PERFORMANCE CHECK

GAS CHROMATOGRAPH/MASS SPECTROMETER

Serial # US10423616

NASHVILLE CRIME LABORATORY

Forensic Chemistry – Drug Identification Unit

14.9

TENNESSEE BUREAU OF INVESTIGATION
FORENSIC SERVICES DIVISION

Validation Review Form

Procedure Performance Check - Gas Chromatograph / MS

Check the appropriate: New Validation _____ **Modification** _____ **Performance Check** ✓

This form is to be used as a coversheet for any new method, change in method, reagent or kit change. The Forensic Scientist appointed for procedure development/validation is to initial and date the appropriate box and attach documentation of required validation study results. Each applicable area listed below should be clearly labeled in the Validation Notebook (NO POST-IT NOTES).

Submit all information to the Quality Assurance Manager ***prior to implementation*** *of the procedure/instrument.*

NOTE: Each applicable area listed below should start with a typed summary about that particular section.	**REVIEWED BY:**	**DATE COMPLETED:**
Overall Validation Summary and Section Summaries are included	(AA) JBE	3/31/11
Parallel Testing Procedure	(AA) JBE	3/31/11
Accuracy	(AA) JBE	3/31/11
Limit of Detection (LOD) (if applicable)	NA	
Limit of Quantitation (LOQ) (if applicable)	NA	
Linearity & Range Established (if applicable)	(AA) JBE	3/31/11
Specificity Range Established (if applicable)	NA	
Precision	NA	
Robustness - to include: Matrix Effects	NA	
Cross Reactivity	NA	
PH, Ionic Strength, Temperature	NA	
Laboratory Procedure Approved (if applicable)	NA	
LIMS Messages(s) and sample of Final Report Established (if applicable)	NA	
Training and Competency Testing for each Examiner/Technician Completed or Proposed Training Plan Enclosed	NA	
References are listed	(AA) JBE	3/31/11
Technical Review of Completed Notebook	(AA) JBE	3/31/11

*If all technical staff training has not been completed, please include a proposed training plan and completion schedule.

Sign and date to indicate your acceptance of the procedure/instrument:

Unit Supervisor (if applicable) Glenn B. Everett

Technical Leader (if applicable) Glenn B. Everett

Regional Laboratory Supervisor Philip R Smith

Quality Assurance Manager Margaret R Bost 3-31-11

Table of Contents

Overall Validation Summary

Linearity & Range

Parallel Testing & Accuracy

THIS IS THE OVERALL SUMMARY

WITH RESULTS

PERFORMANCE CHECK OF GAS CHROMATOGRAPH/MASS SPECTROMETER FOR DRUG IDENTIFICATION

Nashville Crime Laboratory

1. Introduction

1.1 Definition and purpose of performance check

The purpose of this performance check study is to verify the performance of forensic chemistry drug identification methods on a Gas Chromatograph/Mass Spectrometer (serial # US10423616). This study will verify the method performance, the linearity of the flame ionization detector, and the trueness of identifications by comparative analysis using validated Gas Chromatograph/Mass Spectrometers (serial # US40620428, serial # US10460425, and serial # US61633037) identically configured as the aforementioned instrument.

1.2 Analytical Procedure

1.2.1 Instrument Setup

The instrument is an Agilent Technologies 7890A GC with auto sampler coupled with a 5975C MS (serial # US10423616) and a manufactured installed Flame Ionization Detector interfaced with Agilent Chemstation software using a Hewlett-Packard computer.

Column: MS: Agilent Technologies Catalog #19091S-602, HP-1MS, 25m X 0.2mm, 0.33 Micron (Column cut to 12.5m)

FID: Agilent Technologies Catalog #19091S-913, HP-1MS, 30m X 0.2mm, 0.33 Micron (Column cut to 15m)

Injector: MS: Mode - Split, Temperature – 250^{O} C
FID: Mode – Constant Pressure, Pressure – 10 psi, Temperature – 250^{O} C

1.2 Analytical Procedure continued...

1.2.2 Reference Material

Reference standards were obtained from the Nashville Crime Lab drug standards cabinet. The reference standards have certificates of analysis provided by the manufacture and are tested at the time of receipt on a confirmatory instrument. The qualitative analysis utilized approximately 5mg of each certified reference standard. Each standard was weighed using an analytical balance. 25 certified reference standards were used for this performance check.

The linearity analysis was performed using the Controlled Substance Standard Operating Procedures Manual, Nashville Crime Laboratory, Section 14.0 Methamphetamine Quantitation.

1.2.3 Mass Spectrometer Detector Initial Check

A standard spectra auto tune and an air and water check were performed on the instrument to demonstrate initial performance of the instrument. This check was run periodically during the study.

1.2.4 Flame Ionization Detector Initial Check

A mixture of pethidine, cocaine, and hydrocodone was run on the FID to demonstrate initial column separation and column resolution. The mixture was also run on a validated GC/FID for comparison.

1.3 Forensic Chemistry Personnel Training

The questioned GC/MS is identically configured to the validated GC/MS currently used. There are no significant changes in instrumentation that would warrant an initial demonstration of proficiency for this instrument. No additional samples will be analyzed for personnel training because the methods for this instrument are currently in daily use.

1.4 Quality Assurance

Quality assurance procedures are currently established for maintenance of these instruments and methods. All required quality assurance procedures were maintained during this performance study. Please refer to Drug Chemistry Section Quality

Assurance Manual, Nashville Crime Laboratory, Section 12 and Appendix for further details.

2.0 Performance Check Plan

2.1 Mass Spectrometer Performance Specifications

The certified reference standards used for this study were injected into the GC/MS using hand injections and the auto sampler. The same certified reference standards were analyzed on the validated GC/MS. The obtained spectra of each standard were then individually compared to spectra obtained on the validated GC/MS.

2.2 Flame Ionization Detector Specification

Linearity of the Flame Ionization Detector was investigated by performing a Methamphetamine Quantitation.

2.3 Trueness

Confirmatory identifications are made using the MS detector. The trueness of these identifications was demonstrated by comparing all of the certified reference standard identifications on the MS to spectra found in Instrumental Data for Drug Analysis, Volumes 1-6.

3.0 Results of Performance Study

3.1 MS Detector Identification Results

The certified reference standards were injected into the instrument in batches over a period of 4 weeks. There were 25 spectra obtained. It was determined that the method performed the same on the new instrument as it performed on the previously validated instruments. All obtained spectra were compared by 2 forensic scientists and confirmed to be accurate.

3.2 Flame Ionization Standard Results

Methamphetamine was used for this study because it is currently the only compound routinely quantitated in the Nashville Laboratory. A calibration curve was injected and a curve plotted to establish linearity. The FID proved to be linear over a range of standards from 20 to 100 percent. Appropriately, the FID was proven competent for use in methods and procedures for the Forensic Chemistry Section.

3.3 Trueness of Identifications

All identifications made on the MS were also compared to reference spectra. The use of a different independent library yielding the same identification confirmed the trueness of identifications made on the tested GC/MS.

References

The Fitness for Purpose of Analytical Methods, A Laboratory Guide to Method Validation and Related Topics, EURACHEM Guide, 1998.

"Guidelines for Forensic Science Laboratories," ILAC-G19: 2002, pg 10.

"Quality Assurance/Validation of Analytical Methods," January 27, 2011. Available at http://www.swgdrug.org/approve.htm

A Guide to Interpreting Detector Specifications for Gas Chromatographs, Agilent Technologies, INC., Technical Note, Publication 5989-3423EN, August 2005.

Appendix

Section 1

Glossary
Abbreviation List

Appendix

Glossary

Validated
Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled.

Trueness
The determination of whether the results reflect the "true" value for the analyte or property.

Certified Reference Standard
A material whose assigned value is known relative to national standards or nationally accepted measurement systems. This is also commonly referred to as a traceable standard.

Standard
An accepted or approved example or technique against which other things are judged or measured, or which sets out a set of criteria that serves as a guideline for how something should be done.

Confirmatory Instrument
An instrument that uniquely identifies the presence and identity of an analyte within an established range of certainty.

Eggroll (serial # US10423616)
Instrument designation for the GC/MS evaluated in this performance check.

Gumbo (serial # US40620428)
Instrument designation for a validated GC/MS currently in use in the Forensic Chemistry Section.

Espresso (serial # US10460425)
Instrument designation for a validated GC/MS currently in use in the Forensic Chemistry Section.

Donna2 (serial # US61633037)
Instrument designation for a validated GC/MS currently in use in the Forensic Chemistry Section.

Abbreviations List

MS-	Mass Spectrometer
GC-	Gas Chromatograph
IDDA-	Instrumental Data for Drug Analysis, Six Volumes
FID-	Flame Ionization Detector
GBE-	Glenn Everett
JS -	John Scott, Jr.

Appendix

Section 2

FID Curve
Calibration Data

Section Summary

Objective:

Flame Ionization Detector Specification

Linearity of the Flame Ionization Detector was investigated by performing a methamphetamine quantitation (See Appendix – section 2). The dilutions were prepared using a calibrated Eppendorf pipette.

Results:

Flame Ionization Standard Results

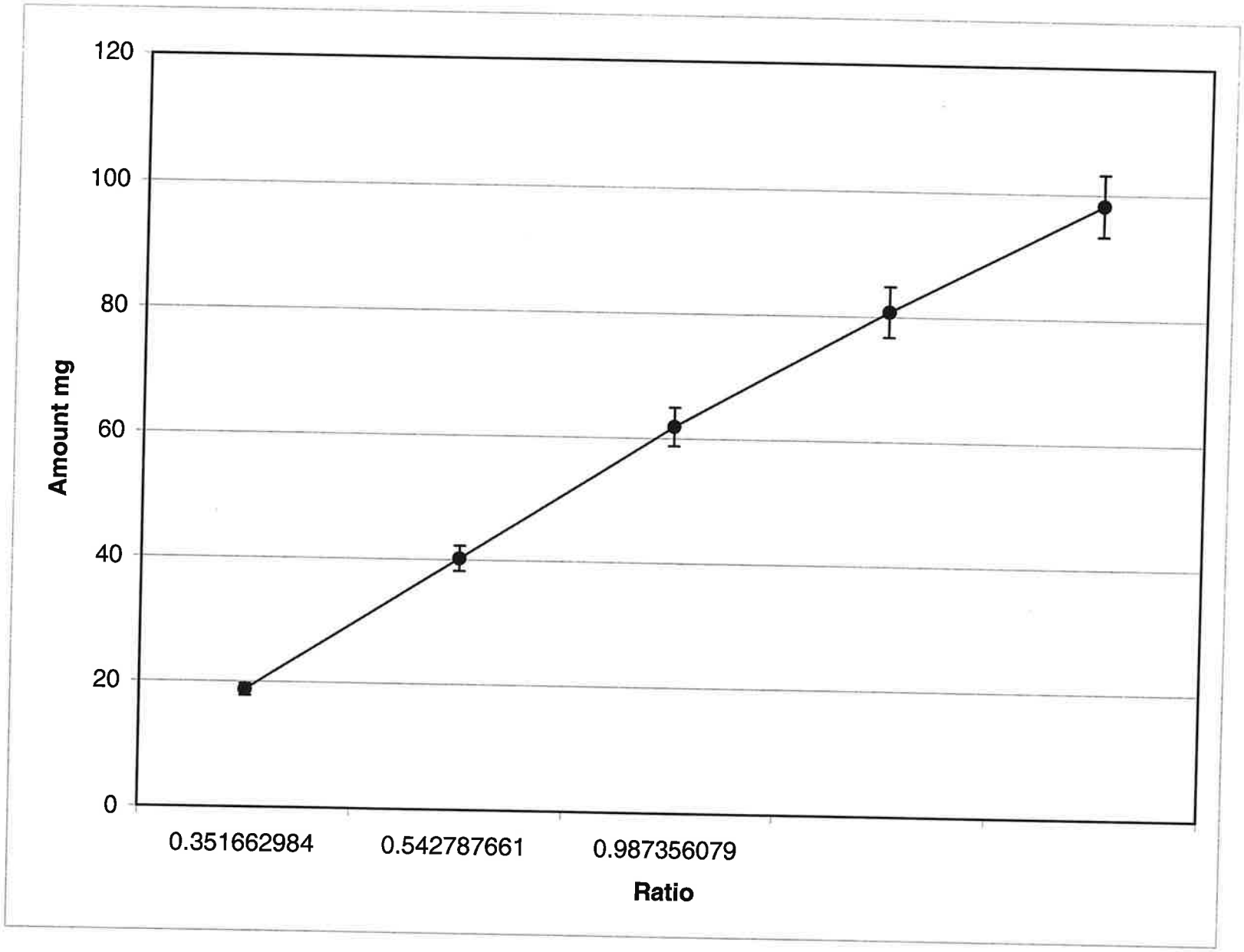
Methamphetamine was used for this study because it is currently the only compound routinely quantitated in the Nashville Laboratory. A series of calibration concentrations were injected and a curve plotted to establish linearity. The FID proved to be linear over a range of standards from 20 to 100 percent. Appropriately, the FID was proven competent for use in methods and procedures for the Forensic Chemistry Section.

This section includes the calibration standards used with the concentrations, the curve fit, the control concentrations, and an "unknown" of known methamphetamine concentration.

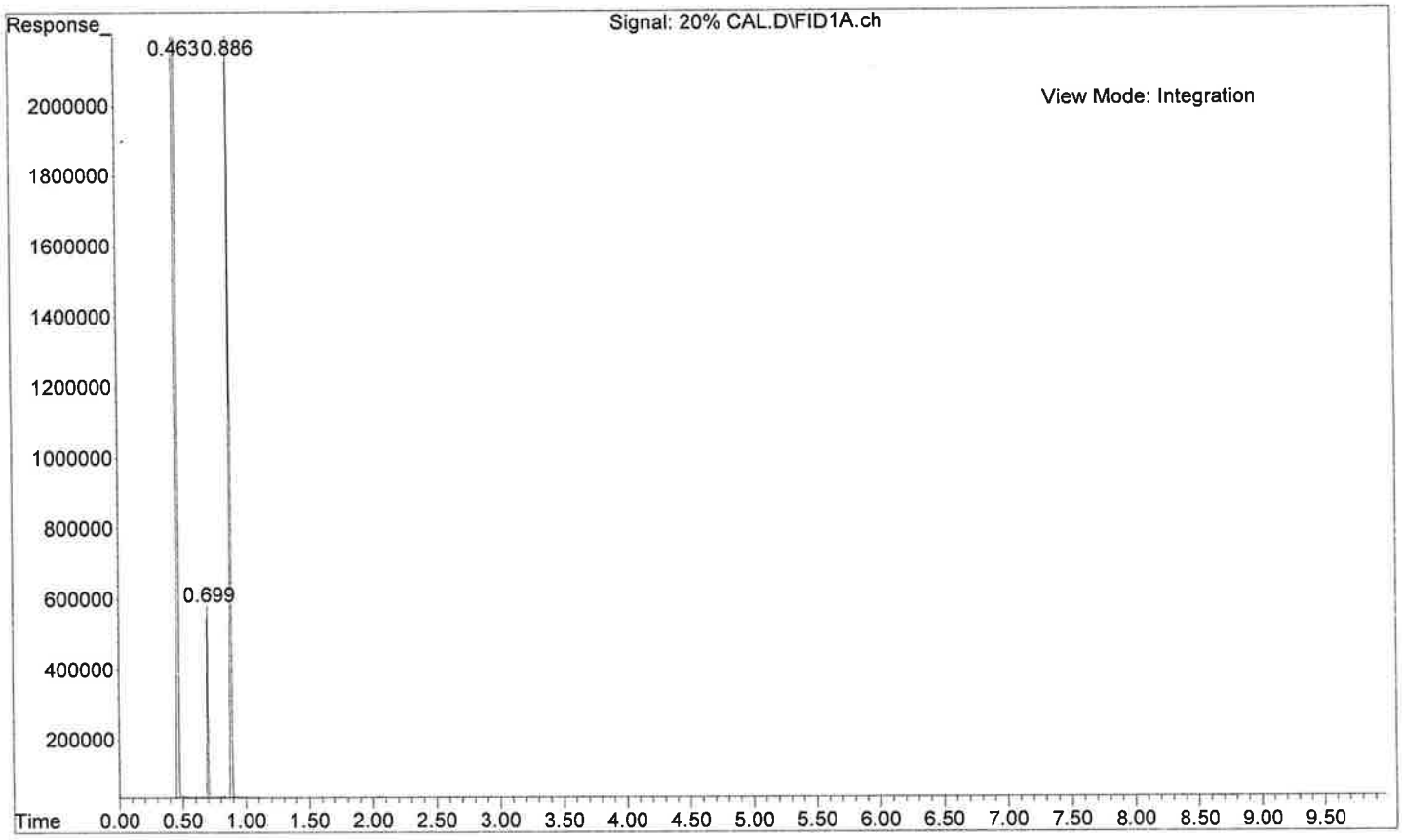
	Weight (mg)	Lot number	Slope	y-intercept	R SQUARED
Calibrator	26.47		4.683596315	0.041144	0.997746
Control	24.93				
Known	8.26				
		Lab number			
Unknown 1					
Unknown 2					
Unknown 3					

	Area of Methamphetamine	Area of Tridecane	Ratio	Amount	Calculated	
Calibrator 20%	2742591	13486814	0.203353513	1.0588	0.99357	18.76785
Calibrator 40%	5636940	12637074	0.446063701	2.1176	2.130327	40.2404
Calibrator 60%	8692889	12580357	0.690989055	3.1764	3.277458	61.90892
Calibrator 80%	13391050	14797134	0.904975923	4.2352	4.279686	80.84031
Calibrator 100%	15094308	13701198	1.10167797	5.294	5.200959	98.24252
Control Low (30%)	4510581	12836431	0.351389027	1.4958	1.686909	33.8329
Control Medium (50%)	6716283	12373684	0.542787661	2.493	2.583343	51.81192
Control High (90%)	12593788	12755062	0.987356079	4.4874	4.665522	93.57243
Known 1	6455075	14224308	0.453805907	8.26	2.166588	26.22988
Known 2	6069993	13320895	0.455674562	8.26	2.17534	26.33584
Unknown 1			#DIV/0!		#DIV/0!	#DIV/0!
Unknown 2			#DIV/0!		#DIV/0!	#DIV/0!
Unknown 3			#DIV/0!		#DIV/0!	#DIV/0!
					Average	Std. Dev.
					#DIV/0!	#DIV/0!

Known is 27.9%


120
100
80
60
40
20
0
Amount mg
0.351662984
0.542787661
0.987356079
Ratio

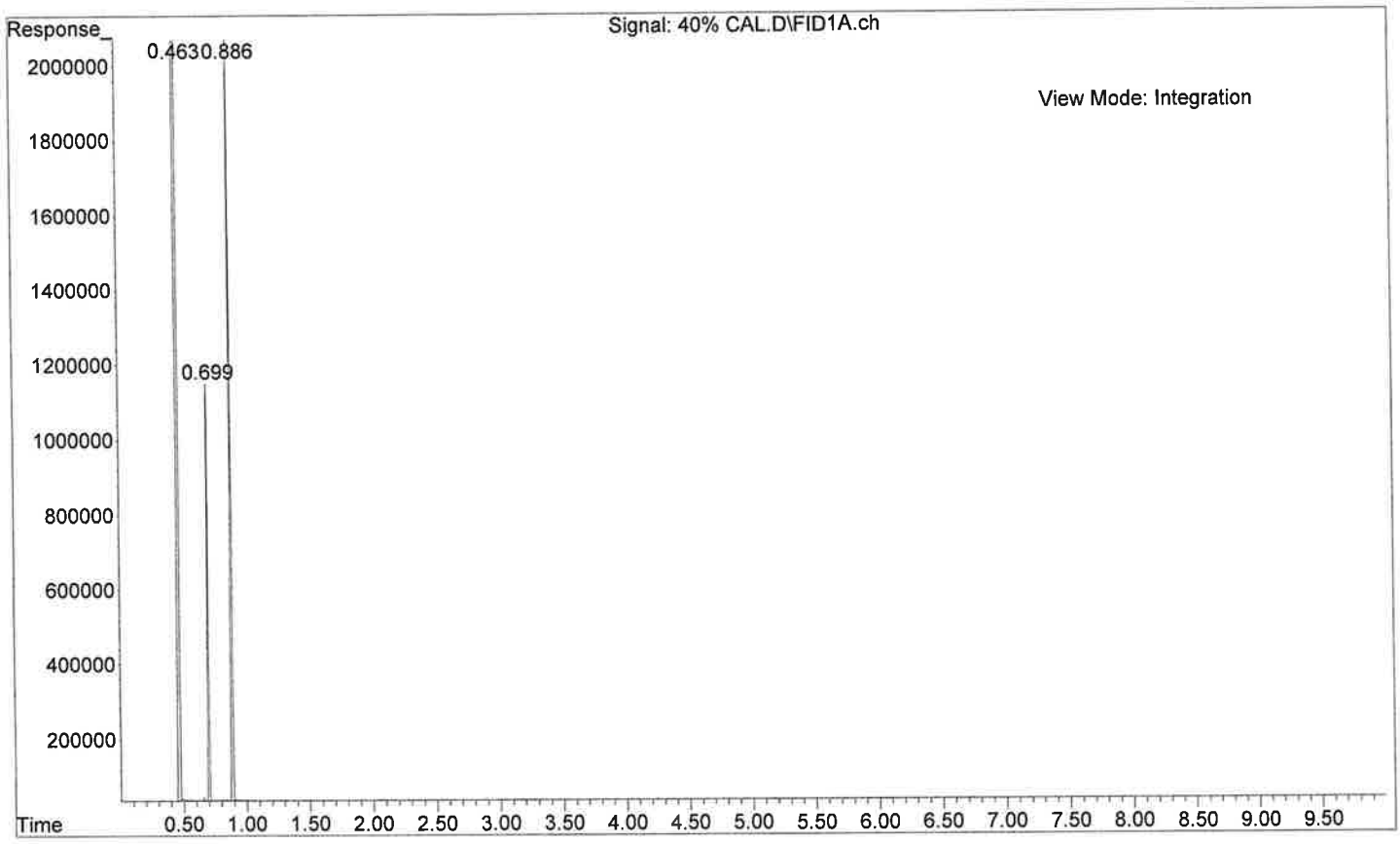
File :D:\Data\JLS\Sequence\20% CAL.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 10:18 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: 20% CALIBRATION STANDARD
Misc Info :
Vial Number: 2



Signal: 20% CAL.D\FID1A.ch
20% CALIBRATION STANDARD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.463	BB	0.013	1130810154	0.444	0.497
2	0.699	BB	0.008	2742591	0.684	0.730
3	0.886	BB	0.010	13486814	0.864	0.907

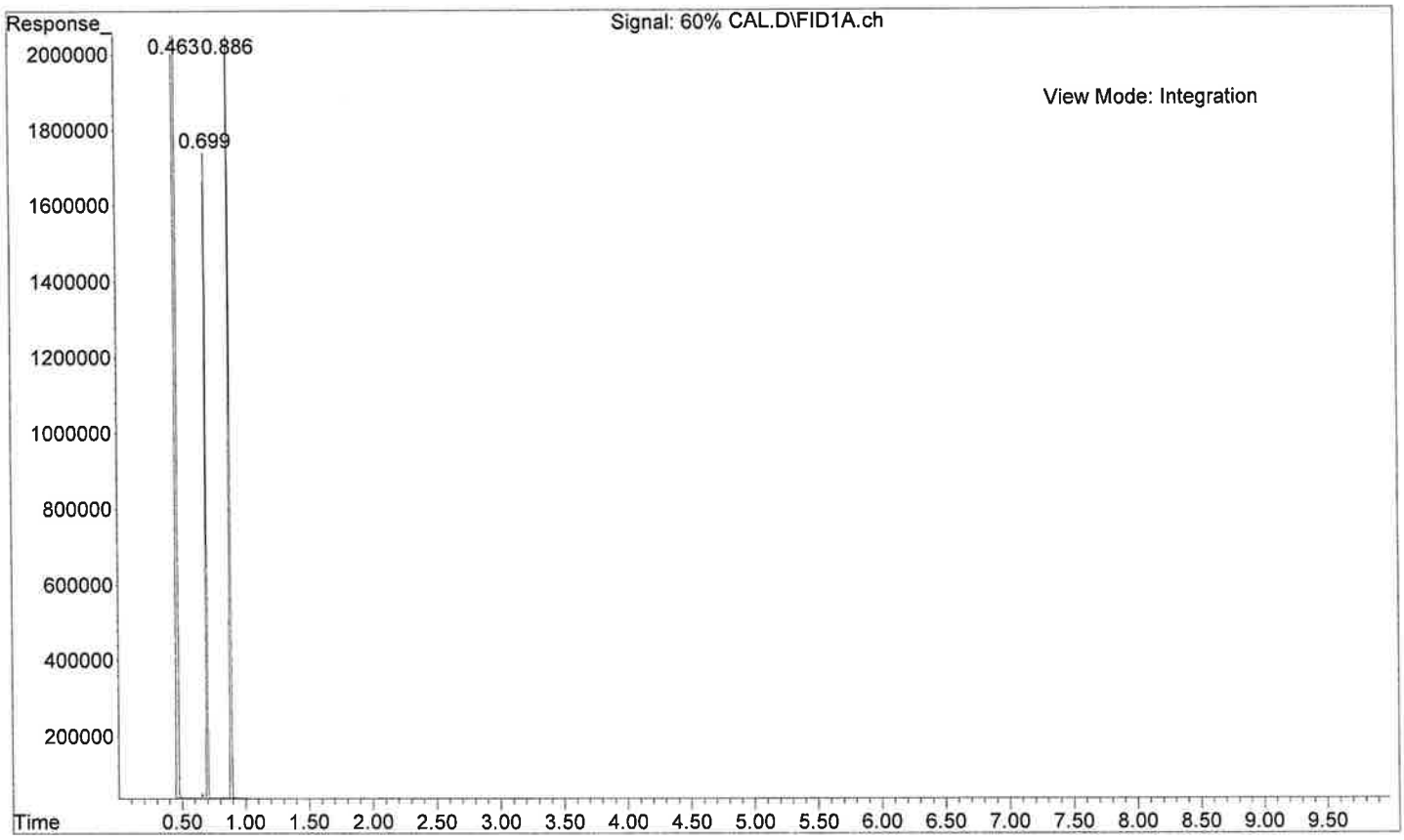
File : D:\Data\JLS\Sequence\40% CAL.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 10:41 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: 40% CALIBRATION STANDARD
Misc Info :
Vial Number: 3



Signal: 40% CAL.D\FID1A.ch
40% CALIBRATION STANDARD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.463	BB	0.006	1055786769	0.441	0.492
2	0.699	BB	0.008	5636940	0.681	0.726
3	0.886	BB	0.010	12637074	0.866	0.907

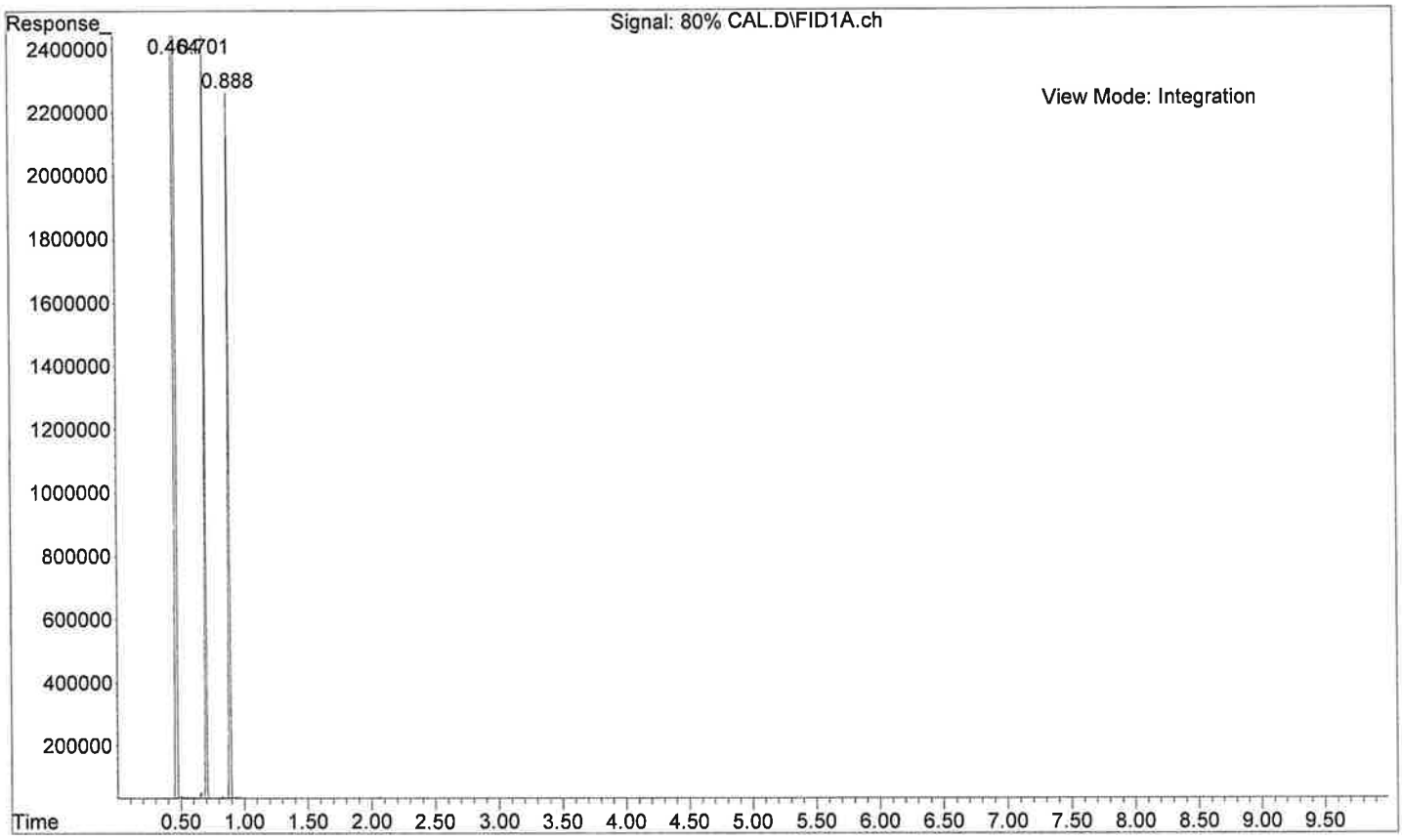
File :D:\Data\JLS\Sequence\60% CAL.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 11:04 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: 60% CALIBRATION STANDRAD
Misc Info :
Vial Number: 4



Signal: 60% CAL.D\FID1A.ch
60% CALIBRATION STANDRAD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.463	BB	0.006	1047241820	0.439	0.494
2	0.699	BB	0.008	8692889	0.682	0.729
3	0.886	BB	0.010	12580357	0.866	0.907

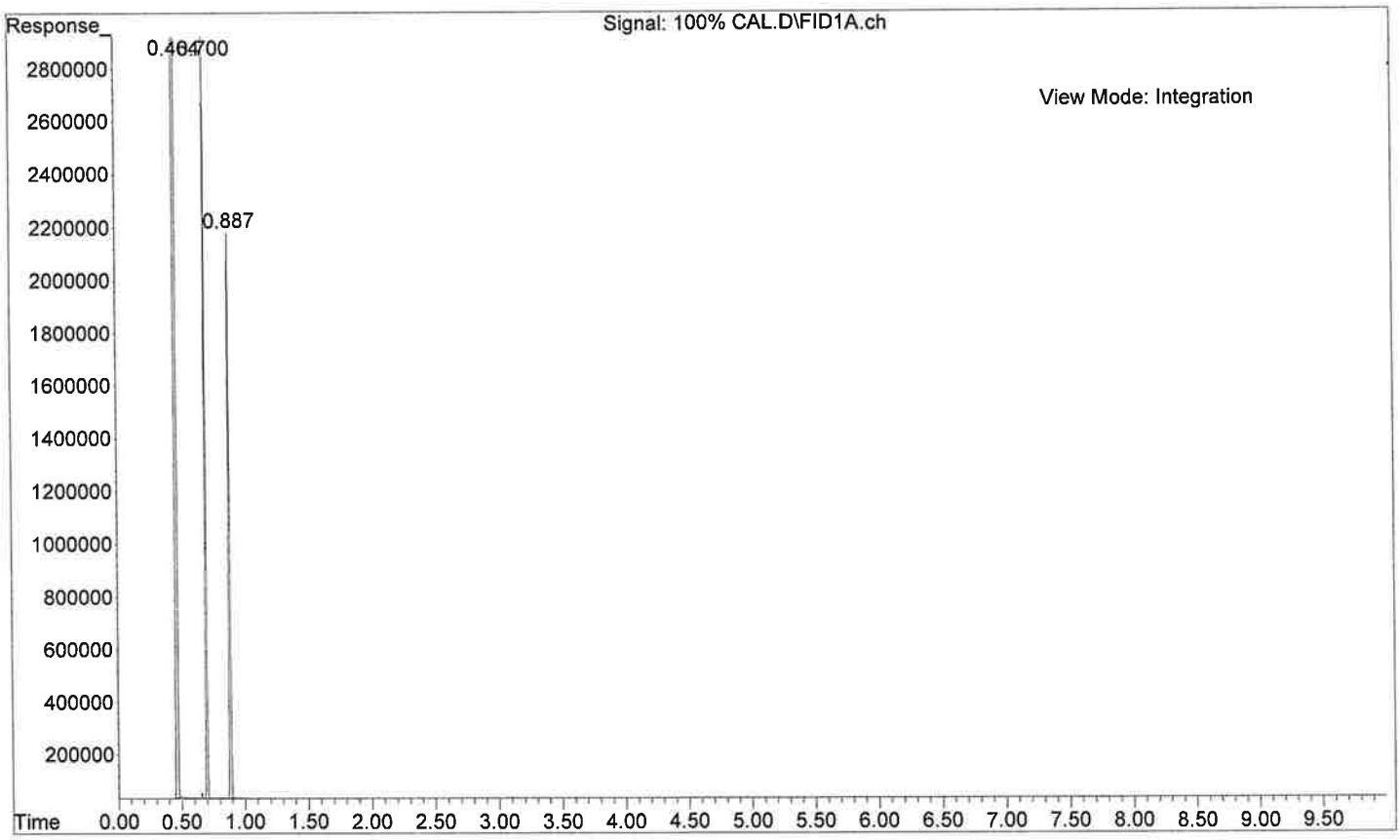
File :D:\Data\JLS\Sequence\80% CAL.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 11:27 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: 80% CALIBRATION STANDARD
Misc Info :
Vial Number: 5



Signal: 80% CAL.D\FID1A.ch
80% CALIBRATION STANDARD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.464	BB	0.008	1199844016	0.441	0.494
2	0.701	BB	0.009	13391050	0.677	0.732
3	0.888	BB	0.011	14797134	0.856	0.907

File :D:\Data\JLS\Sequence\100% CAL.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 11:50 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: 100% CALIBRATION STANDARD
Misc Info :
Vial Number: 6



Signal: 100% CAL.D\FID1A.ch
100% CALIBRATION STANDARD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.464	BB	0.013	1123273159	0.439	0.495
2	0.700	BB	0.009	15094308	0.682	0.732
3	0.887	BB	0.010	13701198	0.850	0.909

File :D:\Data\JLS\Sequence\BLANK 1ST RUN.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 12:13 using AcqMethod ASGCISO150.M
Instrument : Eggroll
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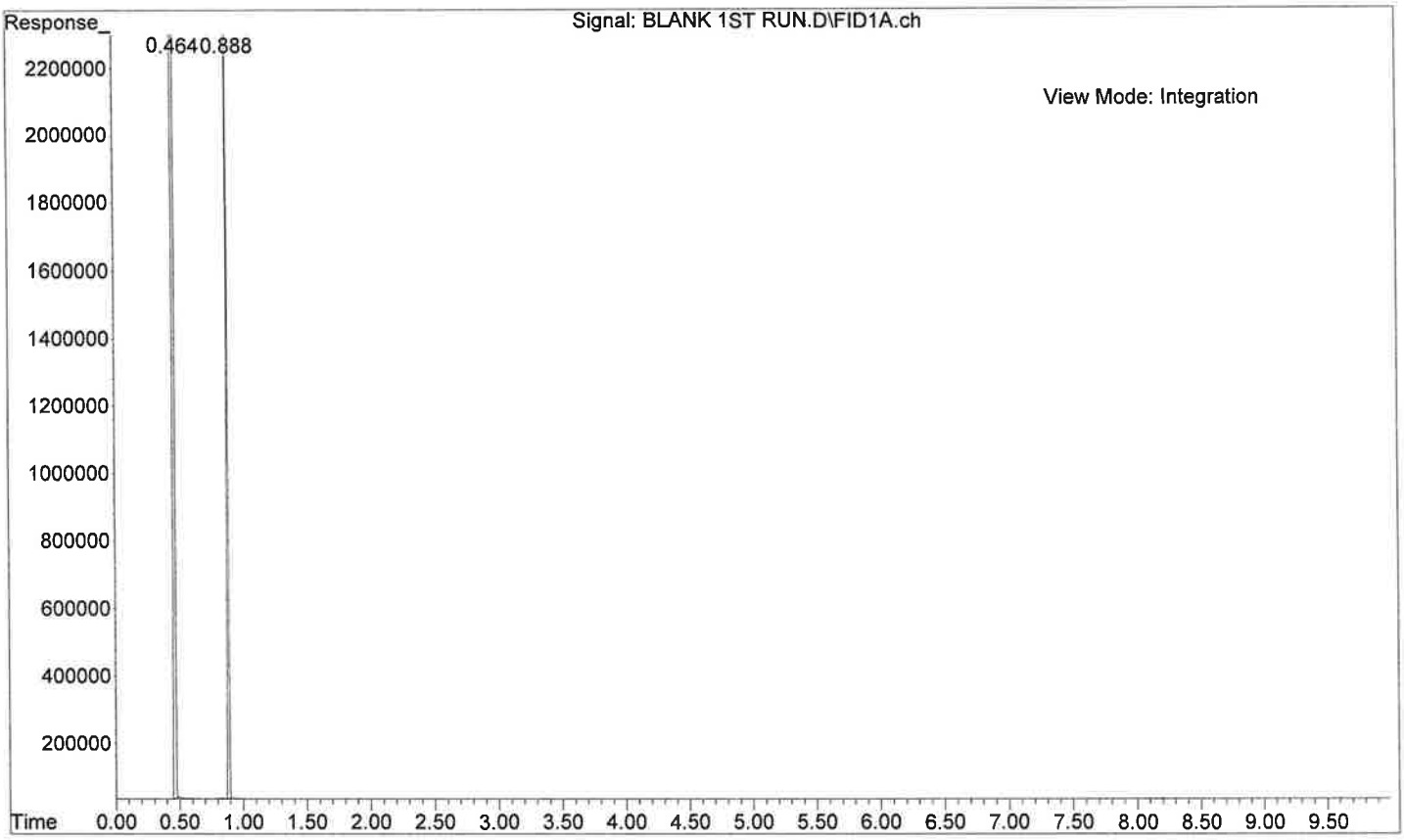
Vial Number: 7



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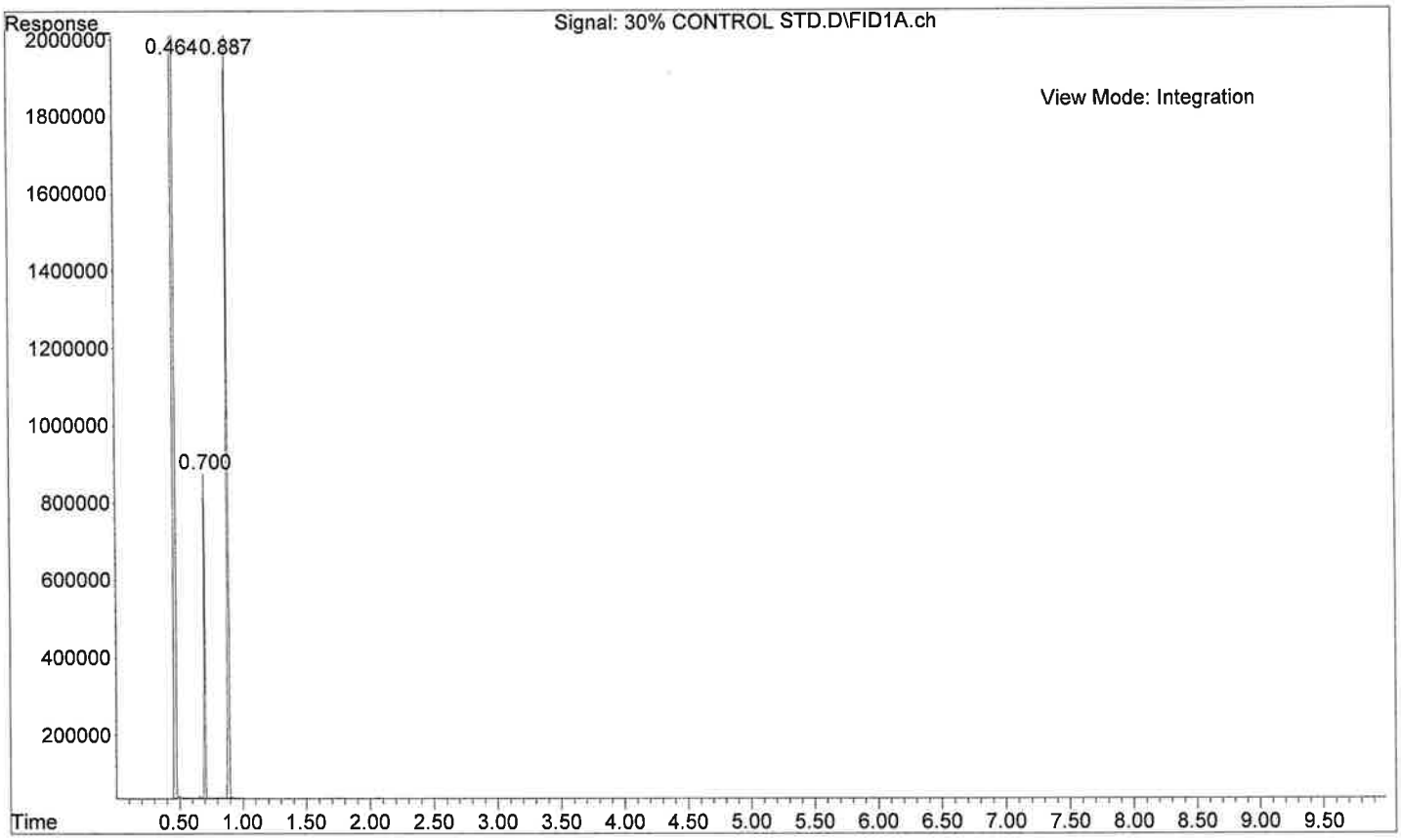
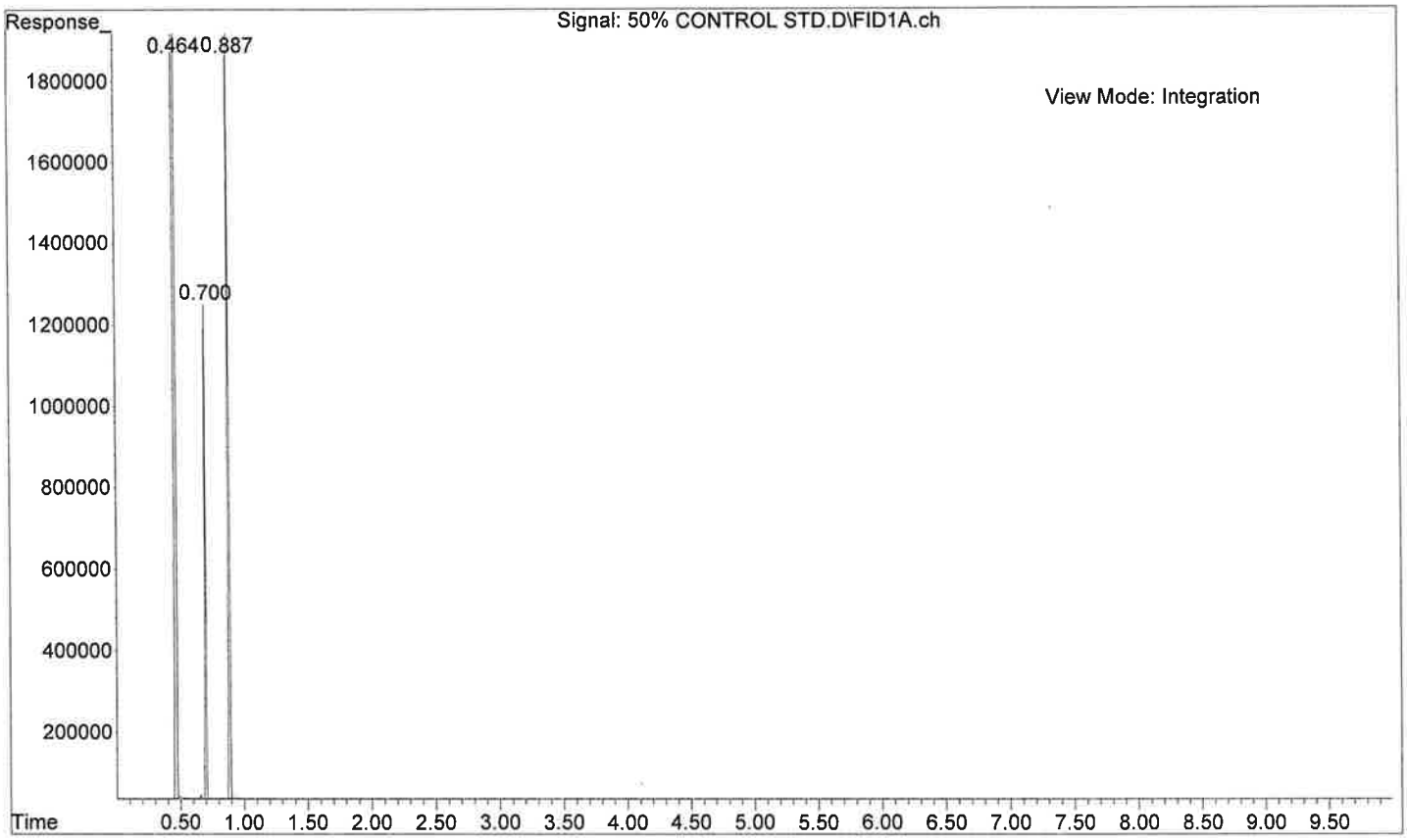
Instrument : Eggroll
Sample Name: 30% CONTROL STANDARD
Misc Info :
Vial Number: 8



Signal: 30% CONTROL STD.D\FID1A.ch
30% CONTROL STANDARD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.464	BB	0.014	1160106515	0.444	0.499
2	0.700	BB	0.009	4510581	0.679	0.731
3	0.887	BB	0.010	12826431	0.851	0.907

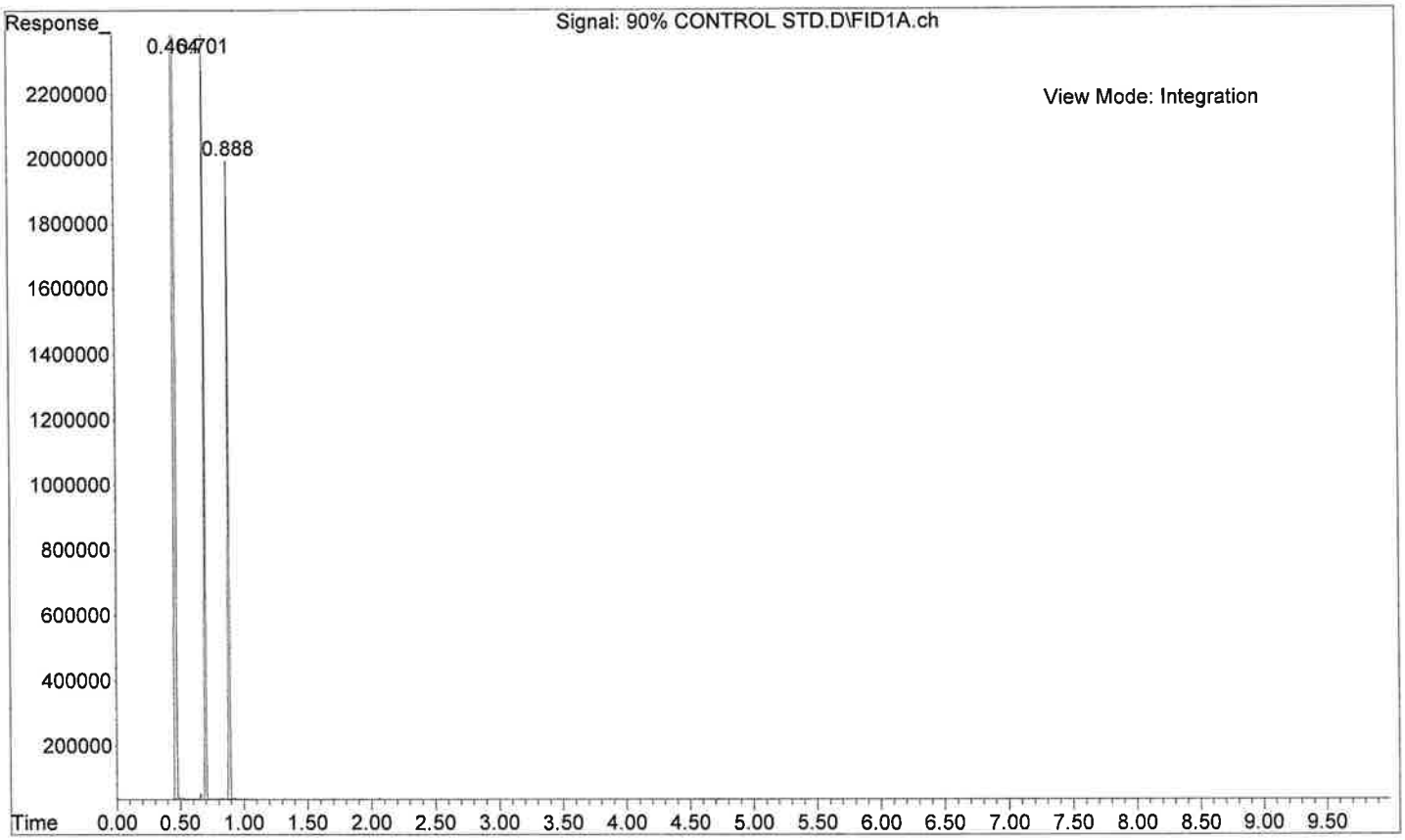
File :D:\Data\JLS\Sequence\50% CONTROL STD.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 12:59 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: 50% CONTROL STANDARD
Misc Info :
Vial Number: 9



Signal: 50% CONTROL STD.D\FID1A.ch
50% CONTROL STANDARD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.464	BB	0.014	1134348754	0.442	0.501
2	0.700	BB	0.009	6716283	0.682	0.732
3	0.887	BB	0.011	12373684	0.866	0.907

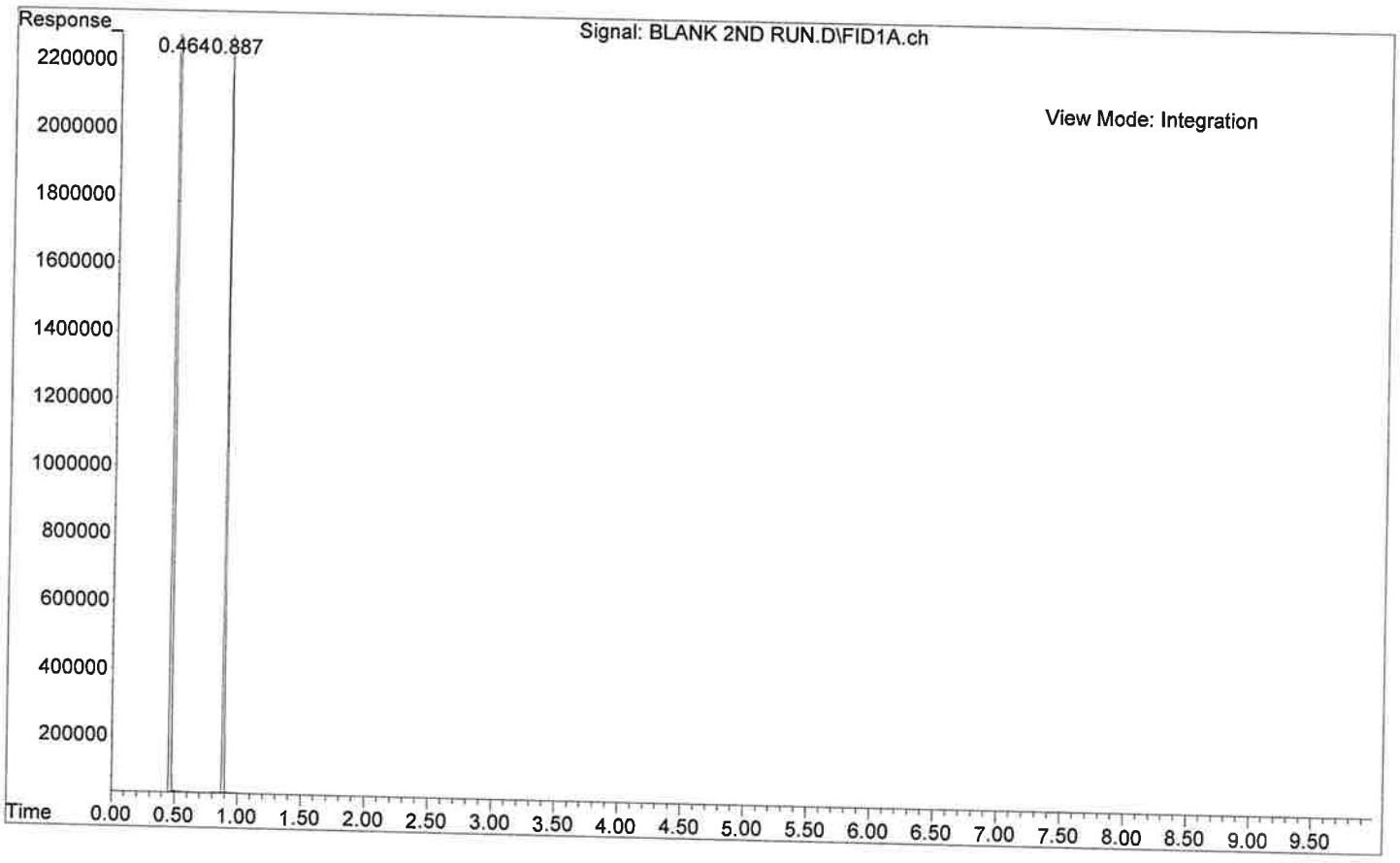
File :D:\Data\JLS\Sequence\90% CONTROL STD.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 13:22 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: 90% CONTROL STANDARD
Misc Info :
Vial Number: 10



Signal: 90% CONTROL STD.D\FID1A.ch
90% CONTROL STANDARD

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.464	BB	0.008	1183401172	0.435	0.494
2	0.701	BB	0.009	12593788	0.684	0.732
3	0.888	BB	0.010	12755062	0.855	0.910

File :D:\Data\JLS\Sequence\BLANK 2ND RUN.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 14:31 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: BLANK EXTRACTED 2ND RUN
Misc Info : EXTRACTED WITH INTERNAL STANDARD
Vial Number: 7



File :D:\Data\JLS\Sequence\KNOWN STD 1ST.D
Operator : NASHVILLE LAB
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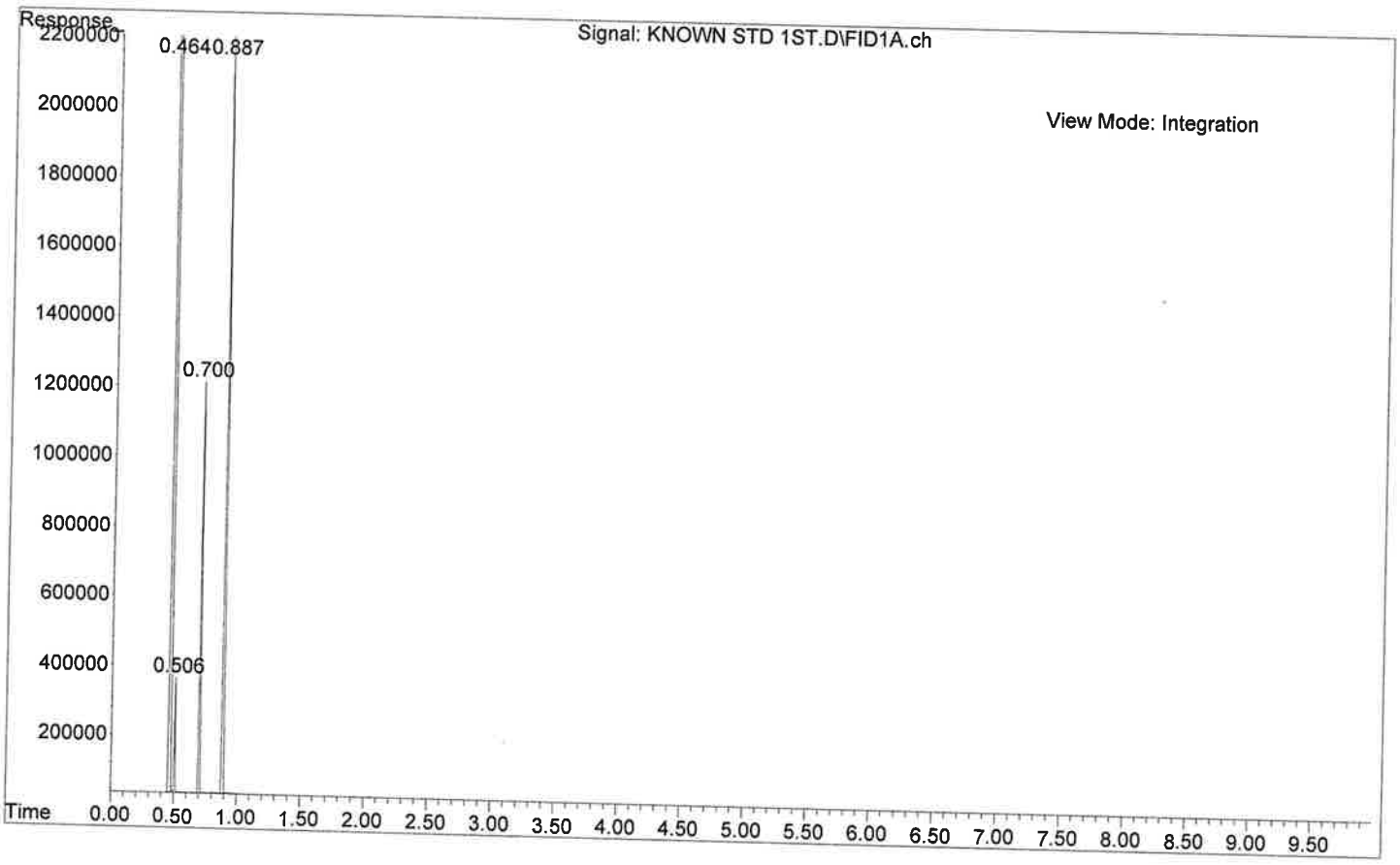
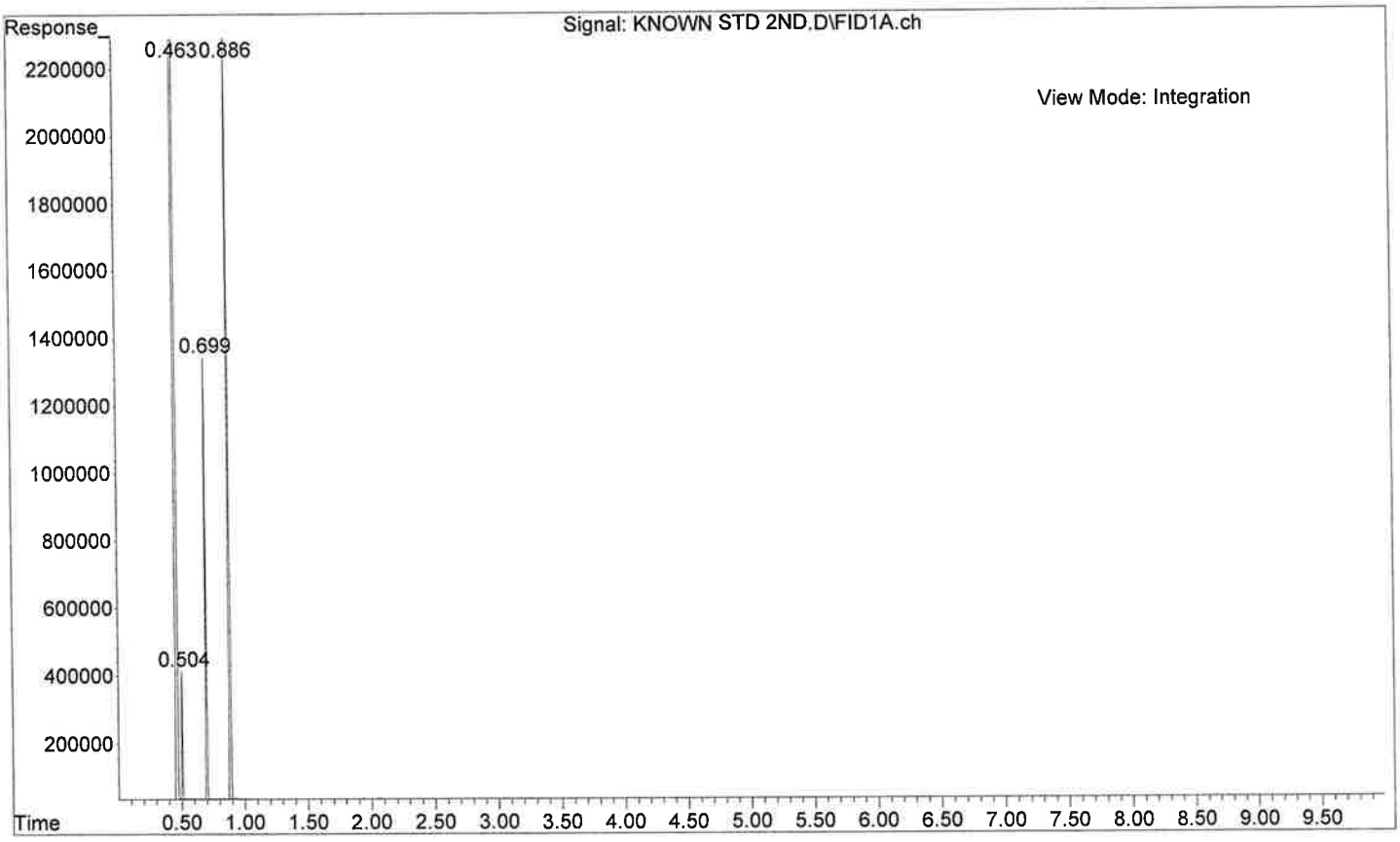
Instrument : Eggroll
Sample Name: KNOWN STANDARD 1ST RUN
Misc Info :
Vial Number: 11



Signal: KNOWN STD 1ST.D\FID1A.ch
KNOWN STANDARD 1ST RUN

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.464	BB	0.008	1111560889	0.439	0.494
2	0.506	BB	0.009	1623359	0.494	0.534
3	0.700	BB	0.009	6455075	0.684	0.730
4	0.887	BB	0.011	14224308	0.849	0.907

File :D:\Data\JLS\Sequence\KNOWN STD 2ND.D
Operator : NASHVILLE LAB
Acquired : 4 Mar 2011 14:08 using AcqMethod ASGCISO150.M
Instrument : Eggroll
Sample Name: KNOWN STANDARD 2ND RUN
Misc Info :
Vial Number: 11



Signal: KNOWN STD 2ND.D\FID1A.ch
KNOWN STANDARD 2ND RUN

Peak #	Ret Time	Type	Width	Area	Start Time	End Time
1	0.463	BV	0.013	1089950998	0.442	0.494
2	0.504	VB	0.012	1561309	0.494	0.536
3	0.699	BB	0.013	6069993	0.684	0.731
4	0.886	BB	0.009	13320895	0.866	0.906

Appendix

Section 3

Proficiency Sample Data
GC/MS Comparison Data
Reference Comparison Data

Section Summary

Objective:

Trueness

Confirmatory identifications are made using the MS detector. The trueness of these identifications was demonstrated by comparing all of the certified reference standard identifications on the MS to identifications made using the same certified reference standards ran on a validated GC/MS and IDDA.

Results:

Trueness of Identifications

There were two studies performed to examine and prove the trueness of identifications on the questioned GC/MS.

Comparisons on Questioned GC/MS, Validated GC/MSs, and Reference Library

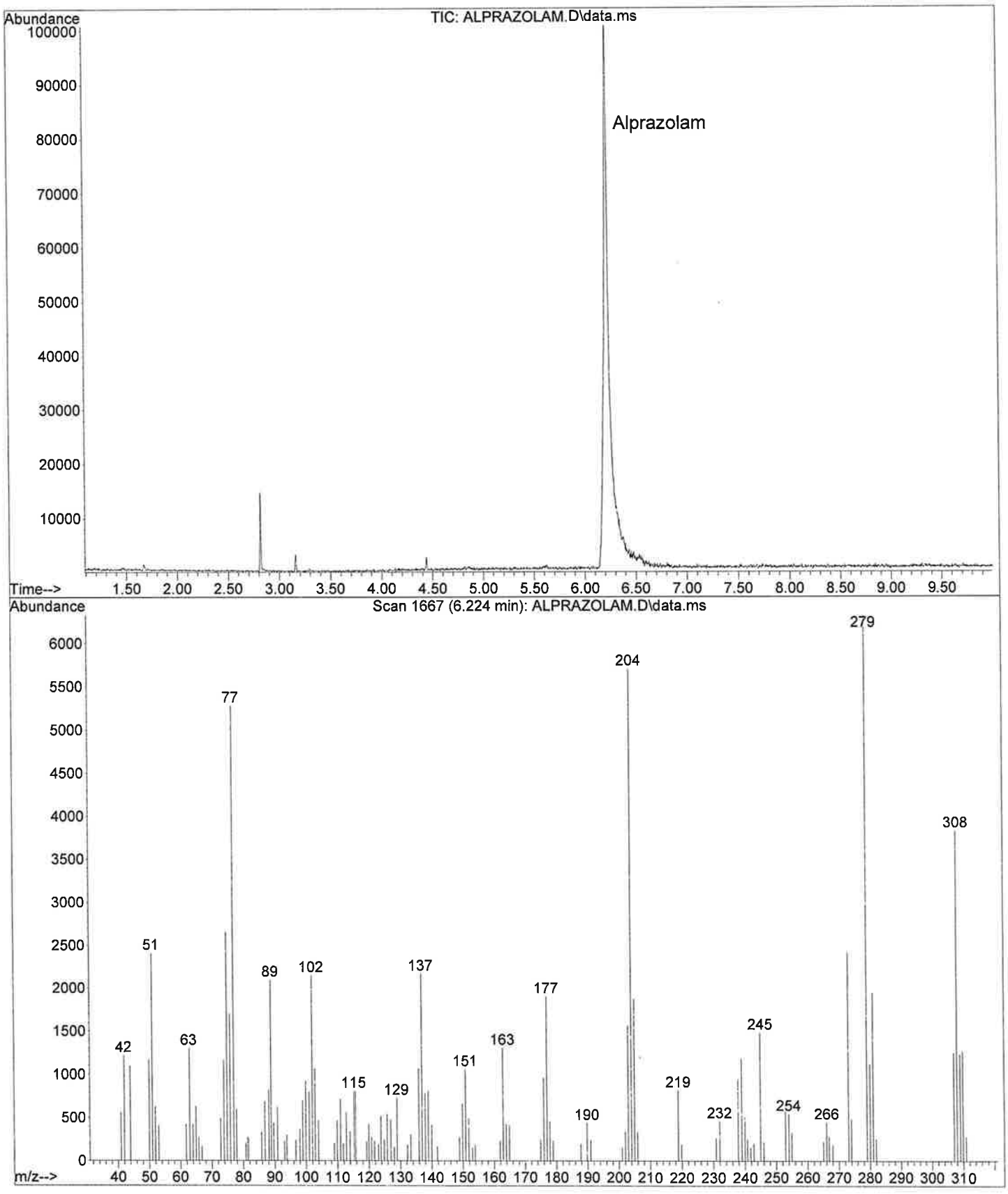
All identifications made on the questioned MS were concurrent with identifications made on the validated MSs. The spectra produced from the questioned MS were also compared to reference spectra of IDDA. These examinations proved the trueness of identification on the questioned GC/MS.

DATA

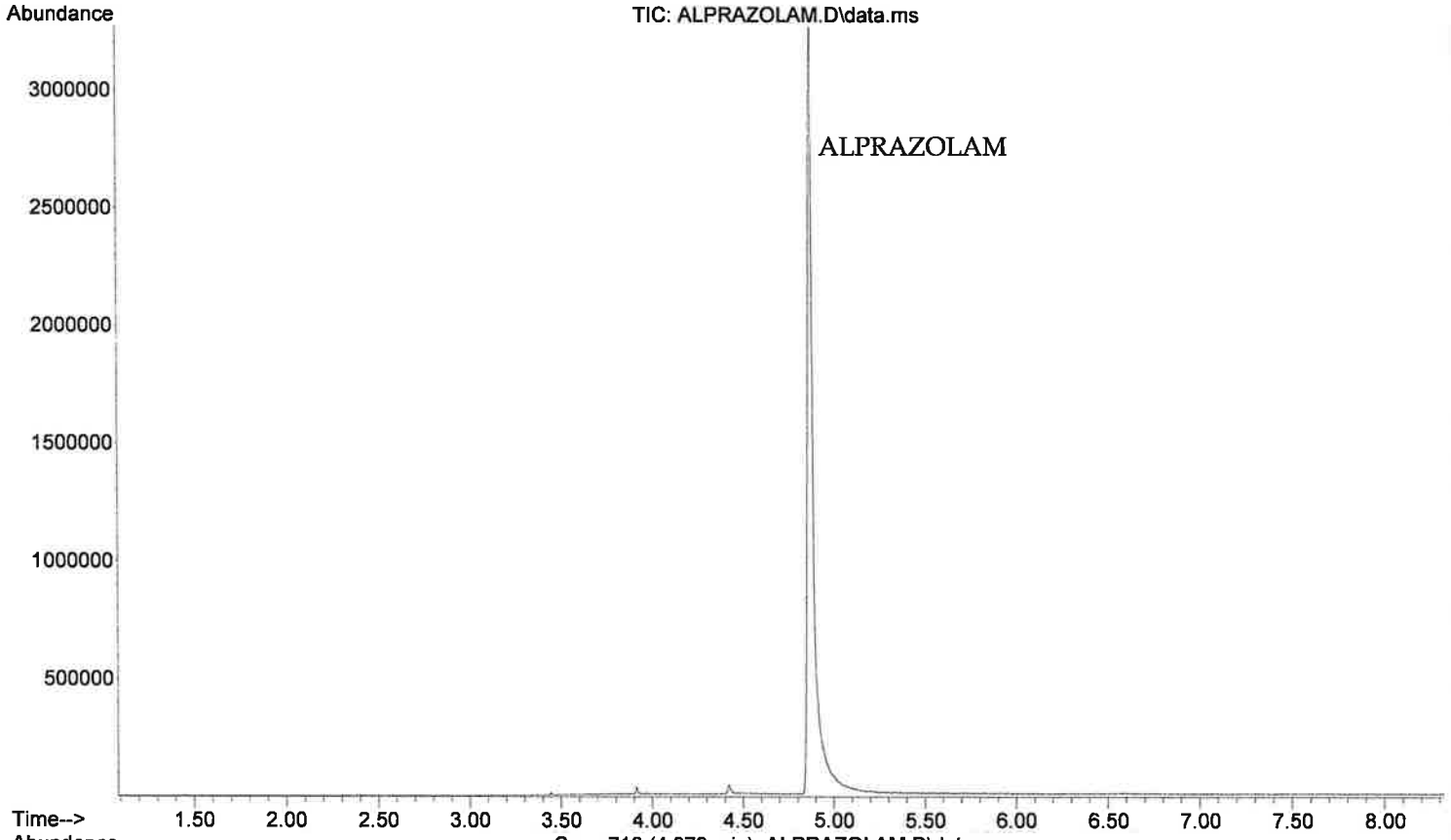
GC/MS

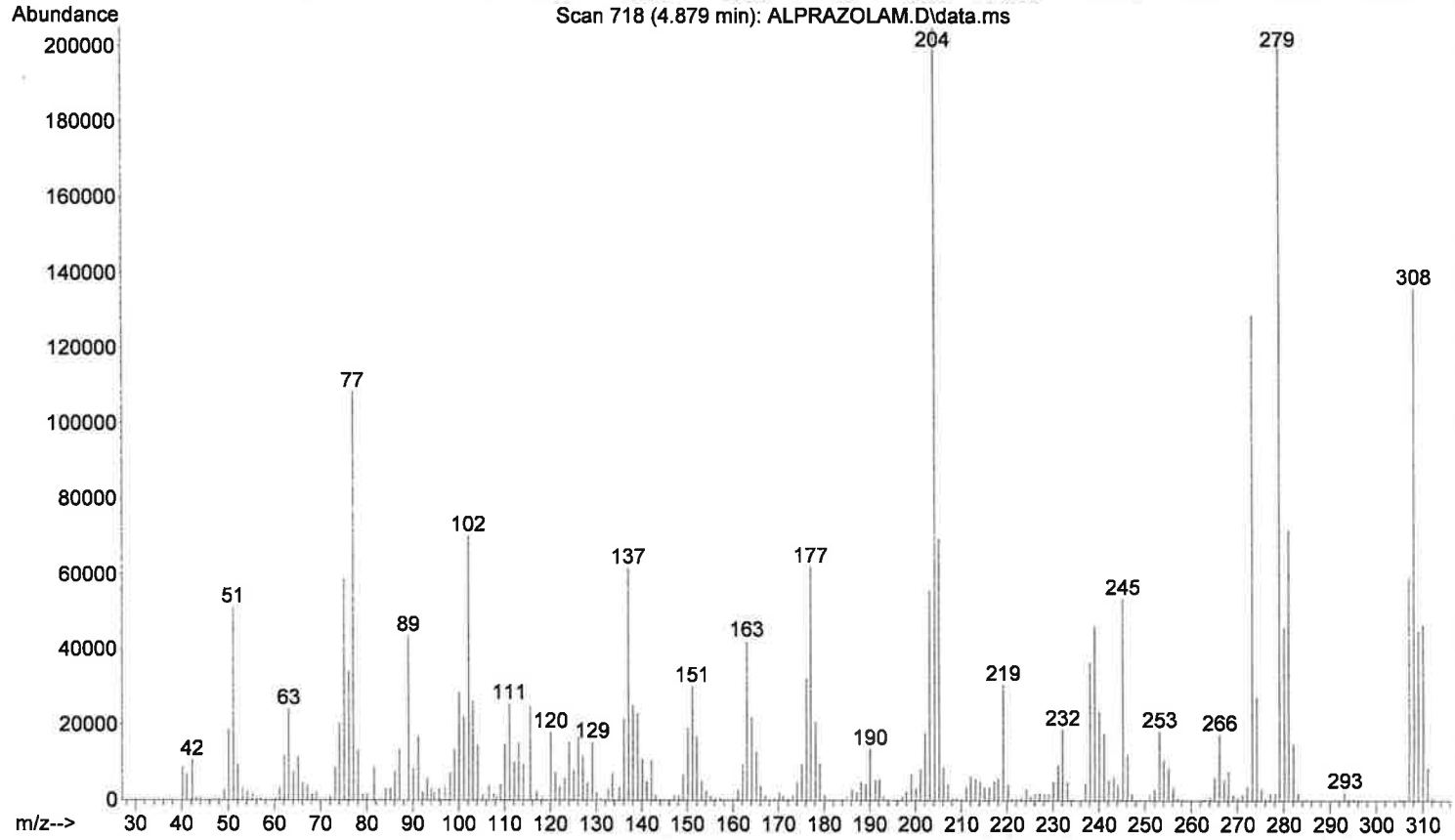
TRUENESS STUDY

File :D:\Data\Standards\ALPRAZOLAM.D
Operator : John Scott, Jr.
Acquired : 18 Jan 2011 3:16 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FE032009-02
Misc Info : MeOH
Vial Number: 1

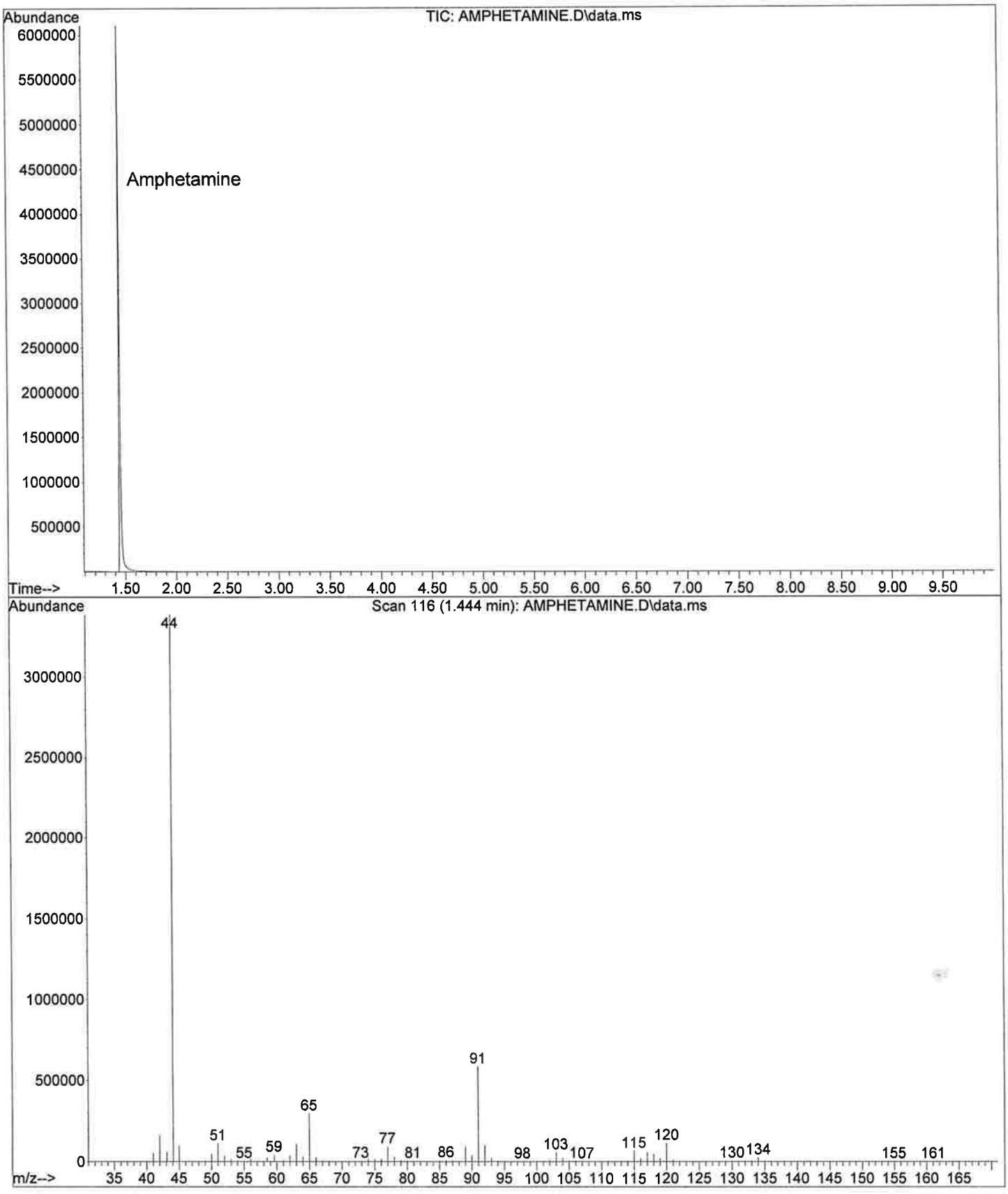


File :C:\msdchem\1\DATA\JLS\ALPRAZOLAM.D
Operator : JOHN SCOTT, JR.
Acquired : 8 Feb 2011 9:39 using AcqMethod MSDRUGS.M
Instrument : Espresso
Sample Name: CERILLIANT LOT FE032009-02
Misc Info : MEOH
Vial Number: 1

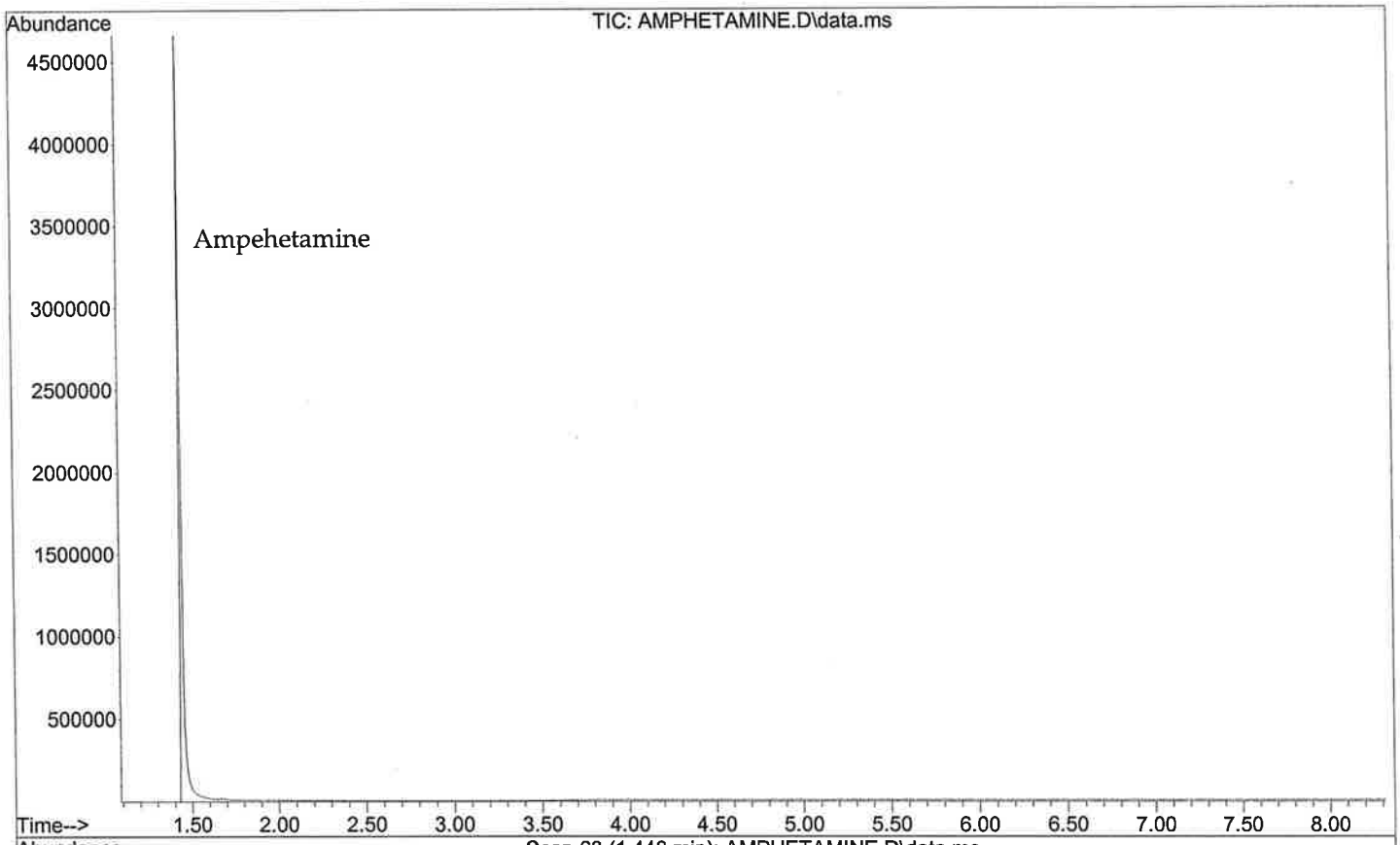


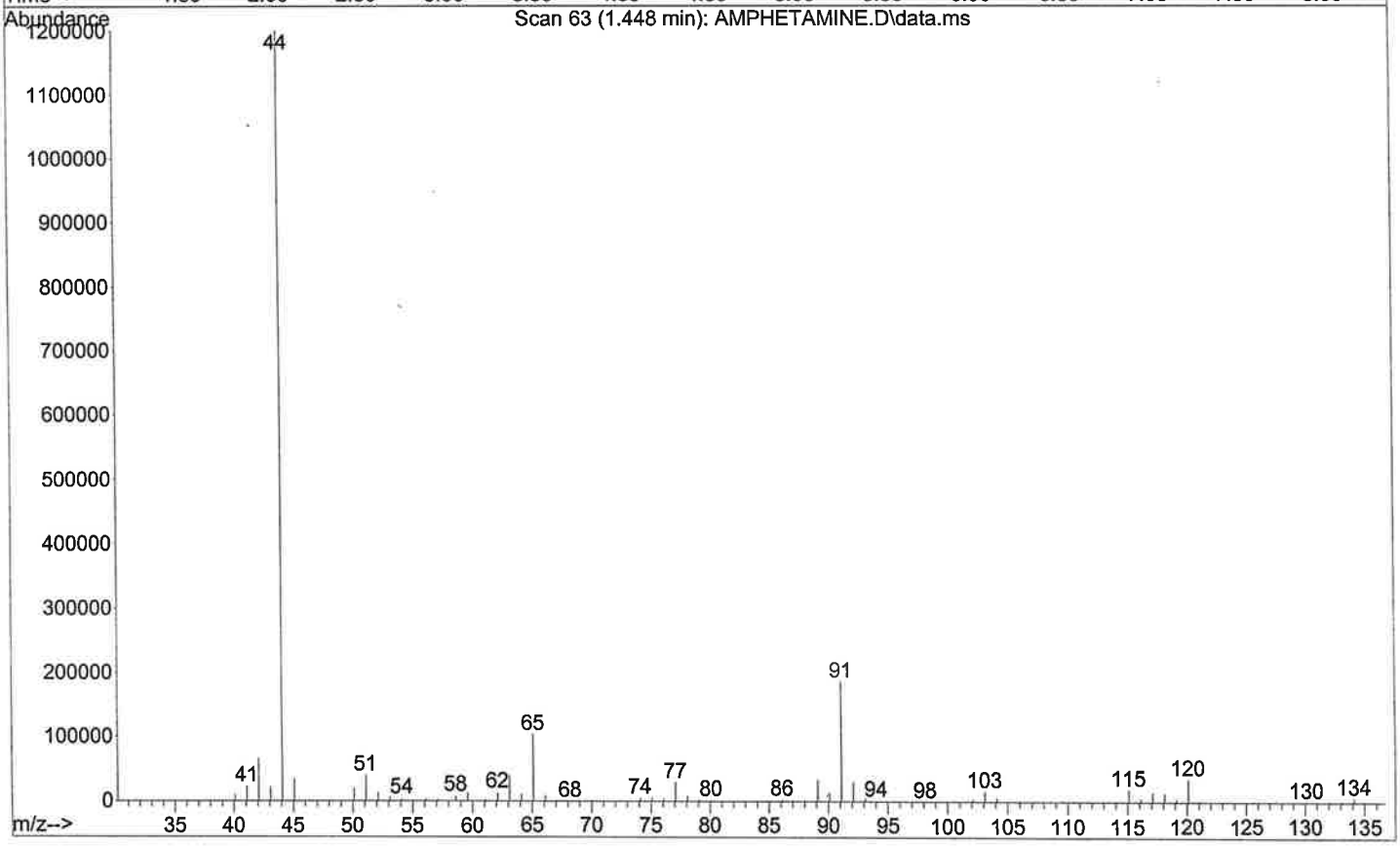


File :D:\Data\Standards\AMPHETAMINE.D
Operator : John Scott, Jr. (JS)
Acquired : 15 Jan 2011 1:08 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FE031809-01
Misc Info : MeOH
Vial Number: 1

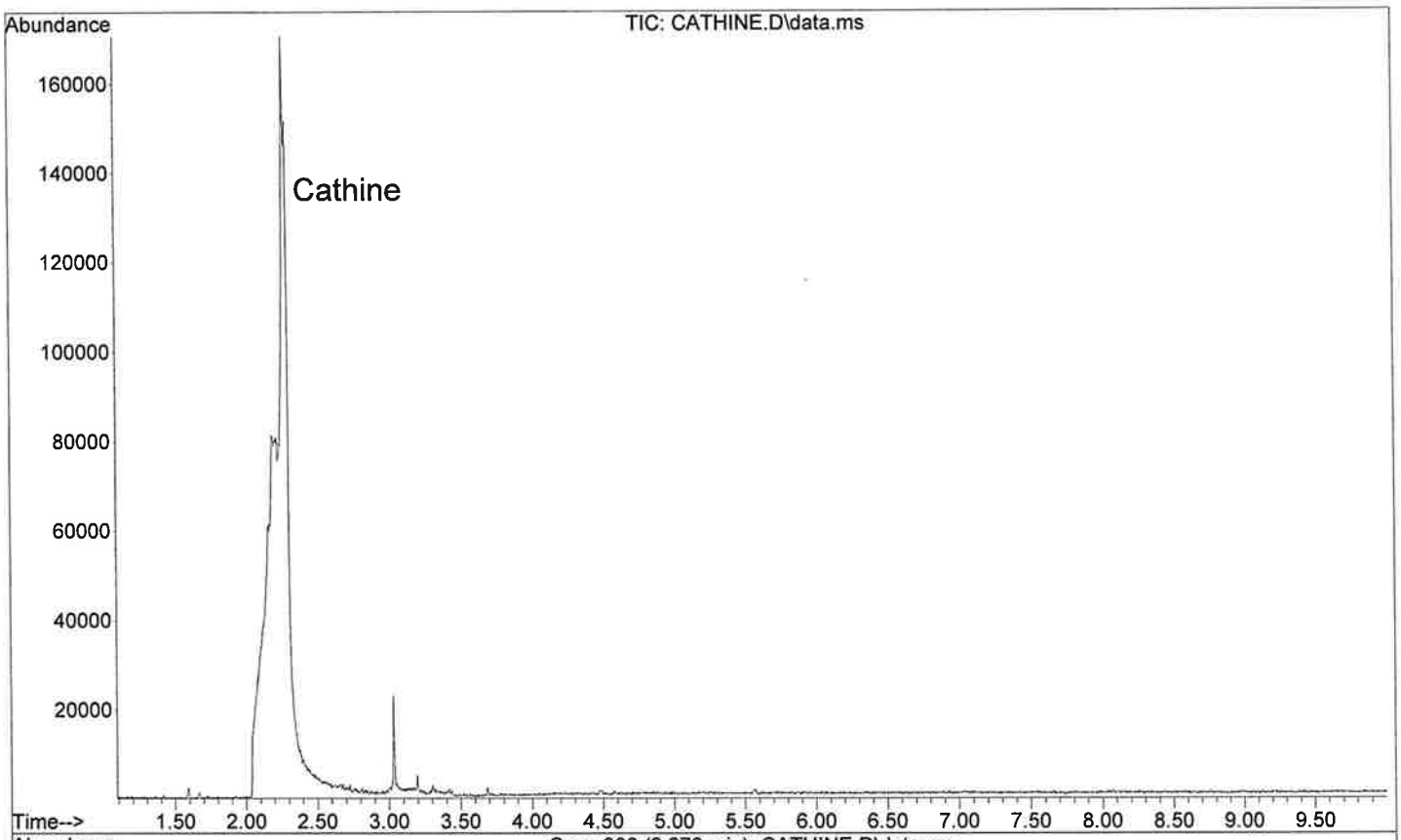


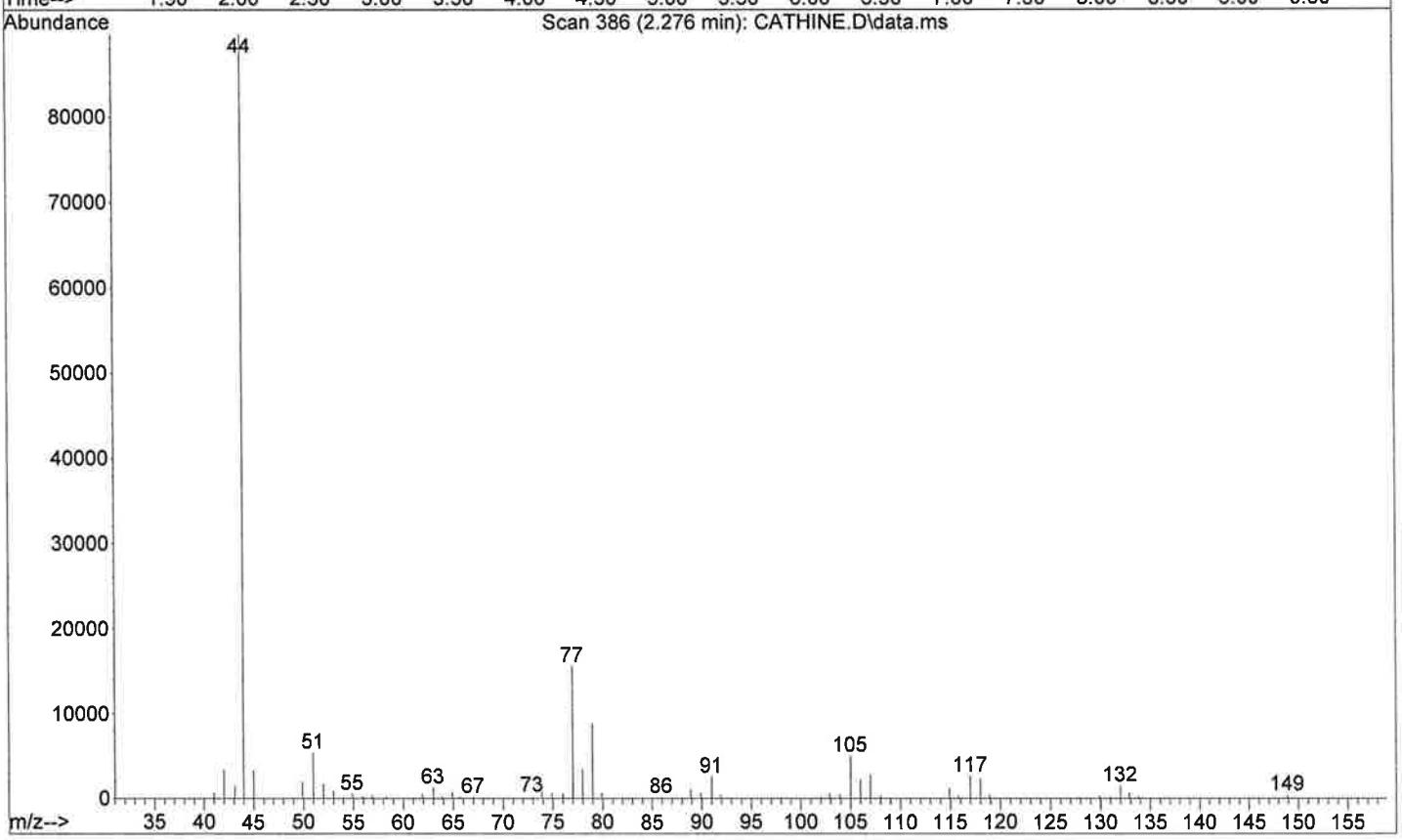
File :C:\msdchem\1\DATA\JLS\AMPHETAMINE.D
Operator : John Scott, Jr.
Acquired : 3 Feb 2011 16:14 using AcqMethod MSDRUGS.M
Instrument : Gumbo
Sample Name: Cerilliant Lot FE031809-01
Misc Info : MeOH
Vial Number: 2



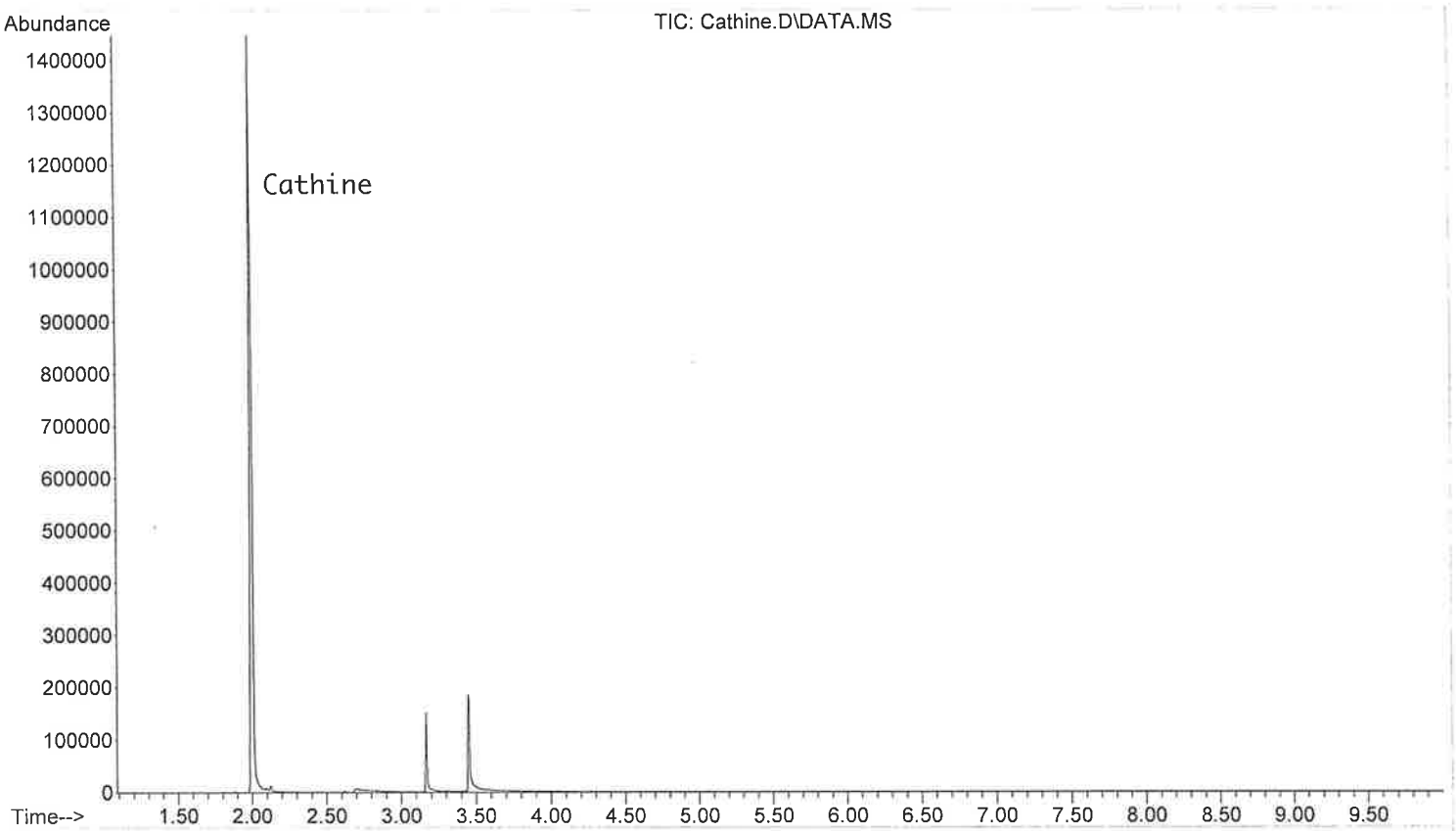


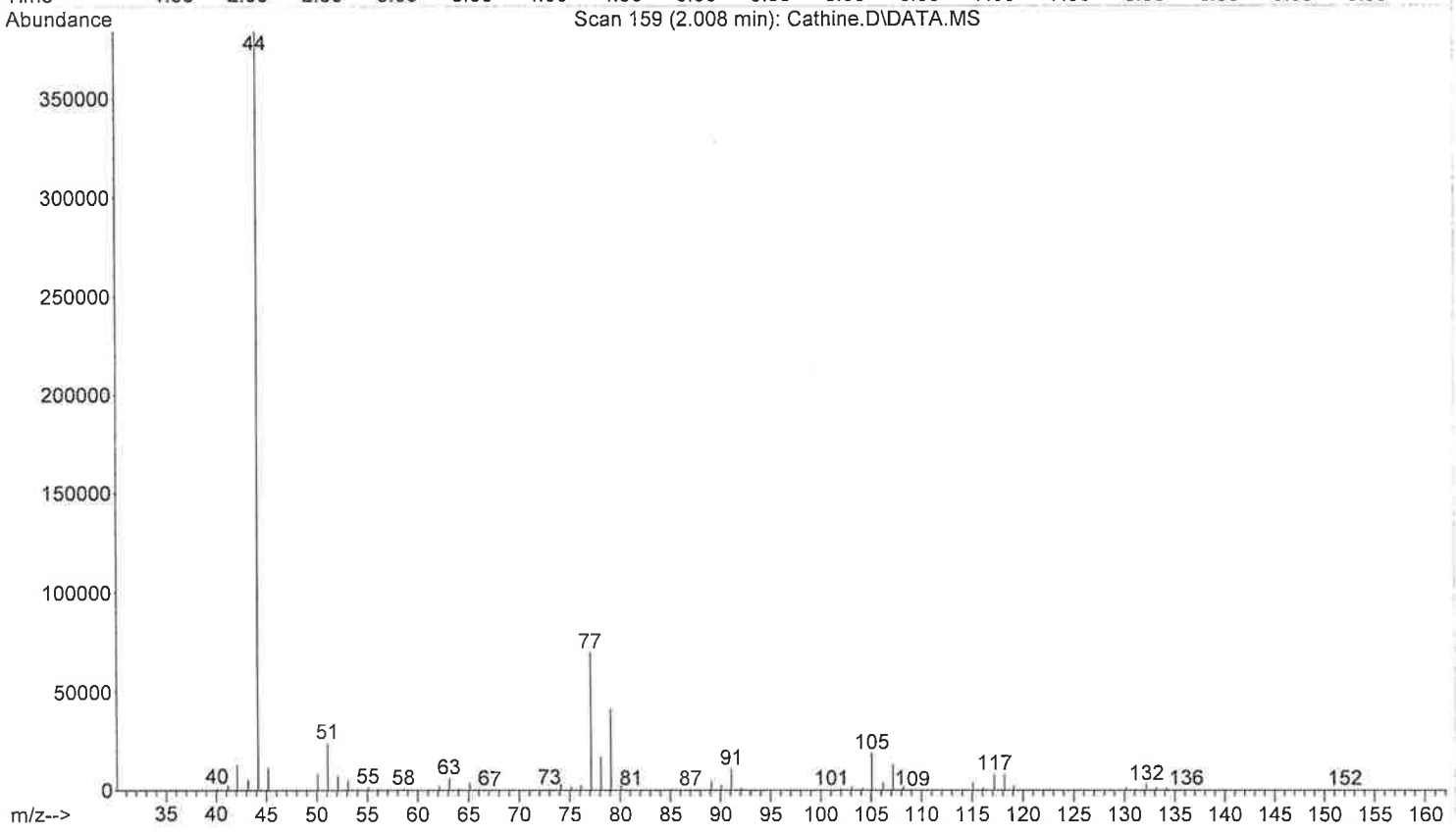
File :D:\Data\Standards\CATHINE.D
Operator : John Scott, Jr.
Acquired : 8 Feb 2011 15:07 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Alltech Lot 0101 @
Misc Info : MeOH
Vial Number: 1



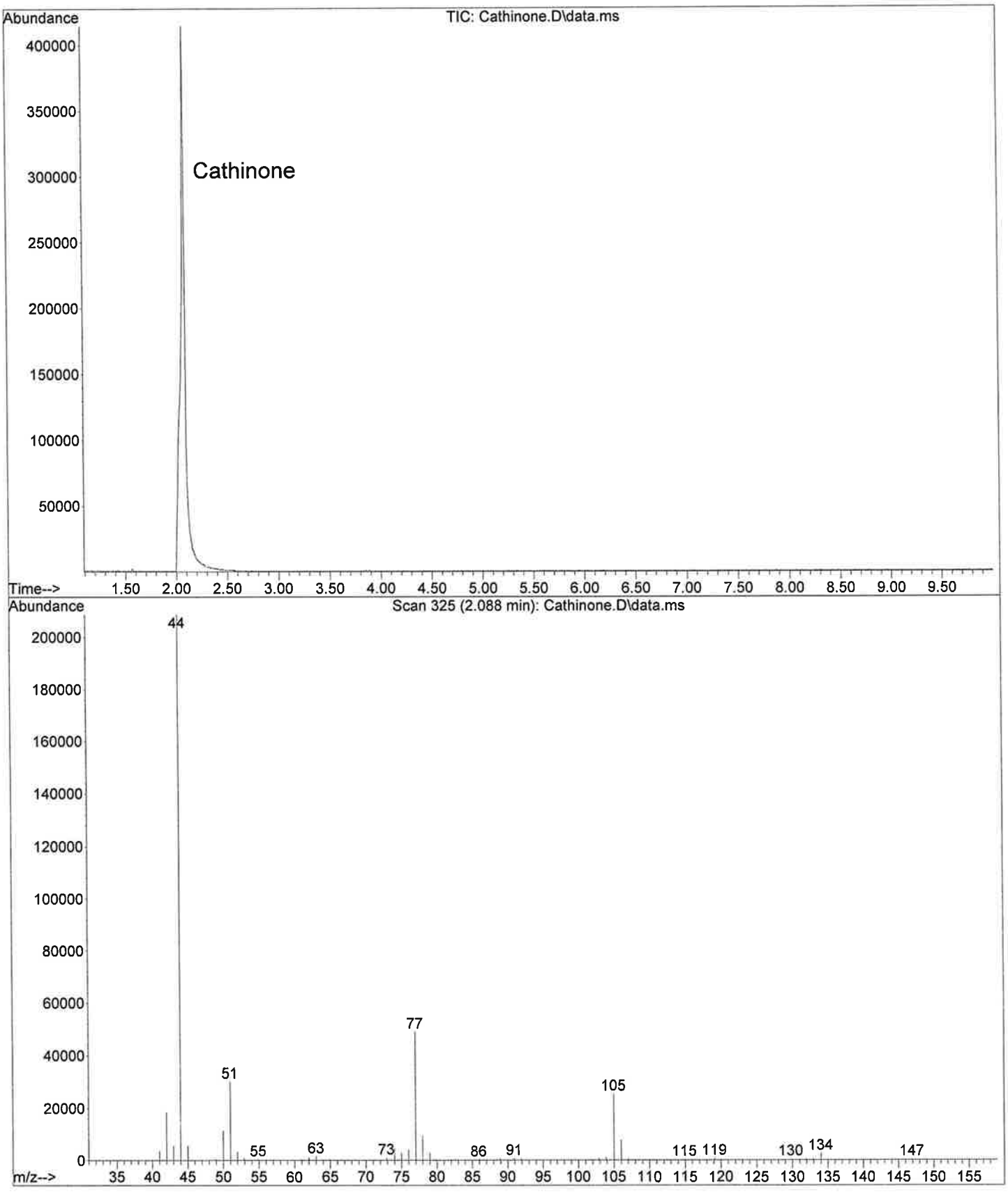


File :D:\JLS\SEQUEN\Cathine.D
Operator : NASHVILLE LAB
Acquired : 3 Feb 2011 16:10 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Alltech Lot 0101 (A)
Misc Info : MeOH
Vial Number: 2

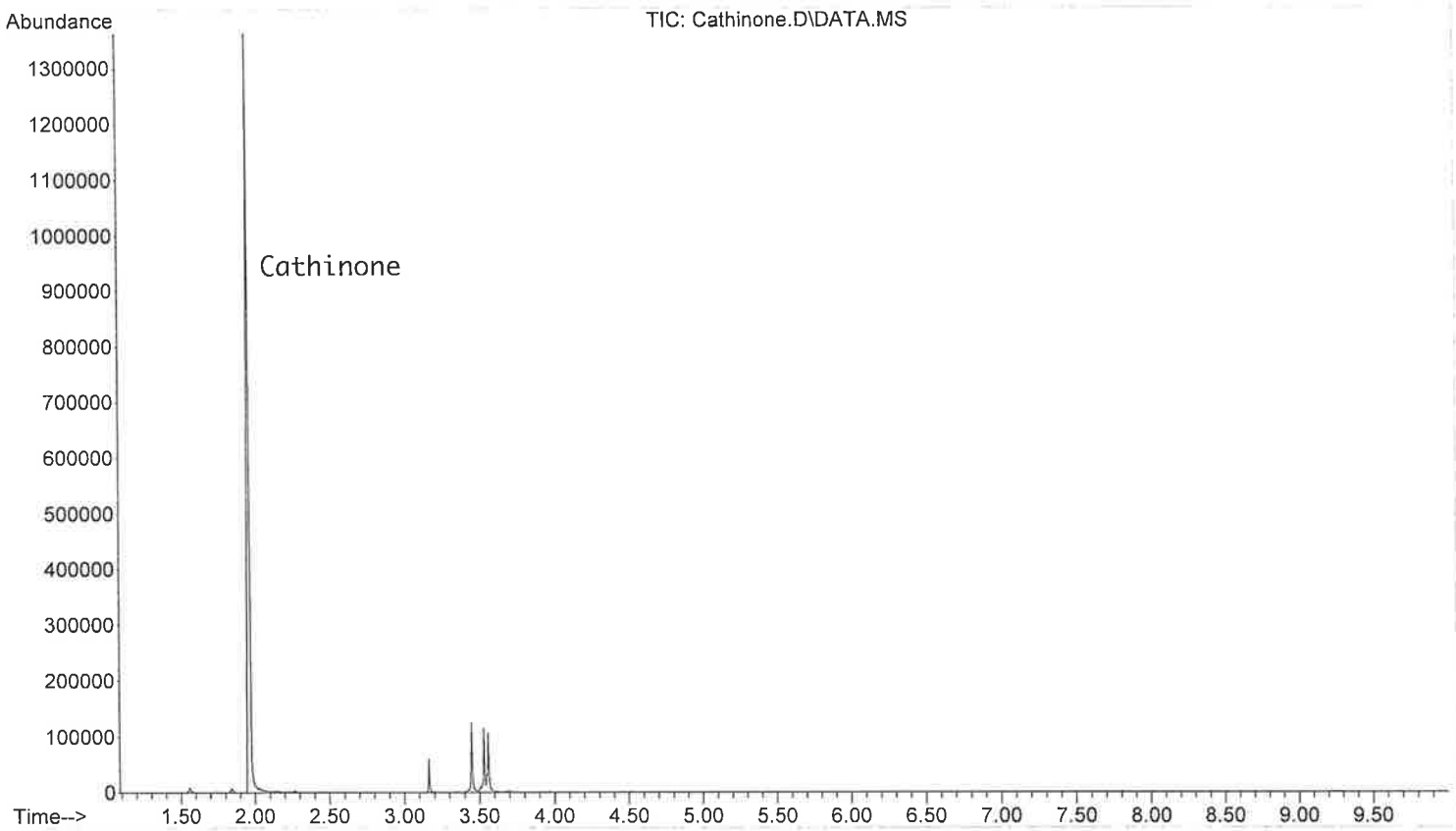


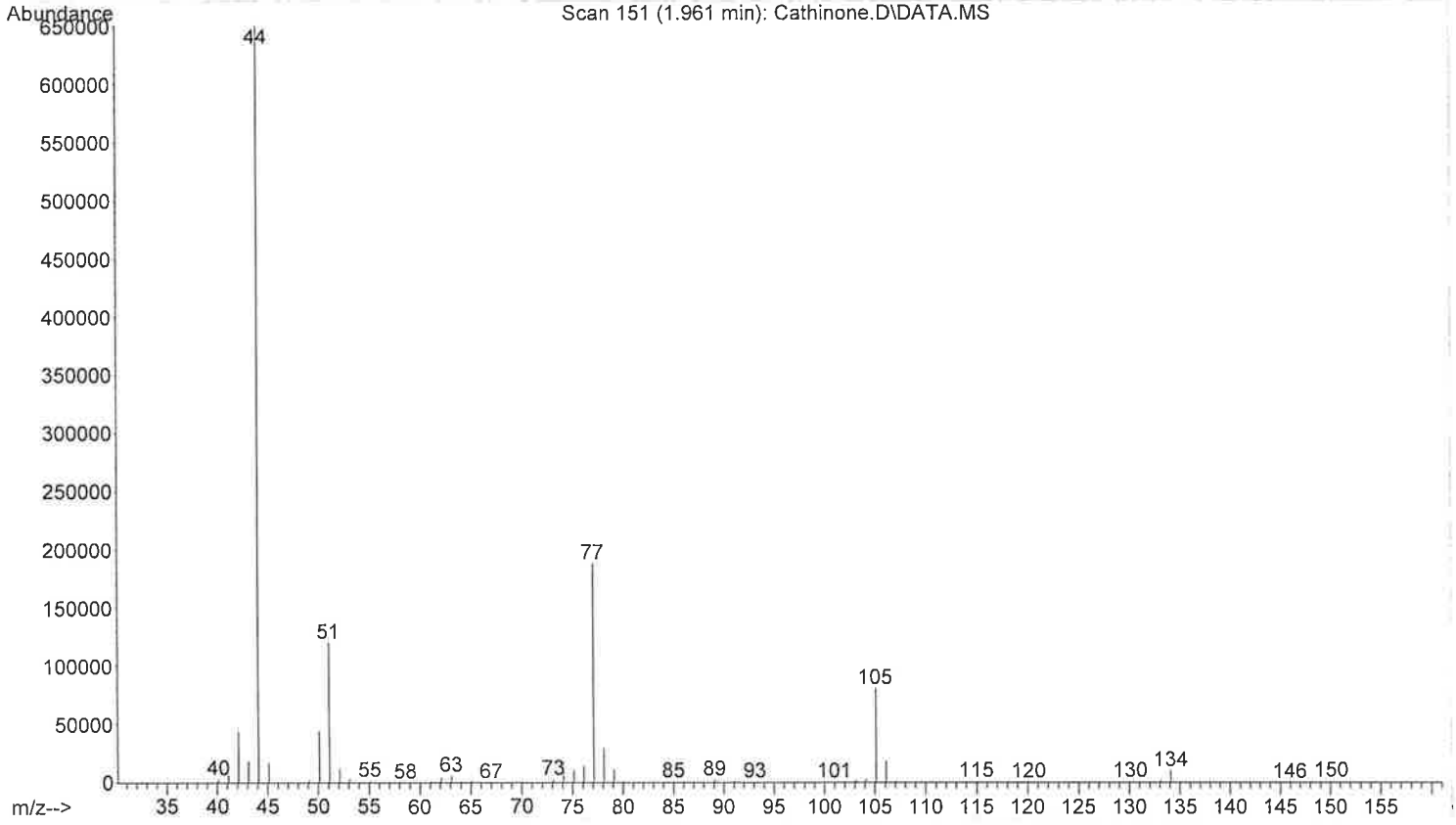


File :D:\Data\Standards\Cathinone.D
Operator : Nashville Lab
Acquired : 20 Jan 2011 10:37 using AcqMethod ASMSDRUGS.M
Instrument : Eggroll
Sample Name: Sigma Lot 036K4029 Bottle B
Misc Info : MeOH
Vial Number: 3

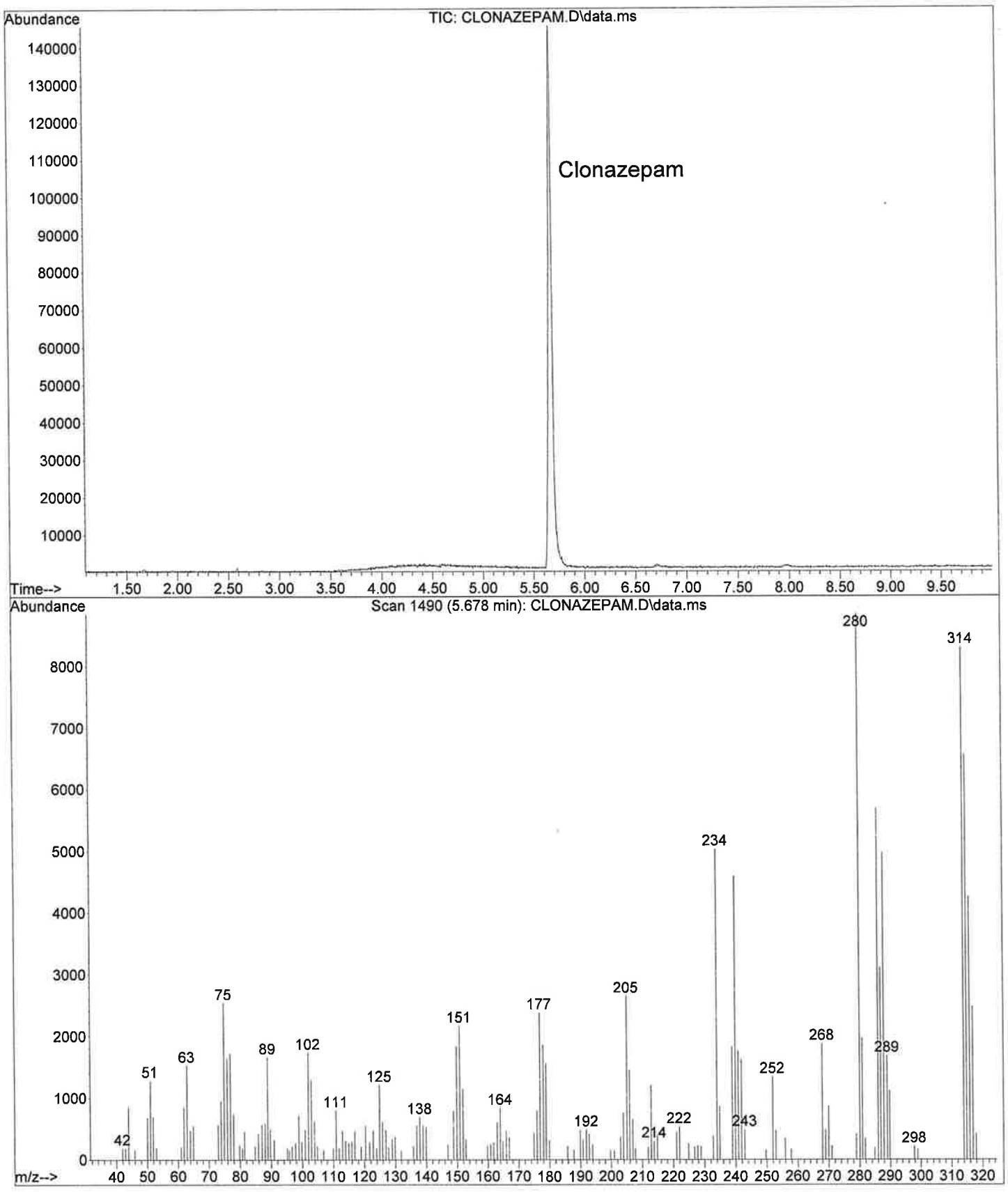


File :D:\JLS\SEQUEN\Cathinone.D
Operator : NASHVILLE LAB
Acquired : 3 Feb 2011 17:34 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Sigma Lot 036K4029 Bottle B #9
Misc Info : MeOH
Vial Number: 5

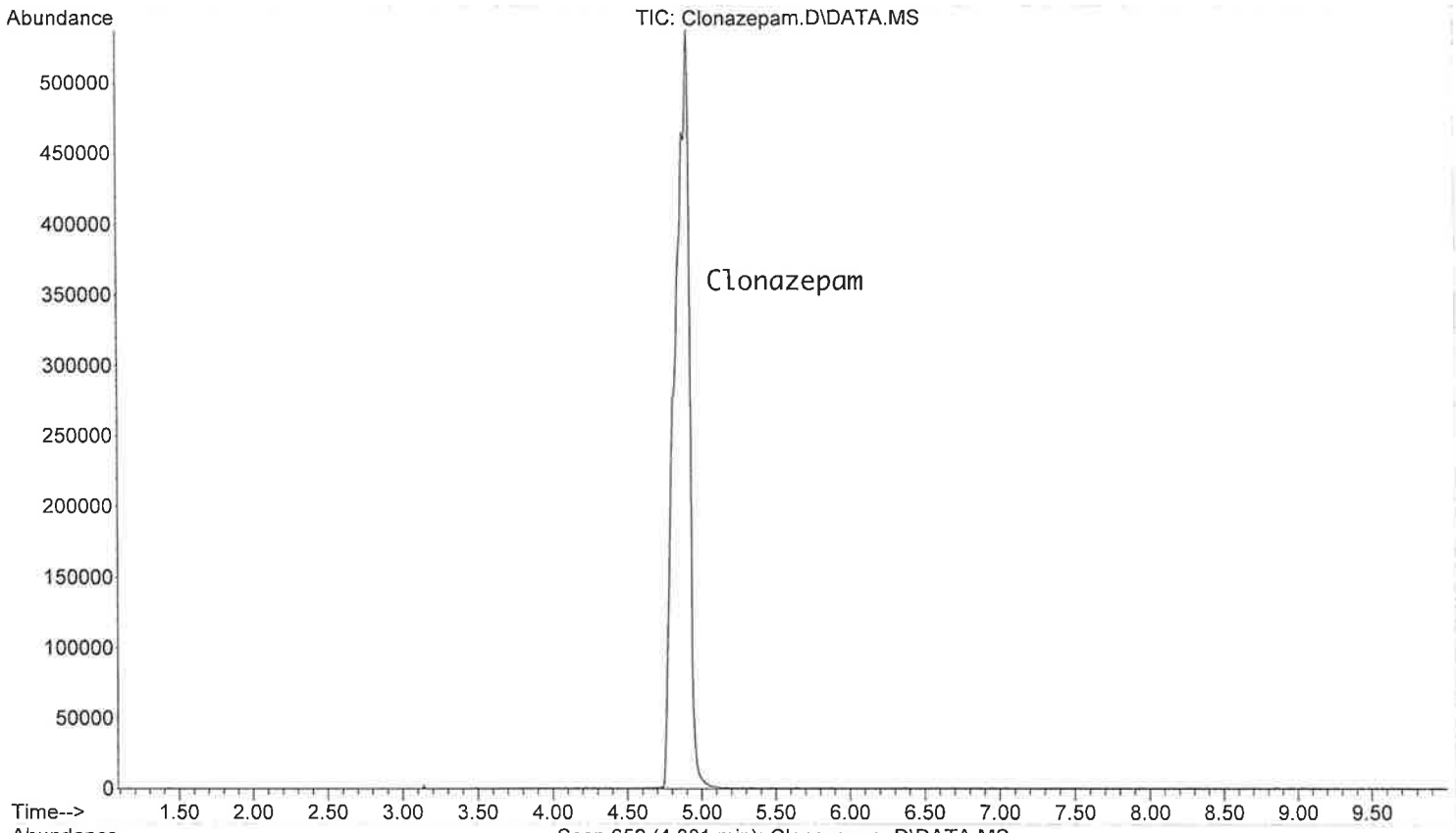


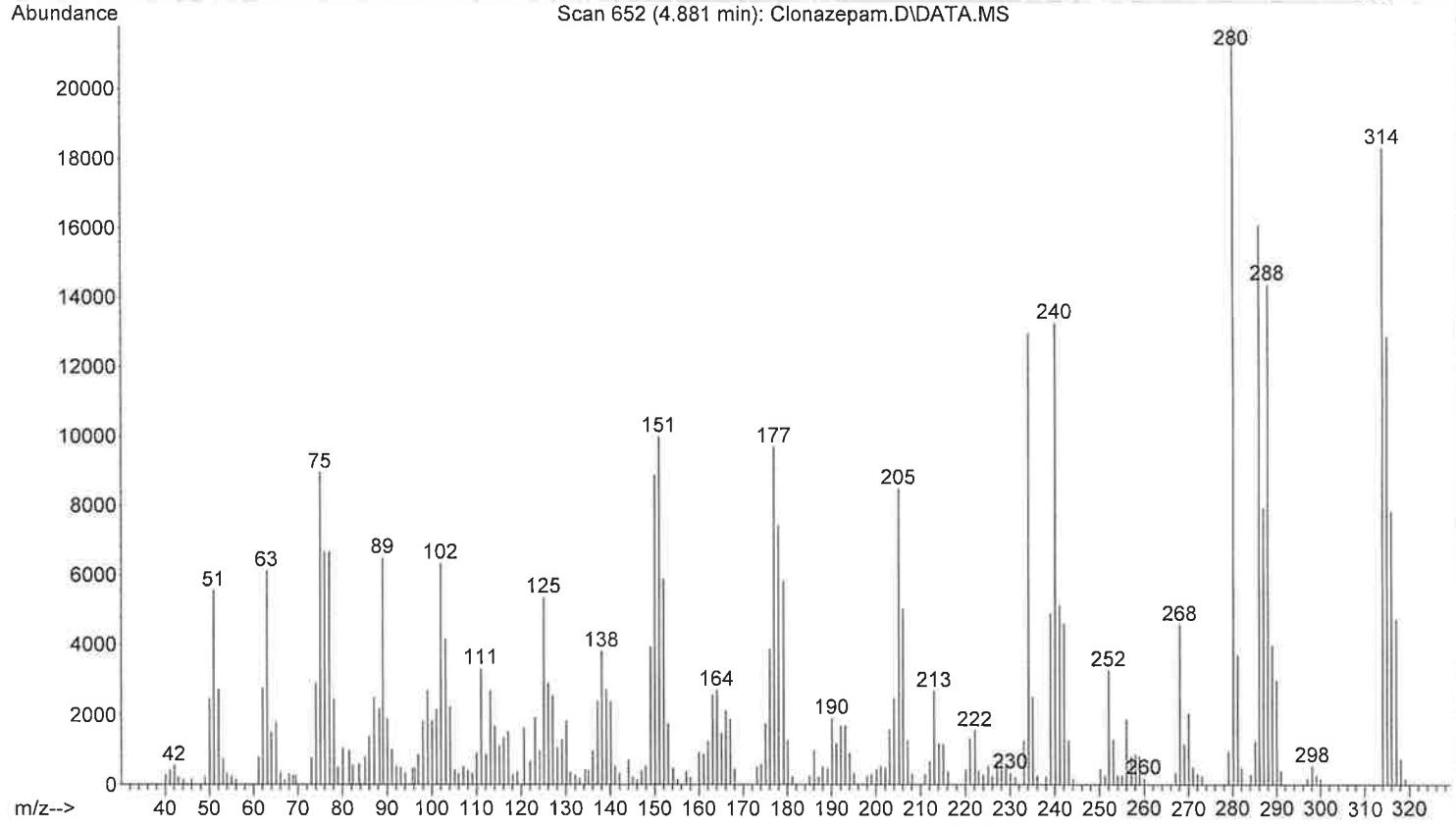


File :D:\Data\Standards\CLONAZEPAM.D
Operator : John Scott, Jr.
Acquired : 8 Feb 2011 10:19 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Hoffman-Roche Lot 012077 B
Misc Info : MeOH
Vial Number: 1

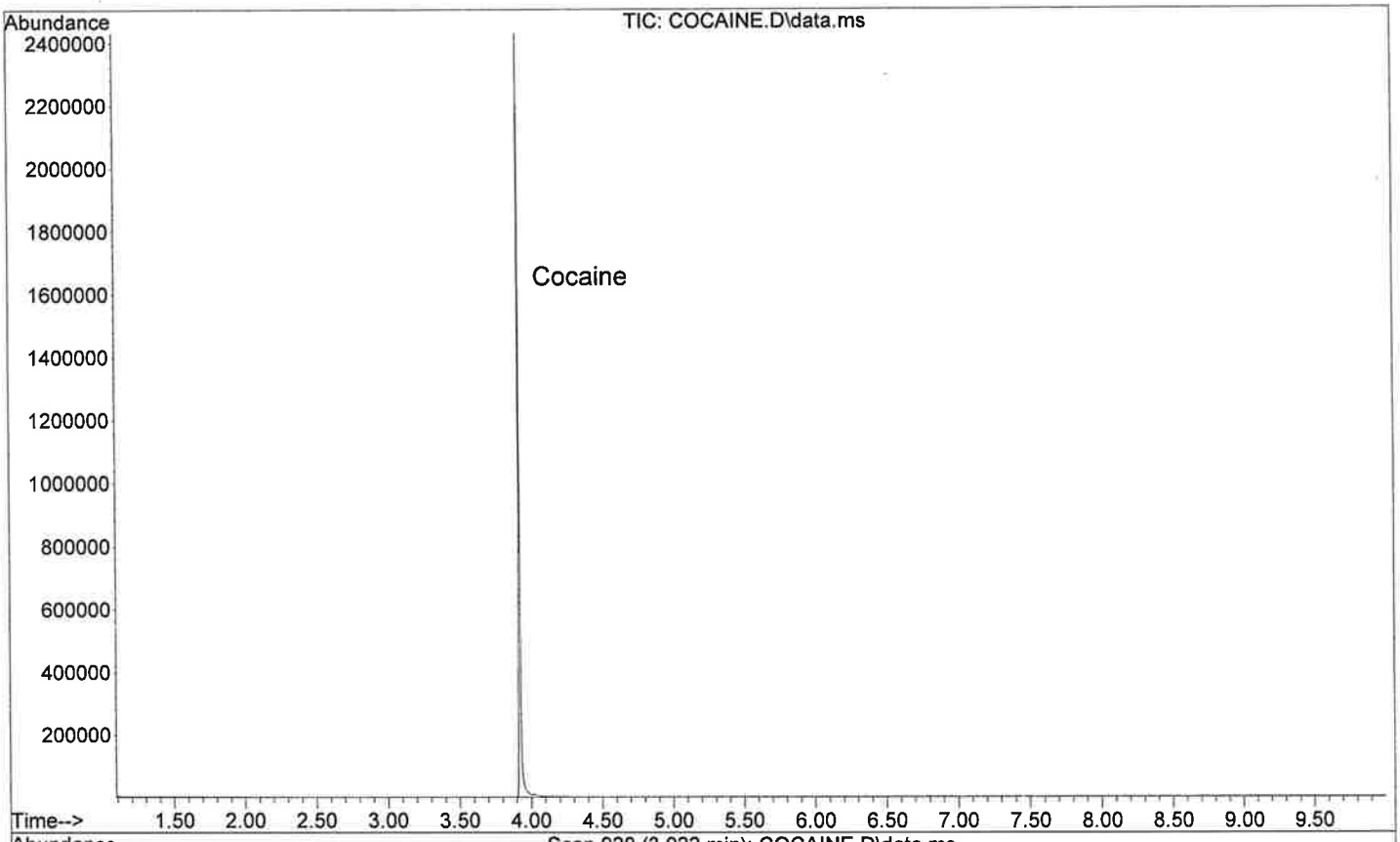


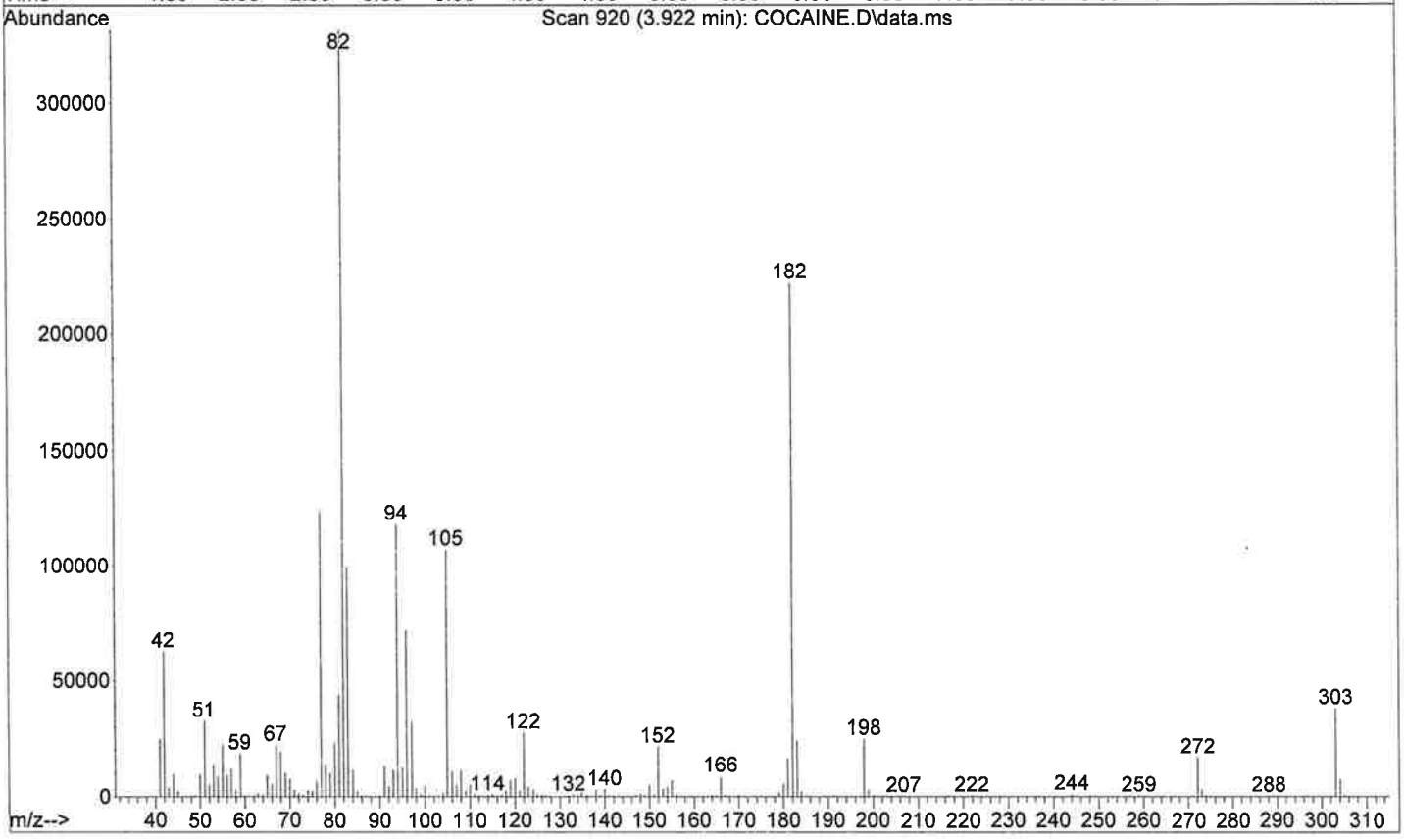
File :D:\JLS\SEQUEN\Clonazepam.D
Operator : NASHVILLE LAB
Acquired : 5 Feb 2011 4:36 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Hoffman-Roche Lot 012077 @
Misc Info : MEOH
Vial Number: 31



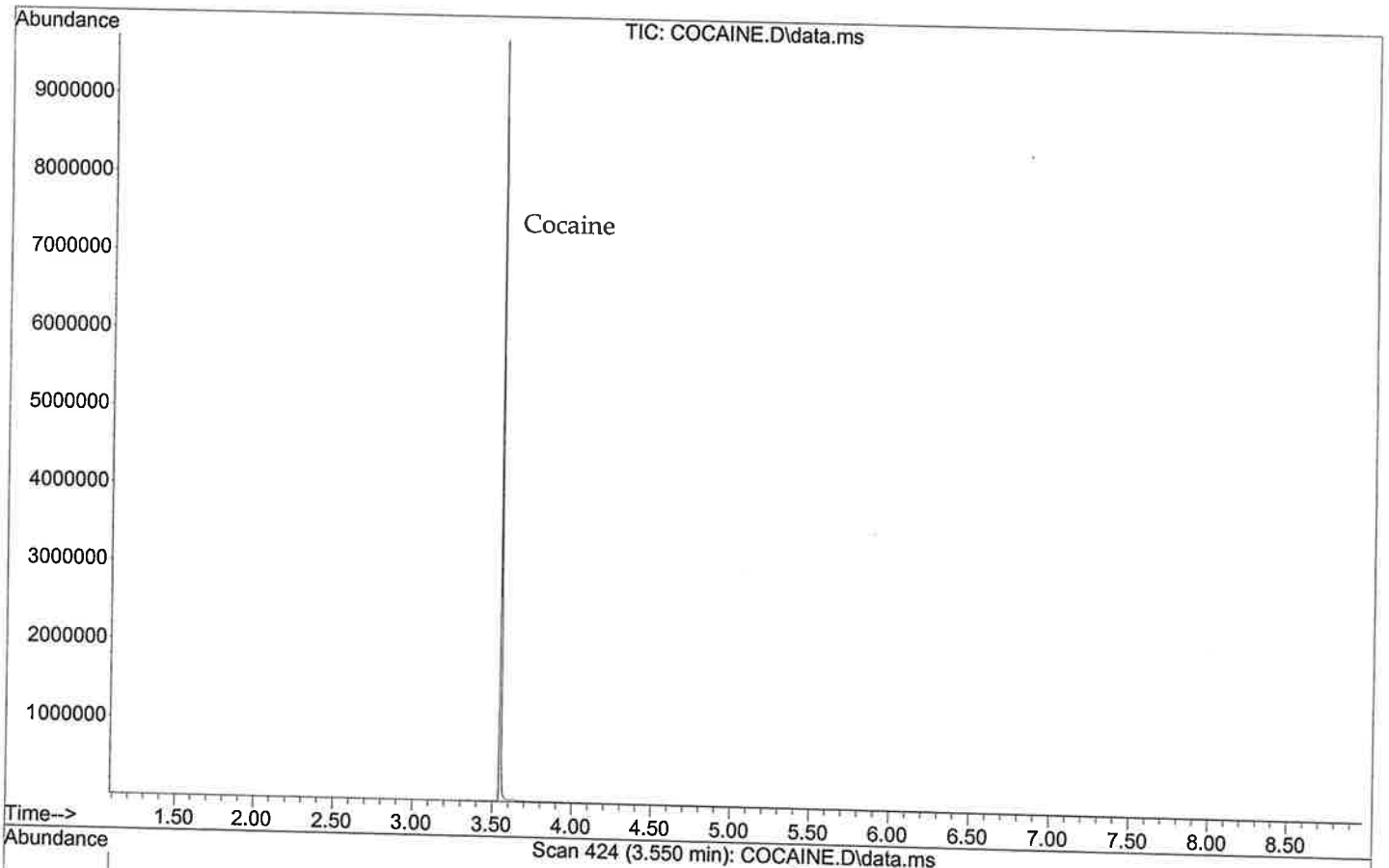


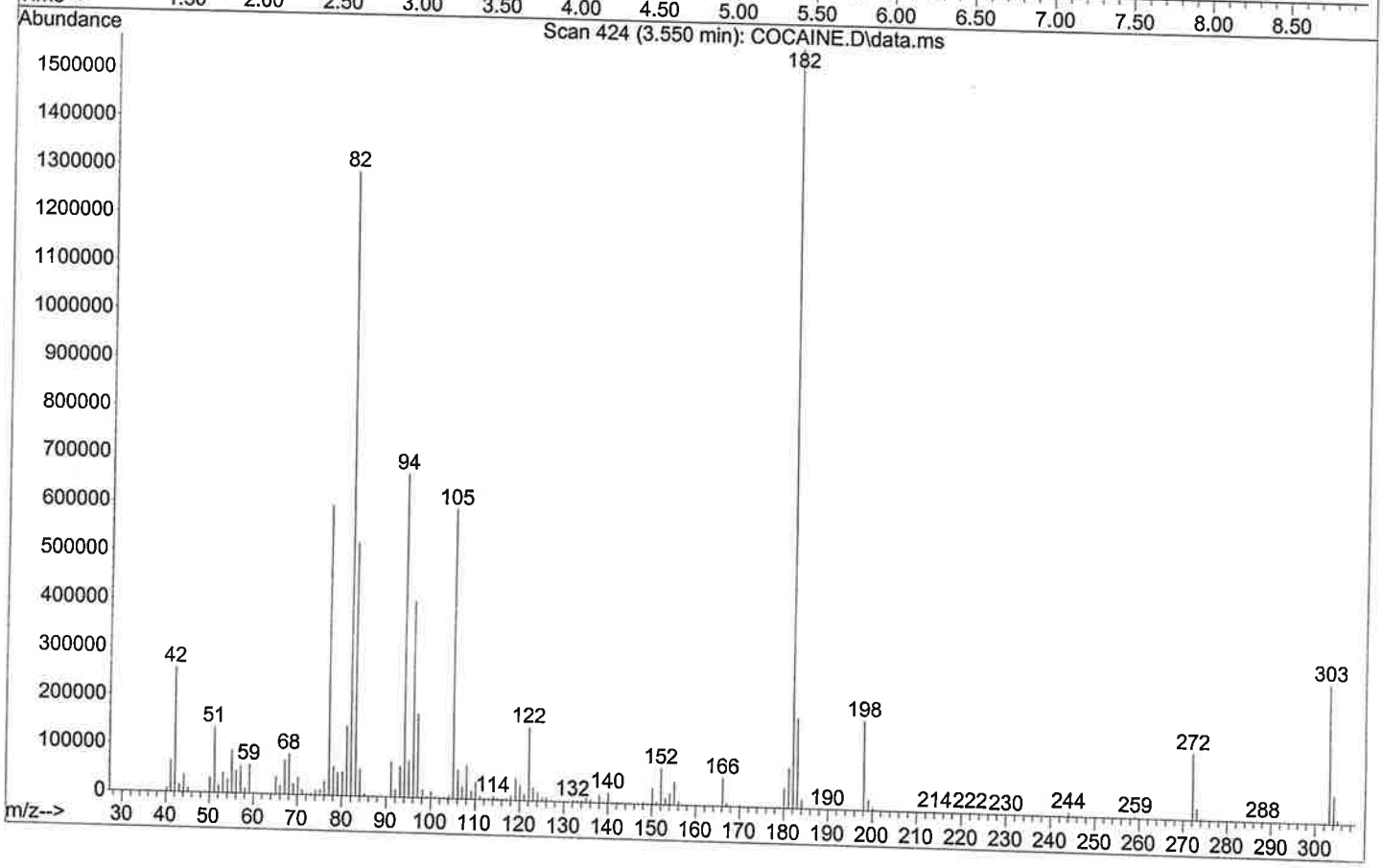
File :D:\Data\Standards\COCAINE.D
Operator : John Scott, Jr.
Acquired : 18 Jan 2011 22:58 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FC032007-01A
Misc Info : MeOH
Vial Number: 1



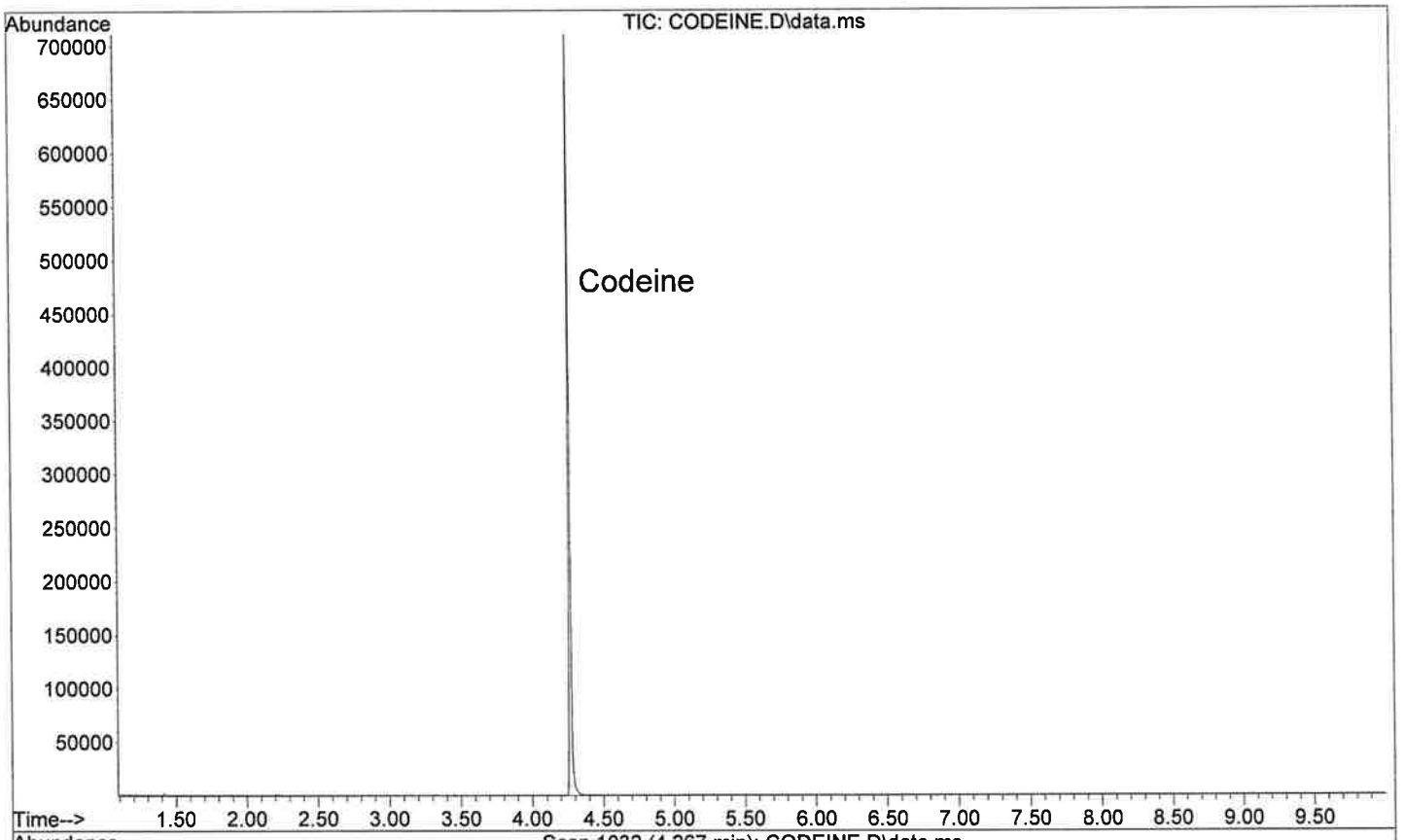


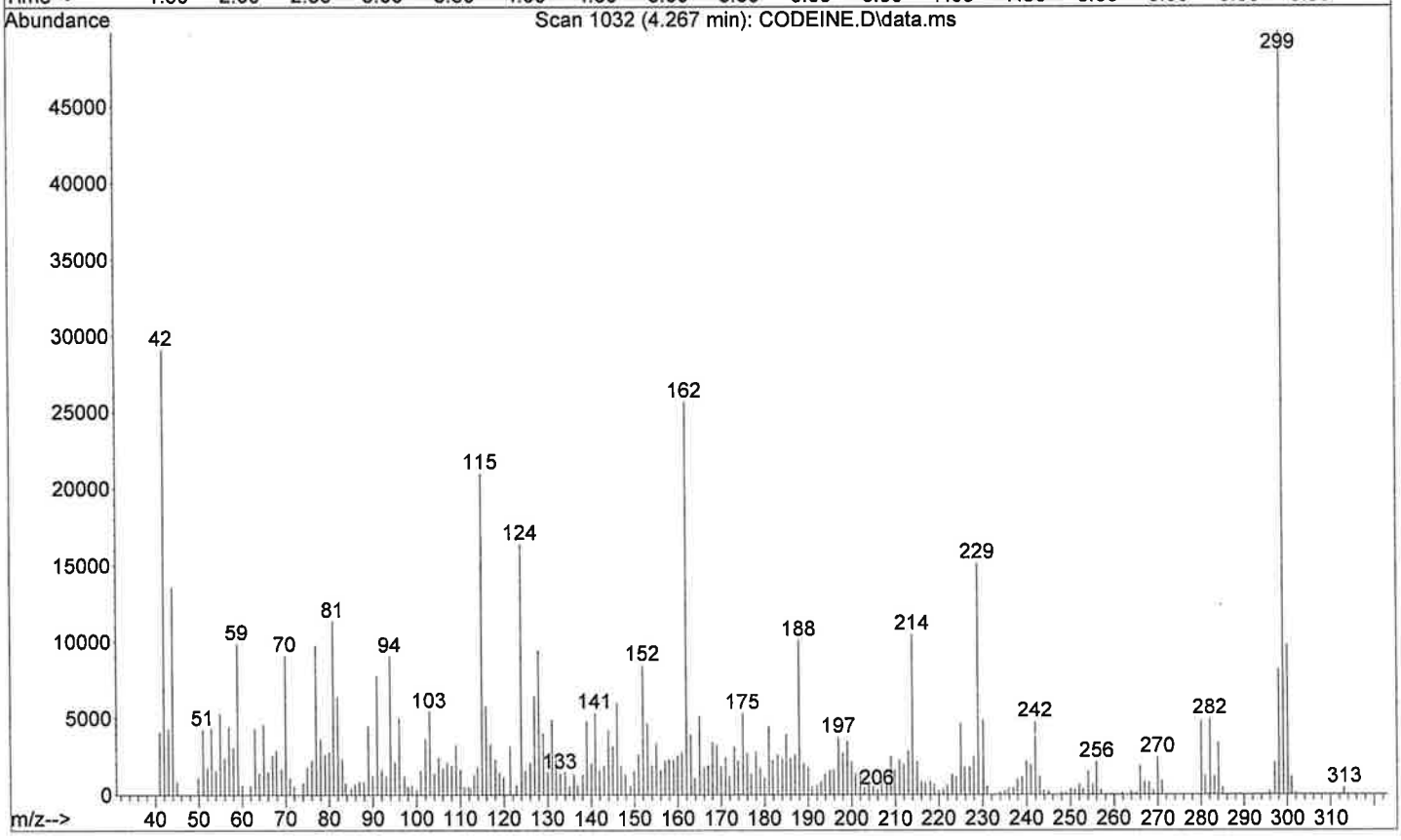
File :C:\msdchem\1\DATA\JLS\COCAINE.D
Operator : John Scott, Jr.
Acquired : 3 Feb 2011 16:36 using AcqMethod MSDRUGS.M
Instrument : Gumbo
Sample Name: Cerilliant Lot FC032007-01
Misc Info : Acetronitrile
Vial Number: 2



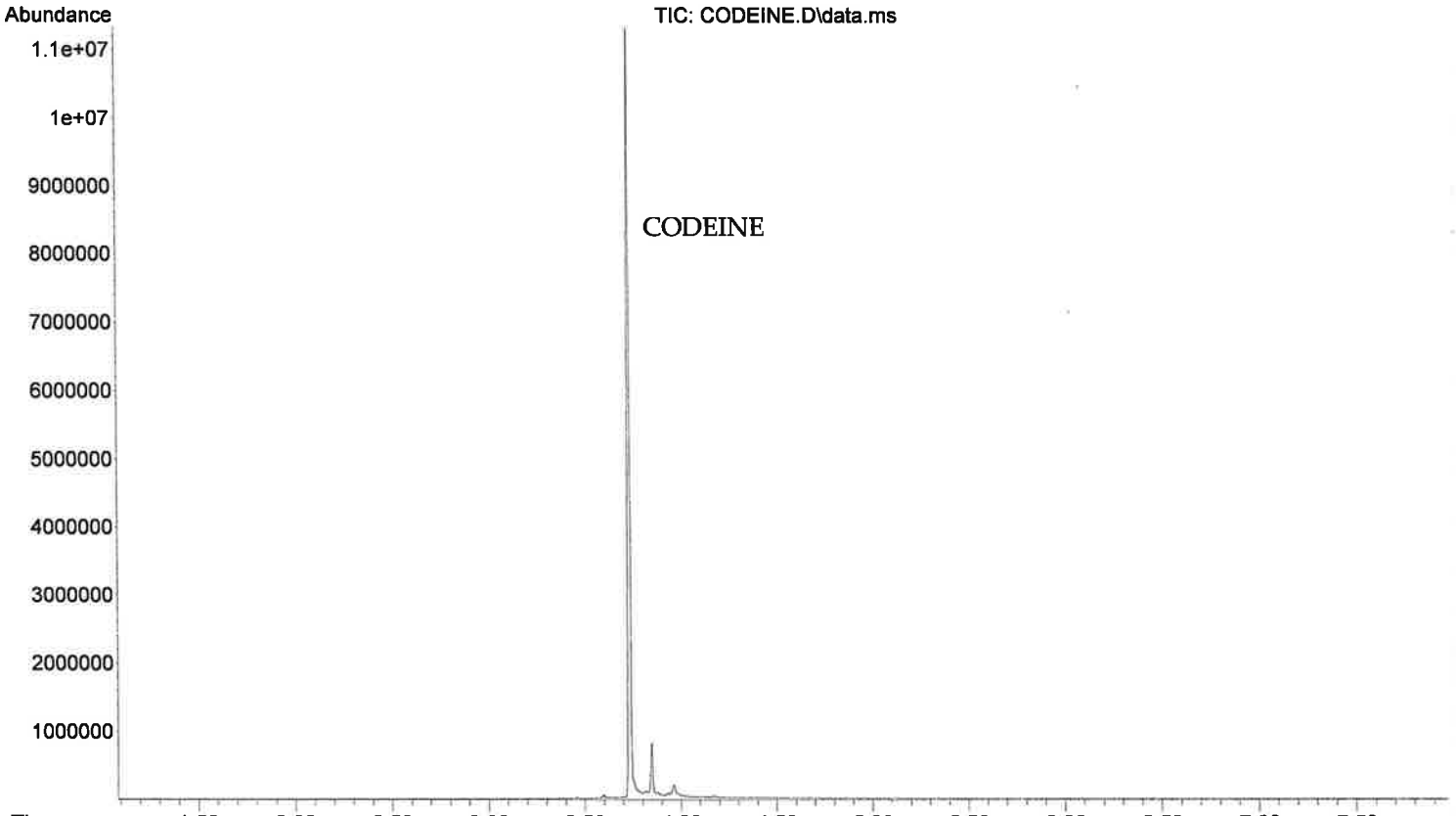


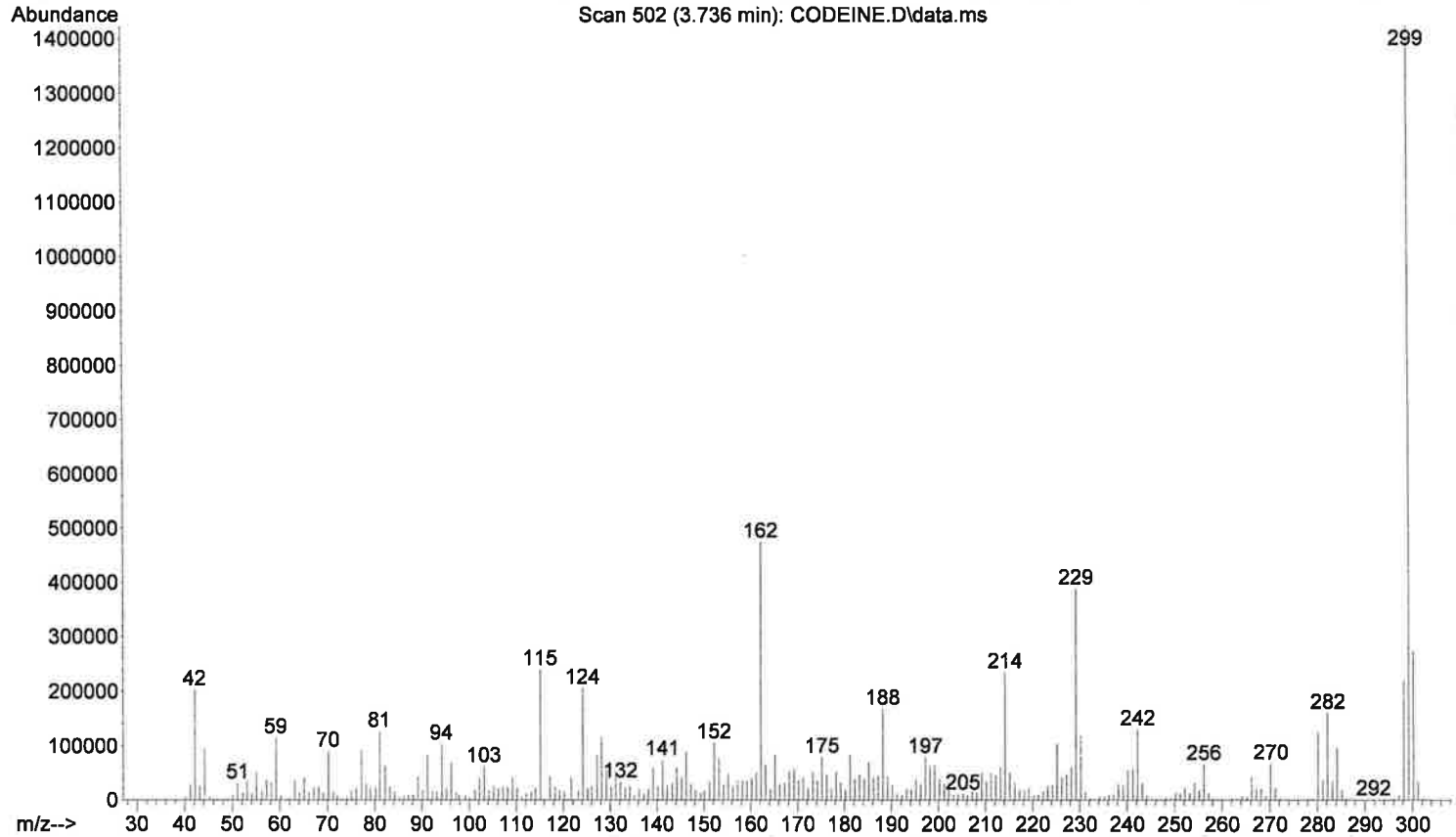
File :D:\Data\Standards\CODEINE.D
Operator : John Scott, Jr.
Acquired : 21 Jan 2011 13:20 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Merck Lot 16804 ®
Misc Info : MeOH
Vial Number: 1



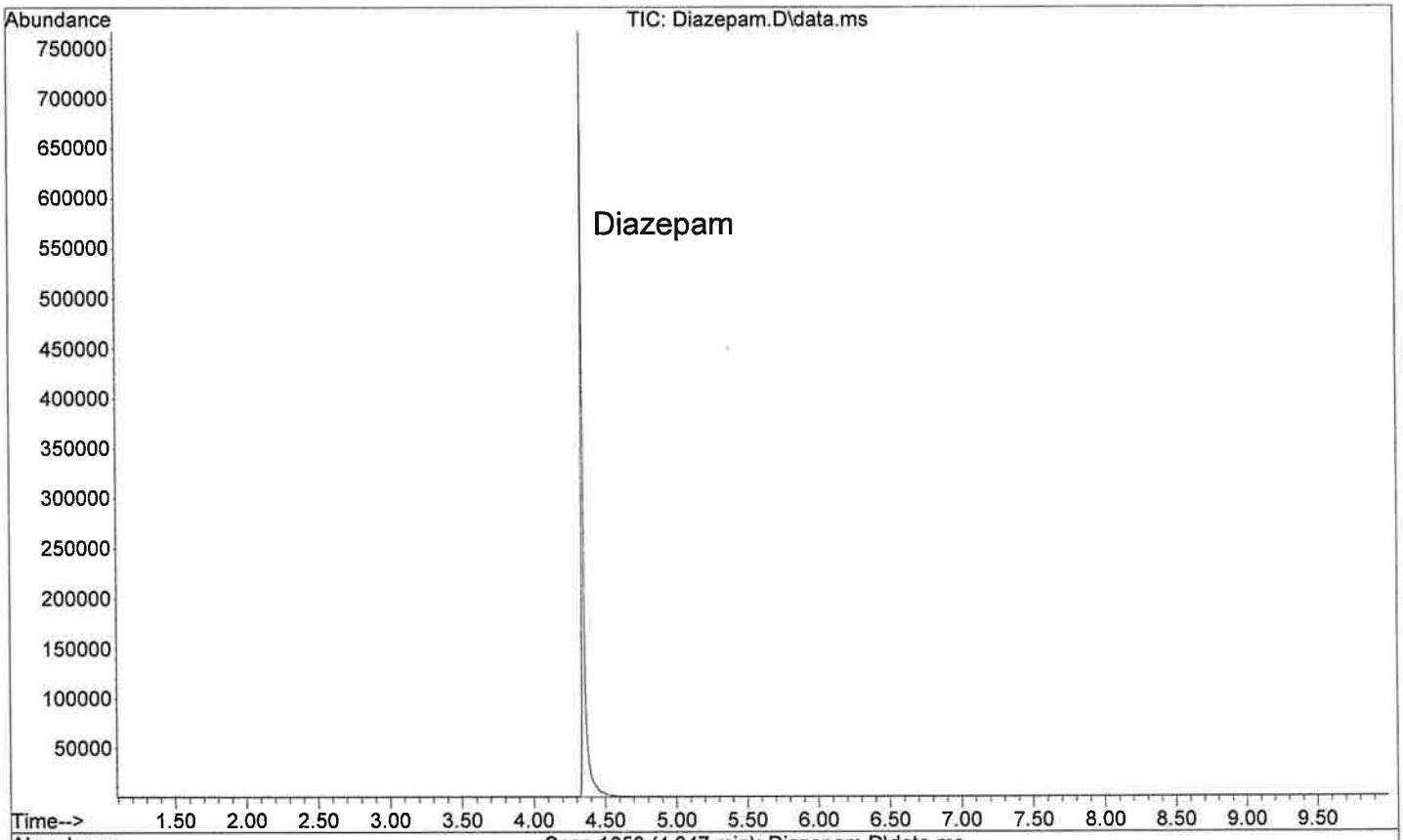


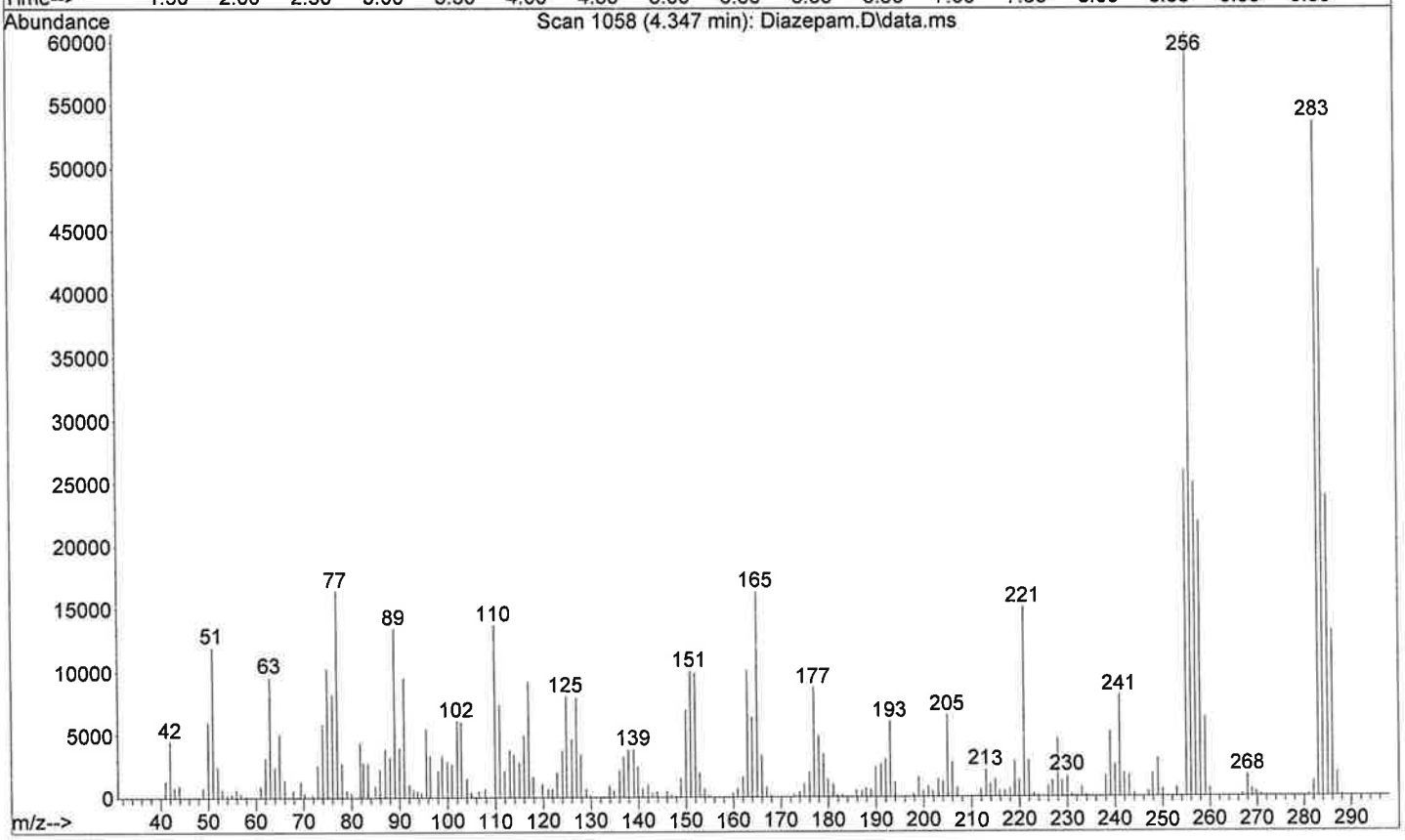
File :C:\msdchem\1\DATA\JLS\CODEINE.D
Operator : JOHN SCOTT, JR.
Acquired : 7 Feb 2011 13:36 using AcqMethod MSDRUGS.M
Instrument : Espresso
Sample Name: Merck Lot 16804 @
Misc Info : MEOH
Vial Number: 1



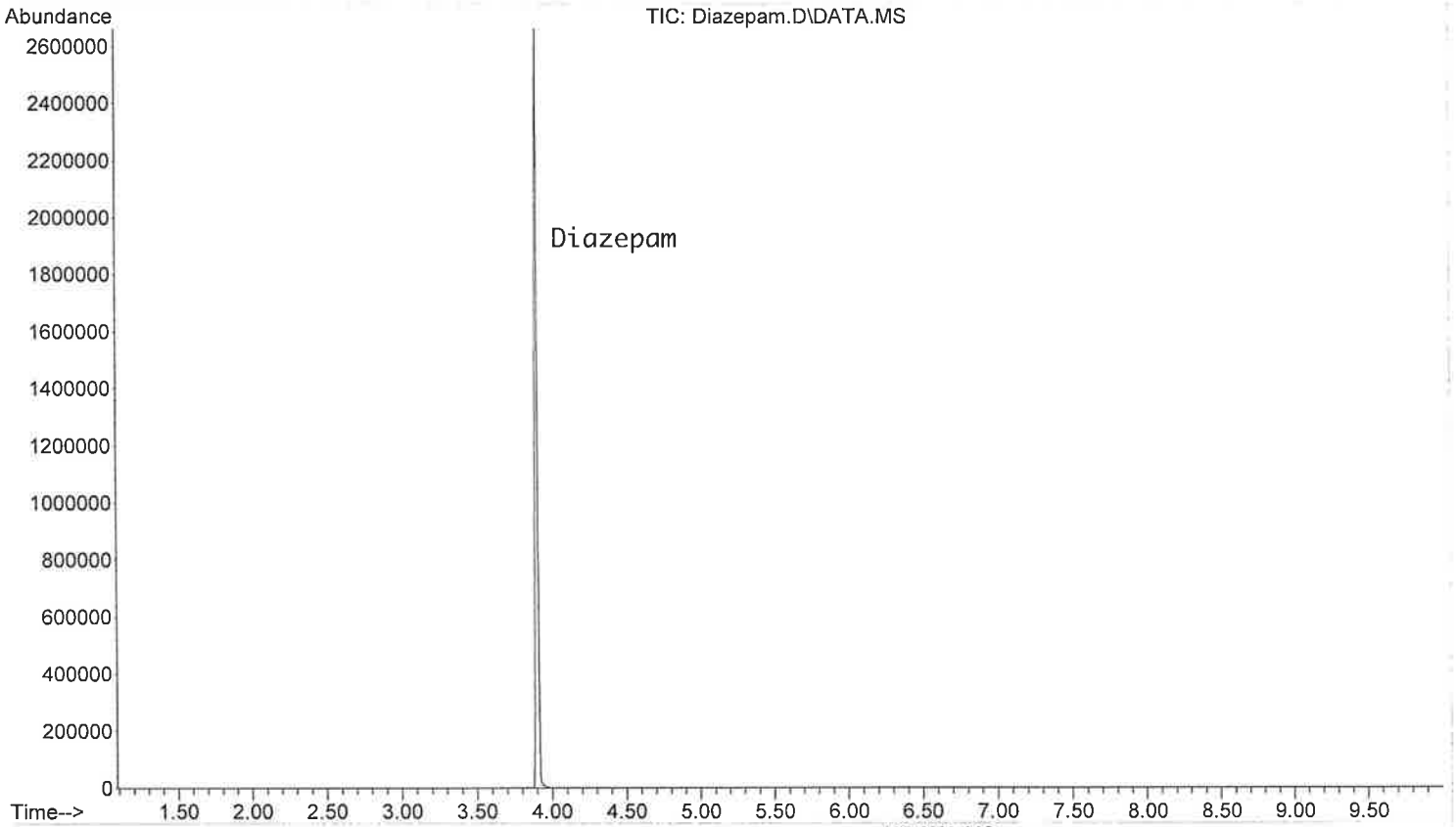


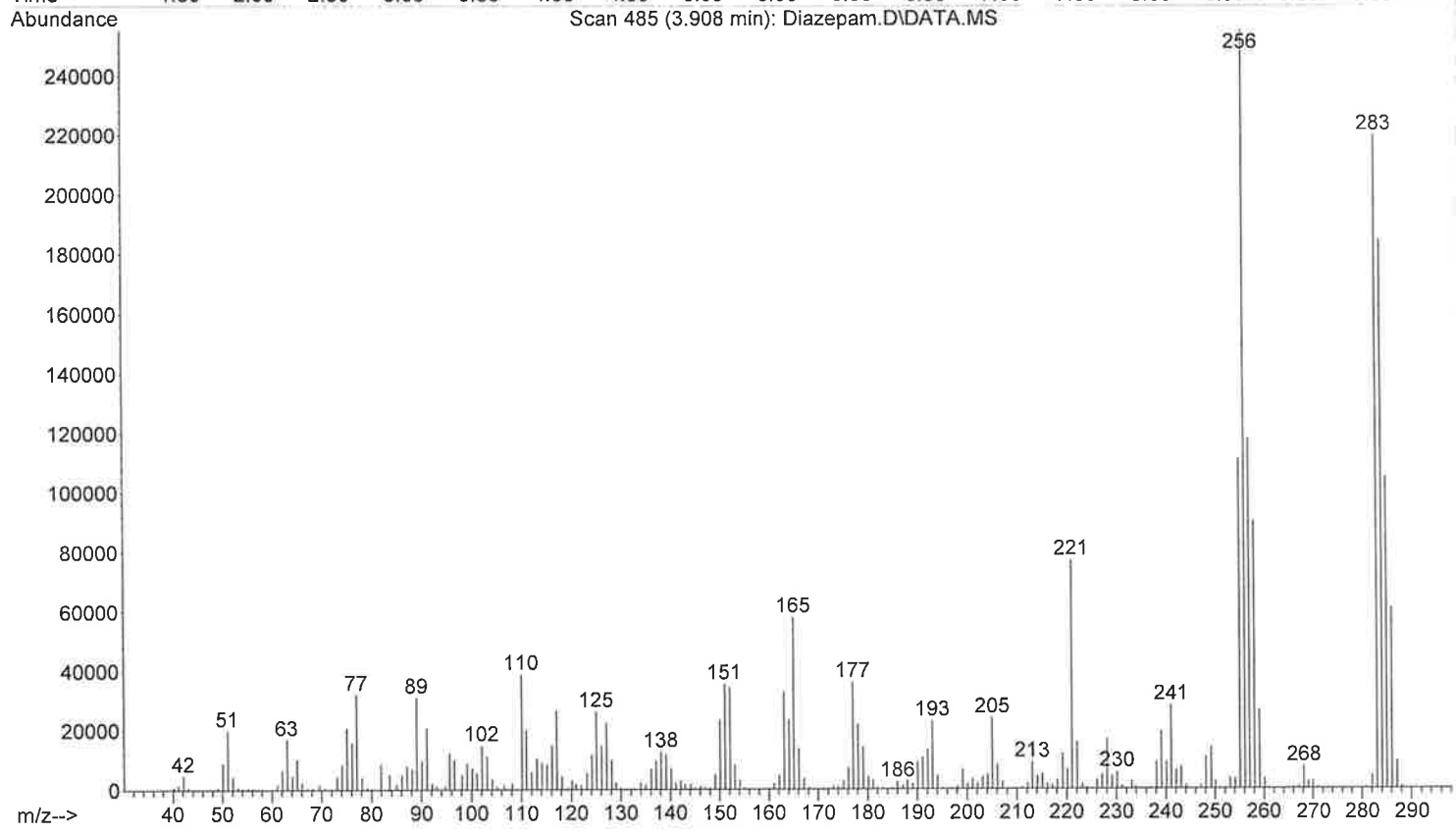
File :D:\Data\Standards\Diazepam.D
Operator : Nashville Lab
Acquired : 20 Jan 2011 11:29 using AcqMethod ASMSDRUGS.M
Instrument : Eggroll
Sample Name: Sigma Lot 105F0451 (4)
Misc Info : MeOH
Vial Number: 5



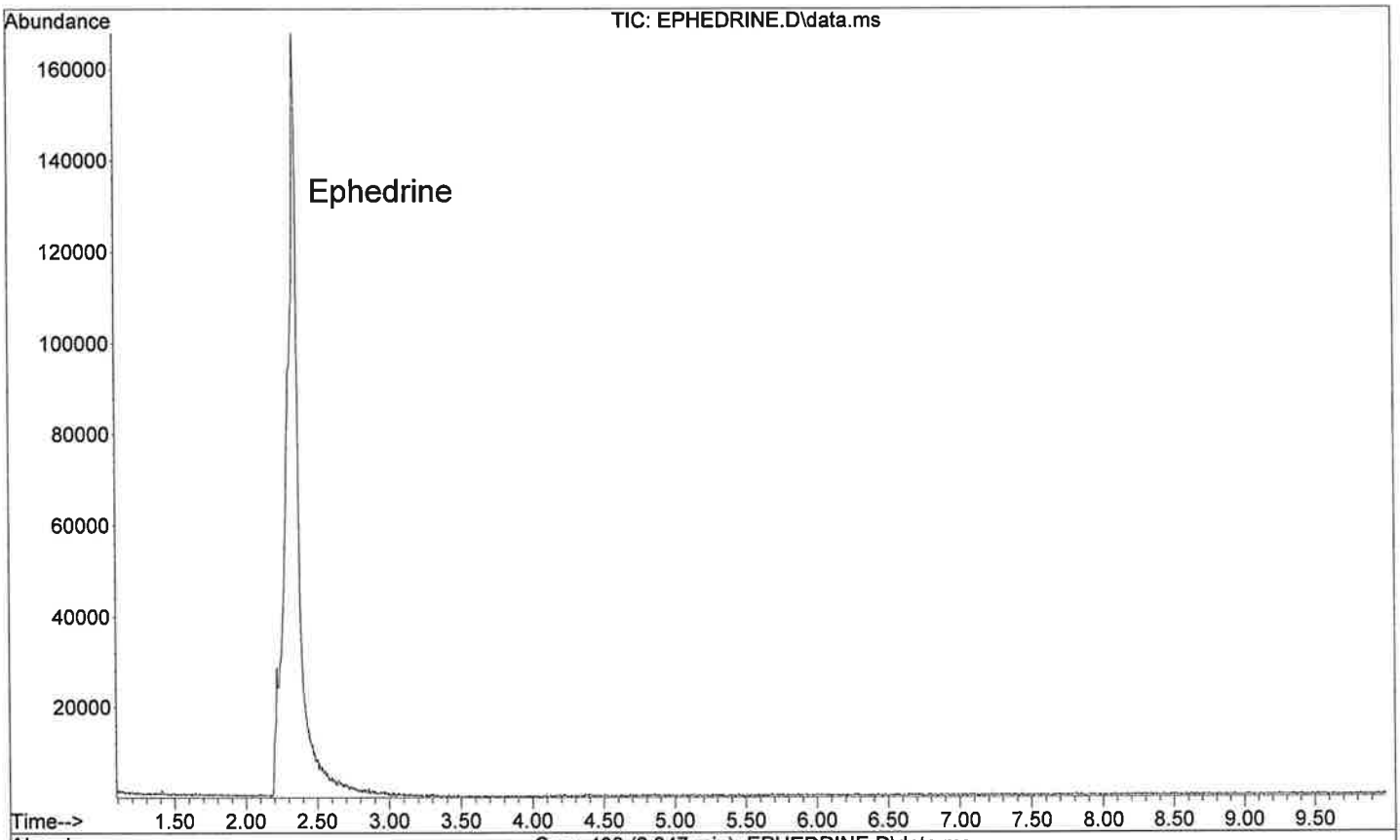


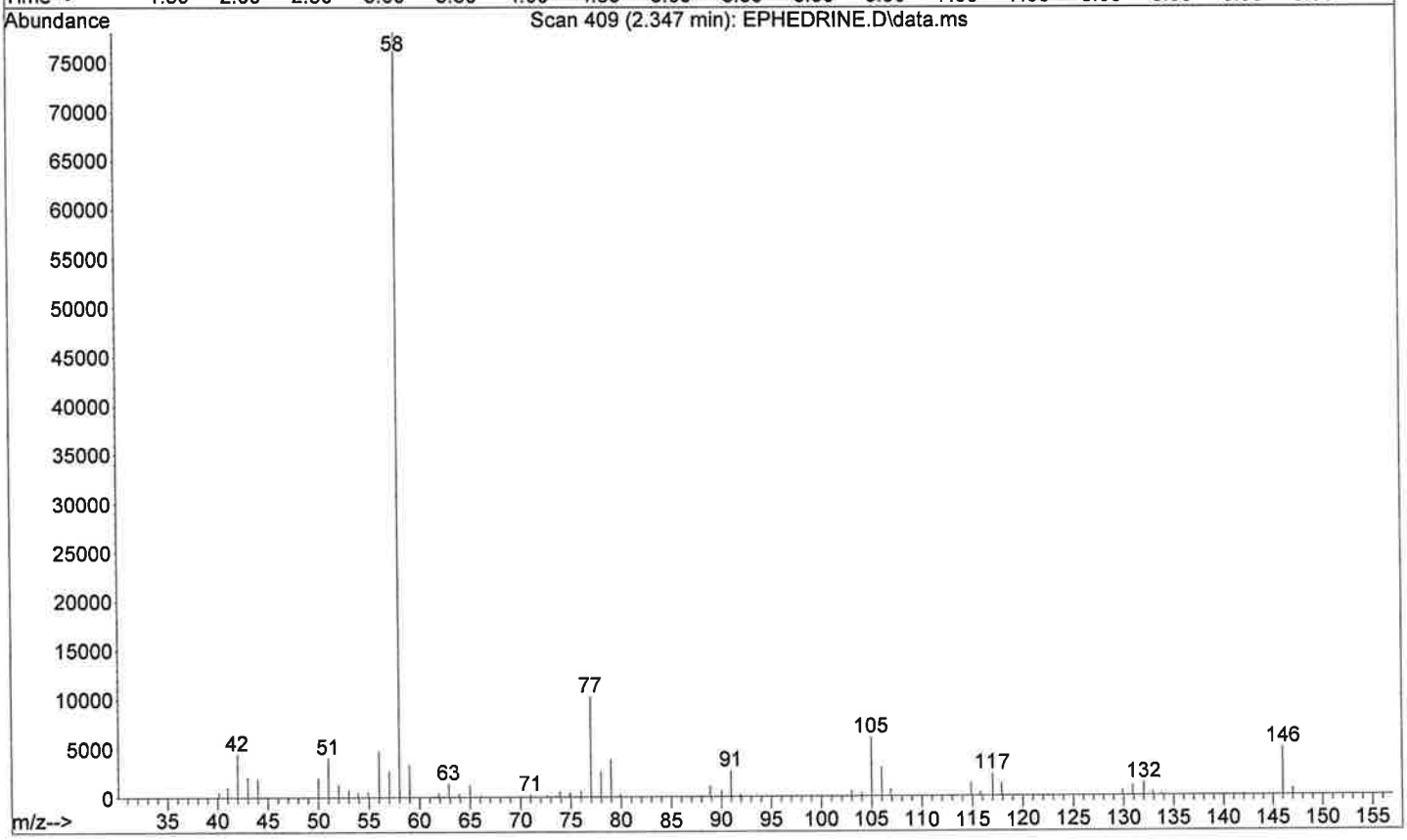
File :D:\JLS\SEQUEN\Diazepam.D
Operator : NASHVILLE LAB
Acquired : 3 Feb 2011 17:06 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Sigma Lot 105F0451 (#)
Misc Info : MeOH
Vial Number: 4



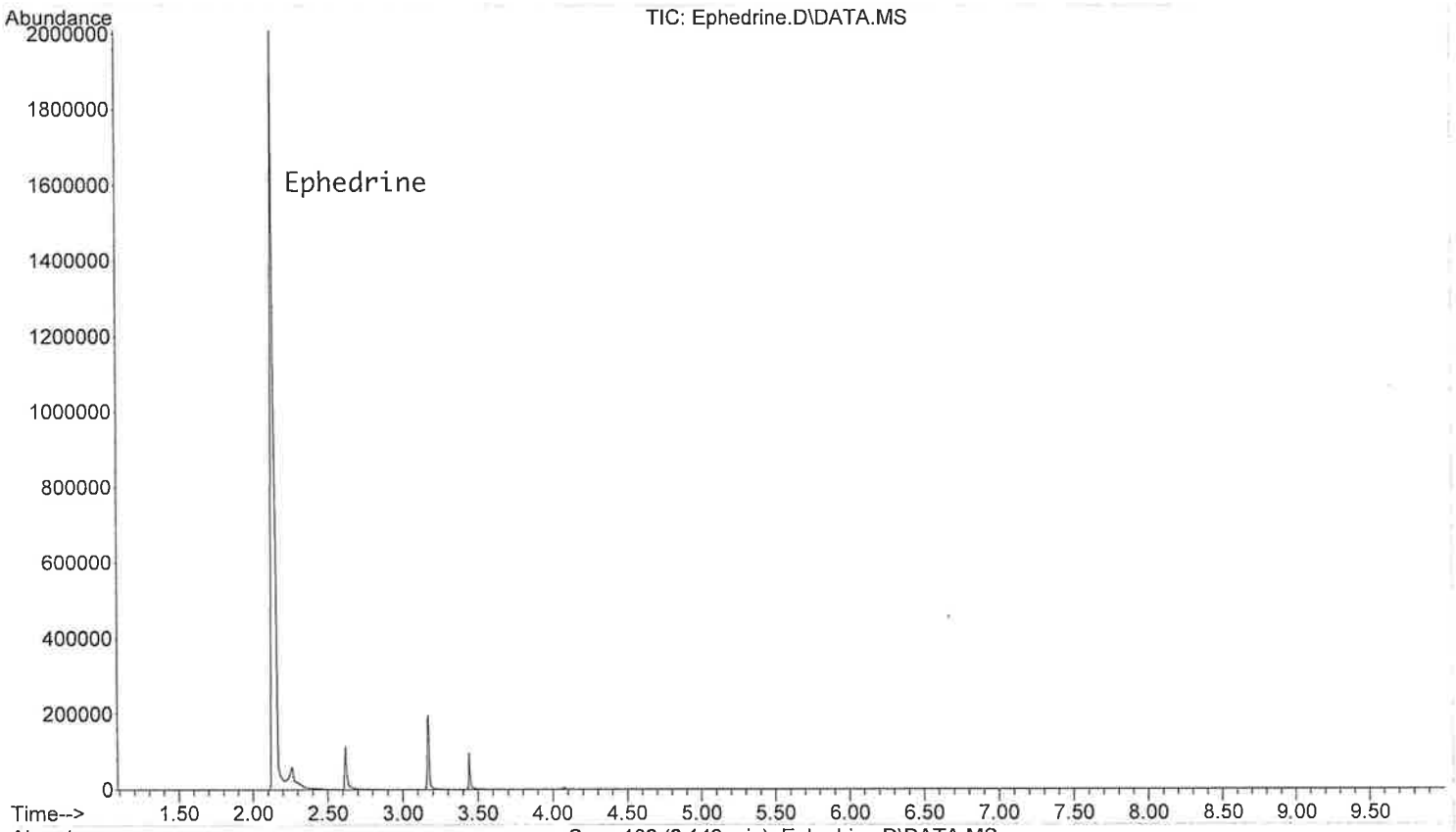


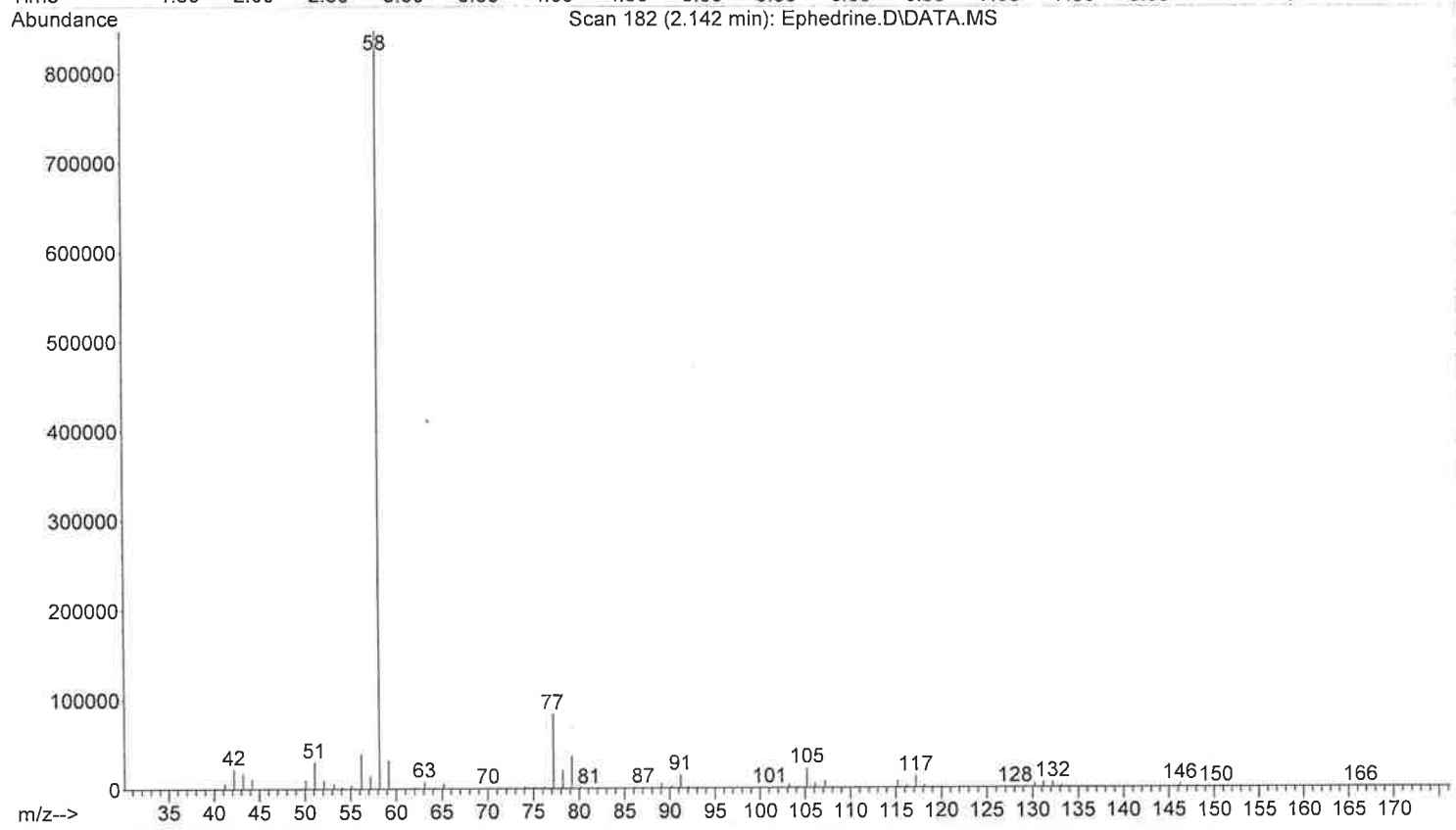
File :D:\Data\Standards\EPHEDRINE.D
Operator : John Scott, Jr.
Acquired : 21 Jan 2011 13:07 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Sigma Lot 74H3649 Bottle L #
Misc Info : MeOH
Vial Number: 1



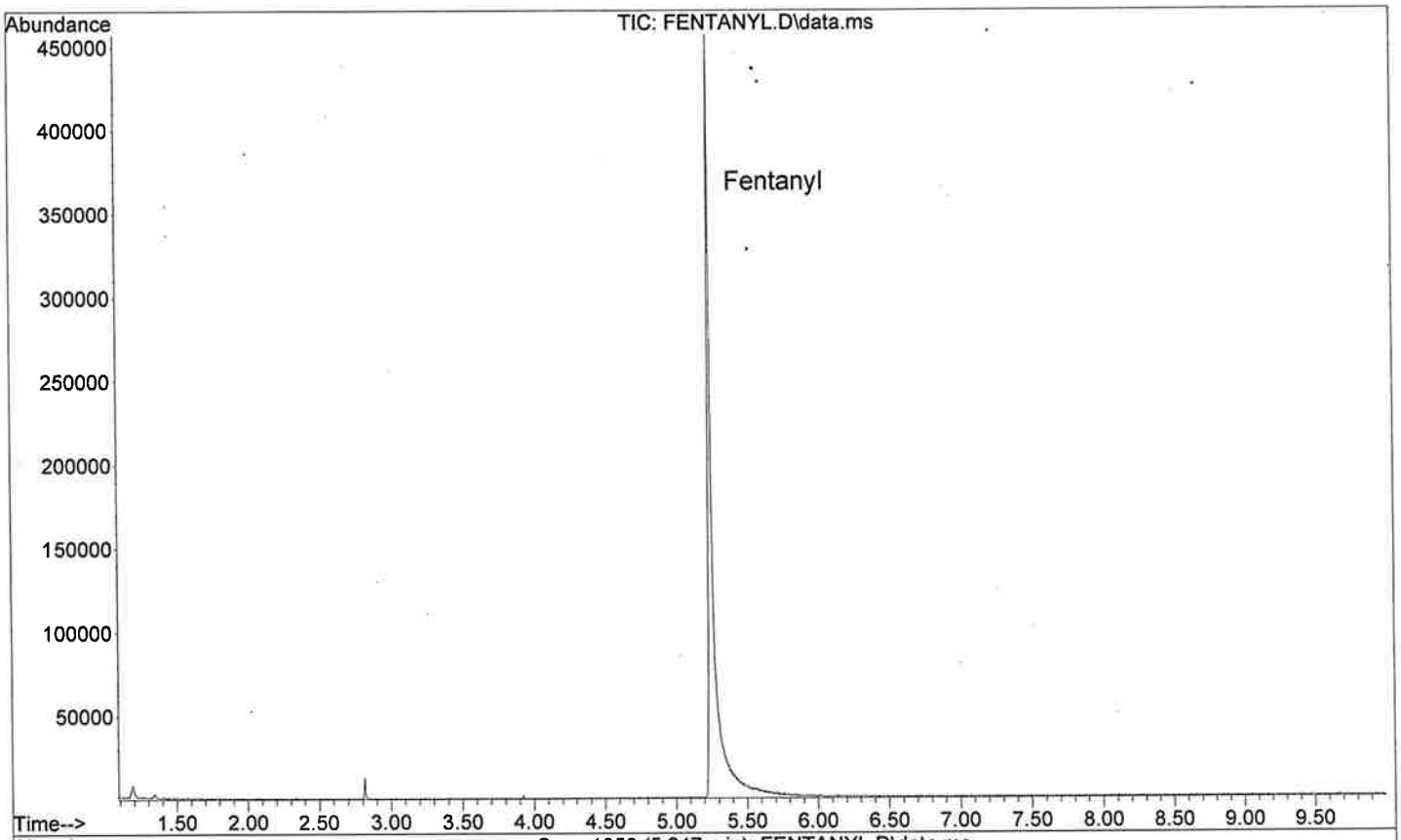


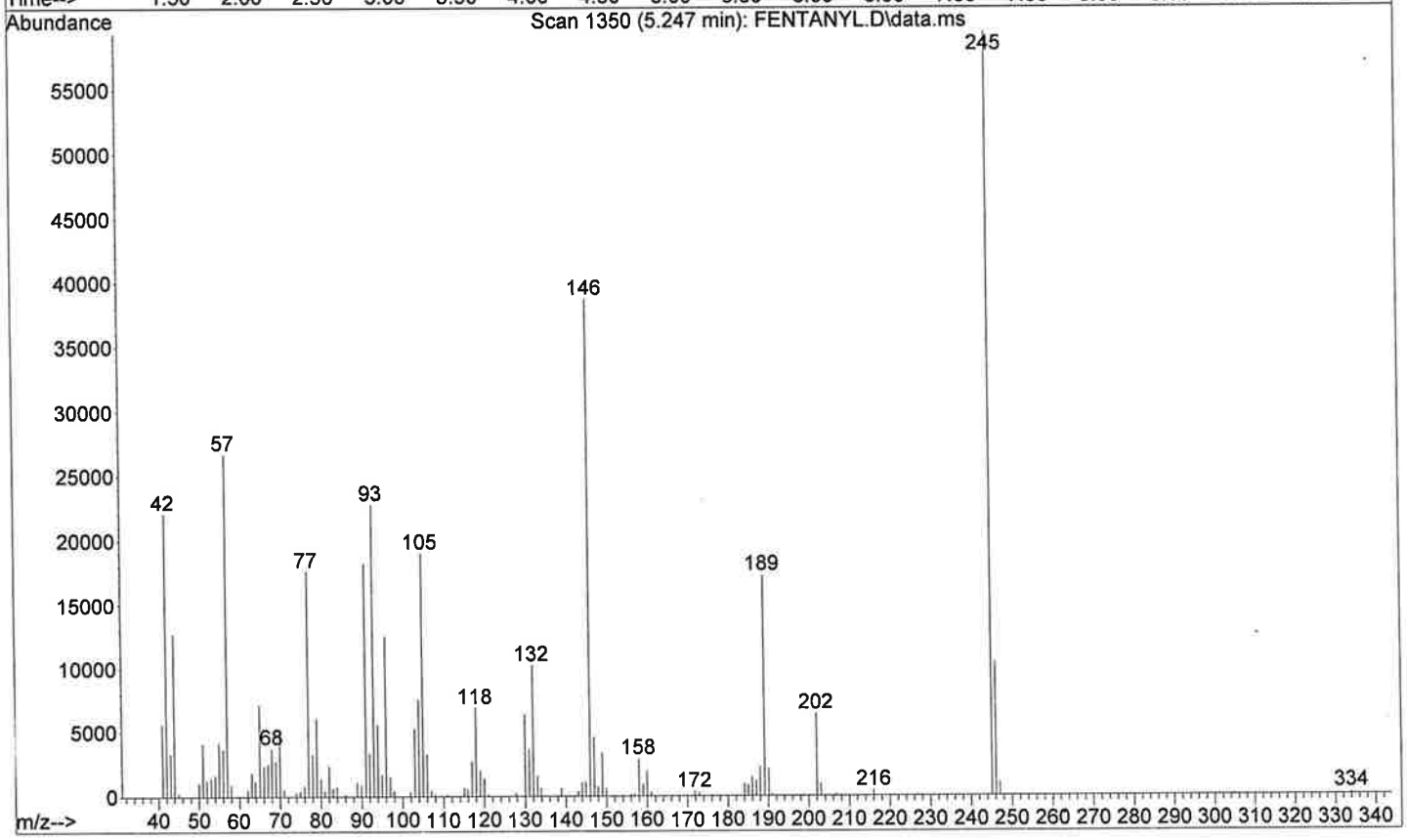
File :D:\JLS\SEQUEN\Ephedrine.D
Operator : NASHVILLE LAB
Acquired : 4 Feb 2011 19:48 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Sigma Lot 74H3649 Bottle L (14)
Misc Info : MEOH
Vial Number: 12



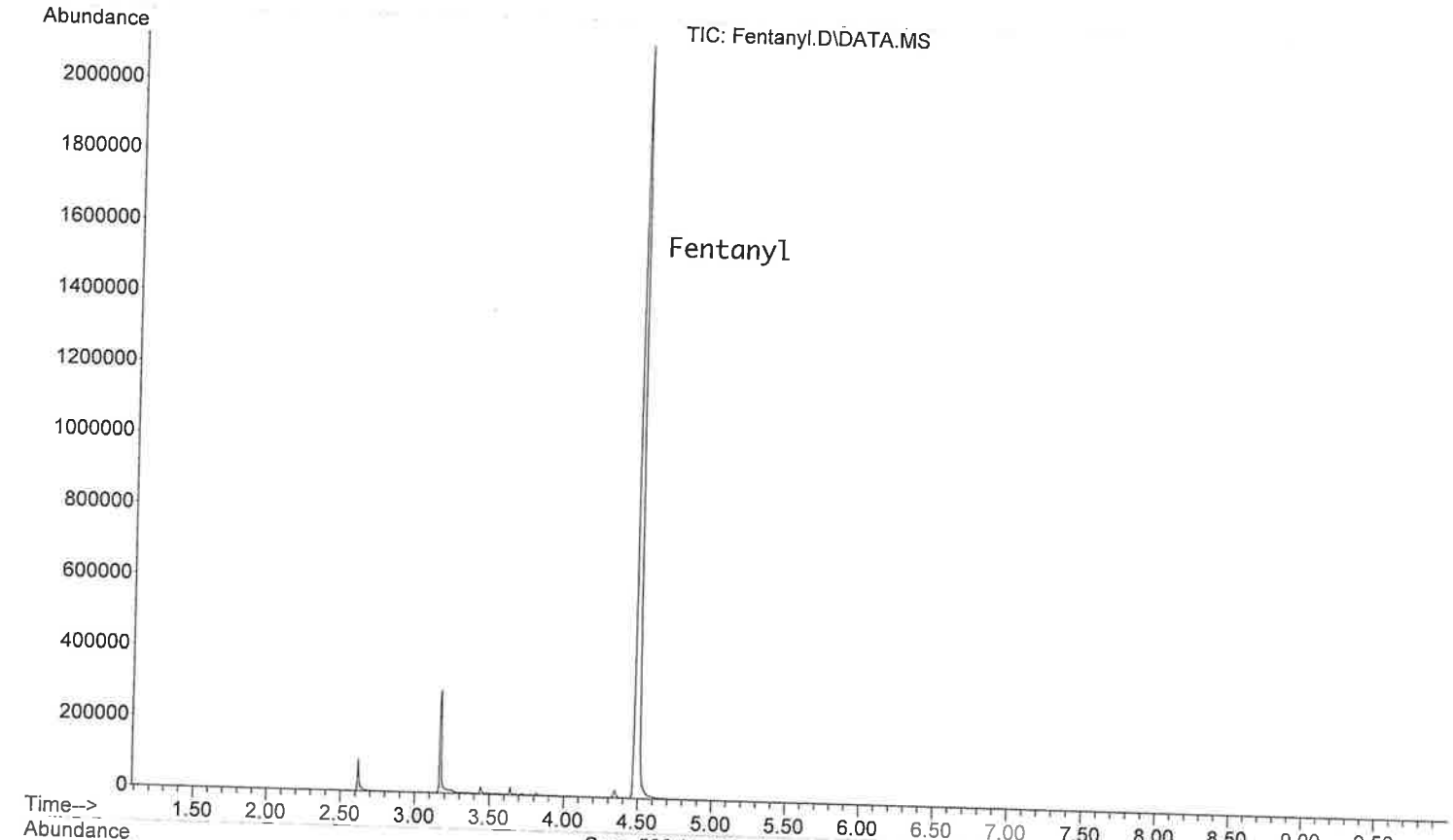


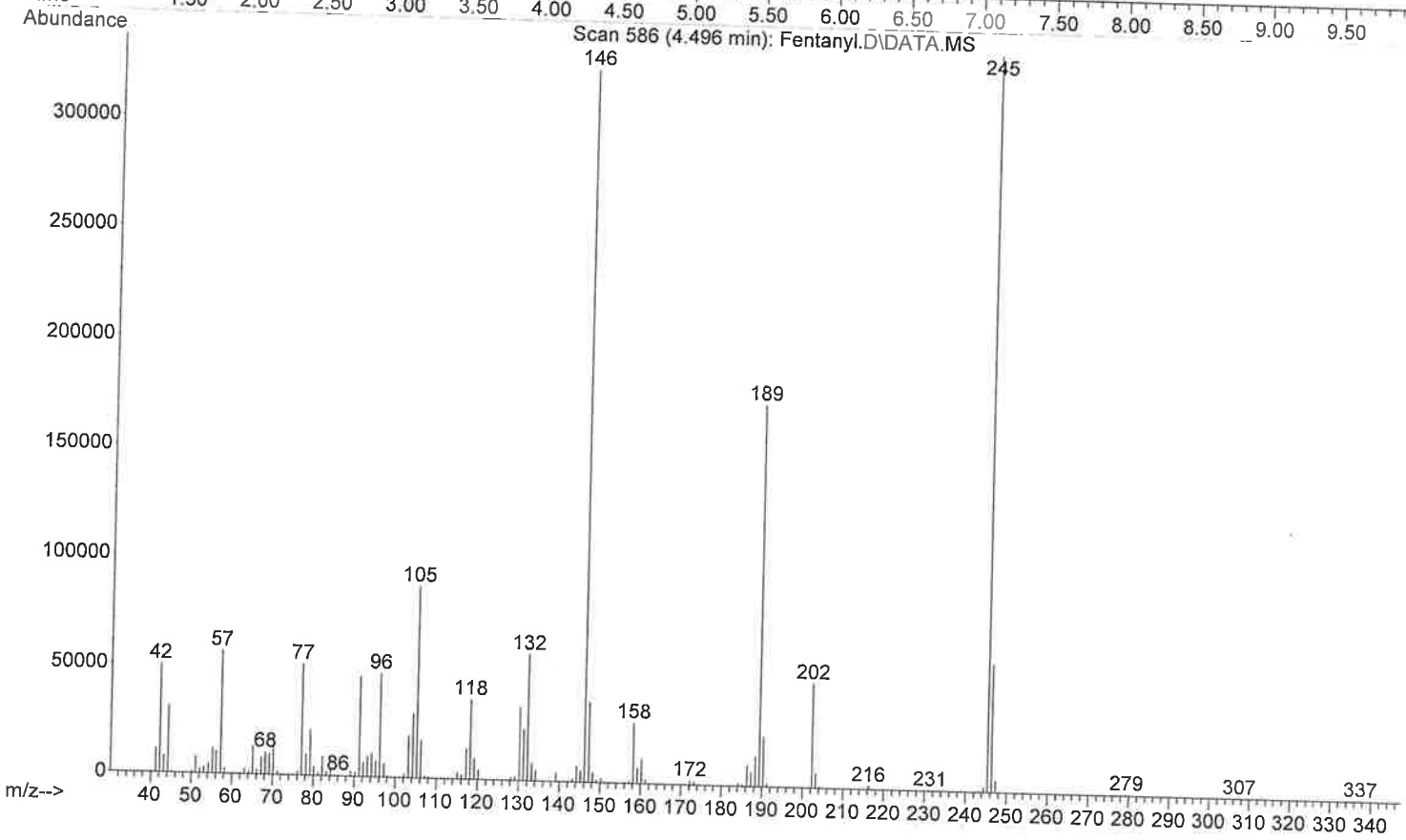
File : D:\Data\Standards\FENTANYL.D
Operator : John Scott, Jr.
Acquired : 19 Jan 2011 2:01 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: USPC Lot 1275-F (44)
Misc Info : MeOH
Vial Number: 1



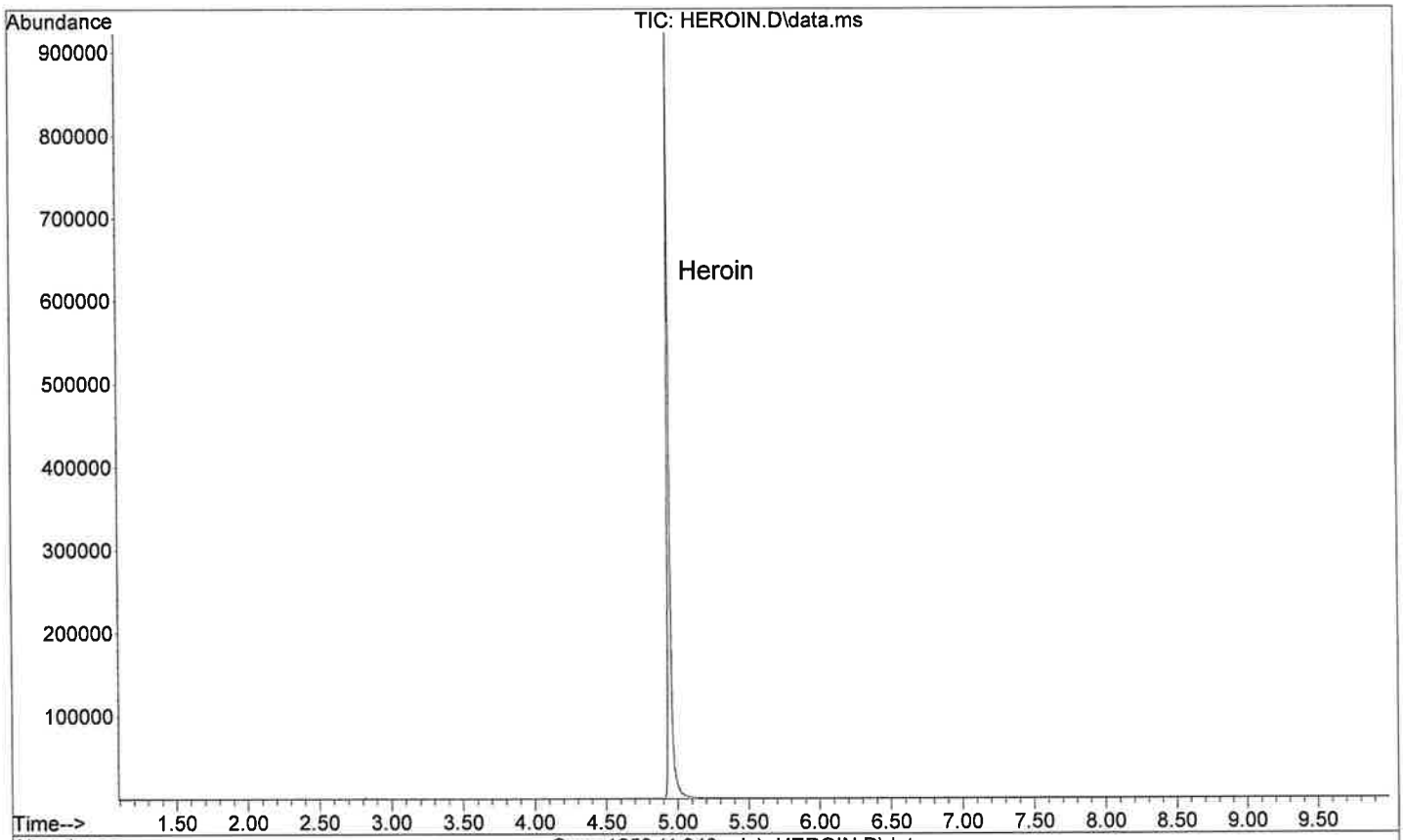


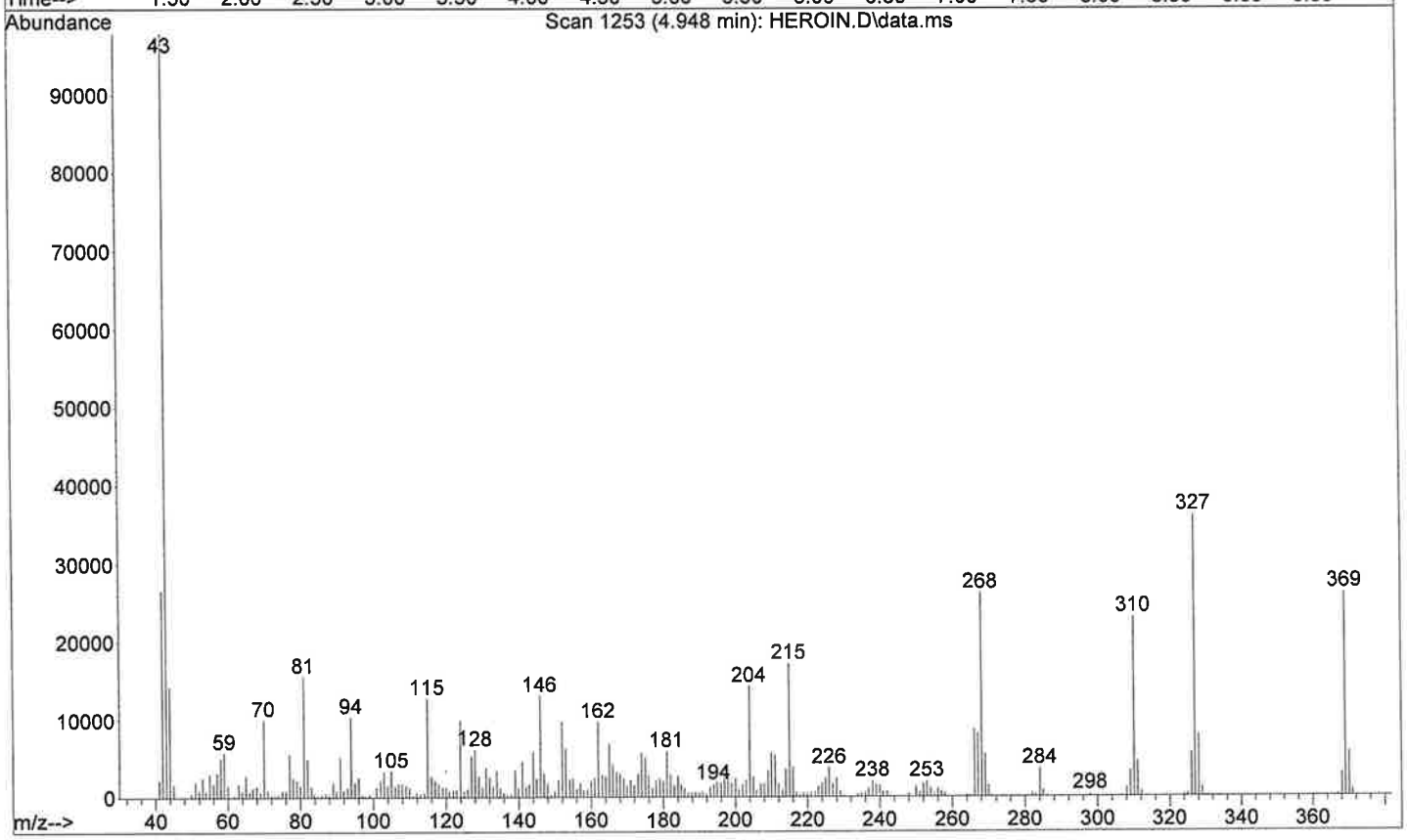
File :D:\JLS\SEQUEN\Fentanyl.D
Operator : NASHVILLE LAB
Acquired : 4 Feb 2011 18:24 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: USPC Lot 1275-F (2)
Misc Info : MEOH
Vial Number: 9



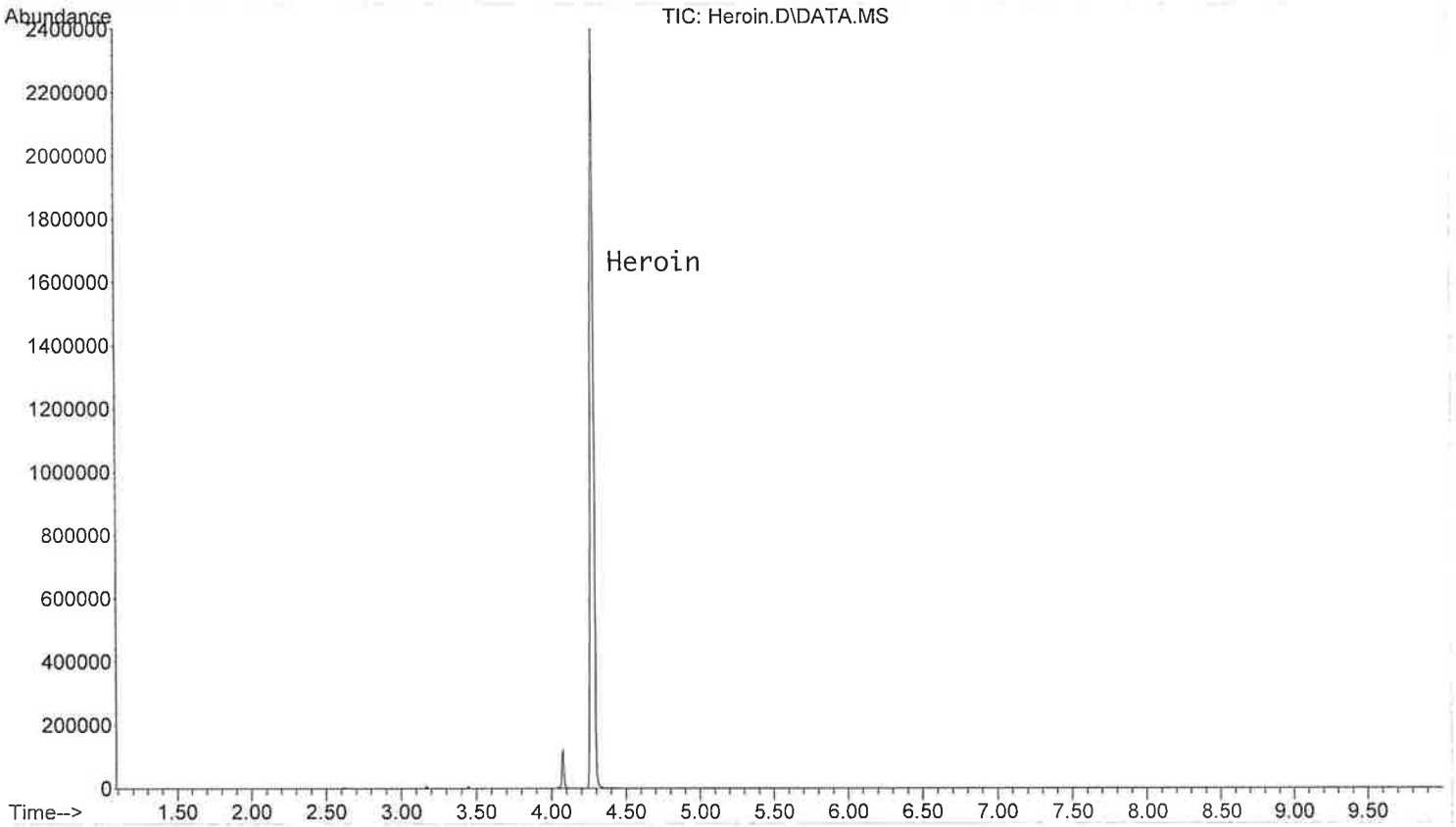


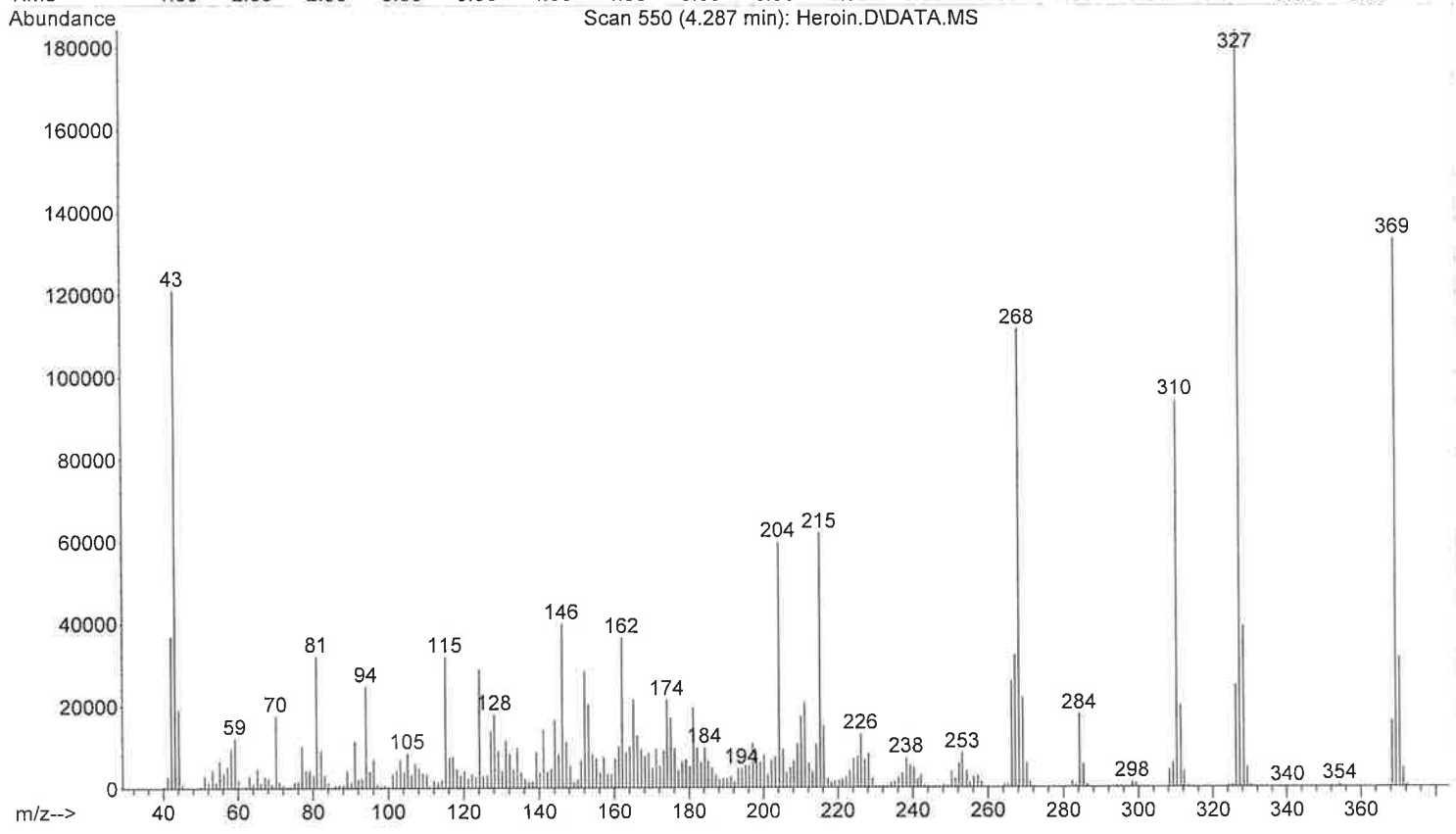
File :D:\Data\Standards\HEROIN.D
Operator : John Scott, Jr.
Acquired : 19 Jan 2011 1:37 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Alltech Lot 308 Bottle B (4)
Misc Info : MeOH
Vial Number: 1



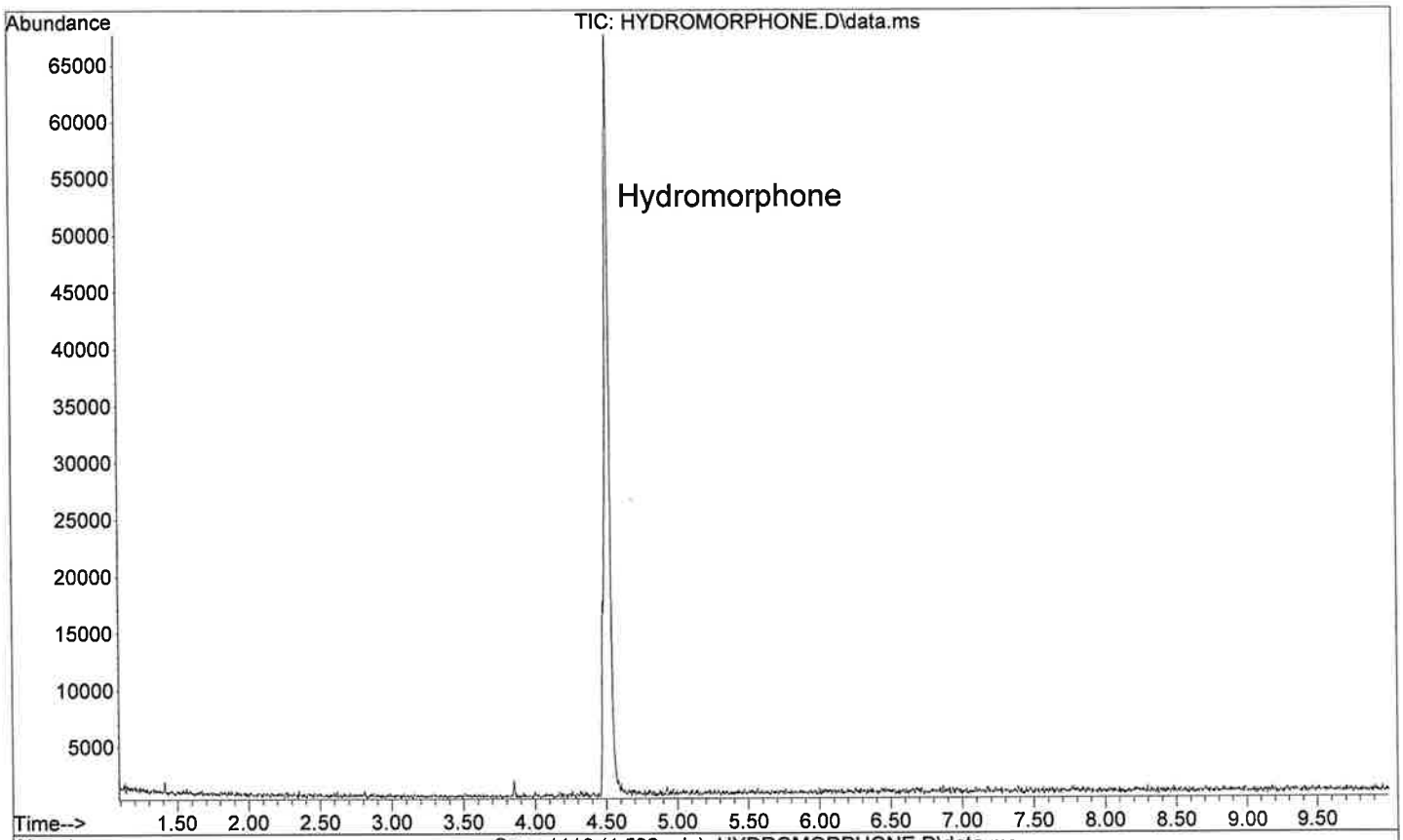


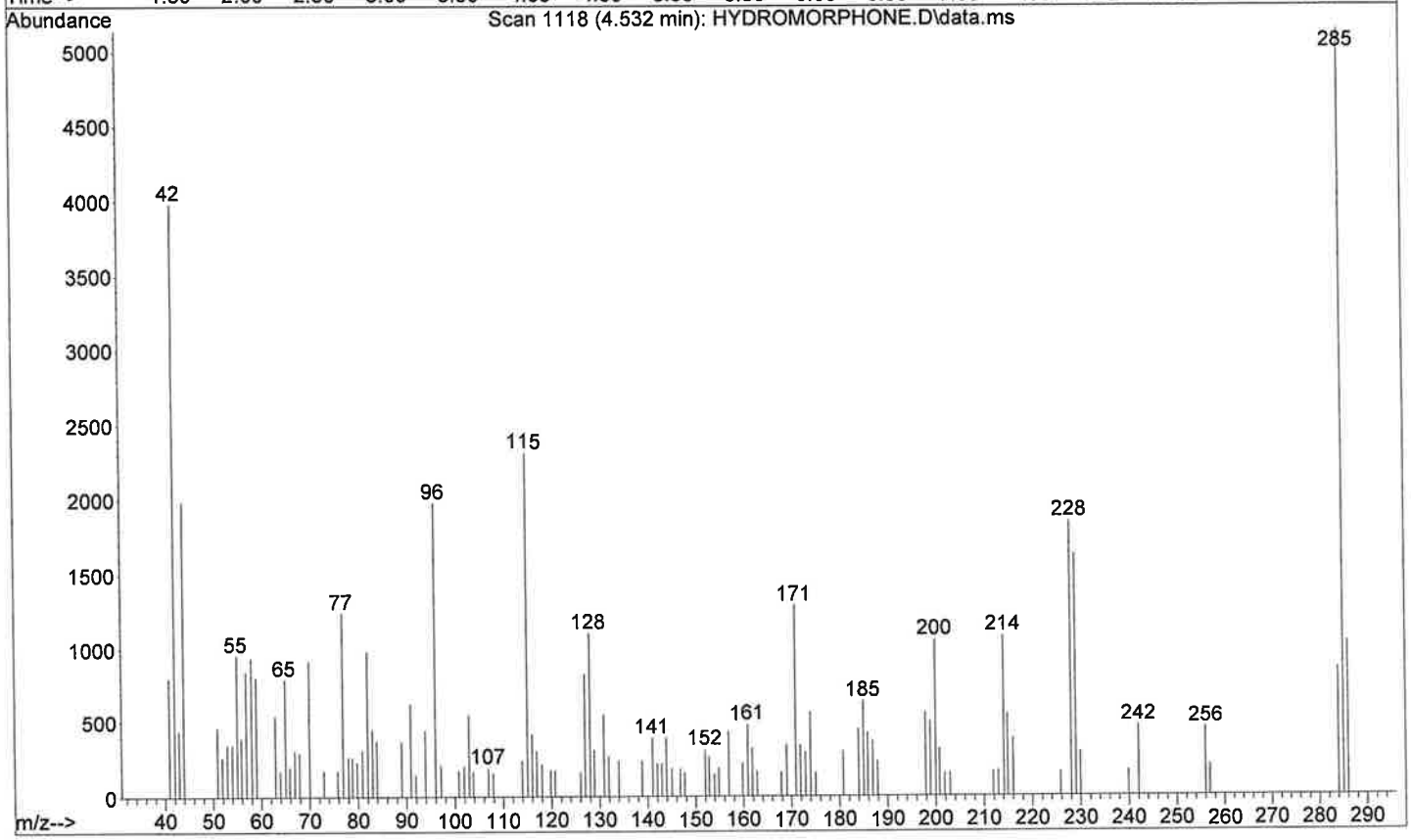
File :D:\JLS\SEQUEN\Heroin.D
Operator : NASHVILLE LAB
Acquired : 4 Feb 2011 21:12 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Alltech Lot 308 Bottle B (4)
Misc Info : MEOH
Vial Number: 15



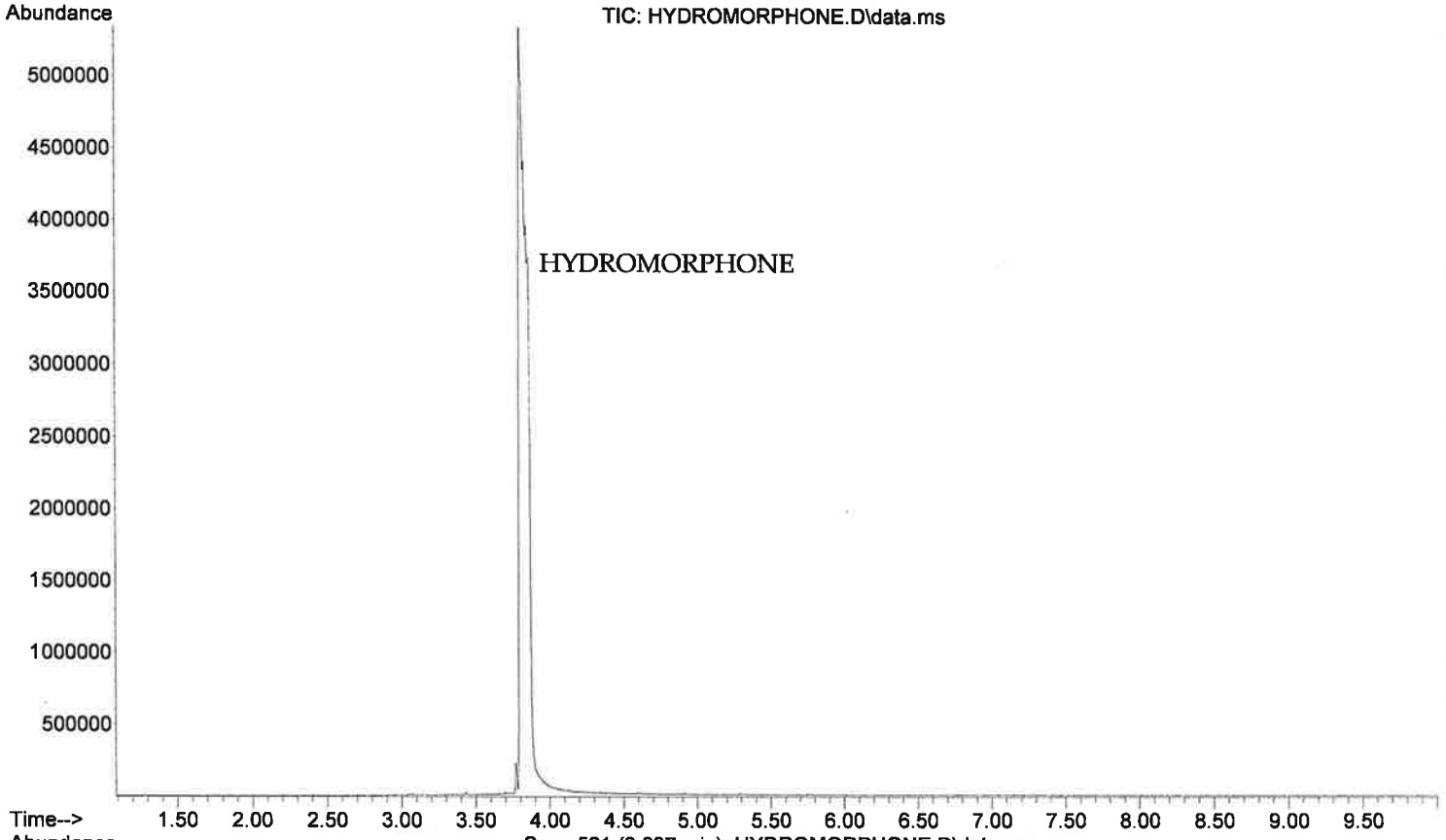


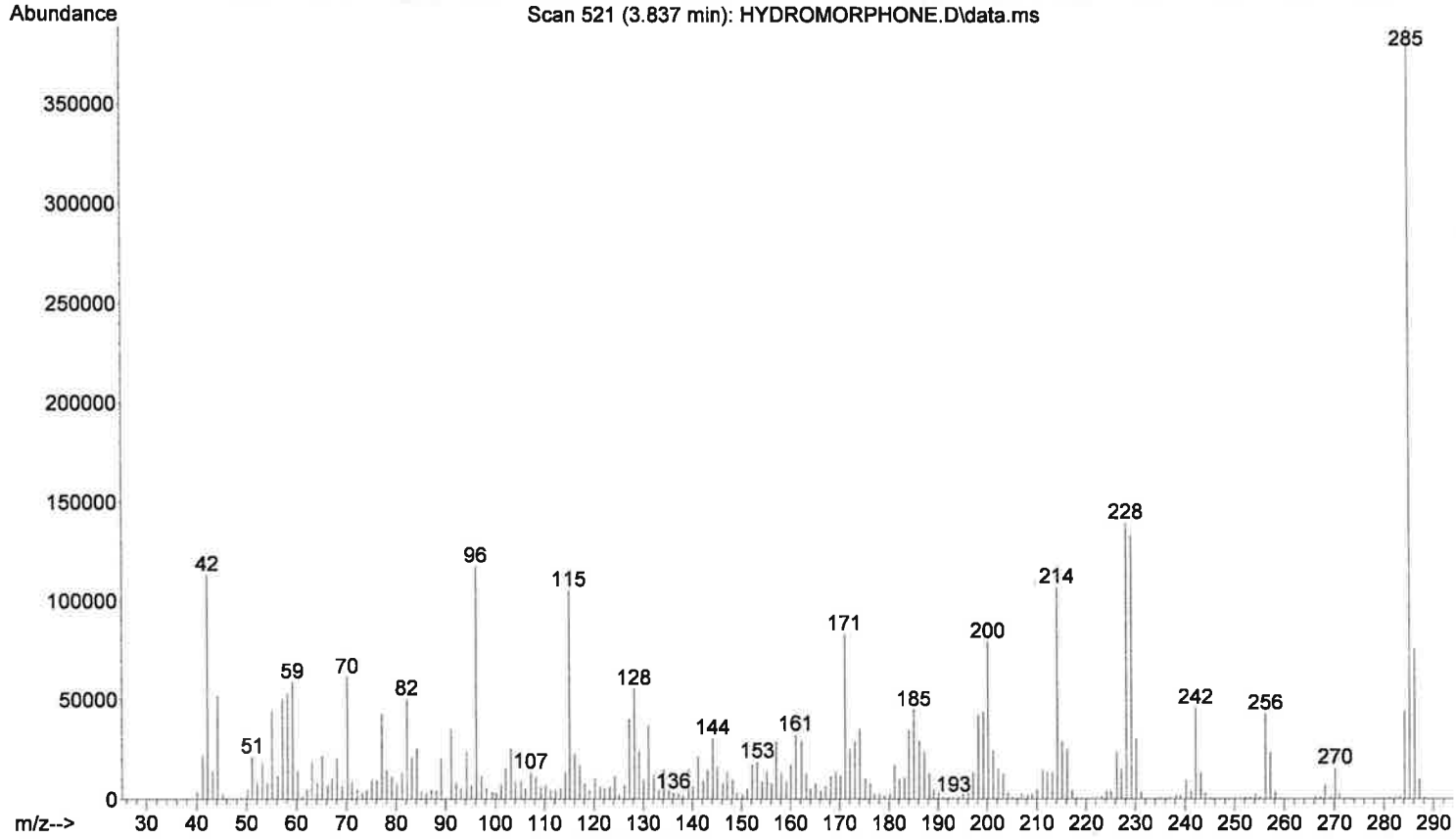
File :D:\Data\Standards\HYDROMORPHONE.D
Operator : John Scott, Jr.
Acquired : 19 Jan 2011 3:22 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Sigma Lot 69H0625 Bottle H #2
Misc Info : MeOH
Vial Number: 1



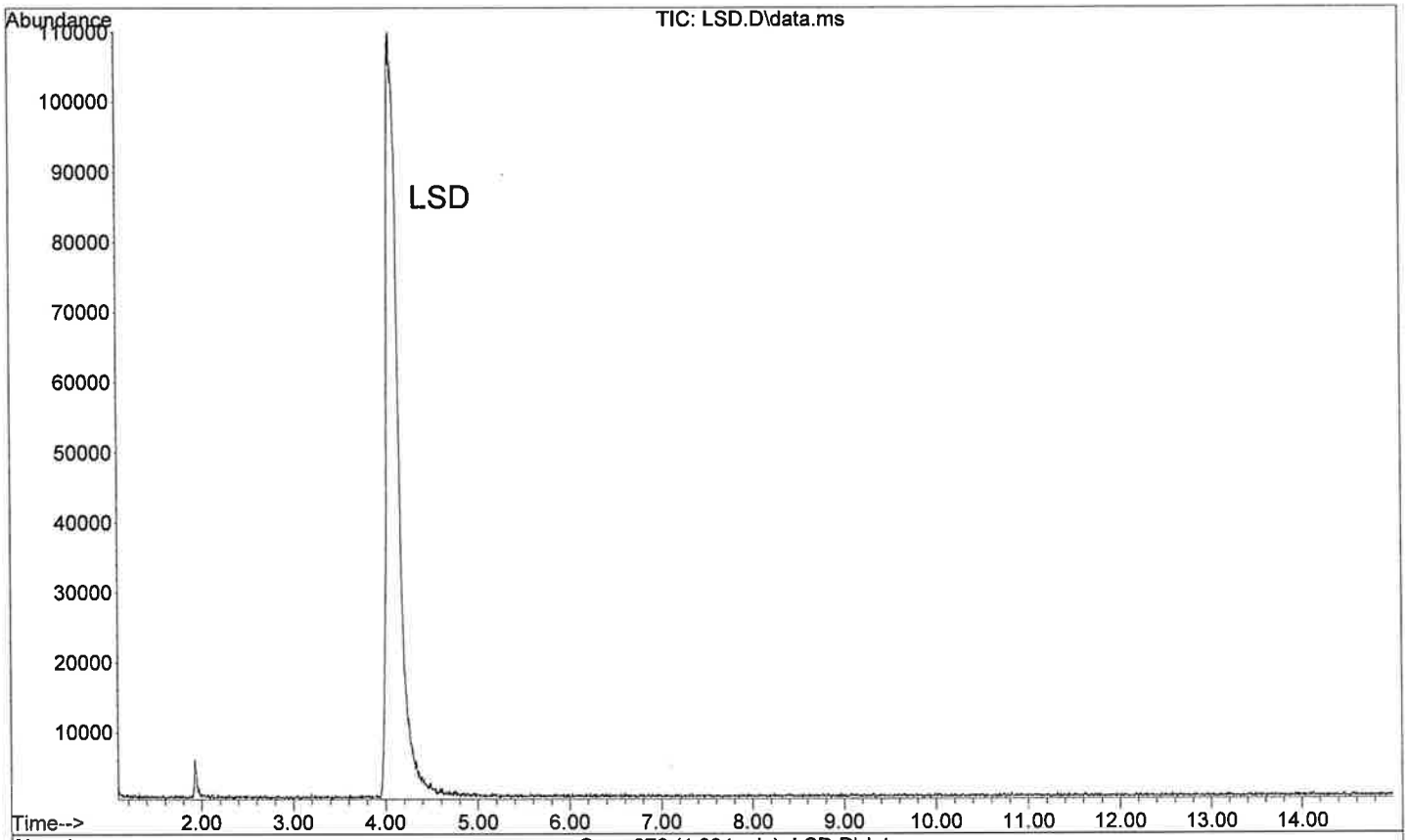


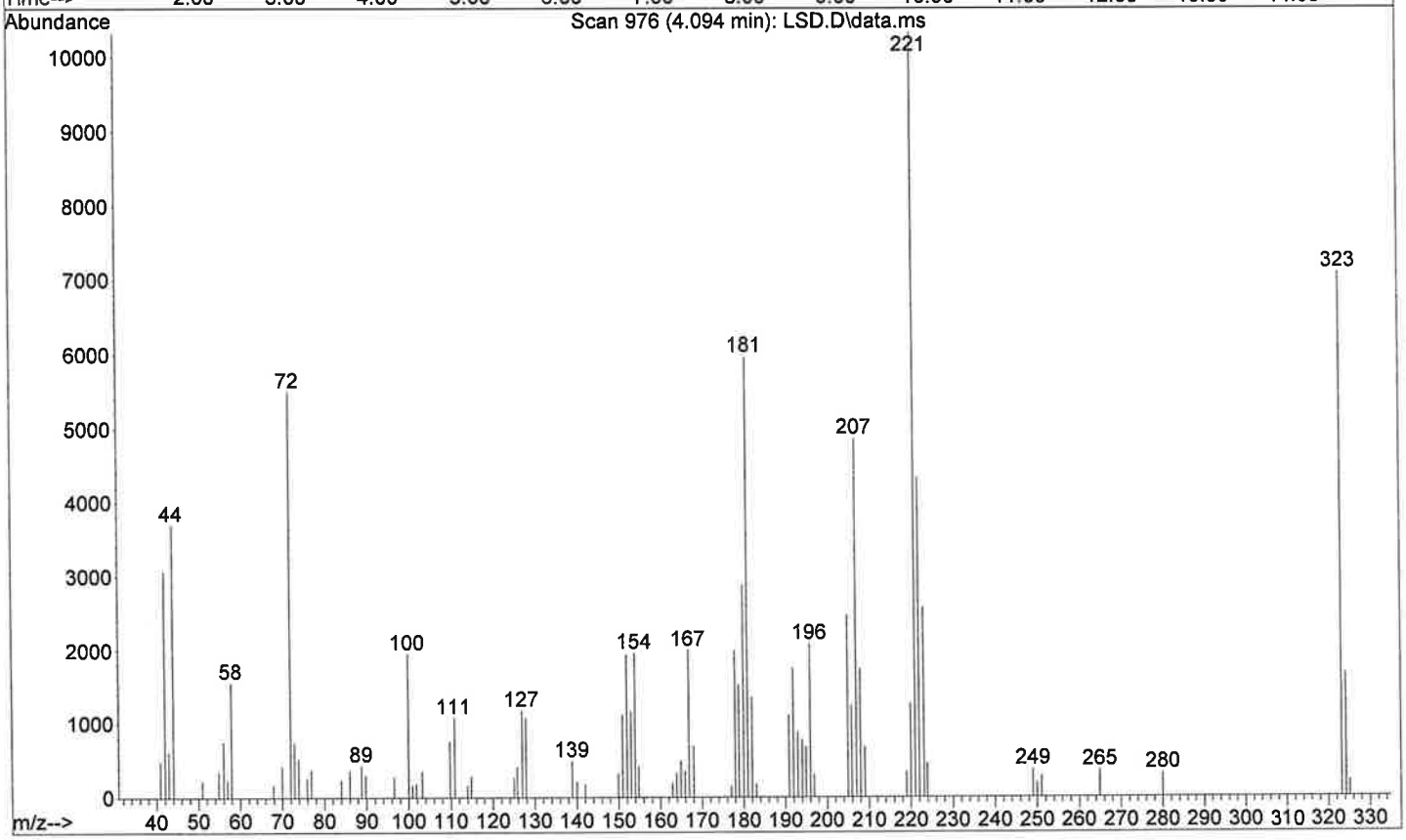
File :C:\msdchem\1\DATA\JLS\HYDROMORPHONE.D
Operator : JOHN SCOTT, JR.
Acquired : 7 Feb 2011 13:02 using AcqMethod MSDRUGS.M
Instrument : Espresso
Sample Name: Sigma Lot 69H0625 Bottle H @
Misc Info : MEOH
Vial Number: 1



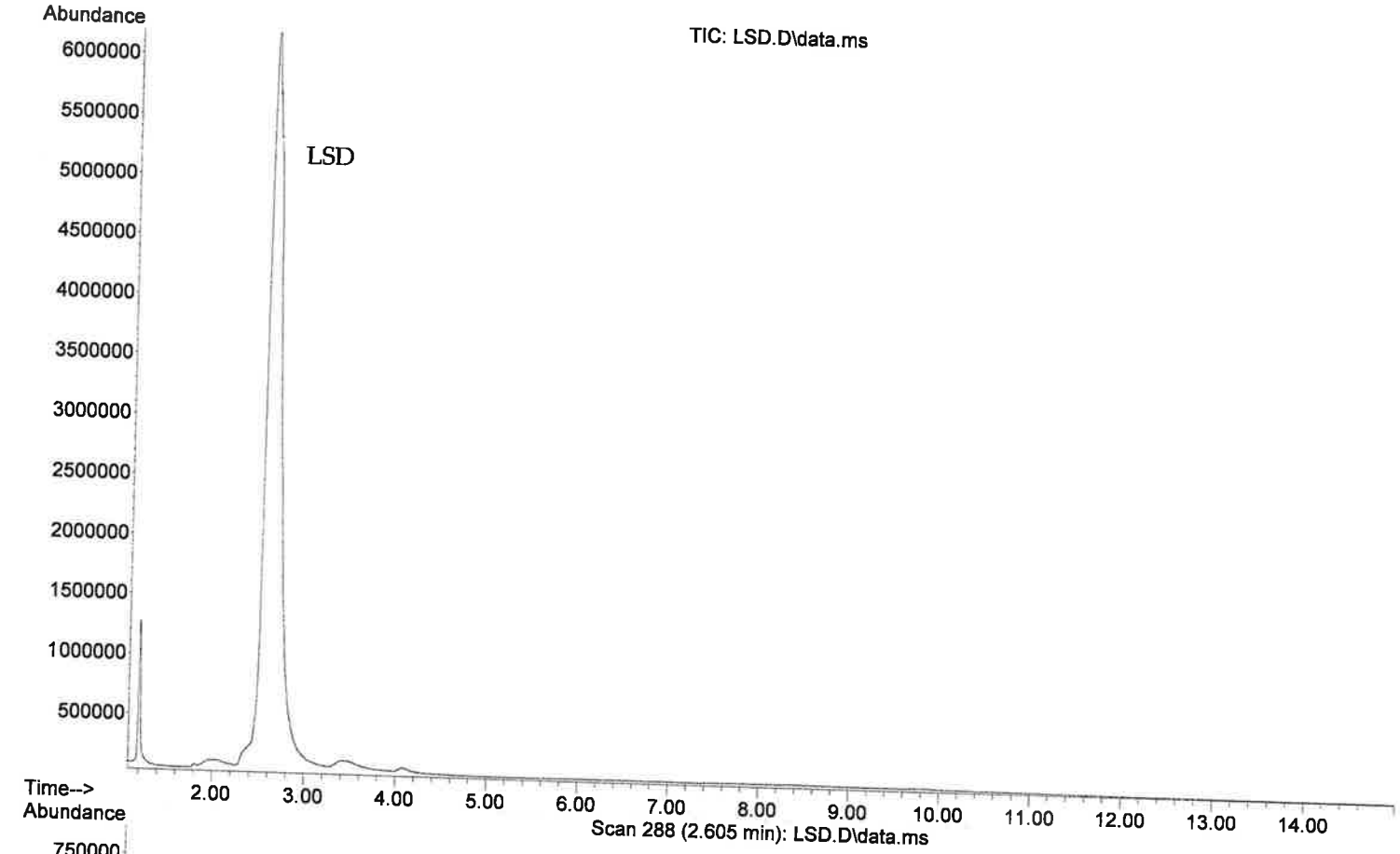


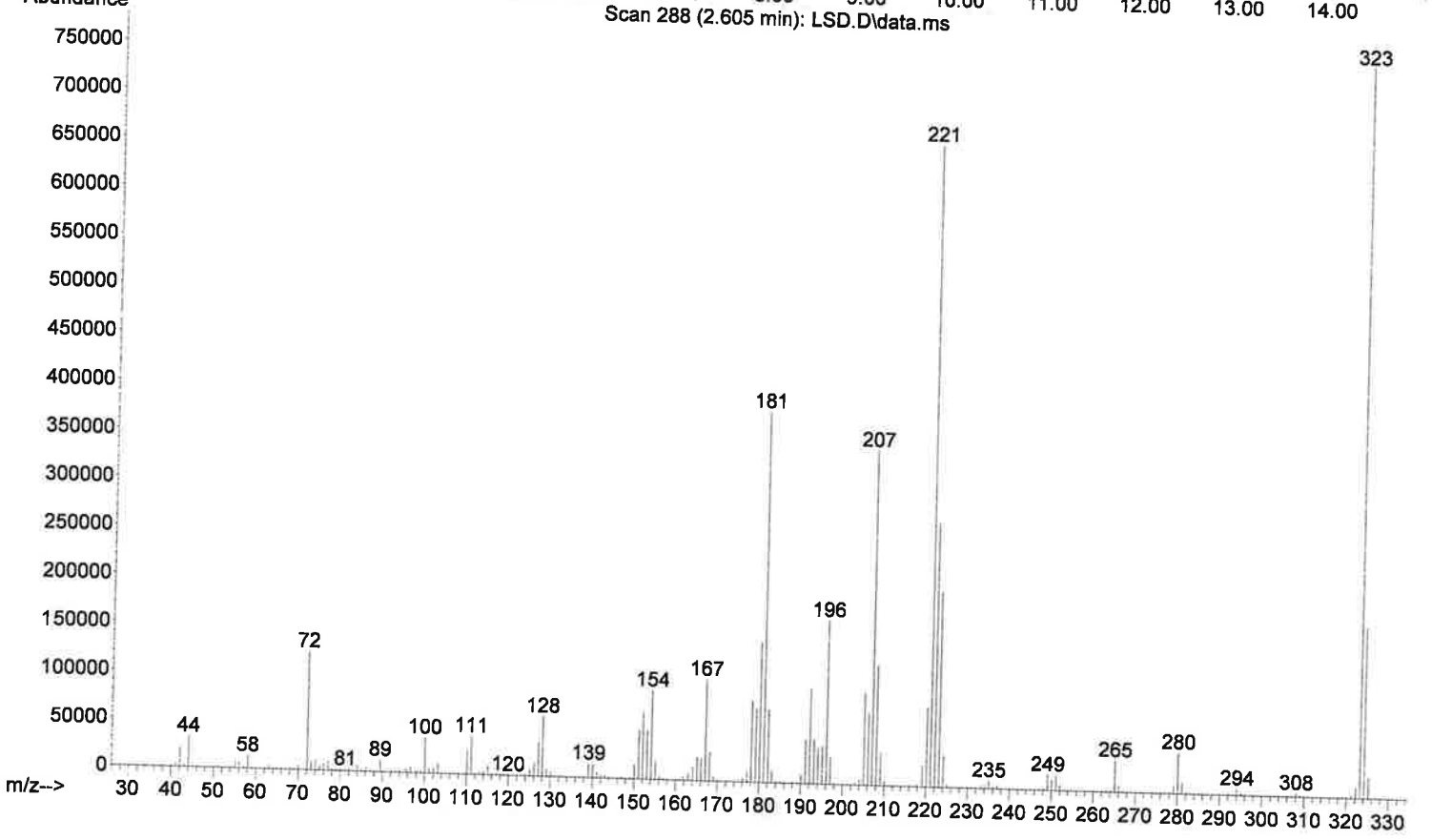
File :D:\Data\Standards\LSD.D
Operator : John Scott, Jr.
Acquired : 21 Jan 2011 10:50 using AcqMethod LSD.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FE092707-01
Misc Info : Acetonitrile
Vial Number: 1



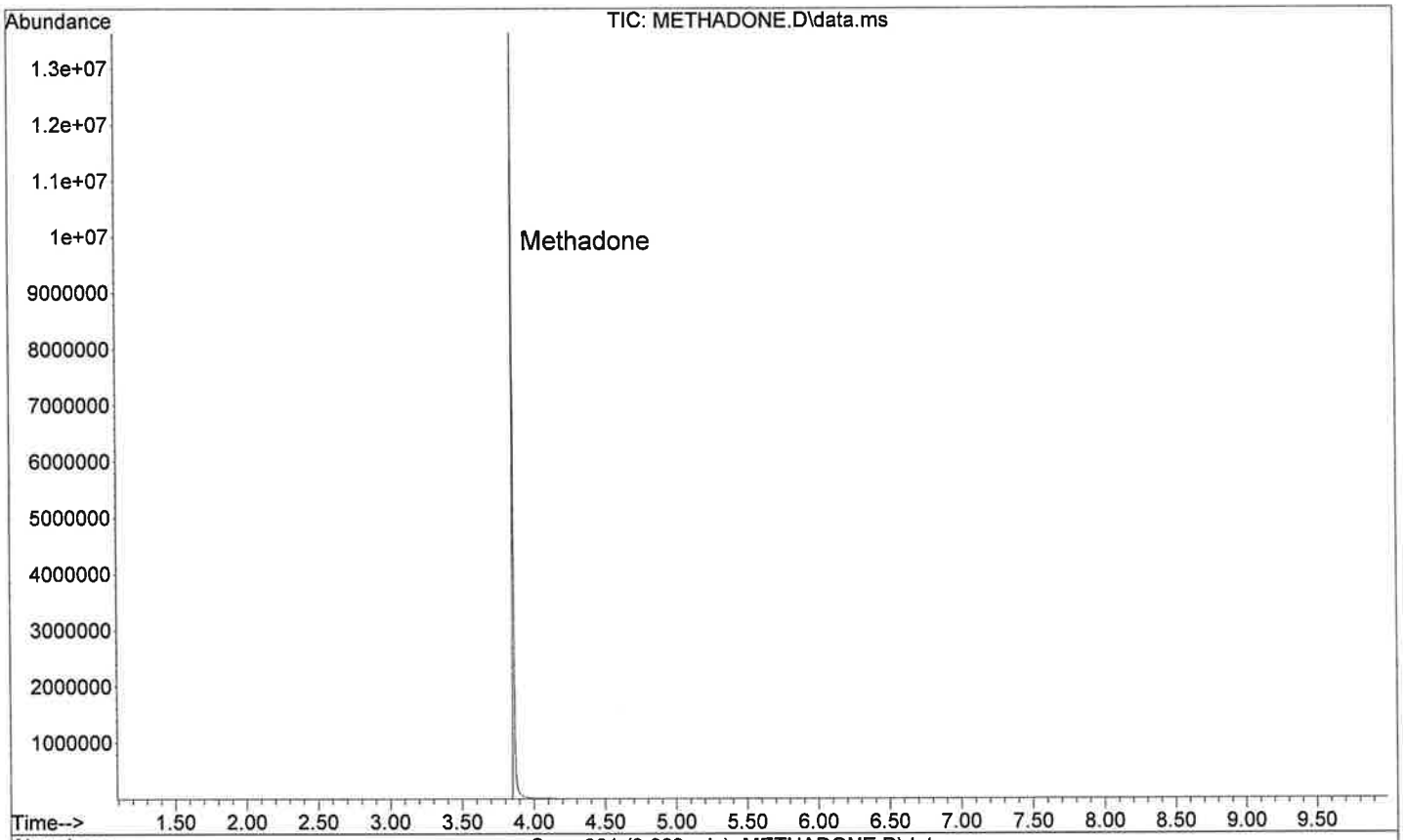


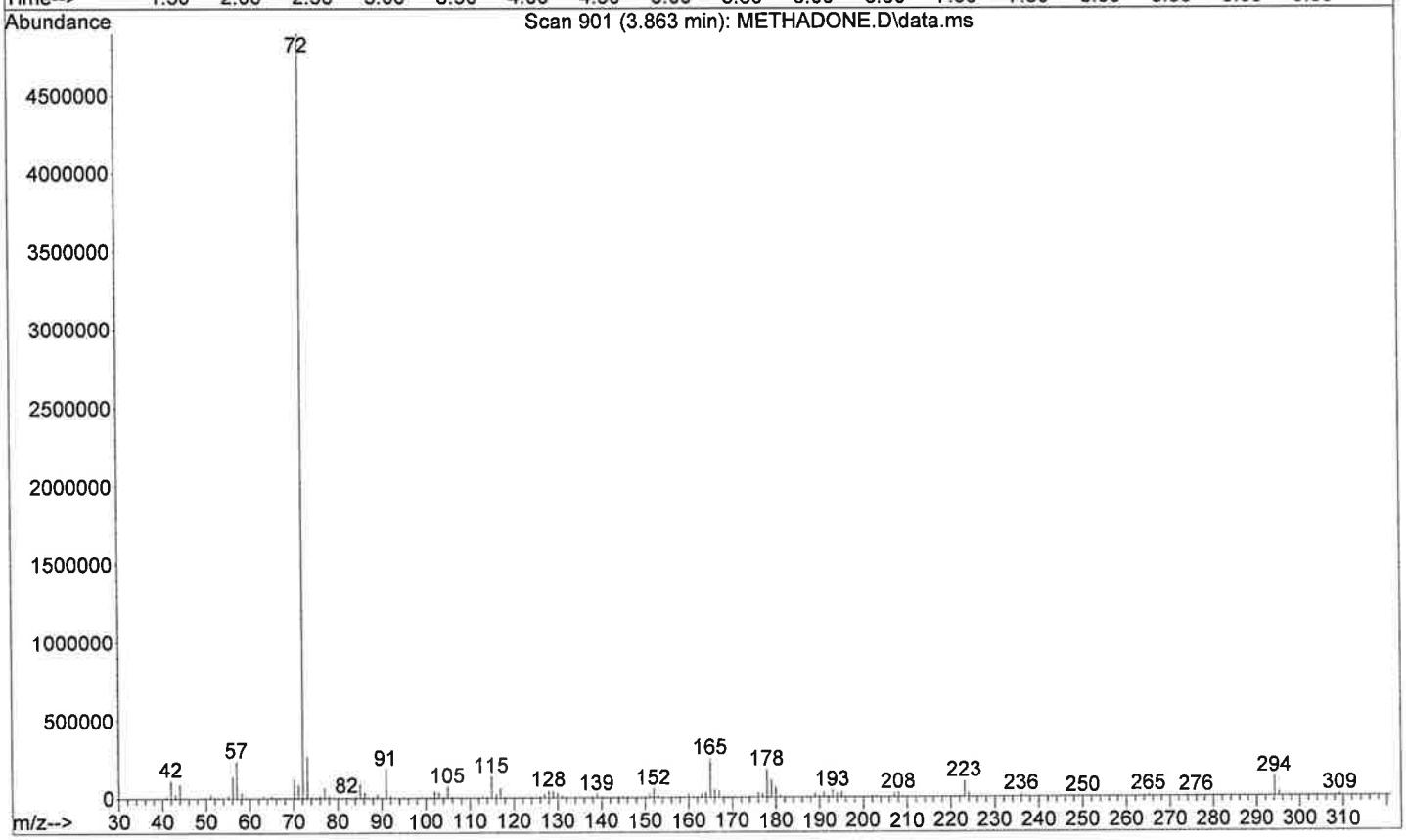
File :C:\msdchem\1\DATA\JLS\LSD.D
Operator : JOHN SCOTT, JR.
Acquired : 7 Feb 2011 14:17 using AcqMethod LSD.M
Instrument : Espresso
Sample Name: CERILLIANT LOT FE092707-01
Misc Info : MEOH
Vial Number: 1



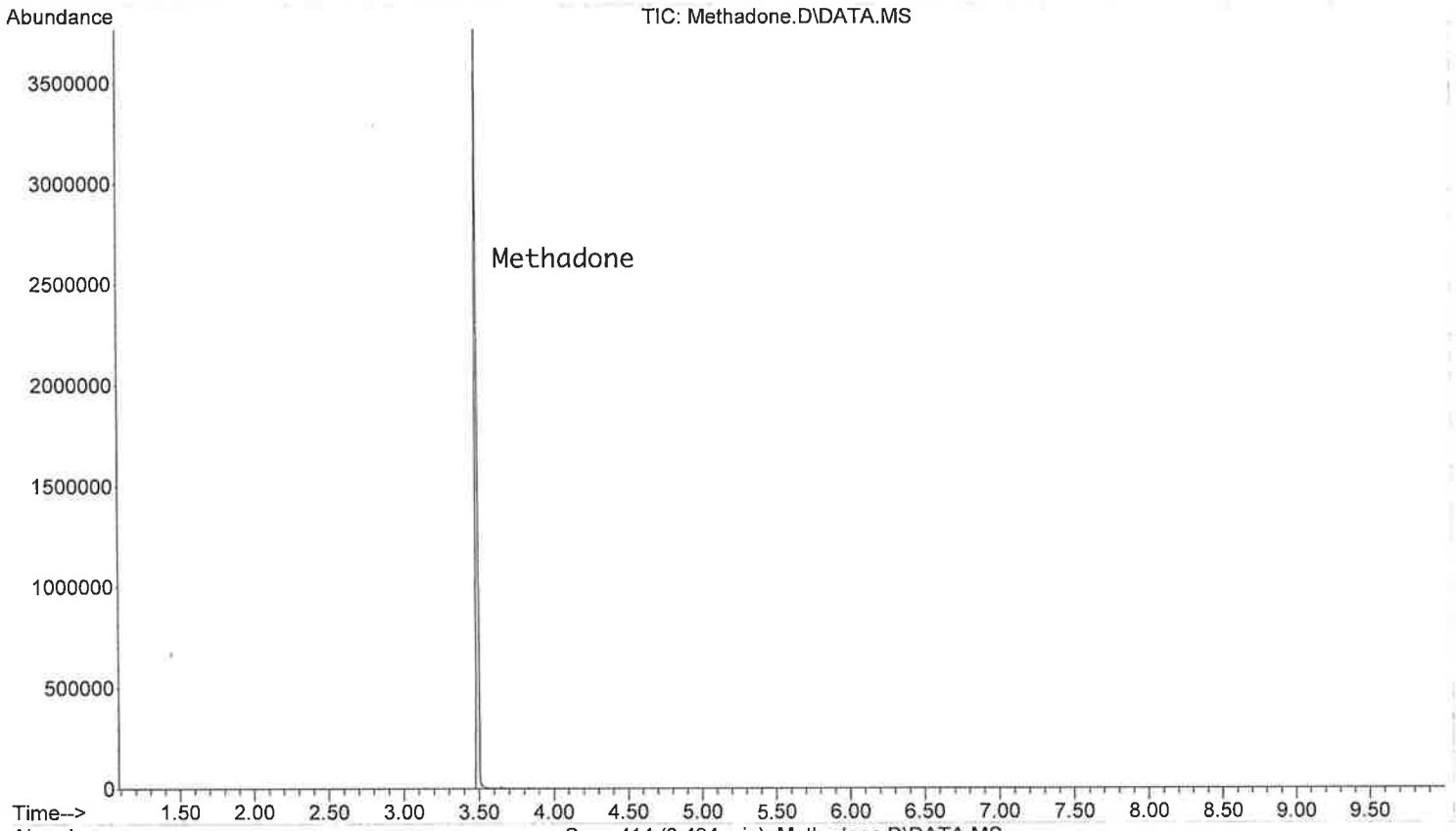


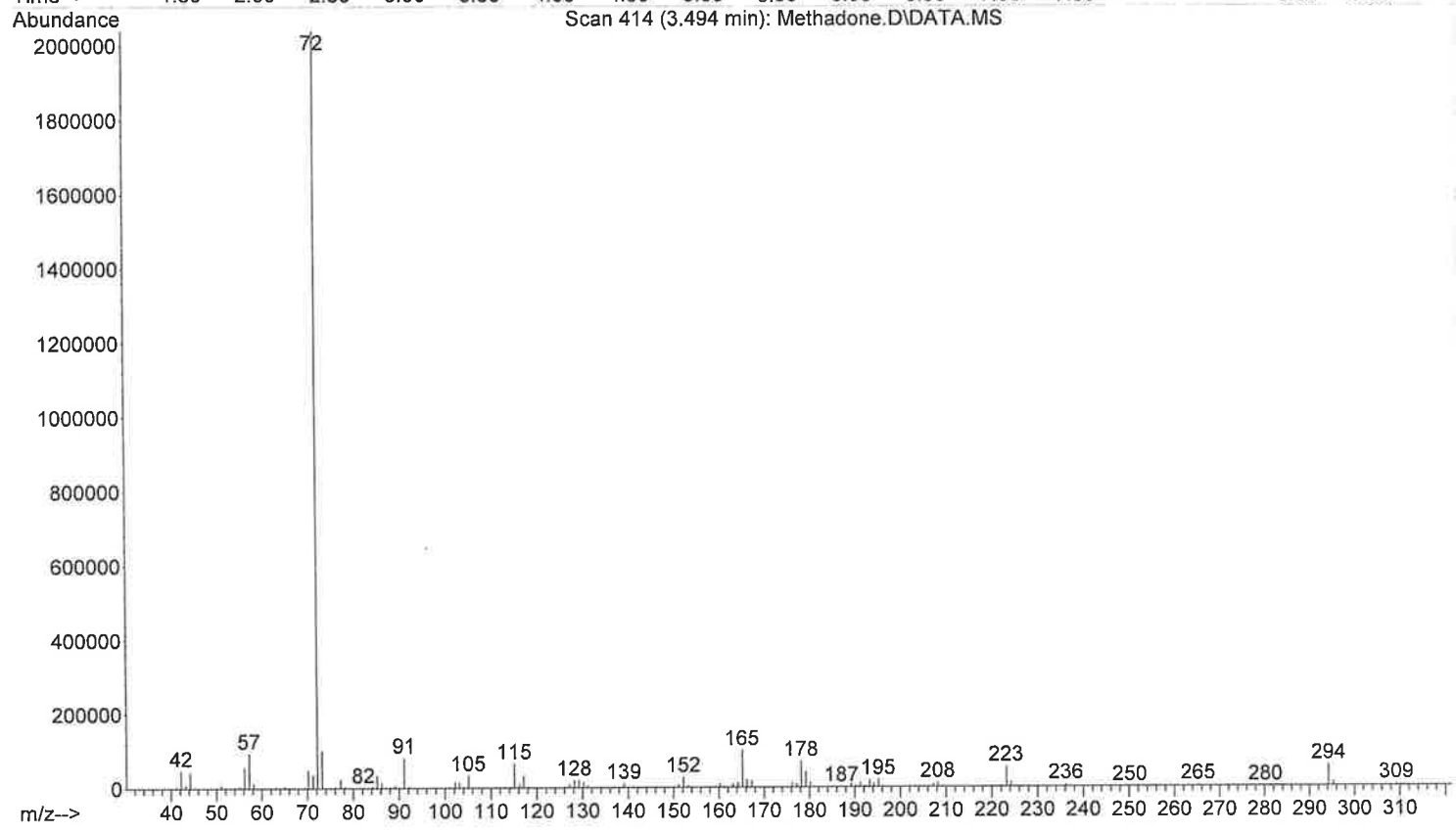
File :D:\Data\Standards\METHADONE.D
Operator : John Scott, Jr.
Acquired : 19 Jan 2011 3:01 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: USP Lot G Bottle D (2)
Misc Info : MeOH
Vial Number: 1



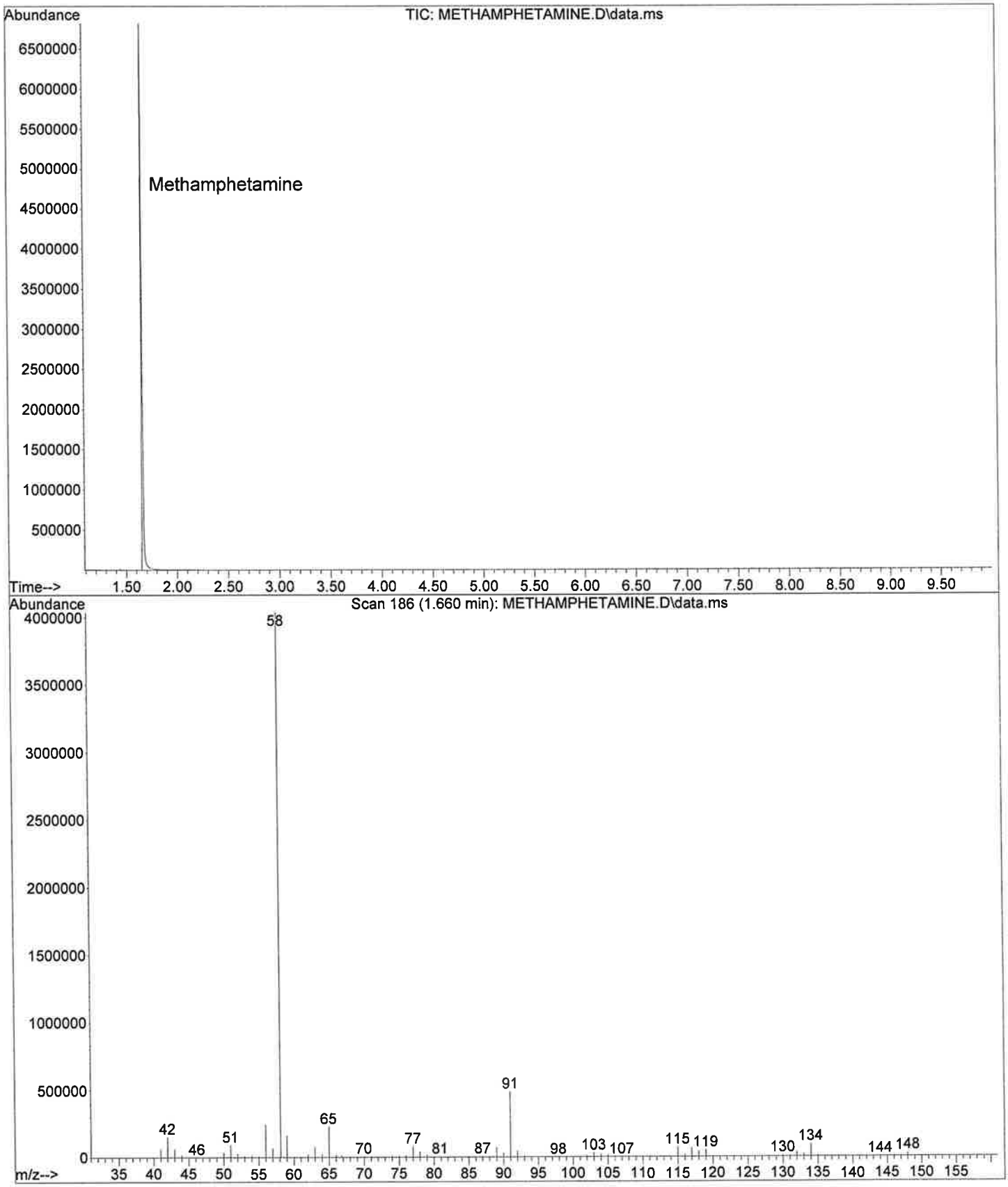


File :D:\JLS\SEQUEN\Methadone.D
Operator : NASHVILLE LAB
Acquired : 5 Feb 2011 4:09 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: USP Lot G Bottle D (2)
Misc Info : MEOH
Vial Number: 30

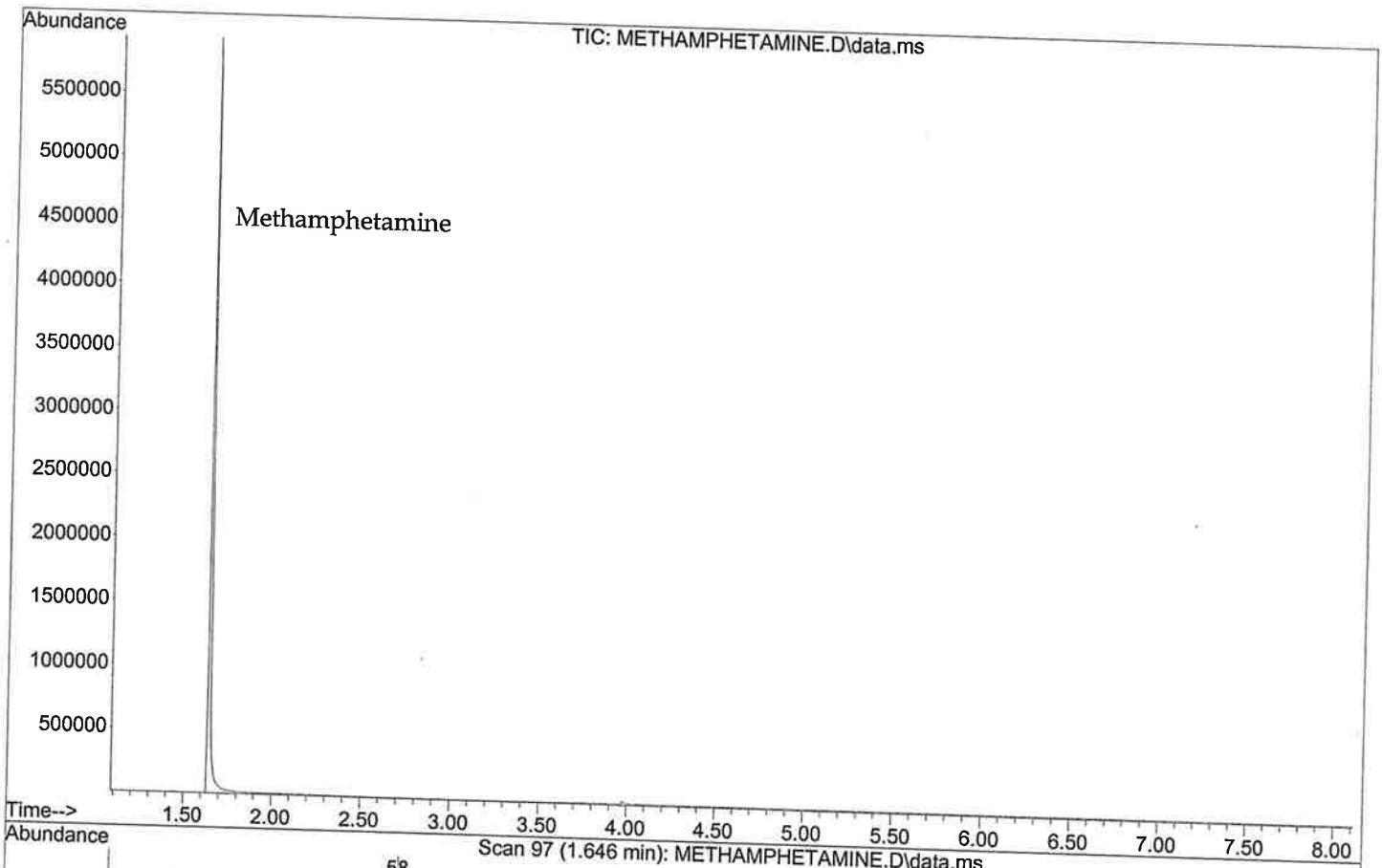


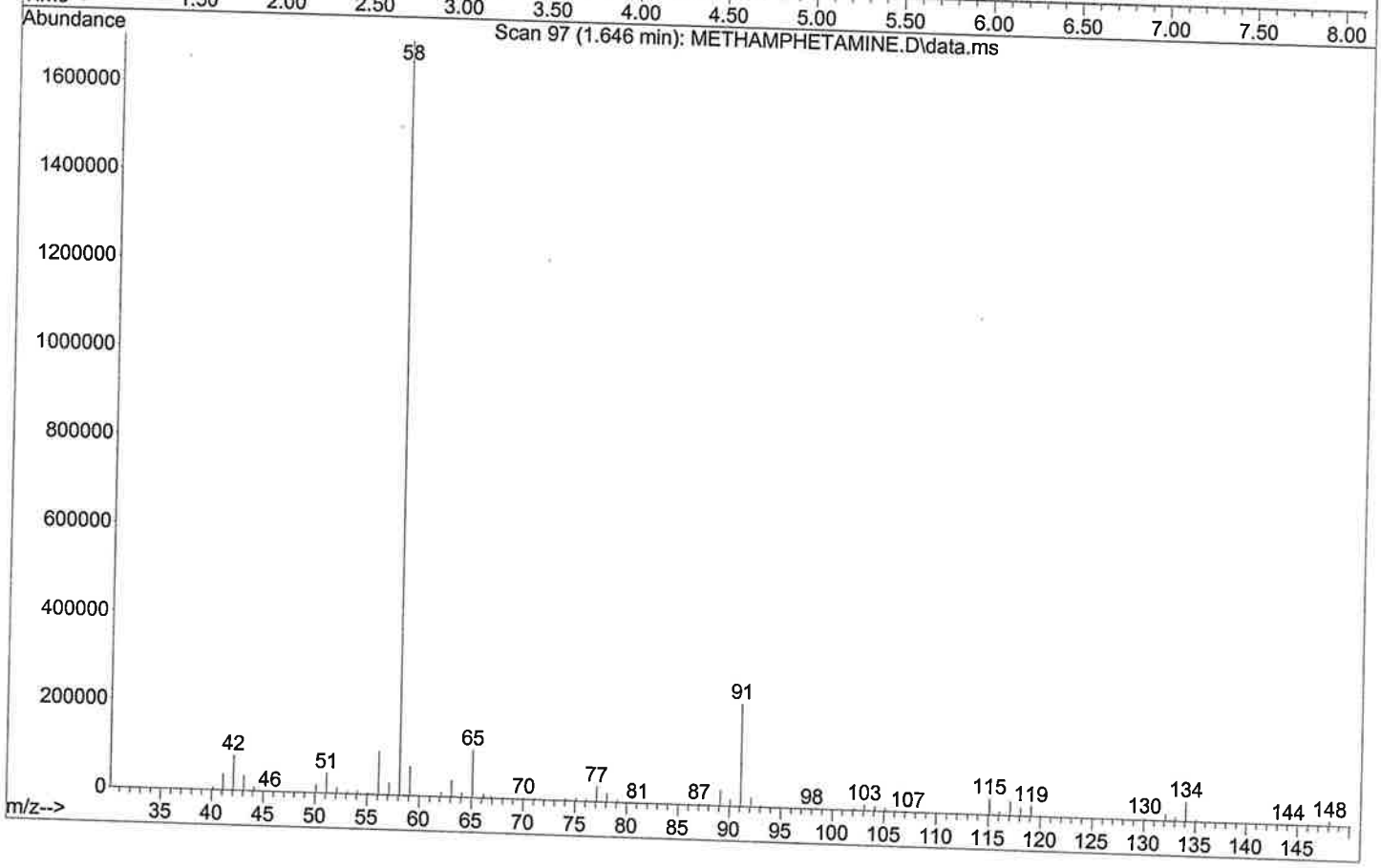


File : D:\Data\Standards\METHAMPHETAMINE.D
Operator : John Scott, Jr.
Acquired : 14 Jan 2011 22:25 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FE022908-02
Misc Info : MeOH
Vial Number: 1

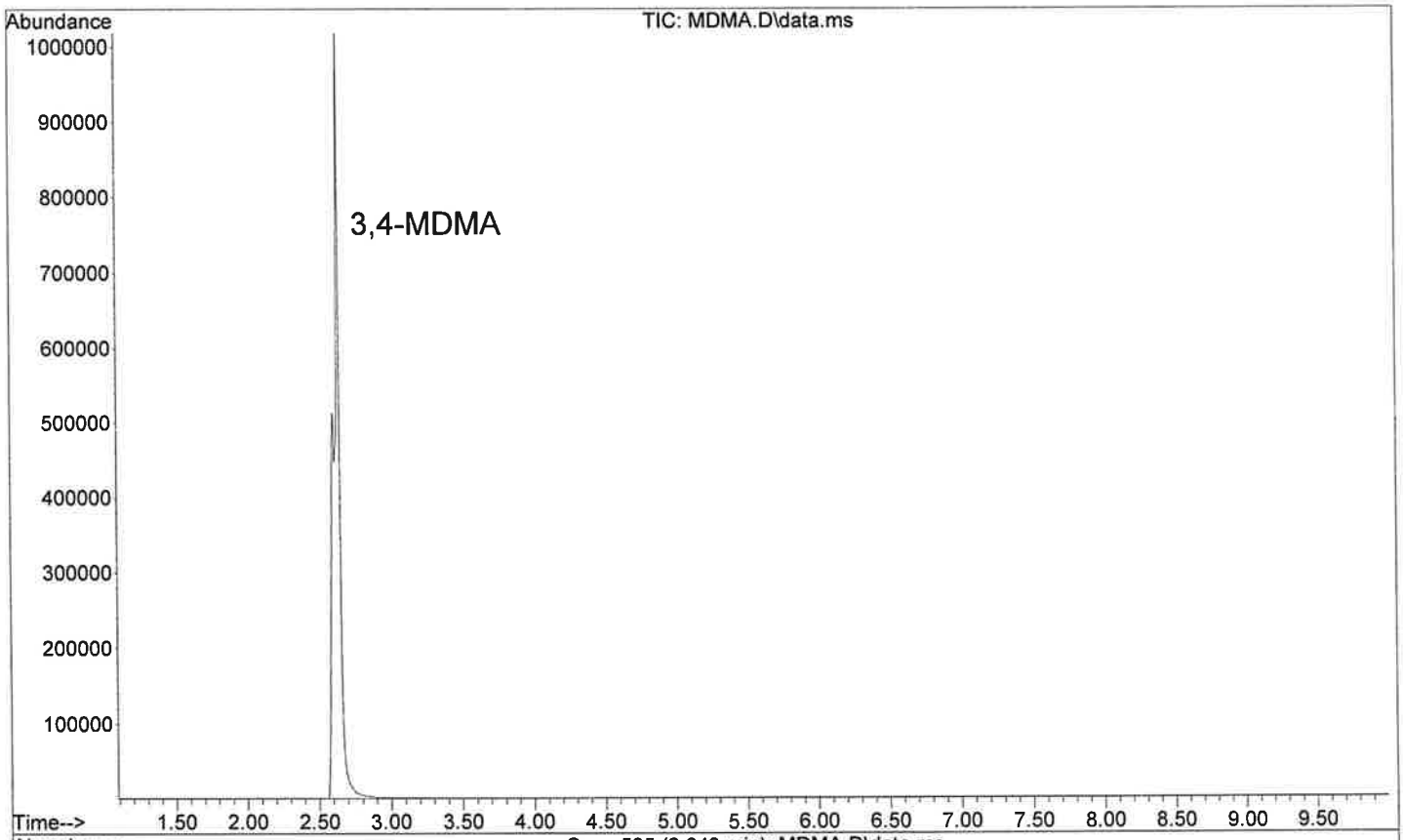


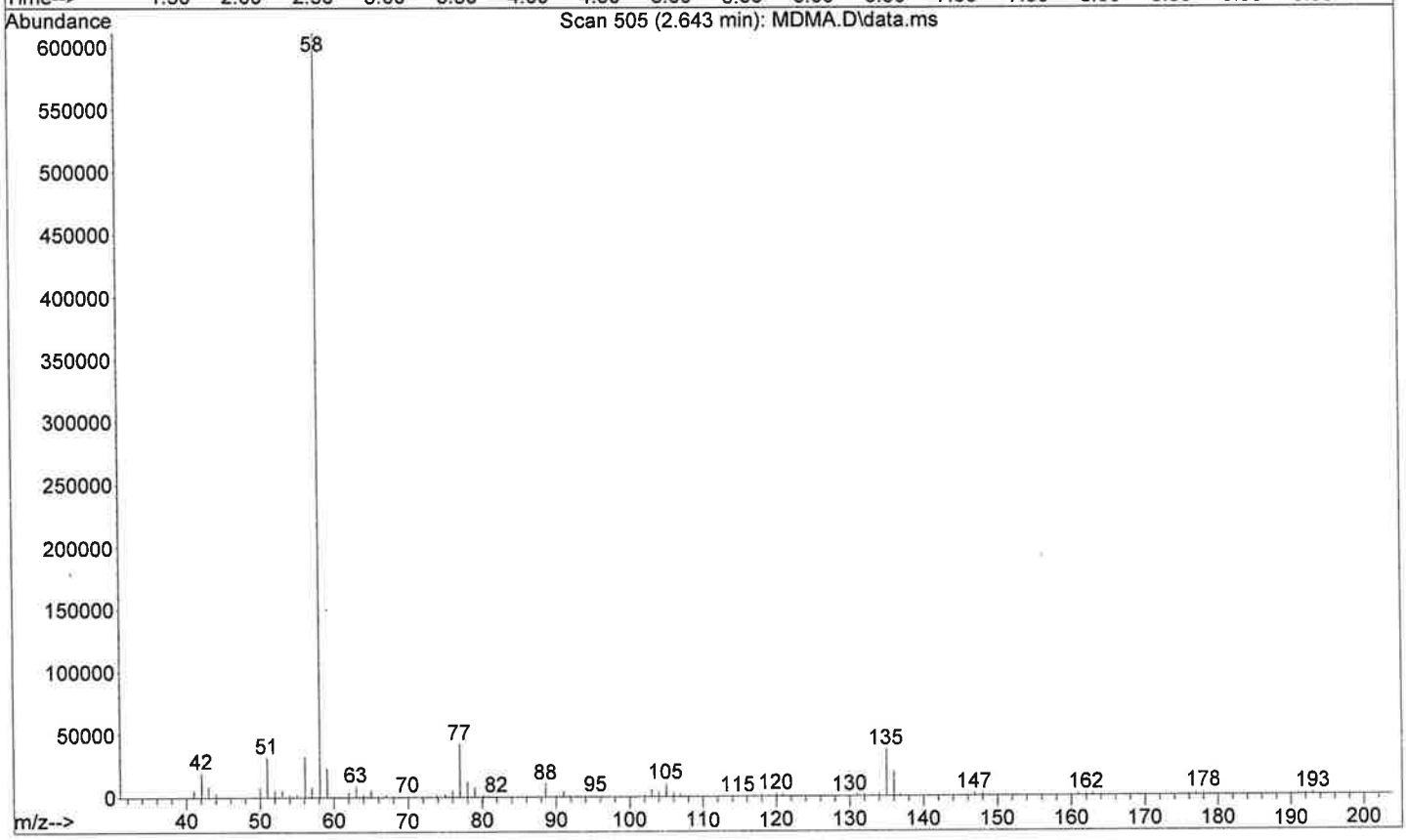
File :C:\msdchem\1\DATA\JLS\METHAMPHETAMINE.D
Operator : John Scott, Jr.
Acquired : 3 Feb 2011 16:04 using AcqMethod MSDRUGS.M
Instrument : Gumbo
Sample Name: Cerilliant Lot FE022908-02
Misc Info : MeOH
Vial Number: 2



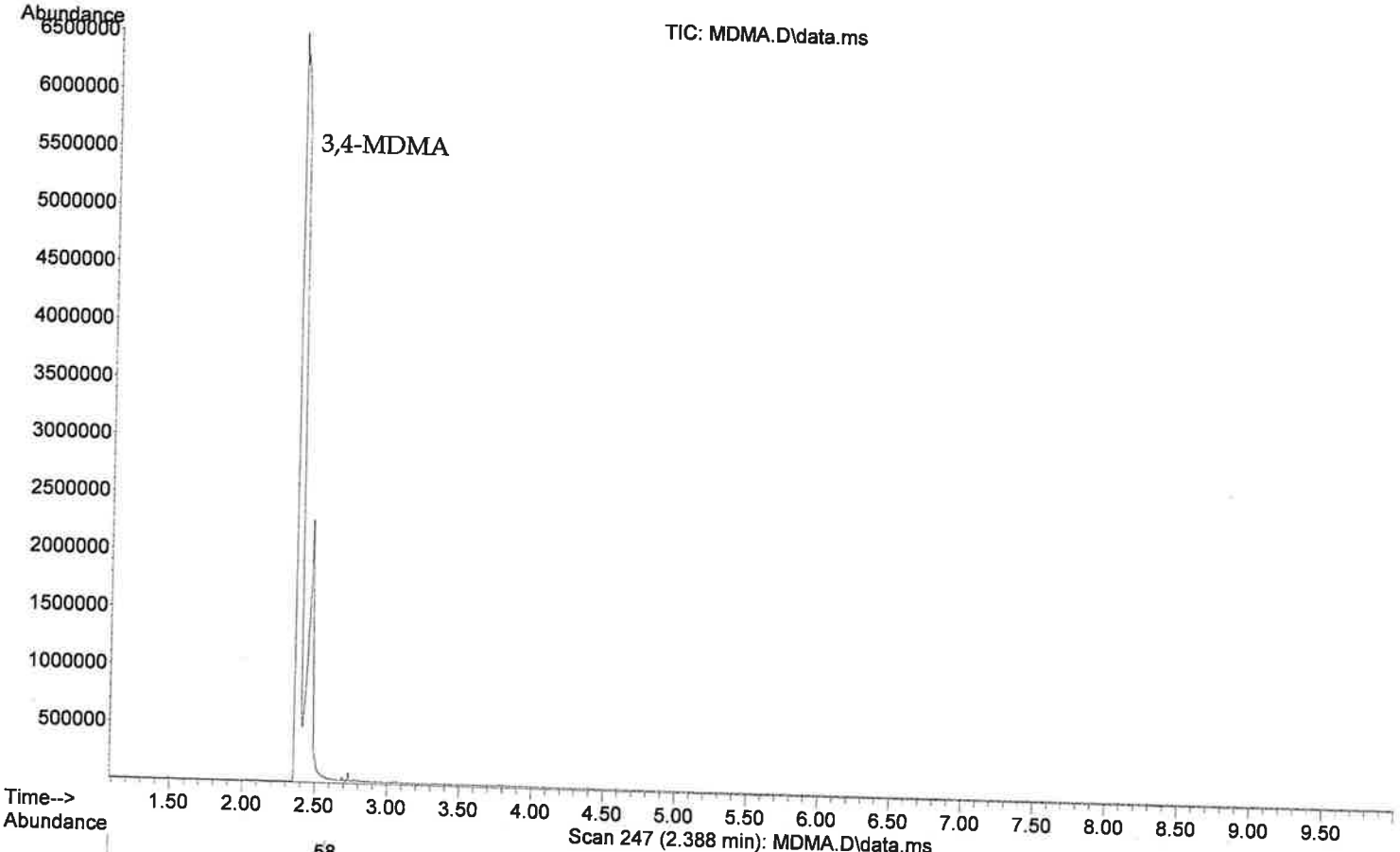


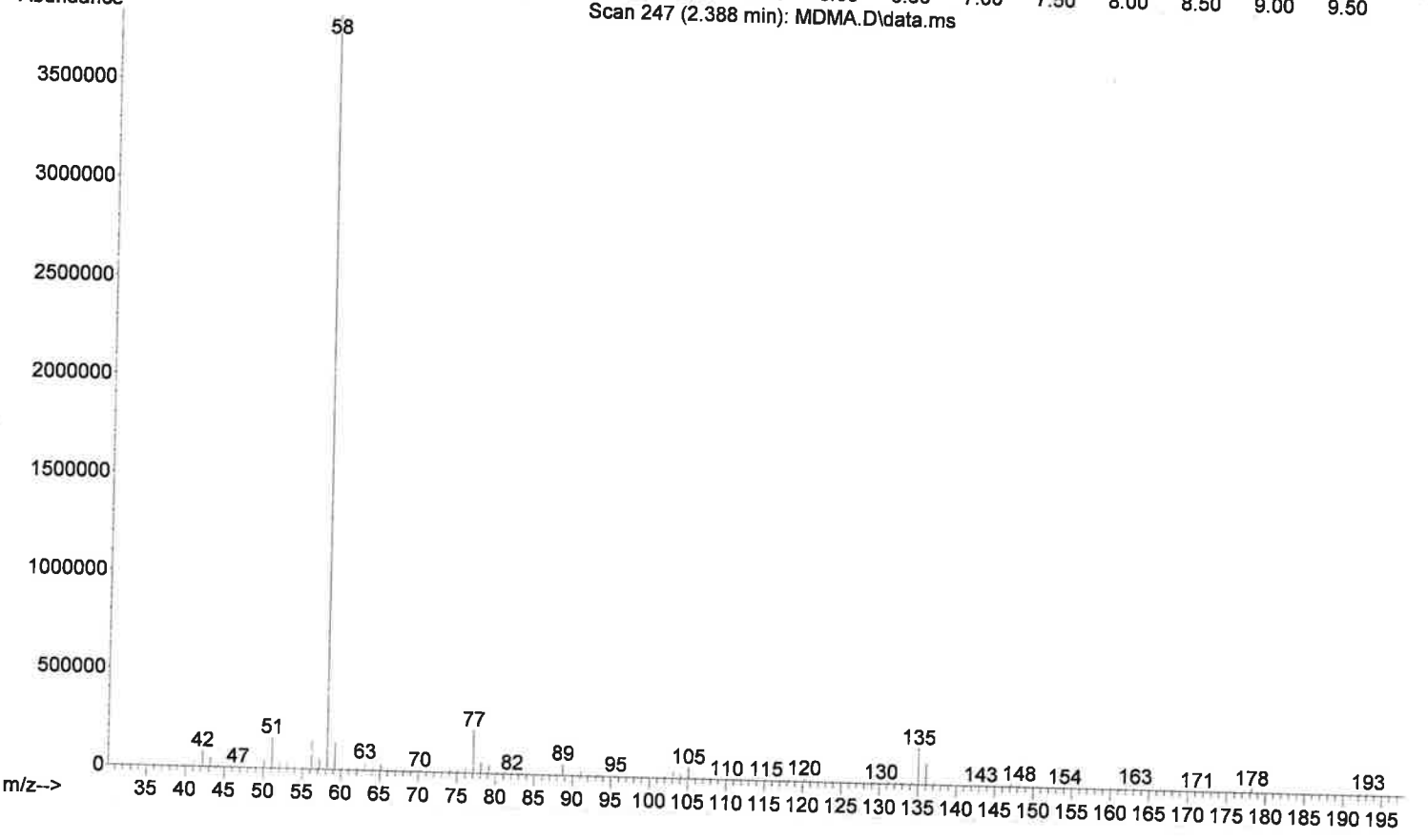
File :D:\Data\Standards\MDMA.D
Operator : Nashville Lab
Acquired : 20 Jan 2011 10:11 using AcqMethod ASMSDRUGS.M
Instrument : Eggroll
Sample Name: Alltech Lot 151 DC-7073-J Bottle D@
Misc Info : MeOH
Vial Number: 2



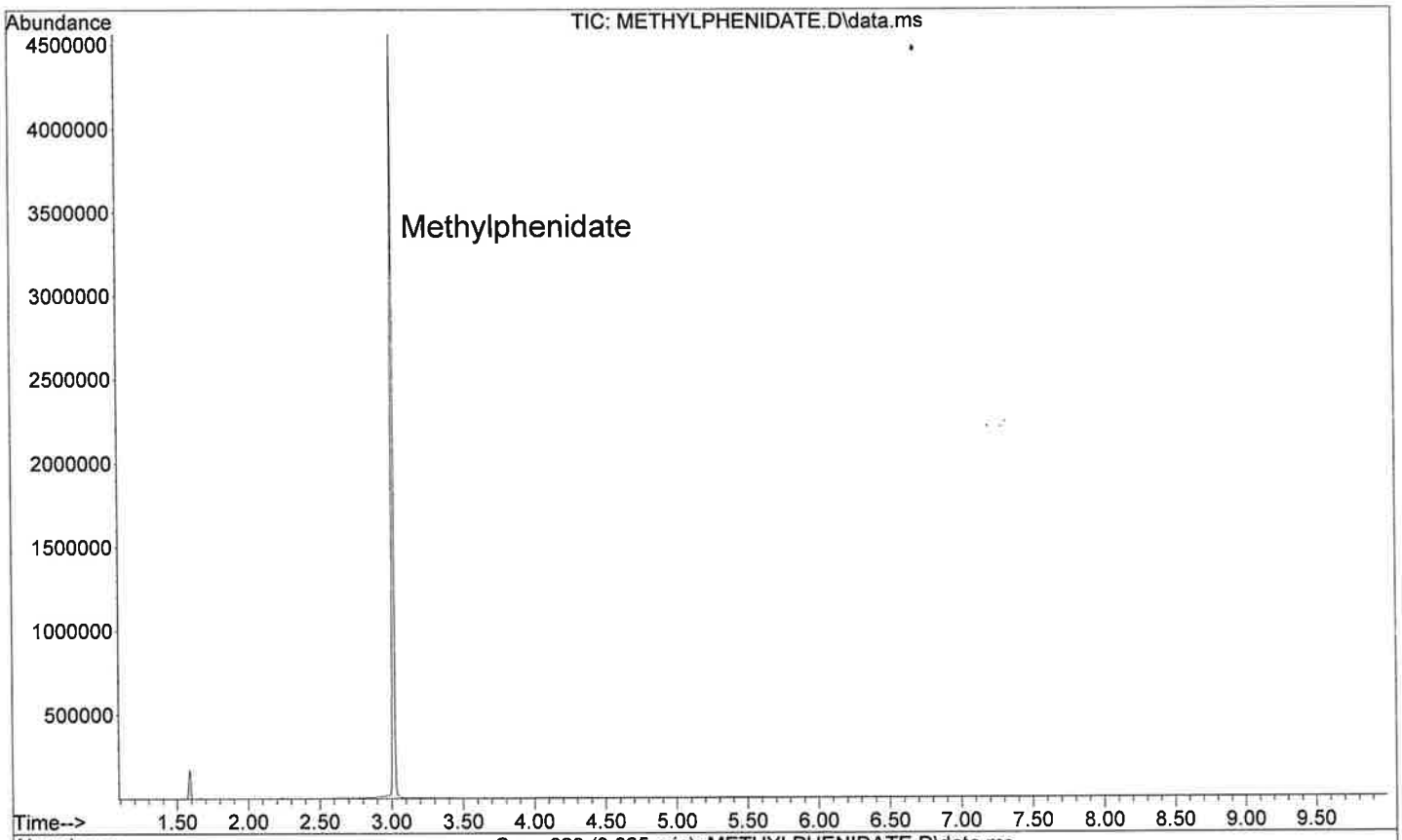


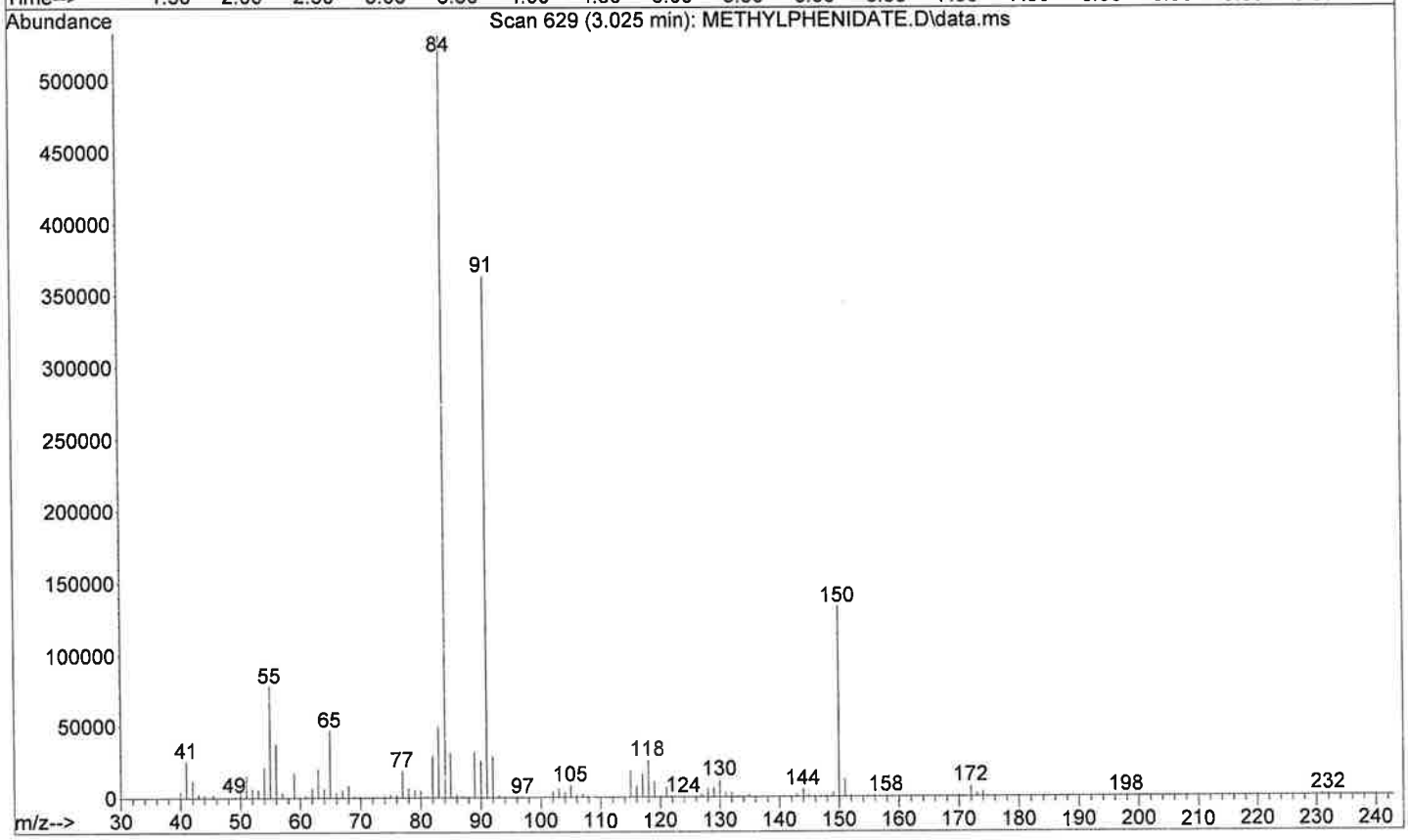
File : C:\msdchem\1\DATA\JLS\MDMA.D
Operator : JOHN SCOTT, JR.
Acquired : 7 Feb 2011 14:50 using AcqMethod MSDRUGS.M
Instrument : Espresso
Sample Name: Alltech Lot 151 DC-7073-3 Bottle D @
Misc Info : MEOH
Vial Number: 1



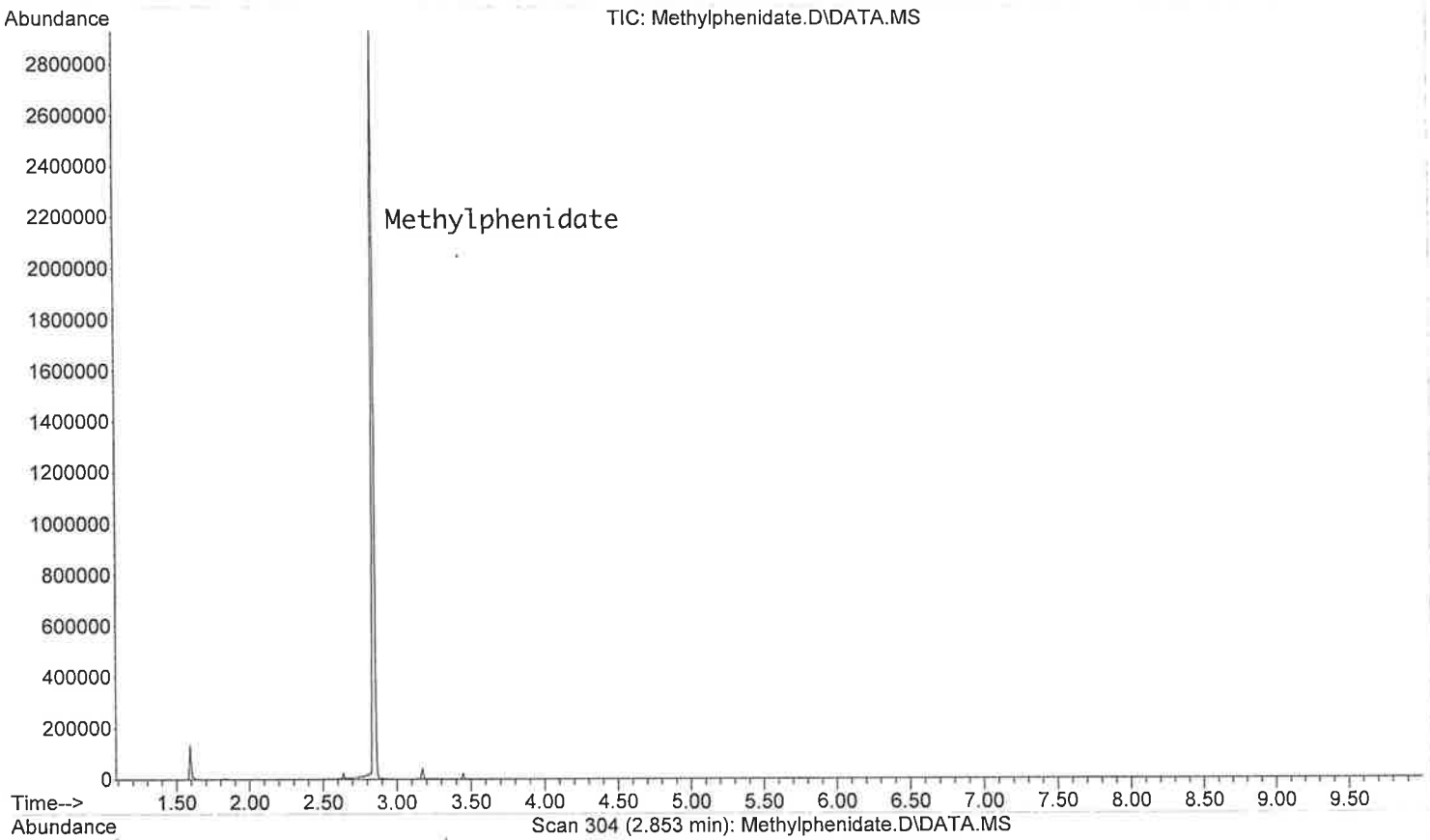


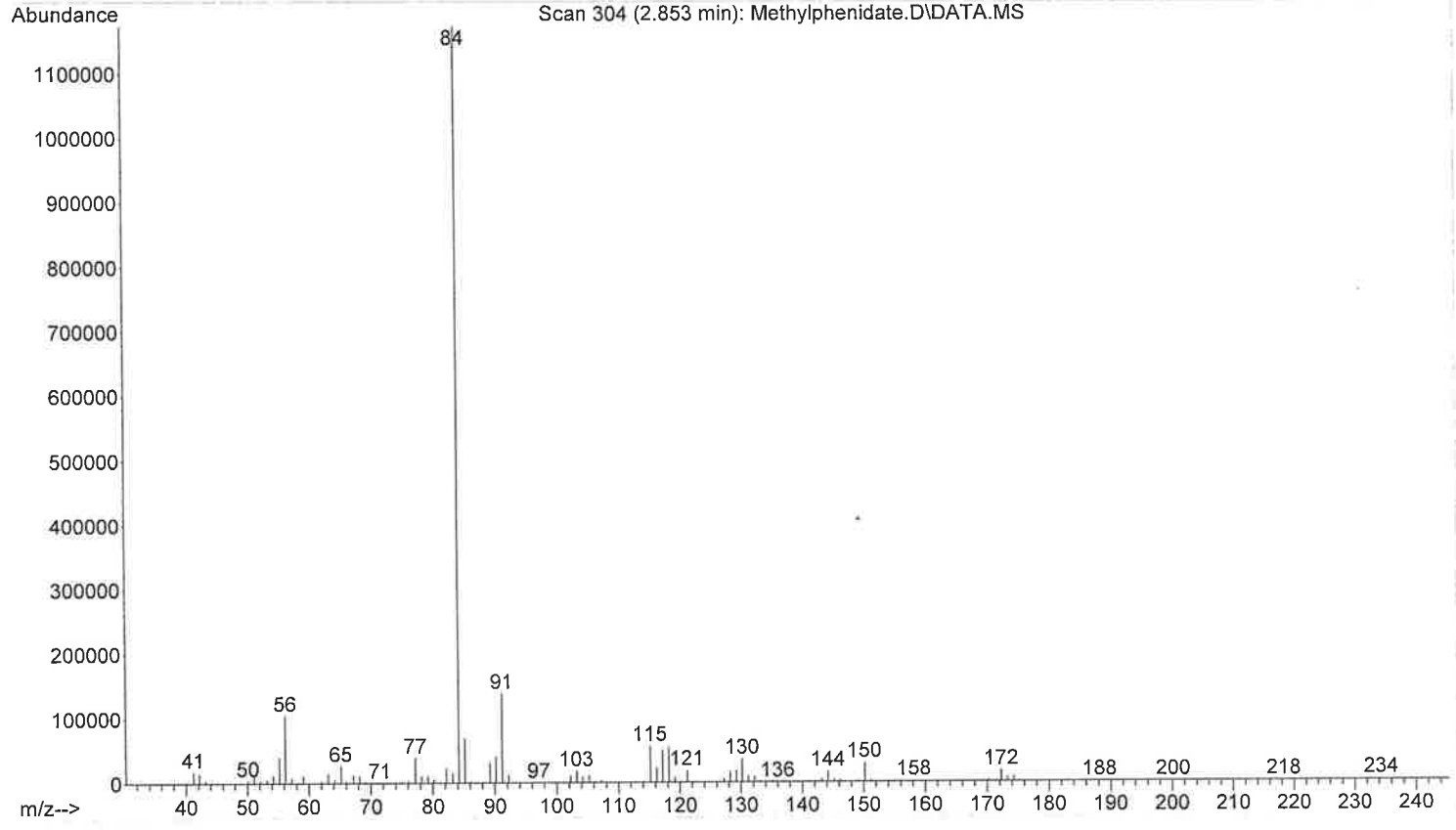
File : D:\Data\Standards\METHYLPHENIDATE.D
Operator : John Scott, Jr.
Acquired : 8 Feb 2011 14:26 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: USP Lot 770 F
Misc Info : MeOH
Vial Number: 1



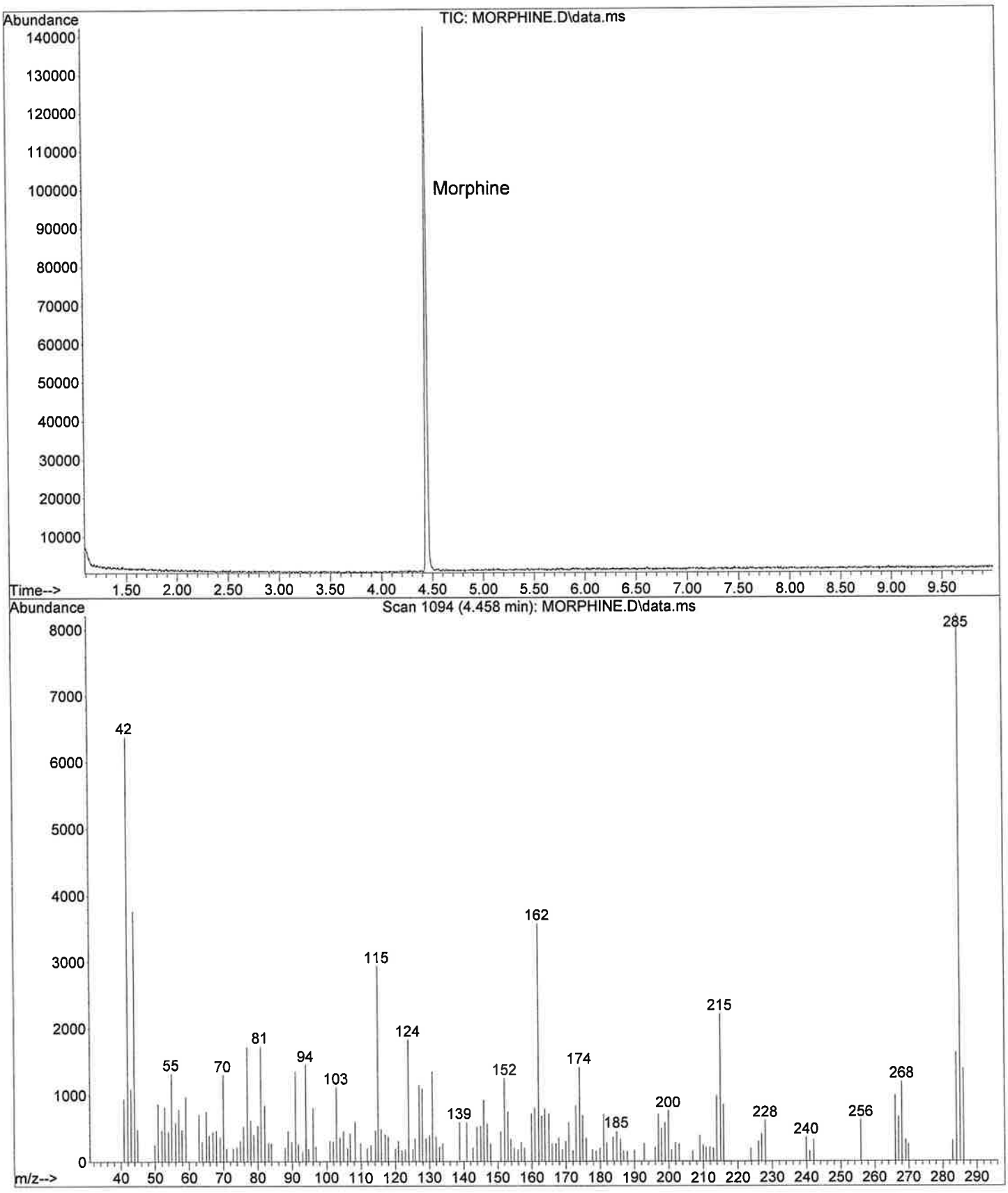


File :D:\JLS\SEQUEN\Methylphenidate.D
Operator : NASHVILLE LAB
Acquired : 4 Feb 2011 20:44 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: USP Lot 770 F (2)
Misc Info : MEOH
Vial Number: 14

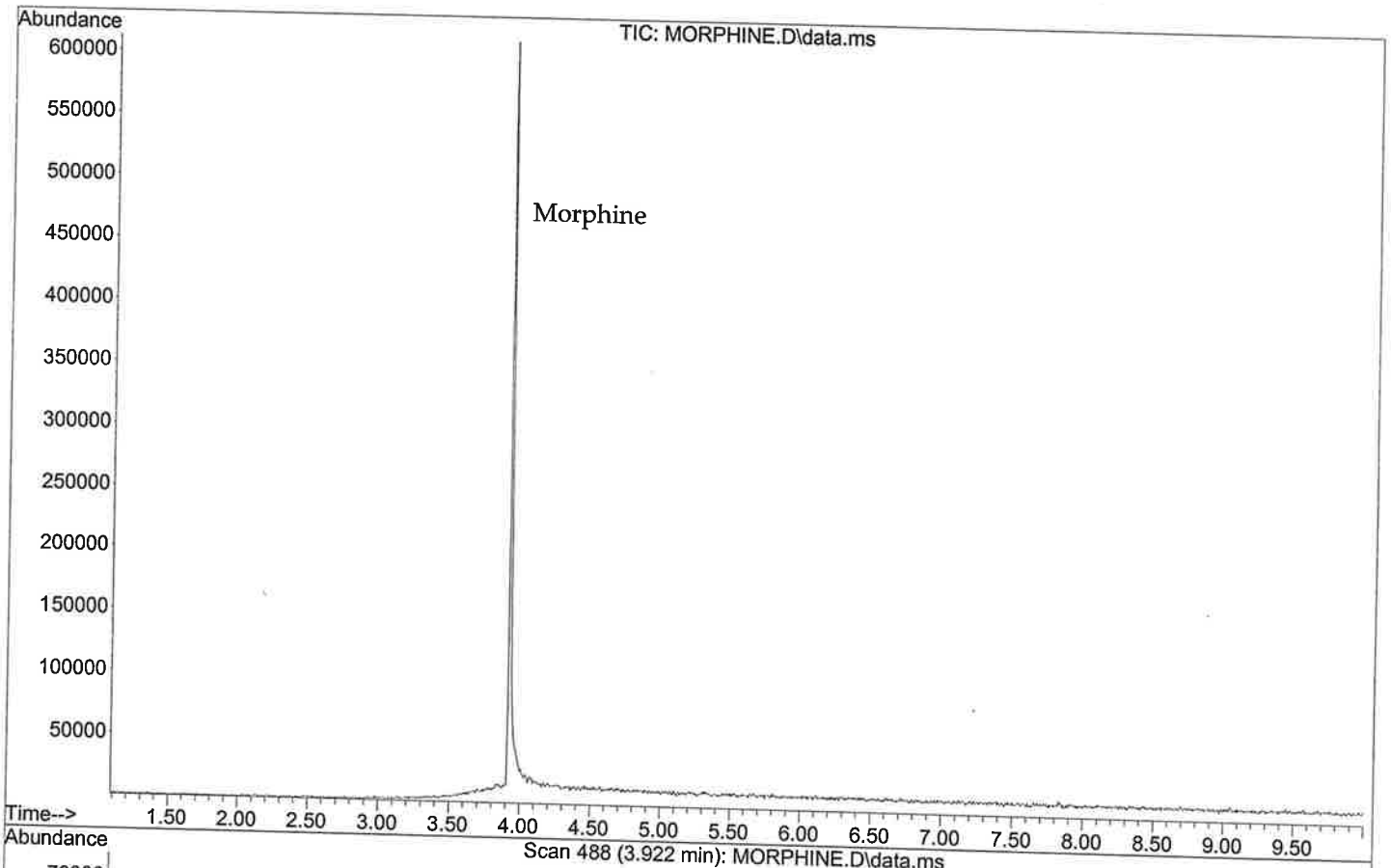


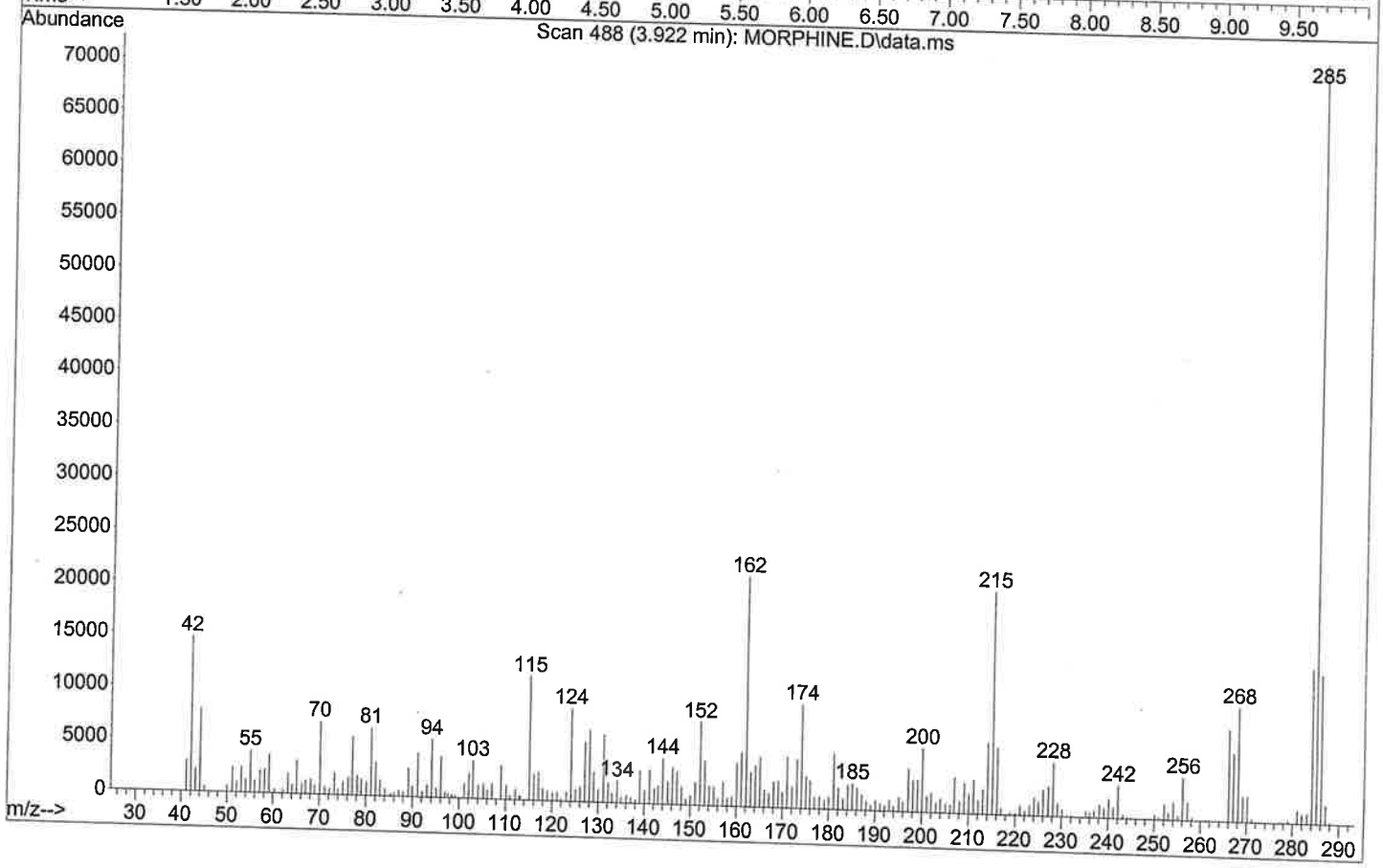


File :D:\Data\Standards\MORPHINE.D
Operator : John Scott, Jr.
Acquired : 15 Jan 2011 1:30 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FE092209-01
Misc Info : MeOH
Vial Number: 1

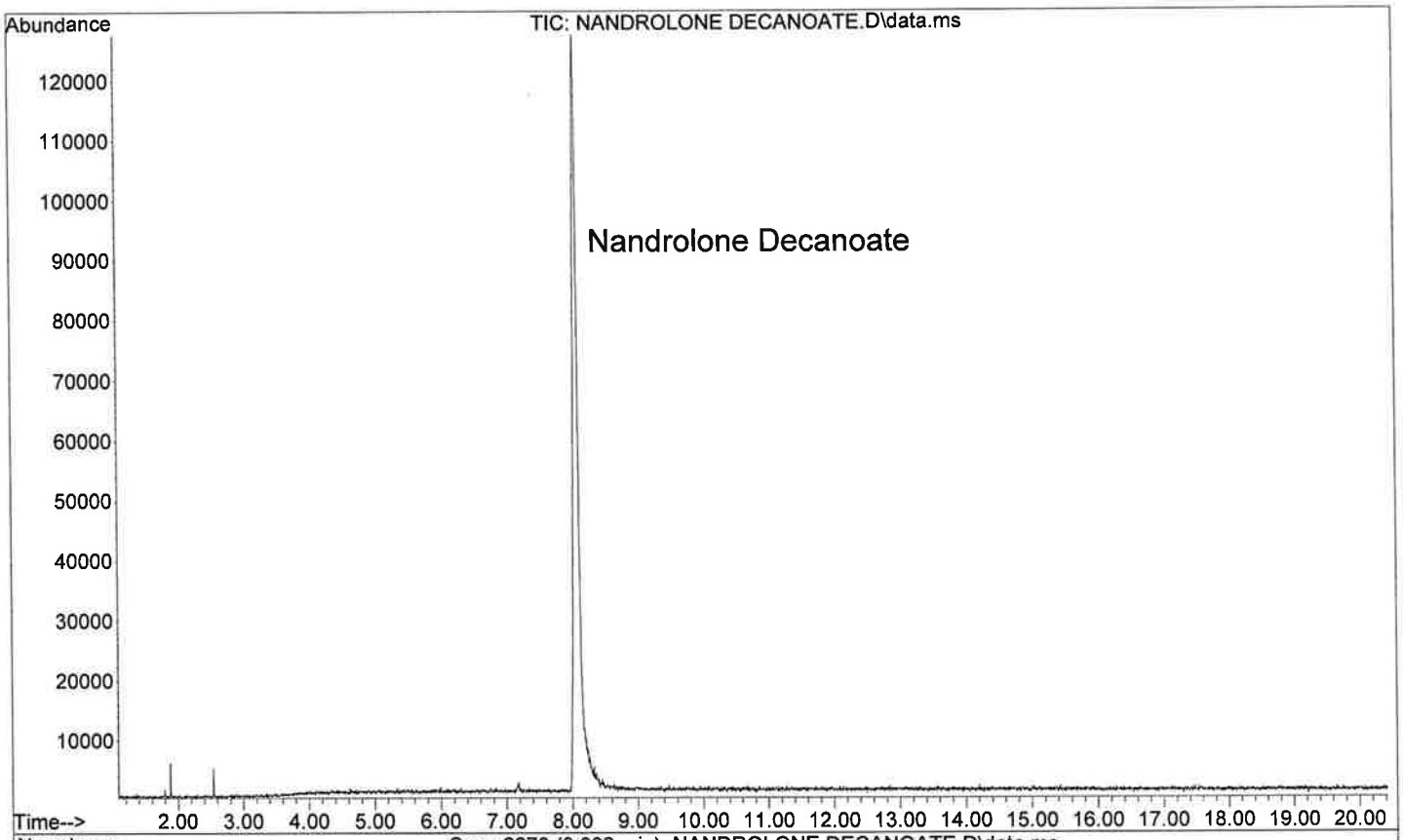


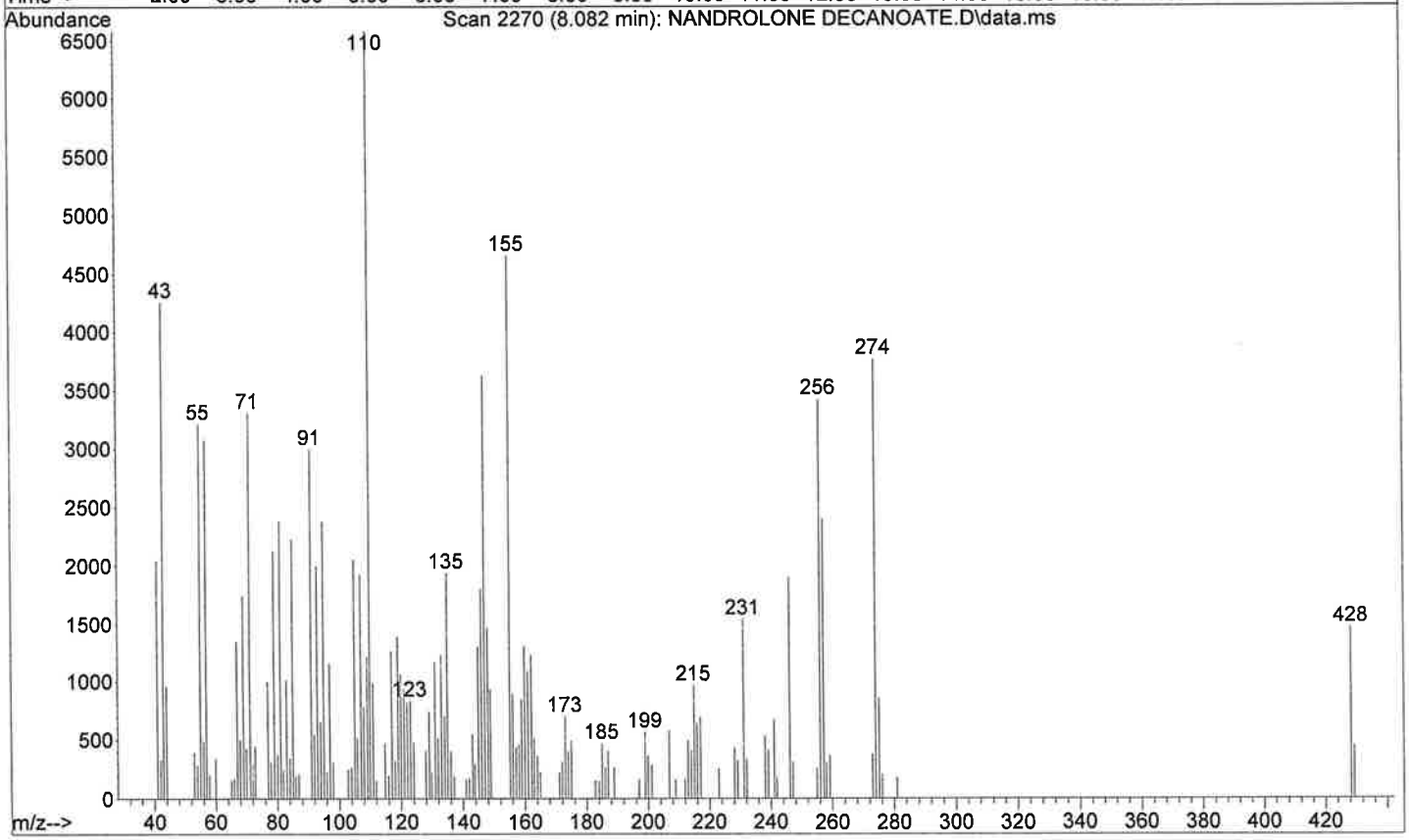
File :C:\msdchem\1\DATA\JLS\MORPHINE.D
Operator : John Scott, Jr.
Acquired : 3 Feb 2011 16:24 using AcqMethod MSDRUGS.M
Instrument : Gumbo
Sample Name: Cerilliant Lot FE092209-01
Misc Info : MeOH
Vial Number: 2



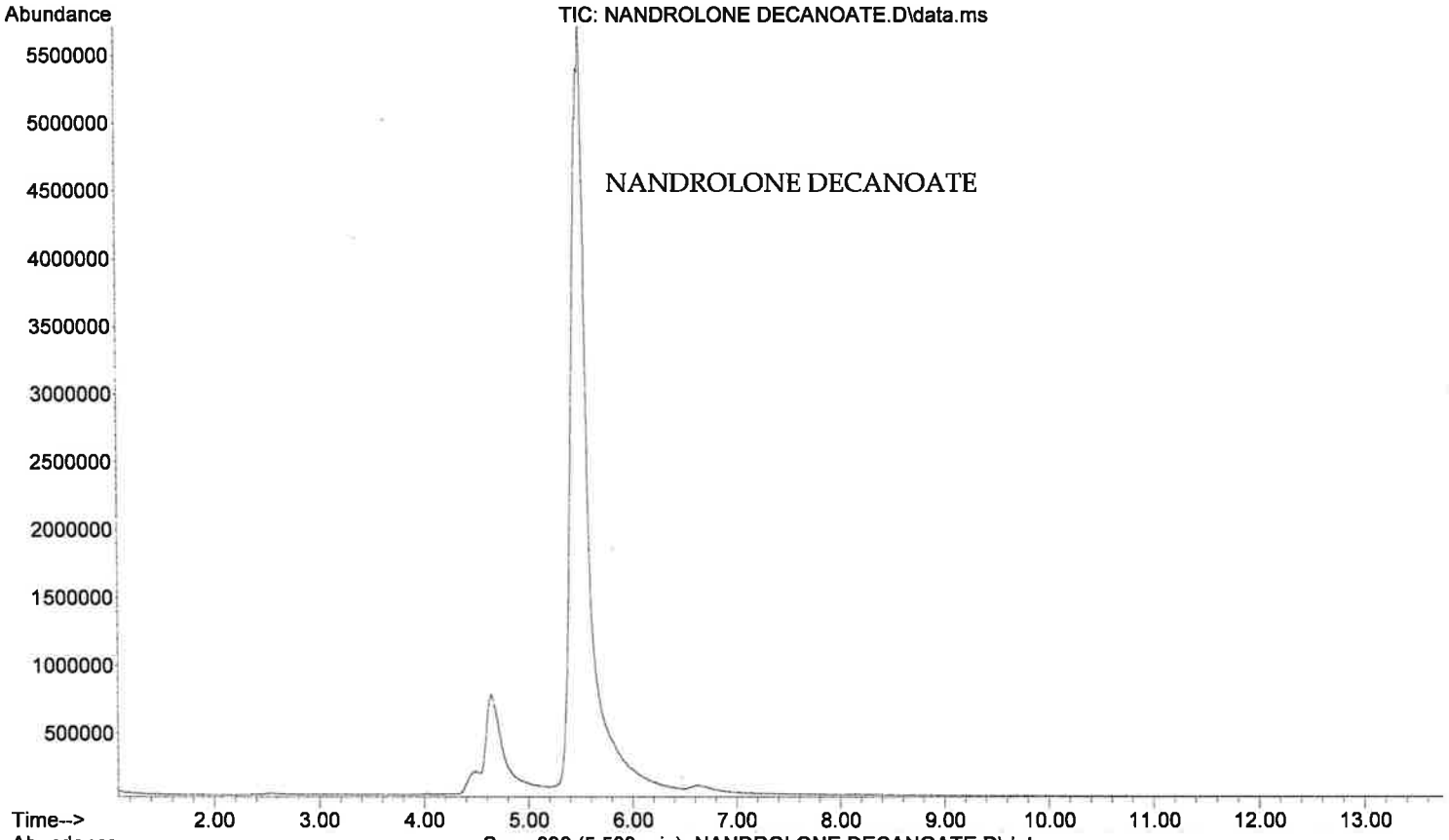


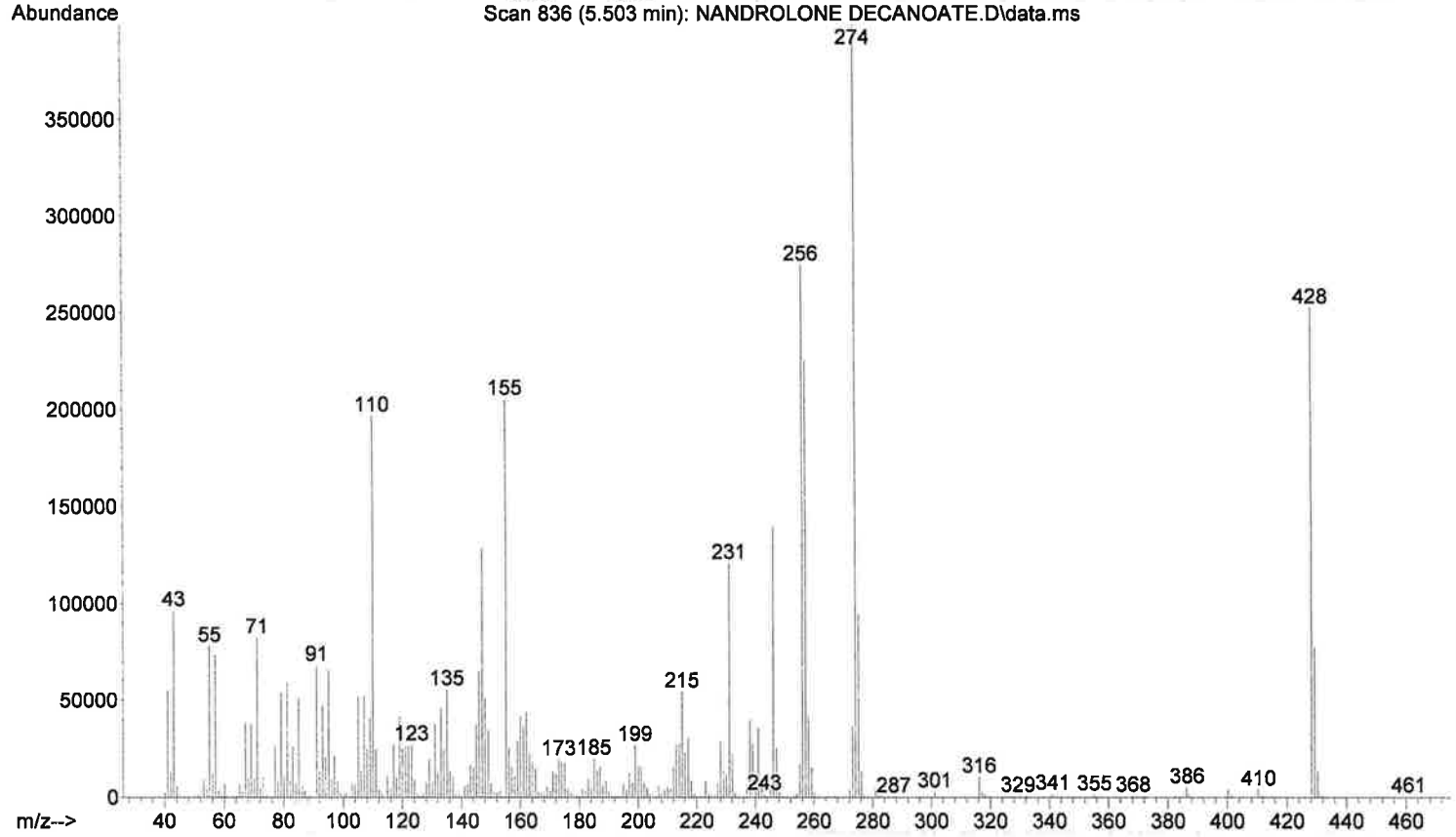
File :D:\Data\Standards\NANDROLONE DECANOATE.D
Operator : John Scott, Jr.
Acquired : 21 Jan 2011 10:16 using AcqMethod STEROIDS.M
Instrument : Eggroll
Sample Name: Steraloids Lot B0901 ®
Misc Info : MeOH
Vial Number: 1



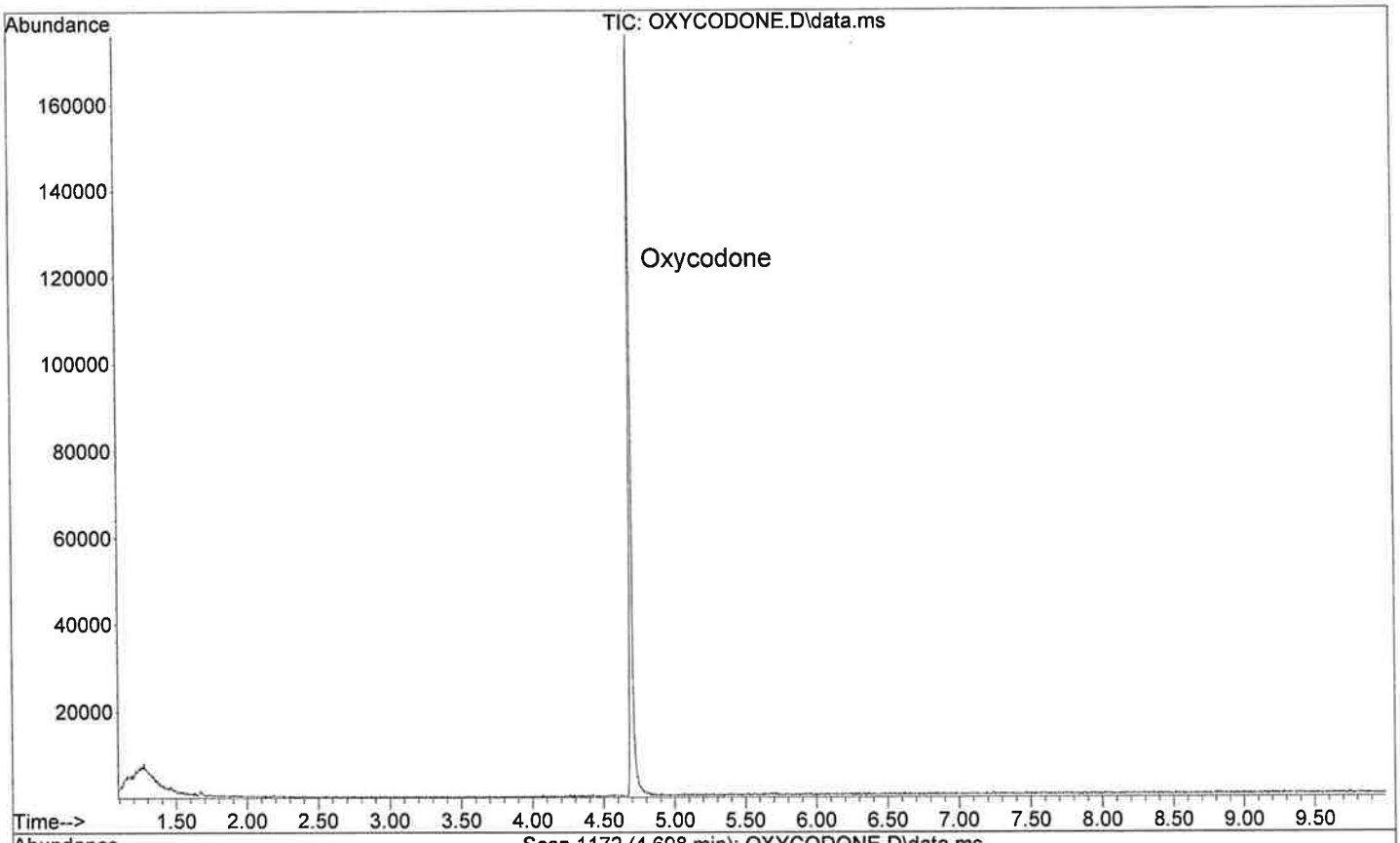


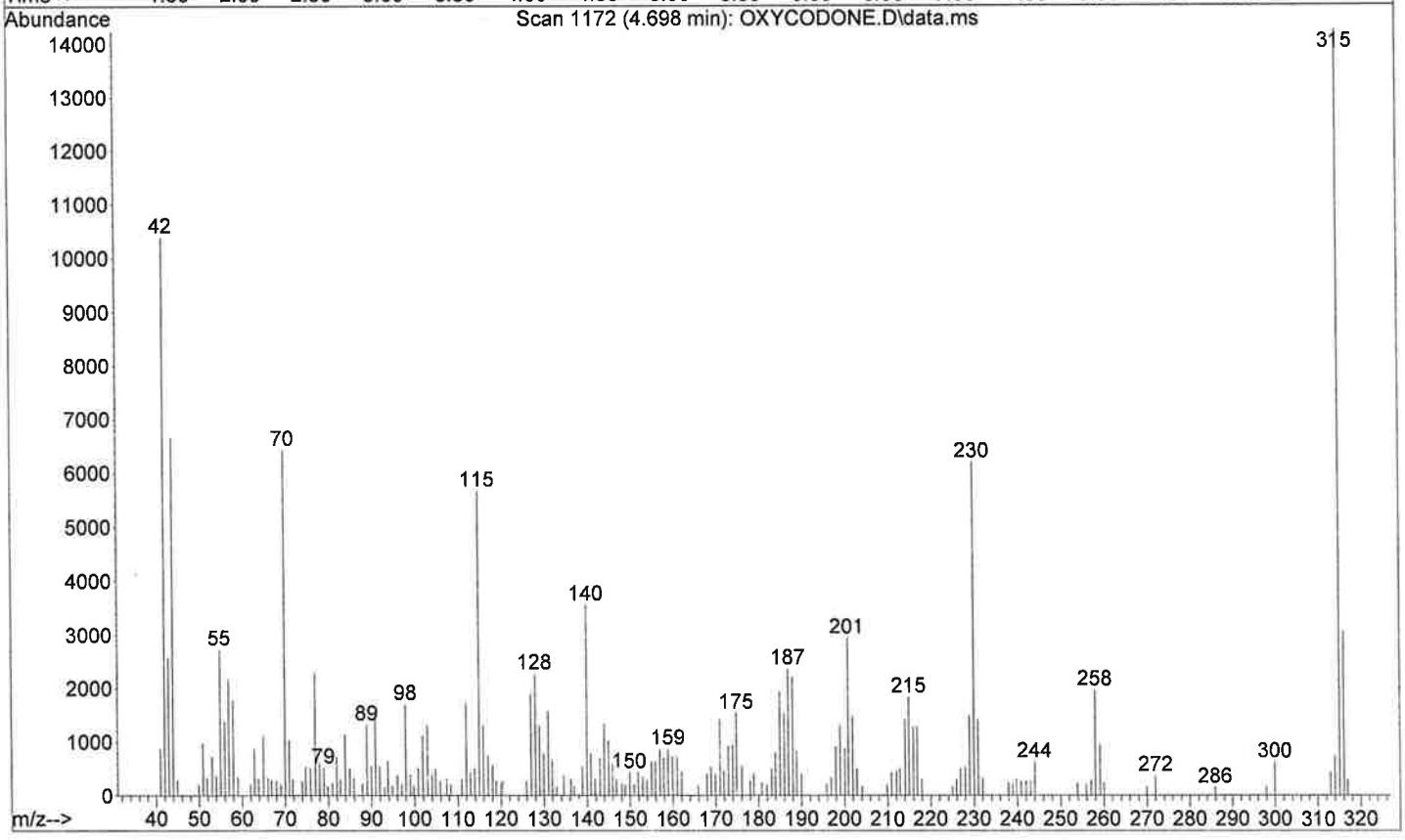
File :C:\msdchem\1\DATA\JLS\NANDROLONE DECANOATE.D
Operator : JOHN SCOTT, JR.
Acquired : 7 Feb 2011 14:33 using AcqMethod LSD.M
Instrument : Espresso
Sample Name: Steraloids Lot B0 901 @
Misc Info : MEOH
Vial Number: 1



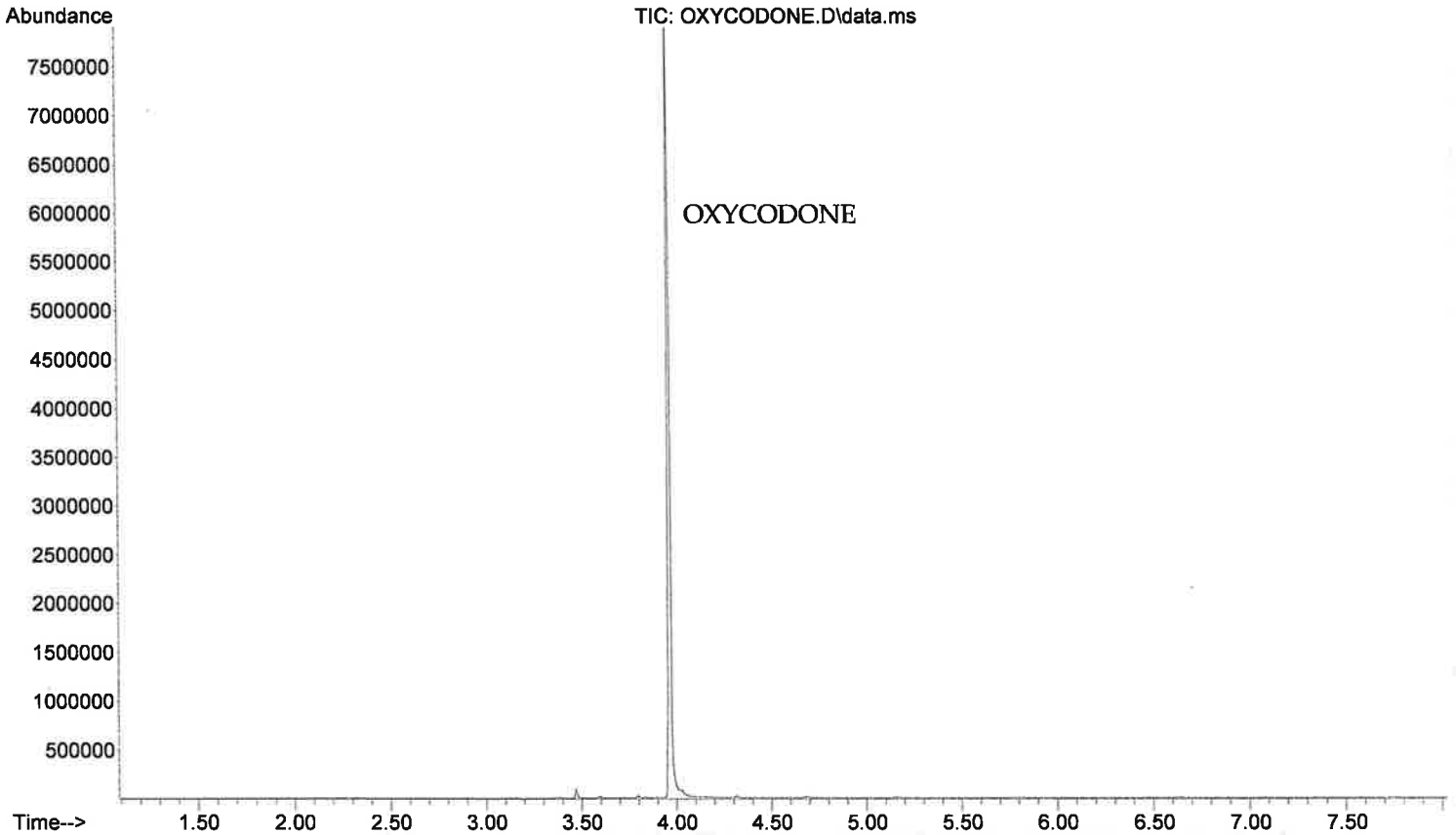


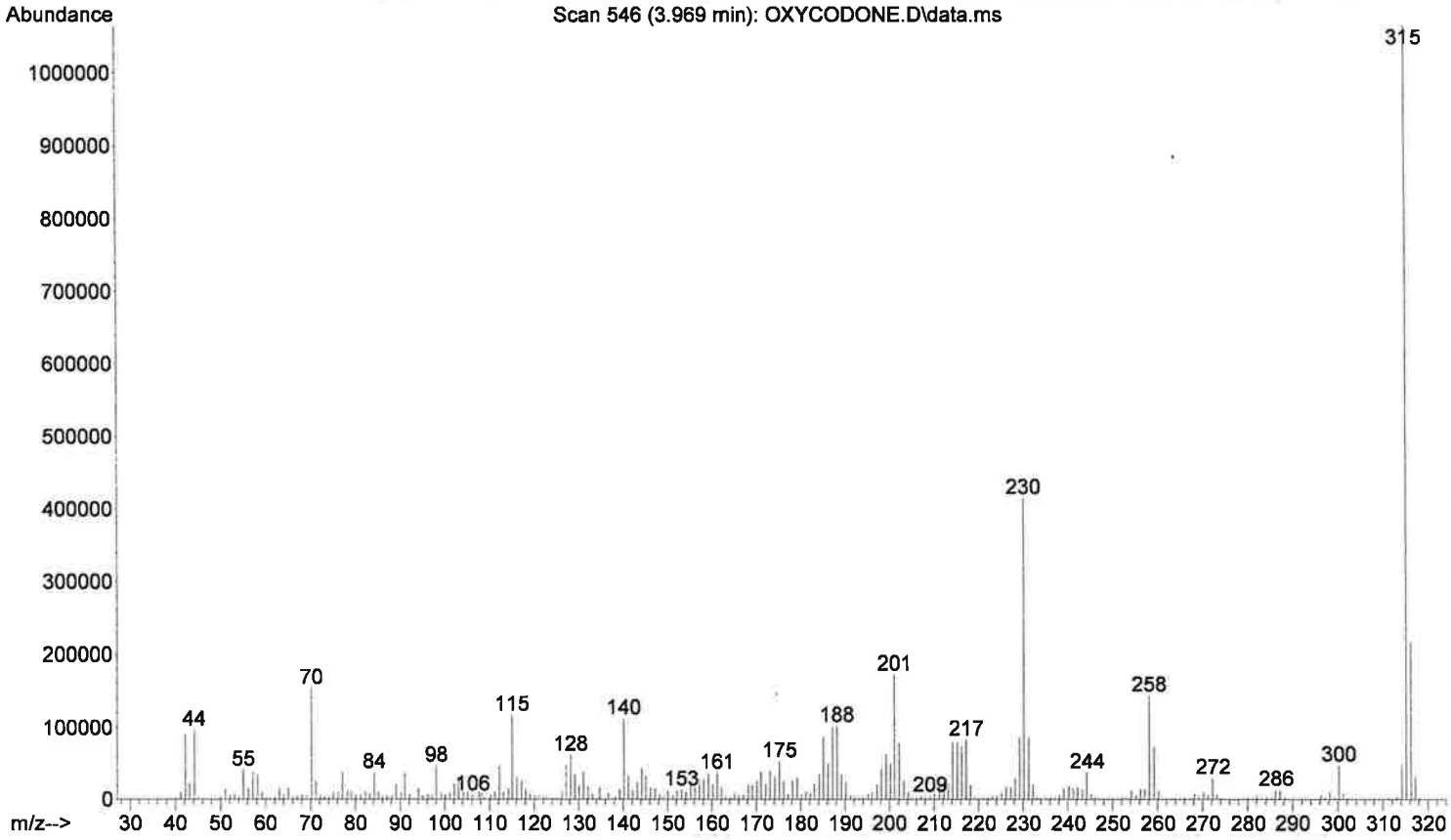
File :D:\Data\Standards\OXYCODONE.D
Operator : John Scott, Jr.
Acquired : 18 Jan 2011 21:47 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FE062707-01
Misc Info : MeOH
Vial Number: 1



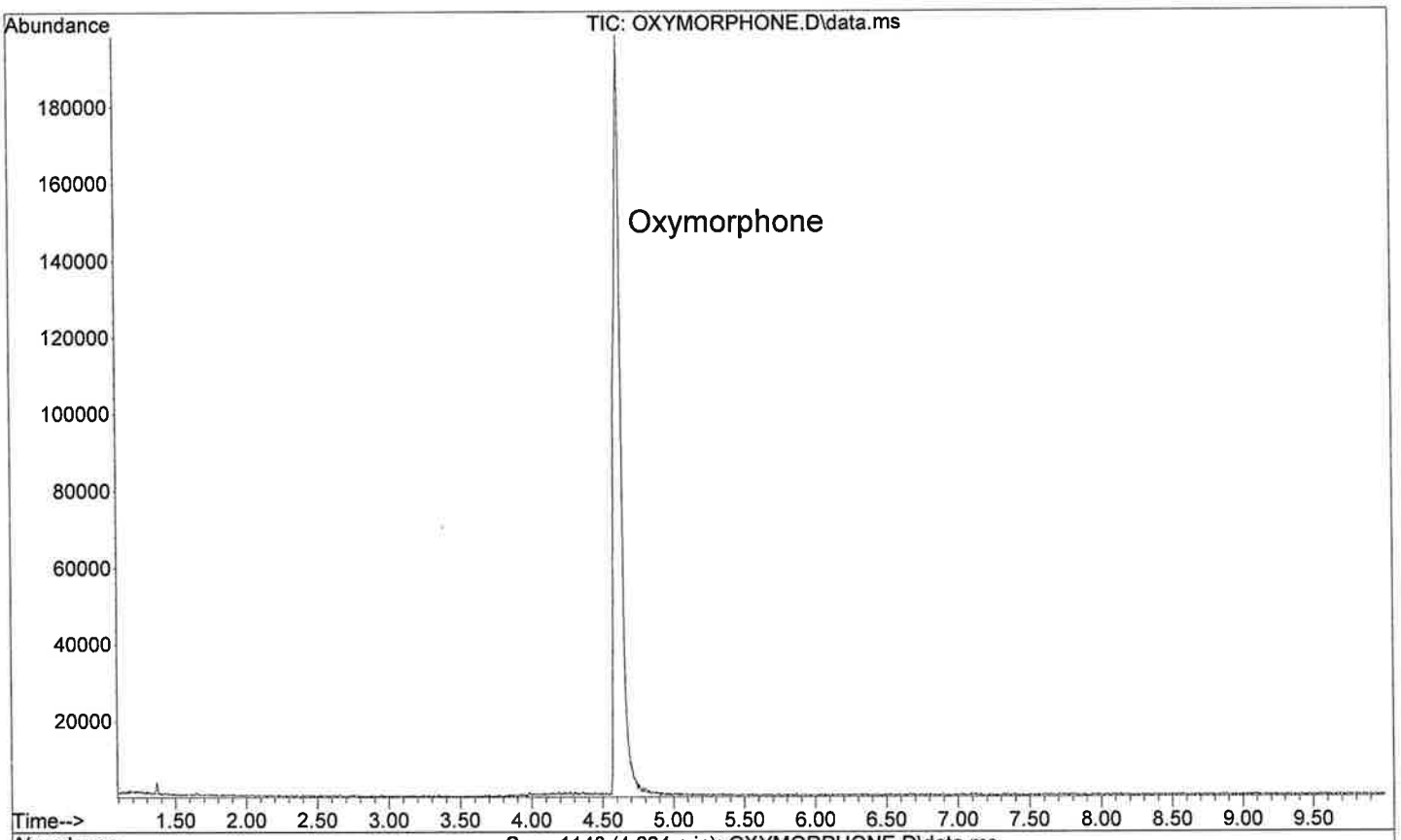


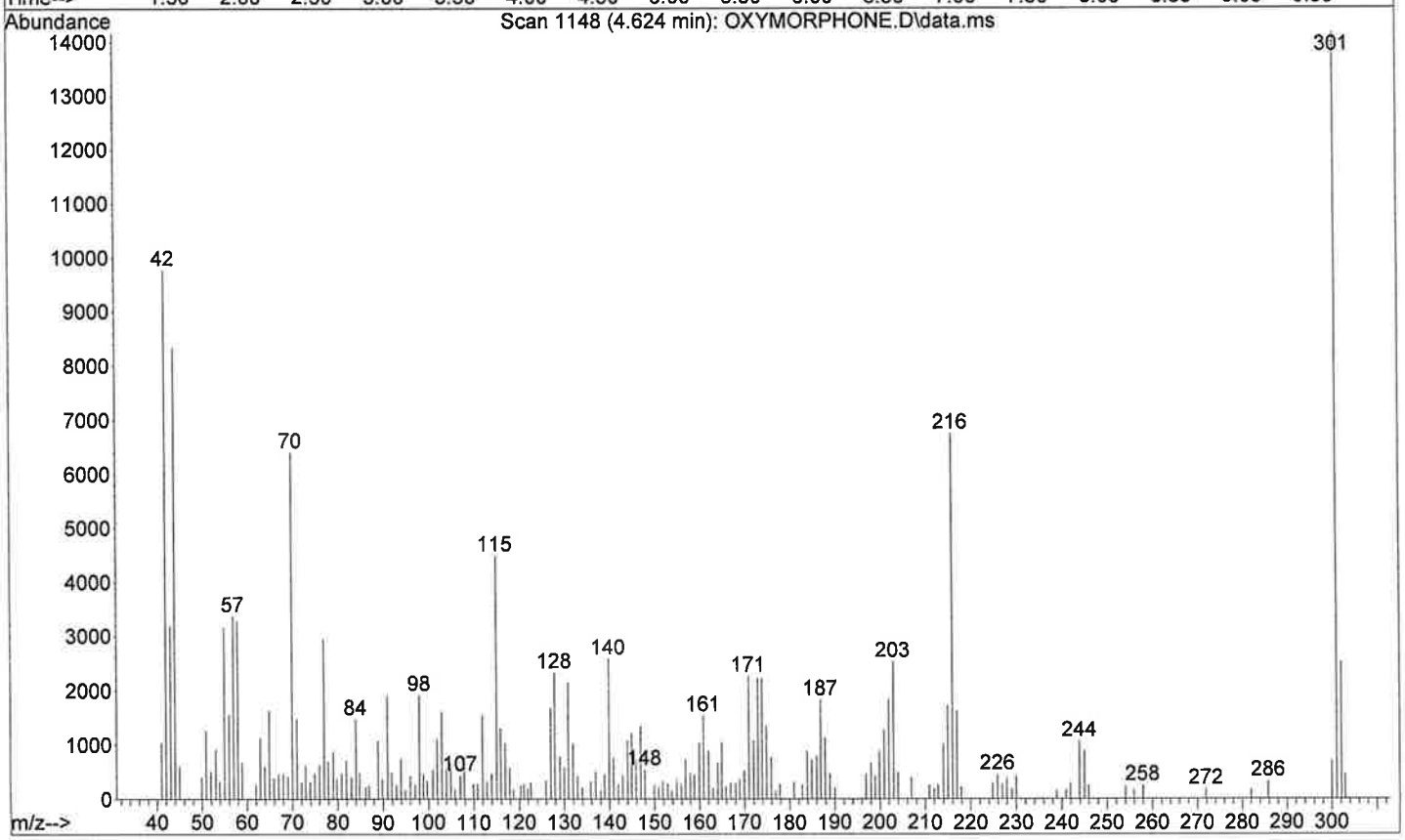
File :C:\msdchem\1\DATA\JLS\OXYCODONE.D
Operator : JOHN SCOTT, JR.
Acquired : 8 Feb 2011 9:29 using AcqMethod MSDRUGS.M
Instrument : Espresso
Sample Name: CERILLIANT LOT FE062707-01
Misc Info : MEOH
Vial Number: 1



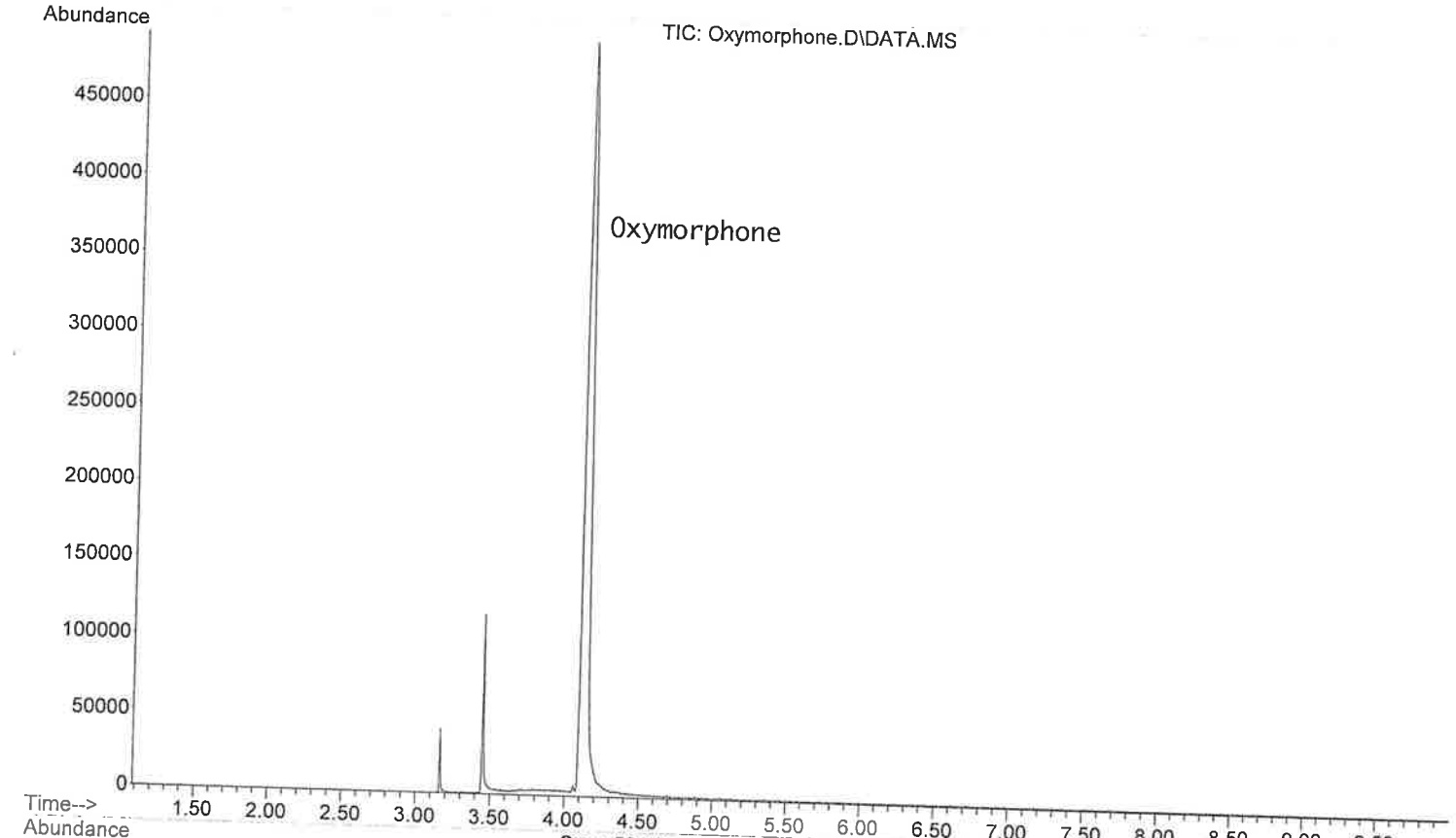


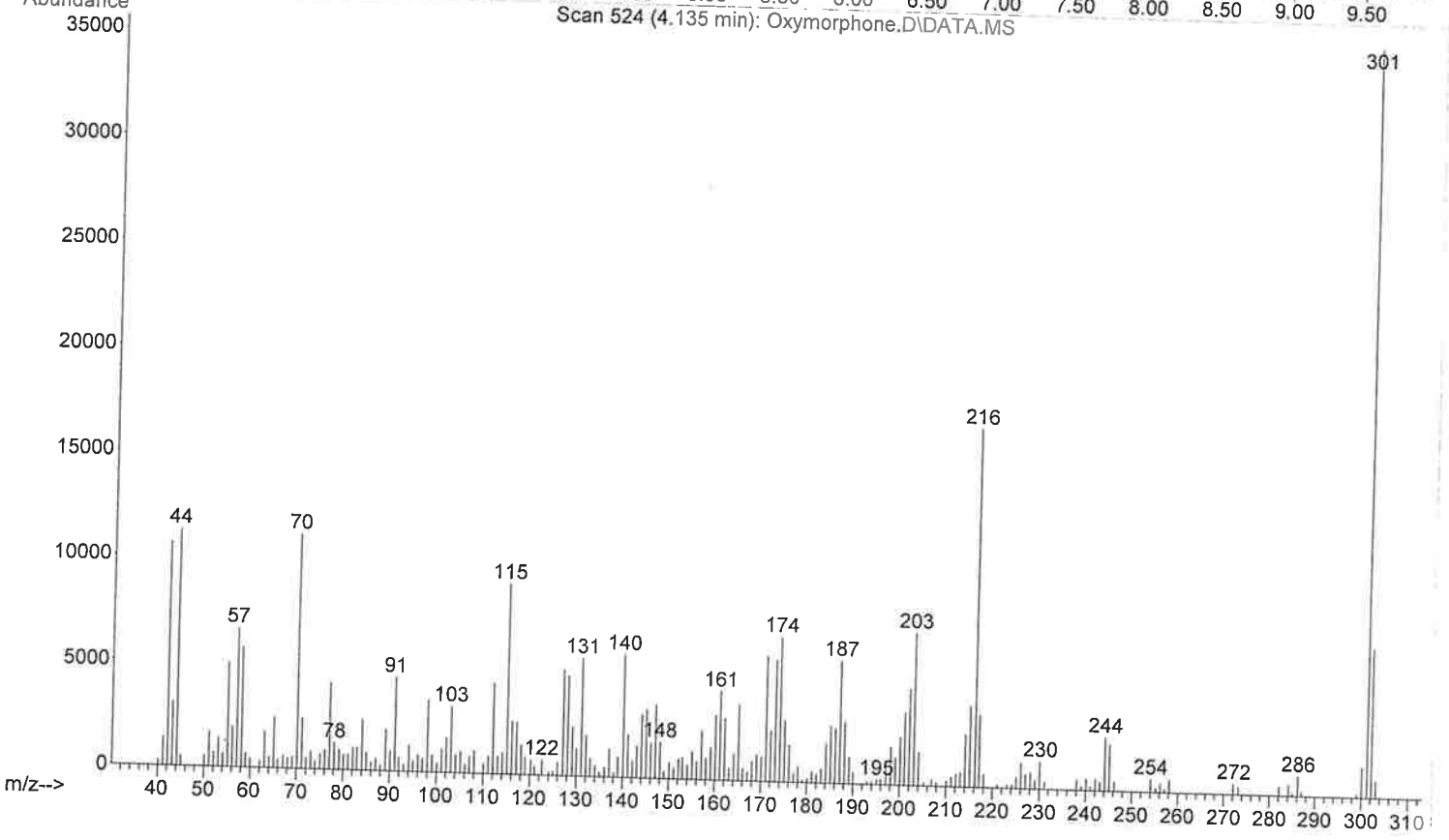
File :D:\Data\Standards\OXYMORPHONE.D
Operator : John Scott, Jr.
Acquired : 21 Jan 2011 12:43 using AcqMethod PMDrugs.M
Instrument : Eggroll
Sample Name: Endo Lot R-13-380-1 @
Misc Info : MeOH
Vial Number: 1



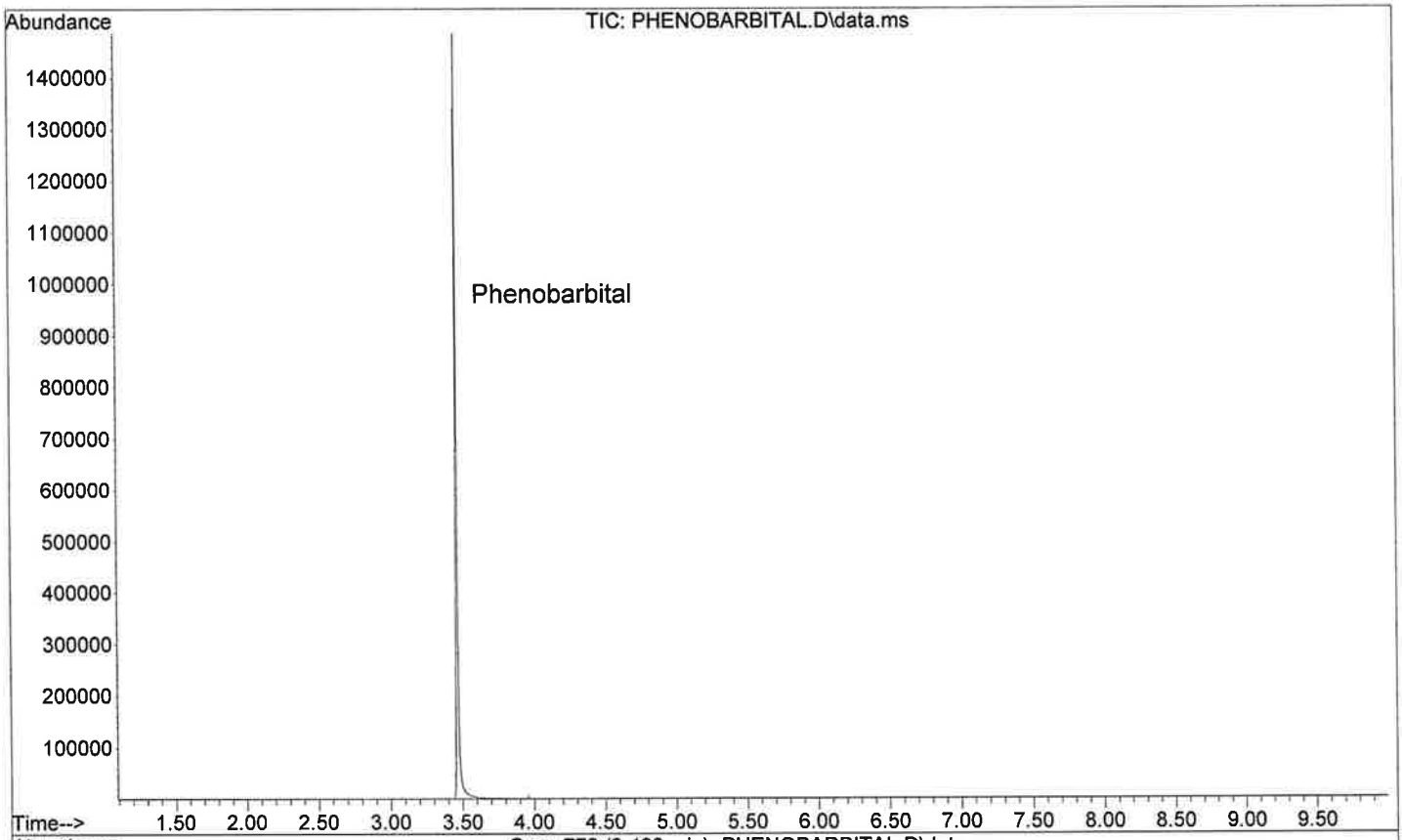


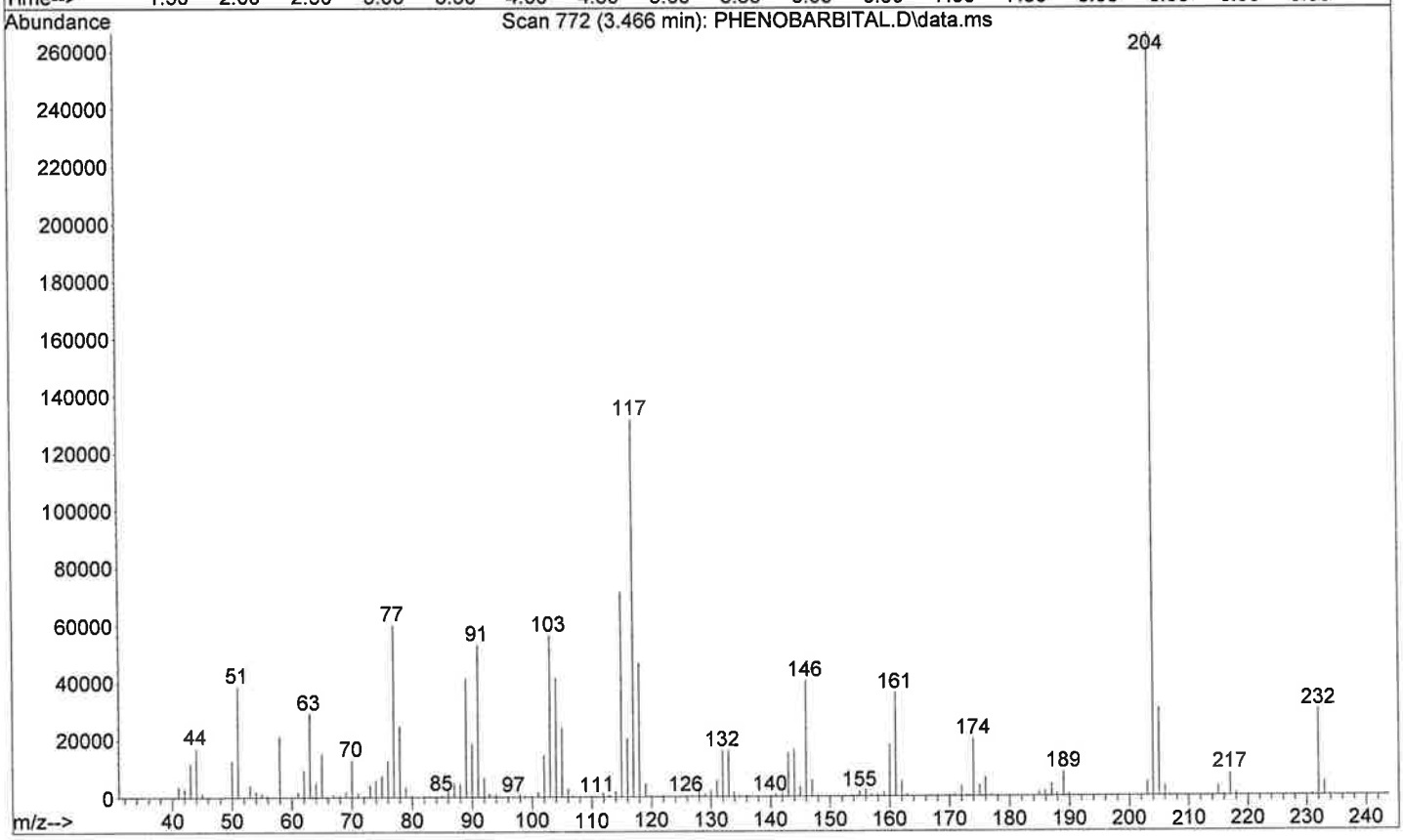
File : D:\JLS\SEQUEN\Oxymorphone.D
Operator : NASHVILLE LAB
Acquired : 3 Feb 2011 16:38 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Endo Lot R-13-380-1 (40)
Misc Info : MeOH
Vial Number: 3



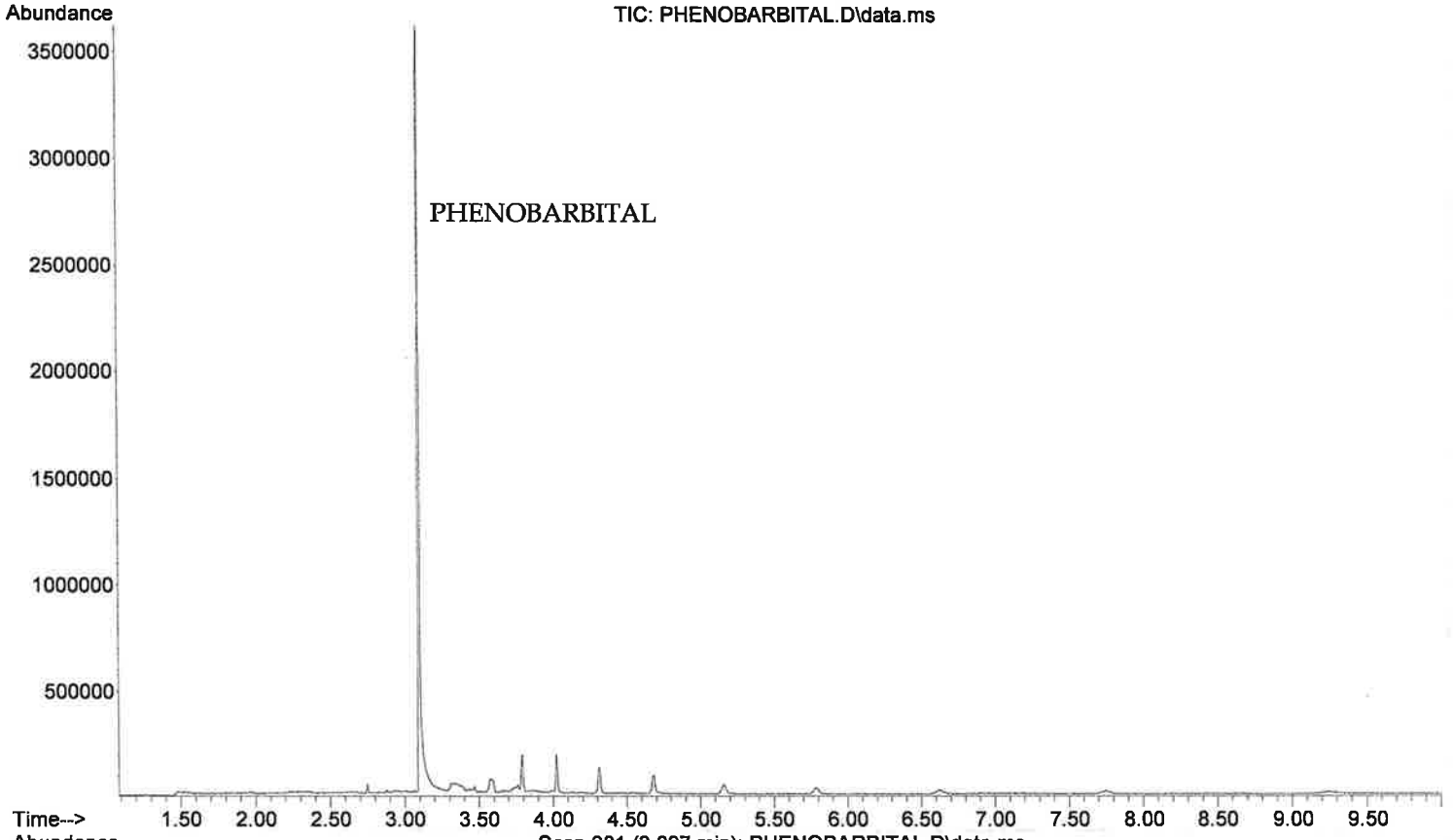


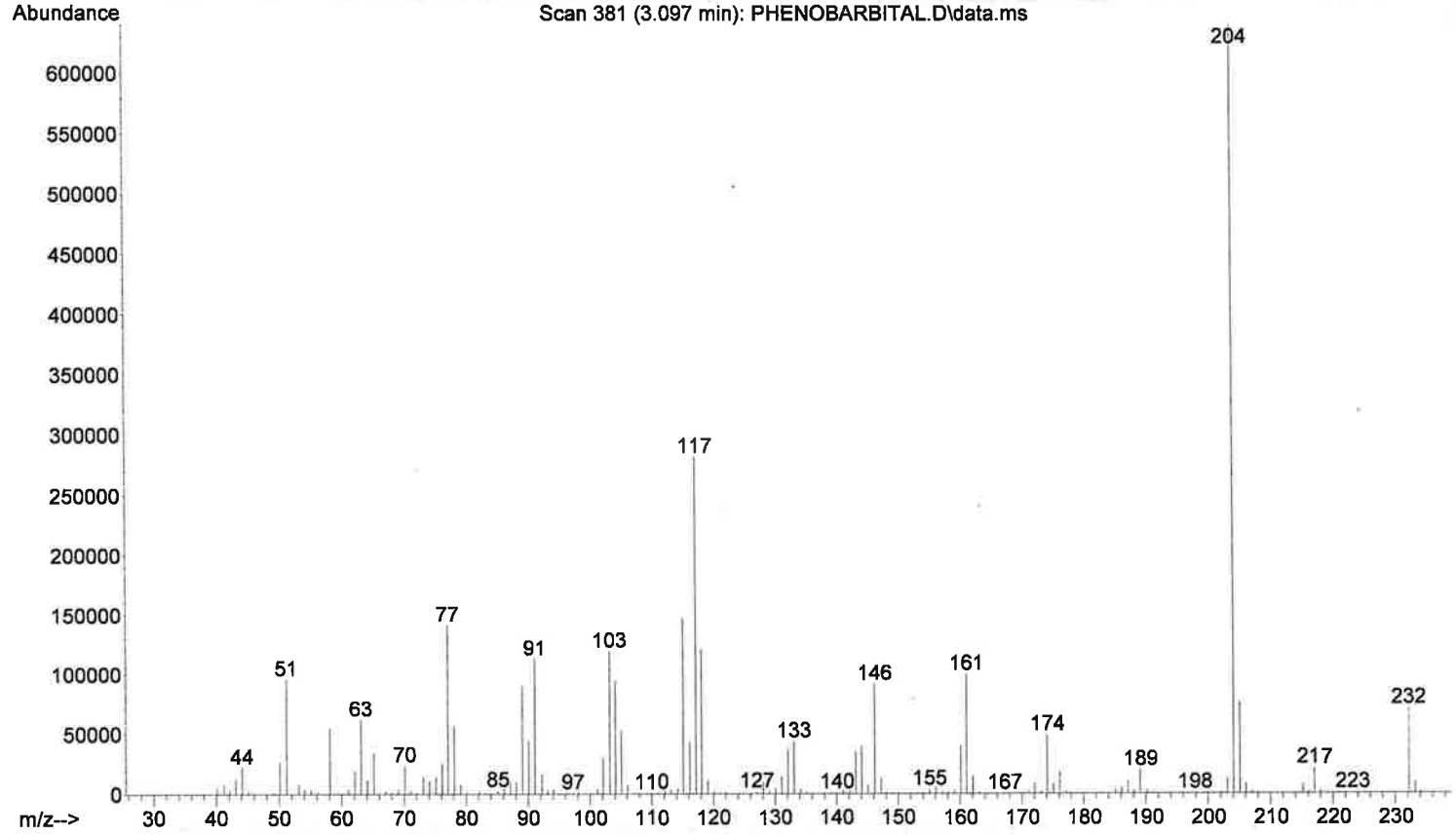
File :D:\Data\Standards\PHENOBARBITAL.D
Operator : John Scott, Jr.
Acquired : 19 Jan 2011 00:49 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Lot. 537
Misc Info : MeOH
Vial Number: 1



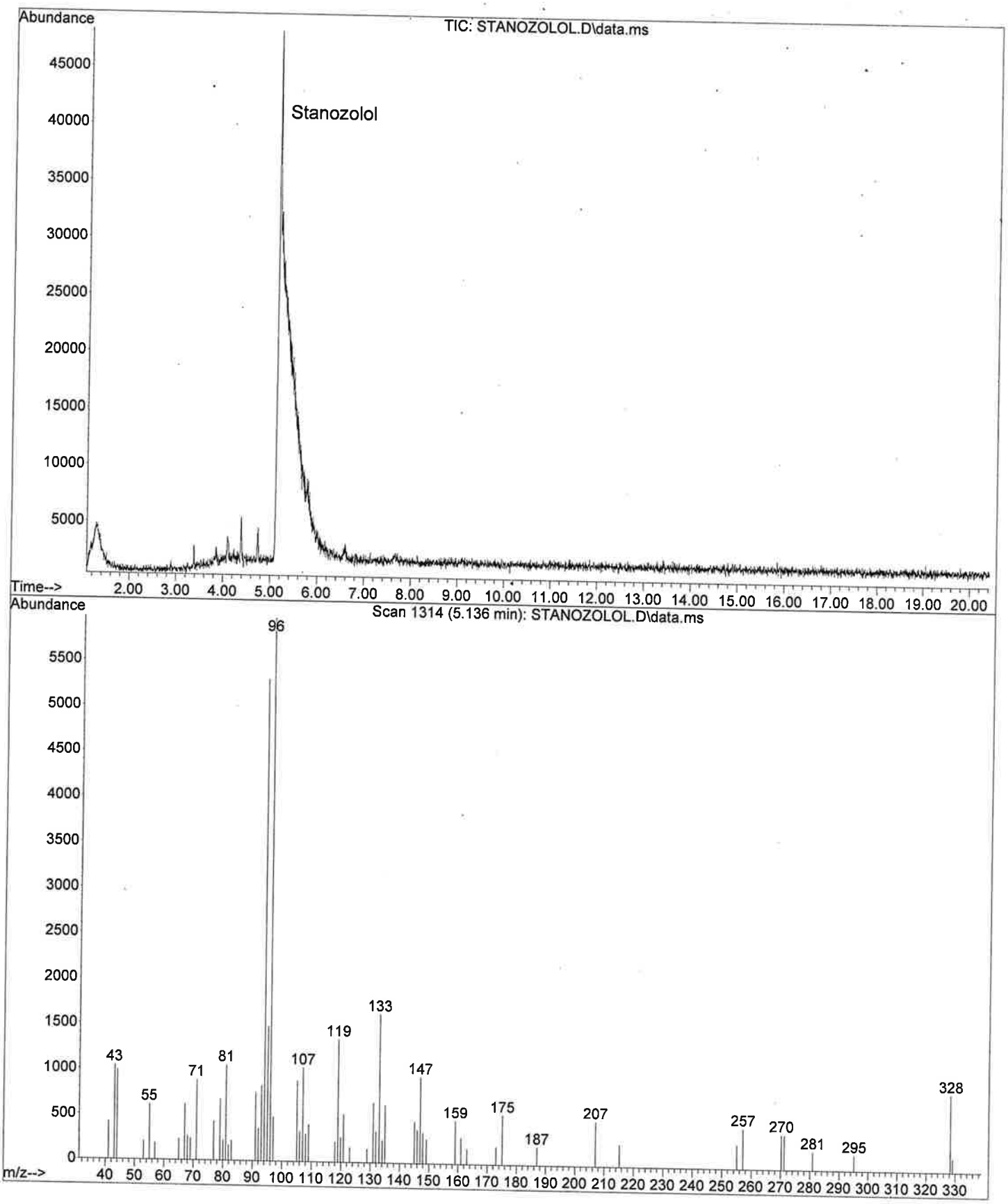


File :C:\msdchem\1\DATA\JLS\PHENOBARBITAL.D
Operator : JOHN SCOTT, JR.
Acquired : 8 Feb 2011 14:00 using AcqMethod MSDRUGS.M
Instrument : Espresso
Sample Name: LOT 537
Misc Info : Methanol
Vial Number: 1

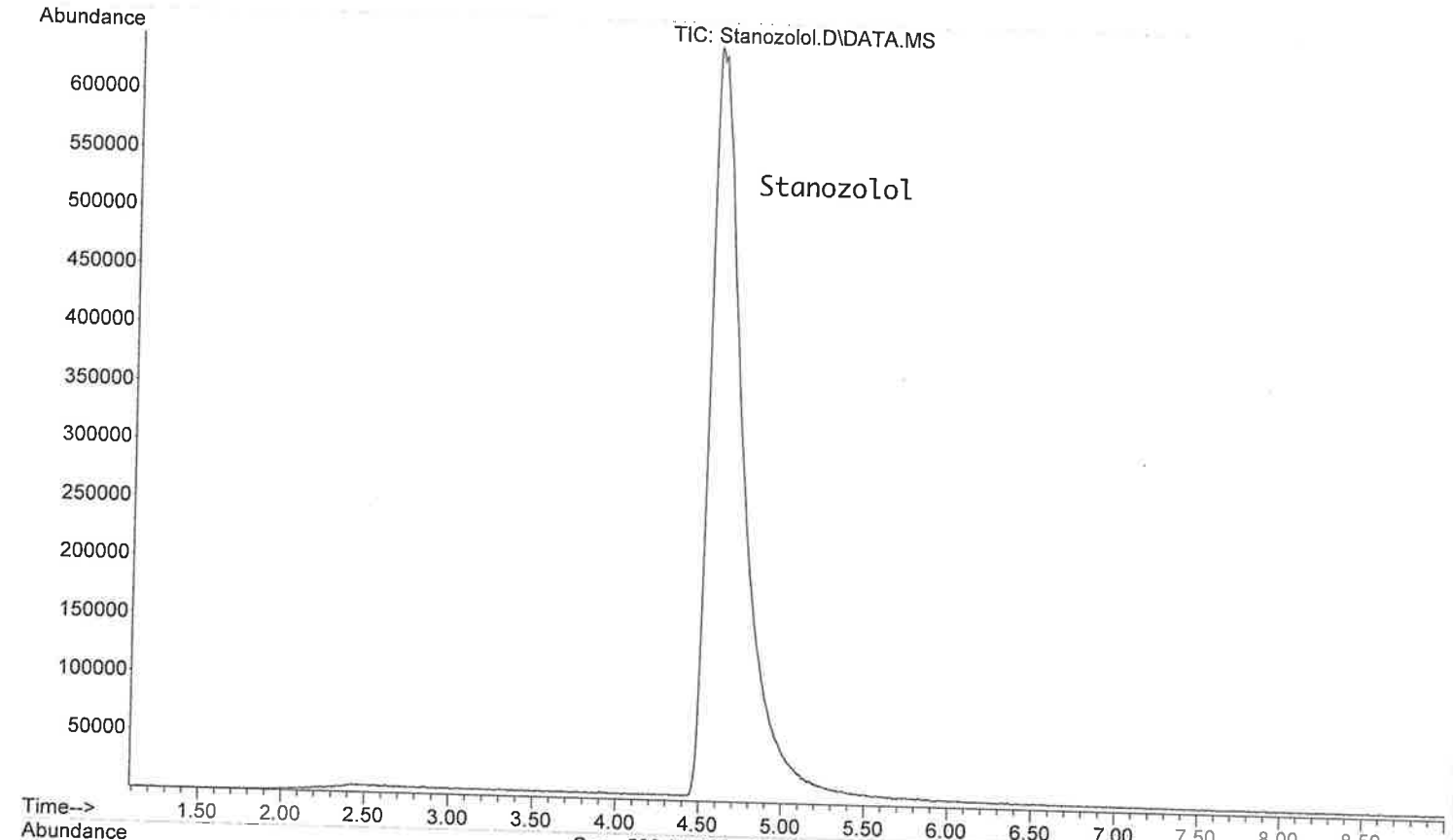


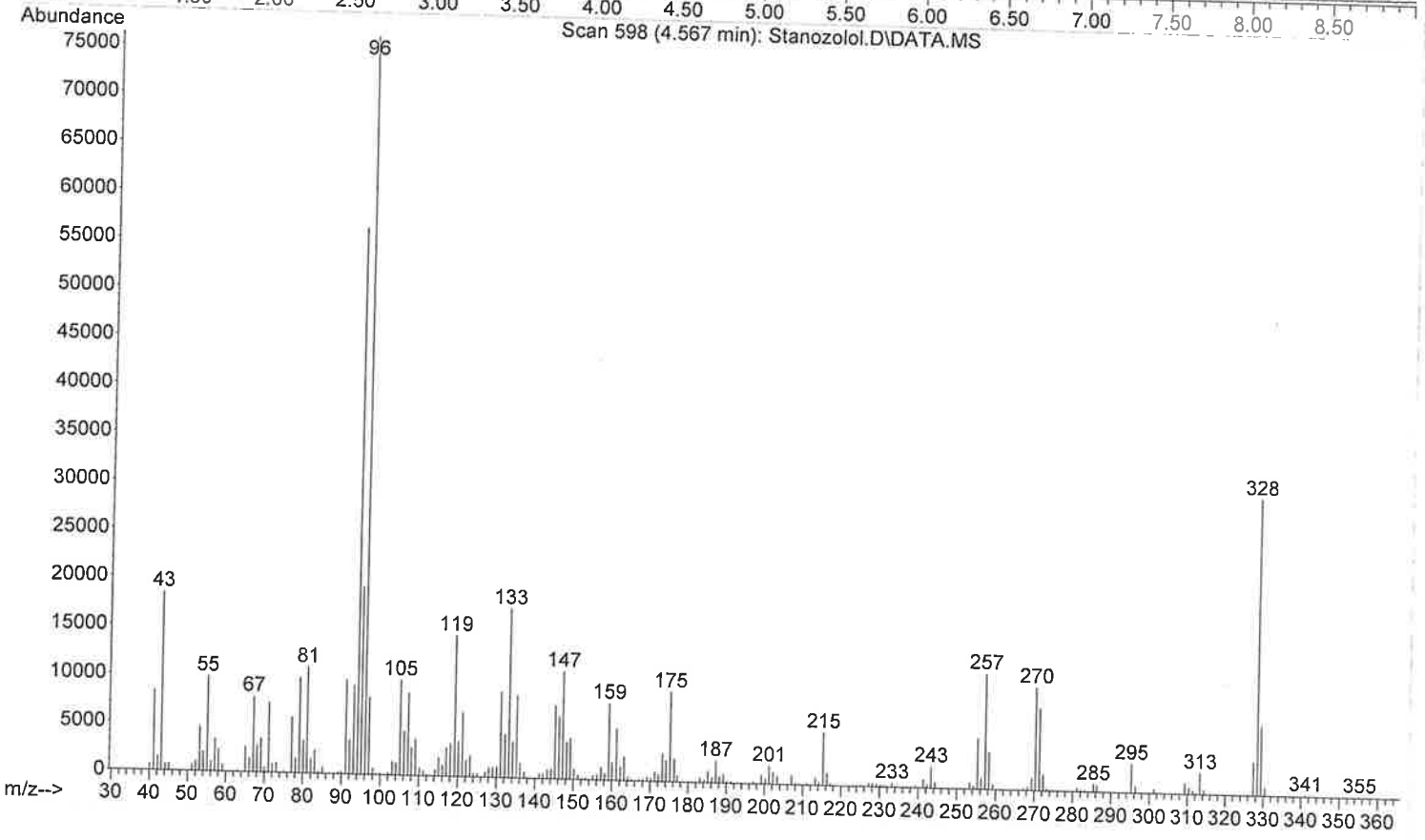


File : D:\Data\Standards\STANOZOLOL.D
Operator : John Scott, Jr.
Acquired : 21 Jan 2011 9:46 using AcqMethod STEROIDS.M
Instrument : Eggroll
Sample Name: Lot 21H0548
Misc Info : MeOH
Vial Number: 1

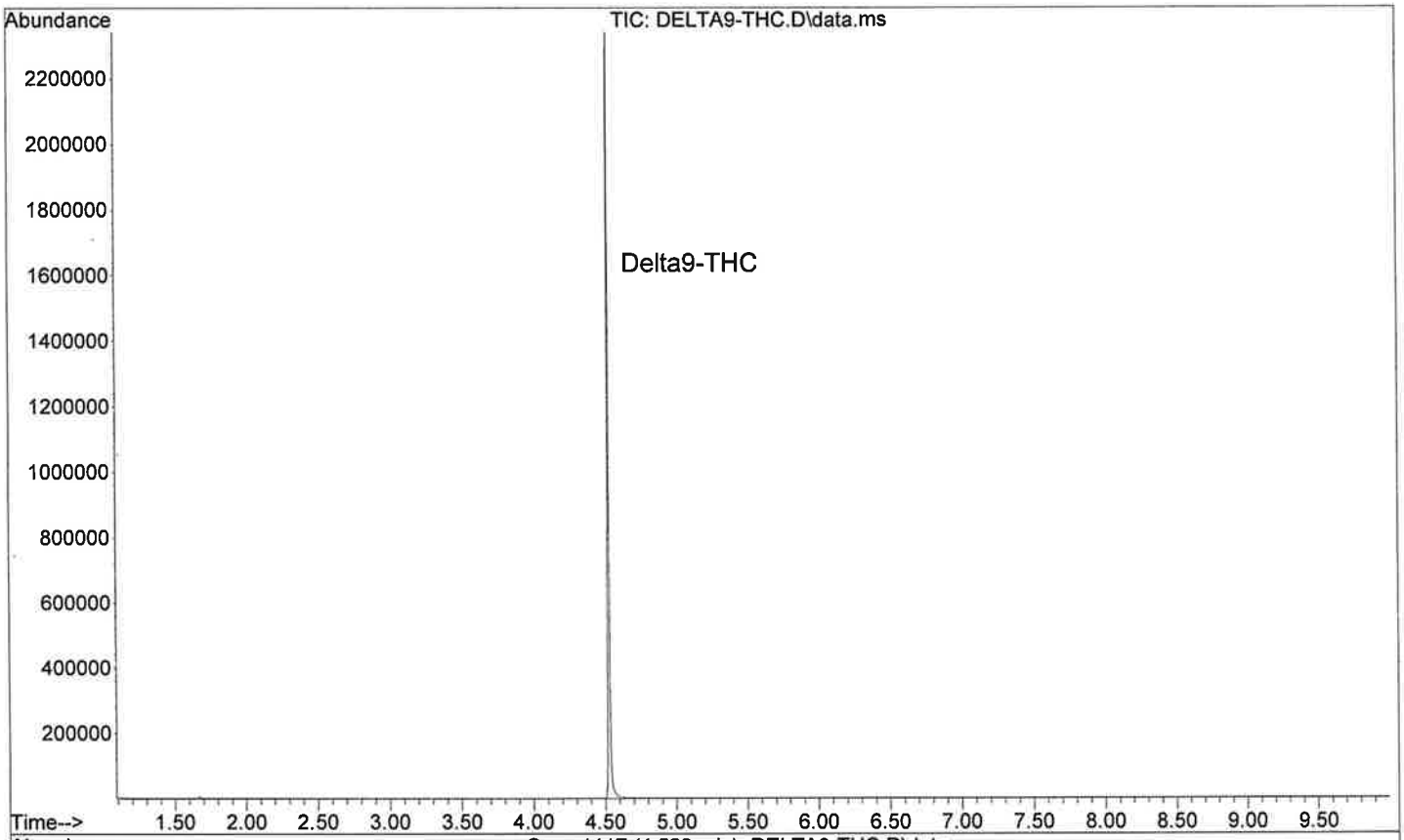


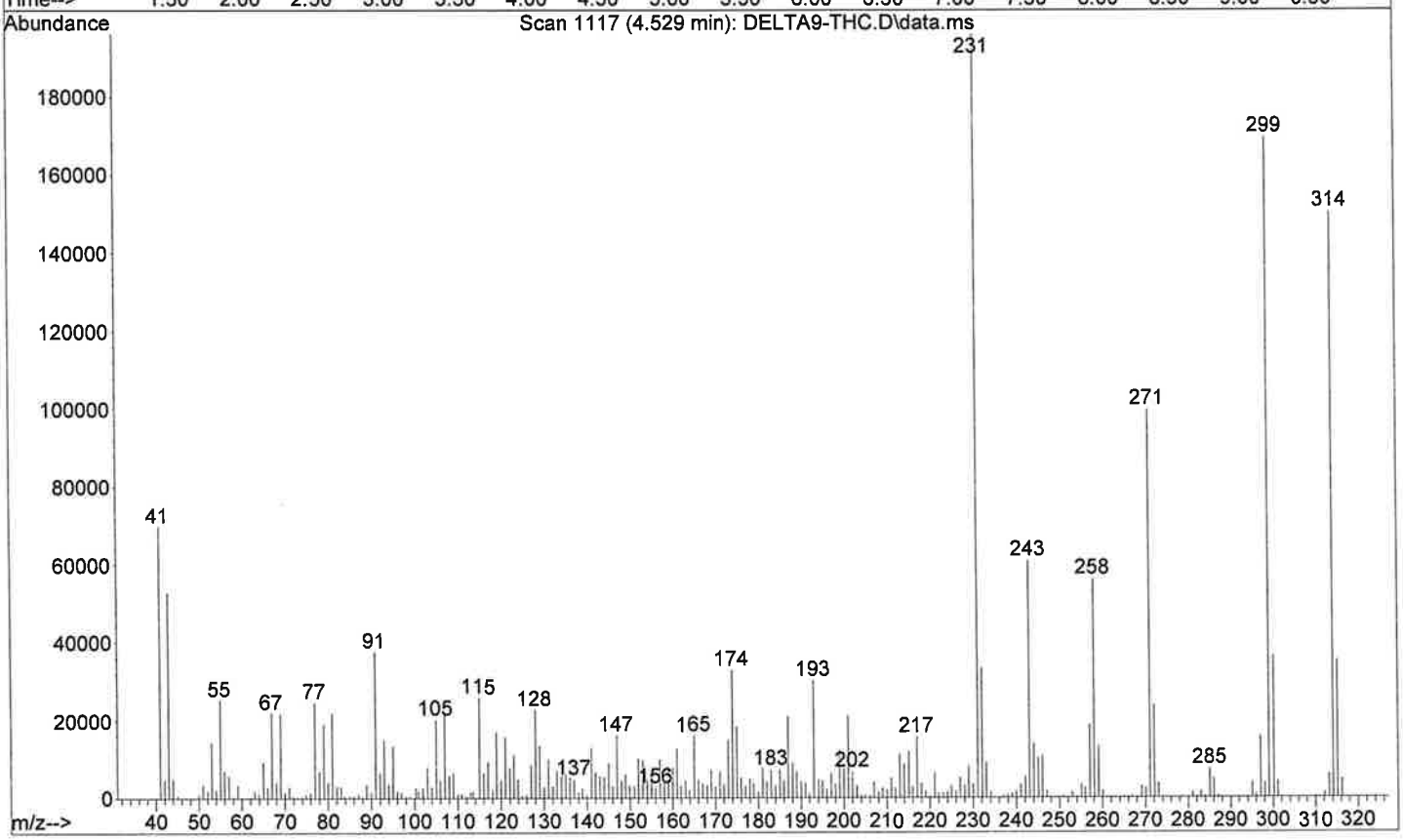
File :D:\JLS\SEQUEN\Stanozolol.D
Operator : NASHVILLE LAB
Acquired : 4 Feb 2011 17:29 using AcqMethod ASMS200.M
Instrument : Donna 2
Sample Name: Lot 21H0548@
Misc Info : MeOH
Vial Number: 7



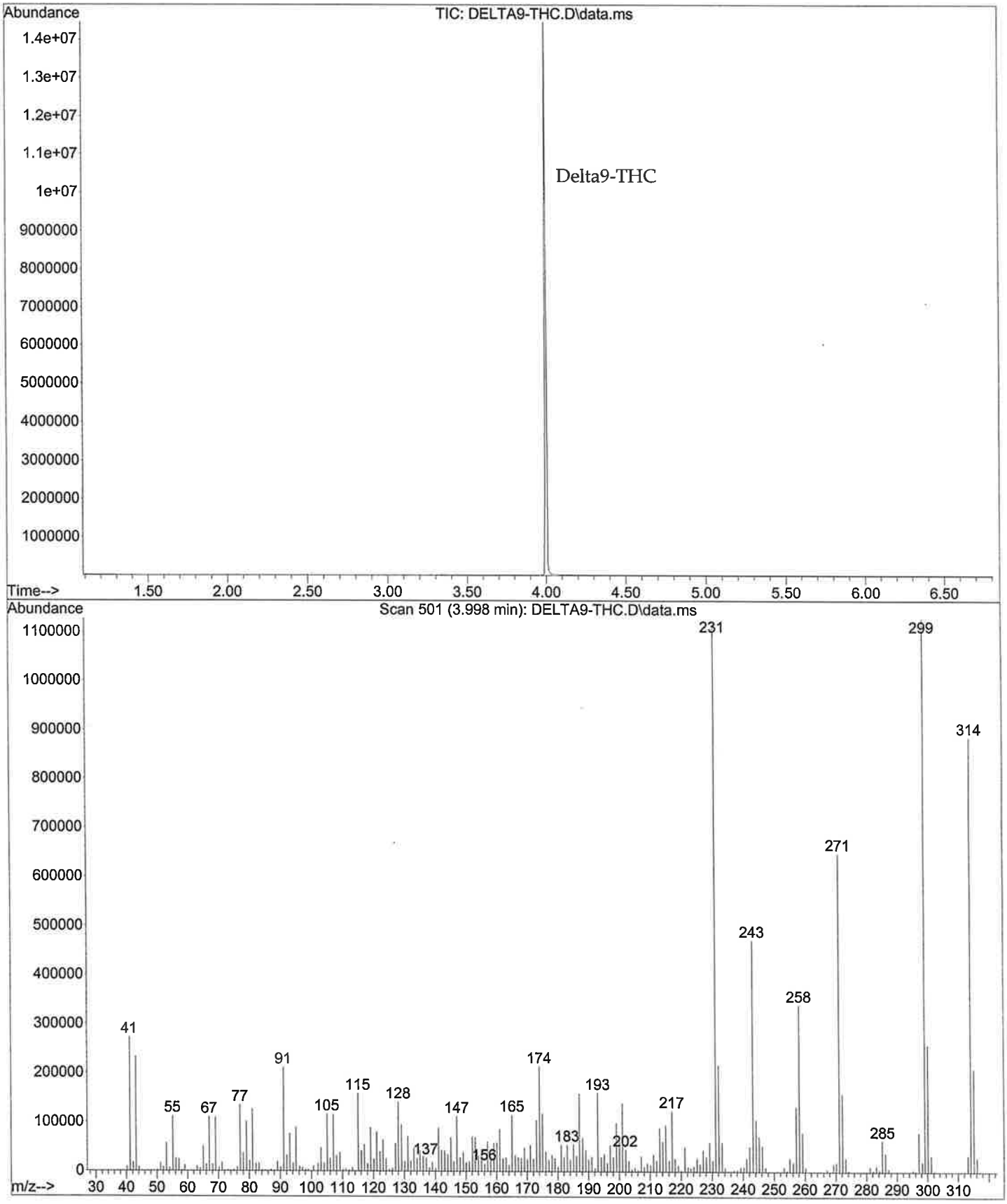


File :D:\Data\Standards\DELTA9-THC.D
Operator : John Scott, Jr.
Acquired : 14 Jan 2011 22:52 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Cerilliant Lot FE021710-01
Misc Info : MeOH
Vial Number: 1

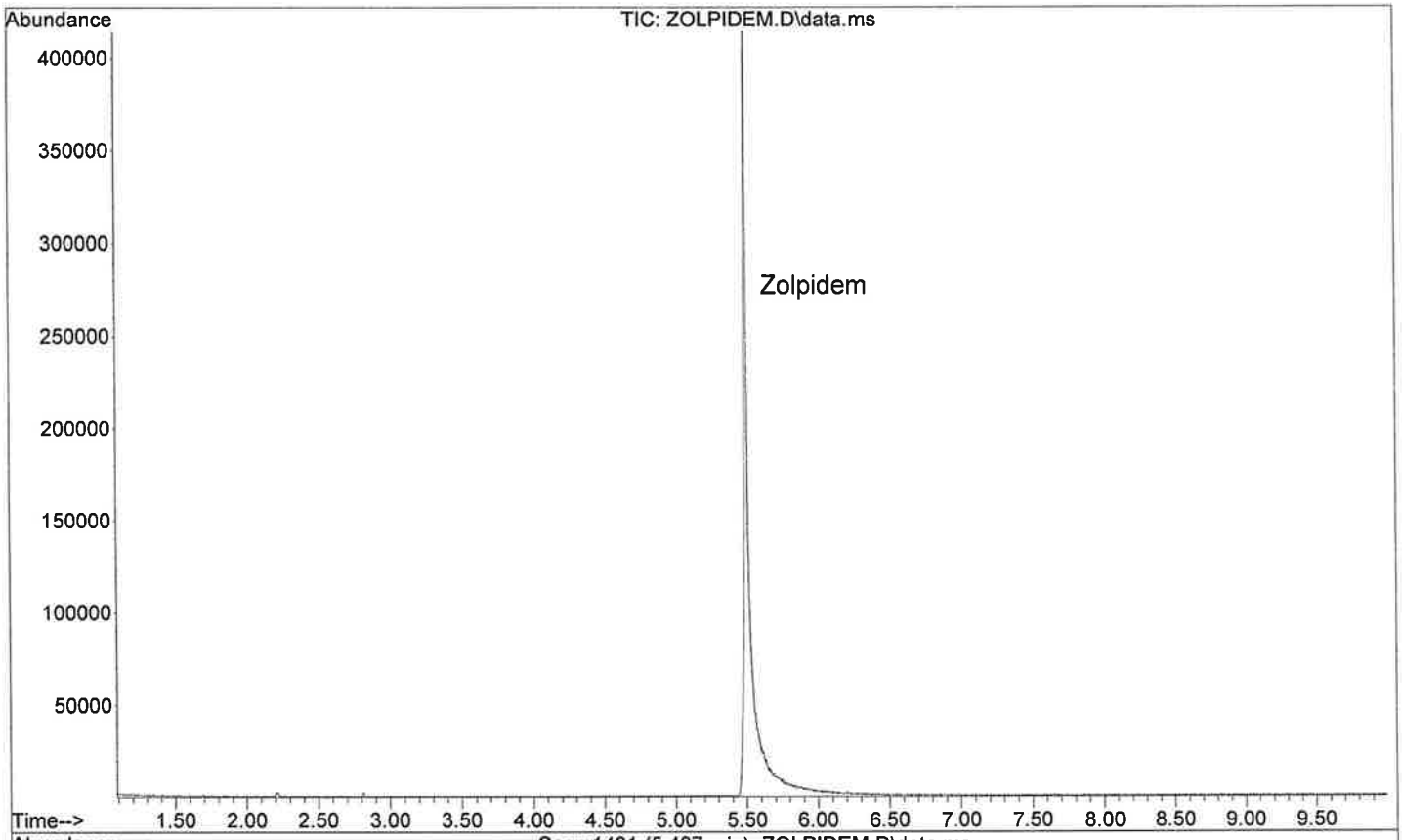


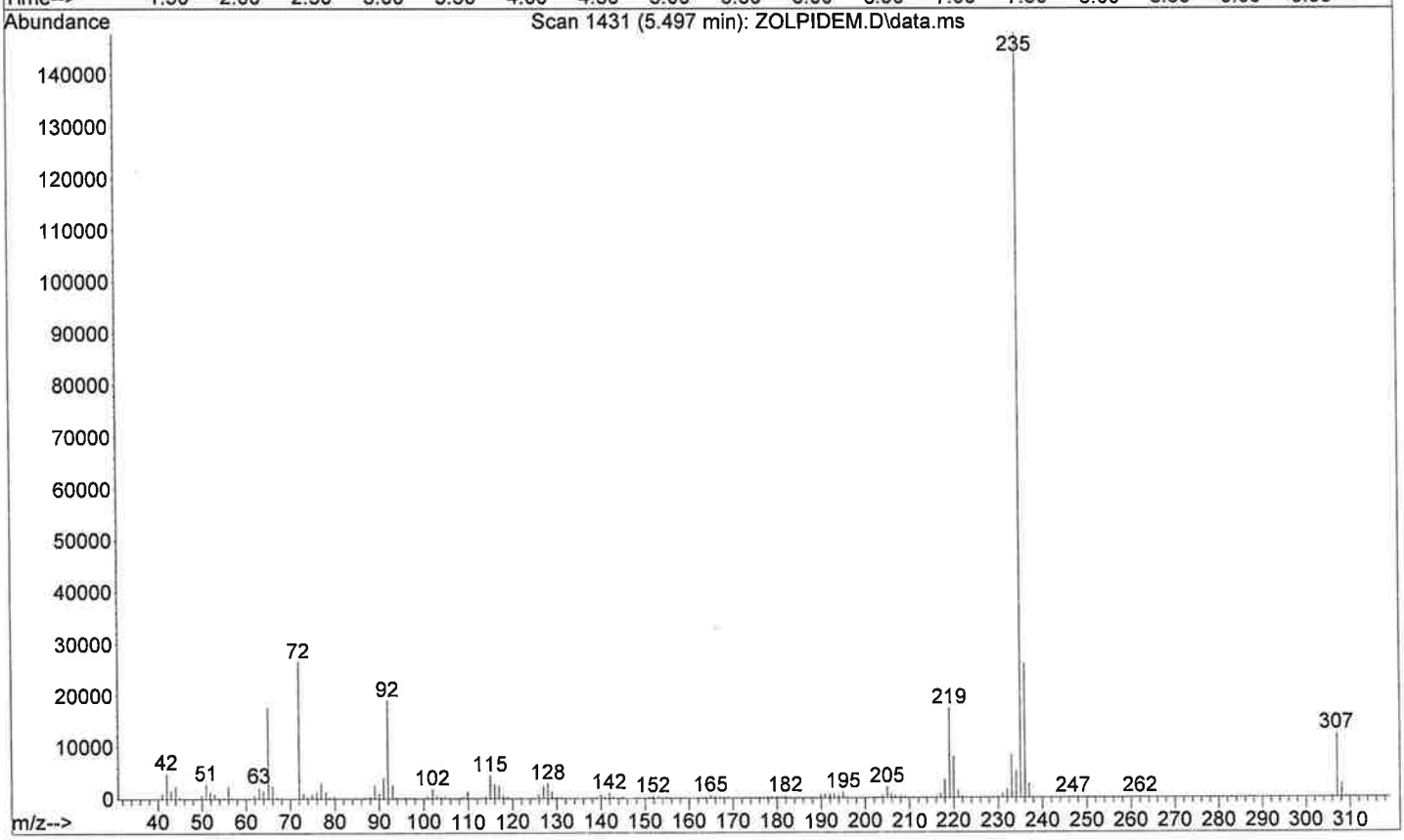


File :C:\msdchem\1\DATA\JLS\DELTA9-THC.D
Operator : John Scott, Jr.
Acquired : 3 Feb 2011 15:55 using AcqMethod MSDRUGS.M
Instrument : Gumbo
Sample Name: Cerilliant Lot FE021710-01
Misc Info : MeOH
Vial Number: 2

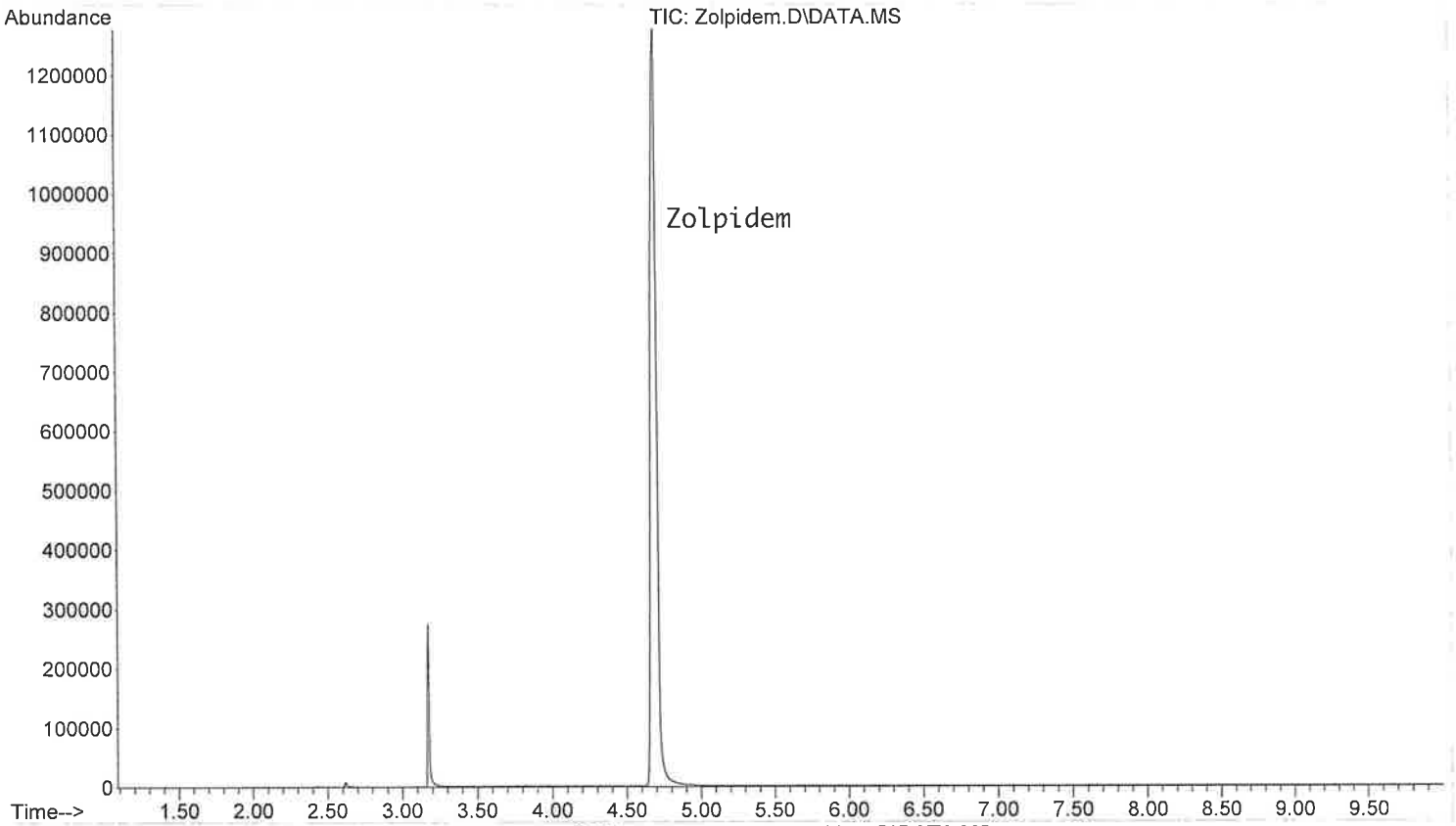


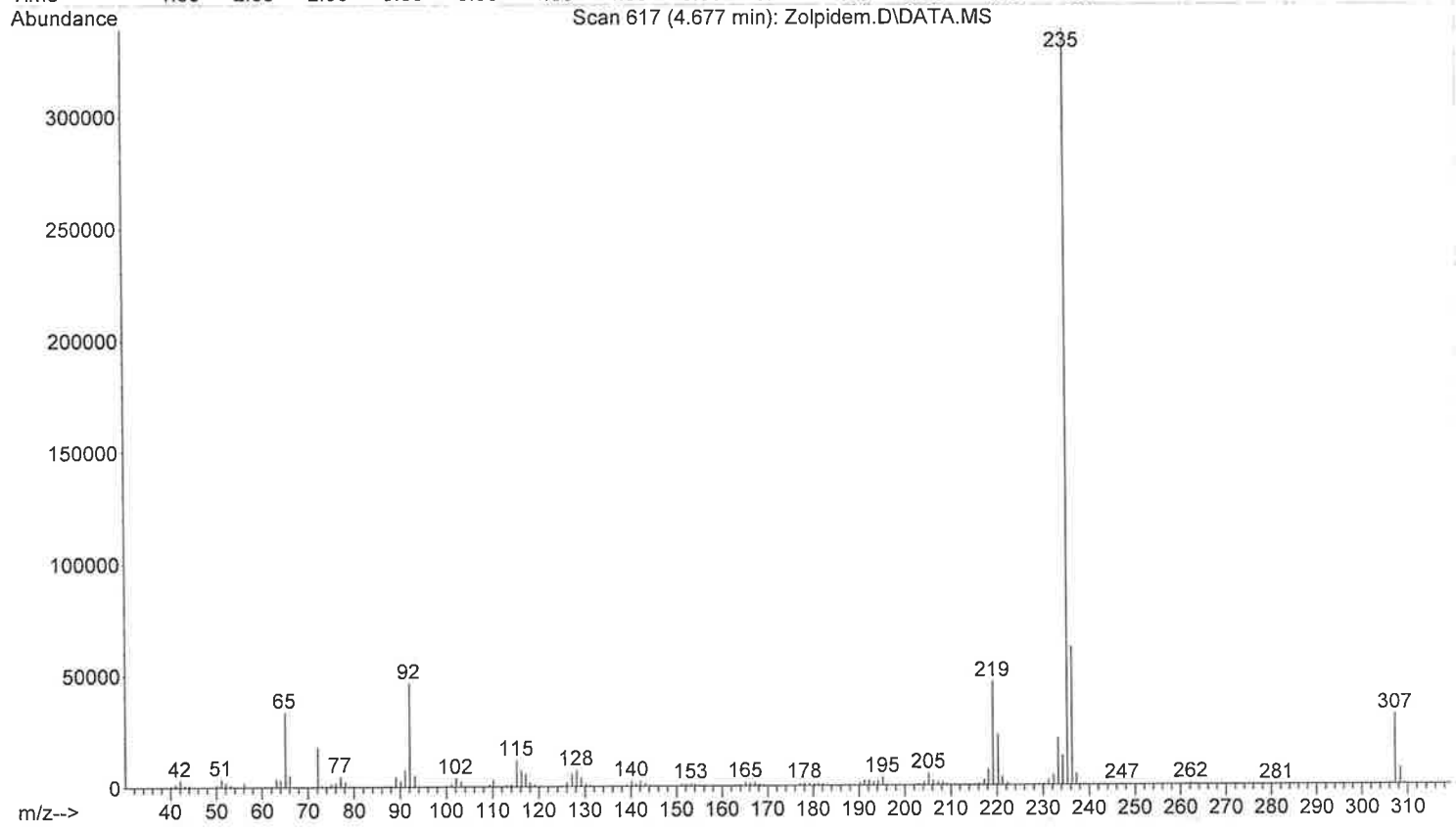
File :D:\Data\Standards\ZOLPIDEM.D
Operator : John Scott, Jr.
Acquired : 19 Jan 2011 2:39 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Lorex Pharm. Lot 16010 Bottle B (#2)
Misc Info : MeOH
Vial Number: 1





File :D:\JLS\SEQUEN\Zolpidem.D
Operator : NASHVILLE LAB
Acquired : 4 Feb 2011 17:56 using AcqMethod ASMSDRUGS.M
Instrument : Donna 2
Sample Name: Lorex Pharm. Lot 16010 Bottle B @
Misc Info : MeOH
Vial Number: 8





REFERENCE DATA

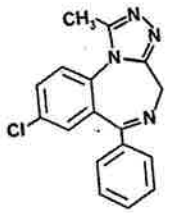
AS COMPARED WITH GC/MS

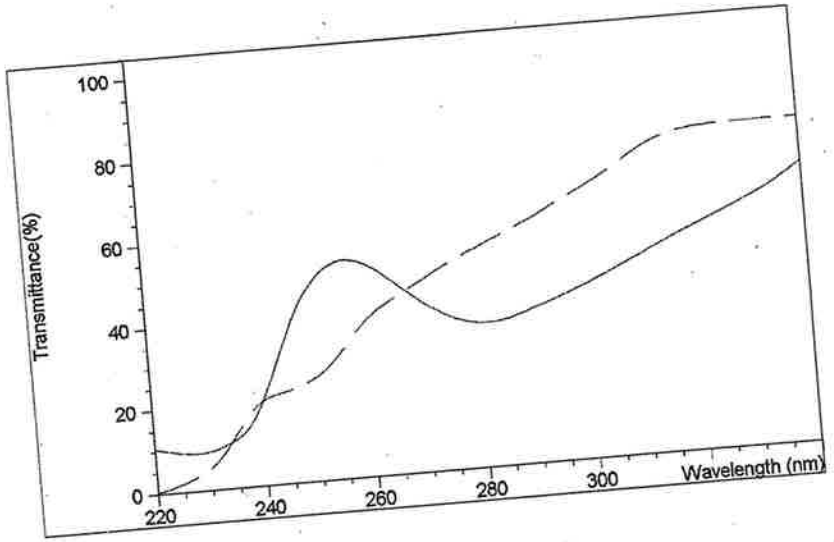
ALPRAZOLAM

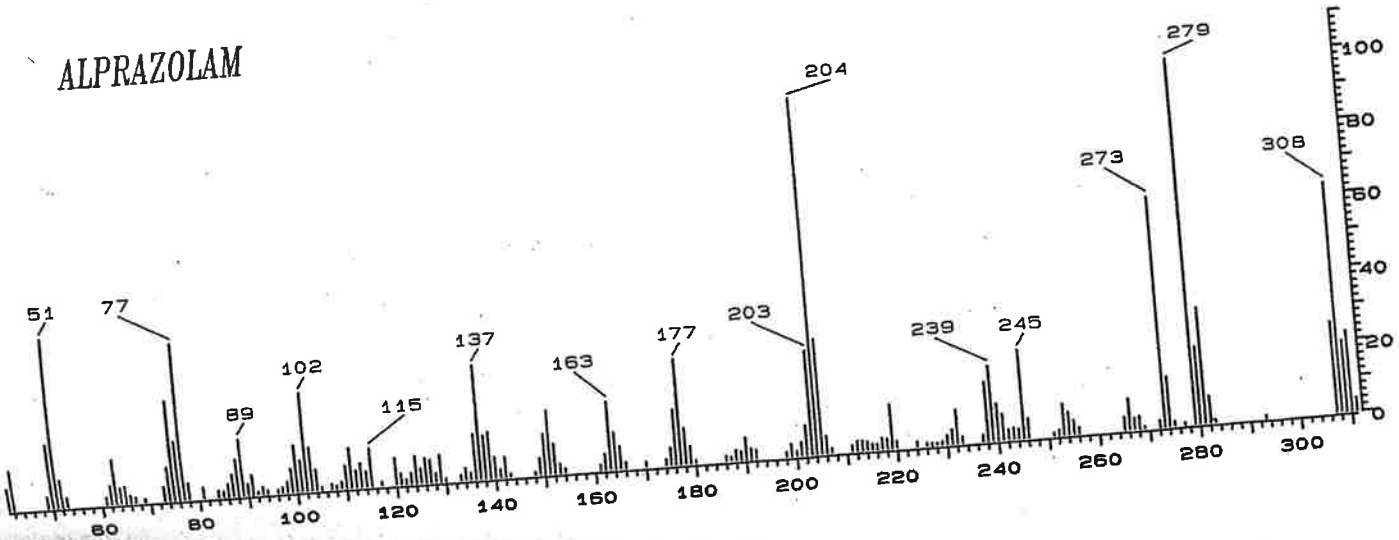
$C_{17}H_{13}N_4Cl$

Molecular weight: 308.77 (308.08)
Synonyms: 8-Chloro-1-methyl-6-phenyl-4H-s-triazolo[4,3-α]-[1,4]benzodiazepine
Trade names: Xanax

Use: Tranquilizer
HPLC: Si-10; 4A:96B; 5.0
GC: 3041; 280°C





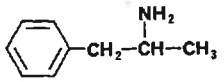


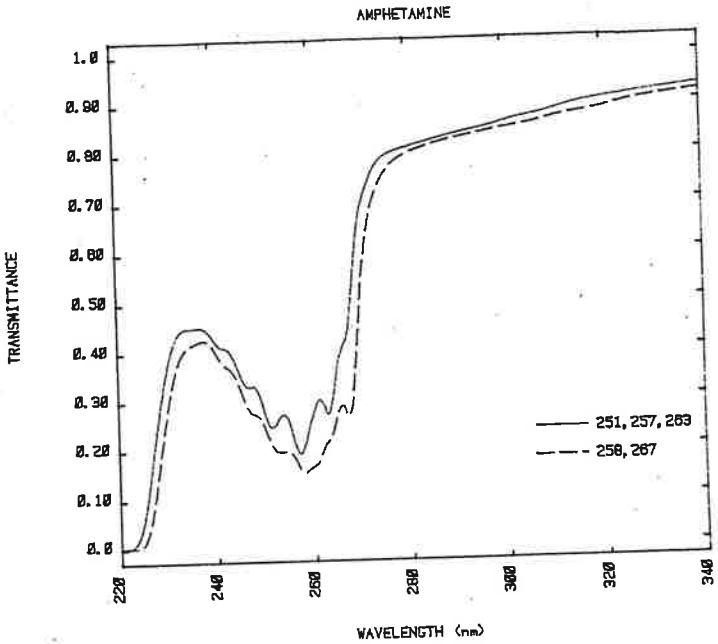
AMPHETAMINE

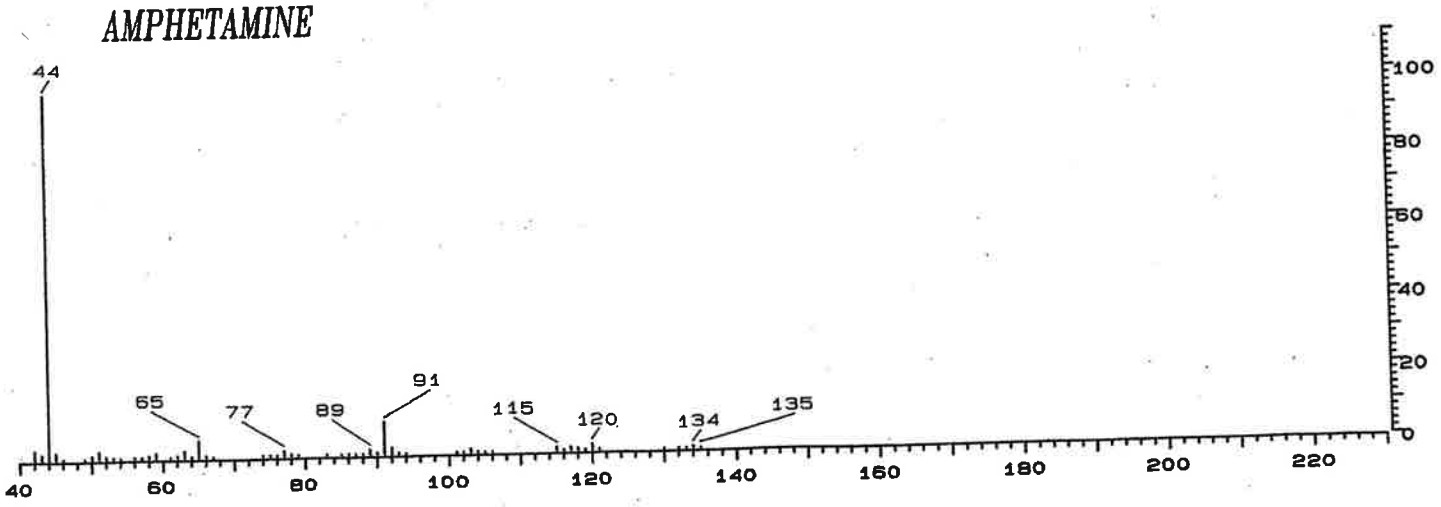
$C_9H_{13}N$

Molecular weight: 135.21 (135.11)
Synonyms: α-Methylbenzeneethanamine; desoxynorephedrine; (phenylisopropyl)amine
Trade names: Benzedrine, Biphetamine, Delcobese, Obetrol

Use: Central stimulant
HPLC: Si-10; 10A:90B; 4.2
GC: 1124; 140°C







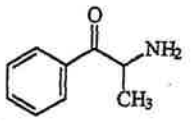
CATHINONE

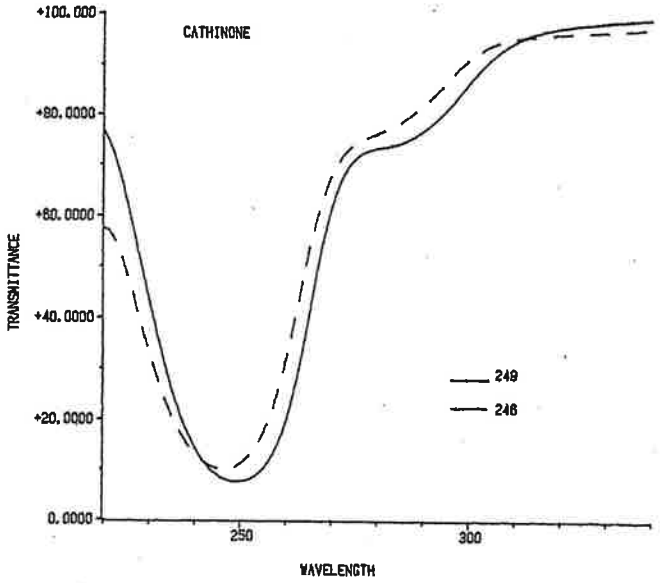
$C_9H_{11}NO$

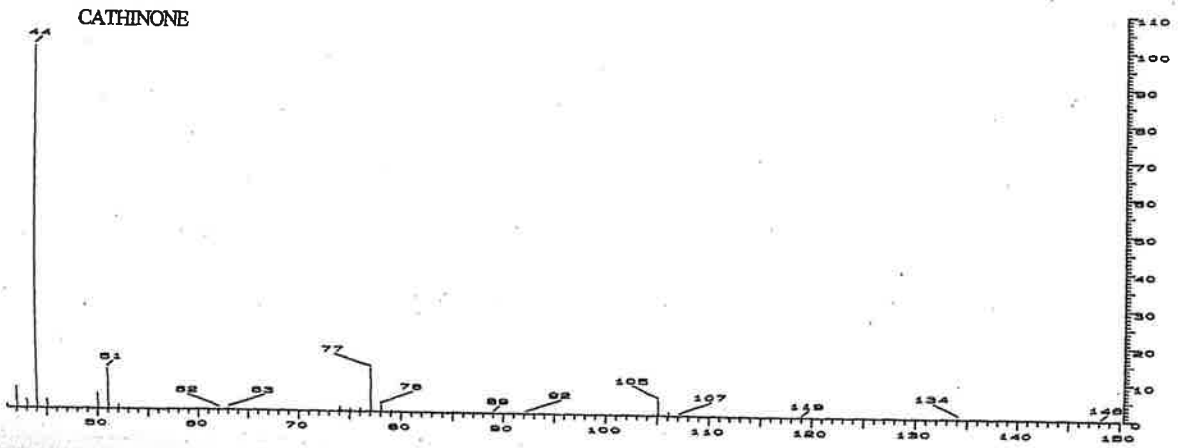
Molecular Weight: 149.19 (149.08)

Synonyms: (S)-2-Amino-1-phenyl-1-propanone; α-aminopropiophenone
Trade Names:
Use: Alkaloid from *Catha edulis*

HPLC: Methanol: 2.1
GC: 1278; 140°





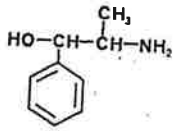


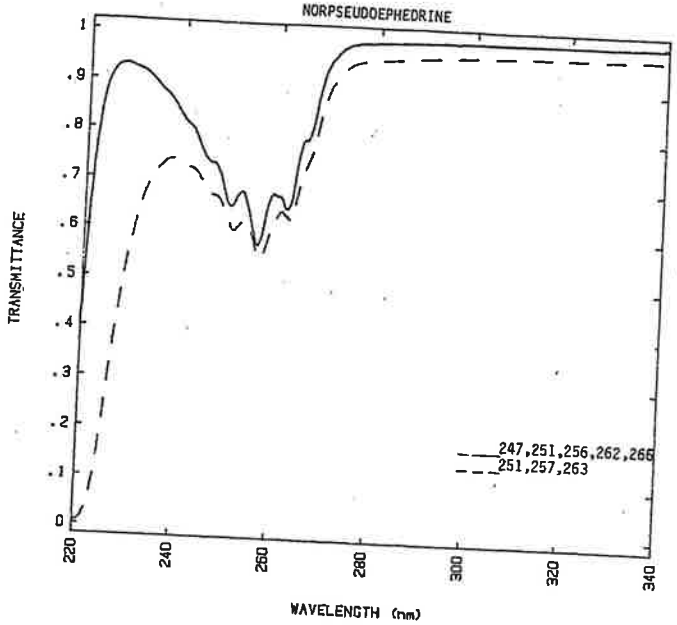
NORPSEUDOEPHEDRINE

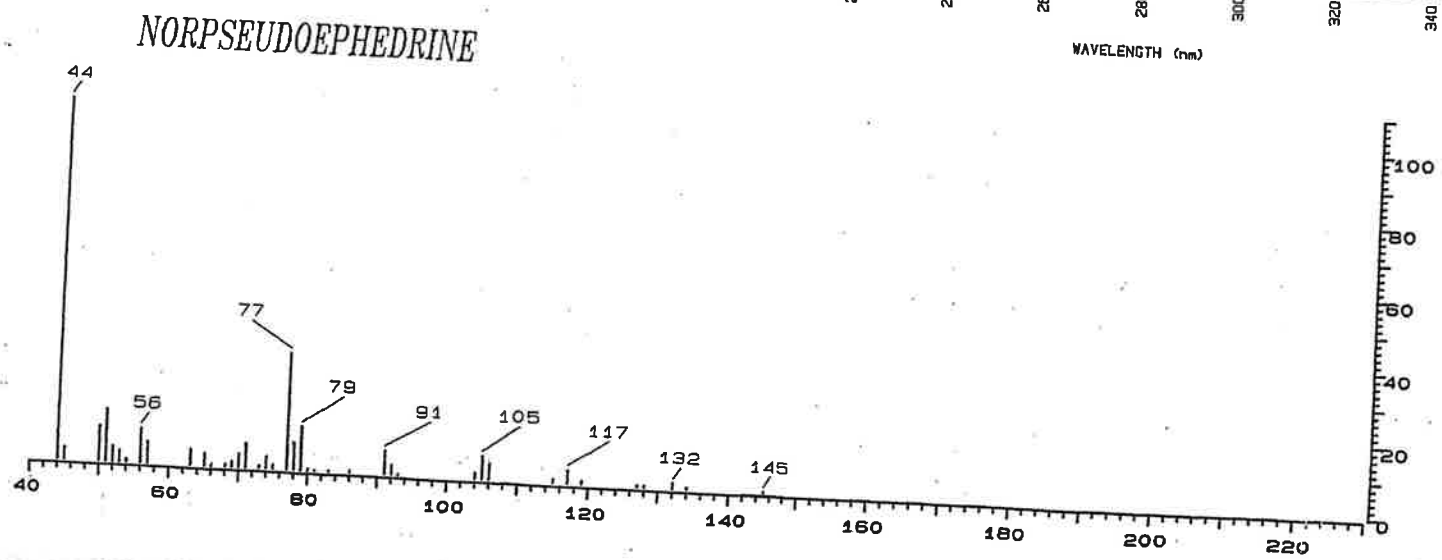
$C_9H_{13}NO$

Molecular weight: 151.21 (151.10)
Synonyms: Threo-2-amino-1-hydroxy-1-phenylpropane; pseudonorephedrine; Ψ-norephedrine; cathine; kstine; nor-Ψ-ephedrine
Trade names: Adiposettin, Amorphan, Exponcit, Fugoa, Minusin, Reduform

Use: Anorexic
HPLC: Si-10; 10A:90B; 4.1
GC: 1326; 140°C





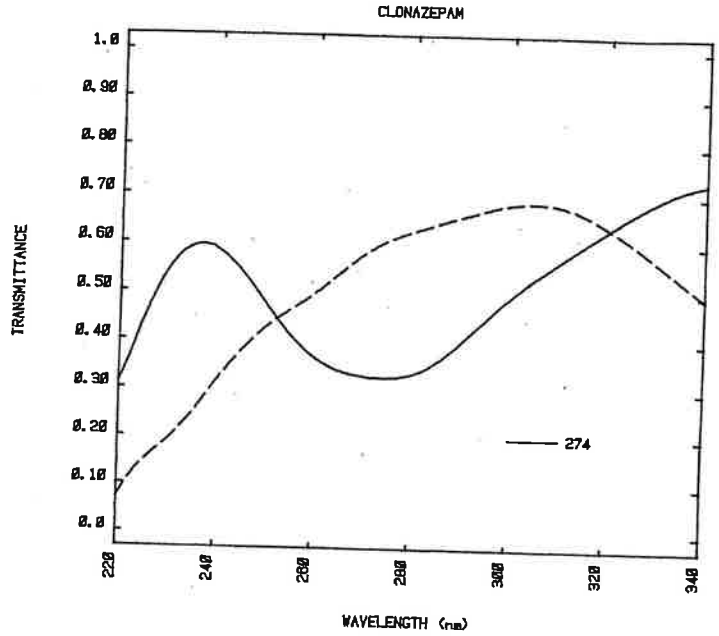


CLONAZEPAM

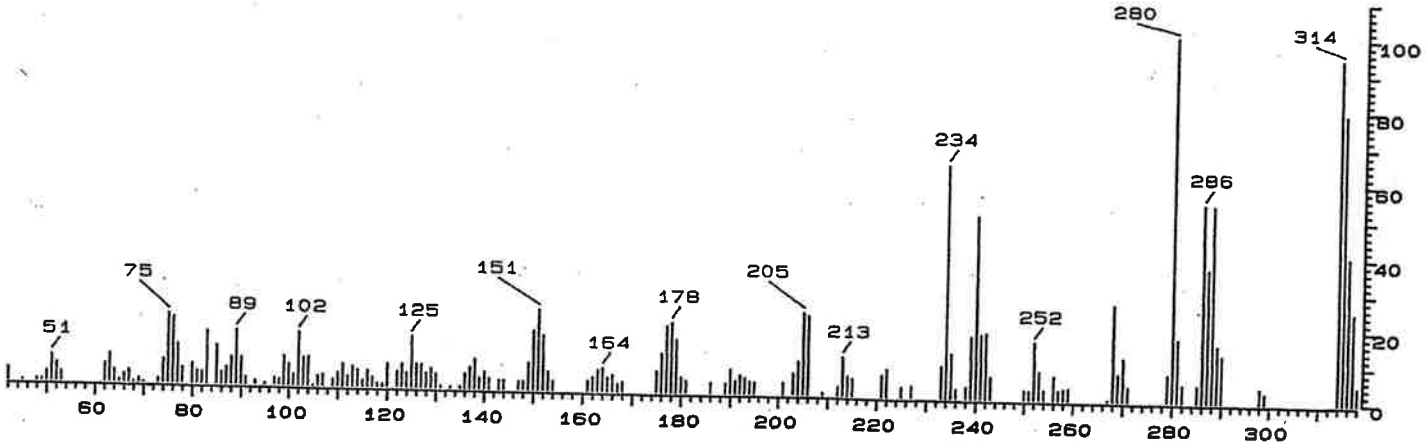
$C_{15}H_{10}ClN_3O_3$

Molecular weight: 315.72 (315.04)
Synonyms: 5-(o-Chlorophenyl)-1,3-dihydro-7-nitro-2H-1,4-benzodiazepin-2-one
Trade names: Clonopin

Use: Anticonvulsant
HPLC: Si-10; 1A:99B; 7.5
GC: 2961; 280°C



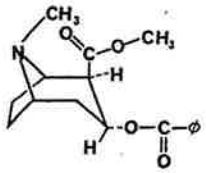
CLONAZEPAM



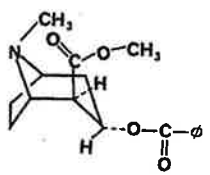
COCAINE

$C_{17}H_{21}NO_4$

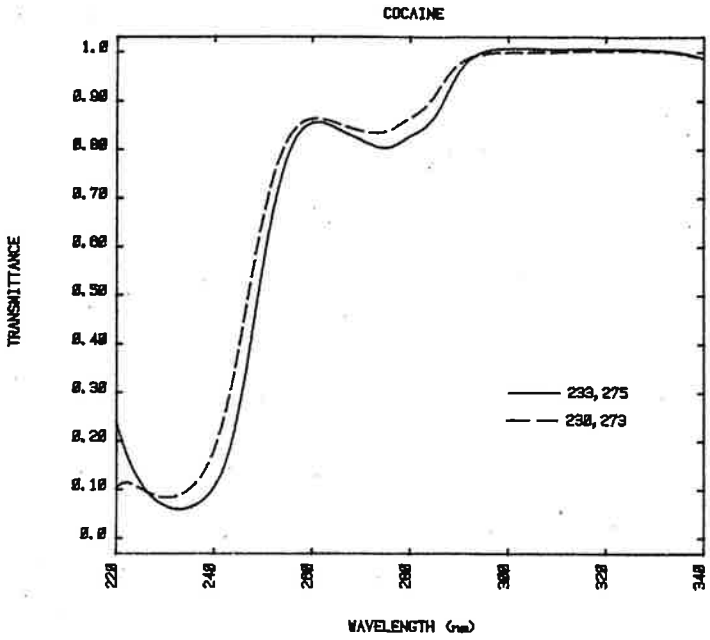
Molecular weight: 303.36 (303.15)
Synonyms: [1R-(exo,exo)]-3-(Benzoyloxy)-8-methyl-8-azabicyclo-[3.2.1]octane-2-carboxylic acid methyl ester; ecgonine methyl ester benzoate; 3β-hydroxy-1αH,5αH-tropane-2β-carboxylic acid methyl ester benzoate; benzoylmethylecgonine
Trade names:
Use: Topical anesthetic
HPLC: Si-10; 1A:99B; 7.0
GC: 2242; 250°C

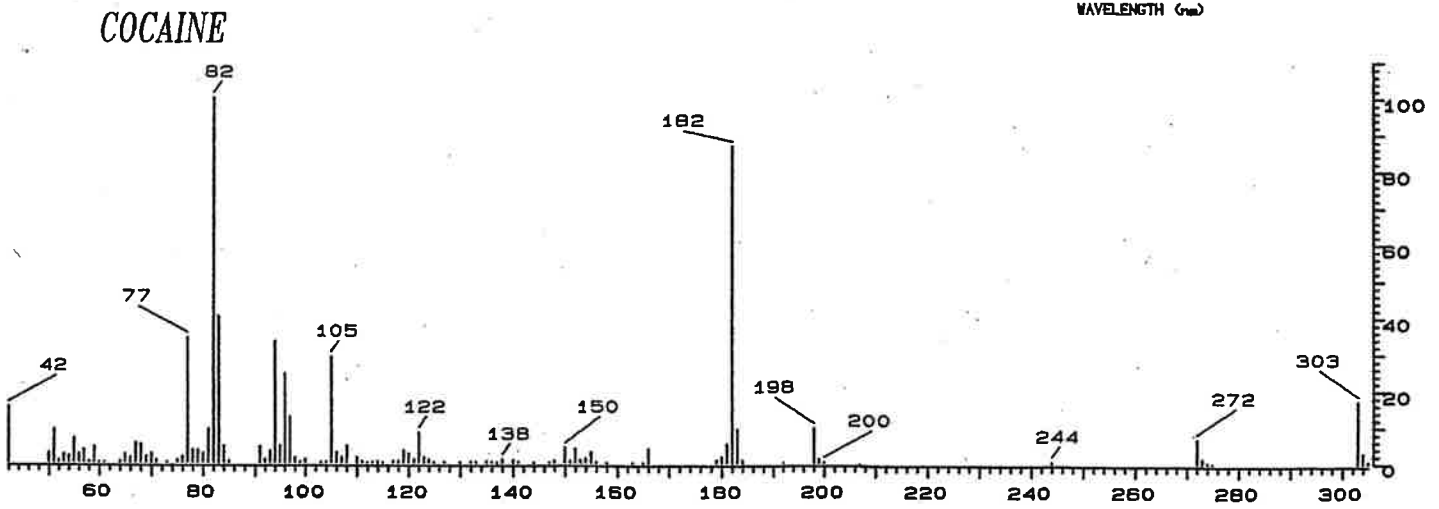


l-Cocaine



d-Cocaine



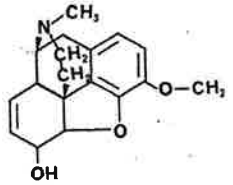


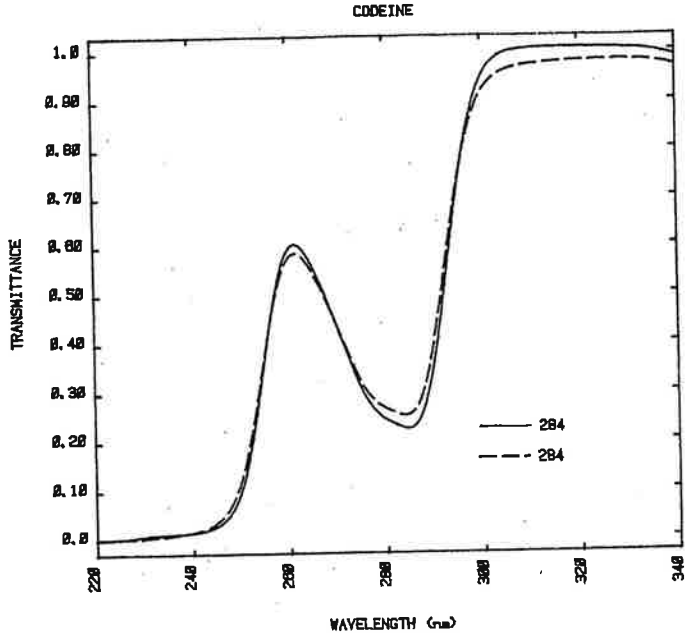
CODEINE

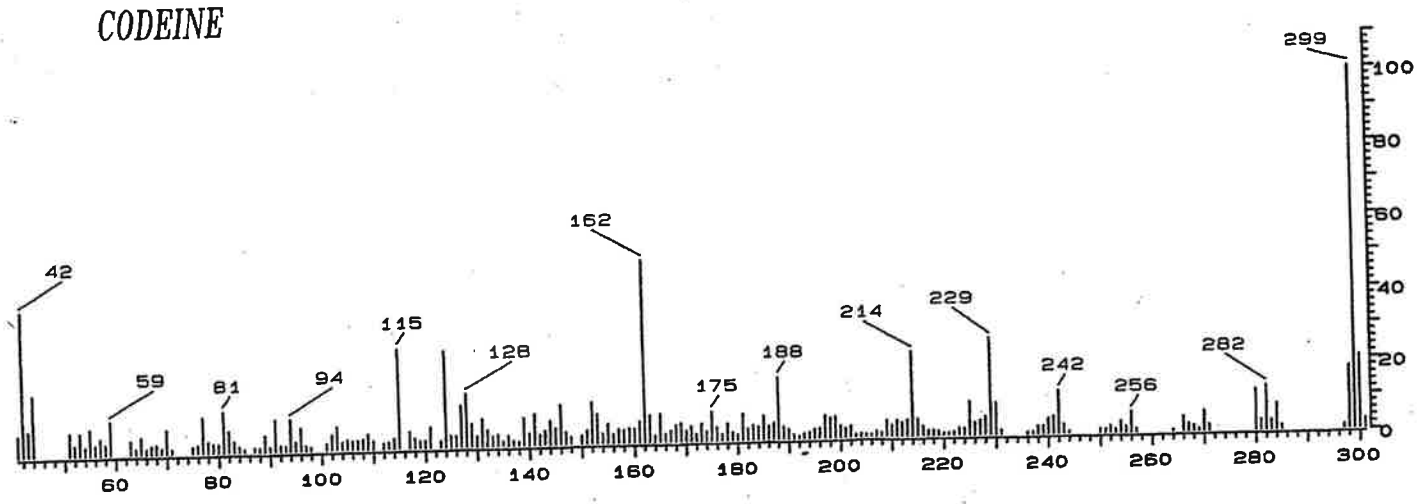
$C_{18}H_{21}NO_3$

Molecular weight: 299.37 (299.15)
Synonyms: 7,8-Didehydro-4,5α-epoxy-3-methoxy-17-methylmorphinan-6α-ol; morphine-3-methyl ether
Trade names: Ingredient of numerous preparations

Use: Narcotic analgesic
HPLC: Si-10; 5A:95B; 4.5
GC: 2450; 250°C





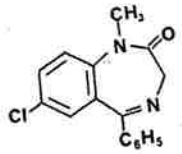


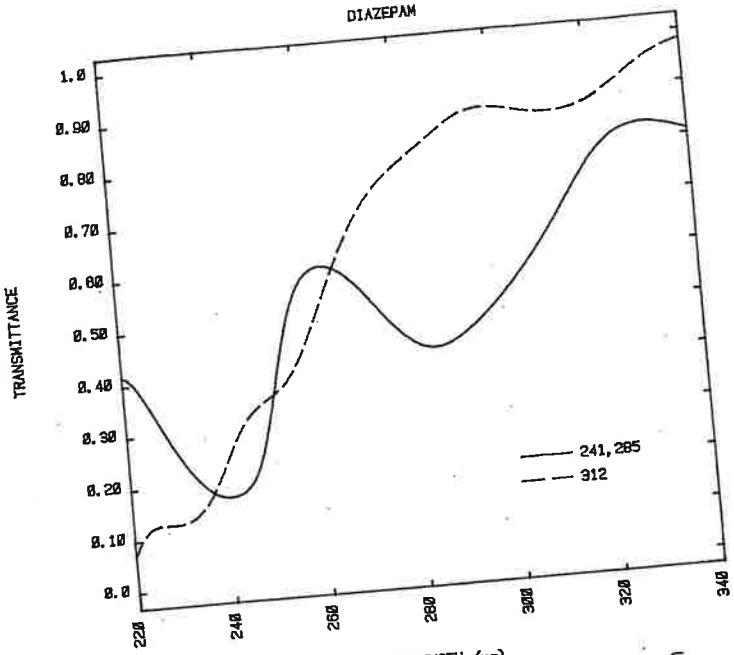
DIAZEPAM

$C_{16}H_{13}ClN_2O$

Molecular weight: 284.75 (284.07)
Synonyms: 7-Chloro-1,3-dihydro-1-methyl-5-phenyl-2H-1,4-benzodiazepin-2-one
Trade names: Valium

Use: Tranquilizer
HPLC: Si-10; 1A:99B; 6.0
GC: 2489; 250°C





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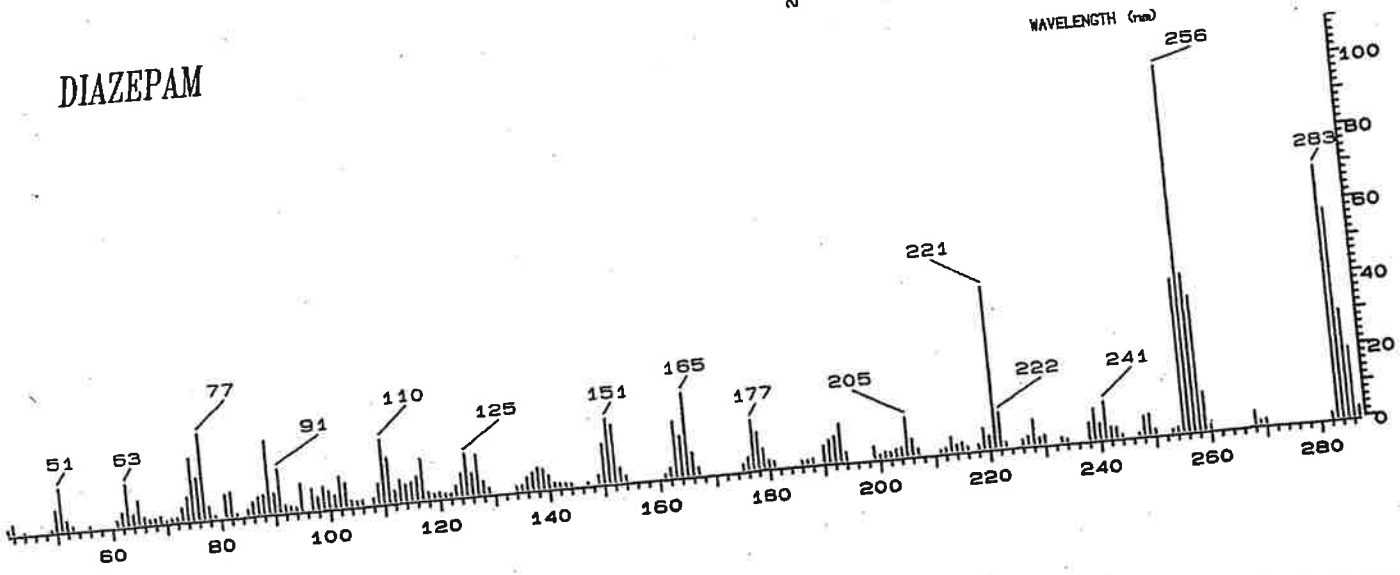
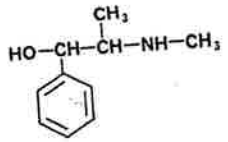


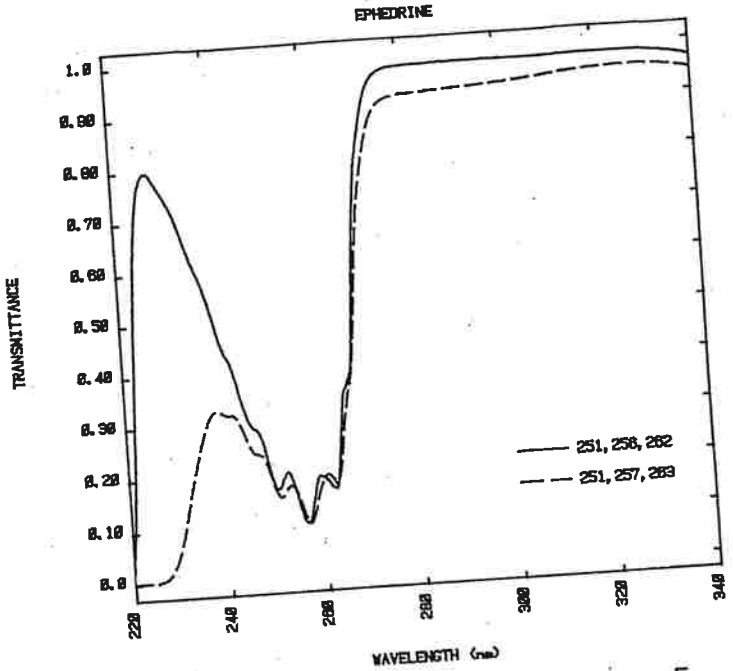
EPHEDRINE

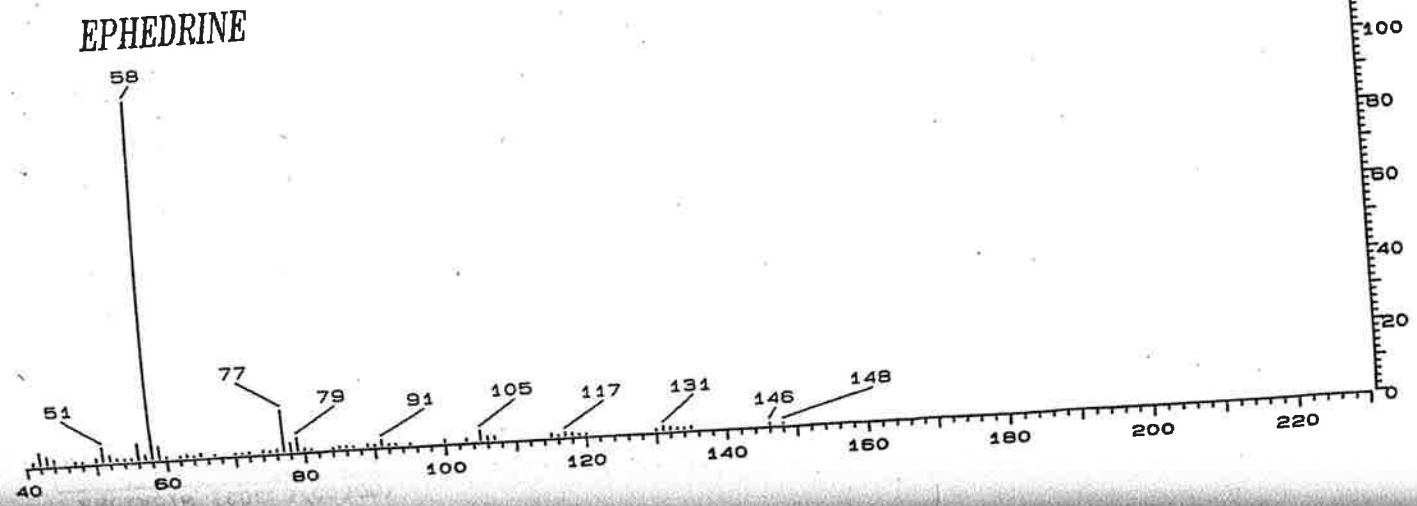
$C_{10}H_{15}NO$

Molecular weight: 165.24 (165.12)
Synonyms: α-[1-(Methylamino)ethyl]benzenmethanol; 1-phenyl-2-methylaminopropanol
Trade names: Tedral, Bronkotabs

Use: Bronchodilator
HPLC: Si-10; 20A:80B; 9.0
GC: 1361; 140°C







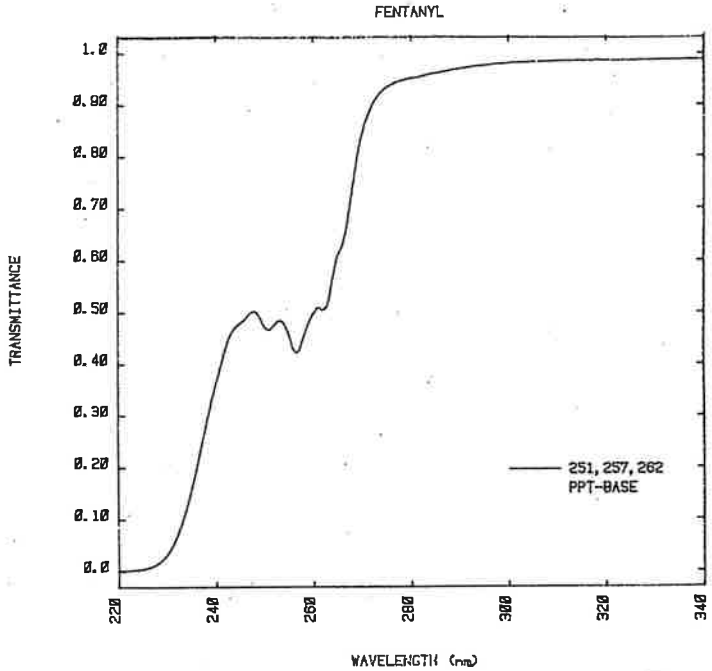
FENTANYL

$C_{22}H_{28}N_2O$

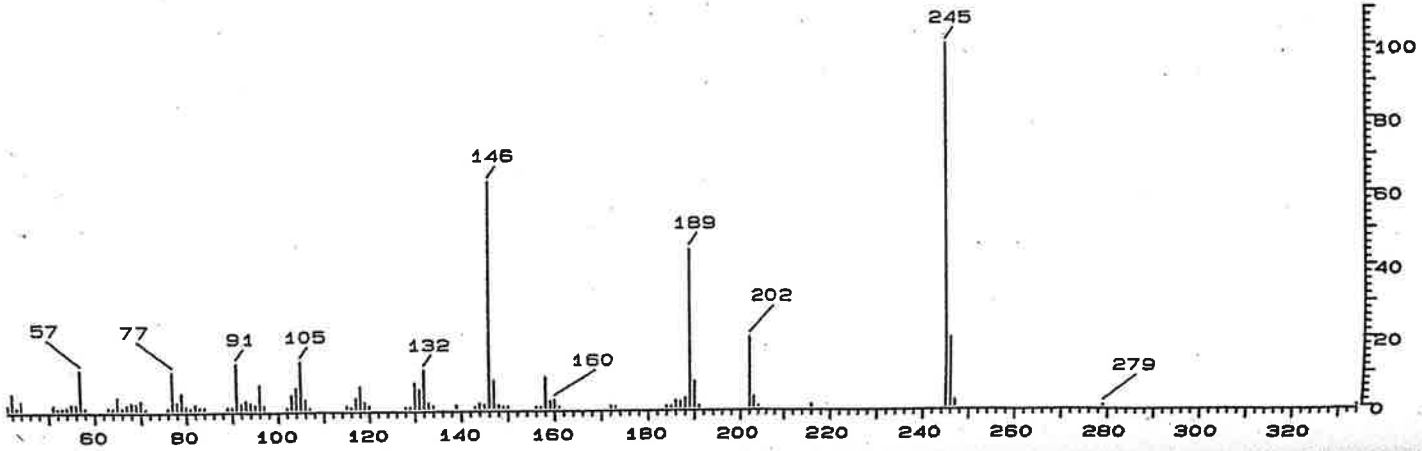
Molecular weight: 336.48 (336.22)
Synonyms: N-Phenyl-N-[1-(2-phenylethyl)-4-piperidinyl]propanamide

Trade names: Innovar, Leptanal, Sublimaze

Use: Narcotic analgesic
HPLC: Si-10; 2A:98B; 4.8
GC: 2734; 250°C



FENTANYL

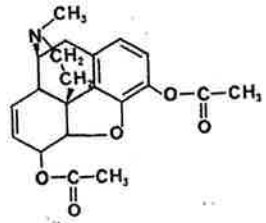


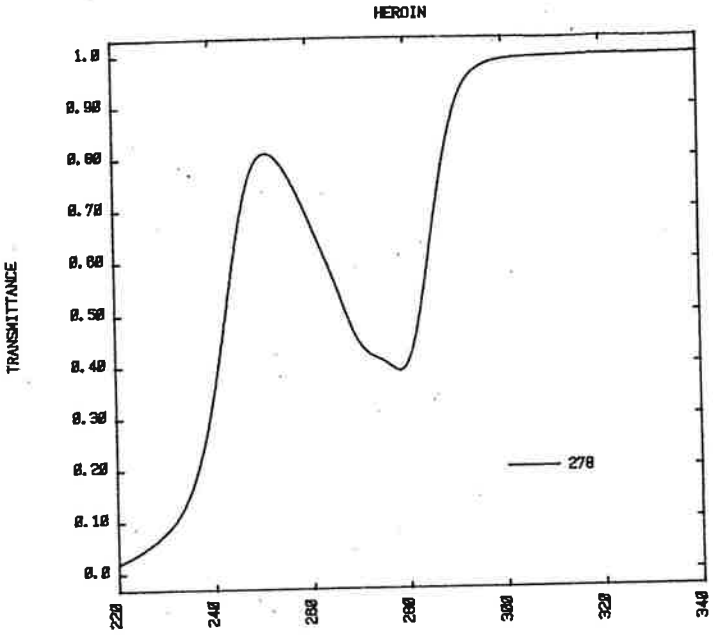
HEROIN

$C_{21}H_{23}NO_5$

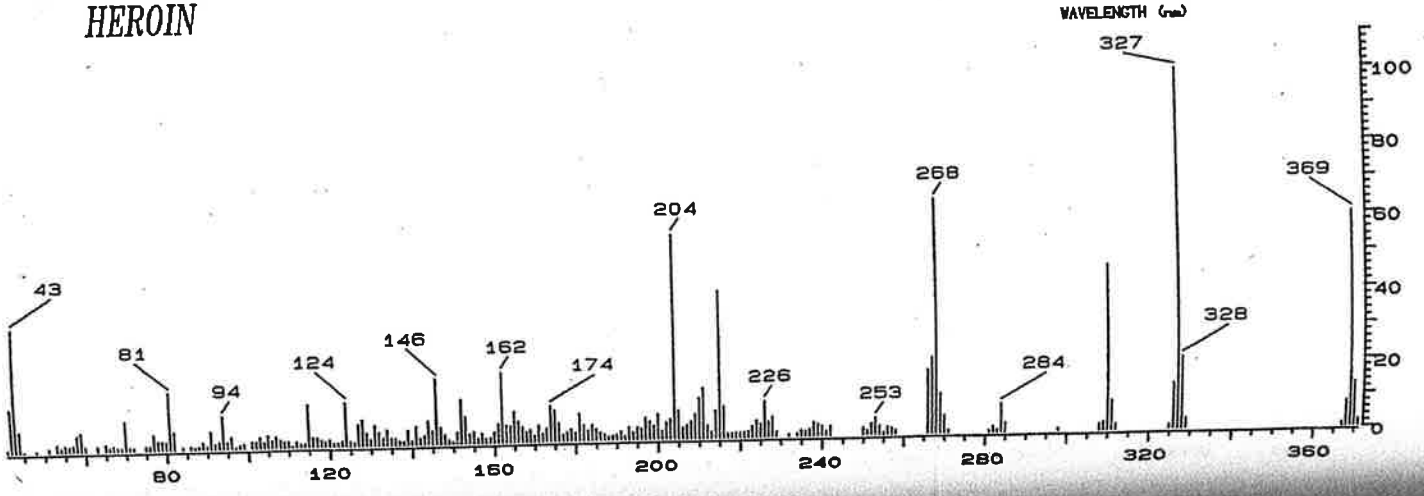
Molecular weight: 369.42 (369.16)
Synonyms: 7,8-Didehydro-4,5α-epoxy-17-methylmorphinan-3,6α-diol diacetate; diamorphine; acetomorphine; diacetylmorphine
Trade names:

Use: Narcotic analgesic
HPLC: Si-10; 2A:98B; 8.5
GC: 2666; 250°C





HEROIN

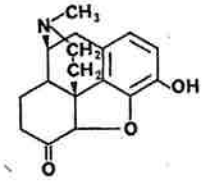


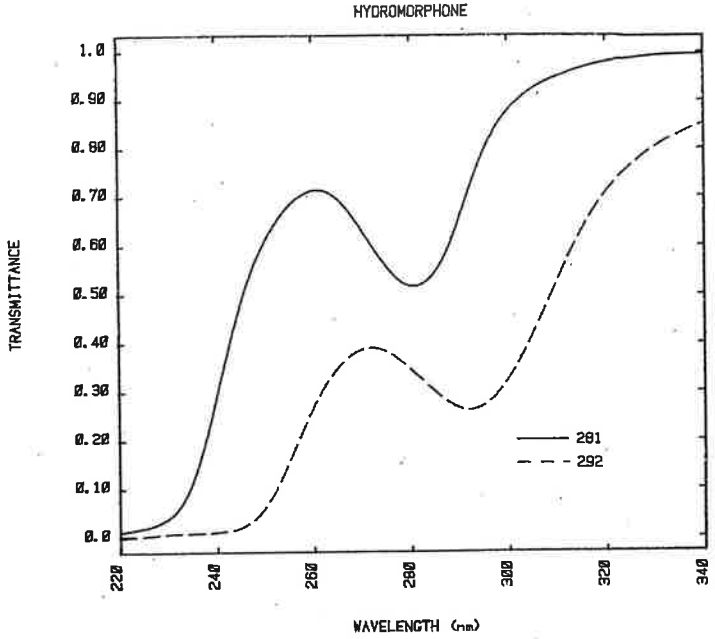
HYDROMORPHONE

$C_{17}H_{19}NO_3$

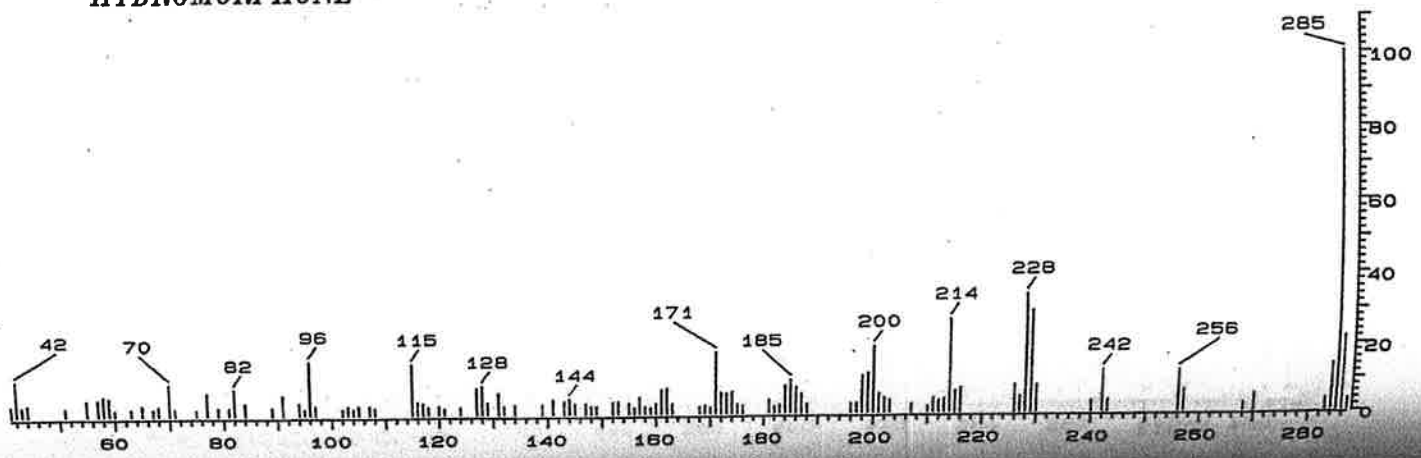
Molecular weight: 285.34 (285.14)
Synonyms: 4,5α-Epoxy-3-hydroxy-17-methylmorphinan-6-one; dihydromorphinone
Trade names: Dilaudid

Use: Narcotic analgesic
HPLC: Si-10; 20A:80B; 4.2
GC: 2562; 250°C





HYDROMORPHONE

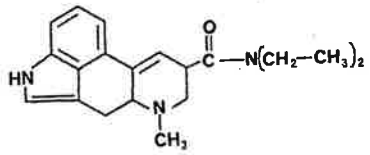


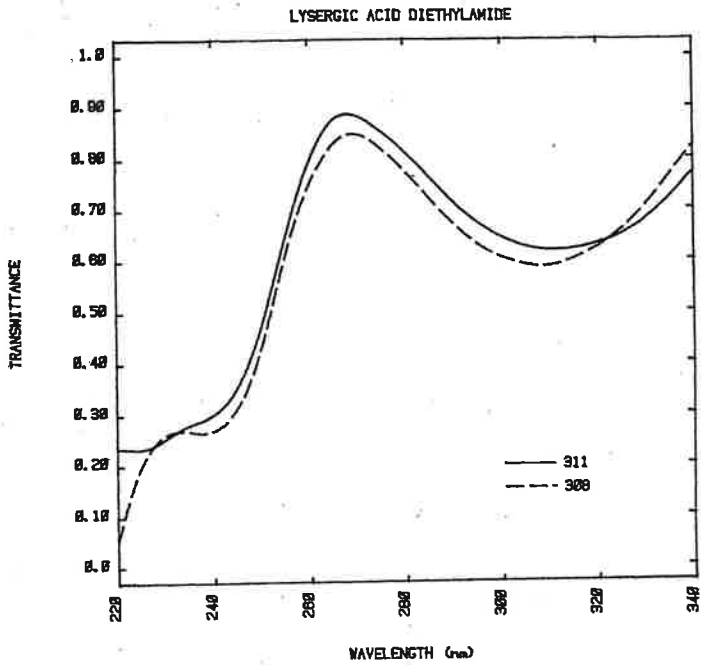
LYSERGIC ACID DIETHYLAMIDE

$C_{20}H_{25}N_3O$

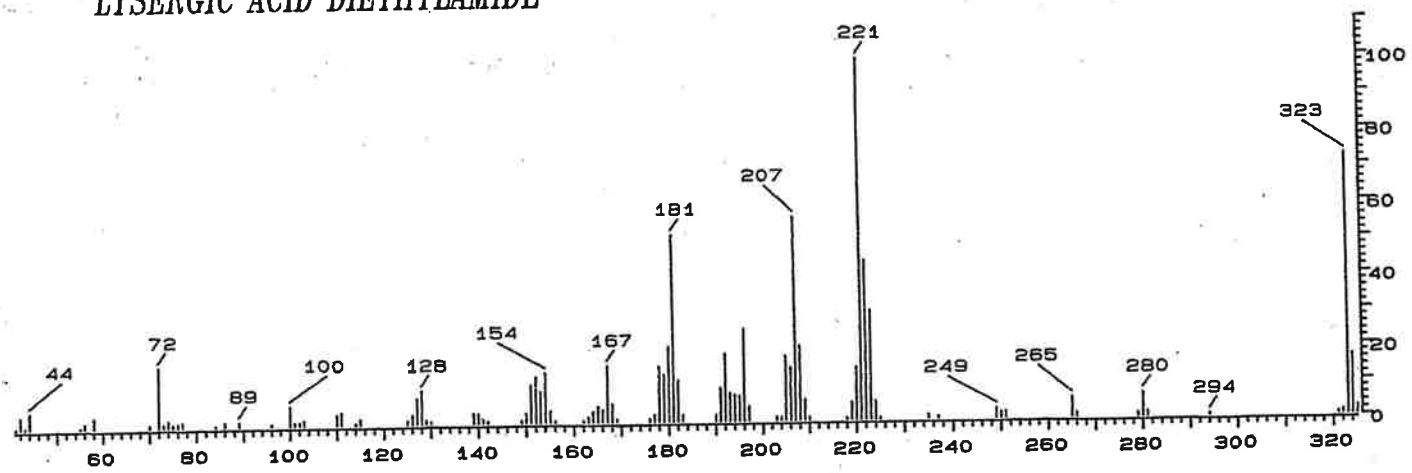
Molecular weight: 323.44 (323.20)
Synonyms: 9,10-Didehydro-N,N-diethyl-6-methylergoline-8β-carboxamide; N,N-diethyl-d-lysergamide; d-lysergic acid diethylamide; LSD; LSD-25; lysergide
Trade names:

Use: Hallucinogen
HPLC: Si-10; 5A:95B; 4.0
GC: 3150; 280°C





LYSERGIC ACID DIETHYLAMIDE



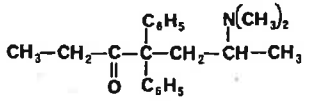
METHADONE

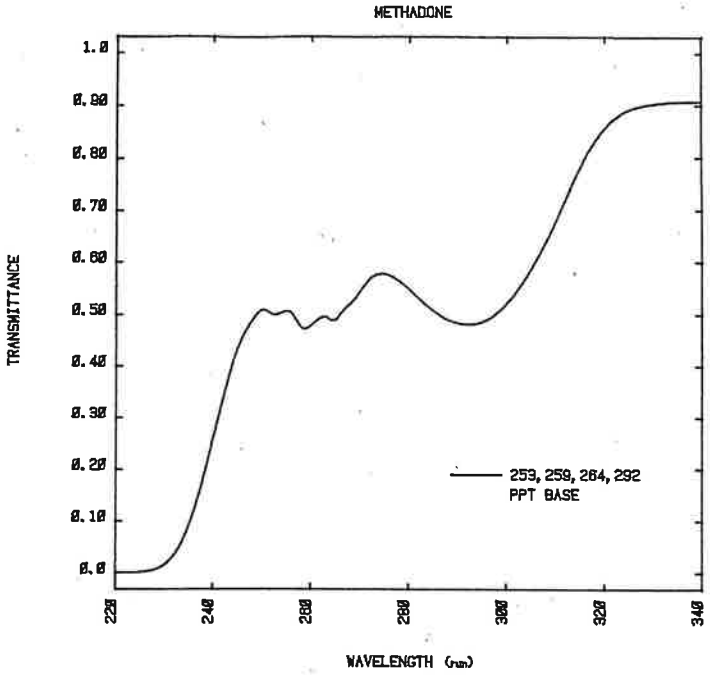
$C_{21}H_{27}NO$

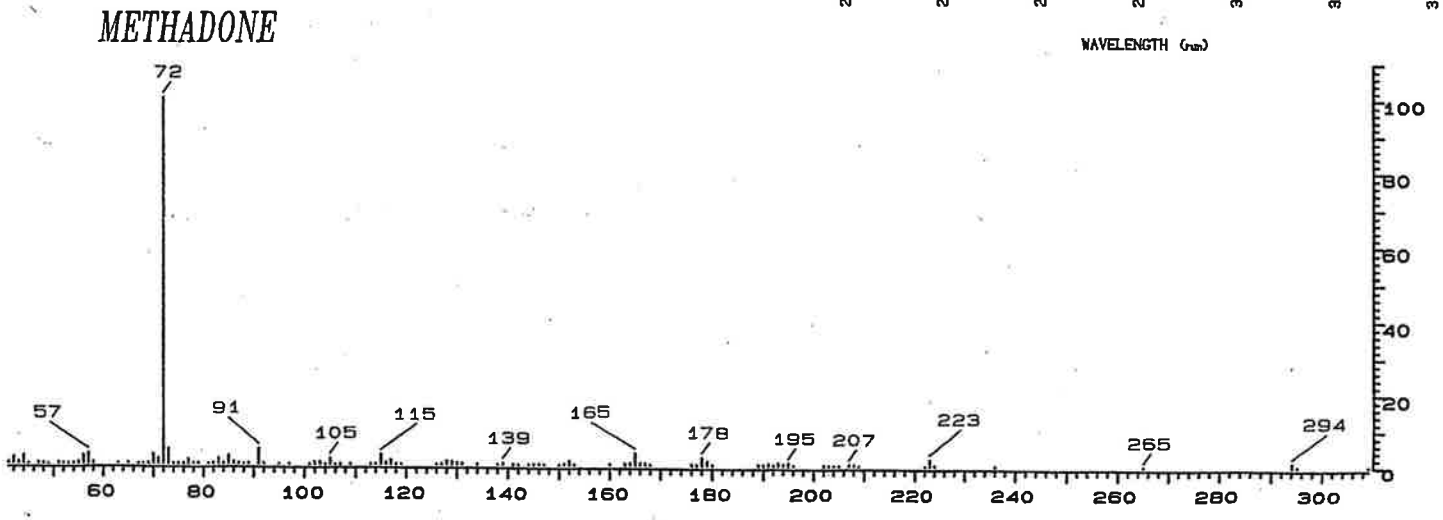
Molecular weight: 309.45 (309.21)
Synonyms: 6-Dimethylamino-4,4-diphenyl-3-heptanone

Trade names: Dolophine, Methadone Diskets

Use: Narcotic analgesic
HPLC: Si-10; 10A:90B; 5.3
GC: 2196; 250°C





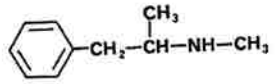


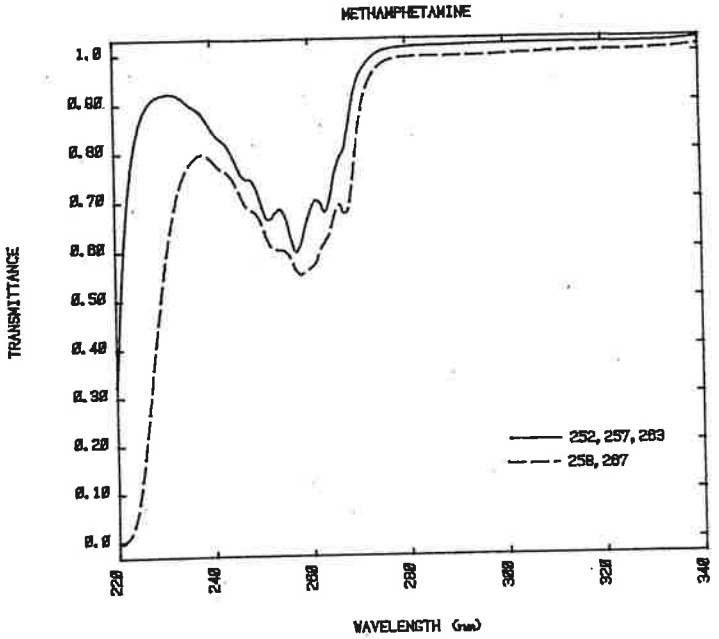
METHAMPHETAMINE

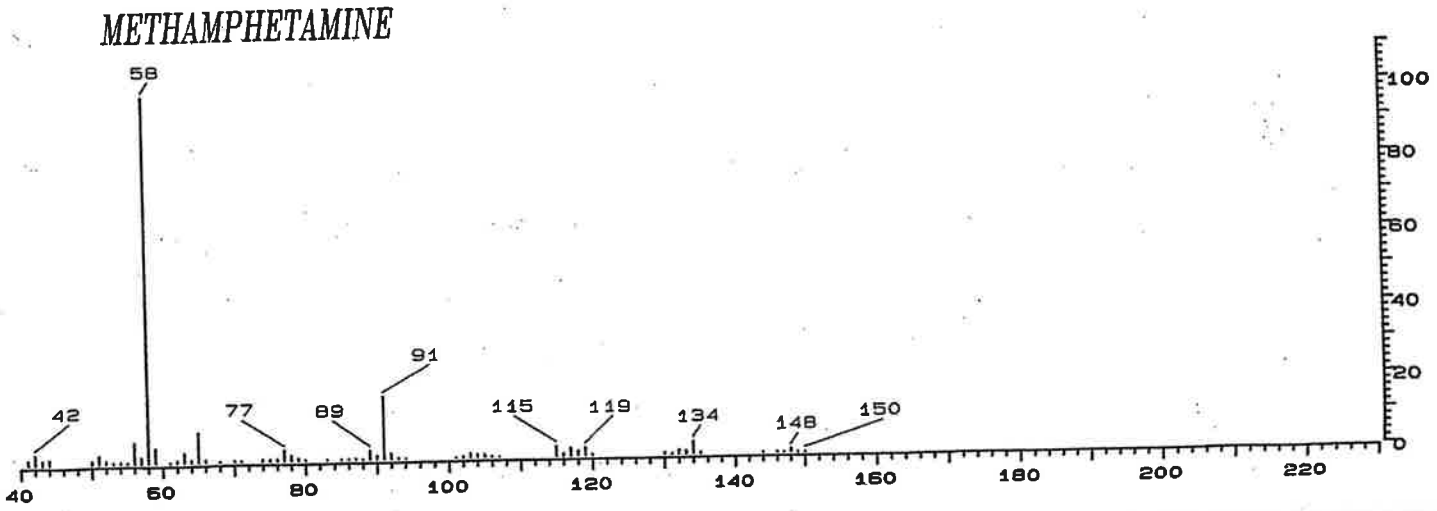
$C_{10}H_{15}N$

Molecular weight: 149.24 (149.12)
Synonyms: N,α-Dimethylbenzeneethanamine; deoxyephedrine; desoxyephedrine; speed
Trade names: Desoxyn, Methadrine

Use: Central stimulant
HPLC: Si-10; 20A:80B; 5.7
GC: 1180; 140°C





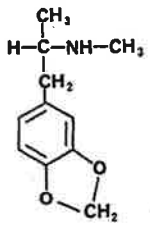


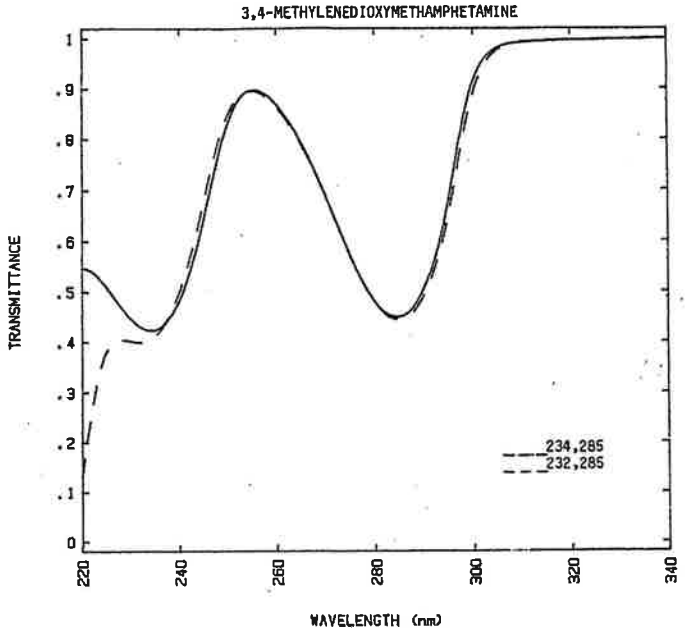
3,4-METHYLENEDIOXYMETHAMPHETAMINE

$C_{11}H_{15}NO_2$

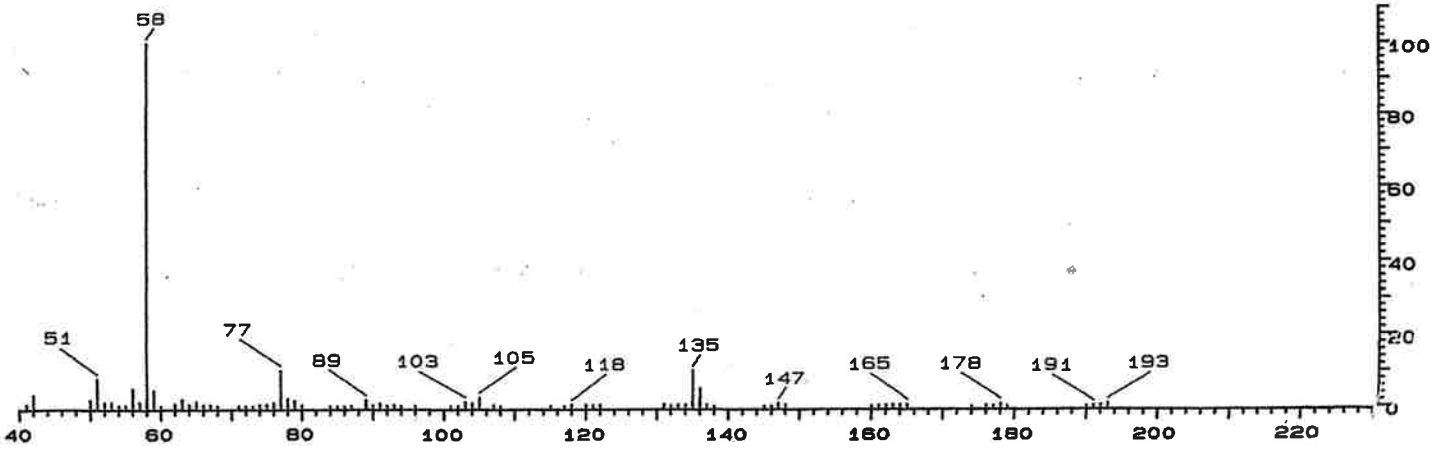
Molecular weight: 193.23 (193.11)
Synonyms: 5-(N,α-Dimethyl)ethanamine-1,3-benzodioxole; N-methyl MDA analog; MDMA; Ecstasy; XTC
Trade names:

Use: Hallucinogen
HPLC: Si-10; 10A:90B; 4.4
GC: 1559; 200°C





3,4-METHYLENEDIOXYMETHAMPHETAMINE



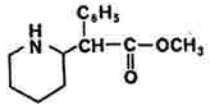
METHYLPHENIDATE

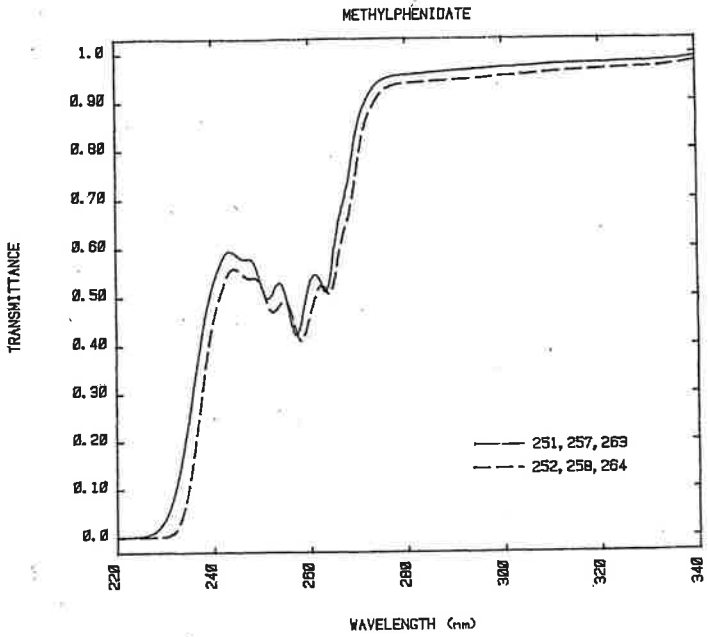
$C_{14}H_{19}NO_2$

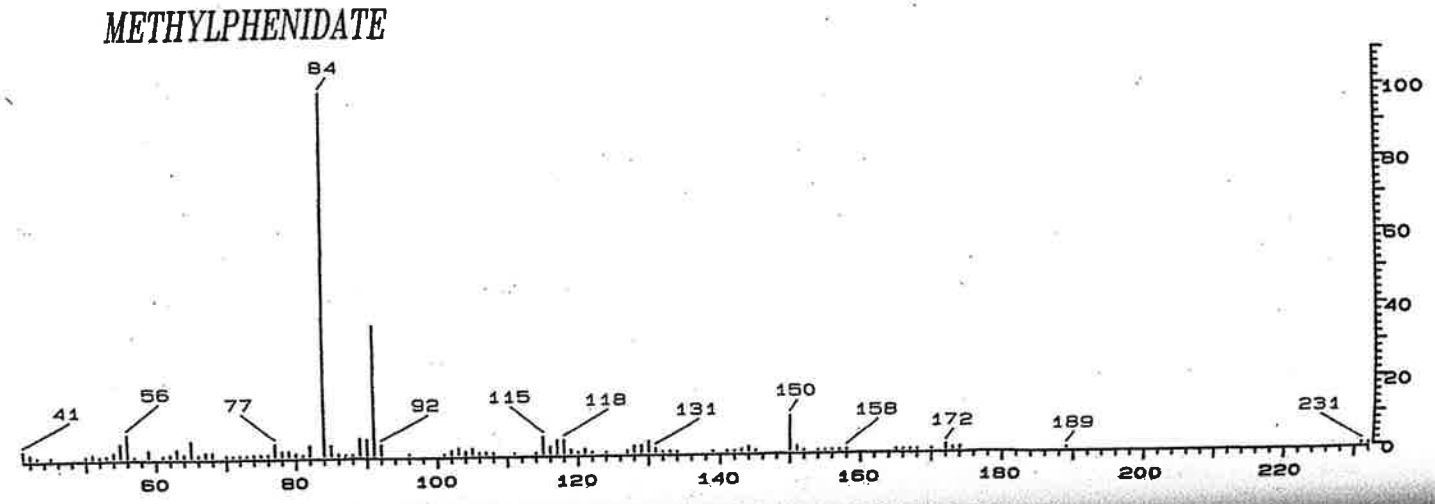
Molecular weight: 233.31 (233.14)
Synonyms: α-Phenyl-2-piperidineacetic acid methyl ester

Trade names: Ritalin

Use: Central stimulant
HPLC: Si-10; 5A:95B; 4.0
GC: 1739; 200°C







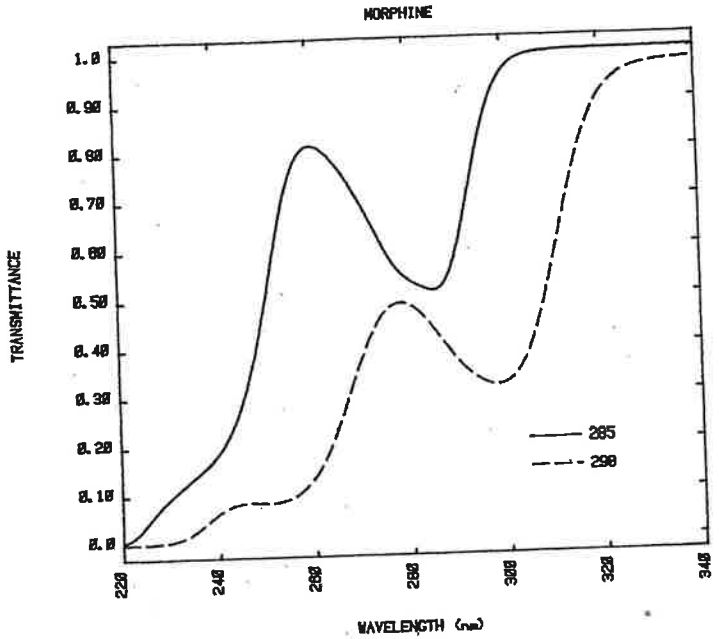
MORPHINE

$C_{17}H_{19}NO_3$

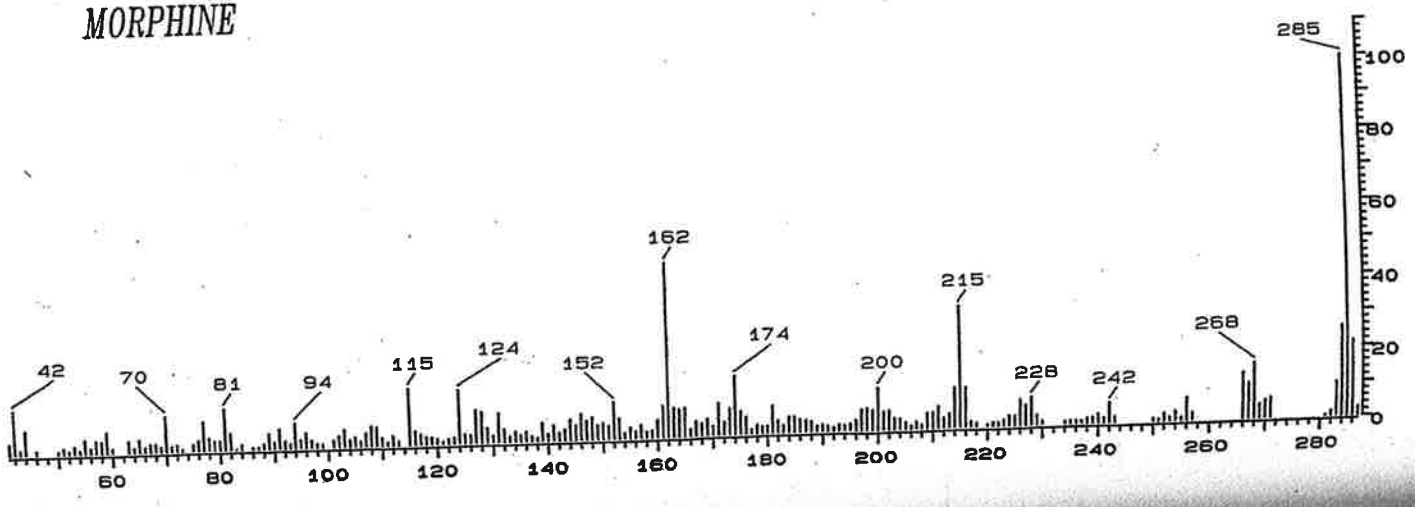
Molecular weight: 285.34 (285.14)
Synonyms: 7,8-Didehydro-4,5-epoxy-17-methylmorphinan-3,6-diol

Trade names: Morphine Sulfate, Morphina

Use: Narcotic analgesic
HPLC: Si-10; 10A:90B; 9.0
GC: 2523; 250°C



MORPHINE

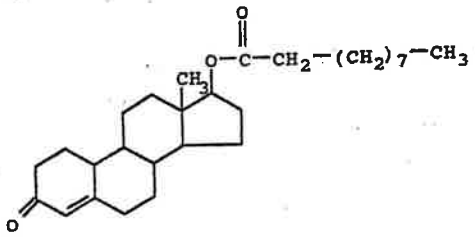


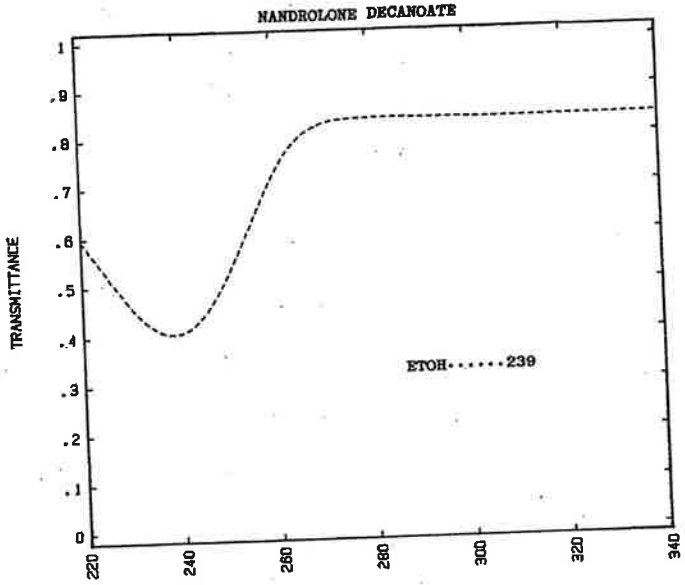
NANDROLONE DECANOATE

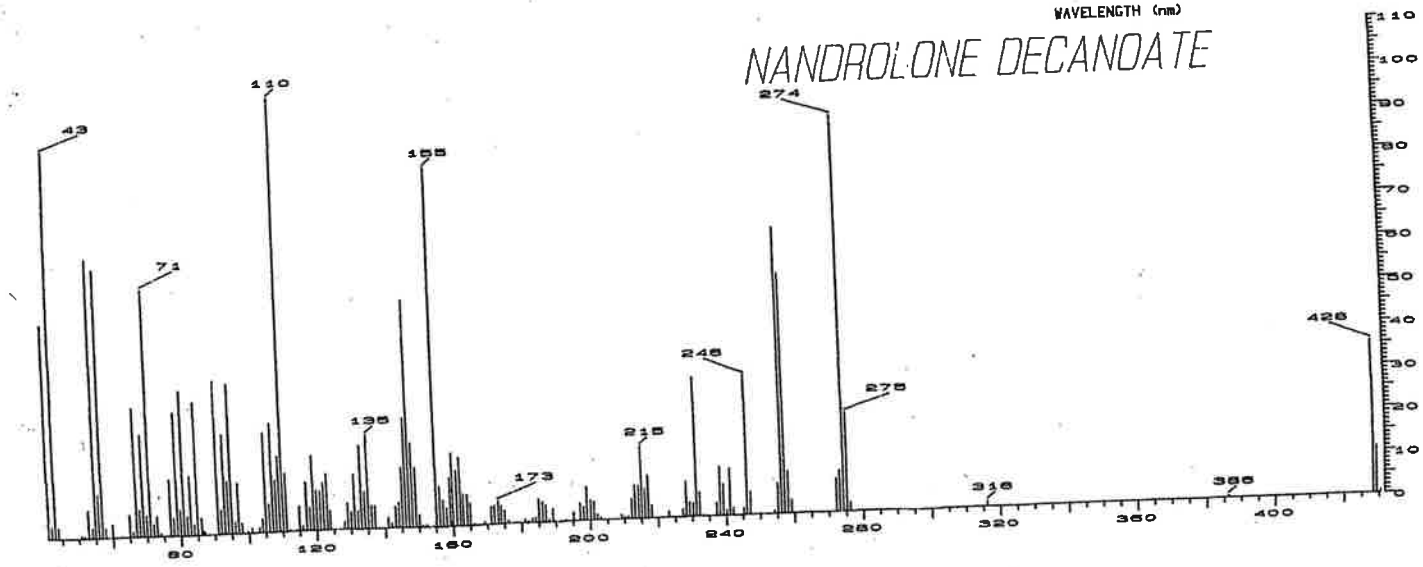
$C_{28}H_{44}O_3$

Molecular weight: 428.63 (428.33)

Synonyms: 17β-[(1-Oxodecyl)oxy]-estr-4-en-3-one; norandrostenolone decanoate; 19-nortestosterone decanoate
Trade names: Deca-Durabolin, Deca-Durabol, Deca-Hybolin, Hybolin Decanoate, Kabolin, Retabolil
Use: Anabolic
HPLC: 100A; 3.0
GC: 3545; 280°





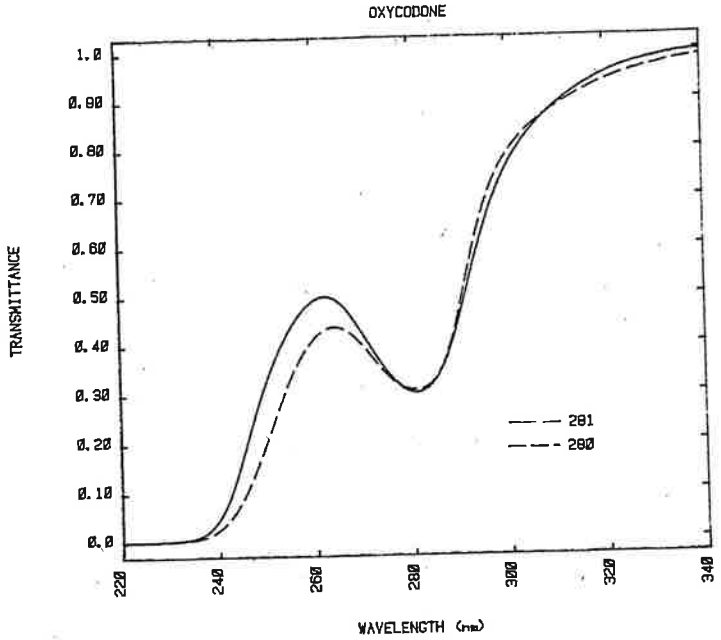


OXYCODONE

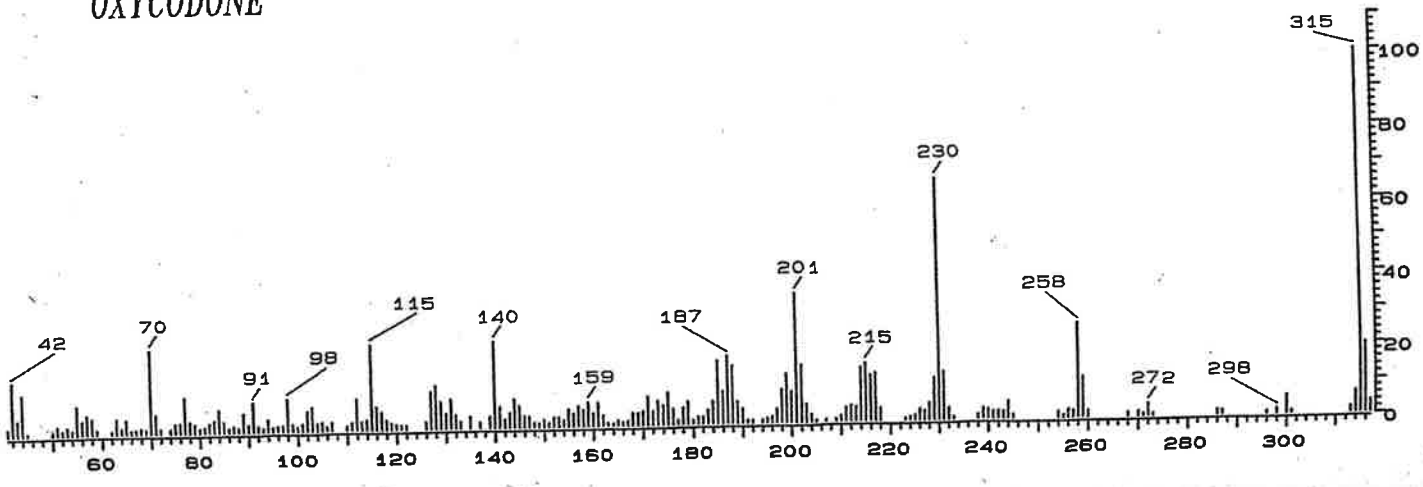
$C_{18}H_{21}NO_4$

Molecular weight: 315.37 (315.15)
Synonyms: 4,5α-Epoxy-14-hydroxy-3-methoxy-17-methylmorphinan-6-one; dihydrohydroxycodeinone; 14-hydroxydihydrocodeinone
Trade names: Percocet, Percodan, Percodan-Demi, Tylox

Use: Narcotic analgesic
HPLC: Si-10; 2A:98B; 5.2
GC: 2585; 250°C



OXYCODONE

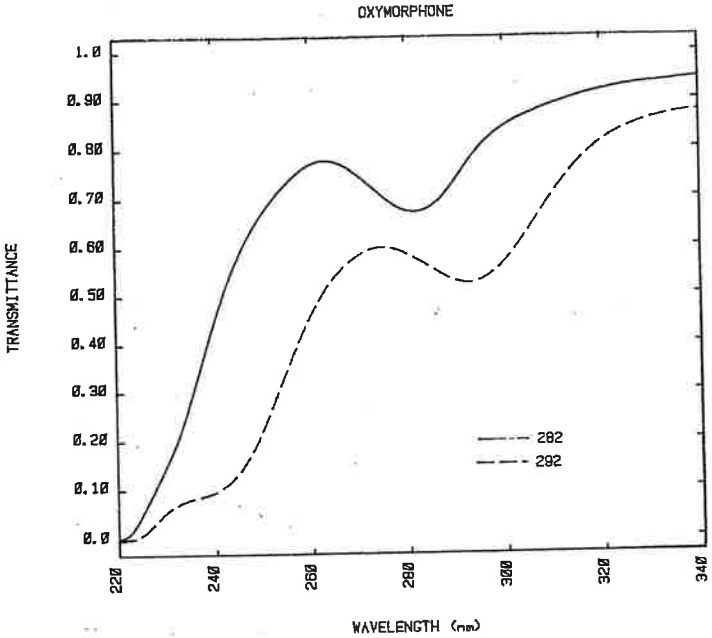


OXYMORPHONE

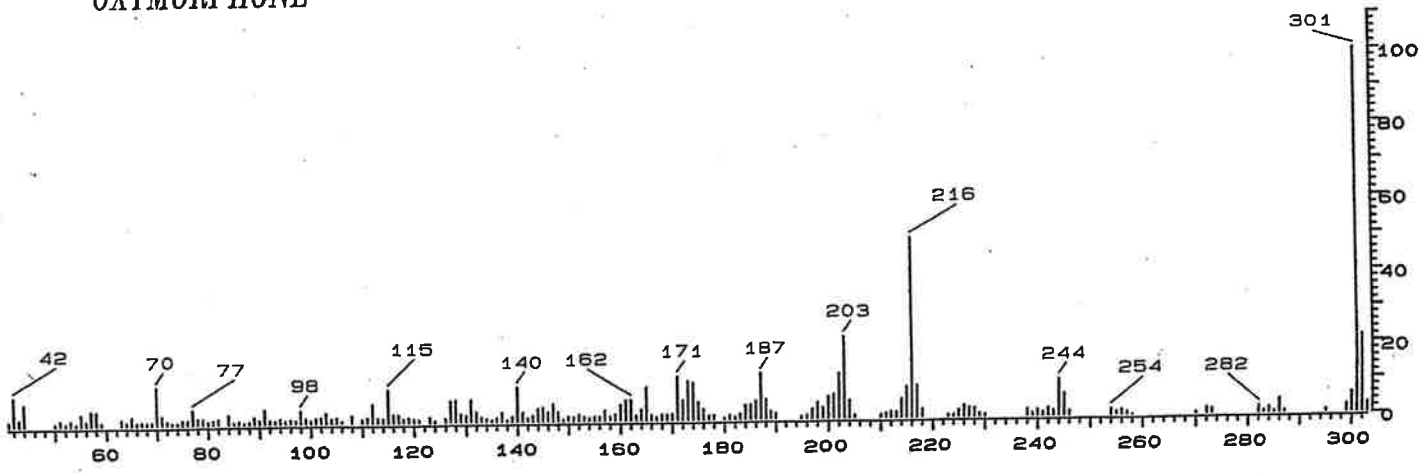
$C_{17}H_{19}NO_4$

Molecular weight: 301.34 (301.13)
Synonyms: 4,5α-Epxoy-3,14-dihdyroxy-17-methylmorphinan-6-one; dihydrohydroxymorphinone
Trade names: Numorphan

Use: Narcotic analgesic
HPLC: Si-10; 2A:98B; 5.0
GC: 2599; 250°C



OXYMORPHONE

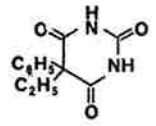


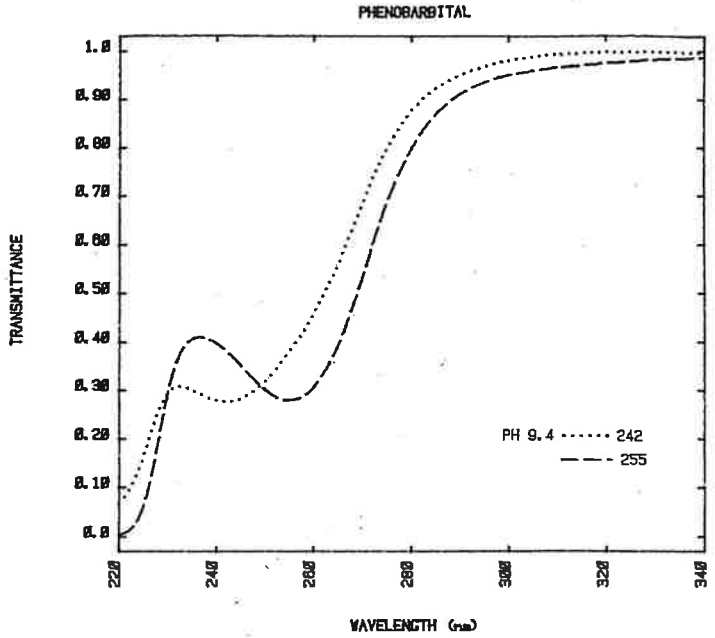
PHENOBARBITAL

$C_{12}H_{12}N_2O_3$

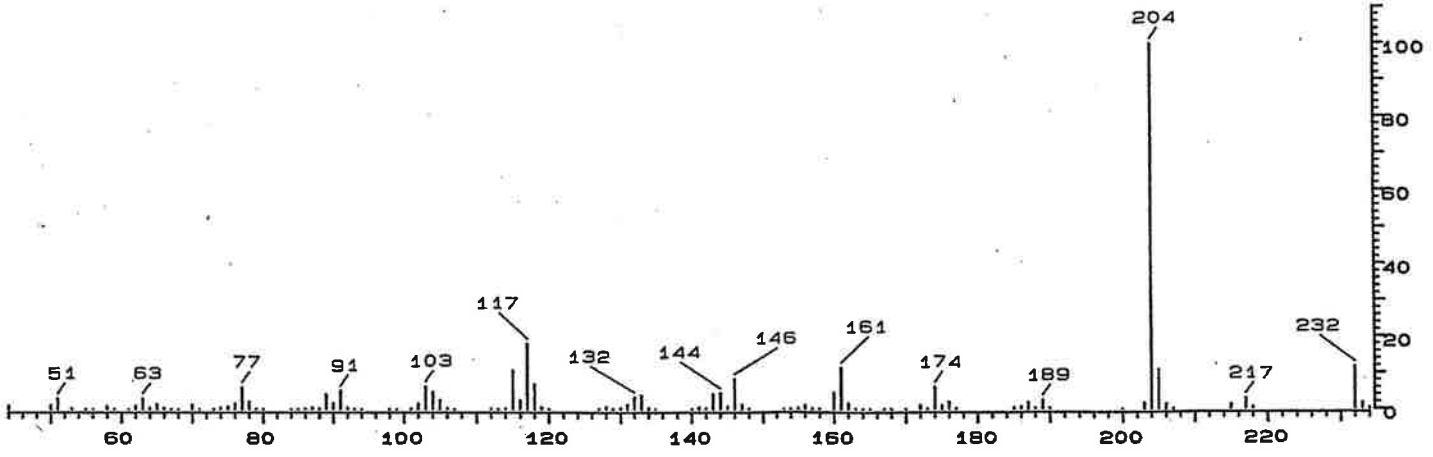
Molecular weight: 232.24 (232.09)
Synonyms: 5-Ethyl-5-phenyl-2,4,6(1H,3H,5H)-pyrimidinetrione;
5-ethyl-5-phenylbarbituric acid; phenobarbitone
Trade names: Ingredient in numerous preparations

Use: Sedative, hypnotic, anticonvulsant
HPLC: Si-10; 2A:98B; 4.0
GC: 2017; 250°C





PHENOBARBITAL

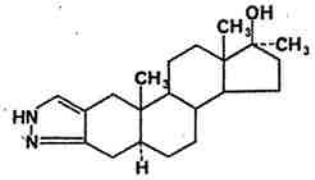


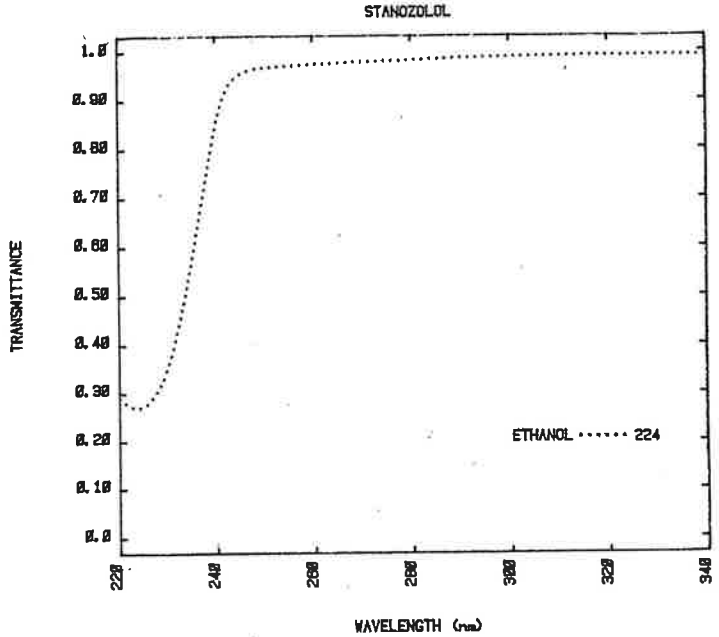
STANOZOLOL

$C_{21}H_{32}N_2O$

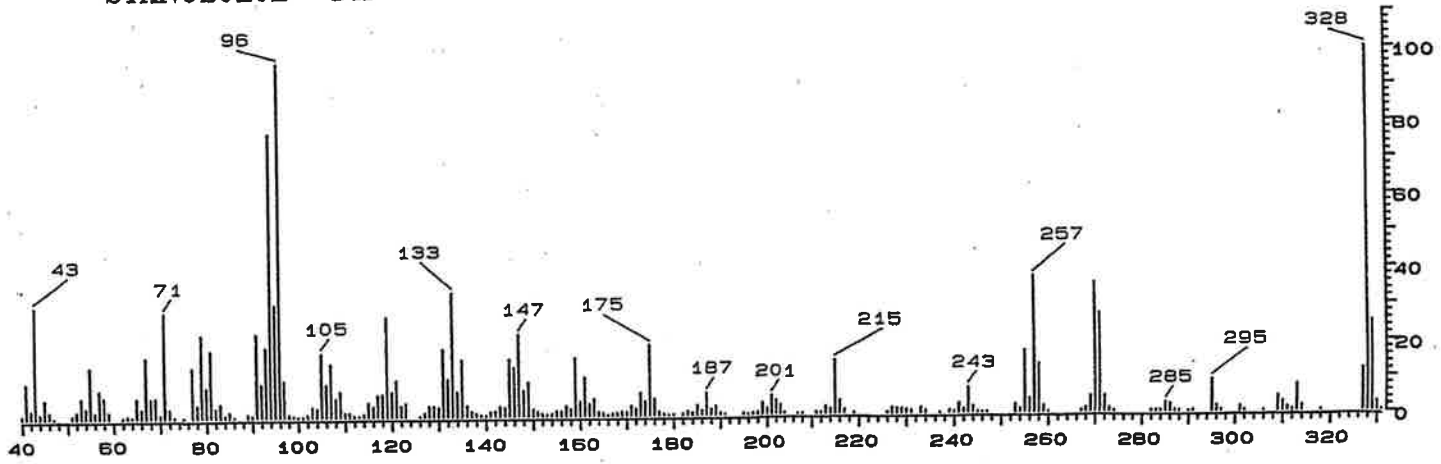
Molecular weight: 328.50 (328.25)
Synonyms: 17-Methyl-2H-5α-androst-2-eno[3.2-c]pyrazol-17β-ol;
stanazol; androstanazole
Trade names: Winstrol

Use: Anabolic steroid
HPLC: Si-10; 1A:99B; 12.8
GC:





STANOZOLOL--DIP

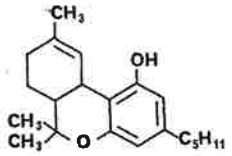


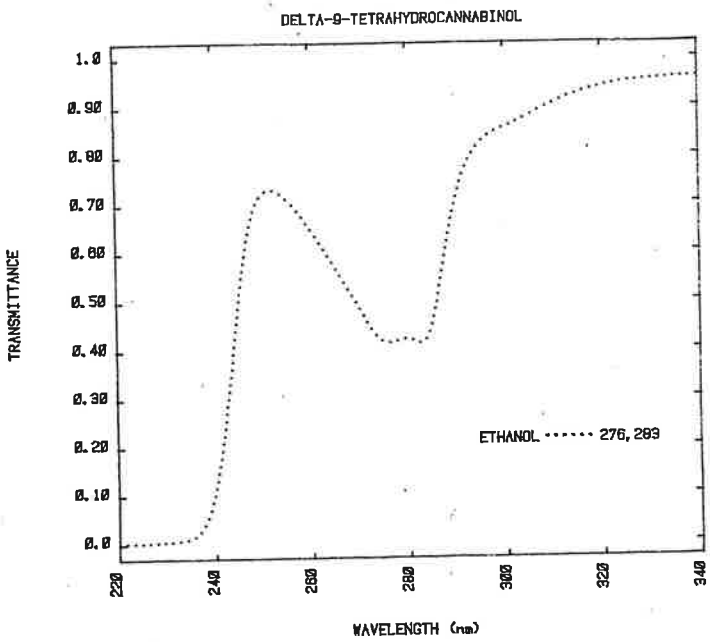
δ-9-TETRAHYDROCANNABINOL

$C_{21}H_{30}O_2$

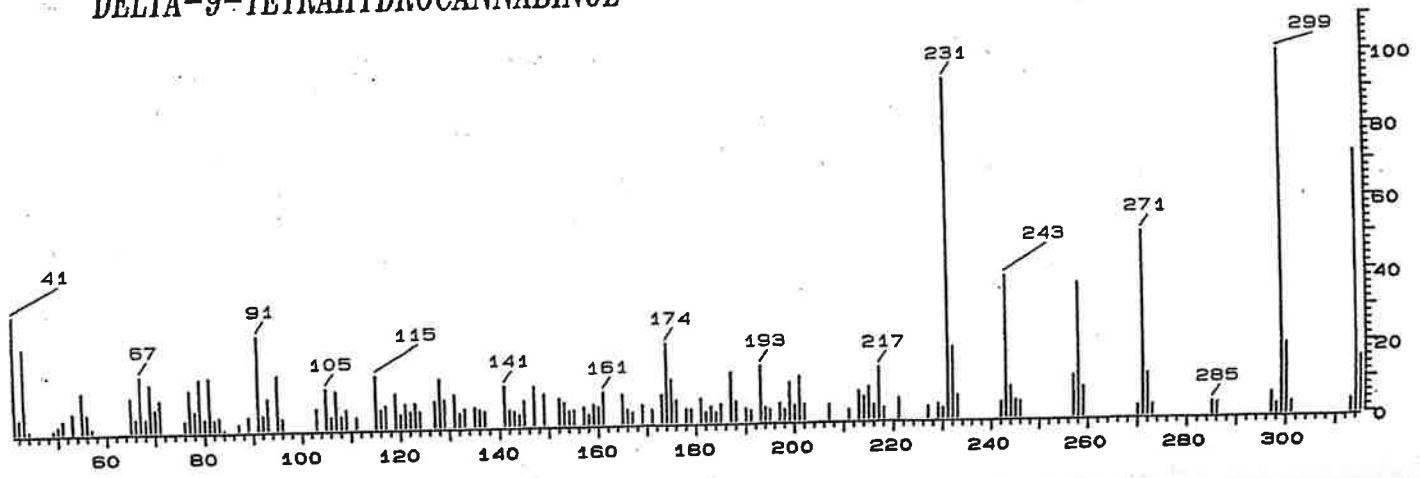
Molecular weight: 314.47 (314.22)
Synonyms: Tetrahydro-6,6,9-trimethyl-3-pentyl-6H-dibenzo[b,d]pyran-1-ol; delta-9-THC; Δ^9-THC; Δ^1-THC
Trade names:

Use: Hypnotic, hallucinogen
HPLC: Si-10; 10B:90C; 5.3 or Si-10; 98C:2D; 6.0
GC: 2510; 250°C





DELTA-9-TETRAHYDROCANNABINOL



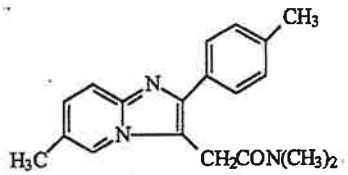
ZOLPIDEM

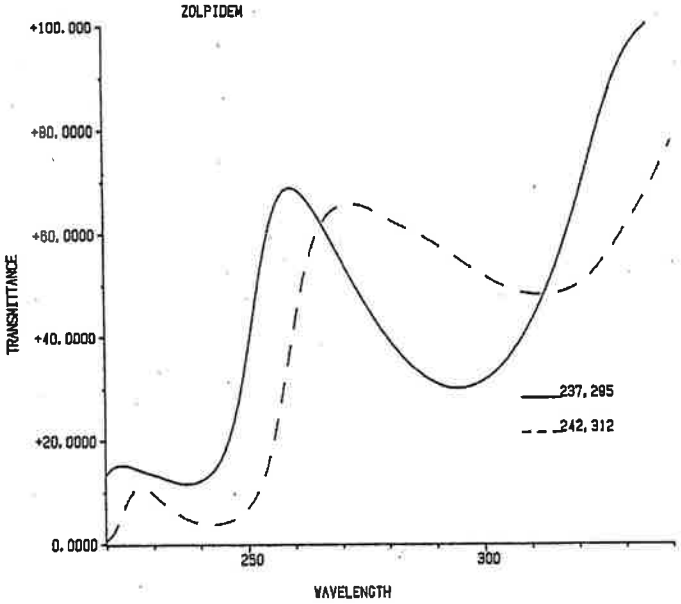
$C_{19}H_{21}N_3O$

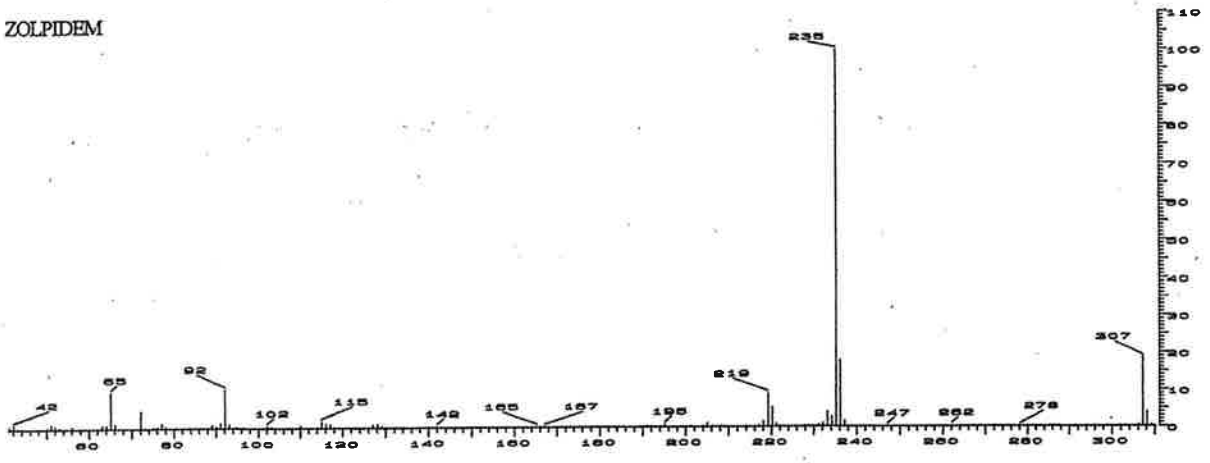
Molecular Weight: 307.40 (307.17)

Synonyms: N,N,6-Trimethyl-2-(4-methylphenyl)-imidazo[1.2-a]pyridine-3-acetamide; N,N,6-trimetyl-2-p-tolylimidazo[1,2-a]pyridine-3-acetamide
Trade Names: Ambien, Stilnox
Use: Hypnotic

HPLC:
GC: 2781; 250°







Appendix

Section 4

Initial Checks for MS
Initial Check for FID

Section Summary

Objective:

Mass Spectrometer Detector Initial Check

A standard spectra auto tune and an air and water check were performed on the instrument to demonstrate initial performance of the instrument. This check was run periodically during the study.

Flame Ionization Detector Initial Check

A mixture of pethidine, cocaine, and hydrocodone was run on the FID to demonstrate initial column separation and column resolution. The mixture was also run on a validated GC/FID for comparison.

Results:

Mass Spectrometer Detector Initial Check Results

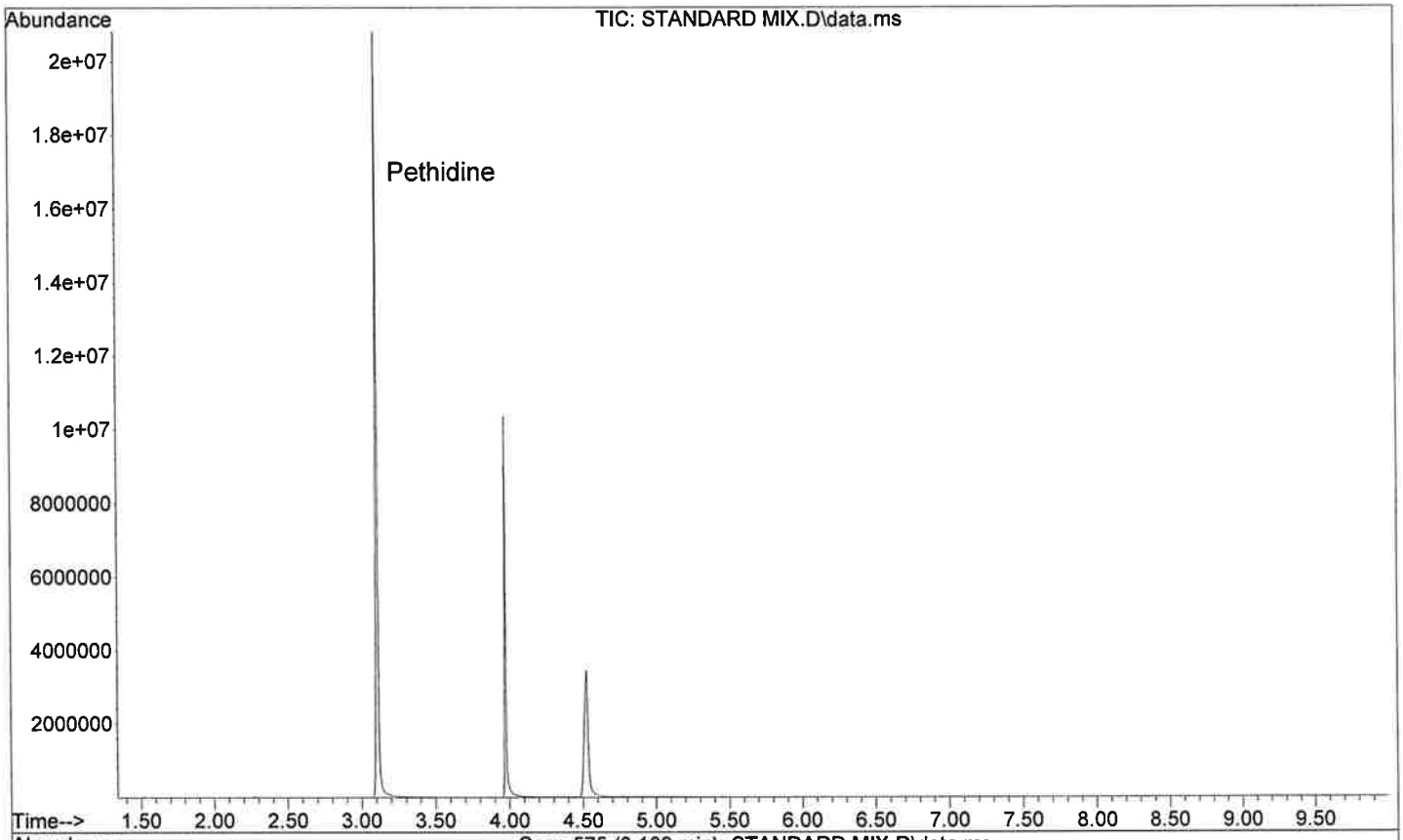
The checks performed are outlined in the Drug Chemistry Section Quality Assurance Manual, Nashville Crime Laboratory, Section 12 and Appendix. The initial checks for the MS detector passed.

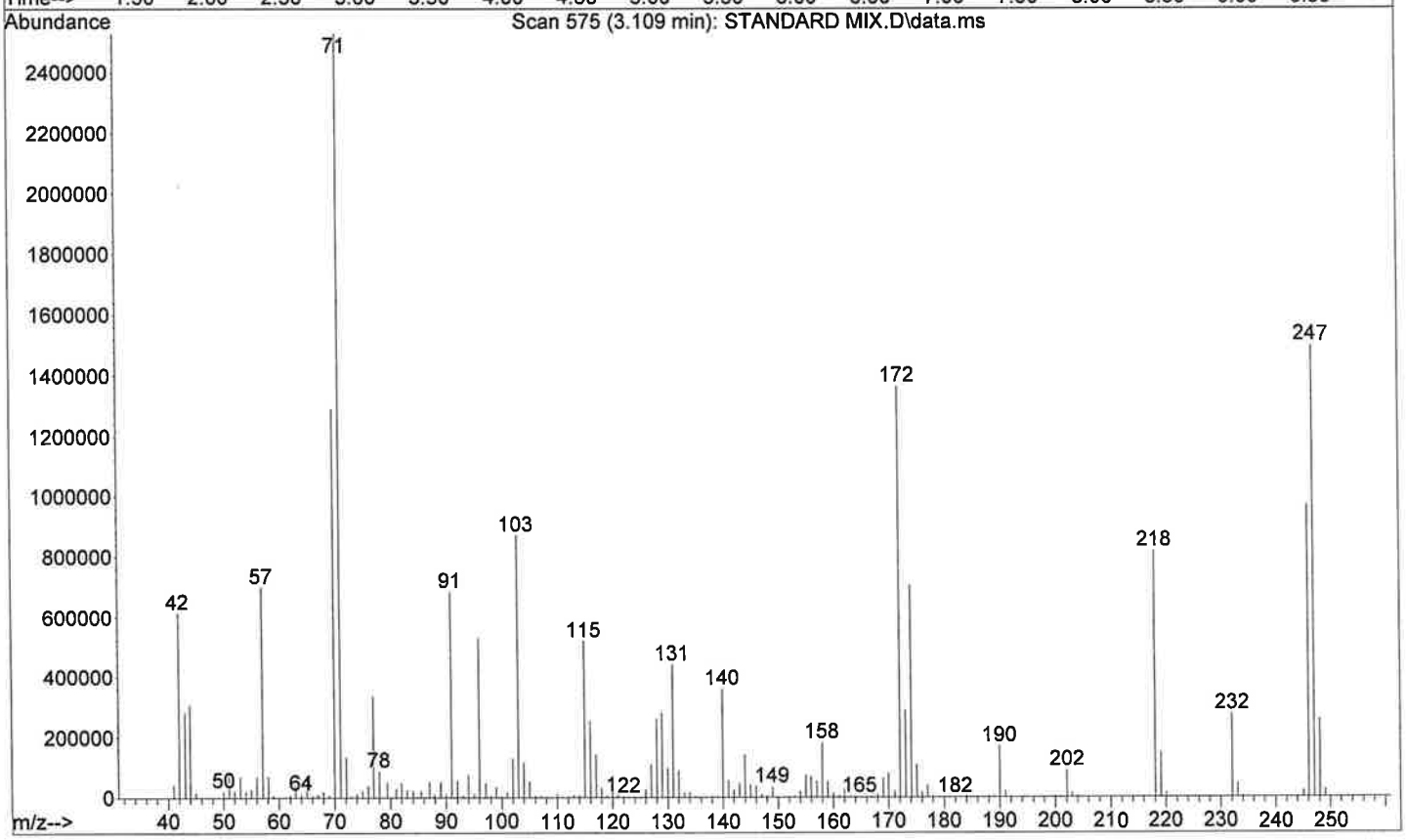
Flame Ionization Detector Initial Results

An initial check was performed on the FID on the questioned GC/MS by running a standards mixture and checking for resolution. A mixture of pethidine, cocaine, and hydrocodone was run and the FID proved to have adequate separation and column resolution.

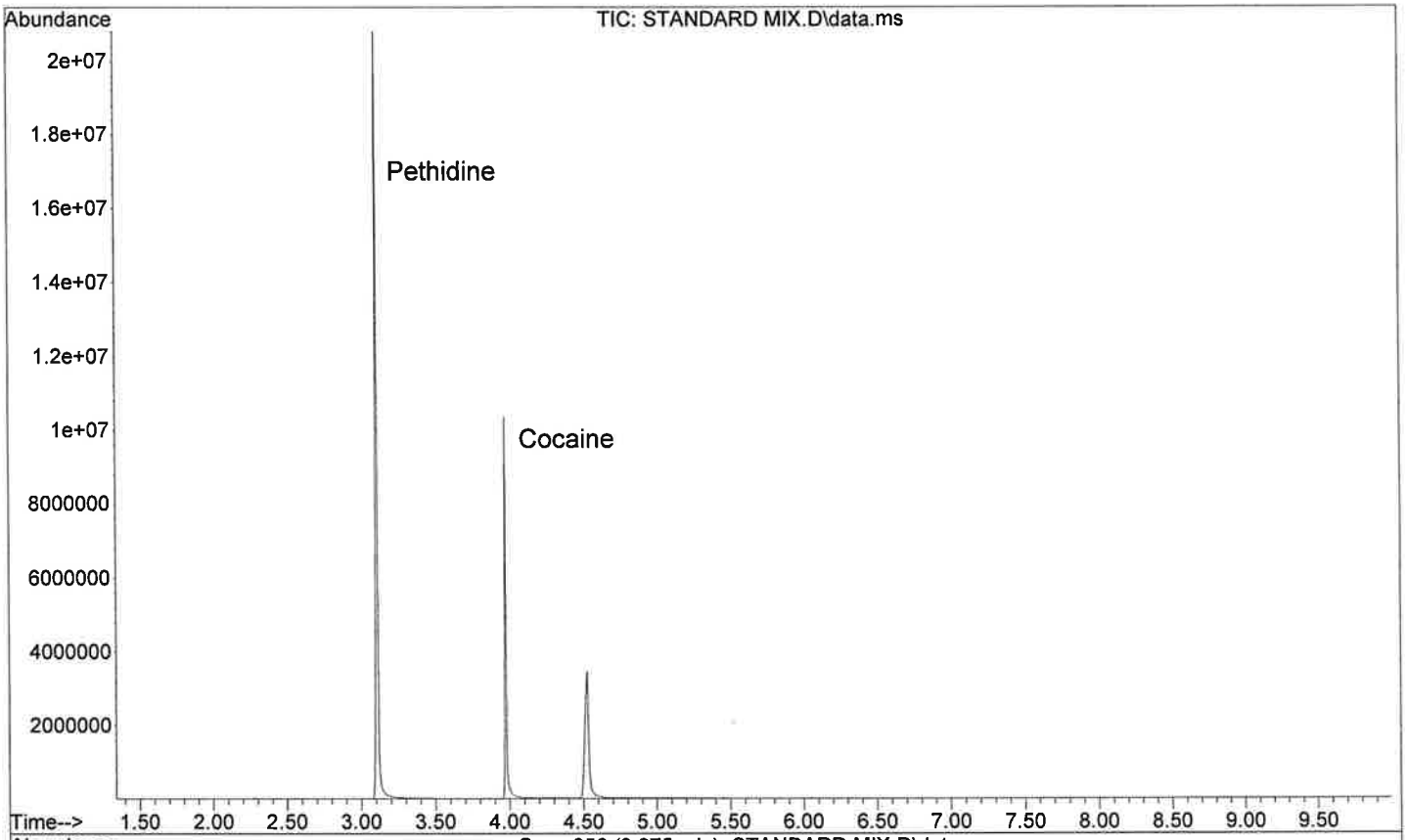
****This section is divided into two sections. The first section that immediately follows this page is the initial check for the questioned GC/MS. The second section contains the initial check ran on the FID of the questioned GC/MS.**

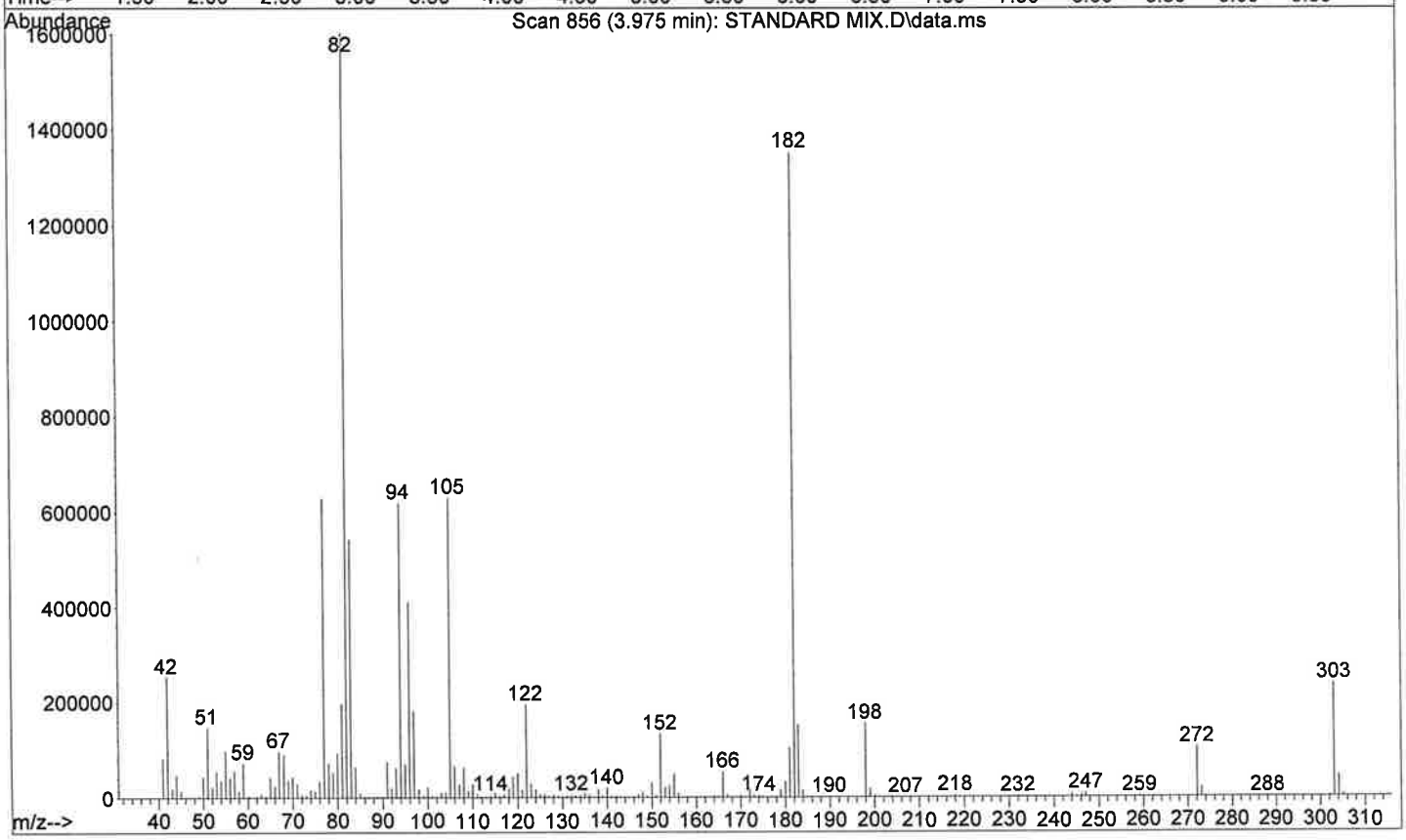
File :D:\Data\JLS\STANDARD MIX.D
Operator : John Scott, Jr.
Acquired : 14 Jan 2011 21:46 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Pethidine, Cocaine, Hydrocodone Standards
Misc Info : MeOH
Vial Number: 1



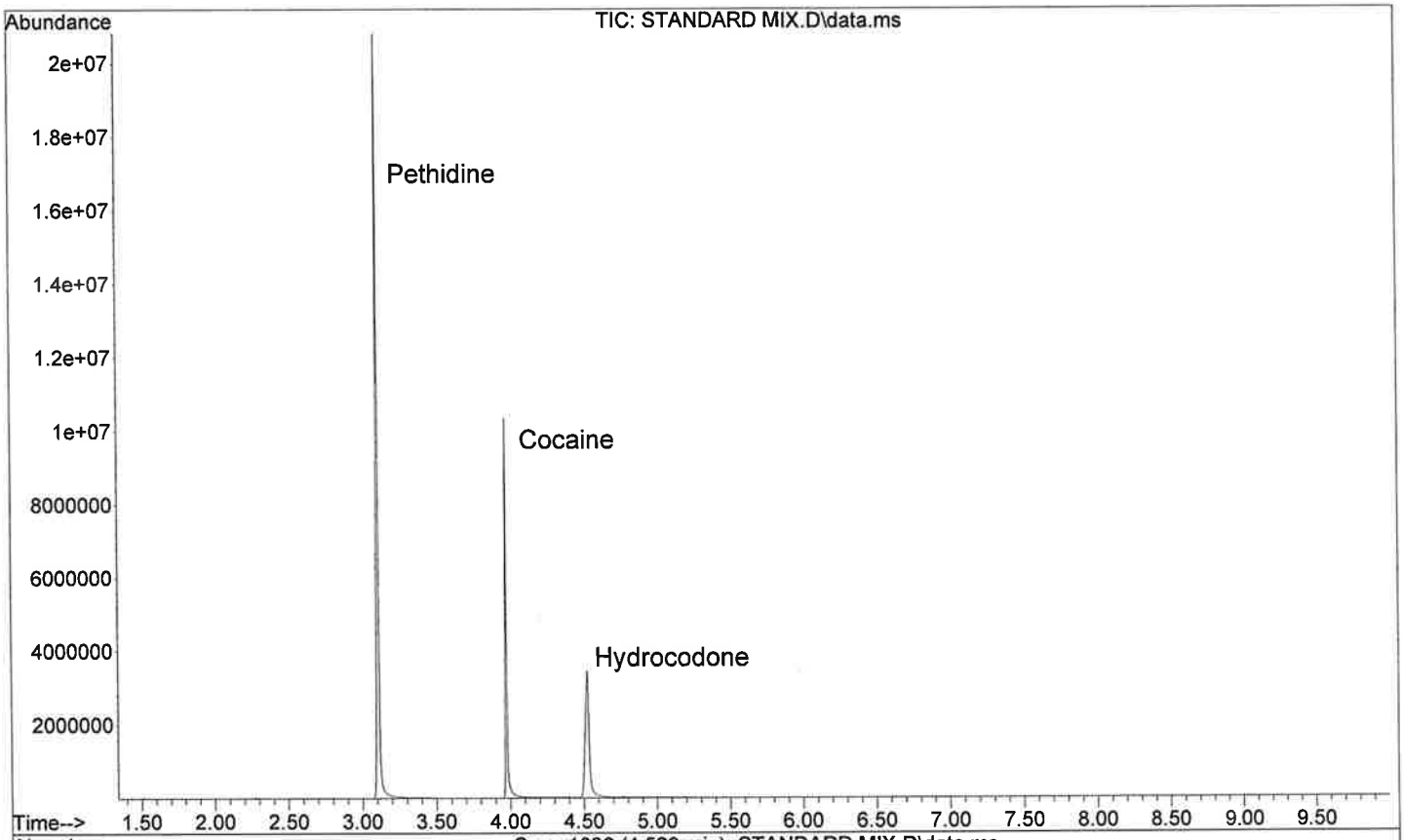


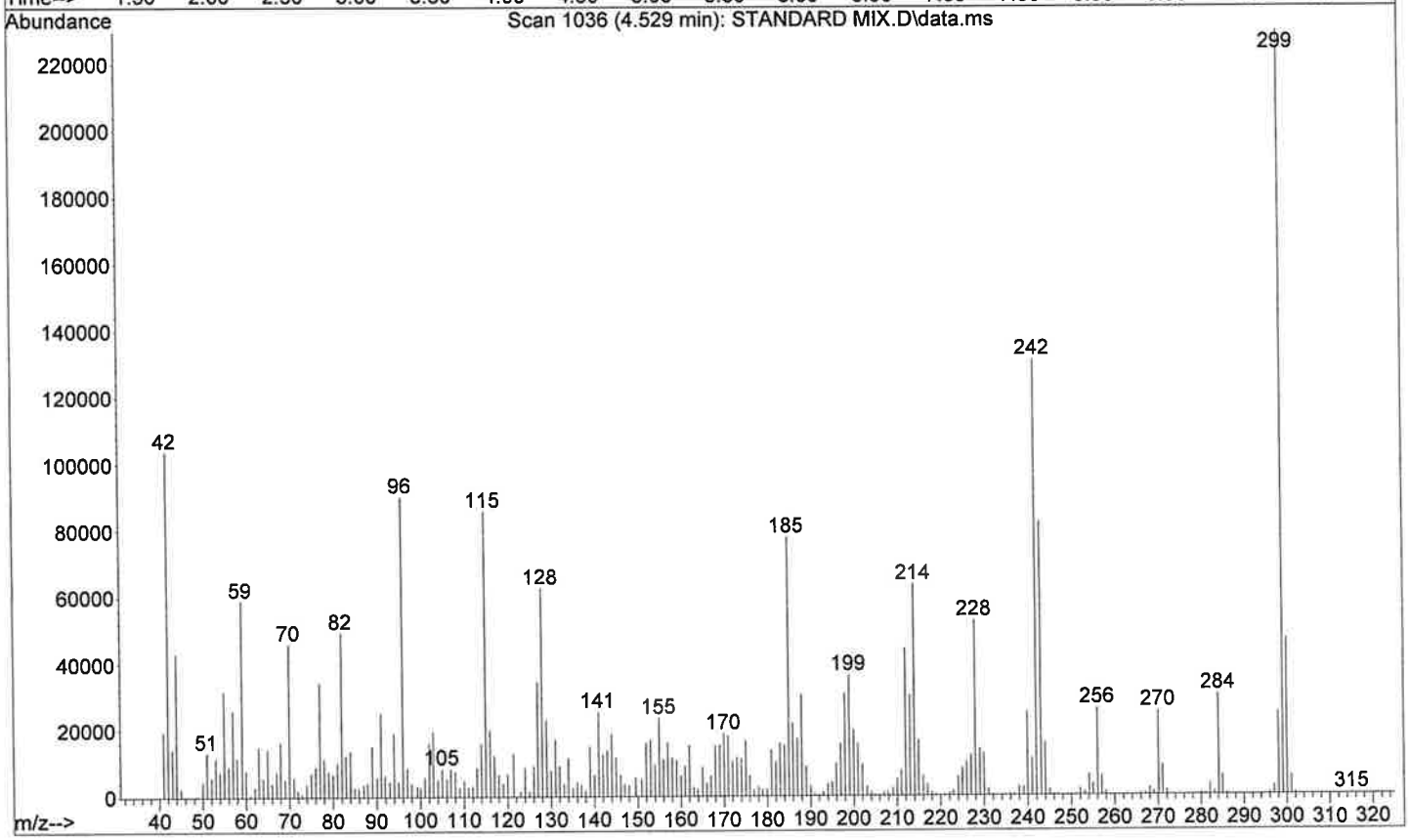
File : D:\Data\JLS\STANDARD MIX.D
Operator : John Scott, Jr. @
Acquired : 14 Jan 2011 21:46 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Pethidine, Cocaine, Hydrocodone Standards
Misc Info : MeOH
Vial Number: 1





File :D:\Data\JLS\STANDARD MIX.D
Operator : John Scott, Jr.
Acquired : 14 Jan 2011 21:46 using AcqMethod MSDRUGS.M
Instrument : Eggroll
Sample Name: Pethidine, Cocaine, Hydrocodone Standards
Misc Info : MeOH
Vial Number: 1

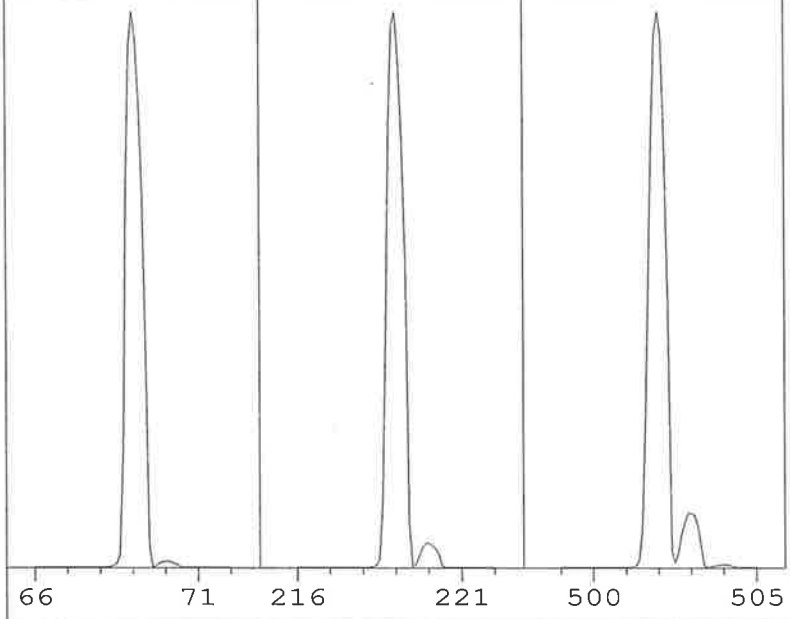




5975 Autotune

Wed Dec 29 02:30:40 2010 Instrument: 5975
C:\MSDCHEM\1\5975\atune.u US10423616

Mass	69.00	Mass	219.00	Mass	502.00
Ab	279703	Ab	350049	Ab	29895
Pw50	0.60	Pw50	0.59	Pw50	0.59

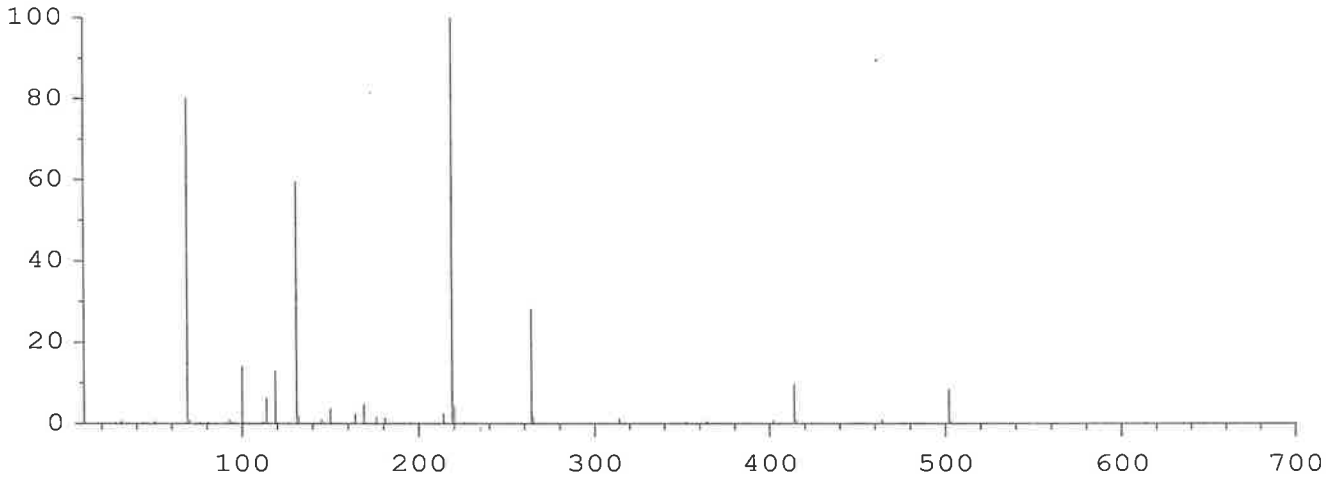


Ion Pol	Pos	MassGain	-553
		MassOffs	-33
Emission	34.6	AmuGain	2107
EIEnrgy	69.9	AmuOffs	121.88
Filament	1	Wid219	-0.015
		DC Pol	Pos
Repeller	18.56		
IonFcus	90.2	HEDEnab	On
EntLens	28.5	EMVolts	929
EntOffs	18.57		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	230	TurboSpd	100
MS Quad	150	HiVac	1.99e-05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
102 peaks Base: 219.00 Abundance: 329152



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	263552	100.00	70.10	3038	1.15
219.00	329152	124.89	220.00	14396	4.37
502.00	27264	10.34	503.10	2727	10.00

Air/Water Check: H2O~0.22% N2~0.45% O2~0.09% CO2~0.37% N2/H2O~207.67%

Column(1) Flow: 2.48 Column(2): 0 ml/min. Interface Temp: 250

Ramp Criteria:
Ion Focus Maximum 90 volts using ion 502; EM Gain 23345
Repeller Maximum 35 volts using ion 219; Gain Factor 0.23

MassGain Values(Samples): -542(3) -534(2) -518(1) -475(0) -431(FS)

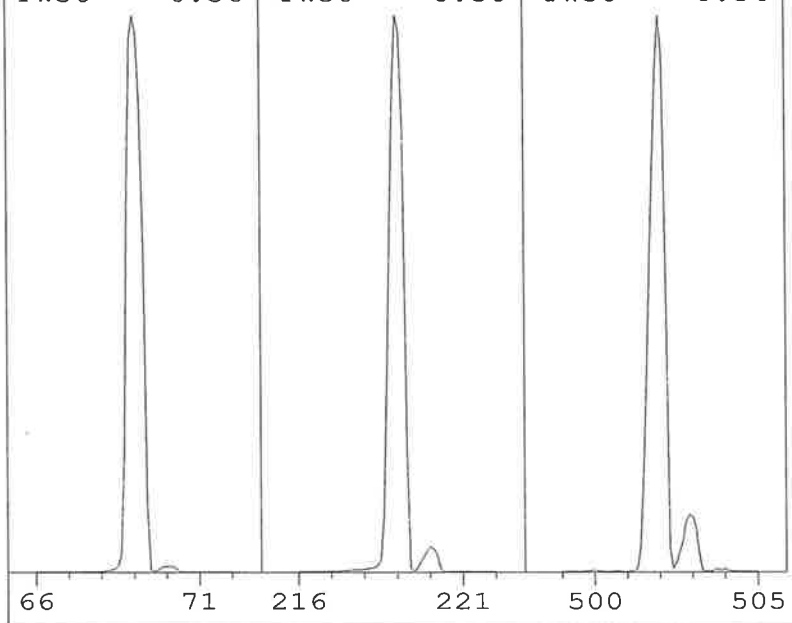
TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	121.9	121.9	121.9	121.9	121.9	121.9	121.9
Entrance Lens Offset:	18.6	18.6	18.6	18.6	18.6	18.6	18.6

5975 Standard Spectra Target Tune

Thu Jan 13 21:03:43 2011 Instrument: Eggroll

C:\MSDCHEM\1\5975\stune.u US10423616

Mass	69.00	Mass	219.00	Mass	502.00
Ab	180615	Ab	94378	Ab	6198
Pw50	0.56	Pw50	0.50	Pw50	0.54



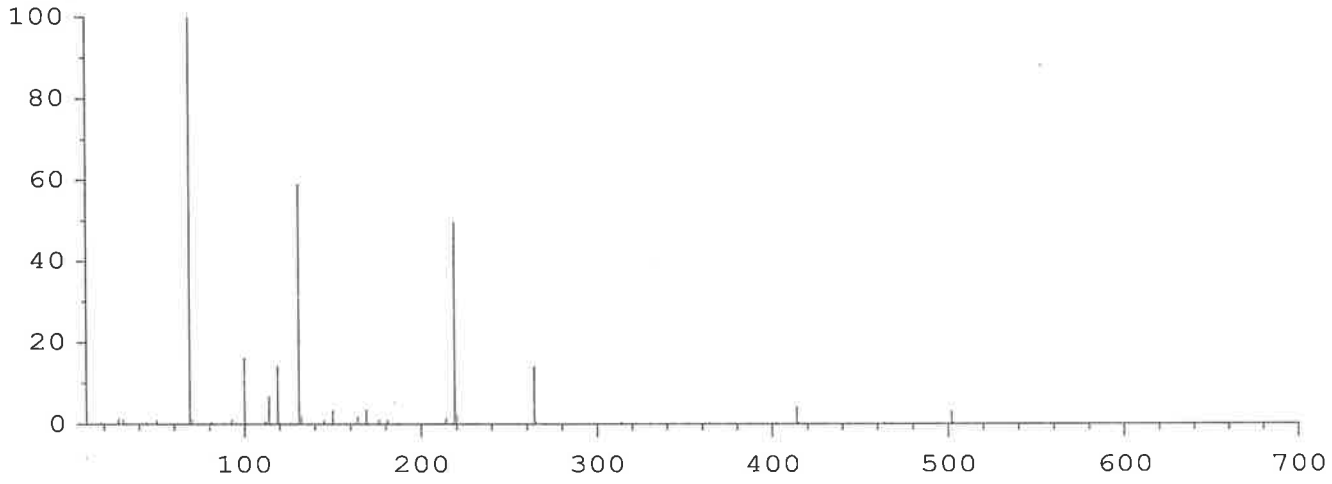
Ion Pol	Pos	MassGain	-562
		MassOffs	-36
Emission	34.6	AmuGain	2102
EIEnrgy	69.9	AmuOffs	124.25
Filament	1	Wid219	-0.029
		DC Pol	Pos
Repeller	19.90		
IonFcus	90.2	HEDEnab	On
EntLens	0.0	EMVolts	1024
EntOffs	Var		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	230	TurboSpd	100
MS Quad	150	HiVac	1.76e05

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10

80 peaks Base: 69.00 Abundance: 171328



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	171328	100.00	70.00	2121	1.24
219.10	85256	49.76	220.00	3814	4.47
502.00	5551	3.24	503.00	584	10.52

Air/Water Check: H2O~0.27% N2~1.30% O2~0.17% CO2~0.47% N2/H2O~472.77%

Column(1) Flow: 3 Column(2): 0 ml/min. Interface Temp: 280

Ramp Criteria:

Ion Focus Maximum	90	volts using ion	502;	EM Gain	58647
Repeller Maximum	20	volts using ion	219;	Gain Factor	0.59

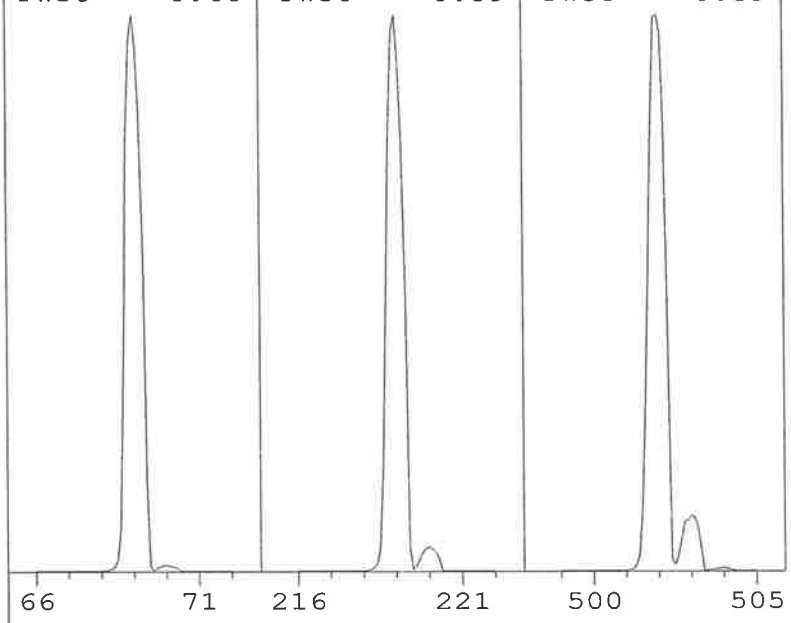
MassGain Values(Samples): -547(3) -537(2) -512(1) -457(0) -404(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	124.3	124.3	124.3	124.3	124.3	124.3	124.3
Entrance Lens Offset:	16.3	15.8	15.6	14.6	17.1	17.3	17.3
Target Abund(%):	1.0	100.0	55.0	45.0	3.5	2.5	
Actual Tune Abund(%):	1.0	100.0	59.0	49.8	4.3	3.2	

5975 Autotune

Mon Jan 24 08:09:47 2011 Instrument: Eggroll
C:\MSDCHEM\1\5975\atune.u US10423616

Mass	69.00	Mass	219.00	Mass	502.00
Ab	309270	Ab	312237	Ab	27074
Pw50	0.60	Pw50	0.59	Pw50	0.59

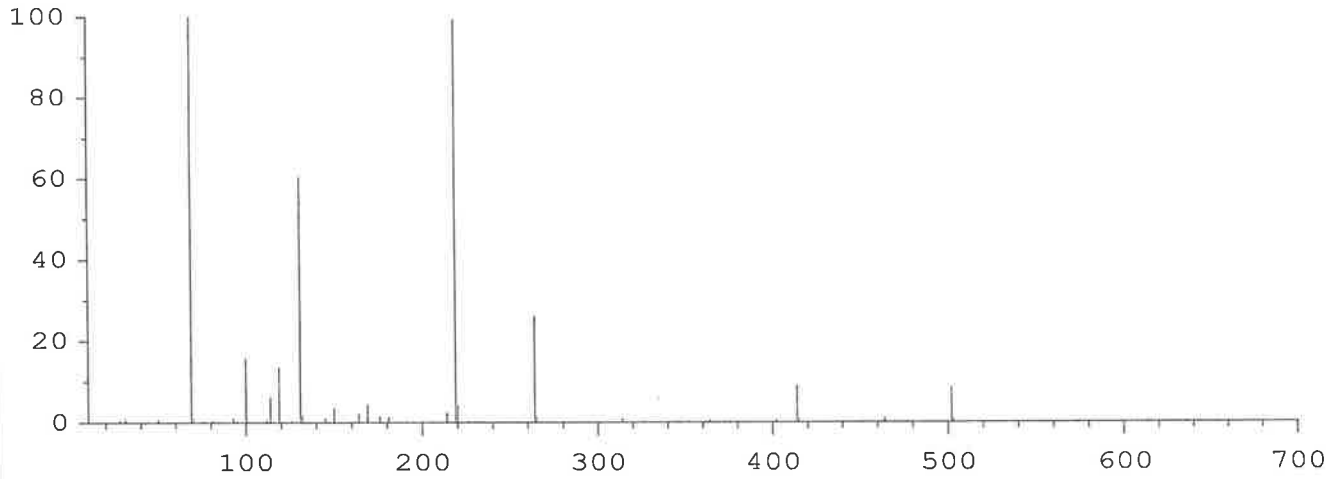


Ion Pol	Pos	MassGain	-556
		MassOffs	-37
Emission	34.6	AmuGain	2114
EIEnrgy	69.9	AmuOffs	119.94
Filament	1	Wid219	-0.029
		DC Pol	Pos
Repeller	29.62		
IonFcus	90.2	HEDEnab	On
EntLens	22.0	EMVolts	988
EntOffs	19.07		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	230	TurboSpd	100
MS Quad	150	HiVac	8.83e-06

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
96 peaks Base: 69.00 Abundance: 297728



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	297728	100.00	70.00	3200	1.07
219.00	295872	99.38	220.00	12889	4.36
502.00	25992	8.73	503.00	2554	9.83

Air/Water Check: H2O~0.18% N2~0.60% O2~0.16% CO2~0.18% N2/H2O~328.47%

Column(1) Flow: 1.36 Column(2): 3.33 ml/min. Interface Temp: 280

Ramp Criteria:

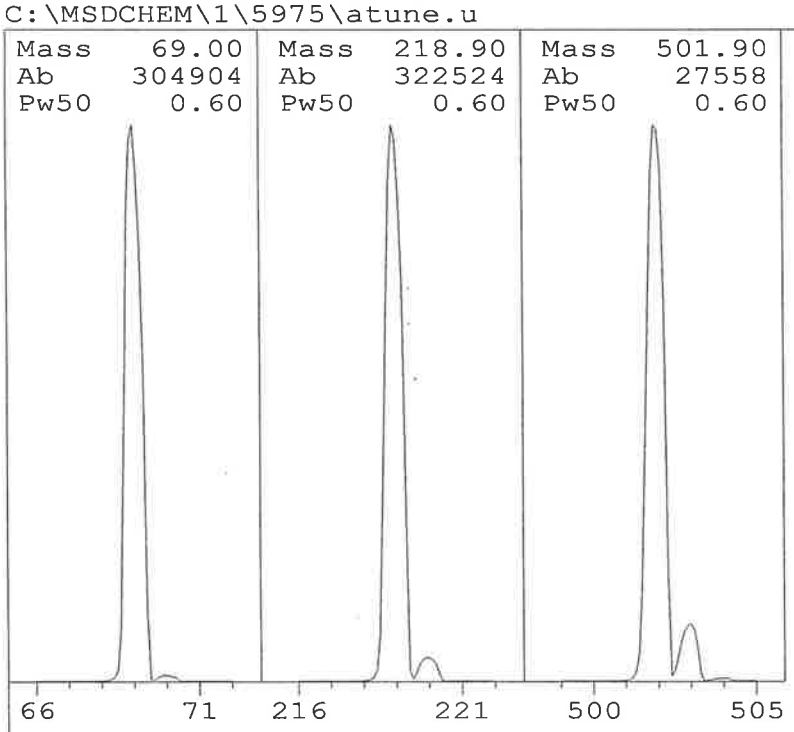
Ion Focus Maximum	90	volts using ion	502;	EM Gain	34992
Repeller Maximum	35	volts using ion	219;	Gain Factor	0.35

MassGain Values(Samples): -547(3) -541(2) -526(1) -497(0) -410(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	119.9	119.9	119.9	119.9	119.9	119.9	119.9
Entrance Lens Offset:	19.1	19.1	19.1	19.1	19.1	19.1	19.1

5975 Autotune

Tue Feb 08 10:15:36 2011 Instrument: Eggroll
C:\MSDCHEM\1\5975\atune.u US10423616

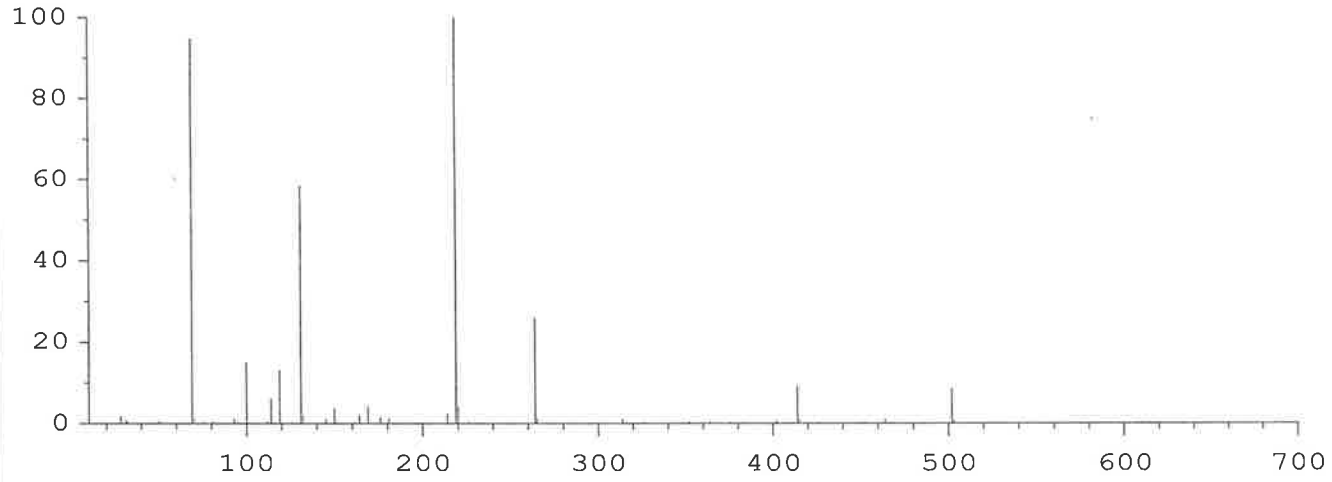


Ion Pol	Pos	MassGain	-560
		MassOffs	-38
Emission	34.6	AmuGain	2111
EIEnrgy	69.9	AmuOffs	121.69
Filament	1	Wid219	-0.009
		DC Pol	Pos
Repeller	29.45		
IonFcus	90.2	HEDEnab	On
EntLens	22.0	EMVolts	988
EntOffs	19.07		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	230	TurboSpd	100
MS Quad	150	HiVac	8.97e-06

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
99 peaks Base: 219.00 Abundance: 308288



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	292224	100.00	70.00	3342	1.14
219.00	308288	105.50	220.00	13324	4.32
502.00	26232	8.98	503.00	2610	9.95

Air/Water Check: H2O~0.20% N2~1.87% O2~0.57% CO2~0.14% N2/H2O~916.95%

Column(1) Flow: 1.36 Column(2): 0 ml/min. Interface Temp: 280

Ramp Criteria:
Ion Focus Maximum 90 volts using ion 502; EM Gain 30575
Repeller Maximum 35 volts using ion 219; Gain Factor 0.31

MassGain Values(Samples): -548(3) -547(2) -532(1) -503(0) -416(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	121.7	121.7	121.7	121.7	121.7	121.7	121.7
Entrance Lens Offset:	19.1	19.1	19.1	19.1	19.1	19.1	19.1

5975 Autotune

Tue Mar 22 15:07:52 2011
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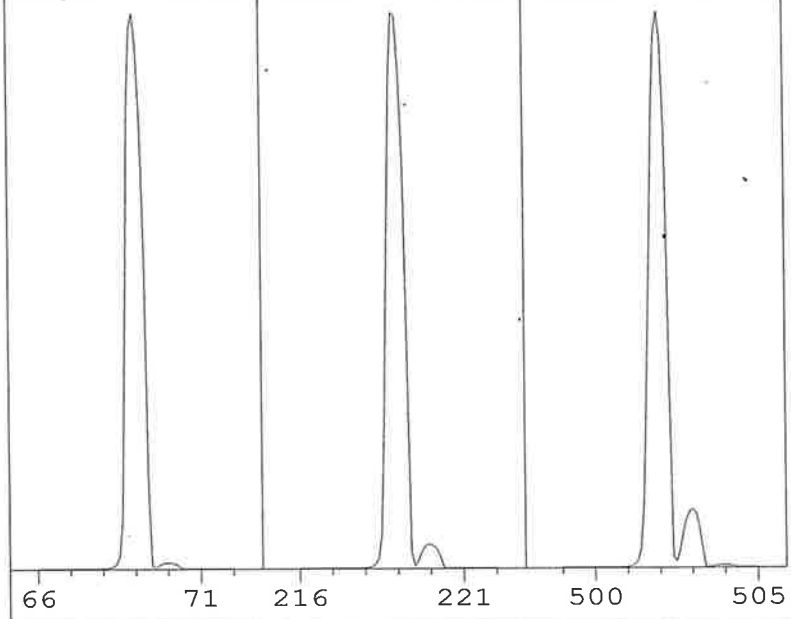
Instrument: Eggroll
US10423616

Mass	69.00	Mass	218.90	Mass	502.00
Ab	492134	Ab	481192	Ab	42672
Pw50	0.60	Pw50	0.60	Pw50	0.59

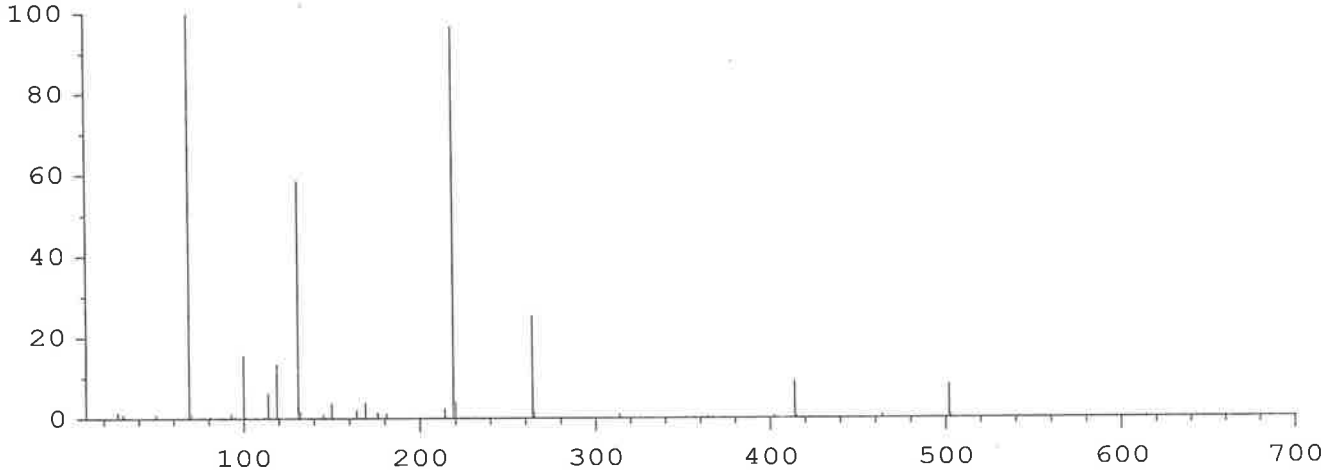


Ion Pol	Pos	MassGain	-559
		MassOffs	-38
Emission	34.6	AmuGain	.2113
EIEnrgy	69.9	AmuOffs	122.25
Filament	1	Wid219	-0.012
		DC Pol	Pos
Repeller	31.30		
IonFcus	90.2	HEDEnab	On
EntLens	22.0	EMVolts	988
EntOffs	19.07		
		Samples	8
PFTBA	Open	Averages	3
		Stepsize	0.10

Temperatures and Pressures:

MS Source	230	TurboSpd	100
MS Quad	150	HiVac	9.18e-06

Scan: 10.00 - 701.00 Samples: 8 Thresh: 100 Step: 0.10
121 peaks Base: 69.00 Abundance: 476416



Mass	Abund	Rel Abund	Iso Mass	Iso Abund	Iso Ratio
69.00	476416	100.00	70.00	5426	1.14
219.00	460864	96.74	220.00	20032	4.35
502.00	40032	8.40	503.00	4118	10.29

Air/Water Check: H2O~0.24% N2~1.48% O2~0.41% CO2~0.15% N2/H2O~610.54%

Column(1) Flow: 1.1 Column(2): 2.7 ml/min. Interface Temp: 280

Ramp Criteria:

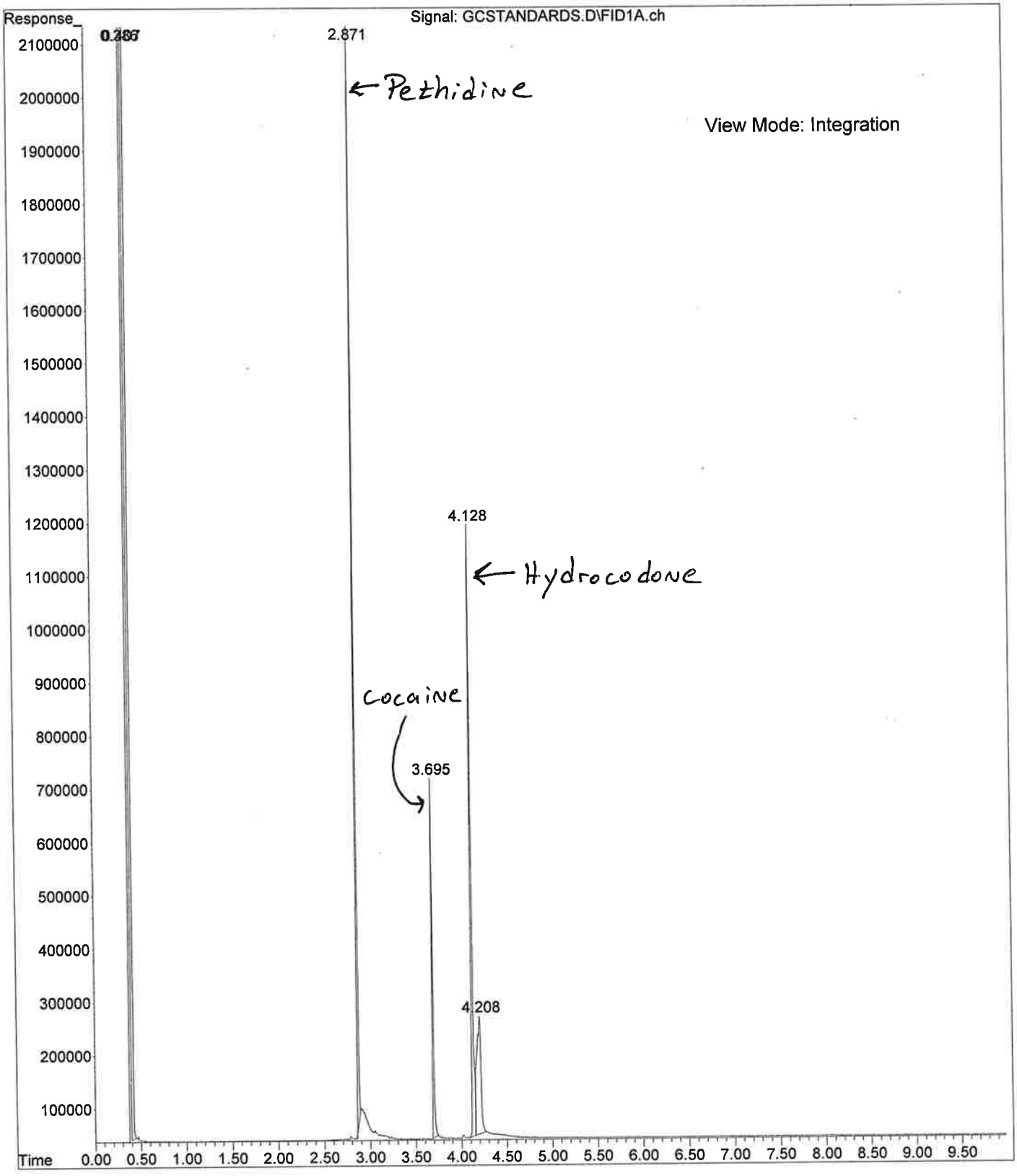
Ion Focus Maximum	90	volts using ion	502;	EM Gain	28709
Repeller Maximum	35	volts using ion	219;	Gain Factor	0.29

MassGain Values(Samples): -558(3) -550(2) -535(1) -508(0) -421(FS)

TARGET MASS:	50	69	131	219	414	502	1050
Amu Offset:	122.3	122.3	122.3	122.3	122.3	122.3	122.3
Entrance Lens Offset:	19.1	19.1	19.1	19.1	19.1	19.1	19.1

GC/FID CHECKS

File :D:\Data\JLS\GCSTANDARDS.D
Operator : JOHN SCOTT, JR.
Acquired : 18 Feb 2011 8:50 using AcqMethod GCRAMP.M
Instrument : Eggroll
Sample Name: PETHIDINE, COCAINE, HYDROCODONE STANDARDS
Misc Info : MEOH
Vial Number: 0



File :C:\msdchem\1\DATA\JLS\GCSTDMIX.D
Operator : JOHN SCOTT, JR.
Acquired : 31 Mar 2011 7:35 using AcqMethod GCRAMP.M
Instrument : HP G1530A
Sample Name: PETHIDINE, COCAINE, HYDROCODONE STANDARD
Misc Info : MEOH
Vial Number: 1