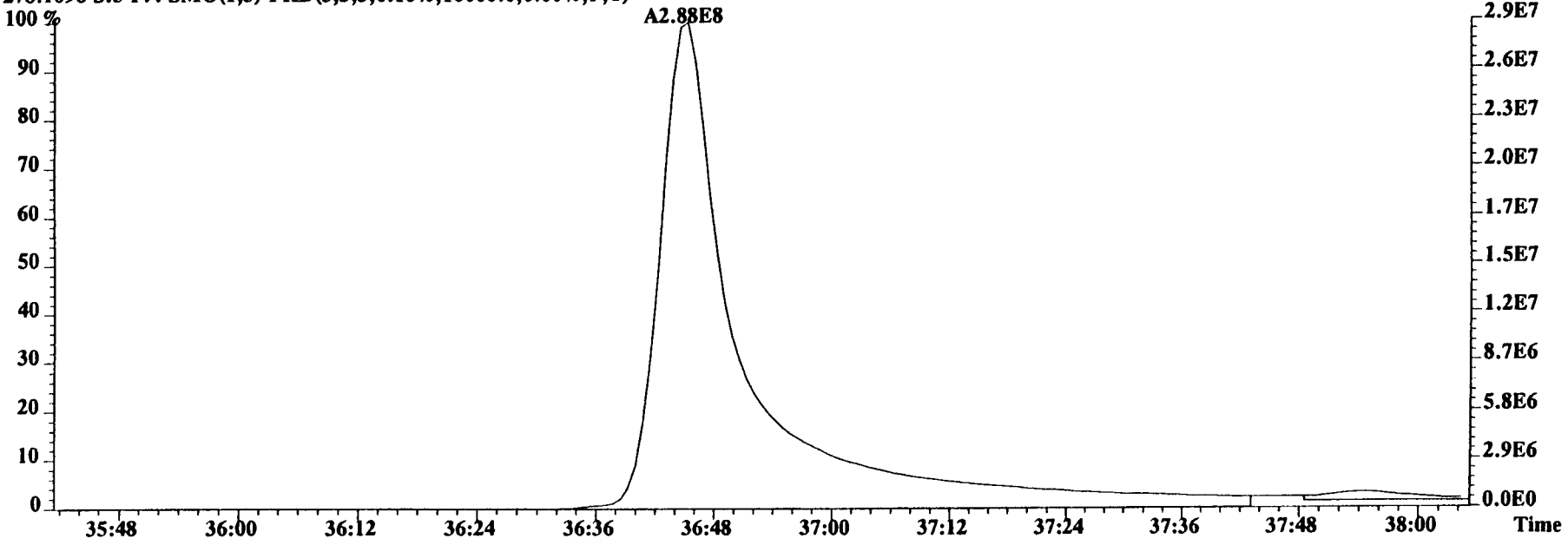
264.1692 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:01OC98U #1-915 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
276.0939 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

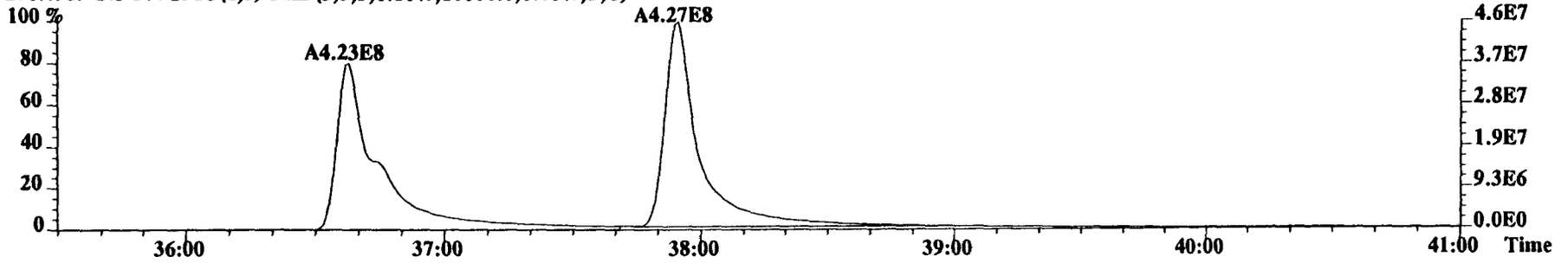


278.1096 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

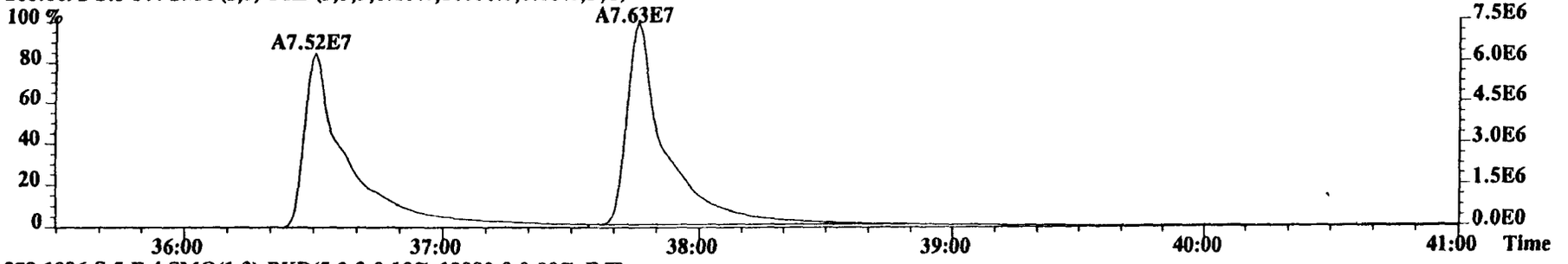


File:01OC98U #1-915 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR

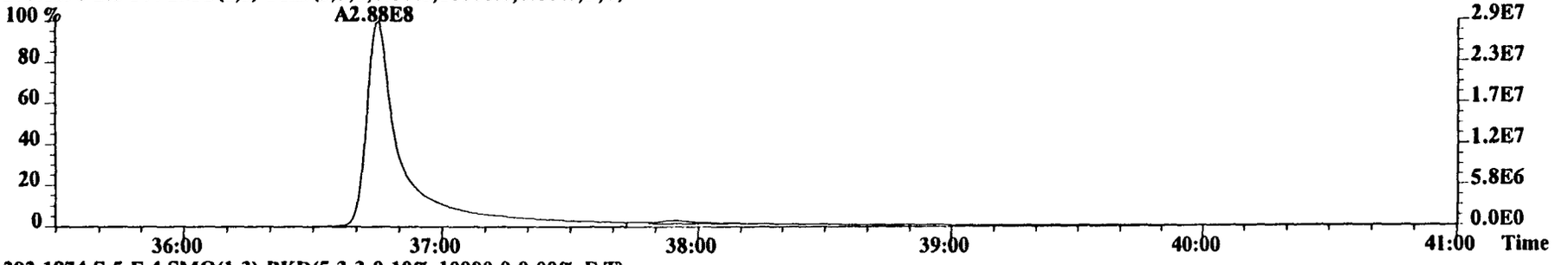
276.0939 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



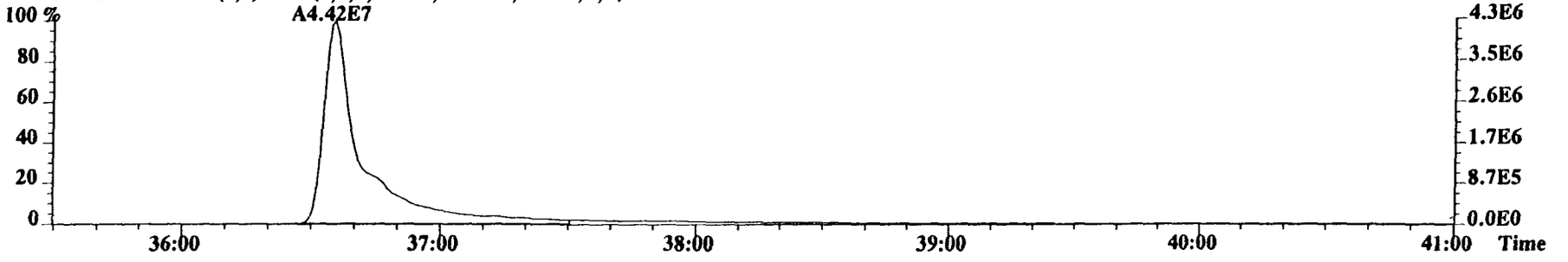
288.1692 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



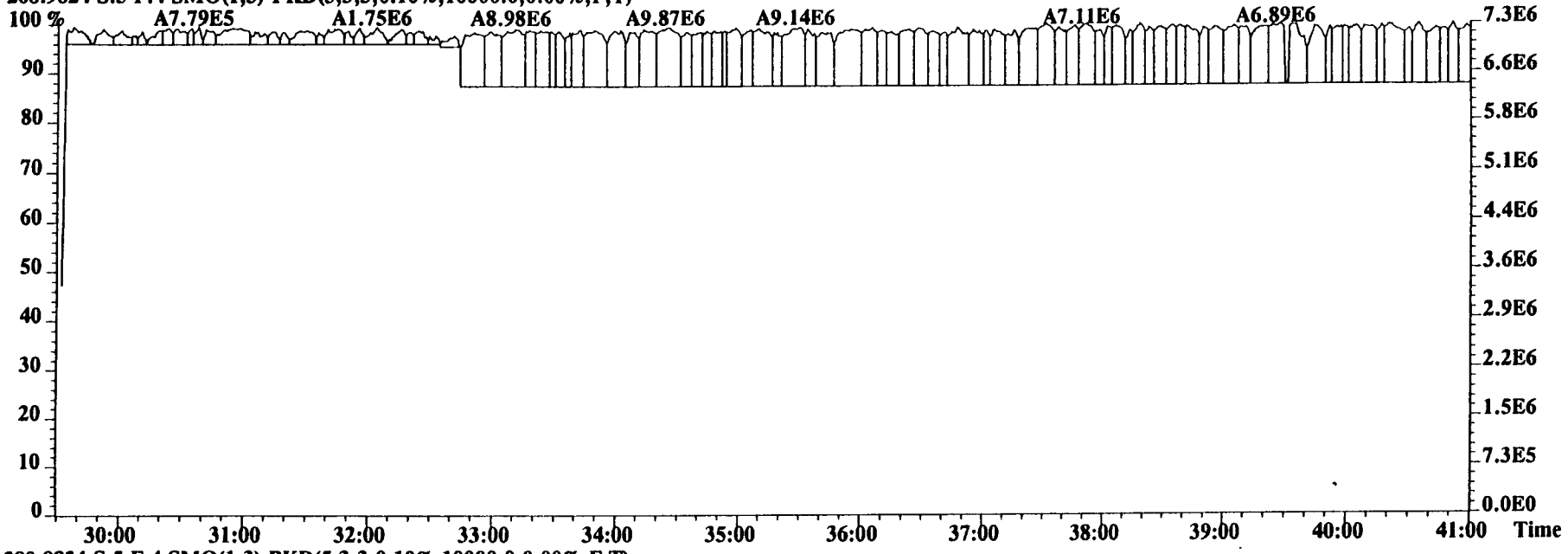
278.1096 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



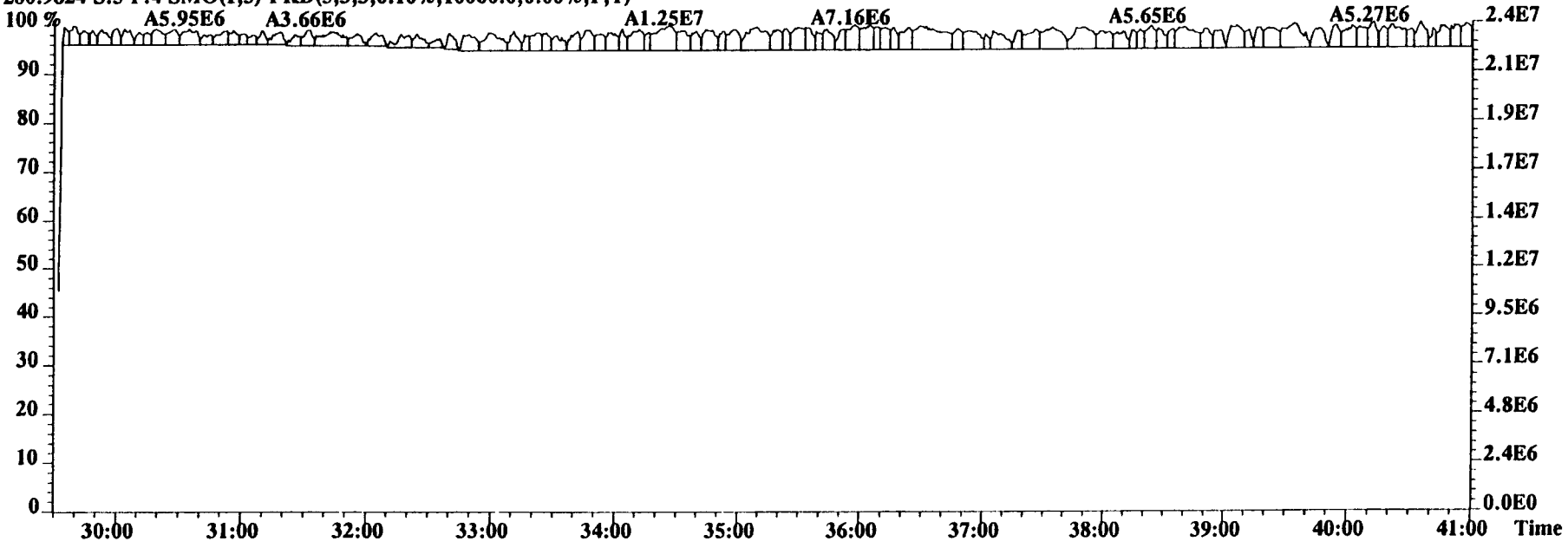
292.1974 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:01OC98U #1-915 Acq: 1-OCT-1998 20:41:10 GC EI+ Voltage SIR Autospec-Ultima
Sample#5 Text:ST1001D :CS-5 :265-04E : Exp:PAHAIR
268.9824 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

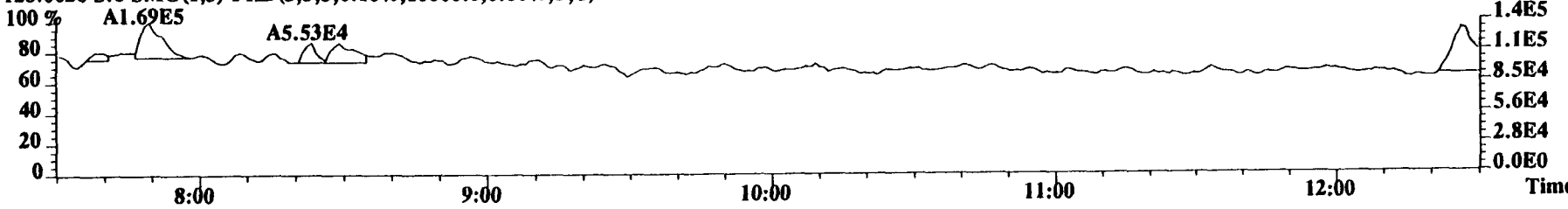


280.9824 S:5 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

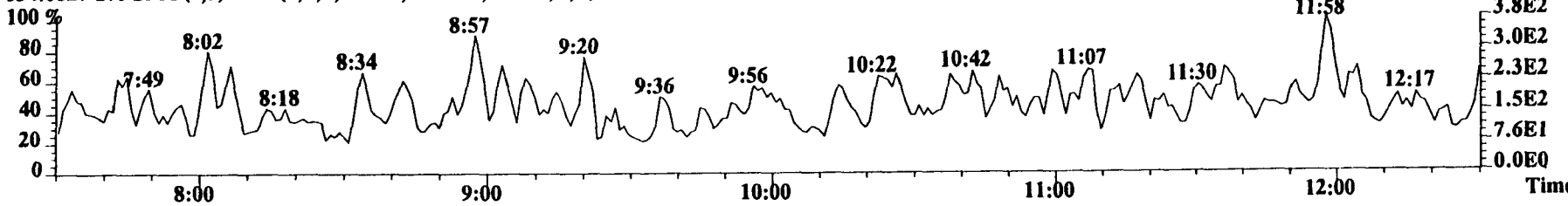


File:01OC98U #1-509 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR

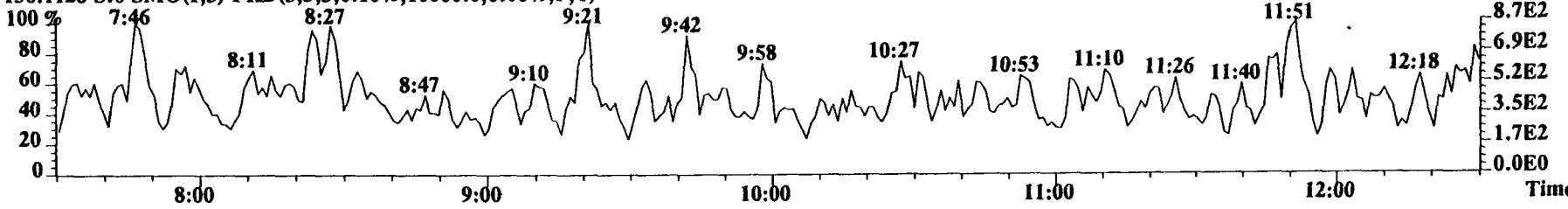
128.0626 S:6 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



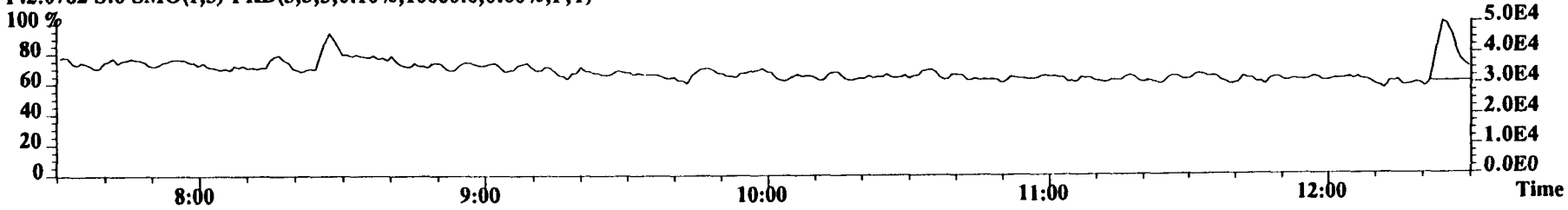
134.0827 S:6 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



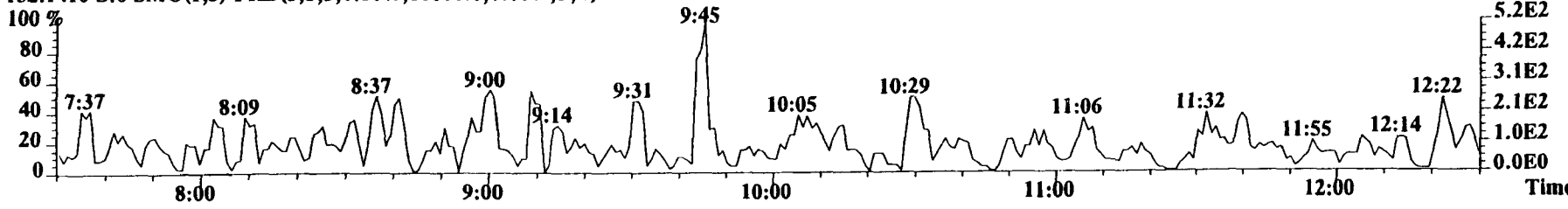
136.1128 S:6 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



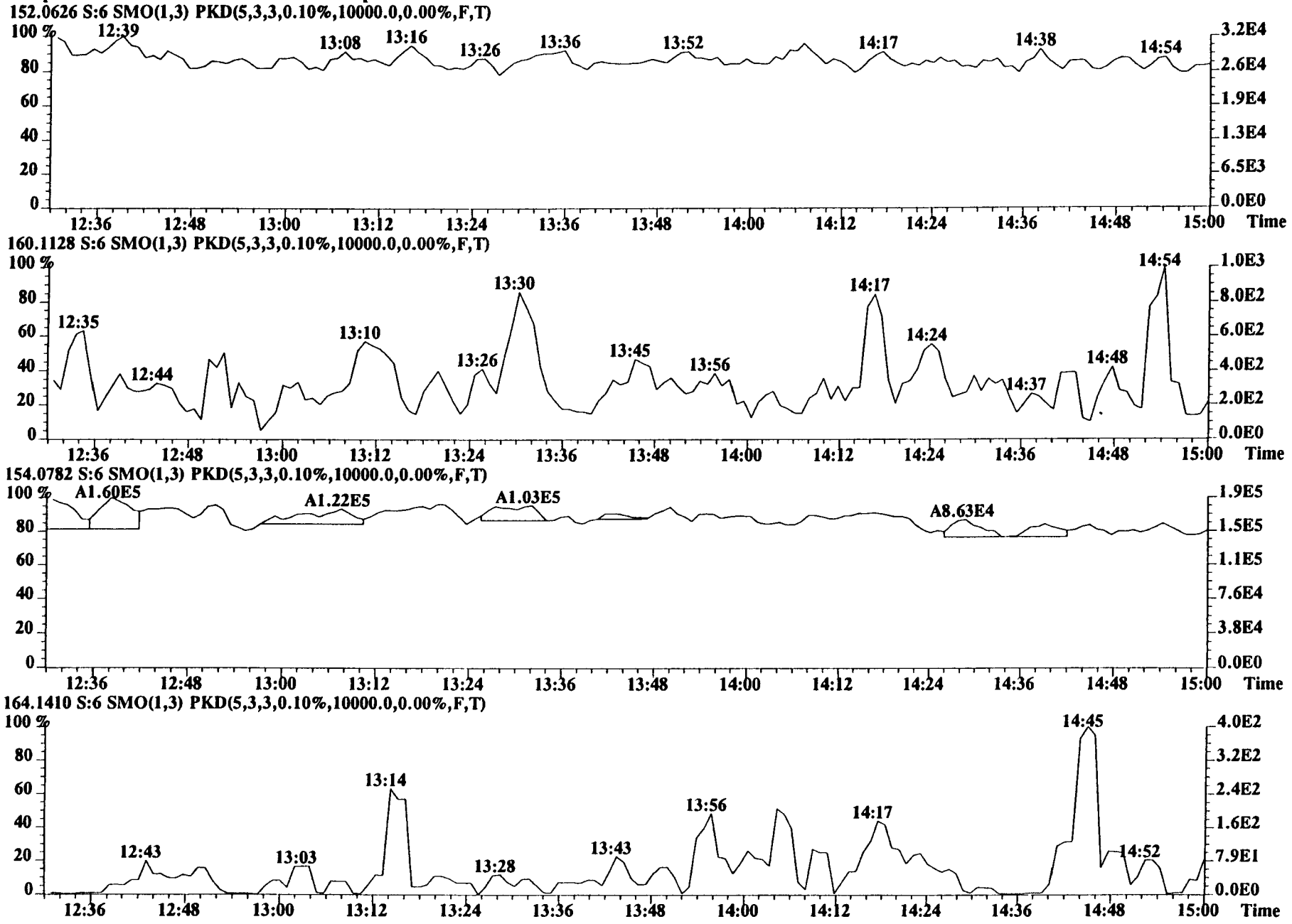
142.0782 S:6 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



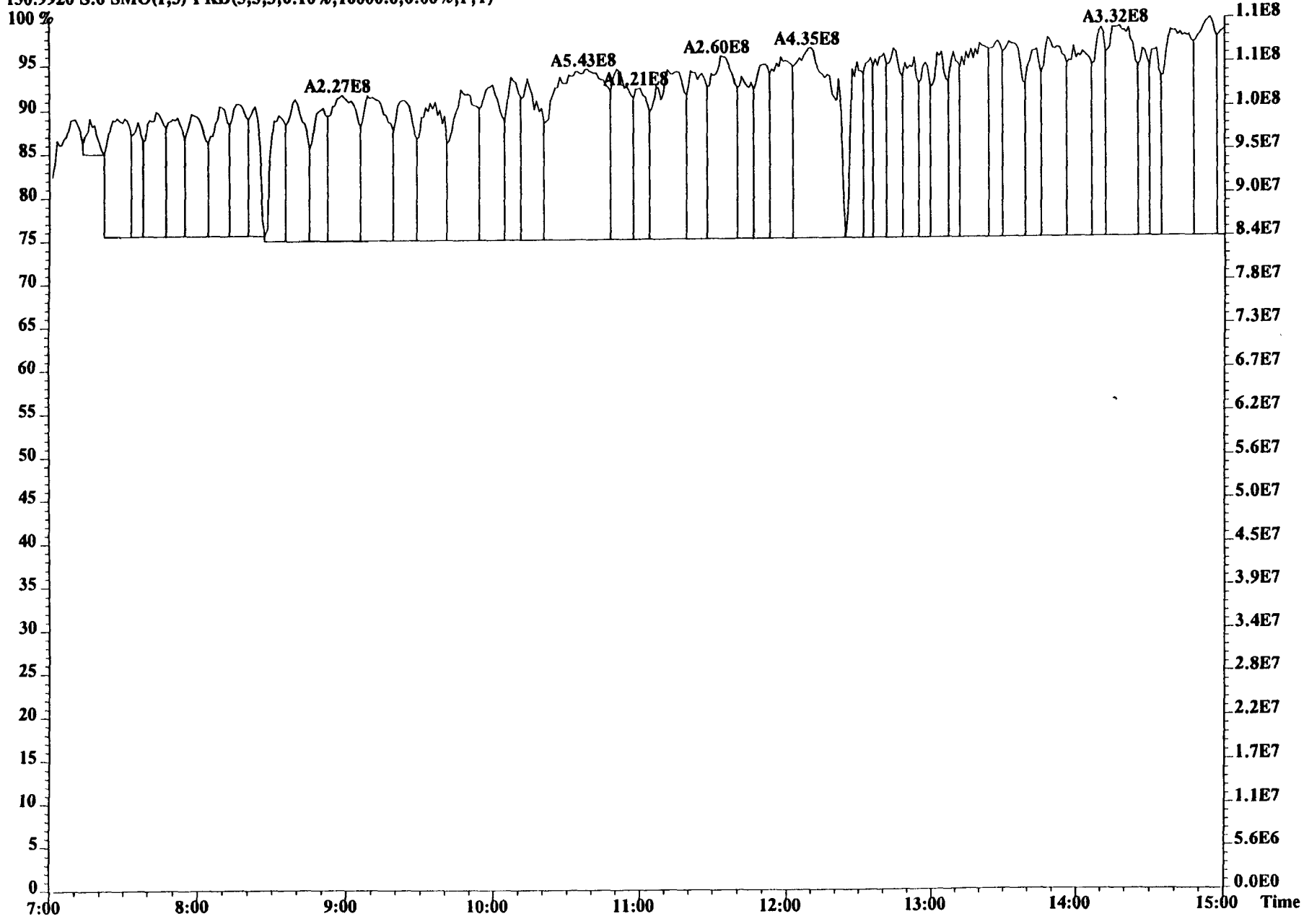
152.1410 S:6 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



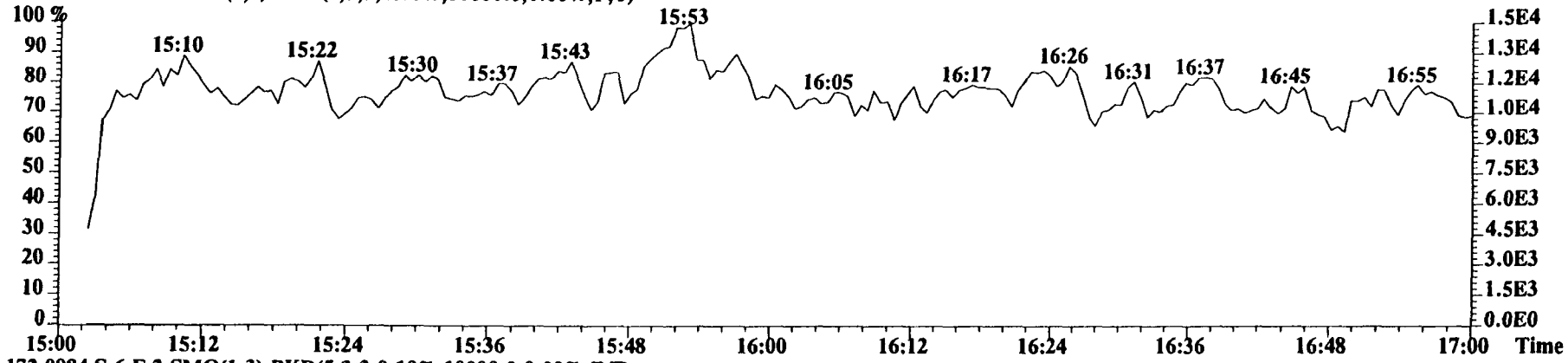
File:01OC98U #1-509 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR



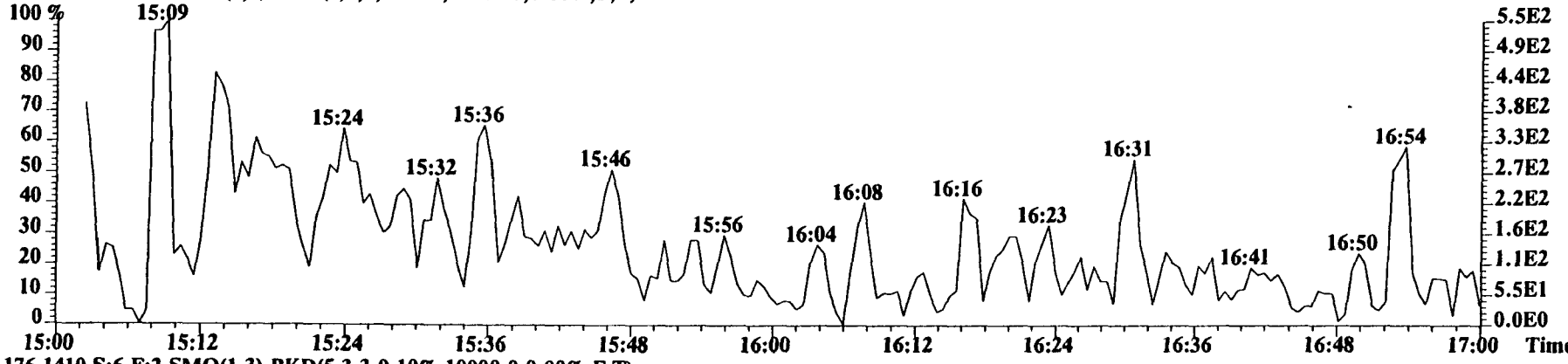
File:01OC98U #1-509 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
130.9920 S:6 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



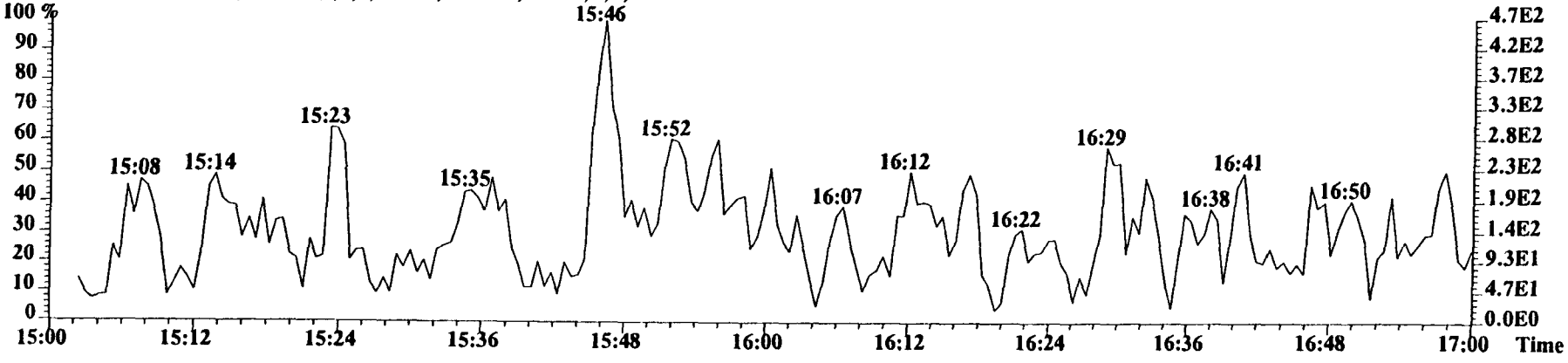
File:01OC98U #1-584 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
166.0798 S:6 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



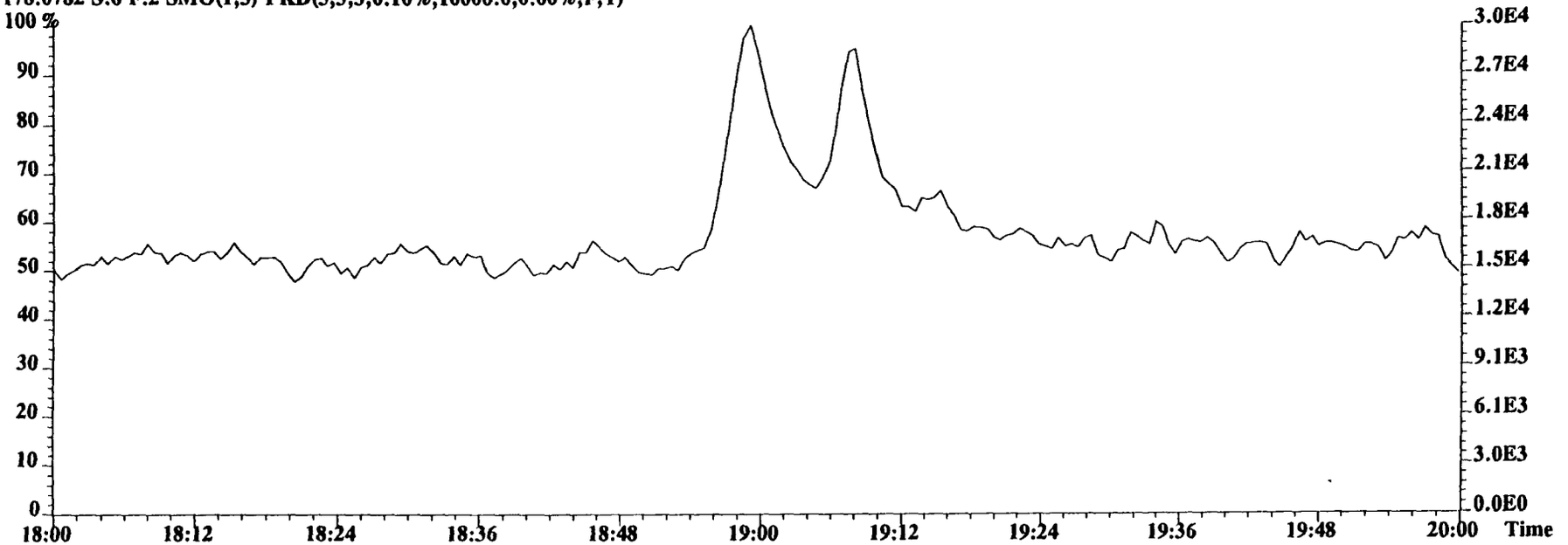
172.0984 S:6 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



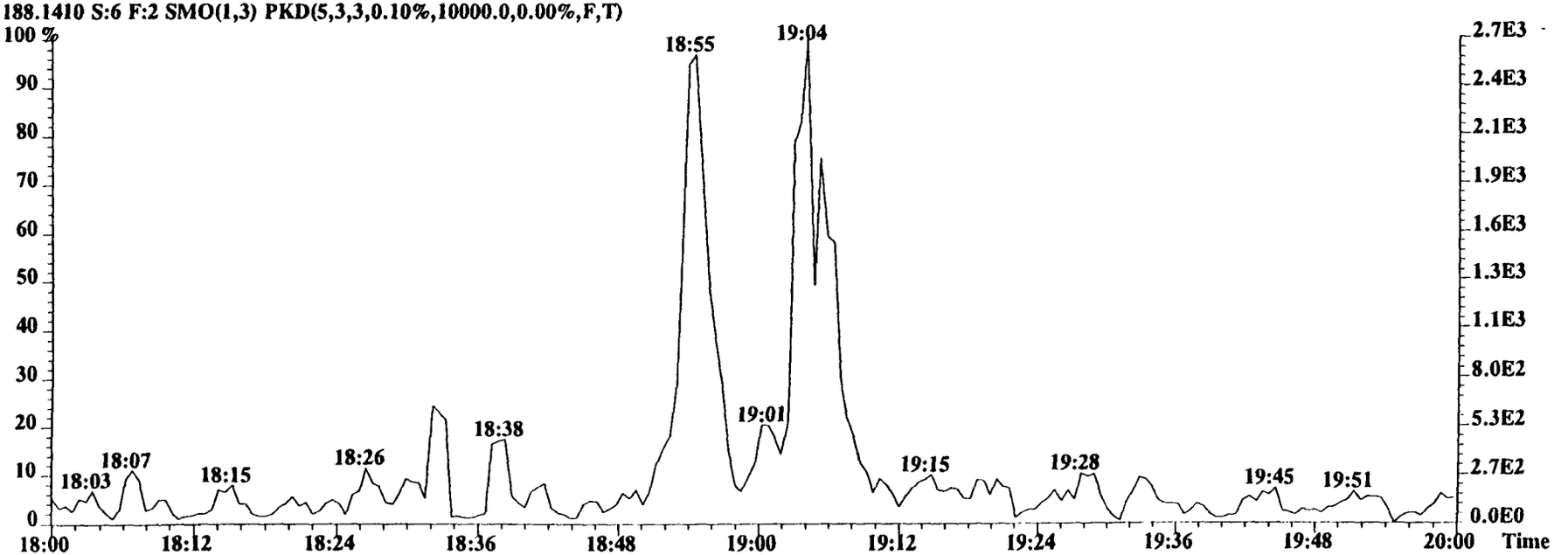
176.1410 S:6 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



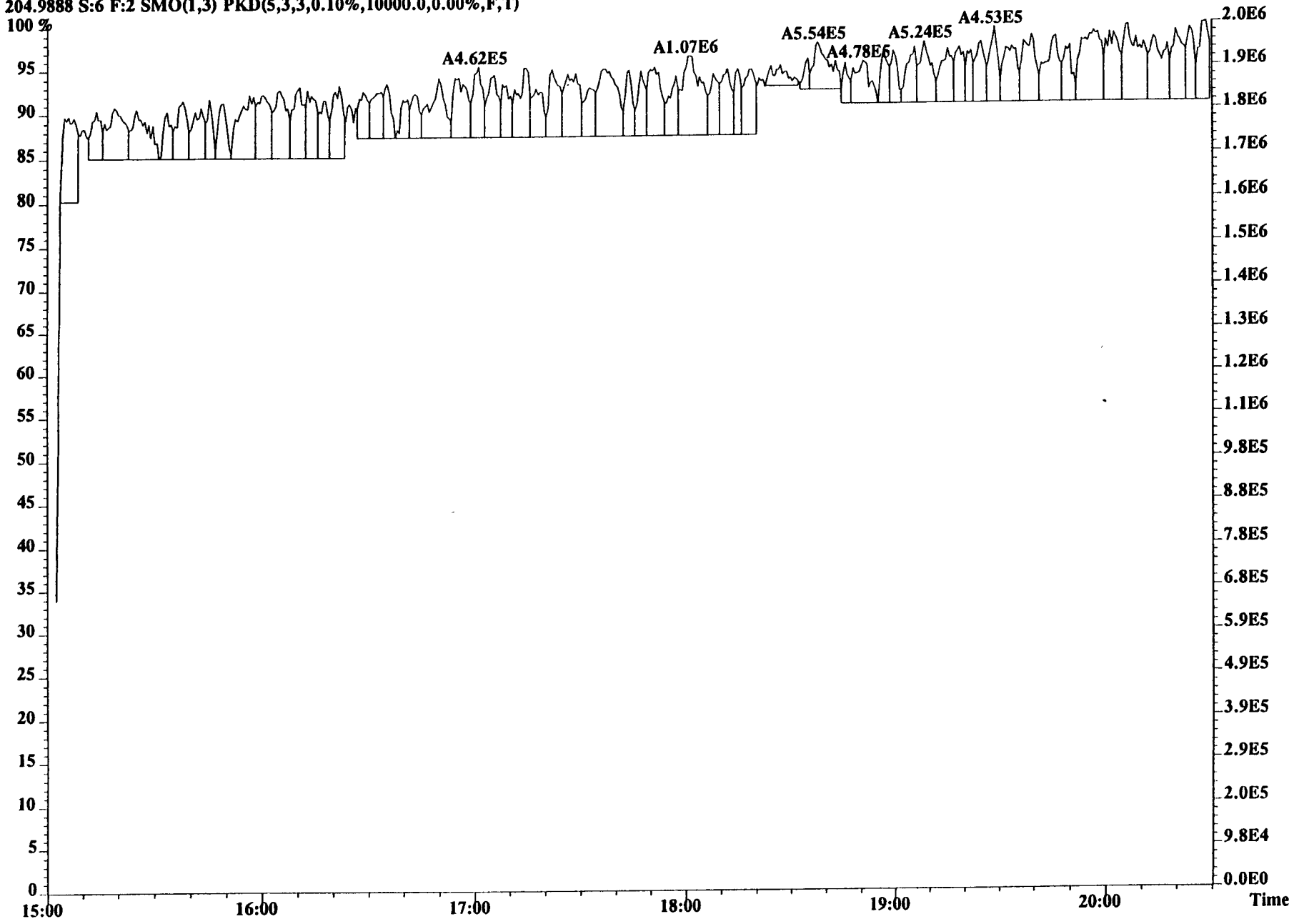
File:01OC98U #1-584 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
178.0782 S:6 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



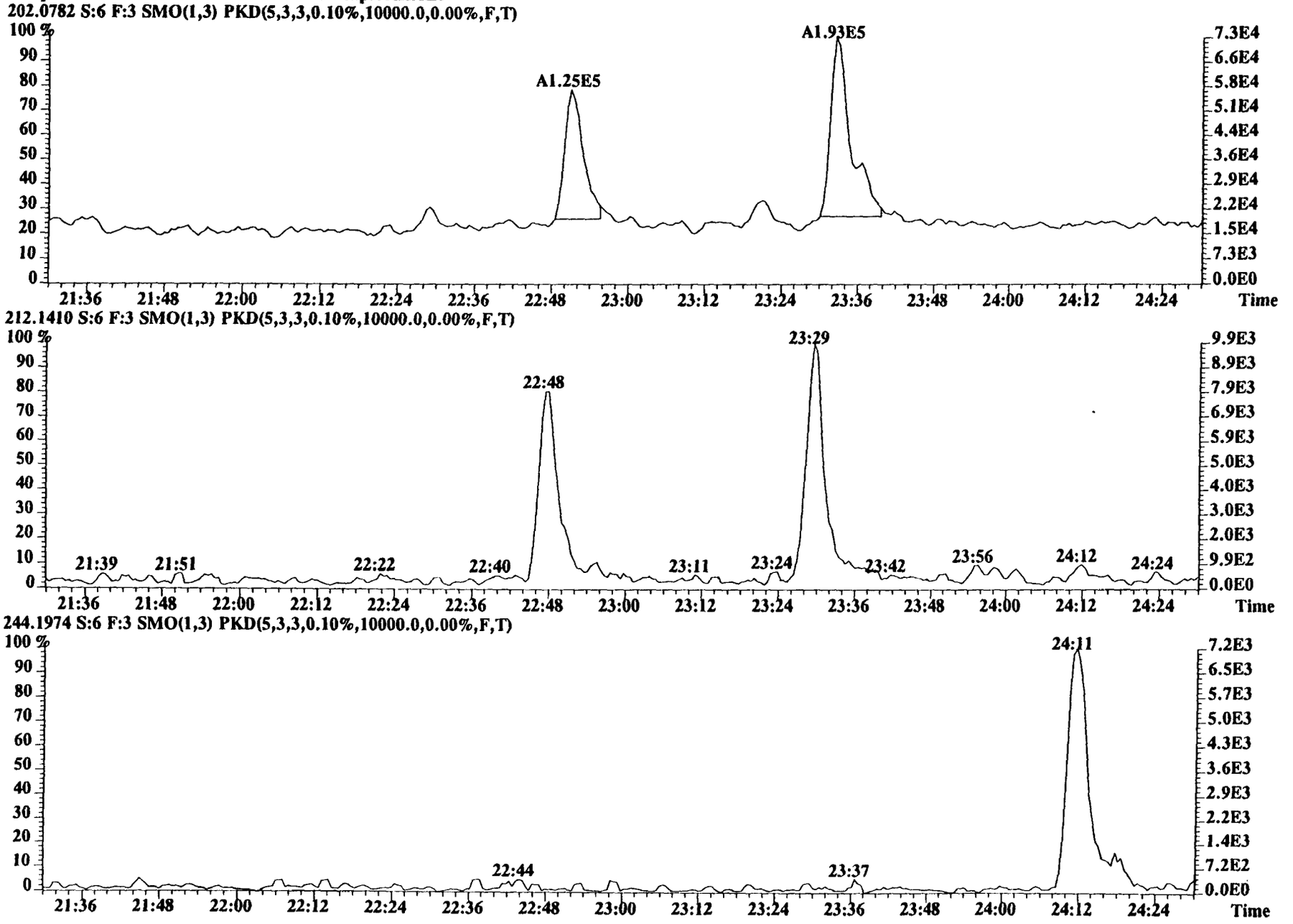
188.1410 S:6 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



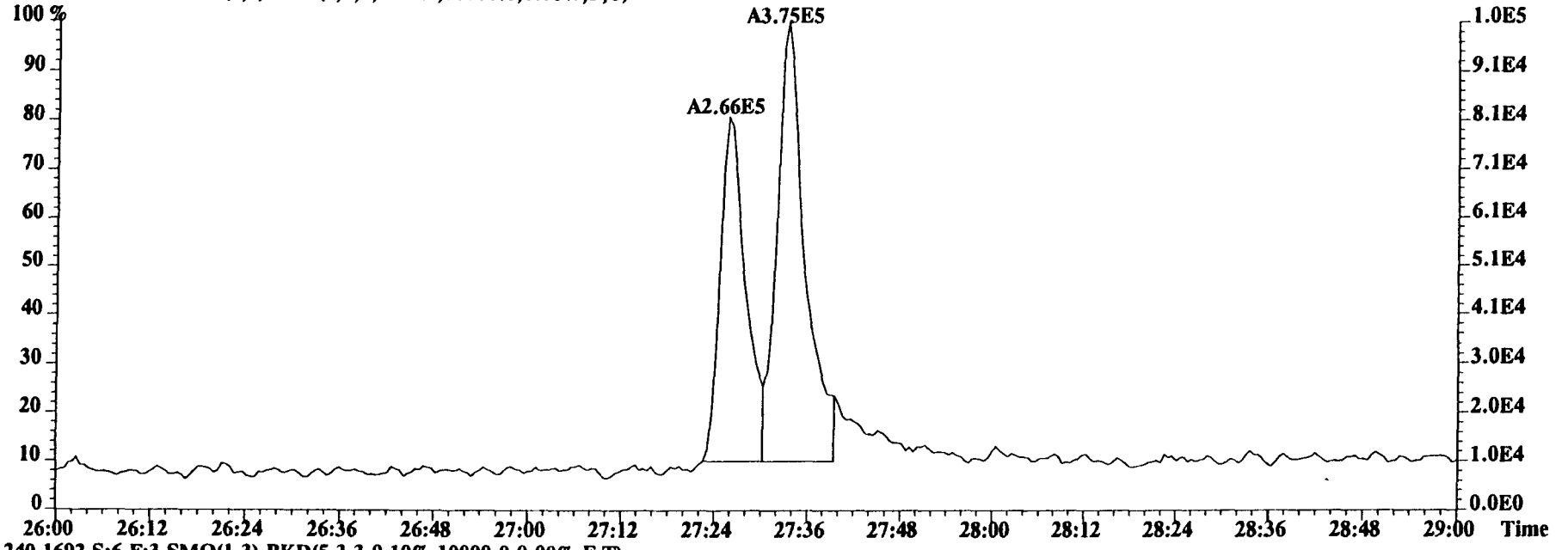
File:01OC98U #1-584 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
204.9888 S:6 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



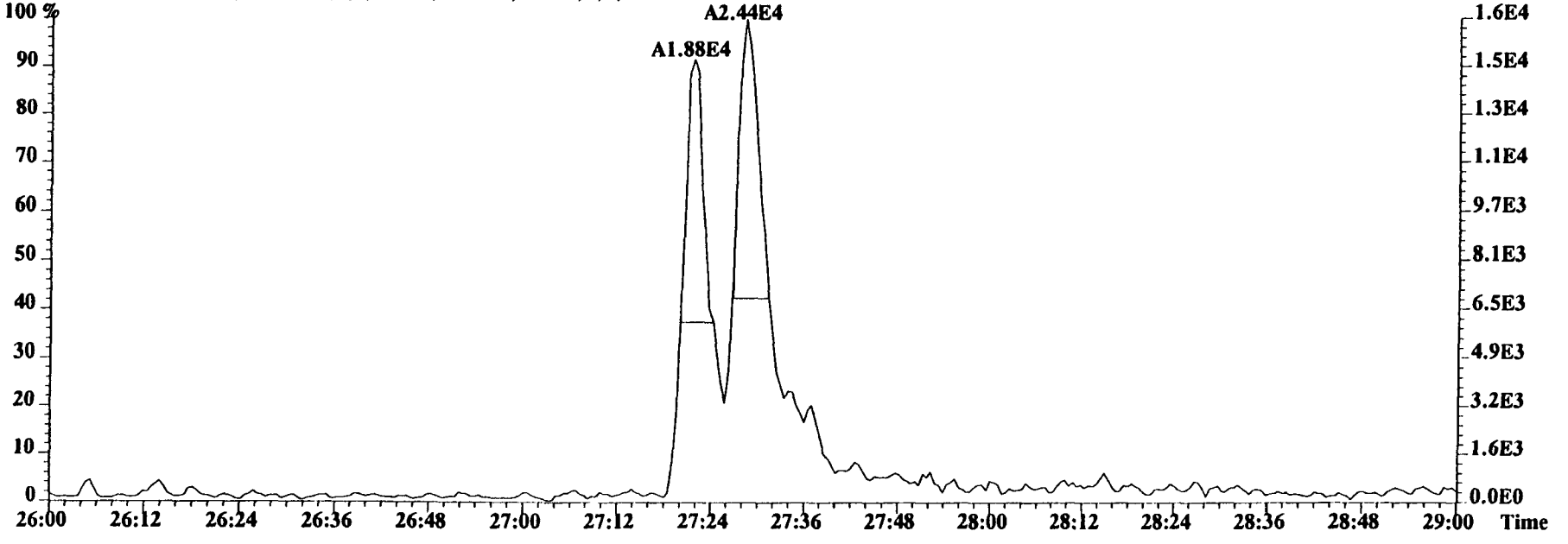
File:01OC98U #1-1052 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR



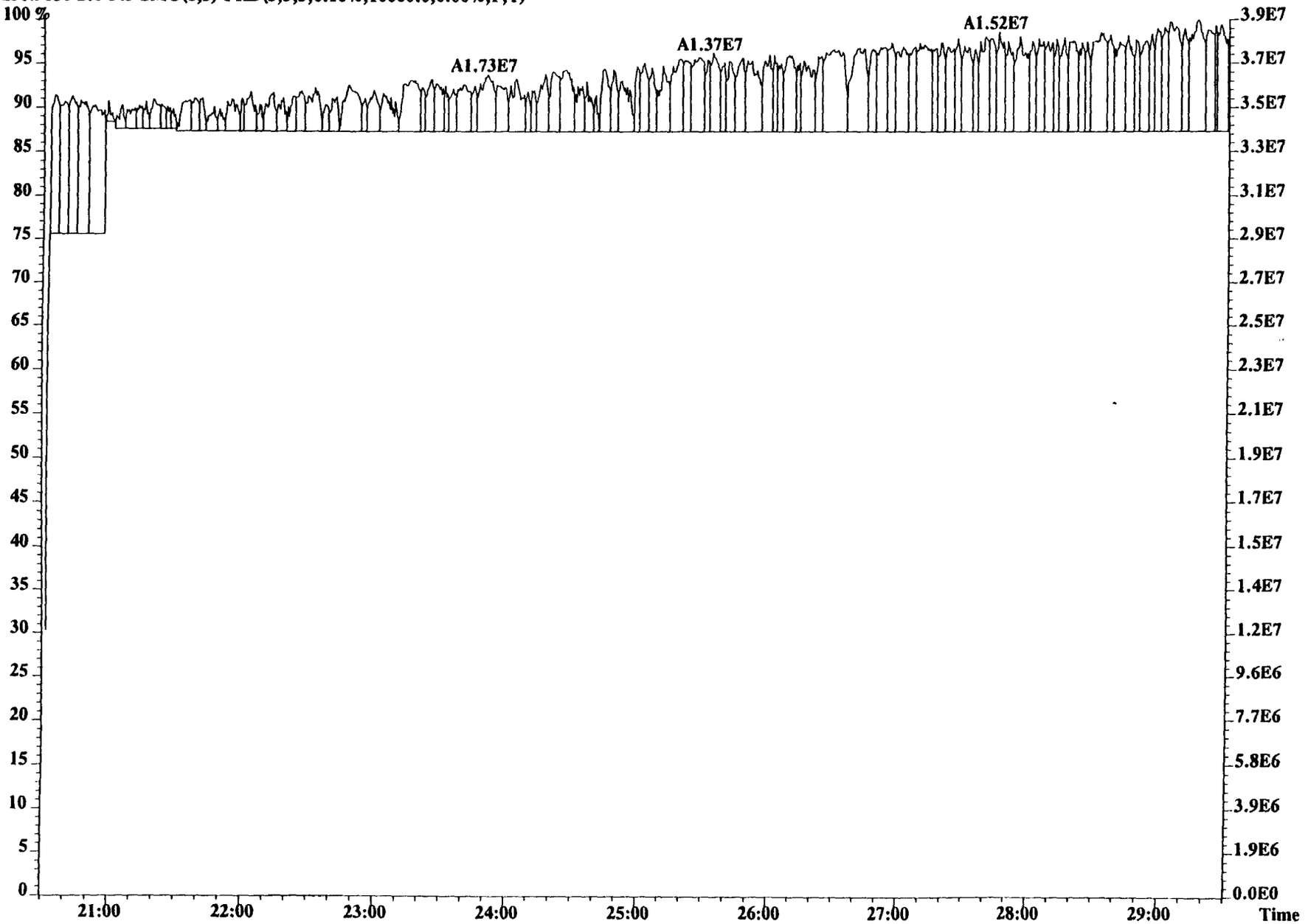
File:01OC98U #1-1052 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
228.0939 S:6 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



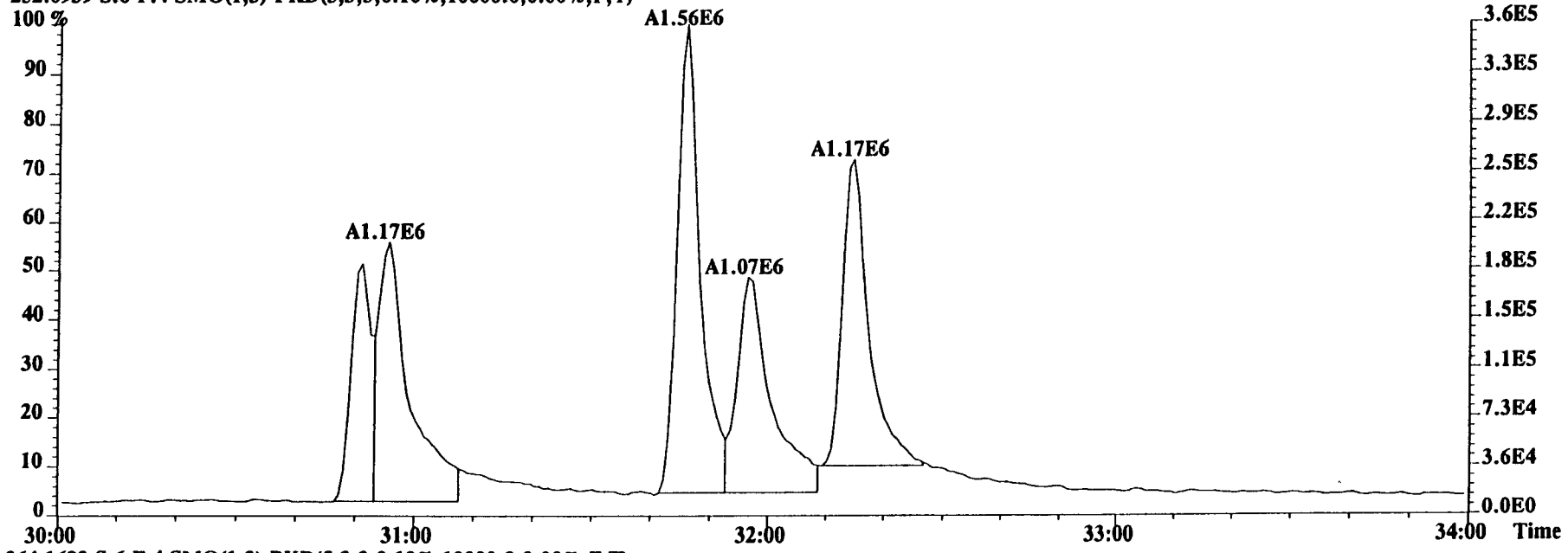
240.1692 S:6 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



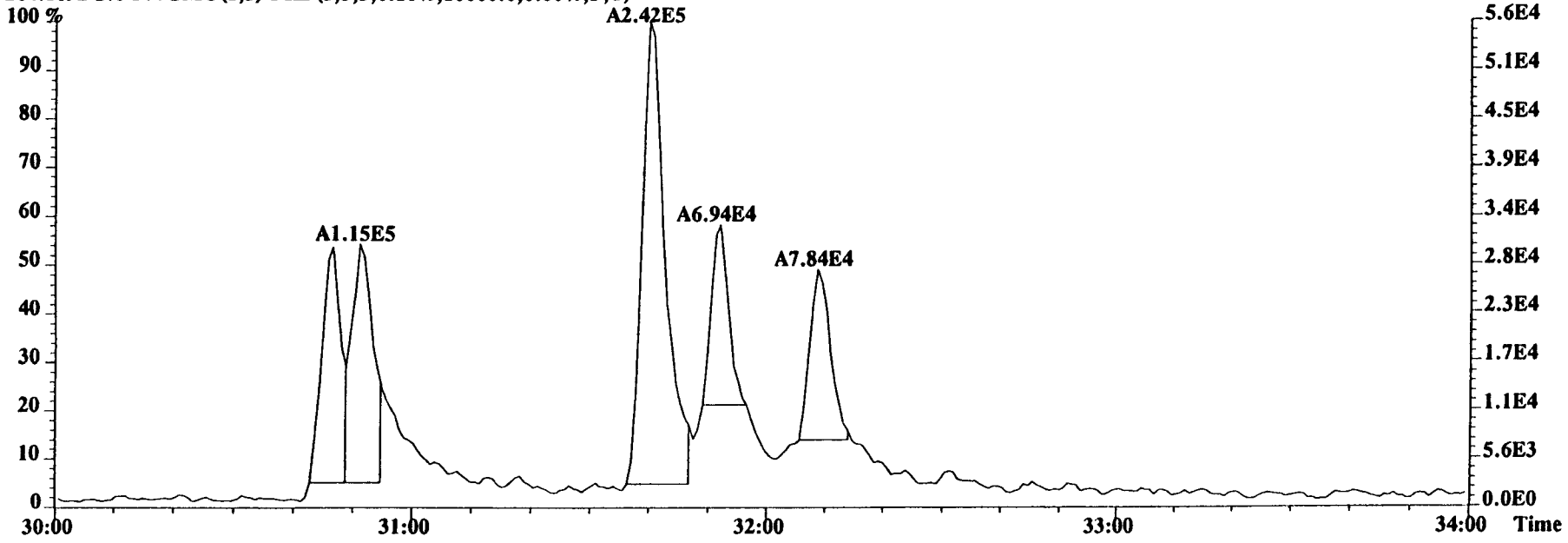
File:01OC98U #1-1052 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
230.9856 S:6 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



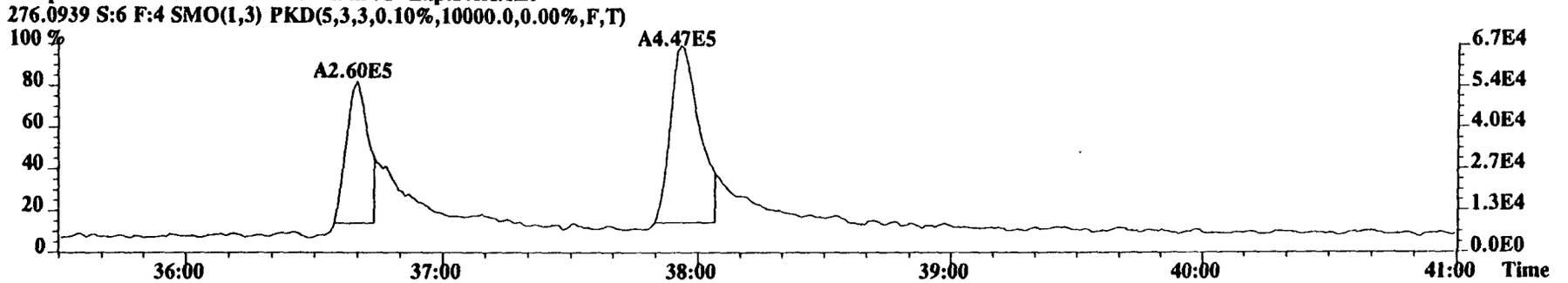
File:01OC98U #1-915 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
252.0939 S:6 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

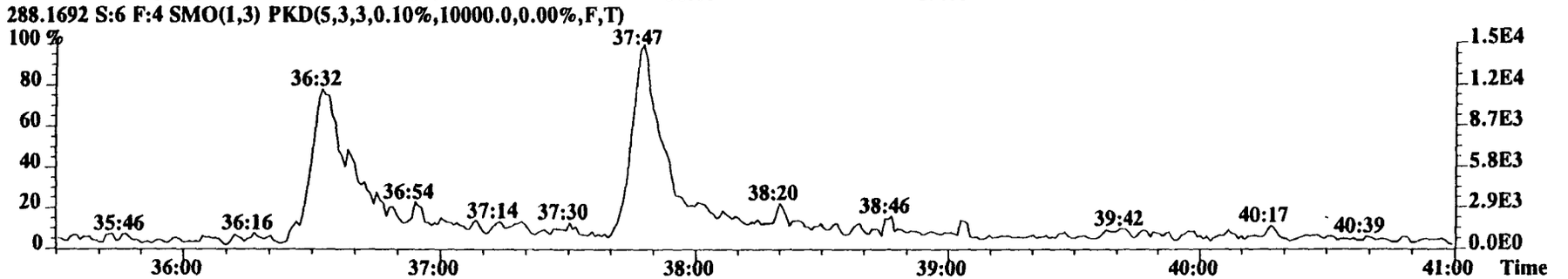


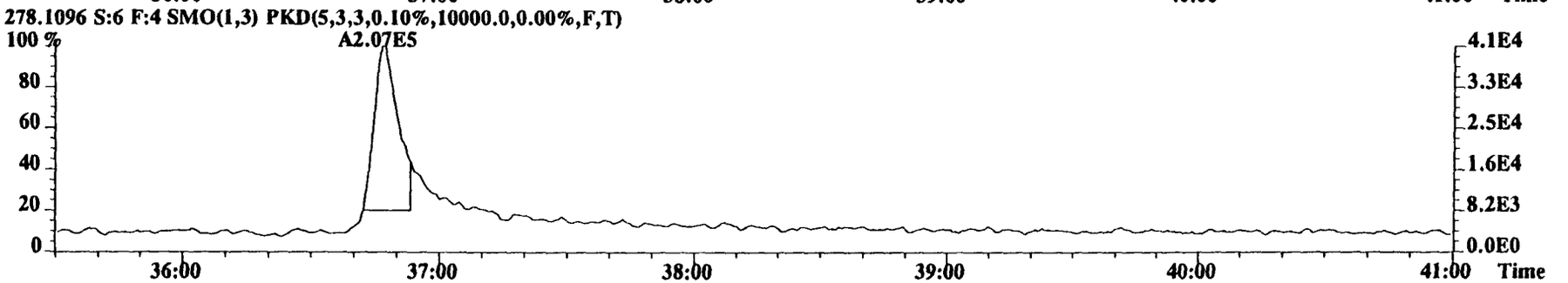
264.1692 S:6 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

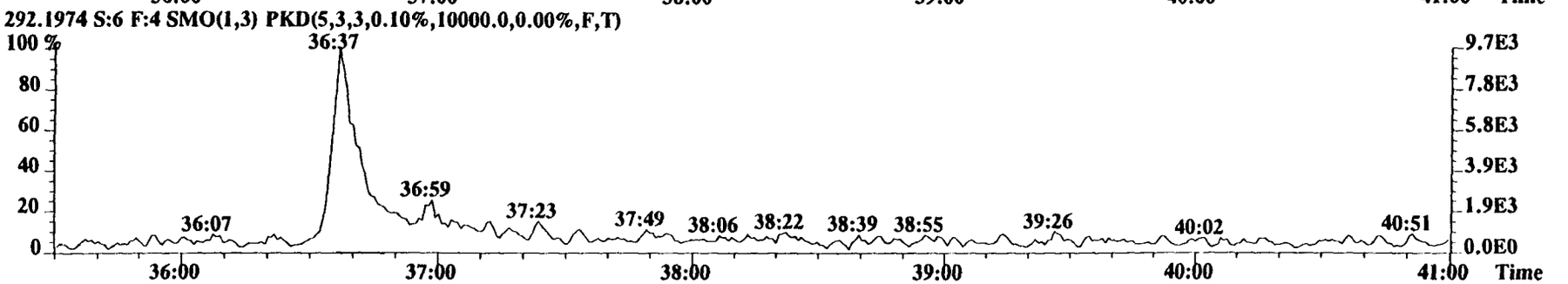


File:01OC98U #1-915 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR

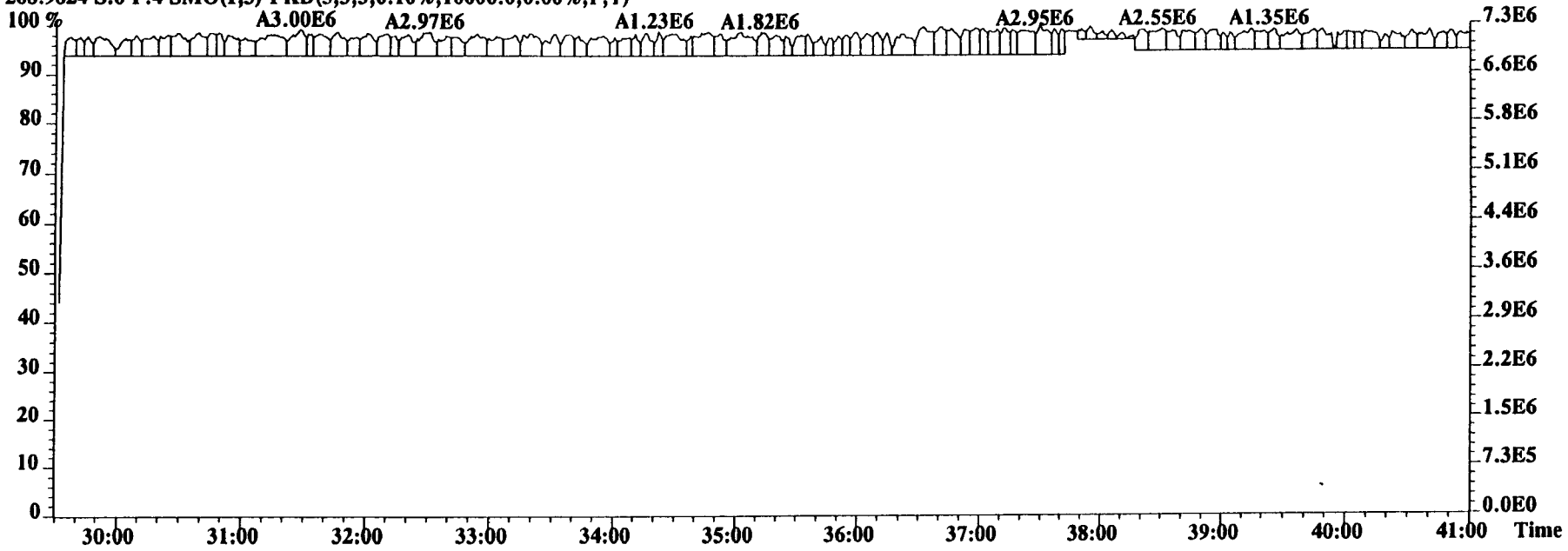




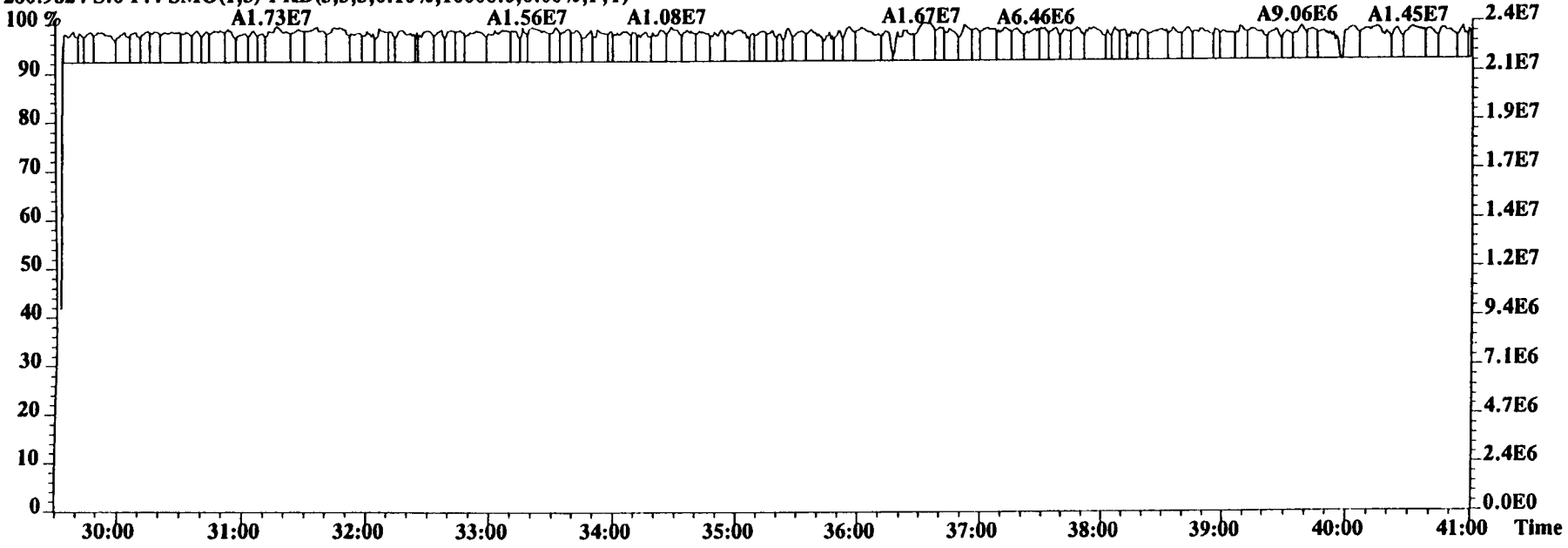




File:01OC98U #1-915 Acq: 1-OCT-1998 21:27:31 GC EI+ Voltage SIR Autospec-Ultima
Sample#6 Text:SB1001 :Solvent Blank :C- Exp:PAHAIR
268.9824 S:6 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:6 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Continuing Calibration

QUANTERRA INCORPORATED
West Sacramento

Daily Standard Checklist
Dioxin/Furan High Res

STD ID ST1005A Method ID PAH Column ID DB-5 (W) Instr ID ULTIMA

Standard Solution 265-04C Prepared By CPICKEL Prepared Date 10-8-98

Analyzed By CPICKEL Date Analyzed 10-6-98

Reviewed By A. Alegaji Date Reviewed 10/8/98

ANALYSIS OF DAILY STANDARD	INITIATED	REVIEWED
Standard, CPSM, and solvent blank present?	✓ (1)	✓ (1)
Copy of Instrument logfile present?	✓	✓
CPSM blow up and peak profile present?	✓ (1)	✓ (1)
Curve summary present?	✓	✓
Summary of 1613A criteria present?	NA	NA
Daily standard within method specified limits*?	✓	✓
Daily ion abundance ratios within limits?	NA	NA
CPSM valley < 25%?	NA (1)	NA (1)
CPSM window correct?	✓ (1)	✓ (1)
Samples analyzed within 12 hrs of daily standard?	✓	✓

COMMENTS:

(1) NO CPSM IN PAH ANALYSIS

515

* For NCASI 551, Control Limit (CL) = +/- 20% from curve RRFs for all analytes.
For Method 8290, CL = +/- 20% from curve RRFs for native analytes, CL = +/- 30% from curve RRFs fo labeled compounds.
For Method 1613A, see 3rd Revision to Method 1613 Performance Specifications, Table 7.

Mass Spec : ULTIMA Results : 05OC98U191A.RES : PAHAIRCAL3.TRG
GC Column : DB-5 Date analyzed : 05-OCT-98
Data file : 05OC98U ST1005A :CS-3 :265-04C : Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	pg	% Dev
d10-2-Methylnaphthalene	81518800	1.00 Y	10: 28 Y	0.00	100.00	
d8-Naphthalene	112288600	1.00 Y	8: 17 Y	1.38	100.00	-23
Naphthalene	128959200	1.00 Y	8: 22 Y	1.15	100.00	-4
2-Methylnaphthalene	80905200	1.00 Y	10: 33 Y	0.72	100.00	10
d8-Acenaphthylene	112023200	1.00 Y	13: 29 Y	1.37	100.00	18
Acenaphthylene	95701800	1.00 Y	13: 32 Y	0.85	100.00	-17
d10-Acenaphthene	64072200	1.00 Y	14: 4 Y	0.79	100.00	15
Acenaphthene	64509200	1.00 Y	14: 10 Y	1.01	100.00	-12
d10-Anthracene	54703600	1.00 Y	19: 2 Y	-1.00	100.00	
d10-Fluorene	66098400	1.00 Y	15: 45 Y	1.21	100.00	-11
Fluorene	69408600	1.00 Y	15: 51 Y	1.05	100.00	-8
d10-Phenanthrene	153558000	1.00 Y	18: 53 Y	2.81	100.00	3
Phenanthrene	126066600	1.00 Y	18: 56 Y	0.82	100.00	-14
Anthracene	117413800	1.00 Y	19: 5 Y	0.76	100.00	-21
d14-Terphenyl	142614800	1.00 Y	24: 10 Y	-1.00	100.00	
d10-Fluoranthene	171990400	1.00 Y	22: 46 Y	1.21	100.00	-19
Fluoranthene	195860200	1.00 Y	22: 49 Y	1.14	100.00	-8
d10-Pyrene	174999400	1.00 Y	23: 27 Y	1.23	100.00	-22
Pyrene	206378000	1.00 Y	23: 31 Y	1.18	100.00	-6
d12-Benzo(a)anthracene	105010600	1.00 Y	27: 19 Y	0.74	100.00	-9
Benzo(a)anthracene	107742200	1.00 Y	27: 23 Y	1.03	100.00	-20
d12-Chrysene	136000800	1.00 Y	27: 26 Y	0.95	100.00	-18
Chrysene	128763000	1.00 Y	27: 31 Y	0.95	100.00	-18
d12-Benzo(e)pyrene	184142400	1.00 Y	31: 38 Y	-2.00	100.00	
d12-Benzo(b)fluoranthene	111668600	1.00 Y	30: 44 Y	0.61	100.00	26
Benzo(b)fluoranthene	133092400	1.00 Y	30: 49 Y	1.19	100.00	-8
d12-Benzo(k)fluoranthene	157235400	1.00 Y	30: 49 Y	0.85	100.00	-13
Benzo(k)fluoranthene	178773800	1.00 Y	30: 53 Y	1.14	100.00	-5
d12-Benzo(a)pyrene	125085400	1.00 Y	31: 49 Y	0.68	100.00	-8
Benzo(e)pyrene	204634000	1.00 Y	31: 44 Y	1.64	100.00	1
Benzo(a)pyrene	130062000	1.00 Y	31: 54 Y	1.04	100.00	-6
d12-Perylene	97250400	1.00 Y	32: 6 Y	0.53	100.00	-18
Perylene	175006400	1.00 Y	32: 12 Y	1.80	100.00	3
d12-Indeno(123-cd)pyrene	72248800	1.00 Y	36: 29 Y	0.39	100.00	5
Indeno(123-cd)pyrene	46600000	1.00 Y	36: 35 Y	0.64	100.00	7
d14-Dibenz(ah)anthracene	38514000	1.00 Y	36: 33 Y	0.21	100.00	3
Dibenz(ah)anthracene	42946000	1.00 Y	36: 43 Y	1.12	100.00	-13
d12-Benzo(ghi)perylene	70462600	1.00 Y	37: 43 Y	0.38	100.00	-6
Benzo(ghi)perylene	68319800	1.00 Y	37: 52 Y	0.97	100.00	-12

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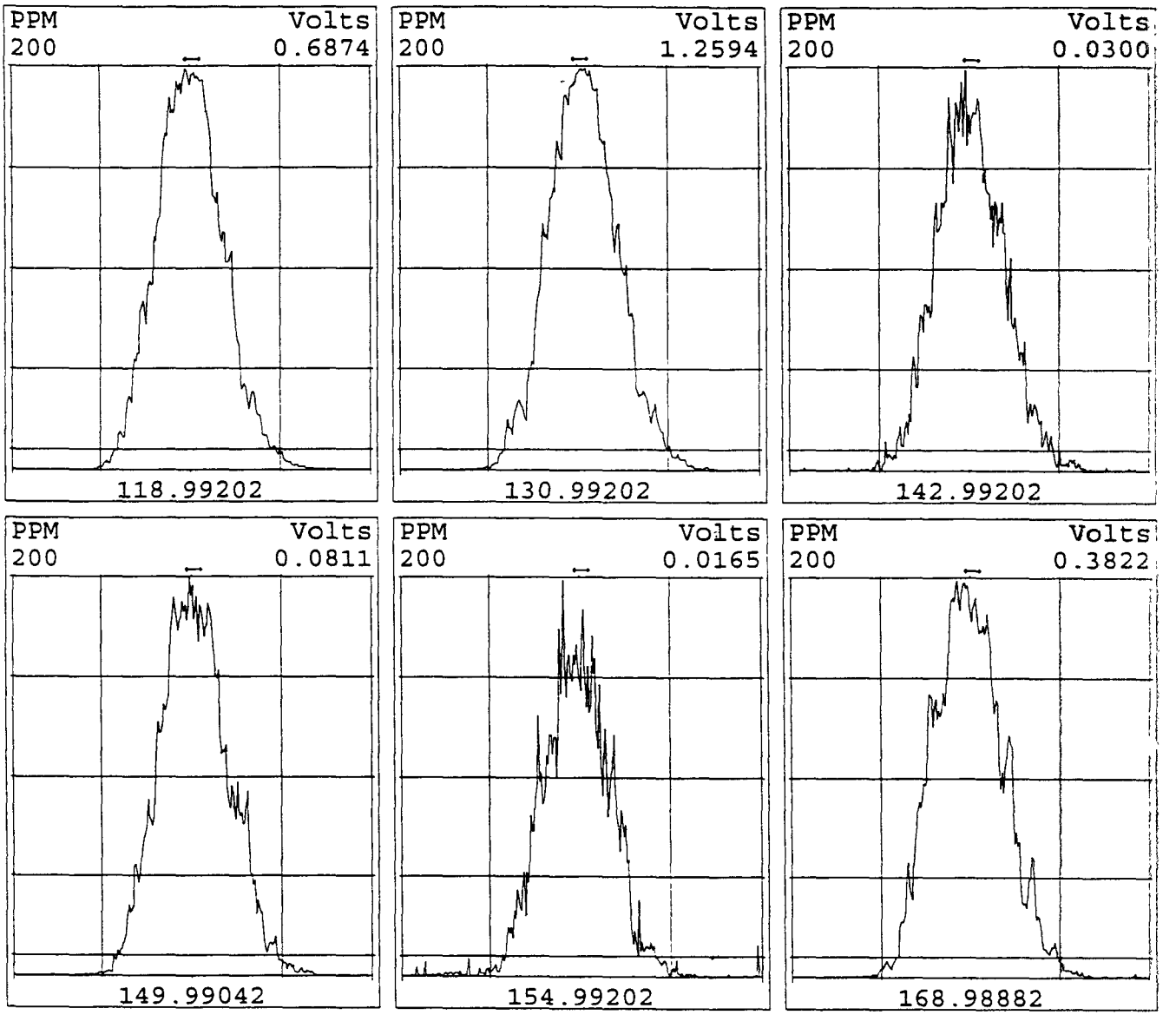
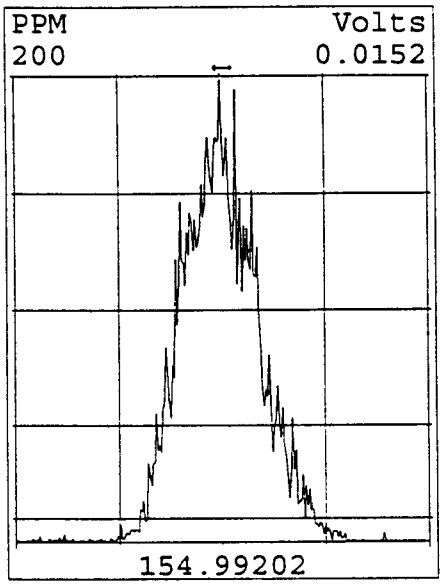
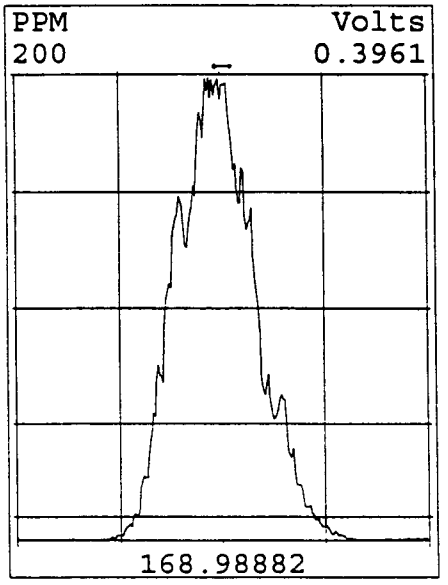
FILE	SAMP No. (1)	LAB. SAMP No	CUSTOMER ID	CLEAN UP 1 (SDS)	CLEAN UP 2 (D2)	TYPE (1)	CONCn.
050C98U	1	ST1005	CS-3	265-04C			1
050C98U	2	SB1005	Solvent Blank	C-8			1
050C98U	3	301361-MBB	METHOD BLANK-B	TRAIN	PAH	VSE-25	0.500
050C98U	4	301361-B	LCS-B		PAH		0.500
050C98U	5	301361-MBC	METHOD BLANK-C		PAH		0.333
050C98U	6	301361-C	LCS-C		PAH		0.333
050C98U	7	301361-MBD	METHOD BLANK-D		PAH		0.500
050C98U	8	301361-D	LCS-D		PAH		0.500
050C98U	9	301361-DD	DCS-D		PAH		0.500
050C98U	10	301361-E	LCS-E		PAH		0.333
050C98U	11	301361-MBE	METHOD BLANK-E		PAH		0.333
050C98U	12	301361-CD	DCS-C		PAH		0.333
050C98U	13	301361-ED	DCS-E		PAH		0.333
050C98U	14	301361-5	2097-2101		PAH		0.333
050C98U	15	301361-6	2104-2108		PAH		0.333
050C98U	16	301361-7	2111-2114		PAH		0.500
050C98U	17	301361-9	2118-2121		PAH		0.500
050C98U	18	SB1005A	Solvent Blank	C-8			1
050C98U	19	ST1005A	CS-3	265-04C			1
050C98U	20	SB1005B	Solvent Blank	C-8			1
050C98U	21	301361-11	2128-2132		PAH		0.333
050C98U	22	301361-12	2139-2140		PAH		0.500
050C98U	23	301361-13	2141-2145		PAH		0.333
050C98U	24	301361-14	2146-2150		PAH		0.333
050C98U	25	301361-15	2151-2155		PAH		0.333
050C98U	26	301361-BD	DCS-B		PAH		0.500
050C98U	27	300681-1DI	100X S-MM5-2-F	TRAIN	PAH	VSE-23	0.500
050C98U	28	300681-2DI	100X S-MM5-1B-F		PAH		0.500
050C98U	29	300681-7DI	100X S-MM5-3-F		PAH		0.500
050C98U	30	300681-10D	100X S-MM5-4-F		PAH		0.500
050C98U	31	300681-11D	100X S-MM5-5-F		PAH		0.500
050C98U	32	SB1005C	Solvent Blank	C-8			1
050C98U	33	301361-ED	DCS-E		PAH		0.333
050C98U	34						
050C98U	35						
050C98U	36		10-05-98 CP				
050C98U	37						
050C98U	38						
050C98U	39						
050C98U	40						
050C98U	41				dumped		
050C98U	42						
050C98U	43						
050C98U	44						
050C98U	45						
050C98U	46						
050C98U	47						
050C98U	48						
050C98U	49						
050C98U	50						

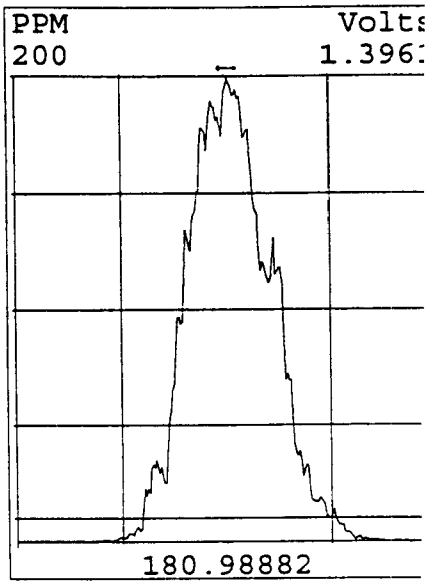
Peak Locate Examination: 5-OCT-1998:17:47 File:05OC98U
Experiment:PAHAIR Function:1 Reference:PFK

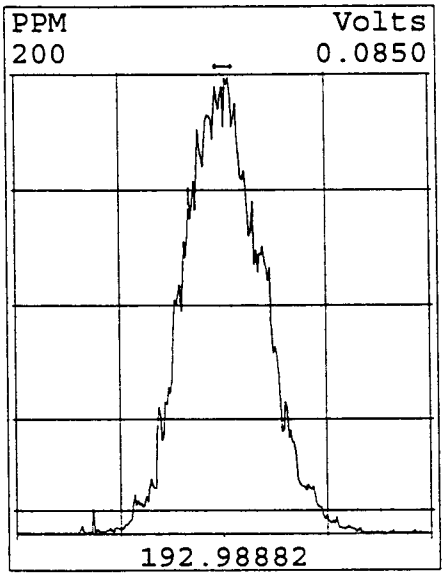


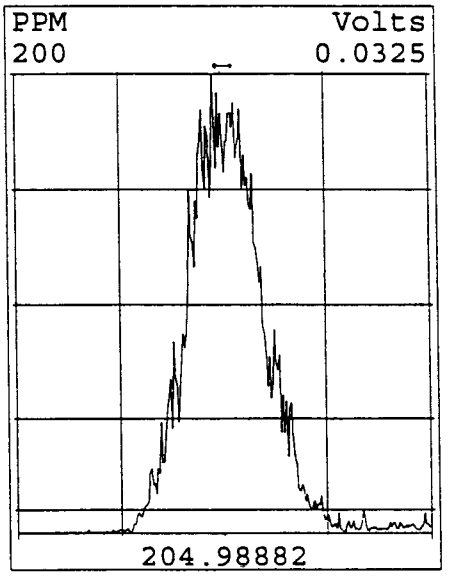
Peak Locate Examination: 5-OCT-1998:17:48 File:05OC98U
Experiment:PAHAIR Function:2 Reference:PFK



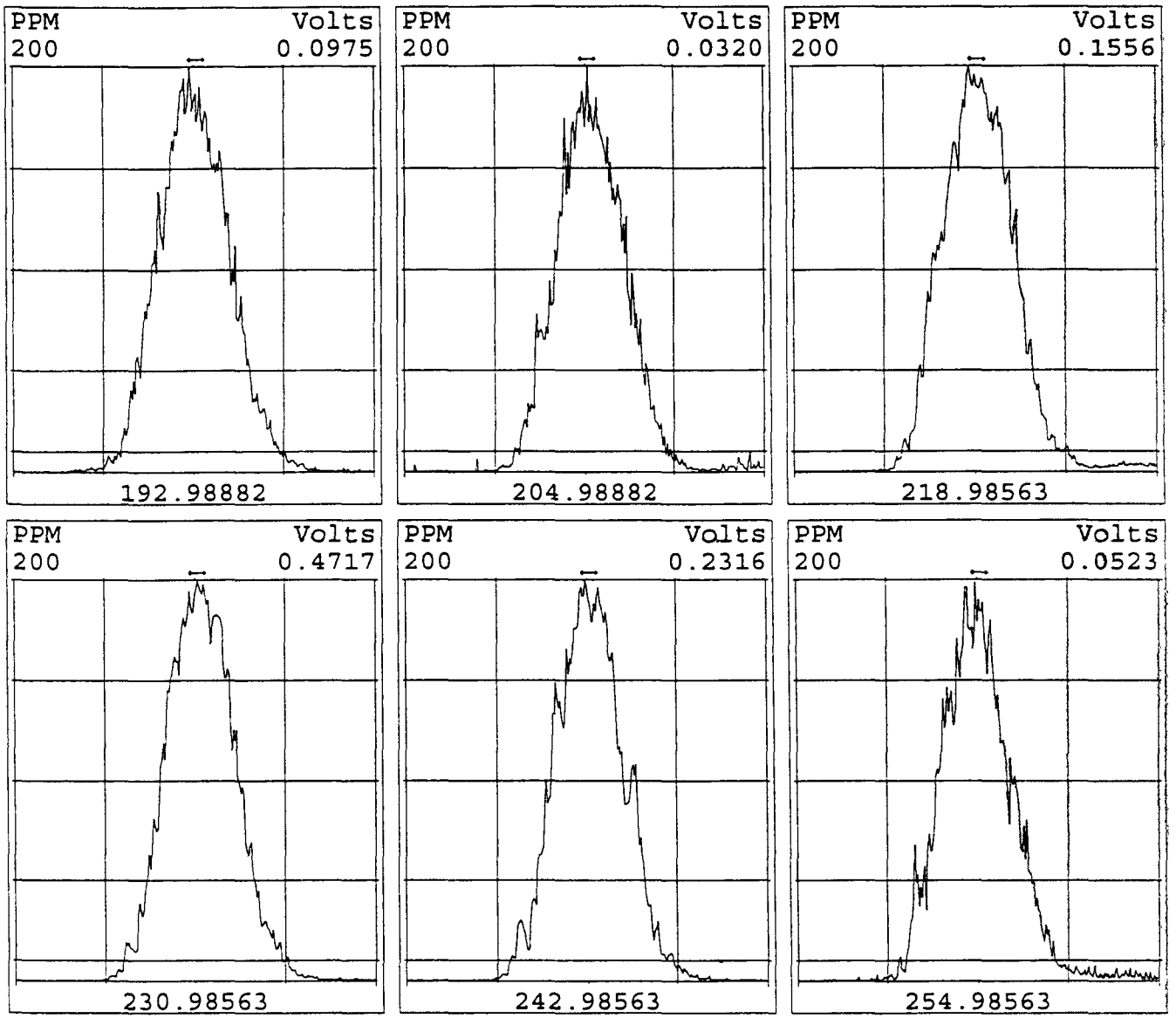




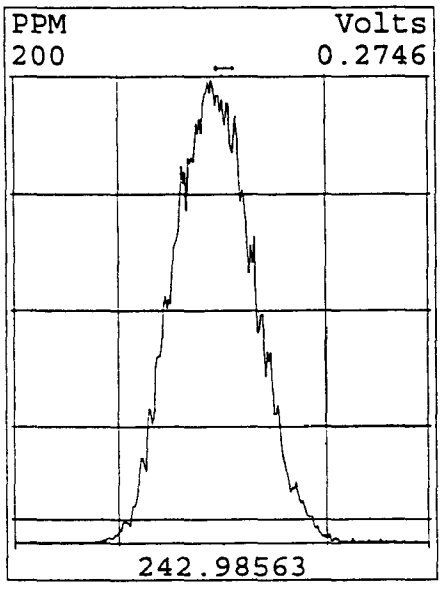


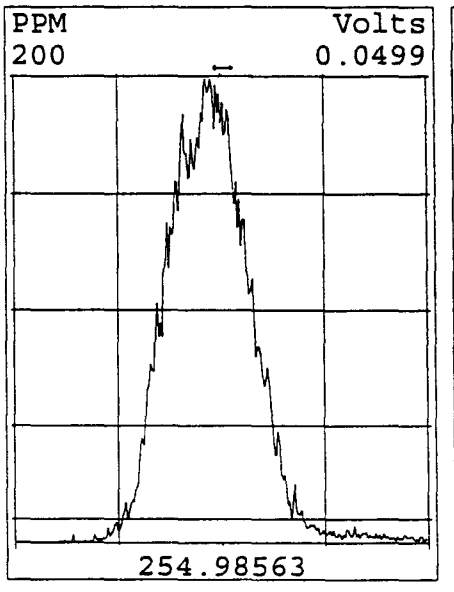


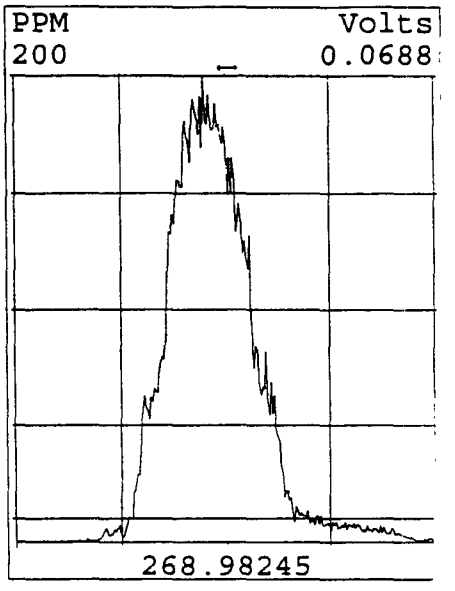
Peak Locate Examination: 5-OCT-1998:17:49 File:05OC98U
Experiment:PAHAIR Function:3 Reference:PFK

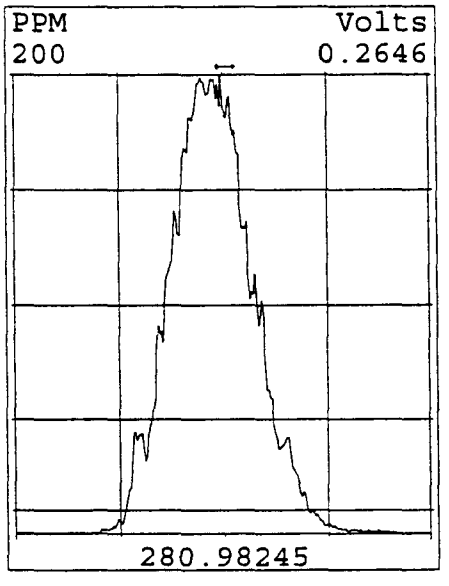


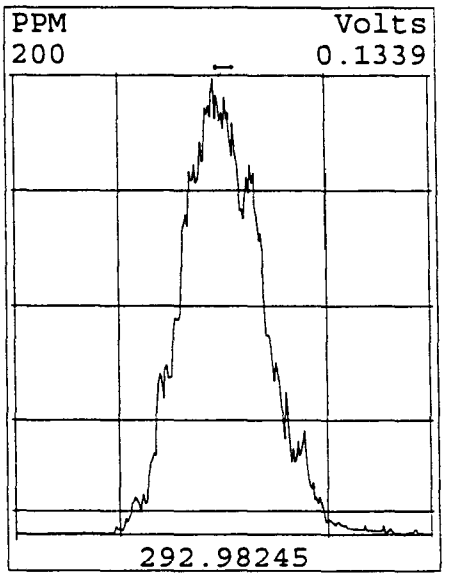
Peak Locate Examination: 5-OCT-1998:17:50 File:05OC98U
Experiment:PAHAIR Function:4 Reference:PFK











06-OCT-1998 05:44:49 PM

Dioxin Furan CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
MULT @260V <CS1-CS5:265-04A-04E>

File name : PAHX100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d8-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				171.18	160.04	180.53	181.12	198.82					
	RRF	1.78	0.143	8.020	1.71	1.60	1.81	1.81	1.99					
Naphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				15.52	59.91	112.12	218.51	518.93					
	RRF	1.20	0.205	17.067	1.55	1.20	1.12	1.09	1.04					
2-Methylnaphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.86	34.41	57.75	113.66	282.14					
	RRF	0.66	0.138	21.003	0.89	0.69	0.58	0.57	0.56					
d8-Acenaphthylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				123.71	113.60	106.71	114.85	122.99					
	RRF	1.16	0.071	6.092	1.24	1.14	1.07	1.15	1.23					
Acenaphthylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.33	53.17	98.02	200.11	523.04					
	RRF	1.02	0.034	3.301	1.03	1.06	0.98	1.00	1.05					
d10-Acenaphthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				73.42	68.27	62.70	66.67	69.97					
	RRF	0.68	0.040	5.815	0.73	0.68	0.63	0.67	0.70					
Acenaphthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.61	55.92	108.02	226.76	552.29					
	RRF	1.14	0.071	6.206	1.26	1.12	1.08	1.13	1.10					
d10-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				144.89	152.54	146.61	124.50	112.61					
	RRF	1.36	0.169	12.415	1.45	1.53	1.47	1.24	1.13					
Fluorene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.96	61.81	104.48	217.93	581.04					
	RRF	1.15	0.078	6.809	1.20	1.24	1.04	1.09	1.16					
d10-Phenanthrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				304.73	301.29	297.96	241.46	223.55					
	RRF	2.74	0.383	13.988	3.05	3.01	2.98	2.41	2.24					
Phenanthrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.77	48.56	88.92	186.76	495.42					
	RRF	0.95	0.041	4.325	0.98	0.97	0.89	0.93	0.99					
Anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.51	44.48	80.92	215.19	618.06					
	RRF	0.97	0.179	18.441	0.85	0.89	0.81	1.08	1.24					
d10-Fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				73.62	99.01	91.60	85.22	80.62					
	RRF	0.86	0.098	11.382	0.74	0.99	0.92	0.85	0.81					
Fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.21	64.63	118.10	241.31	629.15					
	RRF	1.23	0.044	3.570	1.22	1.29	1.18	1.21	1.26					
d10-Pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				78.78	103.59	96.03	91.85	83.89					
	RRF	0.91	0.098	10.789	0.79	1.04	0.96	0.92	0.84					
Pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.63	63.04	116.69	248.31	676.95					
	RRF	1.26	0.067	5.306	1.26	1.26	1.17	1.24	1.35					

06-OCT-1998 05:44:50 PM

Dioxin Furan CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
MULT @260V <CS1-CS5:265-04A-04E>

File name : PAHX100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d12-Benzo(a)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				49.29	46.35	46.32	44.58	47.31					
	RRF	0.47	0.017	3.678	0.49	0.46	0.46	0.45	0.47					
Benzo(a)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.57	65.11	117.72	260.77	680.79					
	RRF	1.28	0.069	5.356	1.26	1.30	1.18	1.30	1.36					
d12-Chrysene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				69.85	67.21	64.96	66.40	67.57					
	RRF	0.67	0.018	2.660	0.70	0.67	0.65	0.66	0.68					
Chrysene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.72	62.55	112.19	221.26	575.40					
	RRF	1.16	0.057	4.881	1.17	1.25	1.12	1.11	1.15					
d12-Benzo(b)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				48.56	46.43	46.37	46.62	52.52					
	RRF	0.48	0.026	5.475	0.49	0.46	0.46	0.47	0.53					
Benzo(b)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				13.55	66.19	117.89	249.84	695.00					
	RRF	1.30	0.085	6.540	1.35	1.32	1.18	1.25	1.39					
d12-Benzo(k)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				96.32	96.76	98.32	100.62	101.05					
	RRF	0.99	0.022	2.196	0.96	0.97	0.98	1.01	1.01					
Benzo(k)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.67	63.60	115.65	233.26	575.34					
	RRF	1.20	0.061	5.111	1.27	1.27	1.16	1.17	1.15					
d12-Benzo(a)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				71.22	75.03	71.96	74.50	76.72					
	RRF	0.74	0.023	3.065	0.71	0.75	0.72	0.74	0.77					
Benzo(e)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				17.26	82.73	150.84	313.45	826.10					
	RRF	1.62	0.085	5.216	1.73	1.65	1.51	1.57	1.65					
Benzo(a)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.23	58.74	104.99	205.81	539.70					
	RRF	1.11	0.084	7.550	1.22	1.17	1.05	1.03	1.08					
d12-Perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.50	67.68	66.13	66.18	62.72					
	RRF	0.65	0.029	4.558	0.60	0.68	0.66	0.66	0.63					
Perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				18.19	93.11	154.60	326.69	929.14					
	RRF	1.74	0.145	8.315	1.82	1.86	1.55	1.63	1.86					
d12-Indeno(123-cd)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				37.05	32.97	34.97	37.60	43.56					
	RRF	0.37	0.040	10.705	0.37	0.33	0.35	0.38	0.44					
Indeno(123-cd)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				5.81	32.63	58.18	117.22	308.65					
	RRF	0.60	0.031	5.150	0.58	0.65	0.58	0.59	0.62					
d14-Dibenz(ah)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				19.47	17.67	18.57	20.38	25.60					
	RRF	0.20	0.031	15.283	0.19	0.18	0.19	0.20	0.26					

06-OCT-1998 05:44:52 PM

Dioxin Furan CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
MULT @260V <CS1-CS5:265-04A-04E>

File name : PAHX100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
Dibenz(ah)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.64	60.24	129.39	268.11	651.39					
	RRF	1.22	0.152	12.443	0.96	1.20	1.29	1.34	1.30					
d12-Benzo(ghi)perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				45.17	37.67	38.08	39.49	44.20					
	RRF	0.41	0.035	8.601	0.45	0.38	0.38	0.39	0.44					
Benzo(ghi)perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.40	56.16	107.43	227.28	559.79					
	RRF	1.06	0.125	11.769	0.84	1.12	1.07	1.14	1.12					
13C-Fluorene	Amount				100	100	100	100	100					
	RF													
	RRF	0.00	0.000	0.000										

06-OCT-1998 11:38:23 AM

Dioxin Furan CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A --> 265-04E; Multiplier @ 260V.

File name : PAHAIR100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d8-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				171.18	160.04	180.53	181.12	198.82					
	RRF	1.78	0.143	8.020	1.71	1.60	1.81	1.81	1.99					
Naphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				15.52	59.91	112.12	218.51	518.93					
	RRF	1.20	0.205	17.067	1.55	1.20	1.12	1.09	1.04					
2-Methylnaphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.86	34.41	57.75	113.66	282.14					
	RRF	0.66	0.138	21.003	0.89	0.69	0.58	0.57	0.56					
d8-Acenaphthylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				123.71	113.60	106.71	114.85	122.99					
	RRF	1.16	0.071	6.092	1.24	1.14	1.07	1.15	1.23					
Acenaphthylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.33	53.17	98.02	200.11	523.04					
	RRF	1.02	0.034	3.301	1.03	1.06	0.98	1.00	1.05					
d10-Acenaphthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				73.42	68.27	62.70	66.67	69.97					
	RRF	0.68	0.040	5.815	0.73	0.68	0.63	0.67	0.70					
Acenaphthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.61	55.92	108.02	226.76	552.29					
	RRF	1.14	0.071	6.206	1.26	1.12	1.08	1.13	1.10					
d10-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				144.89	152.54	146.61	124.50	112.61					
	RRF	1.36	0.169	12.415	1.45	1.53	1.47	1.24	1.13					
Fluorene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.96	61.81	104.48	217.93	581.04					
	RRF	1.15	0.078	6.809	1.20	1.24	1.04	1.09	1.16					
d10-Phenanthrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				304.73	301.29	297.96	241.46	223.55					
	RRF	2.74	0.383	13.988	3.05	3.01	2.98	2.41	2.24					
Phenanthrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.77	48.56	88.92	186.76	495.42					
	RRF	0.95	0.041	4.325	0.98	0.97	0.89	0.93	0.99					
Anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.51	44.48	80.92	215.19	618.06					
	RRF	0.97	0.179	18.441	0.85	0.89	0.81	1.08	1.24					
d10-Fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				122.27	157.80	158.48	157.22	149.99					
	RRF	1.49	0.154	10.335	1.22	1.58	1.58	1.57	1.50					
Fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.21	64.63	118.10	241.31	629.15					
	RRF	1.23	0.044	3.570	1.22	1.29	1.18	1.21	1.26					
d10-Pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				130.84	165.10	166.15	169.44	156.09					
	RRF	1.58	0.157	9.978	1.31	1.65	1.66	1.69	1.56					
Pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.63	63.04	116.69	248.31	676.95					
	RRF	1.26	0.067	5.306	1.26	1.26	1.17	1.24	1.35					

06-OCT-1998 11:38:24 AM

Dioxin Furan CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A --> 265-04E; Multiplier @ 260V.

File name : PAHAIR100198U.RRF
Date analyzed : 01-OCT-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d12-Benzo(a)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				81.86	73.87	80.14	82.24	88.02					
	RRF	0.81	0.051	6.243	0.82	0.74	0.80	0.82	0.88					
Benzo(a)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.57	65.11	117.72	260.77	680.79					
	RRF	1.28	0.069	5.356	1.26	1.30	1.18	1.30	1.36					
d12-Chrysene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				115.99	107.11	112.39	122.50	125.72					
	RRF	1.17	0.075	6.438	1.16	1.07	1.12	1.23	1.26					
Chrysene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.72	62.55	112.19	221.26	575.40					
	RRF	1.16	0.057	4.881	1.17	1.25	1.12	1.11	1.15					
d12-Benzo(b)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				48.56	46.43	46.37	46.62	52.52					
	RRF	0.48	0.026	5.475	0.49	0.46	0.46	0.47	0.53					
Benzo(b)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				13.55	66.19	117.89	249.84	695.00					
	RRF	1.30	0.085	6.540	1.35	1.32	1.18	1.25	1.39					
d12-Benzo(k)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				96.32	96.76	98.32	100.62	101.05					
	RRF	0.99	0.022	2.196	0.96	0.97	0.98	1.01	1.01					
Benzo(k)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.67	63.60	115.65	233.26	575.34					
	RRF	1.20	0.061	5.111	1.27	1.27	1.16	1.17	1.15					
d12-Benzo(a)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				71.22	75.03	71.96	74.50	76.72					
	RRF	0.74	0.023	3.065	0.71	0.75	0.72	0.74	0.77					
Benzo(e)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				17.26	82.73	150.84	313.45	826.10					
	RRF	1.62	0.085	5.216	1.73	1.65	1.51	1.57	1.65					
Benzo(a)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.23	58.74	104.99	205.81	539.70					
	RRF	1.11	0.084	7.550	1.22	1.17	1.05	1.03	1.08					
d12-Perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.50	67.68	66.13	66.18	62.72					
	RRF	0.65	0.029	4.558	0.60	0.68	0.66	0.66	0.63					
Perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				18.19	93.11	154.60	326.69	929.14					
	RRF	1.74	0.145	8.315	1.82	1.86	1.55	1.63	1.86					
d12-Indeno(123-cd)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				37.05	32.97	34.97	37.60	43.56					
	RRF	0.37	0.040	10.705	0.37	0.33	0.35	0.38	0.44					
Indeno(123-cd)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				5.81	32.63	58.18	117.22	308.65					
	RRF	0.60	0.031	5.150	0.58	0.65	0.58	0.59	0.62					
d14-Dibenz(ah)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				19.47	17.67	18.57	20.38	25.60					
	RRF	0.20	0.031	15.283	0.19	0.18	0.19	0.20	0.26					

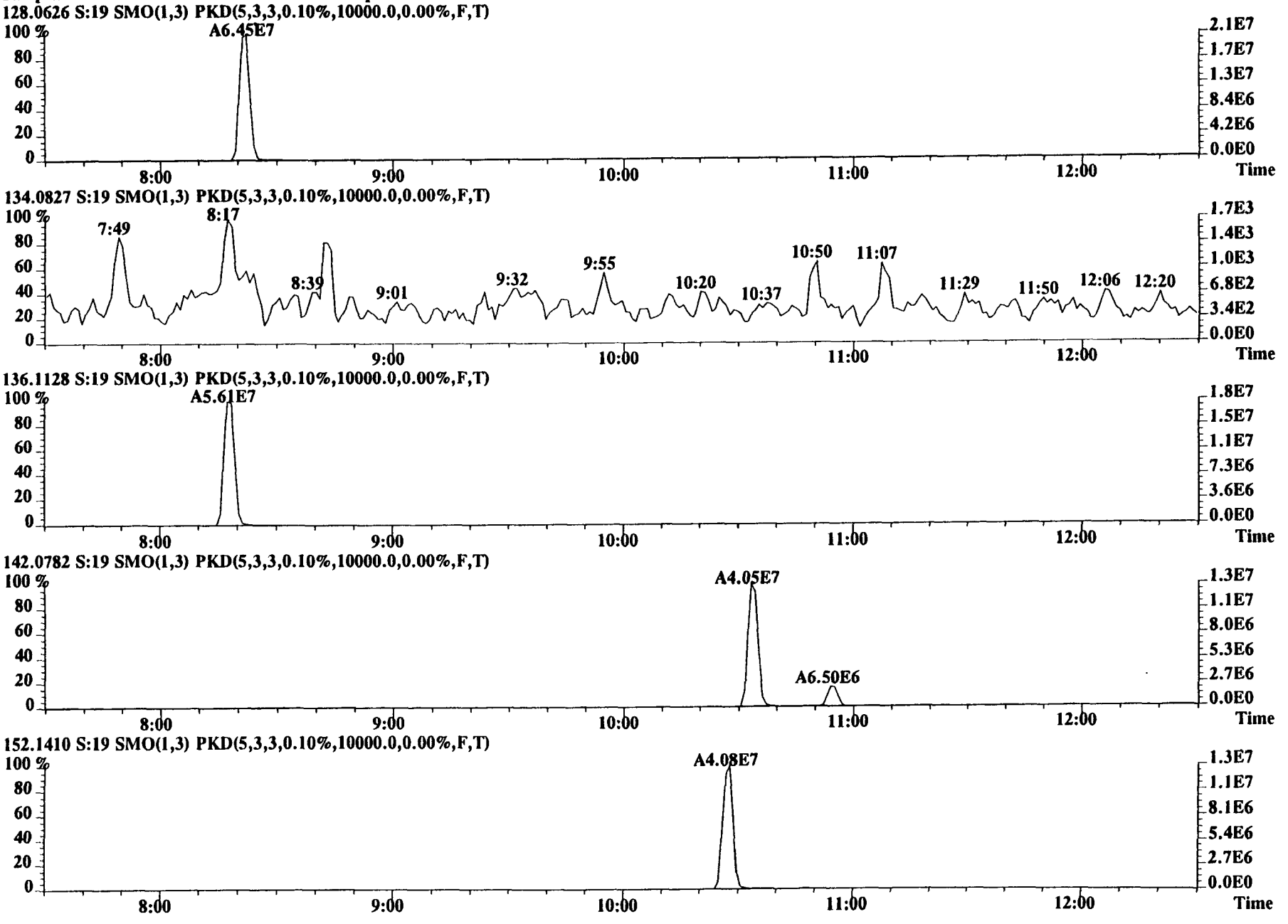
Mass Spec : ULTIMA
GC Column : DB-5
265-04A --> 265-04E; Multiplier @ 260V.

File name : PAHAIR100198U.RRF
Date analyzed : 01-OCT-98

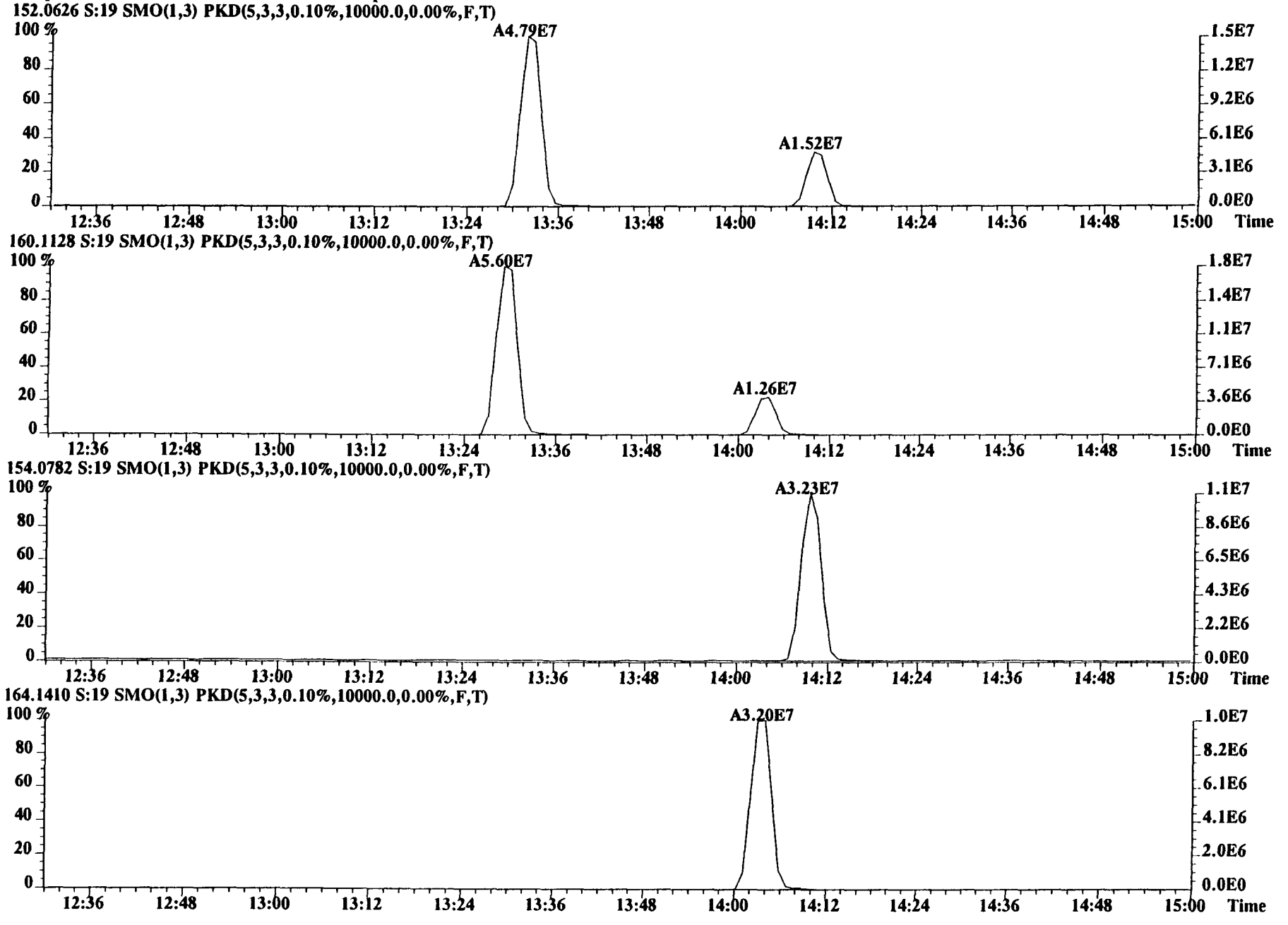
INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
Dibenz(ah)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.64	60.24	129.39	268.11	651.39					
	RRF	1.28	0.051	3.957	1.26	1.20	1.29	1.34	1.30					
d12-Benzo(ghi)perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				45.17	37.67	38.08	39.49	44.20					
	RRF	0.41	0.035	8.601	0.45	0.38	0.38	0.39	0.44					
Benzo(ghi)perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.73	56.16	107.43	227.28	559.79					
	RRF	1.11	0.030	2.671	1.07	1.12	1.07	1.14	1.12					

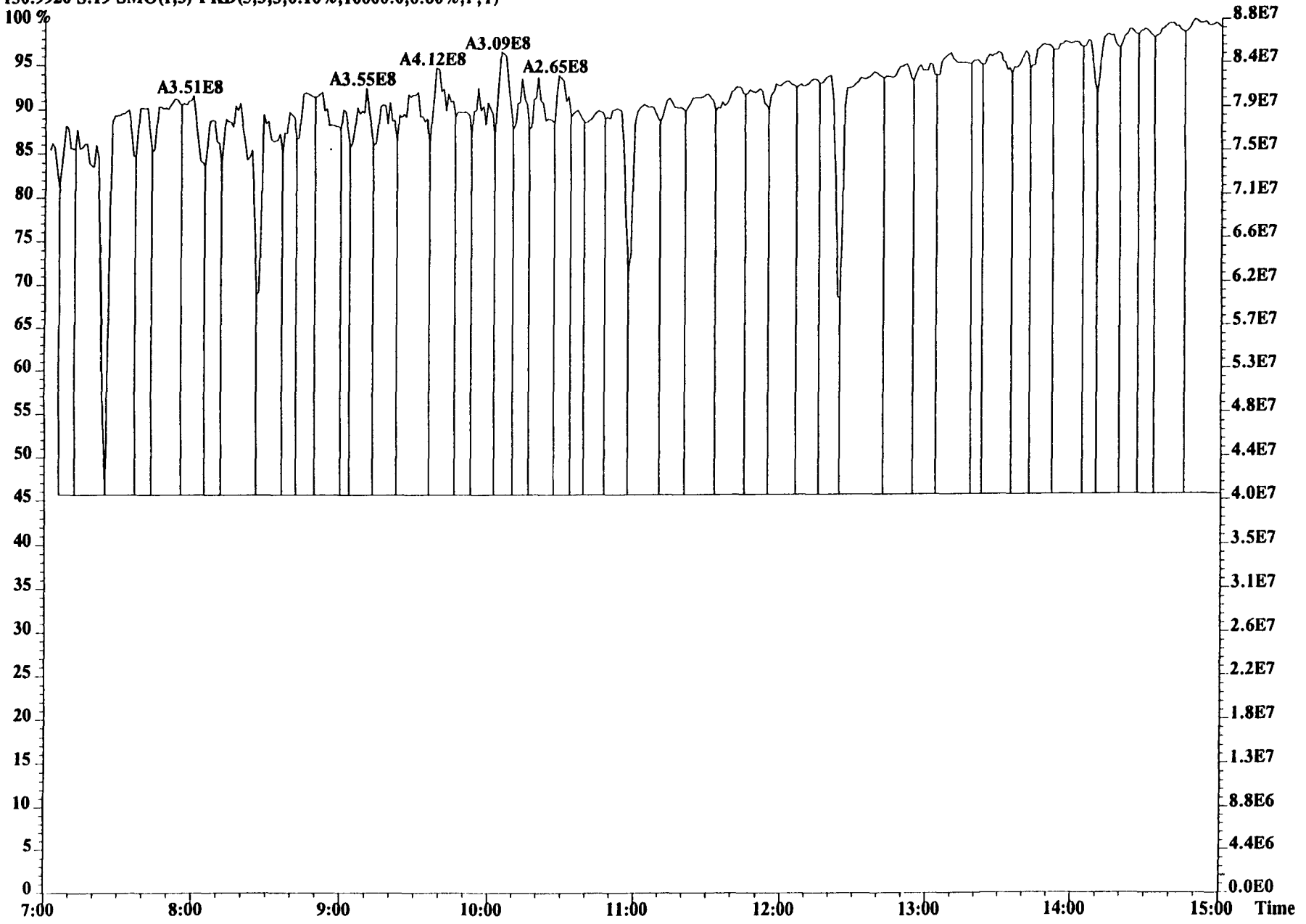
File:05OC98U #1-508 Acq: 6-OCT-1998 07:45:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR



File:05OC98U #1-508 Acq: 6-OCT-1998 07:45:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR



File:05OC98U #1-508 Acq: 6-OCT-1998 07:45:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR
130.9920 S:19 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



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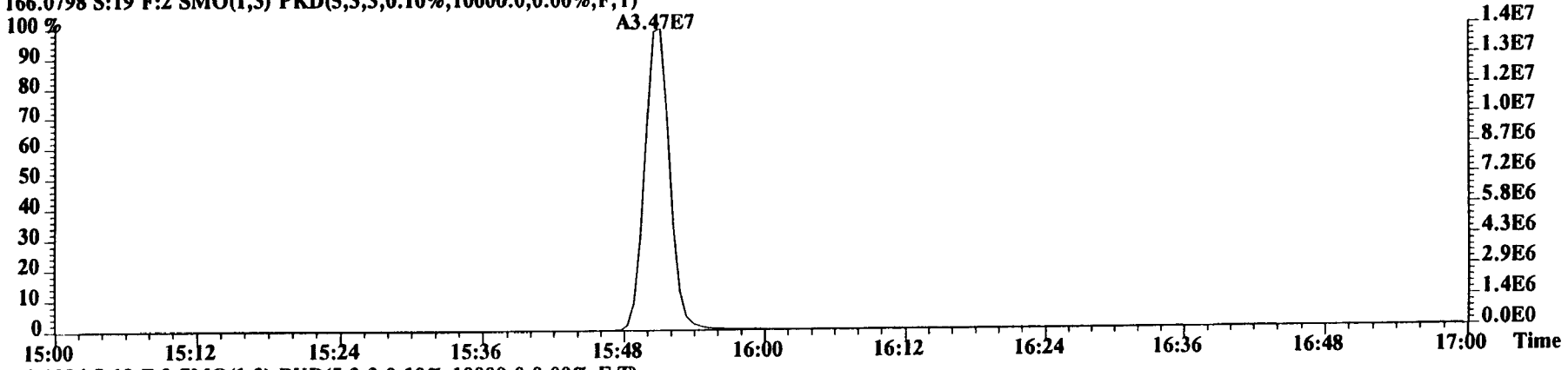
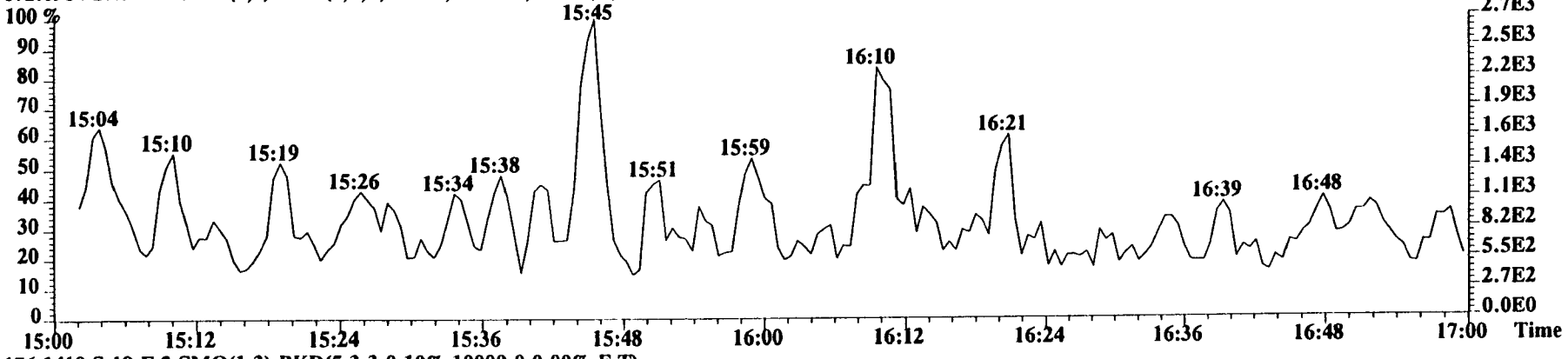
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR

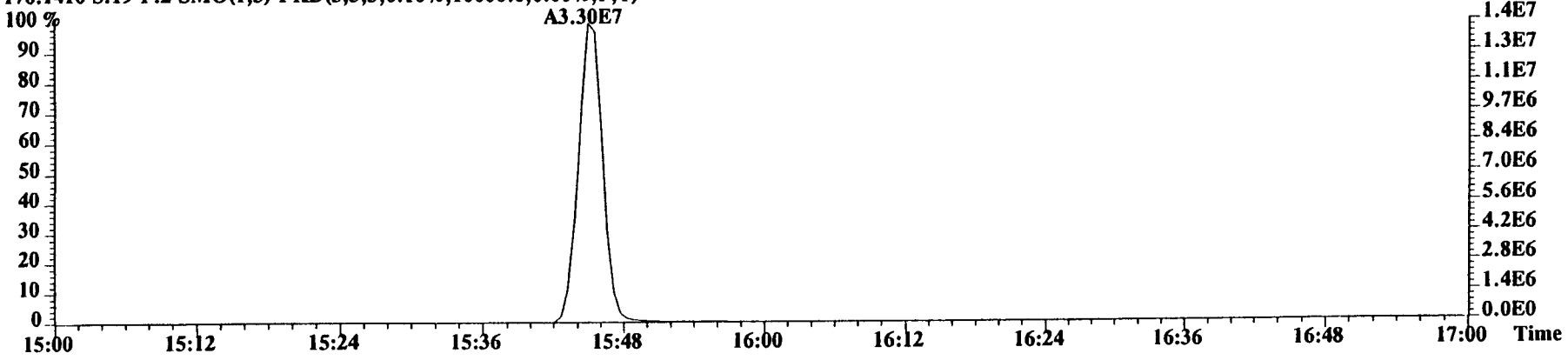
166.0798 S:19 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



172.0984 S:19 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



176.1410 S:19 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



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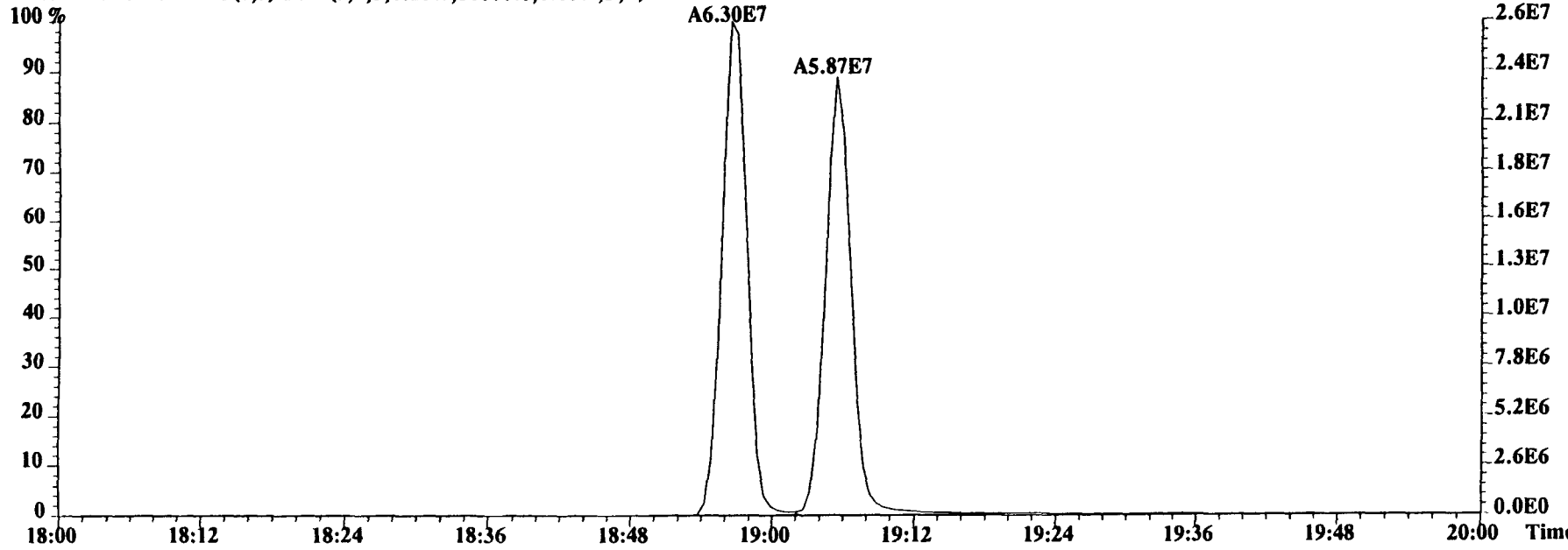
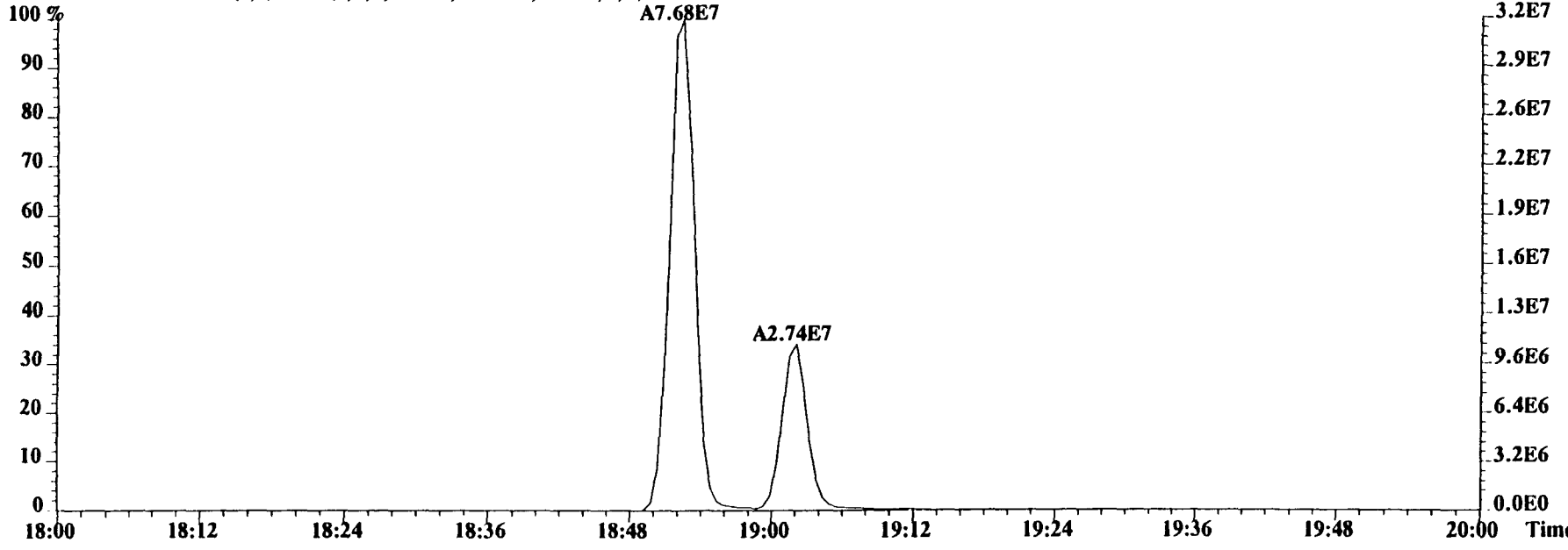
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR
178.0782 S:19 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



188.1410 S:19 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



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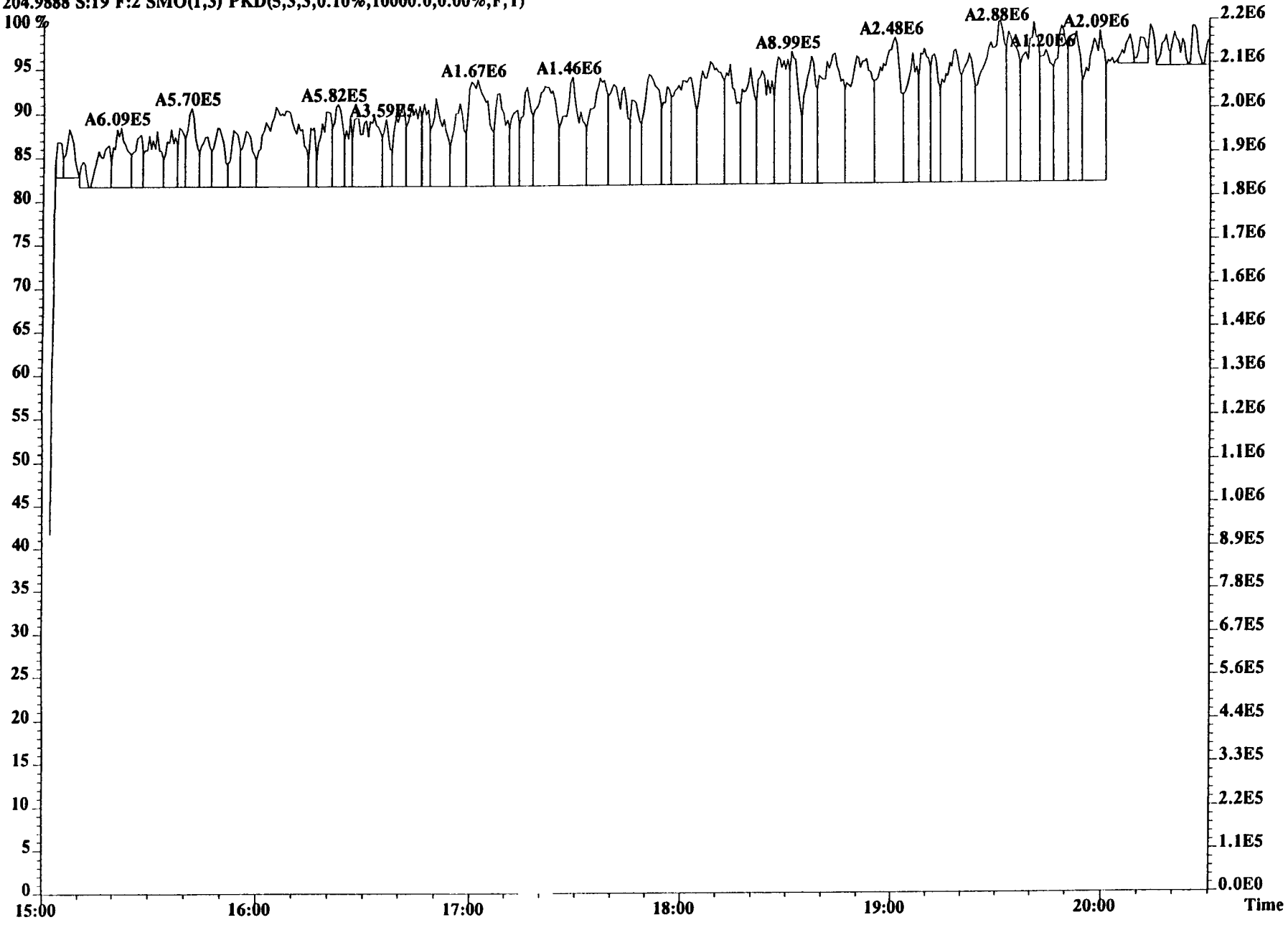
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR
204.9888 S:19 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



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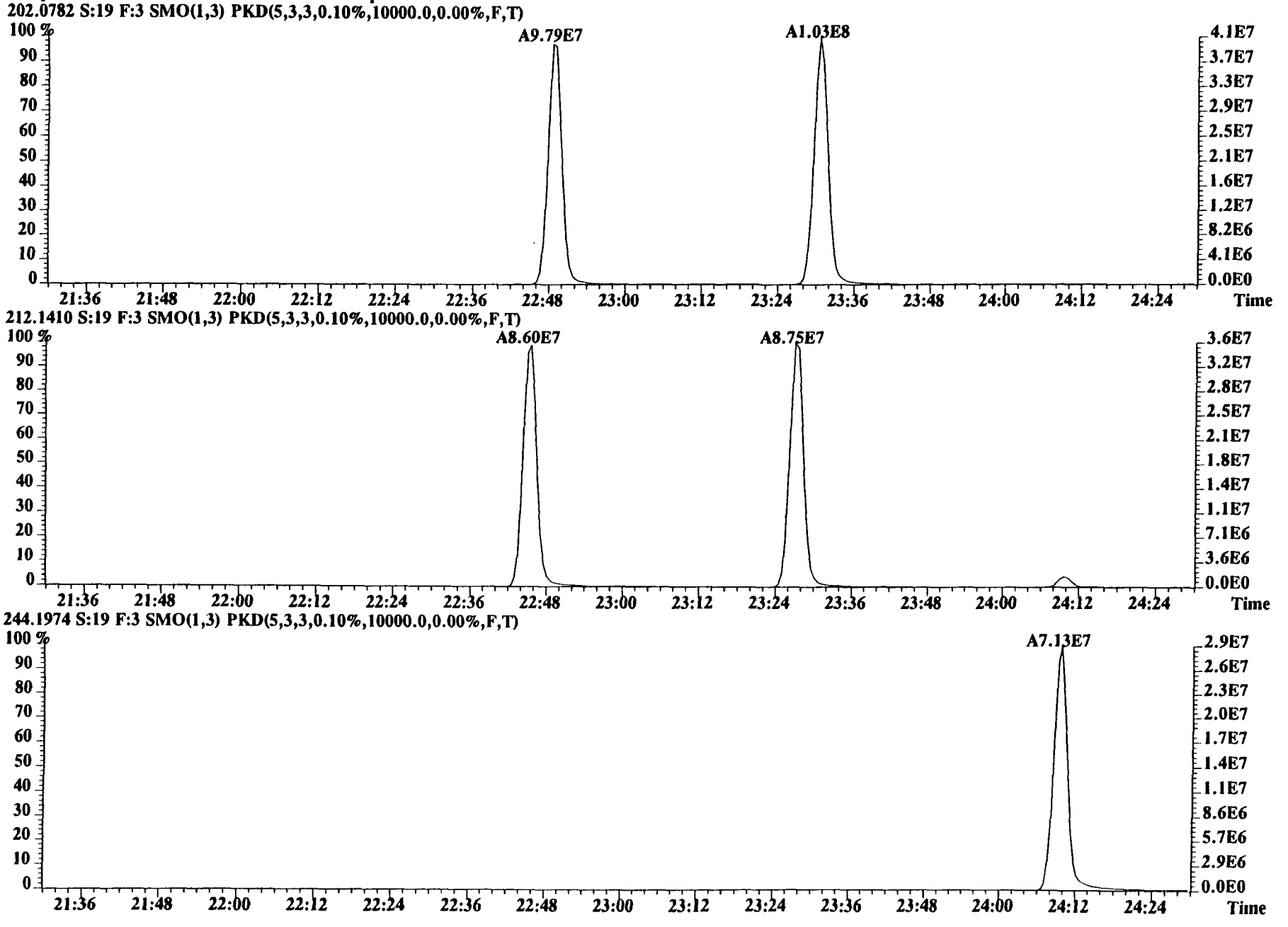

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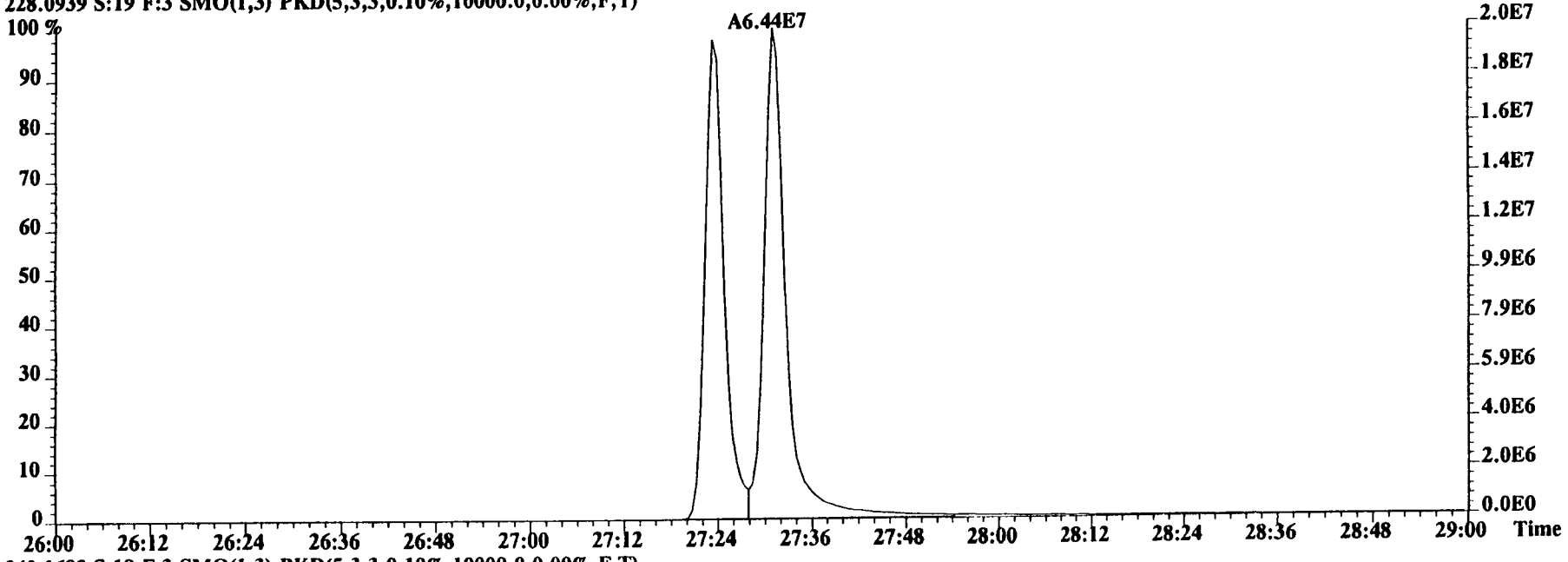
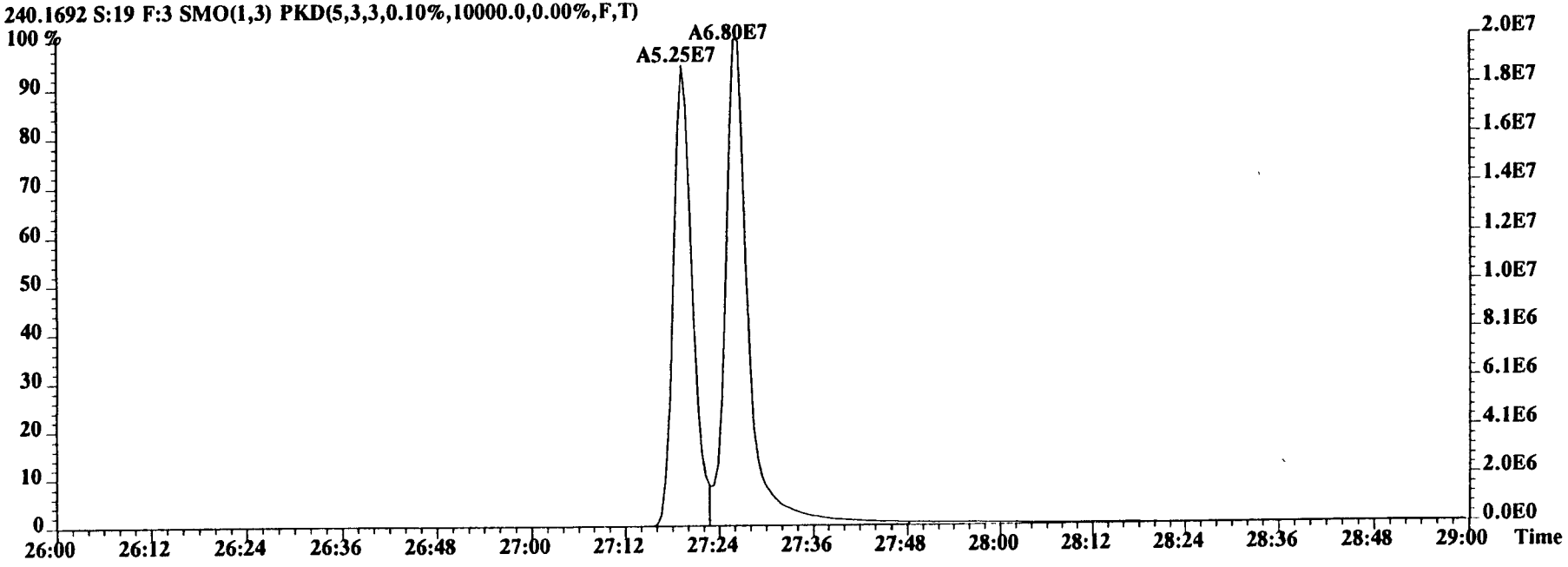
228.0939 S:19 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



240.1692 S:19 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



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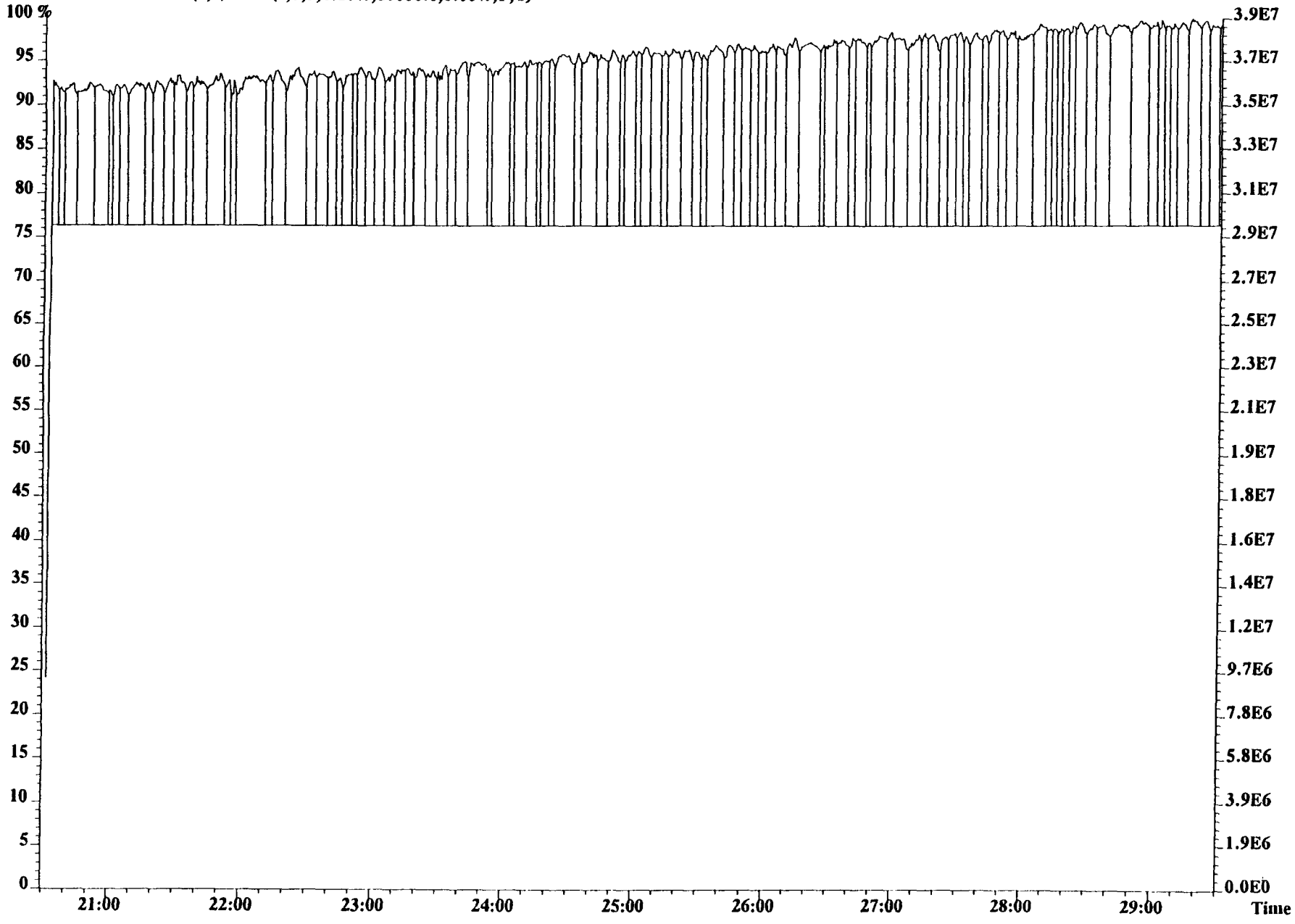
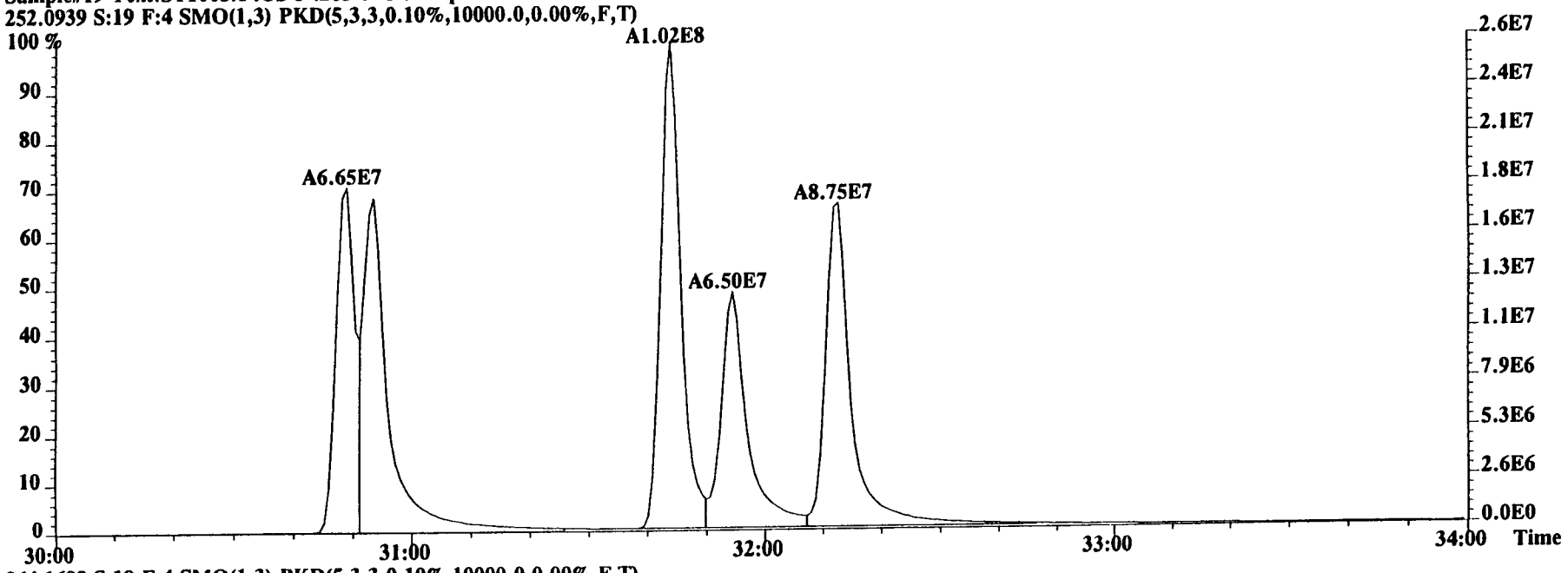
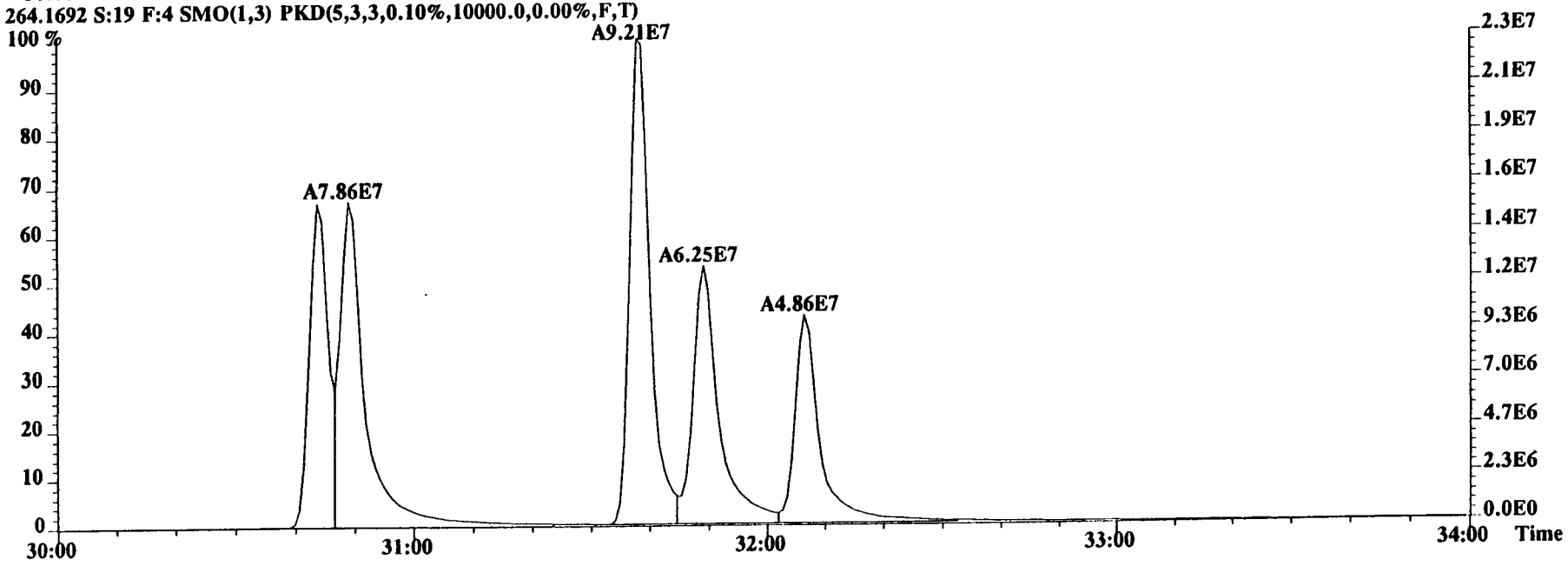
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR
230.9856 S:19 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:05OC98U #1-915 Acq: 6-OCT-1998 07:45:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR
252.0939 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

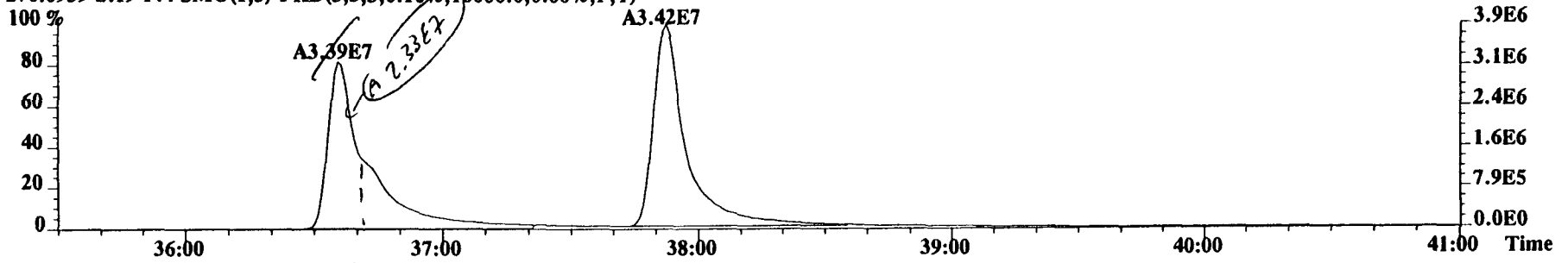


264.1692 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

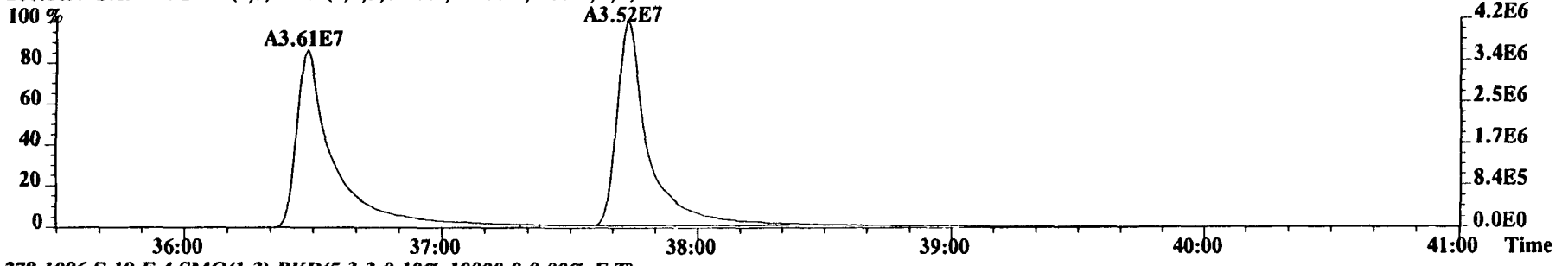


File:05OC98U #1-915 Acq: 6-OCT-1998 07:45:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR

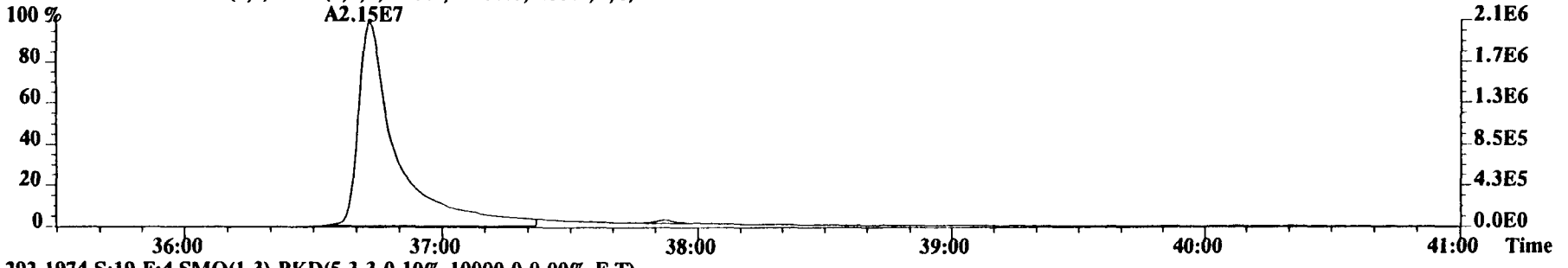
276.0939 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



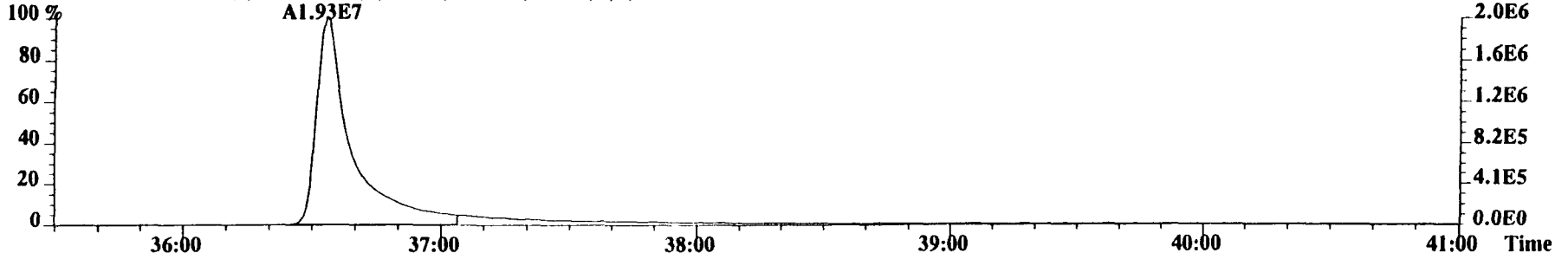
288.1692 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



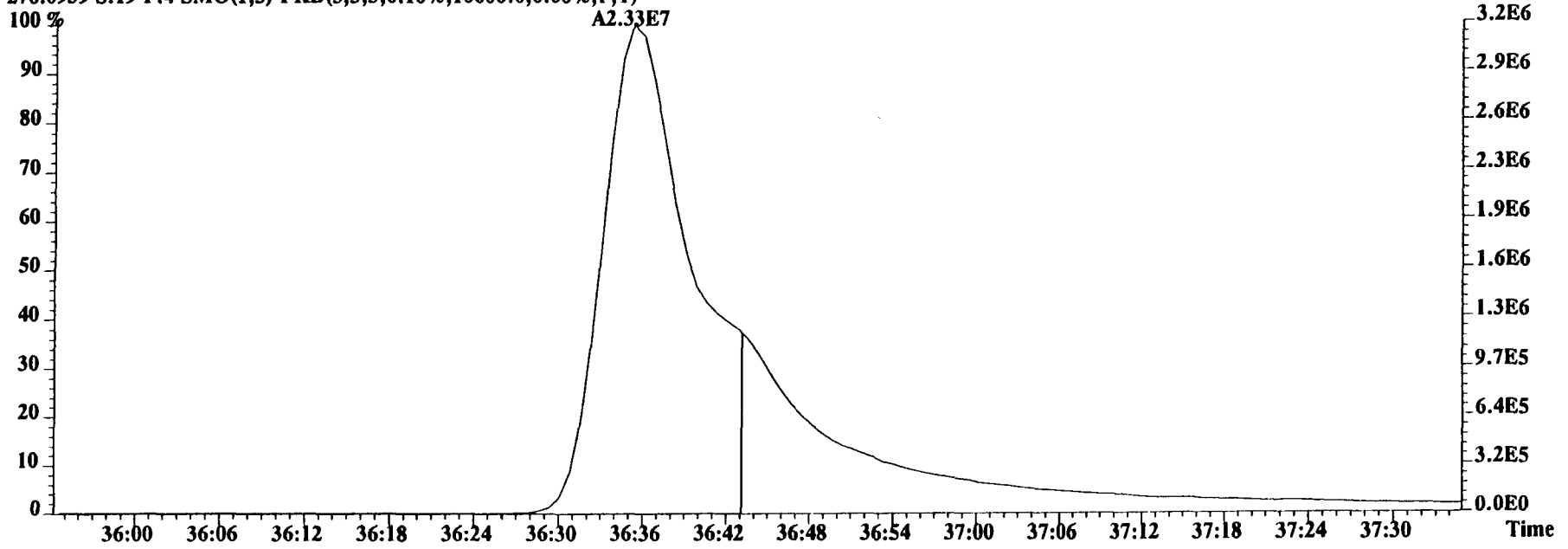
278.1096 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



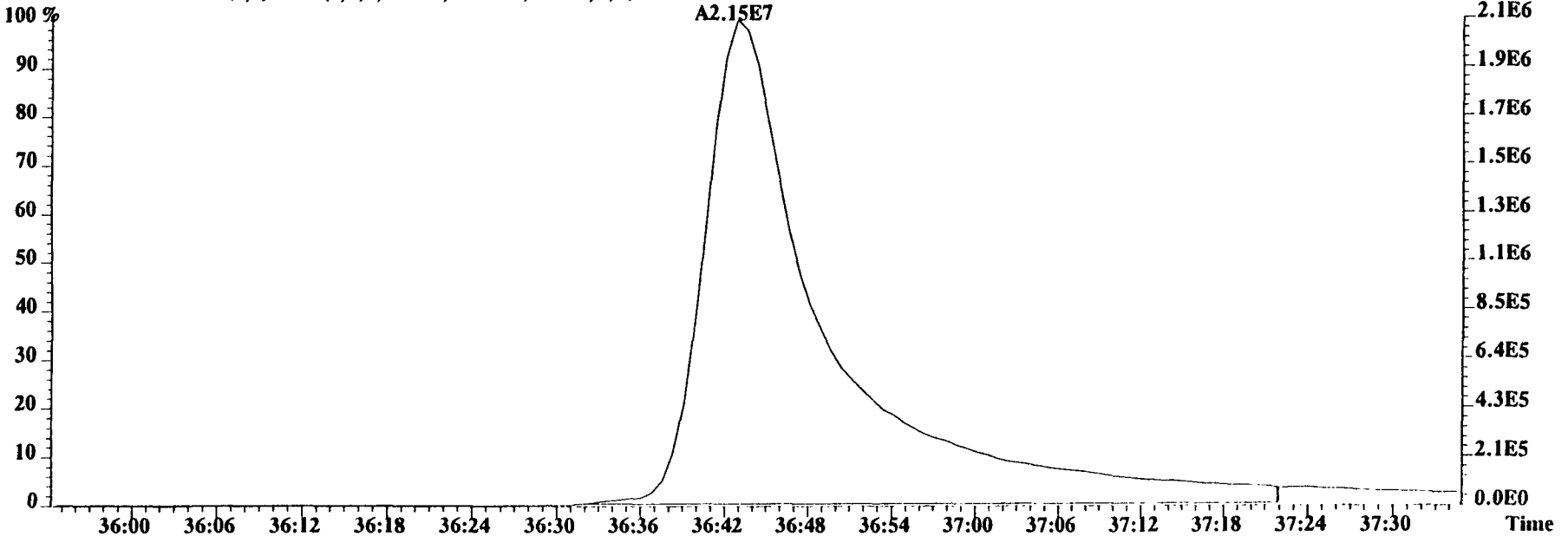
292.1974 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



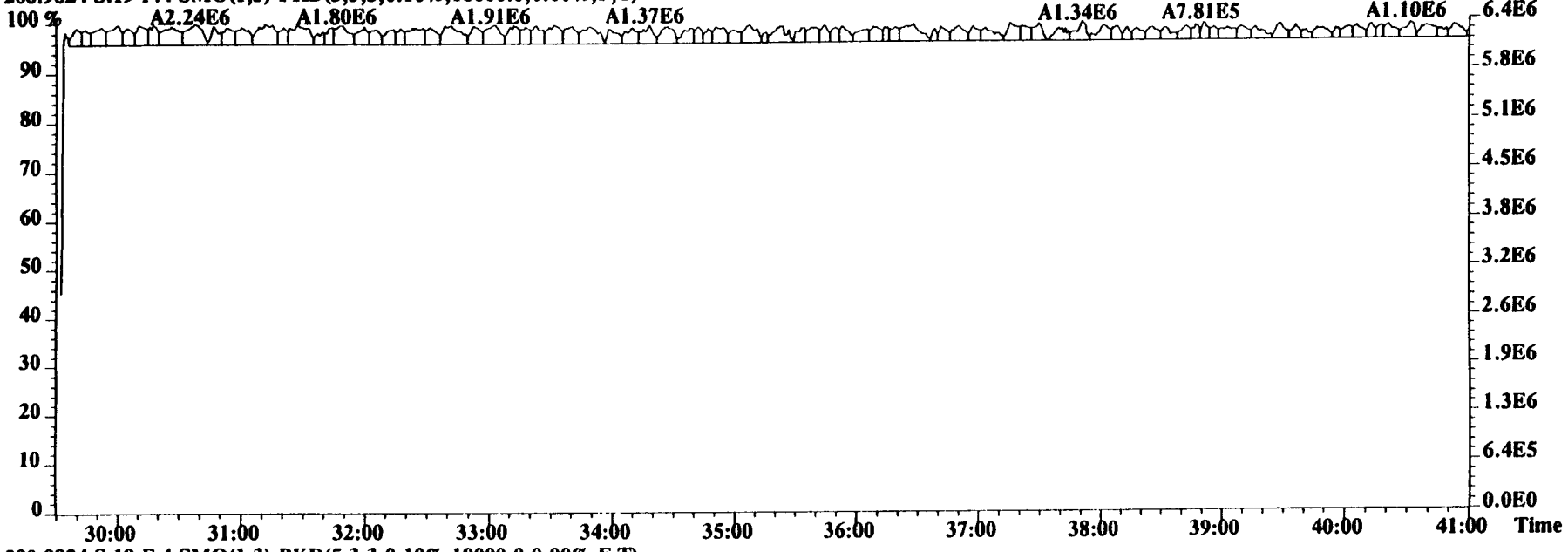
File:05OC98U #1-915 Acq: 6-OCT-1998 07:45:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR
276.0939 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



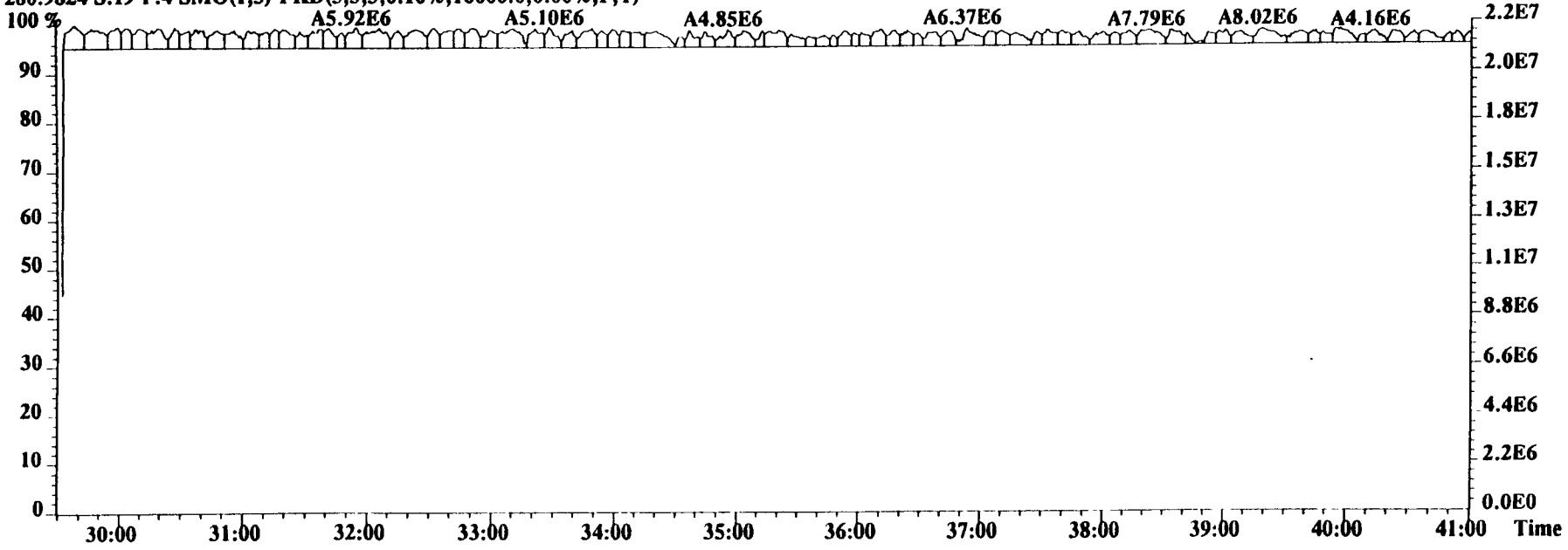
278.1096 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:05OC98U #1-915 Acq: 6-OCT-1998 07:45:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#19 Text:ST1005A :CS-3 :265-04C : Exp:PAHAIR
268.9824 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

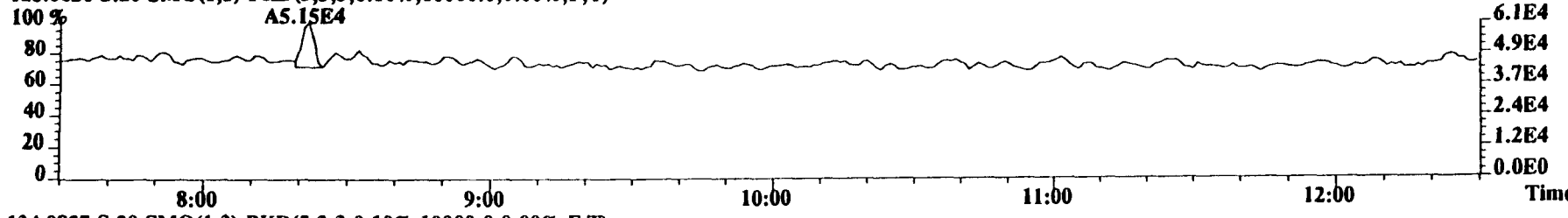


280.9824 S:19 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

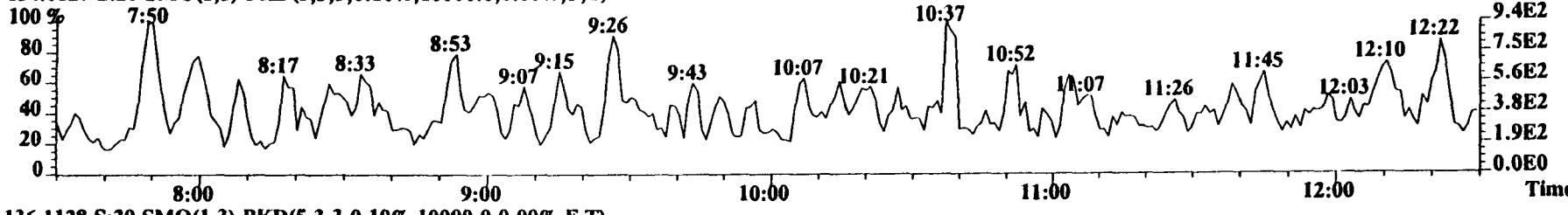


File:05OC98U #1-508 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR

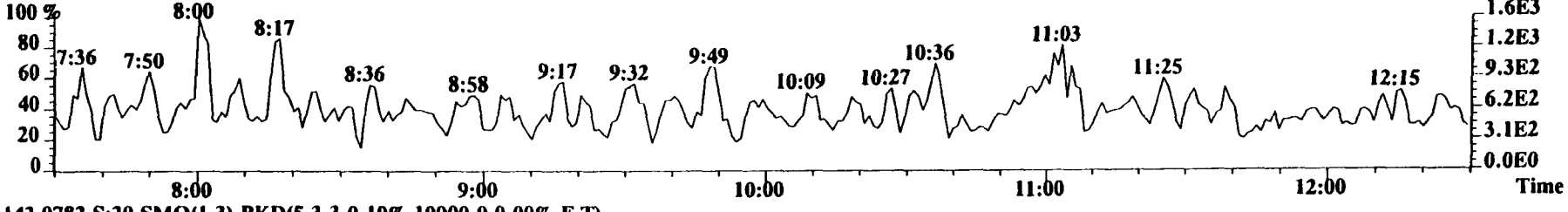
128.0626 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



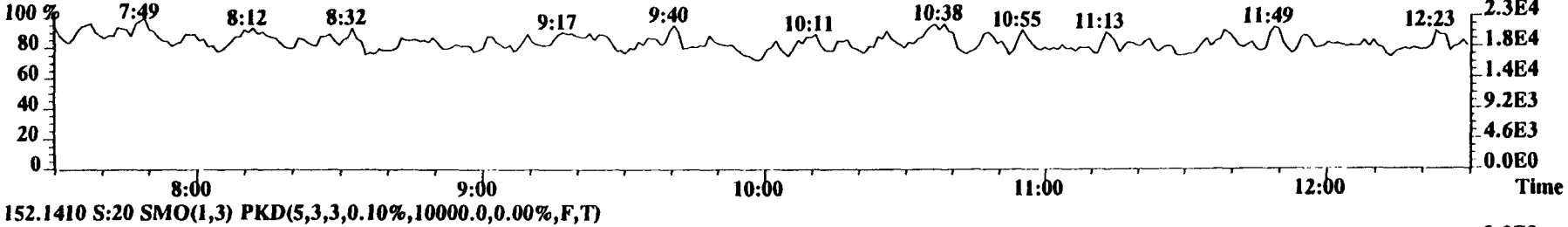
134.0827 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



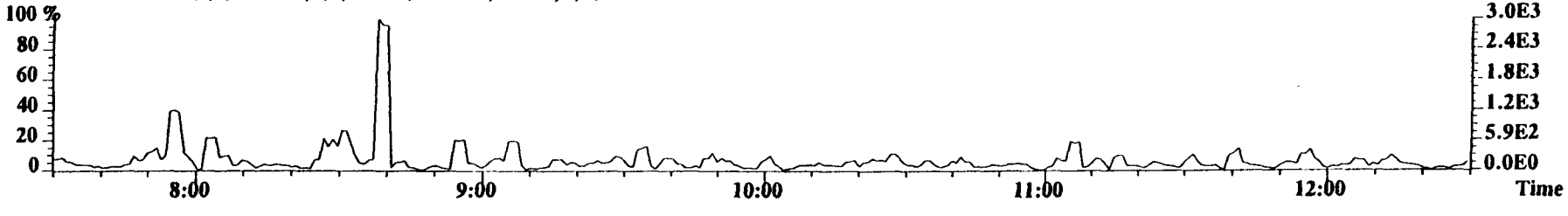
136.1128 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



142.0782 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

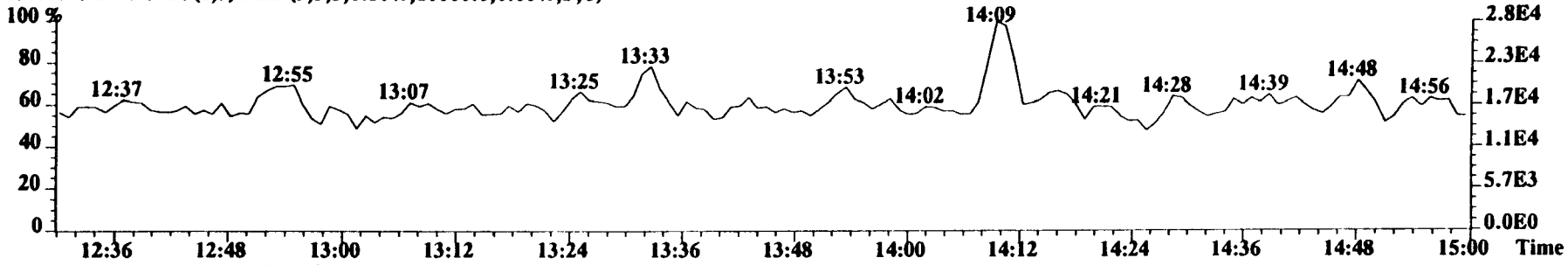


152.1410 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

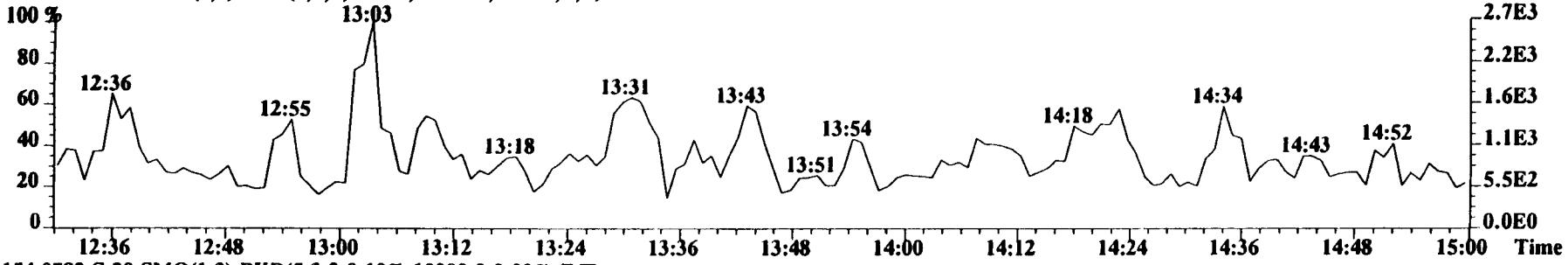


File:05OC98U #1-508 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR

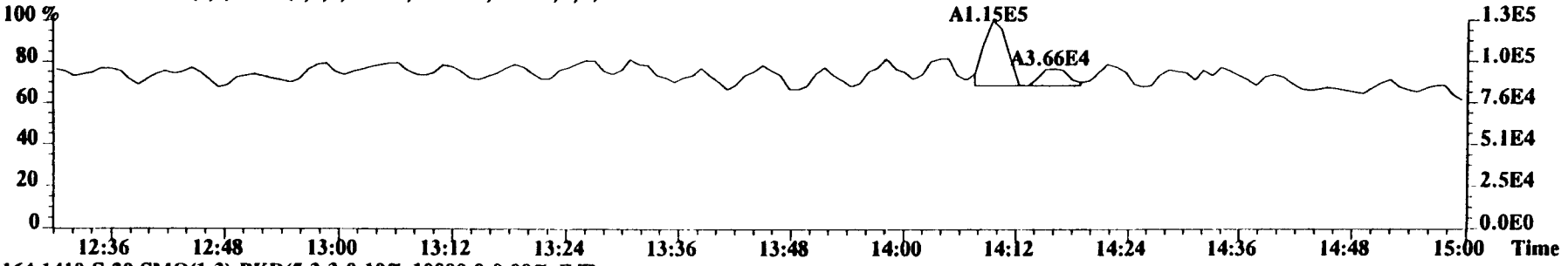
152.0626 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



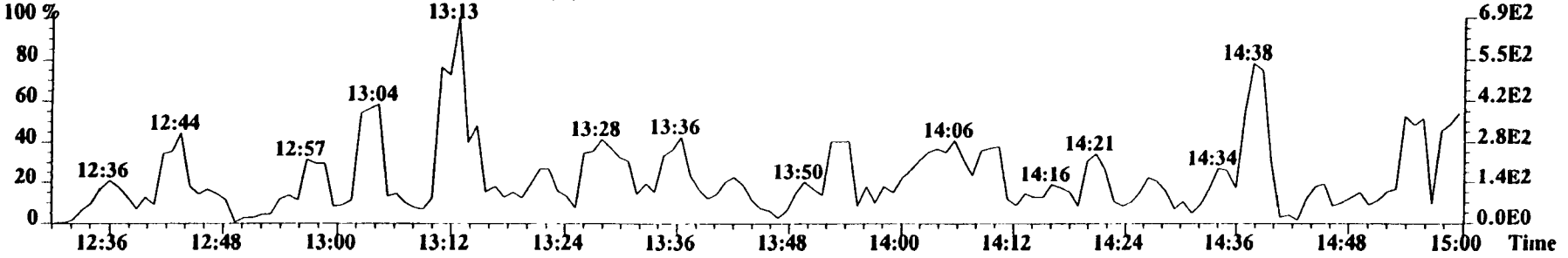
160.1128 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



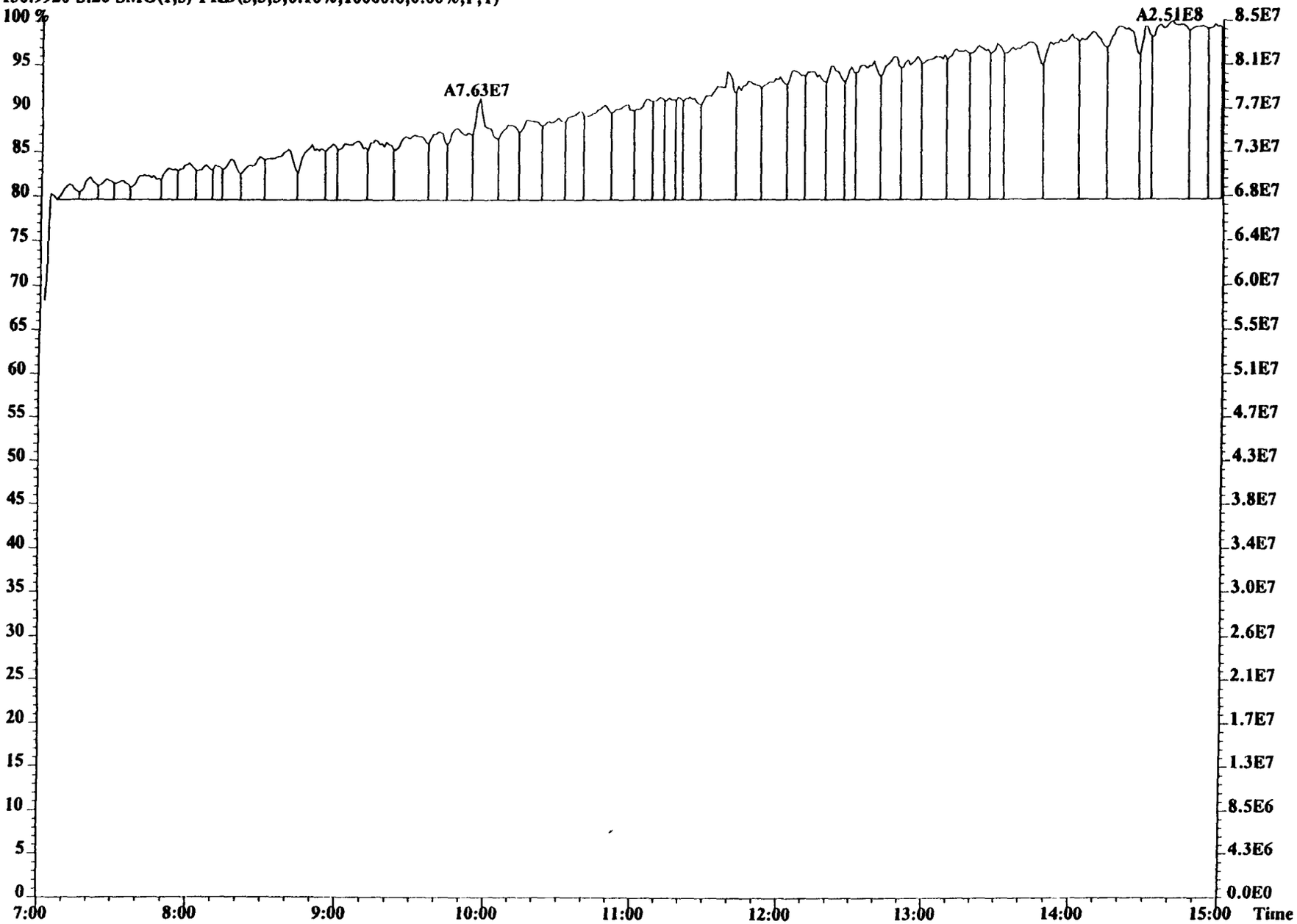
154.0782 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



164.1410 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

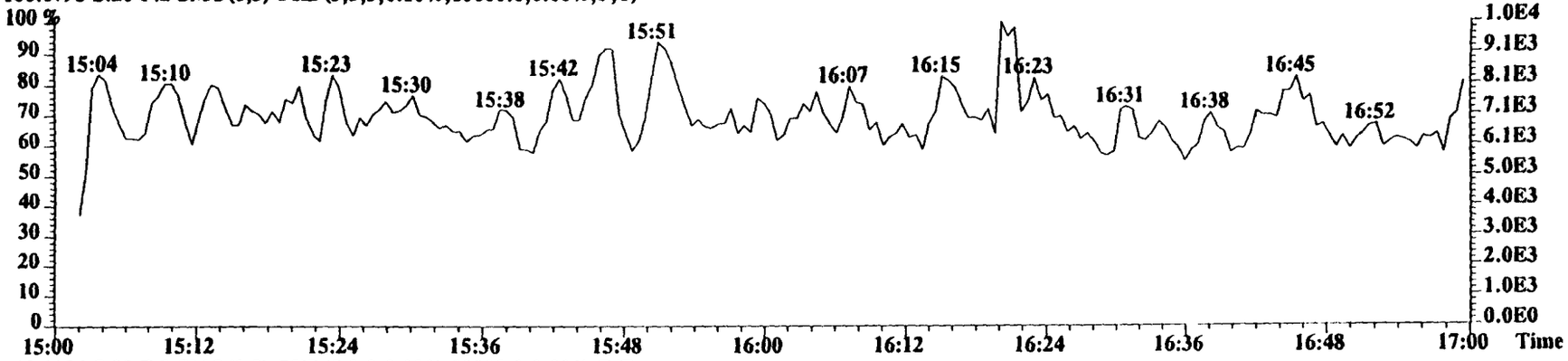


File:05OC98U #1-508 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
130.9920 S:20 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

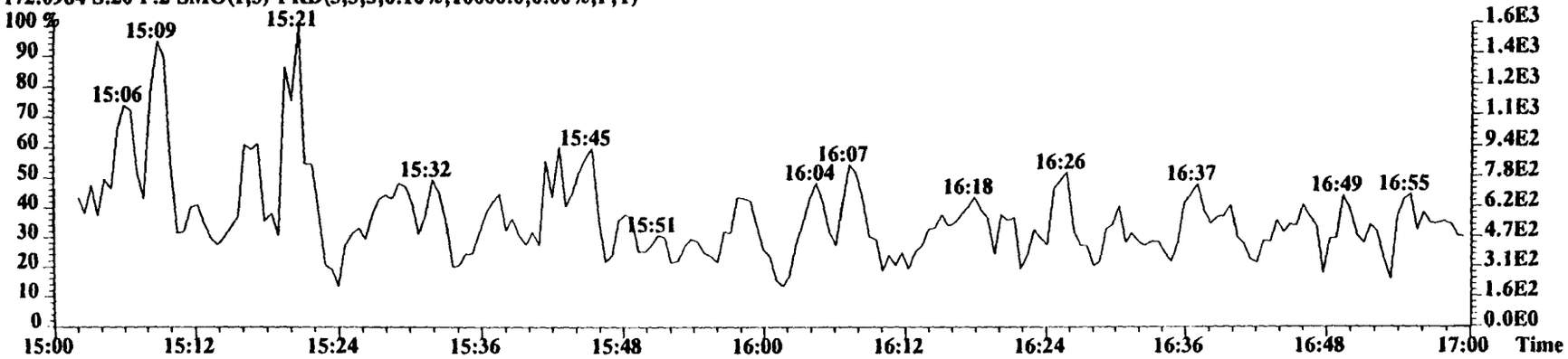


File:05OC98U #1-585 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR

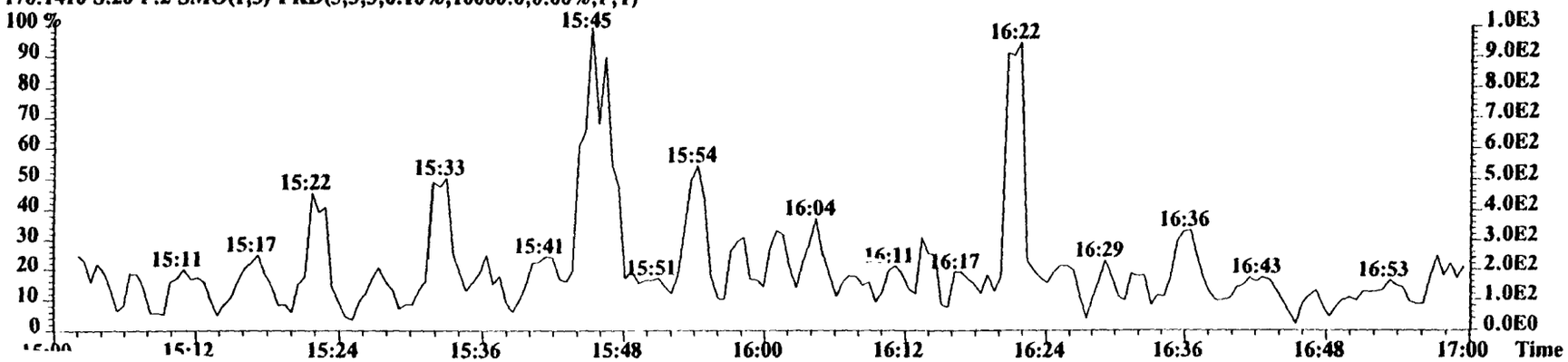
166.0798 S:20 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



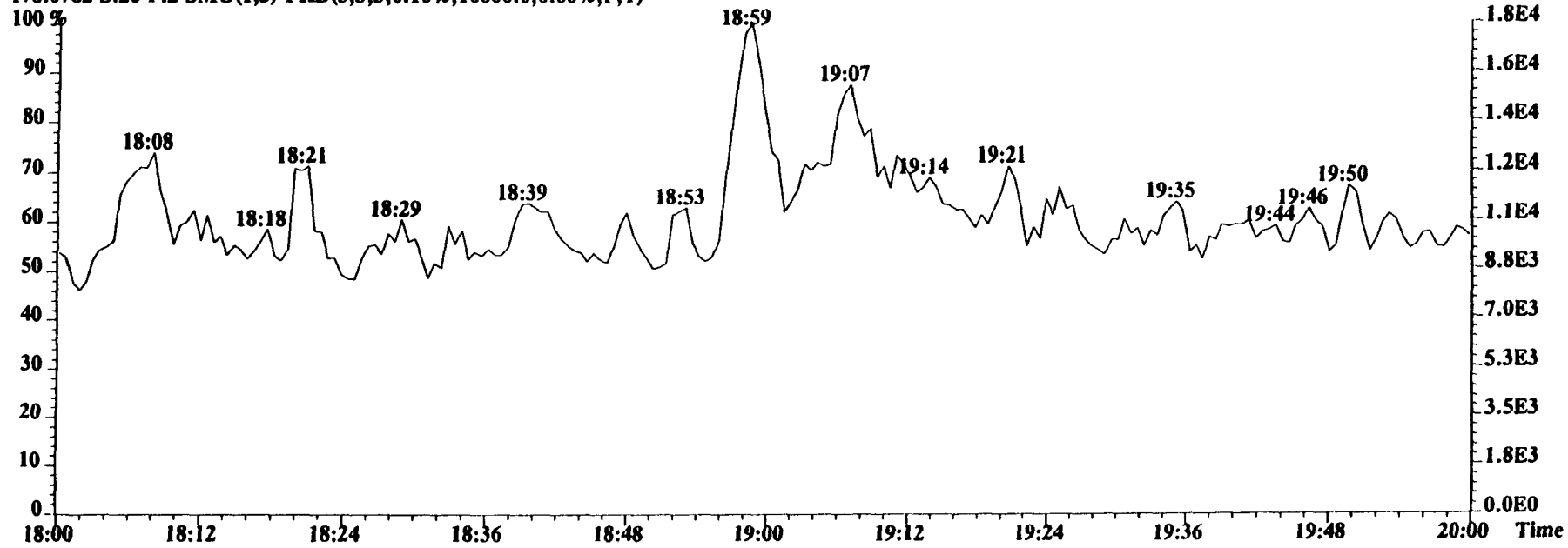
172.0984 S:20 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



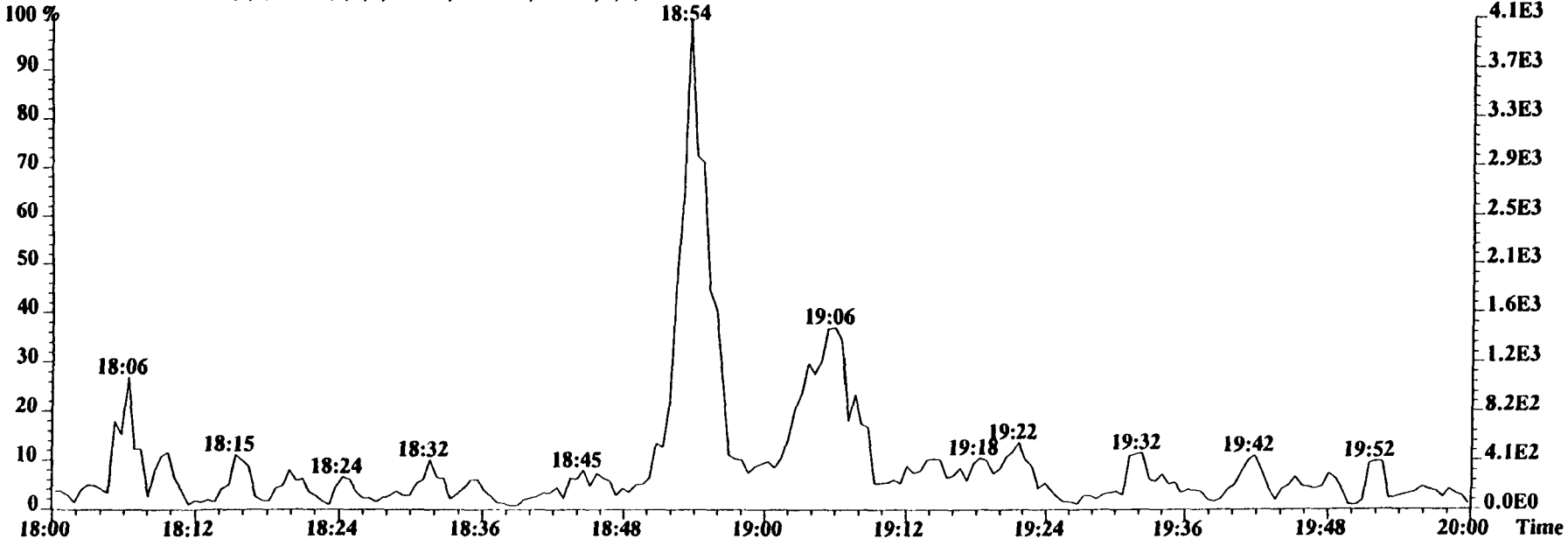
176.1410 S:20 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



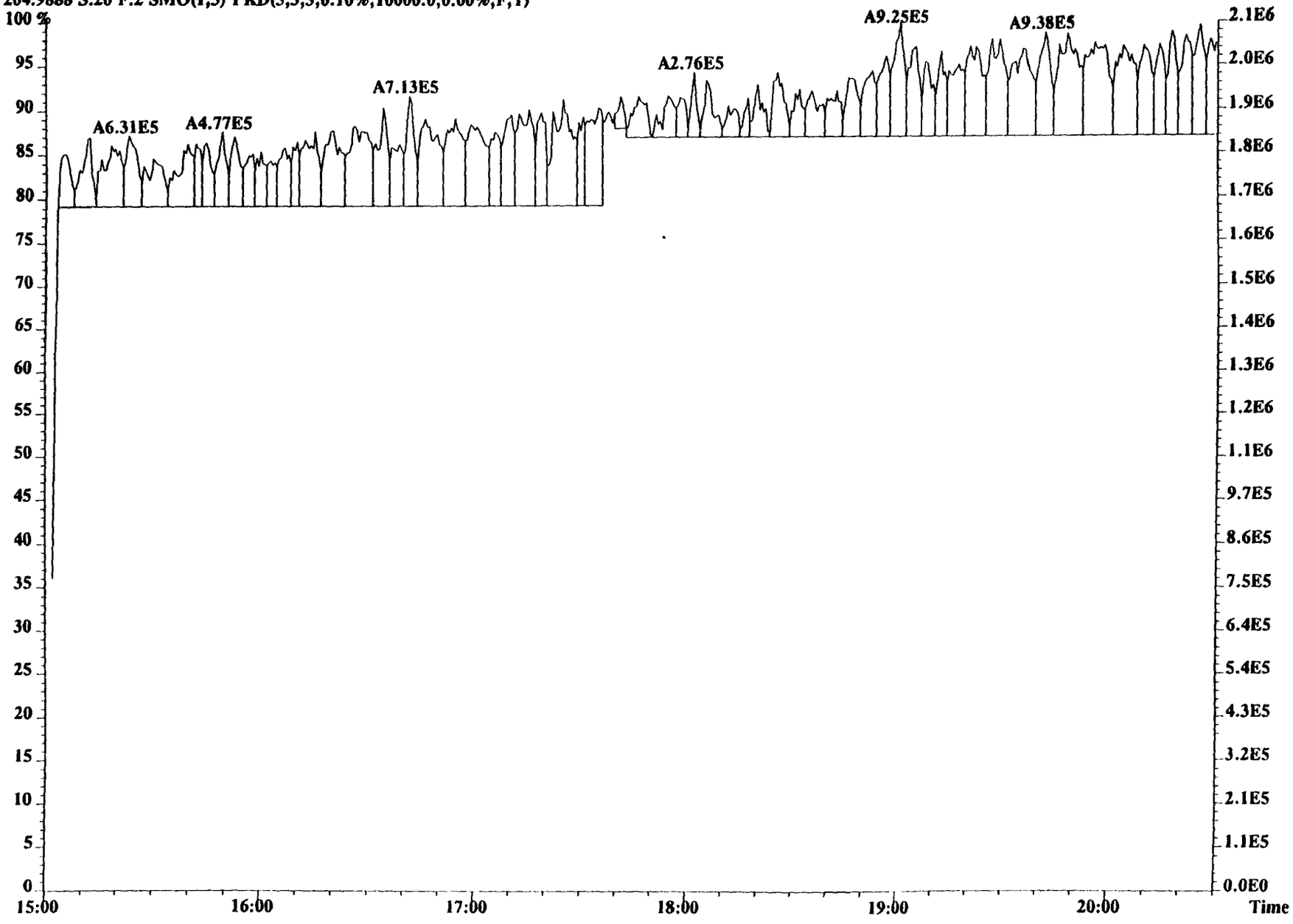
File:05OC98U #1-585 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
178.0782 S:20 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



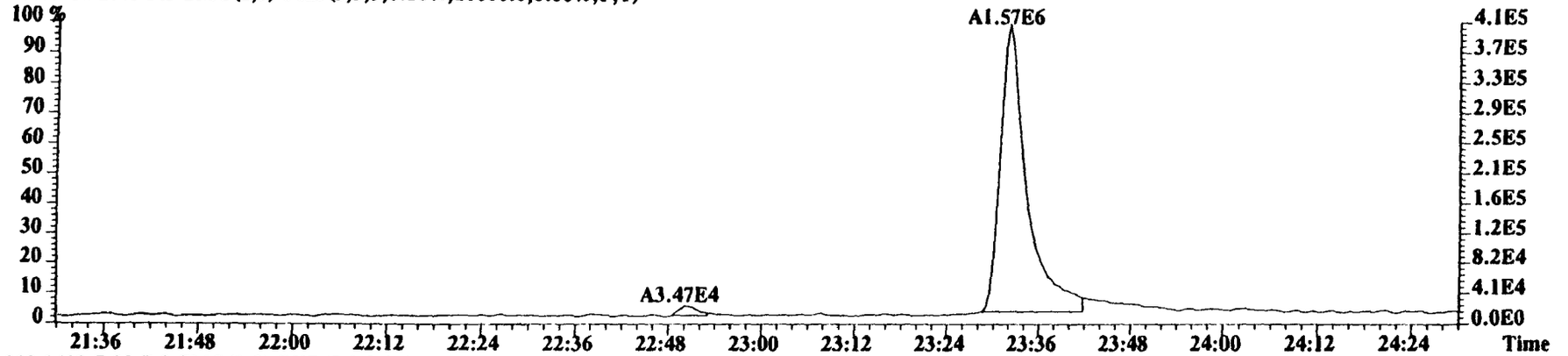
188.1410 S:20 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



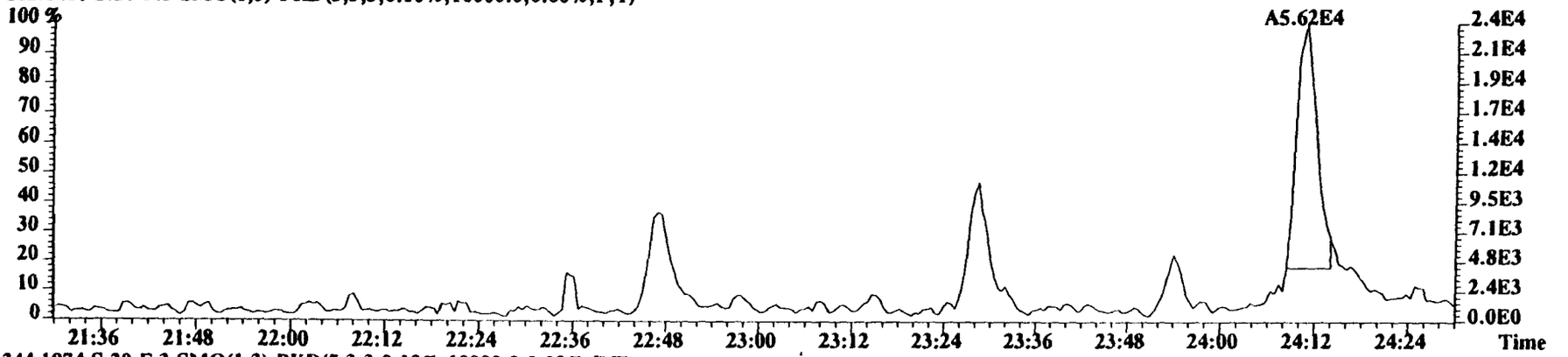
File:05OC98U #1-585 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
204.9888 S:20 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



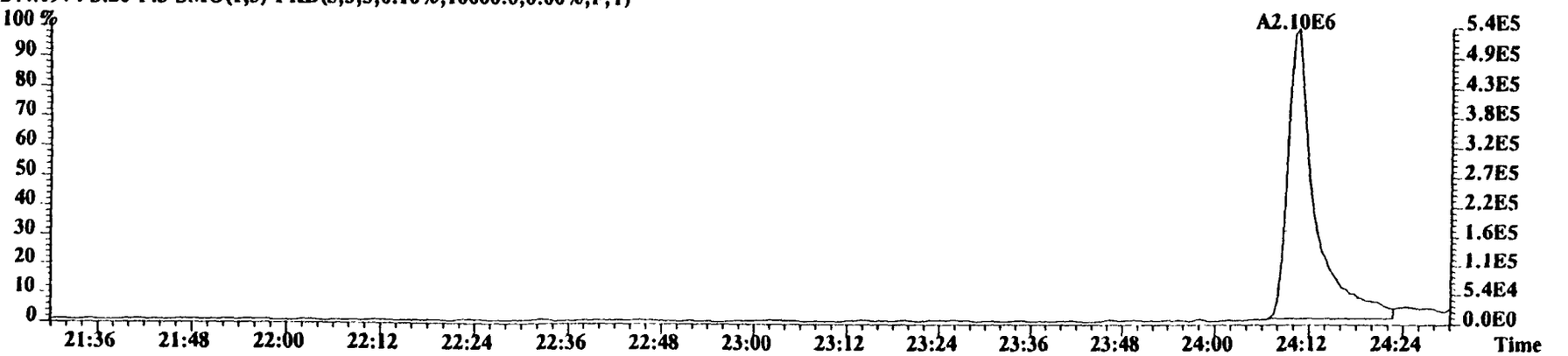
File:05OC98U #1-1052 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
202.0782 S:20 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



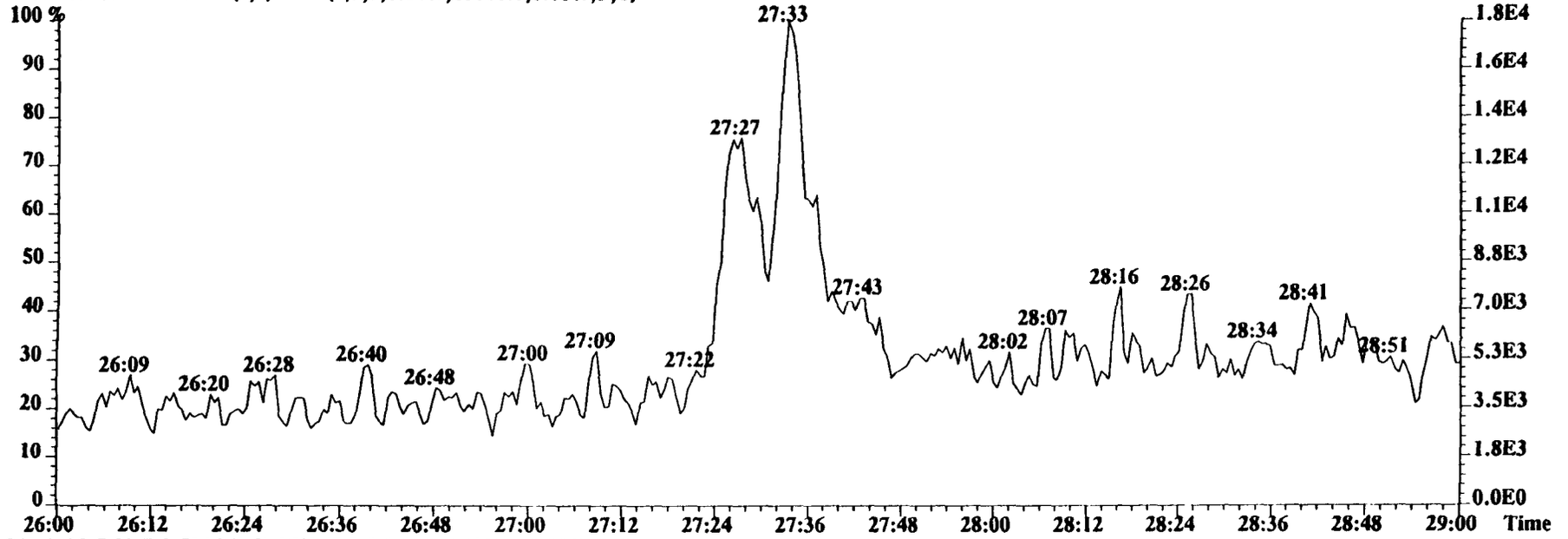
212.1410 S:20 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



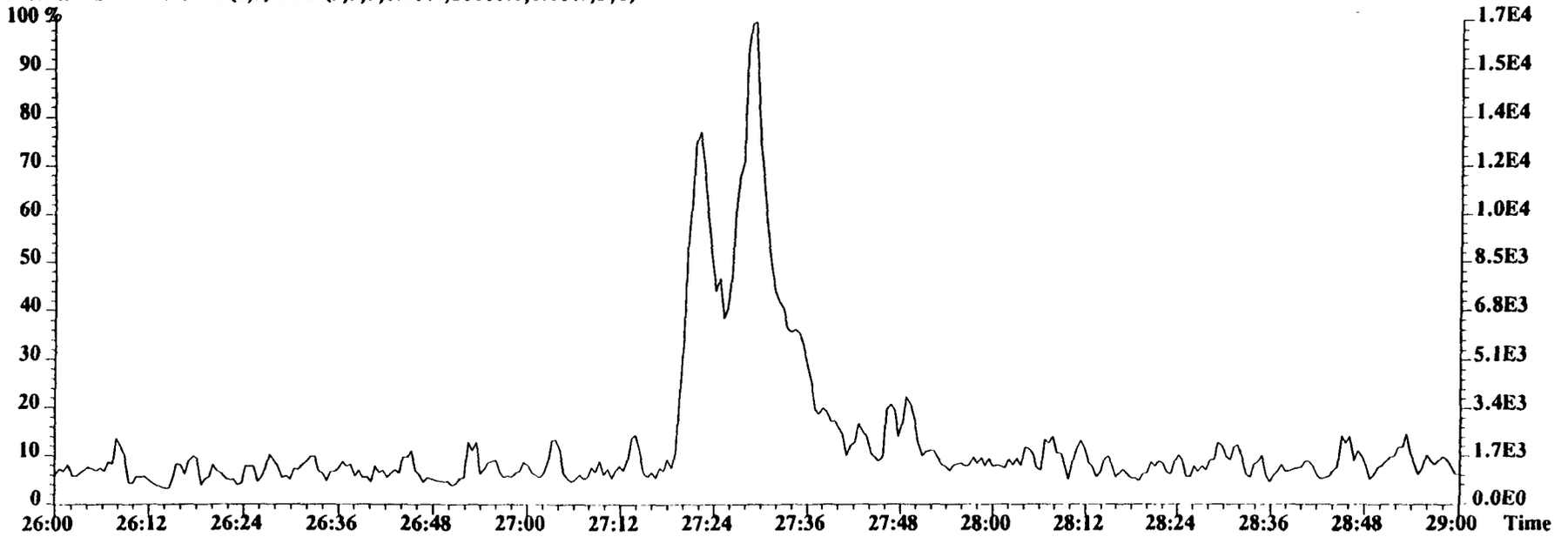
244.1974 S:20 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



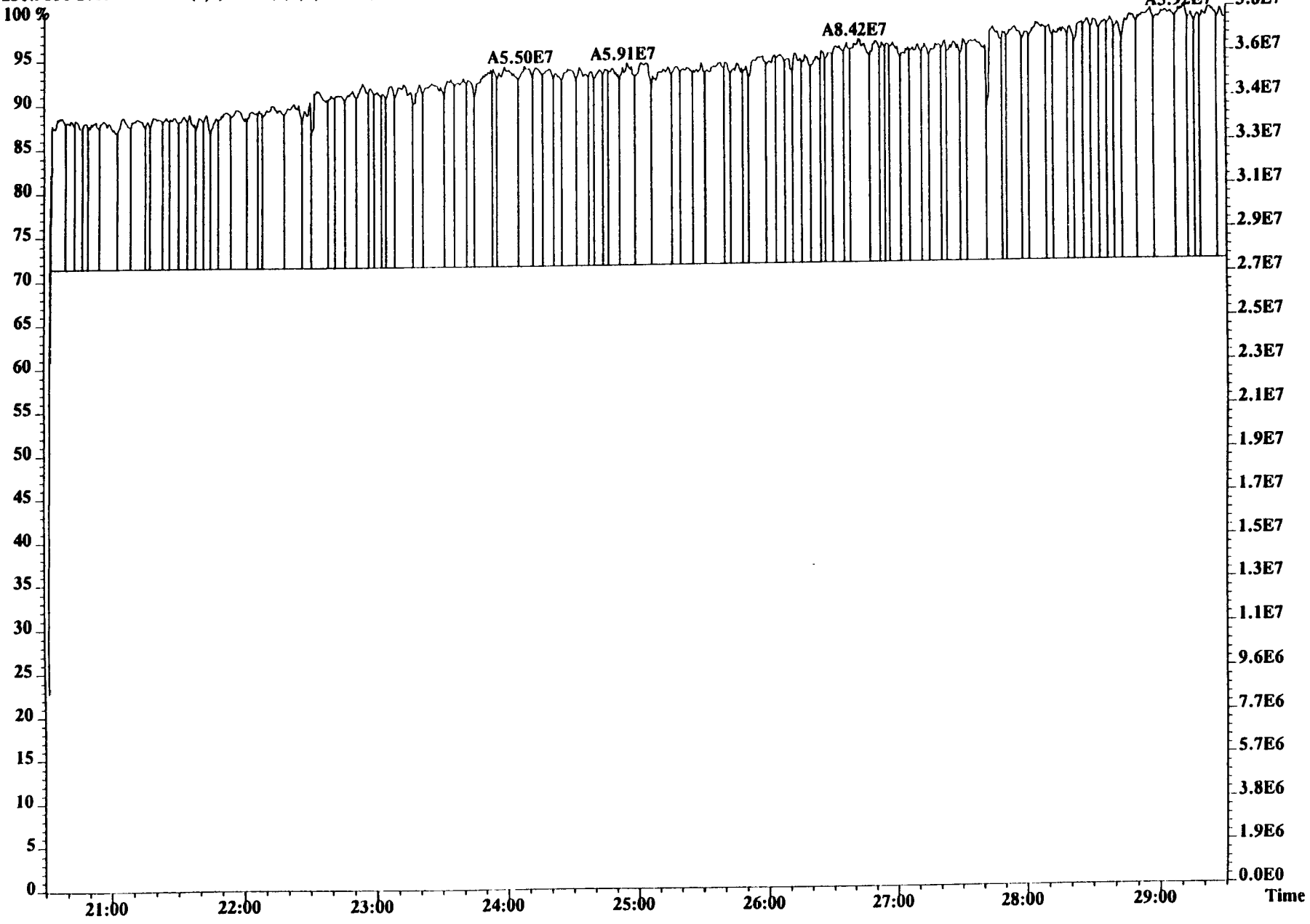
File:05OC98U #1-1052 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
228.0939 S:20 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



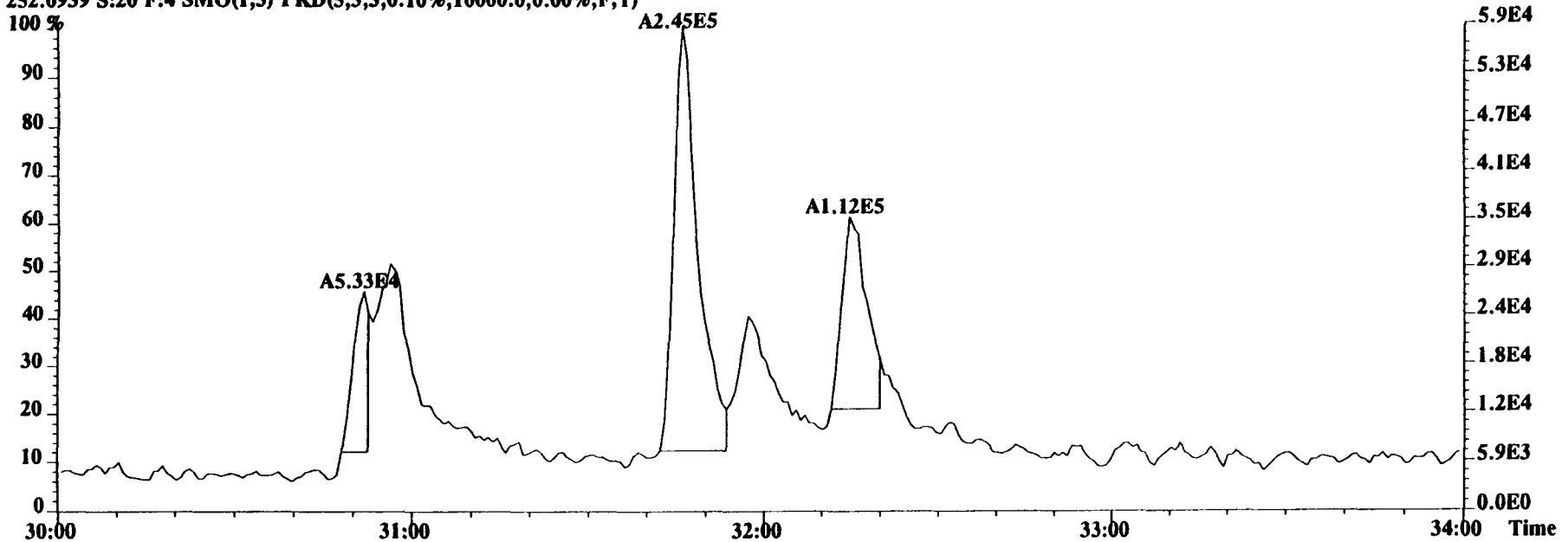
240.1692 S:20 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



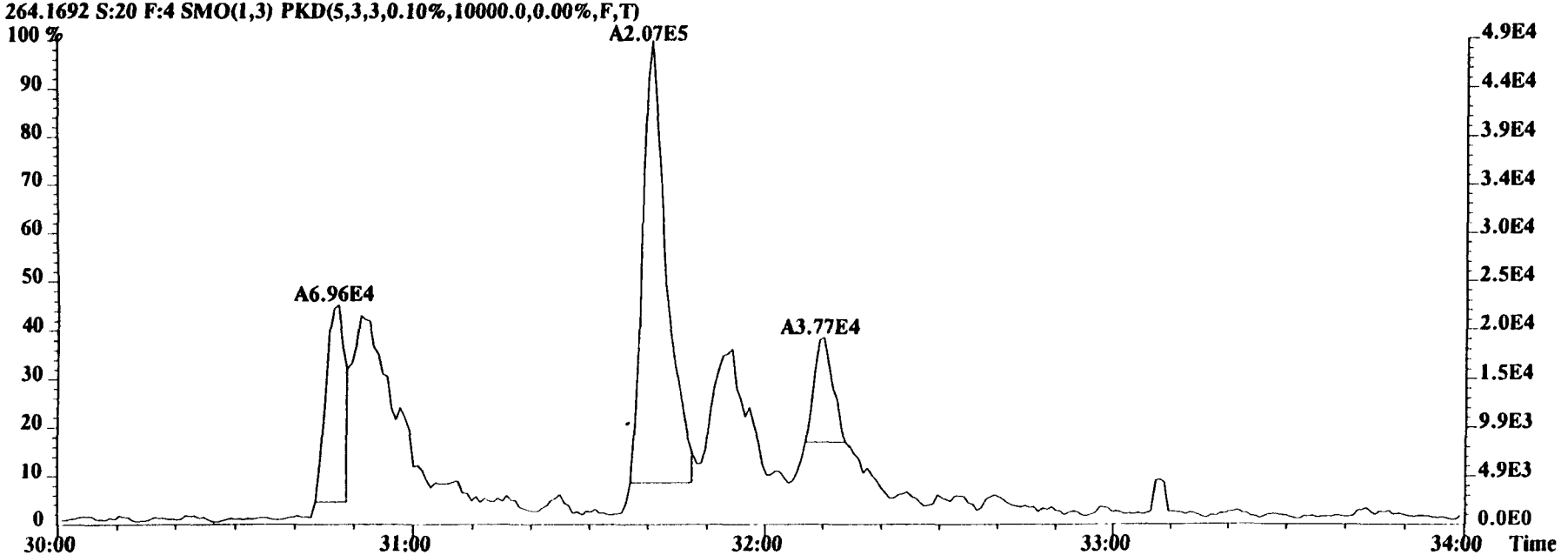
File:05OC98U #1-1052 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
230.9856 S:20 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



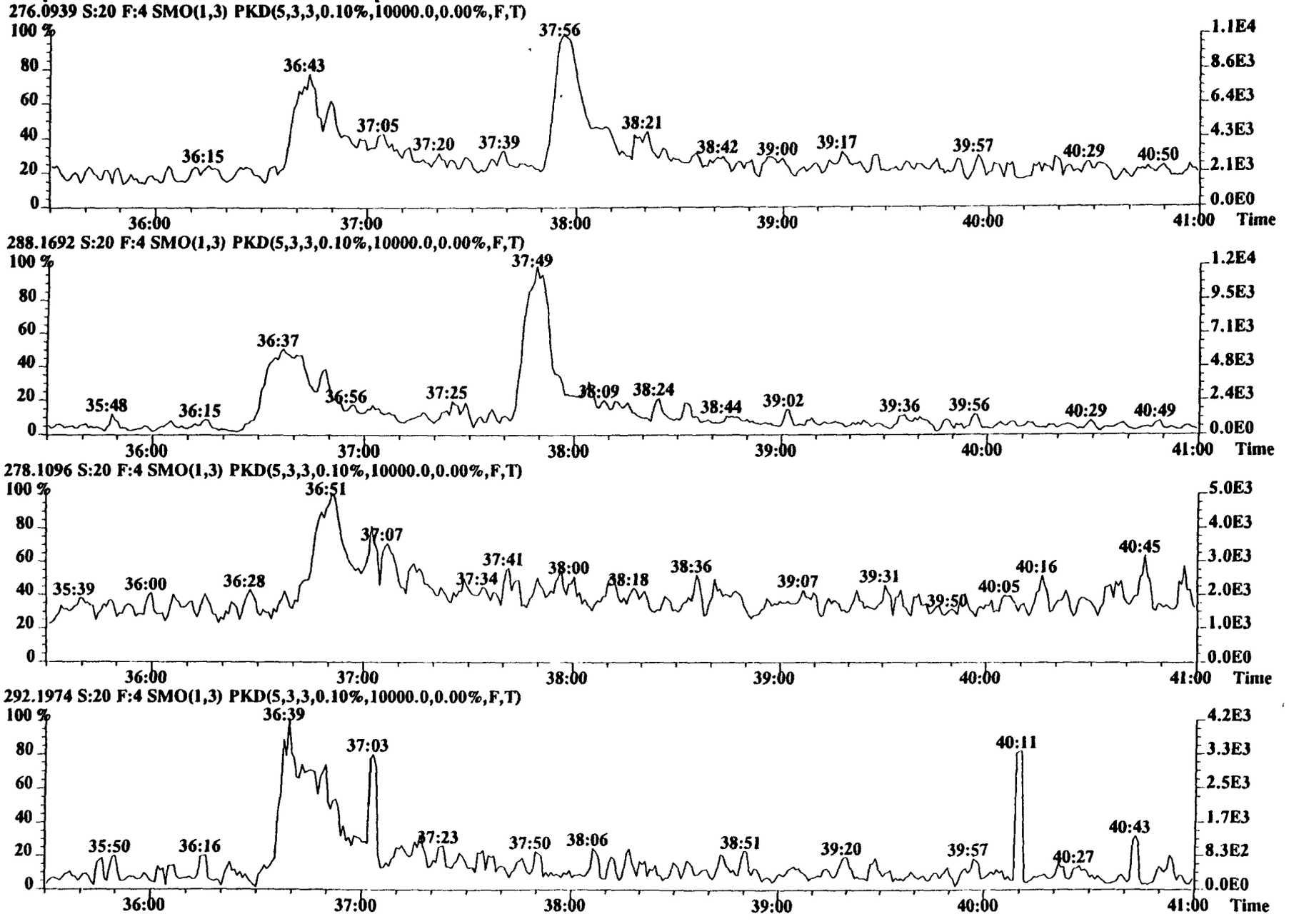
File:05OC98U #1-915 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
252.0939 S:20 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



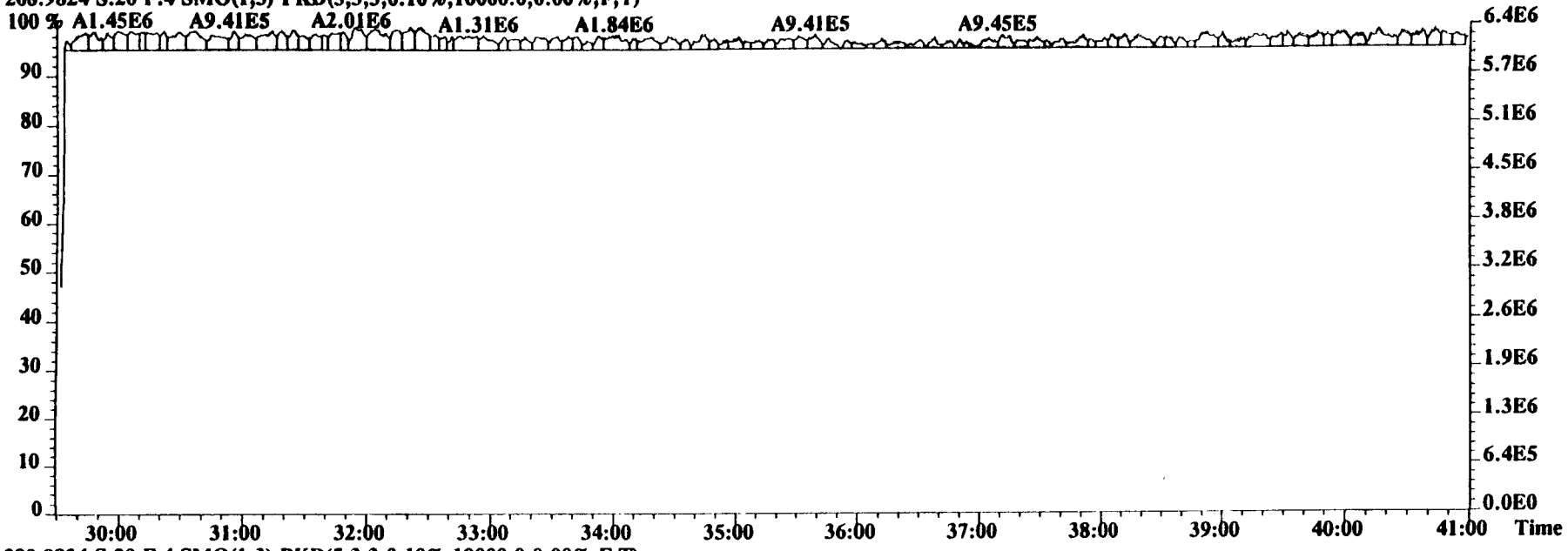
264.1692 S:20 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



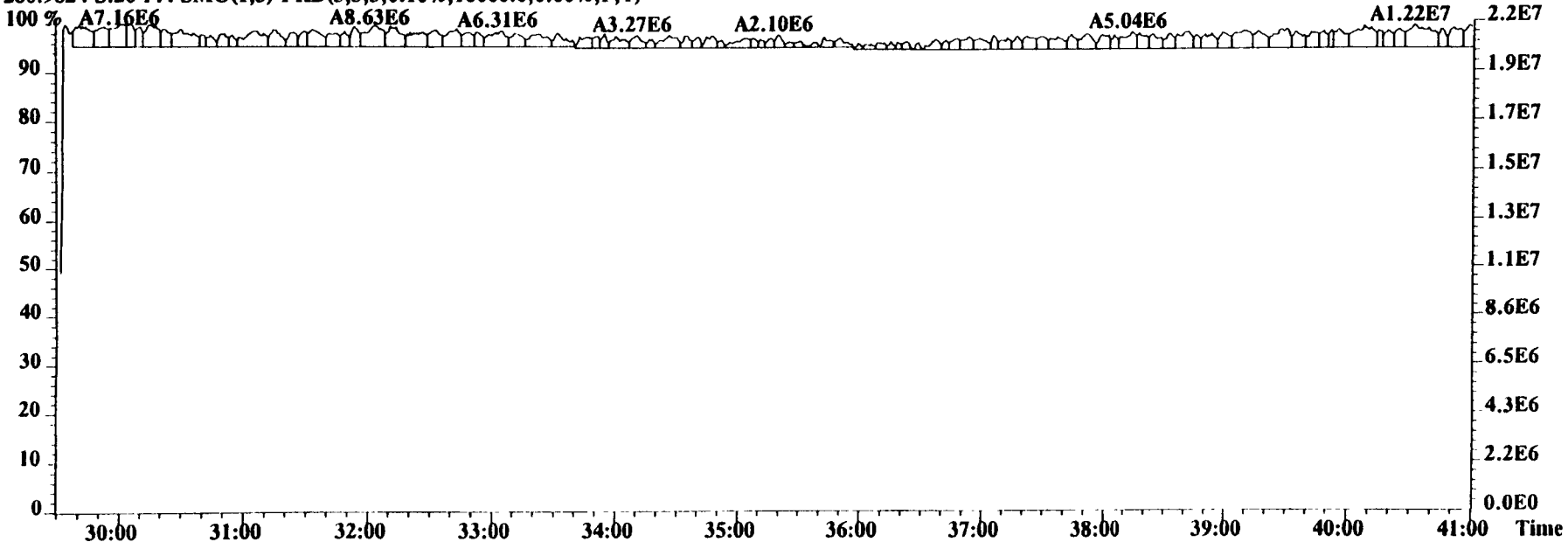
File:05OC98U #1-915 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR



File:05OC98U #1-915 Acq: 6-OCT-1998 08:32:12 GC EI+ Voltage SIR Autospec-Ultima
Sample#20 Text:SB1005B :Solvent Blank :C Exp:PAHAIR
268.9824 S:20 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:20 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



QUANTERRA INCORPORATED
West Sacramento

Daily Standard Checklist
Dioxin/Furan High Res

STD ID STO820B Method ID PAHX Column ID DB-5 Instr ID Ultima

Standard Solution 265-4C Prepared By A. Algozzi Prepared Date 8/24/98

Analyzed By A Algozzi Date Analyzed 8/20/98

Reviewed By [illegible] Date Reviewed 8-29-98

ANALYSIS OF DAILY STANDARD	INITIATED	REVIEWED
Standard, CPSM, and solvent blank present?	✓ (1)	✓ (1)
Copy of Instrument logfile present?	✓	✓
CPSM blow up and peak profile present?	NA (1)/✓	NA (1)/✓
Curve summary present?	✓	✓
Summary of 1613A criteria present?	NA	NA
Daily standard within method specified limits*?	(2)	(2)
Daily ion abundance ratios within limits?	NA	NA
CPSM valley < 25%?	NA (1)	NA (1)
CPSM window correct?	NA (1)	NA (1) ✓
Samples analyzed within 12 hrs of daily standard?	✓	✓

COMMENTS:
(1) No PAH CPSM is used.
(2) Needs PAH DQO limits: +/- 40% dev. from ICAL

* For NCASI 551, Control Limit (CL) = +/- 20% from curve RRFs for all analytes.
For Method 8290, CL = +/- 20% from curve RRFs for native analytes, CL = +/- 30% from curve RRFs for labeled compounds.
For Method 1613A, see 3rd Revision to Method 1613 Performance Specifications, Table 7.

CA-231 ga

Mass Spec : ULTIMA Results : 20AU98U031A.RES : PAHXCAL3.TRG
GC Column : DB-5 Date analyzed : 20-AUG-98
Data file : 20AU98U ST0820B :PAH CS-3 :265-4C Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng	% Dev
d10-2-Methylnaphthalene	178181200	1.00 Y	11: 9 Y	0.00	100.00	
d8-Naphthalene	304808000	1.00 Y	8: 58 Y	1.71	100.00	37
Naphthalene	310530000	1.00 Y	9: 2 Y	1.02	100.00	-3
2-Methylnaphthalene	176051400	1.00 Y	11: 15 Y	0.58	100.00	-25
d8-Acenaphthylene	229314000	1.00 Y	14: 13 Y	1.29	100.00	-17
Acenaphthylene	188234200	1.00 Y	14: 15 Y	0.82	100.00	-5
d10-Acenaphthene	138806400	1.00 Y	14: 46 Y	0.78	100.00	-11
Acenaphthene	124705000	1.00 Y	14: 52 Y	0.90	100.00	-3
d10-Anthracene	106282600	1.00 Y	19: 47 Y	0.00	100.00	
d10-Fluorene	125946600	1.00 Y	16: 28 Y	1.19	100.00	5
Fluorene	170098800	1.00 Y	16: 34 Y	1.35	100.00	29
d10-Phenanthrene	271414000	1.00 Y	19: 37 Y	2.55	100.00	-3
Phenanthrene	208010000	1.00 Y	19: 42 Y	0.77	100.00	-9
Anthracene	205610000	1.00 Y	19: 51 Y	0.76	100.00	-9
d12-Benzo(e)pyrene	354976000	1.00 Y	32: 37 Y	0.00	100.00	
d10-Fluoranthene	277606000	1.00 Y	23: 31 Y	0.78	100.00	-3
Fluoranthene	251926000	1.00 Y	23: 35 Y	0.91	100.00	-13
d10-Pyrene	257016000	1.00 Y	24: 14 Y	0.72	100.00	-11
Pyrene	273526000	1.00 Y	24: 17 Y	1.06	100.00	-4
d12-Benzo(a)anthracene	193234800	1.00 Y	28: 5 Y	0.54	100.00	-16
Benzo(a)anthracene	194037400	1.00 Y	28: 10 Y	1.00	100.00	-5
d12-Chrysene	275306000	1.00 Y	28: 12 Y	0.78	100.00	-9
Chrysene	243904000	1.00 Y	28: 17 Y	0.89	100.00	-9
d12-Benzo(e)pyrene	354976000	1.00 Y	32: 37 Y	0.00	100.00	
d12-Benzo(b)fluoranthene	205540000	1.00 Y	31: 38 Y	0.58	100.00	-8
Benzo(b)fluoranthene	220732000	1.00 Y	31: 44 Y	1.07	100.00	0
d12-Benzo(k)fluoranthene	315650000	1.00 Y	31: 44 Y	0.89	100.00	-1
Benzo(k)fluoranthene	316406000	1.00 Y	31: 48 Y	1.00	100.00	-13
d12-Benzo(a)pyrene	250392000	1.00 Y	32: 50 Y	0.71	100.00	-6
Benzo(e)pyrene	357770000	1.00 Y	32: 43 Y	1.43	100.00	-2
Benzo(a)pyrene	230158000	1.00 Y	32: 55 Y	0.92	100.00	-10
d12-Perylene	213958000	1.00 Y	33: 8 Y	0.60	100.00	-2
Perylene	325562000	1.00 Y	33: 15 Y	1.52	100.00	-6
d12-Indeno(123-cd)pyrene	255206000	1.00 Y	37: 58 Y	0.72	100.00	2
Indeno(123-cd)pyrene	131800000	1.00 Y	38: 6 Y	0.52	100.00	-16
d14-Dibenz(ah)anthracene	156165400	1.00 Y	38: 0 Y	0.44	100.00	0
Dibenz(ah)anthracene	164497000	1.00 Y	38: 10 Y	1.05	100.00	-5
d12-Benzo(ghi)perylene	251268000	1.00 Y	39: 23 Y	0.71	100.00	12
Benzo(ghi)perylene	217510000	1.00 Y	39: 32 Y	0.87	100.00	-13
d8-Naphthalene	314000000	1.00 Y	16: 28 Y	-1.00	100.00	
13C-Naphthalene	316000000	1.00 Y	16: 33 Y	1.01	100.00	0

24-AUG-1998 01:02:52 PM PAH ConCal RESULTS

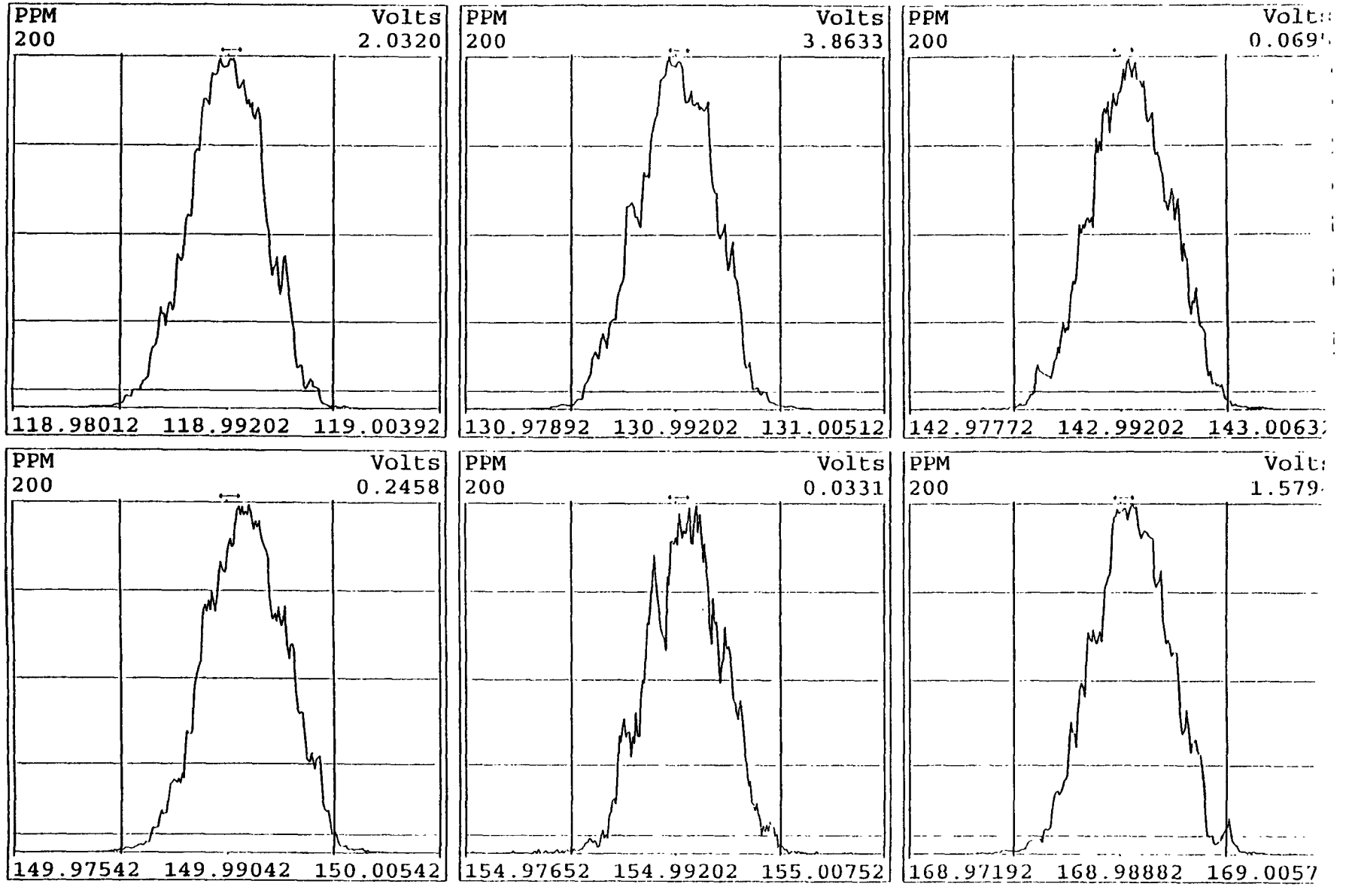
d10-Fluorene	136600000	1.00	Y	16: 29	Y	-1.00	100.00	
13C-Fluorene	116000000	1.00	Y	16: 34	Y	0.85	100.00	0

Om¢?20 J

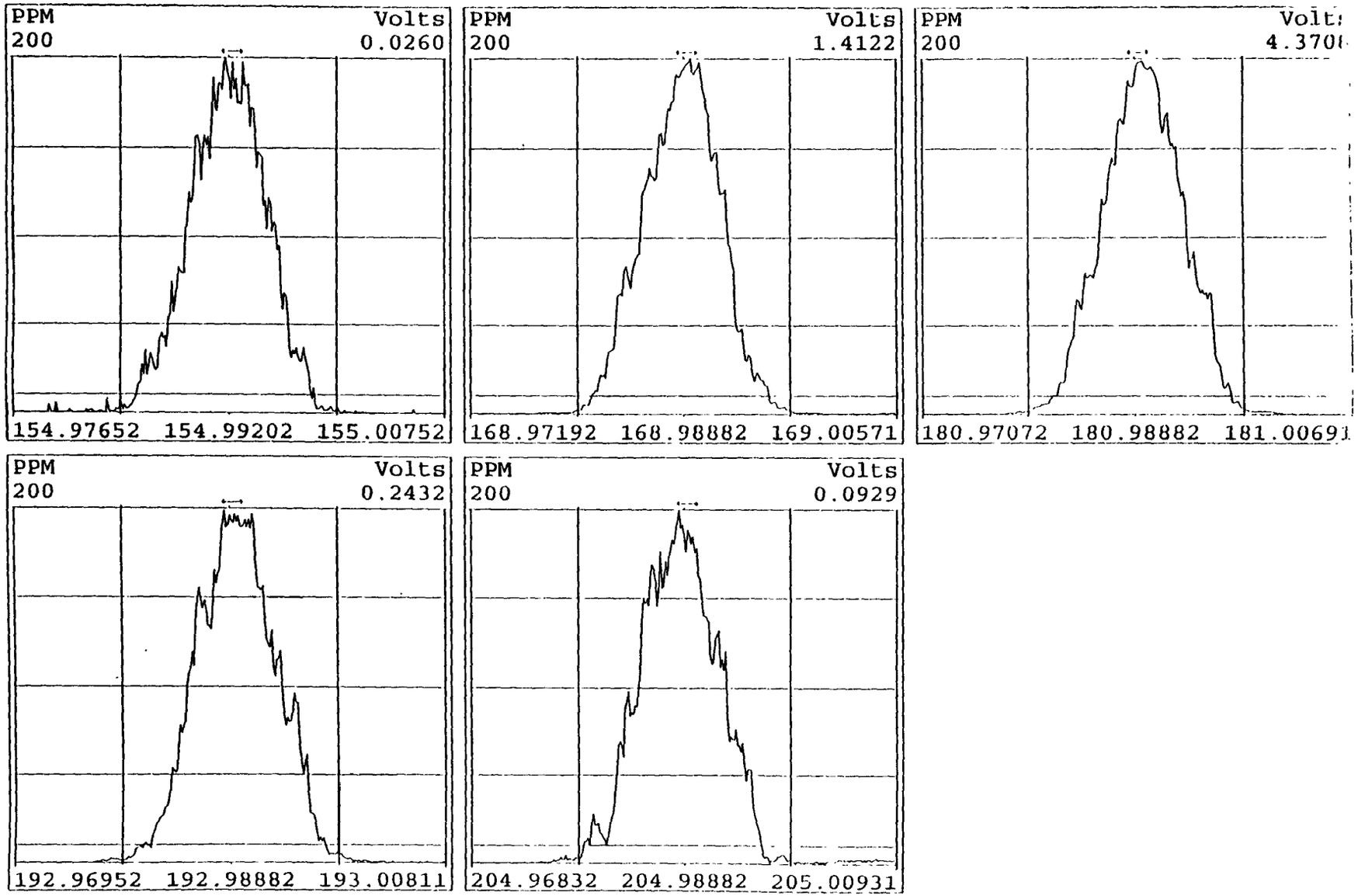
FILE	SAMP No. (1)	LAB. SAMP No	CUSTOMER ID	CLEAN UP 1 (SDS)	CLEAN UP 2 (D2)	TYPE (1)	CONCn.
20AU98U	1	ST0820	PAH CS-3	651-21			1
20AU98U	2	ST0820A	Prespike Cal Std				1
20AU98U	3	ST0820B	PAH CS-3	265-4C			1
20AU98U	4	SB0820	Solvent Blank	C8			1
20AU98U	5	300681-1MF	Method Blank	Train	PAH	VSE-23	0.333
20AU98U	6	300681-1LF	LCS	Train	PAH		0.333
20AU98U	7	300681-1MS	Method Blank	Train	PAH		0.333
20AU98U	8	300681-1LS	LCS	Train	PAH		0.333
20AU98U	9	300569-6	ARF-001-10	Soil	PAH	VSE-23	5.05
20AU98U	10	300569-7	ARR-001-01	Soil	PAH		5.02
20AU98U	11	300569-8	ARR-001-02	Soil	PAH		5.03
20AU98U	12	300569-9	ARR-001-03	Soil	PAH		4.99
20AU98U	13	300664-1	ARH-001-01	Soil	PAH	VSE-23	5.02
20AU98U	14	300664-2	ARH-001-02	Soil	PAH		5.03
20AU98U	15	300681-1DL	S-MM5-2-F 10x	Train	PAH		0.333
20AU98U	16	300681-2DL	S-MM5-1B-F 10x	Train	PAH		0.333
20AU98U	17	300681-3	T-MM5-2-F	Train	PAH		0.333
20AU98U	18	SB0820A	Solvent Blank	C8			1
20AU98U	19	QC0820	081998PAHQC	Native	PAH		1
20AU98U	20	SB0820B	Solvent Blank	C8			1
20AU98U	21						
20AU98U	22						
20AU98U	23						
20AU98U	24						
20AU98U	25						
20AU98U	26						
20AU98U	27						
20AU98U	28						
20AU98U	29						
20AU98U	30						
20AU98U	31						
20AU98U	32						
20AU98U	33						
20AU98U	34						
20AU98U	35						
20AU98U	36						
20AU98U	37						
20AU98U	38						
20AU98U	39						
20AU98U	40		AMA 08/20/98				
20AU98U	41						
20AU98U	42						
20AU98U	43						
20AU98U	44						
20AU98U	45						
20AU98U	46						
20AU98U	47						
20AU98U	48						
20AU98U	49						

dumped

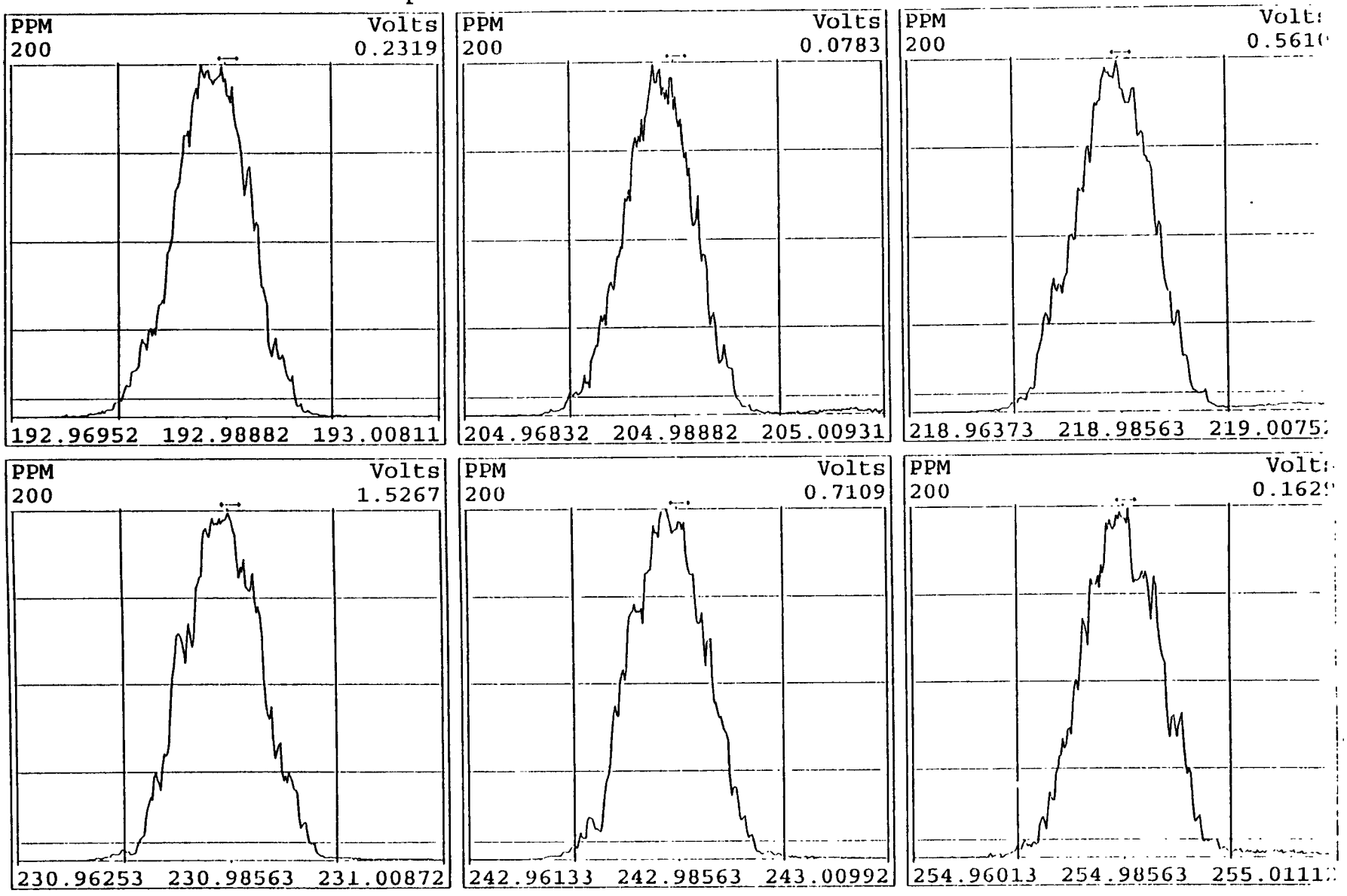
Peak Locate Examination:20-AUG-1998:15:19 File:20AU98U
Experiment:PAHAIR Function:1 Reference:PFK



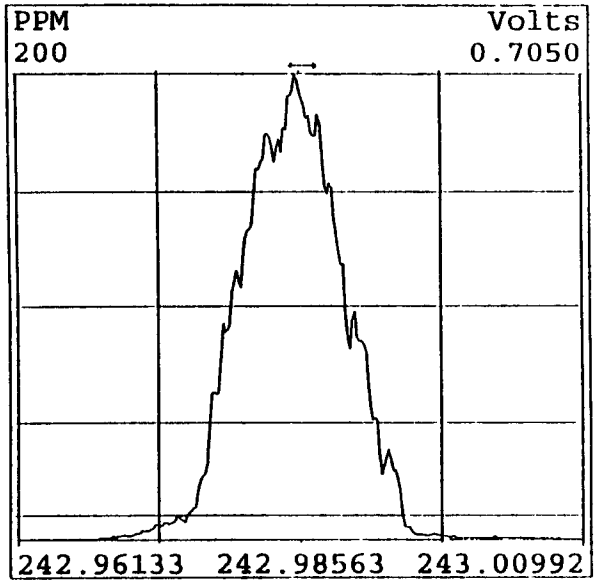
Peak Locate Examination:20-AUG-1998:15:19 File:20AU98U
Experiment:PAHAIR Function:2 Reference:PFK

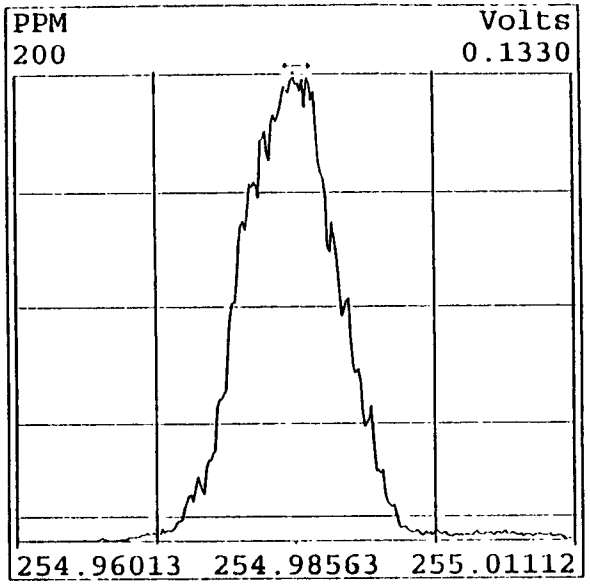


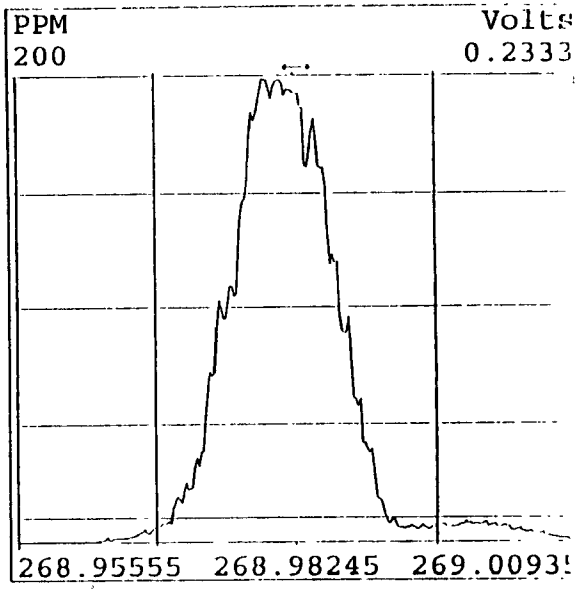
Peak Locate Examination:20-AUG-1998:15:20 File:20AU98U
Experiment:PAHAIR Function:3 Reference:PFK

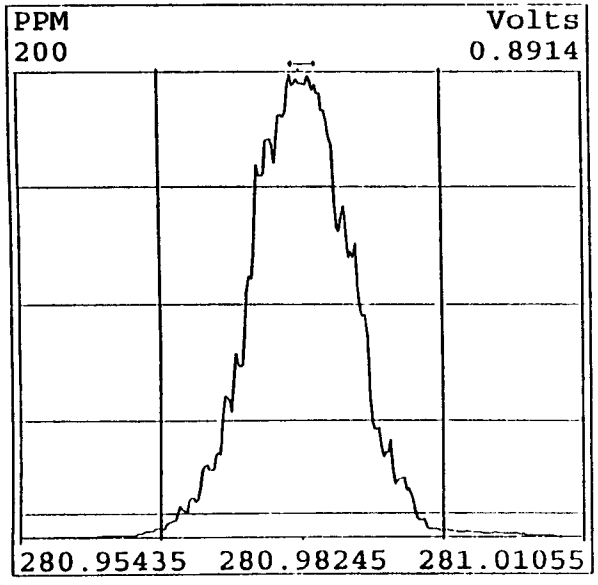


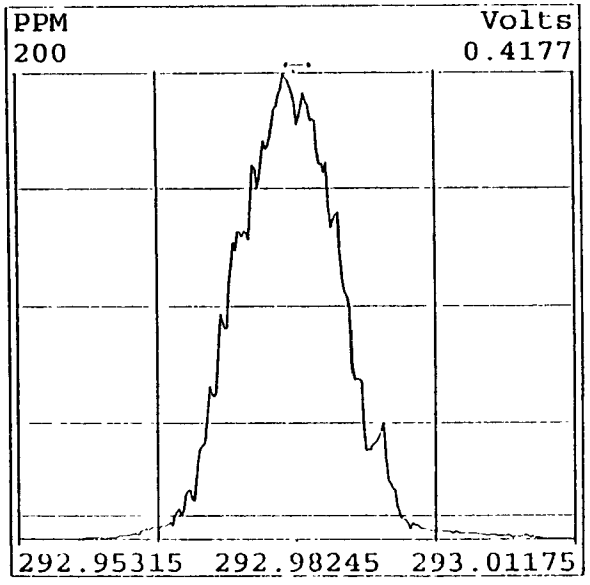
Peak Locate Examination:20-AUG-1998:15:20 File:20AU98U
Experiment:PAHAIR Function:4 Reference:PFK











PAH CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHAIR081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d8-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				125.13	138.22	111.61	124.70	123.18					
	RRF	1.25	0.094	7.579	1.25	1.38	1.12	1.25	1.23					
Naphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				13.58	54.09	96.37	186.59	464.77					
	RRF	1.05	0.181	17.228	1.36	1.08	0.96	0.93	0.93					
2-Methylnaphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.29	33.88	84.95	139.99	349.03					
	RRF	0.77	0.112	14.514	0.93	0.68	0.85	0.70	0.70					
d8-Acenaphthylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				168.75	145.20	148.35	158.01	154.72					
	RRF	1.55	0.092	5.934	1.69	1.45	1.48	1.58	1.55					
Acenaphthylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.55	44.41	94.74	162.62	406.40					
	RRF	0.86	0.057	6.560	0.86	0.89	0.95	0.81	0.81					
d10-Acenaphthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				86.37	89.70	82.92	92.67	87.02					
	RRF	0.88	0.037	4.178	0.86	0.90	0.83	0.93	0.87					
Acenaphthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.16	47.71	101.30	157.44	439.22					
	RRF	0.93	0.097	10.478	1.02	0.95	1.01	0.79	0.88					
d10-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				129.53	105.98	113.84	108.38	107.00					
	RRF	1.13	0.098	8.636	1.30	1.06	1.14	1.08	1.07					
Fluorene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.18	43.83	114.84	210.00	528.30					
	RRF	1.05	0.105	10.040	1.12	0.88	1.15	1.05	1.06					
d10-Phenanthrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				262.09	260.96	265.51	269.74	256.17					
	RRF	2.63	0.051	1.934	2.62	2.61	2.66	2.70	2.56					
Phenanthrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.04	42.04	90.20	150.57	405.42					
	RRF	0.84	0.064	7.599	0.90	0.84	0.90	0.75	0.81					
Anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.68	40.93	88.77	149.97	410.83					
	RRF	0.83	0.053	6.428	0.87	0.82	0.89	0.75	0.82					
d10-Fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				95.14	113.27	96.06	99.58	99.18					
	RRF	1.01	0.073	7.268	0.95	1.13	0.96	1.00	0.99					
Fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.95	51.53	111.98	199.62	479.64					
	RRF	1.04	0.067	6.394	1.09	1.03	1.12	1.00	0.96					
d10-Pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				98.59	109.02	97.52	102.26	98.62					
	RRF	1.01	0.047	4.667	0.99	1.09	0.98	1.02	0.99					
Pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.51	55.06	117.00	212.11	527.05					
	RRF	1.11	0.052	4.714	1.15	1.10	1.17	1.06	1.05					

PAH CALIBRATION TABLE

ass Spec : ULTIMA
C Column : DB-5
65-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHAIR081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
12-Benzo(a)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				85.14	89.67	71.73	77.77	83.24					
	RRF	0.82	0.069	8.507	0.85	0.90	0.72	0.78	0.83					
enzo(a)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.53	52.92	110.29	207.09	513.26					
	RRF	1.06	0.030	2.804	1.05	1.06	1.10	1.04	1.03					
12-Chrysene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				101.98	115.07	91.74	107.75	115.66					
	RRF	1.06	0.100	9.360	1.02	1.15	0.92	1.08	1.16					
hrysene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.59	50.08	103.60	175.51	441.04					
	RRF	0.97	0.086	8.856	1.06	1.00	1.04	0.88	0.88					
12-Benzo(b)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				64.51	65.70	63.39	63.02	56.40					
	RRF	0.63	0.036	5.785	0.65	0.66	0.63	0.63	0.56					
enzo(b)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.81	52.02	111.29	212.98	523.15					
	RRF	1.07	0.029	2.735	1.08	1.04	1.11	1.06	1.05					
12-Benzo(k)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				88.20	82.16	90.16	93.02	94.50					
	RRF	0.90	0.048	5.393	0.88	0.82	0.90	0.93	0.94					
enzo(k)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.74	59.99	120.61	217.66	504.05					
	RRF	1.16	0.105	9.104	1.27	1.20	1.21	1.09	1.01					
12-Benzo(a)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				75.48	74.11	74.28	75.01	76.69					
	RRF	0.75	0.010	1.385	0.75	0.74	0.74	0.75	0.77					
enzo(e)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				15.21	74.22	153.41	287.46	672.30					
	RRF	1.46	0.077	5.243	1.52	1.48	1.53	1.44	1.34					
enzo(a)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.13	51.09	105.82	197.36	469.69					
	RRF	1.02	0.066	6.478	1.11	1.02	1.06	0.99	0.94					
12-Perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.89	60.89	60.17	61.91	63.41					
	RRF	0.61	0.013	2.048	0.61	0.61	0.60	0.62	0.63					
erylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				17.58	80.54	145.64	332.88	800.43					
	RRF	1.62	0.110	6.792	1.76	1.61	1.46	1.66	1.60					
12-Indeno(123-cd)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				68.59	72.80	69.80	62.67	79.43					
	RRF	0.71	0.061	8.681	0.69	0.73	0.70	0.63	0.79					
ndeno(123-cd)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				6.33	33.45	62.76	113.23	281.17					
	RRF	0.61	0.046	7.531	0.63	0.67	0.63	0.57	0.56					
14-Dibenz(ah)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				43.73	43.81	44.28	38.06	50.69					
	RRF	0.44	0.045	10.143	0.44	0.44	0.44	0.38	0.51					

ass Spec : ULTIMA
C Column : DB-5
65-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHAIR081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
ibenz(ah)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.79	56.20	115.84	225.91	535.81					
	RRF	1.11	0.036	3.270	1.08	1.12	1.16	1.13	1.07					
12-Benzo(ghi)perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.66	64.91	61.14	56.21	72.26					
	RRF	0.63	0.060	9.532	0.61	0.65	0.61	0.56	0.72					
enzo(ghi)perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.00	50.38	103.43	190.98	478.29					
	RRF	0.99	0.034	3.467	1.00	1.01	1.03	0.95	0.96					
3C-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				1.00	1.00	1.00	1.00	1.00					
	RRF	1.00	0.000	0.000	1.00	1.00	1.00	1.00	1.00					
3C-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				1.00	1.00	1.00	1.00	1.00					
	RRF	1.00	0.000	0.000	1.00	1.00	1.00	1.00	1.00					

PAH CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHX081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d8-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				125.13	138.22	111.61	124.70	123.18					
	RRF	1.25	0.094	7.579	1.25	1.38	1.12	1.25	1.23					
Naphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				13.58	54.09	96.37	186.59	464.77					
	RRF	1.05	0.181	17.228	1.36	1.08	0.96	0.93	0.93					
2-Methylnaphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.29	33.88	84.95	139.99	349.03					
	RRF	0.77	0.112	14.514	0.93	0.68	0.85	0.70	0.70					
d8-Acenaphthylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				168.75	145.20	148.35	158.01	154.72					
	RRF	1.55	0.092	5.934	1.69	1.45	1.48	1.58	1.55					
Acenaphthylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.55	44.41	94.74	162.62	406.40					
	RRF	0.86	0.057	6.560	0.86	0.89	0.95	0.81	0.81					
d10-Acenaphthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				86.37	89.70	82.92	92.67	87.02					
	RRF	0.88	0.037	4.178	0.86	0.90	0.83	0.93	0.87					
Acenaphthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.16	47.71	101.30	157.44	439.22					
	RRF	0.93	0.097	10.478	1.02	0.95	1.01	0.79	0.88					
d10-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				129.53	105.98	113.84	108.38	107.00					
	RRF	1.13	0.098	8.636	1.30	1.06	1.14	1.08	1.07					
Fluorene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.18	43.83	114.84	210.00	528.30					
	RRF	1.05	0.105	10.040	1.12	0.88	1.15	1.05	1.06					
d10-Phenanthrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				262.09	260.96	265.51	269.74	256.17					
	RRF	2.63	0.051	1.934	2.62	2.61	2.66	2.70	2.56					
Phenanthrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.04	42.04	90.20	150.57	405.42					
	RRF	0.84	0.064	7.599	0.90	0.84	0.90	0.75	0.81					
Anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.68	40.93	88.77	149.97	410.83					
	RRF	0.83	0.053	6.428	0.87	0.82	0.89	0.75	0.82					
d10-Fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				80.50	73.52	89.68	79.47	78.46					
	RRF	0.80	0.059	7.315	0.81	0.74	0.90	0.79	0.78					
Fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.95	51.53	111.98	199.62	479.64					
	RRF	1.04	0.067	6.394	1.09	1.03	1.12	1.00	0.96					
d10-Pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				83.42	70.76	91.04	81.61	78.02					
	RRF	0.81	0.074	9.179	0.83	0.71	0.91	0.82	0.78					
Pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.51	55.06	117.00	212.11	527.05					
	RRF	1.11	0.052	4.714	1.15	1.10	1.17	1.06	1.05					

PAH CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHX081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d12-Benzo(a)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				72.04	58.19	66.97	62.07	65.85					
	RRF	0.65	0.052	8.032	0.72	0.58	0.67	0.62	0.66					
Benzo(a)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.53	52.92	110.29	207.09	513.26					
	RRF	1.06	0.030	2.804	1.05	1.06	1.10	1.04	1.03					
d12-Chrysene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				86.29	74.68	85.64	85.99	91.50					
	RRF	0.85	0.062	7.259	0.86	0.75	0.86	0.86	0.91					
Chrysene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.59	50.08	103.60	175.51	441.04					
	RRF	0.97	0.086	8.856	1.06	1.00	1.04	0.88	0.88					
d12-Benzo(b)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				64.51	65.70	63.39	63.02	56.40					
	RRF	0.63	0.036	5.785	0.65	0.66	0.63	0.63	0.56					
Benzo(b)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.81	52.02	111.29	212.98	523.15					
	RRF	1.07	0.029	2.735	1.08	1.04	1.11	1.06	1.05					
d12-Benzo(k)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				88.20	82.16	90.16	93.02	94.50					
	RRF	0.90	0.048	5.393	0.88	0.82	0.90	0.93	0.94					
Benzo(k)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.74	59.99	120.61	217.66	504.85					
	RRF	1.16	0.105	9.104	1.27	1.20	1.21	1.09	1.01					
d12-Benzo(a)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				75.48	74.11	74.28	75.01	76.69					
	RRF	0.75	0.010	1.385	0.75	0.74	0.74	0.75	0.77					
Benzo(e)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				15.21	74.22	153.41	287.46	672.30					
	RRF	1.46	0.077	5.243	1.52	1.48	1.53	1.44	1.34					
Benzo(a)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.13	51.09	105.82	197.36	469.69					
	RRF	1.02	0.066	6.478	1.11	1.02	1.06	0.99	0.94					
d12-Perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.89	60.89	60.17	61.91	63.41					
	RRF	0.61	0.013	2.048	0.61	0.61	0.60	0.62	0.63					
Perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				17.58	80.54	145.64	332.88	800.43					
	RRF	1.62	0.110	6.792	1.76	1.61	1.46	1.66	1.60					
d12-Indeno(123-cd)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				68.59	72.80	69.80	62.67	79.43					
	RRF	0.71	0.061	8.681	0.69	0.73	0.70	0.63	0.79					
Indeno(123-cd)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				6.33	33.45	62.76	113.23	281.17					
	RRF	0.61	0.046	7.531	0.63	0.67	0.63	0.57	0.56					
d14-Dibenz(ah)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				43.73	43.81	44.28	38.06	50.69					
	RRF	0.44	0.045	10.143	0.44	0.44	0.44	0.38	0.51					

PAH CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

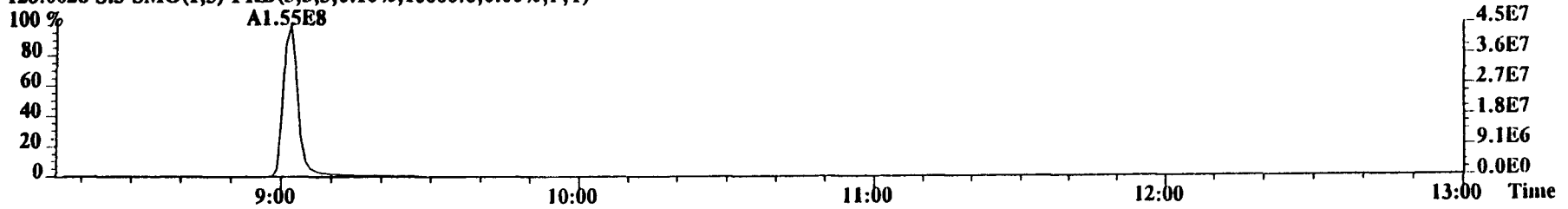
File name : PAHX081998U.PRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

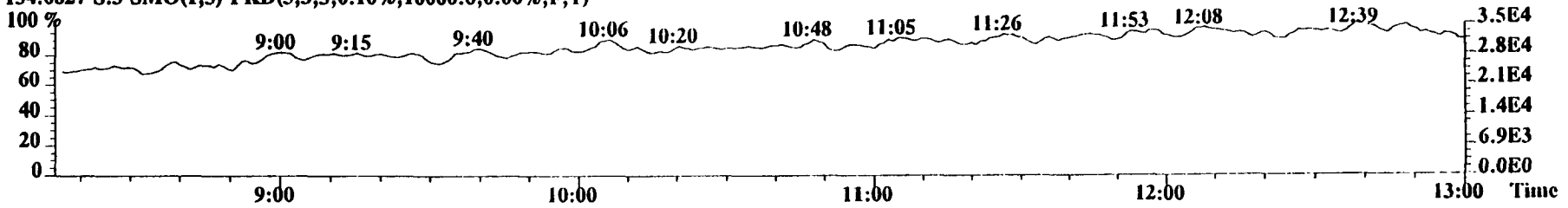
		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
Dibenz(ah)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.79	56.20	115.84	225.91	535.81					
	RRF	1.11	0.036	3.270	1.08	1.12	1.16	1.13	1.07					
d12-Benzo(ghi)perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.66	64.91	61.14	56.21	72.26					
	RRF	0.63	0.060	9.532	0.61	0.65	0.61	0.56	0.72					
Benzo(ghi)perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.00	50.38	103.43	190.98	478.29					
	RRF	0.99	0.034	3.467	1.00	1.01	1.03	0.95	0.96					
13C-Fluorene	Amount				100	100	100	100	100.00					
	RF								0.03					
	RRF	0.00	0.000	0.000					0.00					

File:20AU98U #1-476 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR

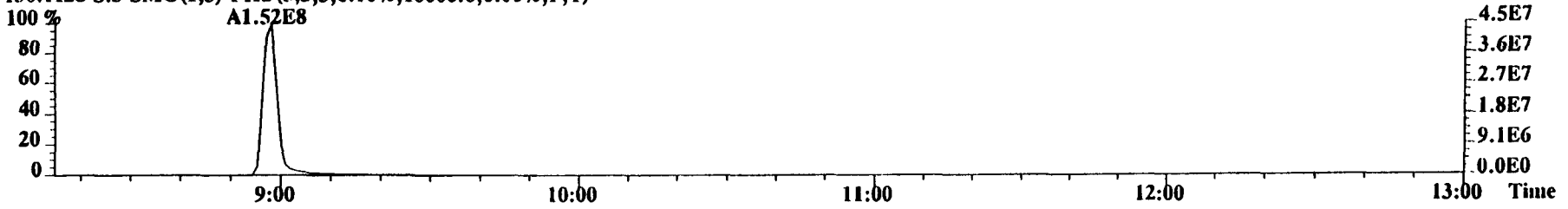
128.0626 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



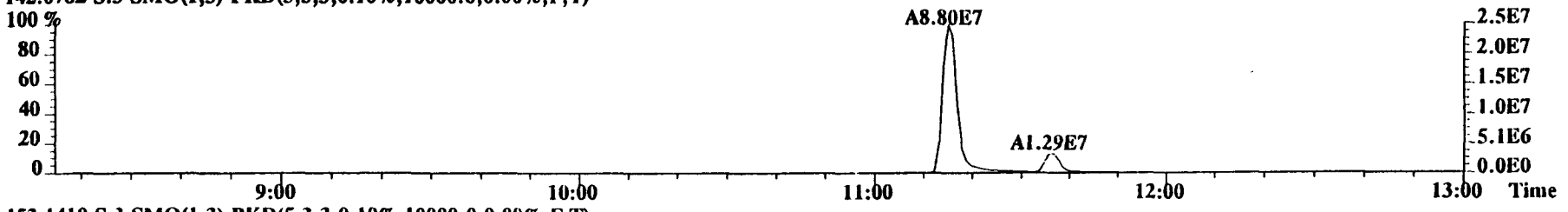
134.0827 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



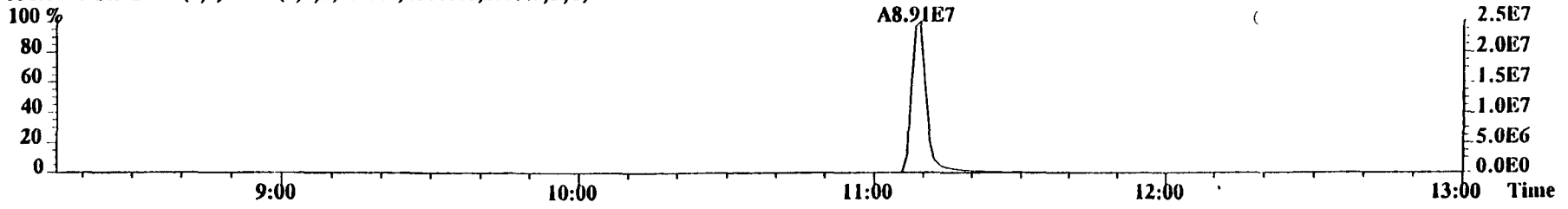
136.1128 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



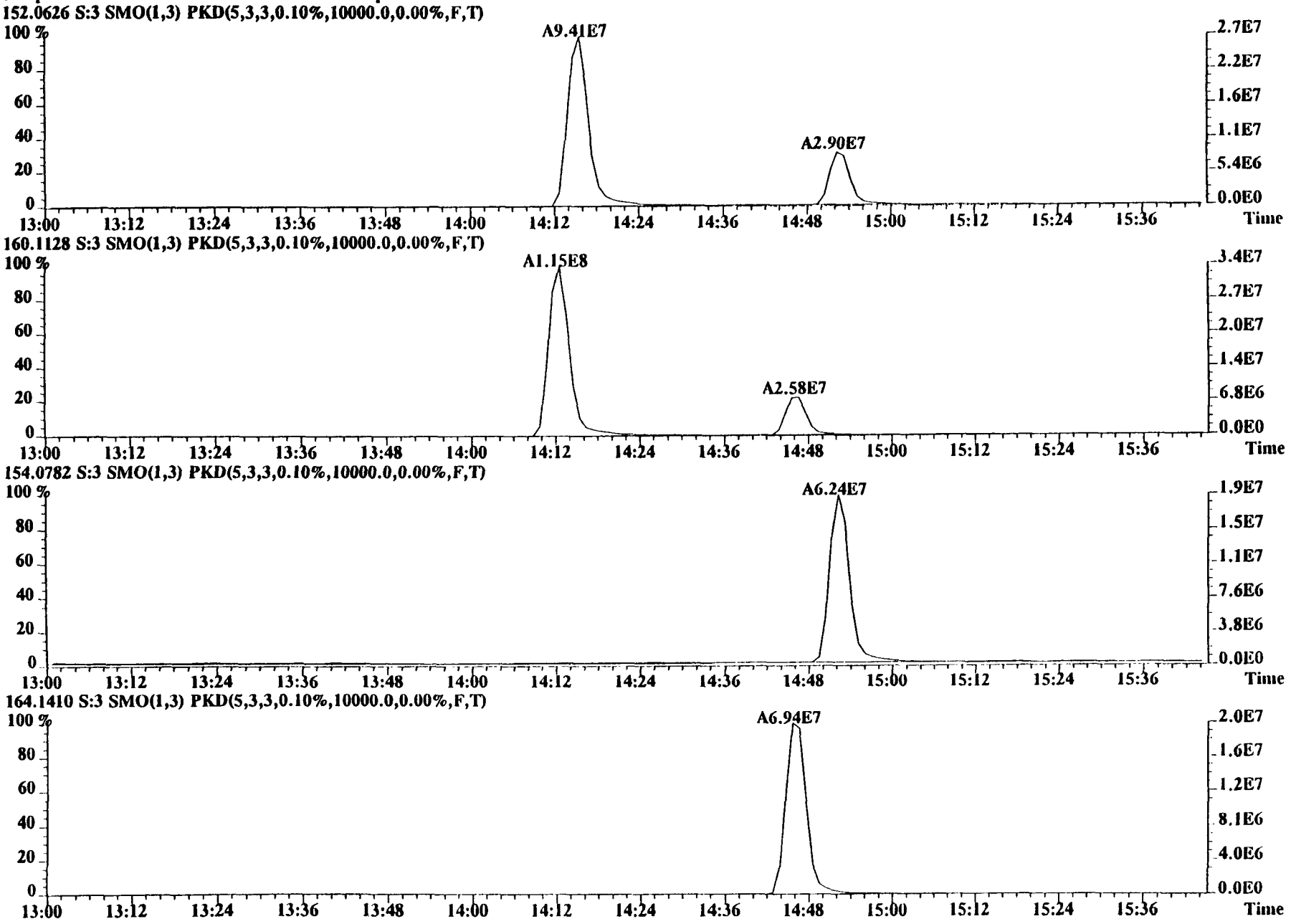
142.0782 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



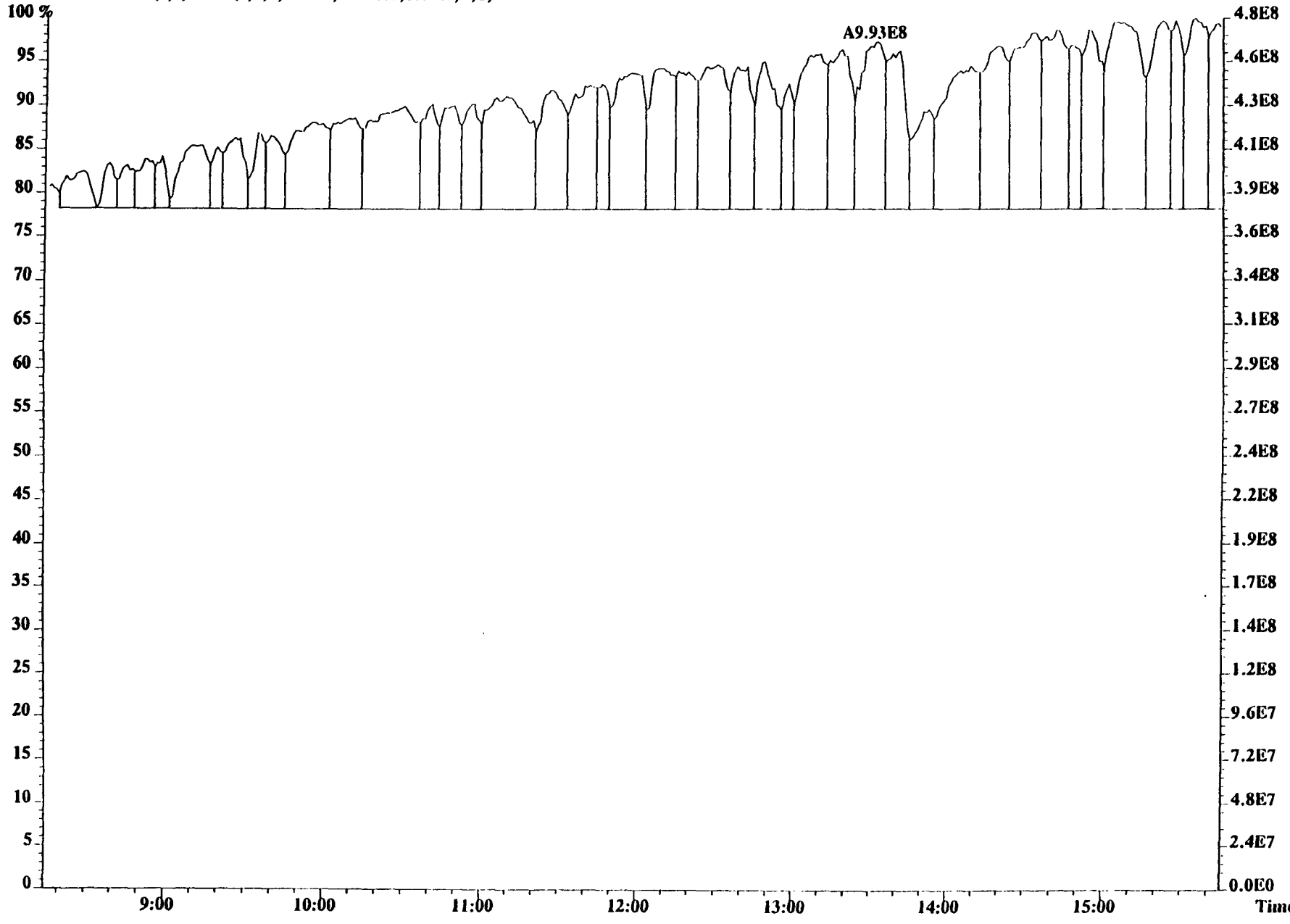
152.1410 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



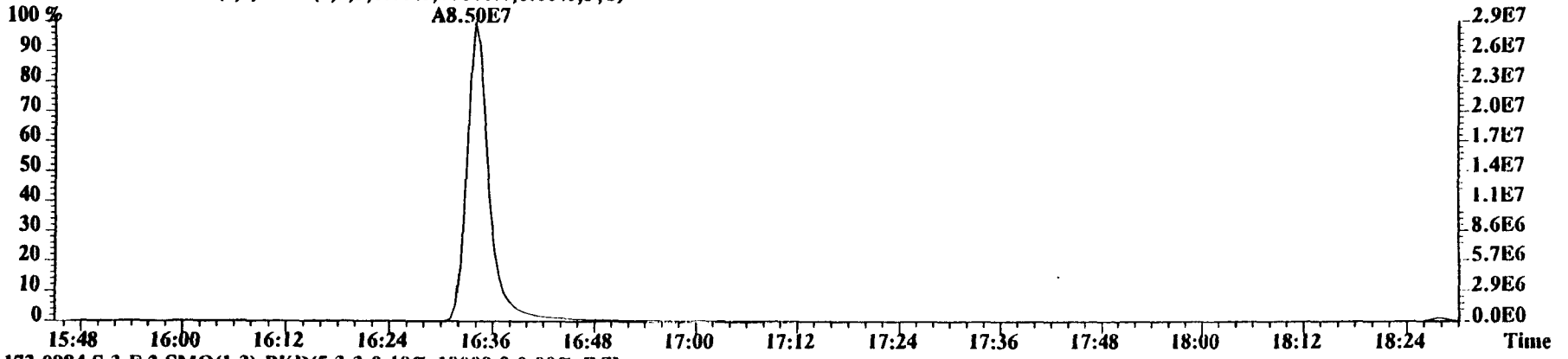
File:20AU98U #1-476 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR



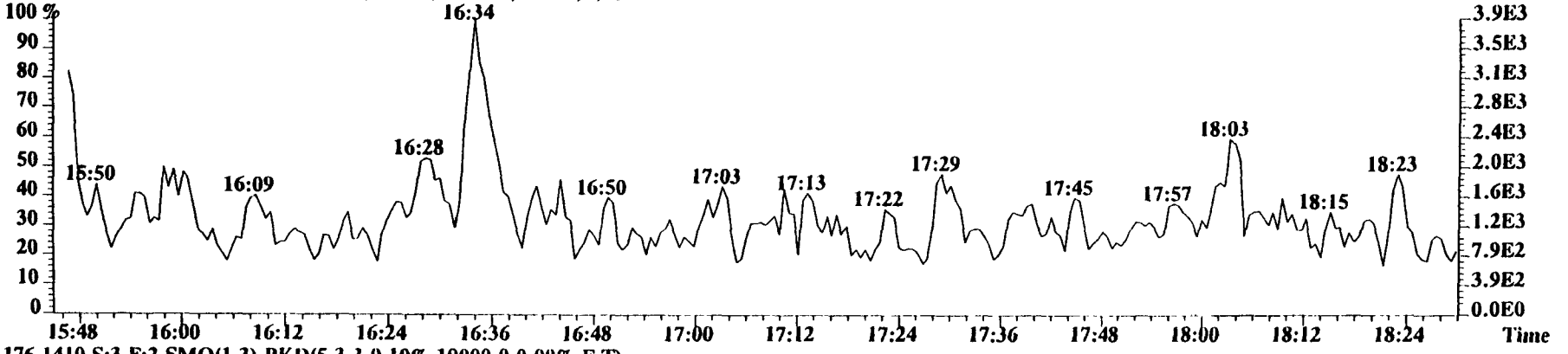
File:20AU98U #1-476 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
130.9920 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



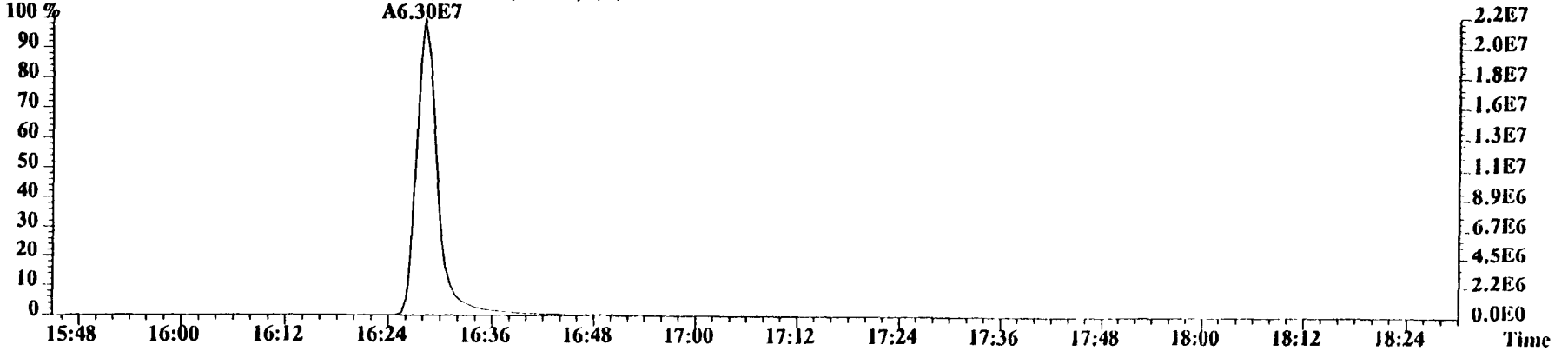
File:20AU98U #1-666 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
166.0798 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



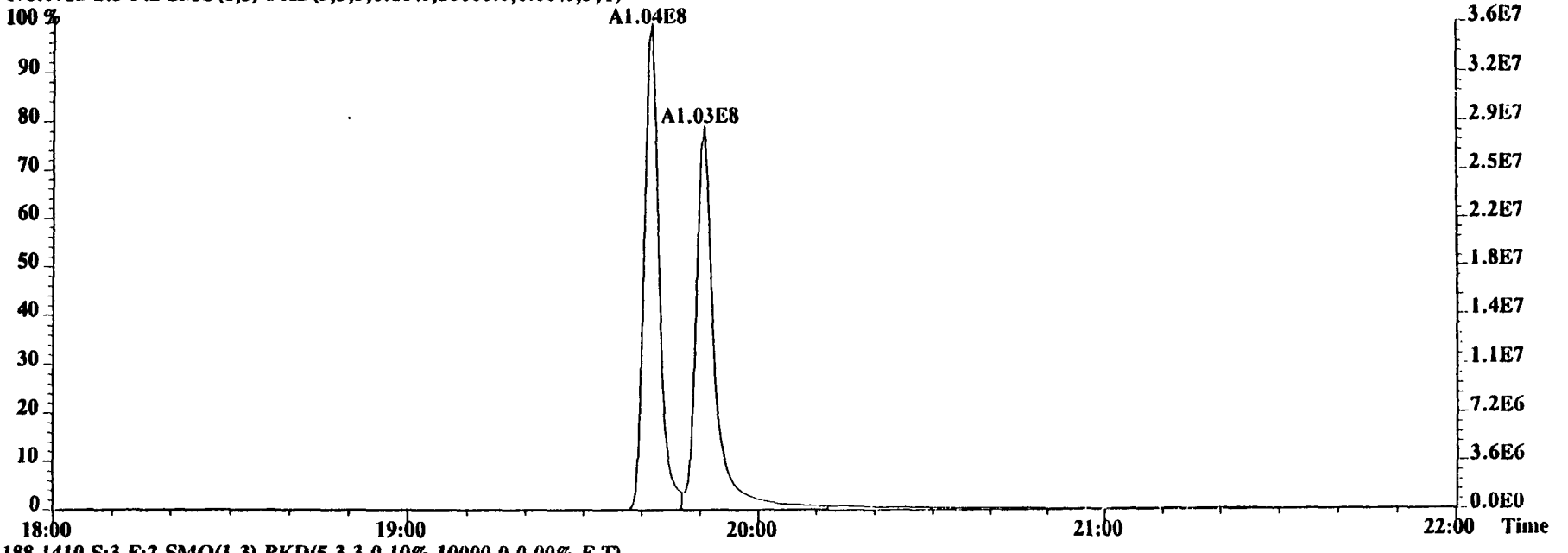
172.0984 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



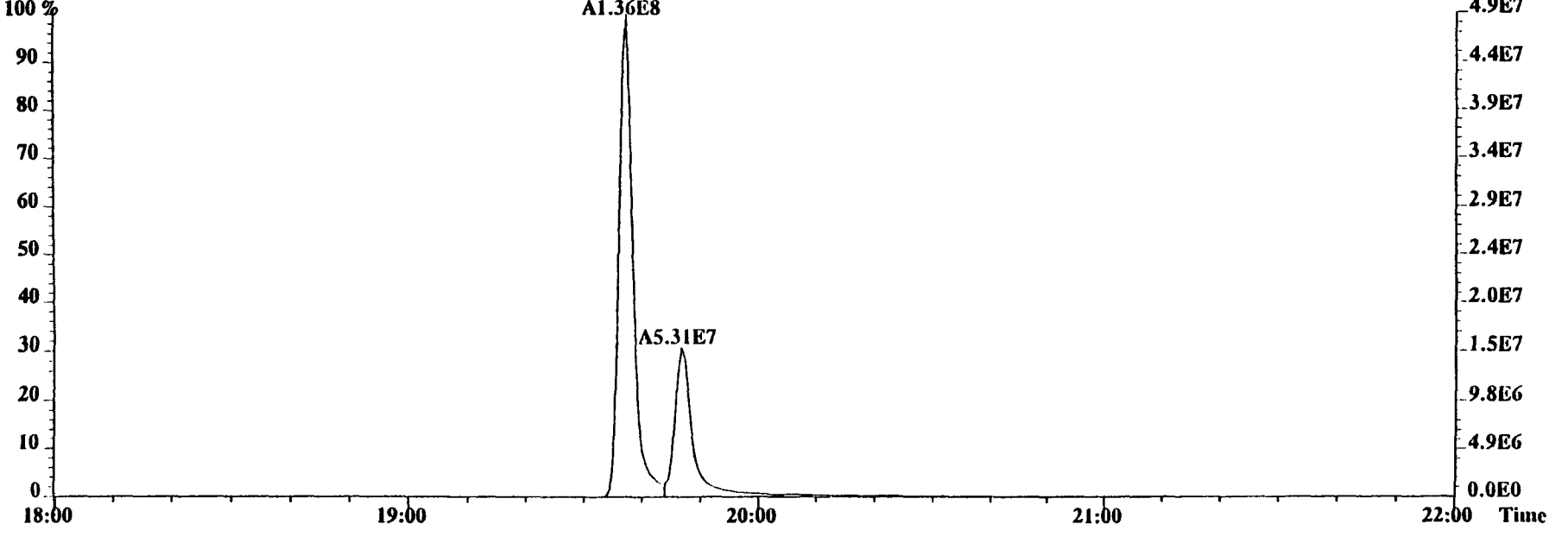
176.1410 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



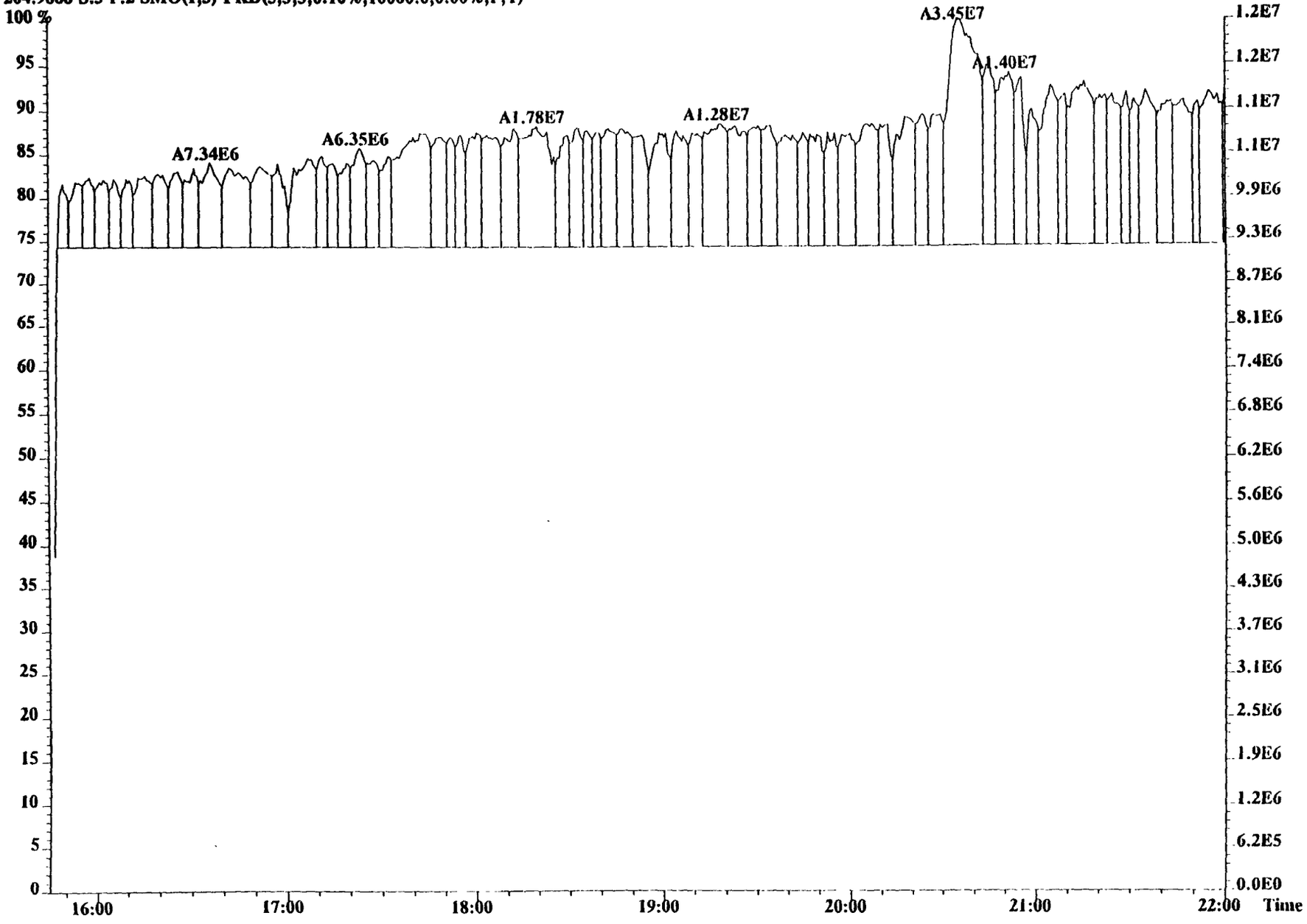
File:20AU98U #1-666 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
178.0782 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



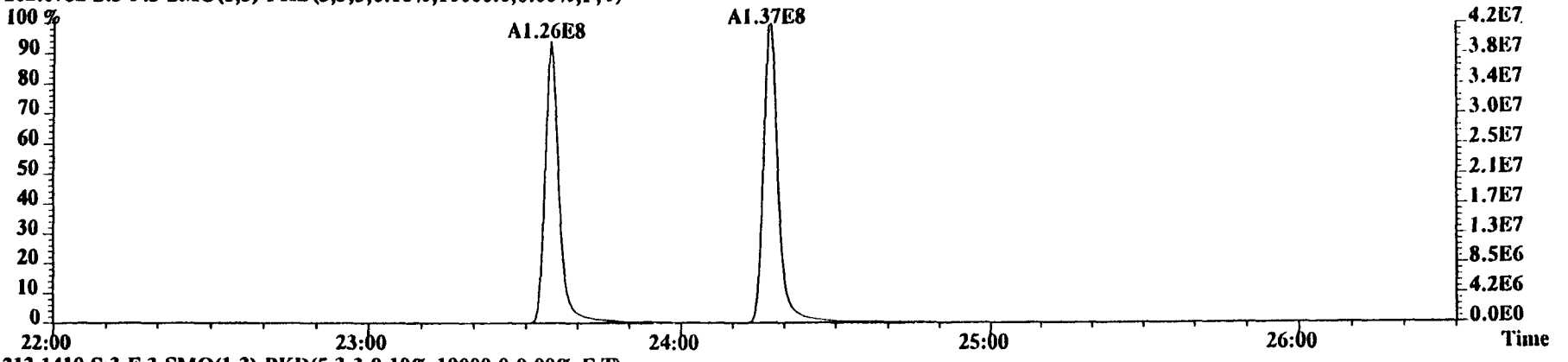
188.1410 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



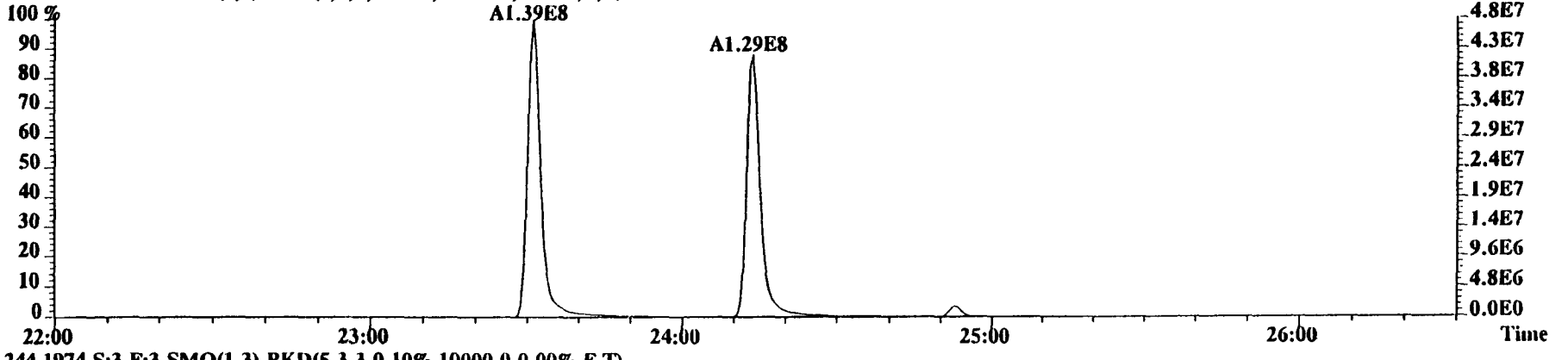
File:20AU98U #1-666 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
204.9888 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



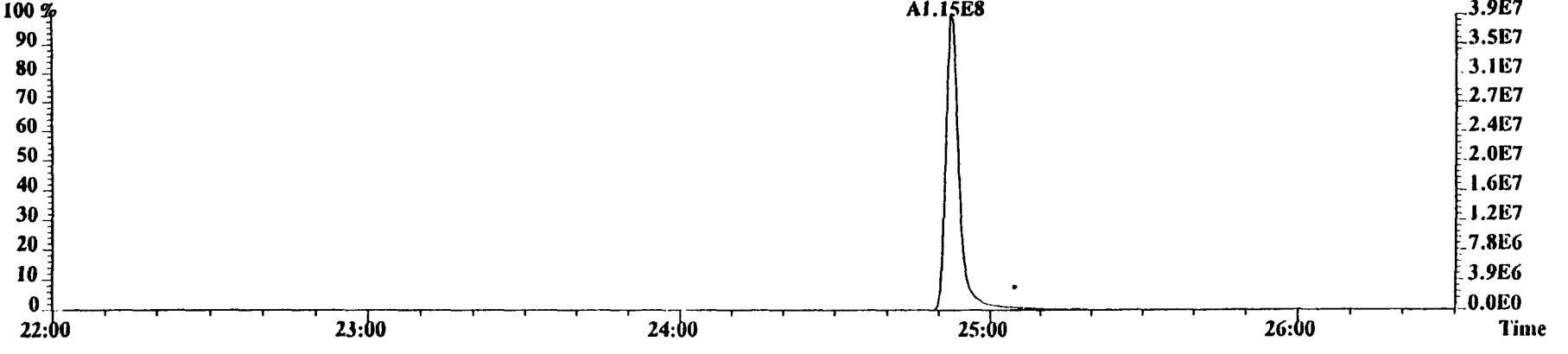
File:20AU98U #1-934 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
202.0782 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



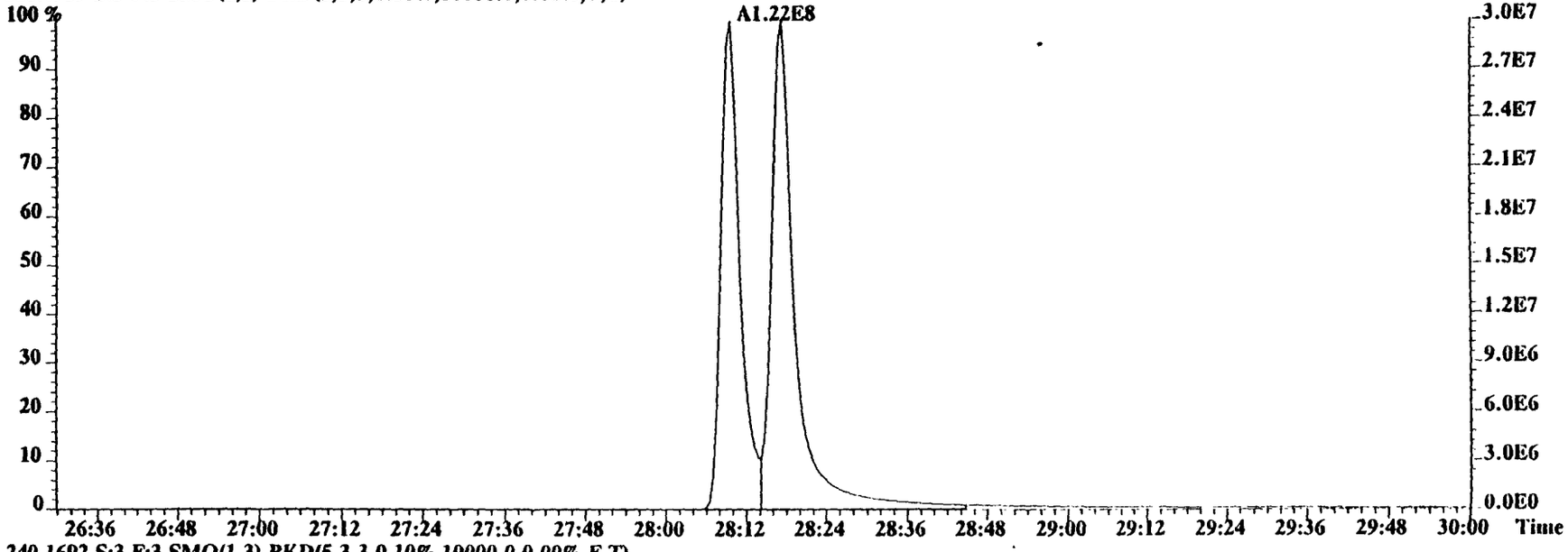
212.1410 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



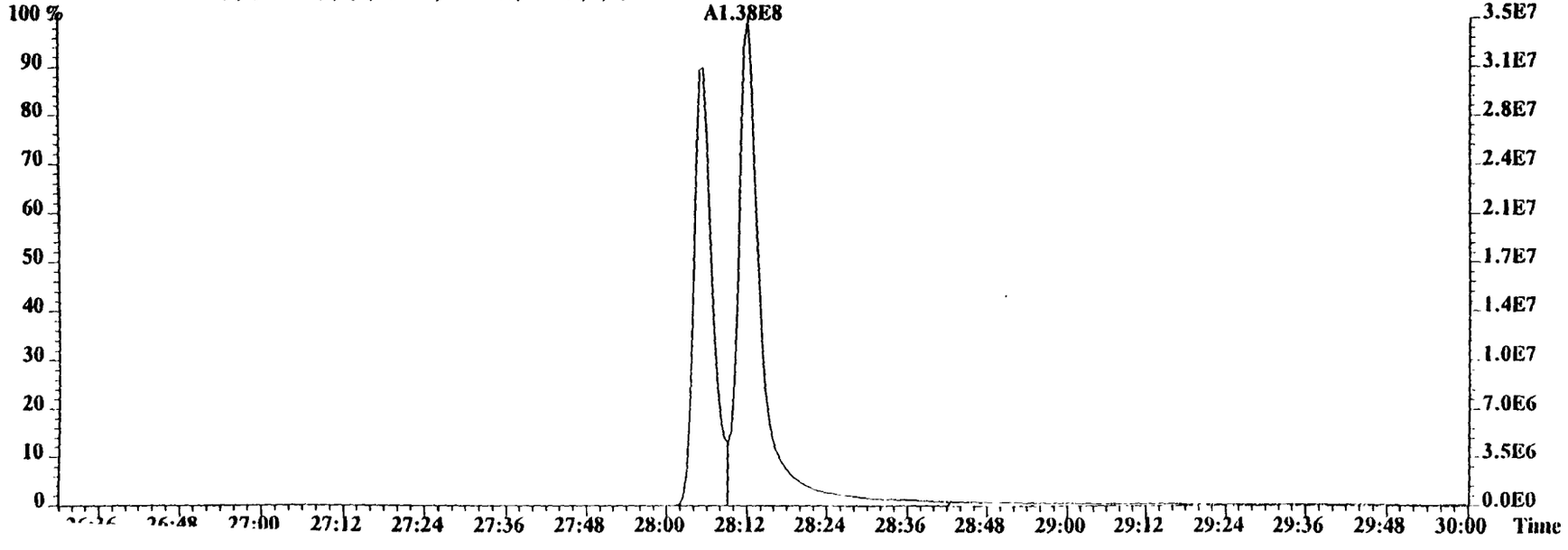
244.1974 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



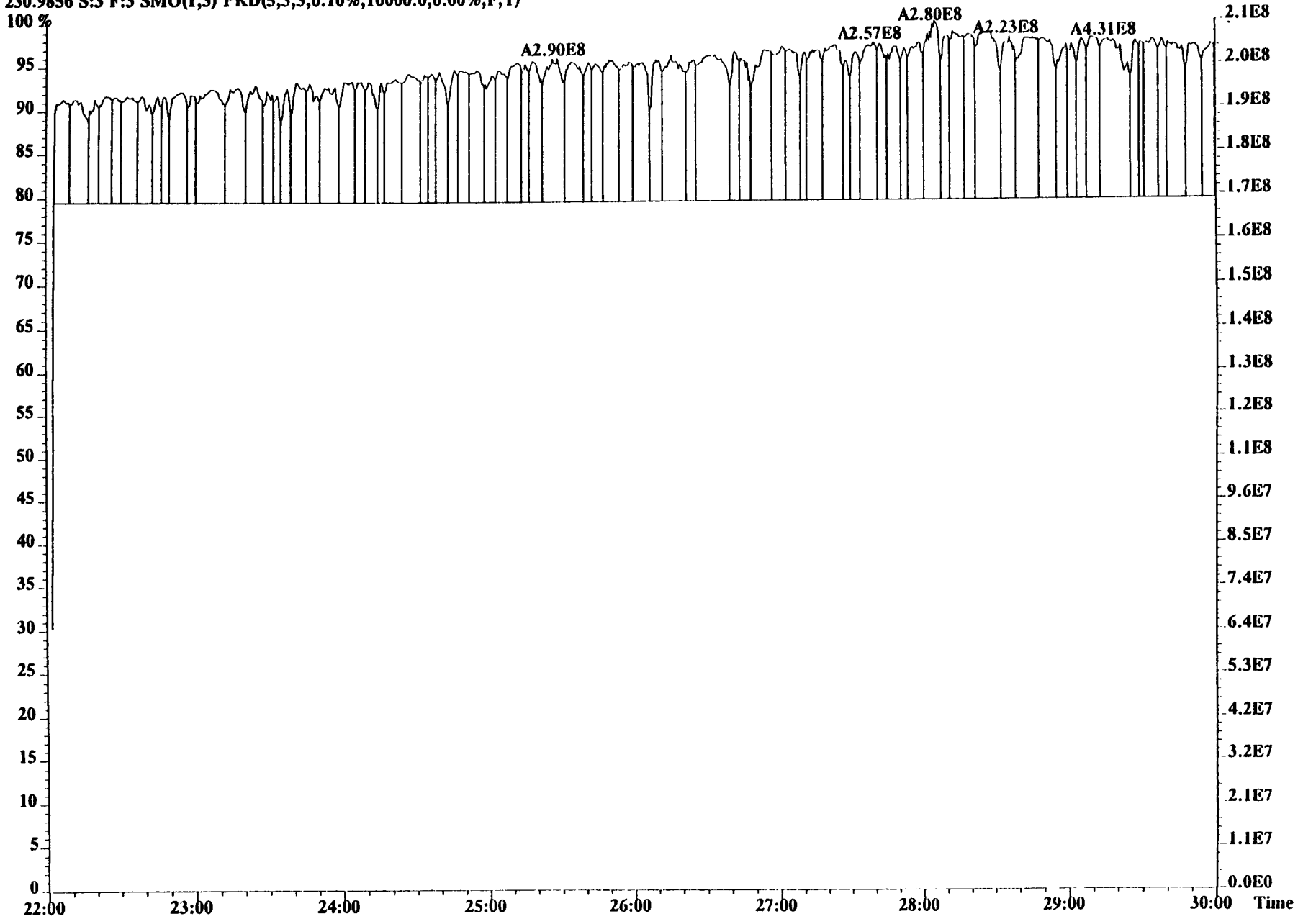
File:20AU98U #1-934 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
228.0939 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



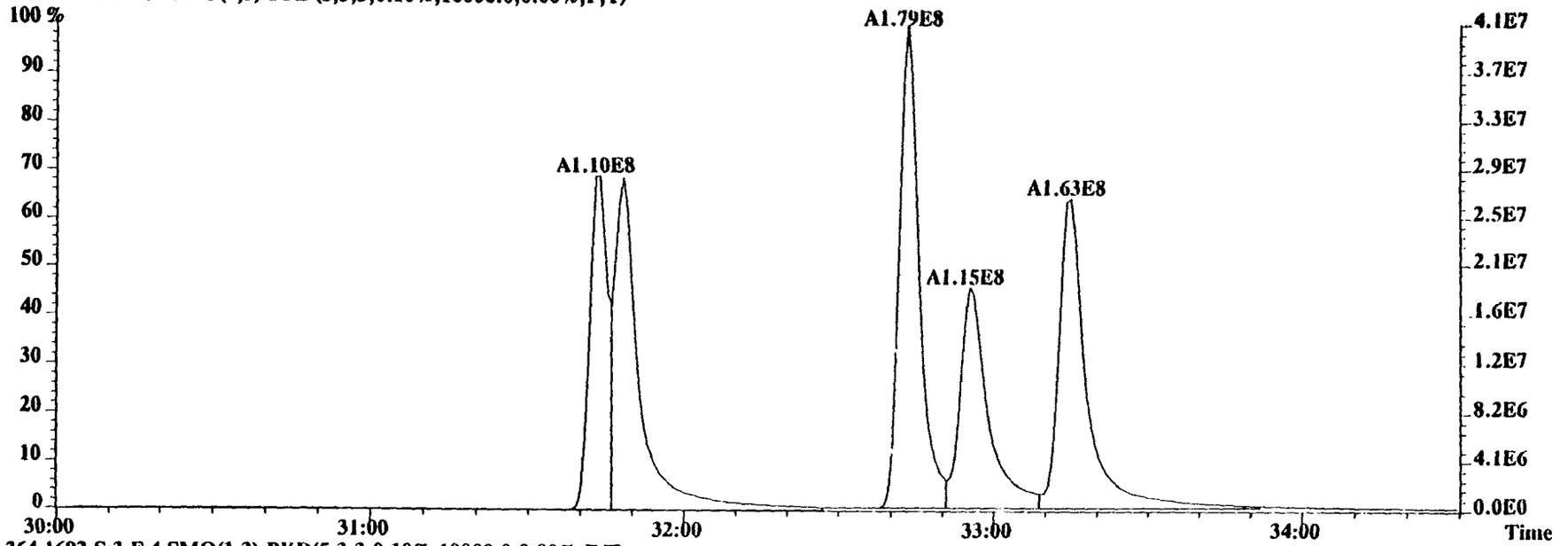
240.1692 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



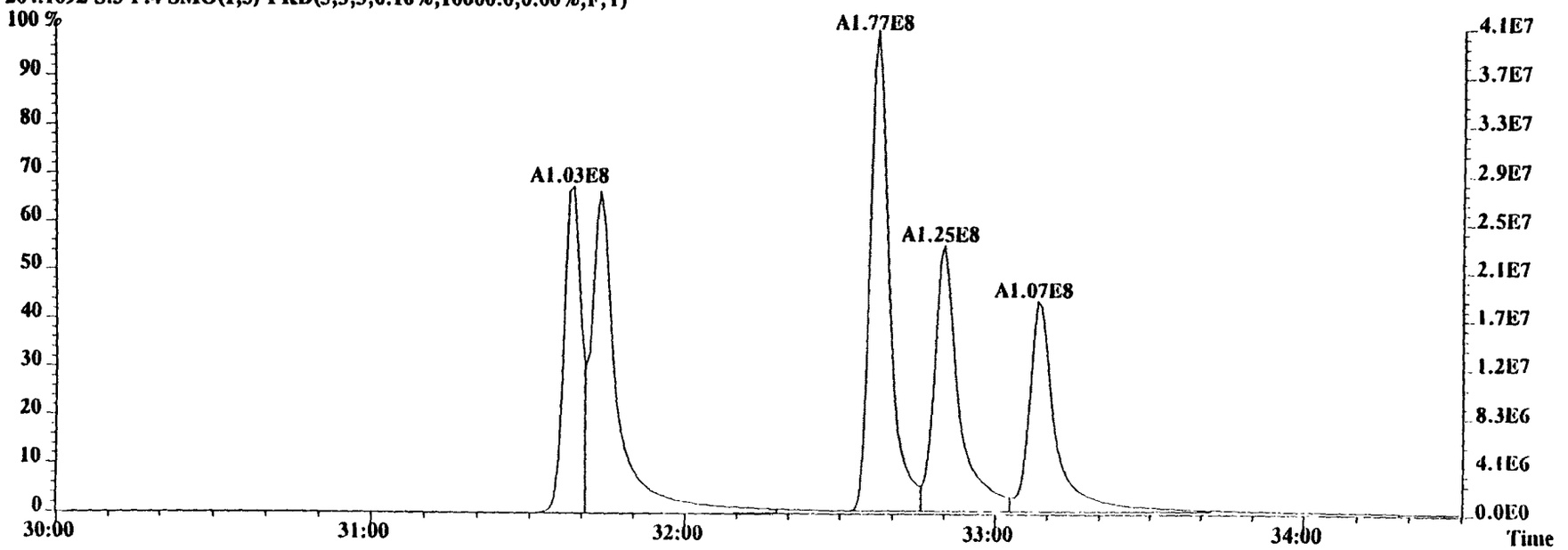
File:20AU98U #1-934 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
230.9856 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



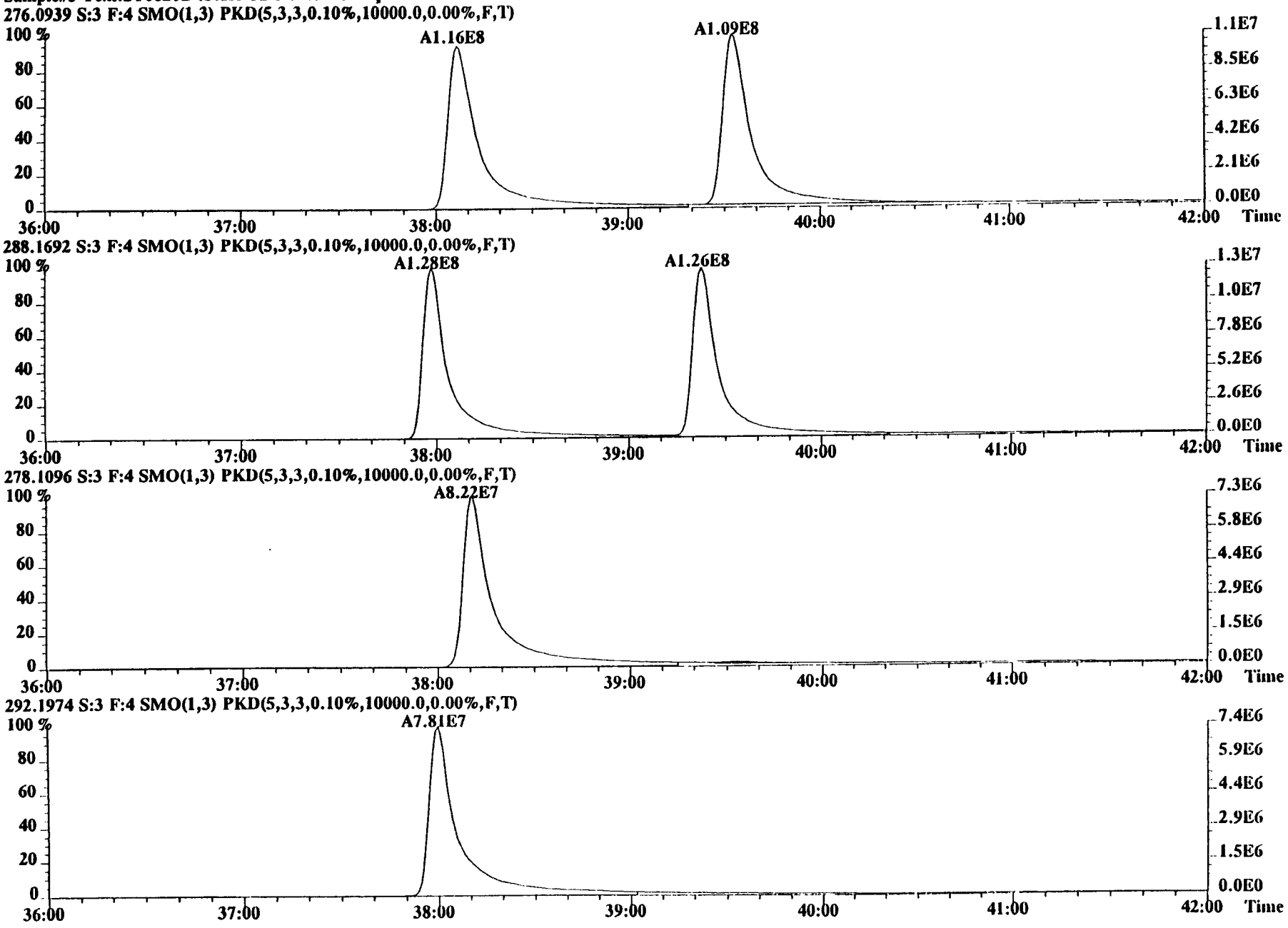
File:20AU98U #1-954 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
252.0939 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



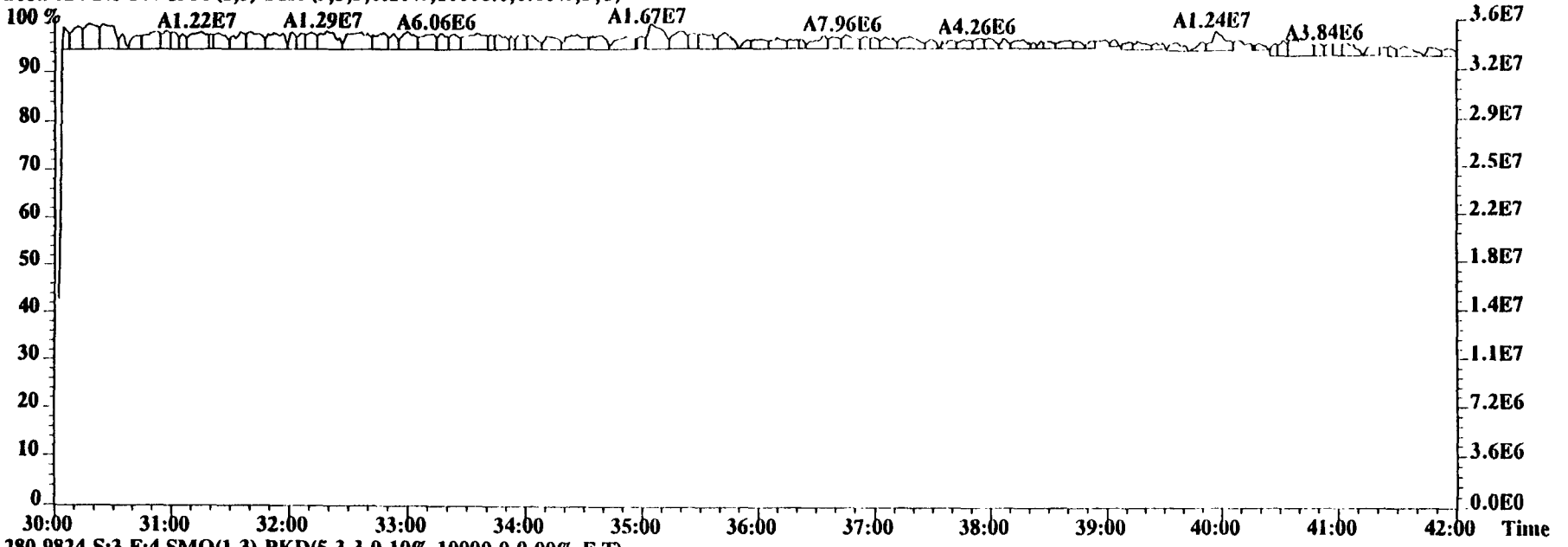
264.1692 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



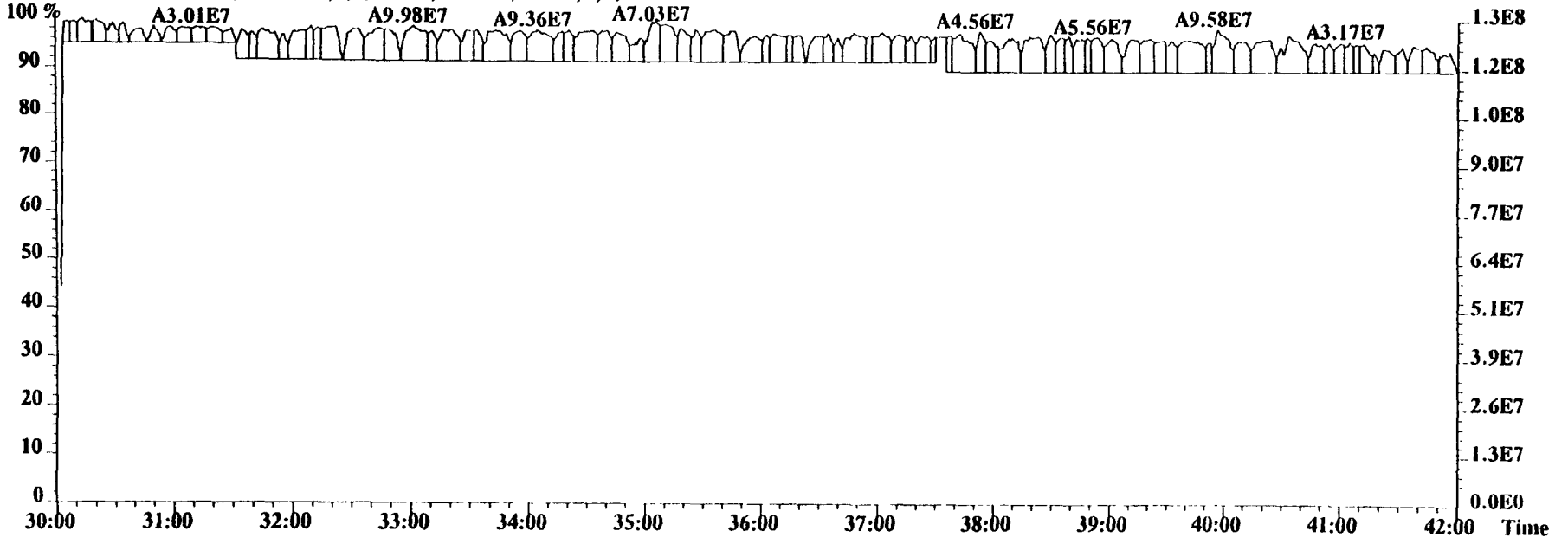
File:20AU98U #1-954 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR



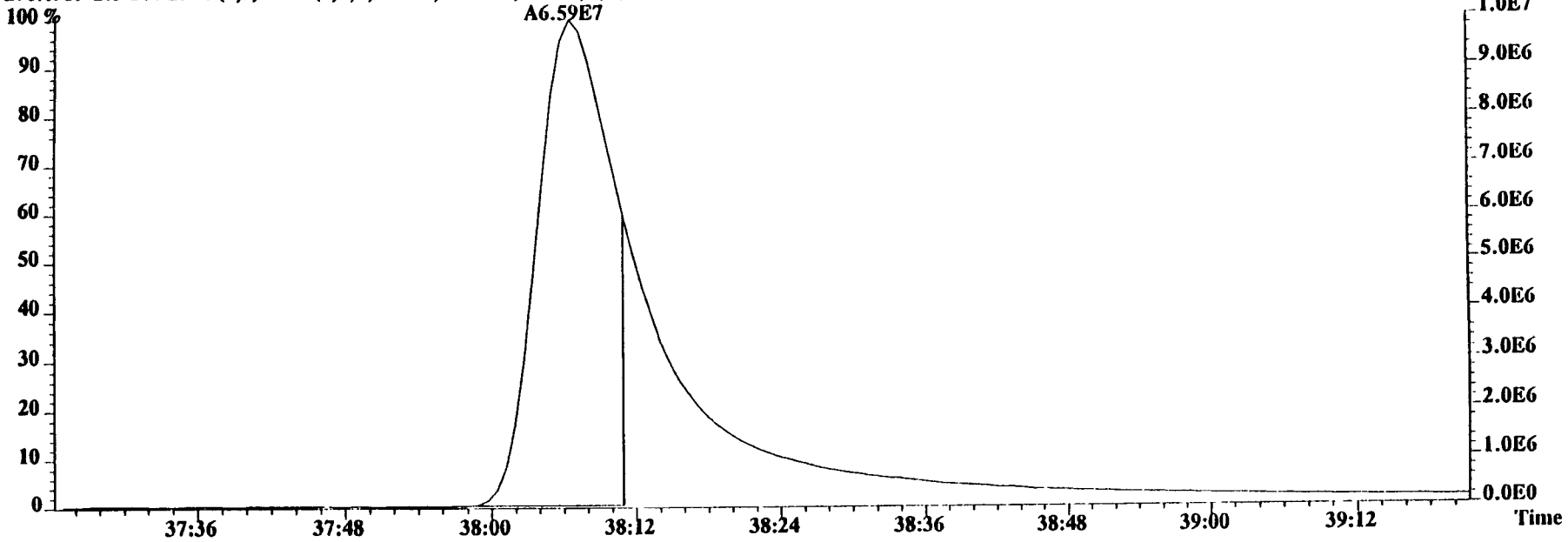
File:20AU98U #1-954 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
268.9824 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



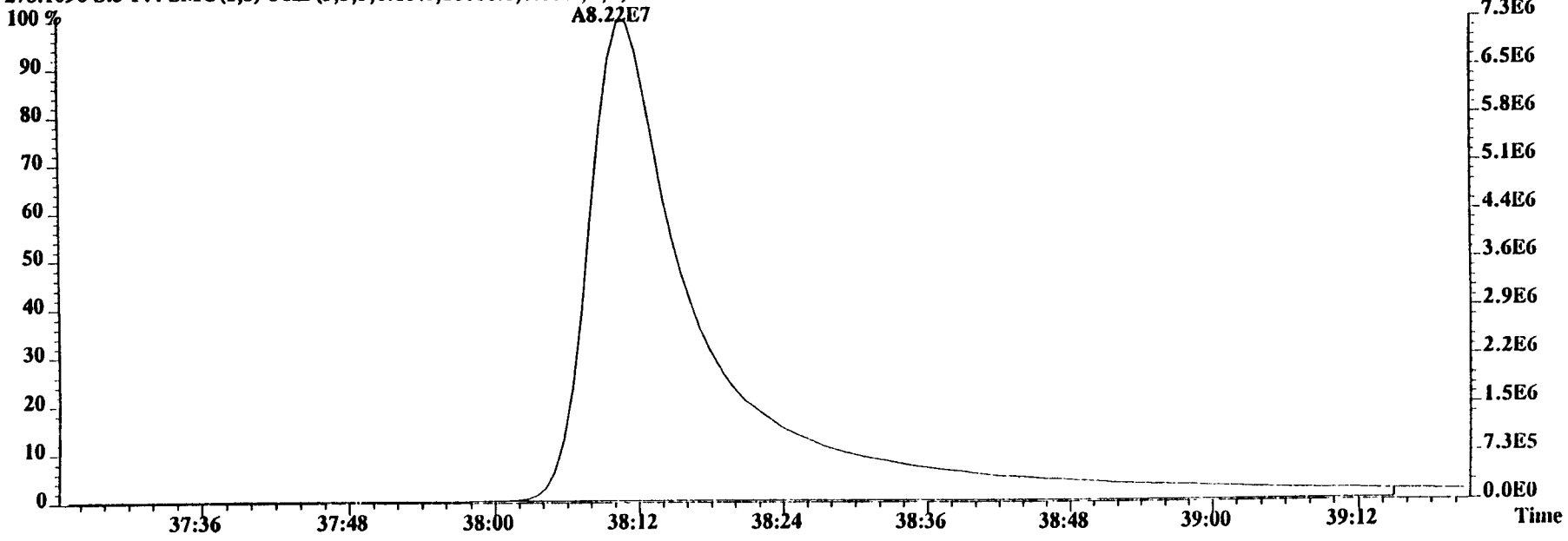
280.9824 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



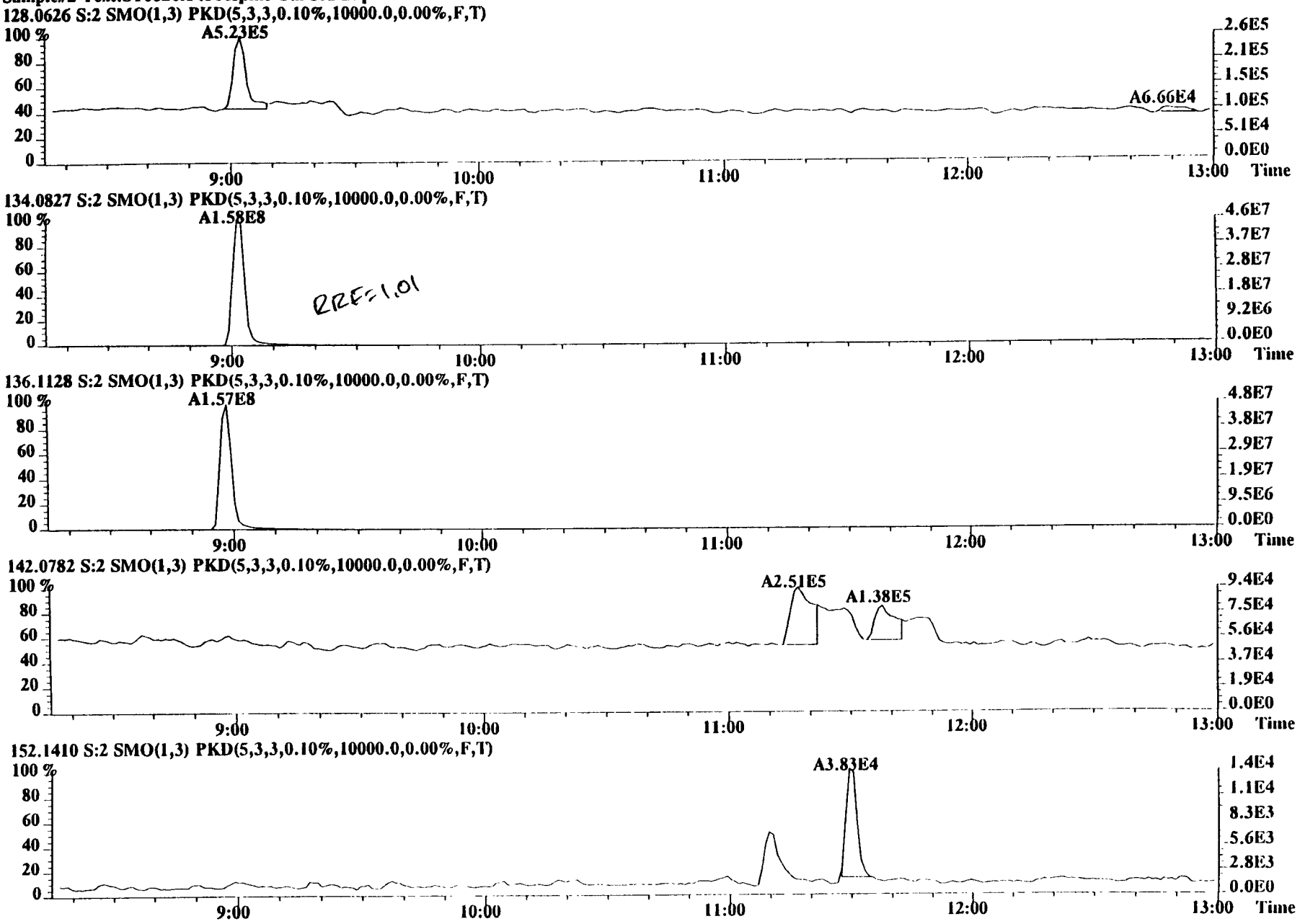
File:20AU98U #1-954 Acq:20-AUG-1998 16:54:06 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:ST0820B :PAH CS-3 :265-4C Exp:PAHAIR
276.0939 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



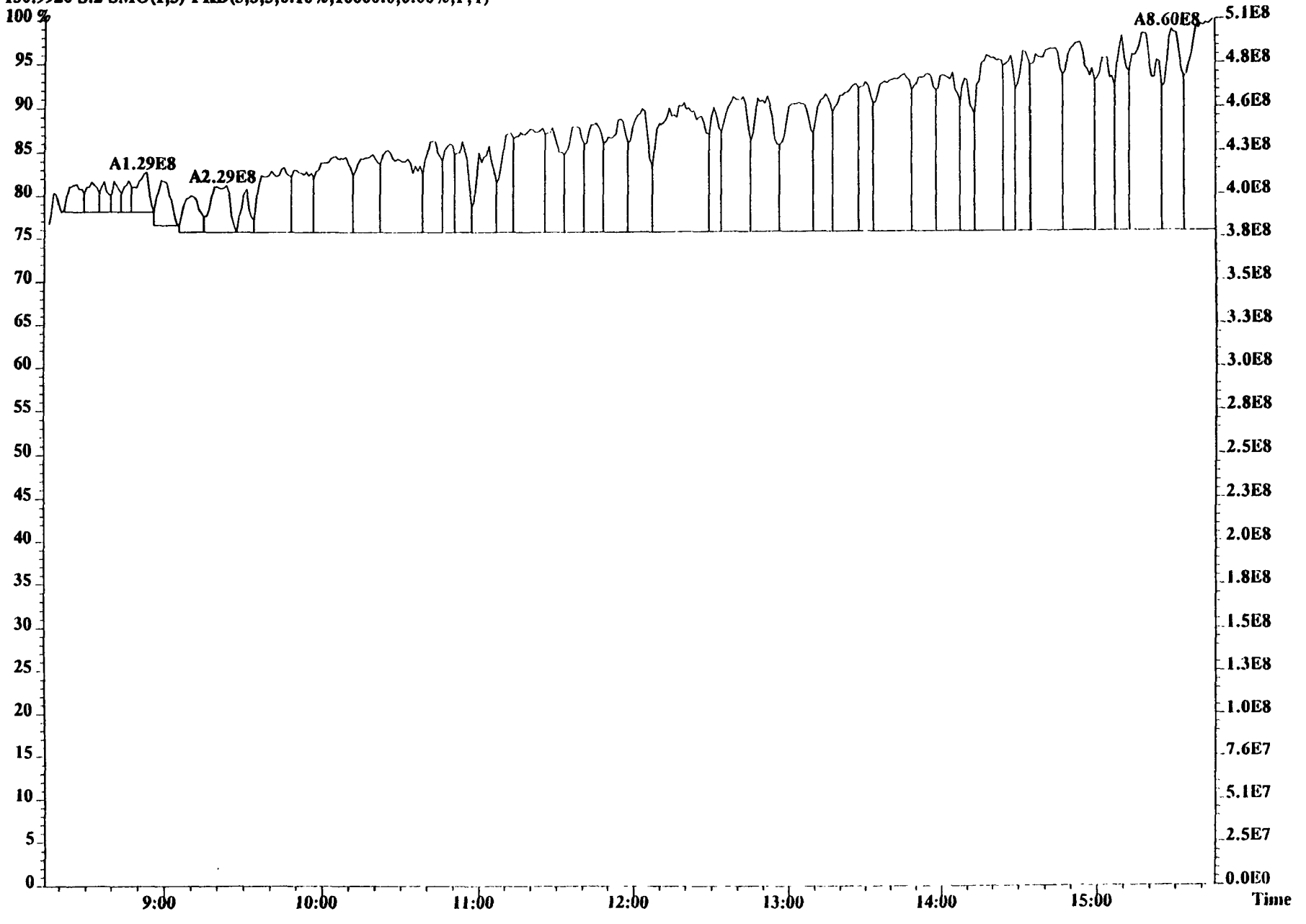
278.1096 S:3 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



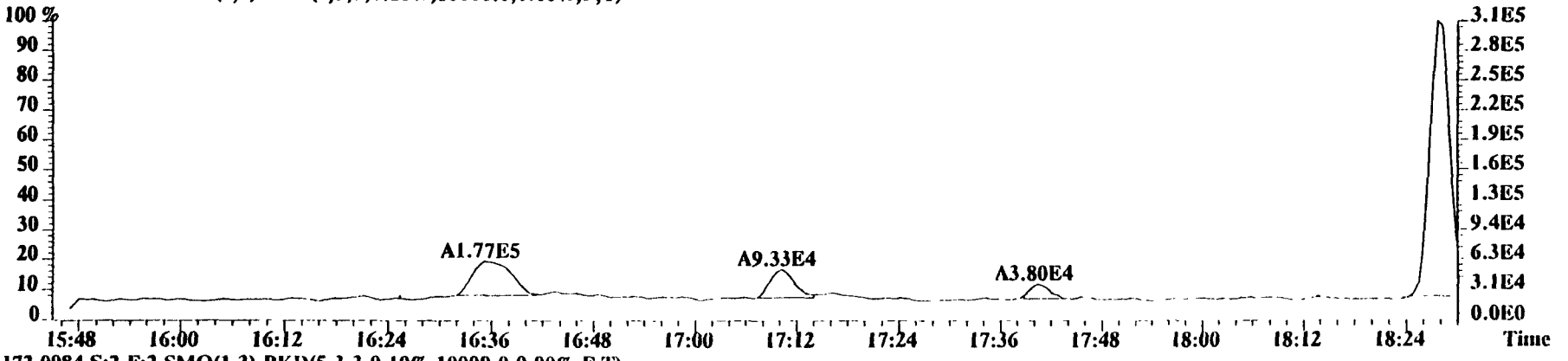
File:20AU98U #1-476 Acq:20-AUG-1998 16:07:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0820A :Prespike Cal Std Exp:PAHAIR



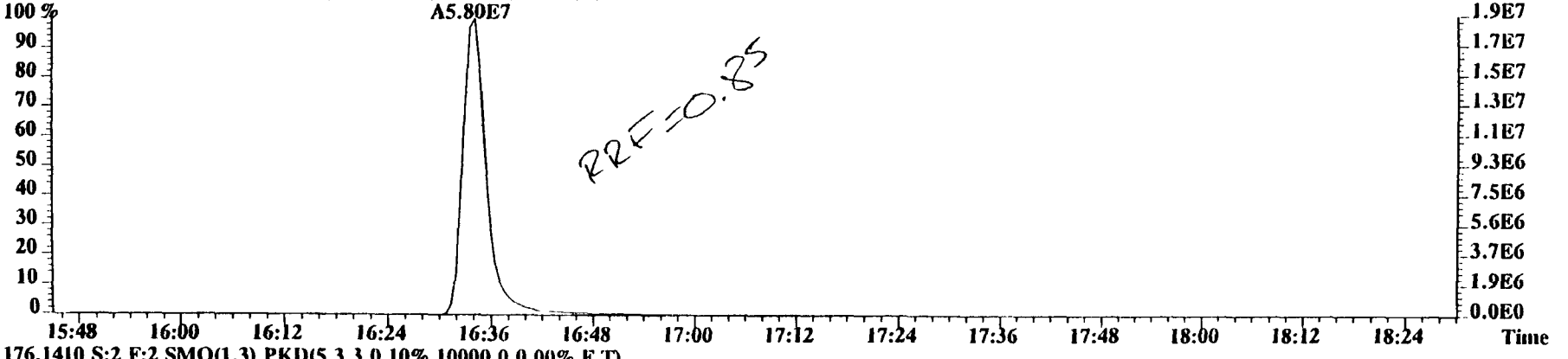
File:20AU98U #1-476 Acq:20-AUG-1998 16:07:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0820A :Prespike Cal Std Exp:PAHAIR
130.9920 S:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



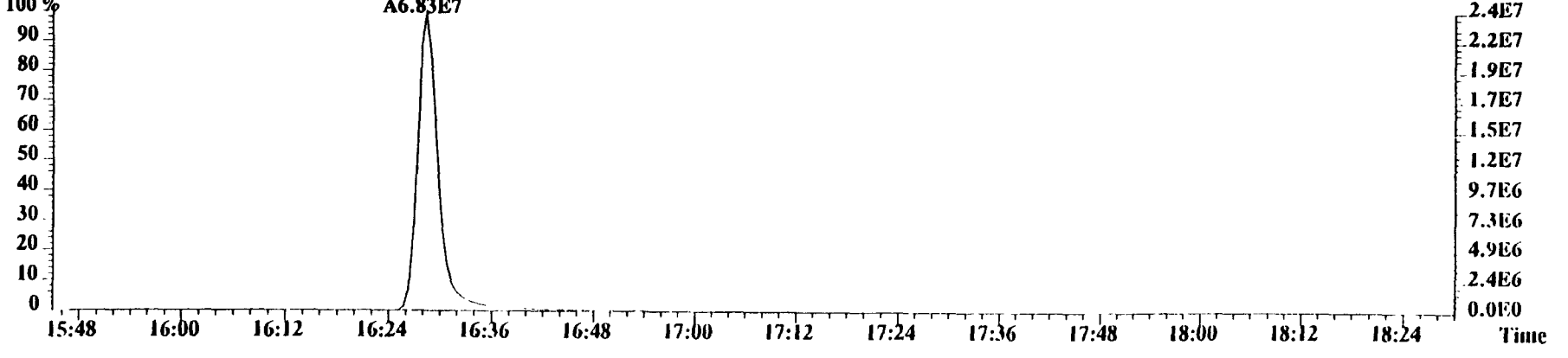
File:20AU98U #1-665 Acq:20-AUG-1998 16:07:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0820A :Prespike Cal Std Exp:PAHAIR
166.0798 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



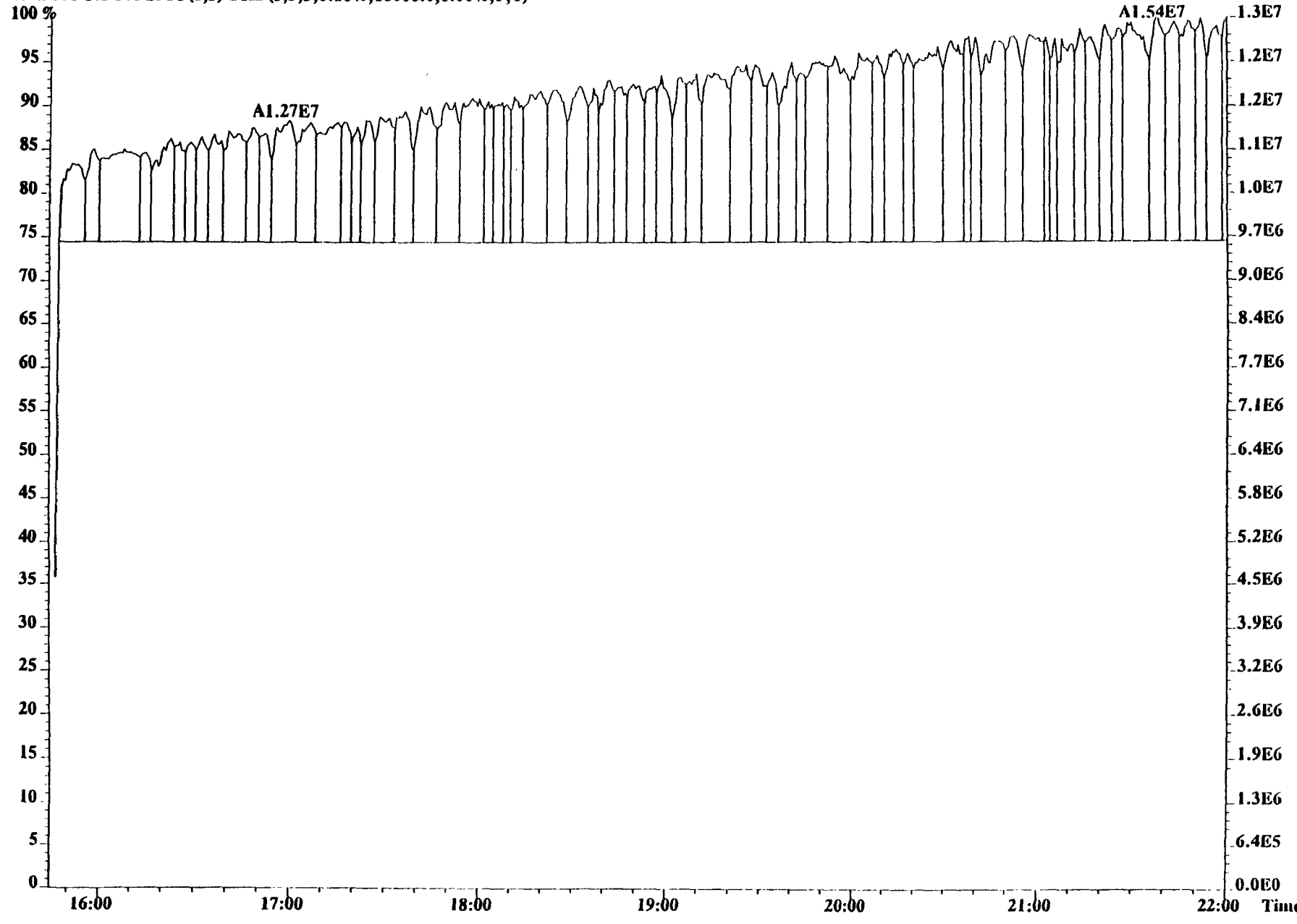
172.0984 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



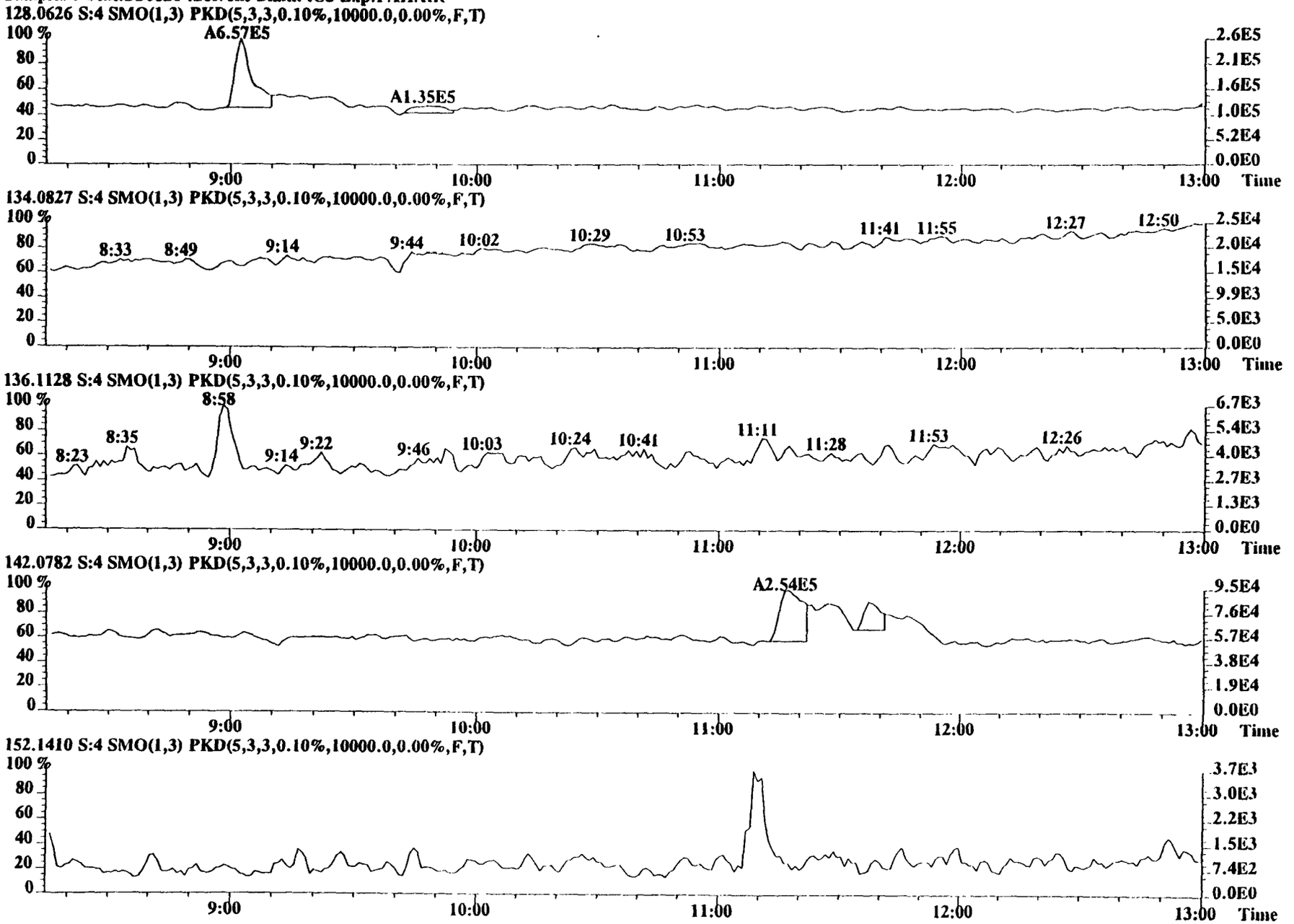
176.1410 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:20AU98U #1-665 Acq:20-AUG-1998 16:07:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0820A :Prespike Cal Std Exp:PAHAIR
204.9888 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

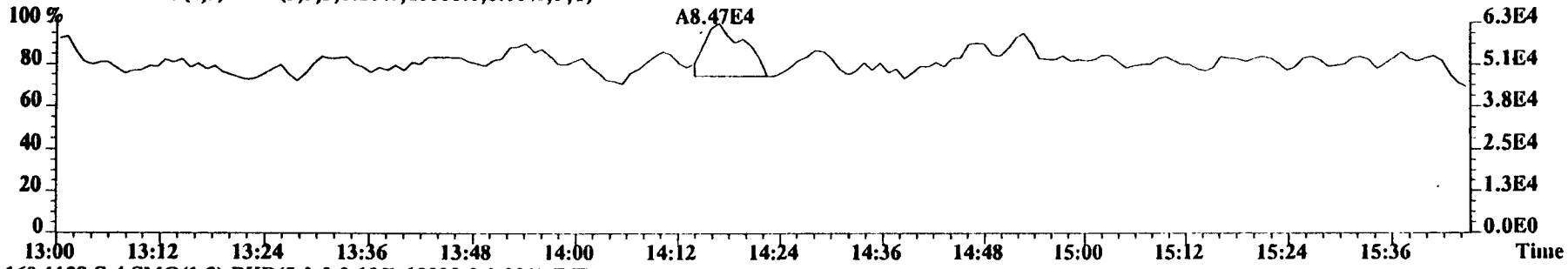


File:20AU98U #1-477 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR

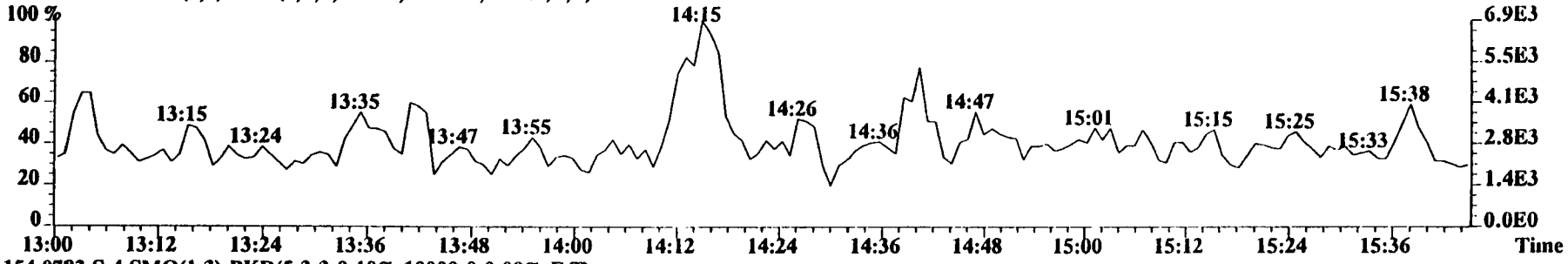


File:20AU98U #1-477 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR

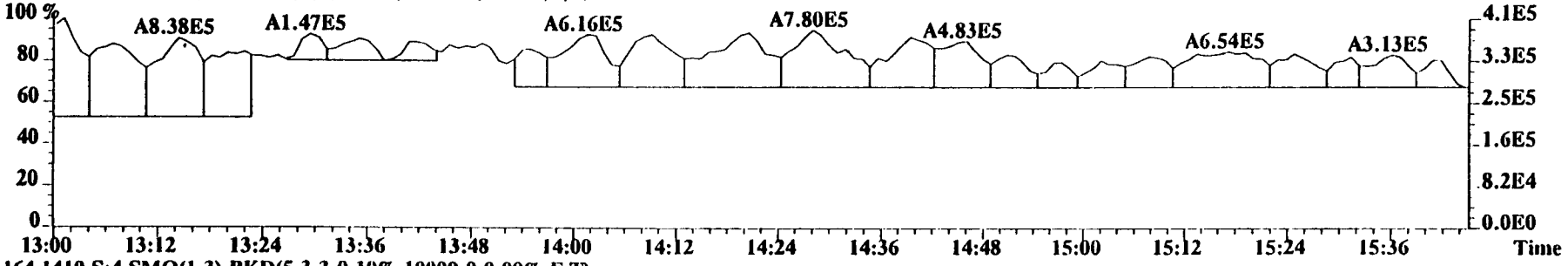
152.0626 S:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



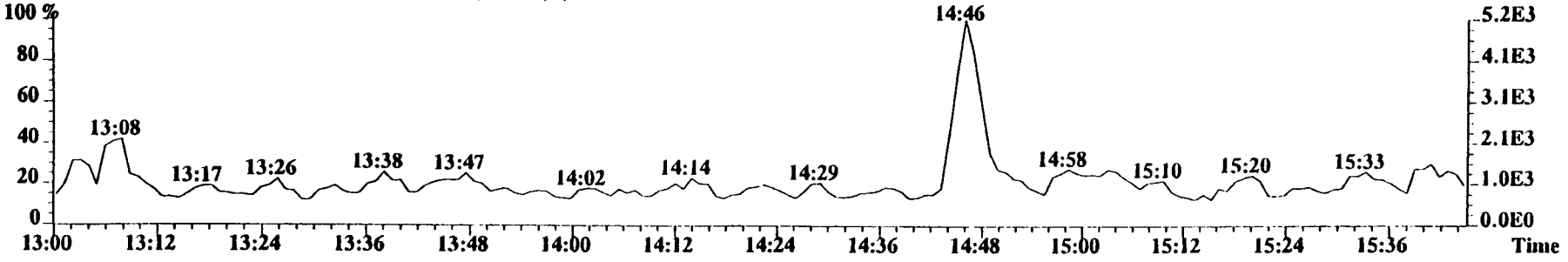
160.1128 S:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



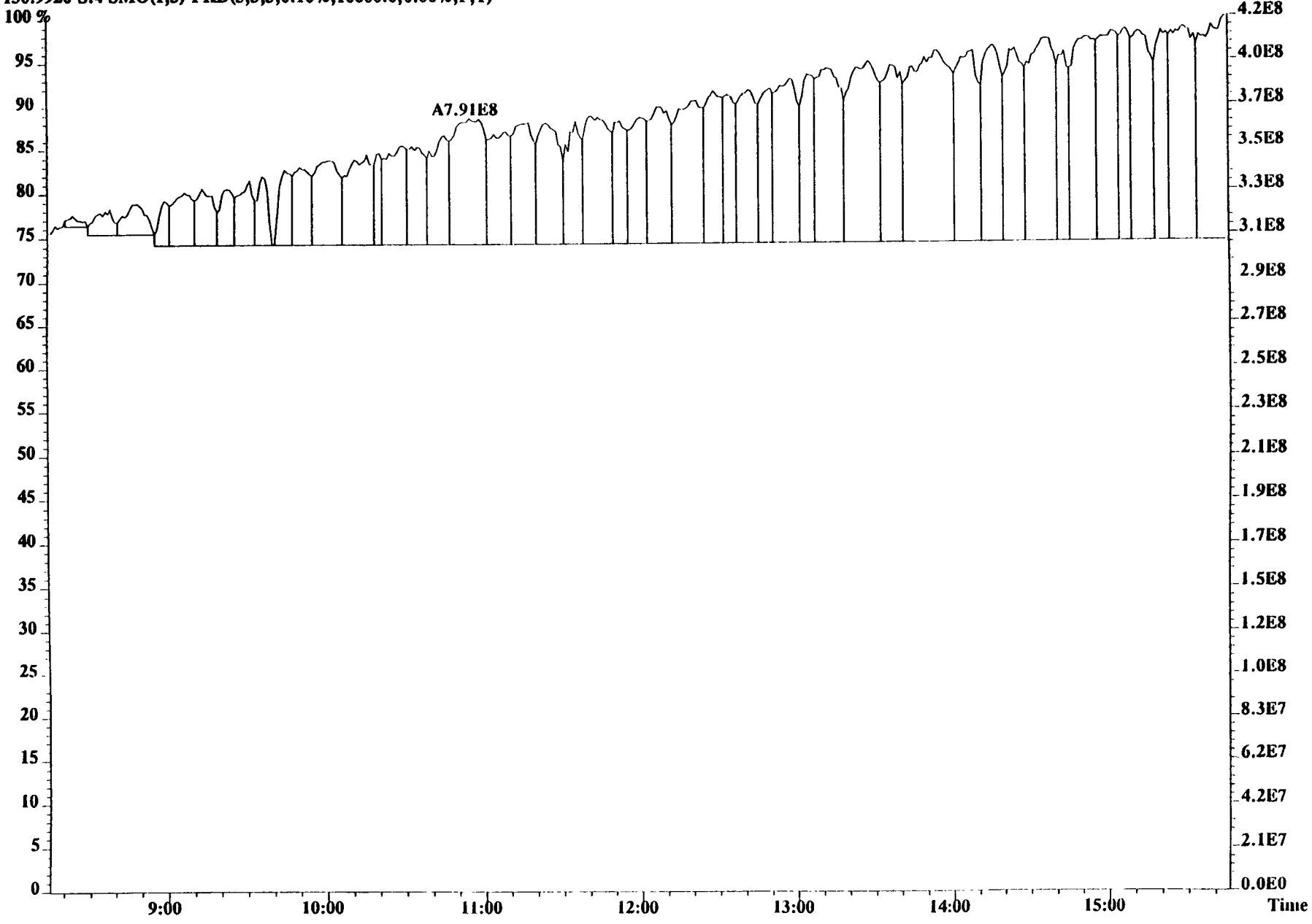
154.0782 S:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



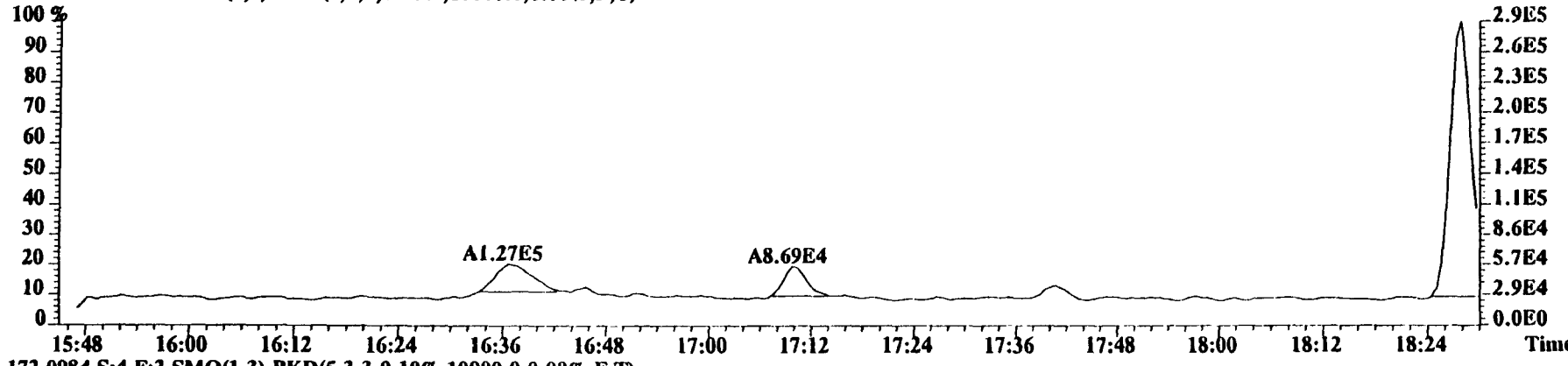
164.1410 S:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



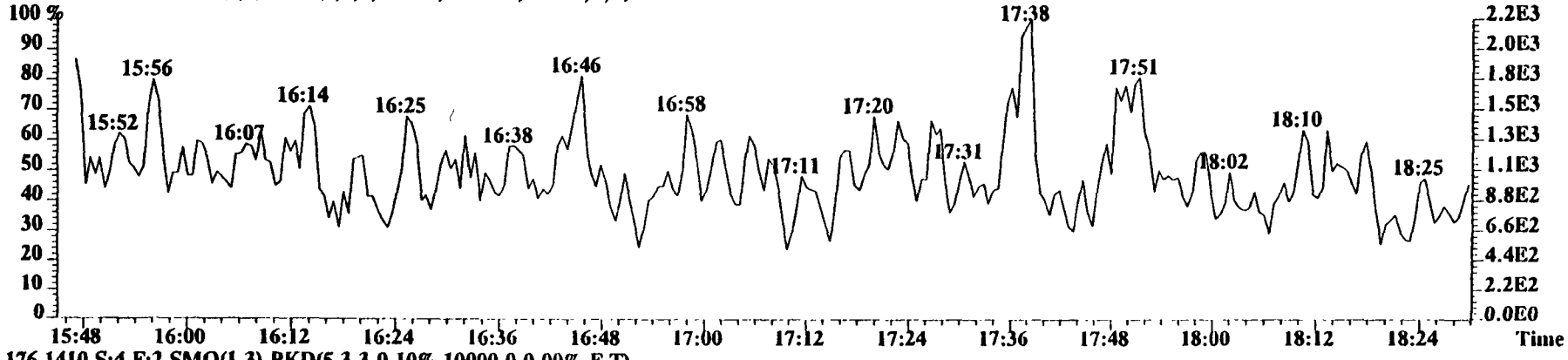
File:20AU98U #1-477 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
130.9920 S:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



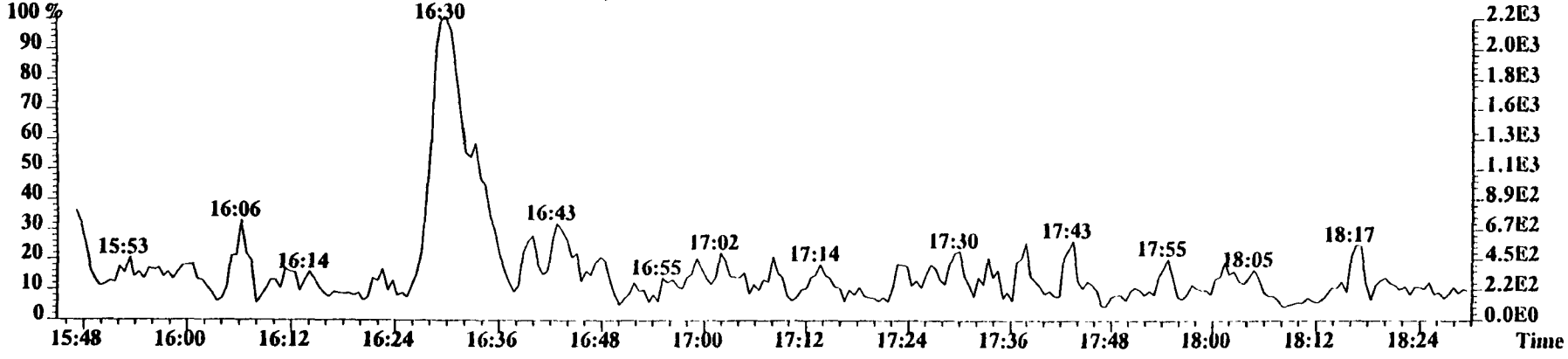
File:20AU98U #1-665 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
166.0798 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



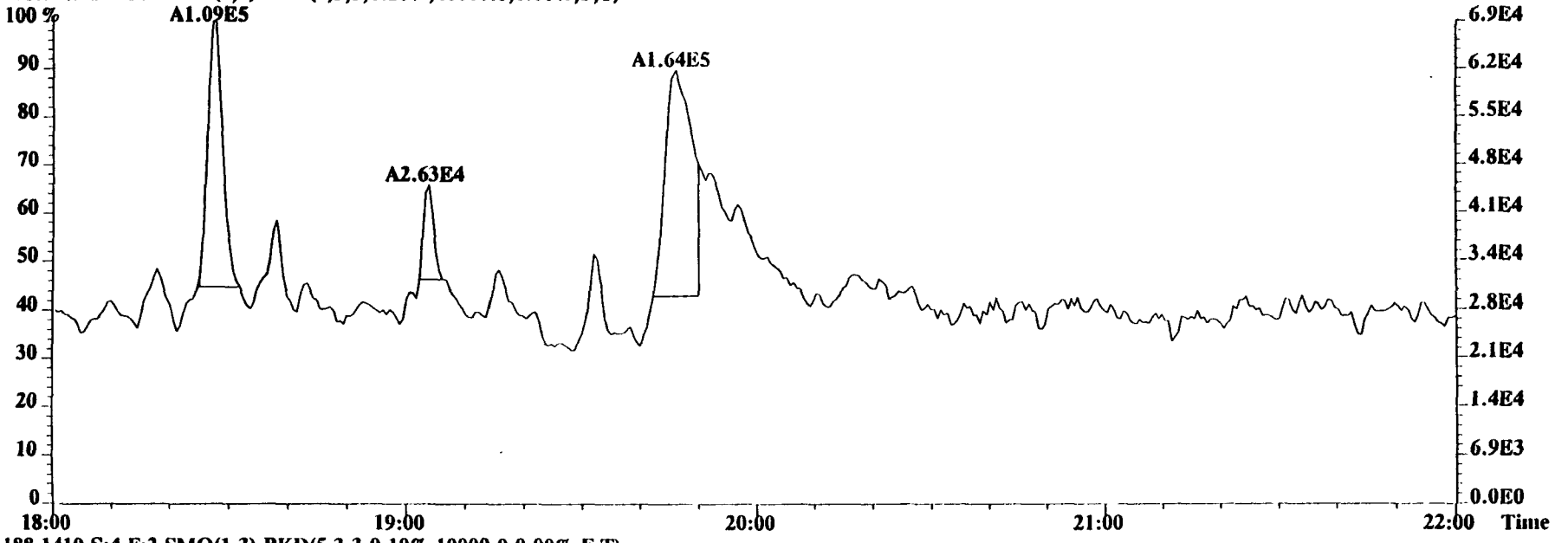
172.0984 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



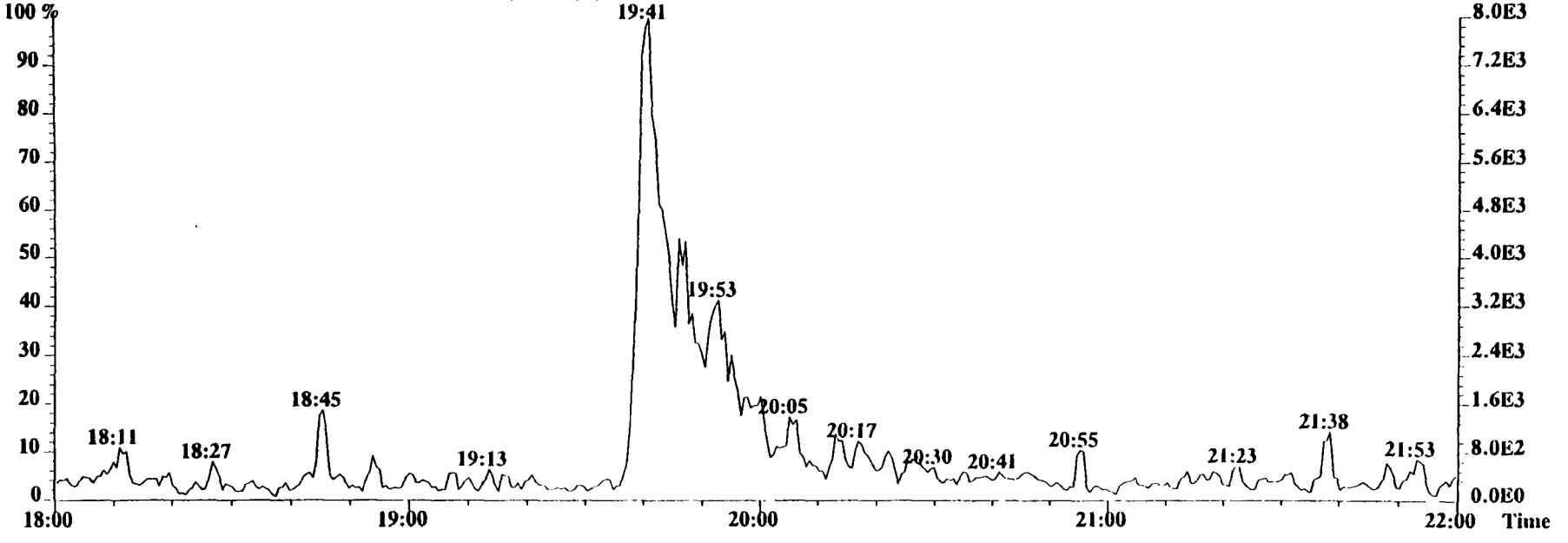
176.1410 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



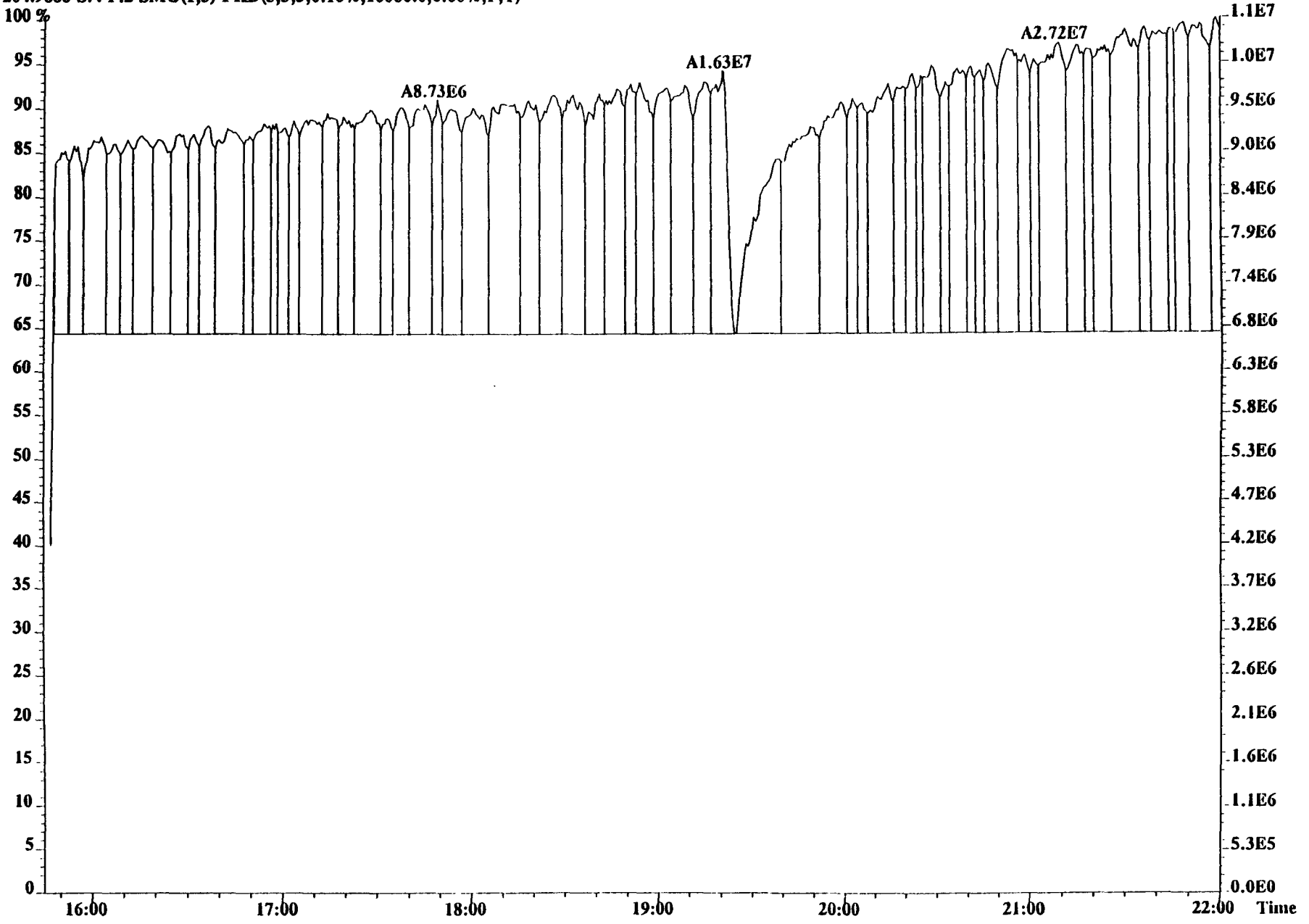
File:20AU98U #1-665 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
178.0782 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



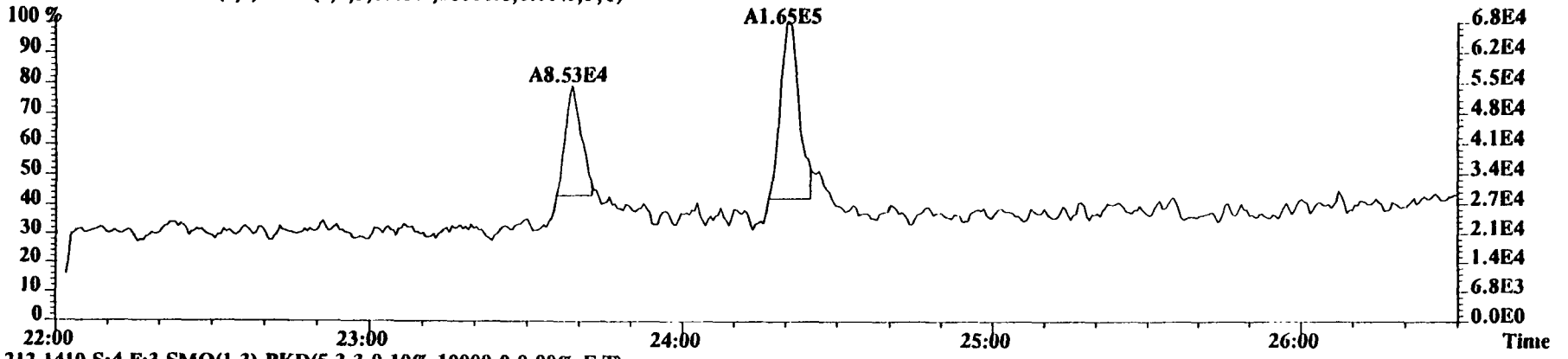
188.1410 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



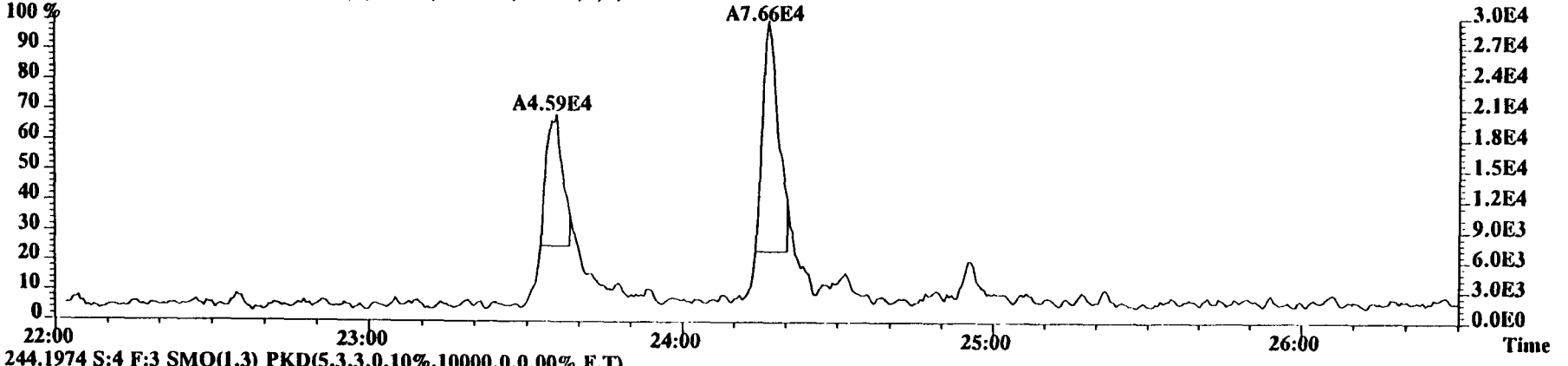
File:20AU98U #1-665 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
204.9888 S:4 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



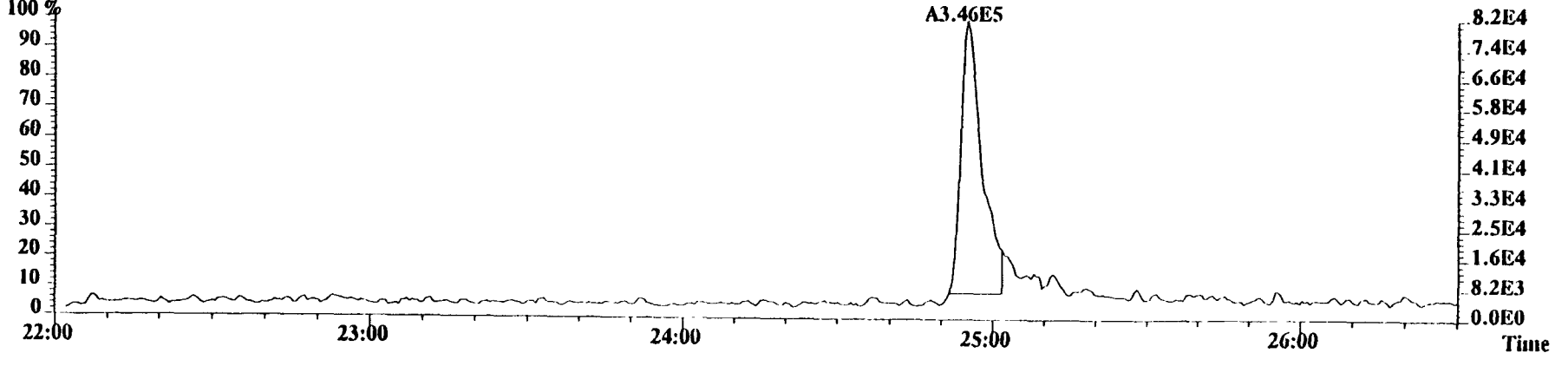
File:20AU98U #1-934 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
202.0782 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



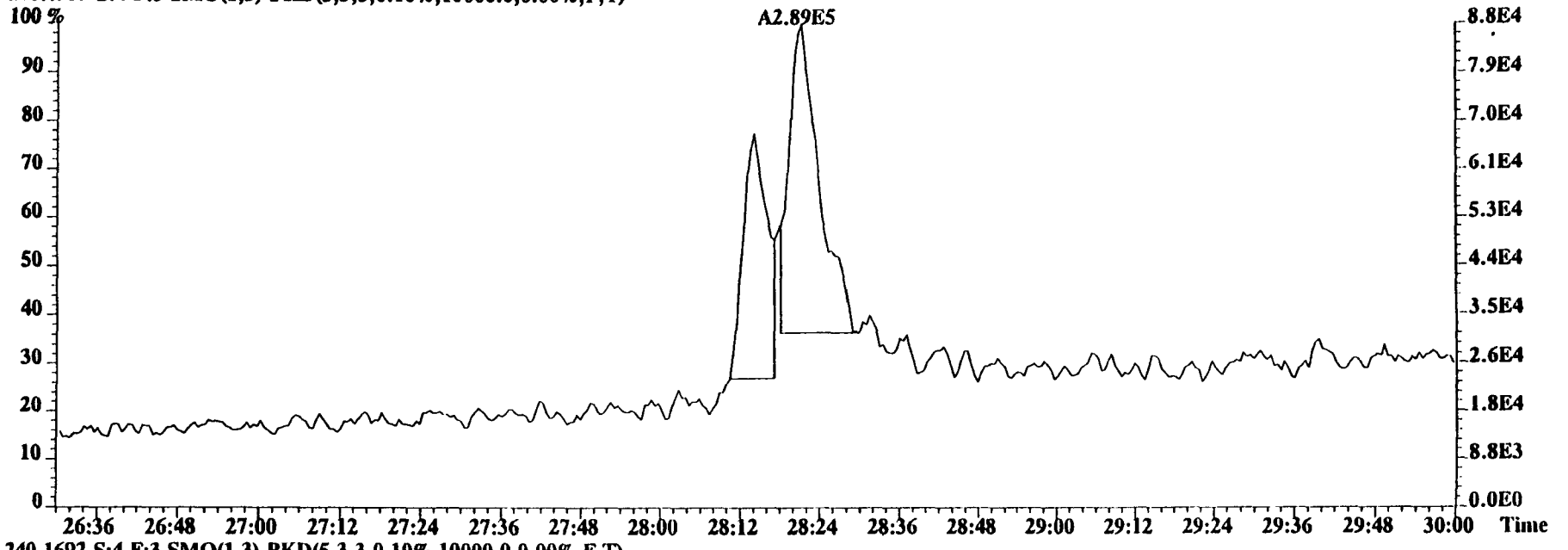
212.1410 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



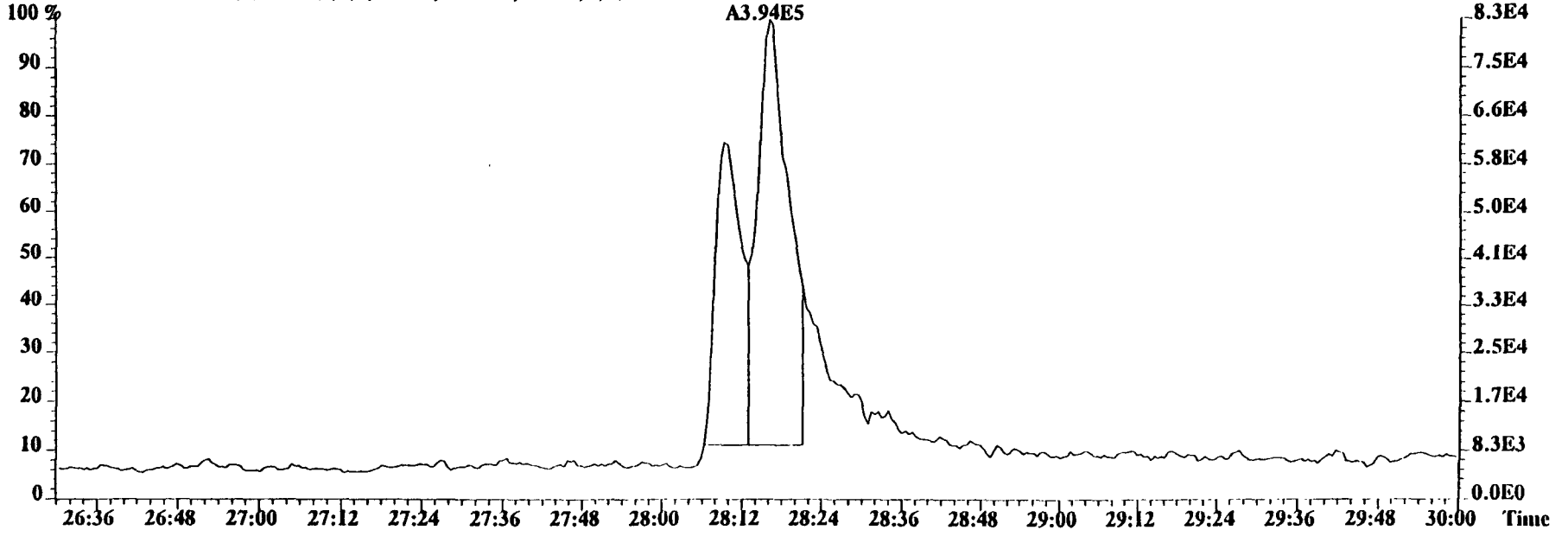
244.1974 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



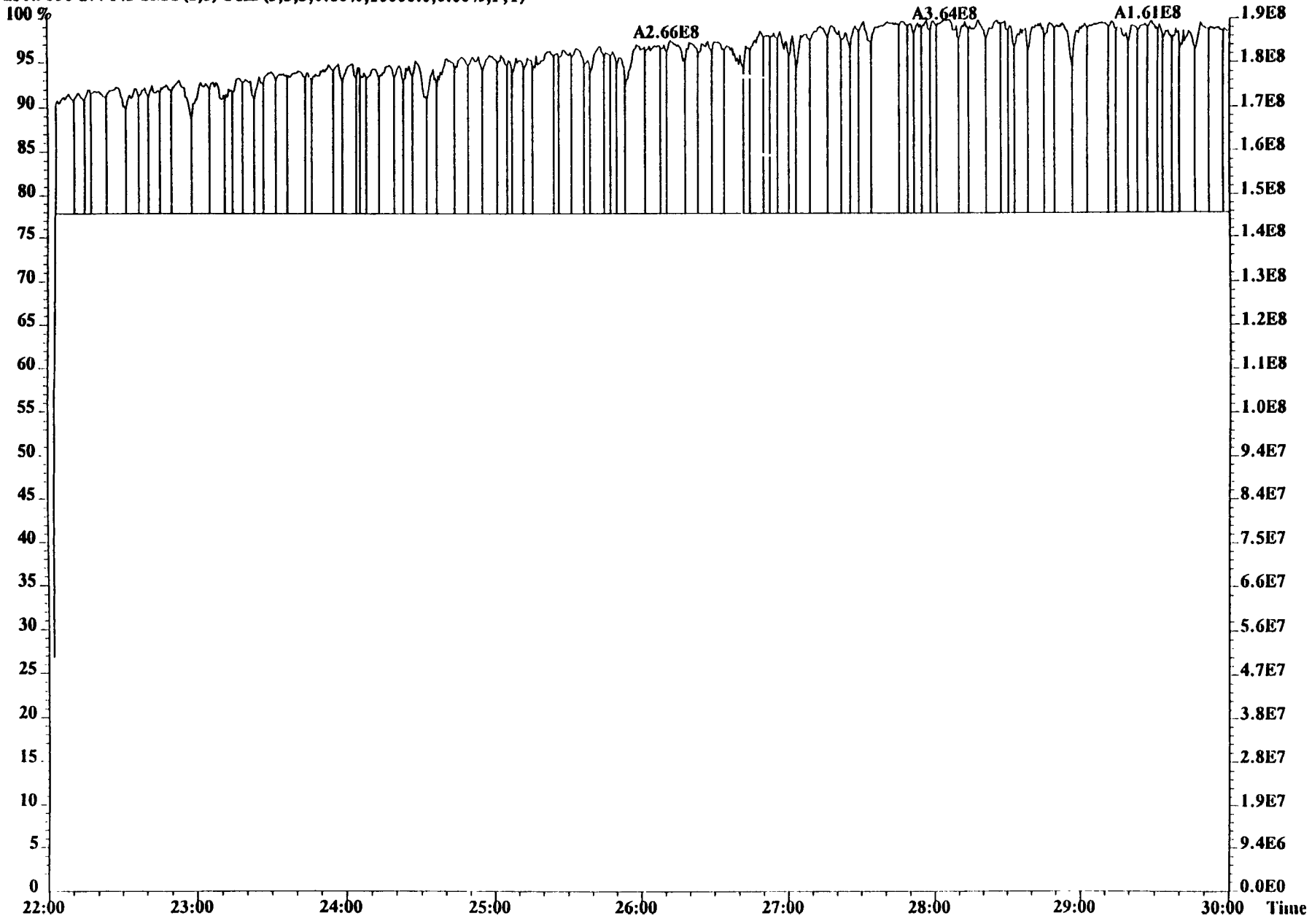
File:20AU98U #1-934 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
228.0939 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



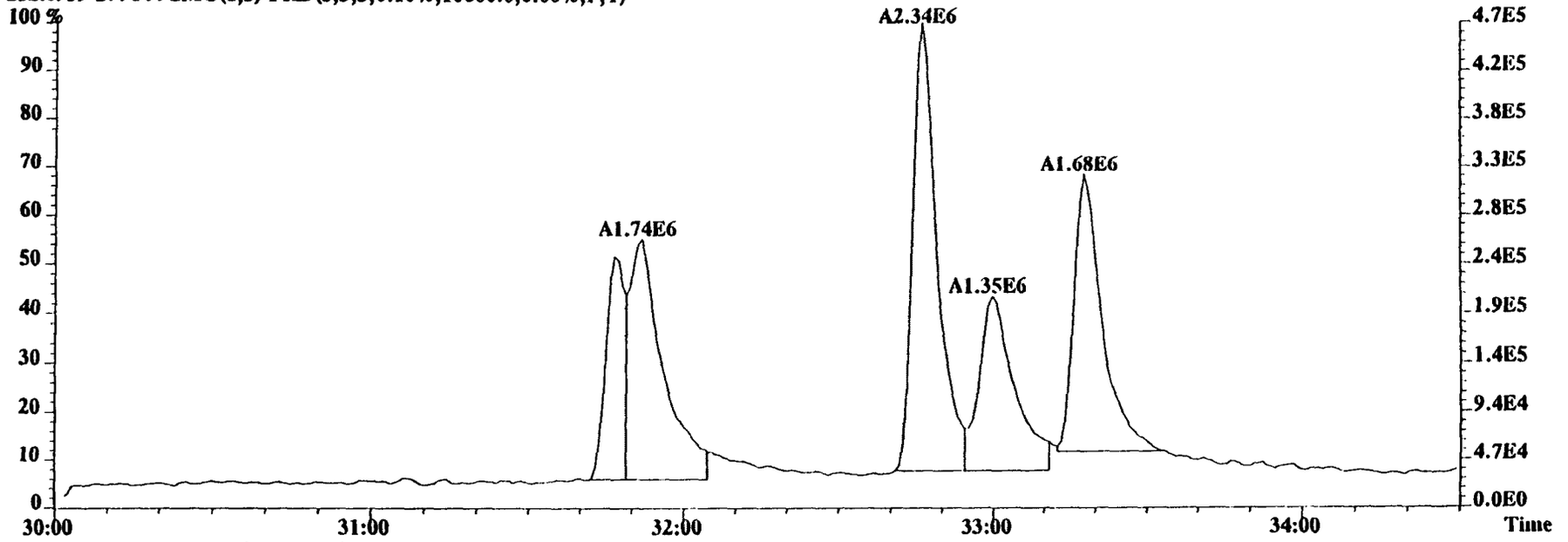
240.1692 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



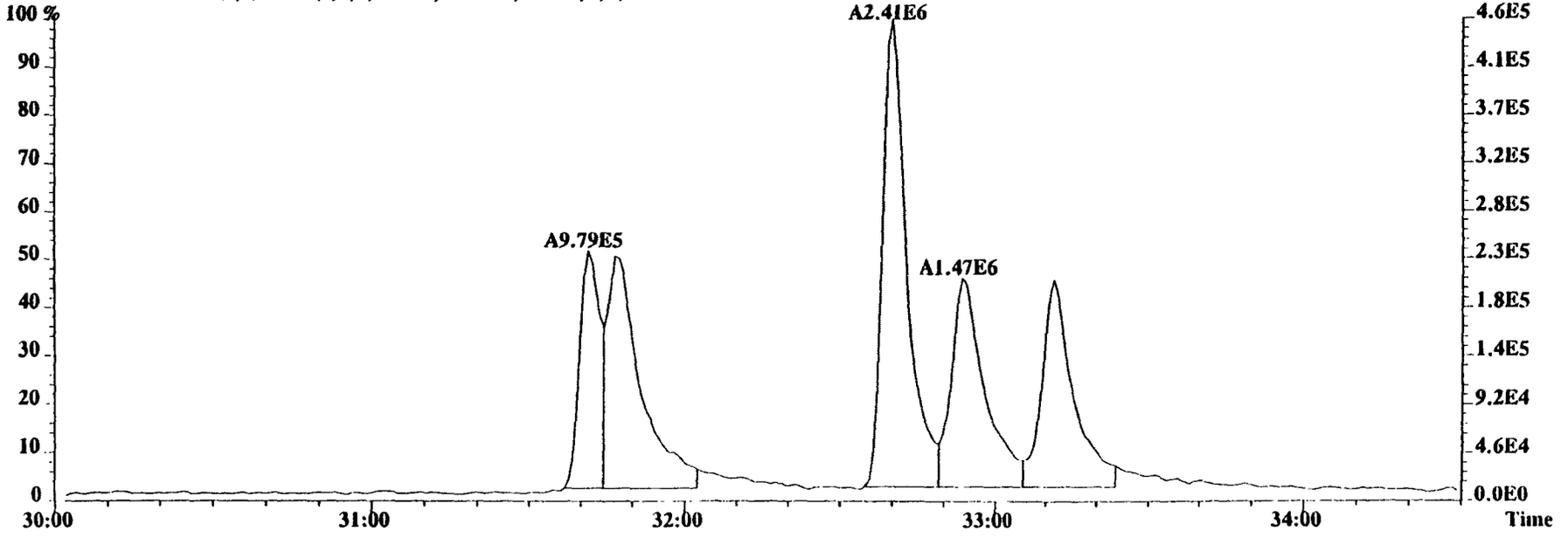
File:20AU98U #1-934 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
230.9856 S:4 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



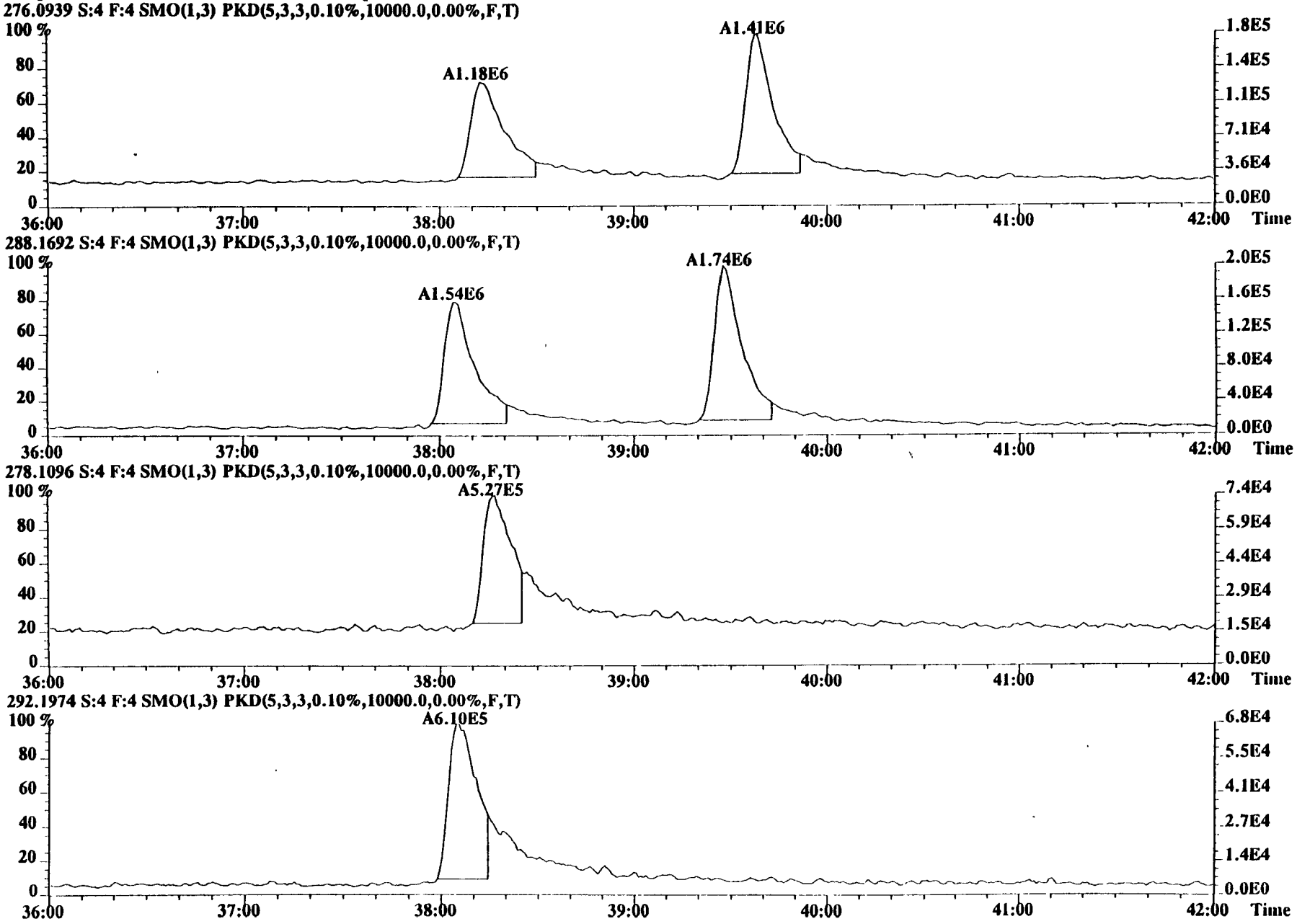
File:20AU98U #1-955 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
252.0939 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



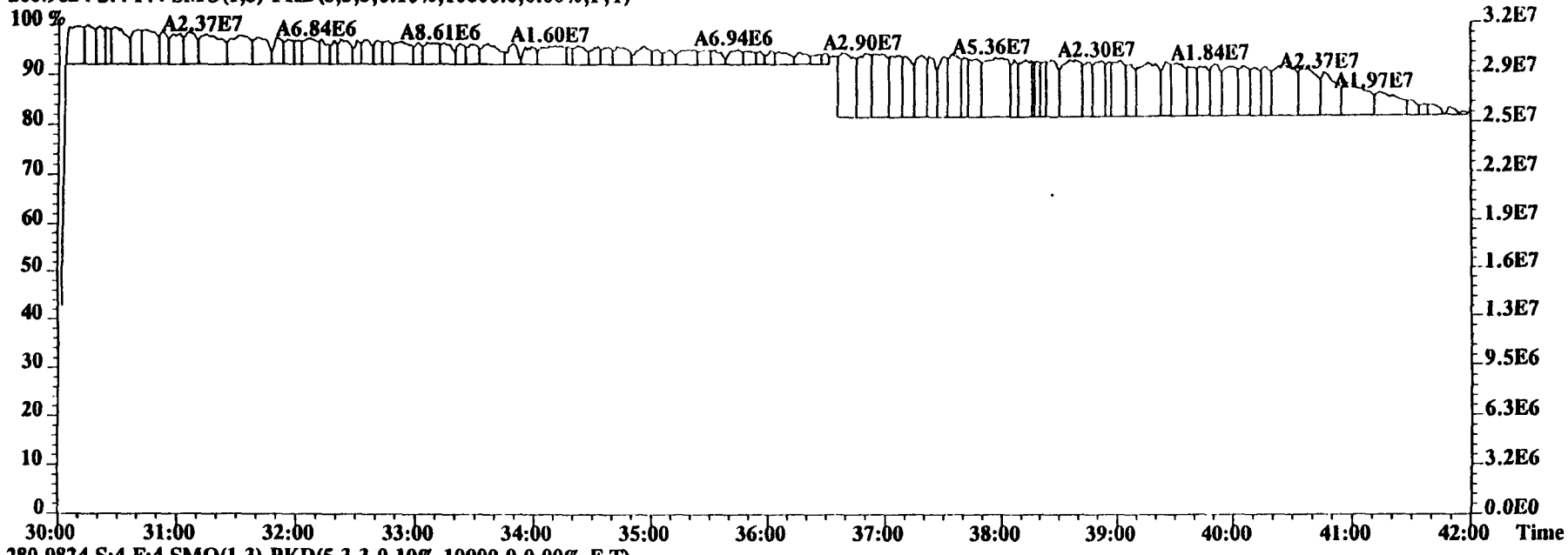
264.1692 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



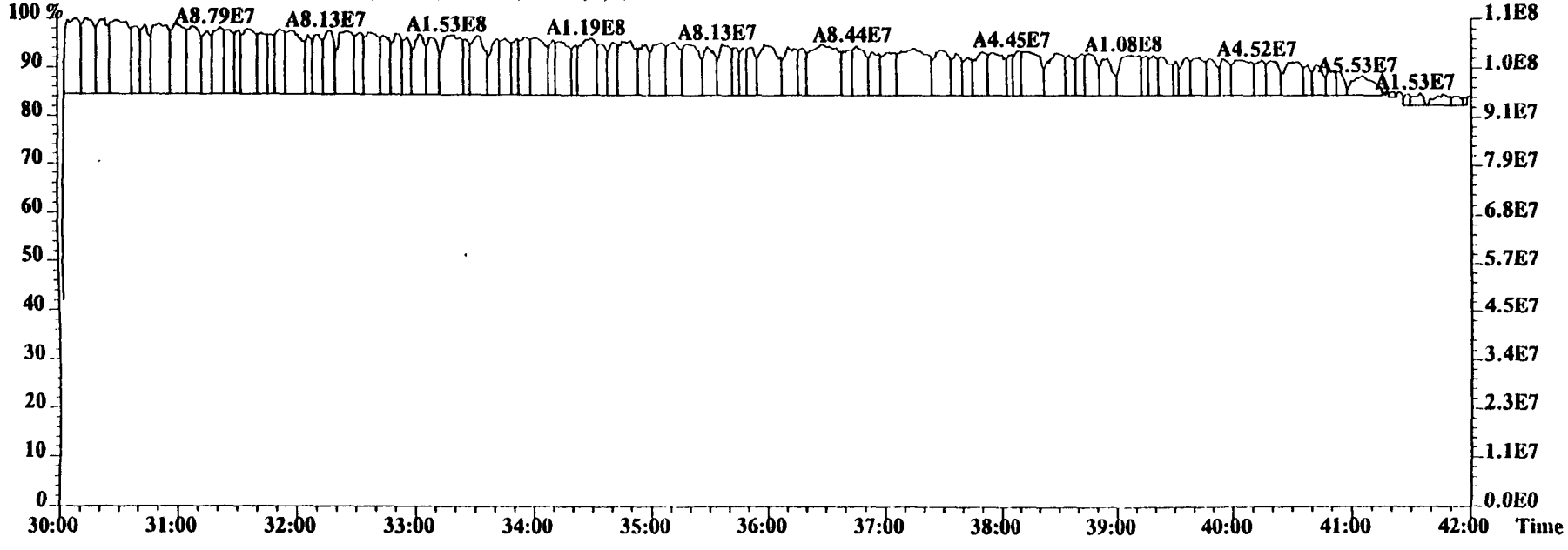
File:20AU98U #1-955 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR



File:20AU98U #1-955 Acq:20-AUG-1998 17:40:37 GC EI+ Voltage SIR Autospec-Ultima
Sample#4 Text:SB0820 :Solvent Blank :C8 Exp:PAHAIR
268.9824 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



280.9824 S:4 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



QUANTERRA INCORPORATED
West Sacramento

Daily Standard Checklist
Dioxin/Furan High Res

STD ID STO824/STO824A (3) Method ID PAHX Column ID DB-5 Instr ID Ultima

Standard Solution 265-04C Prepared By A. Algazi Prepared Date 8/25/98

Analyzed By A. Algazi Date Analyzed 8/24/98

Reviewed By Jeri Stone Date Reviewed 08/25/98

ANALYSIS OF DAILY STANDARD	INITIATED	REVIEWED
Standard, CPSM, and solvent blank present?	✓ (1)(3)	✓ (1)(3)
Copy of Instrument logfile present?	✓	✓
CPSM blow up and peak profile present?	NA (1)/✓	NA (1)/✓
Curve summary present?	✓	✓
Summary of 1613A criteria present?	NA	NA
Daily standard within method specified limits*?	✓	✓
Daily ion abundance ratios within limits?	NA	NA
CPSM valley < 25%?	NA (1)	NA (1)
CPSM window correct?	NA	NA
Samples analyzed within 12 hrs of daily standard?	(2)	(2)

COMMENTS:
(1) No PAH CPSM is used.
(2) Sample -17 (300753-1) was analyzed more than 12 hrs after daily standard → needs RI
(3) Package includes single point cal standard for two prespike compounds: ^{13}C-Naphthalene and ^{13}C-Fluorene.

* For NCASI 551, Control Limit (CL) = +/- 20% from curve RRFs for all analytes.
For Method 8290, CL = +/- 20% from curve RRFs for native analytes. CL = +/- 30% from curve RRFs for labeled compounds.
For Method 1613A, [illegible] Table 7.

QA-237 gcc 11/5

25-AUG-1998 09:15:29 AM PAH ConCal RESULTS

Mass Spec : ULTIMA Results : 24AU98U011A.RES : PAHXCAL3.TRG
GC Column : DB-5 Date analyzed : 24-AUG-98
Data file : 24AU98U ST0824 :PAH CS-3 :265-4C Ex
Weight : 1

Name	Total Response	Isotope Ratio	R. T. mm:ss	RRF	ng	% Dev
d10-2-Methylnaphthalene	193339600	1.00 Y	11: 10 Y	1.00	100.00	
d8-Naphthalene	232554000	1.00 Y	8: 58 Y	1.20	100.00	-3
Naphthalene	211426000	1.00 Y	9: 2 Y	0.91	100.00	-14
2-Methylnaphthalene	155842800	1.00 Y	11: 15 Y	0.67	100.00	-13
d8-Acenaphthylene	241682000	1.00 Y	14: 13 Y	1.25	100.00	-19
Acenaphthylene	203188000	1.00 Y	14: 16 Y	0.84	100.00	-3
d10-Acenaphthene	163963200	1.00 Y	14: 47 Y	0.85	100.00	-3
Acenaphthene	140967400	1.00 Y	14: 53 Y	0.86	100.00	-8
d10-Anthracene	101388600	1.00 Y	19: 47 Y	0.00	100.00	
d10-Fluorene	119416200	1.00 Y	16: 29 Y	1.18	100.00	4
Fluorene	118973000	1.00 Y	16: 35 Y	1.00	100.00	-5
d10-Phenanthrene	273562000	1.00 Y	19: 38 Y	2.70	100.00	3
Phenanthrene	211432000	1.00 Y	19: 42 Y	0.77	100.00	-8
Anthracene	195559400	1.00 Y	19: 51 Y	0.71	100.00	-14
d12-Benzo(e)pyrene	226910000	1.00 Y	32: 39 Y	2.00	100.00	
d10-Fluoranthene	237798000	1.00 Y	23: 32 Y	1.05	100.00	30
Fluoranthene	201012000	1.00 Y	23: 35 Y	0.85	100.00	-19
d10-Pyrene	210234000	1.00 Y	24: 15 Y	0.93	100.00	14
Pyrene	203282000	1.00 Y	24: 18 Y	0.97	100.00	-13
d12-Benzo(a)anthracene	179273000	1.00 Y	28: 7 Y	0.79	100.00	22
Benzo(a)anthracene	171483800	1.00 Y	28: 11 Y	0.96	100.00	-9
d12-Chrysene	250420000	1.00 Y	28: 13 Y	1.10	100.00	30
Chrysene	212988000	1.00 Y	28: 18 Y	0.85	100.00	-12
d12-Benzo(e)pyrene	226910000	1.00 Y	32: 39 Y	2.00	100.00	
d12-Benzo(b)fluoranthene	124938800	1.00 Y	31: 40 Y	0.55	100.00	-12
Benzo(b)fluoranthene	127032600	1.00 Y	31: 45 Y	1.02	100.00	-9
d12-Benzo(k)fluoranthene	190276400	1.00 Y	31: 45 Y	0.84	100.00	-6
Benzo(k)fluoranthene	176402800	1.00 Y	31: 50 Y	0.93	100.00	-20
d12-Benzo(a)pyrene	154846400	1.00 Y	32: 52 Y	0.68	100.00	-9
Benzo(e)pyrene	206110000	1.00 Y	32: 45 Y	1.33	100.00	-9
Benzo(a)pyrene	133261000	1.00 Y	32: 57 Y	0.86	100.00	-16
d12-Perylene	127401600	1.00 Y	33: 11 Y	0.56	100.00	-
Perylene	179952000	1.00 Y	33: 17 Y	1.41	100.00	-1
d12-Indeno(123-cd)pyrene	173996000	1.00 Y	38: 1 Y	0.77	100.00	
Indeno(123-cd)pyrene	95200000	1.00 Y	38: 9 Y	0.55	100.00	-1
d14-Dibenz(ah)anthracene	107370000	1.00 Y	38: 2 Y	0.47	100.00	
Dibenz(ah)anthracene	100283200	1.00 Y	38: 13 Y	0.93	100.00	-1
d12-Benzo(ghi)perylene	190623000	1.00 Y	39: 25 Y	0.84	100.00	3
Benzo(ghi)perylene	169400200	1.00 Y	39: 35 Y	0.89	100.00	51
d8-Naphthalene	191800000	1.00 Y	8: 58 Y	0.00	100.00	
13C-Naphthalene	188800000	1.00 Y	9: 2 Y	0.98	100.00	

d10-Fluorene	92400000	1.00	Y	16: 29	Y	0.00	100.00
13C-Fluorene	70000000	1.00	Y	16: 34	Y	0.76	100.00	0

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FILE	SAMP No. (1)	LAB. SAMP No	CUSTOMER ID	CLEAN UP 1 (SDS)	CLEAN UP 2 (D2)	TYPE (1)	CONCn.
24AU98U	1	ST0824	PAH CS-3	265-4C			1
24AU98U	2	ST0824A	Prespike Cal Std				1
24AU98U	3	SB0824	Solvent Blank	C8			1
24AU98U	4	300413-1BX	Method Blank	Soil	PAH	VSE-23	5.0
24AU98U	5	300413-1LX	LCS	Soil	PAH		5.0
24AU98U	6	300753-1MB	Method Blank	Soil	PAH	VSE-23	5.0
24AU98U	7	300753-1LC	LCS	Soil	PAH		5.0
24AU98U	8	300681-4	T-MM5-FB-F	Train	PAH	VSE-23	0.333
24AU98U	9	300681-5	T-MM5-4-F	Train	PAH		0.333
24AU98U	10	300681-6	T-MM5-3-F	Train	PAH		0.333
24AU98U	11	300681-7	T-MM5-3-F	Train	PAH		0.333
24AU98U	12	300681-8	T-MM5-FB-F	Train	PAH		0.333
24AU98U	13	300681-9	T-MM5-RB-F	Train	PAH		0.333
24AU98U	14	300681-10	T-MM5-4-F	Train	PAH		0.333
24AU98U	15	300681-11	T-MM5-5-F	Train	PAH		0.333
24AU98U	16	300413-1RX	BAK-101	Soil	PAH		4.96
24AU98U	17	300753-1	ARJ-001-01	Soil	PAH		5.0
24AU98U	18	SB0824A	Solvent Blank	C8			1
24AU98U	19	QC0824	QC081998	DCM	PAH		1
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24AU98U	21						
24AU98U	22						
24AU98U	23						
24AU98U	24						
24AU98U	25						
24AU98U	26						
24AU98U	27						
24AU98U	28						
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24AU98U	37						
24AU98U	38						
24AU98U	39						
24AU98U	40		AMA 08/24/98				
24AU98U	41						
24AU98U	42						
24AU98U	43						
24AU98U	44						
24AU98U	45						
24AU98U	46						
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24AU98U	48						
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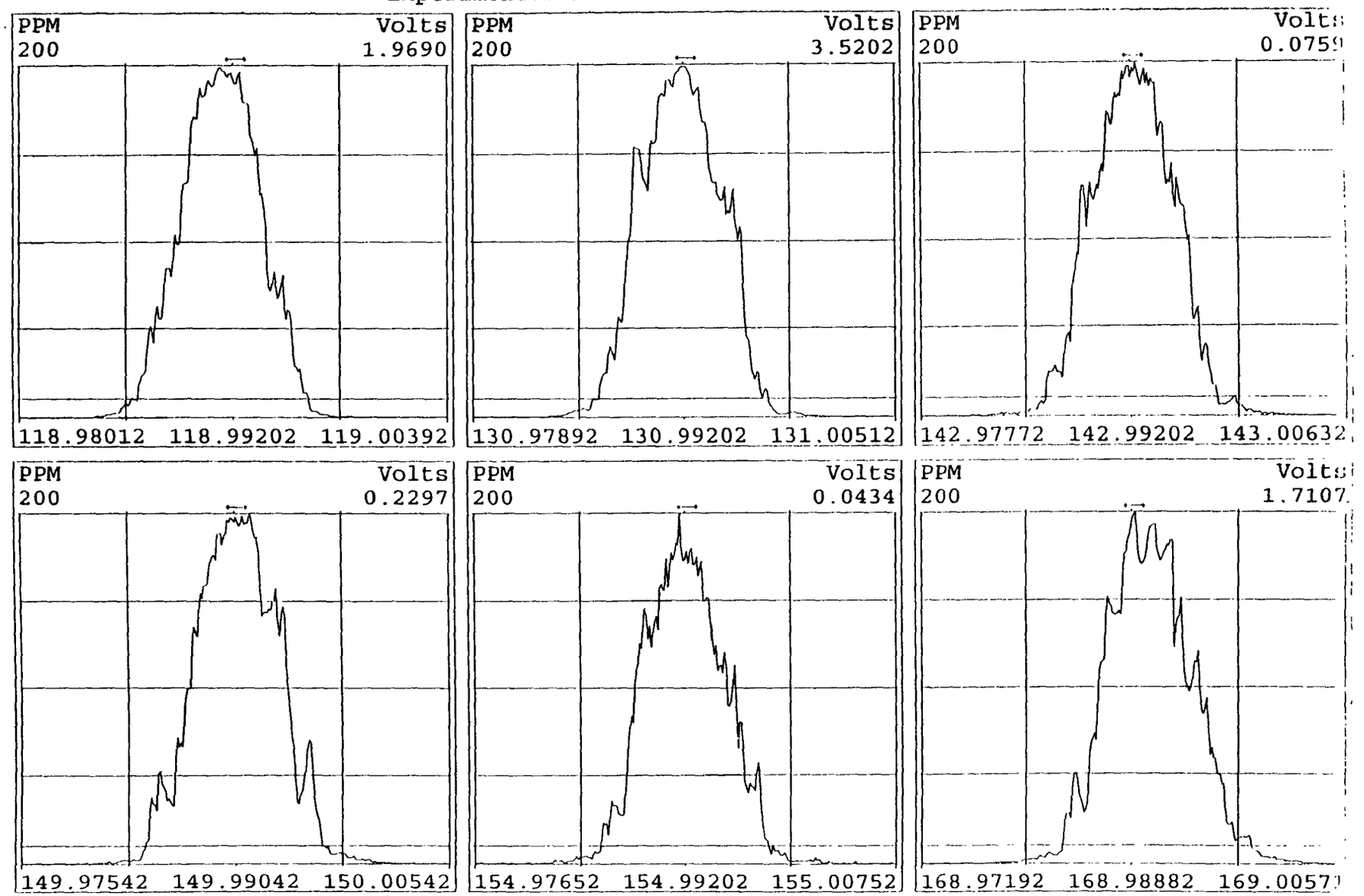
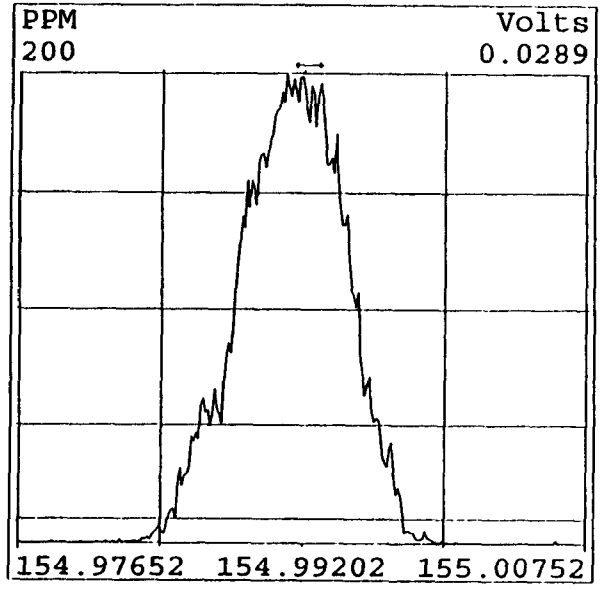
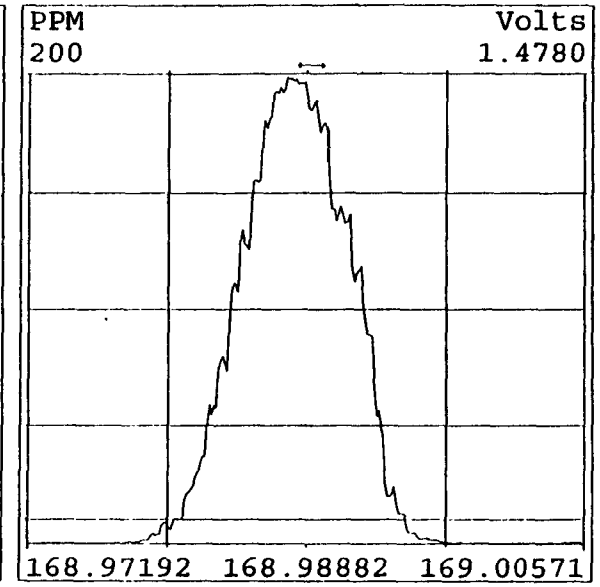
24AU98U	50						

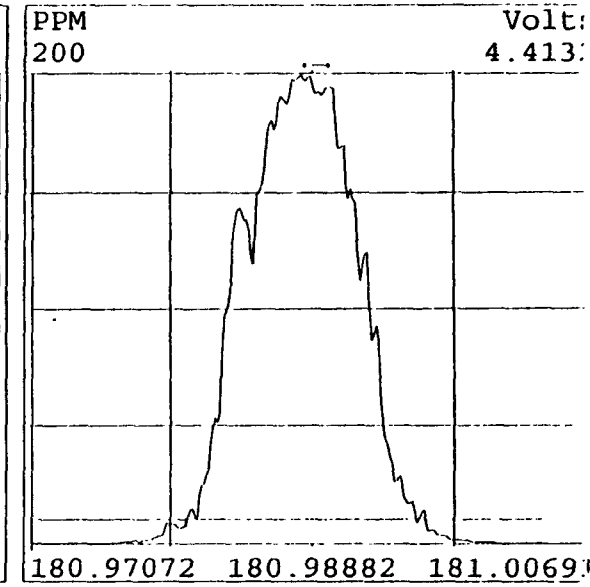
Peak Locate Examination:24-AUG-1998:17:34 File:24AU98U
Experiment:PAHAIR Function:1 Reference:PFK

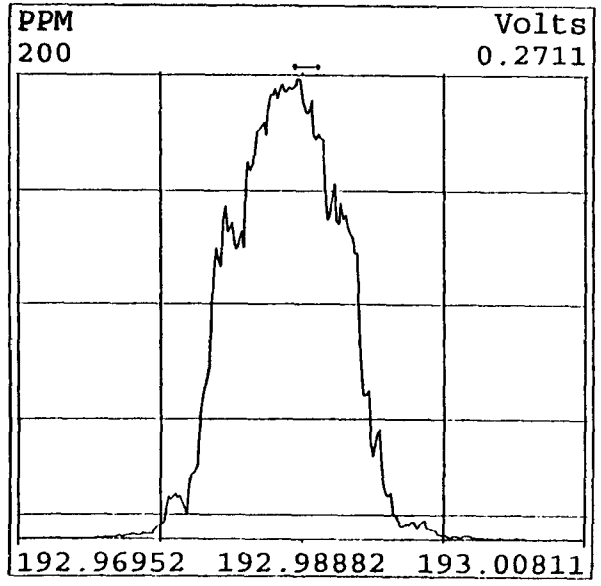


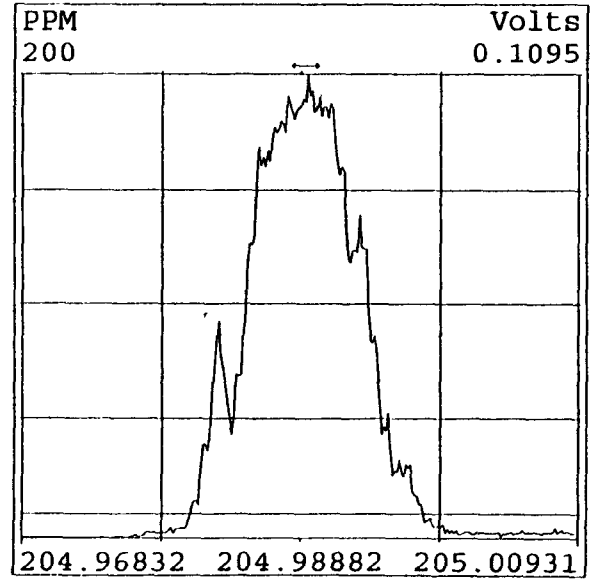
Peak Locate Examination:24-AUG-1998:17:34 File:24AU98U
Experiment:PAHAIR Function:2 Reference:PFK



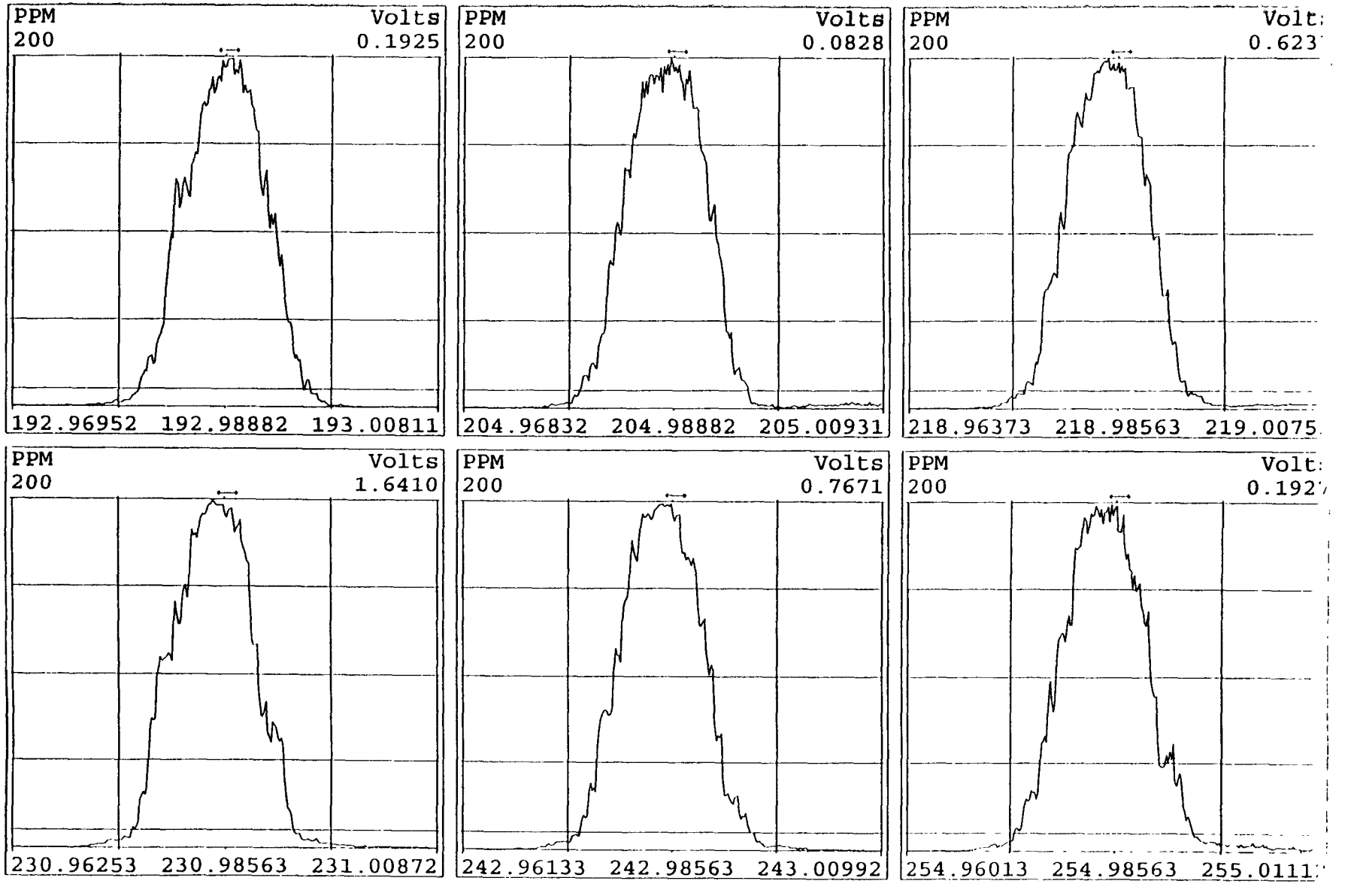




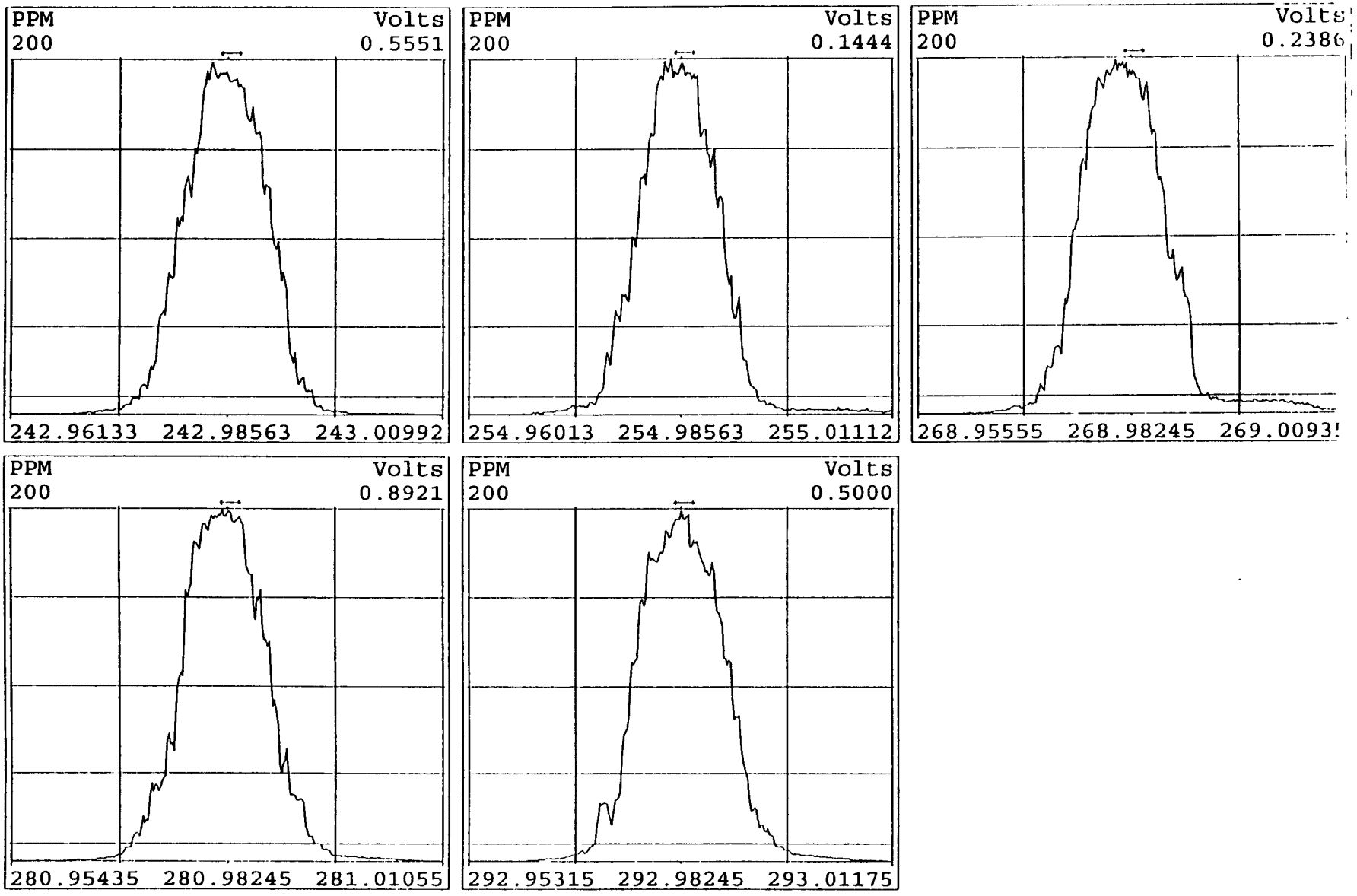




Peak Locate Examination:24-AUG-1998:17:35 File:24AU98U
Experiment:PAHAIR Function:3 Reference:PFK



Peak Locate Examination:24-AUG-1998:17:35 File:24AU98U
Experiment:PAHAIR Function:4 Reference:PFK



20-AUG-1998 02:31:54 PM

PAH CALIBRATION TABLE

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHX081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d8-Naphthalene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				125.13	138.22	111.61	124.70	123.18					
	RRF	1.25	0.094	7.579	1.25	1.38	1.12	1.25	1.23					
Naphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				13.58	54.09	96.37	186.59	464.77					
	RRF	1.05	0.181	17.228	1.36	1.08	0.96	0.93	0.93					
2-Methylnaphthalene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.29	33.88	84.95	139.99	349.03					
	RRF	0.77	0.112	14.514	0.93	0.68	0.85	0.70	0.70					
d8-Acenaphthylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				168.75	145.20	148.35	158.01	154.72					
	RRF	1.55	0.092	5.934	1.69	1.45	1.48	1.58	1.55					
Acenaphthylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.55	44.41	94.74	162.62	406.40					
	RRF	0.86	0.057	6.560	0.86	0.89	0.95	0.81	0.81					
d10-Acenaphthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				86.37	89.70	82.92	92.67	87.02					
	RRF	0.88	0.037	4.178	0.86	0.90	0.83	0.93	0.87					
Acenaphthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.16	47.71	101.30	157.44	439.22					
	RRF	0.93	0.097	10.478	1.02	0.95	1.01	0.79	0.88					
d10-Fluorene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				129.53	105.98	113.84	108.38	107.00					
	RRF	1.13	0.098	8.636	1.30	1.06	1.14	1.08	1.07					
Fluorene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.18	43.83	114.84	210.00	528.30					
	RRF	1.05	0.105	10.040	1.12	0.88	1.15	1.05	1.06					
d10-Phenanthrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				262.09	260.96	265.51	269.74	256.17					
	RRF	2.63	0.051	1.934	2.62	2.61	2.66	2.70	2.56					
Phenanthrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				9.04	42.04	90.20	150.57	405.42					
	RRF	0.84	0.064	7.599	0.90	0.84	0.90	0.75	0.81					
Anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				8.68	40.93	88.77	149.97	410.83					
	RRF	0.83	0.053	6.428	0.87	0.82	0.89	0.75	0.82					
d10-Fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				80.50	73.52	89.68	79.47	78.46					
	RRF	0.80	0.059	7.315	0.81	0.74	0.90	0.79	0.78					
Fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.95	51.53	111.98	199.62	479.64					
	RRF	1.04	0.067	6.394	1.09	1.03	1.12	1.00	0.96					
d10-Pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				83.42	70.76	91.04	81.61	78.02					
	RRF	0.81	0.074	9.179	0.83	0.71	0.91	0.82	0.78					
Pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.51	55.06	117.00	212.11	527.05					
	RRF	1.11	0.052	4.714	1.15	1.10	1.17	1.06	1.05					

Mass Spec : ULTIMA
GC Column : DB-5
265-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHX081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
d12-Benzo(a)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				72.04	58.19	66.97	62.07	65.85					
	RRF	0.65	0.052	8.032	0.72	0.58	0.67	0.62	0.66					
Benzo(a)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.53	52.92	110.29	207.09	513.26					
	RRF	1.06	0.030	2.804	1.05	1.06	1.10	1.04	1.03					
d12-Chrysene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				86.29	74.68	85.64	85.99	91.50					
	RRF	0.85	0.062	7.259	0.86	0.75	0.86	0.86	0.91					
Chrysene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.59	50.08	103.60	175.51	441.04					
	RRF	0.97	0.086	8.856	1.06	1.00	1.04	0.88	0.88					
d12-Benzo(b)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				64.51	65.70	63.39	63.02	56.40					
	RRF	0.63	0.036	5.785	0.65	0.66	0.63	0.63	0.56					
Benzo(b)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.81	52.02	111.29	212.98	523.15					
	RRF	1.07	0.029	2.735	1.08	1.04	1.11	1.06	1.05					
d12-Benzo(k)fluoranthene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				88.20	82.16	90.16	93.02	94.50					
	RRF	0.90	0.048	5.393	0.88	0.82	0.90	0.93	0.94					
Benzo(k)fluoranthene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				12.74	59.99	120.61	217.66	504.85					
	RRF	1.16	0.105	9.104	1.27	1.20	1.21	1.09	1.01					
d12-Benzo(a)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				75.48	74.11	74.28	75.01	76.69					
	RRF	0.75	0.010	1.385	0.75	0.74	0.74	0.75	0.77					
Benzo(e)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				15.21	74.22	153.41	287.46	672.30					
	RRF	1.46	0.077	5.243	1.52	1.48	1.53	1.44	1.34					
Benzo(a)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				11.13	51.09	105.82	197.36	469.69					
	RRF	1.02	0.066	6.478	1.11	1.02	1.06	0.99	0.94					
d12-Perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.89	60.89	60.17	61.91	63.41					
	RRF	0.61	0.013	2.048	0.61	0.61	0.60	0.62	0.63					
Perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				17.58	80.54	145.64	332.88	800.43					
	RRF	1.62	0.110	6.792	1.76	1.61	1.46	1.66	1.60					
d12-Indeno(123-cd)pyrene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				68.59	72.80	69.80	62.67	79.43					
	RRF	0.71	0.061	8.681	0.69	0.73	0.70	0.63	0.79					
Indeno(123-cd)pyrene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				6.33	33.45	62.76	113.23	281.17					
	RRF	0.61	0.046	7.531	0.63	0.67	0.63	0.57	0.56					
d14-Dibenz(ah)anthracene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				43.73	43.81	44.28	38.06	50.69					
	RRF	0.44	0.045	10.143	0.44	0.44	0.44	0.38	0.51					

PAH CALIBRATION TABLE

ass Spec : ULTIMA
C Column : DB-5
65-04A,-04B, 651-21, 265-04D,-04E; Multiplier @ 260V.

File name : PAHX081998U.RRF
Date analyzed : 19-AUG-98

INITIAL CALIBRATION CURVE

		Mean	S.D.	%RSD	1	2	3	4	5	6	7	8	9	10
ibenz(ah)anthracene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.79	56.20	115.84	225.91	535.81					
	RRF	1.11	0.036	3.270	1.08	1.12	1.16	1.13	1.07					
12-Benzo(ghi)perylene	Amount				100.00	100.00	100.00	100.00	100.00					
	RF				60.66	64.91	61.14	56.21	72.26					
	RRF	0.63	0.060	9.532	0.61	0.65	0.61	0.56	0.72					
enzo(ghi)perylene	Amount				10.00	50.00	100.00	200.00	500.00					
	RF				10.00	50.38	103.43	190.98	478.29					
	RRF	0.99	0.034	3.467	1.00	1.01	1.03	0.95	0.96					
3C-Fluorene	Amount				100	100	100	100	100.00					
	RF								0.03					
	RRF	0.00	0.000	0.000					0.00					

File:24AU98U #1-476 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
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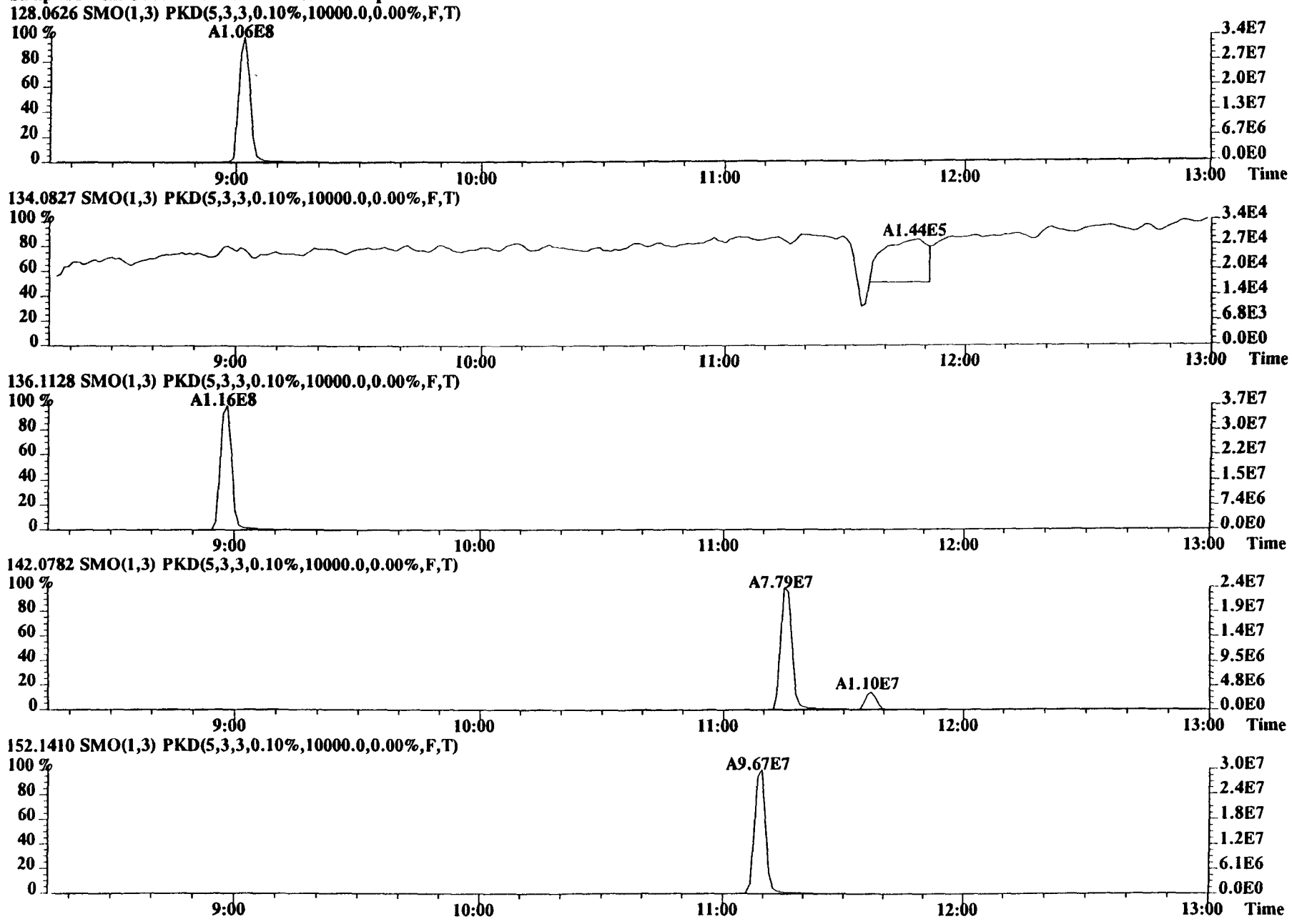

File:24AU98U #1-476 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
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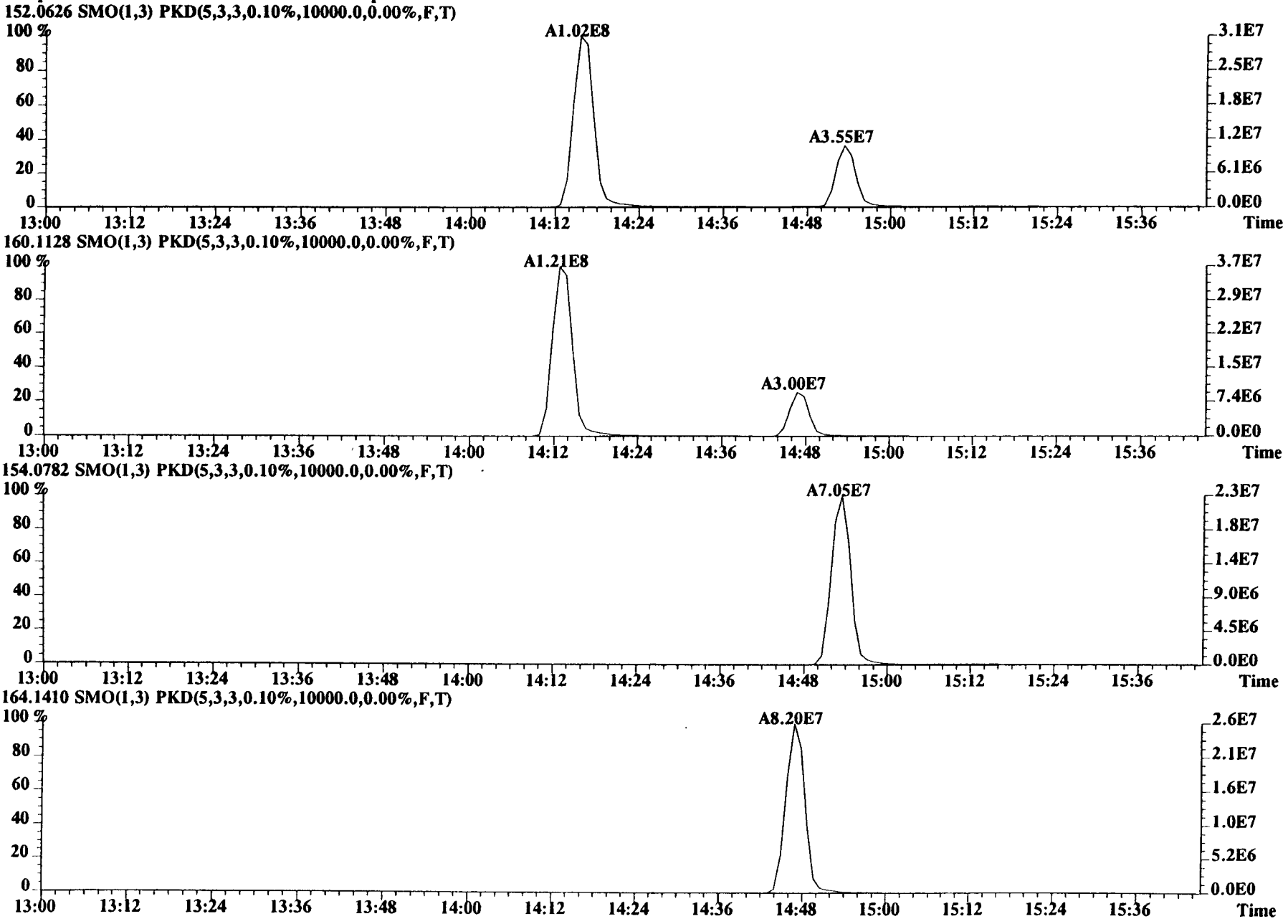
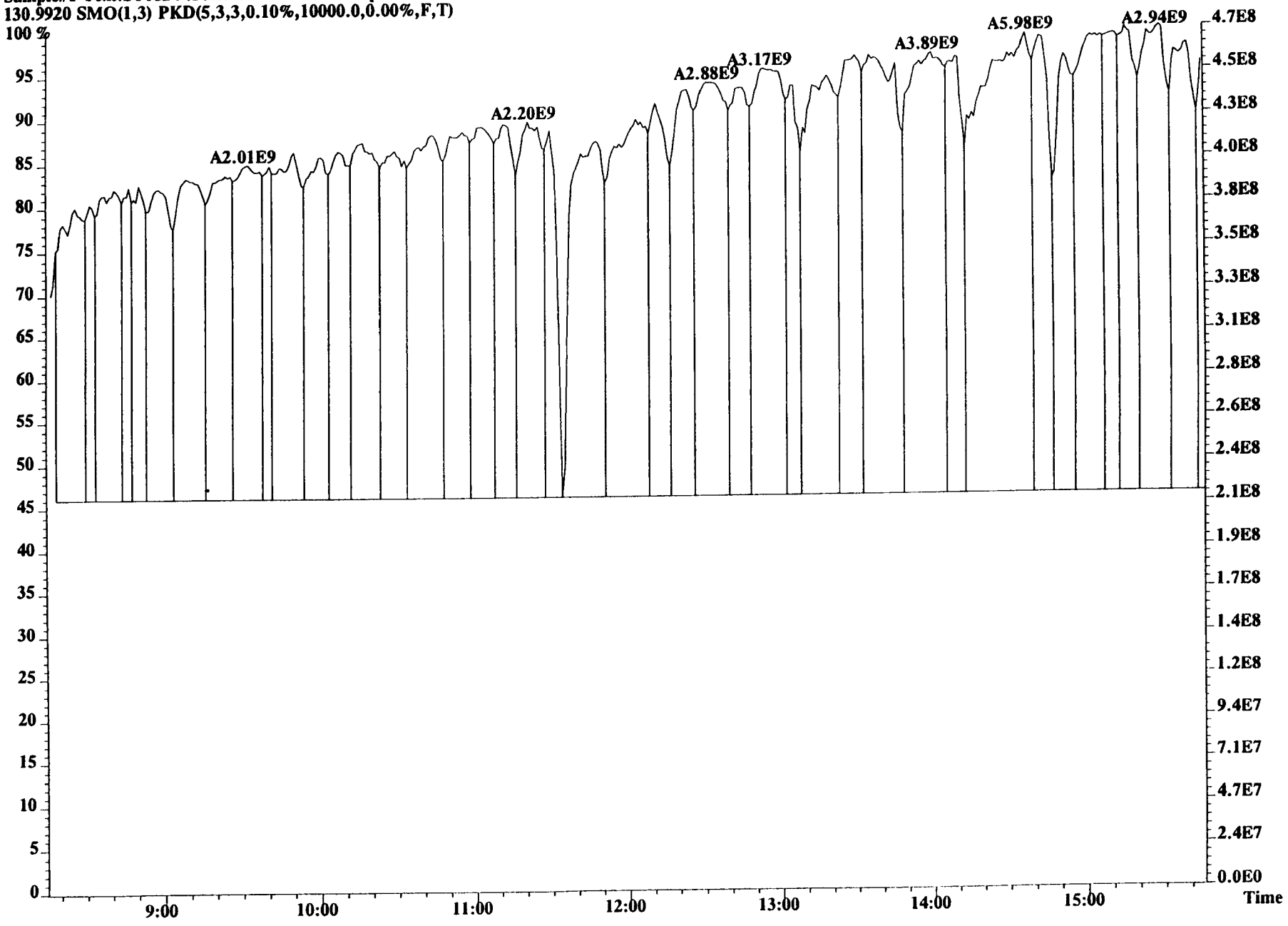
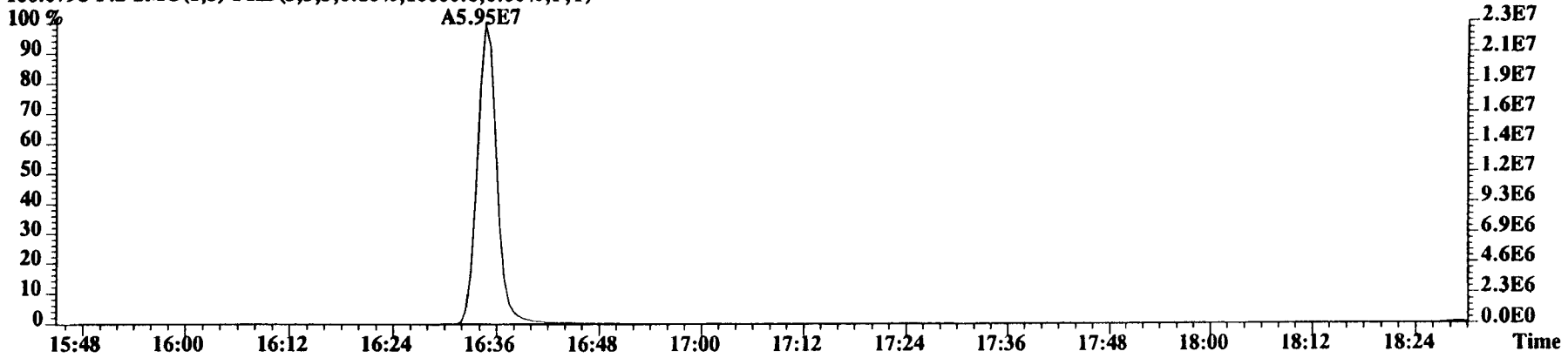


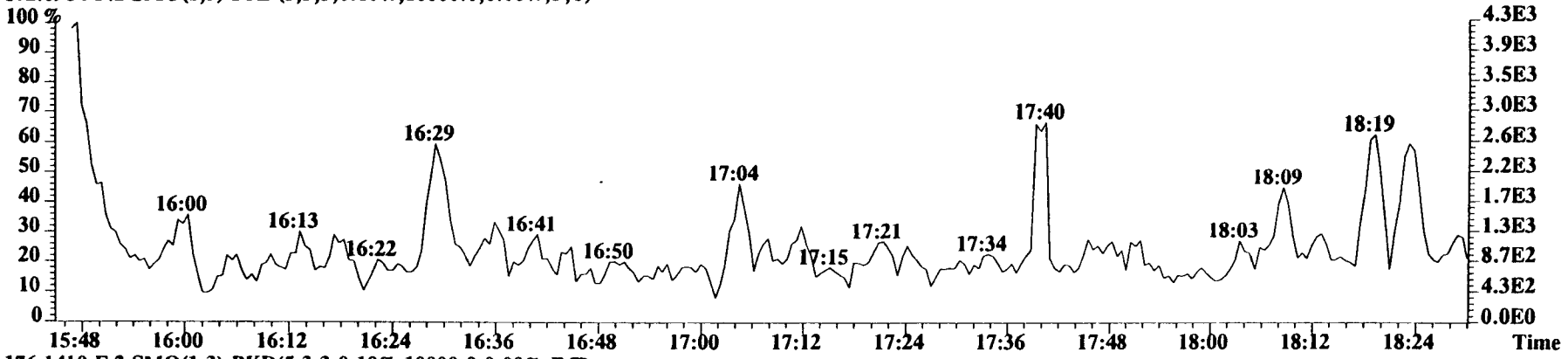
File:24AU98U #1-476 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
130.9920 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



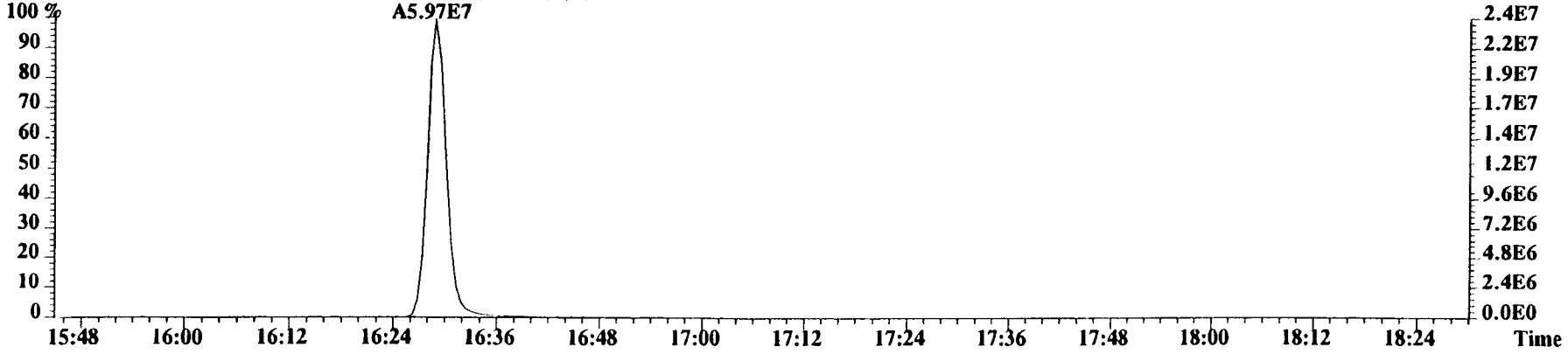
File:24AU98U #1-665 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
166.0798 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



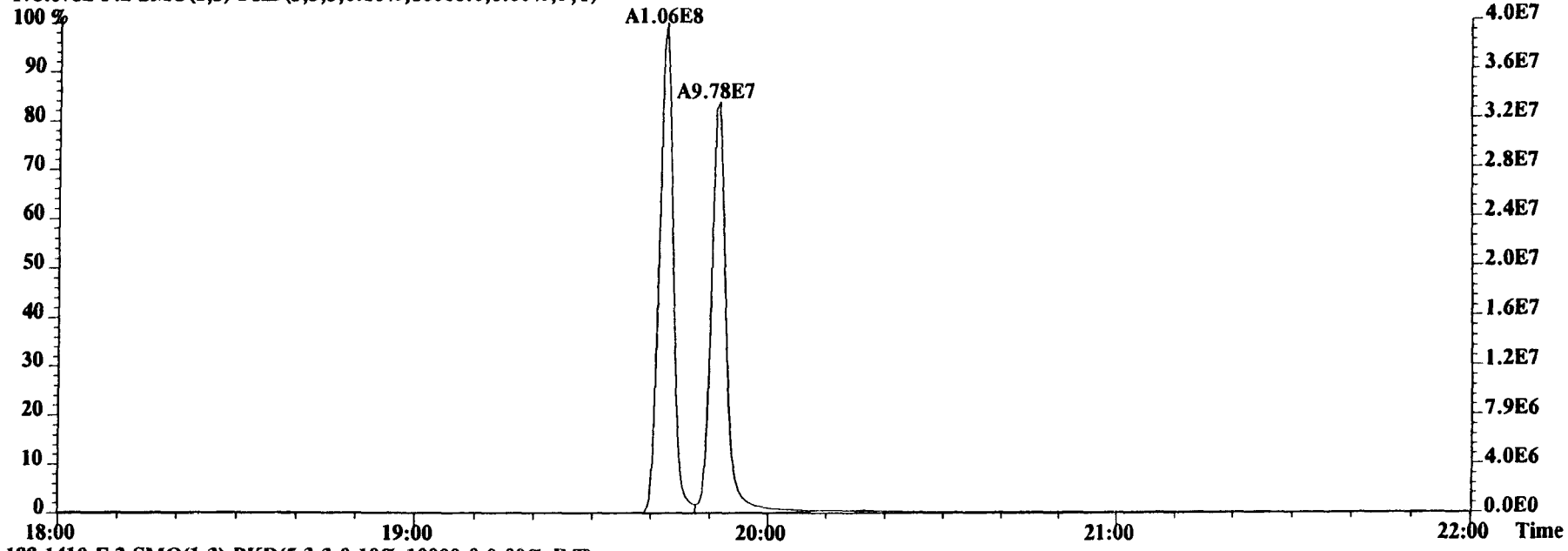
172.0984 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



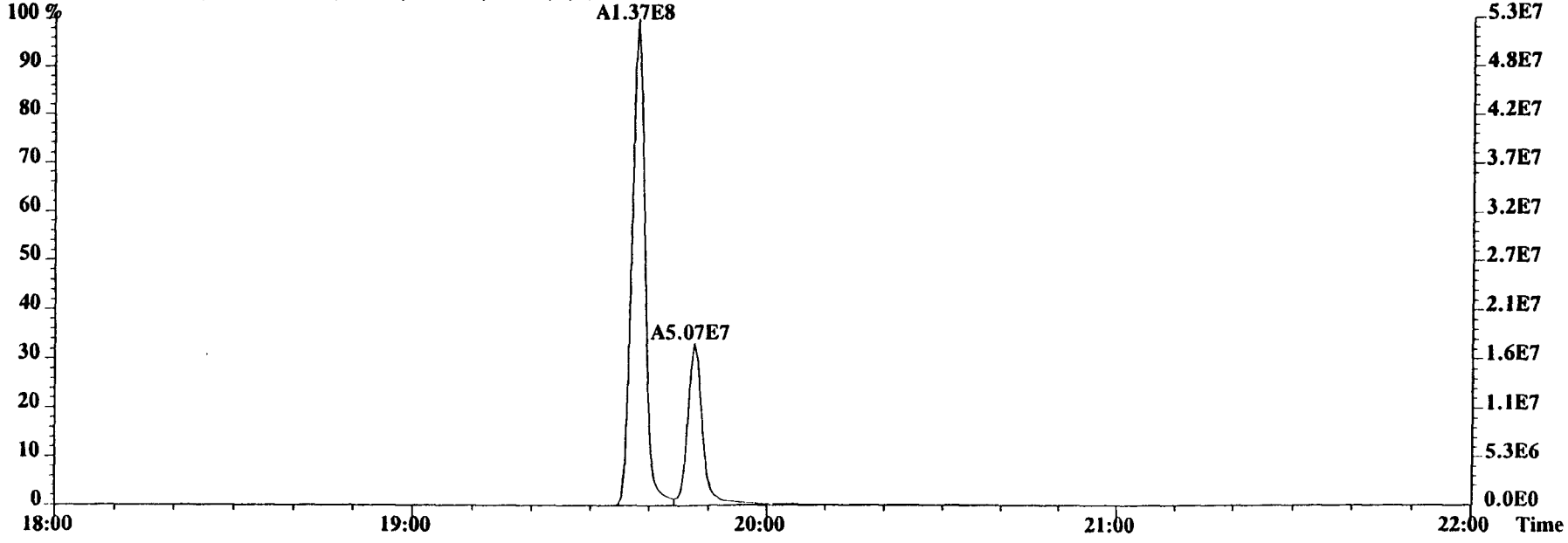
176.1410 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



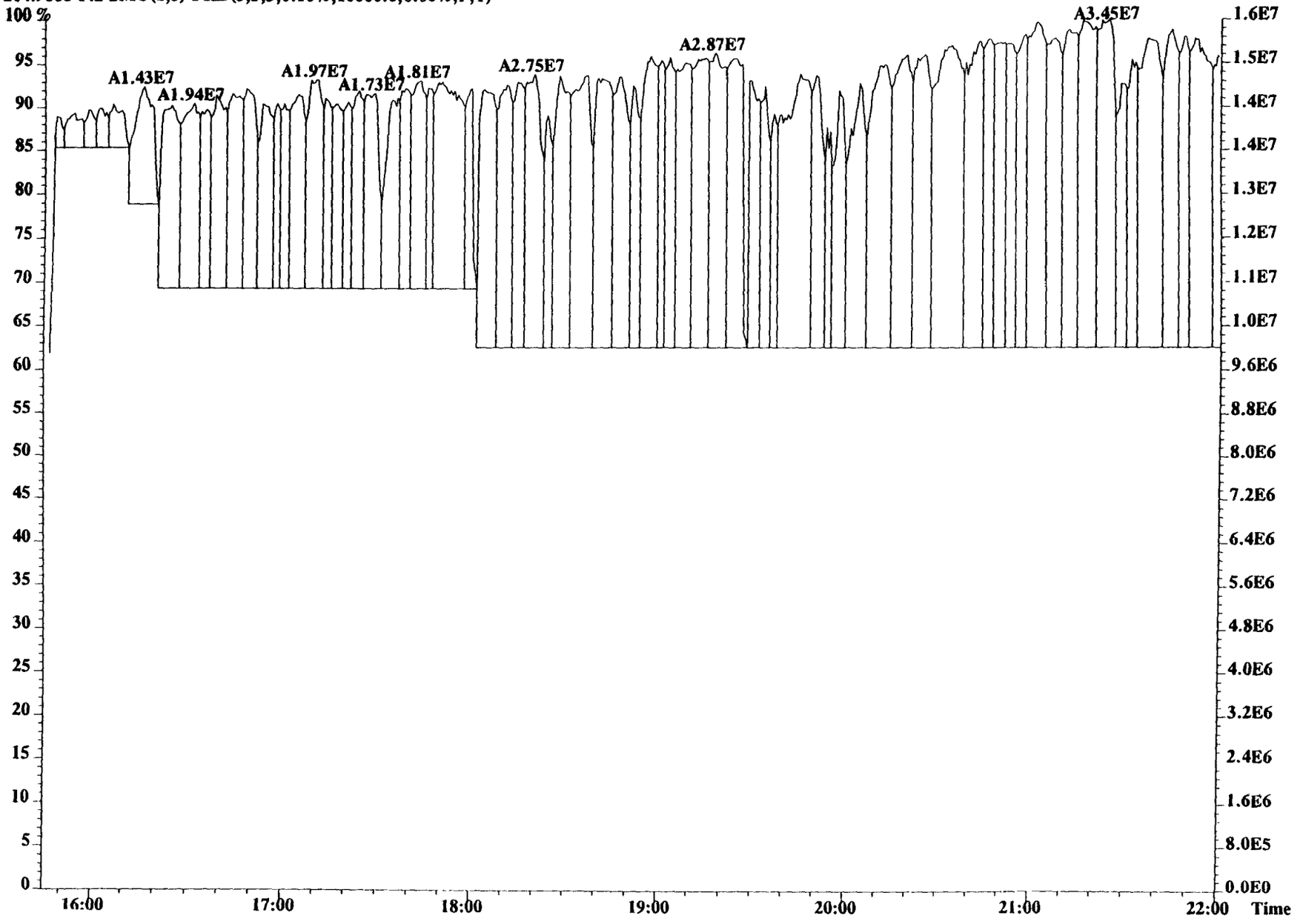
File:24AU98U #1-665 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
178.0782 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



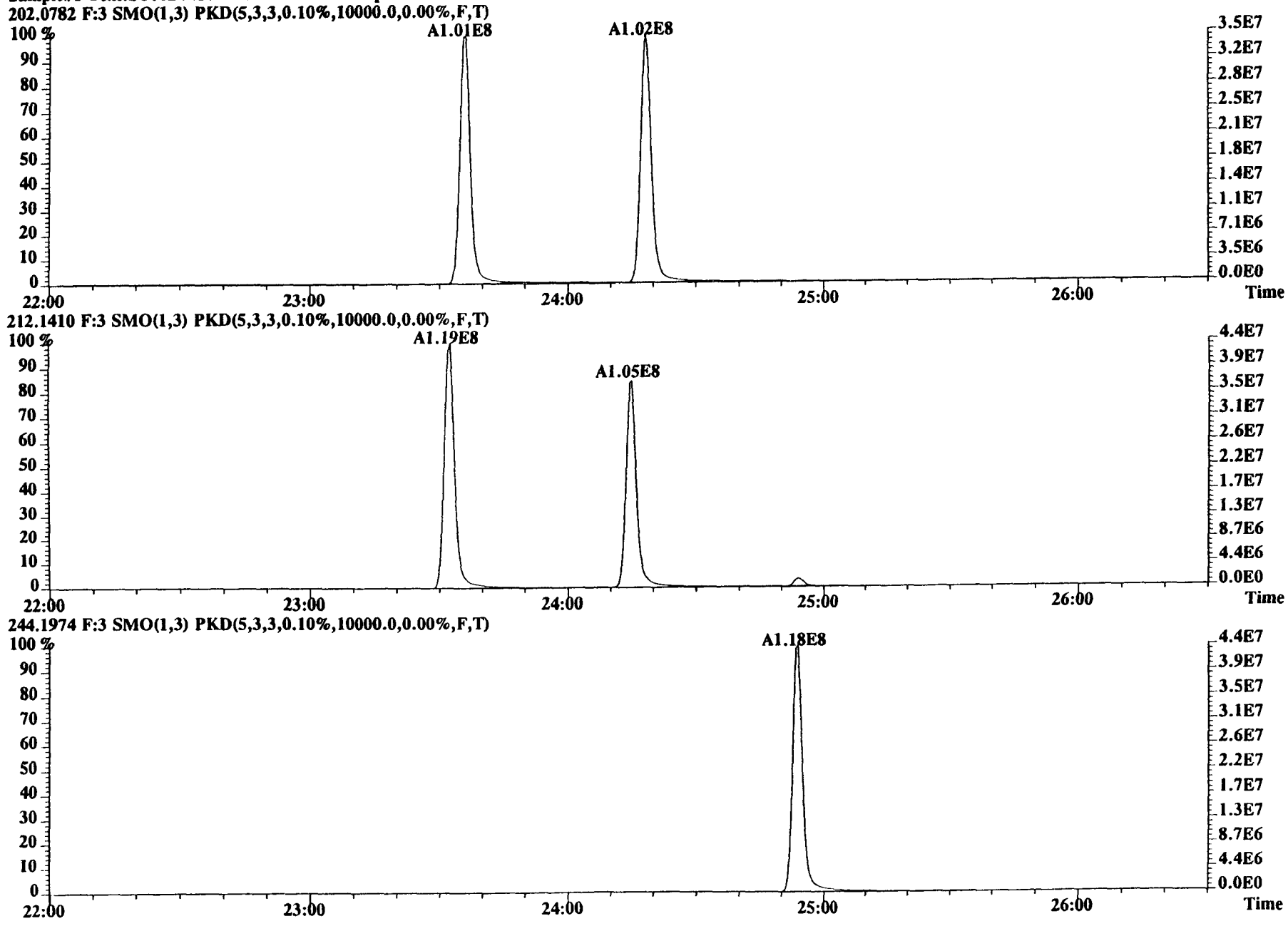
188.1410 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



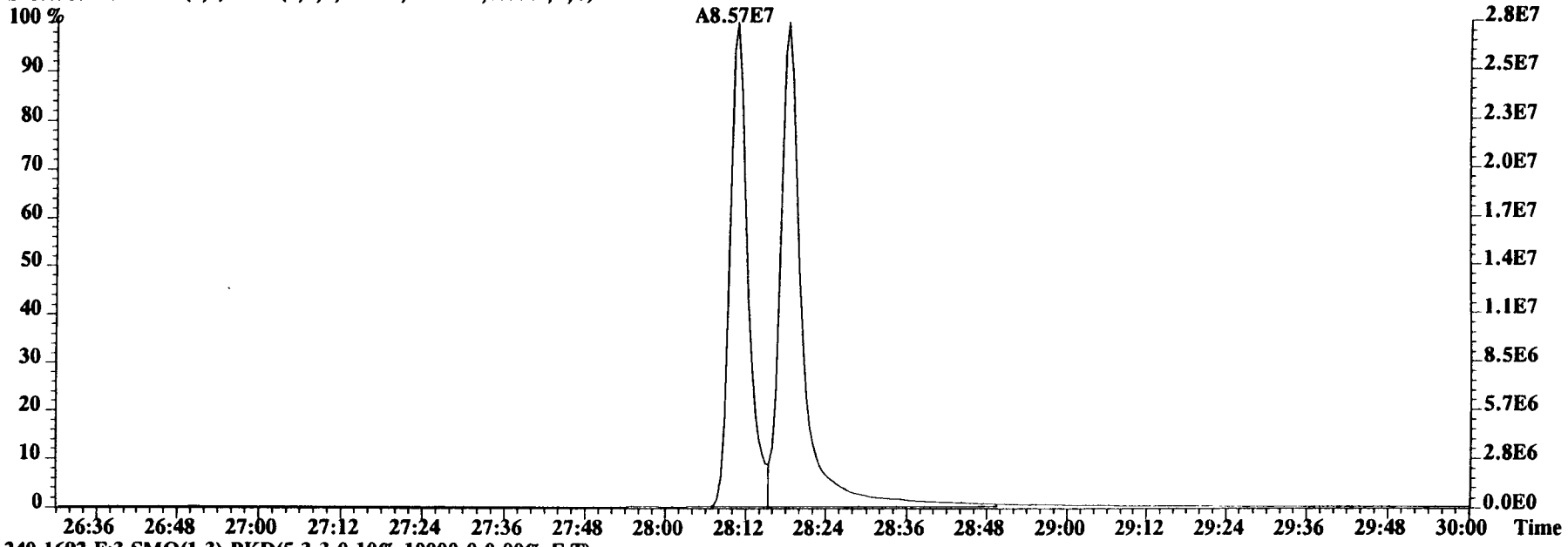
File:24AU98U #1-665 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
204.9888 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



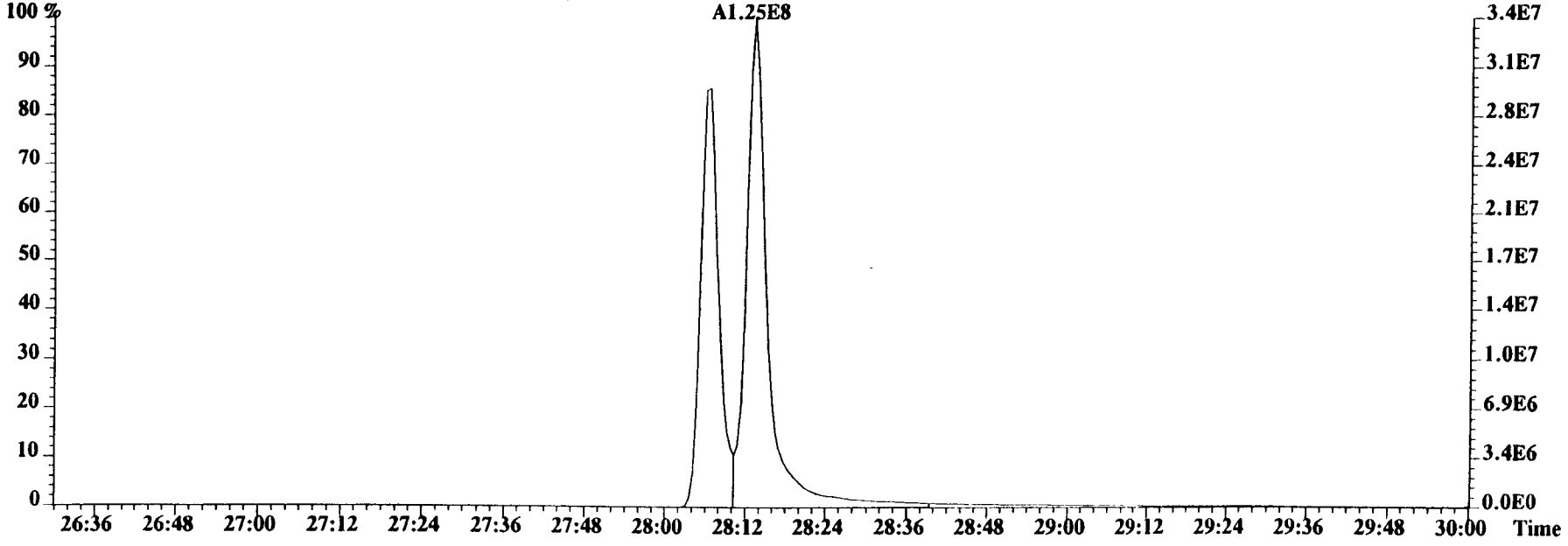
File:24AU98U #1-935 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR



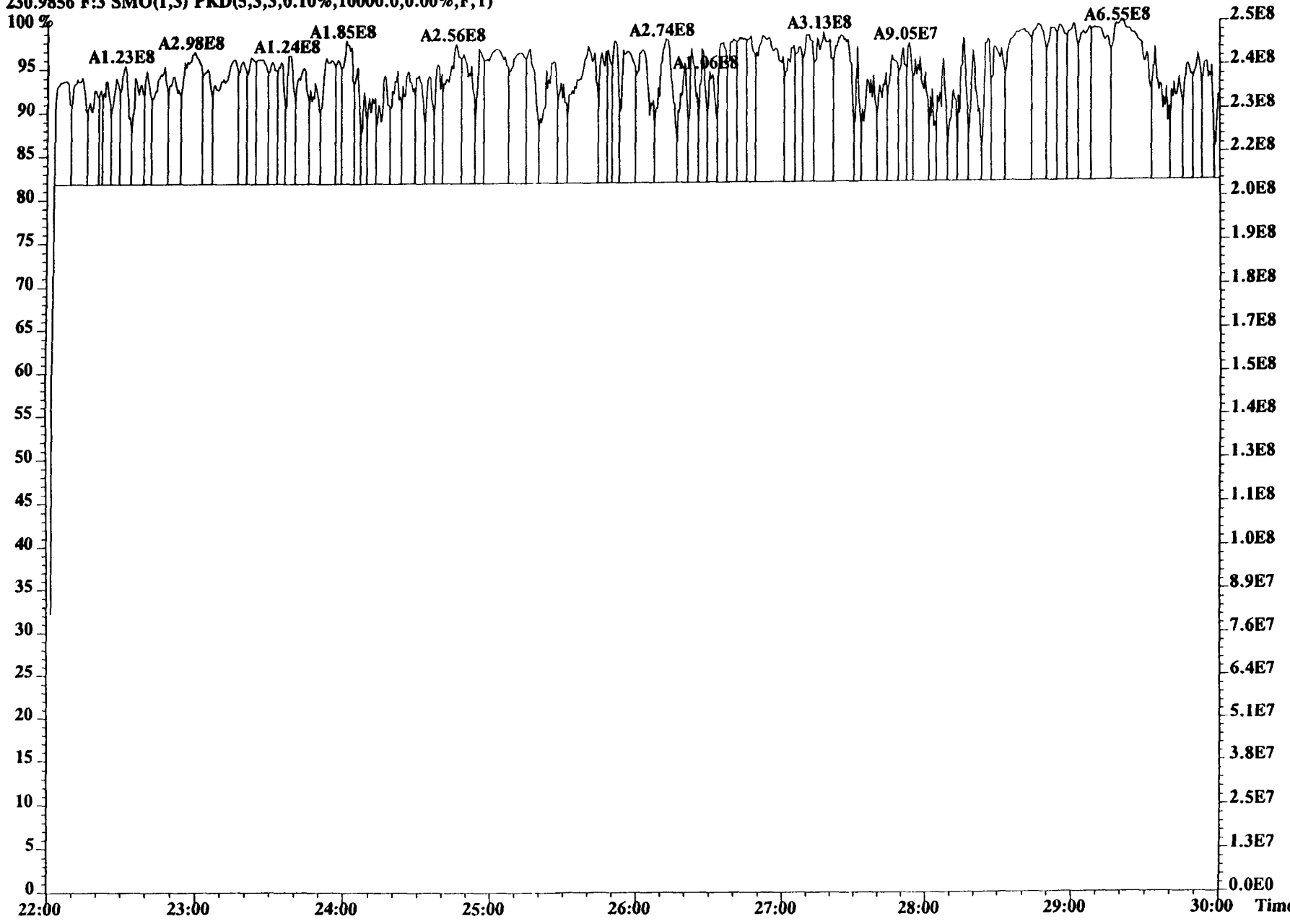
File:24AU98U #1-935 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
228.0939 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



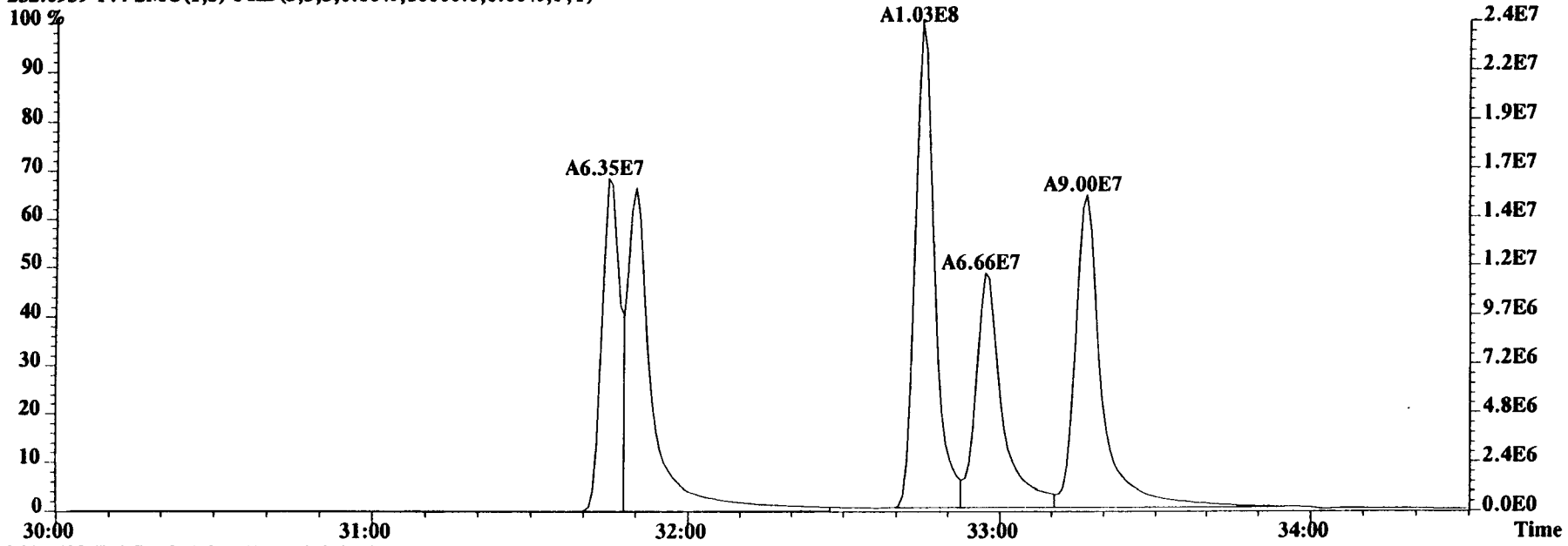
240.1692 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



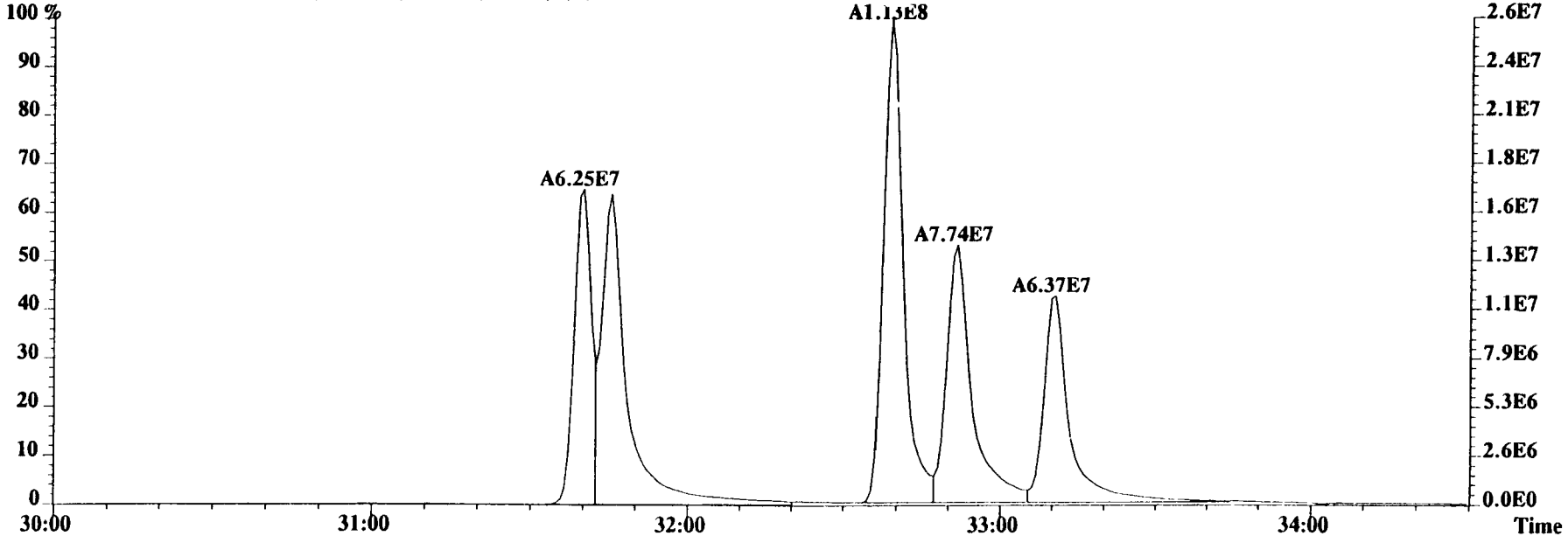
File:24AU98U #1-935 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
230.9856 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



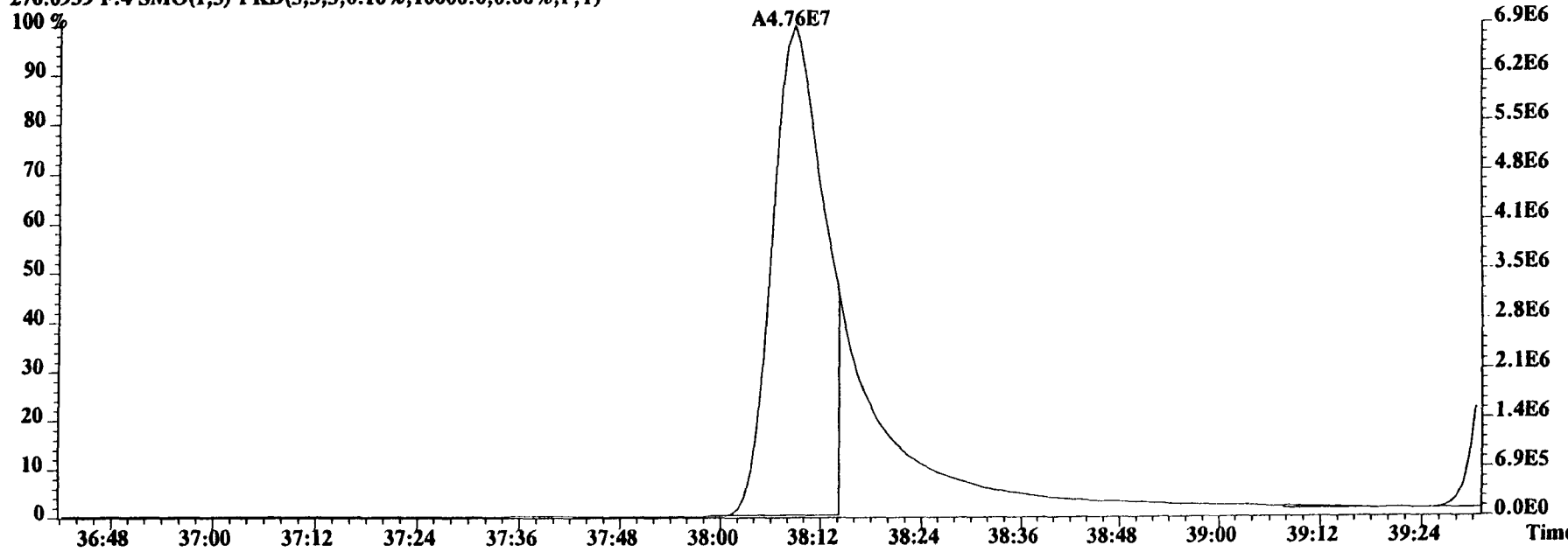
File:24AU98U #1-954 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
252.0939 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



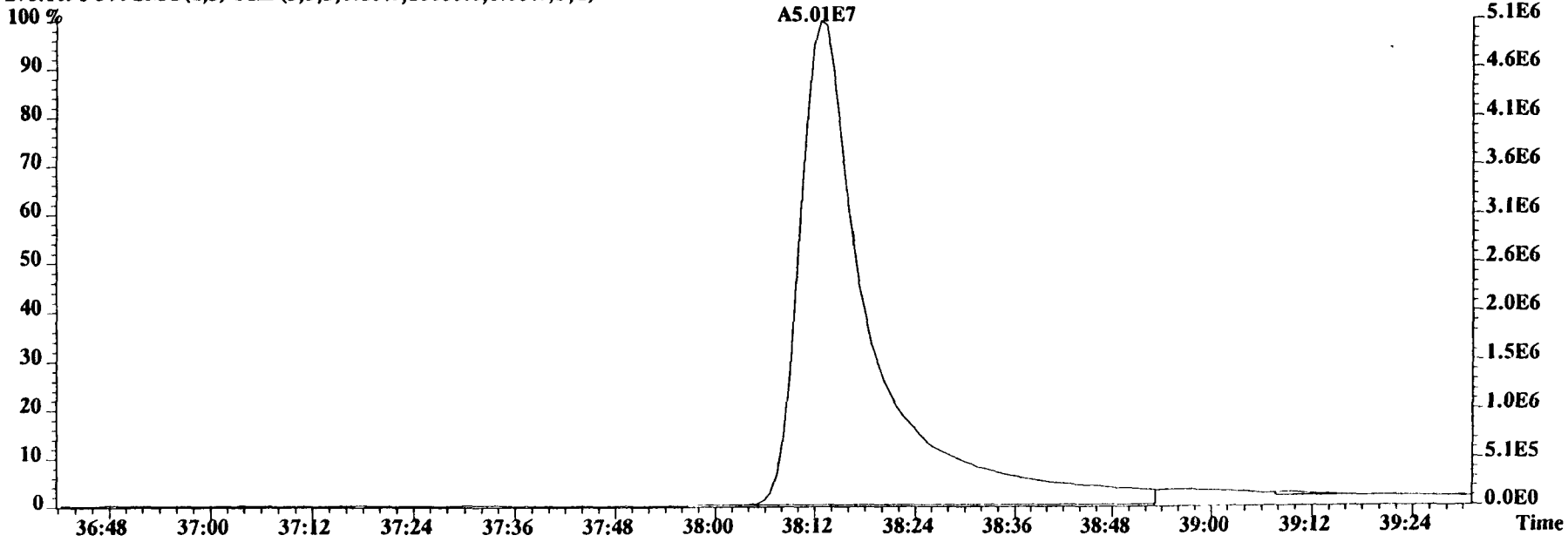
264.1692 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:24AU98U #1-954 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
276.0939 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

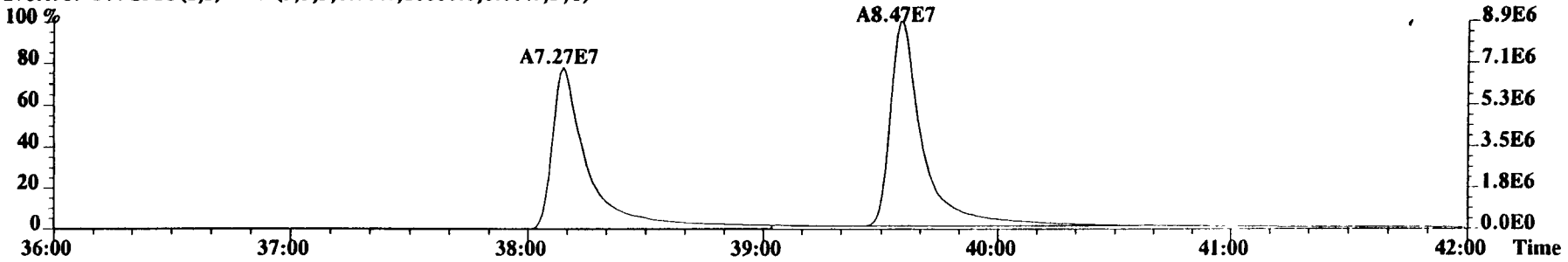


278.1096 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

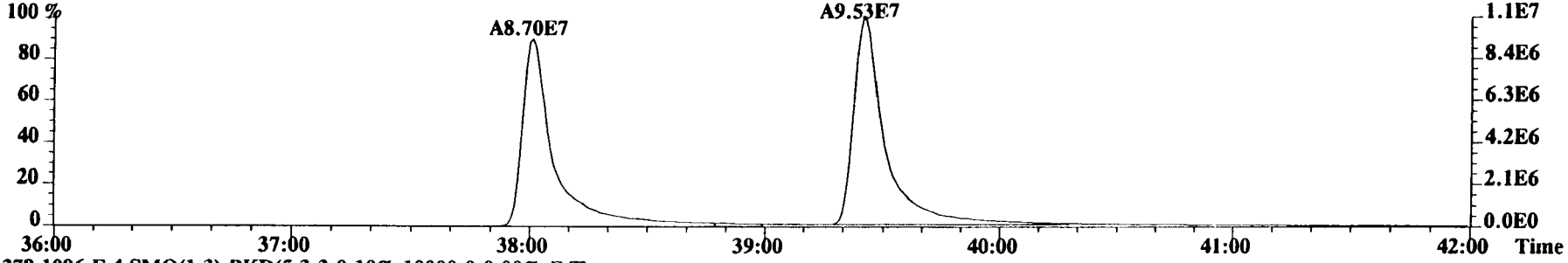


File:24AU98U #1-954 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR

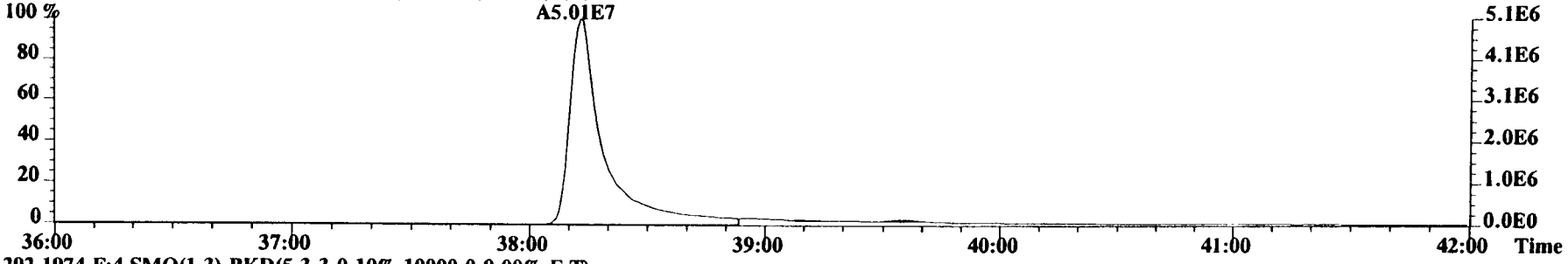
276.0939 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



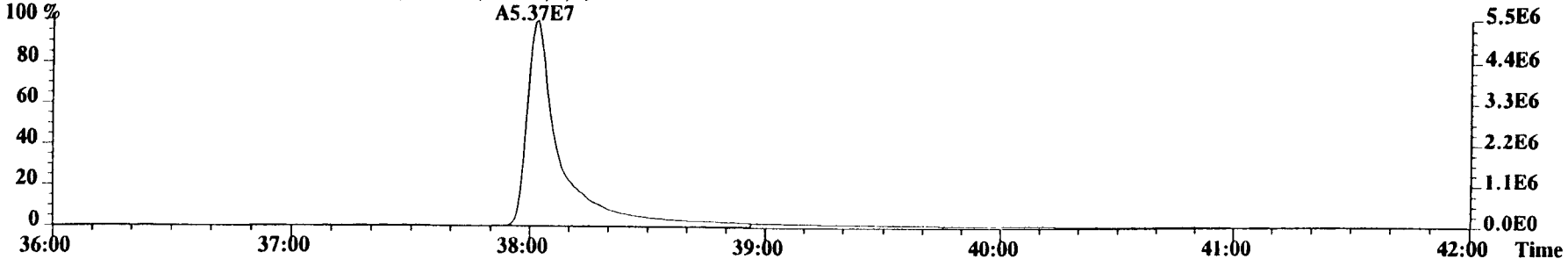
288.1692 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



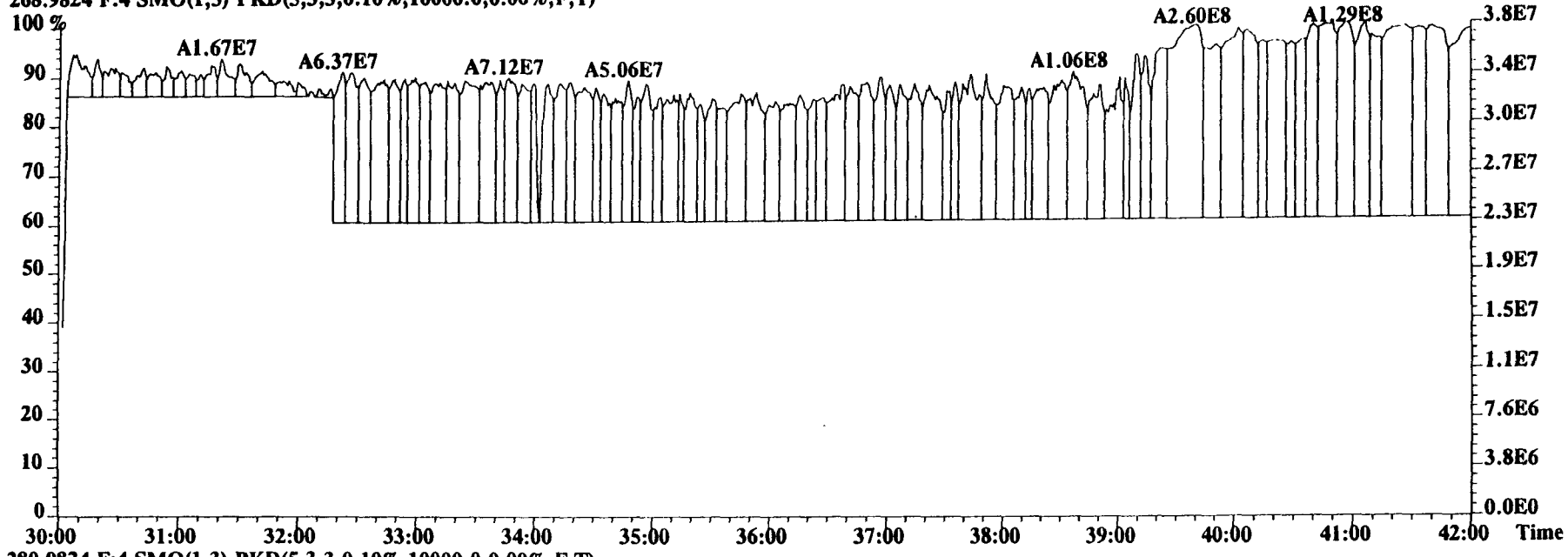
278.1096 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



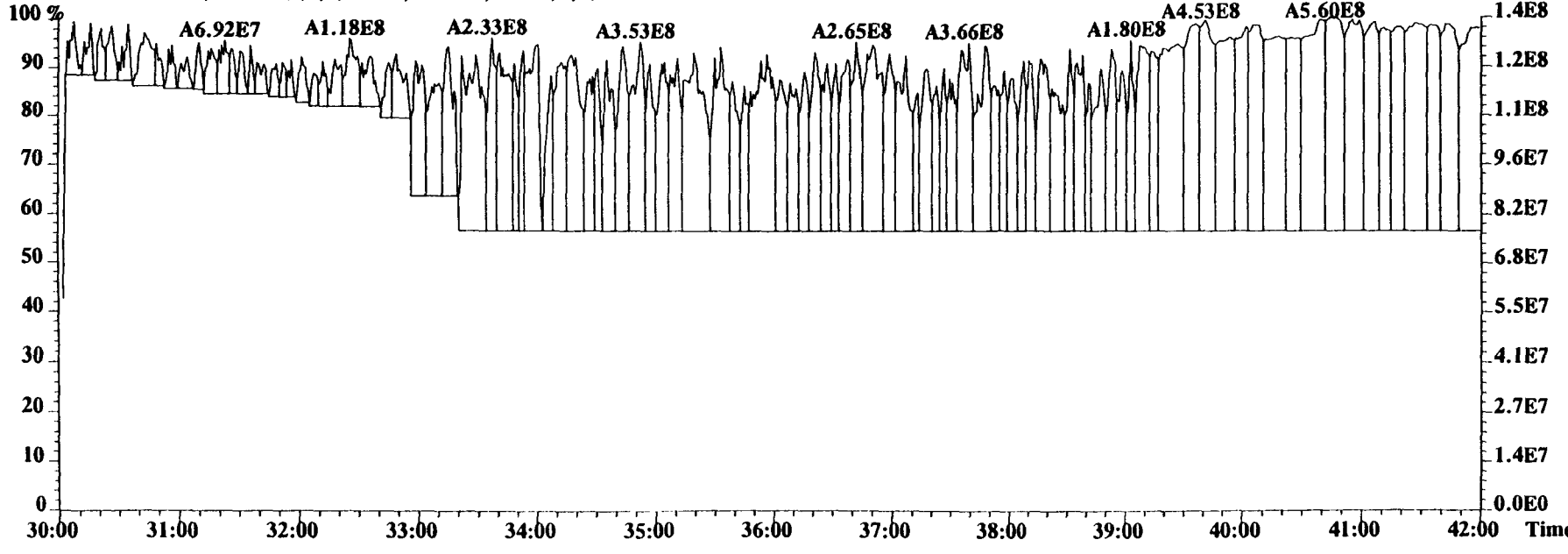
292.1974 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



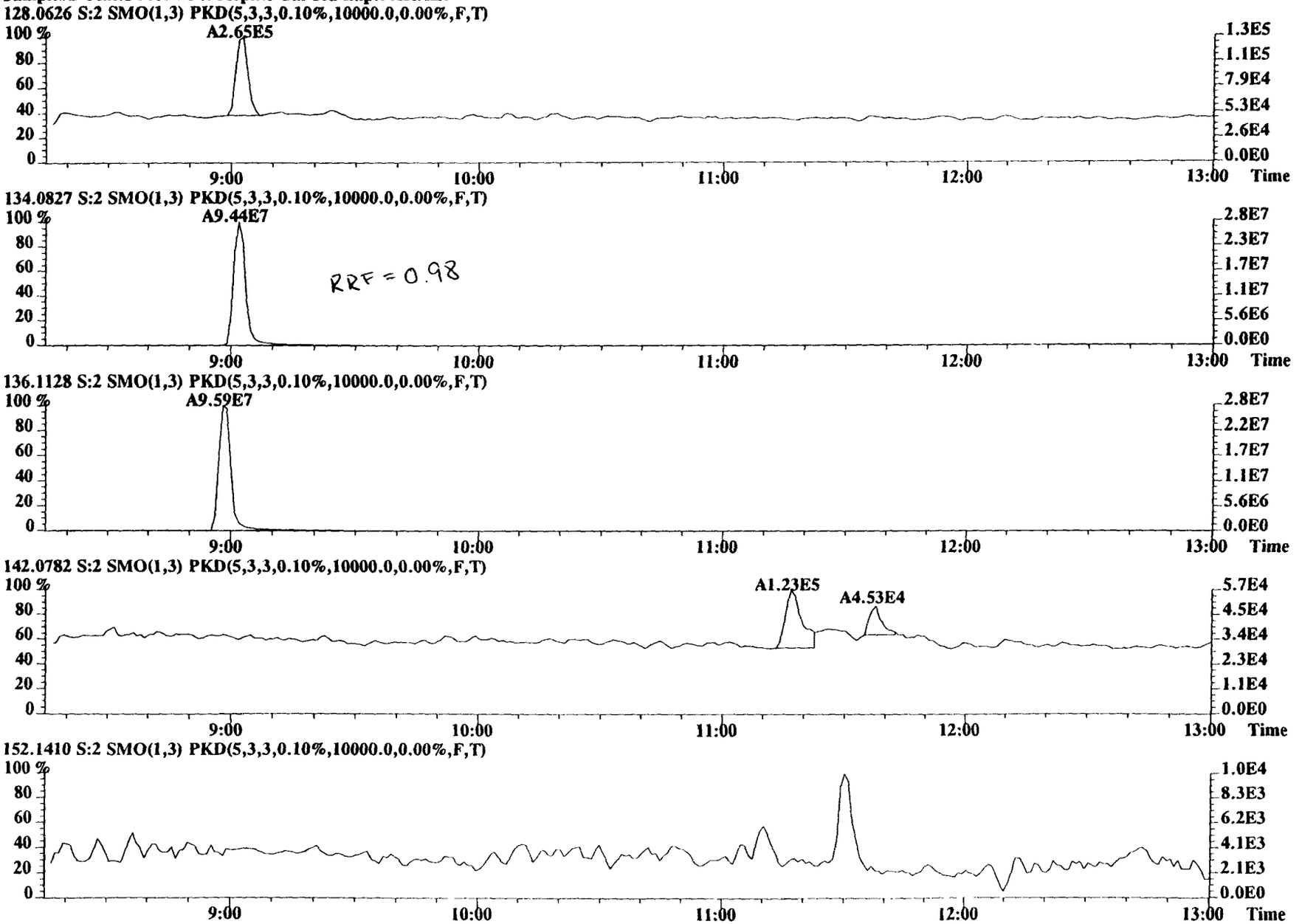
File:24AU98U #1-954 Acq:24-AUG-1998 17:35:49 GC EI+ Voltage SIR Autospec-Ultima
Sample#1 Text:ST0824 :PAH CS-3 :265-4C Exp:PAHAIR
268.9824 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



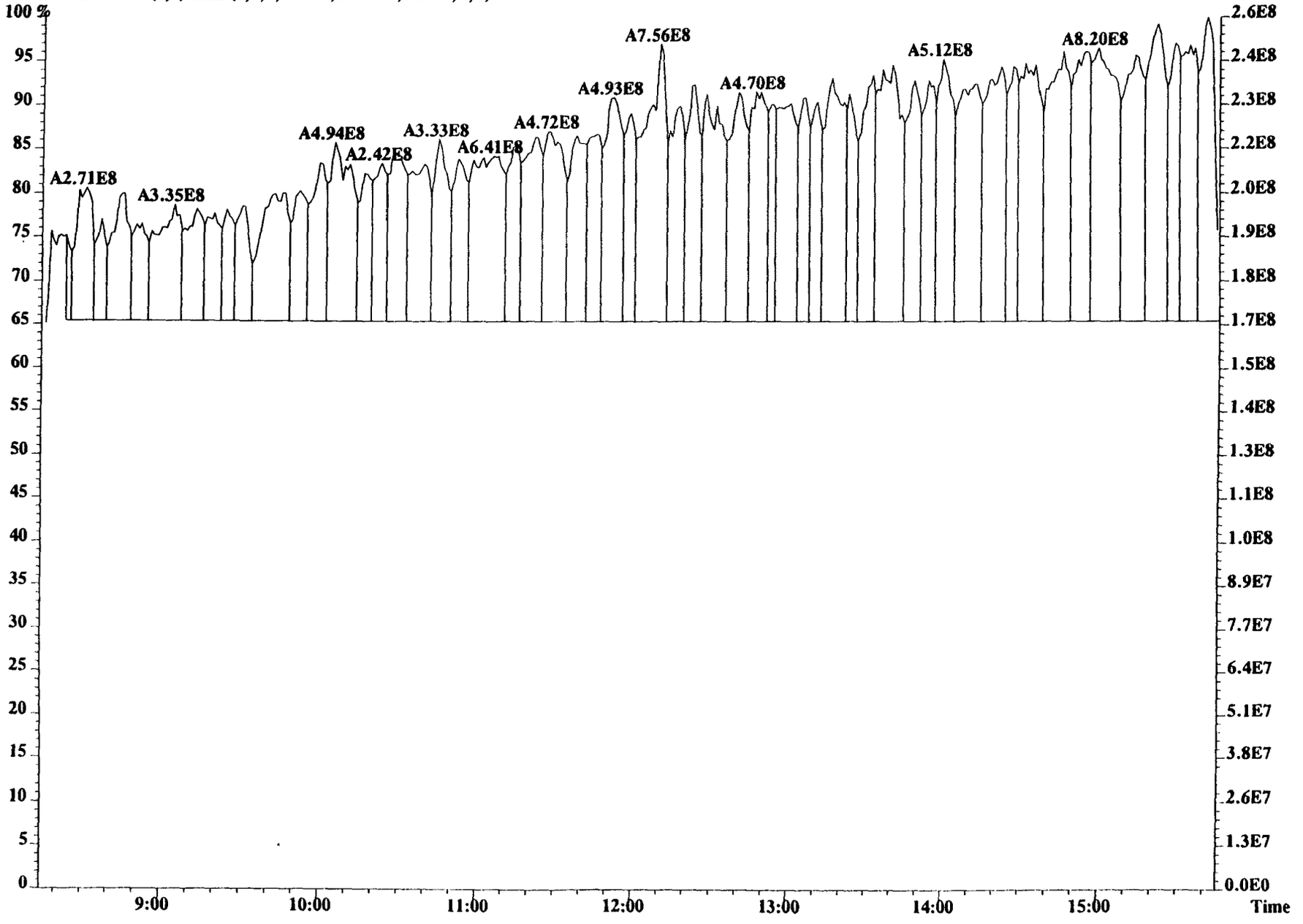
280.9824 F:4 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



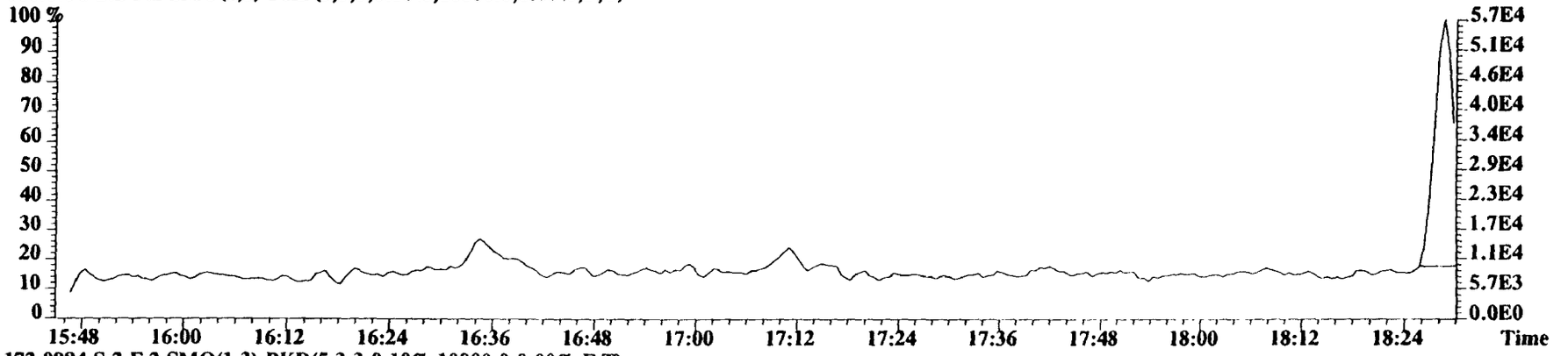
File:24AU98U #1-476 Acq:24-AUG-1998 18:22:16 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0824A :Prespike Cal Std Exp:PAHAIR



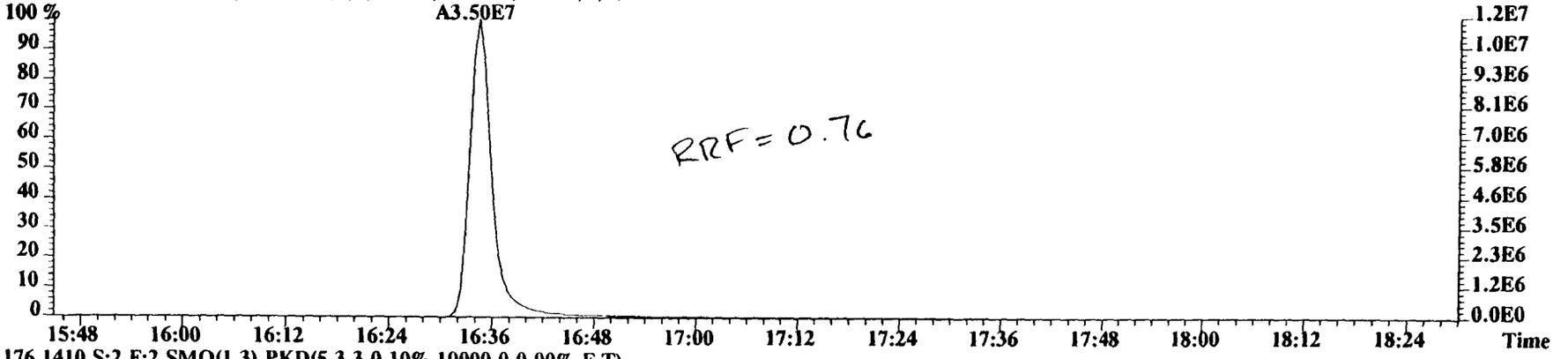
File:24AU98U #1-476 Acq:24-AUG-1998 18:22:16 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0824A :Prespike Cal Std Exp:PAHAIR
130.9920 S:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:24AU98U #1-666 Acq:24-AUG-1998 18:22:16 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0824A :Prespike Cal Std Exp:PAHAIR
166.0798 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

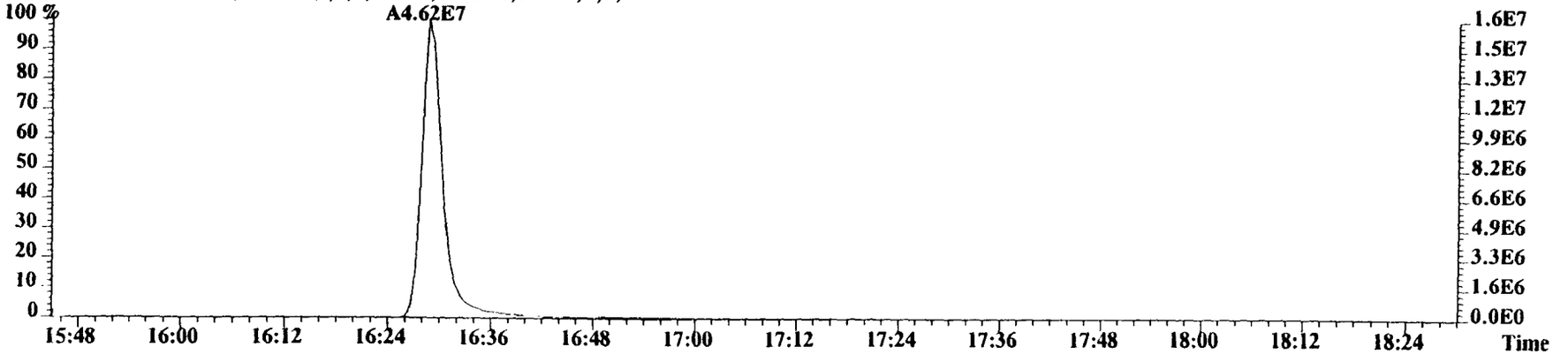


172.0984 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)

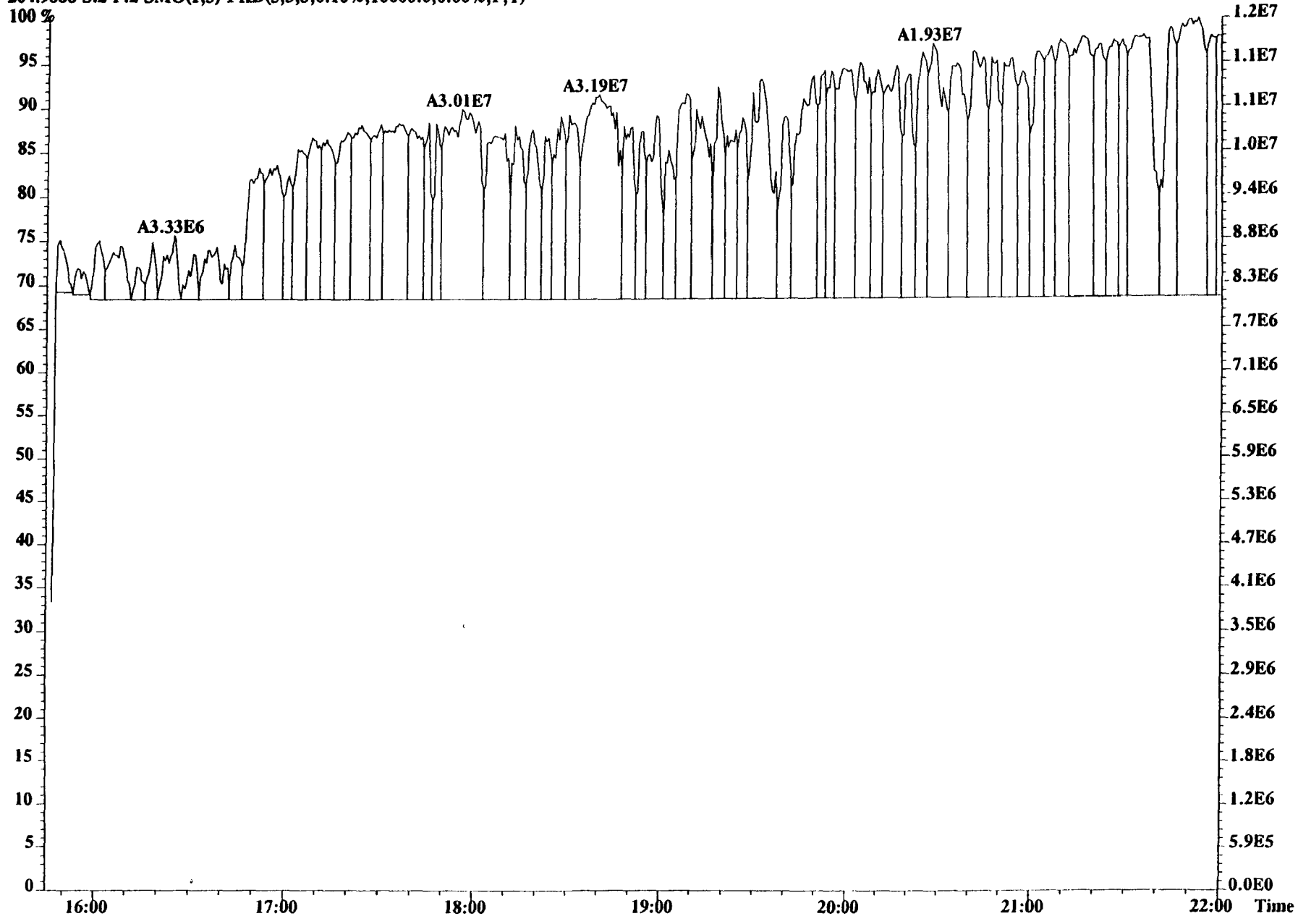


RRF = 0.76

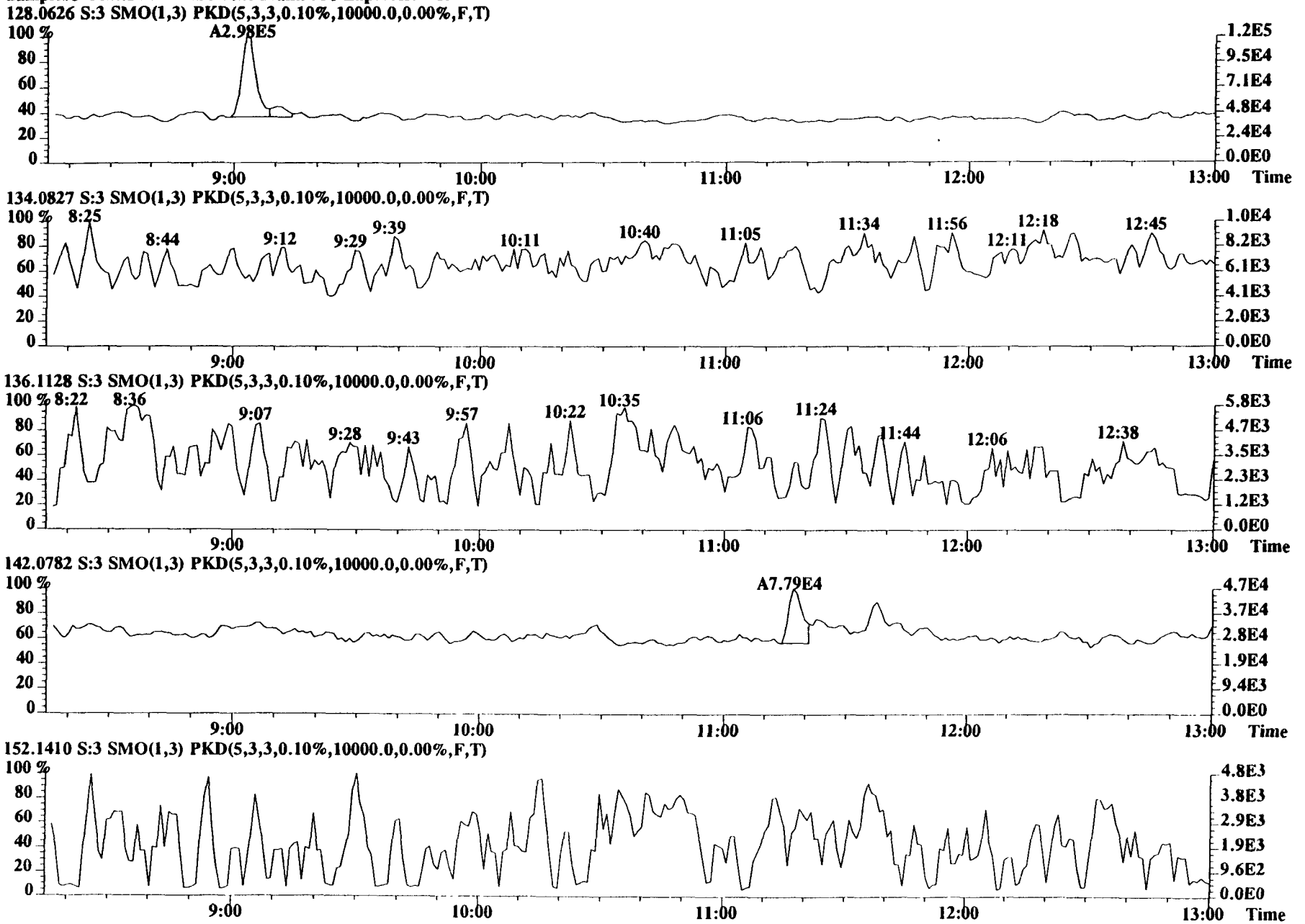
176.1410 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



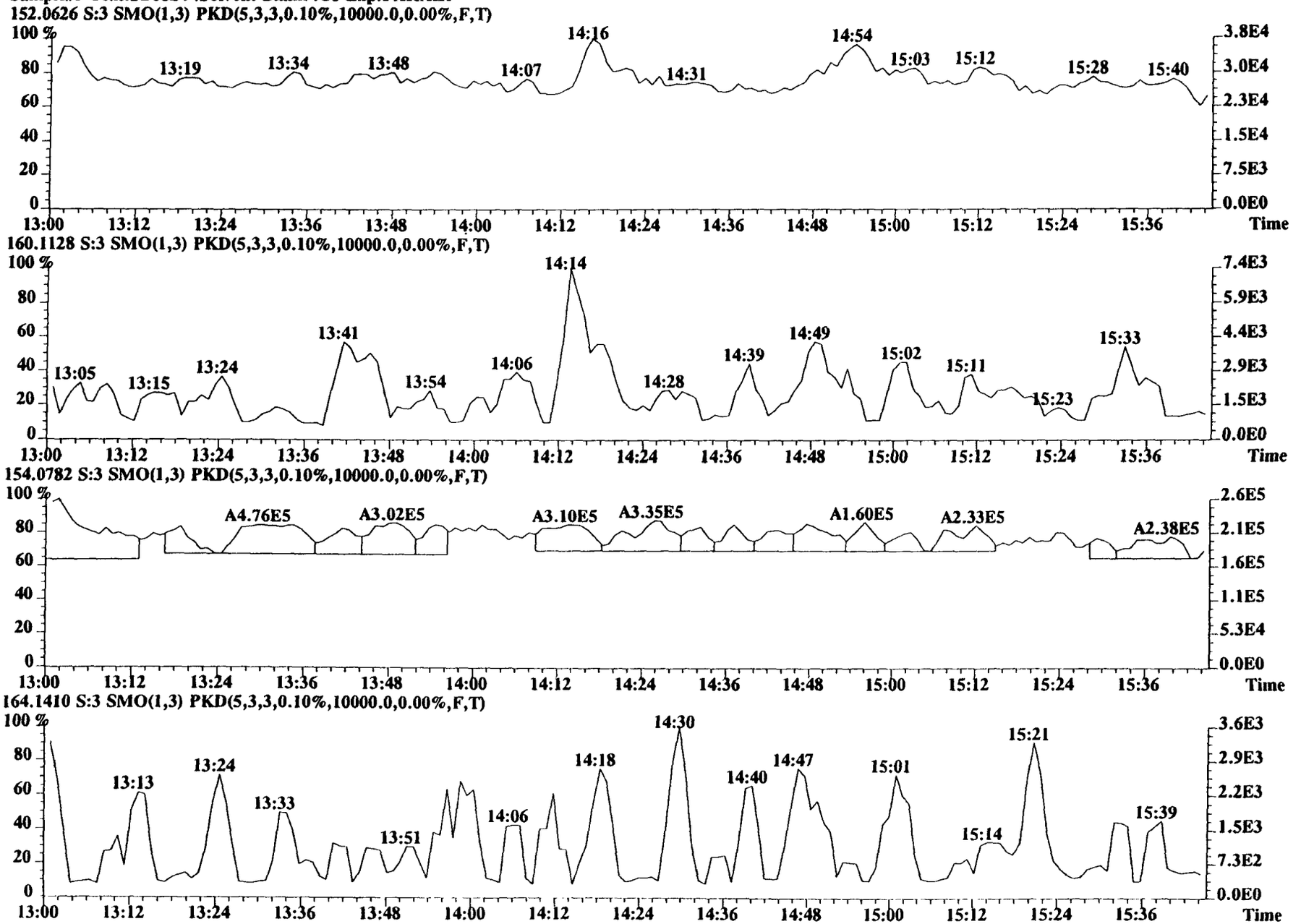
File:24AU98U #1-666 Acq:24-AUG-1998 18:22:16 GC EI+ Voltage SIR Autospec-Ultima
Sample#2 Text:ST0824A :Prespike Cal Std Exp:PAHAIR
204.9888 S:2 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



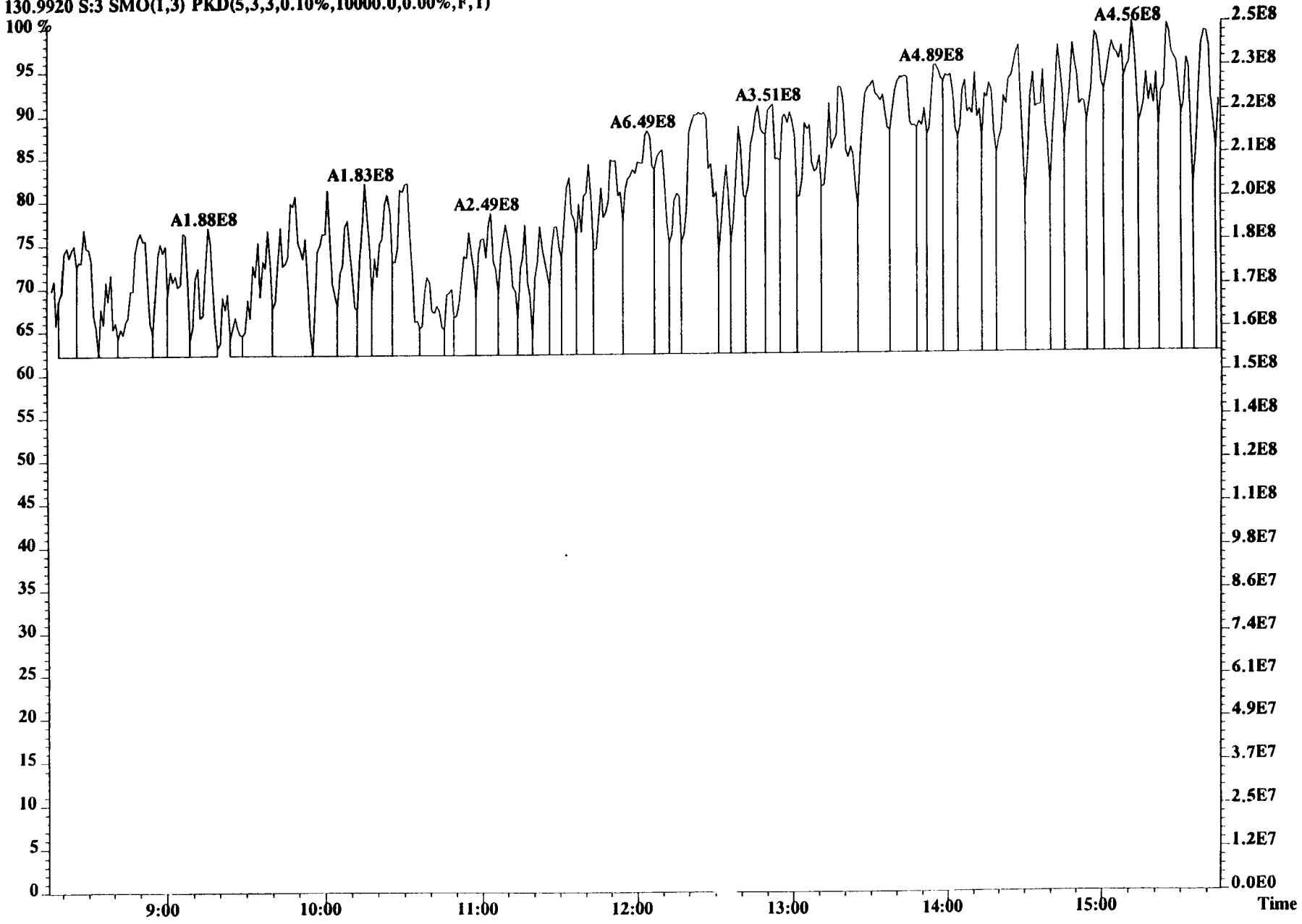
File:24AU98U #1-476 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR



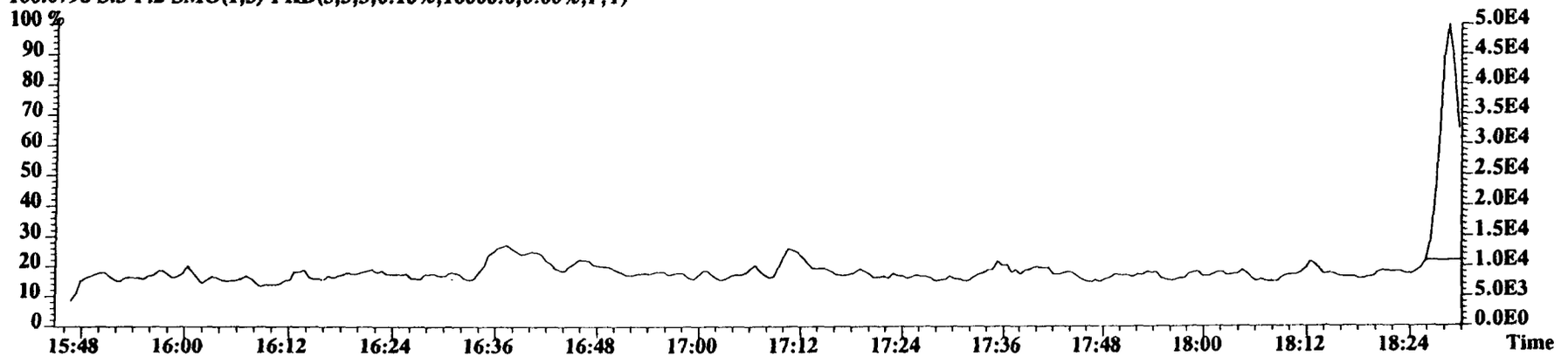
File:24AU98U #1-476 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR



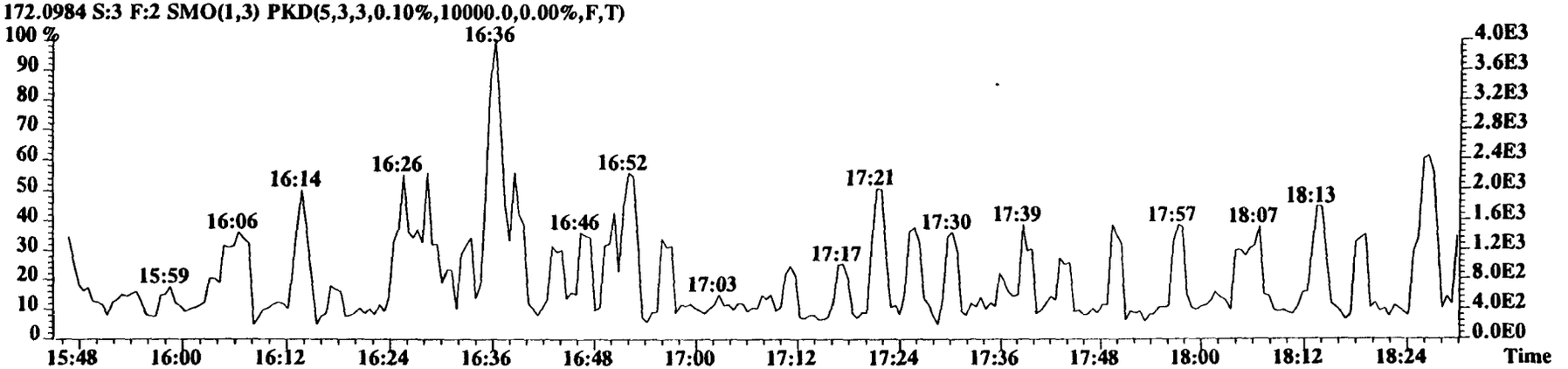
File:24AU98U #1-476 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR
130.9920 S:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



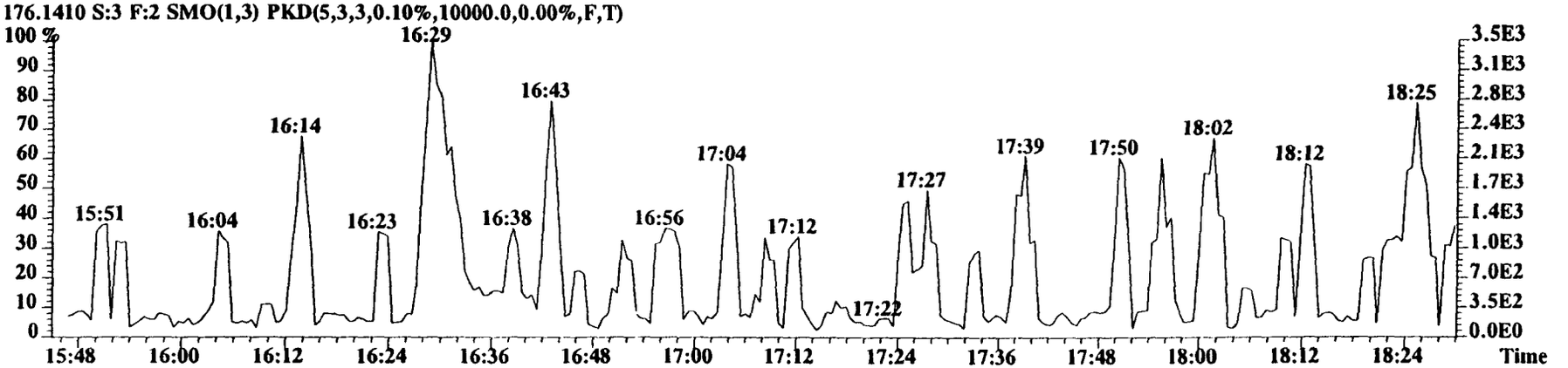
File:24AU98U #1-666 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR
166.0798 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



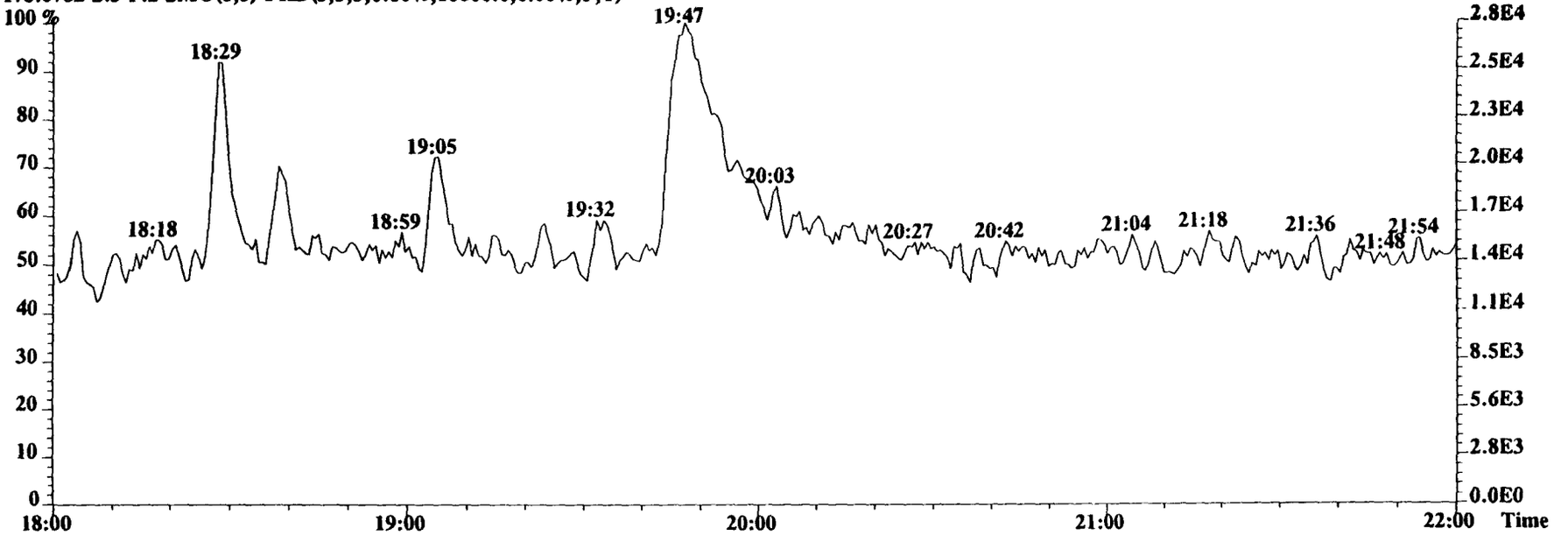
172.0984 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



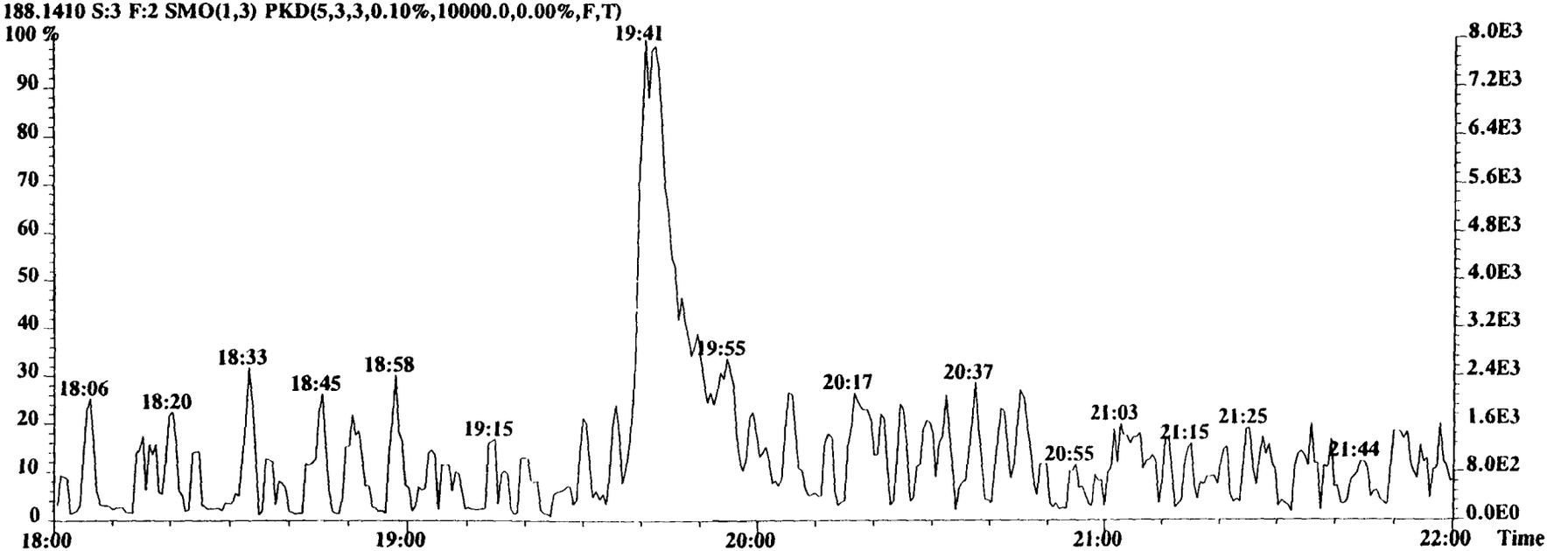
176.1410 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



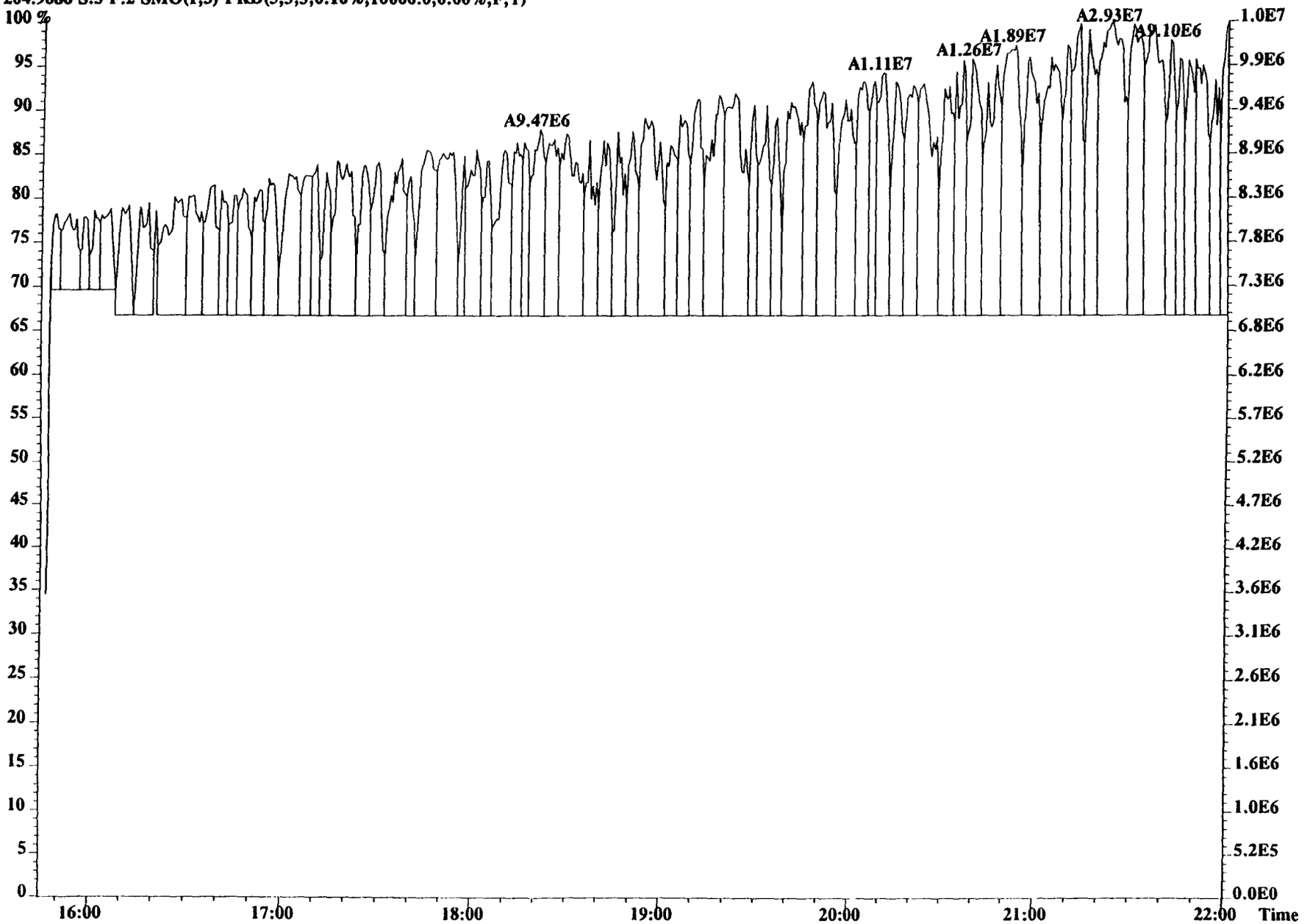
File:24AU98U #1-666 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR
178.0782 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



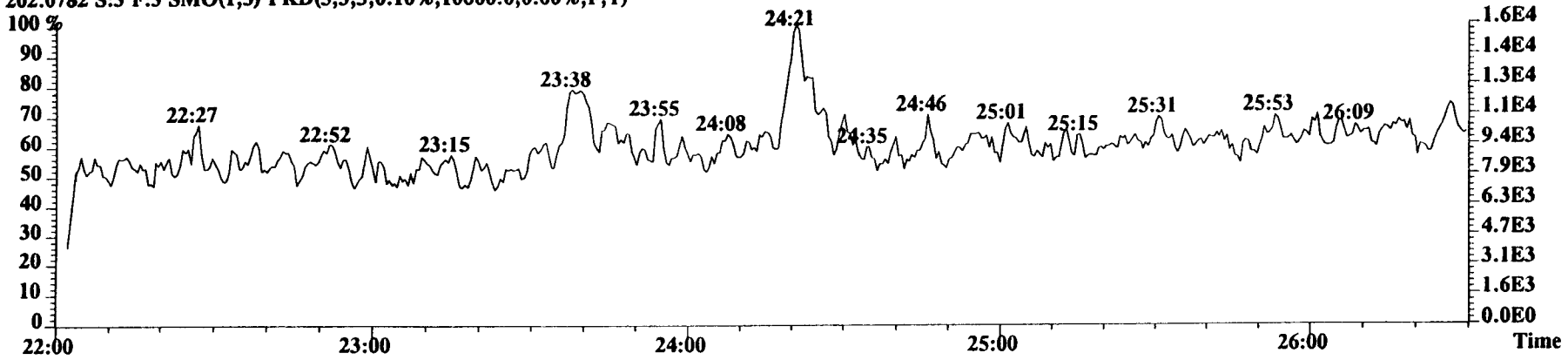
188.1410 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



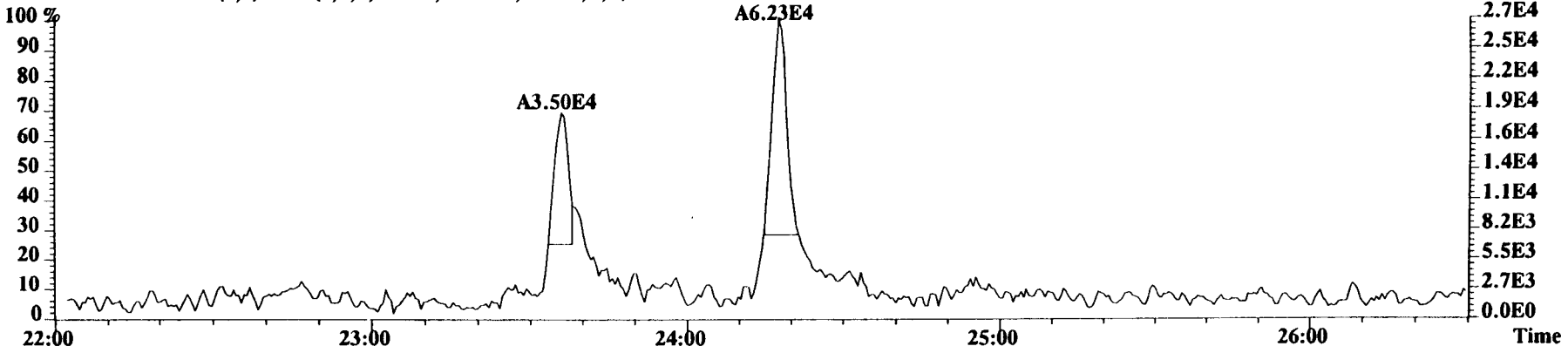
File:24AU98U #1-666 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR
204.9888 S:3 F:2 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



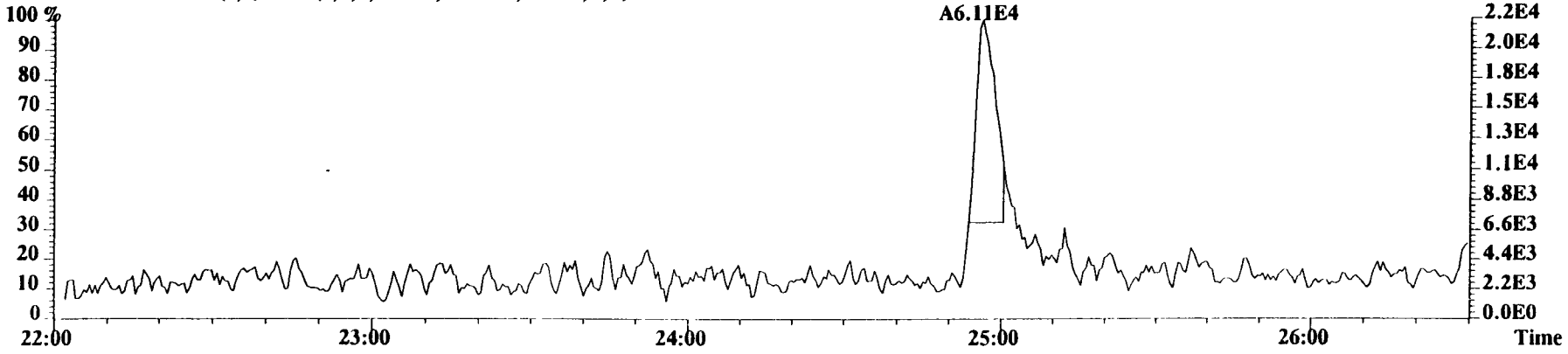
File:24AU98U #1-934 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR
202.0782 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



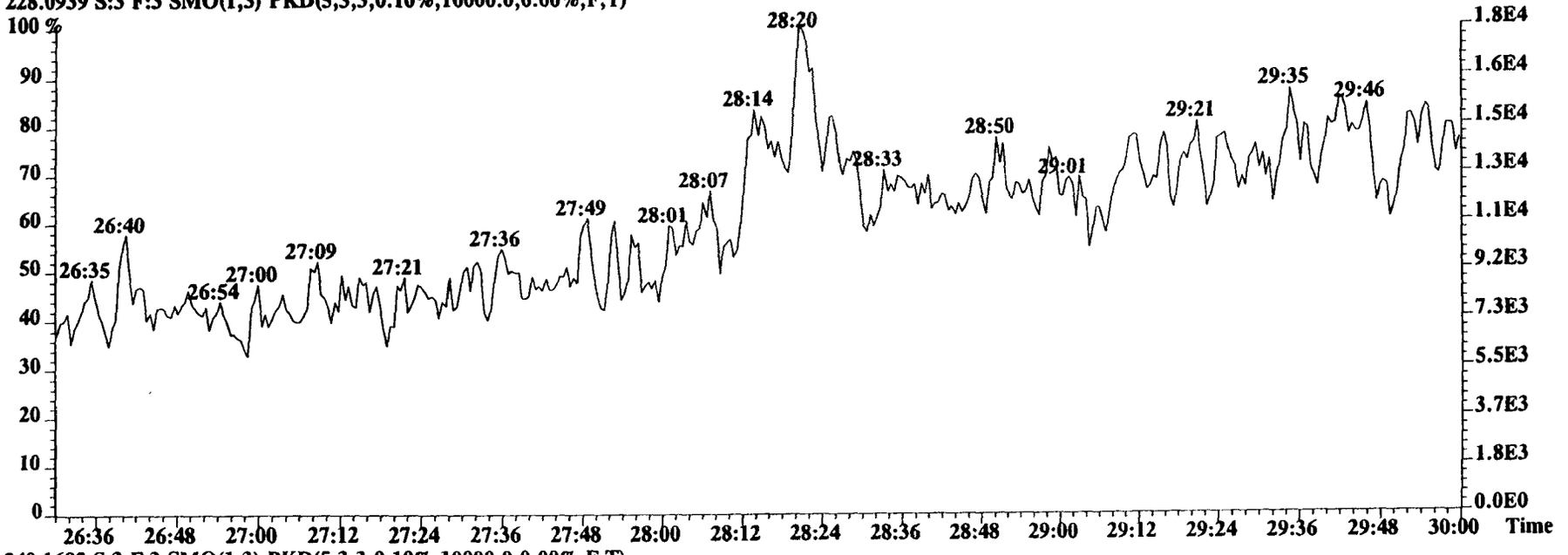
212.1410 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



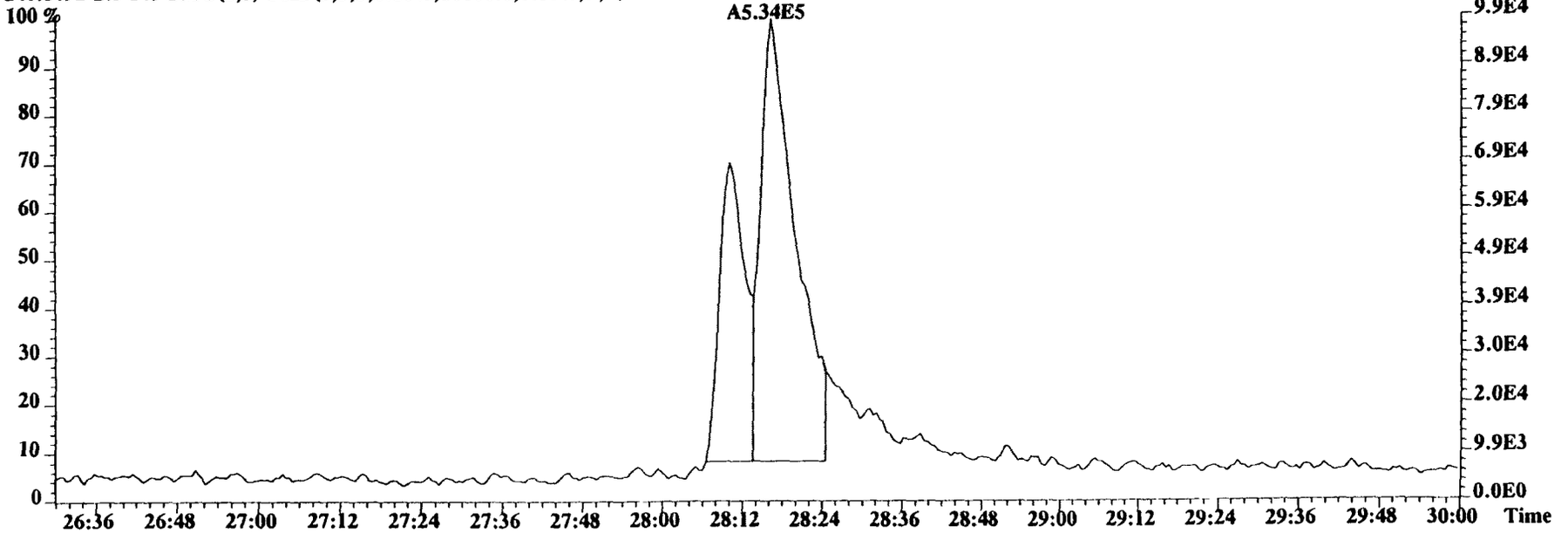
244.1974 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



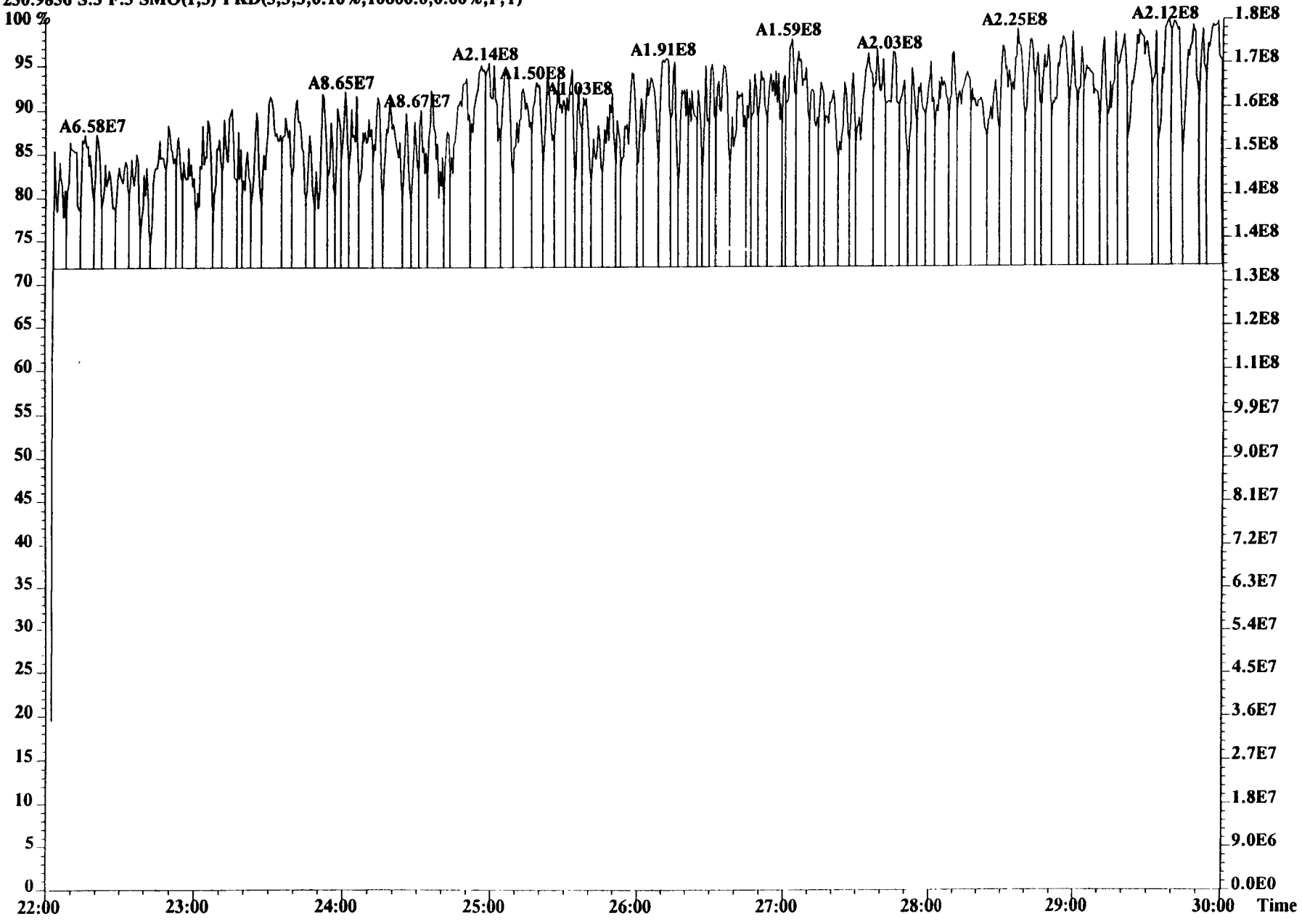
File:24AU98U #1-934 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR
228.0939 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



240.1692 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



File:24AU98U #1-934 Acq:24-AUG-1998 19:08:46 GC EI+ Voltage SIR Autospec-Ultima
Sample#3 Text:SB0824 :Solvent Blank :C8 Exp:PAHAIR
230.9856 S:3 F:3 SMO(1,3) PKD(5,3,3,0.10%,10000.0,0.00%,F,T)



Sample Extraction/ Preparation Log Copies

QUANTERRA INCORPORATED

West Sacramento

ADVANCED TECHNOLOGY HIGH RESOLUTION ANALYSIS

KSB 8/25/98 FDL'S

CLIENT NAME: Pacific Env. Svcs.

PROJECT #: 300681 **ANALYSIS:** Method 429

DATE RECEIVED: 7.30.98 DATE TO SUBBING: 80398 DATE IN PREP: 8.04.98

LOCATION: W16AB+D MATRIX: Air Trains TAT: 30 days

INITIALS: CAW PAGE 1 OF 1

HOLD TIME UP ON: _____ **OPS DUE DATE:** 8.10.98 **DUE DATE:** 8.19.98

SAMPLE I.D.'S	EXTRACTION	
1-11	SOXHLET	AIR TRAIN
	WW/EE	DILUTION
	SOLVENT QC	613
	SEE BELOW	

QC		^{13}C-INTERNAL STD.		AMT. (ng)	Factor
MB	*		1613 / 8290	2.0 / 4.0	
LCS	*		TCDD/F	2.0	
DCS			MET 23	10.0	
DU		*	MET 429	50.0	2X
MS			MET 428	2.0 / 4.0	
SD			MET 1668	2.0	
			DBD/F	25.0	

%H2O	GRAMS	VOLUME	DILUTION
%LIPIDS			

½ ARCHIVE	SPLIT	½ ALIQUOT 1/3	ALIQUOT

CRS	NO CRS

OPT C

FULL IFB	UPPER IFB	SILICA GEL

D2	ACID AL^{3+}	BASIC AL^{3+}

MATRIX SPIKE		Factor
CL_4 (tetra)	200 pg	
CL_5 - CL_7 (penta-hepta)	1000 pg	
CL_8 (octa)	2000 pg	
PCB	2.0 ng	
PAH	50.0 ng	2X
DBD/F	25.0 ng	

SAMPLE PRE-PREP	
AS RECEIVED	
DRY	
GRIND	
COMPOSITE	

GC COLUMN	
DB-5	*
DB-225	If needed

		RECOVERY STANDARD		
	1ng		10ng M23	
X	2ng	F.V. = 50+450 DILUTION:	25ng DBD/F	
	2ng PCB	C_{14} C_{12} C_{10} C_8	50ng PAH	

COMMENTS:

* Extracts diluted from ½ split w/ wt 3,4,5,6,8,9 and 1,2,7,10,11 need 100x dilution and respike w/ I.S.

KSB 8/26/98

33 = .0008 train

QA-361-MF 1

CALLAB-300681

Quanterra Environmental Services, Sacramento -
880 Riverside Parkway

West Sacramento, California 95605
(916) 373-5600

Date Received : 30 JUL 98 10:50

Mr. Frank Phoenix
Pacific Environmental Services
Suite 300
Research Triangle Park, North Carolina
277092077

(919) 941-0333 Fax: (919) 941-0234

Project ID,
EPA Case, RMA Lot : PAH/8270

P.O. Number : 104-98-0239

Delivered By :

Storage Location : W16ABD

Logged in by : MDYAS

Airtrain(11) samples received under Chain-of-Custody in good condition. Delivered by client.

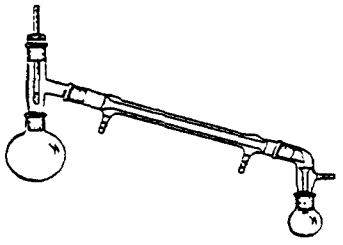
Sample ID	Client's label info	Date/Time Samp.	Containers
300681-0001-SA	S-MM5-2-F,FH,XAD,COND,BH	25 JUL 98	AGJ 3-500AGJ XAD
300681-0001-MB	S-MM5-2-F,FH,XAD,COND,BH	25 JUL 98	AGJ 3-500AGJ XAD
300681-0002-SA	S-MM5-1B-F,FH,XAD,COND,BH	25 JUL 98	AGJ 3-250AGJ XAD
300681-0003-SA	T-MM5-2-F,FH,XAD,COND,BH	25 JUL 98	2-500AGJ 2-250AGJ XAD
300681-0004-SA	T-MM5-FB-F,FH,XAD,COND,BH	25 JUL 98	500AGJ 3-250AGJ XAD
300681-0005-SA	T-MM5-4-F,FH,XAD,COND,BH	26 JUL 98	500AGJ 3-250AGJ XAD
300681-0006-SA	T-MM5-3-F,FH,XAD,COND,BH	27 JUL 98	500AGJ 3-250AGJ XAD
300681-0007-SA	S-MM5-3-F,FH,XAD,COND,BH	27 JUL 98	3-AGJ 3-250AGJ XAD
300681-0008-SA	S-MM5-FB-F,FH,XAD,COND,BH	26 JUL 98	AGJ 3-250AGJ XAD
300681-0009-SA	S-MM5-RB-F,FH,XAD,COND,BH	25 JUL 98	4-250AGJ XAD
300681-0010-SA	S-MM5-4-F,FH,XAD,COND,BH	25 JUL 98	3-500AGJ 3-250AGJ XAD
300681-0011-SA	S-MM5-5-F,FH,XAD,COND,BH	28 JUL 98	3-500AGJ 3-250AGJ XAD

Samples not destroyed in testing are retained a maximum of thirty (30) days unless otherwise requested.

Project Manager: Robert Weidenfeld

QUANTERRA INCORPORATED

West Sacramento



ADVANCED TECHNOLOGY HIGH RESOLUTION PREP

Methods 23, 428, 429, 1668, and T-O IX

BENCHSHEET FOR EXTRACTION OF AIR MEDIA

PROJECT #: 300681 **ANALYSIS:** PAH

MATRIX: _____ TAT: _____

DATE RECEIVED: _____ DATE IN PREP: _____ DUE DATE: _____

GCMS LOCATION: VSE22 DATE TO GCMS: 8-19-98

EXTRACTION TYPE: SOXHLET 613 DILUTION OTHER: _____

SOLVENT TYPE: TOLUENE HEXANE DCM OTHER: _____

SAMPLE ID	Sample Size split	613 Date/Int.	Soxhlet Date/Int.	Silica Gel Date/Int.	Upper IFB Date/Int.	Lower IFB Date/Int.	IFB Date/Int.	Special D2 Date/Int.
-1	1/10 BDH 8-18-98			8-18-98 BDH				
-2								
-7								
-10								
-11								
-1MB fun								
-1MB sox								
-1LCS fun								
-1LCS sox								
-3								
-4								
-5								

hold w/o penc clic cons

?

(All Samples) I.S. Added: _____ by: _____ Witness: _____ Date: _____

(LCS/MS/SD) PAR/Nat. Added: _____ by: _____ Witness: _____ Date: _____

(MB Only) Surrogate Added: _____ by: _____ Witness: _____ Date: _____

(All Samples) R.S. Added: 50ul/265-03 by: BDH Witness: MGO Date: 8/19/98

Associated QC: _____ Associated Projects: _____

Dilution @ Extraction? No Yes (describe)

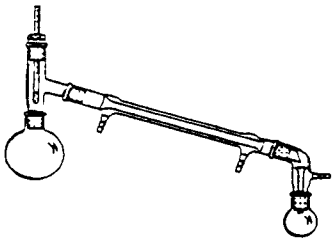
Split of Extract? No Yes (describe) 1,2,7,10,11 8-18-98 BDH 1/10

Dilution @ Final Volume? No Yes 1:5 1:10 C_8 C_{10} C_{12} C_{14}

QA-236-MF 11/9

QUANTERRA INCORPORATED

West Sacramento



ADVANCED TECHNOLOGY HIGH RESOLUTION PREP

Methods 23, 428, 429, 1668, and T-O IX

BENCHSHEET FOR EXTRACTION OF AIR MEDIA

PROJECT #: 300681 **ANALYSIS:** PAH

MATRIX: _____ TAT: _____

DATE RECEIVED: _____ DATE IN PREP: _____ DUE DATE: _____

GCMS LOCATION: _____ DATE TO GCMS: _____

EXTRACTION TYPE. SOXHLET 613 DILUTION OTHER: _____

SOLVENT TYPE. TOLUENE HEXANE DCM OTHER: _____

SAMPLE ID	Sample Size	613 Date/Int.	Soxhlet Date/Int.	Silica Gel Date/Int.	Upper IFB Date/Int.	Lower IFB Date/Int.	IFB Date/Int.	Special D2 Date/Int.
-6				8-18-98 BDH				
-8				↓				
-9				↓				

(All Samples)
I.S. Added: _____ by: _____ Witness: _____ Date: _____
(LCS/MS/SD)
PAR/Nat. Added: _____ by: _____ Witness: _____ Date: _____
(MB Only)
Surrogate Added: _____ by: _____ Witness: _____ Date: _____
(All Samples)
R.S. Added: 50 ul/ 265-03 by: BDH Witness: _____ Date: _____

Associated QC: _____ Associated Projects: _____

Dilution @ Extraction? No Yes (describe)
Split of Extract? No Yes (describe)
Dilution @ Final Volume? No Yes 1:5 1:10 C_3 C_{10} C_{12} C_{14}

QA-236-MF 11/97

Page____of____

Quanterra Environmental Services

Quanterra - Sacramento
Data Checklist
High Resolution Analyses

CAL ID: 300681 Method ID: Method 429

	DB-5	DB-225
Data Analyst:	mAT (#3,4,5,6,8,9)	(1,10,11)
Date initiated:	9.2.98	10-14-98
Reviewer:	A Alegado	BR
Date reviewed:	9/08/98	10/14/98

QA/QC verification:	Initiated	Reviewed
-Daily standard package(s) present?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-Method Blank present?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-LCS copy present?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-Internal standard recoveries within limits?*	DB-5 (1) (5) 225 ____	DB-5 (1) (5) 225 ____
-Ion ratios within ± 15% of theoretical values?	DB-5 NA 225 ____	DB-5 NA 225 ____
-Other QC (~~Dup,MS,SD~~ DCS) within specs?**	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____

Sample Analysis:	Initiated	Reviewed?
-Correct sample aliquot used?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-All raw data present?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-Standard target DL's used? (If not, specify below.)	DB-5 (2) (5) 225 ____	DB-5 (2) (5) 225 ____
-DL's below target detection limits?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-All positives reported at levels greater than method blank DL's?	DB-5 (3) (5) 225 ____	DB-5 (3) (5) 225 ____
-Any analytes saturated?	DB-5 (4) (5) 225 ____	DB-5 (4) (5) 225 ____
-Correct RRF's used for method?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-Internal standard amounts correct for method?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-Dilution/splitting of extract taken into account?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-Acquisition date/time correct?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____
-Manual integrations checked?	DB-5 ✓ 225 ____	DB-5 ✓ 225 ____

Comments: (Use other side if necessary)
(1) Some ~~m~~ Internal standards are outside recovery limits Flagged E "m"
(2) DL = 15 ng/train/fraction / 10
(3) There was a soxhlet method blank/LCS and a funnel method blank/LCS. The soxhlet MB was contaminated with Naphth., m-Naphth, Acenaphth., Fluorene, and Fluoranthene above the DL of 15 ng/train/fraction. The funnel method blank was contaminated with Acenapht above the DL. (4) The o,p'-Terphenyl was saturated in all samples due to the addition of the 827 Phenanthrene saturated in sample 6-6.

* Recovery limits:		** RPD limit
NCASI 551:	40-120% (20-39% OK if S/N=10:1 for IS)	50%
Method 8290:	40-135%	20%
Method 1613:	25-150%	50%
Method 23:	40-130%(C14-C16), 25-130%(C17-8), 70-130%(surr.)	50%
CARB 428:	40-120% (out of limits OK if S/N=10:1 for IS)	50%
CARB 429	50-150%	50%
PCBs:	25-150%	50%
DBD/DBF:	20-150%	

6

QA-371,10/96,NE

(5) See electronic anomaly

** NOT LOG RELEASED! **

QUANTERRA-CALLAB LABORATORY
Chromatography Assignment Sheet

SOXHLET

Project #: 300681
Analysis: P-PAH-HR-AIR Ver: 1
Client: Pacific Environmental Services
PA: RWEIDENFELD
Delivery Accepted: MDYAS 30 JUL 98
Number of Samples: 11
Program: General Airtox

Due Date: 19 AUG 98
Receipt Date: 30 JUL 98
Log Released:
Turnaround: NORMAL
Storage Location: W16ABD
Earliest Holding Time: 15 AUG 98

Project Description:
Airtrain samples to be split and analyzed for Hi res PAHs and 0010/8270.
Note there are a number of 8270 compounds that will need to be reported by library search. These compounds will be designated by -- in place of a reporting limit.

Full paginated raw data package reuqired

Test Modified: N
Sample Instructions: N
Test Instructions: N
Group Instructions: N
QAS #: _____

Date Delivered to PA: _____

Comments:

__ No Problems Occurred with Analysis

✓ See Anomaly Sheet

SUMMARY OF EXTRACTS
(ALL IN PCM)

MB/LCS (SOXHLET) 31 JUL 98
MB/LCS (SEP-FUNNEL) 01 AUG 98
1 - 11 (COMBINED SOX + SEP)

} ALL 1/3 SA/5.0 mL (ARCHIVES IN AIR TOX)

bcc

* VOLUMES ATTACHED *

QUANTERRA-CALLAB LABORATORY
Bottle Descriptions

Project #: 300681 **Test:** P-PAH-HR-AIR

0001SA - AGJ 3-500AGJ XAD
0002SA - AGJ 3-250AGJ XAD
0003SA - 2-500AGJ 2-250AGJ XAD
0004SA - 500AGJ 3-250AGJ XAD
0005SA - 500AGJ 3-250AGJ XAD
0006SA - 500AGJ 3-250AGJ XAD
0007SA - 3-AGJ 3-250AGJ XAD
0008SA - AGJ 3-250AGJ XAD
0009SA - 4-250AGJ XAD
0010SA - 3-500AGJ 3-250AGJ XAD
0011SA - 3-500AGJ 3-250AGJ XAD

QUANTERRA-CALLAB LABORATORY
Analytical Bench Sheet

Project Number: 300681 Date: 31 JUL 98

Test Code: P-PAH-HR-AIR Test Description: Prep - Polynuclear Aromatic Hydrocarbons by HRMS

Turnaround Status: NORMAL Sample Matrix: AIRTRAIN Date Assigned: 7/31 Prep Completion Due: _____

SOP-Section/Page (Revision): LM-CAL-7005

Extractions: [ ] Separatory Funnel [ ] Continuous Liquid/Liquid [ ] Sonication [✓] Soxhlet [ ] KD

[ ] Roto Vap [ ] Shaker [ ] Other _____

Samp ID	Holding Time	Sample Size	Extractn Date/ Initials	Adj pH Date/ Initials	Hydrolysis Date/ Initials	Acid Ext Date/ Initials	Conc Date/ Initials	CH2N2 Date/ Initials	N2 Date/ Initials	Final Sample Concentn
0001SA	15 AUG 98	AIR TRAIN (XAD/GFF)	DNT 7/31/98				DNT 8/4/98		DNT 8/5/98	1/3 SA / 5 mL
0002SA	15 AUG 98									
0003SA	15 AUG 98									
0004SA	15 AUG 98									
0005SA	16 AUG 98									
0006SA	17 AUG 98									
0007SA	17 AUG 98				DNT 8/4/98					
0008SA	16 AUG 98									
0009SA	15 AUG 98									
0010SA	15 AUG 98									
0011SA	18 AUG 98									
MB	NA									
LCS		NA								
NA										

Project Due: 19 AUG 98 DCS With Project: NA DCS Code: NA

LCS With Project: 300681 LCS Code: 31JUL98

Method Blank With Project: 300681 Extraction Includes Project(s): 300681

Notes/Comments:
** PLEASE PUT COMMENTS ON ANOMALY SHEET ** MSQC with Project: NA MSQC Code: NA

b4c

Date To ~~Instrument~~ HI-RES PREP: 8/5/98 By: DNT Peer Approval By: _____

QUANTERRA-CALLAB LABORATORY
Quality Assurance Sheet

Project #: 300681 Test: P-PAH-HR-AIR

Quality Assurance/Quality Control:

Sample ID: ALL Spiking Standard Name: M429 DAILY I.S.
Spike Code ID: 265-02 Volume: 150µl Conc: 1.0ng/µl
Spiked By: AMT Witness: GB

Sample ID: MB ONLY Spiking Standard Name: PAH SURR (C13-FLUORENE)
Spike Code ID: 956-31 Volume: 150µl Conc: 1.0ng/µl
Spiked By: AMT Witness: GB

Sample ID: LCS ONLY Spiking Standard Name: M429 NATIVE STOCK II
Spike Code ID: AT-I-42A Volume: 750µl Conc: 0.2ng/µl
Spiked By: AMT Witness: GB

Sample ID: _____ Spiking Standard Name: _____
Spike Code ID: _____ Volume: _____ Conc: _____
Spiked By: _____ Witness: _____

Solvent: Manufacturer And Lot Number:
Extracting Solvent: DCM (BAK) M17327
Solvent Keeper: _____
Transfer Solvent: _____
Derivatizing Reagent: _____
Final Solvent: _____
Other: _____

Was an aliquot taken? (Y) / N
If yes, how much was aliquoted? 5 mL / 15 mL
What was the sample concentration before aliquot? 5L / 15 mL DCM

Why was the aliquot taken? SPLIT W/8270, ARCHIVE

61

QUANTERRA-CALLAB LABORATORY
Instruction Sheet

Project #: 300681 **Test:** P-PAH-HR-AIR

Sample Instructions:

None.

Test Instructions:

None.

Group Instructions:

None.

QUANTERRA-CALLAB LABORATORY
Anomaly Report Form

Project #: 300681 Test: P-PAH-HR-AIR

Anomalies:	Sample(s) Affected:
__ Sample broken during shipping.	_____
__ Limited sample volume.	_____
__ Matrix required a subsample to facilitate extraction.	_____
__ pH of sample required excess acid/base (please circle).	_____
__ Solvent and sample were miscible.	_____
__ Emulsion problems.	_____
__ Emulsion problem required centrifuging.	_____
__ Sample lost during preparation. Re-extraction performed? Yes/No	_____
__ Concentration volume went lower than specified in the SOP.	_____
__ Concentration time longer than normal.	_____
__ Extraction solvent saturated with organic material, therefore sample volume was not concentrated but adjusted based on the screening.	_____
__ Final concentration greater than specified in the SOP due to the screening results.	_____
__ Precipitate observed in the extract.	_____
✓ Other, please comment below.	1, 2, 7, 10, 11

Comments:

EXTRACTS CONTAIN ALOT OF OIL

Submitted By: DWT Date: 8/5/98

QUANTERRA-CALLAB LABORATORY
Prep (Extraction) Check List

Project #: 300681 Test: P-PAH-HR-AIR

Chemist: DNT Date: 8/5/98

Reviewer: _____ Date: _____

Number of samples: 11 Number of extracts: 13

Benchsheet:	Initiated		Reviewed	
SOP section and page number filled out properly.	Y___	N___	Y___	N___
Each step of extraction procedure initial'ed and dated.	Y___	N___	Y___	N___
Anomalies or deviations from SOP documented.	Y___	N___	Y___	N___
pH adjustments noted.	Y___	N___	Y___	N___
Solvent manufacturer and lot number completed.	Y___	N___	Y___	N___
Volumes and weights of samples to two sig. figs.	Y___	N___	Y___	N___

QA/QC:	Initiated		Reviewed	
DCS/MS forms filled out properly.	Y___	N___	Y___	N___
Spike information correct on bench sheet.	Y___	N___	Y___	N___
Spike witness?	Y___	N___	Y___	N___
If not spiked per SOP, were spike amounts verified?	Y___	N___	Y___	N___

LIMS:	Initiated		Reviewed	
Extraction date (complete date) correct.	Y___	N___	Y___	N___
QC lot number present and correct.	Y___	N___	Y___	N___
QC Run number present and correct.	Y___	N___	Y___	N___
Prep released (date extract goes to Inst.).	Y___	N___	Y___	N___

Extracts:	Initiated		Reviewed	
Number of extracts agree with benchsheet.	Y___	N___	Y___	N___
Concentrations of extract agree with benchsheet.	Y___	N___	Y___	N___
Testtube rack labelled with project id and test.	Y___	N___	Y___	N___

Comments:

QUANTERRA-CALLAB LABORATORY
Client Descriptions

Project #: 300681 **Test:** P-PAH-HR-AIR

0001SA - S-MM5-2-F,FH,XAD,COND,BH
0002SA - S-MM5-1B-F,FH,XAD,COND,BH
0003SA - T-MM5-2-F,FH,XAD,COND,BH
0004SA - T-MM5-FB-F,FH,XAD,COND,BH
0005SA - T-MM5-4-F,FH,XAD,COND,BH
0006SA - T-MM5-3-F,FH,XAD,COND,BH
0007SA - S-MM5-3-F,FH,XAD,COND,BH
0008SA - S-MM5-FB-F,FH,XAD,COND,BH
0009SA - S-MM5-RB-F,FH,XAD,COND,BH
0010SA - S-MM5-4-F,FH,XAD,COND,BH
0011SA - S-MM5-5-F,FH,XAD,COND,BH

QUANTERRA / W. SACRAMENTO

PROJECT QC LIMITS

Pacific Environmental Services

Project: CALLAB-300681
Matrix: AIR

Test Code: PAH-HR-AIR
Version: 1
QC Category: PAH-HR-AIR

QAS#			RL	Surrogate/SCS			Lab Control (LCS)			Lab Control (DCS)			Matrix Spike		
	Modified Date:														
	Component	CASN	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth
1 *	Naphthalene	91203													
2 *	2-Methylnaphthalene	91576													
3 *	Acenaphthylene	208968													
4 *	Acenaphthene	83329													
5 *	Fluorene	86737													
6 *	Phenanthrene	85018													
7	Anthracene	120127													
8 *	Fluoranthene	206440													
9 *	Pyrene	129000													
10	Benzo(a)anthracene	56553													
11 *	Chrysene	218019													
12 *	Benzo(b)fluoranthene	205992													
13 *	Benzo(k)fluoranthene	207089													
14 *	Benzo(e)pyrene	192972													
15 *	Benzo(a)pyrene	50328													
16 *	Perylene	198550													
17	Indeno(1,2,3-cd)pyrene	193395													
18 *	Dibenz(a,h)anthracene	53703													
19 *	Benzo(g,h,i)perylene	191242													
20	Naphthalene-d8	1146652		50	50	150									
21 *	2-Methylnaphthalene-d10	91576		50	50	150									
22 *	Acenaphthylene-d8	93951974		50	50	150									
23 *	Acenaphthene-d10	15067202		*	*	*									
24 *	Fluorene-d10	81103799		50	50	150									
25 *	Phenanthrene-d10	1517222		50	50	150									
26 *	Fluoranthene-d10	93951690		ng	50	150									
27 *	Pyrene-d10	1718521		50	50	150									
28 *	Benzo(a)anthracene-d12	1718532		50	50	150									
29 *	Chrysene-d12	1719035		50	50	150									
30 *	Benzo(b)fluoranthene-d12	93951985		50	50	150									
31 *	Benzo(k)fluoranthene-d12	93952013		50	50	150									
32 *	Benzo(a)pyrene-d12	63466717		50	50	150									
33 *	Perylene-d12	1520963		50	50	150									
34 *	Indeno(123-cd)pyrene-d12	-559943396		50	50	150									
35 *	Dibenz(a,h)anthracene-d1	13250981		50	50	150									
36 *	Benzo(g,h,i)perylene-d12	93951667		50	50	150									
37 *	Anthracene-d10	1719068		50	50	150									
38 *	Terphenyl-d14	1718510		50	50	150									

Impinger Fraction

** NOT LOG RELEASED! **

QUANTERRA-CALLAB LABORATORY
Chromatography Assignment Sheet

Project #: 300681
Analysis: P-PAH-HR-AIR Ver: 1
Client: Pacific Environmental Services
PA: RWEIDENFELD
Delivery Accepted: MDYAS 30 JUL 98
Number of Samples: 11
Program: General Airtox

Due Date: 19 AUG 98
Receipt Date: 30 JUL 98
Log Released:
Turnaround: NORMAL
Storage Location: W16ABD
Earliest Holding Time: 15 AUG 98

Project Description:
Airtrain samples to be split and analyzed for Hi res PAHs and 0010/8270.
Note there are a number of 8270 compounds that will need to be reported by library search. These compounds will be designated by -- in place of a reporting limit.

Full paginated raw data package reuqired

Test Modified: N
Sample Instructions: N
Test Instructions: N
Group Instructions: N
QAS #: _____

Date Delivered to PA: _____

Comments:

__ No Problems Occurred with Analysis

✓ See Anomaly Sheet

QUANTERRA-CALLAB LABORATORY
Bottle Descriptions

Project #: 300681 Test: P-PAH-HR-AIR

0001SA - AGJ 3-500AGJ XAD
0002SA - AGJ 3-250AGJ XAD
0003SA - 2-500AGJ 2-250AGJ XAD
0004SA - 500AGJ 3-250AGJ XAD
0005SA - 500AGJ 3-250AGJ XAD
0006SA - 500AGJ 3-250AGJ XAD
0007SA - 3-AGJ 3-250AGJ XAD
0008SA - AGJ 3-250AGJ XAD
0009SA - 4-250AGJ XAD
0010SA - 3-500AGJ 3-250AGJ XAD
0011SA - 3-500AGJ 3-250AGJ XAD

QUANTERRA-CALLAB LABORATORY
Analytical Bench Sheet

Project Number: 300681 Date: 31 JUL 98

Test Code: P-PAH-HR-AIR Test Description: Prep - Polynuclear Aromatic Hydrocarbons by HRMS

Turnaround Status: NORMAL Sample Matrix: AIRTRAIN Date Assigned: 7/31 Prep Completion Due: _____

SOP-Section/Page (Revision): LM-CAL-7005

Extractions: [X] Separatory Funnel [ ] Continuous Liquid/Liquid [ ] Sonication [ ] Soxhlet [ ] KD
[ ] Roto Vap [ ] Shaker [ ] Other _____

Samp ID	Holding Time	Sample Size	Extractn Date/ Initials	Adj pH Date/ Initials	Hydrolysis Date/ Initials	Acid Ext Date/ Initials	Conc Date/ Initials	CH2N2 Date/ Initials	N2 Date/ Initials	Final Sample Concentn
0001SA	15 AUG 98	SEE ATTACHED	8/1/98 SJ	8/1/98 SJ	8/1/98 SJ	8/1/98 SJ	DMT 8/5/98			
0002SA	15 AUG 98									
0003SA	15 AUG 98									
0004SA	15 AUG 98									
0005SA	16 AUG 98									
0006SA	17 AUG 98							COMBINED WITH SOXHLET FRACTION		
0007SA	17 AUG 98									
0008SA	16 AUG 98									
0009SA	15 AUG 98									
0010SA	15 AUG 98									
0011SA	18 AUG 98									
MB	NA	1.0L						NA	DMT 8/5/98	Y/3SA Soil
LCS										
NA										

Project Due: 19 AUG 98 DCS With Project: NA DCS Code: NA

LCS With Project: 300681 LCS Code: 01 AUG 98

Method Blank With Project: 300681 Extraction Includes Project(s): 300681

Notes/Comments:
** PLEASE PUT COMMENTS ON ANOMALY SHEET ** MSQC with Project: NA MSQC Code: NA

650

Date To ~~Instruments:~~ HI-RES PREP 8/5/98 By: DMT Peer Approval By: _____

QUANTERRA-CALLAB LABORATORY
Quality Assurance Sheet

Project #: 300681 Test: P-PAH-HR-AIR

Quality Assurance/Quality Control:

Sample ID: ~~ALL~~ MB/LCS only Spiking Standard Name: M429 Daily IS
Spike Code ID: 265-02 Volume: 150 µl Conc: 1 ng/µl
Spiked By: [illegible] Witness: C Dyke

Sample ID: LCS only Spiking Standard Name: M429 Native Std II
Spike Code ID: AT-I AIR Volume: 750 µl Conc: 0.2 ng/µl
Spiked By: [illegible] Witness: C Dyke

Sample ID: _____ Spiking Standard Name: _____
Spike Code ID: _____ Volume: _____ Conc: _____
Spiked By: _____ Witness: _____

Sample ID: _____ Spiking Standard Name: _____
Spike Code ID: _____ Volume: _____ Conc: _____
Spiked By: _____ Witness: _____

Solvent: Manufacturer And Lot Number:
Extracting Solvent: MeCl2 Lot# M17327
Solvent Keeper: _____
Transfer Solvent: _____
Derivatizing Reagent: _____
Final Solvent: _____
Other: _____

Was an aliquot taken? (Y) / N
If yes, how much was aliquoted? 5 mL / 15 mL
What was the sample concentration before aliquot? 5A/15mL

Why was the aliquot taken? SPLIT 8270, ARCHIVE

6

QUANTERRA-CALLAB LABORATORY
Instruction Sheet

Project #: 300681 **Test:** P-PAH-HR-AIR

Sample Instructions:

None.

Test Instructions:

None.

Group Instructions:

None.

QUANTERRA-CALLAB LABORATORY
Anomaly Report Form

Project #: 300681 Test: P-PAH-HR-AIR

Anomalies:	Sample(s) Affected:
__ Sample broken during shipping.	_____
__ Limited sample volume.	_____
__ Matrix required a subsample to facilitate extraction.	_____
__ pH of sample required excess acid/base (please circle).	_____
__ Solvent and sample were miscible.	_____
__ Emulsion problems.	_____
__ Emulsion problem required centrifuging.	_____
__ Sample lost during preparation. Re-extraction performed? Yes/No	_____
__ Concentration volume went lower than specified in the SOP.	_____
__ Concentration time longer than normal.	_____
__ Extraction solvent saturated with organic material, therefore sample volume was not concentrated but adjusted based on the screening.	_____
__ Final concentration greater than specified in the SOP due to the screening results.	_____
__ Precipitate observed in the extract.	_____
✓ Other, please comment below.	1,2,7,10,11

Comments:
EXTRACTS CONTAIN A LOT OF OIL

Submitted By: DNJ Date: 8/5/98

6

QUANTERRA-CALLAB LABORATORY
Prep (Extraction) Check List

Project #: 300681 Test: P-PAH-HR-AIR

Chemist: AWT Date: 8/5/91

Reviewer: _____ Date: _____

Number of samples: ~~11~~ 4 COMBINED WITH SOXHLET FRACTION Number of extracts: 2 (MB/LCS ONLY)

Benchsheet:	Initiated		Reviewed	
SOP section and page number filled out properly.	Y___	N___	Y___	N___
Each step of extraction procedure initial'ed and dated.	Y___	N___	Y___	N___
Anomalies or deviations from SOP documented.	Y___	N___	Y___	N___
pH adjustments noted.	Y___	N___	Y___	N___
Solvent manufacturer and lot number completed.	Y___	N___	Y___	N___
Volumes and weights of samples to two sig. figs.	Y___	N___	Y___	N___

QA/QC:	Initiated		Reviewed	
DCS/MS forms filled out properly.	Y___	N___	Y___	N___
Spike information correct on bench sheet.	Y___	N___	Y___	N___
Spike witness?	Y___	N___	Y___	N___
If not spiked per SOP, were spike amounts verified?	Y___	N___	Y___	N___

LIMS:	Initiated		Reviewed	
Extraction date (complete date) correct.	Y___	N___	Y___	N___
QC lot number present and correct.	Y___	N___	Y___	N___
QC Run number present and correct.	Y___	N___	Y___	N___
Prep released (date extract goes to Inst.).	Y___	N___	Y___	N___

Extracts:	Initiated		Reviewed	
Number of extracts agree with benchsheet.	Y___	N___	Y___	N___
Concentrations of extract agree with benchsheet.	Y___	N___	Y___	N___
Testtube rack labelled with project id and test.	Y___	N___	Y___	N___

Comments:

QUANTERRA-CALLAB LABORATORY
Client Descriptions

Project #: 300681 **Test:** P-PAH-HR-AIR

0001SA - S-MM5-2-F,FH,XAD,COND,BH
0002SA - S-MM5-1B-F,FH,XAD,COND,BH
0003SA - T-MM5-2-F,FH,XAD,COND,BH
0004SA - T-MM5-FB-F,FH,XAD,COND,BH
0005SA - T-MM5-4-F,FH,XAD,COND,BH
0006SA - T-MM5-3-F,FH,XAD,COND,BH
0007SA - S-MM5-3-F,FH,XAD,COND,BH
0008SA - S-MM5-FB-F,FH,XAD,COND,BH
0009SA - S-MM5-RB-F,FH,XAD,COND,BH
0010SA - S-MM5-4-F,FH,XAD,COND,BH
0011SA - S-MM5-5-F,FH,XAD,COND,BH

t

QUANTERRA / W. SACRAMENTO

PROJECT QC LIMITS

Pacific Environmental Services

Project: CALLAB-300681
Matrix: AIR

Test Code: PAH-HR-AIR
Version: 1
QC Category: PAH-HR-AIR

QAS#			RL	Surrogate/SCS			Lab Control (LCS)			Lab Control (DCS)			Matrix Spike		
	Modified Date:														
	Component	CASN	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth	wns oth
1 *	Naphthalene	91203													
2 *	2-Methylnaphthalene	91576													
3 *	Acenaphthylene	208968													
4 *	Acenaphthene	83329													
5 *	Fluorene	86737													
6 *	Phenanthrene	85018													
7	Anthracene	120127													
8 *	Fluoranthene	206440													
9 *	Pyrene	129000													
10	Benzo(a)anthracene	56553													
11 *	Chrysene	218019													
12 *	Benzo(b)fluoranthene	205992													
13 *	Benzo(k)fluoranthene	207089													
14 *	Benzo(e)pyrene	192972													
15 *	Benzo(a)pyrene	50328													
16 *	Perylene	198550													
17	Indeno(1,2,3-cd)pyrene	193395													
18 *	Dibenz(a,h)anthracene	53703													
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36 *	Benzo(g,h,i)perylene-d12	93951667		50	50	150									
37 *	Anthracene-d10	1719068		50	50	150									
38 *	Terphenyl-d14	1718510		50	50	150									

PROJECT 300681 Volumes

Sample ID#	FH RINSE	BH RINSE	IMP VOL
300681 - 1	204	78	1L
2	81	105	950
3	154	107	500
4	59	60	200
5	71	106	218
6	74	62	450
7	95	71	1L 890 950 = 2840
8	103	73	236
9	SEE Below	—	— —
10	61	96	500 500 525 = 1525
11	50	34	750 500 293 = 1543

9 Reagent Blanks

Methanol = 140 mL

$MeCl_2$ = 123

DI H_2O = 124

$MeCl_2$/Methanol = 160

TECHNICAL REPORT DATA

Please read instructions on the reverse before completing

1. REPORT NO. EPA-454/R-00-025D	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Final Report Hot Mix Asphalt Plants, Truck Loading and Silo Filling, Manual Methods Testing, Asphalt Plant C, Los Angeles, California Volume 4 of 8		5. REPORT DATE May 2000 6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S) Frank J. Phoenix		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS Pacific Environmental Services, Inc. Post Office Box 12077 Research Triangle Park, North Carolina 27709-2077		10. PROGRAM ELEMENT NO. 11. CONTRACT/GRANT NO. 68-D-98004
12. SPONSORING AGENCY NAME AND ADDRESS U.S Environmental Protection Agency Office of Air Quality Planning and Standards Emissions, Monitoring and Analysis Division Research Triangle Park, North Carolina 27711		13. TYPE OF REPORT AND PERIOD COVERED Final 14. SPONSORING AGENCY CODE EPA/200/04

15. SUPPLEMENTARY NOTES

16. ABSTRACT

The United States Environmental Protection Agency (EPA) Office of Air Quality Planning and Standards (OAQPS) is investigating hot mix asphalt plants to identify and quantify particulate matter (PM), methylene chloride extractable matter (MCEM), and organic hazardous air pollutant (HAP) emissions during asphalt concrete loading operations. In support of this investigation, the OAQPS issued Pacific Environmental Services, Inc. (PES) a series of work assignments to conduct emissions testing at a hot mix asphalt plant during load-out operations

The primary objective of the emissions testing was to characterize the uncontrolled emissions of PM, MCEM, polynuclear aromatic hydrocarbons (PAHs), semi-volatile organic hazardous air pollutants (SVOHAPS), and volatile organic hazardous air pollutants (VOHAPS) from a hox mix production plant during loading operations. An asphalt plant south of Los Angeles, California was selected by EPA as the host facility. Testing was performed over five consecutive days beginning on July 24, 1998. Testing was performed under two conditions. Under normal operations, testing was performed to characterize load-out emissions from the tunnel exhaust and load-in emissions from the asphalt concrete storage silo. Under background conditions, testing was performed to characterize emissions from the combustion of diesel fuel in transport trucks.

The entire report consists of eight volumes totaling 4,234 pages, Vol. 1 (388 pages), Vol. 2 (308 pages), Vol. 3 (573 pages), Vol. 4 (694 pages), Vol. 5 (606 pages), Vol. 6 (564 pages), Vol. 7 (570 pages), and Vol. 8 (531 pages).

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTIONS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COASTI Field/Group
Hazardous Air Pollutants Methylene Chloride Extractable Matter Particulate Matter Polynuclear Aromatic Hydrocarbons Semi-volatile Organic Hazardous Air Pollutants Volatile Organic Hazardous Air Pollutants		
18. DISTRIBUTION STATEMENT Unlimited	19. SECURITY CLASS *(This Report)* Unclassified 20. SECURITY CLASS *(This page)* Unclassified	21. NO. OF PAGES Vol. 4 - 694 22. PRICE

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