

One-Pot Highly Regioselective Synthesis of α -Ketoamide N-arylpyrazoles from Secondary β -Enamino Diketones

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SUPPORTING INFORMATION - PART B

Table of contents

PART A

1.	General Information.....	SIA2
2.	General synthetic procedure and spectra data.....	SIA2-15
2.1.	Secondary β -enamino diketones substrates (1a-l).....	SIA2-6
a.	4-(4-chlorobenzoyl)-3,5-dihydroxy-1-phenyl-1,5-dihydro-2H-pyrrol-2-one (2a).....	SIA7
b.	5-aryl-4-ketoamide-N-arylpyrazoles (4m-x).....	SIA7-15
2.3.1.	Procedure from 4-acyl-3,5-dihydroxypyrrrolone 2a substrate.....	SIA7
2.3.2.	One-pot procedure from β -enamino diketones 1a-l substrates.....	SIA7-15
3.	References.....	SIA16

PART B

1.	^1H and ^{13}C NMR spectra for secondary β-enamino diketones substrates (1a-l).....	SIB4-25
Figure SIB-1. ^1H NMR spectrum of 1a		SIB4
Figure SIB-2. ^{13}C NMR spectrum of 1a		SIB5
Figure SIB-3. ^1H NMR spectrum of 1b		SIB6
Figure SIB-4. ^{13}C NMR spectrum of 1b		SIB7
Figure SIB-5. ^1H NMR spectrum of 1c		SIB8
Figure SIB-6-7. ^{13}C NMR spectrum of 1c		SIB9-10
Figure SIB-8. ^1H NMR spectrum of 1d		SIB11

Figure SIB-9. ^{13}C NMR spectrum of 1d	SIB12
Figure SIB-10. ^1H NMR spectrum of 1e	SIB13
Figure SIB-11. ^{13}C NMR spectrum of 1e	SIB14
Figure SIB-12. ^1H NMR spectrum of 1g	SIB15
Figure SIB-13. ^{13}C NMR spectrum of 1g	SIB16
Figure SIB-14. ^1H NMR spectrum of 1h	SIB17
Figure SIB-15. ^{13}C NMR spectrum of 1h	SIB18
Figure SIB-16. ^1H NMR spectrum of 1i	SIB19
Figure SIB-17-18. ^{13}C NMR spectrum of 1i	SIB20-21
Figure SIB-19. ^1H NMR spectrum of 1j	SIB22
Figure SIB-20. ^{13}C NMR spectrum of 1j	SIB23
Figure SIB-21. ^1H NMR spectrum of 1k	SIB24
Figure SIB-22. ^{13}C NMR spectrum of 1k	SIB25
 2. ^1H and ^{13}C NMR spectra for 4-(4-chlorobenzoyl)-3,5-dihydroxy-1-phenyl-1,5-dihydro-2<i>H</i>-pyrrol-2-one (2a).....	SIB26-30
Figure SIB-23. ^1H NMR spectrum of 2a	SIB26
Figure SIB-24. ^{13}C NMR spectrum of 2a	SIB27
Figure SIB-25. HSQC NMR spectrum 2a	SIB28
Figure SIB-26-27. HMBC NMR spectrum of 2a	SIB29-30
 3. ^1H and ^{13}C NMR spectra for 5-aryl-4-ketoamide-<i>N</i>-arylpypyrazoles (4m-x).....	SIB31-78
Figure SIB-28. ^1H NMR spectrum of 4a	SIB31
Figure SIB-29. ^{13}C NMR spectrum of 4a	SIB32
Figure SIB-30. ^1H NMR spectrum of 4b	SIB33
Figure SIB-31. ^{13}C NMR spectrum of 4b	SIB34
Figure SIB-32. ^1H NMR spectrum of 4c	SIB35
Figure SIB-33. ^{13}C NMR spectrum of 4c	SIB36
Figure SIB-34. ^1H NMR spectrum of 4d	SIB37
Figure SIB-35. ^{13}C NMR spectrum of 4d	SIB38
Figure SIB-36. ^1H NMR spectrum of 4e	SIB39
Figure SIB-37. ^{13}C NMR spectrum of 4e	SIB40
Figure SIB-38. ^1H NMR spectrum of 4f	SIB41
Figure SIB-39. ^{13}C NMR spectrum of 4f	SIB42
Figure SIB-40. ^1H NMR spectrum of 4g	SIB43
Figure SIB-41. ^{13}C NMR spectrum of 4g	SIB44
Figure SIB-42. ^1H NMR spectrum of 4h	SIB45
Figure SIB-43. ^{13}C NMR spectrum of 4h	SIB46
Figure SIB-44. ^1H NMR spectrum of 4i	SIB47
Figure SIB-45. ^{13}C NMR spectrum of 4i	SIB48

Figure SIB-46. ^1H NMR spectrum of 4j	SIB49
Figure SIB-47. ^{13}C NMR spectrum of 4j	SIB50
Figure SIB-48. ^1H NMR spectrum of 4k	SIB51
Figure SIB-49. ^{13}C NMR spectrum of 4k	SIB52
Figure SIB-50. ^1H NMR spectrum of 4l	SIB53
Figure SIB-51. ^{13}C NMR spectrum of 4l	SIB54
Figure SIB-52. ^1H NMR spectrum of 4m	SIB55
Figure SIB-53. ^{13}C NMR spectrum of 4m	SIB56
Figure SIB-54. ^1H NMR spectrum of 4n	SIB57
Figure SIB-55. ^{13}C NMR spectrum of 4n	SIB58
Figure SIB-56. ^1H NMR spectrum of 4o	SIB59
Figure SIB-57. ^{13}C NMR spectrum of 4o	SIB60
Figure SIB-58. ^1H NMR spectrum of 4p	SIB61
Figure SIB-59. ^{13}C NMR spectrum of 4p	SIB62
Figure SIB-60. ^1H NMR spectrum of 4q	SIB63
Figure SIB-61. ^{13}C NMR spectrum of 4q	SIB64
Figure SIB-62. ^1H NMR spectrum of 4r	SIB65
Figure SIB-63. ^{13}C NMR spectrum of 4r	SIB66
Figure SIB-64. ^1H NMR spectrum of 4s	SIB67
Figure SIB-65. ^{13}C NMR spectrum of 4s	SIB68
Figure SIB-66. ^1H NMR spectrum of 4t	SIB69
Figure SIB-67. ^{13}C NMR spectrum of 4t	SIB70
Figure SIB-68. ^1H NMR spectrum of 4u	SIB71
Figure SIB-69. ^{13}C NMR spectrum of 4u	SIB72
Figure SIB-70. ^1H NMR spectrum of 4v	SIB73
Figure SIB-71. ^{13}C NMR spectrum of 4v	SIB74
Figure SIB-72. ^1H NMR spectrum of 4w	SIB75
Figure SIB-73. ^{13}C NMR spectrum of 4w	SIB76
Figure SIB-74. ^1H NMR spectrum of 4x	SIB77
Figure SIB-75. ^{13}C NMR spectrum of 4x	SIB78

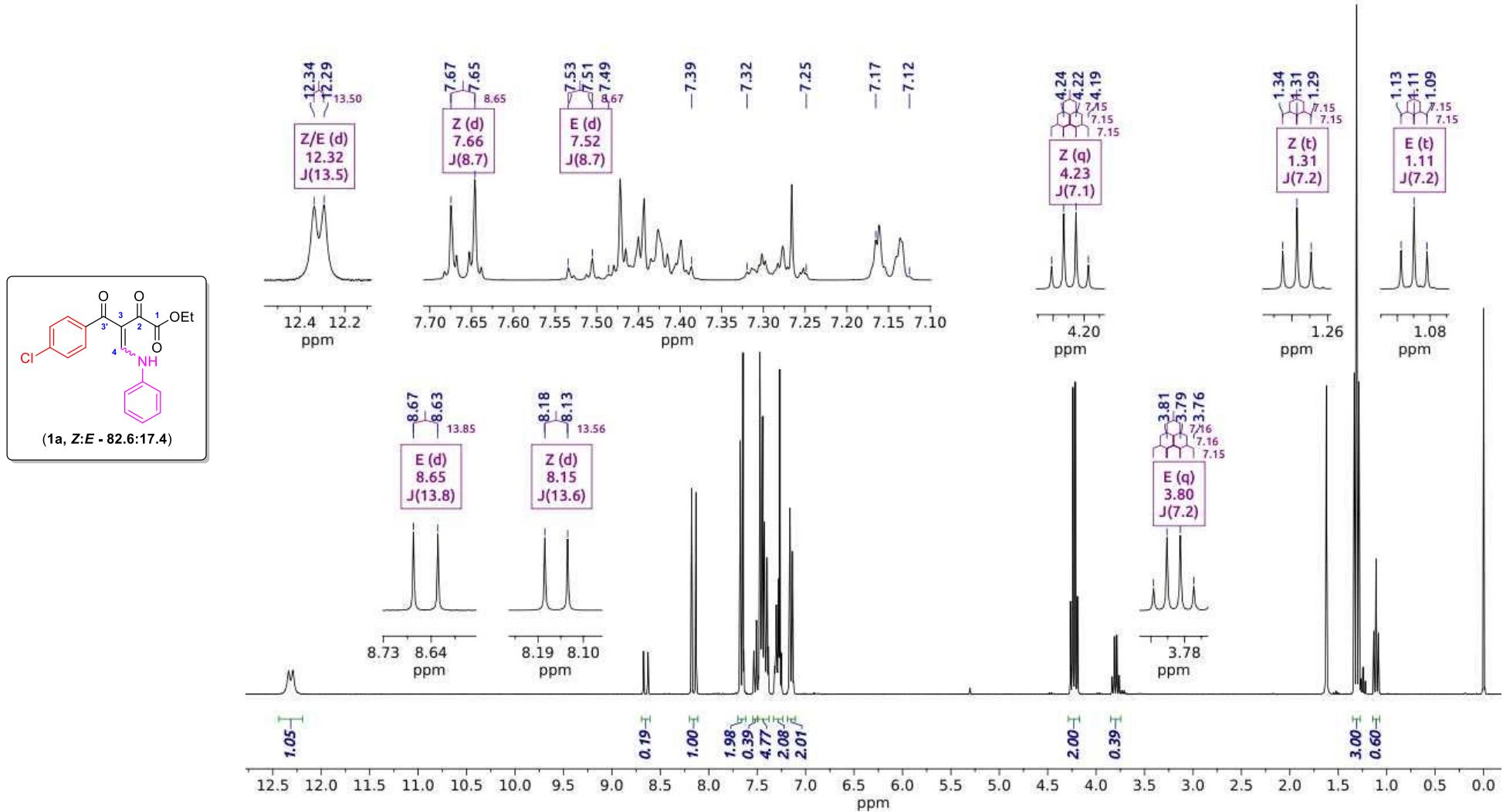


Figure SIB-1. ¹H NMR spectrum of 1a (CDCl₃, 300.06 MHz)

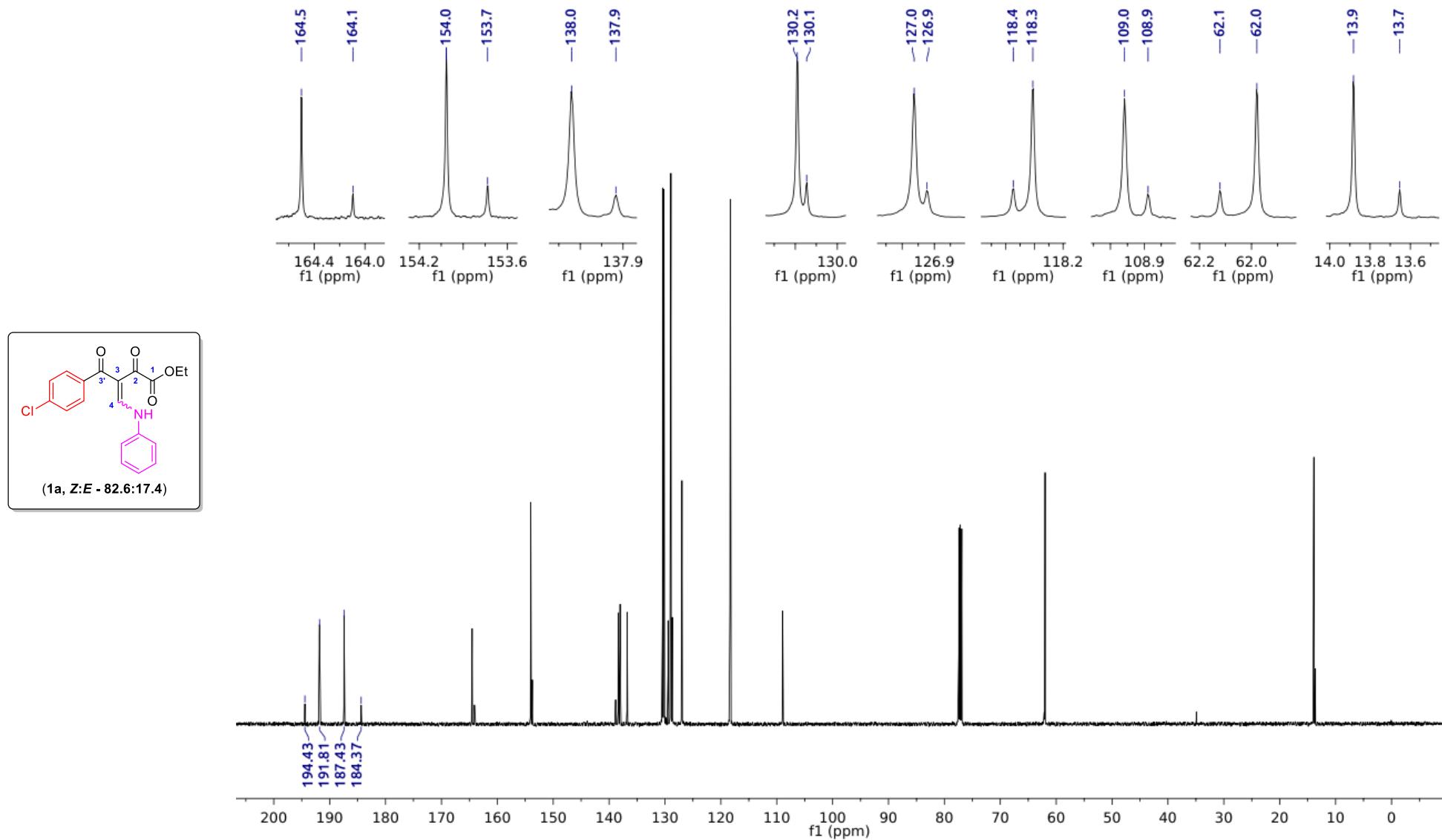


Figure SIB-2. ^{13}C NMR spectrum of **1a** (CDCl_3 , 125.77 MHz)

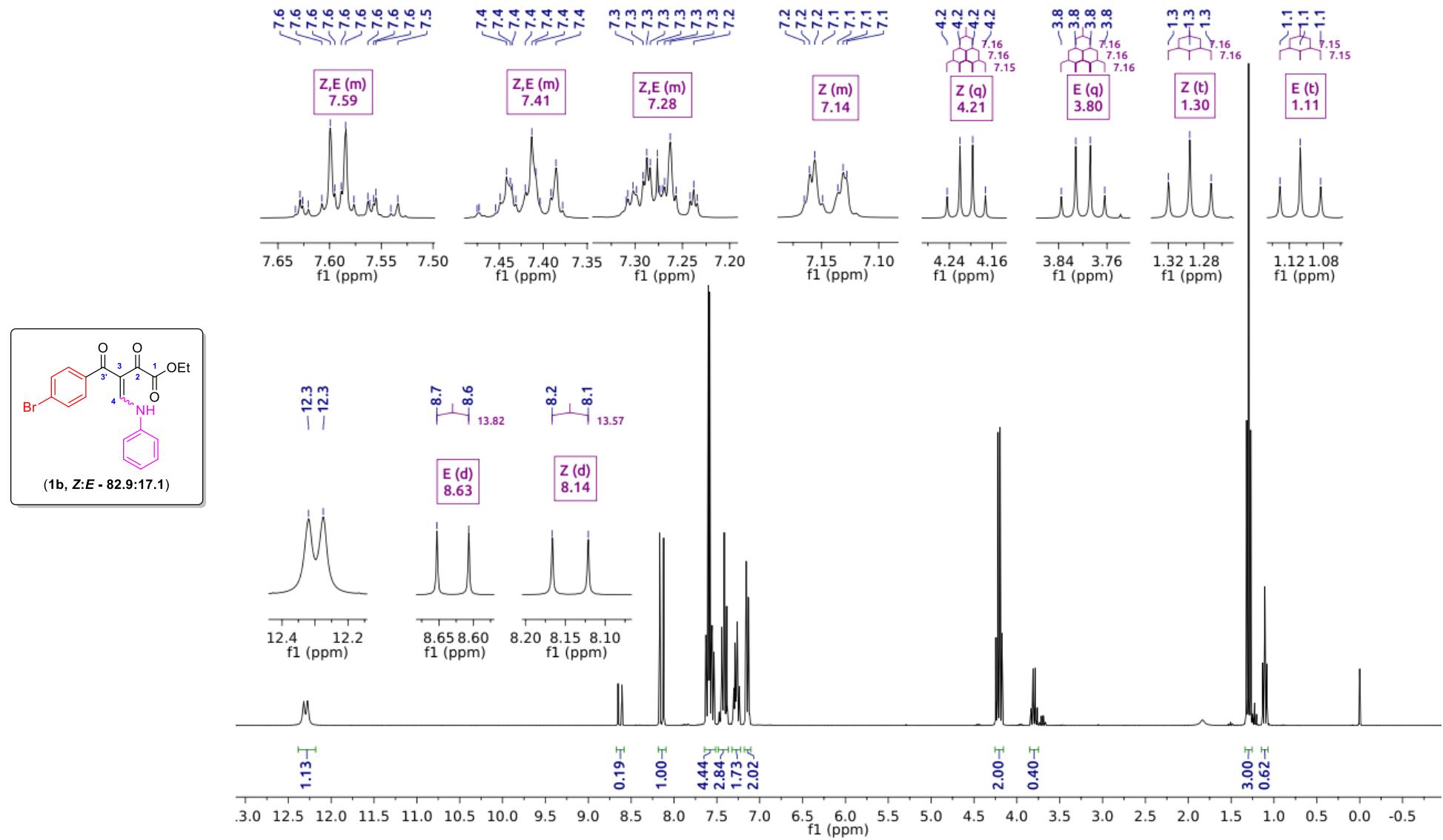


Figure SIB-3. ^1H NMR spectrum of **1b** (CDCl_3 , 300.06 MHz)

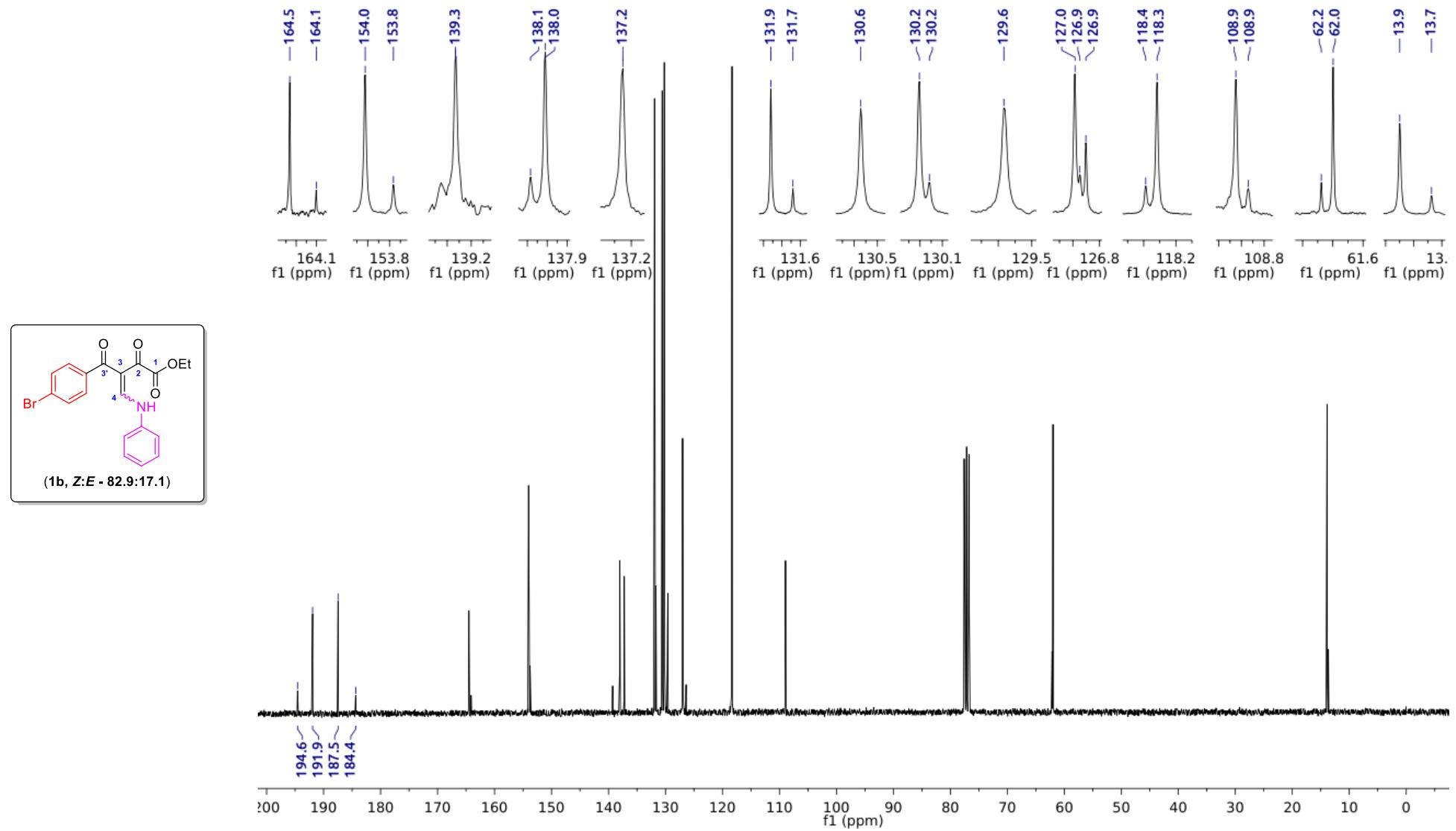


Figure SIB-4. ^{13}C NMR spectrum of **1b** (CDCl_3 , 75.46 MHz)

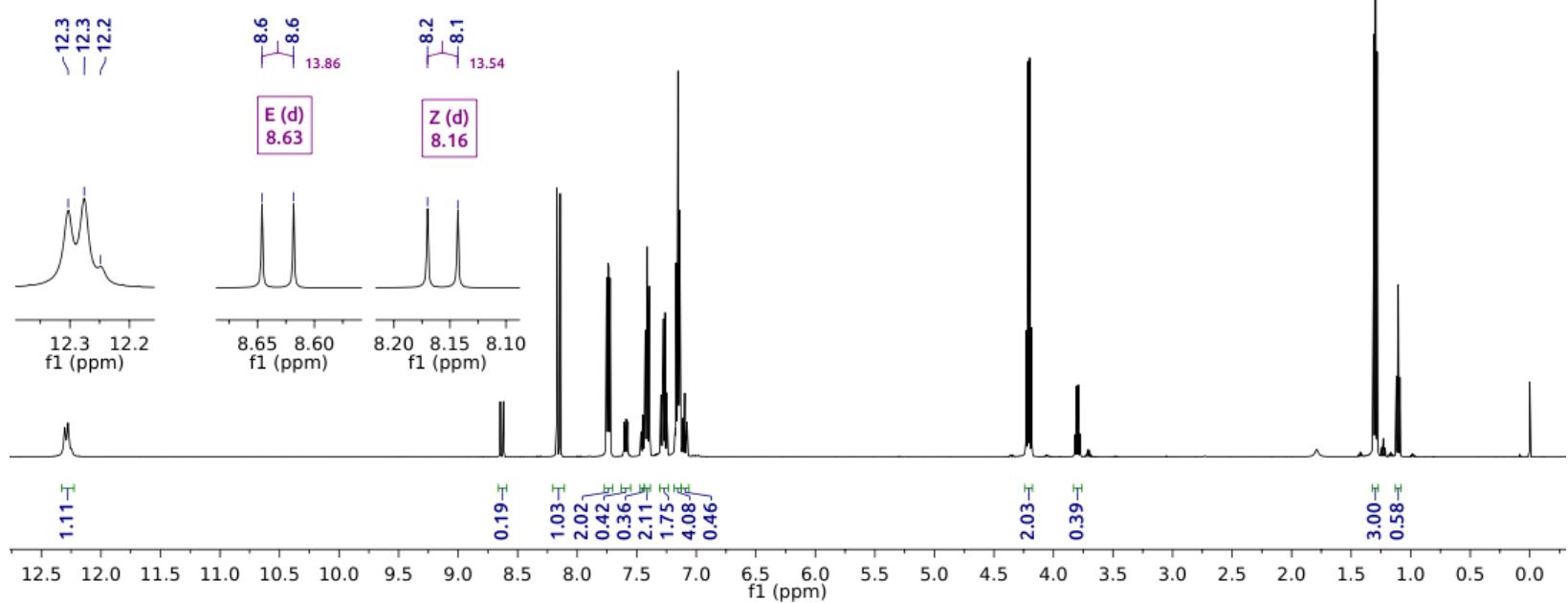
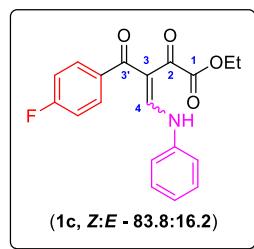
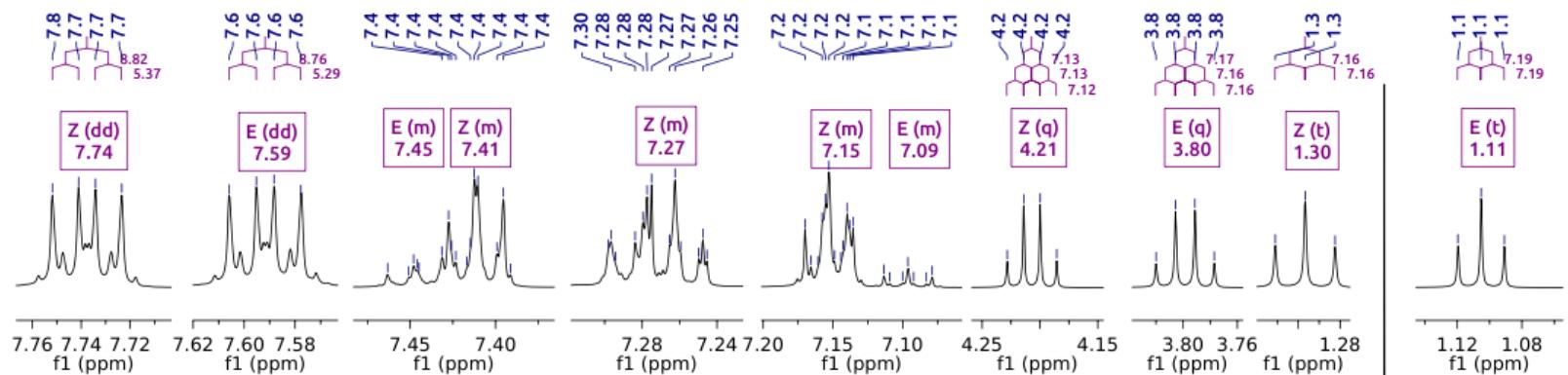


Figure SIB-5. ^1H NMR spectrum of **1c** (CDCl_3 , 500.13 MHz)

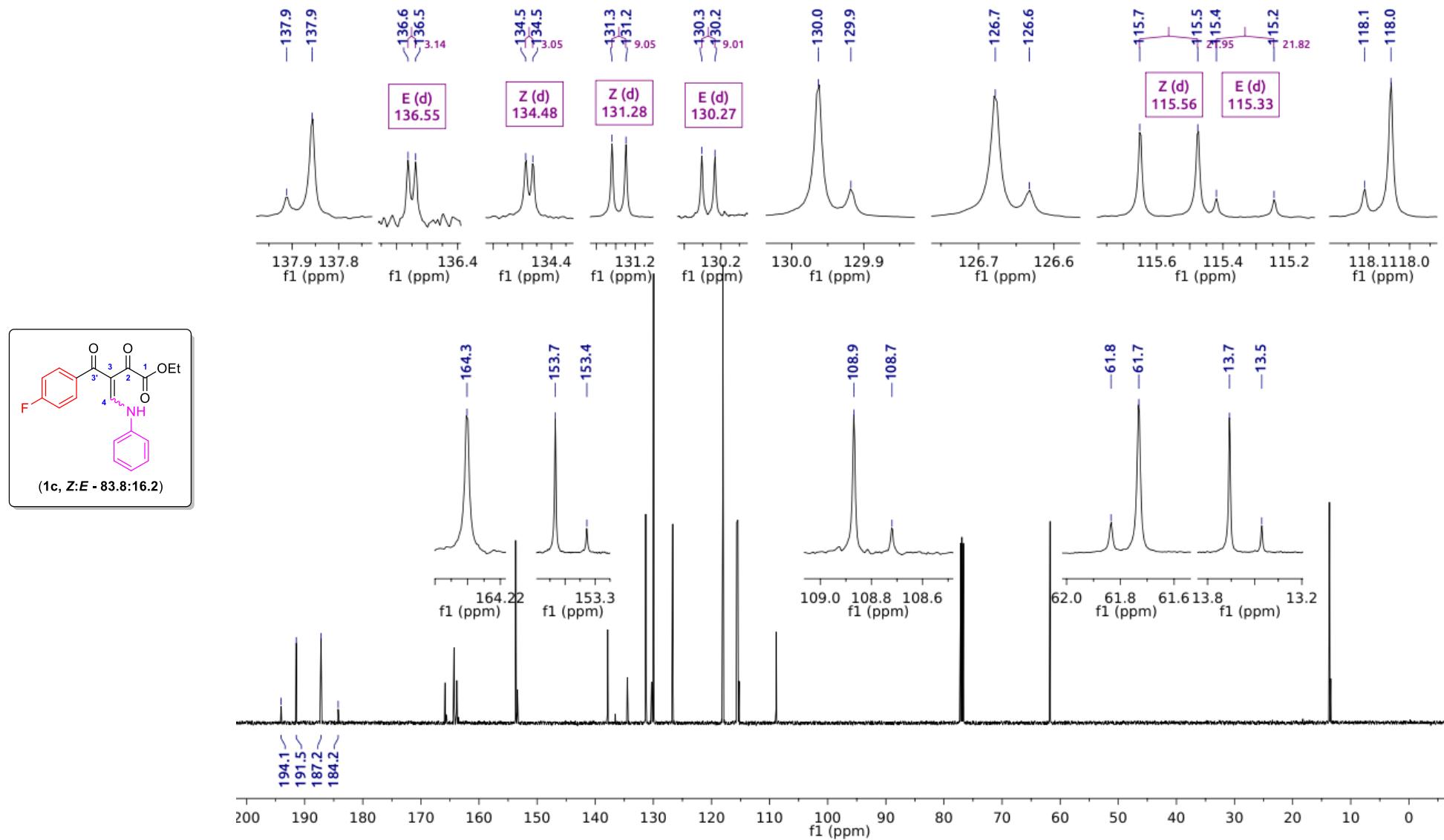


Figure SIB-6. ^{13}C NMR spectrum of **1c** (CDCl_3 , 125.77 MHz)

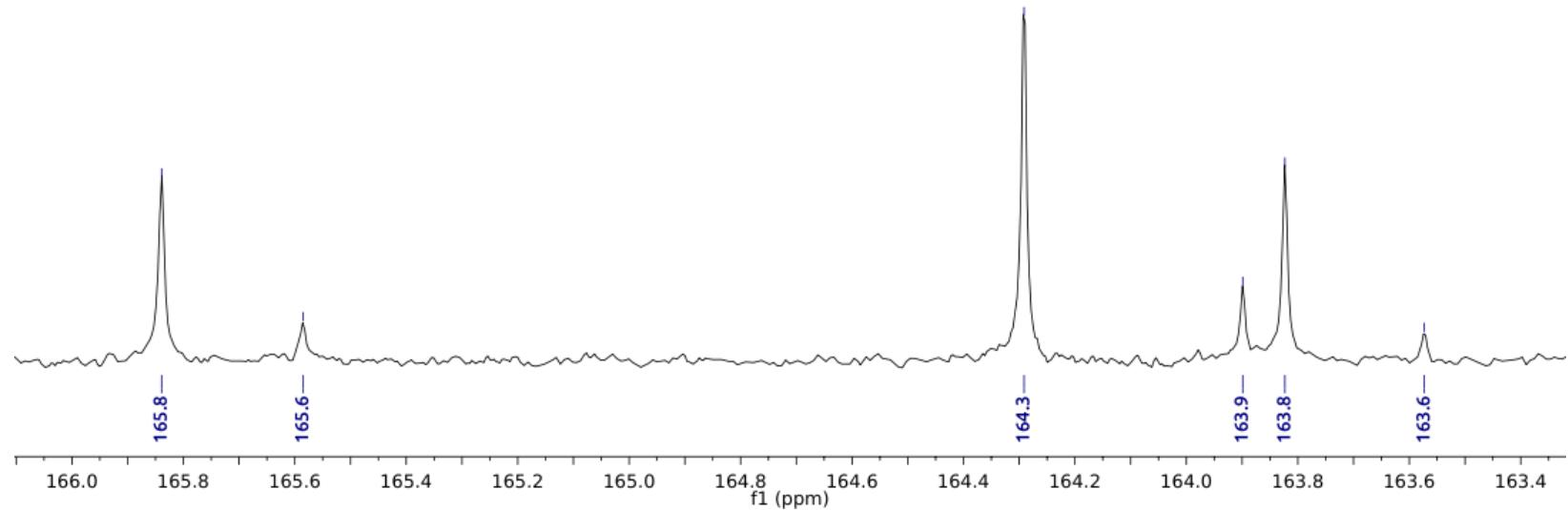
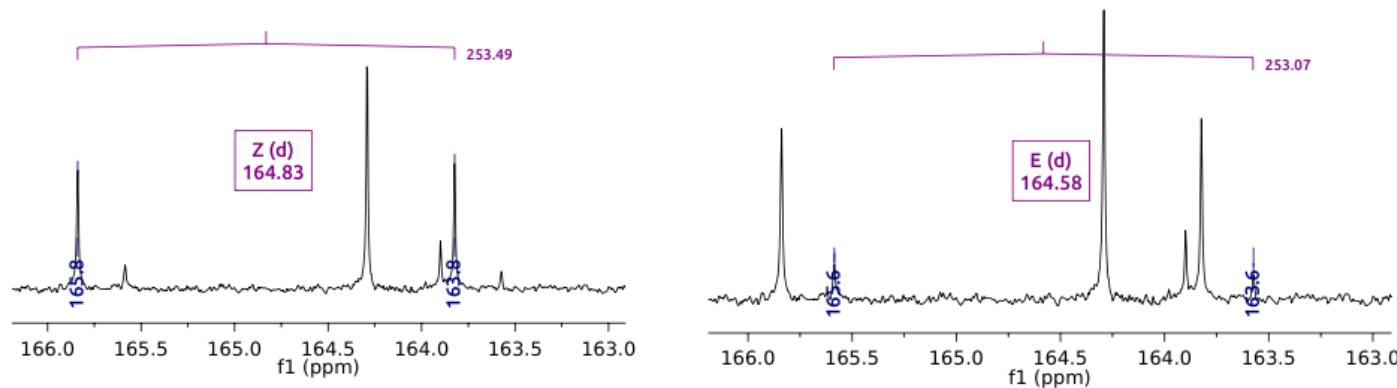
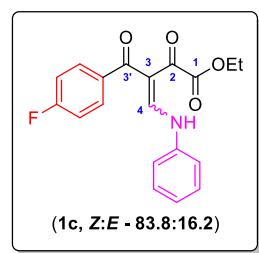


Figure SIB-7. ^{13}C NMR spectrum of **1c** (CDCl_3 , 125.77 MHz) (expansion)

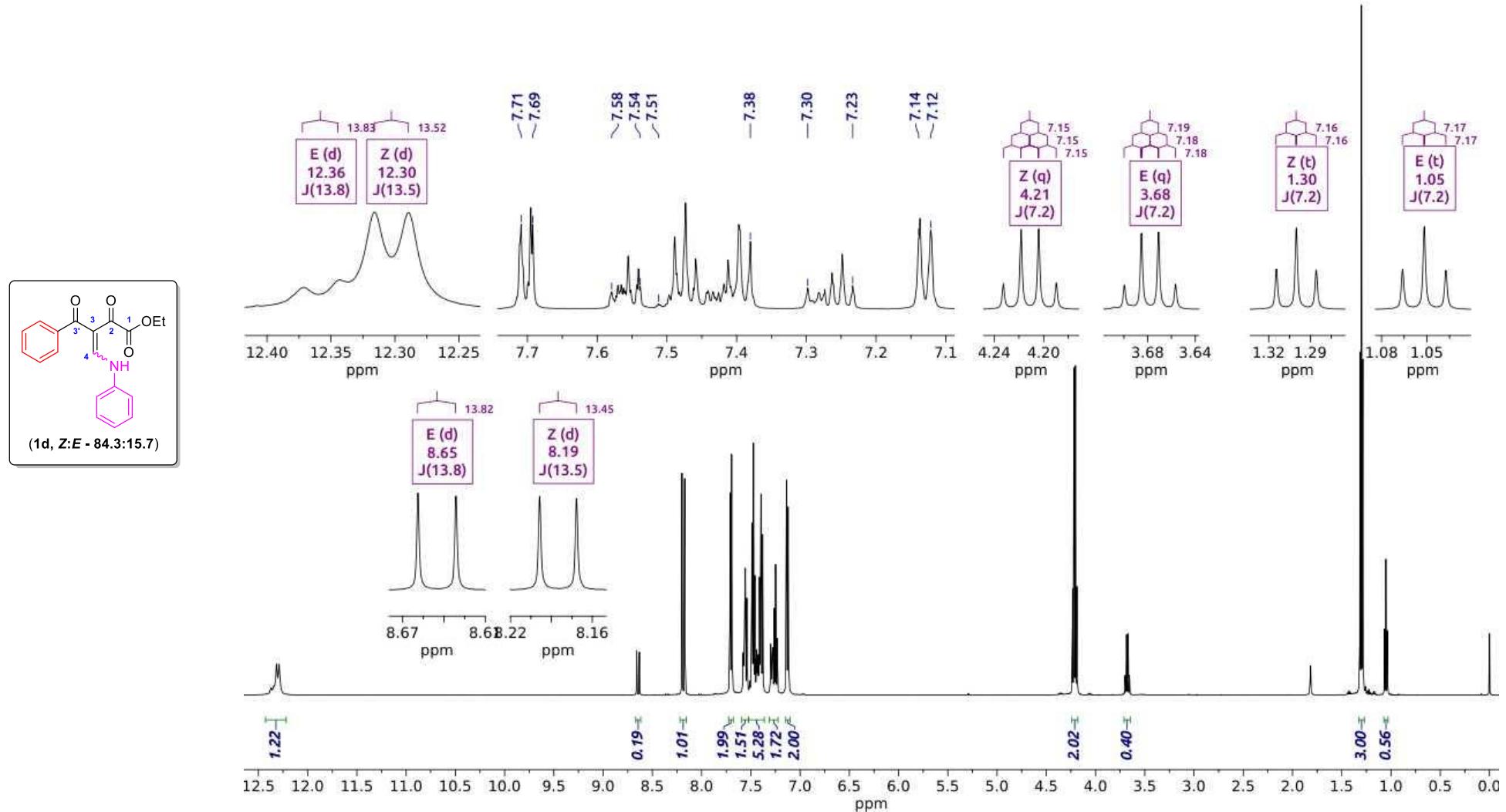


Figure SIB-8. ^1H NMR spectrum of **1d** (CDCl_3 , 500.13 MHz)

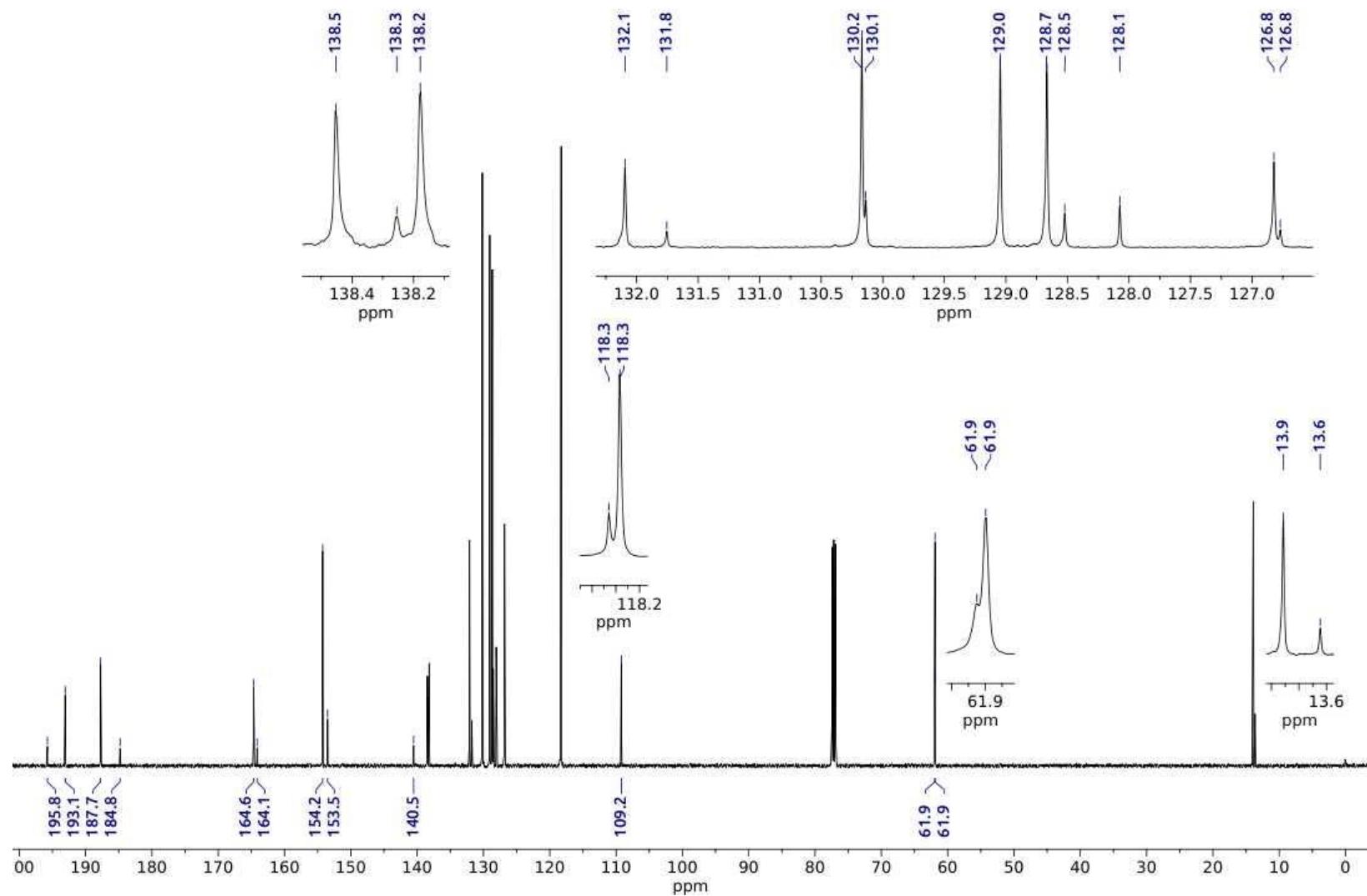
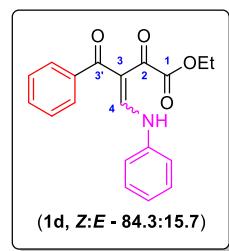


Figure SIB-9. ¹³C NMR spectrum of **1d** (CDCl_3 , 125.77 MHz)

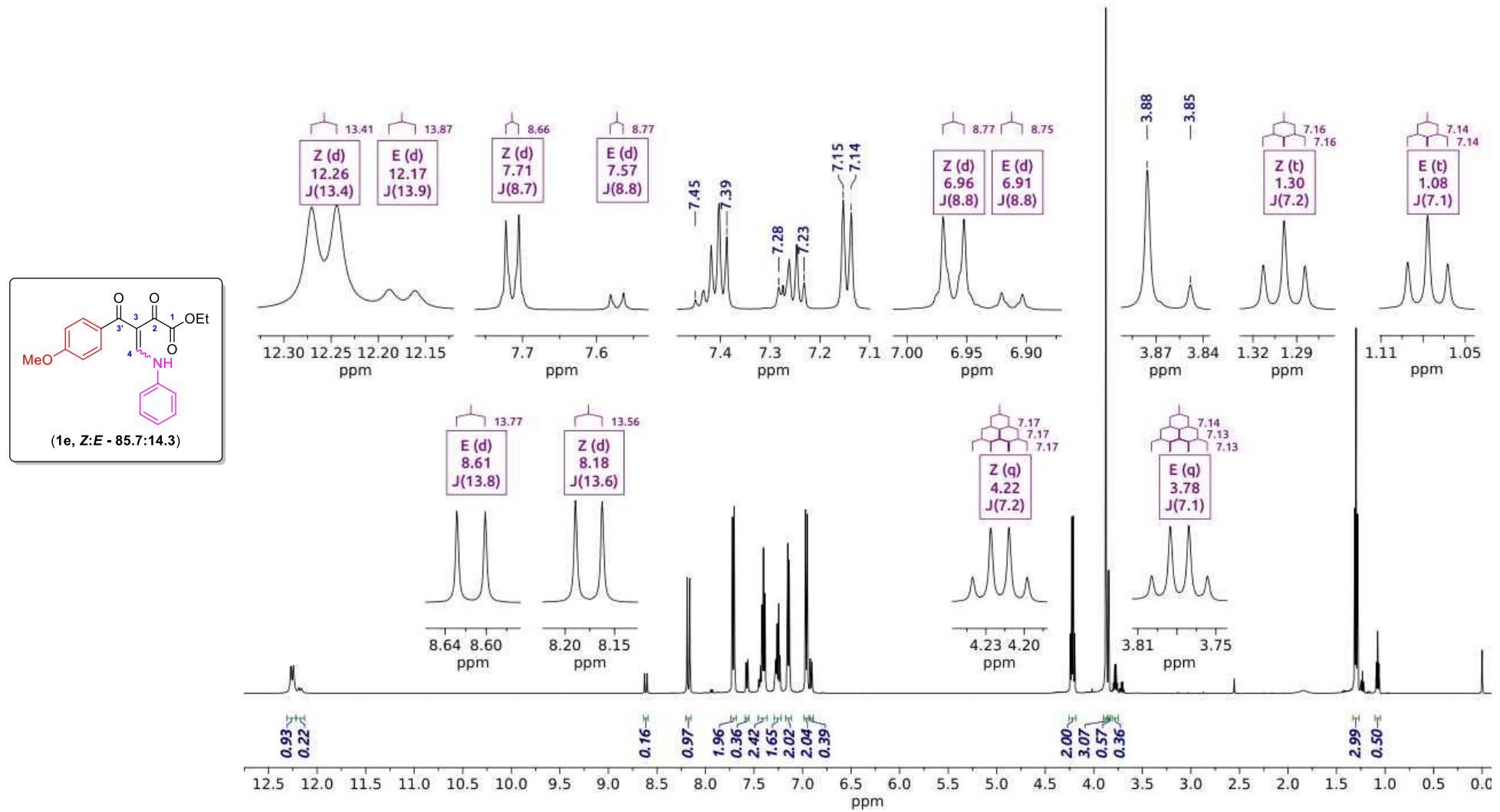


Figure SIB-10. ^1H NMR spectrum of **1e** (CDCl_3 , 500.13 MHz)

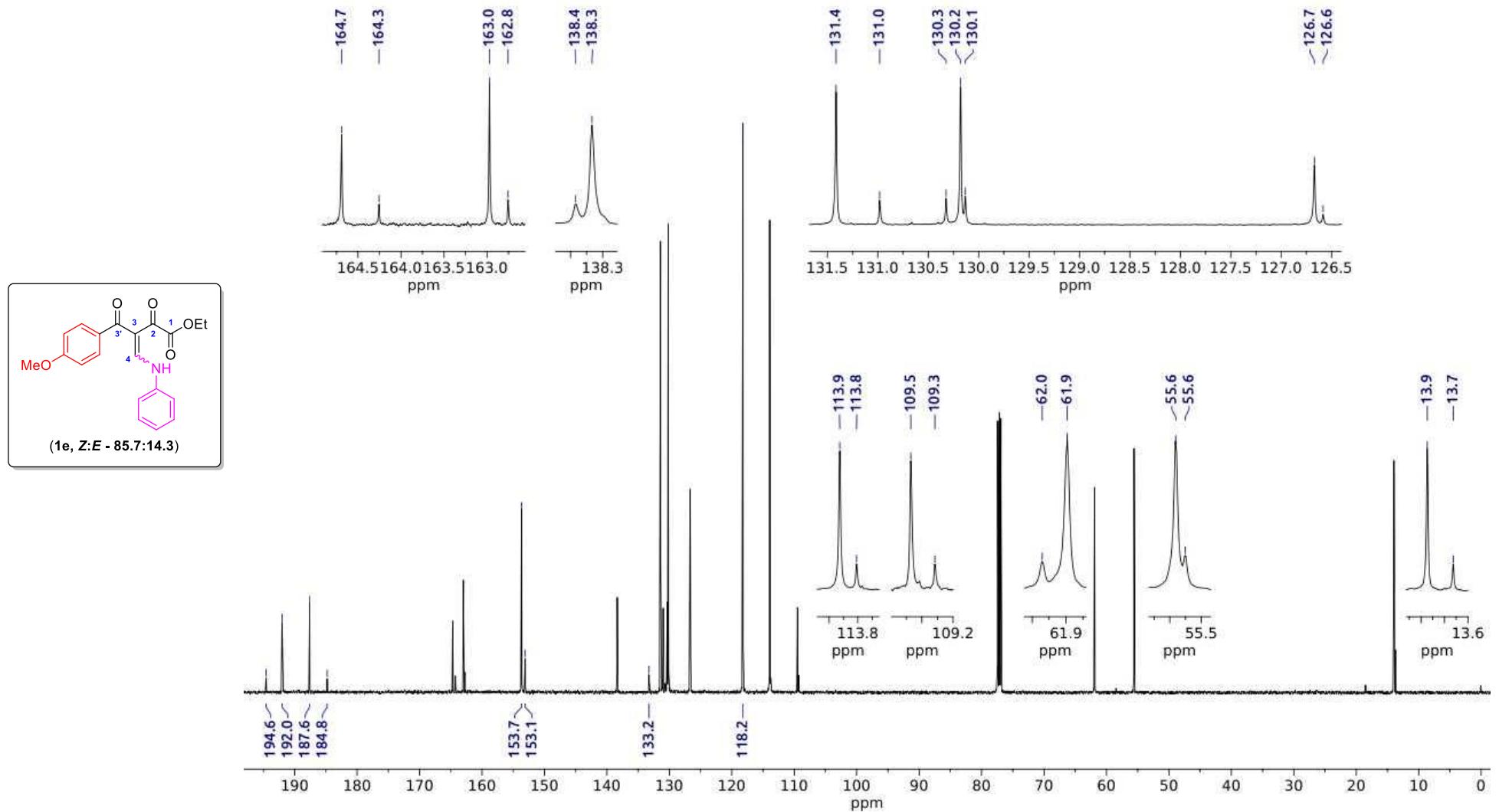


Figure SIB-11. ^{13}C NMR spectrum of **1e** (CDCl_3 , 125.77 MHz)

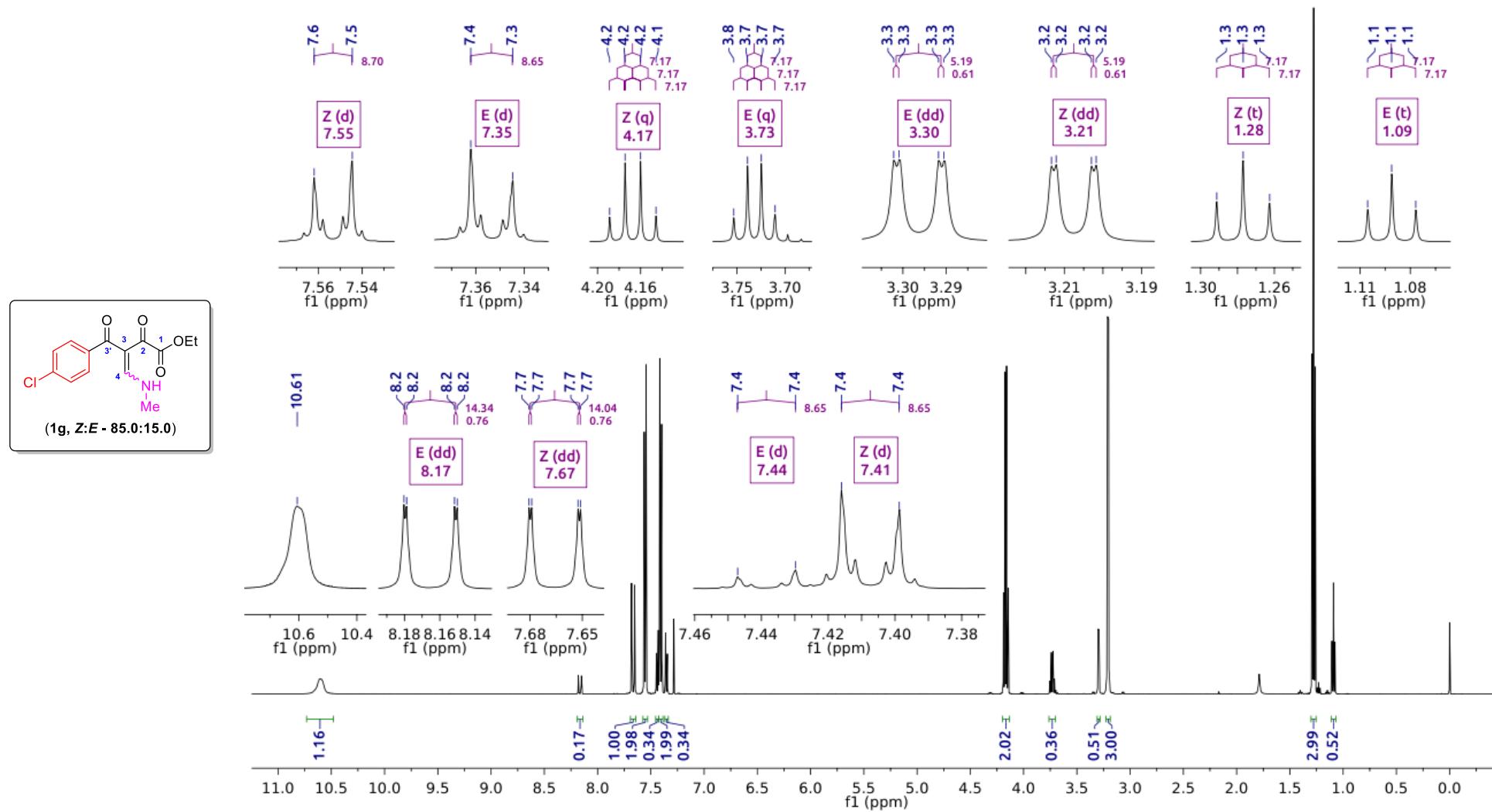


Figure SIB-12. ^1H NMR spectrum of **1g** (CDCl_3 , 500.13 MHz)

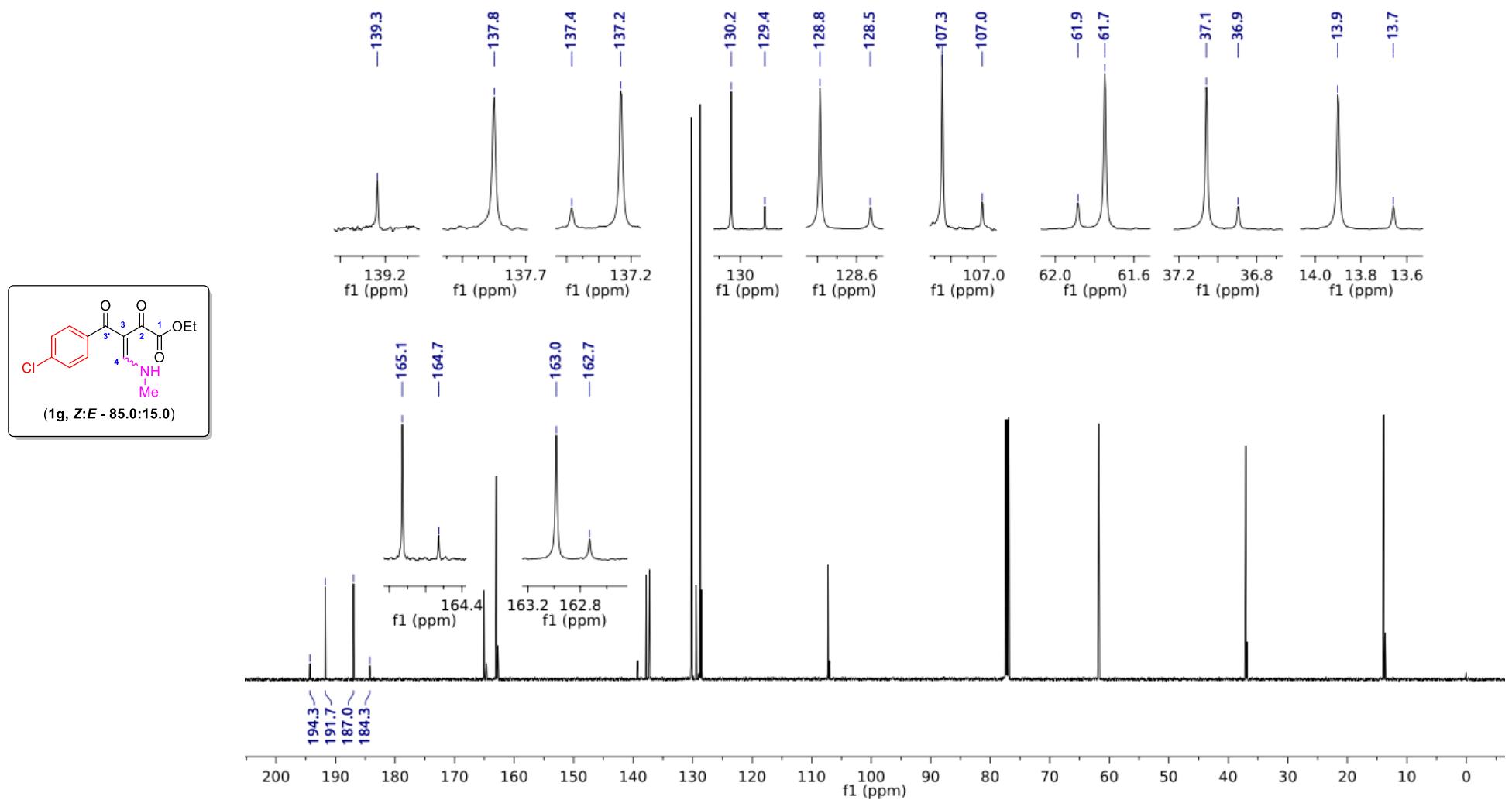


Figure SIB-13. ¹³C NMR spectrum of **1g** (CDCl_3 , 125.77 MHz)

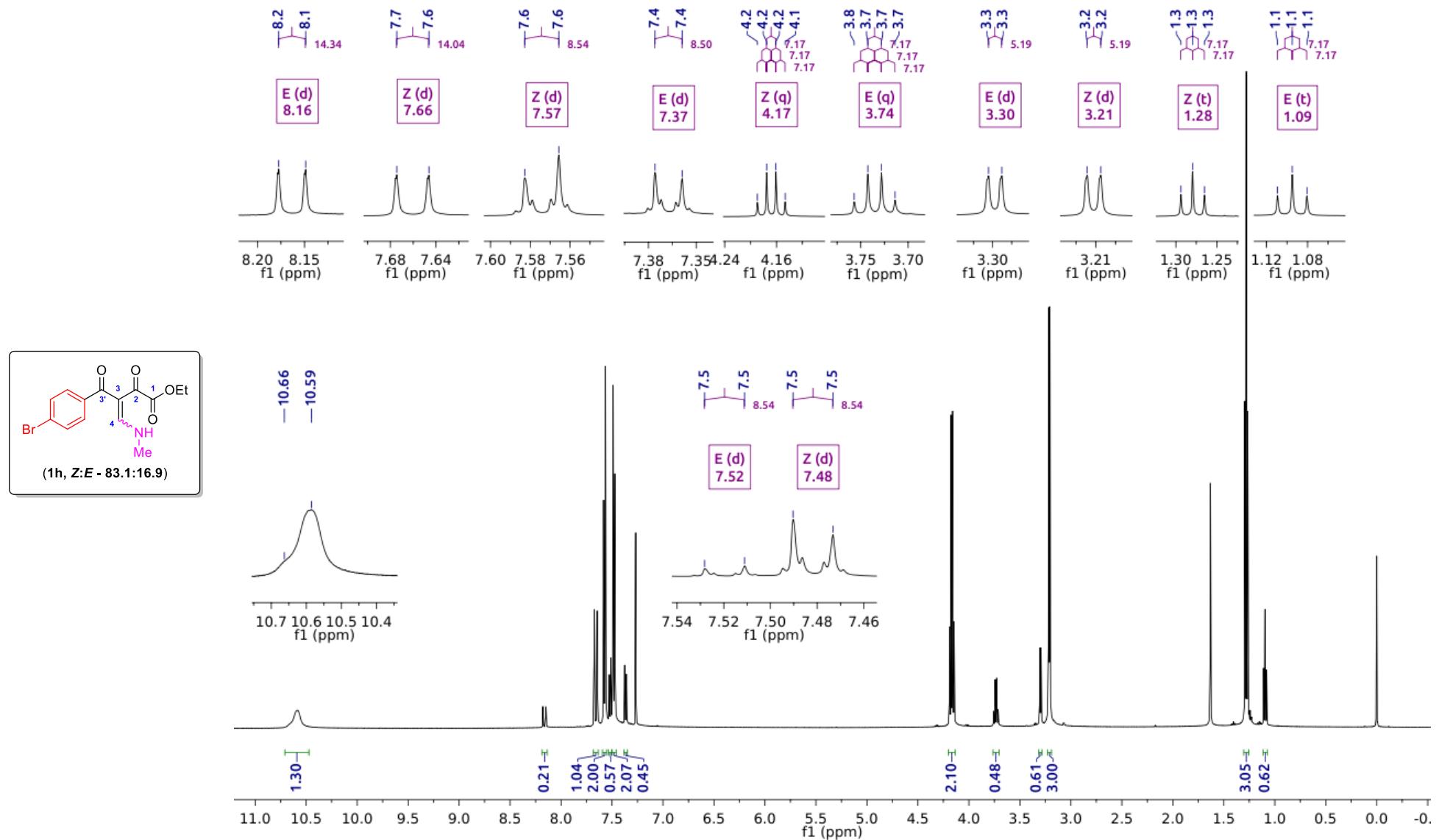


Figure SIB-14. ^1H NMR spectrum of **1h** (CDCl_3 , 500.13 MHz)

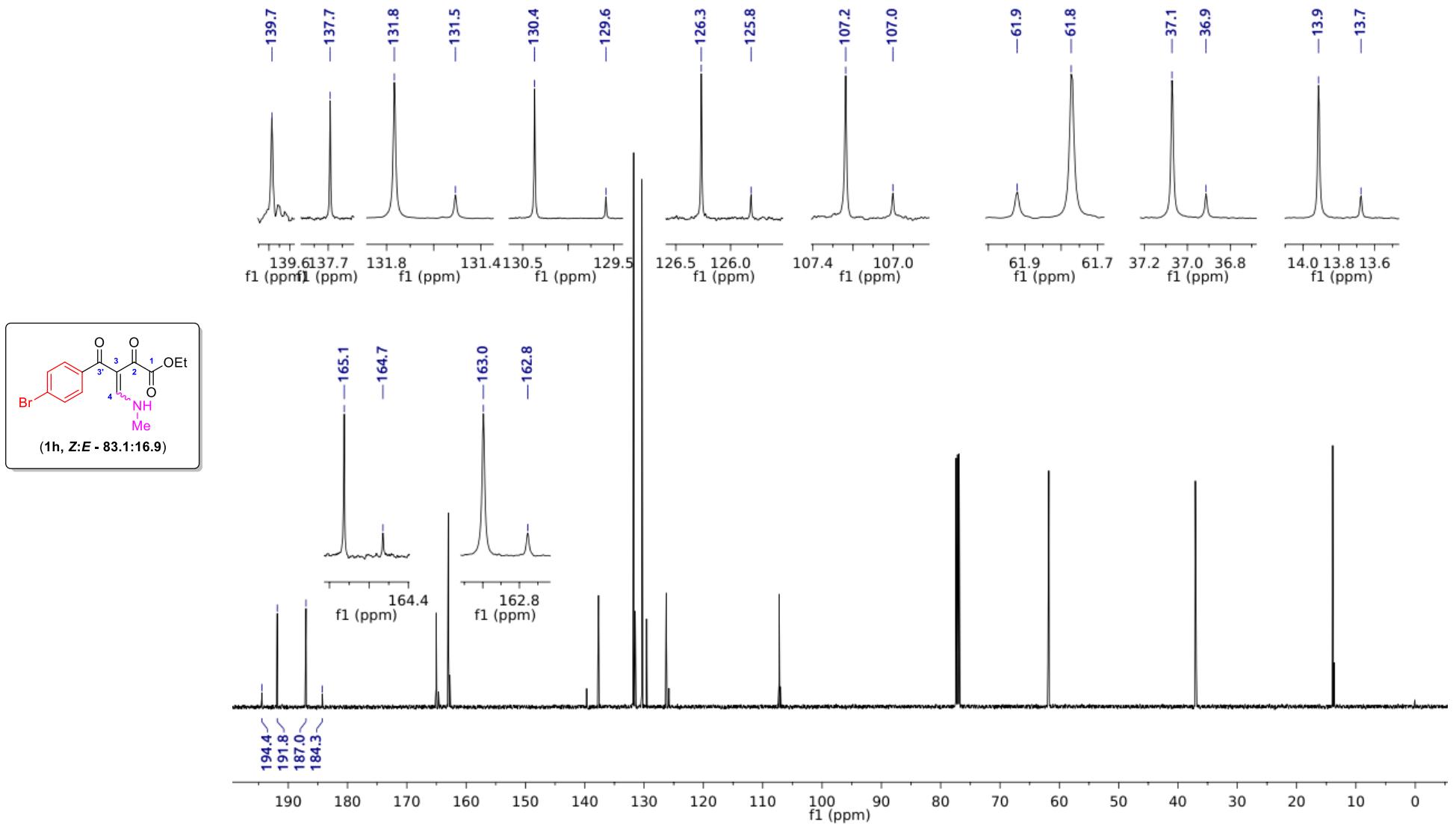


Figure SIB-15. ^{13}C NMR spectrum of **1h** (CDCl_3 , 125.77 MHz)

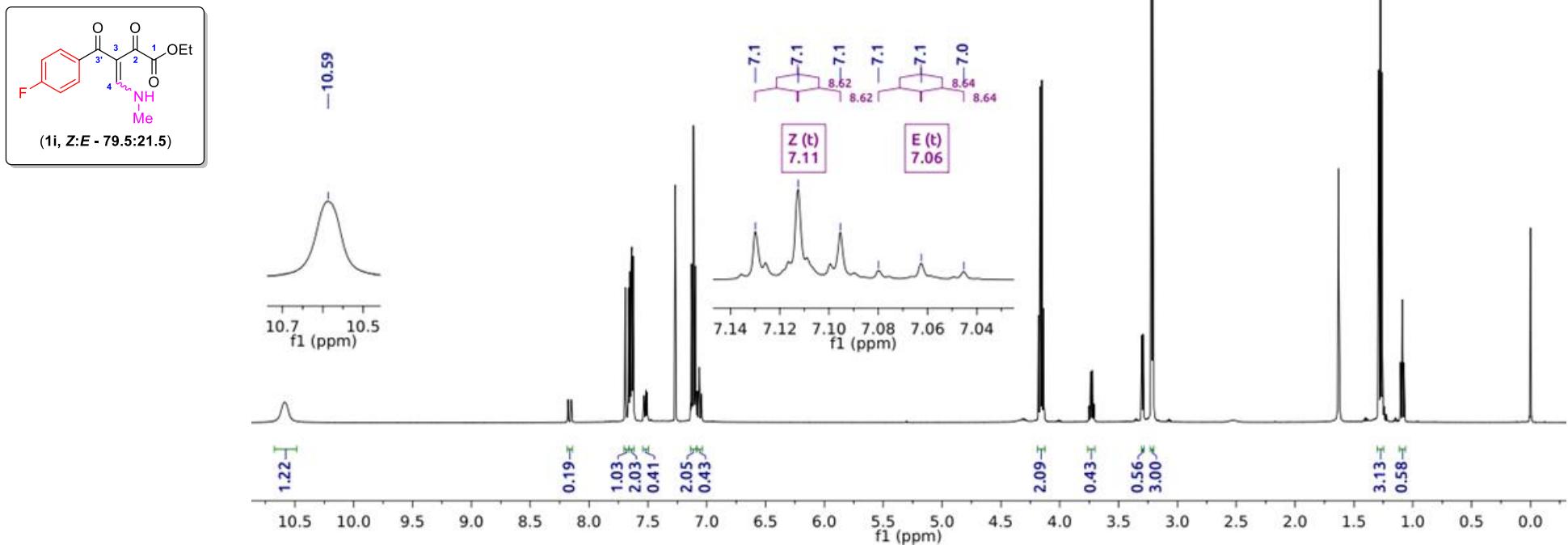
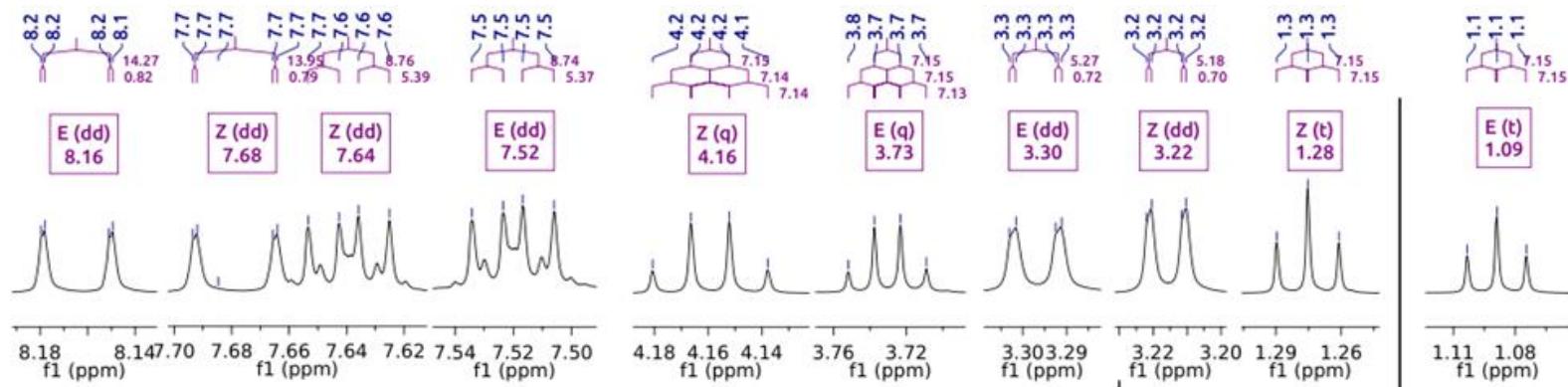


Figure SIB-16. ^1H NMR spectrum of **1i** (CDCl_3 , 300.06 MHz)

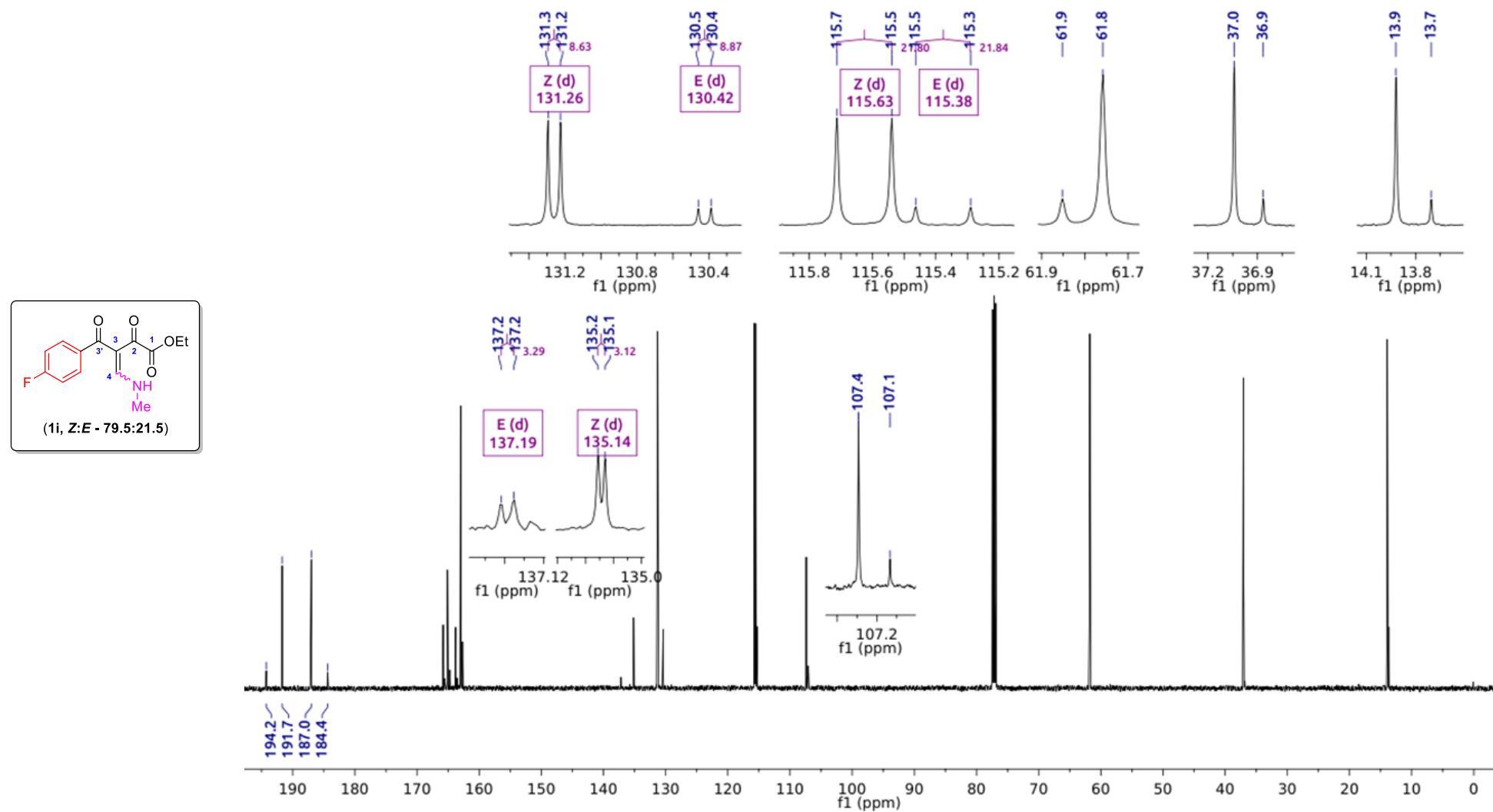


Figure SIB-17. ¹³C NMR spectrum of **1i** (CDCl₃, 125.77 MHz)



(**1i**, Z:E - 79.5:21.5)

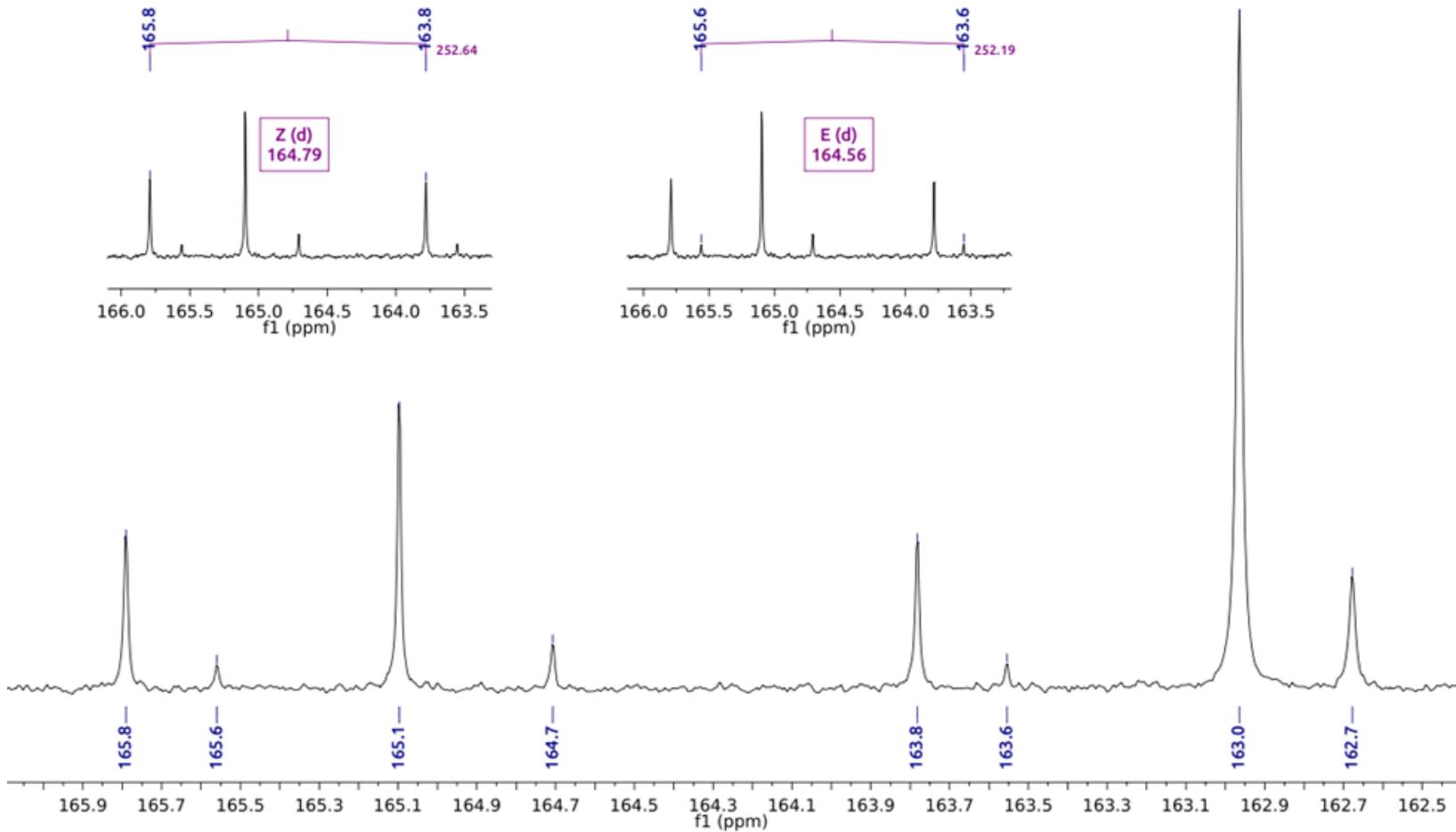


Figure SIB-18. ^{13}C NMR spectrum of **1i** (CDCl_3 , 125.77 MHz) (expansion)

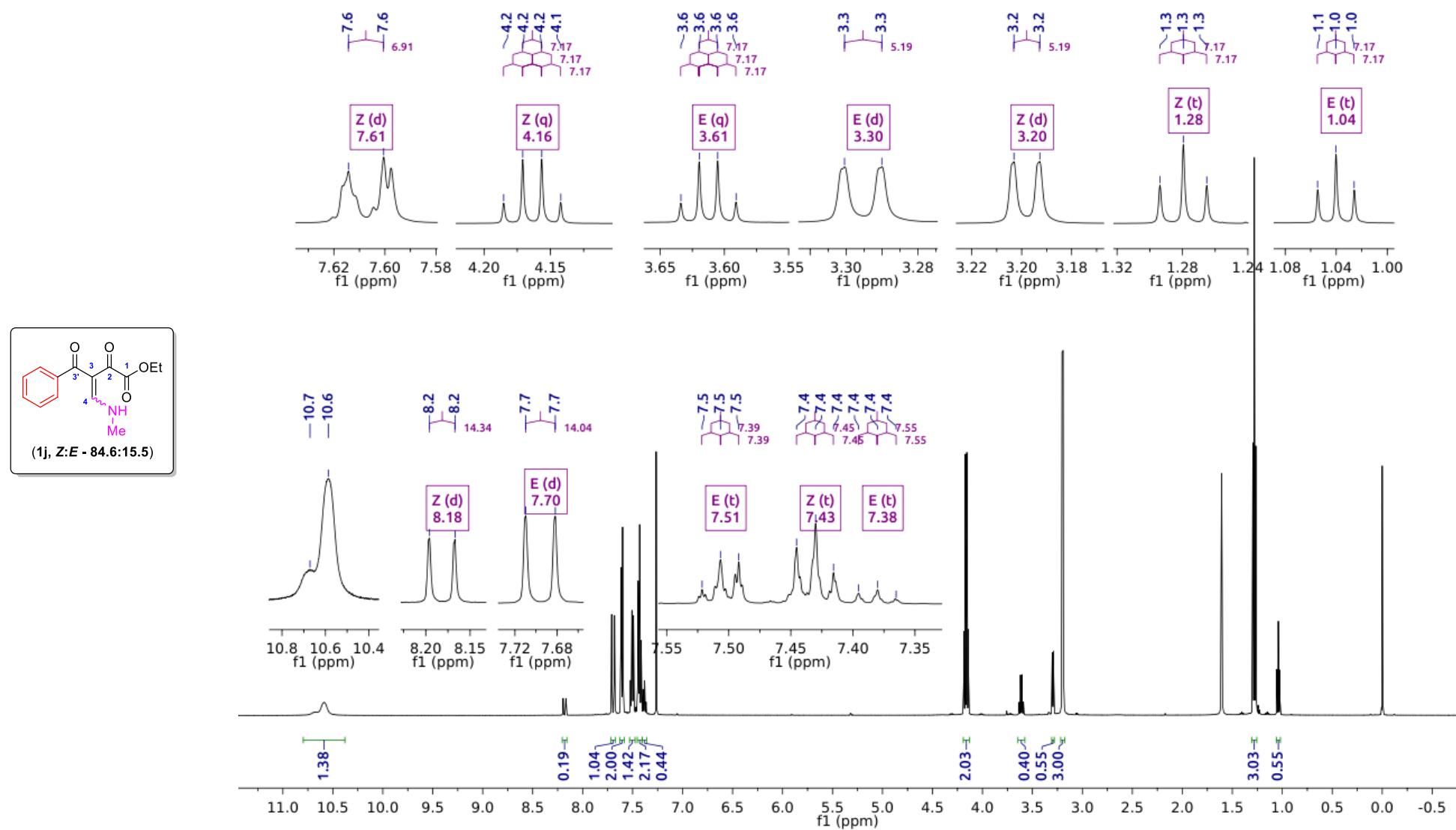


Figure SIB-19. ¹H NMR spectrum of **1j** (CDCl_3 , 500.13 MHz)

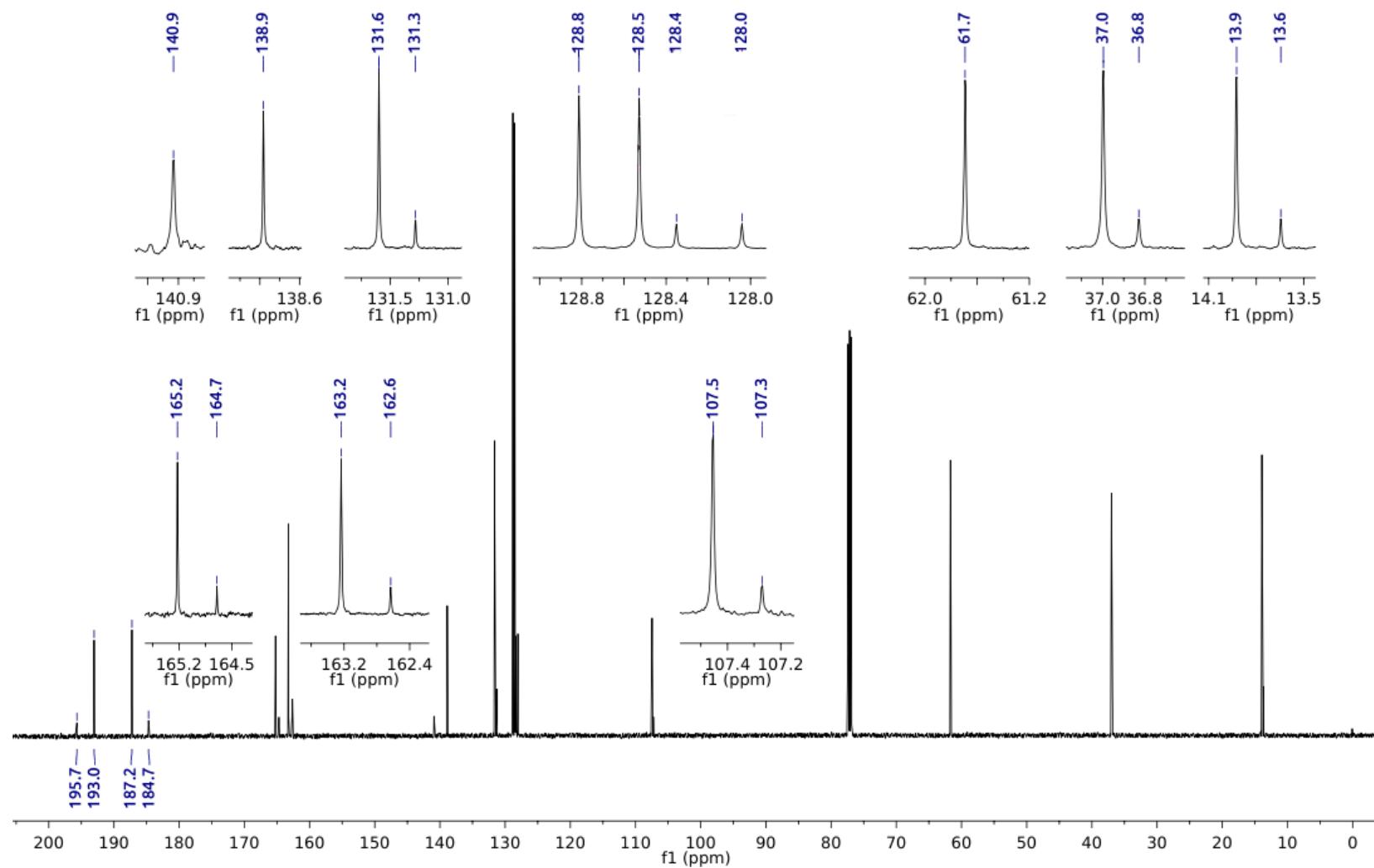
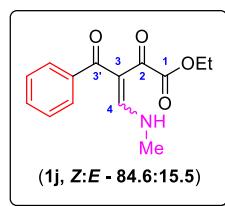


Figure SIB-20. ^{13}C NMR spectrum of **1j** (CDCl_3 , 125.77 MHz)

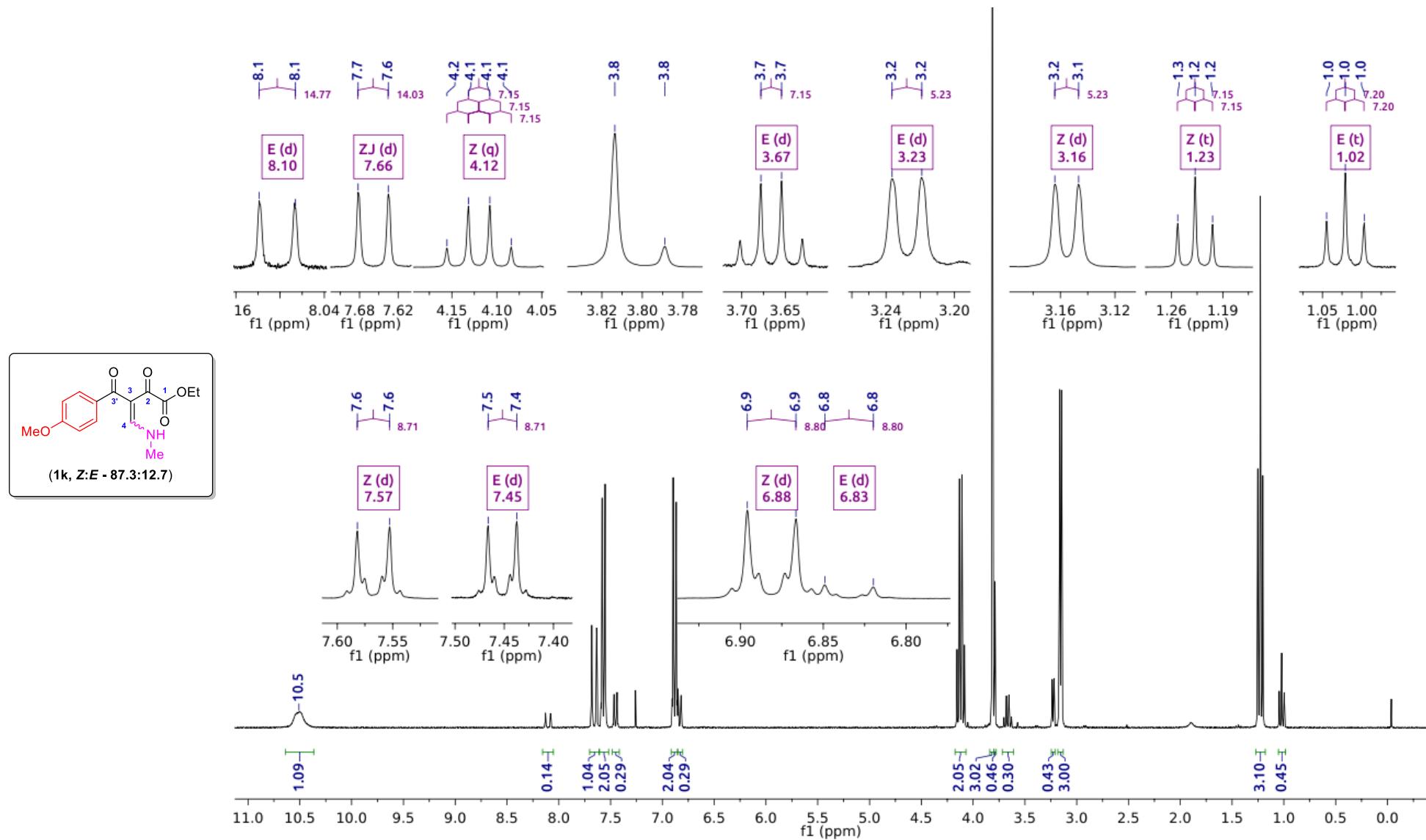


Figure SIB-21. ^1H NMR spectrum of **1k** (CDCl_3 , 300.06 MHz)

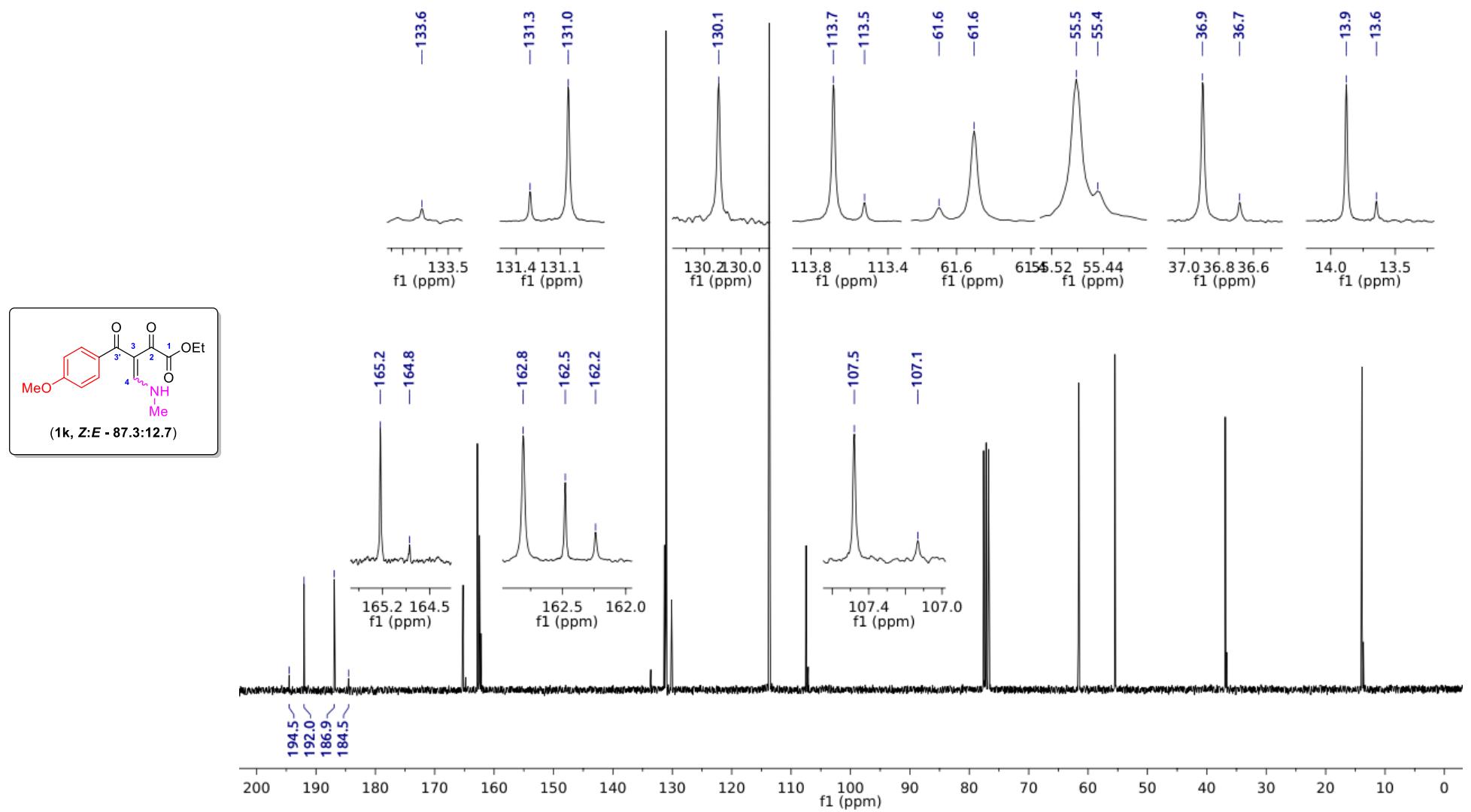


Figure SIB-22. ^{13}C NMR spectrum of **1k** (CDCl_3 , 75.46 MHz)

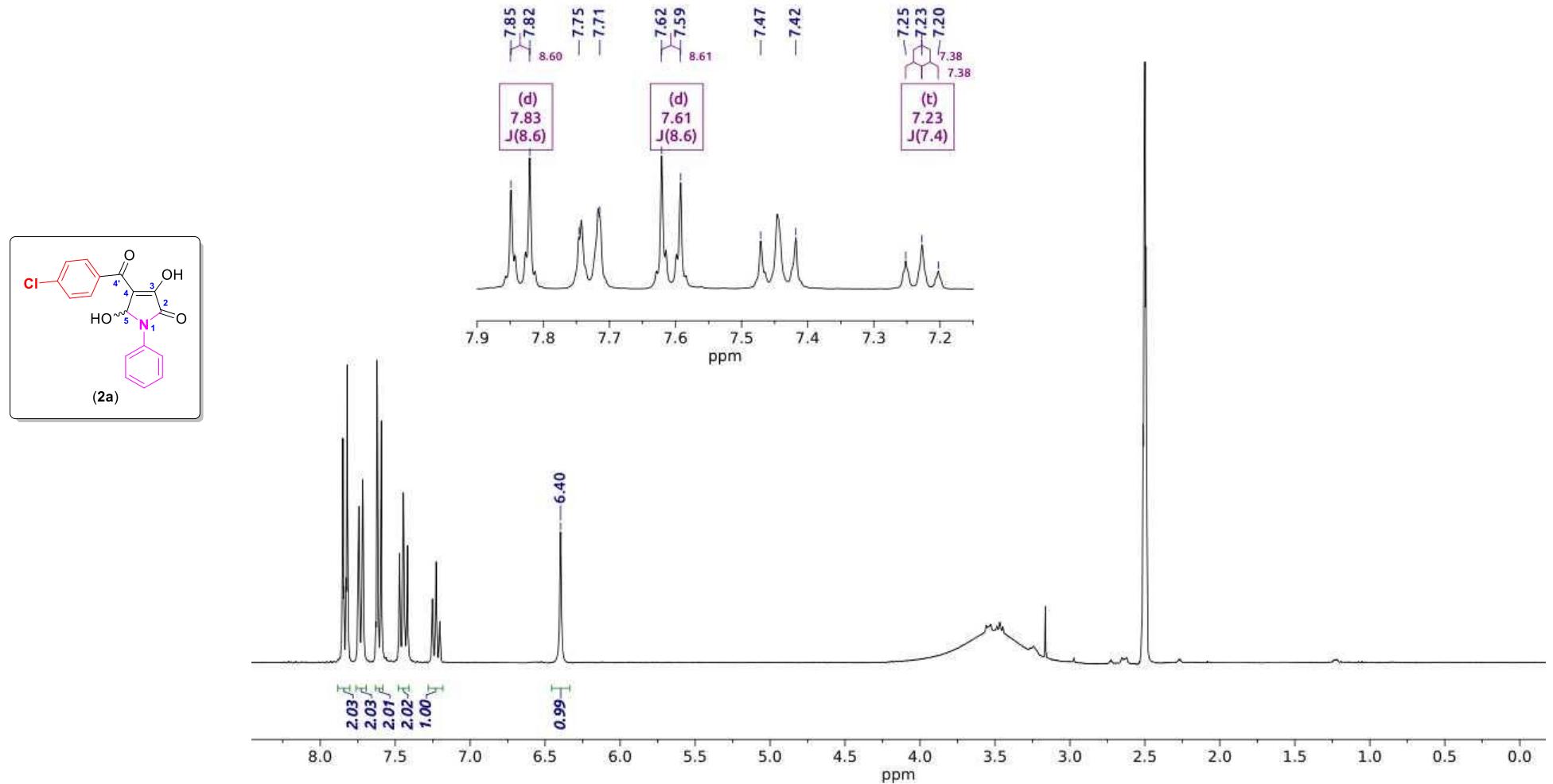


Figure SIB-23. ^1H NMR spectrum of **2a** (DMSO- d_6 , 500.13 MHz)

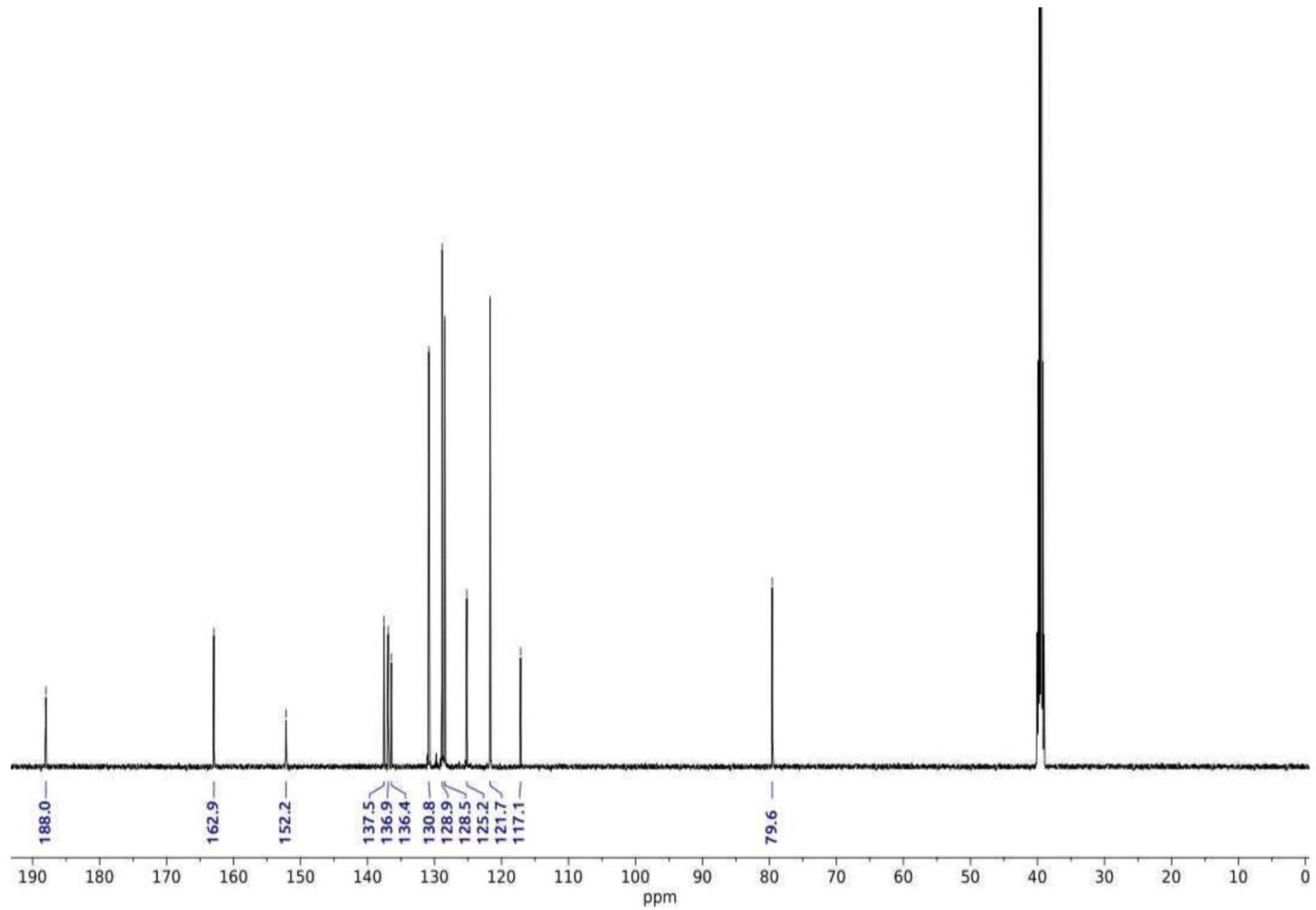
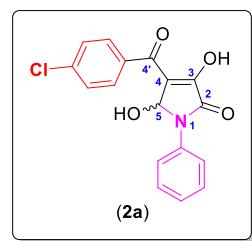


Figure SIB-24. ¹³C NMR spectrum of 2a (DMSO-d₆, 125.77 MHz)

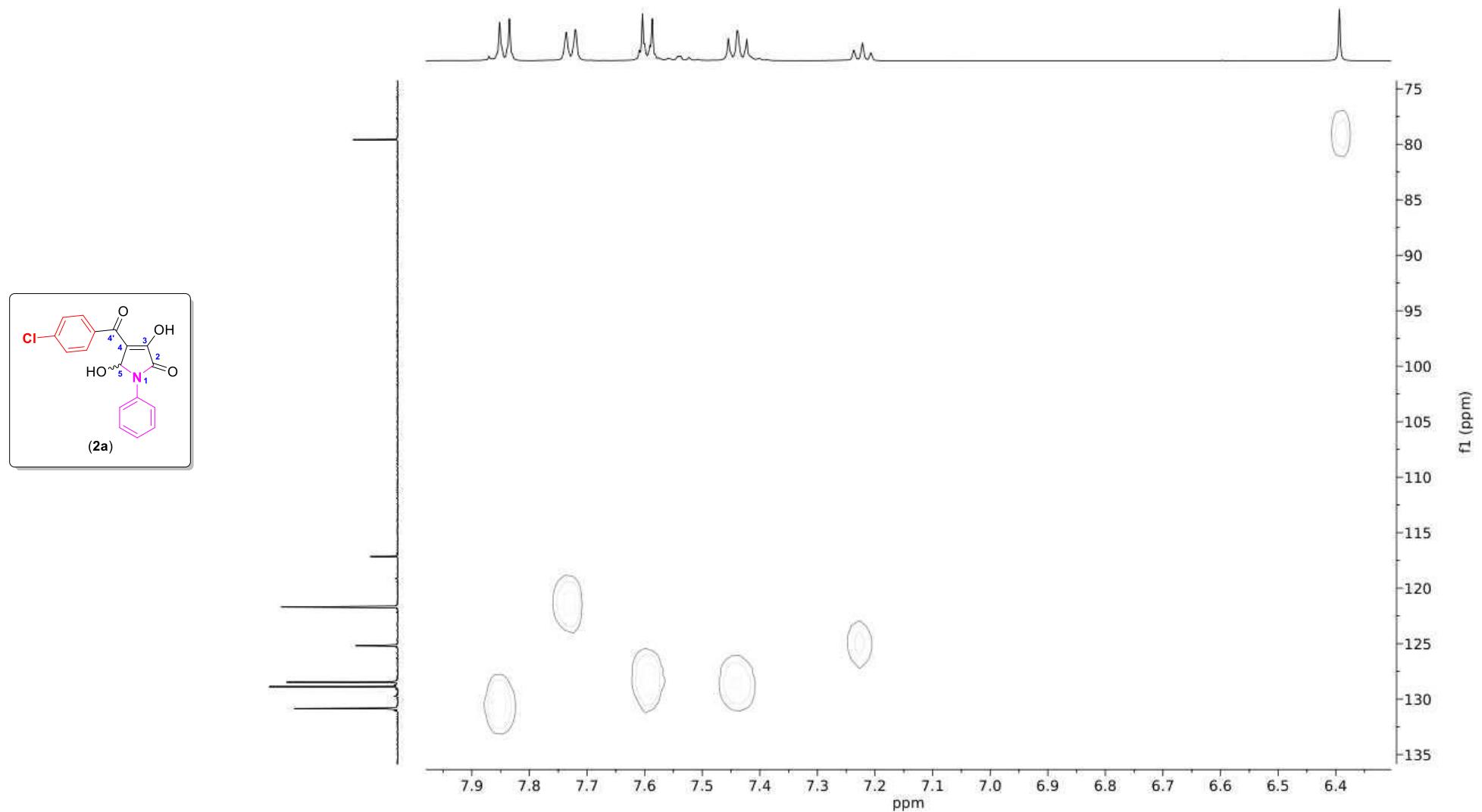


Figure SIB-25. HSQC NMR spectrum of **2a** (DMSO-d₆, 500.13 x 125.77 MHz) (expansion)

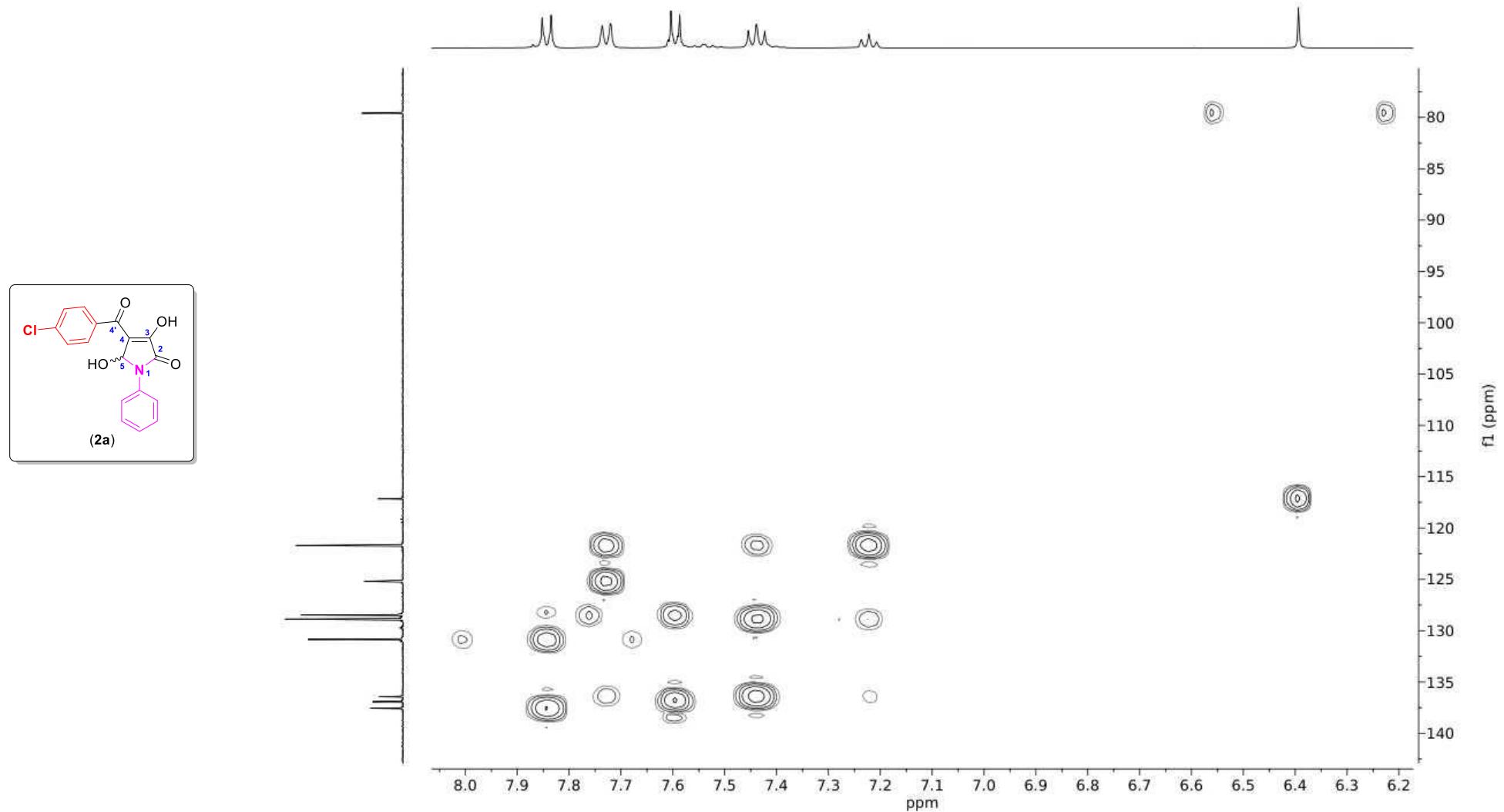


Figure SIB-26. HMBC NMR spectrum of **2a** (DMSO-d₆, 500.13 x 125.77 MHz) (expansion)

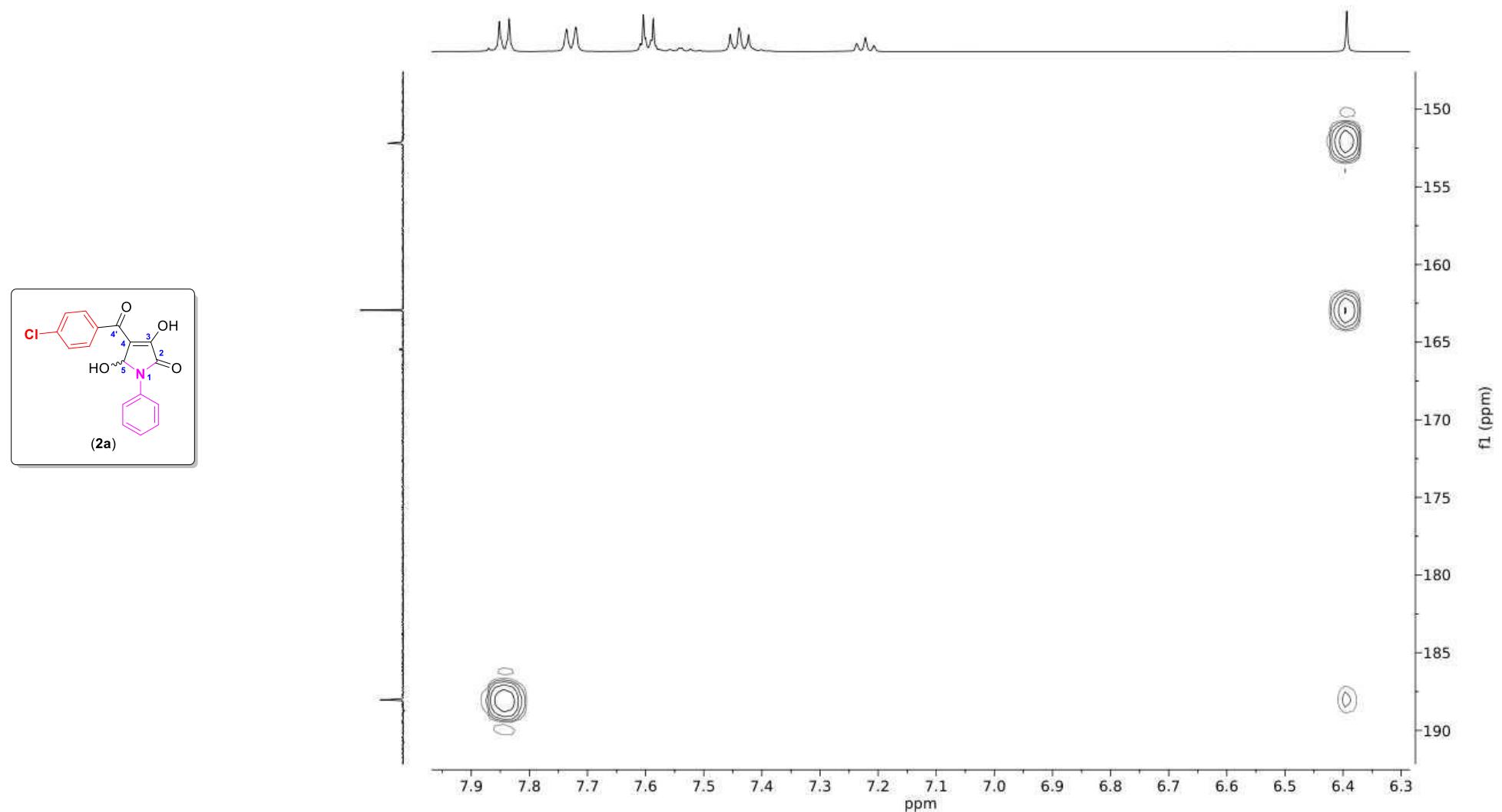


Figure SIB-27. HMBC NMR spectrum of **2a** (DMSO-d₆, 500.13 x 125.77 MHz) (expansion)

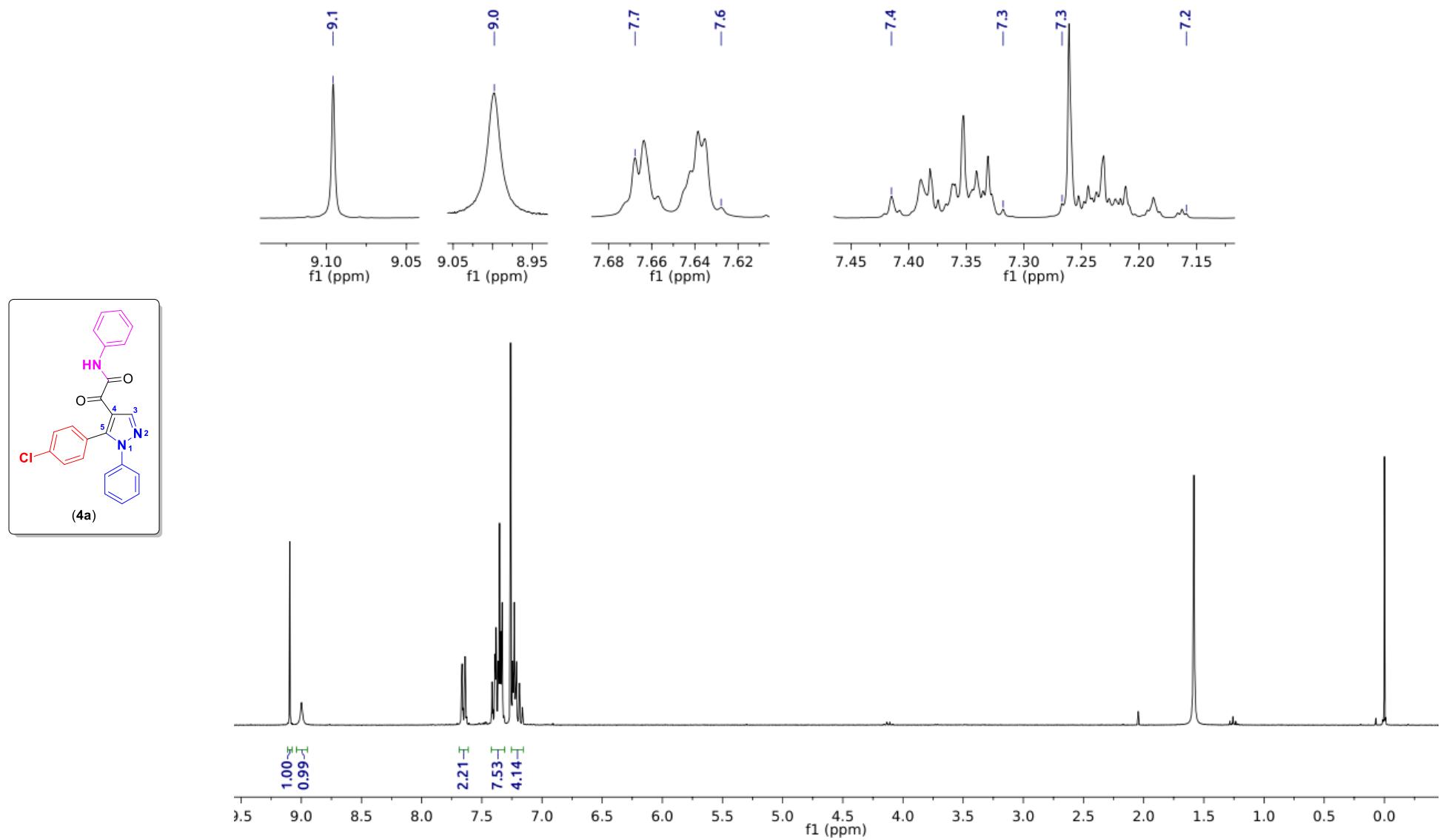
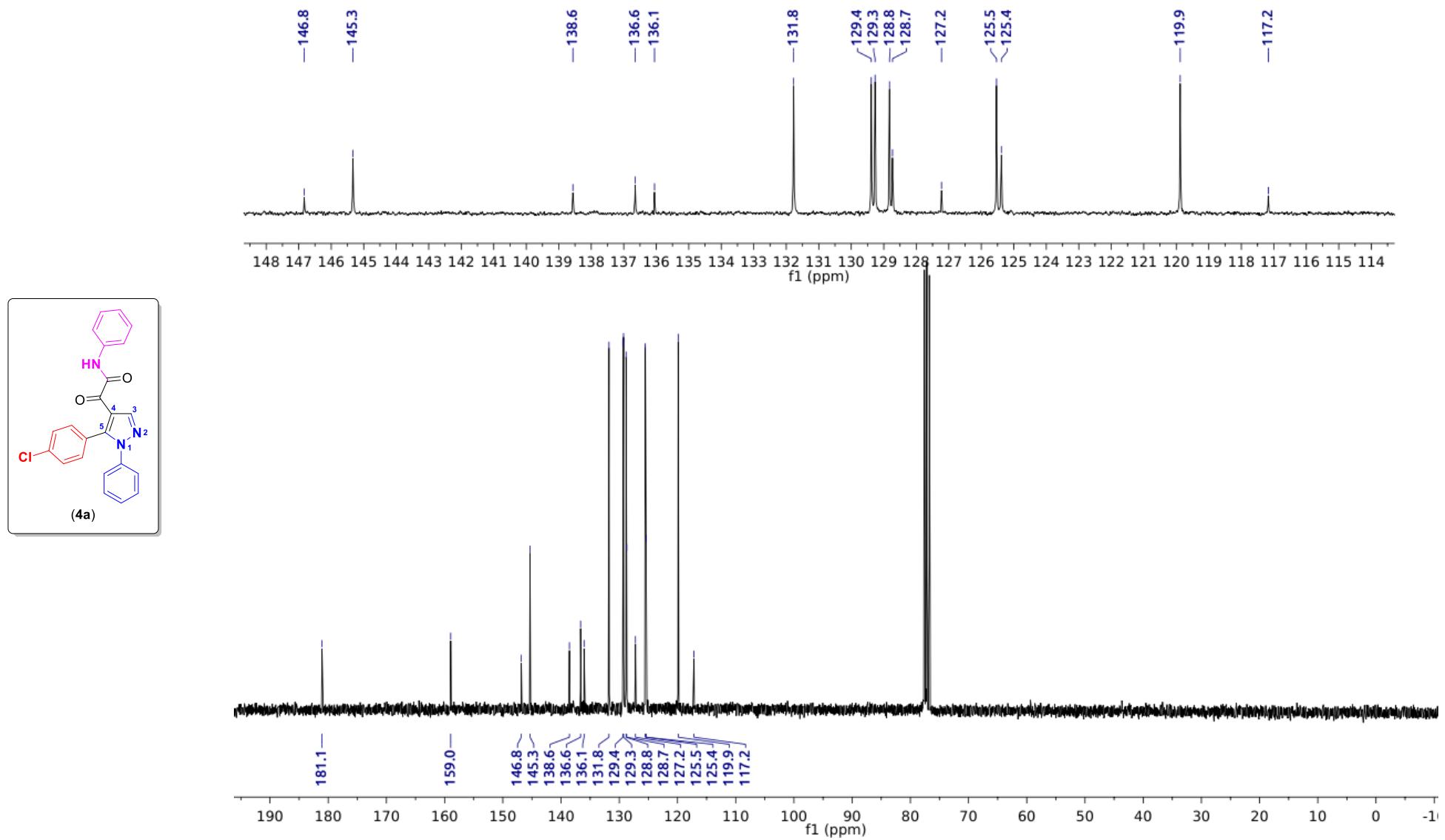


Figure SIB-28. ^1H NMR spectrum of **4a** (CDCl_3 , 300.06 MHz)



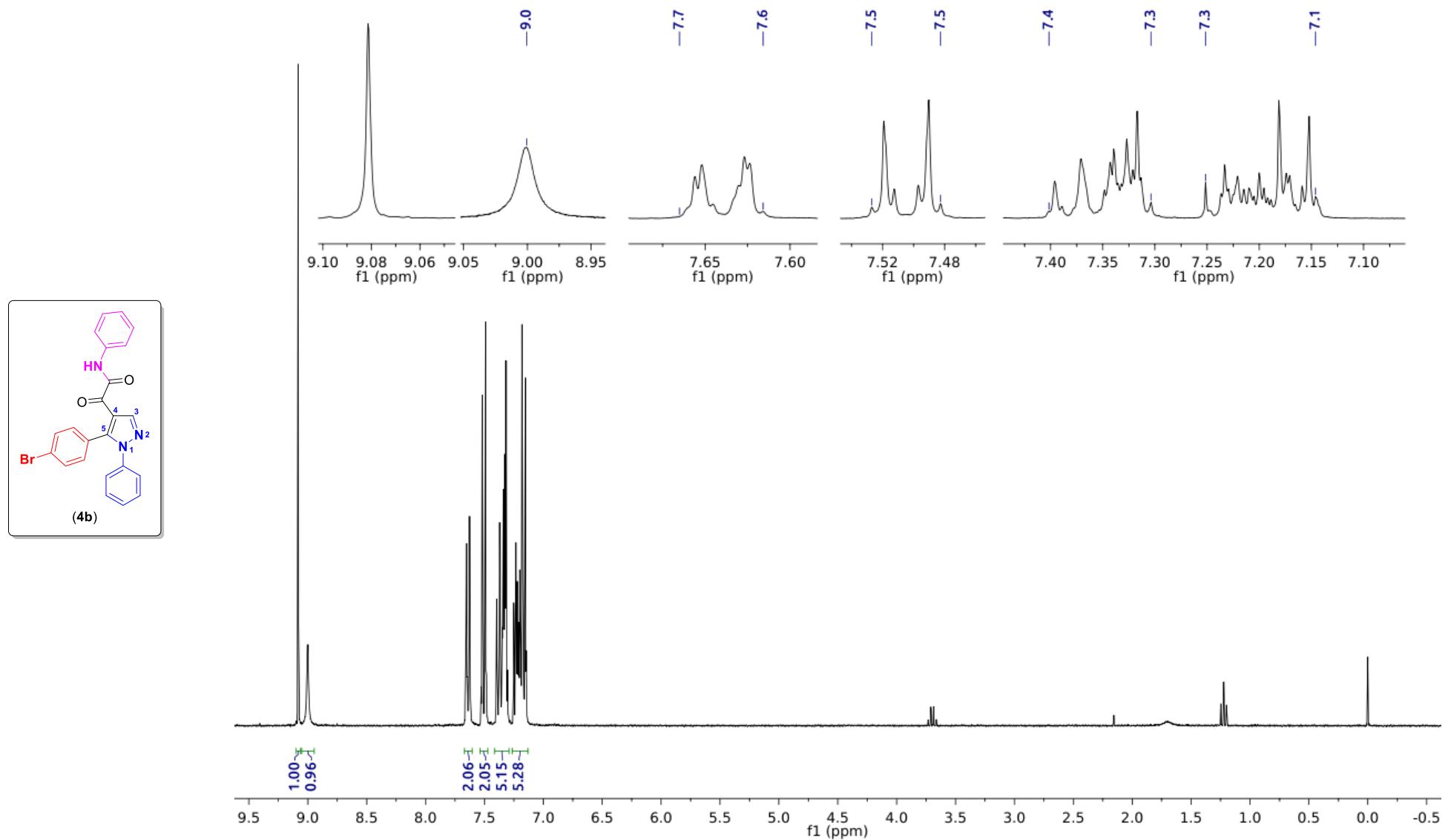


Figure SIB-30. ^1H NMR spectrum of **4b** (CDCl_3 , 300.06 MHz)

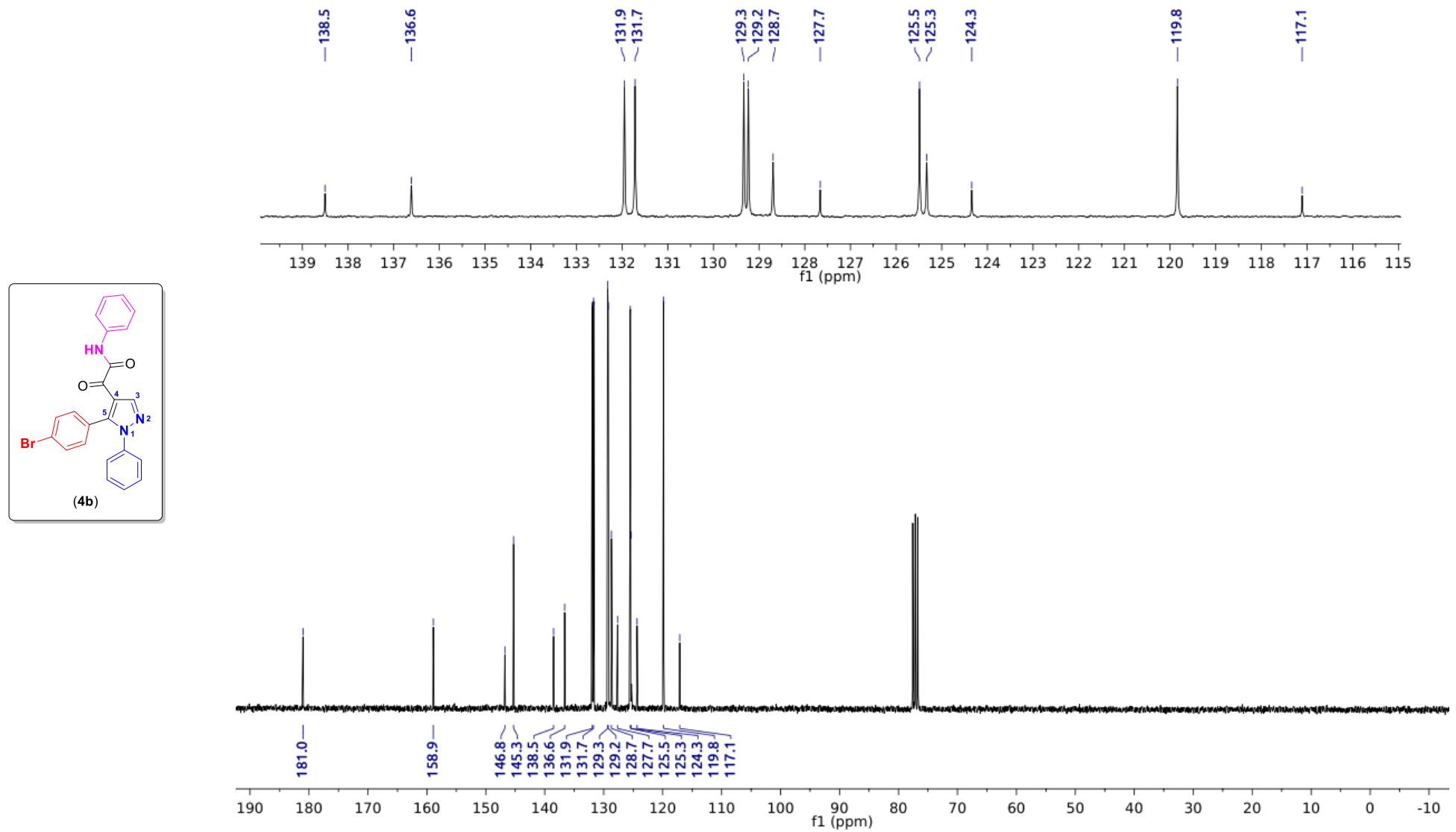


Figure SIB-31. ^{13}C NMR spectrum of **4b** (CDCl_3 , 75.46 MHz)

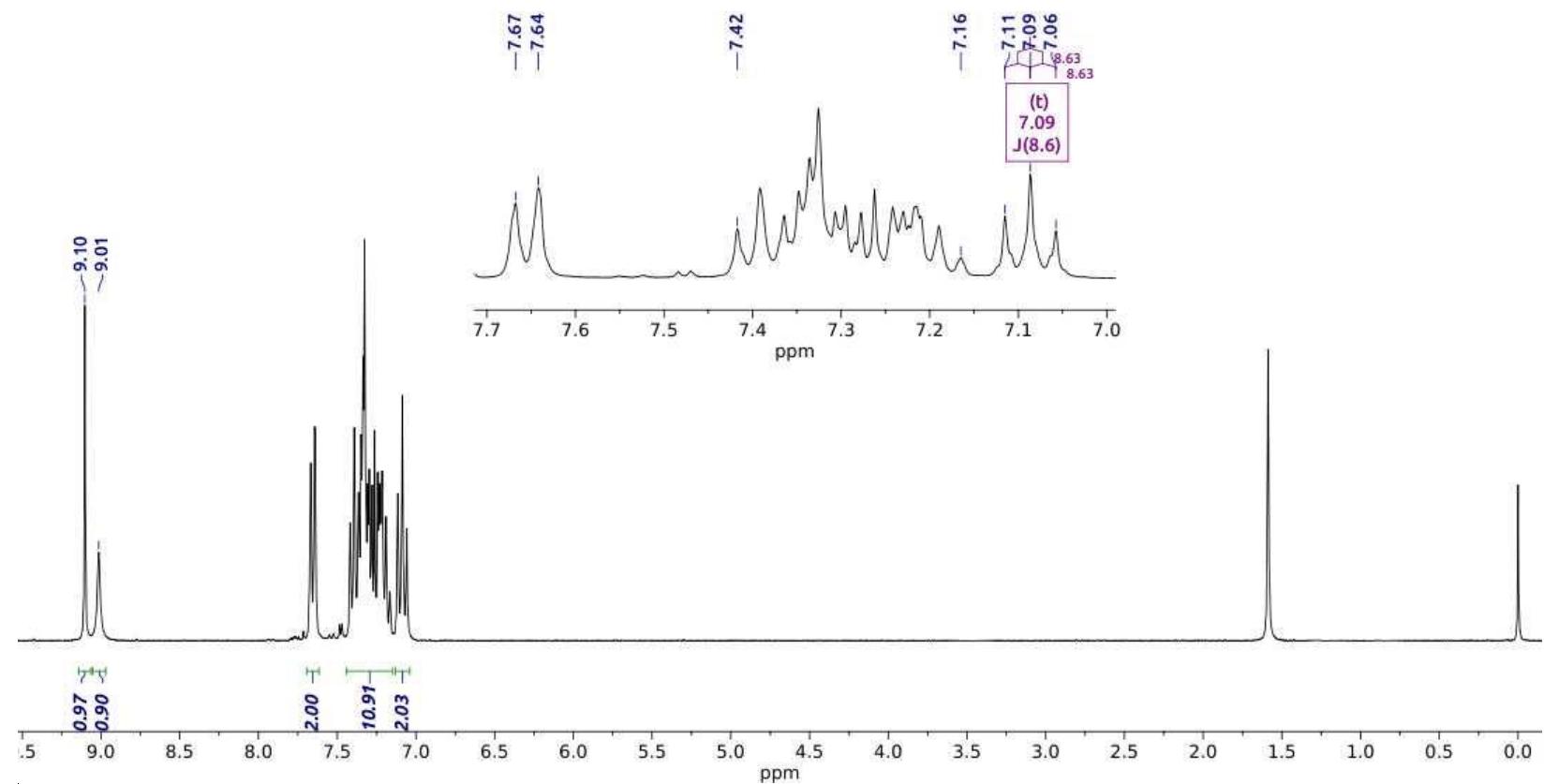
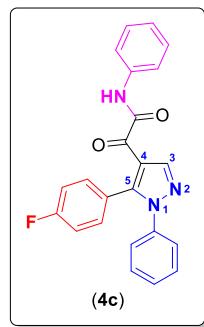


Figure SIB-32. ¹H NMR spectrum of **4c** (CDCl₃, 300.06 MHz)

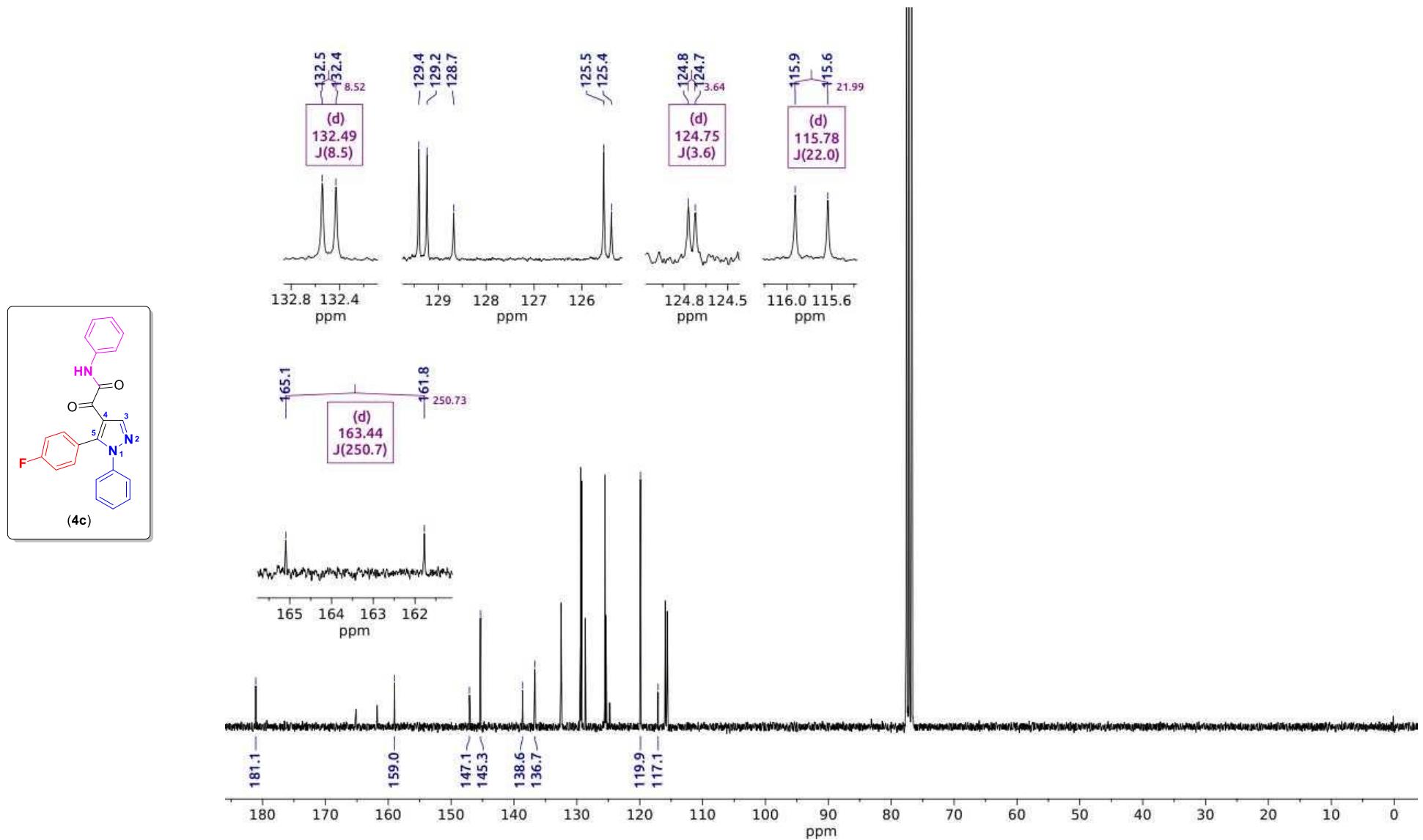


Figure SIB-33. ¹³C NMR spectrum of **4c** (CDCl_3 , 75.46 MHz)

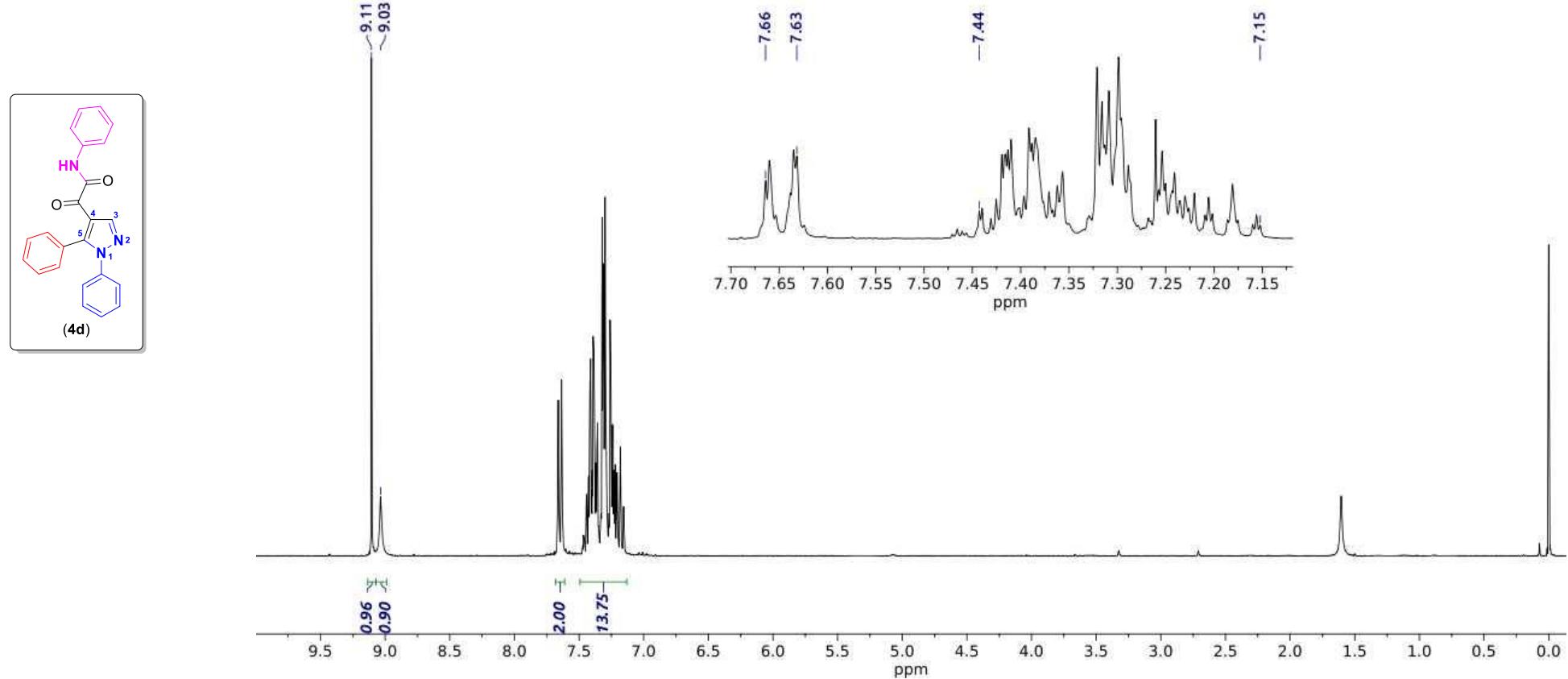


Figure SIB-34. ¹H NMR spectrum of **4d** (CDCl₃, 300.06 MHz)

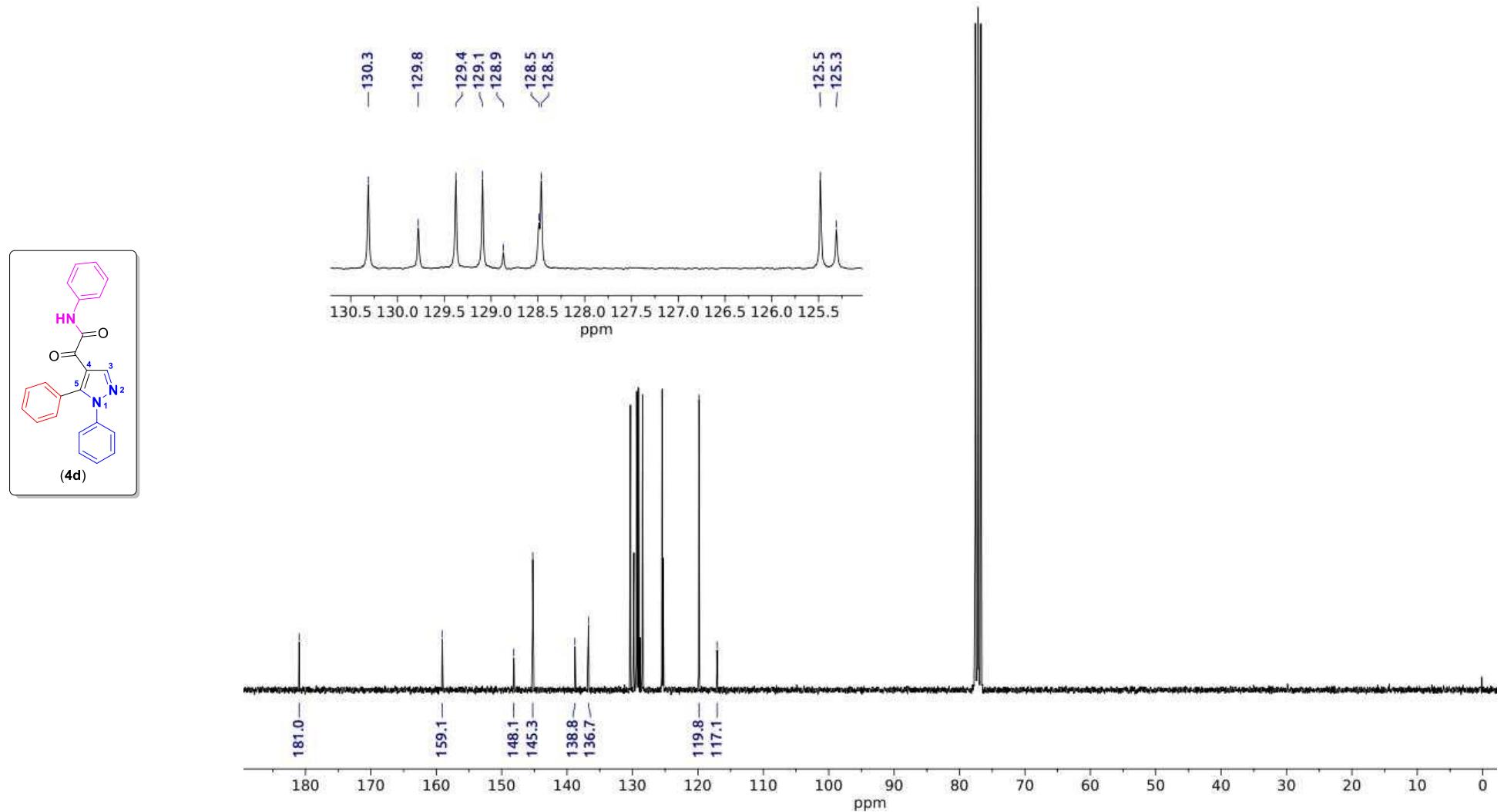


Figure SIB-35. ^{13}C NMR spectrum of **4d** (CDCl_3 , 75.46 MHz)

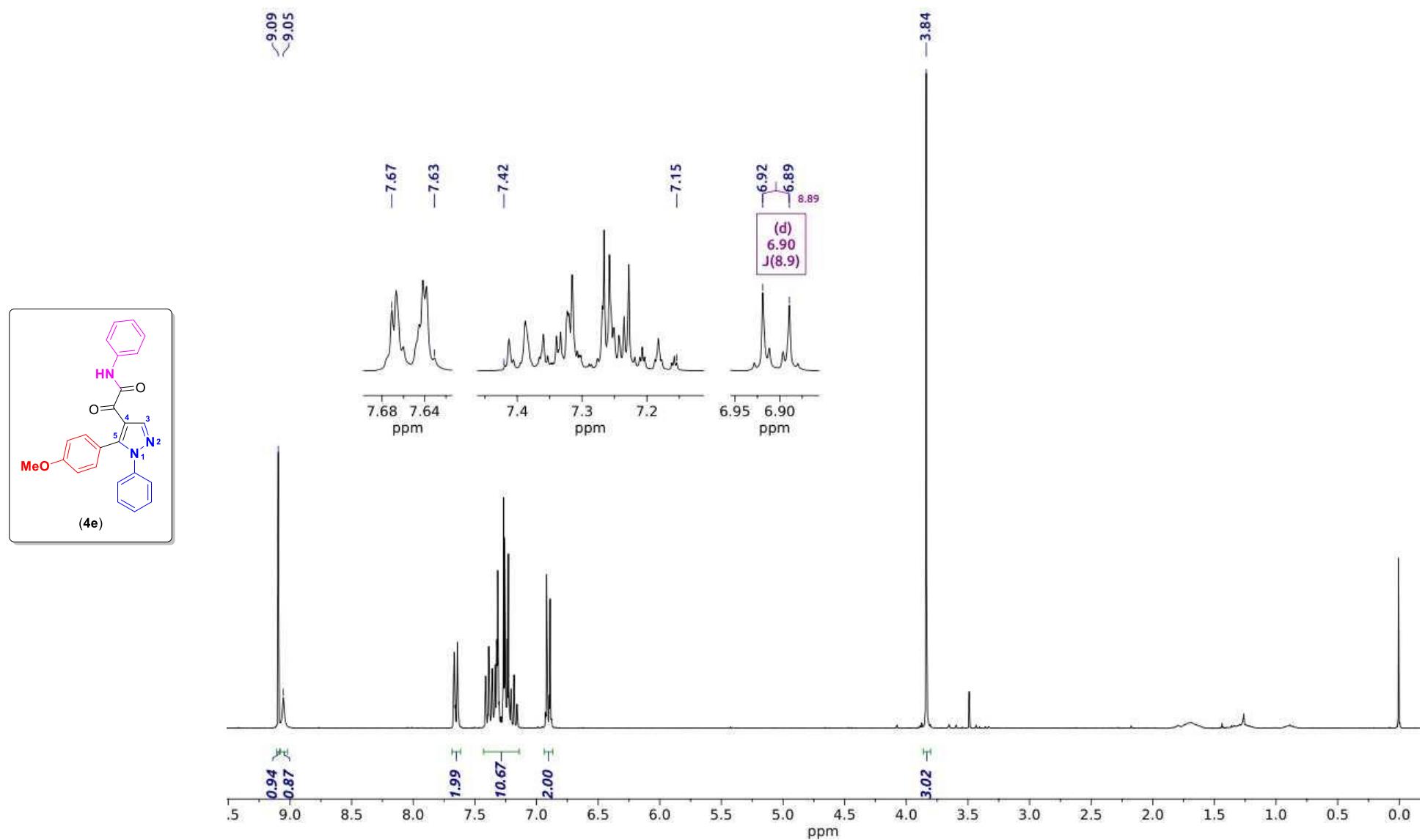


Figure SIB-36. ¹H NMR spectrum of **4e** (CDCl₃, 300.06 MHz)

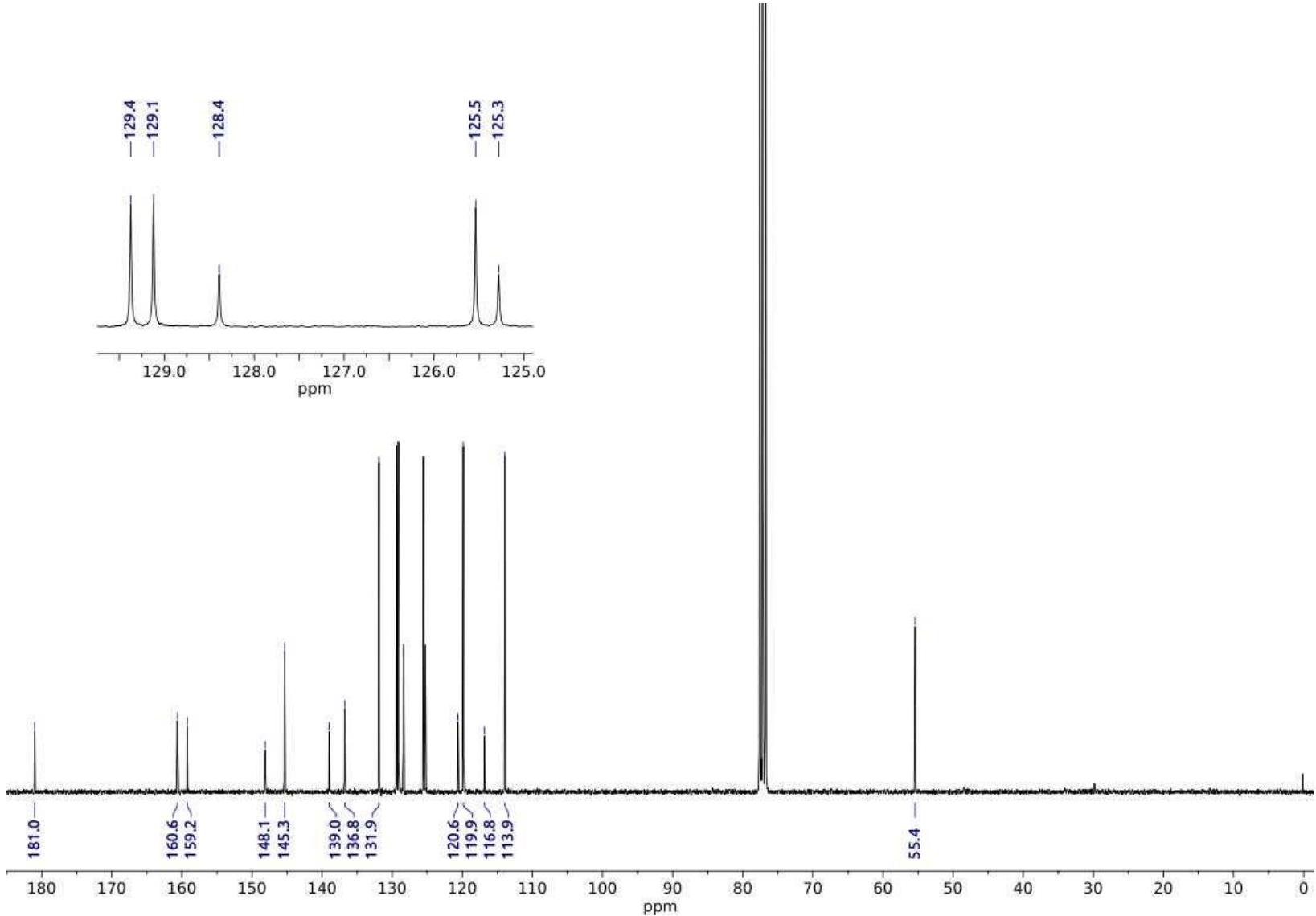
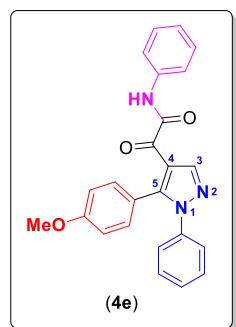


Figure SIB-37. ¹³C NMR spectrum of **4e** (CDCl₃, 75.46 MHz)

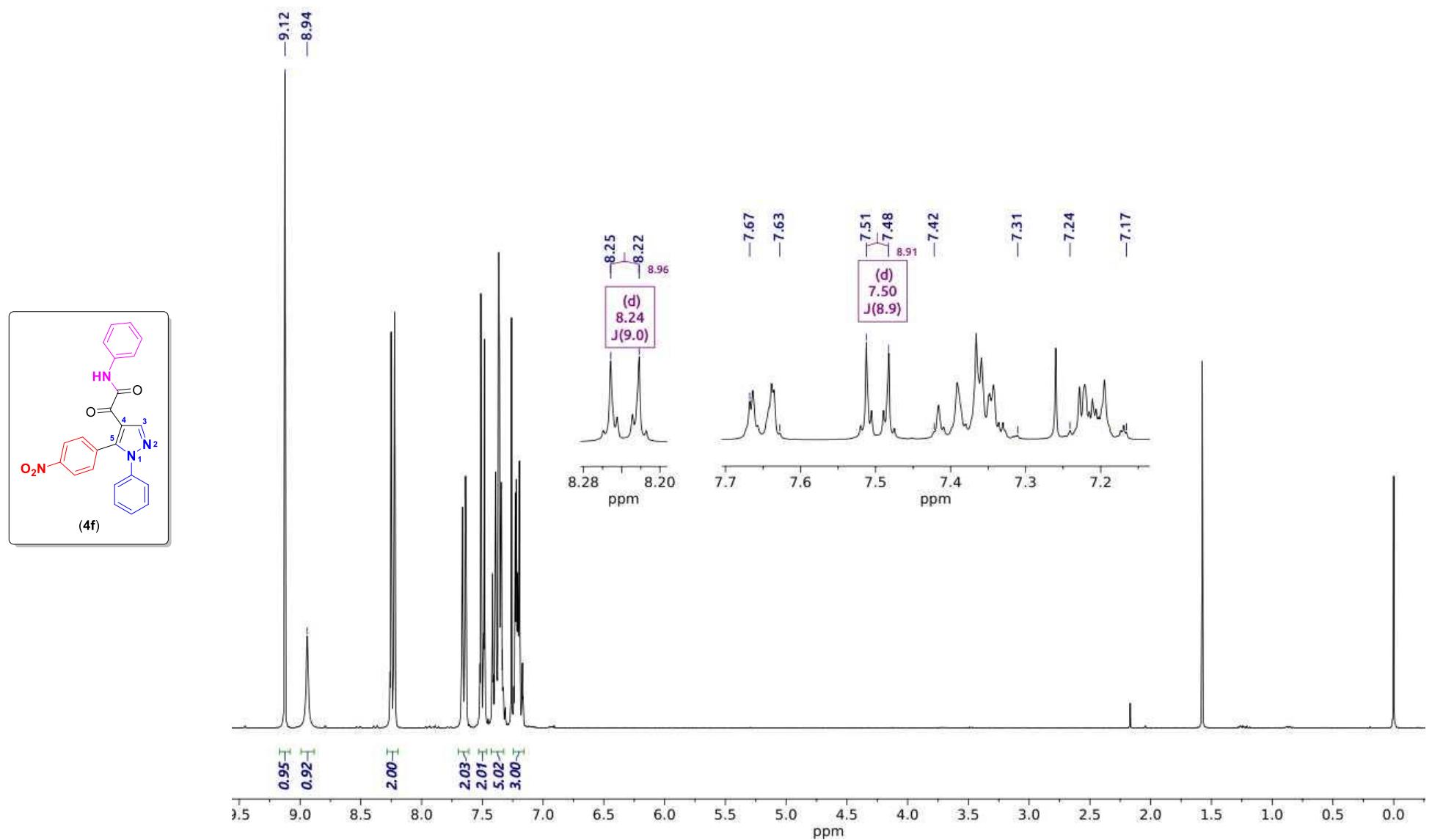


Figure SIB-38. ^1H NMR spectrum of **4f** (CDCl_3 , 300.06 MHz)

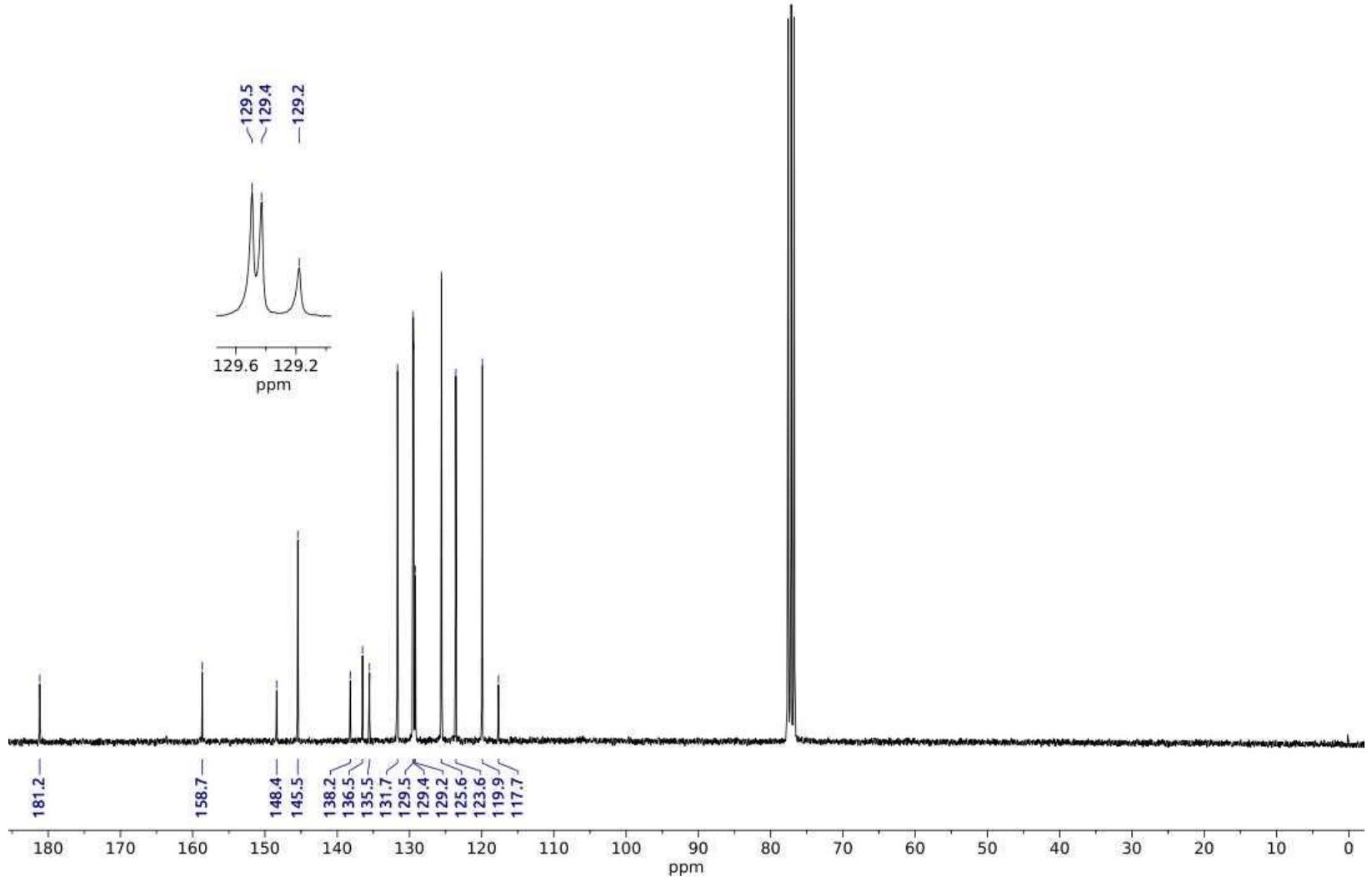
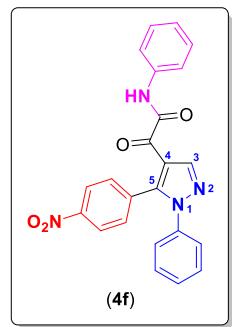


Figure SIB-39. ^{13}C NMR spectrum of **4f** (CDCl_3 , 75.46 MHz)

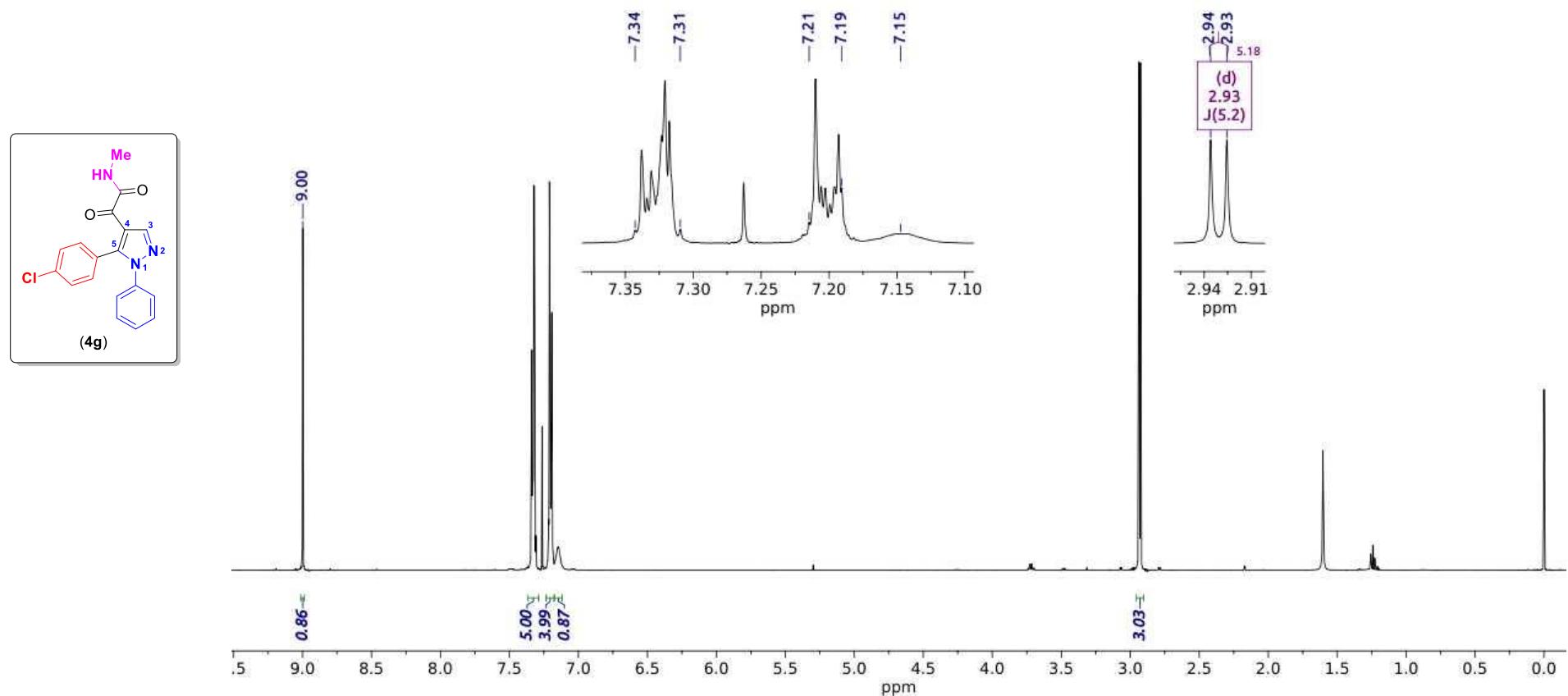


Figure SIB-40. ^1H NMR spectrum of **4g** (CDCl_3 , 500.13 MHz)

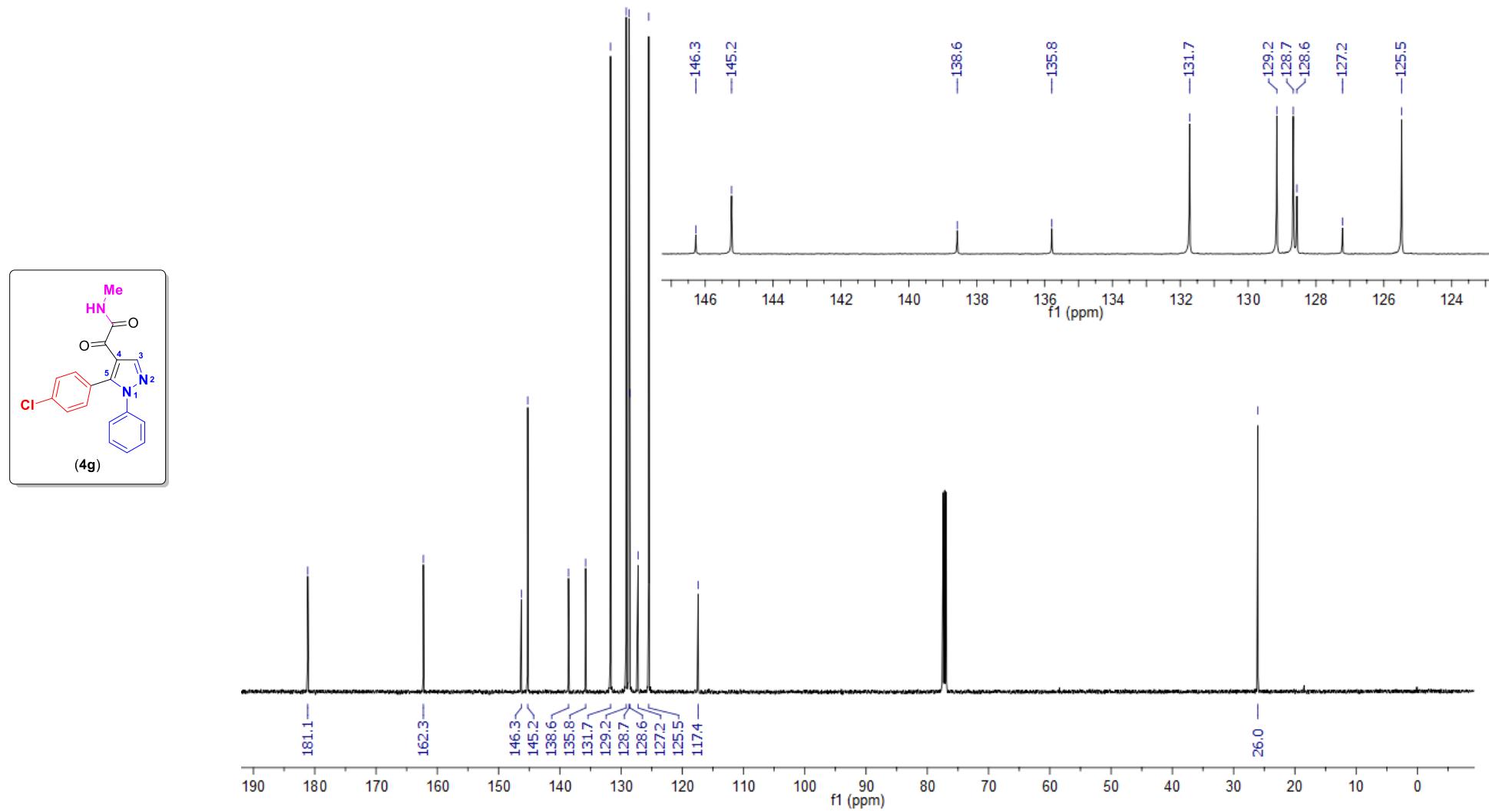


Figure SIB-41. ^{13}C NMR spectrum of **4g** (CDCl_3 , 75.46 MHz)

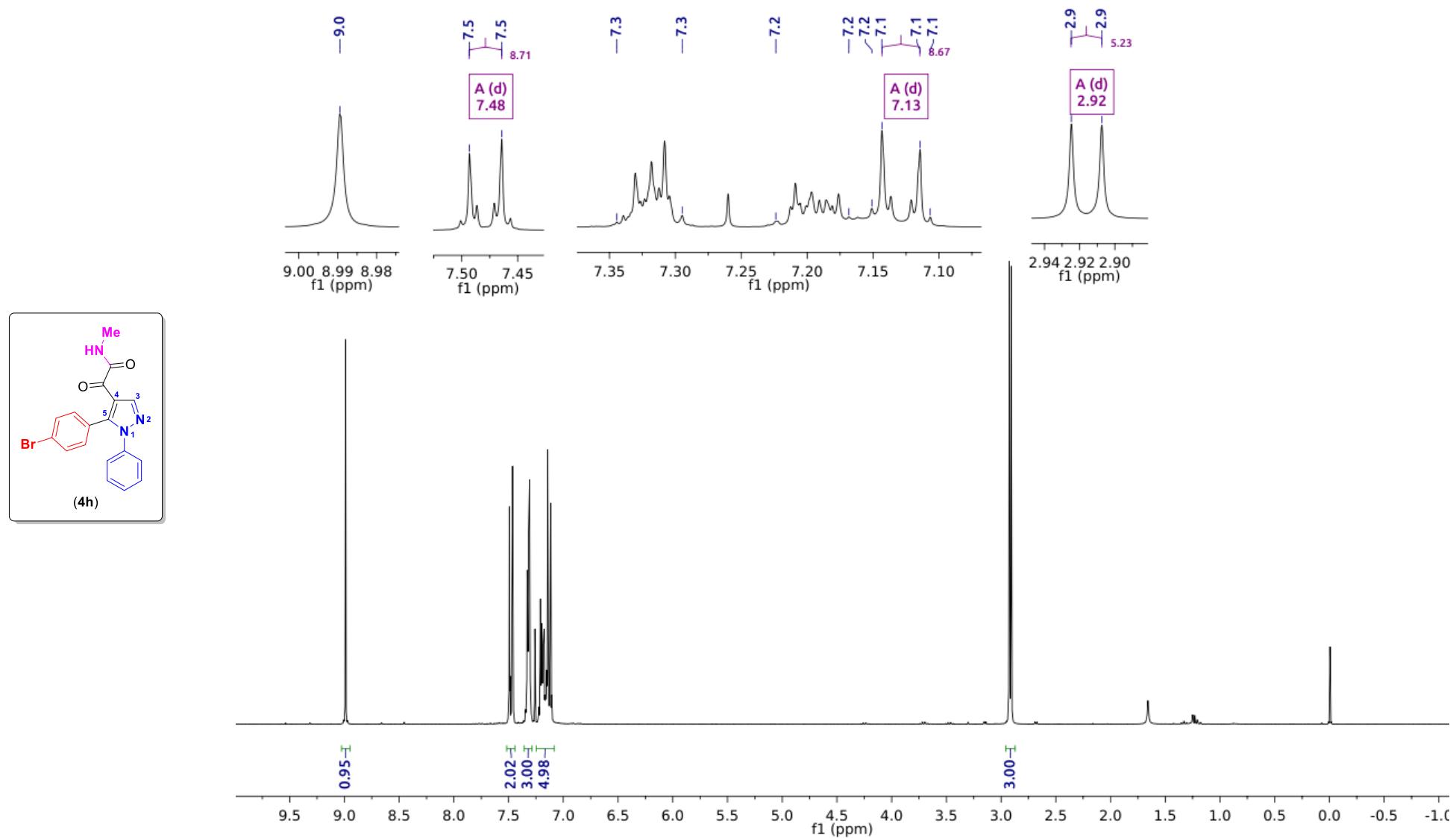


Figure SIB-42. ¹H NMR spectrum of **4h** (CDCl_3 , 300.06 MHz)

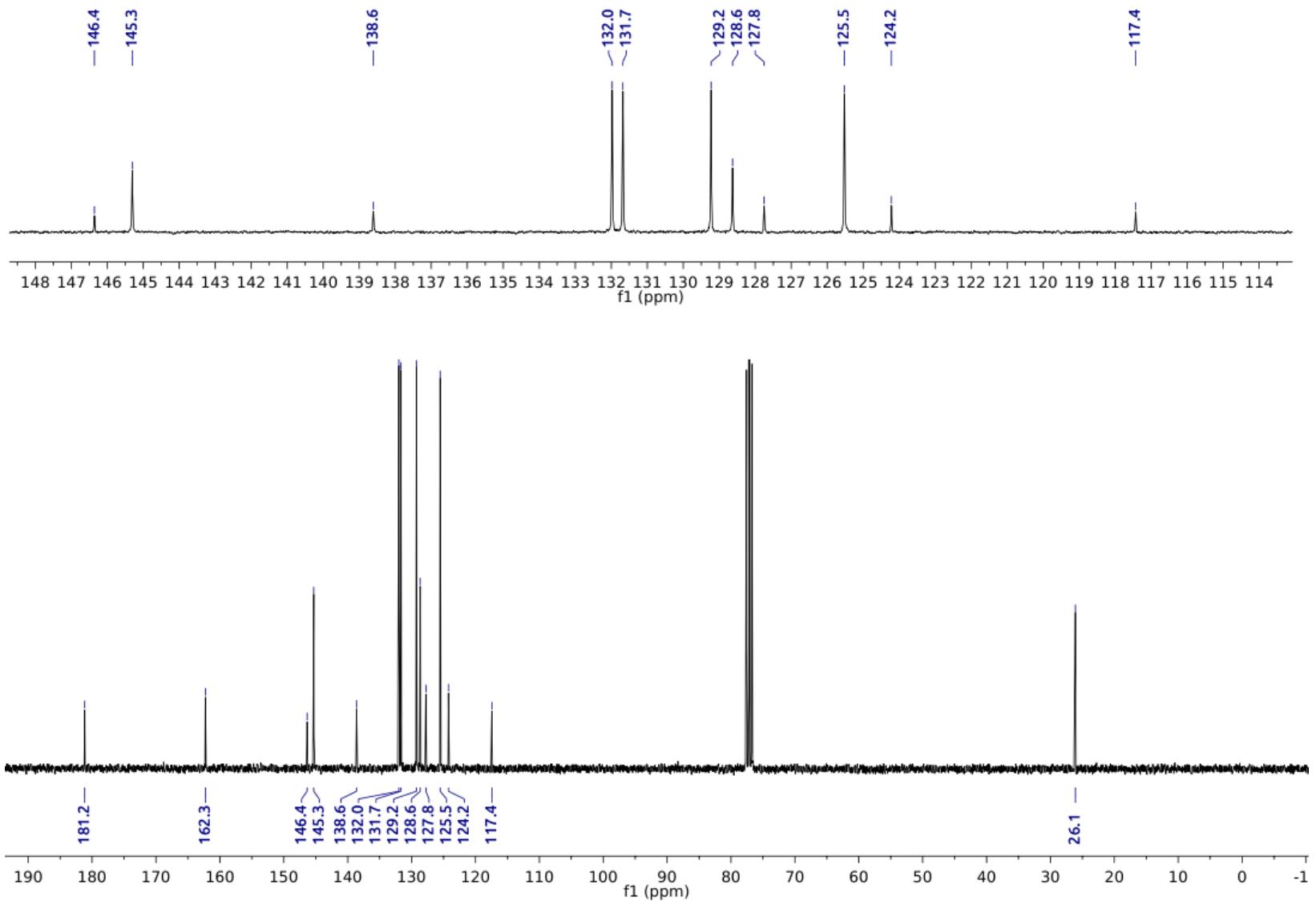


Figure SIB-43. ^{13}C NMR spectrum of **4h** (CDCl_3 , 75.46 MHz)

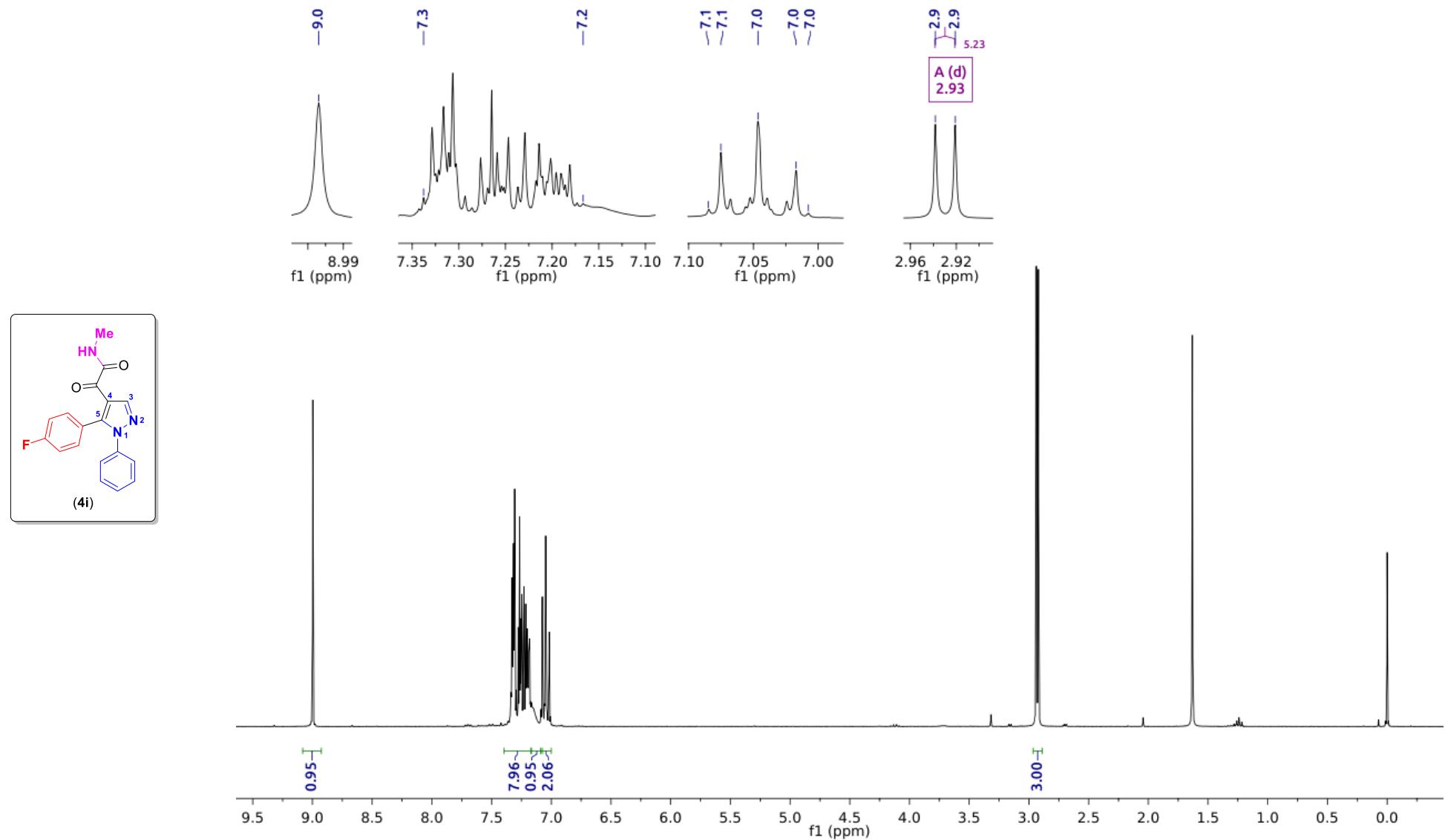


Figure SIB-44. ^1H NMR spectrum of **4i** (CDCl_3 , 300.06 MHz)

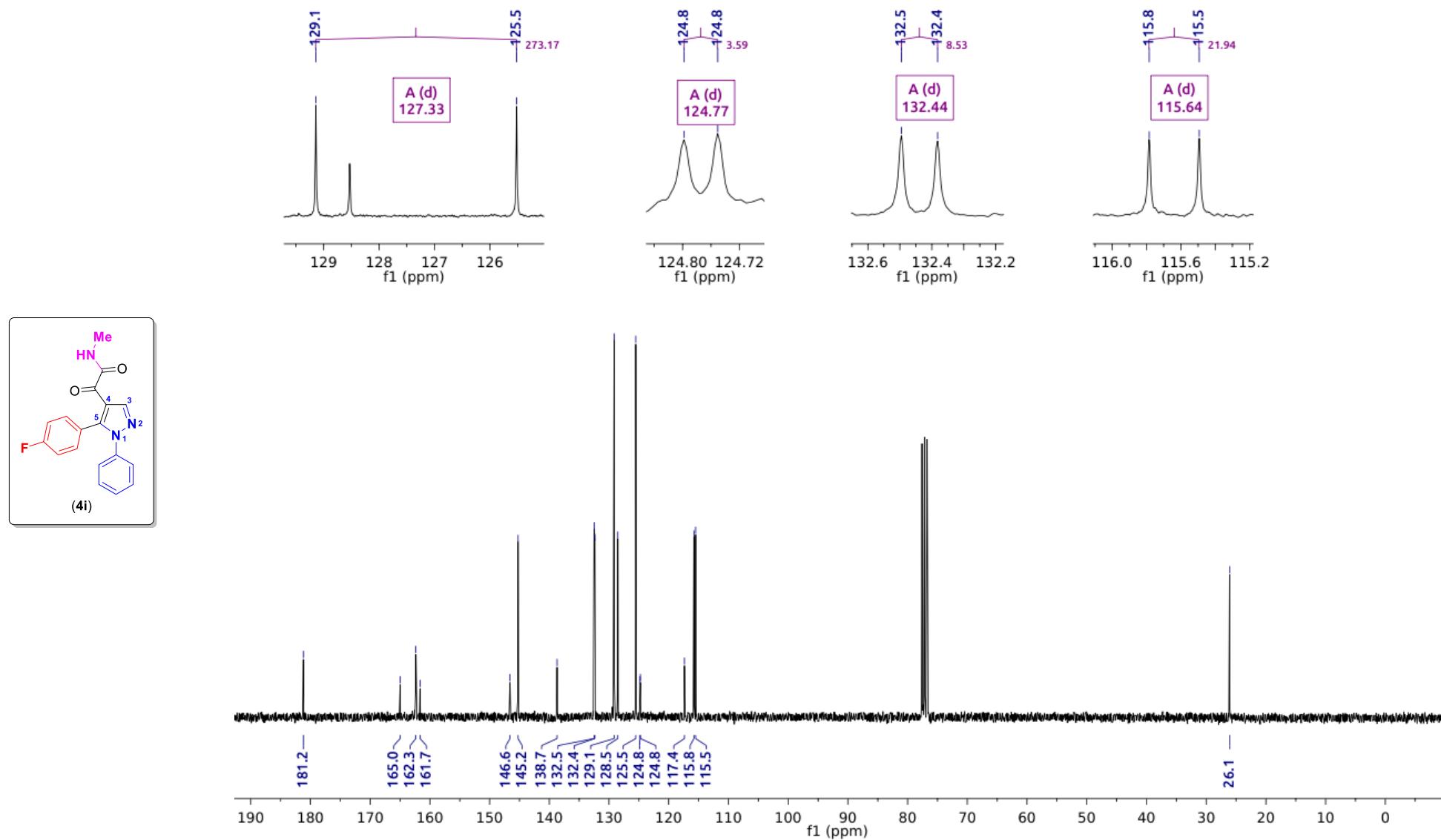


Figure SIB-45. ^{13}C NMR spectrum of **4i** (CDCl_3 , 75.46 MHz)

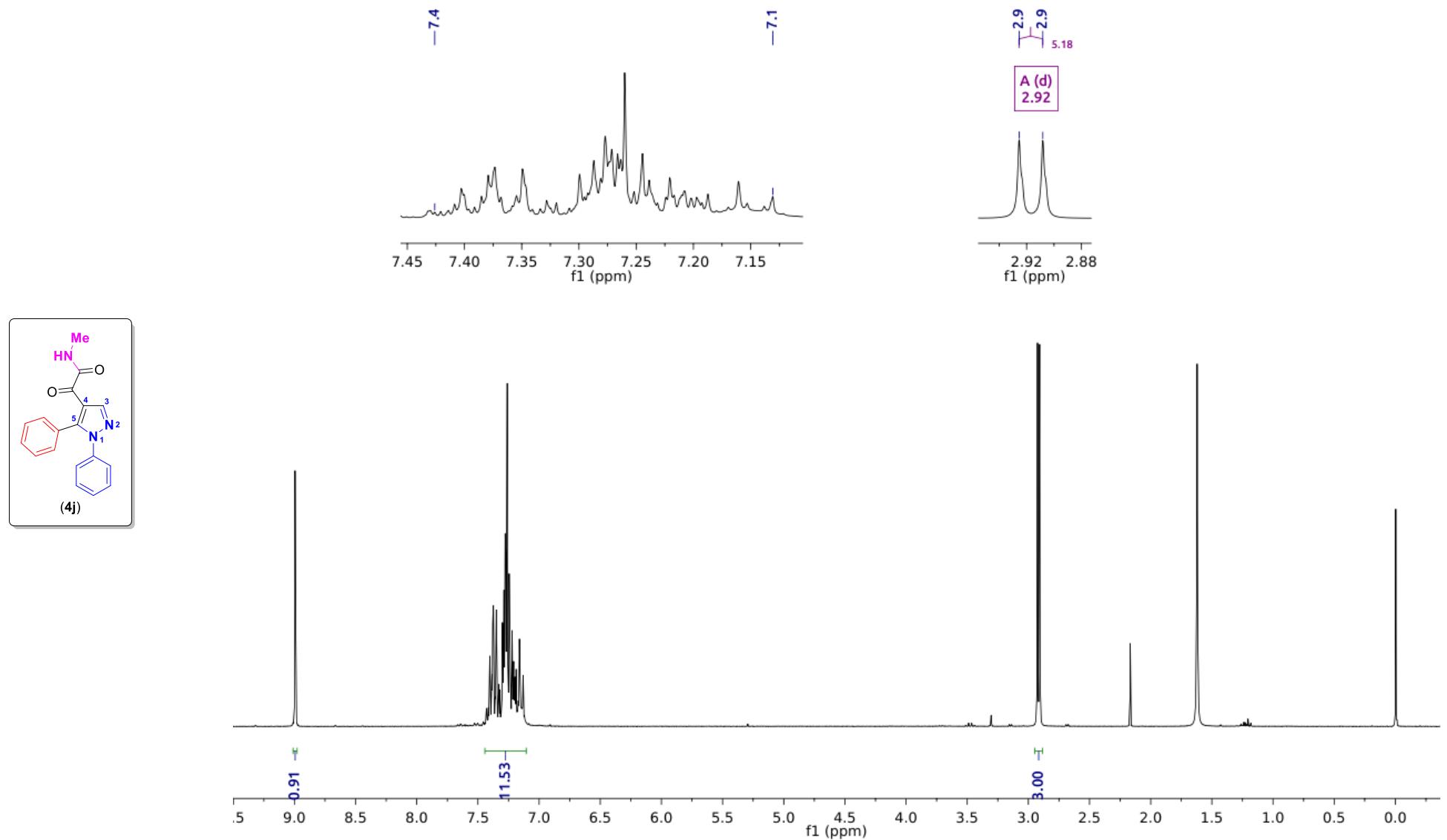


Figure SIB-46. ^1H NMR spectrum of 4j (CDCl_3 , 300.06 MHz)

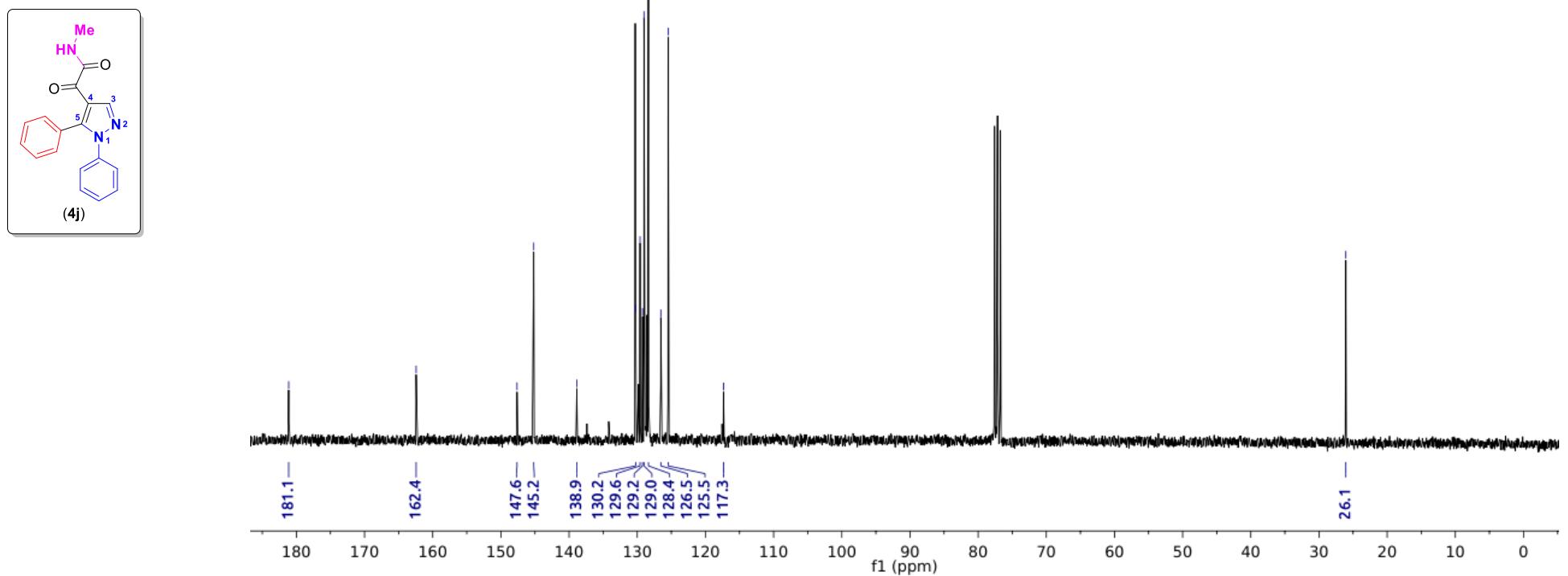


Figure SIB-47. ^{13}C NMR spectrum of **4j** (CDCl_3 , 75.46 MHz)

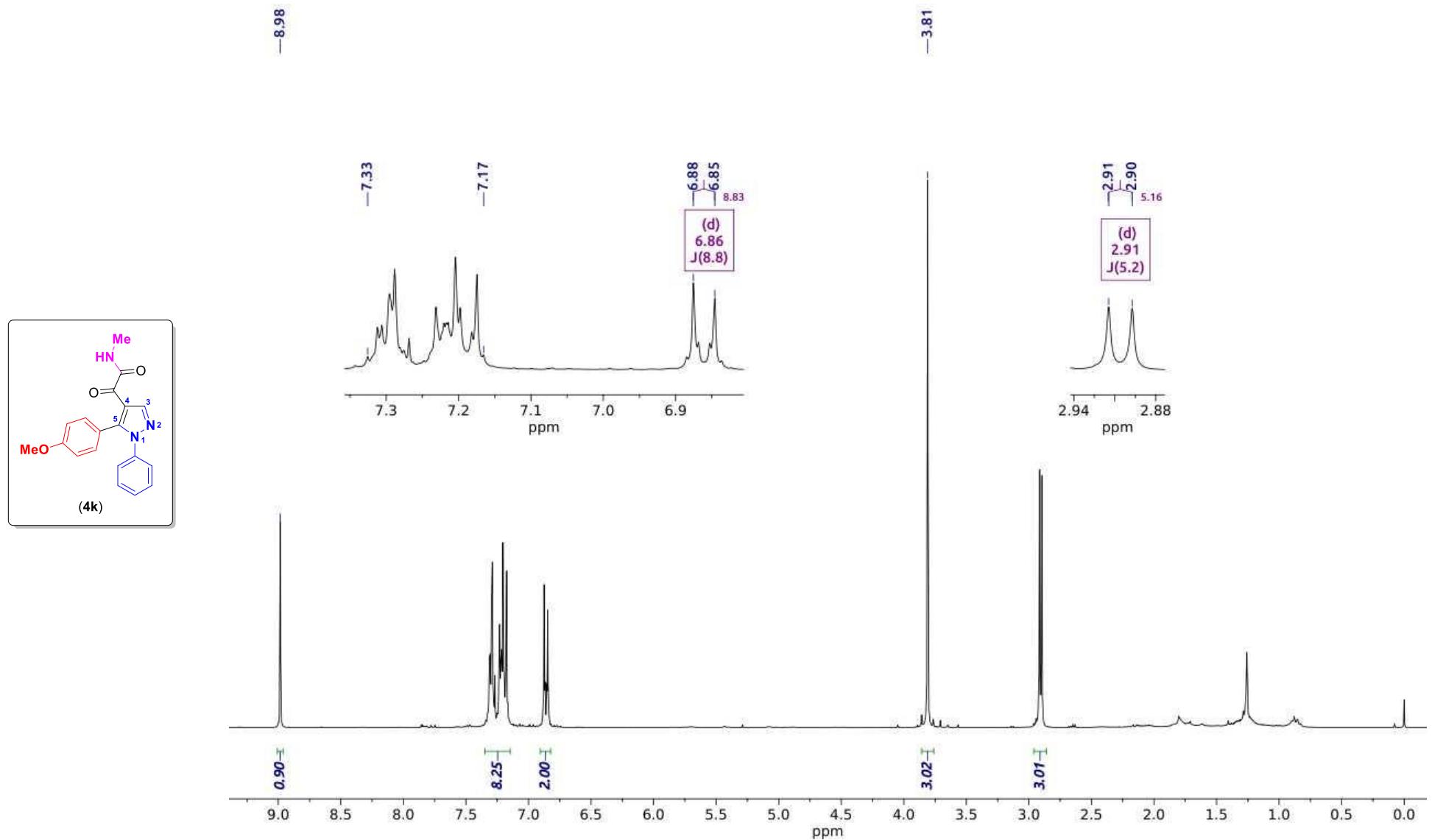


Figure SIB-48. ¹H NMR spectrum of **4k** (CDCl_3 , 300.06 MHz)

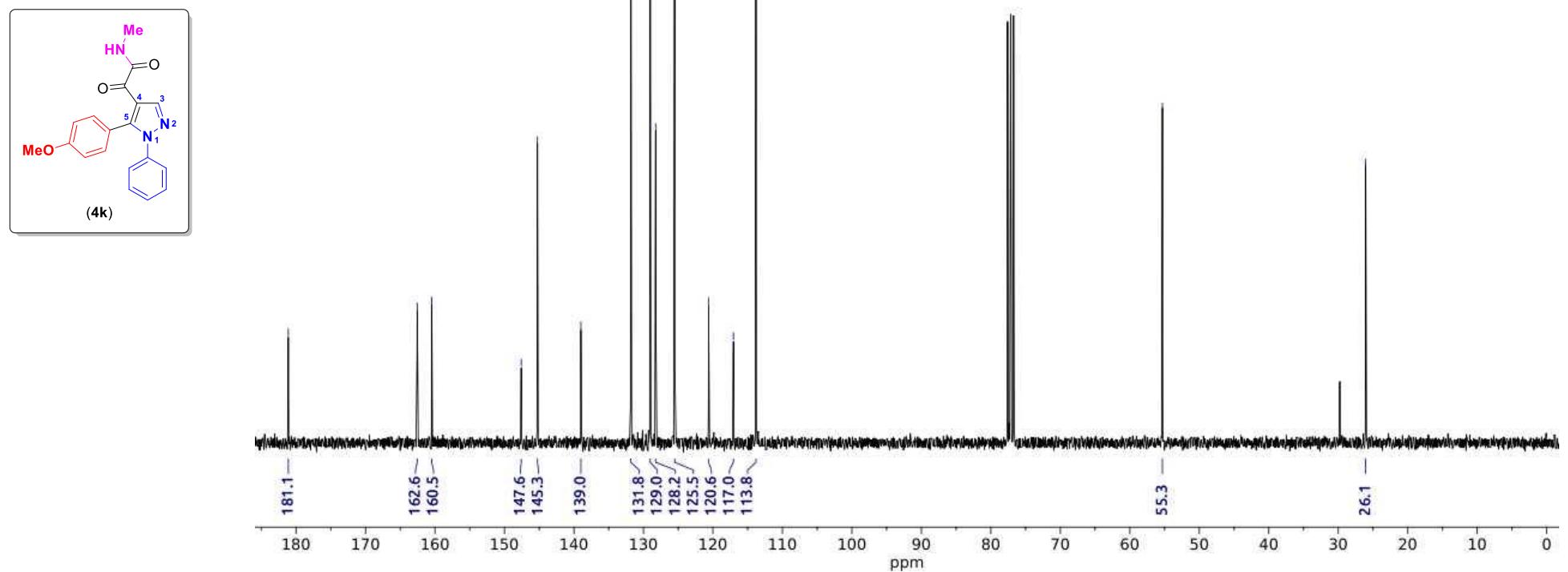


Figure SIB-49. ^{13}C NMR spectrum of **4k** (CDCl_3 , 75.46 MHz)

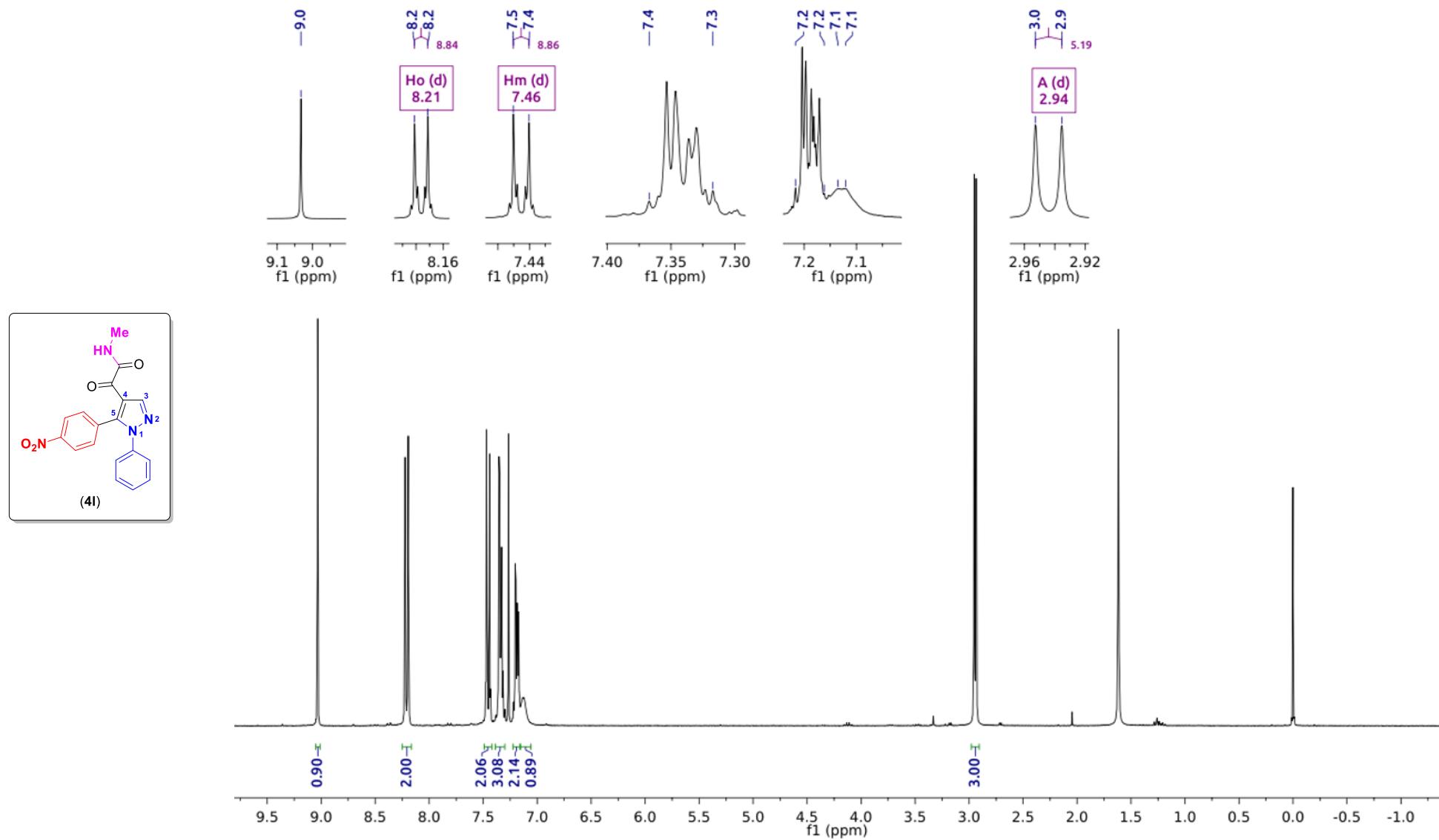


Figure SIB-50. ^1H NMR spectrum of **4l** (CDCl_3 , 300.06 MHz)

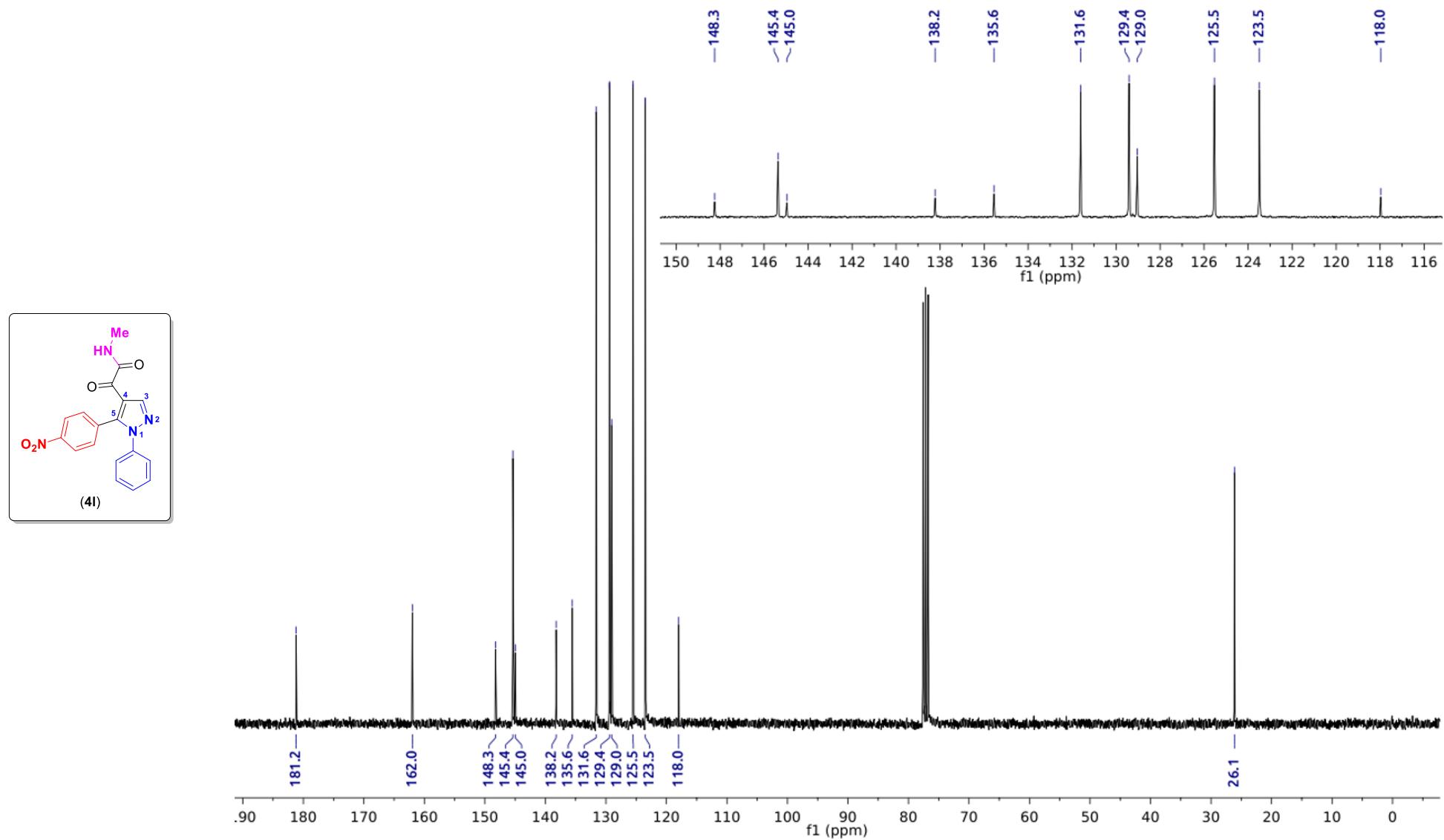


Figure SIB-51. ^{13}C NMR spectrum of **4l** (CDCl_3 , 75.46 MHz)

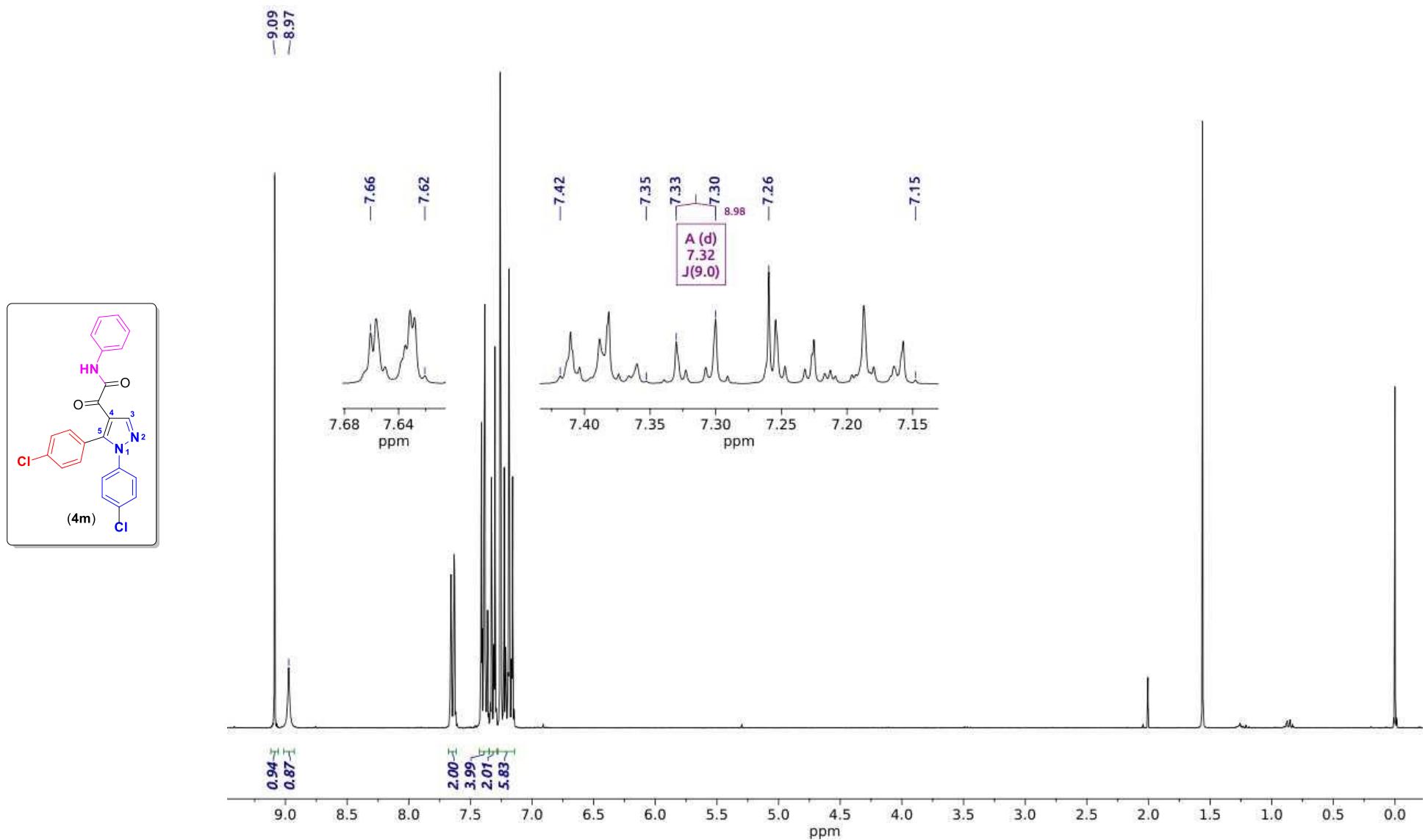


Figure SIB-52. ^1H NMR spectrum of **4m** (CDCl_3 , 300.06 MHz)

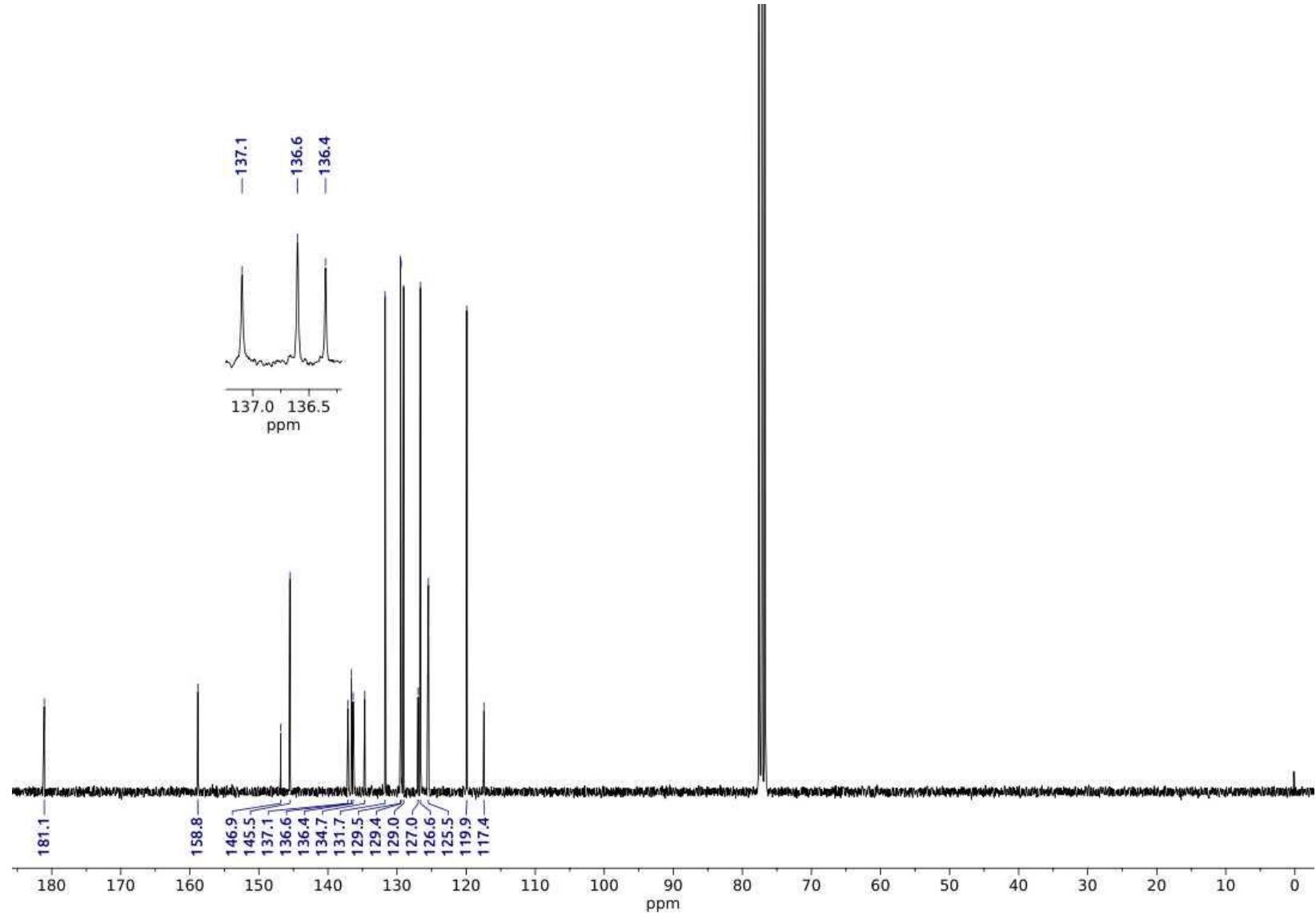
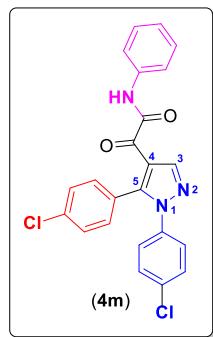


Figure SIB-53. ^{13}C NMR spectrum of **4m** (CDCl_3 , 75.46 MHz)

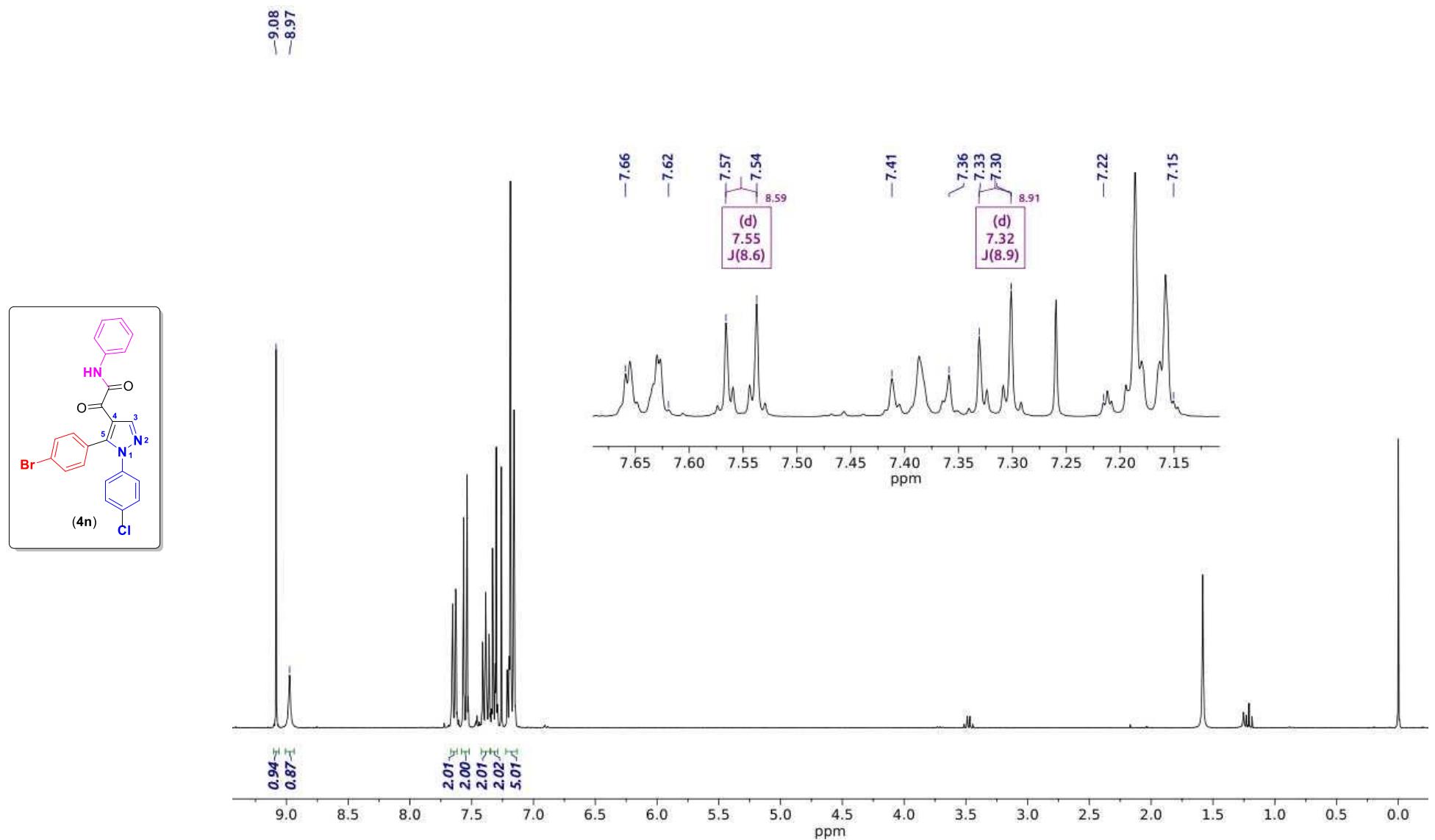


Figure SIB-54. ¹H NMR spectrum of **4n** (CDCl₃, 300.06 MHz)

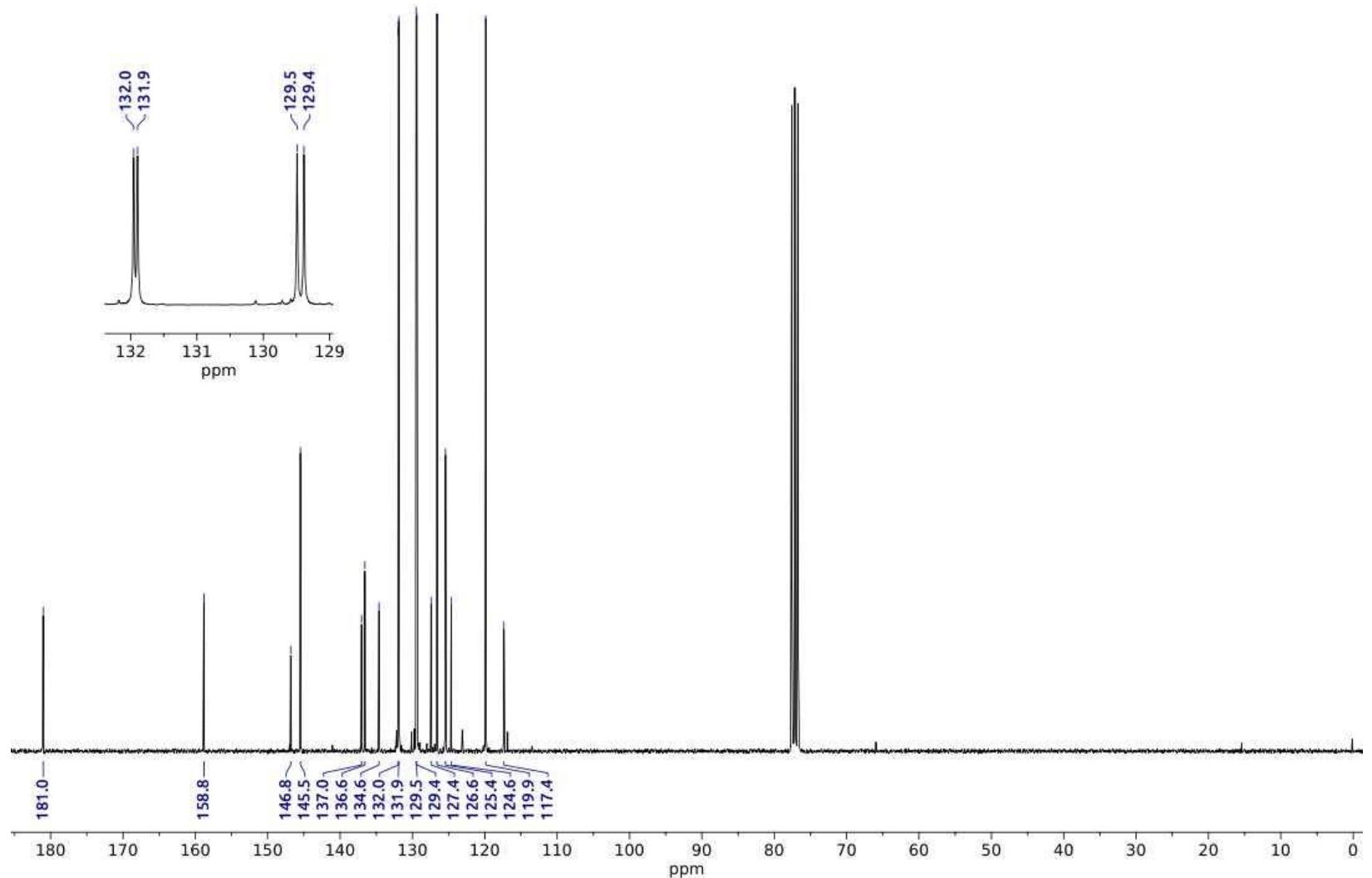
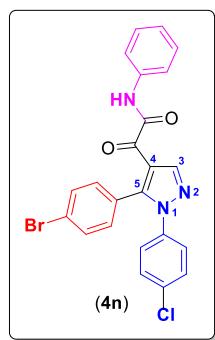


Figure SIB-55. ¹³C NMR spectrum of **4n** (CDCl₃, 75.46 MHz)

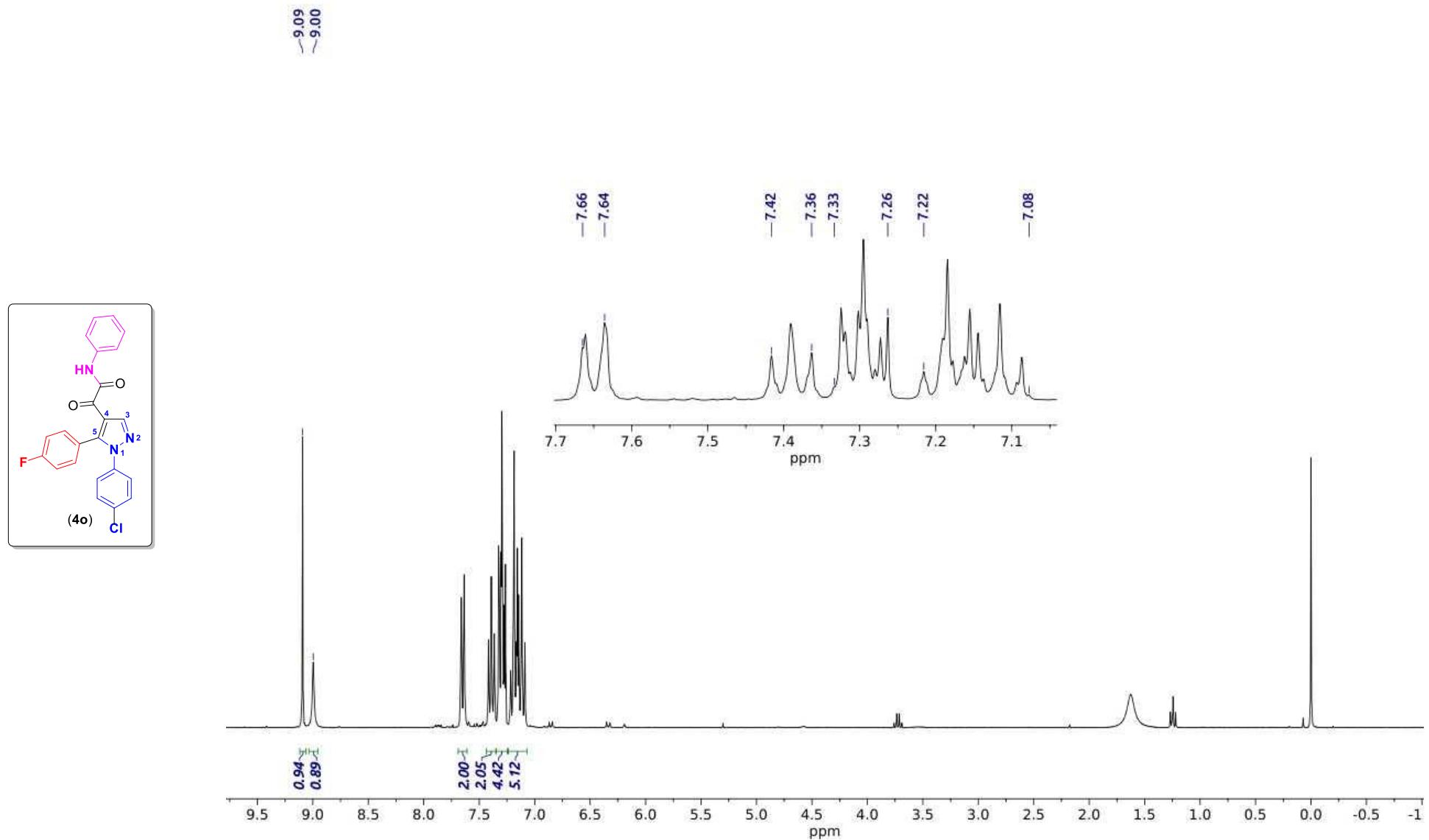


Figure SIB-56. ^1H NMR spectrum of **4o** (CDCl_3 , 300.06 MHz)

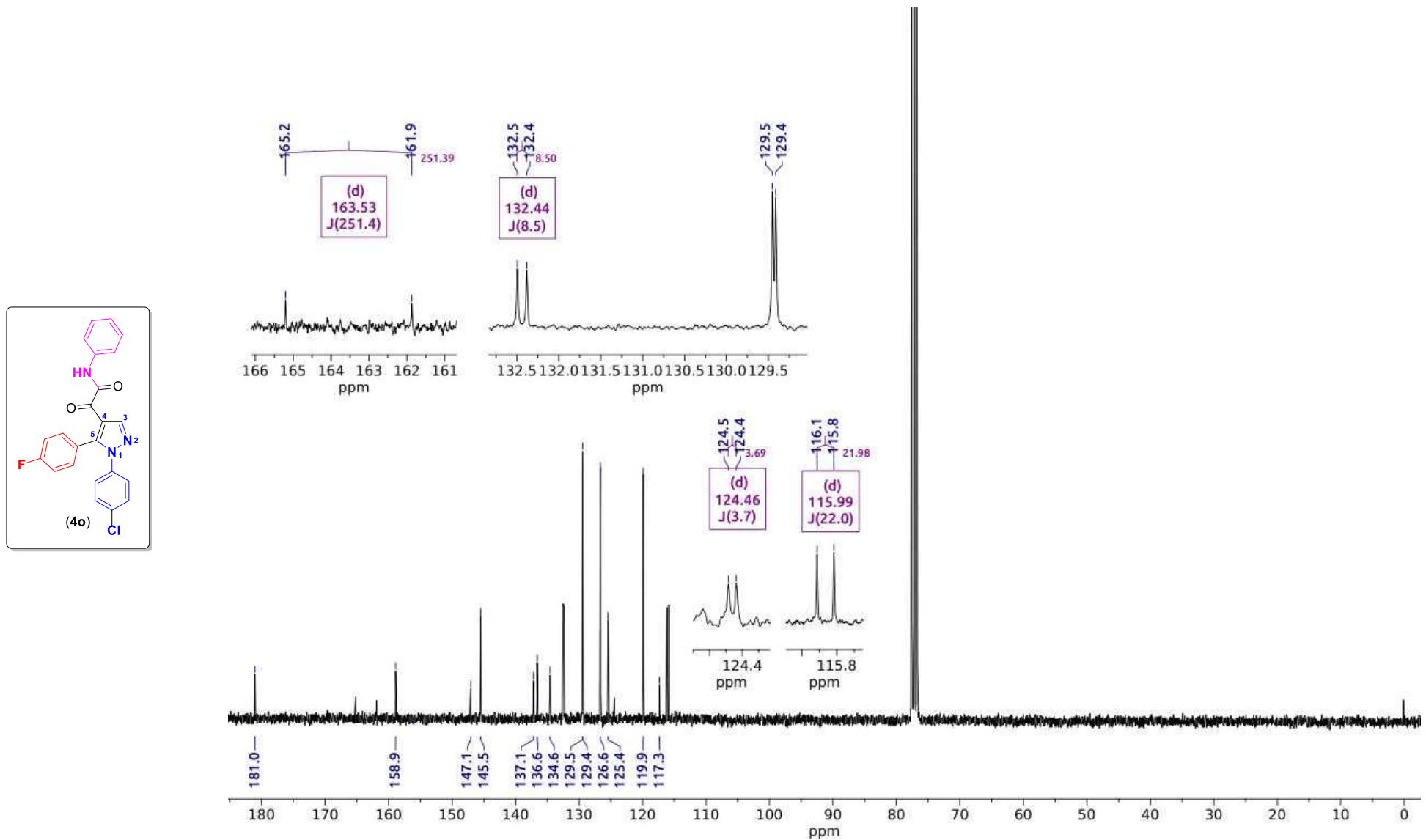


Figure SIB-57. ^{13}C NMR spectrum of **4o** (CDCl_3 , 75.46 MHz)

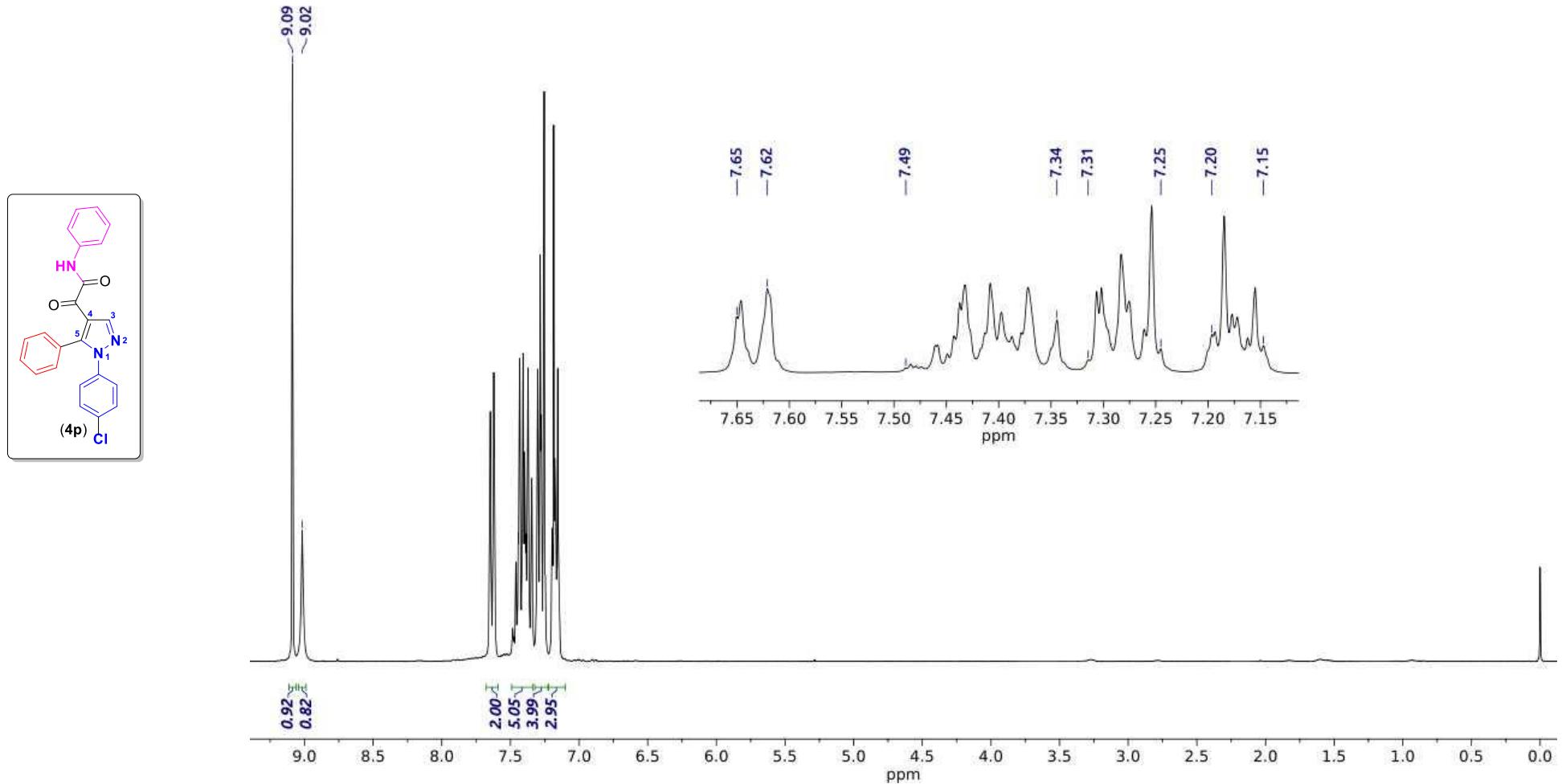


Figure SIB-58. ^1H NMR spectrum of **4p** (CDCl_3 , 300.06 MHz)

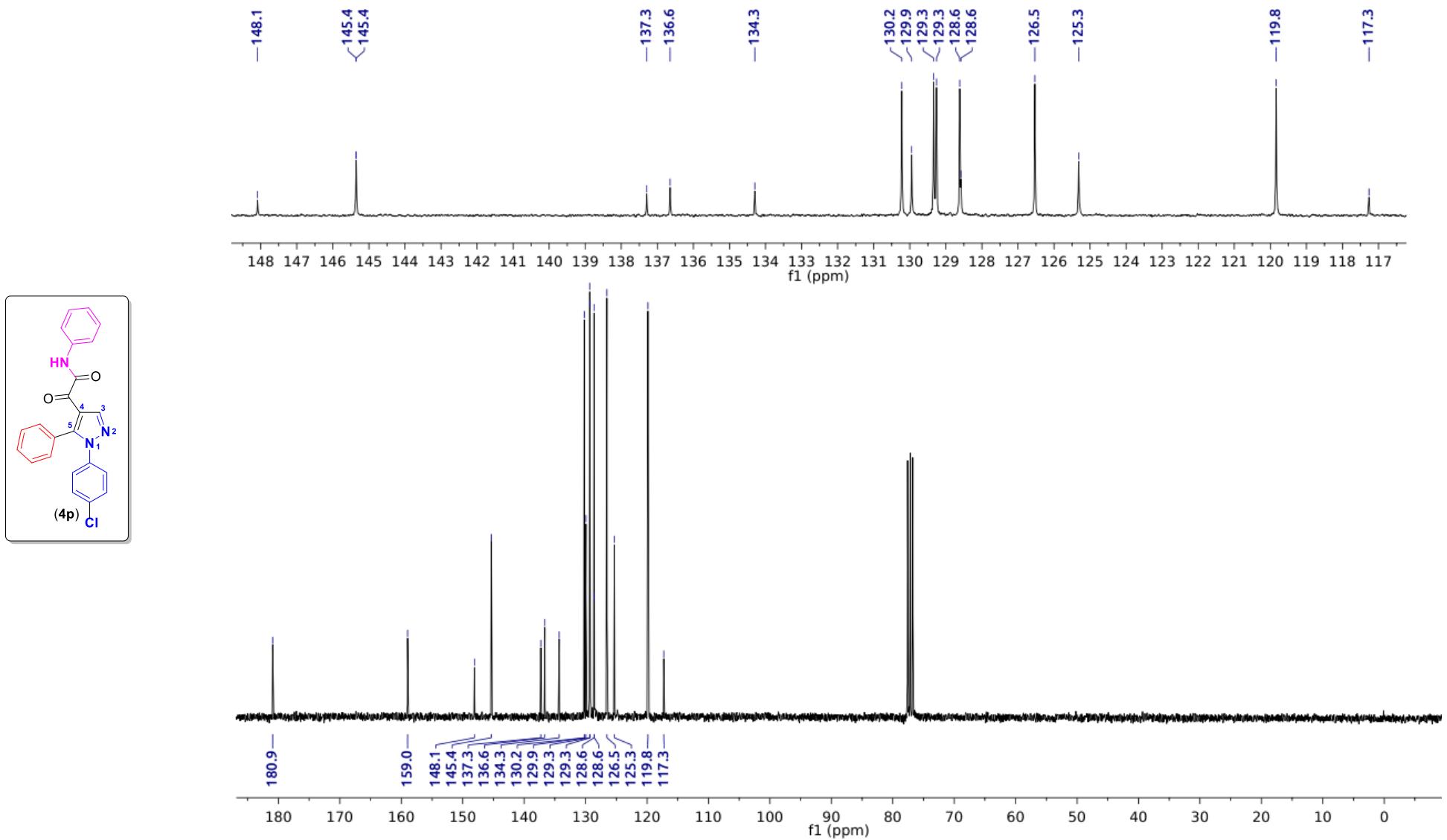


Figure SIB-59. ^{13}C NMR spectrum of **4p** (CDCl_3 , 75.46 MHz)

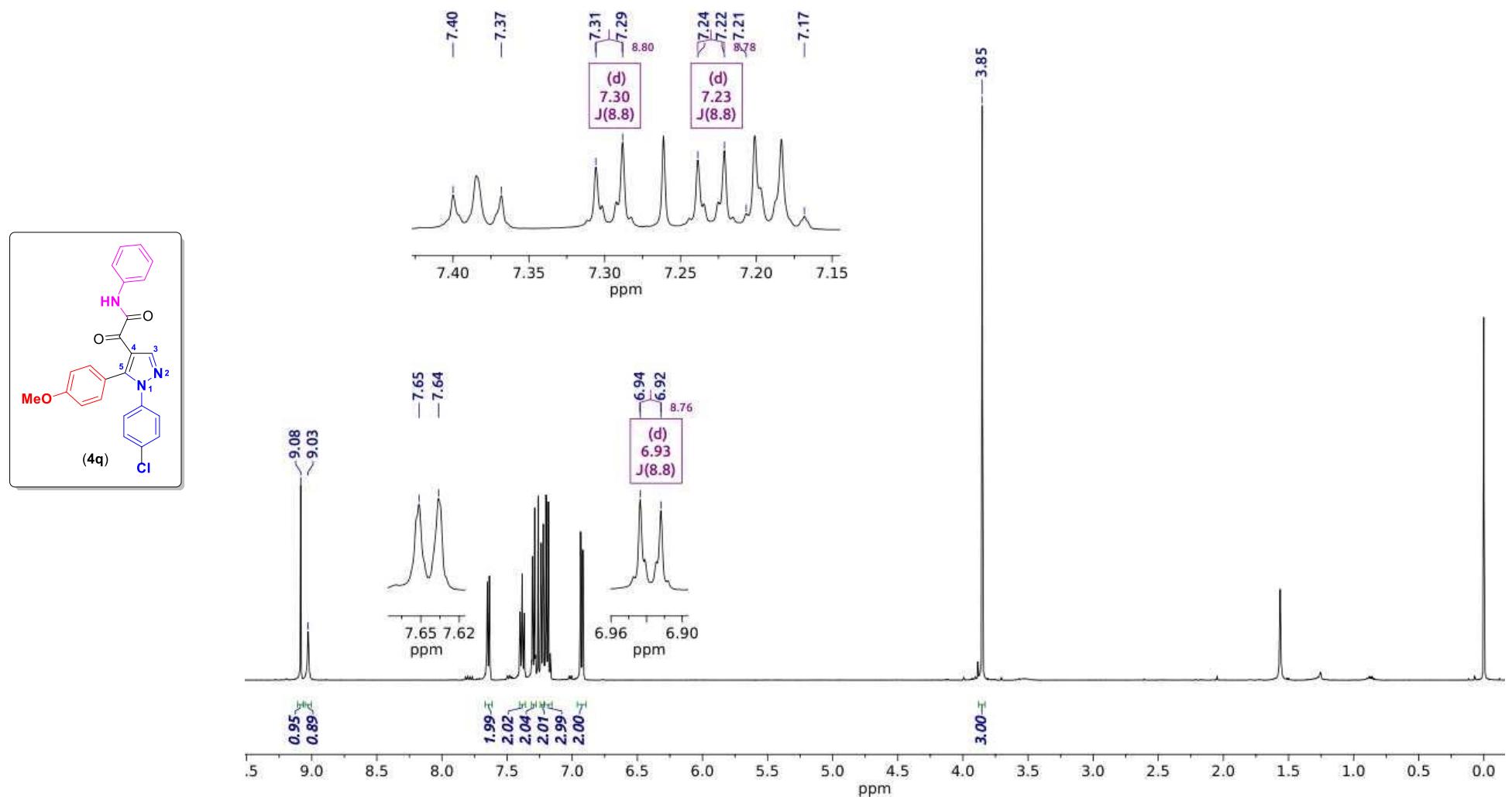


Figure SIB-60. ¹H NMR spectrum of **4q** (CDCl₃, 300.06 MHz)

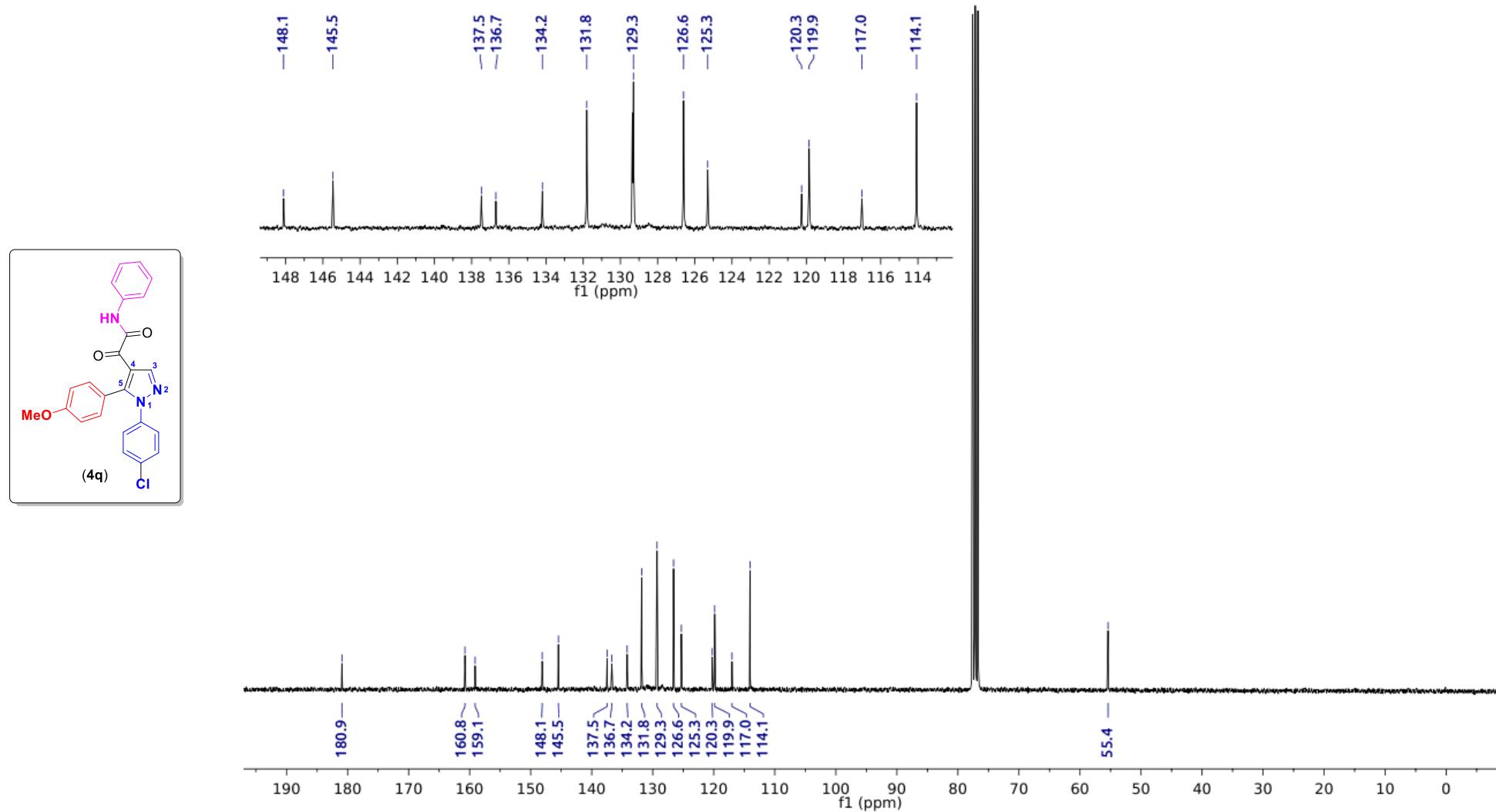


Figure SIB-61. ^{13}C NMR spectrum of **4q** (CDCl_3 , 75.46 MHz)

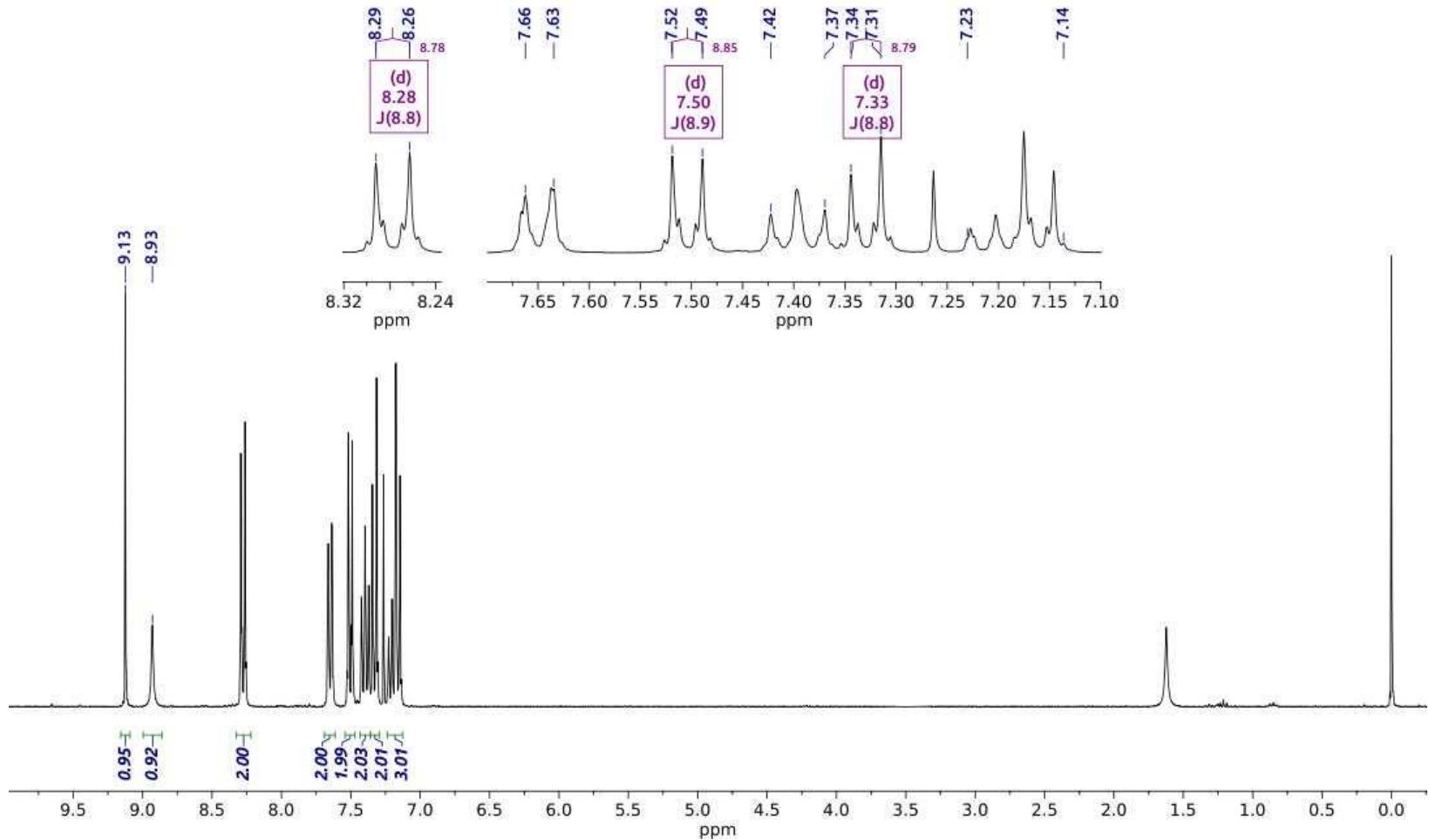
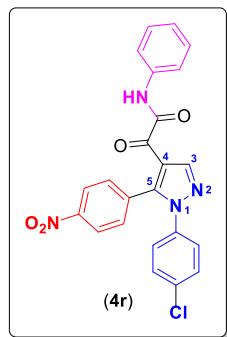


Figure SIB-62. ^1H NMR spectrum of **4r** (CDCl_3 , 300.06 MHz)

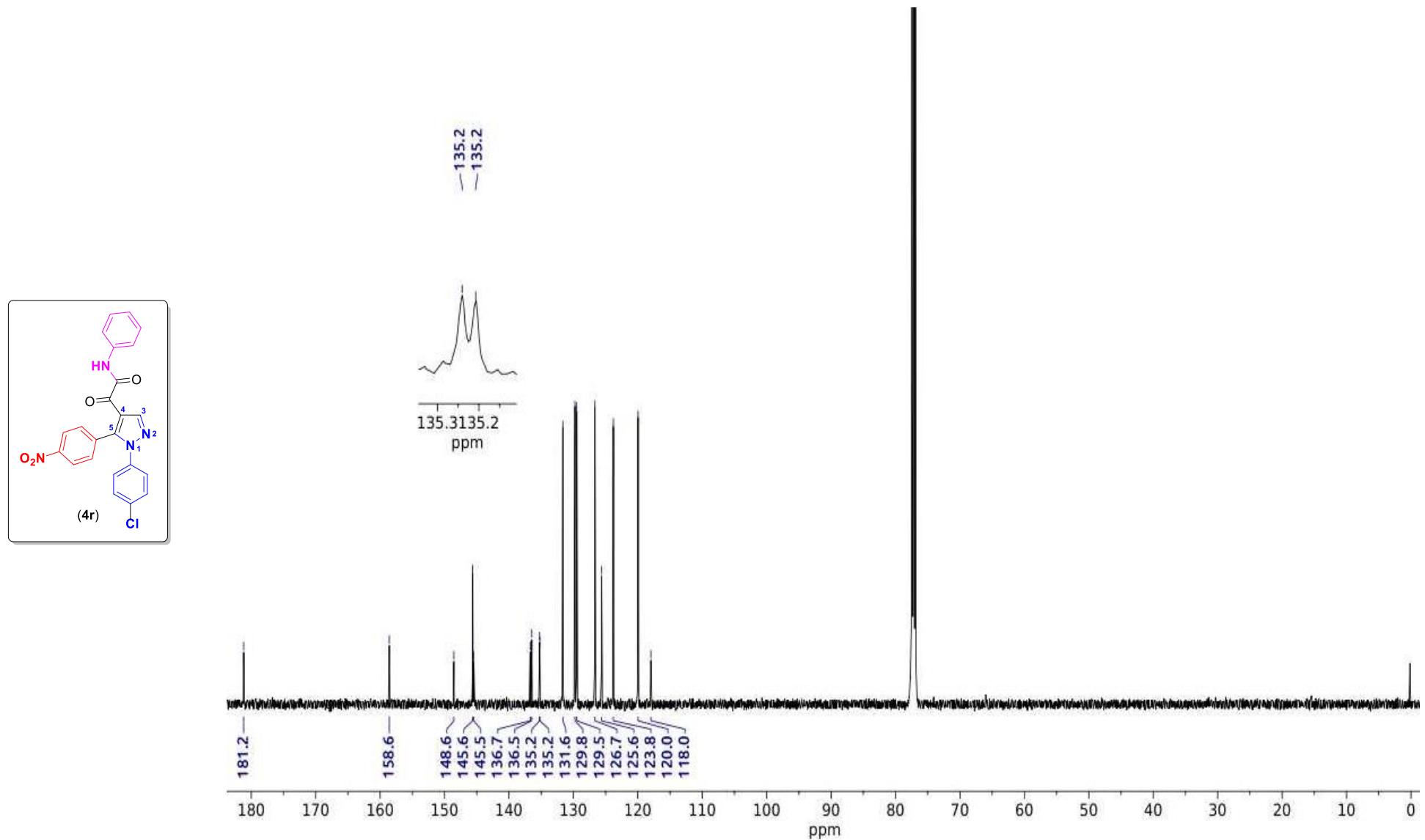


Figure SIB-63. ^{13}C NMR spectrum of **4r** (CDCl_3 , 125.77 MHz)

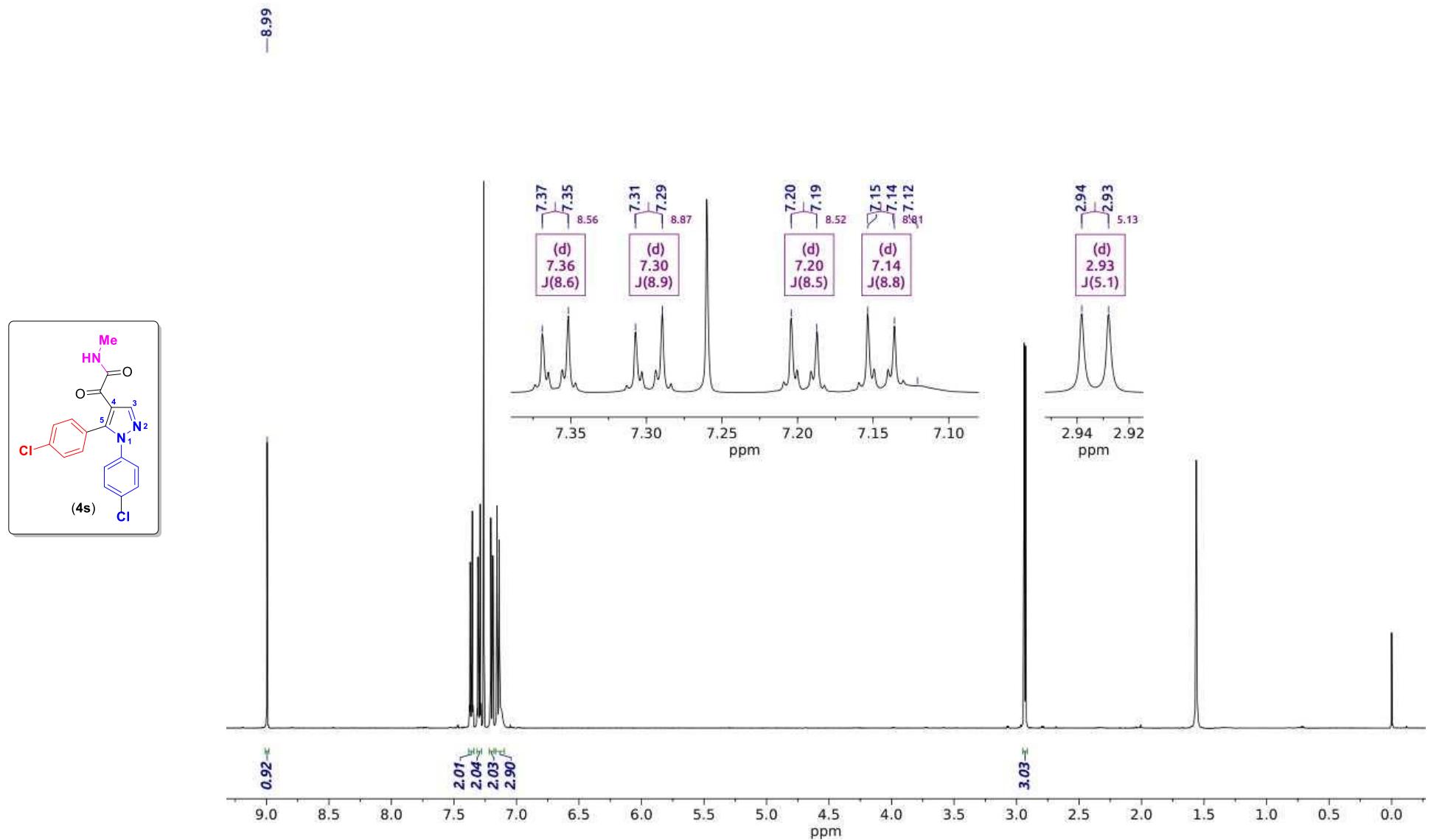


Figure SIB-64. ^1H NMR spectrum of **4s** (CDCl_3 , 300.06 MHz)

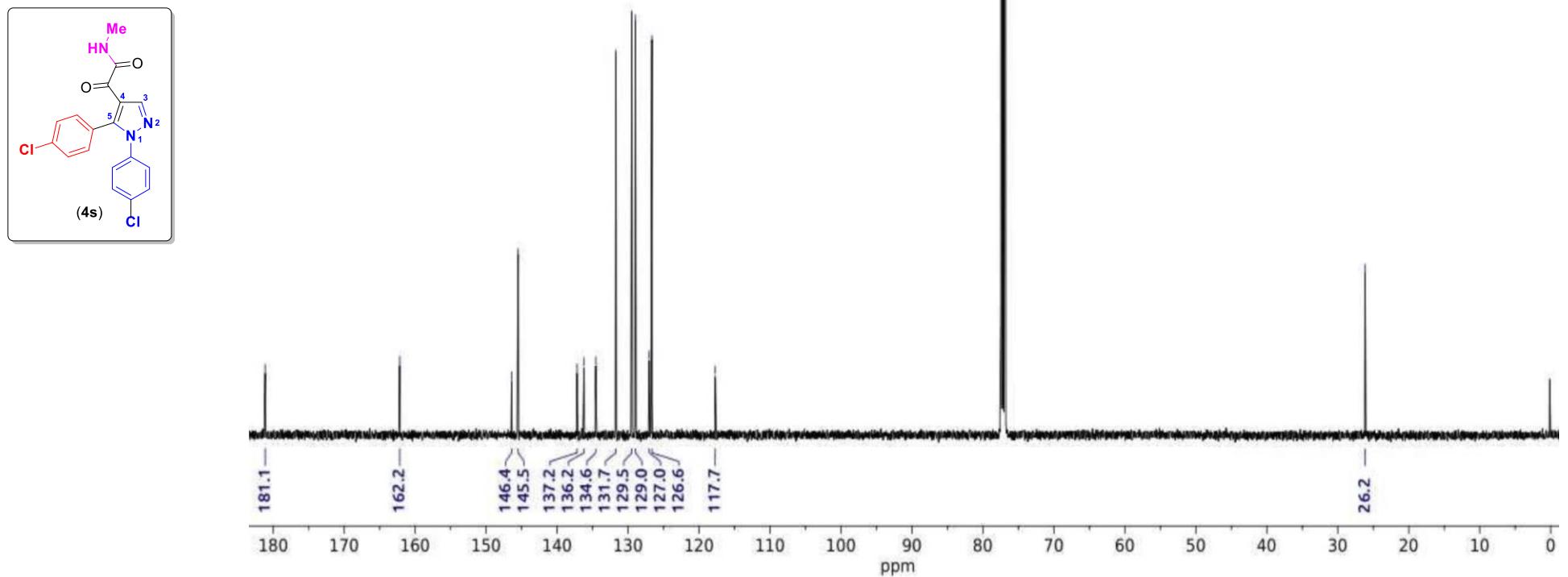


Figure SIB-65. ^{13}C NMR spectrum of **4s** (CDCl_3 , 75.46 MHz)

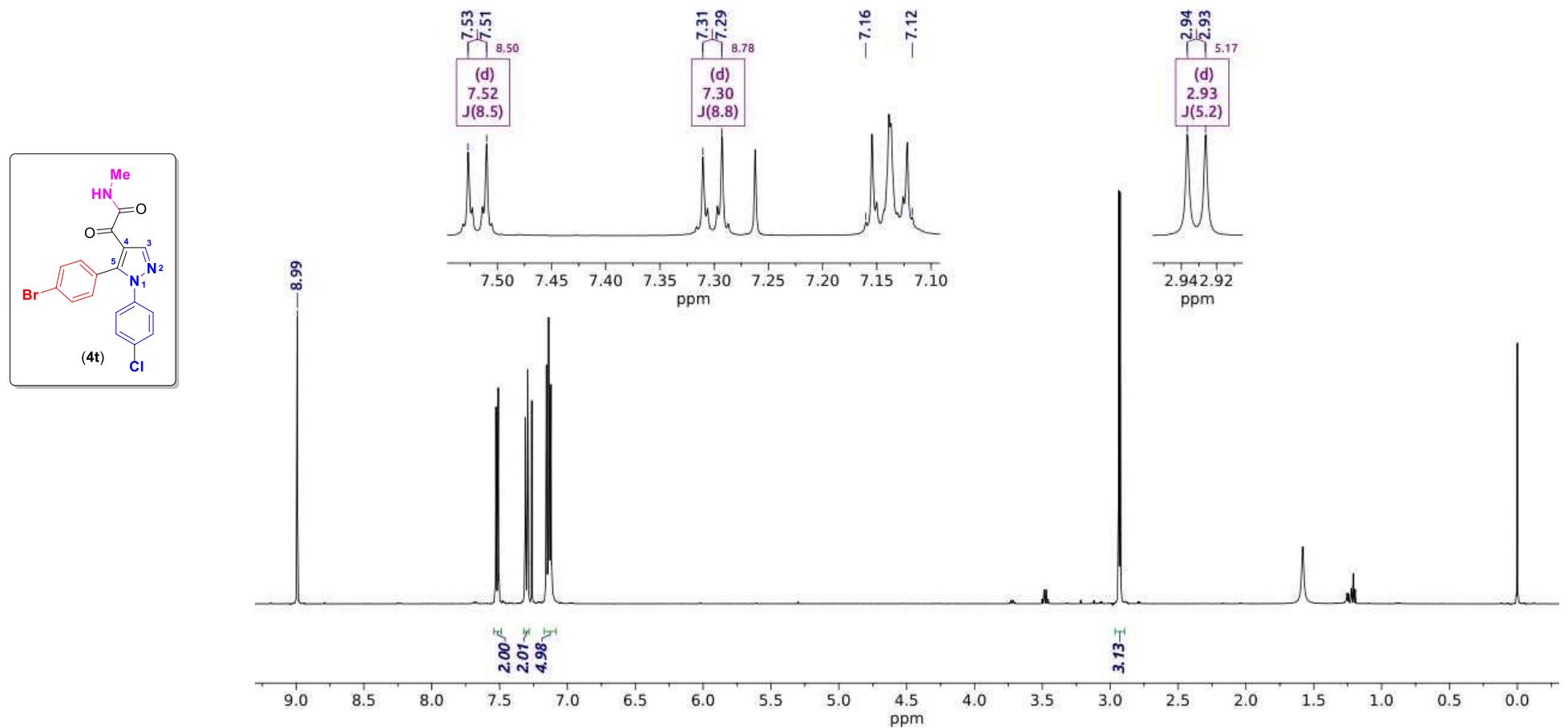


Figure SIB-66. ¹H NMR spectrum of **4t** (CDCl₃, 500.13 MHz)

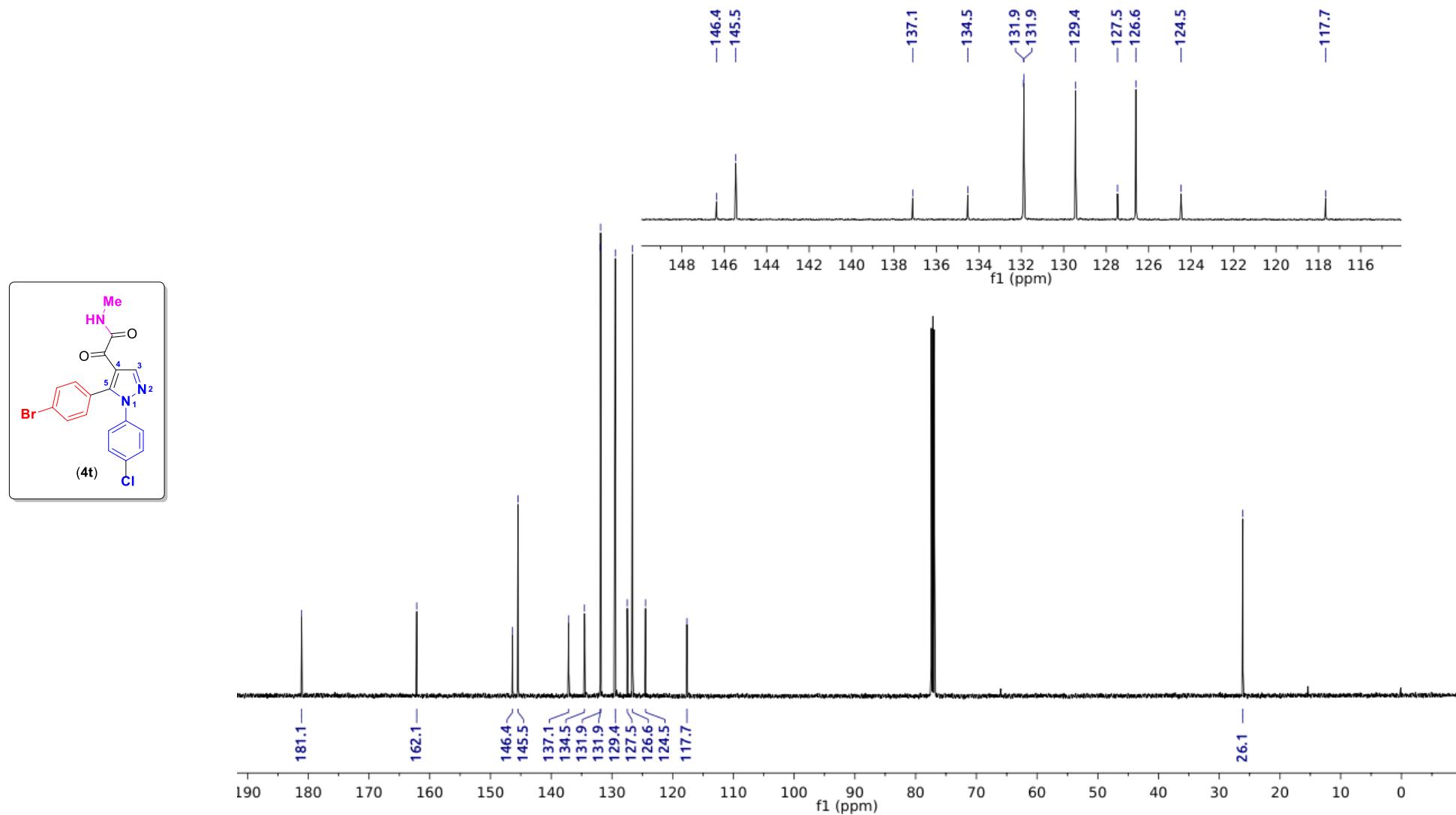


Figure SIB-67. ¹³C NMR spectrum of **4t** (CDCl_3 , 125.77 MHz)

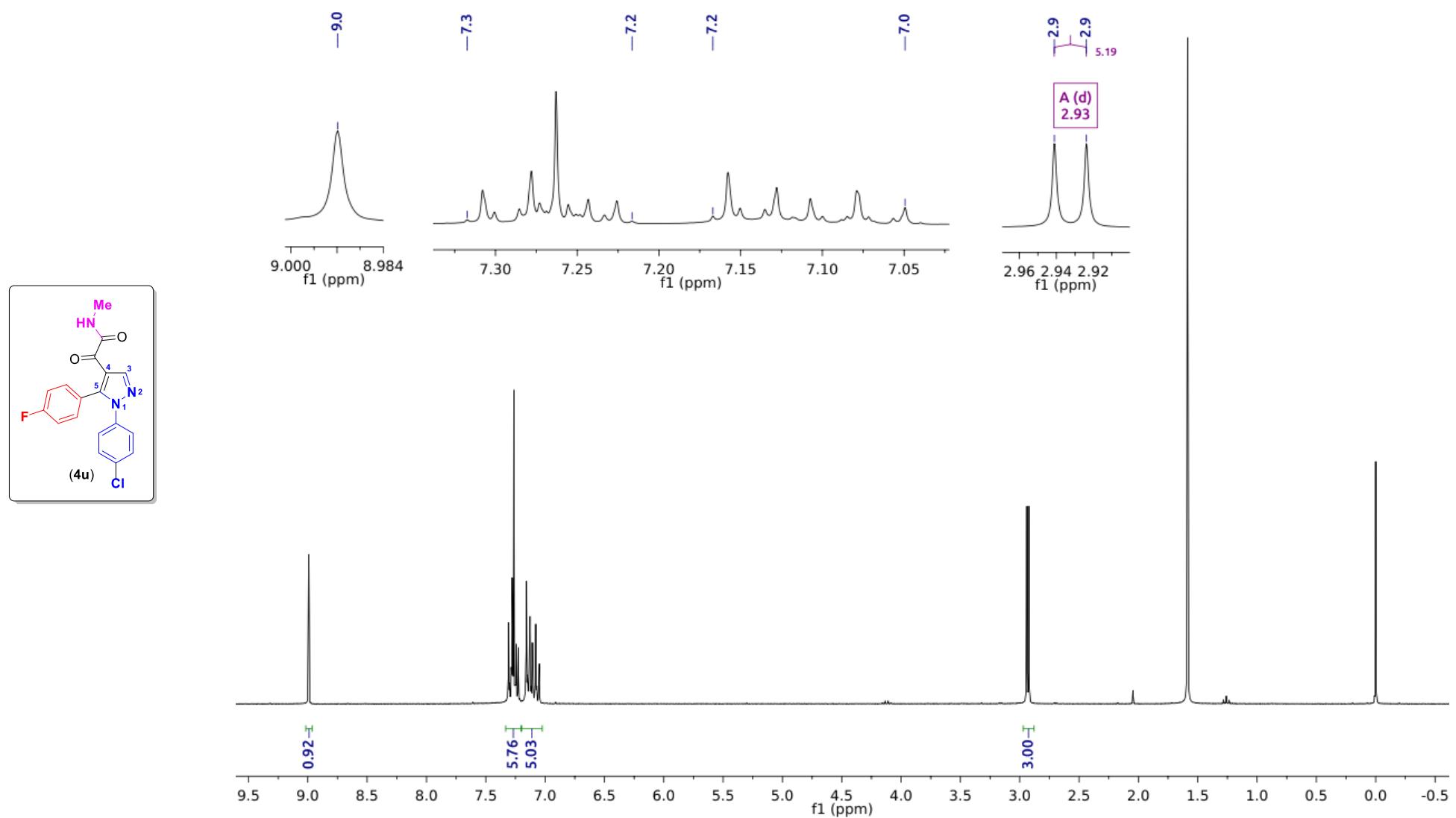


Figure SIB-68. ^1H NMR spectrum of **4u** (CDCl_3 , 300.06 MHz)

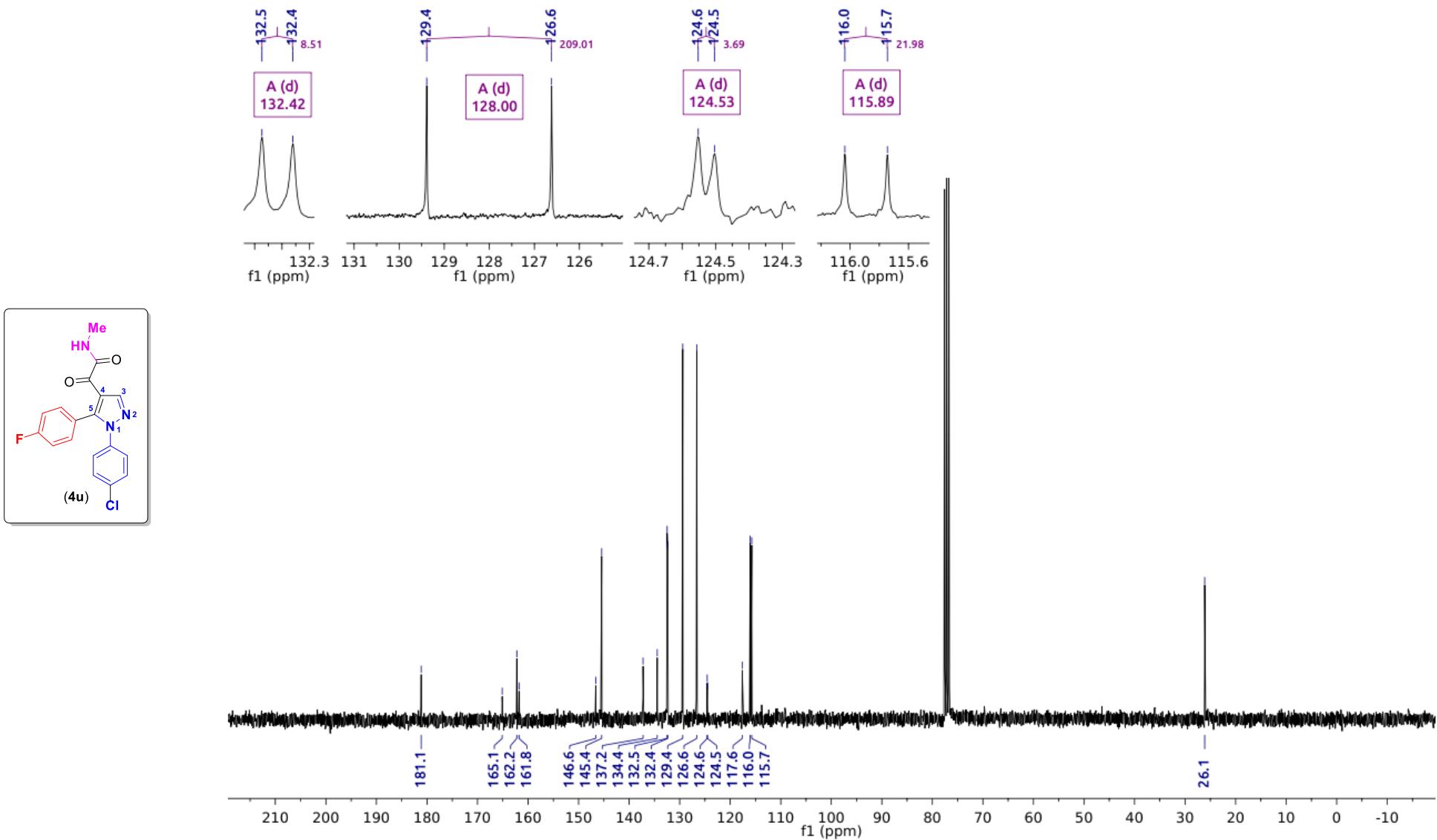


Figure SIB-69. ^{13}C NMR spectrum of **4u** (CDCl_3 , 75.46 MHz)

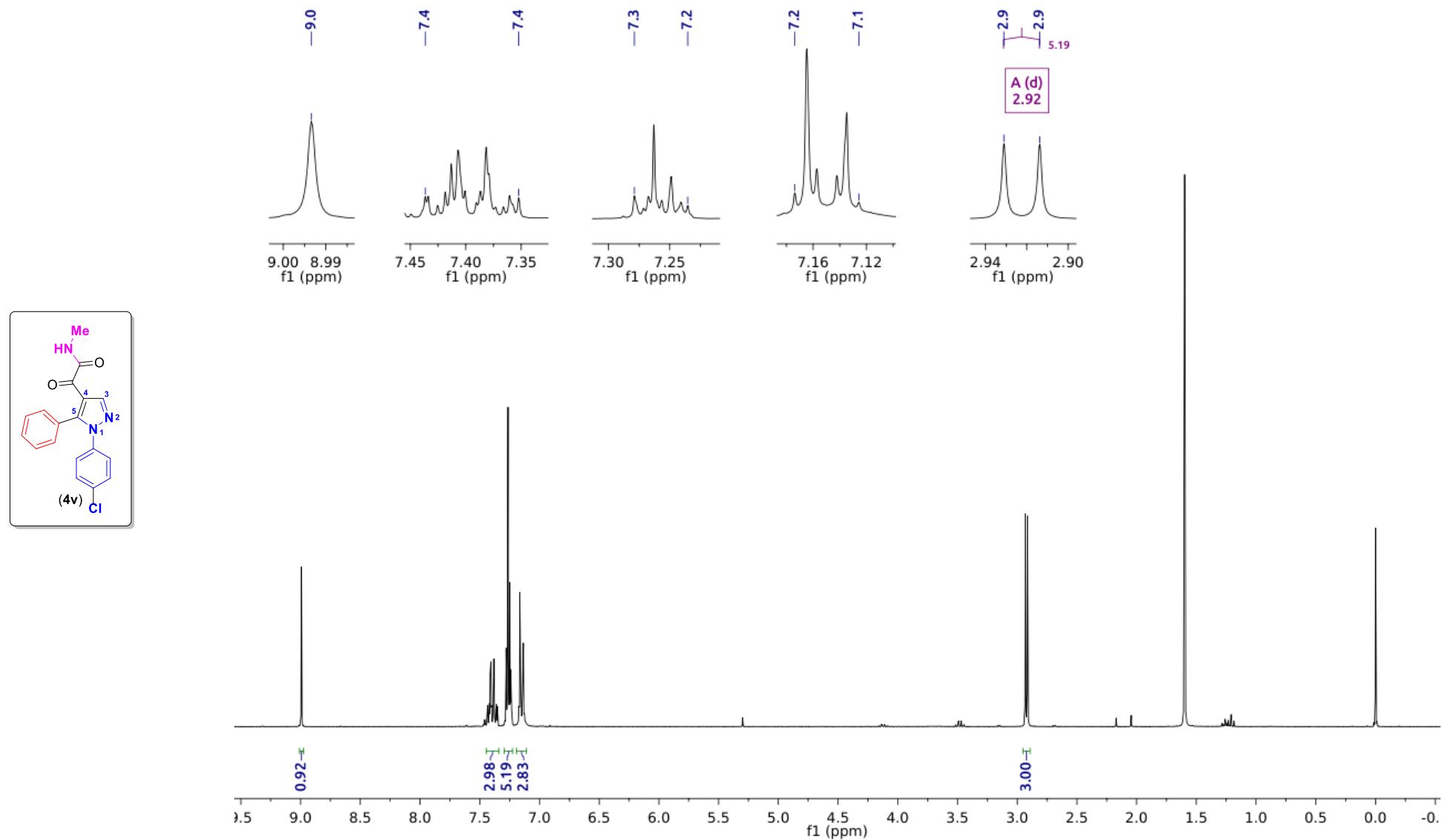


Figure SIB-70. ¹H NMR spectrum of **4v** (CDCl₃, 300.06 MHz)

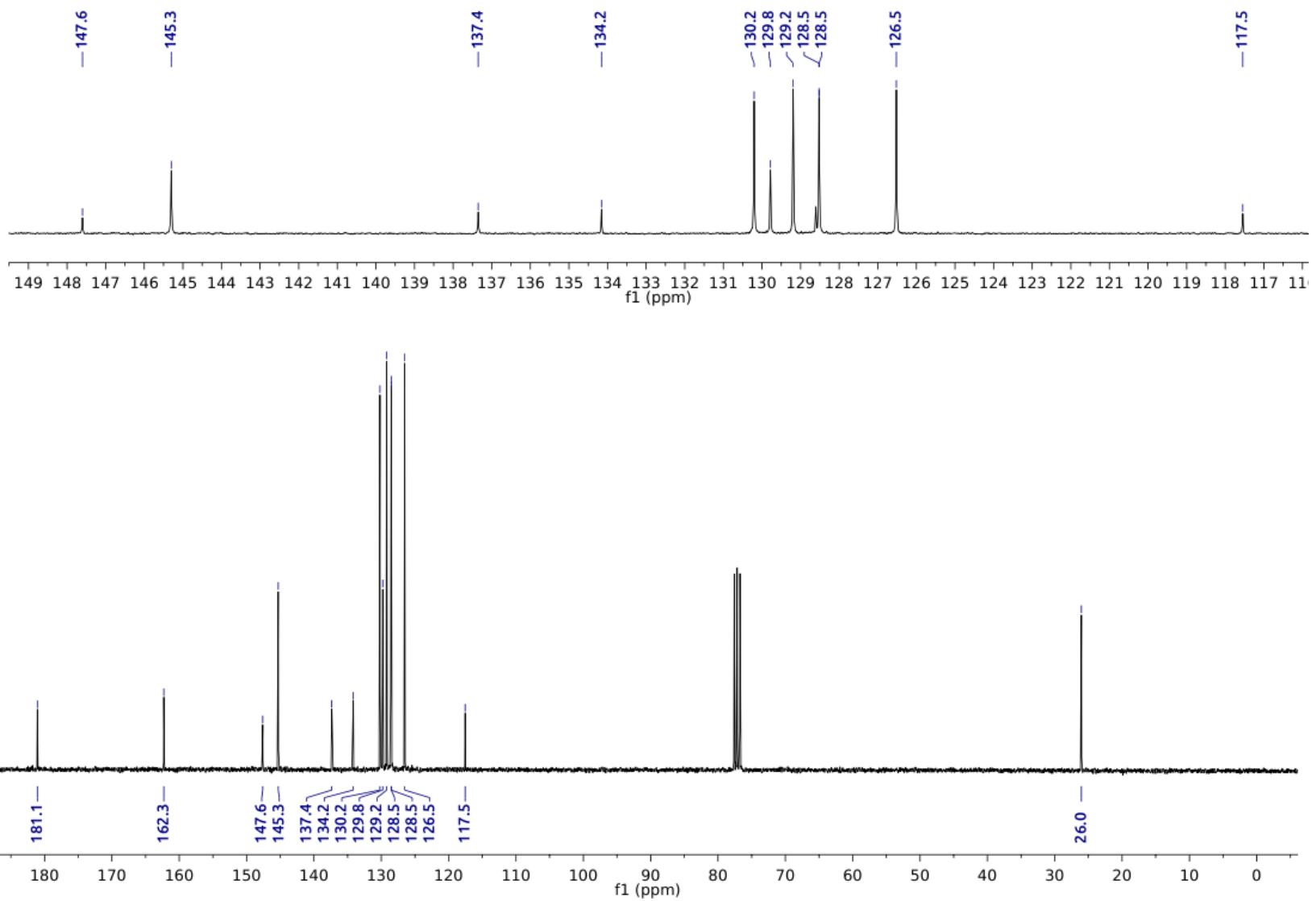


Figure SIB-71. ^{13}C NMR spectrum of **4v** (CDCl_3 , 75.46 MHz)

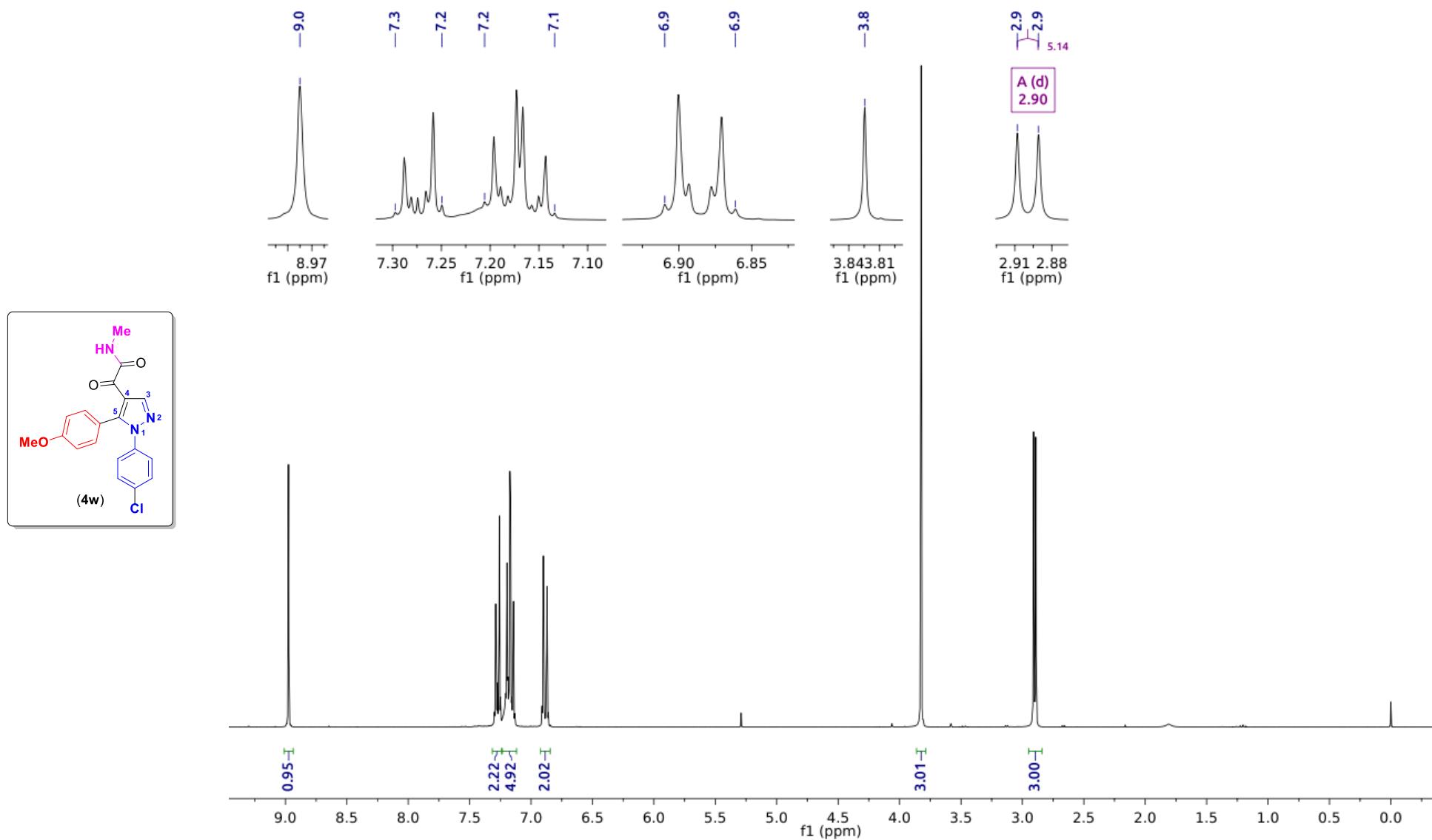


Figure SIB-72. ¹H NMR spectrum of **4w** (CDCl₃, 300.06 MHz)

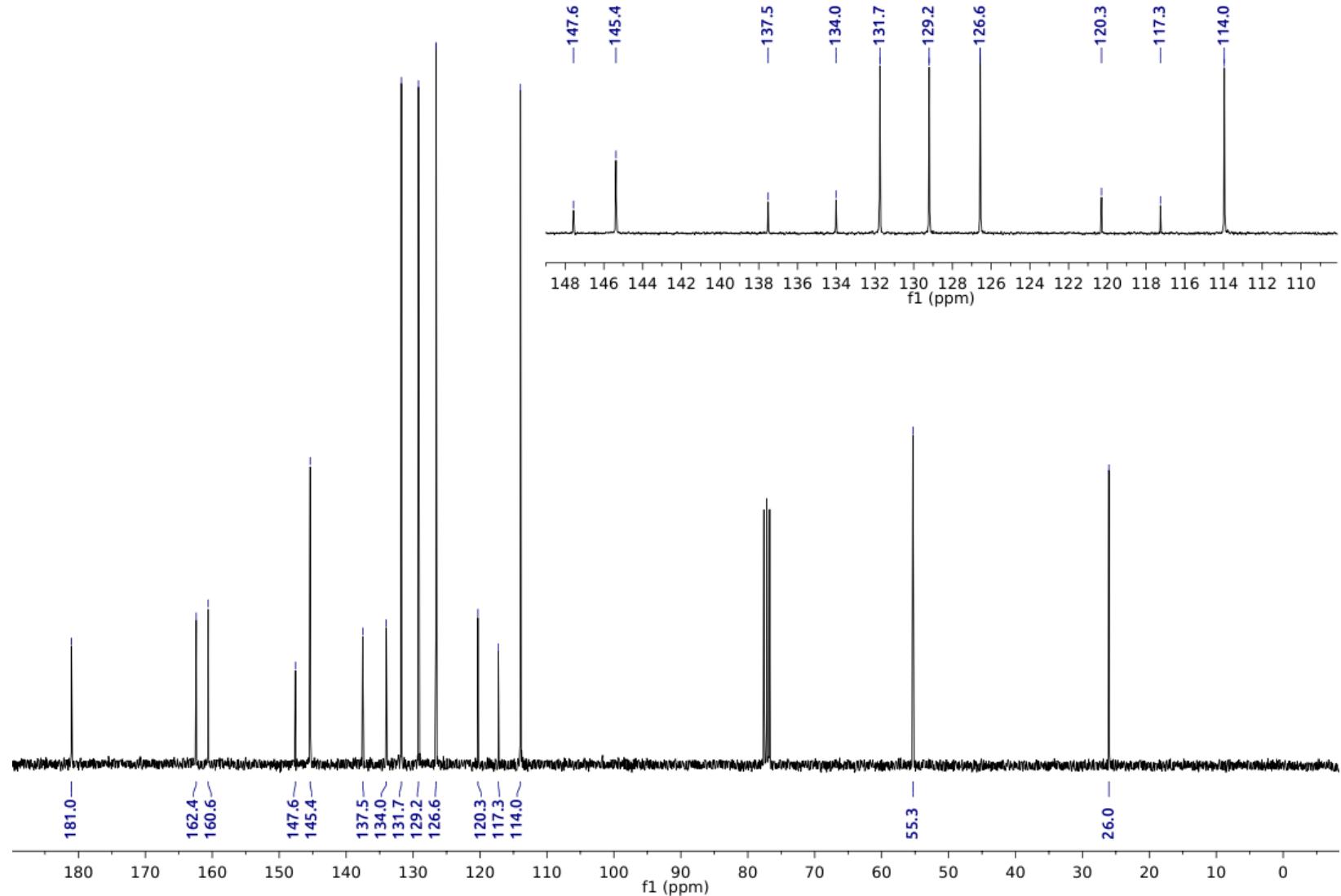
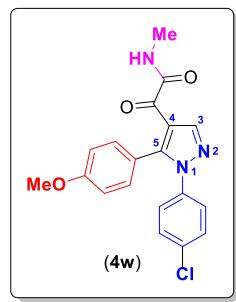


Figure SIB-73. ^{13}C NMR spectrum of **4w** (CDCl_3 , 75.46 MHz)

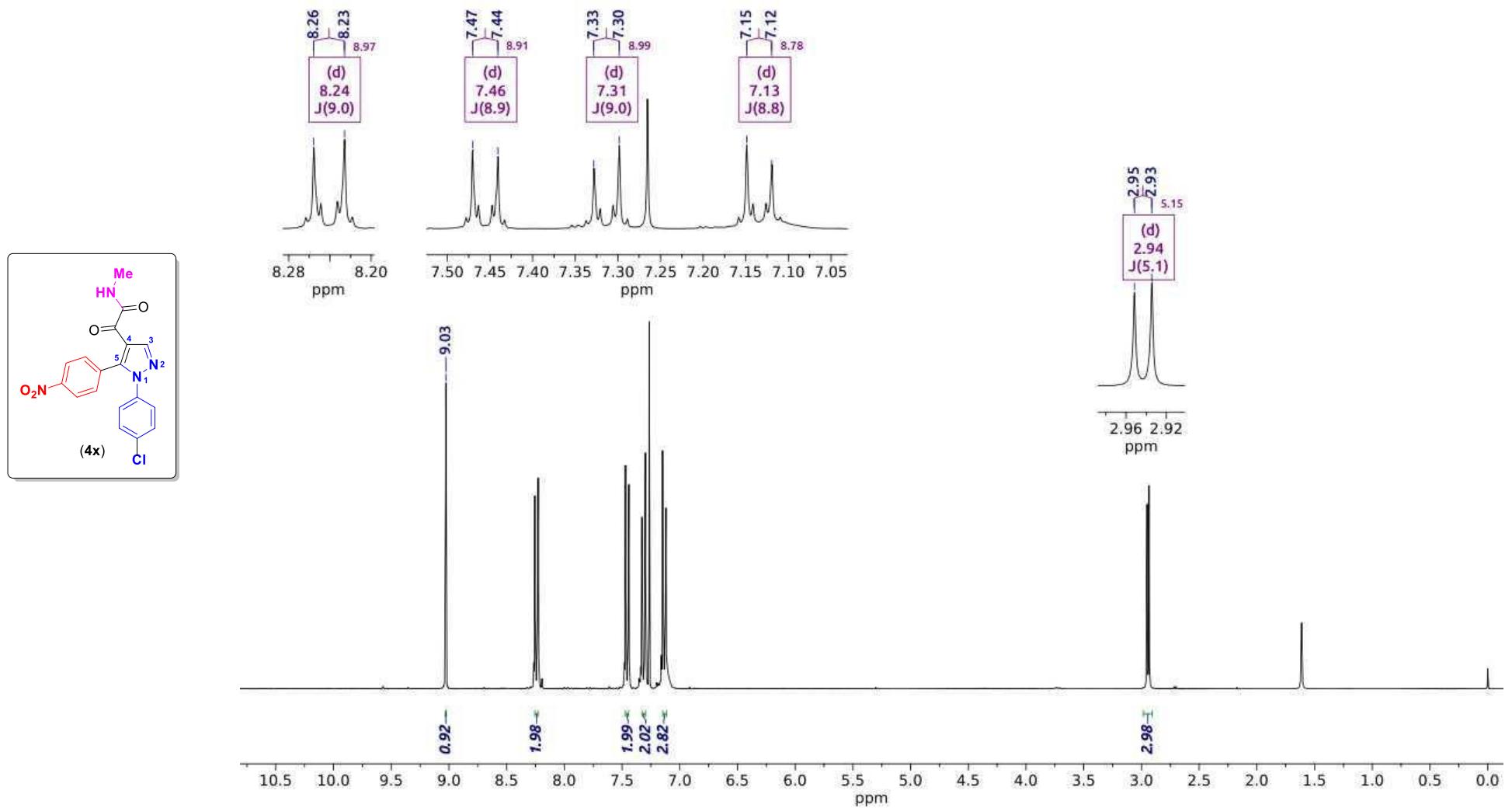


Figure SIB-74. ^1H NMR spectrum of **4x** (CDCl_3 , 300.06 MHz)

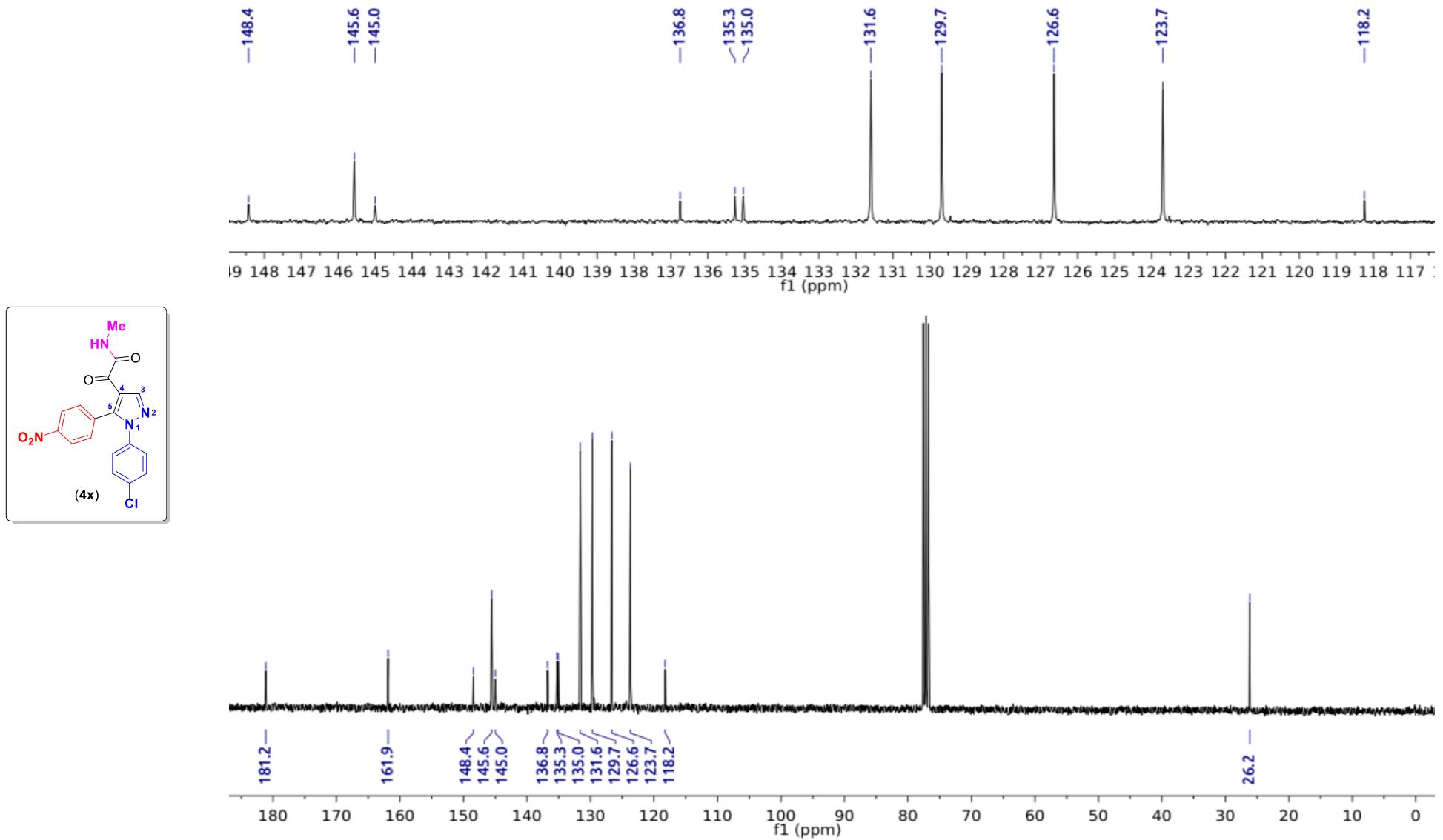


Figure SIB-75. ^{13}C NMR spectrum of **4x** (CDCl_3 , 75.46 MHz)