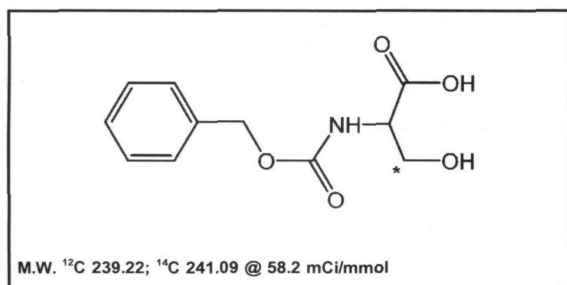




Product Data Sheet

MC-2344

Z-D,L-Serine, [3-¹⁴C]-



Lot #: 194-084-0582-A-20100416-NT

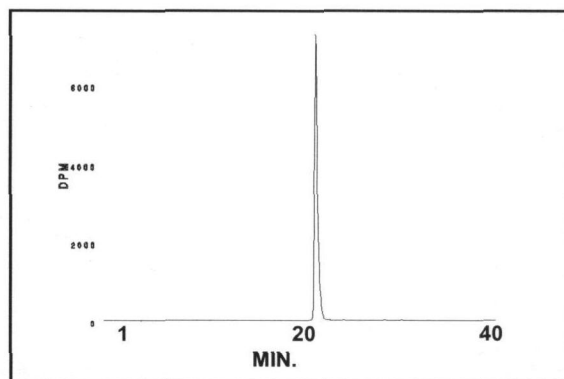
Specific Activity: 58.2 mCi/mmol

Concentration: 0.1 mCi/ml; 414.24 µg/ml

Packaged in: Ethanol : water (1 : 1) solution

Date of Analysis: April 16, 2010

Radiochemical Purity: 99.7%



HPLC ANALYSIS LOT 194-084-0582-A-20100416-NT
File Name: intrn2158 Date and Time: 4/16/2010 11:27:54 A
Unit 21 Radio

| Peak # | Area % | Time | Area |
|--------|--------|----------|-------------|
| 1 | 0.13 | 21.26670 | 19.98837 |
| 2 | 99.74 | 21.68000 | 15889.14679 |
| 3 | 0.14 | 22.98000 | 22.07790 |
| Totals | 100.00 | | 15931.21306 |

Storage Recommendation: Store at -20°C.

Product Warranty: Stated on the reverse side of this Product Data Sheet.

Caution: Not For Use In Humans Or Clinical Diagnosis. This product is intended for investigational or manufacturing use only. It is pharmaceutically unrefined and is not intended for use in humans. Responsibility for its use in humans, as a diagnostic reagent, and compliance with federal laws rests solely with the purchaser.

MC-2344

Z-D,L-Serine, [3-¹⁴C]-

Lot 194-084-0582-A-20100416-NT

A) All chromatograms were run using the HPLC method described on the Product Data Sheet.

Concentrations and volumes:

Standard solution concentration was 1.0 mg/ml.

Z-D,L-Serine, [3-¹⁴C]- concentration was 0.1 mCi/ml.

Volume of standard alone injection was 15.0 µl.

Volume of **Z-D,L-Serine, [3-¹⁴C]-** alone injection was 1.0 µl.

Co-injection solution consisted of 1.0 µl **Z-D,L-Serine, [3-¹⁴C]-** + 15.0 µl standard.

Volume of co-injection was 16.0 µl.

Volume of blank injection was 1.0 µl.

B) Mass spectrometry – Positive mode

C) NMR

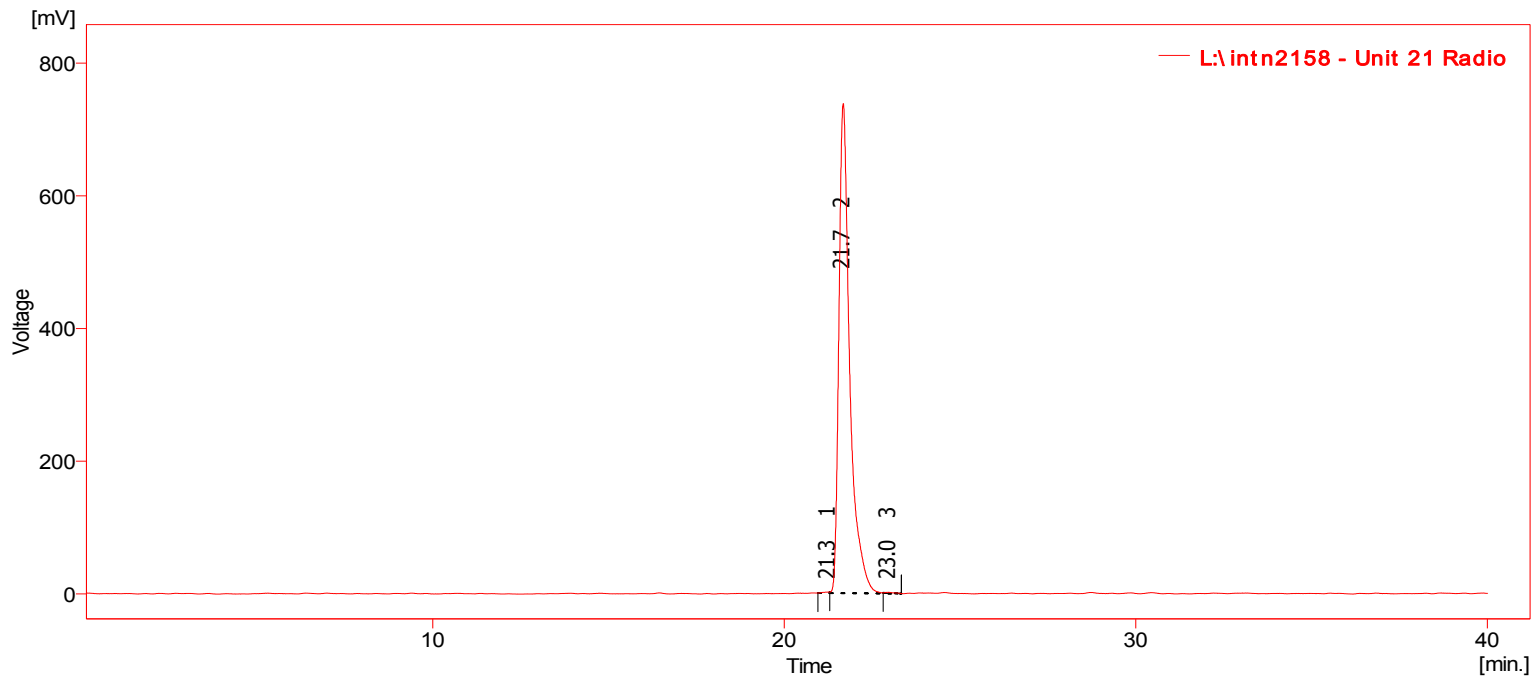
MC-2344
Z-D,L-Serine, [3-14C]-
Lot 194-084-0582-A-20100416-NT

Chromatogram Info:

File Name : L:\intn2158 File Created : 5/14/2014 10:32:51 AM
 Origin : Acquired, Acquisition started 4/16/2010 10:47:56 AM Acquired Date : 4/16/2010 11:27:54 AM
 Project : Work1 By : Administrator

Method : Unit_21_40_min_run By : Administrator
 Description : Radiochemical trace of 14C material alone
 Created : 4/17/2008 10:21 AM Modified : 5/14/2014 11:13 AM

Column : Detection : Radiochemical
 Mobile Phase : Temperature :
 Flow Rate : Pressure :
 Note :



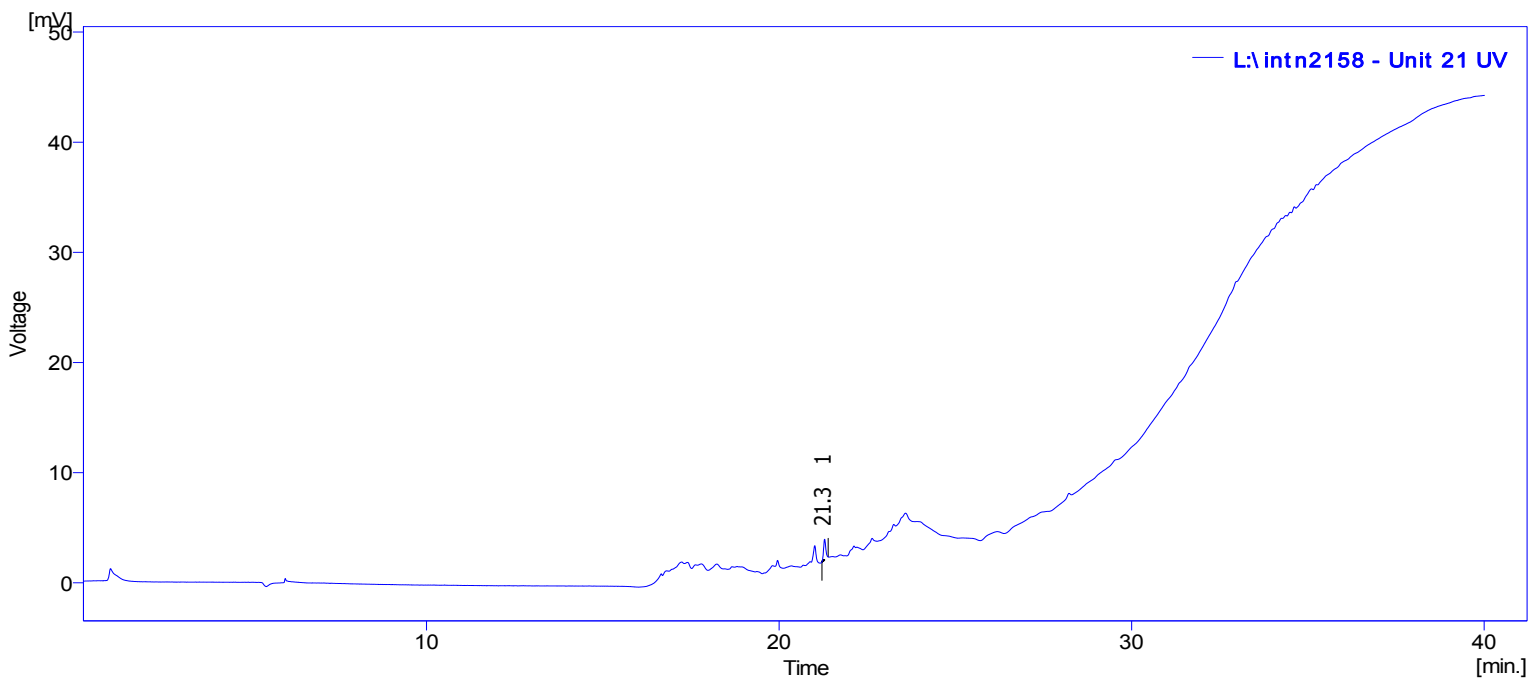
Result Table (Uncal - L:\intn2158 - Unit 21 Radio)

| | Compound Name | Reten. Time [min] | Area [mV.s] | Height [mV] | Area [%] | Height [%] | W05 [min] | Efficiency [th.pl] | Eff/I [t.p./m] | Resolution [-] | Symmetry/Tailing [-] | Response Factor |
|---|---------------|-------------------|-------------|-------------|----------|------------|-----------|--------------------|----------------|----------------|----------------------|-----------------|
| 1 | | 21.27 | 19.988 | 1.73 | 0.13 | 0.2 | 0.21 | 56816 | 1136318 | | 0.54 | |
| 2 | | 21.68 | 15889.147 | 738.07 | 99.74 | 99.6 | 0.31 | 27688 | 553765 | 0.94 | 2.64 | |
| 3 | | 22.98 | 22.078 | 1.31 | 0.14 | 0.2 | 0.22 | 62320 | 1246395 | 2.93 | 1.56 | |
| | Total | | 15931.213 | 741.11 | 100.00 | 100.0 | | | | | | |

MC-2344
Z-D,L-Serine, [3-14C]-
Lot 194-084-0582-A-20100416-NT

Chromatogram Info:

| | | | |
|--------------|---|---------------|-------------------------|
| File Name | : L:\intn2158 | File Created | : 5/14/2014 10:32:51 AM |
| Origin | : Acquired, Acquisition started 4/16/2010 10:47:56 AM | Acquired Date | : 4/16/2010 11:27:54 AM |
| Project | : Work1 | By | : Administrator |
| Method | : Unit_21_40_min_run | By | : Administrator |
| Description | : UV trace of 14C material alone | | |
| Created | : 4/17/2008 10:21 AM | Modified | : 5/14/2014 11:14 AM |
| Column | : | Detection | : UV 250nm |
| Mobile Phase | : | Temperature | : |
| Flow Rate | : | Pressure | : |
| Note | : | | |



Result Table (Uncal - L:\intn2158 - Unit 21 UV)

| | Compound Name | Reten. Time [min] | Area [mV.s] | Height [mV] | Area [%] | Height [%] | W05 [min] | Efficiency [th.pl] | Eff/I [t.p./m] | Resolution [-] | Symmetry/Tailing [-] | Response Factor |
|---|---------------|-------------------|-------------|-------------|----------|------------|-----------|--------------------|----------------|----------------|----------------------|-----------------|
| 1 | | 21.29 | 7.982 | 1.85 | 100.00 | 100.0 | 0.07 | 512626 | 10252529 | | 1.13 | |
| | | Total | 7.982 | 1.85 | 100.00 | 100.0 | | | | | | |

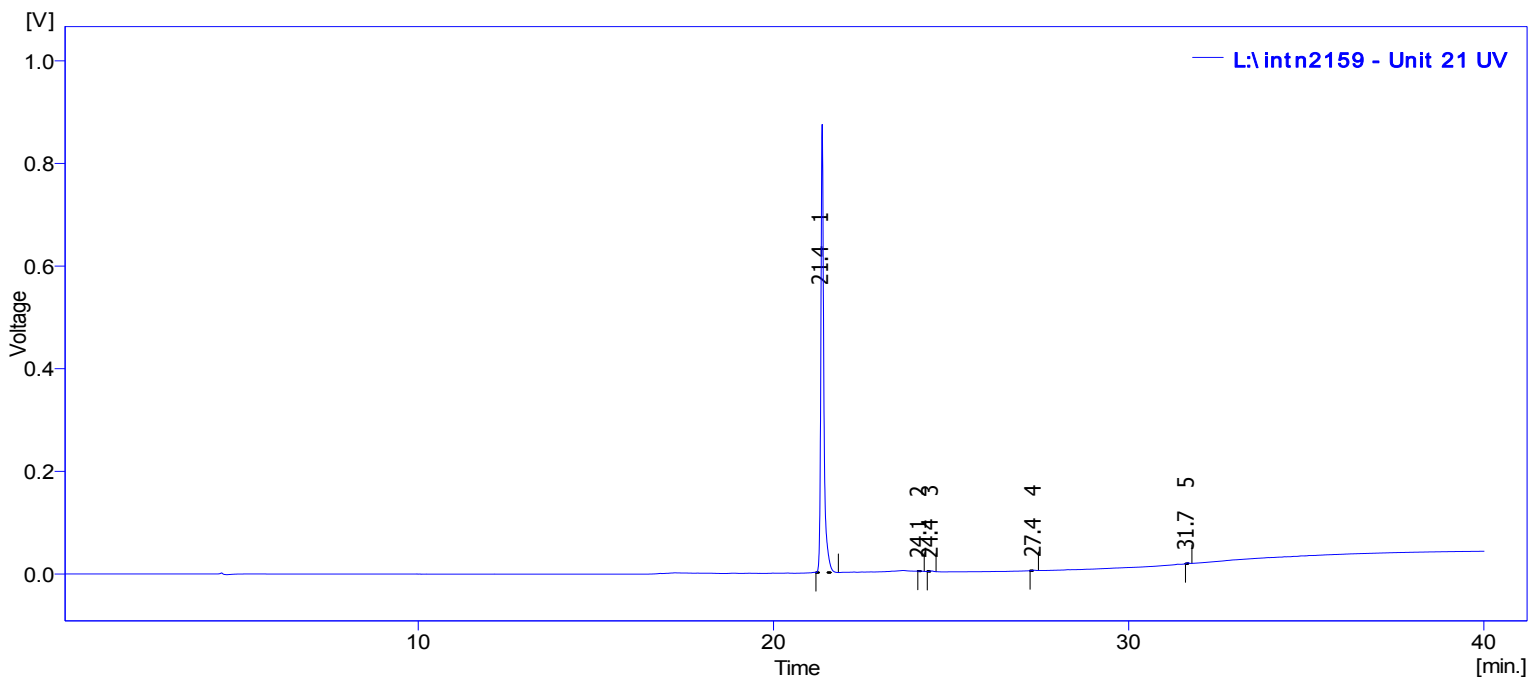
MC-2344
Z-D,L-Serine, [3-14C]-
Lot 194-084-0582-A-20100416-NT

Chromatogram Info:

File Name : L:\intn2159 File Created : 5/14/2014 10:32:51 AM
 Origin : Acquired, Acquisition started 4/16/2010 11:37:37 AM Acquired Date : 4/16/2010 12:17:35 PM
 Project : Work1 By : Administrator

Method : Unit_21_40_min_run By : Administrator
 Description : UV trace of standard material alone
 Created : 4/17/2008 10:21 AM Modified : 5/14/2014 11:18 AM

Column : Detection : UV 250nm
 Mobile Phase : Temperature :
 Flow Rate : Pressure :
 Note :



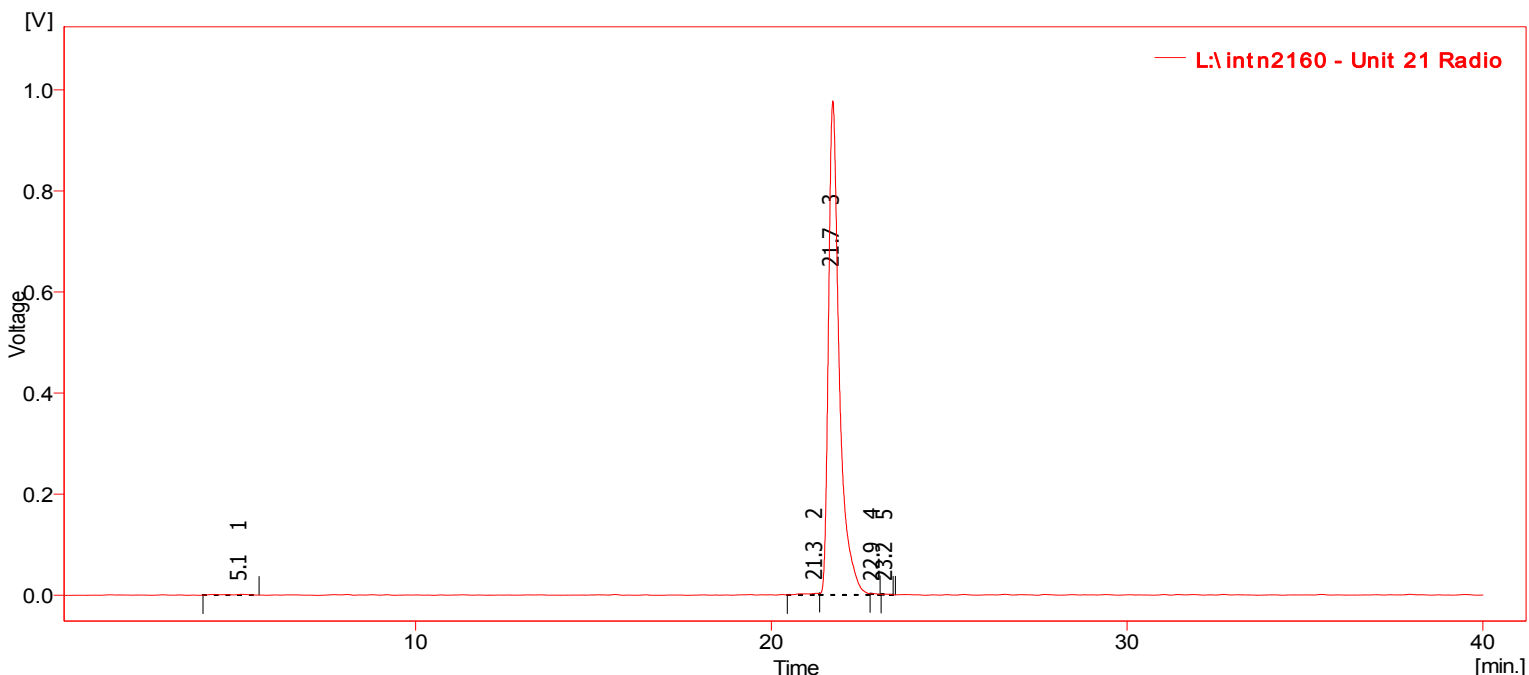
Result Table (Uncal - L:\intn2159 - Unit 21 UV)

| | Compound Name | Reten. Time [min] | Area [mV.s] | Height [mV] | Area [%] | Height [%] | W05 [min] | Efficiency [th.pl] | Eff/I [t.p./m] | Resolution [-] | Symmetry/Tailing [-] | Response Factor |
|---|---------------|-------------------|-------------|-------------|----------|------------|-----------|--------------------|----------------|----------------|----------------------|-----------------|
| 1 | | 21.37 | 5046.934 | 873.22 | 99.56 | 99.5 | 0.08 | 364319 | 7286371 | | 1.44 | |
| 2 | | 24.13 | 2.203 | 0.42 | 0.04 | 0.0 | 0.09 | 429576 | 8591524 | 19.18 | 1.23 | |
| 3 | | 24.45 | 7.777 | 1.24 | 0.15 | 0.1 | 0.10 | 310161 | 6203212 | 1.97 | 1.03 | |
| 4 | | 27.35 | 4.424 | 0.72 | 0.09 | 0.1 | 0.10 | 414404 | 8288089 | 16.83 | 0.91 | |
| 5 | | 31.67 | 7.986 | 1.77 | 0.16 | 0.2 | 0.08 | 868030 | 17360590 | 28.30 | 1.16 | |
| | Total | | 5069.326 | 877.38 | 100.00 | 100.0 | | | | | | |

MC-2344
Z-D,L-Serine, [3-14C]-
Lot 194-084-0582-A-20100416-NT

Chromatogram Info:

| | | | |
|--------------|---|---------------|-------------------------|
| File Name | : L:\intn2160 | File Created | : 5/14/2014 10:32:51 AM |
| Origin | : Acquired, Acquisition started 4/16/2010 12:57:18 PM | Acquired Date | : 4/16/2010 1:37:16 PM |
| Project | : Work1 | By | : Administrator |
| Method | : Unit_21_40_min_run | By | : Administrator |
| Description | : Radiochemical trace of 14C material co-injected with standard | | |
| Created | : 4/17/2008 10:21 AM | Modified | : 5/14/2014 11:15 AM |
| Column | : | Detection | : Radiochemical |
| Mobile Phase | : | Temperature | : |
| Flow Rate | : | Pressure | : |
| Note | : | | |



Result Table (Uncal - L:\intn2160 - Unit 21 Radio)

| | Compound Name | Reten. Time [min] | Area [mV.s] | Height [mV] | Area [%] | Height [%] | W05 [min] | Efficiency [th.pl] | Eff/I [t.p./m] | Resolution [-] | Symmetry/Tailing [-] | Response Factor |
|---|---------------|-------------------|-------------|-------------|----------|------------|-----------|--------------------|----------------|----------------|----------------------|-----------------|
| 1 | | 5.08 | 69.634 | 1.51 | 0.33 | 0.2 | 0.30 | 1622 | 32446 | | 0.71 | |
| 2 | | 21.26 | 97.635 | 3.34 | 0.47 | 0.3 | 0.63 | 6376 | 127524 | 20.68 | 0.57 | |
| 3 | | 21.73 | 20760.532 | 977.68 | 99.12 | 99.3 | 0.30 | 29057 | 581144 | 0.59 | 2.88 | |
| 4 | | 22.87 | 6.625 | 0.63 | 0.03 | 0.1 | 0.19 | 83183 | 1663662 | 2.78 | 1.46 | |
| 5 | | 23.23 | 10.862 | 0.98 | 0.05 | 0.1 | 0.16 | 112030 | 2240598 | 1.19 | 1.24 | |
| | | Total | 20945.288 | 984.14 | 100.00 | 100.0 | | | | | | |

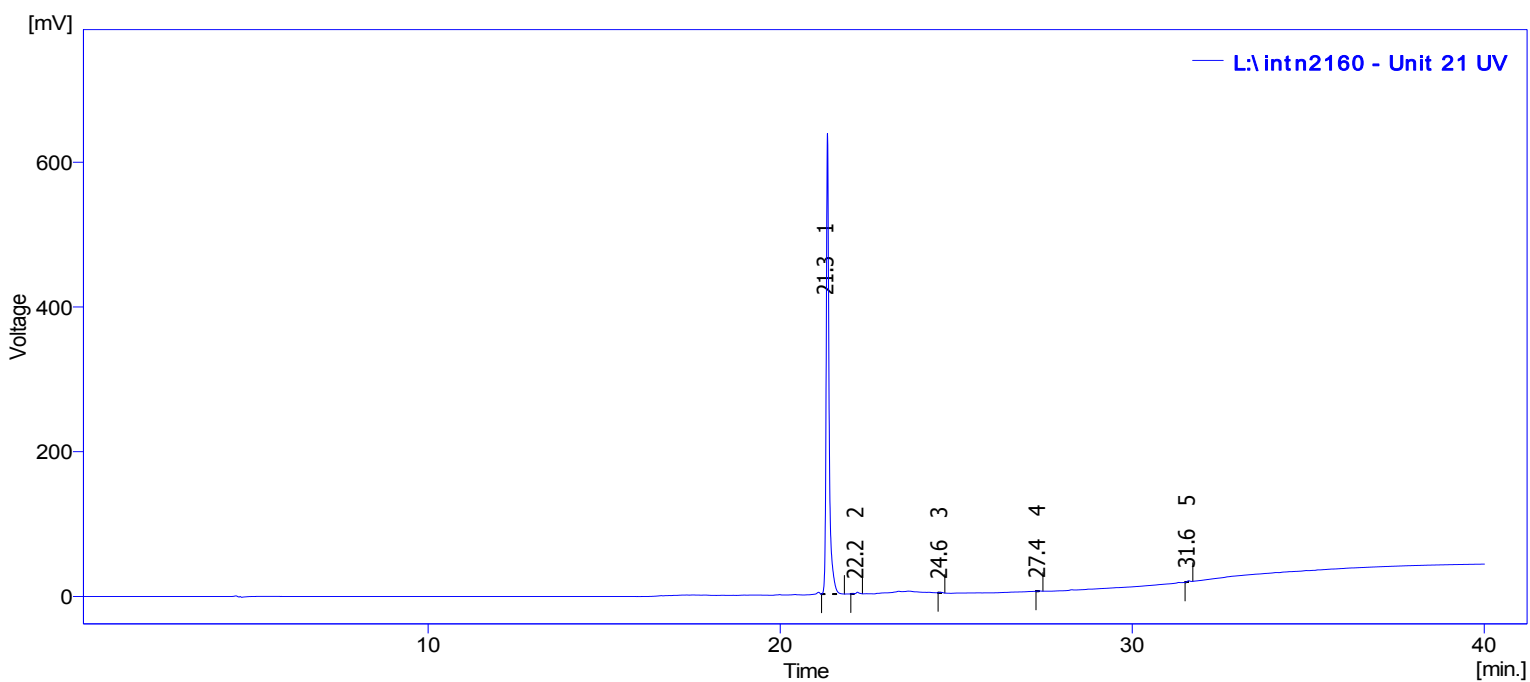
MC-2344
Z-D,L-Serine, [3-14C]-
Lot 194-084-0582-A-20100416-NT

Chromatogram Info:

File Name : L:\intn2160 File Created : 5/14/2014 10:32:51 AM
 Origin : Acquired, Acquisition started 4/16/2010 12:57:18 PM Acquired Date : 4/16/2010 1:37:16 PM
 Project : Work1 By : Administrator

Method : Unit_21_40_min_run By : Administrator
 Description : UV trace of 14C material co-injected with standard
 Created : 4/17/2008 10:21 AM Modified : 5/14/2014 11:16 AM

Column : Detection : UV 250nm
 Mobile Phase : Temperature :
 Flow Rate : Pressure :
 Note :



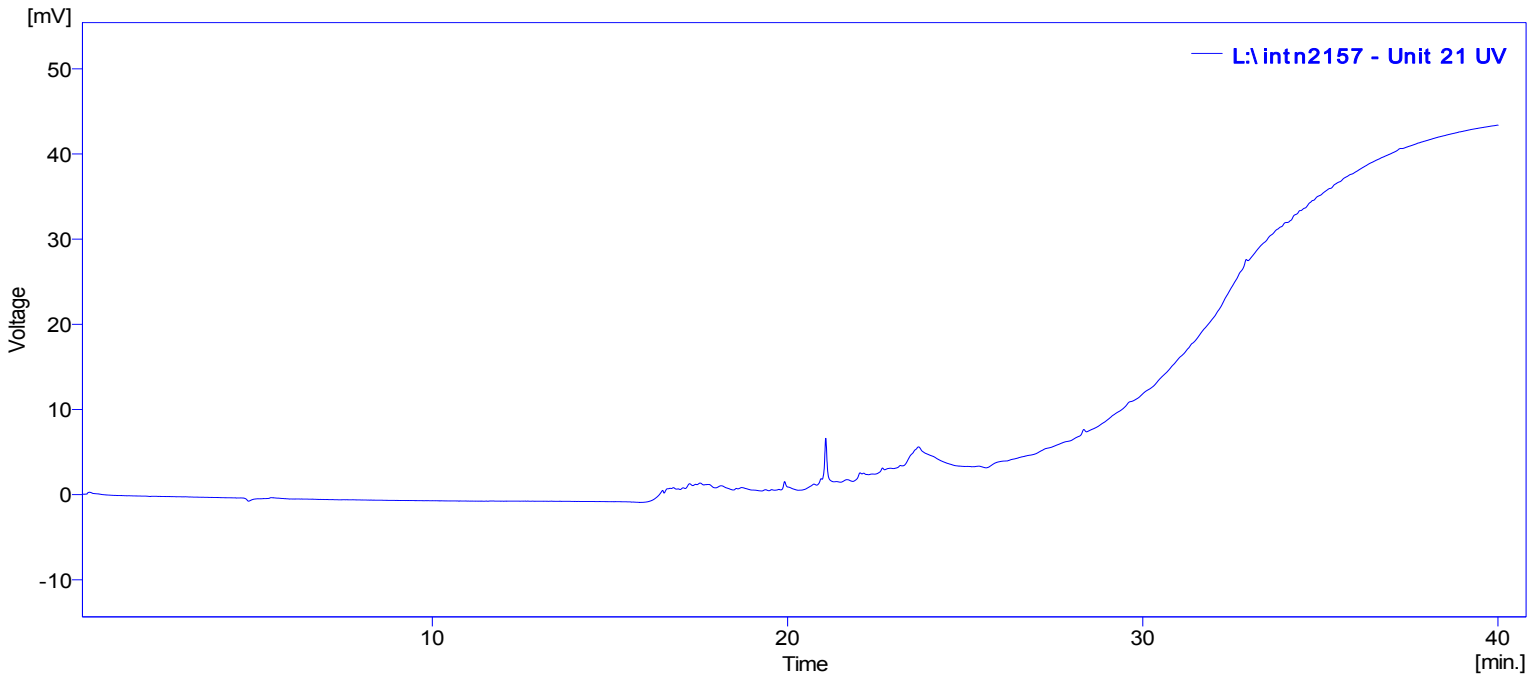
Result Table (Uncal - L:\intn2160 - Unit 21 UV)

| | Compound Name | Reten. Time [min] | Area [mV.s] | Height [mV] | Area [%] | Height [%] | W05 [min] | Efficiency [th.pl] | Eff/I [t.p./m] | Resolution [-] | Symmetry/Tailing [-] | Response Factor |
|---|---------------|-------------------|-------------|-------------|----------|------------|-----------|--------------------|----------------|----------------|----------------------|-----------------|
| 1 | | 21.34 | 3575.715 | 636.29 | 99.19 | 99.2 | 0.08 | 394325 | 7886500 | | 1.46 | |
| 2 | | 22.19 | 14.527 | 2.29 | 0.40 | 0.4 | 0.08 | 392932 | 7858639 | 6.14 | 0.89 | |
| 3 | | 24.57 | 4.483 | 0.76 | 0.12 | 0.1 | 0.10 | 357807 | 7156139 | 15.56 | 1.15 | |
| 4 | | 27.36 | 2.366 | 0.44 | 0.07 | 0.1 | 0.09 | 475951 | 9519027 | 17.33 | 1.04 | |
| 5 | | 31.60 | 7.928 | 1.58 | 0.22 | 0.2 | 0.09 | 683110 | 13662196 | 27.33 | 1.06 | |
| | Total | | 3605.019 | 641.36 | 100.00 | 100.0 | | | | | | |

MC-2344
Z-D,L-Serine, [3-14C]-
Lot 194-084-0582-A-20100416-NT

Chromatogram Info:

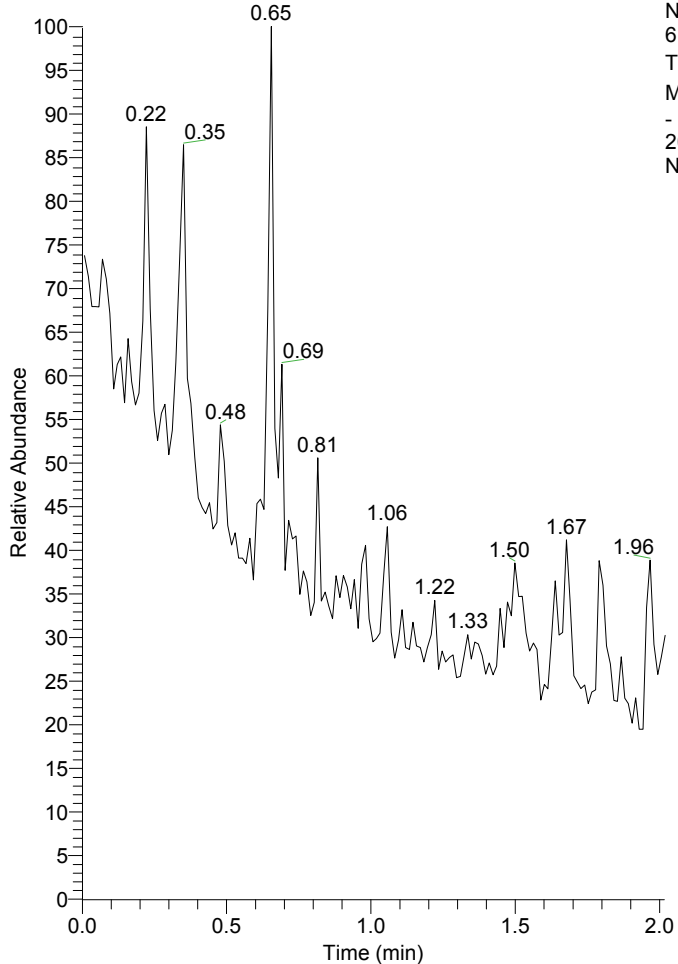
| | | | |
|--------------|--|---------------|-------------------------|
| File Name | : L:\intn2157 | File Created | : 5/14/2014 10:32:51 AM |
| Origin | : Acquired, Acquisition started 4/16/2010 9:57:51 AM | Acquired Date | : 4/16/2010 10:37:50 AM |
| Project | : Work1 | By | : Administrator |
| Method | : Unit_21_40_min_run | By | : Administrator |
| Description | : UV trace of blank injection | | |
| Created | : 4/17/2008 10:21 AM | Modified | : 5/14/2014 11:18 AM |
| Column | : | Detection | : UV 250nm |
| Mobile Phase | : | Temperature | : |
| Flow Rate | : | Pressure | : |
| Note | : | | |



Result Table (Uncal - L:\intn2157 - Unit 21 UV)

| Compound Name | Reten. Time [min] | Area [mV.s] | Height [mV] | Area [%] | Height [%] | W05 [min] | Efficiency [th.pl] | Eff/l [t.p./m] | Resolution [-] | Symmetry/Tailing [-] | Response Factor |
|-------------------|-------------------|-------------|-------------|----------|------------|-----------|--------------------|----------------|----------------|----------------------|-----------------|
| No peak to report | | | | | | | | | | | |

RT: 0.00 - 2.02



NL:
6.24E7
TIC MS
MC2344
-
20100416-
NT-MS

MC2344-20100416-NT-MS#1-160 RT:

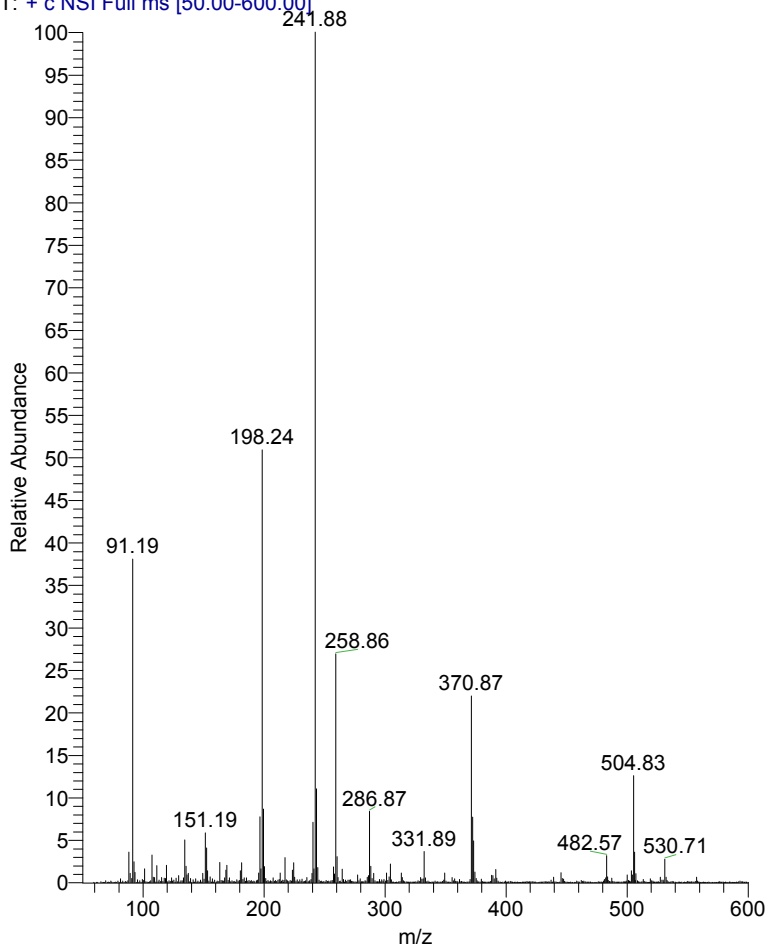
T: + c NSI Full ms [50.00-600.00]

m/z= 234.15-250.72

| m/z | Intensity | Relative |
|--------|-----------|----------|
| 238.47 | 18251.6 | 0.36 |
| 239.22 | 54908.3 | 1.08 |
| 240.12 | 360682.2 | 7.08 |
| 240.93 | 82711.1 | 1.62 |
| 241.88 | 5094320.0 | 100.00 |
| 242.94 | 560316.7 | 11.00 |
| 244.00 | 88592.4 | 1.74 |
| 245.11 | 13908.5 | 0.27 |
| 246.14 | 6628.7 | 0.13 |
| 246.89 | 7994.3 | 0.16 |
| 247.69 | 3645.2 | 0.07 |
| 248.33 | 2758.8 | 0.05 |
| 249.08 | 7561.6 | 0.15 |
| 250.08 | 3416.9 | 0.07 |

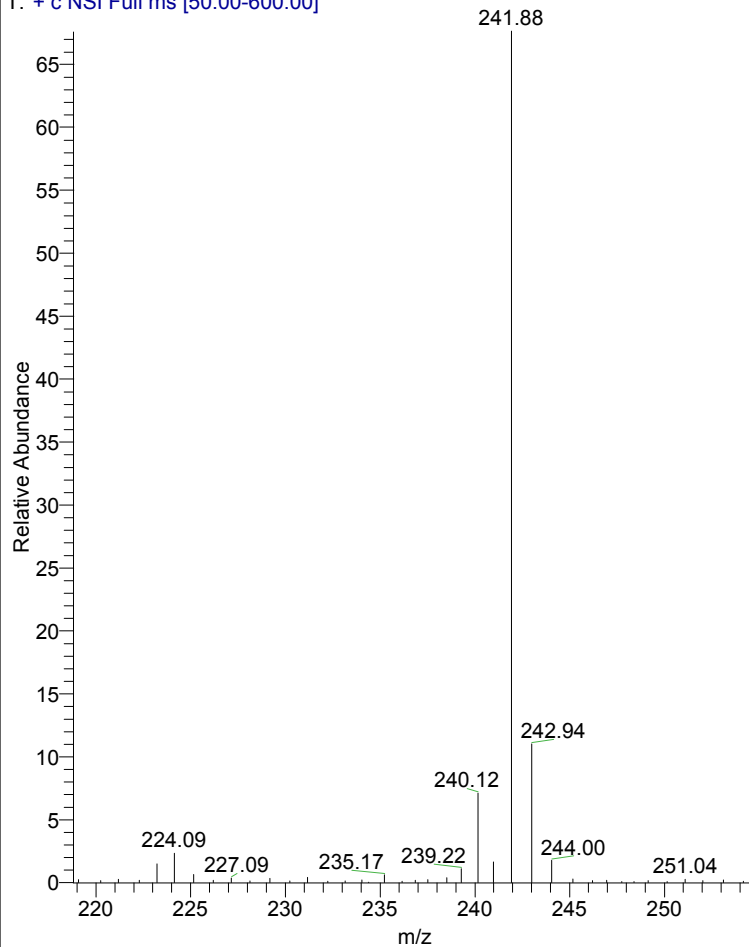
MC2344-20100416-NT-MS #1-160 RT: 0.01-2.02 AV: 160 NL: 5.09E6

T: + c NSI Full ms [50.00-600.00]

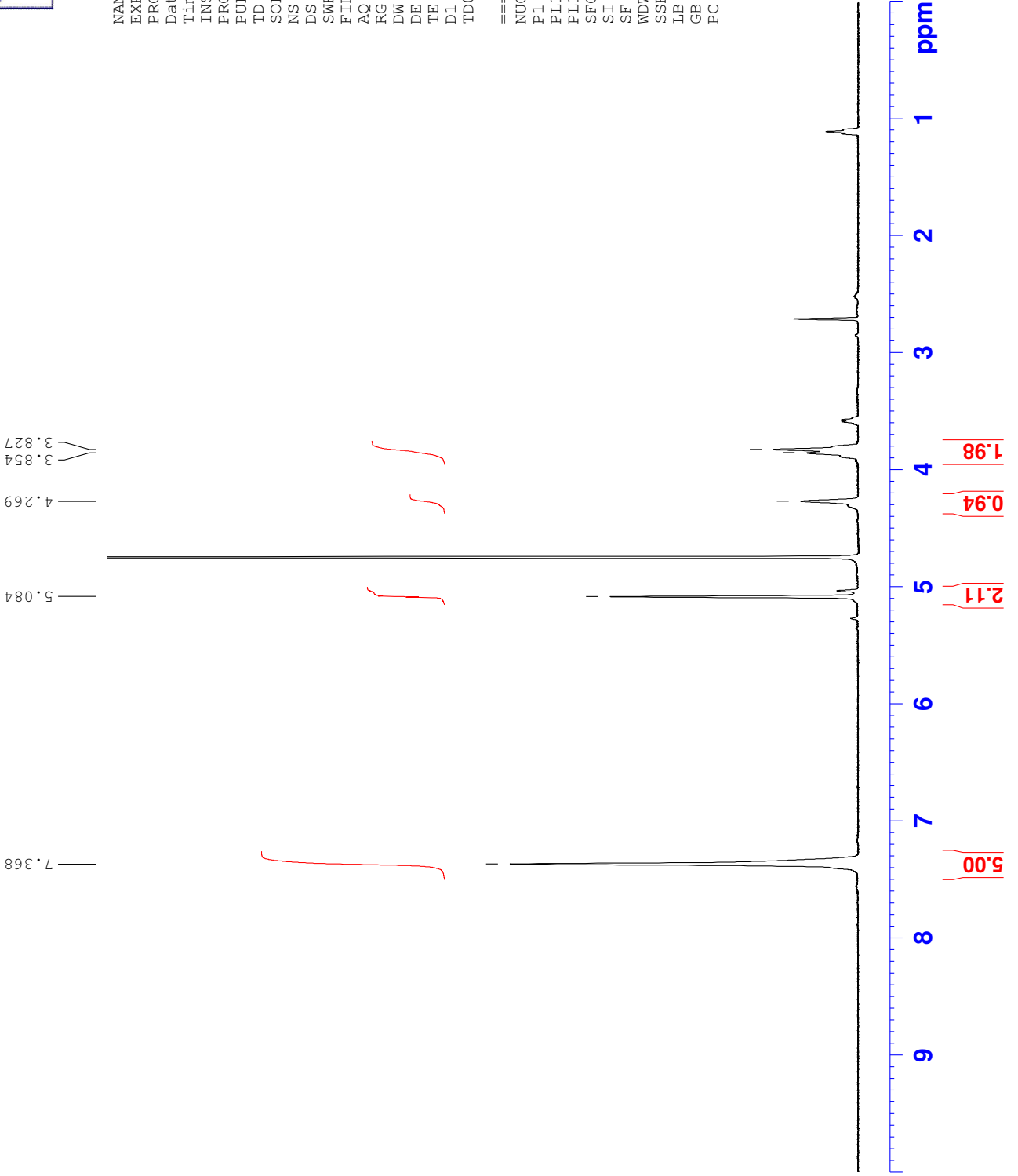


MC2344-20100416-NT-MS #1-160 RT: 0.01-2.02 AV: 160 NL: 5.09E6

T: + c NSI Full ms [50.00-600.00]



MC2344 1H NMR in D2O
Batch 20100416-NT



NAME MC2344-20100416-NT
EXPNO 1
PROCNO 1
Date_ 20100419
Time 11.35
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT D2O
NS 512
DS 2
SWH 8278.146 Hz
FIDRES 0.126314 Hz
AQ 3.9584243 sec
RG 4
DW 60.400 usec
DE 6.50 usec
TE 294.5 K
D1 1.00000000 sec
TD0 1
===== CHANNEL f1 =====
NUC1 1H
P1 14.50 usec
PL1 -0.70 dB
PL1W 10.03411102 W
SF01 400.1324710 MHz
SI 32768
SF 400.1299812 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00