## Supporting Informations

# Terminal Aryl Alkenes and Alkynes as Arylcarboxy Surrogates Towards *o*-Benzoxylation of 2-Phenylpyridine Catalyzed by Copper

Saroj Kumar Rout,‡ Srimanta Guin,‡ Anupal Gogoi, Ganesh Majji, and Bhisma K. Patel*

‡These authors contributed equally

Department of Chemistry, Indian Institute of Technology Guwahati

Email: patel@iitg.ernet.in

List of Contents



**General information:**

All the reagents were commercial grade and purified according to the established procedures. Organic extracts were dried over anhydrous sodium sulphate. Solvents were removed in a rotary evaporator under reduced pressure. Silica gel (60–120 mesh size) was used for the column chromatography. Reactions were monitored by TLC on silica gel 60 $F_{254}$ (0.25 mm). NMR spectra were recorded in $CDCl_3$ with tetramethylsilane as the internal standard for $^1H$ NMR (400 MHz) $CDCl_3$ solvent as the internal standard for $^{13}C$ NMR (100 MHz). Mass spectra were recorded using WATERS MS system, Q-tof premier and data analyzed using Mass Lynx 4.1. IR spectra were recorded in KBr or neat on a Nicolet Impact 410 spectrophotometer.

**General Procedure for the Synthesis of 2-(Pyridin-2-yl)phenylbenzoate (1a):**

An oven-dried flask was charged with 2-phenylpyridine (**1**) (78 mg, 0.5 mmol), styrene (**a**) (105 mg, 1 mmol), $Cu(OAc)_2$ (18 mg, 0.1 mmol), TBHP in decane (5–6 M) (500 µL, 5 mmol) and solvent chlorobenzene (1 mL). The flask was fitted to a condenser and the resultant reaction mixture was stirred in a preheated oil bath at 120 $^oC$ for 12 h. After stipulated time, the reaction mixture was cooled down to room temperature and diluted with ethyl acetate (10 mL). The reaction mixture was filtered through a celite bed and washed with an additional amount of ethyl acetate (2 x 10 mL). The combined organic layer was subsequently washed with 5% solution of sodium bicarbonate solution (2 x 5 mL) followed by water (2 x 5 mL). The ethyl acetate layer was dried over anhydrous $Na_2SO_4$ and the volatiles were removed in vacuo. The residue was purified over a column of silica gel and eluted with (9:1, hexane / ethyl acetate) to give 2-(pyridin-2-yl)phenylbenzoate (**1a**) (97 mg, 71% yield).

**General procedure for the synthesis of 2-(Pyridin-2-yl)phenyl 3-methylbenzoate (1b´):**

An oven-dried flask was charged with 2-phenylpyridine (**1**) (78 mg, 0.5 mmol), 3-ethynyltoluene (**b´**) (116 mg, 1 mmol), $Cu(OAc)_2$ (18 mg, 0.1 mmol) and TBHP in decane (5–6 M) (500 µL, 5 mmol). The flask was fitted to a condenser and the resultant reaction mixture was stirred in a preheated oil bath at 120 $^oC$ for 12 h. After stipulated time, the reaction mixture was cooled down to room temperature and diluted with ethyl acetate (10 mL). The reaction mixture filtered through a celite bed using ethyl acetate as the eluent (20 mL). The reaction mixture was filtered through a celite bed and washed with an additional amount of ethyl acetate (2 x 10 mL). The combined organic layer was subsequently washed with 5% solution of sodium bicarbonate solution (2 x 5 mL) followed by water (2 x 5 mL). The ethyl acetate layer was dried over anhydrous $Na_2SO_4$ and the volatiles were removed in

vacuo. The residue was purified over a column of silica gel and eluted with (9:1, hexane / ethyl acetate) to give 2-(pyridin-2-yl)phenyl 3-methylbenzoate (**1b´**) (99 mg, 69% yield).

**Determine the extrusion of CO:** For the detection of extrusion of carbon monoxide, a strip containing $PdCl_2$ and PMA (phosphomolybdic) was hanged from the neck of the reaction flask as shown in the figure below. The initial yellow colour of the strip before the reaction (Figure S1) turned pale blue after 2 hrs of the reaction progress (Figure S2). This colour change confirms the extrusion of CO from the reaction. The same detection technique was performed independently with phenylglyoxal and similar blue colouration was observed (within 10 minutes) with the formation of benzaldehyde (**D**).[1]

1. (a) Feigl, F.; Anger V. *Spot Tests in Inorganic Analysis 6th editions*; Elsevier, pp. 169.
(b) Wang, L.; Ren, X.; Yu, J.; Jiang, Y.; Cheng, J. *J. Org. Chem.* **2013**, *78*, 12076.

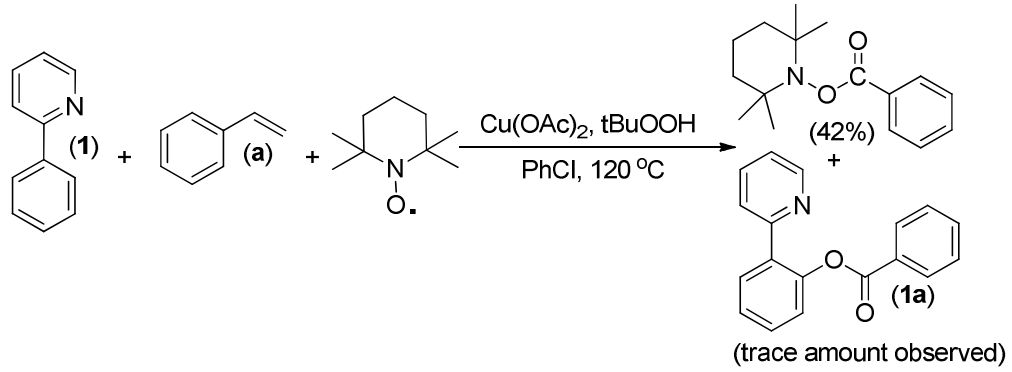
**Fig S1**

$PdCl_2$-PMA test strip before reaction

**Fig S2**

$PdCl_2$-PMA test strip after reaction

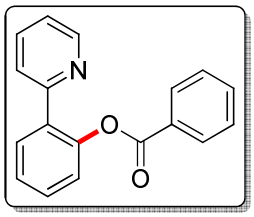
**Mechanistic investigation in the presence of radical scavenger TEMPO:** An oven-dried reaction vessel was charged with 2-phenylpyridine (**1**) (78 mg, 0.5 mmol), styrene (**a**) (105 mg, 1 mmol), $Cu(OAc)_2$ (18 mg, 0.2 mmol), TBHP in decane (5–6 M) (500 µL, 5 mmol) TEMPO (0.156 g, 1 mmol) and solvent chlorobenzene (1 mL). The flask was fitted to a condenser and the resultant reaction mixture was stirred in a preheated oil bath at 120 $^{o}$C for 12 h. The reaction after 12 h afforded the benzoyl-TEMPO adduct **2,2,6,6-tetramethylpiperidin-1-yl benzoate** (**H**) (42% yield) and traces (<5%) of the desired product (**1a**) was observed. This experiment supports the formation of benzoyl radical (**D´**) in the medium from phenylglyoxal induced radically by Cu/TBHP.




**Scheme S1:** Trapping the intermediate with TEMPO

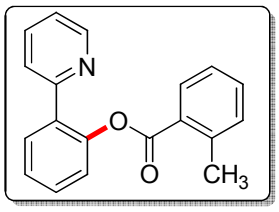
## Spectral Data

**2-(Pyridin-2-yl)phenylbenzoate (1a):**



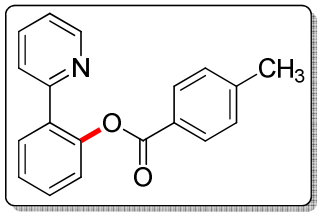
$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 7.15–7.18 (m, 1H), 7.29–7.32 (m, 1H), 7.39–7.51 (m, 4H), 7.55–7.65 (m, 3H), 7.78–7.79 (m, 1H), 8.07–8.10 (m, 2H), 8.59–8.60 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 123.3, 123.5, 123.9, 126.7, 128.7, 129.7, 130.0, 130.4, 131.1, 133.5, 133.7, 136.4, 148.5, 149.8, 155.8, 165.4; IR (KBr): 3062, 2927, 2858, 1737, 1592, 1458, 1260, 1190, 1067, 1020, 842, 751, 749, 707 $cm^{-1}$; HRMS (ESI): calcd. for $C_{18}H_{13}NO_2$ ($MH^+$) 276.1019; found 276.1014.

**2-(Pyridin-2-yl)phenyl 2-methylbenzoate (1b):**



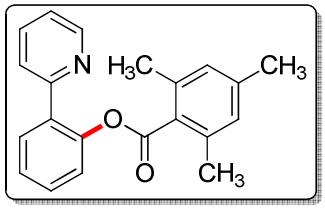
$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.53 (s, 3H), 7.17–7.20 (m, 1H), 7.25–7.30 (m, 3H), 7.38–7.51 (m, 3H), 7.54–7.57 (m, 1H), 7.60–7.67 (m, 1H), 7.74–7.77 (m, 1H), 7.98–8.02 (m, 1H), 8.61–8.63 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.8, 122.3, 123.6, 123.9, 125.9, 126.5, 128.7, 129.9, 131.0, 131.2, 131.9, 132.7, 133.6, 136.4, 141.3, 148.5, 149.6, 155.9, 165.8; IR (KBr): 3062, 2962, 2928, 2856, 1743, 1585, 1492, 1467, 1426, 1289, 1250, 1197, 1155, 1115, 1040, 1021, 884, 794, 736, 693, 616 $cm^{-1}$; HRMS (ESI): calcd. for $C_{19}H_{15}NO_2$ ($MH^+$) 290.1176; found 290.1171.

**2-(Pyridin-2-yl)phenyl 4-methylbenzoate (1c):**



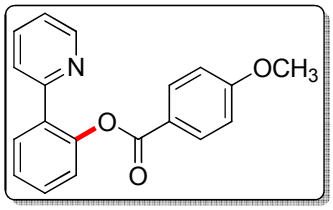

$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.42 (s, 3H), 7.14–7.17 (m, 1H), 7.25 (d, 2H, *J* = 8.0 Hz), 7.29–7.31 (m, 1H), 7.38–7.42 (m, 1H), 7.46–7.49 (m, 1H), 7.55–7.57 (m, 1H), 7.59–7.63 (m, 1H), 7.77–7.79 (m, 1H), 7.97 (d, 2H, *J* = 8.0 Hz), 8.59–8.61 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.9, 122.3, 123.5, 123.9, 126.5, 126.9, 129.4, 129.9, 130.4, 131.1, 133.5, 136.3, 144.5, 148.5, 149.8, 155.7, 165.4; IR (KBr): 3043, 2999, 2919, 2846, 1732, 1608, 1582, 1491, 1455, 1424, 1265, 1193, 1174, 1114, 1066, 1014, 834, 744, 685, 610 $cm^{-1}$; HRMS (ESI): calcd. for $C_{19}H_{15}NO_2$ ($MH^+$) 290.1176; found 290.1173.

**2-(Pyridin-2-yl)phenyl 2,4,6-trimethylbenzoate (1d):**



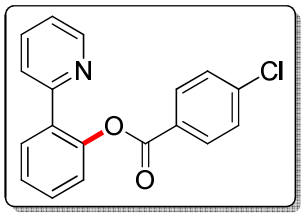

$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.20 (s, 6H), 2.27 (s, 3H), 6.83 (s, 2H), 7.20–7.24 (m, 1H), 7.32–7.34 (m, 1H), 7.37–7.41 (m, 1H), 7.47–7.51 (m, 1H), 7.56 (d, 1H, *J* = 7.6 Hz), 7.63–7.67 (m, 1H), 7.70–7.75 (m, 1H), 8.66 (d, 1H, *J* = 5.2 Hz); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 20.0, 21.3, 122.4, 123.2, 124.6, 126.6, 128.9, 129.9, 131.3, 134.2, 136.1, 136.4, 140.1, 148.4, 149.8, 156.0, 168.4; IR (KBr): 2924, 2856, 1742, 1611, 1585, 1493, 1463, 1425, 1379, 1243, 1187, 1163, 1051, 1022, 852, 752, 613 $cm^{-1}$; HRMS (ESI): calcd. for $C_{21}H_{19}NO_2$ ($MH^+$) 318.1489; found 318.1481.

**2-(Pyridin-2-yl)phenyl 4-methoxybenzoate (1e):**



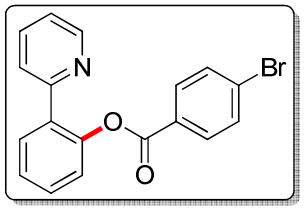

$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 3.90 (s, 3H), 6.92 (d, 2H, *J* = 8.8 Hz), 7.14–7.17 (m, 1H), 7.28–7.30 (m, 1H), 7.36–7.40 (m, 1H), 7.44–7.49 (m, 1H), 7.53–7.56 (m, 1H), 7.59–7.62 (m, 1H), 7.77–7.79 (m, 1H), 8.03 (d, 2H, *J* = 8.8 Hz), 8.60–8.62 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 55.5, 113.9, 121.8, 122.2, 123.5, 123.8, 126.3, 129.8, 130.9, 132.4, 133.4, 136.2, 148.5, 149.7, 155.6, 163.9, 164.9; IR (KBr): 3061, 3007, 2964, 2953, 2840, 1731, 1606, 1583, 1511, 1463, 1423, 1253, 1195, 1166, 1114, 1067, 1025, 848, 793, 753, 692, 636 $cm^{-1}$; HRMS (ESI): calcd. for $C_{19}H_{15}NO_3$ ($MH^+$) 306.1125; found 306.1133

**2-(Pyridin-2-yl)phenyl 4-chlorobenzoate (1f):**



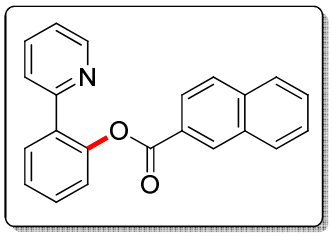

$^{1}$H NMR (400 MHz, $CDCl_3$) δ (ppm) 7.13–7.17 (m, 1H), 7.28–7.30 (m, 1H), 7.38–7.43 (m, 3H), 7.45–7.53 (m, 3H), 7.60–7.65 (m, 1H), 8.00 (d, 2H, *J* = 8.8 Hz), 8.55–8.56 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$) δ (ppm) 122.4, 123.4, 123.8, 126.7, 128.1, 129.0, 129.9, 131.1, 131.7, 133.4, 136.4, 140.1, 148.3, 149.7, 155.7, 164.5; IR (KBr) 2924, 2853, 1738, 1593, 1478, 1429, 1400, 1263, 1191, 1090, 1073, 1014, 966, 795, 752, 627 $cm^{-1}$; HRMS (ESI): calcd. for $C_{18}H_{12}ClNO_2$ ($MH^+$) 310.0629; found 310.0635.

**2-(Pyridin-2-yl)phenyl 4-bromobenzoate (1g):**



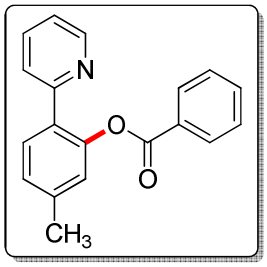

$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 7.15–7.18 (m, 1H), 7.29 (d, 1H, *J* = 8.4 Hz), 7.39–7.43 (m, 1H), 7.46–7.53 (m, 2H), 7.58–7.66 (m, 3H), 7.74–7.76 (m, 1H), 7.93 (d, 2H, *J* = 8.8 Hz), 8.56 (d, 1H, *J* = 8.8 Hz); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 122.4, 123.4, 123.8, 126.7, 128.6, 128.7, 128.9, 130.3, 131.1, 131.8, 132.0, 136.4, 148.3, 149.7, 155.7, 164.7; IR (KBr): 3052, 2925, 2850, 1733, 1587, 1492, 1482, 1465, 1450, 1423, 1395, 1261, 1186, 1166, 1068, 1058, 1023, 1008, 849, 795, 761, 749 $cm^{-1}$; HRMS (ESI): calcd. for $C_{18}H_{12}BrNO_2$ ($MH^+$) 354.0124; found 354.0117.

**2-(Pyridin-2-yl)phenyl 2-naphthoate (1h):**



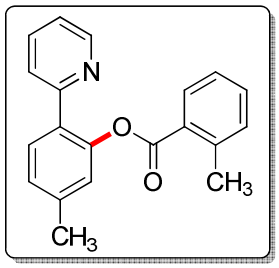

$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 7.09–7.13 (m, 1H), 7.34 (d, 1H, *J* = 8.0 Hz), 7.38–7.44 (m, 1H), 7.47–7.61 (m, 5H), 7.77–7.79 (m, 1H), 7.87 (d, 1H, *J* = 8.4 Hz), 7.93 (d, 2H, *J* = 8.8 Hz), 8.05–8.07 (m, 1H), 8.56 (d, 1H, *J* = 8.8 Hz), 8.66 (s, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 122.3, 123.5, 123.9, 125.7, 126.6, 126.8, 126.9, 127.9, 128.5, 128.8, 129.7, 129.9, 131.1, 132.1, 132.7, 133.6, 135.9, 136.4, 148.6, 149.8, 155.8, 165.5; IR (KBr): 3057, 2923, 2850, 1733, 1629, 1585, 1492, 1463, 1425, 1281, 1222, 1187, 1127, 1063, 1024, 951, 867, 774, 750 $cm^{-1}$; HRMS (ESI): calcd. for $C_{22}H_{15}NO_2$ ($MH^+$) 326.1176; found 326.1167.

**5-Methyl-2-(pyridine-2-yl)phenyl benzoate (2a):**




$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.43 (s, 3H), 7.11–7.14 (m, 2H), 7.19–7.22 (m, 1H), 7.46 (t, 2H, *J* = 8.0 Hz), 7.52–7.61 (m, 3H), 7.67 (d, 1H, *J* = 7.6 Hz), 8.07–8.09 (m, 2H), 8.58 (d, 1H, *J* = 4.0 Hz); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 29.8, 122.2, 123.3, 123.85, 123.93, 127.5, 128.7, 129.7, 130.3, 130.9, 133.6, 136.5, 140.4, 148.3, 149.7, 155.7, 165.4; IR (KBr): 2924, 2853, 1735, 1623, 1596, 1467, 1382, 1259, 1175, 1155, 1131, 1079, 1062, 1024, 780, 740, 708 $cm^{-1}$; HRMS (ESI): calcd. for $C_{19}H_{15}NO_2$ ($MH^+$) 290.1176; found 290.1172.

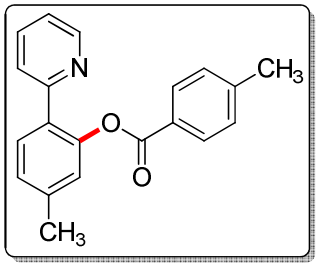
**5-Methyl-2-(pyridine-2-yl)phenyl 2-methylbenzoate (2b):**




$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.43 (s, 3H), 2.53 (s, 3H), 7.09 (s, 1H), 7.11–7.15 (m, 1H), 7.18–7.25 (m, 3H), 7.40 (t, 1H, *J* = 7.6 Hz), 7.51–7.53 (m, 1H), 7.58–7.66 (m, 2H), 8.01 (d, 1H, *J* = 7.6 Hz), 8.57–8.59 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.4, 21.8, 122.1, 123.8, 124.0, 125.9, 127.4, 128.9, 130.8, 131.2, 131.9, 132.6, 136.3, 140.4, 141.3, 148.3, 149.7, 156.0, 166.0; IR (KBr) 3062, 2961, 2926, 1737, 1623, 1586, 1573, 1466, 1431,

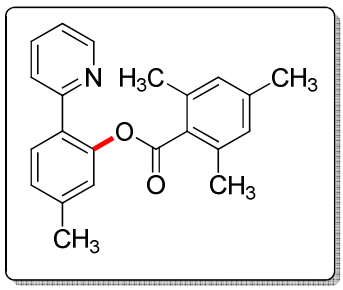
1288, 1245, 1151, 1135, 1045, 893, 782, 736, 691 $cm^{-1}$; HRMS (ESI): calcd.for $C_{20}H_{17}NO_2$ ($MH^+$) 304.1332; found 304.1335.

**5-Methyl-2-(pyridine-2-yl)phenyl 4-methylbenzoate (2c):**




$^1$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.41 (s, 3H), 2.42 (s, 3H), 7.09–7.12 (m, 2H), 7.18–7.20 (m, 1H), 7.23–7.25 (m, 2H), 7.52–7.59 (m, 2H), 7.68 (d, 1H, *J* = 7.6 Hz), 7.97 (d, 2H, *J* = 8.4 Hz), 8.57–8.58 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.3, 21.9, 122.0, 123.8, 123.9, 126.9, 127.4, 129.4, 130.4, 130.5, 130.8, 136.3, 140.3, 144.4, 148.3, 149.7, 155.7, 165.5; IR (KBr) 3056, 2953, 2922, 2852, 1735, 1612, 1586, 1465, 1431, 1258, 1177, 1152, 1130, 1070, 1019, 892, 781, 746, 687 $cm^{-1}$; HRMS (ESI): calcd.for $C_{20}H_{17}NO_2$ ($MH^+$) 304.1332; found 304.1338.

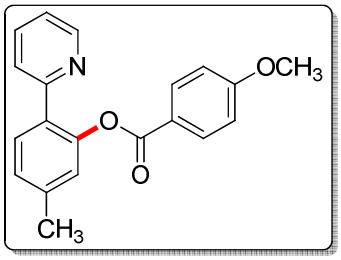
**5-Methyl-2-(pyridine-2-yl)phenyl 2,4,6-trimethylbenzoate (2d):**




$^1$H NMR (600 MHz, $CDCl_3$): δ (ppm) 2.20 (s, 6H), 2.27 (s, 3H), 2.46 (s, 3H), 6.84 (s, 2H) 7.13 (s, 1H), 7.19–7.21 (m, 2H), 7.54 (d, 1H, *J* = 7.6 Hz), 7.61–7.64 (m, 2H), 8.66 (d, 1H, *J* = 5.6 Hz); $^{13}$C NMR (150 MHz, $CDCl_3$): δ (ppm) 19.9, 21.1, 24.7, 122.1, 123.4, 124.4, 127.3, 128.3, 128.7, 129.6, 130.9, 135.9, 136.3, 139.9, 140.3, 147.9, 149.4, 155.7, 168.3; IR (KBr)

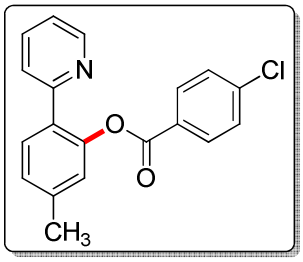
2953, 2923, 2854, 1742, 1611, 1587, 1466, 1431, 1379, 1253, 1243, 1163, 1127, 1094, 1052, 954, 825, 784, 746 $cm^{-1}$; HRMS (ESI): calcd. for $C_{22}H_{21}NO_2$ ($MH^+$) 332.1645; found 332.1649.

**5-Methyl-2-(pyridine-2-yl)phenyl 4-methoxybenzoate (2e):**




$^1$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.41 (s, 3H), 3.85 (s, 3H), 6.89–6.92 (m, 2H), 7.07–7.12 (m, 2H), 7.16–7.18 (m, 1H), 7.49–7.52 (m, 1H), 7.55–7.59 (m, 1H), 7.65 (d, 1H, *J* = 8.0 Hz), 8.00–8.03 (m, 2H), 8.56–8.58 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.4, 55.7, 113.9, 122.0, 122.1, 123.9, 124.0, 127.3, 130.6, 130.9, 132.5, 136.3, 140.4, 148.4, 149.7, 155.8, 163.9, 165.2; IR (KBr) 2961, 2924, 2845, 1737, 1606, 1510, 1465, 1432, 1254, 1167, 1130, 1069, 1026, 846, 782 $cm^{-1}$; HRMS (ESI): calcd. for $C_{20}H_{17}NO_3$ ($MH^+$) 320.1281; found 320.1284.

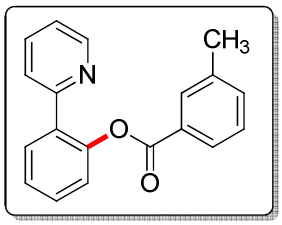
**5-Methyl-2-(pyridin-2-yl)phenyl 4-chlorobenzoate (2f):**




$^1$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.43 (s, 3H), 7.10–7.15 (m, 2H), 7.20–7.22 (m, 1H), 7.43 (d, 2H, *J* = 8.8 Hz), 7.50 (d, 1H, *J* = 8.0 Hz), 7.59–7.66 (m, 2H), 8.01 (d, 2H, *J* = 8.8 Hz), 8,55 (d, 1H, *J* = 4.0 Hz); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.4, 122.2, 123.6,

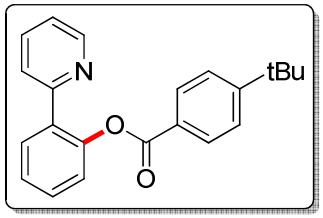
123.9, 127.6, 128.2, 129.0, 130.4, 130.8, 131.7, 136.4, 140.1, 140.5, 148.1, 149.7, 155.8, 164.7; IR (KBr): 3057, 2923, 2847, 1739, 1620, 1590, 1507, 1487, 1465, 1431, 1400, 1258, 1227, 1172, 1152, 1131, 1090, 1071, 1013, 847, 826, 748, 750, 680 $cm^{-1}$; HRMS (ESI): calcd. for $C_{19}H_{14}ClNO_2$ ($MH^+$) 324.0786; found 324.0781.

**2-(Pyridin-2-yl)phenyl 3-methylbenzoate (1b´):**




$^1$H NMR (400 MHz, $CDCl_3$) δ (ppm) 2.39 (s, 3H), 7.13–7.17 (m, 1H), 7.28–7.34 (m, 2H), 7.37–7.41 (m, 2H), 7.45–7.49 (m, 1H), 7.55 (d, 1H, *J* = 8.0 Hz), 7.59–7.63 (m, 1H), 7.76–7.79 (m, 1H), 7.87 (d, 2H, *J* = 8.0 Hz), 8.60 (d, 1H, *J* = 4.8 Hz); $^{13}$C NMR (100 MHz, $CDCl_3$) δ (ppm) 21.4, 122.3, 123.5, 123.9, 126.5, 127.5, 128.5, 129.5, 129.9, 130.9, 131.1, 133.5, 134.4, 136.3, 138.5, 148.5, 149.8, 155.7, 165.5; IR (KBr) 3051, 2917, 2853, 1734, 1635, 1587, 1462, 1425, 1274, 1182, 1083, 1064, 1024, 989, 902, 871, 751, 738 $cm^{-1}$; HRMS (ESI): calcd. for $C_{19}H_{15}NO_2$ ($MH^+$) 290.1176; found 290.1169.

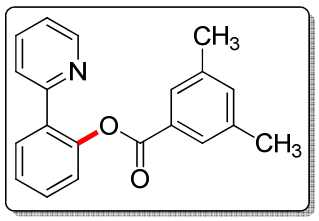
**2-(Pyridin-2-yl)phenyl 4-(tert-butyl)benzoate (1c´):**




$^1$H NMR (400 MHz, $CDCl_3$): δ (ppm) 1.34 (s, 9H), 7.14–7.18 (m, 1H), 7.28 (t, 1H, *J* = 7.6 Hz), 7.37 (t, 1H, *J* = 7.6 Hz), 7.44–7.49 (m, 3H), 7.57 (d, 1H, *J* = 8.0 Hz), 7.60–7.65 (m, 1H), 7.78 (d, 1H, *J* = 7.6 Hz), 8.01 (d, 2H, *J* = 8.8 Hz), 8.62 (d, 1H, *J* = 8.0 Hz); $^{13}$C NMR (100

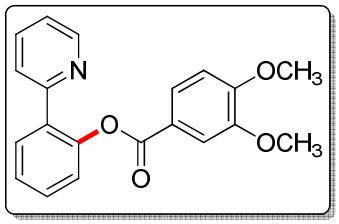
MHz, $CDCl_3$): δ (ppm) 31.3, 35.3, 122.3, 123.5, 124.0, 125.7, 126.5, 126.8, 129.9, 130.3, 131.1, 133.5, 136.4, 148.5, 149.8, 155.7, 157.4, 165.3; IR (KBr): 3061, 2963, 2869, 1737, 1608, 1586, 1462, 1425, 1408, 1299, 1267, 1185, 1111, 1068, 1014, 853, 792, 769, 757, 748, 702 $cm^{-1}$; HRMS (ESI): calcd. for $C_{22}H_{21}NO_2$ ($MH^+$) 332.1645; found 332.1653.

**2-(Pyridin-2-yl)phenyl 3,5-dimethylbenzoate (1d´):**




$^1H$ NMR (400 MHz, $CDCl_3$): δ (ppm) 2.33 (s, 6H), 7.13–7.16 (m, 1H), 7.20 (s, 1H), 7.25–7.29 (m, 1H), 7.35–7.39 (m, 1H), 7.43–7.47 (m, 1H), 7.54 (t, 2H, *J* = 8.0 Hz), 7.58–7.63 (m, 1H), 7.67 (s, 1H), 7.74–7.77 (m, 1H), 8.59–8.60 (m, 1H); $^{13}$CNMR (100 MHz, $CDCl_3$): δ (ppm) 21.3, 122.3, 123.4, 123.9, 126.5, 128.0, 129.4, 129.9, 131.1, 133.5, 135.3, 136.3, 138.3, 148.5, 149.7, 155.7, 165.6; IR (KBr): 3060, 3008, 2920, 2854, 1740, 1608, 1585, 1492, 1465, 1425, 1381, 1312, 1186, 1098, 1058, 995, 946, 914, 868, 794, 751, 667 $cm^{-1}$; HRMS (ESI): calcd.for $C_{20}H_{17}NO_2$ ($MH^+$) 304.1332; found 304.1333.

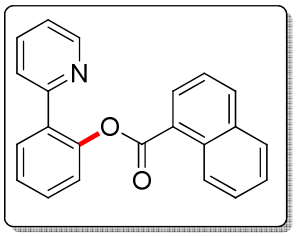
**2-(Pyridin-2-yl)phenyl 3,4-dimethoxybenzoate (1e´):**




$^1H$ NMR (400 MHz, $CDCl_3$) δ (ppm) 3.89 (s, 3H), 3.95 (s, 3H), 6.90 (d, 1H, *J* = 8.8 Hz), 7.16–7.19 (m, 1H), 7.26–7.32 (m, 1H), 7.37–7.46 (m, 1H), 7.47–7.50 (m, 1H), 7.54–7.56 (m, 2H), 7.61–7.65 (m, 1H), 7.73–7.78 (m, 2H), 8.61–8.62 (m, 1H); $^{13}$C NMR (100 MHz,

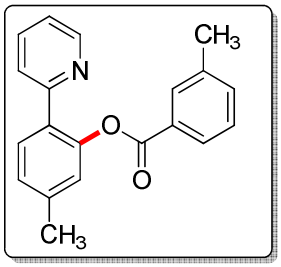
$CDCl_3$) δ (ppm) 56.2, 110.5, 112.6, 122.0, 122.3, 123.5, 123.9, 124.6, 126.5, 129.9, 131.1, 133.5, 136.4, 148.5, 148.9, 149.8, 153.7, 155.8, 165.1; IR (KBr) 2923, 2852, 1729, 1634, 1514, 1462, 1416, 1289, 1271, 1215, 1192, 1172, 1133, 1023, 793, 753 $cm^{-1}$; HRMS (ESI): calcd. for $C_{20}H_{17}NO_4$ ($MH^+$) 336.1230; found 336.1234.

**2-(Pyridin-2-yl)phenyl 1-naphthoate (1h´):**



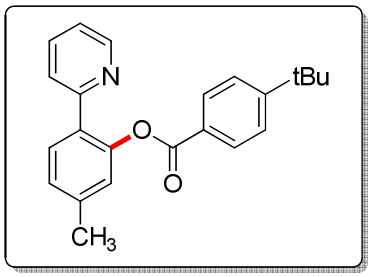

$^1H$ NMR (600 MHz, $CDCl_3$): δ (ppm) 7.14–7.15 (m, 1H), 7.37 (d, 1H, *J* = 7.8 Hz), 7.42–7.44 (m, 1H), 7.49–7.55 (m, 3H), 7.56–7.63 (m, 2H), 7.78–7.79 (m, 2H), 7.89 (d, 1H, *J* = 7.6 Hz), 8.05 (d, 1H, *J* = 7.8 Hz), 8.30 (d, 1H, *J* = 7.8 Hz), 8.58–8.59 (m, 1H), 8.86 (d, 1H. *J* = 8.4 Hz); $^{13}C$ NMR (150 MHz, $CDCl_3$): δ (ppm) 122.4, 123.7, 123.9, 124.7, 125.9, 126.2, 126.5, 126.7, 128.2, 128.7, 130.0, 131.1, 131.2, 131.8, 133.8, 134.0, 134.2, 136.5, 148.6, 149.8, 156.1, 165.9; IR (KBr): 3058, 2919, 2846, 1732, 1602, 1586, 1509, 1493, 1471, 1463, 1452, 1425, 1276, 1240, 1186, 1120, 1059, 982, 885, 813, 780, 659, $cm^{-1}$; HRMS (ESI): calcd. for $C_{22}H_{15}NO_2$ ($MH^+$) 326.1176; found 326.1179.

**5-Methyl-2-(pyridin-2-yl)phenyl 3-methylbenzoate (2b´):**



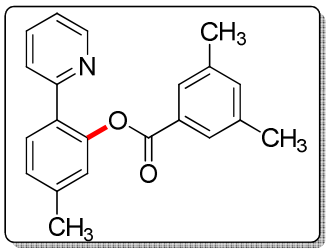
$^1$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.37 (s, 3H), 2.41 (s, 3H), 7.08–7.12 (m, 2H), 7.17–7.19 (m, 1H), 7.30 (t, 1H, *J* = 7.6 Hz), 7.38 (d, 1H, *J* = 7.6 Hz), 7.51–7.59 (m, 2H), 7.66 (d, 1H, *J* = 8.0 Hz), 7.86–7.89 (m, 2H), 8.57 (d, 1H, *J* = 4.0 Hz); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.4, 29.8, 122.4, 123.4, 123.9, 126.5, 127.5, 128.5, 129.5, 129.9, 130.9, 131.1, 133.4, 134.4, 136.5, 138.5, 148.5, 149.6, 155.6, 165.5; IR (KBr): 3061, 2924, 2854, 1736, 1591, 1466, 1428, 1274, 1184, 1084, 1063, 1000, 903, 837, 751 cm$^{-1}$; HRMS (ESI): calcd.for $C_{20}H_{17}NO_2$ ($MH^+$) 304.1332; found 304.1326.

**5-Methyl-2-(pyridine-2-yl)phenyl 4-(*tert*-butyl)benzoate (2c´):**



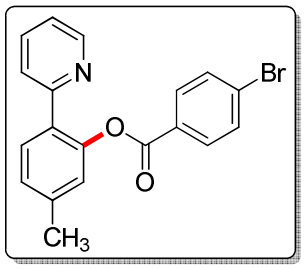

$^1$H NMR (600 MHz, $CDCl_3$): δ (ppm) 1.35 (s, 9H), 2.43 (s, 3H), 7.09–7.15 (m, 2H), 7.19 (t, 1H, *J* = 7.2 Hz), 7.44–7.47 (m, 2H), 7.54 (t, 1H, *J* = 7.2 Hz), 7.58–7.61 (m, 1H), 7.67–7.69 (m, 1H), 8.01 (d, 1H, *J* = 8.4 Hz), 8.08 (d, 1H, *J* = 7.8 Hz), 8.57–8.61 (m, 1H); $^{13}$C NMR (150 MHz, $CDCl_3$): δ (ppm) 21.4, 31.3, 35.4, 122.1, 123.9, 125.7, 126.9, 127.4, 128.7, 129.8, 130.3, 133.6, 136.3, 140.4, 148.4, 149.7, 155.8, 157.4, 165.5; IR (KBr): 3058, 2963, 2868, 1736, 1608, 1587, 1465, 1431, 1408, 1259, 1187, 1152, 1131, 1110, 1064, 1025, 892, 853, 784, 748, 705 cm$^{-1}$; HRMS (ESI): calcd. for $C_{23}H_{23}NO_2$ ($MH^+$) 346.1802; found 346.1809.

**5-Methyl-2-(pyridine-2-yl)phenyl 3,5dimethylbenzoate (2d´):**



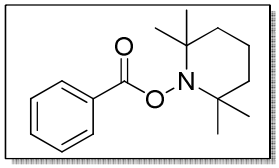

$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.35 (s, 6H), 2.42 (s, 3H), 7.09–7.15 (m, 2H), 7.18–7.21 (m, 2H), 7.52–7.61 (m, 2H), 7.66–7.70 (m, 3H), 8.58–8.60 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.3, 21.4, 122.1, 123.8, 123.9, 127.4, 128.1, 129.5, 130.5, 130.8, 135.4, 136.4, 138.3, 140.4, 148.3, 149.7, 155.8, 165.8; IR (KBr): 2953, 2921, 2855, 1736, 1611, 1589, 1465, 1432, 1309, 1194, 1154, 1130, 1097, 999, 947, 779, 753 $cm^{-1}$; HRMS (ESI): calcd. for $C_{21}H_{19}NO_2$ ($MH^+$) 318.1489; found 318.1484.

**5-Methyl-2-(pyridine-2-yl)phenyl 4-bromobenzoate (2g´):**



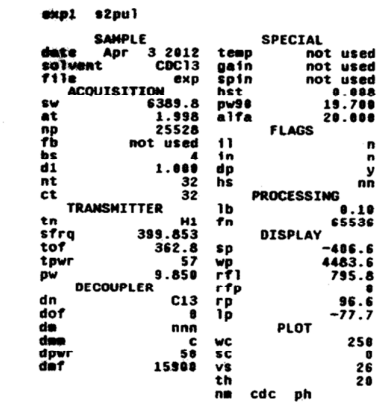

$^{1}$H NMR (400 MHz, $CDCl_3$): δ (ppm) 2.42 (s, 3H), 7.08–7.13 (m, 2H), 7.19 (d, 1H, *J* = 8.0 Hz), 7.47 (d, 1H, *J* = 8.0 Hz), 7.57 (d, 3H, *J* = 8.8 Hz), 7.63 (d, 1H, *J* = 8.0 Hz), 7.91 (d, 2H, *J* = 8.8 Hz), 8.51–8.52 (m, 1H); $^{13}$C NMR (100 MHz, $CDCl_3$): δ (ppm) 21.4, 122.2, 123.6, 123.9, 127.6, 128.7, 128.8, 130.4, 130.8, 131.8, 132.0, 136.4, 140.5, 148.1, 149.7, 155.7, 164.8; IR (KBr): 2955, 2922, 2853, 1737, 1621, 1589, 1465, 1431, 1397, 1258, 1173, 1152, 1131, 1071, 1027, 1010, 783, 747, 678 $cm^{-1}$; HRMS (ESI): calcd. for $C_{19}H_{14}BrNO_2$ ($MH^+$) 368.0281; found 368.0275.

**2,2,6,6-Tetramethylpiperidin-1-yl benzoate (H):**

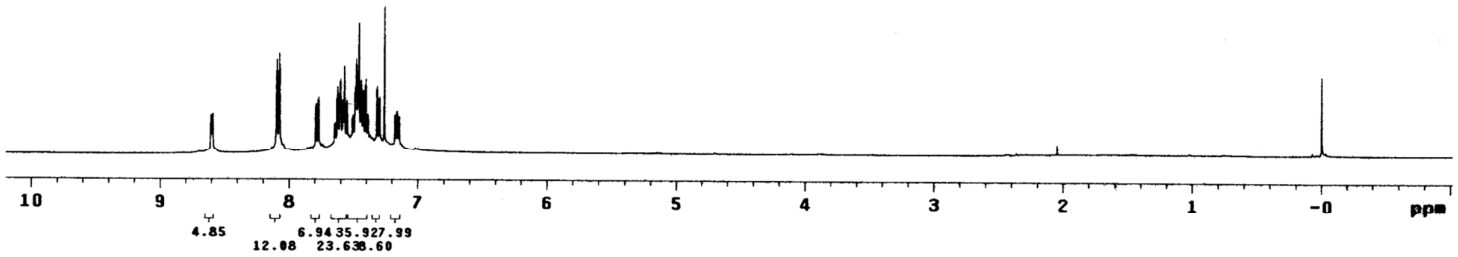


White solid; $^{1}$H NMR (600 MHz, $CDCl_3$):δ (ppm) 1.12 (s, 6H), 1.26 (s, 6H), 1.42−1.45 (m, 1H), 1.55−1.58 (m, 2H), 1.66−1.78 (m, 3H), 7.43 (t, 2H, *J* = 7.8 Hz), 7.54 (t, 1H, *J* = 7.8 Hz), 8.03−8.06 (m, 2H); $^{13}$C NMR (150 MHz, $CDCl_3$): δ (ppm) 17.2, 21.0, 32.1, 39.2, 60.6, 128.6, 129.7, 129.9, 133.0, 166.6; IR (KBr): 3007, 2973, 2940, 1741, 1641, 1452, 1365, 1253, 1238, 1083, 1062, 1026, 913, 718 $cm^{-1}$; HRMS (ESI): calcd. for $C_{16}H_{23}NO_2$ ($MH^+$) 262.1802; found 262.1801.

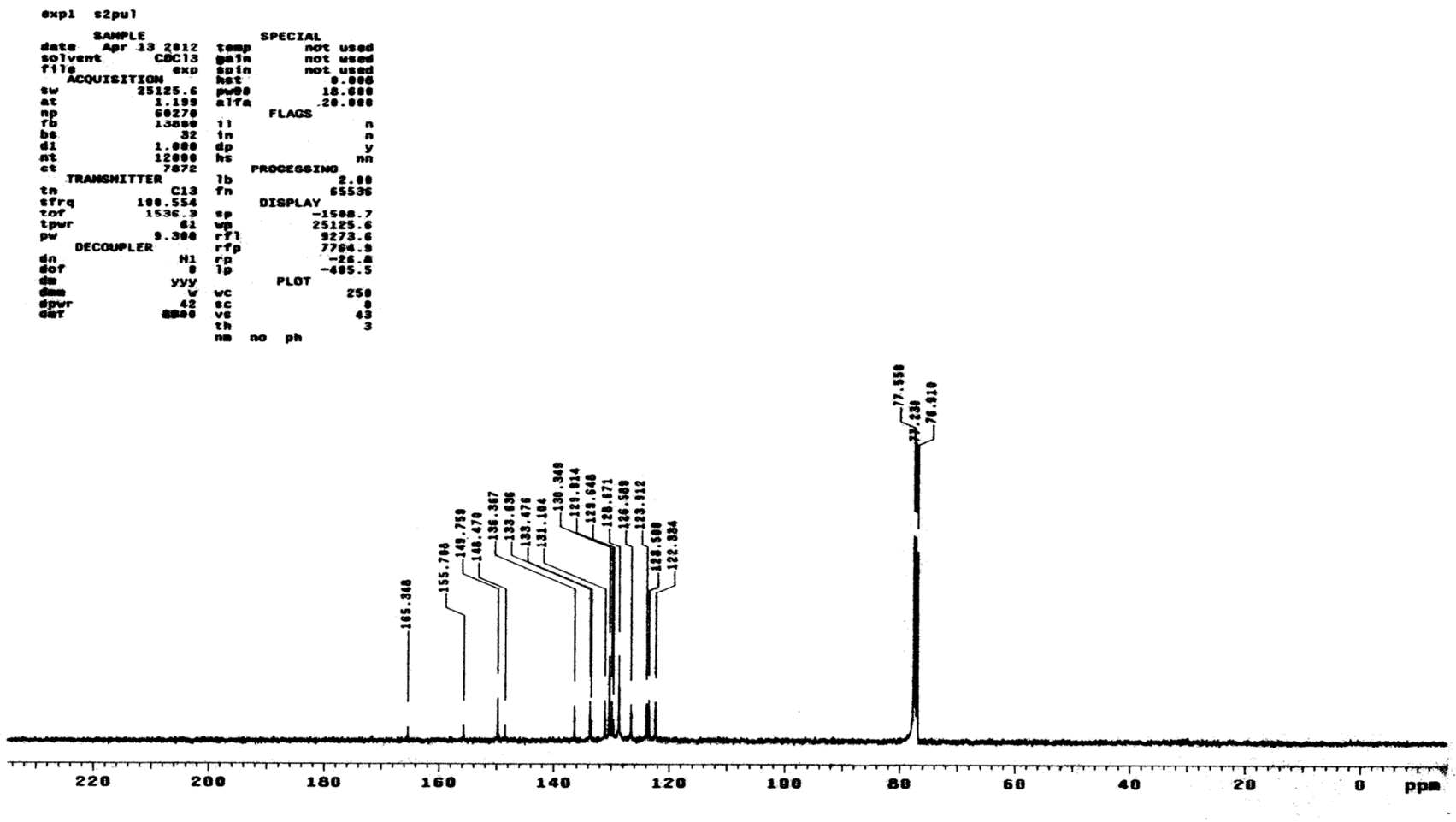
**2-(Pyridin-2-yl)phenyl benzoate (1a): $^{1}$H NMR (400 MHz, $CDCl_3$)**



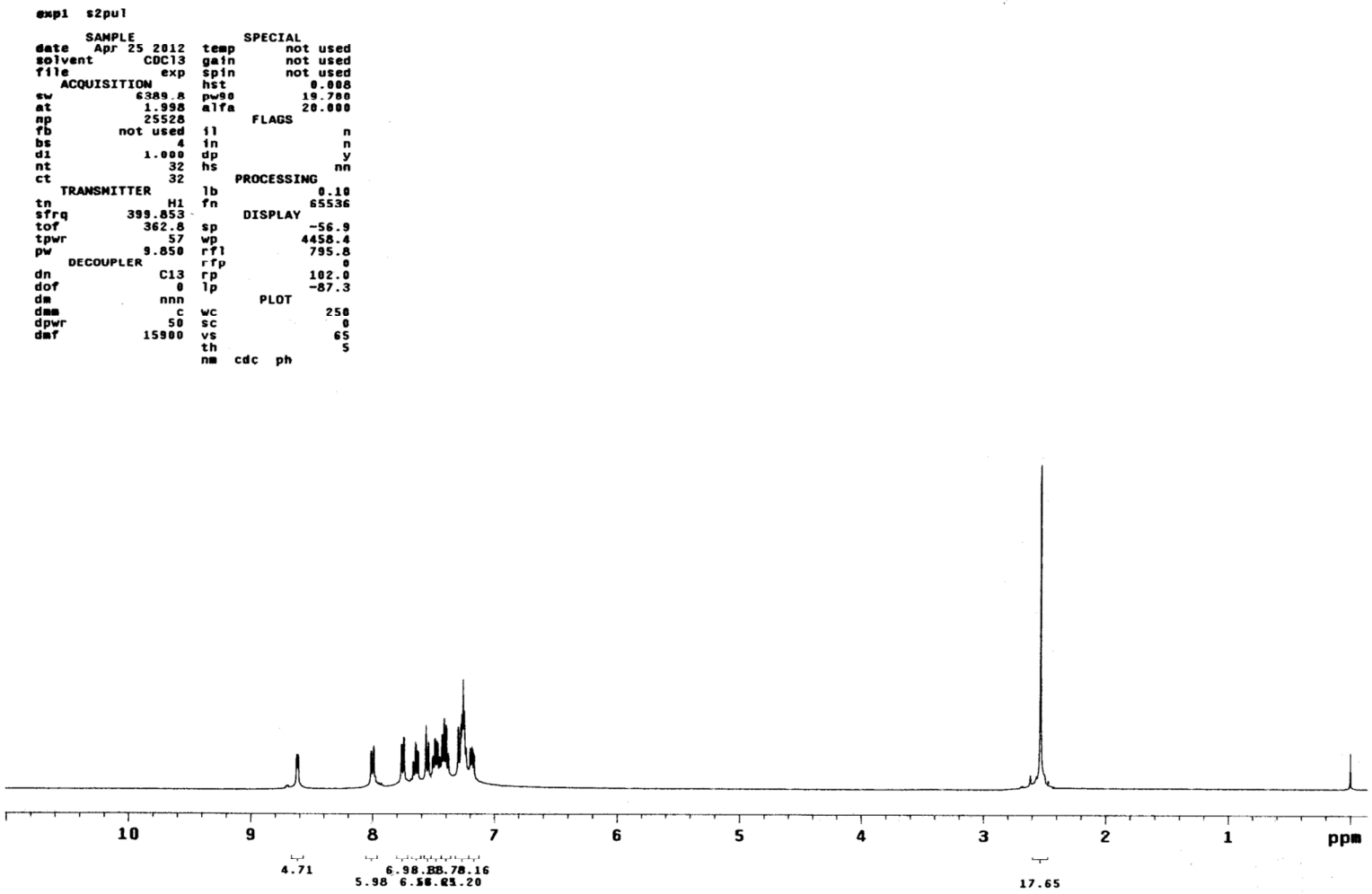
```
expl  s2pul

      SAMPLE                    SPECIAL
date    Apr  3 2012  temp          not used
solvent       CDCl3  gain          not used
file           exp   spin          not used
   ACQUISITION       hst                0.008
sw            6389.8  pw90             19.700
at               1.998  alfa            20.000
np              25528     FLAGS
fb          not used  il                    n
bs                 4  in                    n
d1             1.000  dp                    y
nt                32  hs                   nn
ct                32     PROCESSING
   TRANSMITTER       lb                 0.10
tn                H1  fn                65536
sfrq         399.853     DISPLAY
tof            362.8  sp                -406.6
tpwr              57  wp                4483.6
pw             9.850  rfl                795.8
    DECOUPLER        rfp                   0
dn               C13  rp                  96.6
dof                0  lp                -77.7
dm               nnn     PLOT
dmm                c  wc                 250
dpwr              50  sc                   0
dmf            15900  vs                  26
                      th                  20
                      nm  cdc  ph
```



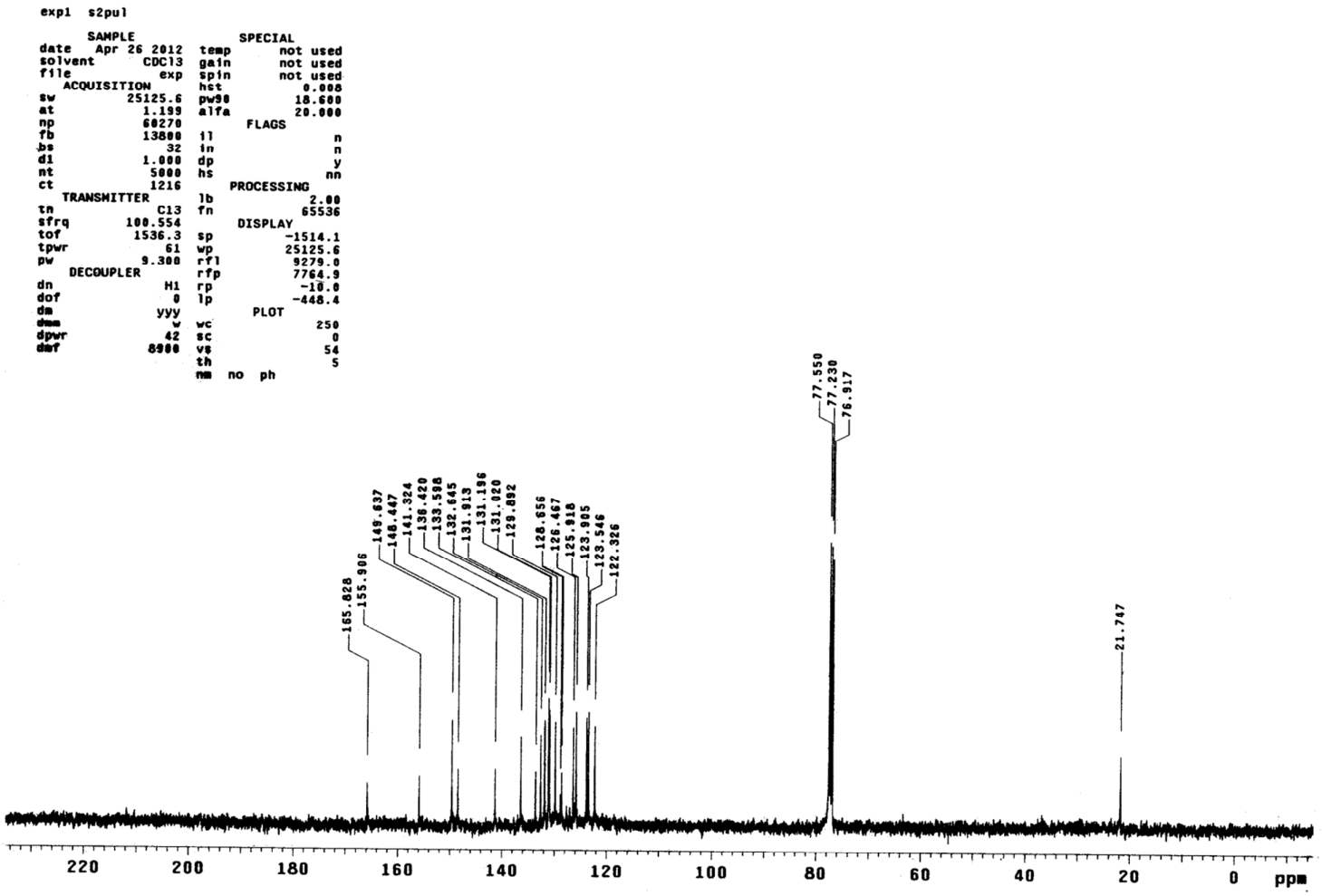
**2-(Pyridin-2-yl)phenyl benzoate (1a): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



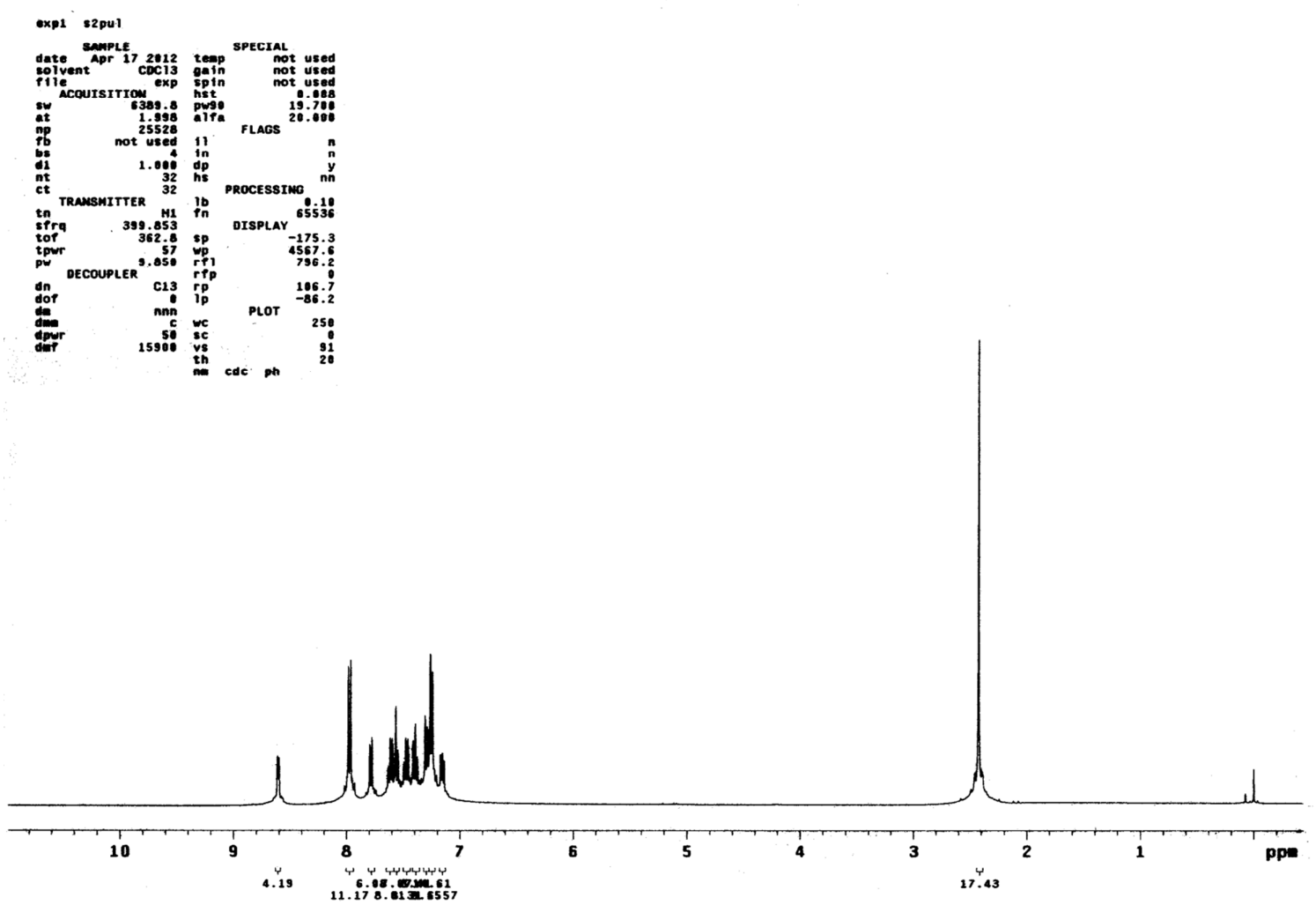
**2-(Pyridin-2-yl)phenyl 2-methylbenzoate (1b): $^{1}$H NMR (400 MHz, $CDCl_3$)**



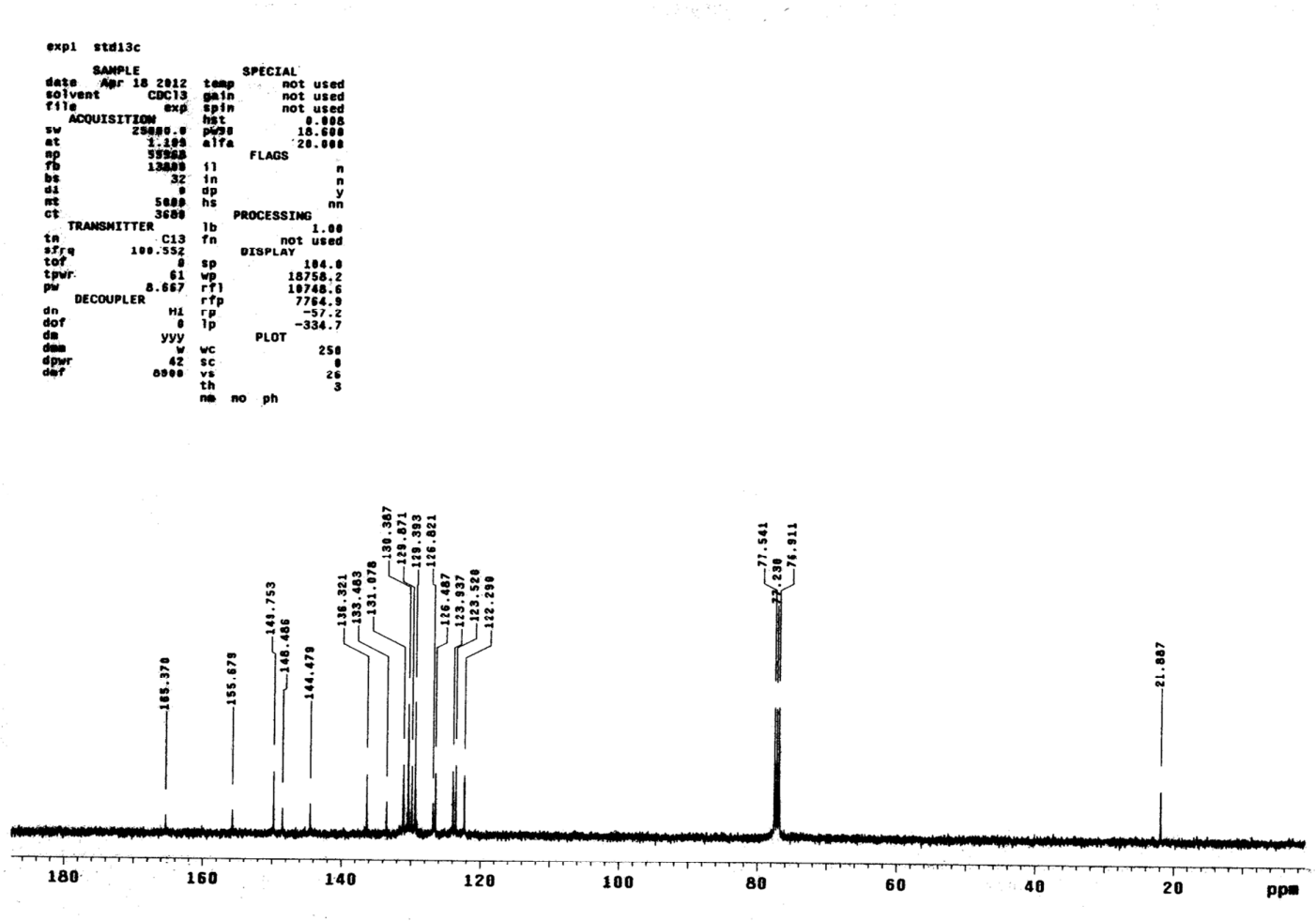
**2-(Pyridin-2-yl)phenyl 2-methylbenzoate (1b): $^{13}$C NMR (100 MHz, $CDCl_3$)**



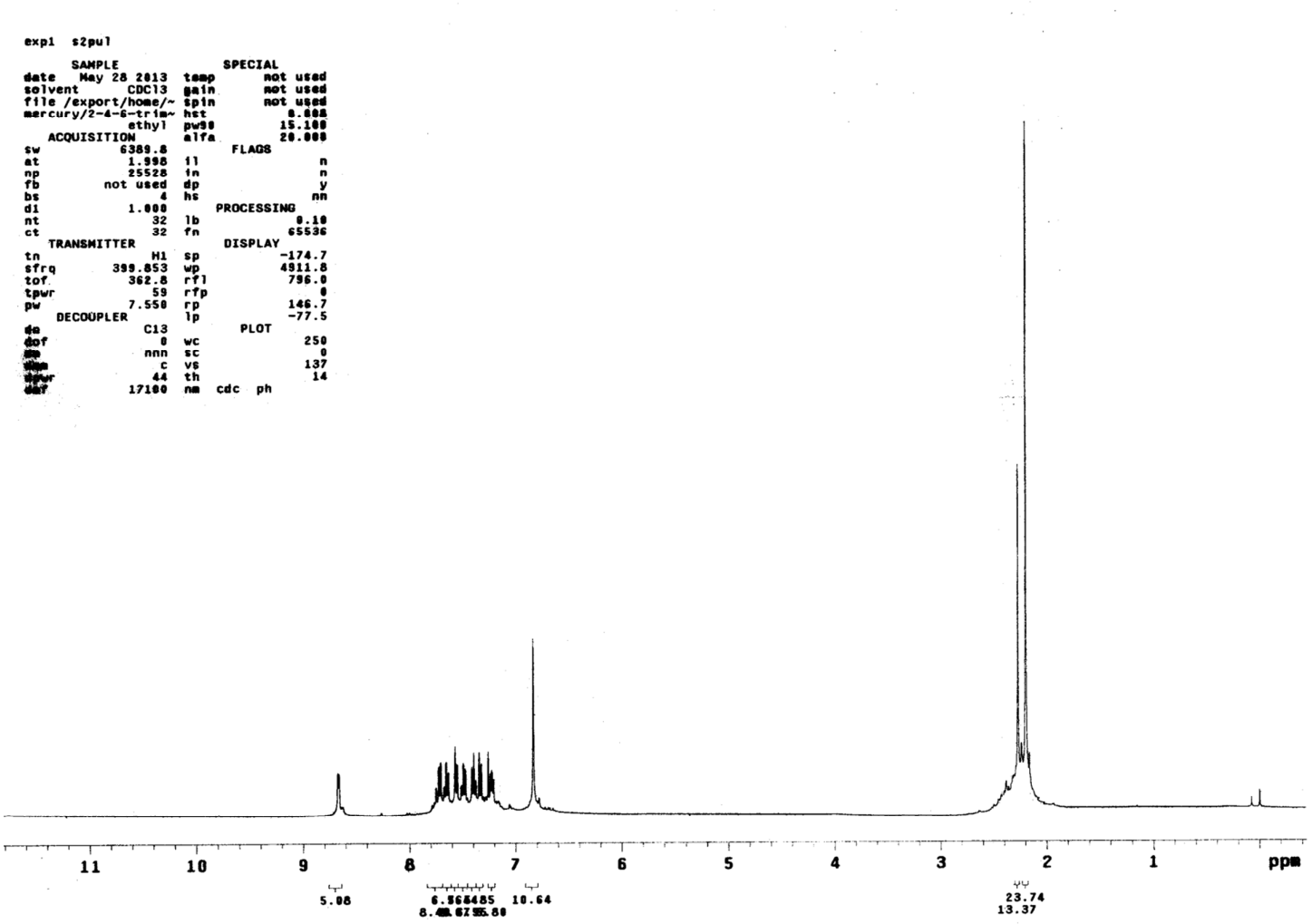
**2-(Pyridin-2-yl)phenyl 4-methylbenzoate (1c): $^{1}$H NMR (400 MHz, $CDCl_3$)**



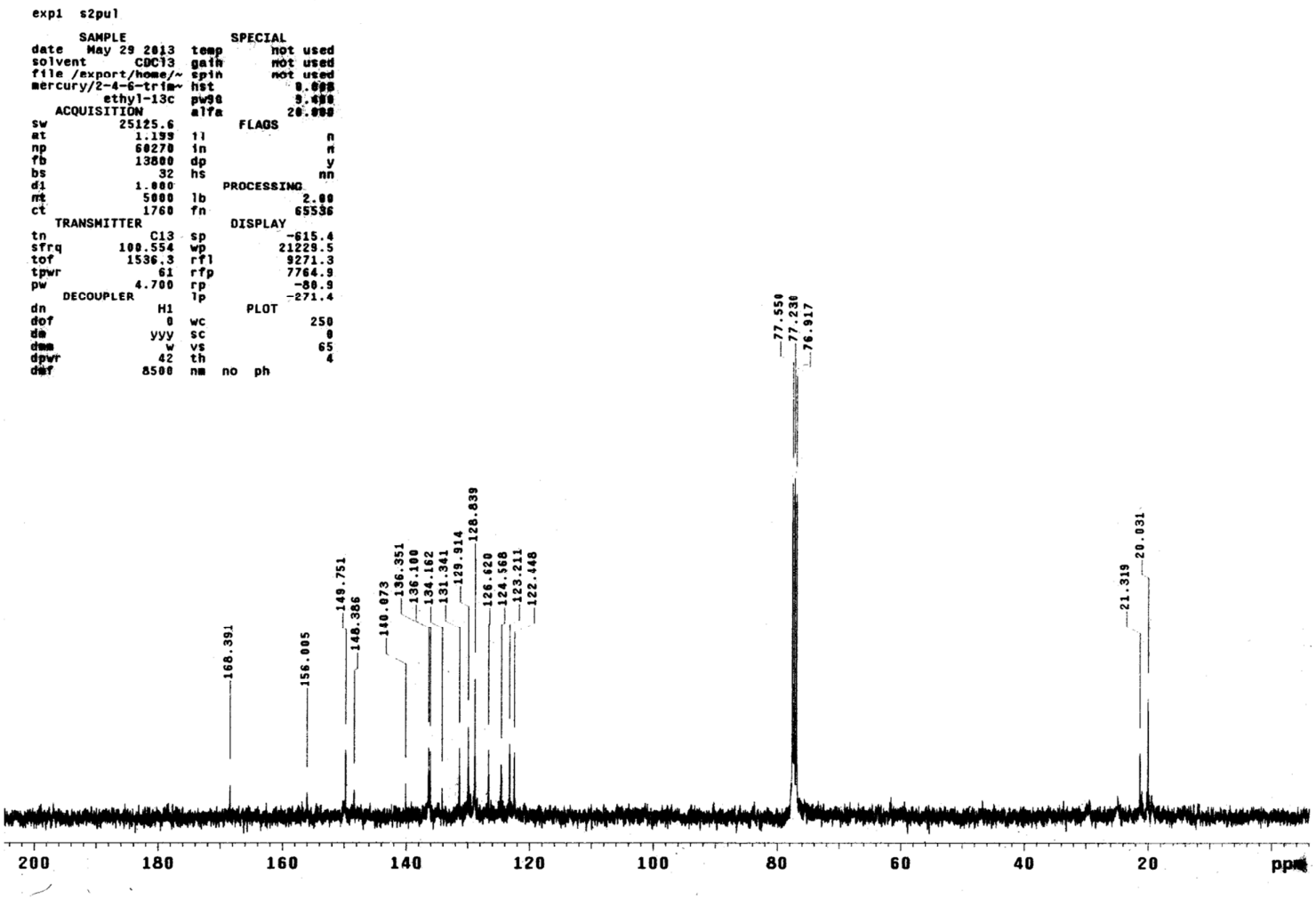
**2-(Pyridin-2-yl)phenyl 4-methylbenzoate (1c): $^{13}$C NMR (100 MHz, $CDCl_3$)**



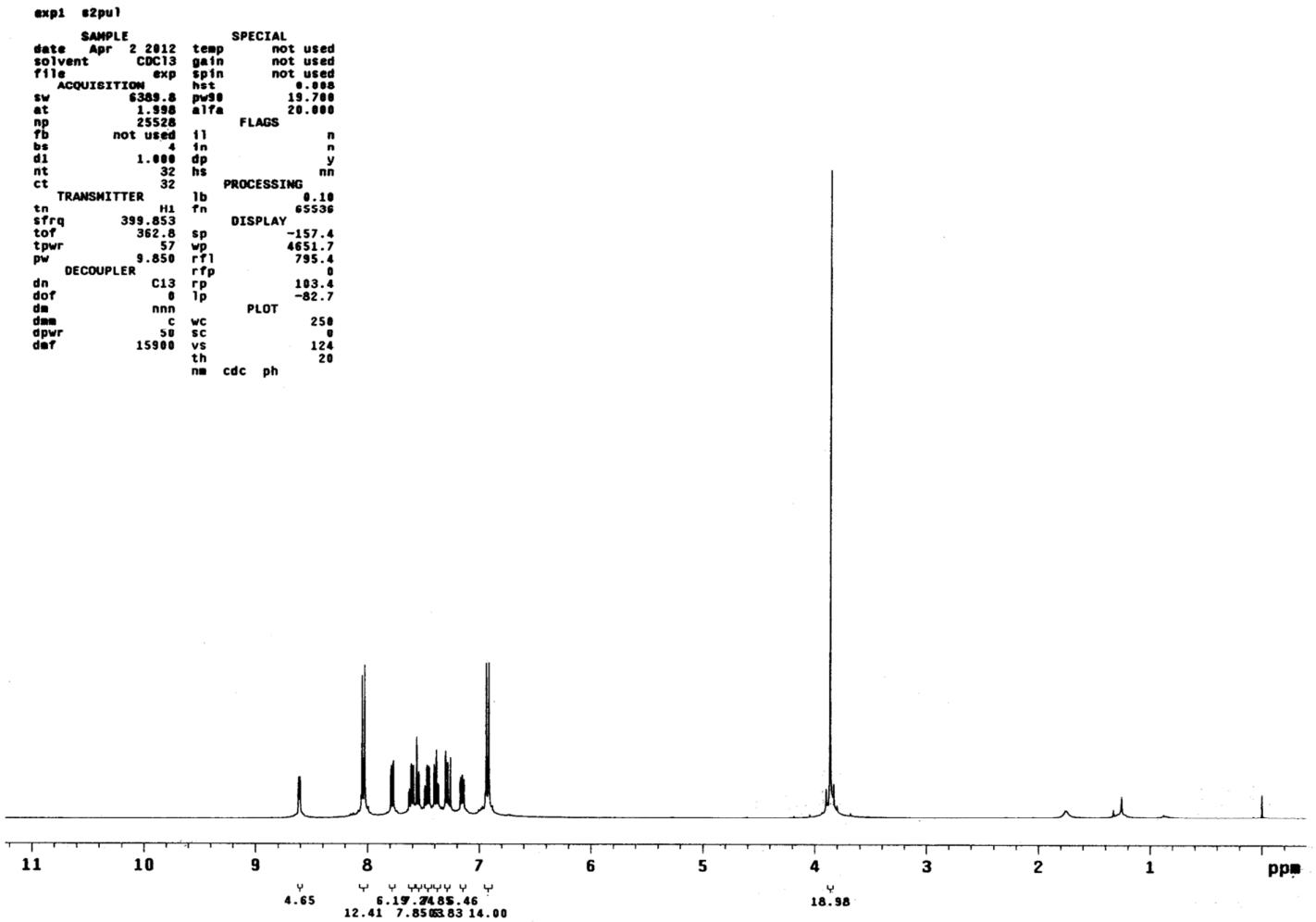
**2-(Pyridin-2-yl)phenyl 2,4,6-trimethylbenzoate (1d): $^{1}$H NMR (400 MHz, $CDCl_3$)**



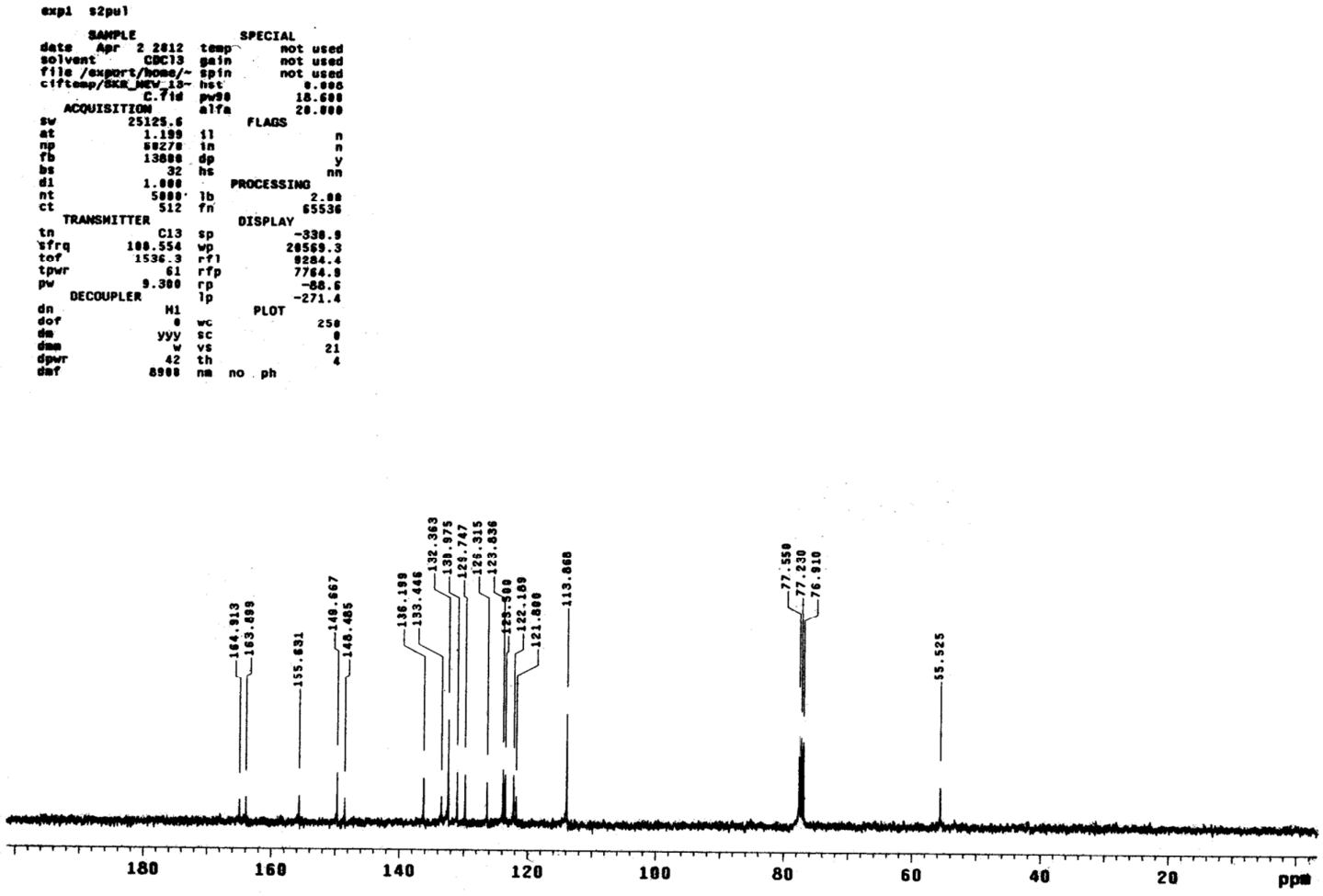
**2-(Pyridin-2-yl)phenyl 2,4,6-trimethylbenzoate (1d): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



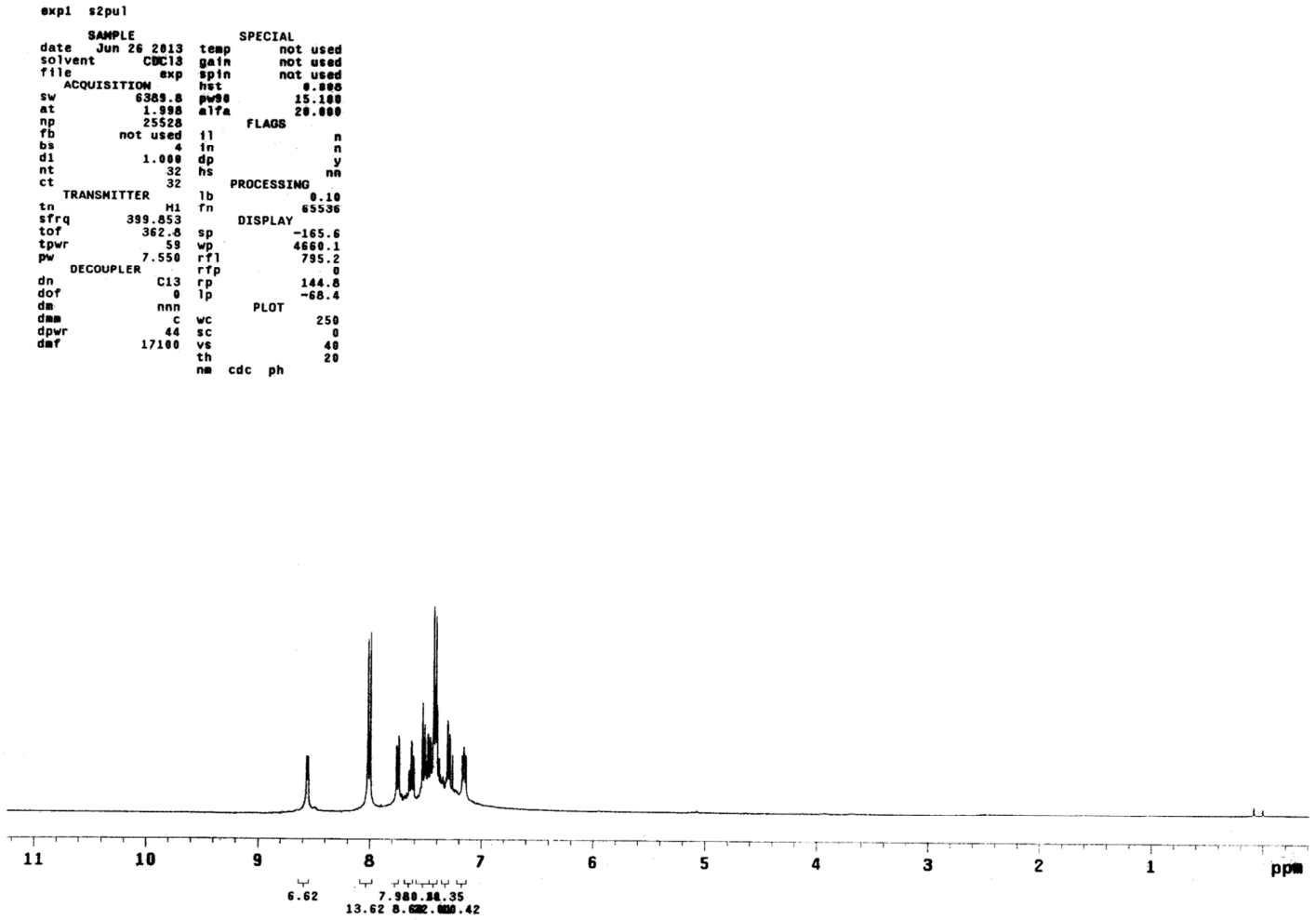
**2-(Pyridin-2-yl)phenyl 4-methoxybenzoate (1e): $^{1}$H NMR (400 MHz, $CDCl_3$)**



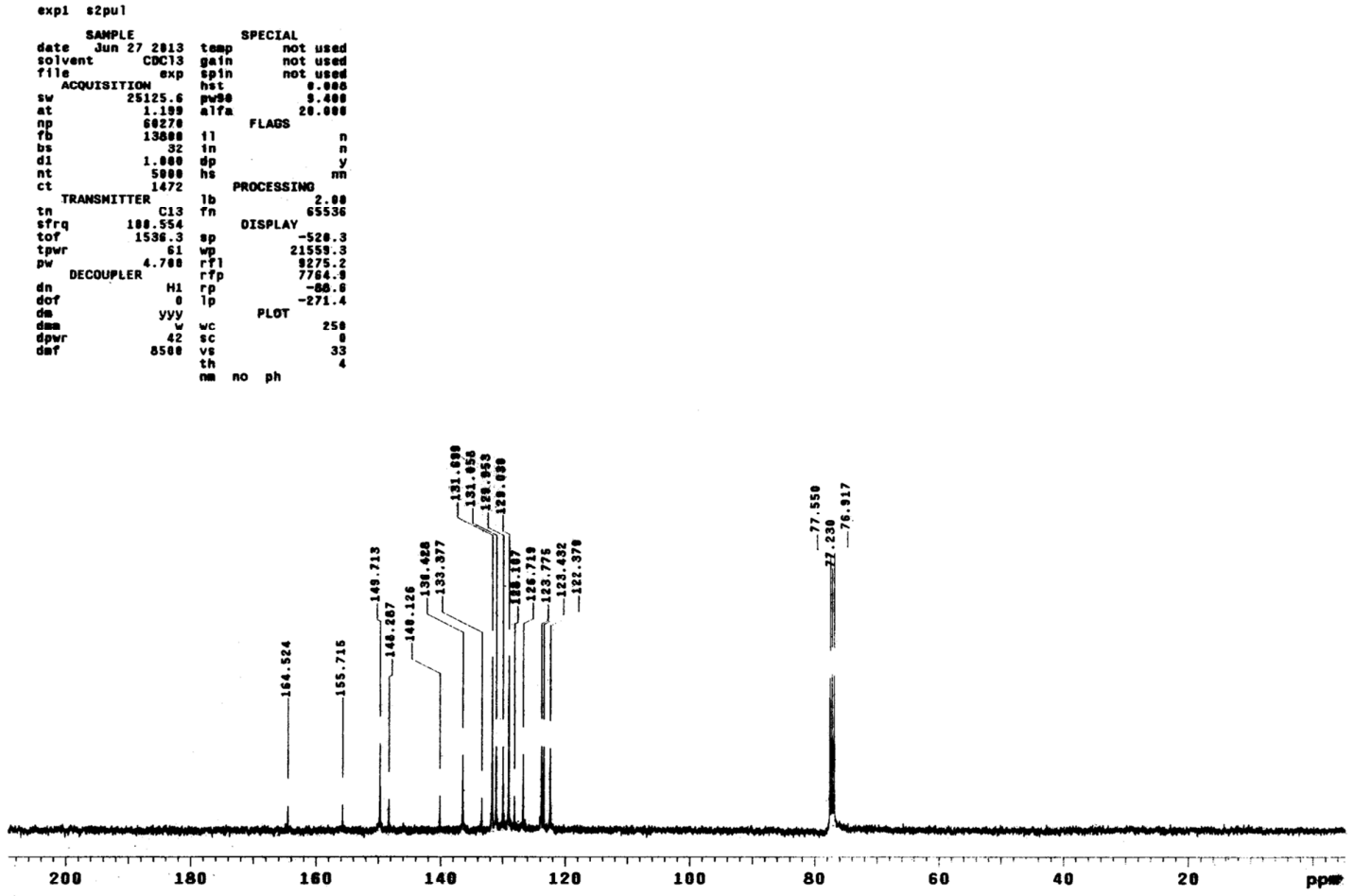
**2-(Pyridin-2-yl)phenyl 4-methoxybenzoate (1e): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



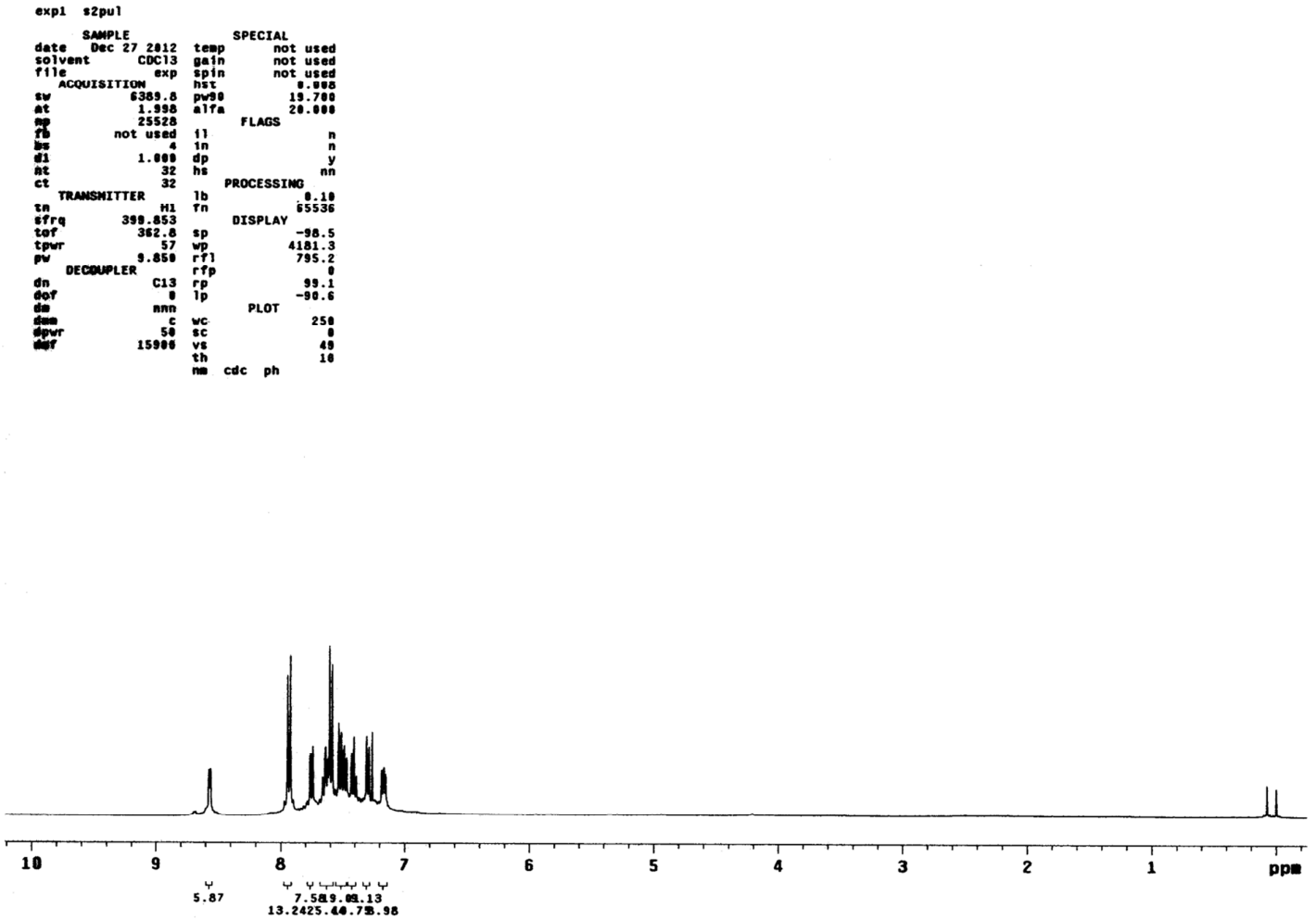
**2-(Pyridin-2-yl)phenyl 4-chlorobenzoate (1f): $^{1}$H NMR (400 MHz, $CDCl_3$)**



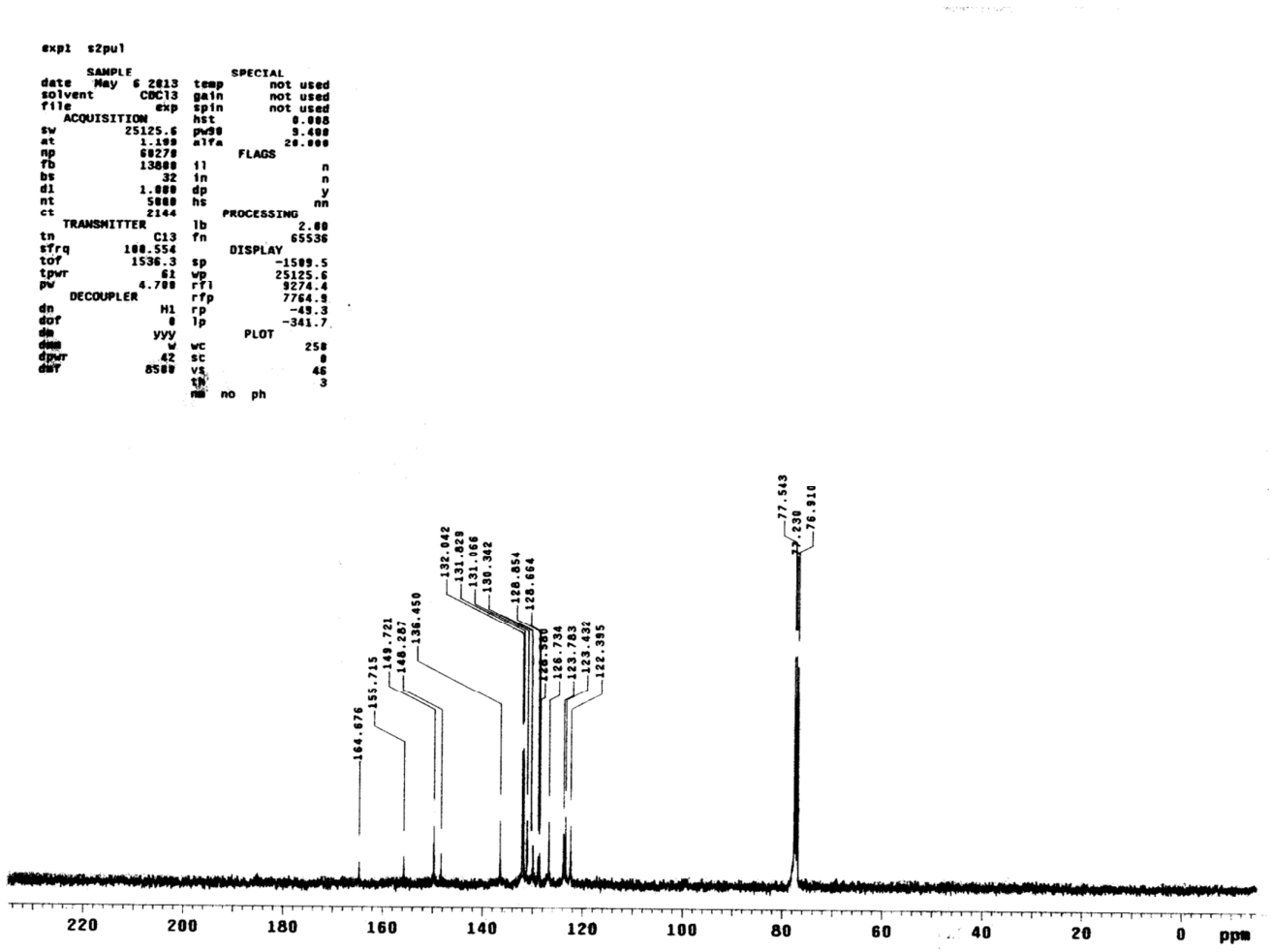
**2-(Pyridin-2-yl)phenyl 4-chlorobenzoate (1f): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



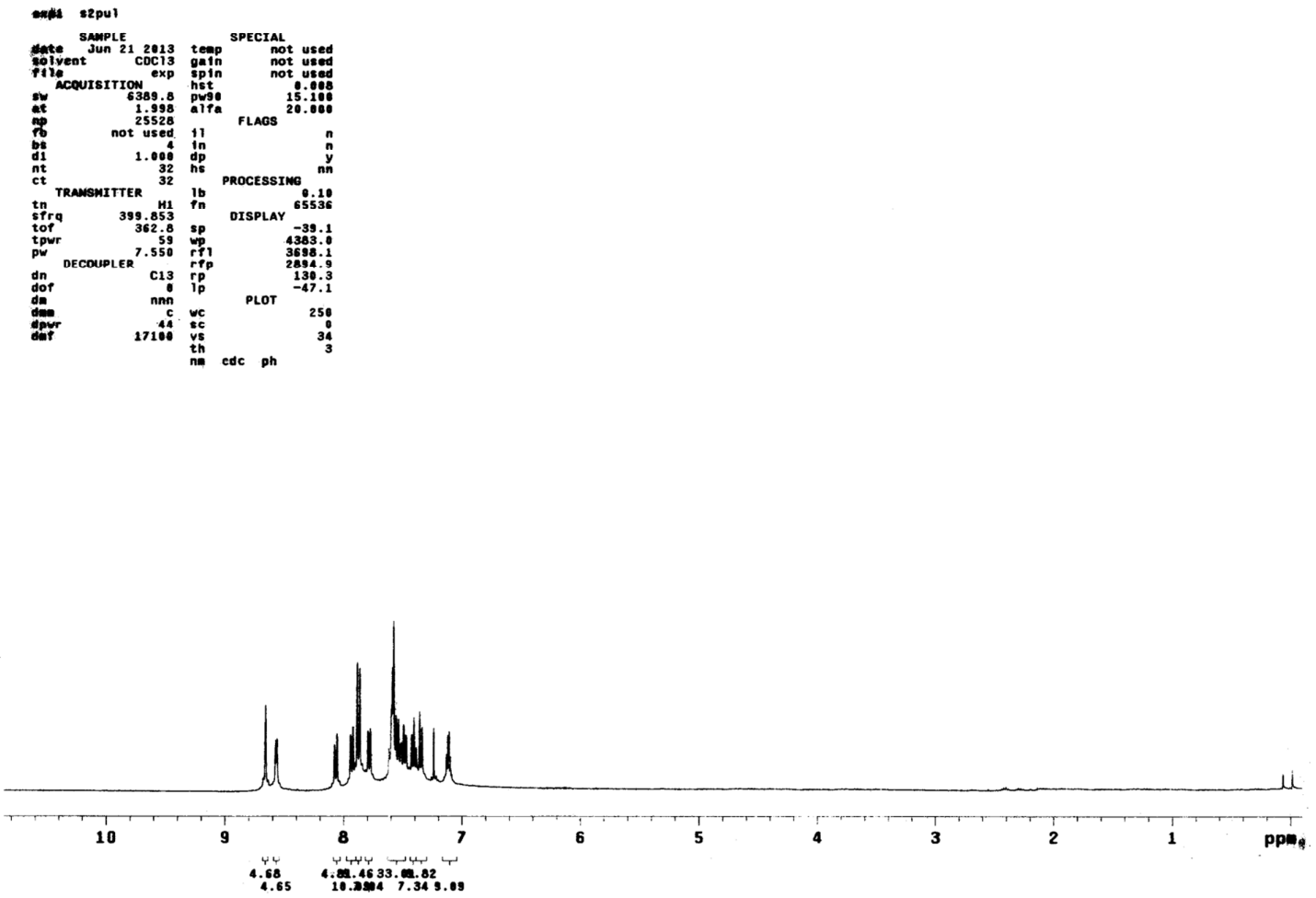
**2-(Pyridin-2-yl)phenyl 4-bromobenzoate (1g): $^{1}$H NMR (400 MHz, $CDCl_3$)**



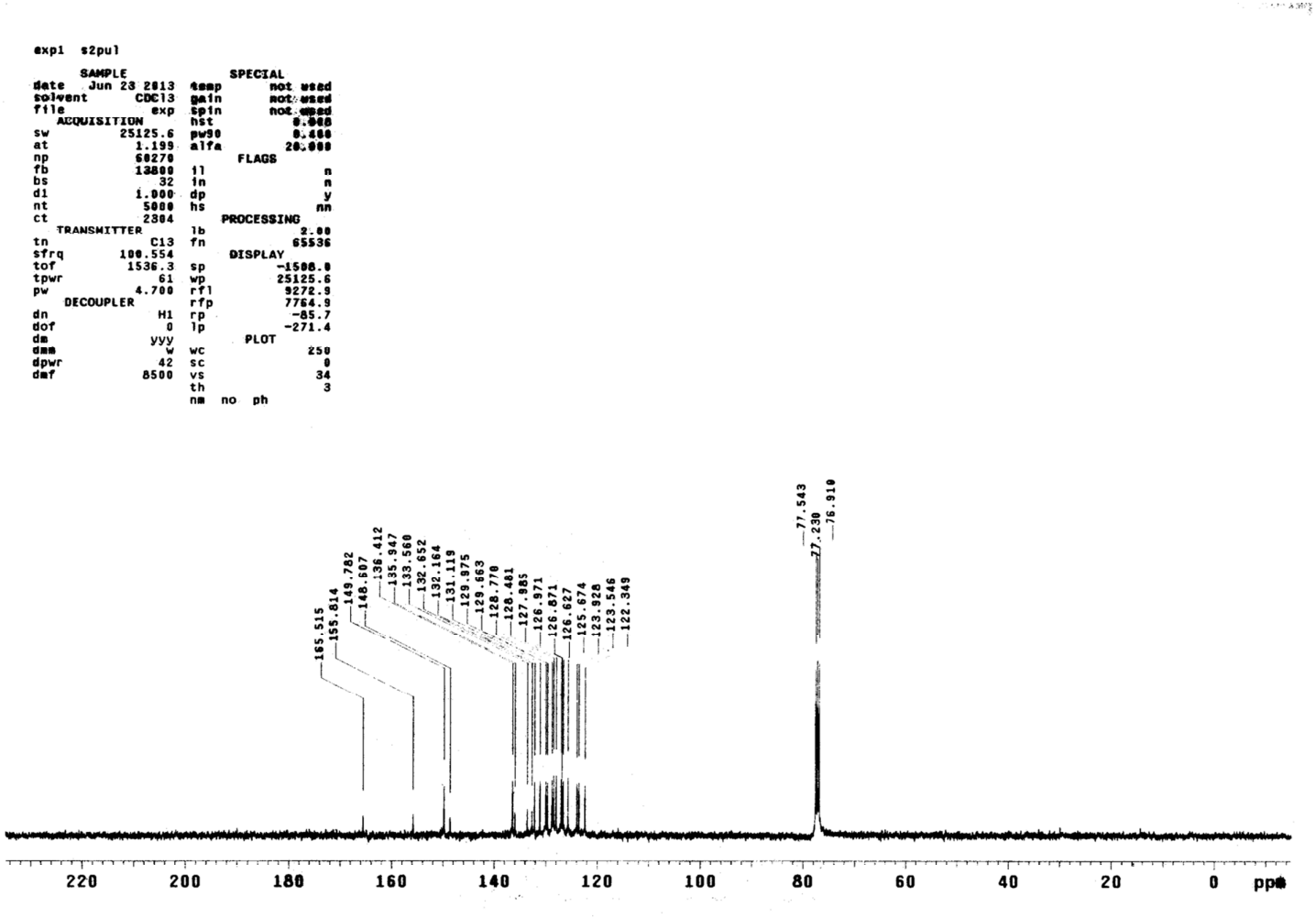
**2-(Pyridin-2-yl)phenyl 4-bromobenzoate (1g): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



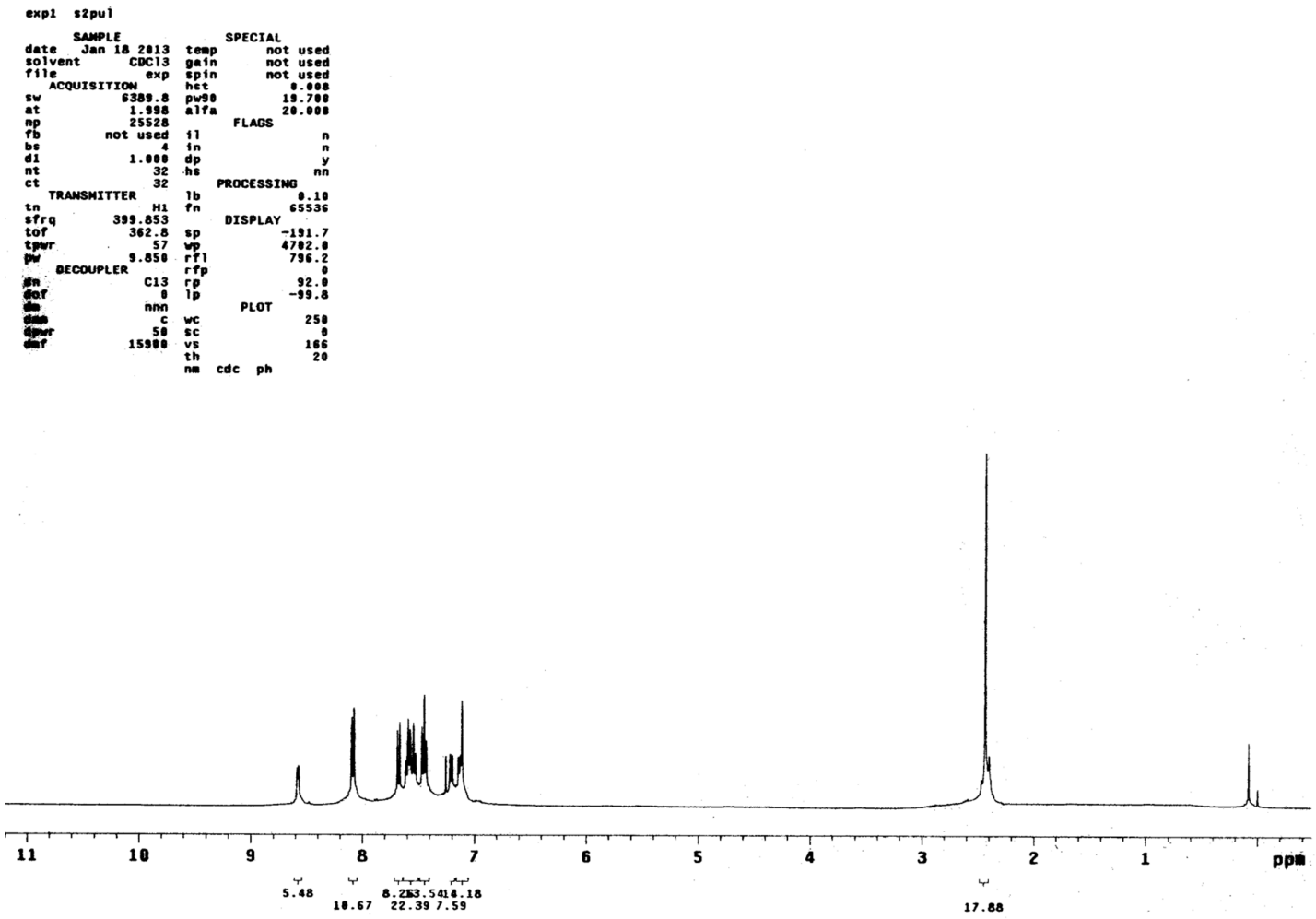
**2-(Pyridin-2-yl)phenyl 2-naphthoate (1h): $^{1}$H NMR (400 MHz, $CDCl_3$)**



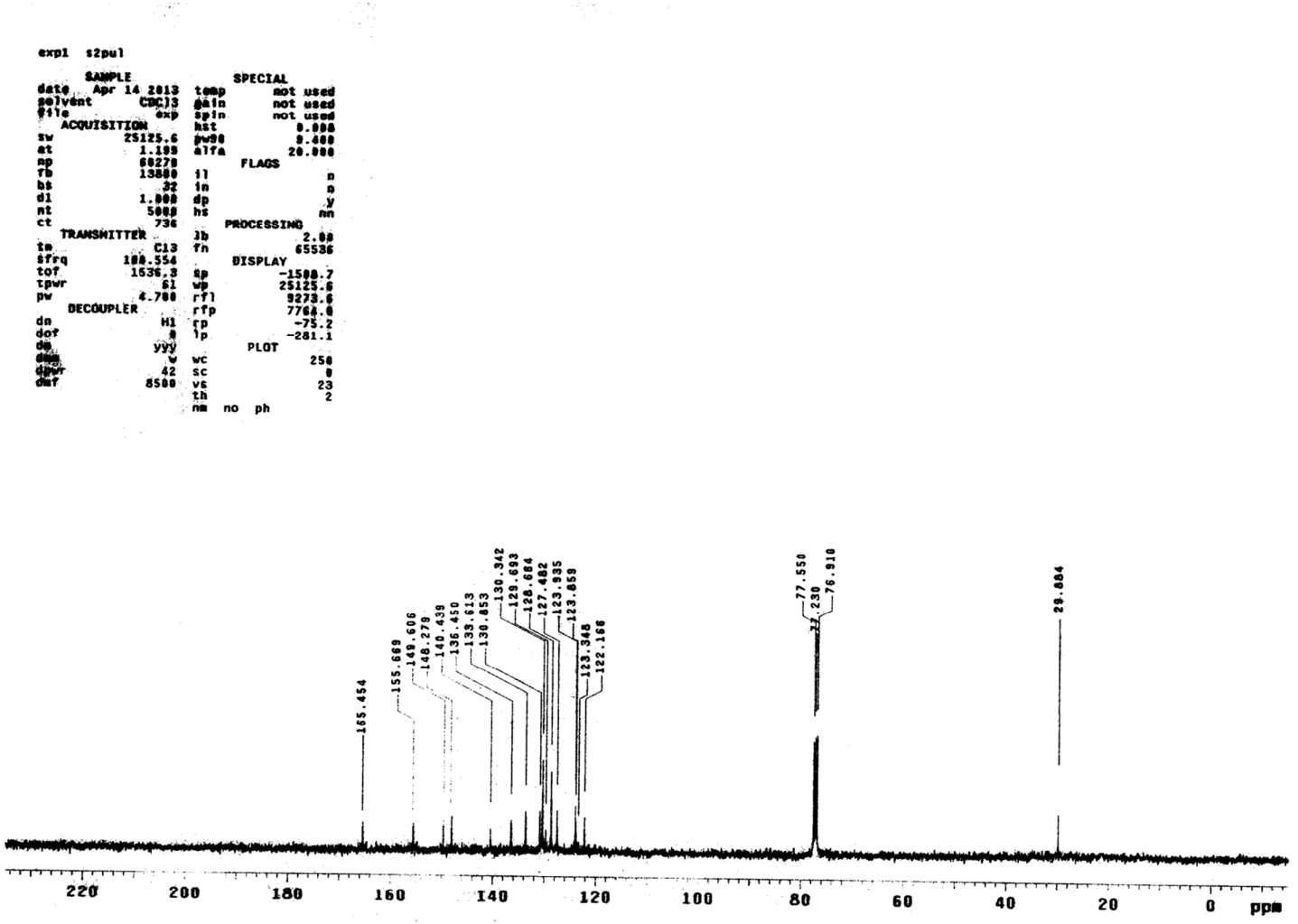
**2-(Pyridin-2-yl)phenyl 2-naphthoate (1h): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



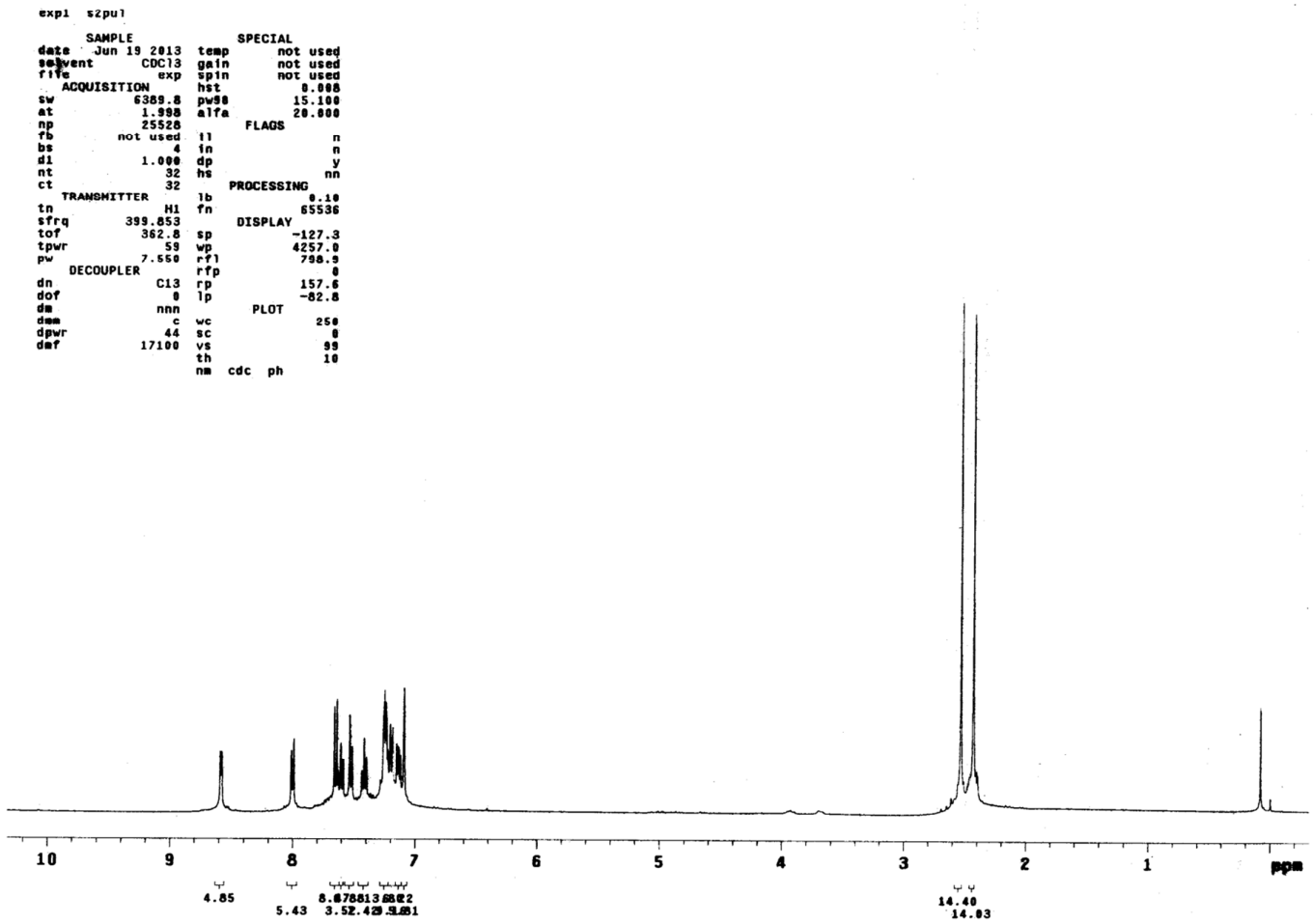
**5-Methyl-2-(pyridine-2-yl)phenyl benzoate (2a): $^{1}$H NMR (400 MHz, $CDCl_3$)**



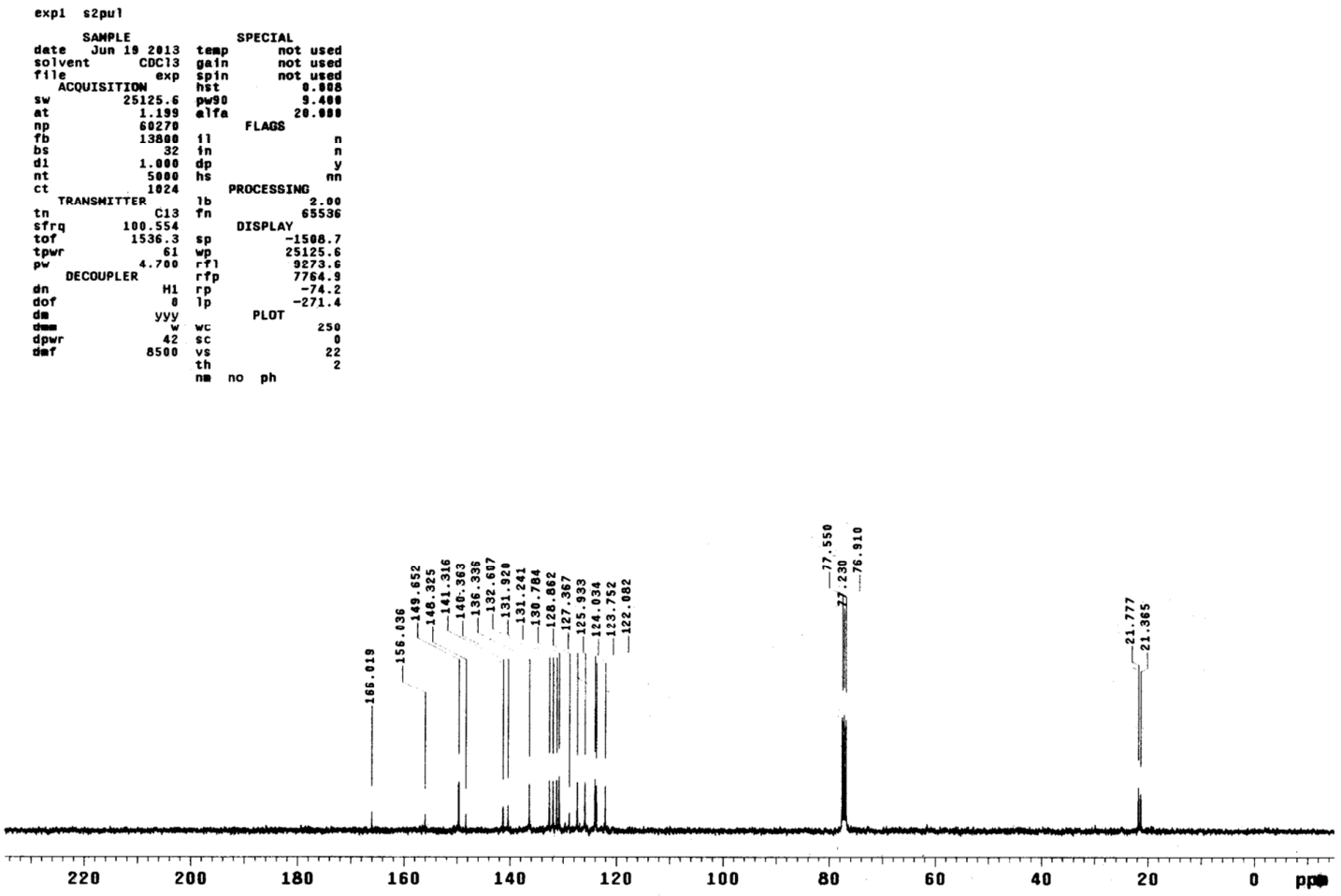
**5-Methyl-2-(pyridine-2-yl)phenyl benzoate (2a): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



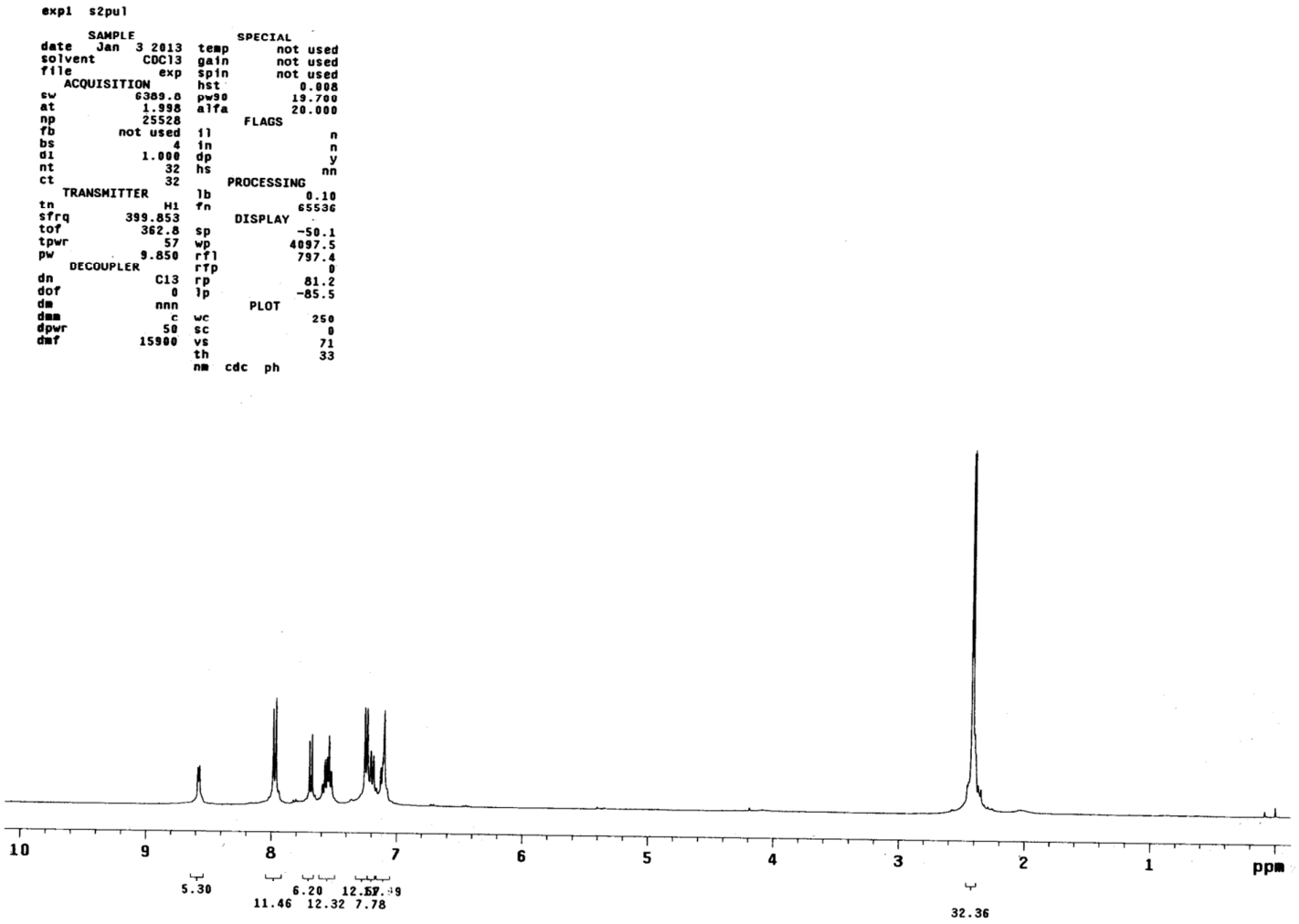
**5-Methyl-2-(pyridine-2-yl)phenyl 2-methylbenzoate (2b): $^{1}$H NMR (400 MHz, $CDCl_3$)**



**5-Methyl-2-(pyridine-2-yl)phenyl 2-methylbenzoate (2b): $^{13}$C NMR (100 MHz, $CDCl_3$)**

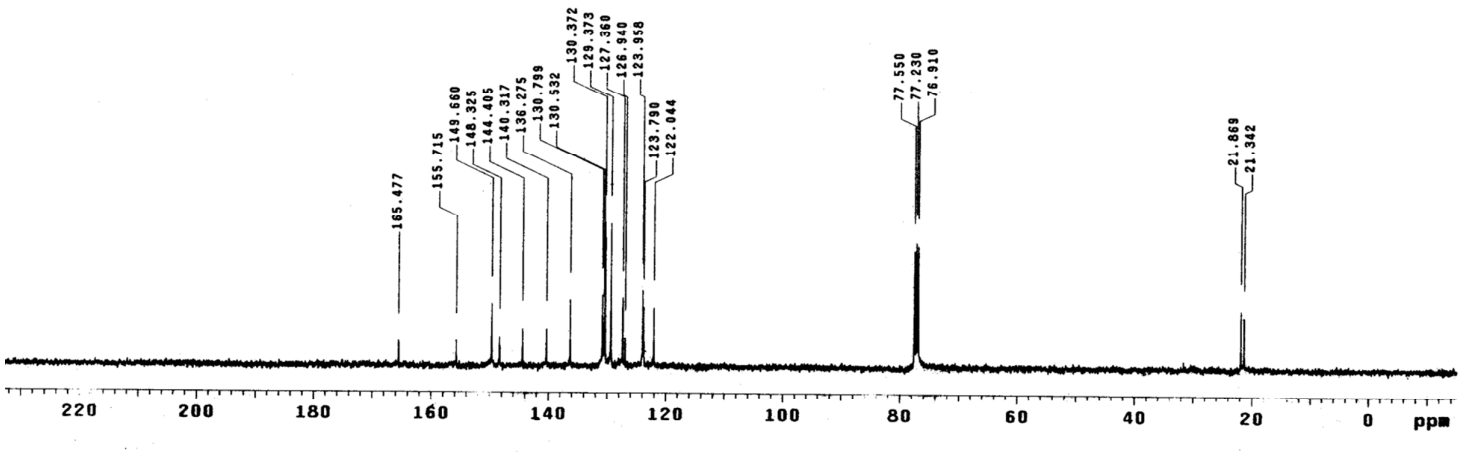


**5-Methyl-2-(pyridine-2-yl)phenyl 4-methylbenzoate (2c): $^{1}$H NMR (400 MHz, $CDCl_3$)**

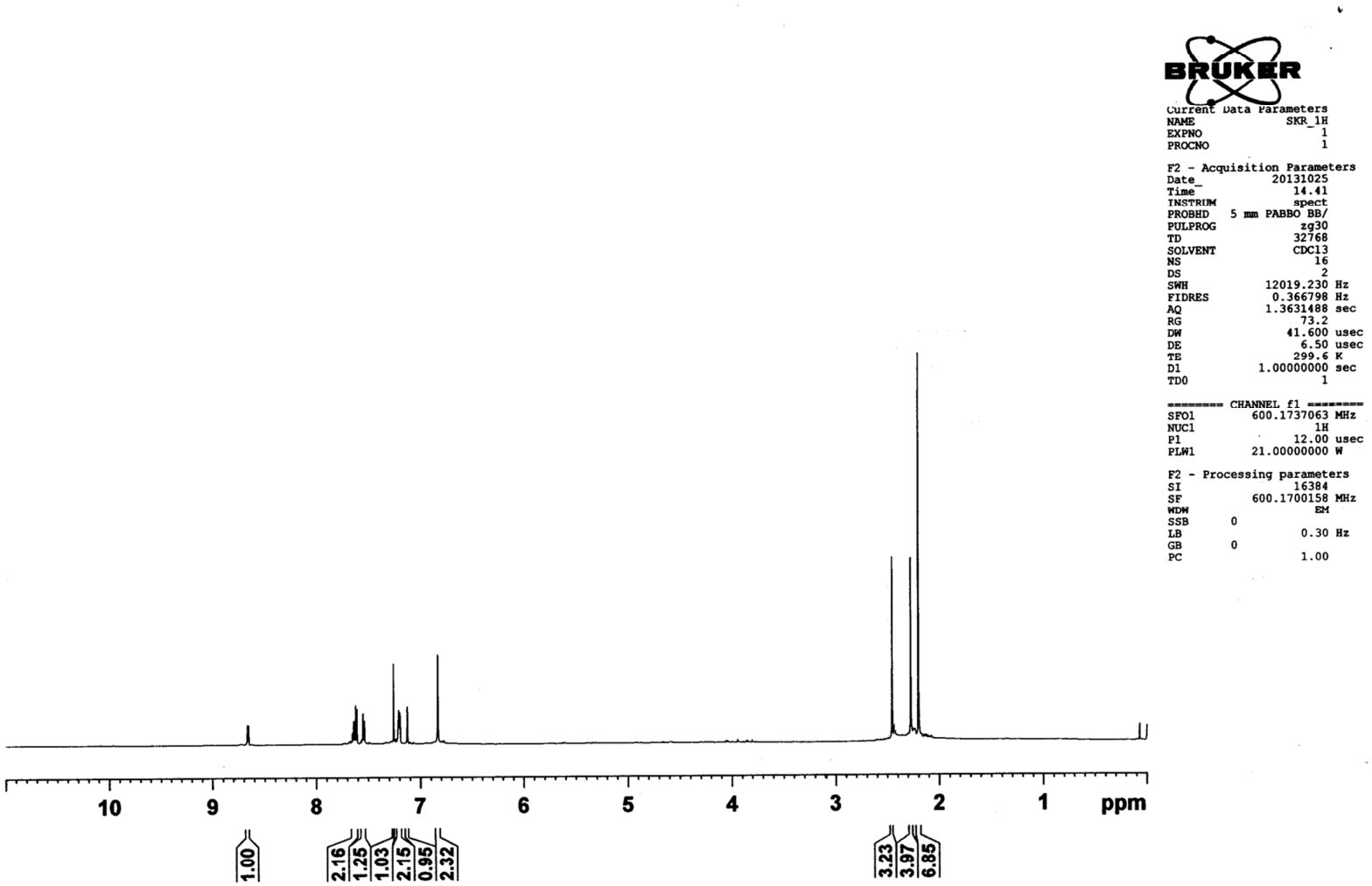


**5-Methyl-2-(pyridine-2-yl)phenyl 4-methylbenzoate (2c): $^{13}$C NMR (100 MHz, $CDCl_3$)**

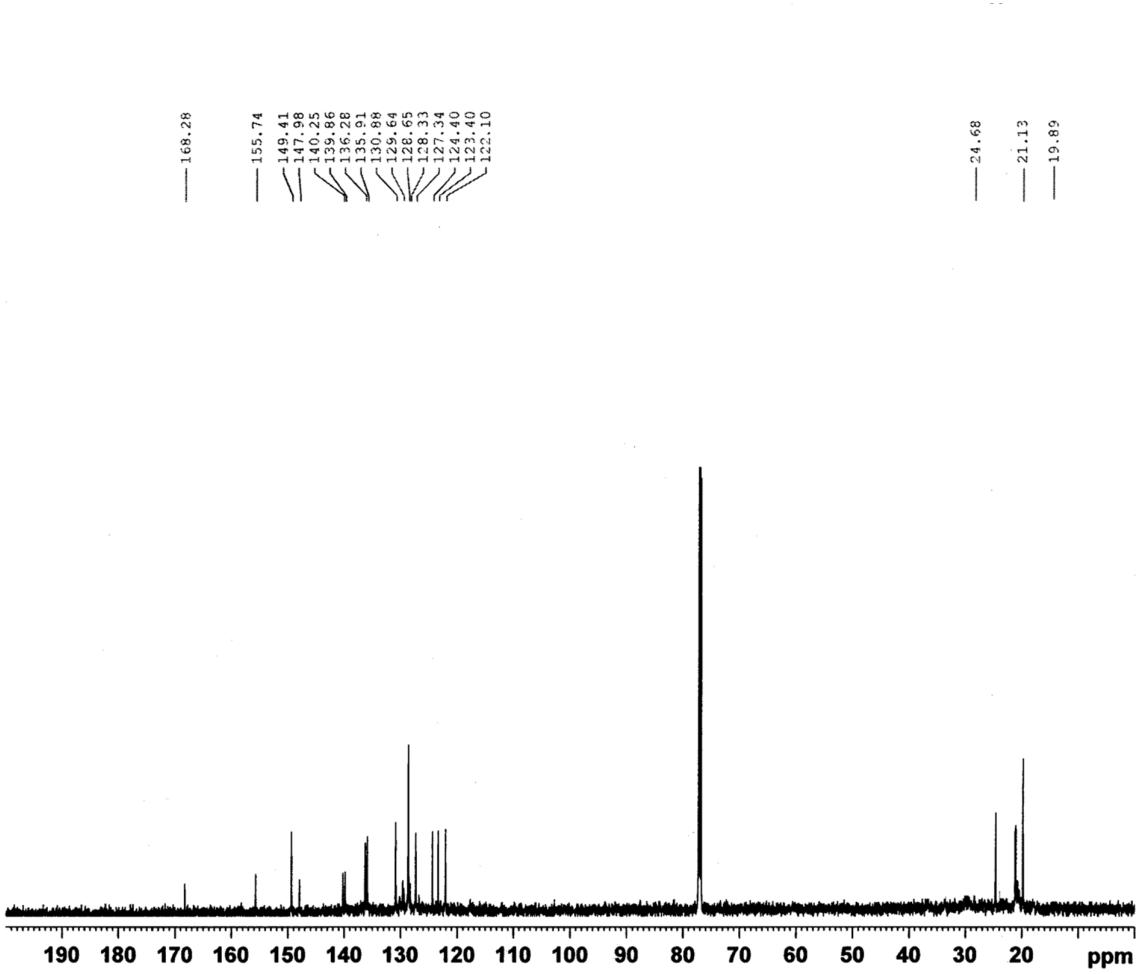
```
exp1  s2pul

      SAMPLE                SPECIAL
date    Apr 29 2013   temp       not used
solvent       CDCl3   gain       not used
file            exp   spin       not used
   ACQUISITION        hst            0.000
sw           25125.6   pw90           9.400
at               1.199 alfa          20.000
np             60270         FLAGS
fb             13800   il                 n
bs                32   in                 n
di             1.000   dp                 y
nt              5000   hs                nn
ct              1344      PROCESSING
   TRANSMITTER         lb              2.00
tn               C13   fn             65536
sfrq         100.554        DISPLAY
tof           1536.3   sp          -1511.0
tpwr              61   wp          25125.6
pw             4.700   rfl          9275.9
    DECOUPLER         rfp          7764.9
dn                H1   rp            -87.4
dof                0   lp           -279.1
dm               yyy         PLOT
dmm                w   wc              250
dpwr              42   sc                0
dmf             8500   vs               26
                       th                3
                       nm  no  ph
```



**5-Methyl-2-(pyridine-2-yl)phenyl 2,4,6-trimethylbenzoate (2d): $^{1}$H NMR (600 MHz, $CDCl_3$)**



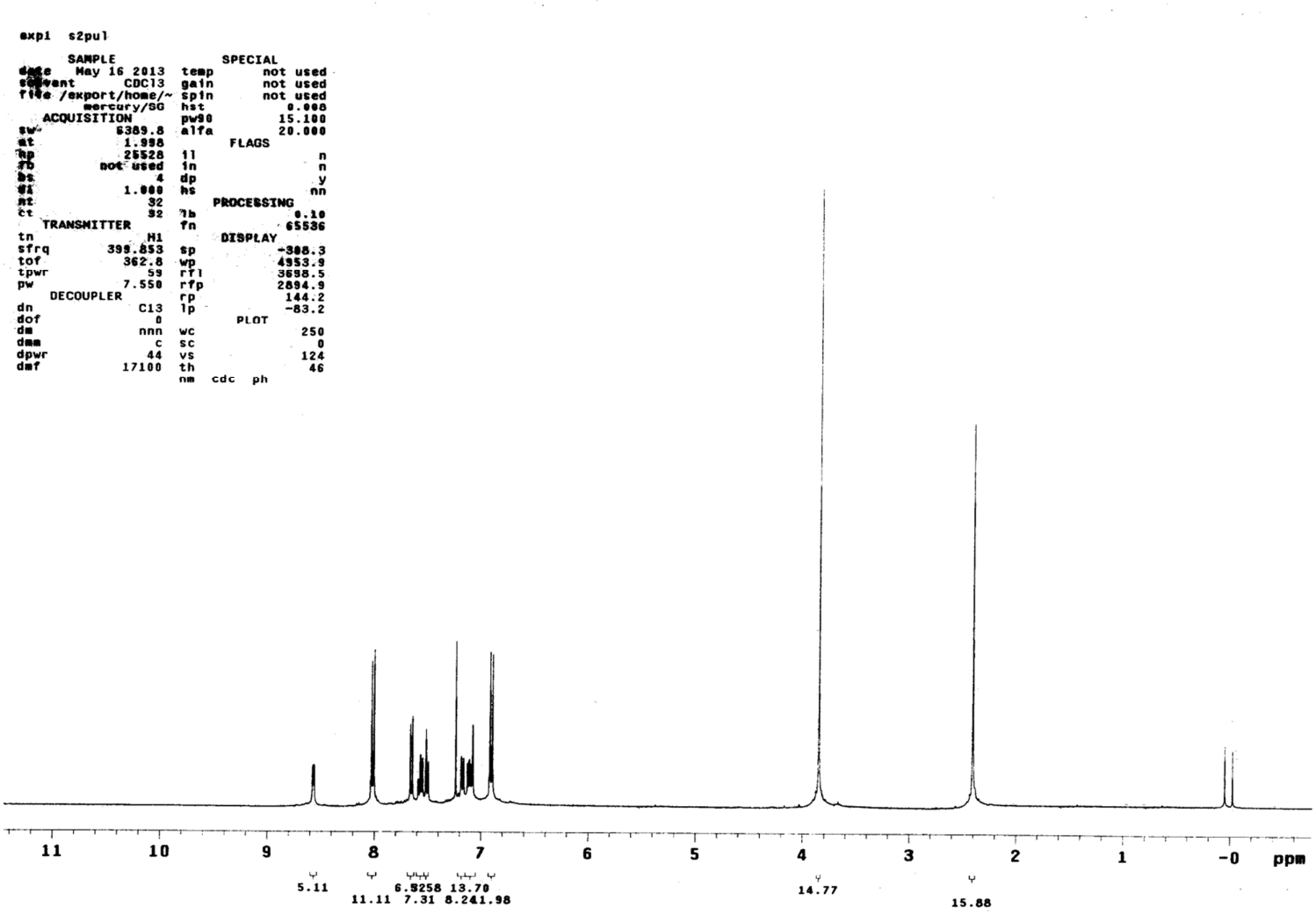
**5-Methyl-2-(pyridine-2-yl)phenyl 2,4,6-trimethylbenzoate (2d): $^{13}$C NMR (150 MHz, $CDCl_3$)**



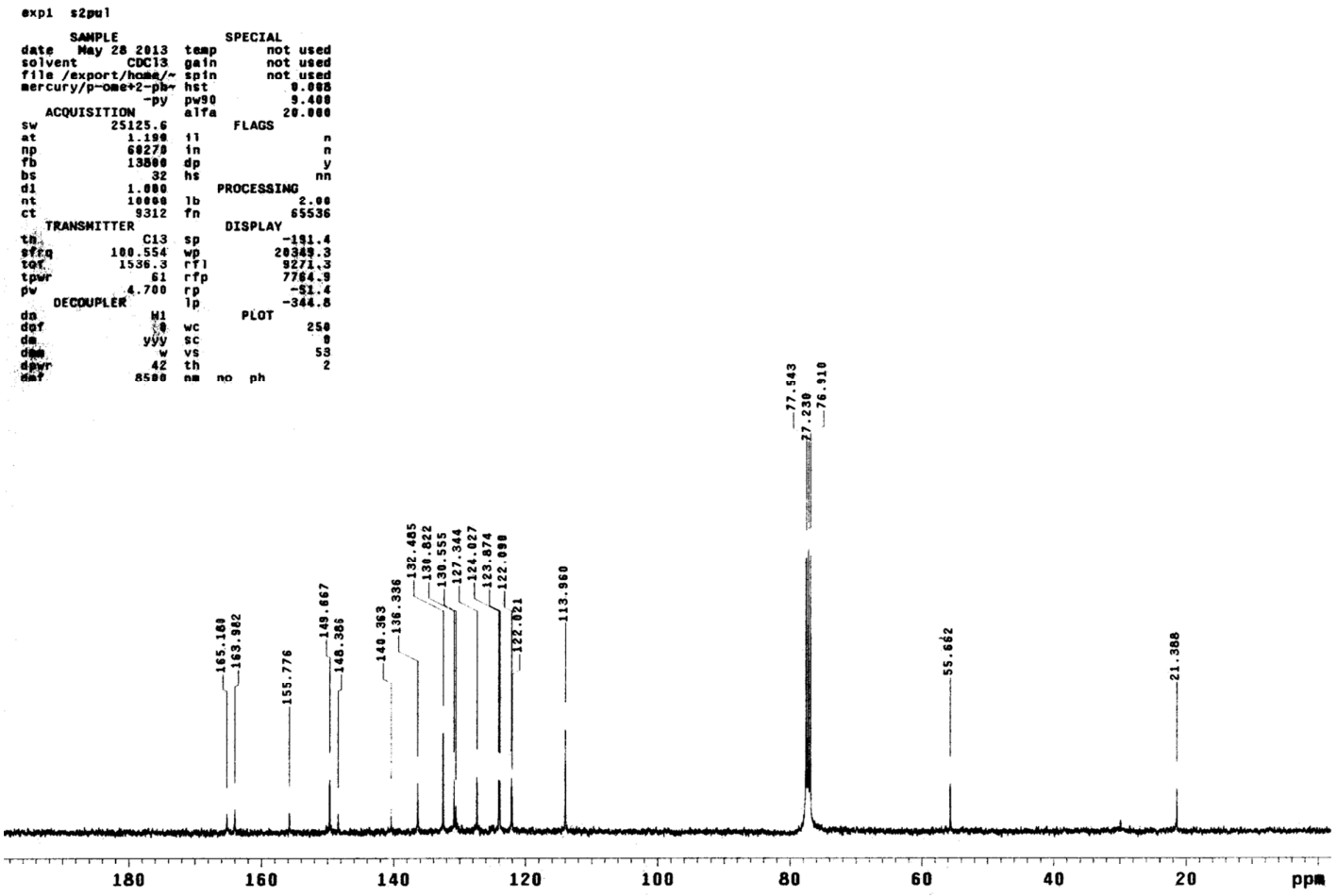

BRUKER

```
Current Data Parameters
NAME                  SK-13C
EXPNO                      1
PROCNO                     1

F2 - Acquisition Parameters
Date_              20131004
Time                  11.05
INSTRUM               spect
PROBHD    5 mm PABBO BB/
PULPROG             zgpg30
TD                    32768
SOLVENT               CDCl3
NS                      309
DS                        2
SWH               36057.691 Hz
FIDRES             1.100393 Hz
AQ                0.4543829 sec
RG                    65.24
DW                   13.867 usec
DE                    6.50 usec
TE                   298.5 K
D1              2.00000000 sec
D11             0.03000000 sec
TD0                       1

======== CHANNEL f1 ========
SFO1            150.9279571 MHz
NUC1                    13C
P1                    10.50 usec
PLW1           95.00000000 W

======== CHANNEL f2 ========
SFO2            600.1724007 MHz
NUC2                    1H
CPDPRG[2             waltz16
PCPD2                 70.00 usec
PLW2           21.00000000 W
PLW12           0.61714000 W
PLW13           0.30239999 W

F2 - Processing parameters
SI                      16384
SF              150.9128670 MHz
WDW                        EM
SSB         0
LB                     1.00 Hz
GB          0
PC                     1.40
```

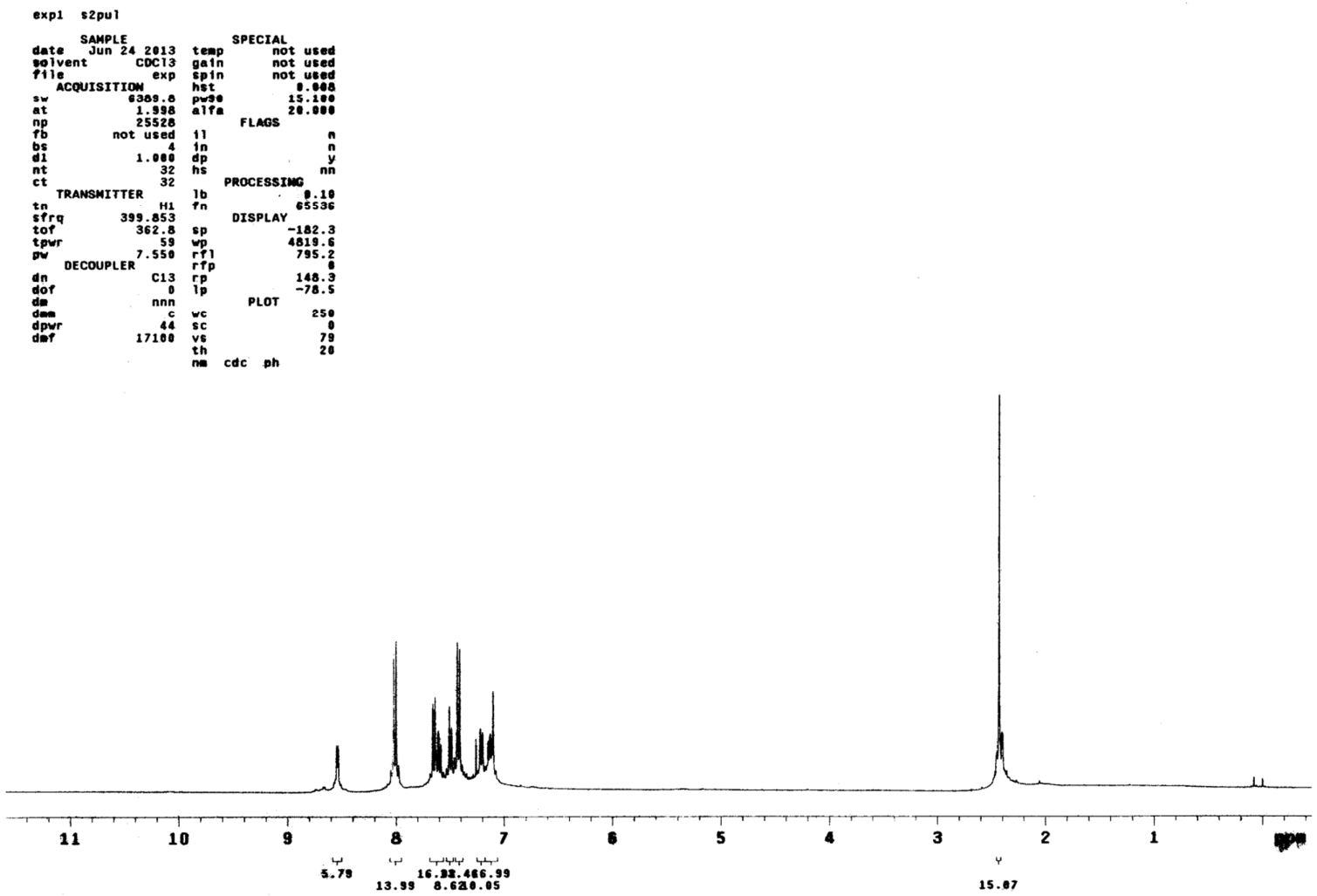
**5-Methyl-2-(pyridine-2-yl)phenyl 4-methoxybenzoate (2e): $^{1}$H NMR (400 MHz, $CDCl_3$)**



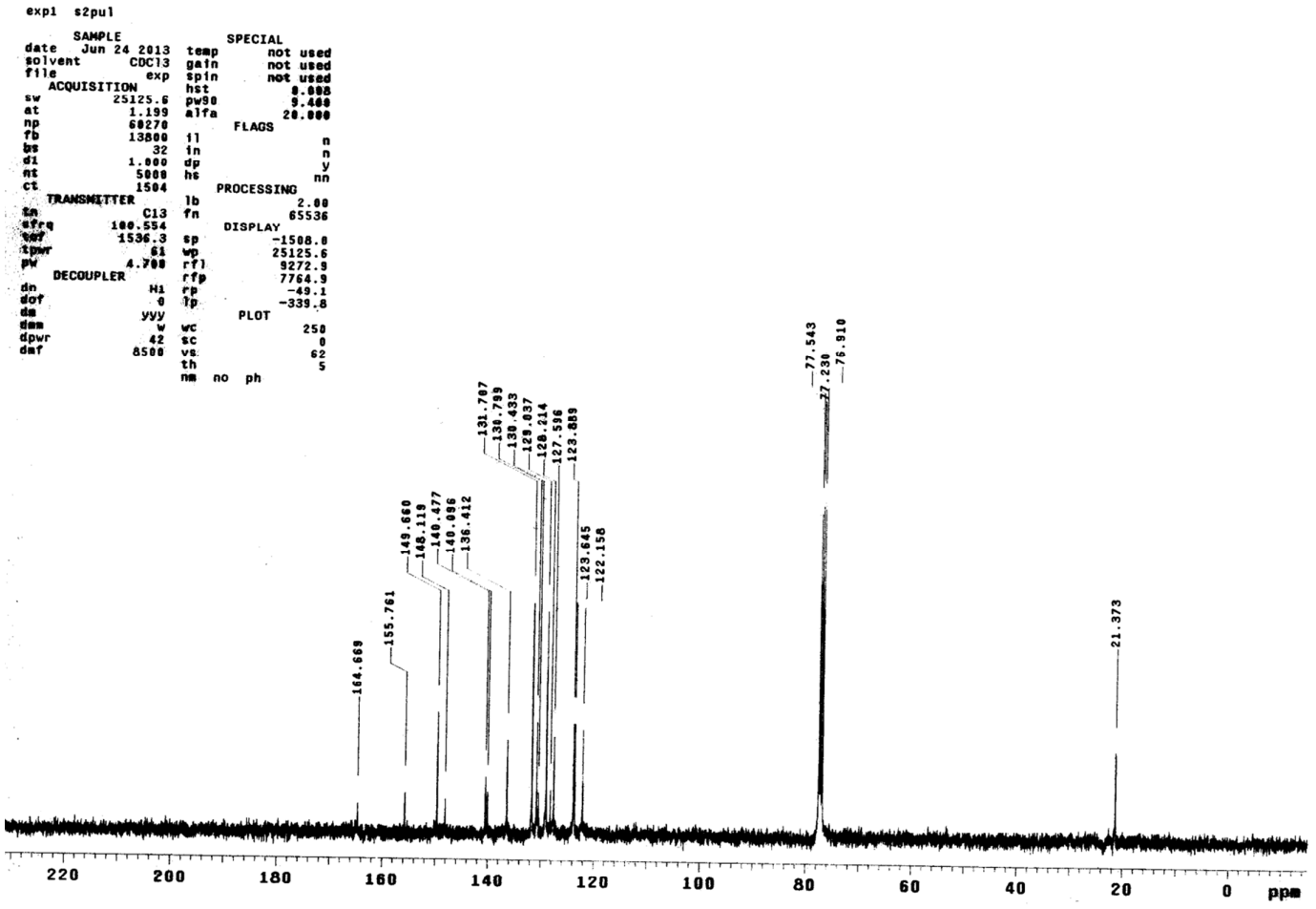
**5-Methyl-2-(pyridine-2-yl)phenyl 4-methoxybenzoate (2e): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



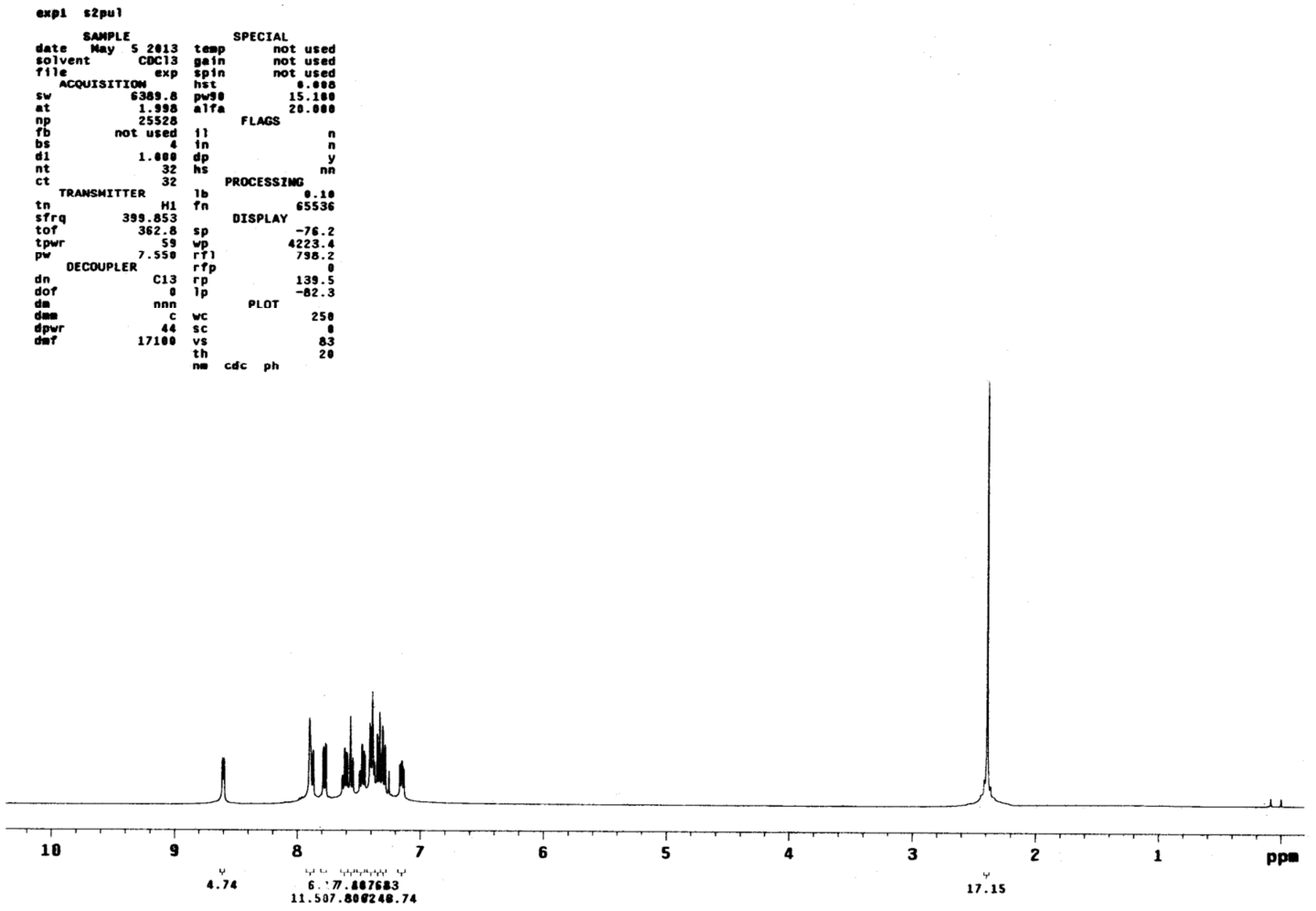
**5-Methyl-2-(pyridin-2-yl)phenyl 4-chlorobenzoate (2f): $^{1}$H NMR (400 MHz, $CDCl_3$)**



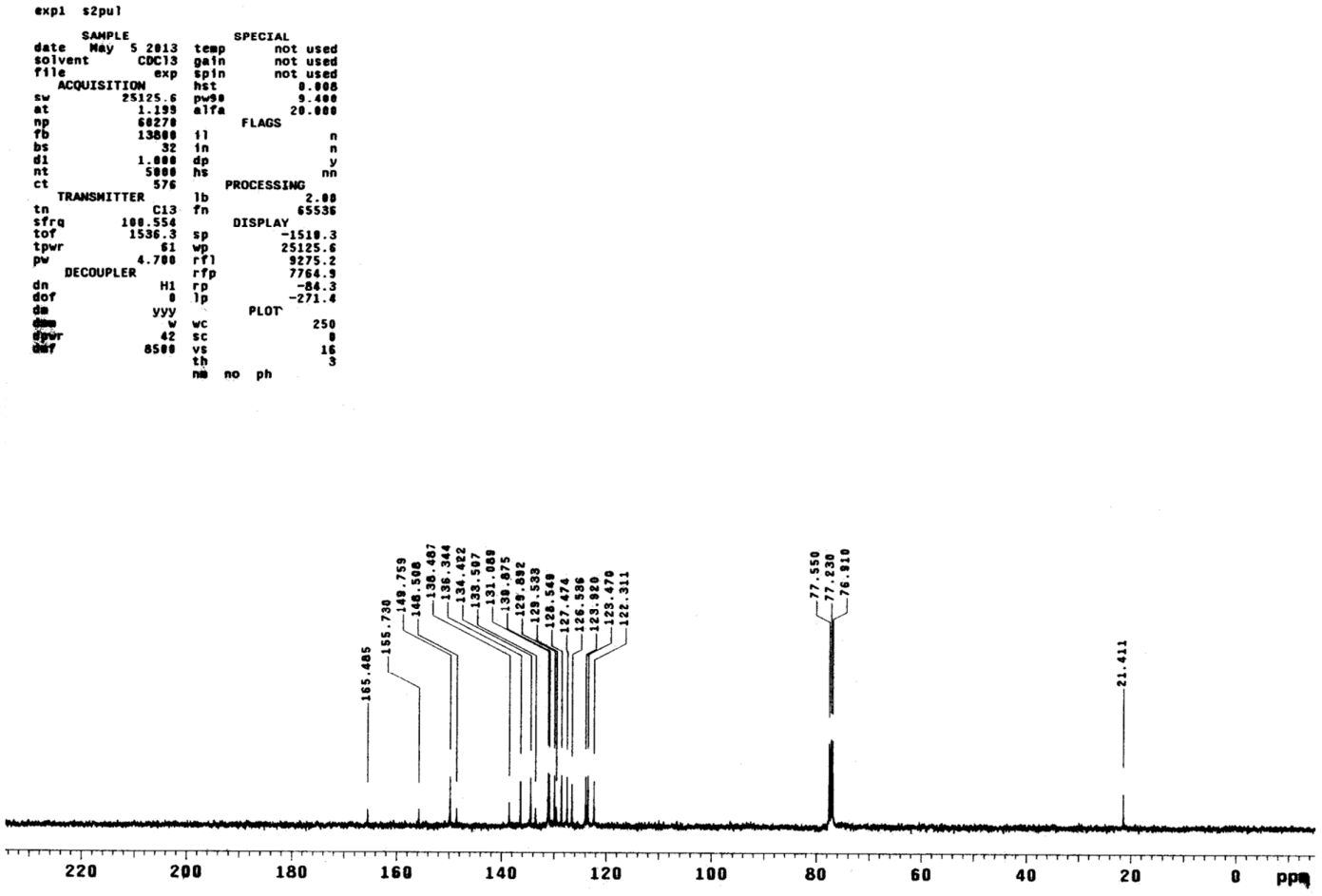
**5-Methyl-2-(pyridin-2-yl)phenyl 4-chlorobenzoate (2f): $^{13}C$ NMR (100 MHz, $CDCl_3$)**



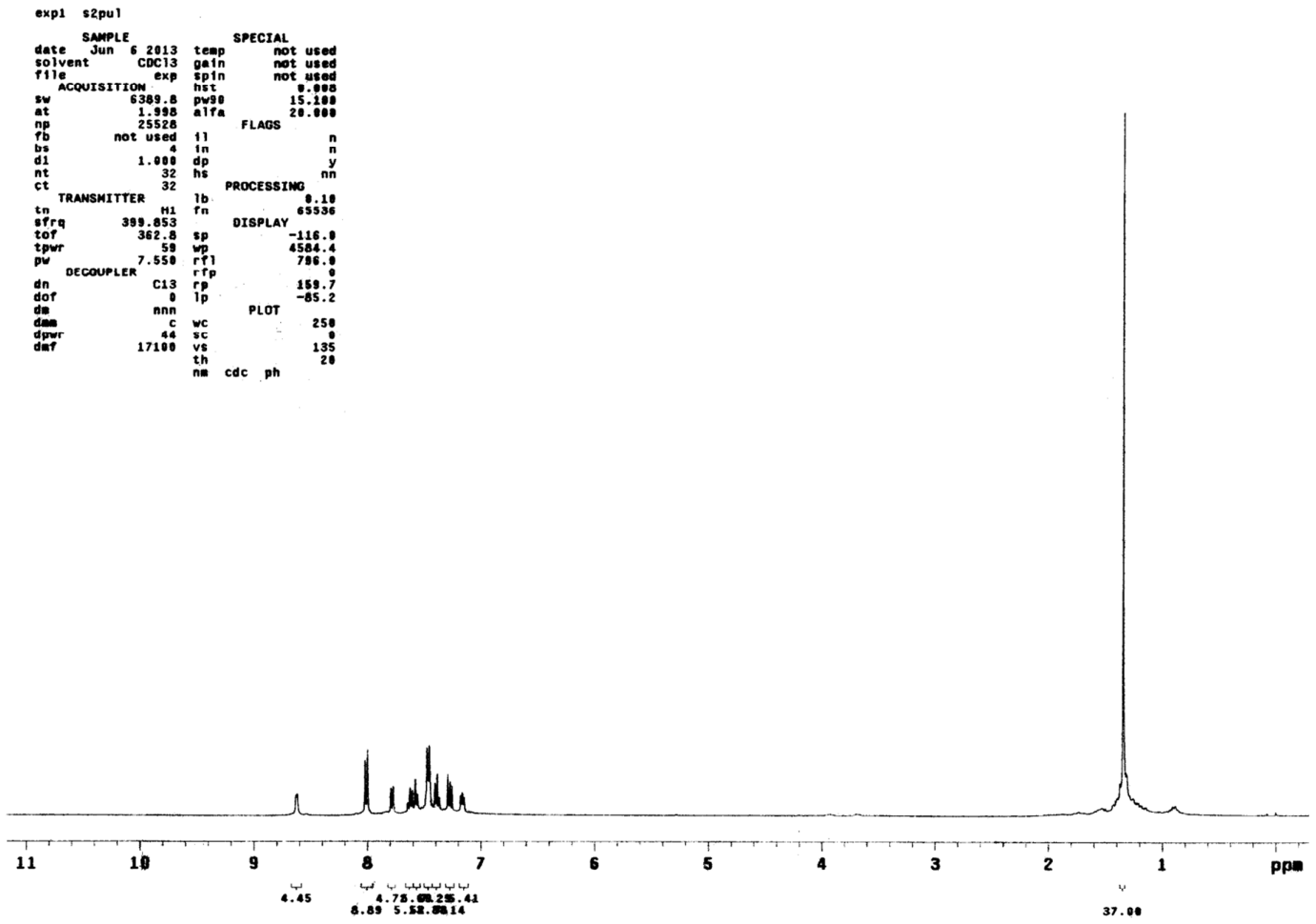
**2-(Pyridin-2-yl)phenyl 3-methylbenzoate (1b´): $^{1}$H NMR (400 MHz, $CDCl_3$)**



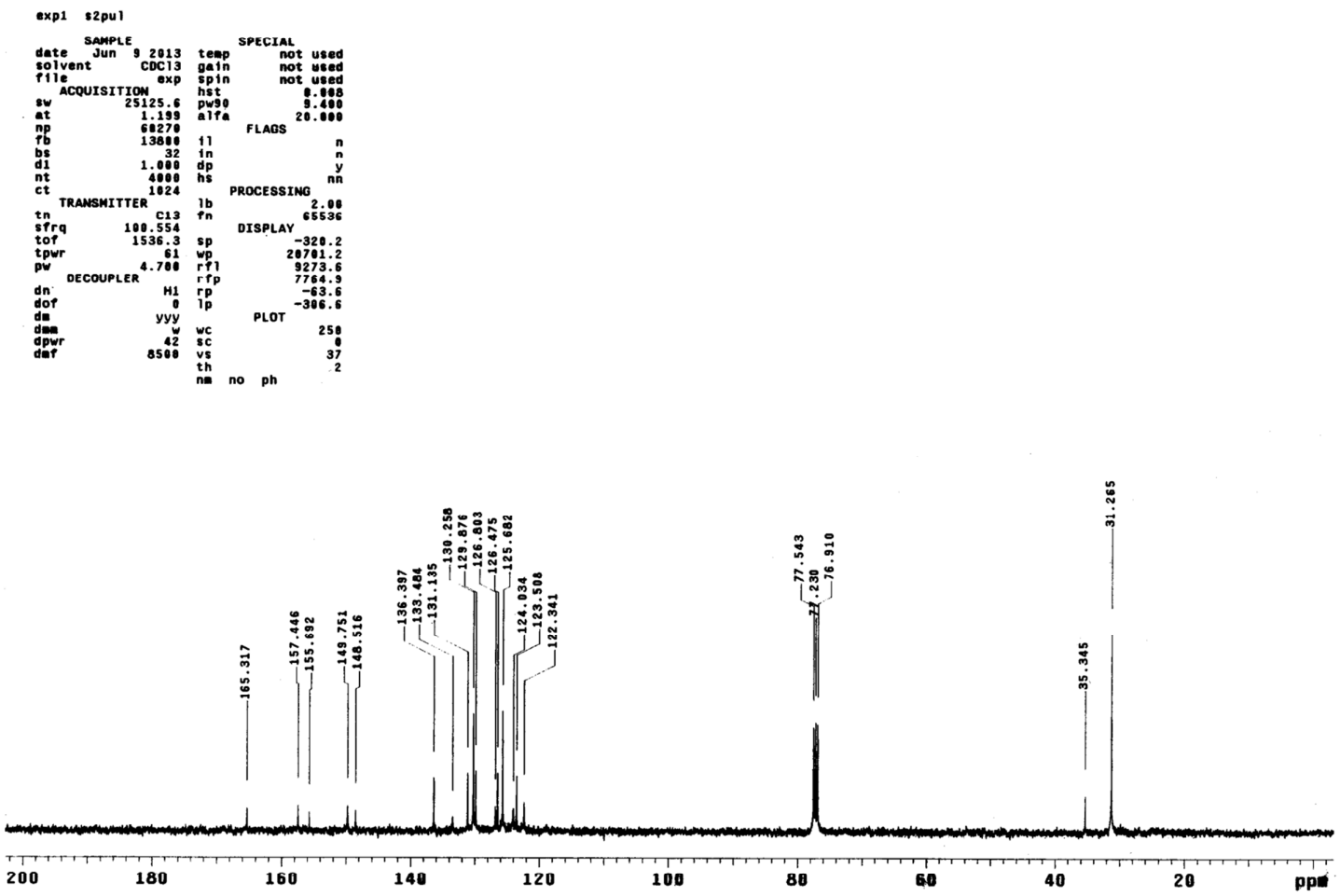
**2-(Pyridin-2-yl)phenyl 3-methylbenzoate (1b´): $^{13}$C NMR (100 MHz, $CDCl_3$)**



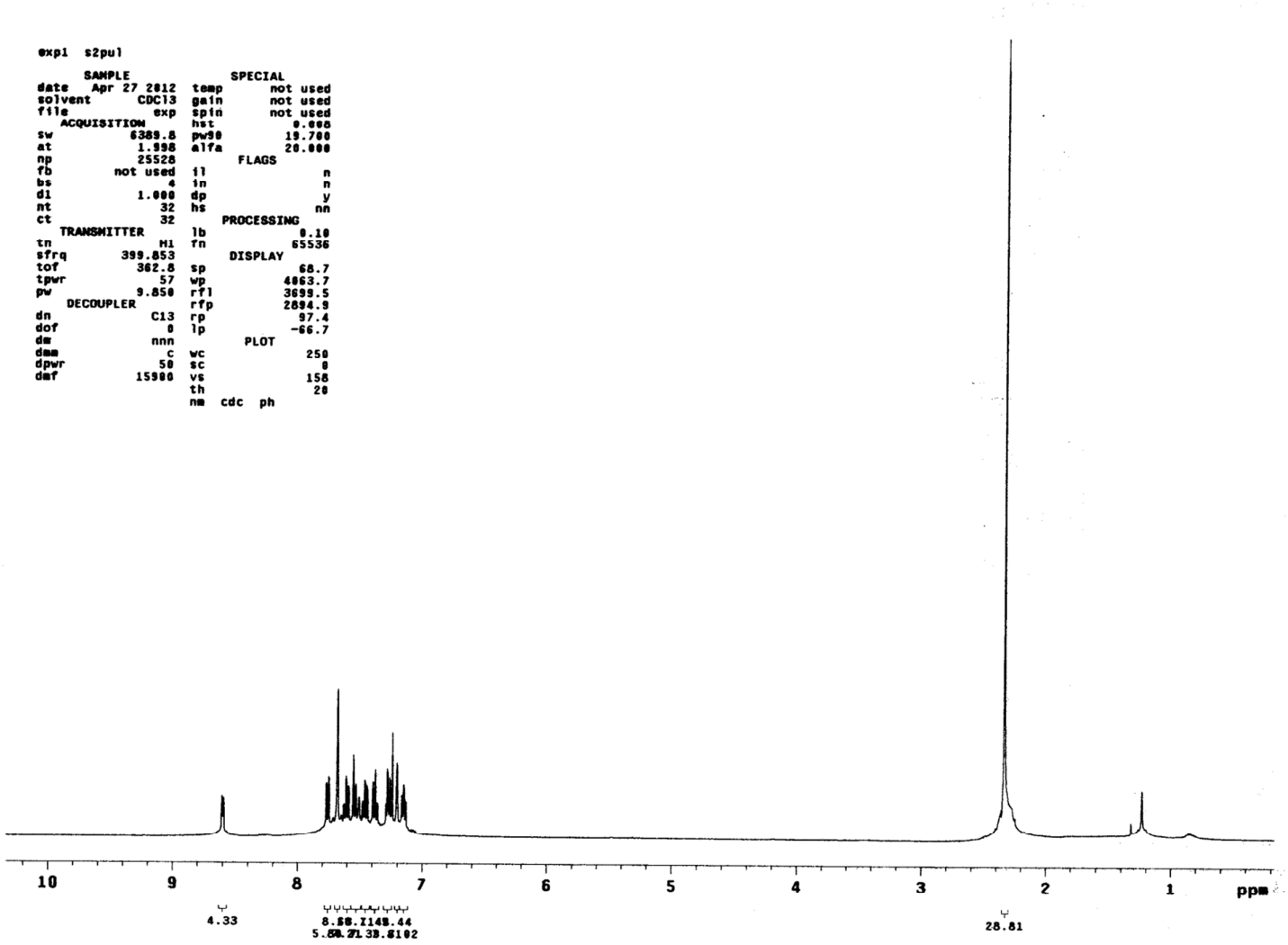
**2-(Pyridin-2-yl)phenyl 4-(tert-butyl)benzoate (1c´): $^{1}$H NMR (400 MHz, $CDCl_3$)**



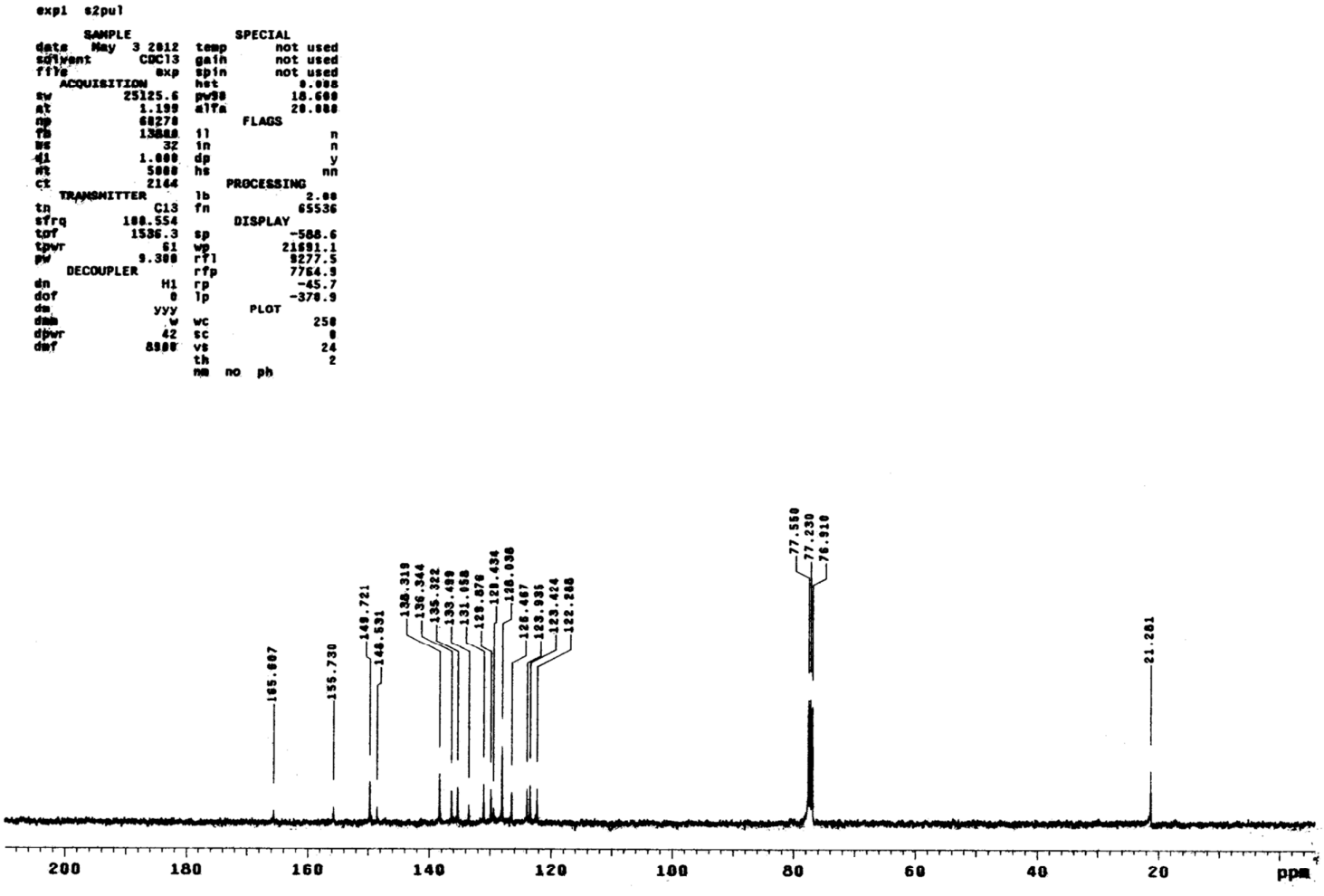
**2-(Pyridin-2-yl)phenyl 4-(tert-butyl)benzoate (1c´): $^{13}$C NMR (100 MHz, $CDCl_3$)**



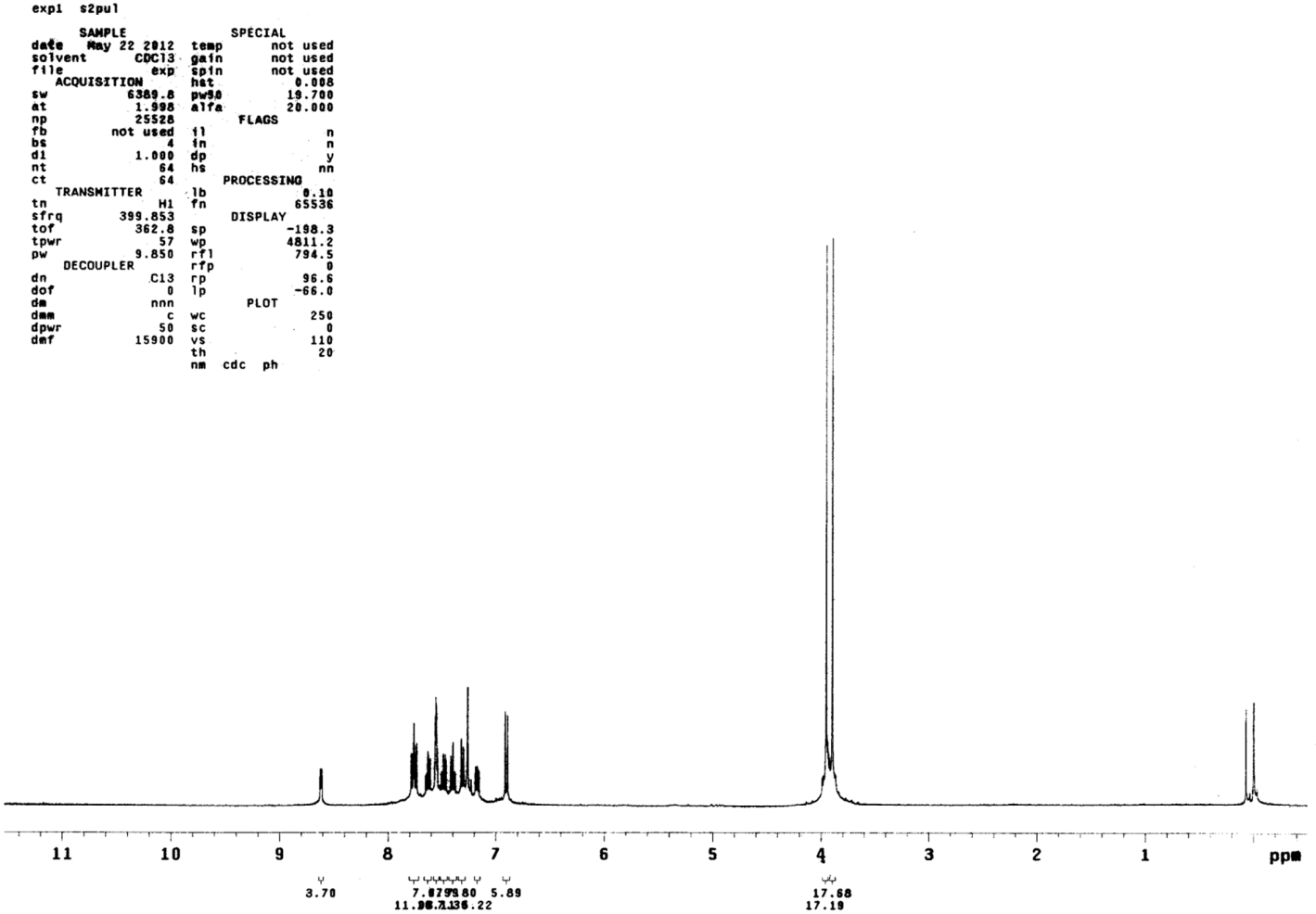
**2-(Pyridin-2-yl)phenyl 3,5-dimethylbenzoate (1d´): $^{1}$H NMR (400 MHz, $CDCl_3$)**



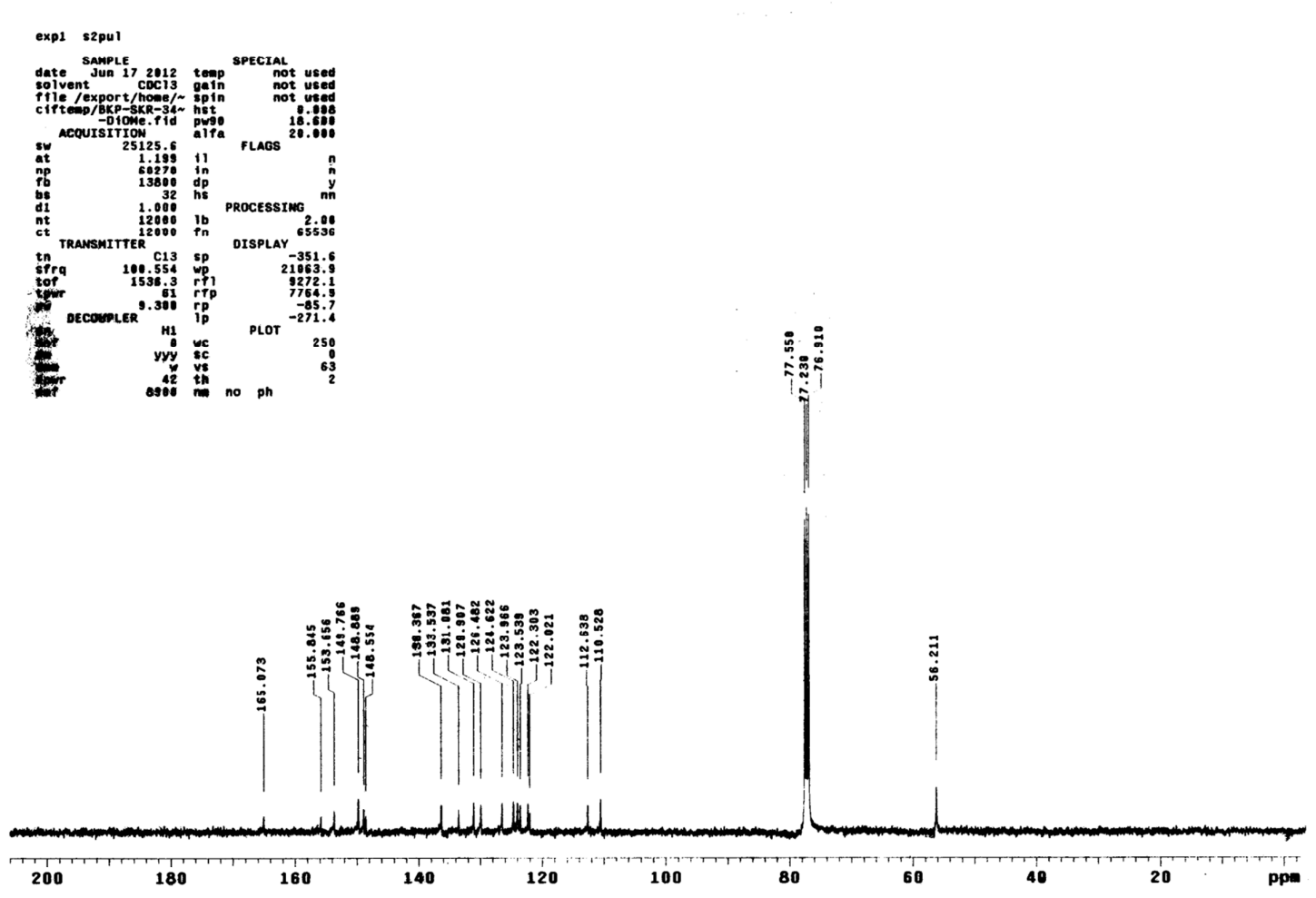
**2-(Pyridin-2-yl)phenyl 3,5-dimethylbenzoate (1d´): $^{13}$C NMR (100 MHz, $CDCl_3$)**



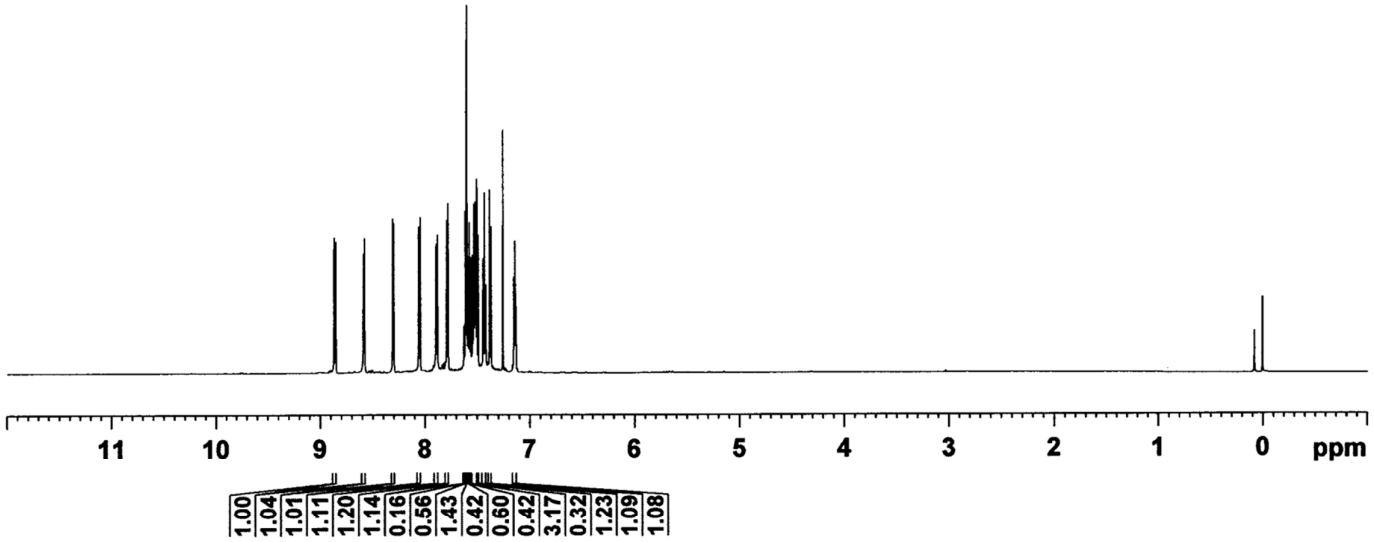
**2-(Pyridin-2-yl)phenyl 3,4-dimethoxybenzoate (1e´): $^{1}$H NMR (400 MHz, $CDCl_3$)**



**2-(Pyridin-2-yl)phenyl 3,4-dimethoxybenzoate (1e´): $^{13}$C NMR (100 MHz, $CDCl_3$)**

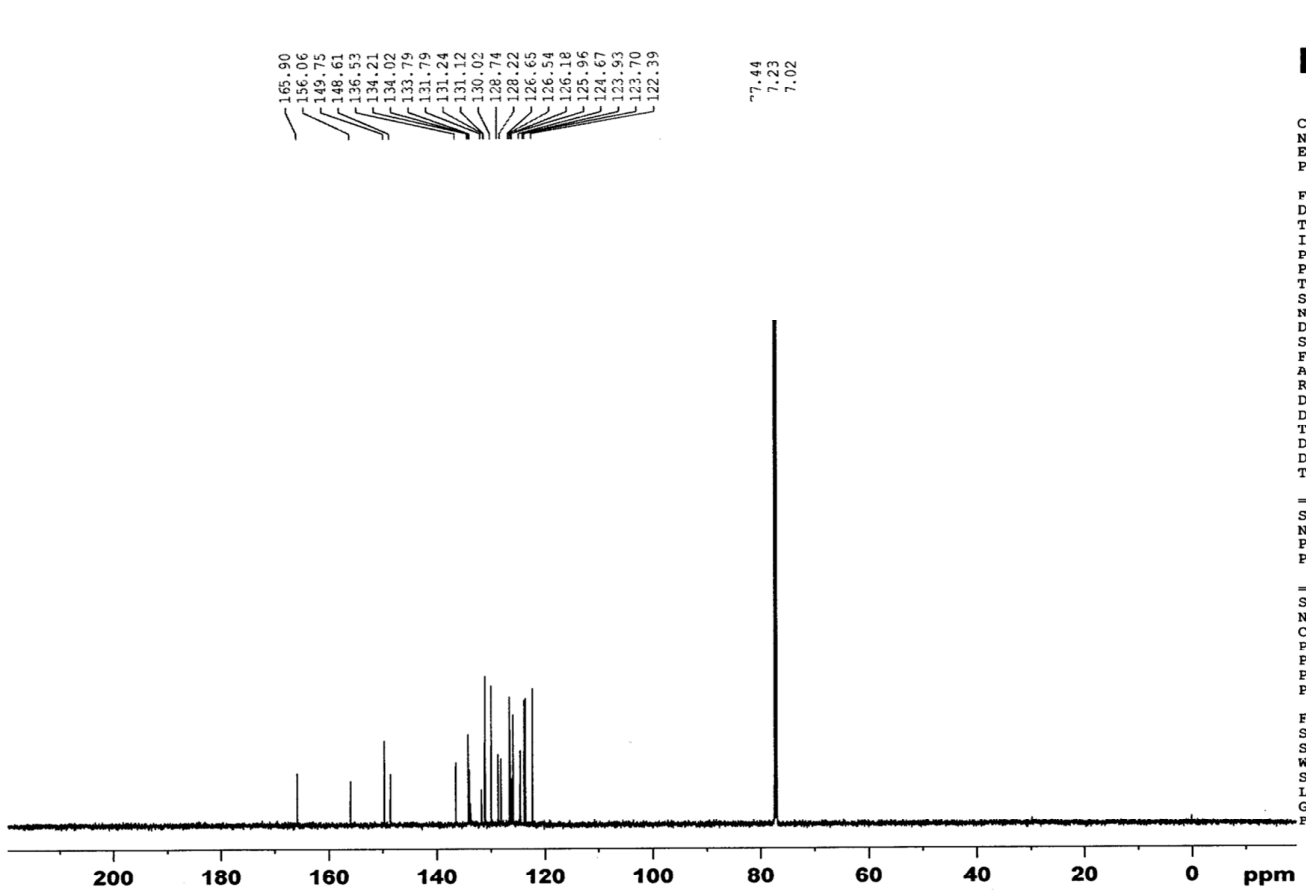


**2-(Pyridin-2-yl)phenyl 1-naphthoate (1h´): $^{1}$H NMR (600 MHz, $CDCl_3$)**




```
Current Data Parameters
NAME          SKR_312_1H
EXPNO                  1
PROCNO                 1

F2 - Acquisition Parameters
Date_           20131025
Time              13.01
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG           zg30
TD               32768
SOLVENT          CDCl3
NS                  16
DS                   2
SWH          12019.230 Hz
FIDRES        0.366798 Hz
AQ            1.3631488 sec
RG                65.24
DW               41.600 usec
DE                6.50 usec
TE               299.3 K
D1           1.00000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1        600.1737063 MHz
NUC1               1H
P1               12.00 usec
PLW1        21.00000000 W

F2 - Processing parameters
SI               16384
SF          600.1700149 MHz
WDW                EM
SSB       0
LB              0.30 Hz
GB        0
PC              1.00
```

**2-(Pyridin-2-yl)phenyl 1-naphthoate (1h´): $^{13}$C NMR (150 MHz, $CDCl_3$)**




BRUKER

Current Data Parameters
NAME 2PH_PY_NAPH_13C
EXPNO 1
PROCNO 1

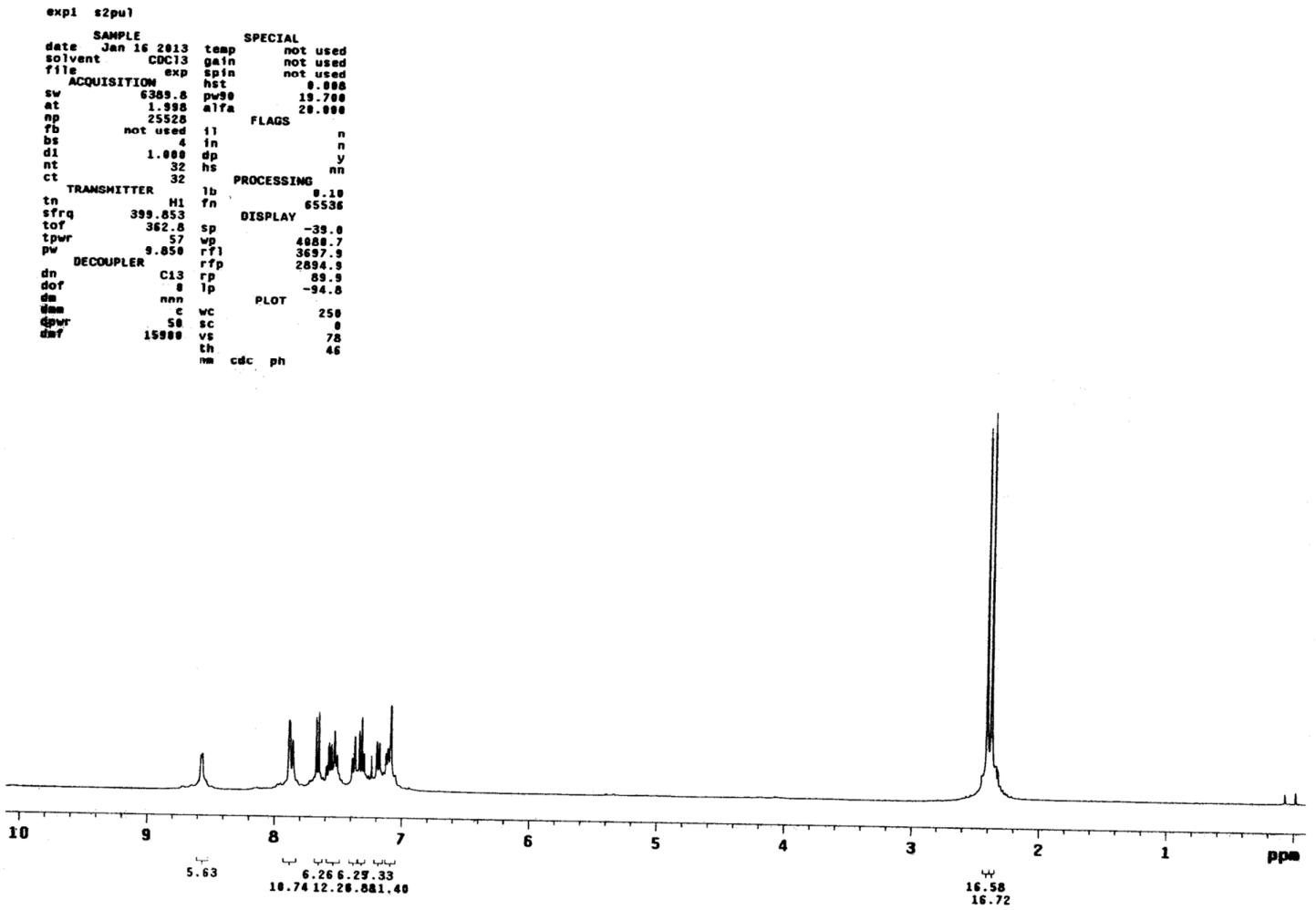
F2 - Acquisition Parameters
Date_ 20131025
Time 13.53
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 301
DS 2
SWH 36057.691 Hz
FIDRES 1.100393 Hz
AQ 0.4543829 sec
RG 65.24
DW 13.867 usec
DE 6.50 usec
TE 300.4 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

======== CHANNEL f1 ========
SFO1 150.9279571 MHz
NUC1 13C
P1 10.50 usec
PLW1 95.00000000 W

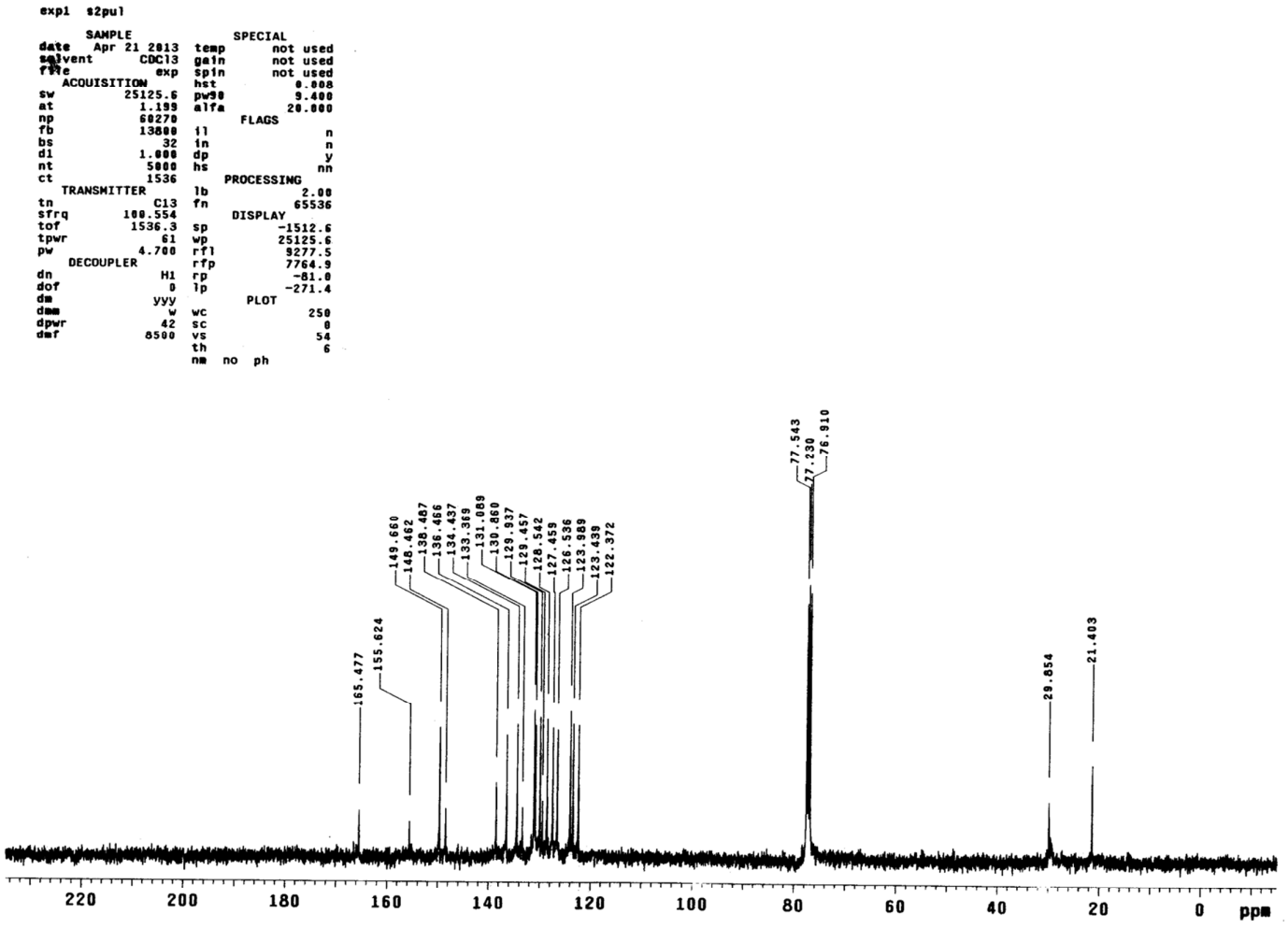
======== CHANNEL f2 ========
SFO2 600.1724007 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 70.00 usec
PLW2 21.00000000 W
PLW12 0.61714000 W
PLW13 0.30239999 W

F2 - Processing parameters
SI 16384
SF 150.9128380 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

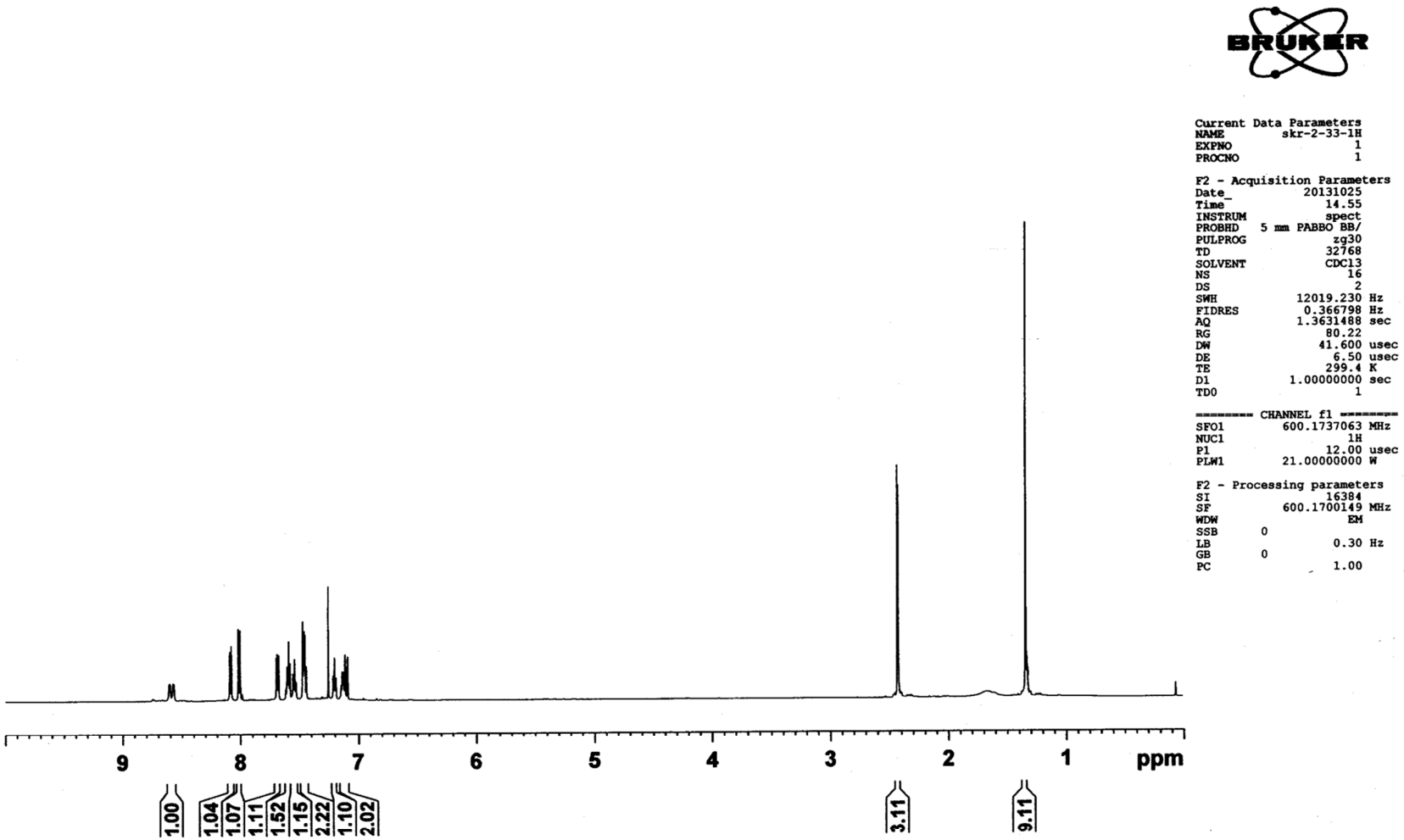
**5-Methyl-2-(pyridin-2-yl)phenyl 3-methylbenzoate (2b´): $^{1}$H NMR (400 MHz, $CDCl_3$)**



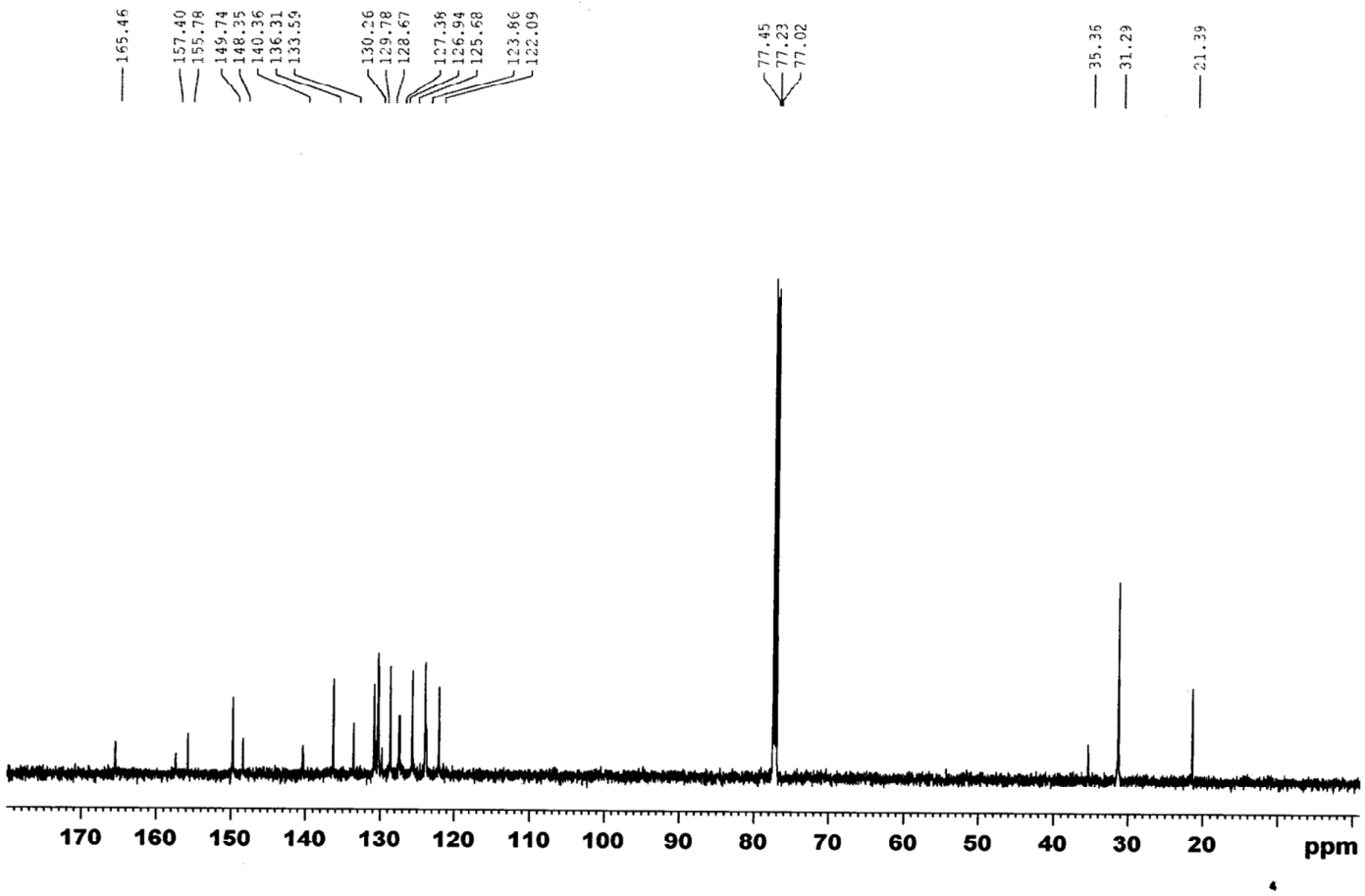
**5-Methyl-2-(pyridin-2-yl)phenyl 3-methylbenzoate (2b´): $^{13}$C NMR (100 MHz, $CDCl_3$)**



**5-Methyl-2-(pyridine-2-yl)phenyl 4-(*tert*-butyl)benzoate (2c´): $^{1}$H NMR (600 MHz, $CDCl_3$)**

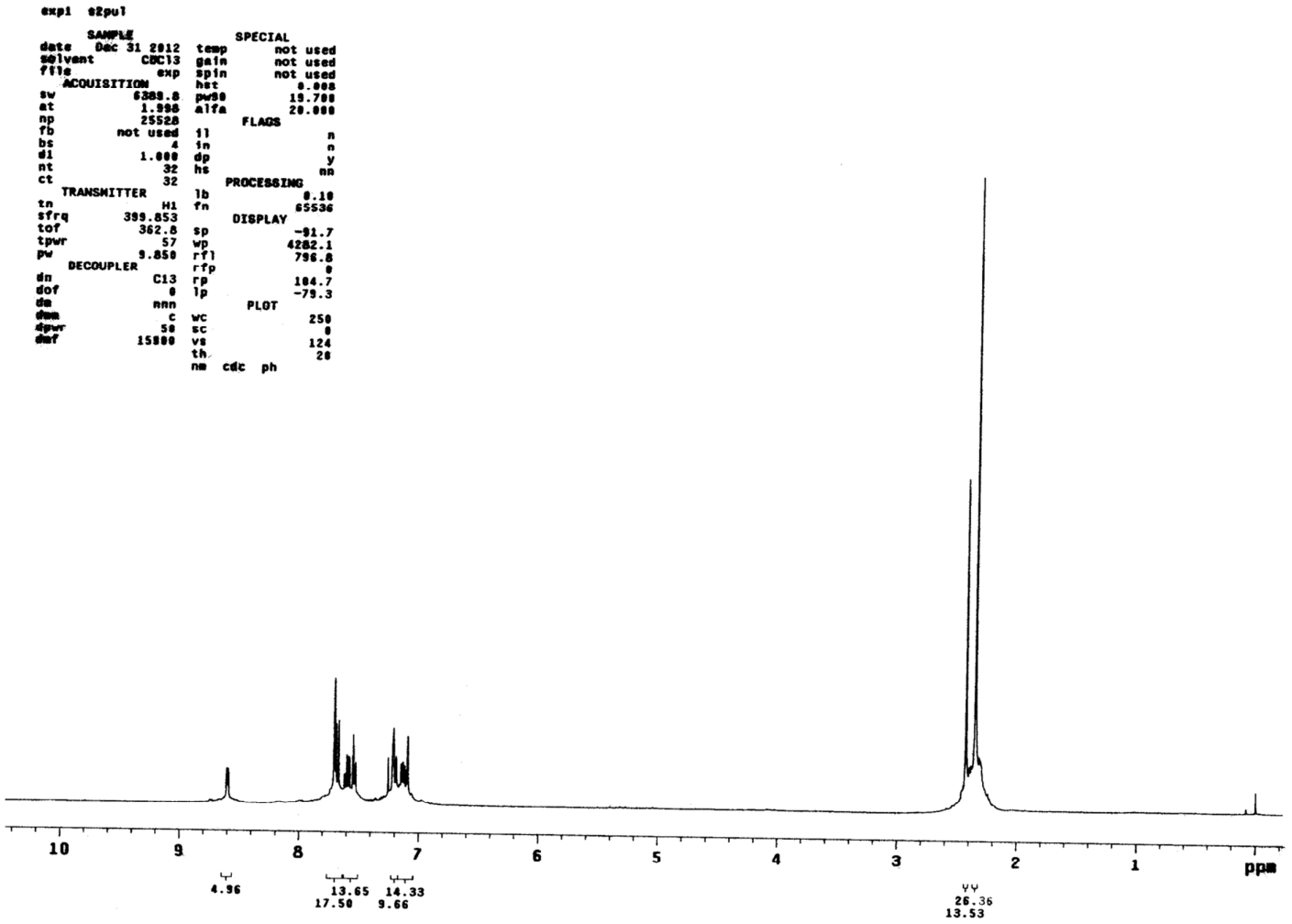


**5-Methyl-2-(pyridine-2-yl)phenyl 4-(*tert*-butyl)benzoate (2c´): $^{13}$C NMR (150 MHz, $CDCl_3$)**

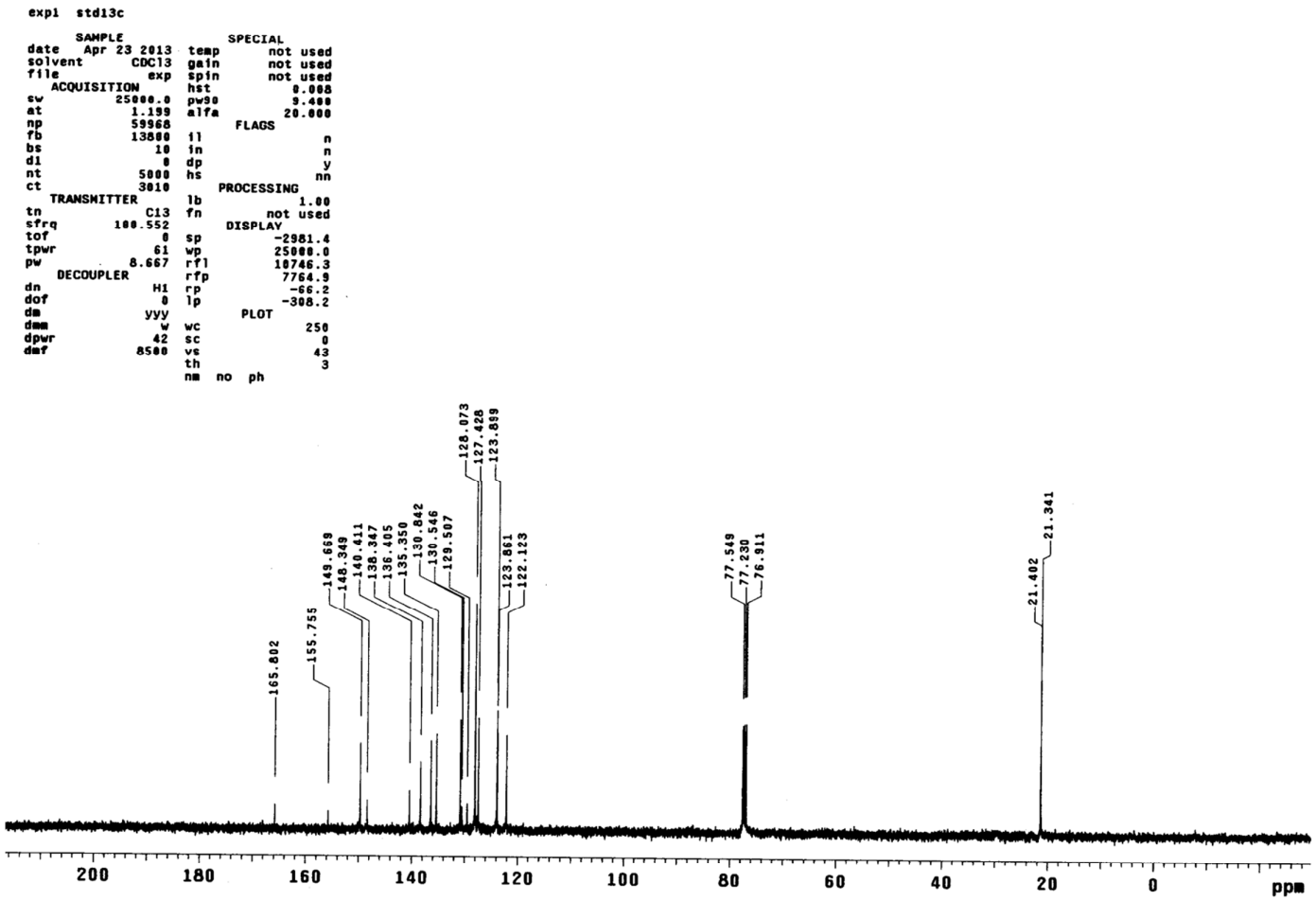



```
Current Data Parameters
NAME        TET_BUTYL_13C
EXPNO                   1
PROCNO                  1

F2 - Acquisition Parameters
Date_            20131017
Time                13.23
INSTRUM             spect
PROBHD   5 mm PABBO BB/
PULPROG          zgpg30
TD                32768
SOLVENT           CDCl3
NS                  301
DS                    2
SWH           36057.691 Hz
FIDRES         1.100393 Hz
AQ             0.4543829 sec
RG                65.24
DW               13.867 usec
DE                6.50 usec
TE               299.9 K
D1            2.00000000 sec
D11           0.03000000 sec
TD0                   1

======== CHANNEL f1 ========
SFO1        150.9279571 MHz
NUC1                13C
P1                10.50 usec
PLW1         95.00000000 W

======== CHANNEL f2 ========
SFO2        600.1724007 MHz
NUC2                 1H
CPDPRG[2         waltz16
PCPD2              70.00 usec
PLW2         21.00000000 W
PLW12         0.61714000 W
PLW13         0.30239999 W

F2 - Processing parameters
SI                  16384
SF          150.9128379 MHz
WDW                    EM
SSB       0
LB                 1.00 Hz
GB        0
PC                 1.40
```

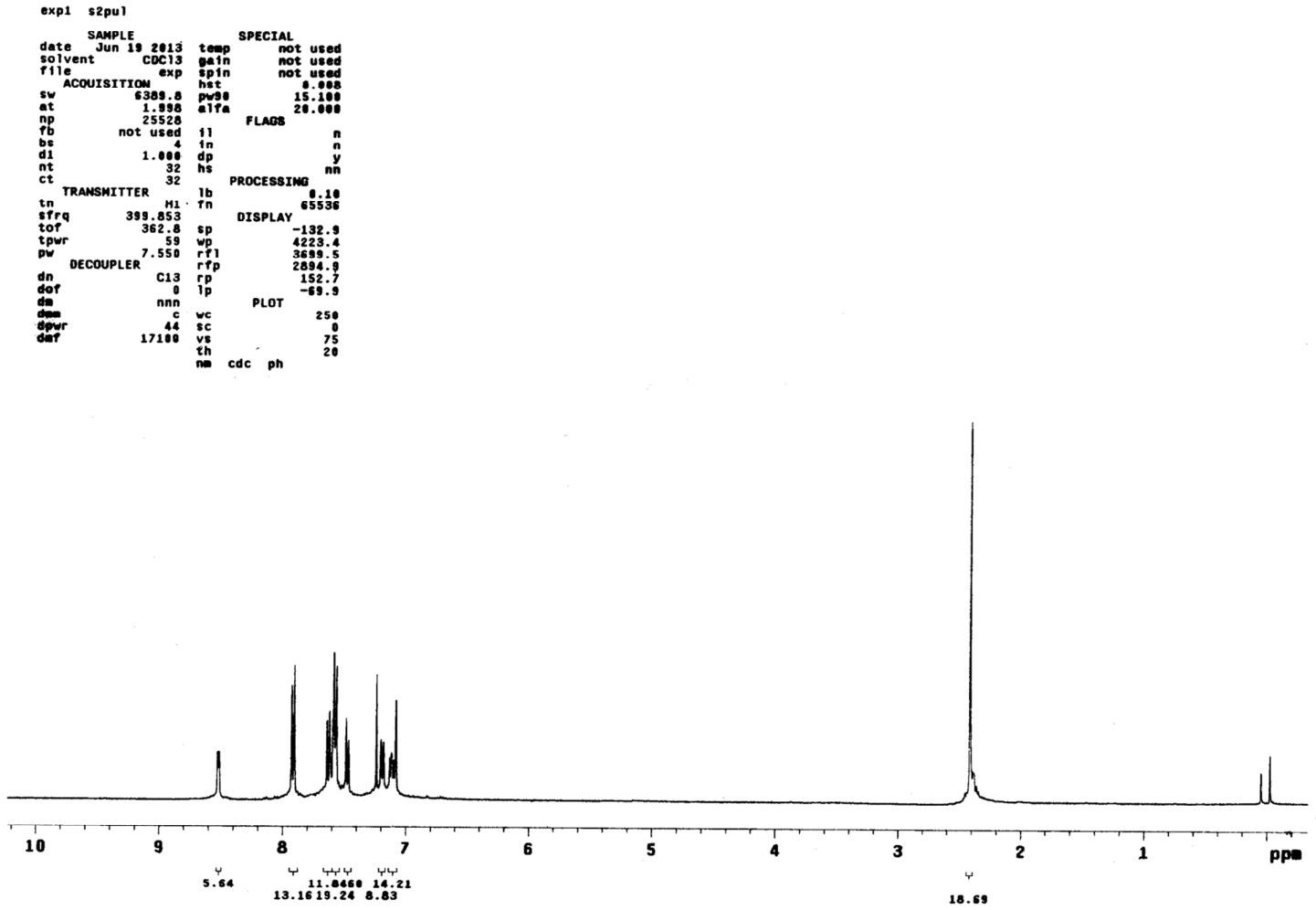
**5-Methyl-2-(pyridine-2-yl)phenyl 3,5dimethylbenzoate (2d´): $^{1}$H NMR (400 MHz, $CDCl_3$)**



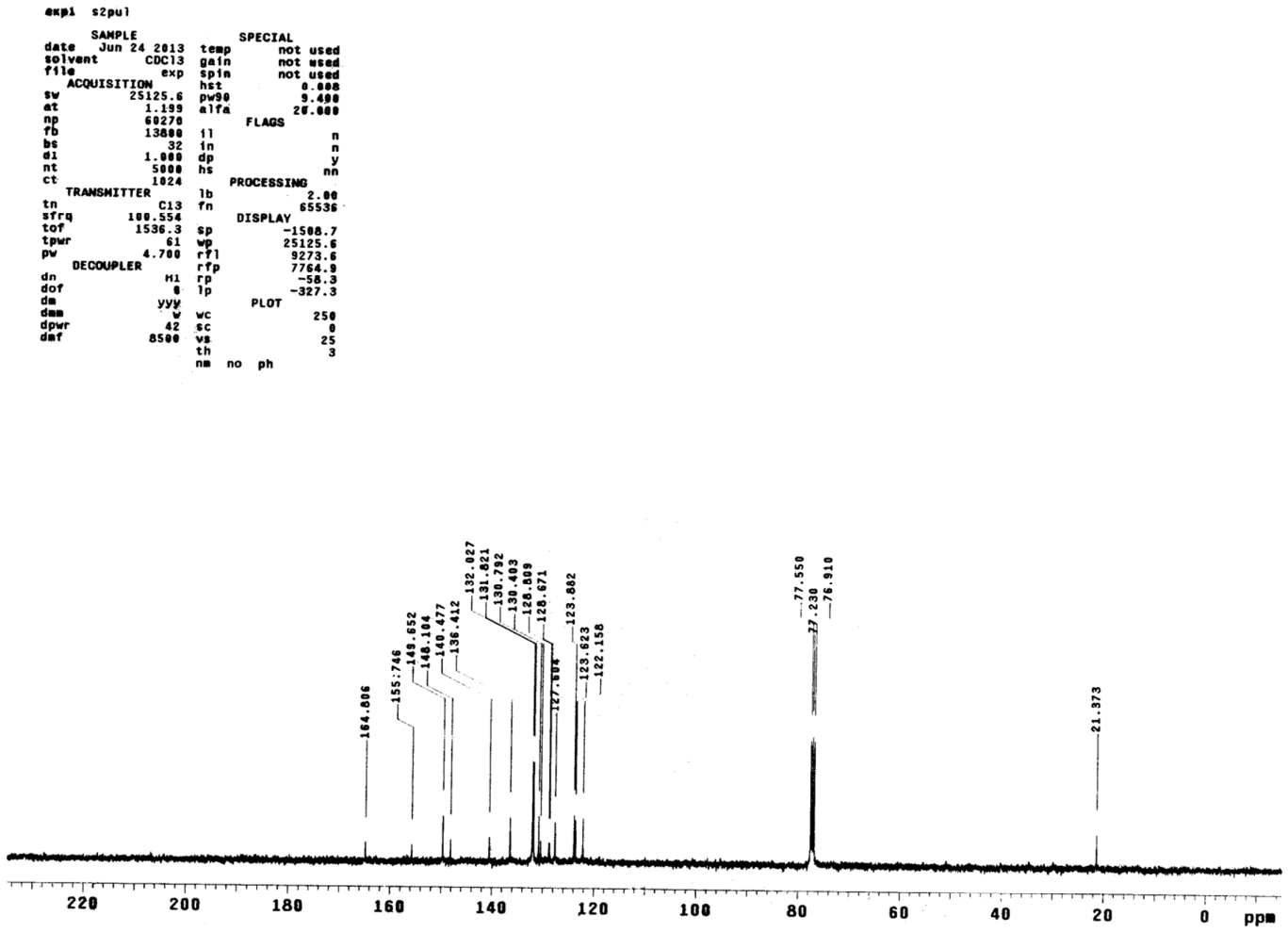
**5-Methyl-2-(pyridine-2-yl)phenyl 3,5dimethylbenzoate (2d´): $^{13}$C NMR (100 MHz, $CDCl_3$)**



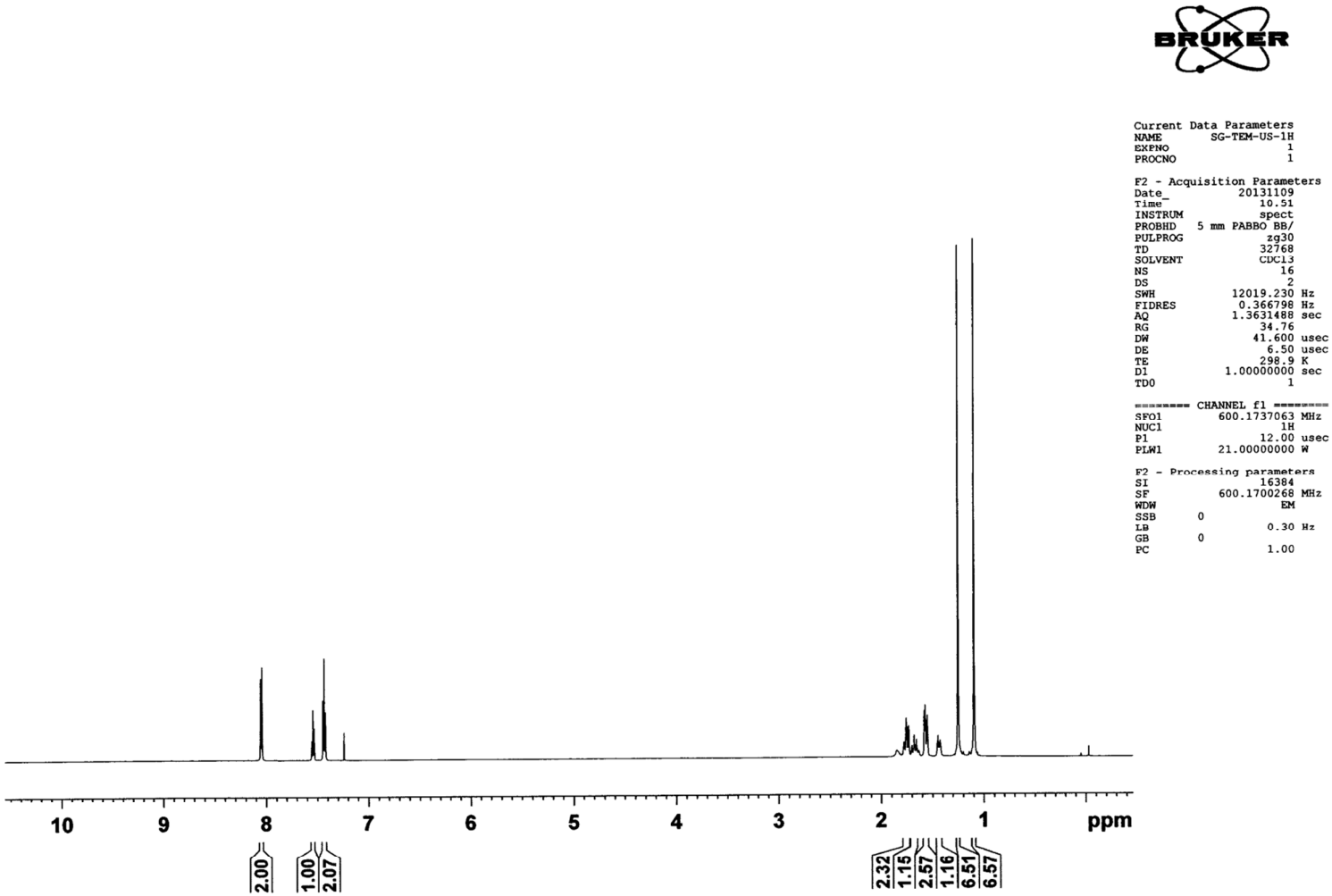
**5-Methyl-2-(pyridine-2-yl)phenyl 4-bromobenzoate (2g´): $^{1}$H NMR (400 MHz, $CDCl_3$)**



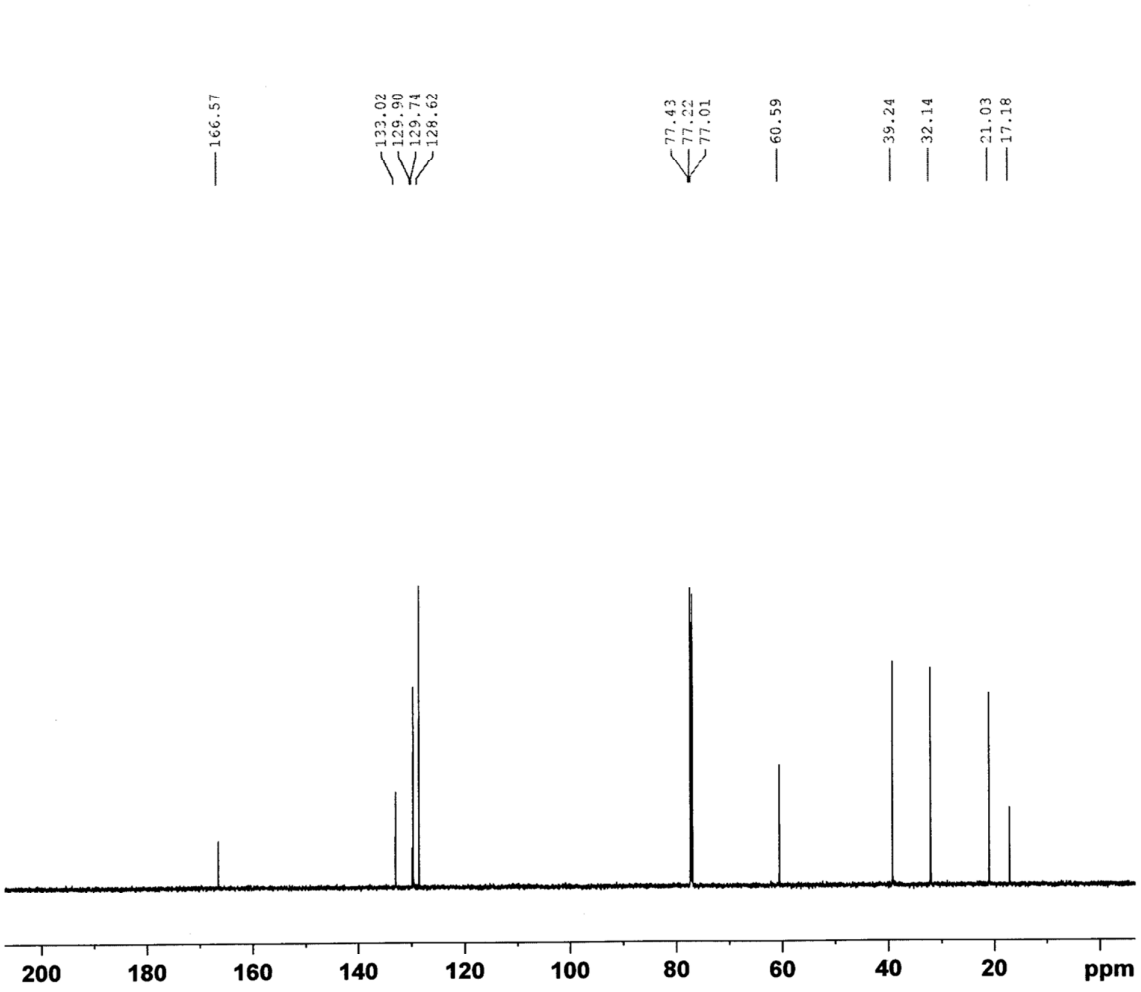
**5-Methyl-2-(pyridine-2-yl)phenyl 4-bromobenzoate (2g´): $^{13}$C NMR (100 MHz, $CDCl_3$)**



**2,2,6,6-Tetramethylpiperidin-1-yl benzoate (H): $^{1}$H NMR (600 MHz, $CDCl_3$)**



**2,2,6,6-Tetramethylpiperidin-1-yl benzoate (H): $^{13}C$ NMR (150 MHz, $CDCl_3$)**




```
Current Data Parameters
NAME       SG-TEM-US-13C
EXPNO                 1
PROCNO                1

F2 - Acquisition Parameters
Date_          20131109
Time              10.59
INSTRUM           spect
PROBHD   5 mm PABBO BB/
PULPROG         zgpg30
TD              32768
SOLVENT          CDCl3
NS                  65
DS                   2
SWH          36057.691 Hz
FIDRES        1.100393 Hz
AQ           0.4543829 sec
RG               65.24
DW             13.867 usec
DE              6.50 usec
TE              299.3 K
D1          2.00000000 sec
D11         0.03000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1       150.9279571 MHz
NUC1               13C
P1               10.50 usec
PLW1       95.00000000 W

======== CHANNEL f2 ========
SFO2       600.1724007 MHz
NUC2               1H
CPDPRG[2        waltz16
PCPD2            70.00 usec
PLW2       21.00000000 W
PLW12       0.61714000 W
PLW13       0.30239999 W

F2 - Processing parameters
SI                16384
SF         150.9128415 MHz
WDW                EM
SSB       0
LB               1.00 Hz
GB        0
PC               1.40
```