Electronic Supplementary Material (ESI) for RSC Advances.

Supporting information

Efficient Assembly of Mono- and Bis(1,2,4-oxadiazol-3-yl)furoxan Scaffolds via Tandem Reactions of Furoxanylamidoximes

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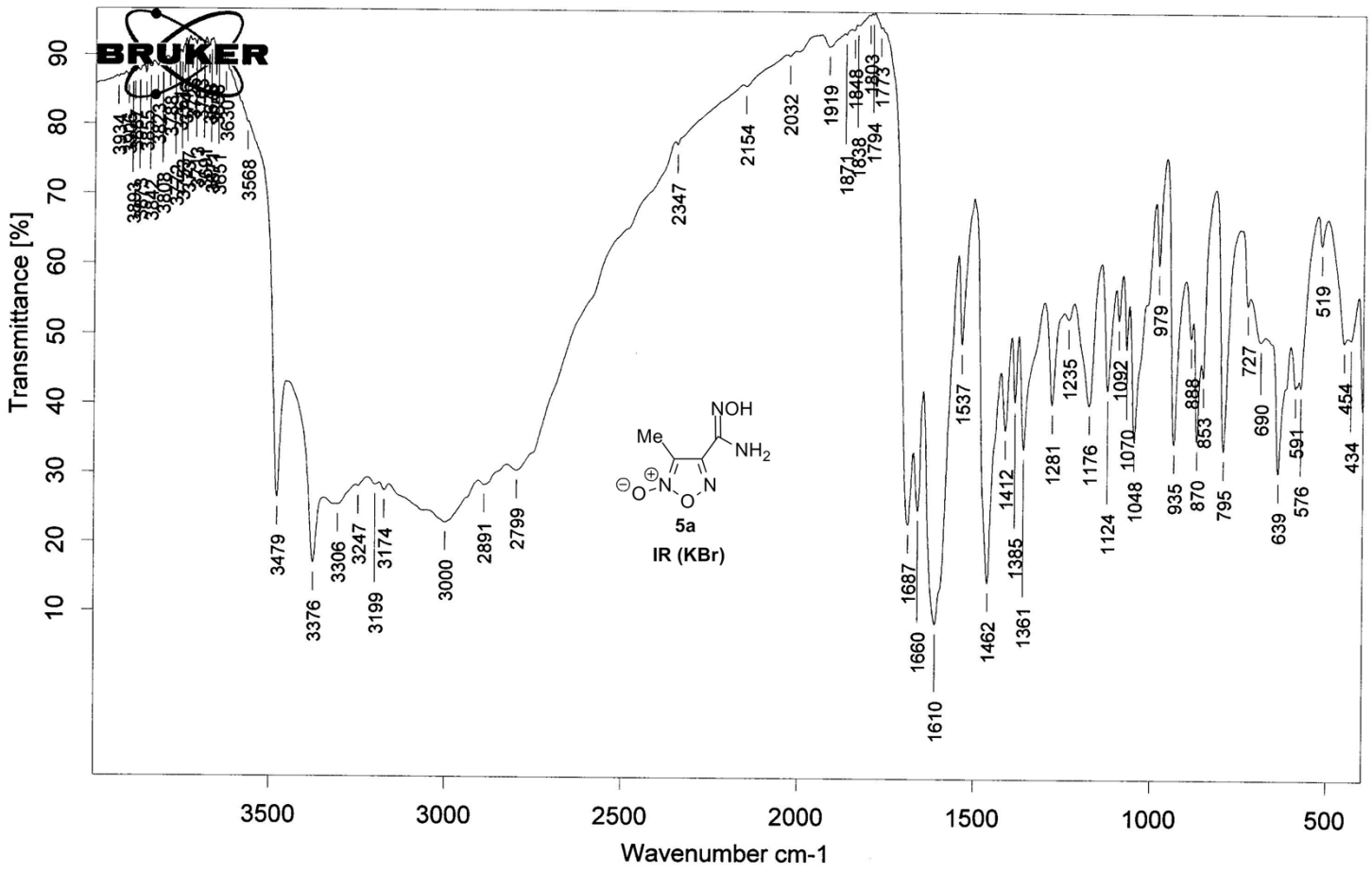
[b] A.N. Nesmeyanov Institute of Organoelement Compounds, Vavilova str. 28, 119991 Moscow, Russian Federation.

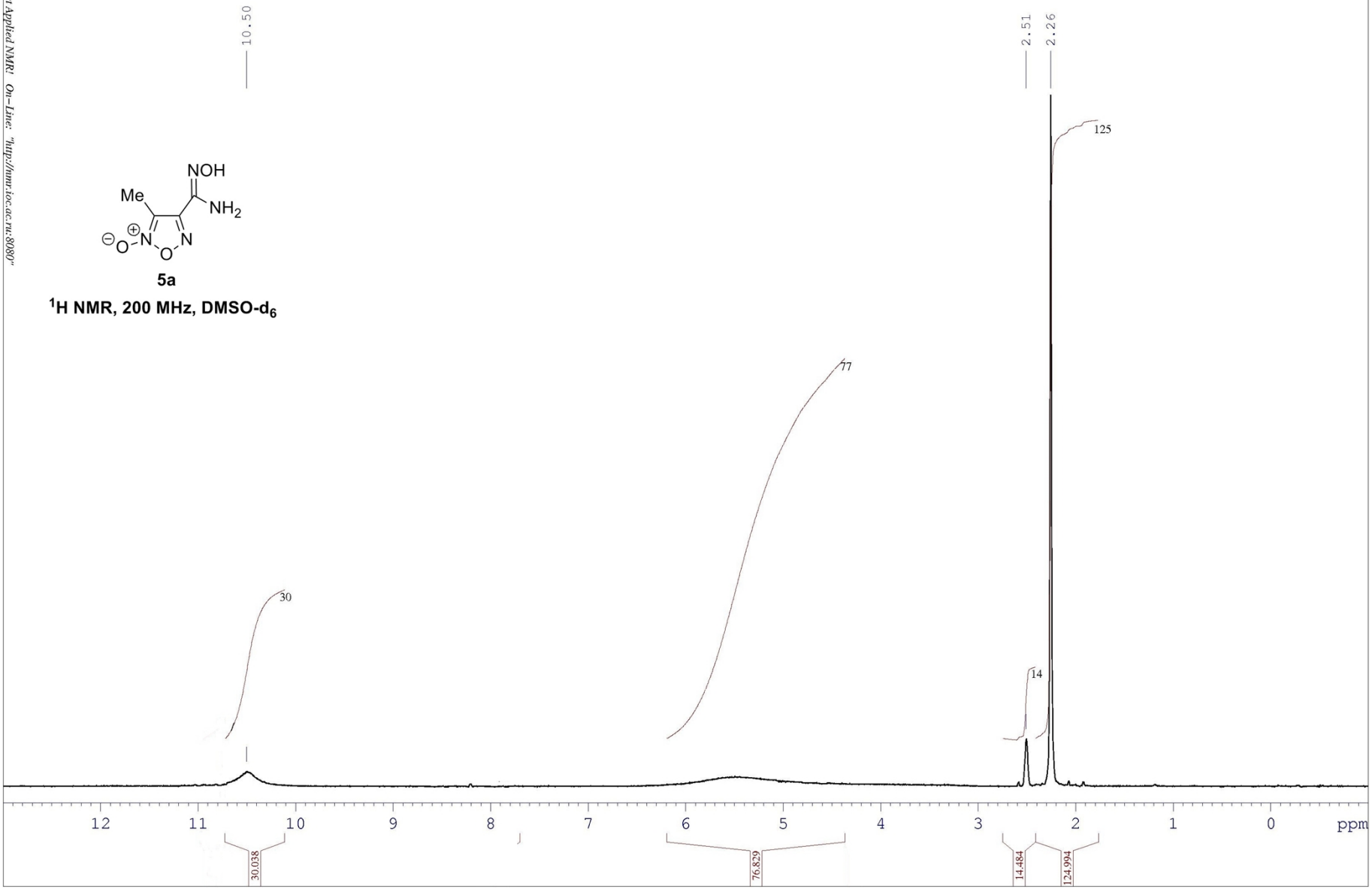


D:\EDL\LEO-638.0 ФЕРШТАТ. LEO-638 , прессовка с KBr,1/200.	03.12.2014

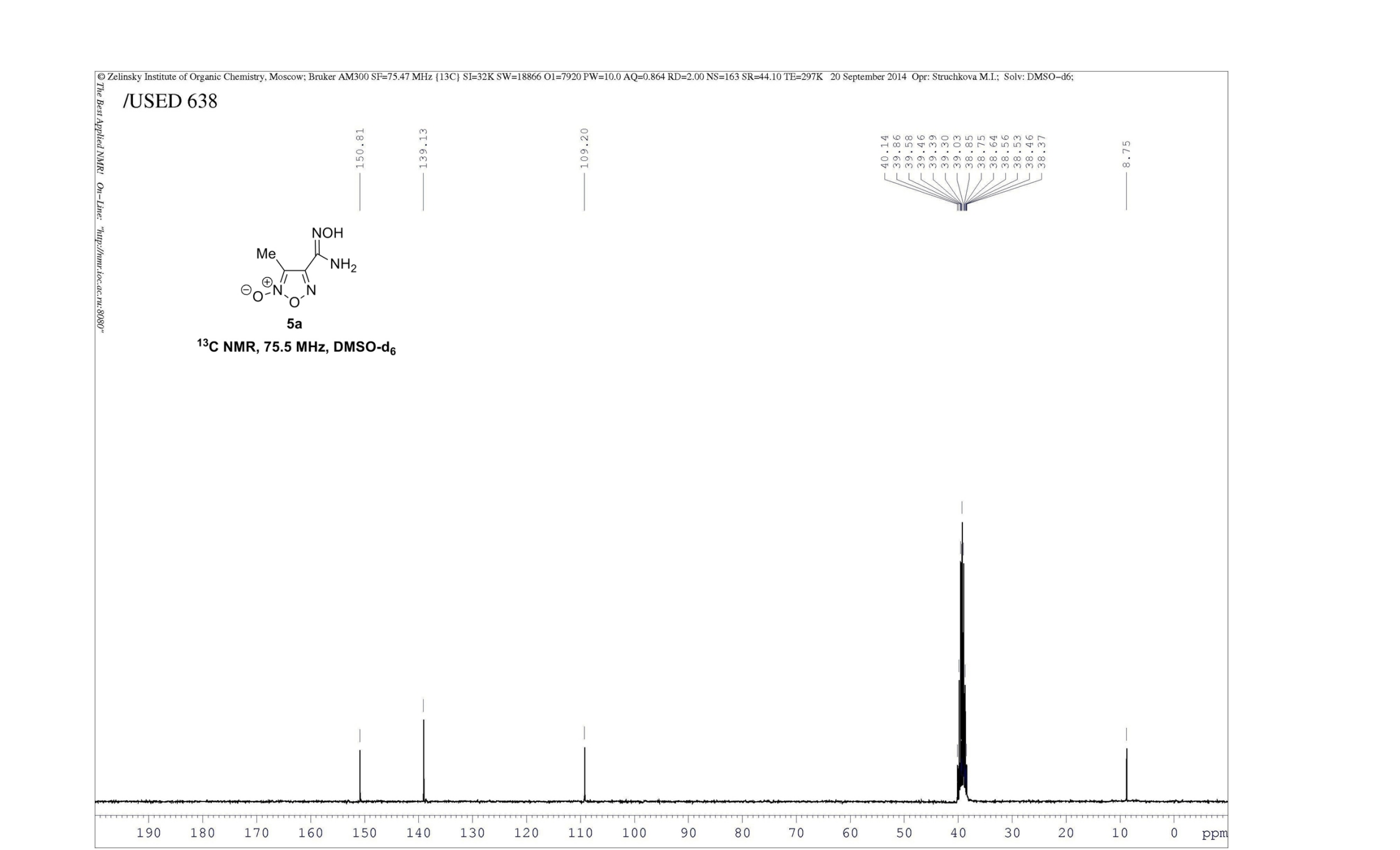
/USED 638

5a

^{1}H NMR, 200 MHz, DMSO-d$_6$

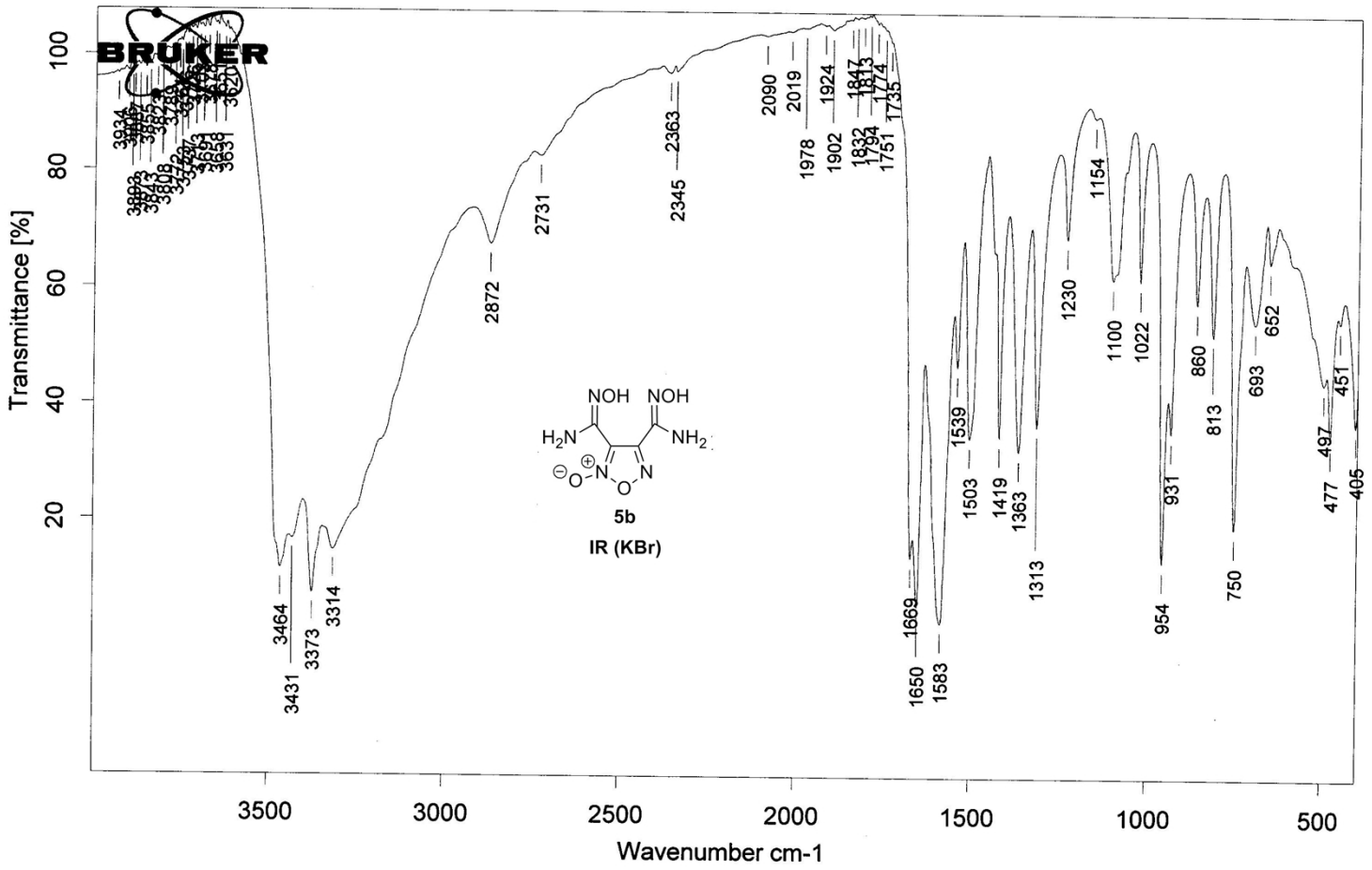


/USED 638



5a

^{13}C NMR, 75.5 MHz, DMSO-d$_6$

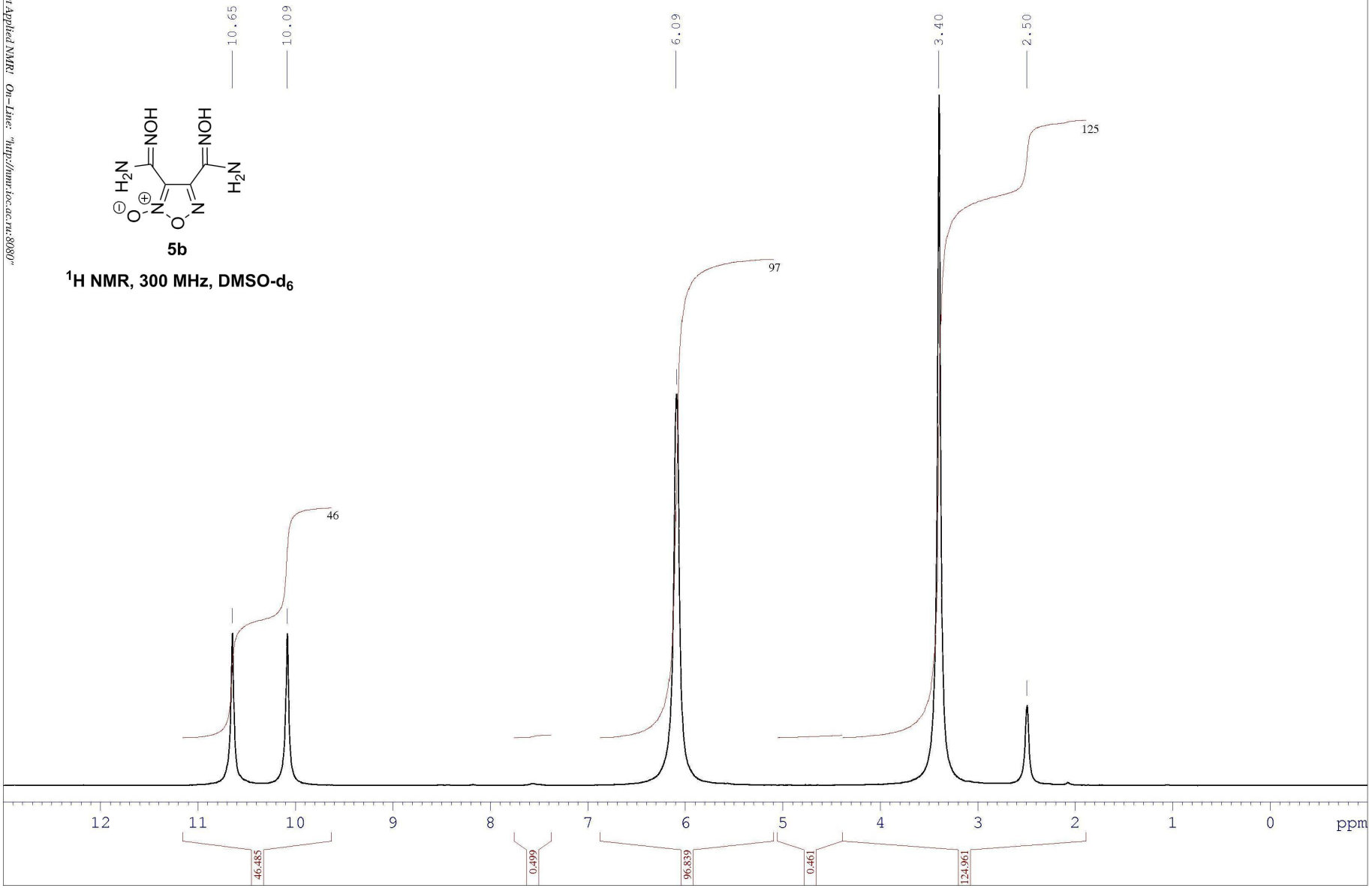


D:\EDL\LEO-660.0 ФЕРШТАТ. LEO-660 , прессовка с KBr,1/200.	04.12.2014

/USED 660

5b

^{1}H NMR, 300 MHz, DMSO-d$_6$



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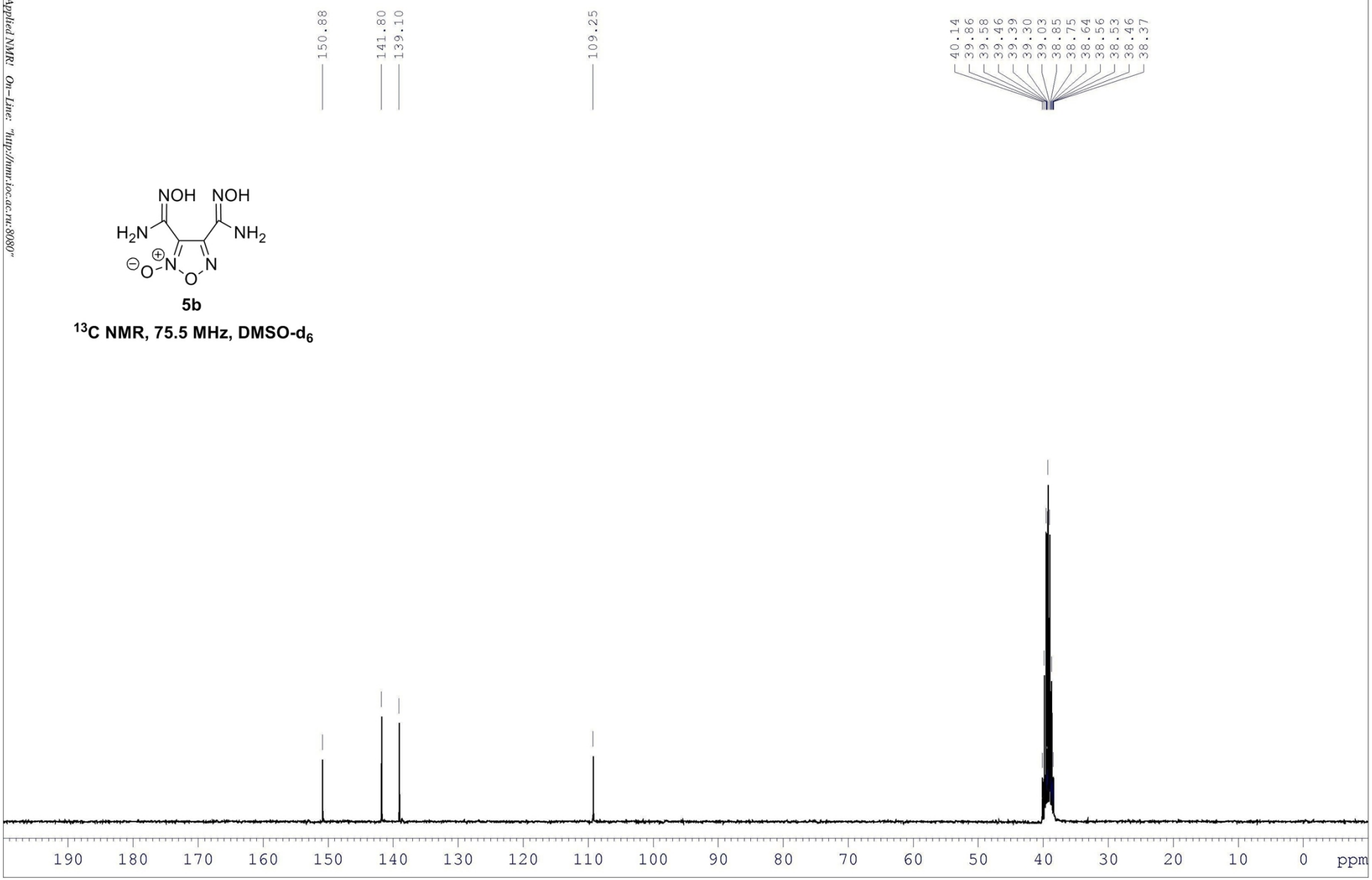


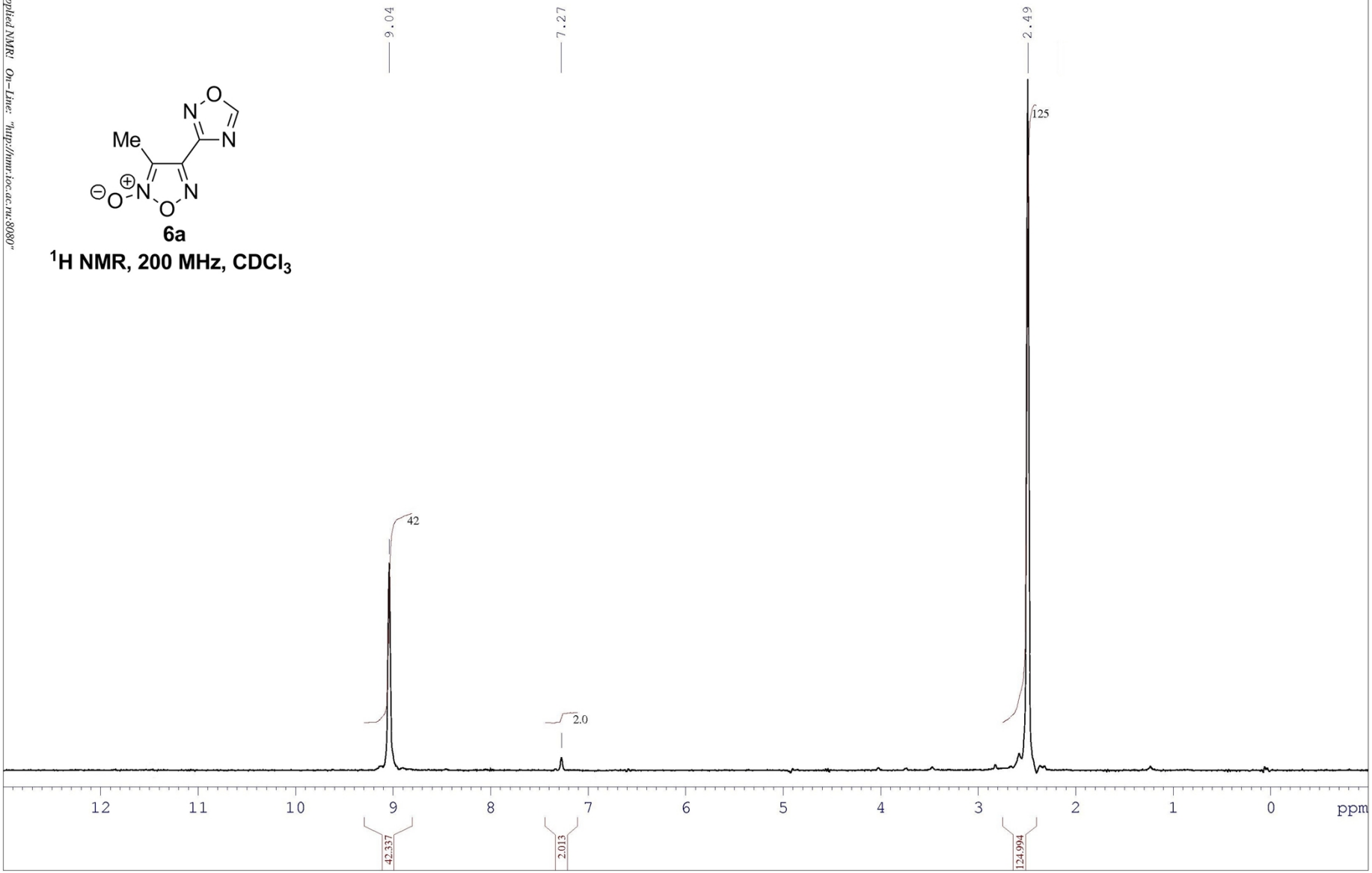
5b

^{13}C NMR, 75.5 MHz, DMSO-d_6

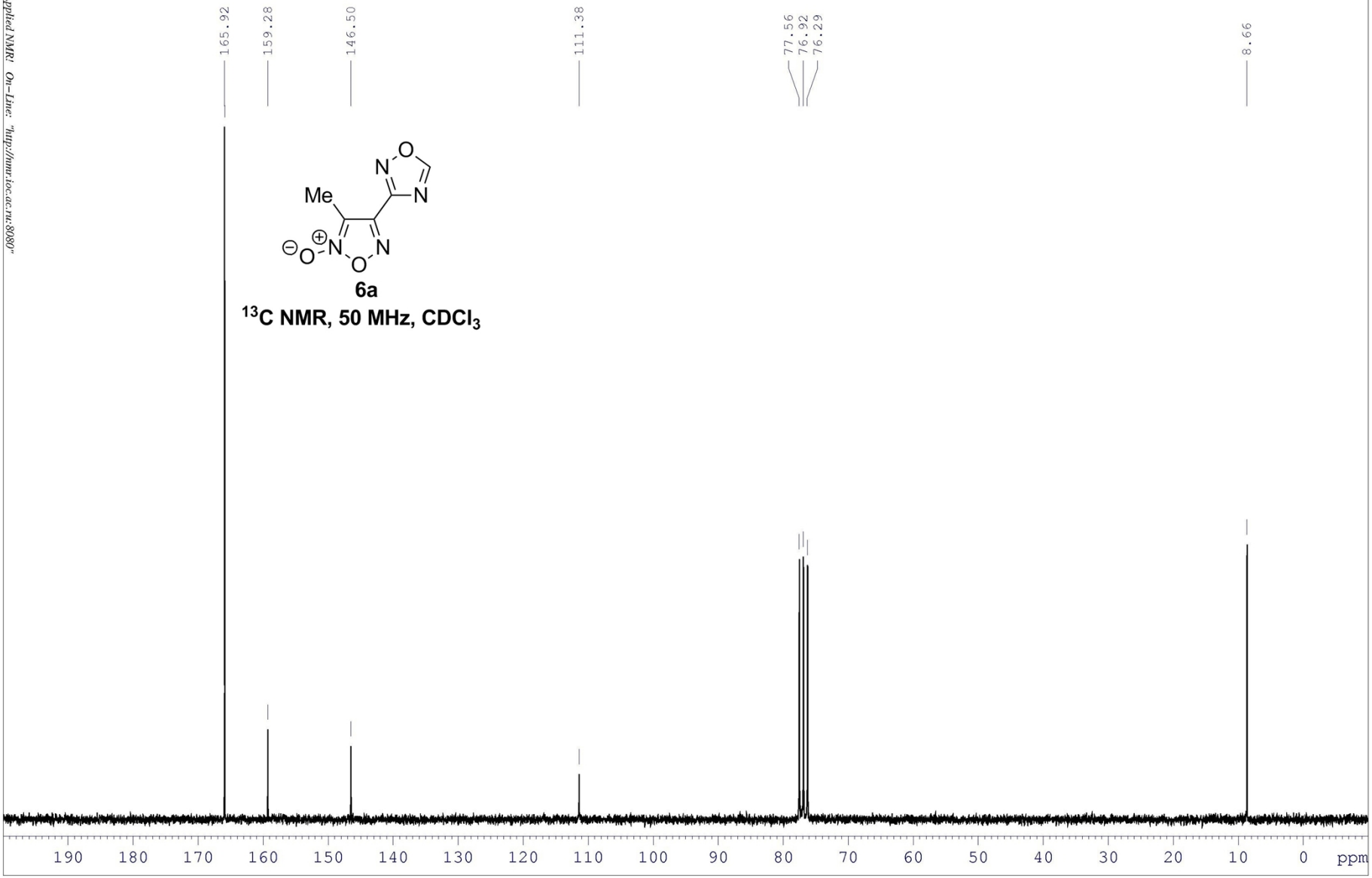
/USED 641

6a

^{1}H NMR, 200 MHz, $CDCl_3$



/USED 641.C13



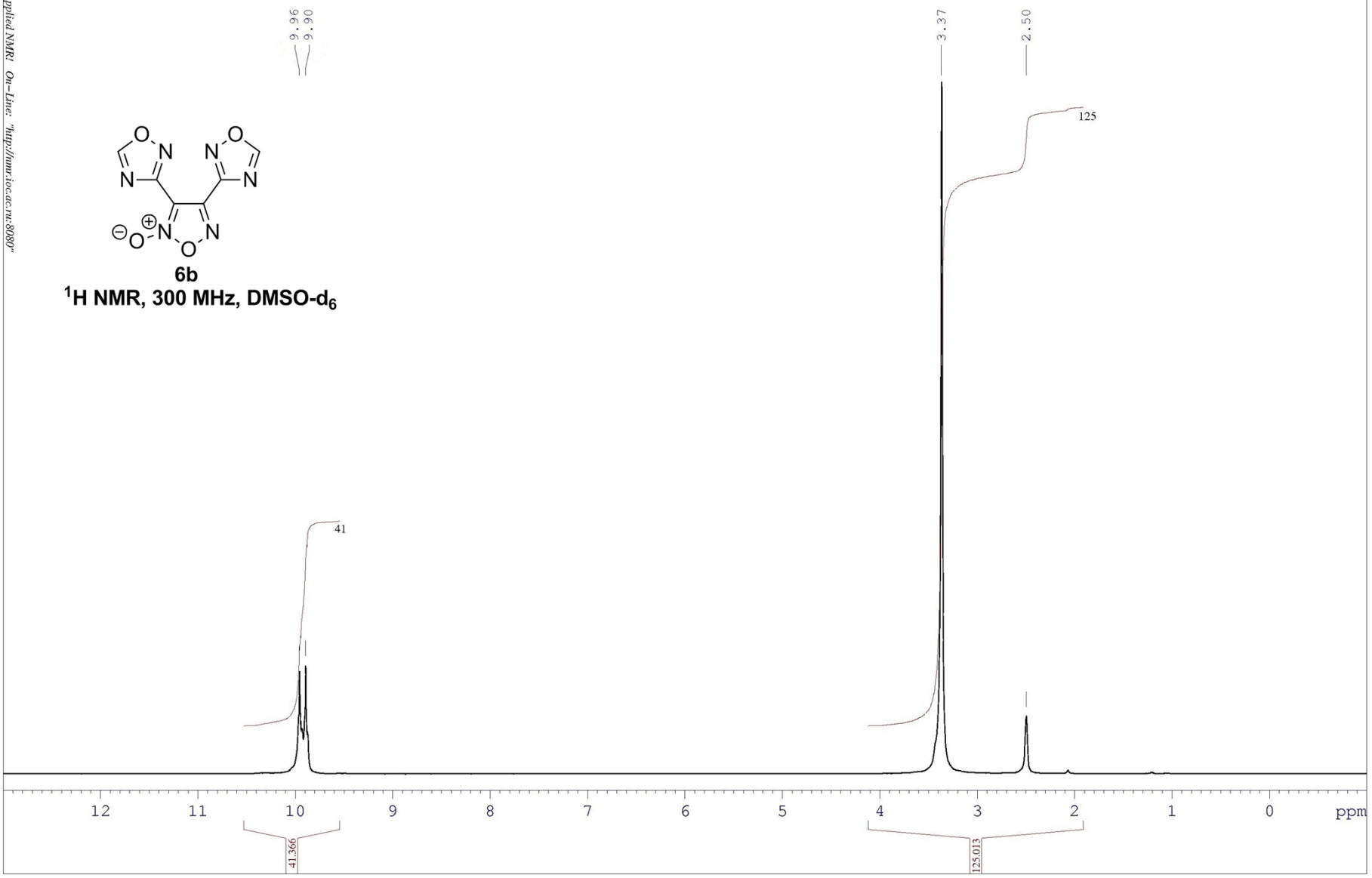
6a

^{13}C NMR, 50 MHz, $CDCl_3$

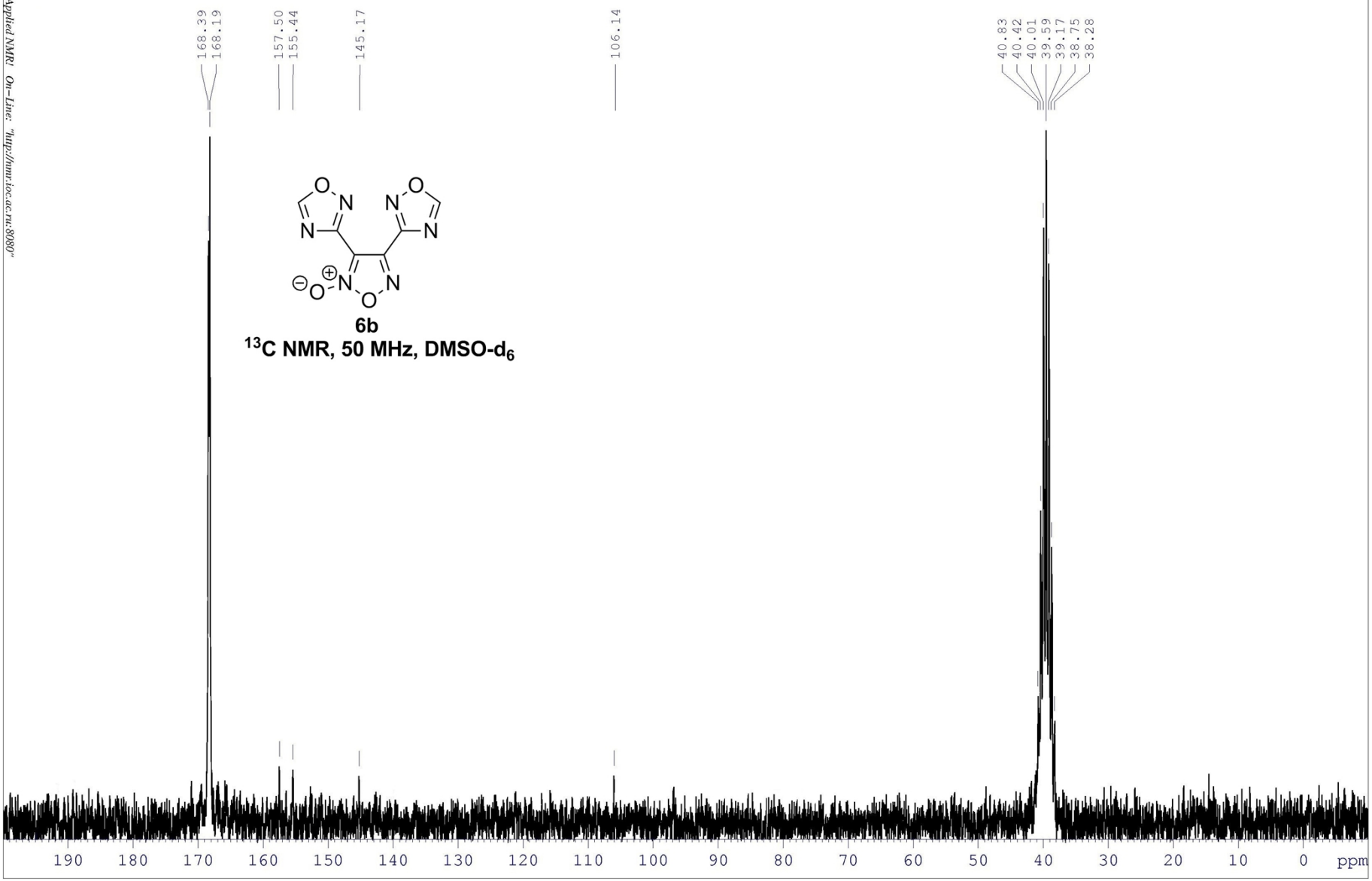
/USED 672

6b

^{1}H NMR, 300 MHz, DMSO-d_6



/USED 672.C13



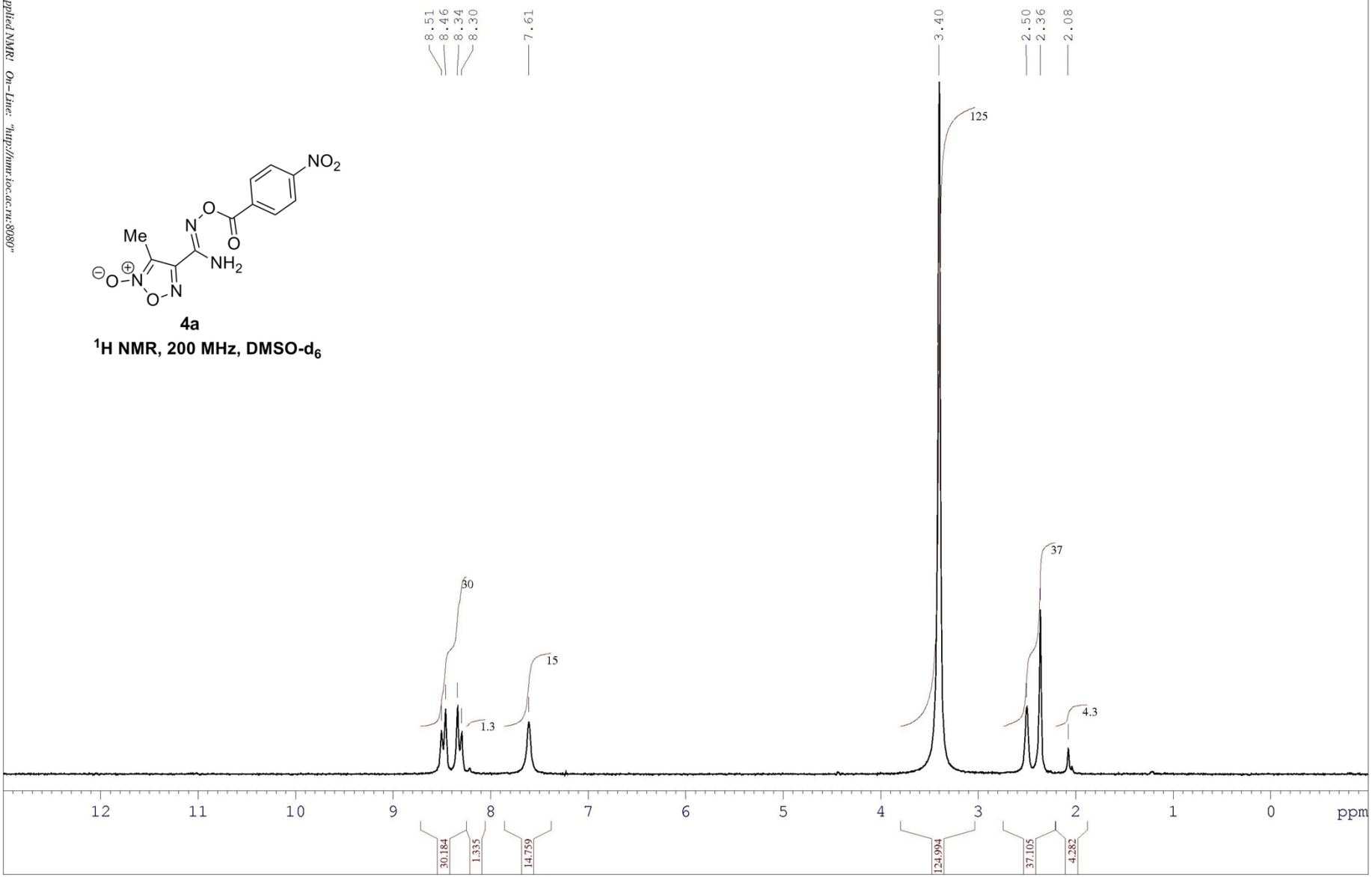
6b

^{13}C NMR, 50 MHz, DMSO-d_6

/USED 669

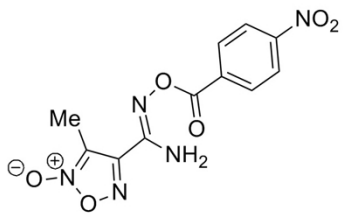
4a

^{1}H NMR, 200 MHz, DMSO-d_6



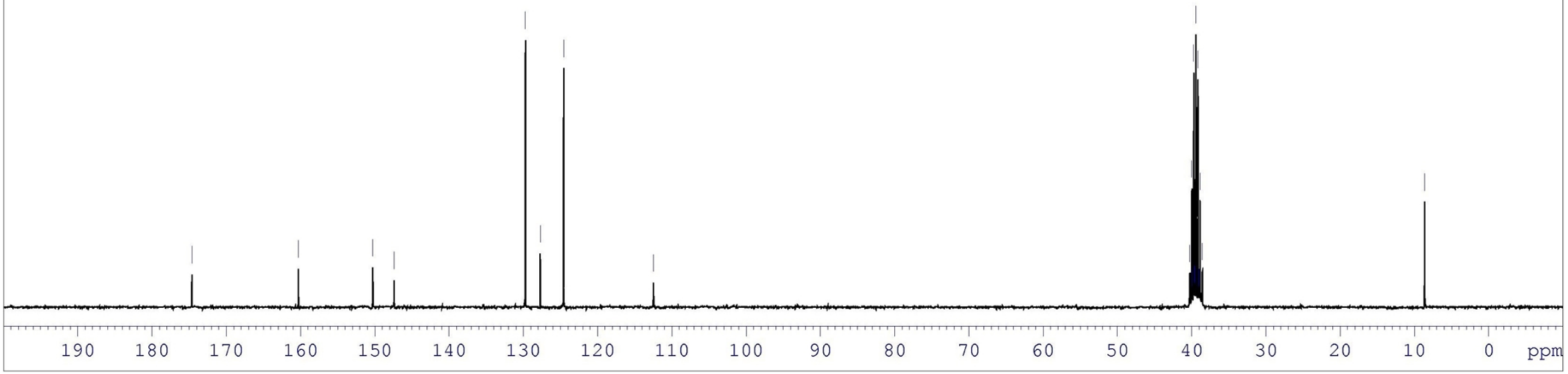
/USED 669

174.64 160.28 150.27 147.38 129.72 127.69 124.57 112.45 40.28 40.01 39.93 39.73 39.62 39.59 39.45 39.17 39.05 38.99 38.89 38.62 8.65



4a

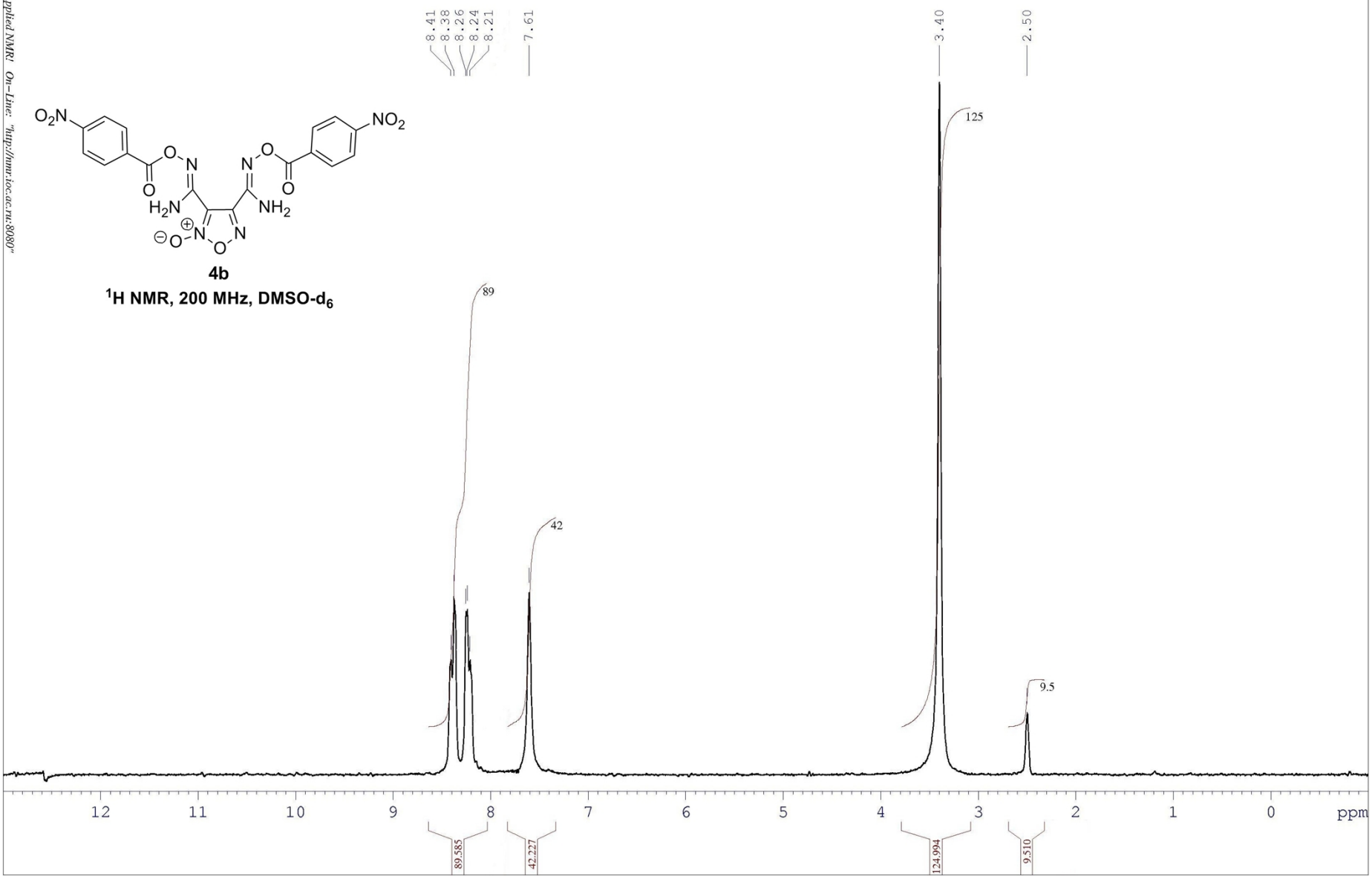
^{13}C NMR, 75.5 MHz, DMSO-d$_6$



/USED 683

4b

^{1}H NMR, 200 MHz, DMSO-d_6



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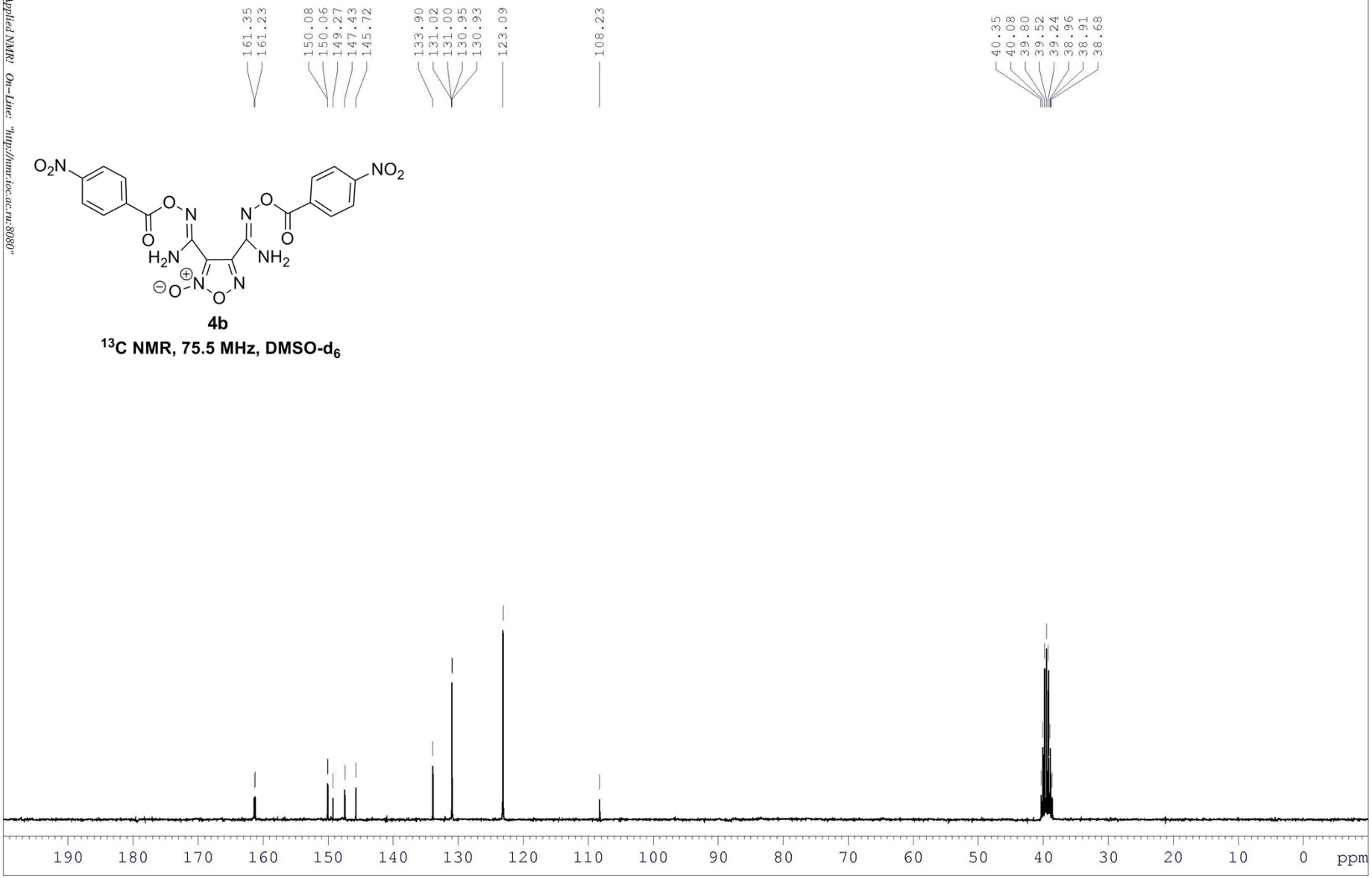
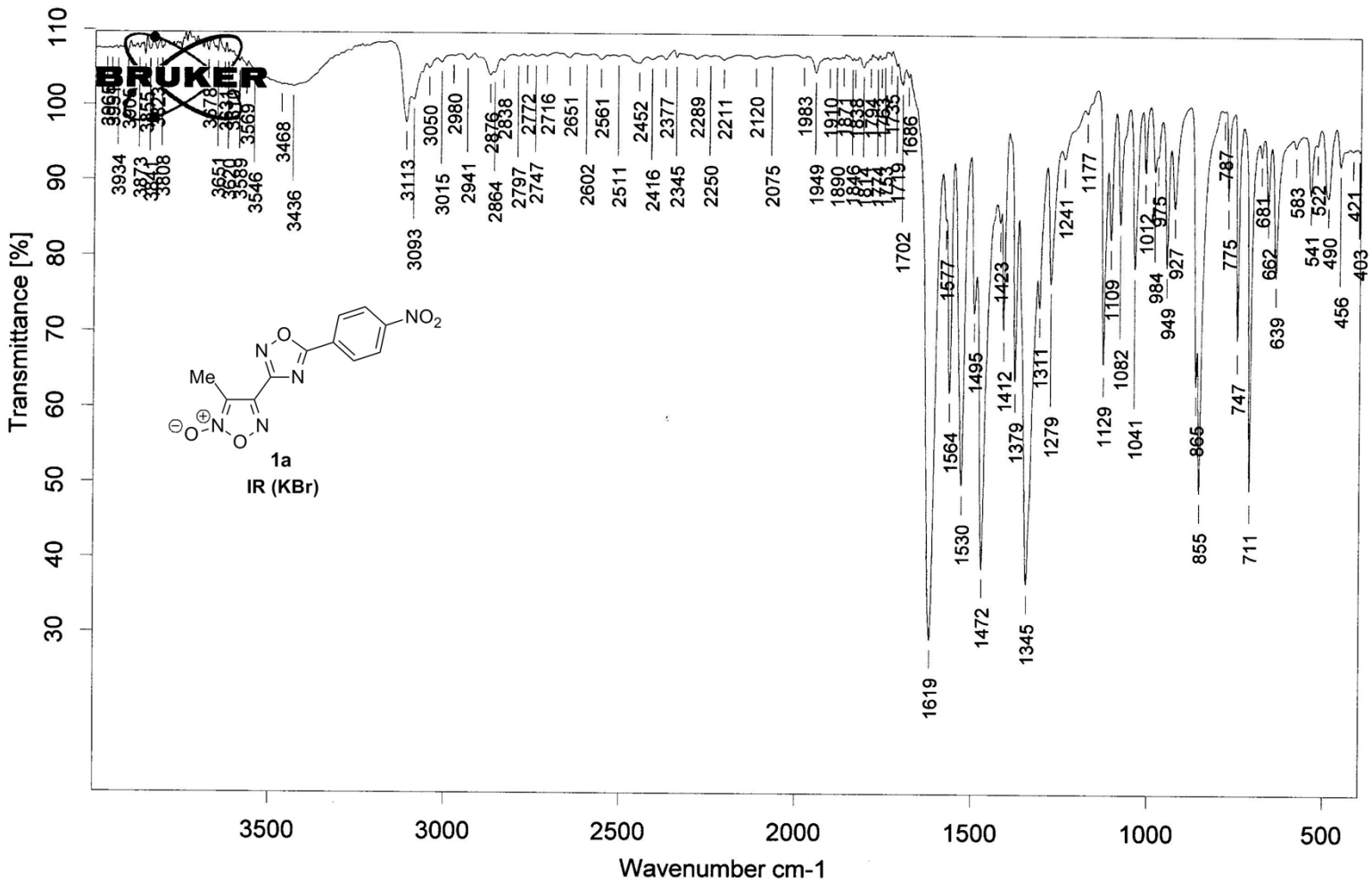
4b

^{13}C NMR, 75.5 MHz, DMSO-d$_6$



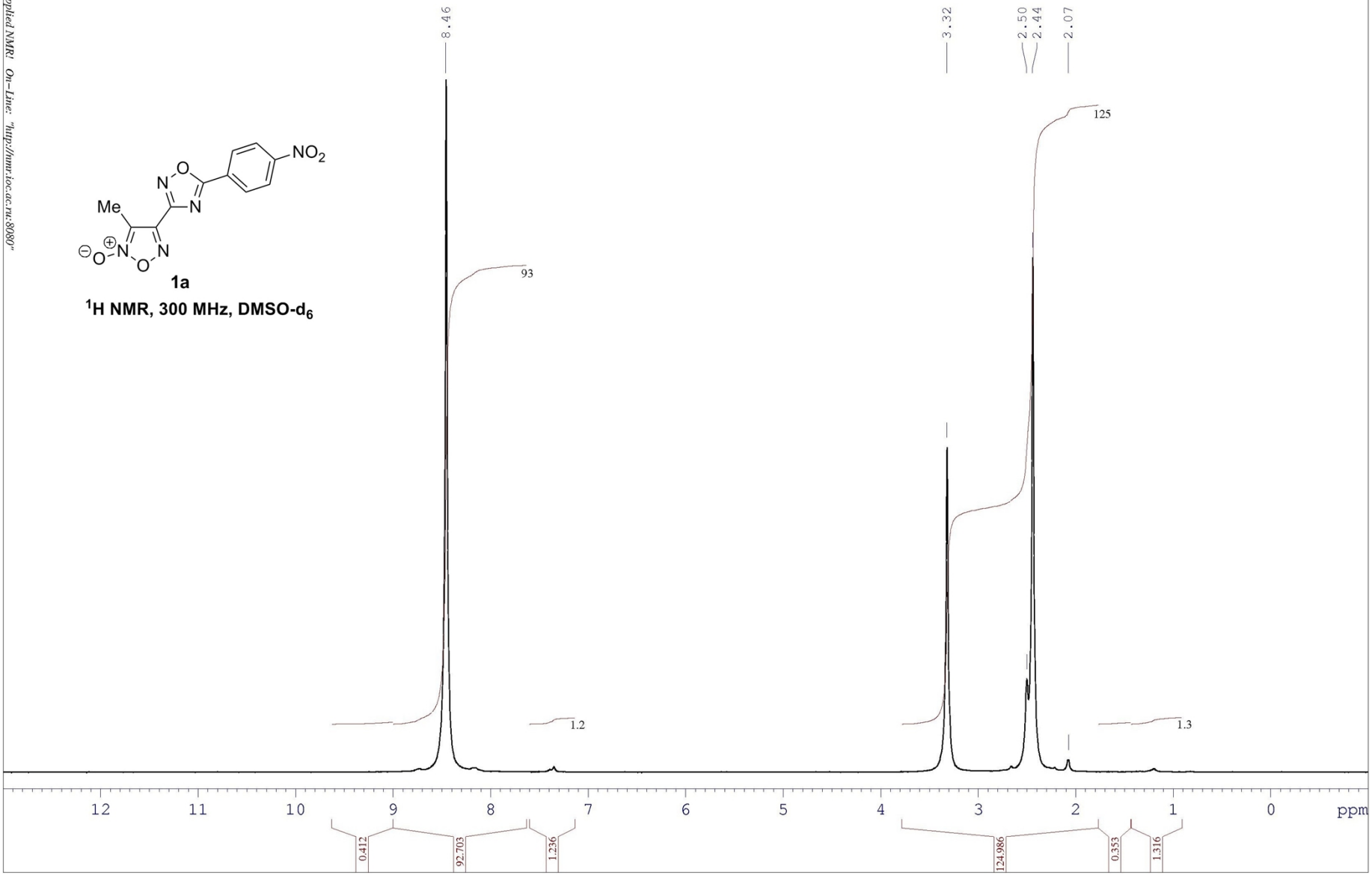


D:\EDL\LEO-751.0 ФЕРШТАТ. LEO-751 , прессовка с KBr,1/200.	12.12.2014

/USED 751

1a

^{1}H NMR, 300 MHz, DMSO-d$_6$



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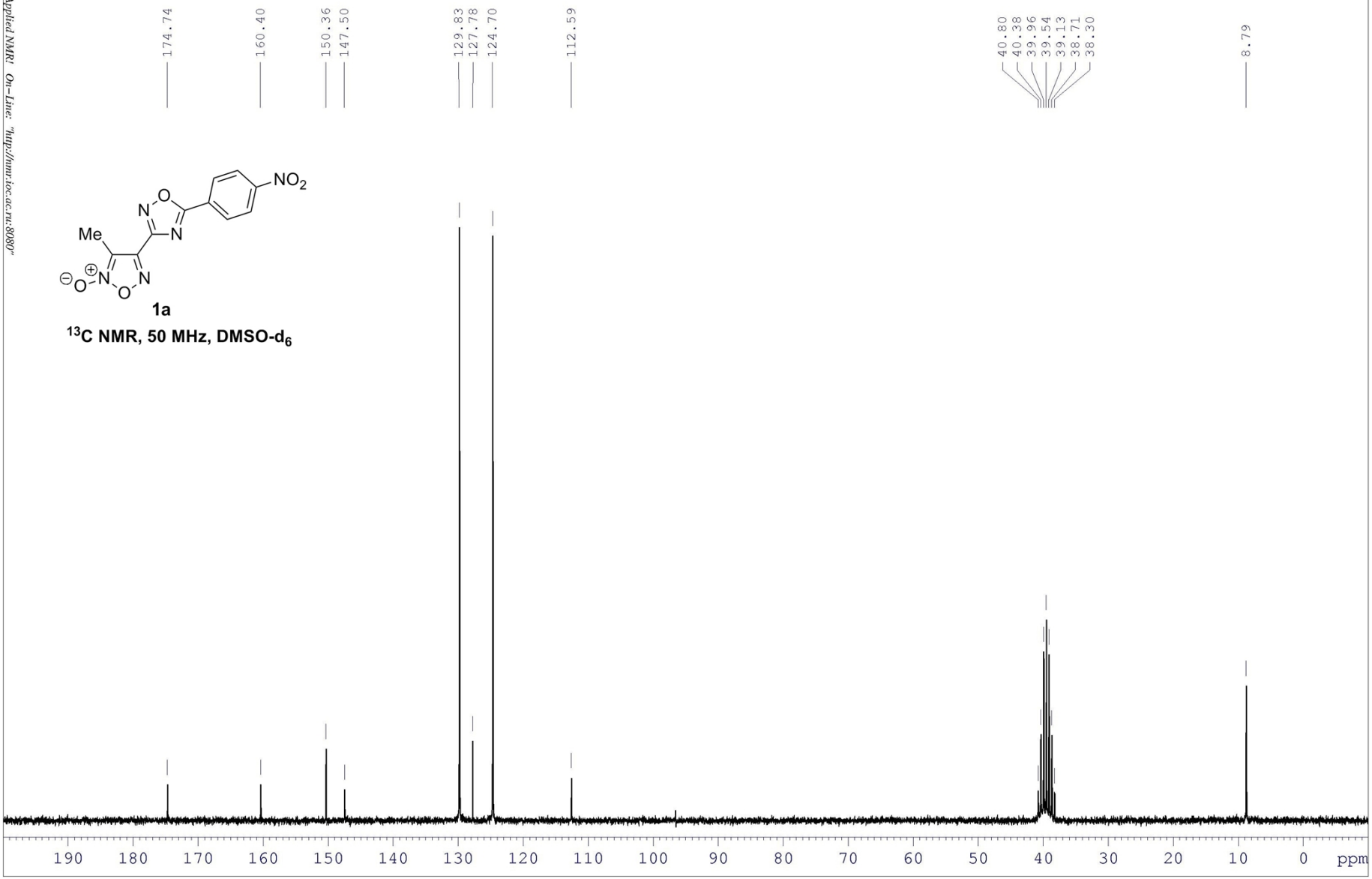
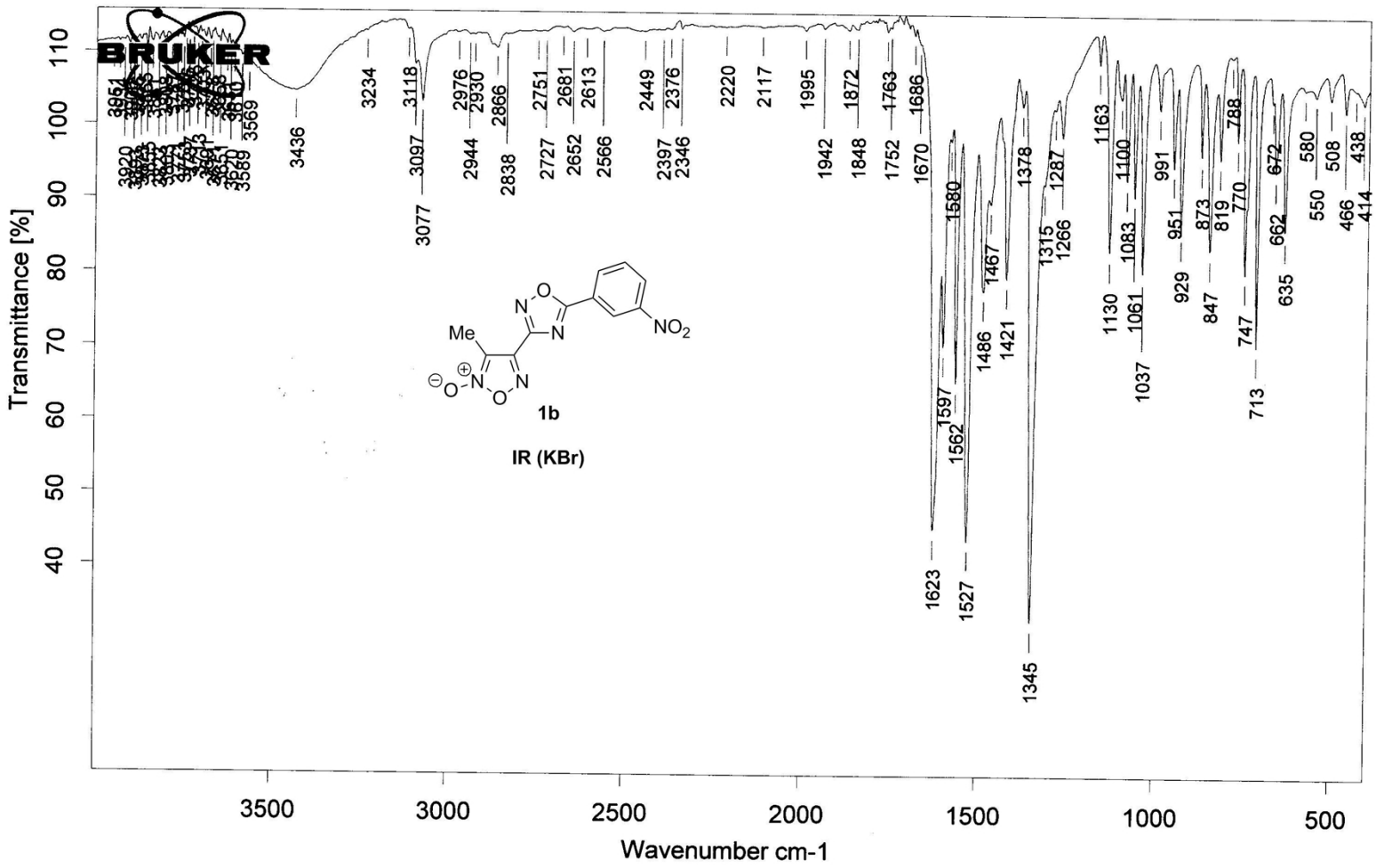


1a

^{13}C NMR, 50 MHz, DMSO-d$_6$

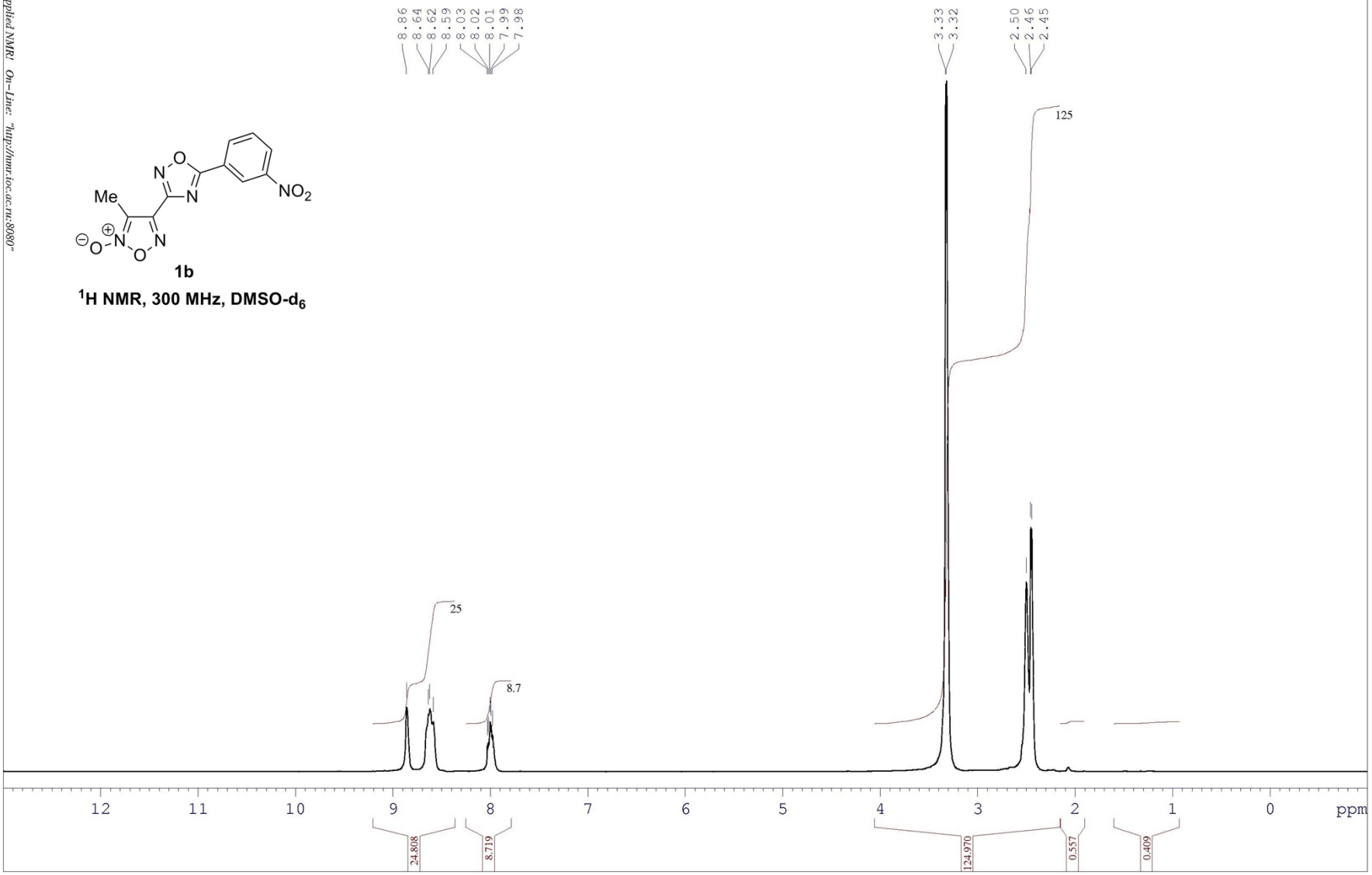


D:\EDL\LEO-726.0 ФЕРШТАТ. LEO-726 , прессовка с KBr,0.5/200.	04.12.2014

/USED 726

1b

^{1}H NMR, 300 MHz, DMSO-d$_6$



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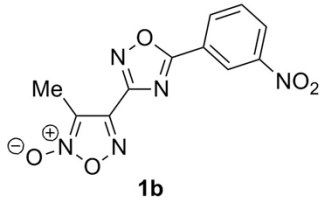
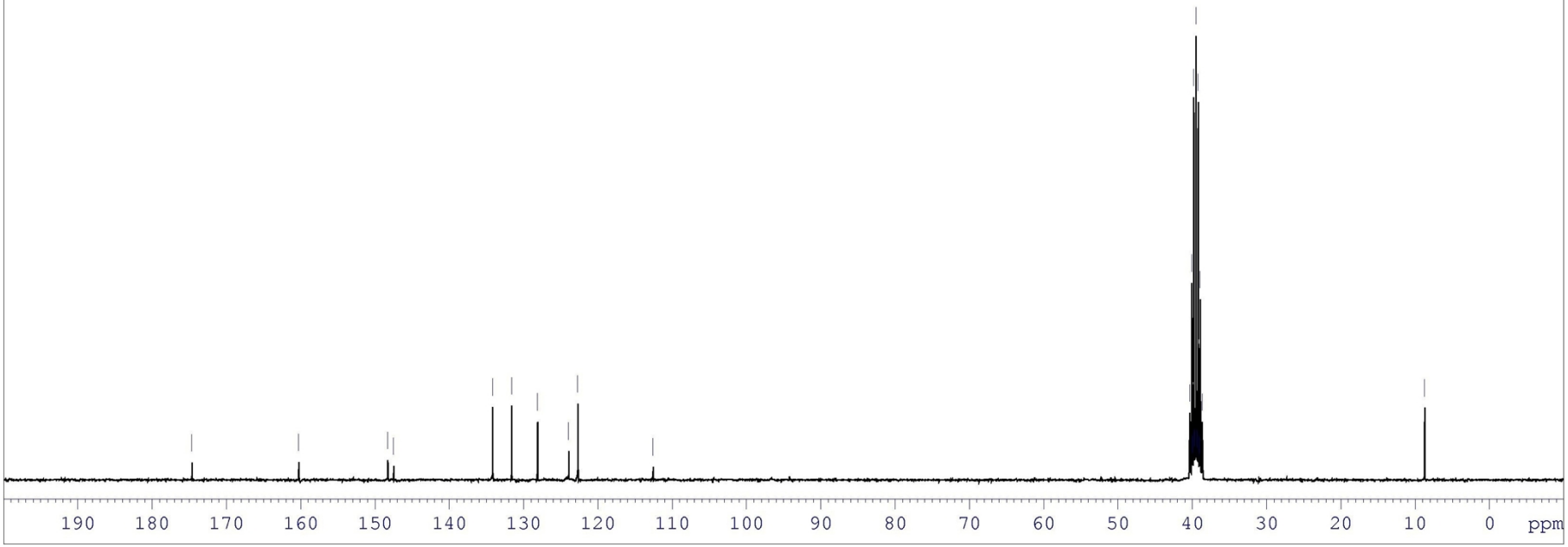
174.66
160.28
148.29
147.51
134.19
131.63
128.16
123.95
122.73
112.59
40.37
40.08
39.96
39.81
39.67
39.53
39.40
39.25
39.07
38.97
38.70
8.76



1b

^{13}C NMR, 75.5 MHz, DMSO-d_6



Display Report

Analysis Info

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Method	tune_low.m	Operator	BDAL@DE
Sample Name	/USED 726	Instrument / Ser#	micrOTOF 10248
Comment	C11H7N5O5 mw 289 calibrant added		

Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
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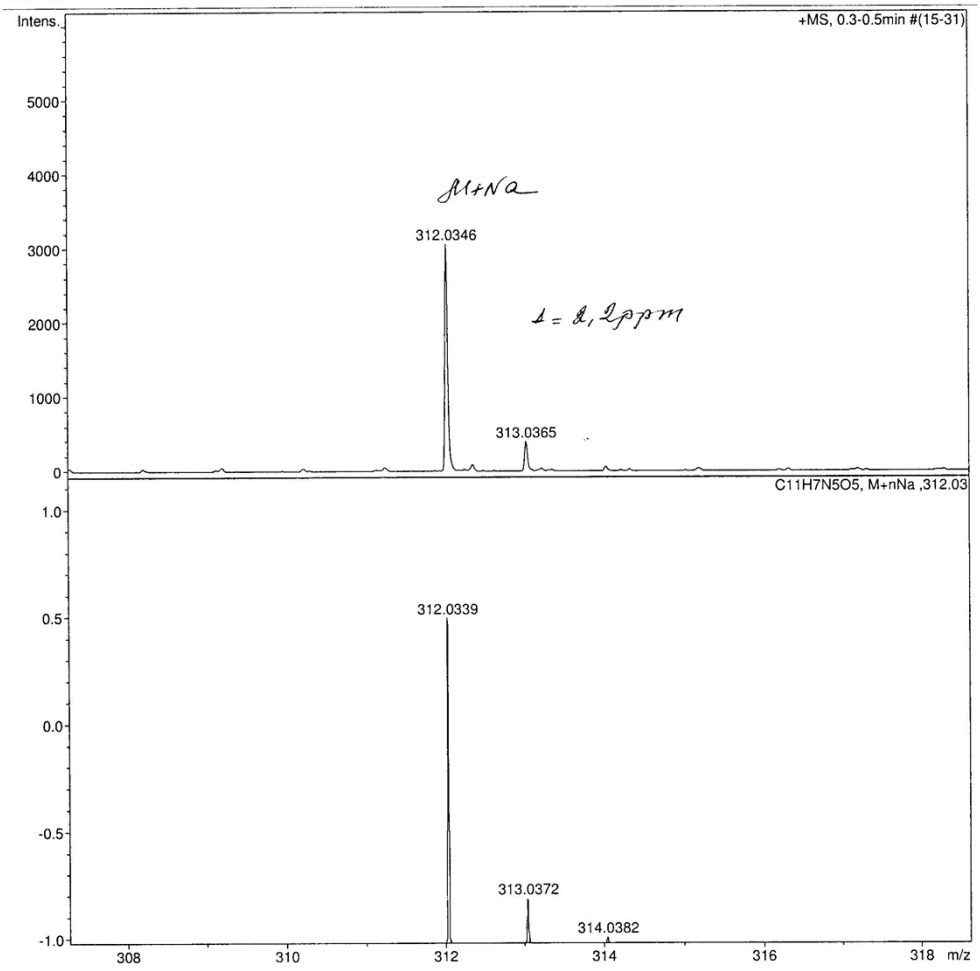
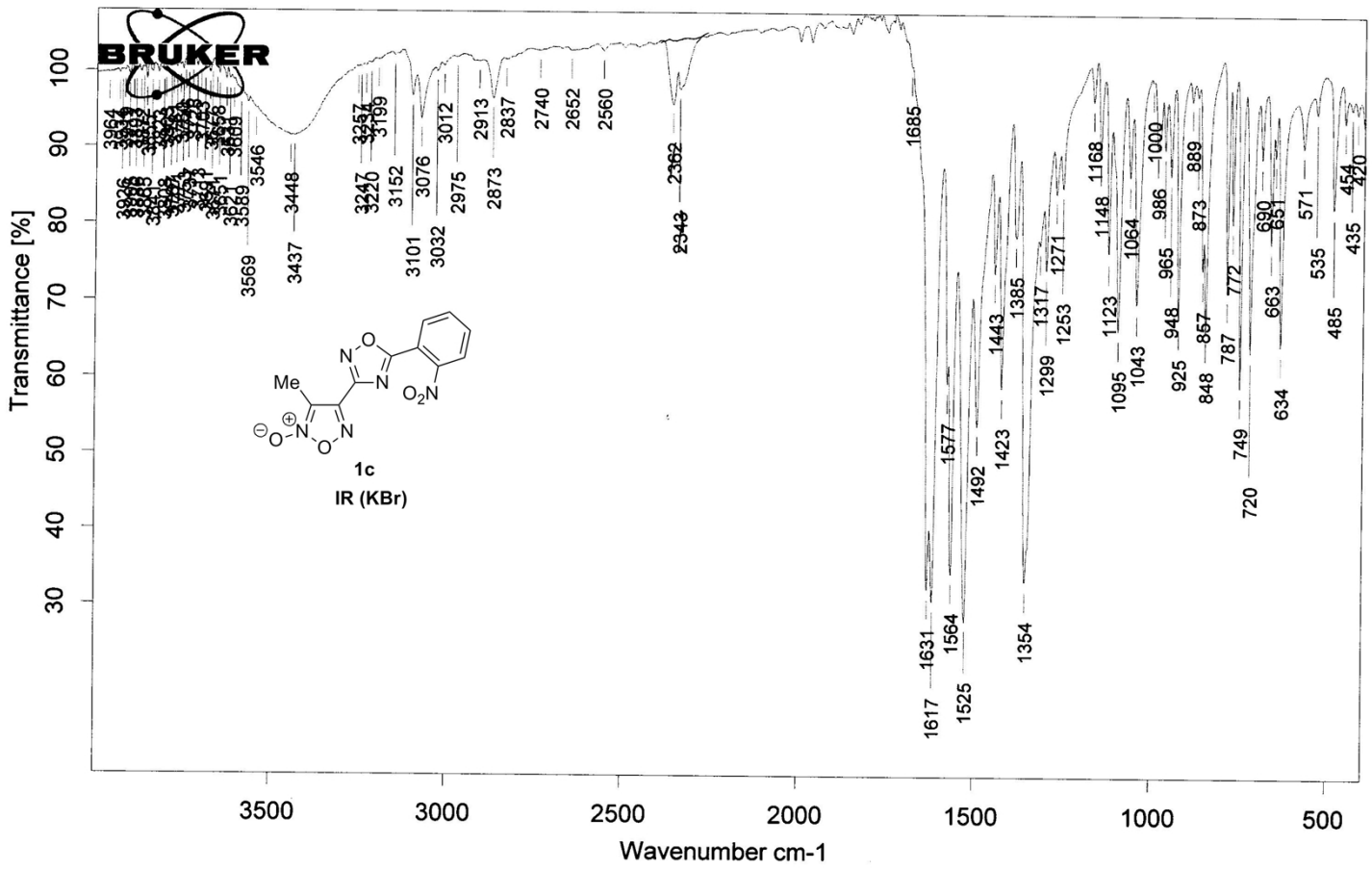
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



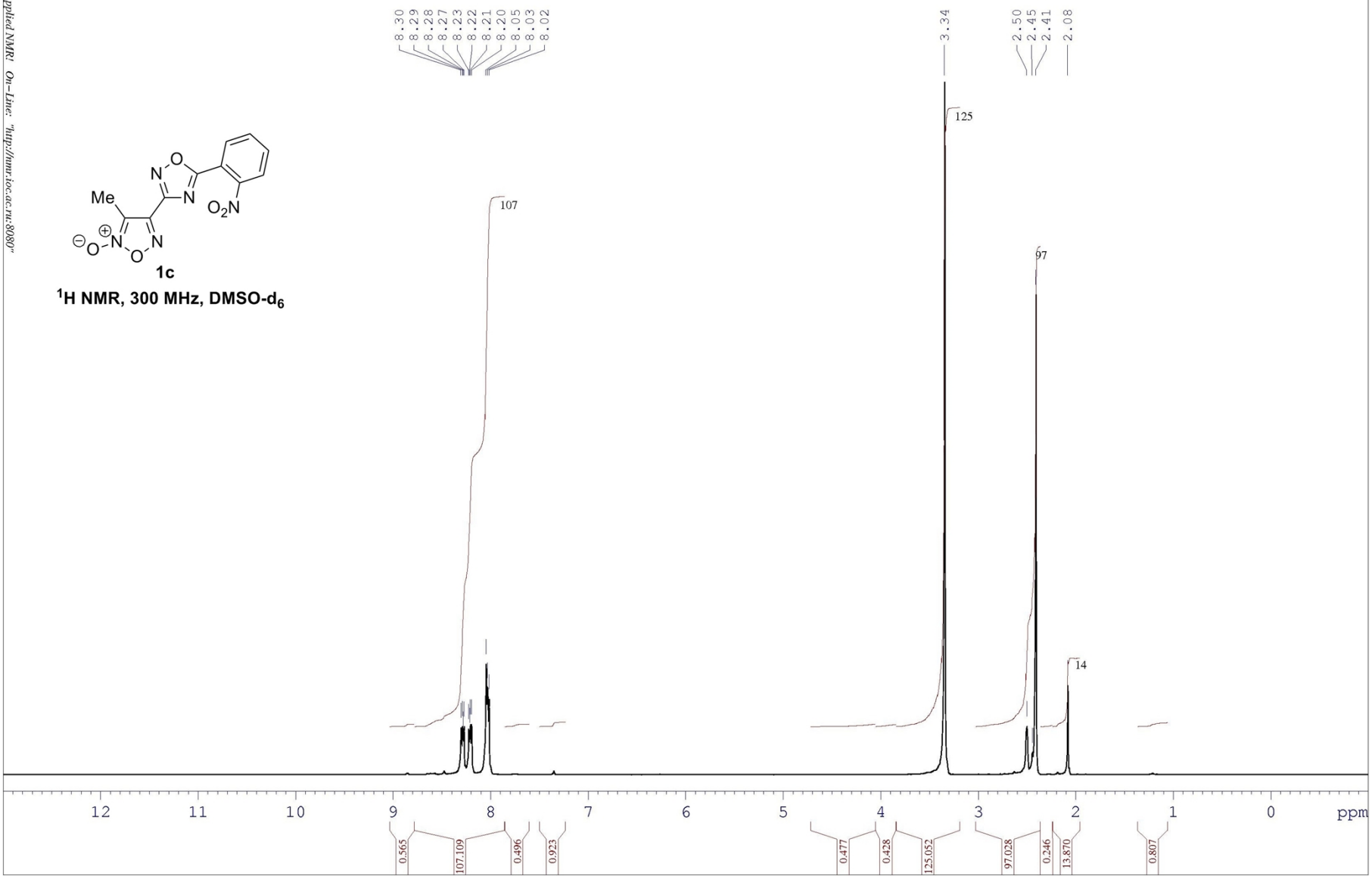


D:\EDL\LEO-753.0 ФЕРШТАТ. LEO-753 , прессовка с KBr,1/200.	12.12.2014

/USED 753

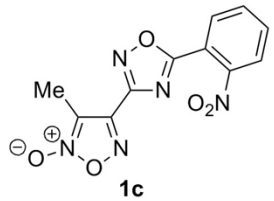
1c

^{1}H NMR, 300 MHz, DMSO-d_6



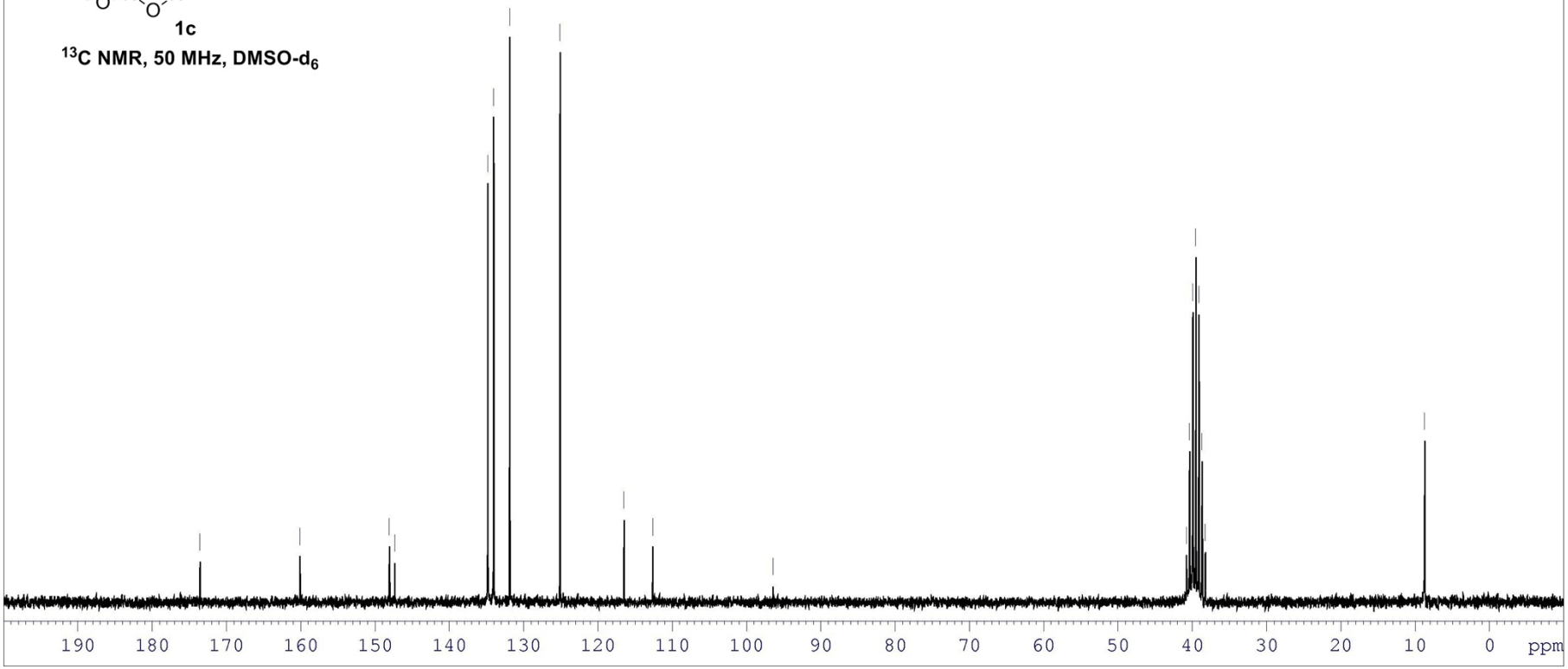
/USED 753

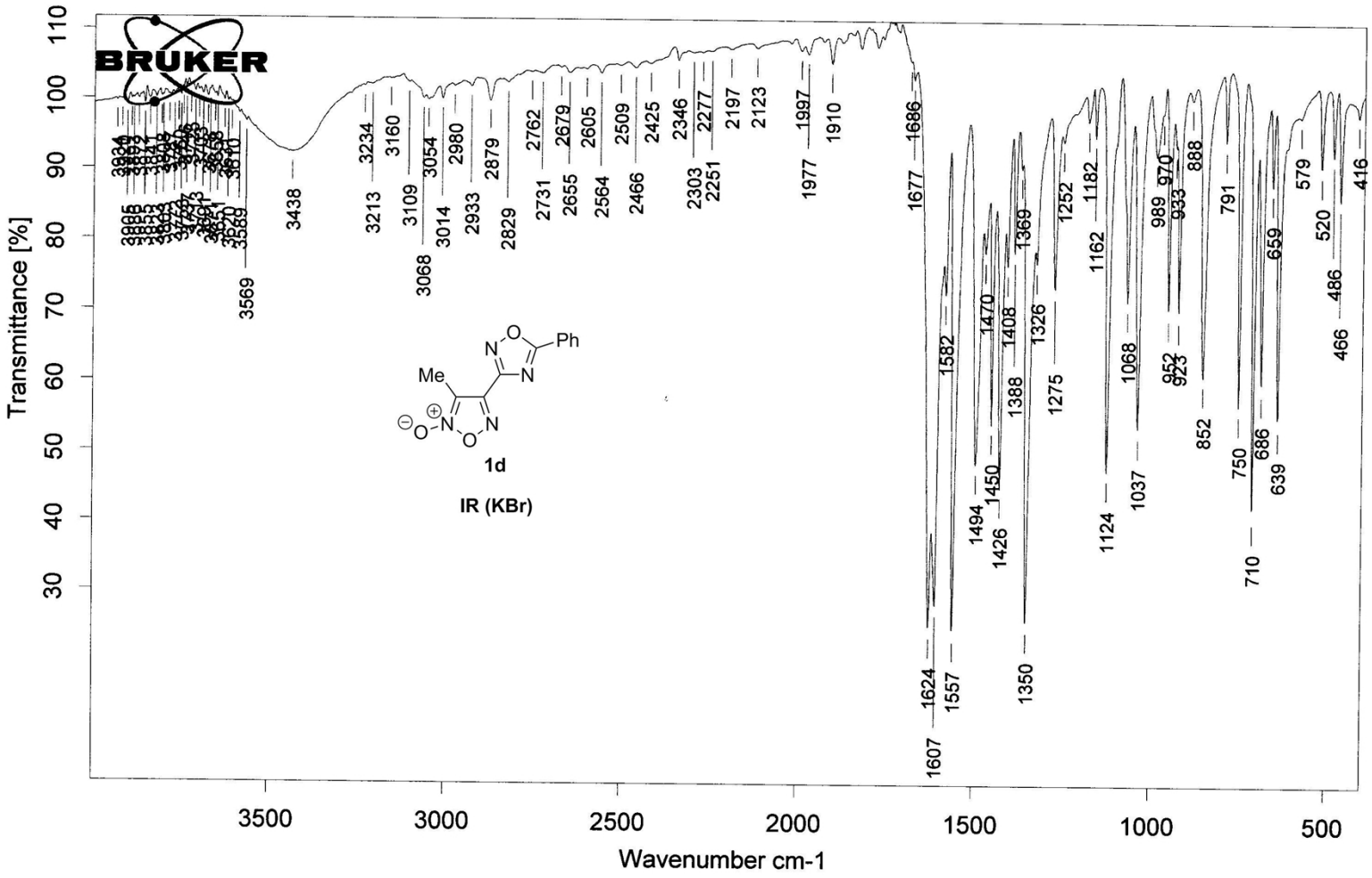
173.58 160.12 148.10 147.36 134.86 134.06 131.89 125.12 116.50 112.64 96.47 40.79 40.37 39.96 39.79 39.54 39.12 38.70 38.29 8.74



1c

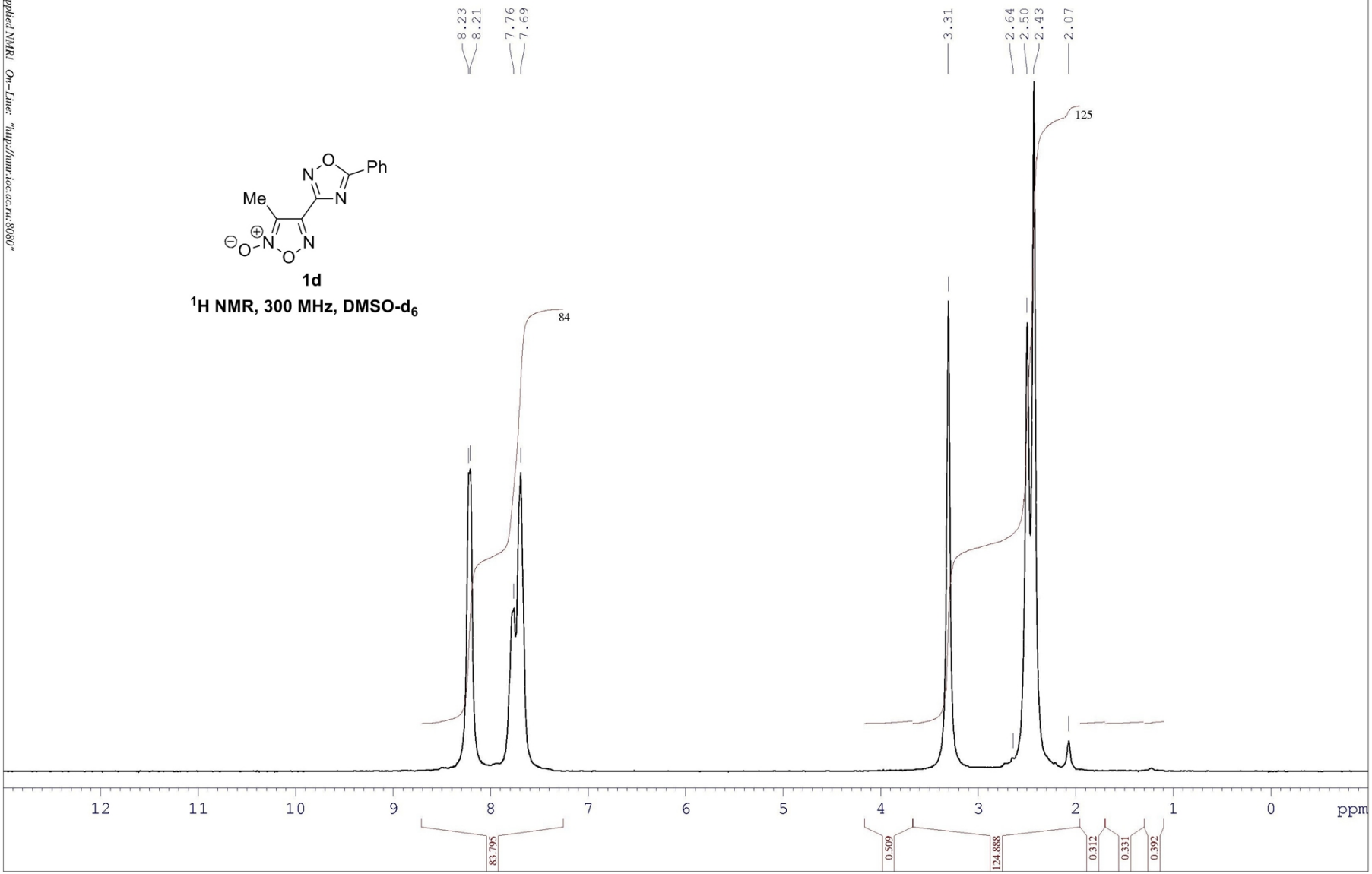
^{13}C NMR, 50 MHz, DMSO-d$_6$





D:\EDL\LEO-705.0 ФЕРШТАТ. LEO-705 , прессовка с KBr,1/200.	03.12.2014

/USED 705



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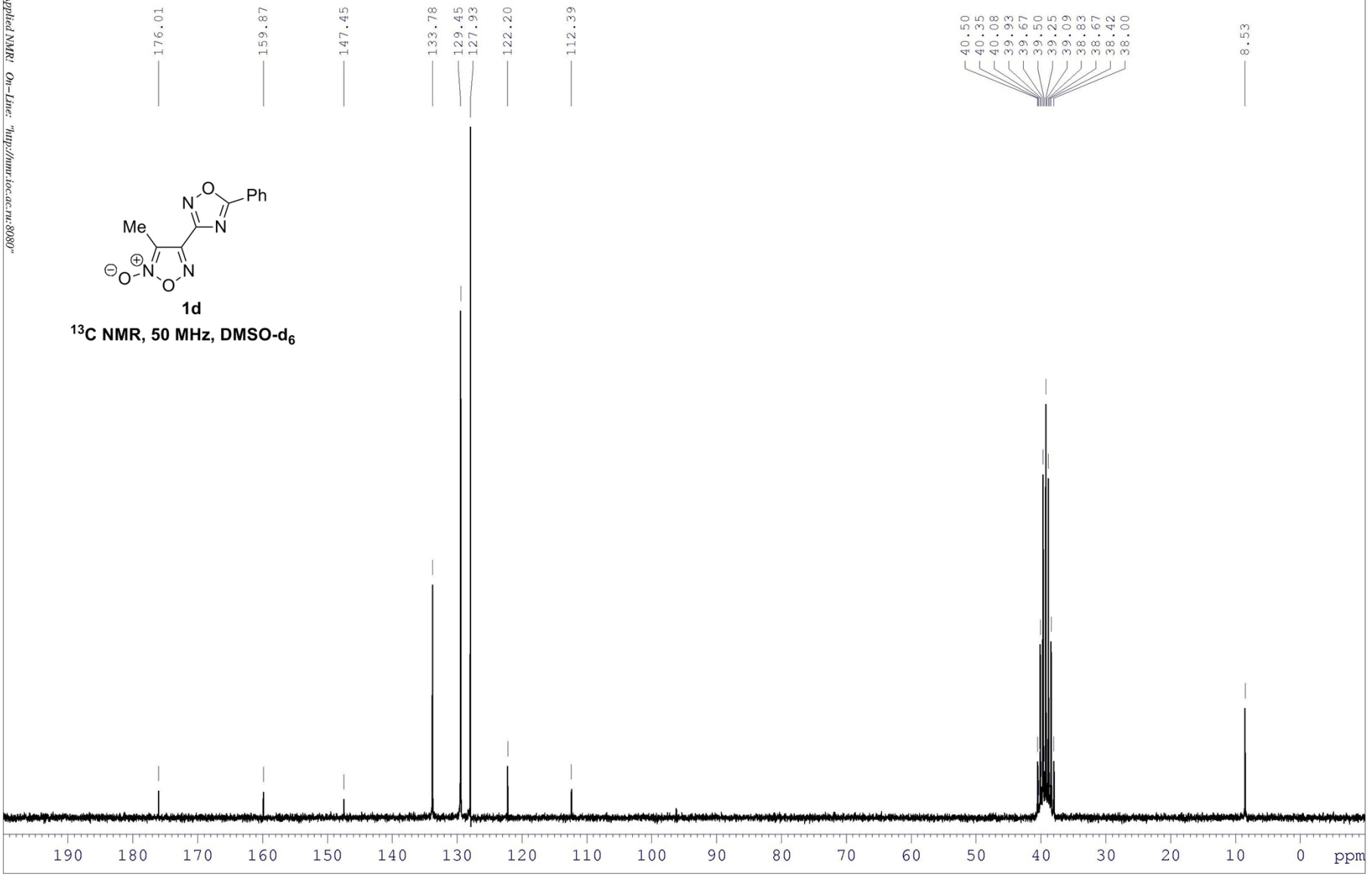
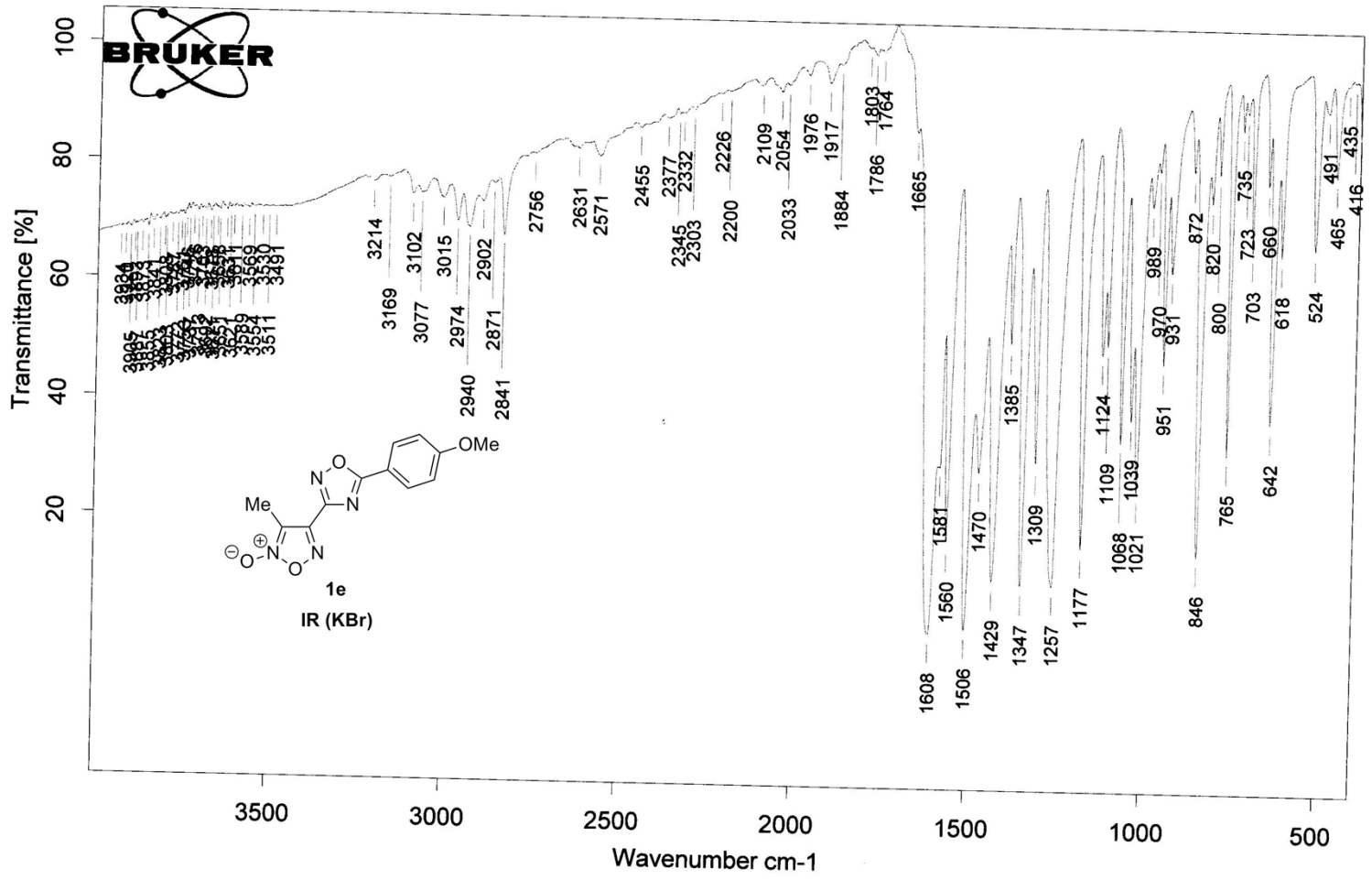


1d

^{13}C NMR, 50 MHz, DMSO-d$_6$



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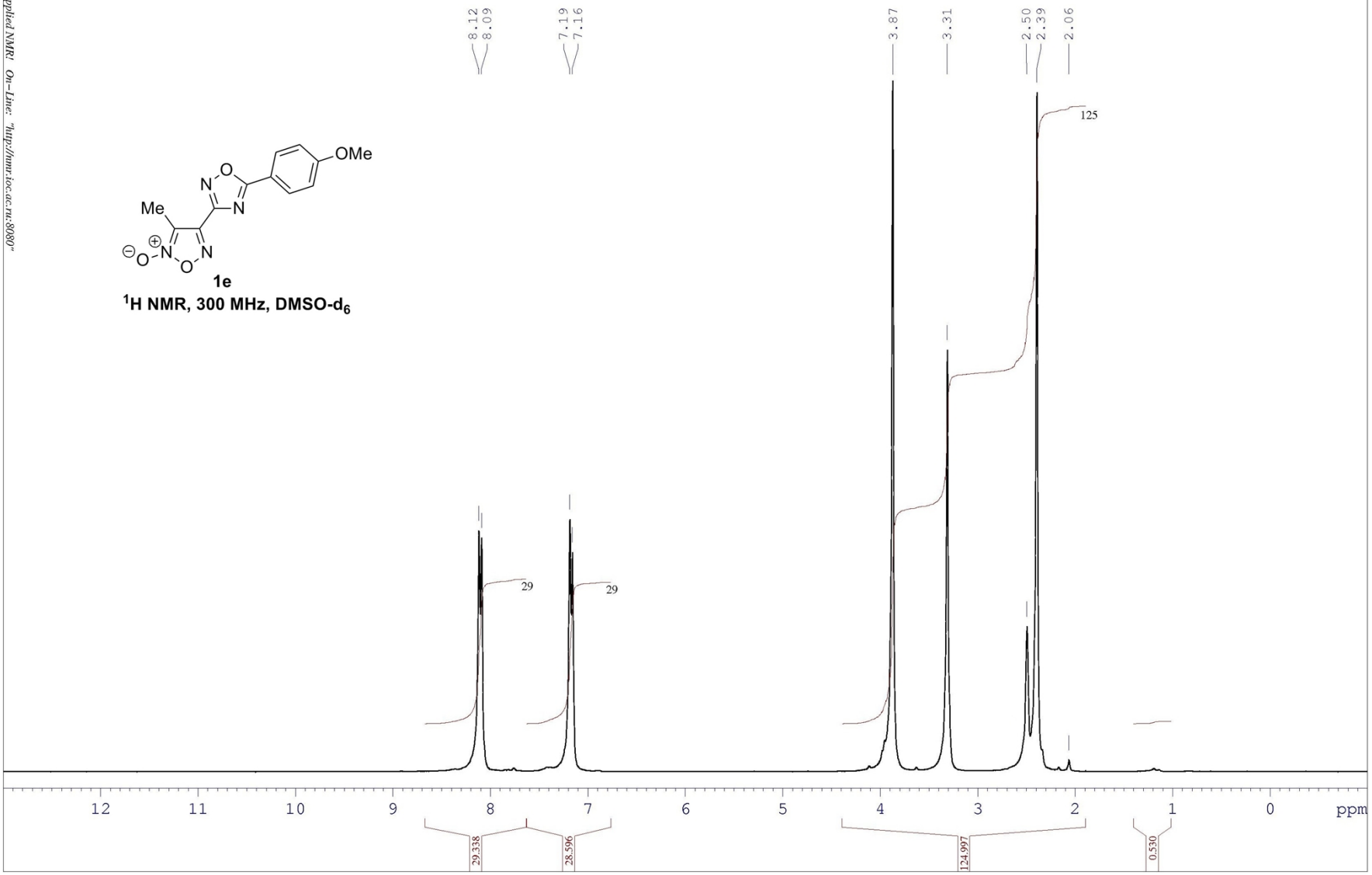
/USED 760.2

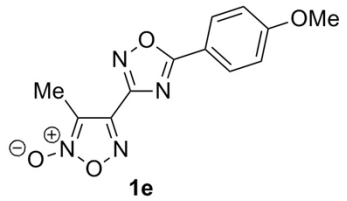


1e

^{1}H NMR, 300 MHz, DMSO-d_6

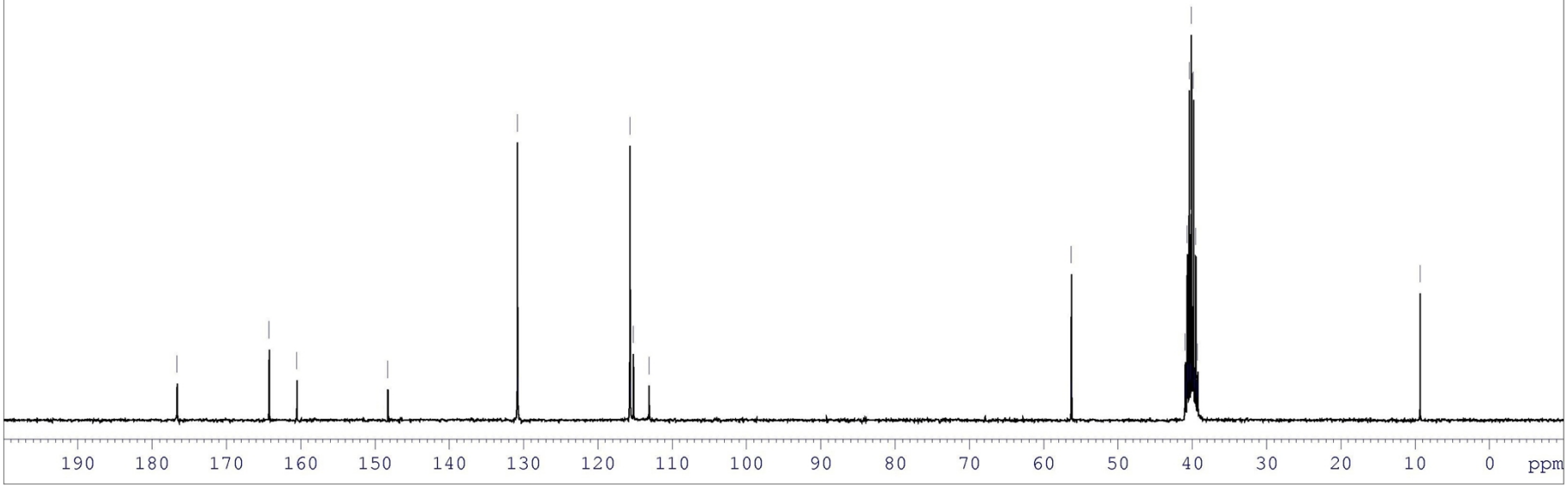
/USED 760.2

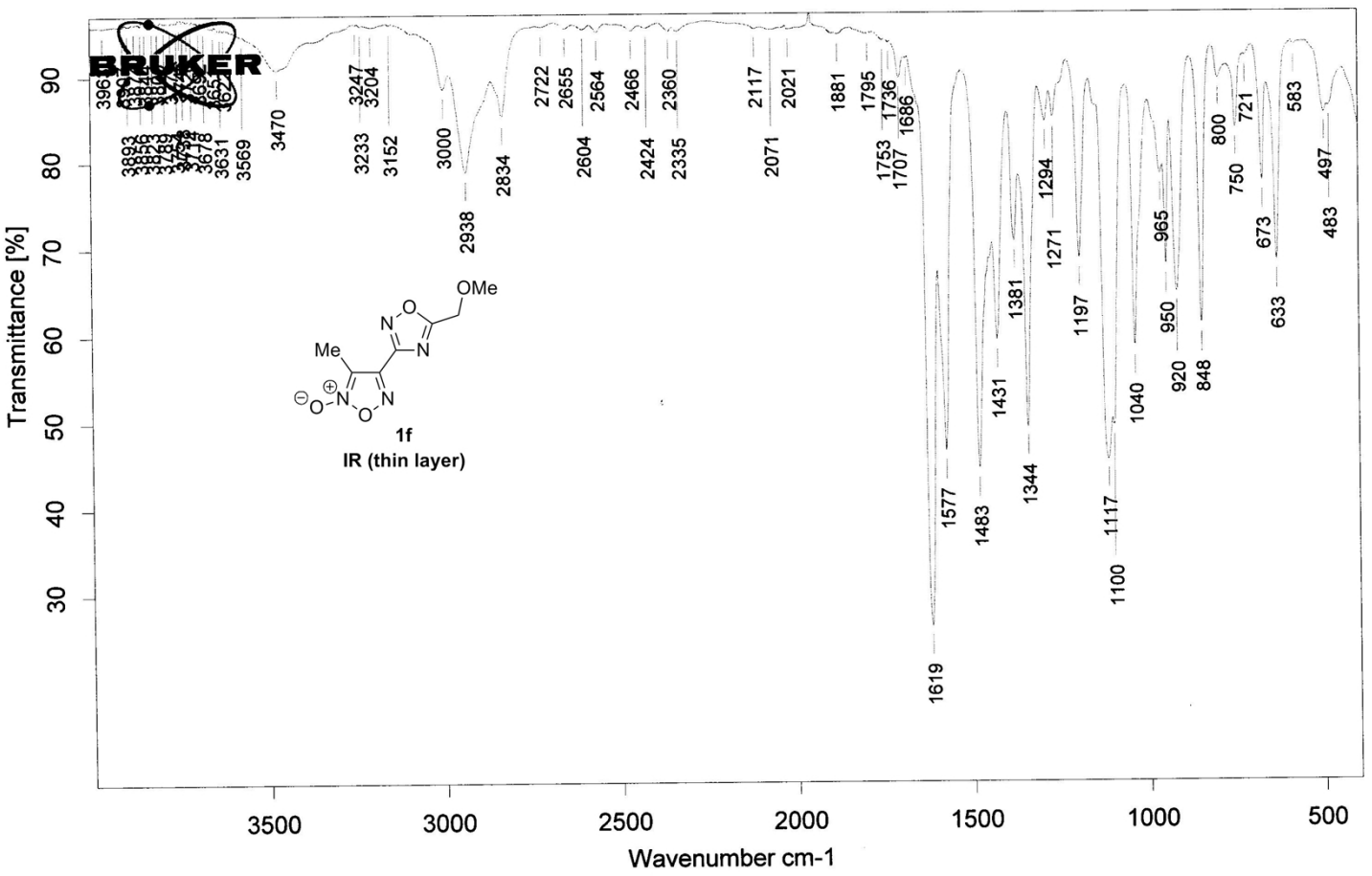
176.67
164.27
160.54
148.28
130.86
115.62
115.24
113.15
56.24
40.96
40.87
40.69
40.61
40.42
40.28
40.14
39.86
39.72
39.58
39.40
39.30
9.36



1e

^{13}C NMR, 75.5 MHz, DMSO-d$_6$



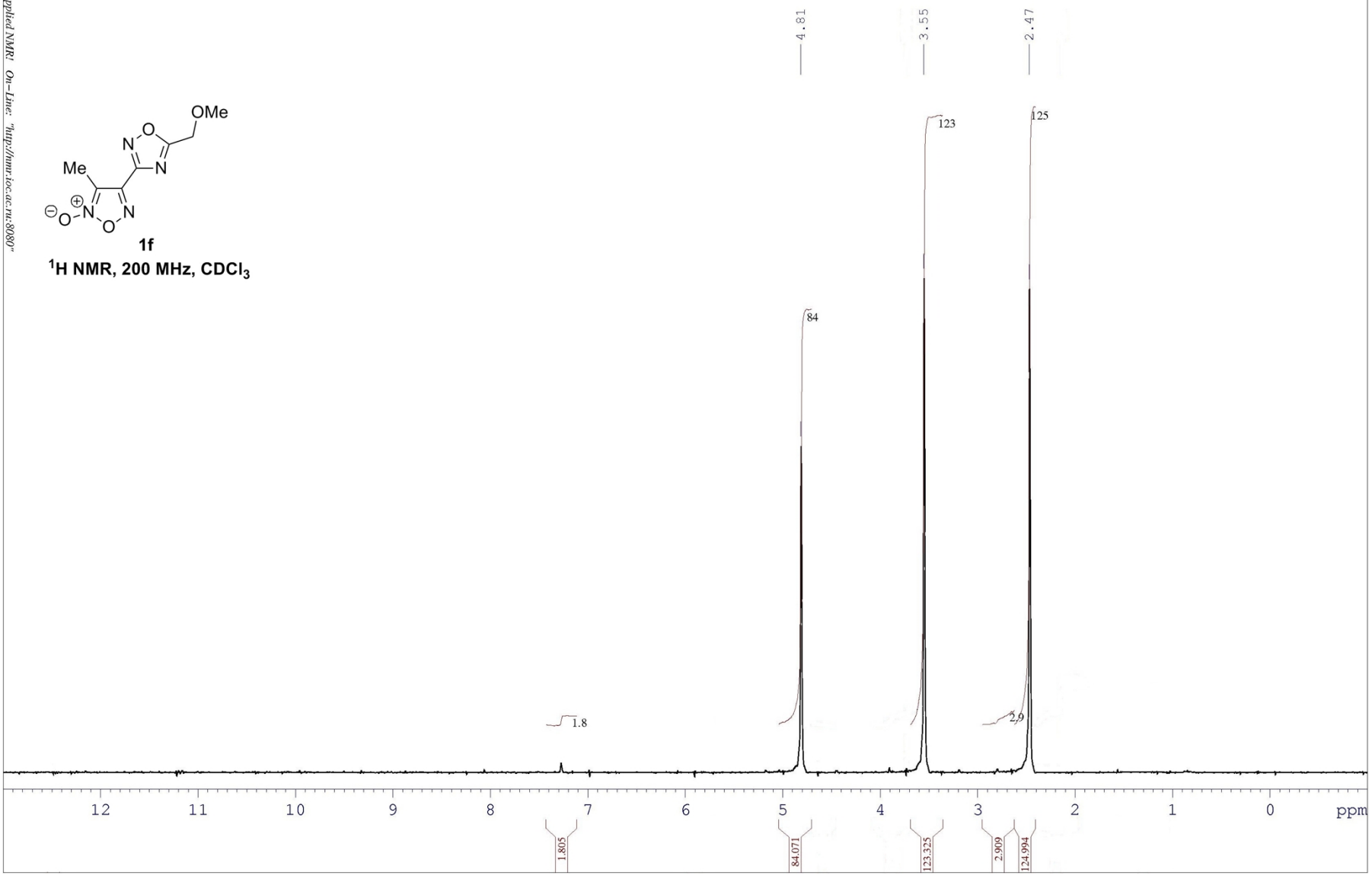


D:\EDL\LEO-744.0 ФЕРШТАТ. LEO-744 , тонкий слой,пл.KBr.	03.03.2015

/USED 744

1f

^{1}H NMR, 200 MHz, $CDCl_3$



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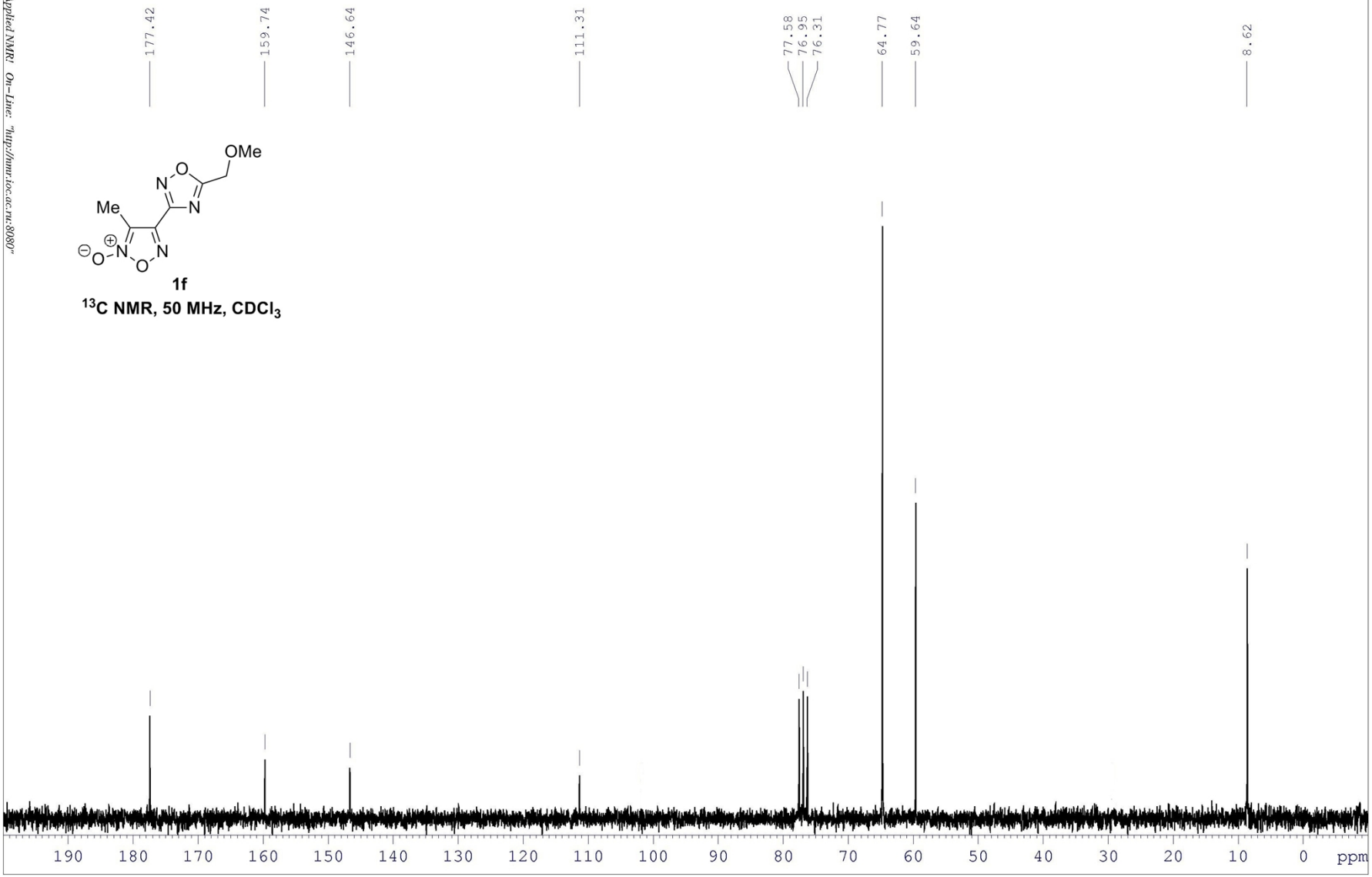
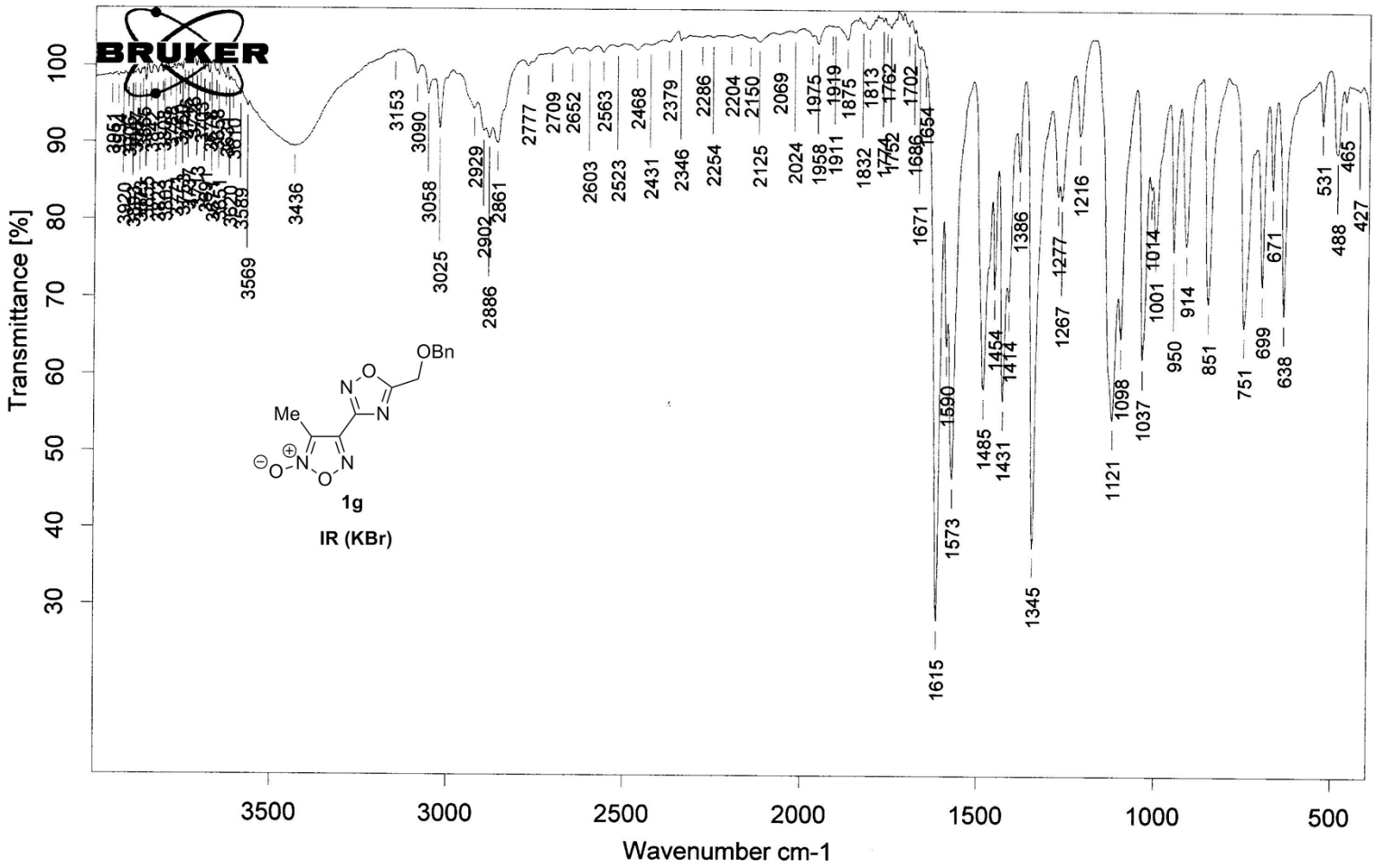


1f

^{13}C NMR, 50 MHz, $CDCl_3$

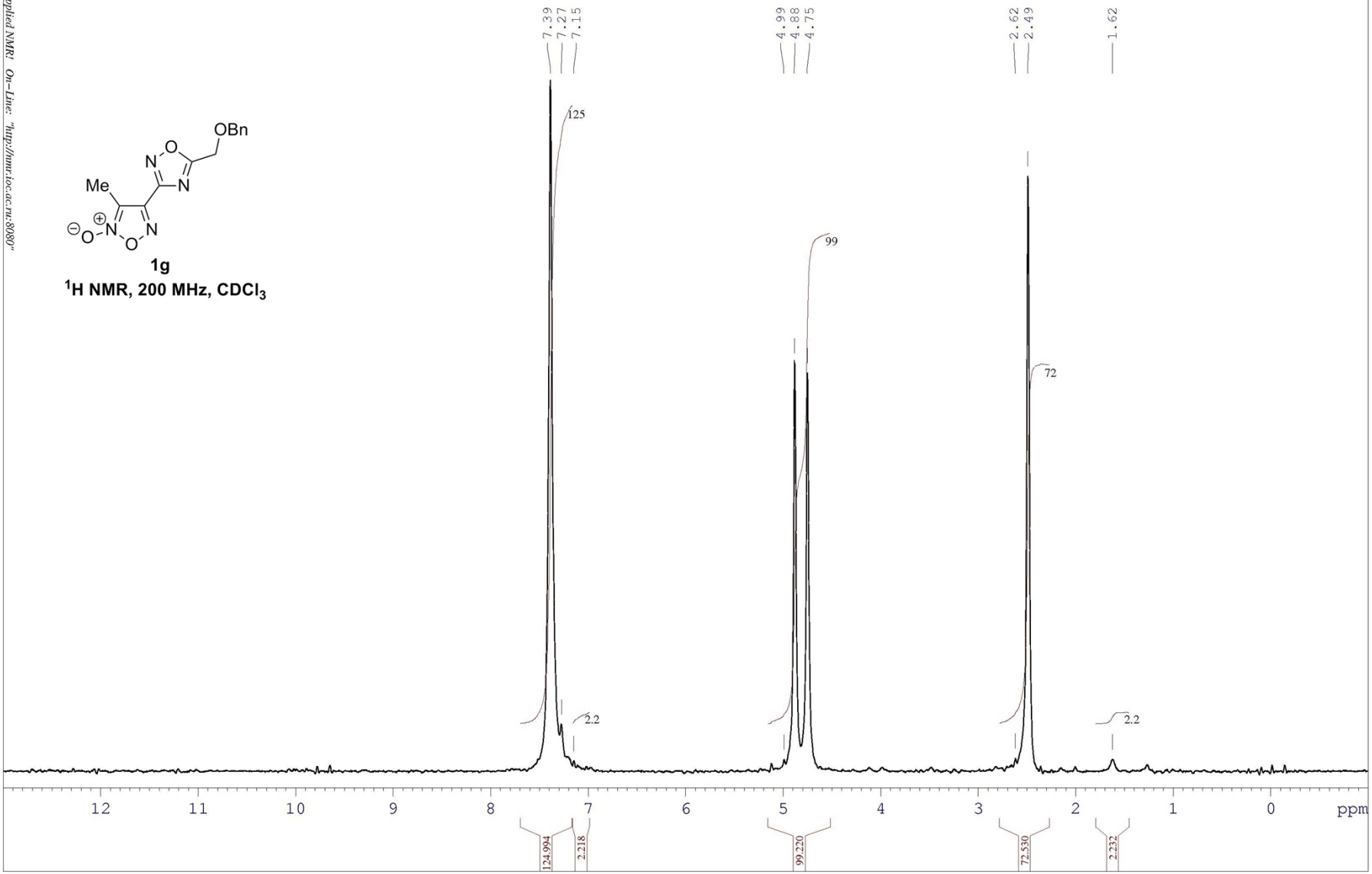


D:\EDL\LEO-736.0 ФЕРШТАТ. LEO-736 , прессовка с KBr,1/200.	10.12.2014

/USED 736

1g

^{1}H NMR, 200 MHz, $CDCl_3$



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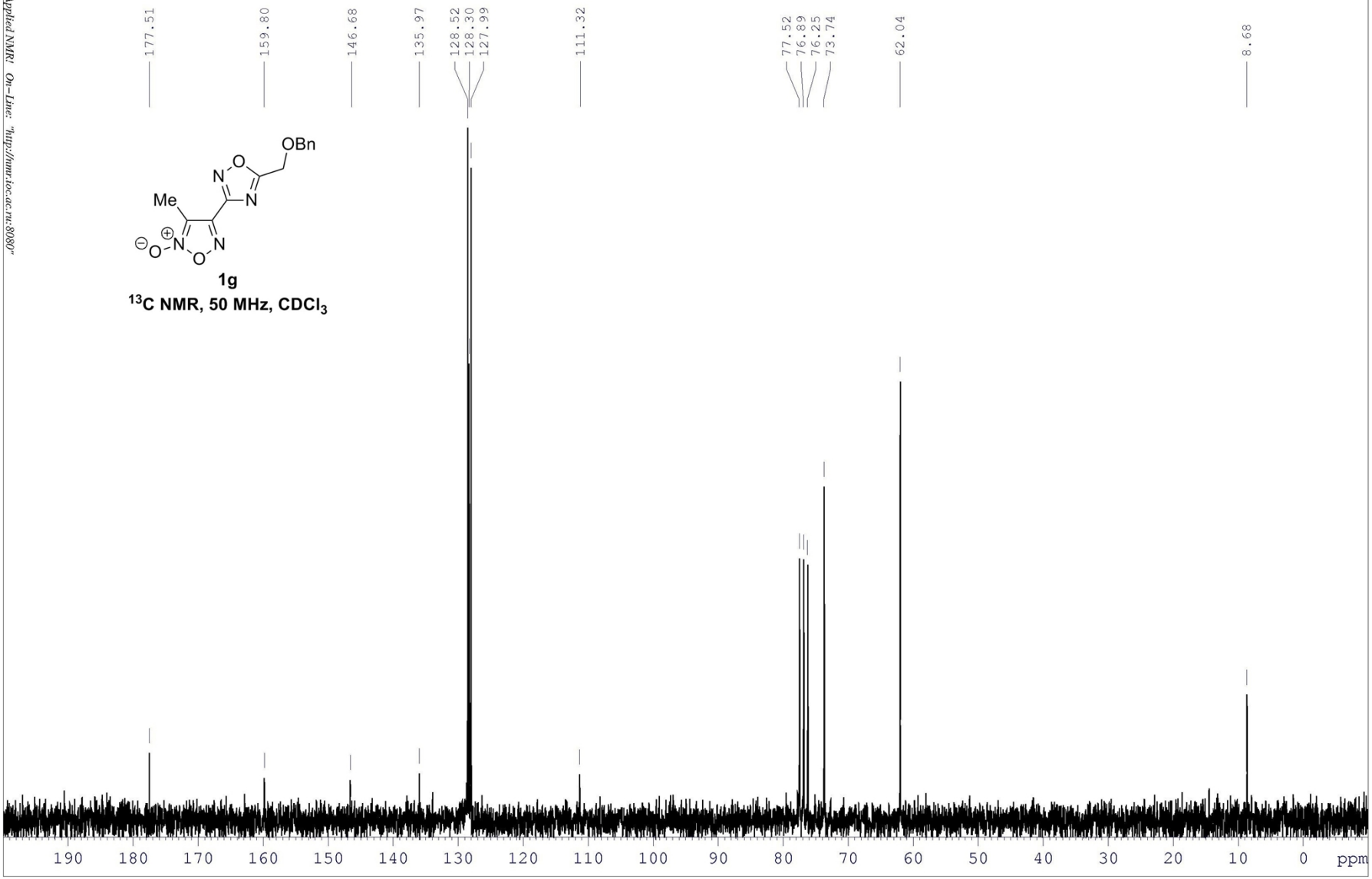


1g

^{13}C NMR, 50 MHz, $CDCl_3$

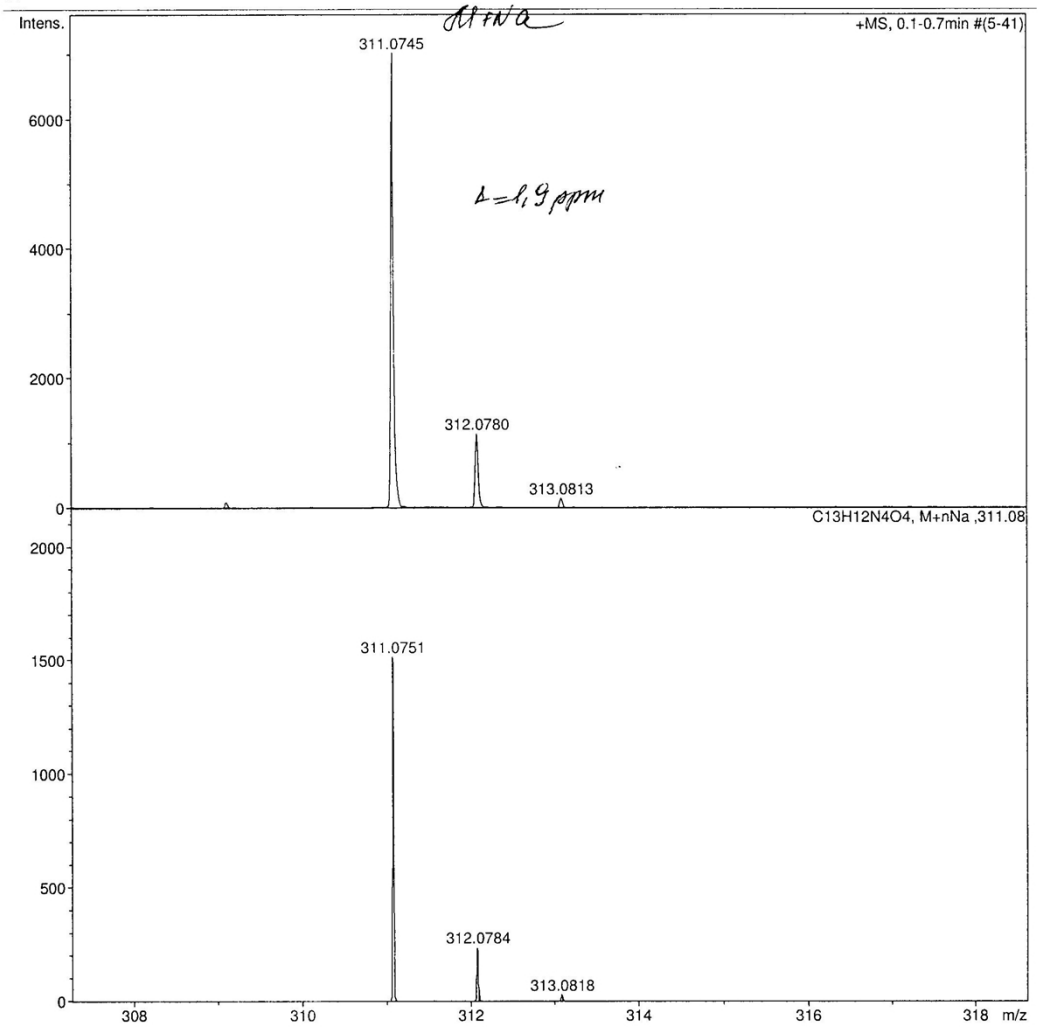
Display Report

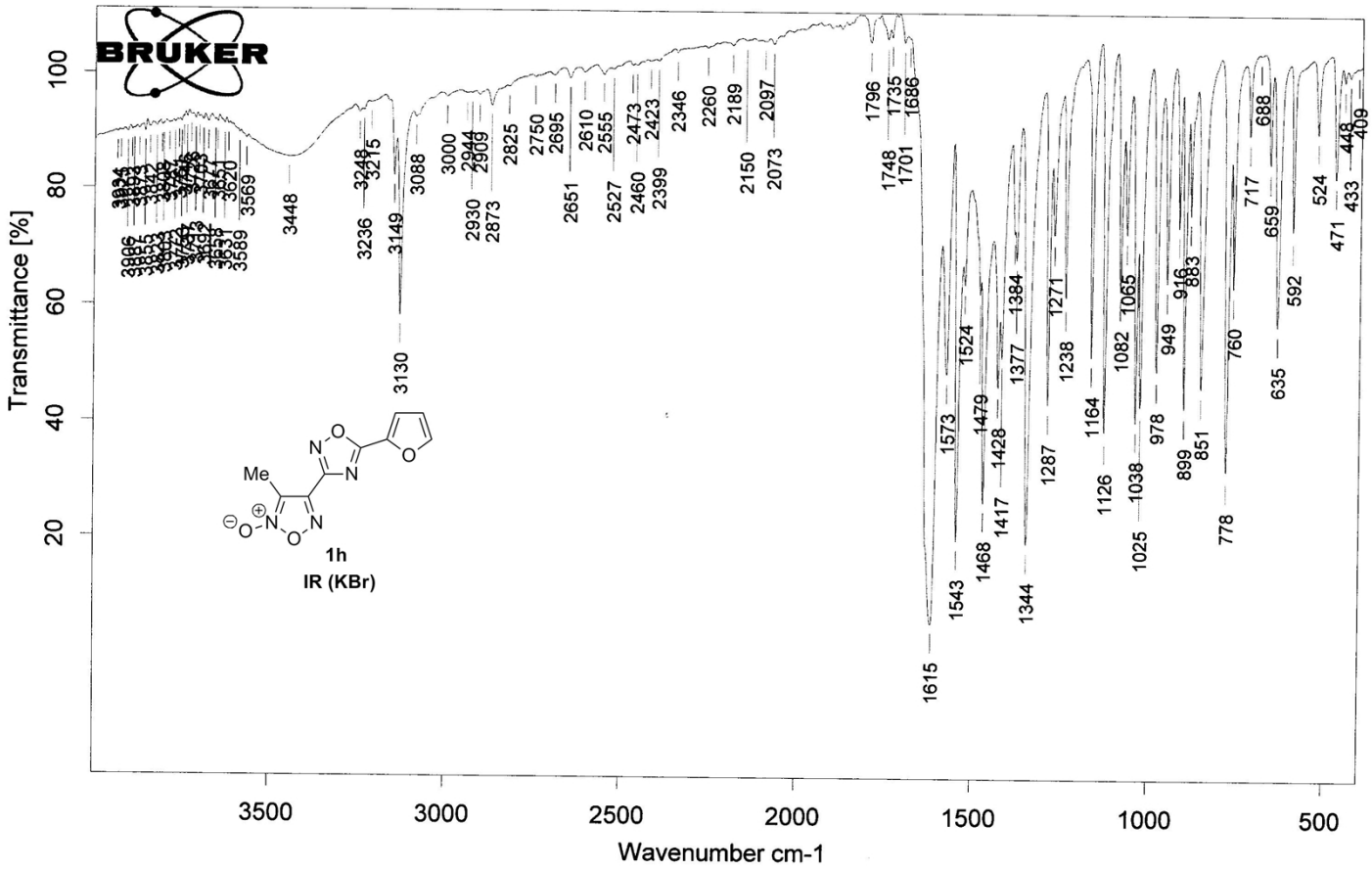
Analysis Info

Analysis Name	D:\Data\Kolotyrkina\2014\Fershtat\1210004.d	Acquisition Date	10.12.2014 15:03:02
Method	tune_low.m	Operator	BDAL@DE
Sample Name	/USED 736	Instrument / Ser#	micrOTOF 10248
Comment	C13H12N4O4 mw 288 calibrant added		

Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



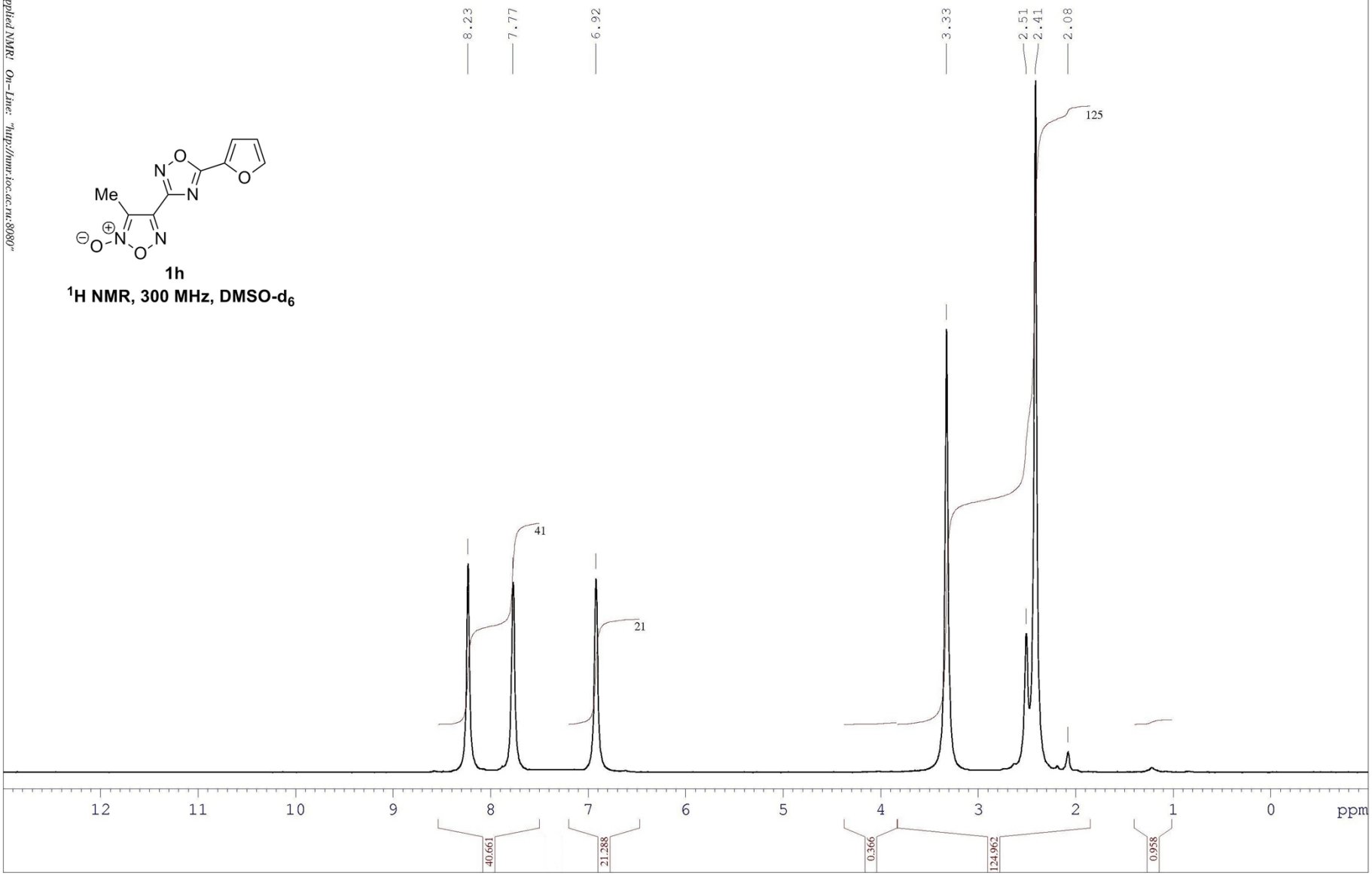


D:\EDL\LEO-747.0 ФЕРШТАТ. LEO-747 , прессовка с KBr,1/200.	10.12.2014

/USED 747.2

1h

^{1}H NMR, 300 MHz, DMSO-d$_6$



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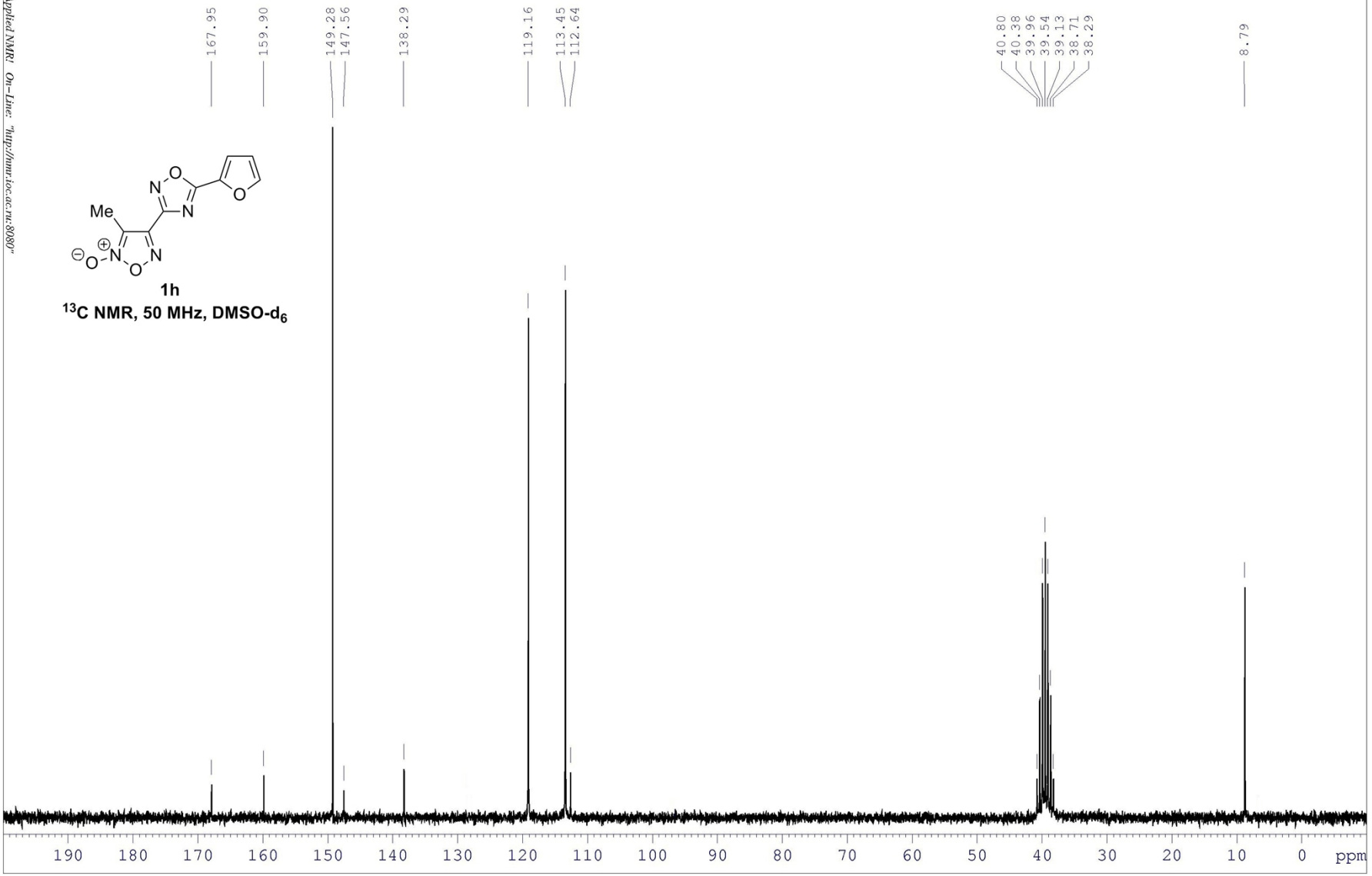
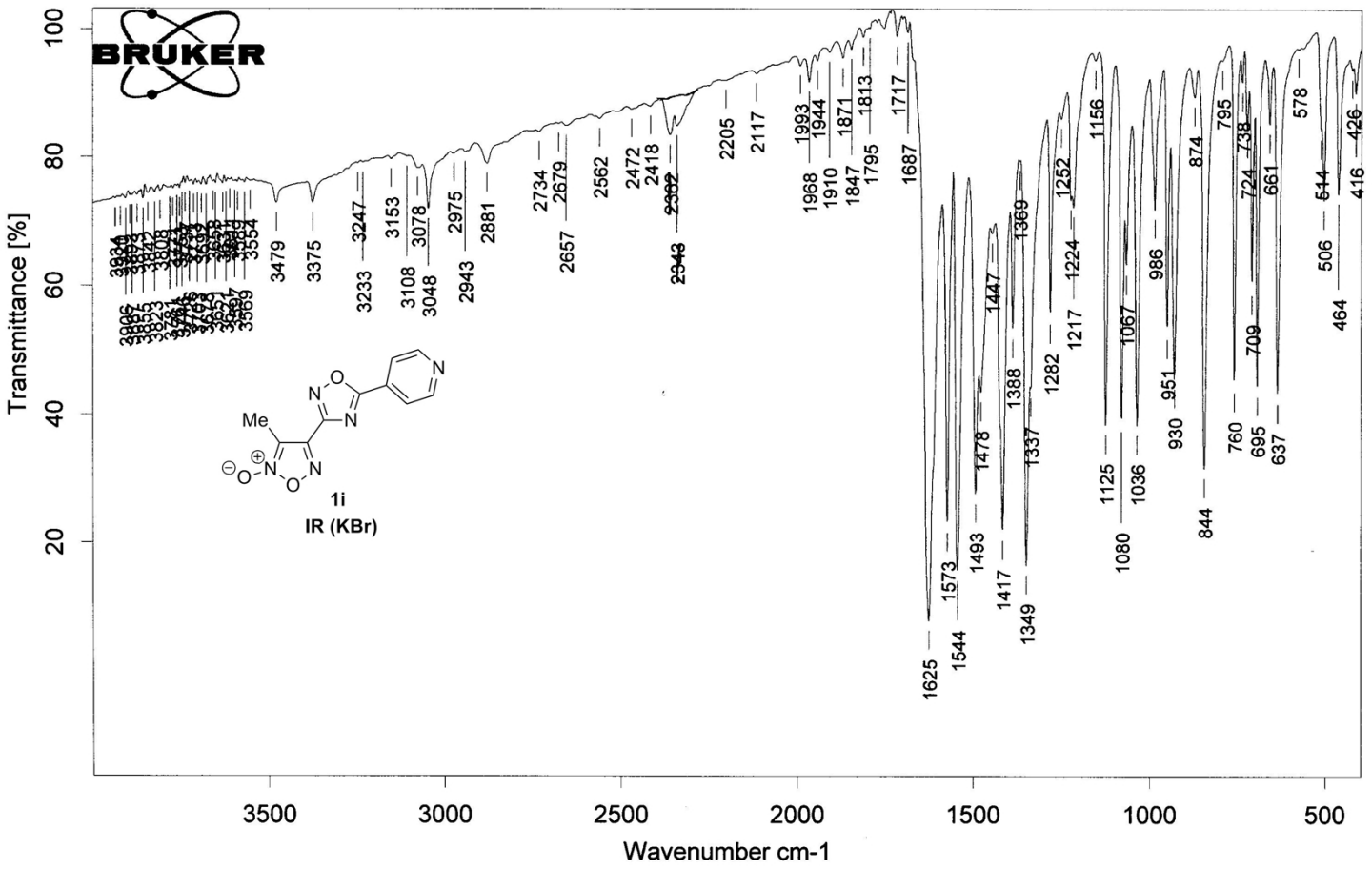
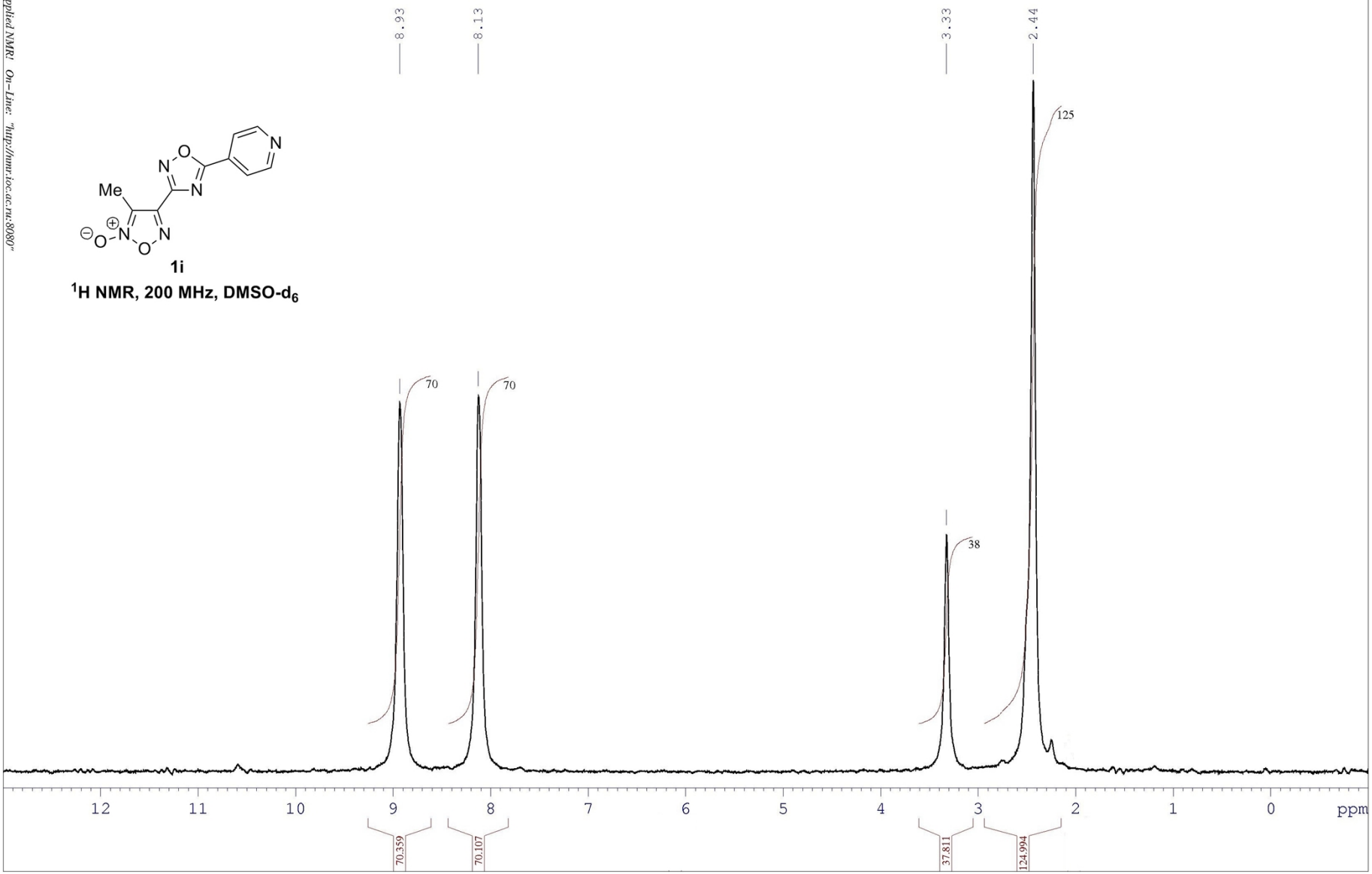




D:\EDL\756.0 ФЕРШТАТ. 756 , прессовка с KBr,1/200.	24.02.2015

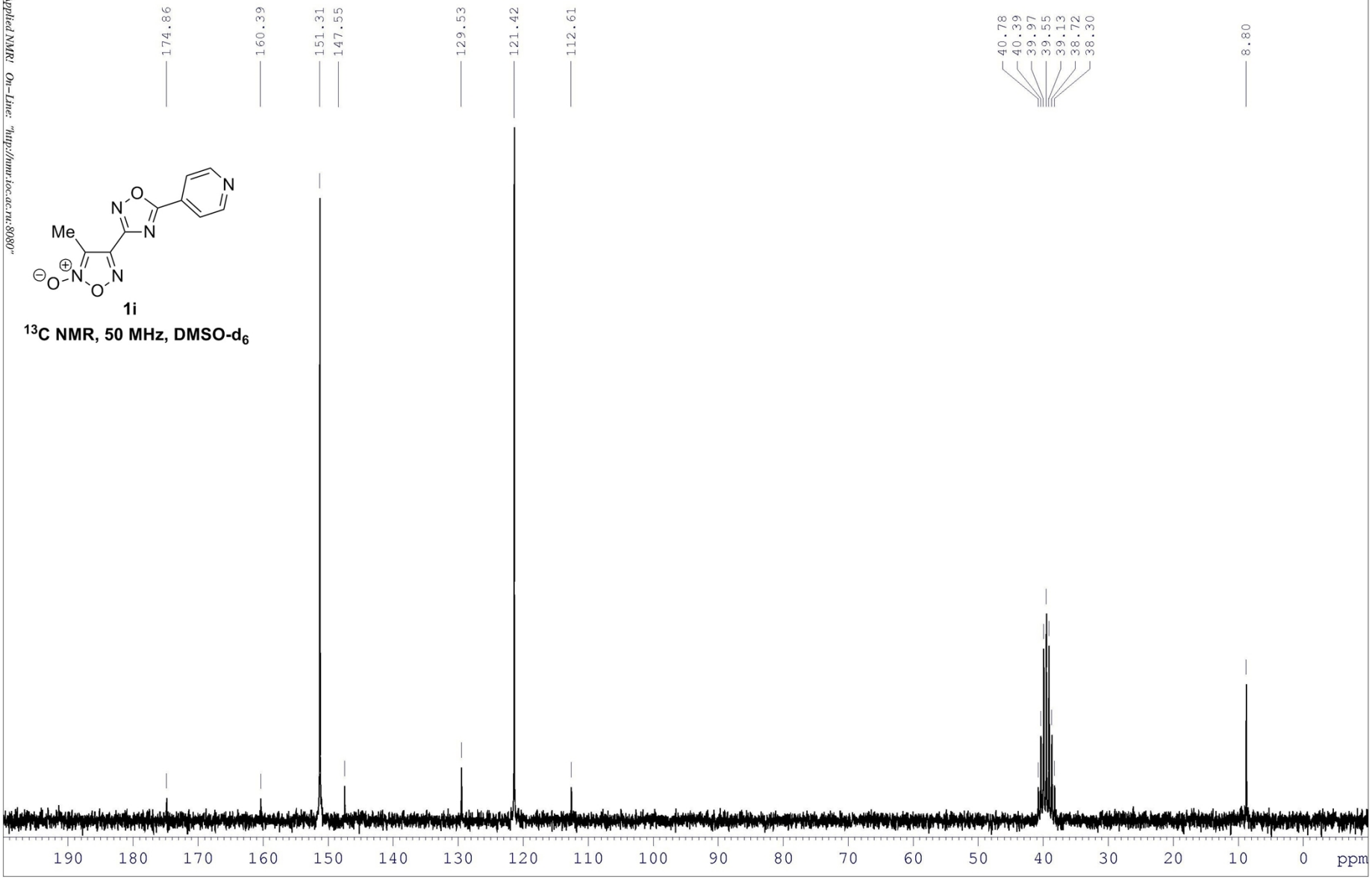
/USED 756



1i

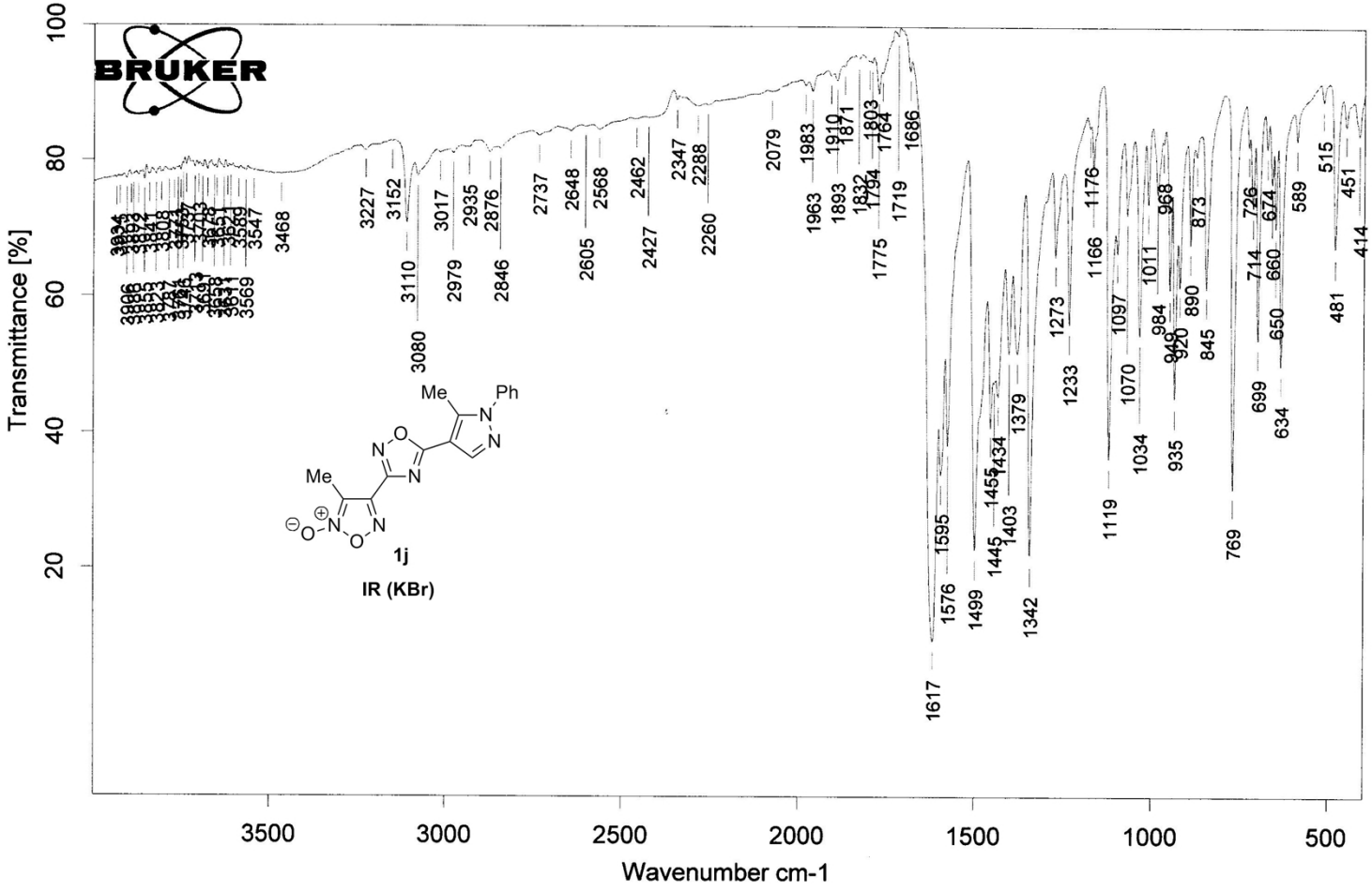
^{1}H NMR, 200 MHz, DMSO-d$_6$

/USED 756.C13



1i

^{13}C NMR, 50 MHz, DMSO-d$_6$

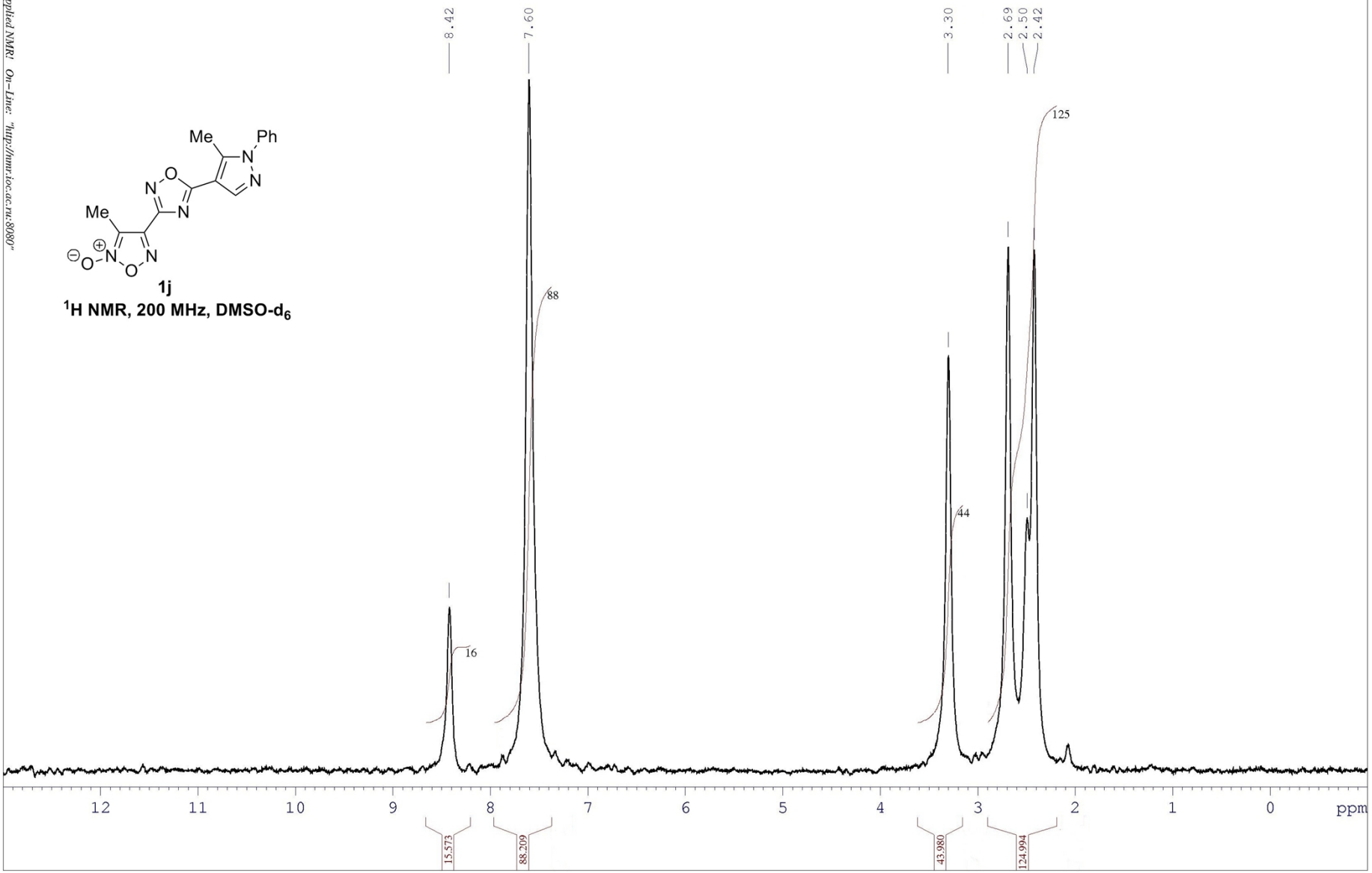


D:\EDL\LEO-785.0 ФЕРШТАТ. LEO-785 , прессовка с KBr,1/200.	06.02.2015

/USED 785

1j

^{1}H NMR, 200 MHz, DMSO-d_6

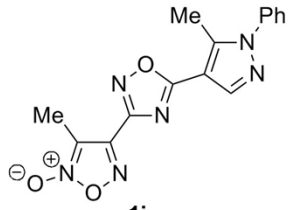


/USED 785

172.82
160.21
148.30
143.27
140.72
138.68
130.03
129.59
125.85
113.21
105.92

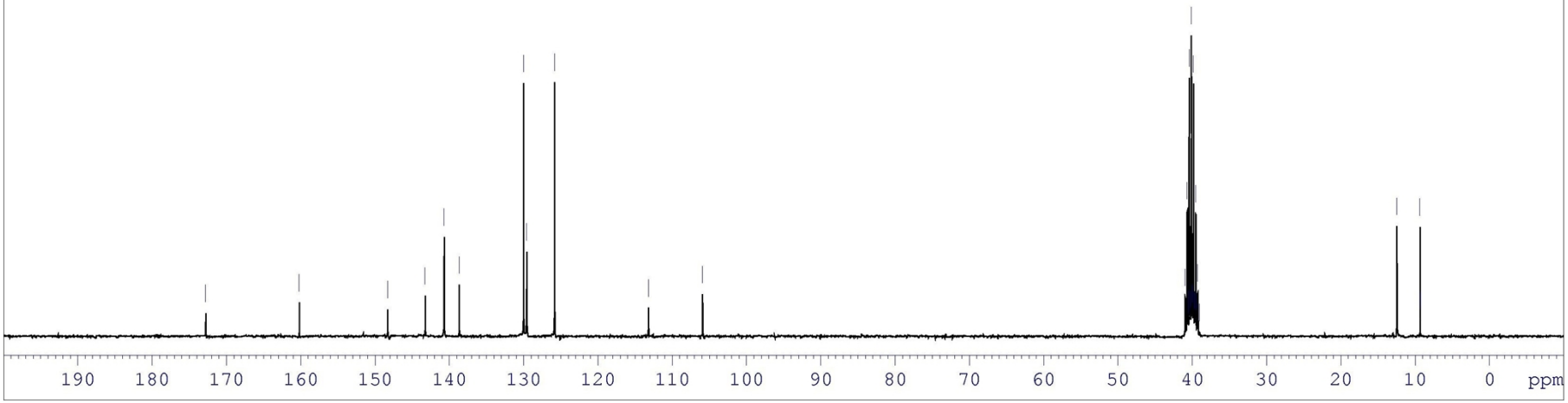
40.98
40.70
40.56
40.51
40.42
40.30
40.15
40.02
39.87
39.68
39.59
39.50
39.31
39.06

12.47
9.34



1j

^{13}C NMR, 75.5 MHz, DMSO-d$_6$



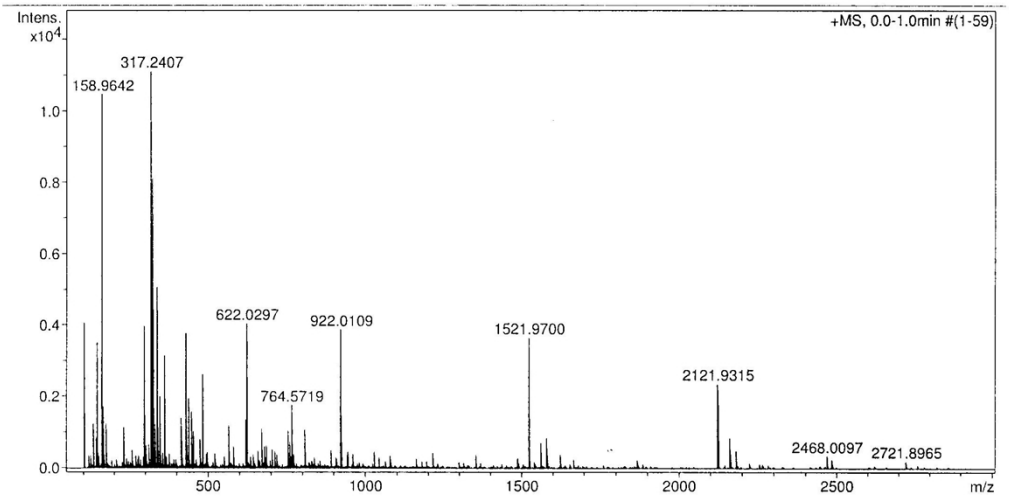
Display Report

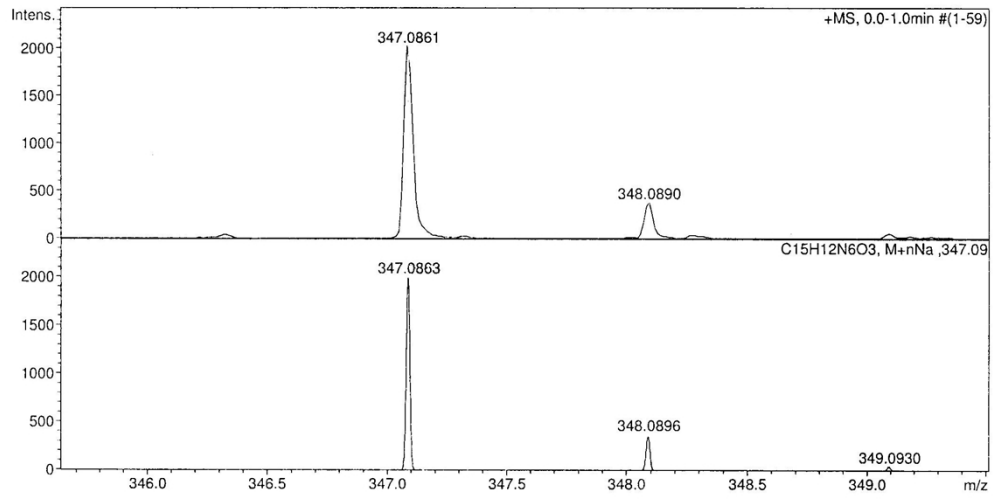
Analysis Info

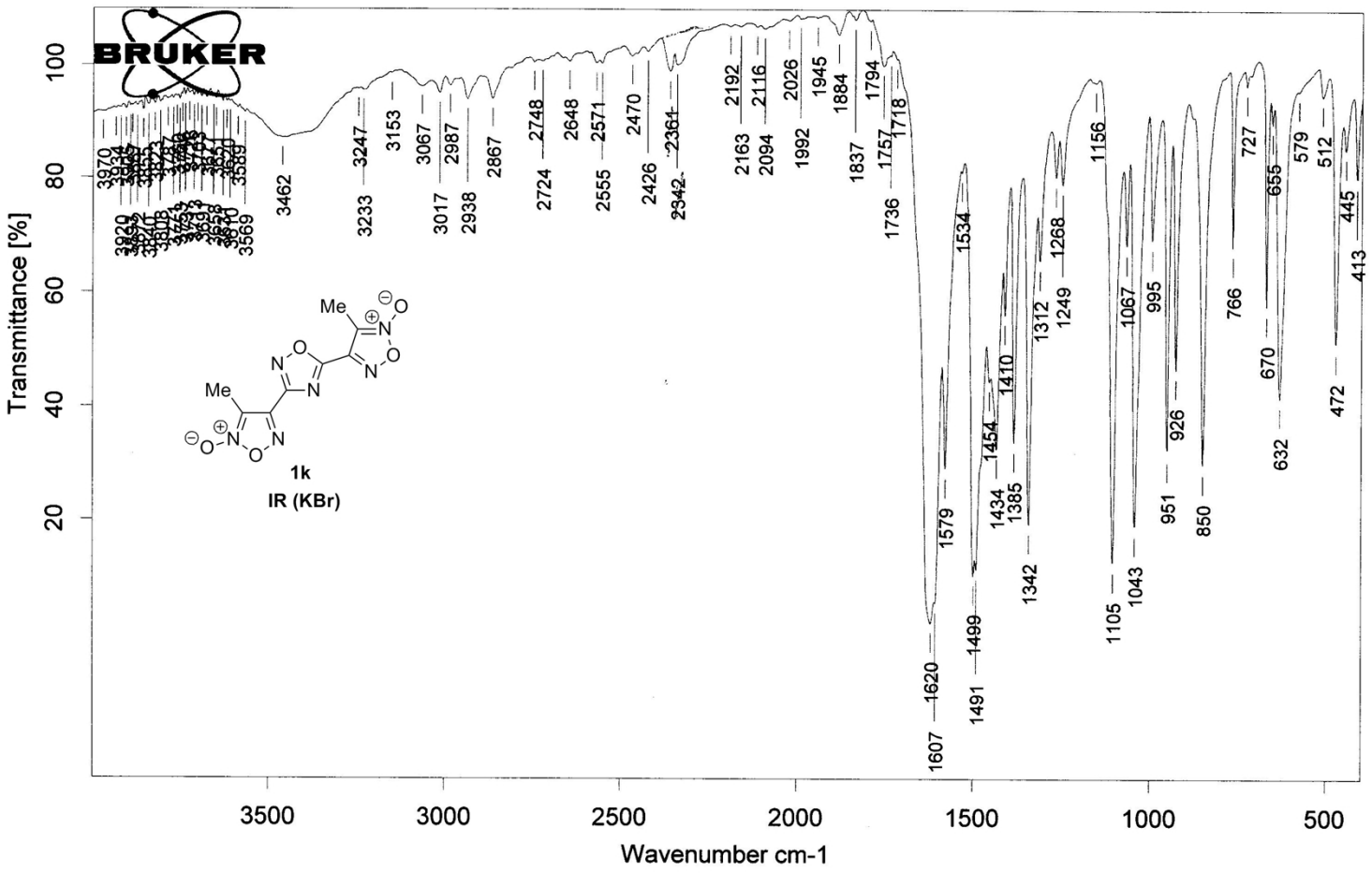
Analysis Name	D:\Data\Chizhov\Makhova\Fershtat\785_&clblow.d	Acquisition Date	02.04.2015 14:57:07
Method	tune_low.m	Operator	BDAL@DE
Sample Name	/USED 785	Instrument / Ser#	micrOTOF 10248
Comment	CH3CN 100 %, dil. 200, calibrant added		

Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste





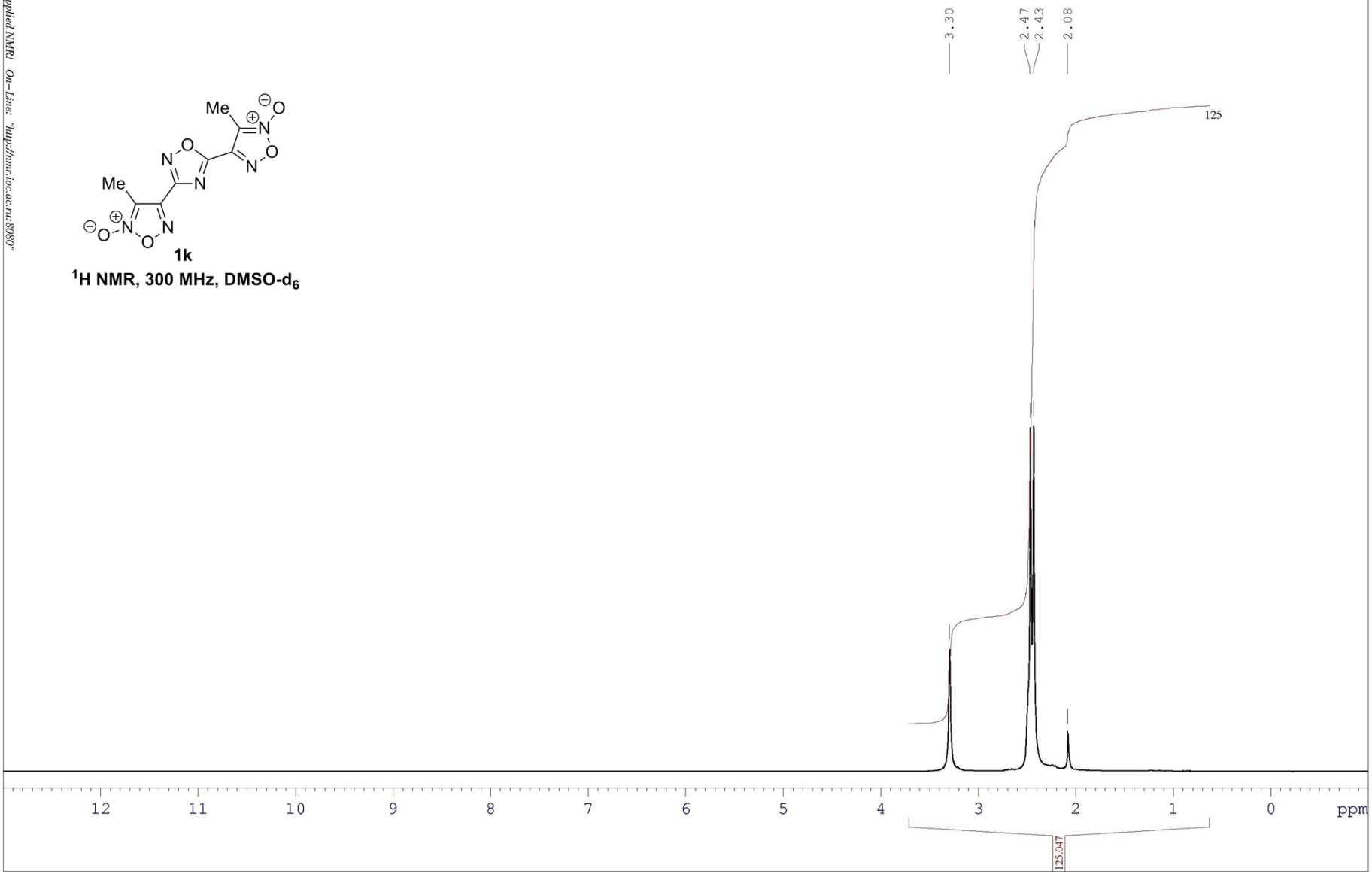


D:\EDL\LEO-777.0 ФЕРШТАТ. LEO-777 , прессовка с KBr,1/200.	06.02.2015

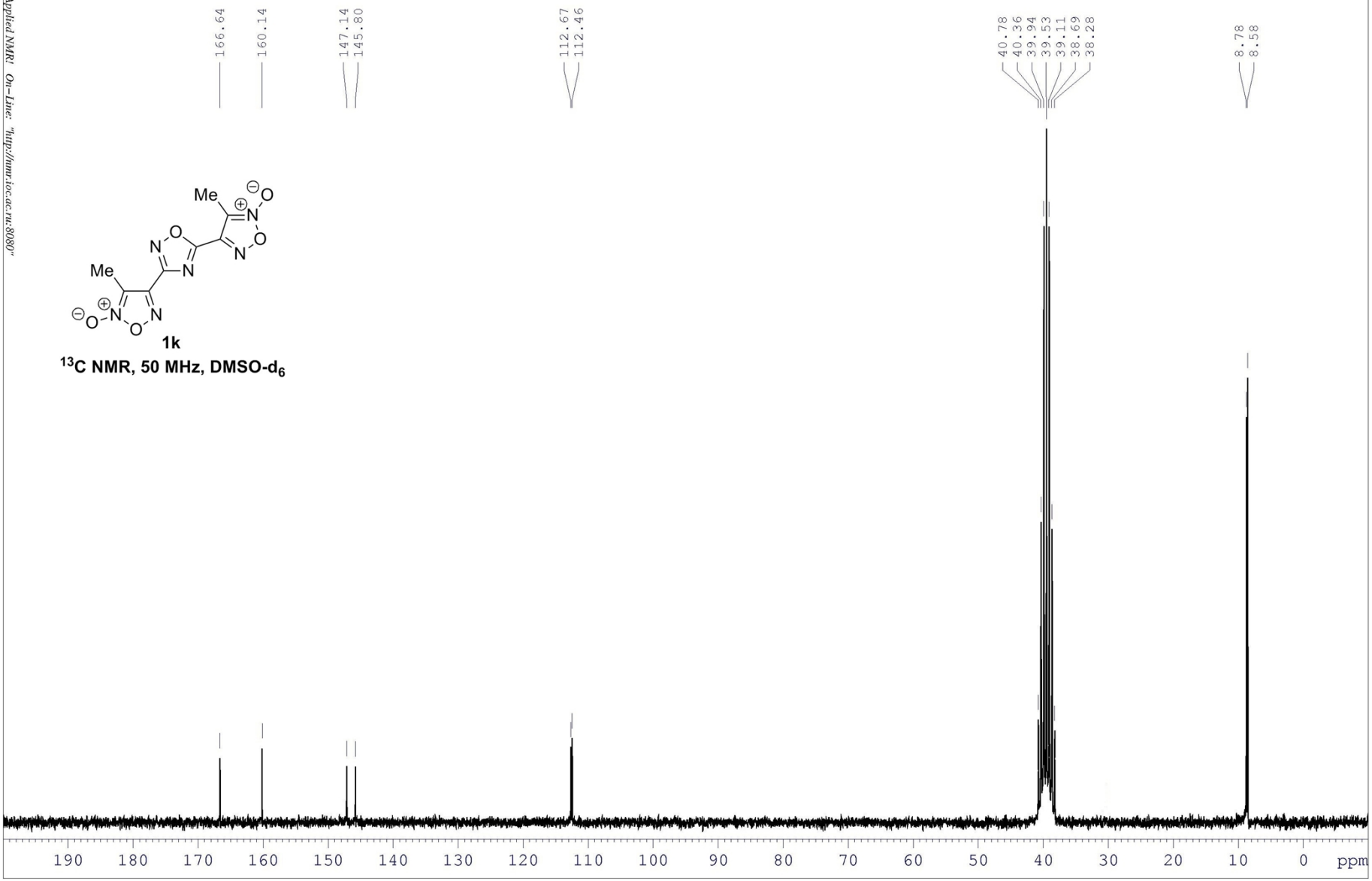
/USED 777

1k

^{1}H NMR, 300 MHz, DMSO-d$_6$



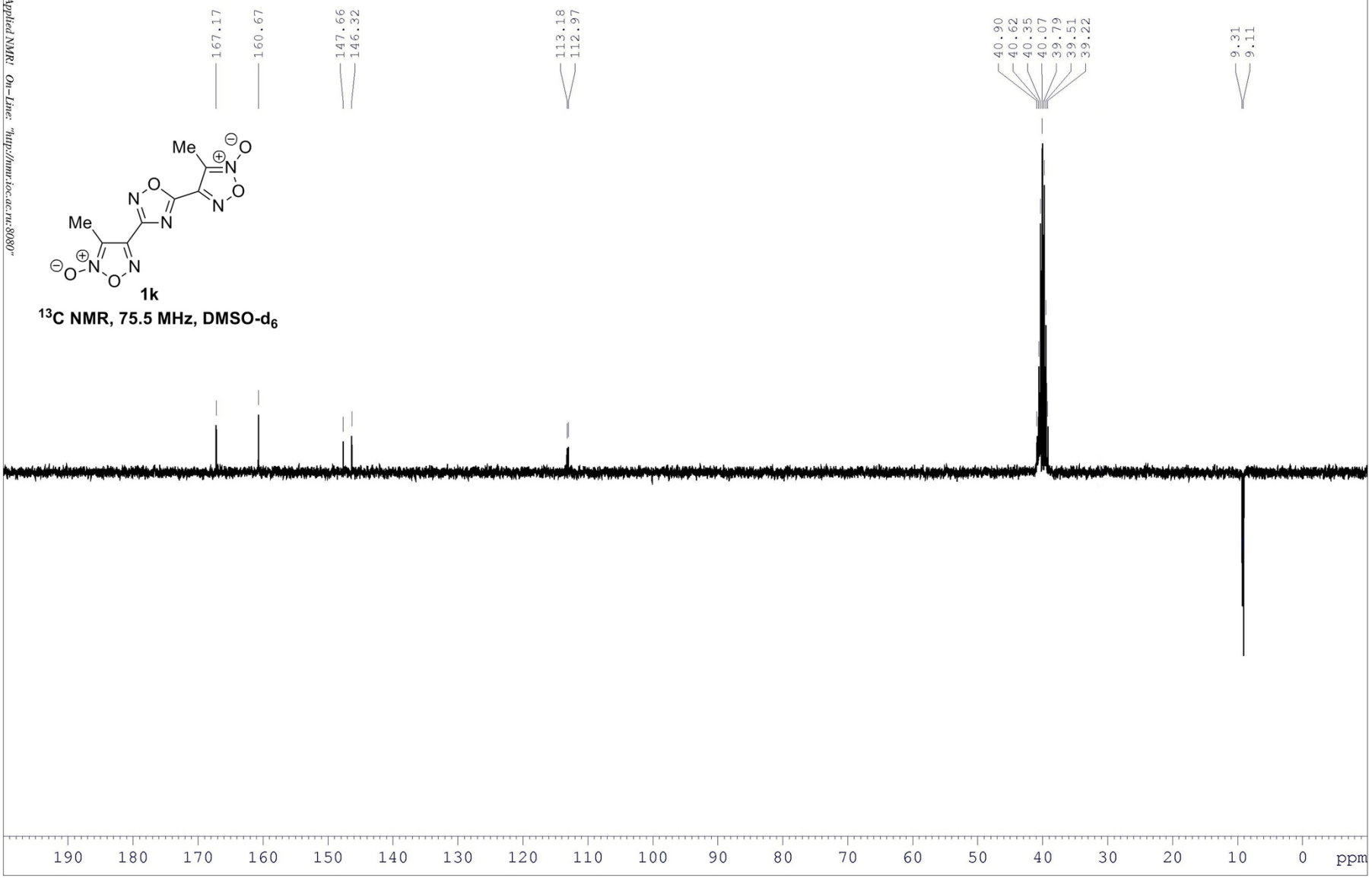
/USED 777.C13



1k

^{13}C NMR, 50 MHz, DMSO-d_6

/USED 777



1k

^{13}C NMR, 75.5 MHz, DMSO-d$_6$

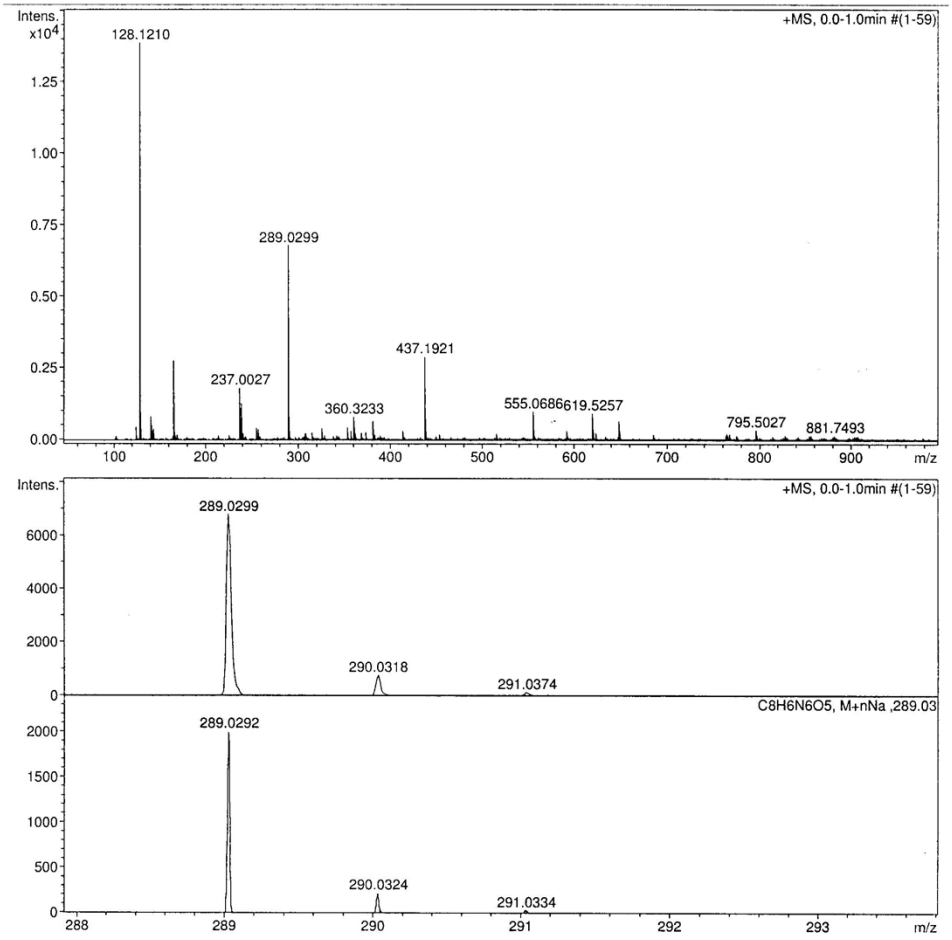
Display Report

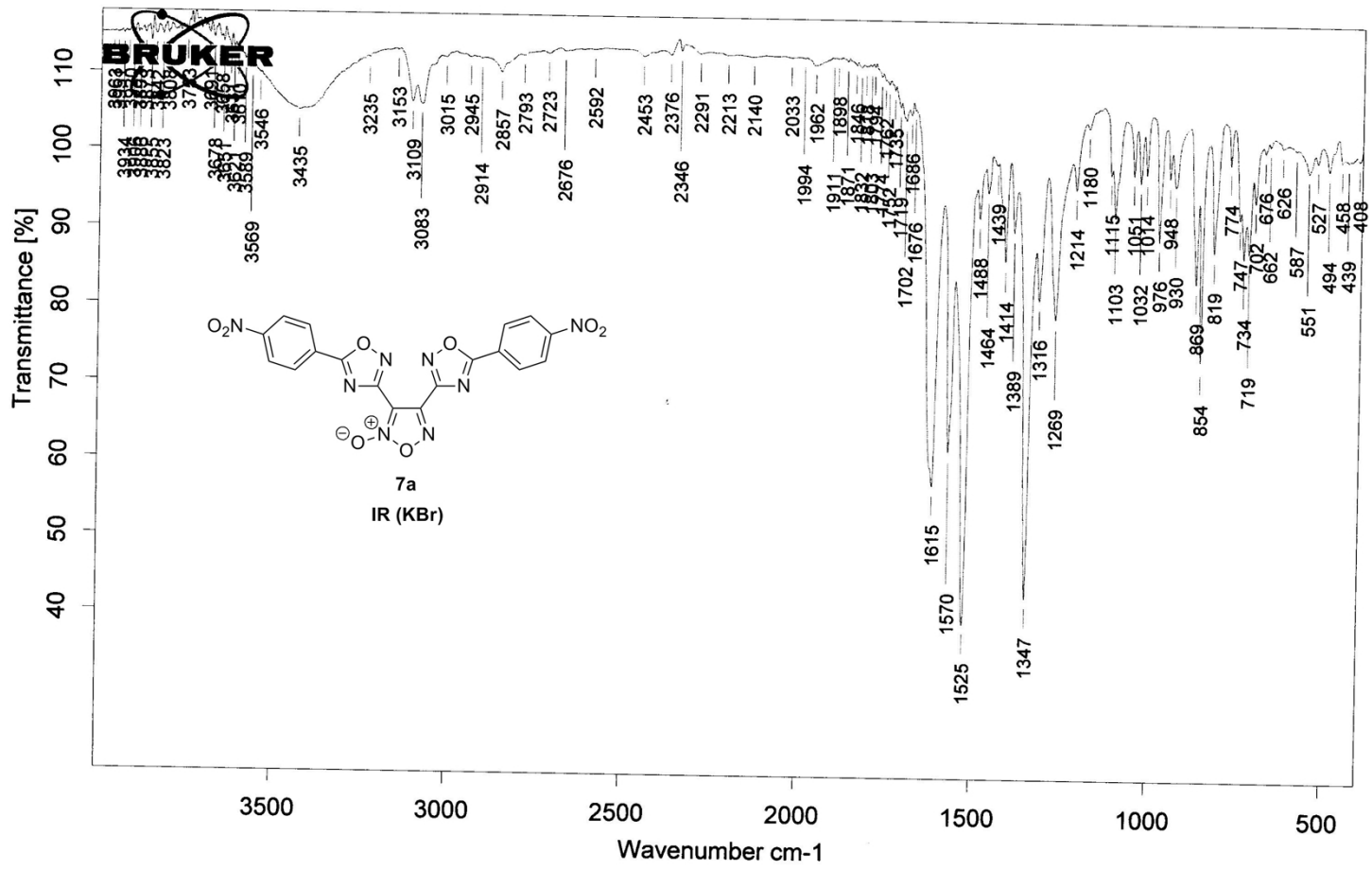
Analysis Info

Analysis Name	D:\Data\Chizhov\Makhova\Fershtat\777_low.d	Acquisition Date	27.02.2015 12:54:06
Method	tune_low.m	Operator	BDAL@DE
Sample Name	/USED 777	Instrument / Ser#	micrOTOF 10248
Comment	CH3CN 100 %, dil. 20, no calibrant added		

Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste





7a

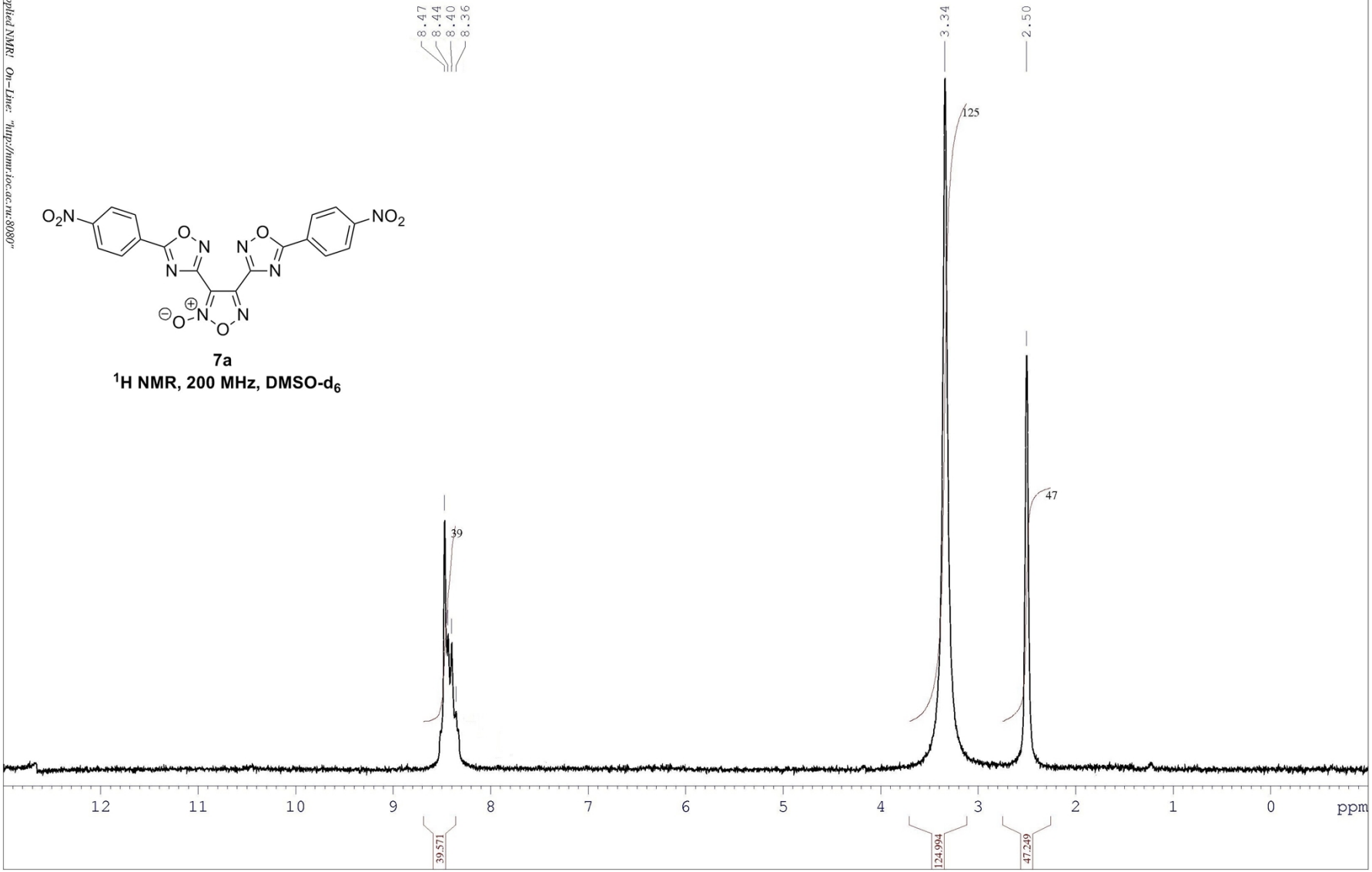
IR (KBr)

D:\EDL\LEO-752.0	ФЕРШТАТ. LEO-752 , прессовка с KBr,1/200.	17.02.2015

/USED 695

7a

^{1}H NMR, 200 MHz, DMSO-d_6



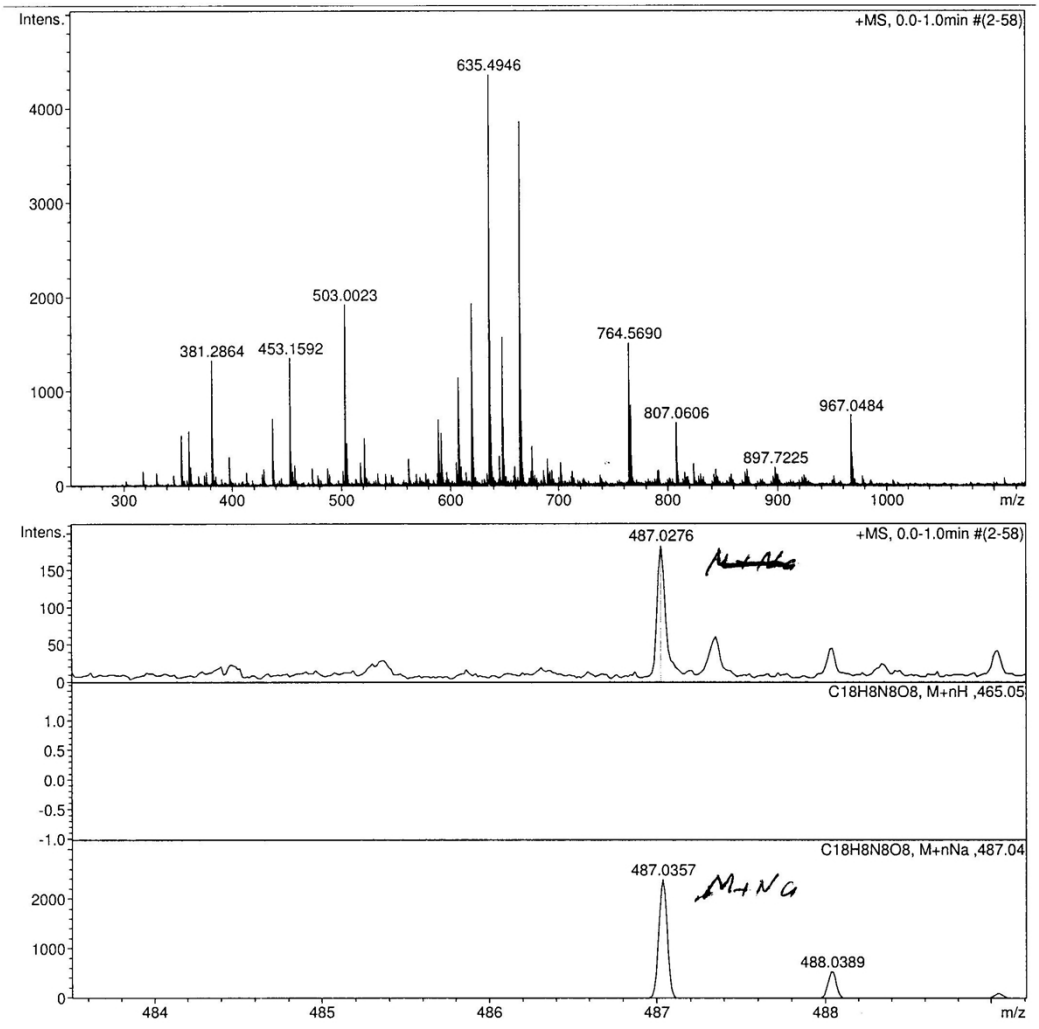
Display Report

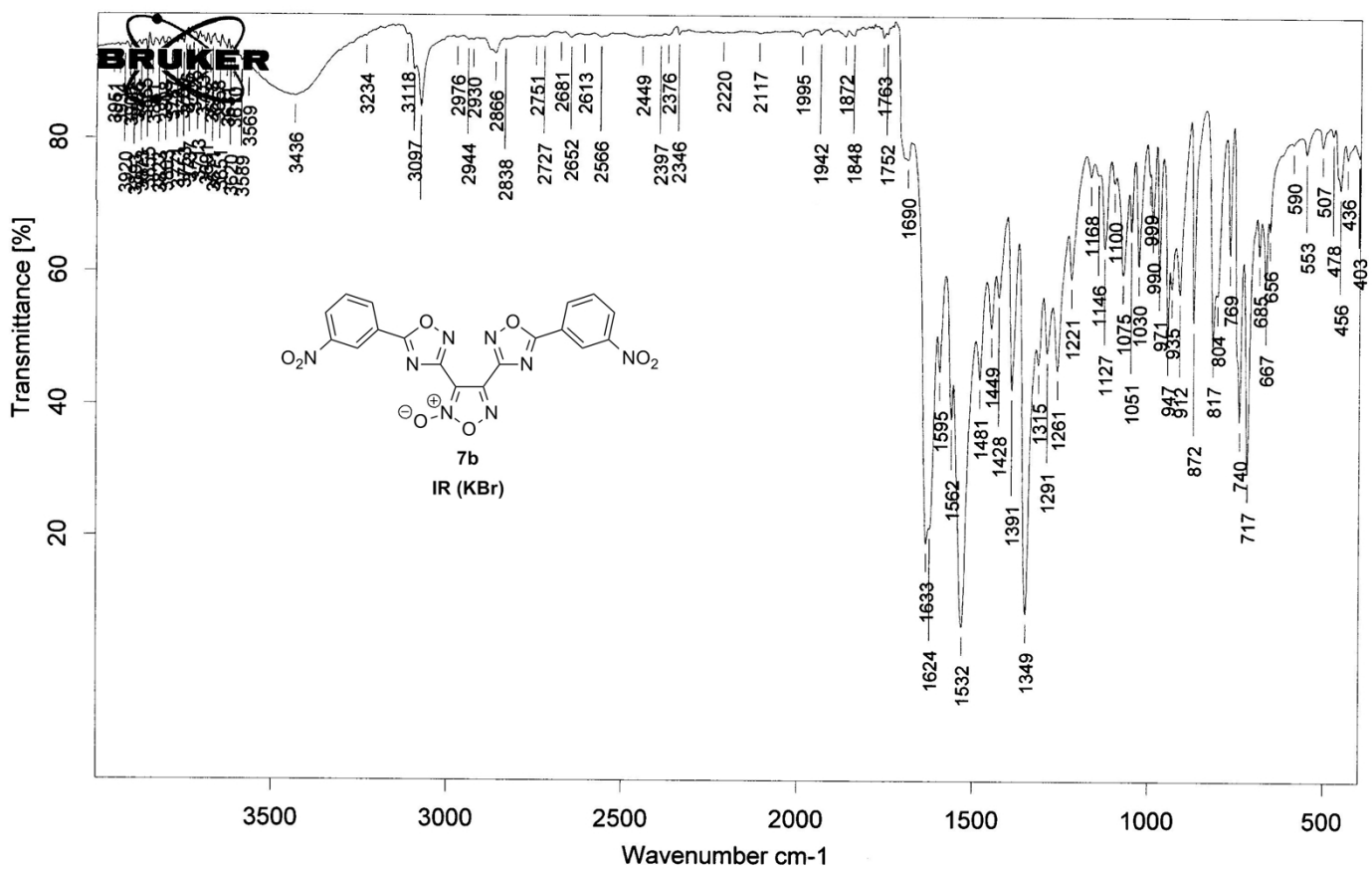
Analysis Info

Analysis Name	D:\Data\Kadentsev\2014\Fershtat\21-10-14-004.d	Acquisition Date	21.10.2014 14:50:38
Method	tune_wide.m	Operator	BDAL@DE
Sample Name	/USED 695	Instrument / Ser#	micrOTOF 10248
Comment	MeCN 100 %, Mw464 not calibrant added		

Acquisition Parameter

Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



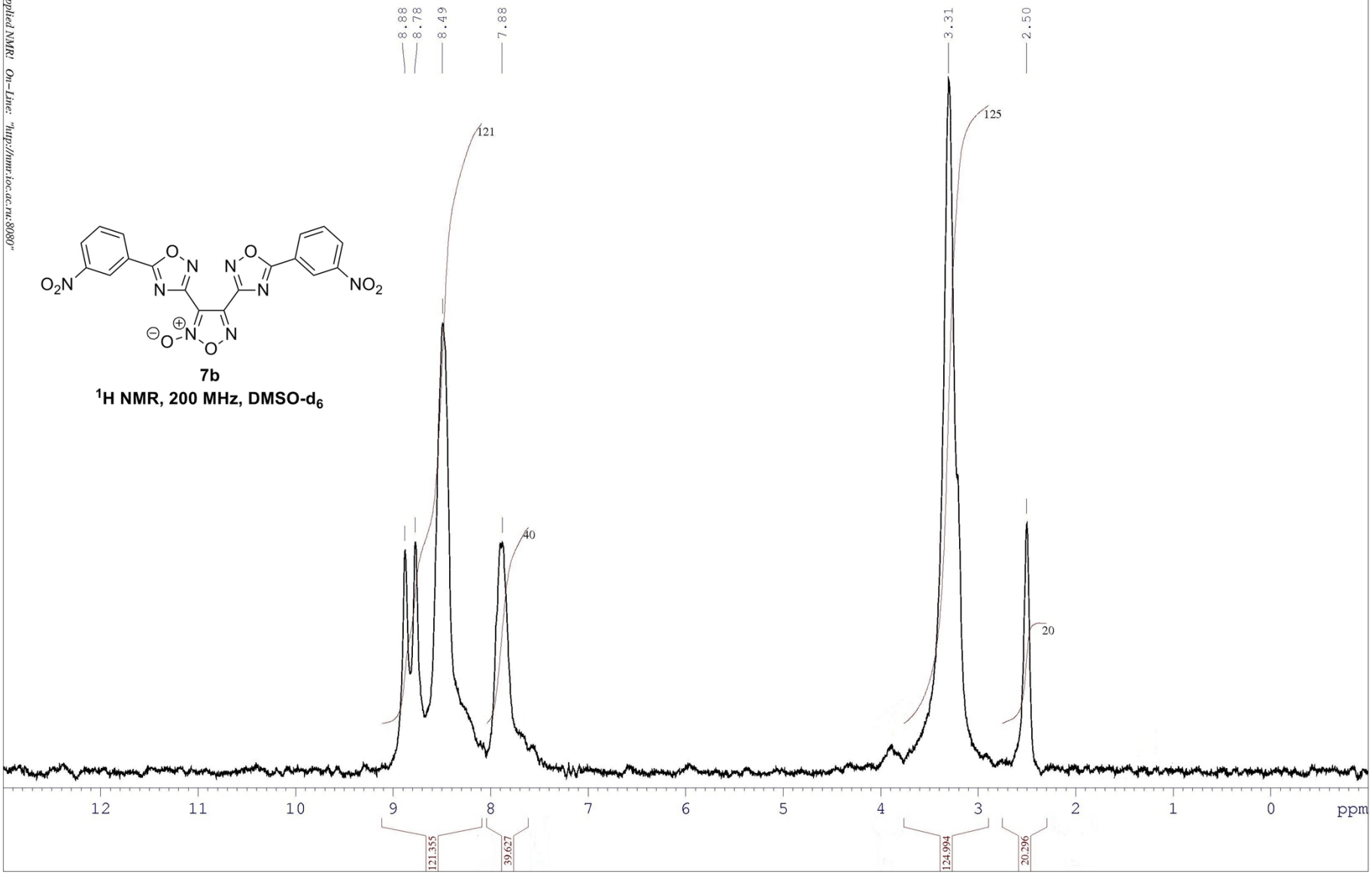


D:\EDL\735.0 ФЕРШТАТ. 735 , прессовка с KBr,1/200.	24.02.2015

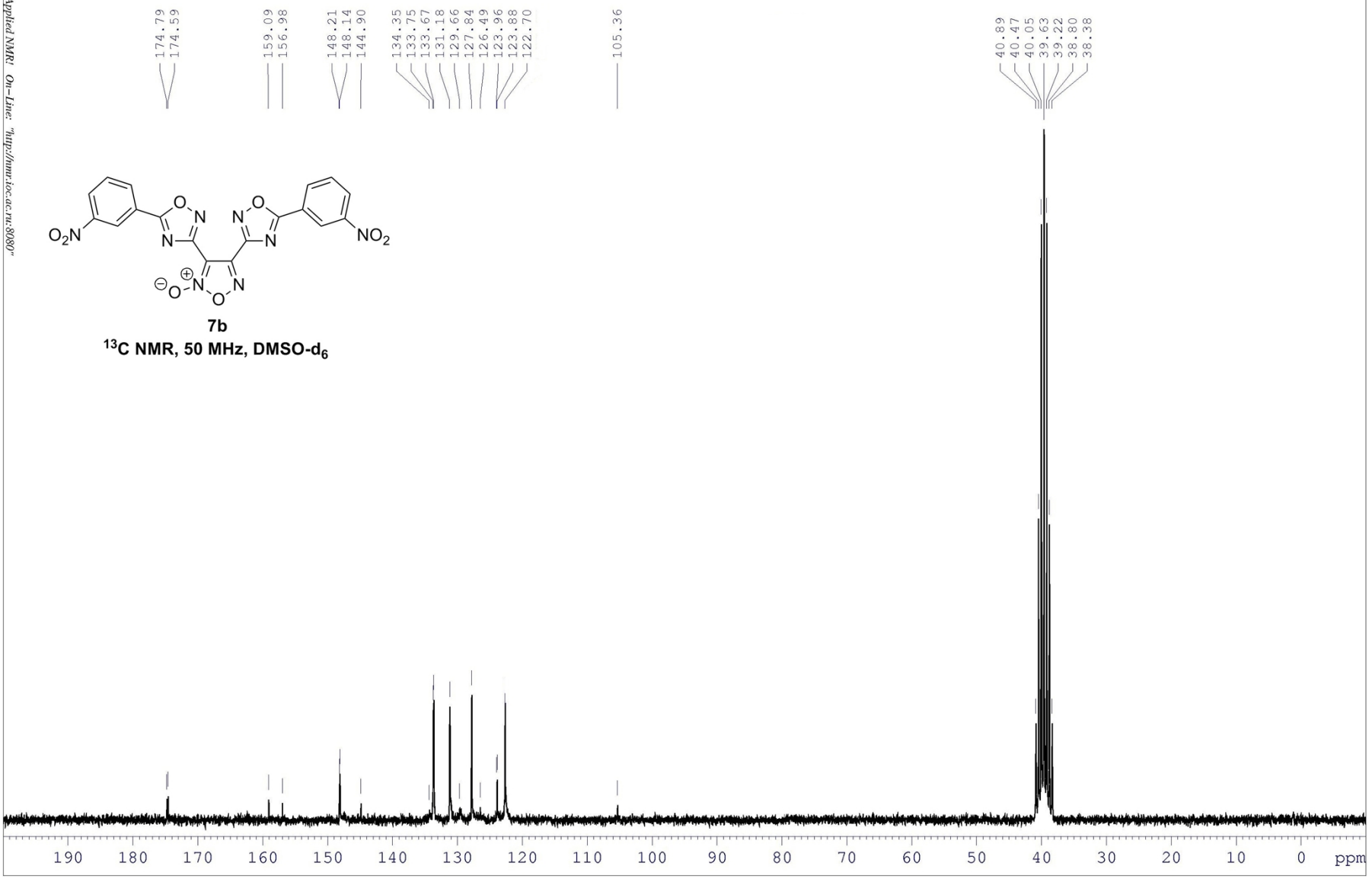
/USED 735

7b

^{1}H NMR, 200 MHz, DMSO-d_6



/USED 735.C13



7b

^{13}C NMR, 50 MHz, DMSO-d$_6$

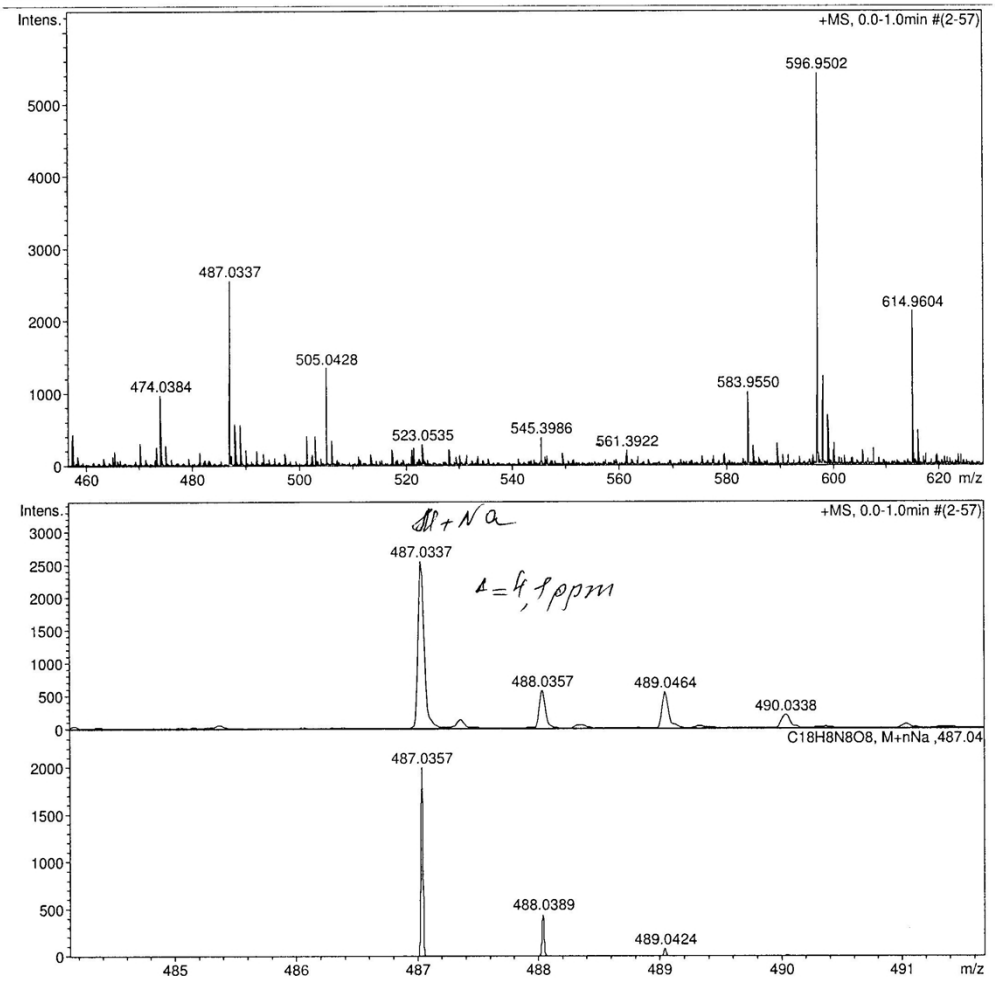
Display Report

Analysis Info

Analysis Name	D:\Data\Kolotyrkina\2014\Fershtat\1211004.d	Acquisition Date	11.12.2014 12:07:02
Method	tune_wide.m	Operator	BDAL@DE
Sample Name	/USED 735	Instrument / Ser#	micrOTOF 10248
Comment	C18H8N8O8 mw 464 calibrant added		

Acquisition Parameter

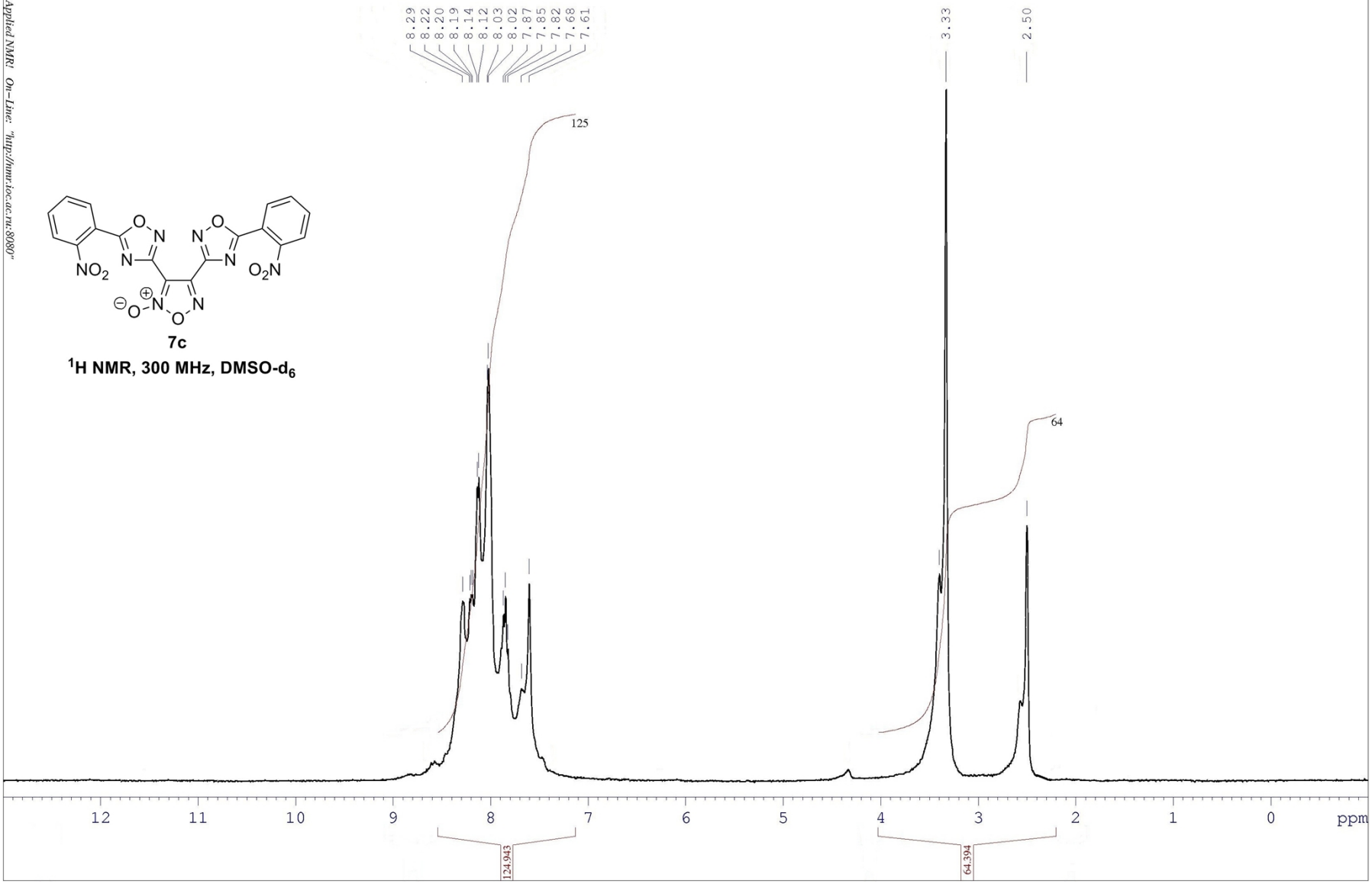
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



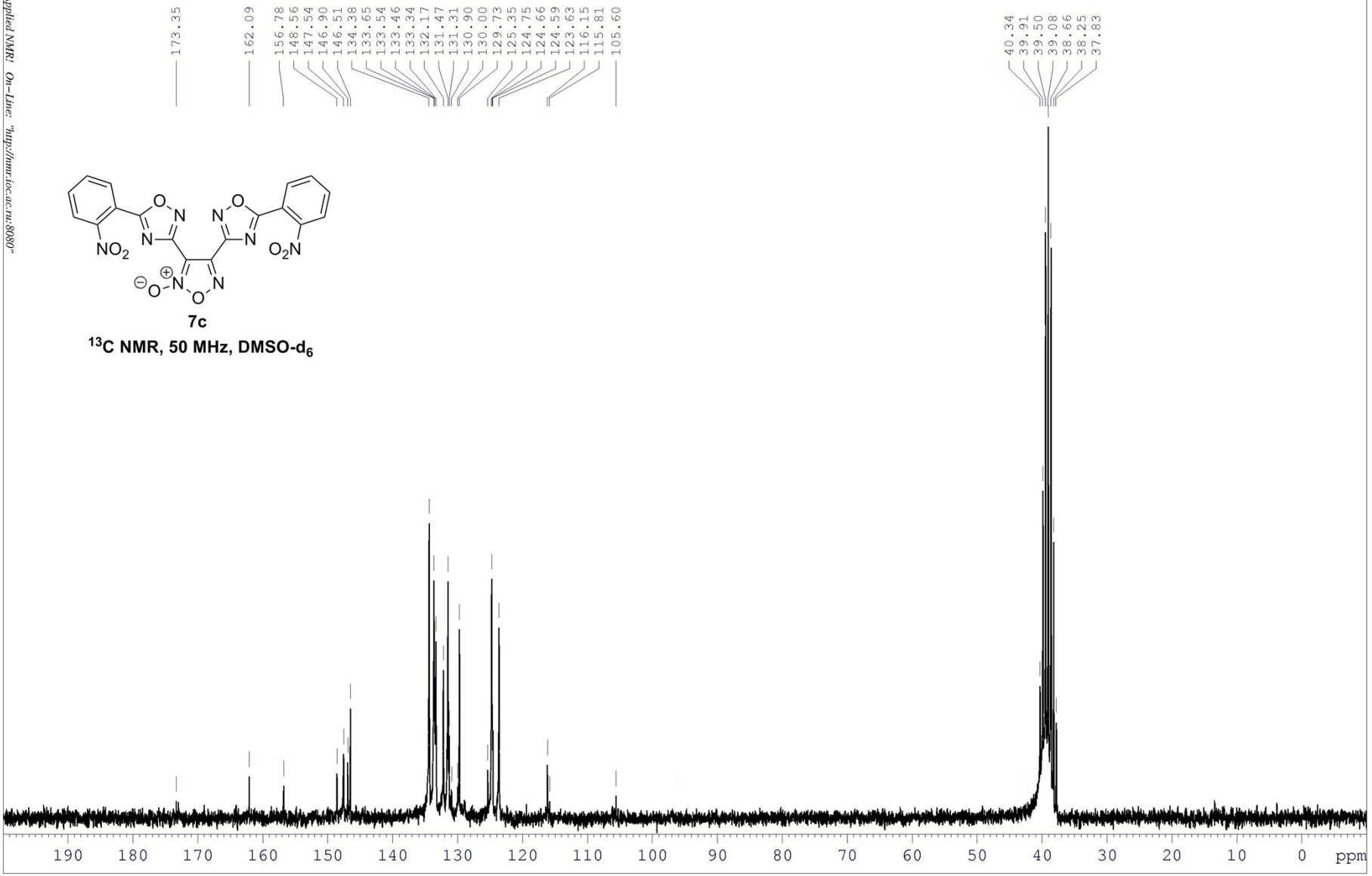
/USED 757

7c

^{1}H NMR, 300 MHz, DMSO-d_6

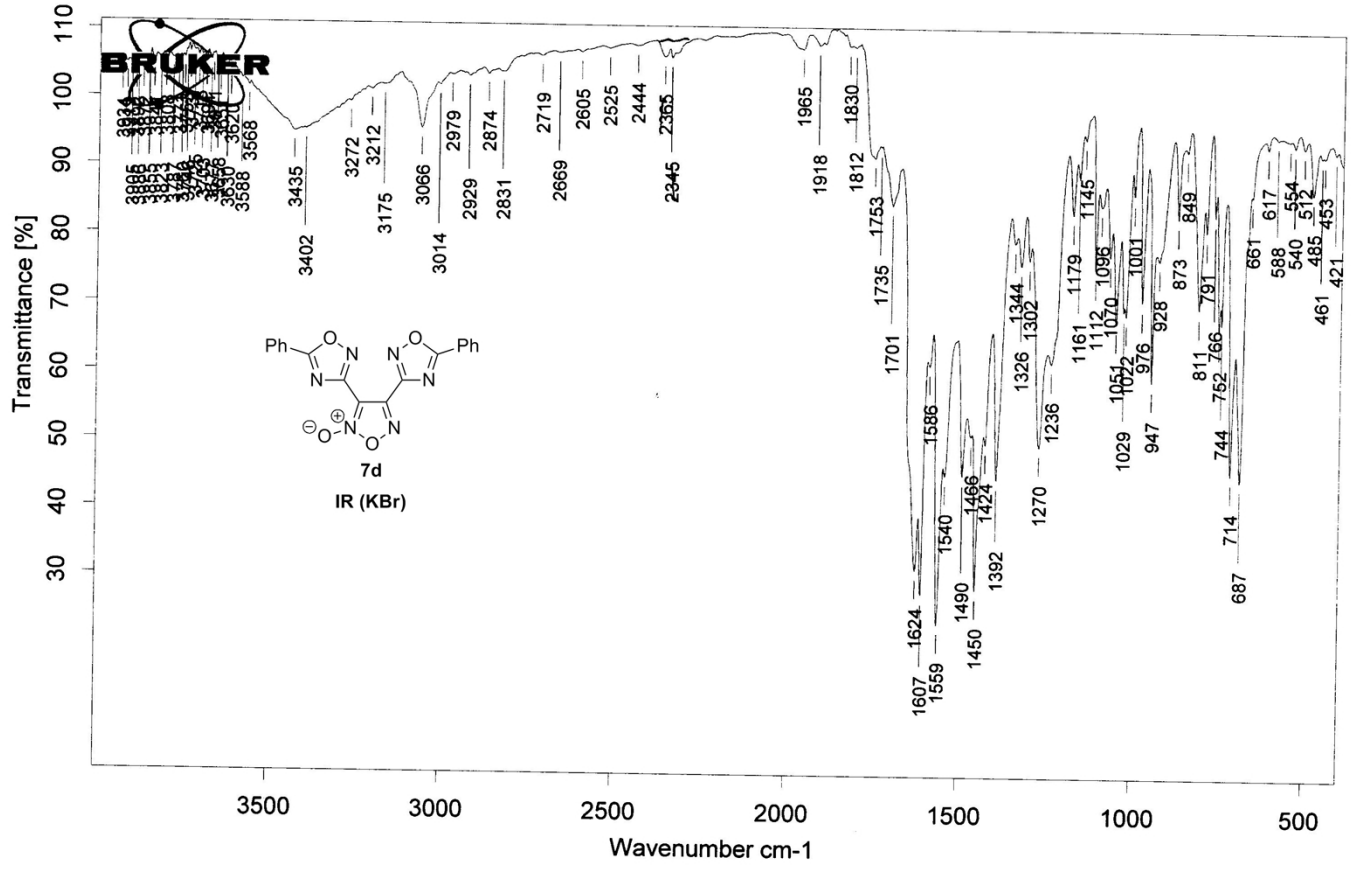


/USED 757.C13



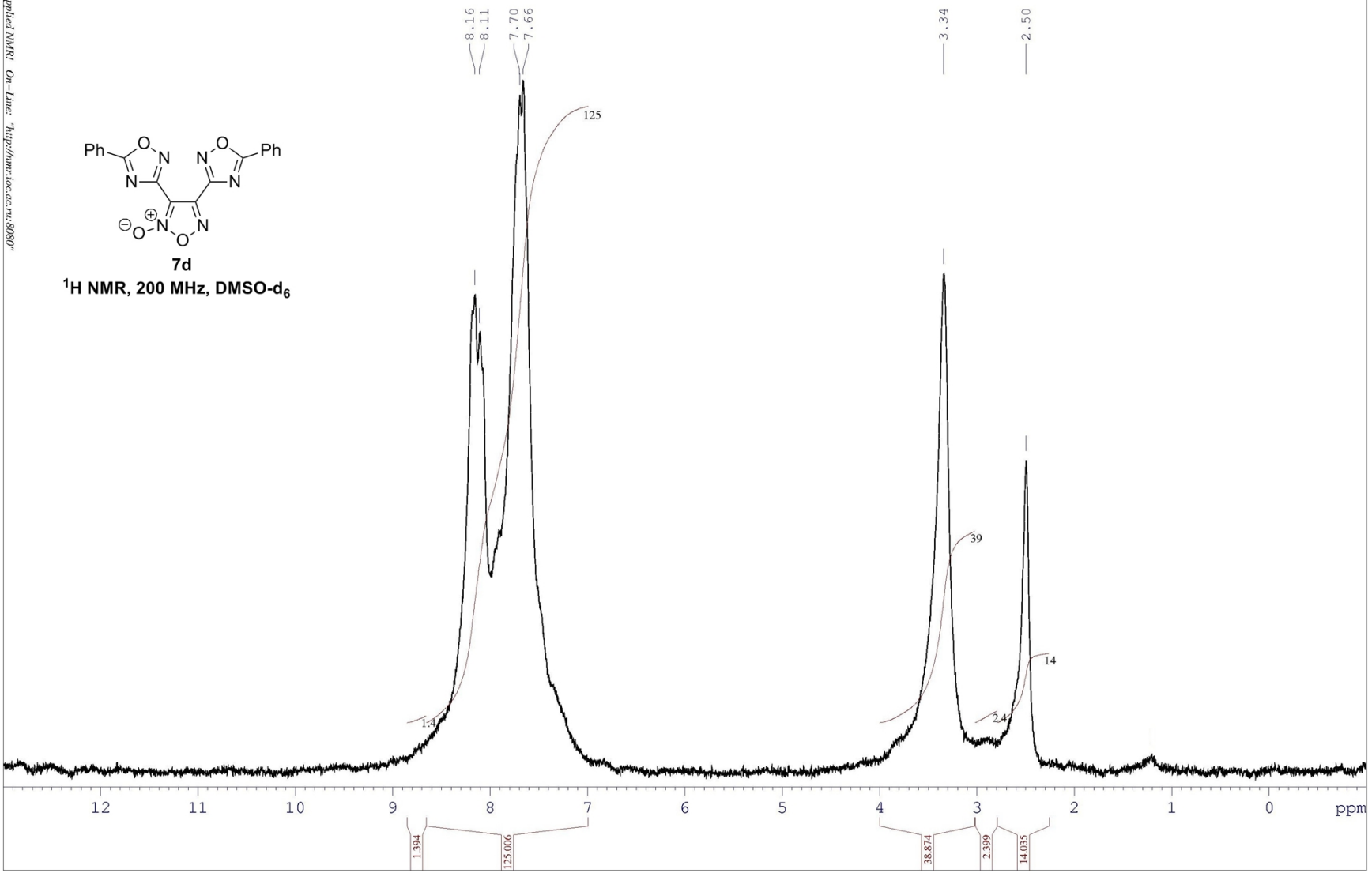
7c

^{13}C NMR, 50 MHz, DMSO-d_6



D:\EDL\LEO-742.0 ФЕРШТАТ. LEO-742 , прессовка с KBr,1/200.	27.02.2015

/USED 742



7d

^{1}H NMR, 200 MHz, DMSO-d$_6$

/USED 742

179.11
176.53
158.99
156.93
145.55
134.06
132.32
129.95
129.81
129.70
129.55
129.19
129.15
128.41
128.32
128.15
128.03
123.51
122.45
122.42
122.31
106.17
40.45
40.39
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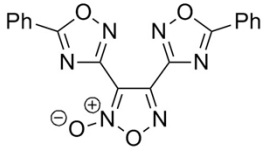
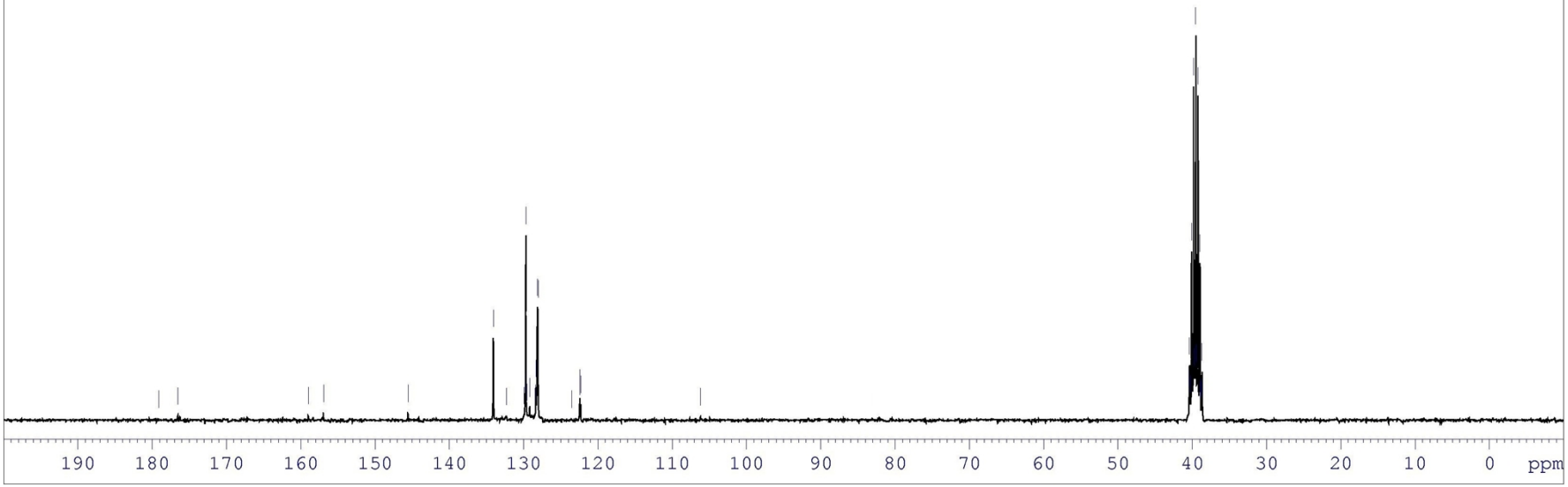
39.28
39.00
38.86
38.81
38.72



7d

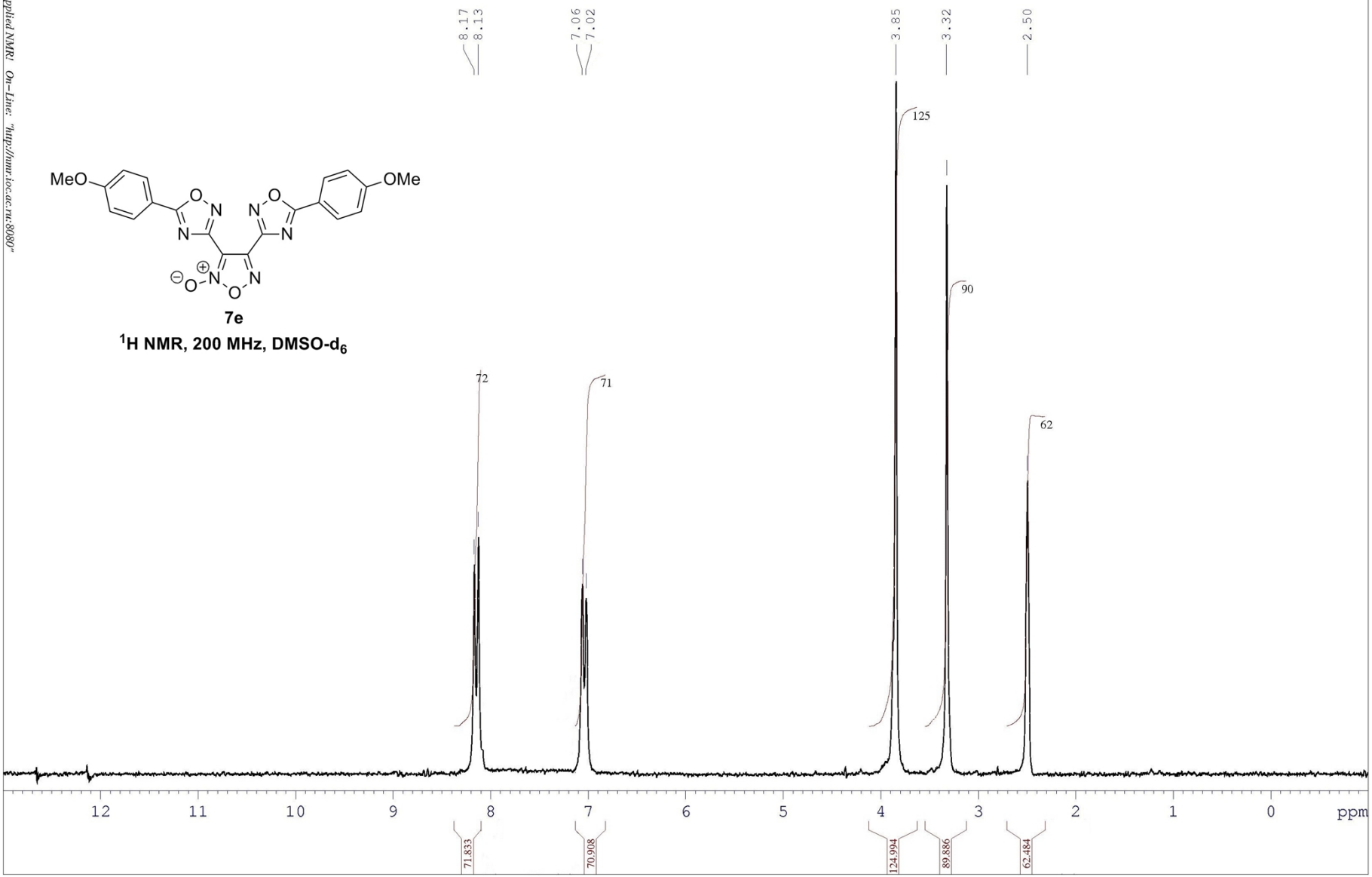
^{13}C NMR, 75.5 MHz, DMSO-d$_6$

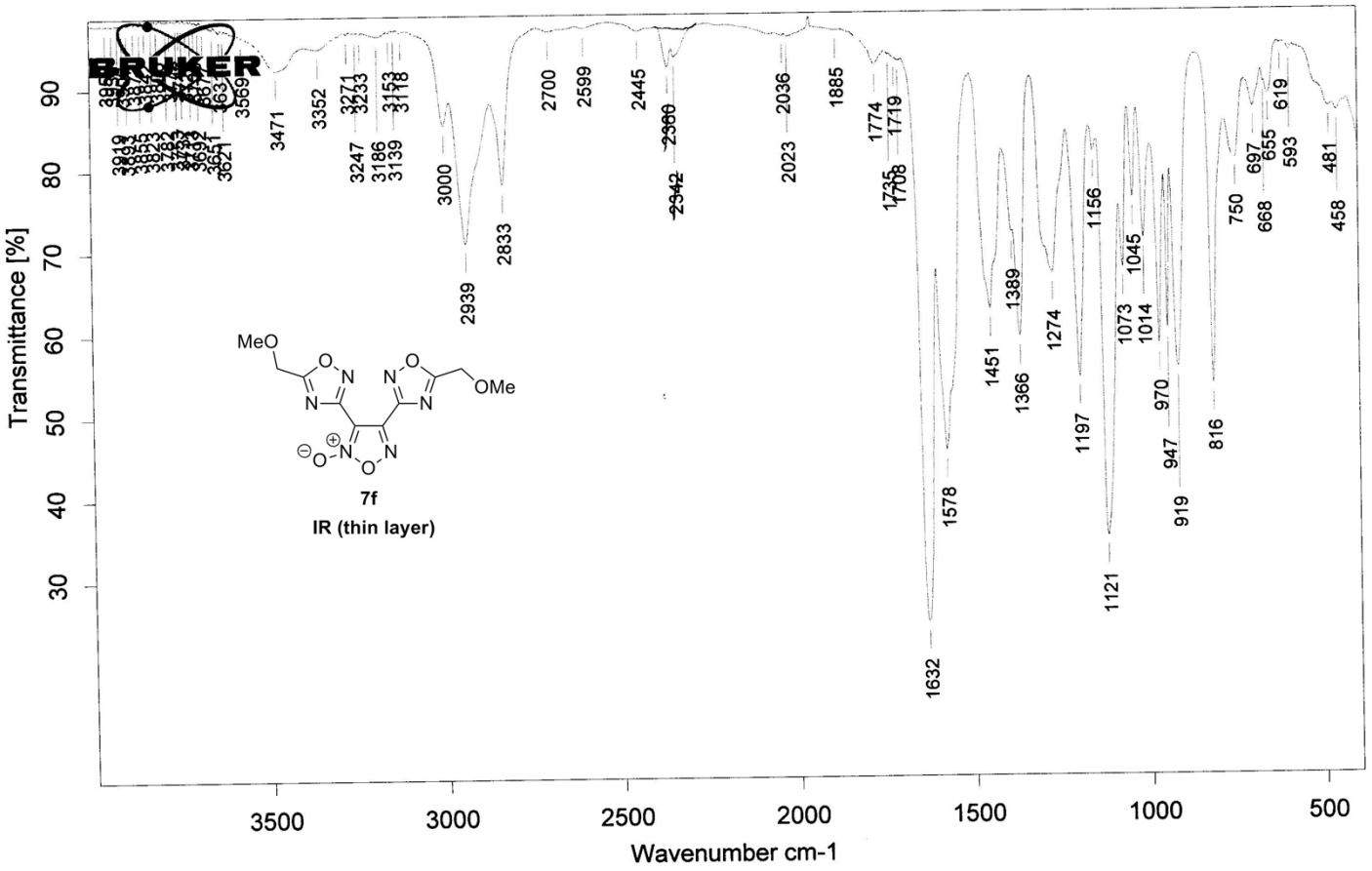


/USED 789

7e

^{1}H NMR, 200 MHz, DMSO-d_6



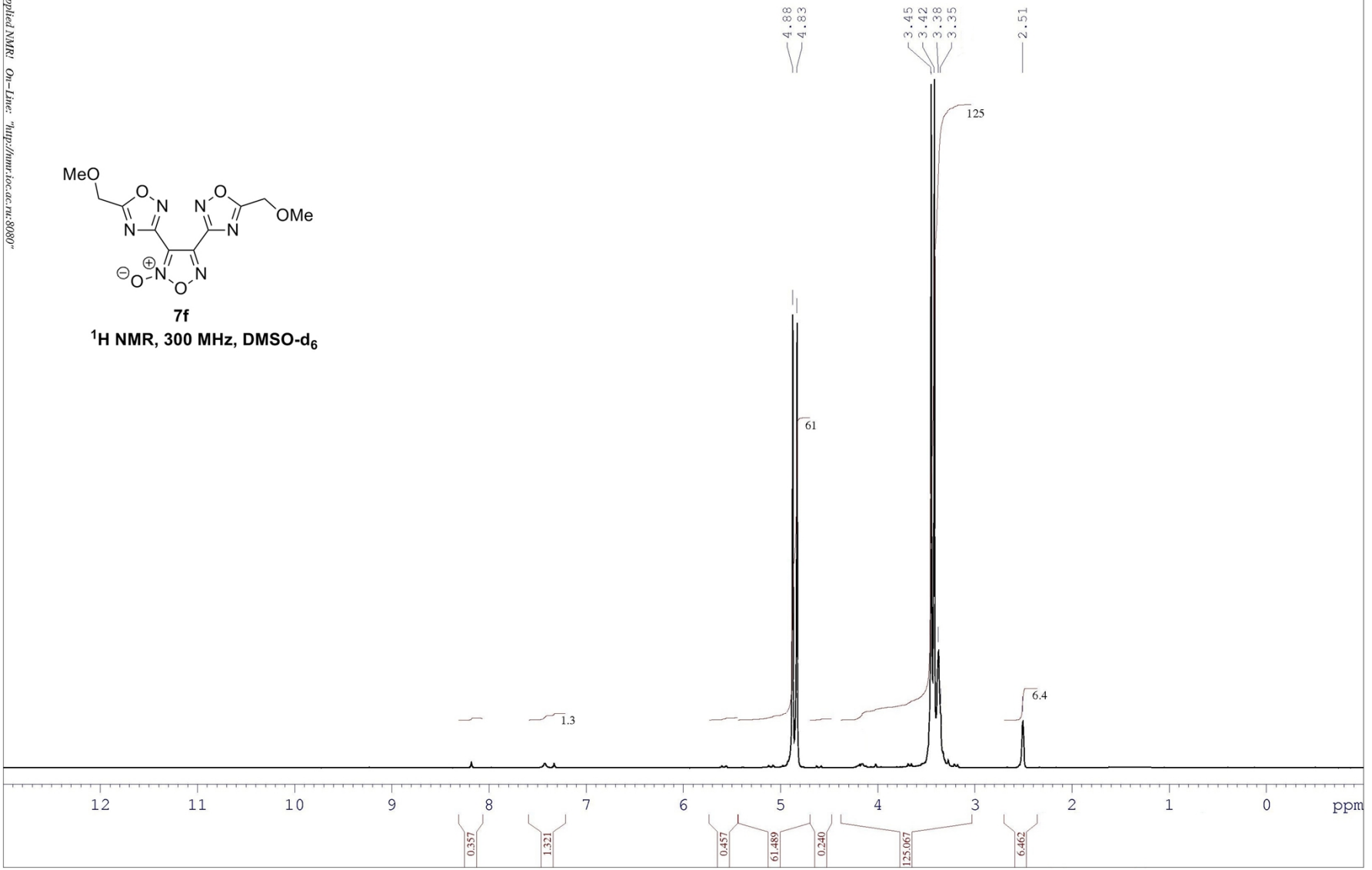


D:\EDL\LEO-746.0 ФЕРШТАТ. LEO-746 , тонкий слой,пл.KBr.	03.03.2015

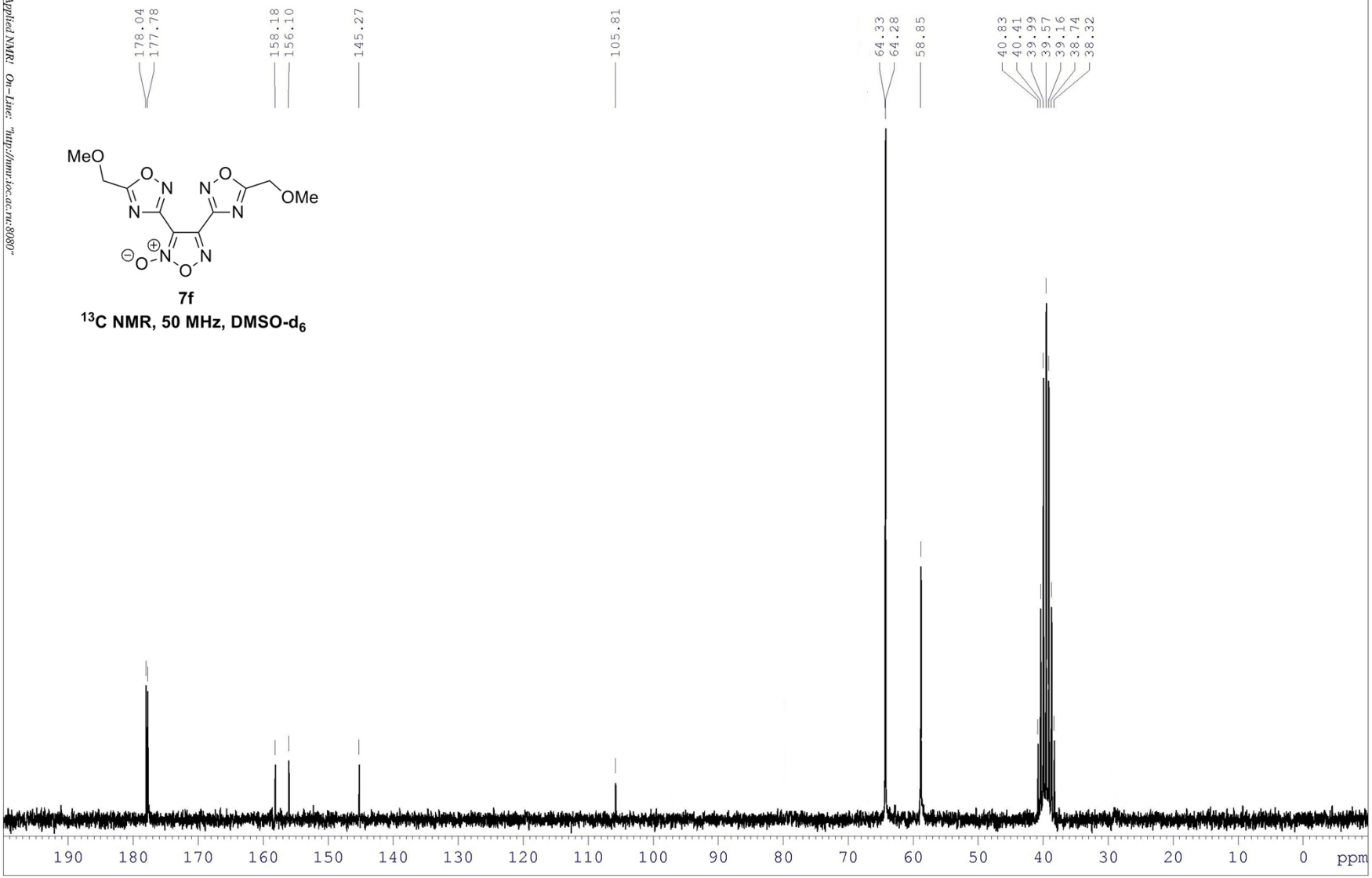
/USED 746

7f

^{1}H NMR, 300 MHz, DMSO-d_6



/USED 746.C13



7f

^{13}C NMR, 50 MHz, DMSO-d$_6$

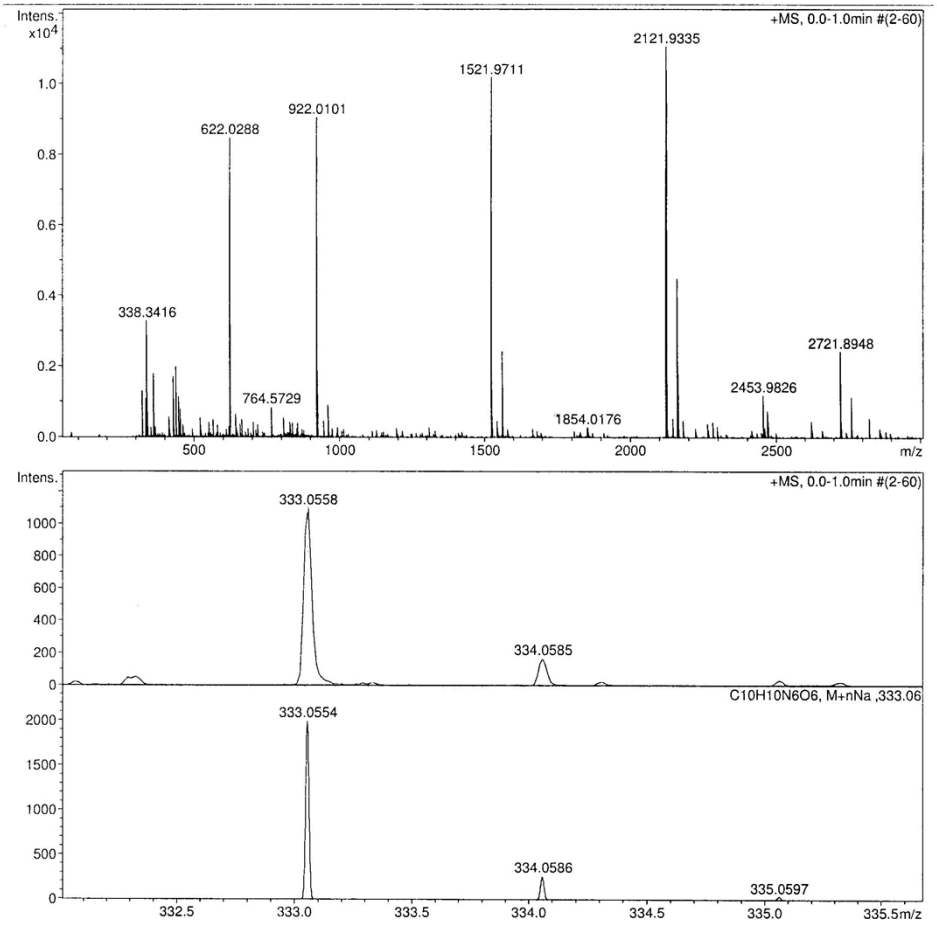
Display Report

Analysis Info

Analysis Name	D:\Data\Chizhov\Makhova\Fershtat\746_&clb.d	Acquisition Date	02.04.2015 14:52:02
Method	tune_wide.m	Operator	BDAL@DE
Sample Name	/USED 746	Instrument / Ser#	micrOTOF 10248
Comment	CH3CN 100 %, dil. 200, calibrant added		

Acquisition Parameter

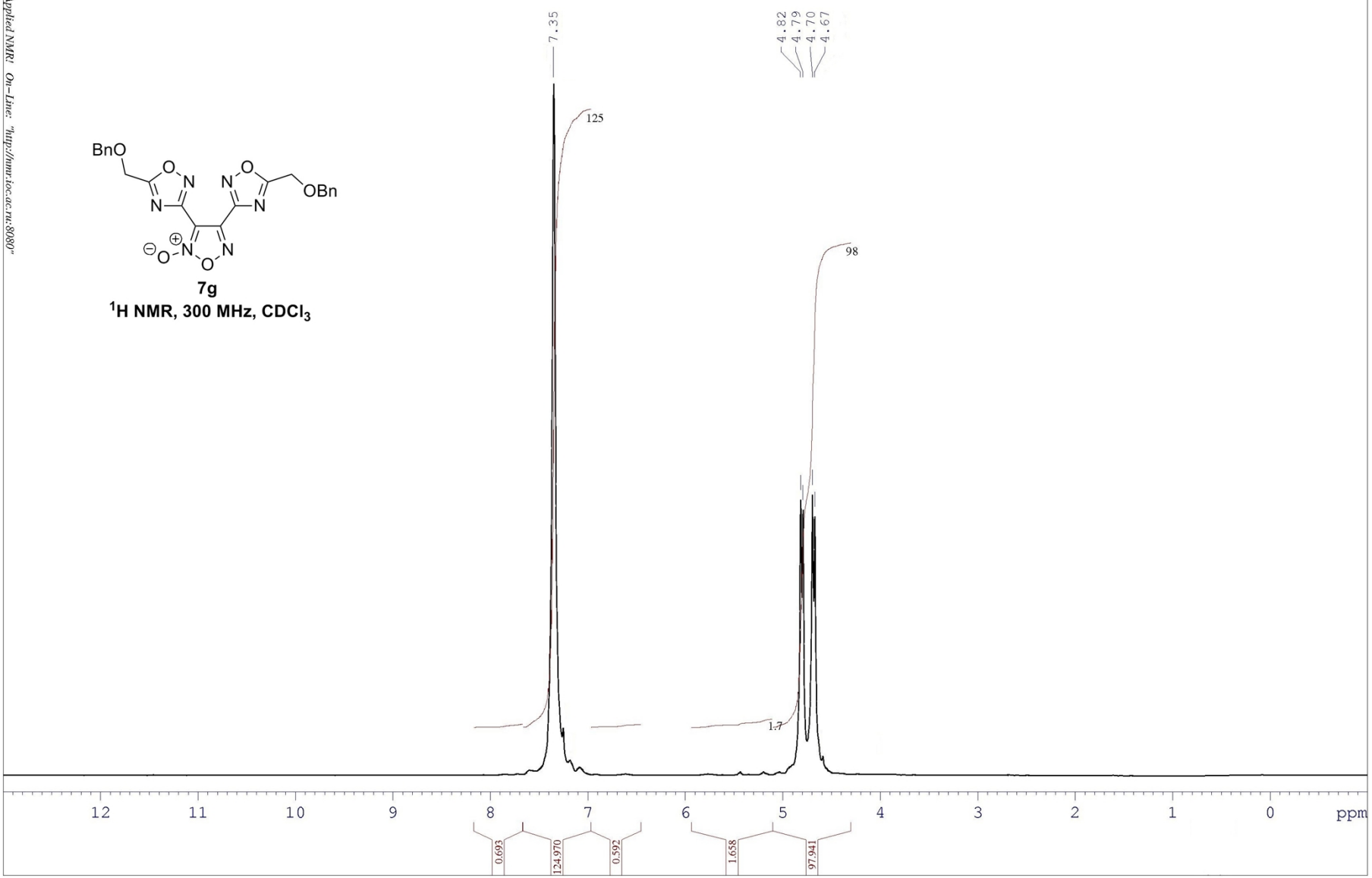
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



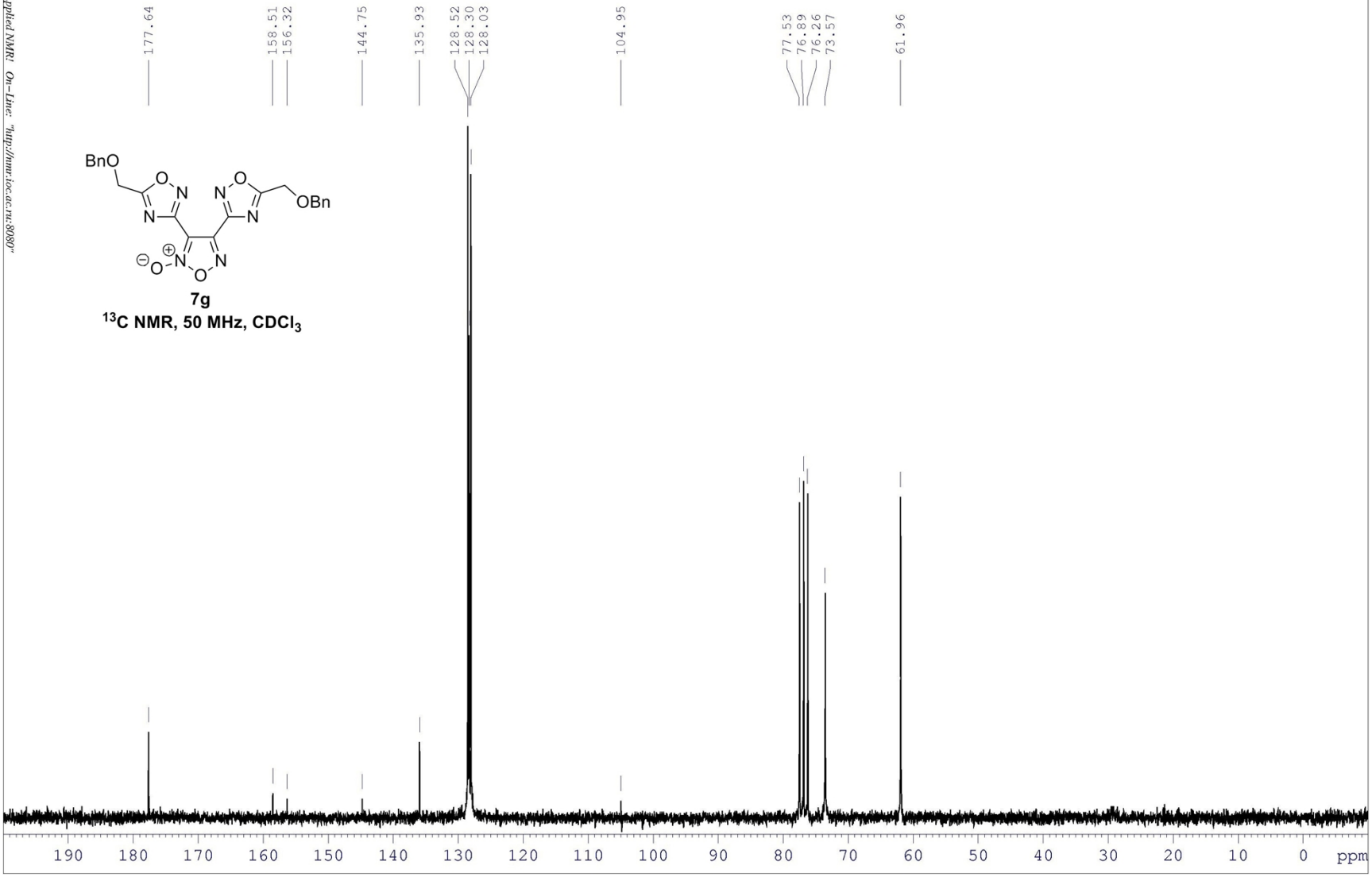
/USED 740

7g

^{1}H NMR, 300 MHz, $CDCl_3$



/USED 740.C13



7g

^{13}C NMR, 50 MHz, $CDCl_3$

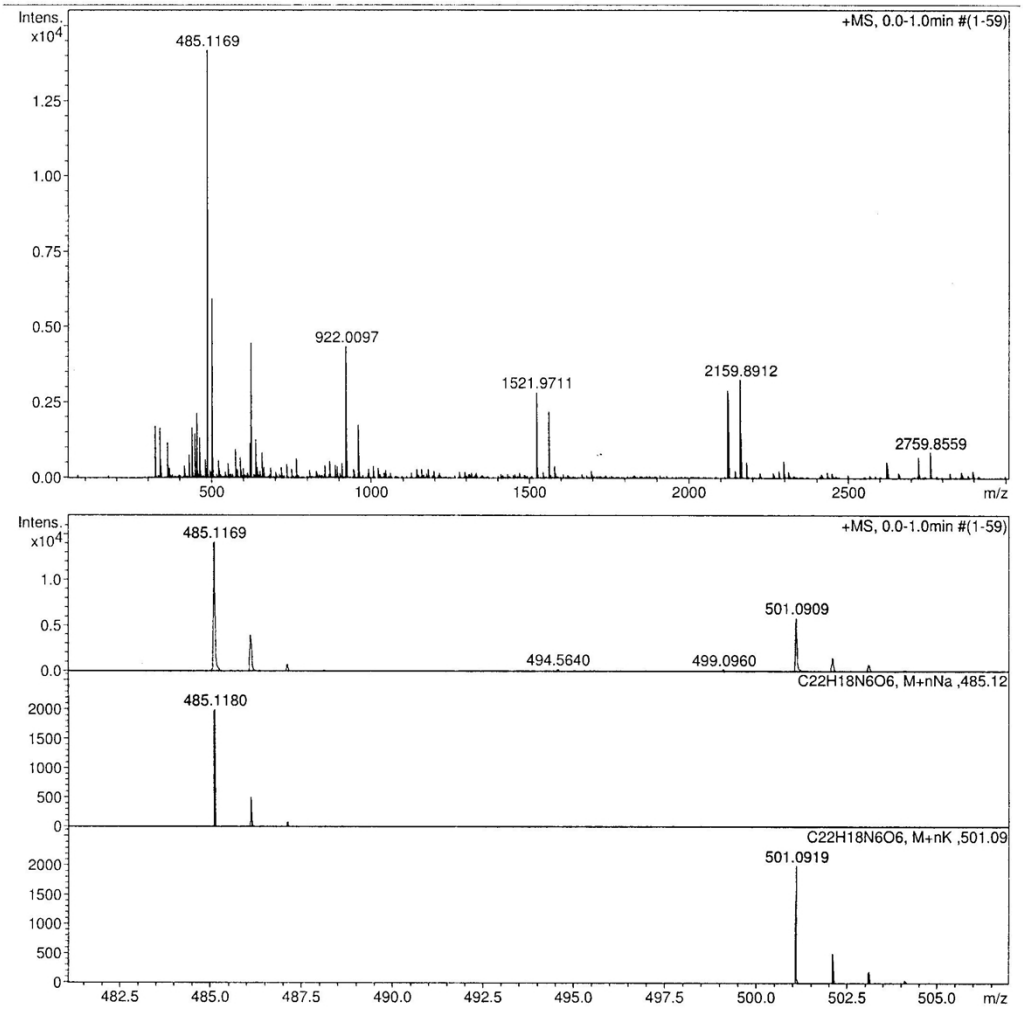
Display Report

Analysis Info

Analysis Name	D:\Data\Chizhov\Makhova\Fershtat\740_&clb.d	Acquisition Date	02.04.2015 14:46:31
Method	tune_wide.m	Operator	BDAL@DE
Sample Name	/USED 740	Instrument / Ser#	micrOTOF 10248
Comment	CH3CN 100 %, dil. 200, calibrant added		

Acquisition Parameter

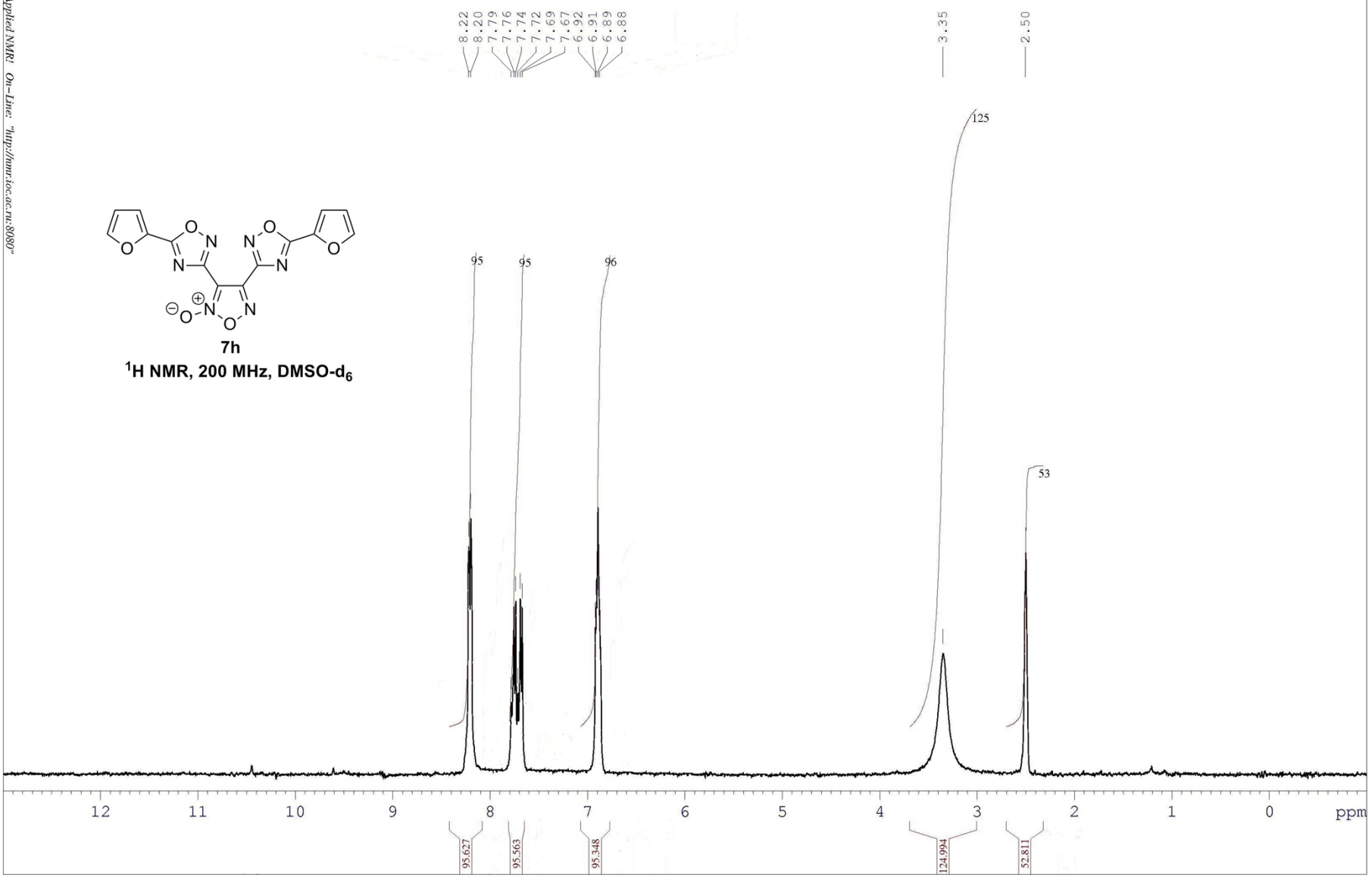
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	0.4 Bar
Focus	Not active			Set Dry Heater	180 °C
Scan Begin	50 m/z	Set Capillary	4500 V	Set Dry Gas	4.0 l/min
Scan End	3000 m/z	Set End Plate Offset	-500 V	Set Divert Valve	Waste



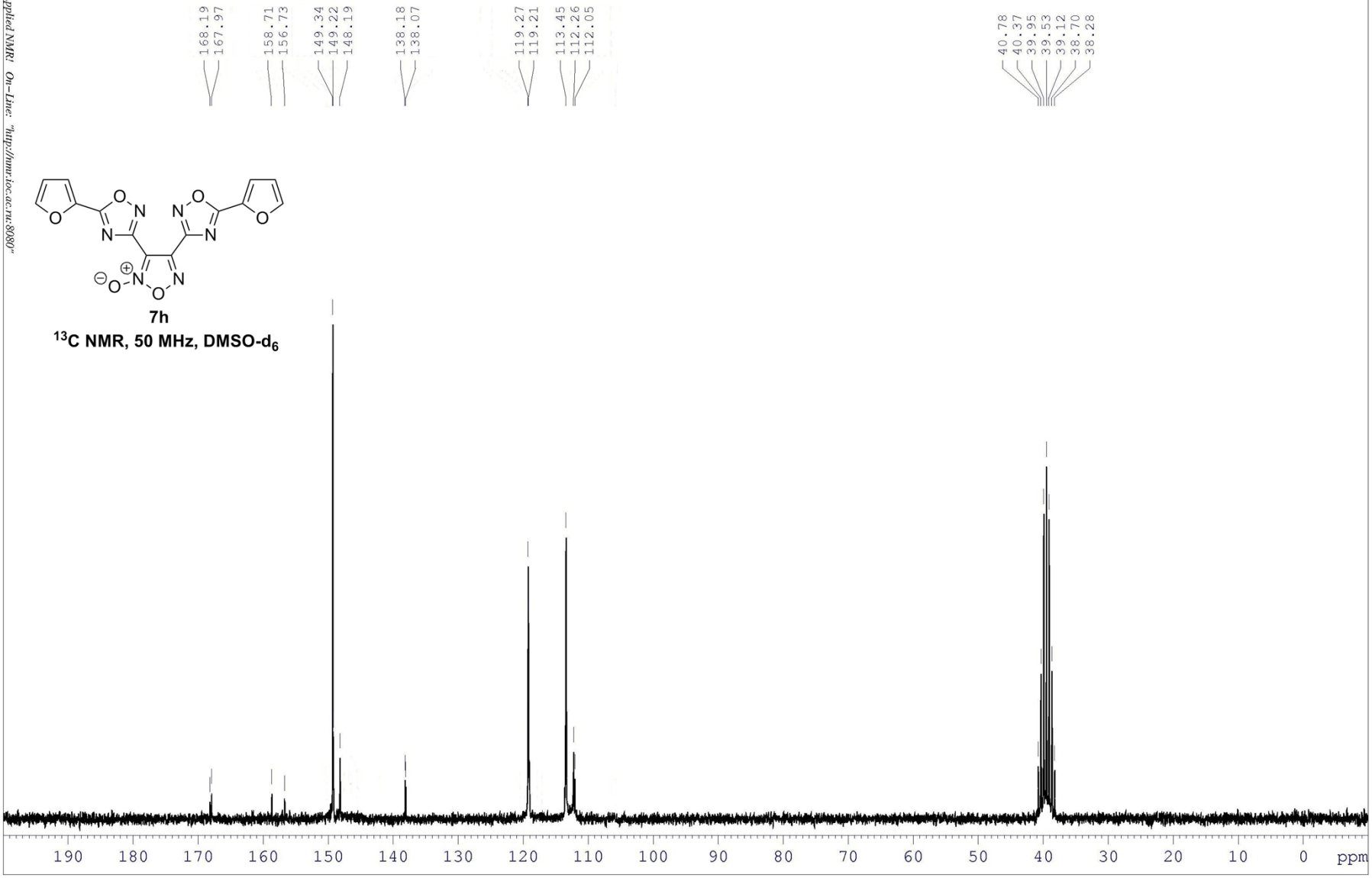
/USED 754

7h

^{1}H NMR, 200 MHz, DMSO-d_6



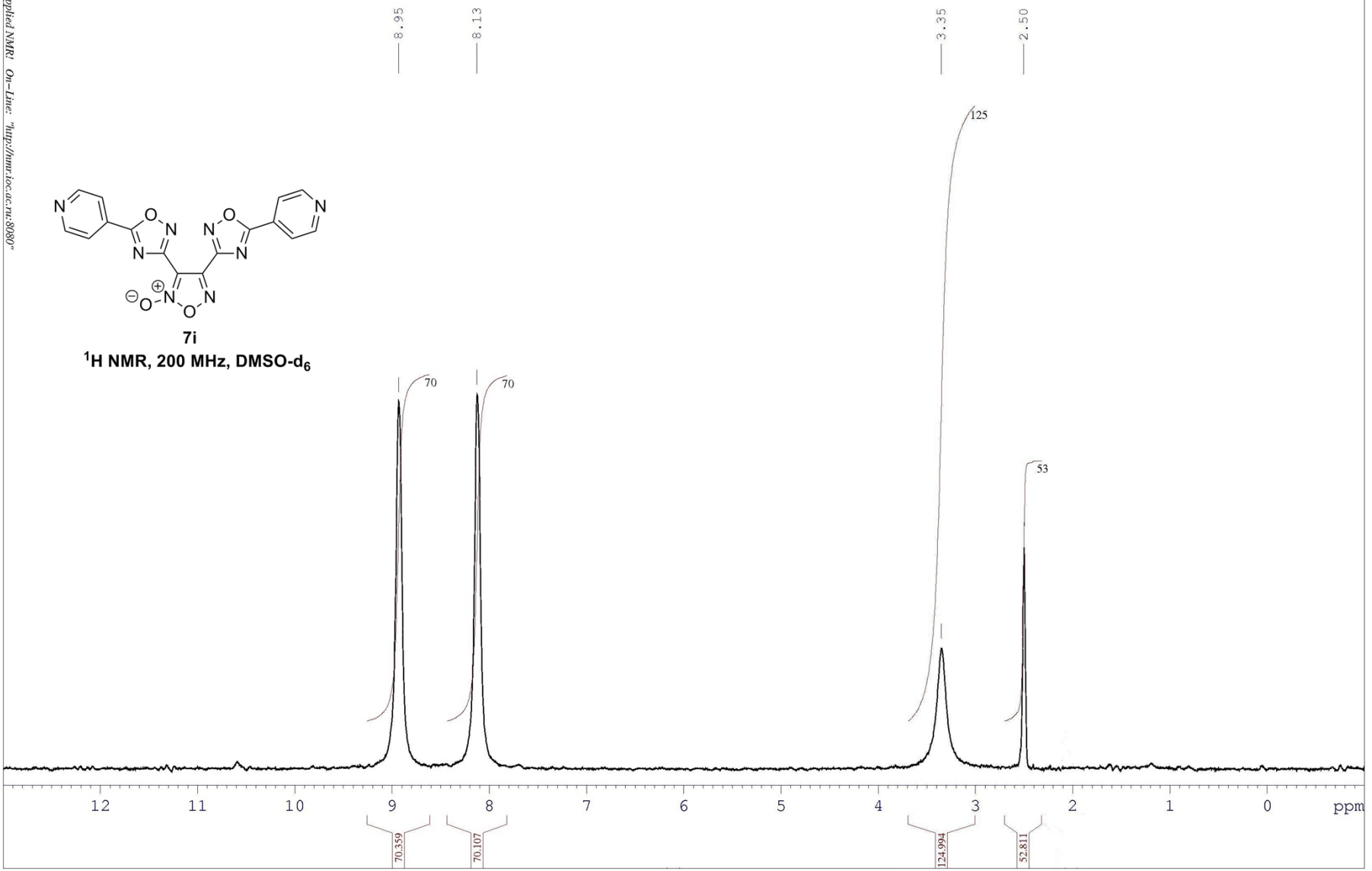
/USED 754.C13



7h

^{13}C NMR, 50 MHz, DMSO-d$_6$

/USED 755



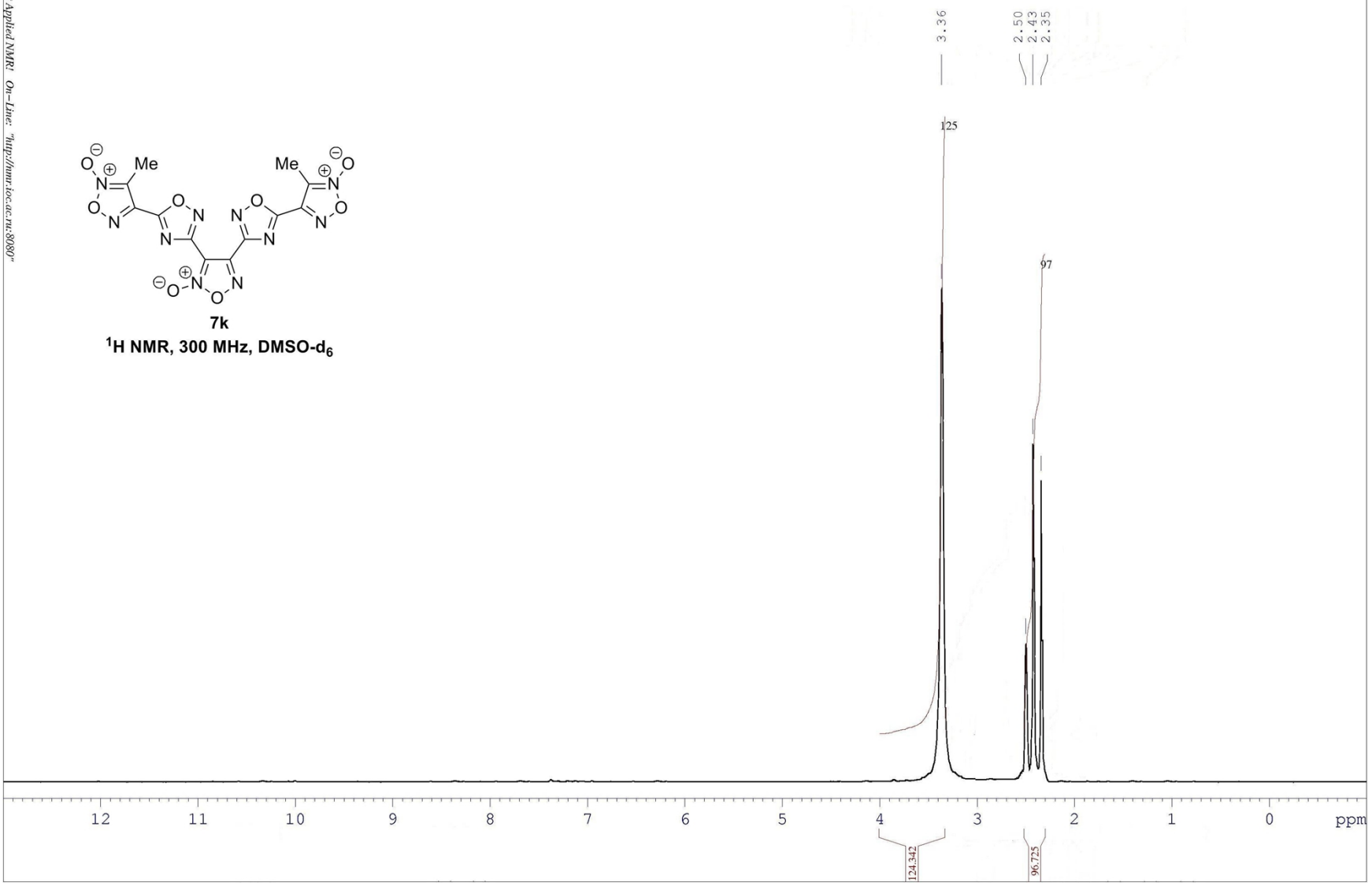
7i

^{1}H NMR, 200 MHz, DMSO-d_6

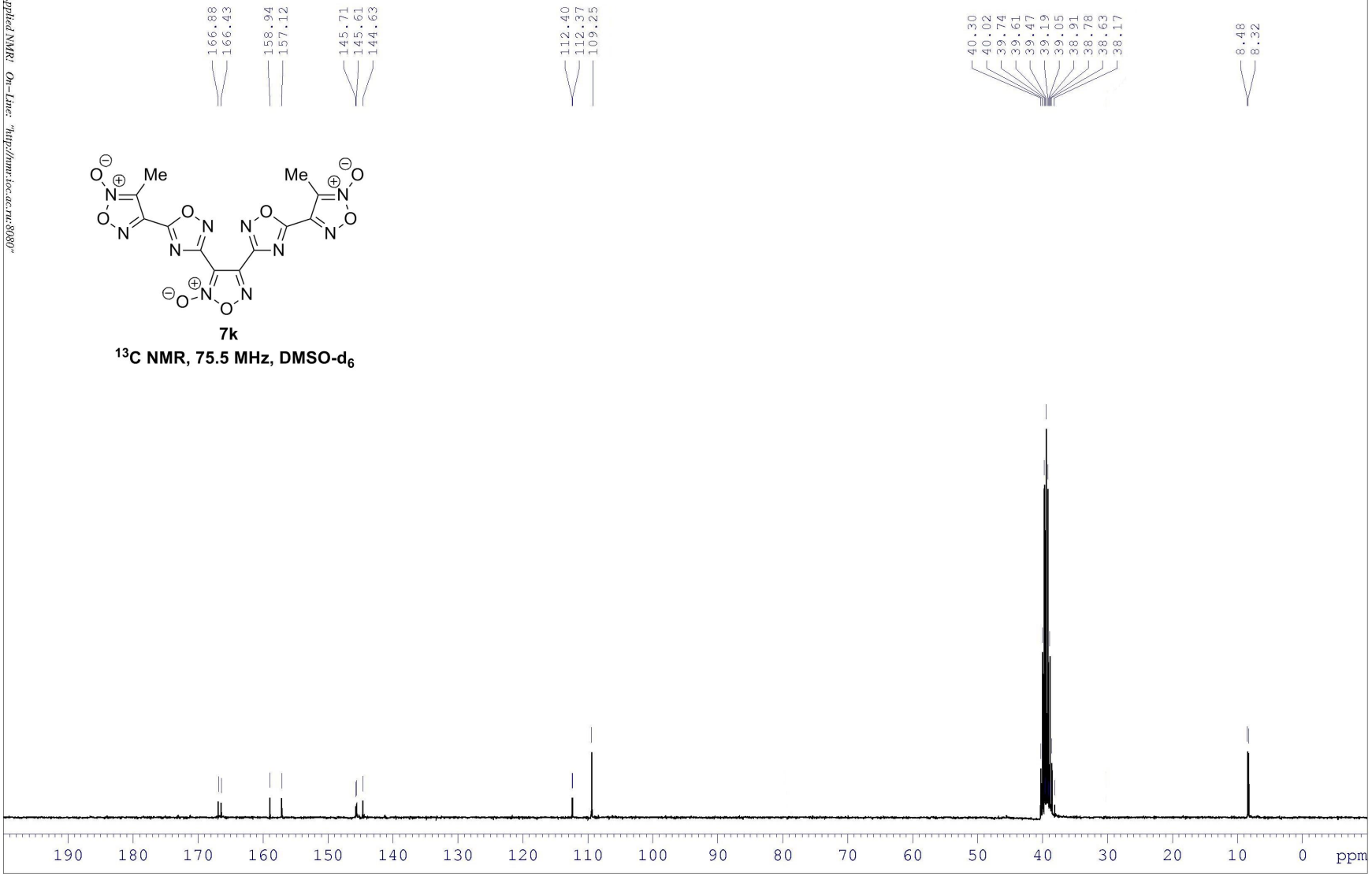
/USED 795

7k

^{1}H NMR, 300 MHz, DMSO-d_6



/USED 795.c13



7k

^{13}C NMR, 75.5 MHz, DMSO-d$_6$