

SUPPORTING INFORMATION

General:

¹H (400 MHz), ¹³C (100 MHz), ³¹P (162 MHz) and ¹⁹F (36.5 MHz) NMR spectra were recorded on a Bruker ARX400 spectrometer with complete proton decoupling for nucleus other than ¹H. Chemical shifts are reported in ppm from tetramethylsilane with the solvent resonance as the internal standard (CDCl_3 , ¹H: δ 7.27 ppm, ¹³C: δ 77.0 ppm and $(\text{CD}_3)_2\text{CO}$: ¹H: δ 2.05 ppm, ¹³C: δ 205.1 ppm). Data are reported as follows: chemical shift (δ) in ppm, multiplicity (s = singlet, d = doublet, t = triplet, hept = heptuplet, br = broad, m = multiplet), coupling constants (Hz) and integration. High-resolution mass spectra (HRMS) were recorded at the Centre Régional de Mesures Physiques de l'Ouest (CRMPO), Université de Rennes 1 on a Micromass ZABSpecTOF instrument. Elemental analyses were also performed at the CRMPO.

Materials:

All non-aqueous reactions were performed under an argon atmosphere using oven-dried glassware. Toluene was distilled from sodium metal under nitrogen. Tetrahydrofuran and diethyl ether were distilled from sodium metal/benzophenone ketyl under nitrogen. Dichloromethane and triethylamine were distilled from calcium hydride under nitrogen. Dimethylformamide was distilled from phosphorous pentoxide under vacuum and stored under argon. Dienes **11¹**, **13²**, **15³**, **17⁴**, **21⁵** and **23⁶** were synthesized and purified according to literature procedures. BMI.PF₆ was prepared and purified as reported previously⁷ and dried overnight at 70°C under high vacuum to remove water traces⁸. All others chemical reagents and solvents were obtained from commercial sources and used without further purification. Analytical TLC were performed on Merck silica gel 60F₂₅₄ plates, and visualized under UV-light. Chromatographic purifications were performed on a column with 230–400 mesh silica gel (Merck 9385) using the indicated solvent system.

3-(4-isopropoxy-phenyl)-propionic acid methyl ester: To a suspension of sodium hydride (1.27 g, 31.8 mmol, 1.1 equiv) in dry tetrahydrofuran (80 mL) was added at 0°C a solution of 3-(4-hydroxy-phenyl)-propionic acid methyl ester **6** (5.2 g, 28.9 mmol) in dry tetrahydrofuran (80 mL). After gas evolution, dry dimethylformamide (80 mL) and isopropyl bromide (3.2 mL, 31.8 mmol, 1.1 equiv) were syringed into the reaction mixture. The resulting mixture was stirred at room temperature for 2 h. Sodium hydride (1.27 g, 31.8 mmol, 1.1 equiv) and isopropyl bromide (3.2 mL, 31.8 mmol, 1.1 equiv) were added into the reaction mixture followed by a stirring of 2 hours to complete the reaction. The mixture was concentrated under vacuum and ethyl acetate (100 mL) was added. The organic layer was washed 4 times with a saturated solution of sodium hydrogenocarbonate and one time with brine, dried over magnesium sulfate, filtered and concentrated. Purification by silica gel chromatography (pentane/ethyl acetate, 8/2) afforded the desired product as a colorless oil (5.76 g, 26.0 mmol, 90 %). ¹H NMR (400 MHz, CDCl_3): δ (ppm): 1.34 (d, J = 6.1 Hz, 6H), 2.62 (t, J = 7.9 Hz, 2H), 2.90 (t, J = 7.9 Hz, 2H), 3.69 (s, 3H), 4.52 (hept, J = 6.1 Hz, 1H), 6.83 (d, J = 8.7 Hz, 2H), 7.11 (d, J = 8.7 Hz, 2H). ¹³C NMR (100 MHz, CDCl_3): δ (ppm): 22.5 (2C), 30.5, 36.4, 52.0, 70.2, 116.3 (2C), 129.6 (2C), 132.8, 156.8, 173.8. HRMS Calculated for $\text{C}_{13}\text{H}_{18}\text{O}_3$: 222.1256. Found: 222.1250.

3-(3-bromo-4-isopropoxy-phenyl)-propionic acid methyl ester: To a solution of 3-(4-isopropoxy-phenyl)-propionic acid methyl ester (3.53 g, 15.9 mmol) in dry dichloromethane (80 mL) was added acetic acid (36 μ L, 0.64 mmol, 0.04 equiv). Bromine (860 μ L, 16.7 mmol, 1.05

equiv) was then slowly added dropwise at room temperature, forming a red solution. Over the course of 1.5 h the mixture gradually turned pale yellow. The reaction was then quenched with a saturated sodium thiosulfate solution (20 mL). After dilution with water, the organic layer was separated. The aqueous layer was extracted with diethyl ether. The combined organic layers were dried over magnesium sulfate, filtrated and concentrated to a colorless oil (4.7 g, 15.6 mmol, 98%). ¹H NMR (400 MHz, CDCl₃): δ (ppm): 1.36 (d, *J* = 6.1 Hz, 6H), 2.59 (t, *J* = 7.9 Hz, 2H), 2.86 (t, *J* = 7.9 Hz, 2H), 2.67 (s, 3H), 4.50 (hept, *J* = 6.1 Hz, 1H), 6.83 (d, *J* = 8.4 Hz, 1H), 7.06 (dd, *J* = 2.0, 8.4 Hz, 1H), 7.38 (d, *J* = 2.0 Hz, 1H). ¹³C NMR (100 MHz, CDCl₃): δ (ppm): 22.5 (2C), 30.1, 36.1, 52.0, 72.6, 114.1, 116.4, 128.5, 133.5, 134.7, 153.4, 173.5. HRMS Calculated for C₁₃H₁₇O₃Br: 300.0361. Found: 300.0348.

3-(3-bromo-4-isopropoxy-phenyl)-propan-1-ol (7): To a solution of 3-(3-bromo-4-isopropoxy-phenyl)-propionic acid methyl ester (4.37 g, 14.5 mmol) in dry tetrahydrofuran (200 mL) was added, at 0°C, lithium aluminum hydride (551 mg, 14.5 mmol, 1 equiv). The mixture was stirred for 45 min, at 0°C. The reaction was then quenched with water (550 μL), NaOH 15% in water (550 μL) and water (1.65 mL). The mixture was filtrated on a plug of celite and the cake was washed with dichloromethane and hot tetrahydrofuran. The organic layer was evaporated off under vacuum, diluted with dichloromethane, washed with brine, dried over magnesium sulfate and concentrated. A purification by silica gel chromatography using pentane/ethyl acetate (8/2) as the eluent afforded the desired product as a colorless oil (3.76 g, 13.8 mmol, 95%). ¹H NMR (400 MHz, CDCl₃): δ (ppm): 1.37 (d, *J* = 6.1 Hz, 6H), 1.83 (tt, *J* = 6.4, 7.4 Hz, 2H), 1.88 (s, br, 1H), 2.62 (t, *J* = 7.4 Hz, 2H), 3.65 (t, *J* = 6.4 Hz, 2H), 4.50 (hept, *J* = 6.1 Hz, 1H), 6.85 (d, *J* = 8.4 Hz, 1H), 7.06 (dd, *J* = 2.0, 8.4 Hz, 1H), 7.38 (d, *J* = 2.0 Hz, 1H). ¹³C NMR (100 MHz, CDCl₃): δ (ppm): 22.0 (2C), 30.7, 34.0, 61.8, 72.3, 113.6, 116.1, 128.1, 133.1, 135.7, 152.6. HRMS Calculated for C₁₂H₁₇O₂Br: 272.0412. Found: 272.0404.

3-(4-isopropoxy-3-vinyl-phenyl)-propan-1-ol: A Schlenk flask was charged with dry toluene (30 mL) and tetrakis(triphenylphosphine)palladium (292 mg, 0.25 mmol, 0.05 equiv). The mixture was degassed and 3-(3-bromo-4-isopropoxy-phenyl)-propan-1-ol 7 (1.25 g, 4.58 mmol) diluted in dry toluene (5 mL) was added dropwise through a syringe. The resulting mixture was stirred 15 min before adding tributylvinylstannane (2.2 mL, 6.87 mmol, 1.5 equiv). The flask was heated at 110°C overnight. After cooling to room temperature, the mixture was filtrated on a plug of celite and the cake was washed with diethyl ether. The solvent was evaporated off under vacuum and a purification by silica gel chromatography using pentane/ethyl acetate (8/2) as the eluent afforded the desired product as a colorless oil (910 mg, 4.17 mmol, 91%). ¹H NMR (400 MHz, CDCl₃): δ (ppm): 1.37 (d, *J* = 6.1 Hz, 6H), 1.89 (tt, *J* = 6.4, 7.4 Hz, 2H), 2.00 (s, br, 1H), 2.67 (t, *J* = 7.4 Hz, 2H), 3.68 (t, *J* = 6.4 Hz, 2H), 4.51 (hept, *J* = 6.1 Hz, 1H), 5.25 (d, *J* = 11.2 Hz, 1H), 5.76 (d, *J* = 17.8 Hz, 1H), 6.83 (d, *J* = 8.4 Hz, 1H), 7.04-7.11 (m, 2H), 7.34 (d, *J* = 2.0 Hz, 1H). ¹³C NMR (100 MHz, CDCl₃): δ (ppm): 22.7 (2C), 31.7, 34.8, 62.6, 71.5, 114.2, 115.0, 126.8, 128.2, 129.0, 132.4, 134.3, 153.8. HRMS Calculated for C₁₄H₂₀O₂: 220.1463. Found: 220.1456.

Methanesulfonic acid 3-(4-isopropoxy-3-vinyl-phenyl)-propyl ester: To a solution of 3-(4-isopropoxy-3-vinyl-phenyl)-propan-1-ol (1.21 g, 5.51 mmol) and triethylamine (1.15 mL, 8.27 mmol, 1.2 equiv) in dry dichloromethane (30 mL) was added, at 0°C, methanesulfonyl chloride (640 μL, 8.27 mmol, 1.5 equiv). The reaction mixture was stirred for 3.5 h at room temperature before diluting with dichloromethane. The organic phase was washed four times with a 5 % citric

acid solution, dried over sodium sulfate and concentrated to a yellow oil. The product was used without further purification in the following reaction. ^1H NMR (400 MHz, CDCl_3): δ (ppm): 1.36 (d, $J = 5.8$ Hz, 6H), 2.08 (tt, $J = 6.0, 7.6$ Hz, 2H), 2.71 (t, $J = 7.6$ Hz, 2H), 3.02 (s, 3H), 4.25 (t, $J = 6.0$ Hz, 2H), 4.52 (s, hept, $J = 5.8$ Hz, 1H), 5.38 (dd, $J = 1.5, 11.2$ Hz, 1H), 5.75 (dd, $J = 1.3, 17.8$ Hz, 1H), 6.84 (d, $J = 8.4$ Hz, 1H), 7.05 (m, 2H), 7.30 (m, 1H).

4-(3-bromo-propyl)-1-isopropoxy-2-vinyl-benzene (8): To a crude mixture of methanesulfonic acid 3-(4-isopropoxy-3-vinyl-phenyl)-propyl ester (1.64 g, 5.5 mmol) in tetrahydrofuran (20 mL) and dimethylformamide (8 mL) was added lithium bromide (960 mg, 11 mmol, 2 equiv) in one portion. The mixture was stirred overnight. After evaporation of the solvent, the residue was diluted in ethyl acetate. The organic layer was washed three times with a saturated sodium hydrogenocarbonate solution then with brine, dried over magnesium sulfate, filtrated and concentrated. A purification by silica gel chromatography using pentane/ethyl acetate (98/2) as the eluent afforded the desired product as a colorless oil (1.16 g, 4.1 mmol, 74 % (two steps)). ^1H NMR (400 MHz, CDCl_3): δ (ppm): 1.38 (d, $J = 6.1$ Hz, 6H), 2.18 (tt, $J = 6.6, 7.3$ Hz, 2H), 2.75 (t, $J = 7.3$ Hz, 2H), 3.43 (t, $J = 6.6$ Hz, 2H), 4.53 (hept, $J = 6.1$ Hz, 1H), 5.27 (dd, $J = 1.5, 11.2$ Hz, 1H), 5.77 (dd, $J = 1.5, 17.8$ Hz, 1H), 6.85 (d, $J = 8.4$ Hz, 1H), 7.07 (m, 2H), 7.31 (m, 1H); ^{13}C NMR (100 MHz, CDCl_3): δ (ppm): 22.7 (2C), 33.5, 33.7, 71.4, 113.9, 114.4, 126.5, 127.7, 128.5, 131.9, 132.4, 133.7, 153.6. HRMS Calculated for $\text{C}_{14}\text{H}_{19}\text{OBr}$: 282.0619. Found: 282.0610.

1-[3-(4-isopropoxy-3-vinyl-phenyl)-propyl]-3-methyl-3H-imidazol-1-ium hexafluoro phosphate (9): A 10 ml round bottomed flask equipped with a condenser was charged with 4-(3-bromo-propyl)-1-isopropoxy-2-vinyl-benzene 8 (1.1 g, 3.9 mmol), methylimidazole (623 μL , 7.8 mmol, 2 equiv) and dry toluene (3.9 mL). The mixture was stirred overnight at 100°C then the solvent was evaporated off. The residue was dissolved in distilled water (30 ml). Hexafluorophosphoric acid (10 mL, 60 % in water) was slowly added dropwise. After 10 min stirring, dichloromethane and brine were added. The organic phase was washed with brine until to reach a neutral pH, dried over magnesium sulfate, filtrated and concentrated. A purification by silica gel chromatography using dichloromethane/acetone (3/1) as the eluent afforded the desired product as a colorless oil (1.47 g, 3.41 mmol, 87 % (two steps)). ^1H NMR (400 MHz, $(\text{CD}_3)_2\text{CO}$): δ (ppm): 1.29 (d, $J = 6.1$ Hz, 6H), 2.09 (tt, $J = 7.4$ Hz, 2H), 2.56 (t, $J = 7.4$ Hz, 2H), 3.77 (s, 3H), 4.09 (t, $J = 7.2$ Hz, 2H), 4.46 (hept, $J = 6.0$ Hz, 1H), 5.19 (d, $J = 11.4$ Hz, 1H), 5.75 (d, $J = 17.8$ Hz, 1H), 6.78 (d, $J = 8.4$ Hz, 1H), 6.98 (m, 2H), 7.17 (m, 2H), 7.25 (m, 1H), 8.28 (s, 1H). ^{13}C NMR (100 MHz, $(\text{CD}_3)_2\text{CO}$): δ (ppm): 21.0, 21.1, 30.3, 30.4, 35.0, 48.5, 70.0, 113.2, 113.6, 121.0, 122.5, 125.1, 126.6, 127.7, 130.5, 130.9, 134.6, 152.6. ^{19}F NMR (376 MHz, $(\text{CD}_3)_2\text{CO}$): δ (ppm): -72.3 (d, $J = 711.1$ Hz). ^{31}P NMR (162 MHz, $(\text{CD}_3)_2\text{CO}$): δ (ppm): -143.1 (hept, $J = 712.8$ Hz). HRMS Calculated for $\text{C}_{18}\text{H}_{25}\text{N}_2\text{O}$: 285.1967. Found: 285.1957.

Ionic liquid-supported catalyst (10): In a Schlenk apparatus were introduced copper (I) chloride (49 mg, 0.5 mmol, 1.25 equiv) and Grubbs catalyst 1 (494 mg, 0.6 mmol, 1.5 equiv). Three degassing (vacuum/argon) were performed and the 1-[3-(4-Isopropoxy-3-vinyl-phenyl)-propyl]-3-methyl-3H-imidazol-1-ium hexafluorophosphate 9 (172 mg, 0.4 mmol) in solution in dry dichloromethane (8 mL) was syringed into the reaction mixture. The resulting solution was again degassed three times and stirred for three hours at room temperature. The solvent was evaporated off under vacuum, the residue was dissolved in dry acetone (8 mL). The excess of 1 was removed by filtration and washed with acetone (8 mL). After concentration, the catalyst was precipitated in a 1/1 pentane/dichloromethane mixture (8 mL), filtrated, washed with the same mixture (8 mL)

and dried under vacuum to afford a brown solid (270 mg, 0.31 mmol, 78 %). ¹H NMR (400 MHz, (CD₃)₂CO): δ (ppm): 1.30 (m, 1H), 1.70-1.90 (m, 23H), 2.40 (m, 5H), 2.90 (m, 4H), 4.01 (s, 3H) 4.50 (t, *J* = 7.0 Hz, 2H), 5.37 (hept, *J* = 7.7 Hz, 1H), 7.28 (d, *J* = 7.9 Hz, 1H), 7.62 (d, *J* = 8.6 Hz, 1H), 7.68 (m, 2H), 7.81 (m, 1H), 9.00 (s, 1H), 17.39 (d, *J* = 4.9 Hz, 1H). ¹³C NMR (100 MHz, (CD₃)₂CO): δ (ppm): 22.1, 22.4, 26.4 (C), 27.7 (C), 28.0 (C), 28.7 (C), 29.5, 31.2, 33.5 (C), 33.8 (C), 36.1, 46.8, 69.9, 113.6, 122.4, 124.3, 131.4, 137.2, 137.5, 137.7, 143.3, 146.9. ¹⁹F NMR (376 MHz, (CD₃)₂CO): δ (ppm): -72.9 (d, *J* = 708.0 Hz). ³¹P NMR (162 MHz, (CD₃)₂CO): δ (ppm): -143.0 (hept, *J* = 706.3 Hz), 60.3 (s). HRMS Calculated for C₃₅H₅₆N₂OCl₂PRu: 723.2551. Found: 723.2556. Elemental analysis Calculated for C₃₅H₅₆N₂OF₆Cl₂P₂Ru: C, 48.39; H, 6.50; N, 3.22. Found: C, 48.14; H, 6.57; N, 3.37.

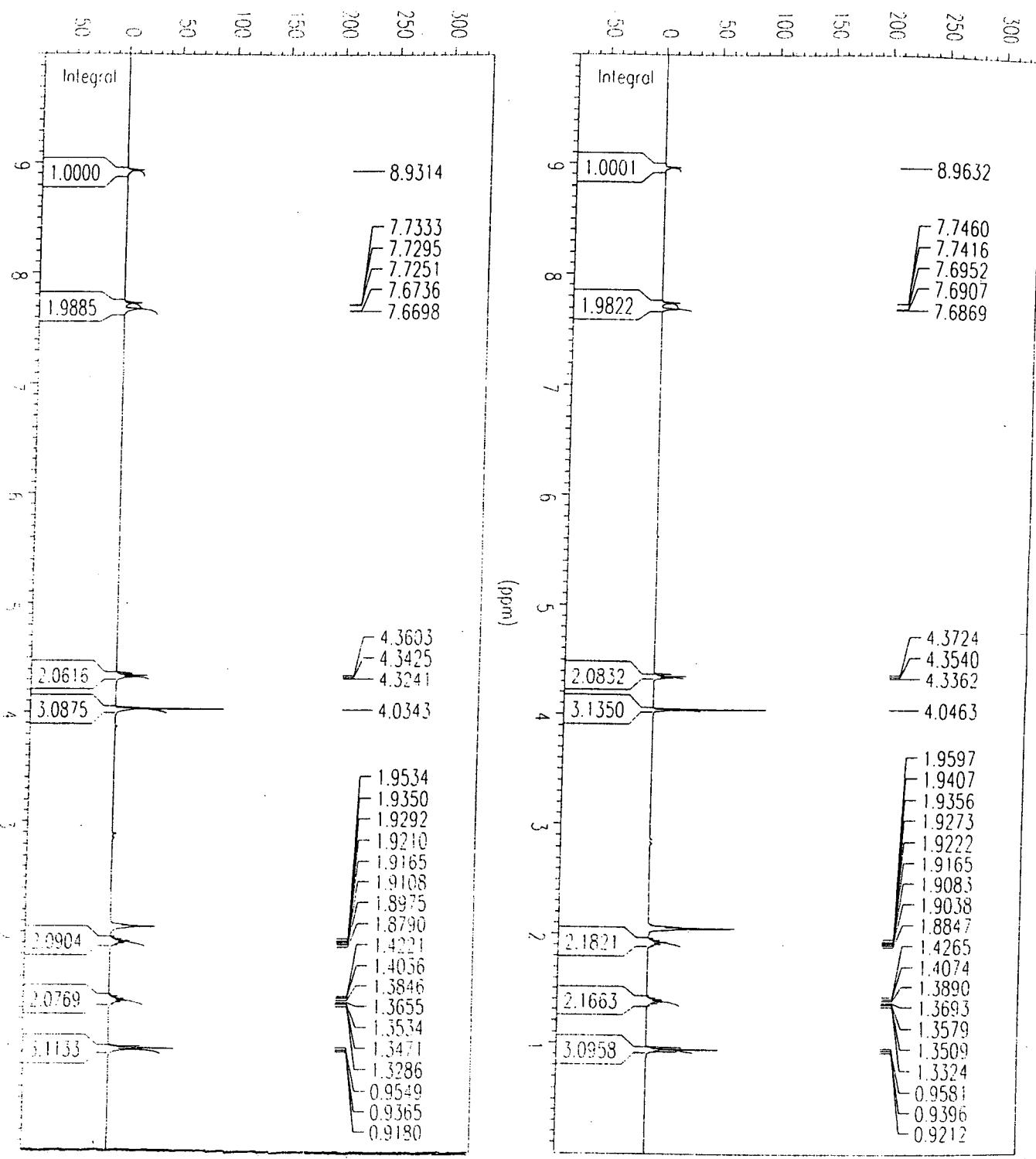
General procedure for RCM reactions in BMI.PF₆:

BMI.PF₆ (5 mL) was introduced in a Schlenk flask and dried 2 hours under vacuum at 70°C. The ionic liquid-supported catalyst **10** (21.7 mg, 0.025 mmol, 0.025 equiv) was added and the mixture was stirred until the catalyst was dissolved. The diene (1 mmol, c = 0.2 M) was then introduced into the reaction mixture and heated at 60°C⁹ for 45 minutes (dienes **11**, **13** and **15**), 2 hours (dienes **19**, **21** and **23**) or 4 hours (diene **17**). At the end of the reaction, the mixture was cooled and the cyclized product was obtained by extraction with dry toluene (4 x 10 mL). The solvent was evaporated to afford the crude product. All spectral and analytical data are in full agreement with those reported in the literature. Very small amounts of BMI.PF₆ were detected in the NMR spectrum of the crude product and can be easily removed by a simple filtration onto a plug of silica gel using pentane/ethyl acetate (9/1) as the eluent.

Procedure for recover the BMI.PF₆:

The ionic liquid BMI.PF₆ containing the decomposed IL-catalyst (5mL) was dissolved in 10 mL of dichloroethane. Black carbon (500 mg) was added and the resulting mixture was refluxed for 12 h. The mixture was cooled to room temperature and then filtered onto a plug of celite. The solvent was removed to afford the pure BMI.PF₆ (see NMR spectra) as a colorless oil which was finally dried for 4h at 70°C under vacuum. This recovered BMI.PF₆ was used in a RCM reaction with a new loading of IL-catalyst **10** and substrate without lost of performance compared to the fresh one.

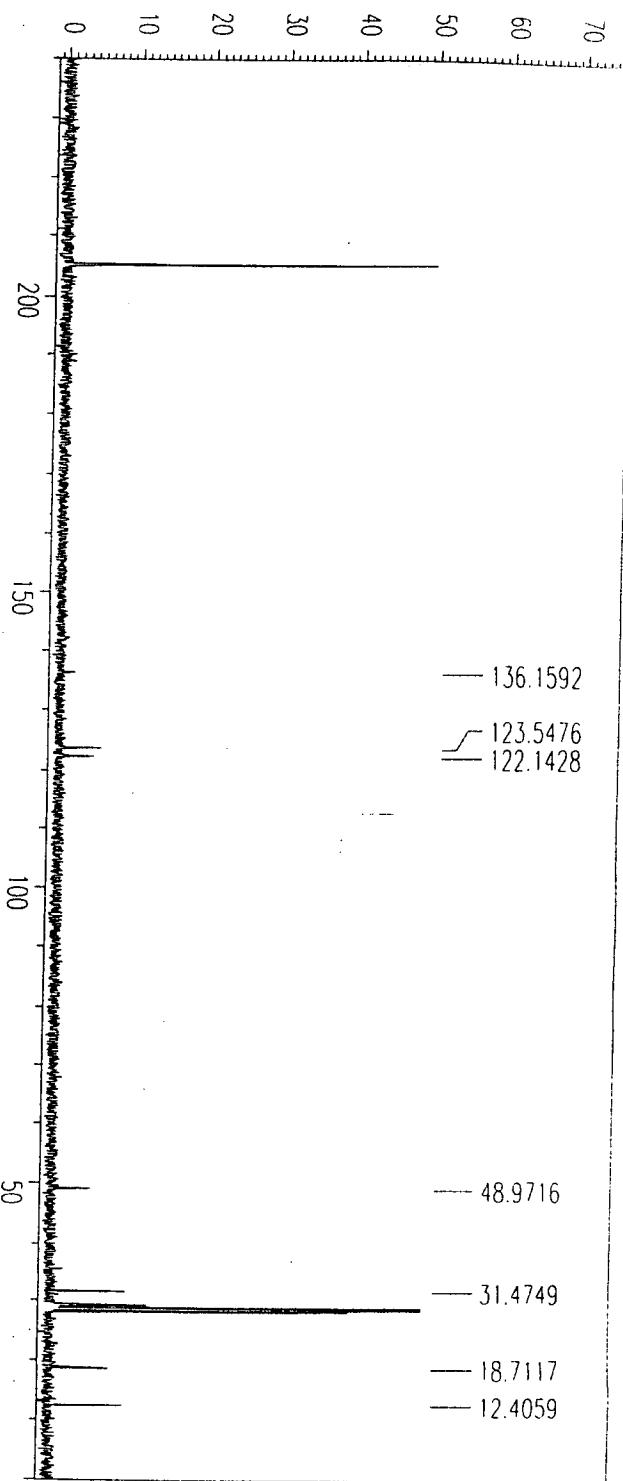
- (1) Riggi, I. ; De Surzur, J.-M. ; Bertrand M. *Tetrahedron*, **1988**, 7119-7126.
- (2) Garst, M. E. ; Bonfiglio, J. N. ; Marks, J. *J. Org. Chem.*, **1982**, 1494-1500.
- (3) Yao, Q. ; *Angew. Chem. Int. Ed.*, **2000**, 3896-3898.
- (4) Gibson, S. E.; Swamy, V. M. *Advanced Synthesis & Catalysis* **2002**, 619-621.
- (5) Chang, H. ; Grubbs, R. H. *J. Org. Chem.*, **1998**, 864-866.
- (6) Kim, S.-H. ; Zuercher, W. J. ; Bowden, N. B. ; Grubbs, R. H. *J. Org. Chem.*, **1996**, 1073-1081.
- (7) Huddleston, J. G. ; Willauer, H. D. ; Swatloski, R. P. ; Visser A. E. ; Rogers, R. D. *Chem. Commun.*, **1998**, 1765-1766.
- (8) Wasserscheid, P. ; Weldon, T. (Eds) *Ionic Liquids in Synthesis*, Wiley-VCH, **2003**, chapter 2, 19.
- (9) At room temperature and up to 40°C, low conversions were obtained after 45 min due to the high viscosity of BMI.PF₆, and the best results of RCM were obtained at 60°C.



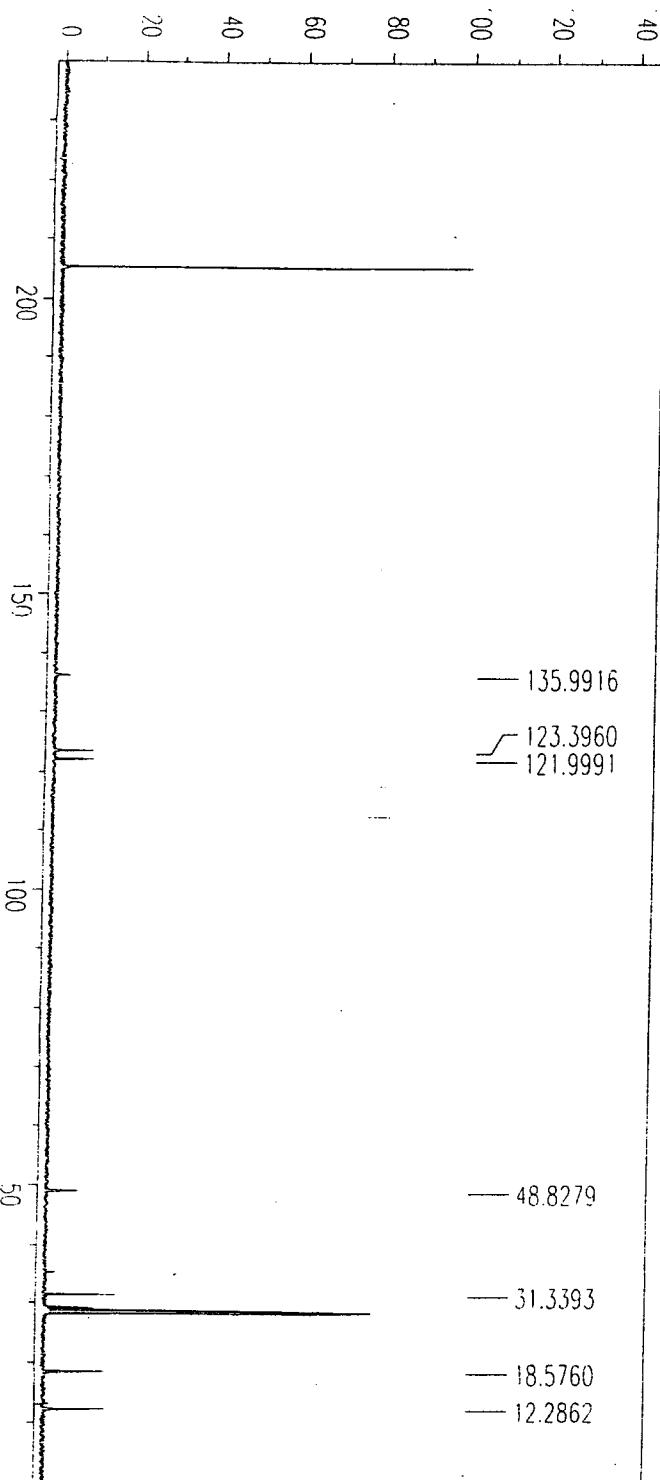
Recovered BMI.PF₆

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Solvent : Aceton d

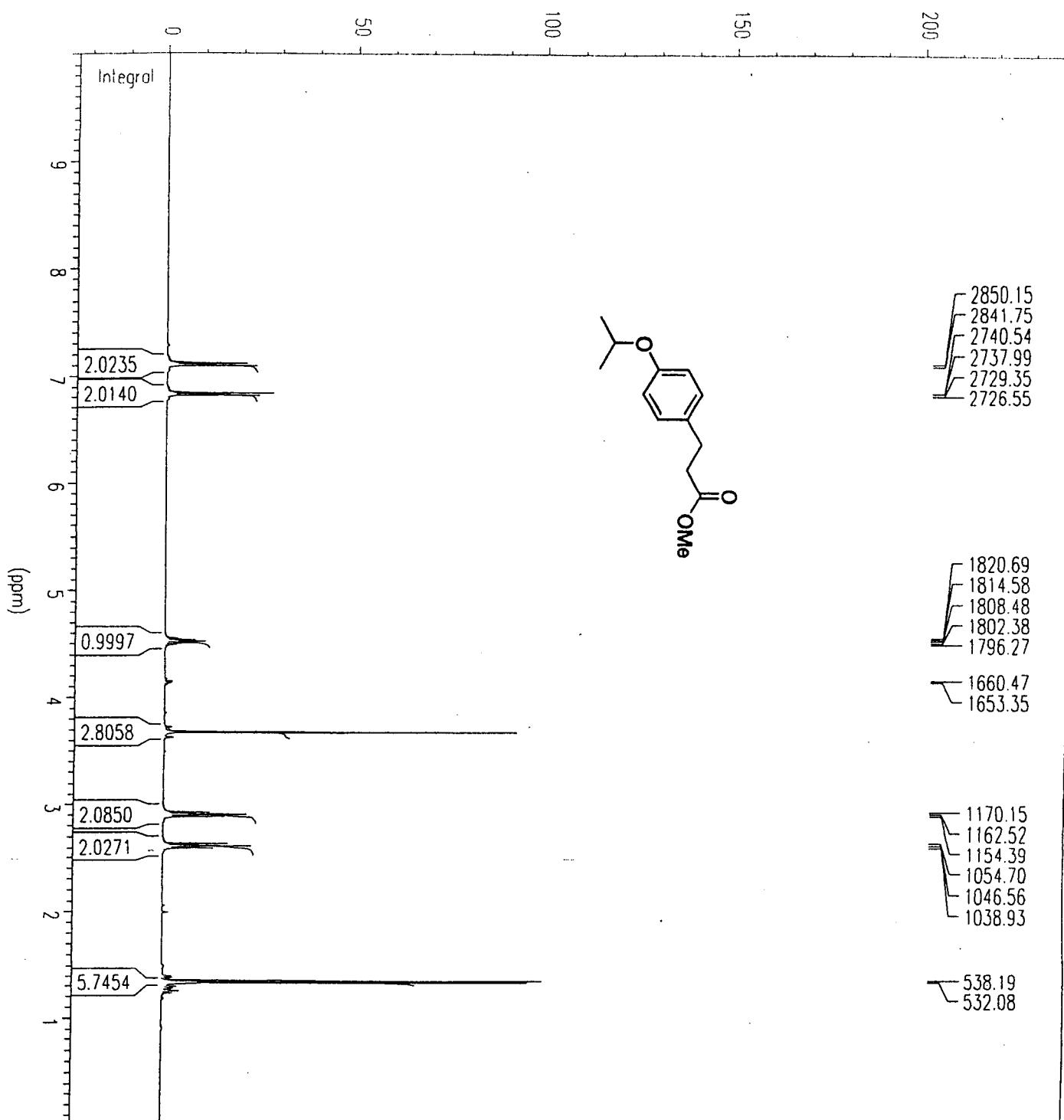
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Fresh BMI.PF₆

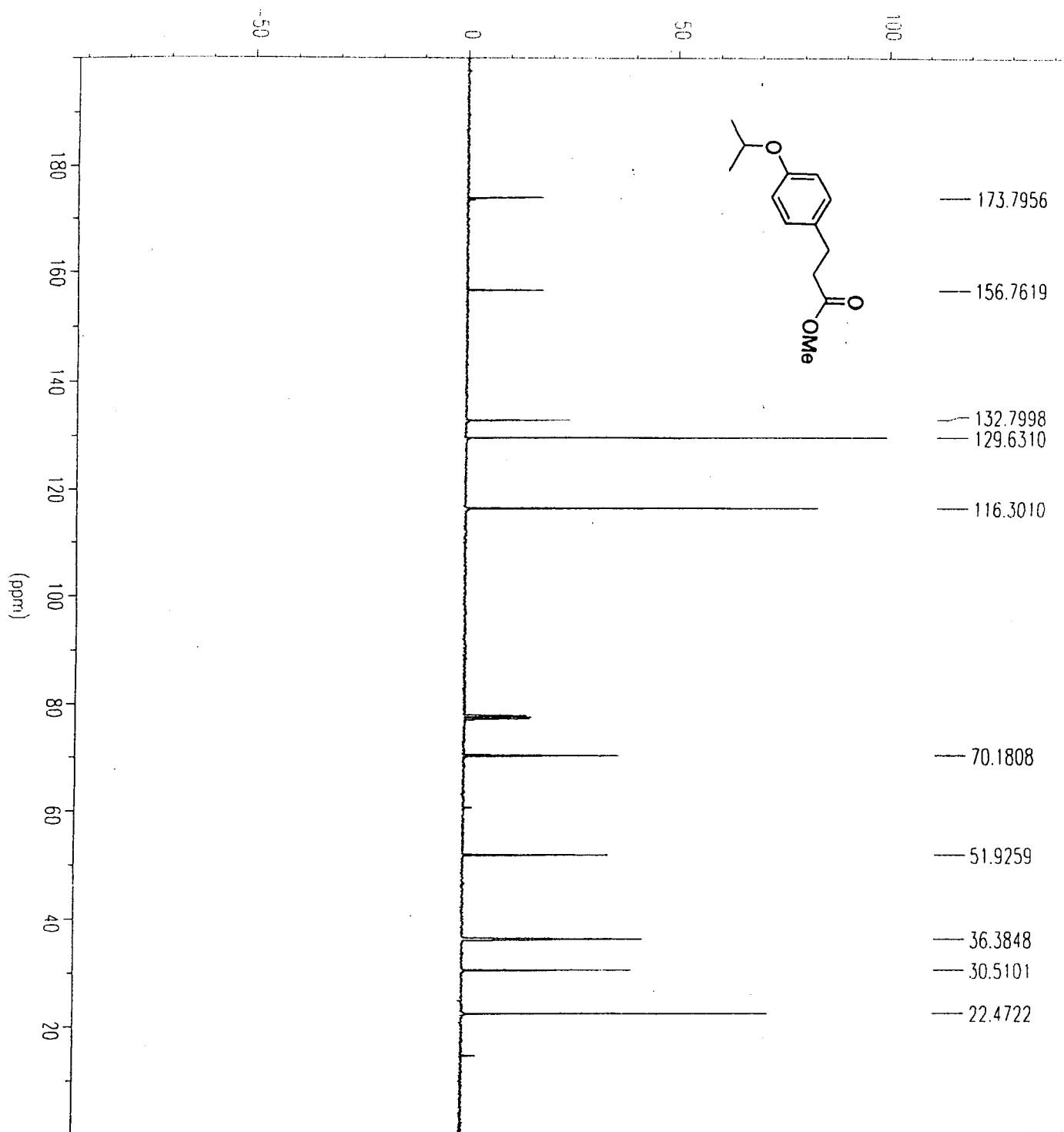


Recovered BMI.PF₆



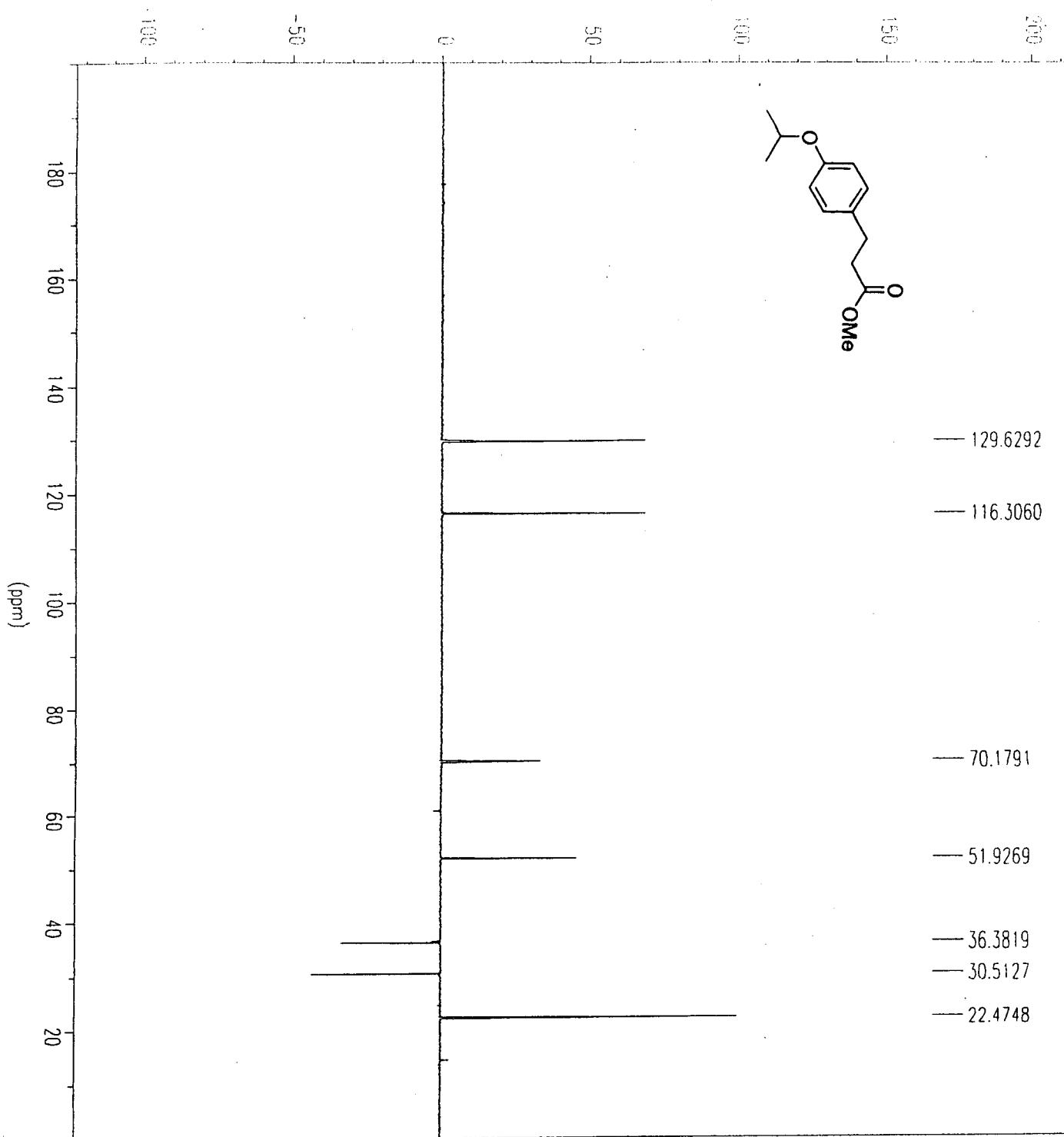
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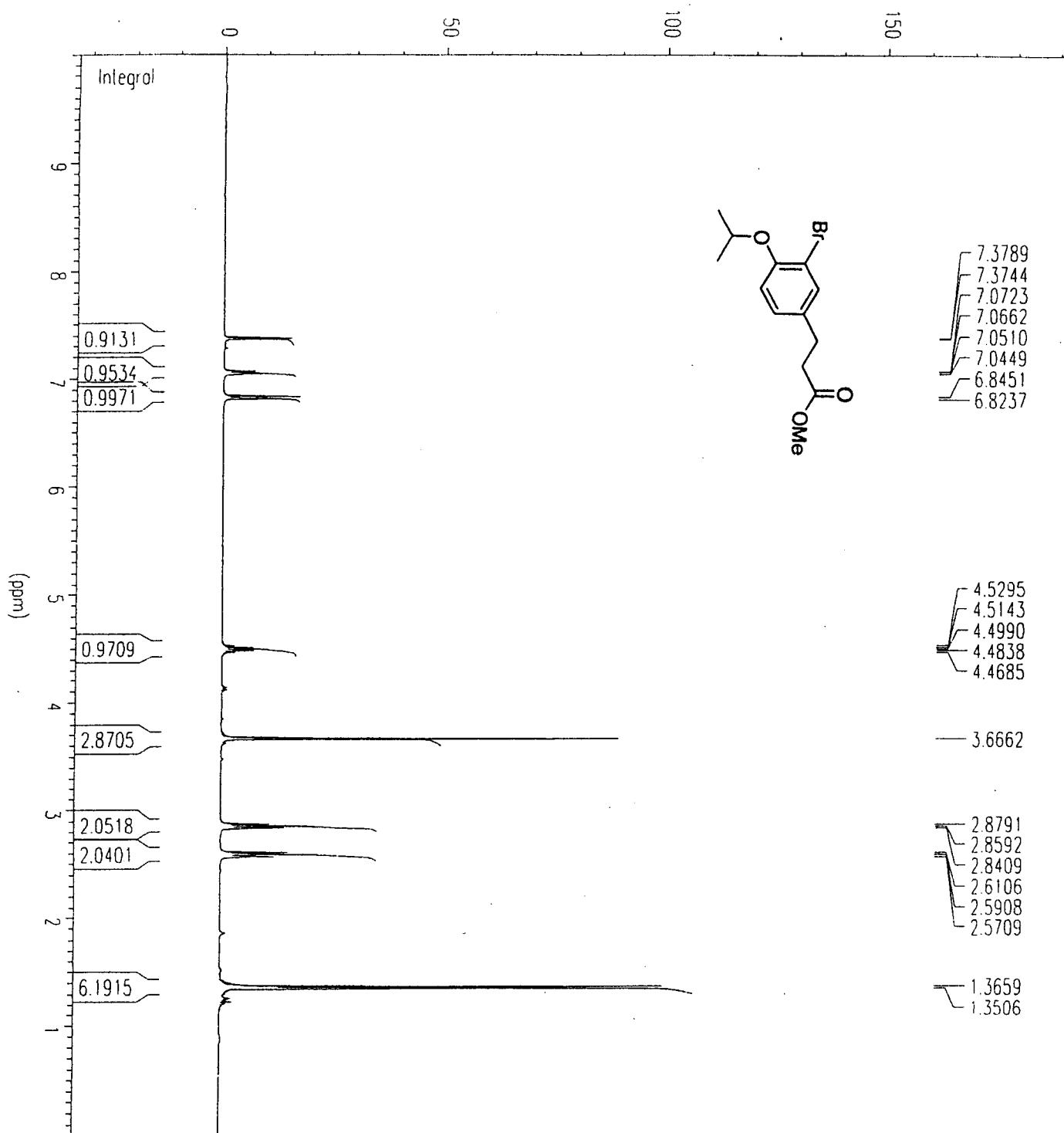
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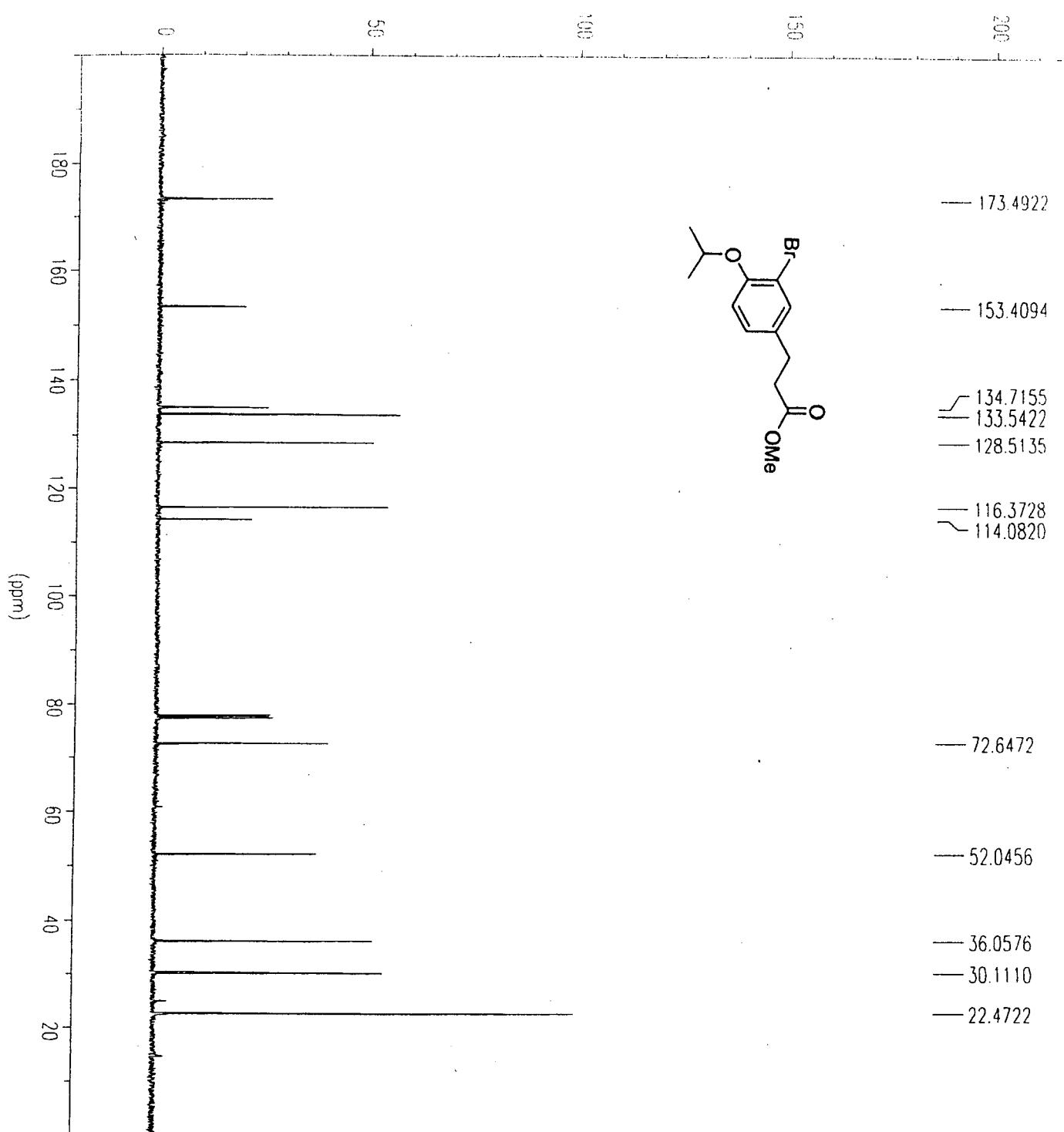
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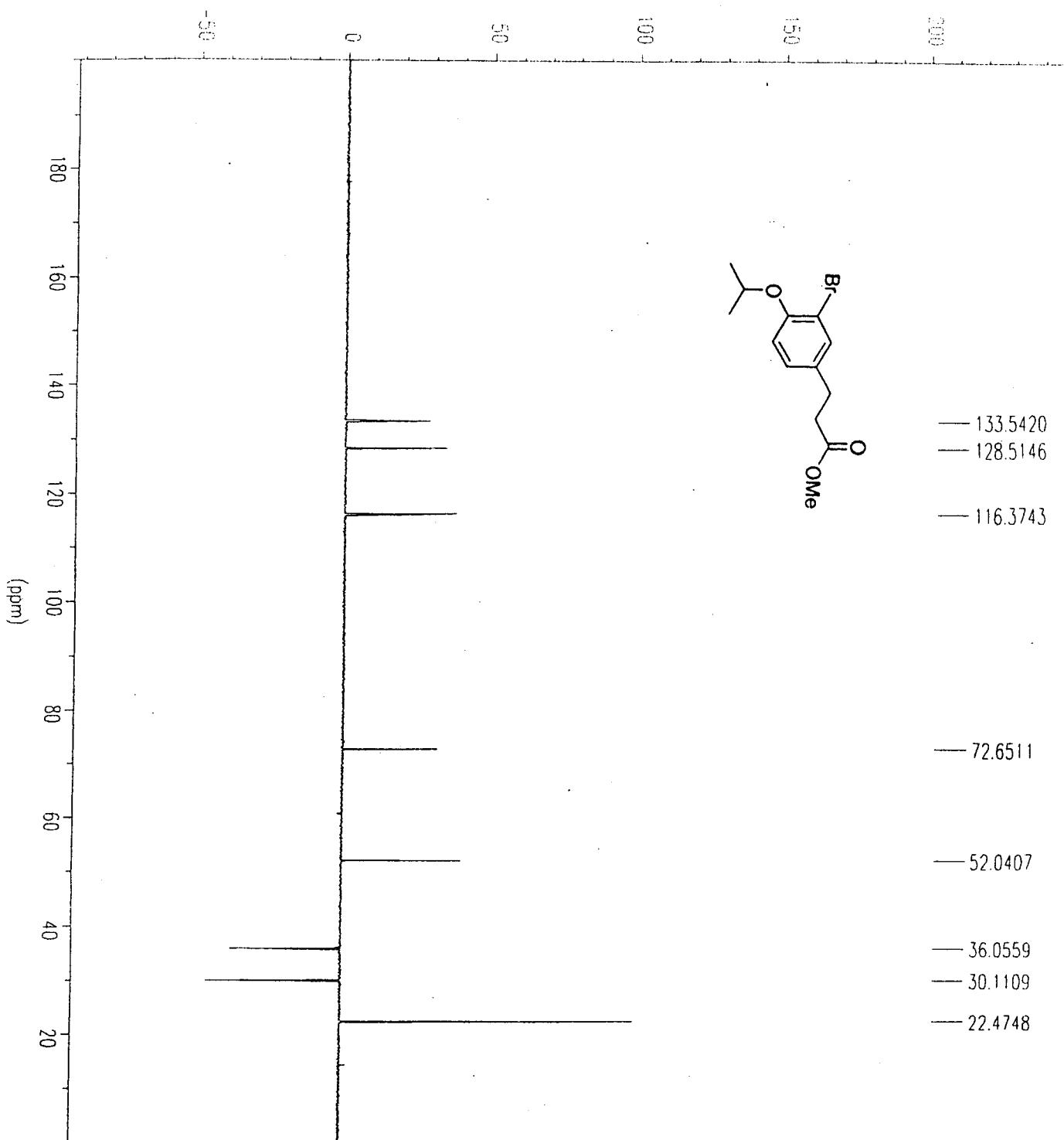
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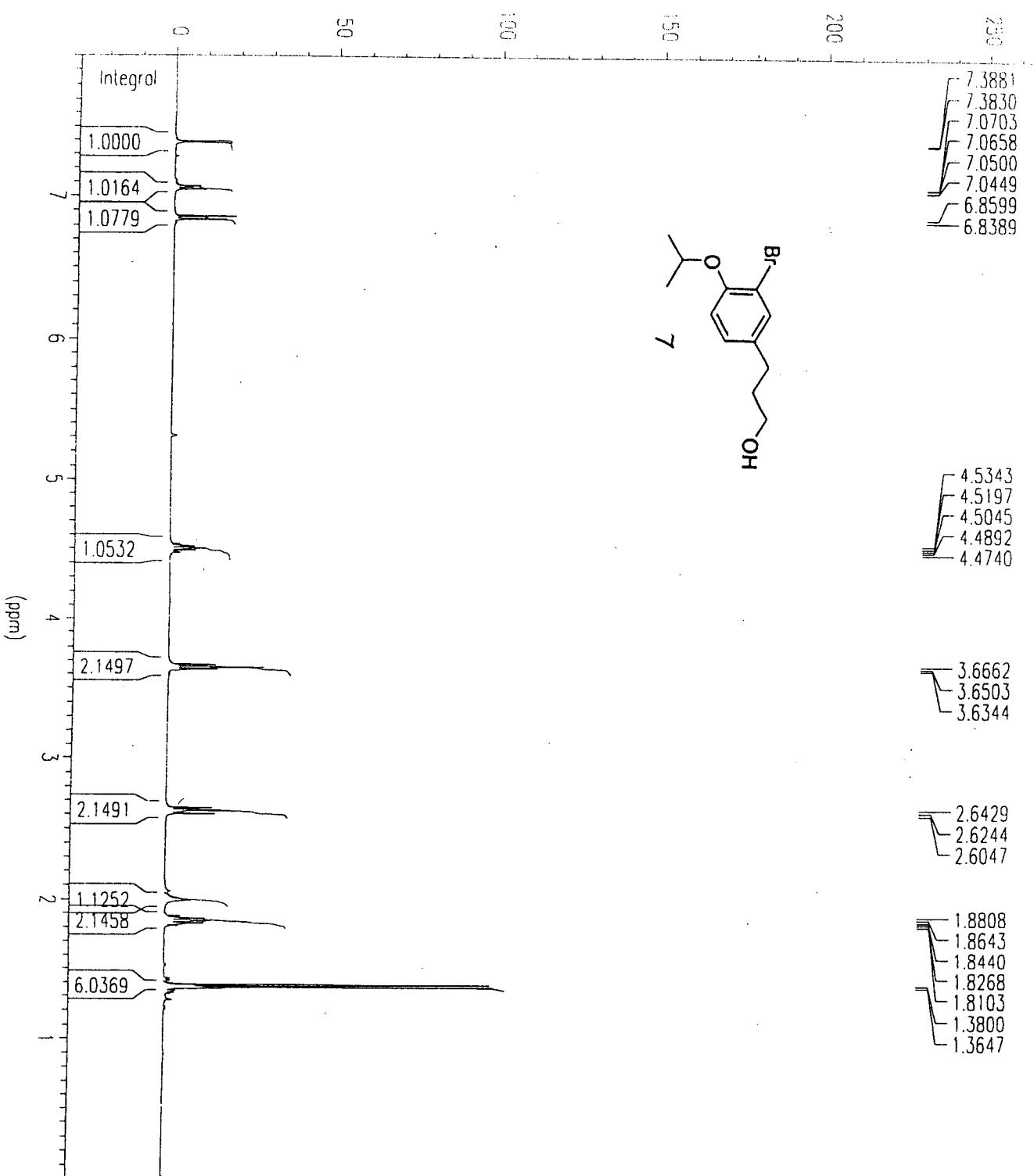
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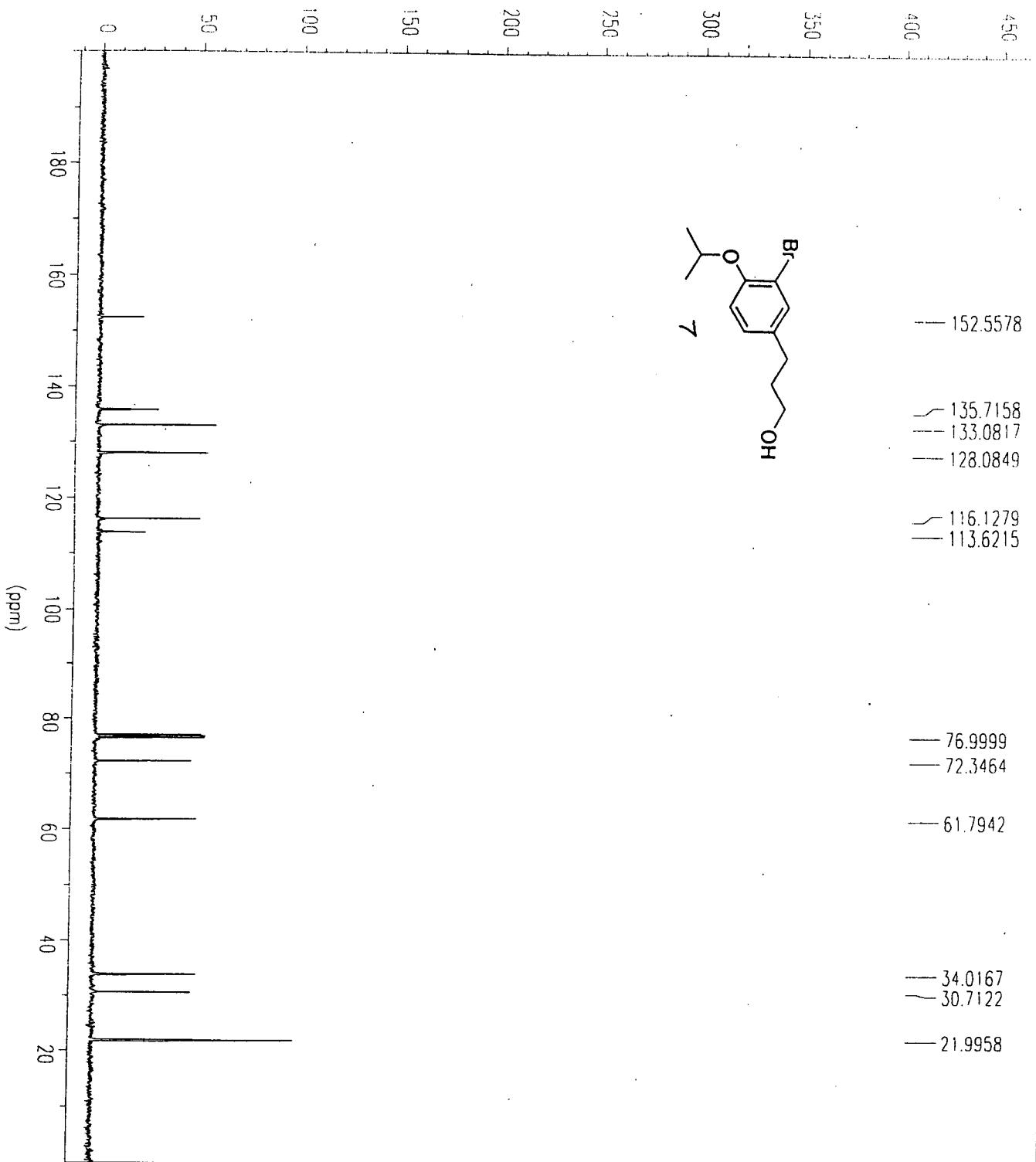
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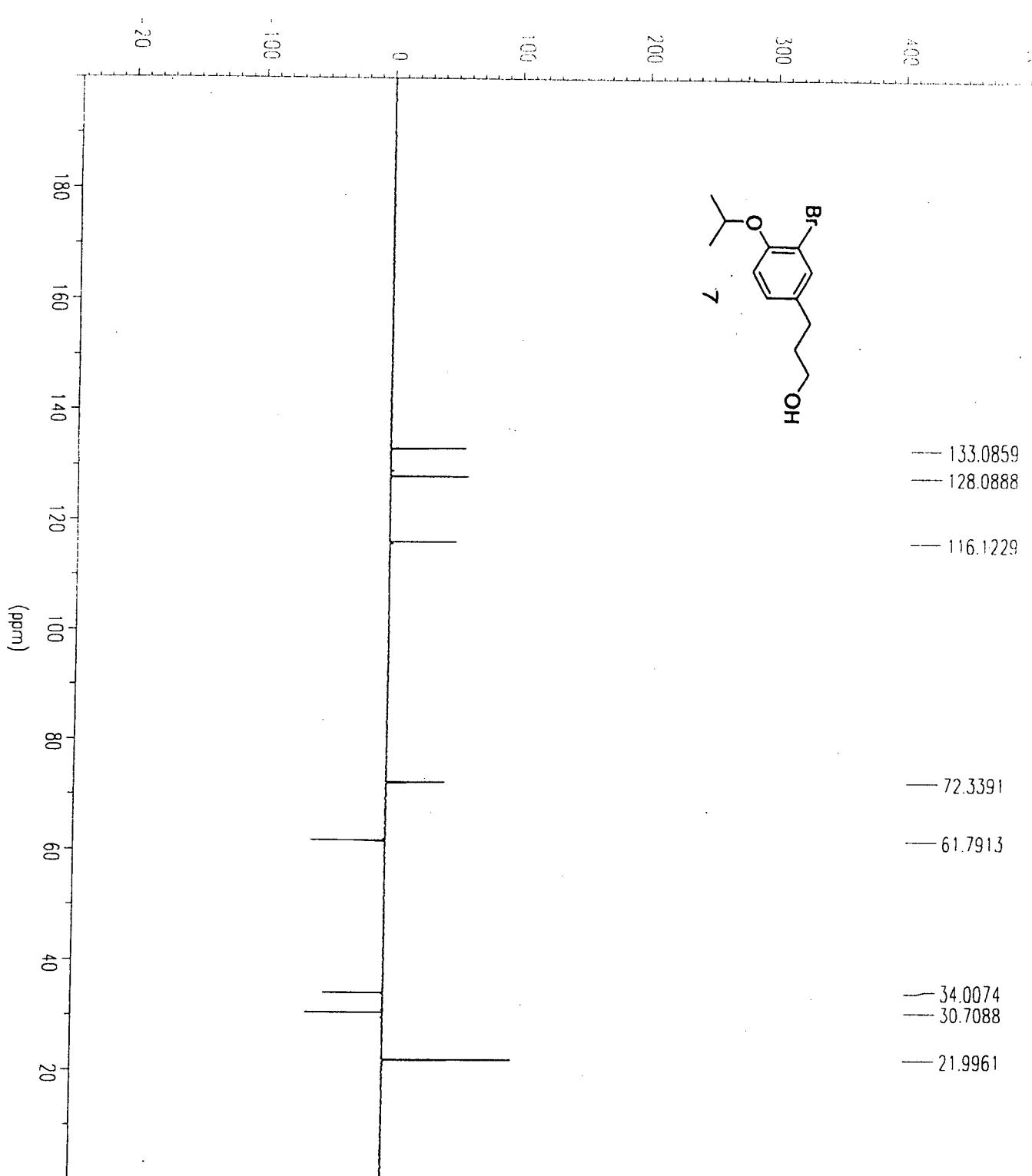
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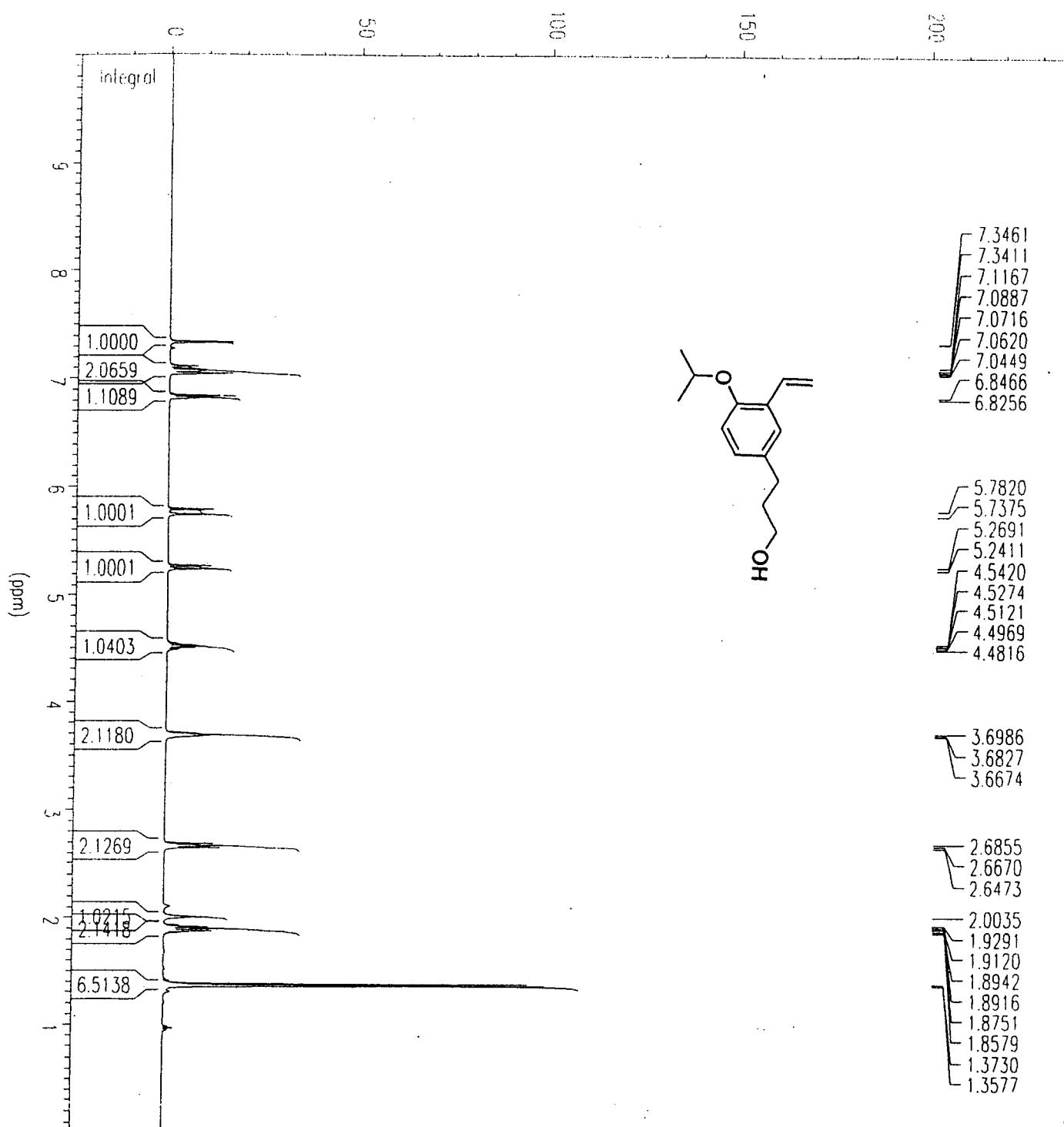
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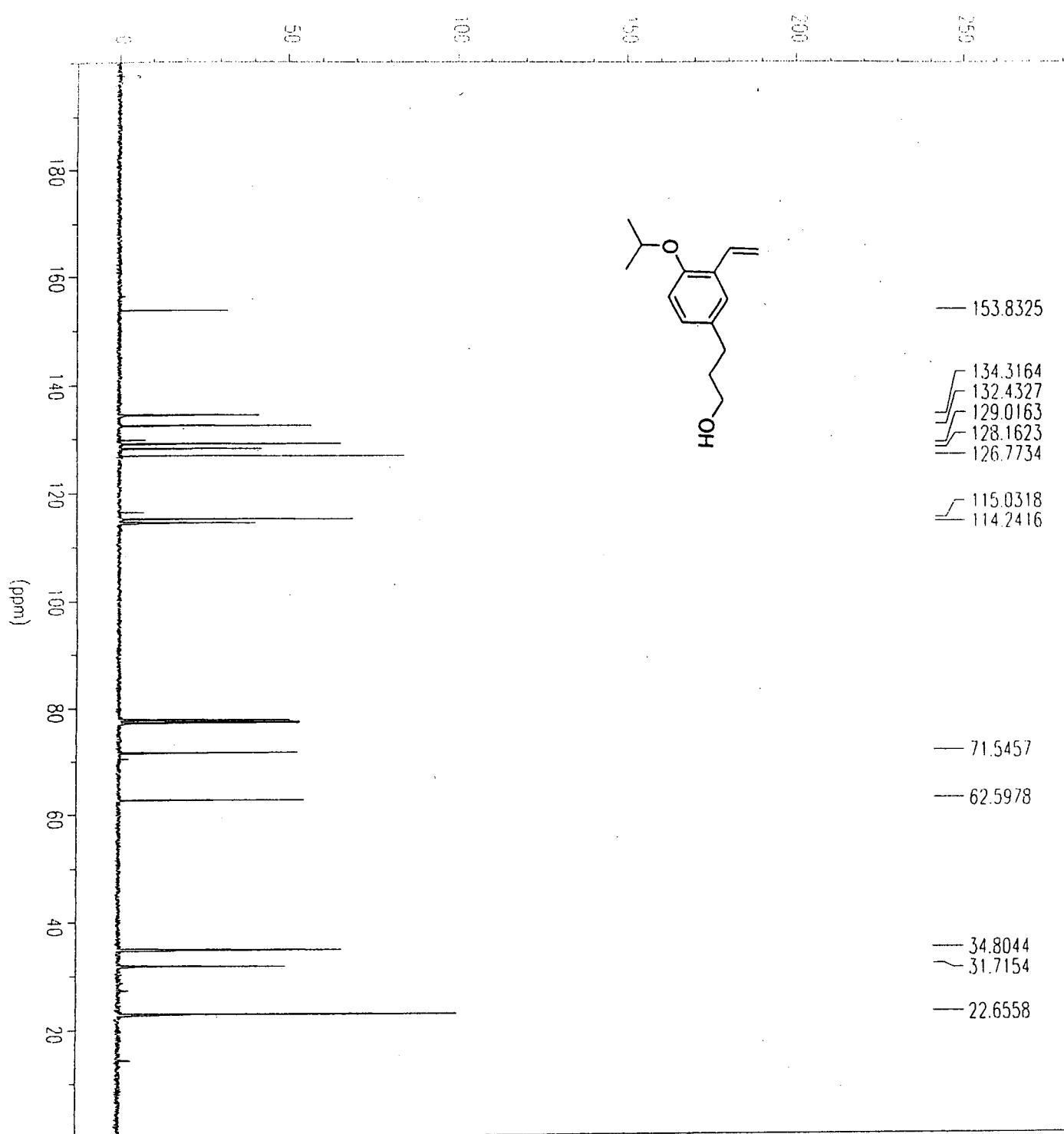
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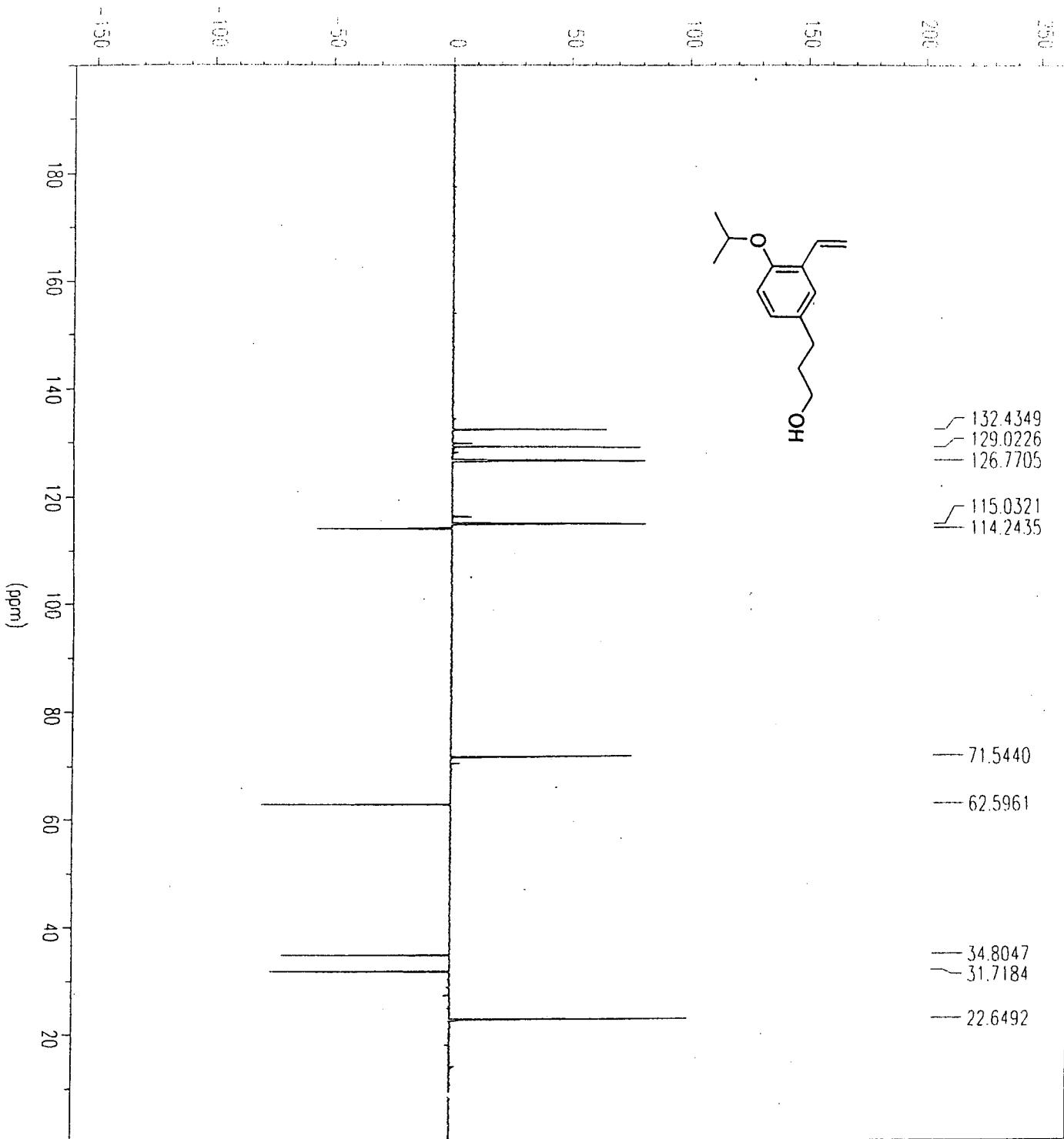
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MPSF	1.000000
AQtime	1.2451840 sec

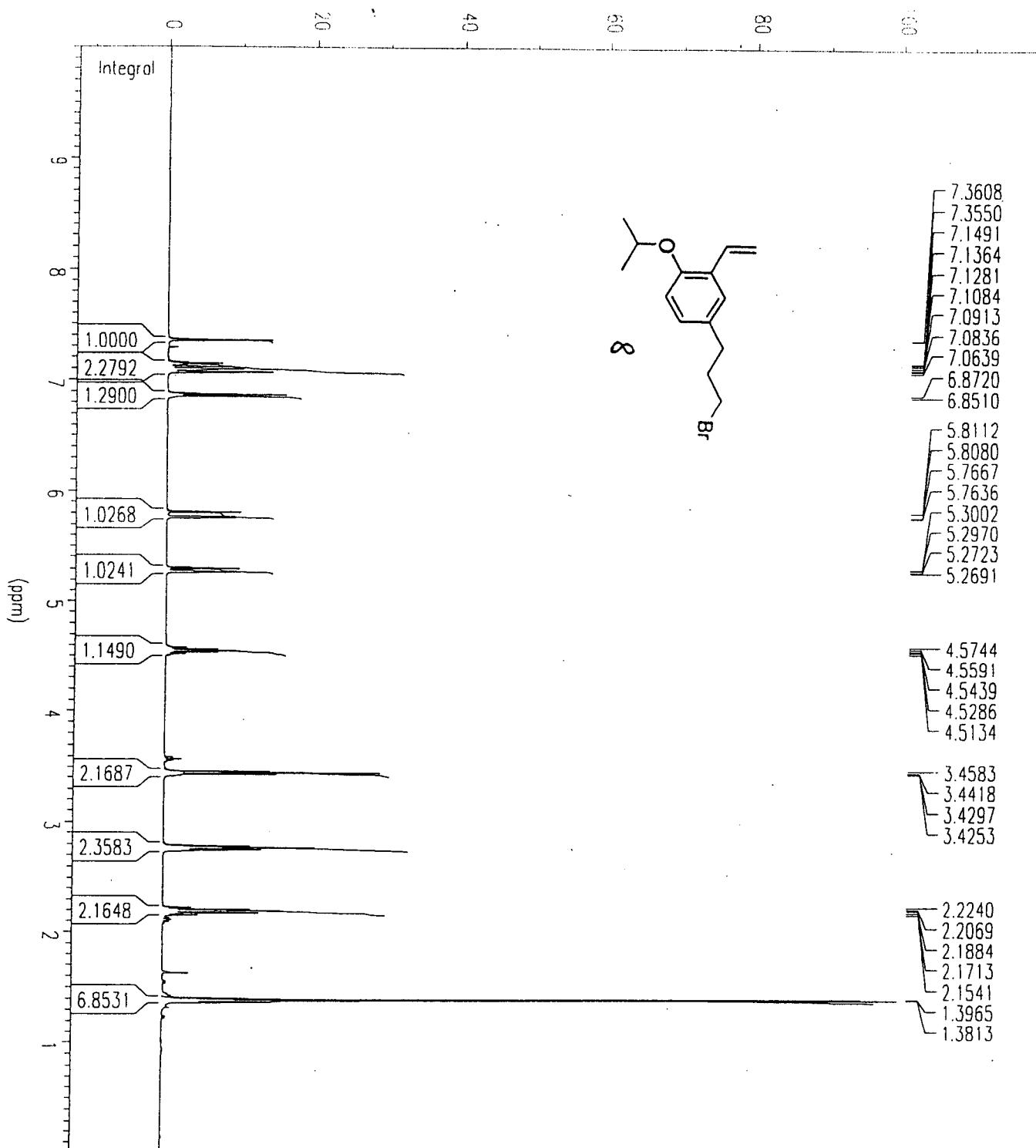


*** Current Data Parameters ***

NAME
EXPNO
PROCNO
...
C-mn0347
3
1

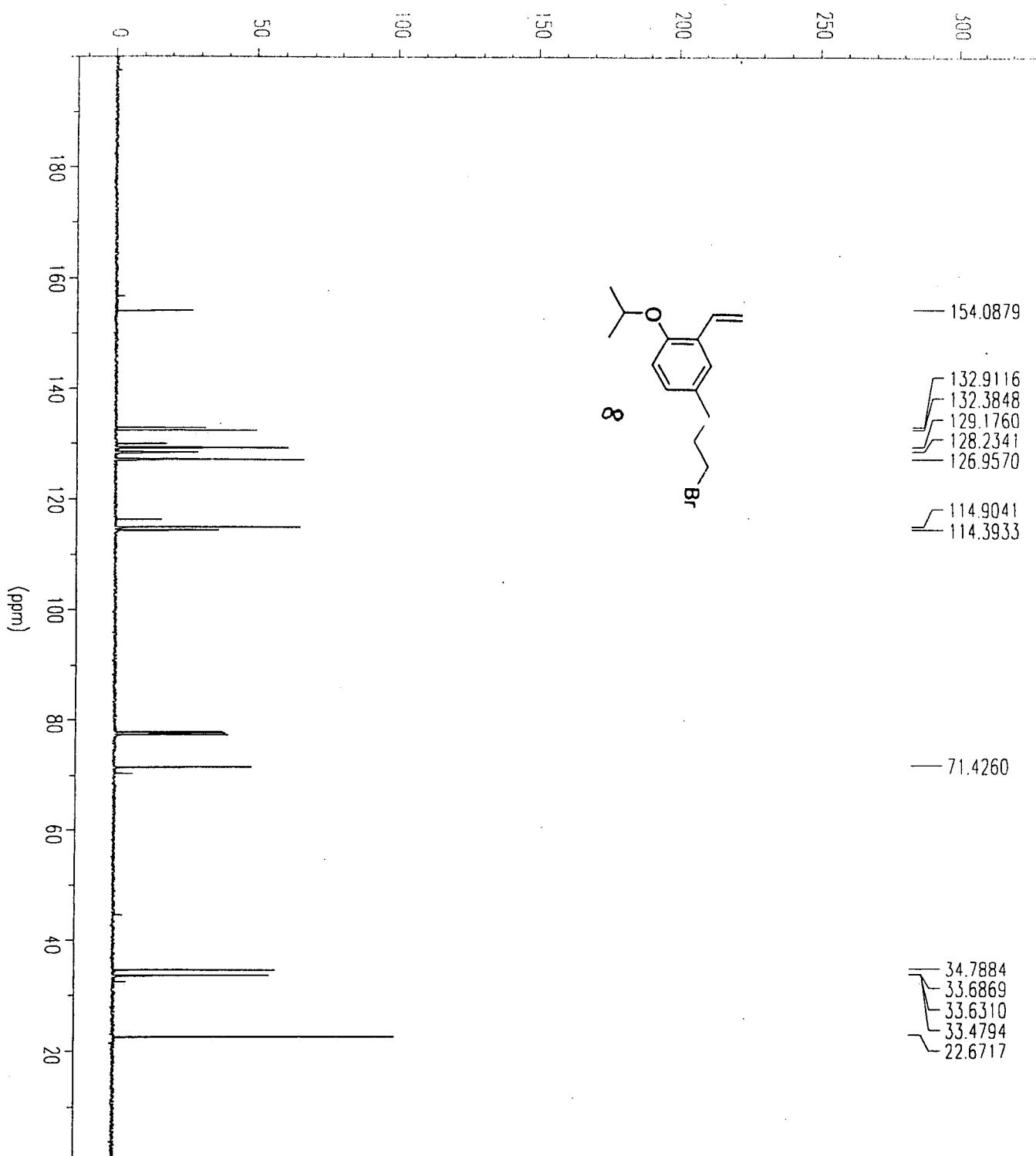
*** 1D NMR Plot Parameters ***

SR	0.00	Hz
ppcm	10.75	
Hzcm	1081.86	
Wolcm	95088936.00	
Rec	F1	
MPSF	1.000000	
AQtime	1.3107200	sec



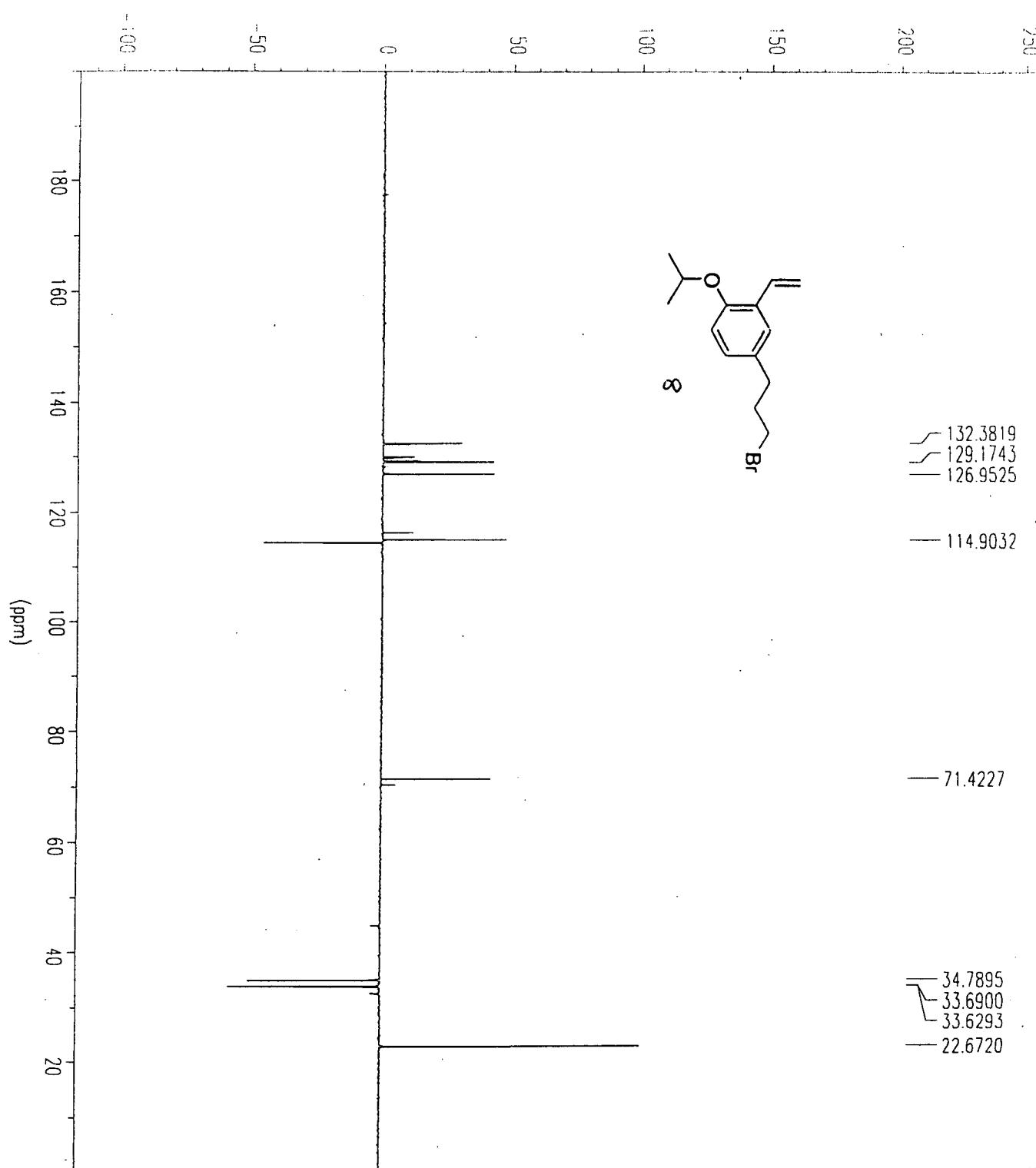
*** Current Data Parameters ***

NAME	: c-mma362
EXPNO	: 1
PROCNO	: 1
 *** Acquisition Parameters ***	
BF1	: 400.130000 MHz
DATEt	: 16:03:14
DATED	: Nov 05 2002
NS	: 8
NUCLEUS	: ¹ H
SOLVENT	: CDCl ₃
T	: 300.0 K



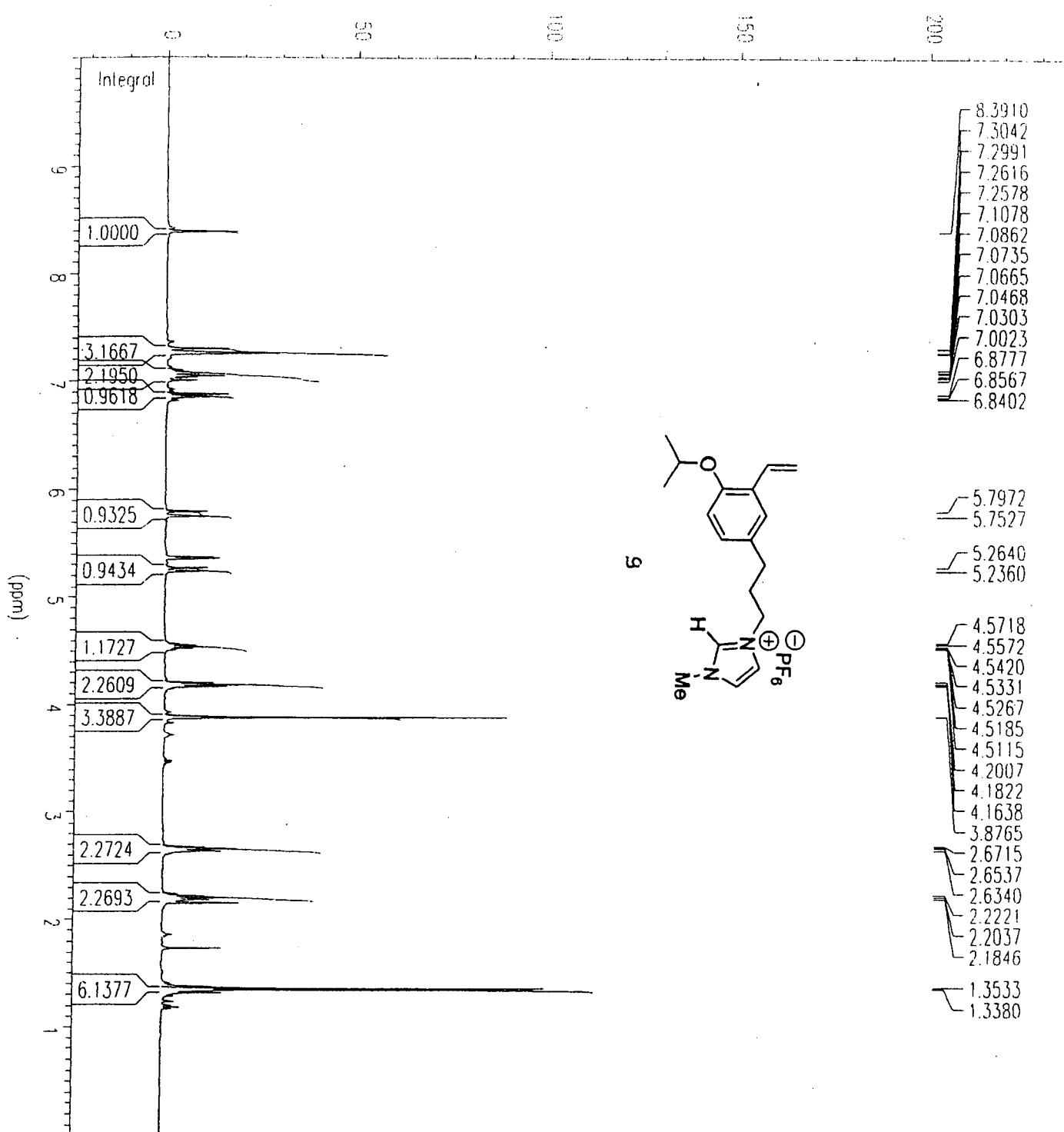
*** Current Data Parameters ***

NAME :	c-mma362
EXPNO :	2
PROCNO :	1
*** Acquisition Parameters ***	
RF1	: 100.6127290 MHz
DATE	: 16:05:43
DATED	: Nov 05 2002
NS	: 141
NUCLEUS	: ¹³ C
SOLVENT	: CDCl ₃
TE	: 300.0 K



*** Current Data Parameters ***

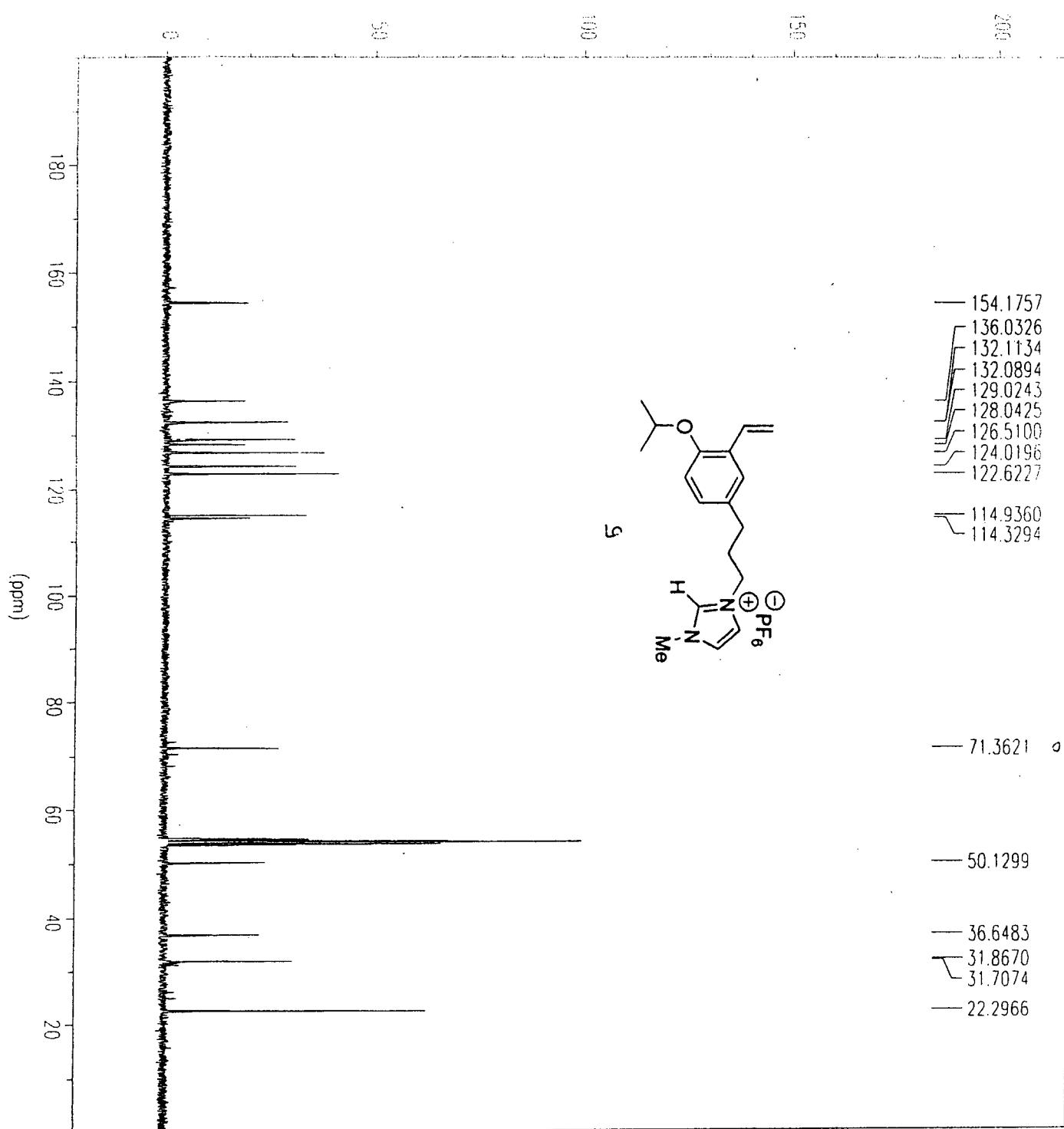
NAME	: c-mma362
EXPNO	: 3
PROCNO	: 1
*** Acquisition Parameters ***	
RF1	: 100.6127290 MHz
DATEI	: 16:22:03
DATED	: Nov 05 2002
NS	: 170
NUCLEUS	: ^{13}C
SOLVENT	: CDCl_3
TE	: 300.0 K



*** Current Data Parameters ***

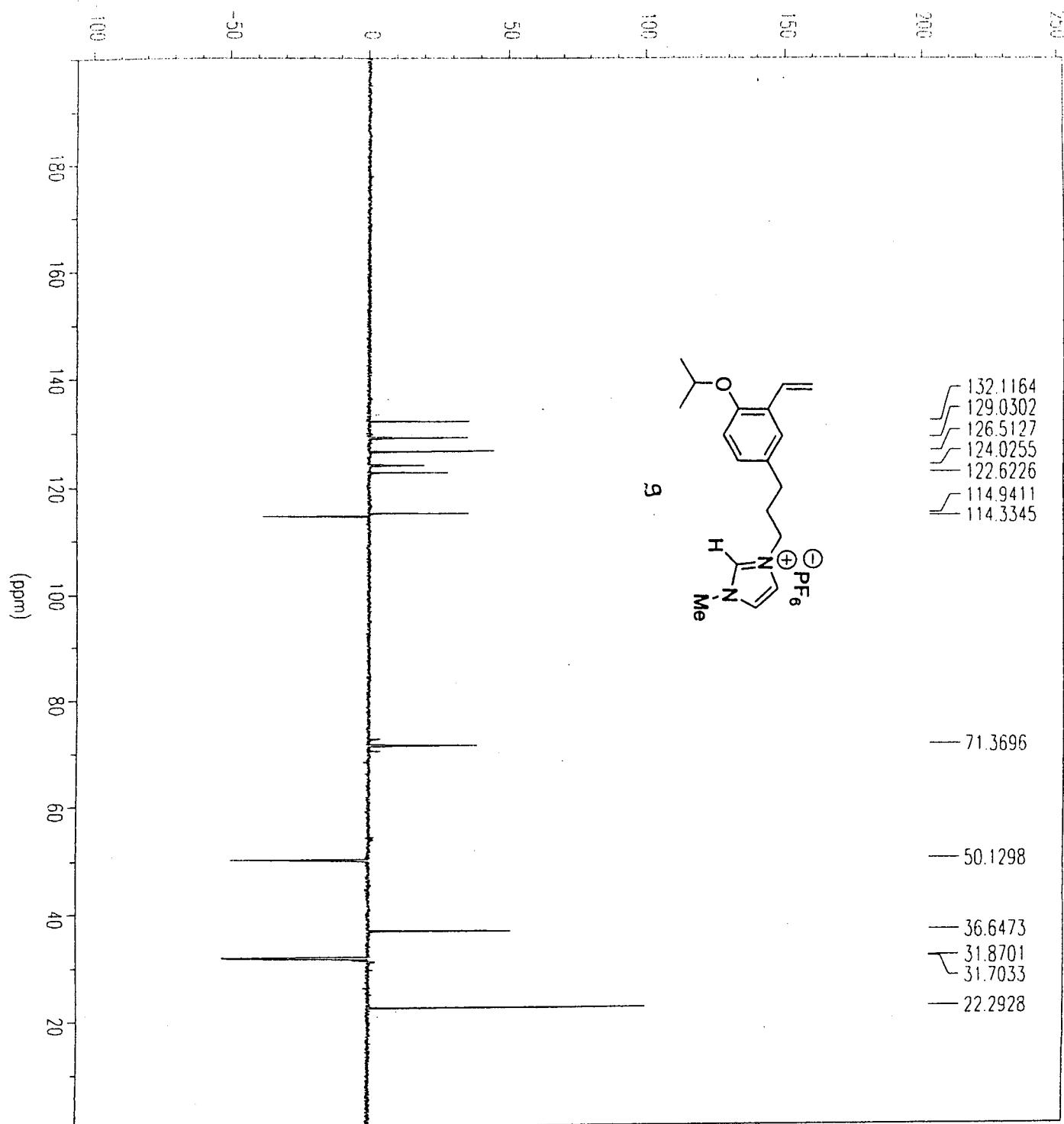
NAME	c-mma303
EXPNO	10
PROCNO	1
SR	0.00 Hz
ppmcm	0.54
Hzcm	215.13
YValcm	73892368.00
Rec	F1
MPSF	1.000000
AQtime	1.9660800 sec

*** 1D NMR Plot Parameters ***



*** Current Data Parameters ***

NAME	c-mma303
EXPNO	11
PROCNO	1
*** 1D NMR Plot Parameters ***	
SR	-0.00 Hz
ppcm	10.75
Hzcm	1081.85
Wolcm	40167328.00
Rec	F1
MPSF	1.000000
AQtime	1.2451840 sec

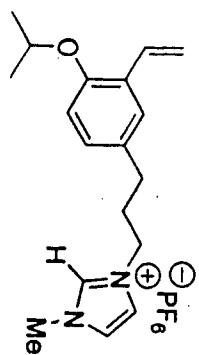
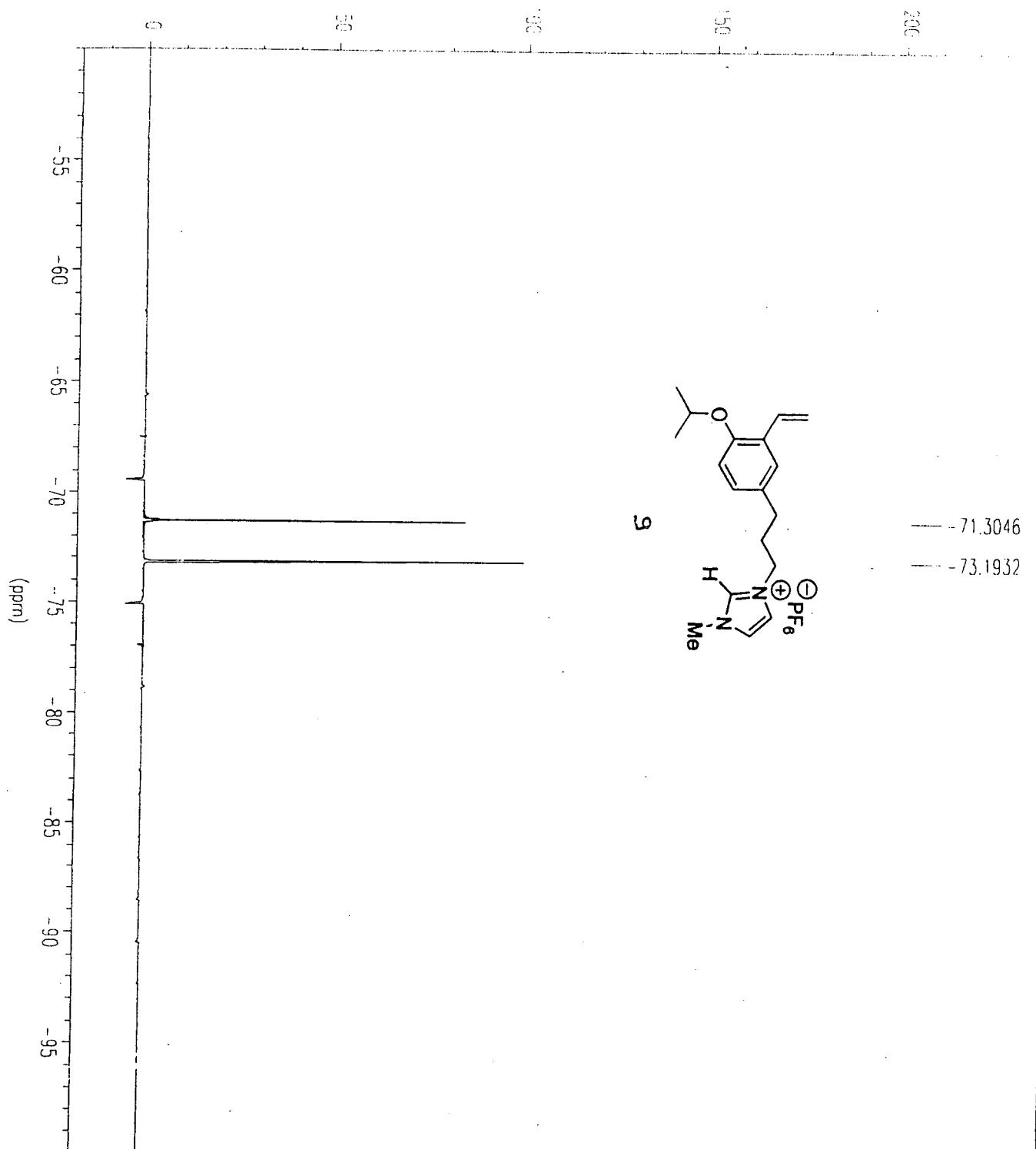


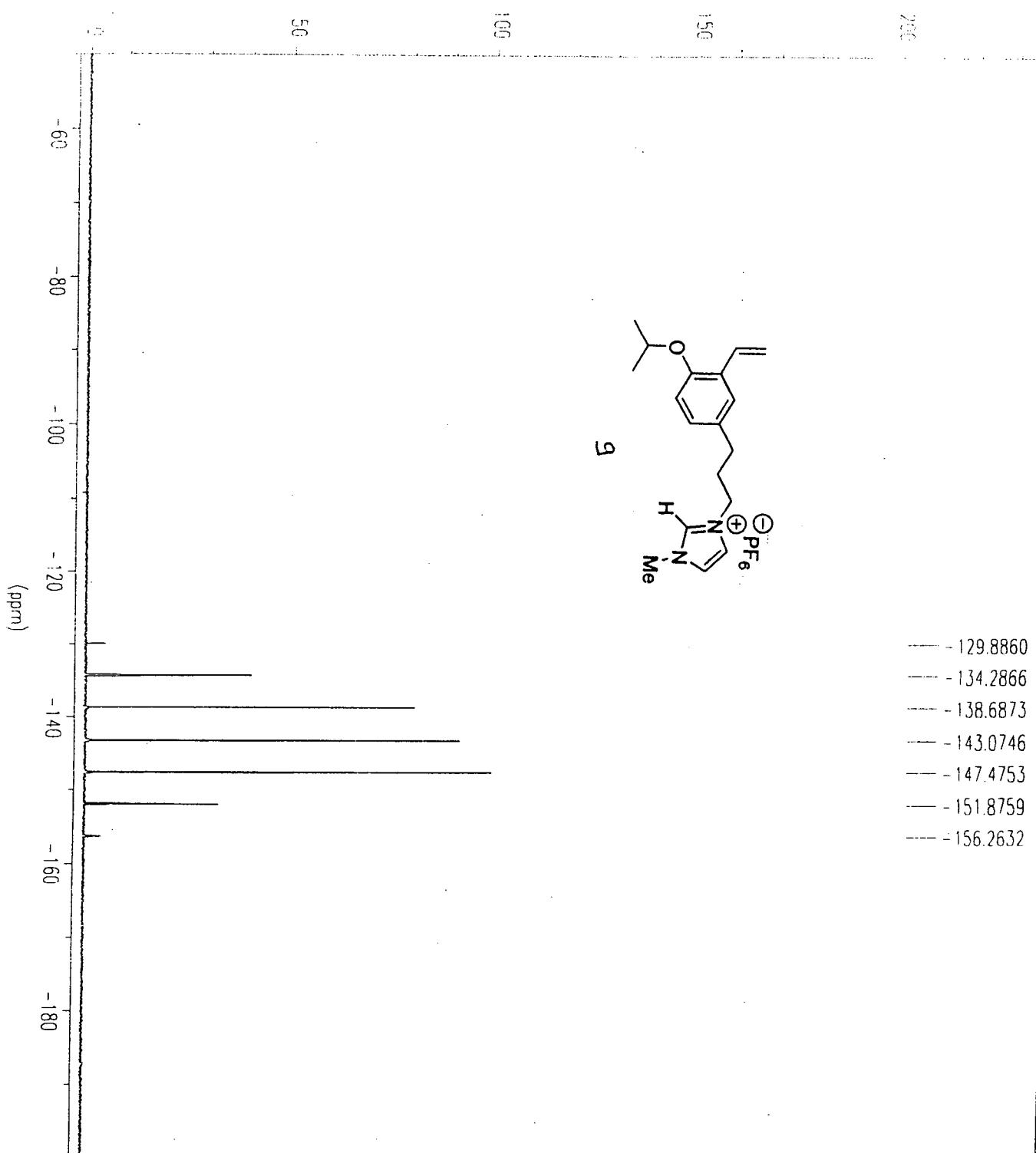
*** Current Data Parameters ***

NAME	c-mma303
EXPNO	12
PROCNO	1

*** 1D NMR Plot Parameters ***

SR	0.00 Hz
ppmcm	10.75
Hzcm	1081.86
Wlcm	10795.7632.00
Rec	F1
MPSF	1.000000
AQtime	1.310720 sec





***** Current Data Parameters *****

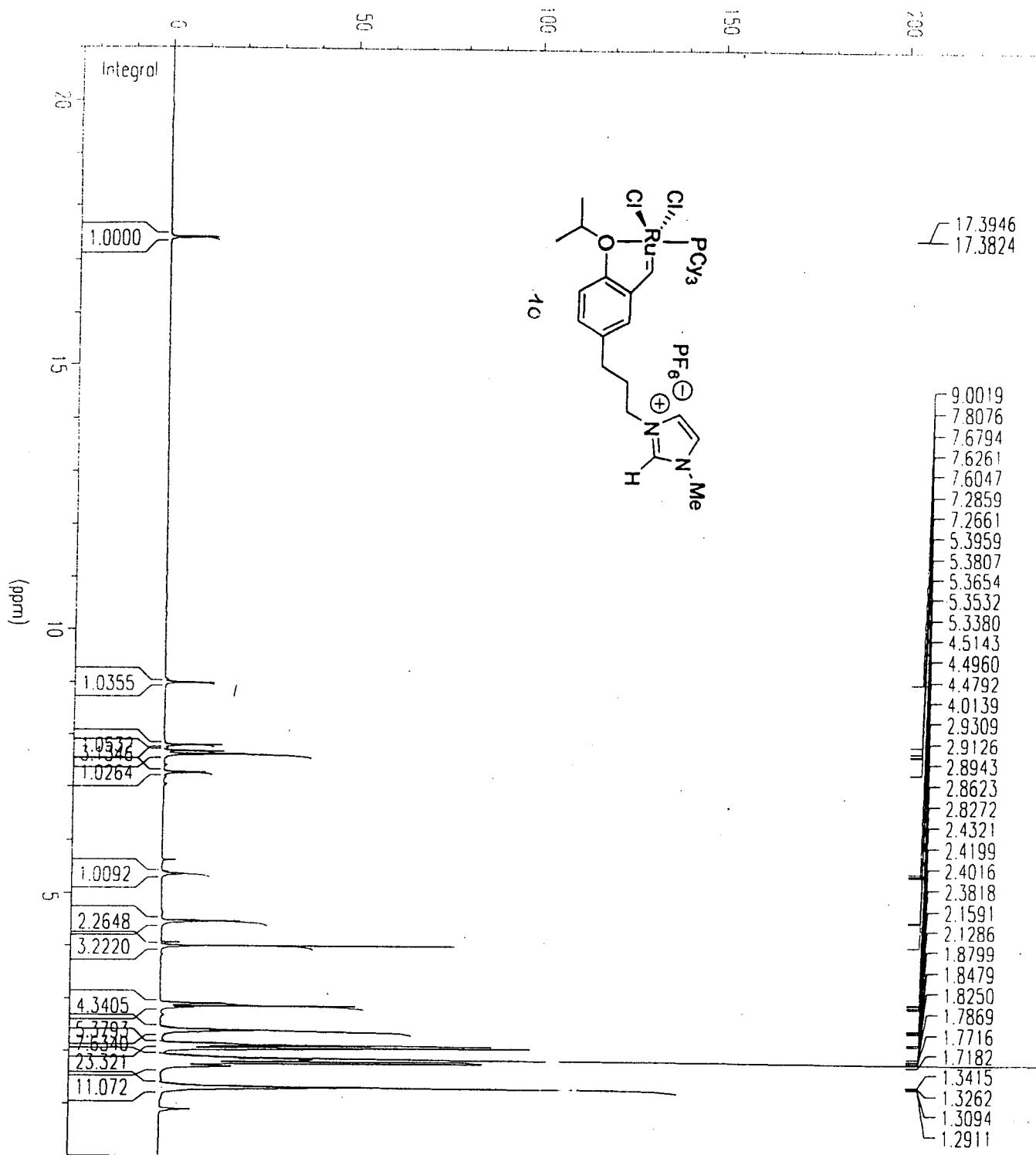
NAME	C-mm0307
EXPNO	3
PROCNO	1

***** Acquisition Parameters *****

RF1	161.975390 MHz
DATE	15.43.48
DATED	Jul 24 2002
NS	29
NUCLEUS	¹³ P
SOLVENT	Aceton
TE	300.0 K

***** 1D NMR Plot Parameters *****

SR	0.01 Hz
ppcm	7.81
Hzcm	1265.44
Wtcm	477.1272.00
AQtime	0.4587520 sec



*** Current Data Parameters ***

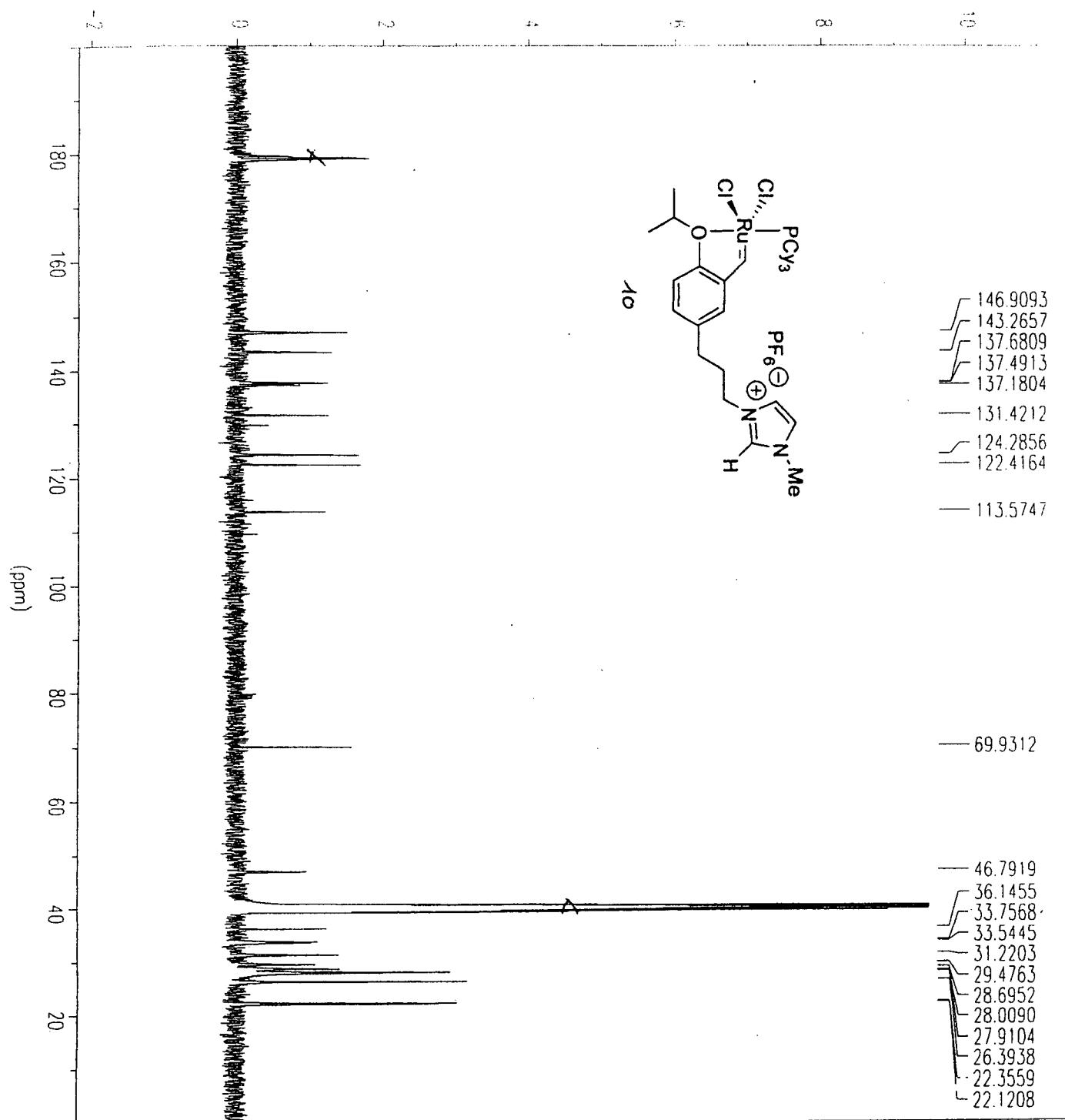
NAME	:	c-nma
EXPNO	:	60
PROCNO	:	1

*** Acquisition Parameters ***

BF1	:	400.130000 MHz
DATE	:	15.45.26
DATED	:	Jul 16 2002
NS	:	8
NUCLEUS	:	¹ H
SOLVENT	:	acetone
TE	:	300.0 K

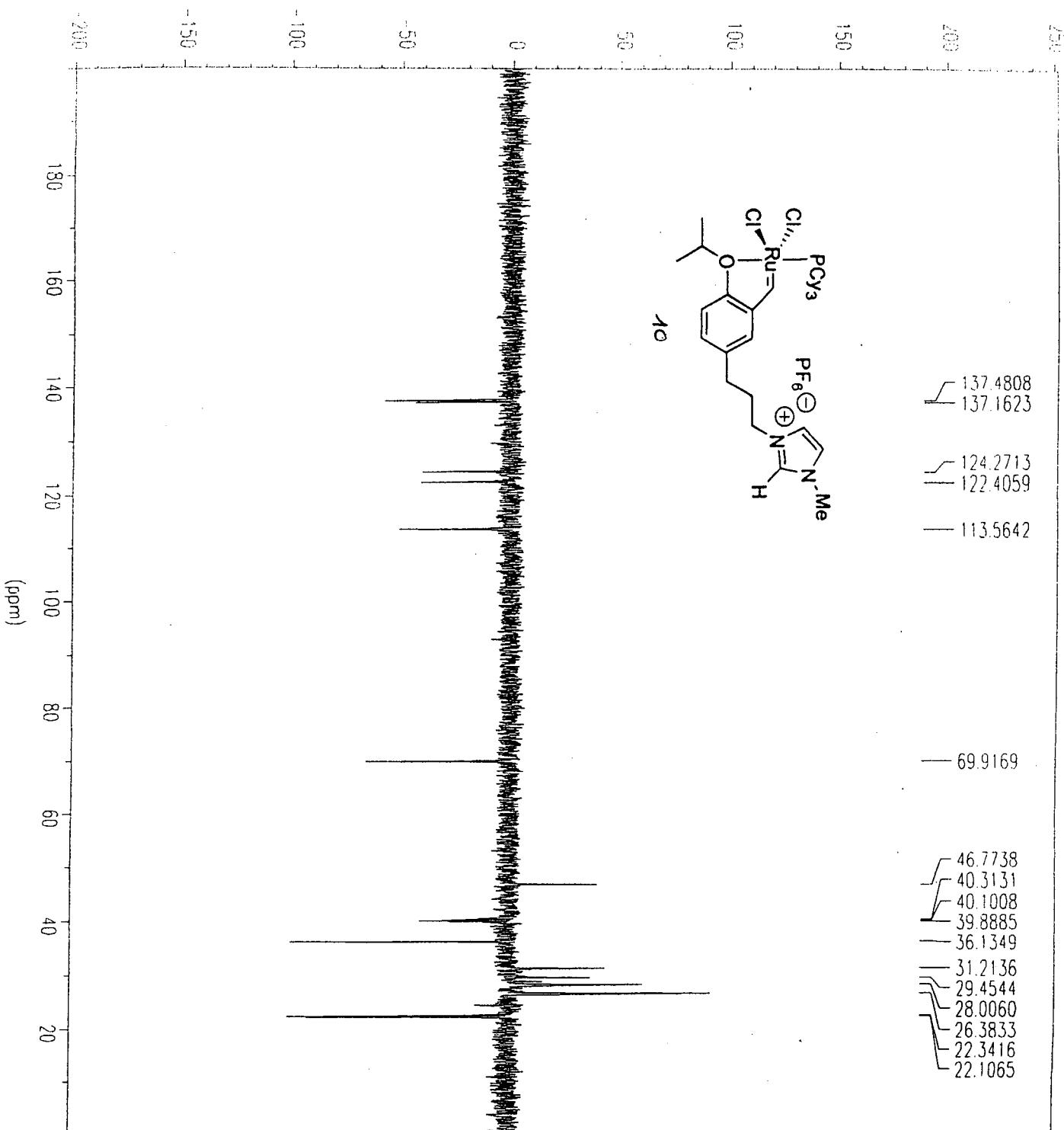
*** 1D NMR Plot Parameters ***

SR	:	-0.00 Hz
ppmcm	:	1.09
Hzcm	:	437.64
YValcm	:	8 214944.00
AQtime	:	0.8192000 sec



*** Current Data Parameters ***

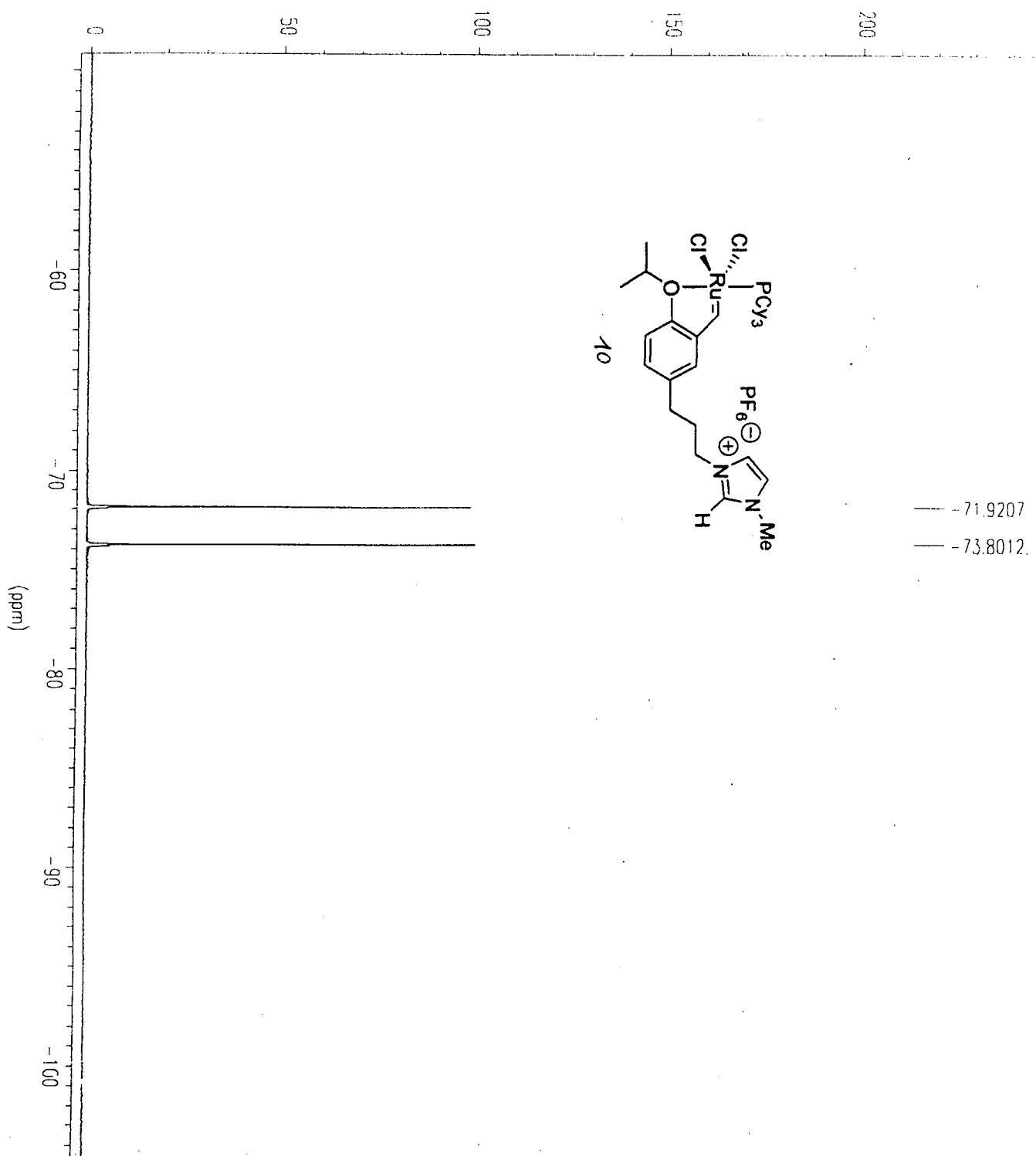
NAME	c-na296
EXPNO	10
PROCNO	1
SR	50.30 Hz
ppmcm	10.75
Hzcm	1081.86
Wdcm	3182433.50
Wlcm	F1
Rec	1.000000
MPSF	0.6553600
AQtime	sec



*** Current Data Parameters ***

NAME
EXPNO
C-no296
11

1D NMR Plot Parameters	
SR	51.55 Hz
ppcm	10.75
Hzcm	1081.86
Wlcm	121826536.00
Rec	F1
MPSF	1000000
AQtime	1.3107200 sec

***** Current Data Parameters *****

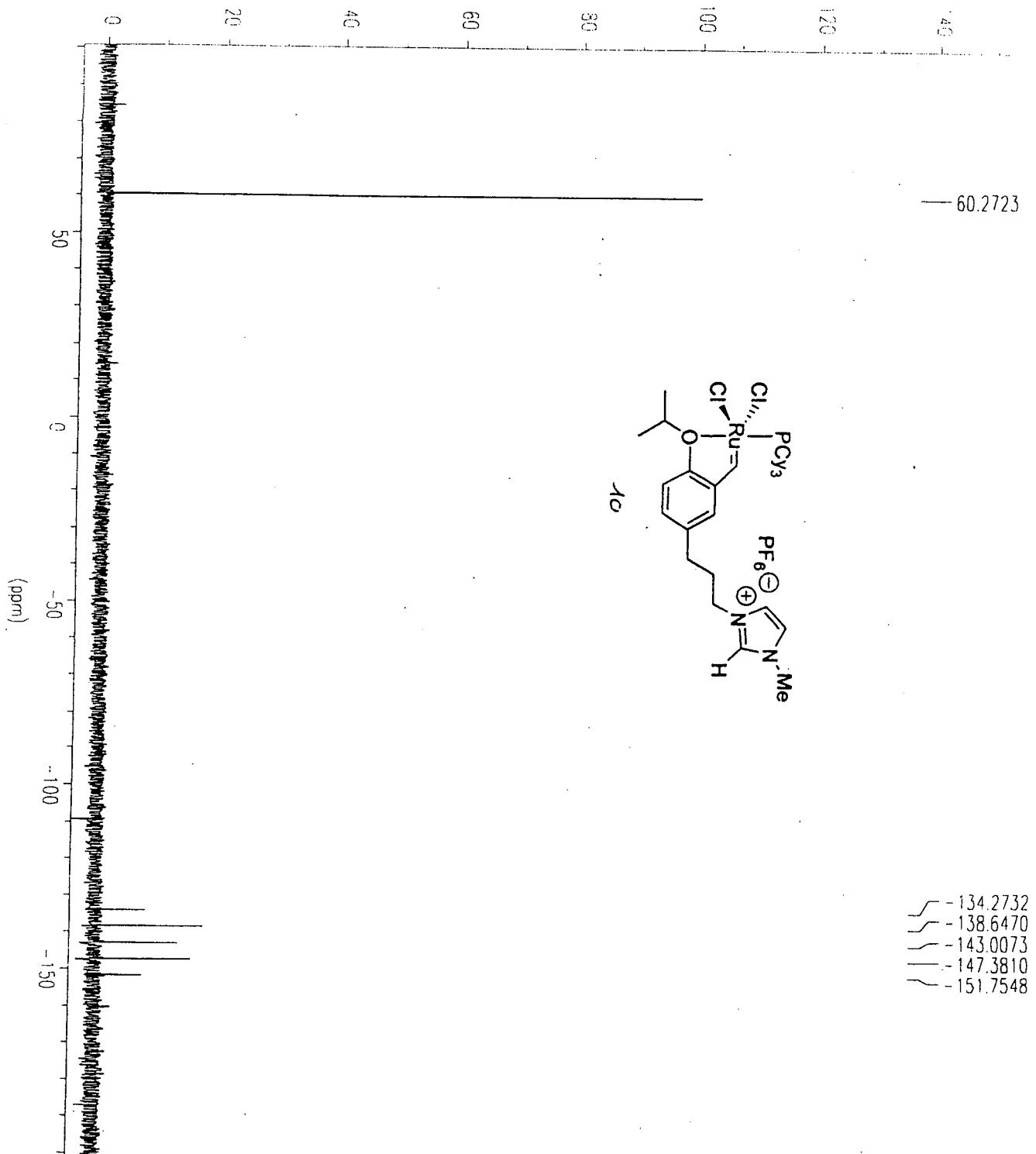
NAME	c-nmo289
EXPNO	11
PROCNO	1

***** Acquisition Parameters *****

BF ₁	376.4985340 MHz
DATE _t	16:11:31
DATE _d	Jul 15 2002
NS	32
NUCLEUS	¹⁹ F
SOLVENT	TE
TE	300.0 K

***** 1D NMR Plot Parameters *****

SR	-3.28 Hz
ppmcm	2.90
Hzcm	1091.80
Wlcm	48122872.00
AQtime	0.1638400 sec



*** Current Data Parameters ***

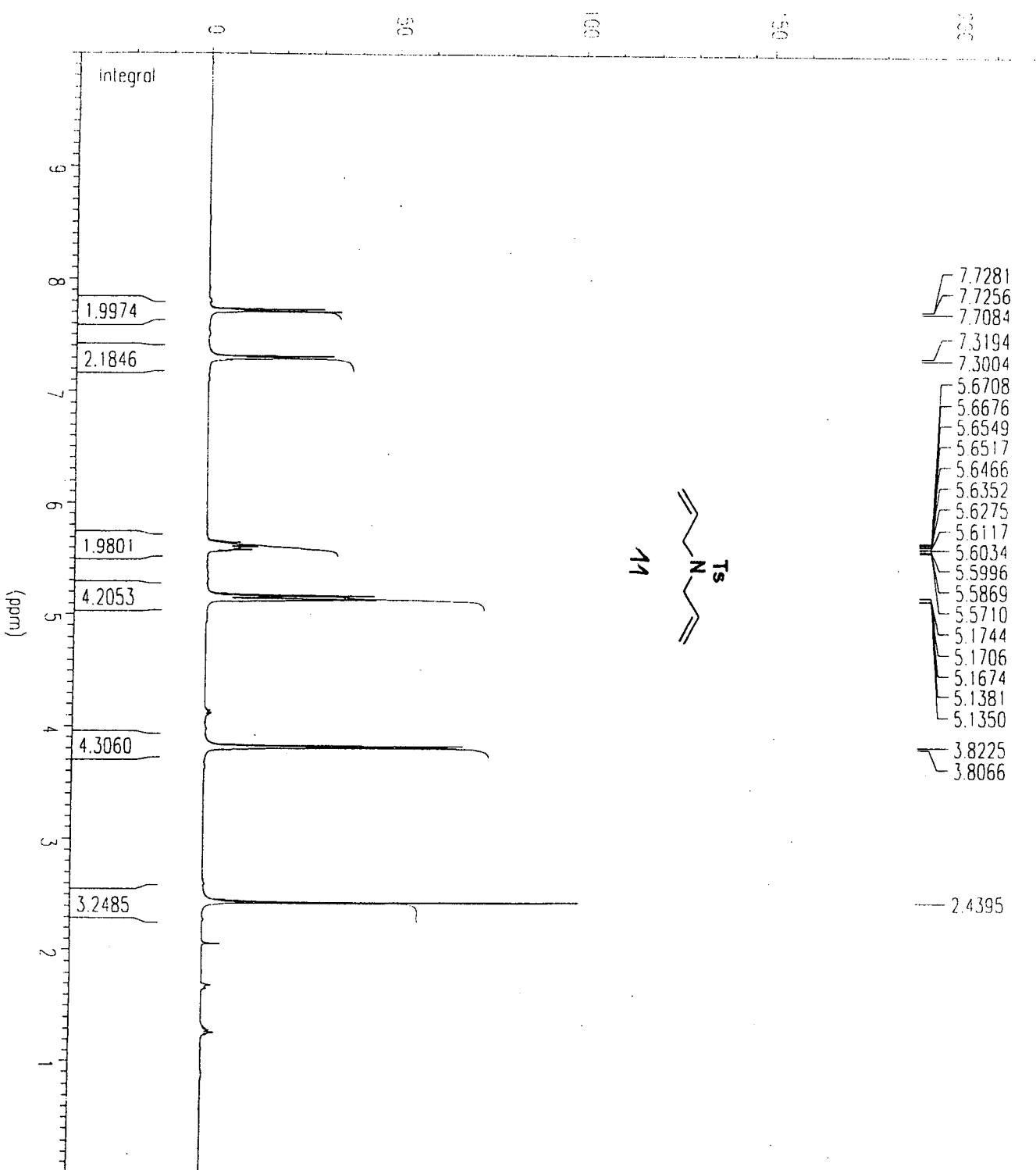
NAME	c-mm0289
EXPNO	12
PROCNO	1

*** Acquisition Parameters ***

RF1	161.9753930 MHz
DATEt	16:13:45
DATEd	Jul 15 2002
NS	16
NUCLEUS	^{31}P
SOLVENT	Aceton
TE	300.0 K

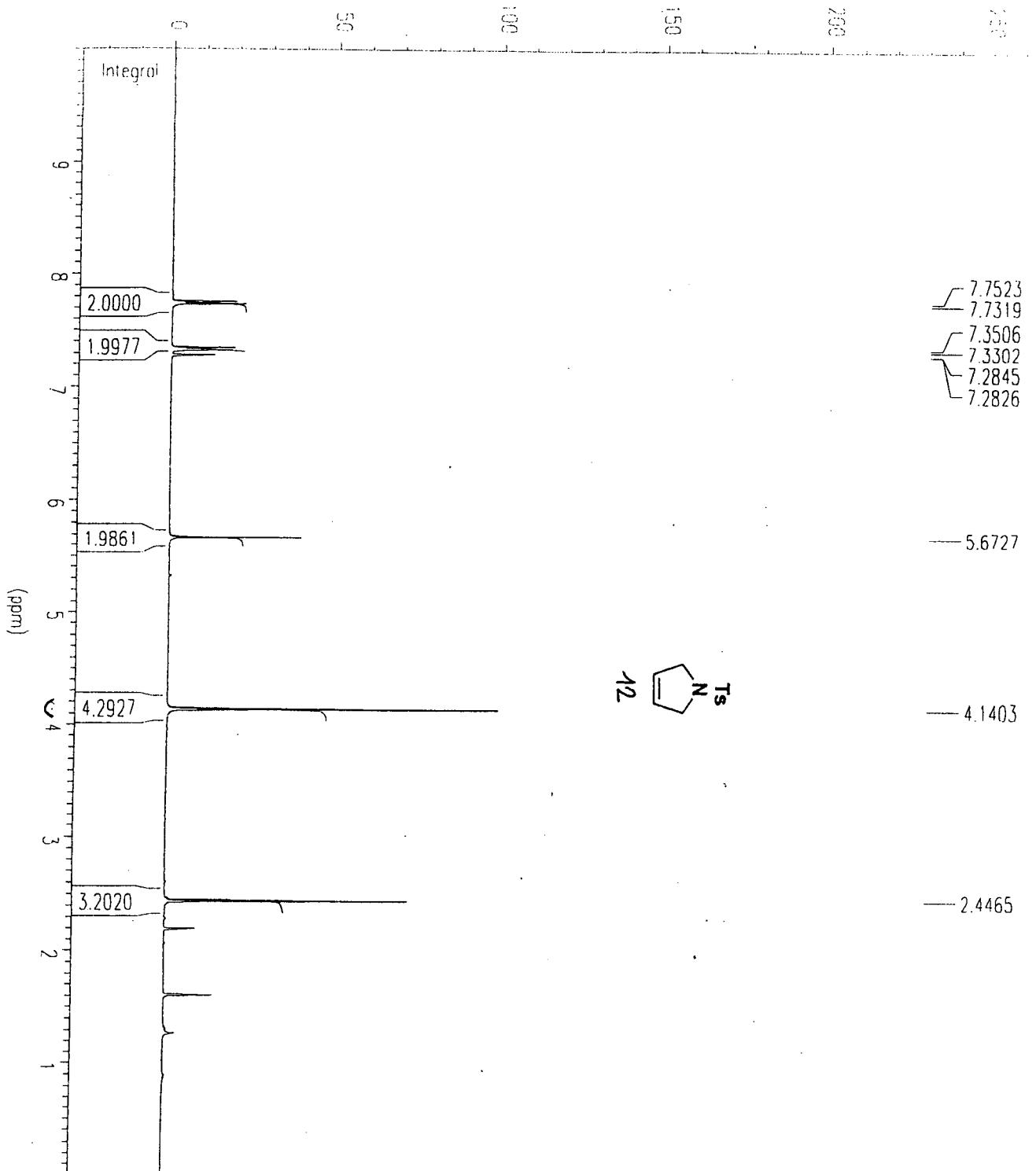
*** 1D NMR Plot Parameters ***

SR	0.01 Hz
ppmcm	15.73
Hzcm	2547.67
YVolcm	40254976.00
AQtime	0.4587520 sec



*** Current Data Parameters ***

NAME	c-mma292
EXPNO	1
PROCNO	1
*** Acquisition Parameters ***	
RF1	400.1300000 MHz
DATE	14.57.49
TIME	Jul 17 2002
NS	8
NUCLEUS	¹ H
SOLVENT	CDCl ₃
TE	300.0 K
*** 1D NMR Plot Parameters ***	
SR	0.00 Hz
ppcm	0.52
Hzcm	208.40
YOffset	53305624.00
AQtime	1.9660800 sec



*** Current Data Parameters ***

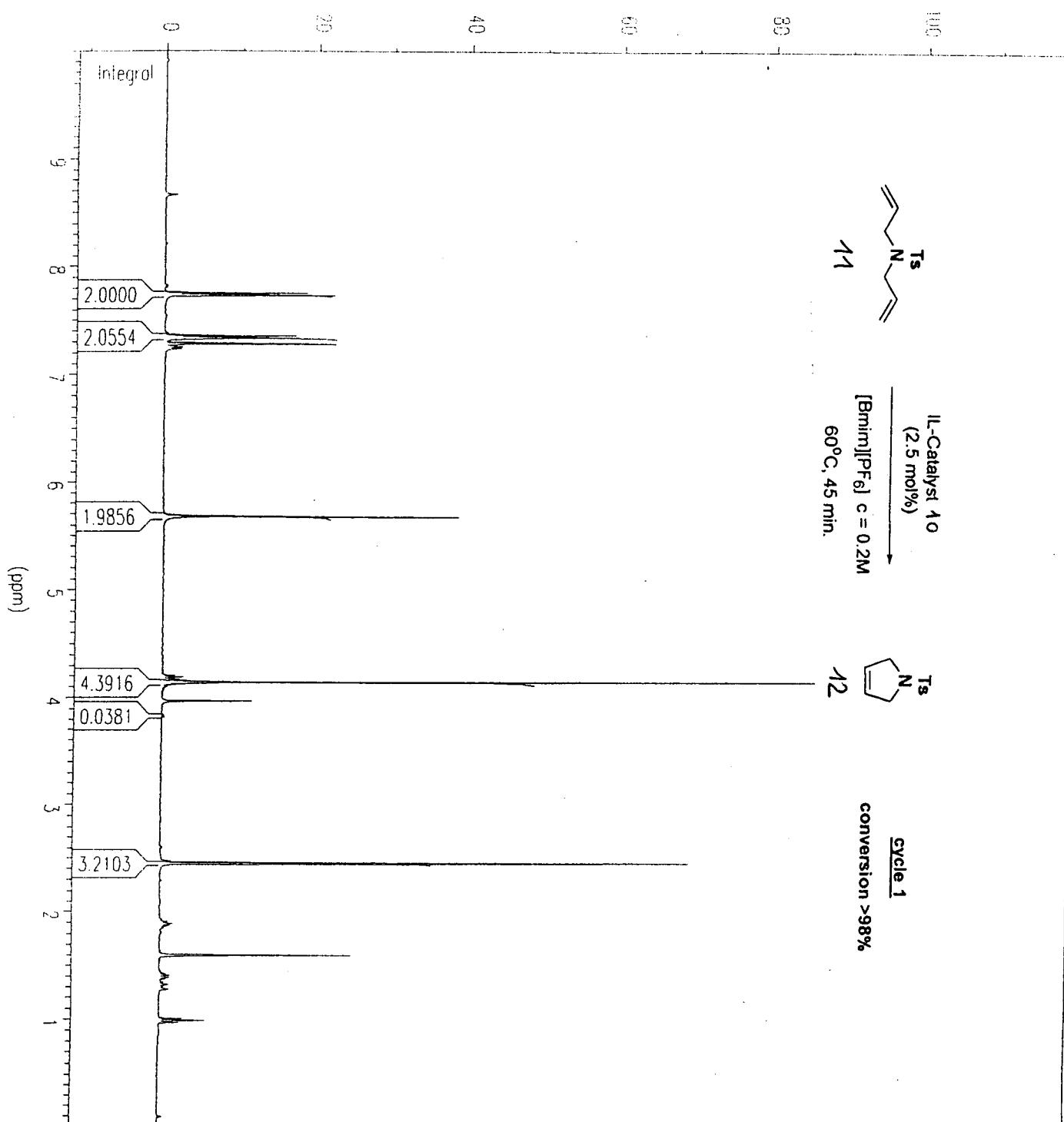
NAME	c-nmra293
EXPNO	1
PROCNO	1

*** Acquisition Parameters ***

RF1	400.130000 MHz
DATE	16:18:46
DATED	Jul 17 2002
NS	8
NUCLEUS	¹ H
SOLVENT	CDCl ₃
TE	300.0 K

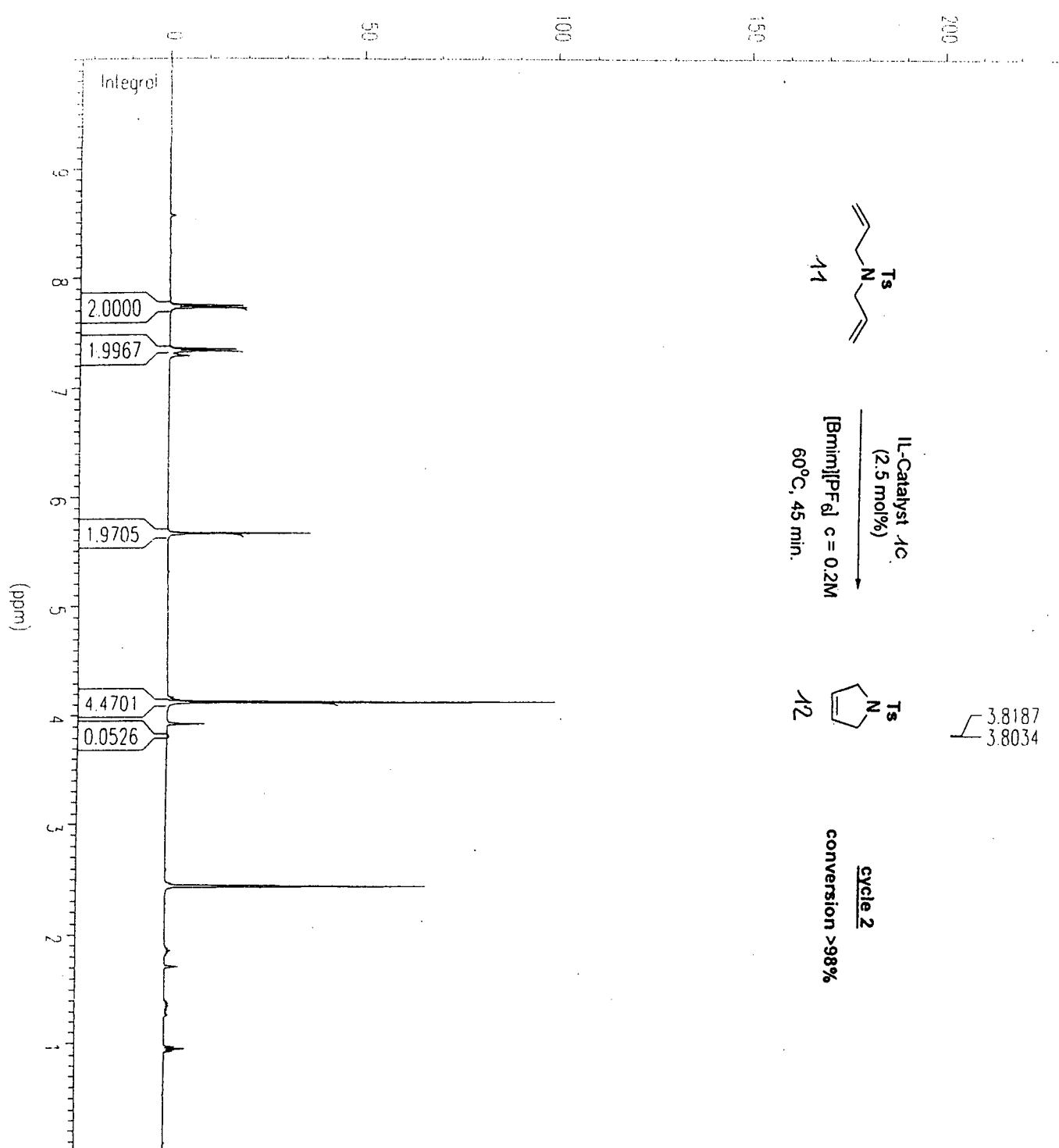
*** 1D NMR Plot Parameters ***

SR	0.00 Hz
ppcm	0.52
Hzcm	208.40
YVolcm	97563096.00
AQtime	1.9660800 sec



*** Current Data Parameters ***

NAME	c-mm0294
EXPNO	60
PROCNO	1
*** 1D NMR Plot Parameters ***	
SR	-0.00 Hz
ppcm	0.54
Hzcm	215.13
Wlcm	23812906.00
Rec	F1
MPSF	1.000000
AQtime	0.819200 sec

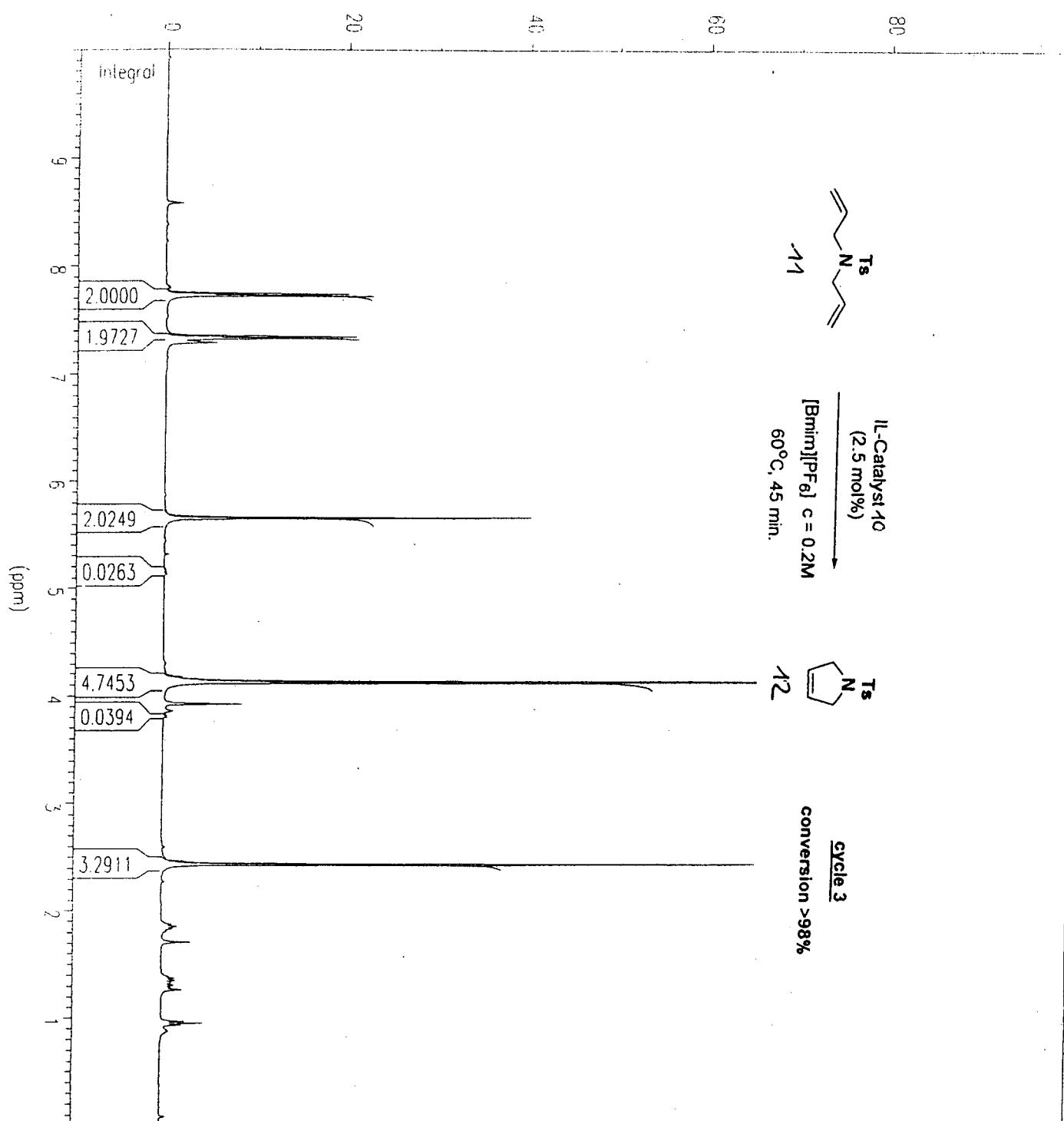


*** Current Data Parameters ***

NAME	c-mma296
EXPNO	10
PROCNO	1

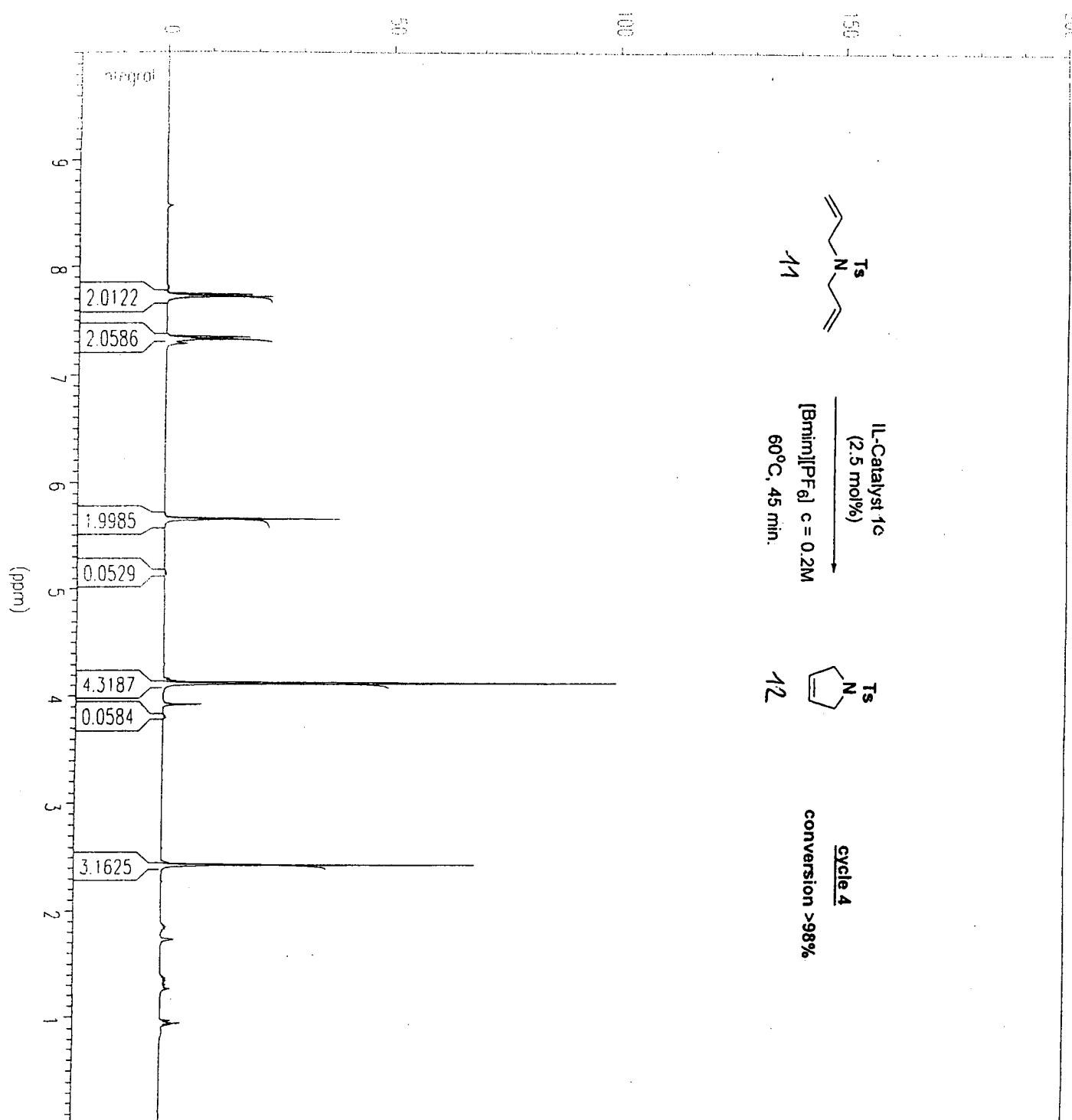
*** 1D NMR Plot Parameters ***

SR	-0.00 Hz
ppcm	0.54
Hzcm	215.13
Wlcm	69028816.00
Rec	f1
MPSF	1.000000
AQtime	0.8192000 sec



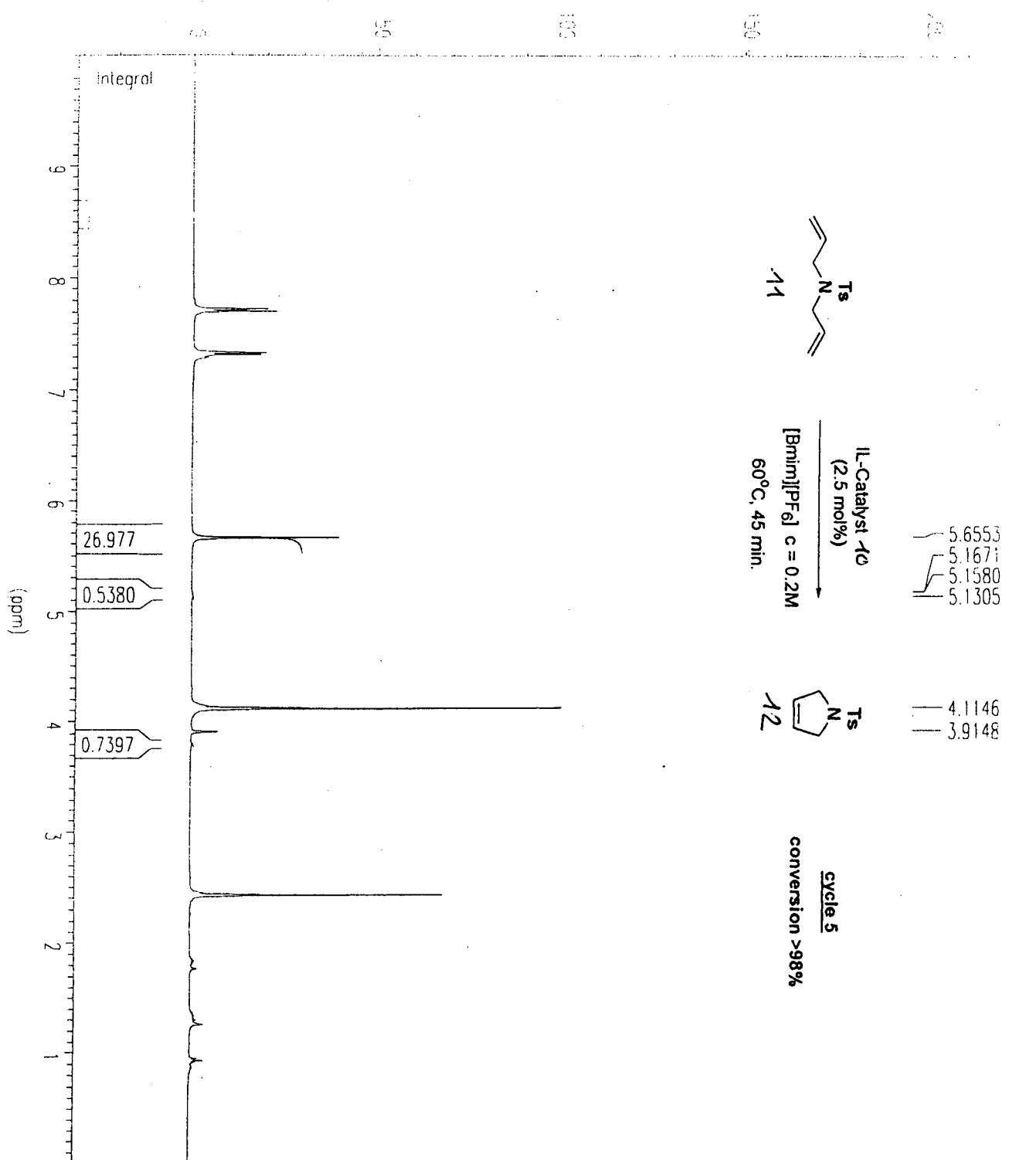
*** Current Data Parameters ***

NAME	c-mma297
EXPNO	10
PROCNO	1
*** 1D NMR Plot Parameters ***	
SR	-0.00 Hz
ppmcm	0.54
Hzcm	215.13
Walcm	32650512.00
Rec	F1
MPSF	1.000000
AQtime	0.819200 sec



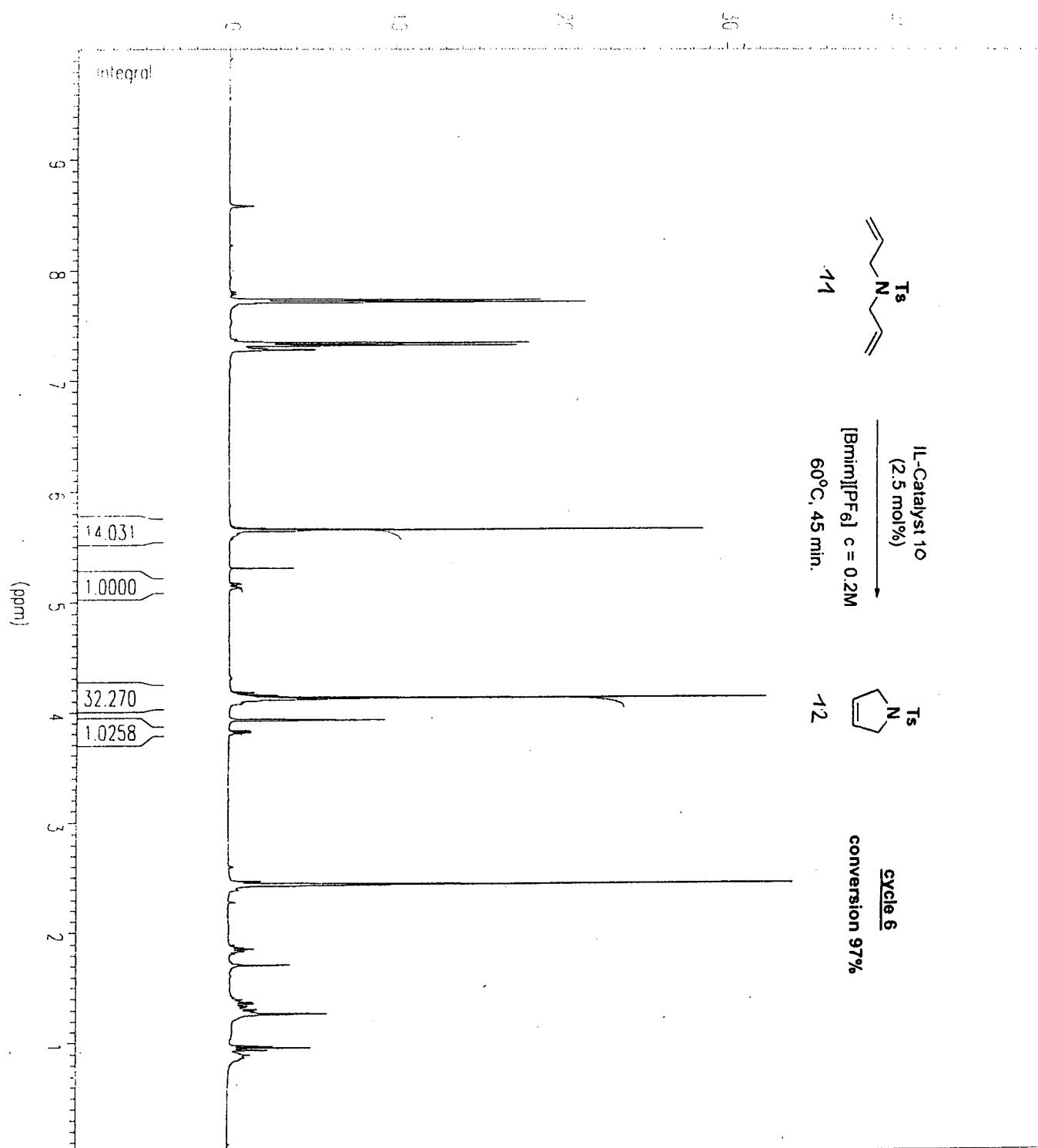
*** Current Data Parameters ***

NAME	c-mma298
EXPNO	2
PROCNO	1
*** 1D NMR Plot Parameters ***	
SR	-0.00 Hz
ppmcm	0.54
Hzcm	215.13
Walcm	46482224.00
Rec	F1
MPSF	1.000000
AQtime	0.8192000 sec



*** Current Data Parameters ***

NAME	c-mma031
EXPNO	2
PROCNO	1
*** Acquisition Parameters ***	
RF1	400.130000 MHz
DATEt	08.09.57
DATED	Jul 24 2002
NS	8
NUCLEUS	¹ H
SOLVENT	CDCl ₃
TE	300.0 K
*** 1D NMR Plot Parameters ***	
SR	-0.00 Hz
ppmcm	0.52
Hzcm	208.41
Yvolcm	48544044.00
AQtime	0.8192006 sec



*** Current Data Parameters ***

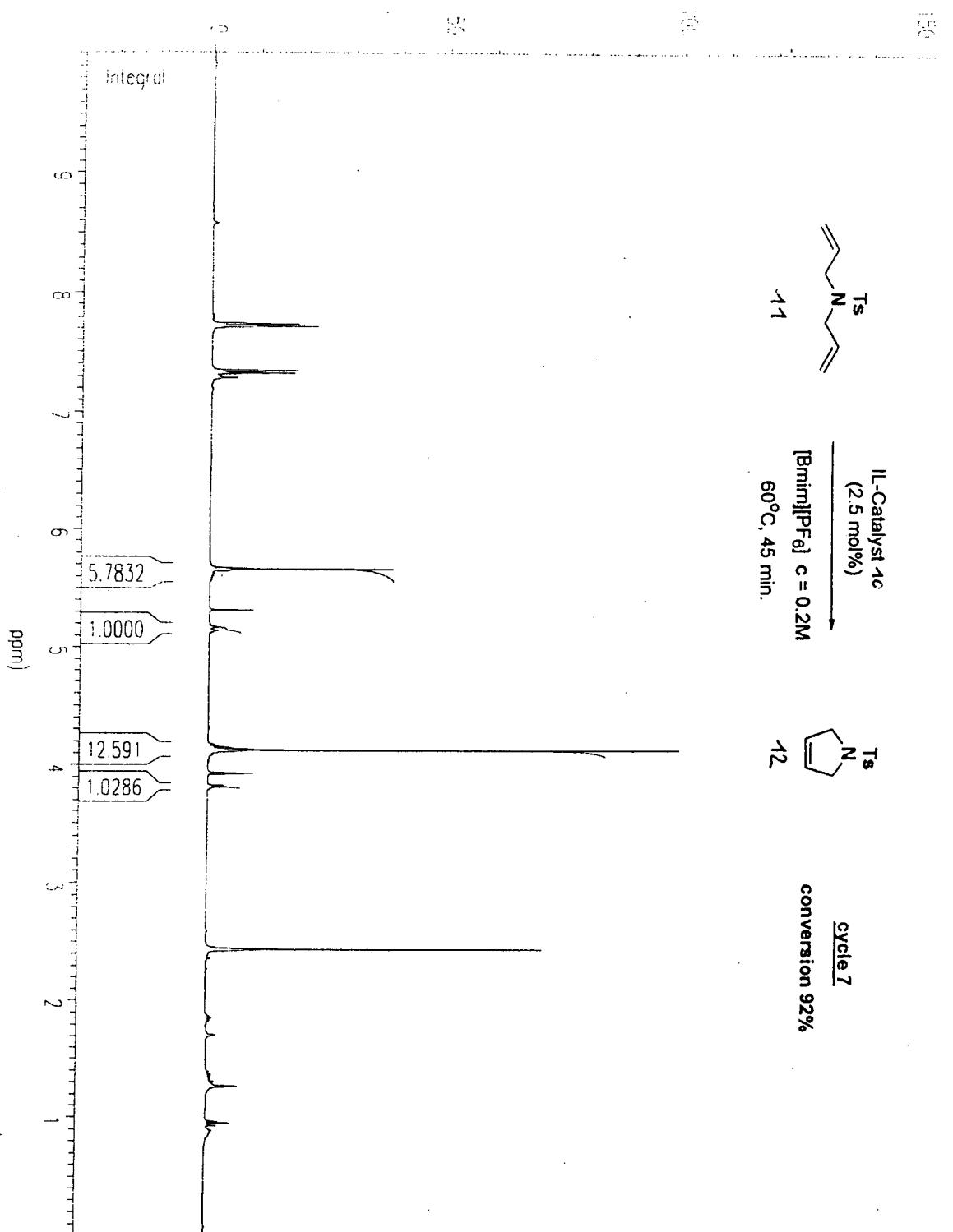
NAME	c-nnmc302
EXPG	2
PROCNO	1

*** Acquisition Parameters ***

BF ¹	400.1300000 MHz
DATEt	16:12:43
DATEd	Jul 24 2002
NS	8
NUCLEUS	¹ H
SOLVENT	CDCl ₃
TE	300.0 K

*** 1D NMR Plot Parameters ***

SR	-0.00 Hz
ppcm	0.52
Hzcm	208.41
Wlcm	14128499.00
AQtime	0.819200 sec



*** Current Data Parameters ***

NAME	C-mm0304
EXPNO	2
PROCNO	1
*** Acquisition Parameters ***	
RF1	400.130000 MHz
DATE	16.25.27
TIME	Jul 25 2002
NS	8
NUCLEUS	¹ H
SOLVENT	CDCl ₃
TE	300.0 K
*** 1D NMR Plot Parameters ***	
SR	-0.00 Hz
ppmcm	0.52
Hzcm	208.41
Wdcm	78301.688.00
AQtime	0.8192000 sec