

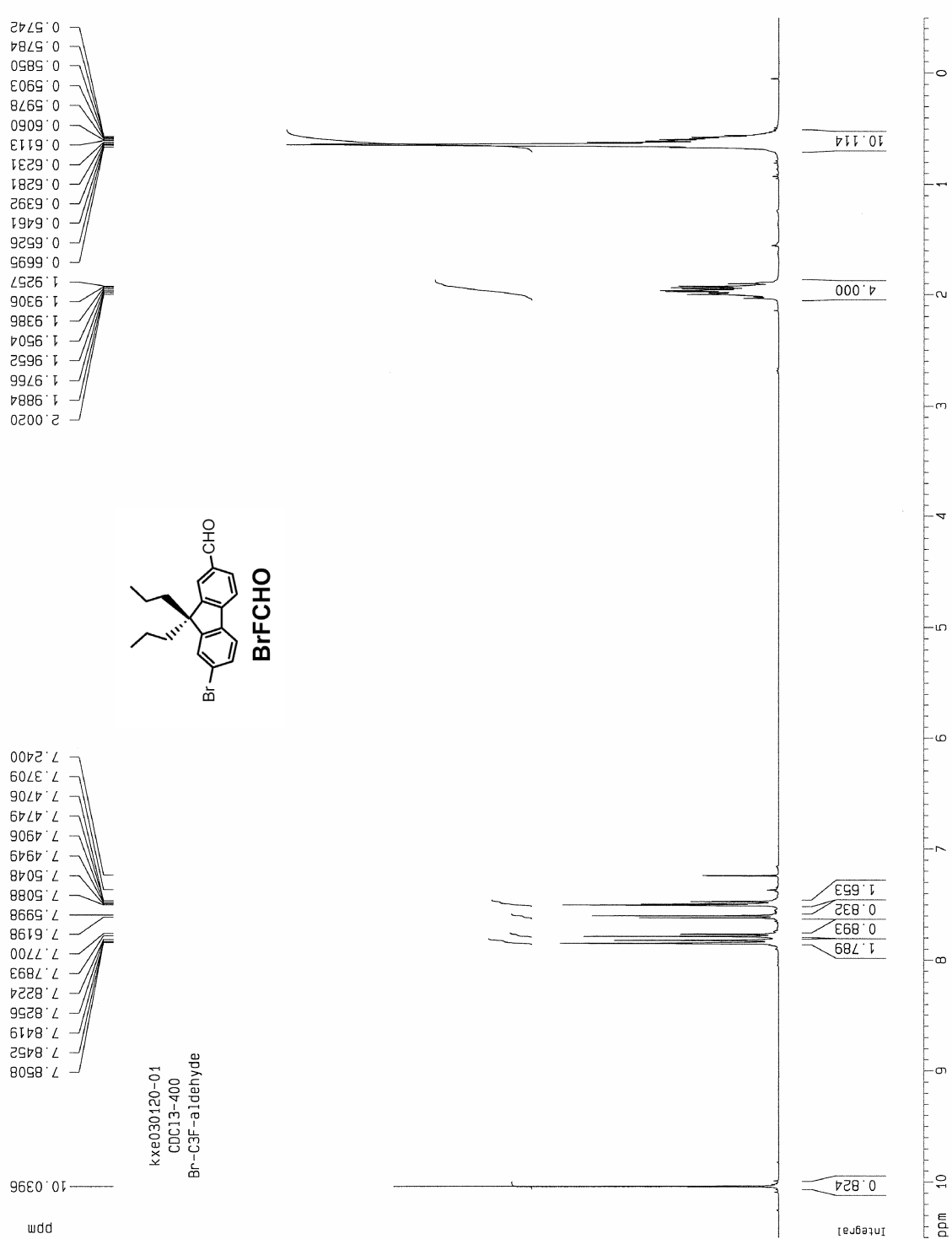


Figure S1. ¹H-NMR spectrum of 7-bromo-9,9'-dipropyl-9H-fluorene-2-carboxaldehyde (BrFCHO).

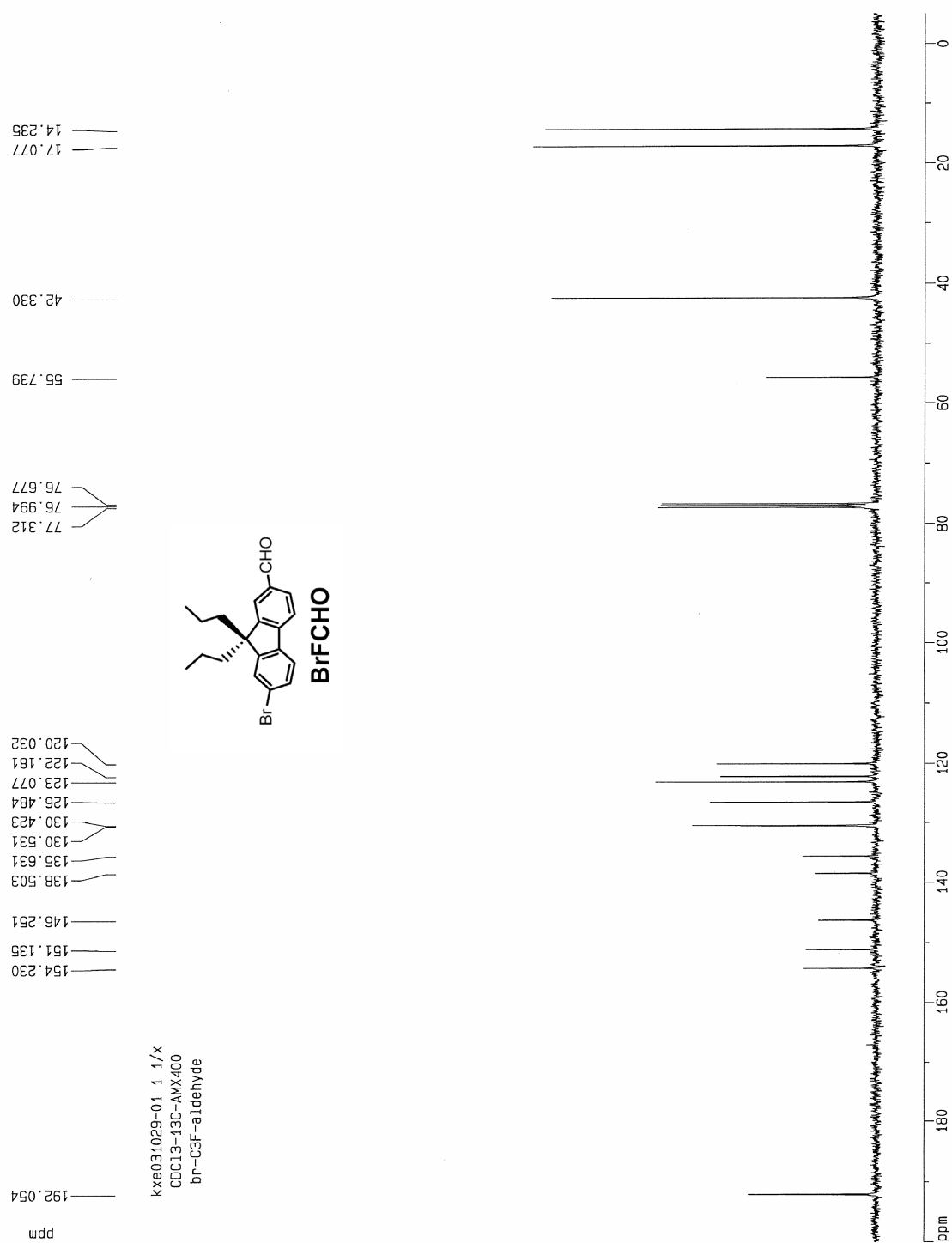


Figure S2. ¹³C-NMR spectrum of 7-bromo-9,9'-dipropyl-9H-fluorene-2-carboxaldehyde (BrFCHO)..

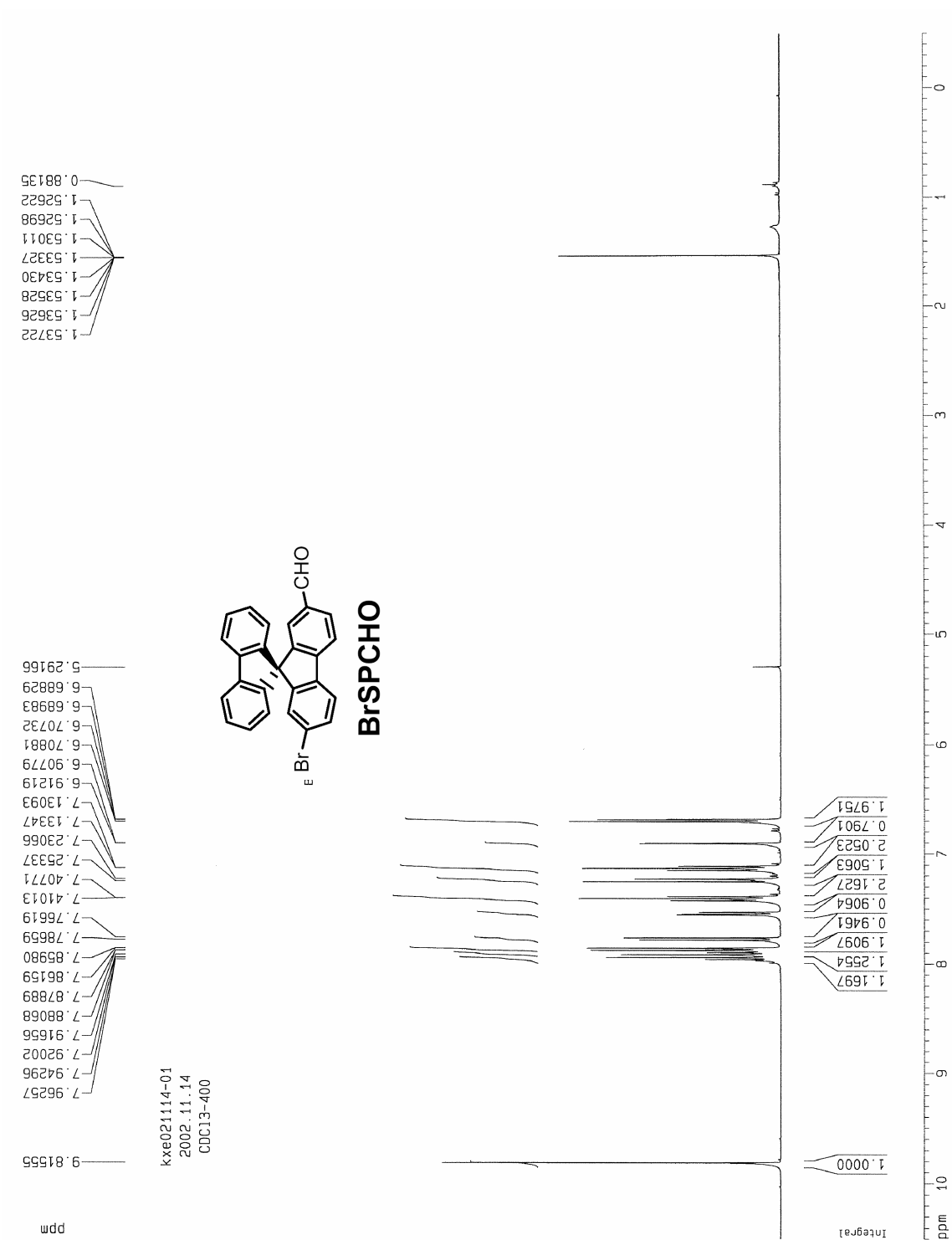


Figure S3. ¹H-NMR spectrum of 7-bromo-9,9'-spirobifluorene-2-carboxaldehyde (BrSPCHO).

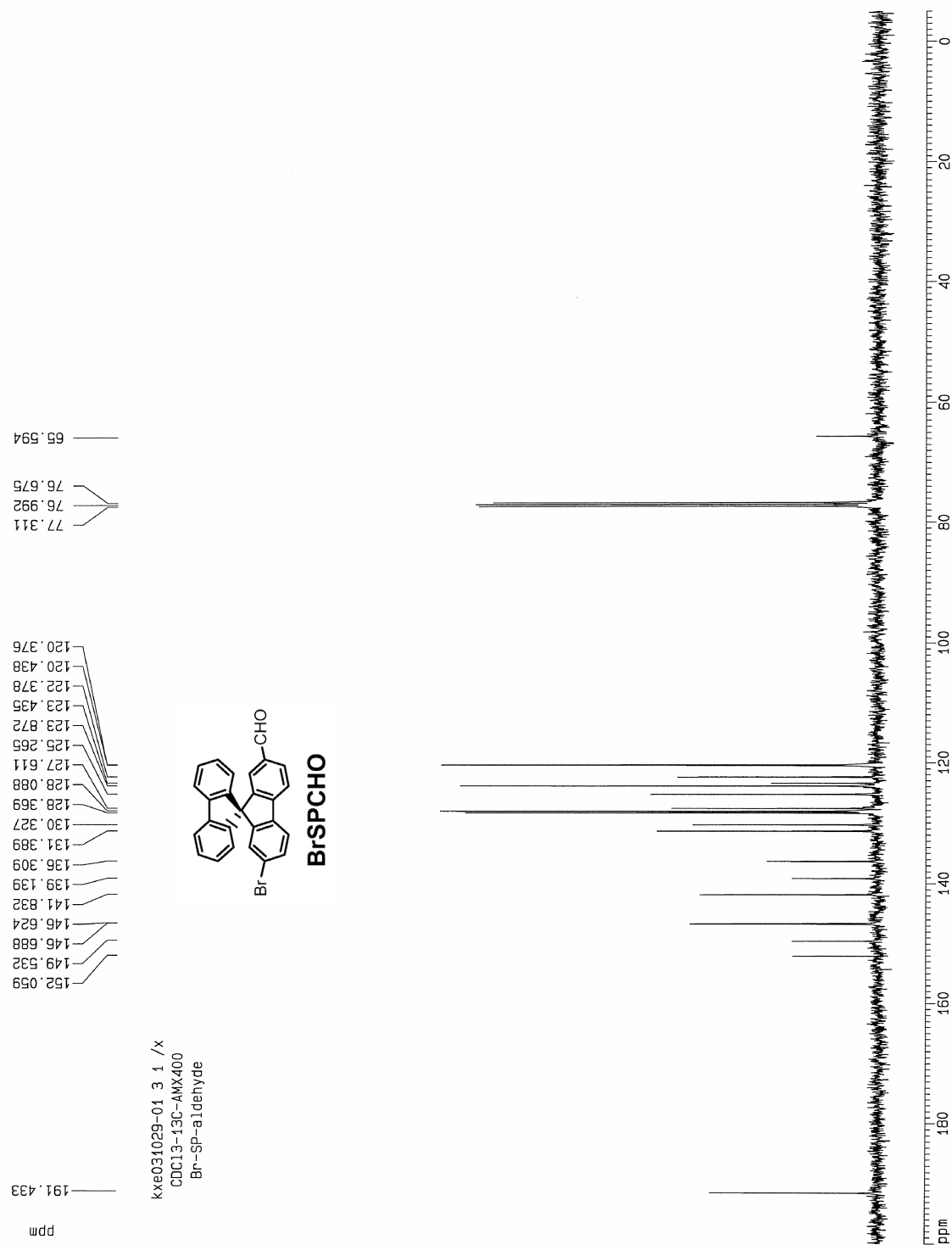


Figure S4. ^{13}C -NMR spectrum of 7-bromo-9',9'-spirobifluorene-2-carboxaldehyde (BrSPCHO).

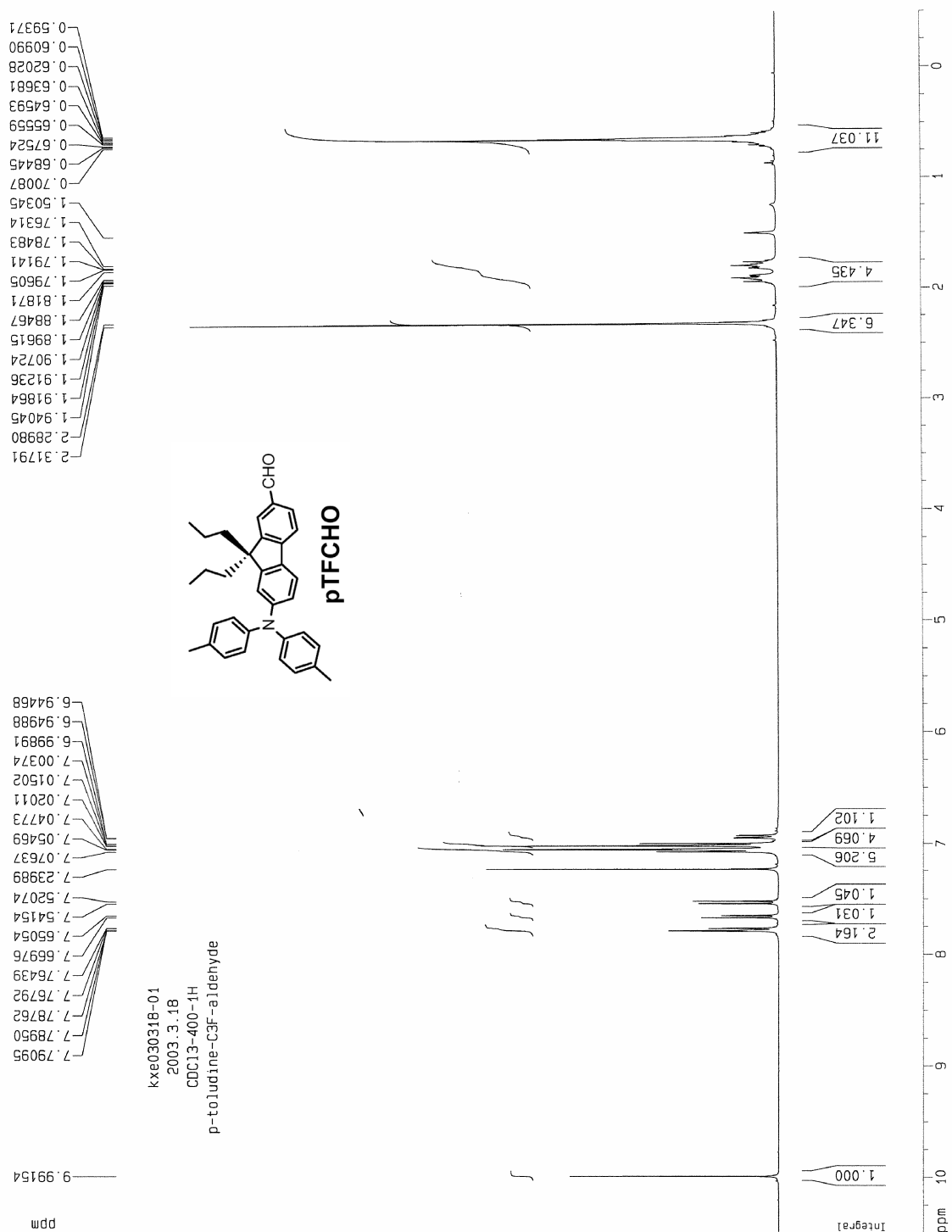


Figure S5. ¹H-NMR spectrum of 7-(di-*p*-tolylamino)-9,9'-dipropyl-9H-fluorene-2-carboxaldehyde (pTFCHO).

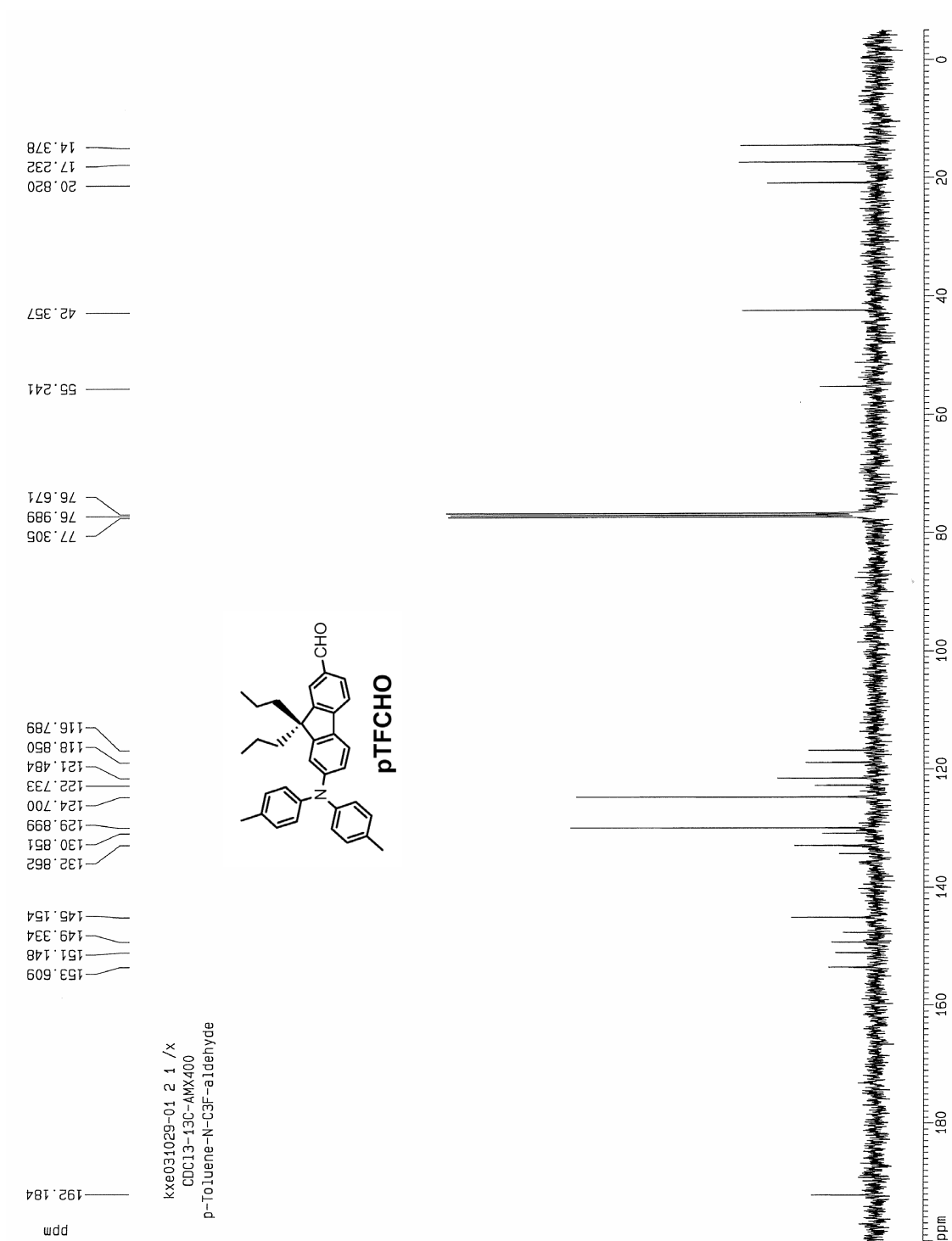


Figure S6. ¹³C-NMR spectrum of 7-(di-*p*-tolylamino)-9,9'-dipropyl-9H-fluorene-2-carboxaldehyde (pTFCHO).

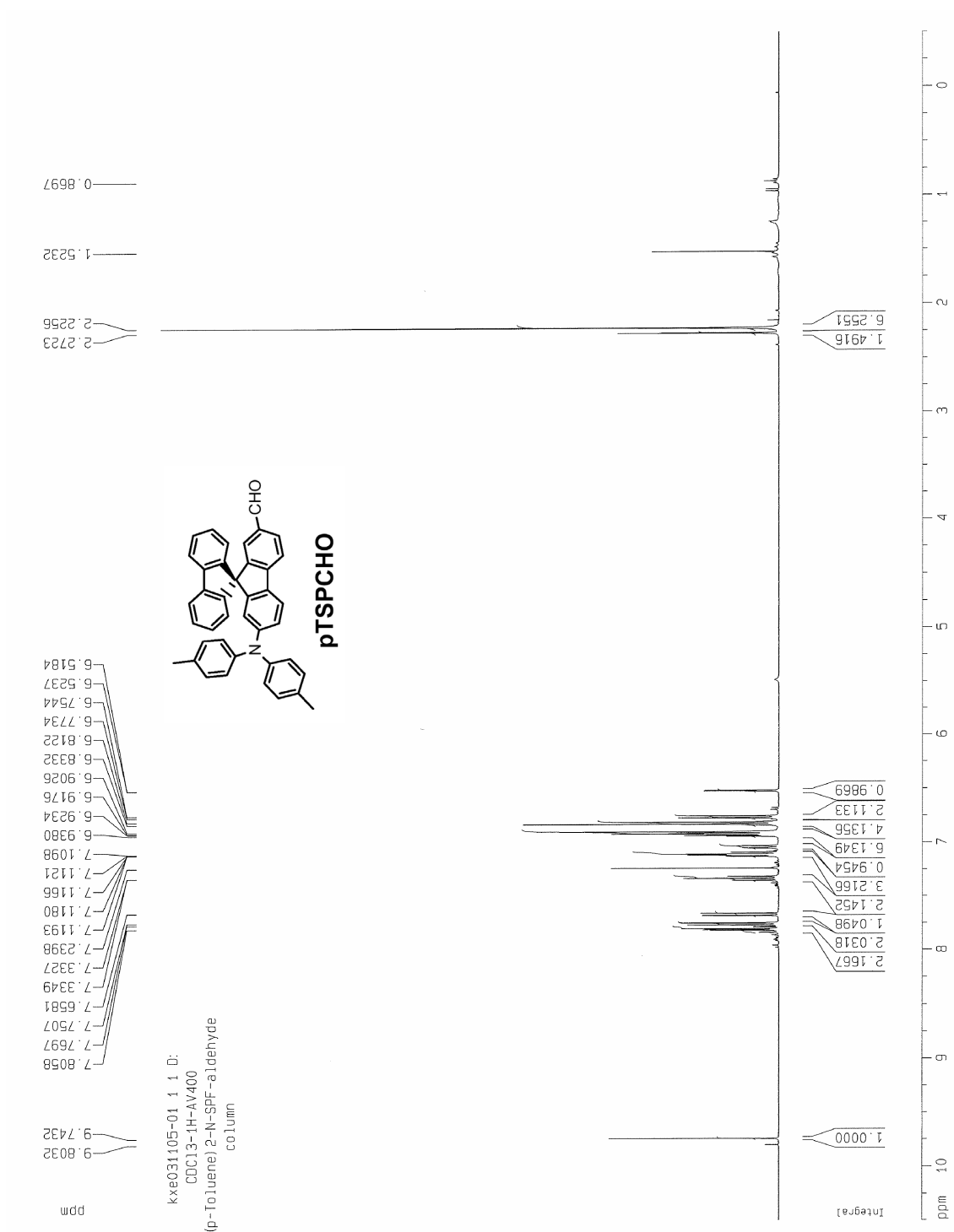


Figure S7. ¹H-NMR spectrum of 7-(di-*p*-tolylamino)-9,9'-spirobifluorene-2-carboxaldehyde (pTSPCHO).

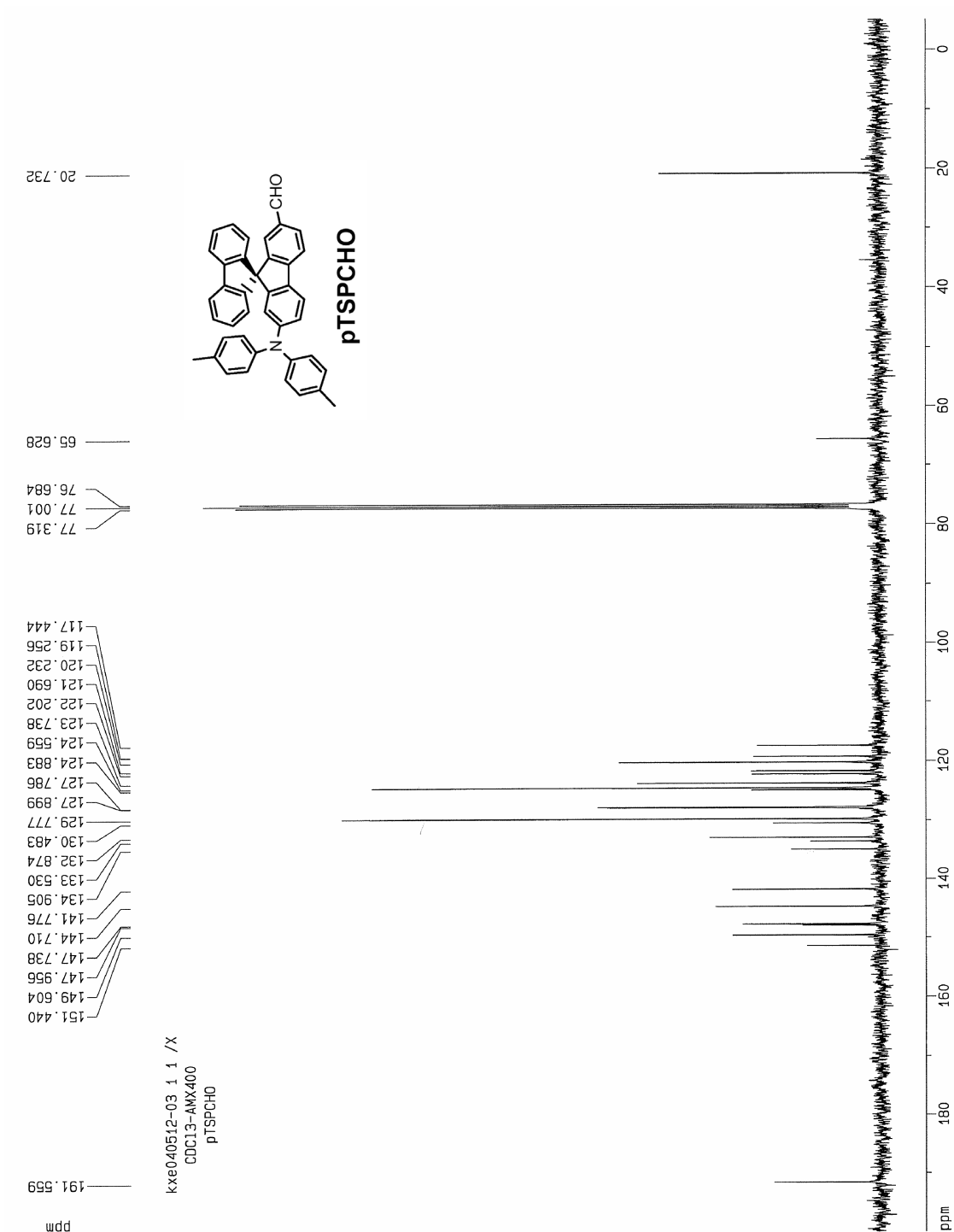
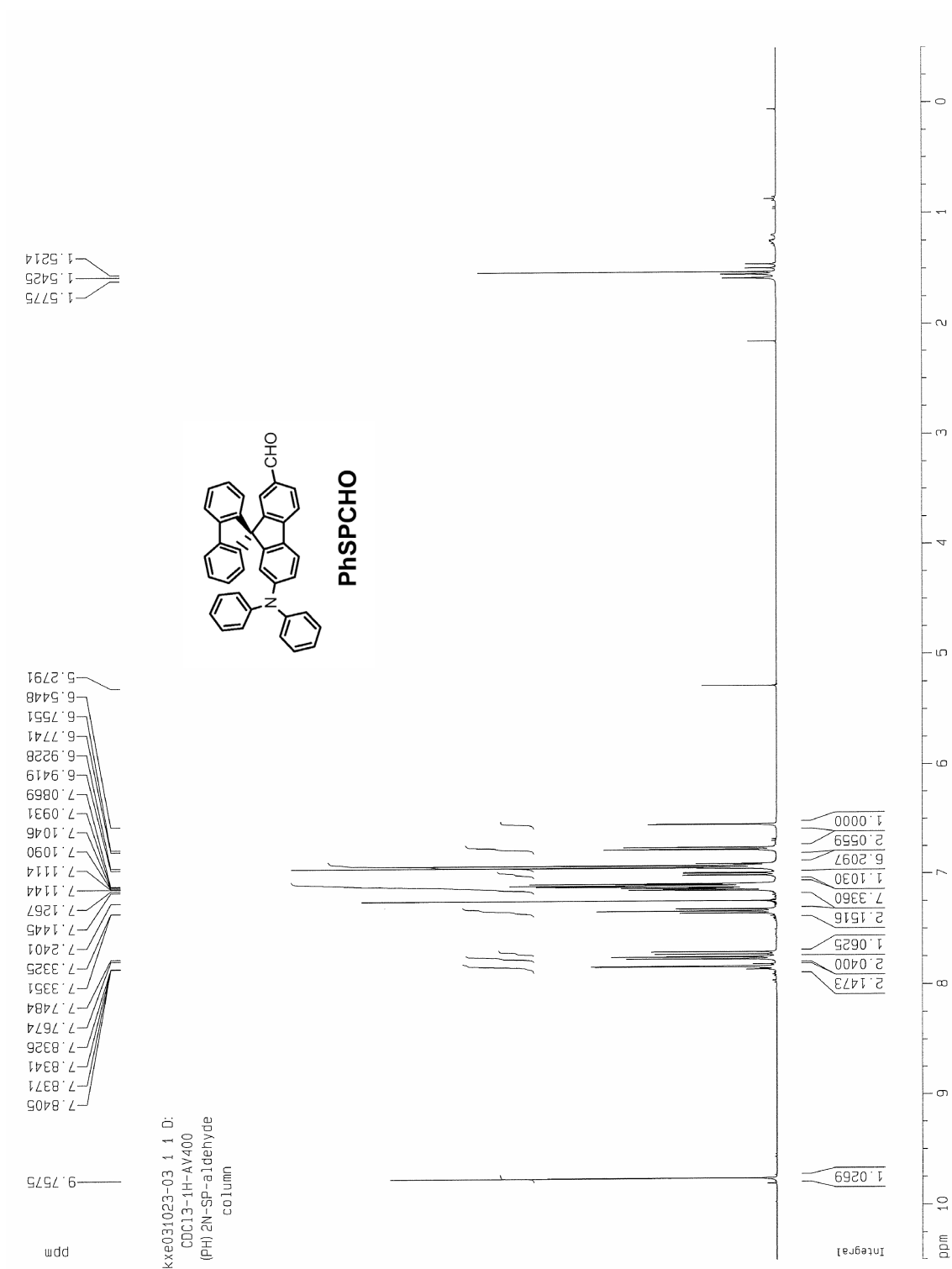


Figure S8. ¹³C-NMR spectrum of 7-(di-*p*-tolylamino)-9,9'-spirobifluorene-2-carboxaldehyde (pTSPCHO).



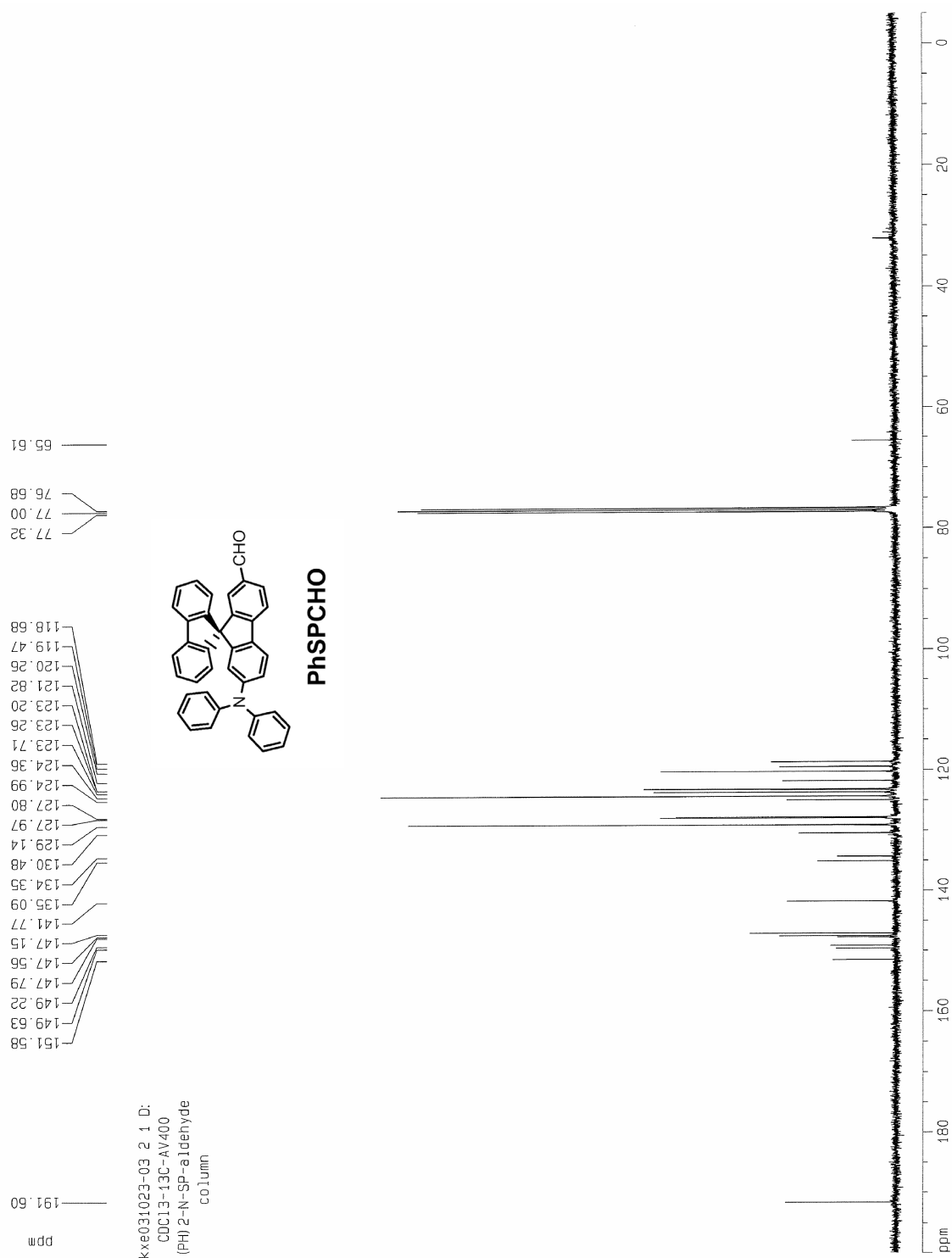


Figure S10. ¹³C-NMR spectrum of 7-(diphenylamino)-9,9'-spirobifluorene-2-carboxaldehyde (PhSPCHO)



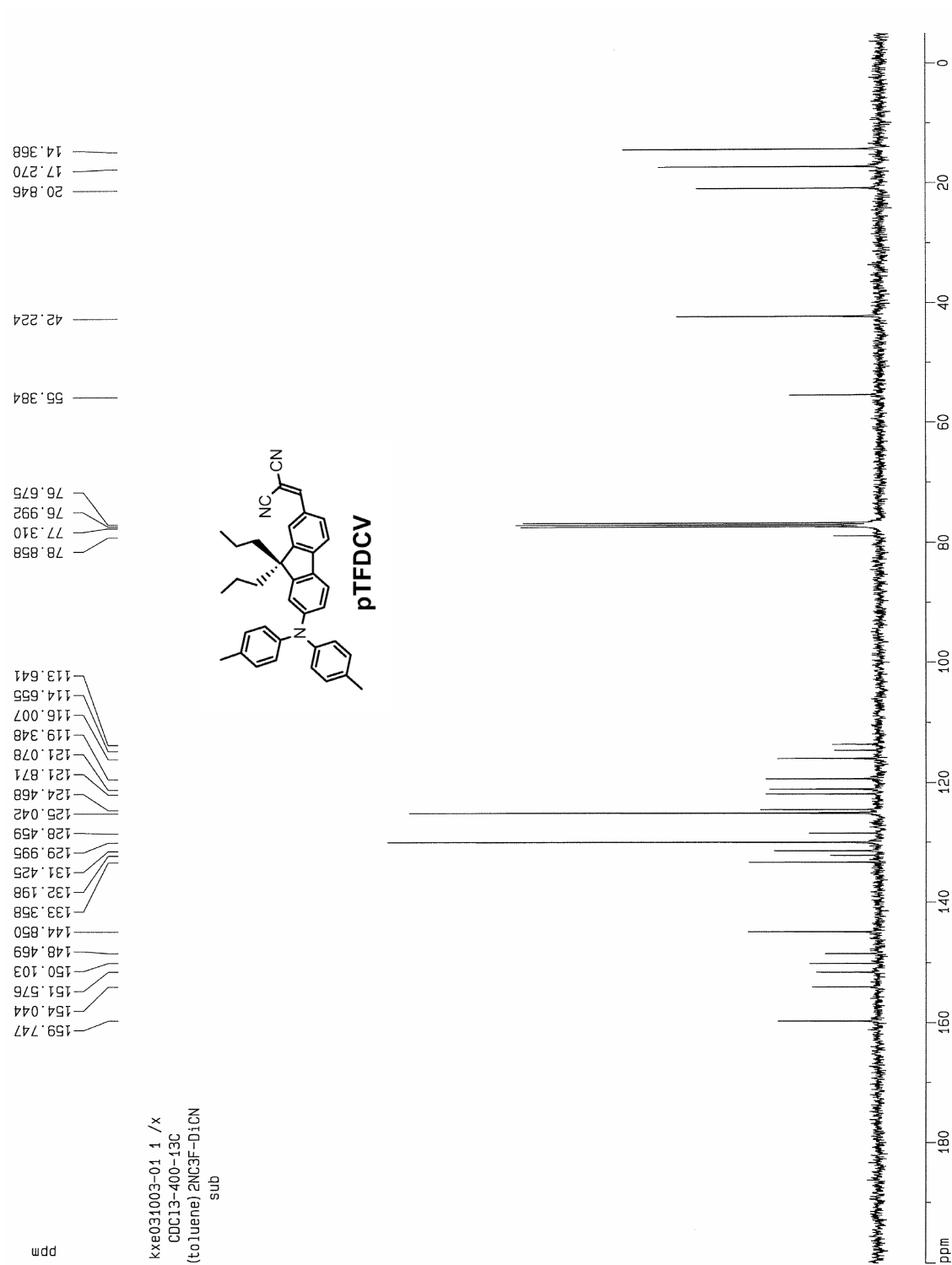


Figure S12. ^{13}C -NMR spectrum of 2-[7-(di-*p*-tolylamino)-9,9'-dipropyl-9H-fluorene-2-ylmethylene]malononitrile (pTFDCV)

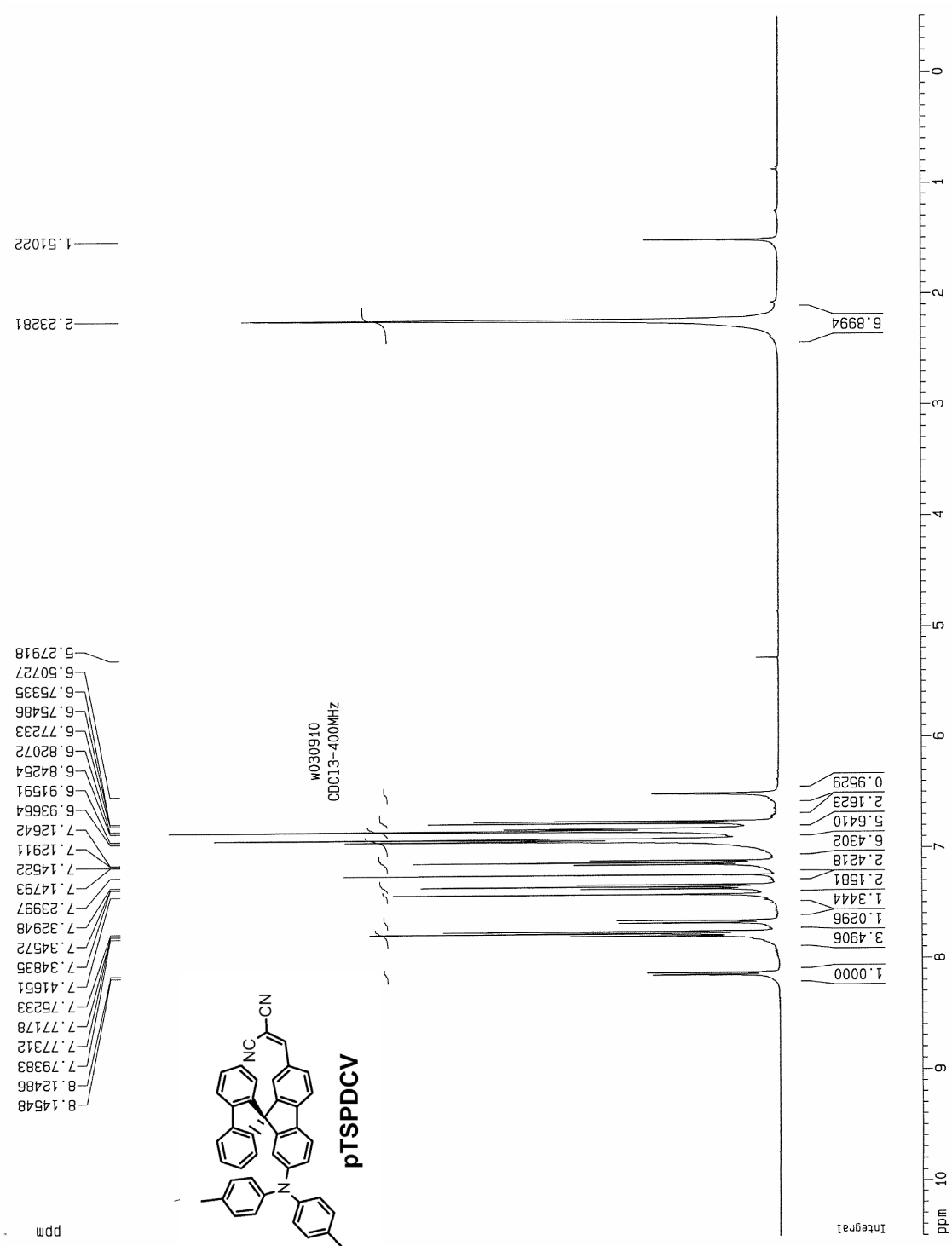


Figure S13. ¹H-NMR spectrum of 2-[7-(di-*p*-tolylamino)-9,9'-spirobifluorene-2-ylmethylene]malononitrile (pTSPDCV)

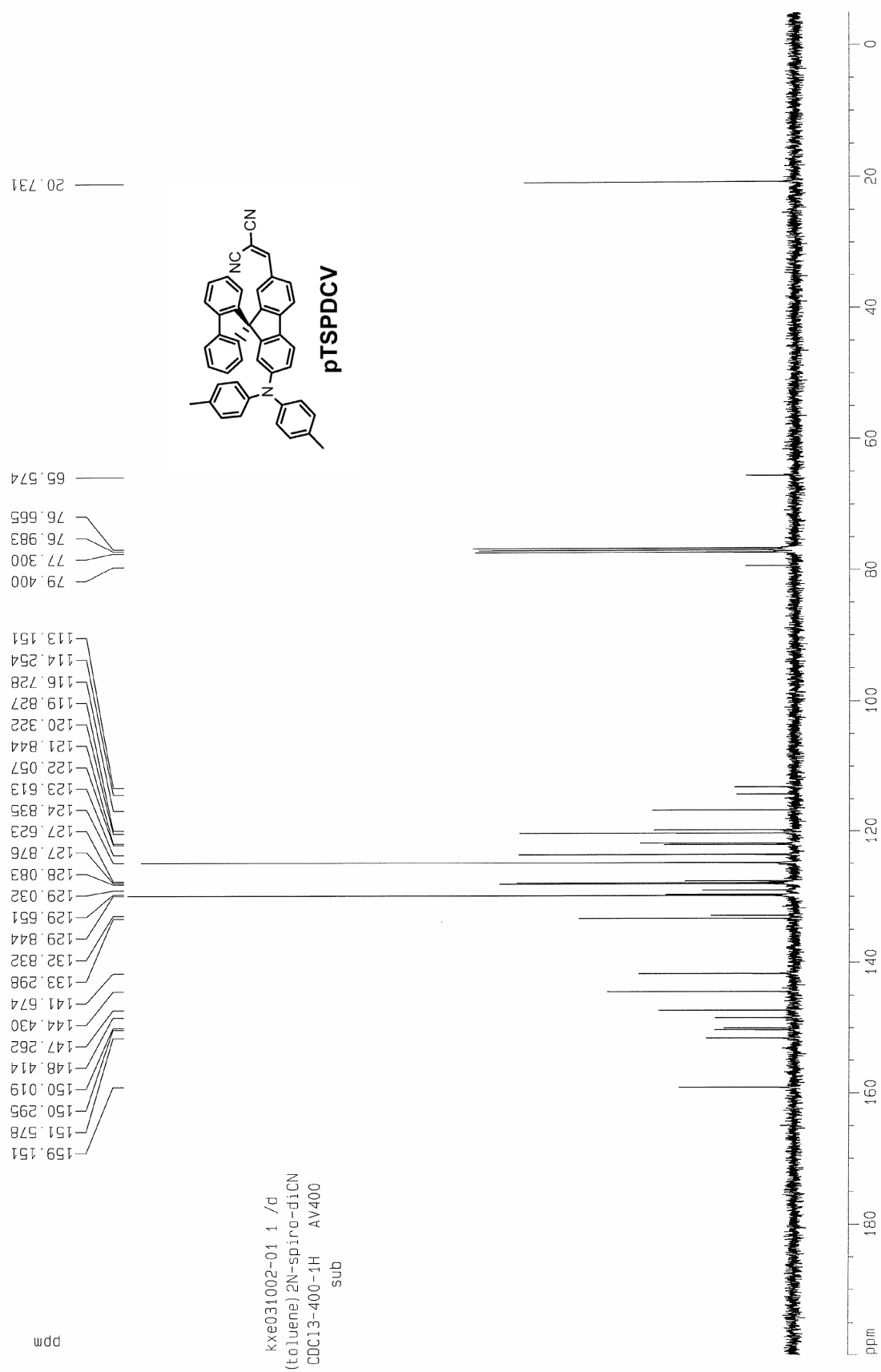


Figure S14. ^{13}C -NMR spectrum of 2-[7-(di-*p*-tolylamino)-9,9'-spirobifluorene-2-ylmethylene]malononitrile (pTSPDCV)

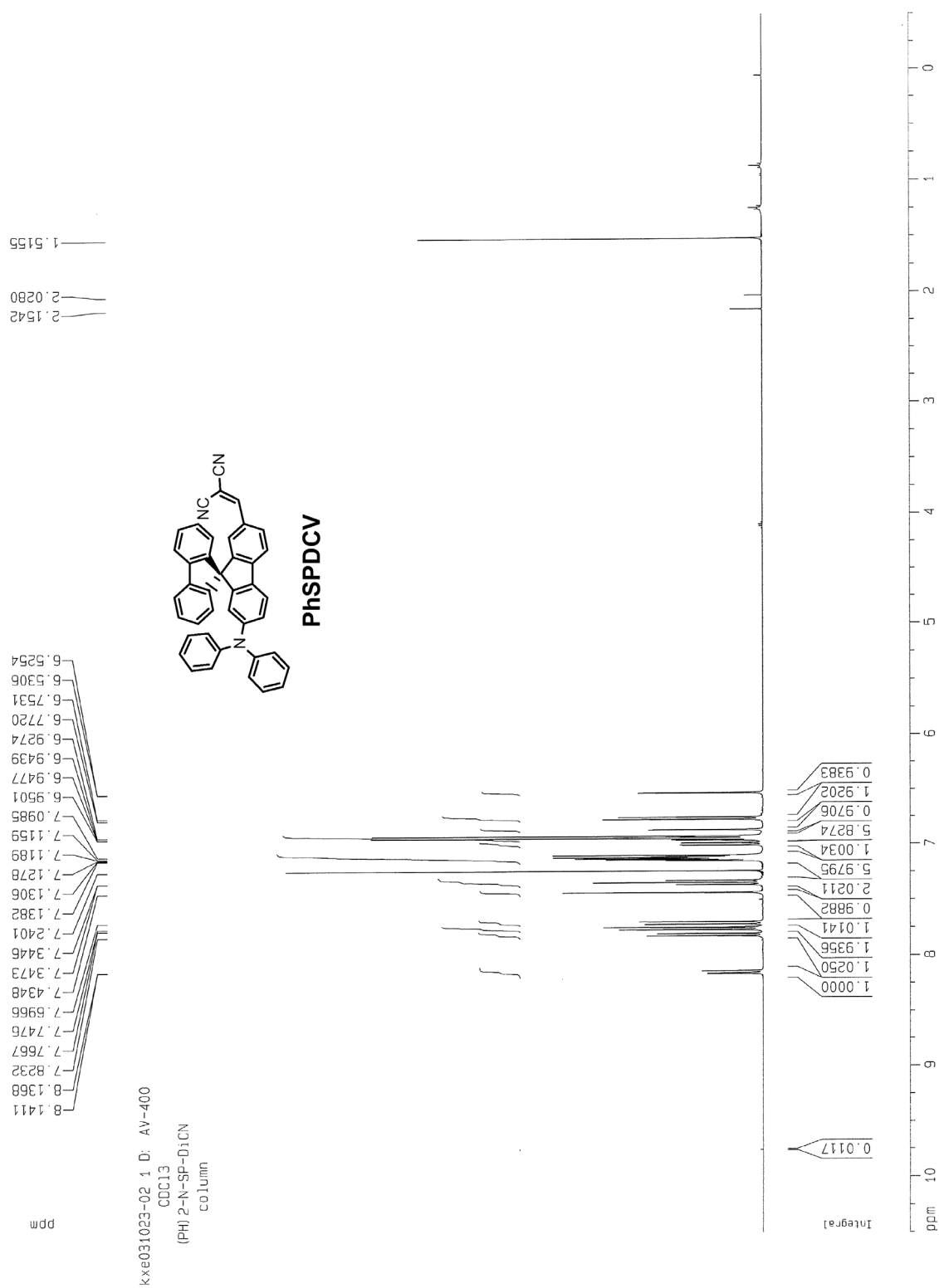


Figure S15. ¹H-NMR spectrum of 2-[7-(diphenylamino)-9,9'-spirobifluorene-2-ylmethylene]malononitrile (PhSPDCV)

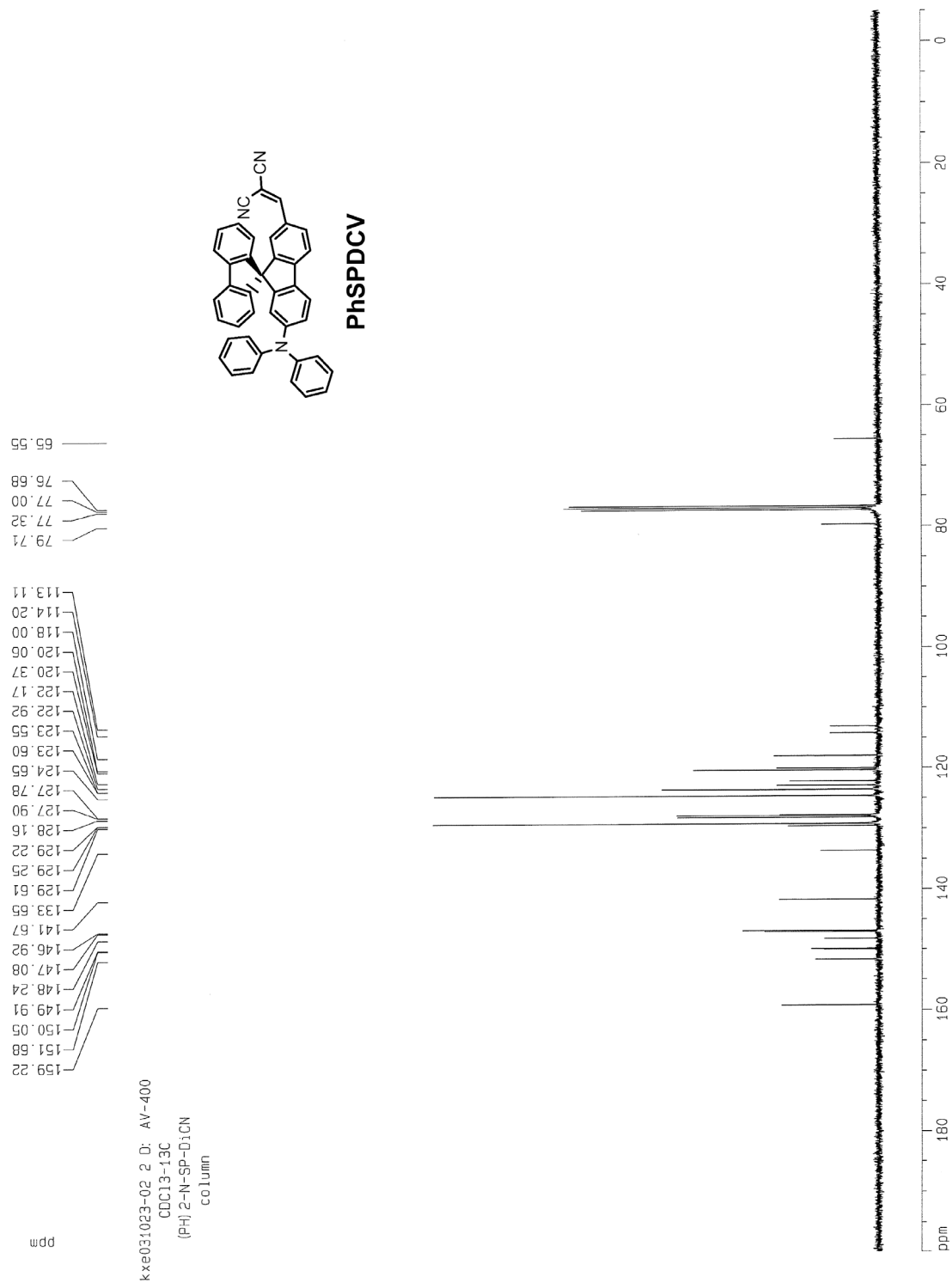
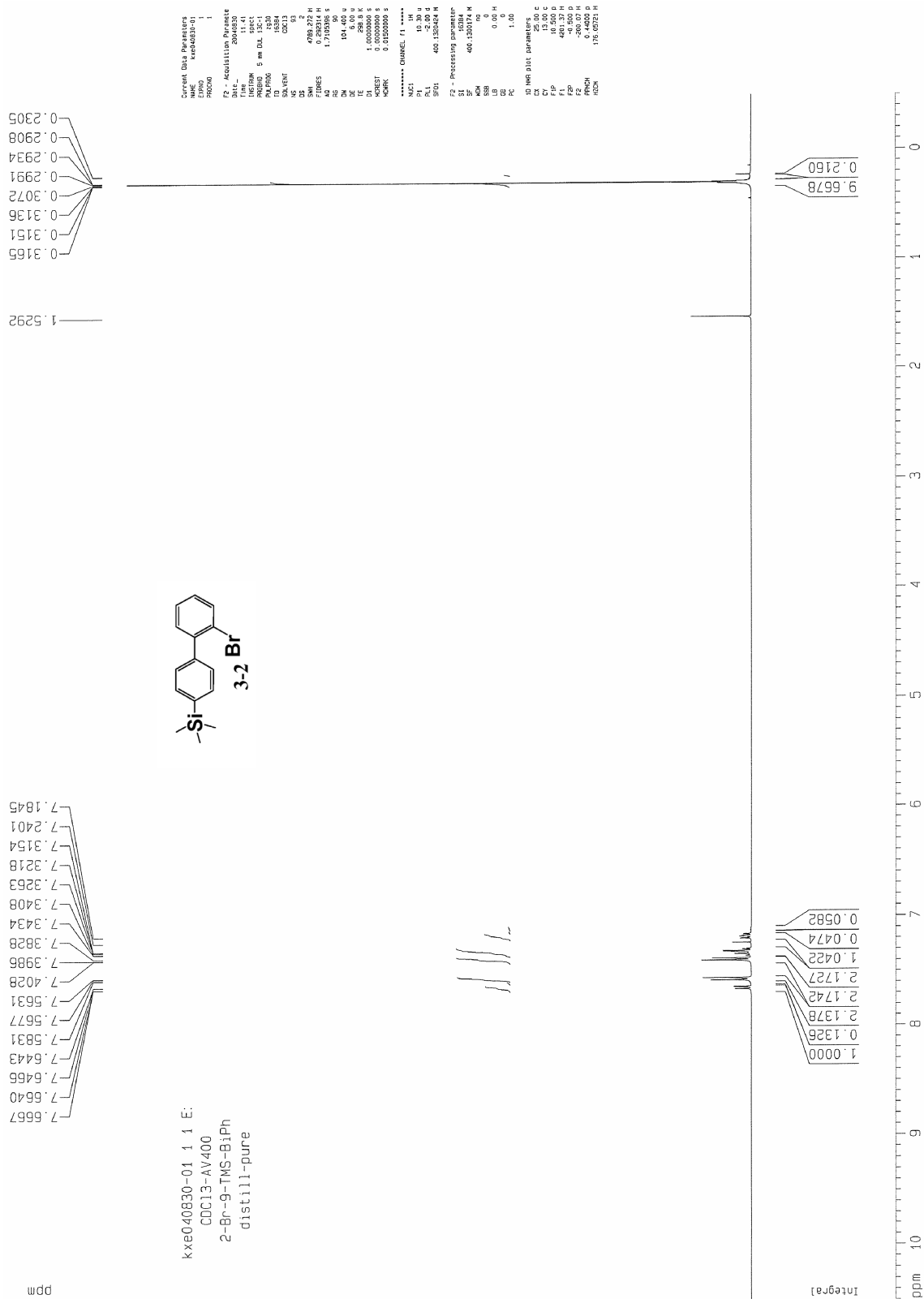


Figure S16. ¹³C-NMR spectrum of 2-[7-(diphenylamino)-9,9'-spirobifluorene-2-ylmethylene]malononitrile (PhSPDCV)



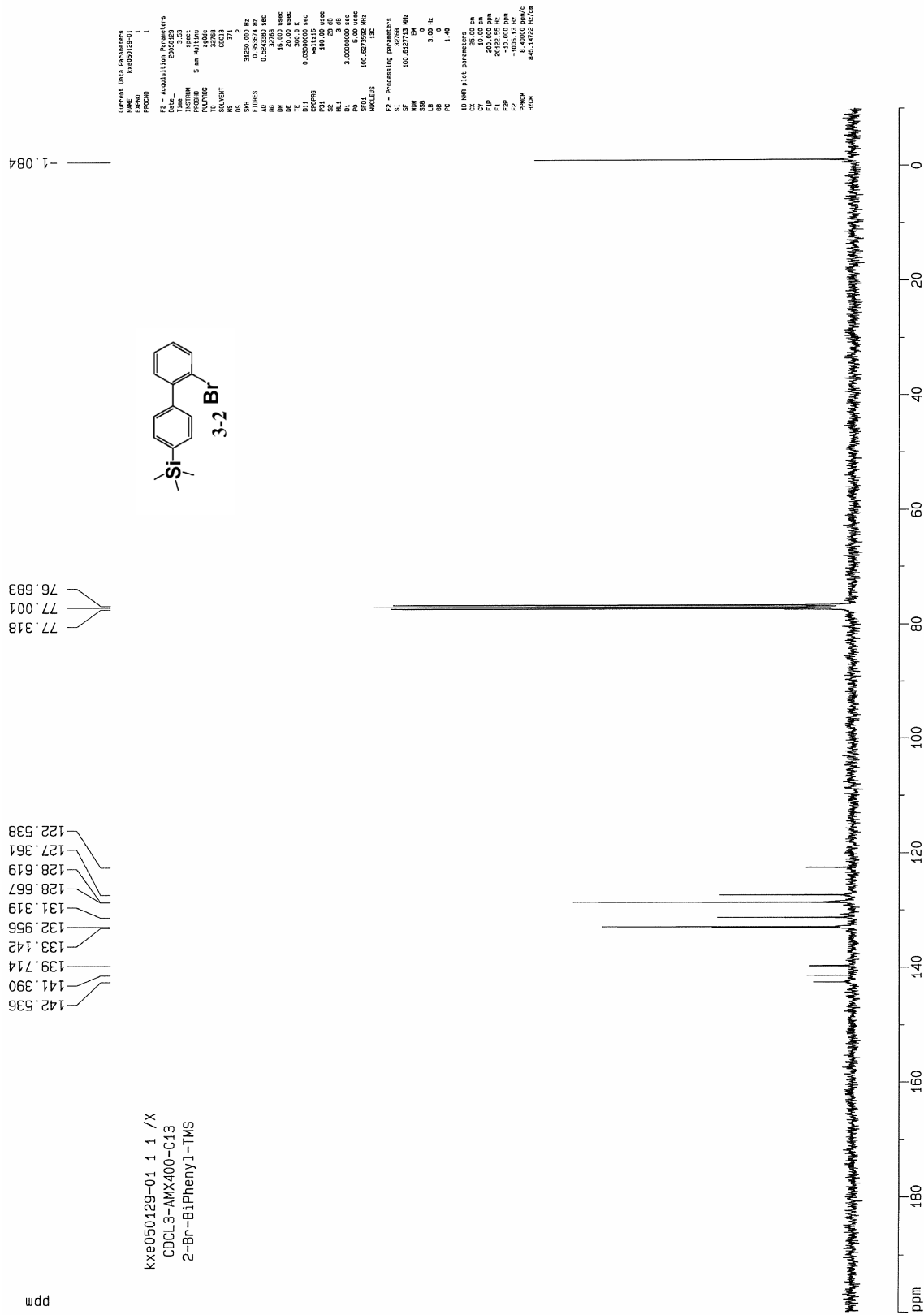


Figure S18. ¹³C-NMR spectrum of 2'-bromobiphenyl-4-yl)trimethylsilane (3-2)

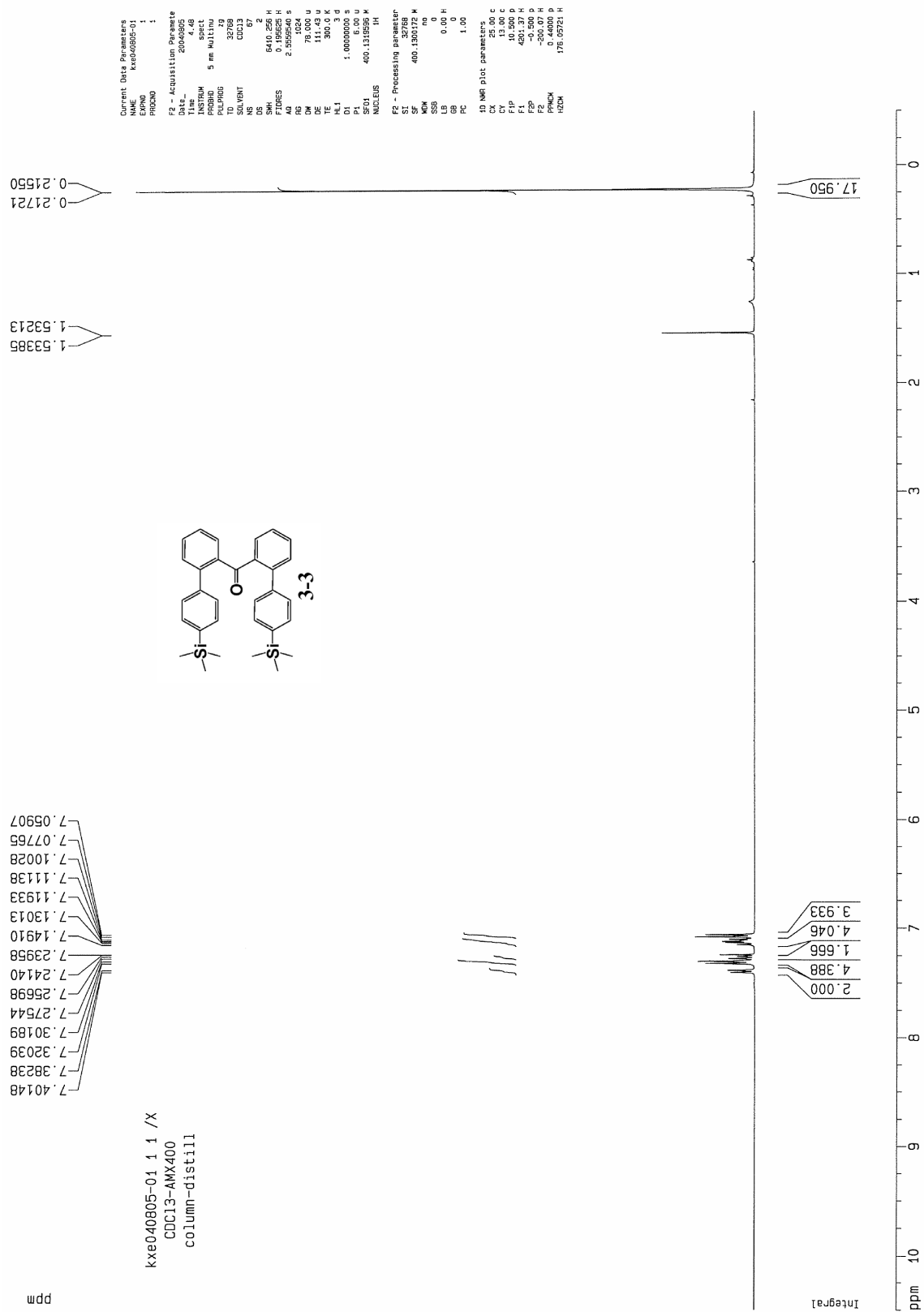


Figure S19. ¹H-NMR spectrum of bis(4'-trimethylsilylbiphenyl-2-yl)methanone (3-3)



Figure S20. ^{13}C -NMR spectrum of bis(4'-trimethylsilylbiphenyl-2-yl)methanone (3-3)

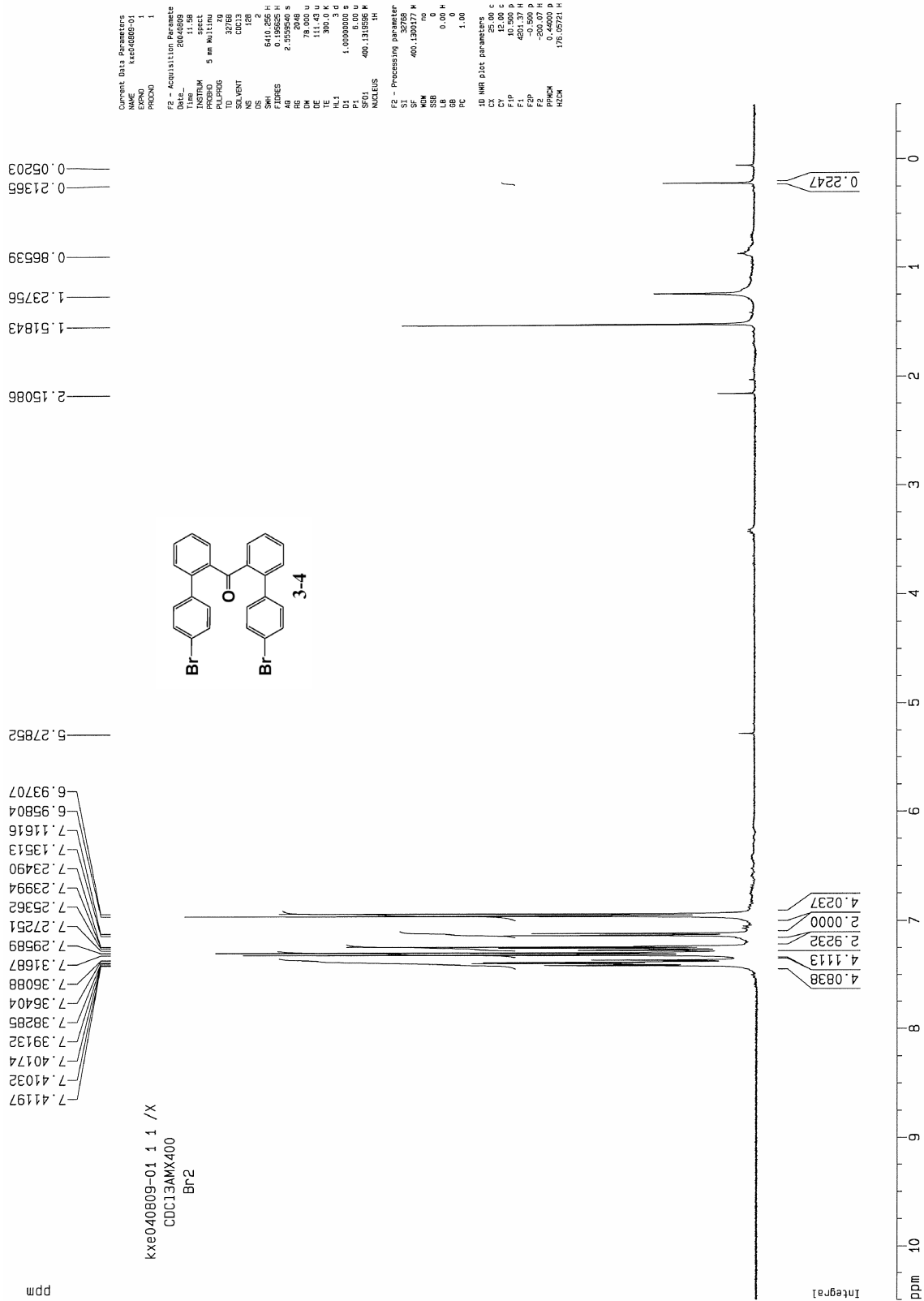


Figure S21. ¹H-NMR spectrum of bis(4'-bromobiphenyl-2-yl)methanone (3-4)

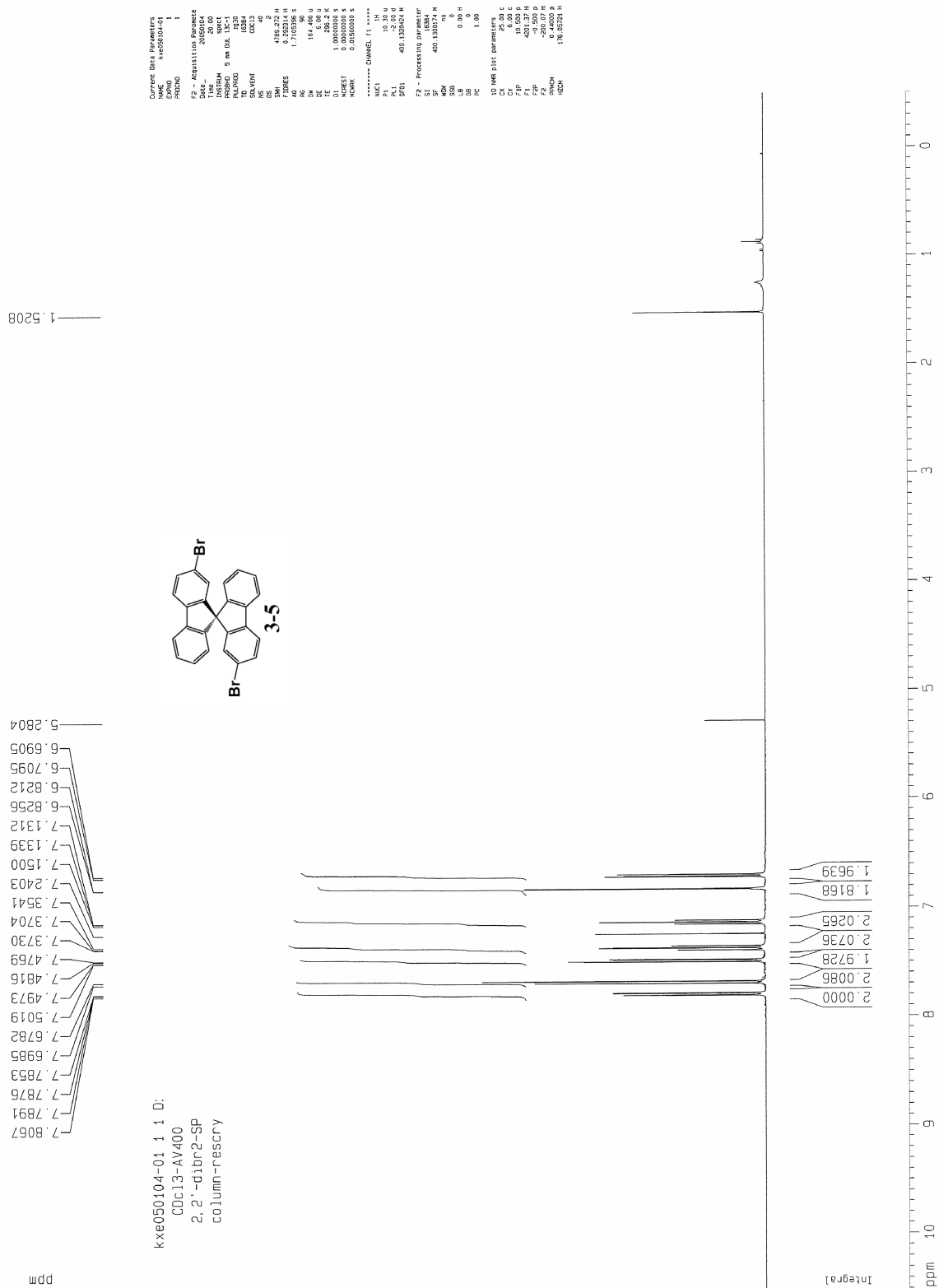
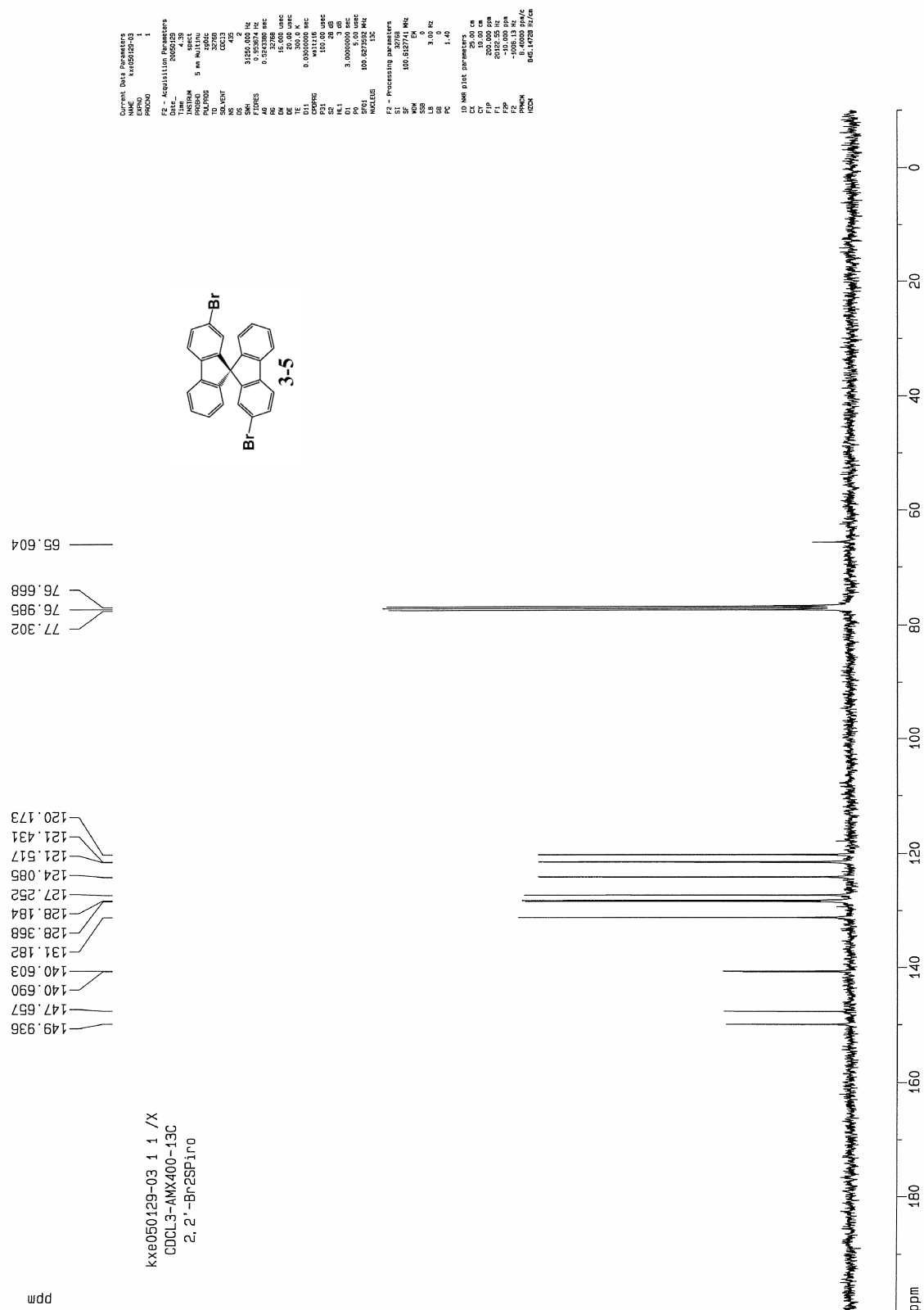


Figure S23. ¹H-NMR spectrum of 2,2'-dibromo-9,9'-spirobifluorene (3-5)



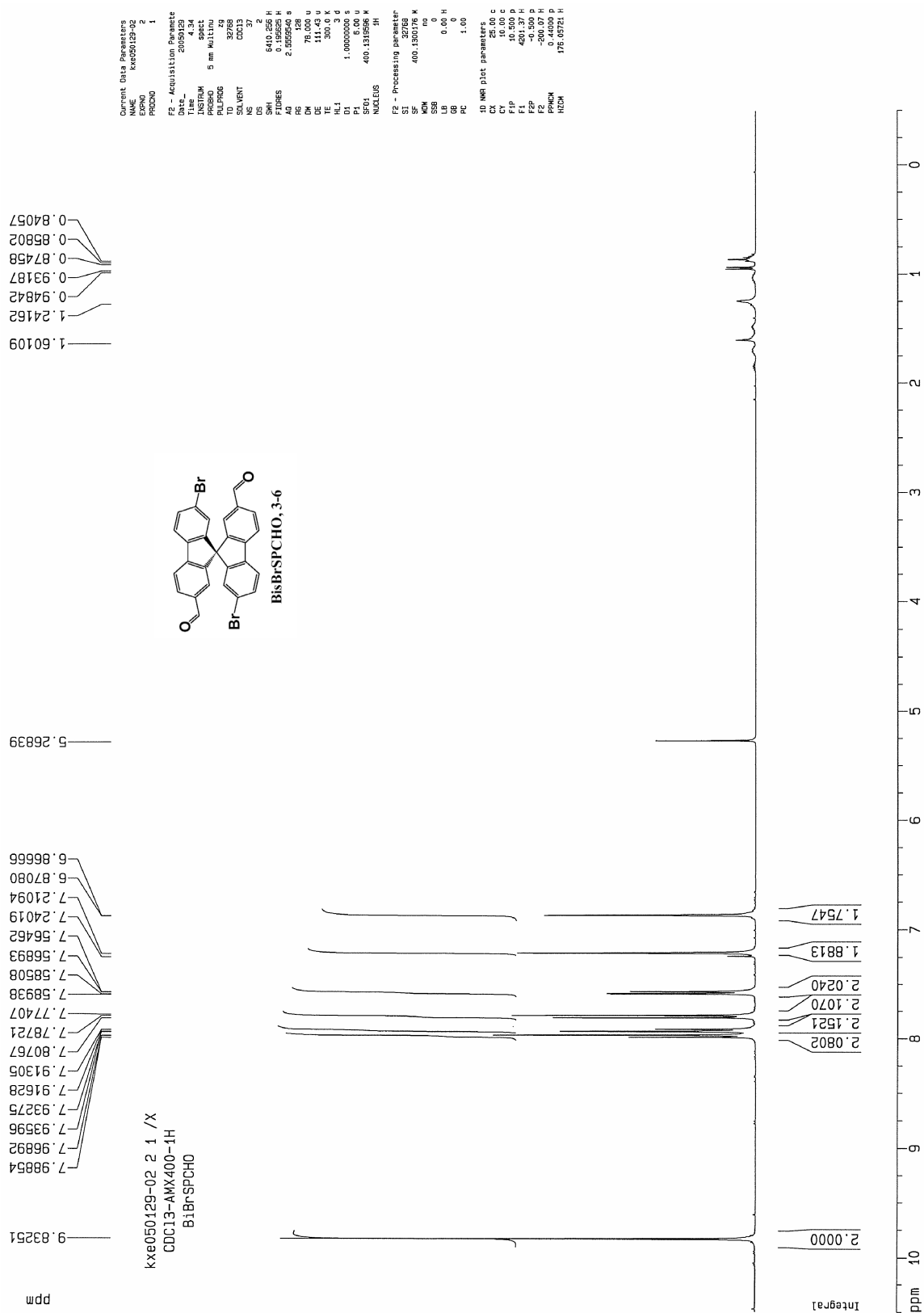


Figure S25. ¹H-NMR spectrum of 2,2'-dibromo-9,9'-spirobifluorene-7,7'-dicarboxaldehyde (BisBrSPCHO, 3-6)

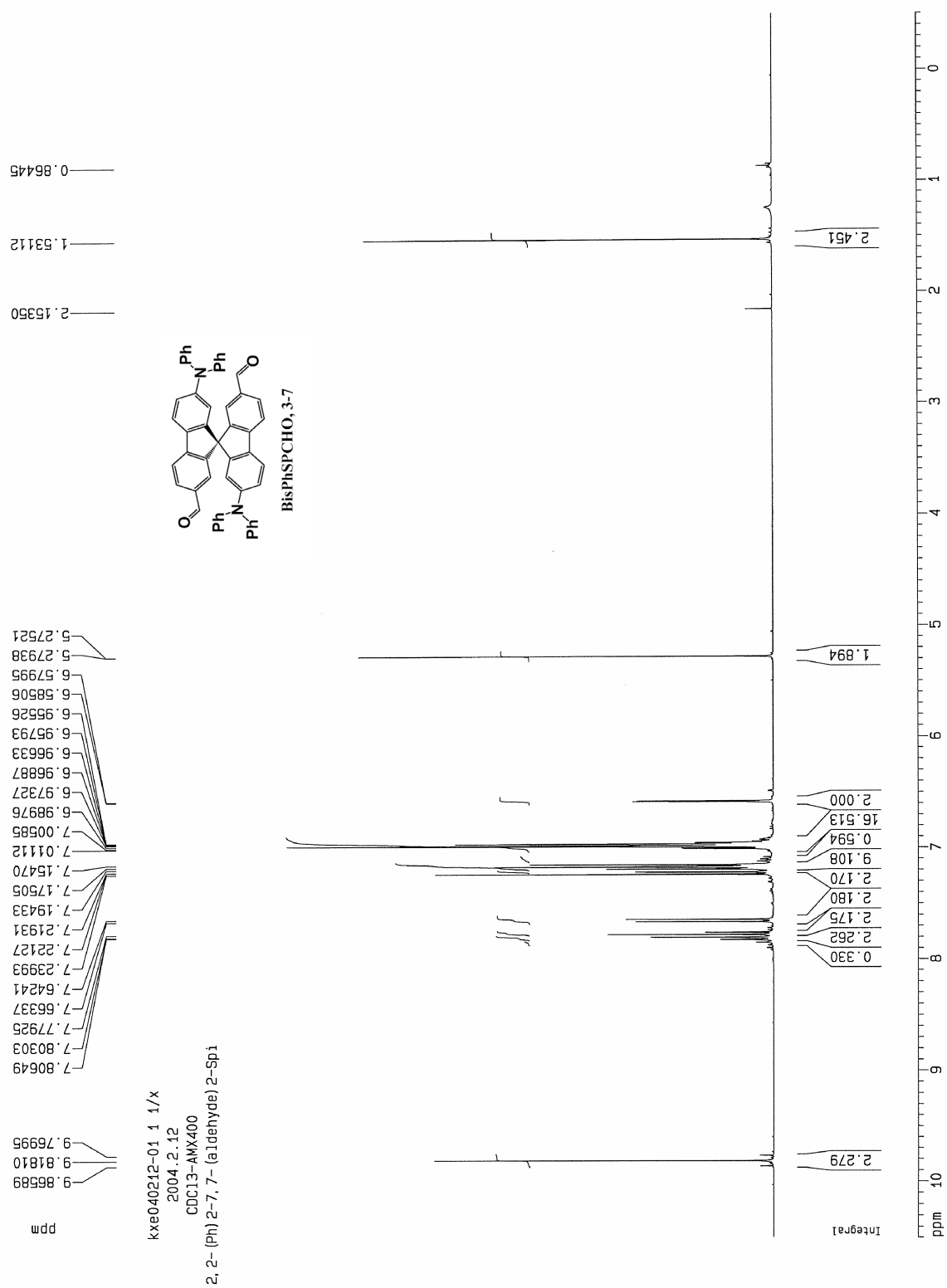


Figure S27. ¹H-NMR spectrum of 2,2'-bis(diphenylamino)-9,9'-spirobifluorene-7,7'-dicarboxaldehyde (BisPhSPCHO, 3-7)

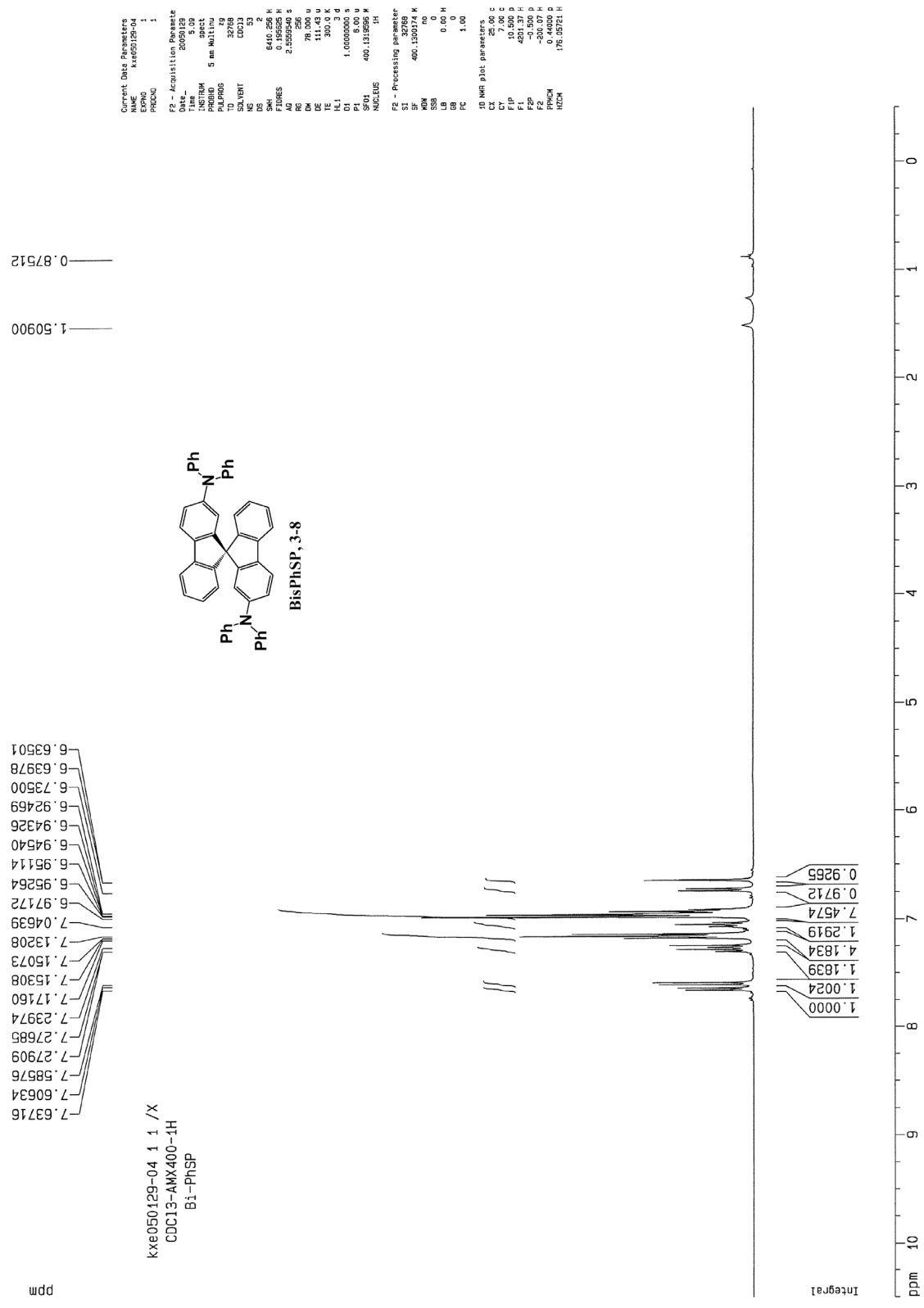


Figure S29. ¹H-NMR spectrum of 2,2'-bis(diphenylamino)-9,9'-spirobifluorene (BisPhSP, 3-8)

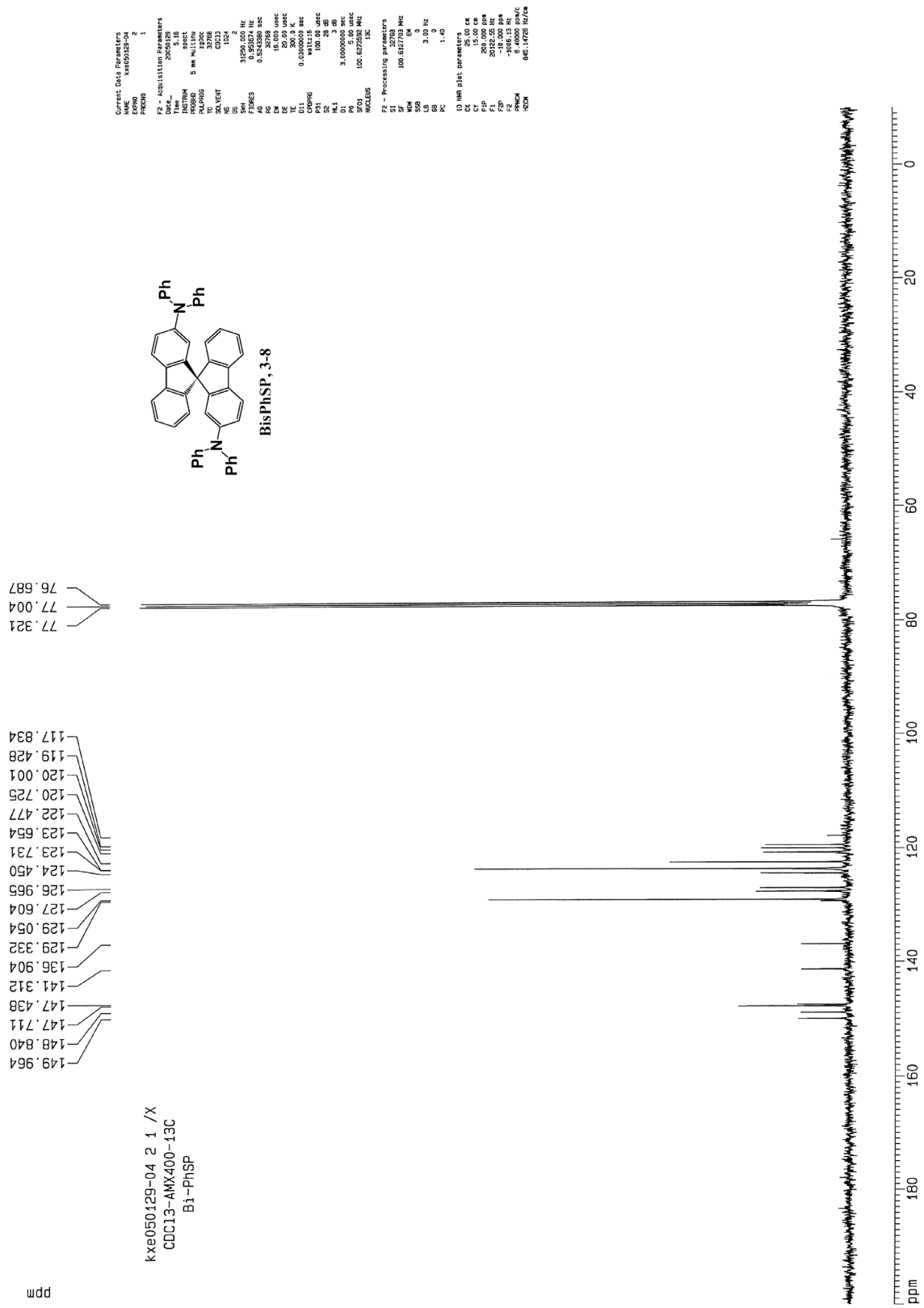


Figure S30. ¹³C-NMR spectrum of 2,2'-bis(diphenylamino)-9,9'-spirobifluorene (BisPhSP, 3-8)

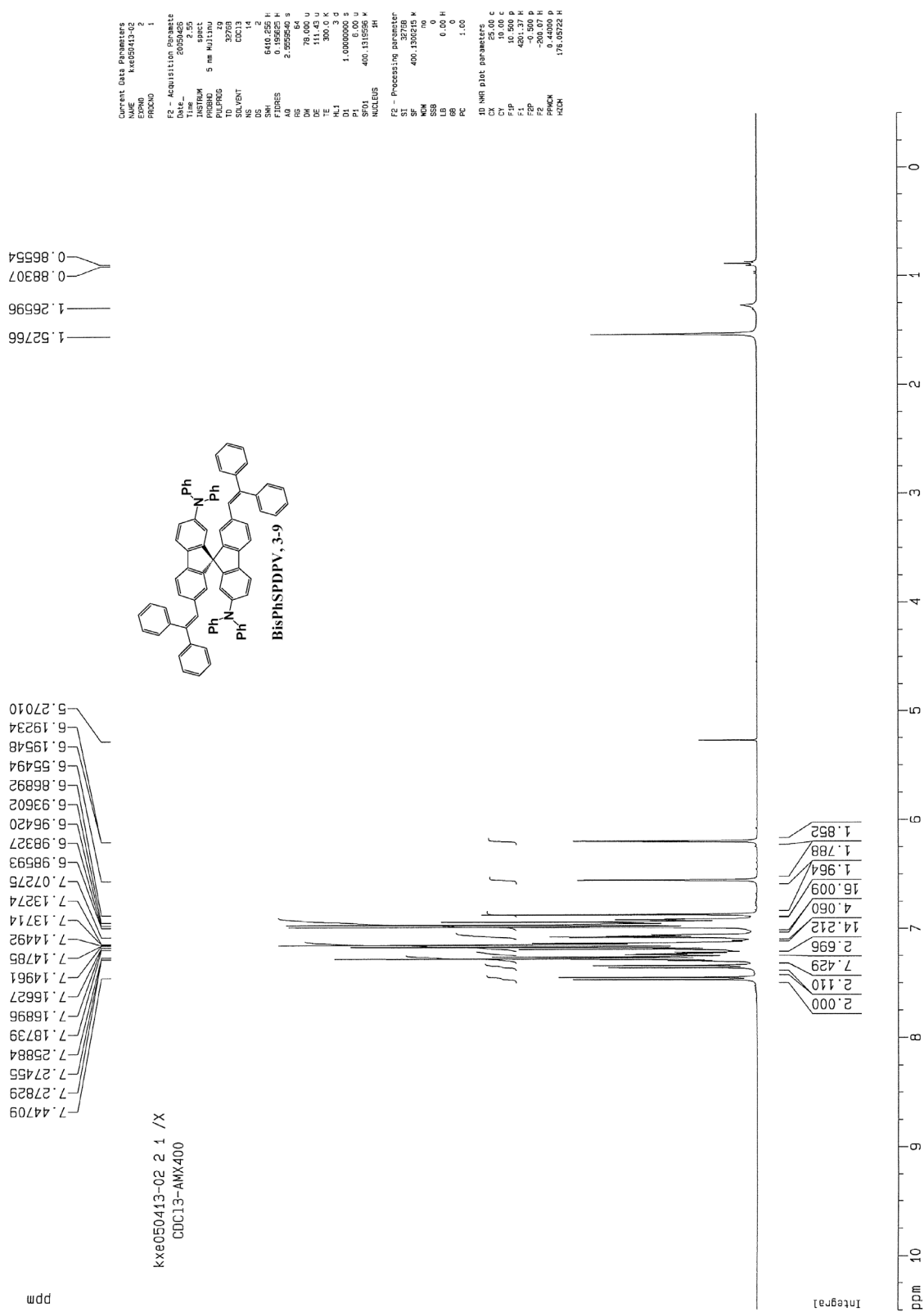


Figure S31. ¹H-NMR spectrum of 2,2'-bis(diphenylamino)-7,7'-bis(2,2-diphenylvinyl)-9,9'-spirobifluorene (BisPhSPDPV, 3-9)

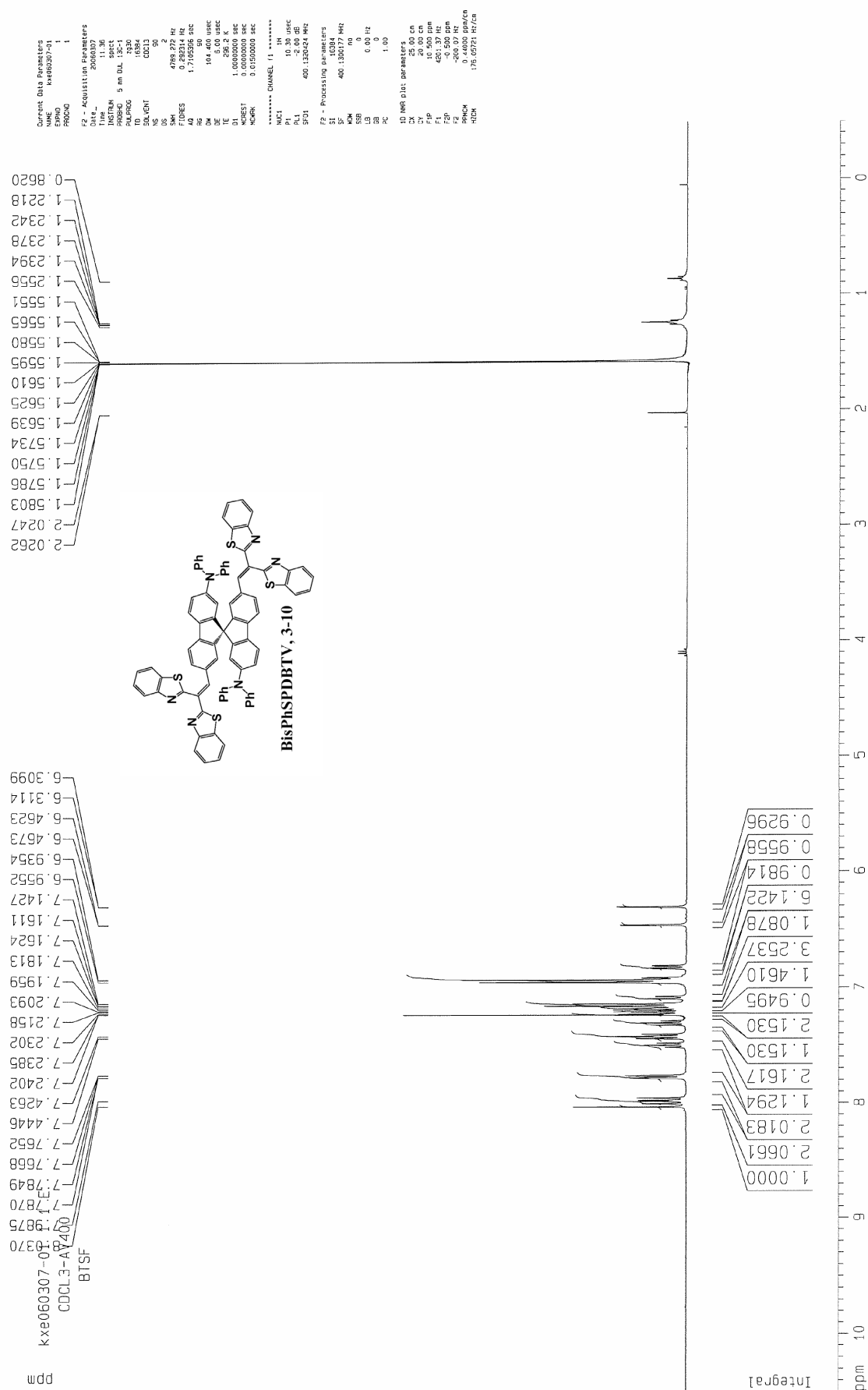


Figure S33. ¹H-NMR spectrum of 7,7'-bis(2,2-bis(benzothiazol-2-yl)vinyl)-2,2'-bis(diphenylamino)-9,9'-spirobifluorene (BisPhSPDBTV, 3-10)

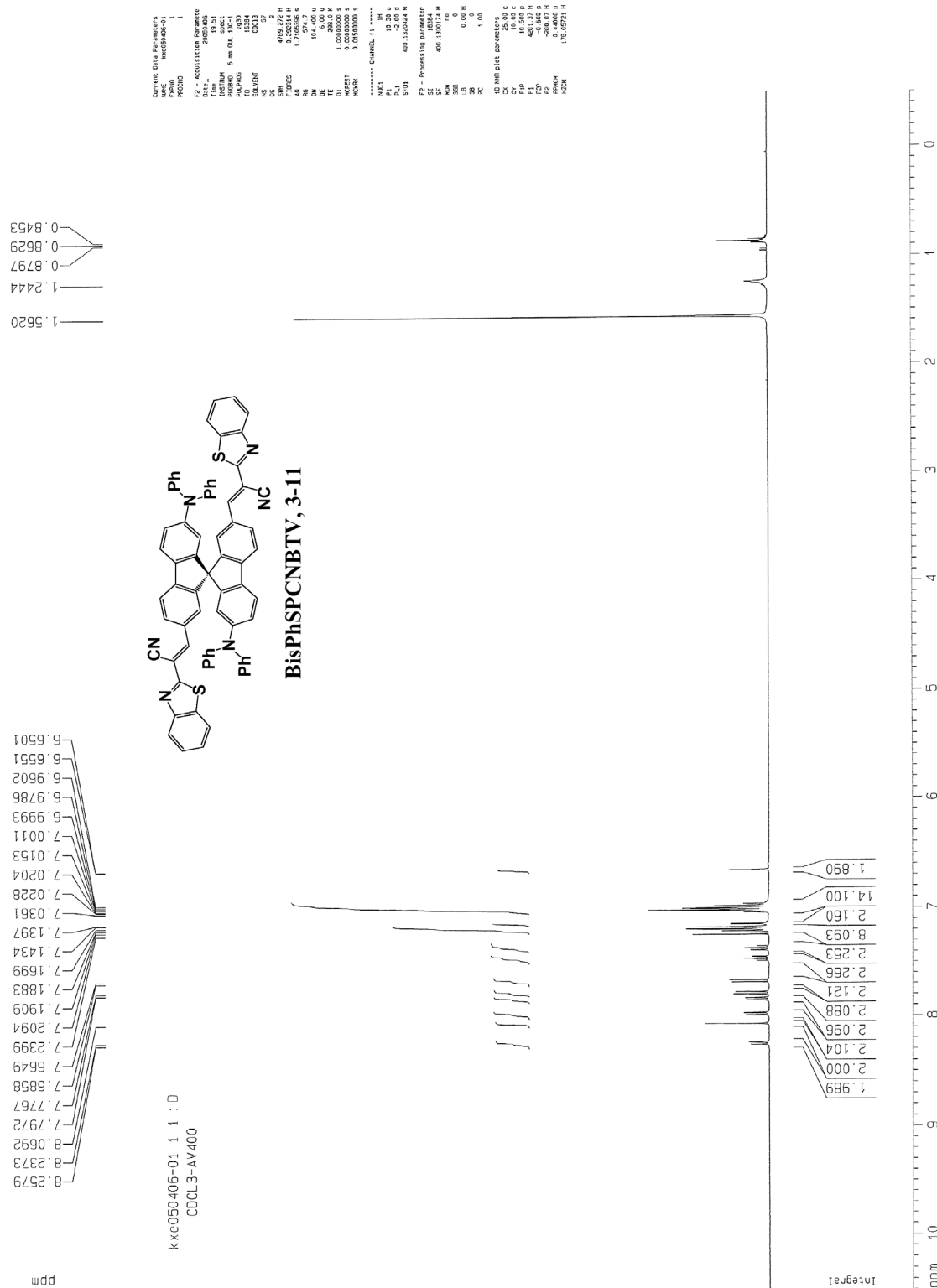


Figure S35. ¹H-NMR spectrum of 7,7'-Bis(2-benzothiazol-2-yl-2-cyanovinyl)-2,2'-bis(diphenylamino)-9,9'-spirobifluorene (BisPhSPCNBTv, 3-11)

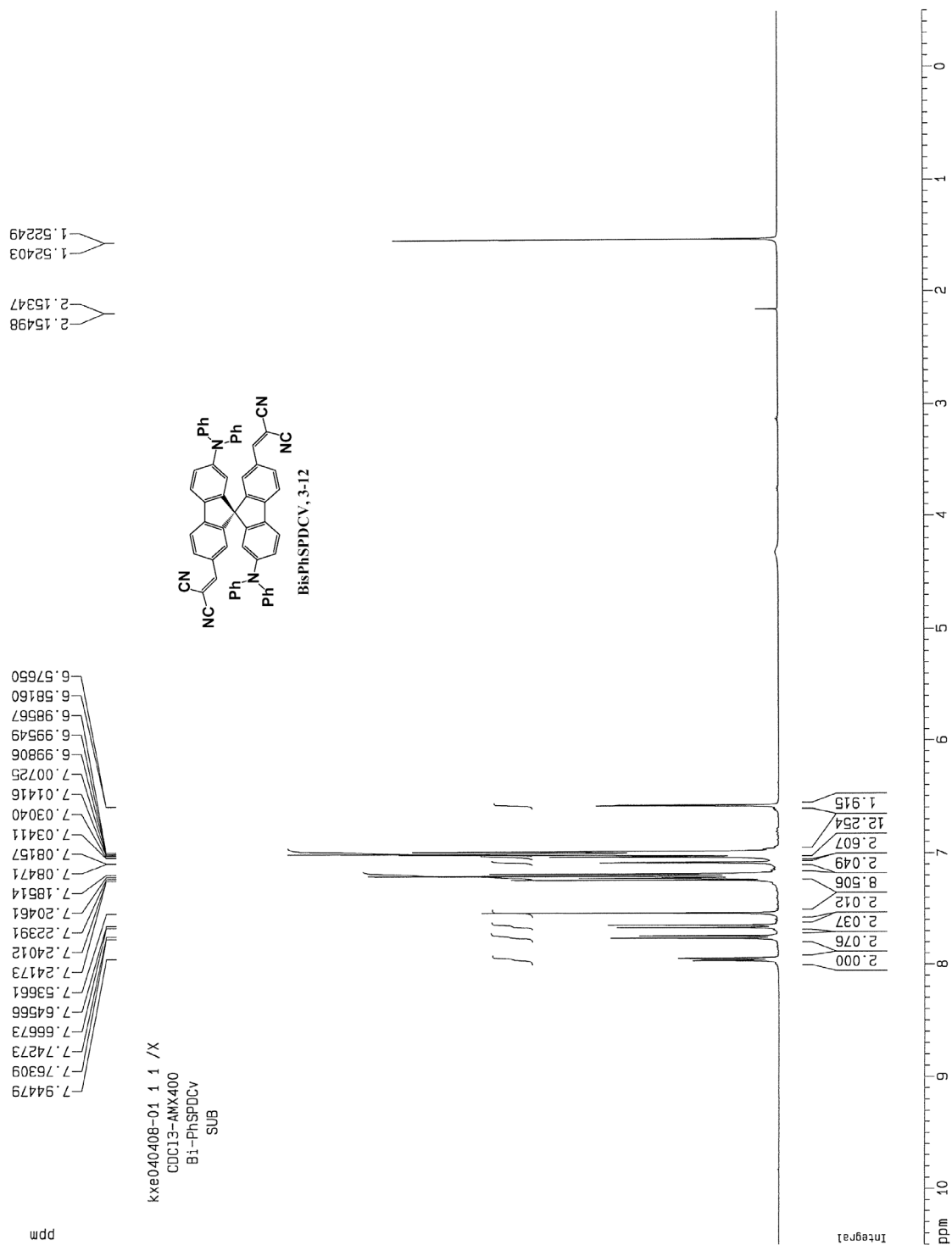


Figure S37. ¹H-NMR spectrum of 7,7'-bis(2,2-dicyanovinyl)-2,2'-bis(diphenylamino)-9,9'-spirobifluorene (BisPhSPDCV, 3-12)

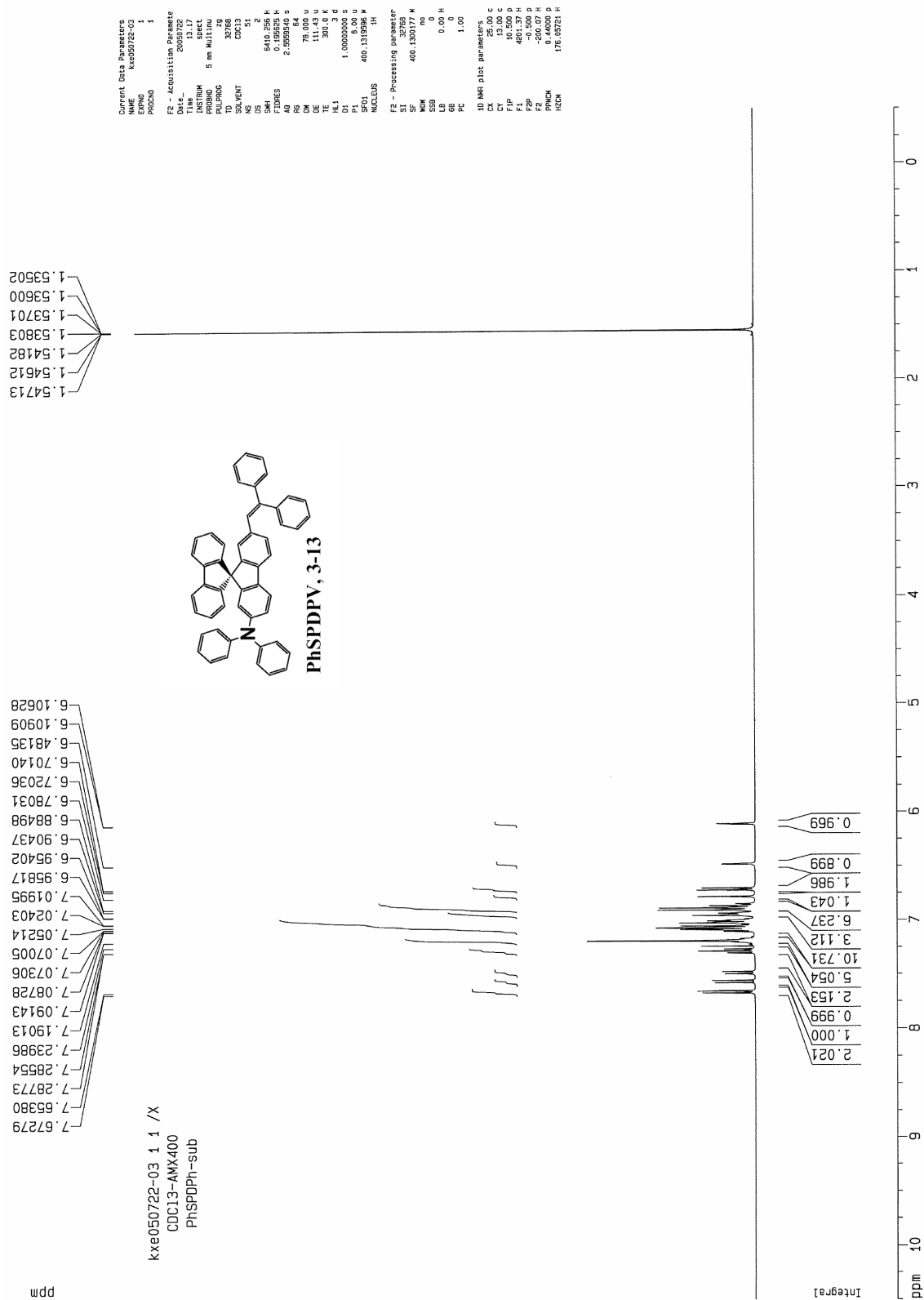


Figure S39. ¹H-NMR spectrum of 2-diphenylamino-7-2,2-diphenylvinyl-9,9'-spirobifluorene (PhSPDPV, 3-13)

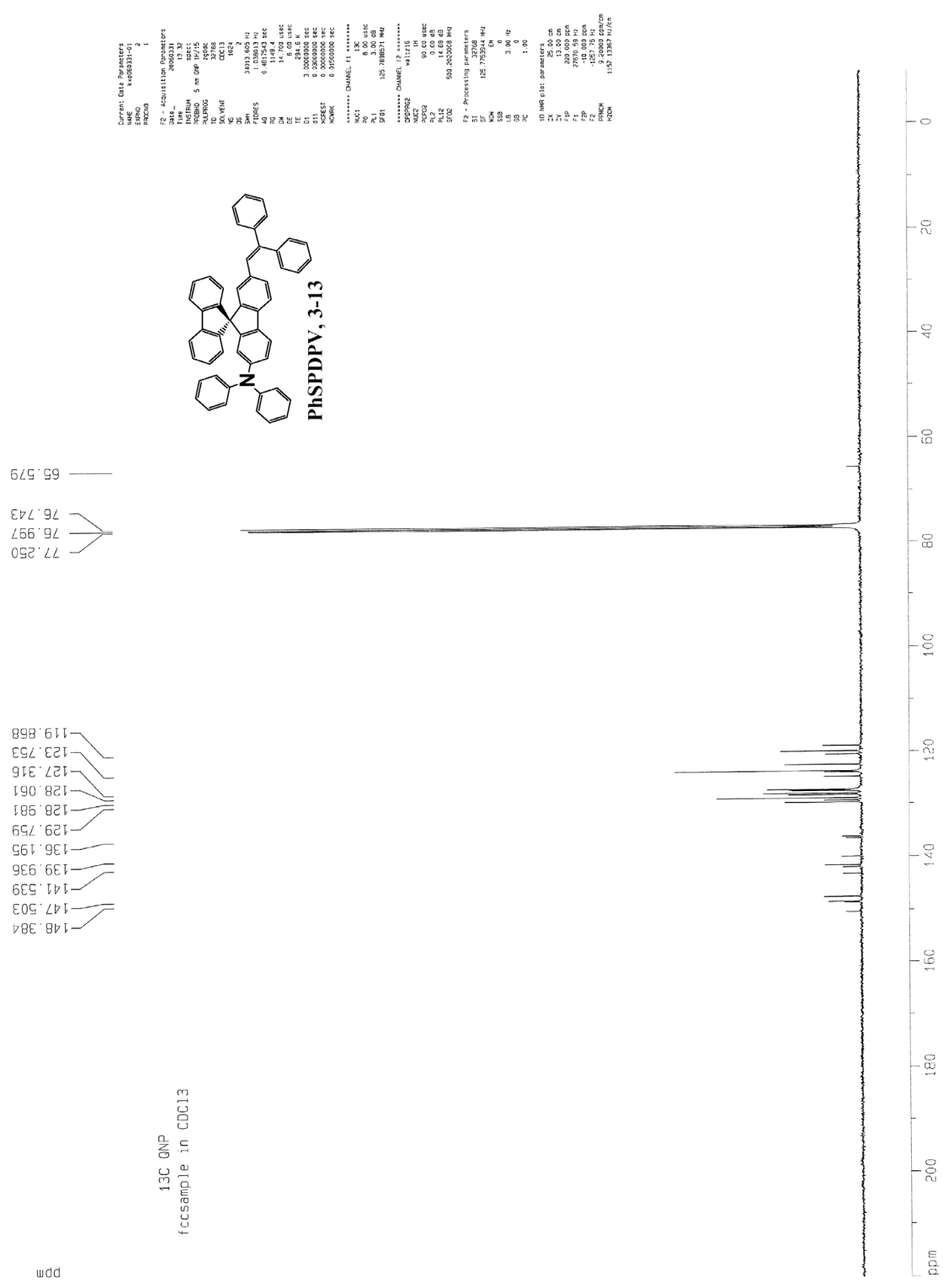


Figure S40. ¹³C-NMR spectrum of 2-diphenylamino-7-2,2-diphenylvinyl-9,9'-spirobifluorene (PhSPDPV, 3-13)

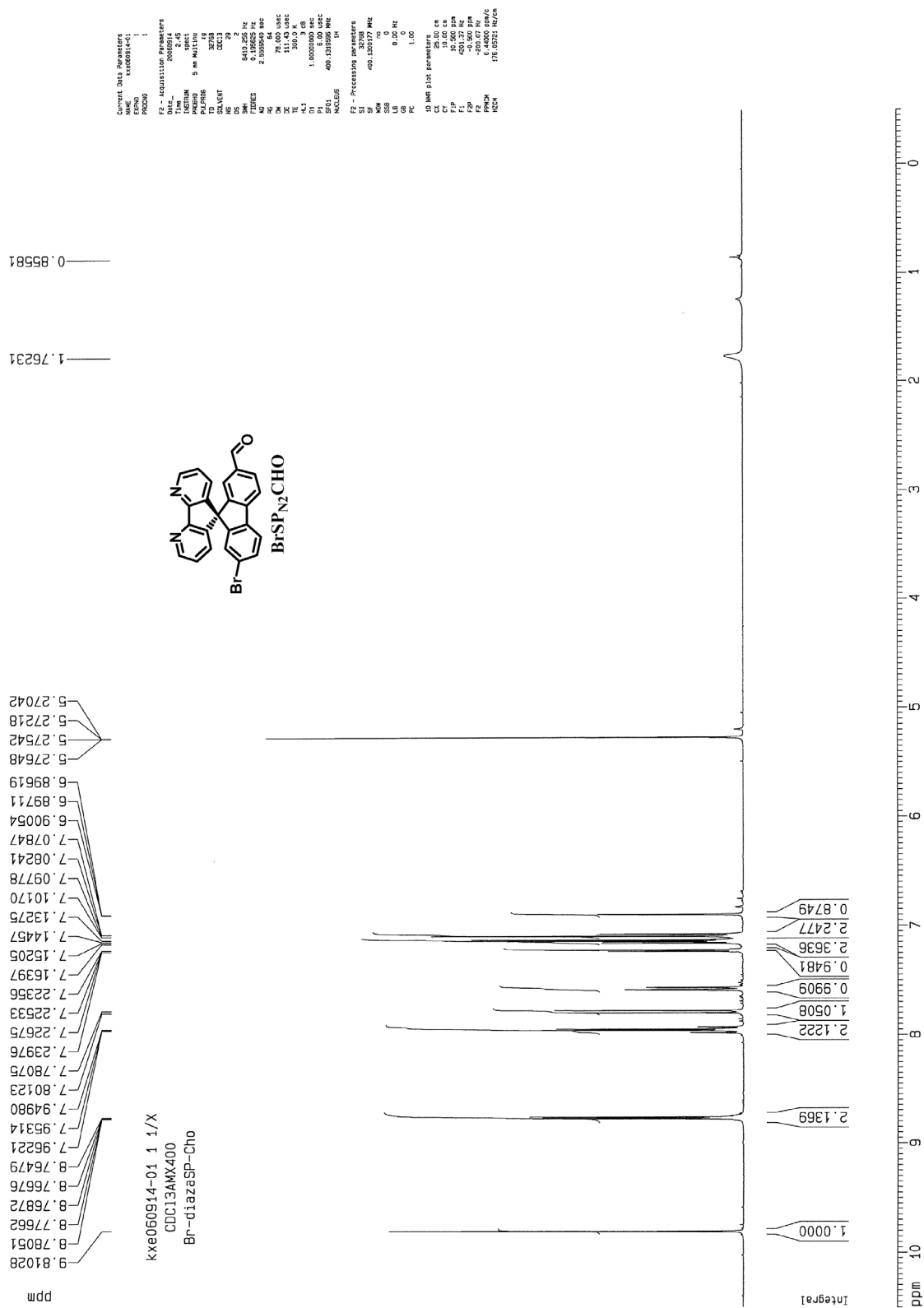
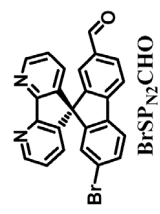
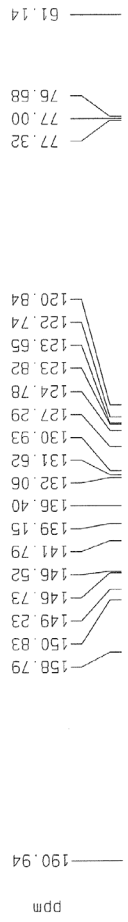


Figure S41. ¹H-NMR spectrum of 4,5-diaza-2'-bromo-9,9'-spirobifluorene-7'-carboxaldehyde (BrSP_N2-CHO)

kx2070410-01 6 1
E:
CDC13-AV400-13C
Br-diazaSCHO



Current Data Parameters
NAME kx2070410-01
EXPNO 6
PROCNO 1
F2 - Acquisition Parameters
Date_ 20070413
Time 9 57
INSTRUM spect
PROBHD 5 mm DUL 13C-1
PULPROG zgpg30
PCPDPRG2
SOLVENT CDCl3
NS 708
DS 4
SWH 23980.814 Hz
FIDRES 0.733856 Hz
AQ 0.088896 sec
RG 645
DM 20.850 usec
DE 6.00 usec
TE 298.0 K
D1 3.0000000 sec
D11 0.0500000 sec
D12 0.0500000 sec
MCHEST 0.0000000 sec
MCHRG 0.01500000 sec
***** CHANNEL f1 *****
NUC1 13C
P1 5.70 usec
PL1 -2.00 dB
SFO1 100.6262658 MHz
***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 13C
P2 5.70 usec
PL2 -2.00 dB
PL12 16.50 dB
SFO2 400.1316005 MHz
F2 - Processing parameters
SF 100.6127532 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
ID NMR plot parameters
CX 24.00 cm
CY 8.00 cm
FIP 200.000 gpa
F1 12.50 Hz
F2 10.000 Hz
F2 1006.13 Hz
APPCN 8.725000 ppm/cm
HZCN 880.36184 Hz/cm



Figure S42. ¹³C-NMR spectrum of 4,5-diaza-2'-bromo-9,9'-spirobifluorene-7'-carboxaldehyde (BrSP_N2CHO)

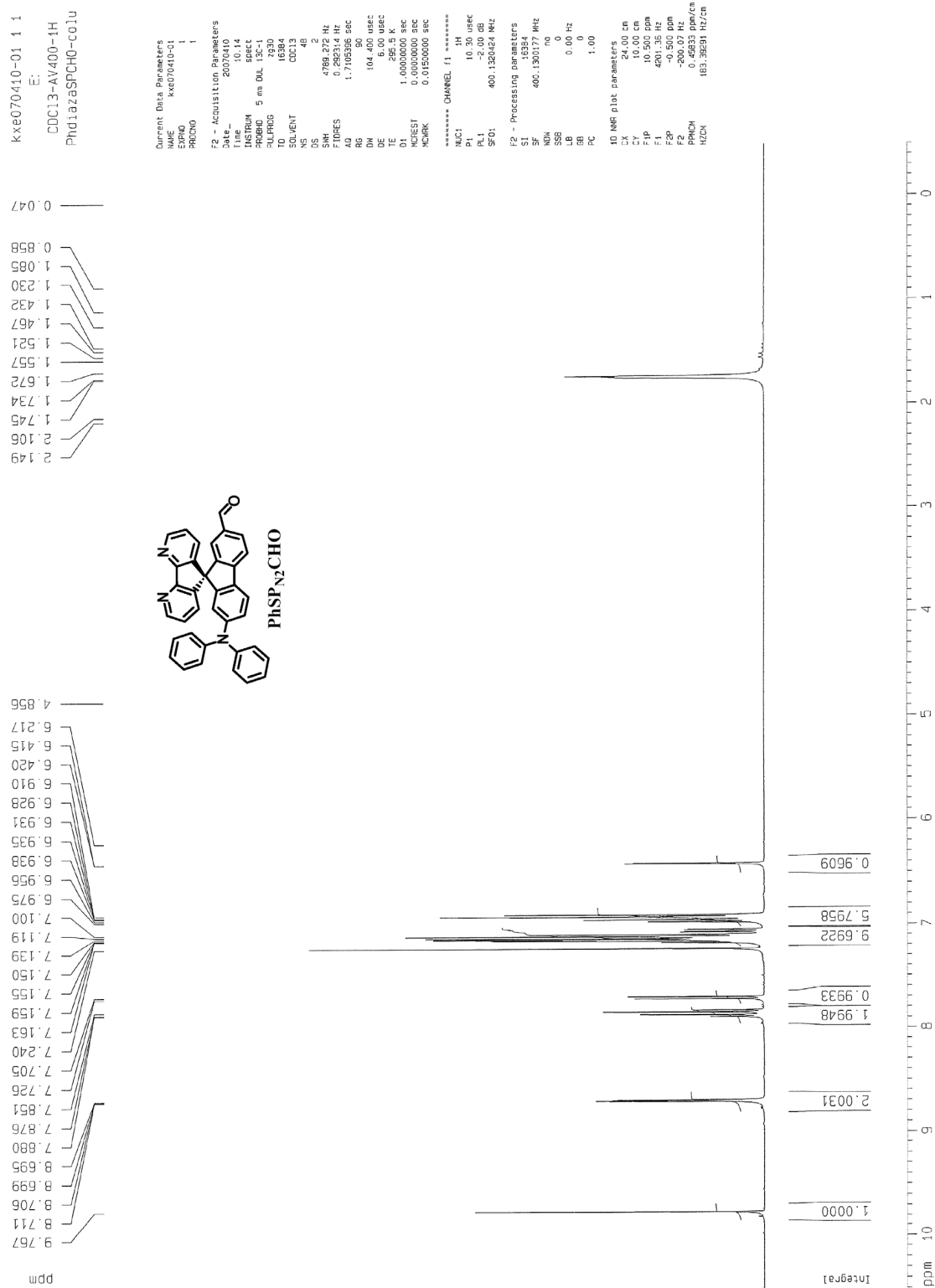
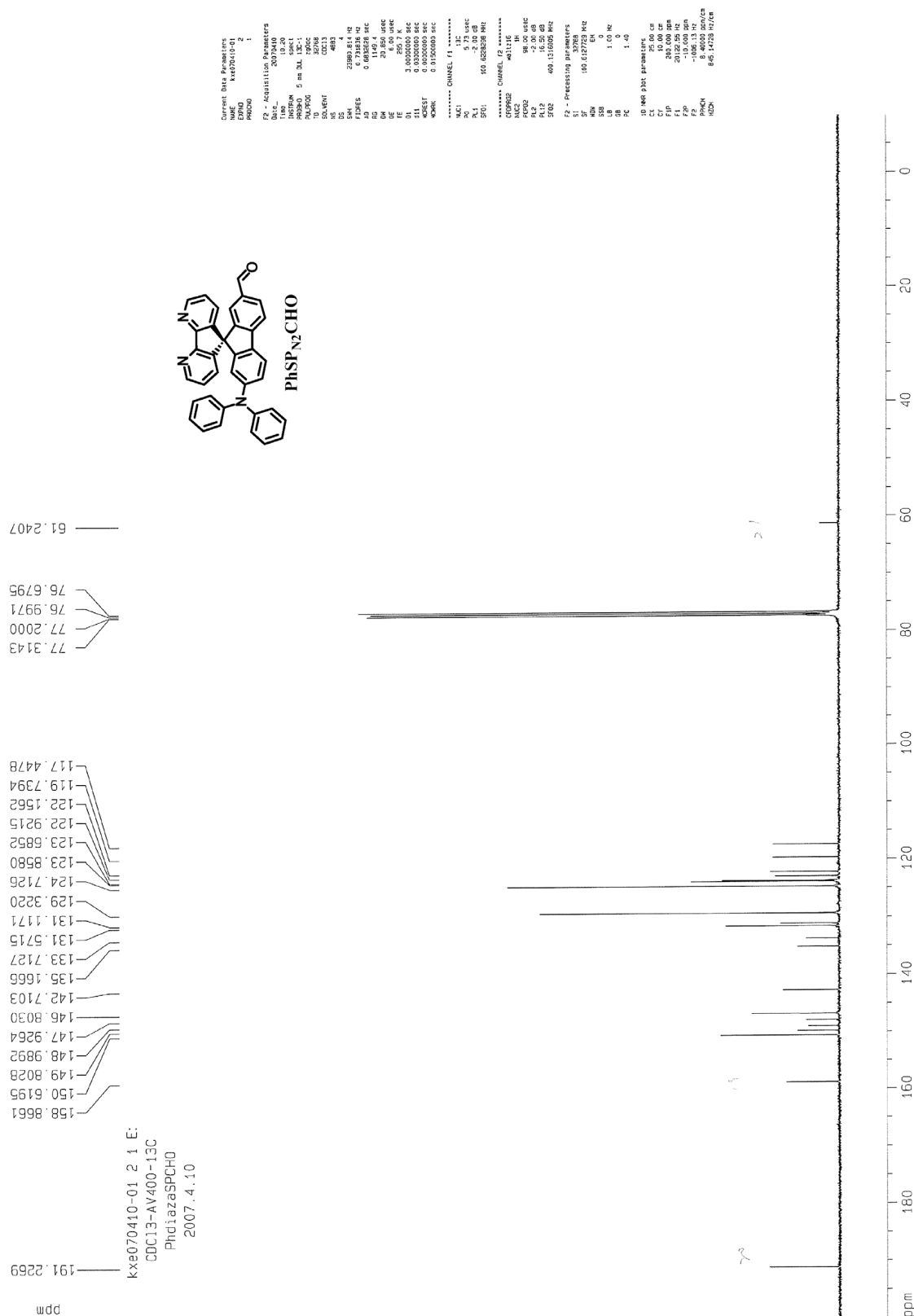


Figure S43. ¹H-NMR spectrum of 4,5-diaza-2'-diphenylamino-9,9'-spirobifluorene-7'-carboxaldehyde (PhSP_{N₂}CHO)



kke070410-01 4 1 E:
 CDC13-AV400-13C
 PhSP_{N2}DPV-sub
 2007.4.10

Current Data Parameters
 NAME kke070410-01
 EXPNO 4
 PROCNO 1
 F2 - Acquisition Parameters
 Date_ 20070410
 Time 19.16
 INSTRUM spect
 PULPROG zgpg30
 SFO1 100.6282898 MHz
 SFO2 400.1316005 MHz
 SF01 100.6282898 MHz
 SF02 400.1316005 MHz
 F2 - Processing parameters
 SI 32768
 SF 100.6127744 MHz
 KW 0
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40
 1D NMR plot parameters
 CX 24.00 cm
 CY 10.00 cm
 FIP 200.000 ppm
 F1 20.122 56 Hz
 F2 -106.13 Hz
 PPM0 8.75900 ppm/cm
 HZCM 880.36188 Hz/cm

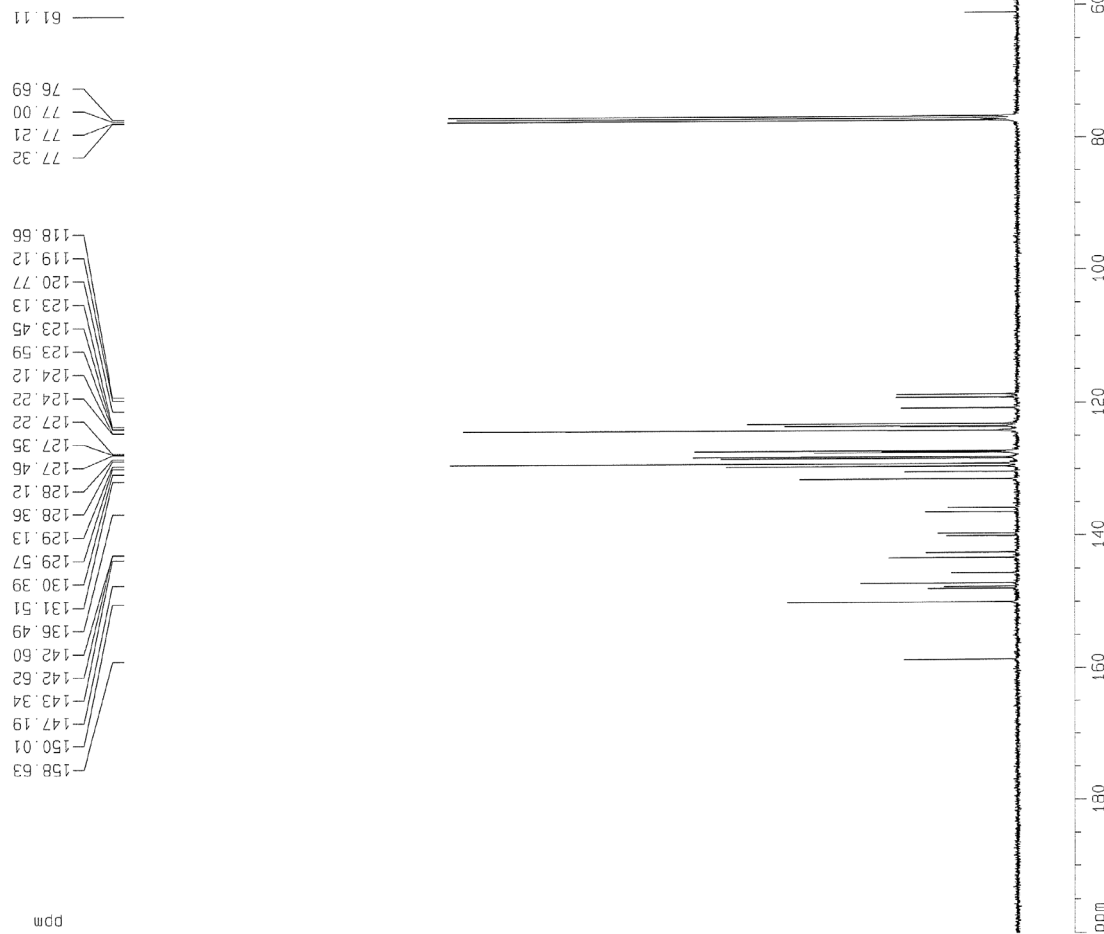
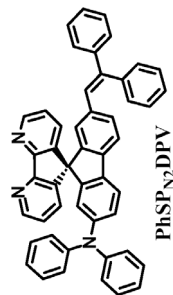


Figure S46. ¹³C-NMR spectrum of 4,5-diaza-2'-diphenylamino-7'-(2,2-diphenylvinyl)-9,9'-spirobifluorene (PhSP_{N2}DPV)

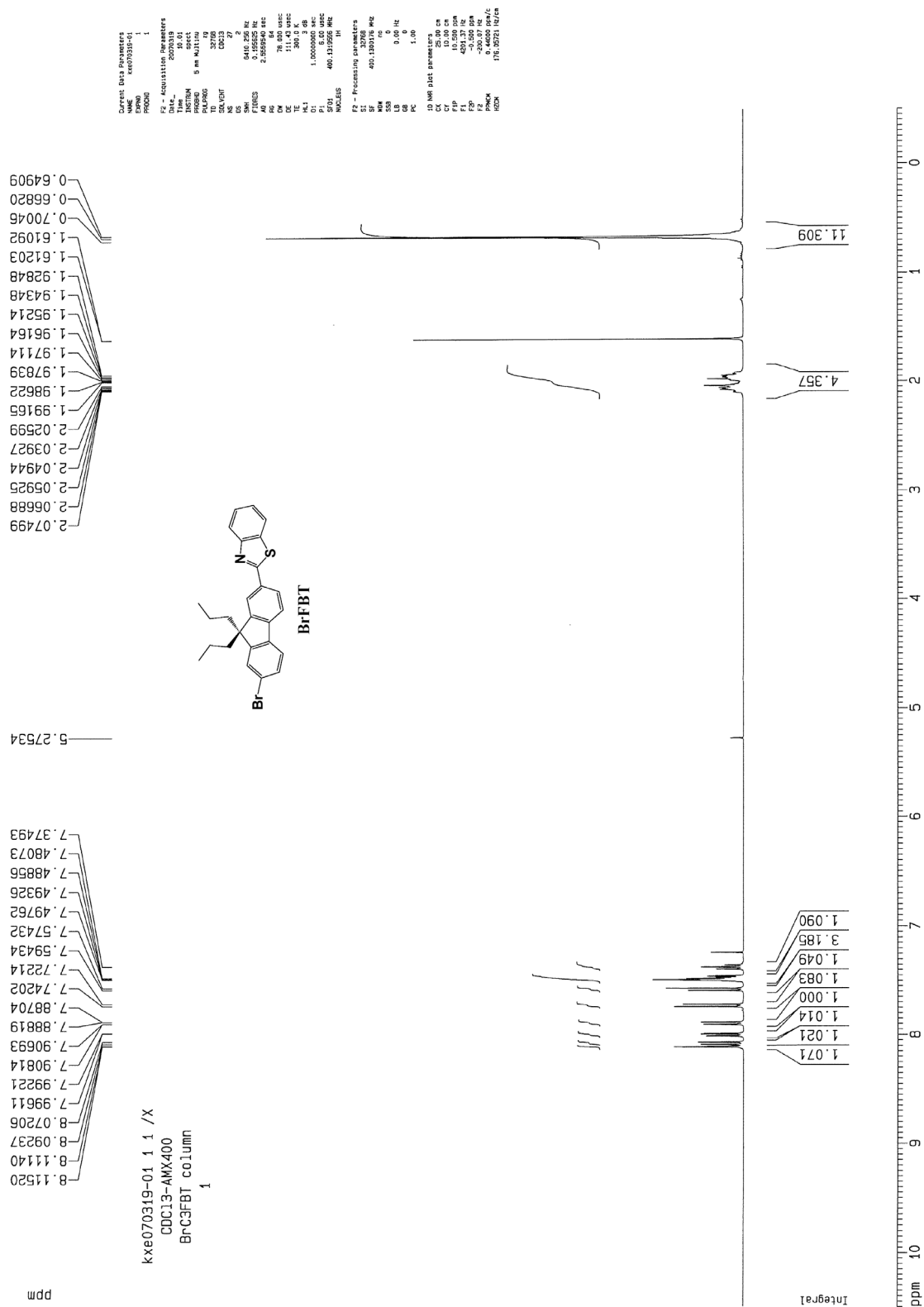


Figure S47. ¹H-NMR spectrum of 2-(7-bromo-9,9'-dipropyl-9H-fluoren-2-yl)-benzothiazole (BrFBT)

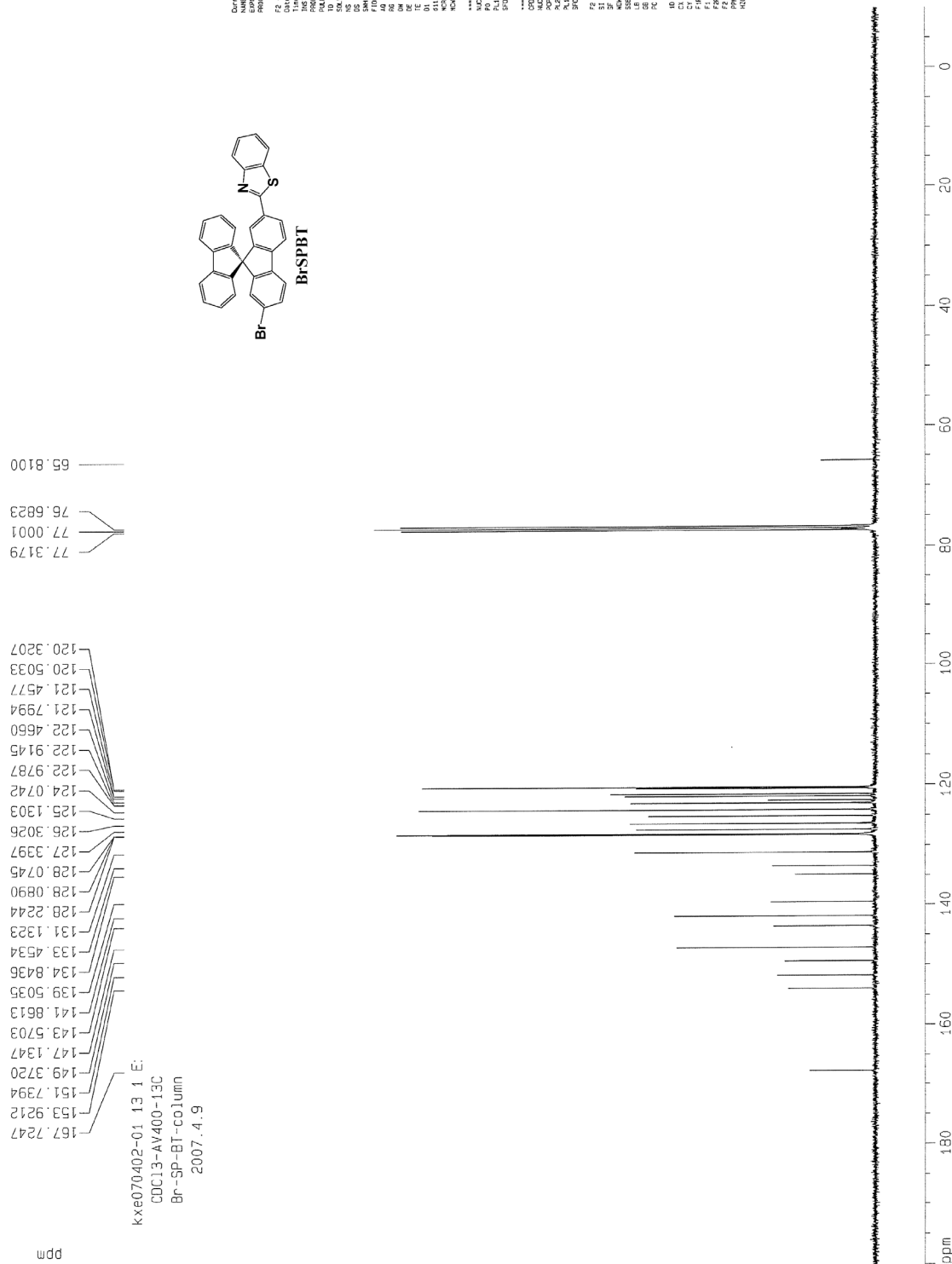


Figure S50. ^{13}C -NMR spectrum of 2-(7-bromo-9,9'-spirobifluorene)-benzothiazole (BrSPBT)

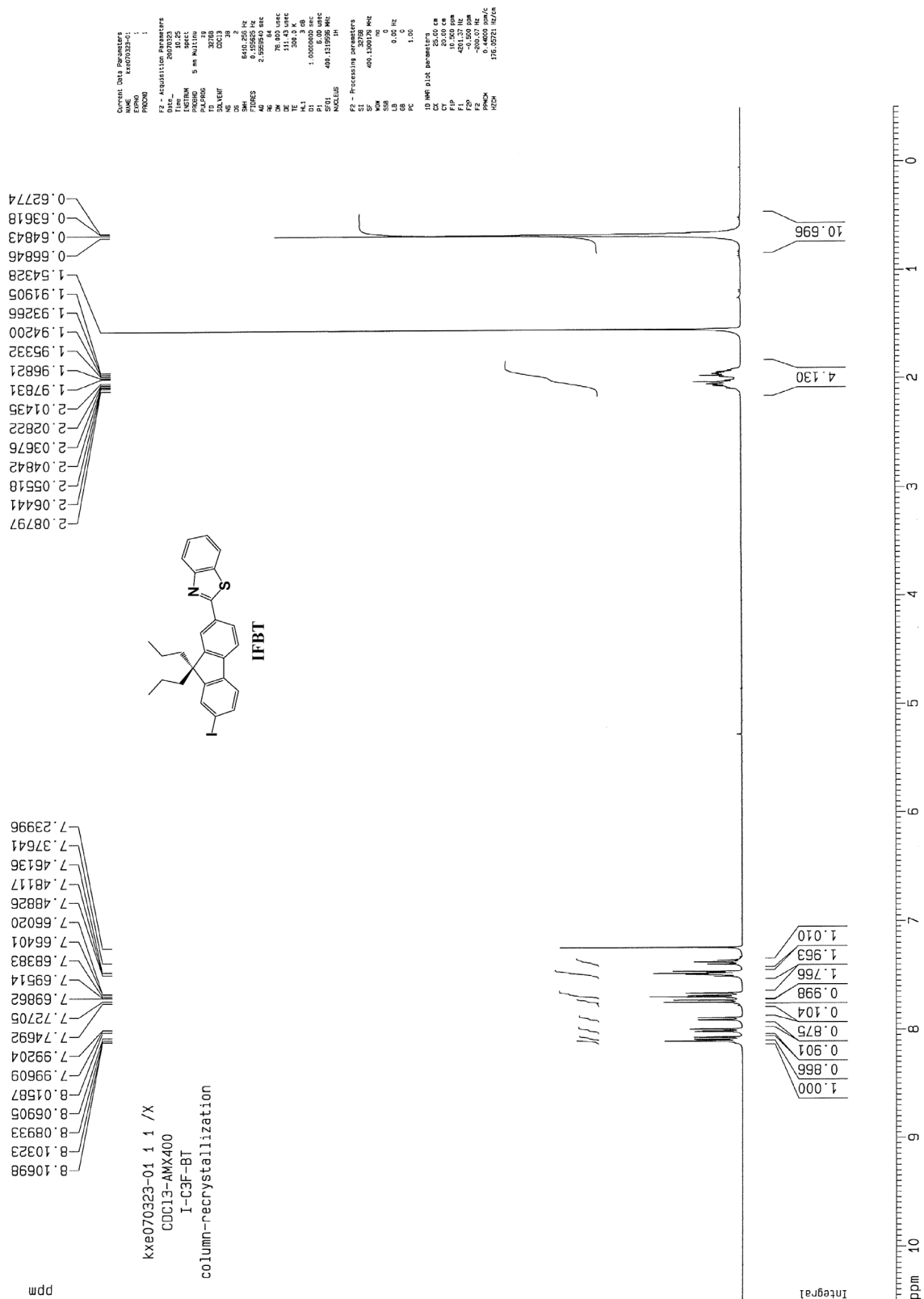


Figure S51. ¹H-NMR spectrum of 2-(7-iodo-9,9'-dipropyl-9H-fluoren-2-yl)-benzothiazole (IFBT)

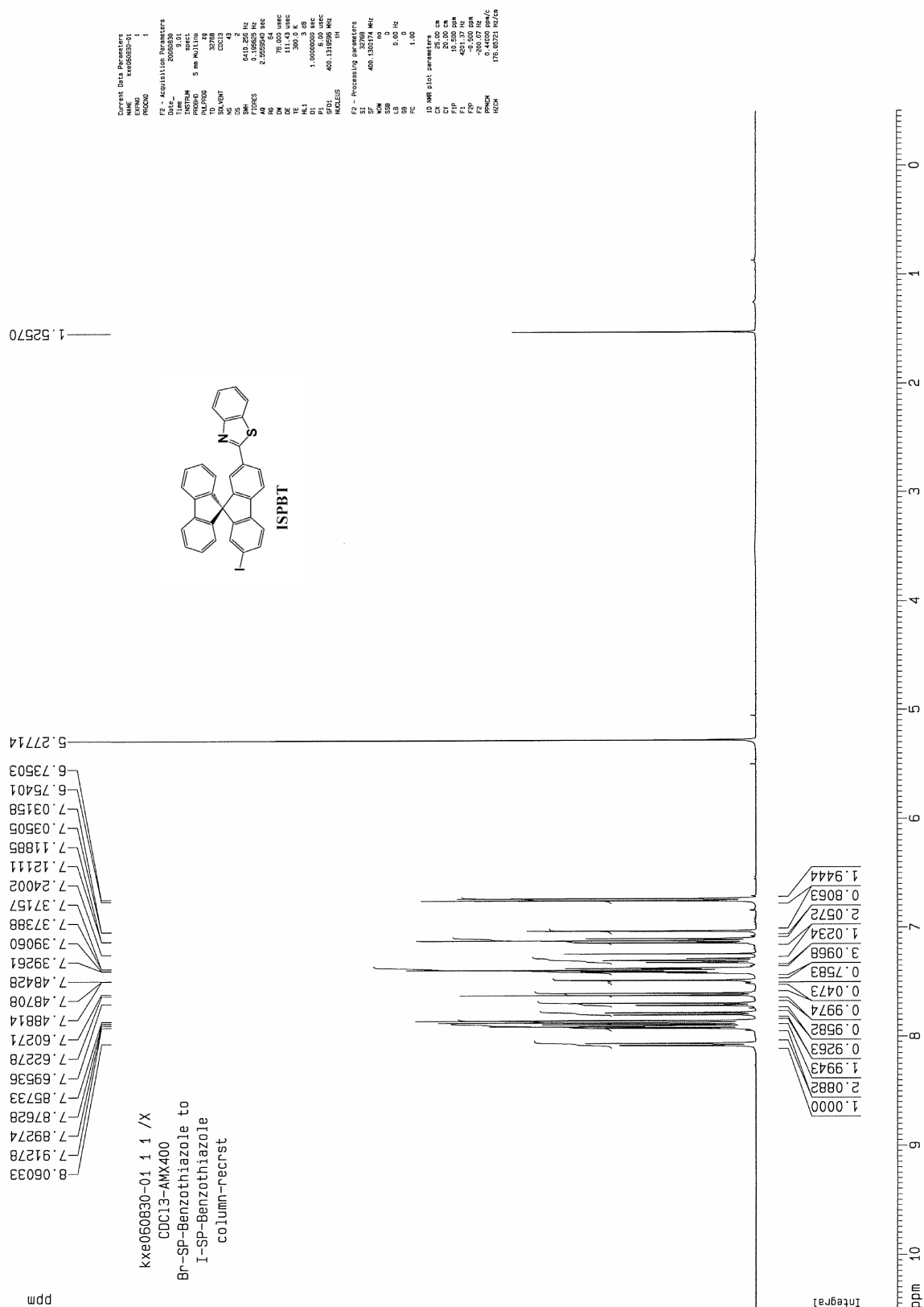


Figure S53. ¹H-NMR spectrum of 2-(7-iodo-9,9'-spirobifluorene)-benzothiazole (ISPBT)

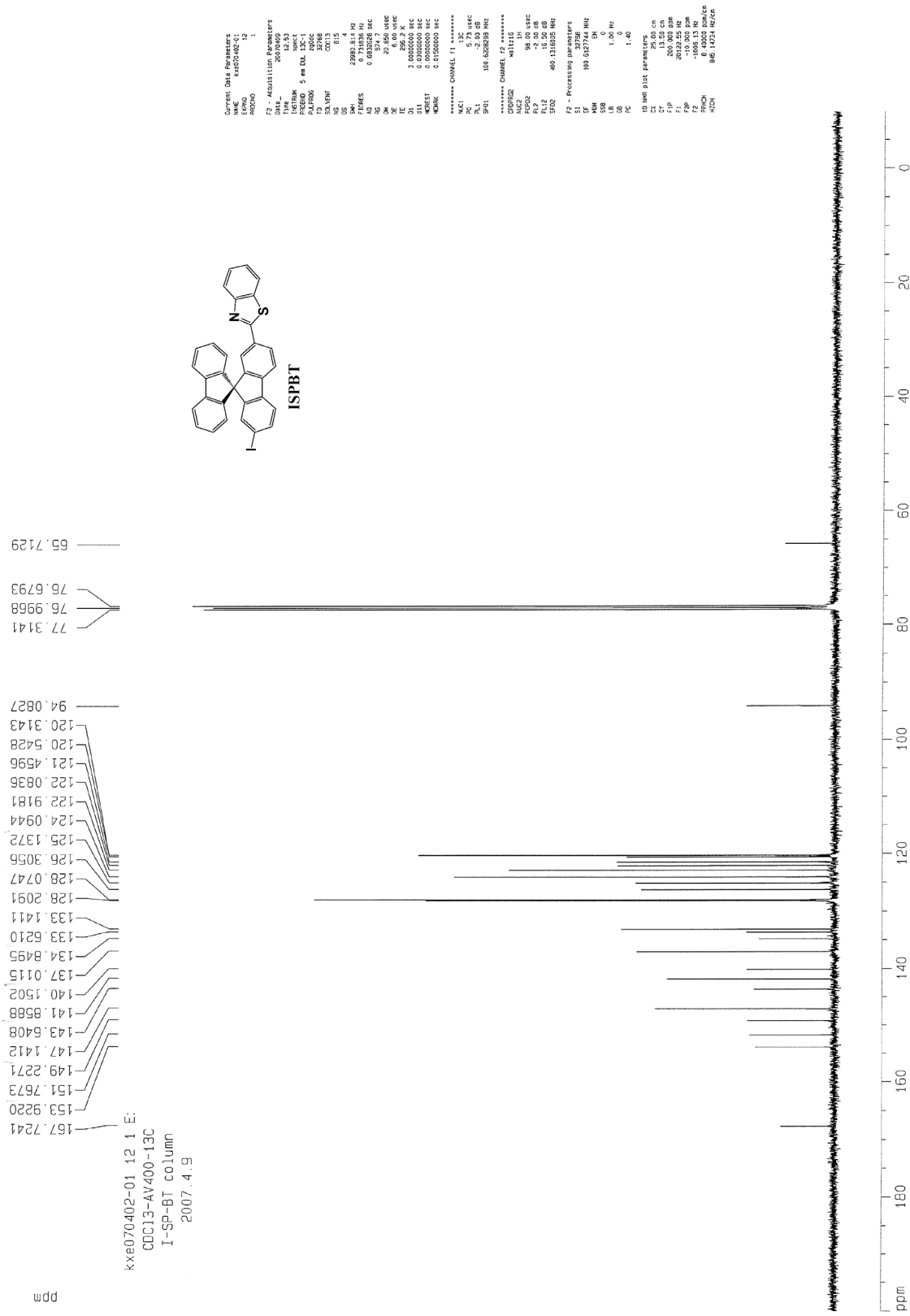


Figure S54. ¹³C-NMR spectrum of 2-(7-iodo-9,9'-spirobifluorene)-benzothiazole (ISPBT)

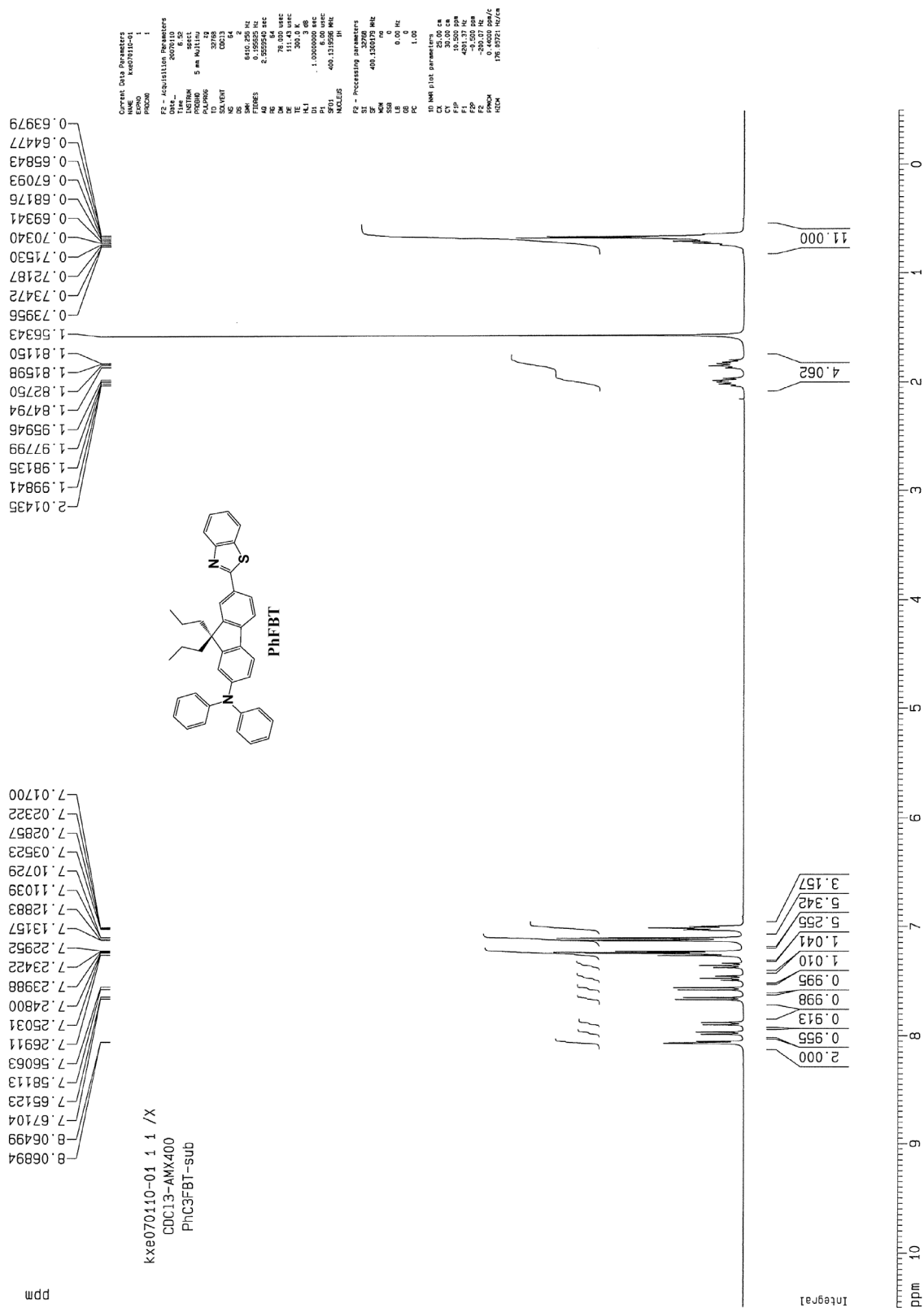


Figure S55. ¹H-NMR spectrum of (7-benzothiazol-2-yl-9,9'-dipropyl-9H-fluoren-2-yl)-diphenylamine (PhFBT)

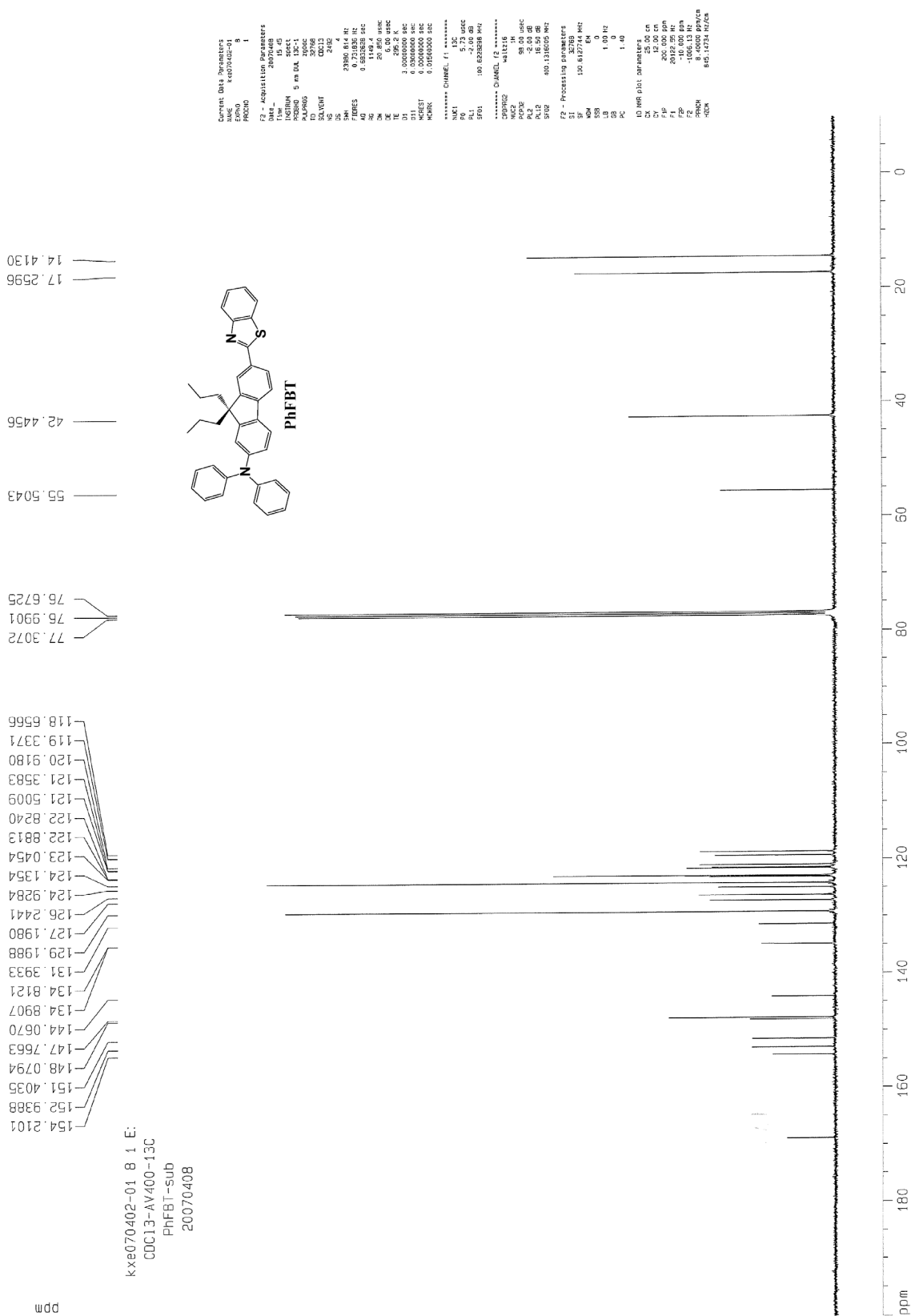
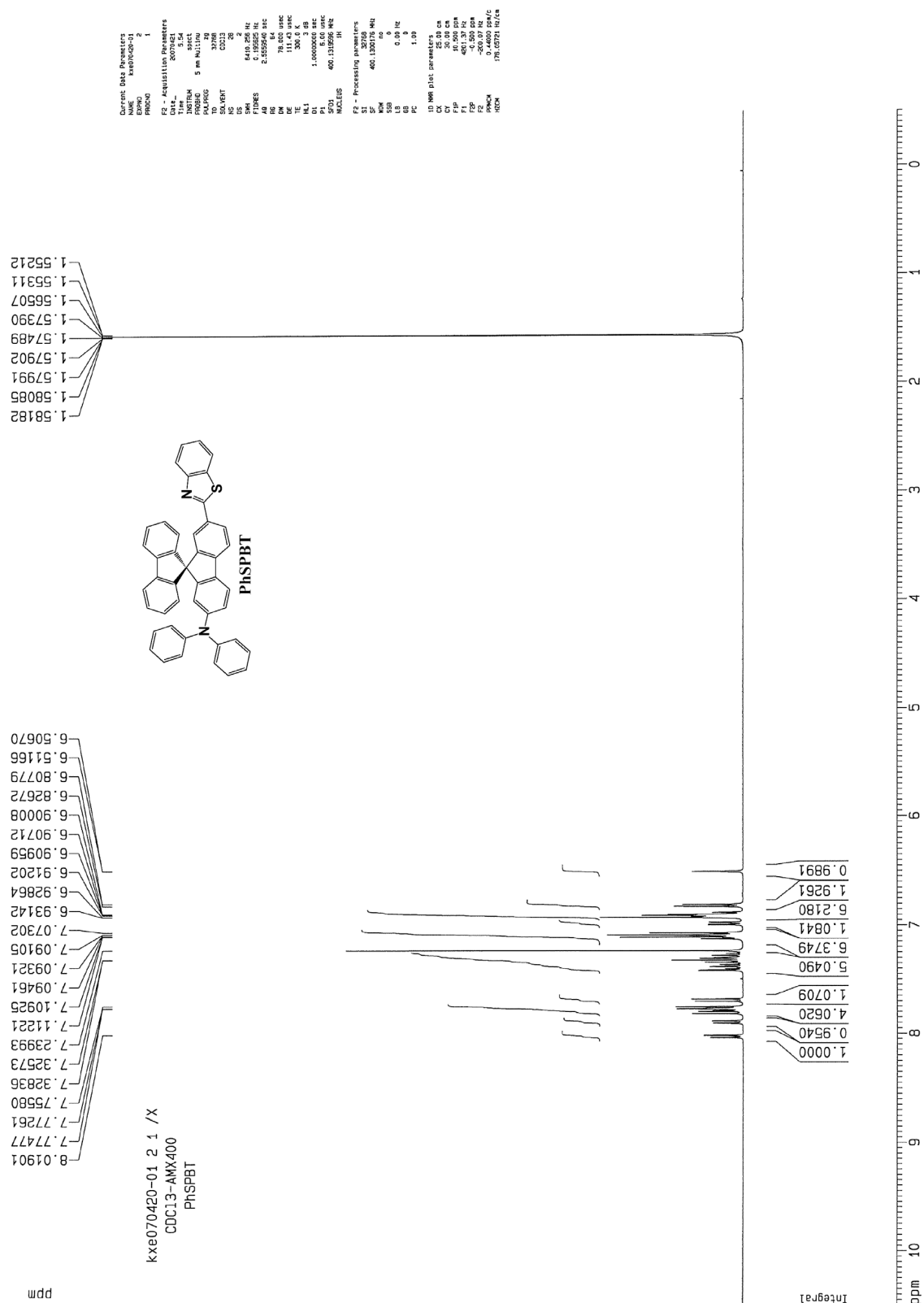


Figure S56. ¹³C-NMR spectrum of (7-benzothiazol-2-yl-9,9'-dipropyl-9H-fluoren-2-yl)-diphenylamine (PhFBT)



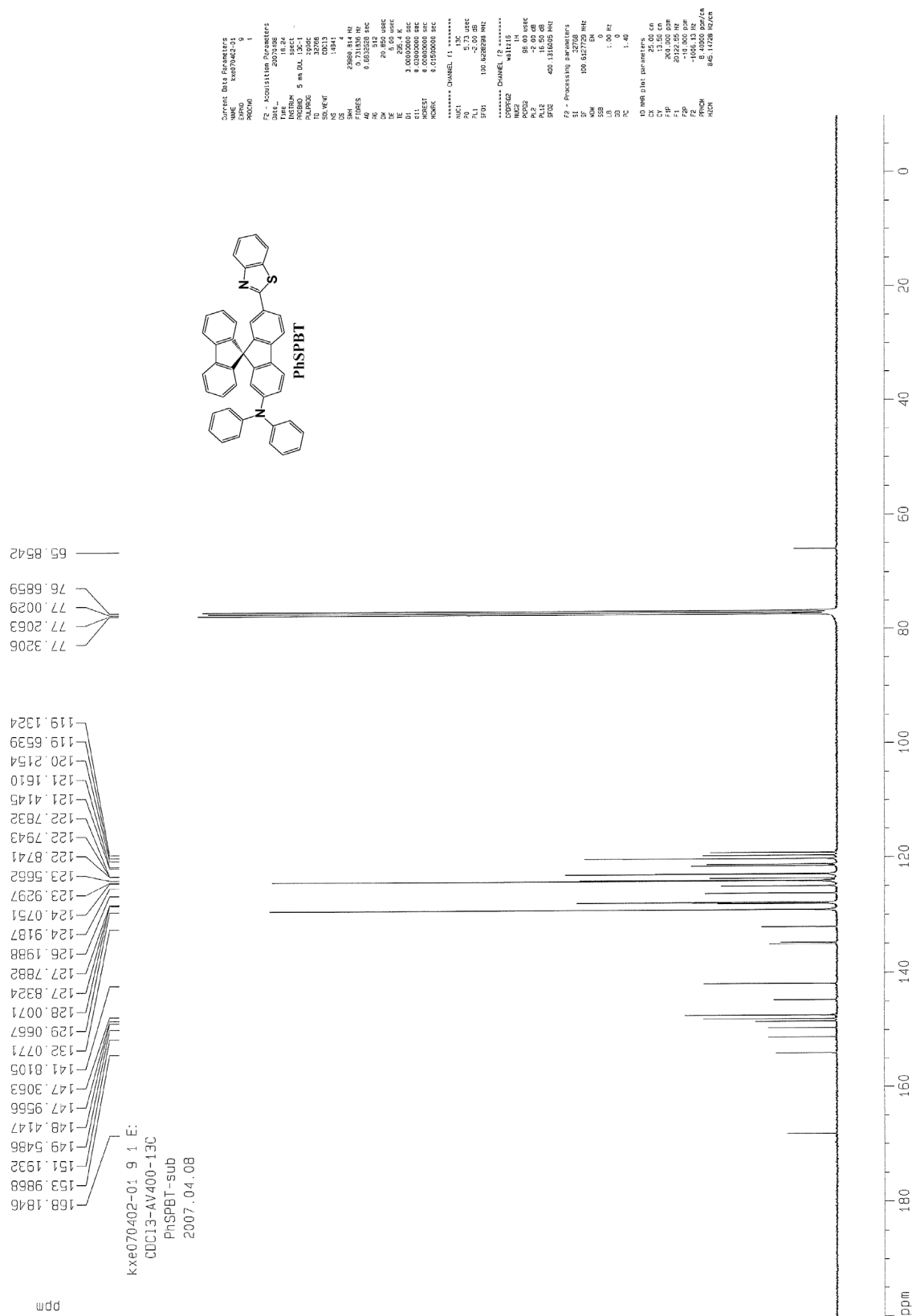


Figure S58. ^{13}C -NMR spectrum of (7-benzothiazol-2-yl-9,9'-spirobifluorene)-diphenylamine (PhSPBT)



219

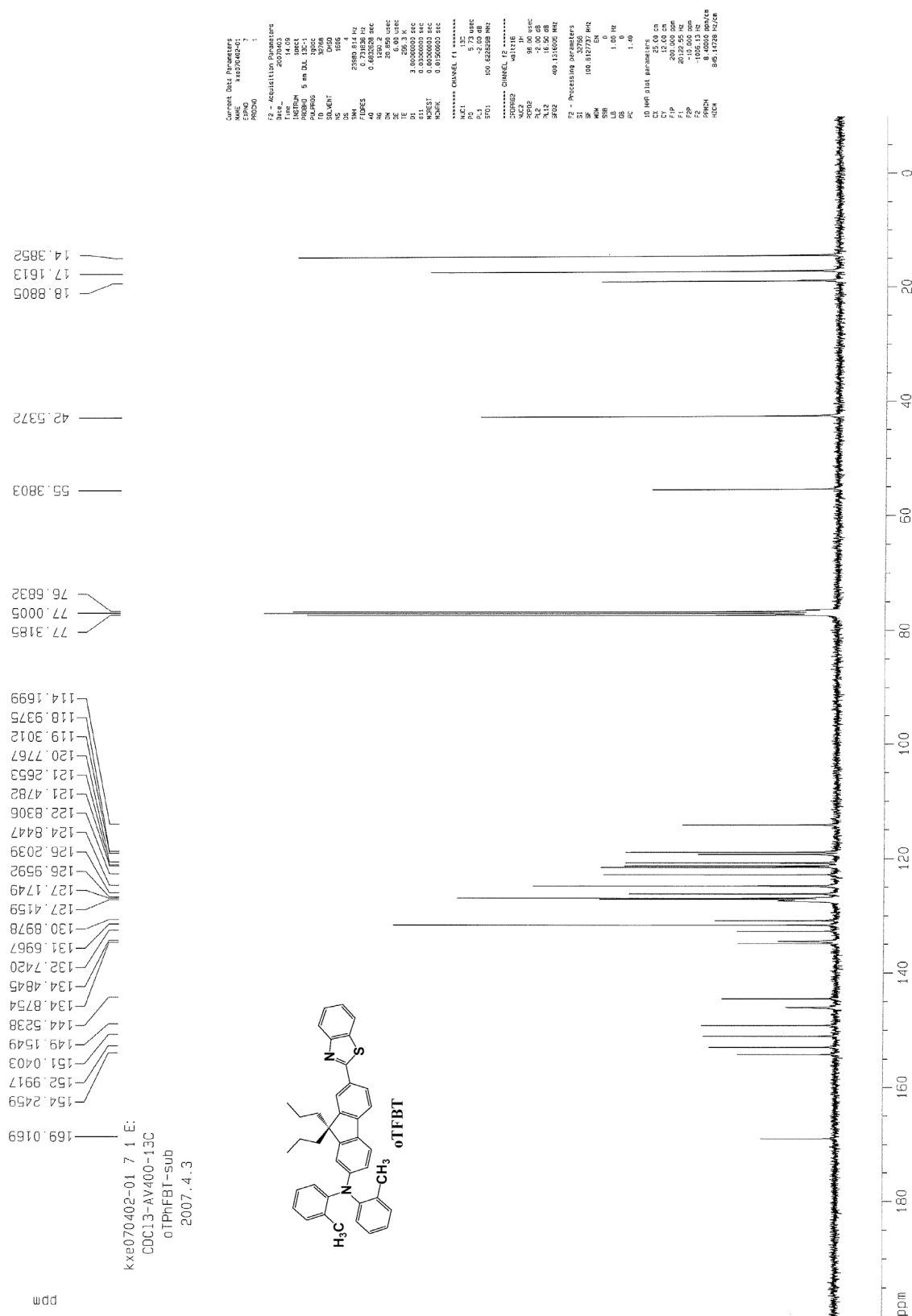


Figure S60. ^{13}C -NMR spectrum of (7-benzothiazol-2-yl-9,9'-dipropyl-9H-fluoren-2-yl)-di-*o*-tolylamine (oTFBT)

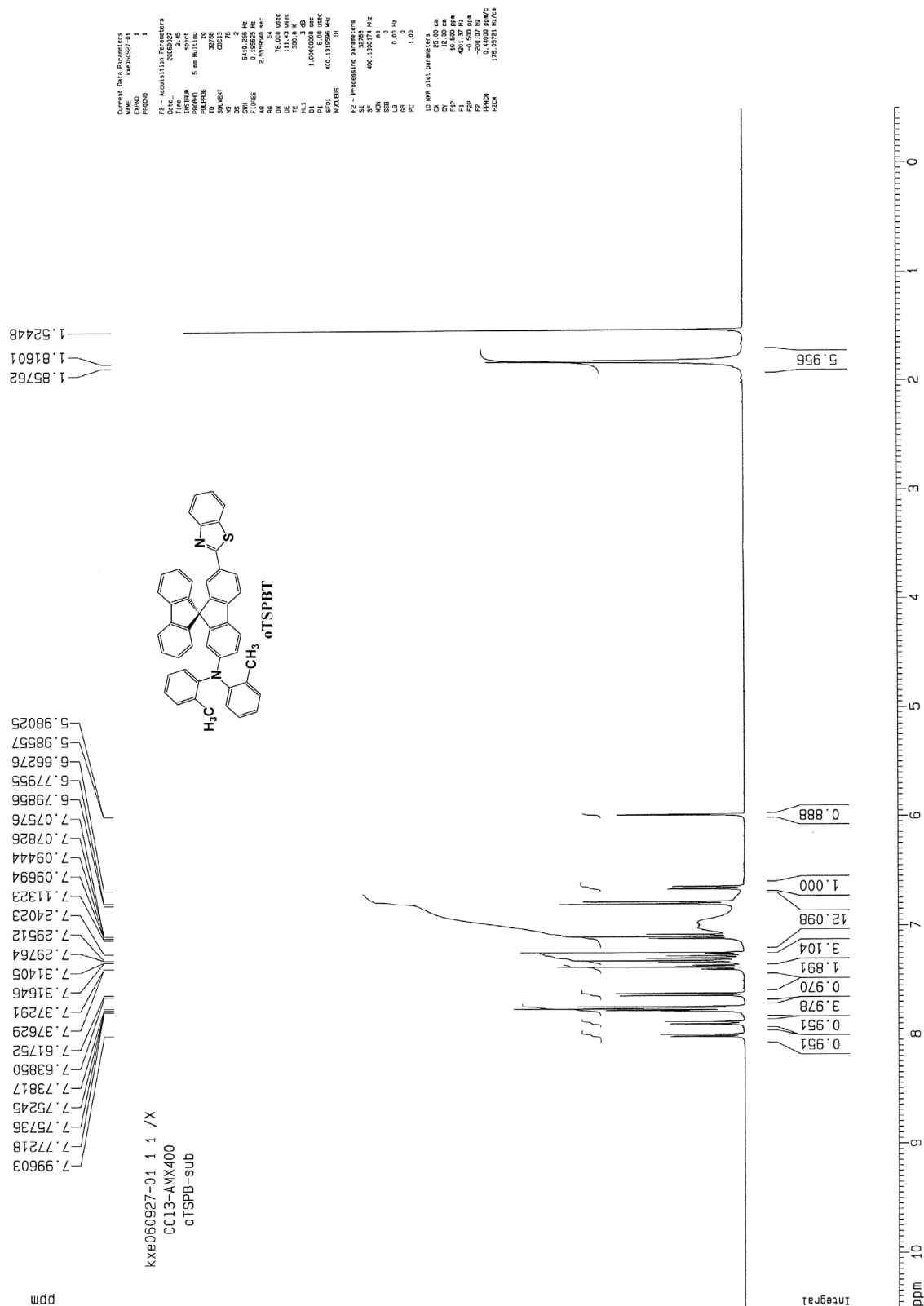
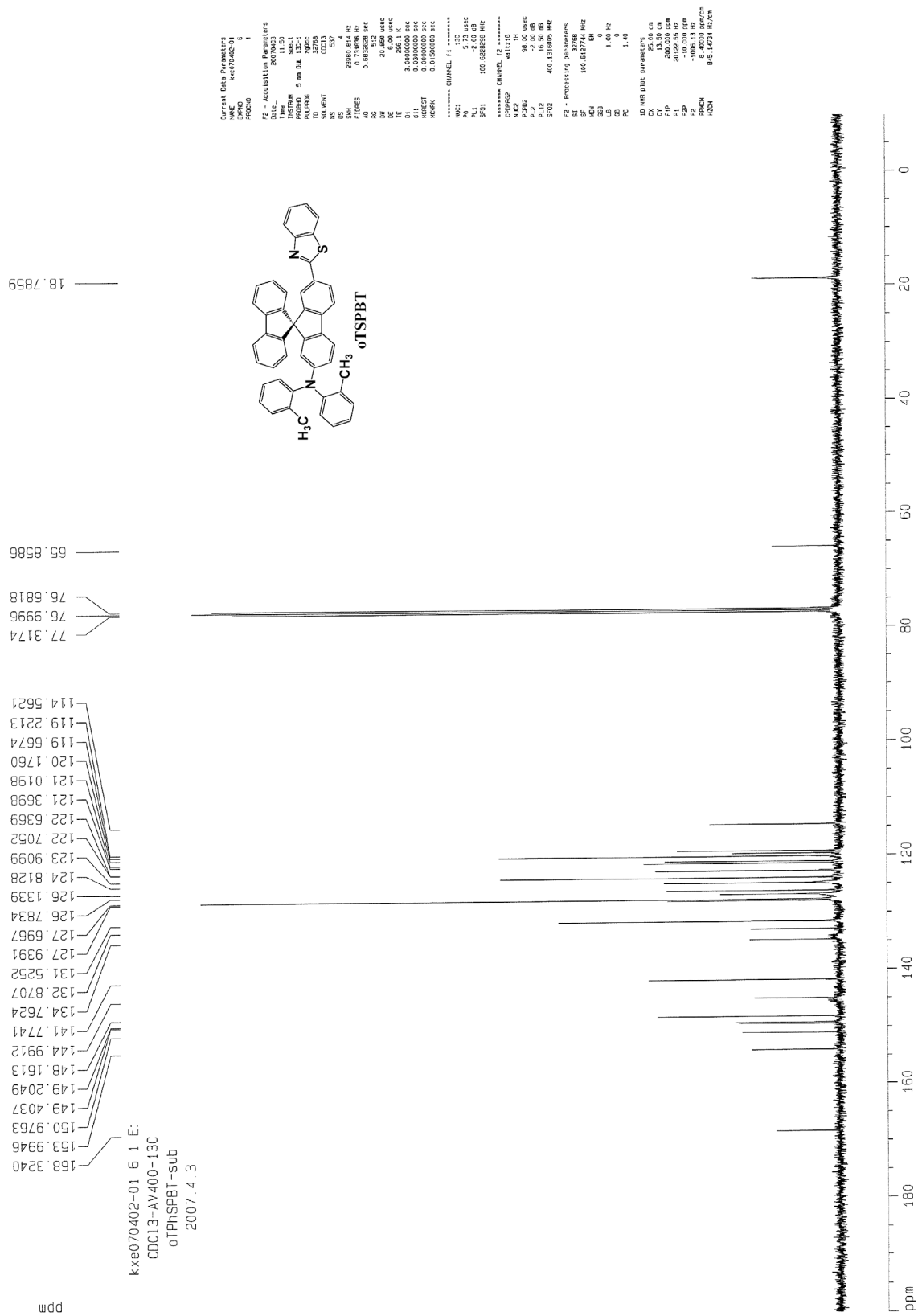


Figure S61. ¹H-NMR spectrum of (7-benzothiazol-2-yl-9,9'-spirobifluorene)-di-*o*-tolylamine (oTSPBT)



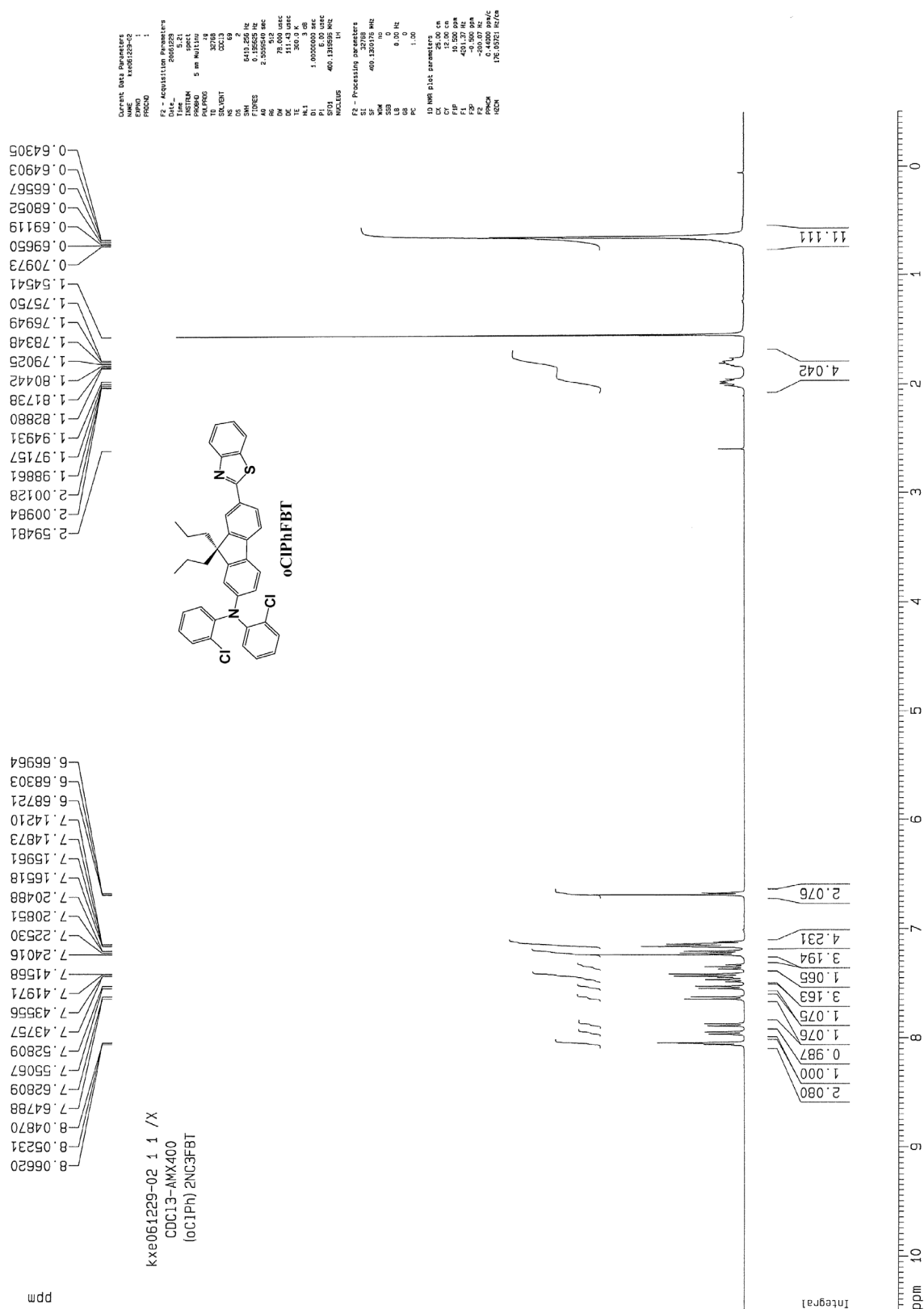


Figure S63. ¹H-NMR spectrum of (7-benzothiazol-2-yl-9,9'-dipropyl-9H-fluoren-2-yl)-(2-chlorophenyl)amine (oCIPhBT)

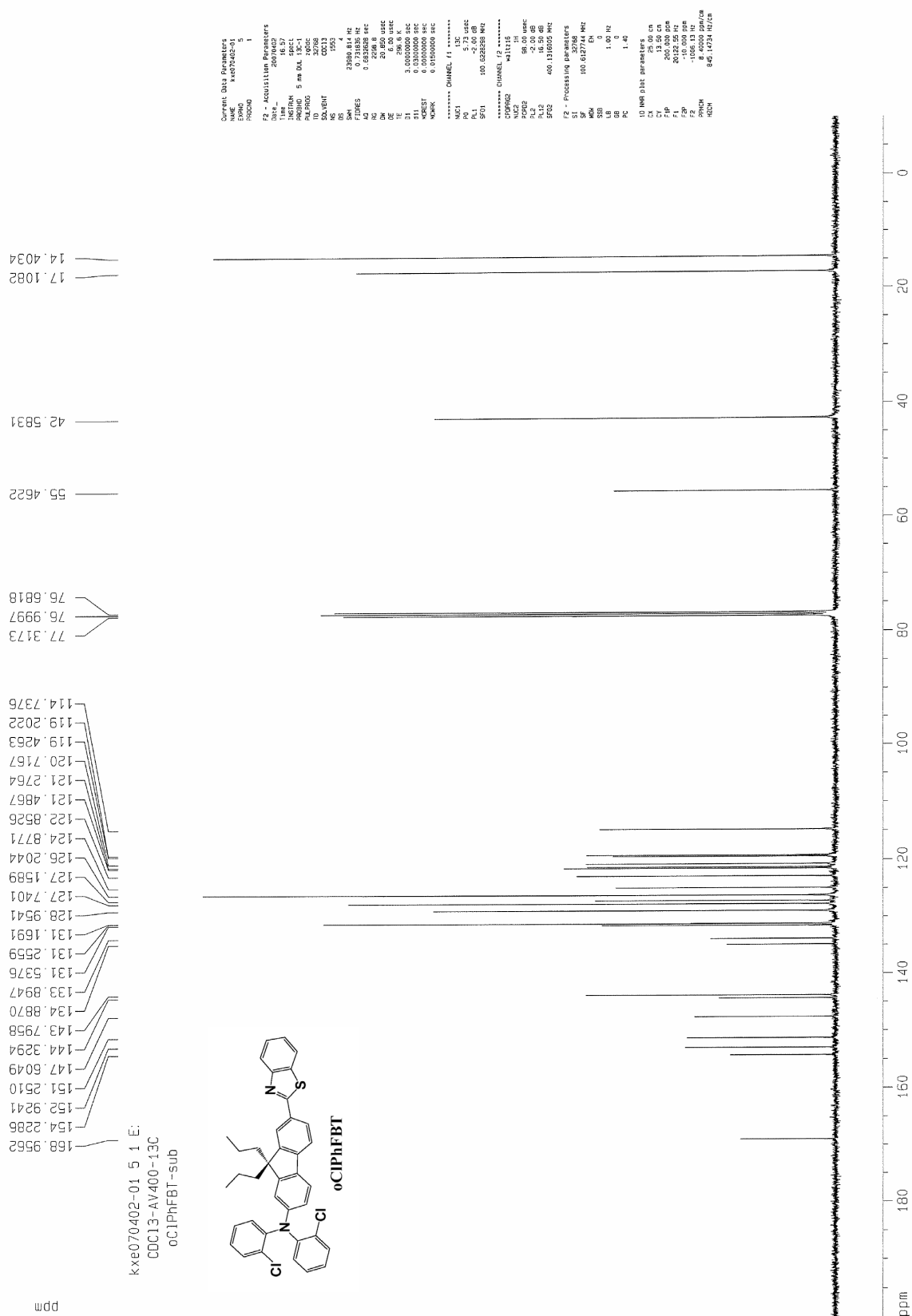


Figure S64. ^{13}C -NMR spectrum of (7-benzothiazol-2-yl-9,9'-dipropyl-9H-fluoren-2-yl)-bis-(2-chlorophenyl)amine (oCIPhBT)

kxe070402-01 2 1
 CDC13-AV400-13(
 oFPhSPBT-sub

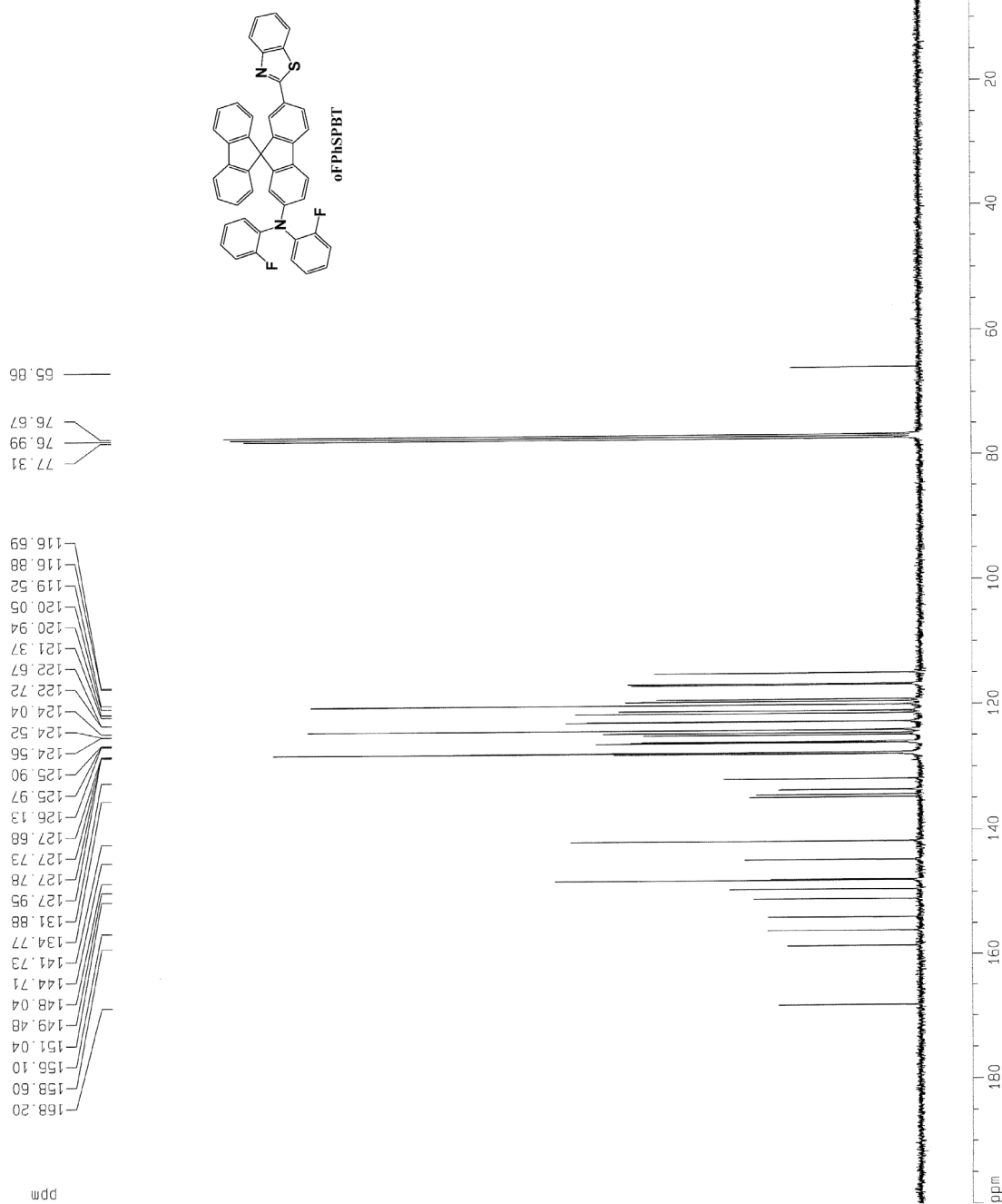


Figure S70. ¹³C-NMR spectrum of (7-benzothiazol-2-yl-9,9'-spirobifluorene)-bis-(2-fluorophenyl)amine (oFPhSPBT)

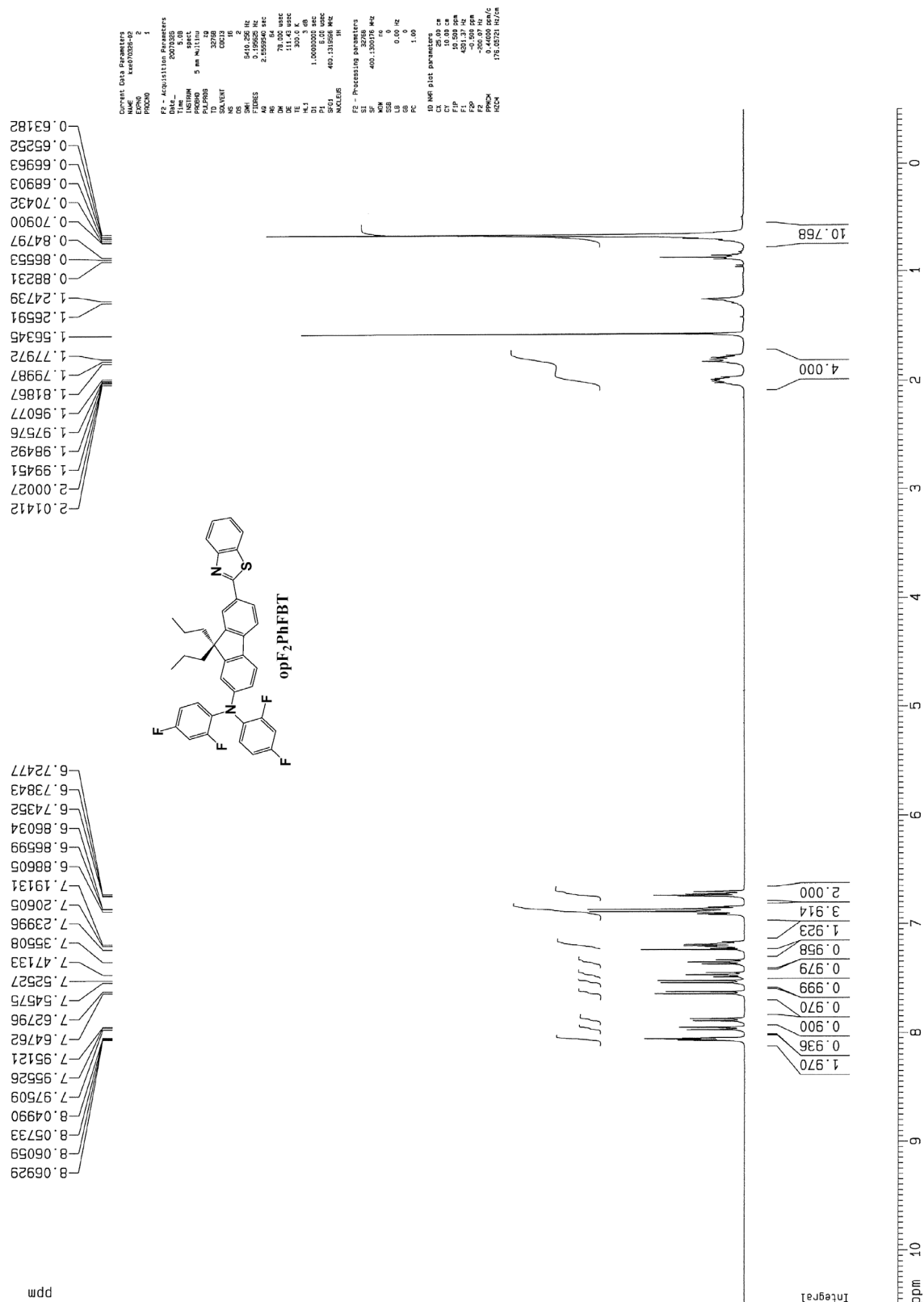
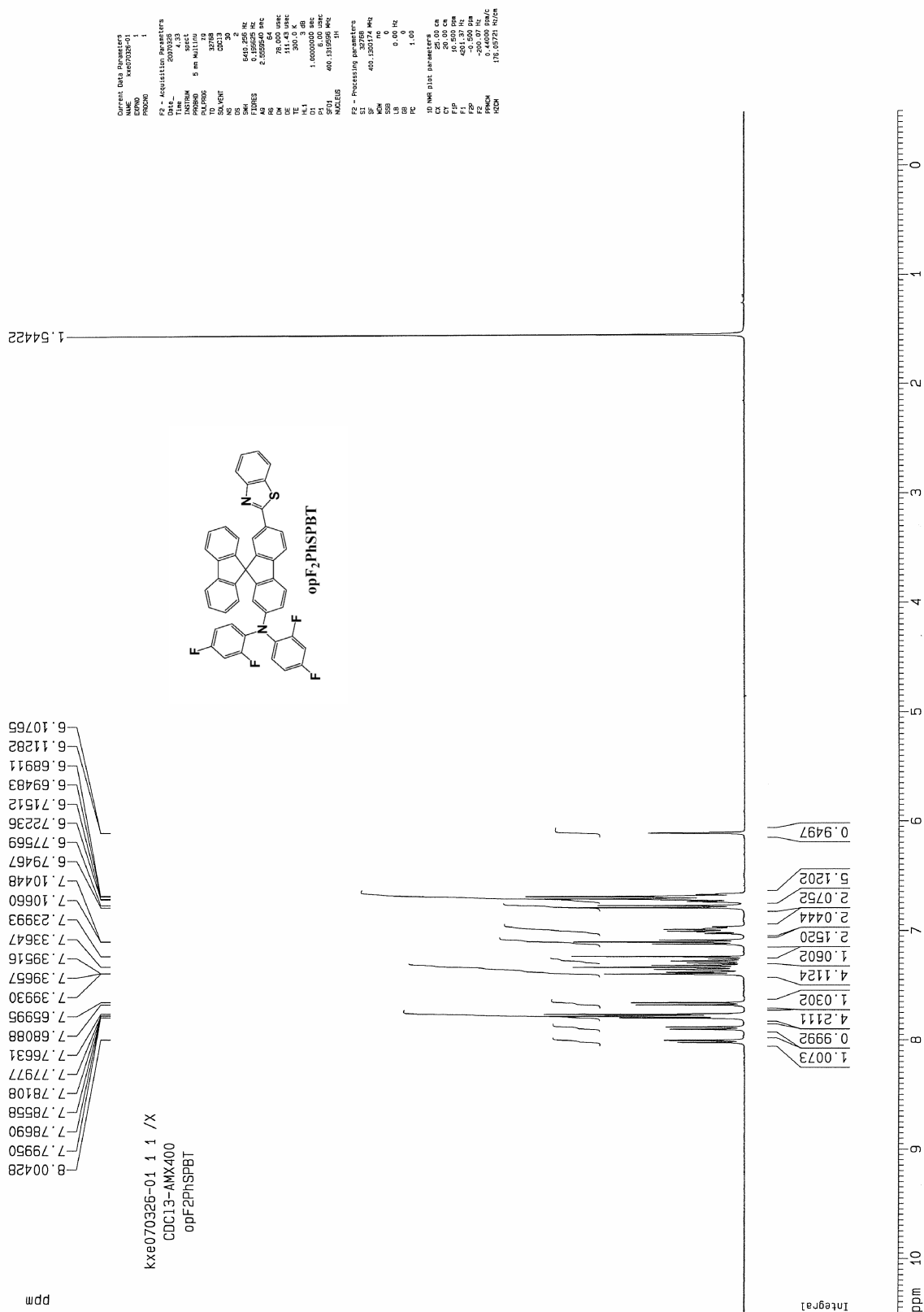


Figure S71. ¹H-NMR spectrum of (7-benzothiazol-2-yl-9,9'-dipropyl-9H-fluoren-2-yl)-bis-(2,4-difluorophenyl)amine (opF2PhFBT)





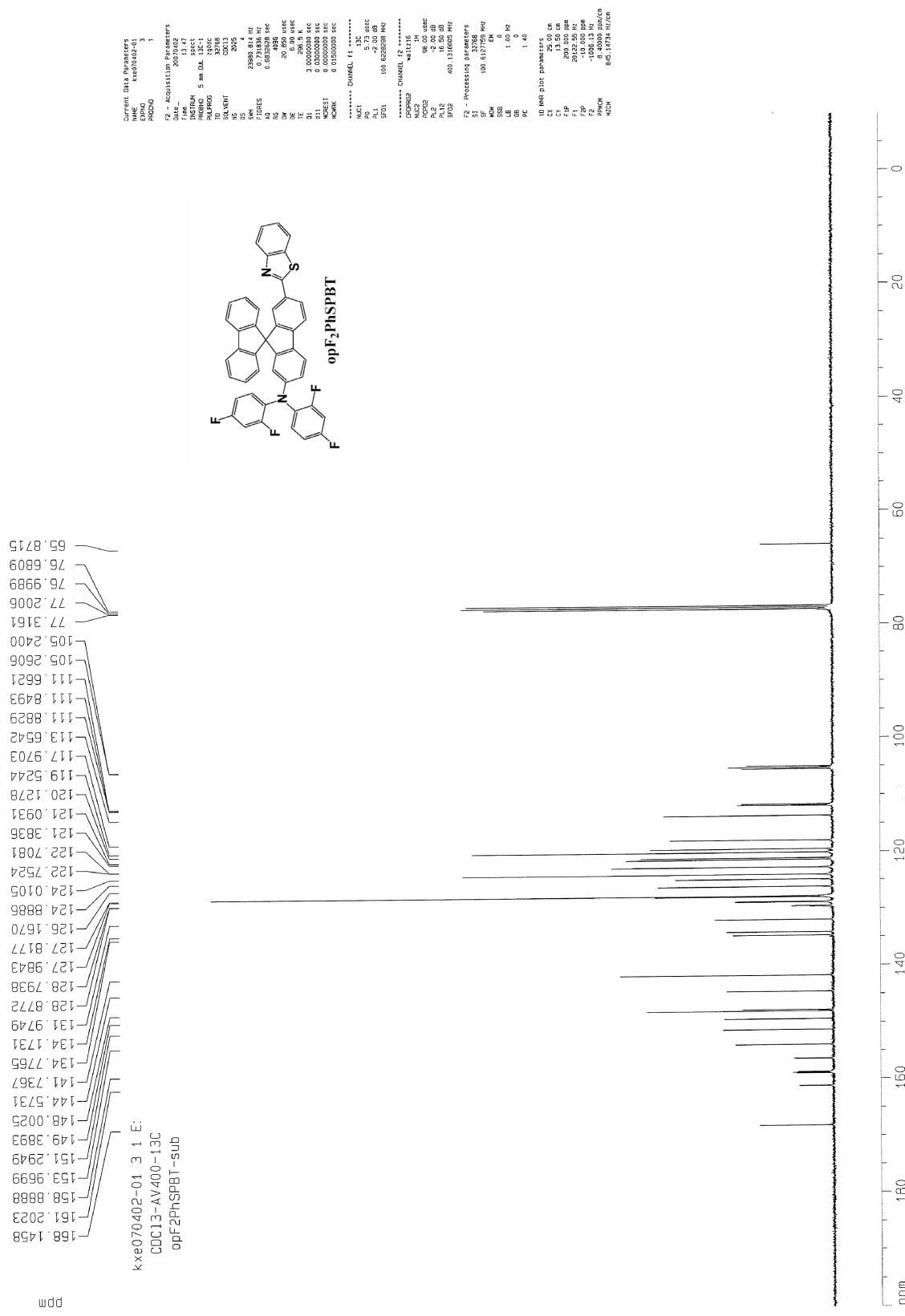


Figure S74. ¹³C-NMR spectrum of (7-benzothiazol-2-yl-9,9'-spirobifluorene)-bis-(2,4-difluorophenyl)amine (opF2PhSPBT)