

**Palladium N-heterocyclic carbene catalyzed regioselective C-H halogenation of 1-Aryl-3-methyl-1H-pyrazol-5(4H)-ones using N-halosuccinimides (NXS)**

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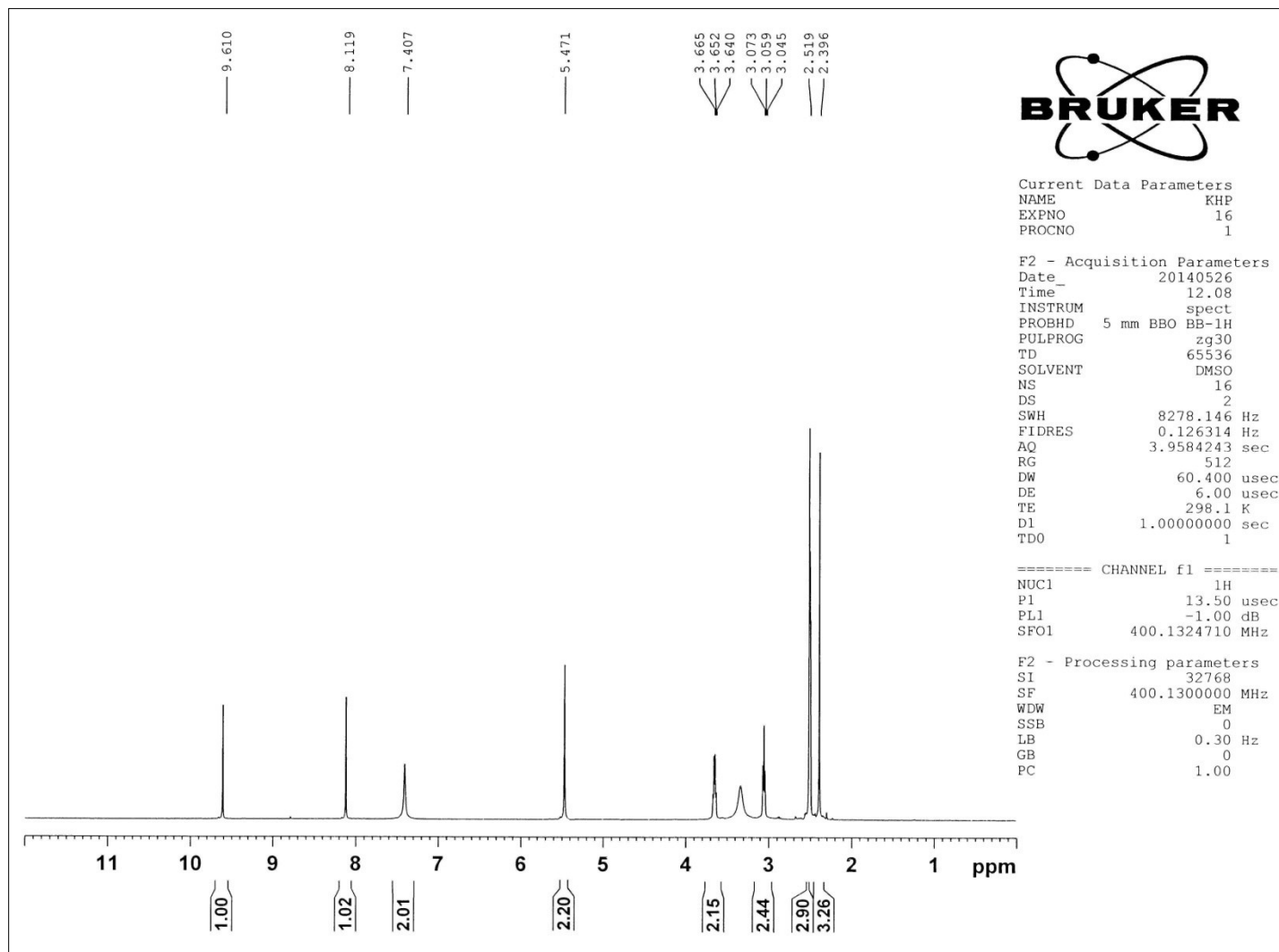
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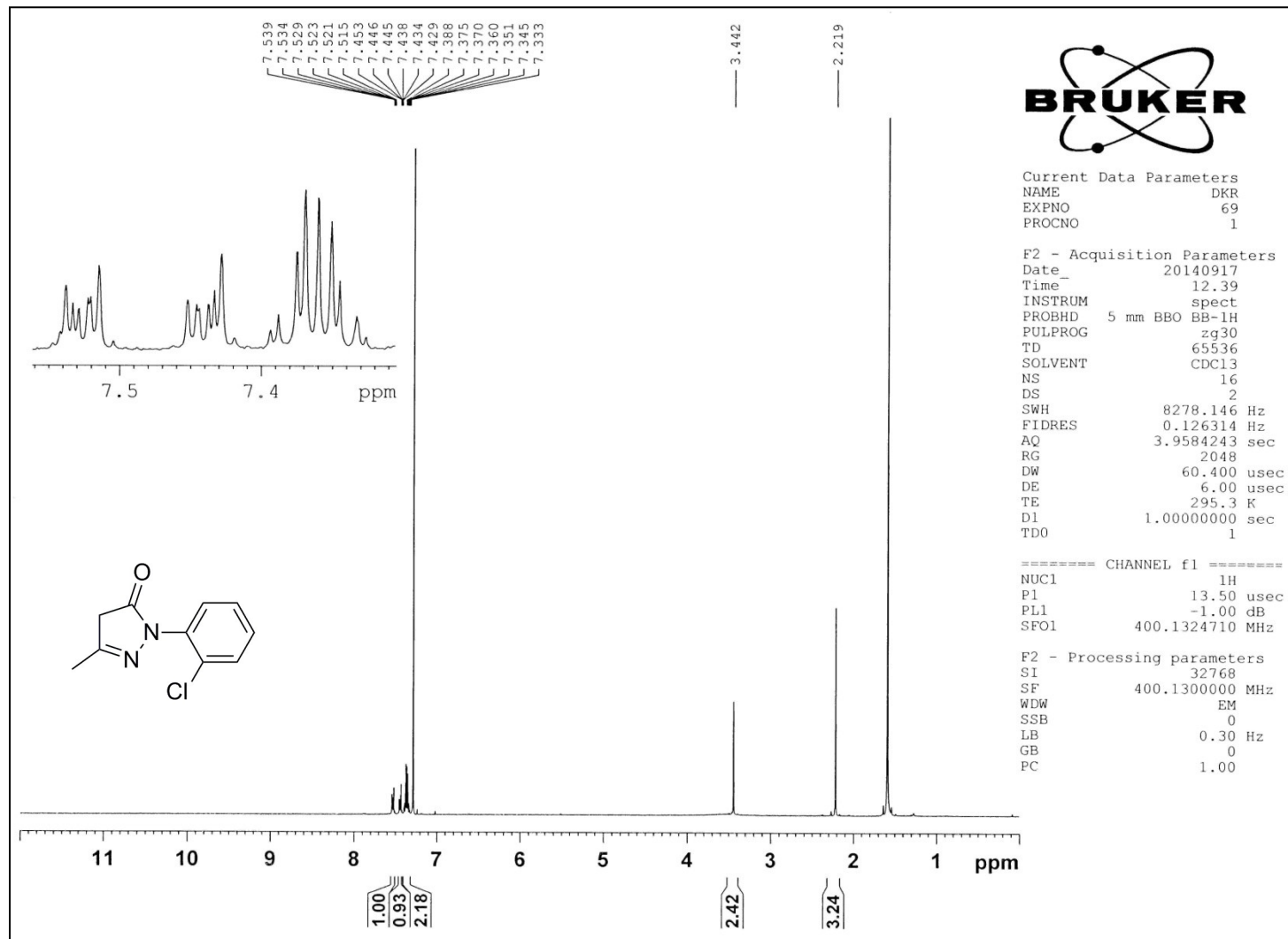
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## **Supplementary information**

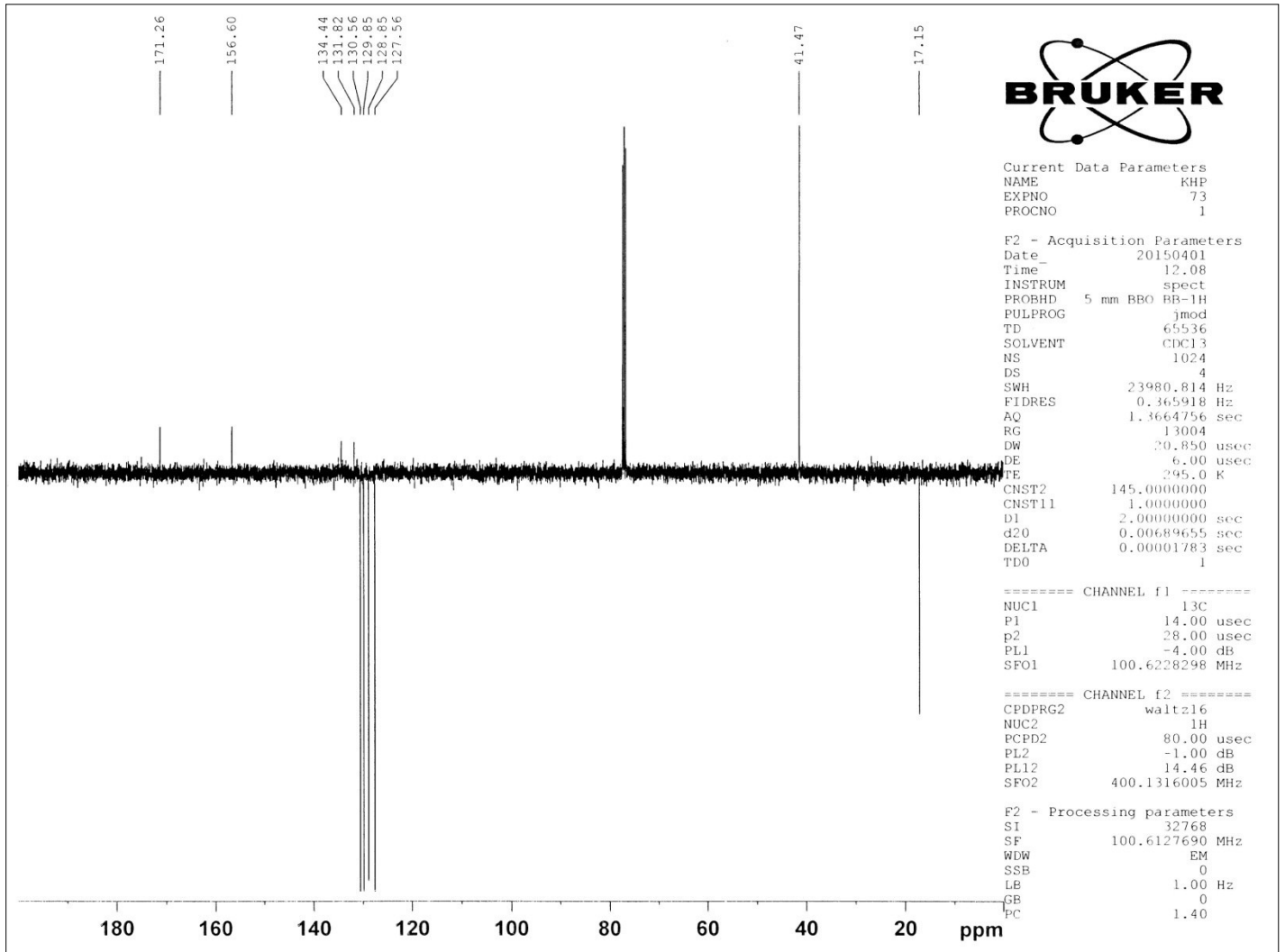
# $^1\text{H}$ NMR spectra of $\text{Pd}(\text{NHC})\text{Cl}_2$ Catalyst



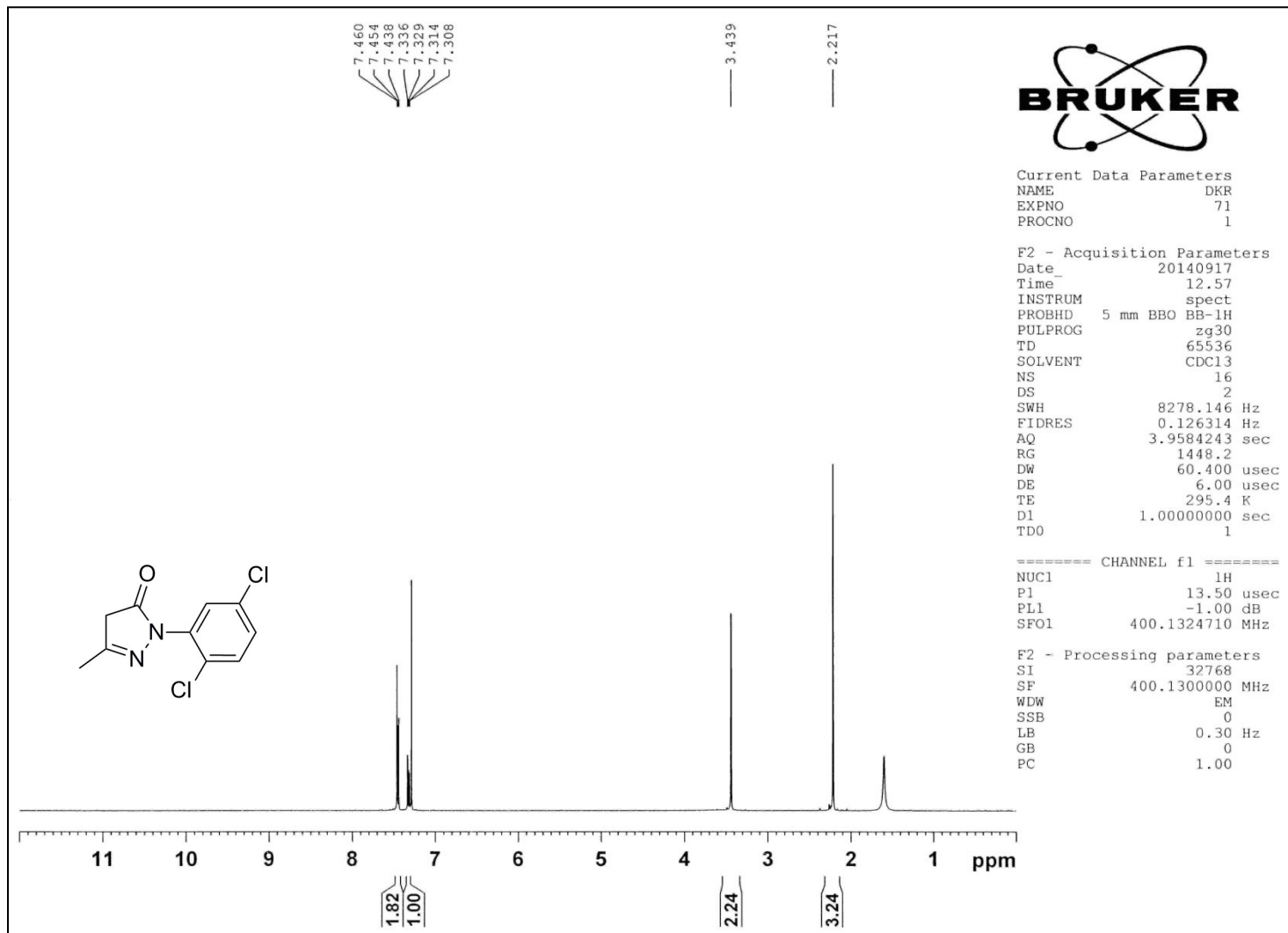
<sup>1</sup>H NMR spectra of compound 2a



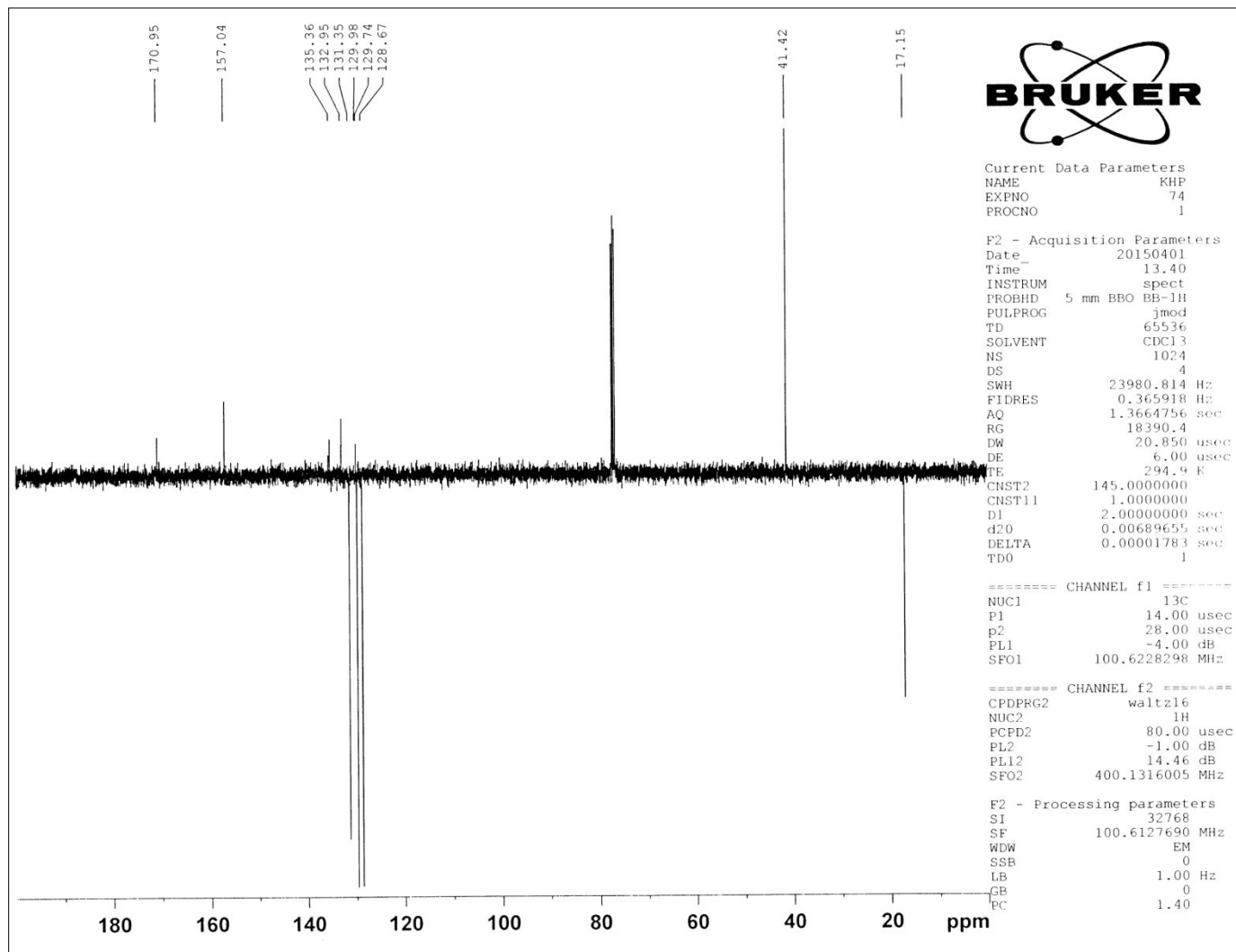
<sup>13</sup>C NMR spectra of compound 2a



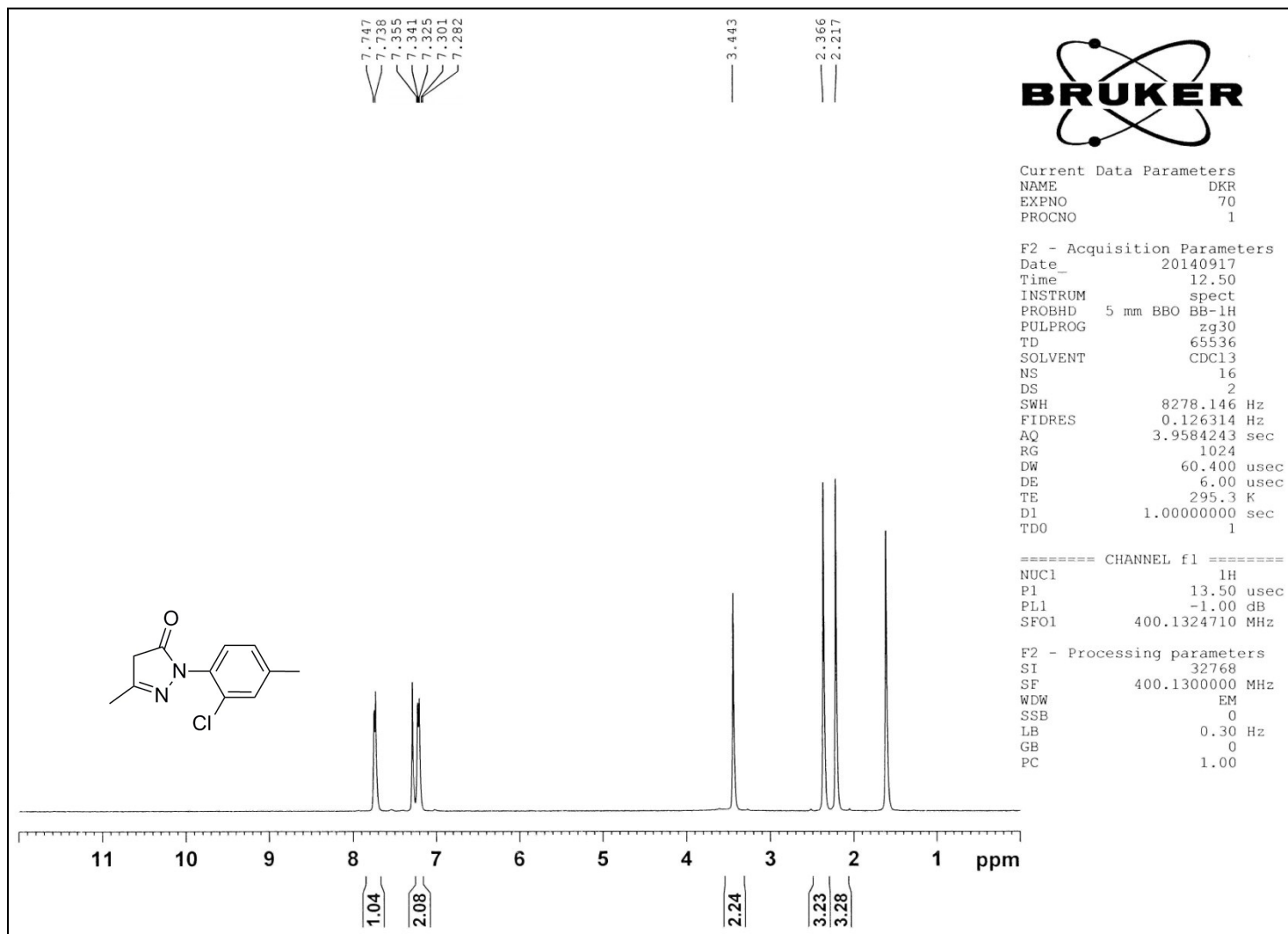
<sup>1</sup>H NMR spectra of compound **2b**



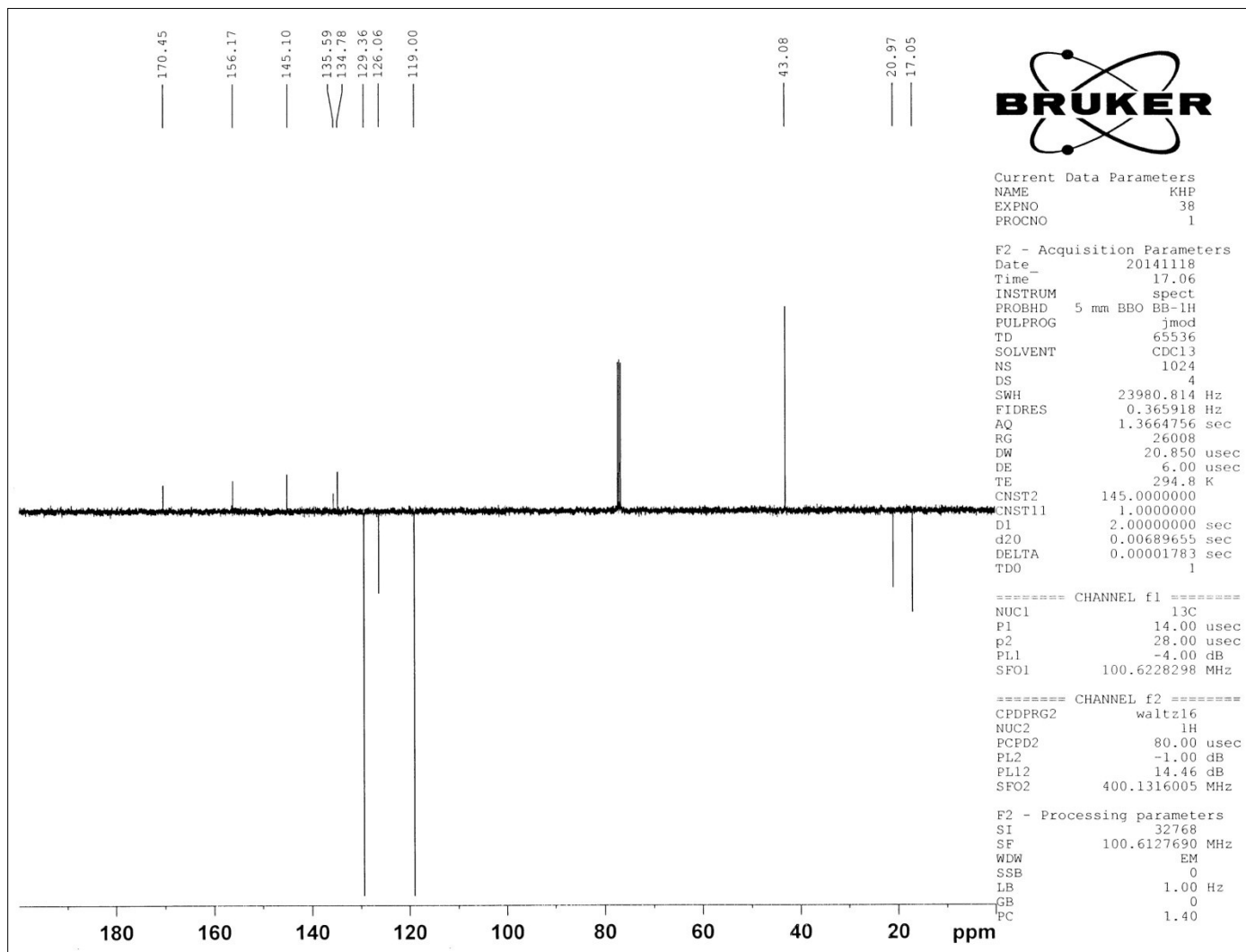
<sup>13</sup>C NMR spectra of compound **2b**



<sup>1</sup>H NMR spectra of compound 2c

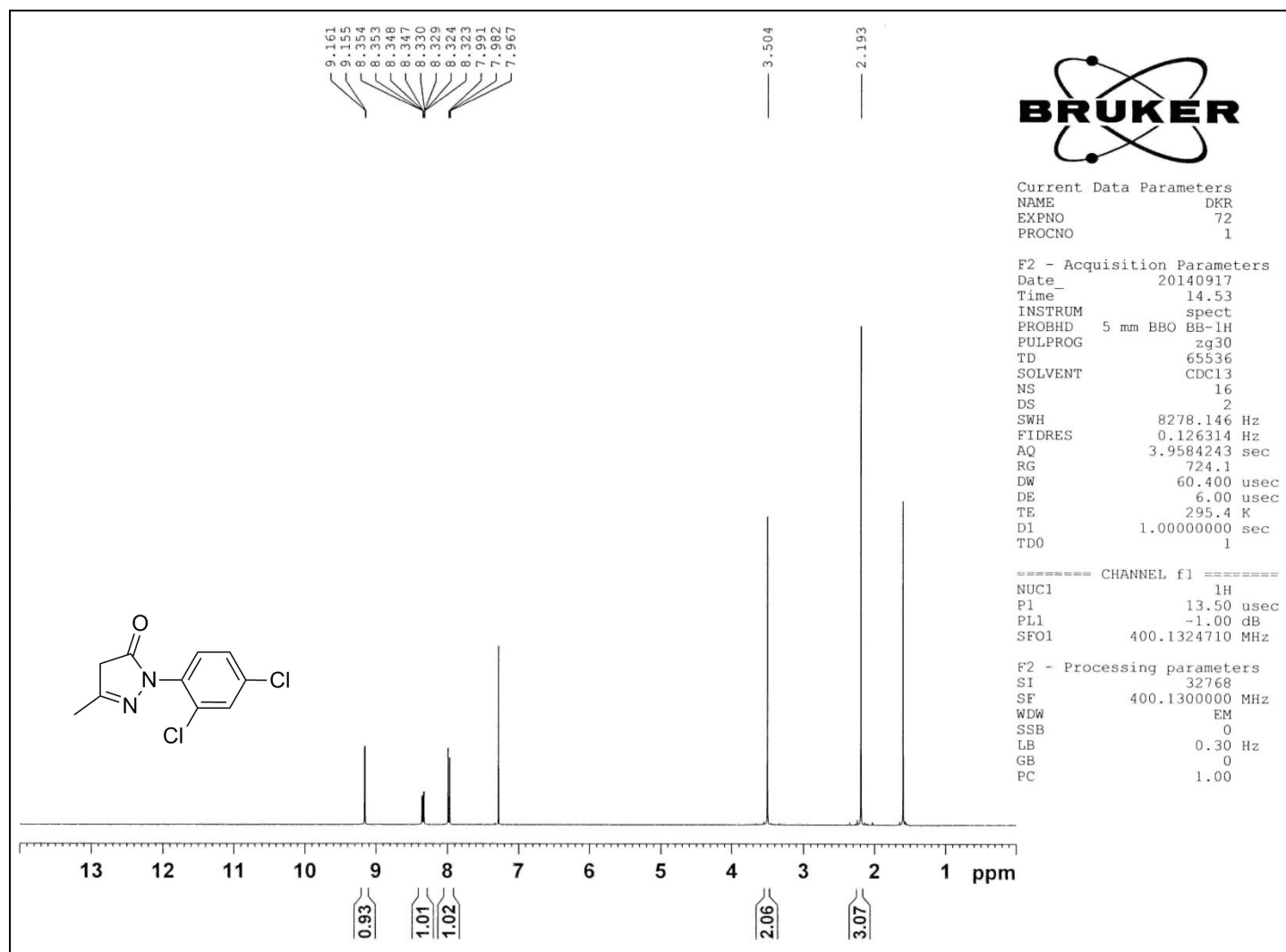


<sup>13</sup>C NMR spectra of compound 2c

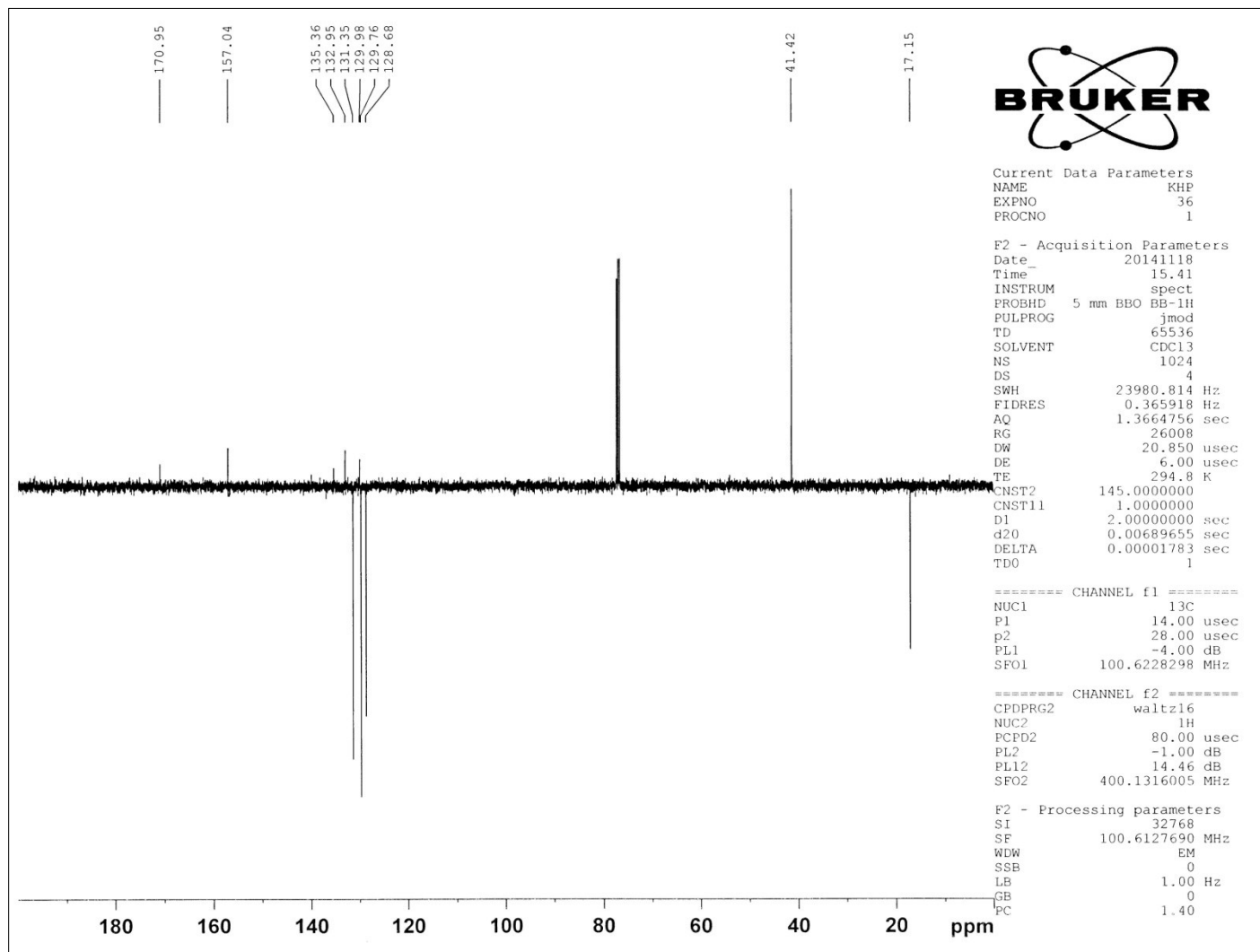




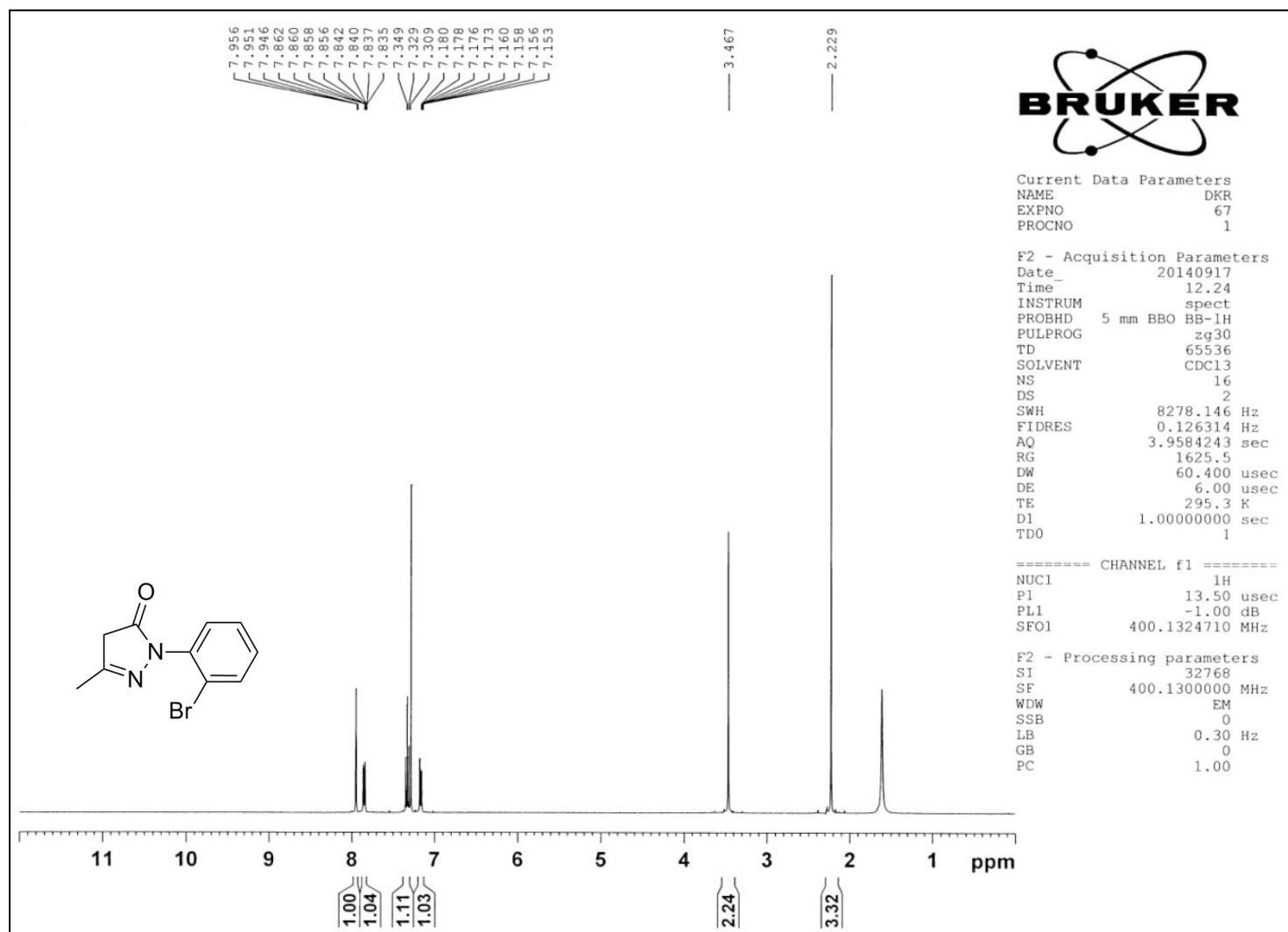
<sup>1</sup>H NMR spectra of compound **2d**



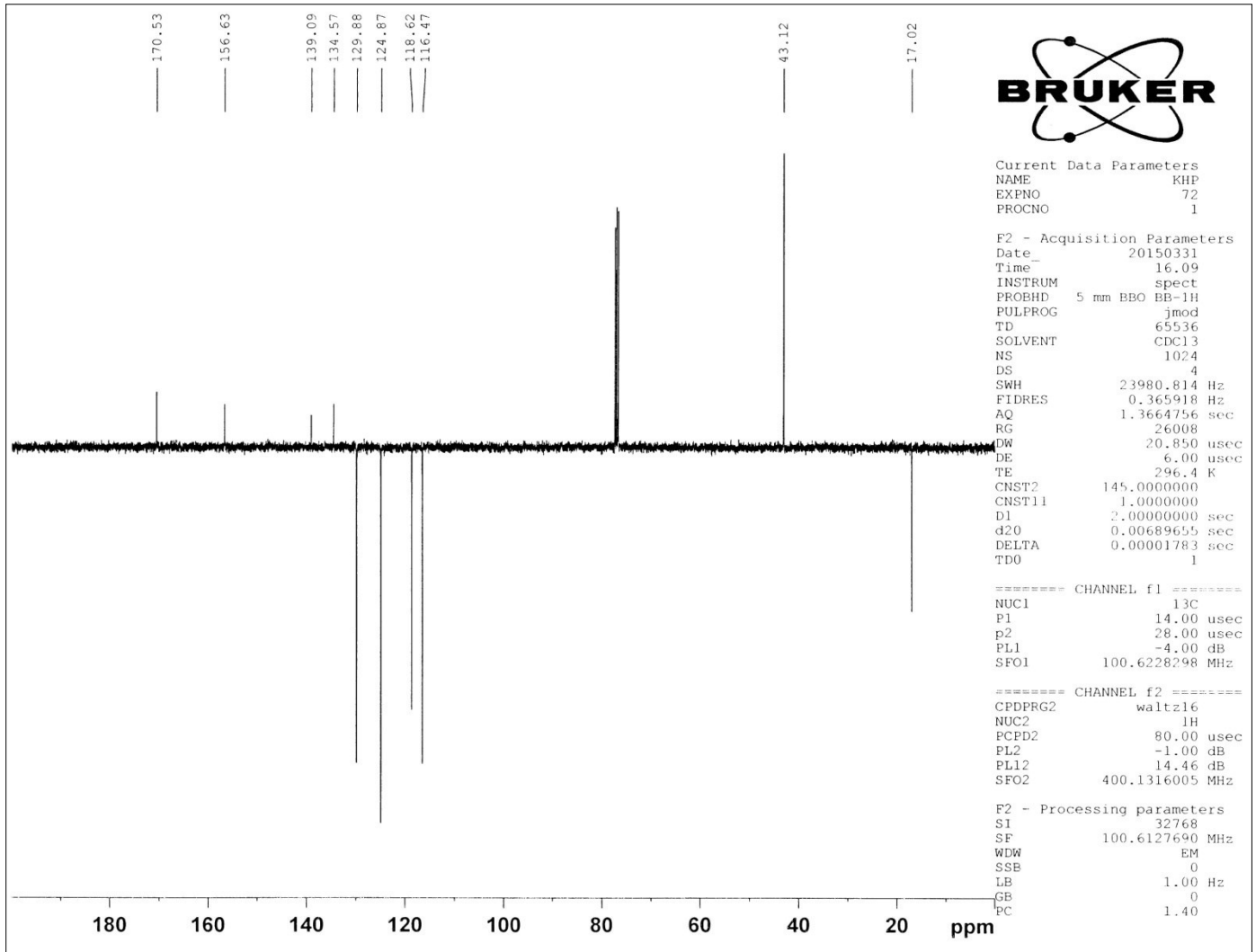
<sup>13</sup>C NMR spectra of compound 2d



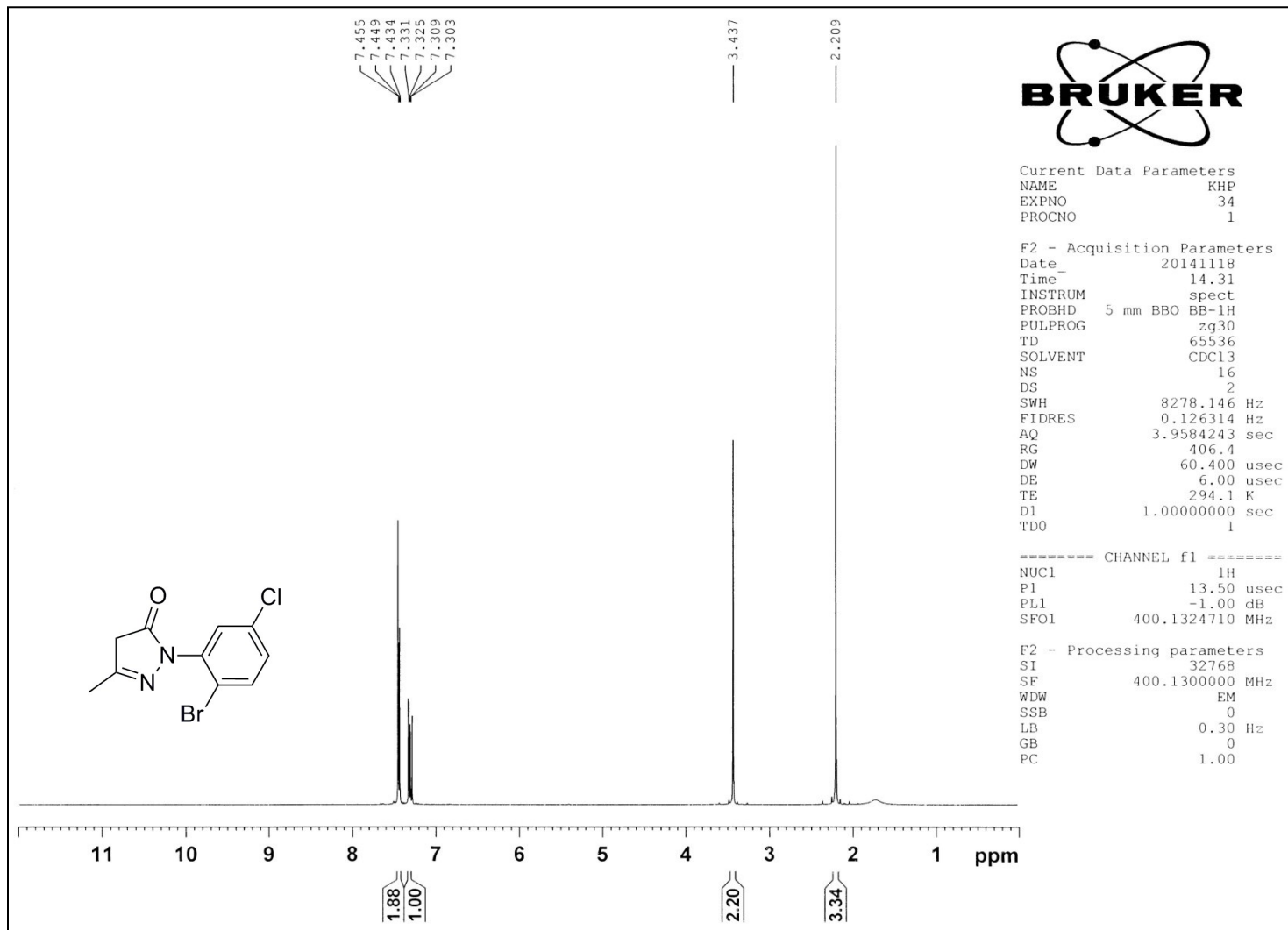
<sup>1</sup>H NMR spectra of compound 3a



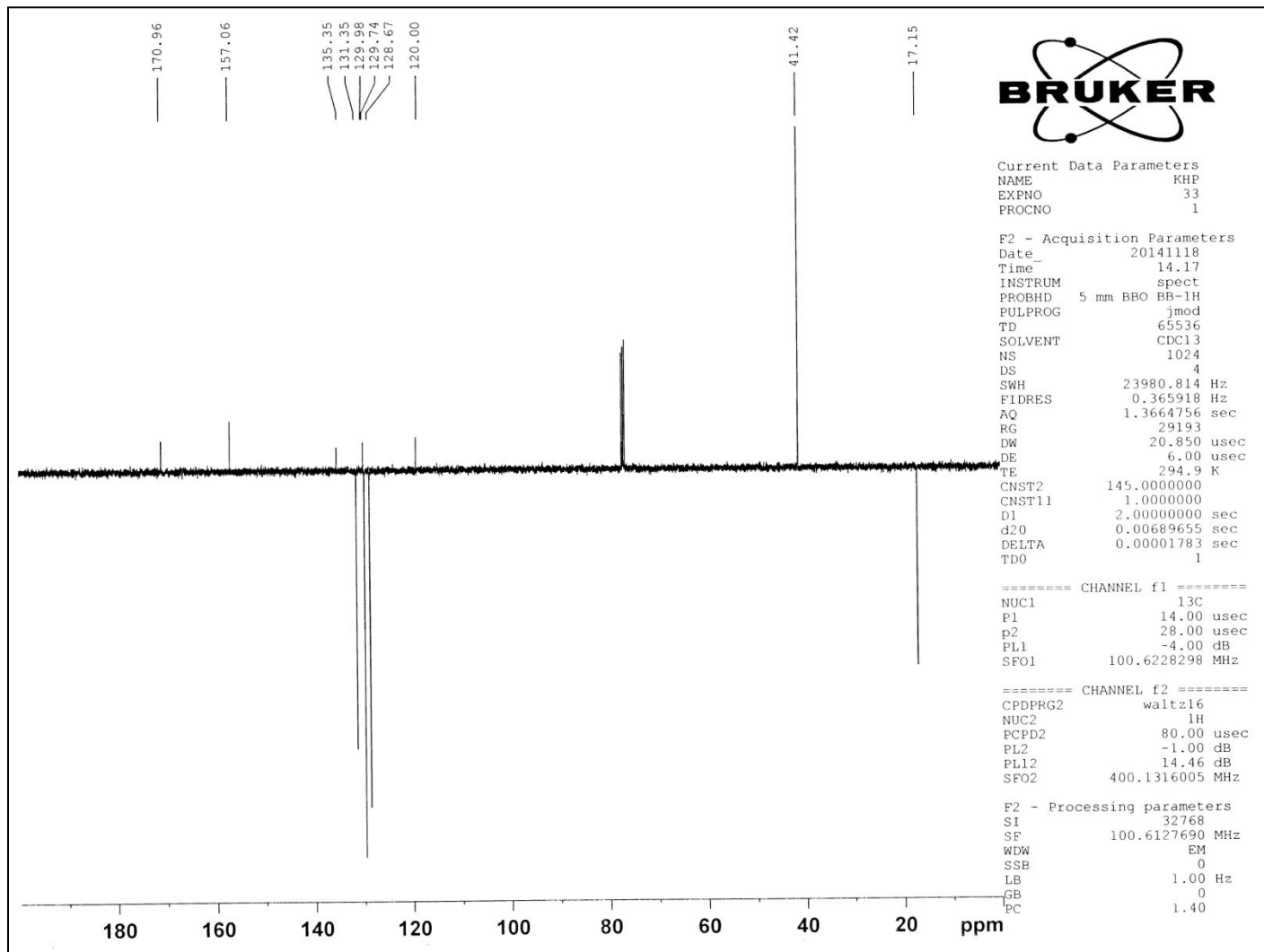
<sup>13</sup>C NMR spectra of compound 3a



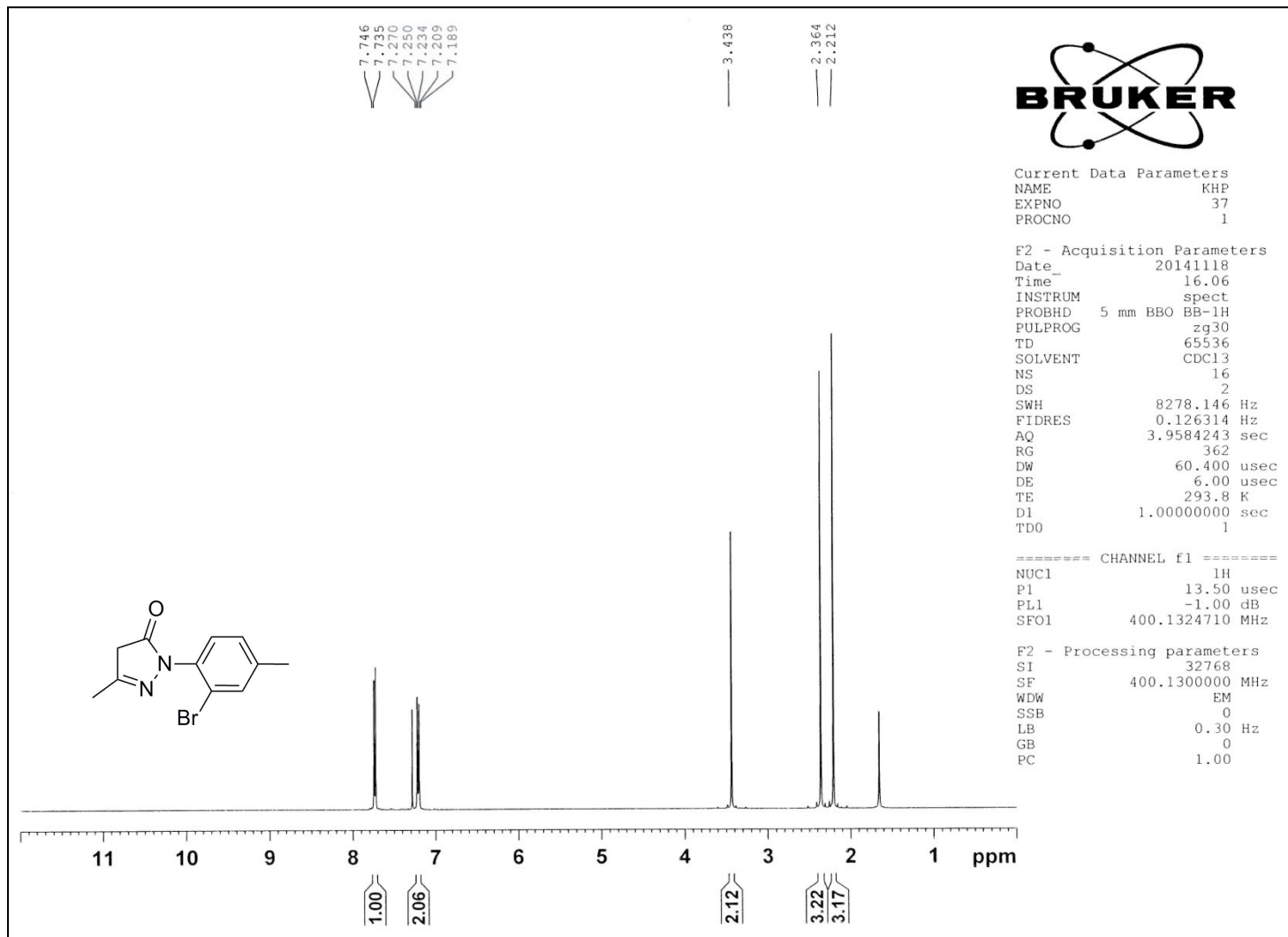
<sup>1</sup>H NMR spectra of compound **3b**



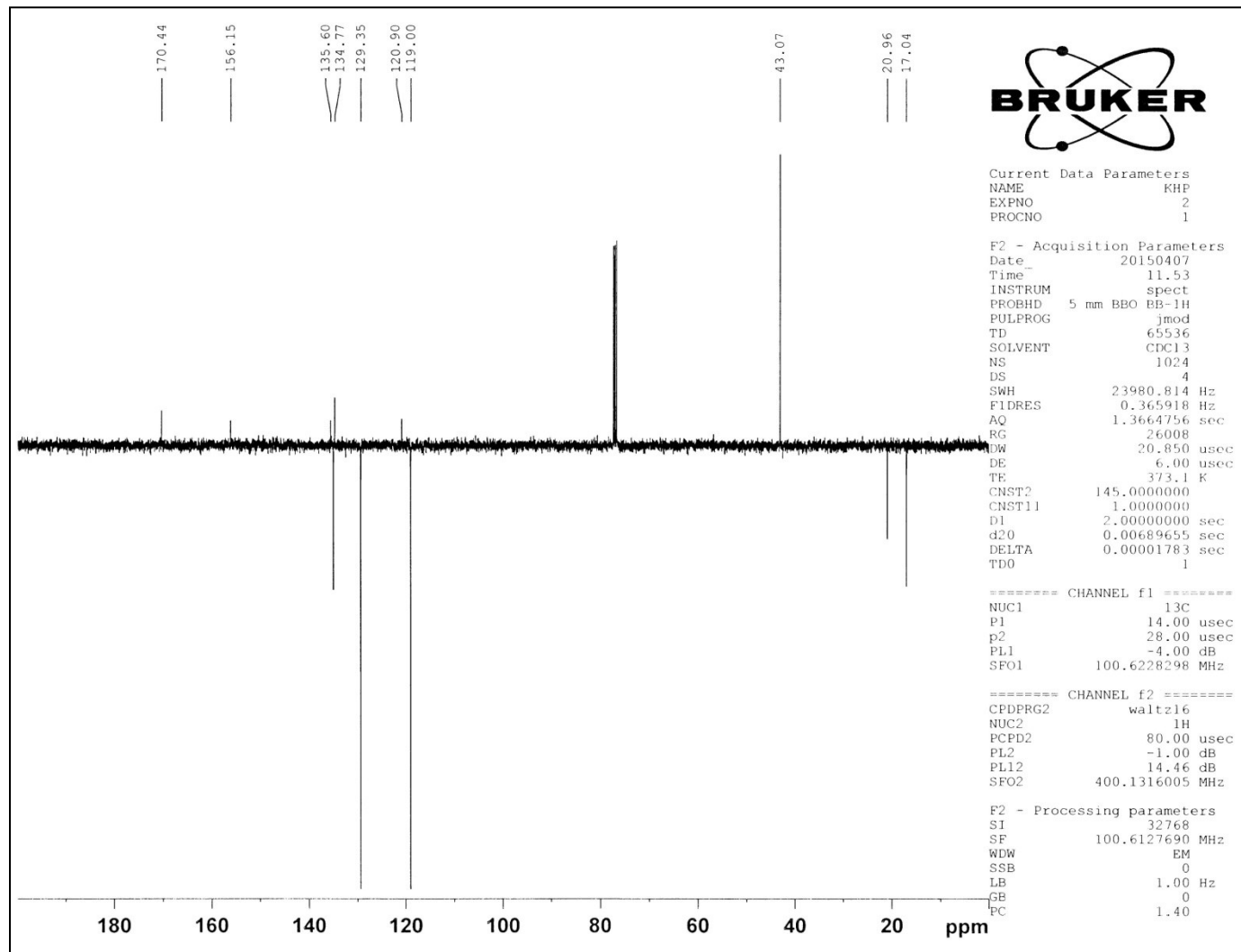
<sup>13</sup>C NMR spectra of compound **3b**



<sup>1</sup>H NMR spectra of compound **3c**

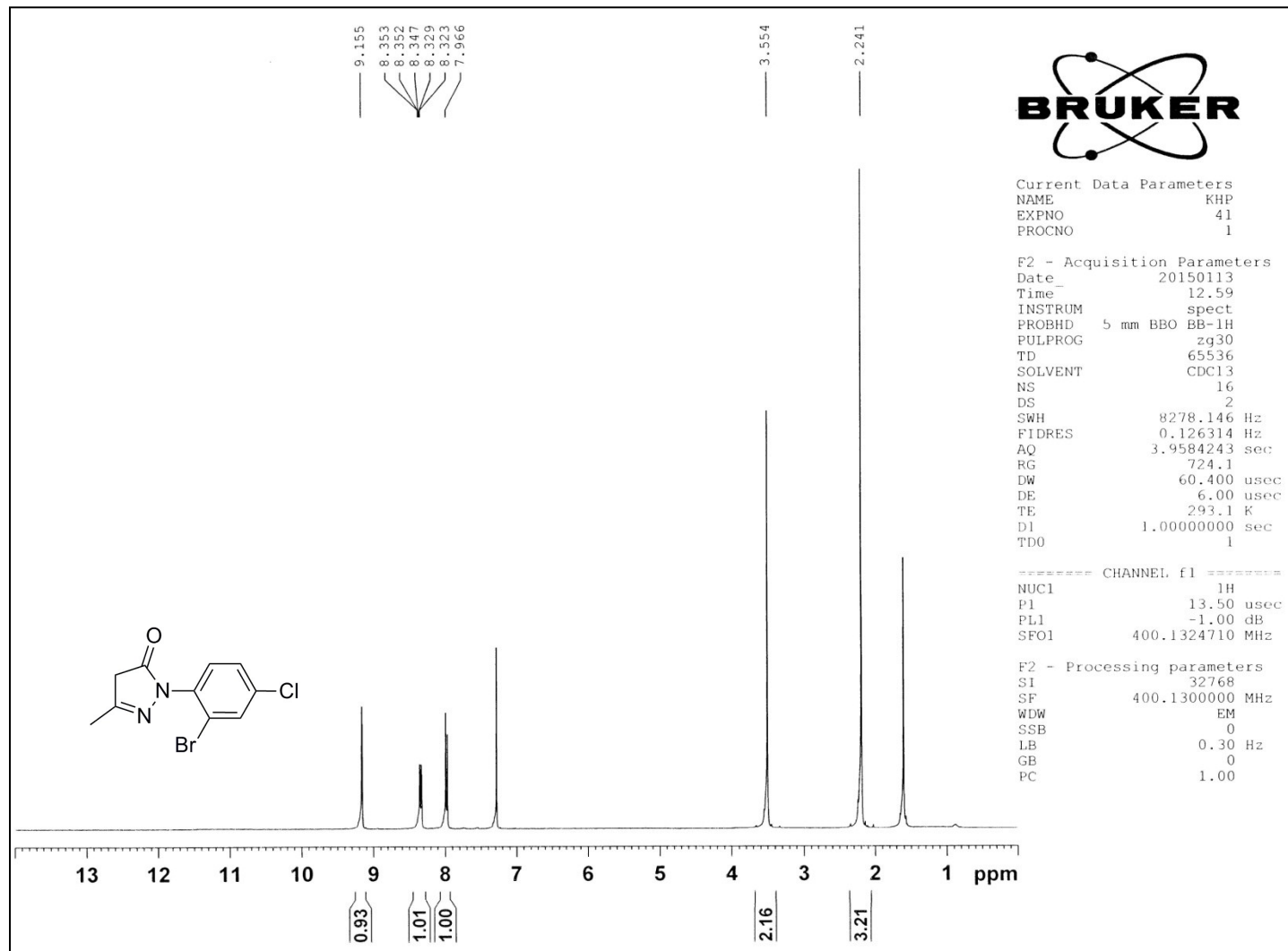


<sup>13</sup>C NMR spectra of compound **3c**

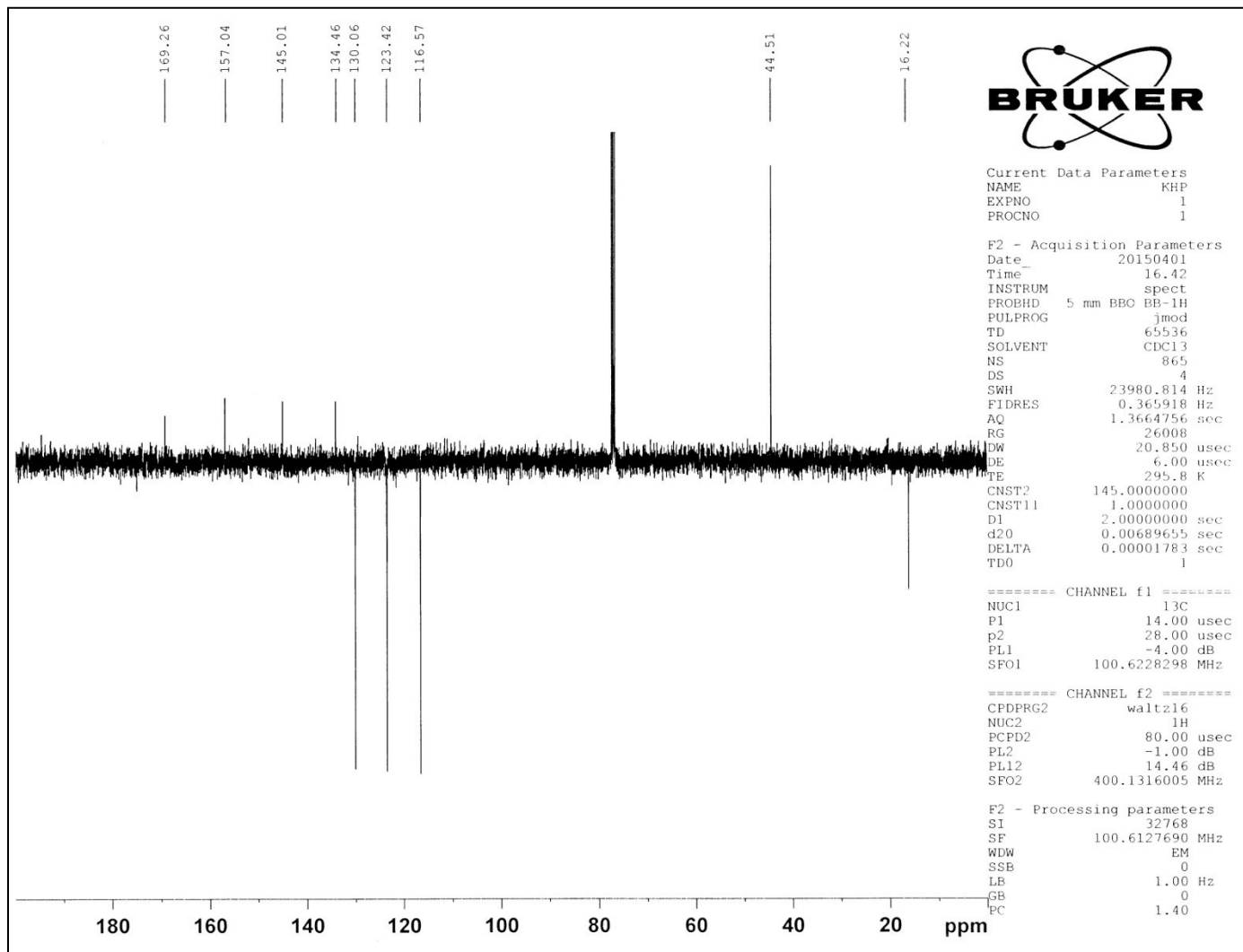




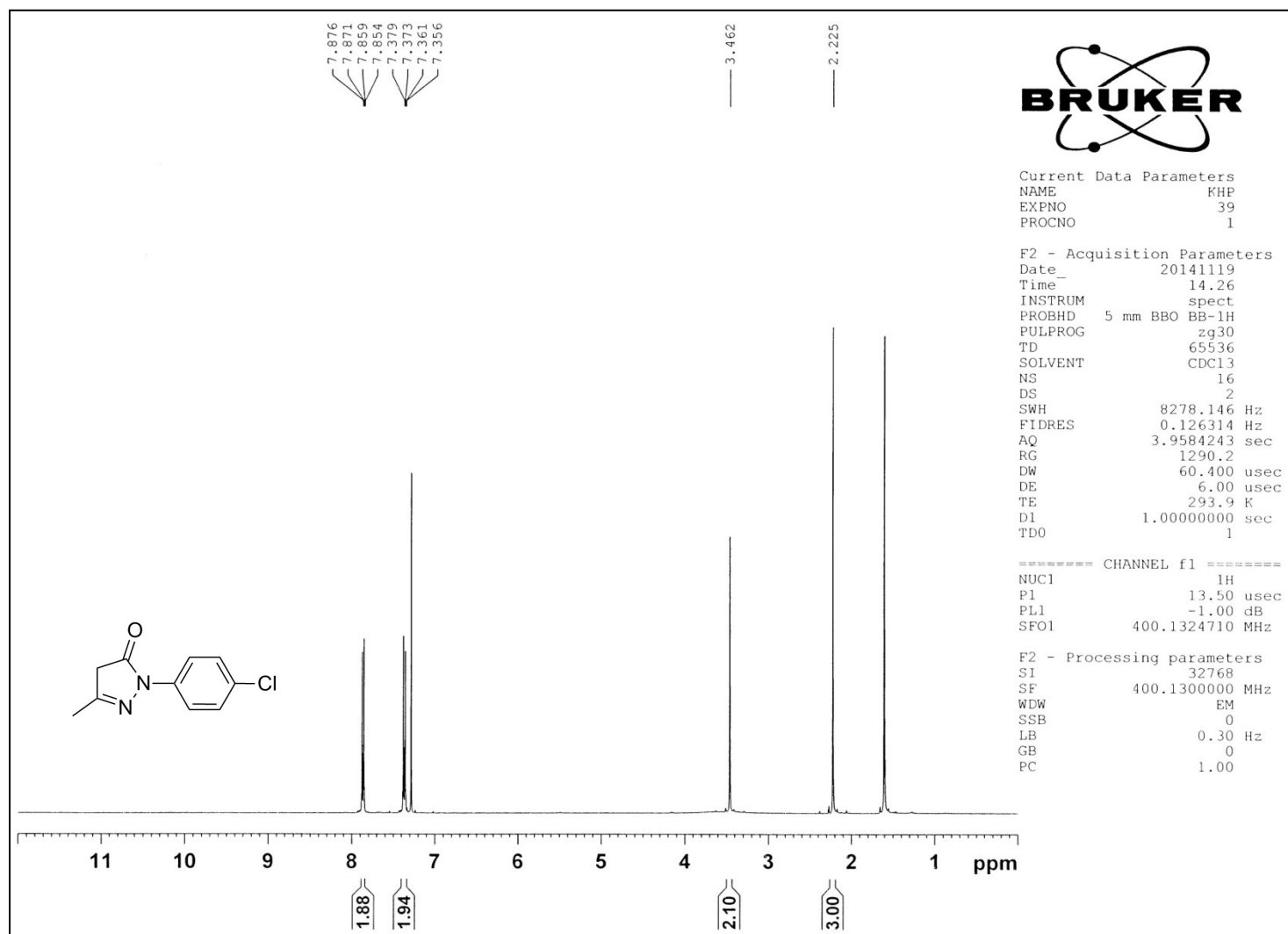
<sup>1</sup>H NMR spectra of compound **3d**



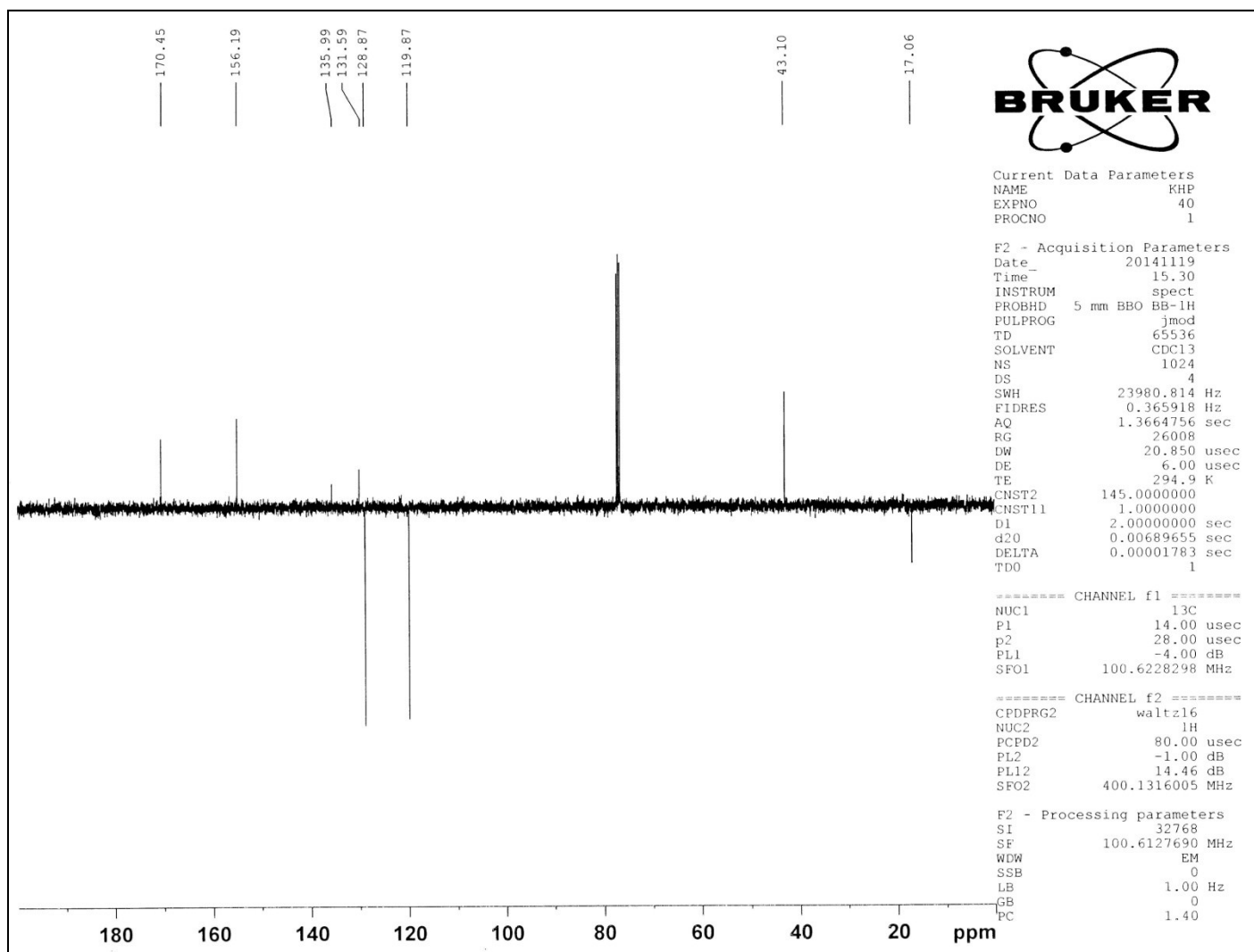
<sup>13</sup>C NMR spectra of compound **3d**



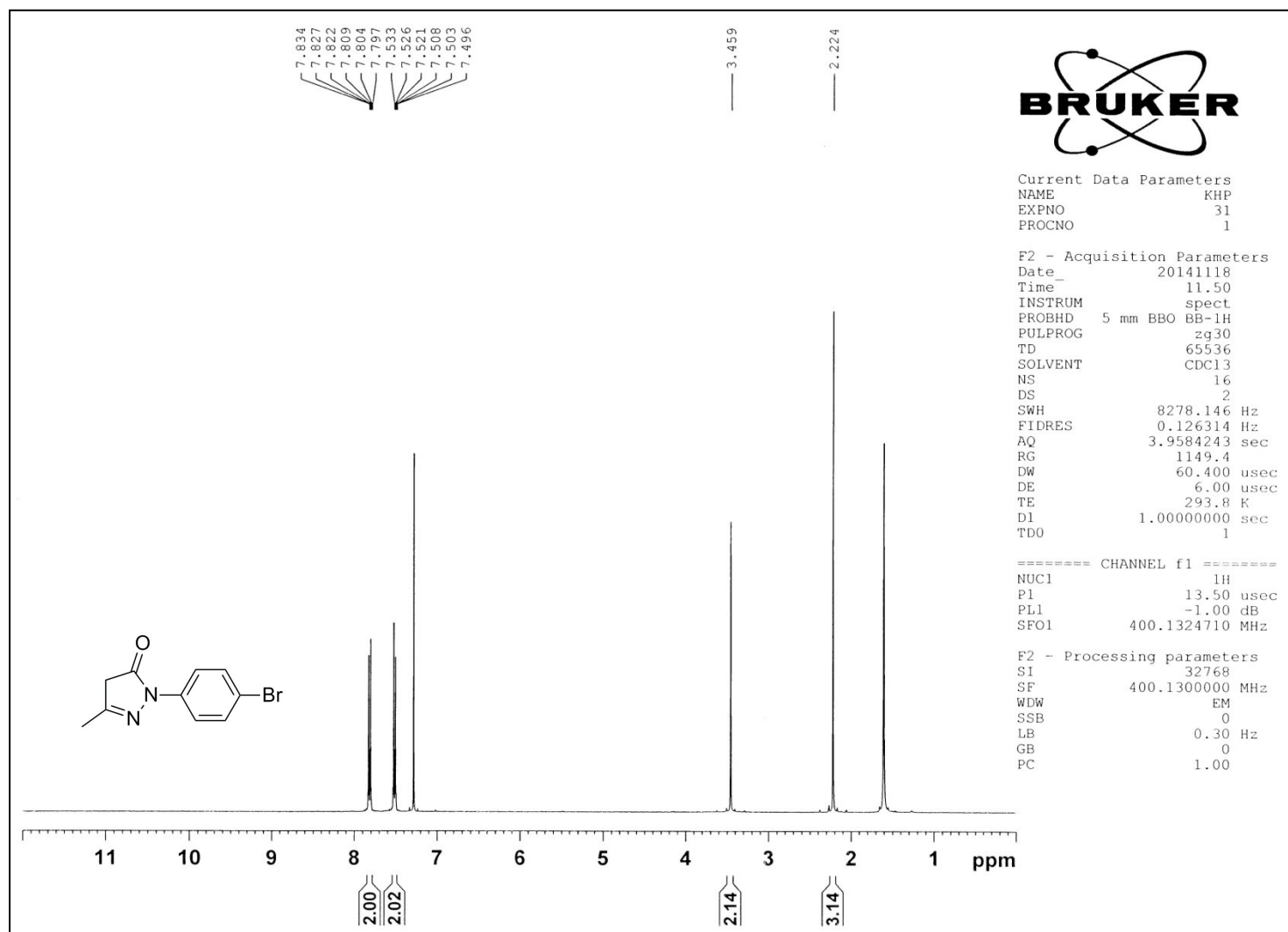
<sup>1</sup>H NMR spectra of compound **2a'**



<sup>13</sup>C NMR spectra of compound **2a'**



<sup>1</sup>H NMR spectra of compound **3a'**



<sup>13</sup>C NMR spectra of compound 3a'

