Supplementary Information

Marine Inspired 2-(5-Halo-1*H*-indol-3-yl)-*N*,*N*-Dimethylethanamines As Modulators of Serotonin Receptors: An Example Illustrating the Power of Bromine as part of the Uniquely Marine Chemical Space.

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3-876-2353

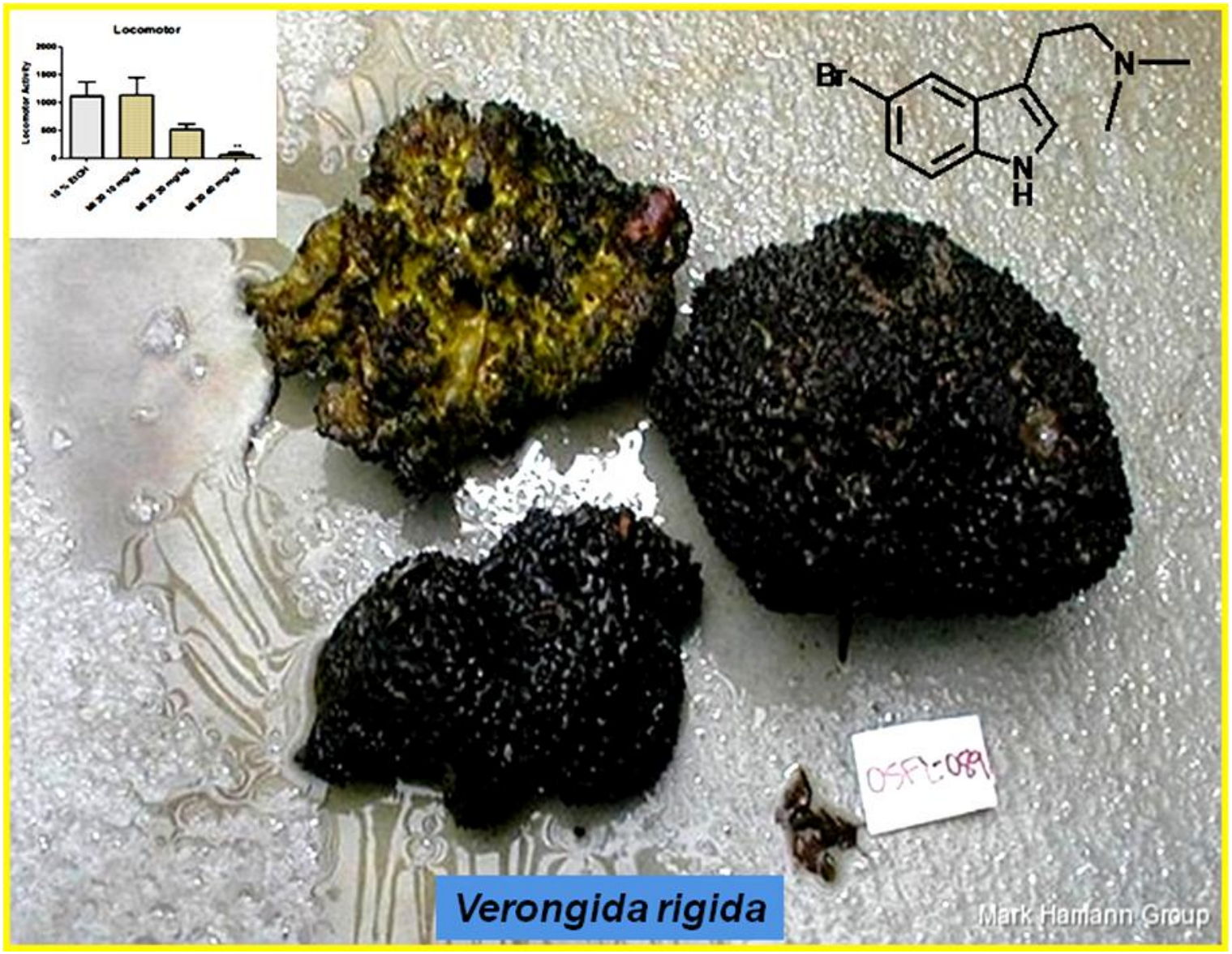

Figure 1. Picture of the sponge *Verongida rigida*

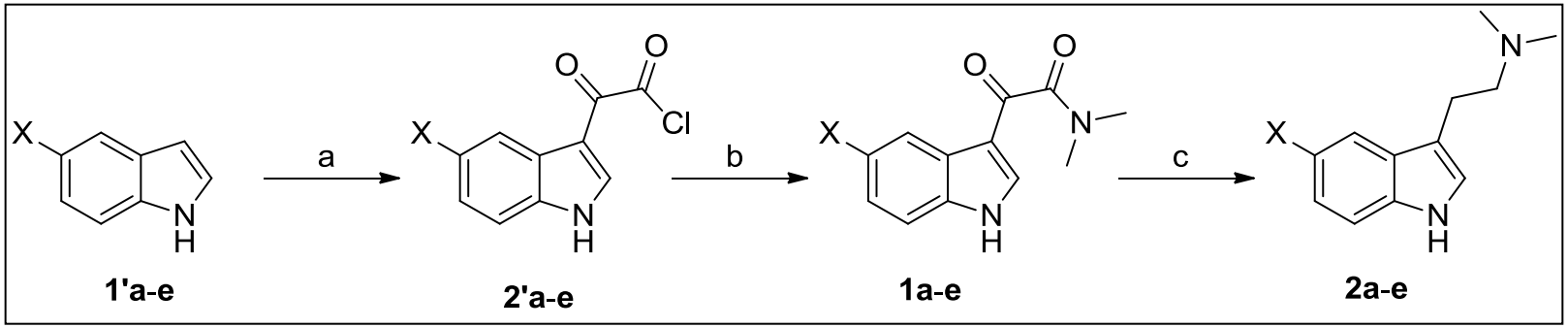

Figure 2. The synthesis of 5-haloindoledimethylethanamines. Reagents and reaction conditions: (a) Oxalyl chloride, diethyl ether, 0 ^{o}C, 30-60 min, (80-90%); (b) Dimethylamine, 0 ^{o}C, 30 min, then rt, 2 h, (80-90%); (c) $LiAlH_4$, DME, 0 ^{o}C, 1 h, then rt, 2 h, then 80 ^{o}C, 2 h, (65-75%)

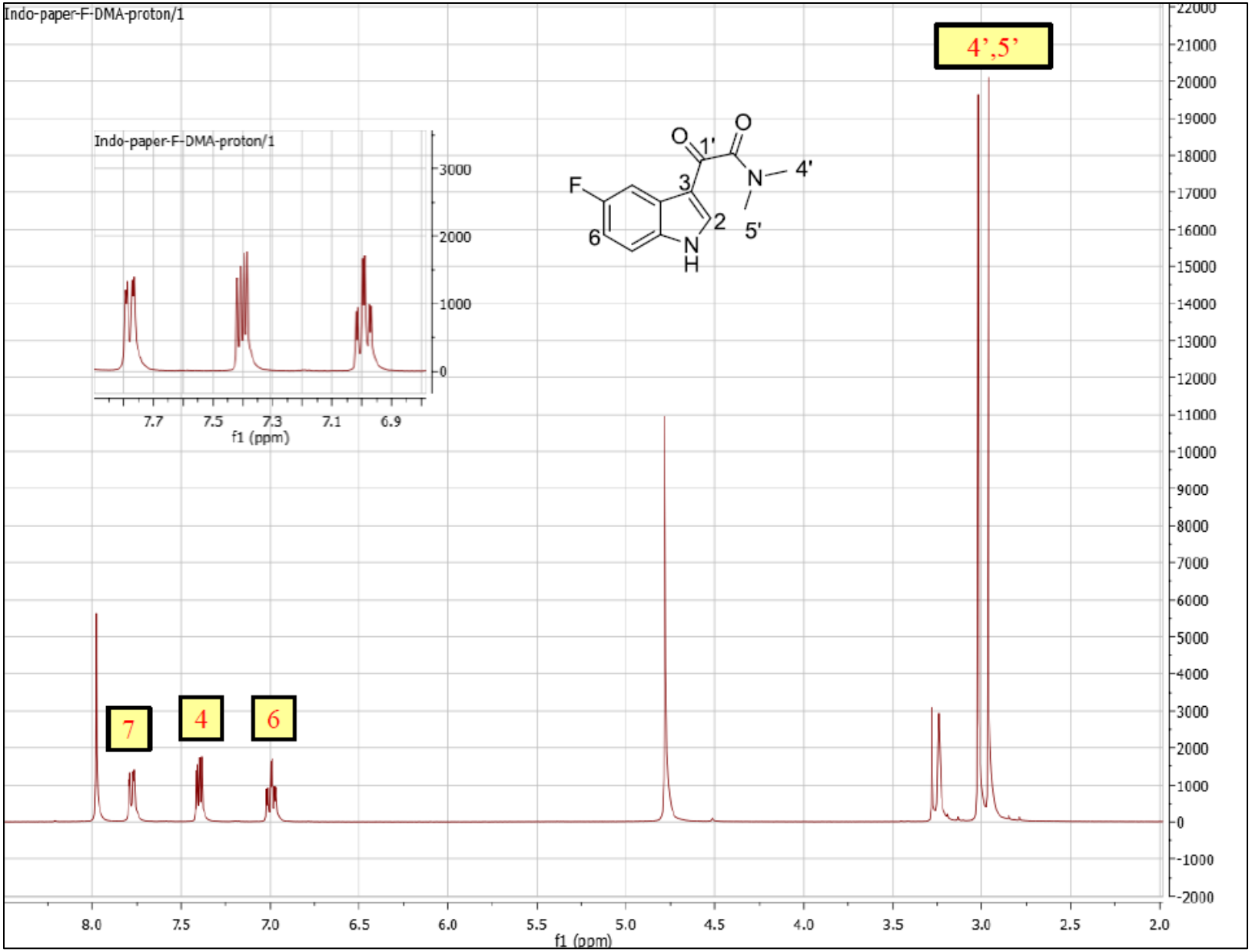

Figure 3. ^{1}H NMR spectrum of 2-(5-fluoro-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1b**) in methanol-d_4 (400 MHz)

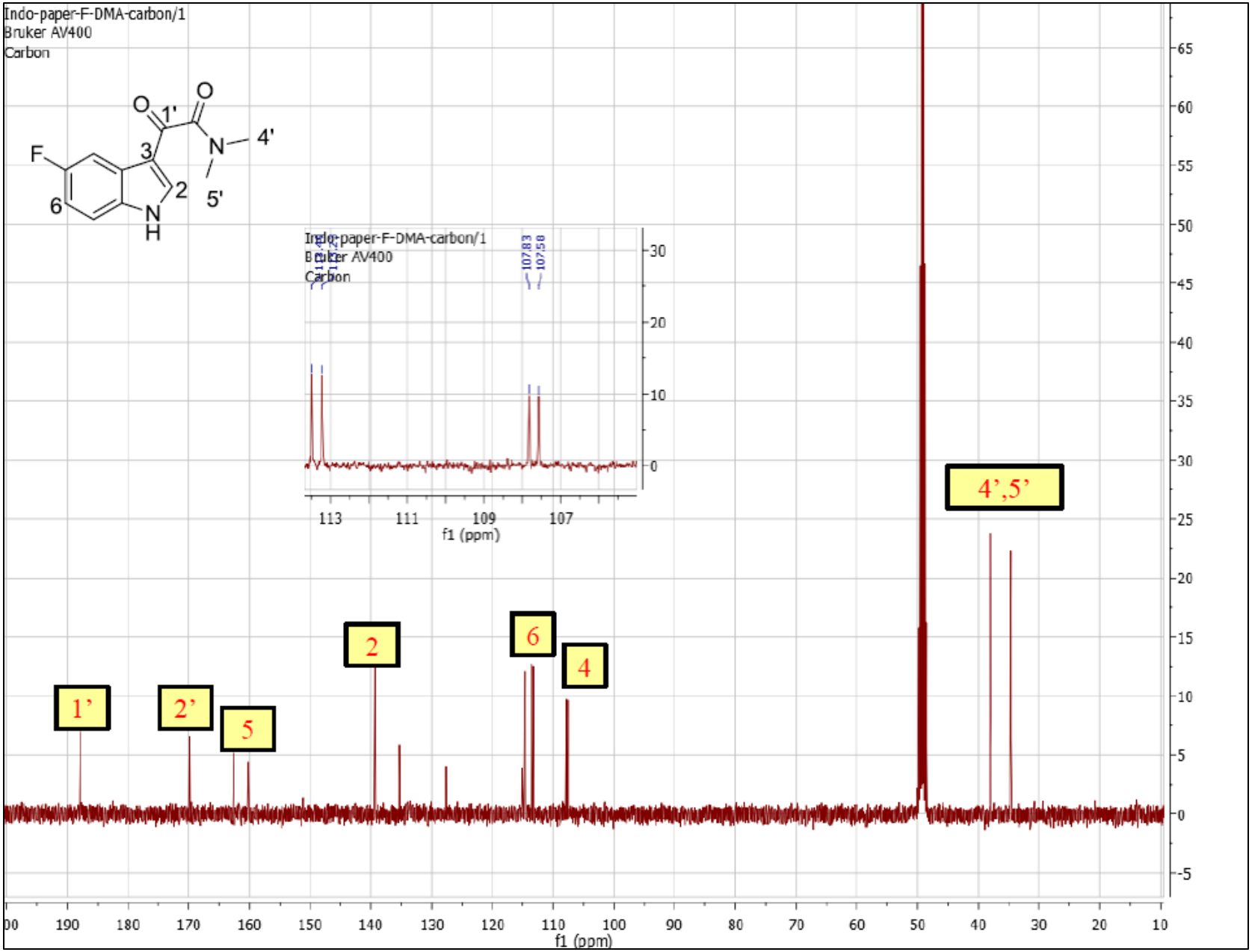

Figure 4. ^{13}C NMR spectrum of 2-(5-fluoro-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1b**) in methanol-d_4 (400 MHz)0

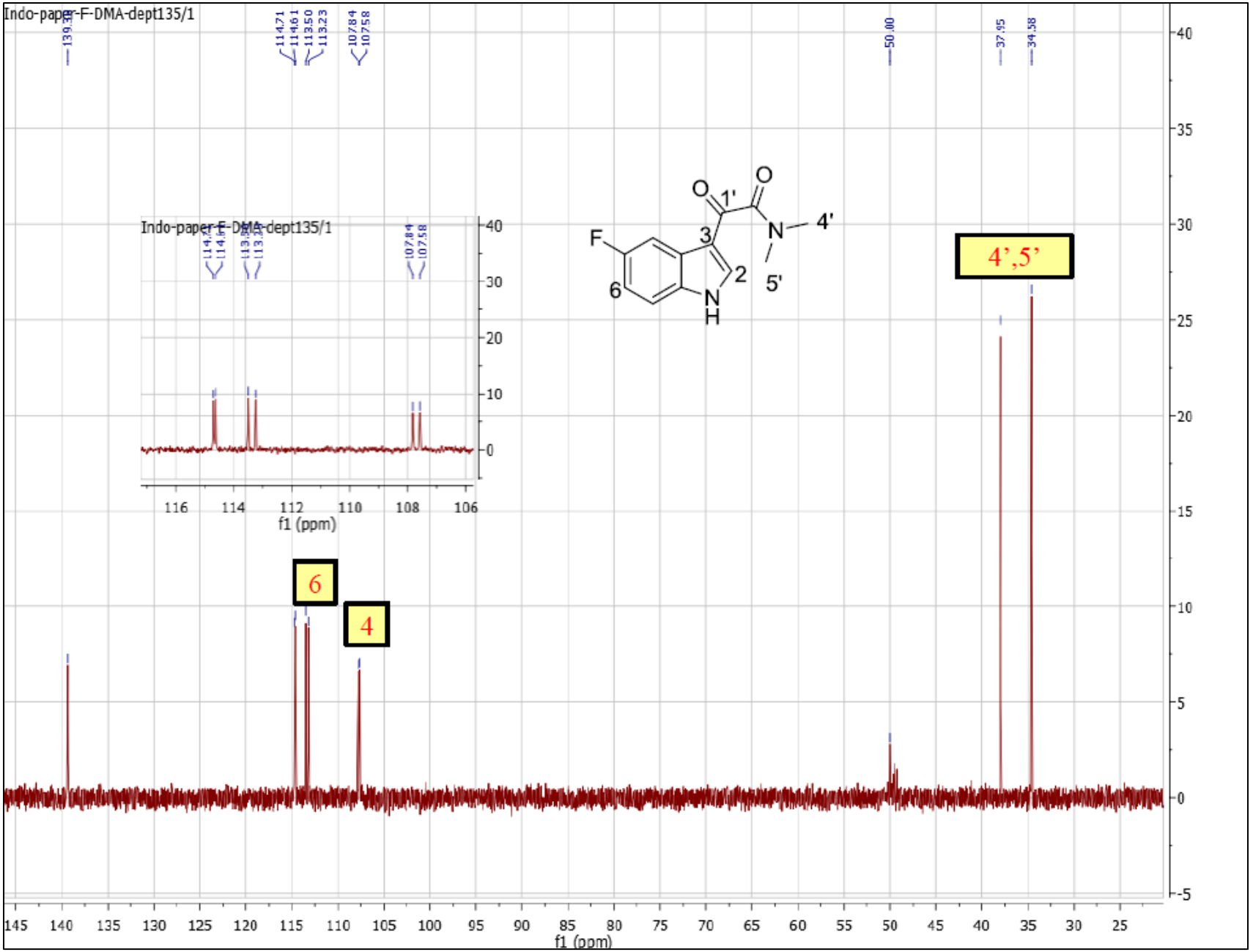

Figure 5. 135º DEPT spectrum of 2-(5-fluoro-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1b**) in methanol-d_4 (400 MHz)

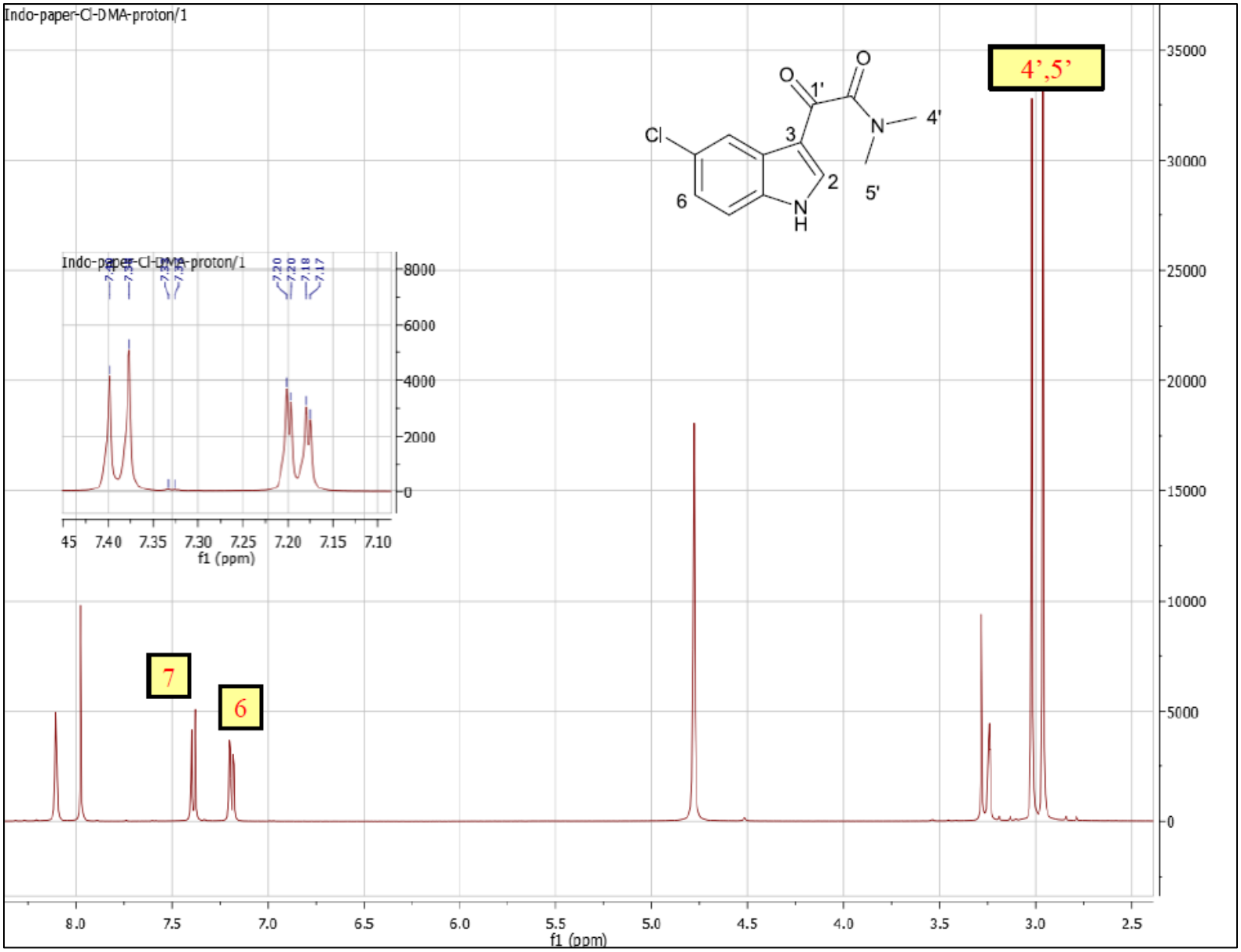

Figure 6. ^{1}H NMR spectrum of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1c**) in methanol-d_4 (400 MHz)

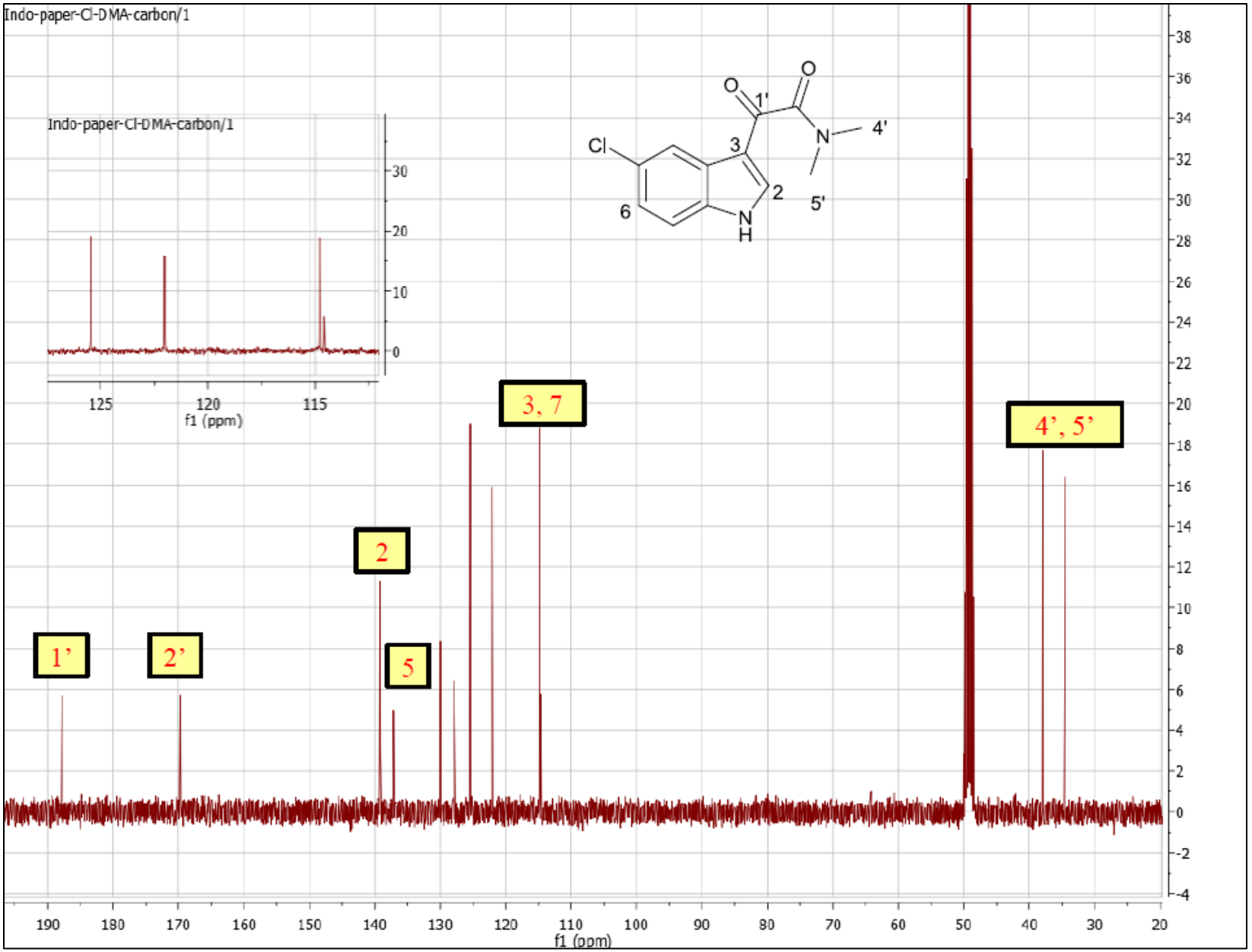

Figure 7. ^{13}C NMR spectrum of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1c**) in methanol-d_4 (400 MHz)

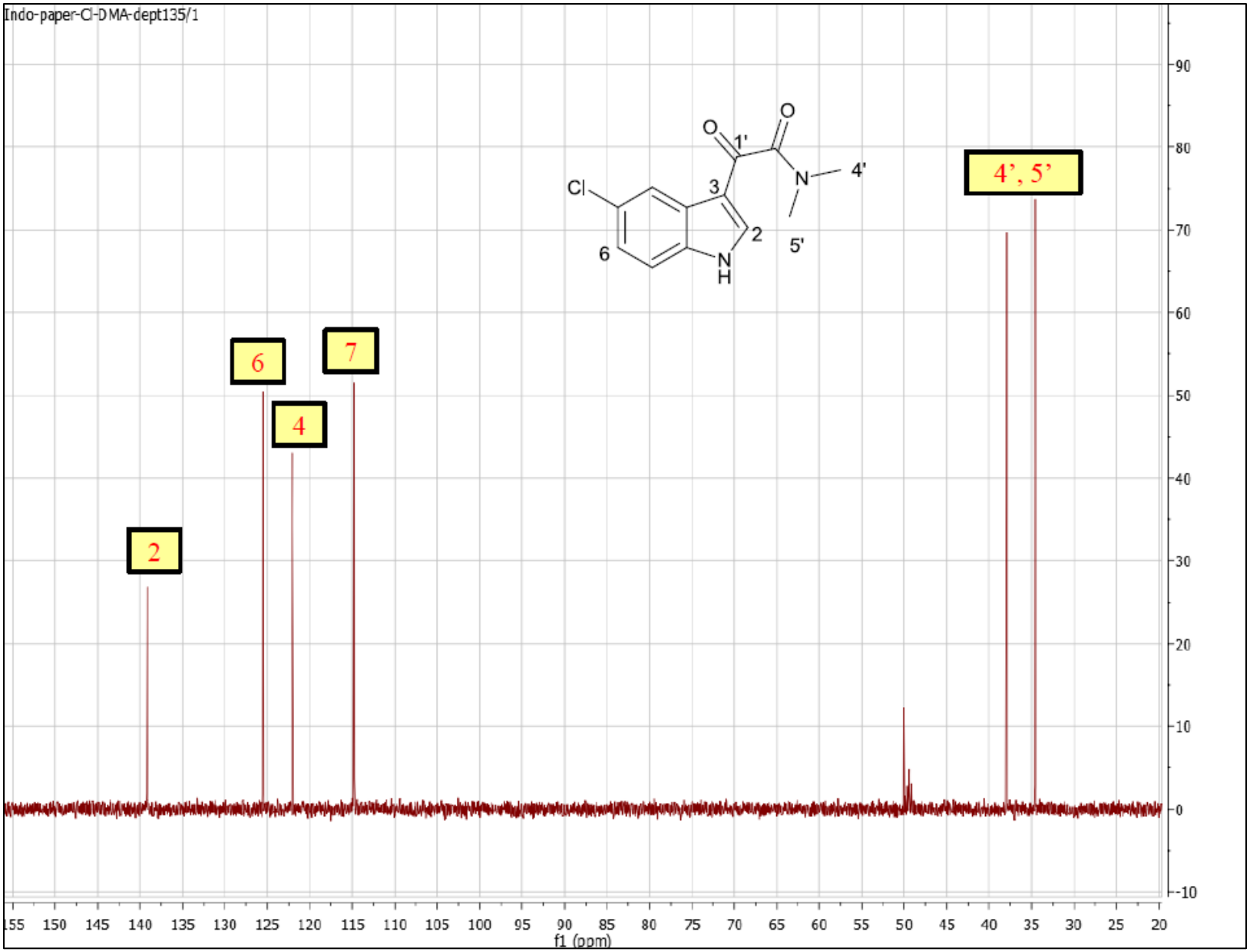

Figure 8. 135º DEPT spectrum of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1c**) in methanol-d_4 (400 MHz)

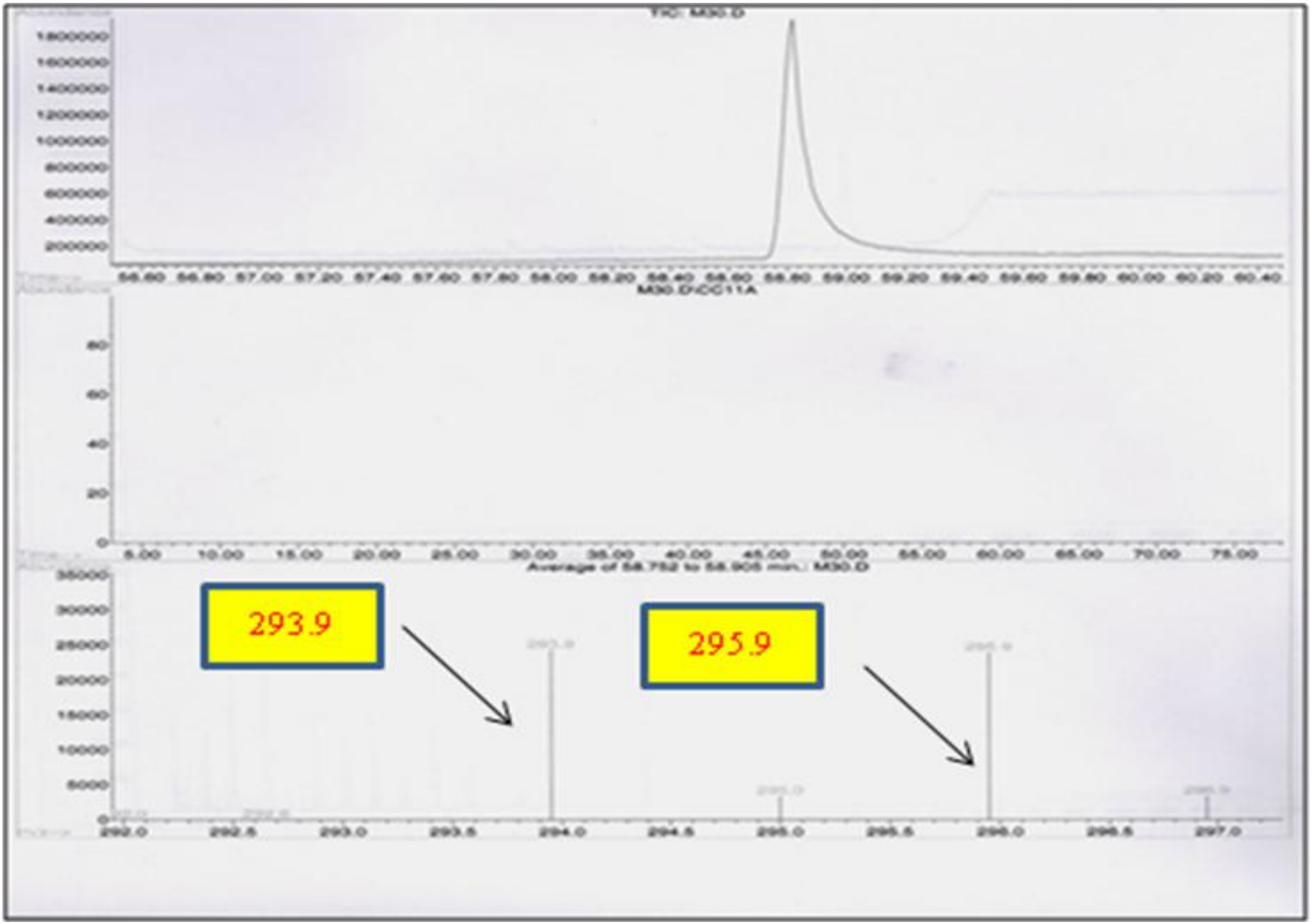

Figure 9. GC/MS chromatogram of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1d**)

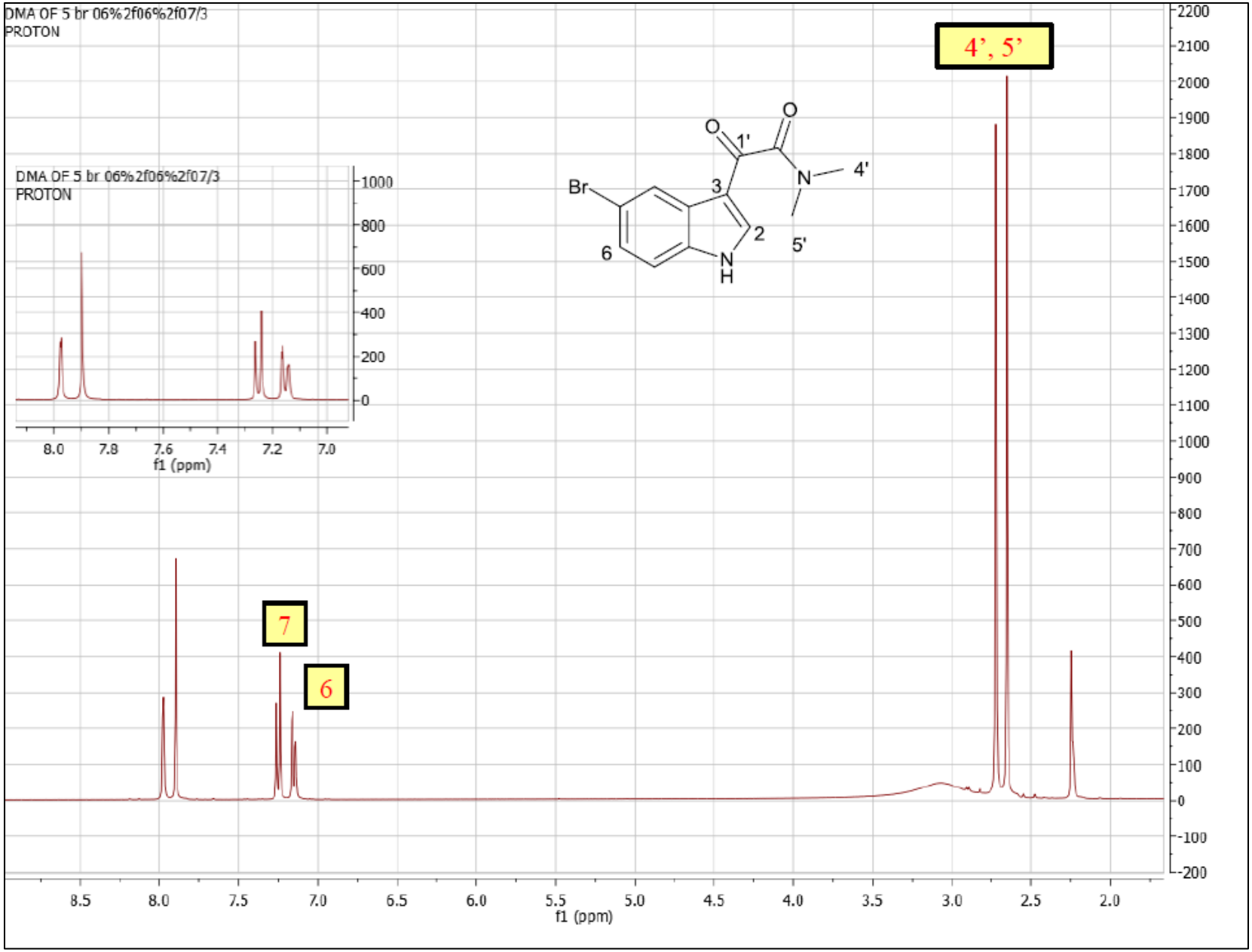

Figure 10. ^{1}H NMR spectrum of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethyl-2-oxoacetamide (**1d**) in $CDCl_3$ (400 MHz)

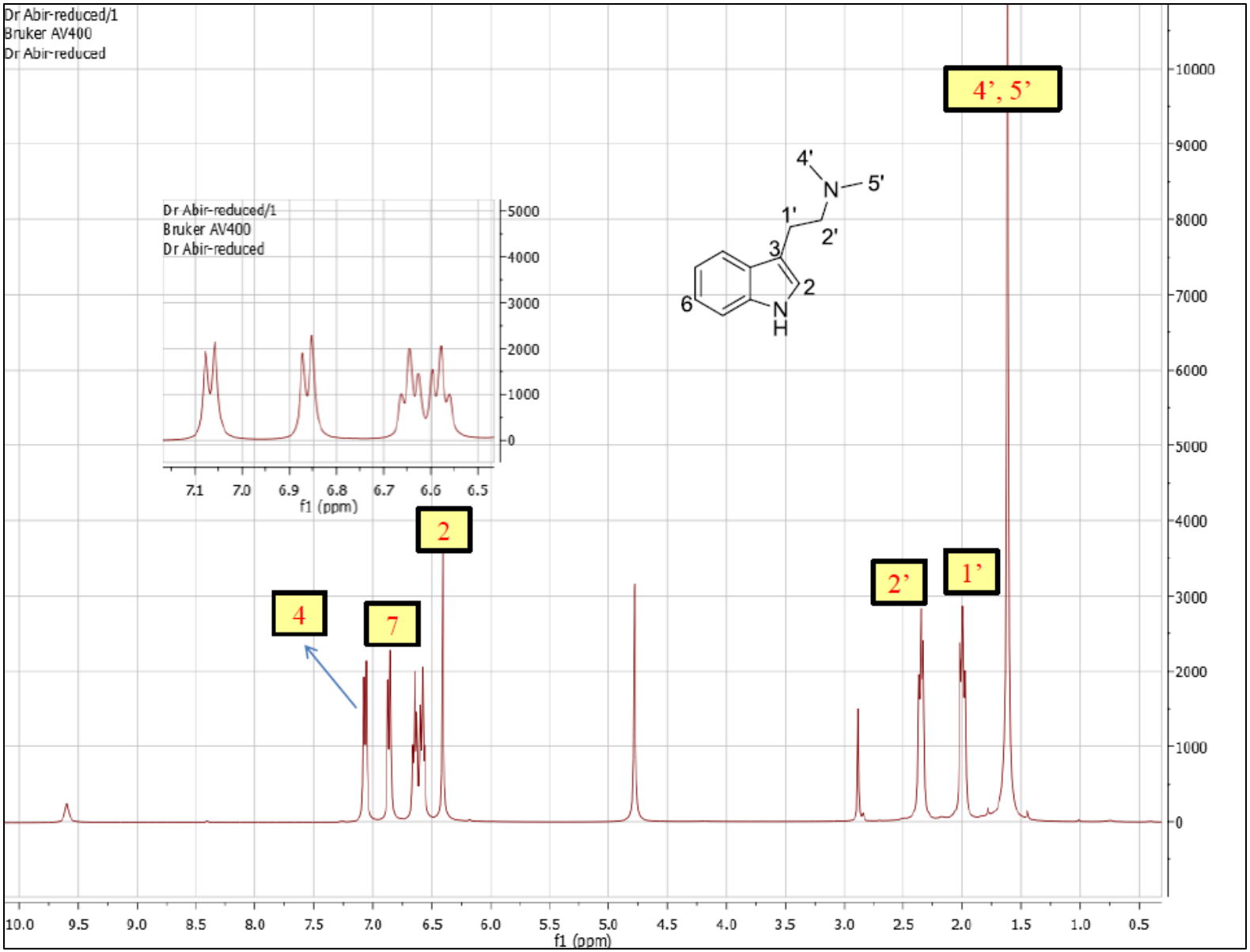

Figure 11. ^{1}H NMR spectrum of 2-(1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2a**) in methanol-d_4 (400 MHz)

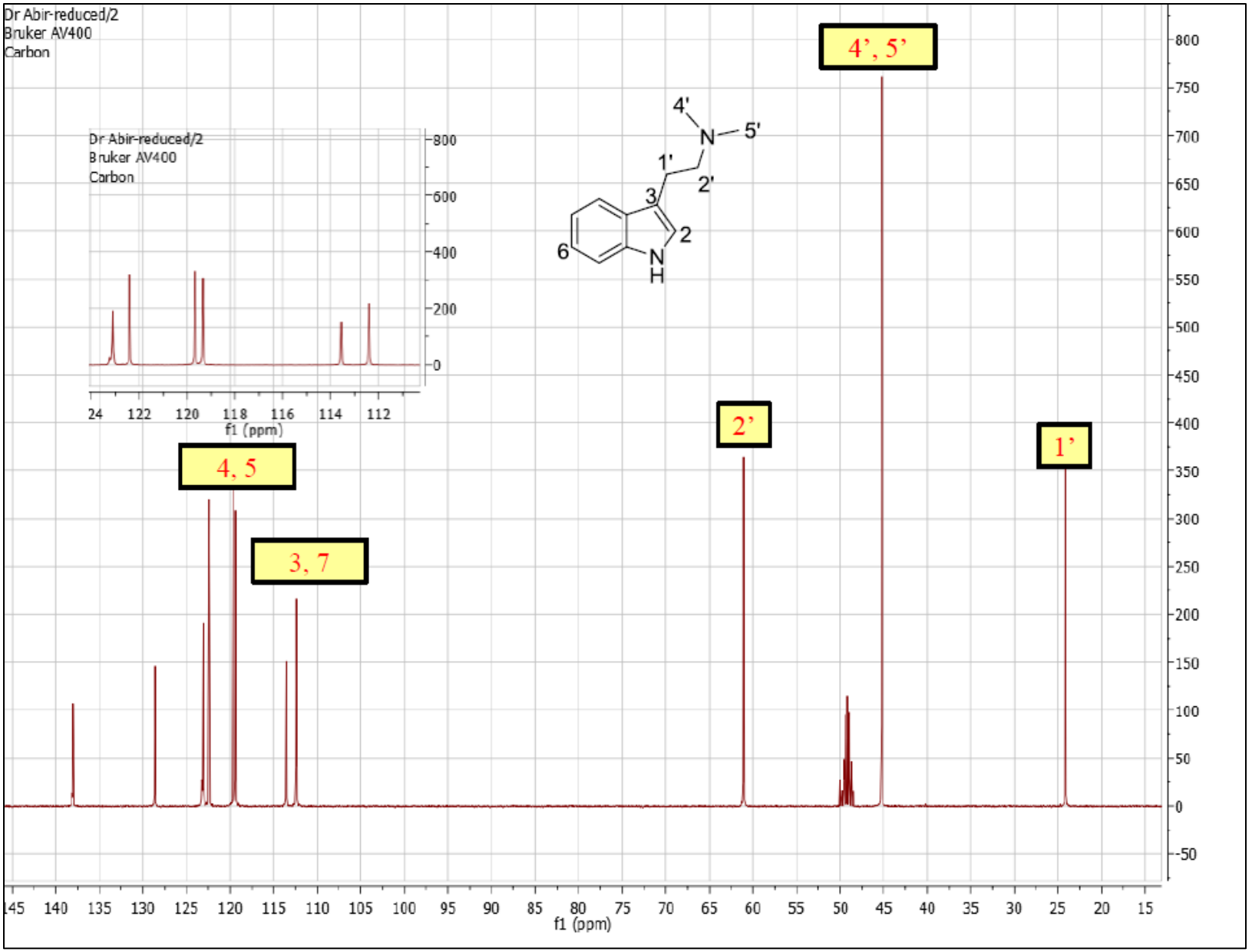

Figure 12. ^{13}C NMR spectrum of 2-(1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2a**) in methanol-d_4 (400 MHz)

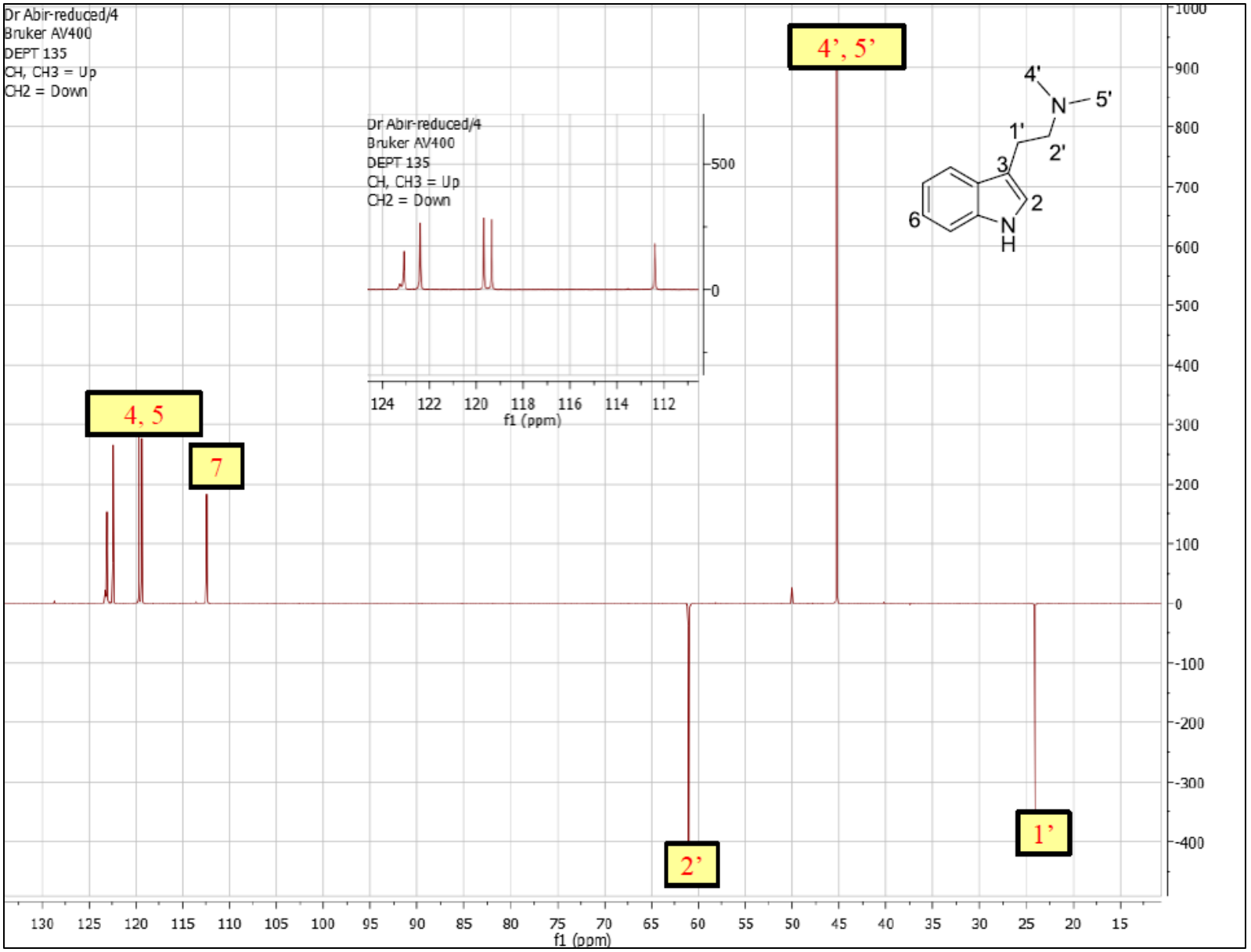

Figure 13. 135º DEPT spectrum of 2-(1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2a**) in methanol-d_4 (400 MHz)

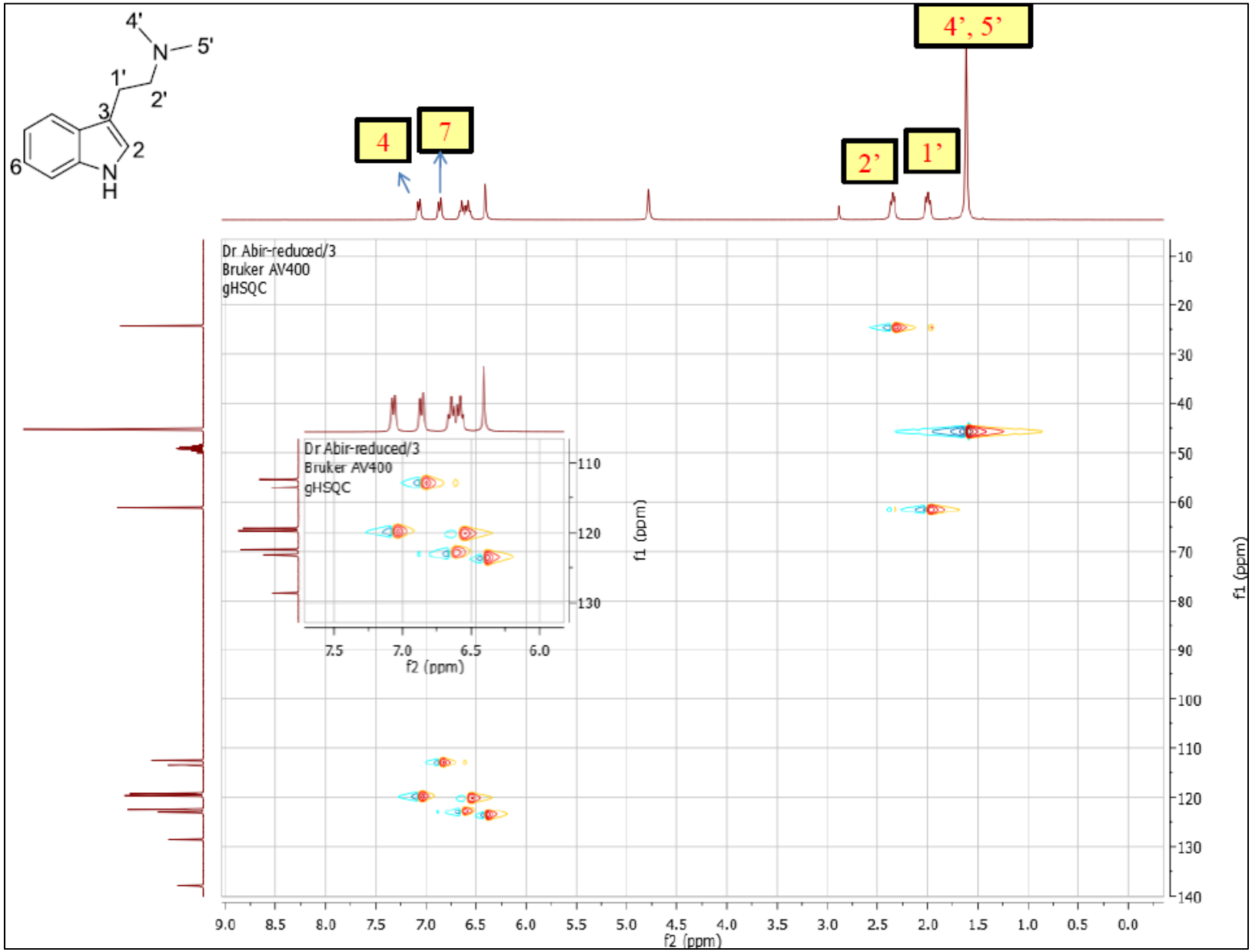

Figure 14. HSQC spectrum of 2-(1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2a**) in methanol-d_4 (400 MHz)

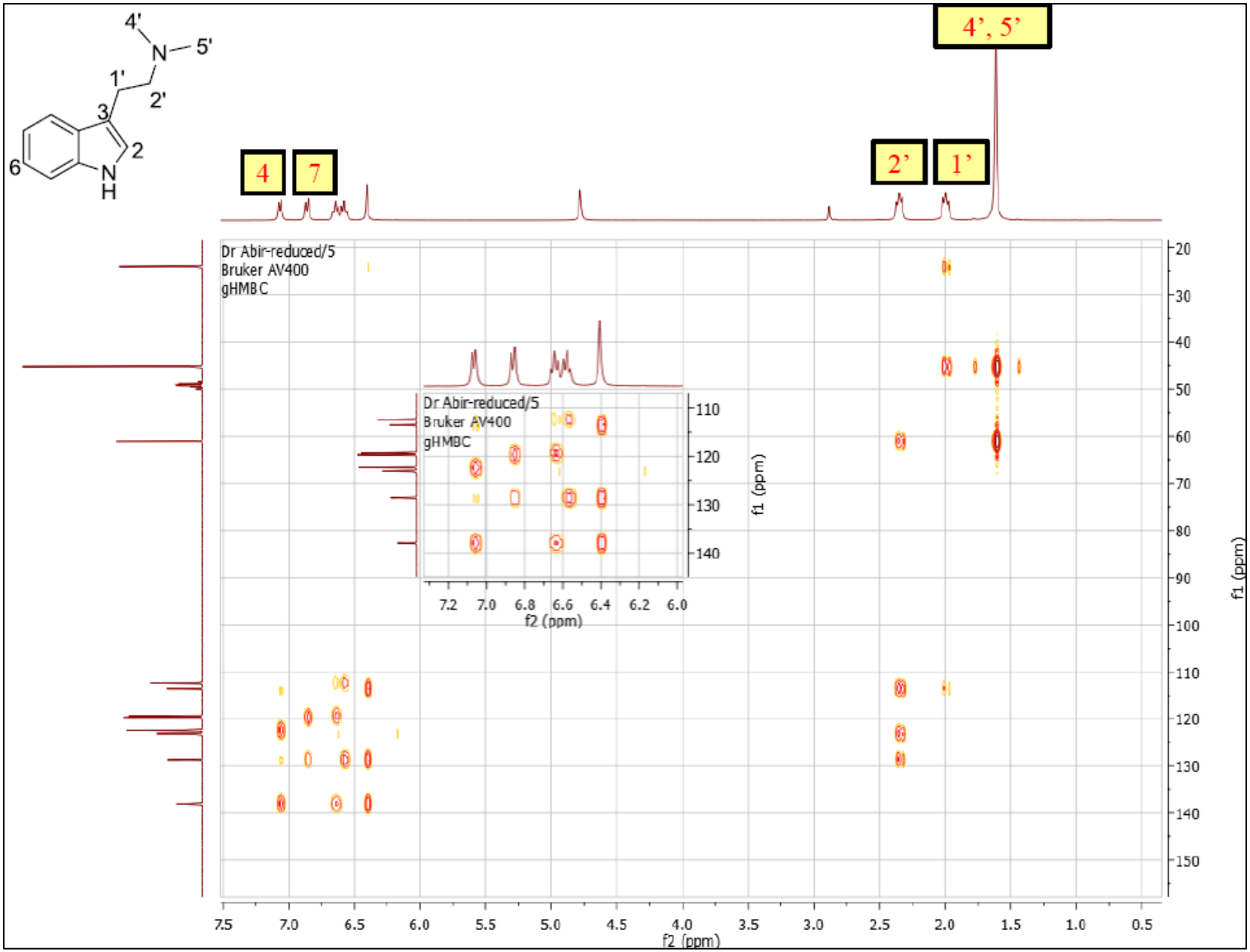

Figure 15. HMBC spectrum of 2-(1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2a**) in methanol-d_4 (400 MHz)

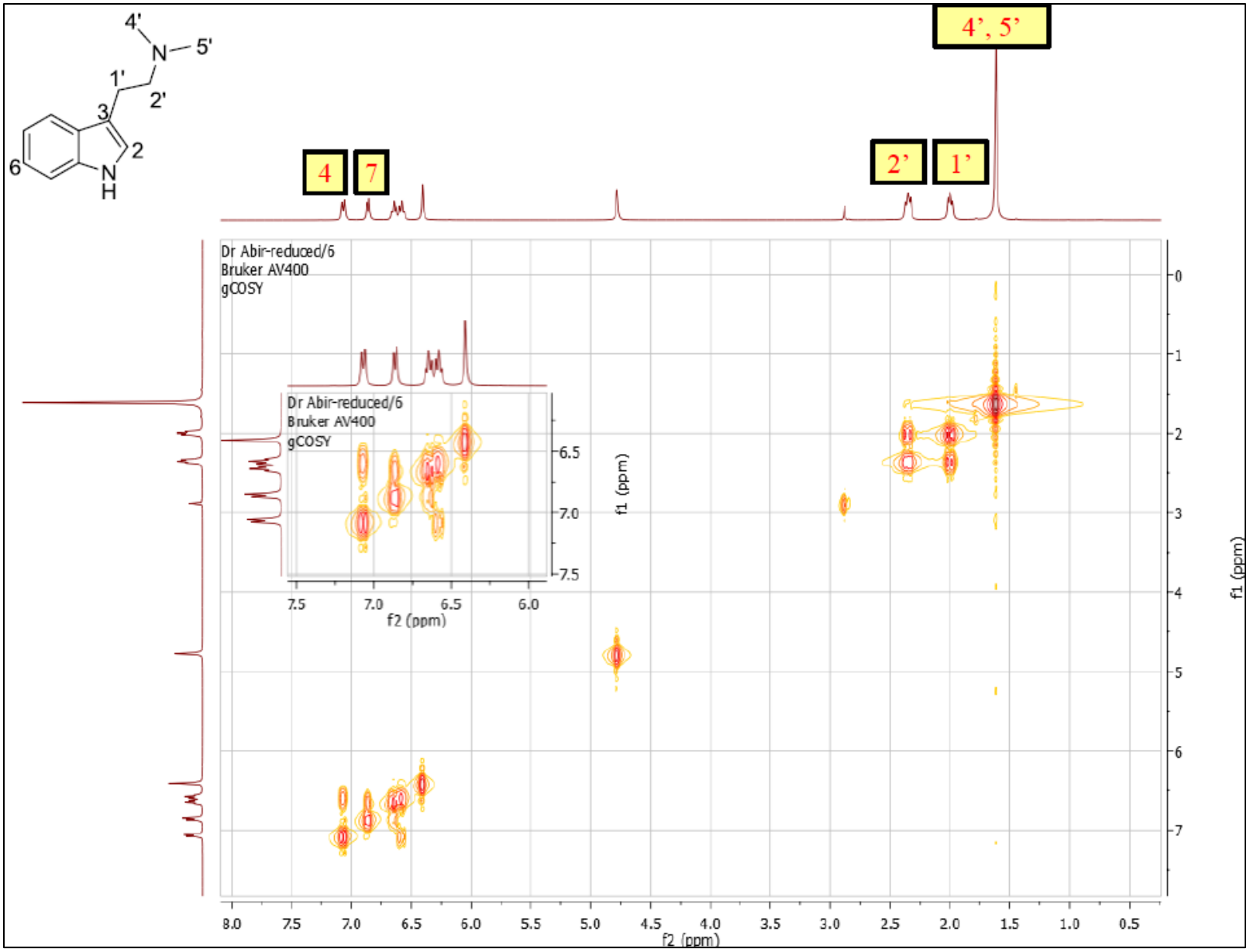

Figure 16. COSY spectrum of 2-(1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2a**) in methanol-d_4 (400 MHz)

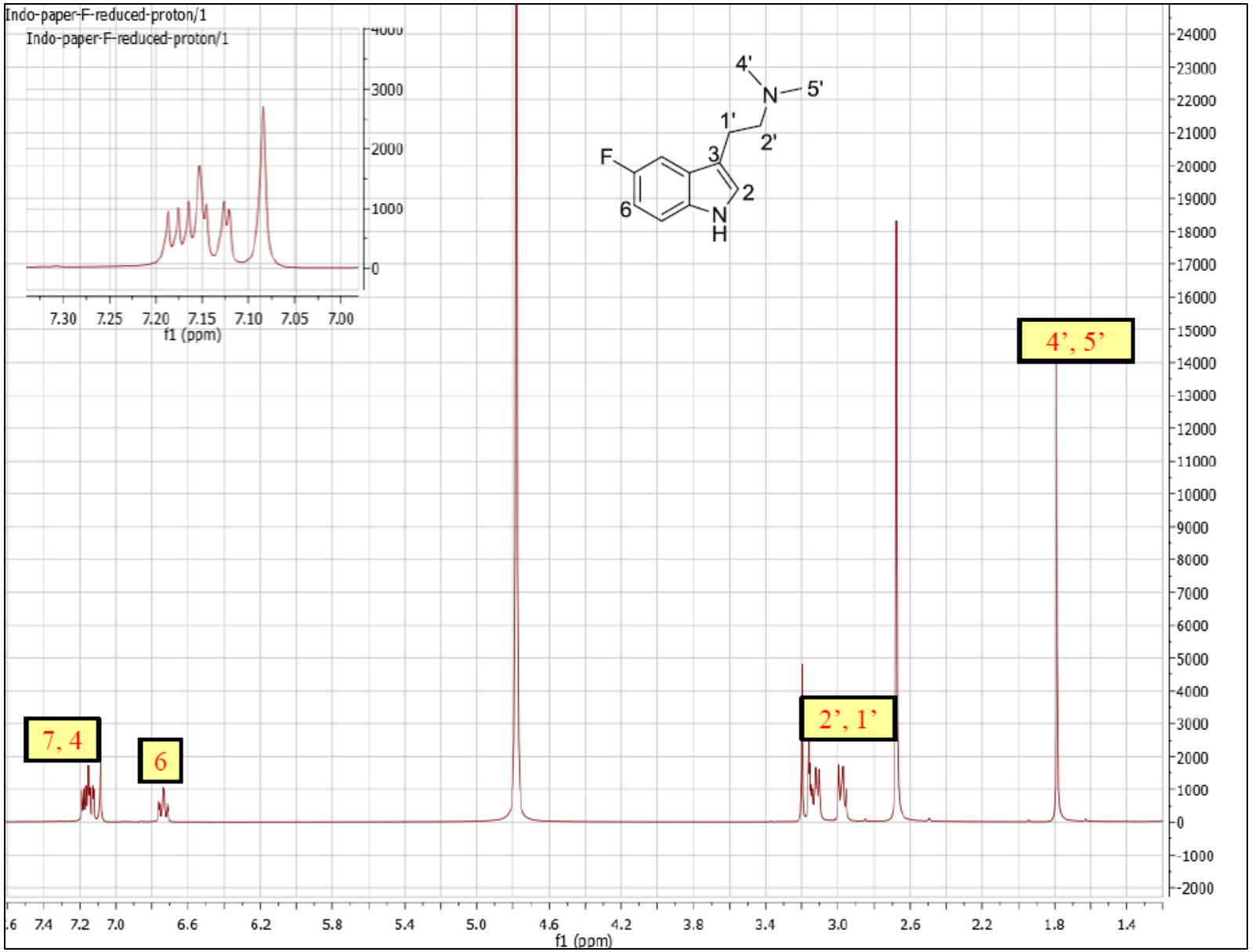

Figure 17. ^{1}H NMR spectrum of 2-(5-fluoro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2b**) in methanol-d_4 (400 MHz)

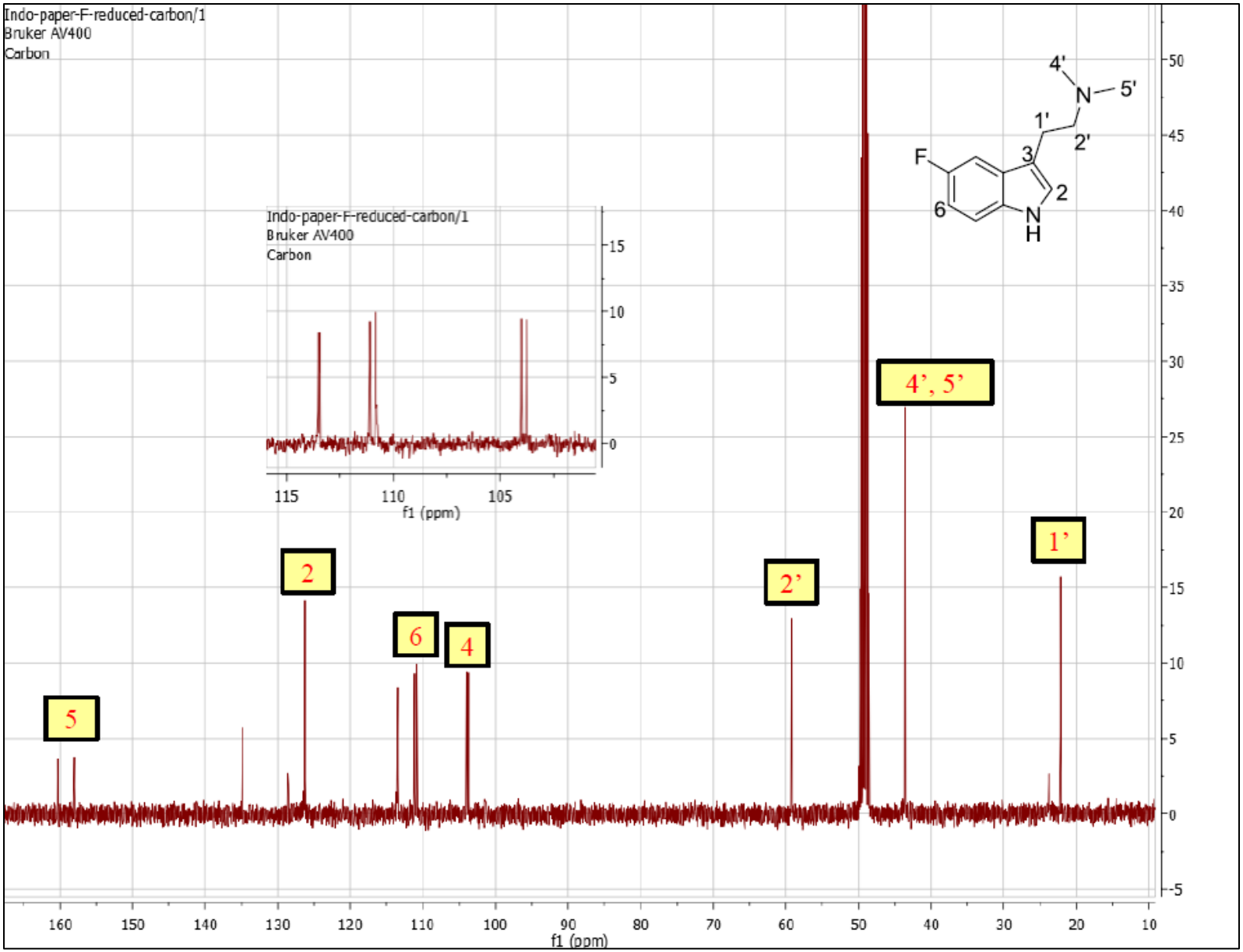

Figure 18. ^{13}C NMR spectrum of 2-(5-fluoro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2b**) in methanol-d_4 (400 MHz)

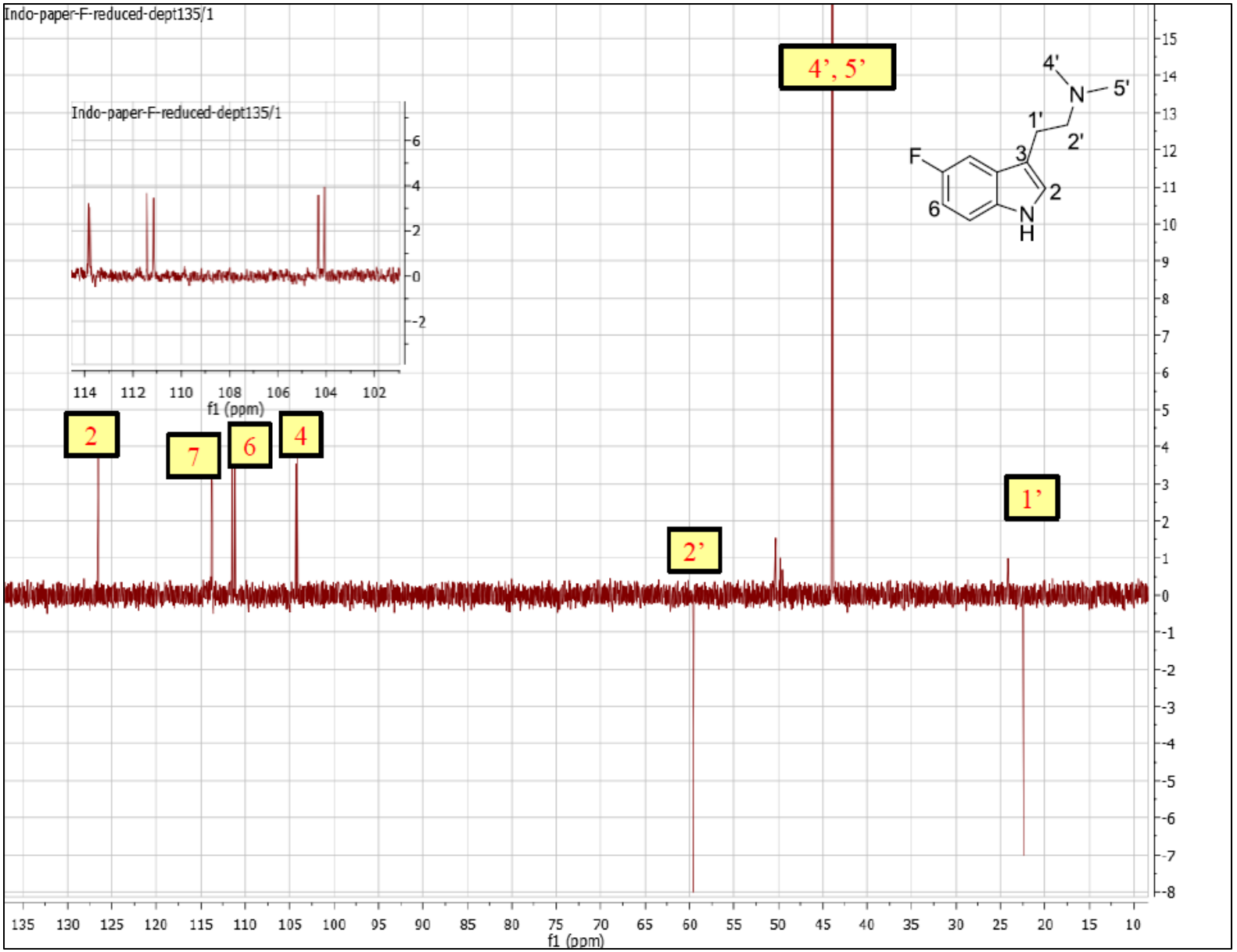

Figure 19. 135º DEPT spectrum of 2-(5-fluoro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2b**) in methanol-d_4 (400 MHz)

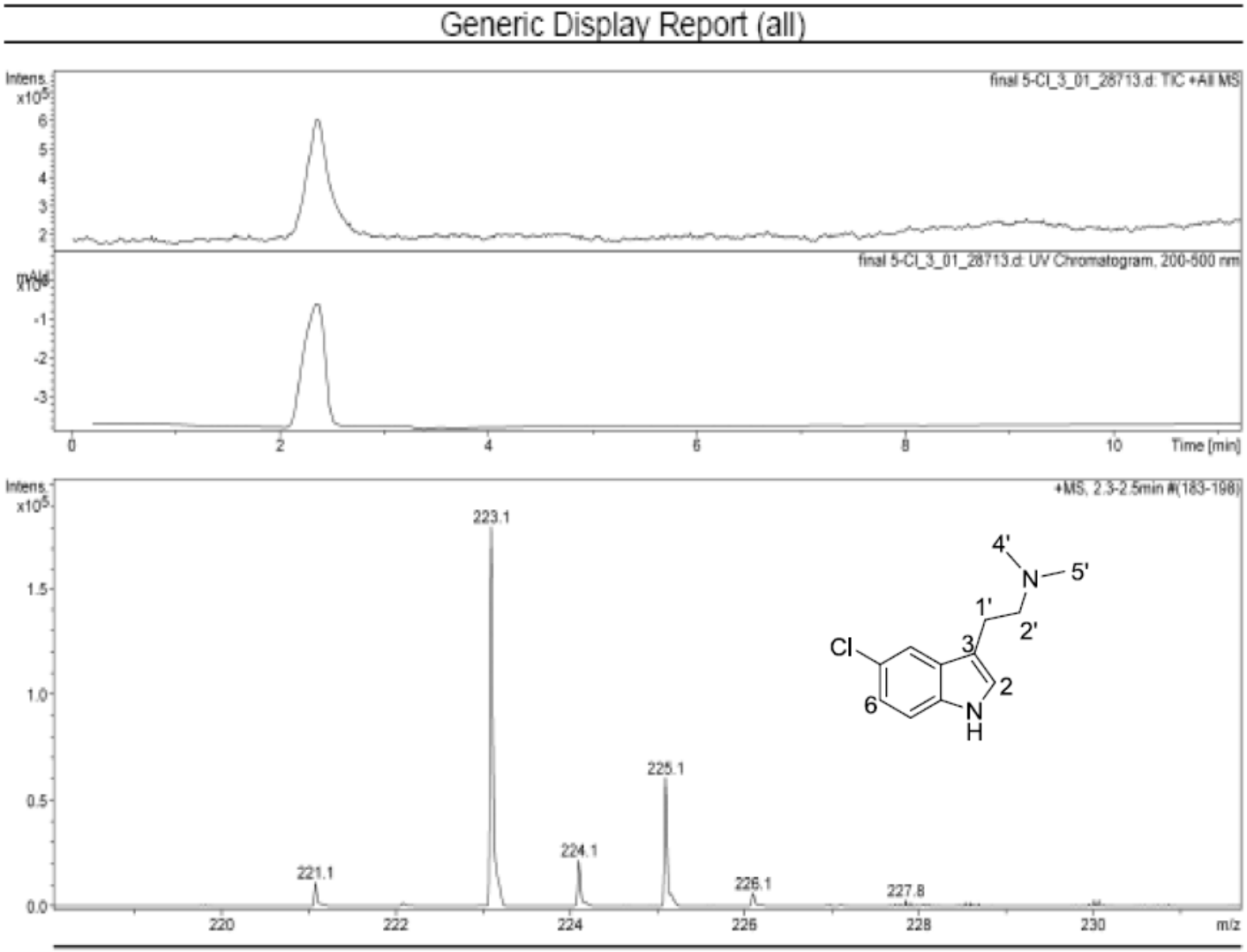

Figure 20. LC/MS chromatogram of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2c**)

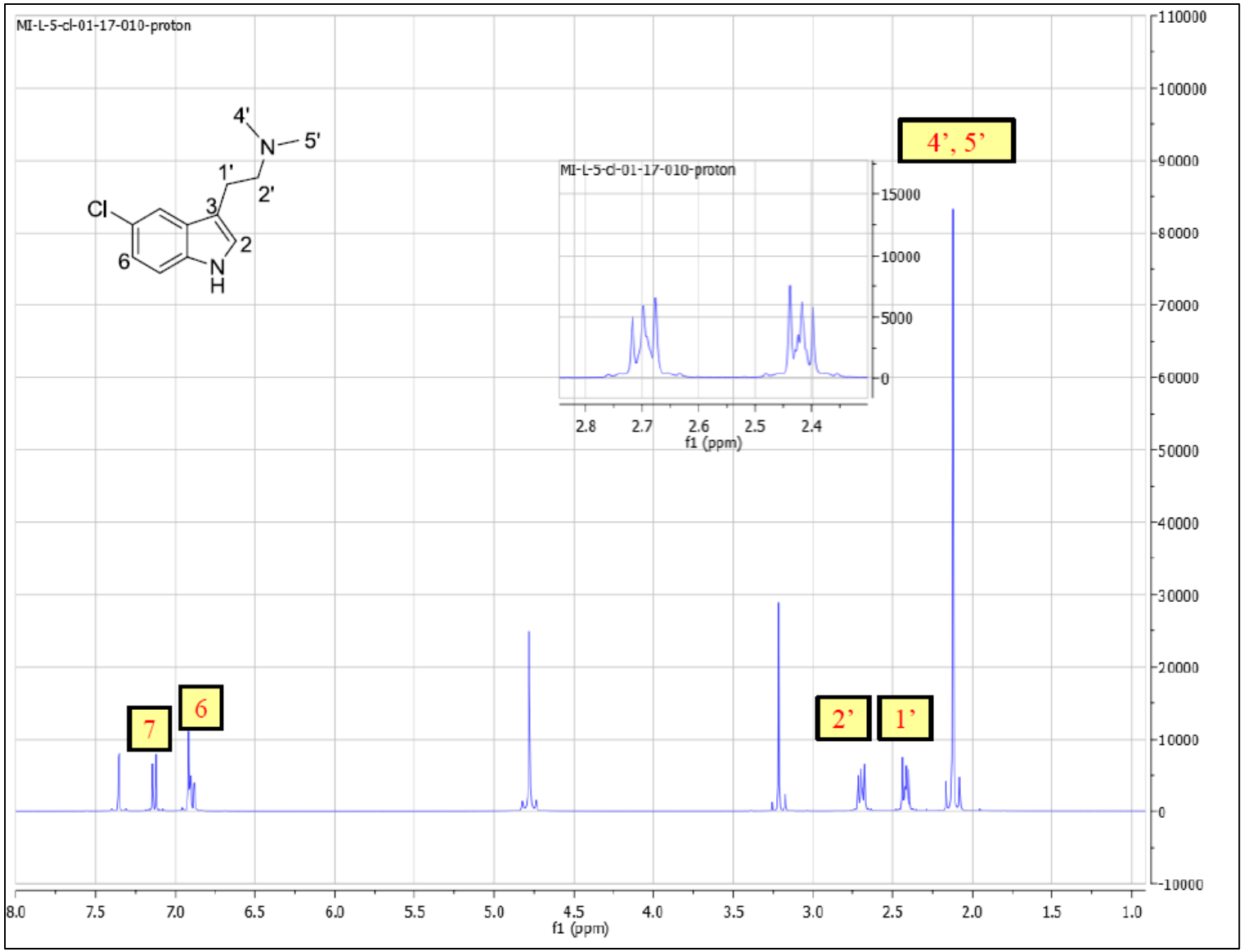

Figure 21. ^{1}H NMR spectrum of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2c**) in methanol-d_4 (400 MHz)

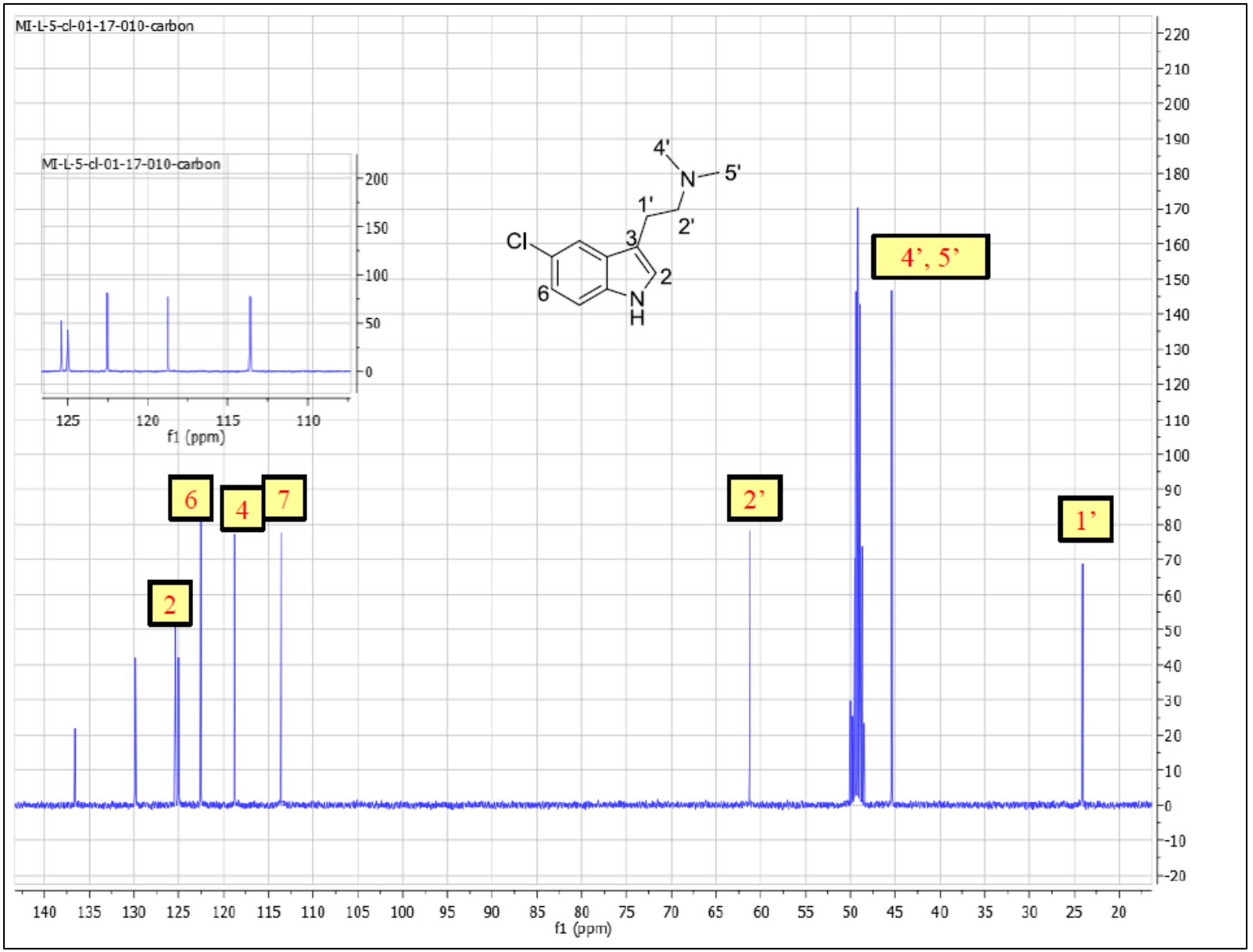

Figure 22. ^{13}C NMR spectrum of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2c**) in methanol-d_4 (400 MHz)

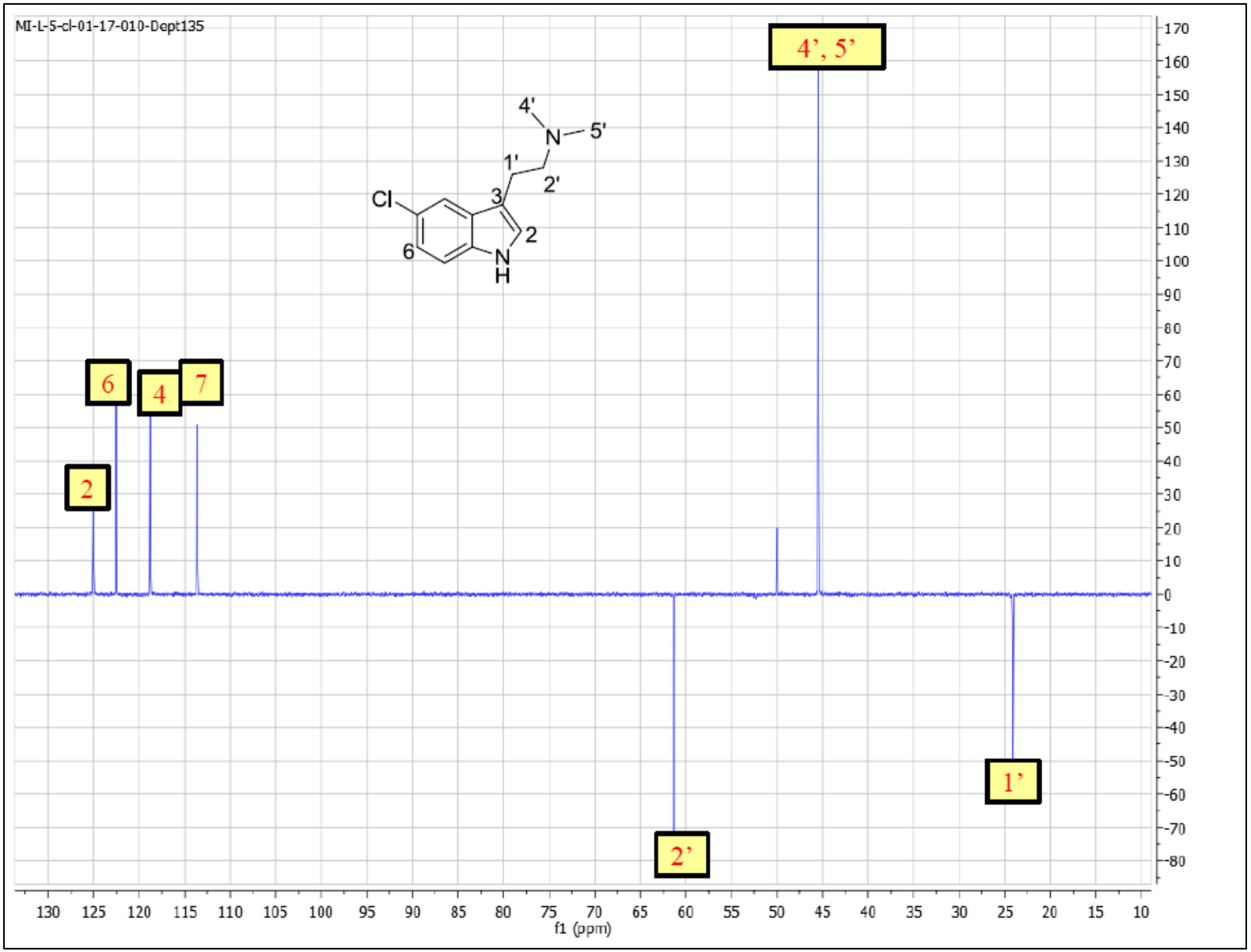

Figure 23. 135º DEPT spectrum of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2c**) in methanol-d_4 (400 MHz)

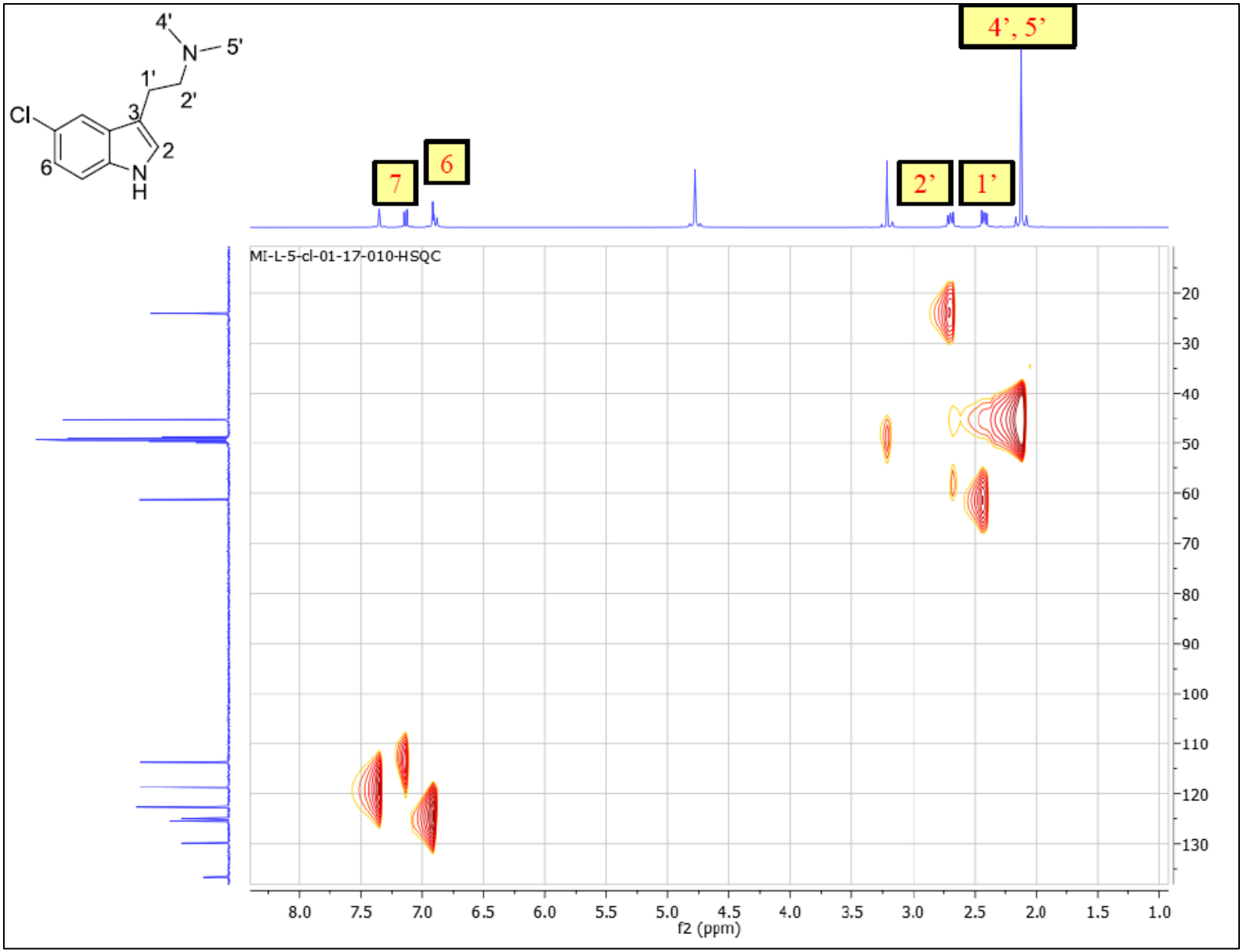

Figure 24. HSQC spectrum of 2-(5-chloro-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2c**) in methanol-d_4 (400 MHz)

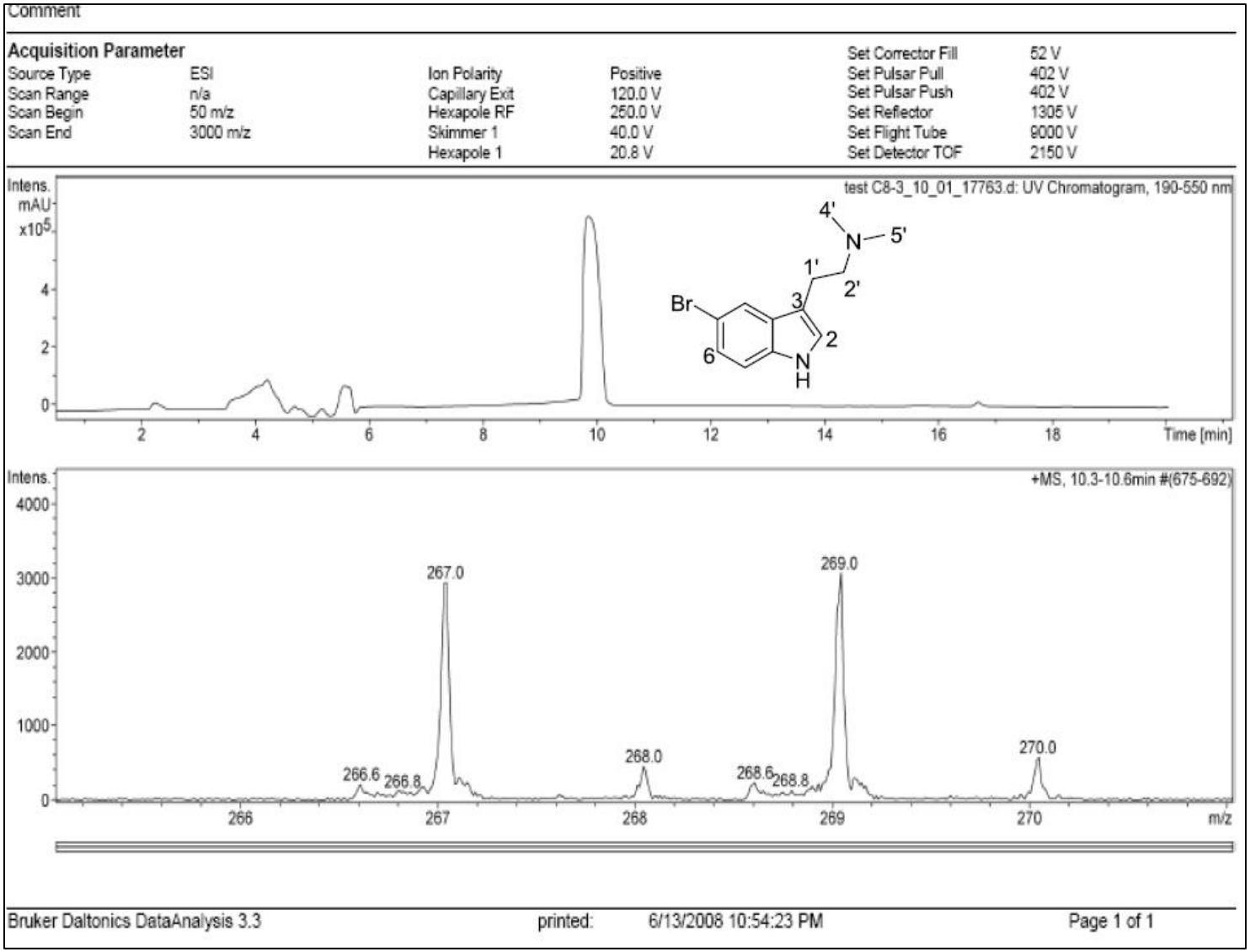

Figure 25. LC/MS chromatogram of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2d**)

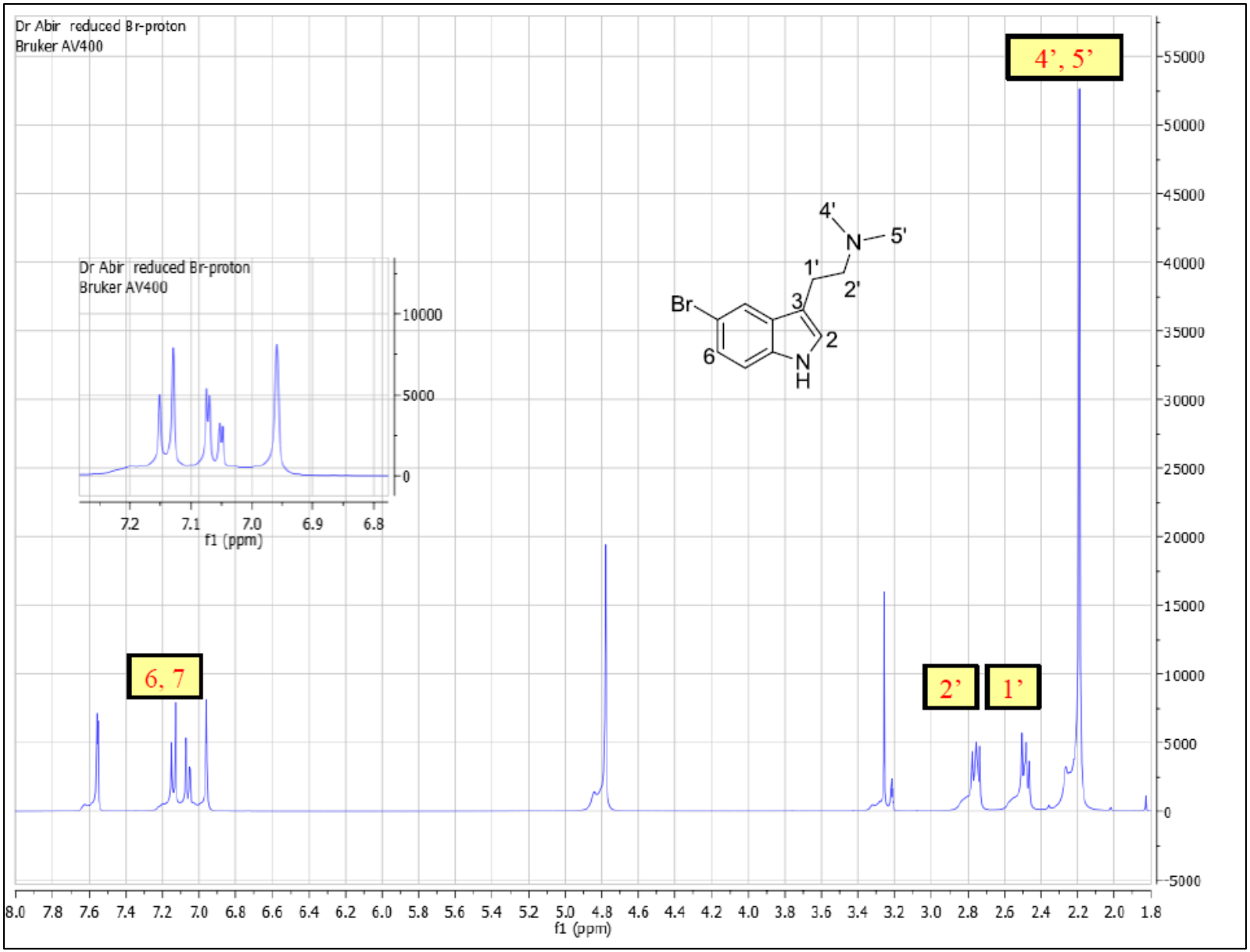

Figure 26. ^{1}H NMR spectrum of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2d**) in methanol-d_4 (400 MHz)

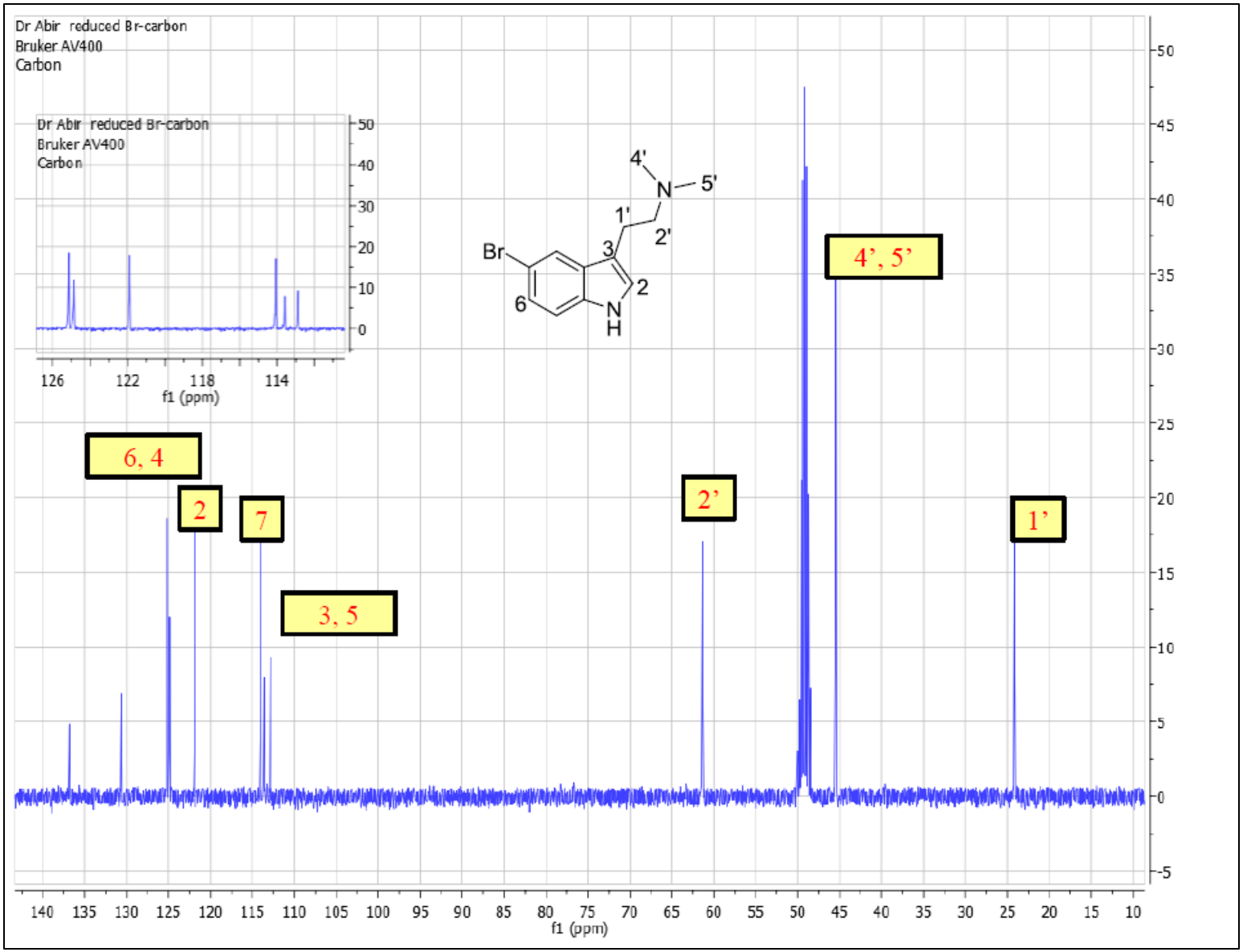

Figure 27. ^{13}C NMR spectrum of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2d**) in methanol-d_4 (400 MHz)

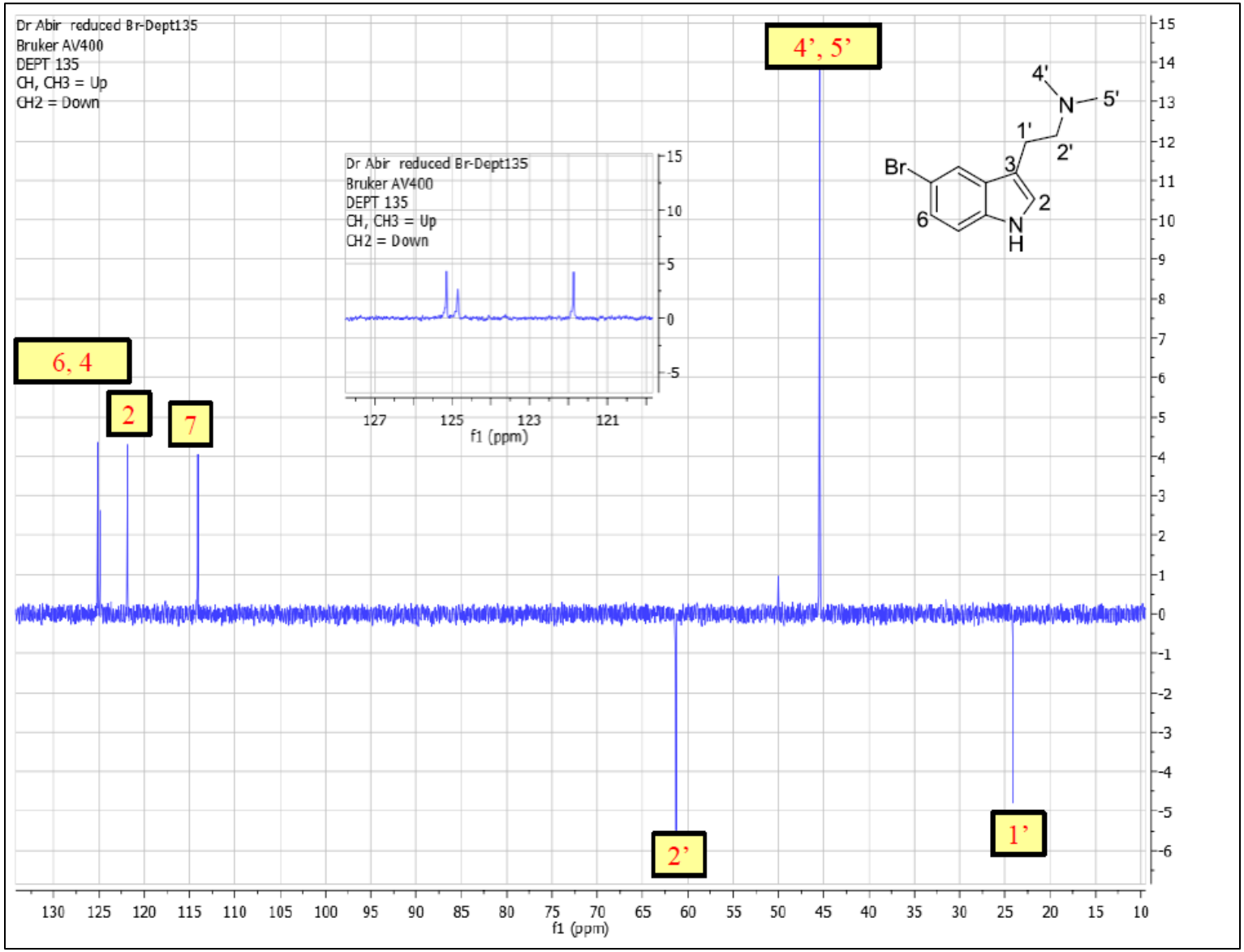

Figure 28. 135º DEPT spectrum of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2d**) in methanol-d_4 (400 MHz)

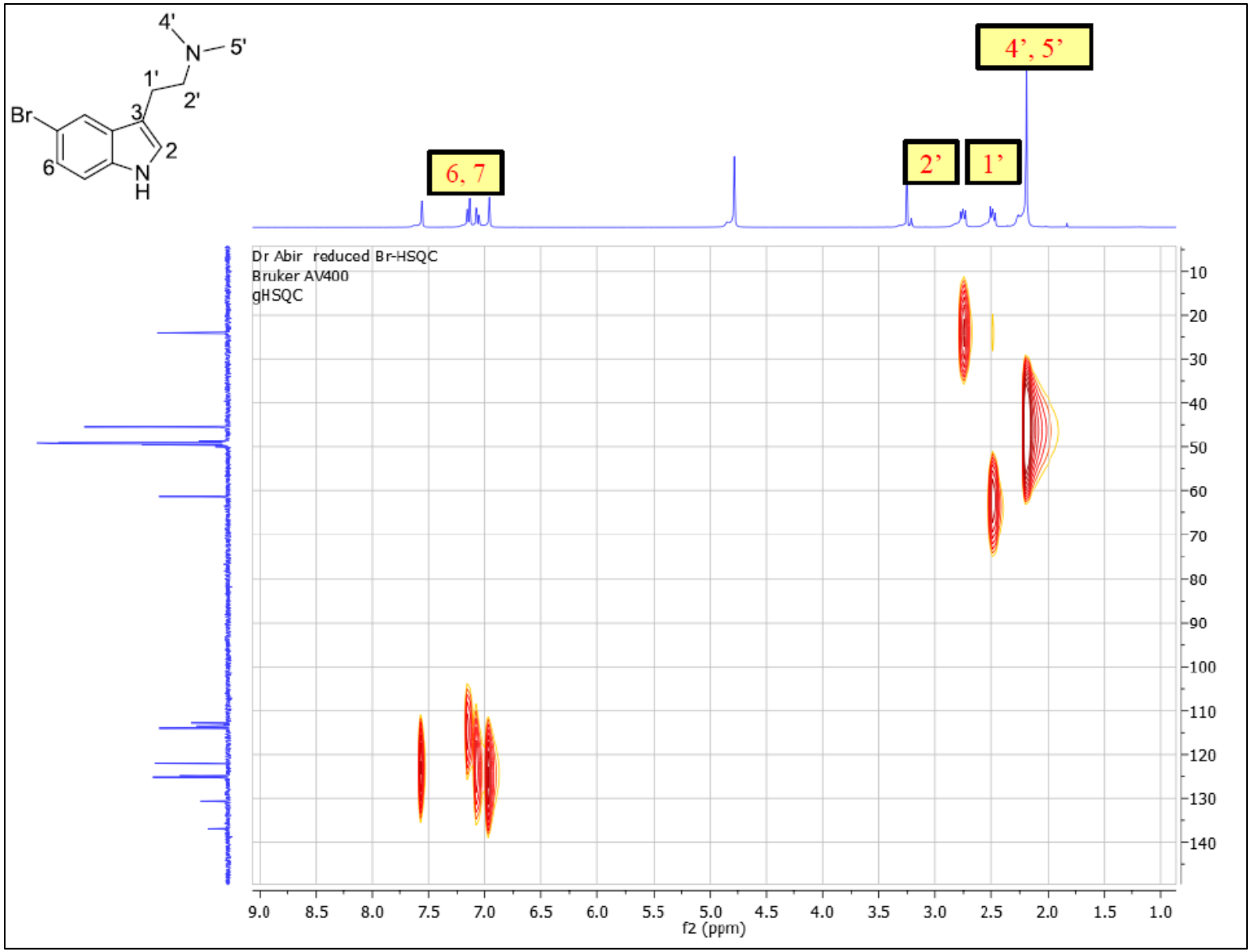

Figure 29. HSQC spectrum of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2d**) in methanol-d_4 (400 MHz)

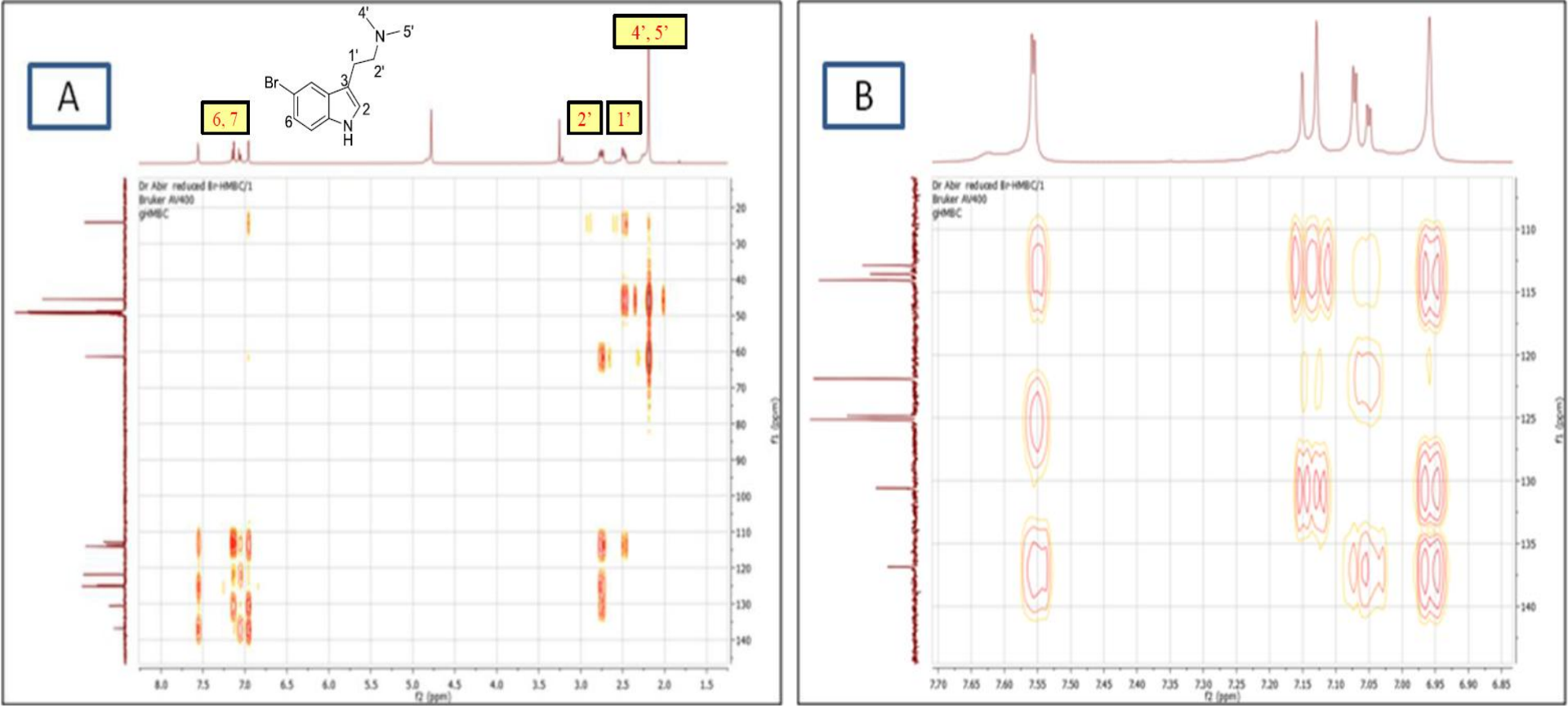

Figure 30. HMBC spectrum of 2-(5-bromo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2d**) in methanol-d_4 (400 MHz); A) the full spectrum, B) the high field region

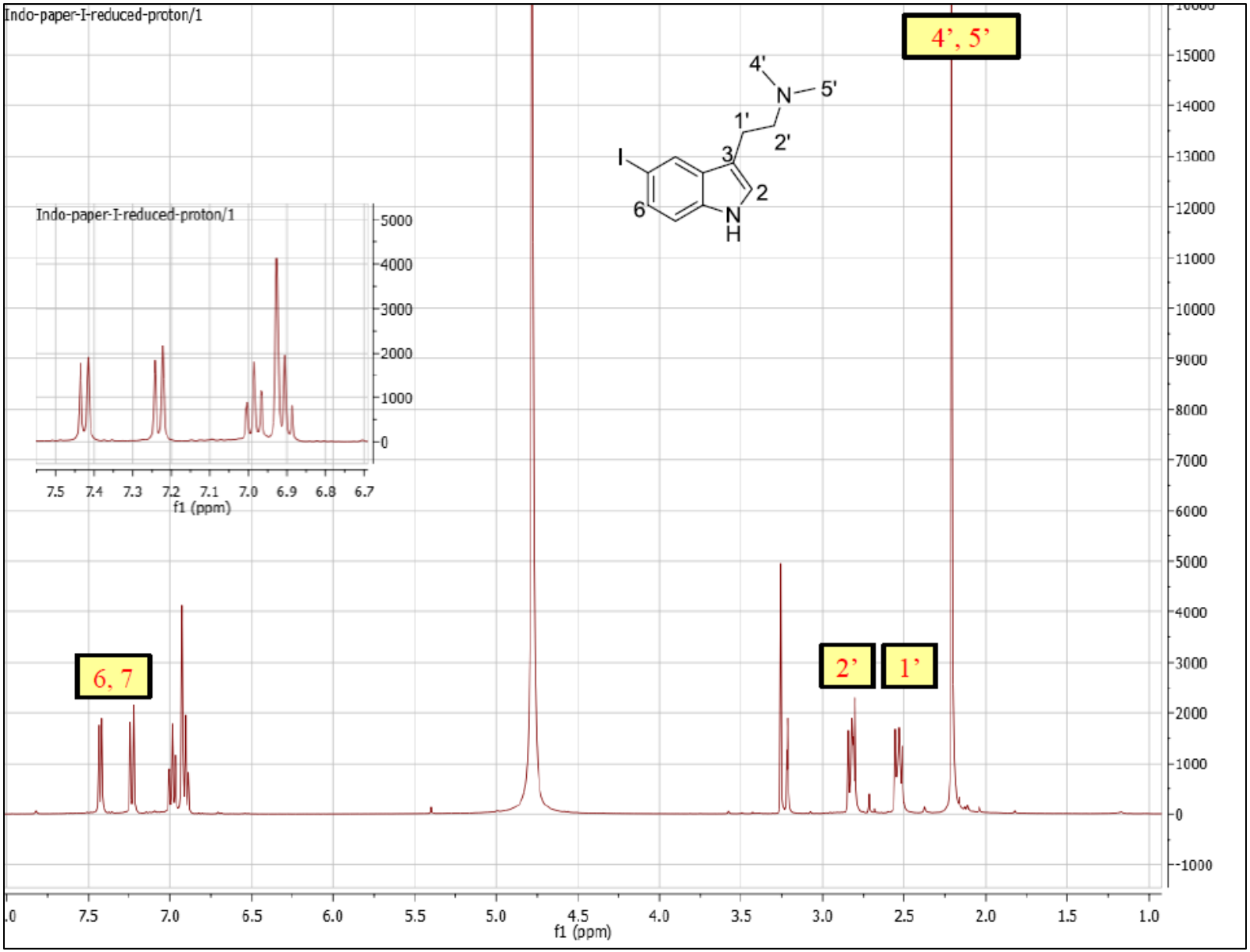

Figure 31. [1]H NMR spectrum of 2-(5-iodo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2e**) in methanol-d_4 (400 MHz)

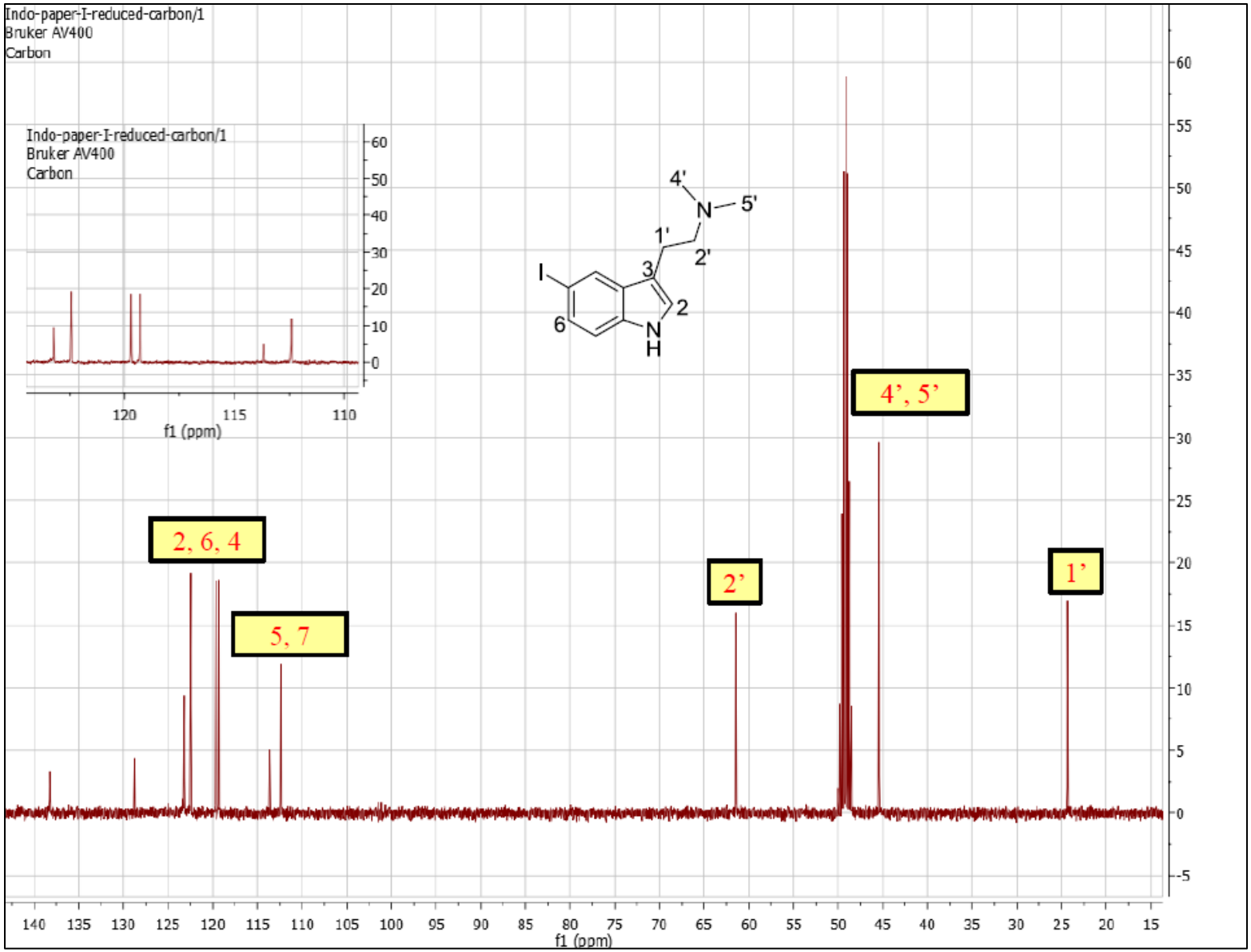

Figure 32. ^{13}C NMR spectrum of 2-(5-iodo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2e**) in methanol-d_4 (400 MHz)

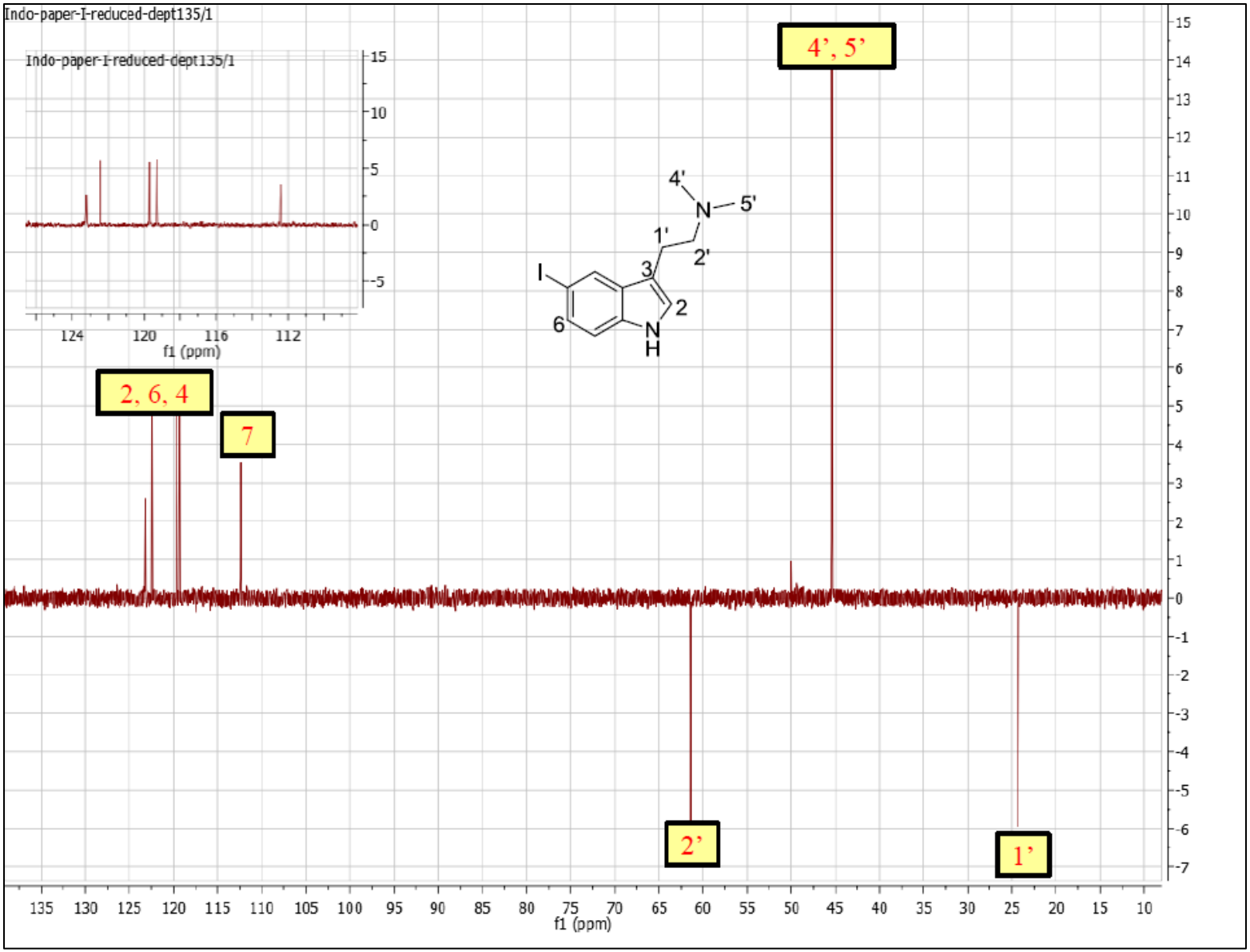

Figure 33. 135º DEPT spectrum of 2-(5-iodo-1*H*-indol-3-yl)-*N*,*N*-dimethylethanamine (**2e**) in methanol-d_4 (400 MHz)