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**SUPPORTING INFORMATION**

# Synthesis of 4-(Organoselenyl) Oxazolones via Cyclization of N-Alkynyl Ethylcarbamates Promoted by Organoselenium

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## Table of Contents



## Materials and Methods

Proton nuclear magnetic resonance spectra ($^1$H NMR) were obtained on a NMR spectrometer at 400 MHz. Spectra were recorded in $CDCl_3$ solutions. Chemical shifts are reported in ppm, referenced to the solvent peak of $CDCl_3$ or tetramethylsilane (TMS) as the external reference. Data are reported as follows: chemical shift ($\delta$), multiplicity, coupling constant *(J)* in Hertz and integrated intensity. Carbon-13 nuclear magnetic resonance spectra ($^{13}$C NMR) were obtained on a 400 NMR spectrometer at 100 MHz. Spectra were recorded in $CDCl_3$ solutions. Chemical shifts are reported in ppm, referenced to the solvent peak of $CDCl_3$. Abbreviations to denote the multiplicity of a particular signal are s (singlet), d (doublet), t (triplet), quart (quartet), quint (quintet), sex (sextet), dd (double doublet) and m (multiplet). The $^{77}$Se NMR experiment was carried out using capillary tube with diphenyl diselenide as internal reference. High resolution mass spectra were recorded on a mass spectrometer using electrospray ionization (ESI). Column chromatography was performed using Silica Gel (230-400 mesh). Thin layer chromatography (TLC) was performed using Gel GF254, 0.25 mm thickness. For visualization, TLC plates were either placed under ultraviolet light, or stained with iodine vapor, or acidic vanillin. Most reactions were monitored by TLC for disappearance of starting material. The following solvents were dried and purified by distillation from the reagents indicated: tetrahydrofuran from sodium with a benzophenone ketyl indicator. All other solvents were ACS

or HPLC grade unless otherwise noted. Air and moisture-sensitive reactions were conducted in flame-dried or oven dried glassware equipped with tightly fitted rubber septa and under a positive atmosphere of dry nitrogen or argon. Reagents and solvents were handled using standard syringe techniques.

**X-ray diffraction analysis**

Data were collected on a Bruker D8 Venture Photon 100 diffractometer equipped with an Incoatec IμS high brilliance Mo-Kα X-ray tube with two-dimensional Montel micro-focusing optics. The structure was solved by direct methods using SHELXS.[1] Subsequent Fourier-difference map analyses yielded the positions of the non-hydrogen atoms. Refinements were carried out with the SHELXL package.[2] All refinements were made by full-matrix least-squares on F2 with anisotropic displacement parameters for all non–hydrogen atoms. Hydrogen atoms were included in the refinement in calculated positions but the atoms (of hydrogens) that are commenting performing special bond were located in the Fourier map. Drawings were done using ORTEP 3.1 for Windows [Y] Crystal data and more details of the data collection and refinements of the compounds can are presented in Table T1.

Single crystal of **2e** was obtained by controlled evaporation of temperature (20 - 25 ° C) over a period of three days. The mixture used for such recrystallization was $CH_2Cl_2$ / MeOH in a ratio of 25/75%. Single crystal was colorless and tabular habit.

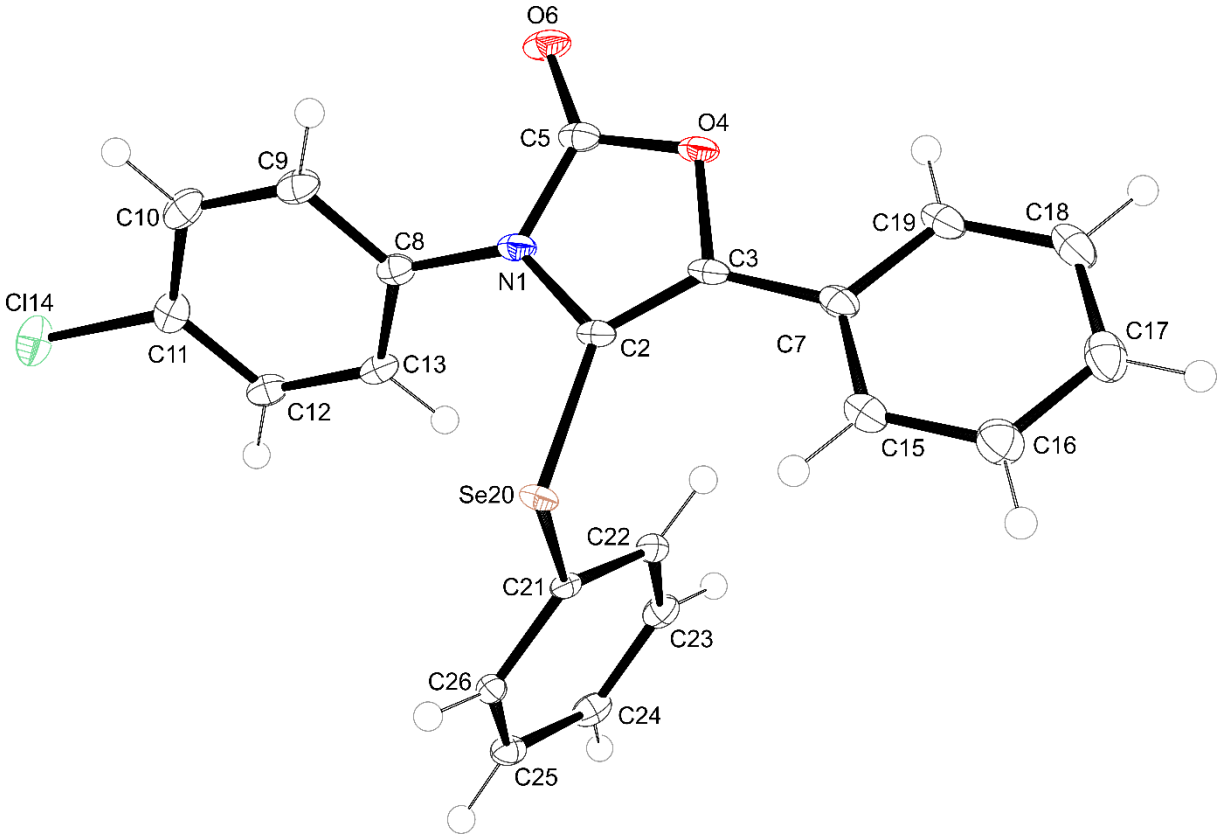



**Figure F1**. Projection of the molecular structure of the compound **2e**. Thermal ellipsoids with 50% probability level.

**Supplementary data**

CCDC 2151577 contain the supplementary crystallographic data for molecule **2e**.

These data can be obtained free of charge via http://www.ccdc.cam.ac.uk/conts/retrieving.html, or from the Cambridge Crystallographic Data Centre, 12 Union Road, Cambridge CB2 1EZ, UK; fax: (+44) 1223–336–033; or e–mail: deposit@ccdc.cam.ac.uk

**Table T1.** Crystal data and structure refinement for the molecule **2e**.

| **Complex** | **Molecule 2e** |
|---|---|
| Empirical formula | $C_{21}H_{14}ClNO_2Se$ |
| Formula weight | 426.74 |
| Temperature (K) | 100(2) |
| Wavelength | 0.71073 |
| Crystal system | Monoclinic |
| Space group | P21/c |
| *a*(Å) | 14.6927(6) |
| *b* (Å) | 6.0979(2) |
| *c* (Å) | 20.1721(8) |
| *α* (º) | 90 |
| *β* (º) | 104.3330(10) |
| *γ* (º) | 90 |
| Volume (Å$^3$) | 1751.06(12) |
| *Z* | 4 |
| *Calculated density* (mg.m$^{-3}$) | 1.619 |
| Absorption coefficient (nm$^{-1}$) | 2.312 |
| *F* (000) | 856 |
| Crystal size (mm) | 0.39 × 0.20 × 0.13 |
| Theta range for data collection (º) | 2.08 to 28.34 |
| Limiting indices | -19 ≤ h ≤ 19, -6 ≤ k ≤ 8,-26 ≤ l ≤ 26 |
| Reflections collected | 59681 |
| Reflections unique | 4362 |
| Completeness to theta | 99.8% |
| Absorption correction | Semi-empirical from equivalents |
| Max./Min Transmission | 0.7631 and 0.4758 |

| | |
|---|---|
| Data / restraints / parameters | 4362 / 0 / 235 |
| Goodness-of-fit on $F^2$ | 1.062 |
| Índice$R_{int}$ | 0.0226 |
| Final R indices $R_1$ and $wR_2[I>2\sigma(I)]$ | 0.0178/0.0466 |
| $R$ indices (all data) $R_1$ and $wR_2$ | 0.0195/0.0479 |
| Largest diff. peak ($e^-$ $Å^{-3}$) and hole | 0.351 – 0.402 |

**Characterization Data for the Compounds Prepared**

**General procedure for the preparation of 4-(organoselenyl) oxazolones 2a-ae:** In a Schlenke flask, under air atmosphere, at room temperature *N*-alkynyl ethylcarbamates (0.25 mmol) was added to a solution of iodine (1.2 equiv) and diorganyl diselenides (0.55 equiv) in nitromethane (3 mL), which was prepared 30 min before. After that, the reaction was stirred at 80 °C until the starting material had been fully consumed (1.5 h to 7.5 h; monitored by TLC). The reaction was diluted with ethyl acetate (10 mL), washed with a saturated solution of $Na_2S_2O_3$ (10 mL). The organic phase was separated, dried over $MgSO_4$, and concentrated under a vacuum. The residue was purified by flash chromatography. **5-Phenyl-4-(phenylselanyl)-3-(*p*-tolyl)oxazol-2(3*H*)-one (2a):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a white solid. Yield: 0.095 g (93%); mp 119-121 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.02 (d, *J* = 7.1 Hz, 2H), 7.42-7.34 (m, 3H), 7.15-7.10 (m, 7H), 6.99 (d, *J* = 8.3 Hz, 2H), 2.33 (s, 3H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.6, 143.8, 138.7, 130.9, 130.3, 129.5, 129.4, 129.2, 129.0, 128.5, 127.8, 127.6, 127.3, 125.9, 109.6, 21.1. MS (EI, 70 eV; *m/z* (relative intensity)): 408 ([M+1], 6), 407 (28), 194 (18), 165 (18), 105 (100), 77 (29).

**5-Phenyl-4-(phenylselanyl)-3-(*m*-tolyl)oxazol-2(3*H*)-one (2b):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a yellow solid. Yield: 0.085 g (84%); mp 129-130 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.05-8.02 (m, 2H), 7.43-7.35 (m, 3H), 7.23-7.12 (m, 7H), 6.93 (d, *J* = 7.8 Hz, 1H), 6.82 (s, 1H), 2.23 (s, 3H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.5, 143.7, 138.9, 133.3, 130.6, 129.5, 129.4, 129.1, 129.0, 128.7, 128.6, 128.5, 127.7, 127.2, 125.9, 125.1, 109.6, 21.05. MS (EI, 70 eV; *m/z* (relative intensity)): 408 ([M+1], 5), 407 (19), 194 (11), 165 (09), 105 (100), 77 (39). HRMS calcd for $C_{22}H_{18}NO_2Se$ (ESI-TOF, $[M + H]^+$): 408.0503. Found: 408.0510.

**5-Phenyl-4-(phenylselanyl)-3-(*o*-tolyl)oxazol-2(3*H*)-one (2c):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a yellow solid. Yield: 0.083 g (82%); mp 122-124 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.10-8.08 (m, 2H), 7.45-7.41 (m, 2H), 7.38-7.34 (m, 1H), 7.29-7.06 (m, 8H), 6.92 (d, *J* = 6.5 Hz, 1H), 1.93 (s, 3H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 152.8, 143.4, 137.3, 132.2, 131.7, 130.7, 129.5, 129.4, 129.3, 129.0, 128.5, 128.2, 128.0, 127.3, 126.3, 125.8, 110.2, 17.3. MS (EI, 70 eV; *m/z* (relative intensity)): 408 ([M+1], 3), 407 (14), 194 (07), 165 (07), 105 (100), 77 (40). HRMS calcd for $C_{22}H_{18}NO_2Se$ (ESI-TOF, $[M + H]^+$): 408.0503. Found: 408.0495.

**3-(4-Methoxyphenyl)-5-phenyl-4-(phenylselanyl)oxazol-2(3*H*)-one (2d):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 90:10) as a white solid. Yield: 0.093 g (88%); mp 126-128 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.03-8.01 (m, 2H), 7.42-7.35 (m, 3H), 7.20-7.12 (m, 5H), 7.00 (d, *J* = 9.0 Hz, 2H), 6.82 (d, *J* = 8.9 Hz, 2H), 3.77 (s, 3H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 159.6, 153.7, 143.6, 130.4, 129.5, 129.3, 129.0, 129.0, 128.5, 127.7, 127.2, 126.1, 125.9, 114.1, 109.9, 55.4. MS (EI, 70 eV; *m/z* (relative intensity)): 424 ([M+1], 5), 423 (20), 207 (24), 165 (17), 105 (100), 77 (36).

**3-(4-Chlorophenyl)-5-phenyl-4-(phenylselanyl)oxazol-2(3*H*)-one (2e):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a white solid. Yield: 0.074 g (70%); mp 161-163 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.03-8.00 (m, 2H), 7.43-7.37 (m, 3H), 7.29 (d, *J* = 8.8 Hz, 2H), 7.23-7.12 (m, 5H), 7.06 (d, *J* = 8.7 Hz, 2H). $^{13}$C{$^1$H} NMR

($CDCl_3$. 100 MHz): δ (ppm) 153.2, 144.2, 134.6, 132.0, 130.5, 129.6, 129.3, 129.1, 128.7, 128.6, 127.9, 127.0, 126.1. $^{77}$Se NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) δ (ppm) 271.0. MS (EI, 70 eV; *m/z* (relative intensity)): 429 ([M+2], 7), 427 (16), 207 (38), 165 (18), 105 (100), 77 (38).

**5-Phenyl-4-(phenylselanyl)-3-(3-(trifluoromethyl)phenyl)oxazol-2(3*H*)-one (2f):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a white solid. Yield: 0.094 g (82%); mp 117-119 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.05-8.00 (m, 2H), 7.58 (d, *J* = 7.8 Hz, 1H), 7.44-7.36 (m, 6H), 7.24-7.07 (m, 5H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.1, 144.2, 134.0, 131.4 (q, *J* = 33.2 Hz), 131.3, 130.7, 129.6, 129.5, 129.4, 128.6, 128.3, 128.1, 126.9, 126.1, 125.3 (q, *J* = 3.6 Hz), 125.10 (q, *J* = 3.9 Hz), 123.27 (q, *J* = 272.8 Hz), 109.0. $^{19}$F NMR (235 MHz, in $CDCl_3$): δ (ppm) -62.8. MS (EI, 70 eV; *m/z* (relative intensity)): 462 ([M+1], 6), 461 (25), 248 (20), 165 (17), 105 (100), 77 (33).

**3-Benzyl-5-phenyl-4-(phenylselanyl)oxazol-2(3*H*)-one (2g):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a white solid. Yield: 0.081 g (80%); mp 100-102 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 7.95-7.93 (m, 2H), 7.38-7.30 (m, 3H), 7.27-7.16 (m, 10H), 4.82 (s, 2H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 154.6, 144.2, 135.9, 129.8, 129.3, 129.0, 128.9, 128.5, 128.4, 127.8, 127.7, 127.4, 127.2, 125.8, 107.8, 46.3. MS (EI, 70 eV; *m/z* (relative intensity)): 408 ([M+1], 7), 407 (30), 315 (12), 157 (14), 105 (100), 77 (59). HRMS calcd for $C_{22}H_{18}NO_2Se$ (ESI-TOF, $[M + H]^+$): 408.0503. Found: 408.0507.

**5-Phenyl-3-(*p*-tolyl)-4-(*o*-tolylselanyl)oxazol-2(3*H*)-one (2h):** The product was isolated by column chromatography (hexane:ethyl acetate 95:05) as a white solid. Yield: 0.069 g (66%); mp 135-137 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.00-7.98 (m, 2H), 7.42-7.32 (m, 3H), 7.13-7.02 (m, 5H), 7.02-6.95 (m, 3H), 2.33 (s, 3H), 2.08 (s, 3H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.7, 144.1, 138.7, 137.8, 130.8, 130.4, 129.9, 129.8, 129.5, 129.0, 128.5, 127.6, 127.5, 127.2, 127.0, 125.8, 109.1, 21.3, 21.1. MS (EI, 70 eV; *m/z* (relative intensity)): 422 ([M+1], 3), 421 (15), 251 (12), 207 (22), 105 (100), 77 (41). HRMS calcd for $C_{23}H_{20}NO_2Se$ (ESI-TOF, $[M + H]^+$): 422.0659. Found: 422.0665.

**5-Phenyl-3-(*p*-tolyl)-4-(*p*-tolylselanyl)oxazol-2(3*H*)-one (2i):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 95:05) as a white solid. Yield: 0.067 g (64%); mp 157-159 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.05-8.03 (m, 2H), 7.43-7.33 (m, 3H), 7.14 (d, *J* = 8.6 Hz, 2H), 7.03-6.96 (m, 6H), 2.36 (s, 3H), 2.27 (s, 3H). $^{13}$C{$^1$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.6, 143.5, 138.7, 137.8, 130.9, 130.6, 130.2, 129.5, 129.0, 128.5, 127.8, 127.3, 125.9, 125.4, 109.9, 21.2, 21.0. MS (EI, 70 eV; *m/z* (relative intensity)): 422 ([M+1], 5), 421 (22), 208 (23), 179 (11), 105 (100), 77 (25).

**4-((4-Methoxyphenyl)selanyl)-5-phenyl-3-(*p*-tolyl)oxazol-2(3*H*)-one (2j):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 91:9) as a yellow solid. Yield: 0.062 g (57%); mp 131-133 °C. $^1$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.07-8.04 (m, 2H), 7.45-7.40 (m, 2H), 7.38-7.34 (m, 1H), 7.16 (d, *J* = 7.9 Hz, 2H), 7.01 (d, *J* = 9.1 Hz, 4H), 6.67 (d, *J* = 8.9 Hz, 2H), 3.73 (s, 3H), 2.37 (s, 3H). $^{13}$C{$^1$H} NMR (CDCl3. 100 MHz): δ (ppm) 159.7, 153.6, 142.9, 138.7, 133.3, 131.0, 129.5, 128.9, 128.5, 127.9, 127.4, 125.9, 118.7, 115.0, 110.7, 55.2, 21.1. MS (EI, 70 eV; *m/z* (relative intensity)): 438 ([M+2], 4), 437 (15), 357 (15), 224 (29), 105 (100), 77 (35).

**4-((4-Chlorophenyl)selanyl)-5-phenyl-3-(*p*-tolyl)oxazol-2(3*H*)-one (2k):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 93:7) as a white solid. Yield: 0.041 g (37%); mp 179-181 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.01-7.99 (m, 2H), 7.44-7.37 (m, 3H), 7.17-7.13 (m, 4H), 7.06-7.04 (m, 2H), 7.00 (d, *J* = 8.3 Hz, 2H), 2.37 (s, 3H). $^{13}$C{$^{1}$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.5, 144.0, 139.0, 134.1, 131.8, 130.8, 129.6, 129.3, 128.6, 127.8, 127.2, 127.1, 126.0, 109.2, 21.2. MS (EI, 70 eV; *m/z* (relative intensity)): 443 ([M+2], 12), 441 (27), 438 (13), 228 (12), 105 (100), 77 (29).

**4-((4-Fluorophenyl)selanyl)-5-phenyl-3-(*p*-tolyl)oxazol-2(3*H*)-one (2l):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 94:6) as a white solid. Yield: 0.065 g (61%); mp 162-164 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.03-8.01 (m, 2H), 7.45-7.37 (m, 3H), 7.16 (d, *J* = 7.9 Hz, 2H), 7.09-7.05 (m, 2H), 7.00 (d, *J* = 8.3 Hz, 2H), 6.85 (t, *J* = 8.7 Hz, 2H), 2.37 (s, 3H). $^{13}$C{$^{1}$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 162.6 (d, *J* = 248.7 Hz), 153.5, 143.4, 138.9, 133.2 (d, *J* = 8.0 Hz), 130.8, 129.6, 129.1, 128.6, 127.8, 127.1, 126.0, 123.3 (d, *J* = 3.4 Hz), 116.6 (d, *J* = 21.9 Hz), 109.9, 21.1. $^{19}$F NMR (235 MHz, in $CDCl_3$): δ (ppm) -113.0. MS (EI, 70 eV; *m/z* (relative intensity)): 426 ([M+2], 4), 425 (17), 207 (20), 105 (100), 89 (17), 77 (28).

**5-Phenyl-3-(*p*-tolyl)-4-((3-(trifluoromethyl)phenyl)selanyl)oxazol-2(3*H*)-one (2m):** The product was isolated by column chromatography (hexane:ethyl acetate 93:7) as a white solid. Yield: 0.084 g (71%); mp 151-153 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.00-7.97 (m, 2H), 7.46-7.36 (m, 5H), 7.30-7.24 (m, 2H), 7.12 (d, *J* = 7.8 Hz, 2H), 6.97 (d, *J* = 8.4 Hz, 2H), 2.34 (s, 3H). $^{13}$C{$^{1}$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.4, 143.9, 139.1, 134.3, 131.5 (q, *J* = 32.4 Hz), 130.5, 129.8, 129.7, 129.6, 129.3, 128.6, 127.8 (q, *J* = 3.8 Hz), 127.7, 126.9, 126.0, 124.7 (q, J = 3.7 Hz), 123.2 (q, *J* = 272.8 Hz), 109.1, 21.0. $^{19}$F NMR (235 MHz, in $CDCl_3$): δ (ppm) -62.9. MS (EI, 70 eV; *m/z* (relative intensity)): 476 ([M+1], 4), 475 (16), 262 (06), 207 (16), 105 (100), 77 (31). HRMS calcd for $C_{23}H_{17}F_3NO_2Se$ (ESI-TOF, [M + H]$^{+}$): 476.0377. Found: 476.0381.

**4-(Butylselanyl)-5-phenyl-3-(*p*-tolyl)oxazol-2(3*H*)-one (2n):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a yellow solid. Yield: 0.059 g (61%); mp 69-71 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.03-8.00 (m, 2H), 7.43-7.39 (m, 2H), 7.35-7.31 (m, 1H), 7.29 (s, 4H), 2.44-2.40 (m, 5H), 1.40 (quint, *J* = 7.3 Hz, 2H), 1.17 (sext, *J* = 7.3 Hz, 2H), 0.72 (t, *J* = 7.3 Hz, 3H). $^{13}$C{$^{1}$H} NMR (CDCl3. 100 MHz): δ (ppm) 153.8, 142.7, 138.8, 131.2, 129.7, 128.6, 128.4, 127.7, 127.6, 125.9, 109.0, 31.4, 29.3, 22.3, 21.1, 13.2. MS (EI, 70 eV; *m/z* (relative intensity)): 389 ([M+2], 5), 387 (25), 331 (11), 251 (11), 207 (23), 105 (100).

**5-(4-Methoxyphenyl)-4-(phenylselanyl)-3-(*p*-tolyl)oxazol-2(3*H*)-one (2o):**[3] The product was isolated by column chromatography (hexane:ethyl acetate 90:10) as a yellow solid. Yield: 0.032 g (30%); mp 155-157 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 7.96 (d, *J* = 9.0 Hz, 2H), 7.20-7.12 (m, 7H), 7.00 (d, *J* = 8.3 Hz, 2H), 6.94 (d, *J* = 9.0 Hz, 2H), 3.83 (s, 3H), 2.34 (s, 3H). $^{13}$C{$^{1}$H} NMR ($CDCl_3$. 100 MHz): δ (ppm) 160.3, 153.7, 144.3, 138.7, 131.0, 130.1, 129.6, 129.5, 129.4, 127.8, 127.6, 127.5, 119.8, 114.0, 107.6, 55.3, 21.1. MS (EI, 70 eV; *m/z* (relative intensity)): 438 ([M+1], 4), 437 (15), 357 (10), 194 (18), 135 (100), 77 (16).

**5-(4-Chlorophenyl)-4-(phenylselanyl)-3-(*p*-tolyl)oxazol-2(3*H*)-one (2p):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a white solid. Yield: 0.067 g (61%); mp 189-191 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 7.98 (d, *J* = 8.7 Hz, 2H), 7.39

(d, *J* = 8.7 Hz, 2H), 7.25-7.13 (m, 7H), 6.99 (d, *J* = 8.3 Hz, 2H), 2.36 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.4, 142.8, 138.9, 135.0, 130.8, 130.4, 129.6, 128.9, 127.9, 127.8, 127.1, 125.8, 110.2, 21.2. MS (EI, 70 eV; *m/z* (relative intensity)): 443 ([M+2], 8), 441 (18), 194 (15), 139 (100), 11 (28), 77 (12). HRMS calcd for $C_{22}H_{17}ClNO_2Se$ (ESI-TOF, $[M + H]^+$): 442.0113. Found: 442.0119.

**5-Phenyl-3-(*o*-tolyl)-4-(*o*-tolylselanyl)oxazol-2(3*H*)-one (2t):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a yellow solid. Yield: 0.086 g (82%); mp 111-113 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.08-8.06 (m, 2H), 7.46-7.32 (m, 3H), 7.28-7.22 (m, 1H), 7.18-6.99 (m, 5H), 6.97-6.90 (m, 1H), 6.86 (dd, *J* = 7.8, 1.4 Hz, 1H), 1.93 (m, 6H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 152.9, 143.6, 139.2, 137.3, 132.1, 131.8, 130.7, 130.2, 129.4, 129.2, 128.9, 128.9, 128.5, 128.1, 127.2, 126.8, 126.3, 125.6, 109.9, 21.5, 17.3. MS (EI, 70 eV; *m/z* (relative intensity)): 422 ([M+1], 6), 421 (24), 251 (11), 207 (23), 105 (100), 77 (41). HRMS calcd for $C_{23}H_{20}NO_2Se$ (ESI-TOF, $[M + H]^+$): 422.0659. Found: 422.0670.

**4-((4-Fluorophenyl)selanyl)-5-phenyl-3-(*o*-tolyl)oxazol-2(3*H*)-one (2u):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a yellow solid. Yield: 0.069 g (65%); mp 119-121 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.09-8.07 (m, 2H), 7.47-7.36 (m, 3H), 7.32-7.28 (m, 1H), 7.19-7.15 (m, 2H), 7.03-6.95 (m, 3H), 6.81 (t, *J* = 8.7 Hz, 2H), 1.91 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 162.8 (d, *J* = 248.9 Hz), 152.7, 143.0, 137.3, 134.5 (d, *J* = 8.1 Hz), 132.1, 130.8, 129.5, 129.4, 129.1, 128.6, 127.2, 126.3, 125.8, 122.4 (d, *J* = 3.2 Hz), 116.45 (d, *J* = 21.8 Hz), 110.3, 17.3. $^{19}F$ NMR (235 MHz, in $CDCl_3$): δ (ppm) -62.9. MS (EI, 70 eV; *m/z* (relative intensity)): 426 ([M+1], 4), 425 (16), 207 (11), 183 (05), 105 (100), 77 (37). HRMS calcd for $C_{22}H_{17}FNO_2Se$ (ESI-TOF, $[M + H]^+$): 426.0409. Found: 426.0415.

**5-Phenyl-3-(*o*-tolyl)-4-((3-(trifluoromethyl)phenyl)selanyl)oxazol-2(3*H*)-one (2v):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a yellow solid. Yield: 0.038 g (32%); mp 101-103 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.07-8.04 (m, 2H), 7.49-7.13 (m, 10H), 6.94 (d, *J* = 7.3 Hz, 1H), 1.93 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 152.7, 143.8, 137.1, 135.3, 131.9, 131.5 (q, *J* = 32.7 Hz), 130.9, 129.8, 129.7, 129.3, 129.2, 129.1, 128.7, 127.8 (q, *J* = 3.8 Hz), 127.0, 126.4, 125.9, 125.1 (q, *J* = 3.7 Hz), 123.2 (q, *J* = 272.9 Hz), 109.4, 17.4. $^{19}F$ NMR (235 MHz, in $CDCl_3$): δ (ppm) -62.9. MS (EI, 70 eV; *m/z* (relative intensity)): 476 ([M+1], 4), 475 (17), 281 (06), 207 (19), 105 (100), 77 (31). HRMS calcd for $C_{23}H_{17}F_3NO_2Se$ (ESI-TOF, $[M + H]^+$): 476.0377. Found: 476.0383.

**3-(4-Methoxyphenyl)-5-phenyl-4-(*o*-tolylselanyl)oxazol-2(3H)-one (2w):** The product was isolated by column chromatography (hexane:ethyl acetate 91:09) as a yellow solid. Yield: 0.097 g (89%); mp 97-99 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.01-7.98 (m, 2H), 7.42-7.32 (m, 3H), 7.13-6.97 (m, 6H), 6.79 (d, *J* = 9.0 Hz, 2H), 3.76 (s, 3H), 2.08 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 159.6, 153.8, 143.9, 137.9, 130.4, 130.0, 129.8, 129.1, 129.0, 128.5, 127.6, 127.2, 127.0, 126.1, 125.8, 114.1, 109.5, 55.4, 21.3. MS (EI, 70 eV; *m/z* (relative intensity)): 438 ([M+1], 8), 437 (31), 267 (13), 223 (23), 105 (100), 77 (40). HRMS calcd for $C_{23}H_{20}NO_3Se$ (ESI-TOF, $[M + H]^+$): 438.0608. Found: 438.0617.

**3-(4-Methoxyphenyl)-4-((4-methoxyphenyl)selanyl)-5-phenyloxazol-2(3H)-one (2x):** The product was isolated by column chromatography (hexane:ethyl acetate 88:12) as a yellow solid. Yield: 0.052 g (46%); mp 115-117 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.07-8.04 (m, 2H), 7.45-7.35 (m, 3H), 7.03-7.00 (m, 4H), 6.86 (d, *J* = 9.1 Hz, 2H), 6.68 (d, *J* = 8.9 Hz, 2H),

3.81 (s, 3H), 3.74 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 159.7, 159.6, 153.8, 142.7, 133.4, 129.4, 128.9, 128.5, 127.4, 126.2, 125.9, 118.6, 115.0, 114.1, 111.0, 55.5, 55.2. MS (EI, 70 eV; *m/z* (relative intensity)): 453 (10), 373 (07), 240 (26), 105 (100), 89 (23), 77 (48). HRMS calcd for $C_{23}H_{20}NO_4Se$ (ESI-TOF, $[M + H]^+$): 454.0558. Found: 454.0555.

**4-((4-Fluorophenyl)selanyl)-3-(4-methoxyphenyl)-5-phenyloxazol-2(3H)-one (2y):** The product was isolated by column chromatography (hexane:ethyl acetate 90:10) as a white solid. Yield: 0.085 g (77%); mp 146-148 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.03-8.01 (m, 2H), 7.45-7.35 (m, 3H), 7.09-7.00 (m, 4H), 6.87-6.84 (m, 4H), 3.80 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 162.5 (d, *J* = 248.7 Hz), 159.6, 153.6, 143.2, 133.2 (d, *J* = 8.0 Hz), 129.3, 129.1, 128.5, 127.1, 126.0, 125.9, 123.2 (d, *J* = 3.6 Hz), 116.6 (d, *J* = 22.0 Hz), 114.1, 110.2, 55.4. $^{77}Se$ NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) δ (ppm) 267.1. $^{19}F$ NMR (235 MHz, in $CDCl_3$): δ (ppm) -112.9. MS (EI, 70 eV; *m/z* (relative intensity)): 442 ([M+1], 5), 441 (22), 228 (12), 207 (08), 105 (100), 77 (40). HRMS calcd for $C_{22}H_{17}FNO_3Se$ (ESI-TOF, $[M + H]^+$): 442.0358. Found: 442.0364.

**3-(4-Chlorophenyl)-5-phenyl-4-(*o*-tolylselanyl)oxazol-2(3H)-one (2z):** The product was isolated by column chromatography (hexane:ethyl acetate 94:06) as a yellow solid. Yield: 0.081 g (74%); mp 147-149 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 7.99-7.97 (m, 2H), 7.44-7.36 (m, 3H), 7.27-7.25 (m, 2H), 7.14-7.02 (m, 6H), 2.10 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.3, 144.5, 137.9, 134.5, 131.9, 130.6, 129.9, 129.5, 129.3, 129.1, 129.0, 128.6, 127.8, 127.1, 126.9, 125.9, 108.6, 21.3. $^{77}Se$ NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) δ (ppm) 238.6. MS (EI, 70 eV; *m/z* (relative intensity)): 443 ([M+1], 9), 442 (05), 271 (16), 227 (19), 105 (100), 77 (42). HRMS calcd for $C_{22}H_{17}ClNO_2Se$ (ESI-TOF, $[M + H]^+$): 442.0113. Found: 442. 0117.

**3-(4-Chlorophenyl)-4-((4-methoxyphenyl)selanyl)-5-phenyloxazol-2(3*H*)-one (2aa):** The product was isolated by column chromatography (hexane:ethyl acetate 90:10) as a yellow solid. Yield: 0.074 g (65%); mp 106-108 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.05-8.02 (m, 2H), 7.44-7.38 (m, 3H), 7.32 (d, *J* = 8.7 Hz, 2H), 7.07 (d, *J* = 8.7 Hz, 2H), 6.99 (d, *J* = 8.9 Hz, 2H), 6.67 (d, *J* = 8.9 Hz, 2H), 3.73 (s, 3H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 159.8, 153.2, 143.1, 134.4, 133.4, 132.0, 129.3, 129.1, 129.0, 128.5, 127.1, 126.0, 118.2, 115.1, 110.1, 55.2. $^{77}Se$ NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) δ (ppm) 260.9. MS (EI, 70 eV; *m/z* (relative intensity)): 459 ([M+2], 8), 457 (17), 377 (12), 244 (28), 105 (100), 77 (52). HRMS calcd for $C_{22}H_{17}ClNO_3Se$ (ESI-TOF, $[M + H]^+$): 458.0062. Found: 458.0065.

**3-(4-Chlorophenyl)-4-((4-fluorophenyl)selanyl)-5-phenyloxazol-2(3*H*)-one (2ab):** The product was isolated by column chromatography (hexane:ethyl acetate 94:06) as a white solid. Yield: 0.085 g (77%); mp 147-149 °C. $^1H$ NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.02-7.99 (m, 2H), 7.45-7.39 (m, 3H), 7.32 (d, *J* = 8.8 Hz, 2H), 7.08-7.05 (m, 4H), 6.86 (t, *J* = 8.7 Hz, 2H). $^{13}C\{^1H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 162.6 (d, *J* = 249.3 Hz), 153.1, 143.8, 134.6, 133.2 (d, *J* = 8.0 Hz), 131.9, 129.4, 129.3, 129.1, 128.6, 126.8, 126.0, 122.9 (d, *J* = 3.3 Hz), 116.8 (d, *J* = 21.5 Hz), 109.4. $^{77}Se$ NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) δ (ppm) 268.3. $^{19}F$ NMR (235 MHz, in $CDCl_3$): δ (ppm) -117.6. MS (EI, 70 eV; *m/z* (relative intensity)): 447 ([M+2], 7), 445 (17), 232 (11), 183 (10), 105 (100), 77 (42). HRMS calcd for $C_{21}H_{14}ClFNO_2Se$ (ESI-TOF, $[M + H]^+$): 445.9862. Found: 445.9870.

**5-Phenyl-4-(*o*-tolylselanyl)-3-(3-(trifluoromethyl)phenyl)oxazol-2(3*H*)-one (2ac):** The product was isolated by column chromatography (hexane:ethyl acetate 95:5) as a white solid. Yield: 0.069 g (58%); mp 139-141 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.02-7.99 (m, 2H), 7.56 (d, *J* = 7.7 Hz, 1H), 7.45-7.32 (m, 6H), 7.11-6.97 (m, 4H), 2.05 (s, 3H). $^{13}C\{^{1}H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 153.2, 144.7, 138.1, 134.0, 131.3 (d, *J* = 33.7 Hz), 131.1, 130.6, 130.1, 129.5, 129.4, 129.0, 128.6, 128.0, 127.1, 126.8, 126.0, 125.3 (q, *J* = 3.7 Hz), 124.8 (q, *J* = 3.8 Hz), 123.2 (q, *J* = 272.8 Hz), 108.5, 21.2. $^{19}$F NMR (235 MHz, in $CDCl_3$): δ (ppm) -62.8. MS (EI, 70 eV; *m/z* (relative intensity)): 475 (10), 305 (08), 261 (15), 105 (100), 89 (18), 77 (47). HRMS calcd for $C_{23}H_{17}F_3NO_2Se$ (ESI-TOF, $[M + H]^+$): 476.0377. Found: 476.0386.

**4-((2-Methoxyphenyl)selanyl)-5-phenyl-3-(3-(trifluoromethyl)phenyl)oxazol-2(3*H*)-one (2ad):** The product was isolated by column chromatography (hexane:ethyl acetate 92:8) as a yellow solid. Yield: 0.050 g (41%); mp 119-121 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.01-7.98 (m, 2H), 7.57-7.55 (m, 1H), 7.46-7.36 (m, 6H), 7.24-7.18 (m, 1H), 7.04 (dd, *J* = 7.7, 1.6 Hz, 1H), 6.83 (td, *J* = 7.5, 1.2 Hz, 1H), 6.77 (dd, *J* = 8.2, 1.2 Hz, 1H), 3.69 (s, 3H). $^{13}C\{^{1}H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 156.7, 153.3, 145.4, 134.0, 131.2 (q, *J* = 33.2 Hz), 131.0, 129.5, 129.3, 129.2, 128.8, 128.5, 126.9, 126.1, 125.1 (q, *J* = 3.7 Hz), 124.7 (q, *J* = 3.8 Hz), 123.3 (q, *J* = 272.5 Hz), 122.0, 55.6. $^{19}$F NMR (235 MHz, in $CDCl_3$): δ (ppm) -62.9. MS (EI, 70 eV; *m/z* (relative intensity)): 492 ([M+1], 6), 491 (22), 278 (08), 207 (12), 105 (100), 77 (46). HRMS calcd for $C_{23}H_{17}F_3NO_3Se$ (ESI-TOF, $[M + H]^+$): 492.0326. Found: 492.0338.

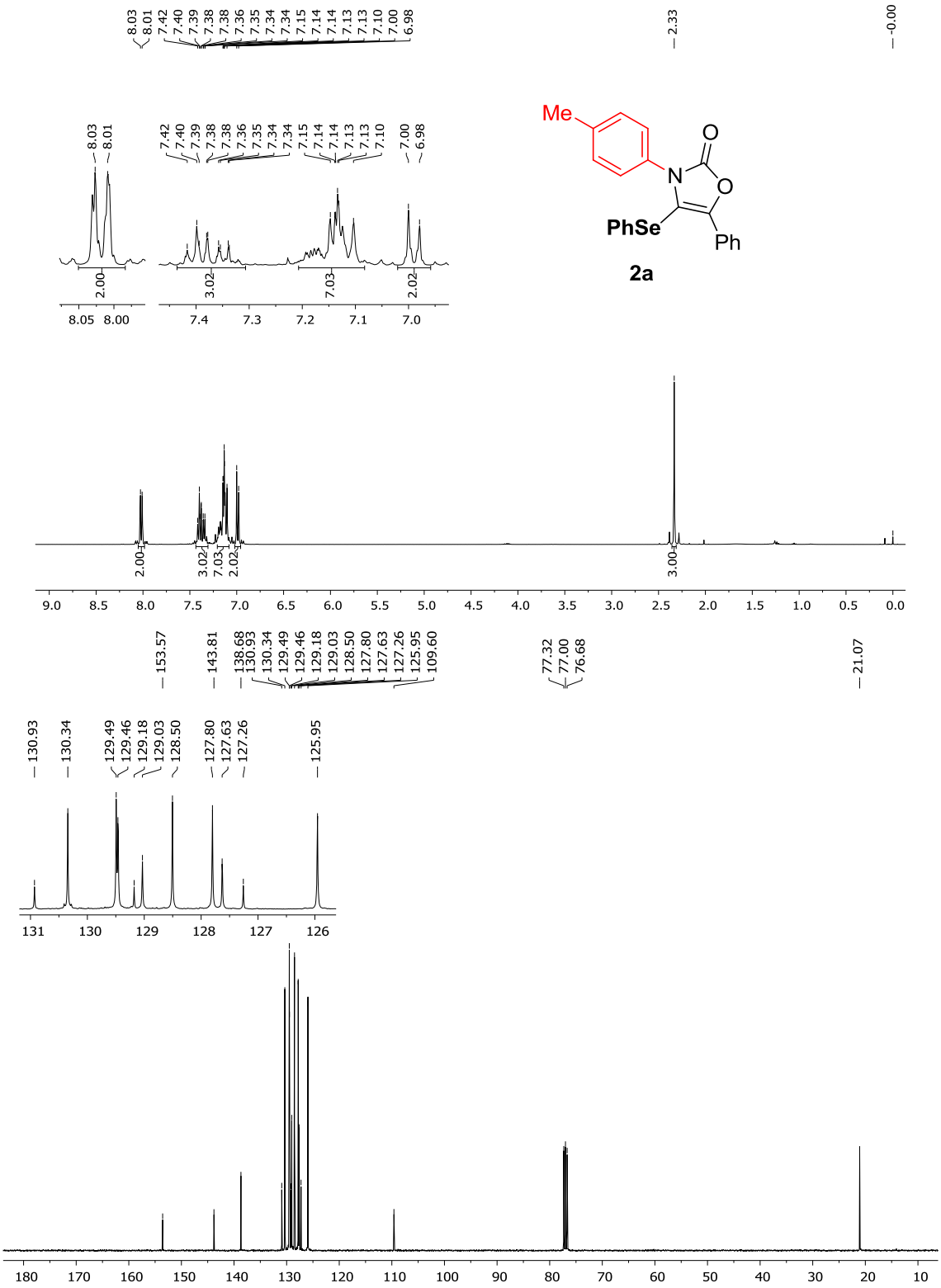
**4-((4-Fluorophenyl)selanyl)-5-phenyl-3-(3-(trifluoromethyl)phenyl)oxazol-2(3*H*)-one (2ae):** The product was isolated by column chromatography (hexane:ethyl acetate 92:08) as a white solid. Yield: 0.088 g (74%); mp 131-133 °C. $^{1}$H NMR ($CDCl_3$, 400 MHz): δ (ppm) 8.03-8.01 (m, 2H), 7.63-7.61 (m, 1H), 7.52-7.38 (m, 6H), 7.05-7.02 (m, 2H), 6.84 (t, *J* = 8.7 Hz, 2H). $^{13}C\{^{1}H\}$ NMR ($CDCl_3$. 100 MHz): δ (ppm) 162.7 (d, *J* = 249.9 Hz), 153.0, 144.0, 134.0, 133.4 (d, *J* = 8.1 Hz), 131.5 (q, *J* = 33.7 Hz), 131.3, 129.6, 129.5, 128.7, 126.8, 126.1, 125.4 (q, *J* = 3.7 Hz), 125.1 (q, *J* = 3.8 Hz), 123.2 (q, *J* = 272.7 Hz), 122.6 (d, *J* = 3.1 Hz), 116.9 (d, *J* = 22.0 Hz), 109.2. $^{19}$F NMR (235 MHz, in $CDCl_3$): δ (ppm) -62.8, -112.2. MS (EI, 70 eV; *m/z* (relative intensity)): 480 ([M+1], 5), 479 (22), 266 (17), 183 (09), 105 (100), 77 (42). HRMS calcd for $C_{22}H_{14}F_4NO_2Se$ (ESI-TOF, $[M + H]^+$): 480.0126. Found: 480. 0129.

[1] G. M. Sheldrick, *Acta Cryst*. A64, **2008**, *6*, 112–122.

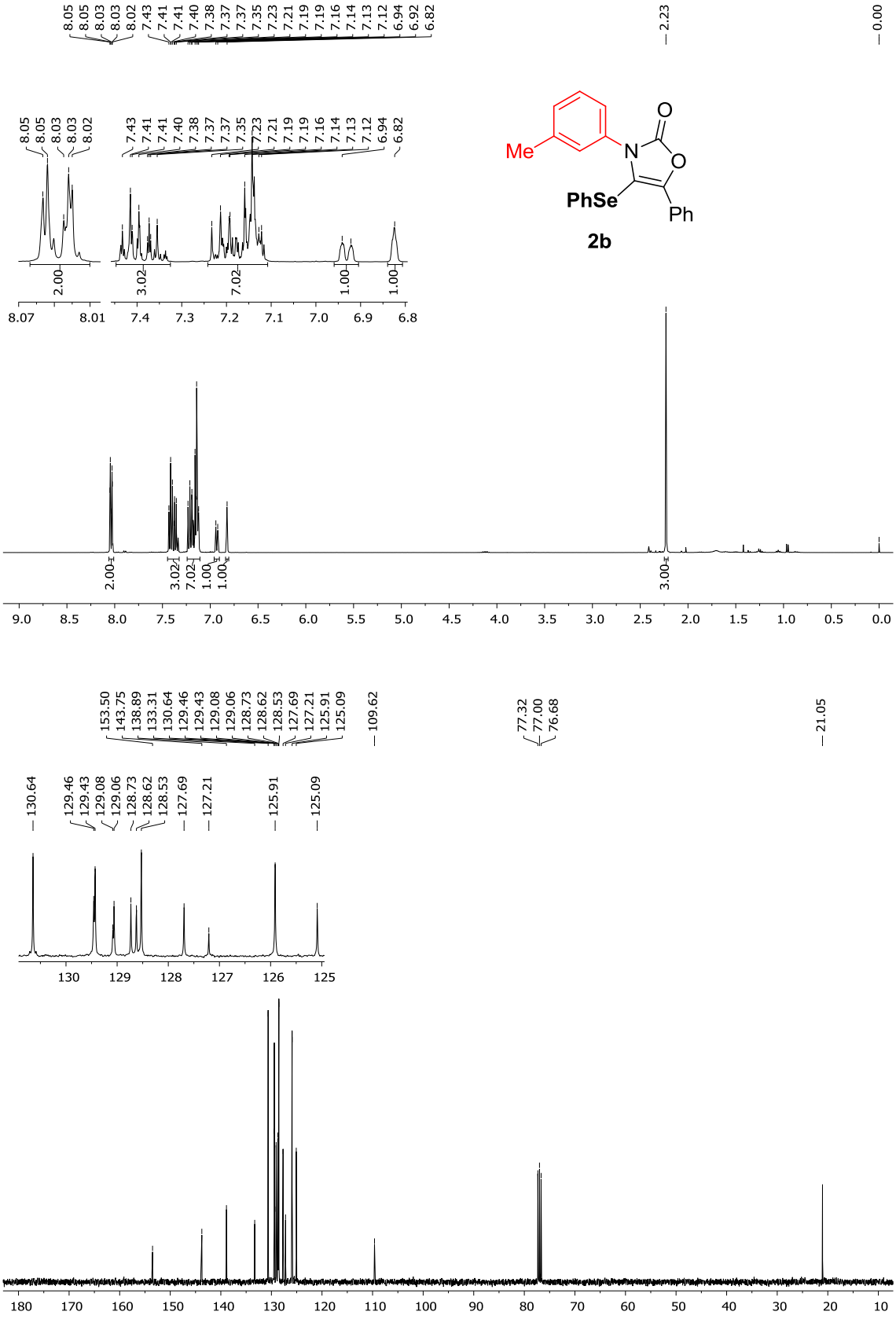
[2] ORTEP3 for Windows - *L. J. Farrugia*, *J. Appl. Crystallogr*. **1997**, *30*, *565*.

[3] T. A. C. Goulart, D. F. Back, S. M. E. Silva and G. Zeni, *J. Org. Chem*. **2021**, *86*, 980-994.

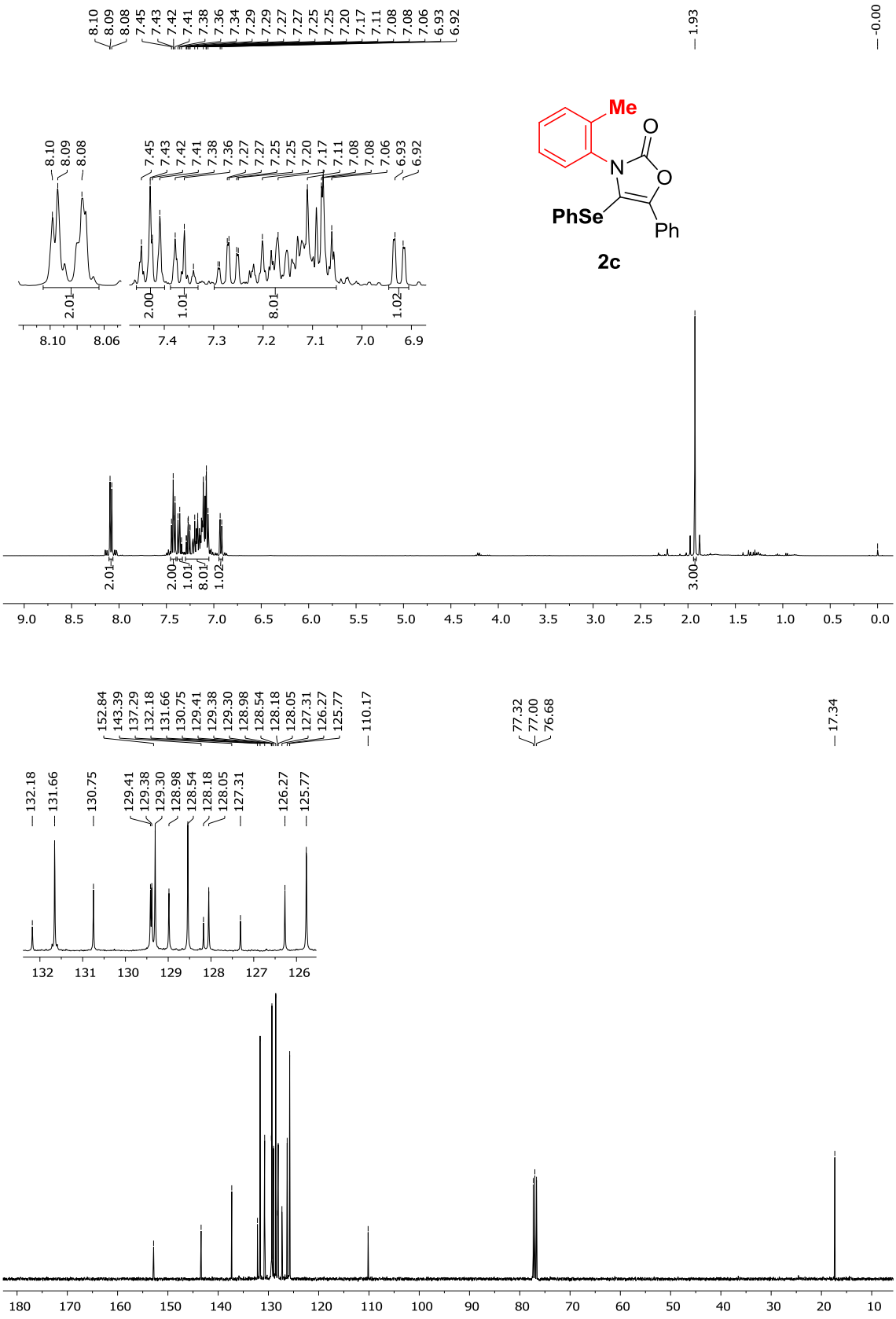
## SPECTRA



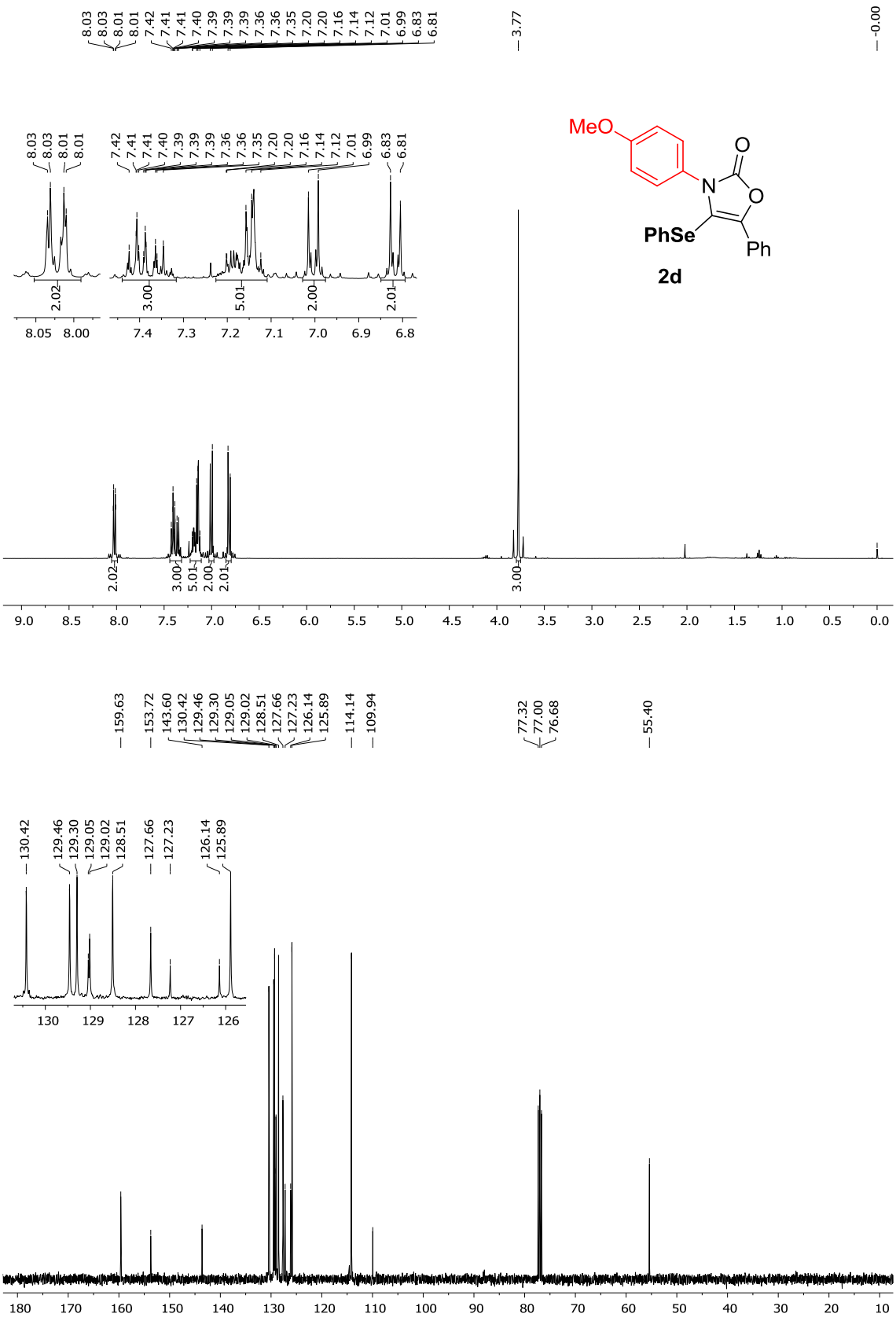

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2a** in $CDCl_3$.



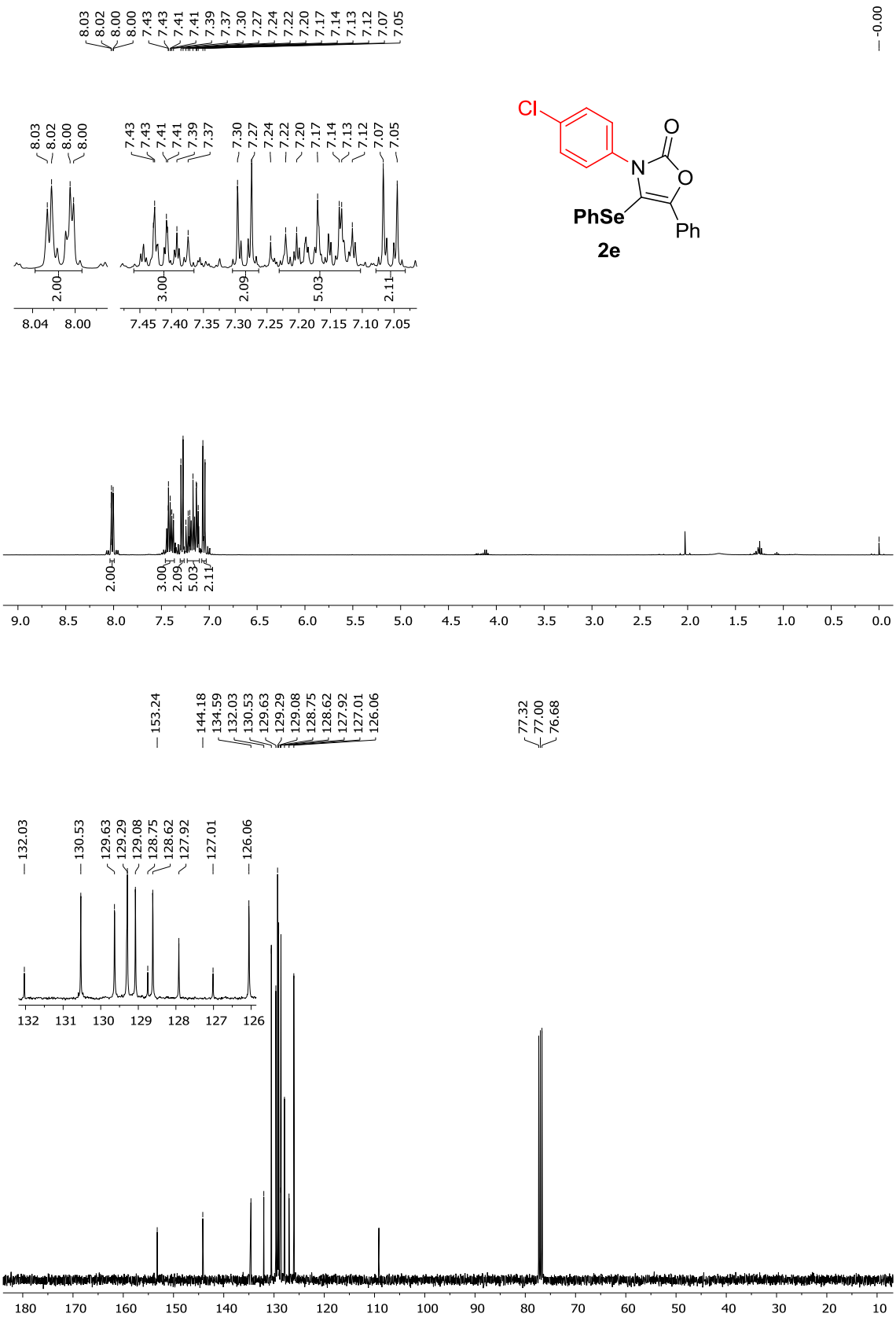

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2b** in $CDCl_3$.



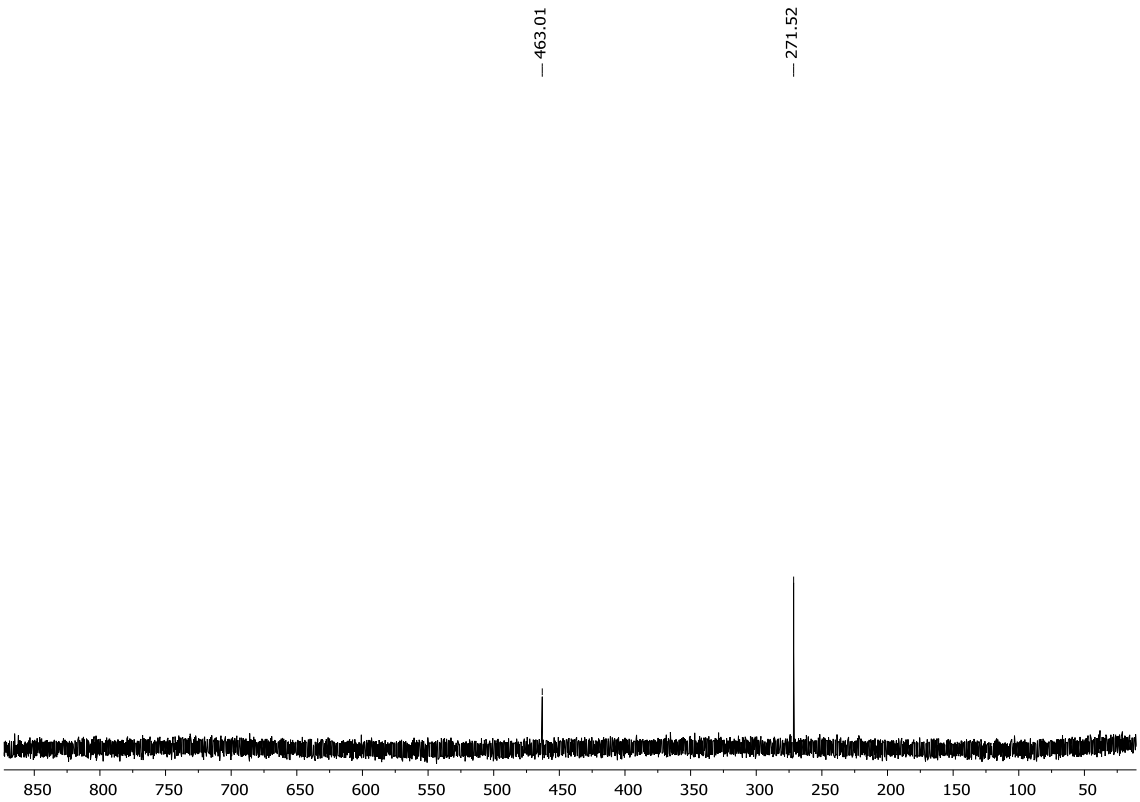

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2c** in $CDCl_3$.



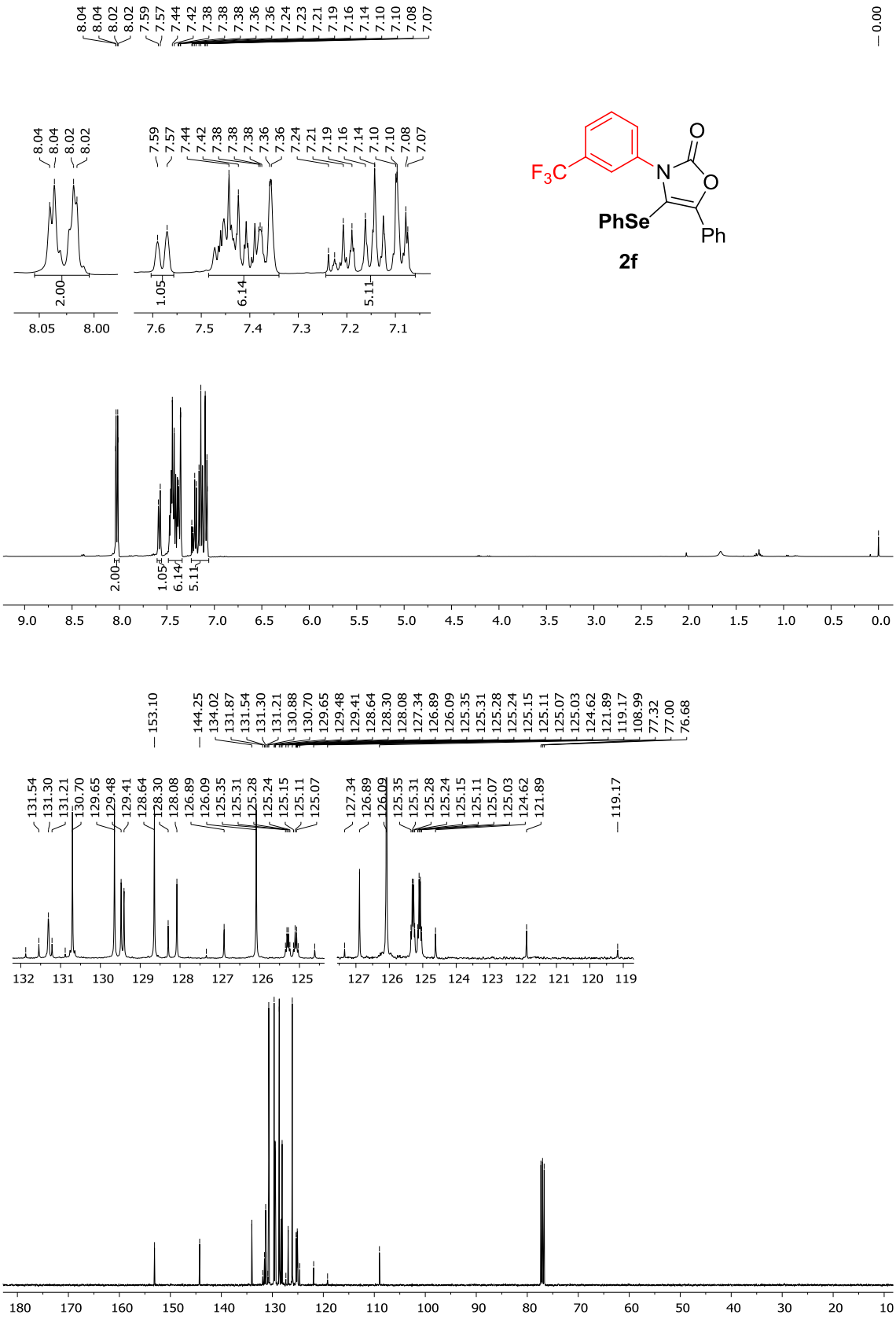

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2d** in $CDCl_3$.



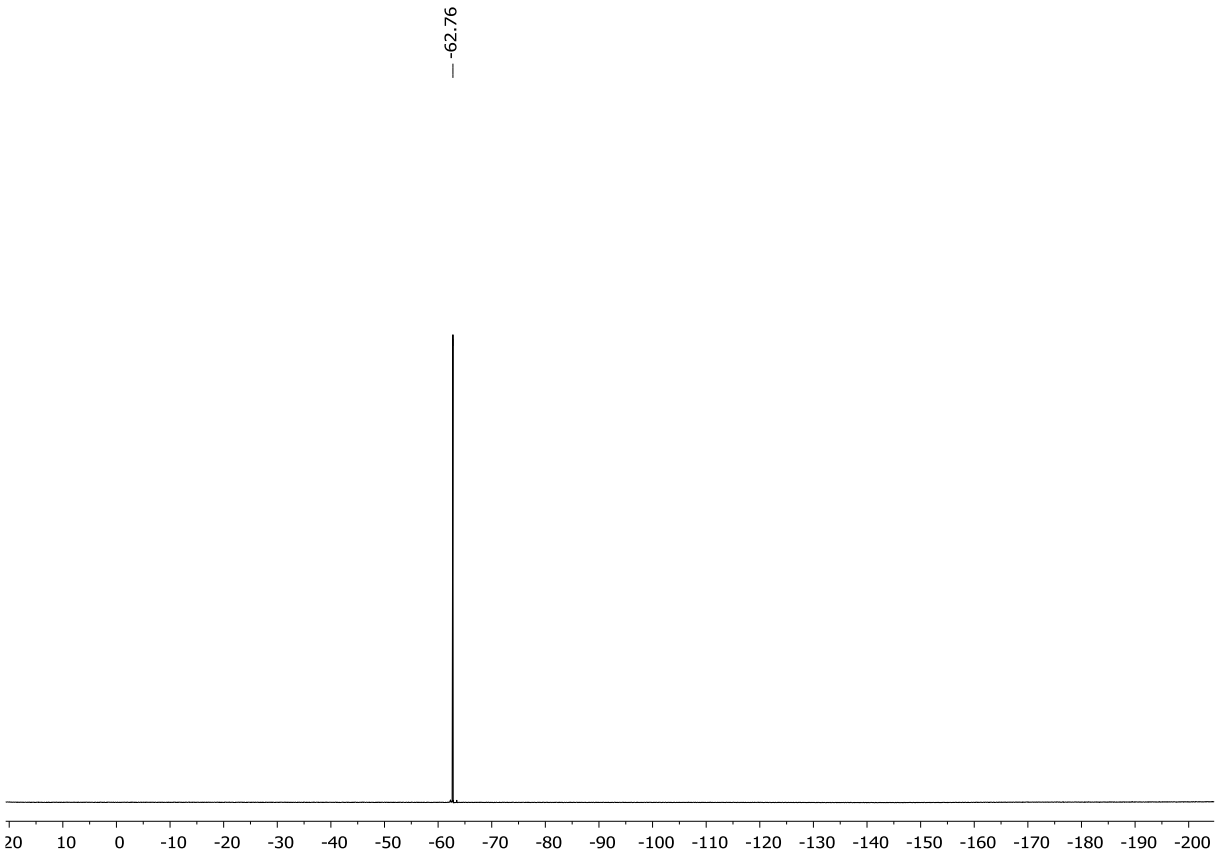

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2e** in $CDCl_3$.



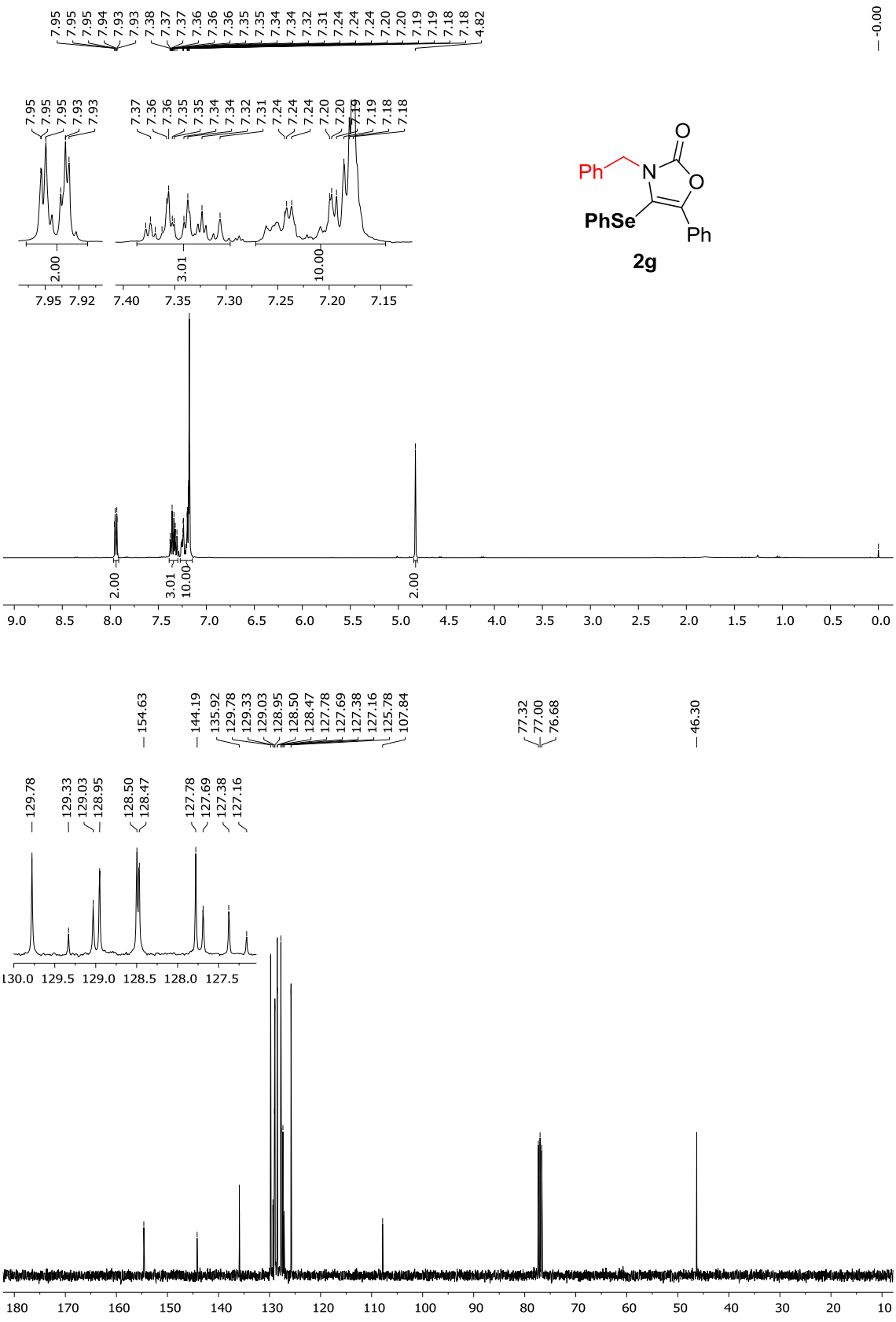

$^{77}$Se NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) for **2e**.



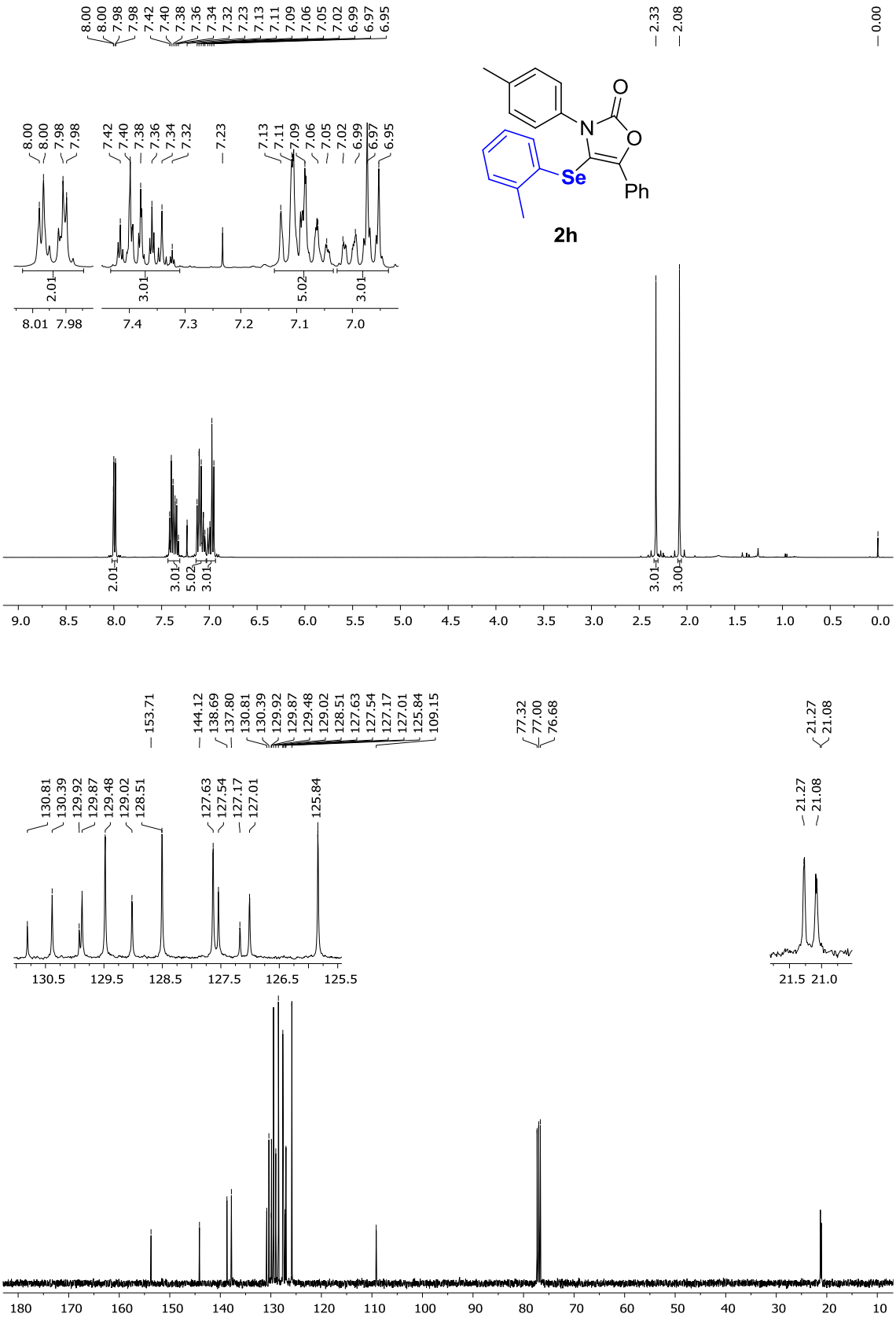

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2f** in $CDCl_3$.



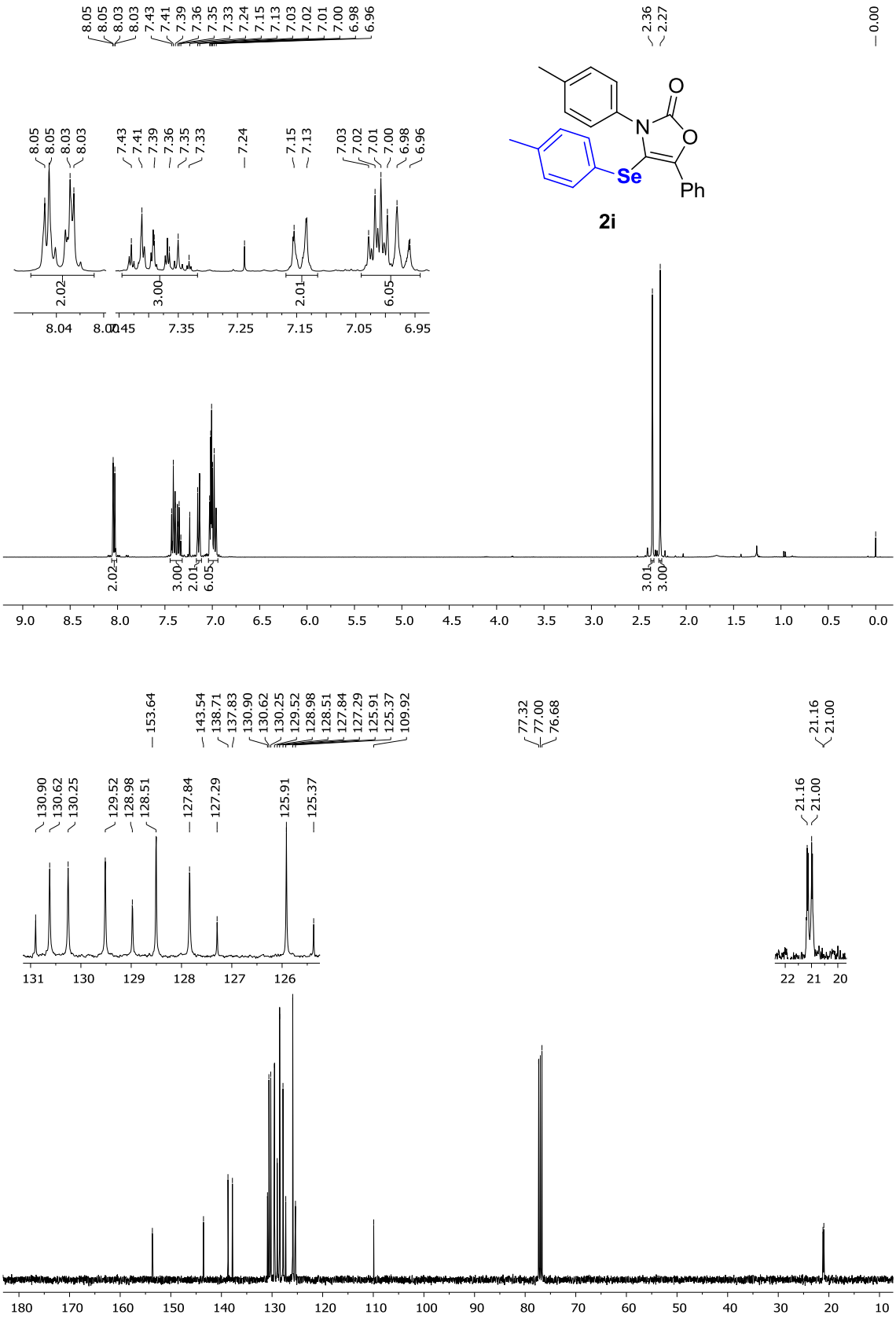

$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2f.**



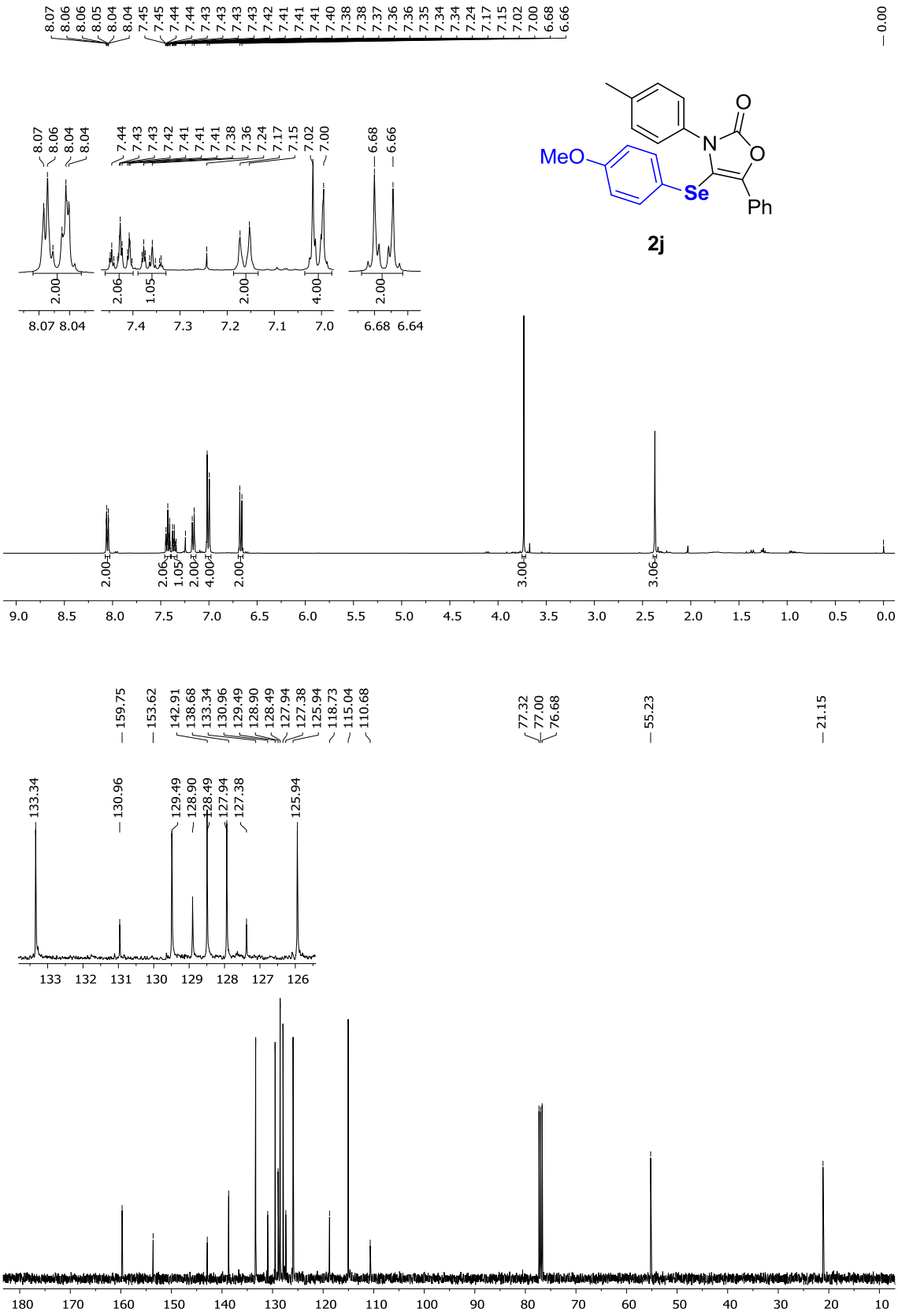

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2g** in $CDCl_3$.



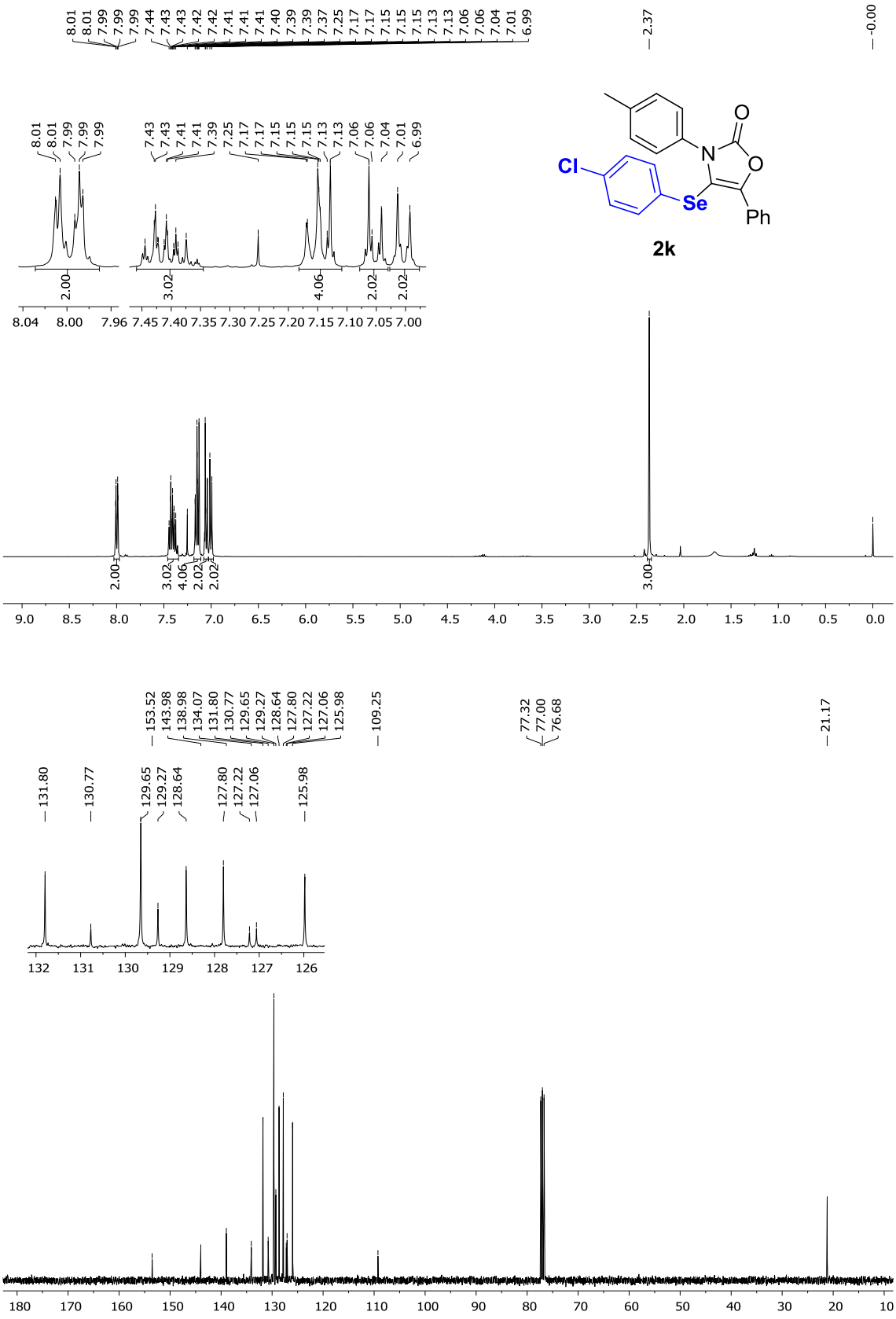

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2h** in $CDCl_3$.



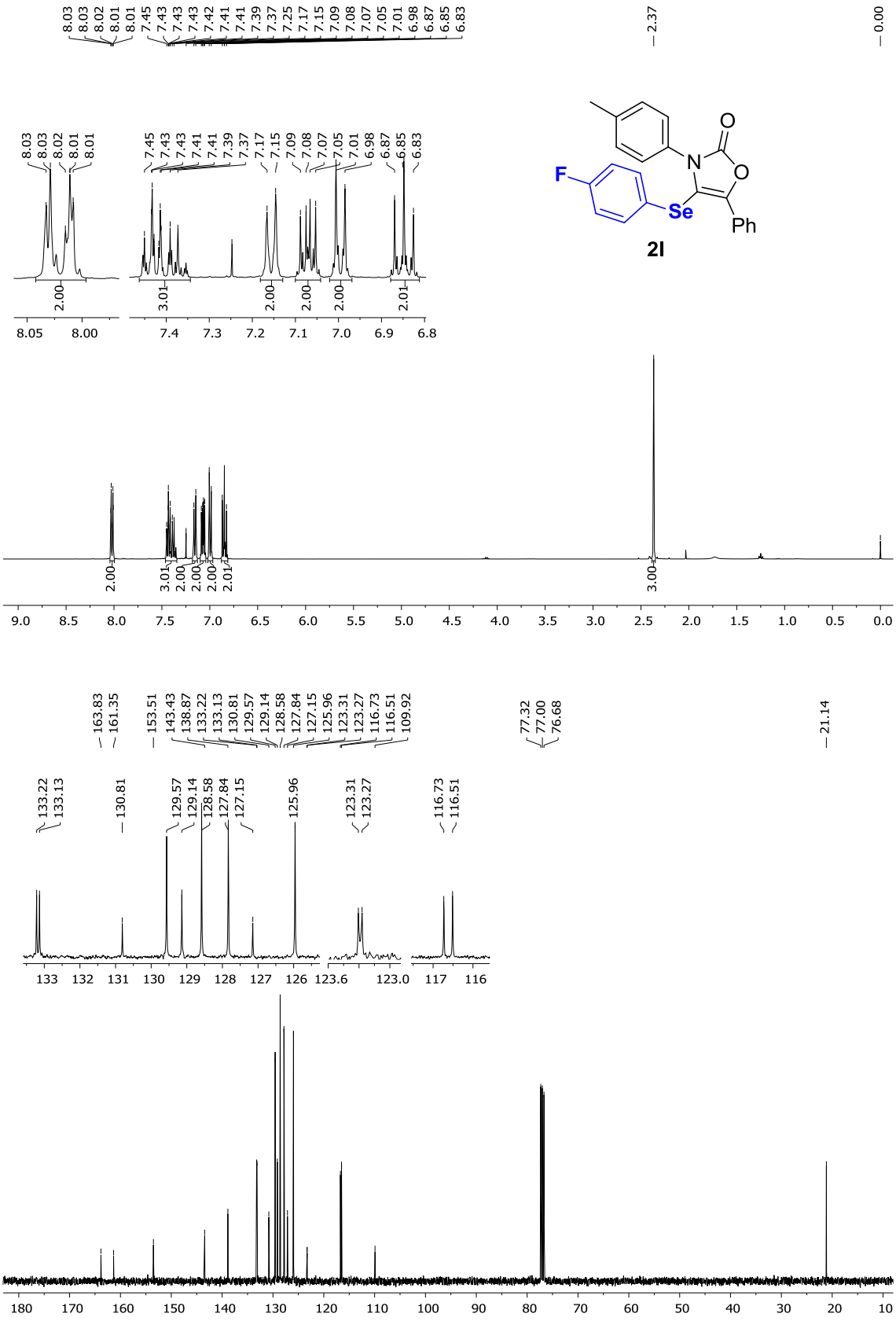

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2i** in $CDCl_3$.



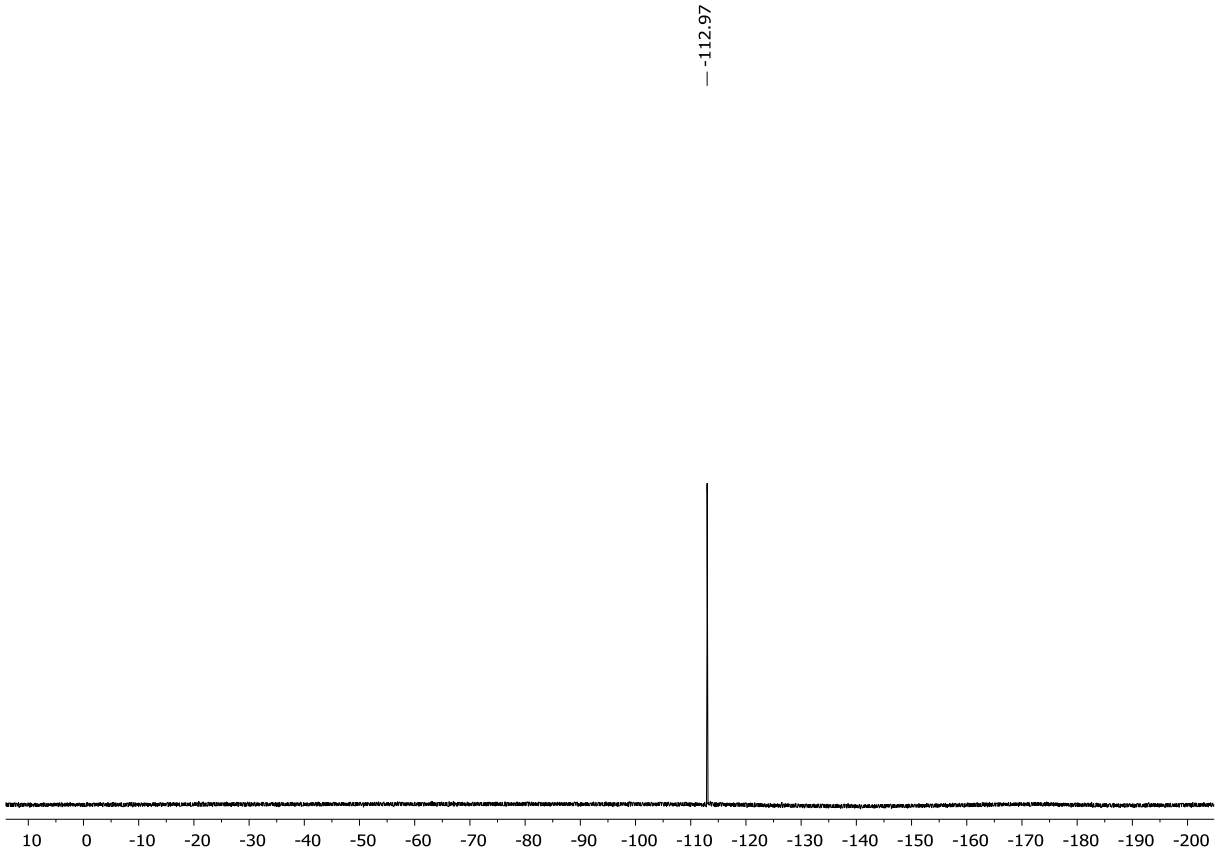

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2j** in $CDCl_3$.



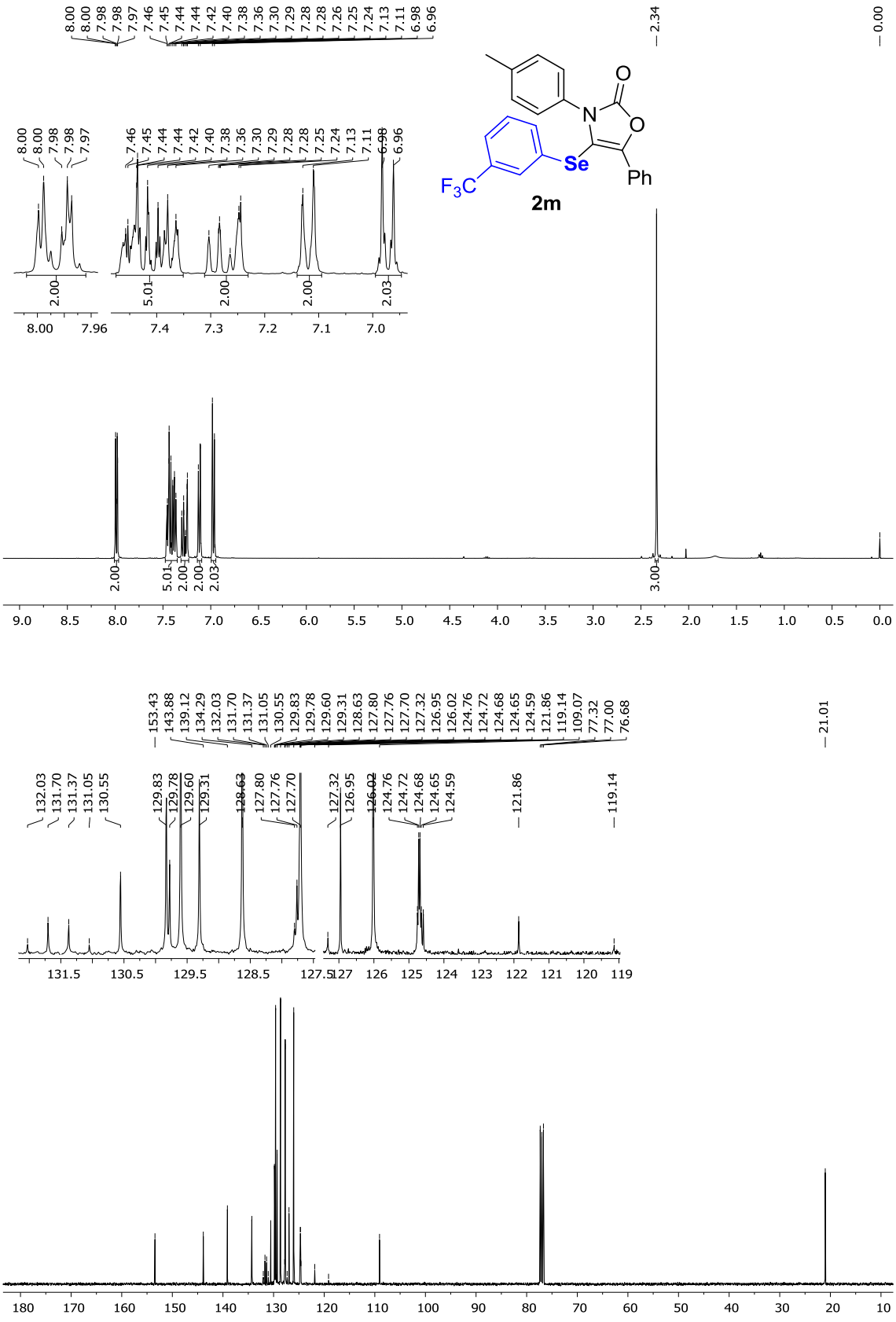

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2k** in $CDCl_3$.



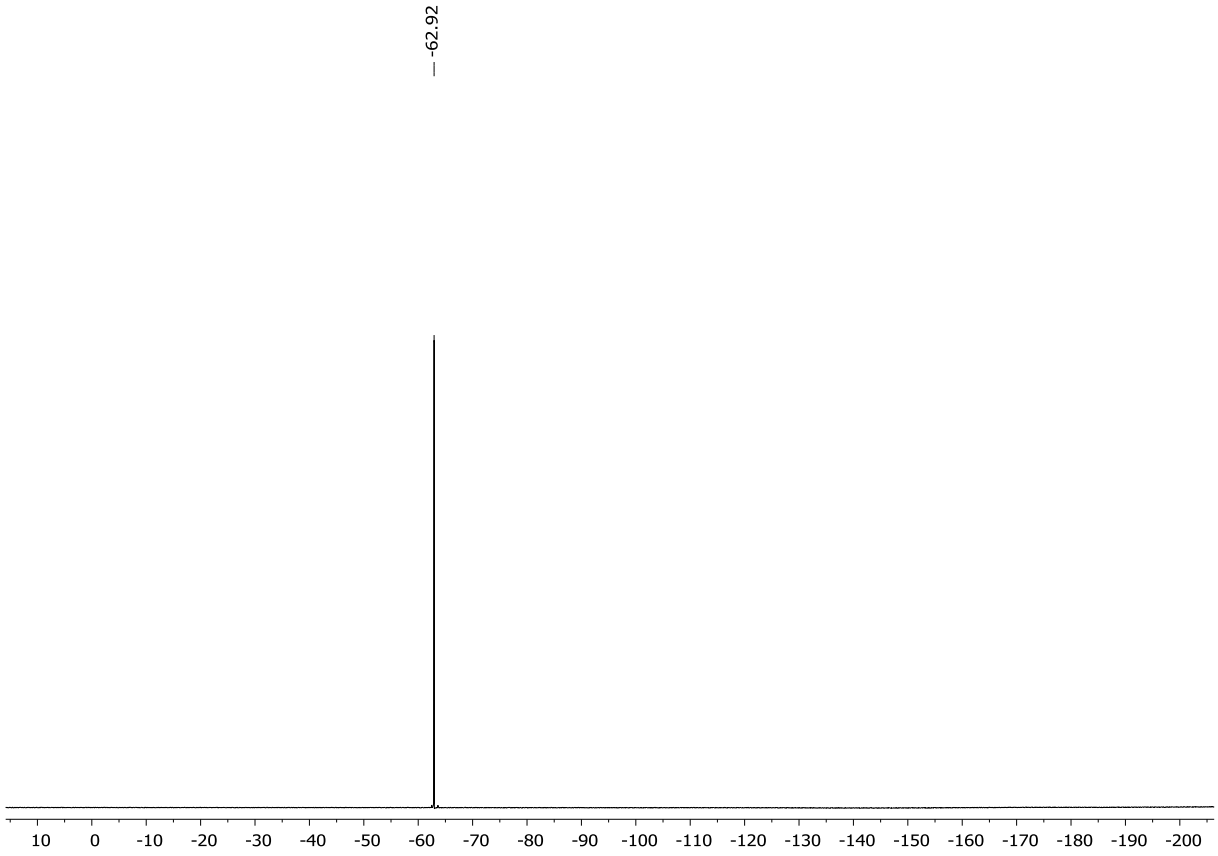

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2l** in $CDCl_3$.



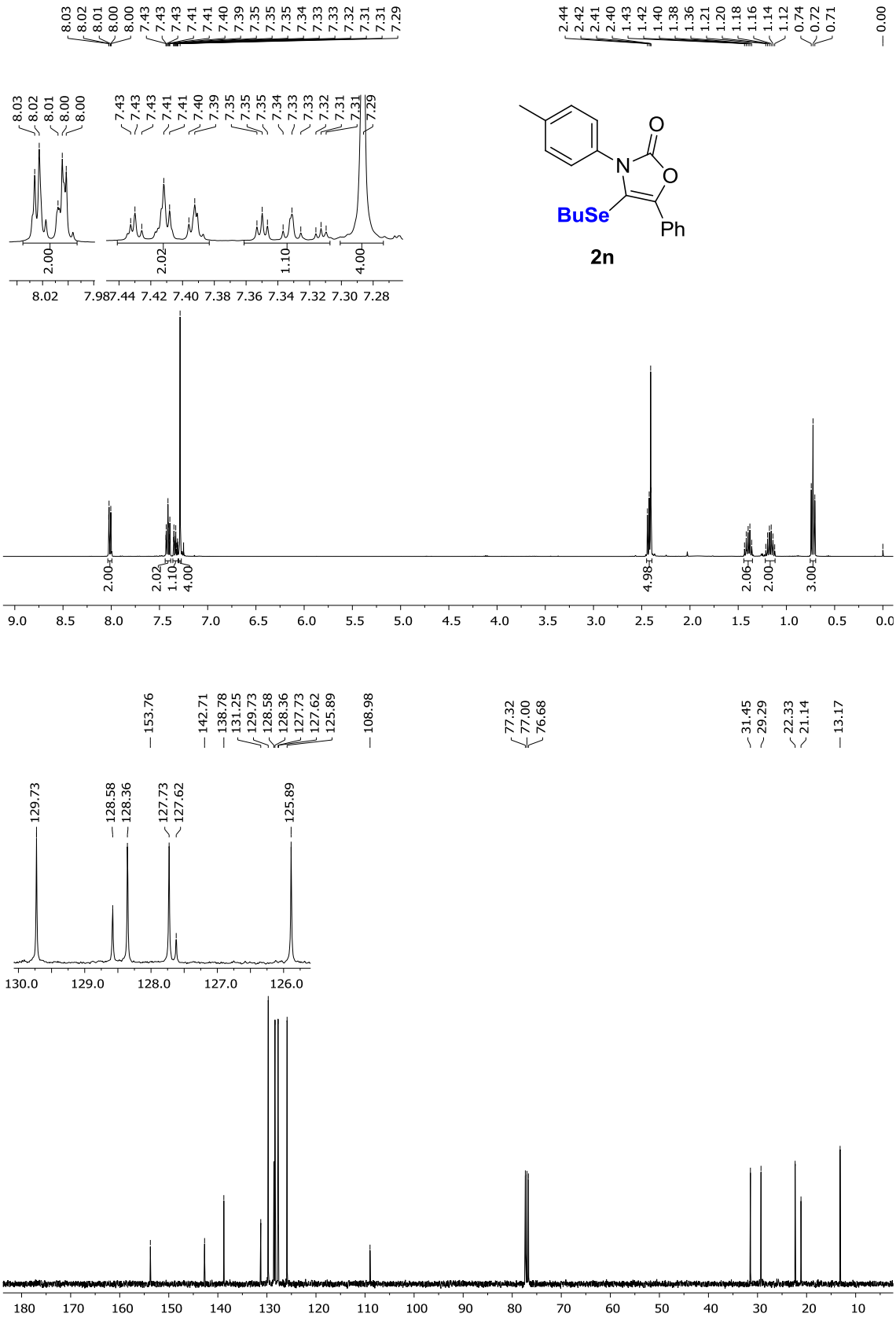

$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2l.**



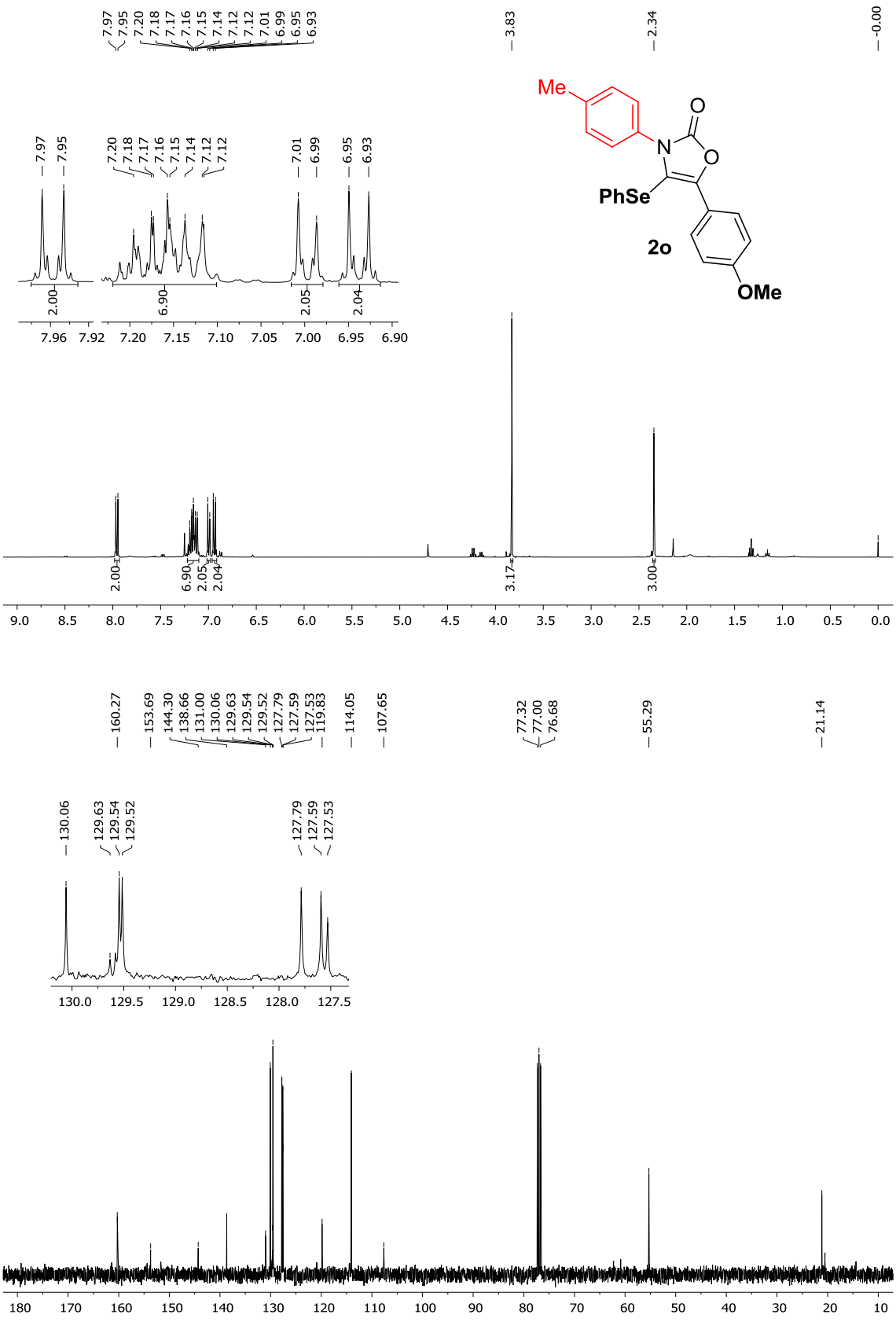

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2m** in $CDCl_3$.



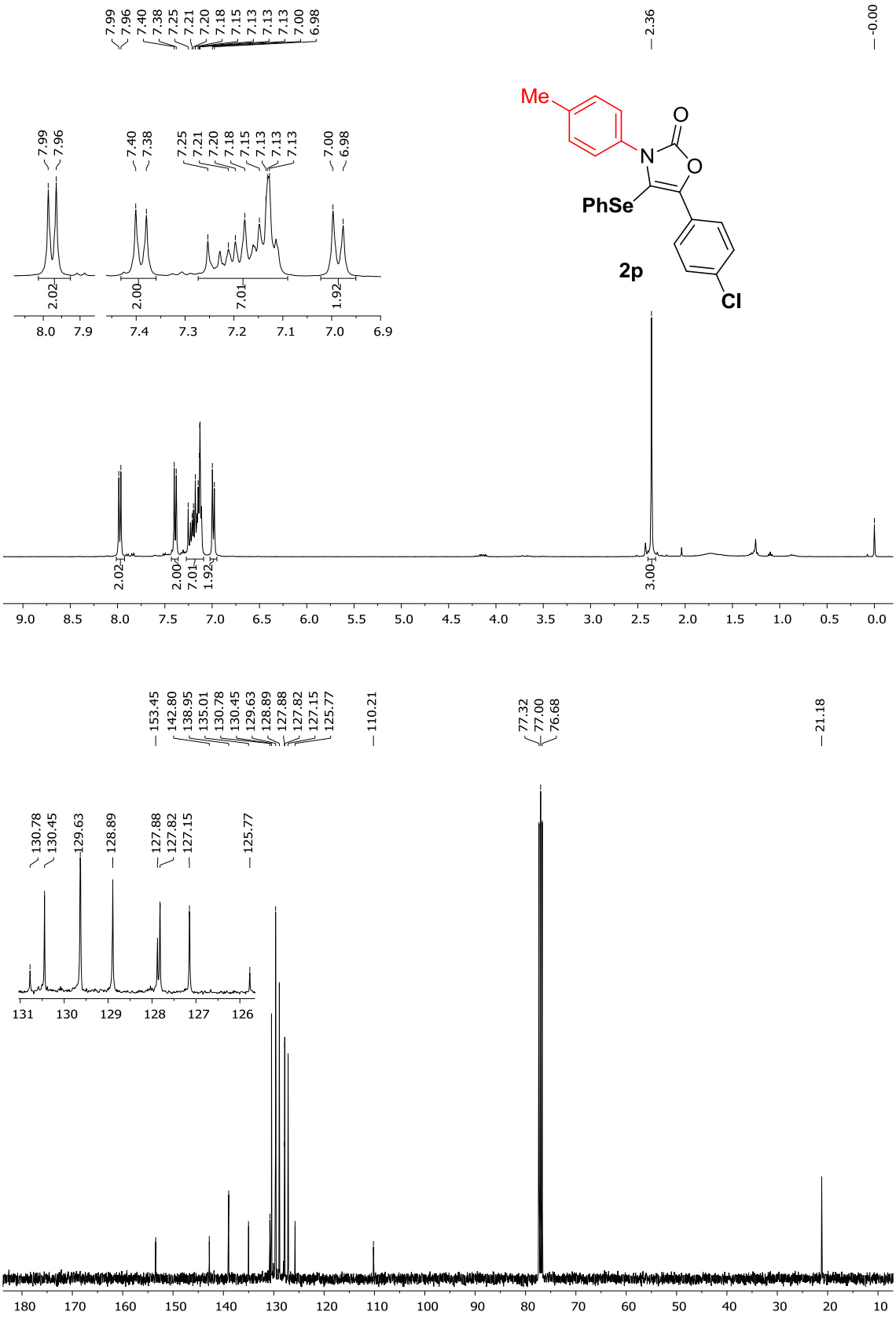

$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2m.**



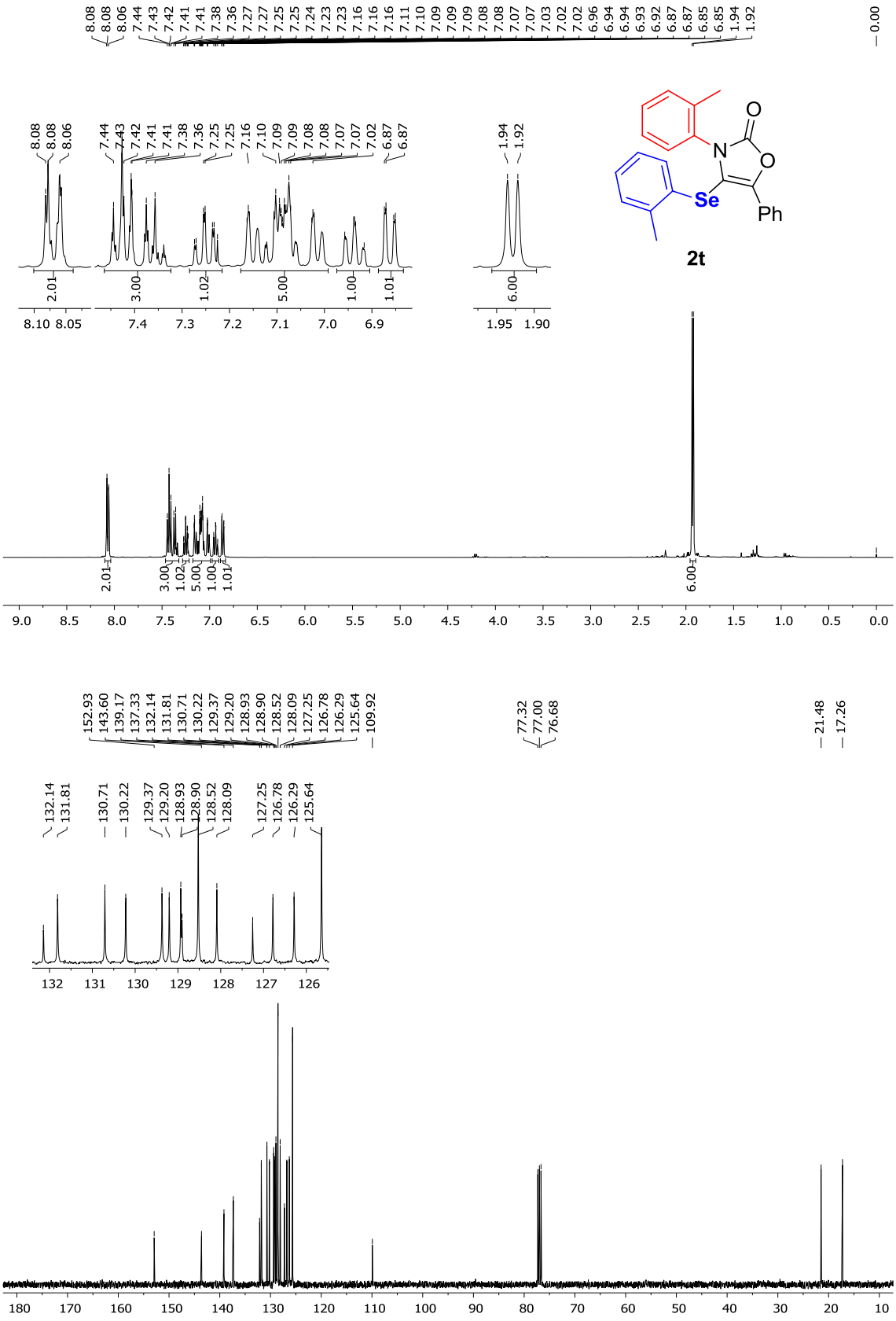

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2n** in $CDCl_3$.



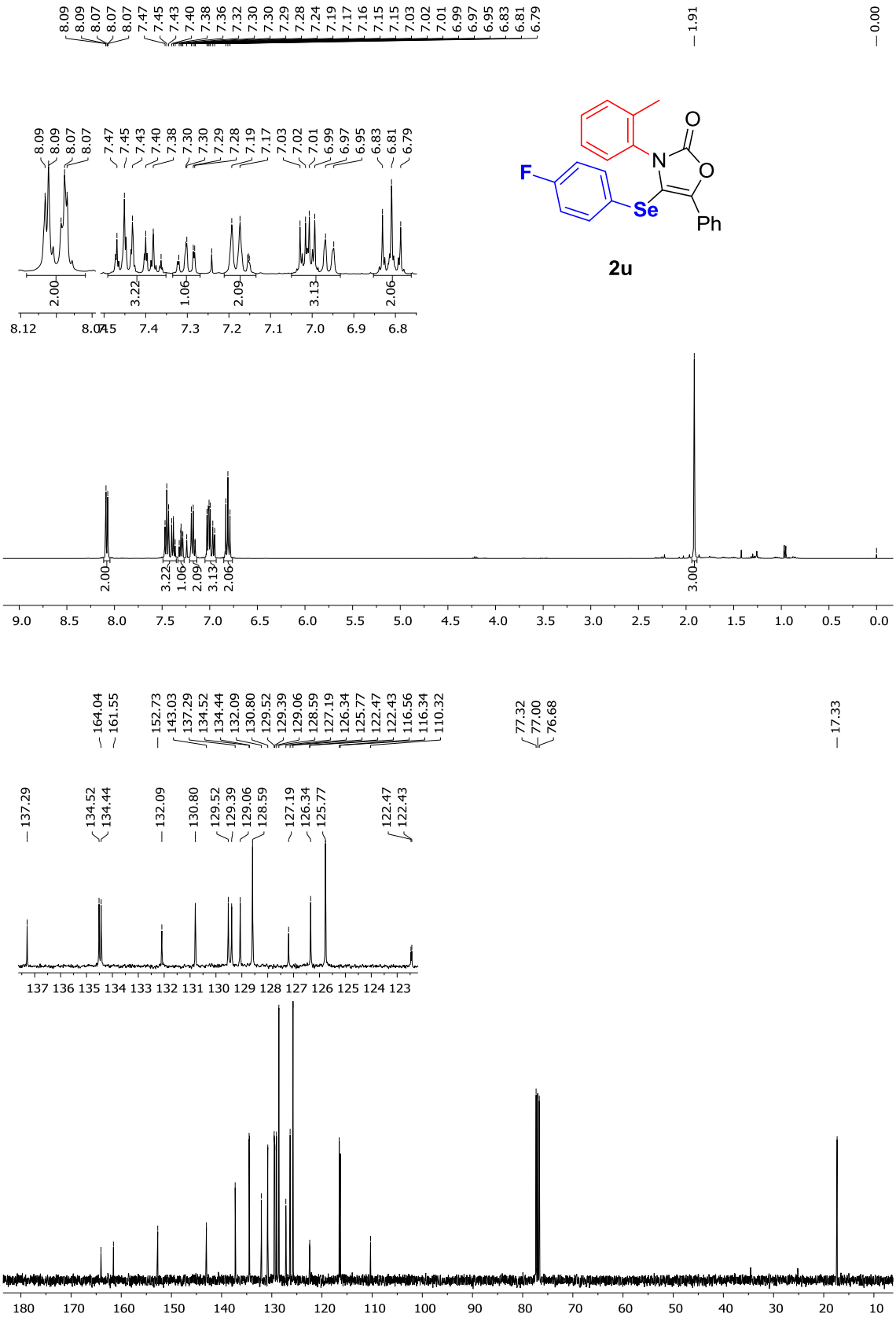

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2o** in $CDCl_3$.



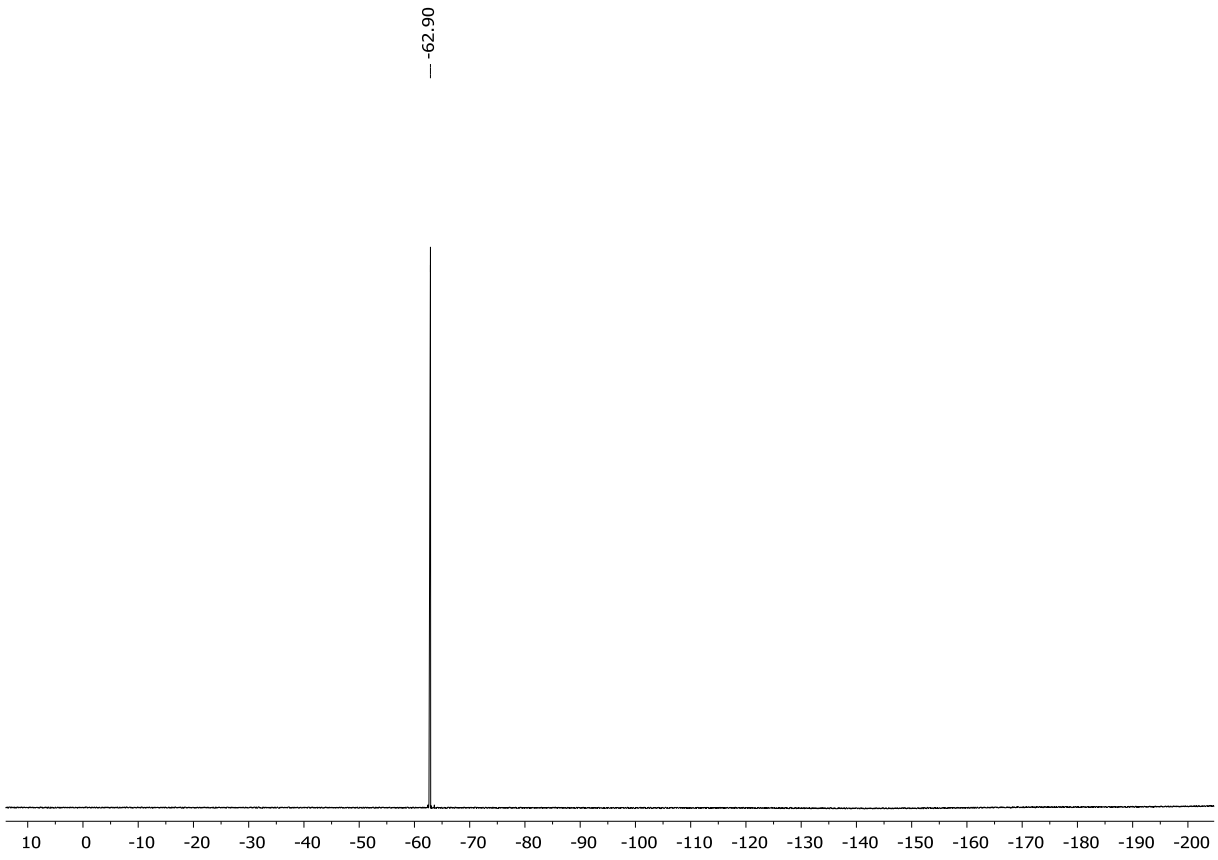

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2p** in $CDCl_3$.



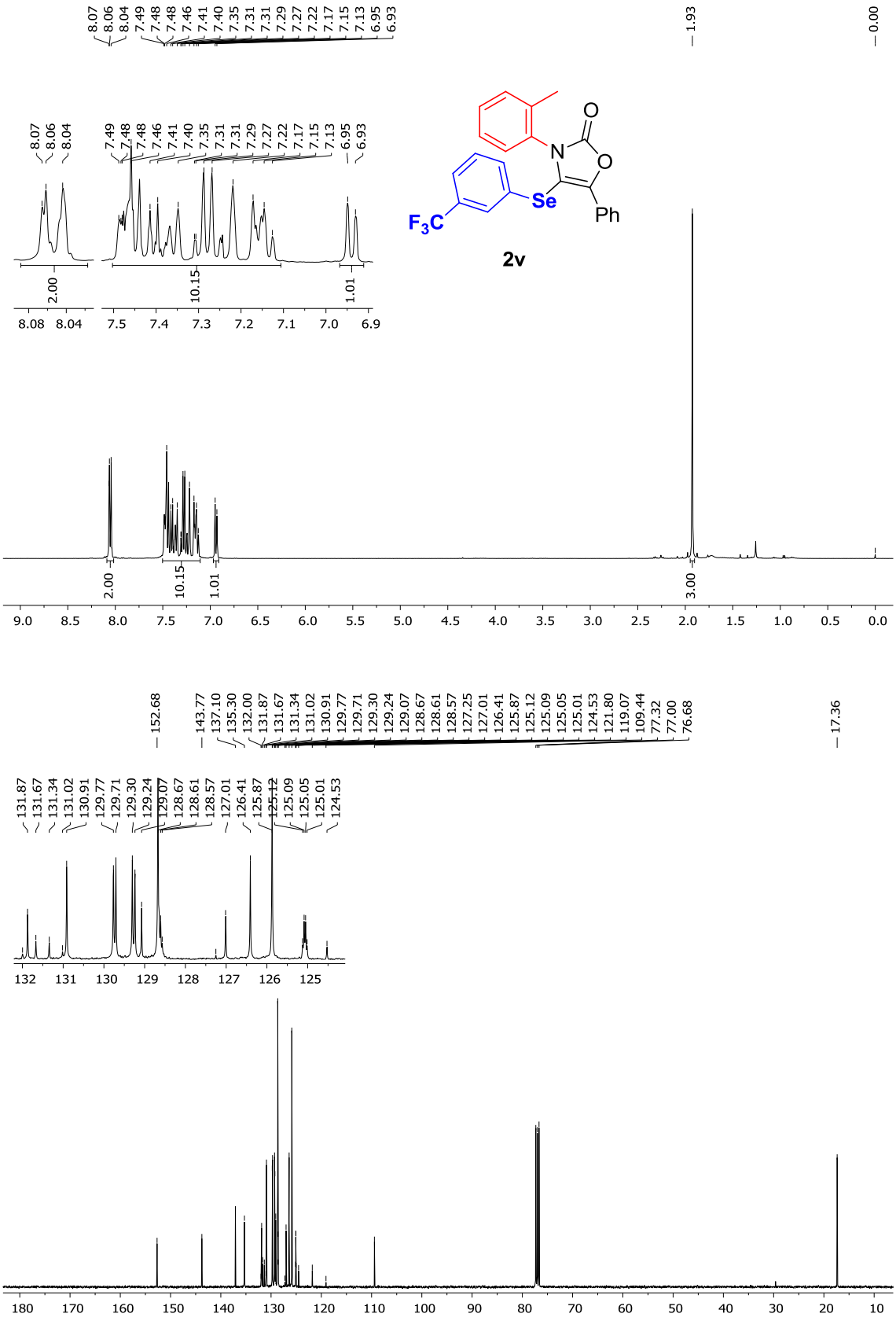

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2t** in $CDCl_3$.



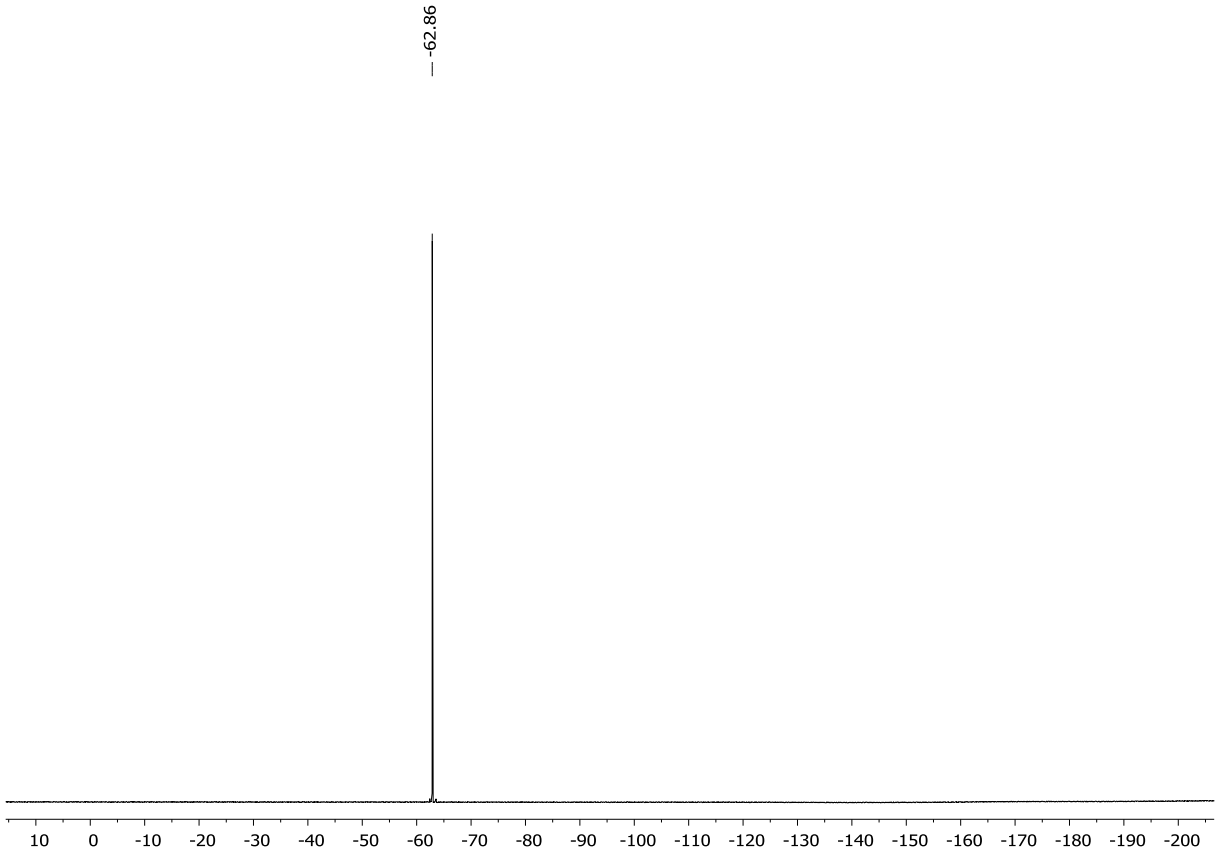

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2u** in $CDCl_3$.



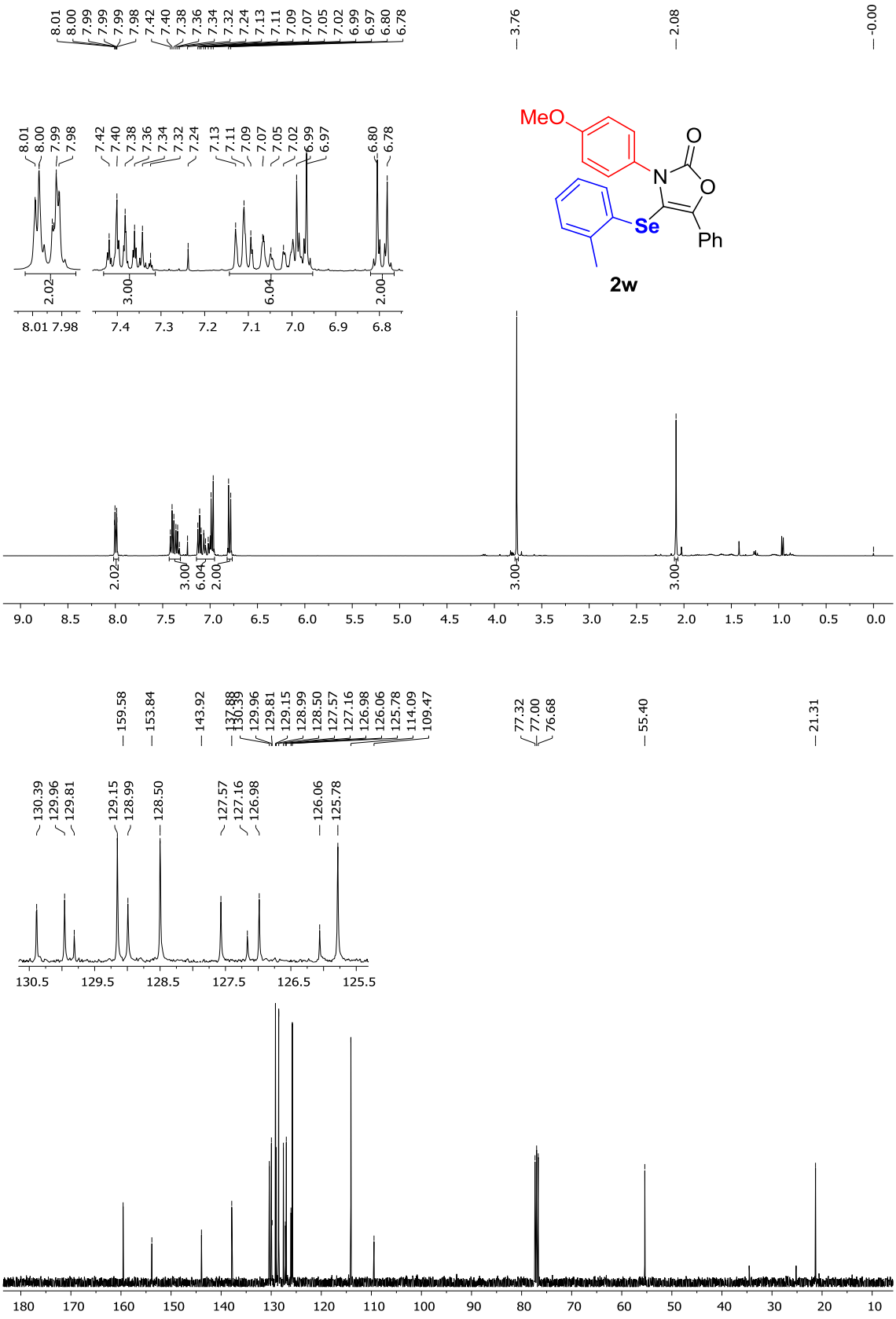

$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2u.**



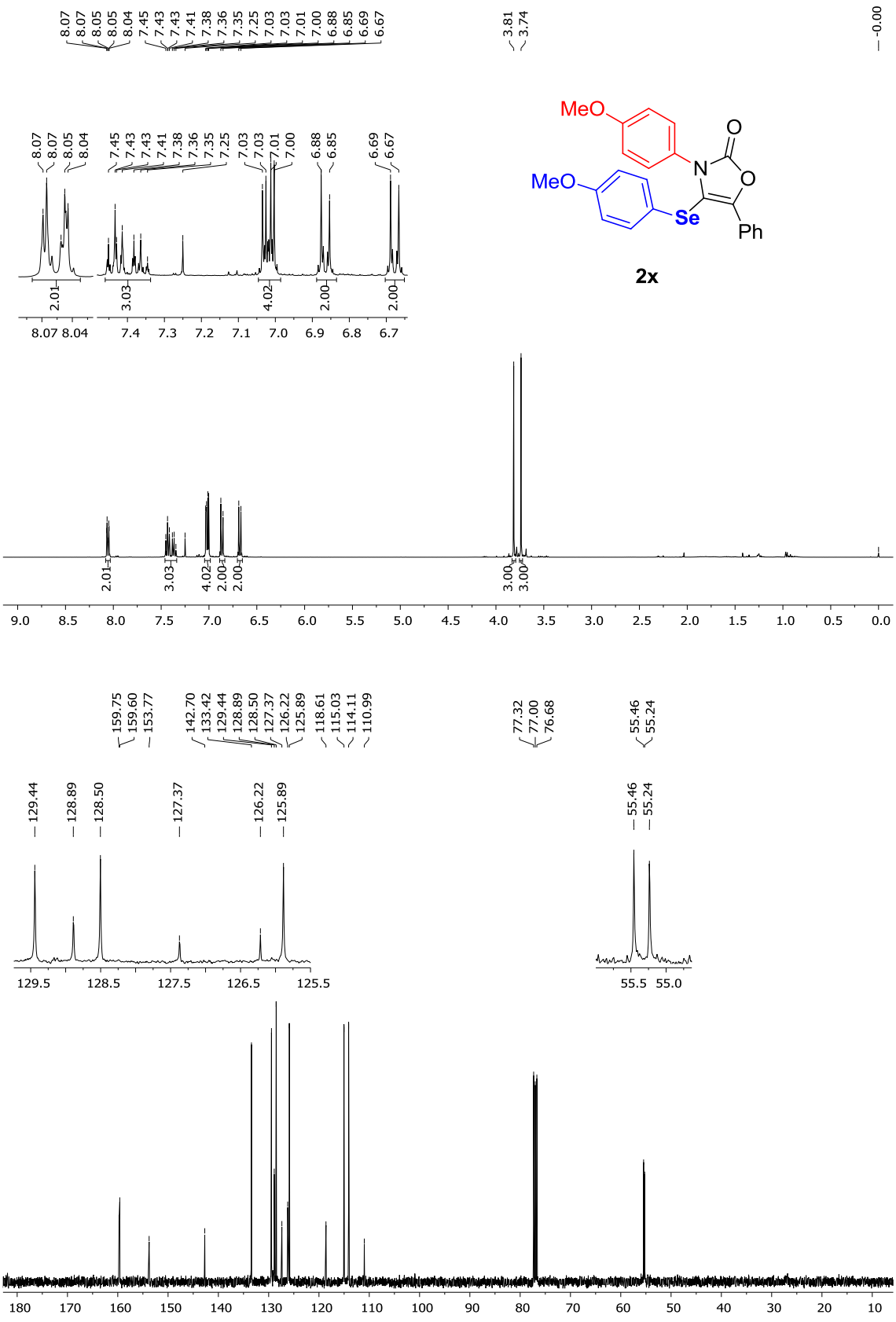

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2v** in $CDCl_3$.



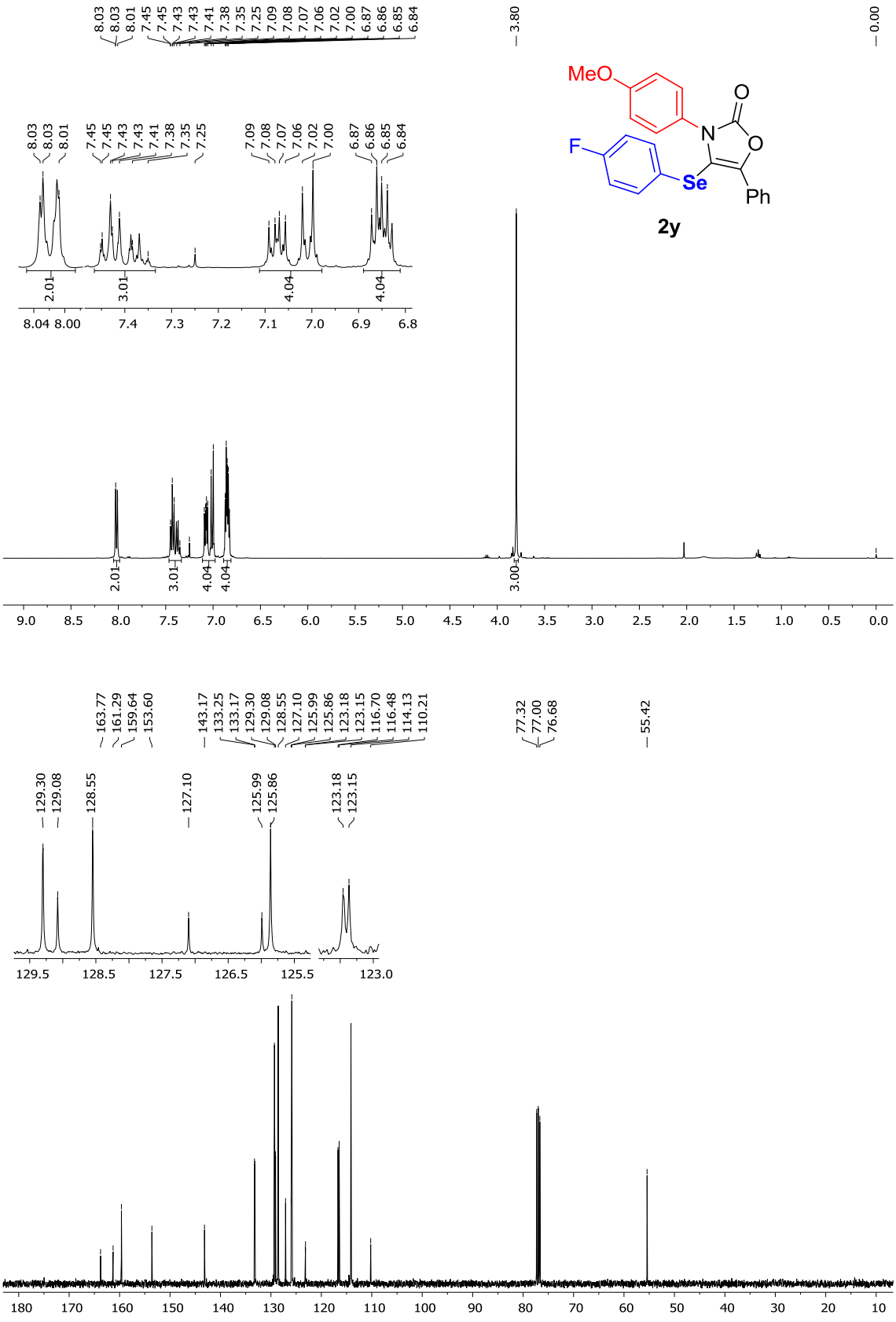

$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2v.**



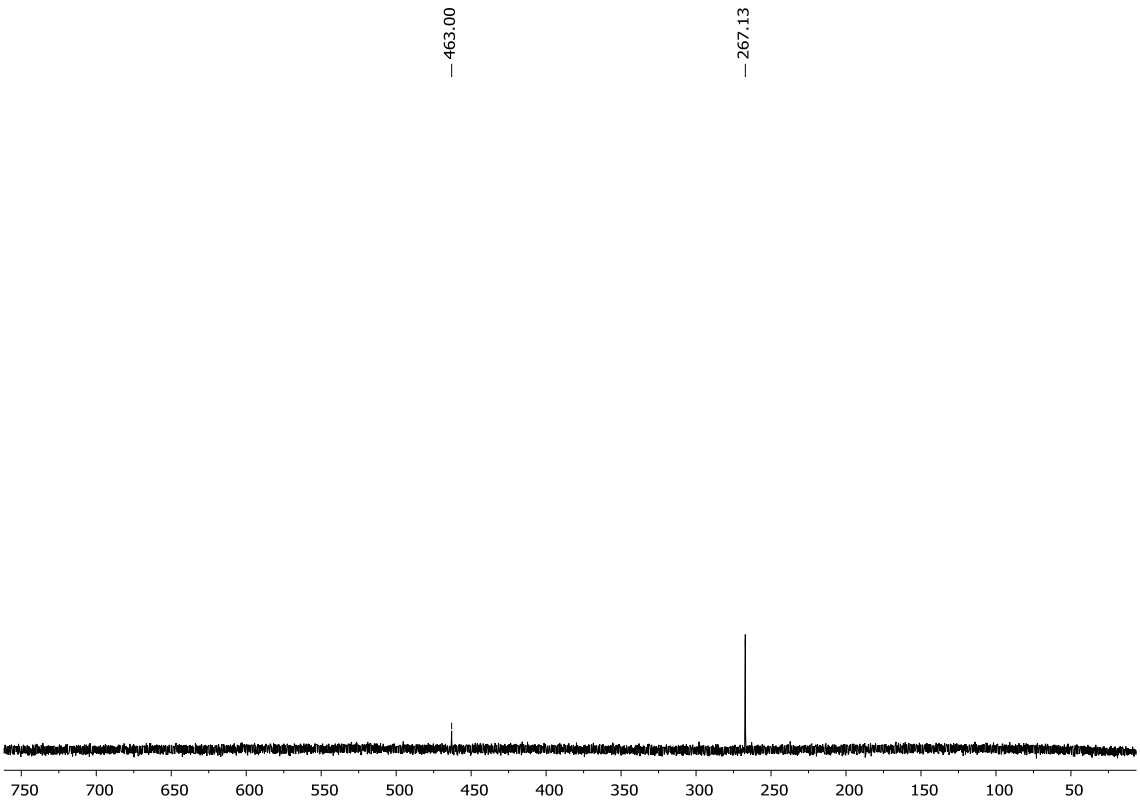

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2w** in $CDCl_3$.



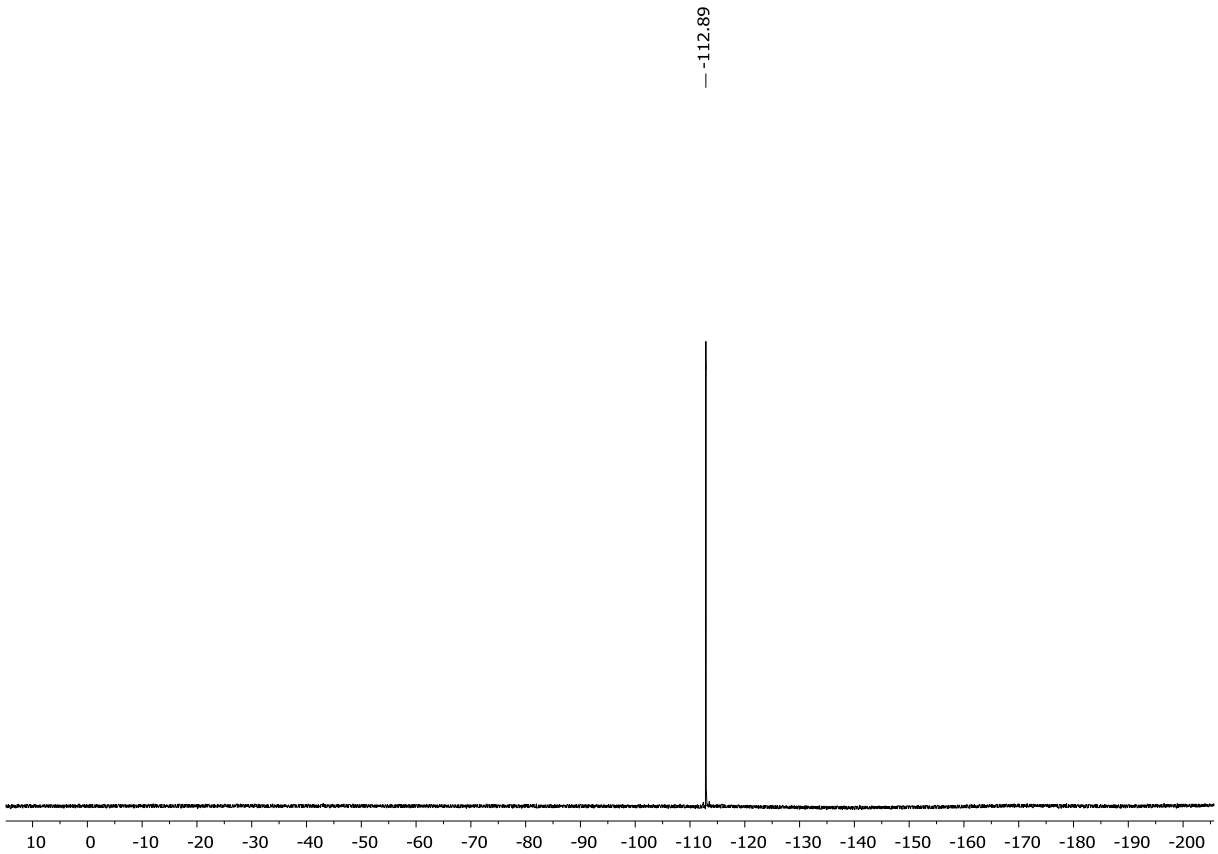

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2x** in $CDCl_3$.



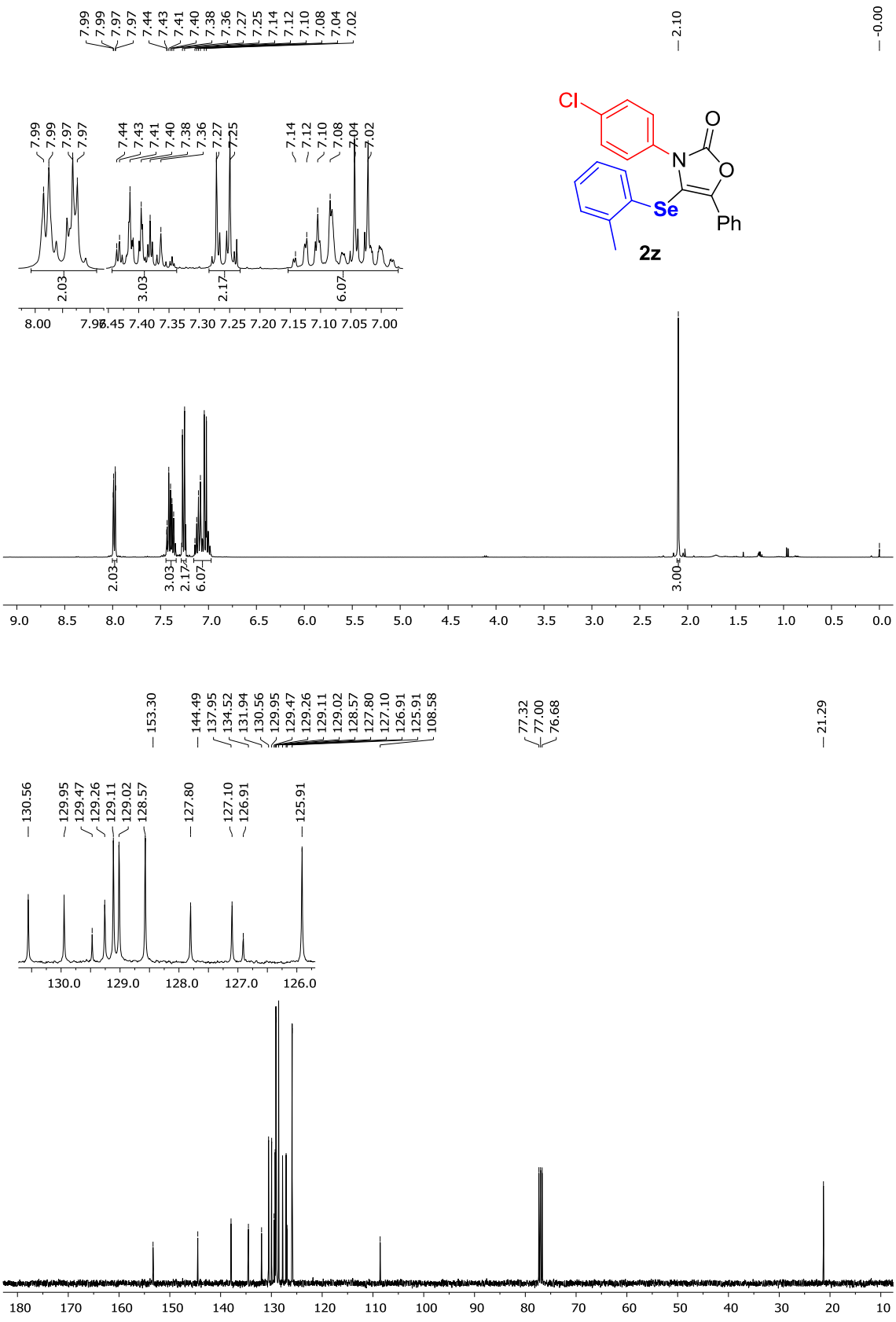

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2y** in $CDCl_3$.



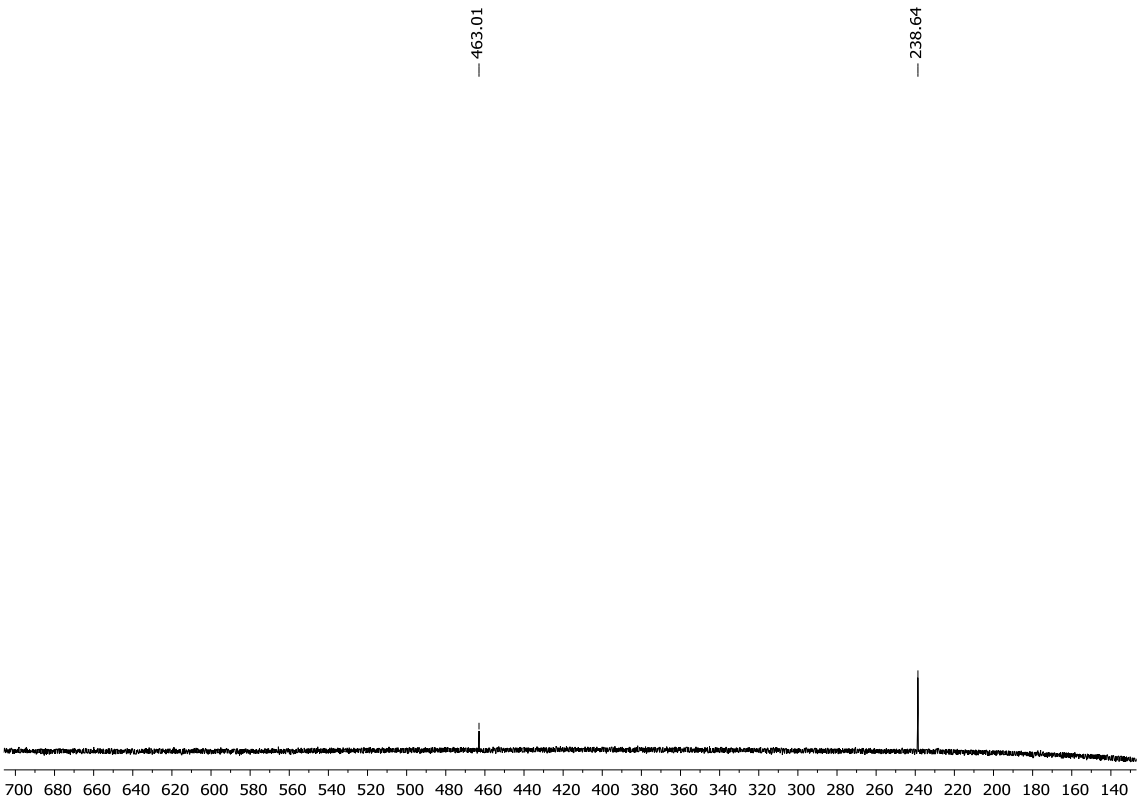

$^{77}$Se NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) for **2y**.



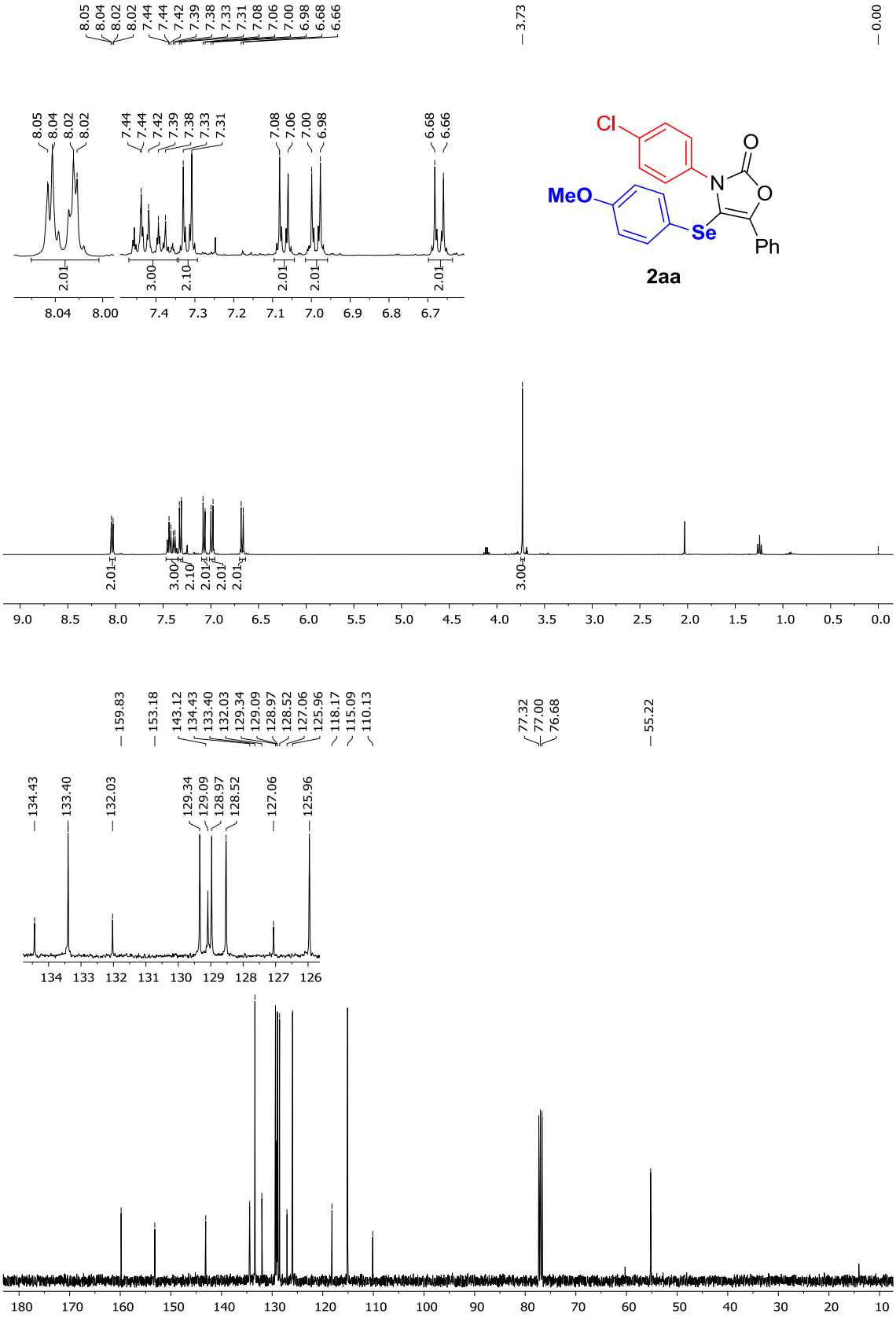

$^{19}$F NMR (235 MHz, in $CDCl_3$) for **2y.**



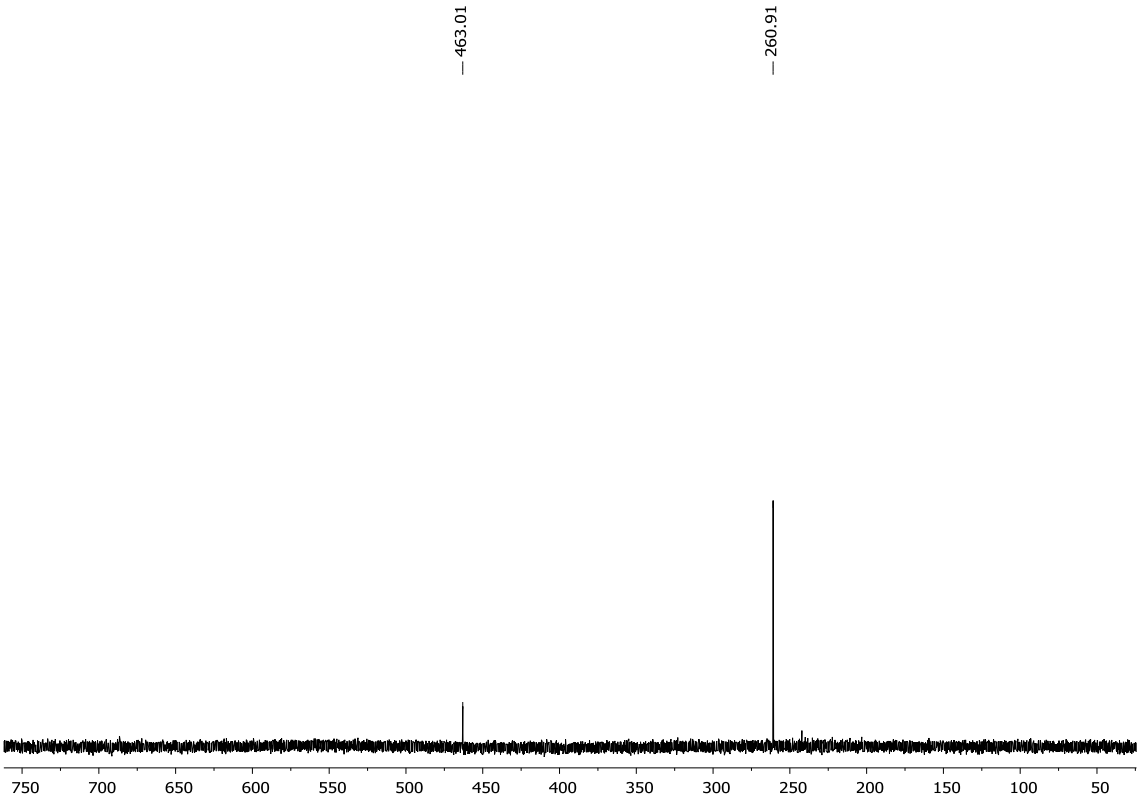

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2z** in $CDCl_3$.



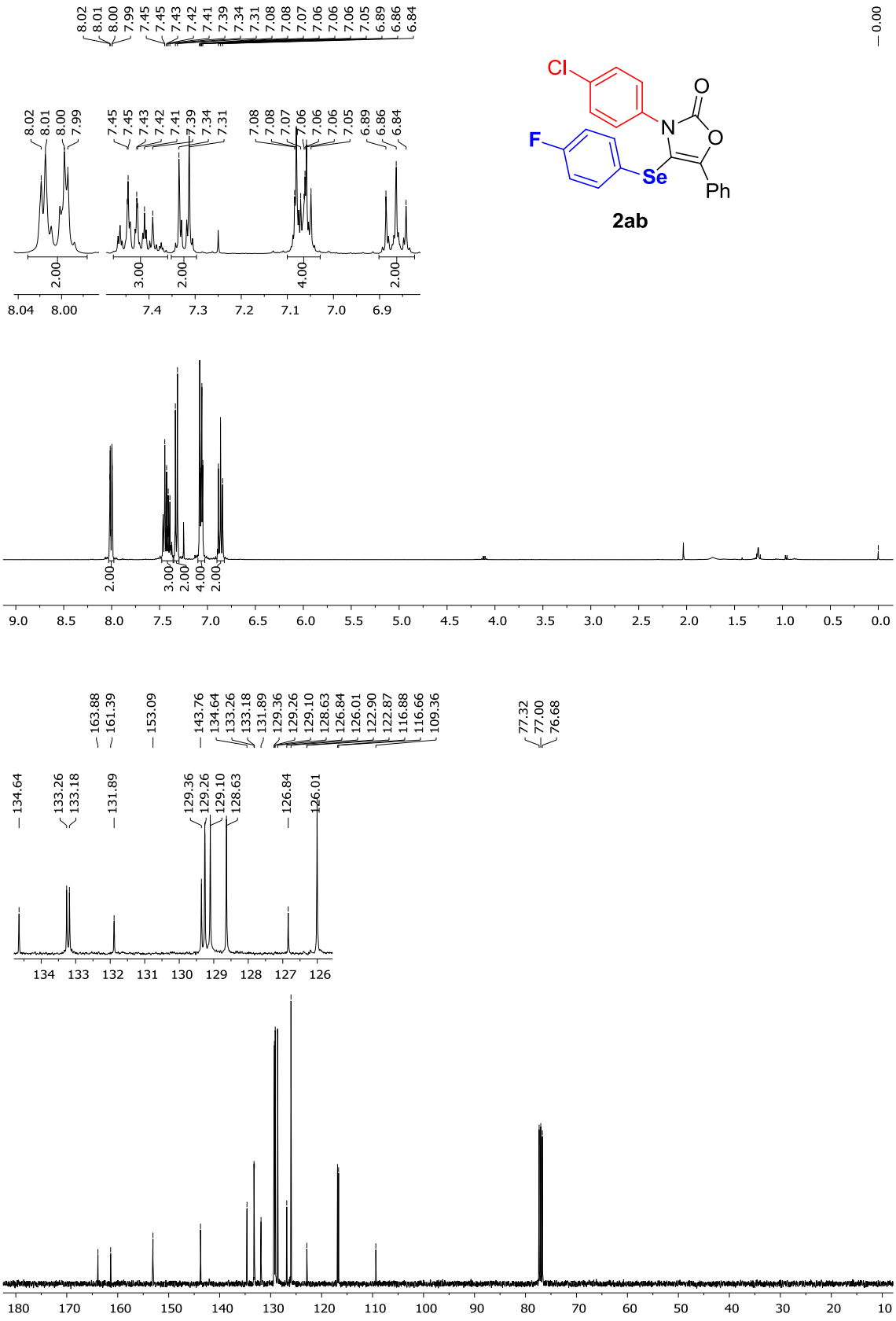

$^{77}$Se NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) for **2z**.



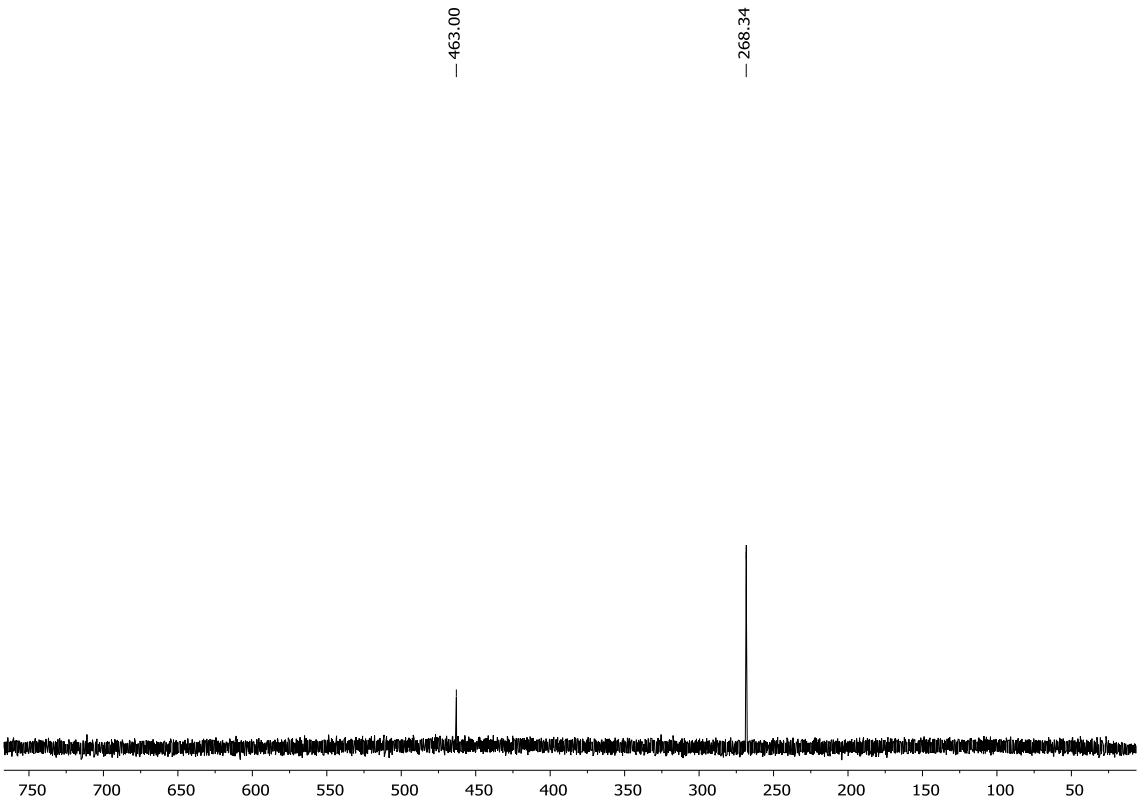

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2aa** in $CDCl_3$.



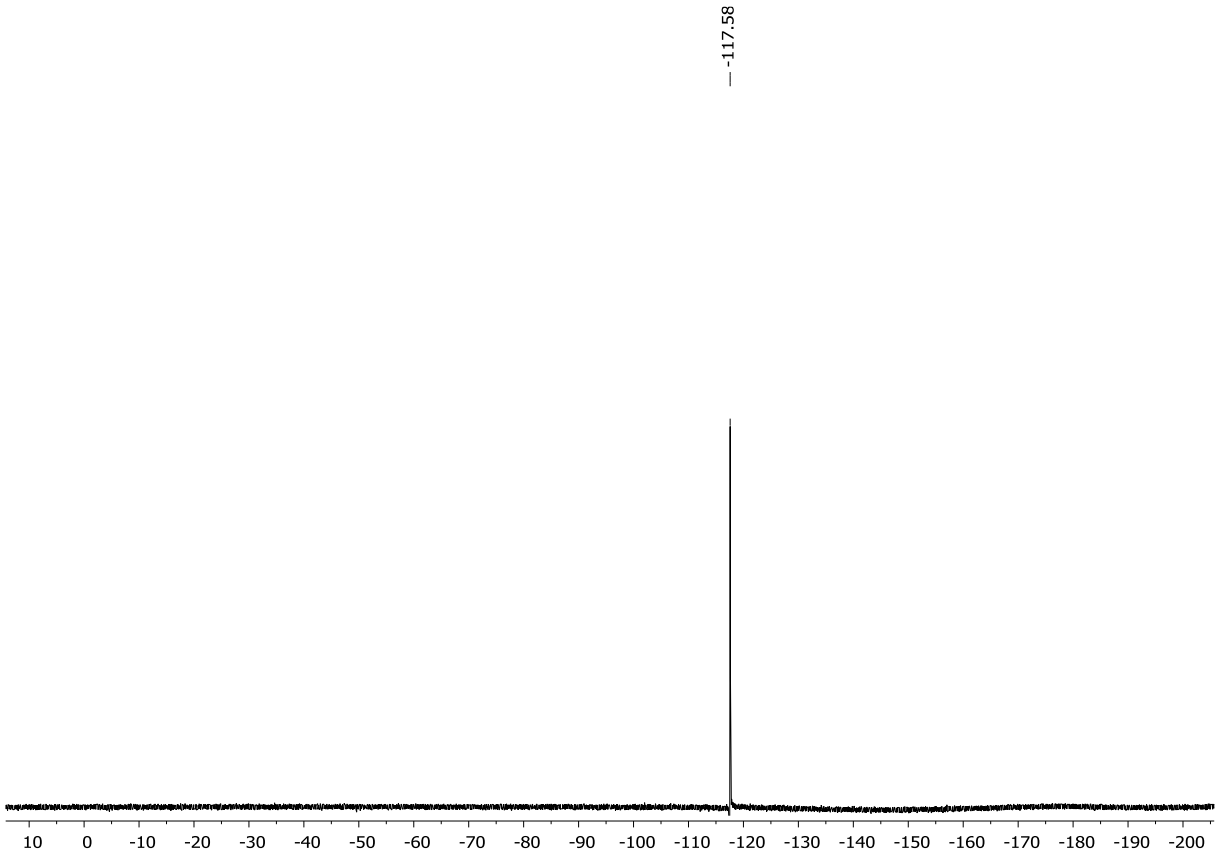

$^{77}$Se NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) for **2aa**.



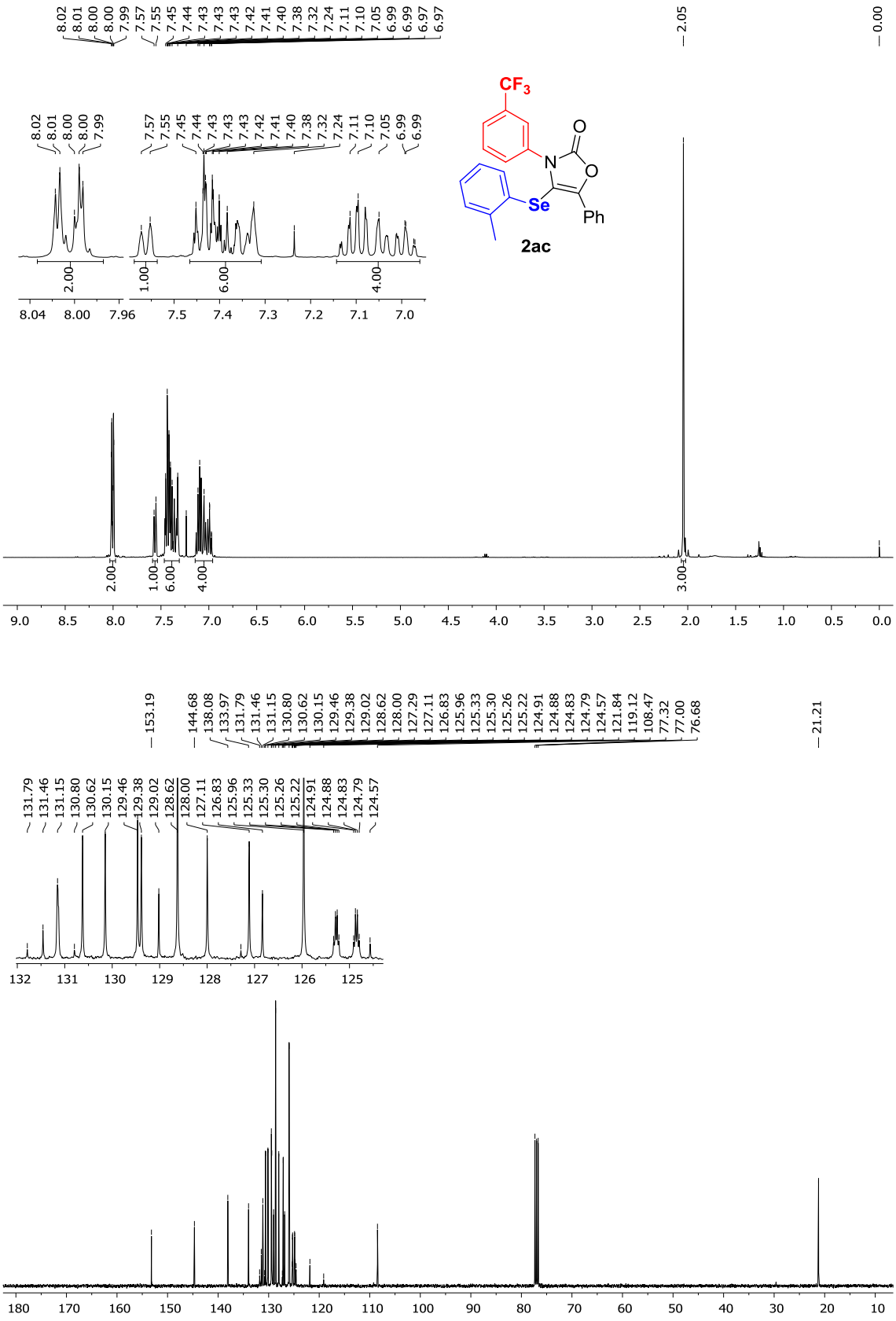

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2ab** in $CDCl_3$.



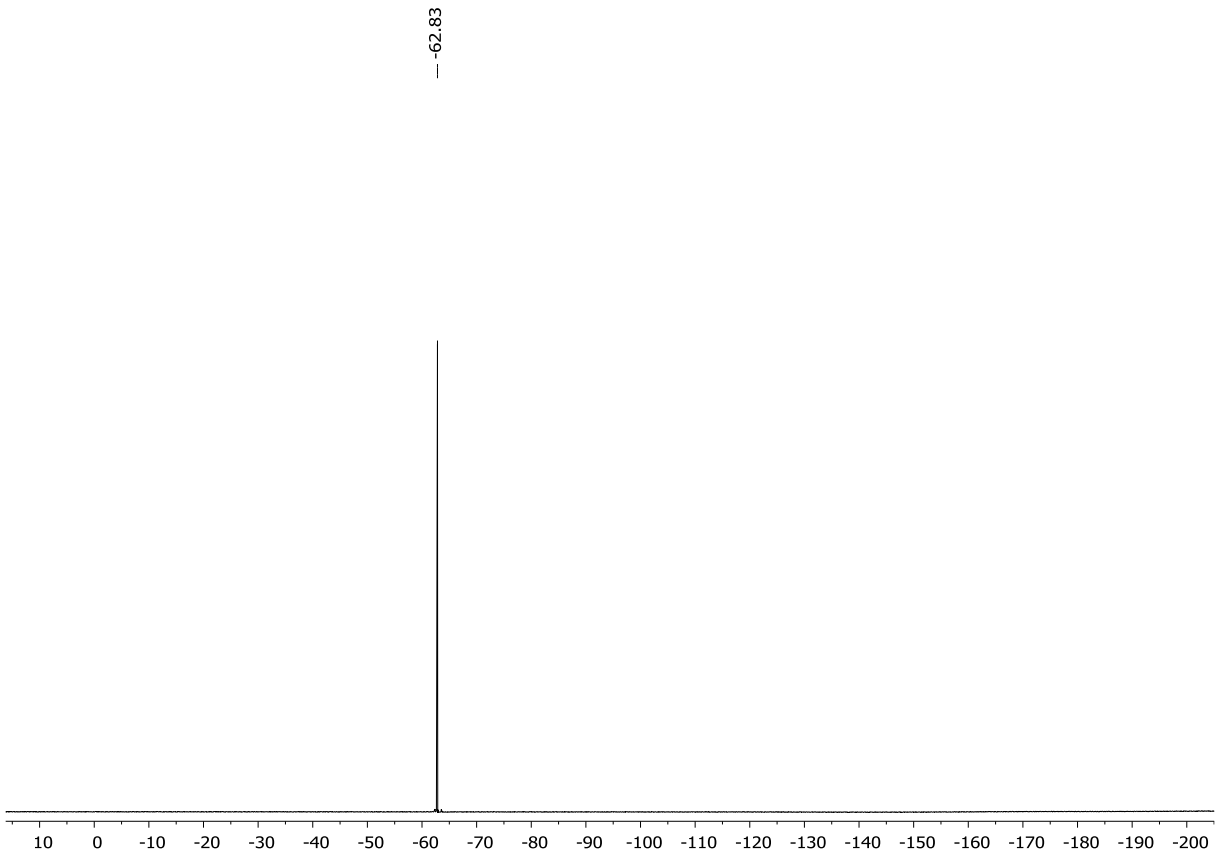

$^{77}$Se NMR (77 MHz, in $CDCl_3$ with diphenyl diselenide as external reference) for **2ab**.



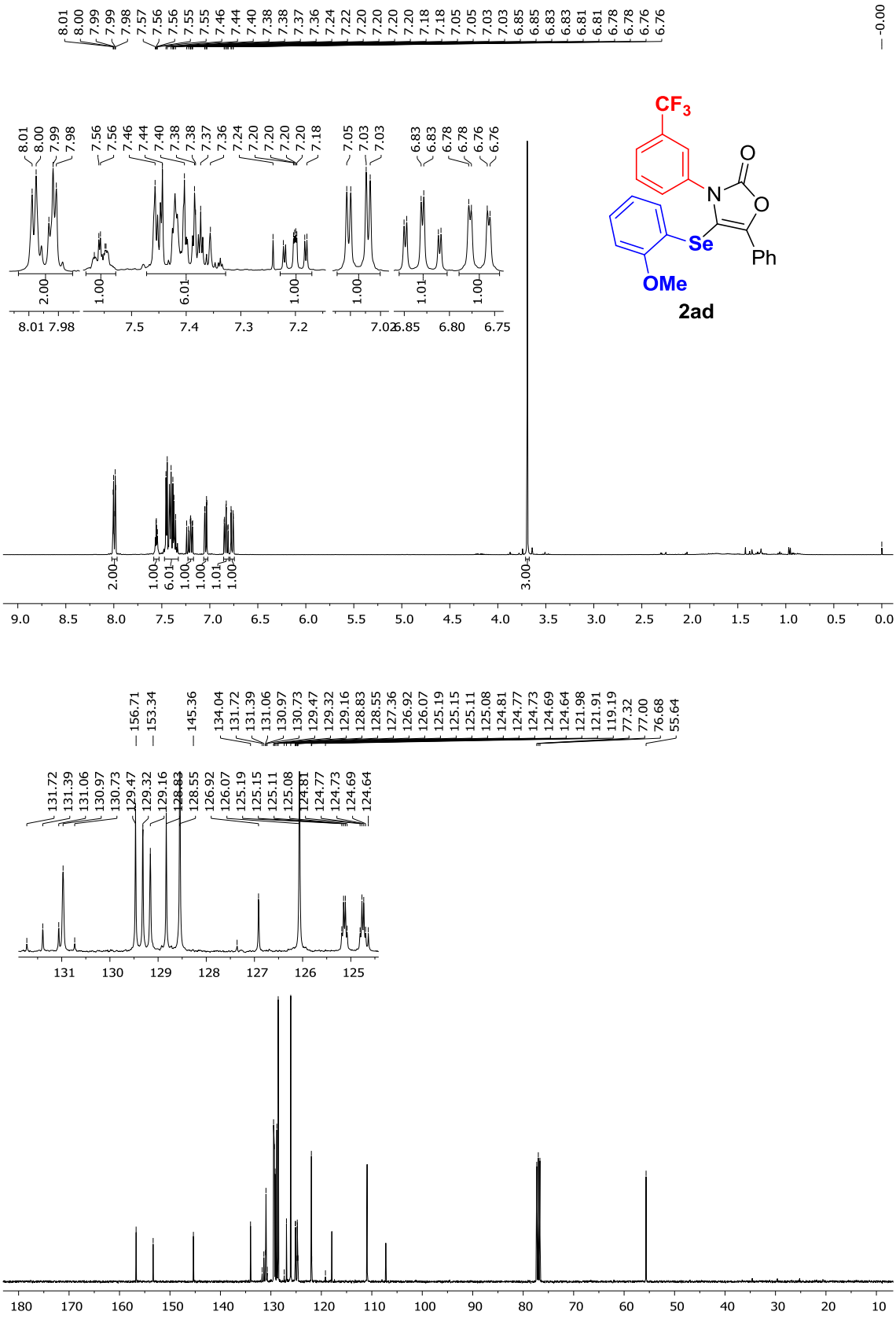

$^{19}$F NMR (235 MHz, in $CDCl_3$) for **2ab.**




The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2ac** in $CDCl_3$.

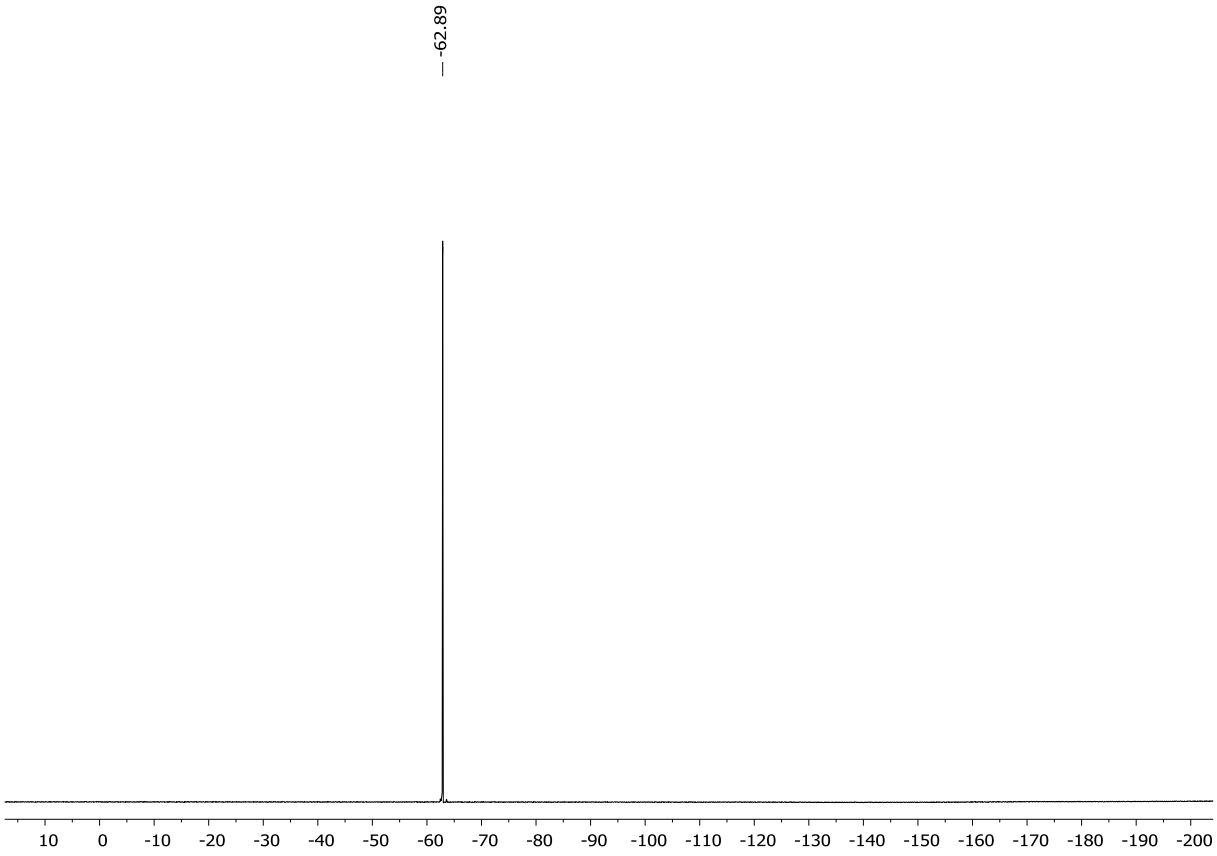



$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2ac.**

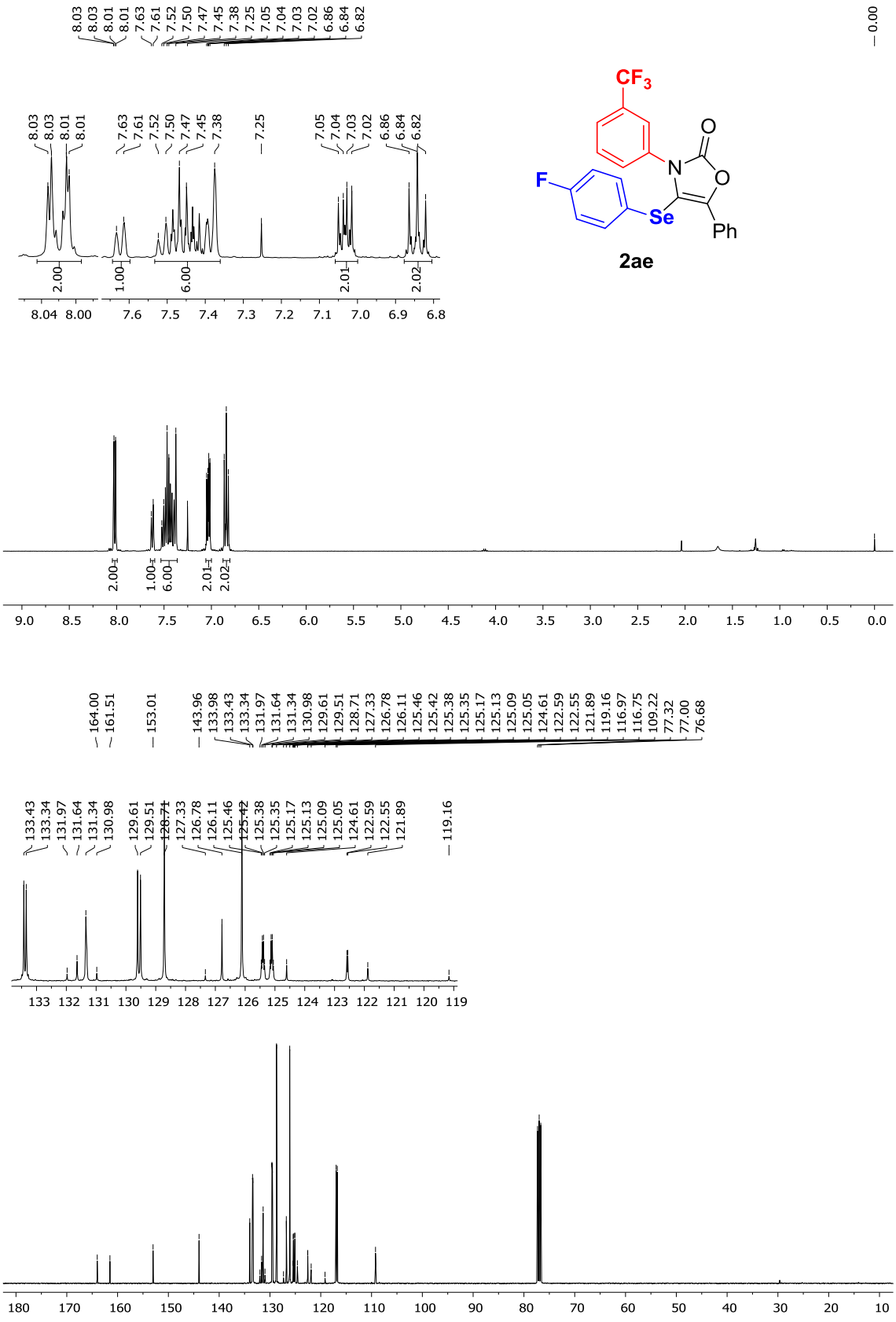




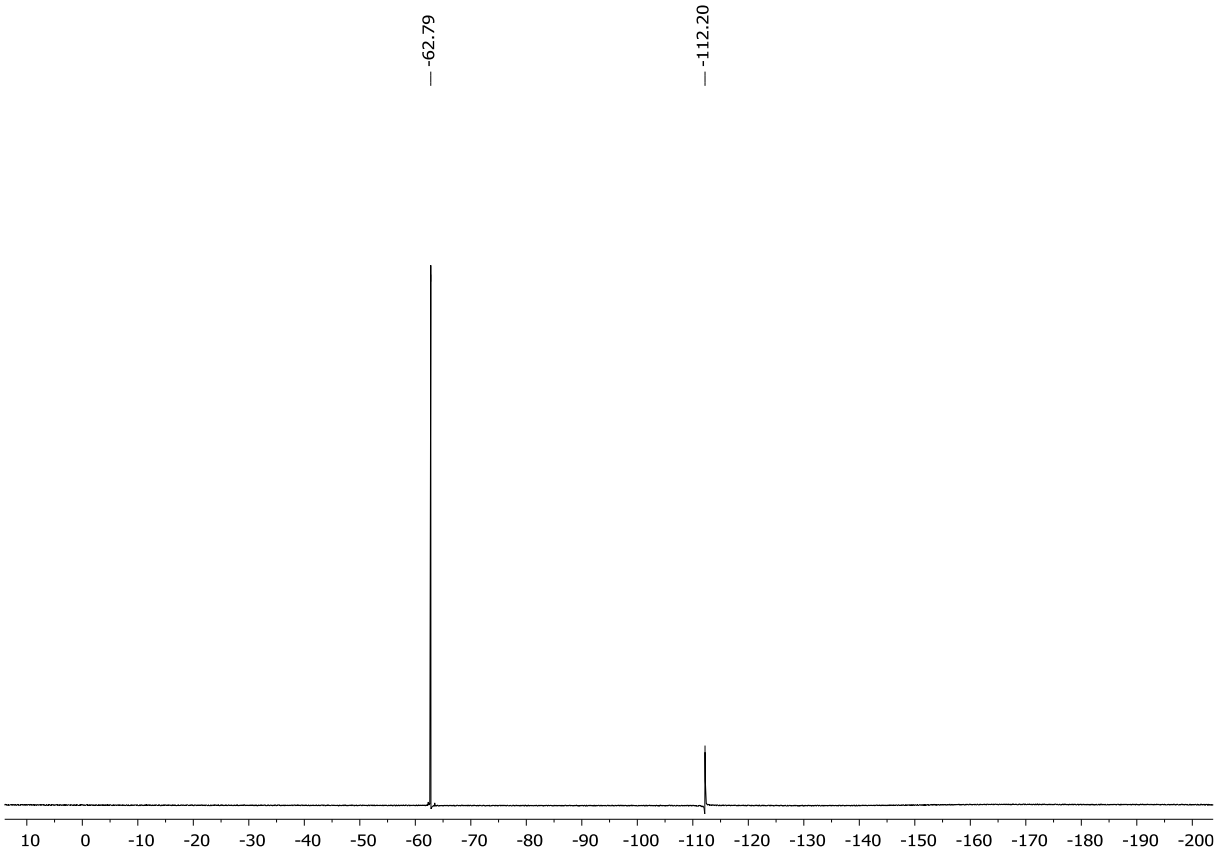

The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2ad** in $CDCl_3$.




$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2ad.**




The $^{1}H$ (400 MHz) and $^{13}C$ (100 MHz) NMR spectra of **2ae** in $CDCl_3$.




$^{19}F$ NMR (235 MHz, in $CDCl_3$) for **2ae.**

**Scheme S1.** Tested substrates that did not work