Supporting Information

A remarkable regiocontrol in the palladium-catalyzed silylstannylation of fluoroalkylated alkynes –Highly regio- and stereoselective synthesis of multi-substituted fluorine-containing alkenes

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General procedures

Infrared spectra (IR) were determined in a liquid film on a NaCl plate or KBr disk method with a JASCO FT/IR-4100 typeA spectrometer. ^{1}H and ^{13}C NMR spectra were measured with a JEOL JNM-AL400 NMR spectrometer in a chloroform-*d* ($CDCl_3$) solution with tetramethylsilane (Me_4Si) as an internal reference. A JEOL JNM-EX90A (84.21 MHz) FT-NMR spectrometer and a JEOL JNM-AL400 NMR spectrometer were used for determining the yields of the products with hexafluorobenzene (C_6F_6). ^{19}F NMR (376.05 MHz) spectra were measured with a JEOL JNM-AL 400 NMR spectrometer in a chloroform-*d* ($CDCl_3$) solution with trichlorofluoromethane ($CFCl_3$) as an internal standard. High-resolution mass spectra (HRMS) were taken on a JEOL JMS-700MS spectrometer by electron impact (EI), chemical ionization (CI), and fast atom bombardment (FAB) methods.

All reactions were routinely monitored by ^{19}F NMR spectroscopy or TLC, and carried out under an atmosphere of argon.

Materials

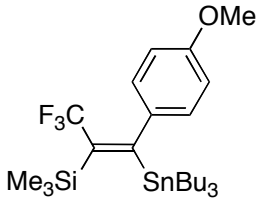
N,*N*-Dimethylformamide (DMF), triethylamine (Et_3N), and hexamethylphosphoric triamide (HMDS) were fleshly distilled from calcium hydride (CaH_2). All chemicals were of reagent grade and, if necessary, were purified in the usual manner prior to use. Thin-layer chromatography (TLC) was done with Merck silica gel 60 F_{254} plates, and column chromatography was carried out using Wako gel C-200 as adsorbent.

Typical procedure for the silylstannylation of 1-(4-chlorophenyl)-3,3,3-trifluoropropyne (Condition A): To a solution of 1-(4-chlorophenyl)-3,3,3- trifluoropropyne (0.051 g, 0.25 mmol) and $Pd(PPh_3)_2Cl_2$ (0.007 g, 0.00625 mmol, 2.5 mol%) in THF (2.5 mL) was added a THF solution of trimethyl(tributylstannyl)silane (0.109 g, 0.30 mmol) at room temperature. The reaction was stirred at 80 ℃ for 6 h. The resulting mixture was then quenched with H_2O. The reaction mixture was extracted with Et_2O three times. The combined organic layers were dried over anhydrous Na_2SO_4 and concentrated in *vacuo*. The residue was chomatographed on silica gel (Hexane : EtOAc = 30 : 1) to afford the corresponding silylstannylated products as a regioisomeric mixture of **2d** and **3d** (0.089g, 0.16 mmol, 63%).

(*Z*)-3,3,3-Trifluoro-1-(4-methoxyphenyl)-1-tributylstannyl-2-trimethylsilyl-1-propene (2a)

Isolated yield : 75% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the

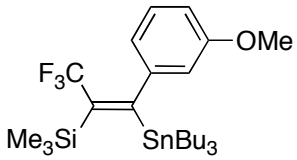
regioisomers **2a** and **3a**.)



(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.32 (s, 9H), 0.80 – 0.92 (m, 15H), 1.21 – 1.35 (m, 12H), 3.79 (s, 3H), 6.70 (d, *J* = 8.2 Hz, 2H), 6.80 (d, *J* = 8.2 Hz, 2H); ^{13}C NMR ($CDCl_3$) δ = 1.4, 13.7, 13.8, 27.7, 29.2, 55.3, 113.3, 125.1 (q, *J* = 283.4 Hz), 125.7 (d, *J* = 2.5 Hz), 139.9, 143.5 (q, *J* = 24.0 Hz), 157.5, 174.2 (q, *J* = 5.6 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.64 (s, 3F); IR (neat) ν 2957, 2923, 2873, 1875, 1730, 1606, 1501, 1464, 1377, 1340, 1241, 1187, 1140, 1101, 1039, 961, 837, 768 cm^{-1}; HRMS (FAB) calcd for (M-H) $C_{25}H_{42}F_3OSiSn$: 563.1979, found 563.1983.

(*Z*)-3,3,3-Trifluoro-1-(3-methoxyphenyl)-1-tributylstannyl-2-trimethylsilyl-1-propene (2b)

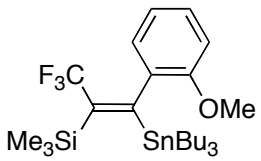
Isolated yield : 56% (Eluent of silica gel column chromatography; Hexane only. This compound was isolated as a mixture of the regioisomers **2b** and **3b**.)



(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.32 (s, 9H), 0.78 – 0.94 (m, 15H), 1.31 – 1.39 (m, 12H), 3.78 (s, 3H), 6.32 – 6.38 (m, 2H), 6.61 – 6.64 (m, 1H), 7.13 – 7.17 (m, 1H); ^{13}C NMR ($CDCl_3$) δ = 1.42, 13.77, 13.84, 27.6, 29.1, 55.4, 110.2 (q, *J* = 2.5 Hz), 110.6, 117.1 (d, *J* = 2.5 Hz), 125.1 (q, *J* = 283.5 Hz), 129.0, 142.4 (q, *J* = 24.0 Hz), 149.0, 159.3, 173.5 (q, *J* = 5.8 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.77 (s, 3F); IR (neat) ν 2957, 2923, 2873, 1731, 1597, 1465, 1377, 1253, 1145, 1101, 1050, 917, 842, 764, 698 cm^{-1}; HRMS (FAB) calcd for (M-H) $C_{25}H_{42}F_3OSiSn$: 563.1979, found 563.1982.

(*Z*)-3,3,3-Trifluoro-1-(2-methoxyphenyl)-1-tributylstannyl-2-trimethylsilyl-1-propene (2c)

Isolated yield : 61% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the regioisomer **2c** and **3c**.)

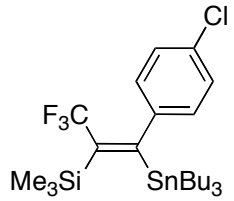


(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.32 (s, 9H), 0.68 – 0.92 (m, 15H), 1.19 – 1.38 (m, 12H), 3.74 (s, 3H), 6.67 (d, *J* = 7.6 Hz, 1H), 6.75 (d, *J* = 7.6 Hz, 1H), 6.85 (t, *J* = 7.6 Hz, 1H), 7.10 (t, *J* = 7.6 Hz, 1H); ^{13}C NMR ($CDCl_3$) δ = 1.06, 13.4, 13.6, 27.4, 28.7, 54.9, 109.4, 120.0, 124.9 (q, *J* = 283.5 Hz), 124.8 (d, *J* = 2.5 Hz), 126.7, 136.4, 142.0 (q, *J* = 23.9 Hz), 153.3, 170.6 (q, *J* =

5.7 Hz); ^{19}F NMR ($CDCl_3$) δ = −51.22 (s, 3F); IR (neat) ν 2957, 2873, 1731, 1596, 1483, 1464, 1377, 1235, 1174, 1140, 1102, 1048, 844, 805, 749 cm^{-1}.

(*Z*)-1-(4-Chlorophenyl)-3,3,3-trifluoro-1-tributylstannyl-2-trimethylsilyl-1-propene (2d)

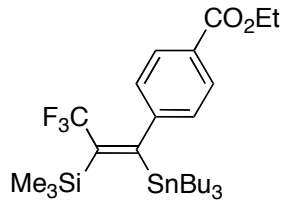
Isolated yield : 63% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the regioisomer **2d** and **3d**.)



(Major isomer); ^{1}H NMR ($CDCl_3$) δ 0.31 (s, 9H), 0.80 – 1.45 (m, 18H), 0.85 (t, *J* = 7.39 Hz, 9H), 6.71 (d, *J* = 8.8 Hz, 2H), 7.22 (d, *J* = 8.8 Hz, 2H); ^{13}C NMR ($CDCl_3$) d 1.3, 13.8, 13.9, 27.6, 29.2, 125.0 (q, *J* = 283.5 Hz), 125.8 – 126.1 (m, 1C), 128.0, 131.0, 143.9 (q, *J* = 24.0 Hz), 146.1, 172.5 (q, *J* = 5.7 Hz); ^{19}F NMR ($CDCl_3$) δ –49.70 (s, 3F); IR (neat) ν 2957, 2923, 2873, 1721, 1483, 1252, 1233, 1184, 1142, 1097, 1015, 962 cm^{-1}.

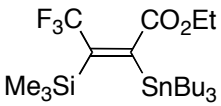
(*Z*)-Ethyl 4-(3,3,3-trifluoro-1-tributylstannyl-2-trimethylsilylpropen-1-yl)benzoate (2e)

Isolated yield : 65% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the regioisomer **2e** and **3e**.)



(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.33 (s, 9H), 0.75 – 0.95 (m, 15H), 1.10 – 1.41 (m, 15H), 4.36 (q, *J* = 6.8 Hz, 2H), 6.85 (d, *J* = 8.8 Hz, 2H), 7.94 (d, *J* = 8.8 Hz, 2H); ^{13}C NMR ($CDCl_3$) δ = 0.63, 13.6, 13.9, 14.6, 27.6, 29.1, 61.0, 124.4 – 124.5 (m, 1C), 126.2 (q, *J* = 280.2 Hz), 126.4, 126.5, 128.0, 129.1, 146.5 (q, *J* = 28.1 Hz), 166.9, 167.6 (q, *J* = 6.6 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.83 (s, 3F); IR (neat) ν 2957, 2923, 2873, 1720, 1605, 1464, 1403, 1282, 1233, 1134, 1098, 1022, 951, 844, 748, 705 cm^{-1}; HRMS (FAB) calcd for (M+H) $C_{27}H_{46}F_3O_2SiSn$: 607.2241, found 607.2249.

(*Z*)-Ethyl 4,4,4-Trifluoro-2-tributylstannyl-3-trimethylsilyl-2-propenoate (2f)

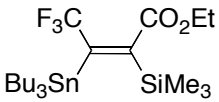


Combined isolated yield : 52% (Eluent of silica gel column chromatography; Hexane : EtOAc = 10 : 1. Two regioisomers could not be separated completely, but each isomer could be partialy obtained in a pure form.)

(Minor isomer); ^{1}H NMR ($CDCl_3$) δ = 0.20 (s, 9H), 0.17 – 1.05 (m, 15H), 1.25 – 1.52 (m, 15H), 4.15 (q, *J* = 7.2 Hz, 2H); ^{13}C

NMR ($CDCl_3$) δ = 1.0, 12.2 (q, *J* = 3.2 Hz), 13.6, 14.1, 27.1, 28.6, 60.5, 126.3 (q, *J* = 273.6 Hz), 143.8 (q, *J* = 28.1 Hz), 161.9 (q, *J* = 9.9 Hz), 172.5; ^{19}F NMR ($CDCl_3$) δ = –58.70 (s, 3F); IR (neat) ν 2958, 2925, 2873, 1714, 1571, 1465, 1378, 1254, 1215, 1147, 1116, 1034, 924, 848, 768, 671, 630 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{21}H_{41}F_3NaO_2SiSn$: 553.1748, found 553.1744.

(*Z*)-Ethyl 4,4,4-Trifluoro-3-tributylstannyl-2-trimethylsilyl-2-propenoate (3f)

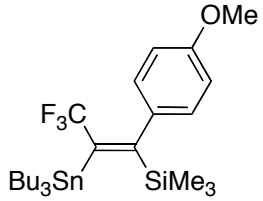


(Major isomer); ^1H NMR ($CDCl_3$) δ = 0.24 (s, 9H), 0.90 (t, *J* = 7.2 Hz, 9H), 1.07 – 1.60 (m, 21H), 4.18 (q, *J* = 7.2 Hz, 2H); ^{13}C NMR ($CDCl_3$) δ = 0.6, 13.4 – 13.5 (m, 1C), 14.3, 14.8, 27.9, 29.3, 61.5, 126.3 (q, *J* = 278.5 Hz), 146.6 (q, *J* = 31.4 Hz), 157.5 (q, *J* = 6.6 Hz), 172.0 (q, *J* = 1.7 Hz); ^{19}F NMR ($CDCl_3$) δ = –55.98 (s, 3F); IR (neat) 2958, 2925, 2873, 1720, 1567, 1464, 1378, 1231, 1146, 1107, 1034, 991, 851, 763, 694, 670 cm^{-1}; HRMS (FAB) calcd for (M+H) $C_{21}H_{42}F_3O_2SiSn$: 531.1928, found 531.1927.

Typical procedure for silylstannylation of 1-(4-chlorophenyl)-3,3,3-trifluoropropyne (Condition B): To a solution of 1-(4-chlorophenyl)-3,3,3-trifluoropropyne (0.051 g, 0.25 mmol) and Pd(*t*-BuNC)$_2$Cl$_2$ (0.002 g, 0.00625 mmol, 2.5 mol%) in THF (2.5 mL) was added a THF solution of trimethyl(tributylstannyl)silane (0.109 g, 0.30 mmol) at room temperature. The reaction was stirred for 6 h at room temperature. The resulting mixture was then quenched with H_2O. The reaction mixture was extracted with Et_2O three times. The combined organic layers were dried over anhydrous Na_2SO_4 and concentrated in *vacuo*. The residue was chomatographed on silica gel (hexane: EtOAc = 30 : 1) to afford the corresponding silylstannylated product **2** and **3** (0.128 g, 0.23 mmol, 90%).

(*Z*)-3,3,3-Trifluoro-1-(4-methoxyphenyl)-2-tributylstannyl-1-trimethylsilyl-1-propene (3a)

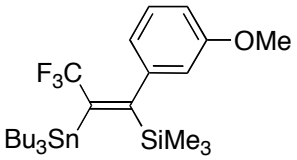
Isolated yield : 82% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the regioisomer **2a** and **3a**.)



(Major isomer); ^1H NMR ($CDCl_3$) δ = 0.06 (s, 9H), 0.83 – 0.94 (m, 11H), 1.08 – 1.12 (m, 4H), 1.34 – 1.39 (m, 6H), 1.51 – 1.54 (m, 6H), 3.79 (s, 3H), 6.68 – 6.81 (m, 4H); ^{13}C NMR ($CDCl_3$) δ = 0.8, 13.6 (m, 1C), 14.0, 27.7, 29.2, 55.4, 113.4, 126.4 (q, *J* = 280.2 Hz), 127.7 (q, *J* = 2.5 Hz), 137.2, 146.5 (q, *J* = 28.1 Hz), 157.9, 168.9 (q, *J* = 6.6 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.46 (s, 3F); IR (neat) 2956, 2923, 2872, 1606, 1503, 1464, 1282, 1236, 1187, 1137, 1098, 1039, 962, 842, 760, 618 cm^{-1}; HRMS (FAB) calcd for (M-H) $C_{25}H_{42}F_3OSiSn$: 563.1979, found 563.2133.

(*Z*)-3,3,3-Trifluoro-1-(3-methoxyphenyl)-2-tributylstannyl-1-trimethylsilyl-1-propene (3b)

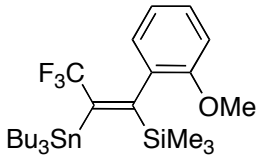
Isolated yield : 87% (Eluent of silica gel column chromatography; Hexane only. This compound was isolated as a mixture of the regioisomer **2b** and **3b**.)



(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.07 (s, 9H), 0.79 – 1.57 (m, 27H), 3.78 (s, 3H), 6.30 – 6.46 (m, 2H), 6.60 – 6.75 (m, 1H), 7.10 – 7.20 (m, 1H); ^{13}C NMR ($CDCl_3$) δ = 0.3, 13.2 – 13.3 (m, 1C), 13.6, 27.3, 28.8, 55.1, 110.6, 112.1, 118.9, 126.3 (q, *J* = 280.2 Hz), 128.3, 145.4 (q, *J* = 28.1 Hz), 146.2, 158.8, 168.0 (q, *J* = 6.6 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.61 (s, 3F); IR (neat) 2957, 2923, 2873, 1730, 1598, 1464, 1377, 1284, 1230, 1137, 1099, 1051, 995, 976, 841, 770, 699, 628 cm^{-1}; HRMS (FAB) calcd for (M+H) $C_{25}H_{44}F_3OSiSn$: 565.2135, found 565.2143.

(*Z*)-3,3,3-Trifluoro-1-(2-methoxyphenyl)-2-tributylstannyl-1-trimethylsilyl-1-propene (3c)

Isolated yield : 86% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the regioisomer **2c** and **3c**.)

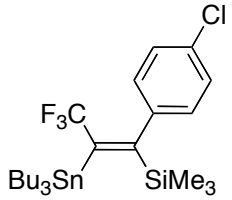


(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.02 (s, 9H), 0.82 – 1.60 (m, 27H), 3.74 (s, 3H), 6.70 – 6.90 (m, 3H), 7.10 – 7.20 (m, 1H); ^{13}C NMR ($CDCl_3$) δ = 0.2, 13.1 – 13.2 (m, 1C), 13.7, 27.3, 28.9, 54.9, 109.6, 119.8, 126.1 (q, *J* = 279.4 Hz), 126.6 – 126.7 (m, 1C), 127.0, 134.3, 145.1 (q, *J* = 28.9 Hz), 154.7, 165.7 (q, *J* = 7.4 Hz); ^{19}F NMR ($CDCl_3$) δ = –51.16 (s, 3F); IR (neat) ν 2957, 2924, 1731, 1596, 1484, 1377, 1231, 1174, 1136, 1105, 1049, 960, 842, 751 cm^{-1}; HRMS (FAB) calcd for (M+H) $C_{25}H_{44}F_3OSiSn$: 565.2135, found 565.2129.

(*Z*)-1-(4-Chlorophenyl)-3,3,3-trifluoro-2-tributylstannyl-1-trimethylsilyl-1-propene (3d)

Isolated yield : 90% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the regioisomer **2d** and **3d**.)

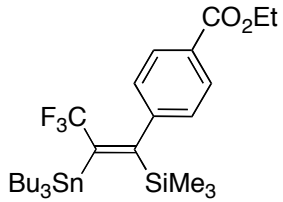
(Major isomer); ^{1}H NMR ($CDCl_3$) δ 0.06 (s, 9H), 0.80 – 1.60 (m, 18H), 0.93 (t, *J* = 7.39 Hz, 9H), 6.78 (d, *J* = 8.4 Hz, 2H), 7.23 (d, *J* = 8.4 Hz, 2H); ^{13}C NMR ($CDCl_3$) δ 1.1, 14.0 (q, *J* = 1.7 Hz), 14.3, 28.0, 29.5, 125.01 (q, *J* = 283.5 Hz), 126.4 (q, *J* = 2.5 Hz), 128.3, 132.1, 143.9, 147.5 (q, *J* = 28.6



Hz), 167.8 (q, J = 7.2 Hz); ^{19}F NMR ($CDCl_3$) δ –49.54 (s, 3F); IR (neat) ν 2957, 2855, 1547, 1484, 1465, 1420, 1377, 1232, 1184, 1139, 1095, 1015, 962 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{24}H_{40}ClF_3NaSiSn$: 591.1460, found 591.1459.

(*Z*)-Ethyl 4-(3,3,3-trifluoro-2-tributylstannyl-1-trimethylsilyl-1-propen-1-yl)benzoate (3e)

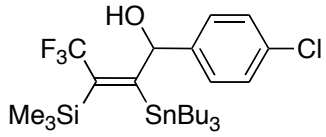
Isolated yield : 90% (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1. This compound was isolated as a mixture of the regioisomer **2e** and **3e**.)



(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.06 (s, 9H), 0.80 – 1.60 (m, 30H), 4.36 (q, J = 7.2 Hz, 2H), 6.92 (d, J = 8.0 Hz, 2H), 7.94 (d, J = 8.0 Hz, 2H); ^{13}C NMR ($CDCl_3$) δ = 1.4, 14.2 – 14.3 (m 1C), 14.6, 15.3, 28.3, 29.8, 61.8, 125.2 (d, J = 2.5 Hz), 126.9 (q, J = 280.2 Hz), 127.1 – 127.2 (m, 1C), 129.8, 147.3 (q, J = 28.9 Hz), 151.1, 167.6, 168.3 (q, J = 6.9 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.65 (s, 3F); IR (neat) 2957, 2924, 2873, 1719, 1605, 1464, 1403, 1282, 1251, 1232, 1175, 1139, 1097, 1021, 951, 844, 749, 705, 618 cm^{-1}; HRMS (FAB) calcd for (M+H) $C_{27}H_{46}F_3O_2SiSn$: 607.2241, found 607.2241.

(*Z*)-1-(4-Chlorophenyl)-4,4,4-Trifluoro-2-tributylstannyl-3-trimethylsilyl-2-buten-1-ol (2h)

Isolated yield : 25%. (Eluent of silica gel column chromatography; Hexane : Benzene = 3 : 1.)

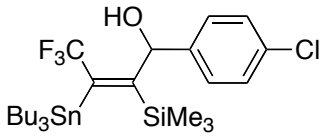


(Minor isomer); ^{1}H NMR ($CDCl_3$) δ = 0.26 (s, 9H), 0.58 – 0.75 (m, 6H), 0.76 (t, J = 7.2 Hz, 9H), 1.10 – 1.27 (m, 12H), 2.42 (d, J = 4.0 Hz, 1H), 5.79 (s, 1H), 7.14 – 7.25 (m, 4H); ^{13}C NMR ($CDCl_3$) δ = 1.0, 13.2, 14.3, 27.1, 28.5, 74.6 – 74.7 (m, 1C), 124.8 (q, J = 284.1 Hz), 127.8, 132.8, 138.9, 142.0 (q, J = 24.8 Hz), 162.5, 177.4 (q, J = 4.1 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.96 (s, 3F); IR (neat) 3610, 3466, 2957, 2923, 2872, 1726, 1671, 1597, 1538, 1491, 1464, 1400, 1377, 1254, 1222, 1141, 1106, 1015, 961, 920, 840, 801, 767 cm^{-1}.

(*Z*)-1-(4-Chlorophenyl)-4,4,4-trifluoro-3-tributylstannyl-2-trimethylsilyl-2-buten-1-ol (3h)

Isolated yield : 69%. (Eluent of silica gel column chromatography; Hexane : Benzene = 3 : 1.)

(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.0 (s, 9H), 0.93 (t, J = 7.4 Hz, 9H), 1.05 – 1.55 (m, 18H), 2.27 (d, J = 4.8 Hz, 1H), 5.94 (s, 1H), 7.24 – 7.31

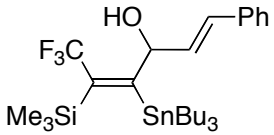


(m, 4H); ^{13}C NMR ($CDCl_3$) δ = 2.2, 13.3, 13.5, 27.0, 28.7, 74.2, 126.1 (q, *J* = 281.0 Hz), 127.3, 127.7, 132.4, 139.6, 146.5 (q, *J* = 28.1 Hz), 168.8 (q, *J* = 6.6 Hz); ^{19}F NMR ($CDCl_3$) δ = –48.20 (s, 3F); IR (neat) 3619, 3484, 2957, 2924, 2873, 1714, 1490, 1464, 1400, 1249, 1215, 1133, 1102, 1071, 1015, 961, 848, 806, 764, 723 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{25}H_{42}ClF_3NaOSiSn$: 621.1565, found 621.1572.

(*Z*)-1,1,1-Trifluoro-6-phenyl-3-tributylstannyl-2-trimethylsilyl-2,5-hexadien-4-ol (2i)

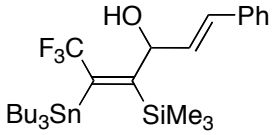
Isolated yield : 23%. (Eluent of silica gel column chromatography; Hexane : Benzene = 2 : 1.)

^{1}H NMR ($CDCl_3$) δ = 0.30 (s, 9H), 0.84 (t, *J* = 7.2 Hz, 9H), 0.90 – 1.55 (m, 18H), 2.17 (d, *J* =4.0 Hz, 1H), 5.49 (s, 1H), 6.17 (dd, *J* = 16.0, 4.0 Hz, 1H), 6.48 (d, *J* = 16.0 Hz, 1H), 7.24 – 7.38 (m, 5H); ^{13}C NMR ($CDCl_3$) δ = 1.3, 13.6, 15.1, 27.5, 29.0, 75.3, 125.2 (q, *J* = 283.5 Hz), 126.5, 127.7, 128.5, 129.5, 131.3, 136.7, 141.0 (q, *J* = 24.8 Hz), 178.1 (q, *J* = 4.1 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.89 (s, 3F); IR (neat) 3454, 3027, 2956, 2854, 1725, 1600, 1538, 1495, 1464, 1421, 1376, 1222, 1140, 1106, 1020, 964, 899, 843, 770, 748, 693, 633 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{27}H_{45}F_3NaOSiSn$: 613.2112, found 613.2120.



(*Z*)-1,1,1-Trifluoro-6-phenyl-2-tributylstannyl-3-trimethylsilyl-2,5-hexadien-4-ol (3i)

Isolated yield : 52%. (Eluent of silica gel column chromatography; Hexane : Benzene = 2 : 1.)

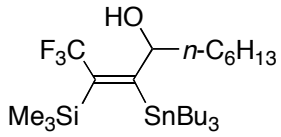


^{1}H NMR ($CDCl_3$) δ = 0.25 (s, 9H), 0.91 (t, *J* = 7.2 Hz, 9H), 1.05 – 1.60 (m, 18H), 2.00 (d, *J* = 4.0 Hz, 1H), 5.56 (s, 1H), 6.28 (dd, *J* = 16.6, 4.0 Hz, 1H), 6.48 (dd, *J* = 16.6, 2.0 Hz, 1H), 7.25 – 7.26 (m, 1H), 7.32 – 7.37 (m, 4H); ^{13}C NMR ($CDCl_3$) δ = 3.0, 13.6, 13.7 – 13.8 (m, 1C), 27.3, 28.9, 75.1, 126.4, 126.5 (q, *J* = 280.6 Hz), 127.5, 128.6, 130.7, 134.2, 136.9, 145.8 (q, *J* = 28.1 Hz), 169.4 (q, *J* = 5.8 Hz); ^{19}F NMR ($CDCl_3$) δ = –48.41 (s, 3F); IR (neat) 3582, 3458, 3027, 2957, 2923, 2855, 1726, 1600, 1537, 1464, 1377, 1249, 1216, 1132, 1103, 964, 843, 746, 693, 640 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{27}H_{45}F_3NaOSiSn$: 613.2112, found 613.2110.

(*Z*)-1,1,1-Trifluoro-3-tributhylstannyl-2-trimethylsilyl-2-decen-4-ol (2j)

Isolated yield : 30%. (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1.)

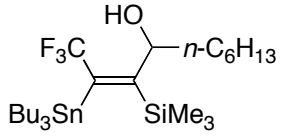
^{1}H NMR ($CDCl_3$) δ = 0.25 (s, 9H), 0.80 – 1.15 (m, 18H), 1.25 – 1.55 (m, 22H), 1.91 (d, *J* = 3.6 Hz, 1H), 4.68 (s, 1H); ^{13}C NMR ($CDCl_3$) δ = 1.4, 13.6,



14.1, 15.1, 22.6, 25.6, 27.5, 29.1, 31.8, 35.71, 35.72, 75.8, 125.4 (q, J = 283.5 Hz), 139.0 (q, J = 25.6 Hz), 181.9 (q, J = 5.0 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.94 (s, 3F); IR (neat) 3622, 3477, 2956, 2923, 2856, 1537, 1464, 1377, 1253, 1221, 1141, 1103, 1035, 960, 902, 840, 769 cm^{-1}.

(*Z*)-1,1,1-Trifluoro-2-tributylstannyl-3-trimethylsilyl-2-decen-4-ol (3j)

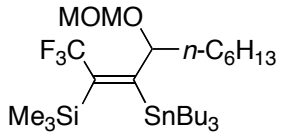
Isolated yield : 35%. (Eluent of silica gel column chromatography; Hexane : EtOAc = 30 : 1.)



^{1}H NMR ($CDCl_3$) δ = 0.27 (s, 9H), 0.88 – 1.06 (m, 18H), 1.28 – 1.55 (m, 22H), 1.69 (d, J = 4.0 Hz, 1H), 4.75 (s, 1H); ^{13}C NMR ($CDCl_3$) δ = 3.9, 14.3, 14.5, 14.8, 23.3, 27.0, 27.6, 29.5, 29.9, 32.5, 36.8, 76.6 – 76.7 (m, 1C), 127.3 (q, J = 281.0 Hz), 145.0 (q, J = 28.1 Hz), 173.2 (q, J = 5.8 Hz); ^{19}F NMR ($CDCl_3$) δ = –48.44 (s, 3F); IR (neat) 3626, 3477, 2957, 2925, 2857, 1464, 1377, 1250, 1216, 1101, 1036, 960, 843, 765 cm^{-1}.

(*Z*)-1,1,1-Trifluoro-4-Methoxymethoxy-3-tributylstannyl-2-trimethylsilyl-2-decene (2k)

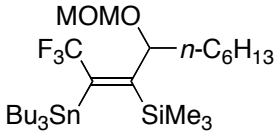
Isolated yield : 49%. (Eluent of silica gel column chromatography; Hexane : Benzene = 5 : 1.)



^{1}H NMR ($CDCl_3$) δ = 0.25 (s, 9H), 0.90 (t, J = 7.4 Hz, 9H), 0.87 – 1.03 (m, 9H), 1.28 – 1.54 (m, 22H), 3.36 (s, 3H), 4.40 – 4.45 (m, 2H), 4.55 – 4.65 (m, 1H); ^{13}C NMR ($CDCl_3$) δ = 1.5, 13.6, 14.1, 15.0, 22.6, 25.7, 27.5, 29.0, 29.1, 31.8, 34.6, 55.8, 80.5 – 80.6 (m, 1C), 94.5, 125.2 (q, J = 283.5 Hz), 141.1 (q, J = 24.8 Hz), 180.1 (q, J = 4.1 Hz); ^{19}F NMR ($CDCl_3$) δ = –50.07 (s, 3F); IR (neat) 2956, 2926, 2856, 1731, 1537, 1464, 1377, 1253, 1223, 1464, 1377, 1253, 1223, 1142, 1108, 1016, 924, 840, 769 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{27}H_{55}F_3NaO_2SiSn$: 639.2843, found 639.2844.

(*Z*)-1,1,1-Trifluoro-4-methoxymethoxy-2-tributylstannyl-3-trimethylsilyl-2-decene (3k)

Isolated yield : 36%. (Eluent of silica gel column chromatography; Hexane : Benzene = 5 : 1.)

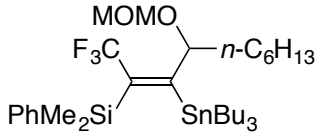


^{1}H NMR ($CDCl_3$) δ = 0.23 (s, 9H), 0.87 (t, J = 7.4 Hz, 9H), 0.86 – 1.05 (m, 8H), 1.25 – 1.50 (m, 22H), 1.70 – 1.76 (m, 1H), 3.37 (s, 3H), 4.40 – 4.50 (m, 2H), 4.60 – 4.68 (m, 1H); ^{13}C NMR ($CDCl_3$) δ = 3.2, 13.9, 14.2, 14.4, 22.9, 26.6, 27.6, 29.2, 29.4, 32.2, 35.4, 56.0, 80.5, 94.9, 126.7 (q, J = 280.2 Hz), 146.2 (q, J = 29.0 Hz), 171.0 (q, J = 5.0 Hz); ^{19}F NMR ($CDCl_3$) δ = –48.74 (s, 3F); IR (neat) 2956, 2926, 2856, 1732, 1537, 1464, 1378, 1249, 1216, 1107, 1022, 960, 924, 843, 764 (m) cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{27}H_{55}F_3NaO_2SiSn$: 639.2843, found 639.2844.

Procedure for silylstannylation of 4-methoxymethoxy-1,1,1-trifluorodecyne (Condition B): To a solution of 4-methoxymethoxy-1,1,1-trifluorodecyne (0.063 g, 0.25 mmol) and Pd(*t*-BuNC)$_2$Cl$_2$ (0.002 g, 0.00625 mmol, 2.5 mol%) in THF (2.5 mL) was added a THF solution of dimethylphenyl(tributylstannyl)silane (0.128 g, 0.30 mmol) at room temperature. The reaction was stirred for 6 h at room temperature. The resulting mixture was then quenched with H_2O. The reaction mixture was extracted with Et_2O three times. The combined organic layers were dried over anhydrous Na_2SO_4 and concentrated in *vacuo.* Purification of the residue oil by flash chromatography five times, and concentrated in *vacuo*. The residue was chomatographed on silica gel (hexane: EtOAc = 30 : 1) to afford the corresponding silylstannylated product **2l** and **3l** (0.106 g, 0.15 mmol, 62%).

(*Z*)-2-Dimethylphenylsilyl-1,1,1-trifluoro-4-methoxymethoxy-3-tributylstannyl-2-decene (2k)

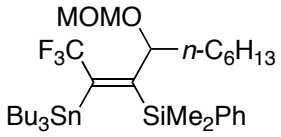
Isolated yield : 28%. (Eluent of silica gel column chromatography; Hexane : Benzene = 3 : 1.)



(Minor isomer); ^{1}H NMR ($CDCl_3$) δ = 0.47 (s, 3H), 0.50 (s, 3H), 0.84 (t, *J* = 7.2 Hz, 9H), 0.85 – 0.99 (m, 9H), 1.18 – 1.64 (m, 22H), 3.39 (s, 3H), 4.49 (d, *J* = 6.8 Hz, 1H), 4.53 (d, *J* = 6.8 Hz, 1H), 4.68 – 4.75 (m, 1H), 7.32 – 7.35 (m, 3H), 7.47 – 7.50 (m, 2H); ^{13}C NMR ($CDCl_3$) δ = 1.2, 1.3, 13.6, 14.1, 14.9, 22.6, 25.7, 27.4, 28.9, 29.1, 31.8, 34.8, 55.8, 80.7, 94.6 – 94.7 (m, 1C), 124.9 (q, *J* = 284.3 Hz), 127.8, 129.1, 133.7, 138.3, 139.0 (q, *J* = 24.7 Hz), 183.7 (q, *J* = 4.1 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.48 (s, 3F); IR (neat) 3070, 2955, 2856, 1731, 1534, 1464, 1377, 1224, 1110, 1016, 924, 812, 697 cm^{-1}; HRMS (FAB) calcd for (M-H) $C_{32}H_{56}F_3O_2SiSn$: 677.3024, found 677.3030.

(*Z*)-3-Dimethylphenylsilyl-1,1,1-trifluoro-4-methoxymethoxy-2-tributylstannyl-2-decene (3k)

Isolated yield : 34%. (Eluent of silica gel column chromatography; Hexane : Benzene = 3 : 1.)



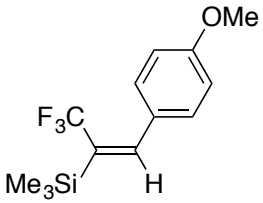
(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.43 (s, 3H), 0.45 (s, 3H), 0.60 – 0.68 (m, 6H), 0.81 (t, *J* = 7.0 Hz, 9H), 0.88 (t, *J* = 6.8 Hz, 3H), 1.16 – 1.40 (m, 19H), 1.48 – 1.56 (m, 2H), 1.76 – 1.80 (m, 1H), 3.38 (s, 3H), 4.49 (d, *J* = 6.8 Hz, 1H), 4.62 (d, *J* = 6.8 Hz, 1H), 4.75 – 4.85 (m, 1H), 7.30 – 7.35 (m, 3H), 7.47 – 7.49 (m, 2H); ^{13}C NMR ($CDCl_3$) δ = 1.6, 4.2, 13.5, 13.7, 14.1, 22.6, 26.2, 27.2, 28.8, 29.1, 31.8, 35.2, 55.7, 80.1, 94.7 – 94.80 (m, 1C), 126.3 (q, *J* = 281.8 Hz), 128.0, 128.9, 134.2, 139.4, 149.2 (q, *J* = 28.1 Hz), 167.1 (q, *J* = 5.8 Hz); ^{19}F NMR ($CDCl_3$) δ = –48.39 (s, 3F); IR (neat) 2956, 2856, 1731, 1464, 1377, 1214, 1109, 1022,

823, 820, 729, 702 cm^{-1}; HRMS (FAB) calcd for (M-H) $C_{32}H_{56}F_3O_2SiSn$: 677.3024, found 677.3027.

Destannylation of (*Z*)-3,3,3-trifluoro-1-(4-methoxyphenyl)-1-tributylstannyl-2-trimethylsilyl-1-propene (2a) and : (*Z*)-3,3,3-trifluoro-1-(4-methoxyphenyl)-2-tributylstannyl-1-trimethylsilyl-1-propene (3a): To a solution of the isomeric mixture of **2a** and **3a** (0.113 g, 0.20 mmol, **2a** : **3a** = 22 ; 78) in MeOH (2 mL) was added PPTS (1.0 mL, 6.0 mmol) at room temperature. The reaction was stirred for 52 h at the reflux temperature. The resulting mixture was neutralized with $NaHCO_3$ aq. (20 mL of sat. and 10 mL of water) and extracted with Et_2O (2×30 mL). The combined organic layers were dried over anhydride Na_2SO_4 and concentrated in *vacuo*. The residue was chomatographed on silica gel (Hexane: EtOAc = 5 : 1) to afford the products **5a** and **6a** (0.052g, 0.19 mmol, 95%).

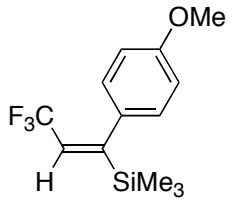
5a or **6a** could not be isolated in a pure form. They were obtained as a regioisomeric mixture in a ratio of 19 : 81.

(*E*)-3,3,3-Trifluoro-1-(4-methoxyphenyl)-2-trimethylsilyl-1-propene (5a) (Only observed peaks are shown.)



(Minor isomer); ^{1}H NMR ($CDCl_3$) **δ** = 0.26 (s, 9H), 3.83 (s, 3H); ^{19}F NMR ($CDCl_3$) δ = –53.04 (s, 3F).

(*E*)-3,3,3-Trifluoro-1-(4-methoxyphenyl)-1-trimethylsilyl-1-propene (6a)

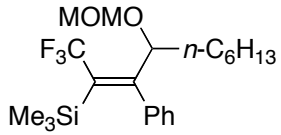


(Major isomer); ^{1}H NMR ($CDCl_3$) δ = 0.12 (s, 9H), 3.81 (s, 3H), 5.99 (q, *J* = 7.6 Hz, 1H), 6.87 – 6.89 (m, 4H); ^{13}C NMR ($CDCl_3$) δ = -2.0, 55.4, 113.7, 113.8, 122.5 (q, *J* = 274.4 Hz), 126.0 (q, *J* = 31.4 Hz), 127.5 – 127.6 (m, 1C), 147.3 (q, *J* = 7.4 Hz), 158.5; ^{19}F NMR ($CDCl_3$) δ = –57.71 (d, *J* = 7.6 Hz , 3F); IR (neat) 2959, 2839, 1729, 1606, 1509, 1351, 1285 , 1190, 1136, 1037, 951, 924, 844, 758, 697 cm^{-1}; HRMS (FAB) calcd for (M+) $C_{13}H_{17}F_3OSi$: 274.1001, found 274.1000.

Typical procedure for the Stille coupling reaction of vinylstannane 2k with iodobenzene: To a solution of $Pd(PPh_3)_4$ (0.032 g, 0.028 mmol, 10 mol%) in toluene (3.0 mL) were added silylstannylated adduct **2k** (0.169 g, 0.25 mmol), CuI (0.010 g, 0.052 mmol), and iodobenzene (0.042 mL,

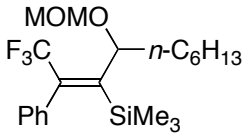
0.375 mmol), and then the reaction mixture was heated to 80 °C. After stirred at 80 °C for 24 h, the reaction was quenched with NH_4Cl. The reaction mixture was extracted with Et_2O three times. The combined organic layers were dried over anhydrous Na_2SO_4 and filtered and stirred with 20% of aqueous KF (10 mL) for 30 min before being dried and concentrated. The residue was chomatographed on silica gel (Hexane: EtOAc = 10 : 1) to afford (*Z*)-1,1,1-trifluoro-4-methoxymethoxy-2-phenyl-3-trimethylsilyl-2-decene (**7k**).

(*Z*)-1,1,1-Trifluoro-4-methoxymethoxy-3-phenyl-2-trimethylsilyl-2-decene (7k)



^{19}F NMR yield : 88%, Isolated yield : 86%, ^{1}H NMR ($CDCl_3$) δ = –0.20 (s, 9H), 0.85 (t, *J* = 7.2 Hz, 3H), 1.23 – 1.45 (m, 10H), 3.40 (s, 3H), 4.58 (d, *J* = 6.6 Hz, 1H), 4.78 (d, *J* = 6.6 Hz, 1H), 4.85 – 4.90 (m, 1H), 7.04 – 7.05 (m, 1H), 7.06 – 7.16 (m, 1H), 7.29 – 7.36 (m, 3H); ^{13}C NMR ($CDCl_3$) δ = 0.4, 13.9, 22.5, 25.8, 28.9, 31.7, 34.1, 55.7, 76.1, 94.5, 126.2 (q, *J* = 277.8 Hz), 127.4, 127.6, 128.1, 129.8, 129.9, 132.8 (q, *J* = 27.2 Hz), 138.5, 162.9 (q, *J* = 5.2 Hz); ^{19}F NMR ($CDCl_3$) δ = –49.64 (s, 3F); IR (neat) 2930, 2859, 1730, 1586, 1467, 1378, 1244, 1137, 1113, 1025, 921, 846, 769, 703 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{21}H_{33}F_3NaO_2Si$: 425.2100, found 425.2095.

(*E*)-1,1,1-Trifluoro-4-methoxymethoxy-2-phenyl-3-trimethylsilyl-2-decene (8k)



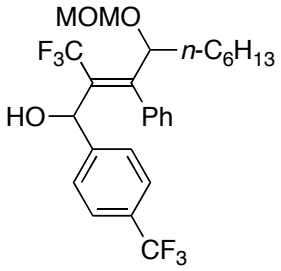
^{19}F NMR yield : 91%, Isolated yield : 91%, ^{1}H NMR ($CDCl_3$) δ = –0.17 (s, 9H), 0.91 (t, *J* = 6.8 Hz, 3H), 1.20 – 1.40 (m, 9H), 1.75 – 1.90 (m, 1H), 3.43 (s, 3H), 4.56 (d, *J* = 6.8 Hz, 1H), 4.68 (d, *J* = 6.8 Hz, 1H), 4.80 – 4.90 (m, 1H), 7.15 – 7.16 (m, 2H), 7.33 – 7.35 (m, 3H); ^{13}C NMR ($CDCl_3$) δ = 2.1, 14.1, 22.6, 26.3, 29.1, 31.8, 35.5, 55.8, 78.0, 95.0 – 95.1 (m, 1C), 122.7 (q, *J* = 279.4 Hz), 127.8. 127.9, 128.4, 130.5, 130.6, 136.0 140.6 (q, *J* = 28.9 Hz), 154.9; ^{19}F NMR ($CDCl_3$) δ = –55.48 (s, 3F); IR (neat) 2955, 2930, 2859, 1729, 1467, 1380, 1290, 1249, 1200, 1164, 1117, 1024, 923, 844, 765, 704, 671 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{21}H_{33}F_3NaO_2Si$: 425.2100, found 425.2105.

The coupling reaction of (*Z*)-2-trimethysilyl-1,1,1-trifluoro-4-methoxymethoxy-3-phenyl-2-decene (7k) with 4-trifluoromethylbenzaldehyde: To a solution of **7k** (0.162 g, 0.40 mmol) in NMP (1.0 mL) were added 4-trifluoromethylbenzaldehyde (0.082 mL, 0.60 mmol), TBAF (0.04 mL, 20 mol%), and $Zn(OTf)_2$ (0.218g, 0.60 mmol), and then the reaction mixture was heated to 80 °C. After stirred at 80 °C for 24 h, the reaction was

quenched with coleded NH_4Cl. The reaction mixture was extracted with Et_2O five times. The combined organic layers were dried over anhydride Na_2SO_4 and concentrated in *vacuo*. The residue was chomatographed on silica gel (Hexane: EtOAc = 5 : 1) to afford the product **9k** (0.080g, 0.158 mmol, 39% isolated yield, 54% ^{19}F NMR yield).

(*Z*)-4-Methoxymethoxy-3-phenyl-2-trifluoromethyl-1-(4-trifluoromethylphenyl)-2-decen-1-ol (9k)

^{19}F NMR yield : 54%, Isolated yield : 39%, (Major isomer : 21%, Minor isomaer : 18%), Diastereomeric ratio = 54: 46 (The diastereomers could be separted by silica gel column chromatography.)

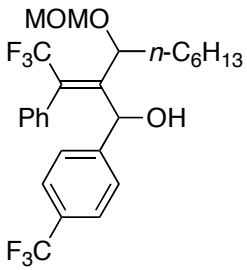


Major isomer (Less polar); ^1H NMR ($CDCl_3$) δ = 0.87 (t, *J* = 6.8 Hz, 3H), 1.20 – 1.56 (m, 10H), 2.25 (d, *J* = 8.0 Hz, 1H), 3.44 (s, 3H), 4.70 (d, *J* = 21.2 Hz, 1H), 4.89 (d, *J* = 6.8 Hz, 2H), 4.85 – 4.95 (m, 1H), 5.35 (d, *J* = 8.4 Hz, 1H), 7.20 – 7.25 (m, 2H), 7.36 – 7.43 (m, 5H), 7.58 (d, *J* = 8.4 Hz, 2H); ^{13}C NMR ($CDCl_3$) δ = 14.0, 22.6, 25.7, 28.9, 31.7, 33.7, 56.0, 71.6, 75.1, 95.1, 123.8 (q, *J* = 278.8 Hz), 124.1 (q, *J* = 271.4 Hz), 125.1, 125.31, 125.34, 125.38, 128.21, 128.29, 128.34, 128.45, 129.0, 129.5 (q, *J* = 32.2 Hz), 130.9 (q, *J* = 26.4 Hz), 135.3, 144.7, 153.3 (q, *J* = 3.3 Hz) (All aromatic carbons were detected.); ^{19}F NMR ($CDCl_3$) δ = –52.03 (s, 3F), –63.00 (s, 3F); IR (neat) 3448, 2931, 2859, 1726, 1413, 1327, 1258, 1122, 1067, 1027, 707 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{26}H_{30}F_6NaO_3$: 527.1997, found 527.2001.

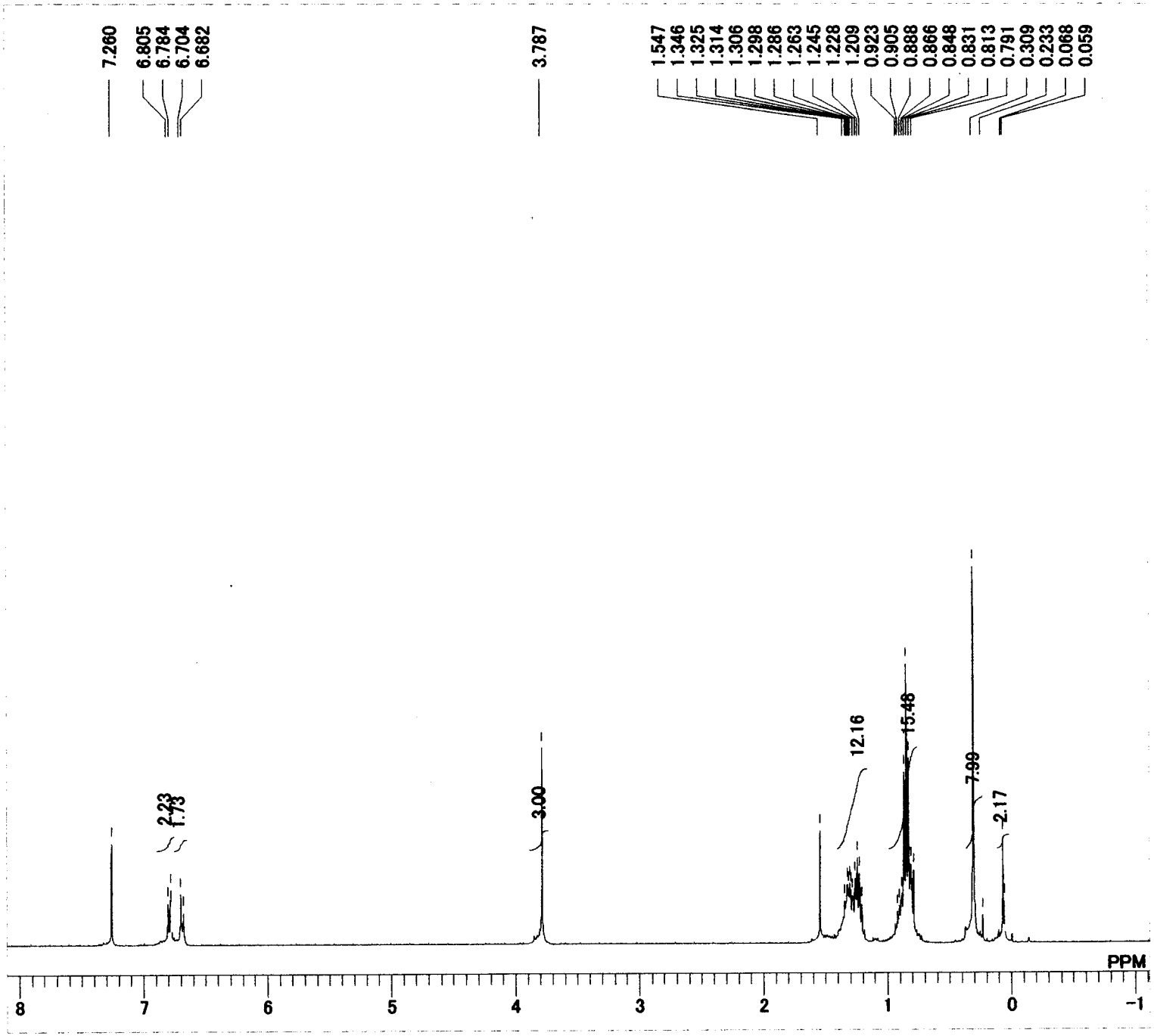
Minor isomer (More polar); ^1H NMR ($CDCl_3$) δ = 0.89 (t, *J* = 6.8 Hz, 3H), 1.20 – 1.75 (m, 10H), 2.20 – 2.30 (m, 1H), 3.41 (s, 3H), 4.61 (d, *J* = 6.8 Hz, 1H), 4.88 (d, *J* = 6.8 Hz, 1H), 4.93 – 4.95 (m, 1H), 5.31 (s, 1H), 7.00 – 7.20 (m, 2H), 7.30 – 7.50 (m, 5H), 7.55 – 7.65 (m, 2H); ^{13}C NMR ($CDCl_3$) δ = 14.0, 22.6, 25.9, 28.9, 31.8, 34.3, 56.0, 71.5, 74.5, 94.6, 123.8 (q, *J* = 278.5 Hz), 124.0 (q, *J* = 261.9 Hz), 125.2, 125.31, 125.35, 125.38, 127.8, 128.1, 128.3, 128.6, 128.8, 129.5 (q, *J* = 32.5 Hz), 130.9 (q, *J* = 26.4 Hz), 135.1, 145.0, 153.1 (q, *J* = 3.2 Hz) (All aromatic carbons were detected.); ^{19}F NMR ($CDCl_3$) δ = –51.96 (s, 3F), –63.01 (s, 3F); IR (neat) 3436, 2931, 2859, 1728, 1620, 1327, 1257, 1223, 1067, 1017, 921, 706 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{26}H_{30}F_6NaO_3$: 527.1997, found 527.1993.

(*Z*)-1-(4-Trifluoromethylphenyl)-3-methoxymethoxy-2-(2,2,2-trifluoro-1-phenyl-1-ethylidene)-1-nonanol (10k)

^{19}F NMR yield : 28%, Isolated yield : 15%, Diastereomeric ratio = 100: 0



^{1}H NMR ($CDCl_3$) δ = 0.85 (t, *J* = 7.0 Hz, 3H), 1.00 – 1.50 (m, 10H), 3.49 (s, 3H), 4.68 (d, *J* = 6.4 Hz, 1H), 4.88 (d, *J* = 6.4 Hz, 1H), 4.88 – 4.94 (m, 1H), 5.50 (s, 1H), 7.12 – 7.61 (m, 10H); ^{13}C NMR ($CDCl_3$) δ = 14.0, 22.5, 26.2, 28.8, 31.5, 35.9, 56.3, 72.7, 78.8, 96.5, 121.4 (q, *J* = 271.2 Hz), 123.2 (q, *J* = 276.1 Hz), 124.8 (q, *J* = 3.3 Hz), 125.8, 126.6, 126.9, 128.4, 128.6, 128.8, 129.1 (q, *J* = 33.1 Hz), 129.5, 129.6, 133.2 (q, *J* = 30.3 Hz), 133.5 (q, *J* = 1.7 Hz), 146.6, 148.3 (q, *J* = 2.5 Hz) (All aromatic carbons were detected.);^{19}F NMR ($CDCl_3$) δ = –55.13 (s, 3F), –63.00 (s, 3F); IR (neat) 3440, 2958, 2931, 2859, 1724, 1467, 1327, 1164, 1122, 1067, 1017, 764, 705 cm^{-1}; HRMS (FAB) calcd for (M+Na) $C_{26}H_{30}F_6NaO_3$: 527.1997, found 527.2001.



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PD	4.9500 sec
ADBIT	16
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BF	0.10 Hz
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T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
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LKLEV	180
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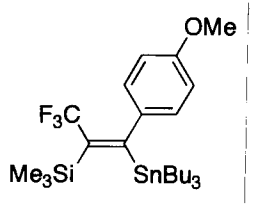
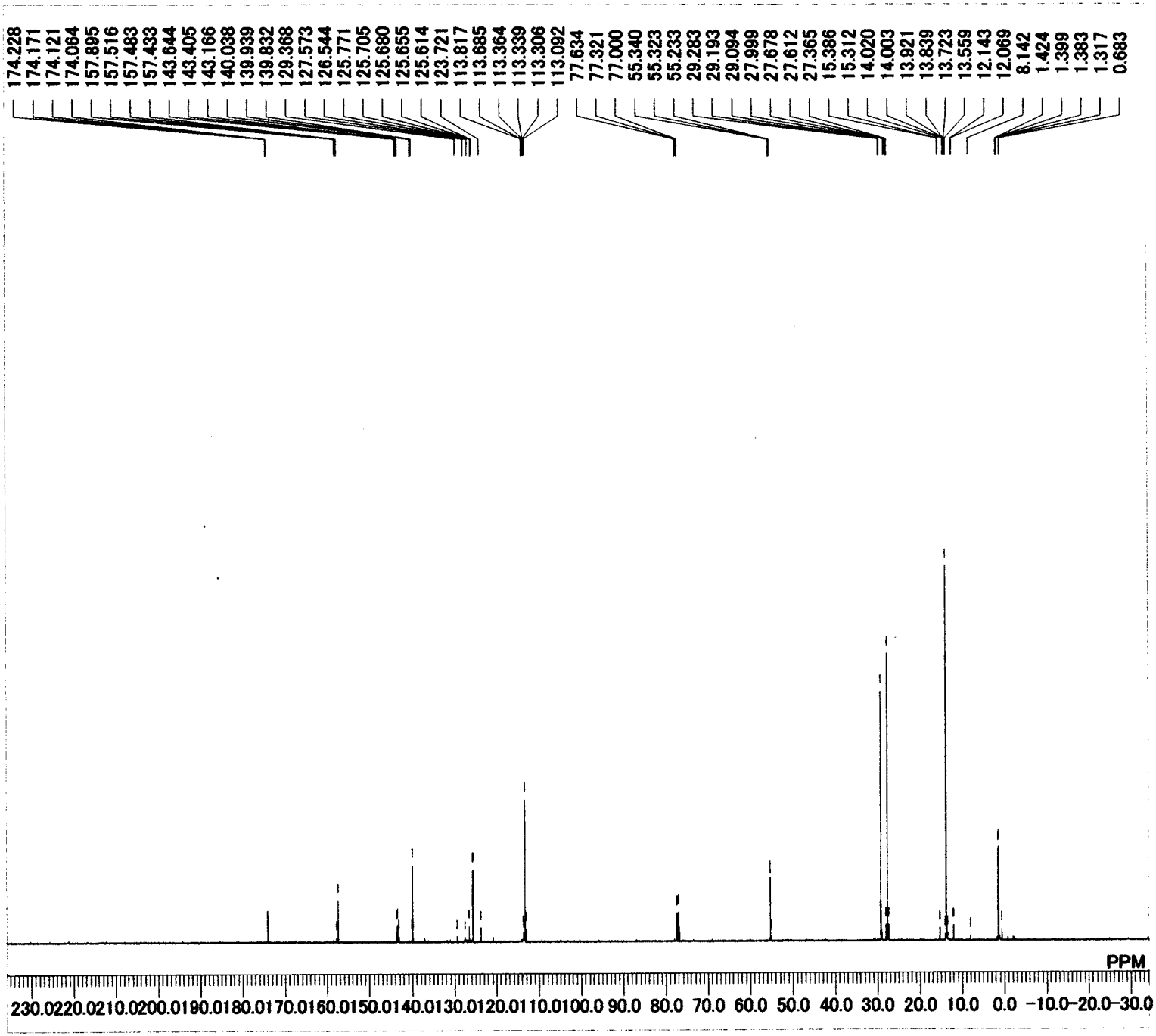
FILDC	
FILDF	





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T4	100.00
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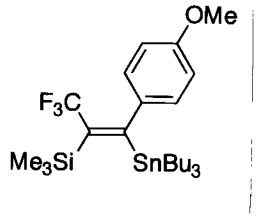
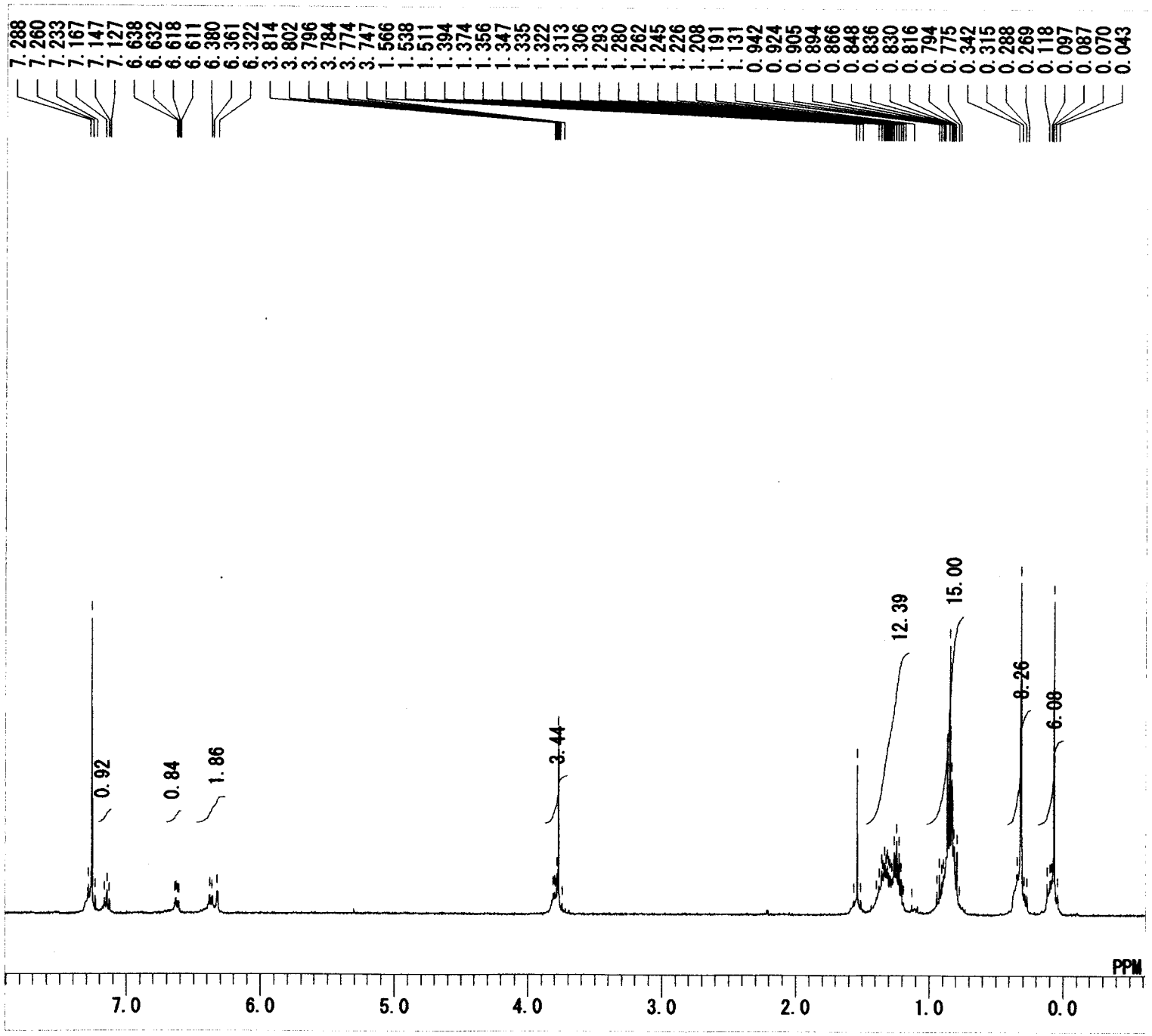
FILDF	





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DEADT	72.10	usec
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IWT	1.0000	msec
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FLT	4000	Hz
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PD	4.9500	sec
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T3	90.00	
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EXPCM	NON:Single.coupled:PW1_ACQTM_	
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DFILE	Rxn.361 H.als	
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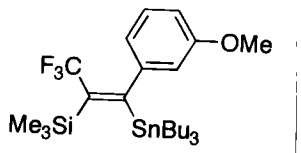
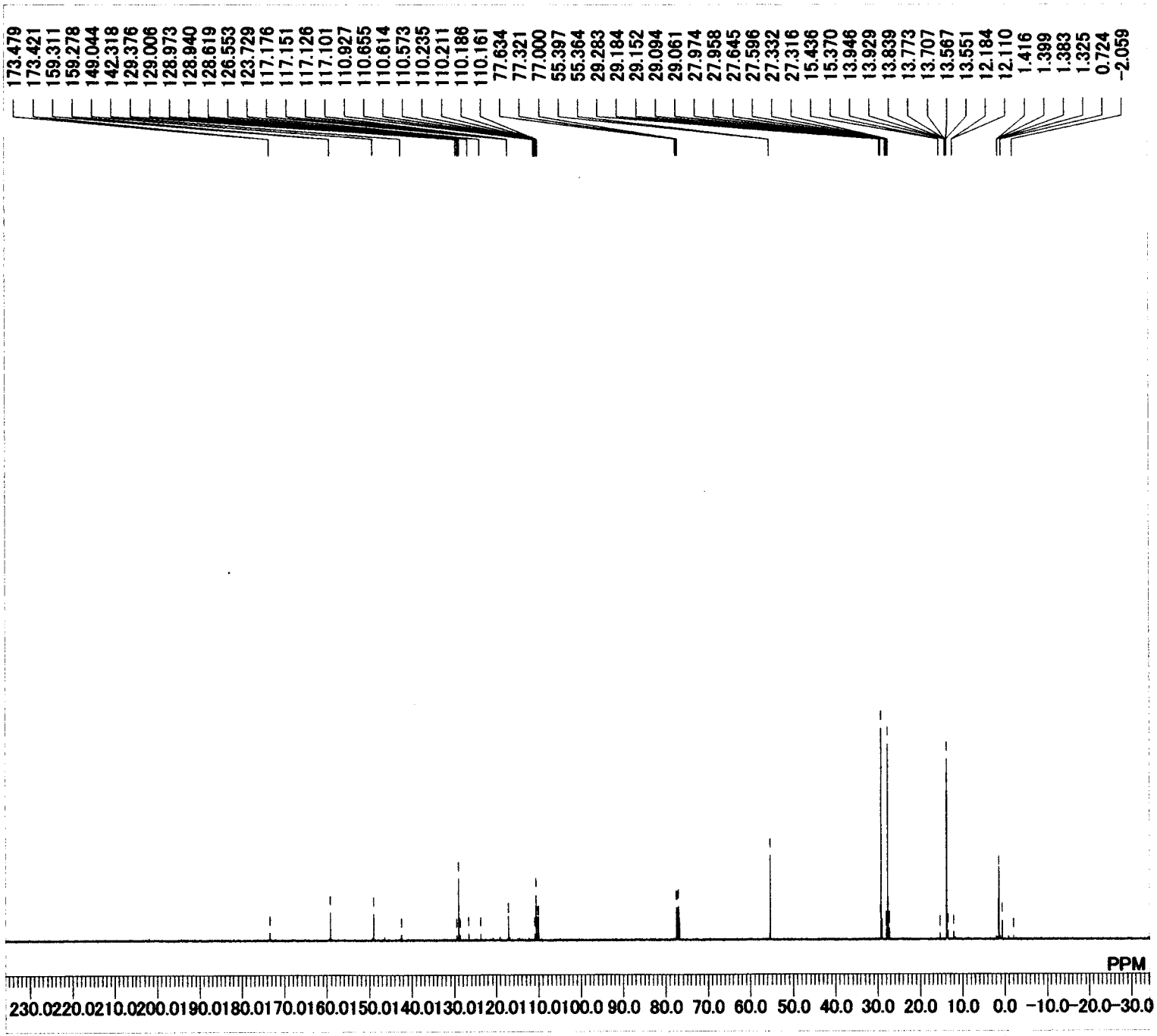
FILDC		
FILDF		





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ADBIT	16
RGAIN	24
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T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
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IRRPW	45 usec
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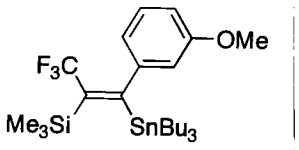
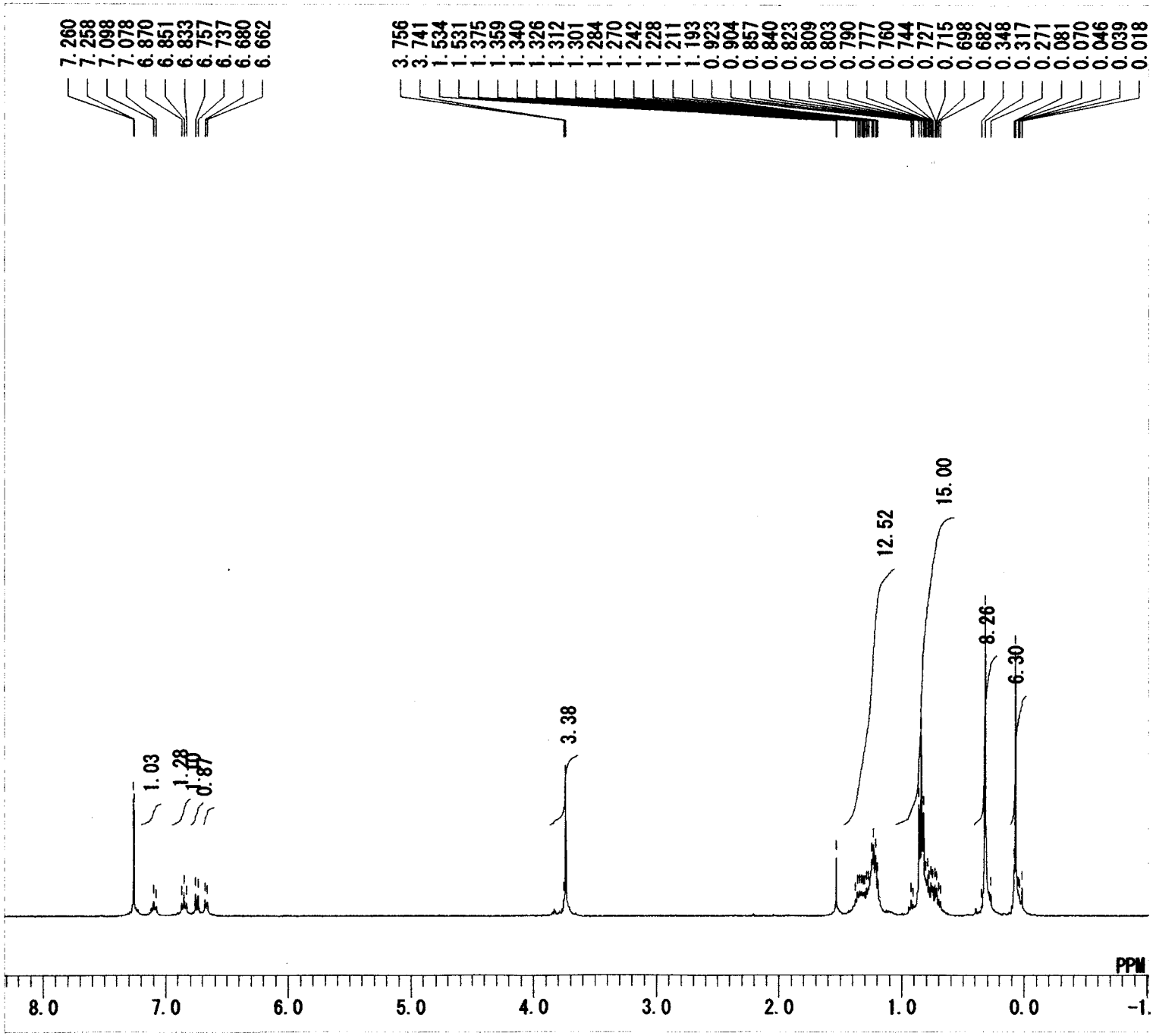
FILDF	





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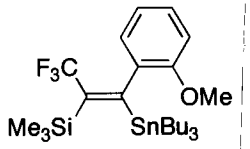

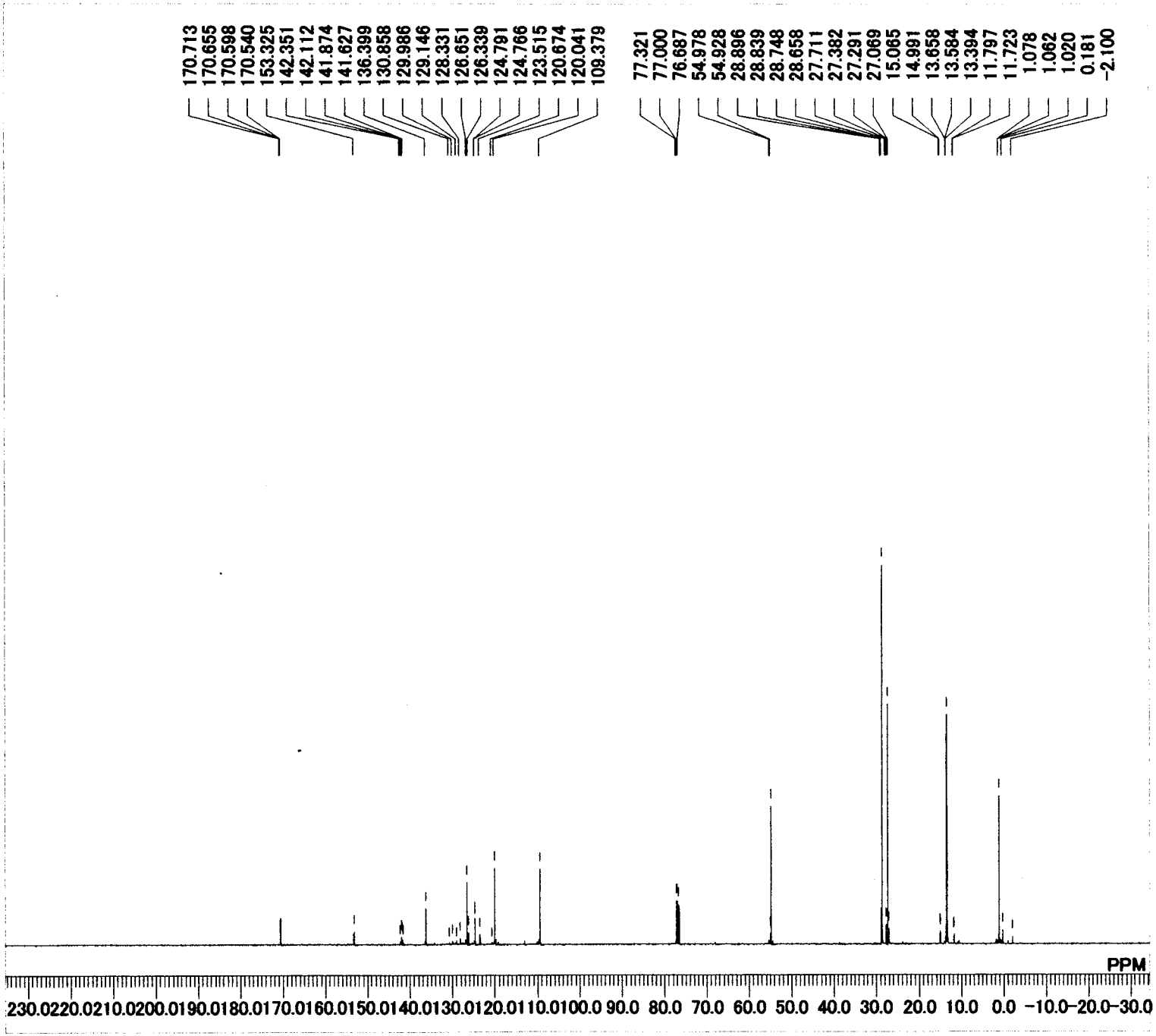

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ADBIT	16
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T3	100.00
T4	100.00
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IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-o-OMe-Sn-Si (13C)新 Pd(I
SF	TH5ATFG2
LKSET	61.60 KHz
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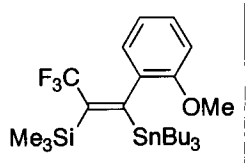
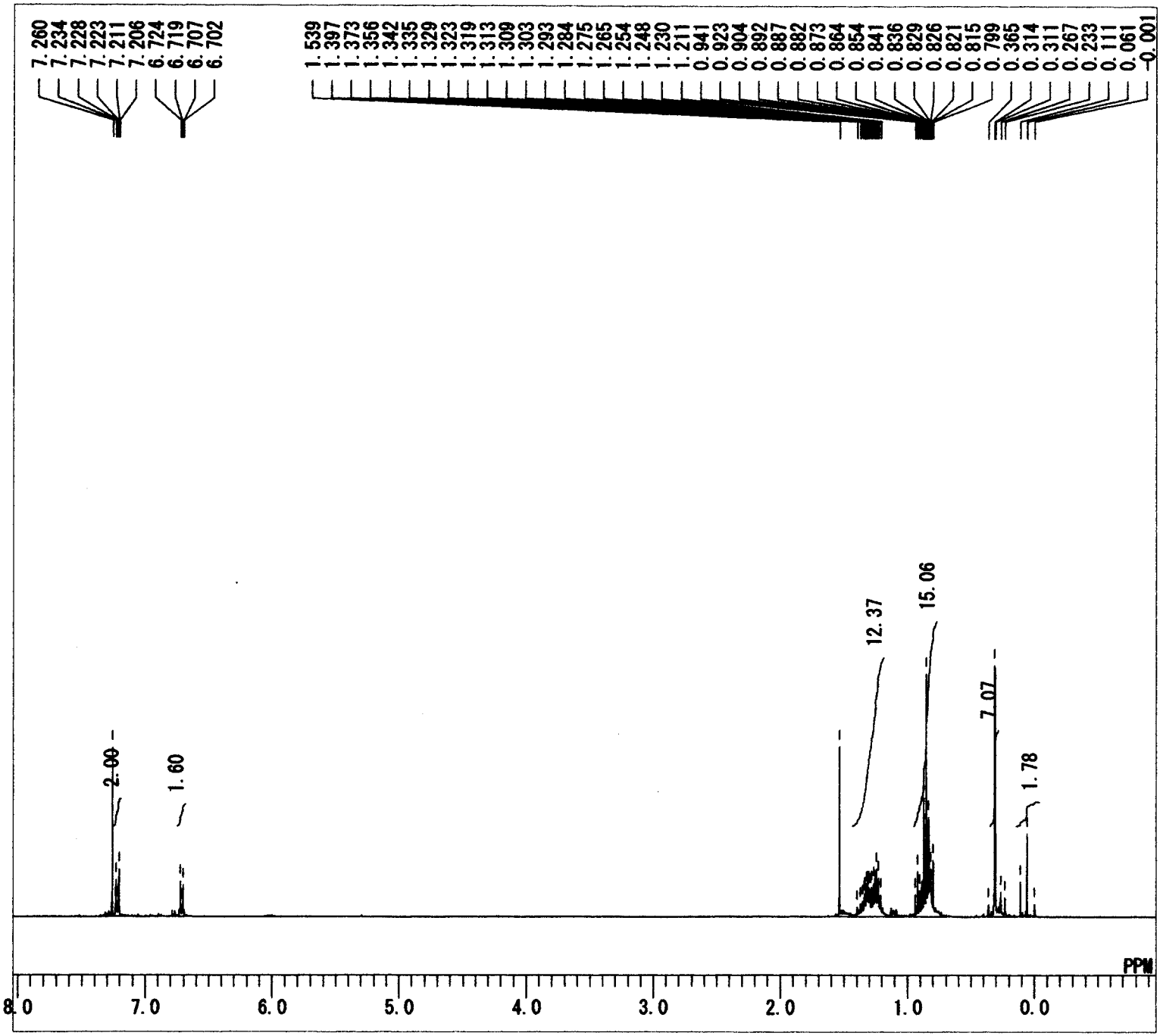
FILDC	
FILDF	





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PD	4.9500 sec
ADBIT	16
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T2	0.00
T3	90.00
T4	100.00
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EXPCM	NON:Single.coupled:PW1_ACQTM_
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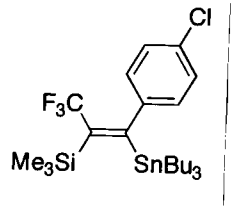

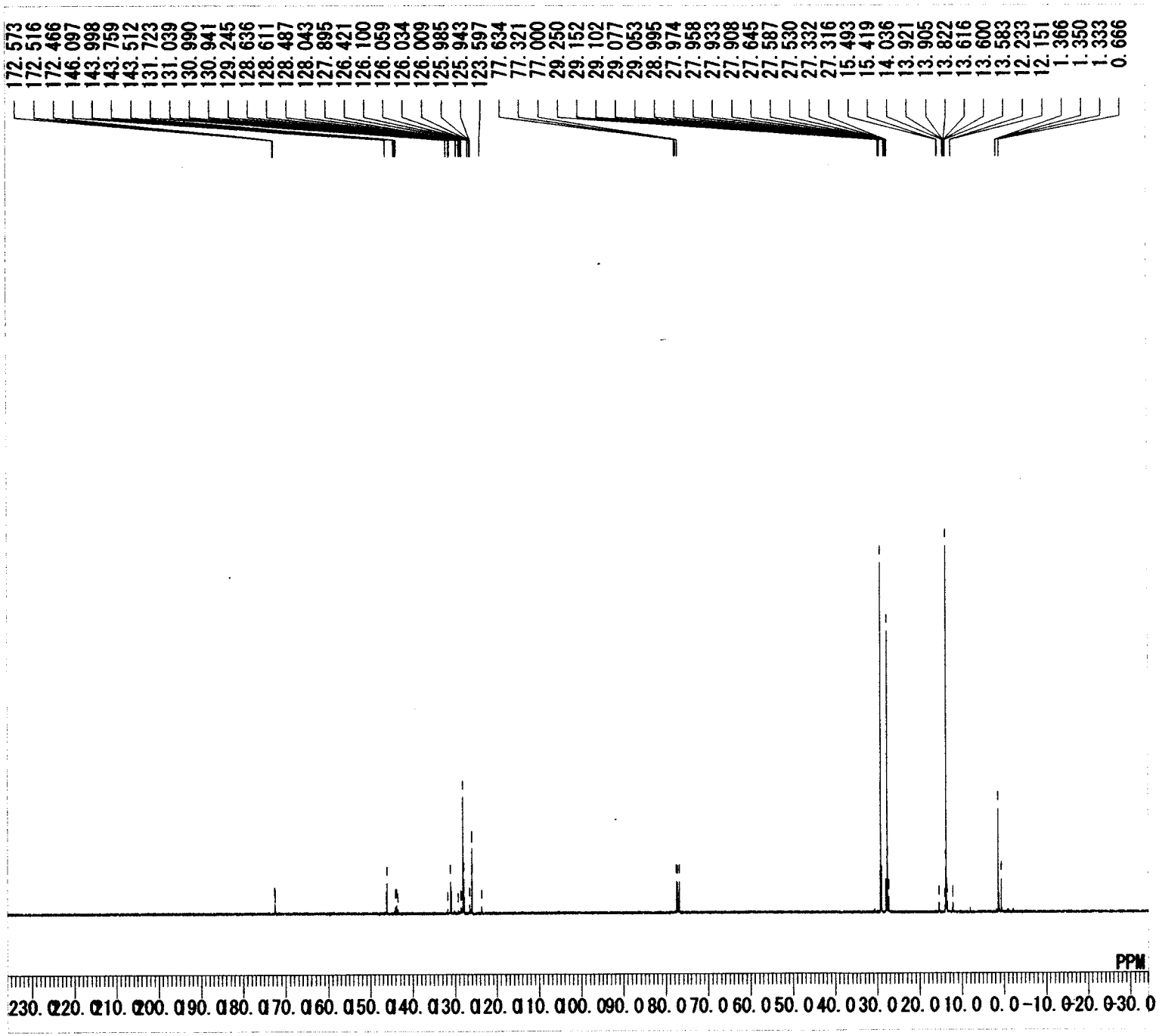

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T3	90.00
T4	100.00
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EXPCM	Bilevel.complete.decoupling:S
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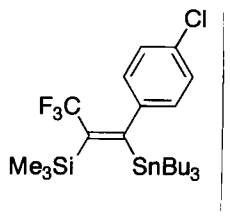
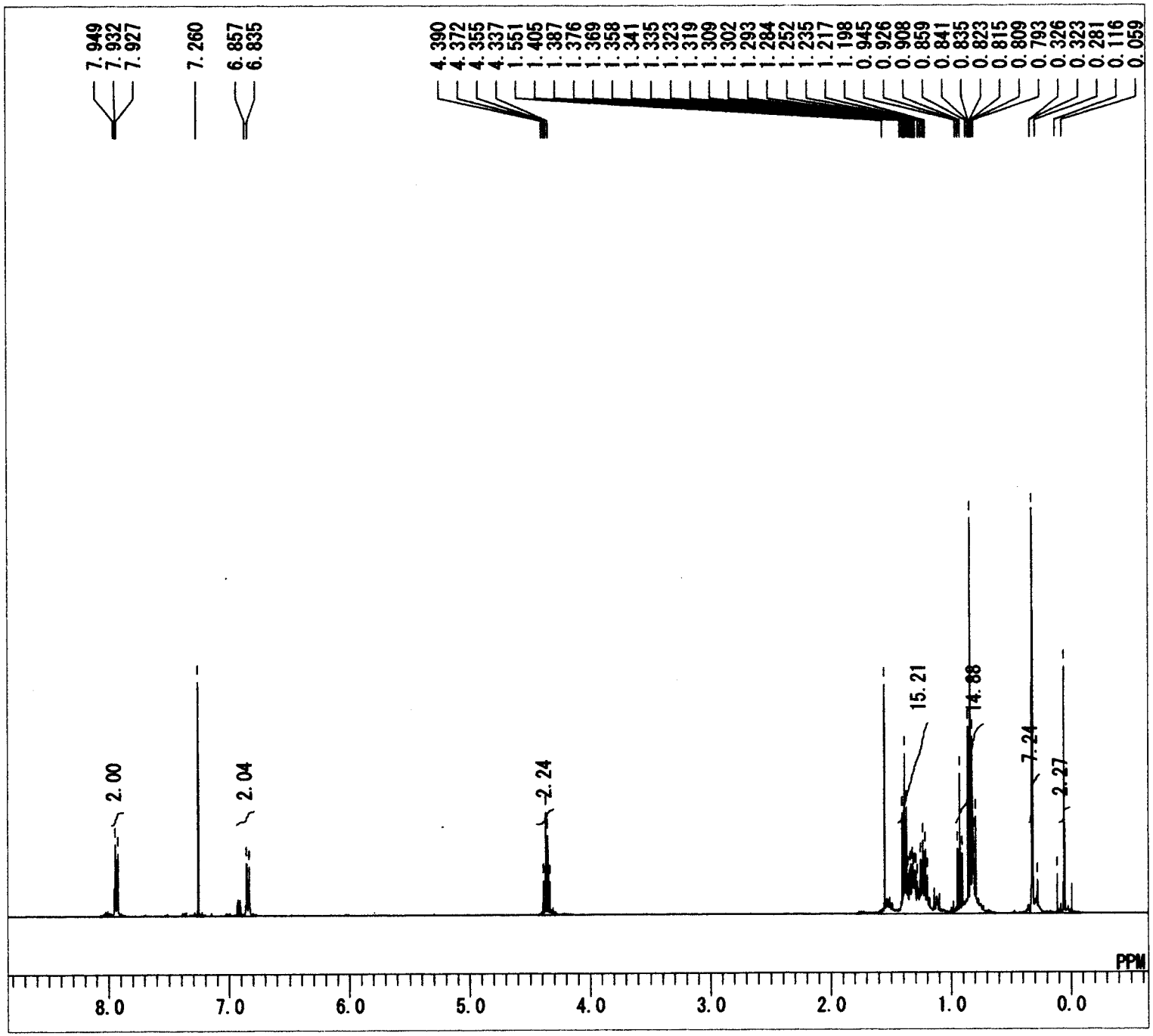
FILDF	





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PD	4.9500 sec
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BF	0.00 Hz
T1	0.00
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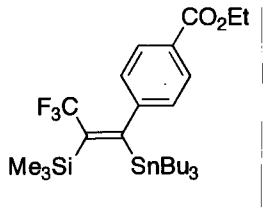
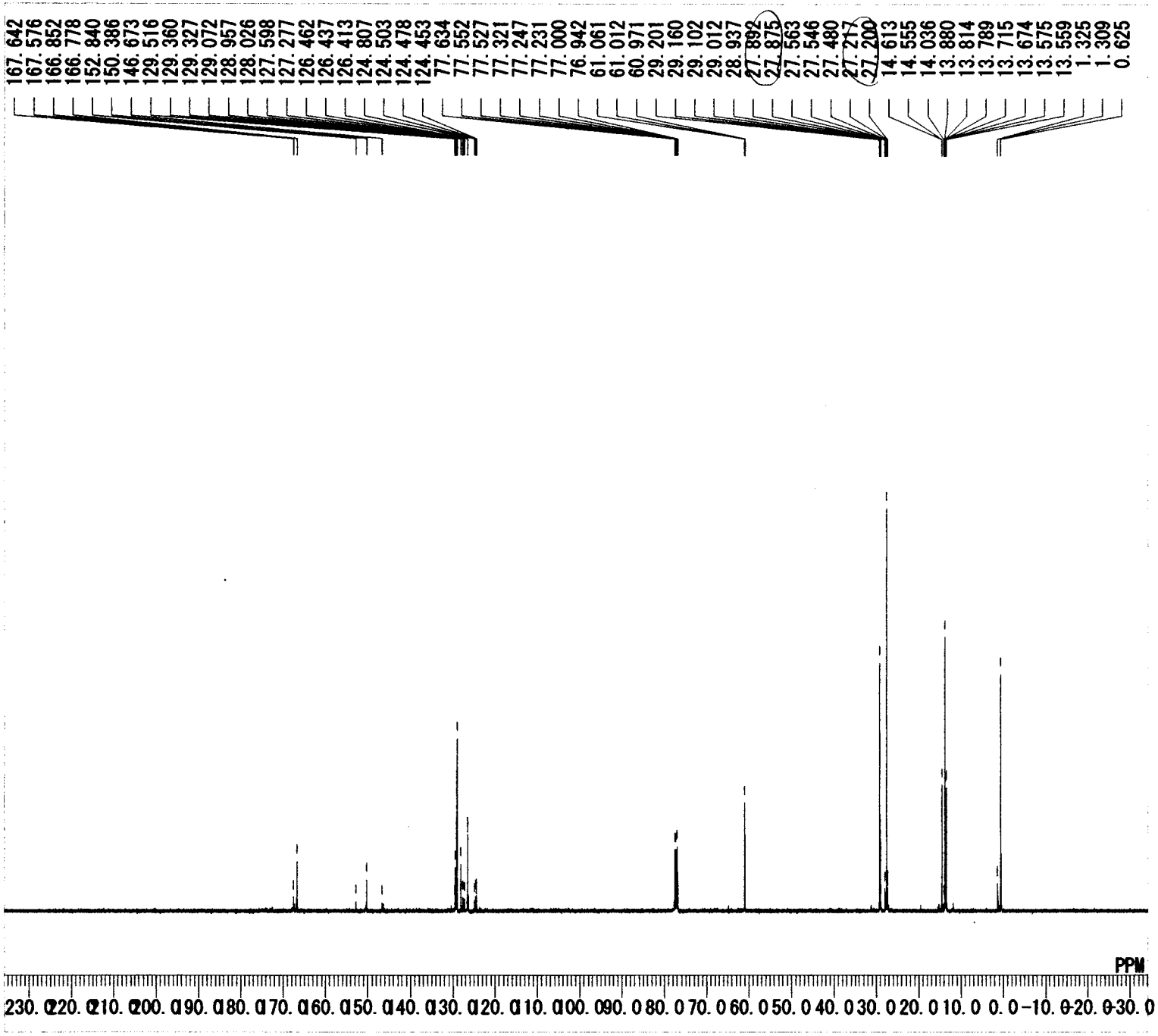
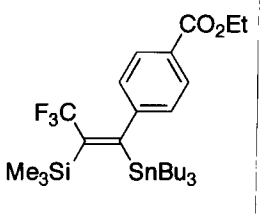
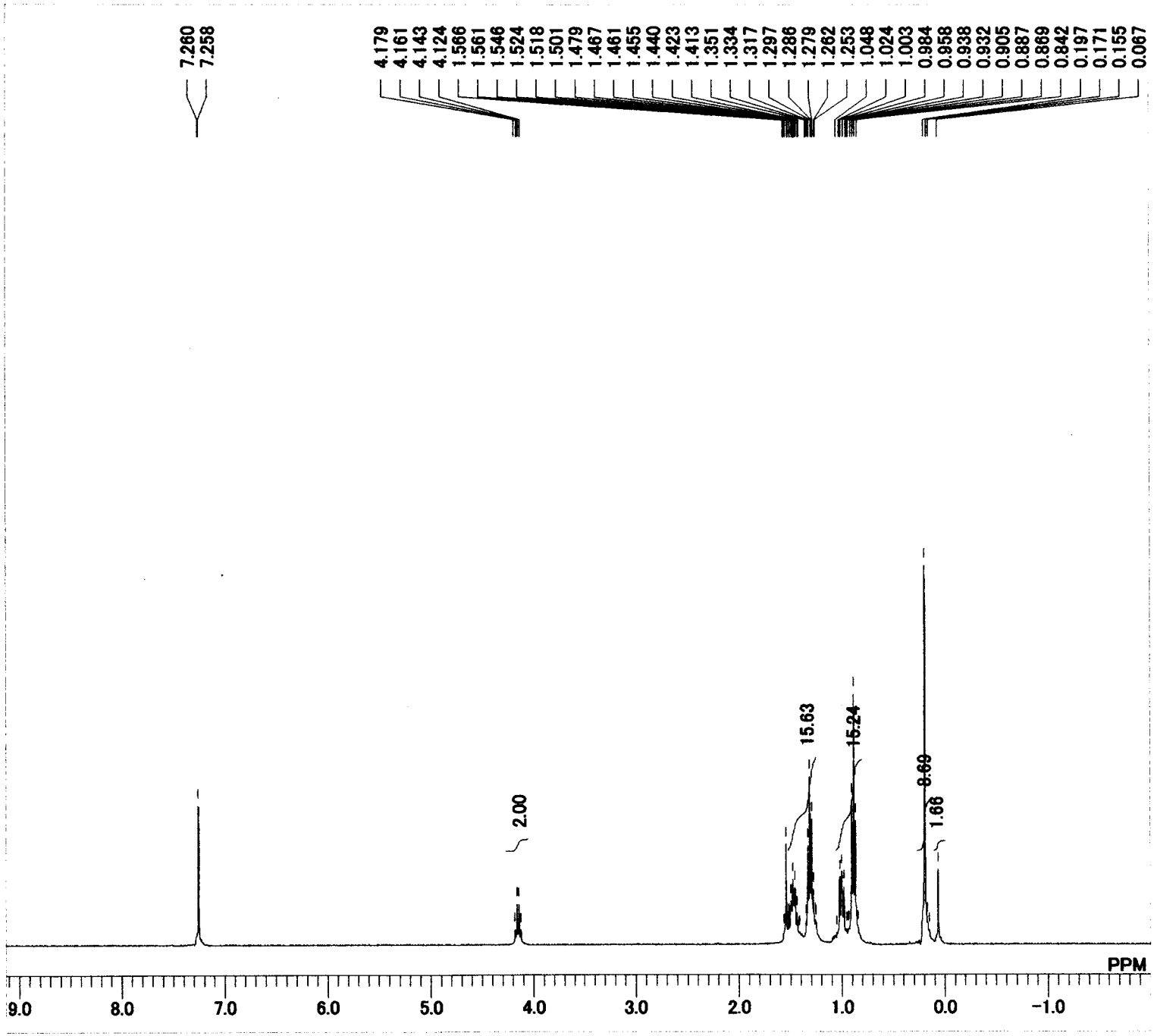
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	250
LKSIG	1172
CSPED	12 Hz
FILDC	
FILDF	



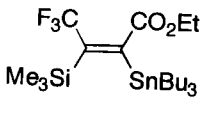


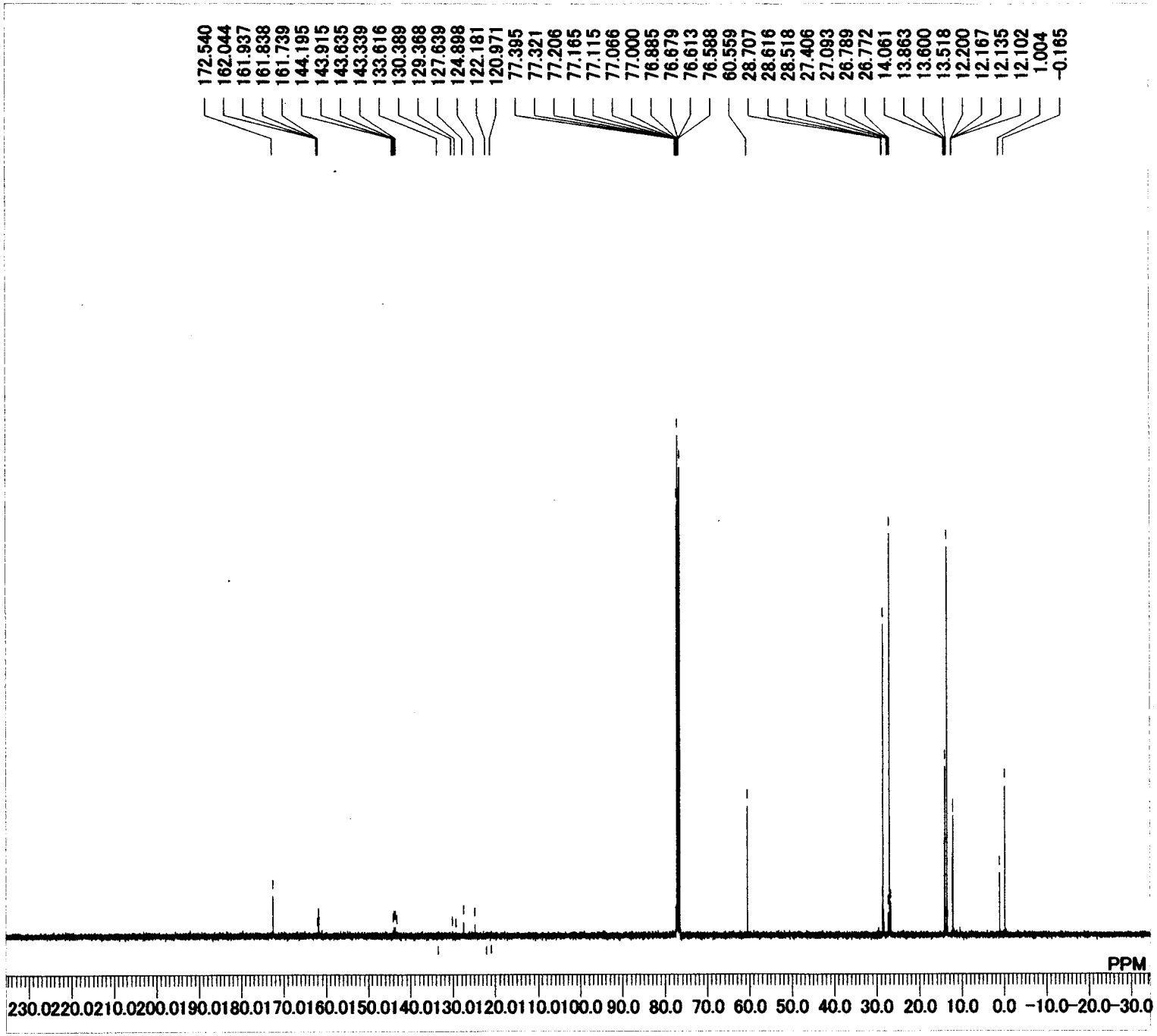
MENUF	13C	
OBNUC	13C	
OFR	100.40	MHz
OBSET	125.00	KHz
OBFIN	10500.00	Hz
PW1	6.00	usec
DEADT	19.10	usec
PREDL	0.20000	msec
IWT	1.0000	msec
POINT	32768	
SPO	32768	
TIMES	512	
DUMMY	1	
FREQU	27118.64	Hz
FLT	13550	Hz
DELAY	14.80	usec
ACQTM	1.2083	sec
PD	1.7920	sec
ADBIT	16	
RGAIN	25	
BF	0.10	Hz
T1	0.00	
T2	0.00	
T3	90.00	
T4	100.00	
EXMOD	BCM	
EXPCM	Bilevel.complete.decoupling:S	
IRNUC	1H	
IFR	399.65	MHz
IRSET	124.00	KHz
IRFIN	10500.00	Hz
IRRPW	45	usec
IRATN	511	
DFILE	_DEFAULT.ALS	
SF	TH5ATFG2	
LKSET	61.60	KHz
LKFIN	79.0	Hz
LKLEV	180	
LGAIN	26	
LKPHS	238	
LKSIG	1053	
CSPED	11	Hz
FILDC		
FILDF		



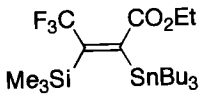


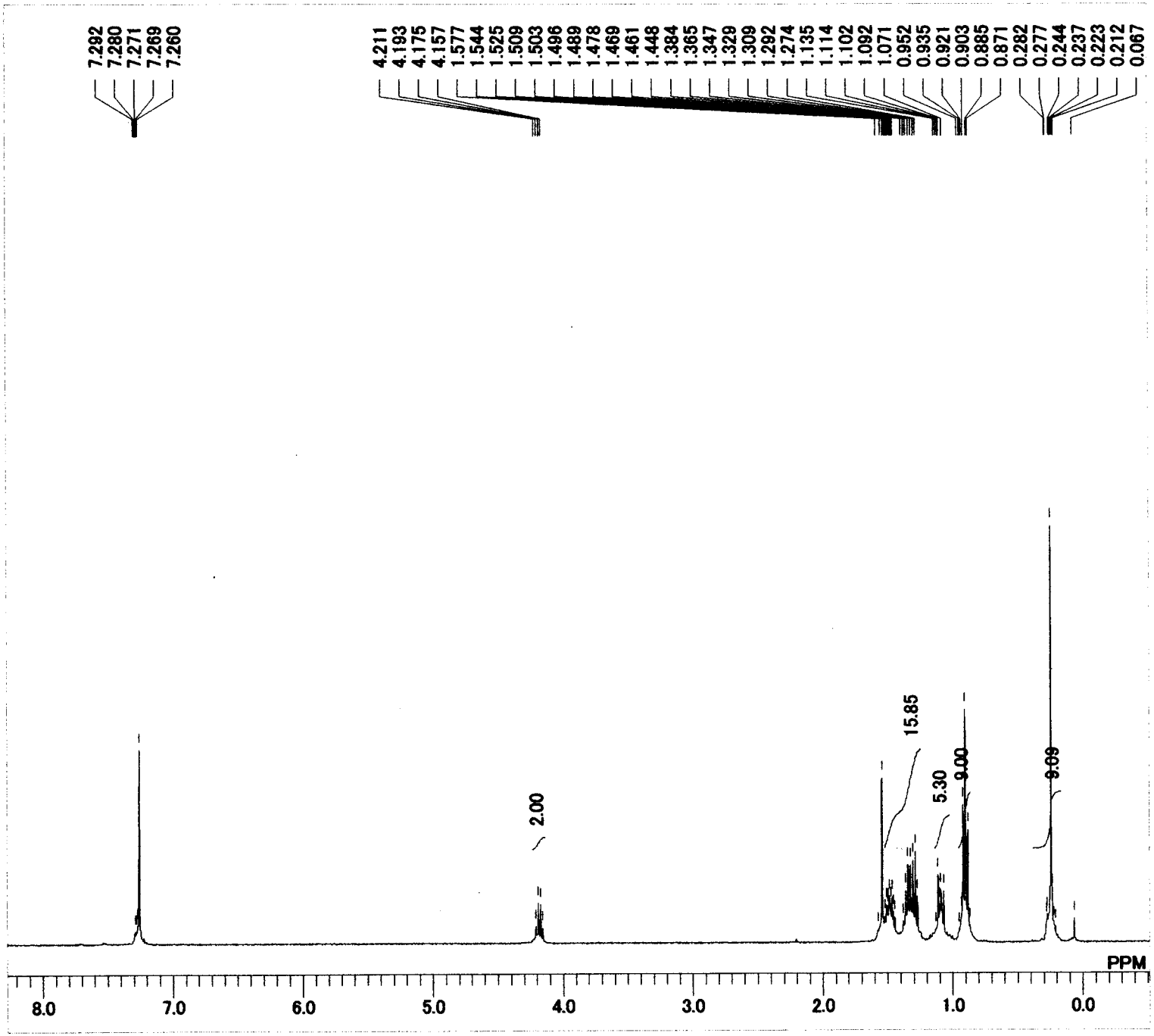
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	18
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PI
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	5.27 ue H.als
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	238
LKSIG	460
CSPED	11 Hz
FILDC	
FILDF	



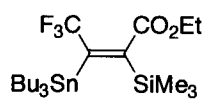


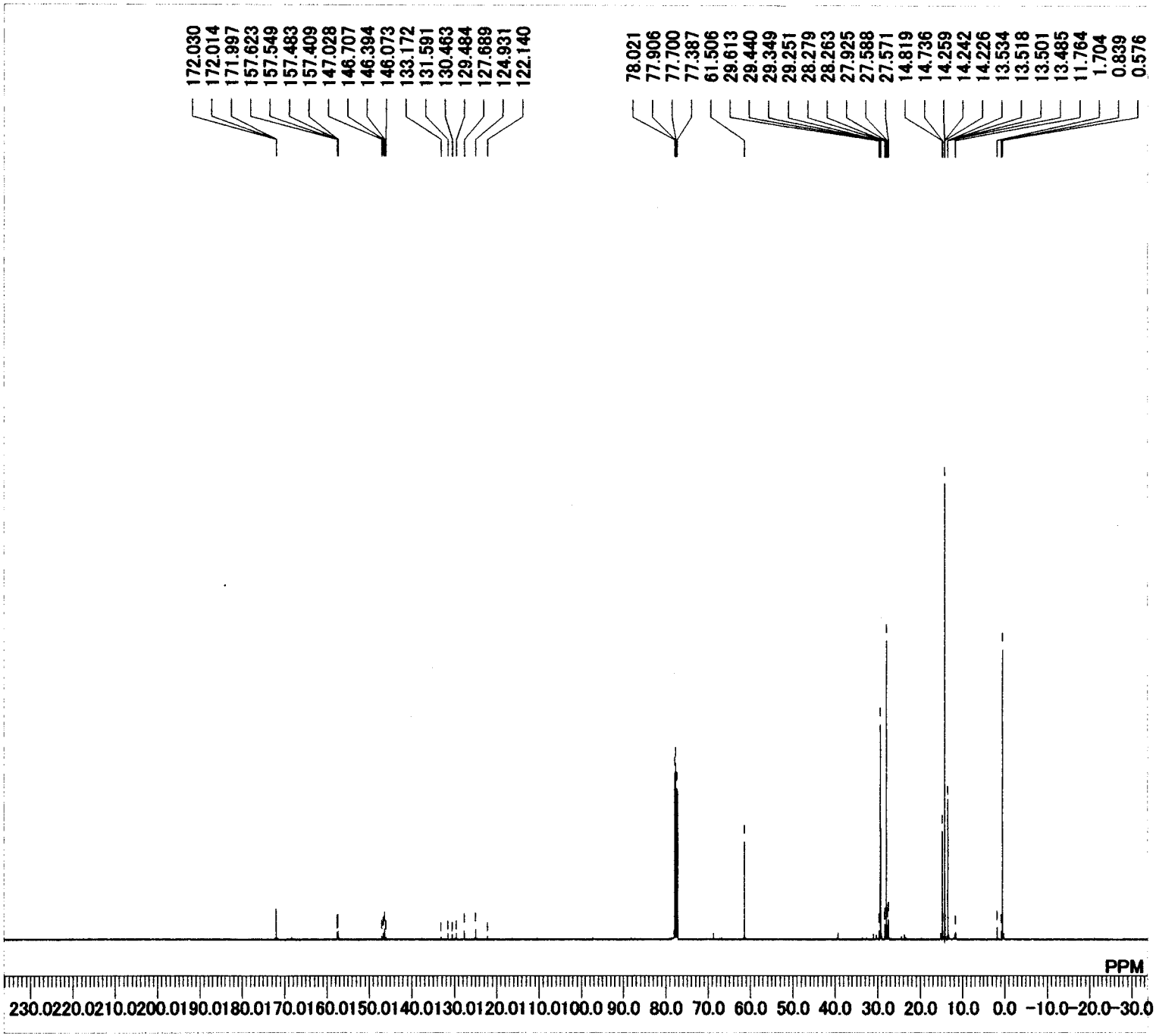
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	3000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	238
LKSIG	709
CSPED	14 Hz
FILDC	
FILDF	



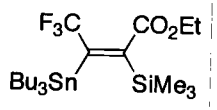


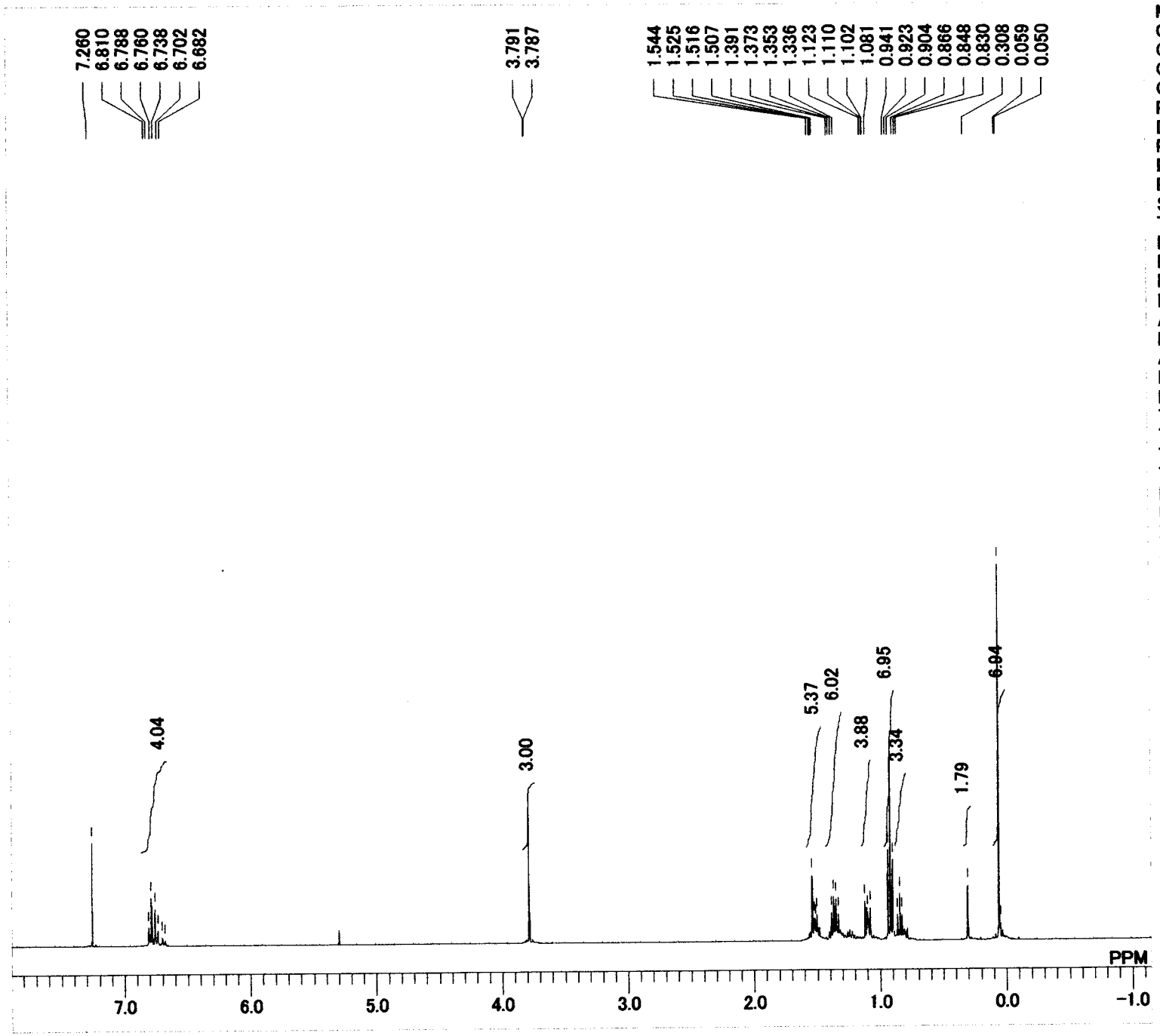
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	19
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	5.27 shita H CF3-Sn-Si-COOEt Pd(
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	238
LKSIG	884
CSPED	13 Hz
FILDC	
FILDF	



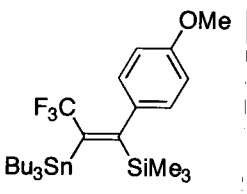


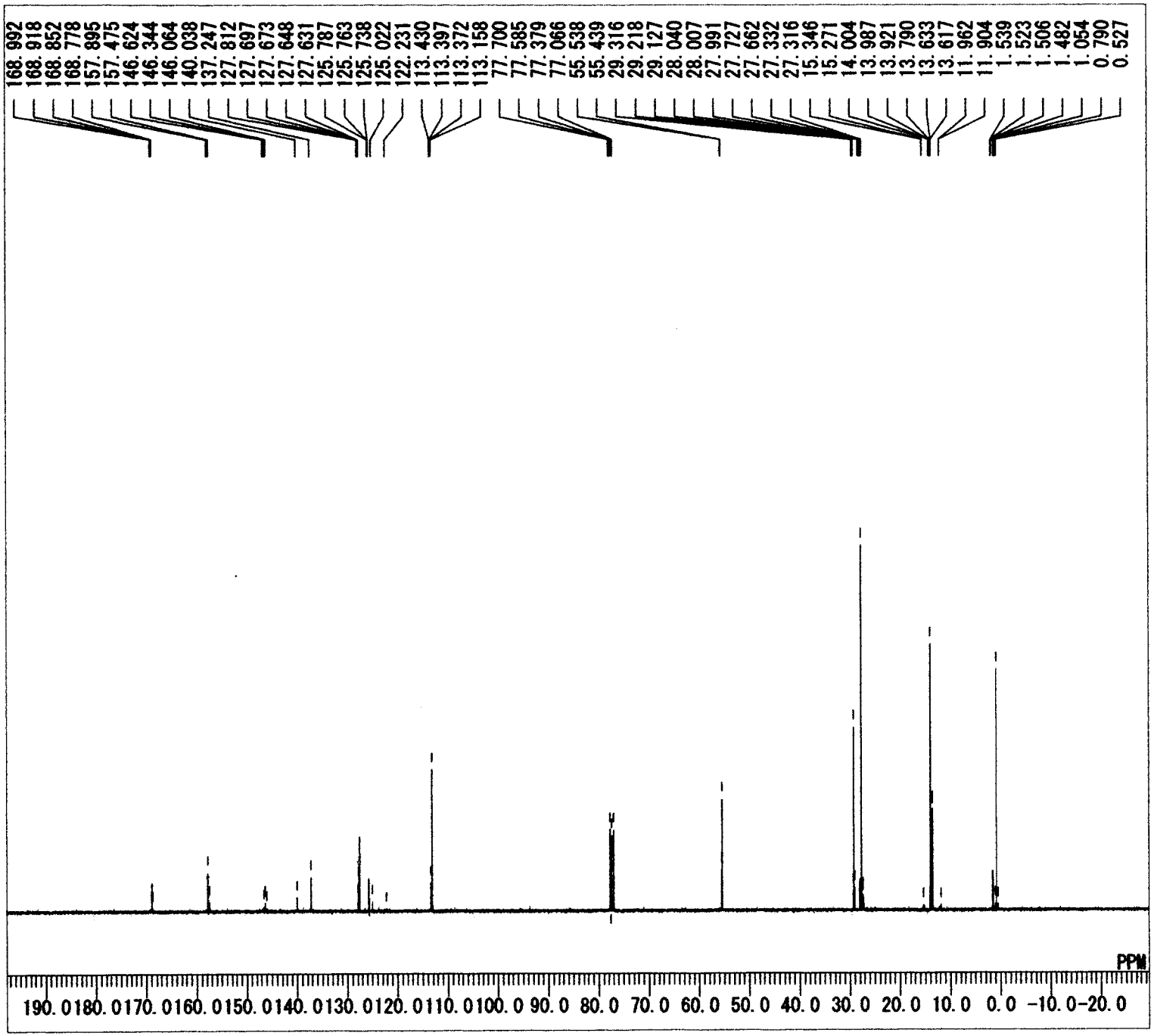
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	20000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	6.2 Shita C CF3-Sn-Si-COOEt Pd(
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	25
LKPHS	238
LKSIG	1762
CSPED	13 Hz
FILDC	
FILDF	



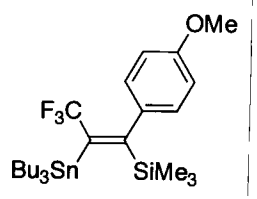


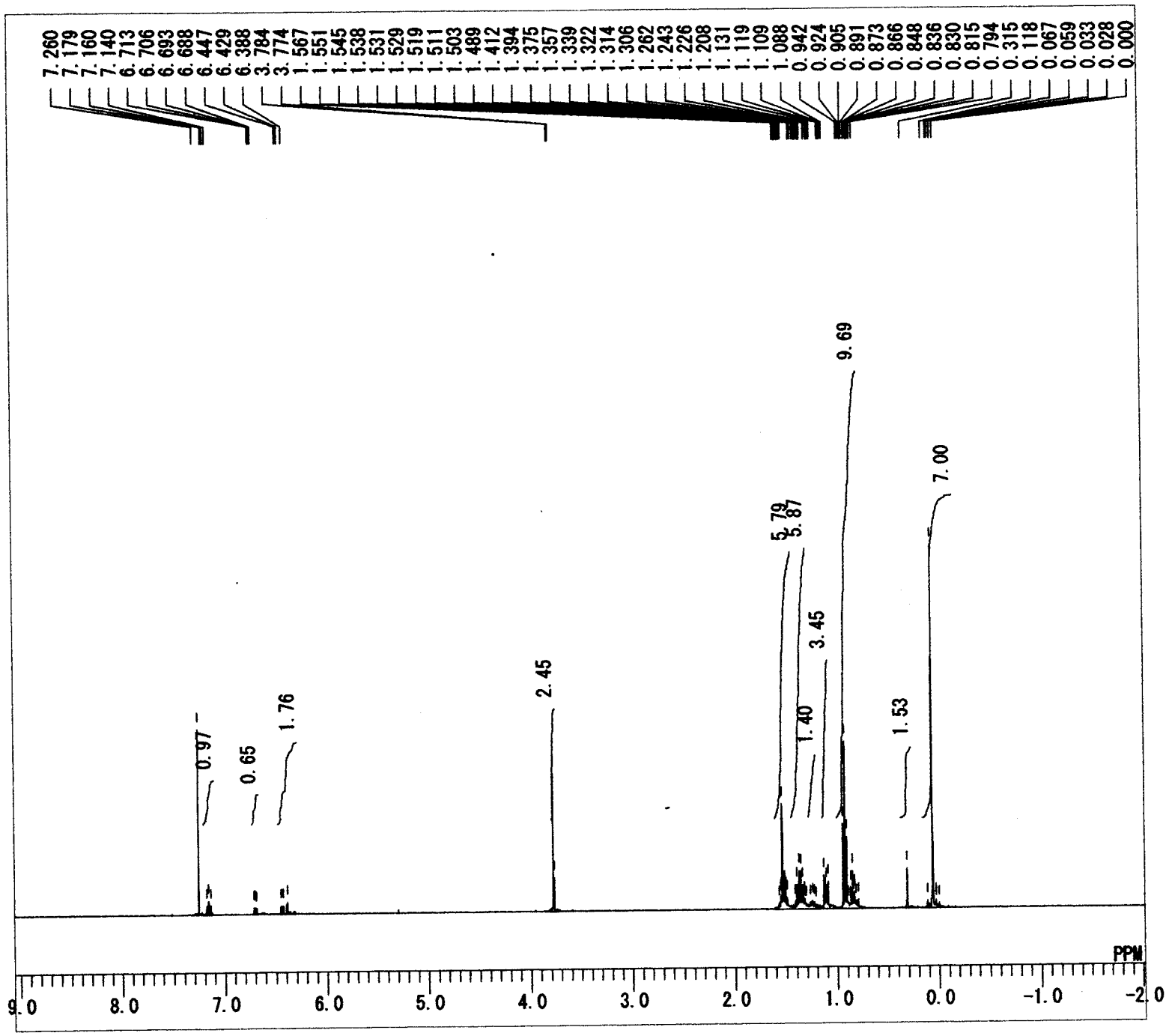
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	17
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-p-OMe-Si-Sn (1H) PdNC.a
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	250
LKSIG	804
CSPED	11 Hz
FILDC	
FILDF	



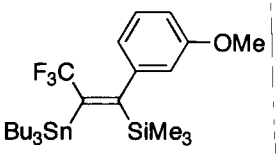


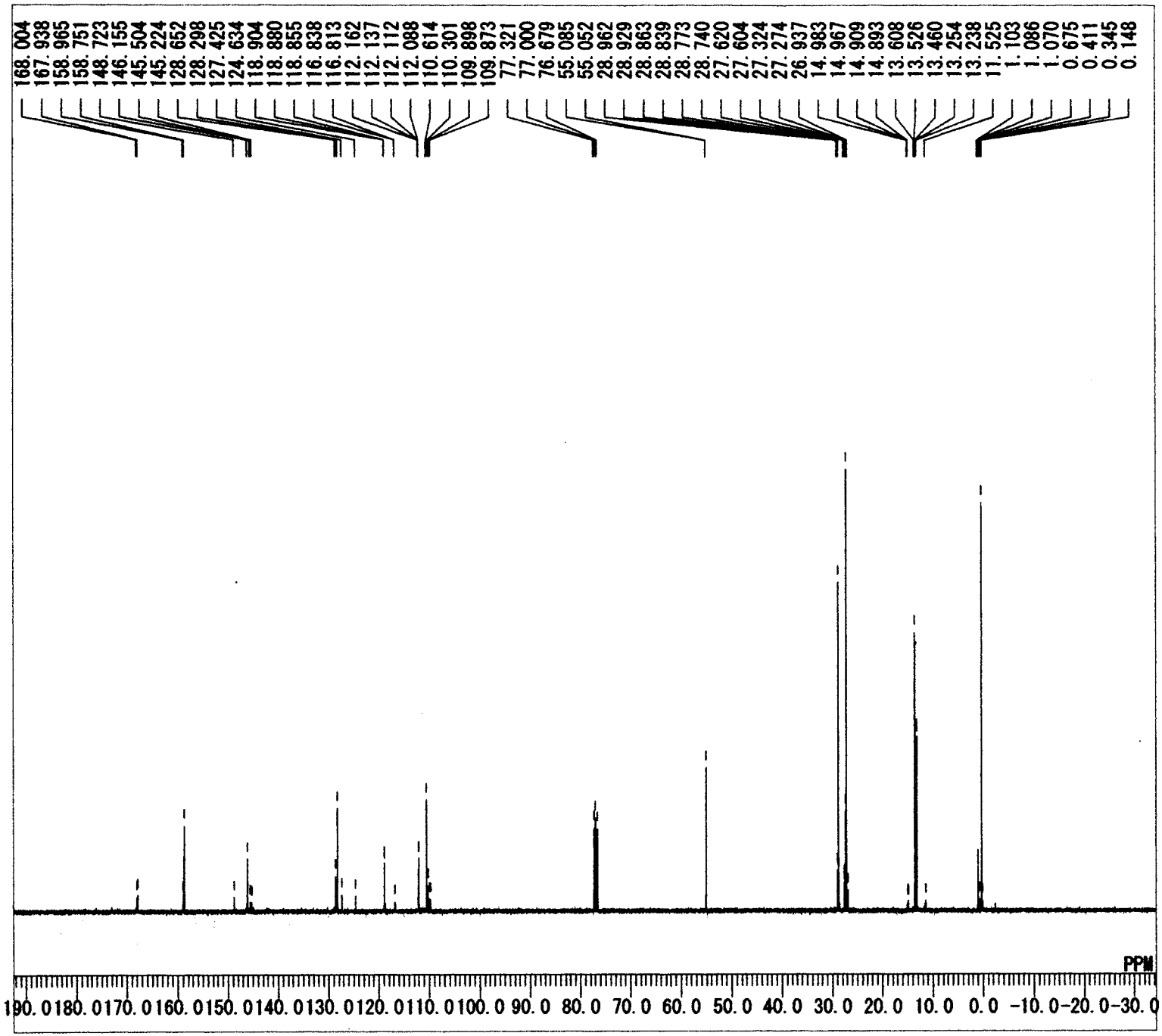
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	600
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:S
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-p-OMe-Si-Sn (13C) PdN(
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	250
LKSIG	1215
CSPED	13 Hz
FILDC	
FILDF	



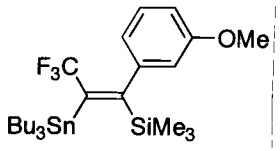


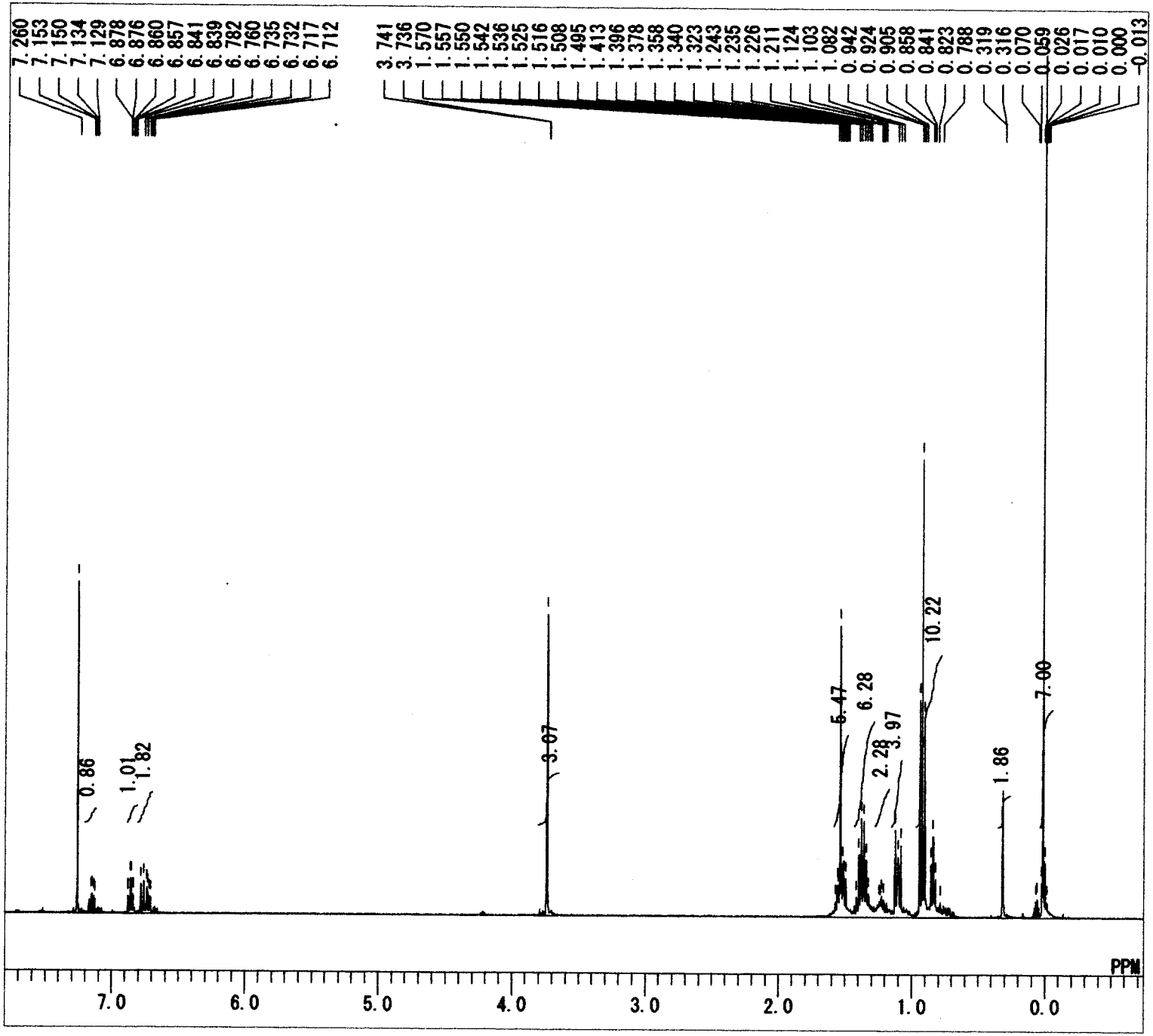
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	19
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-m-OMe-Si-Sn (1H) PdNC.
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	25
LKPHS	250
LKSIG	1991
CSPED	13 Hz
FILDC	
FILDF	



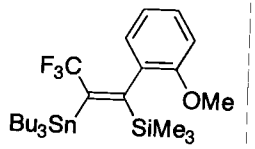


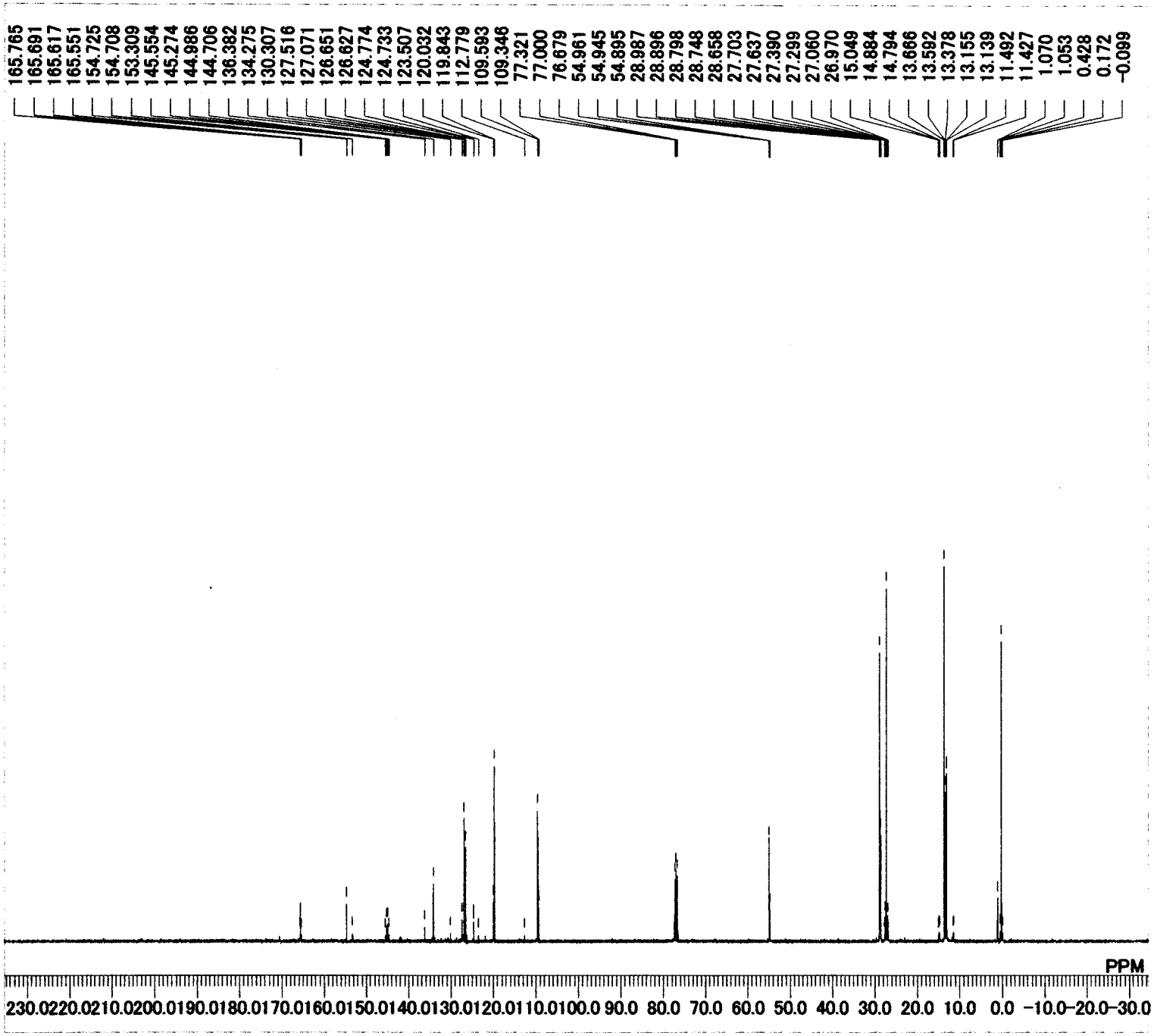
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	512
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:S
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-m-OMe-Si-Sn (13C) PdN(
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	250
LKSIG	838
CSPED	12 Hz
FILDC	
FILDF	



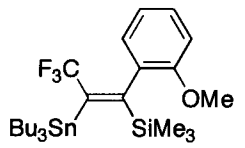


MENUF	1H	
OBNUC	1H	
OFR	399.65	MHz
OBSET	135.40	KHz
OBFIN	24.90	Hz
PW1	5.80	usec
DEADT	72.10	usec
PREDL	0.20000	msec
IWT	1.0000	msec
POINT	16384	
SPO	16384	
TIMES	8	
DUMMY	1	
FREQU	7992.01	Hz
FLT	4000	Hz
DELAY	50.00	usec
ACQTM	2.0501	sec
PD	4.9500	sec
ADBIT	16	
RGAIN	18	
BF	0.10	Hz
T1	0.00	
T2	0.00	
T3	90.00	
T4	100.00	
EXMOD	NON	
EXPCM	NON:Single.coupled:PW1_ACQTM_	
IRNUC	1H	
IFR	399.65	MHz
IRSET	136.90	KHz
IRFIN	97.50	Hz
IRRPW	45	usec
IRATN	511	
DFILE	CF3-ph-o-OMe-Si-Sn (1H) PdNC.	
SF	TH5ATFG2	
LKSET	61.60	KHz
LKFIN	79.0	Hz
LKLEV	180	
LGAIN	21	
LKPHS	250	
LKSIG	658	
CSPED	12	Hz
FILDC		
FILDF		

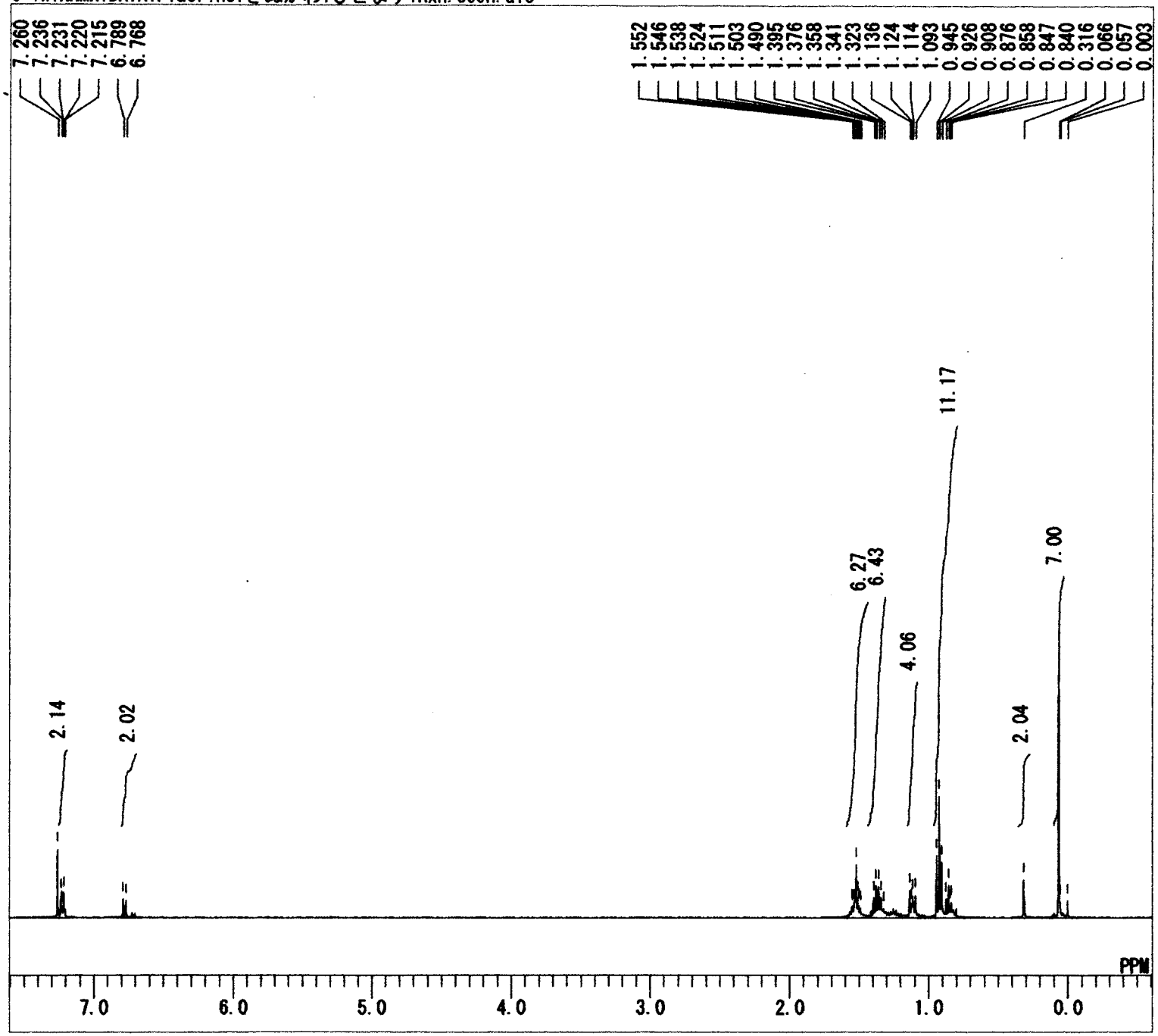




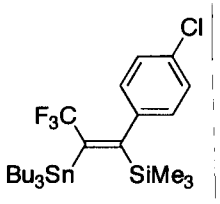
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	20000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	150
LKSIG	311
CSPED	13 Hz
FILDC	
FILDF	

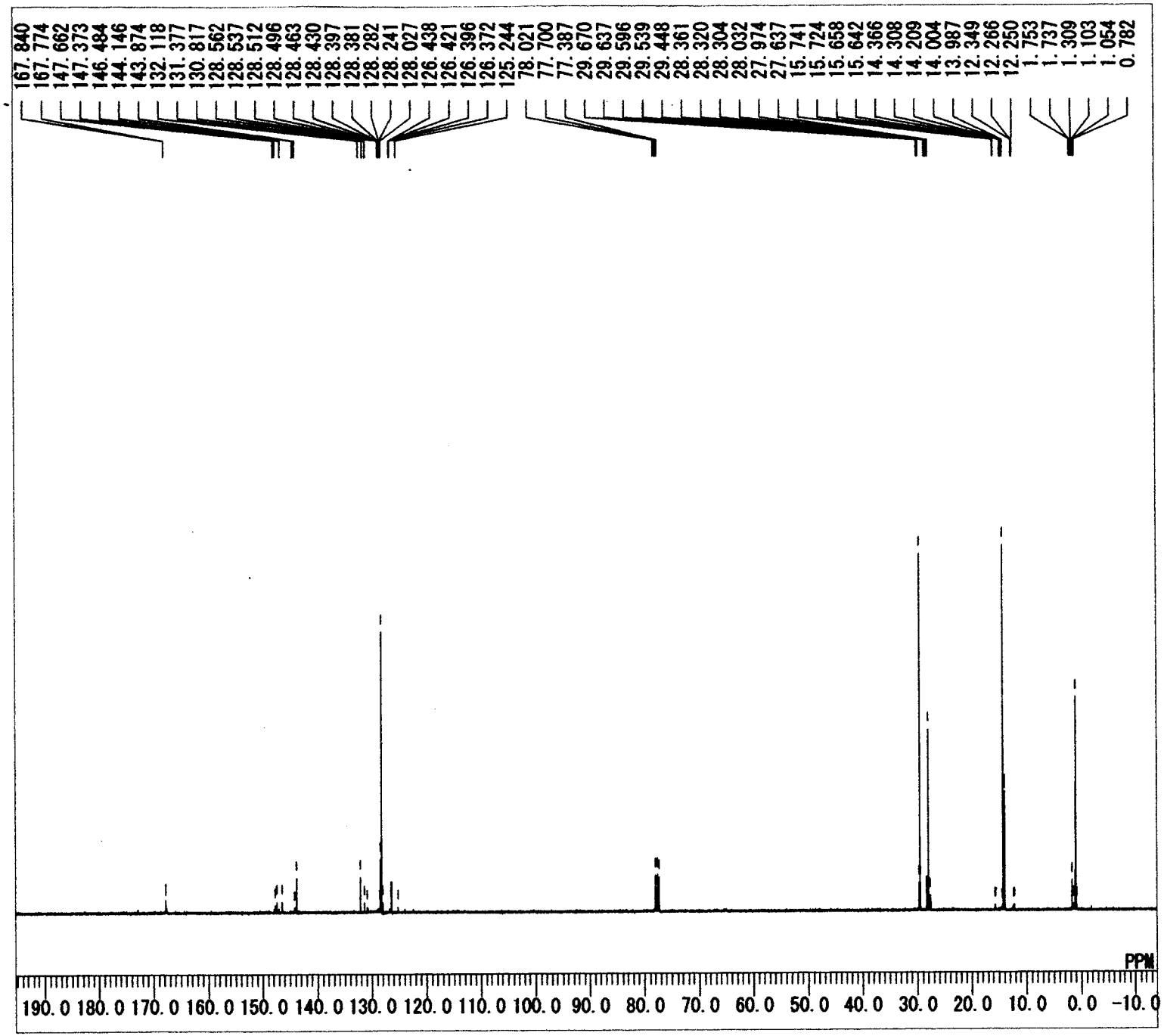


C:¥WINNMR¥DATA¥Fluorine¥きぬがわ¥ひとまず¥Rxn.309H.als

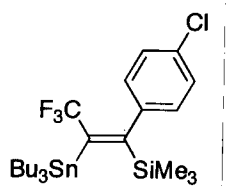


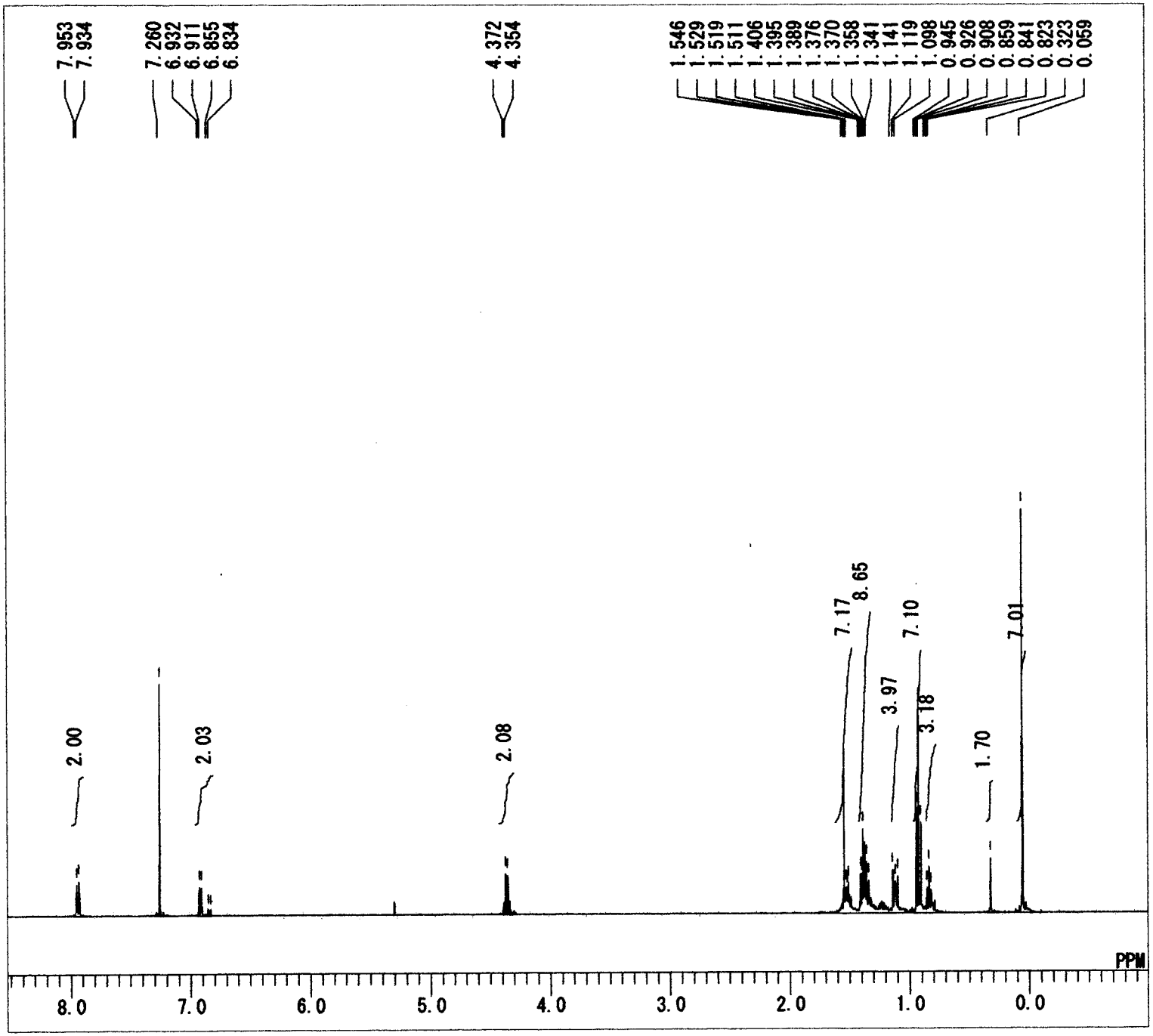
MENUF	1H	
OBNUC	1H	
OFR	399.65	MHz
OBSET	135.40	KHz
OBFIN	24.90	Hz
PW1	5.80	usec
DEADT	72.10	usec
PREDL	0.20000	msec
IWT	1.0000	msec
POINT	16384	
SPO	16384	
TIMES	8	
DUMMY	1	
FREQU	7992.01	Hz
FLT	4000	Hz
DELAY	50.00	usec
ACQTM	2.0501	sec
PD	4.9500	sec
ADBIT	16	
RGAIN	20	
BF	0.60	Hz
T1	0.00	
T2	0.00	
T3	90.00	
T4	100.00	
EXMOD	NON	
EXPCM	NON:Single.coupled:PW1_ACQTM_	
IRNUC	1H	
IFR	399.65	MHz
IRSET	136.90	KHz
IRFIN	97.50	Hz
IRRPW	45	usec
IRATN	511	
DFILE	Rxn.309H.als	
SF	TH5ATFG2	
LKSET	61.60	KHz
LKFIN	79.0	Hz
LKLEV	180	
LGAIN	25	
LKPHS	250	
LKSIG	1604	
CSPED	14	Hz
FILDC		
FILDF		



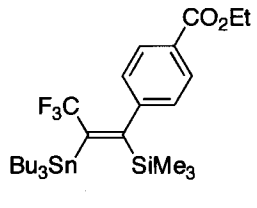


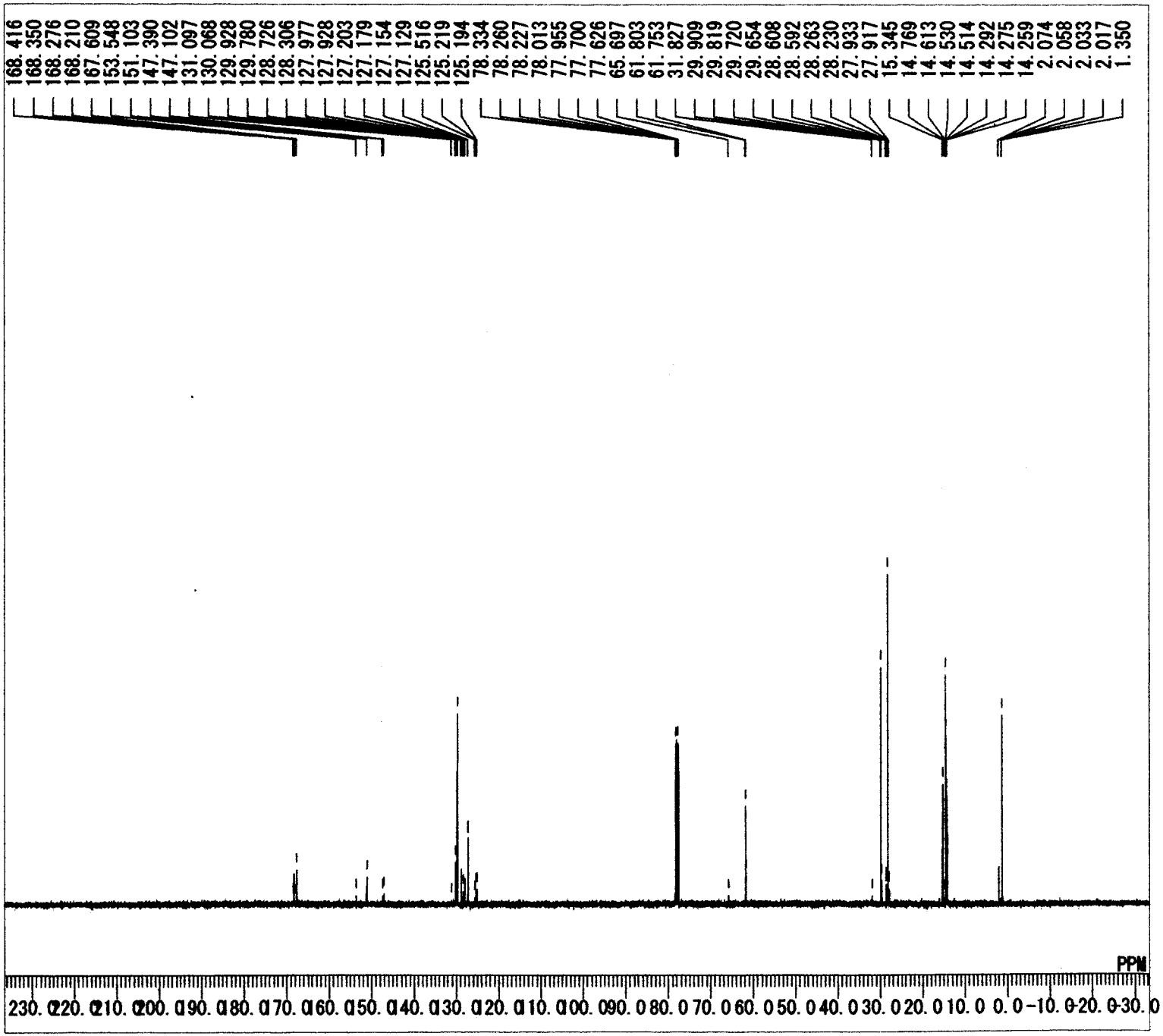
MENUF	13C	
OBNUC	13C	
OFR	100.40	MHz
OBSET	125.00	KHz
OBFIN	10500.00	Hz
PW1	6.00	usec
DEADT	19.10	usec
PREDL	0.20000	msec
IWT	1.0000	msec
POINT	32768	
SPO	32768	
TIMES	256	
DUMMY	1	
FREQU	27118.64	Hz
FLT	13550	Hz
DELAY	14.80	usec
ACQTM	1.2083	sec
PD	1.7920	sec
ADBIT	16	
RGAIN	24	
BF	0.10	Hz
T1	0.00	
T2	0.00	
T3	90.00	
T4	100.00	
EXMOD	BCM	
EXPCM	Bilevel.complete.decoupling:S	
IRNUC	1H	
IFR	399.65	MHz
IRSET	124.00	KHz
IRFIN	10500.00	Hz
IRRPW	45	usec
IRATN	511	
DFILE	_DEFAULT.ALS	
SF	TH5ATFG2	
LKSET	61.60	KHz
LKFIN	79.0	Hz
LKLEV	180	
LGAIN	26	
LKPHS	250	
LKSIG	1561	
CSPED	13	Hz
FILDC		
FILDF		



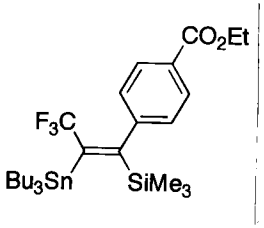


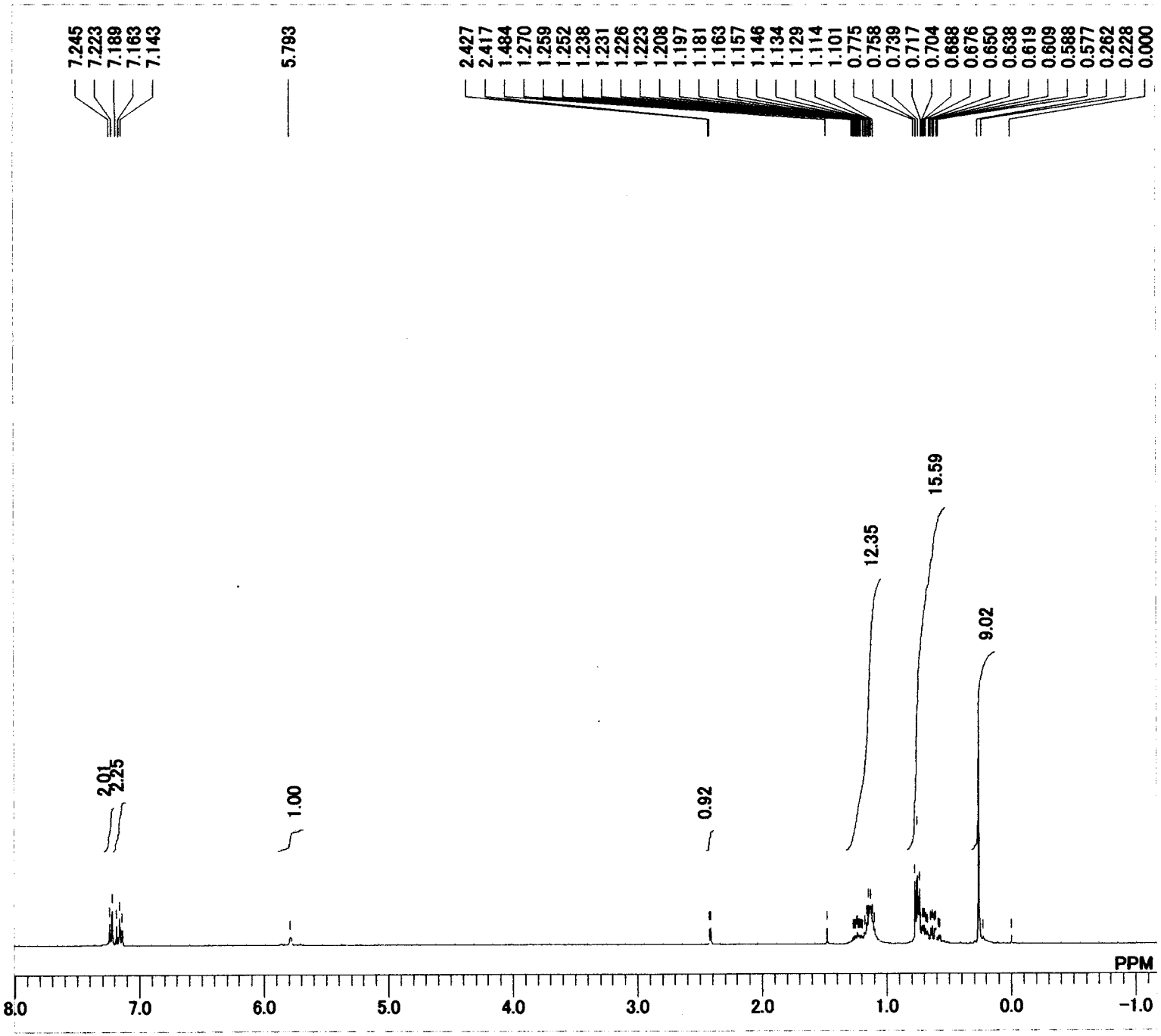
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	19
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-p-CO2Et-Si-Sn (1H) Pdf
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	250
LKSIG	1126
CSPED	11 Hz
FILDC	
FILDF	



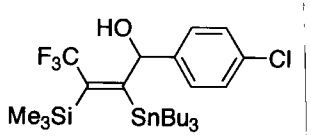


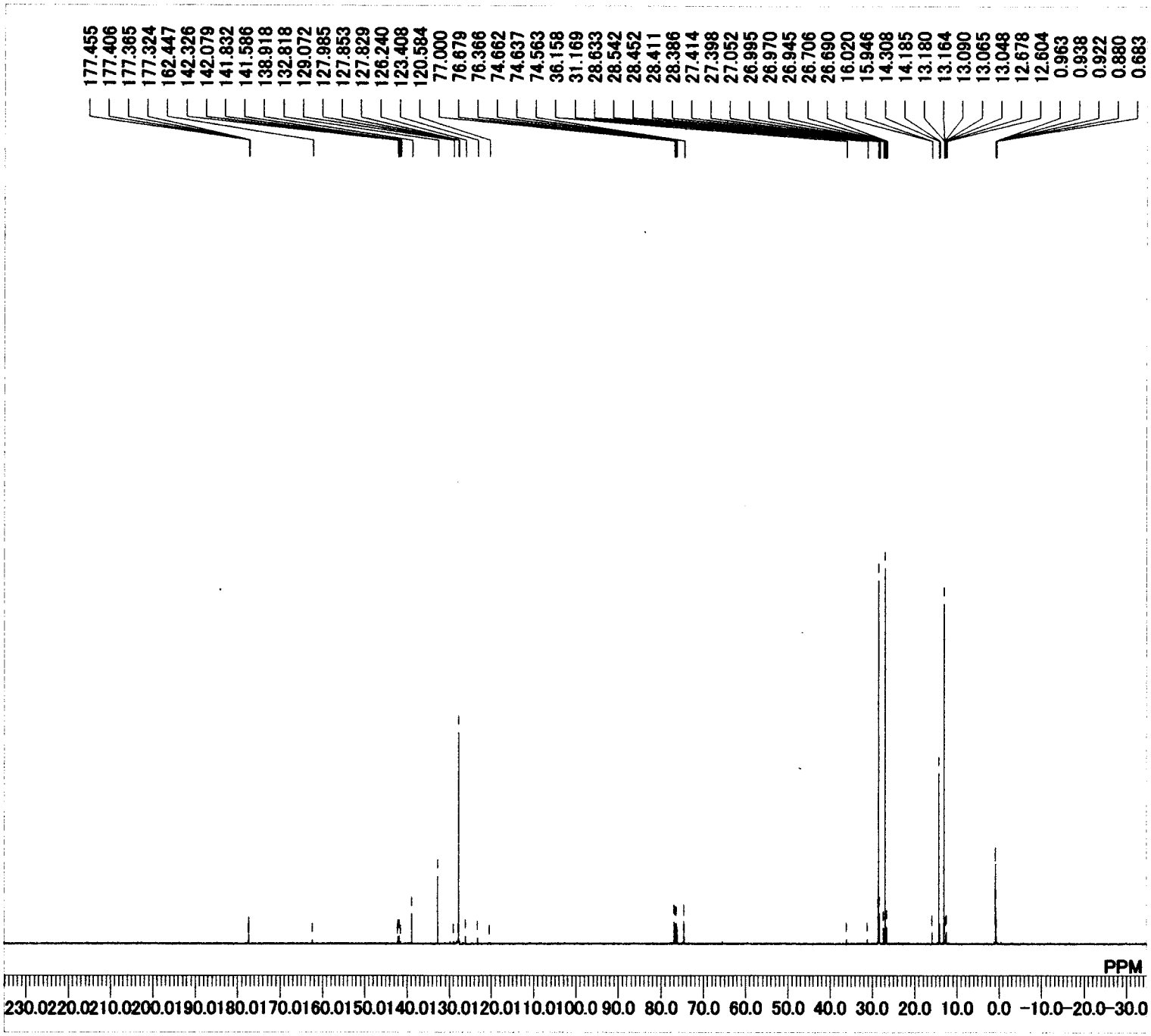
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	512
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:S
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-p-CO2Et-Si-Sn (13C) Pc
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	250
LKSIG	751
CSPED	14 Hz
FILDC	
FILDF	



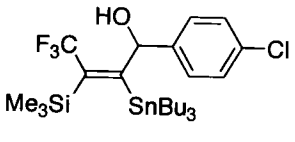


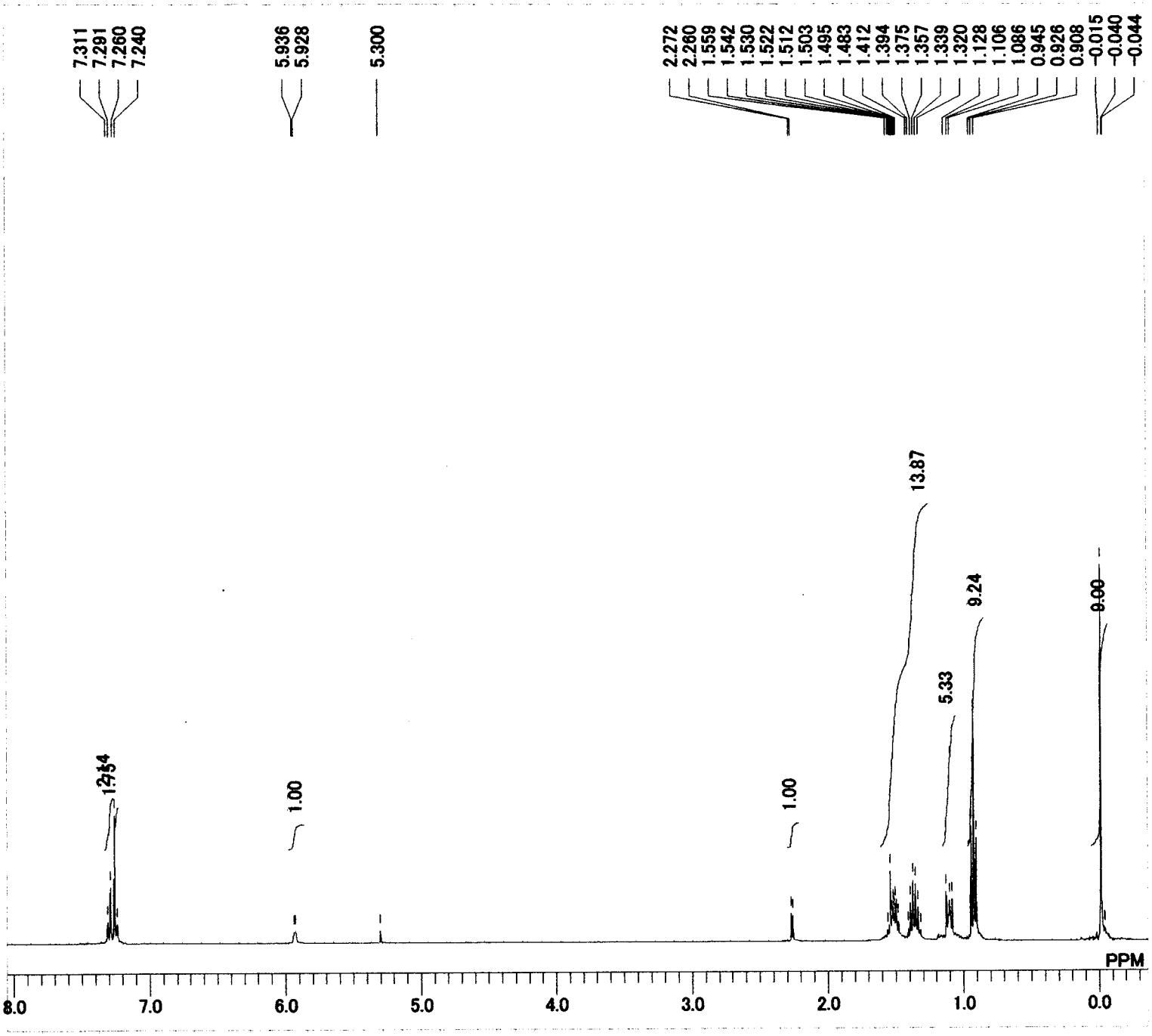
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	14
BF	0.60 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	Rxn.326 H ue.als
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	250
LKSIG	1065
CSPED	14 Hz
FILDC	
FILDF	



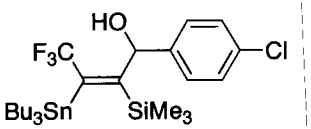


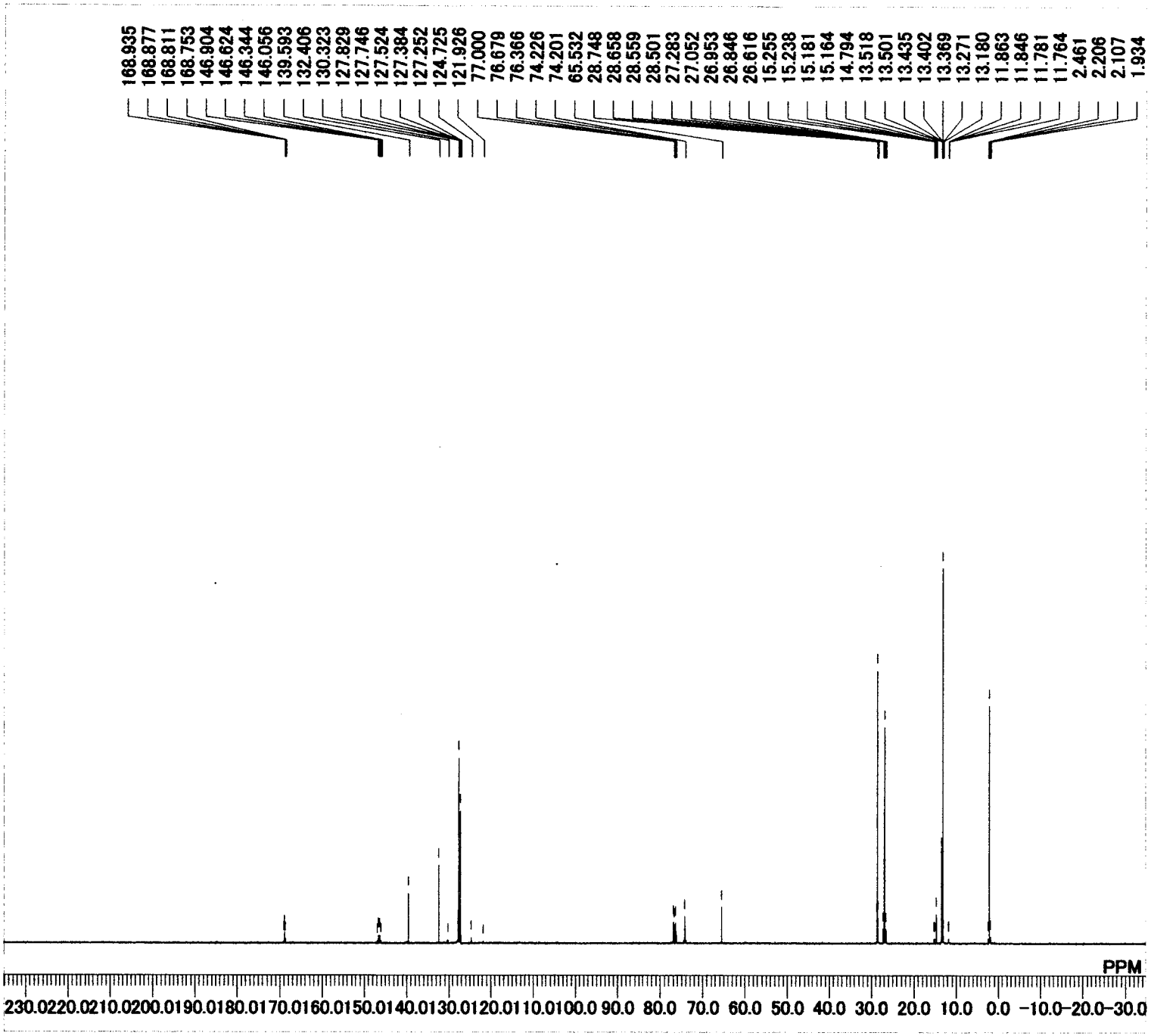
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	256
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	23
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-p-Cl-OH-Si-Sn ue.als
SF	TH5ATFG20
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	25
LKPHS	231
LKSIG	971
CSPED	13 Hz
FILDC	
FILDF	



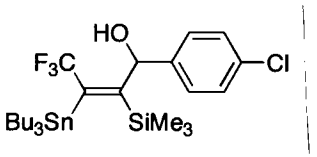


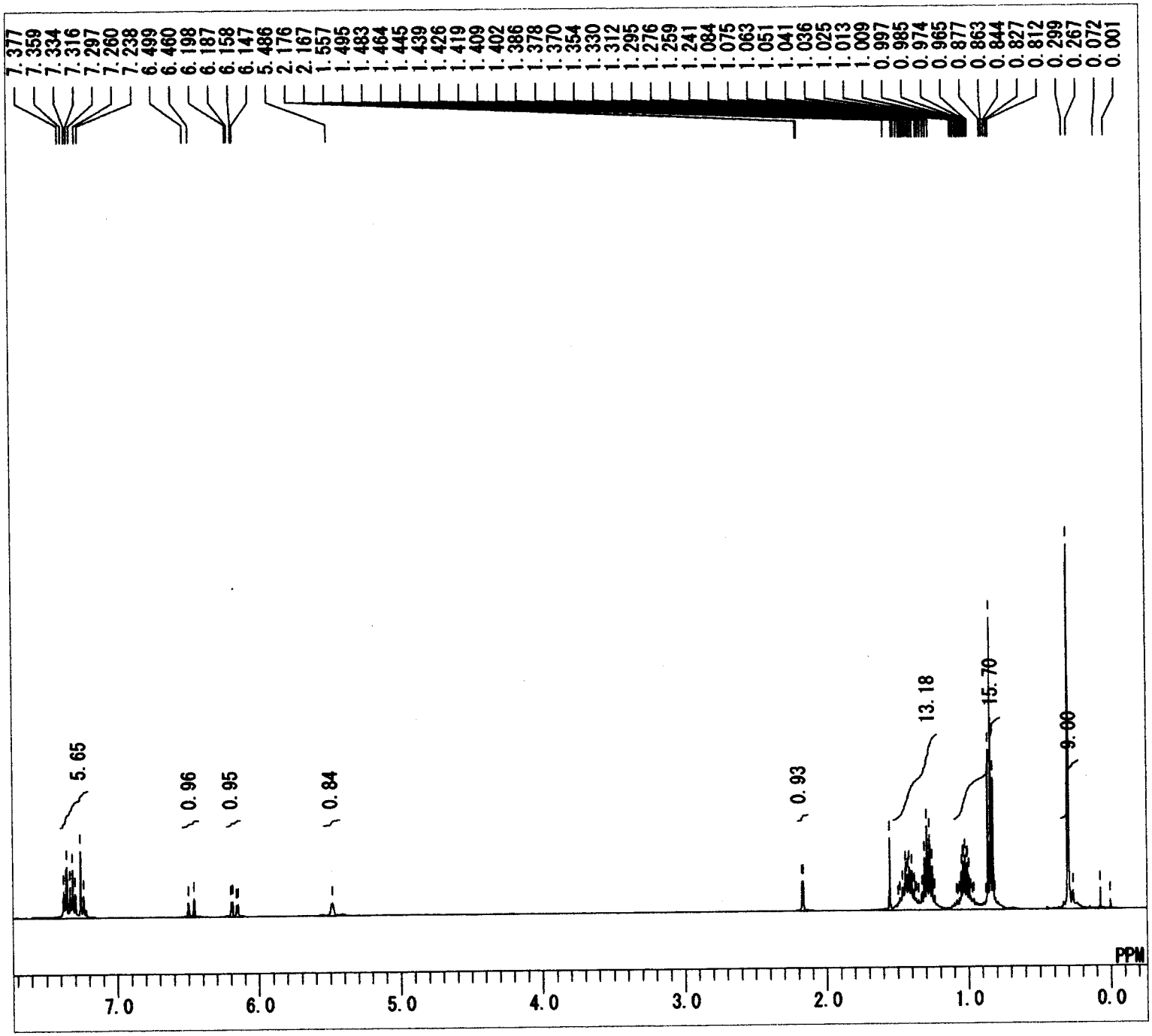
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	18
BF	0.60 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PI
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	Rxn.326 H shita.als
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	27
LKPHS	250
LKSIG	3256
CSPED	13 Hz
FILDC	
FILDF	



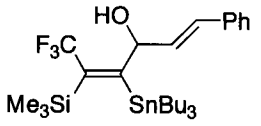


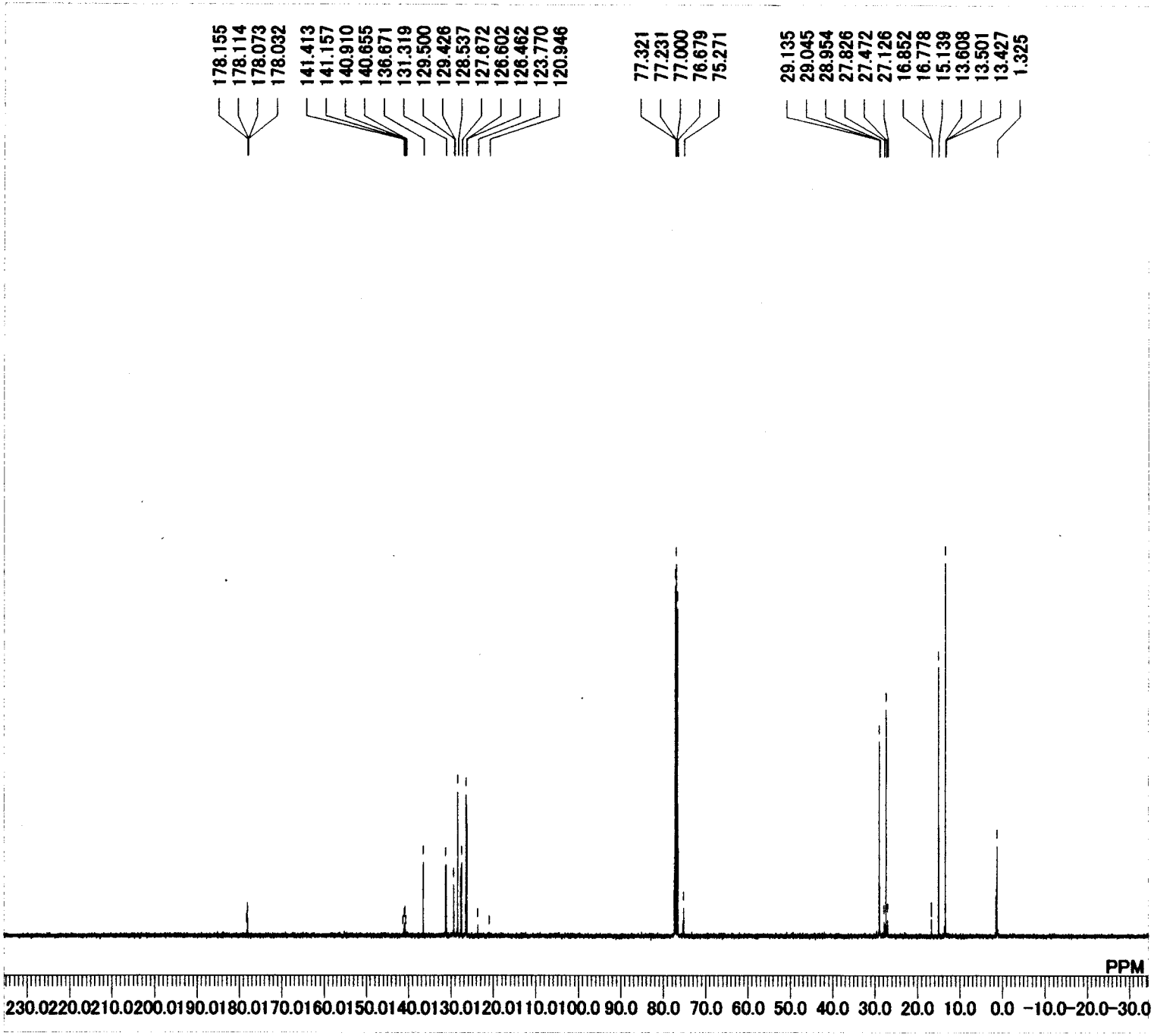
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	256
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	22
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG20
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	231
LKSIG	605
CSPED	10 Hz
FILDC	
FILDF	



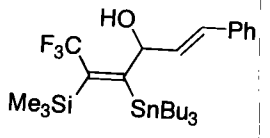


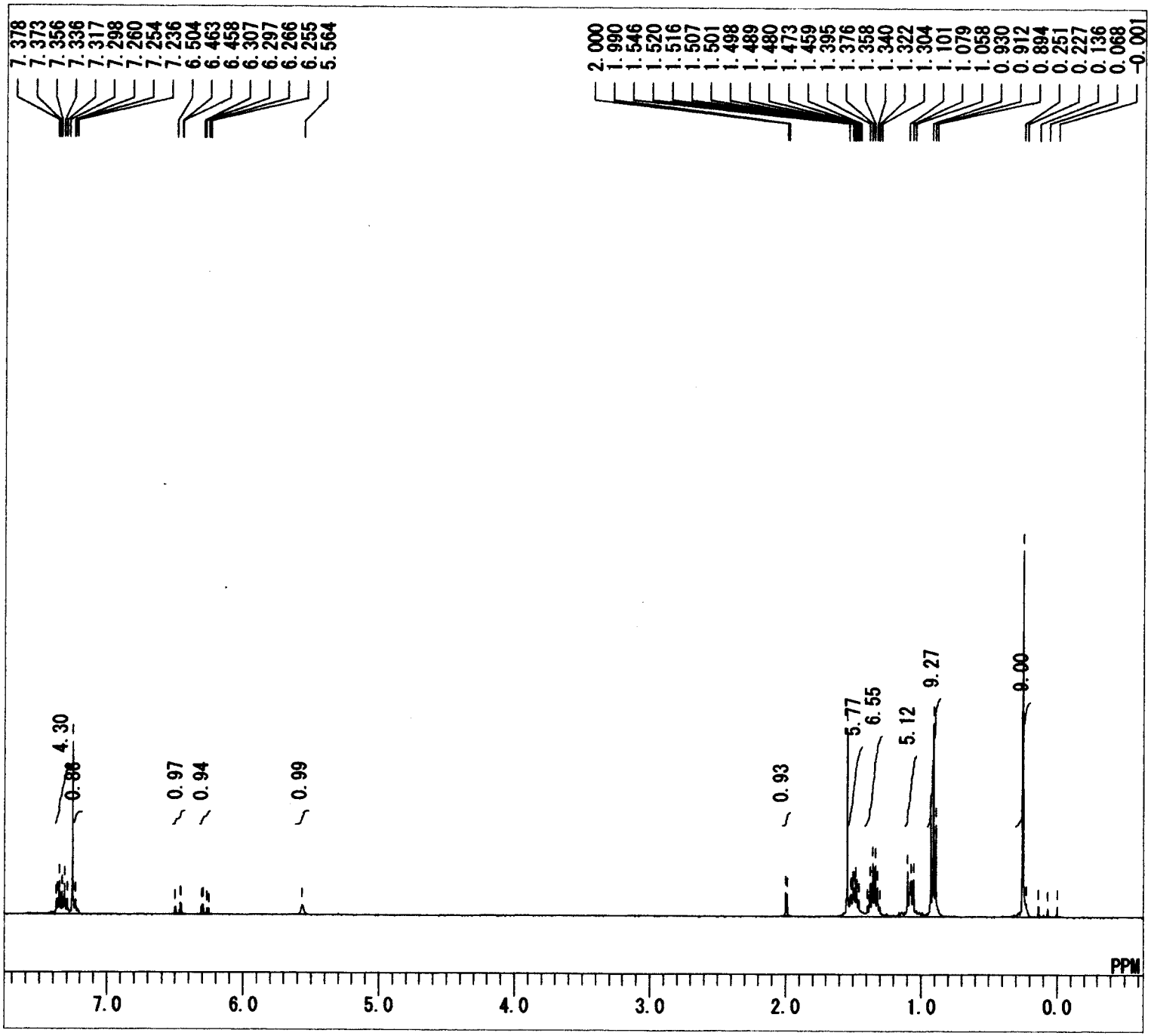
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	15
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	Rxn.335 H ue.als
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	250
LKSIG	1280
CSPED	14 Hz
FILDC	
FILDF	



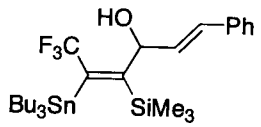


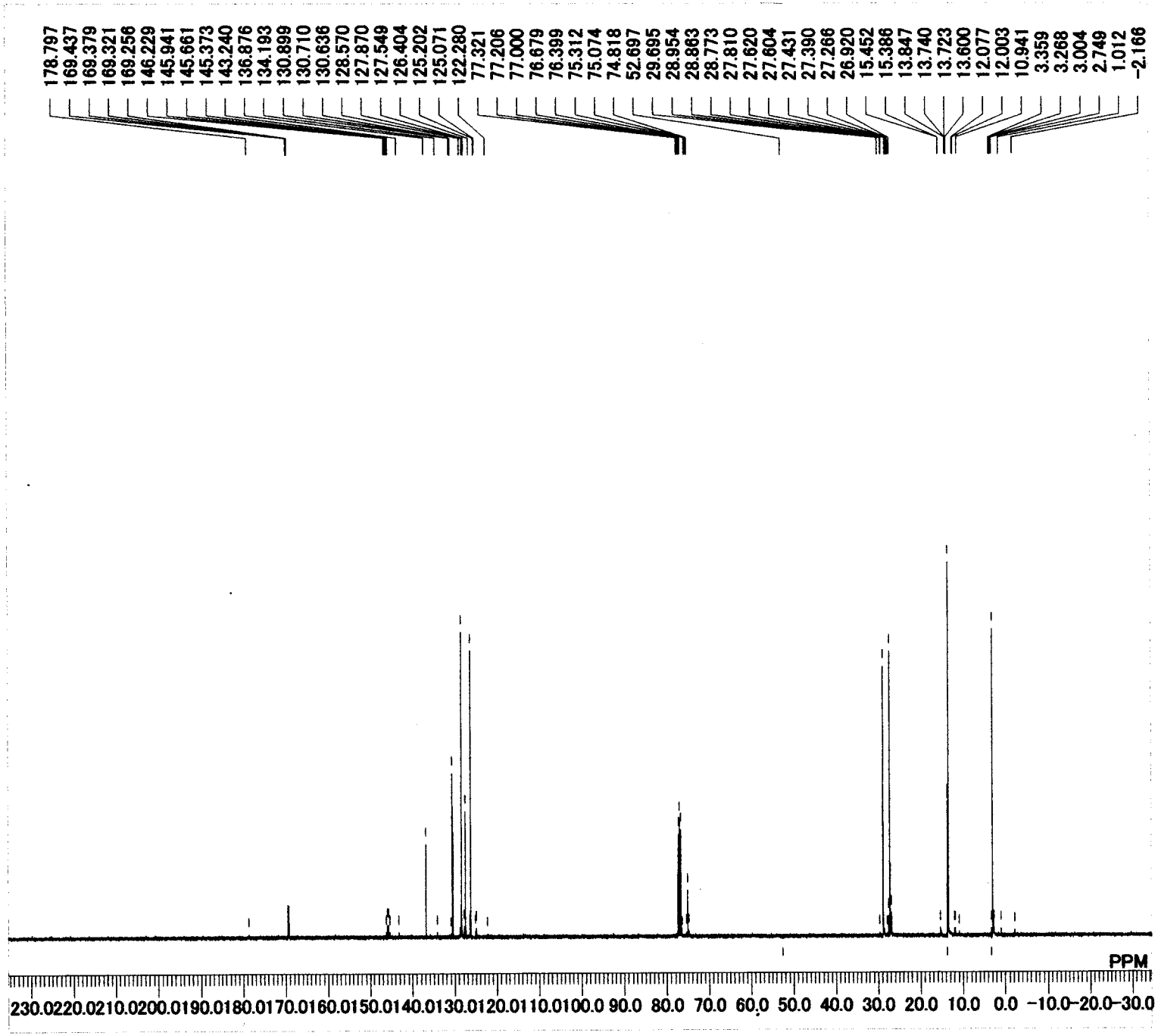
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	100000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-CH2CHPh-OH-Si-Sn ueRx
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	150
LKSIG	466
CSPED	10 Hz
FILDC	
FILDF	



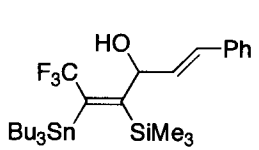


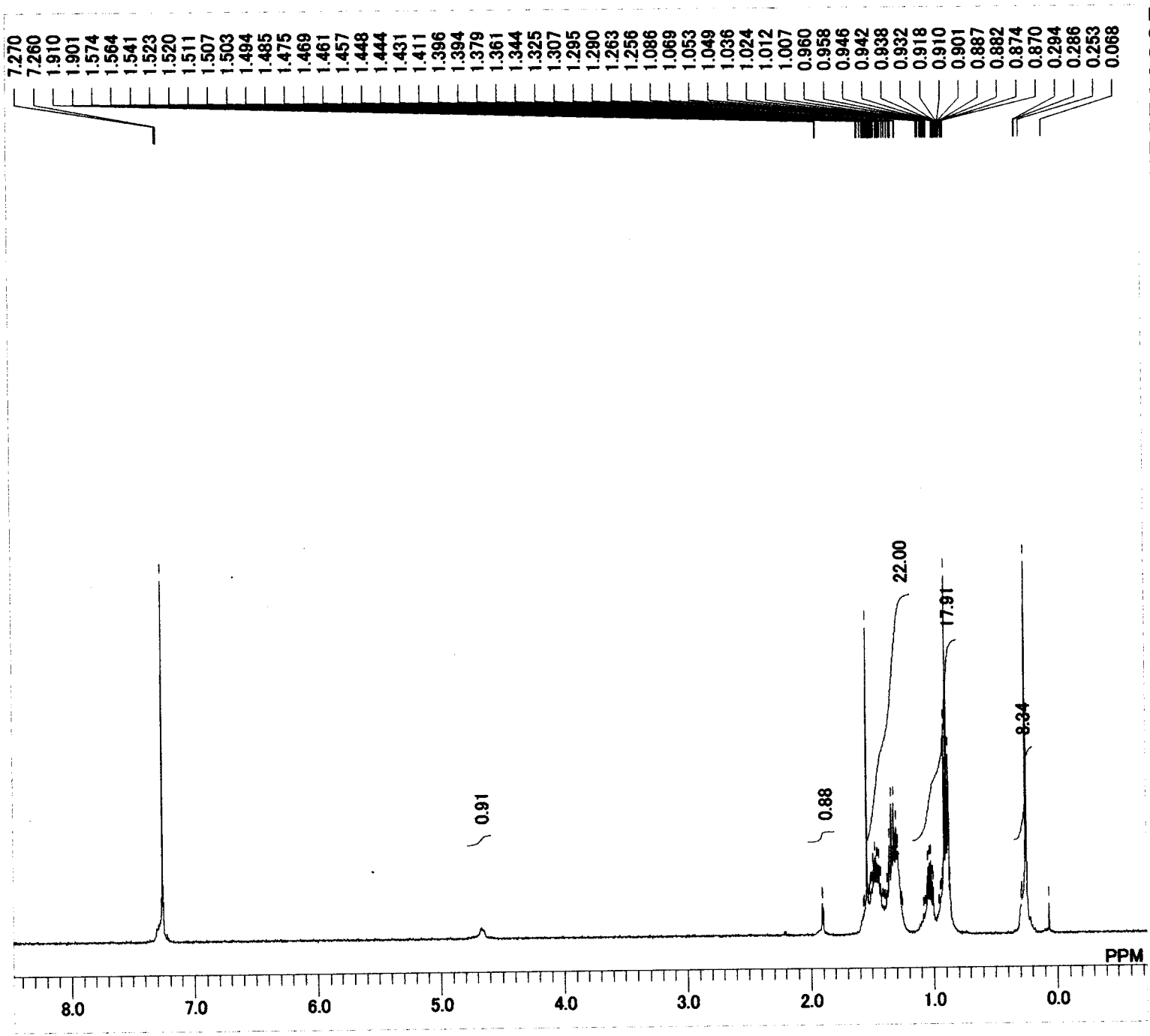
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	19
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	250
LKSIG	1299
CSPED	11 Hz
FILDC	
FILDF	



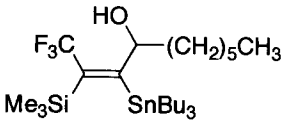


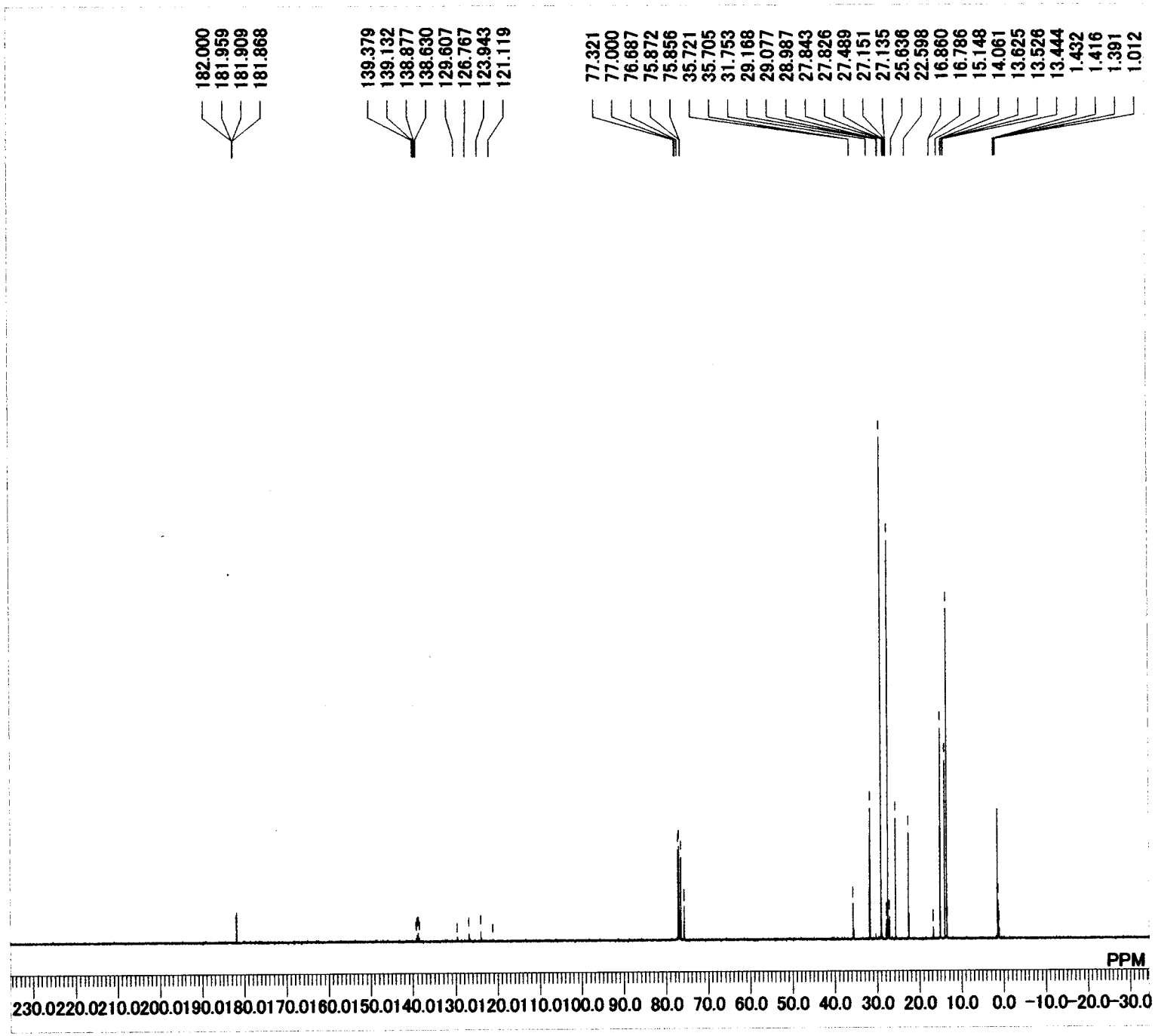
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	250000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	27
LKPHS	150
LKSIG	937
CSPED	12 Hz
FILDC	
FILDF	



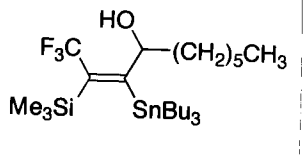


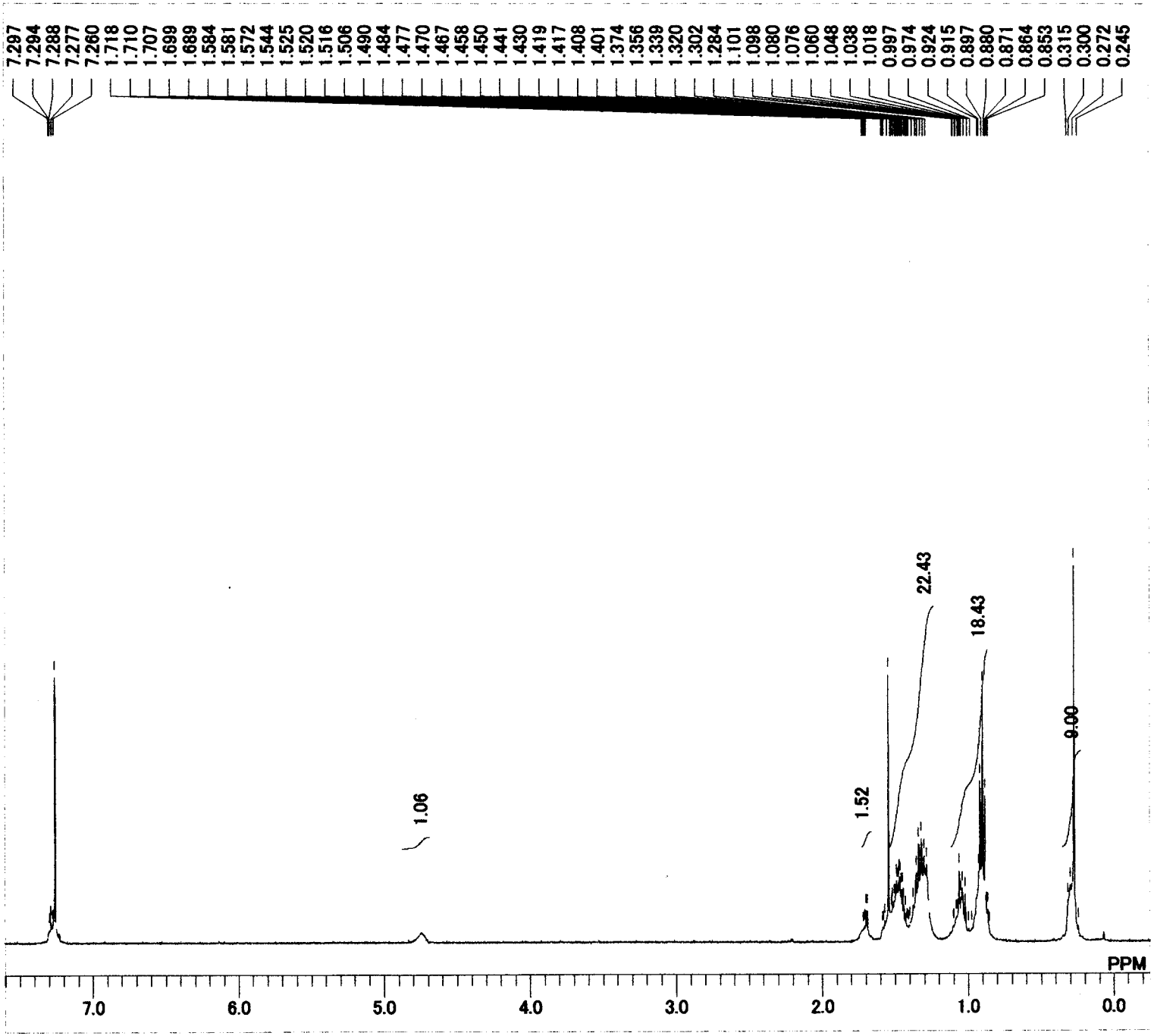
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	19
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	Rxn.363 ㊧H.als
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	238
LKSIG	807
CSPED	13 Hz
FILDC	
FILDF	



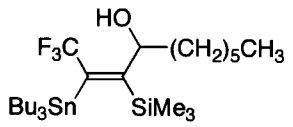


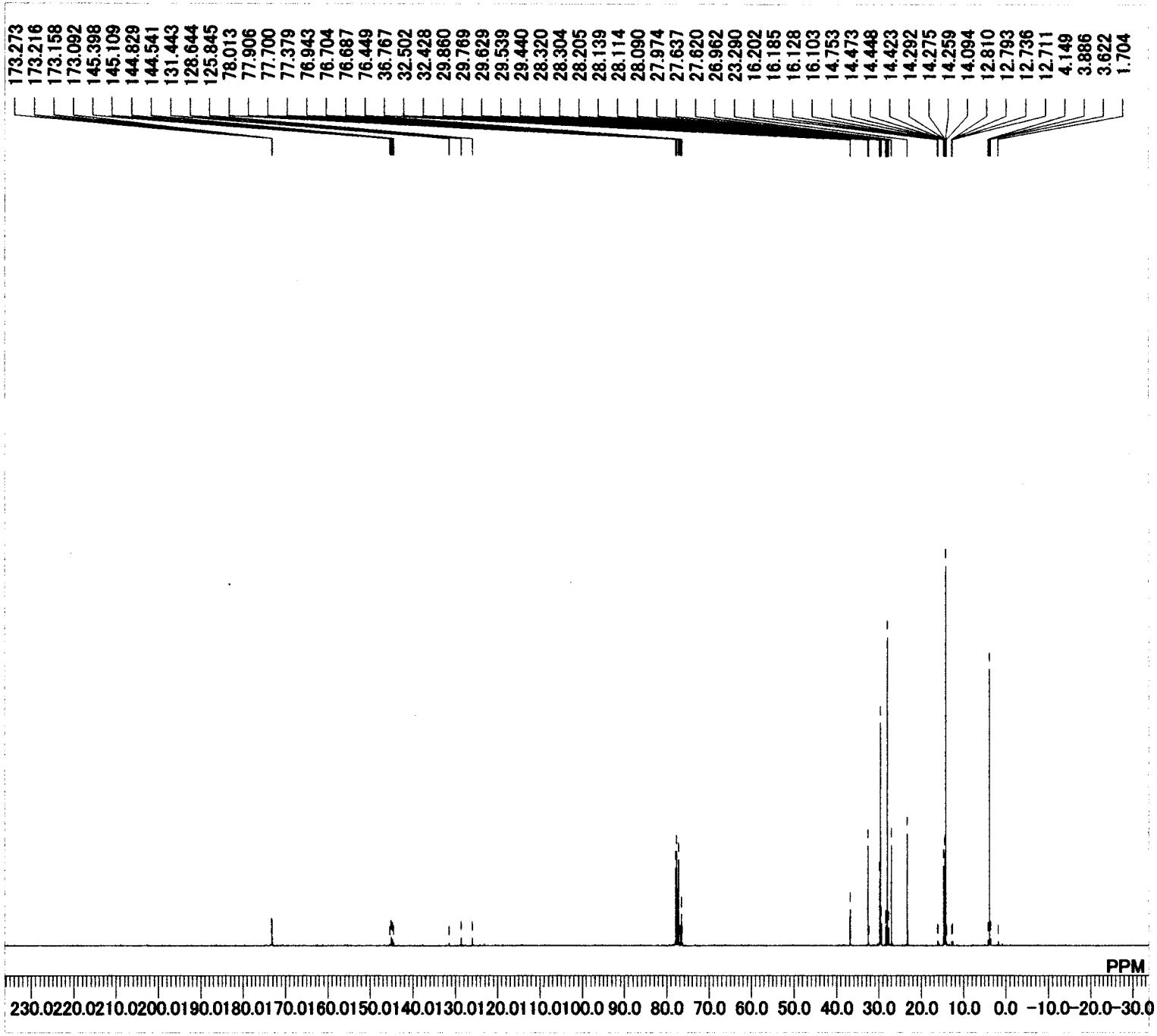
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	2000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling.Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-OH-C2H5CH3-Sn-Si (13C) uel
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	238
LKSIG	1226
CSPED	10 Hz
FILDC	
FILDF	



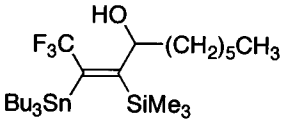


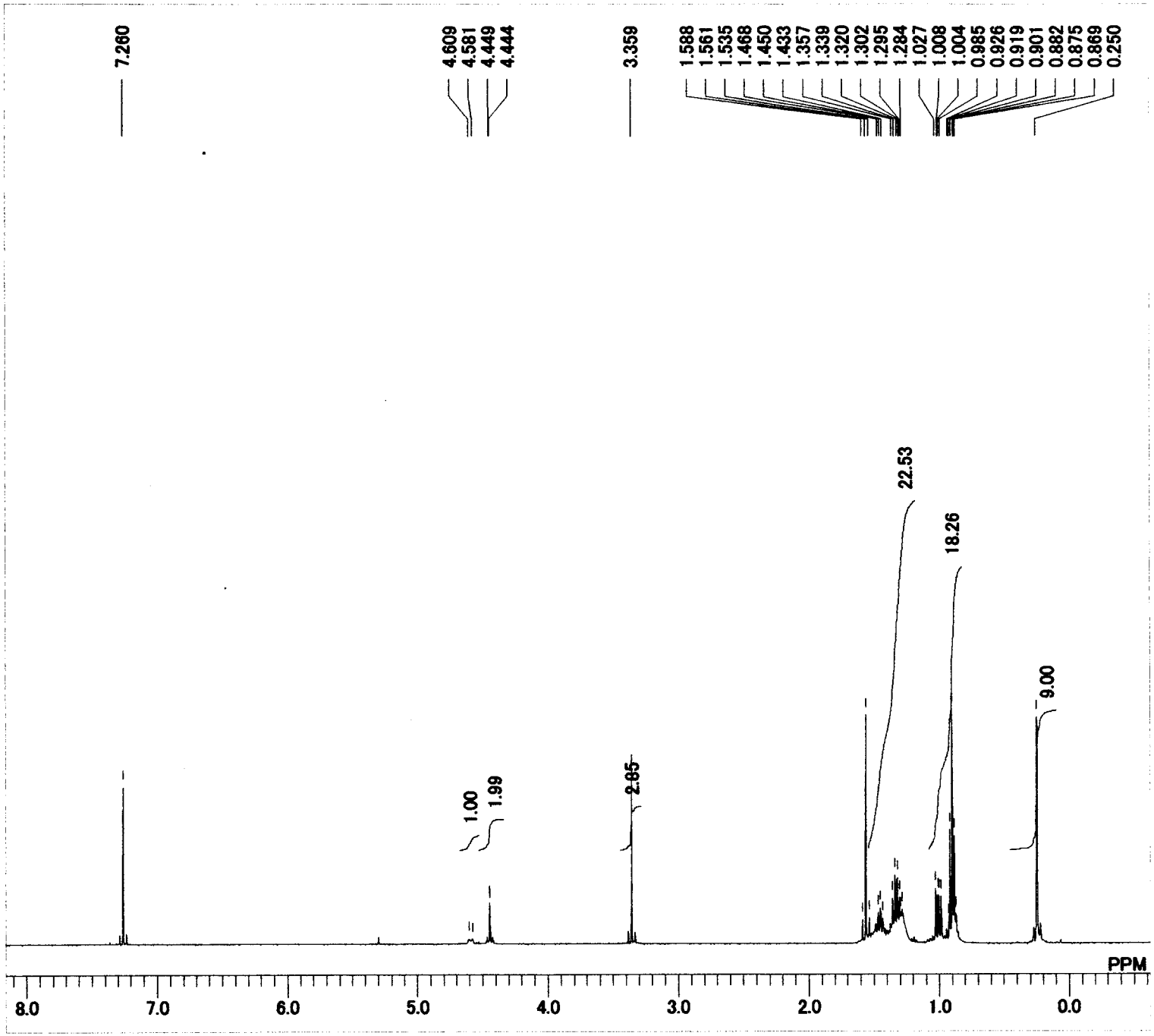
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	19
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	Rxn.363①H.als
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	238
LKSIG	640
CSPED	11 Hz
FILDC	
FILDF	



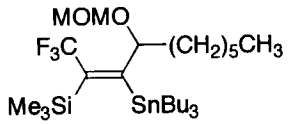


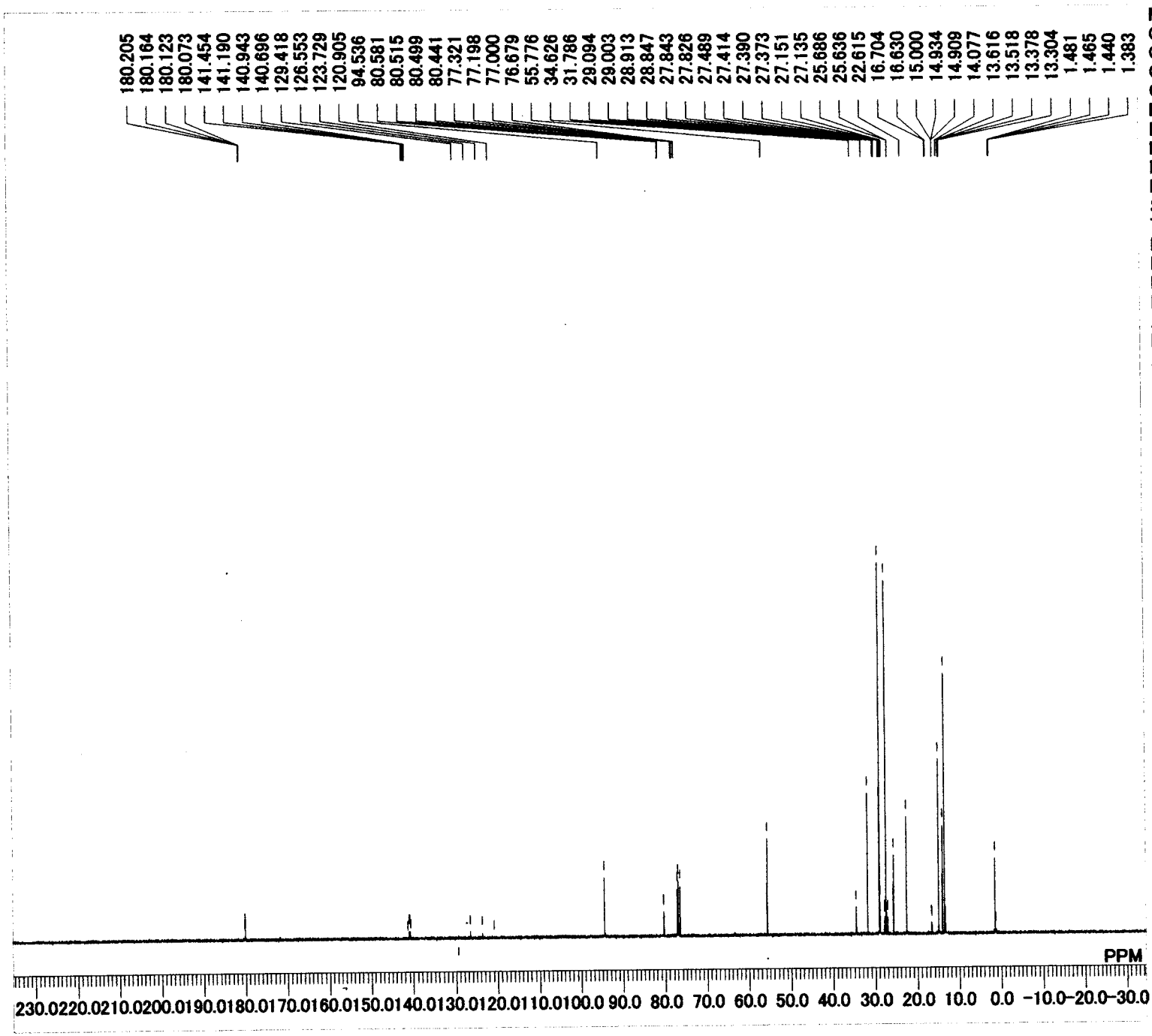
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	20000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	238
LKSIG	1022
CSPED	12 Hz
FILDC	
FILDF	



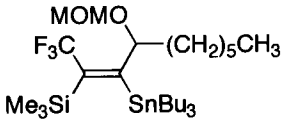


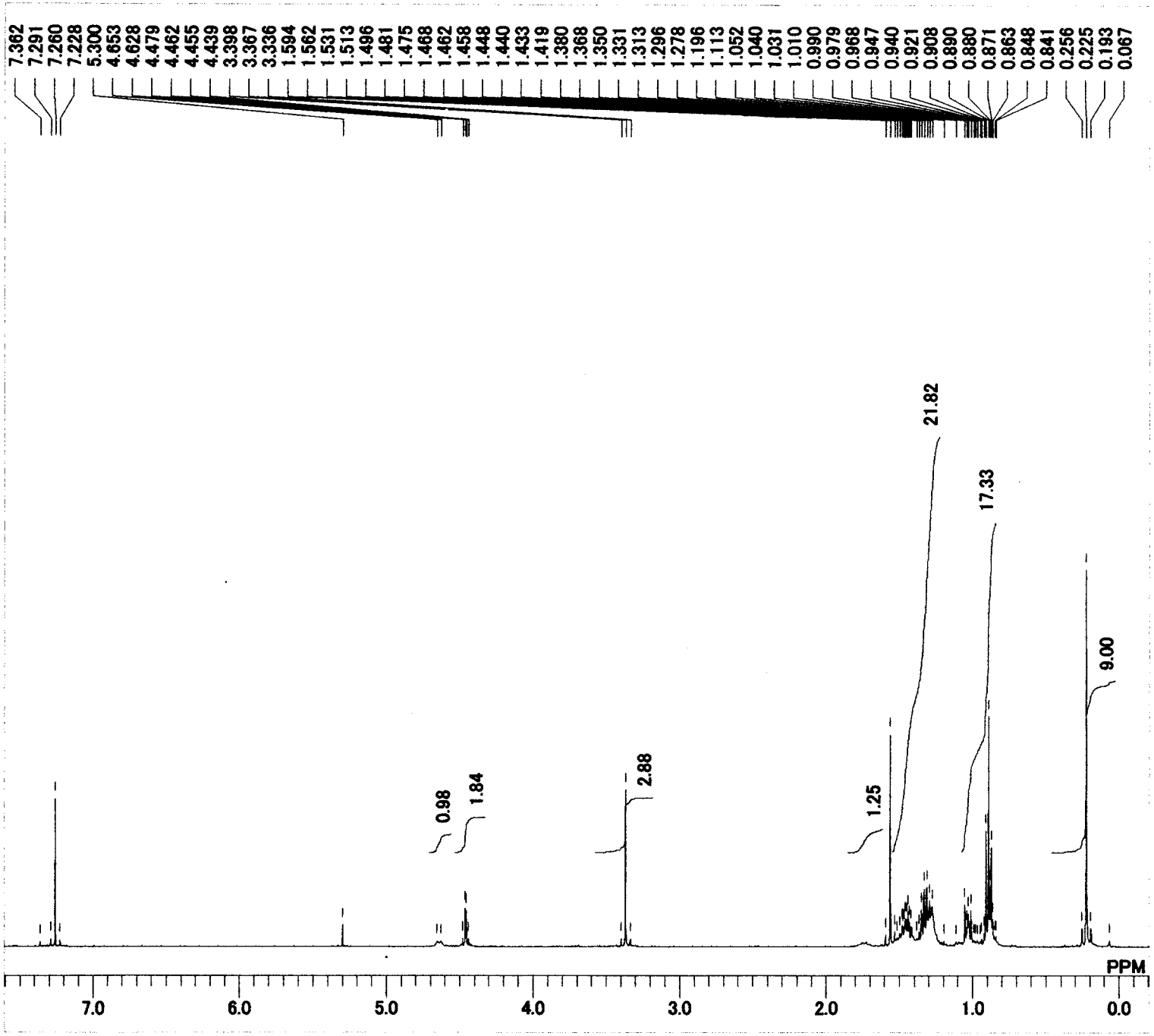
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	17
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG20
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	25
LKPHS	231
LKSIG	2001
CSPED	11 Hz
FILDC	
FILDF	



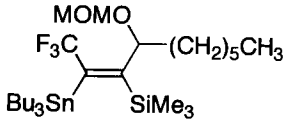


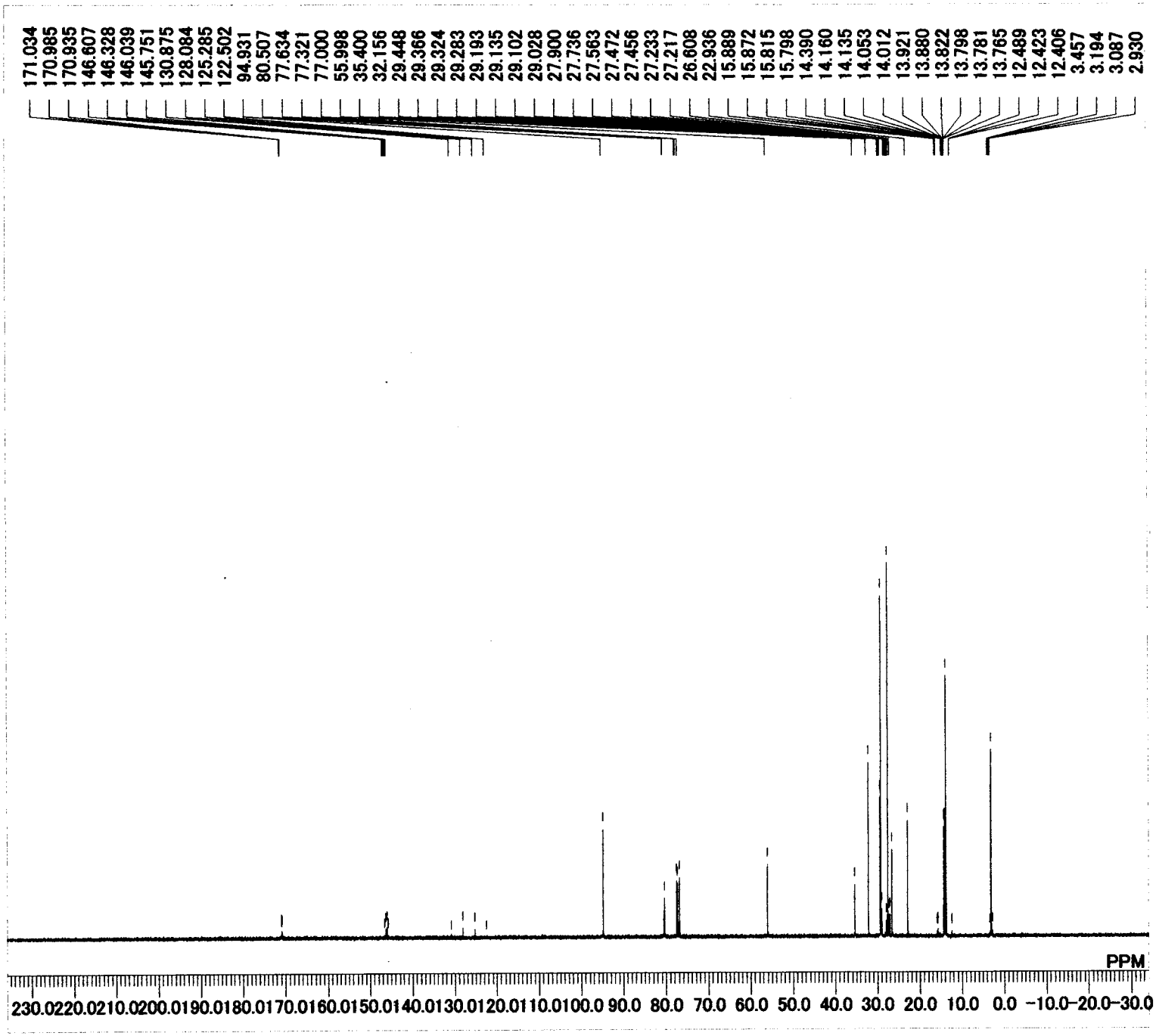
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	256
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-OMOM-(CH2)5CH3-Sn-Si (13(
SF	TH5ATFG20
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	231
LKSIG	715
CSPED	14 Hz
FILDC	
FILDF	



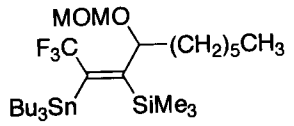


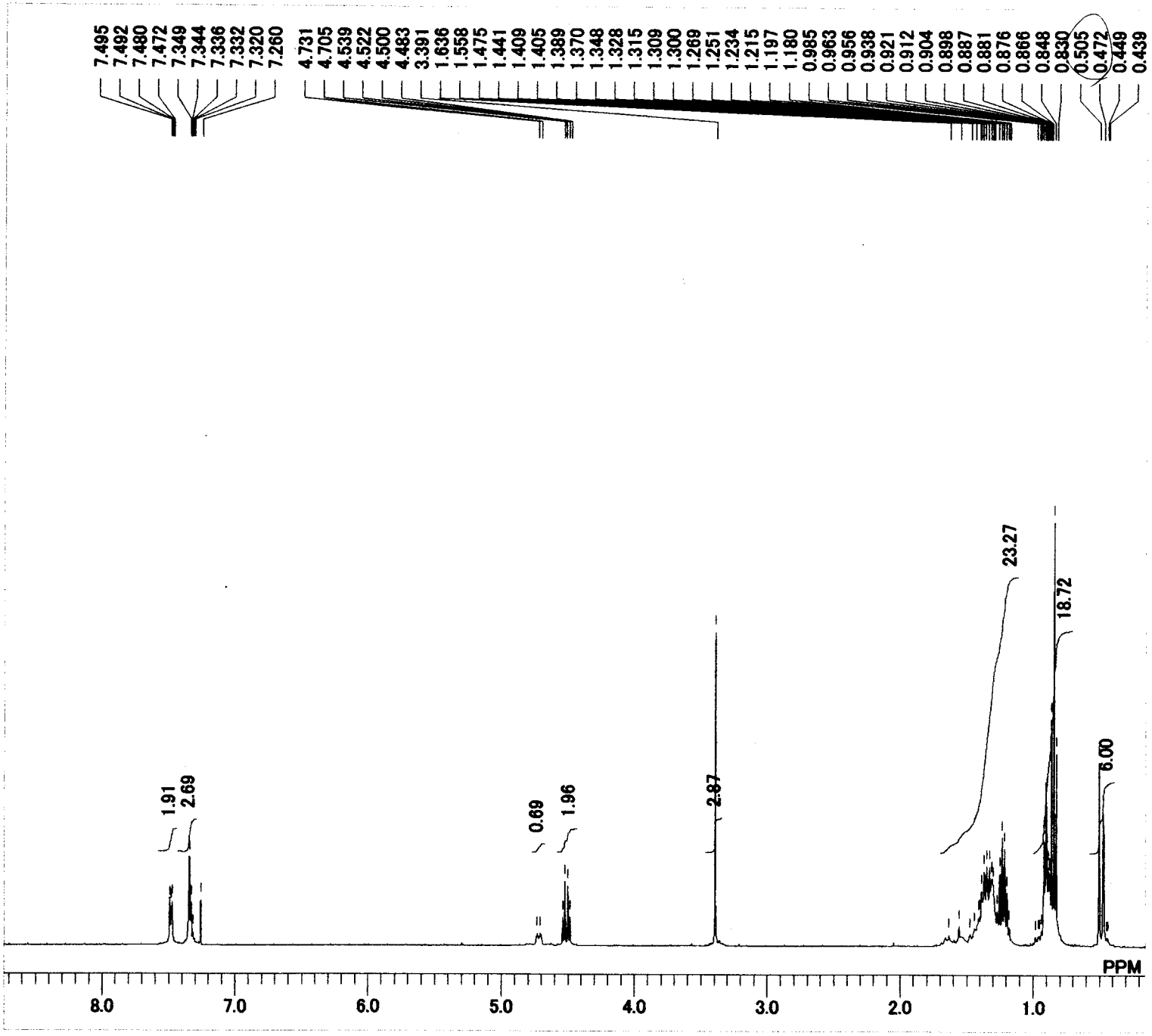
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	17
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-OMOM-(CH2)5CH3-Sn-Si (1H
SF	TH5ATFG20
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	21
LKPHS	231
LKSIG	682
CSPED	13 Hz
FILDC	
FILDF	



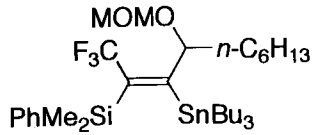


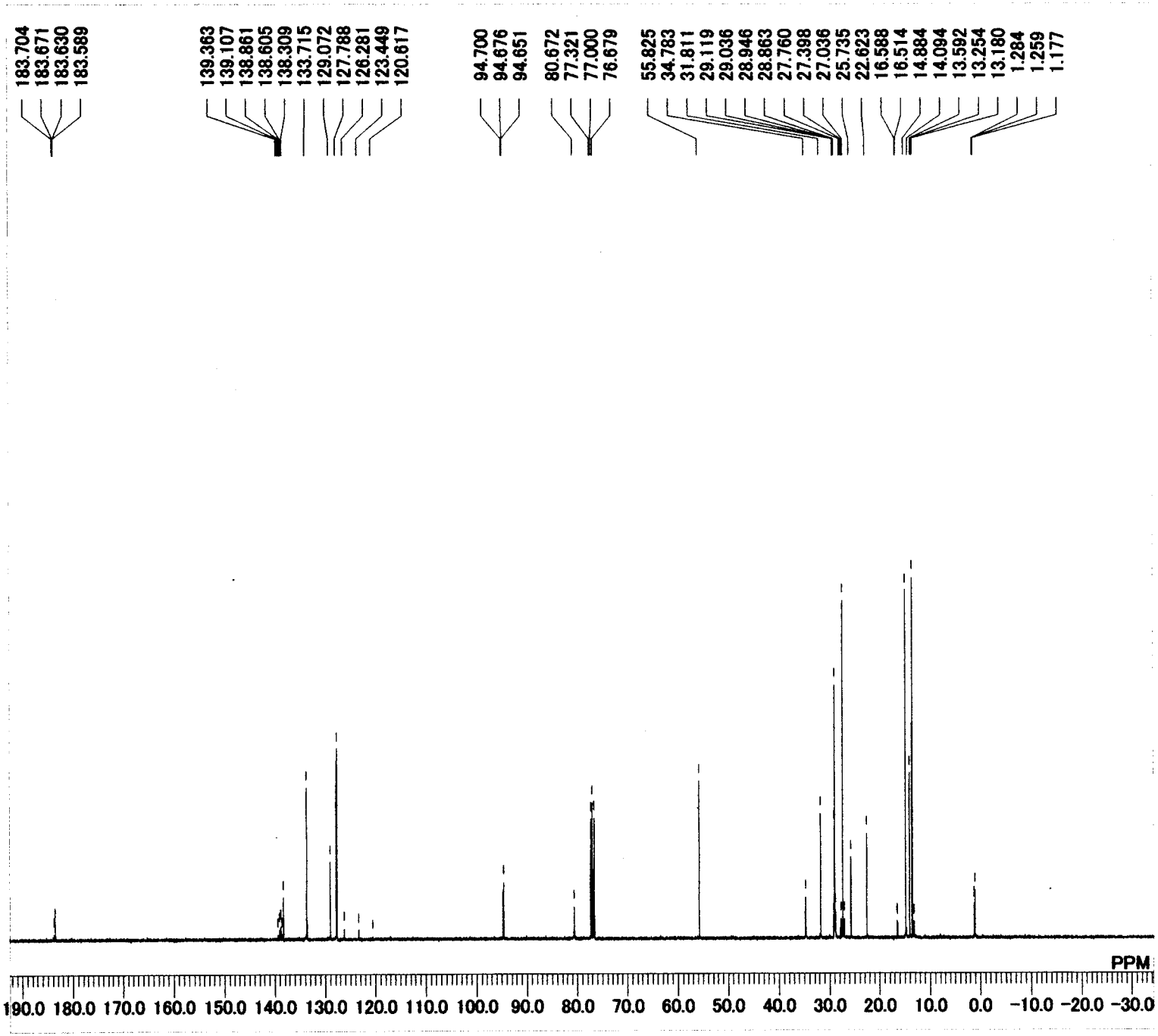
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	256
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG20
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	231
LKSIG	722
CSPED	12 Hz
FILDC	
FILDF	



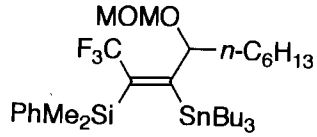


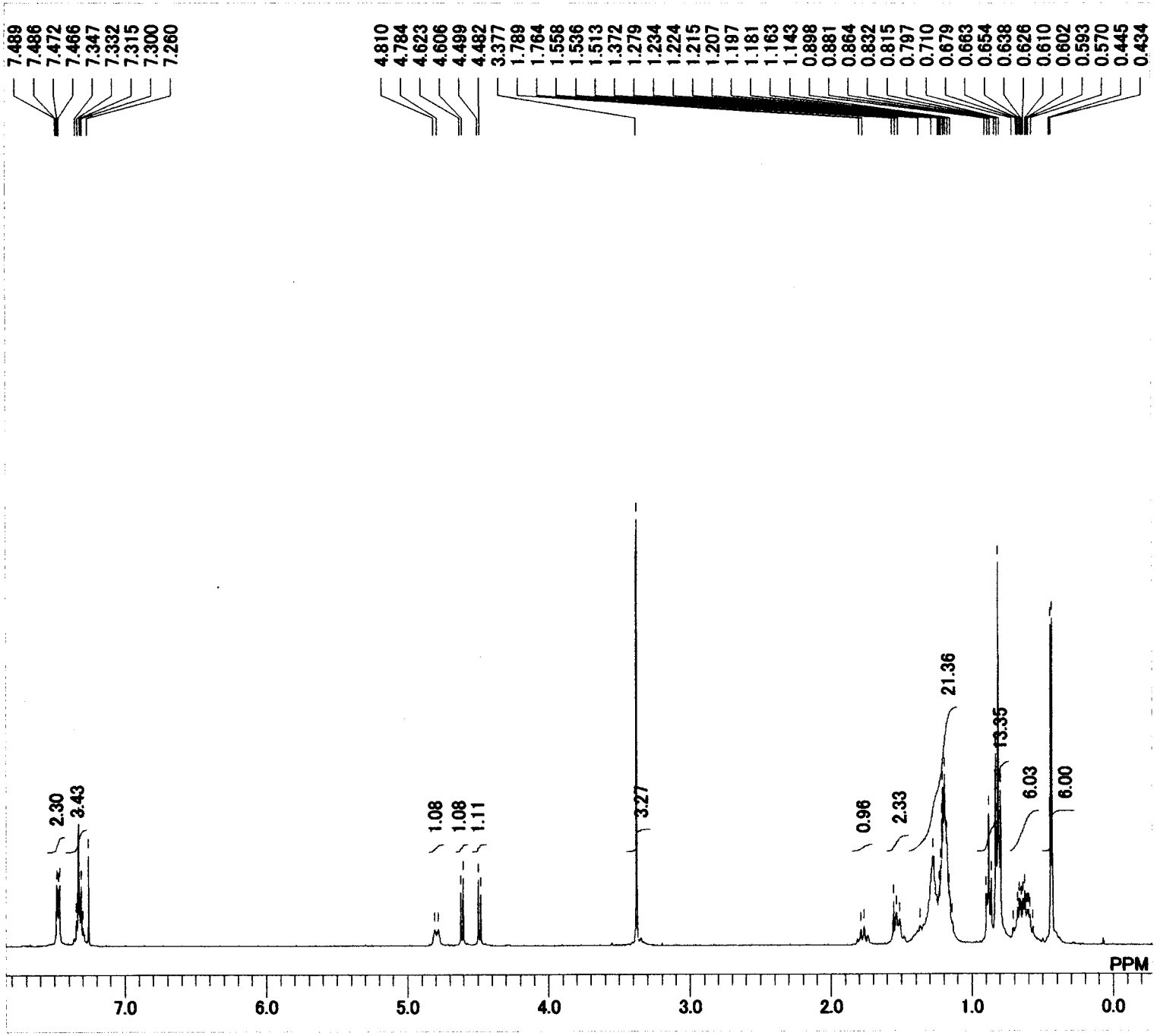
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.50 usec
DEADT	72.20 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	12
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	240
LKSIG	743
CSPED	14 Hz
FILDC	
FILDF	



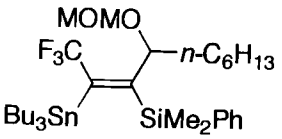


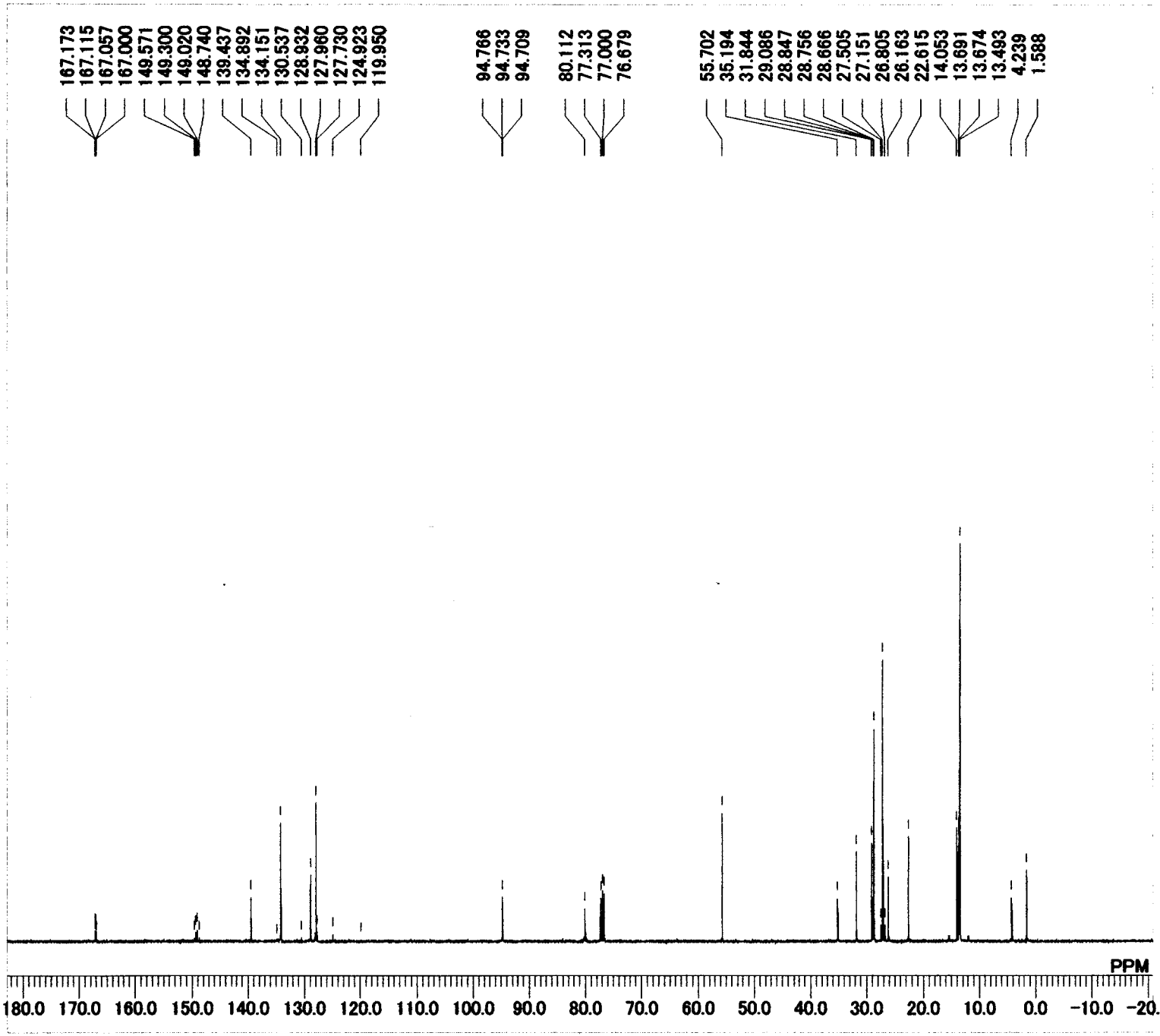
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	10000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	240
LKSIG	578
CSPED	13 Hz
FILDC	
FILDF	



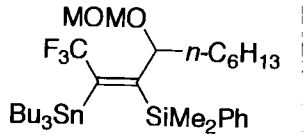


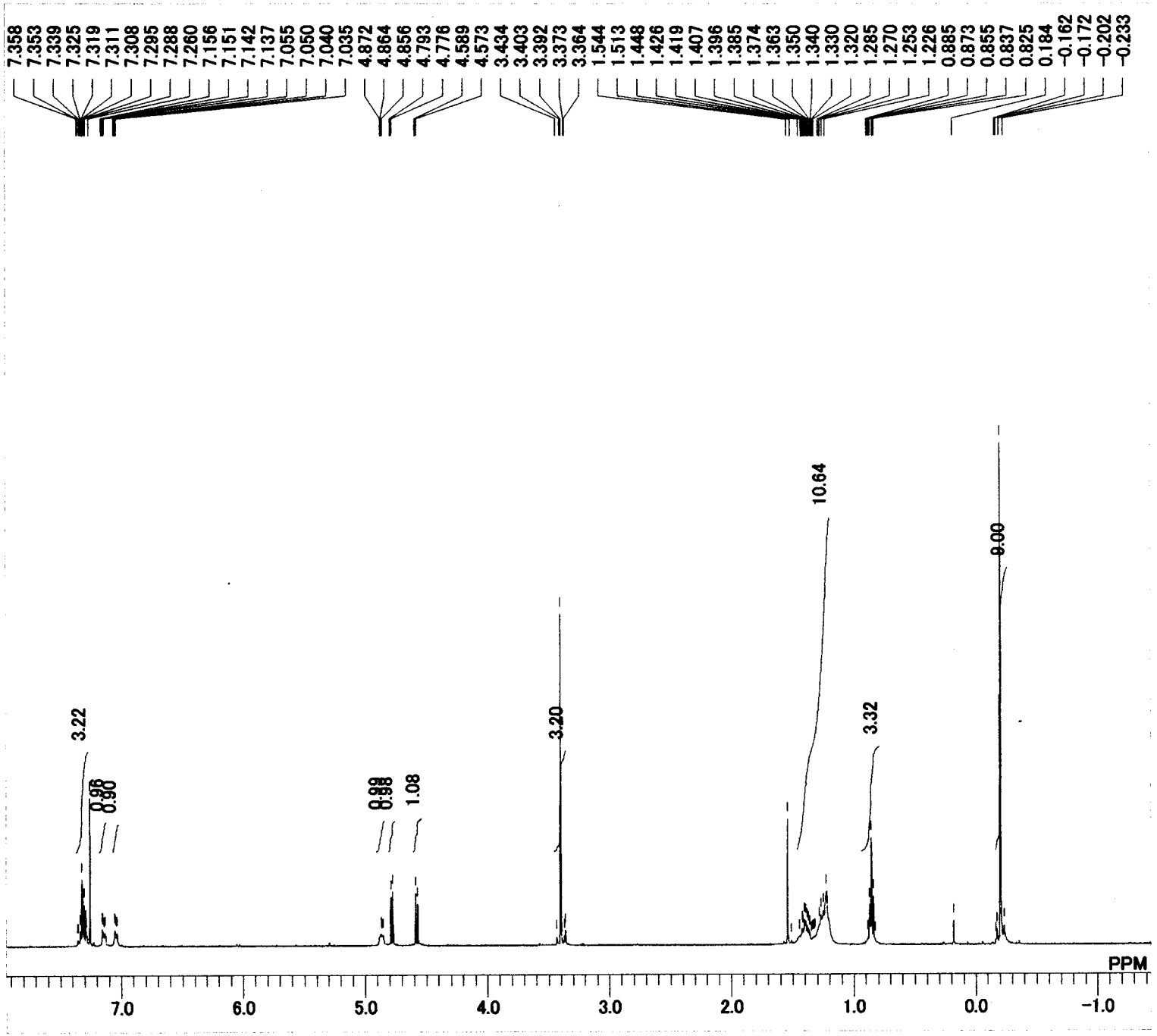
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.50 usec
DEADT	72.20 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	13
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	21
LKPHS	240
LKSIG	576
CSPED	12 Hz
FILDC	
FILDF	



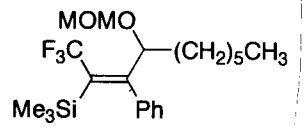


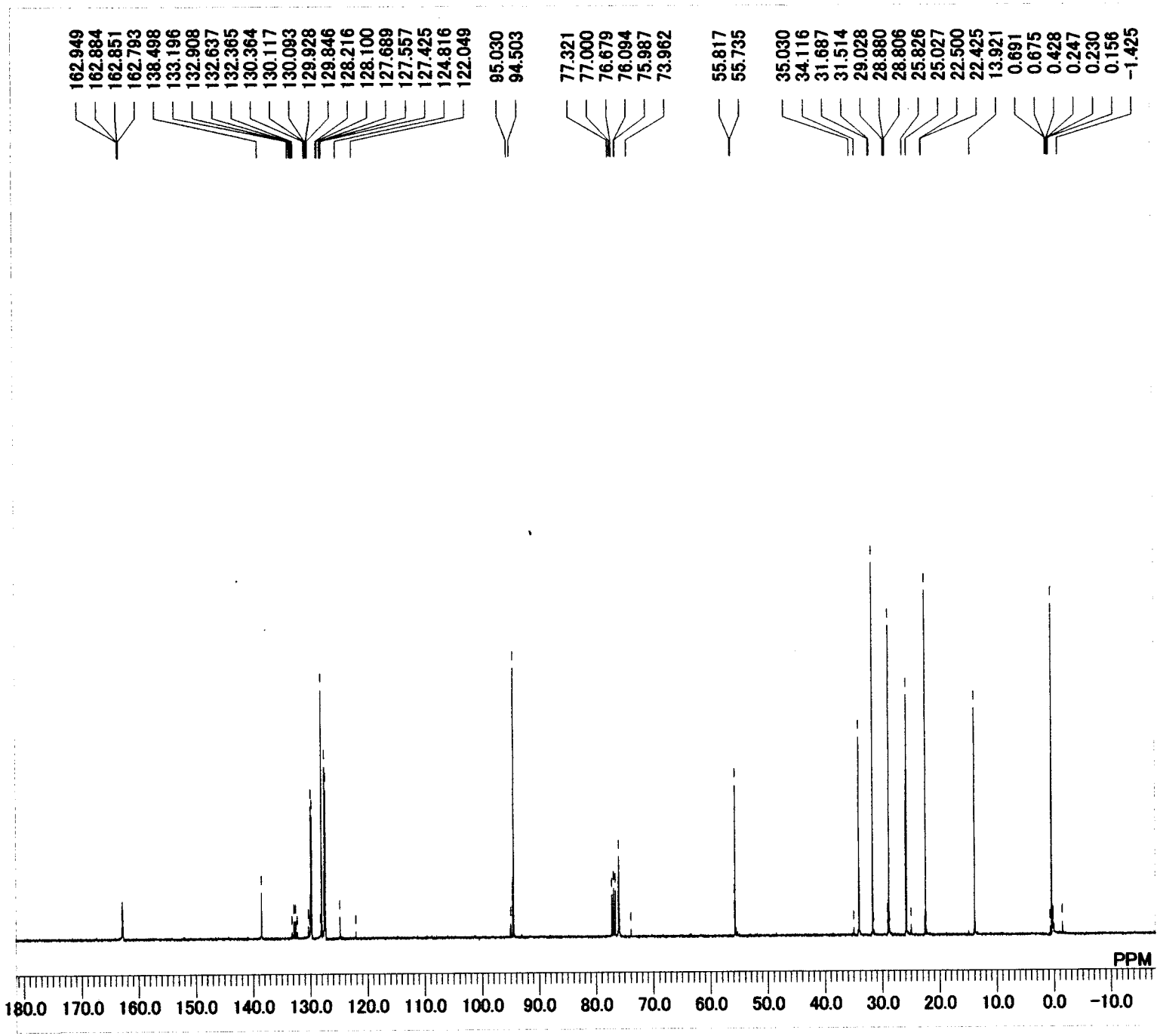
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	10000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-OMOM-(CH2)5CH3-Bu3Sn-Sil
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	240
LKSIG	673
CSPED	13 Hz
FILDC	
FILDF	



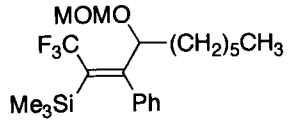


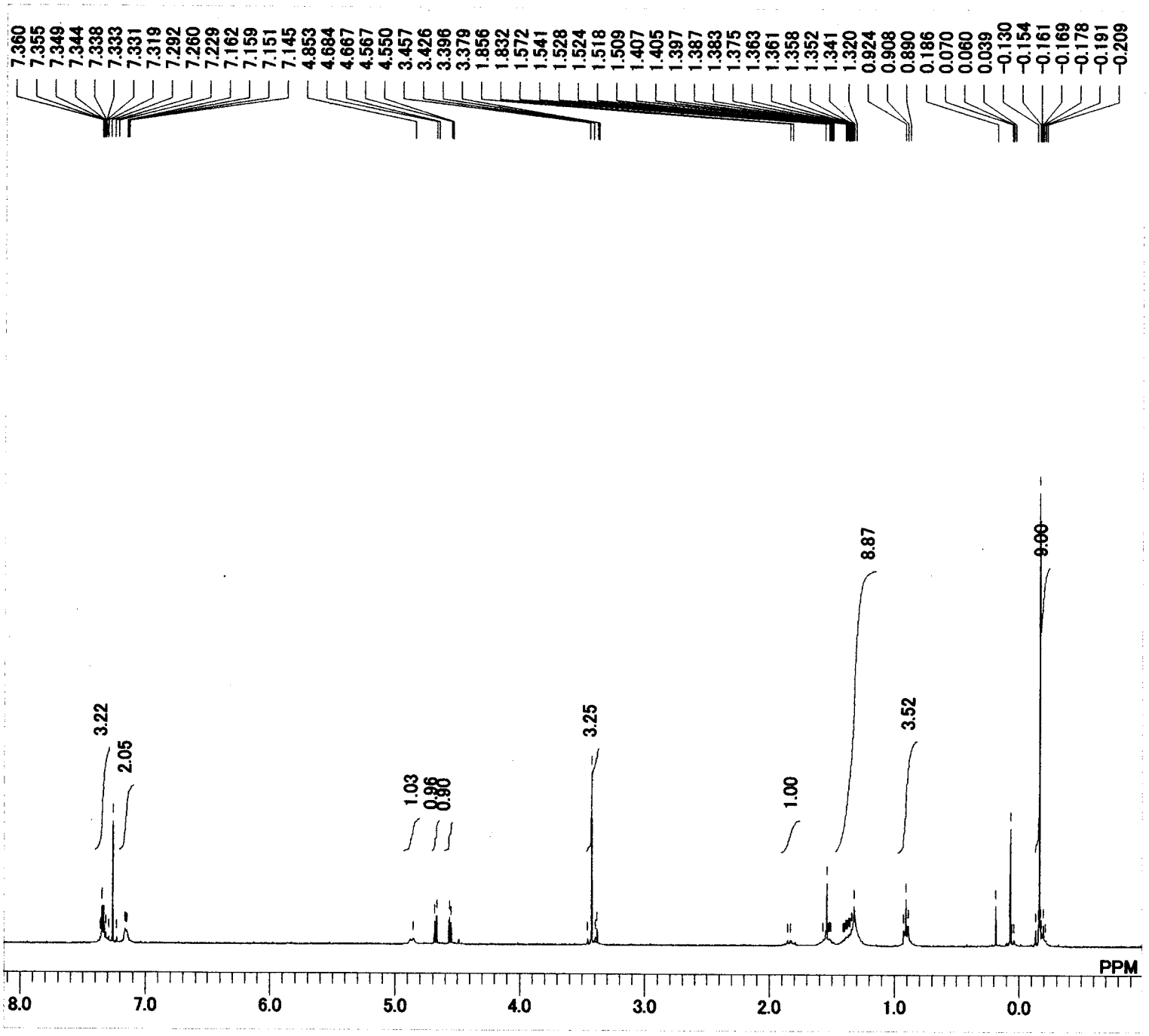
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	18
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	203
LKSIG	552
CSPED	13 Hz
FILDC	
FILDF	



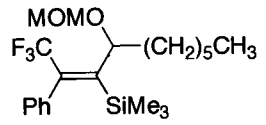


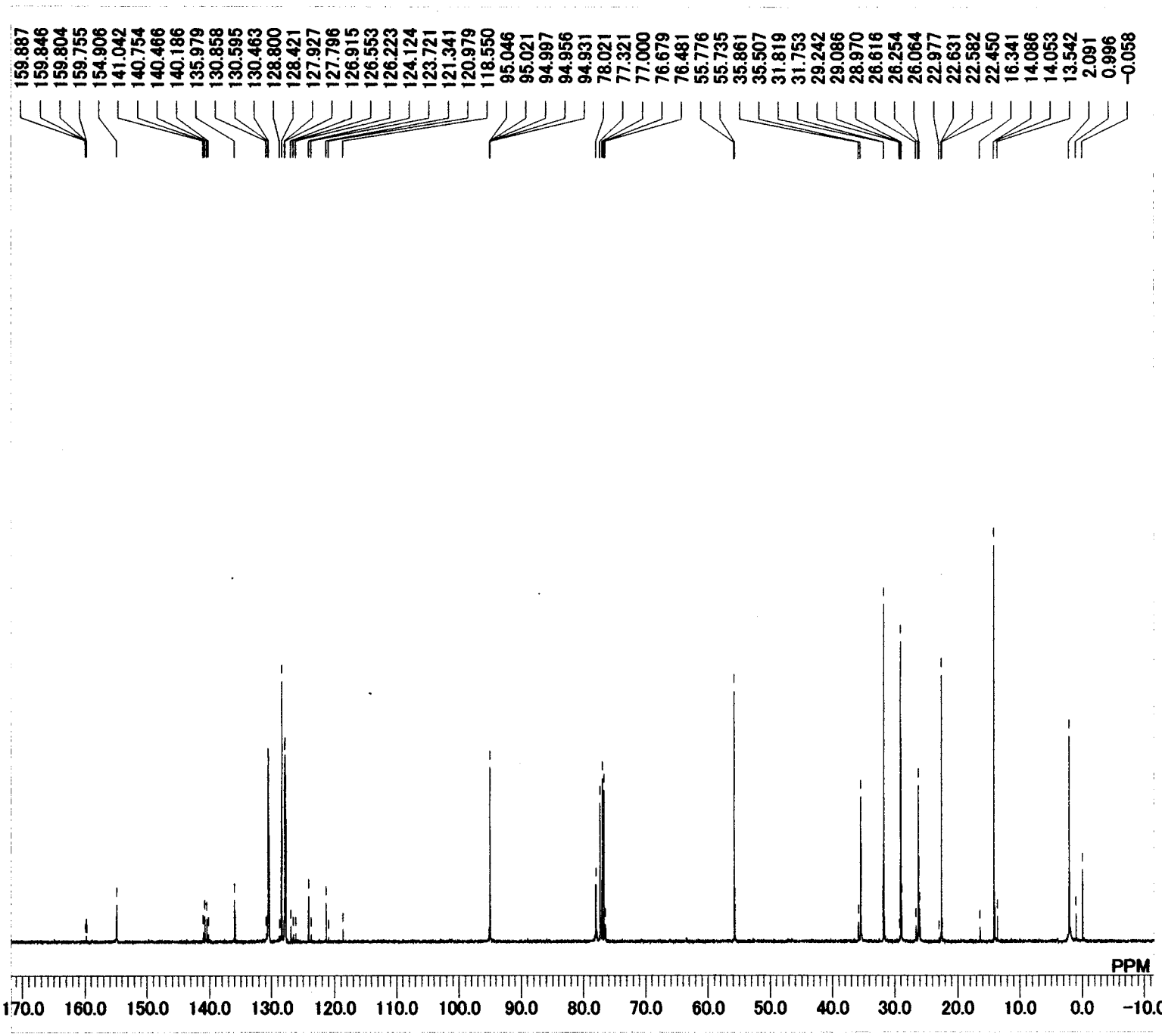
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.00 usec
DEADT	19.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	1000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	23
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-OMOM-(CH2)5CH3-Si-ph Si
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	28
LKPHS	203
LKSIG	490
CSPED	12 Hz
FILDC	
FILDF	



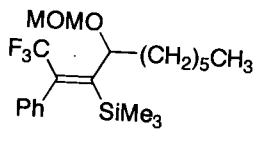


MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	21
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	203
LKSIG	810
CSPED	13 Hz
FILDC	
FILDF	

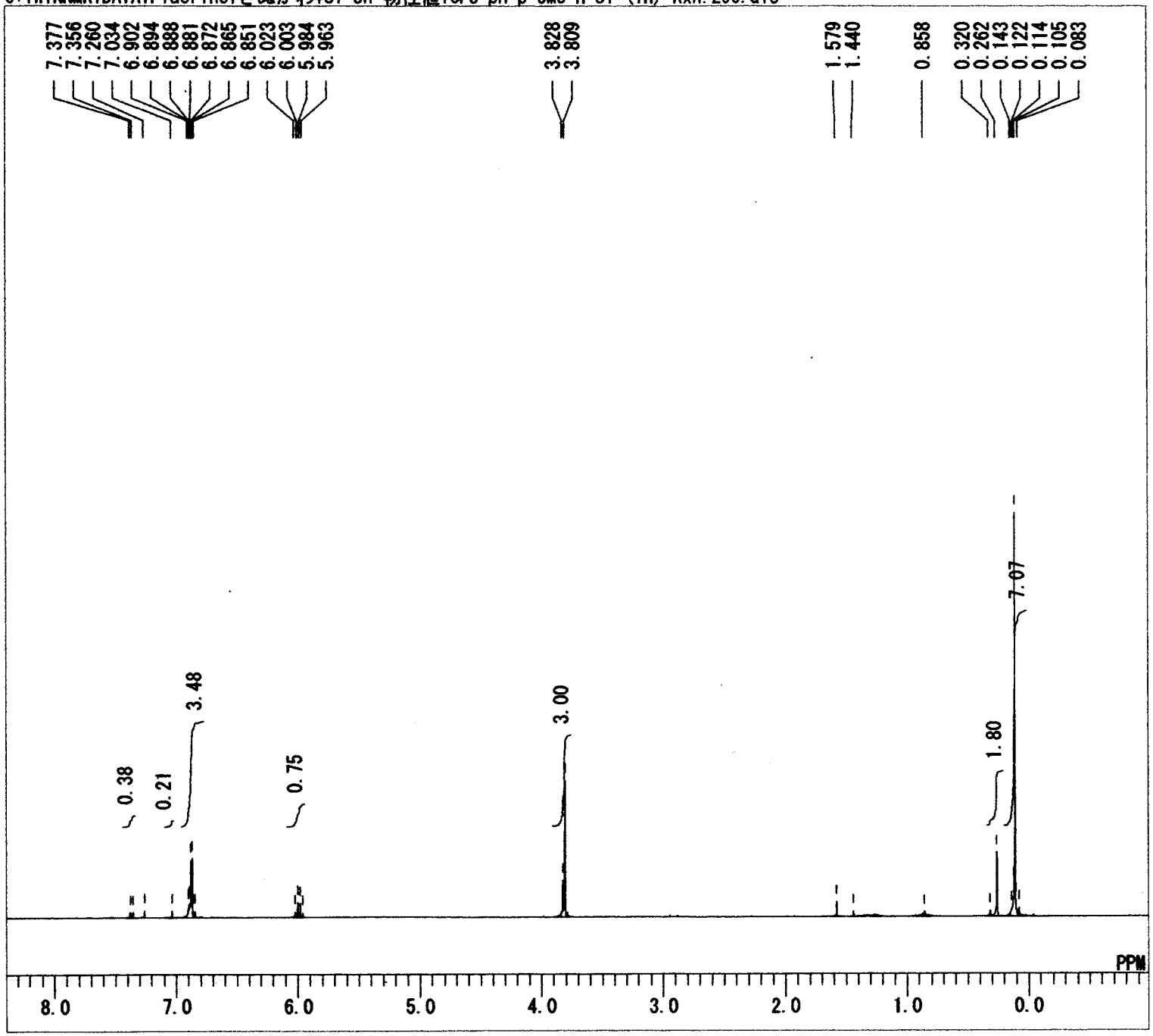




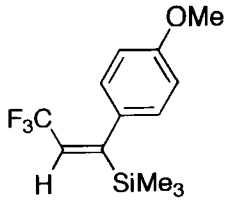
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	20000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	24
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	25
LKPHS	240
LKSIG	1199
CSPED	11 Hz
FILDC	
FILDF	

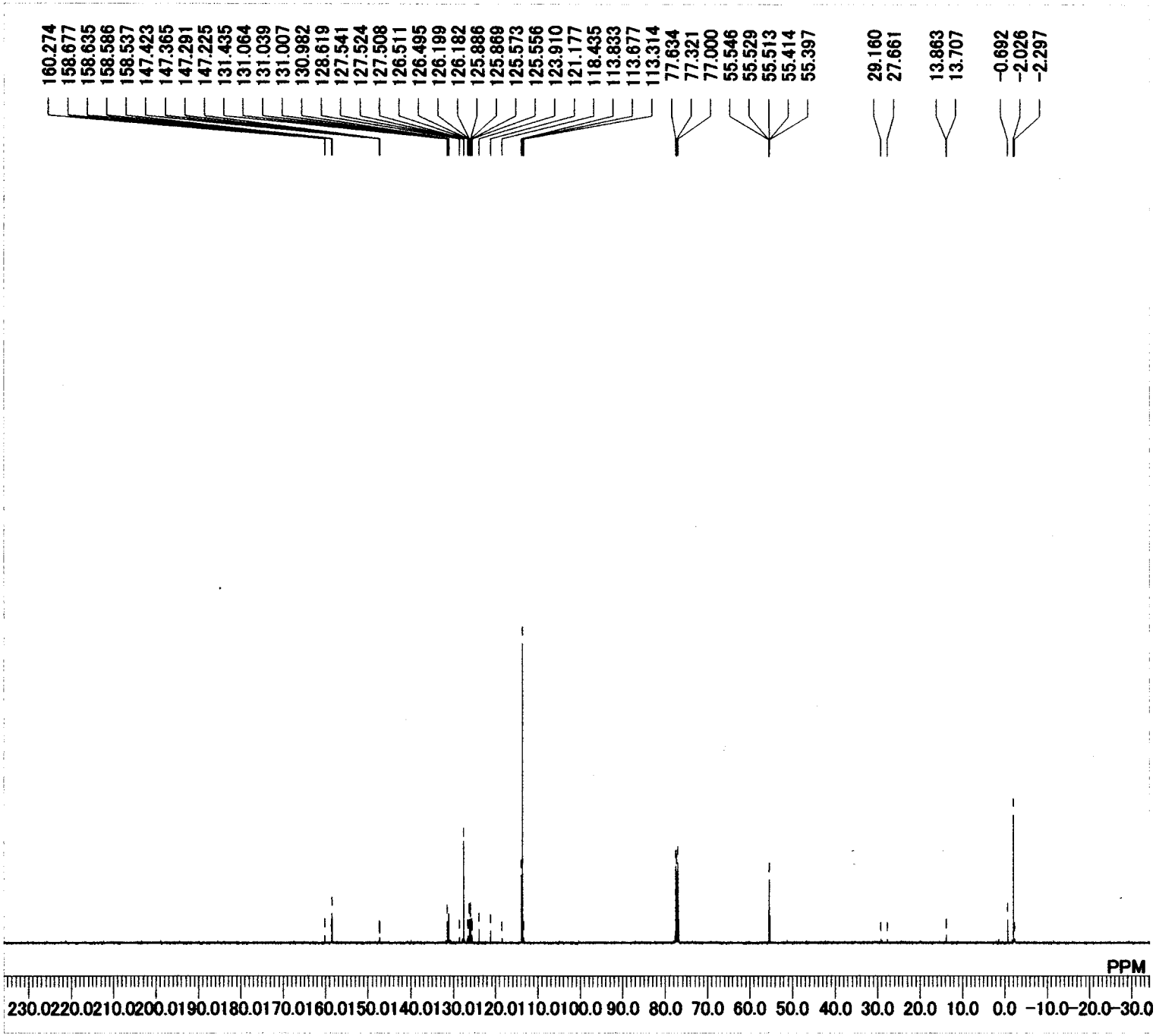


C:¥WINNMR¥DATA¥Fluorine¥きぬがわ¥Si-Sn 物性値¥CF3-ph-p-OMe-H-Si (1H) Rxn.290.als

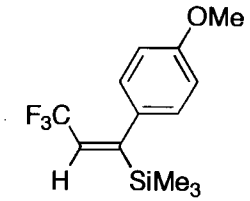


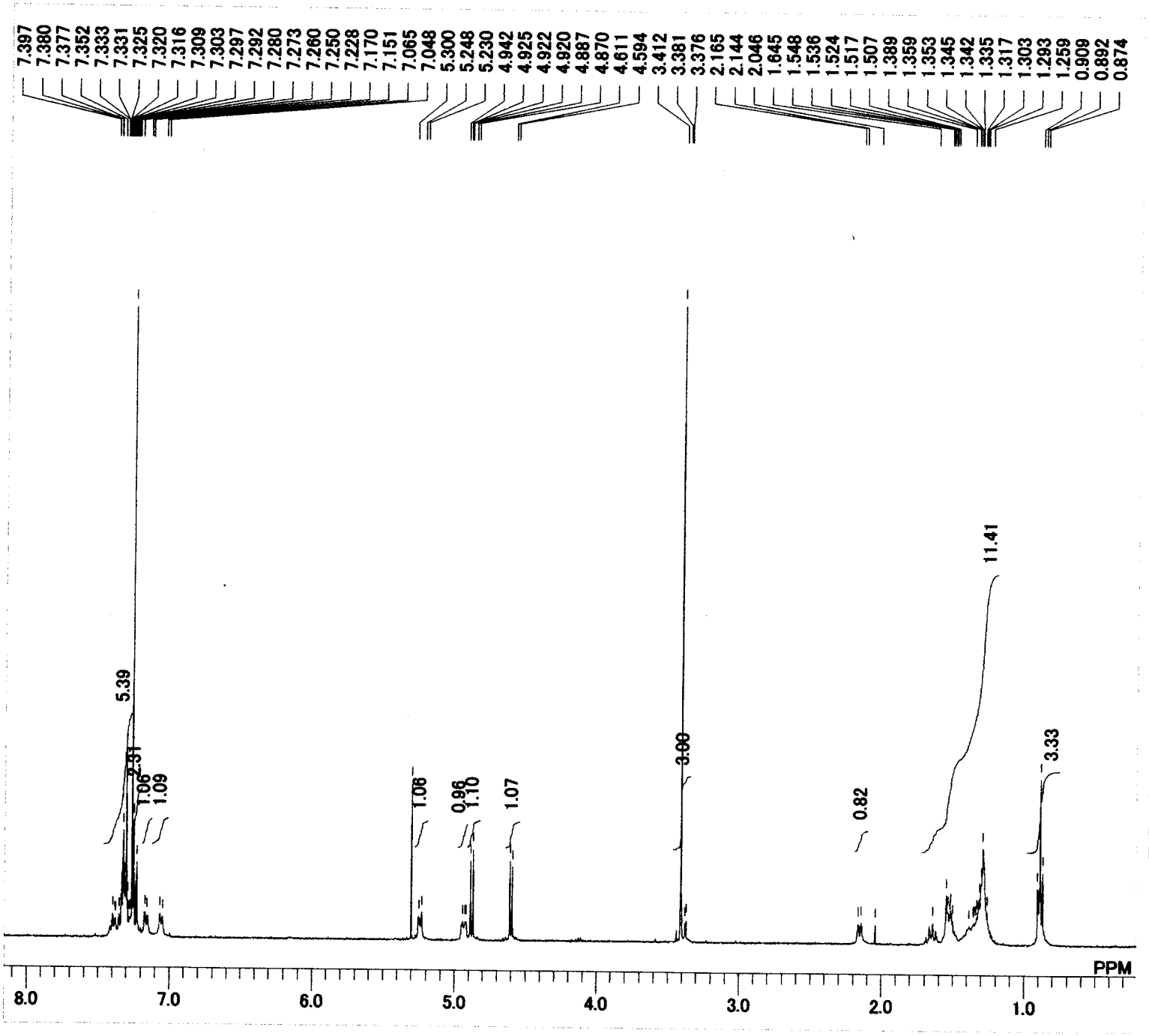
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.80 usec
DEADT	72.10 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	12
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	CF3-ph-p-OMe-H-Si (1H) Rxn.29
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	250
LKSIG	700
CSPED	12 Hz
FILDC	
FILDF	



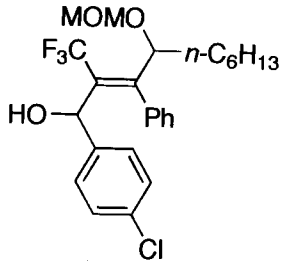


MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	10000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	23
LKPHS	240
LKSIG	962
CSPED	12 Hz
FILDC	
FILDF	

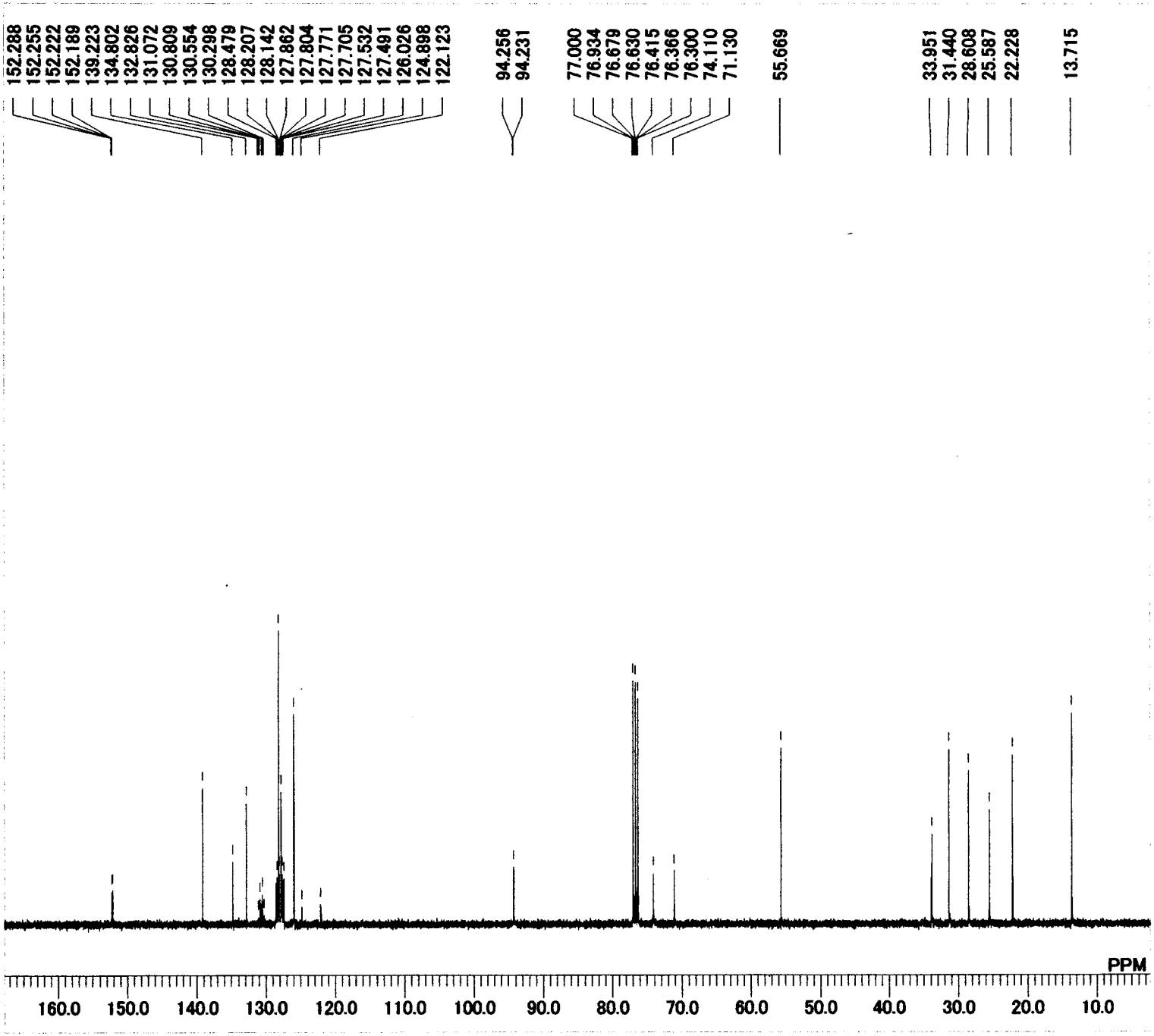




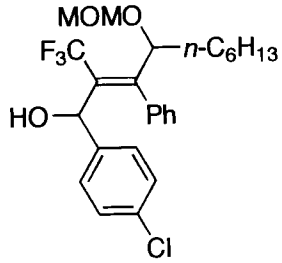
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.50 usec
DEADT	72.20 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	20
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PD
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	21
LKPHS	240
LKSIG	623
CSPED	12 Hz
FILDC	
FILDF	



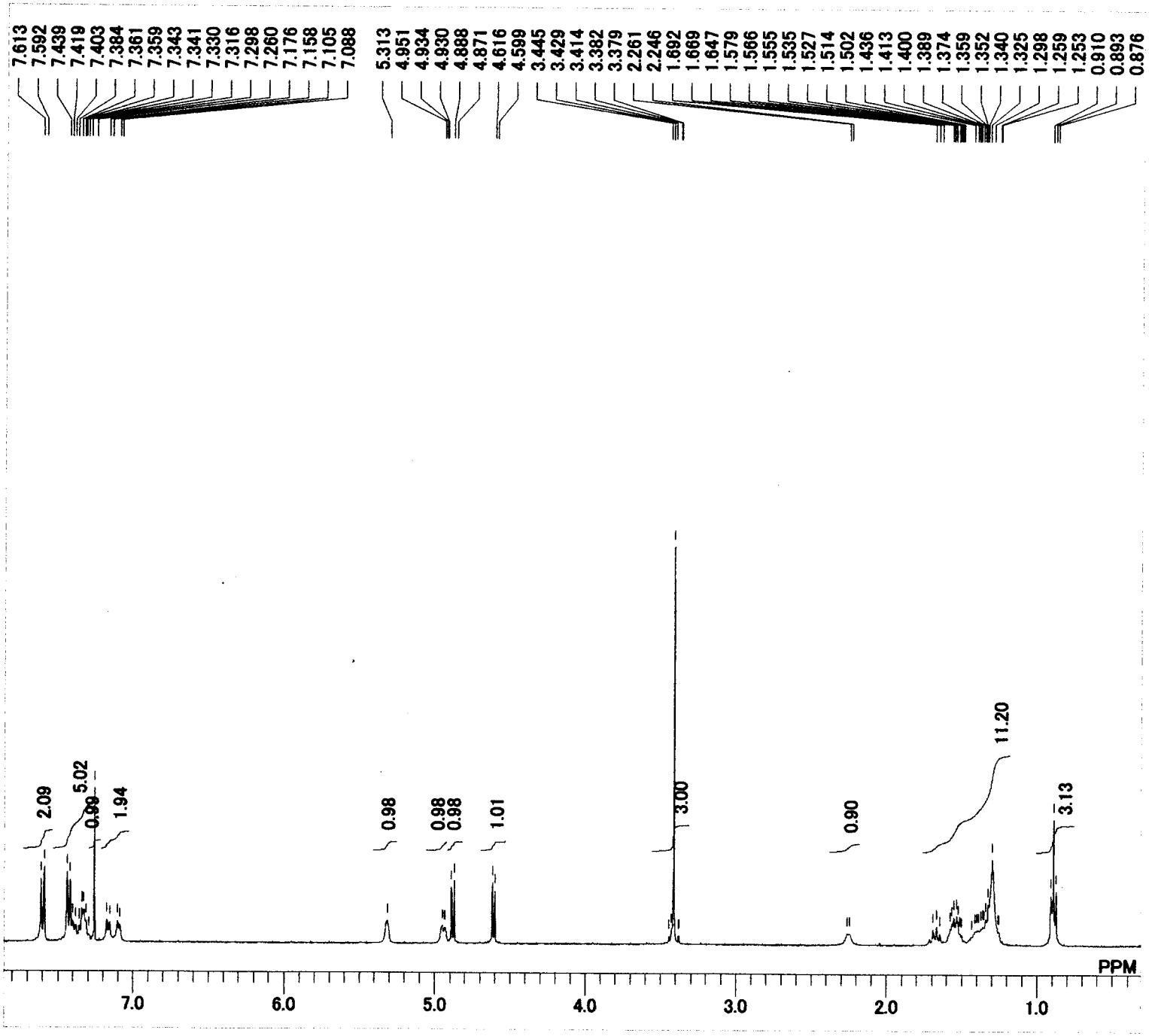
Major



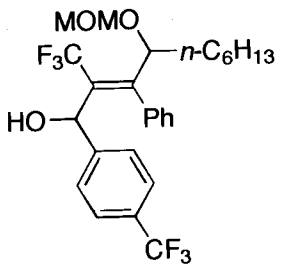
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	10000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	240
LKSIG	1218
CSPED	12 Hz
FILDC	
FILDF	



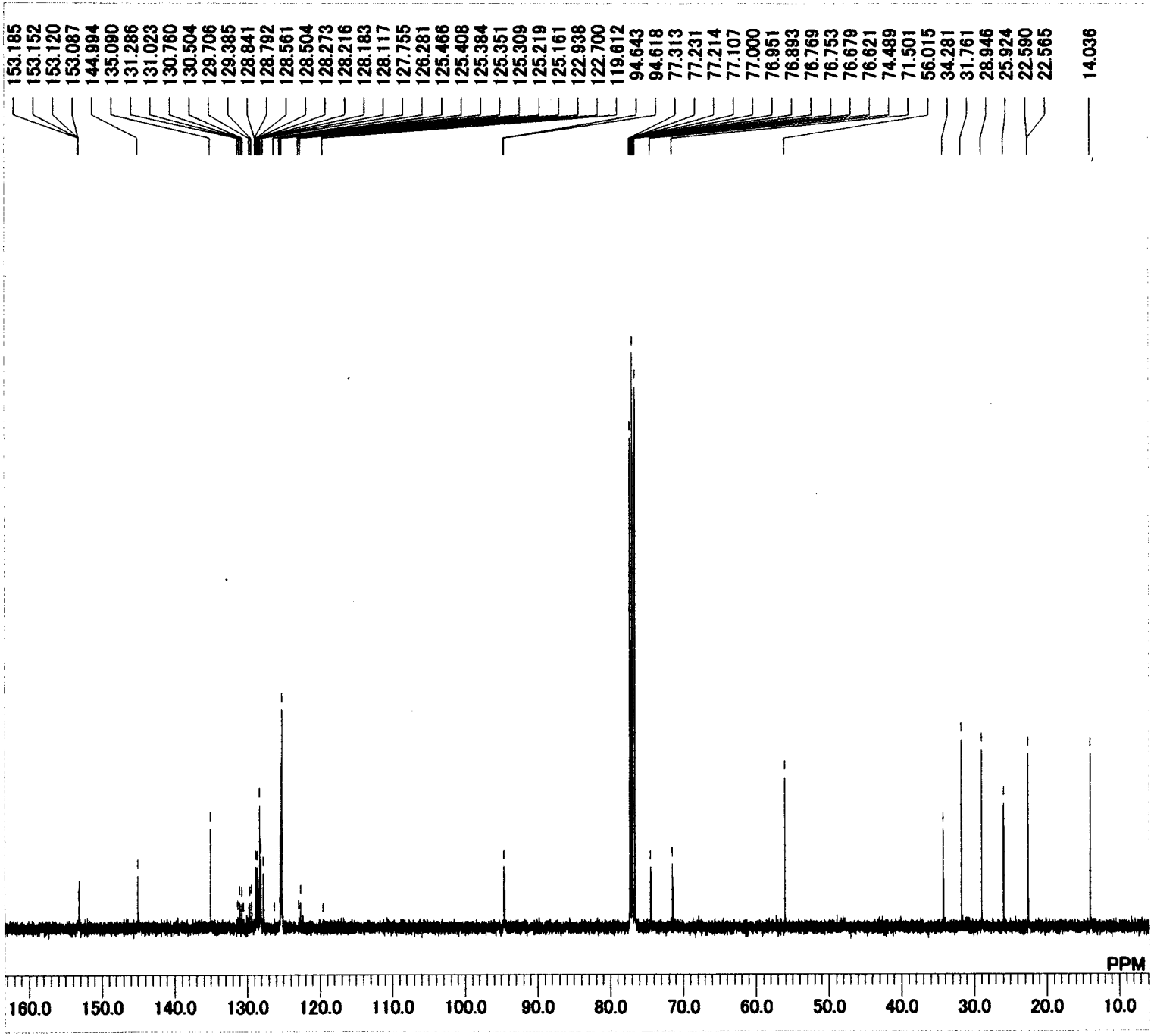
Major



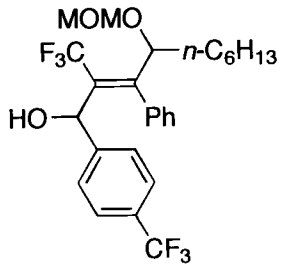
MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.50 usec
DEADT	72.20 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	18
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PI
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	21
LKPHS	240
LKSIG	574
CSPED	13 Hz
FILDC	
FILDF	



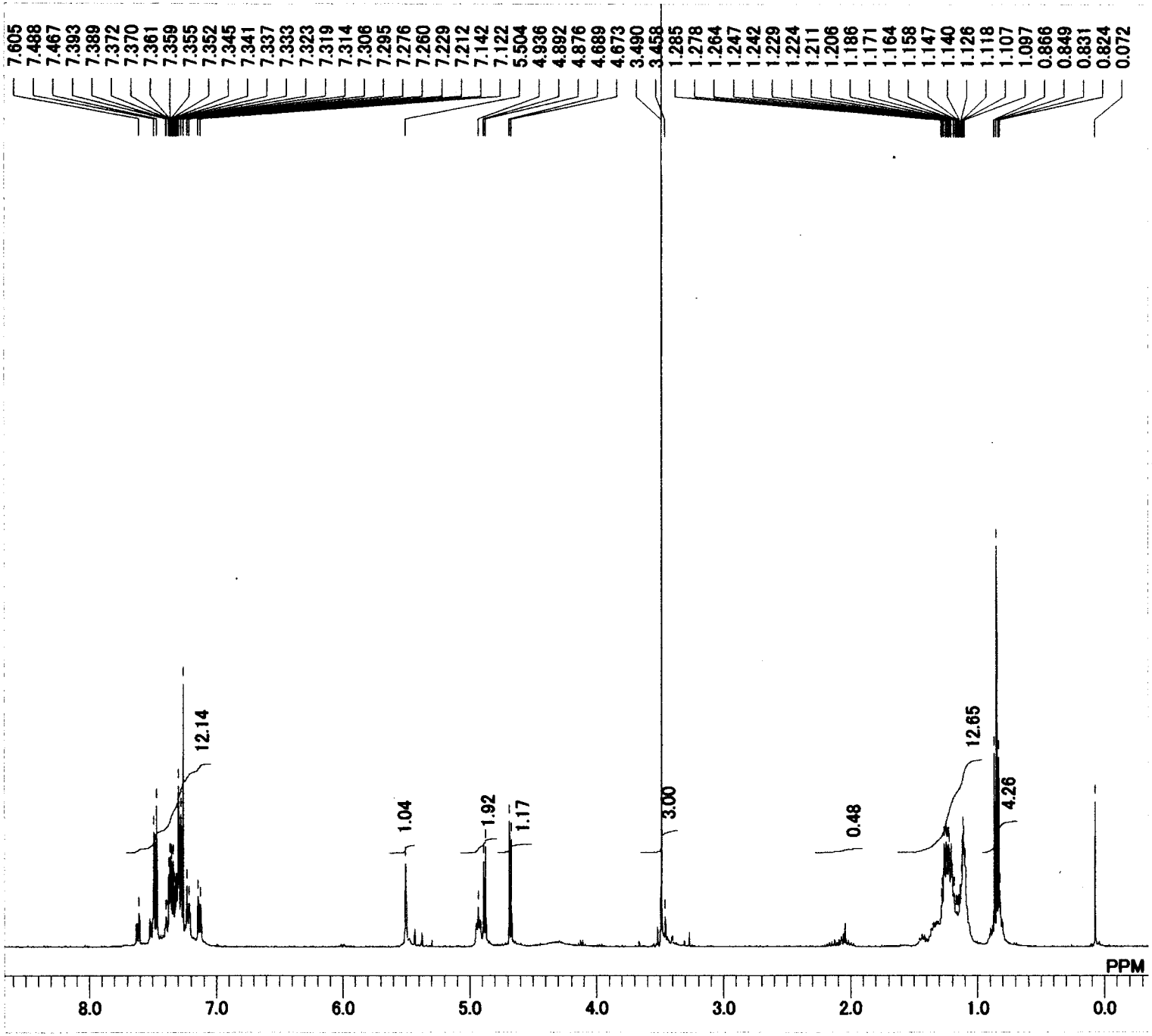
Minor



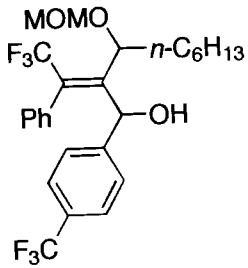
MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	10000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.00 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	24
LKPHS	240
LKSIG	954
CSPED	10 Hz
FILDC	
FILDF	

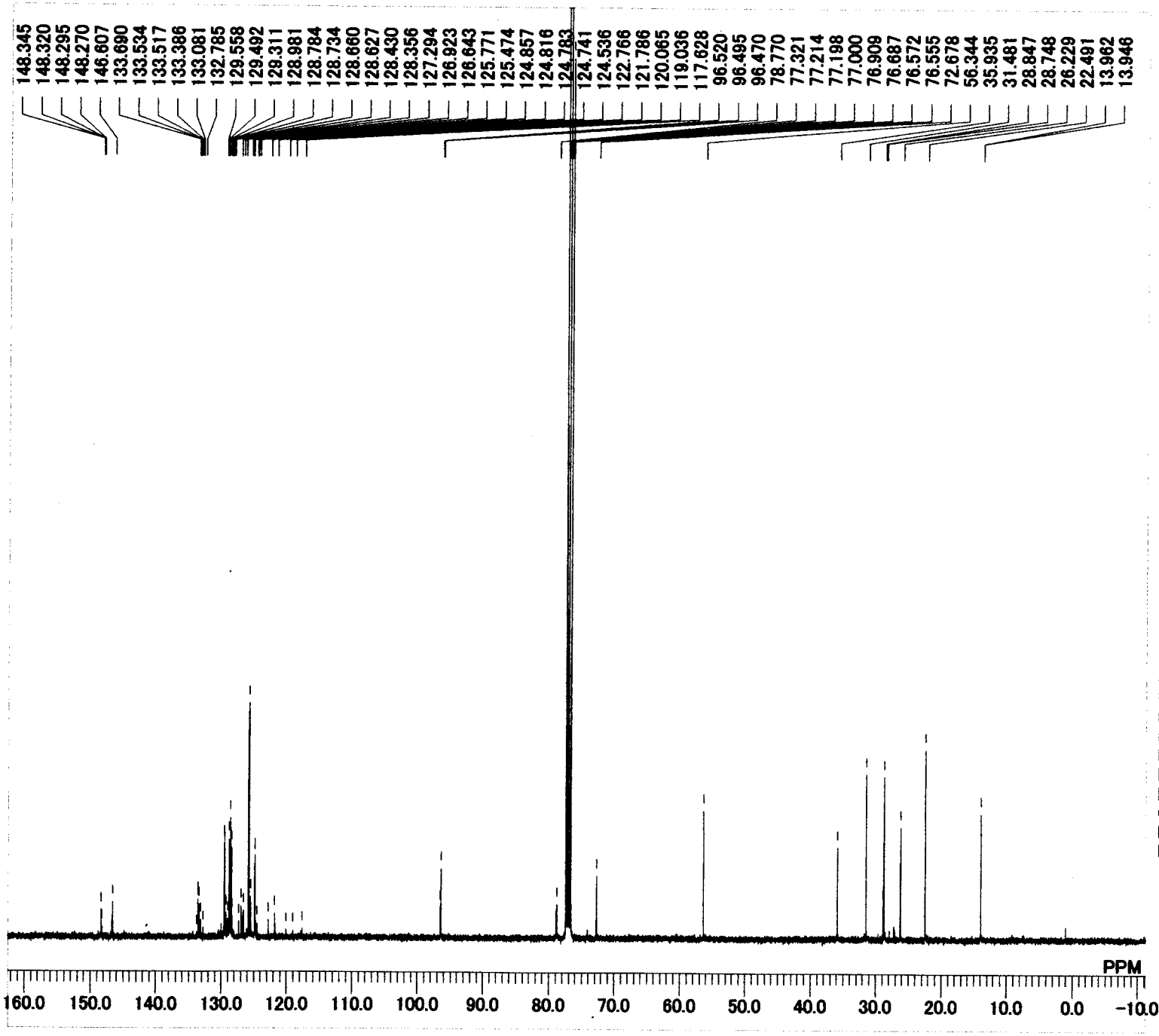


Minor



MENUF	1H
OBNUC	1H
OFR	399.65 MHz
OBSET	135.40 KHz
OBFIN	24.90 Hz
PW1	5.50 usec
DEADT	72.20 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	16384
SPO	16384
TIMES	8
DUMMY	1
FREQU	7992.01 Hz
FLT	4000 Hz
DELAY	50.00 usec
ACQTM	2.0501 sec
PD	4.9500 sec
ADBIT	16
RGAIN	16
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	NON
EXPCM	NON:Single.coupled:PW1_ACQTM_PI
IRNUC	1H
IFR	399.65 MHz
IRSET	136.90 KHz
IRFIN	97.50 Hz
IRRPW	45 usec
IRATN	511
DFILE	551 SHITA H.als
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	240
LKSIG	765
CSPED	13 Hz
FILDC	
FILDF	





MENUF	13C
OBNUC	13C
OFR	100.40 MHz
OBSET	125.00 KHz
OBFIN	10500.00 Hz
PW1	6.20 usec
DEADT	19.00 usec
PREDL	0.20000 msec
IWT	1.0000 msec
POINT	32768
SPO	32768
TIMES	20000
DUMMY	1
FREQU	27118.64 Hz
FLT	13550 Hz
DELAY	14.80 usec
ACQTM	1.2083 sec
PD	1.7920 sec
ADBIT	16
RGAIN	25
BF	0.10 Hz
T1	0.00
T2	0.00
T3	90.00
T4	100.00
EXMOD	BCM
EXPCM	Bilevel.complete.decoupling:Set_IRRF
IRNUC	1H
IFR	399.65 MHz
IRSET	124.00 KHz
IRFIN	10500.00 Hz
IRRPW	45 usec
IRATN	511
DFILE	_DEFAULT.ALS
SF	TH5ATFG2
LKSET	61.60 KHz
LKFIN	79.0 Hz
LKLEV	180
LGAIN	22
LKPHS	240
LKSIG	783
CSPED	14 Hz
FILDC	
FILDF