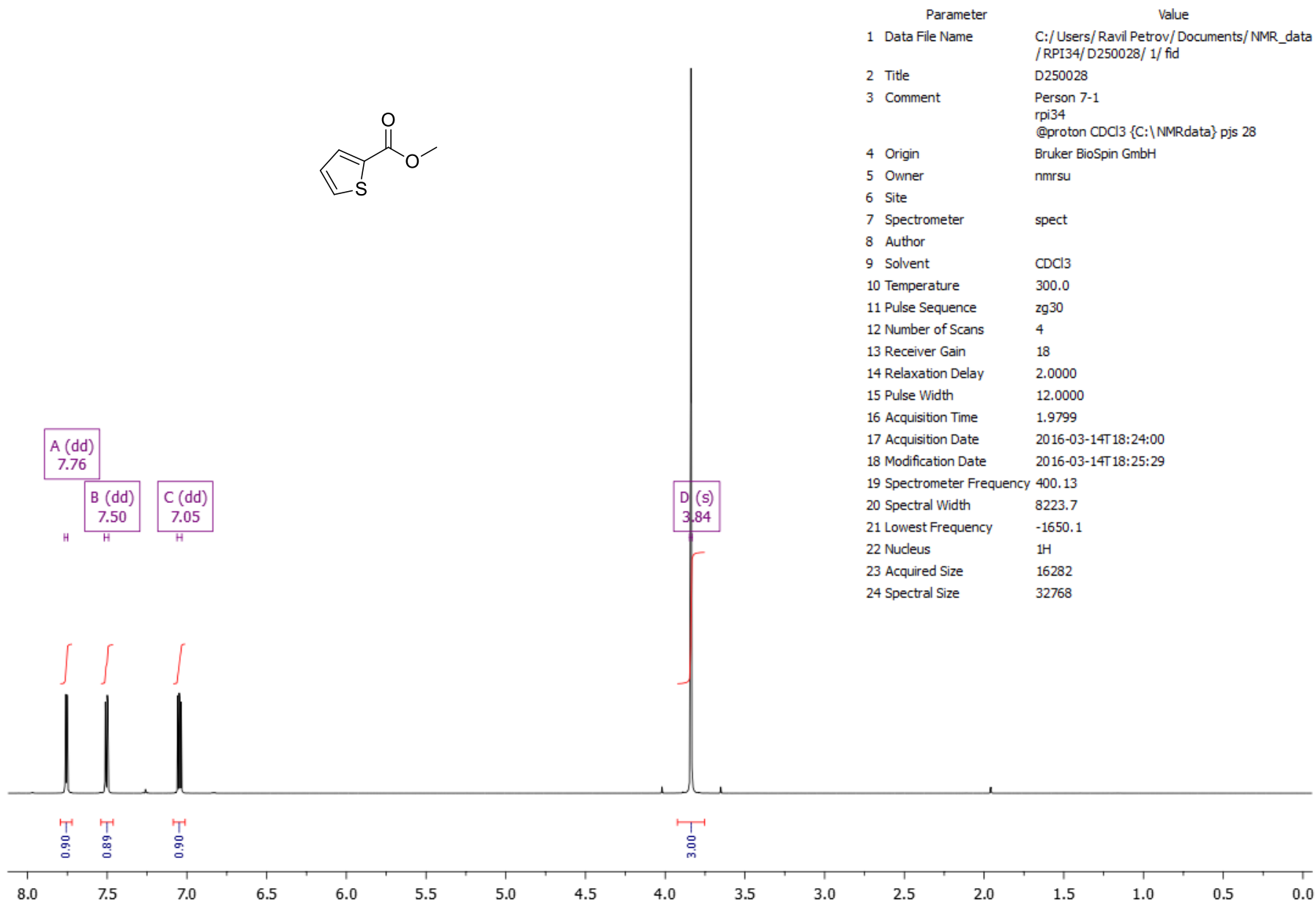
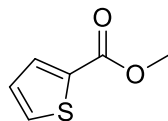
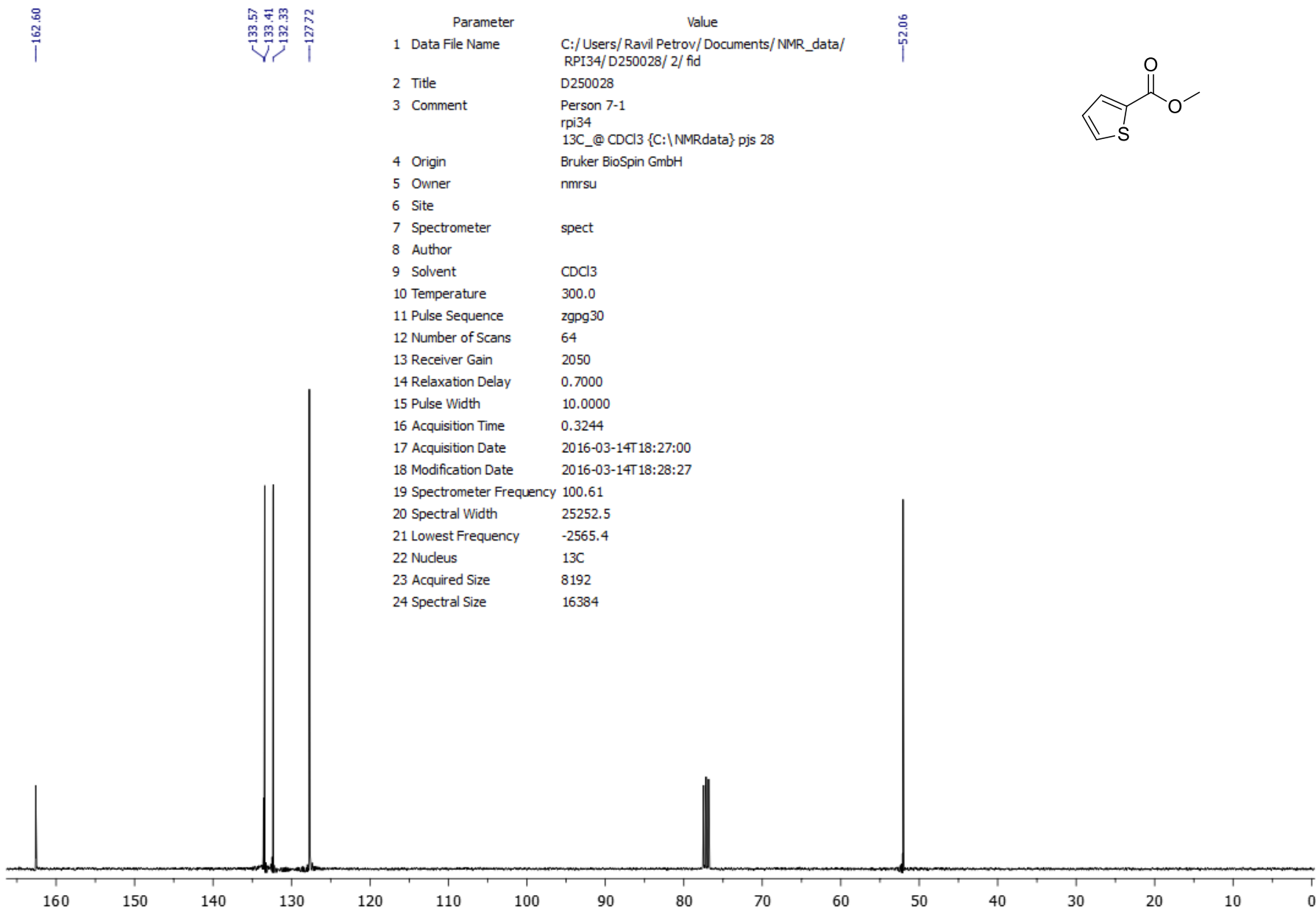


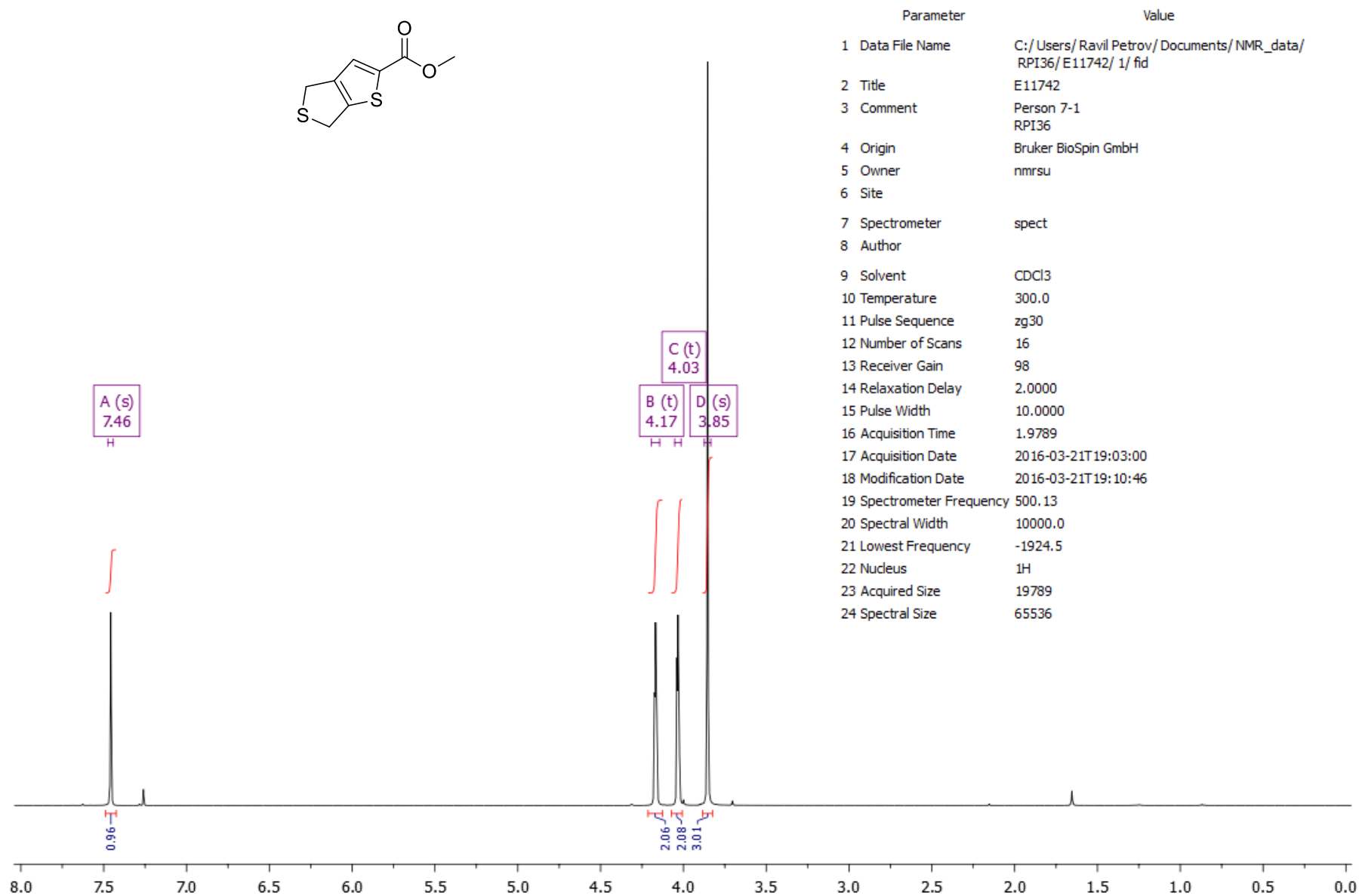
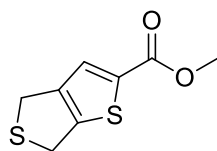
¹H NMR of methyl thiophene-2-carboxylate (**1**) in CDCl₃, Bruker-400



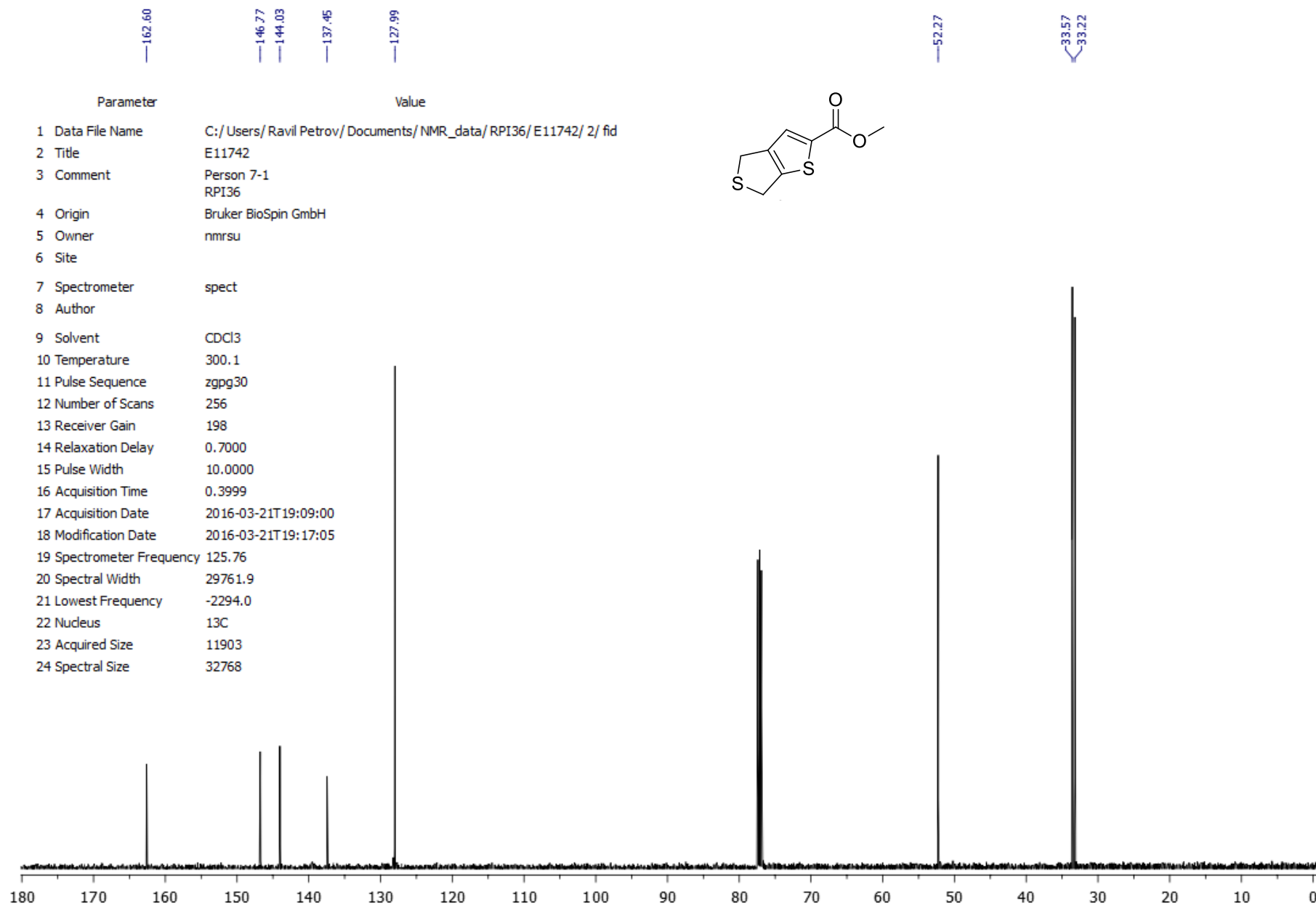
¹³C NMR of methyl thiophene-2-carboxylate (**1**) in CDCl₃, Bruker-400



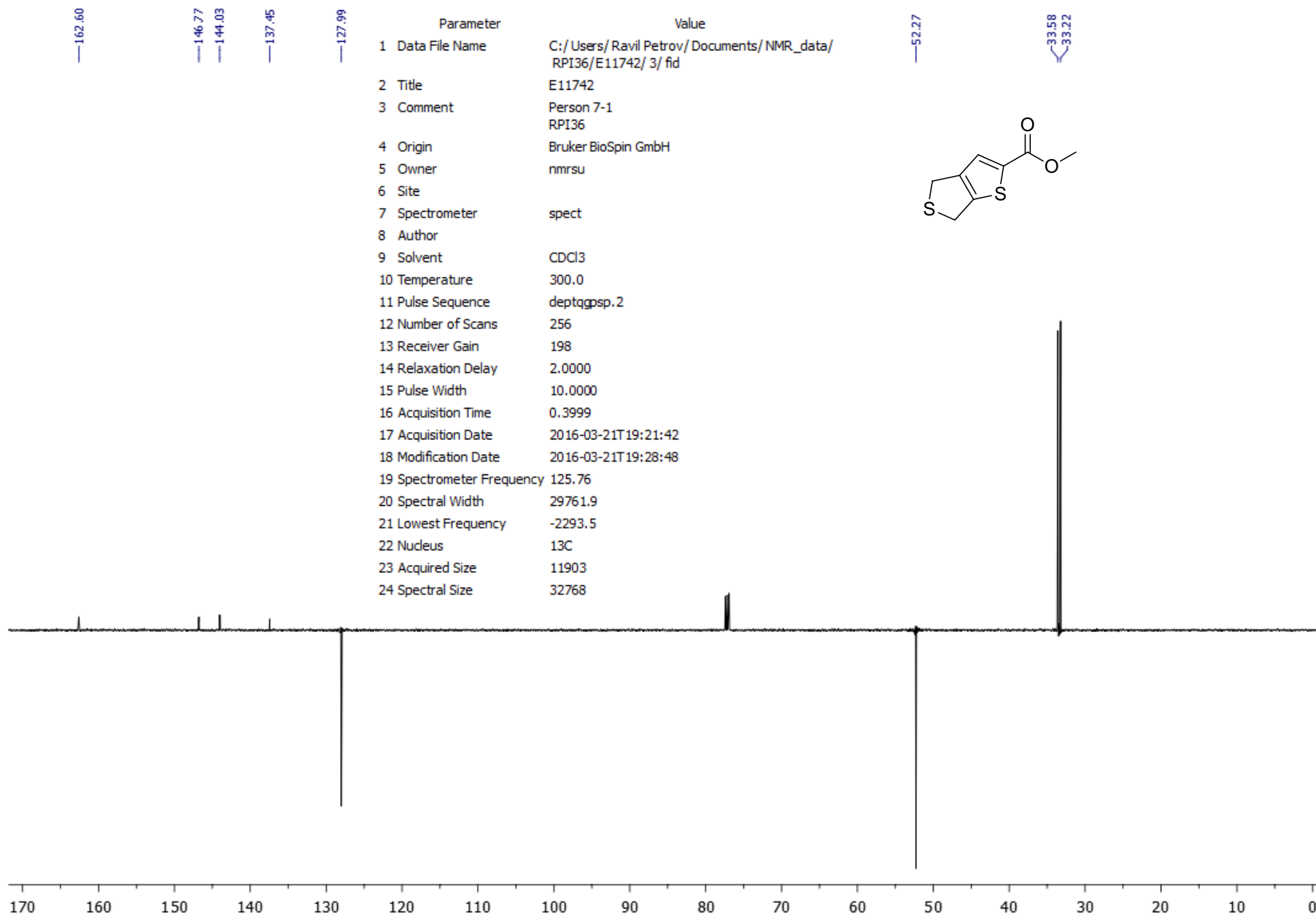
¹H NMR of 4,6-dihydro-thieno[3,4-b]thiophene-2-carboxylic acid methyl ester (**3**) in CDCl₃, Bruker-400



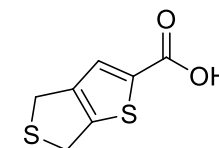
¹³C NMR of 4,6-dihydro-thieno[3,4-b]thiophene-2-carboxylic acid methyl ester (**3**) in CDCl₃, Bruker-400



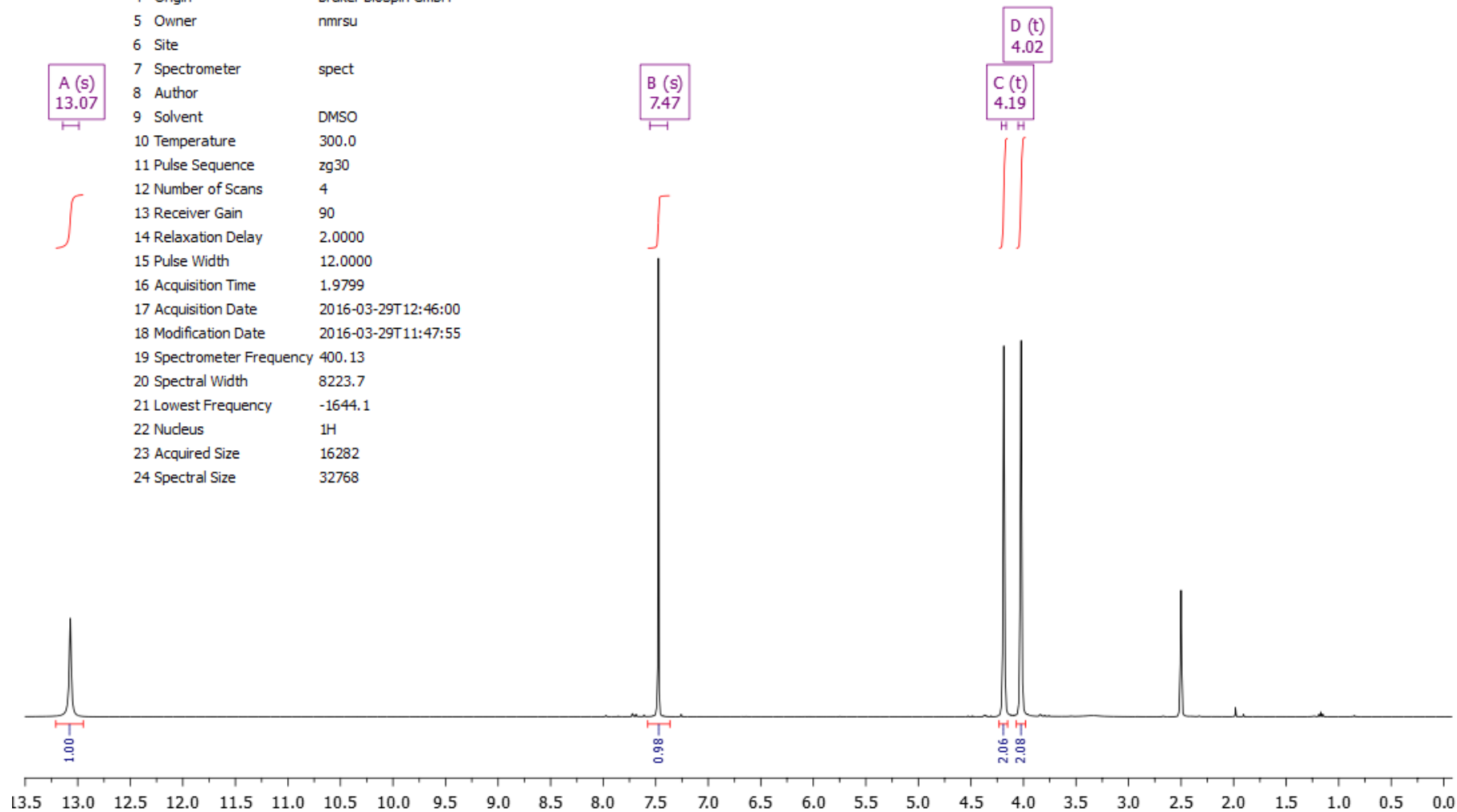
¹³C DEPT NMR of 4,6-dihydro-thieno[3,4-b]thiophene-2-carboxylic acid methyl ester (**3**) in CDCl₃, Bruker-500



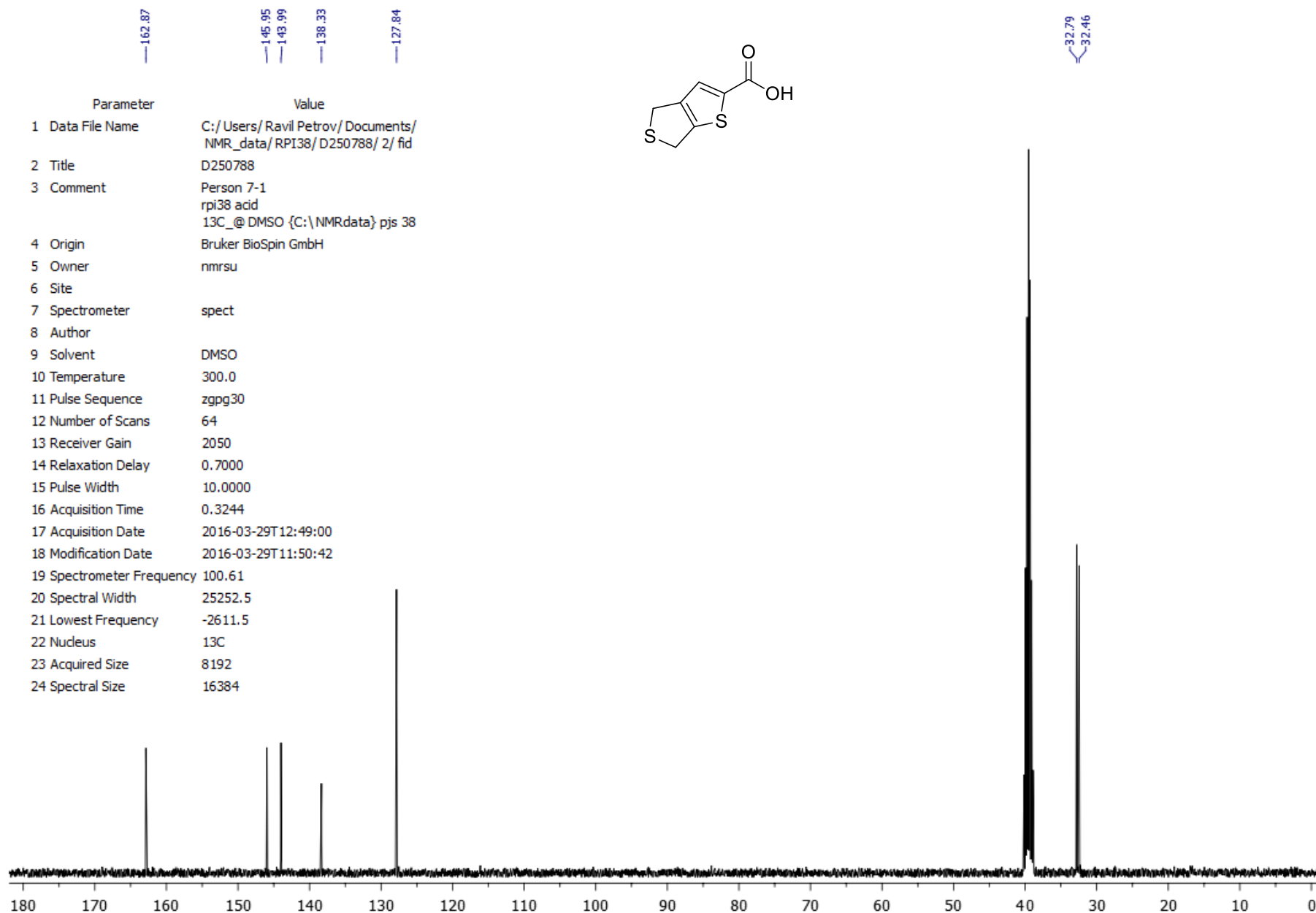
¹H NMR of 4,6-dihydro-thieno[3,4-b]thiophene-2-carboxylic acid (**4**) in DMSO-*d*₆, Bruker-400



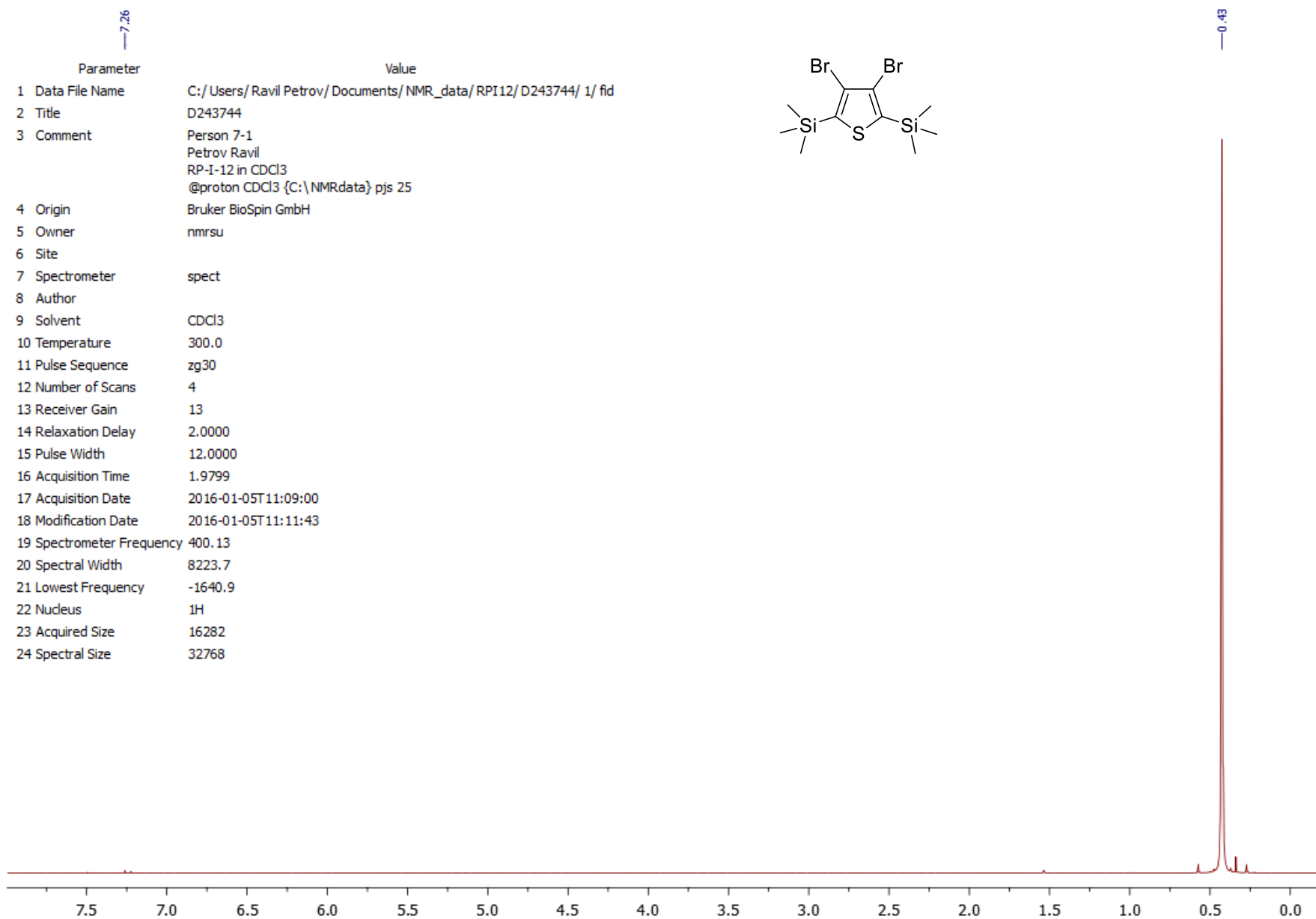
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2 Title	D250788
3 Comment	Person 7-1 rpi38 acid @proton DMSO {C:\NMRdata} pjs 38
4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	DMSO
10 Temperature	300.0
11 Pulse Sequence	zg30
12 Number of Scans	4
13 Receiver Gain	90
14 Relaxation Delay	2.0000
15 Pulse Width	12.0000
16 Acquisition Time	1.9799
17 Acquisition Date	2016-03-29T12:46:00
18 Modification Date	2016-03-29T11:47:55
19 Spectrometer Frequency	400.13
20 Spectral Width	8223.7
21 Lowest Frequency	-1644.1
22 Nucleus	1H
23 Acquired Size	16282
24 Spectral Size	32768



¹³C NMR of 4,6-dihydro-thieno[3,4-b]thiophene-2-carboxylic acid (**4**) in DMSO-*d*₆, Bruker-400

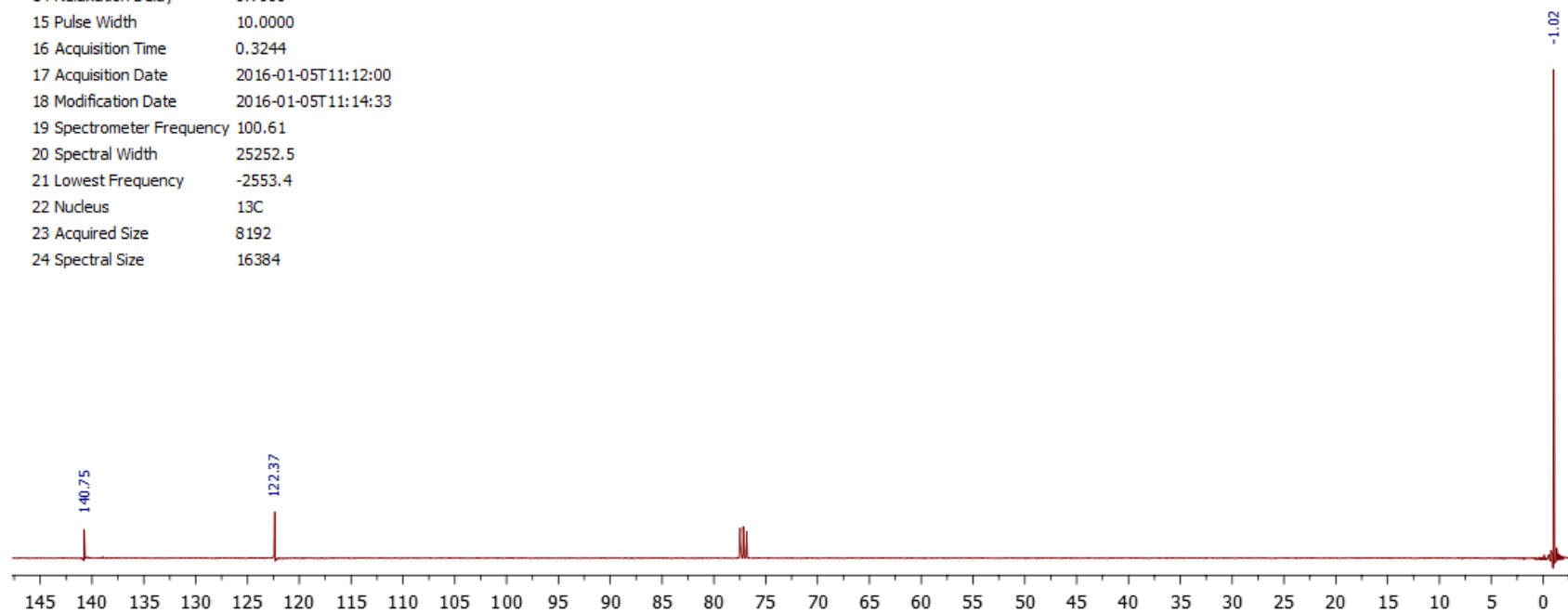
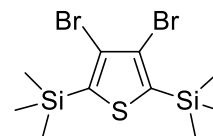


¹H NMR of 2,5-bis(trimethylsilyl)-3,4-dibromothiophene (**10**) in CDCl₃, Bruker-400



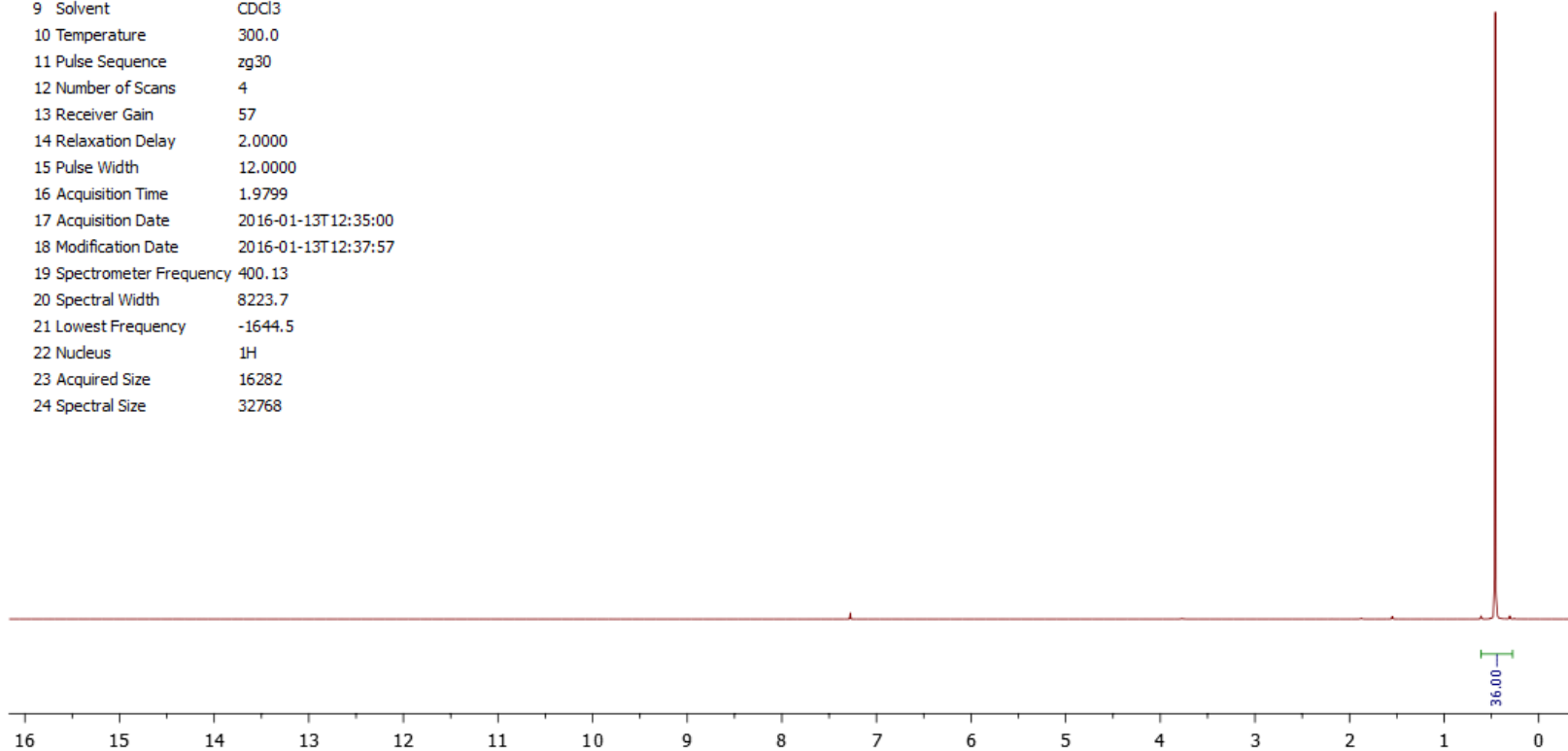
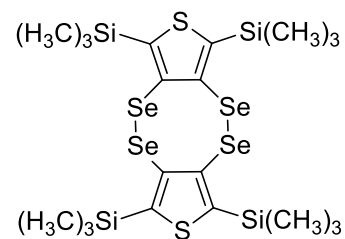
¹³C NMR of 2,5-bis(trimethylsilyl)-3,4-dibromothiophene (**10**) in CDCl₃, Bruker-400

Parameter	Value
1 Data File Name	C:/Users/Ravil Petrov/Documents/NMR_data/RPI12/D243744/2/ fid
2 Title	D243744
3 Comment	Person 7-1 Petrov Ravil RP-I-12 in CDCl ₃ 13C_@ CDCl ₃ {C:\NMRdata} pjs 25
4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl ₃
10 Temperature	300.0
11 Pulse Sequence	zgpg30
12 Number of Scans	64
13 Receiver Gain	2050
14 Relaxation Delay	0.7000
15 Pulse Width	10.0000
16 Acquisition Time	0.3244
17 Acquisition Date	2016-01-05T11:12:00
18 Modification Date	2016-01-05T11:14:33
19 Spectrometer Frequency	100.61
20 Spectral Width	25252.5
21 Lowest Frequency	-2553.4
22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384

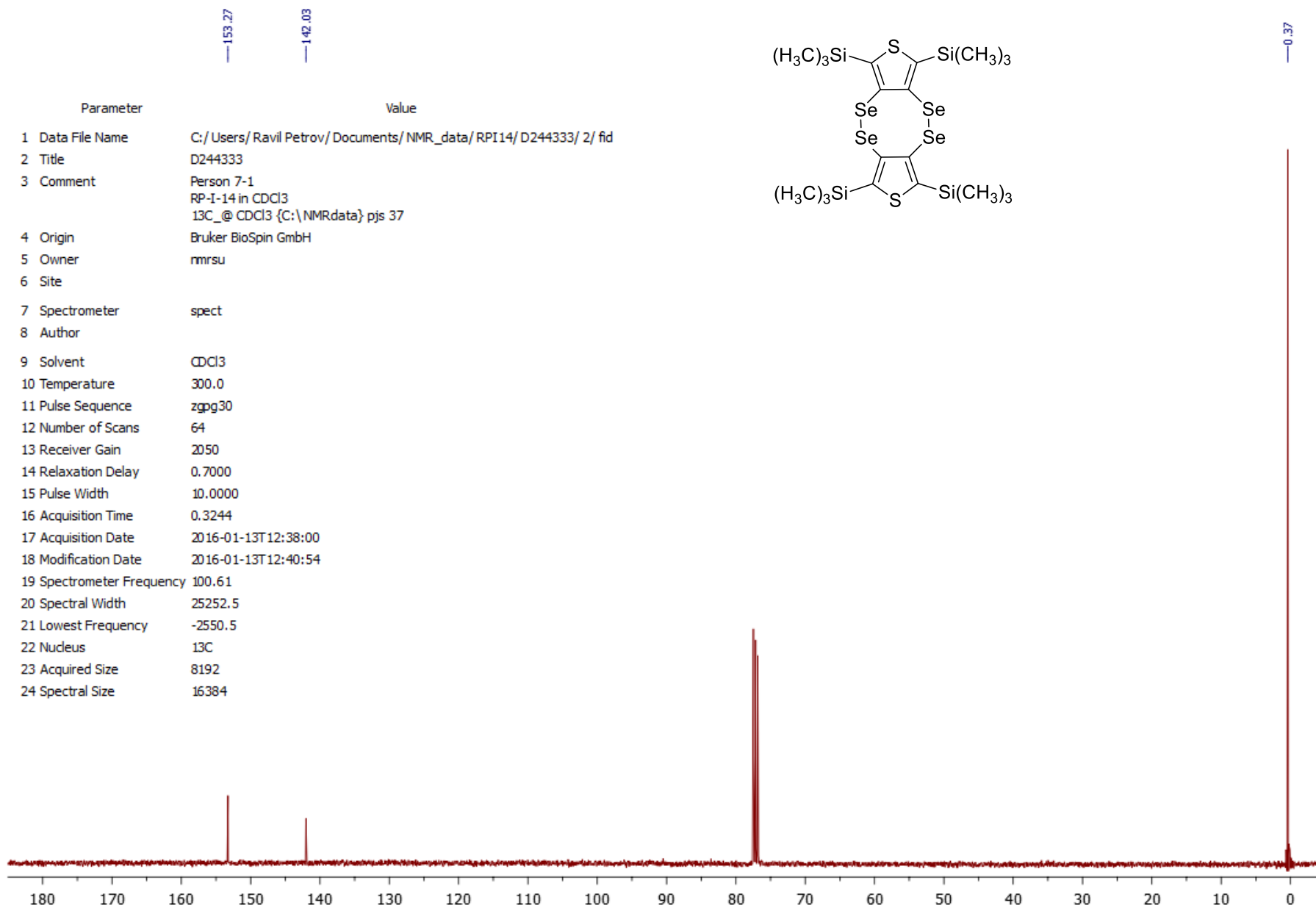


^1H NMR of 1,3,6,8-tetrakis-trimethylsilanyl-2,7-dithia-4,5,9,10-tetraselena-dicyclopenta[a,e]cyclooctene (**11**) in CDCl_3

Parameter	Value
1 Data File Name	C:/Users/Ravil Petrov/Documents/NMR_data/RPI14/D244333/1/ fid
2 Title	D244333
3 Comment	Person 7-1 RP-1-14 in CDCl_3 @proton CDCl_3 {C:\NMRdata} pjs 37
4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl_3
10 Temperature	300.0
11 Pulse Sequence	zg30
12 Number of Scans	4
13 Receiver Gain	57
14 Relaxation Delay	2.0000
15 Pulse Width	12.0000
16 Acquisition Time	1.9799
17 Acquisition Date	2016-01-13T12:35:00
18 Modification Date	2016-01-13T12:37:57
19 Spectrometer Frequency	400.13
20 Spectral Width	8223.7
21 Lowest Frequency	-1644.5
22 Nucleus	^1H
23 Acquired Size	16282
24 Spectral Size	32768



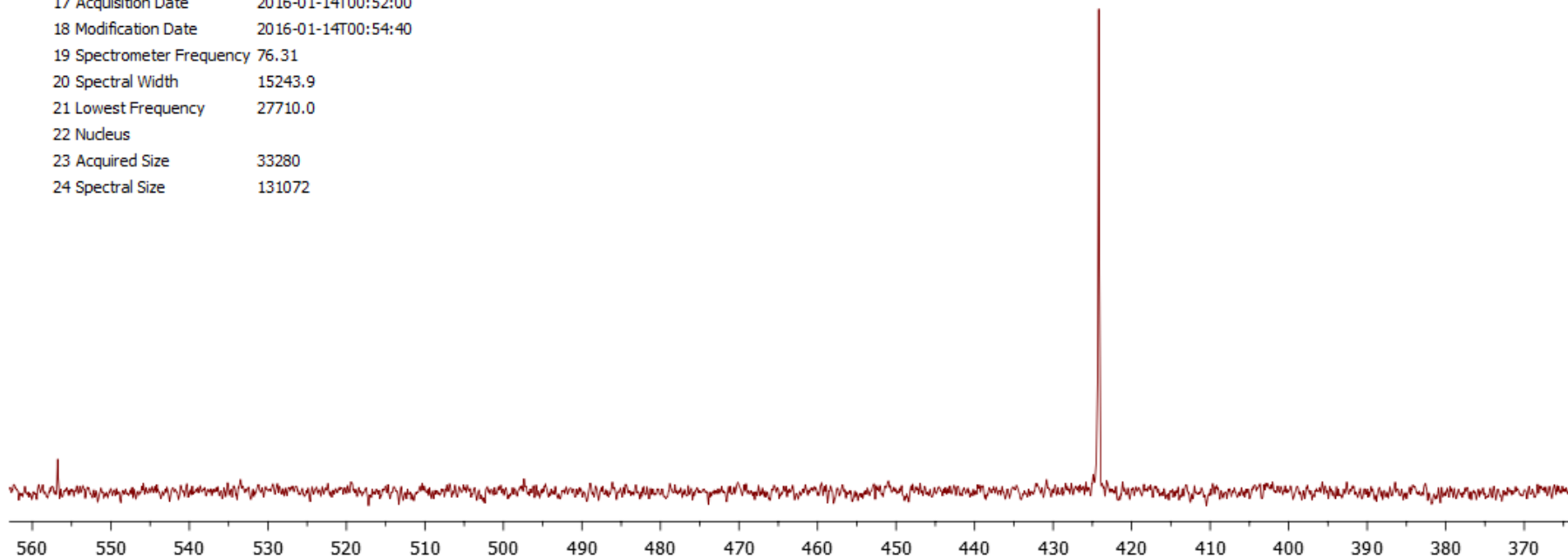
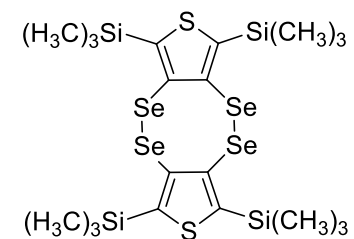
¹³C NMR spectrum of 1,3,6,8-tetrakis-trimethylsilylanyl-2,7-dithia-4,5,9,10-tetraselena-dicyclopenta[a,e]cyclooctene (**11**) in CDCl₃, Bruker-400



⁷⁷Se NMR spectrum of 1,3,6,8-tetrakis-trimethylsilyl-2,7-dithia-4,5,9,10-tetraselena-dicyclopenta[a,e]cyclooctene (**11**) in CDCl₃, Bruker-400

Parameter	Value
1 Data File Name	C:/Users/Ravil Petrov/Documents/NMR_data/RPI14/D244333/3/ fid
2 Title	D244333
3 Comment	Person 7-1 RP-I-14 in CDCl ₃ @Se77 CDCl ₃ {C:\NMRdata} pjs 37
4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl ₃
10 Temperature	300.0
11 Pulse Sequence	zg
12 Number of Scans	16
13 Receiver Gain	51
14 Relaxation Delay	40.0000
15 Pulse Width	12.0000
16 Acquisition Time	2.1832
17 Acquisition Date	2016-01-14T00:52:00
18 Modification Date	2016-01-14T00:54:40
19 Spectrometer Frequency	76.31
20 Spectral Width	15243.9
21 Lowest Frequency	27710.0
22 Nucleus	
23 Acquired Size	33280
24 Spectral Size	131072

424.19



¹H NMR of EDST (**13**) in CDCl₃, Bruker-400

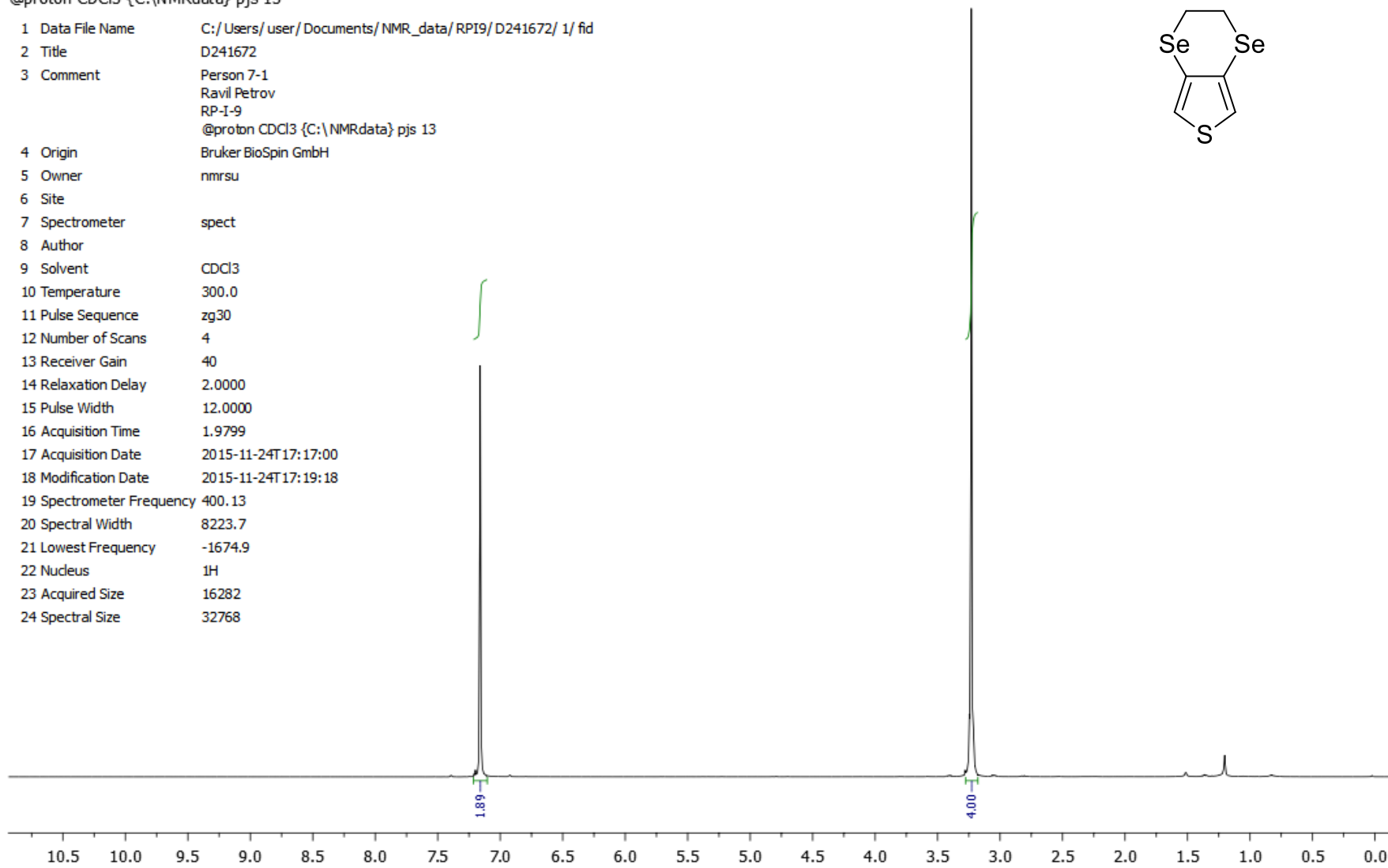
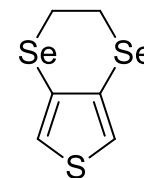
D241672
Person 7-1
Ravil Petrov
RP-I-9

@proton CDCl₃ {C:\NMRdata} pjs 13

1	Data File Name	C:/Users/user/Documents/NMR_data/RPI9/D241672/1/ fid
2	Title	D241672
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4	Origin	Bruker BioSpin GmbH
5	Owner	nmrsu
6	Site	
7	Spectrometer	spect
8	Author	
9	Solvent	CDCl ₃
10	Temperature	300.0
11	Pulse Sequence	zg30
12	Number of Scans	4
13	Receiver Gain	40
14	Relaxation Delay	2.0000
15	Pulse Width	12.0000
16	Acquisition Time	1.9799
17	Acquisition Date	2015-11-24T17:17:00
18	Modification Date	2015-11-24T17:19:18
19	Spectrometer Frequency	400.13
20	Spectral Width	8223.7
21	Lowest Frequency	-1674.9
22	Nucleus	¹ H
23	Acquired Size	16282
24	Spectral Size	32768

A (s)
7.16

B (s)
3.23



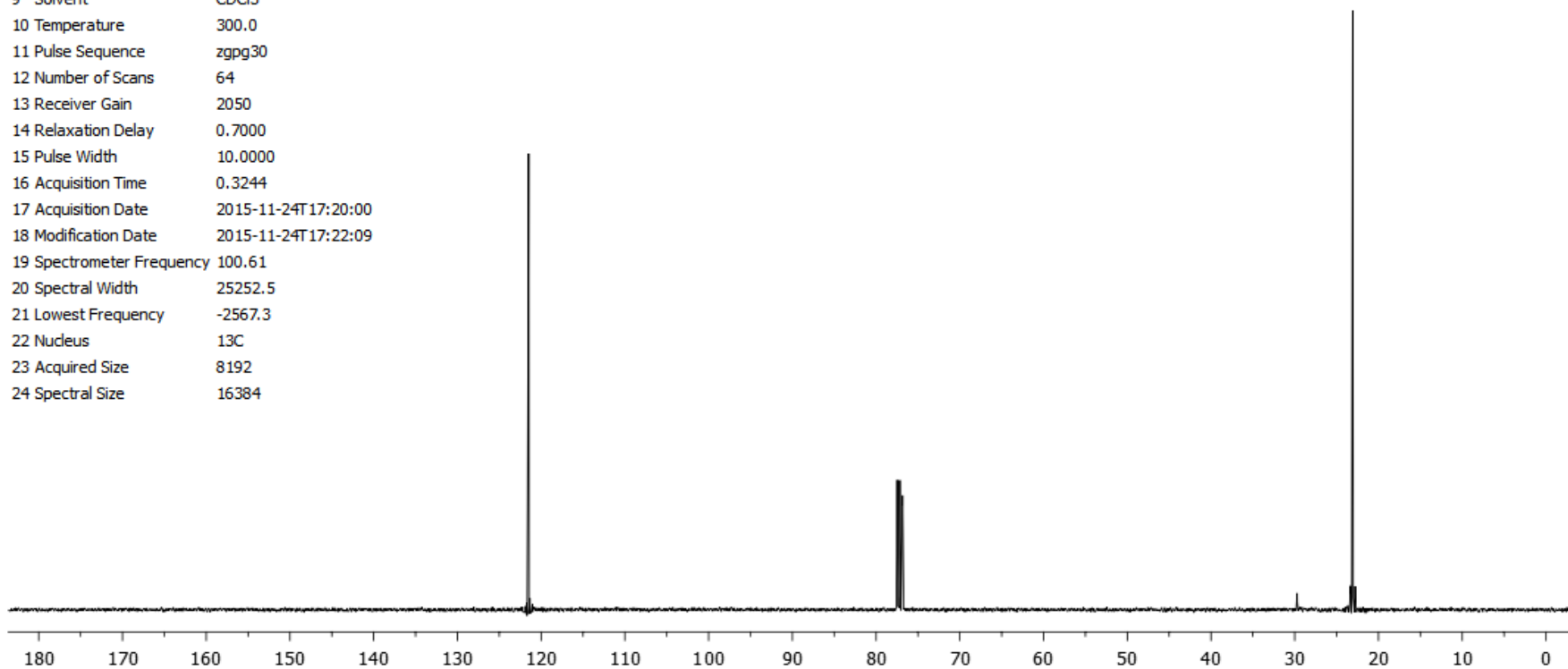
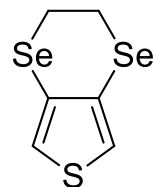
¹³C NMR of EDST (**13**) in CDCl₃, Bruker-400

D241672
Person 7-1
Ravil Petrov
RP-I-9
13C_@ CDCl3 {C:\NMRdata} pjs 13

121.62
121.50

23.08

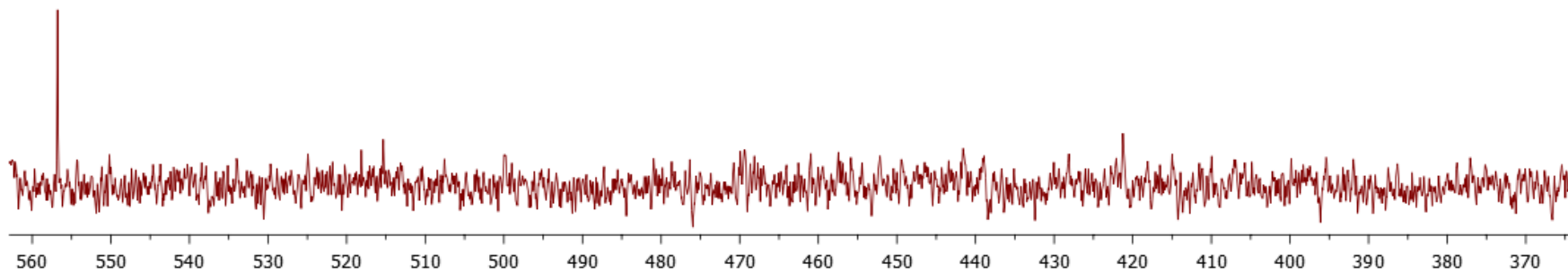
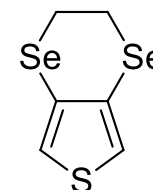
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4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl3
10 Temperature	300.0
11 Pulse Sequence	zgpg30
12 Number of Scans	64
13 Receiver Gain	2050
14 Relaxation Delay	0.7000
15 Pulse Width	10.0000
16 Acquisition Time	0.3244
17 Acquisition Date	2015-11-24T17:20:00
18 Modification Date	2015-11-24T17:22:09
19 Spectrometer Frequency	100.61
20 Spectral Width	25252.5
21 Lowest Frequency	-2567.3
22 Nucleus	13C
23 Acquired Size	8192
24 Spectral Size	16384



⁷⁷Se NMR of EDST (**13**) in CDCl₃, Bruker-400

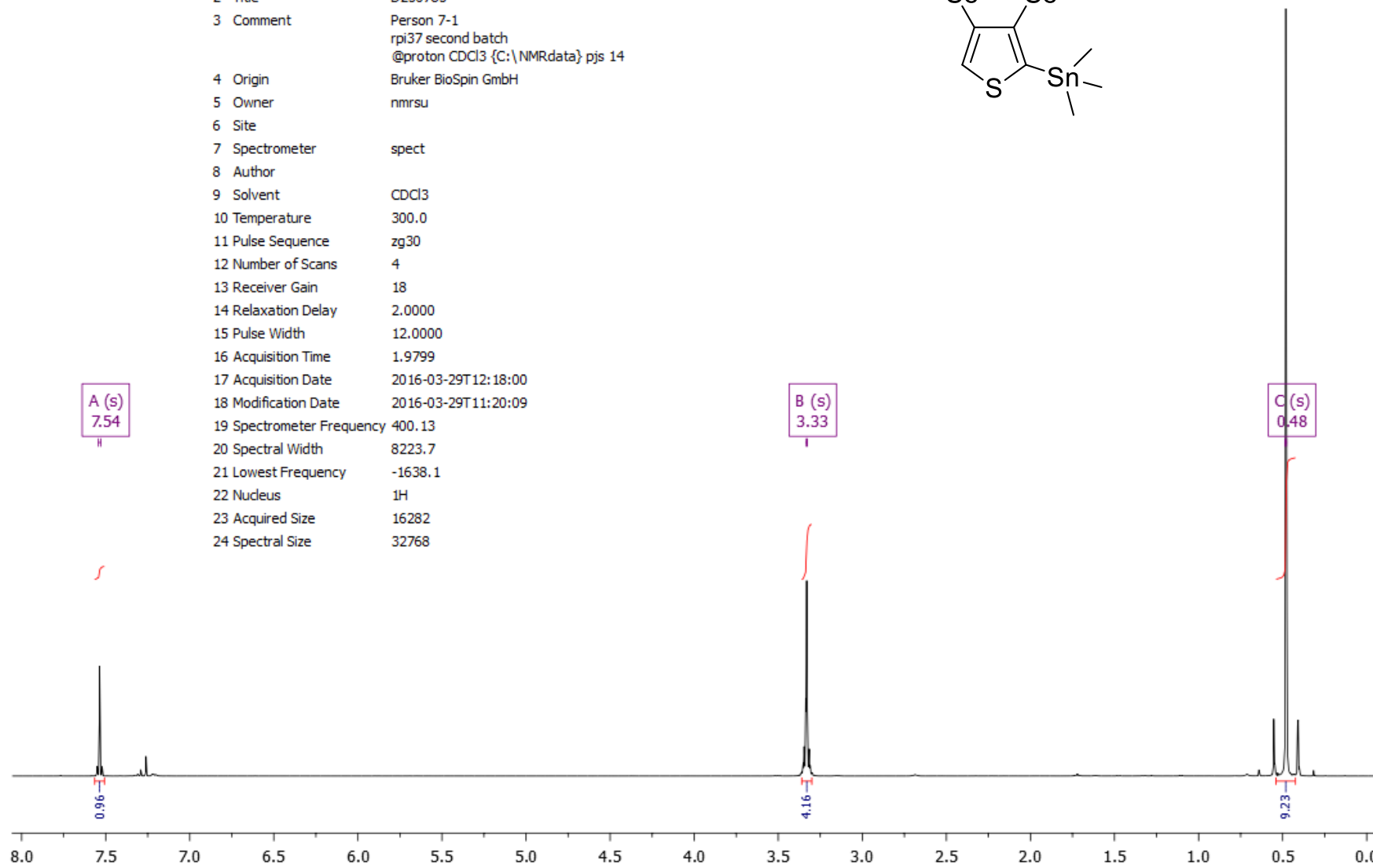
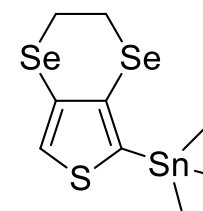
—556.78

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2 Title	D245857
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4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl3
10 Temperature	300.0
11 Pulse Sequence	zg
12 Number of Scans	64
13 Receiver Gain	40
14 Relaxation Delay	40.0000
15 Pulse Width	12.0000
16 Acquisition Time	2.1832
17 Acquisition Date	2016-01-31T12:18:00
18 Modification Date	2016-01-31T12:19:39
19 Spectrometer Frequency	76.31
20 Spectral Width	15243.9
21 Lowest Frequency	27710.0
22 Nucleus	
23 Acquired Size	33280
24 Spectral Size	131072

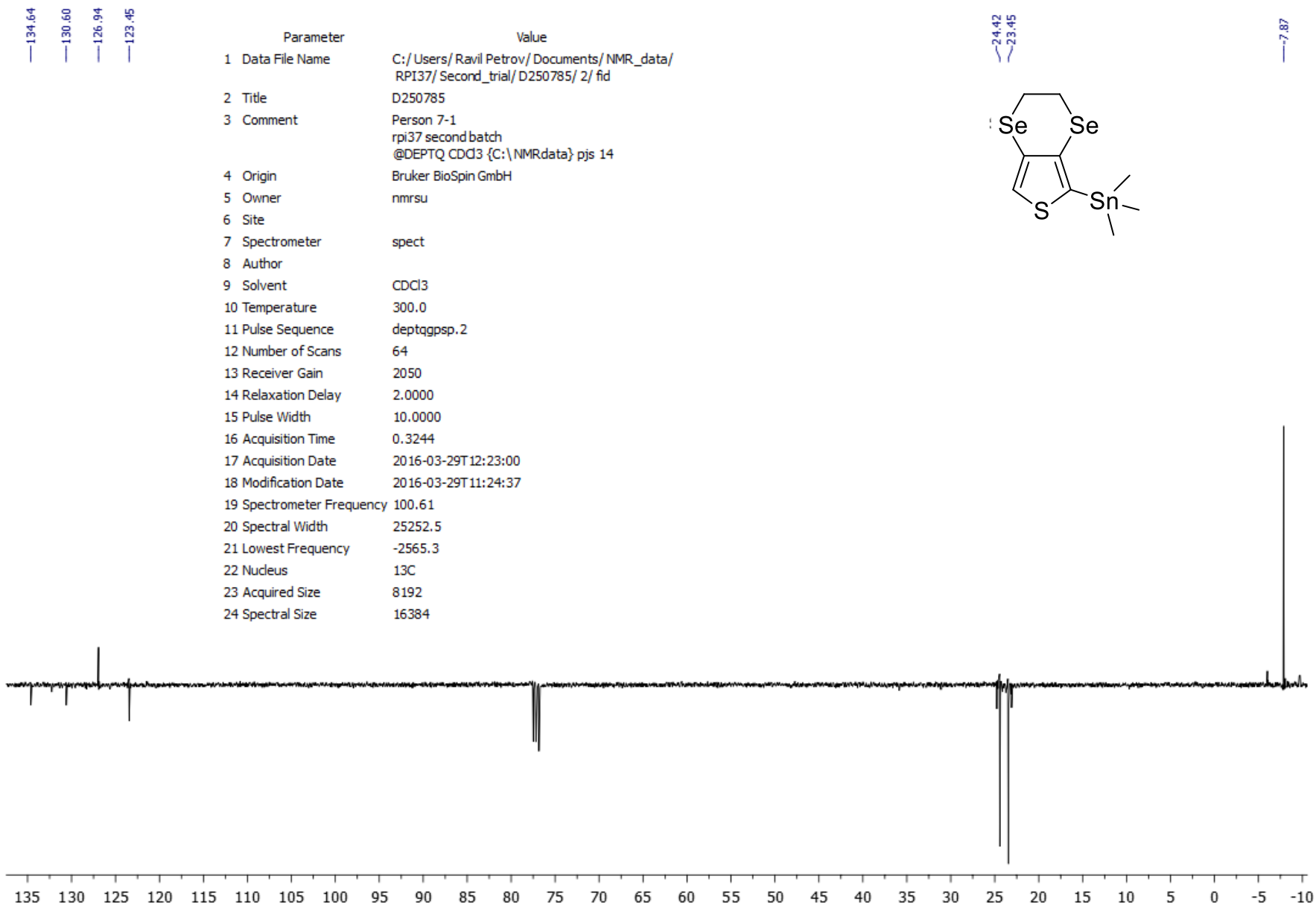


¹H NMR of 2-(trimethylstannyl)-3,4-ethylenediselenothiophene (**14**) in CDCl₃, Bruker-400

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4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl3
10 Temperature	300.0
11 Pulse Sequence	zg30
12 Number of Scans	4
13 Receiver Gain	18
14 Relaxation Delay	2.0000
15 Pulse Width	12.0000
16 Acquisition Time	1.9799
17 Acquisition Date	2016-03-29T12:18:00
18 Modification Date	2016-03-29T11:20:09
19 Spectrometer Frequency	400.13
20 Spectral Width	8223.7
21 Lowest Frequency	-1638.1
22 Nucleus	1H
23 Acquired Size	16282
24 Spectral Size	32768

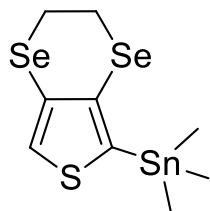


¹³C DEPT NMR of 2-(trimethylstannyl)-3,4-ethylenediselenothiophene (**14**) in CDCl₃, Bruker-400

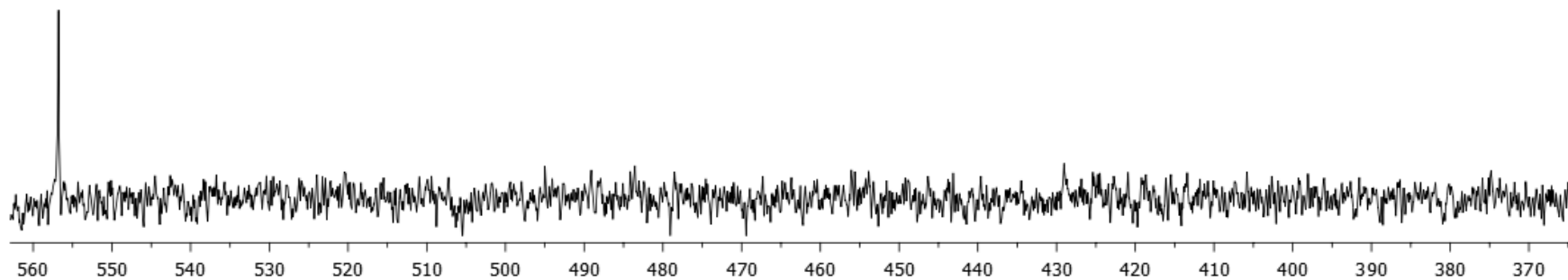


⁷⁷Se NMR of 2-(trimethylstannyl)-3,4-ethylenediselenothiophene (**14**) in CDCl₃, Bruker-400

—556.79

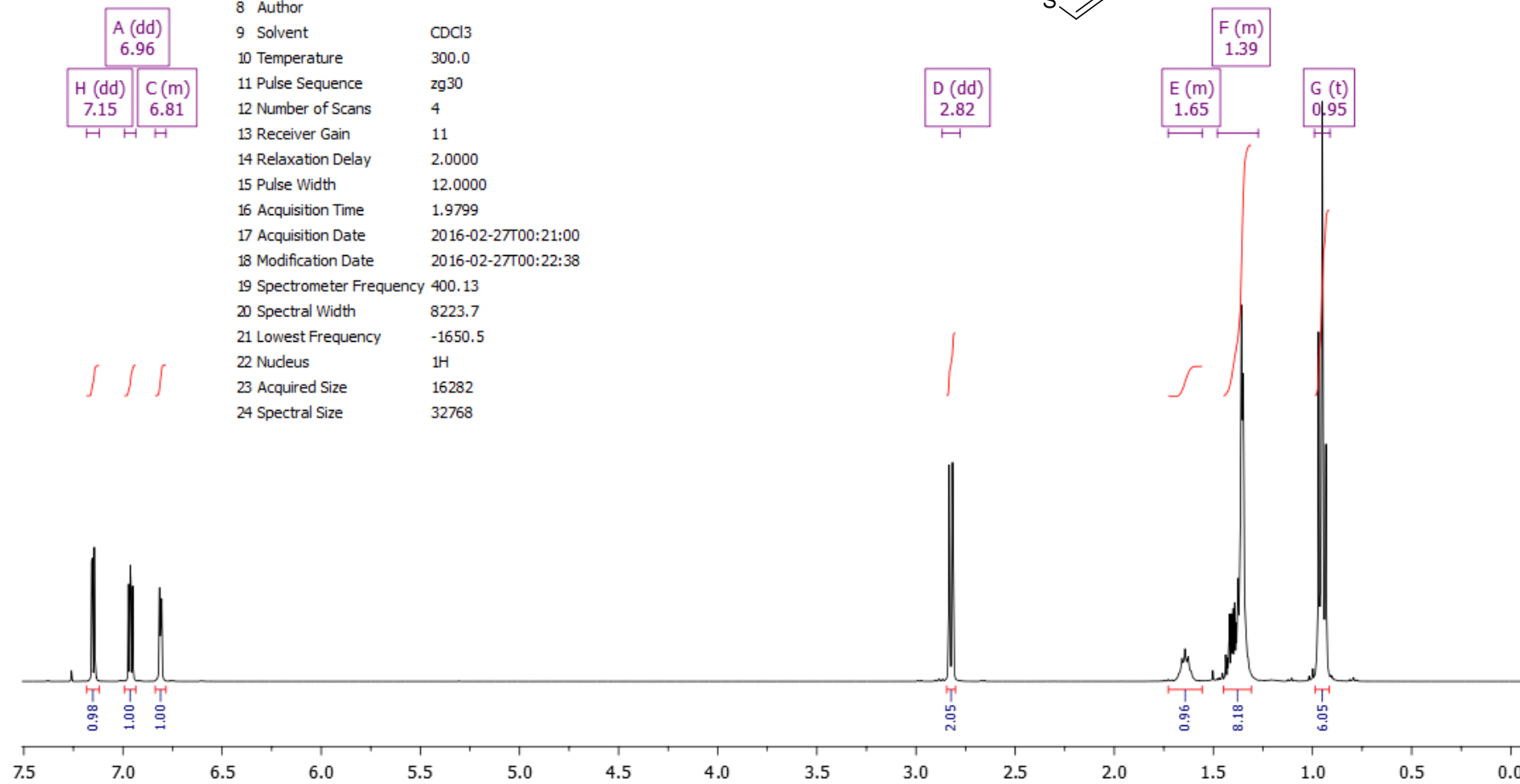
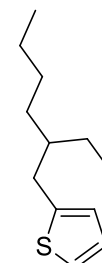


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2 Title	D250830
3 Comment	Person 7-1 rpi37 Se NMR @Se77 CDCl3 {C:\NMRdata} pjs 47
4 Origin	Bruker BioSpin GmbH
5 Owner	nmsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl3
10 Temperature	300.0
11 Pulse Sequence	zg
12 Number of Scans	64
13 Receiver Gain	101
14 Relaxation Delay	40.0000
15 Pulse Width	12.0000
16 Acquisition Time	2.1832
17 Acquisition Date	2016-03-30T04:34:00
18 Modification Date	2016-03-30T03:35:52
19 Spectrometer Frequency	76.31
20 Spectral Width	15243.9
21 Lowest Frequency	27710.0
22 Nucleus	
23 Acquired Size	33280
24 Spectral Size	131072

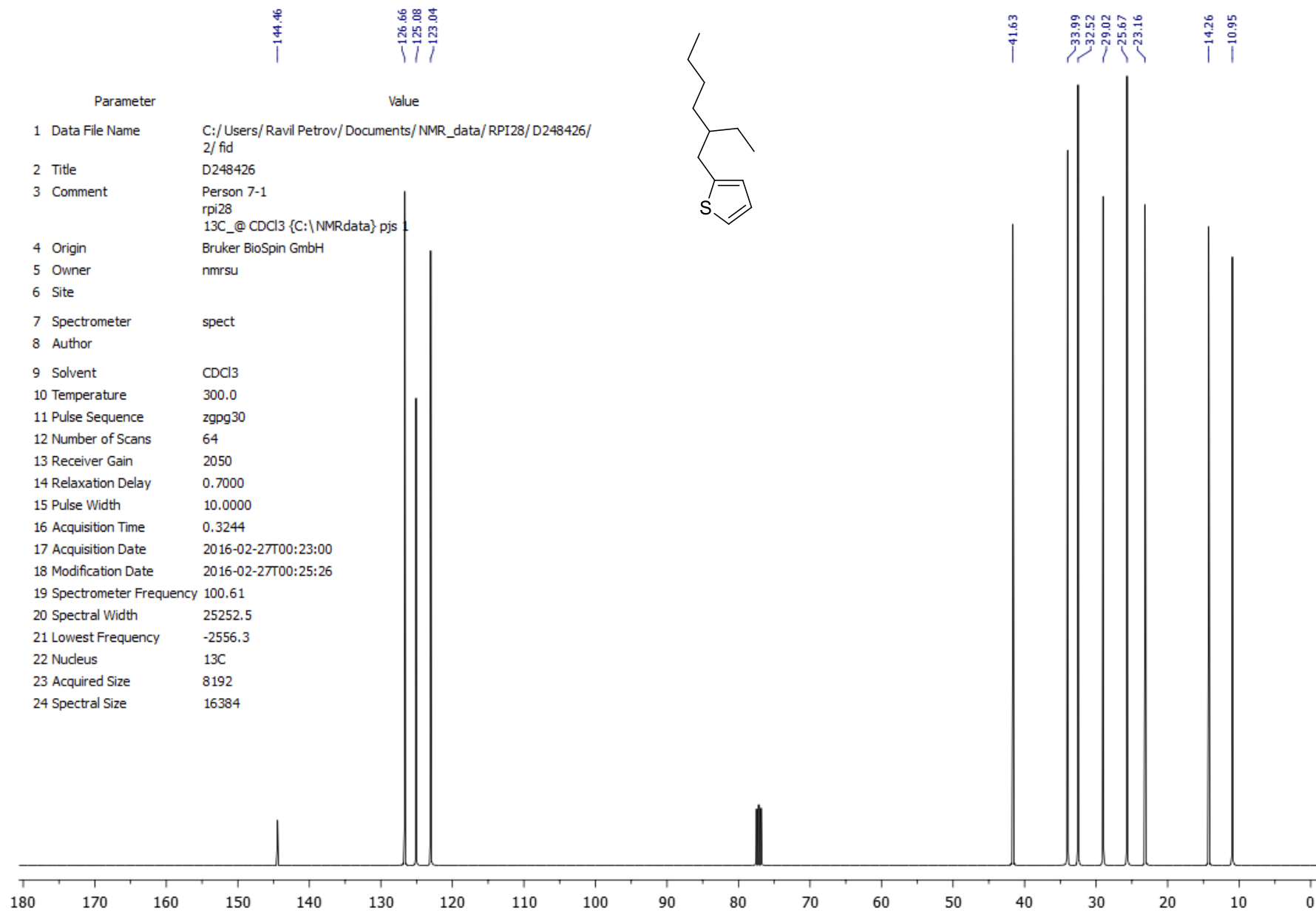


¹H NMR of comp (17) in CDCl₃, Bruker-400

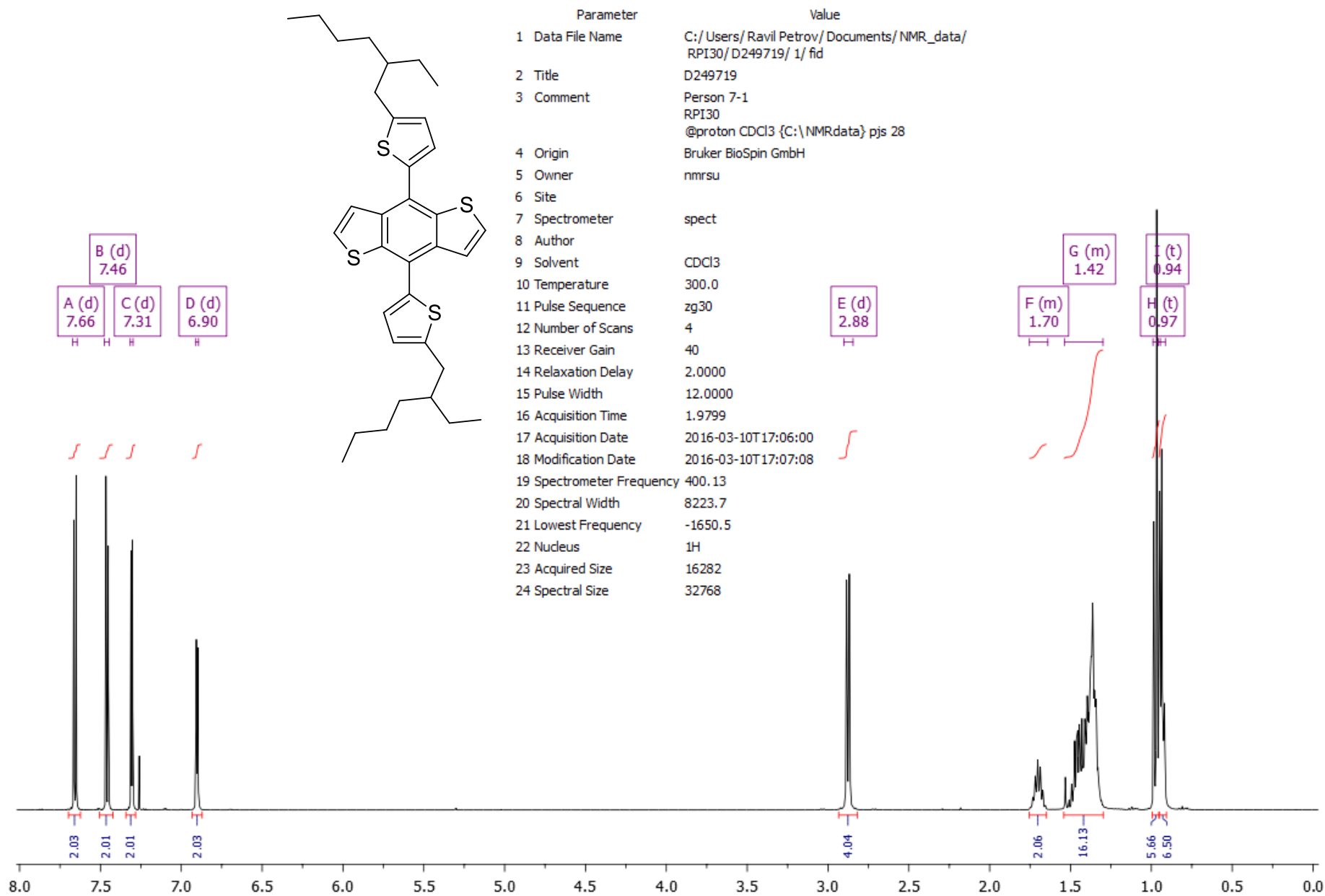
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1 Data File Name	C:/Users/Ravil Petrov/Documents/NMR_data/RPI28/D248426/1/ fid
2 Title	D248426
3 Comment	Person 7-1 rpi28 @proton CDCl ₃ {C:\NMRdata} pjs 1
4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl ₃
10 Temperature	300.0
11 Pulse Sequence	zg30
12 Number of Scans	4
13 Receiver Gain	11
14 Relaxation Delay	2.0000
15 Pulse Width	12.0000
16 Acquisition Time	1.9799
17 Acquisition Date	2016-02-27T00:21:00
18 Modification Date	2016-02-27T00:22:38
19 Spectrometer Frequency	400.13
20 Spectral Width	8223.7
21 Lowest Frequency	-1650.5
22 Nucleus	¹ H
23 Acquired Size	16282
24 Spectral Size	32768



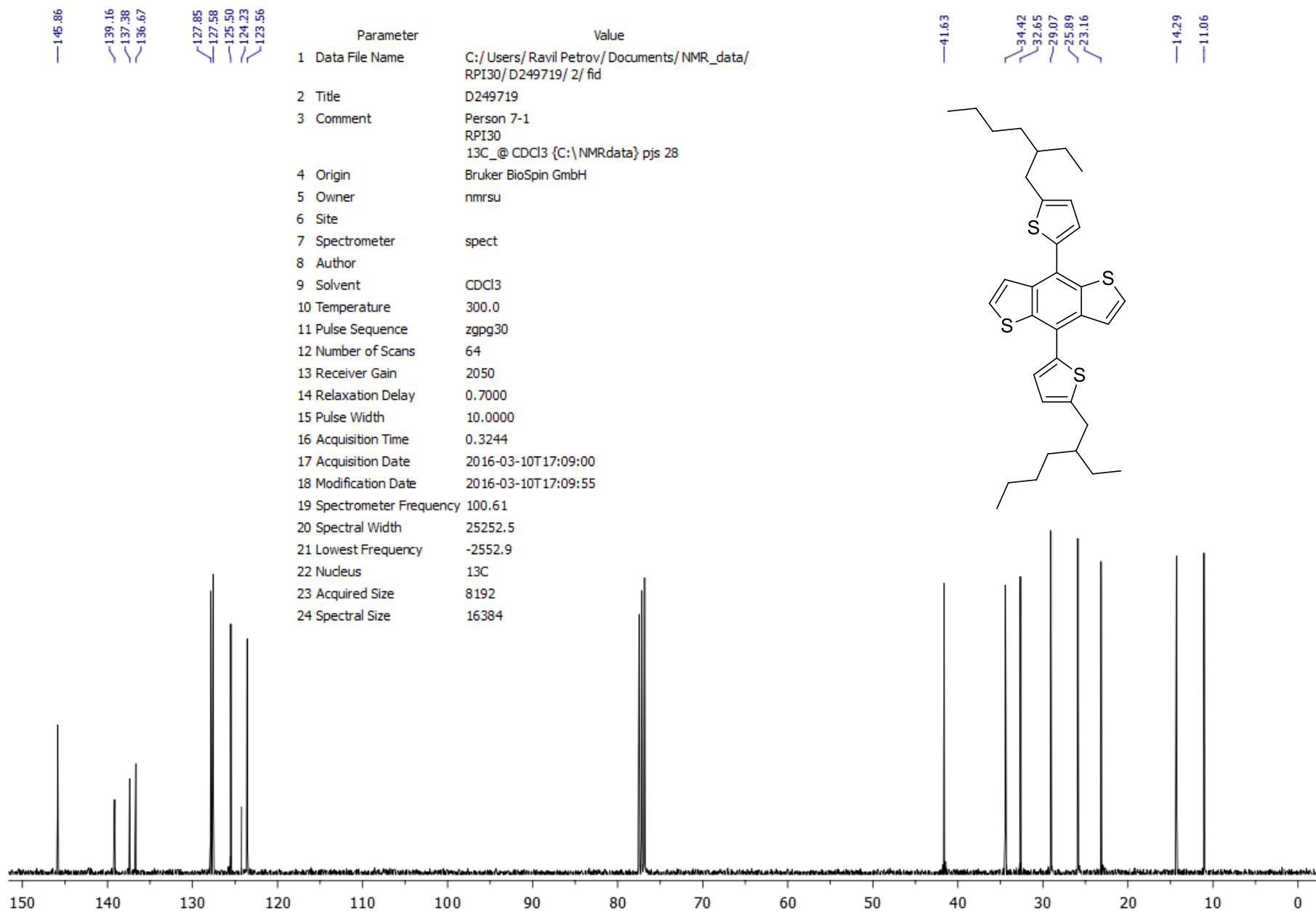
¹³C NMR of comp (**17**) in CDCl₃, Bruker-400



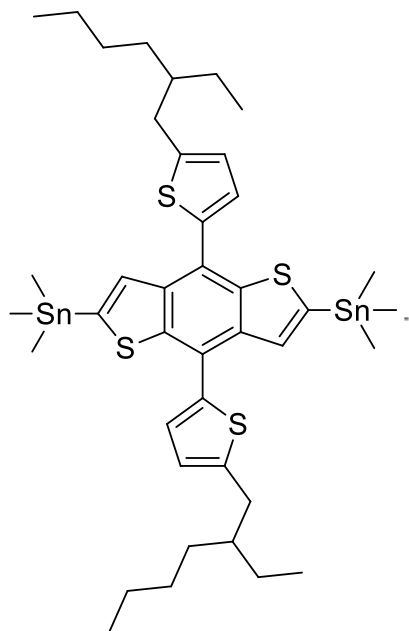
¹H NMR of 4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b:4,5-b']dithiophene (**18**) in CDCl₃, Bruker-400



¹³C NMR of 4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b:4,5-b']dithiophene (**18**) in CDCl₃, Bruker-400



¹H NMR of 2,9-bis(trimethyltin)-4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b:4,5-b']dithiophene (**19**) in CDCl₃, Bruker-400



A (s) 7.70
H

B (d) 7.33
H

C (d) 6.92
H

Parameter	Value
1 Data File Name	C:/Users/Ravil Petrov/Documents/NMR_data/RPI33/D250402/1/fid
2 Title	D250402
3 Comment	Person 7-1 rpi33 stannylated donor @proton CDCl3 {C:\NMRdata} pjs 13
4 Origin	Bruker BioSpin GmbH
5 Owner	nmrsu
6 Site	
7 Spectrometer	spect
8 Author	
9 Solvent	CDCl3
10 Temperature	300.0
11 Pulse Sequence	zg30
12 Number of Scans	4
13 Receiver Gain	57
14 Relaxation Delay	2.0000
15 Pulse Width	12.0000
16 Acquisition Time	1.9799
17 Acquisition Date	2016-03-18T01:44:00
18 Modification Date	2016-03-18T01:45:41
19 Spectrometer Frequency	400.13
20 Spectral Width	8223.7
21 Lowest Frequency	-1640.9
22 Nucleus	¹ H
23 Acquired Size	16282
24 Spectral Size	32768

D (m) 2.89

I (m) 1.71

G (t) 0.93

E (m) 1.45

F (t) 0.97

H (s) 0.41

2.00

2.07

2.08

4.02

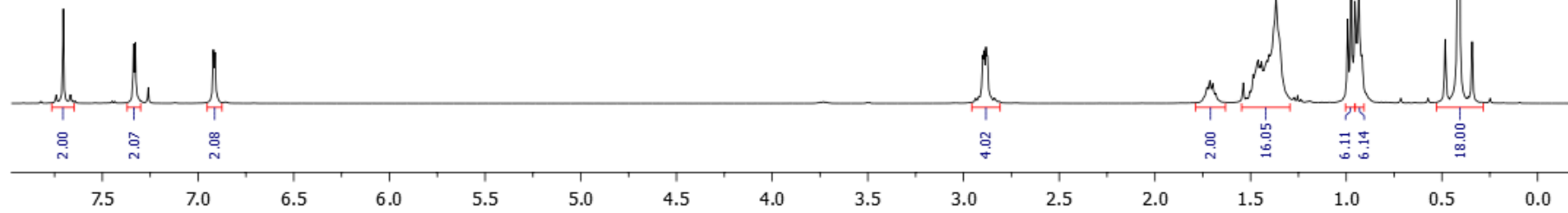
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16.05

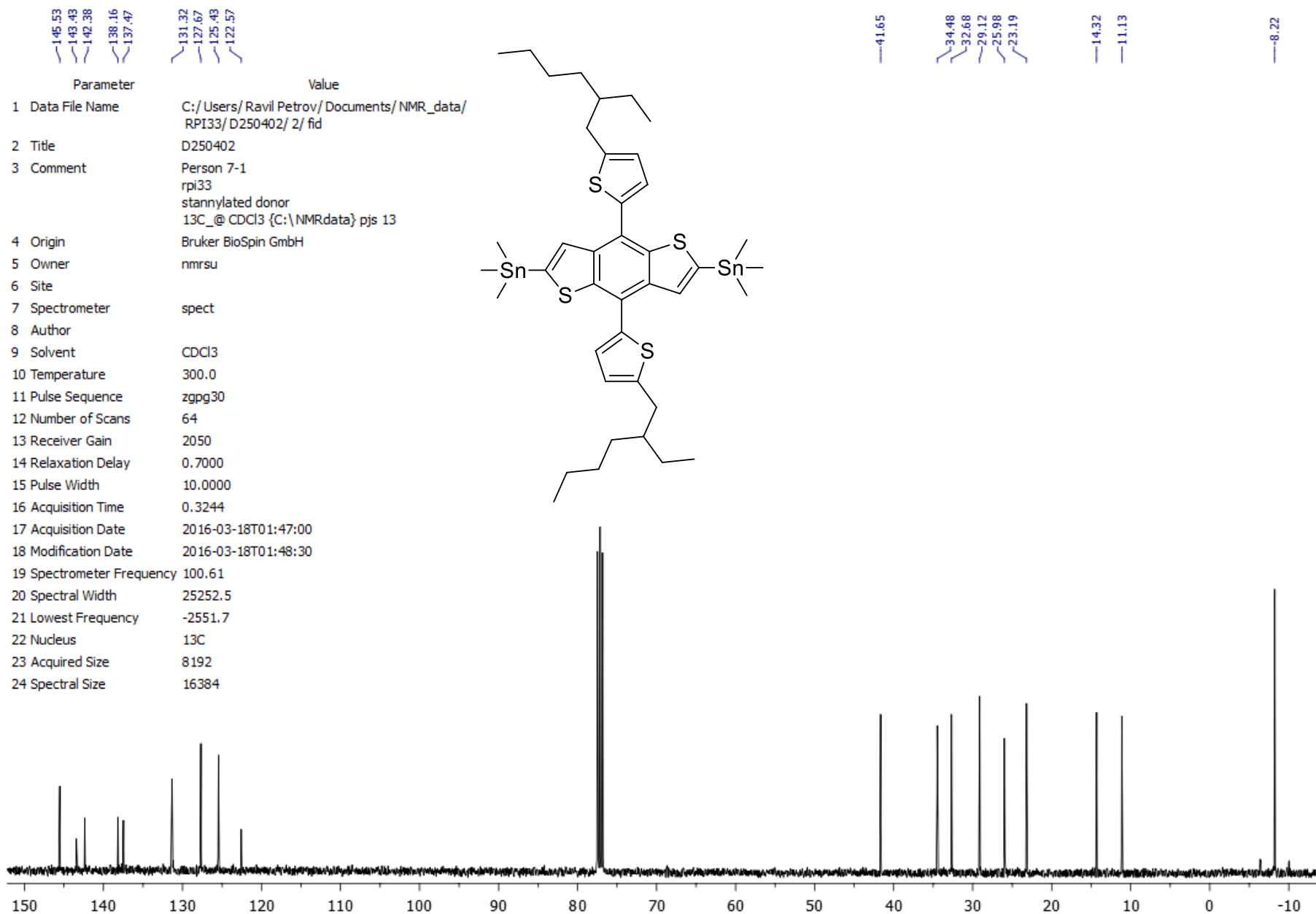
6.11

6.14

18.00



¹³C NMR of 2,9-bis(trimethyltin)-4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b:4,5-b']dithiophene (**19**) in CDCl₃, Bruker-400



¹³C DEPT NMR of 2,9-bis(trimethyltin)-4,8-bis(5-(2-ethylhexyl)thiophen-2-yl)benzo[1,2-b:4,5-b']dithiophene (**19**) in CDCl₃, Bruker-500

