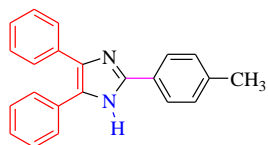
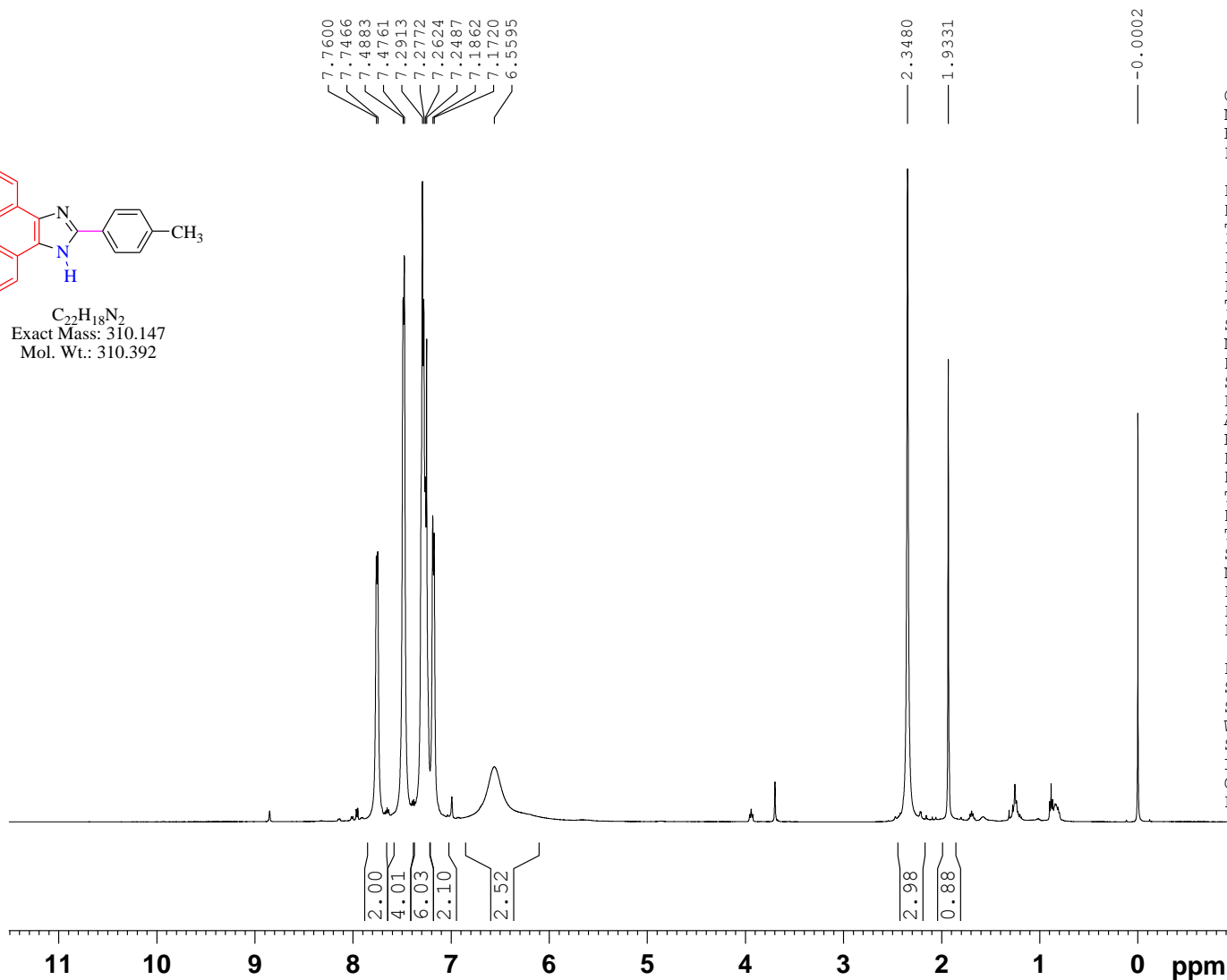


C-2
1H_scan CDC13 {D:\Spectra} nmr 35



$C_{22}H_{18}N_2$
Exact Mass: 310.147
Mol. Wt.: 310.392



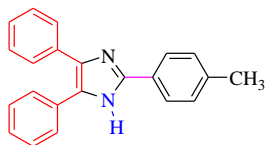
BRUKER
AVANCE NEO
500 MHz NMR
SPECTROMETER
SAIF, P.U.

Current Data Parameters
NAME Nov10-2023
EXPNO 350
PROCNO 1

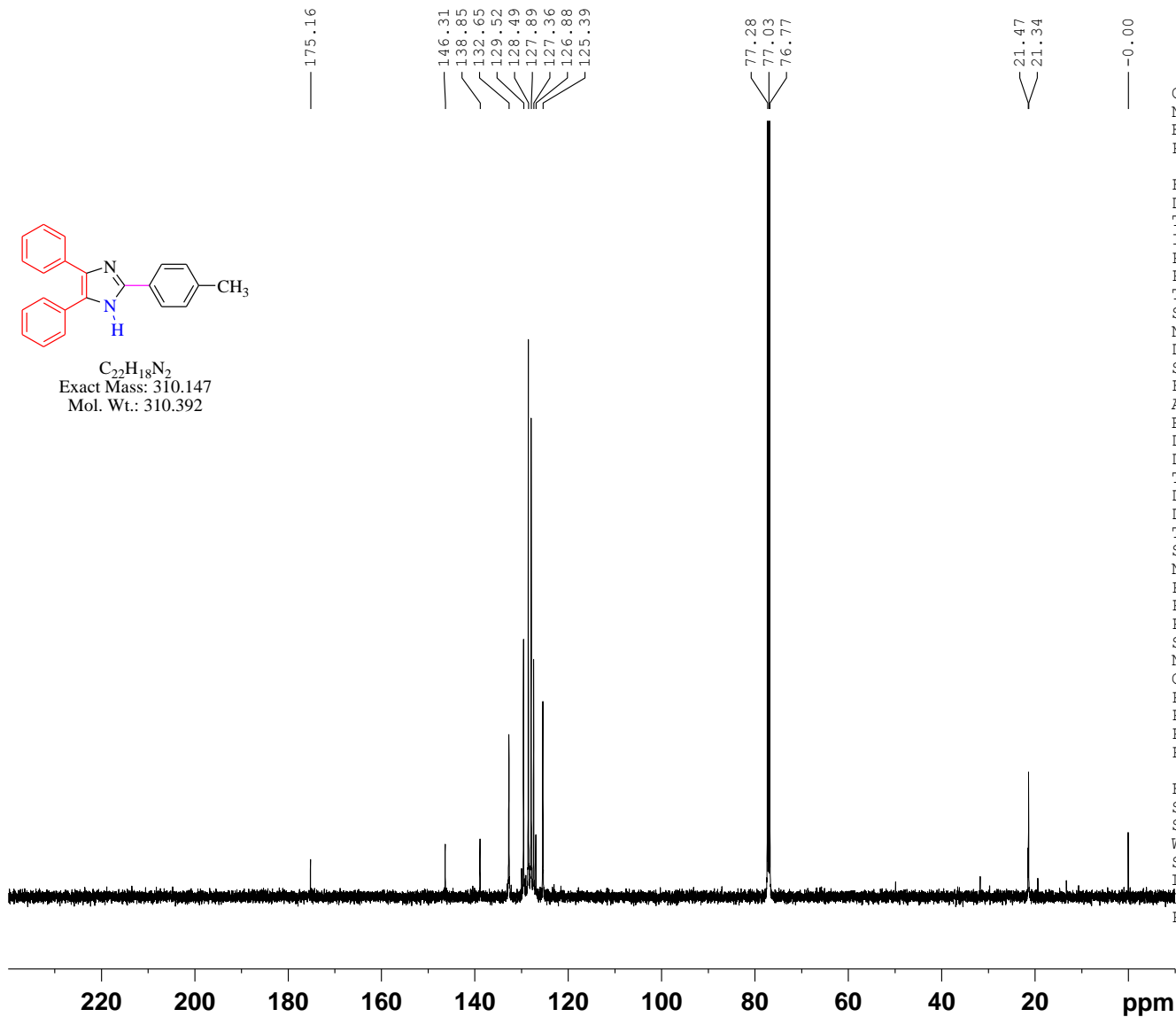
F2 - Acquisition Parameters
Date 20231111
Time 11.18 h
INSTRUM Avance Neo 500
PROBHD Z119470_0333 (zg30)
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 64
DS 0
SWH 14705.883 Hz
FIDRES 0.448788 Hz
AQ 2.2282240 sec
RG 95.7854
DW 34.000 usec
DE 6.79 usec
TE 300.1 K
D1 1.00000000 sec
TD0 1
SFO1 500.1730885 MHz
NUC1 1H
P0 3.33 usec
P1 10.00 usec
PLW1 20.93000031 W

F2 - Processing parameters
SI 65536
SF 500.1700175 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

C-2
C13CPD CDCl3 {D:\Spectra} nmr 35



$C_{22}H_{18}N_2$
Exact Mass: 310.147
Mol. Wt.: 310.392



BRUKER
AVANCE NEO
500 MHz NMR SPECTROMETER
SAIF, PANJAB UNIVERSITY,
CHANDIGARH

Current Data Parameters
NAME Nov10-2023
EXPNO 351
PROCNO 1

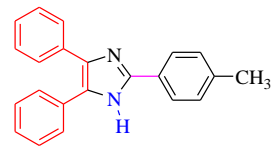
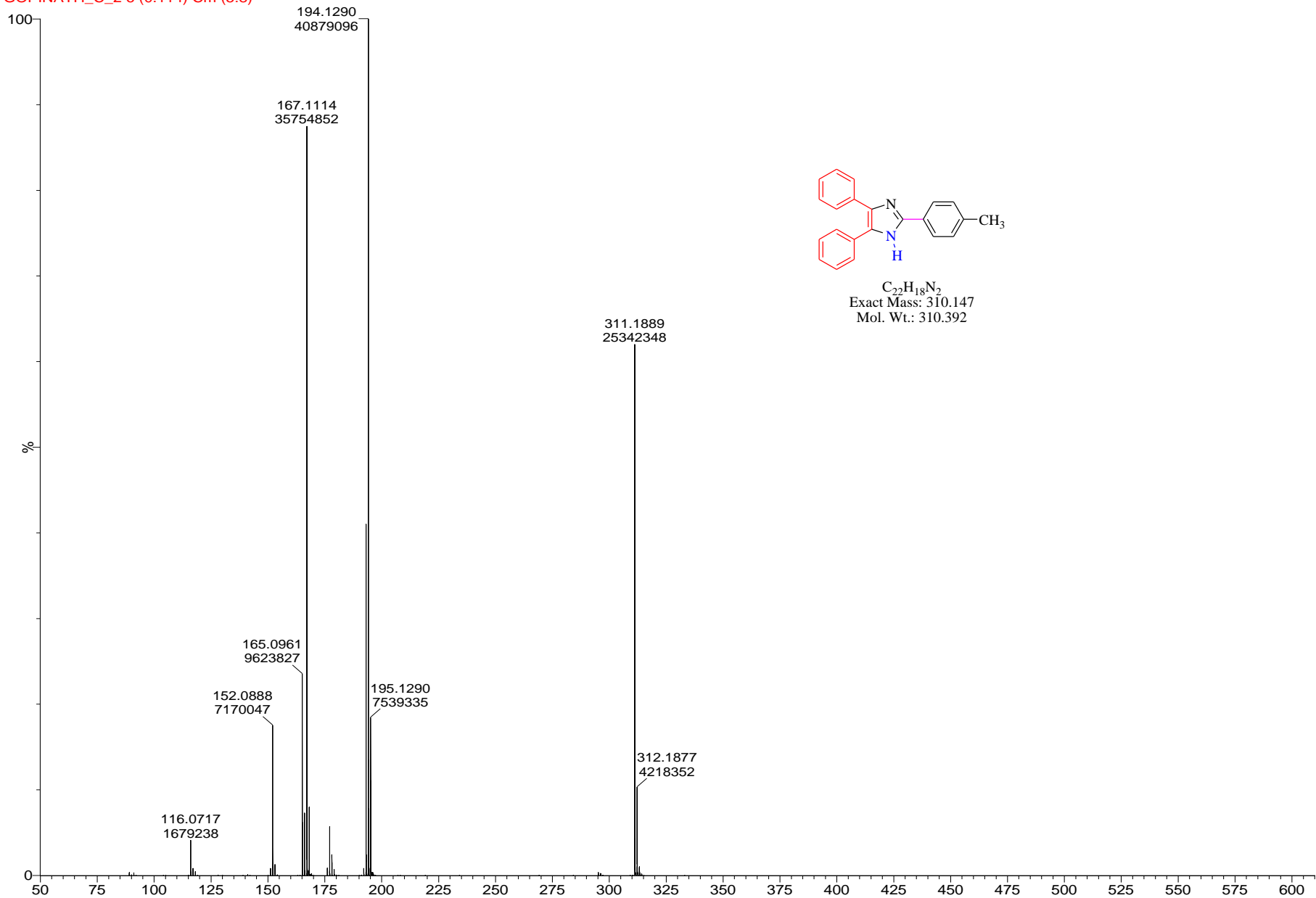
F2 - Acquisition Parameters

Date_ 20231111
Time_ 12.10 h
INSTRUM Avance Neo 500
PROBHD Z119470_0333 (
PULPROG -zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 4
SWH 37037.035 Hz
FIDRES 1.130281 Hz
AQ 0.8847360 sec
RG 101
DW 13.500 usec
DE 6.50 usec
TE 300.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 125.7804233 MHz
NUC1 13C
P0 3.33 usec
P1 10.00 usec
PLW1 83.14099884 W
SFO2 500.1720007 MHz
NUC2 1H
CPDPRG[2] waltz65
PCPD2 80.00 usec
PLW2 20.93000031 W
PLW12 0.32703000 W
PLW13 0.16449000 W

F2 - Processing parameters

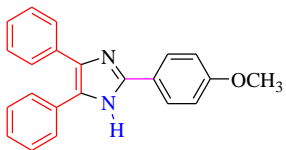
SI 32768
SF 125.7678490 MHz
WDW EM
SSB 0
LB 1.00 Hz
EB 0
PC 1.40

GOPINATH_C_2 6 (0.114) Cm (5:8)

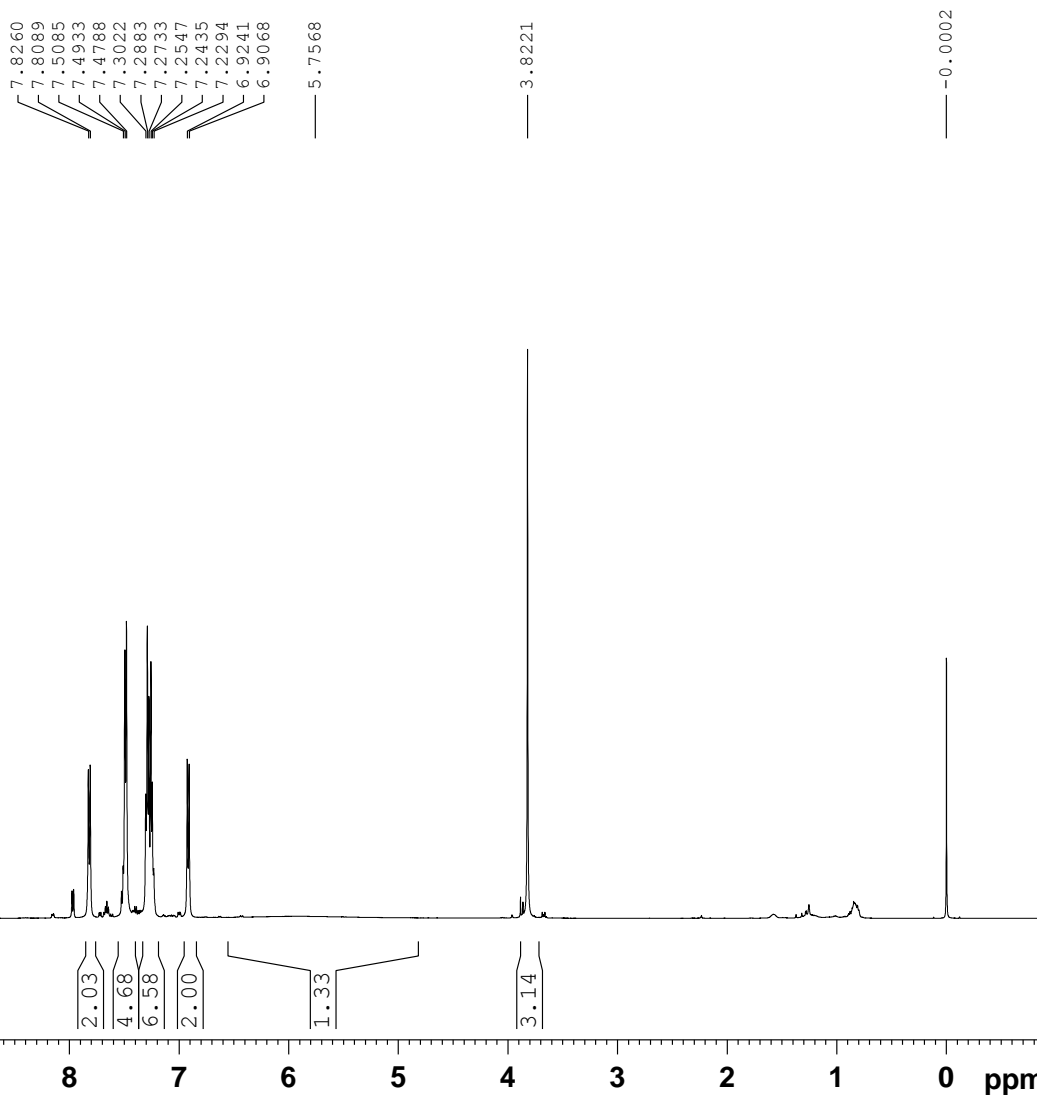


$C_{22}H_{18}N_2$
Exact Mass: 310.147
Mol. Wt.: 310.392

C-3
1H_8scan CDC13 {D:\Spectra} nmr 36



$C_{22}H_{18}N_2O$
Exact Mass: 326.142
Mol. Wt.: 326.391



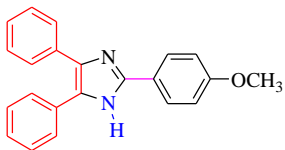
BRUKER
AVANCE NEO
500 MHz NMR
SPECTROMETER
SAIF, P.U.

Current Data Parameters
NAME Nov10-2023
EXPNO 360
PROCNO 1

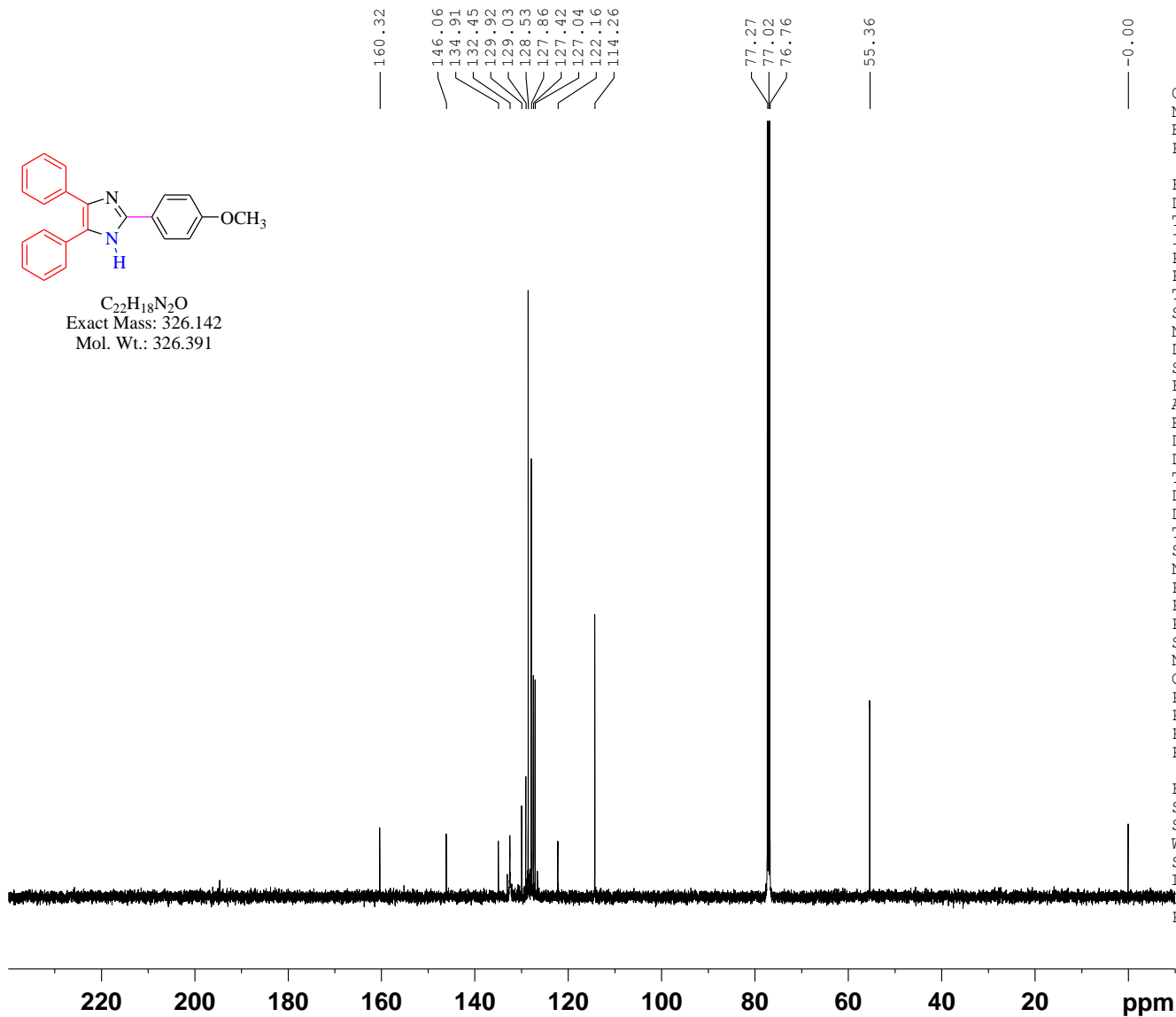
F2 - Acquisition Parameters
Date_ 20231111
Time 12.15 h
INSTRUM Avance Neo 500
PROBHD Z119470_0333 ()
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 64
DS 0
SWH 14705.883 Hz
FIDRES 0.448788 Hz
AQ 2.2282240 sec
RG 95.7854
DW 34.000 usec
DE 6.79 usec
TE 300.2 K
D1 1.00000000 sec
TD0 1
SFO1 500.1730885 MHz
NUC1 1H
P0 3.33 usec
P1 10.00 usec
PLW1 20.93000031 W

F2 - Processing parameters
SI 65536
SF 500.1700147 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

C-3
 C13CPD CDCl3 {D:\Spectra} nmr 36



C₂₂H₁₈N₂O
 Exact Mass: 326.142
 Mol. Wt.: 326.391



BRUKER
 AVANCE NEO
 500 MHz NMR SPECTROMETER
 SAIF, PANJAB UNIVERSITY,
 CHANDIGARH

Current Data Parameters
 NAME Nov10-2023
 EXPNO 361
 PROCNO 1

F2 - Acquisition Parameters

Date_ 20231111
 Time_ 13.05 h
 INSTRUM Avance Neo 500
 PROBHD Z119470_0333 (
 PULPROG -zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 1024
 DS 4
 SWH 37037.035 Hz
 FIDRES 1.130281 Hz
 AQ 0.8847360 sec
 RG 101
 DW 13.500 usec
 DE 6.50 usec
 TE 300.1 K
 D1 2.00000000 sec
 D11 0.03000000 sec
 TD0 1
 SFO1 125.7804233 MHz
 NUC1 13C
 P0 3.33 usec
 P1 10.00 usec
 PLW1 83.14099884 W
 SFO2 500.1720007 MHz
 NUC2 1H
 CPDPRG[2] waltz65
 PCPD2 80.00 usec
 PLW2 20.93000031 W
 PLW12 0.32703000 W
 PLW13 0.16449000 W

F2 - Processing parameters

SI 32768
 SF 125.7678477 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 EB 0
 PC 1.40

C-4
1H_8scan CDCl3 {D:\Spectra} nmr 37

BRUKER
AVANCE NEO
500 MHz NMR
SPECTROMETER
SAIF, P.U.

Current Data Parameters
NAME Nov10-2023
EXPNO 370
PROCNO 1

F2 - Acquisition Parameters
Date_ 20231111
Time_ 13.11 h
INSTRUM Avance Neo 500
PROBHD Z119470_0333 ()
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 64
DS 0
SWH 14705.883 Hz
FIDRES 0.448788 Hz
AQ 2.2282240 sec
RG 101
DW 34.000 usec
DE 6.79 usec
TE 300.2 K
D1 1.00000000 sec
TD0 1
SFO1 500.1730885 MHz
NUC1 1H
P0 3.33 usec
P1 10.00 usec
PLW1 20.93000031 W

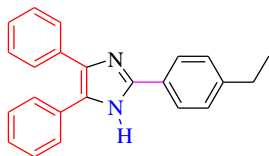
F2 - Processing parameters
SI 65536
SF 500.1700143 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

7.8389
7.8226
7.5199
7.5055
7.3197
7.3176
7.3036
7.2885
7.2701
7.2555
7.2412

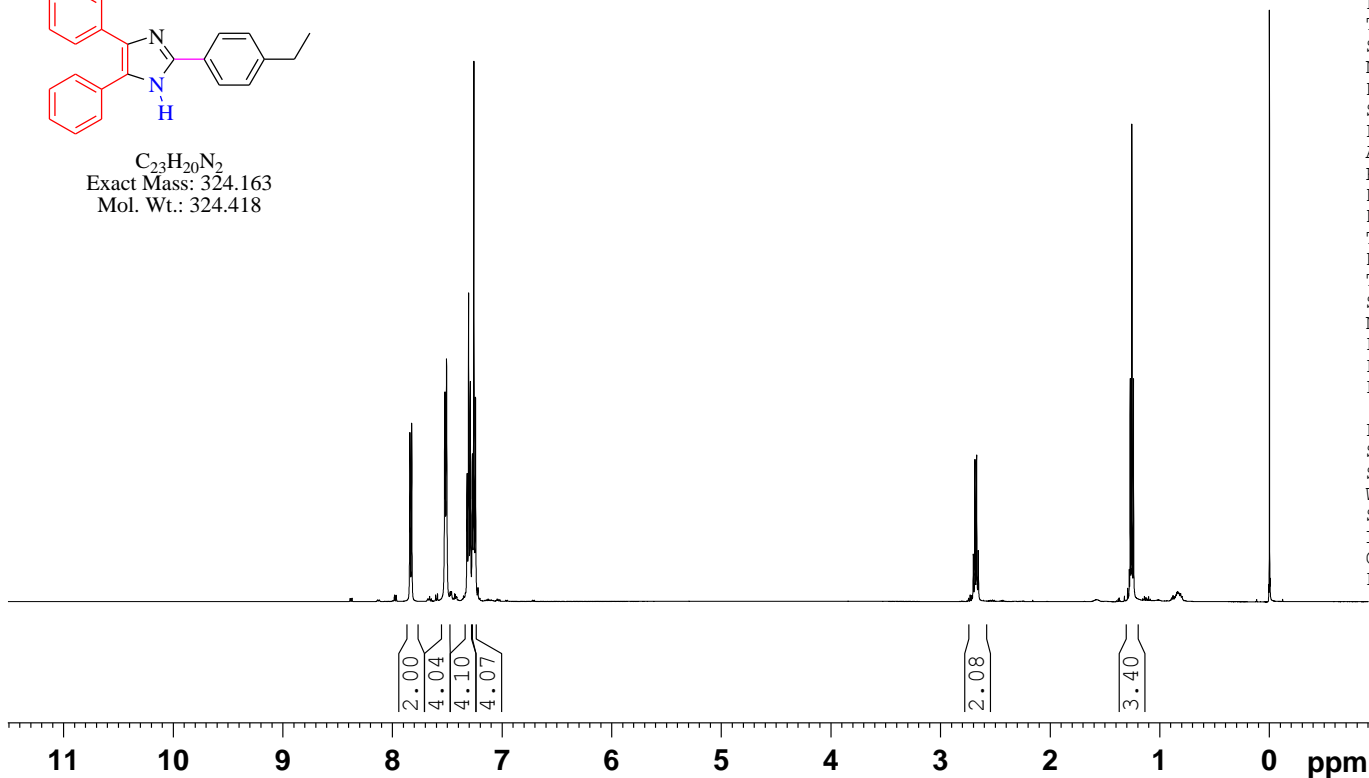
2.7018
2.6867
2.6714
2.6562

1.2704
1.2552
1.2399

-0.0001



$C_{23}H_{20}N_2$
Exact Mass: 324.163
Mol. Wt.: 324.418



2.00
4.04
4.10
4.07

2.08

3.40

11 10 9 8 7 6 5 4 3 2 1 0 ppm

C-4
C13CPD CDCl3 {D:\Spectra} nmr 37

BRUKER
AVANCE NEO
500 MHz NMR SPECTROMETER
SAIF, PANJAB UNIVERSITY,
CHANDIGARH

Current Data Parameters
NAME Nov10-2023
EXPNO 371
PROCNO 1

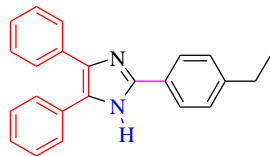
F2 - Acquisition Parameters

Date_ 20231111
Time_ 14.01 h
INSTRUM Avance Neo 500
PROBHD Z119470_0333 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1024
DS 4
SWH 37037.035 Hz
FIDRES 1.130281 Hz
AQ 0.8847360 sec
RG 101
DW 13.500 usec
DE 6.50 usec
TE 300.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SFO1 125.7804233 MHz
NUC1 13C
P0 3.33 usec
P1 10.00 usec
PLW1 83.14099884 W
SFO2 500.1720007 MHz
NUC2 1H
CPDPRG[2] waltz65
PCPD2 80.00 usec
PLW2 20.93000031 W
PLW12 0.32703000 W
PLW13 0.16449000 W

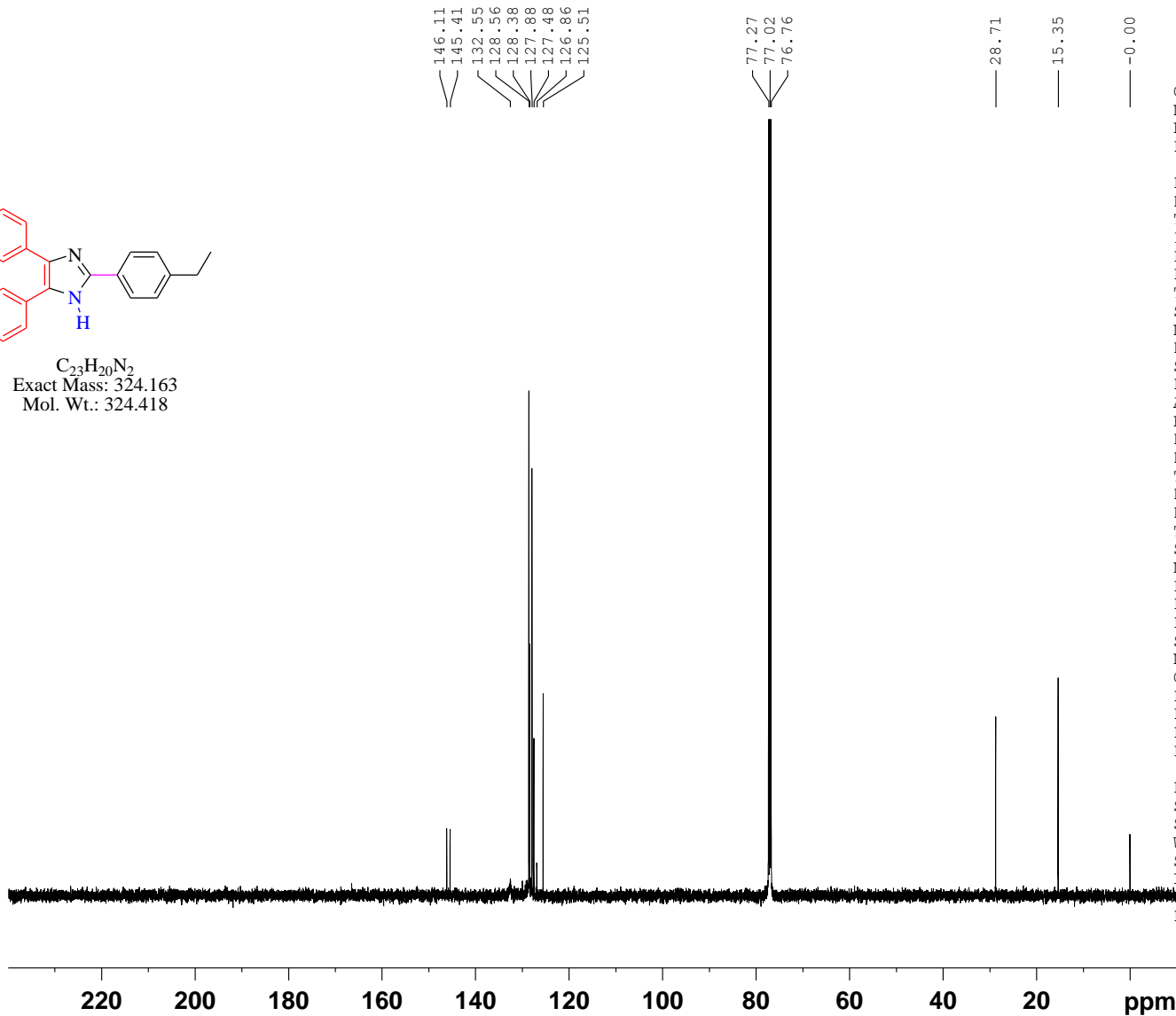
F2 - Processing parameters

SI 32768
SF 125.7678468 MHz
WDW EM
SSB 0
LB 1.00 Hz
EB 0
PC 1.40

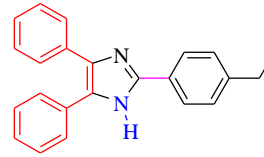
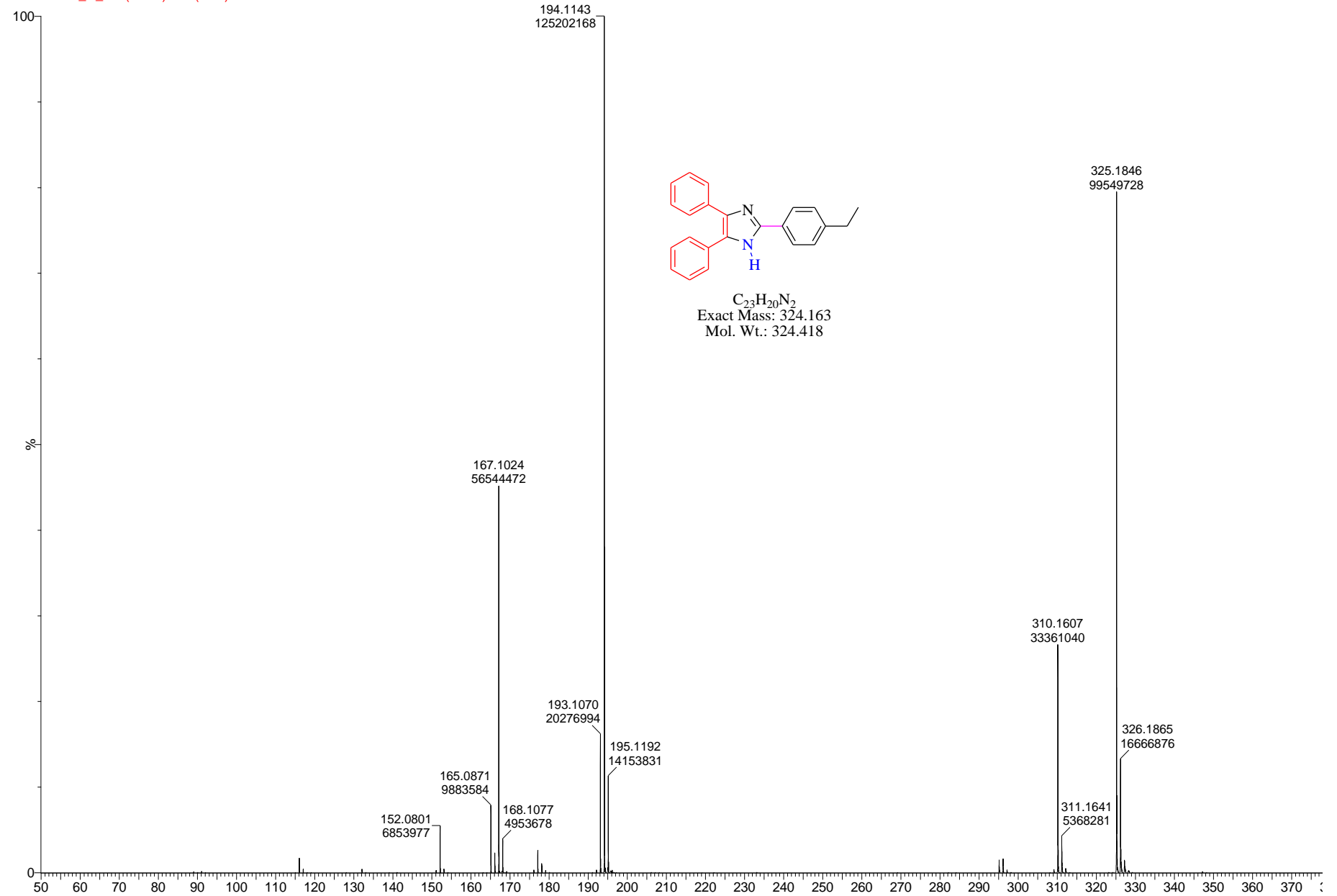
146.11
145.41
132.55
128.56
128.38
127.88
127.48
126.86
125.51
77.27
77.02
76.76
28.71
15.35
0.00



C₂₃H₂₀N₂
Exact Mass: 324.163
Mol. Wt.: 324.418

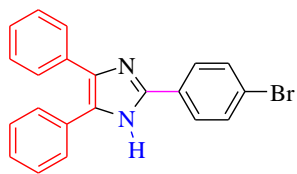


GOPINATH_C_4 6 (0.114) Cm (1:29)



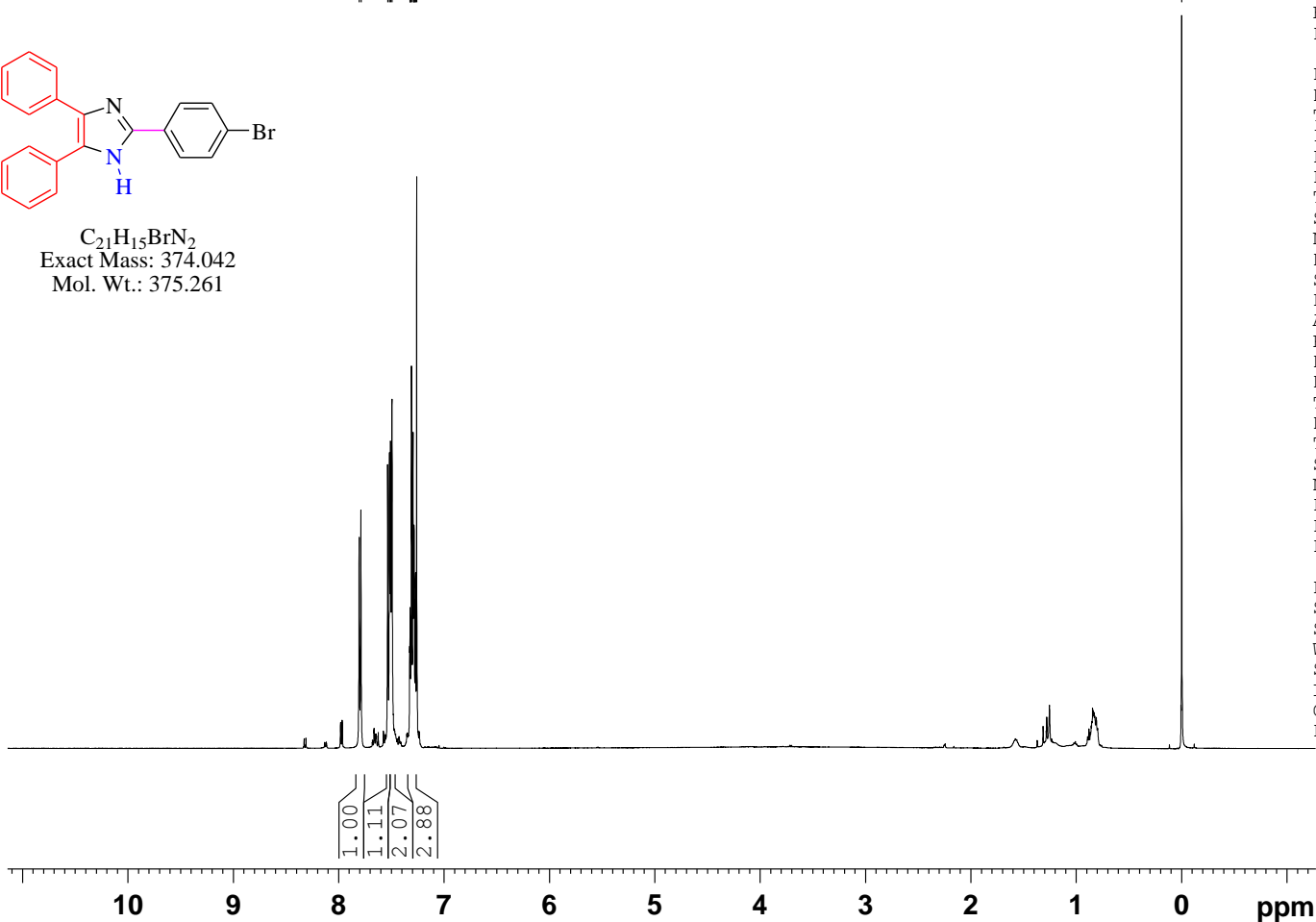
$C_{23}H_{20}N_2$
Exact Mass: 324.163
Mol. Wt.: 324.418

C-5
1H_scan CDC13 {D:\Spectra} nmr 29



$C_{21}H_{15}BrN_2$
Exact Mass: 374.042
Mol. Wt.: 375.261

7.8039
7.7869
7.5334
7.5162
7.5061
7.4924
7.3241
7.3206
7.3172
7.3070
7.2922
7.2853
7.2823
7.2737
7.2684
7.2578



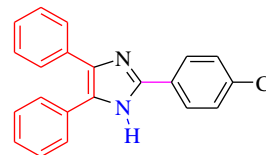
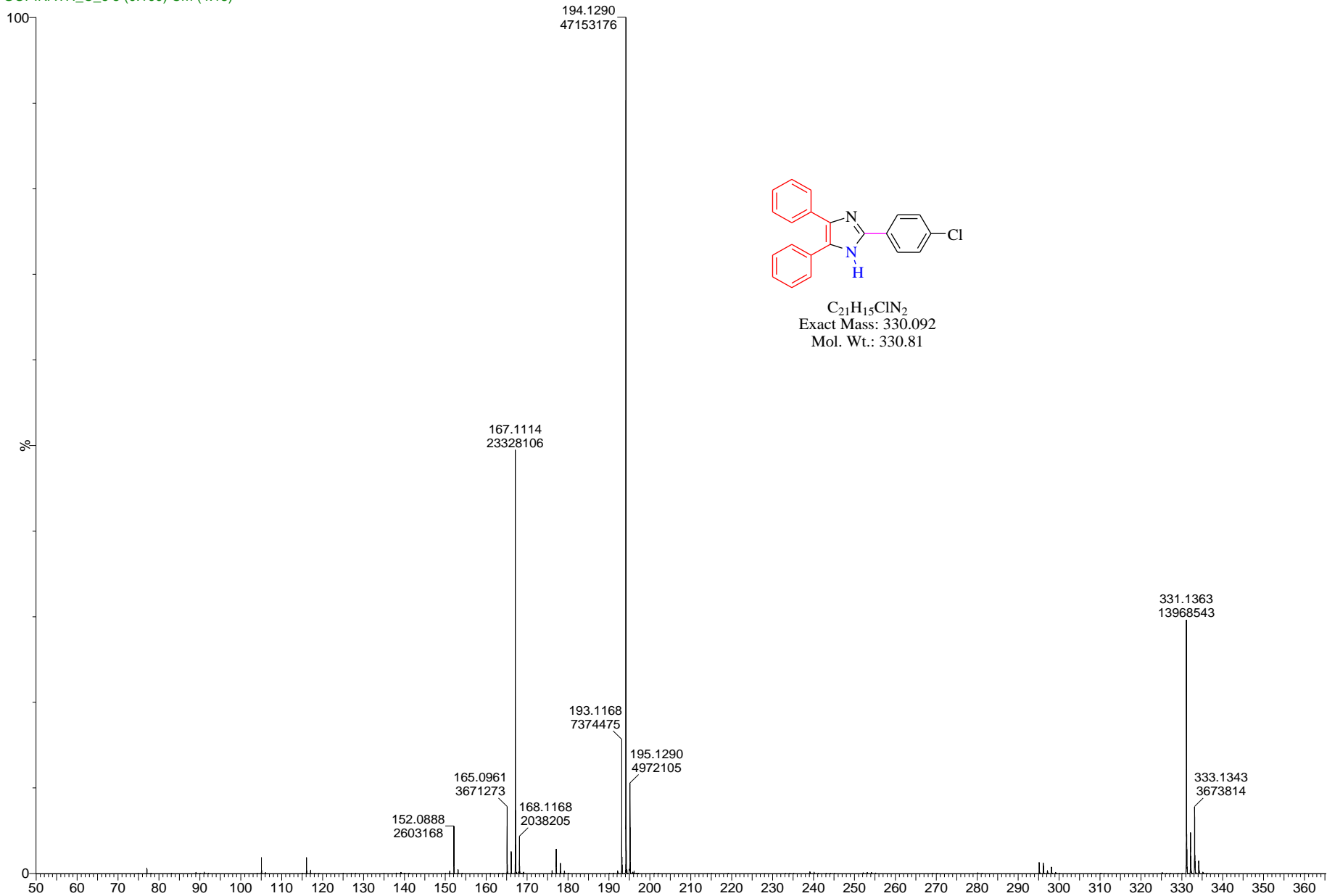
BRUKER
AVANCE NEO
500 MHz NMR
SPECTROMETER
SAIF, P.U.

Current Data Parameters
NAME Nov10-2023
EXPNO 290
PROCNO 1

F2 - Acquisition Parameters
Date_ 20231111
Time_ 10.46 h
INSTRUM Avance Neo 500
PROBHD Z119470_0333 (zg30)
PULPROG 65536
TD CDC13
SOLVENT 64
NS 0
DS 14705.883 Hz
SWH 0.448788 Hz
FIDRES 2.2282240 sec
AQ 101
RG 34.000 usec
DW 6.79 usec
DE 300.1 K
TE 1.00000000 sec
D1 1
TD0 500.1730885 MHz
SFO1 1H
NUC1 3.33 usec
P0 10.00 usec
P1 20.93000031 W
PLW1

F2 - Processing parameters
SI 65536
SF 500.1700130 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

GOPINATH_C_6 5 (0.100) Cm (4:18)



$C_{21}H_{15}ClN_2$
Exact Mass: 330.092
Mol. Wt.: 330.81