

**Asymmetric Synthesis of Axially Chiral Anilides by Pd-Catalyzed Allylic
Substitutions with P/Olefin Ligands**

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Supporting Information

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X-ray structure of **4de**

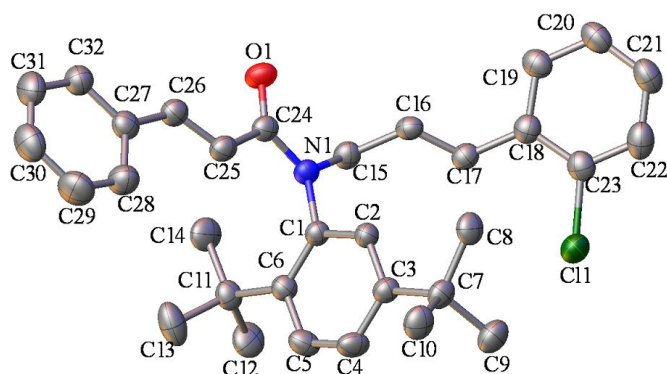
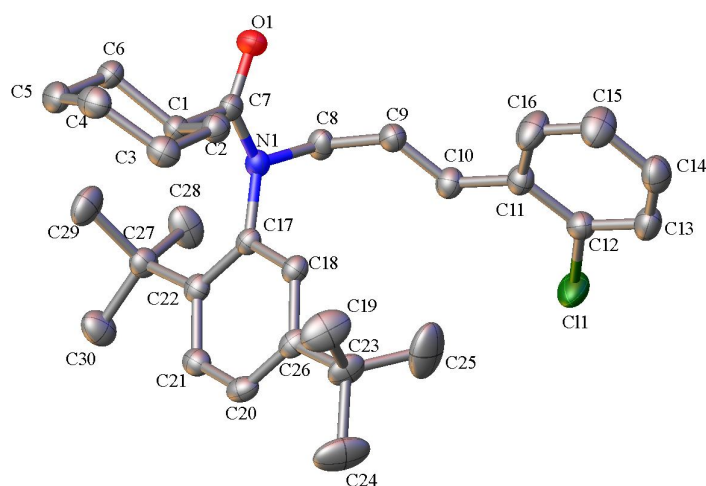


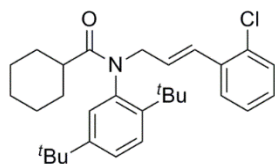
Table 1 Crystal data and structure refinement for **4de**.

Identification code	sa2823
Empirical formula	C ₃₂ H ₃₆ Cl N O
Formula weight	486.07
Temperature	173(2) K
Wavelength	0.71073 Å
Crystal system, space group	Orthorhombic, P2(1)2(1)2(1)
Unit cell dimensions	a = 10.084(2) Å alpha = 90 deg. b = 10.408(2) Å beta = 90 deg. c = 26.571(6) Å gamma = 90 deg.
Volume	2788.7(11) Å ³
Z, Calculated density	4, 1.158 Mg/m ³
Absorption coefficient	0.161 mm ⁻¹
F(000)	1040
Crystal size	0.30 x 0.24 x 0.22 mm
Theta range for data collection	3.07 to 27.48 deg.
Limiting indices	-12 ≤ h ≤ 13, -13 ≤ k ≤ 12, -34 ≤ l ≤ 34
Reflections collected / unique	17842 / 5869 [R(int) = 0.0442]
Completeness to theta = 27.48	98.8 %
Absorption correction	Semi-empirical from equivalents
Max. and min. transmission	1.0000 and 0.6549
Refinement method	Full-matrix least-squares on F ²
Data / restraints / parameters	5869 / 114 / 395
Goodness-of-fit on F ²	1.138
Final R indices [I > 2sigma(I)]	R1 = 0.0531, wR2 = 0.1128
R indices (all data)	R1 = 0.0562, wR2 = 0.1149
Absolute structure parameter	-0.01(7)
Largest diff. peak and hole	0.206 and -0.142 e.Å ⁻³

X-ray structure of **4ge**



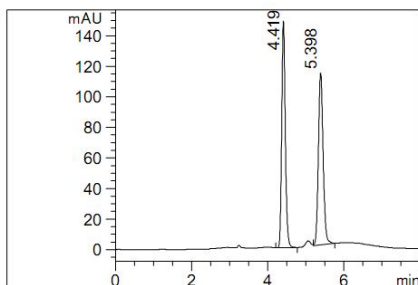
The chromatograms of the enantiomeric excess for **4ge**



HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,

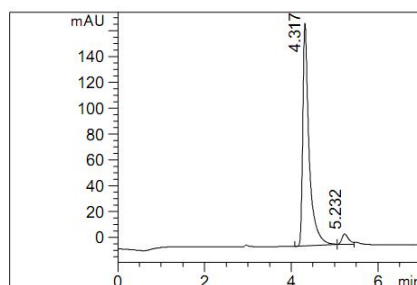
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



Peak #	RT [min]	Area %	Area
1	4.419	49.907	975.273
2	5.398	50.093	978.900

Chiral



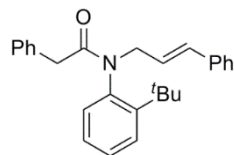
Peak #	RT [min]	Area %	Area
1	4.317	95.105	1.749e3
2	5.232	4.895	90.036

Table 2 Crystal data and structure refinement for **4ge**.

Identification code	sa3633	
Empirical formula	C ₃₀ H ₄₀ Cl N O	
Formula weight	466.08	
Temperature	173.1500 K	
Wavelength	0.71073 Å	
Crystal system	Orthorhombic	
Space group	P 21 21 21	
Unit cell dimensions	a = 9.779(3) Å	a = 90°.
	b = 10.660(4) Å	b = 90°.
	c = 26.314(8) Å	c = 90°.
Volume	2743.4(15) Å ³	
Z	4	
Density (calculated)	1.128 Mg/m ³	
Absorption coefficient	0.160 mm ⁻¹	
F(000)	1008	
Crystal size	0.42 x 0.24 x 0.19 mm ³	
Theta range for data collection	2.459 to 27.473°.	
Index ranges	-12 ≤ h ≤ 12, -13 ≤ k ≤ 13, -34 ≤ l ≤ 34	
Reflections collected	21255	
Independent reflections	6242 [R(int) = 0.0370]	
Completeness to theta = 26.000°	99.4 %	
Absorption correction	Semi-empirical from equivalents	
Max. and min. transmission	1.0000 and 0.8117	
Refinement method	Full-matrix least-squares on F ²	
Data / restraints / parameters	6242 / 0 / 304	
Goodness-of-fit on F ²	1.126	
Final R indices [I > 2σ(I)]	R1 = 0.0424, wR2 = 0.0980	
R indices (all data)	R1 = 0.0445, wR2 = 0.0991	
Absolute structure parameter	0.01(2)	
Extinction coefficient	n/a	
Largest diff. peak and hole	0.157 and -0.205 e.Å ⁻³	

The chromatograms for determination of the enantiomeric excess

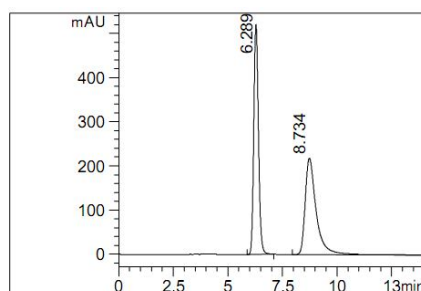
Table 1, entry 11



HPLC Conditions: Column: Chiralpak AS-H, Daicel Chemical Industries, Ltd.,

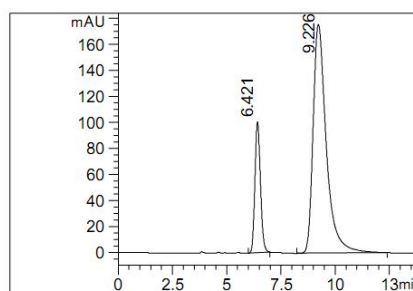
Eluent: Hexanes/IPA(90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



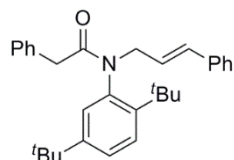
Peak #	RT [min]	Area %	Area
1	6.289	50.239	7.727e3
2	8.734	49.761	7.653e3

Chiral



Peak #	RT [min]	Area %	Area
1	6.421	19.342	1.787e3
2	9.226	80.658	7.451e3

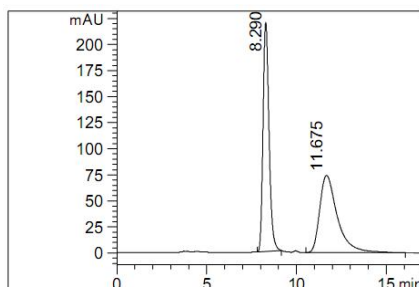
Table 1, entry 12



HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,

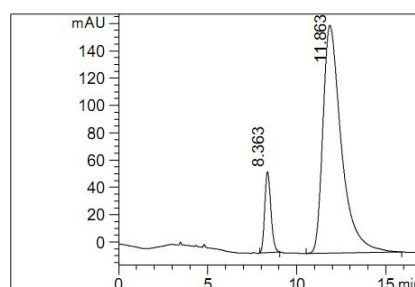
Eluent: Hexanes/IPA (85/15); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



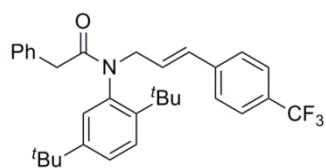
Peak #	RT [min]	Area %	Area
1	8.290	50.216	5.092e3
2	11.675	49.784	5.048e3

Chiral



Peak #	RT [min]	Area %	Area
1	8.363	10.524	1.410e3
2	11.863	89.476	1.199e4

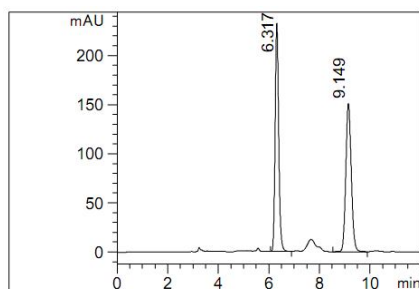
Table 2, entry 1



HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,

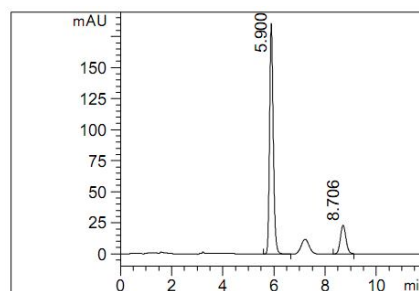
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



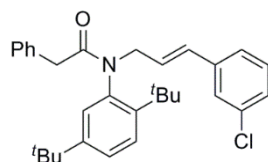
Peak #	RT [min]	Area %	Area
1	6.317	49.954	2.271e3
2	9.149	50.046	2.275e3

Chiral



Peak #	RT [min]	Area %	Area
1	5.900	84.160	1.861e3
2	8.706	15.840	350.365

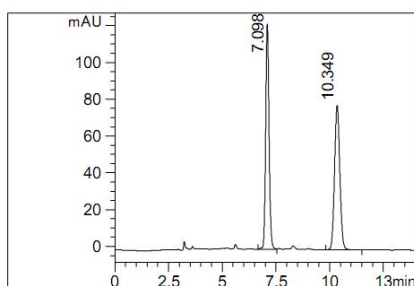
Table 2, entry 2



HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,

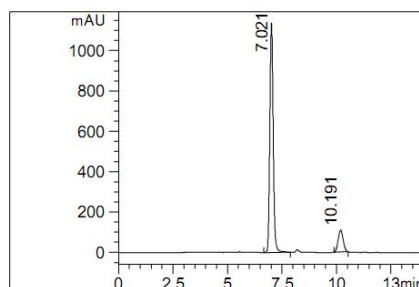
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



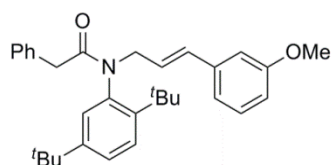
Peak #	RT [min]	Area %	Area
1	7.098	50.095	1.342e3
2	10.349	49.905	1.337e3

Chiral



Peak #	RT [min]	Area %	Area
1	7.021	87.577	1.220e4
2	10.191	12.423	1.731e3

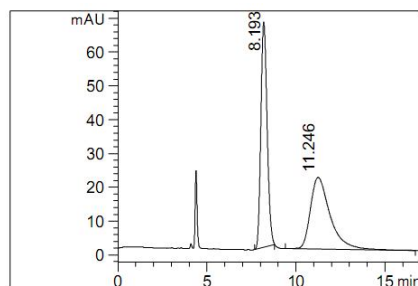
Table 2, entry 3



HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,

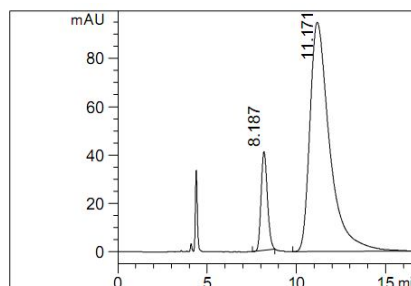
Eluent: Hexanes/IPA (80/20); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



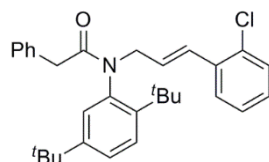
Peak #	RT [min]	Area %	Area
1	8.193	50.055	1.619e3
2	11.246	49.945	1.616e3

Chiral



Peak #	RT [min]	Area %	Area
1	8.187	11.991	997.330
2	11.171	88.009	7.320e3

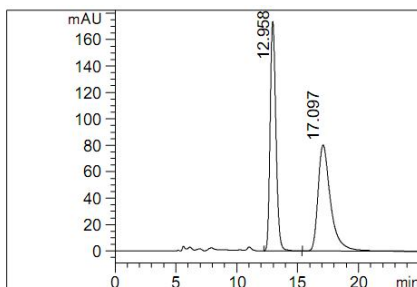
Table 2, entry 4



HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,

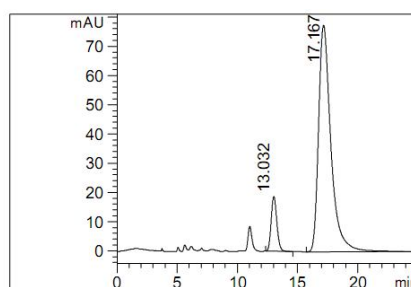
Eluent: Hexanes/IPA (97/3); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



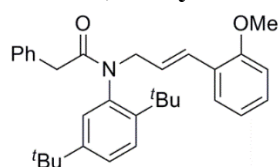
Peak #	RT [min]	Area %	Area
1	12.958	49.947	5.730e3
2	17.097	50.053	5.742e3

Chiral



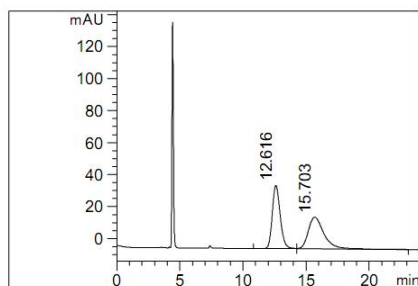
Peak #	RT [min]	Area %	Area
1	13.032	10.073	616.864
2	17.167	89.927	5.507e3

Table 2, entry 5



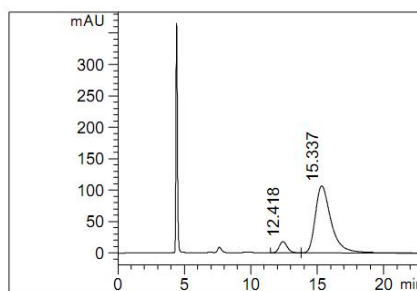
HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,
Eluent: Hexanes/IPA (80/20); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



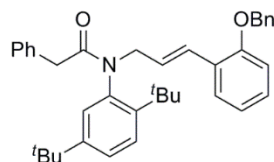
Peak #	RT [min]	Area %	Area
1	12.616	50.198	1.742e3
2	15.703	49.802	1.728e3

Chiral



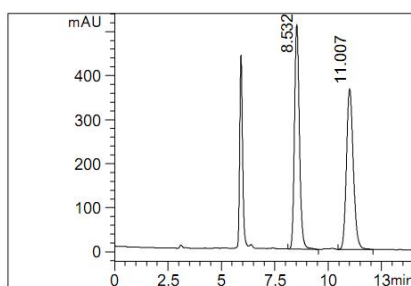
Peak #	RT [min]	Area %	Area
1	12.418	8.020	769.423
2	15.337	91.980	8.824e3

Table 2, entry 6



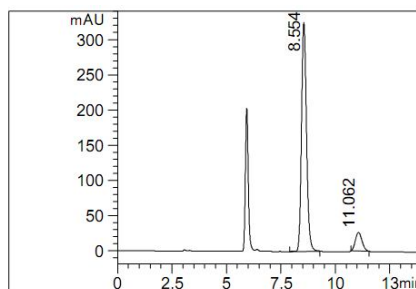
HPLC Conditions: Column: Chiralpak IC, Daicel Chemical Industries, Ltd., **Eluent:** Hexanes/IPA (80/20); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



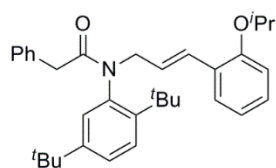
Peak #	RT [min]	Area %	Area
1	8.532	50.065	8.147e3
2	11.007	49.935	8.126e3

Chiral



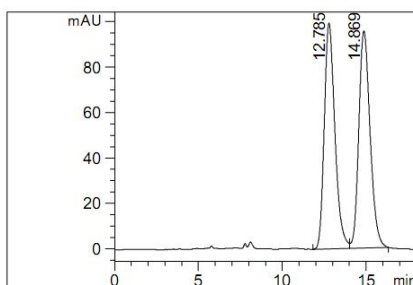
Peak #	RT [min]	Area %	Area
1	8.554	90.284	5.192e3
2	11.062	9.716	558.808

Table 2, entry 7



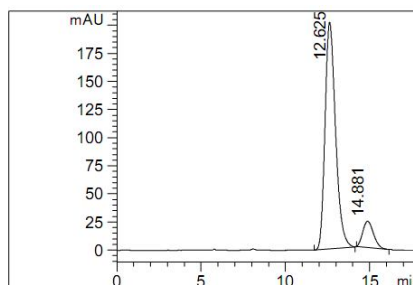
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Eluent: Hexanes/IPA (95/5); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



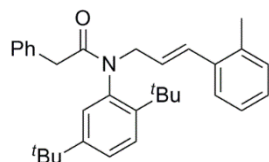
Peak #	RT [min]	Area %	Area
1	12.785	49.633	4.374e3
2	14.869	50.367	4.438e3

Chiral



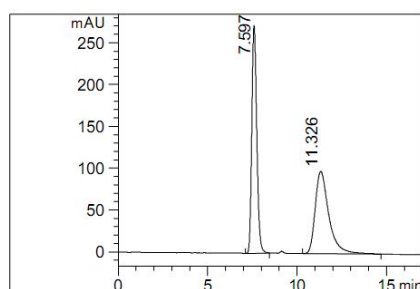
Peak #	RT [min]	Area %	Area
1	12.625	89.421	8.727e3
2	14.881	10.579	1.033e3

Table 2, entry 8



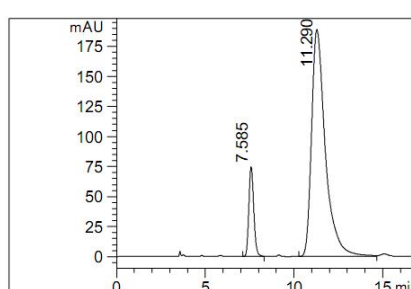
HPLC Conditions: **Column:** Chiralcel OD-H, Daicel Chemical Industries, Ltd.,
Eluent: Hexanes/IPA (90/10); **Flow rate:** 0.6 mL/min; **Detection:** UV 254 nm

Racemic



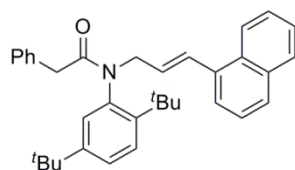
Peak #	RT [min]	Area %	Area
1	7.597	50.233	5.244e3
2	11.326	49.767	5.195e3

Chiral



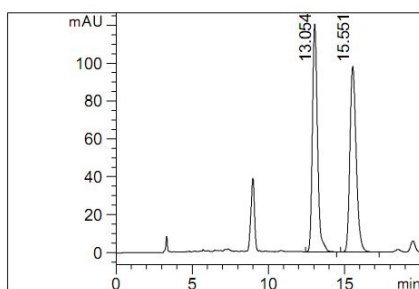
Peak #	RT [min]	Area %	Area
1	7.585	12.330	1.431e3
2	11.290	87.670	1.017e4

Table 2, entry 9



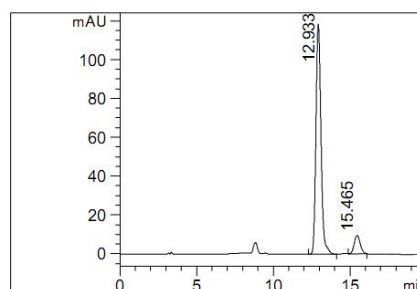
HPLC Conditions: Column: Chiralpak IC, Daicel Chemical Industries, Ltd., **Eluent:** Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



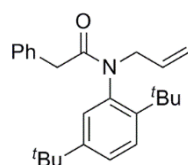
Peak #	RT [min]	Area %	Area
1	13.054	49.865	2.809e3
2	15.551	50.135	2.824e3

Chiral



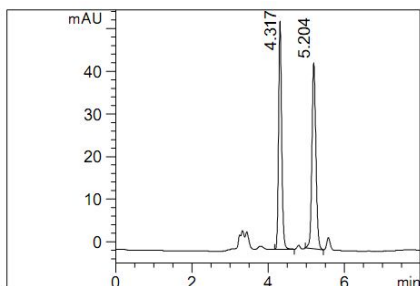
Peak #	RT [min]	Area %	Area
1	12.933	91.298	2.704e3
2	15.465	8.702	257.696

Table 2, entry 10



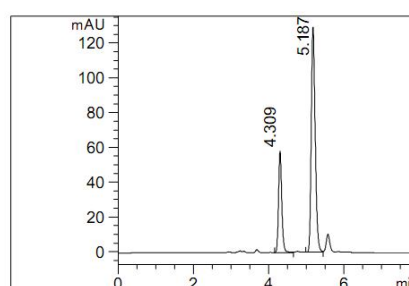
HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd., **Eluent:** Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



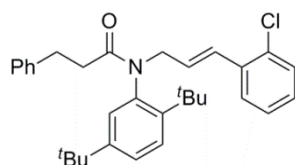
Peak #	RT [min]	Area %	Area
1	4.317	49.338	303.433
2	5.204	50.662	311.575

Chiral



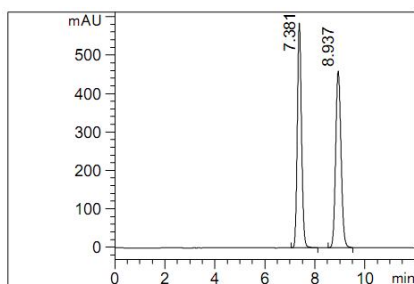
Peak #	RT [min]	Area %	Area
1	4.309	27.082	349.680
2	5.187	72.918	941.521

Table 3, entry 1



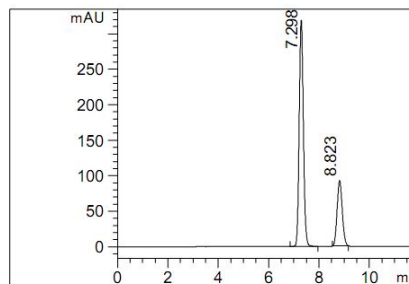
HPLC Conditions: Column: Chiralpak IC, Daicel Chemical Industries, Ltd., Eluent: Hexanes/IPA (90/10); Flow rate: 1.0 mL/min; Detection: UV 254 nm

Racemic



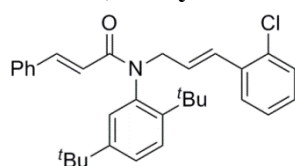
Peak #	RT [min]	Area %	Area
1	7.381	49.979	6.856e3
2	8.937	50.021	6.862e3

Chiral



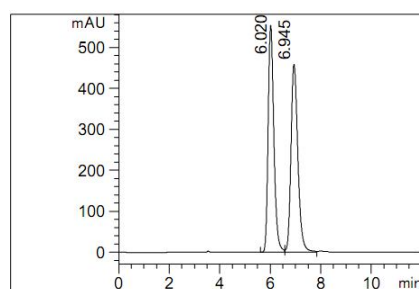
Peak #	RT [min]	Area %	Area
1	7.298	73.731	3.664e3
2	8.823	26.269	1.305e3

Table 3, entry 2



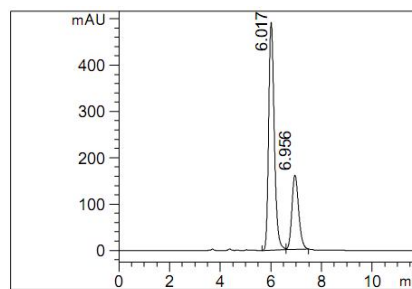
HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd., Eluent: Hexanes/IPA (92/8); Flow rate: 1.0 mL/min; Detection: UV 254 nm

Racemic



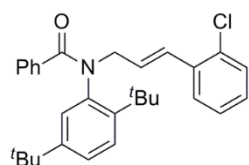
Peak #	RT [min]	Area %	Area
1	6.020	49.854	8.678e3
2	6.945	50.146	8.729e3

Chiral



Peak #	RT [min]	Area %	Area
1	6.017	71.918	7.592e3
2	6.956	28.082	2.965e3

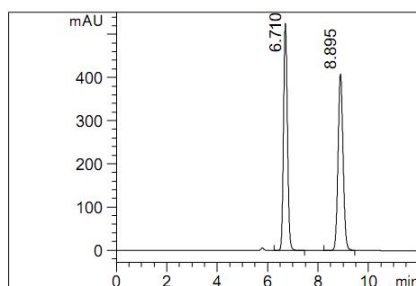
Table 3, entry 3



HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,

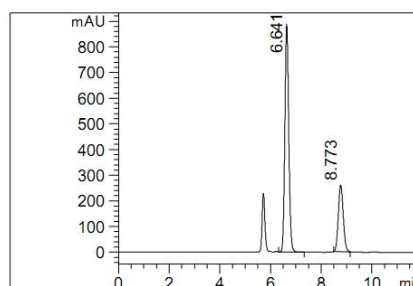
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



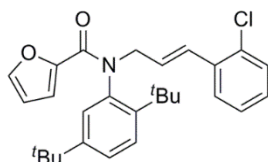
Peak #	RT [min]	Area %	Area
1	6.710	49.977	5.665e3
2	8.895	50.023	5.671e3

Chiral



Peak #	RT [min]	Area %	Area
1	6.641	72.971	9.483e3
2	8.773	27.029	3.512e3

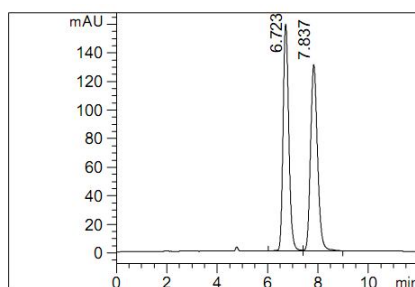
Table 3, entry 4



HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,

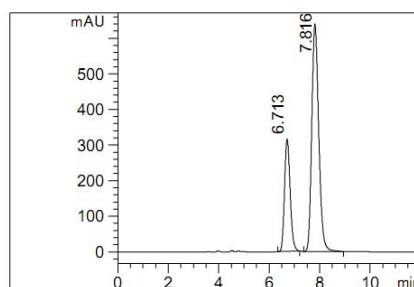
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



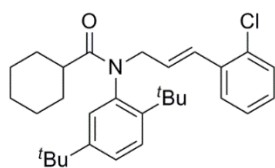
Peak #	RT [min]	Area %	Area
1	6.723	49.998	2.515e3
2	7.837	50.002	2.515e3

Chiral



Peak #	RT [min]	Area %	Area
1	6.713	28.553	4.889e3
2	7.816	71.447	1.223e4

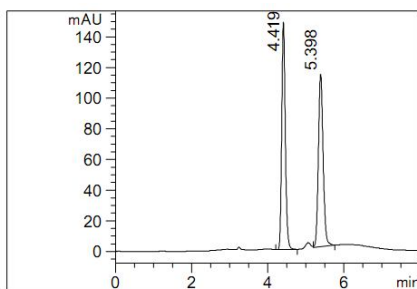
Table 3, entry 5



HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,

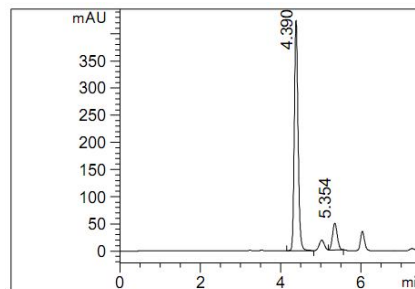
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



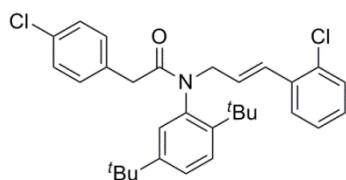
Peak #	RT [min]	Area %	Area
1	4.419	49.907	975.273
2	5.398	50.093	978.900

Chiral



Peak #	RT [min]	Area %	Area
1	4.390	87.091	2.745e3
2	5.354	12.909	406.873

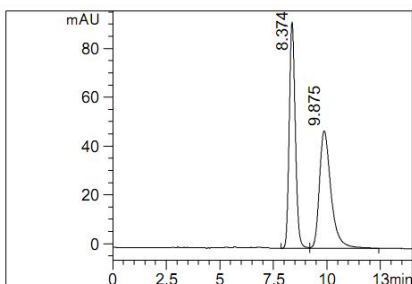
Table 3, entry 6



HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,

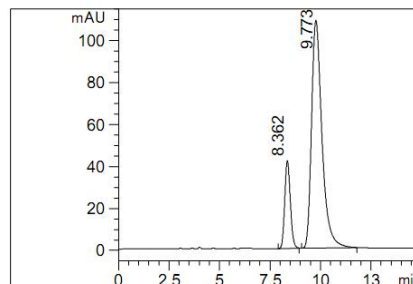
Eluent: Hexanes/IPA (95/5); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



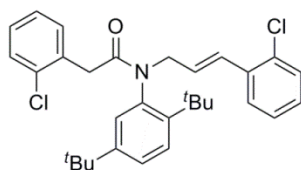
Peak #	RT [min]	Area %	Area
1	8.374	50.222	1.822e3
2	9.875	49.778	1.806e3

Chiral



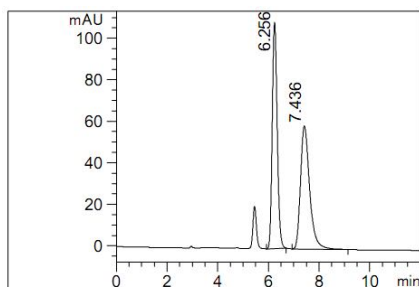
Peak #	RT [min]	Area %	Area
1	8.362	17.066	799.703
2	9.773	82.934	3.886e3

Table 3, entry 7



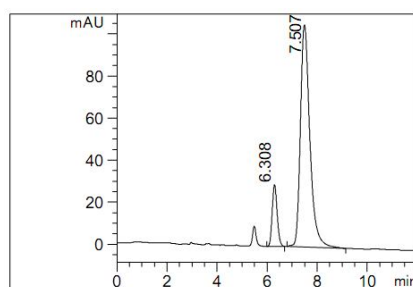
HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic



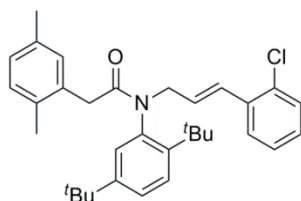
Peak #	RT [min]	Area %	Area
1	6.256	49.880	1.481e3
2	7.436	50.120	1.488e3

Chiral



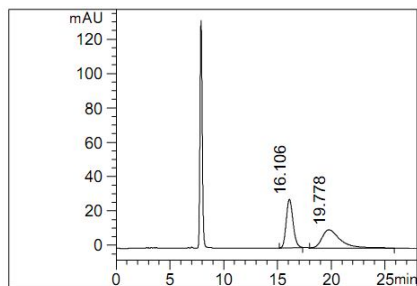
Peak #	RT [min]	Area %	Area
1	6.308	12.719	404.184
2	7.507	87.281	2.774e3

Table 3, entry 8



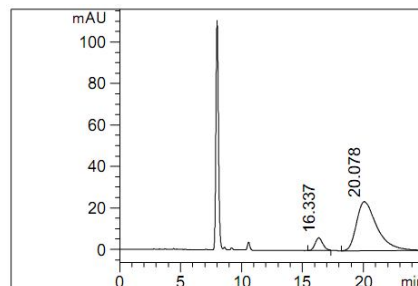
HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,
Eluent: Hexanes/IPA (97/3); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic

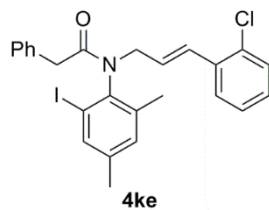


Peak #	RT [min]	Area %	Area
1	16.106	50.278	1.226e3
2	19.778	49.722	1.213e3

Chiral



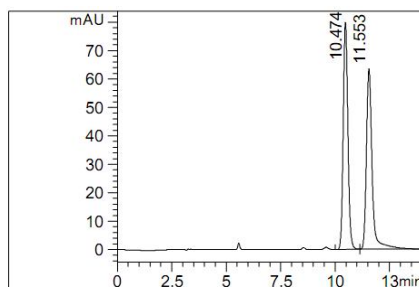
Peak #	RT [min]	Area %	Area
1	16.337	8.645	260.294
2	20.078	91.355	2.750e3



HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,

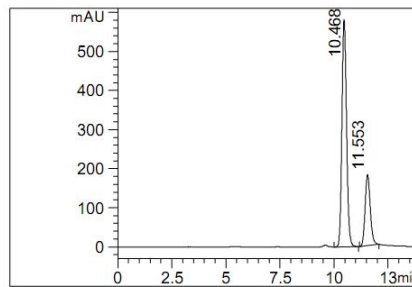
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic

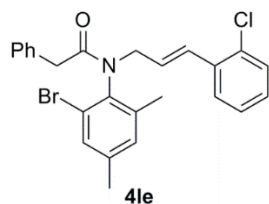


Peak #	RT [min]	Area %	Area
1	10.474	50.366	1.183e3
2	11.553	49.634	1.166e3

Chiral



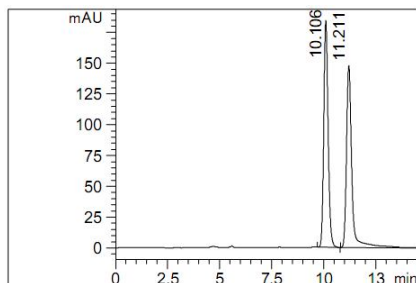
Peak #	RT [min]	Area %	Area
1	10.468	74.063	8.613e3
2	11.553	25.937	3.016e3



HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,

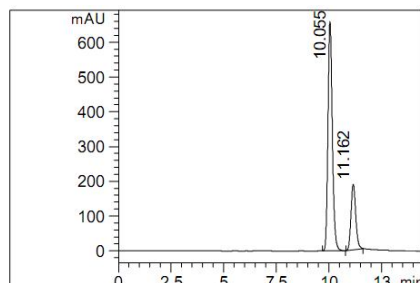
Eluent: Hexanes/IPA (90/10); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic

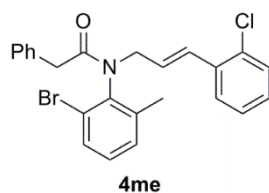


Peak #	RT [min]	Area %	Area
1	10.106	50.299	2.670e3
2	11.211	49.701	2.638e3

Chiral

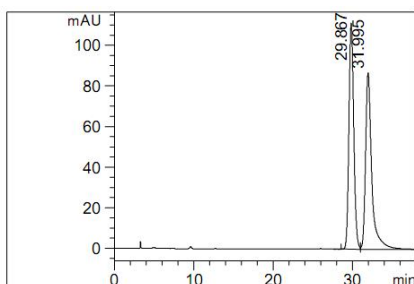


Peak #	RT [min]	Area %	Area
1	10.055	76.440	9.553e3
2	11.162	23.560	2.944e3



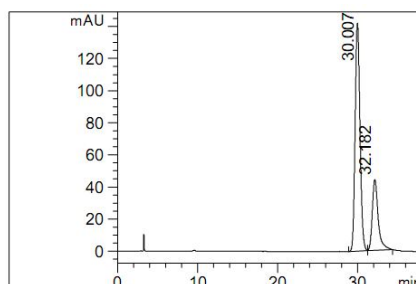
HPLC Conditions: Column: Chiralpak AD-H, Daicel Chemical Industries, Ltd.,
Eluent: Hexanes/IPA (98/2); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic

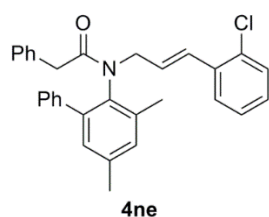


Peak #	RT [min]	Area %	Area
1	29.867	49.893	4.712e3
2	31.995	50.107	4.732e3

Chiral

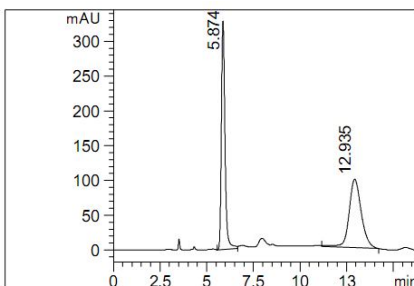


Peak #	RT [min]	Area %	Area
1	30.007	72.828	6.034e3
2	32.182	27.172	2.251e3



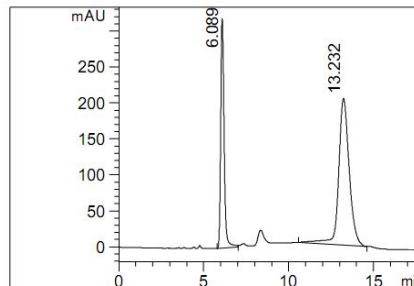
HPLC Conditions: Column: Chiralcel OD-H, Daicel Chemical Industries, Ltd.,
Eluent: Hexanes/IPA (85/15); **Flow rate:** 1.0 mL/min; **Detection:** UV 254 nm

Racemic

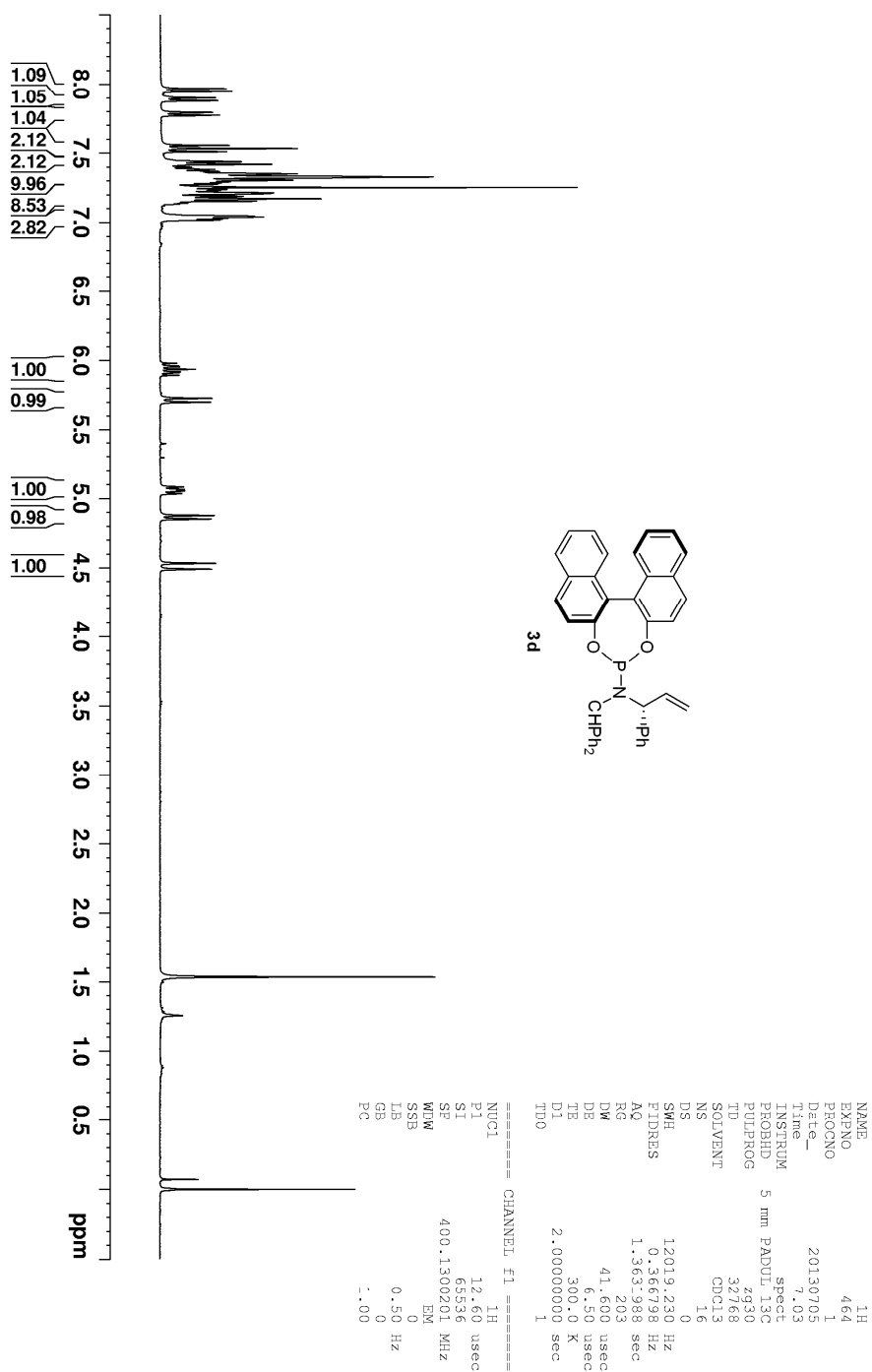


Peak #	RT [min]	Area %	Area
1	5.874	49.269	4.355e3
2	12.935	50.731	4.484e3

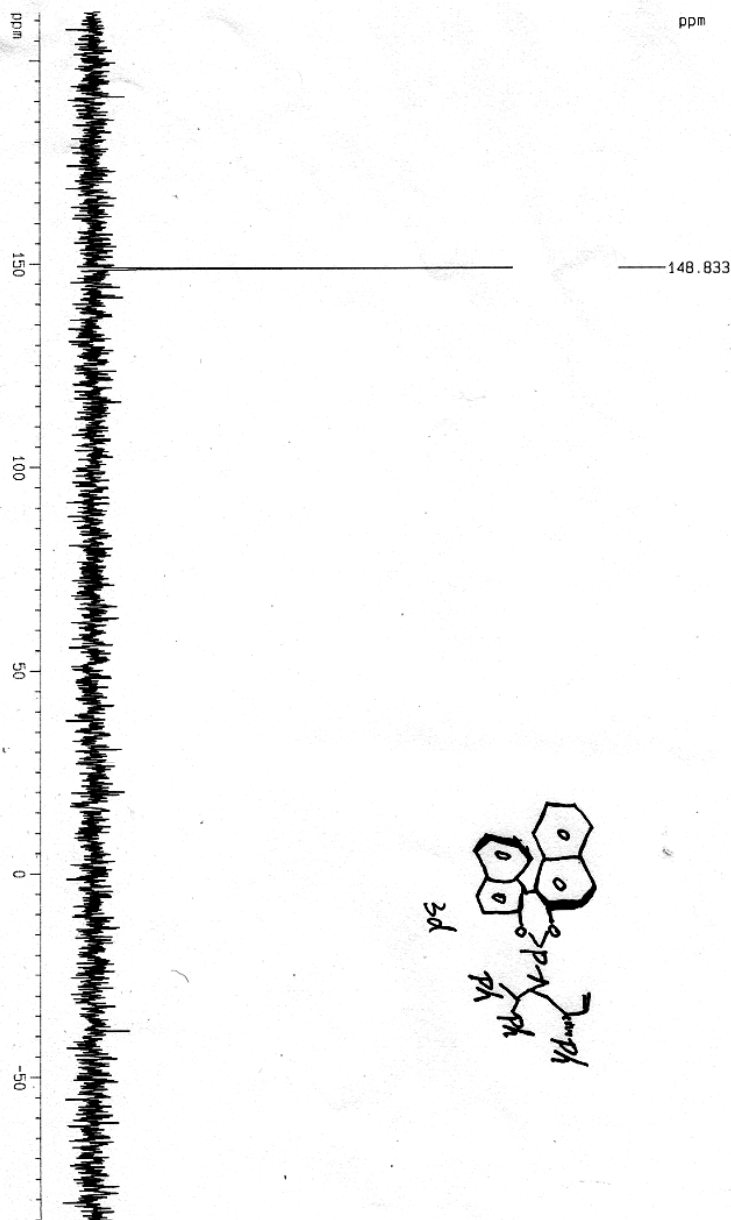
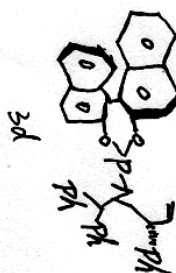
Chiral



Peak #	RT [min]	Area %	Area
1	6.089	33.464	4.444e3
2	13.232	66.536	8.837e3



1y1-R-d1Ph-L



Current Data Parameters
NAME 310
EXPNO 1171
PROCNO 1

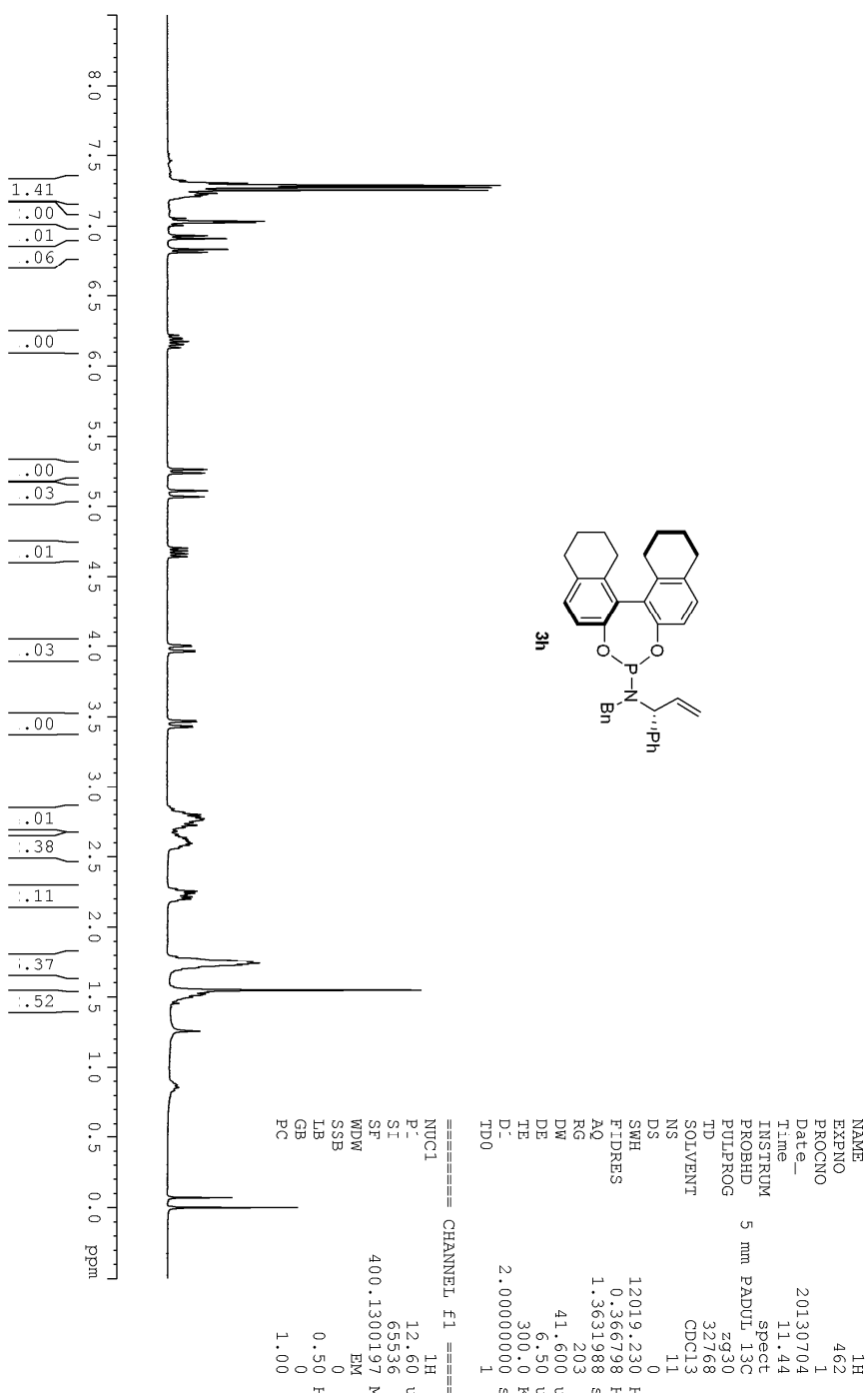
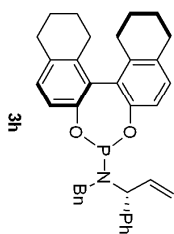
F2 - Acquisition Parameters
Date_ 20130705
Time 14.22
INSTRUM spect
PROBHD 5 mm BBO BB-1H
PULPROG zgpg30
TD 32768
FIDRES 0.4522484
AQ 0.4522484
RG 32768
DE 13.800
TE 300.2
DE 6.00
TE 0.0
DS 0
US 18
VS 18
SC-VENT
ACQRES
18
0
NSM 35231.883
FIDRES 1.105709
AQ 0.4522484
RG 32768
DE 13.800
TE 300.2
DE 6.00
TE 0.0
DS 0
US 18
VS 18
SC-VENT
ACQRES
18
0

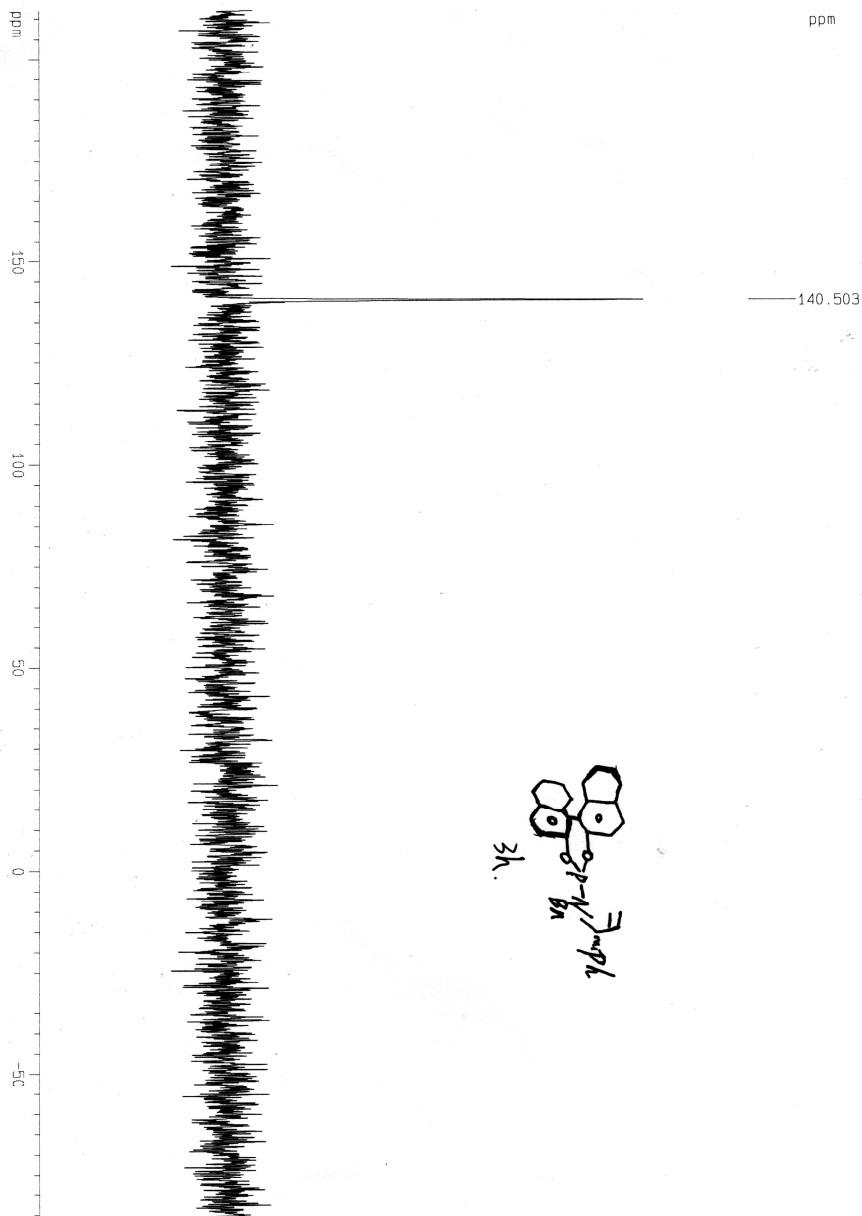
***** CHANNEL f1 *****
NUC1 31P
P1 11.40
PC1 12.00
SFO1 121.5023568

***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCP02 80.00
PL2 2.50
PL12 18.00
SFO2 300.1321958

F2 - Processing parameters
SI 32768
SF 121.4947224
NOM EN
SSB 0
LB 10.00
GB 0
PC 0.20

1D NMR plot parameters
CX 23.00
CY 8.00
ZP 242.50
F1 25775.30
F2P 96.058
F3P -10465.50
PANCH 13.95593
HZCM 1575.29332





Current Data Parameters

NAME	310
EXPNO	1170
PROCNO	1

F2 - Acquisition Parameters

Date_	20130703
Time	11:14:18
INSTRUM	spect
PROBHD	5 mm BBO BB-1H
PULPROG	zgpg30
TD	32768
SOLVENT	Acetone
NS	71
DS	0
SWH	36231.883 Hz
FIDRES	1.105709 Hz
AQ	0.4524484 sec
RG	32768
DM	13.800 usec
DE	6.00 usec
TE	0.0 K
D1	2.00000000 sec
D11	0.03000000 sec
MCHEST	0.00000000 sec
MCPRK	0.01500000 sec

***** CHANNEL f1 *****

NUC1	31P
P1	11.40 usec
PL1	7.00 dB
SFO1	121.5023823 MHz

***** CHANNEL f2 *****

NAME	wait216
NUC2	1H
PCPD2	80.00 usec
PL2	2.50 dB
PL12	18.00 dB
SFO2	300.1321998 MHz

F2 - Processing parameters

SI	32768
SF	121.4347224 MHz
MW	EM
SSB	0
LB	10.00 Hz
GB	0
PC	0.20

1D NMR Plot parameters

NAME	23.00 cm
CX	8.00 cm
F1P	212.160 ppm
F1	25776.30 Hz
F2P	-86.058 ppm
F2	-10455.59 Hz
PPMCM	12.96599 ppm/Hz
HZCM	1575.29932 Hz/cm

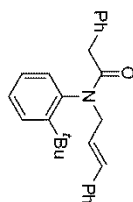
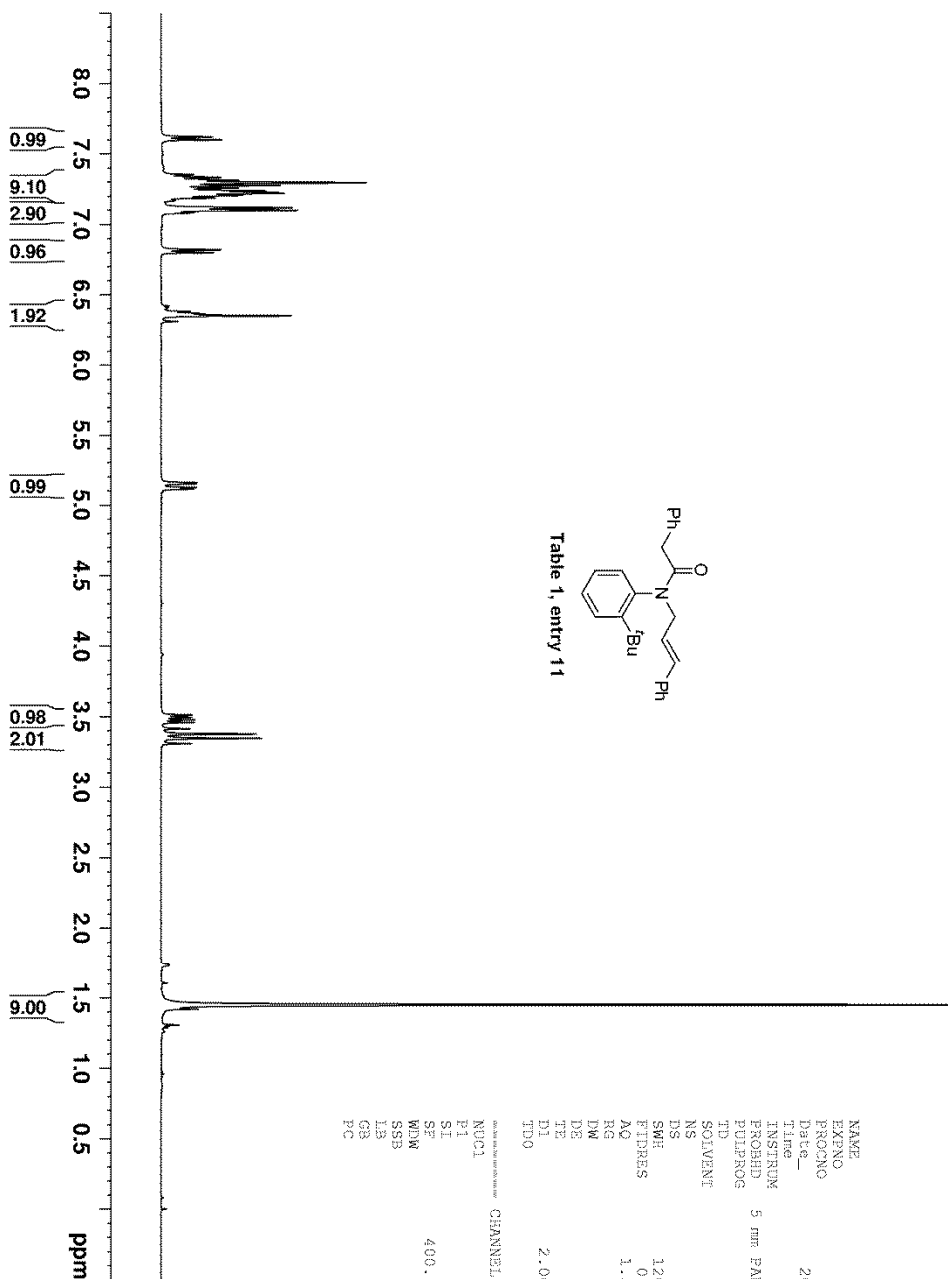
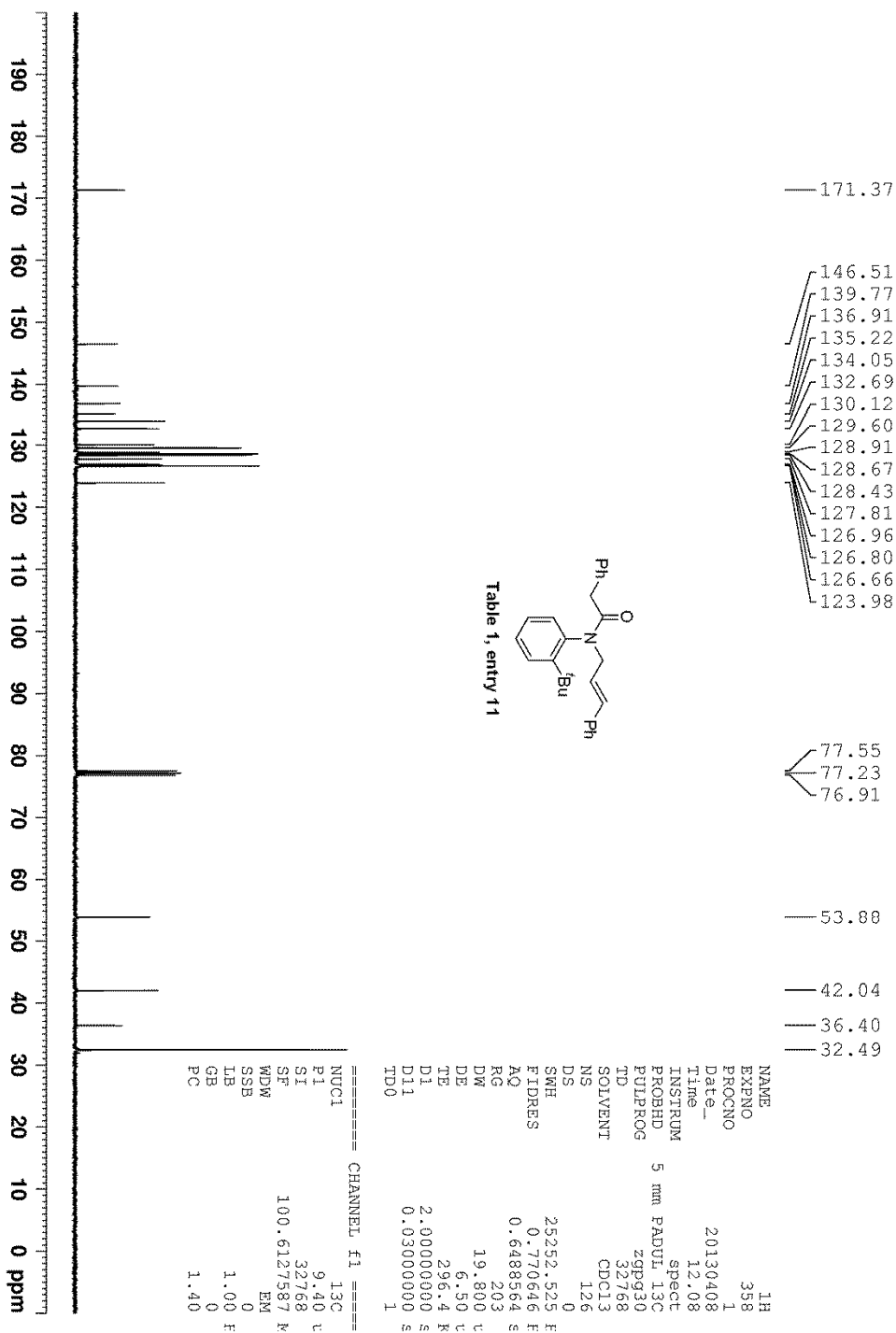


Table 1, entry 11



NAME 1H
EXPNO 357
PROCNO 1
Date_ 20130408
Time 12.02
INSTRUM spect
PROBHD 5 mm PABUL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 9
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 57
DW 41.600 usec
DE 6.50 usec
TE 295.5 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 1H
P1 12.60 usec
SI 65836
SF 400.1300301 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



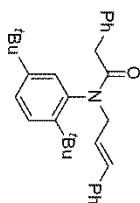
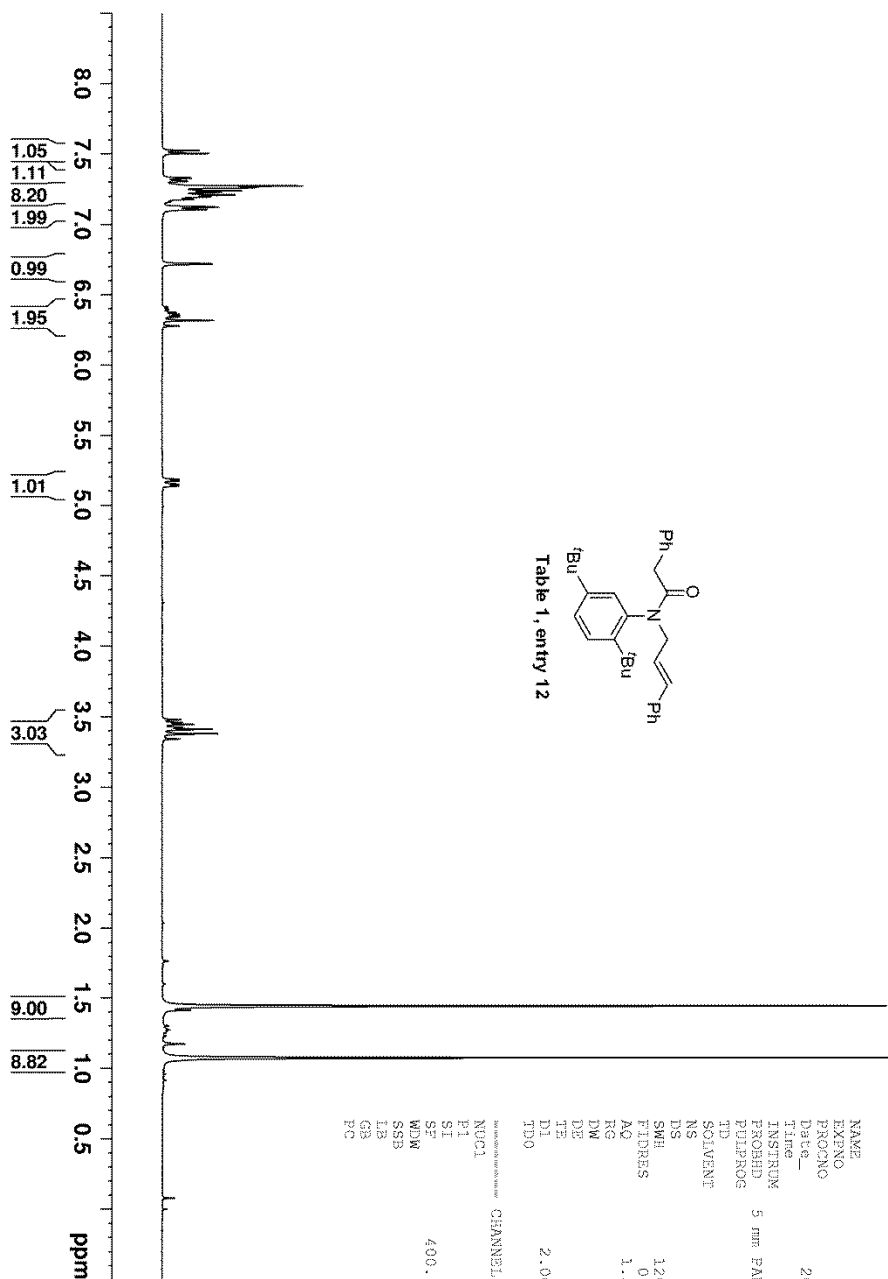
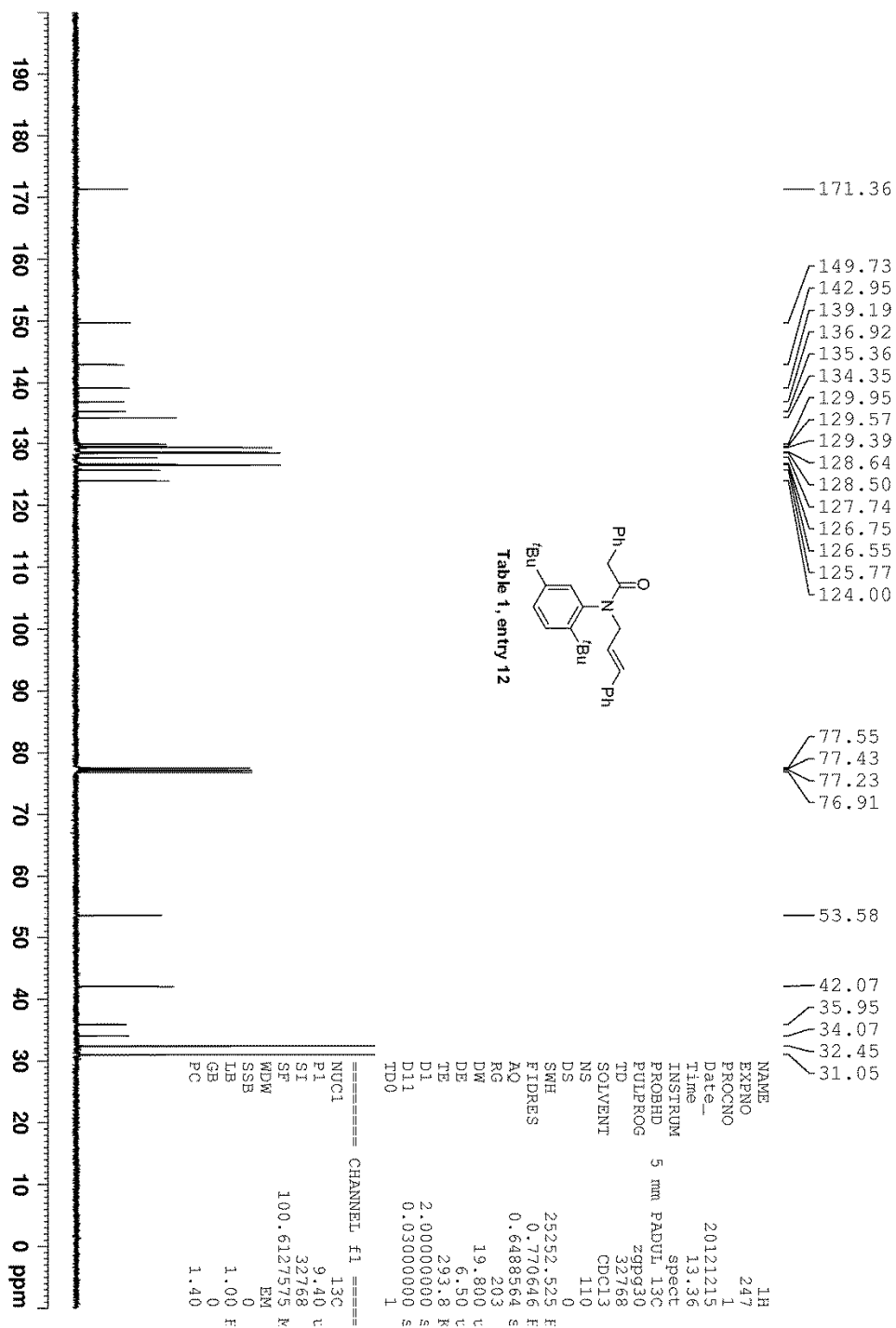


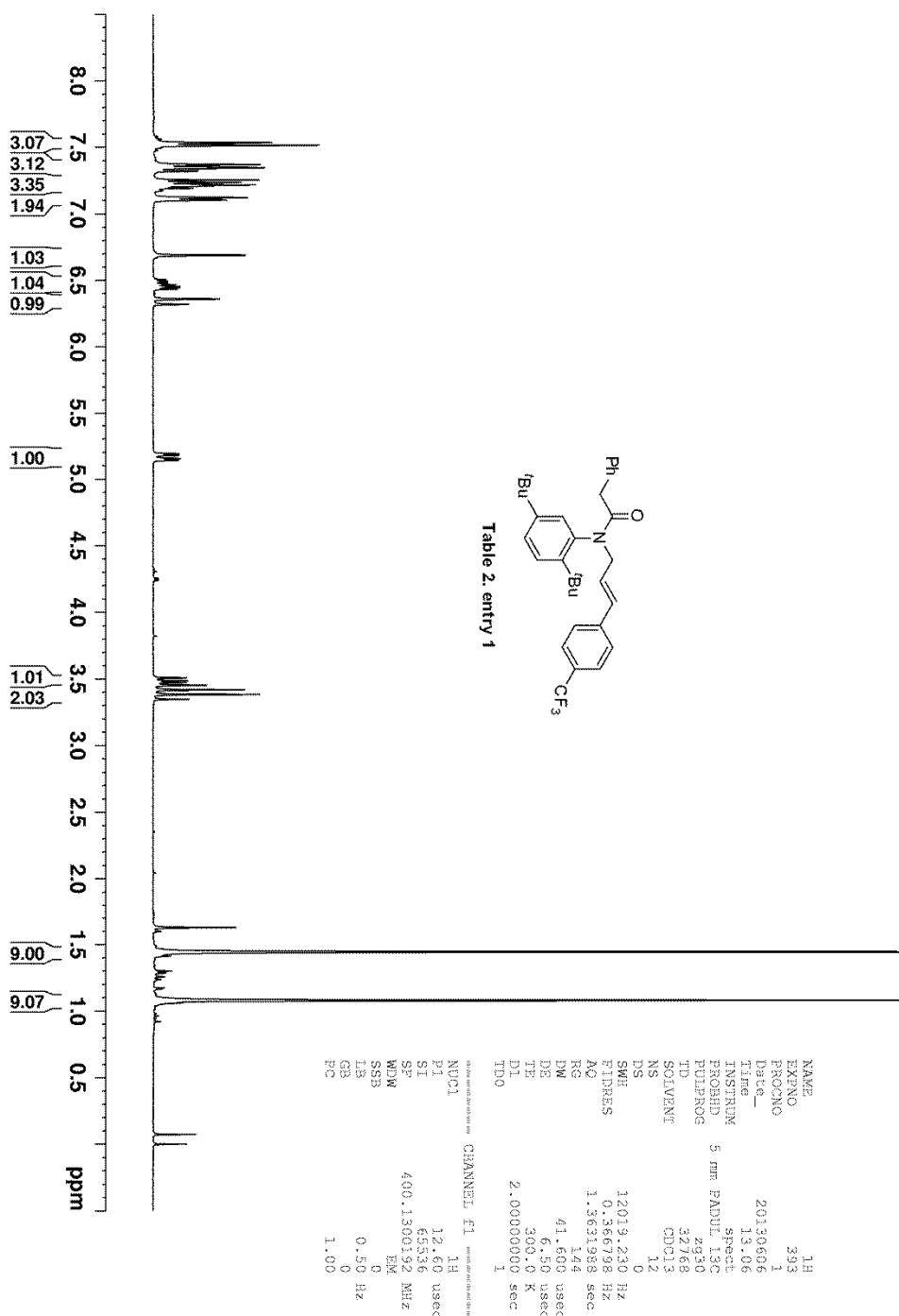
Table 1, entry 12

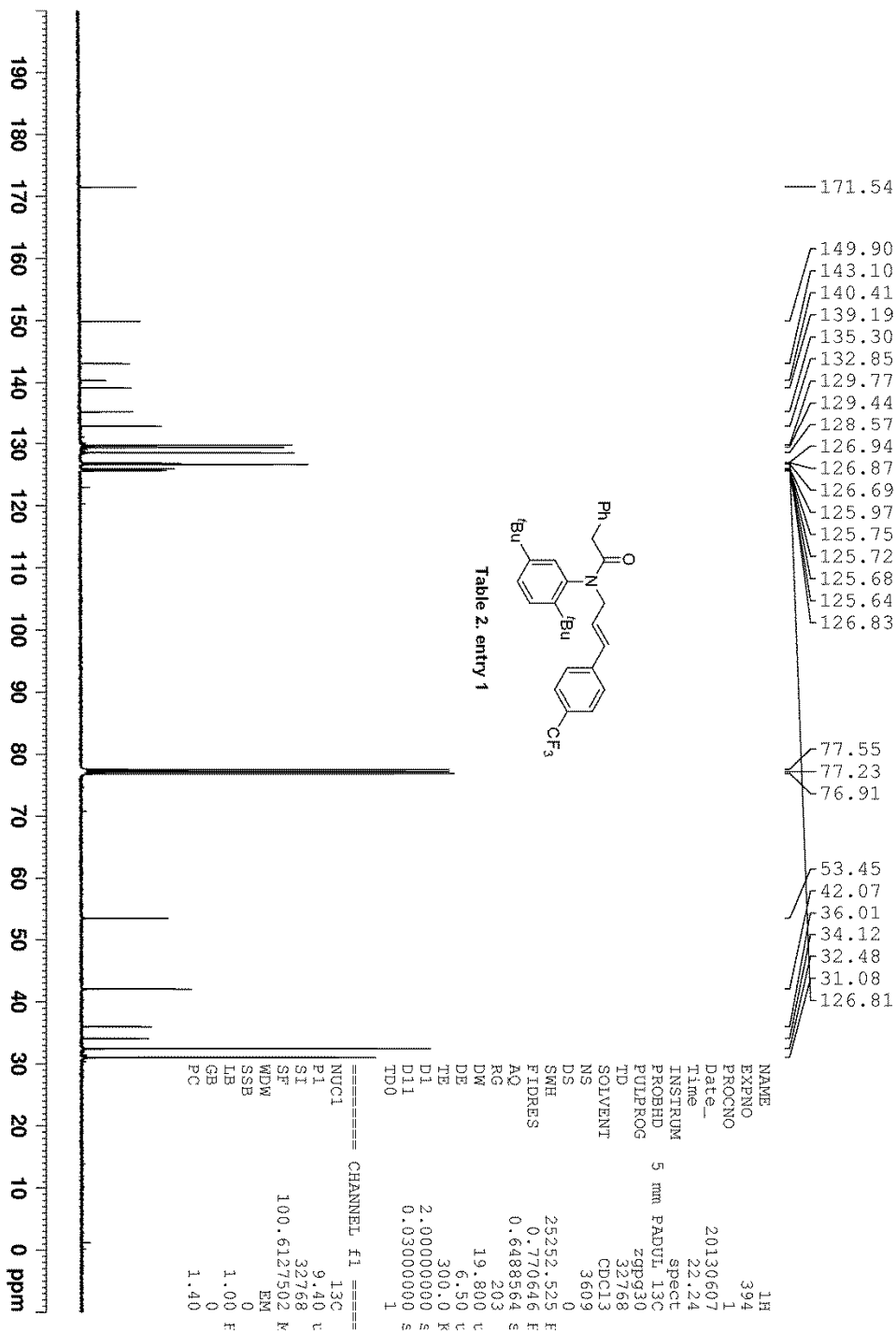


NAME 1H
EXPNO 246
PROCNO 1
Date_ 20121215
Time 13.34
INSTRUM spect
PROBHD 5 mm PABUL 13C
PULPROG zg30
TD 32768
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 32
DE 41.600 usec
TE 293.2 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 1H
P1 12.60 usec
SI 65836
SF 400.1300256 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00







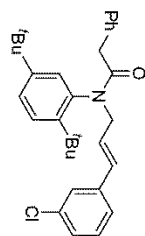
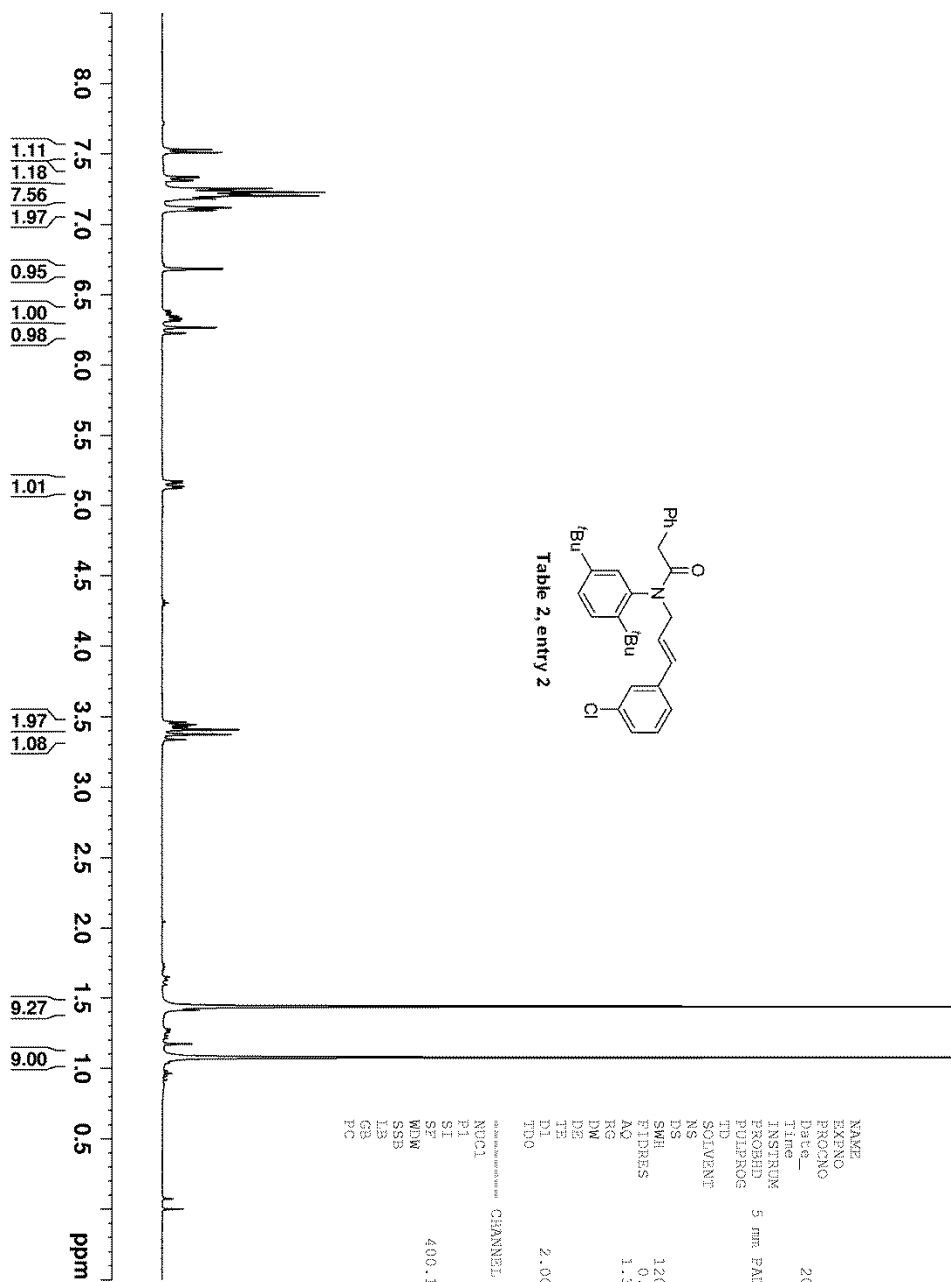
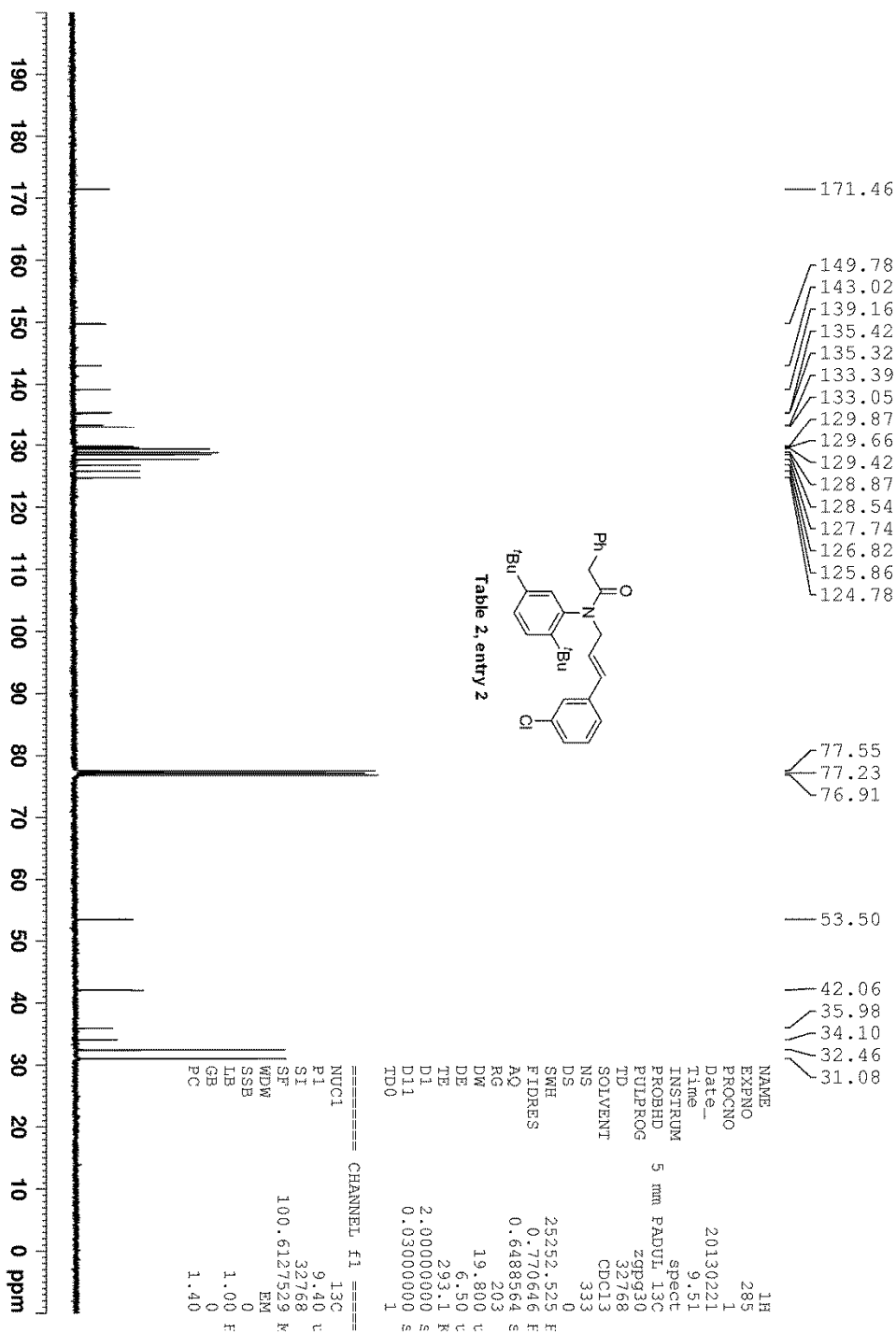


Table 2, entry 2



NAME 1H
EXPNO 284
PROCNO 1
Date_ 20130221
Time 9.36
INSTRUM spect
PROBHD 5 mm PABOL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 101
DW 41.600 usec
DE 6.50 usec
TE 292.3 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 1H
P1 12.60 usec
SI 65536
SF 400.130187 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



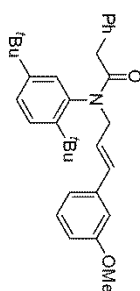
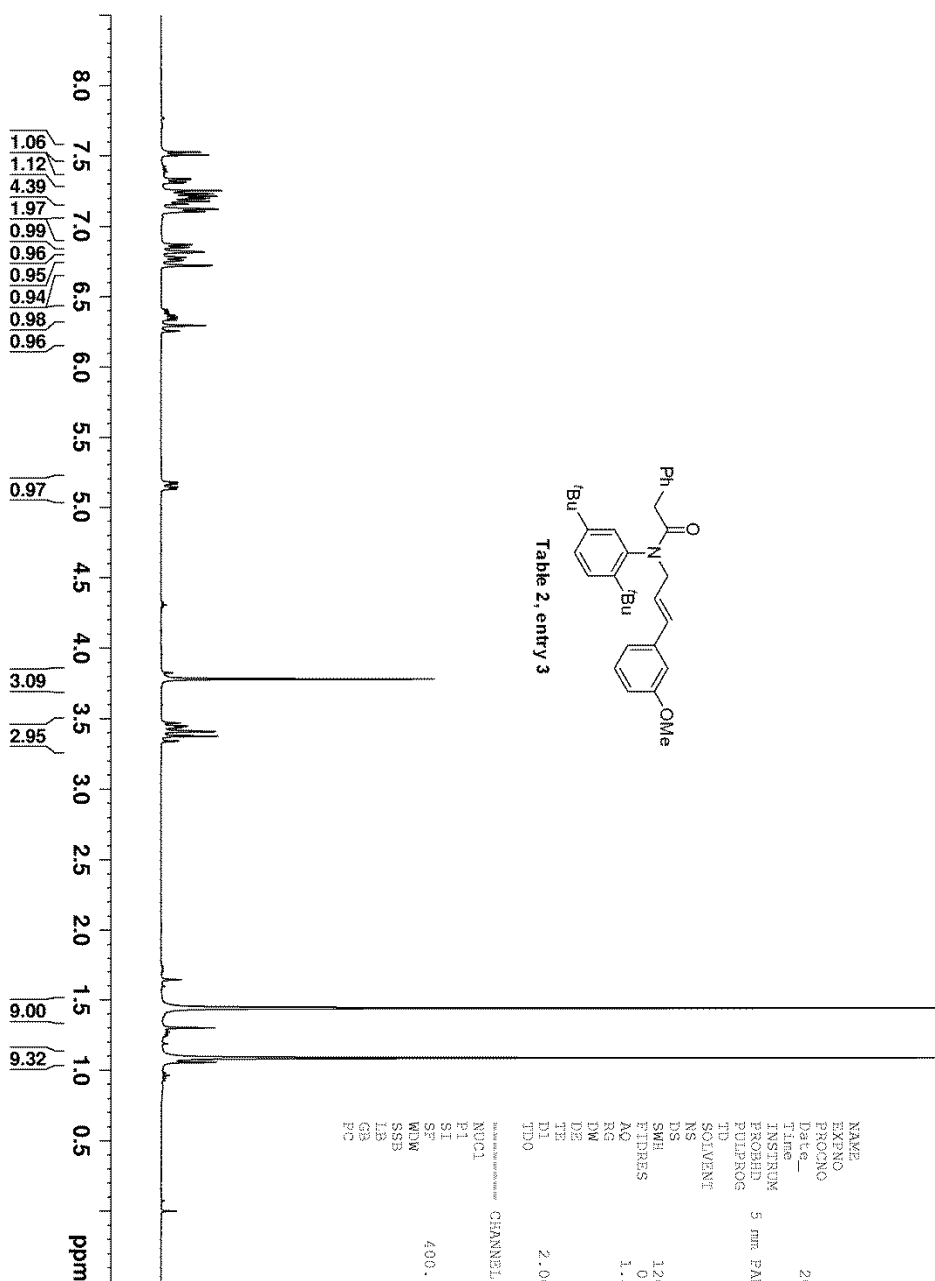


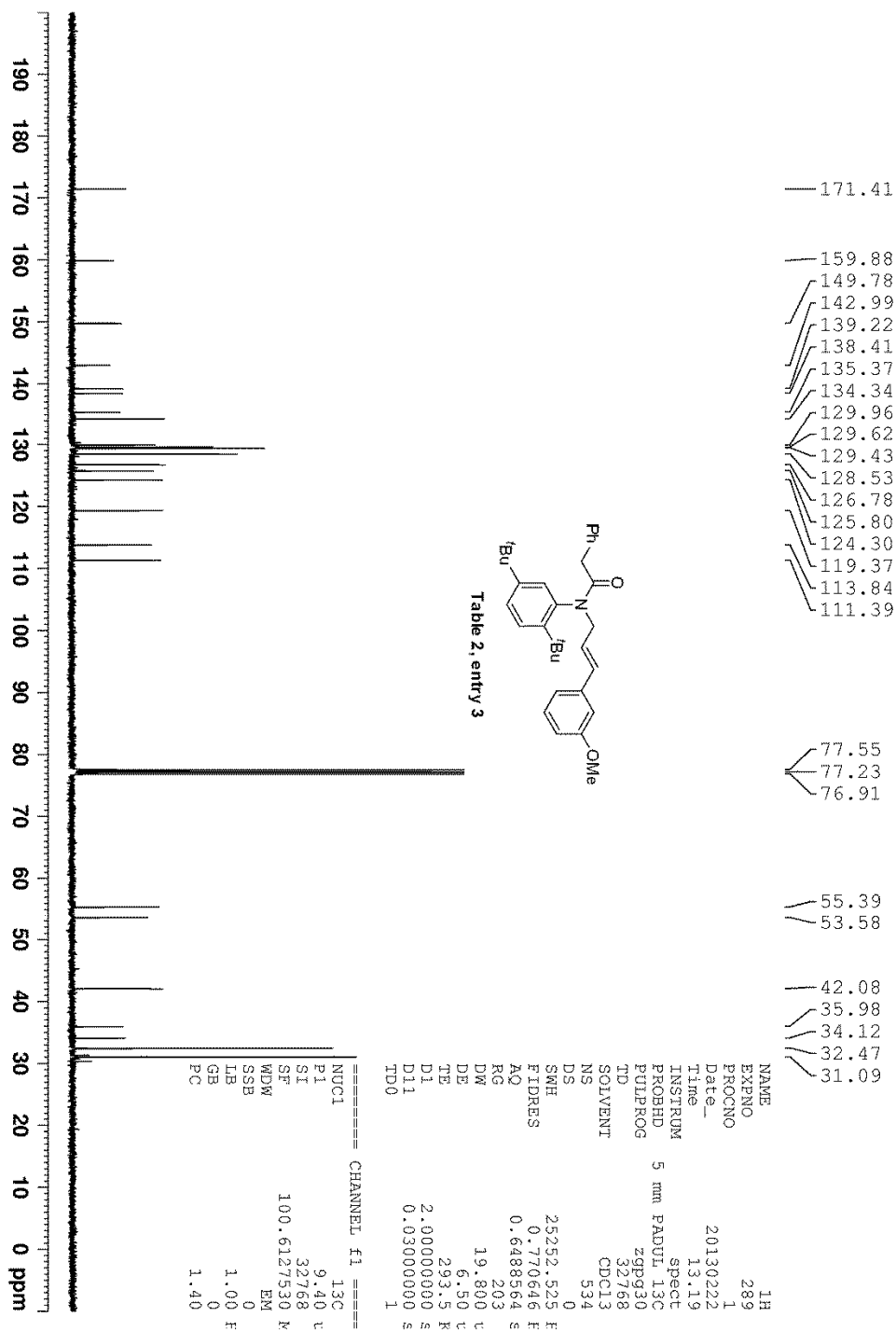
Table 2, entry 3



NAME	1H
EXPNO	289
PROCNO	1
Date_	20130222
Time	13.04
INSTRUM	5 mm PABUL 13C
PROBHD	spect
PULPROG	zg30
TD	32768
SOVENT	CDCl3
NS	16
DS	0
SWH	12019.230 Hz
FIDRES	0.366798 Hz
AQ	1.3631988 sec
RG	101
DW	41.600 usec
DE	6.50 usec
TE	292.6 K
D1	2.00000000 sec
TD0	1

NAME	1H
EXPNO	289
PROCNO	1
Date_	20130222
Time	13.04
INSTRUM	5 mm PABUL 13C
PROBHD	spect
PULPROG	zg30
TD	32768
SOVENT	CDCl3
NS	16
DS	0
SWH	12019.230 Hz
FIDRES	0.366798 Hz
AQ	1.3631988 sec
RG	101
DW	41.600 usec
DE	6.50 usec
TE	292.6 K
D1	2.00000000 sec
TD0	1

NAME	1H
EXPNO	289
PROCNO	1
Date_	20130222
Time	13.04
INSTRUM	5 mm PABUL 13C
PROBHD	spect
PULPROG	zg30
TD	32768
SOVENT	CDCl3
NS	16
DS	0
SWH	12019.230 Hz
FIDRES	0.366798 Hz
AQ	1.3631988 sec
RG	101
DW	41.600 usec
DE	6.50 usec
TE	292.6 K
D1	2.00000000 sec
TD0	1



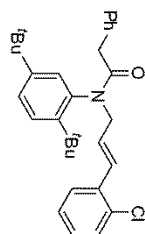
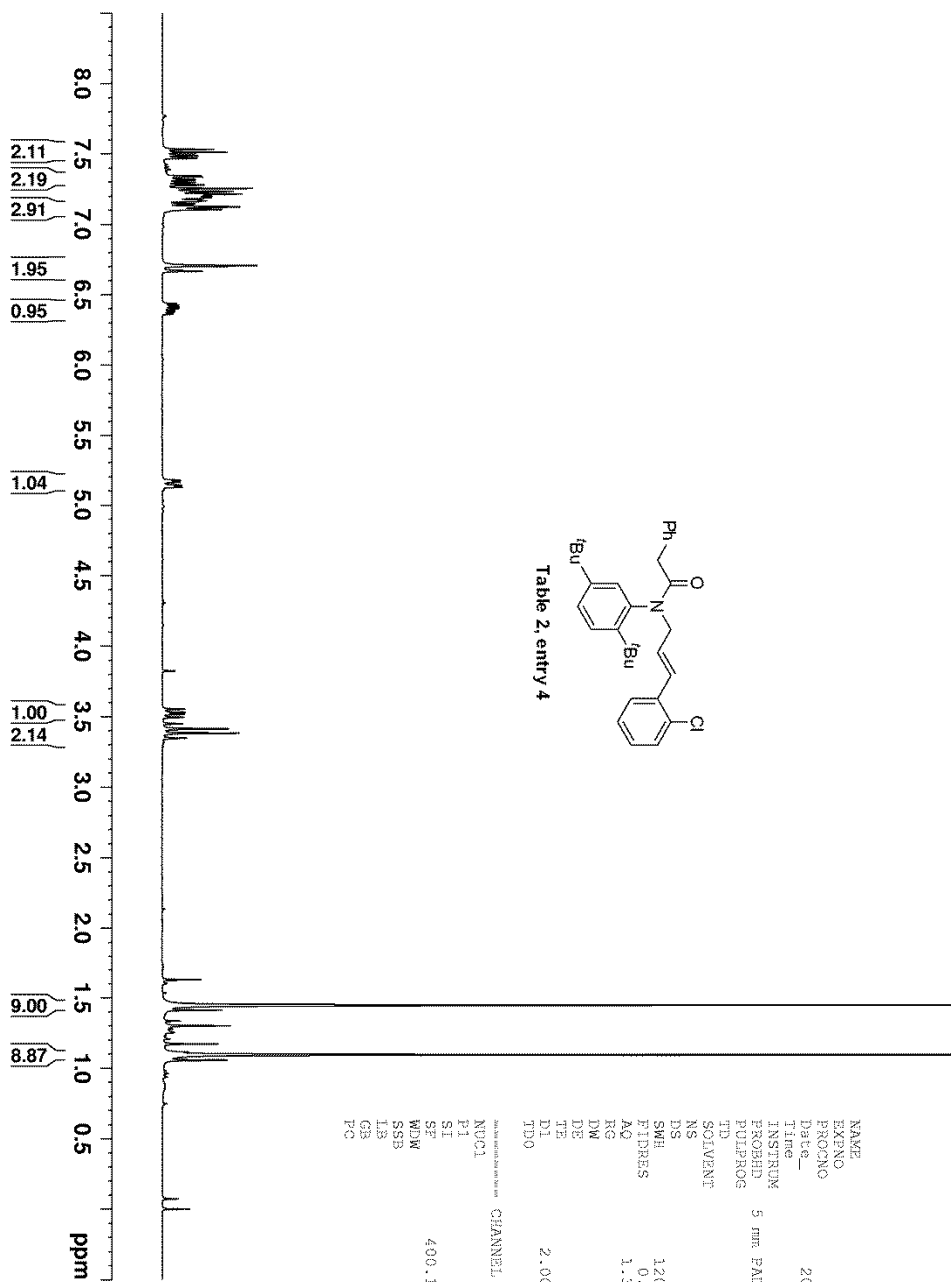


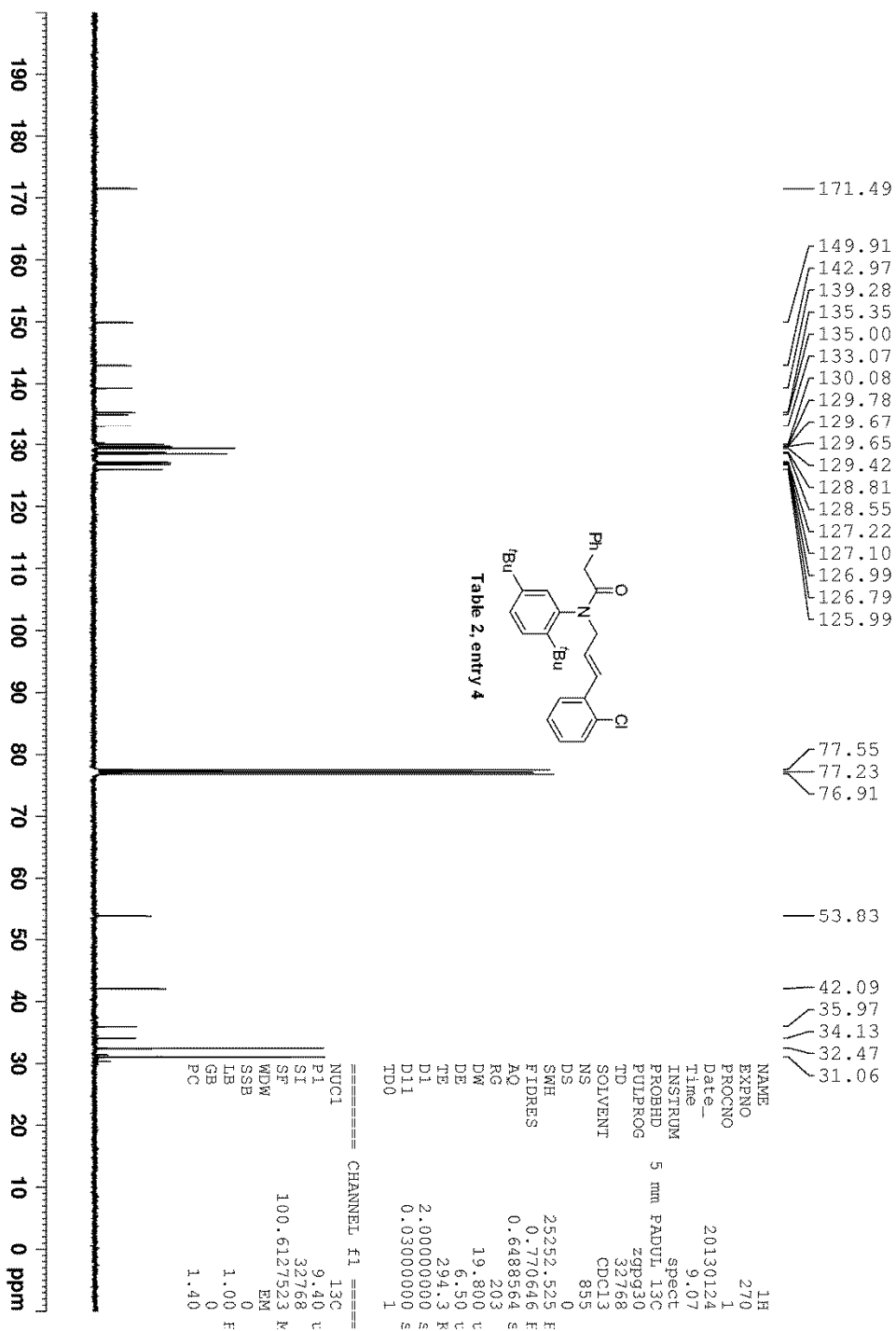
Table 2, entry 4

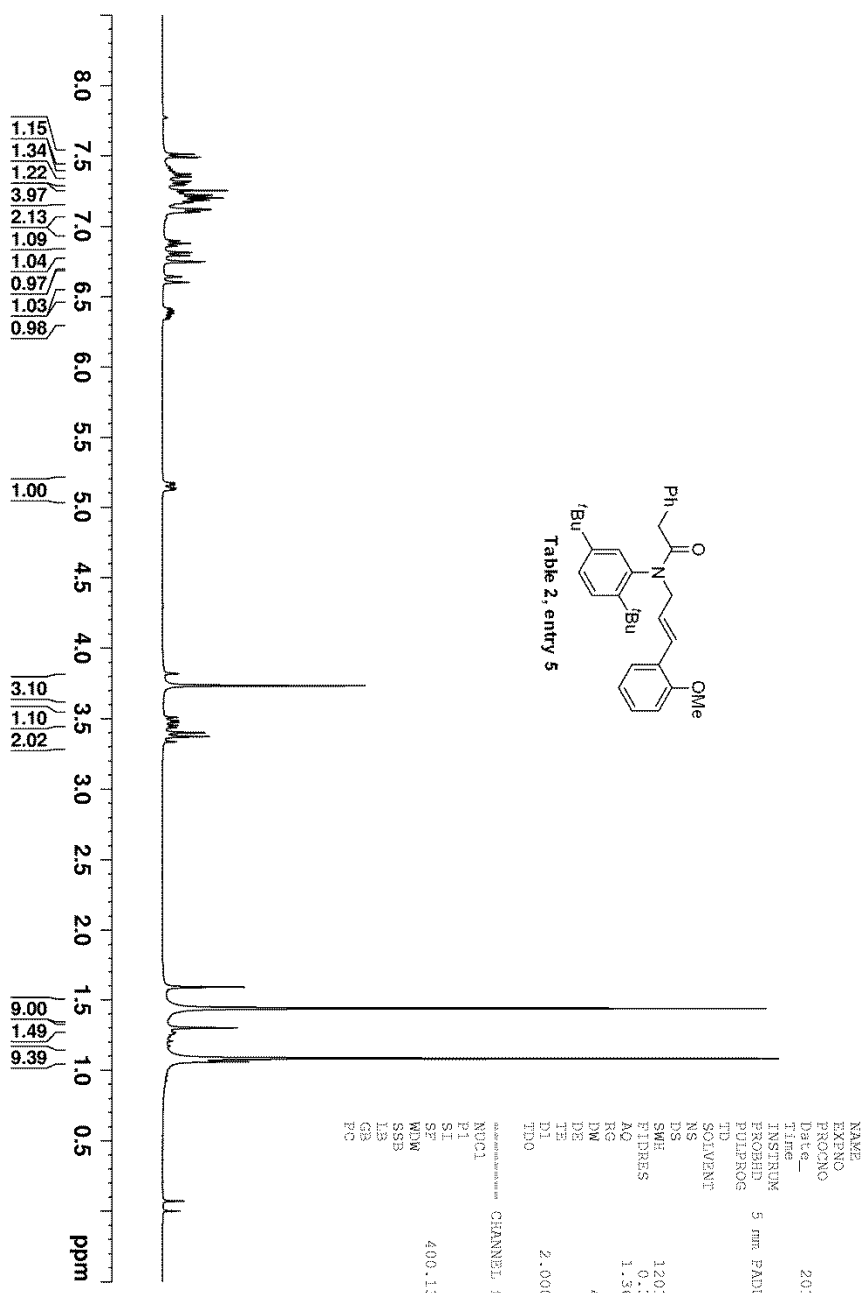
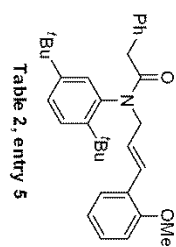


NAME	1h
EXPNO	269
PROCNO	1
Date_	20130124
Time	9.01
INSTRUM	5 mm PABUL 13C
PROBHD	spect
PULPROG	zg30
TD	32768
SOLVENT	CDCl3
NS	16
DS	0
SWH	12019.230 Hz
FIDRES	0.366798 Hz
AQ	1.3631988 sec
RG	128
DW	41.600 usec
DE	6.50 usec
TE	293.5 K
D1	2.00000000 sec
TD0	1

NAME	1h
EXPNO	269
PROCNO	1
Date_	20130124
Time	9.01
INSTRUM	5 mm PABUL 13C
PROBHD	spect
PULPROG	zg30
TD	32768
SOLVENT	CDCl3
NS	16
DS	0
SWH	12019.230 Hz
FIDRES	0.366798 Hz
AQ	1.3631988 sec
RG	128
DW	41.600 usec
DE	6.50 usec
TE	293.5 K
D1	2.00000000 sec
TD0	1

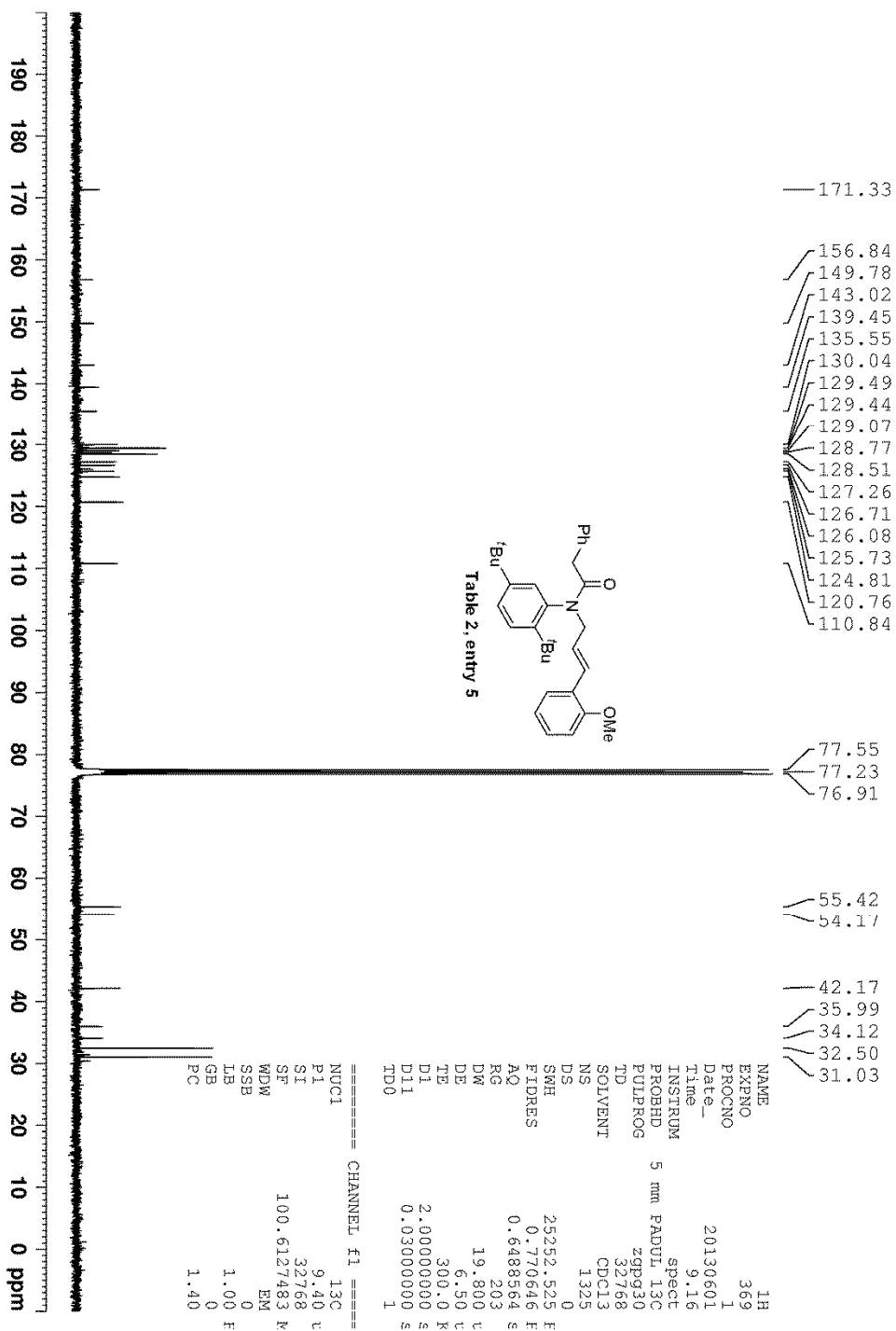
NAME	1h
EXPNO	269
PROCNO	1
Date_	20130124
Time	9.01
INSTRUM	5 mm PABUL 13C
PROBHD	spect
PULPROG	zg30
TD	32768
SOLVENT	CDCl3
NS	16
DS	0
SWH	12019.230 Hz
FIDRES	0.366798 Hz
AQ	1.3631988 sec
RG	128
DW	41.600 usec
DE	6.50 usec
TE	293.5 K
D1	2.00000000 sec
TD0	1

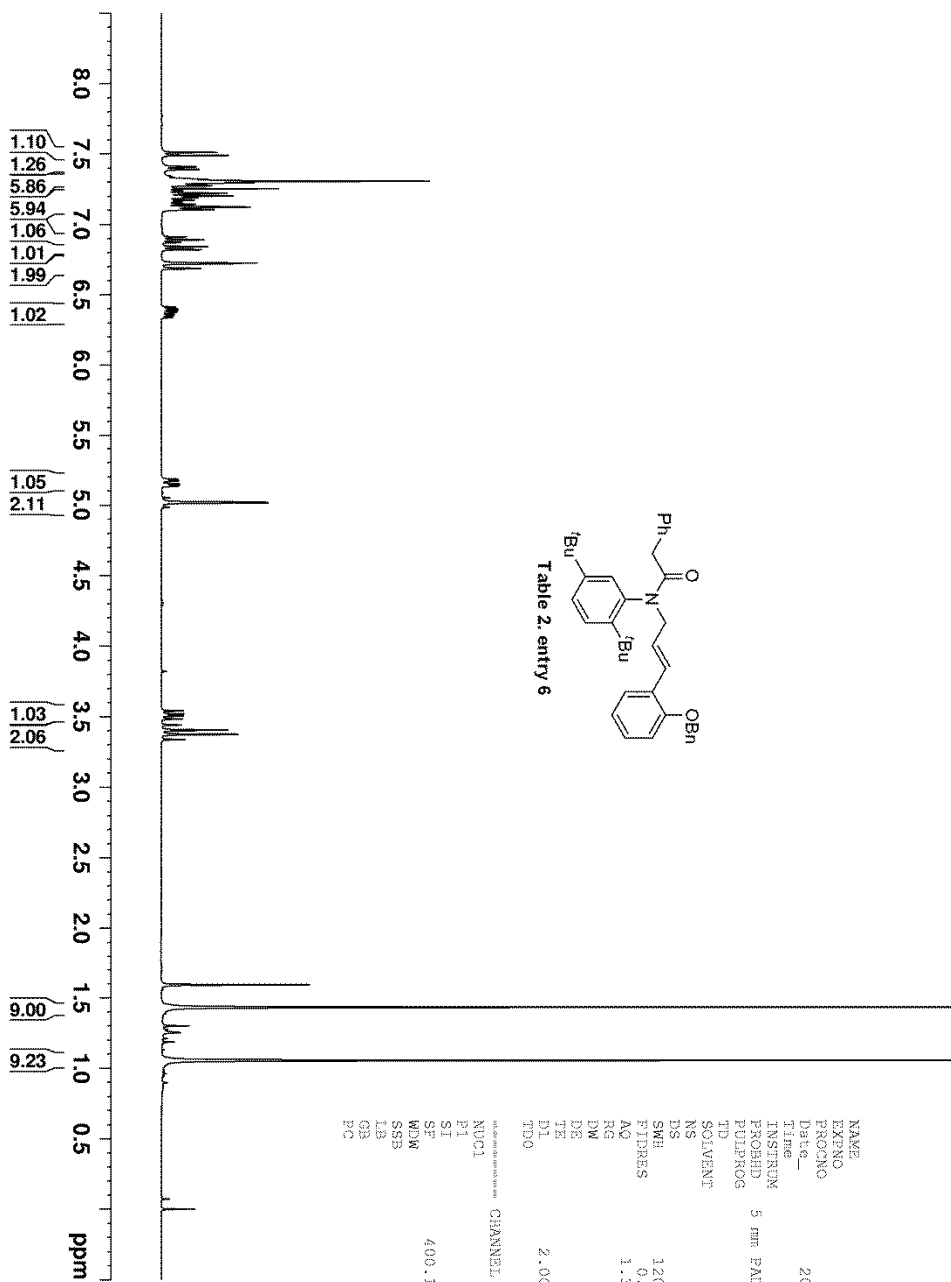
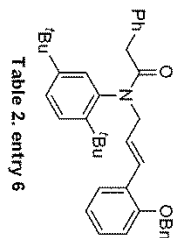




NAME 1H
EXPNO 367
PROCNO 1
Date_ 20130601
Time 7.57
INSTRUM 5 mm PABUL 13C
PROBHD spect
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 203
DW 41.600 usec
DE 6.50 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

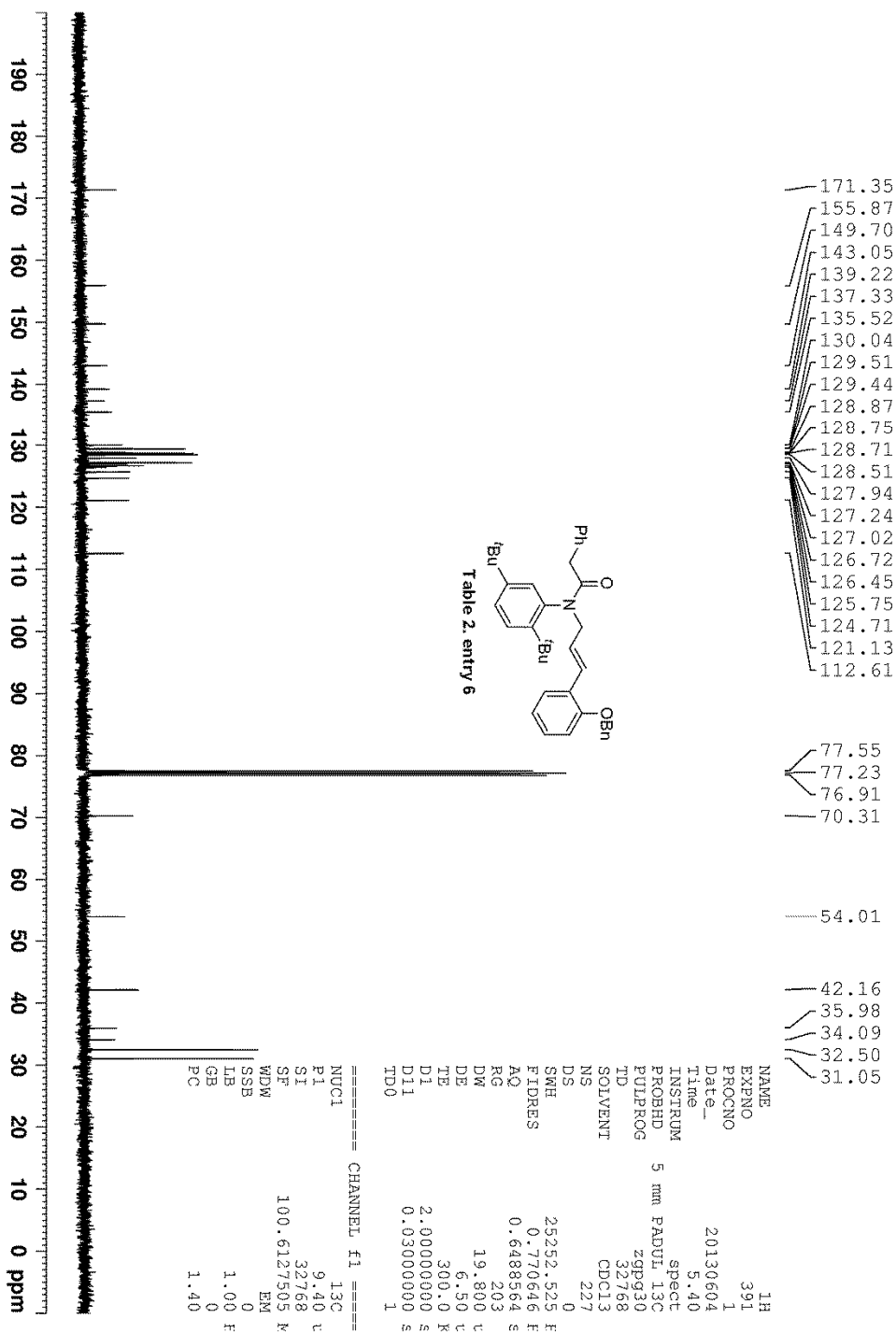
CHANNEL f1 1H
NUC1 12.60 usec
P1 65536
SI 400.1300191 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00





NAME 1H
EXPNO 388
PROCNO 1
Date_ 20130604
Time 5.15
INSTRUM spect
PROBHD 5 mm PABUL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 161
DW 41.600 usec
DE 6.50 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 1H
P1 12.60 usec
SI 65536
SF 400.1300200 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



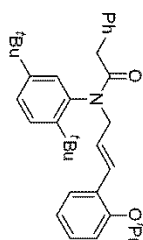
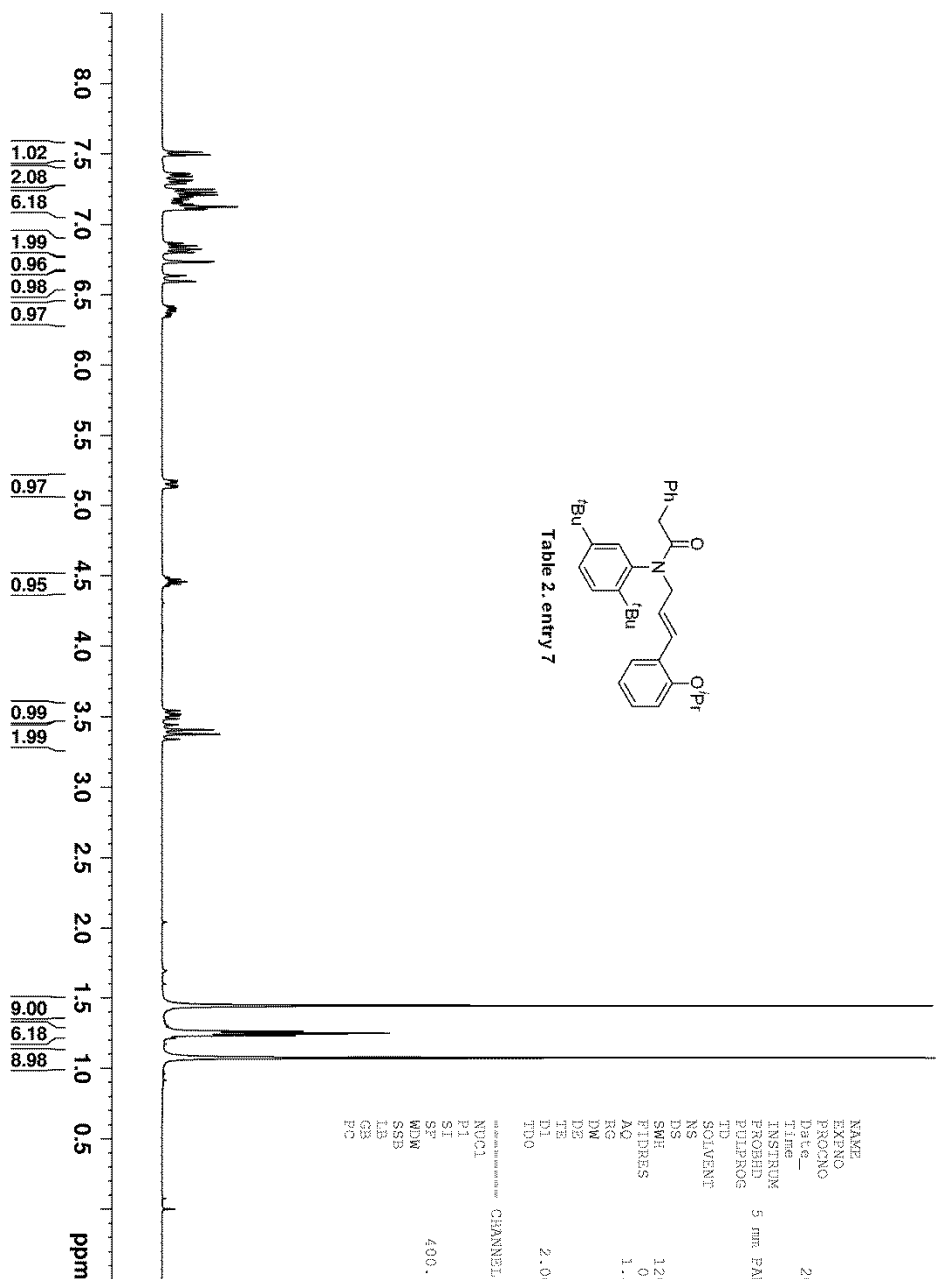
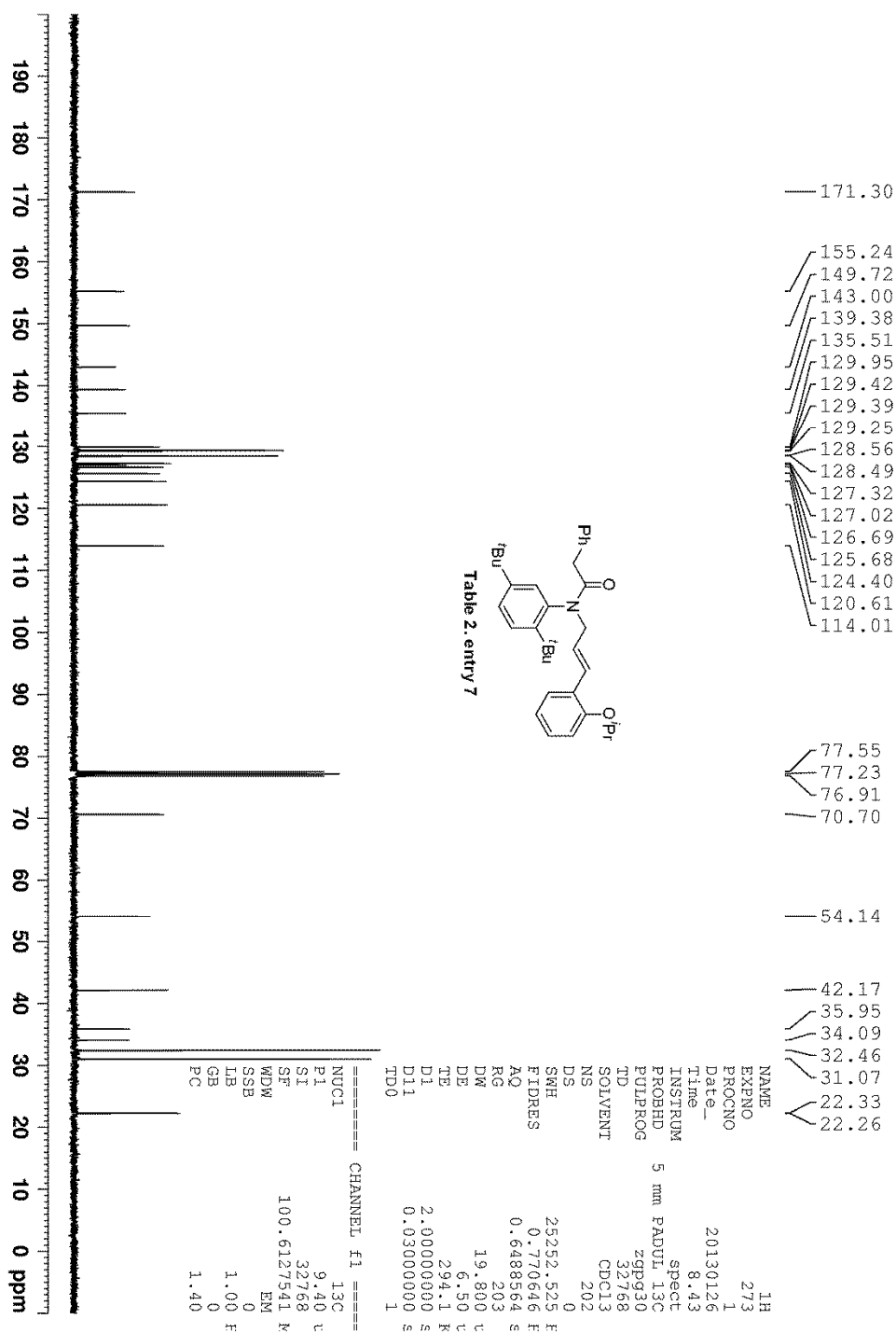


Table 2. entry 7



NAME 1H
EXPNO 272
PROCNO 1
Date_ 20130126
Time 8.37
INSTRUM spect
PROBHD 5 mm PABOL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 71.8
DW 41.600 usec
DE 6.50 usec
TE 293.4 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 1H
P1 12.60 usec
SI 65536
SF 400.1300213 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



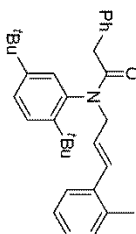
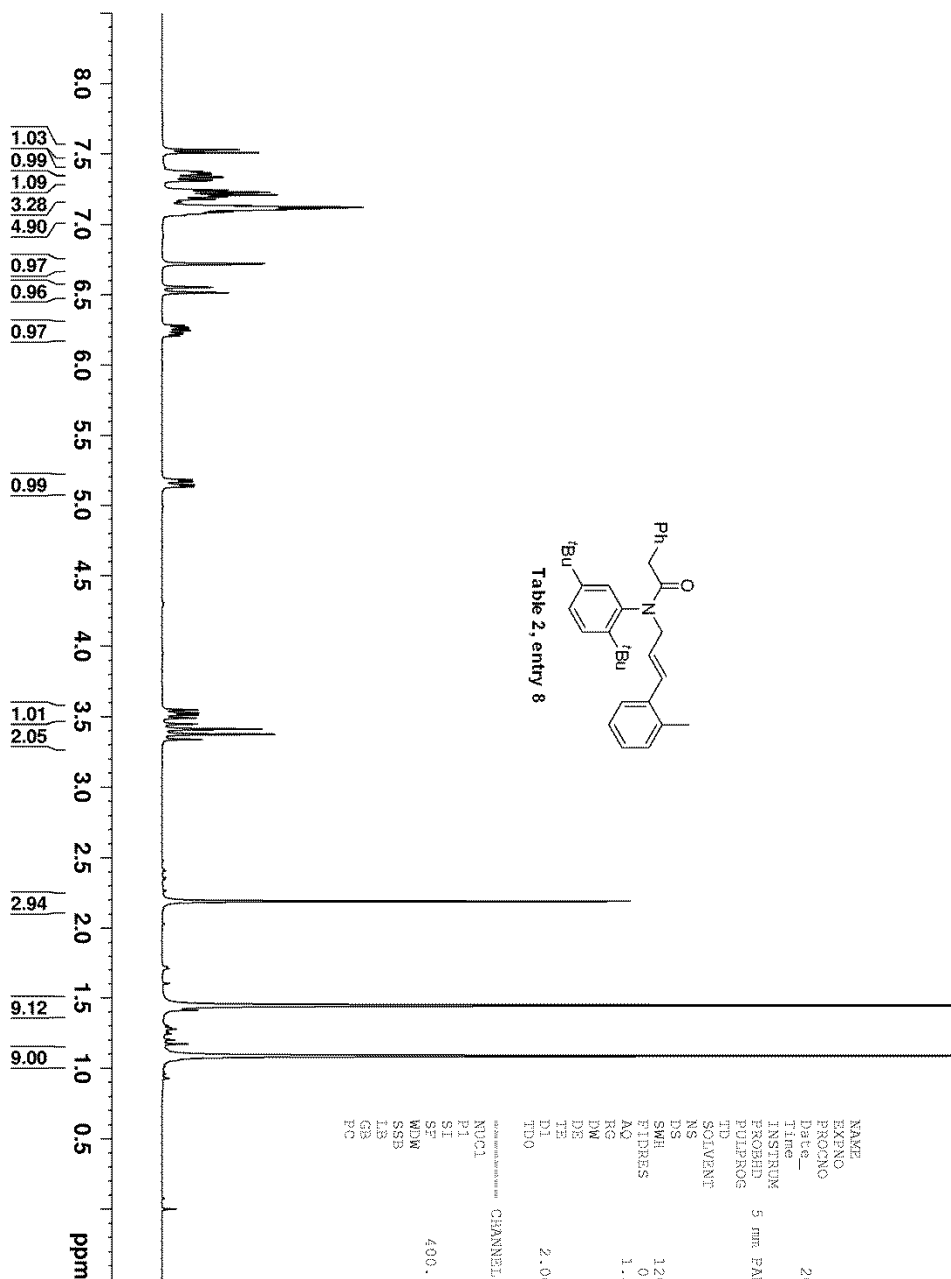
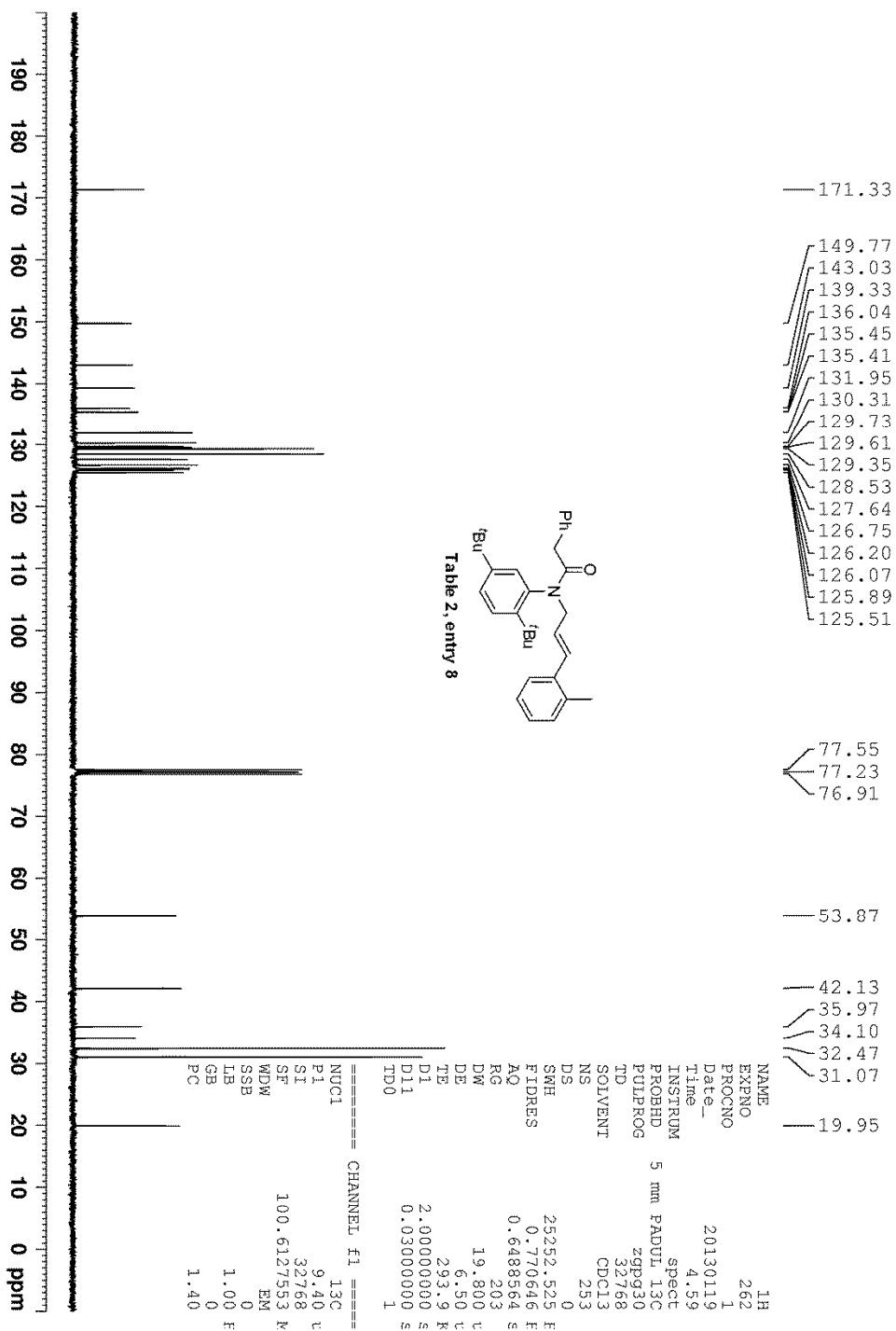


Table 2, entry 8



NAME	1h
EXPNO	261
PROCNO	1
Date_	20130119
Time	4.51
INSTRUM	5 mm PABUL 13C
PROBHD	spect
PULPROG	zg30
TD	32768
SOVENT	CDCl3
NS	16
DS	0
SWH	12019.230 Hz
FIDRES	0.366798 Hz
AQ	1.3631988 sec
RG	57
DW	41.600 usec
DE	6.50 usec
TE	293.0 K
D1	2.00000000 sec
TD0	1

CHANNEL f1	1h
NUC1	13
P1	12.60 usec
SI	65536
SP	400.130242 MHz
WDW	EM
SSB	0
LB	0.50 Hz
GB	0
PC	1.00



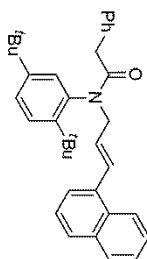
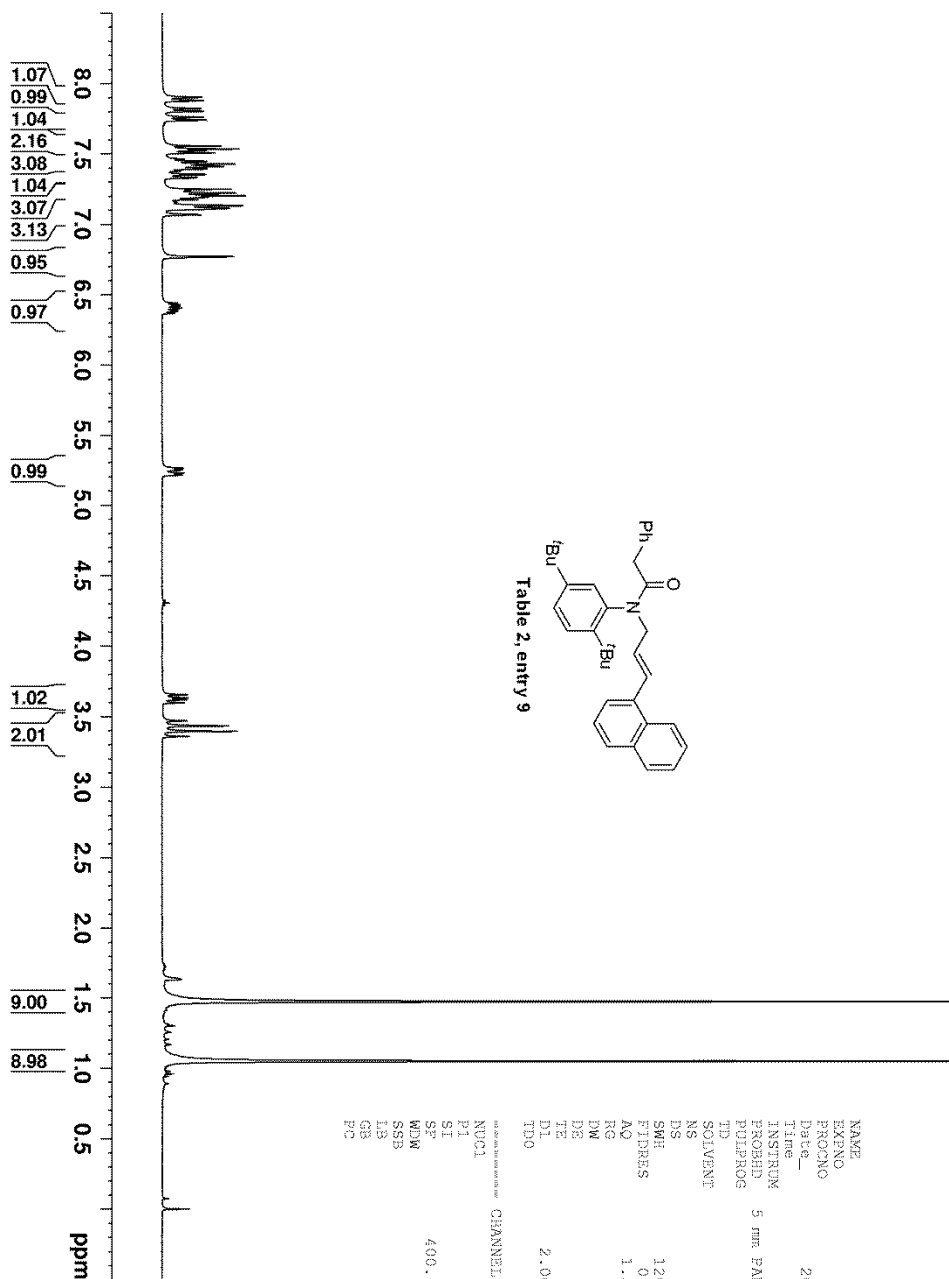


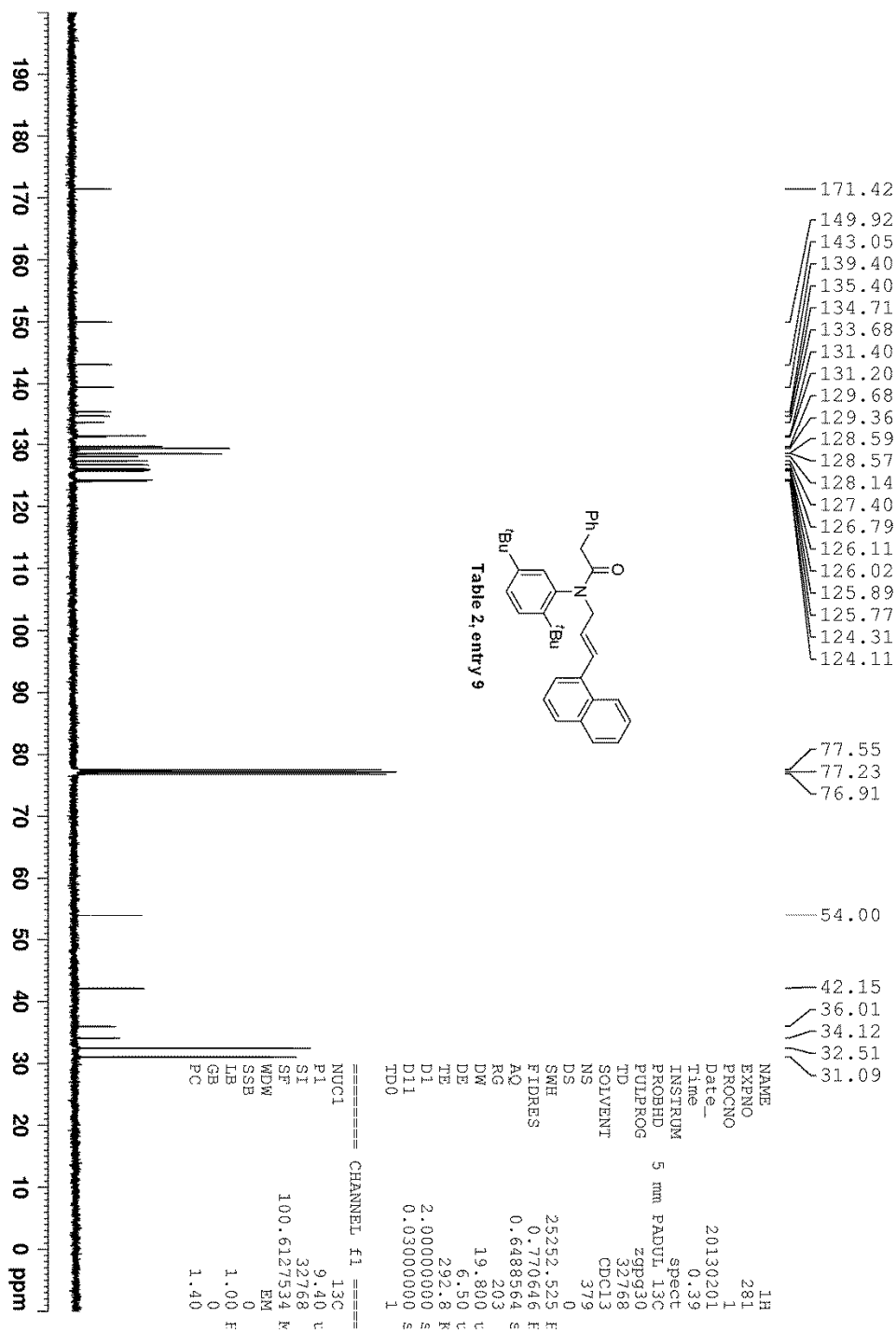
Table 2, entry 9

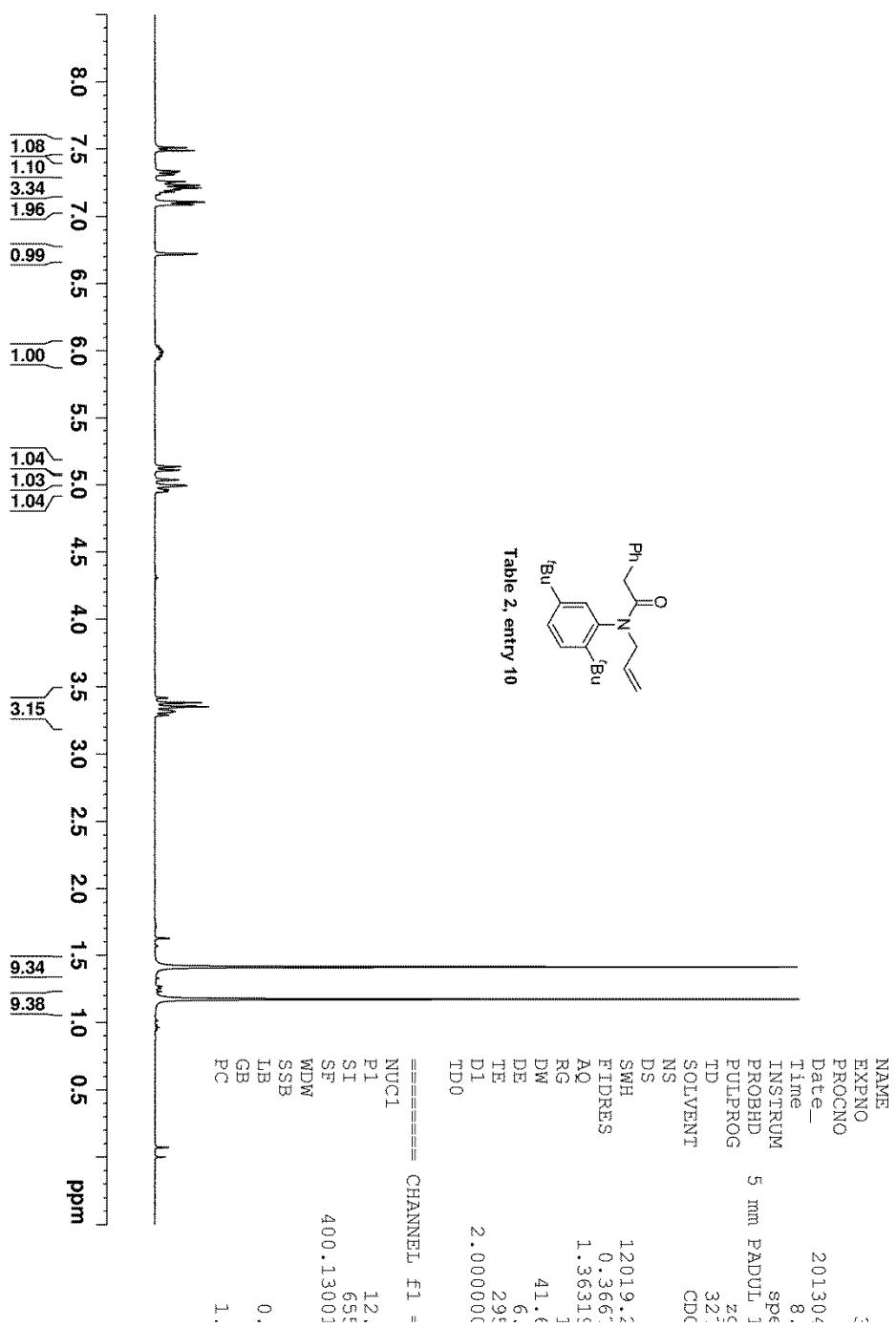


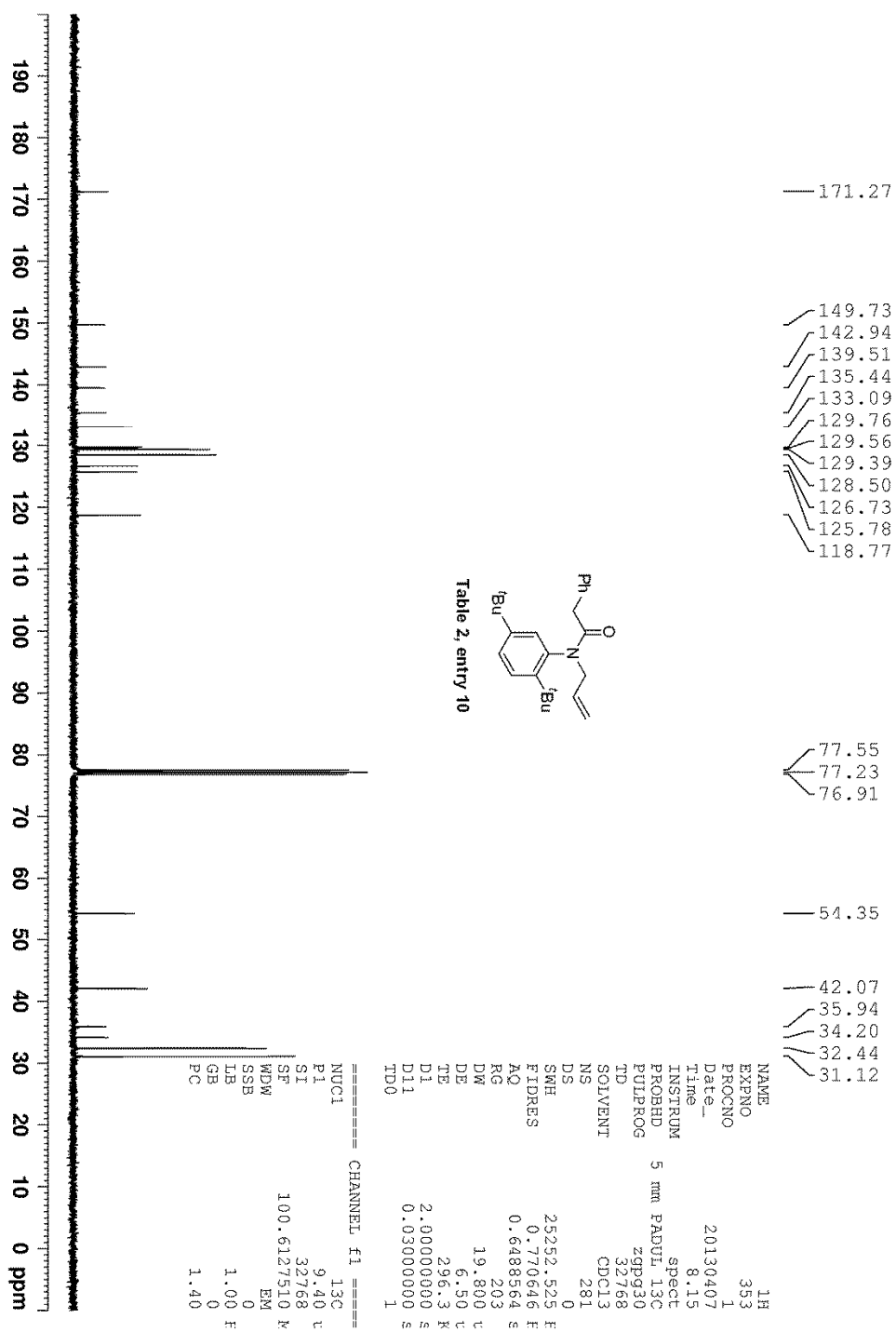
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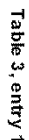
NAME                               1H
EXPNO                               280
PROCNO                              1
Date_                               20130201
Time                                0.30
INSTRUM                             spect
PROBHD                               5 mm PABUL 13C
PULPROG                              2530
TD                                   32768
SOLVENT                             CDCl3
NS                                   11
DS                                   1
SWH                                  12019.230 Hz
FIDRES                              0.366798 Hz
AQ                                  1.3631988 sec
RG                                   80.6
DW                                  41.600 usec
DE                                  6.50 usec
TE                                  292.2 K
D1                                  2.00000000 sec
TD0                                  1

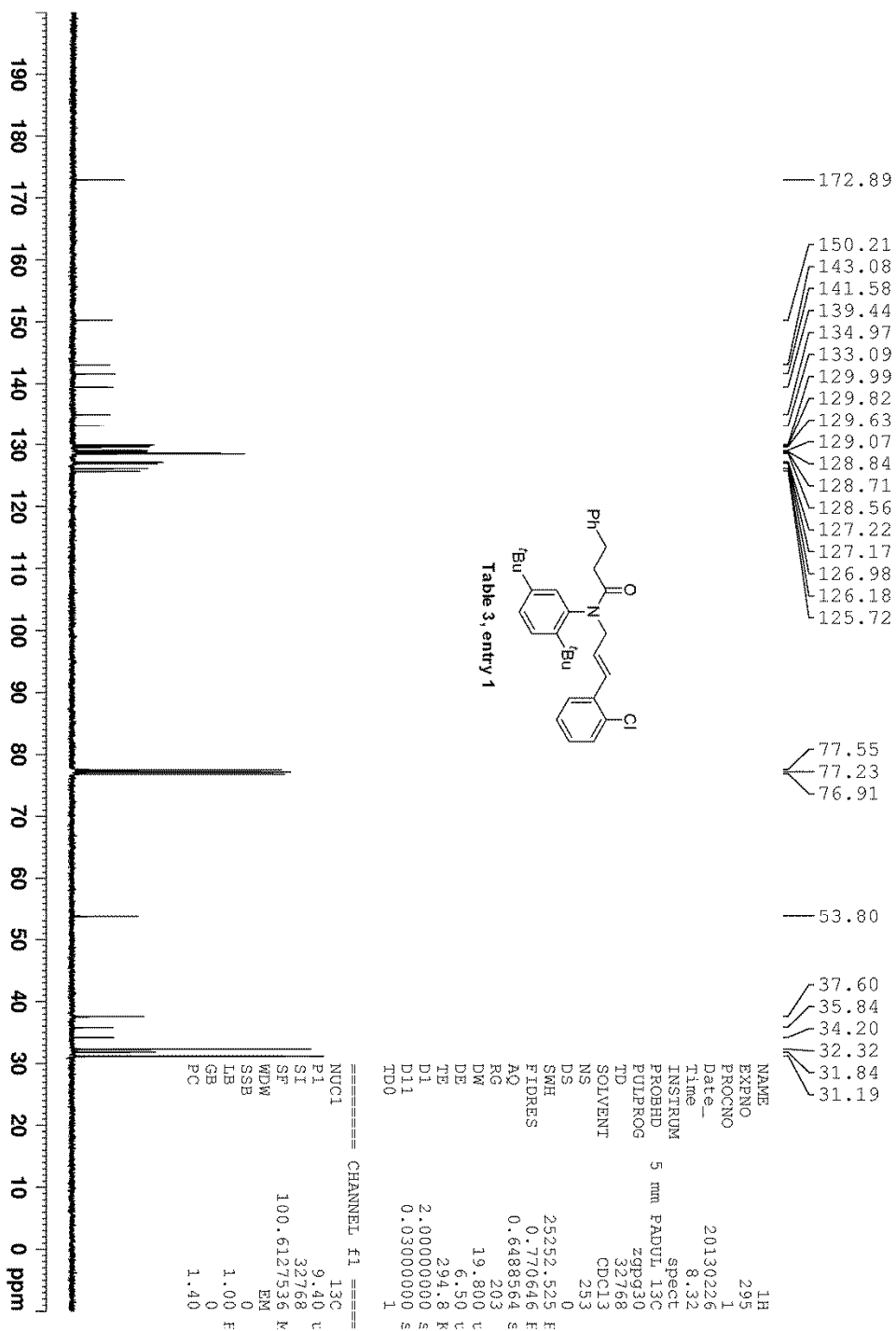
===== CHANNEL f1 =====
NUC1                                1H
P1                                  12.60 usec
SI                                  65536
SP                                  400.1300210 MHz
WDW                                  EM
SSB                                  0
LB                                  0.50 Hz
GB                                  0
PC                                  1.00
  
```











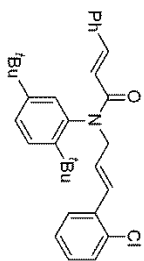
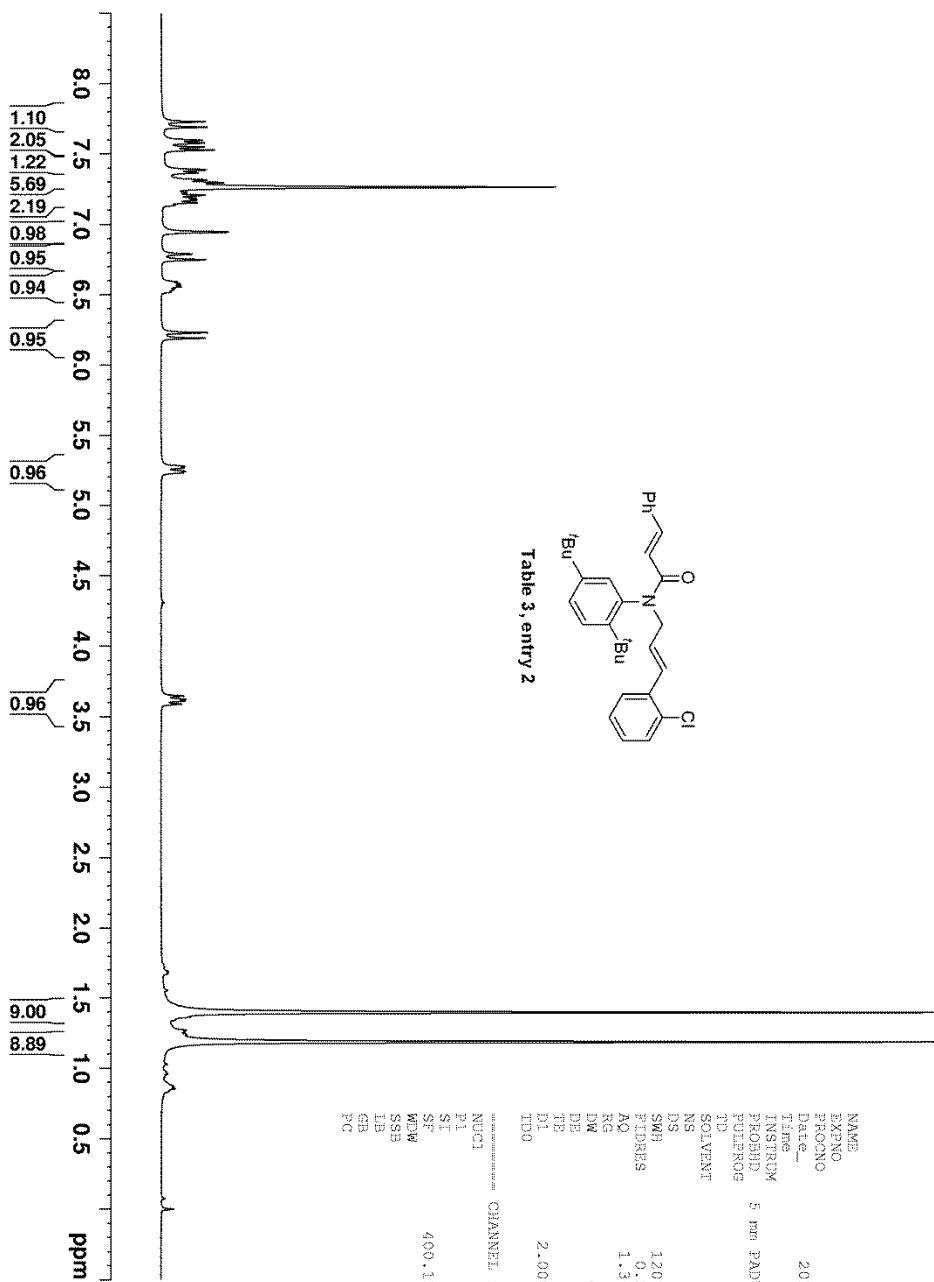
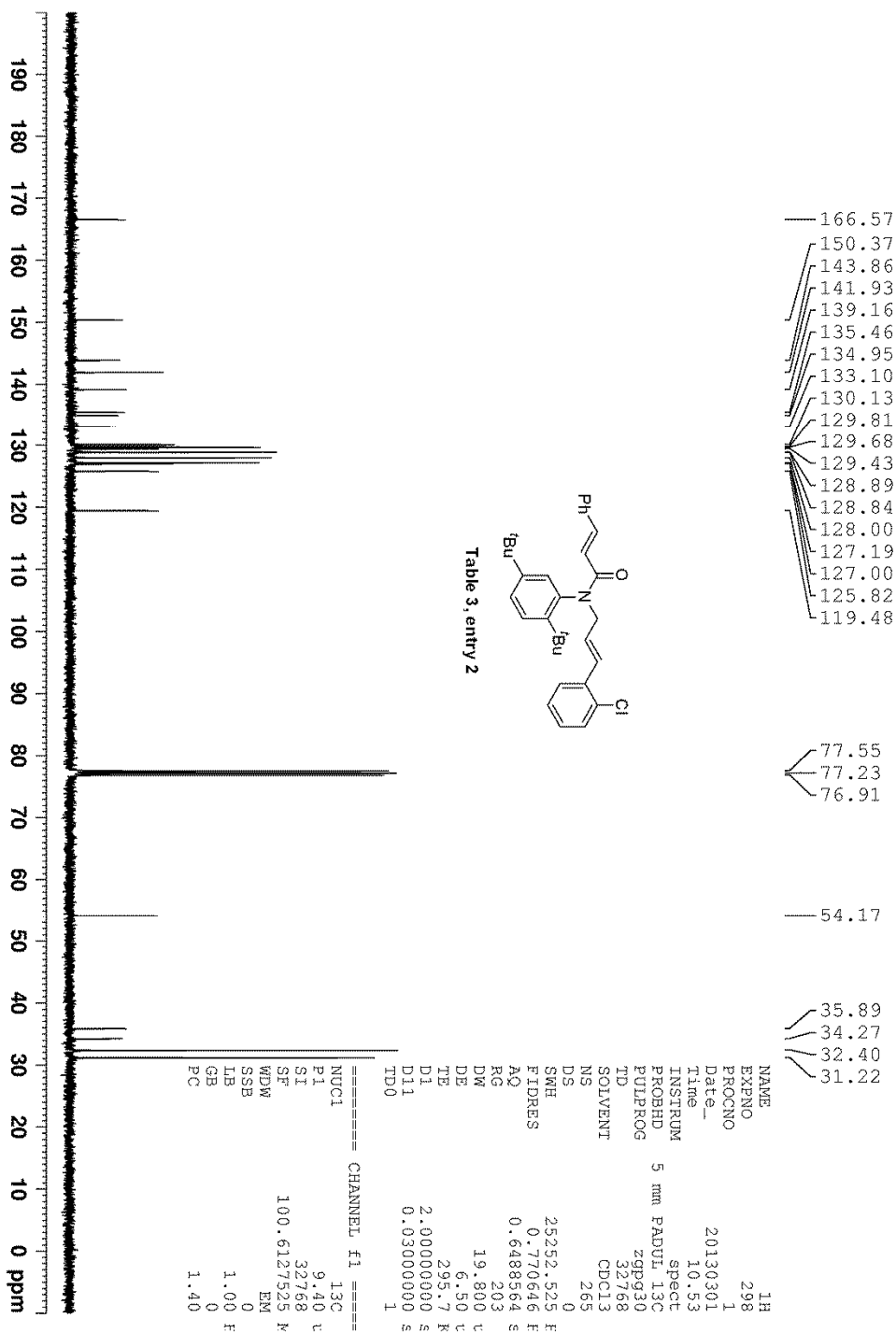


Table 3, entry 2



NAME 1H
EXPNO 297
PROCNO 1
Date_ 20130301
Time 10.46
INSTRUM spect
PROBHD 5 mm PABUL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 90.5
RW 41.600 usec
DE 6.50 usec
TE 294.9 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 12.60 usec
P1 65.536
ST 400.1300132 MHz
WPM 0
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



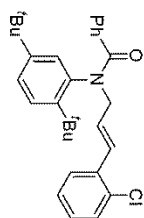
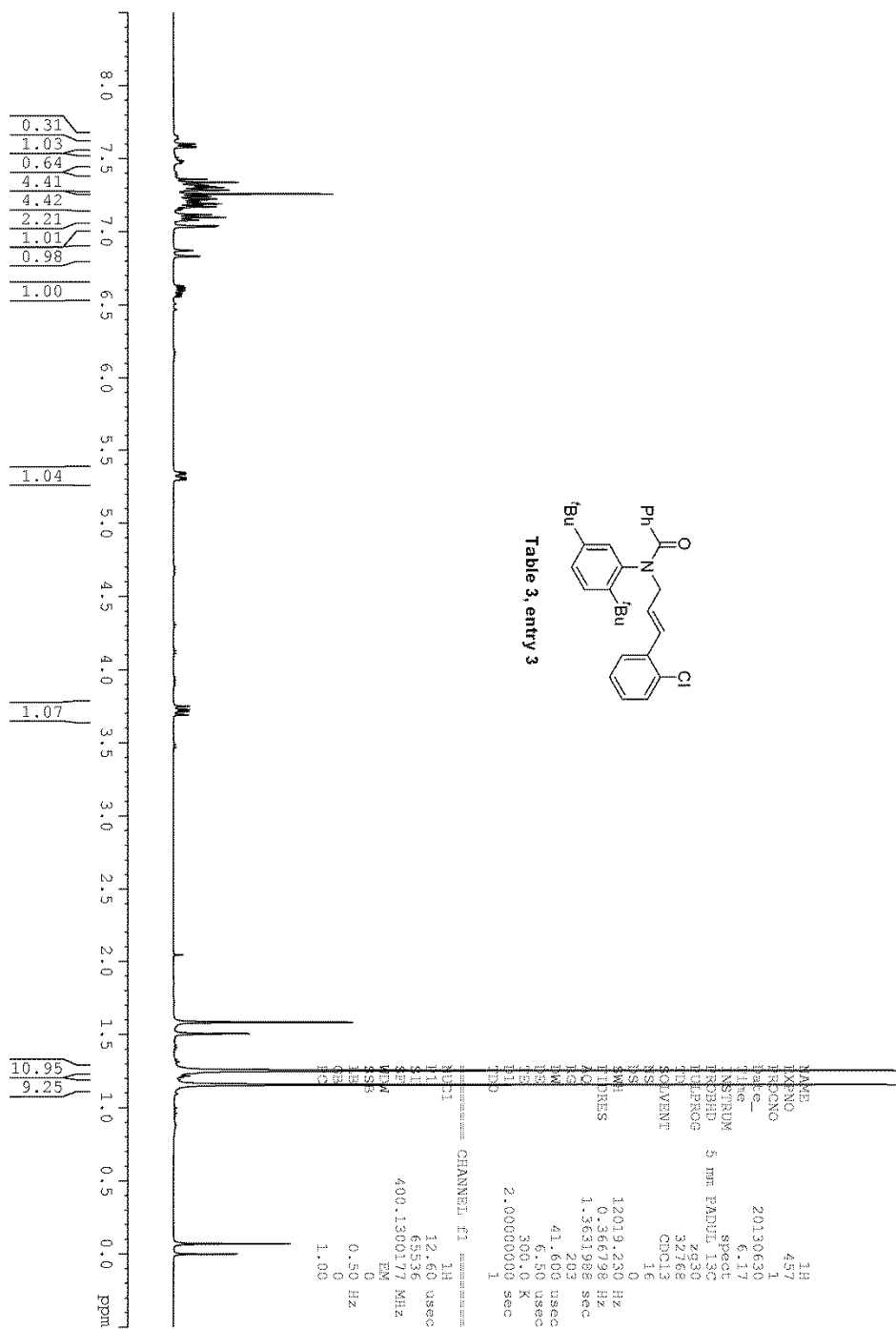
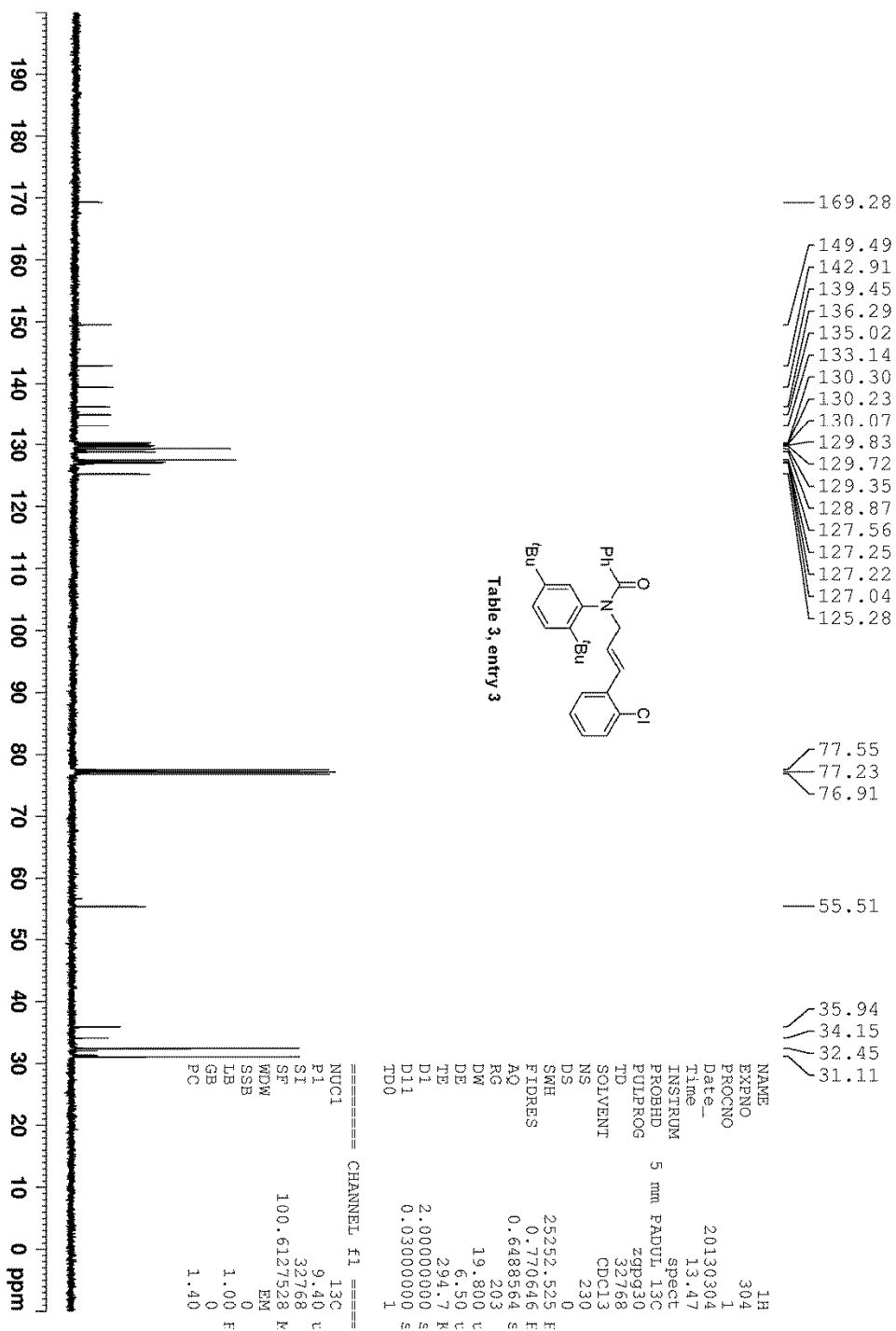


Table 3, entry 3





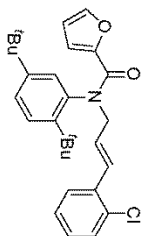
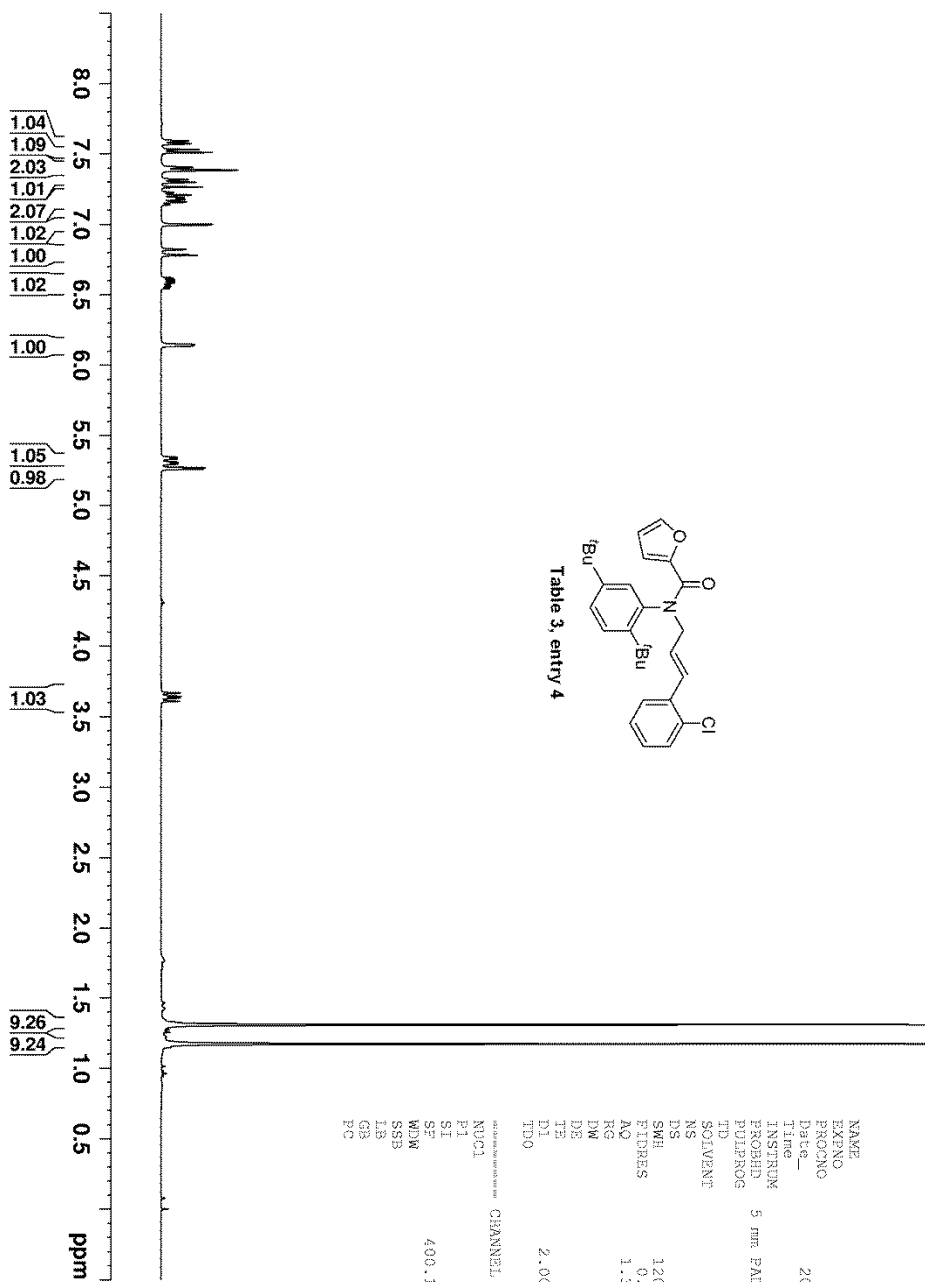
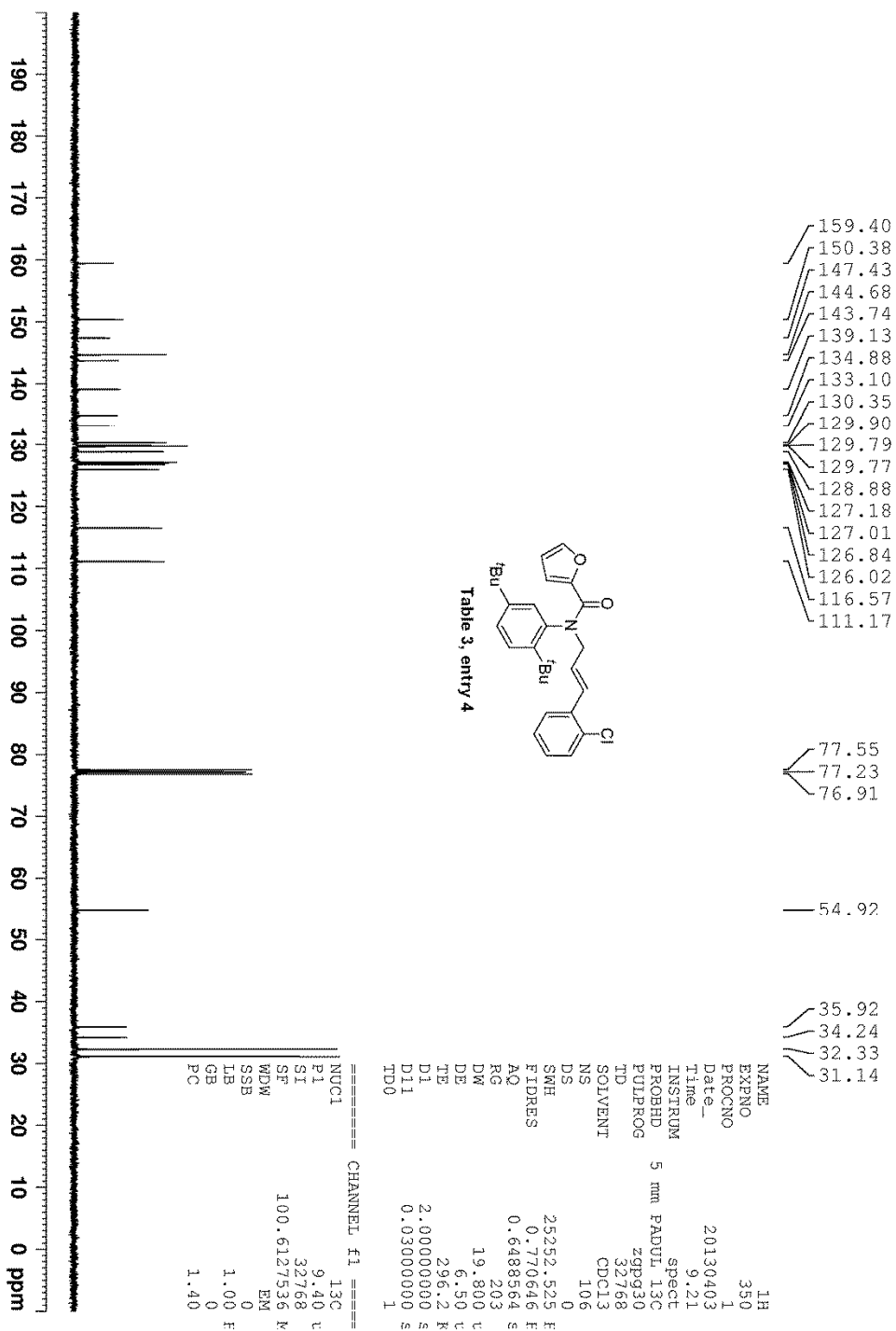


Table 3, entry 4



NAME 1h
EXPNO 349
PROCNO 1
Date_ 20130403
Time 9.17
INSTRUM spect
PROBHD 5 mm PABOL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 71.8
DW 41.600 usec
DE 6.50 usec
TE 295.4 K
D1 2.00000000 sec
TD0 1

CHANNEL f1
NUC1 1H
P1 12.60 usec
SI 65536
SF 400.130148 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



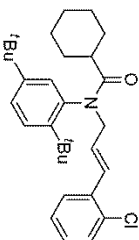
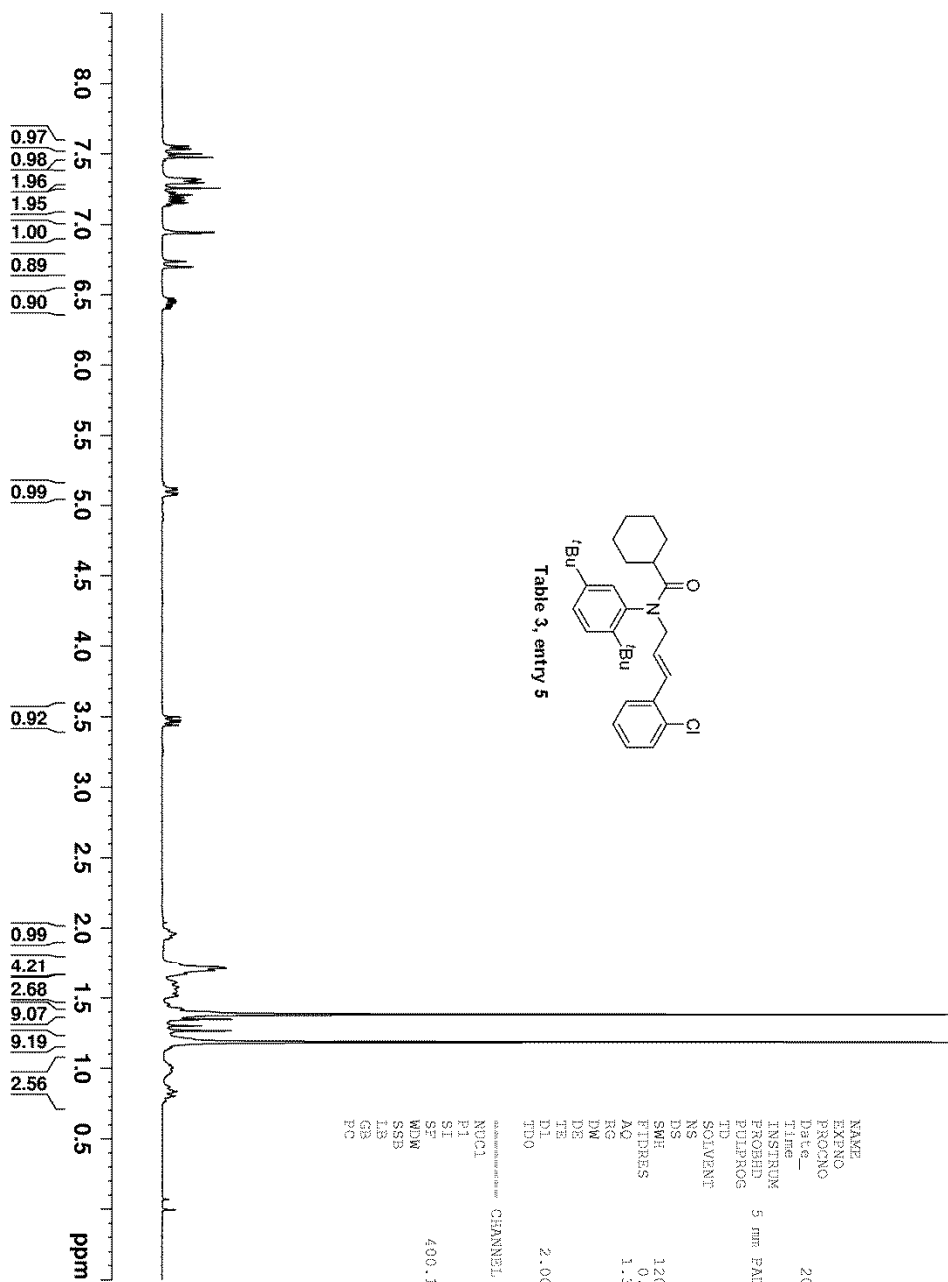
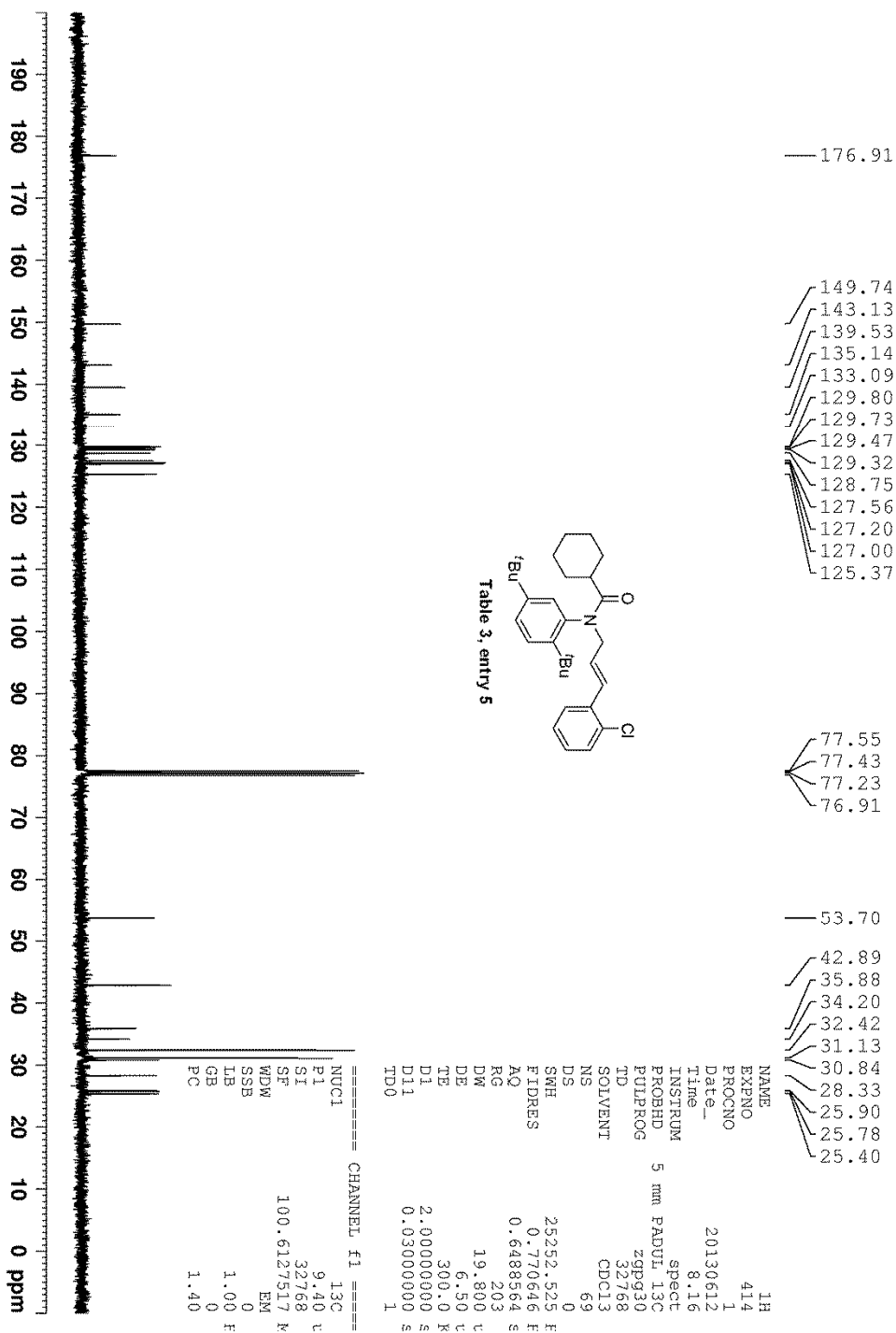


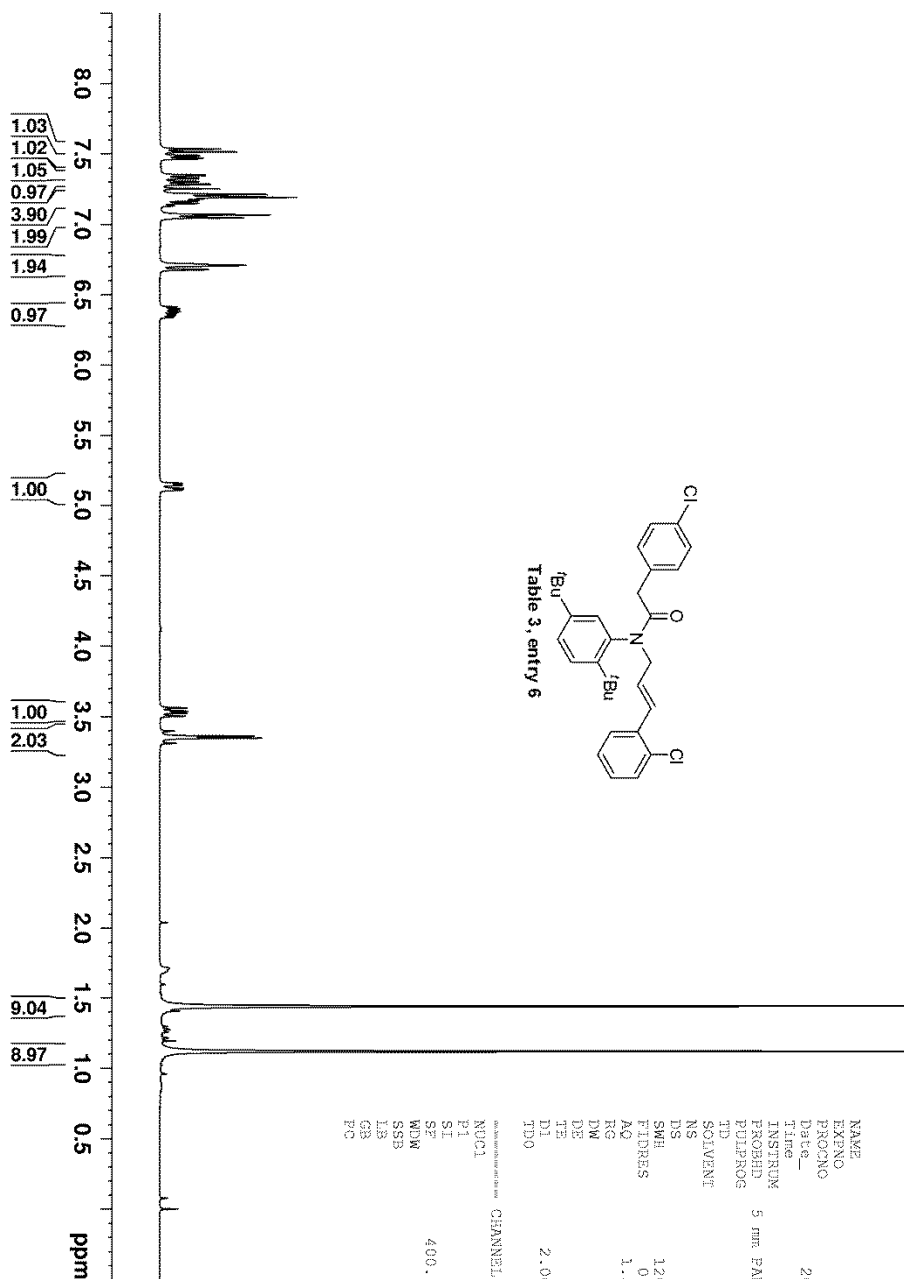
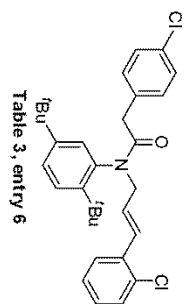
Table 3, entry 5



NAME 1h
EXPNO 413
PROCNO 1
Date_ 20130612
Time 8.15
INSTRUM spect
PROBHD 5 mm PABOL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 9
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 90.5
DW 41.600 usec
DE 6.50 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

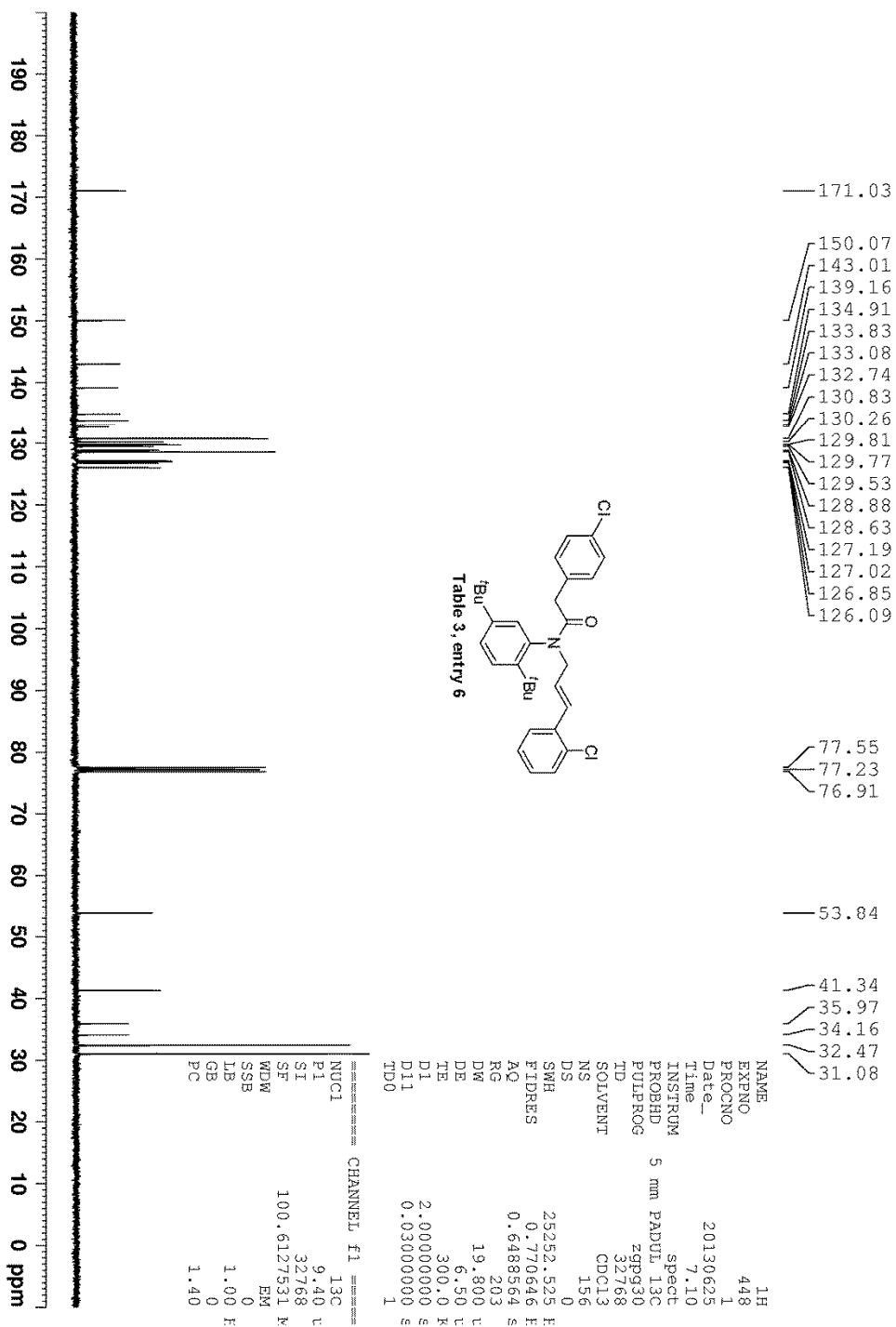
CHANNEL f1
NUC1 1H
P1 12.60 usec
SI 65536
SF 400.130184 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00





NAME 1H
EXPNO 447
PROCNO 1
Date_ 20130625
Time 7.05
INSTRUM 5 mm PABUL 13C
PROBHD spect
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 4
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 71.8
DW 41.600 usec
DE 6.50 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 12.60 usec
P1 65536
SI 400.1300197 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



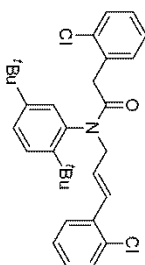
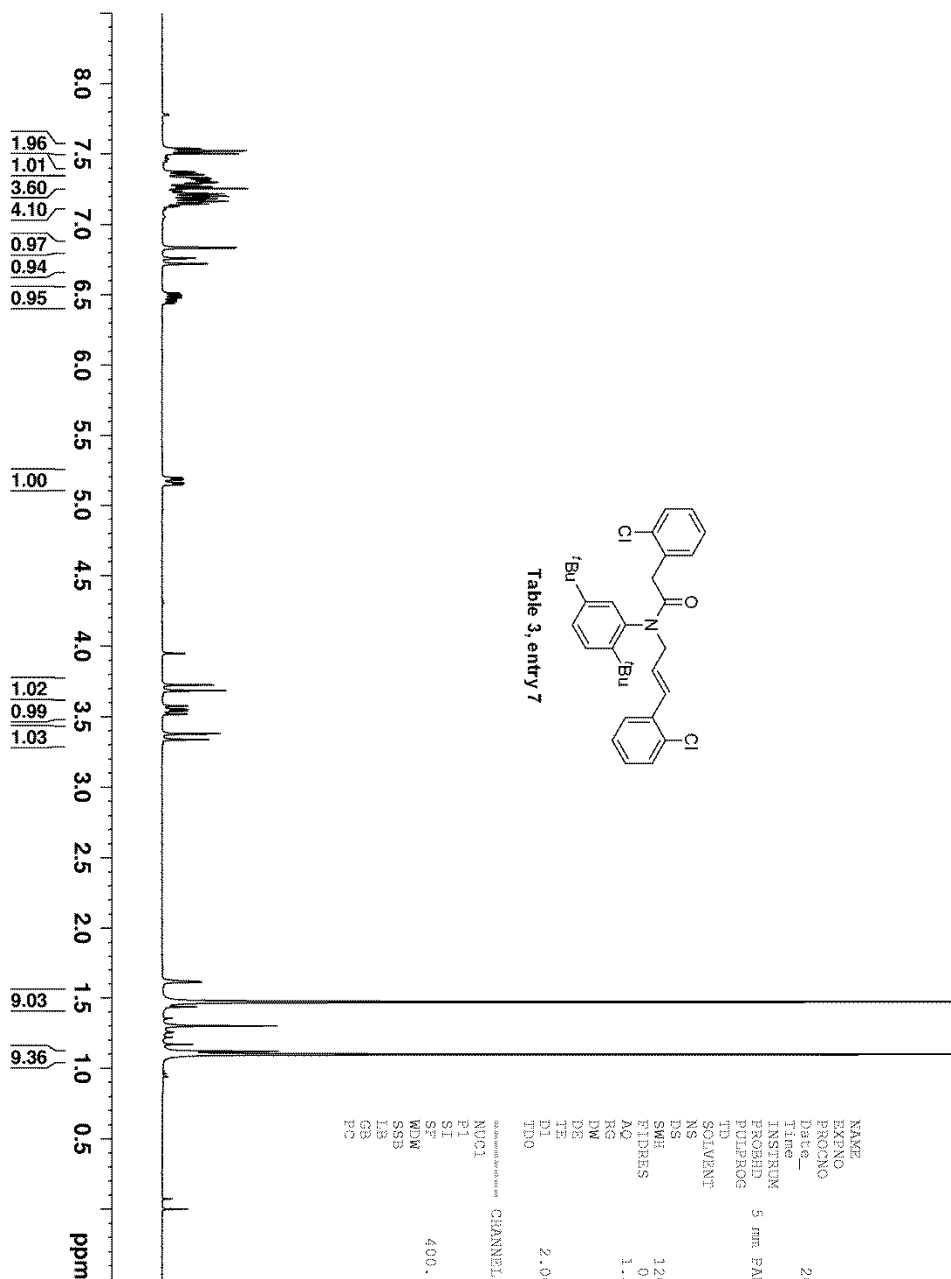
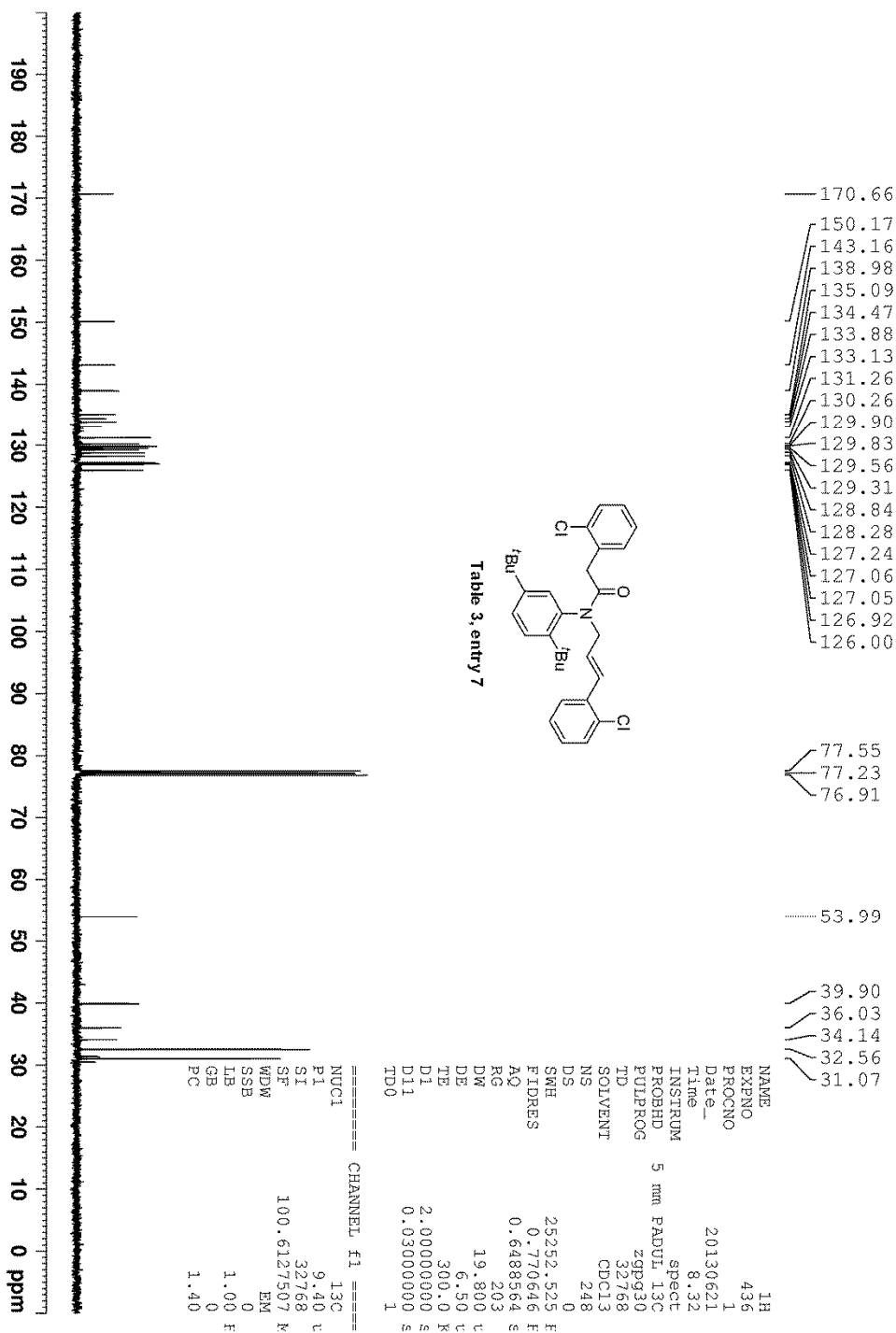


Table 3, entry 7



NAME 1h
EXPNO 435
PROCNO 1
Date_ 20130621
Time 8.24
INSTRUM spect
PROBHD 5 mm PABUL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 10
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.3631988 sec
RG 144
DW 41.600 usec
DE 6.50 usec
TE 300.0 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1h
NUC1 13C
P1 12.60 usec
SI 65536
SF 400.130194 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00



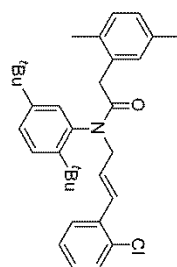
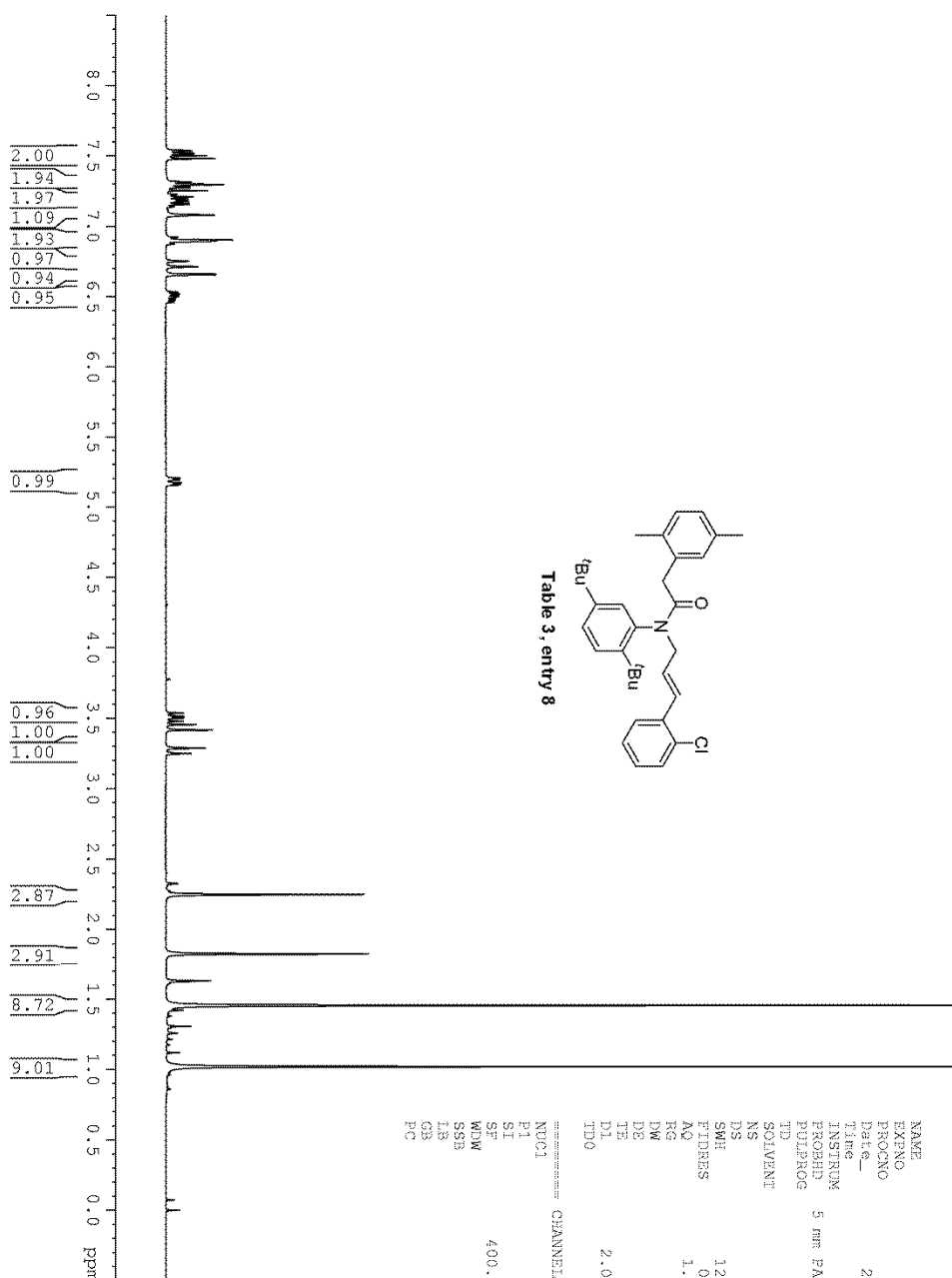
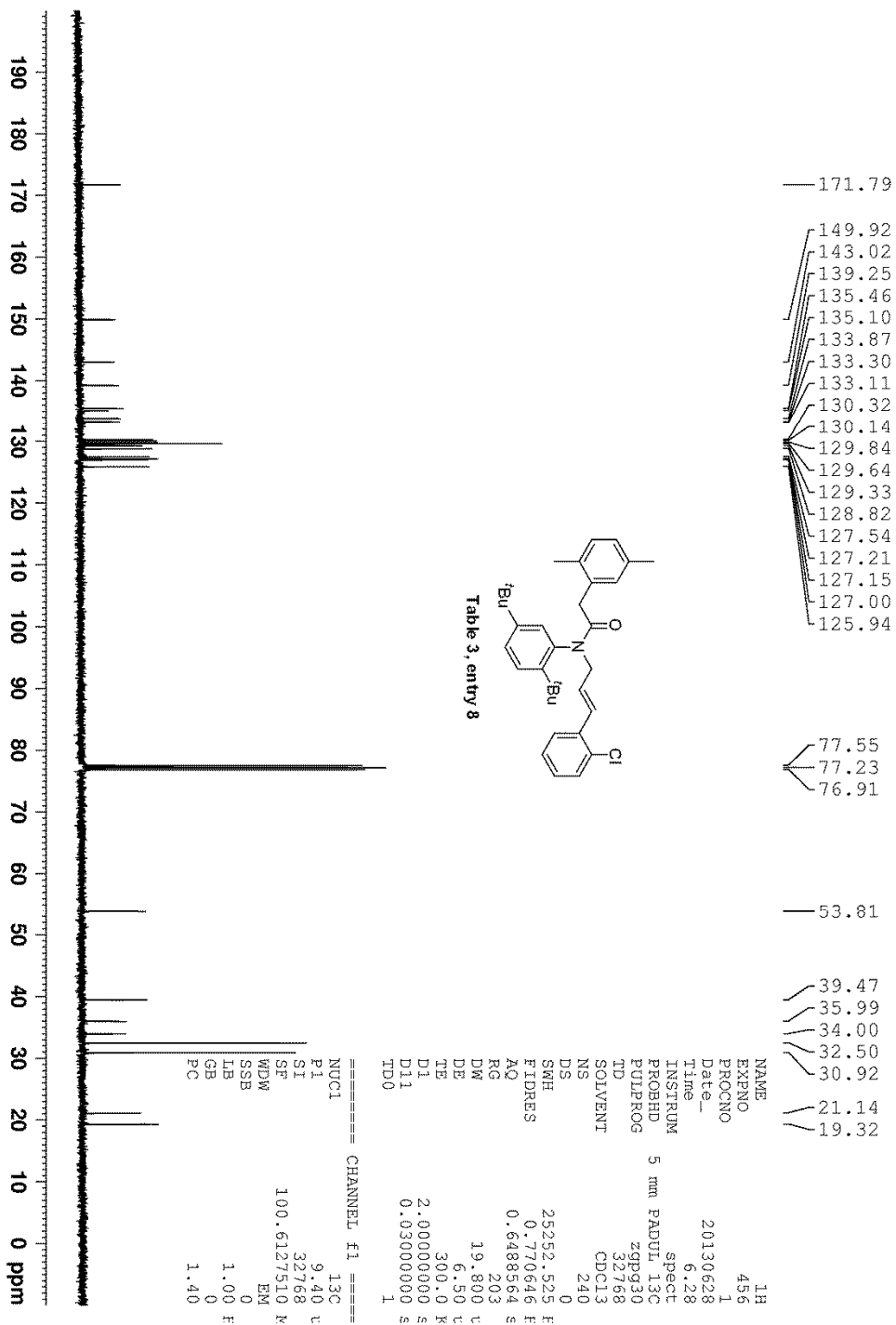


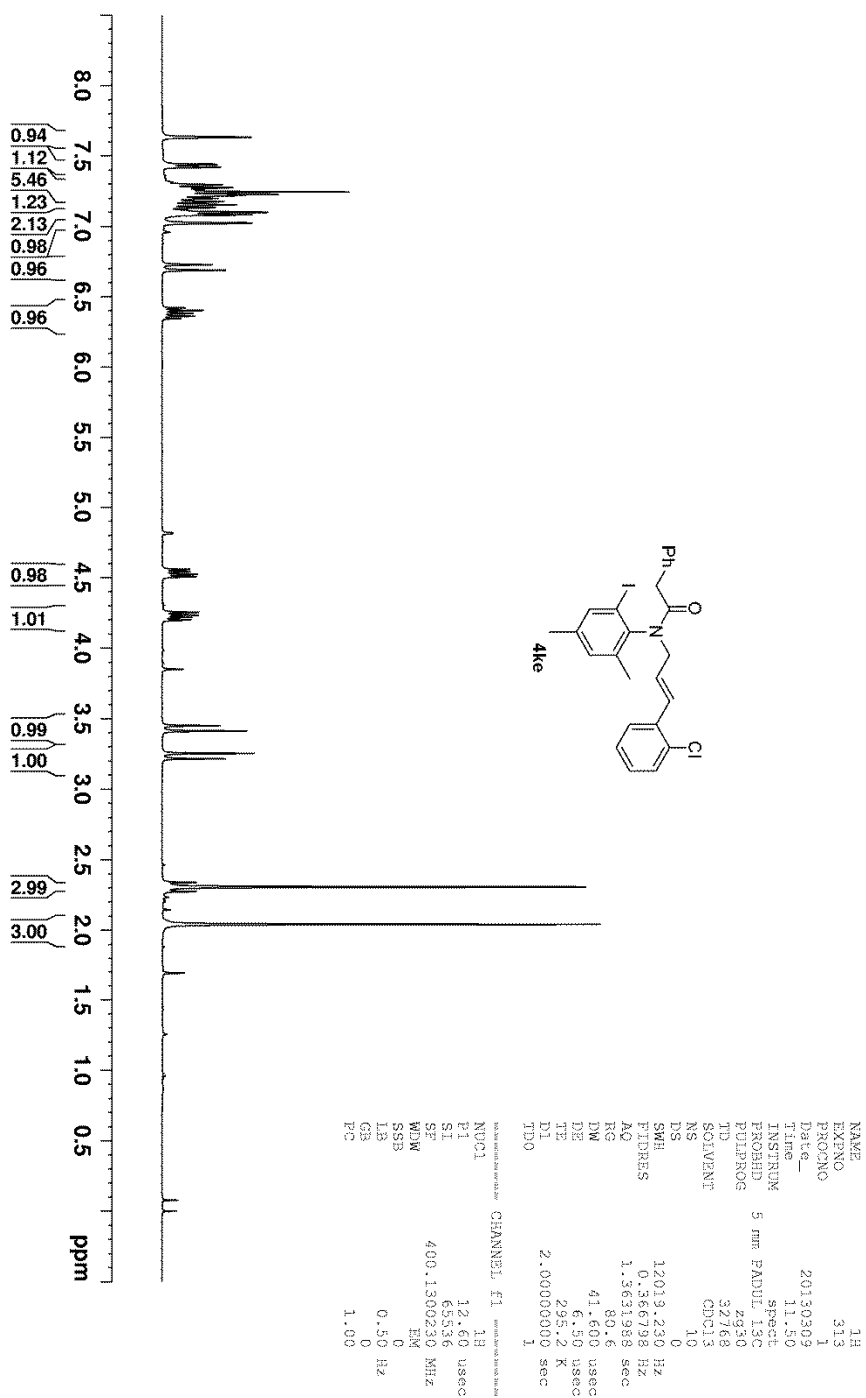
Table 3, entry 8

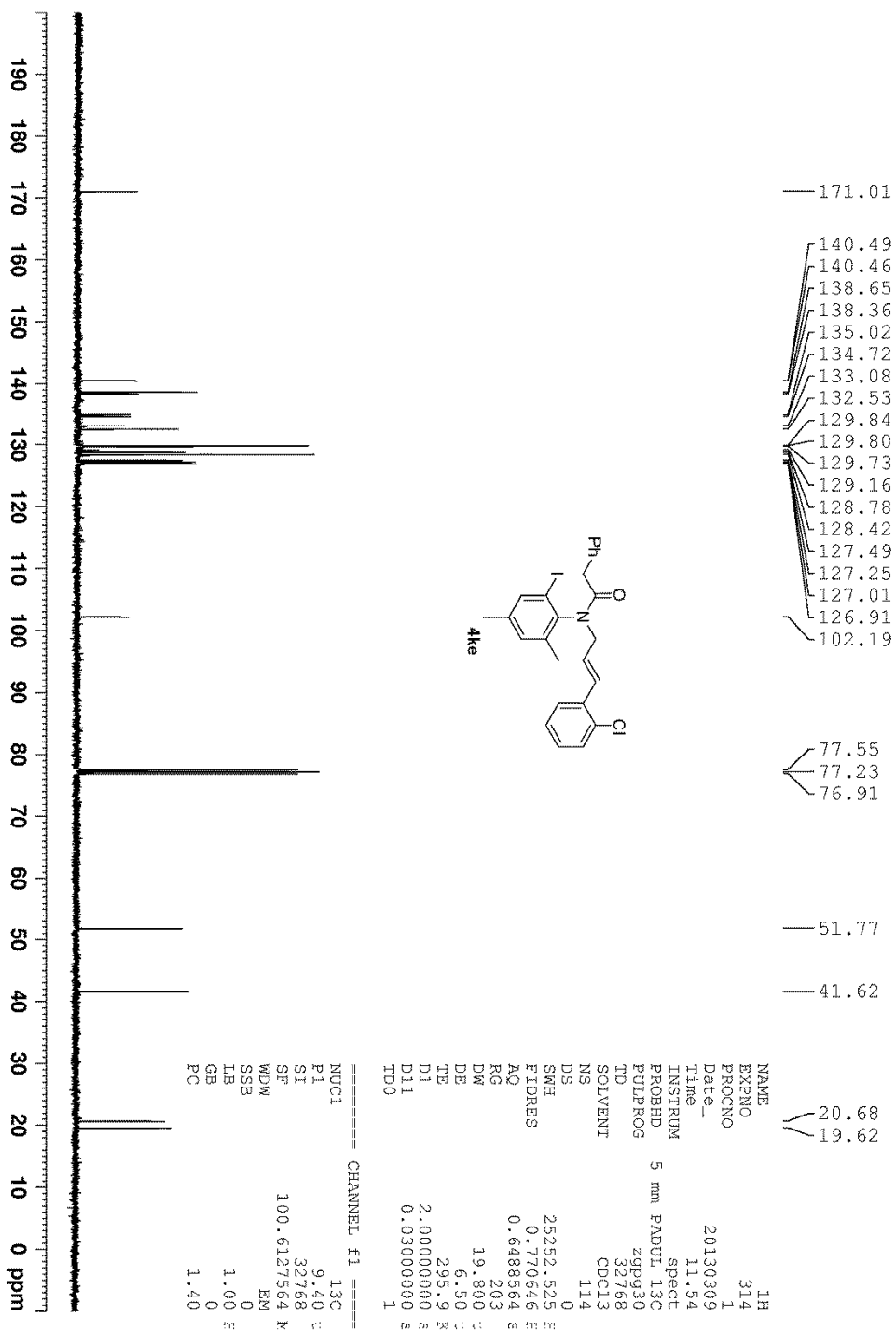


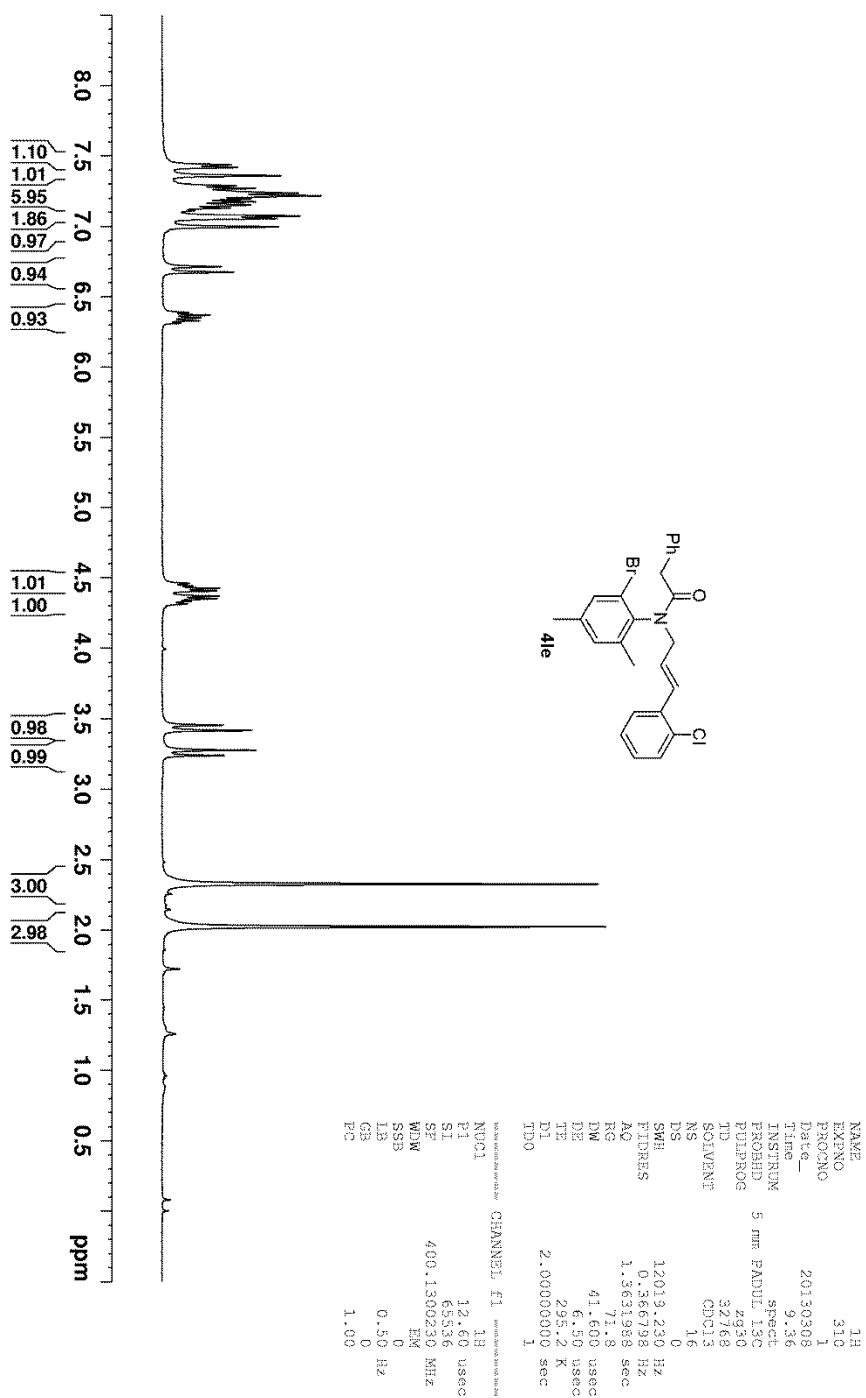
NAME	1H
EXPNO	455
PROCNO	1
Date_	20130628
Time	6.22
INSTRUM	spect
PROBHD	5 mm PABUL13C
PULPROG	zgpg30
TD	32768
SOLVENT	CDCl3
NS	6
DS	0
SWH	12039.230 Hz
FIDRES	0.366798 Hz
AQ	1.561928 sec
RG	128
DW	41.600 usec
DE	6.50 usec
TE	300.0 K
DI	2.00000000 sec
ID0	1

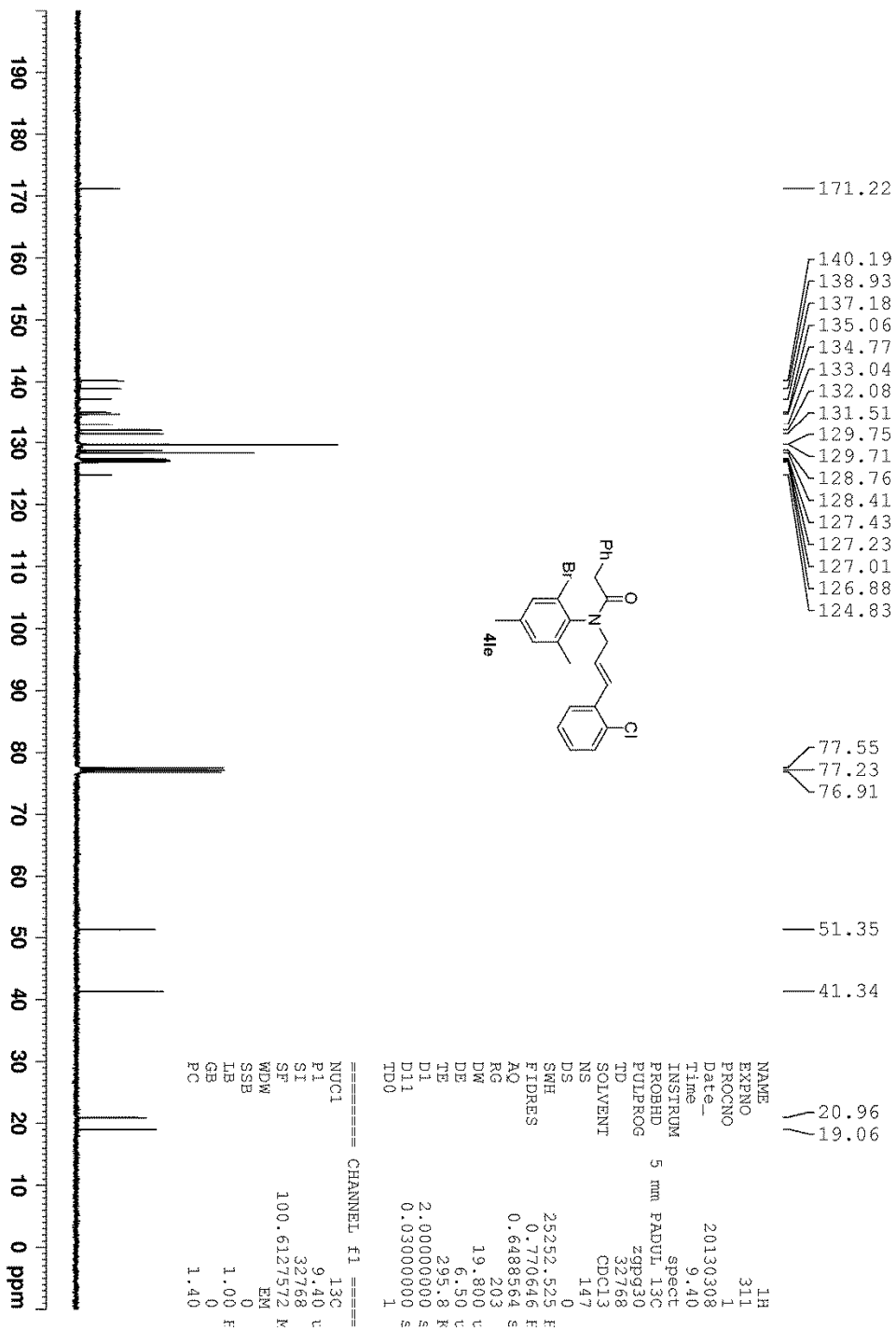
===== CHANNEL f1 =====	
NUC1	1H
P1	12.60 usec
SI	65536
SF	400.1300198 MHz
WDW	EM
SSB	0
LB	0.50 Hz
GB	0
PC	1.00

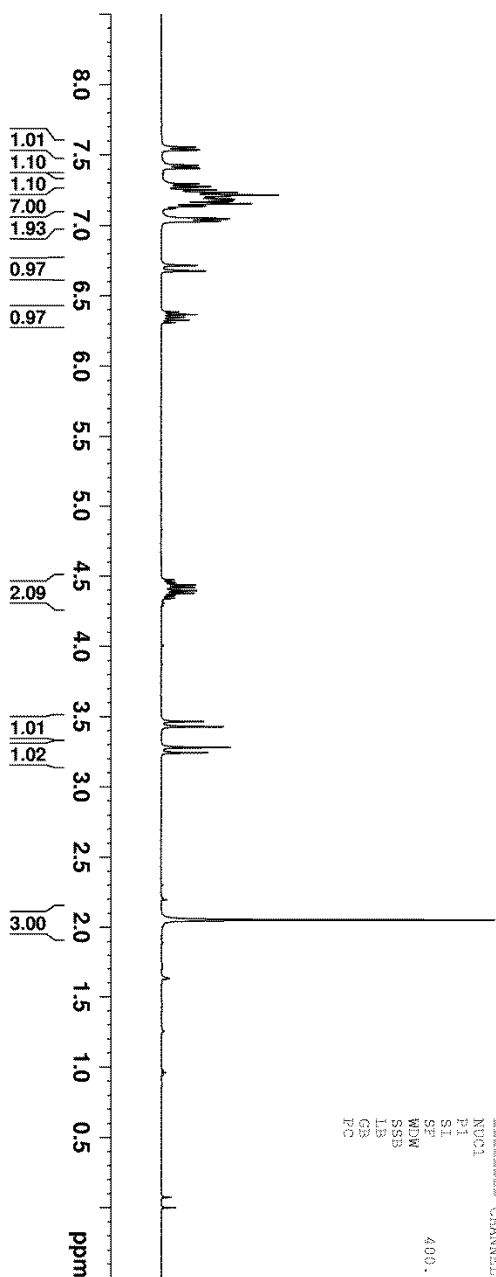
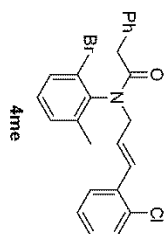






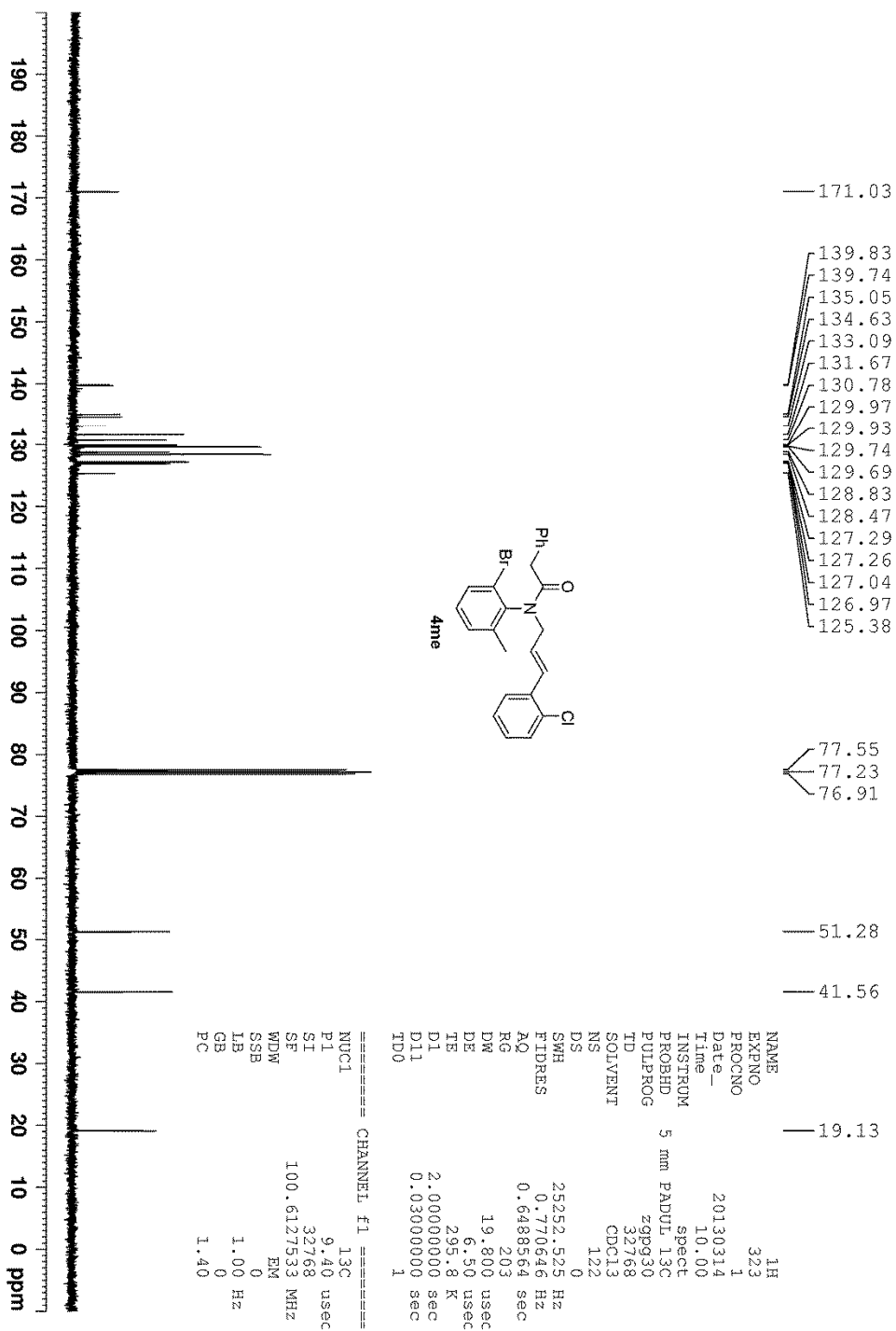


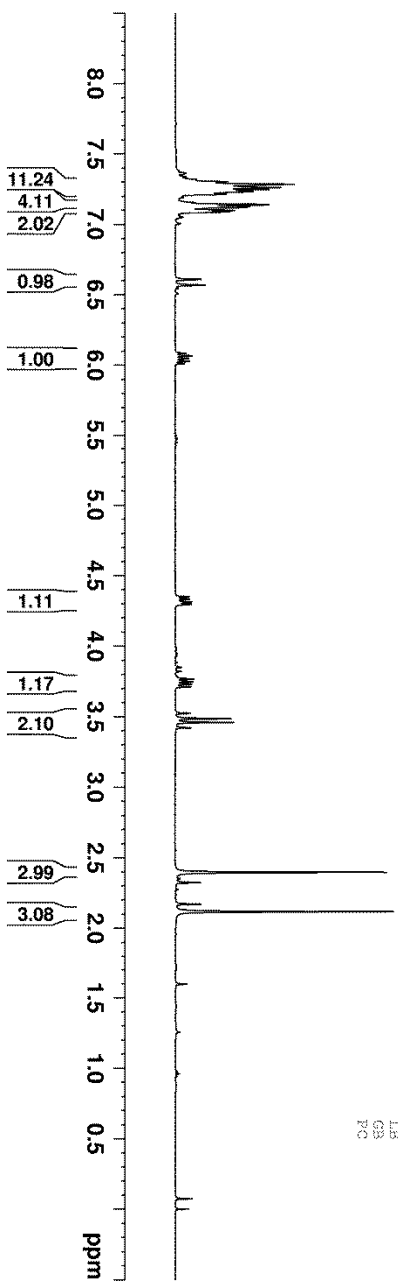
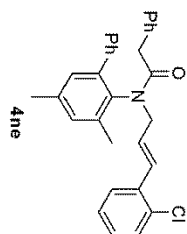




NAME 1H
EXPNO 322
PROCNO 1
Date_ 20130314
Time 9.56
INSTRUM spect
PROBHD 5 mm PABUL 13C
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 7
DS 0
SWH 12019.230 Hz
FIDRES 0.36798 Hz
AQ 1.3631988 sec
RG 128
DW 41.600 usec
DE 6.50 usec
TE 295.1 K
D1 2.00000000 sec
TD0 1

===== CHANNEL f1 =====
NUC1 1H
P1 12.60 usec
SI 65536
SF 400.1300200 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00





NAME 1H
EXPNO 341
PROCNO 1
Date_ 20130330
Time 2.50
INSTRUM 5 mm PABUL 13C
PROBHD spect
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 8
DS 0
SWH 12019.230 Hz
FIDRES 0.366798 Hz
AQ 1.361988 sec
RG 128
DW 41.600 usec
DE 6.50 usec
TE 295.6 K
D1 2.00000000 sec
TD0 1

CHANNEL f1 1H
NUC1 12.60 usec
P1 65536
SI 400.1300217 MHz
SF 400.1300217 MHz
WDW EM
SSB 0
LB 0.50 Hz
GB 0
PC 1.00

