

Supporting Information
for
Synthesis of dye/fluorescent functionalized
dendrons based on cyclotriphosphazene

Aurélien Hameau^{1,2}, Sabine Fuchs^{1,2}, Régis Laurent^{1,2}, Jean-Pierre Majoral*^{1,2} and Anne-Marie Caminade*^{1,2}

Address: ¹CNRS, LCC (Laboratoire de Chimie de Coordination), 205, route de Narbonne, BP 44099, F-31077 Toulouse, France and ²Université de Toulouse; UPS, INPT, LCC, F-31077 Toulouse, France

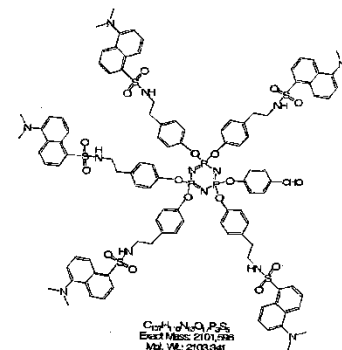
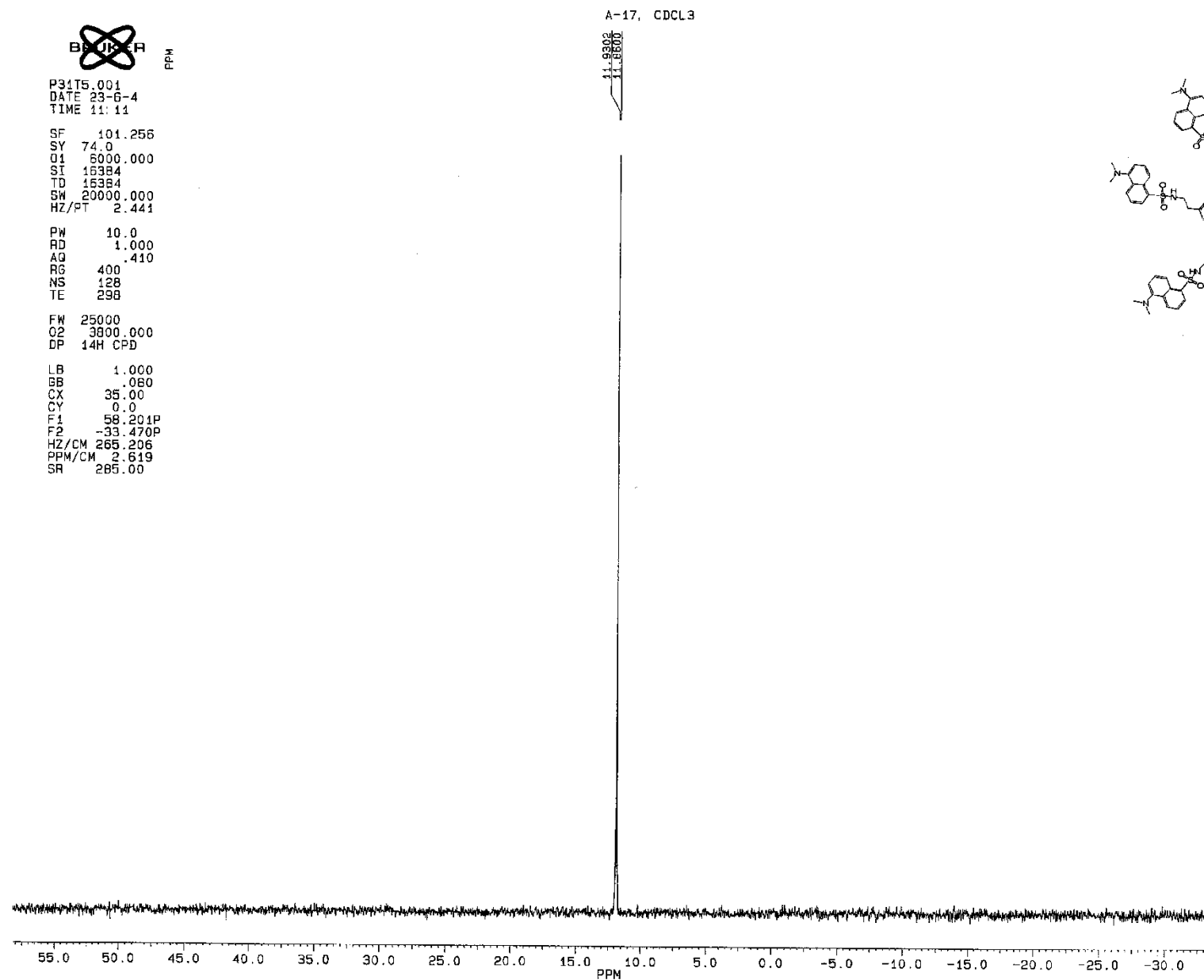
Email: Anne-Marie Caminade - caminade@lcc-toulouse.fr; Jean-Pierre Majoral - majoral@lcc-toulouse.fr

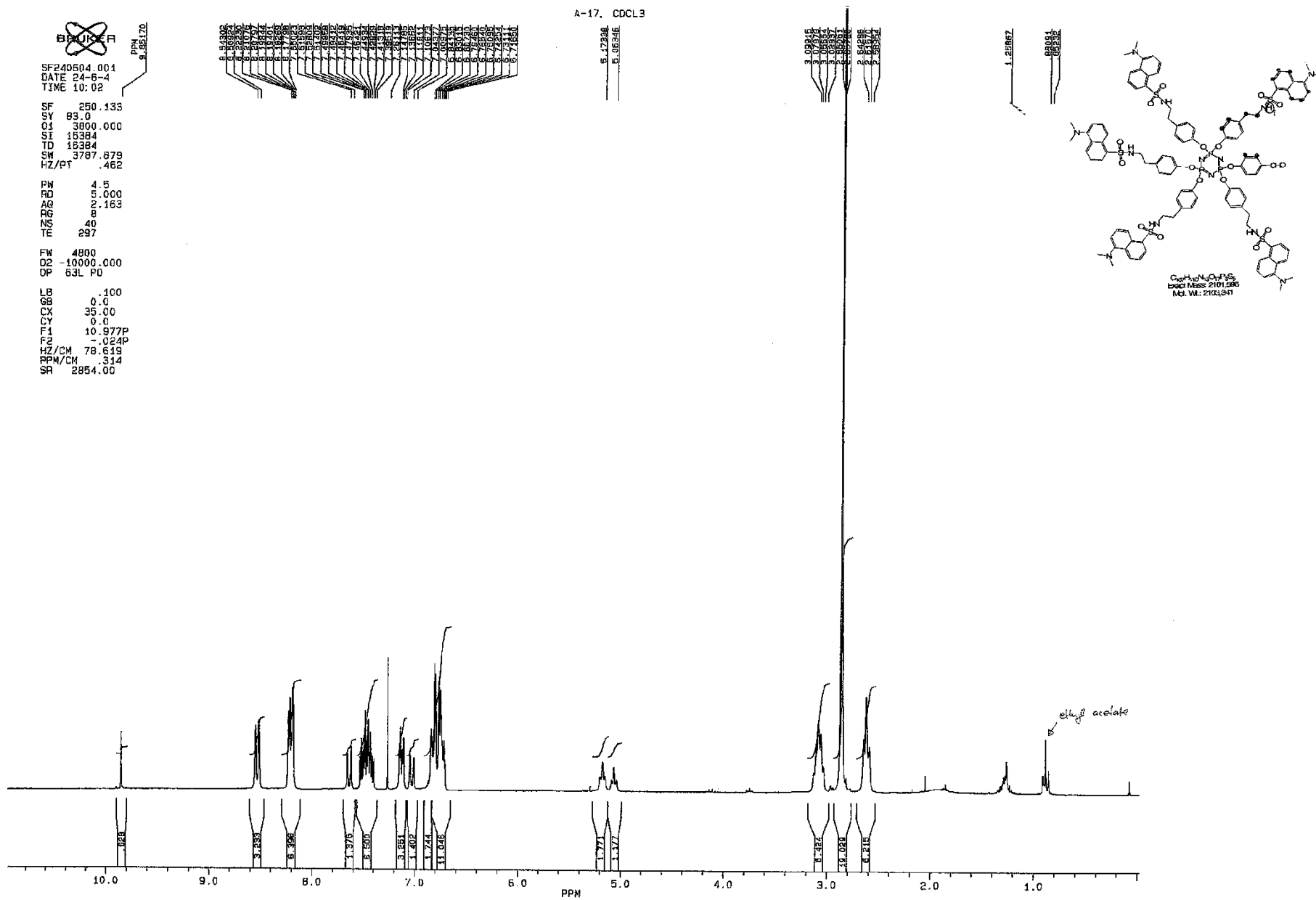
* Corresponding author

Dedicated to the memory of our friend and former PhD student Dr Yiqian Wei who regrettably passed away on February 6th, 2011.

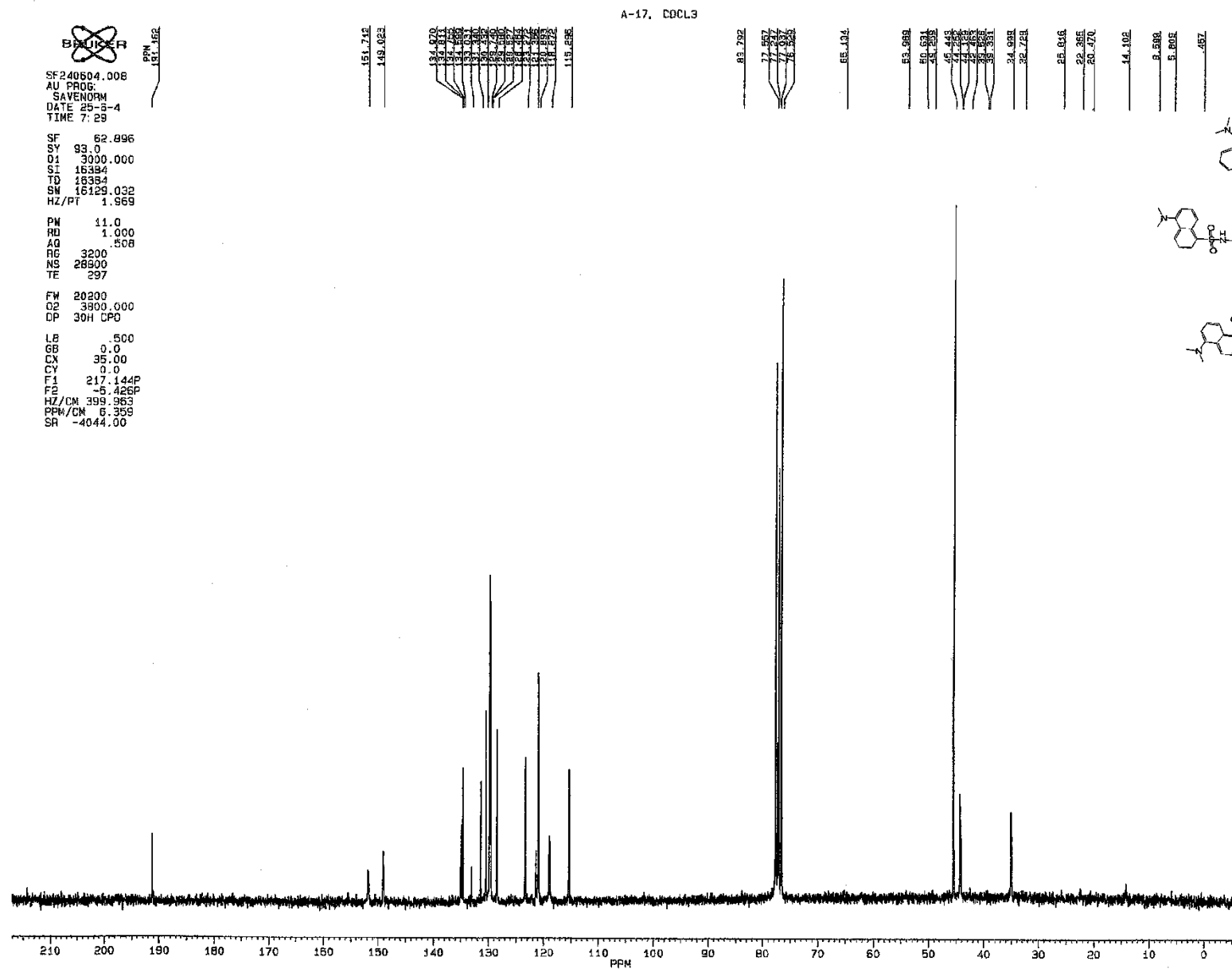
Spectral details

^{31}P { ^1H } NMR spectrum of dendron **8**



¹H NMR spectrum of dendron **8**

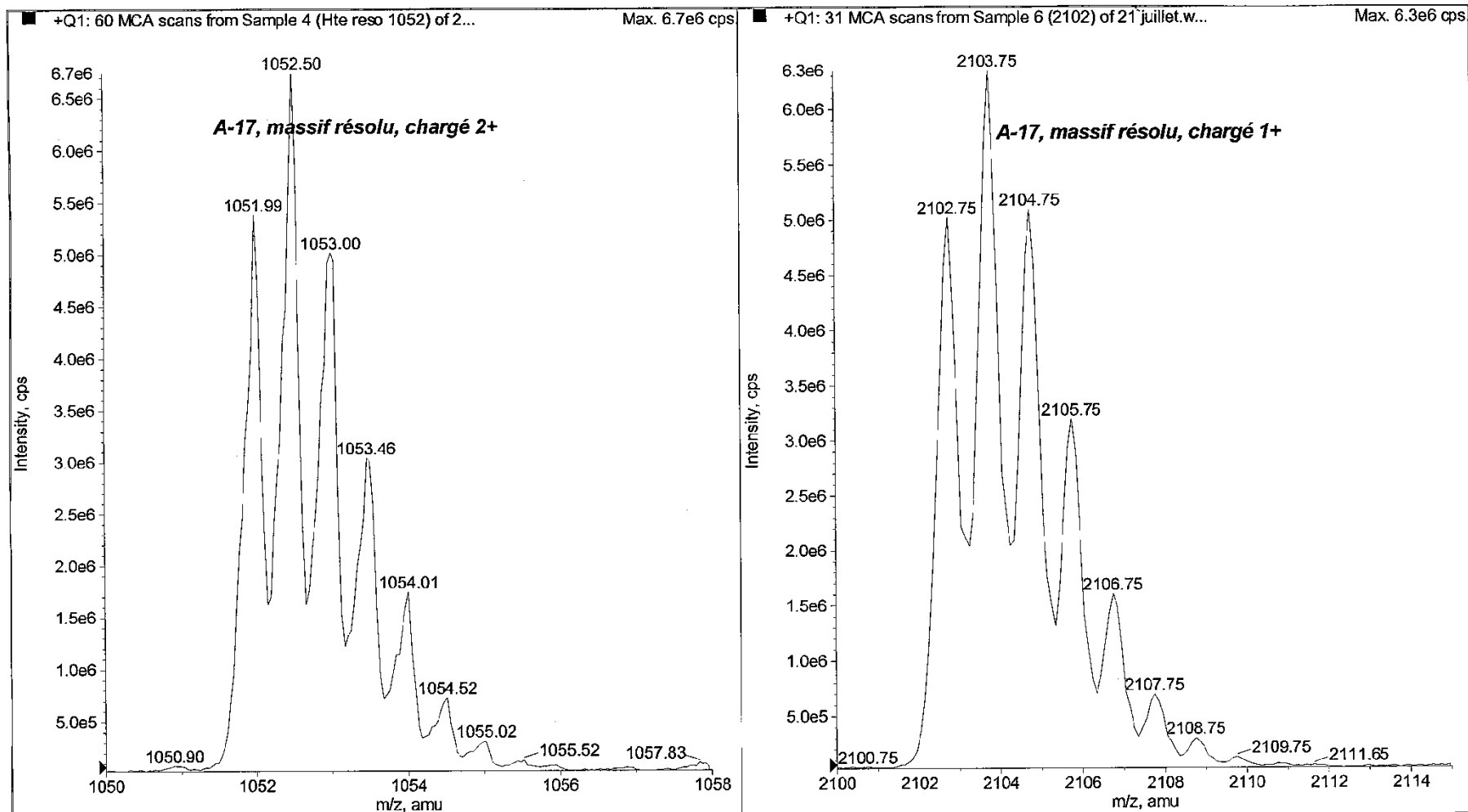
$^{13}\text{C} \{^1\text{H}\}$ NMR spectrum of dendron 8



Mass spectrum (ion spray) of dendron 8

Service Commun de Spectrométrie de Masse FR2599
Université Paul Sabatier, 118 route de Narbonne
31062 Toulouse Cedex 04

Acq. Time: 10:56
Acq. Date: Wednesday, July 21, 2004

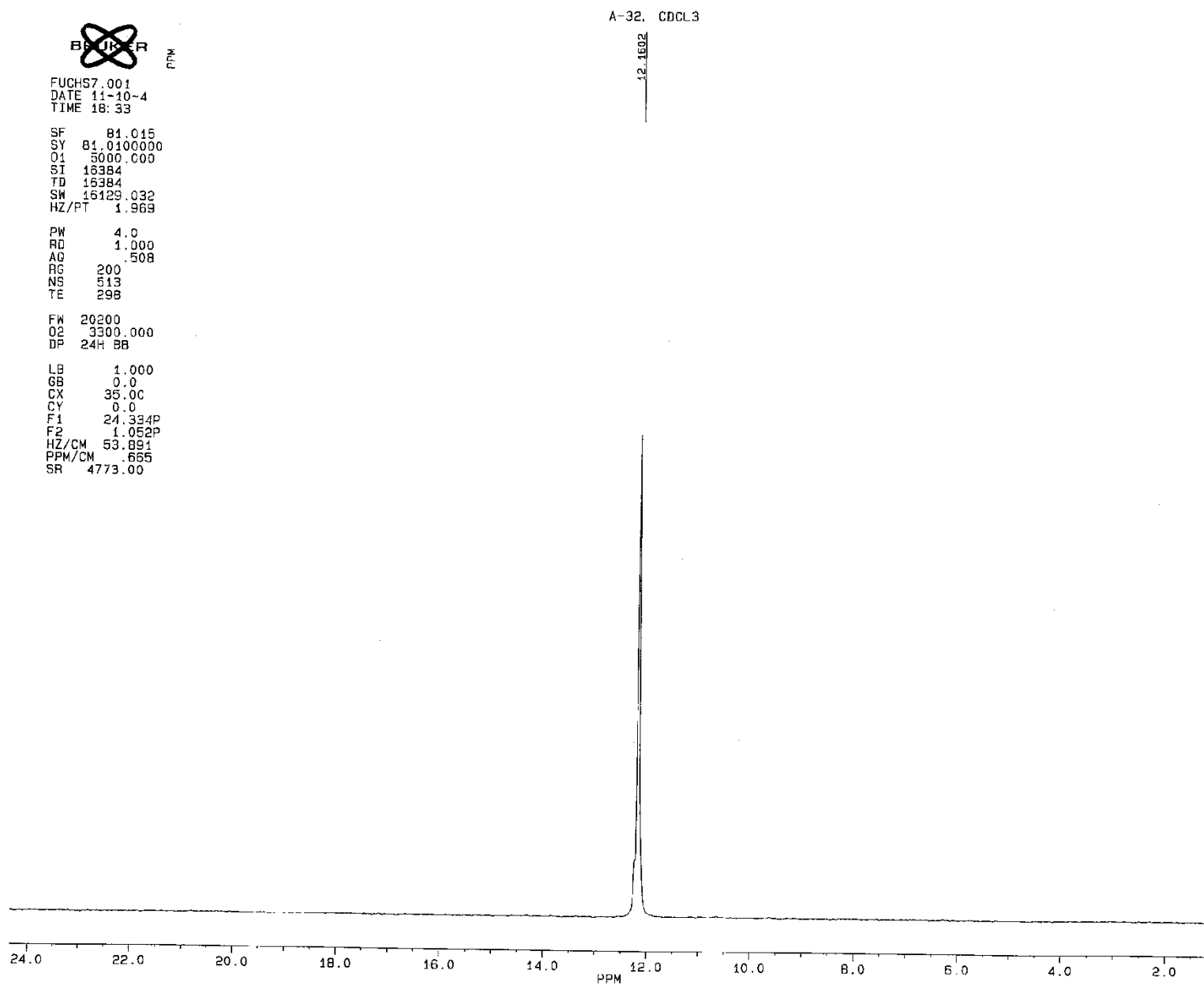


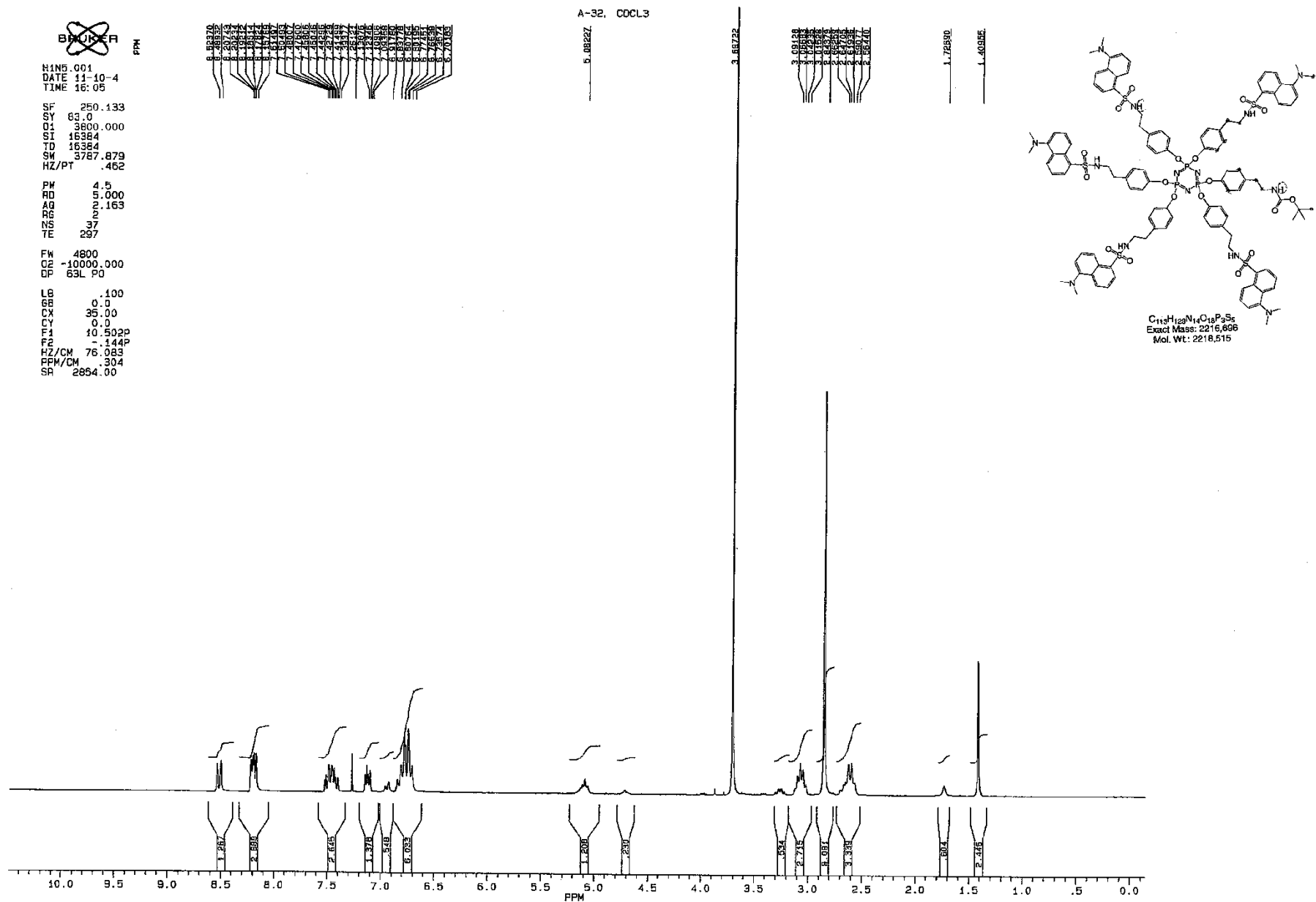
Sample Name: Hte reso 1052

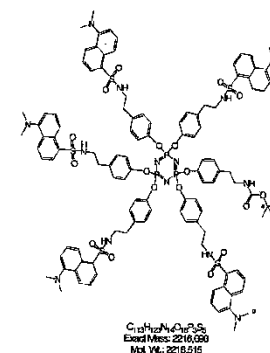
Scan Mass(es): Start: 1050.0, Stop: 1058.0, Step: 0.0

Polarity/Scan Type: Positive Q1 MS
Collision Energy: N/A

$^{31}\text{P} \{^1\text{H}\}$ NMR spectrum of dendron 9



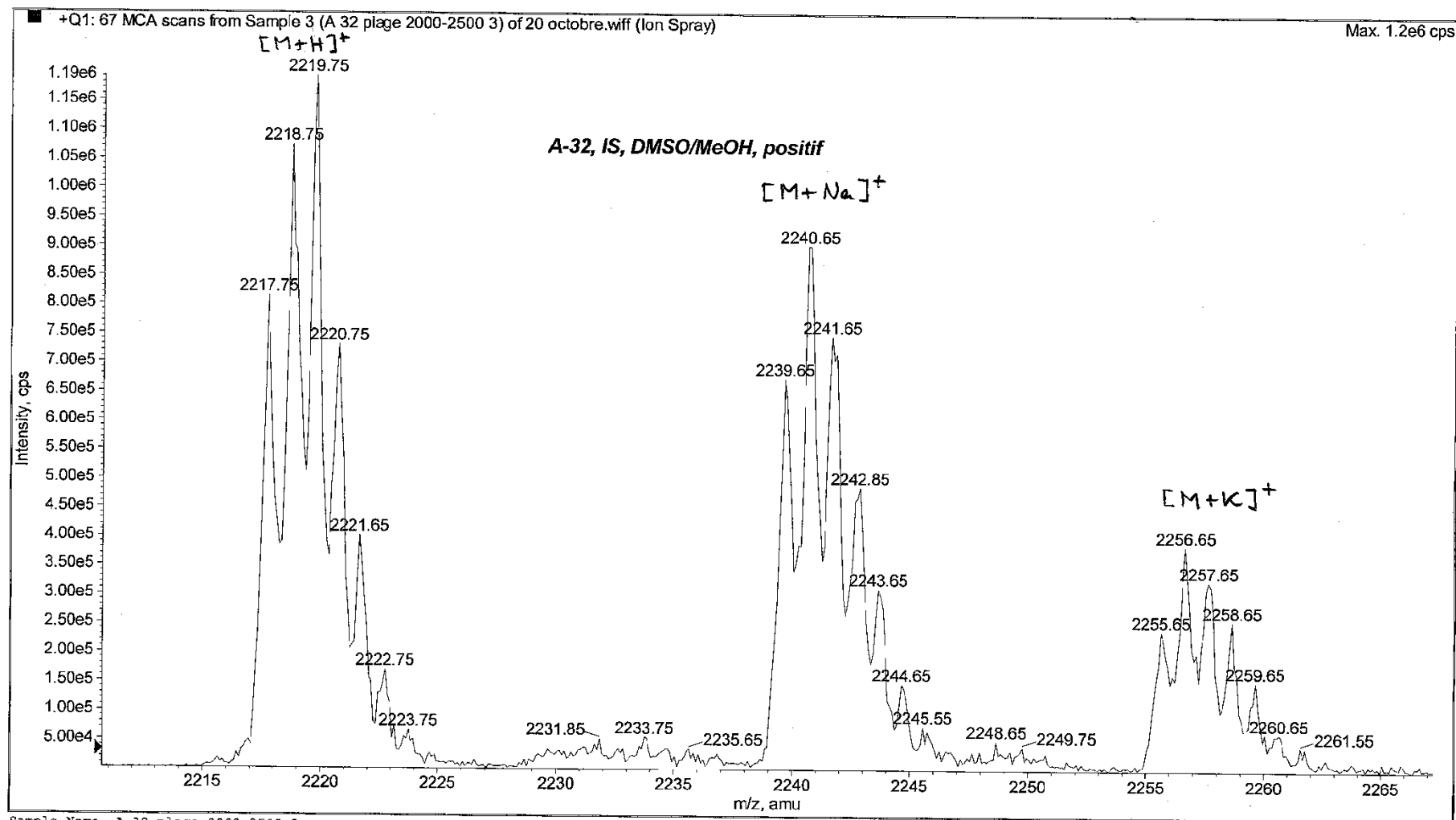
¹H NMR spectrum of dendron **9**

$^{13}\text{C} \{^1\text{H}\}$ NMR spectrum of dendron **9**

Mass spectrum (ion spray) of dendron 9

Service Commun de Spectrométrie de Masse FR2599
Université Paul Sabatier, 118 route de Narbonne
31062 Toulouse Cedex 04

Acq. Time: 10:00
Acq. Date: Wednesday, October 20, 2004



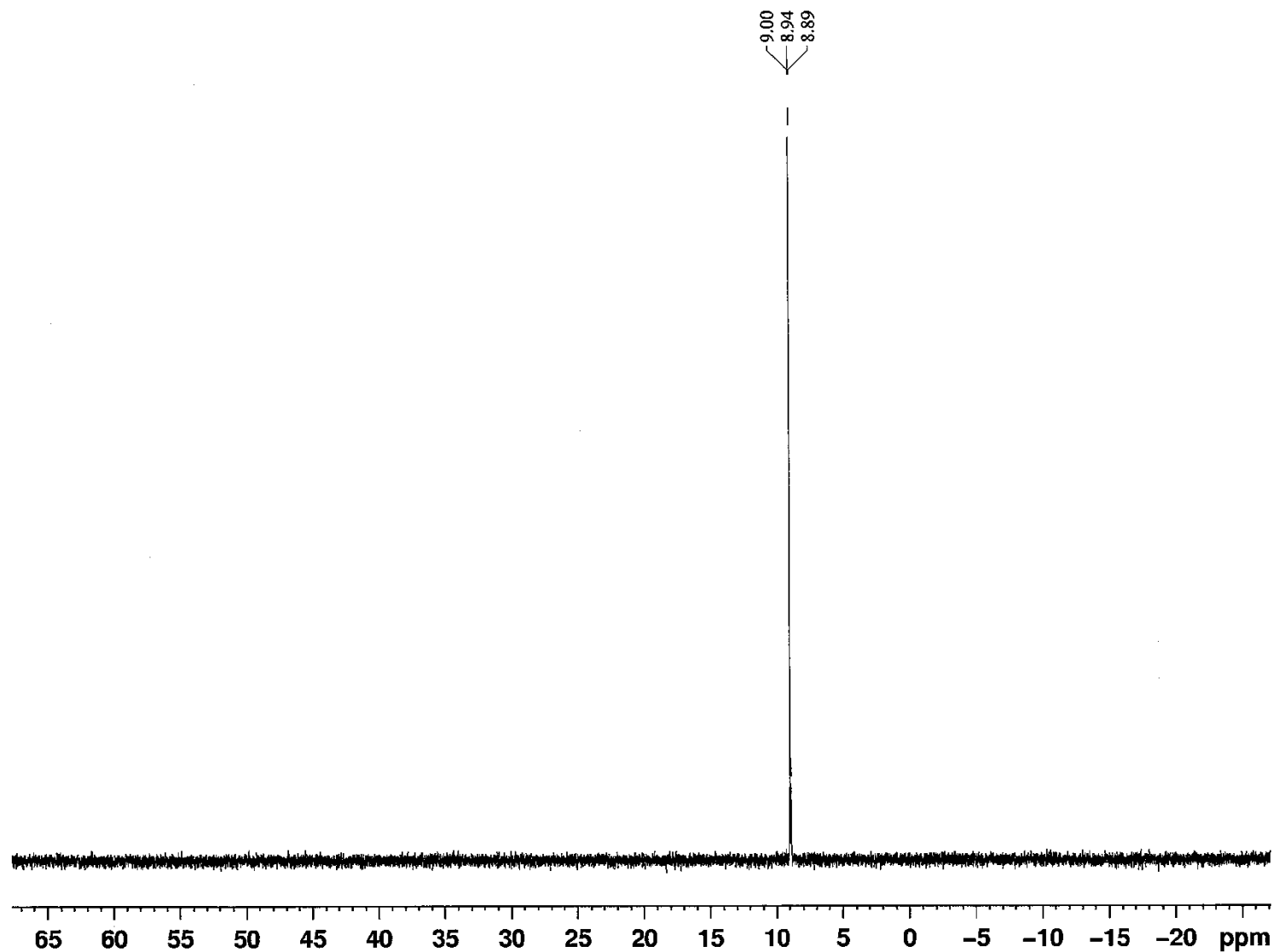
Sample Name: A 32 plage 2000-2500 3

Scan Mass(es): Start: 2200.0, Stop: 2300.0, Step: 0.1

Polarity/Scan Type: Positive Q1 MS
Collision Energy: N/A

$^{31}\text{P} \{^1\text{H}\}$ NMR spectrum of dendron 10

$^{31}\text{P}\{^1\text{H}\}$ A-35



Current Data Parameters
NAME Msf1103
EXPNO 2
PROCNO 1

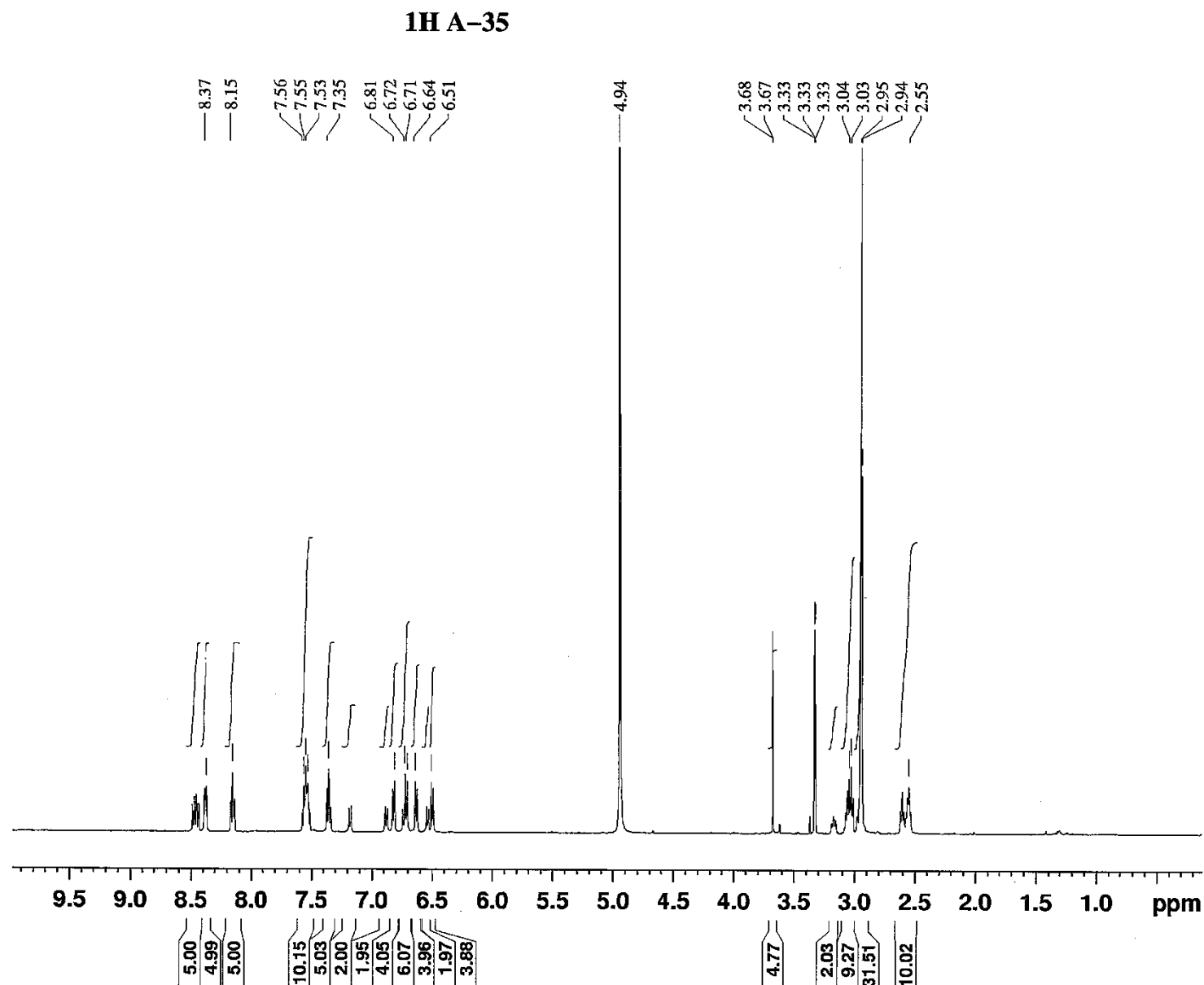
F2 - Acquisition Parameters
Date_ 20041103
Time 16.42
INSTRUM spect
PROBHD 5 mm TBI 1H/31
PULPROG zgpg30
TD 65536
SOLVENT CD3OD
NS 40
DS 4
SWH 40650.406 Hz
FIDRES 0.620276 Hz
AQ 0.8061551 sec
RG 47104
DW 12.300 usec
DE 6.00 usec
TE 293.1 K
D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 ^{31}P
P1 14.90 usec
PL1 -2.00 dB
SFO1 202.5433721 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ^1H
PCPD2 90.00 usec
PL2 0.00 dB
PL12 23.00 dB
PL13 23.00 dB
SFO2 500.3320013 MHz

F2 - Processing parameters
SI 131072
SF 202.5372710 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00

^1H NMR spectrum of dendron **10**



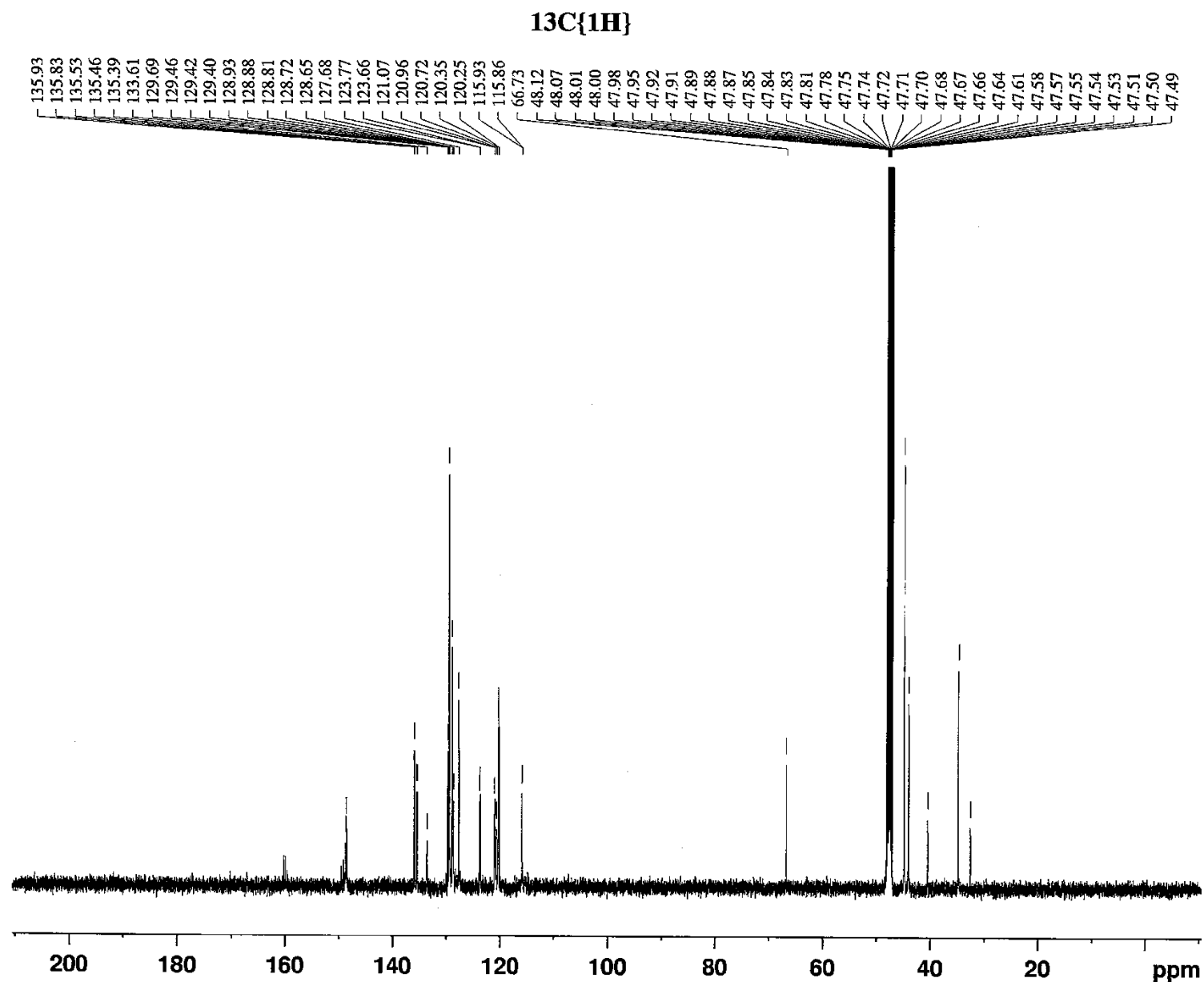
Current Data Parameters
NAME Msf1103
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20041103
Time 16.49
INSTRUM spect
PROBHD 5 mm TB1 1H/31
PULPROG zg30
TD 29526
SOLVENT CD3OD
NS 8
DS 0
SWH 5122.951 Hz
FIDRES 0.173506 Hz
AQ 2.8818853 sec
RG 256
DW 97.600 usec
DE 6.00 usec
TE 293.0 K
D1 30.00000000 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 ^1H
P1 7.20 usec
PL1 0.00 dB
SFO1 500.3324961 MHz

F2 - Processing parameters
SI 65536
SF 500.3300000 MHz
WDW no
SSB 0
LB 0.00 Hz
GB 0
PC 1.00

$^{13}\text{C} \{^1\text{H}\}$ NMR spectrum of dendron **10**



Current Data Parameters
NAME Msl1103
EXPNO 9
PROCNO 1

F2 - Acquisition Parameters
Date_ 20041103
Time 17.26
INSTRUM spect
PROBHD 5 mm TBI 1H/31
PULPROG zgpg60
TD 55432
SOLVENT CD3OD
NS 6720
DS 8
SWH 27777.777 Hz
FIDRES 0.501114 Hz
AQ 0.9978440 sec
RG 47104
DW 18.000 usec
DE 6.00 usec
TE 293.0 K
D1 1.00000000 sec
d11 0.03000000 sec
DELTA 0.89999998 sec
MCREST 0.00000000 sec
MCWRK 0.01500000 sec

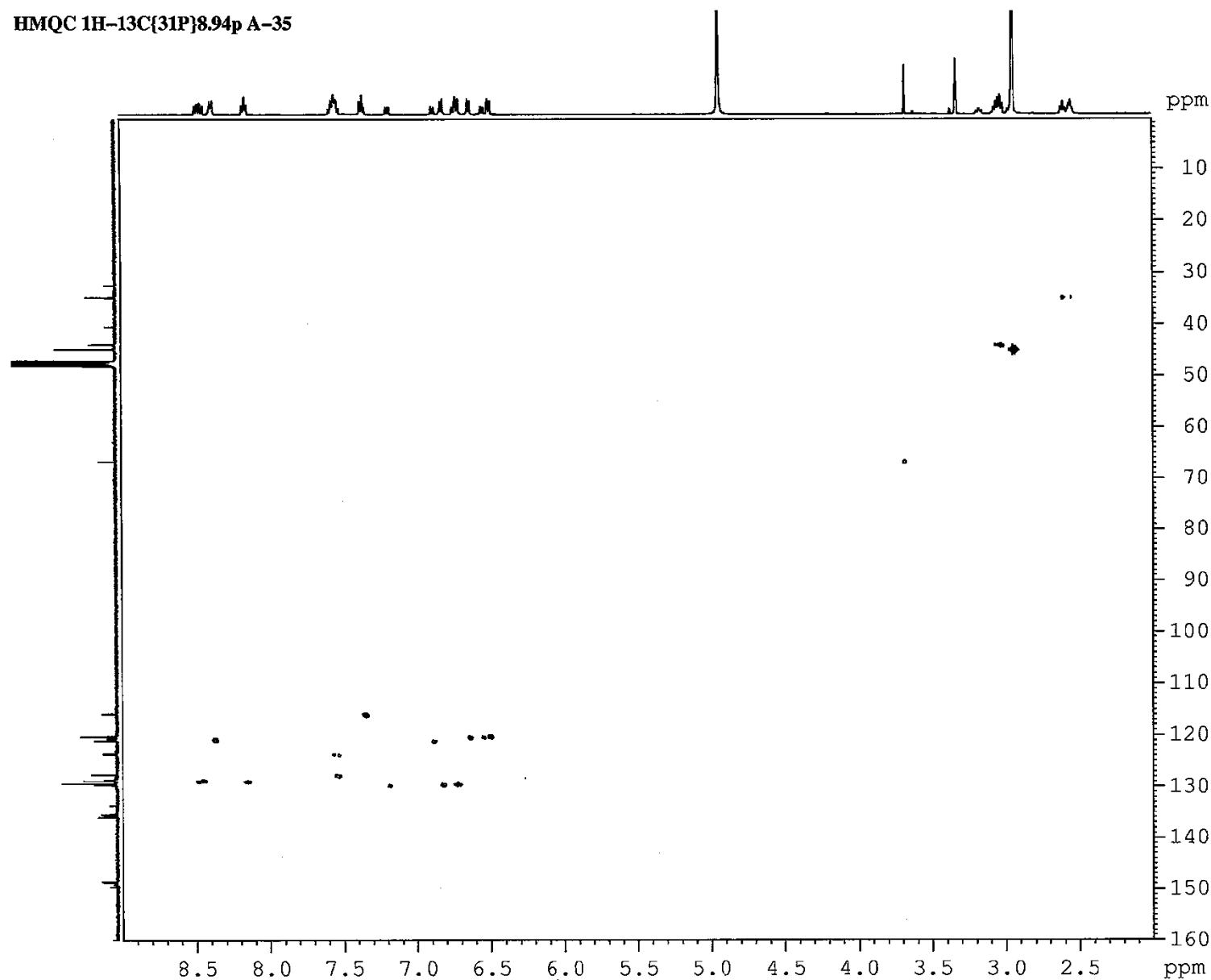
===== CHANNEL f1 =====
NUC1 ^{13}C
P1 9.50 usec
PL1 -4.00 dB
SFO1 125.8206598 MHz

===== CHANNEL f2 =====
CPDPRG2 waltz16
NUC2 ^1H
PCPD2 90.00 usec
PL2 0.00 dB
PL12 23.00 dB
PL13 23.00 dB
SFO2 500.3327518 MHz

F2 - Processing parameters
SI 131072
SF 125.8080790 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.00

HMQC ^1H - ^{13}C $\{^{31}\text{P}\}$ NMR spectrum of dendron **10**

HMQC 1H-13C{31P}8.94p A-35



```

Current Data Parameters
NAME      461103
EXPNO     7
PROCNO    1

F2 - Acquisition Parameters
Date_     20041104
Time      1.45
INSTRUM   spect
PROBHD    5 mm TBI 1H/31
PULPROG   hmqcpgpffsew
TD        2048
SOLVENT   CD3OD
NS         12
DS         8
SWH        3501.401 Hz
FIDRES     1.709658 Hz
AQ         0.2926412 sec
RG         49152
OW         147.800 umsec
DE         6.00 umsec
TE         293.3 K
CNS2      145.0000000
d0         0.00000300 sec
d1         1.00000000 sec
d2         0.00344828 sec
d11        0.03000000 sec
d12        0.00002500 sec
d13        0.00000400 sec
d16        0.0015000 sec
DELTA1     0.0027428 sec
IN0        0.00002484 sec
MCREST     50000000.00000000 sec
MCWKK      1.00000000 sec

----- CHANNEL f1 -----
NUC1       1H
P1         7.20 umsec
P2         14.40 umsec
PL1        0.00 dB
SFO1       500.3327516 MHz

----- CHANNEL f2 -----
CPDPRG2    gpgp
NUC2       13C
P3         9.50 umsec
PCPD2      60.00 umsec
PL2        -4.00 dB
PL12       14.00 dB
SFO2       125.8181436 MHz

----- CHANNEL f3 -----
NUC3       31P
PL3        -2.00 dB
PL26       36.47 dB
SFO3       202.5391067 MHz

----- GRADIENT CHANNEL -----
GPMAM1     SINE.100
GPMAM2     SINE.100
GPMAM3     SINE.100
GPMX1      0.00 %
GPMX2      0.00 %
GPMX3      0.00 %
GPMY1      0.00 %
GPMY2      0.00 %
GPMY3      0.00 %
GPMZ1      50.00 %
GPMZ2      30.00 %
GPMZ3      40.10 %
P16        1000.00 umsec

F1 - Acquisition parameters
ND0        2
TD         256
SFO1       125.8181 MHz
FIDRES     76.636131 Hz
SW         160.050 ppm
F0MODE     QF

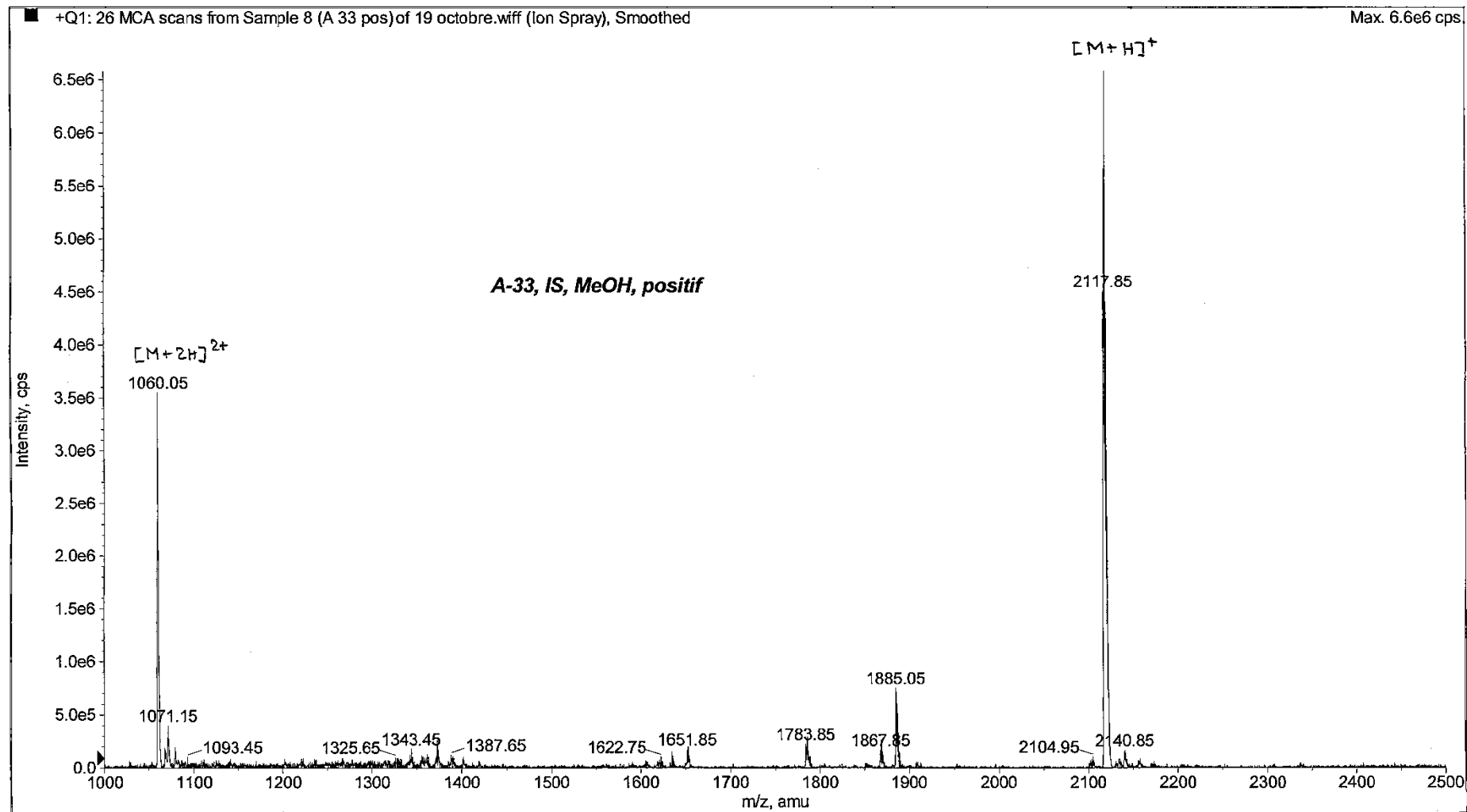
F2 - Processing parameters
SI         2048
SF         500.3300000 MHz
WDW        SINC
SSB        0
LB         0.00 Hz
GB         0
PC         1.40

F1 - Processing parameters
SI         512
MC2        0
SF         125.8080780 MHz
WDW        SINE
SSB        0
LB         0.00 Hz
GB         0
PC         0
    
```

Mass spectrum (ion spray) of dendron 10

Service Commun de Spectrométrie de Masse FR2599
Université Paul Sabatier, 118 route de Narbonne
31062 Toulouse Cedex 04

Acq. Time: 17:03
Acq. Date: Tuesday, October 19, 2004

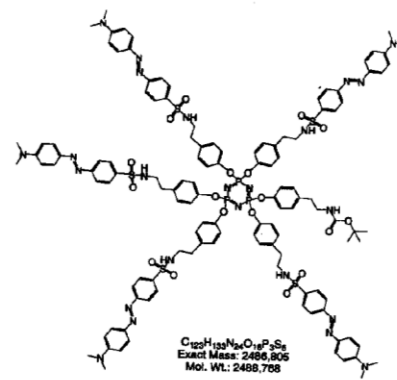
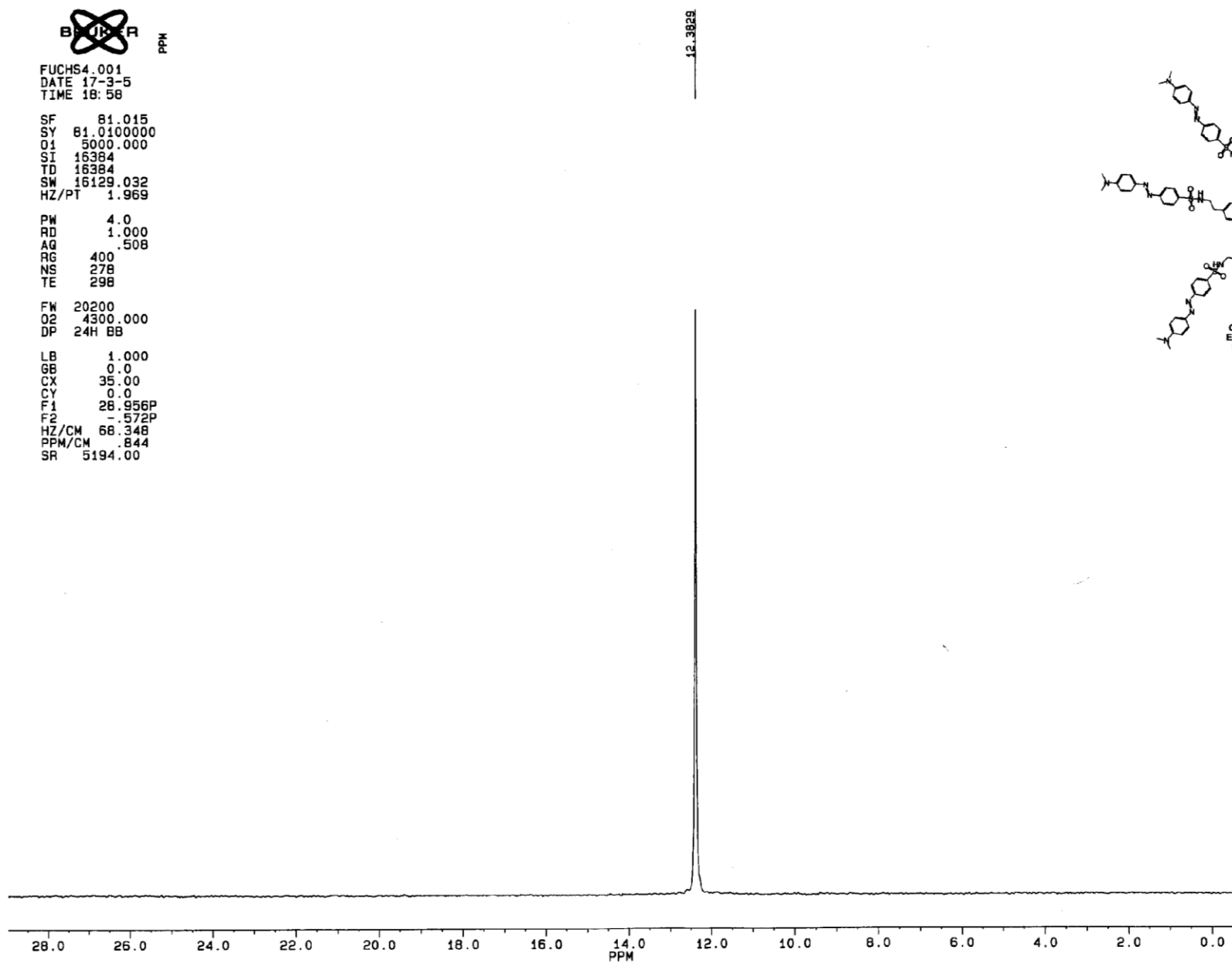


Sample Name: A 33 pos

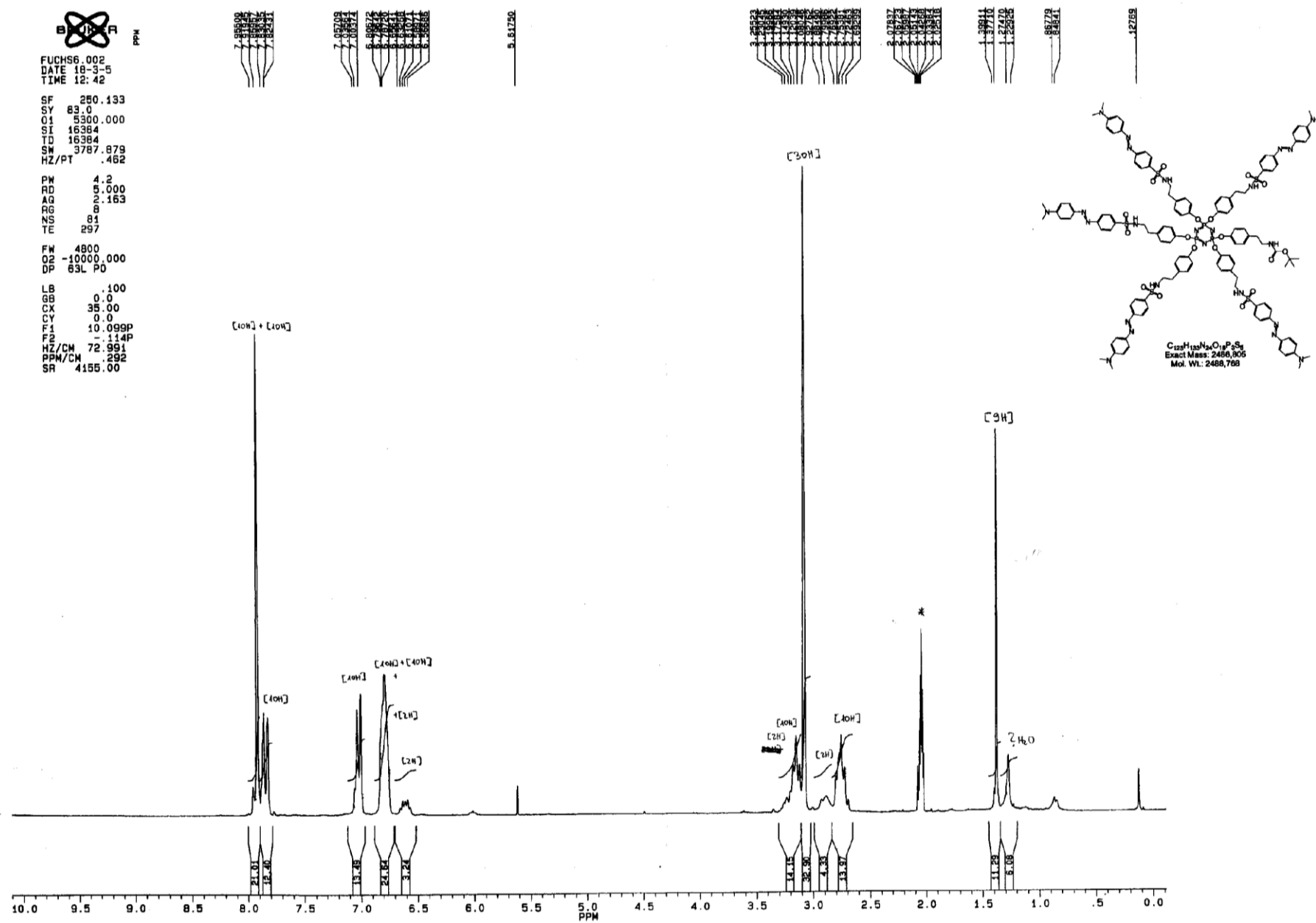
Scan Mass(es): Start: 1000.0, Stop: 2500.0, Step: 0.1

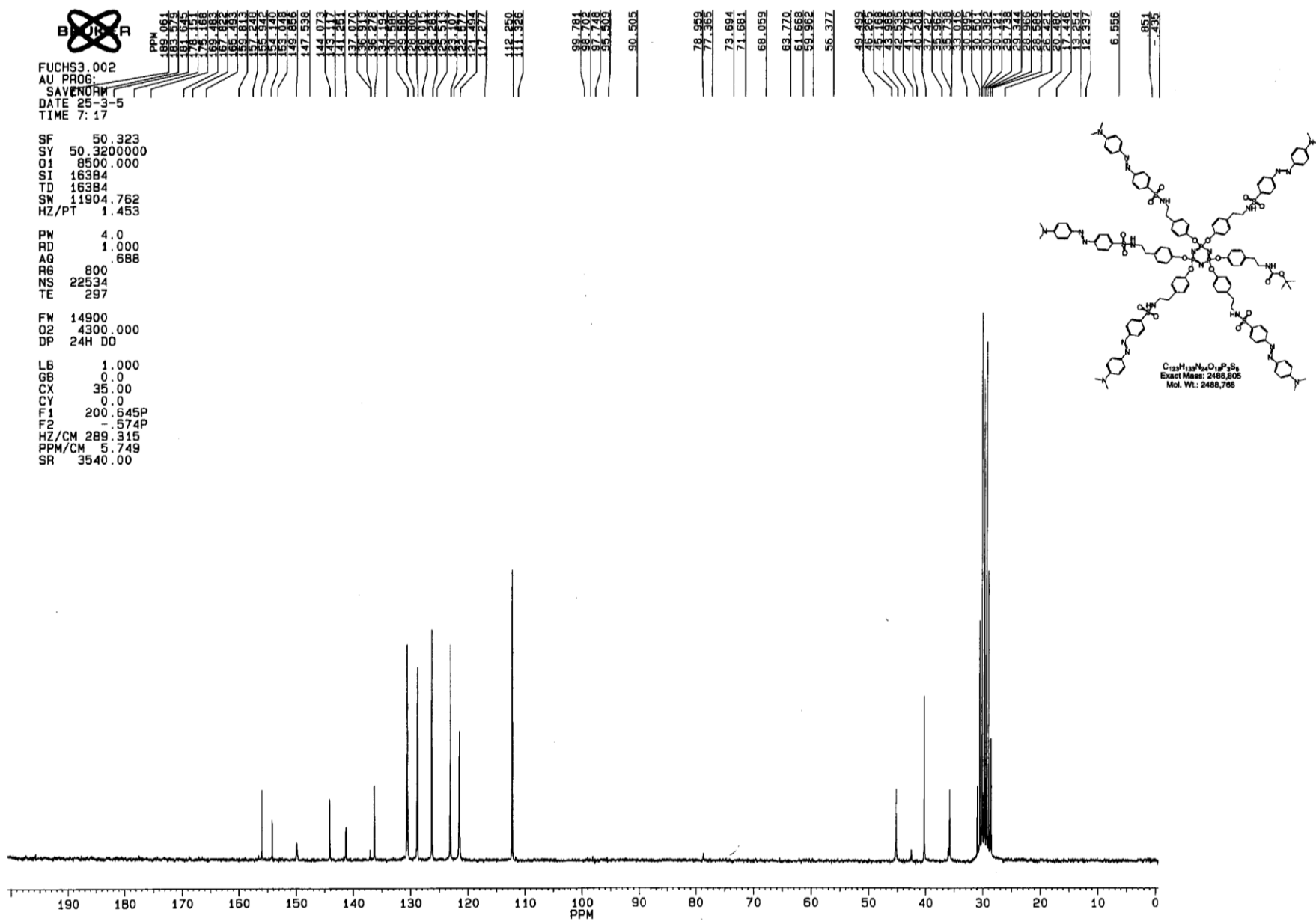
Polarity/Scan Type: Positive Q1 MS
Collision Energy: N/A

^{31}P $\{^1\text{H}\}$ NMR spectrum of dendron **11**



¹H NMR spectrum of dendron **11**



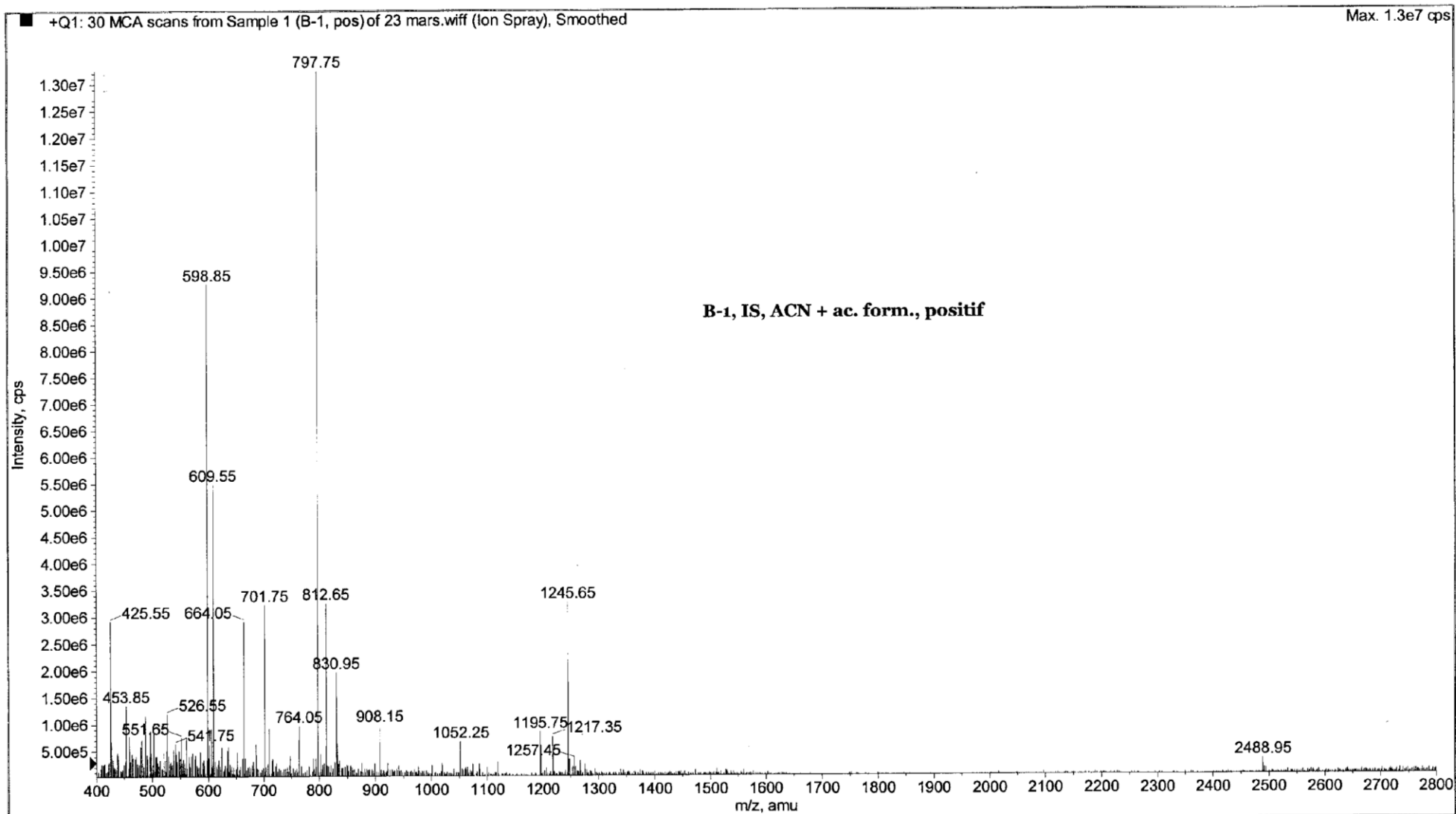
$^{13}\text{C} \{^1\text{H}\}$ NMR spectrum of dendron **11**

Mass spectrum (ion spray) of dendron 11

Service Commun de Spectrométrie de Masse FR2599
Université Paul Sabatier, 118 route de Narbonne
31062 Toulouse Cedex 04

API 365

Acq. Date: Wednesday, March 23, 2005
Acq. Time: 08:52



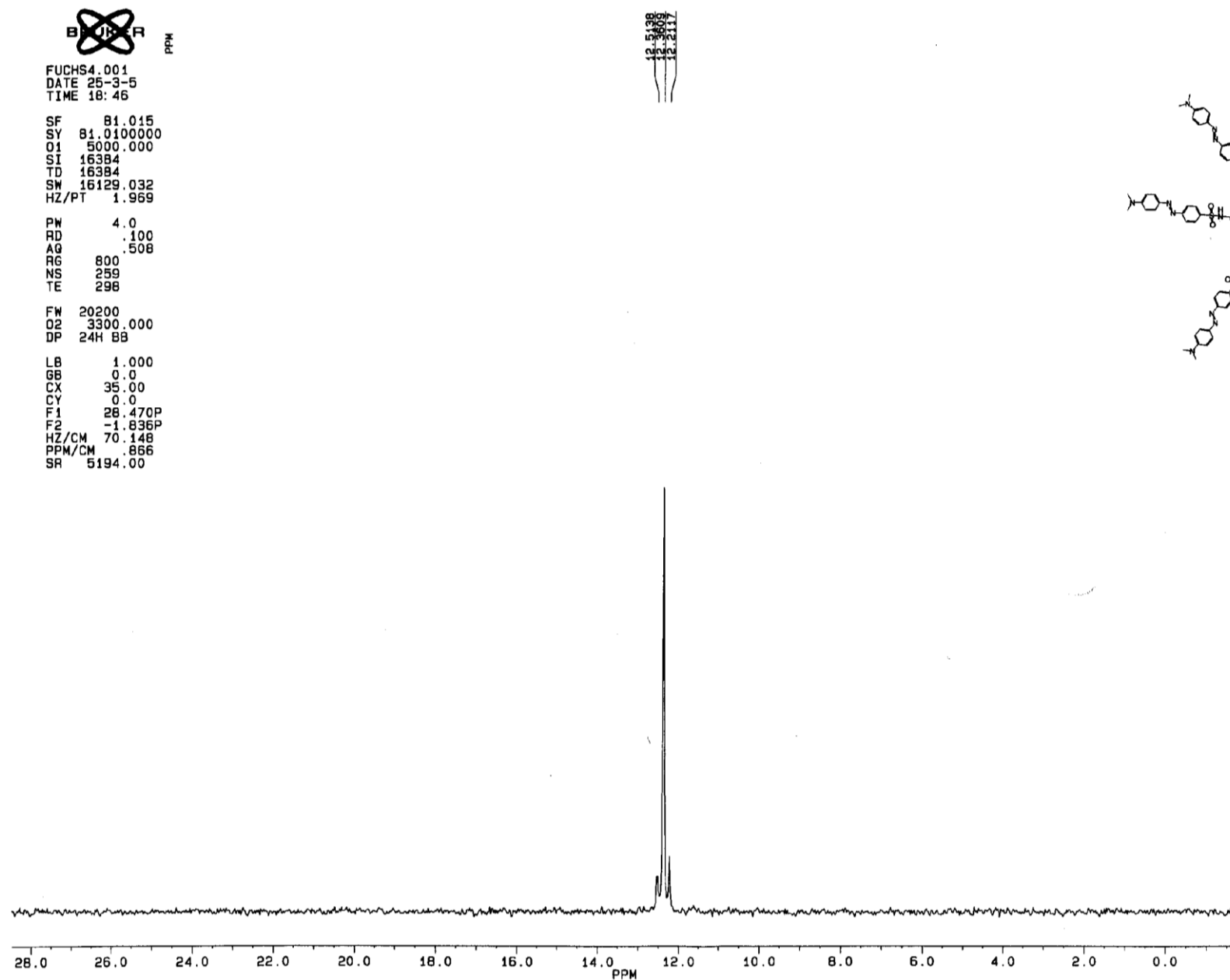
Sample Name: B-1, pos

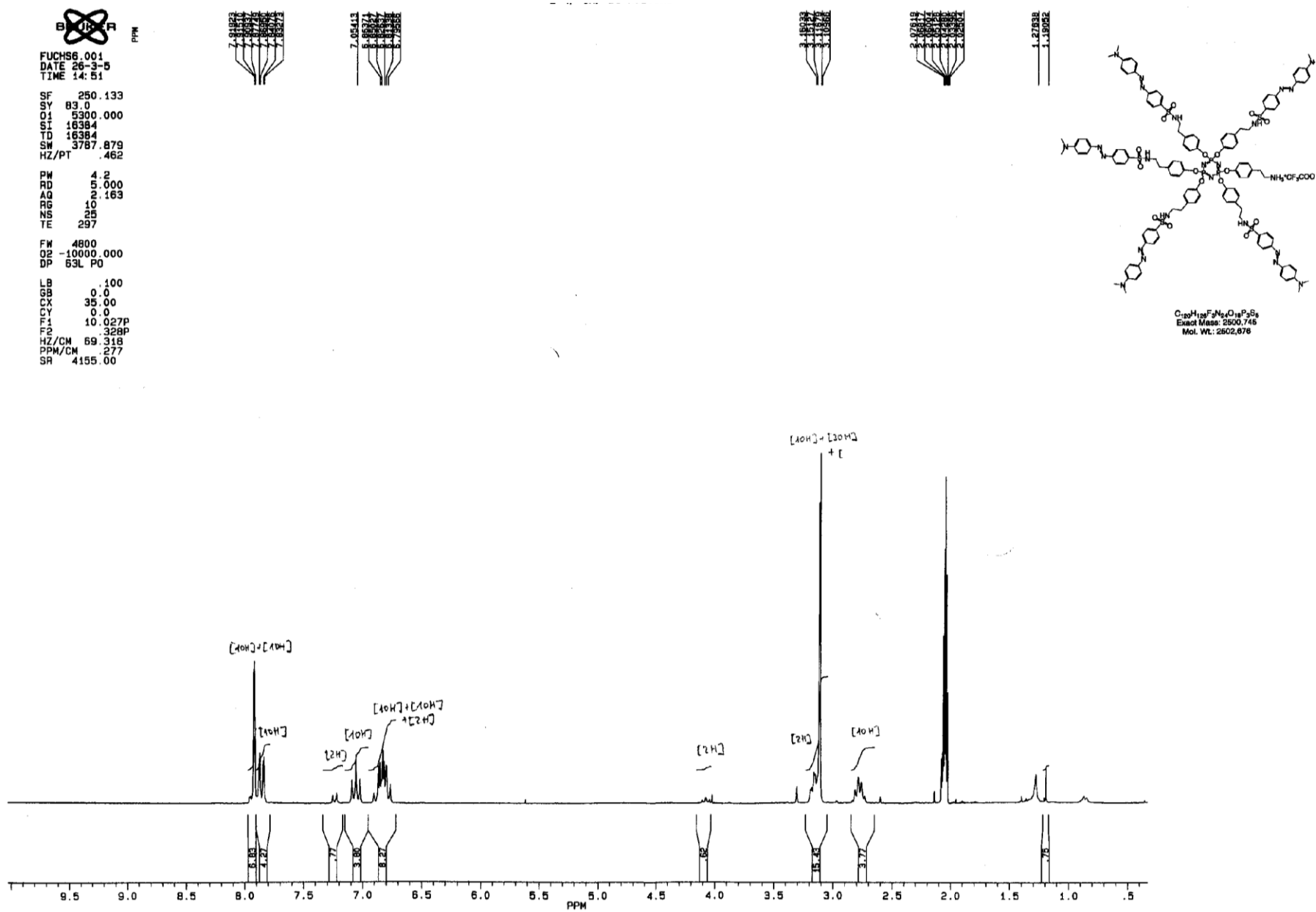
Polarity/Scan Type: Positive Q1 MS

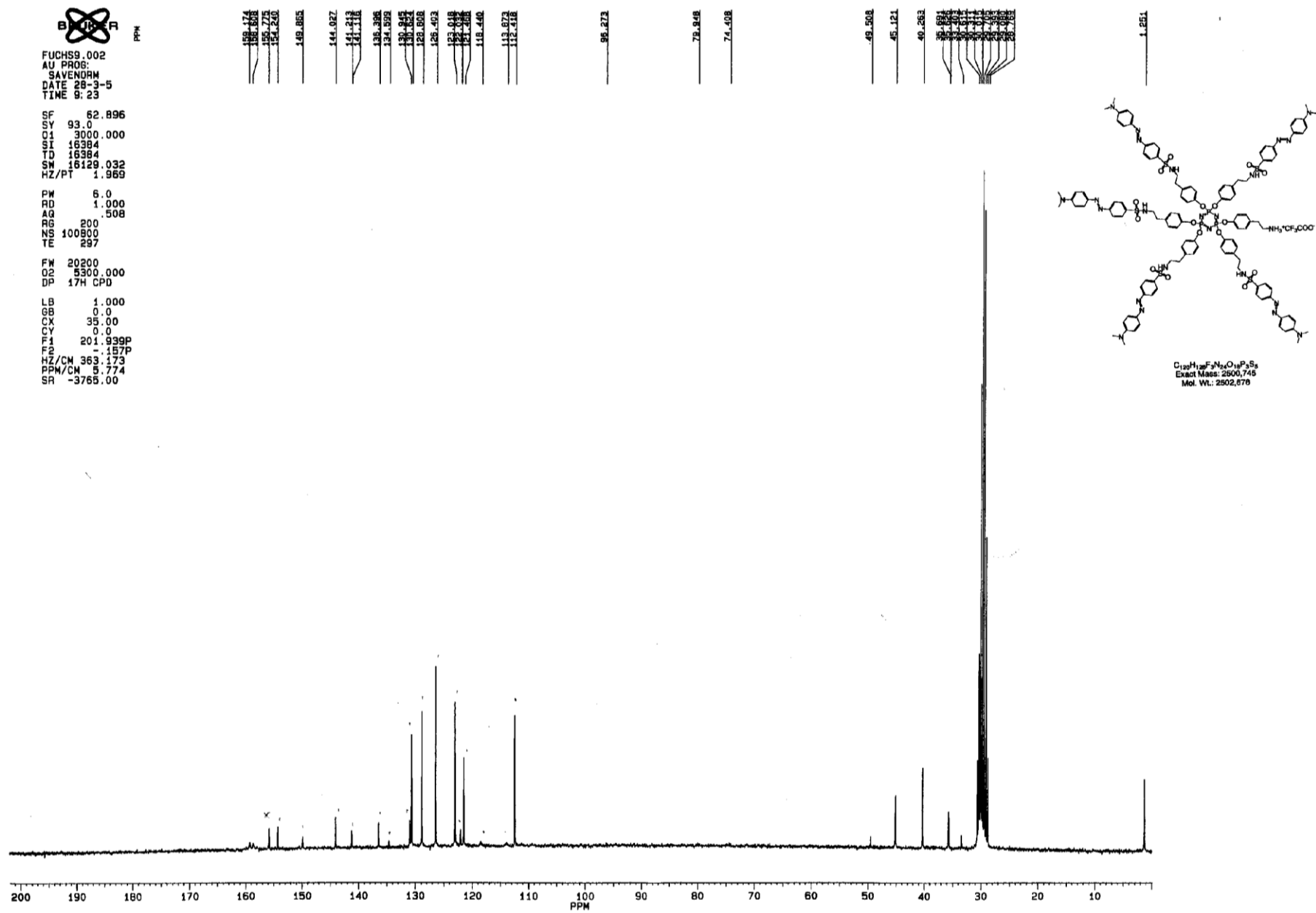
Scan Mass(es): Start: 400.0, Stop: 2800.0, Step: 0.1

Collision Energy: N/A

^{31}P $\{^1\text{H}\}$ NMR spectrum of dendron 12



¹H NMR spectrum of dendron **12**

$^{13}\text{C} \{^1\text{H}\}$ NMR spectrum of dendron **12**

Mass spectrum (ion spray) of dendron 12

