

An efficient entry to 1,2-benzisoxazoles *via* 1,3-dipolar cycloaddition of *in situ* generated nitrile oxides and benzyne

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Received (in XXX, XXX) Xth XXXXXXXXX 200X, Accepted Xth XXXXXXXXX 200X

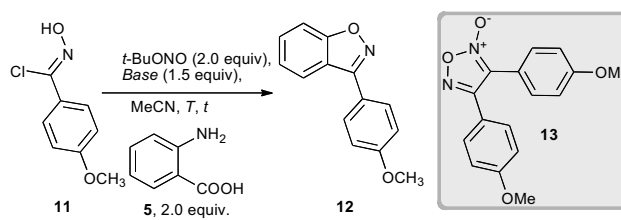
First published on the web Xth XXXXXXXXX 200X

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Supplementary Information

Reference 18

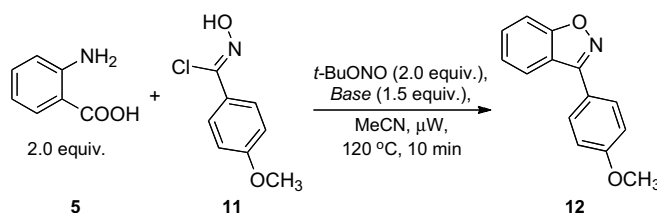
Table 1 Initial screening



Entry	α -chloro oxime ^a	Base	Solvent	T (°C)	Yield [%] ^b
1	11	Et ₃ N	MeCN	80	0
2	11	K₂CO₃	MeCN	80	15
3	11	MS 4Å	MeCN	80	0
4	11	MS 3Å	MeCN	80	0
5	11	KOH	MeCN	80	0
6	11	KOH	MeCN/H ₂ O (4:1)	80	0

^a Reactions performed on 0.54 mmol; ^b Isolated yield of **12**.

Table 2 Microwave studies



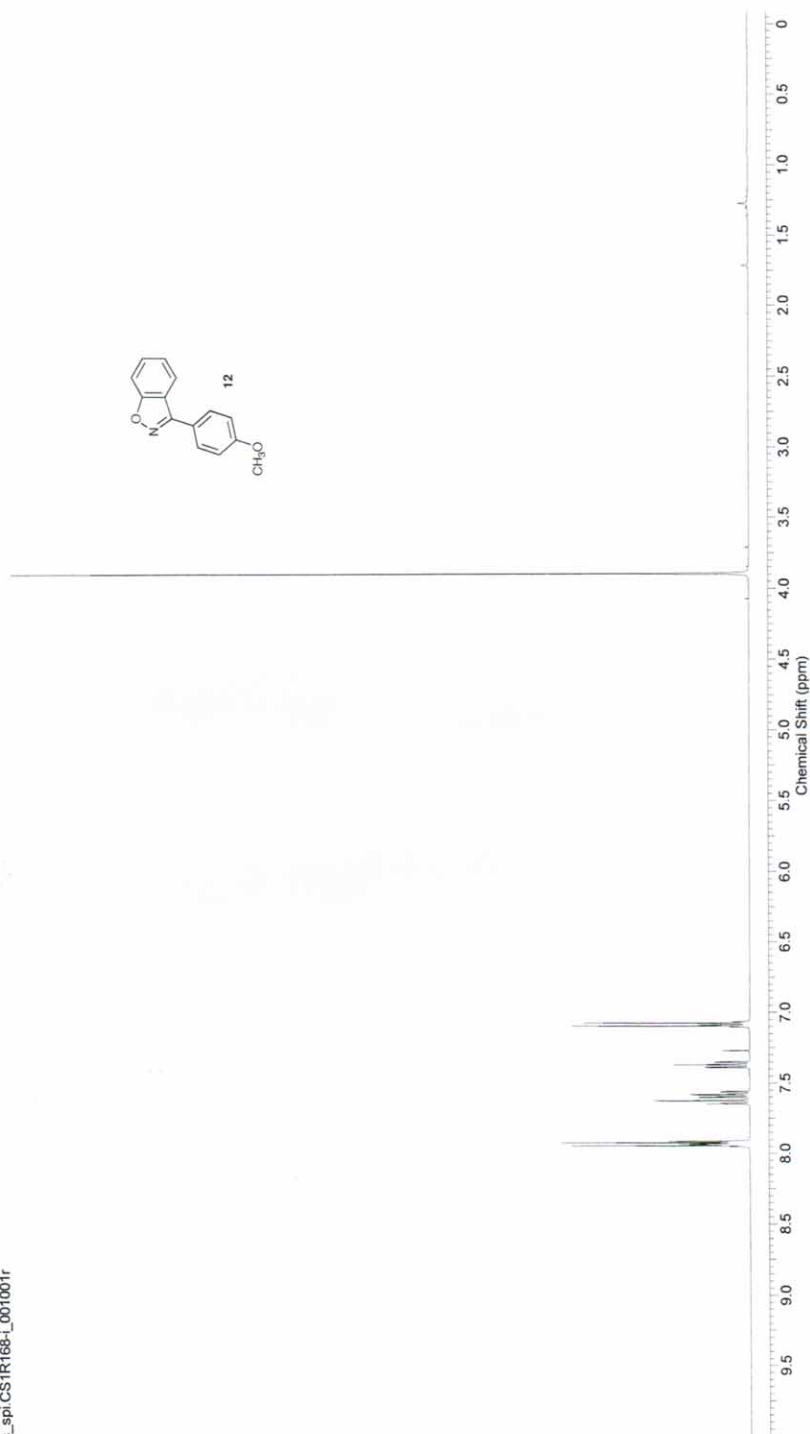
Entry	α -chloro oxime ^a	Base	Solvent	T (°C)	t (min)	Yield [%] ^b
1	11	Et ₃ N	MeCN	120	10	16
2	11	K₂CO₃	MeCN	120	10	85
3	11	MS 4Å	MeCN	120	10	59

^a Reaction performed on 0.54 mmol; ^b Isolated yield.

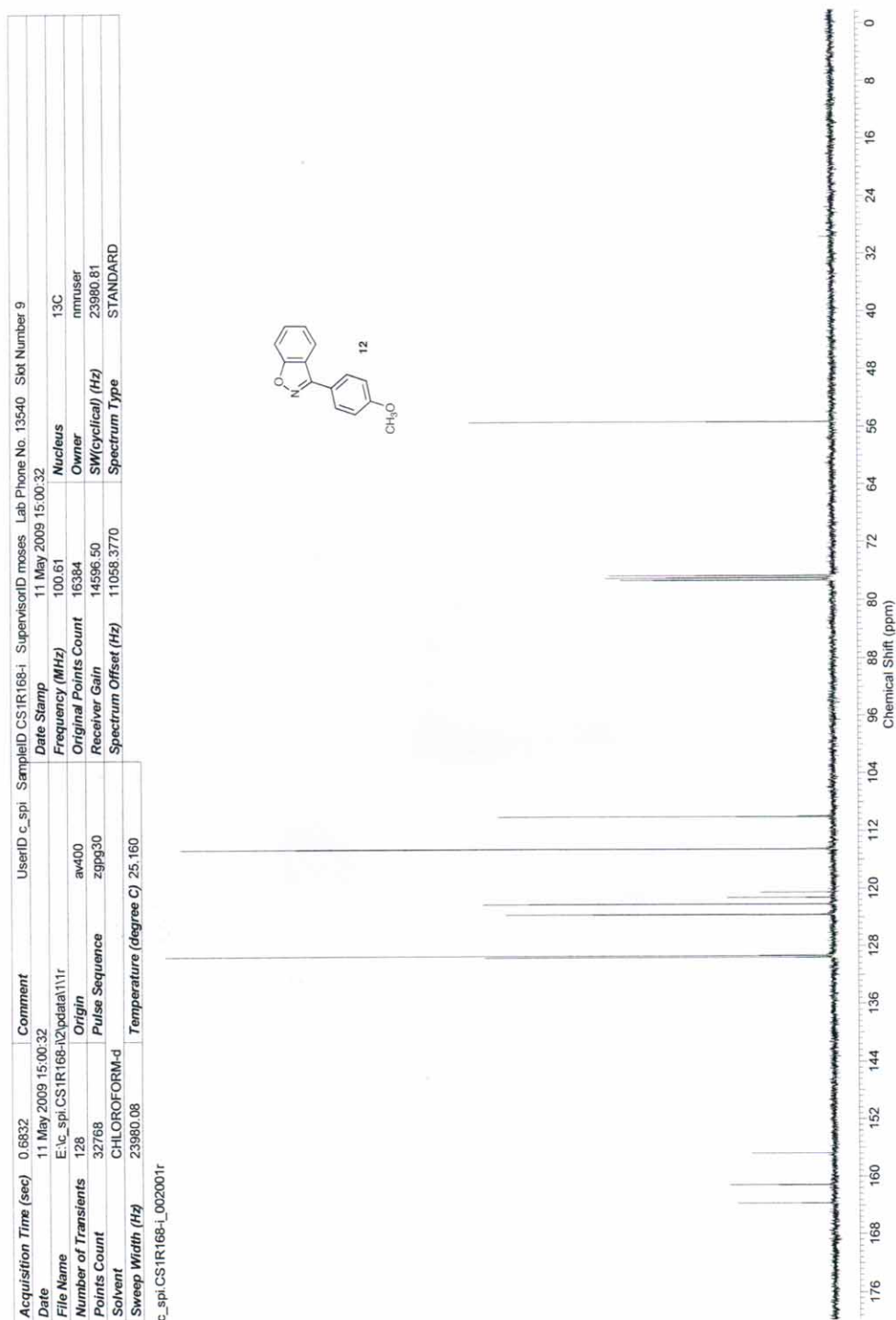
¹H NMR of 3-(4-Methoxyphenyl)-1,2-benzisoxazole (12) (Table 1, entry 2):

Acquisition Time (sec)	3.4210	Comment	UserID c_spi	SampleID CS1R168-I	SupervisorID moses	Lab Phone No. 13540	Slot Number 9
Date	11 May 2009 14:56:16						
File Name	E:\c_spi\CS1R168-I\1\data1\1r						
Number of Transients	16	Origin	av400	Frequency (MHz)	400.13	Nucleus	¹ H
Points Count	32768	Pulse Sequence	zg30	Original Points Count	16384	Owner	intruder
Solvent	CHLOROFORM-d			Receiver Gain	71.80	SW (cyclical) (Hz)	4789.27
Sweep Width (Hz)	4789.13	Temperature (degree C)	25.160	Spectrum Offset (Hz)	2195.3335	Spectrum Type	STANDARD

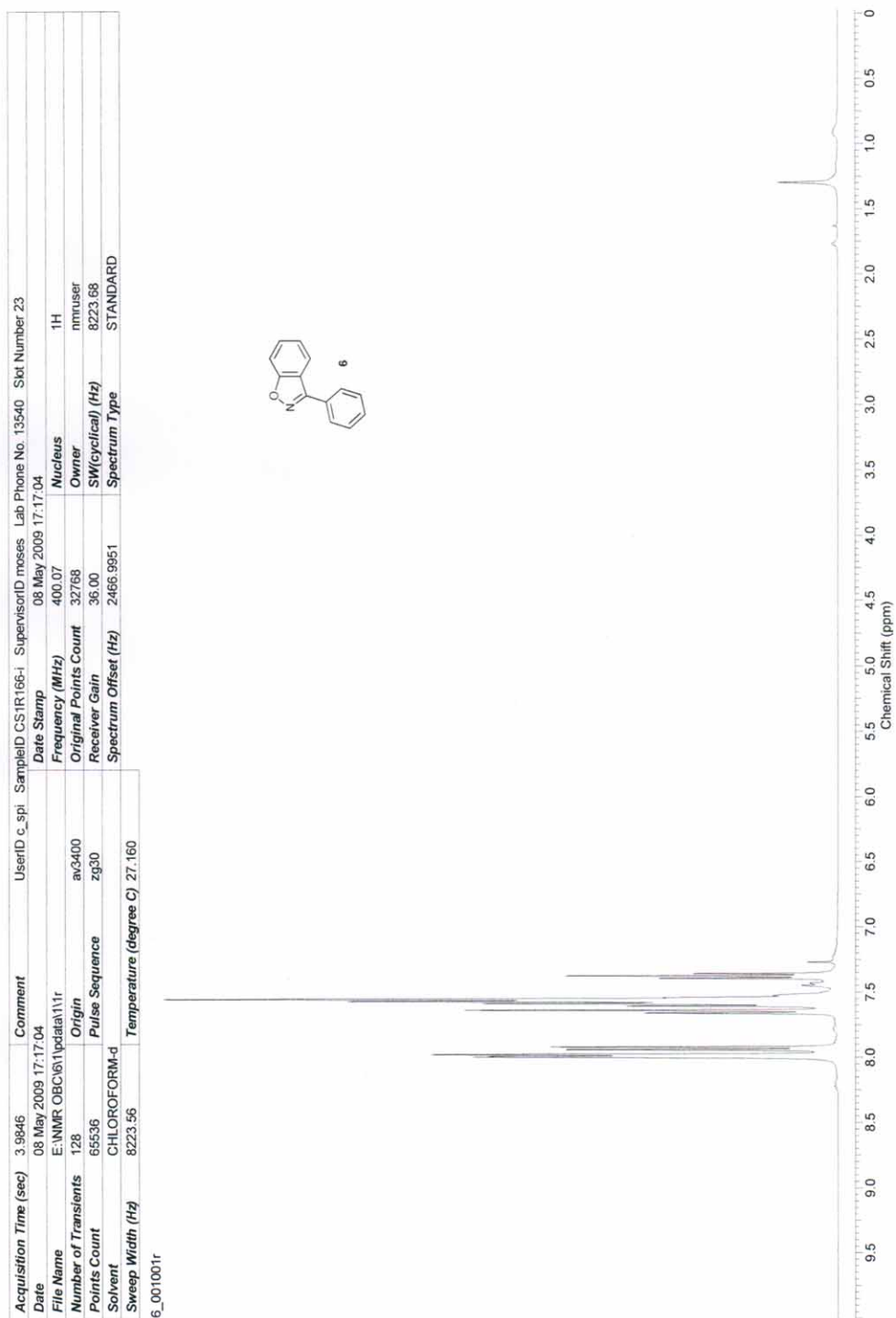
c_spi\CS1R168-I_001001r



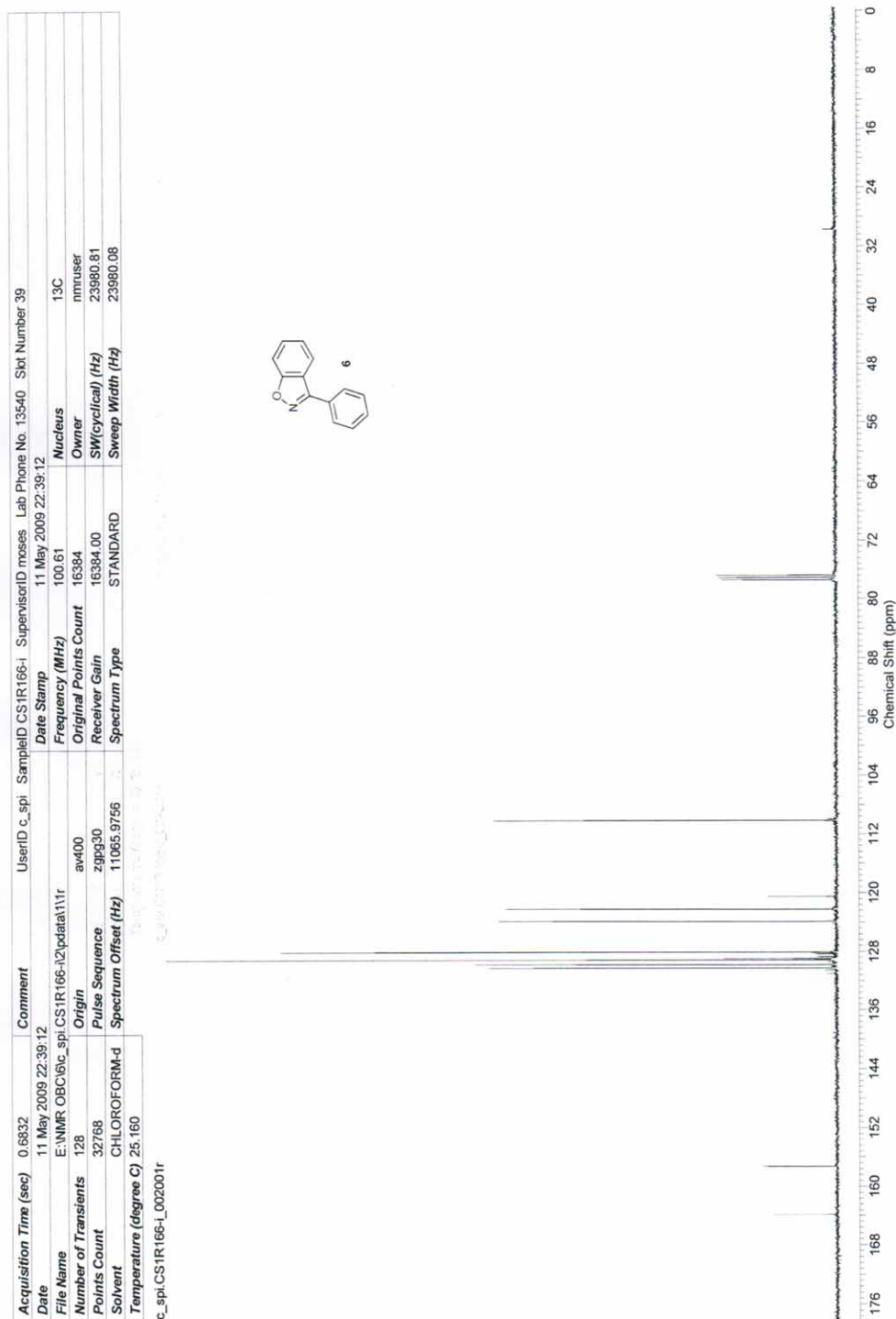
¹³C NMR of 3-(4-Methoxyphenyl)-1,2-benzisoxazole (12) (Table 1, entry 2):



¹H NMR of 3-(Phenyl)-1,2-benzisoxazole (6) (Table 2, entry 10):



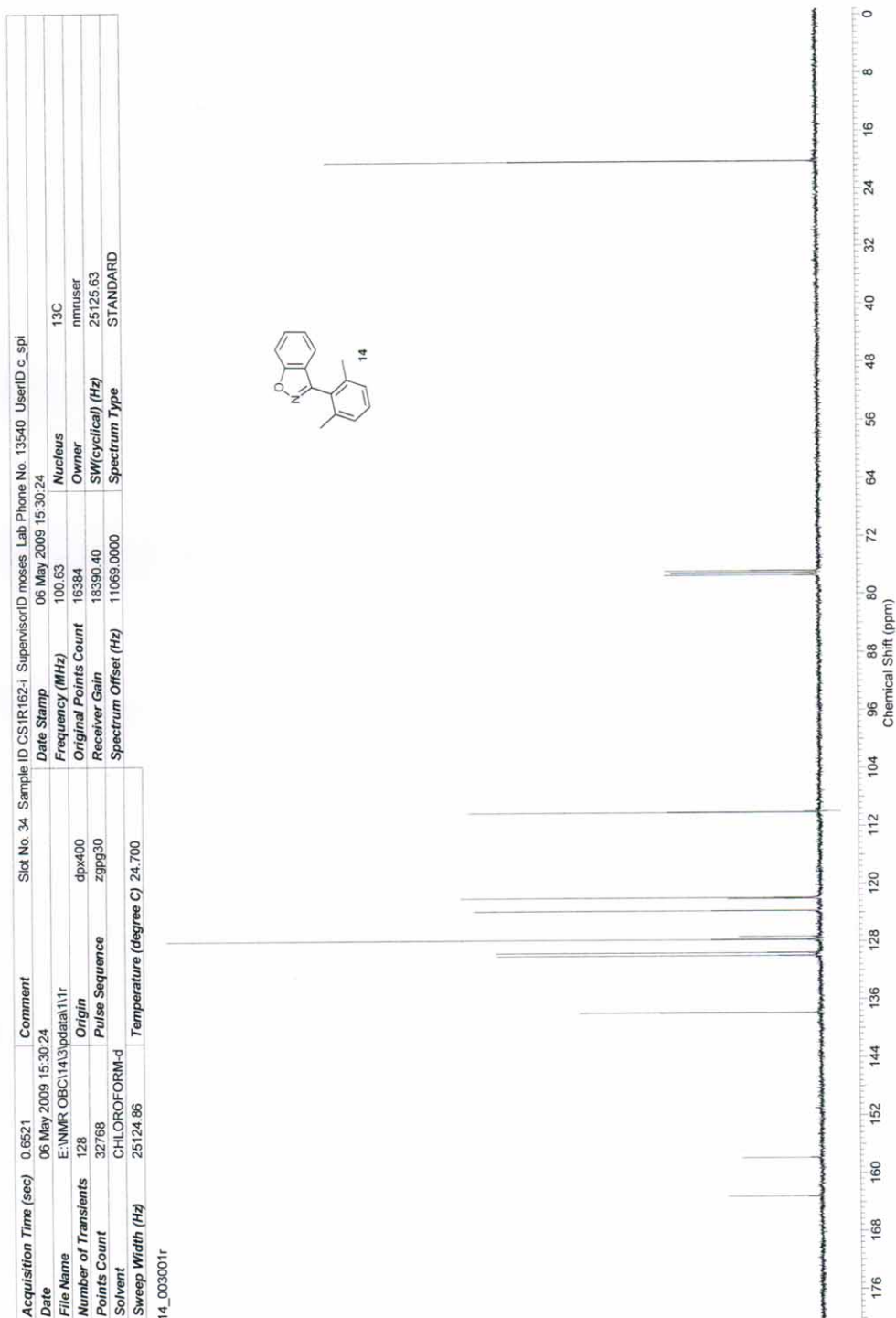
¹³C NMR of 3-(Phenyl)-1,2-benzisoxazole (6) (Table 2, entry 10):



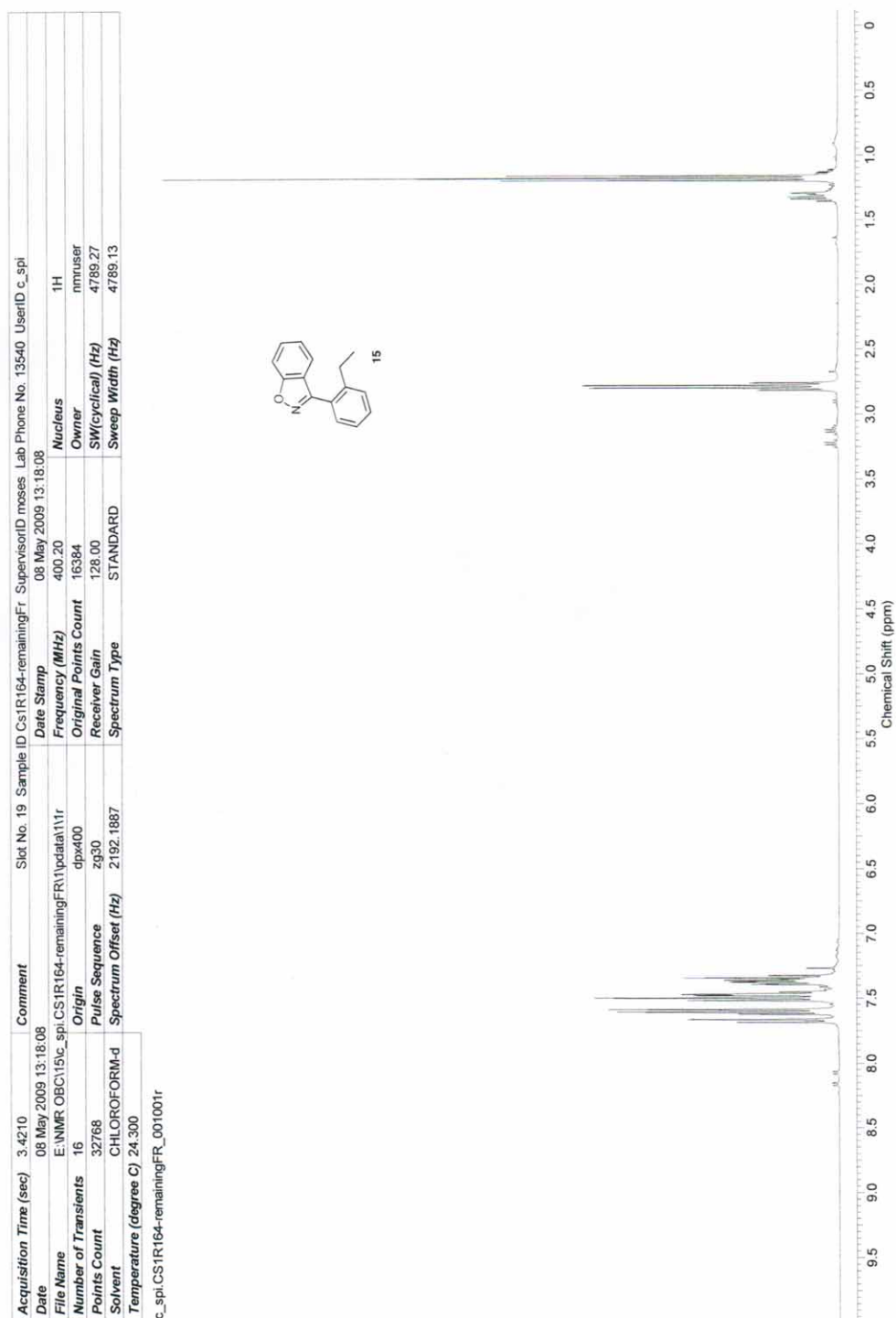
¹H NMR of 3-(2,6-Dimethylphenyl)-1,2-benzisoxazole (14) (Table 2, entry 1):

Acquisition Time (sec)	3.4210	Comment	Slot No. 34	Sample ID CS-IR162-I	Supervisord moses	Lab Phone No. 13540	UserID c_spi
Date	06 May 2009 15:26:08				06 May 2009 15:26:08		
File Name	E:\NMR_OBC\141\tpdata\11r						
Number of Transients	128	Origin	dpx400	Frequency (MHz)	400.20	Nucleus	1H
Points Count	32768	Pulse Sequence	zg30	Original Points Count	16384	Owner	nmruser
Solvent	CHLOROFORM-d			Receiver Gain	101.60	SW(cyclical) (Hz)	4789.27
Sweep Width (Hz)	4789.13			Spectrum Offset (Hz)	2201.1008	Spectrum Type	STANDARD

¹³C NMR of 3-(2,6-Dimethylphenyl)-1,2-benzisoxazole (14) (Table 2, entry 1):

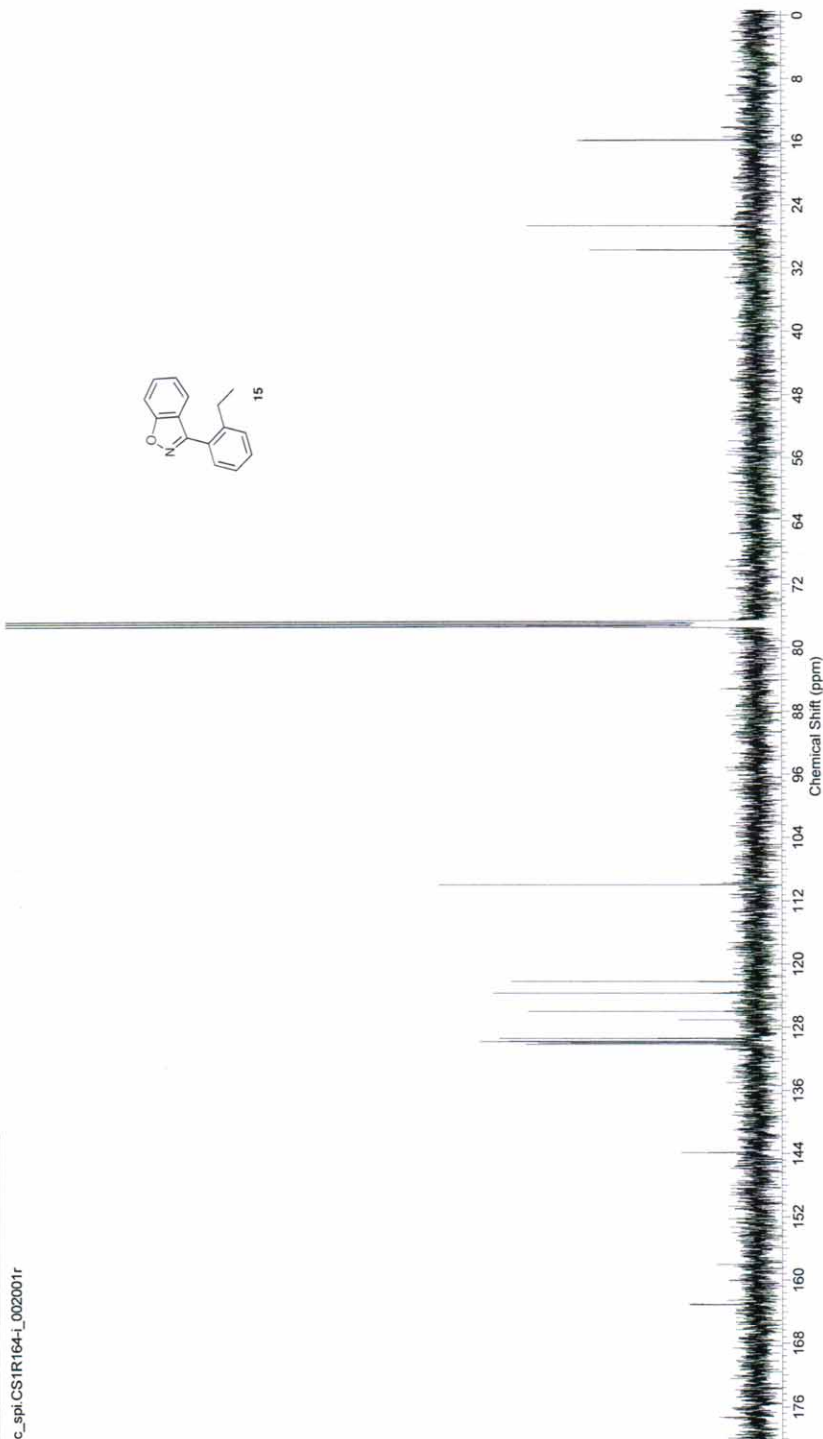


¹H NMR of 3-(2-Ethylphenyl)-1,2-benzisoxazole (15) (Table 2, entry 2):



¹³C NMR of 3-(2-Ethylphenyl)-1,2-benzisoxazole (15) (Table 2, entry 2):

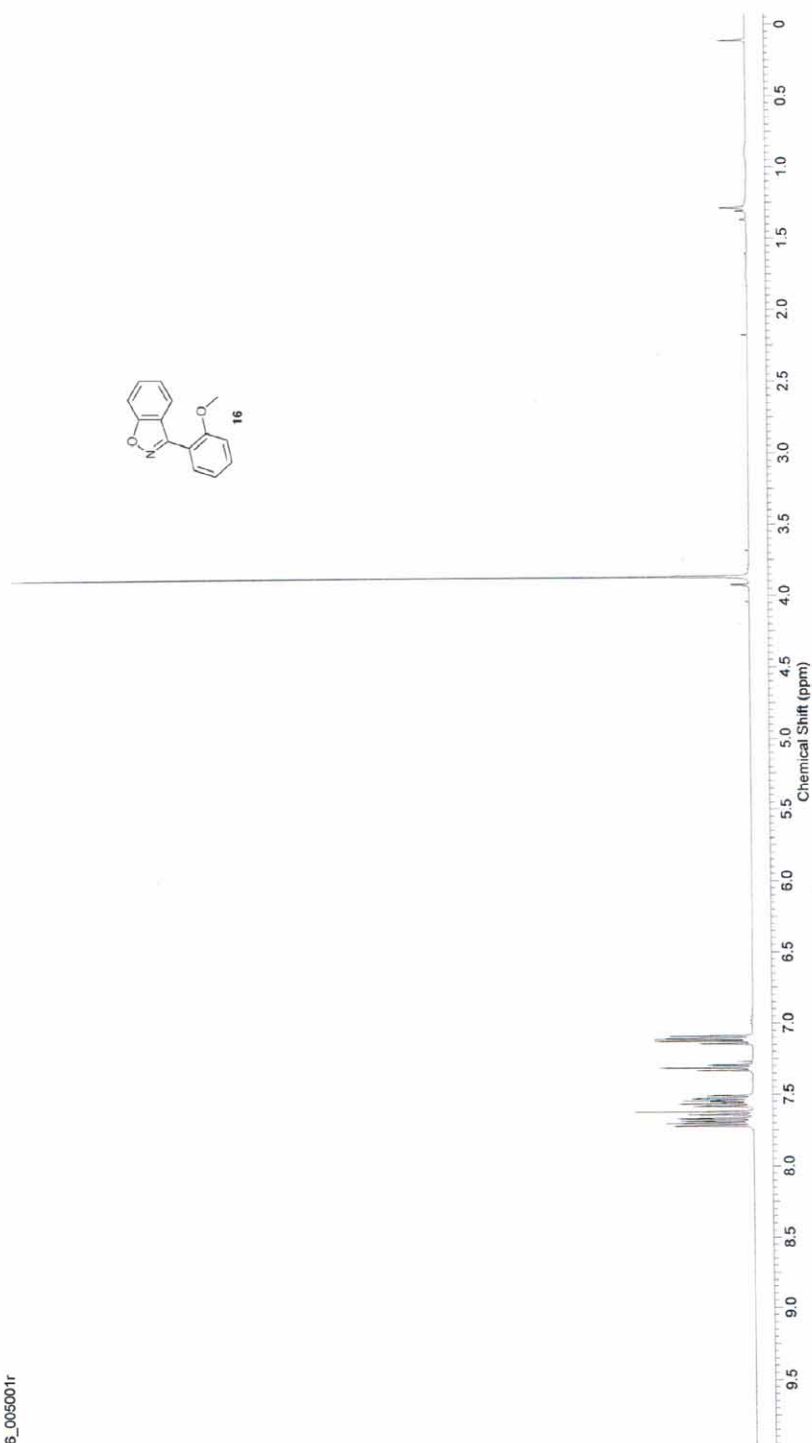
Acquisition Time (sec)	0.6521	Comment	08 May 2009 04:01:20	SupervisorID	CS1R164-I	Lab Phone No.	13540	Slot Number	54
Date	08 May 2009 04:01:20	File Name	E:\15c_spi\CS1R164-I\2\data\11r	Date Stamp	08 May 2009 04:01:20	Nucleus	13C		
Number of Transients	4096	Points Count	32768	Original Points Count	16384	Owner	nmruser		
Points Count	32768	Pulse Sequence	zgpg30	Receiver Gain	23170.50	SW(cyclical) (Hz)	25125.63		
Solvent	CHLOROFORM-d	Spectrum Offset (Hz)	11064.6279	Spectrum Type	STANDARD	Sweep Width (Hz)	25124.86		
Temperature (degree C)	25.160								



¹H NMR of 3-(2-Methoxyphenyl)-1,2-benzisoxazole (16) (Table 2, entry 3):

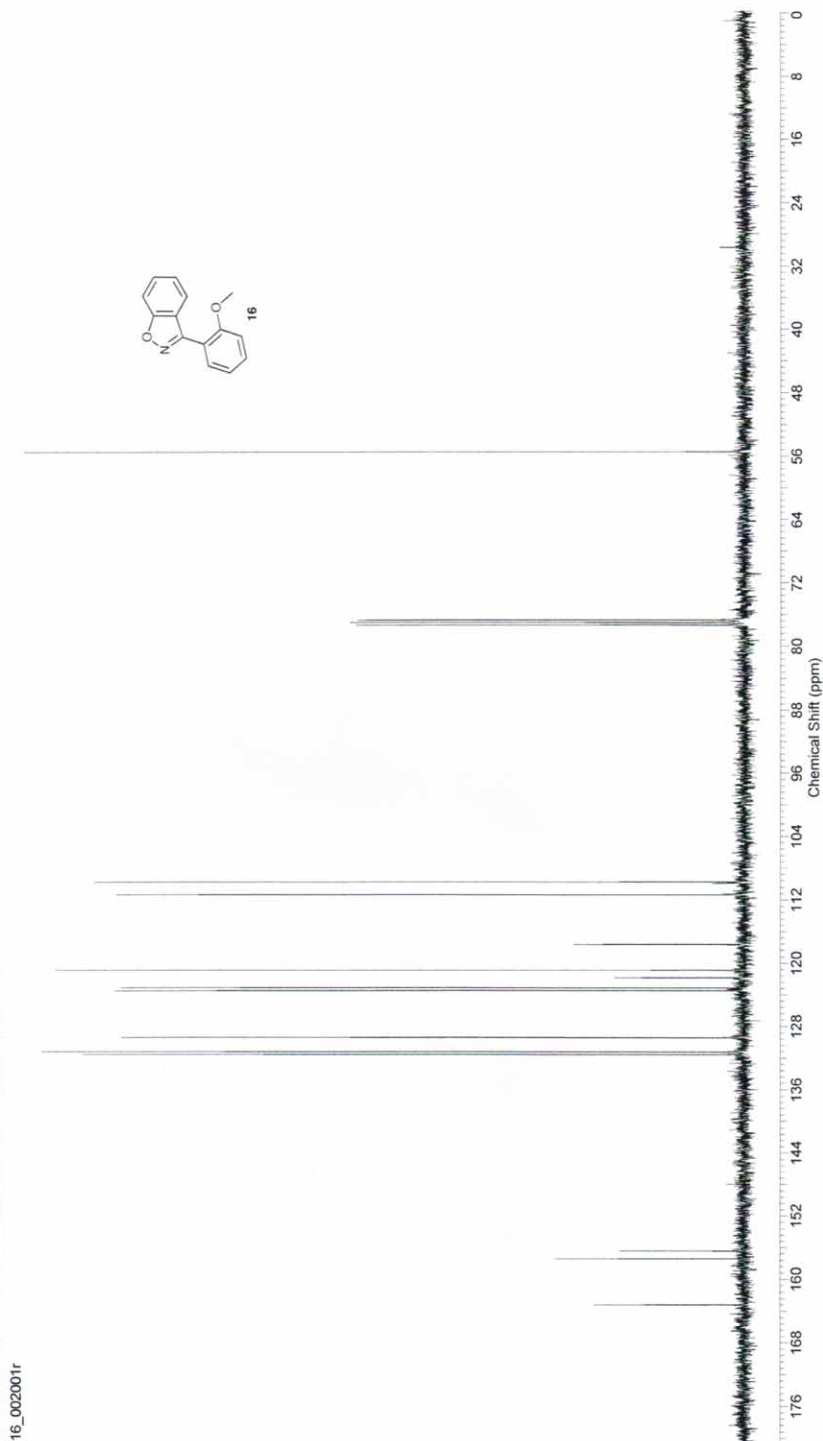
Acquisition Time (sec)	3.4210	Comment	UserID c_spi	SampleID CS-IR-186-F1	SupervisorID roses	Lab Phone No. 13540	Slot Number 43
Date	08 Jun 2009 13:45:52						
File Name	E:\NMR OBC\16\5\data\11r	Origin	av400	Frequency (MHz)	400.13	Nucleus	¹ H
Number of Transients	16	Pulse Sequence	zg30	Original Points Count	16384	Owner	nimuser
Points Count	32768			Receiver Gain	71.80	SW(cyclical) (Hz)	4789.27
Solvent	CHLOROFORM-d			Spectrum Offset (Hz)	2195.3335	Spectrum Type	STANDARD
Sweep Width (Hz)	4789.13	Temperature (degree C)	25.160				

16_005001r

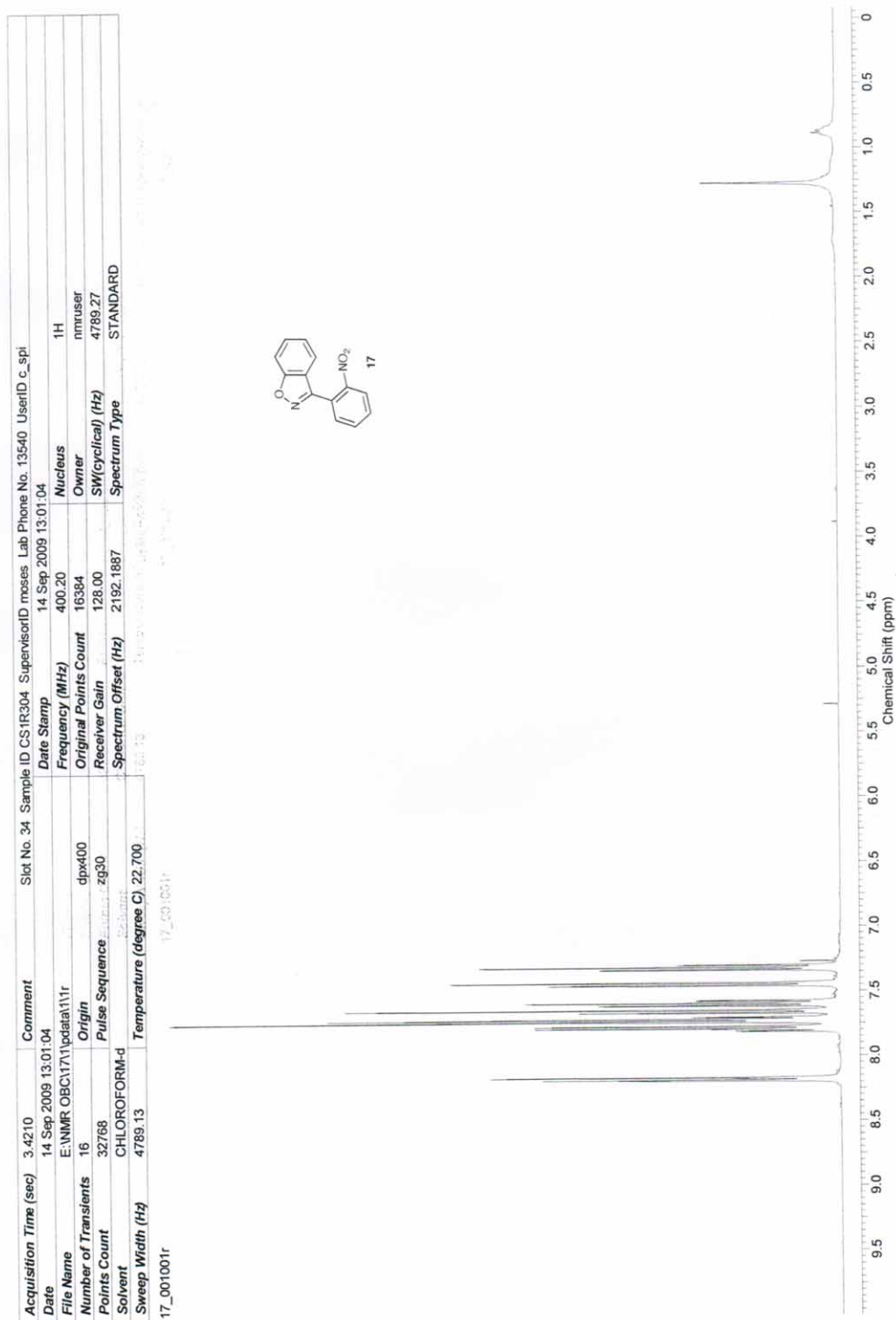


¹³C NMR of 3-(2-Methoxyphenyl)-1,2-benzisoxazole (16) (Table 2, entry 3):

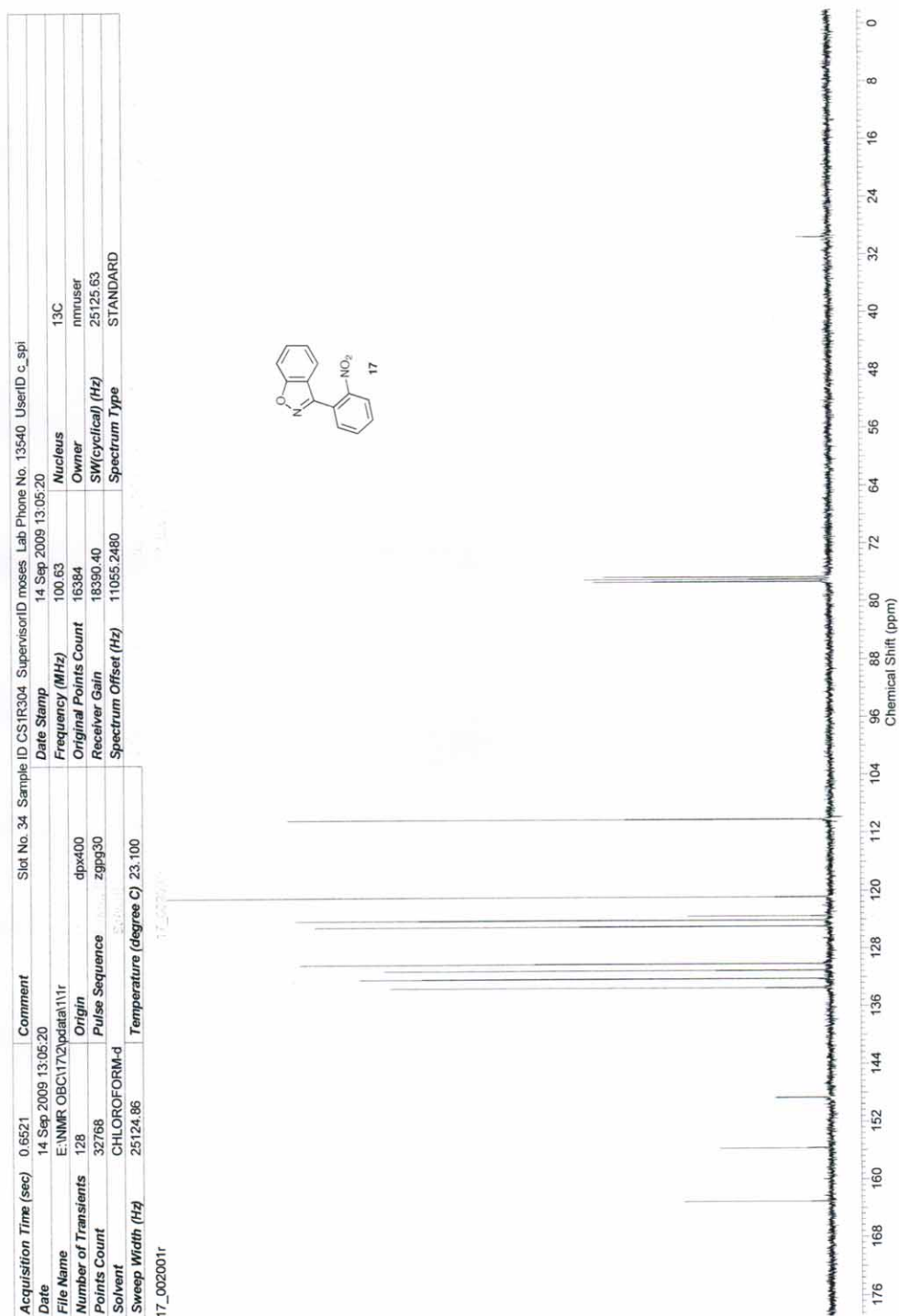
Acquisition Time (sec)	0.6832	Comment	UserID c_spl	SampleID CS1R186-F1	SupervisorID moses	Lab Phone No. 13540	Std Number 43
Date	08 Jun 2009 13:35:12						
File Name	E:\16\2\data1\1r						
Number of Transients	128	Origin	av400	Frequency (MHz)	100.61	Nucleus	13C
Points Count	32768	Pulse Sequence	zgpg30	Original Points Count	16384	Owner	intruder
Solvent	CHLOROFORM-d			Receiver Gain	20642.50	SW (cyclical) (Hz)	23980.81
Sweep Width (Hz)	23980.08	Temperature (degree C)	25.160	Spectrum Offset (Hz)	11057.6455	Spectrum Type	STANDARD



¹H NMR of 3-(2-Nitrophenyl)-1,2-benzisoxazole (17) (Table 2, entry 4):



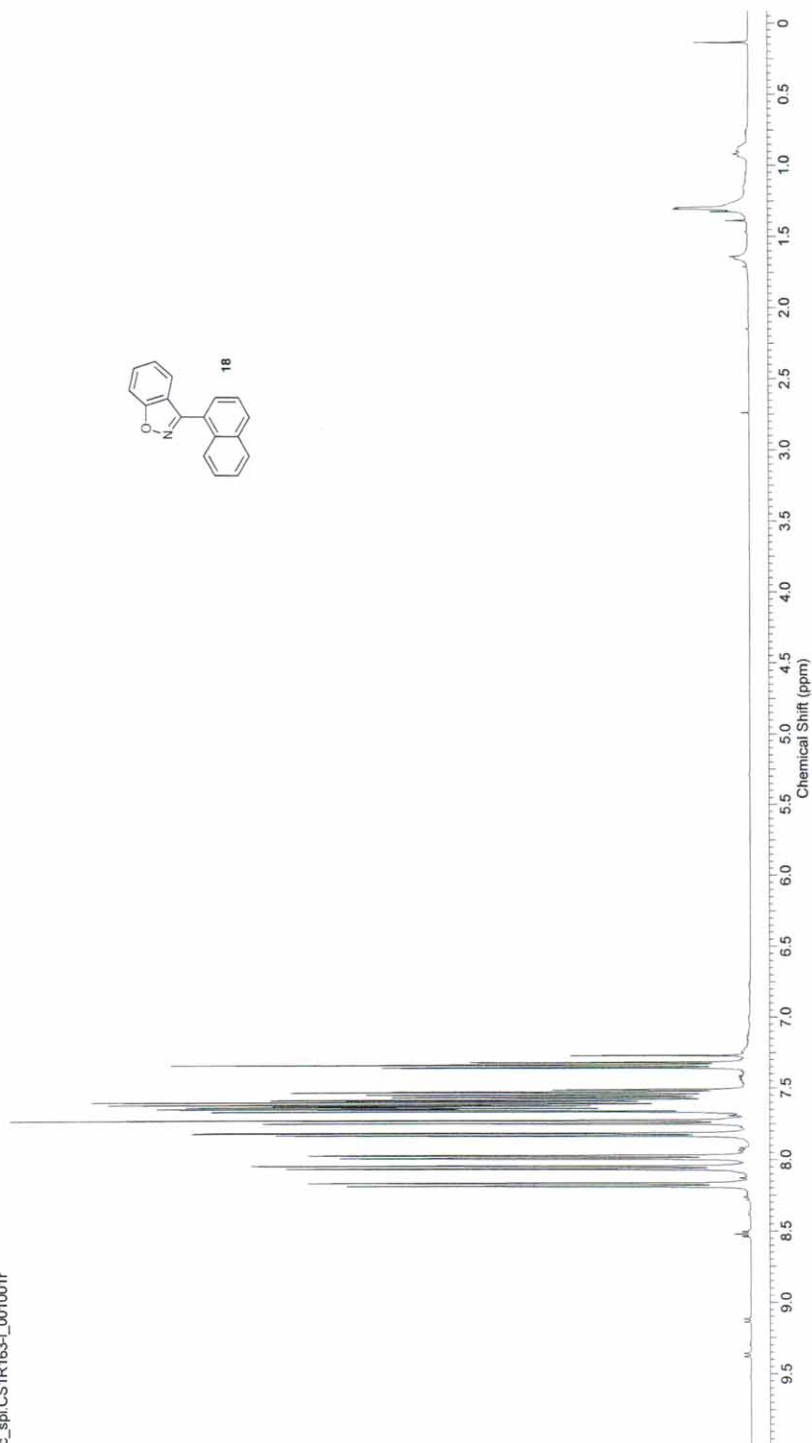
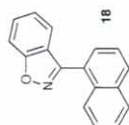
¹³C NMR of 3-(2-Nitrophenyl)-1,2-benzisoxazole (17) (Table 2, entry 4):



¹H NMR of 3-(1-Naphthalen)-1,2-benzisoxazole (18) (Table 2, entry 5):

Acquisition Time (sec)	3.4210	Comment	UserID c_spl	SampleID Cs1R163-i	SupervisorID moses	Lab Phone No. 13540	Std Number 37
Date	07 May 2009 14:47:44			Date Stamp	07 May 2009 14:47:44		
File Name	E:\c_spl.CS1R163-i\data1\11r			Frequency (MHz)	400.13	Nucleus	¹ H
Number of Transients	16	Origin	av400	Original Points Count	16384	Owner	nmuser
Points Count	32768	Pulse Sequence	zg30	Receiver Gain	71.80	SW(cyclical) (Hz)	4789.27
Solvent	CHLOROFORM-d			Spectrum Offset (Hz)	2195.3335	Spectrum Type	STANDARD
Sweep Width (Hz)	4789.13	Temperature (degree C)	25.160				

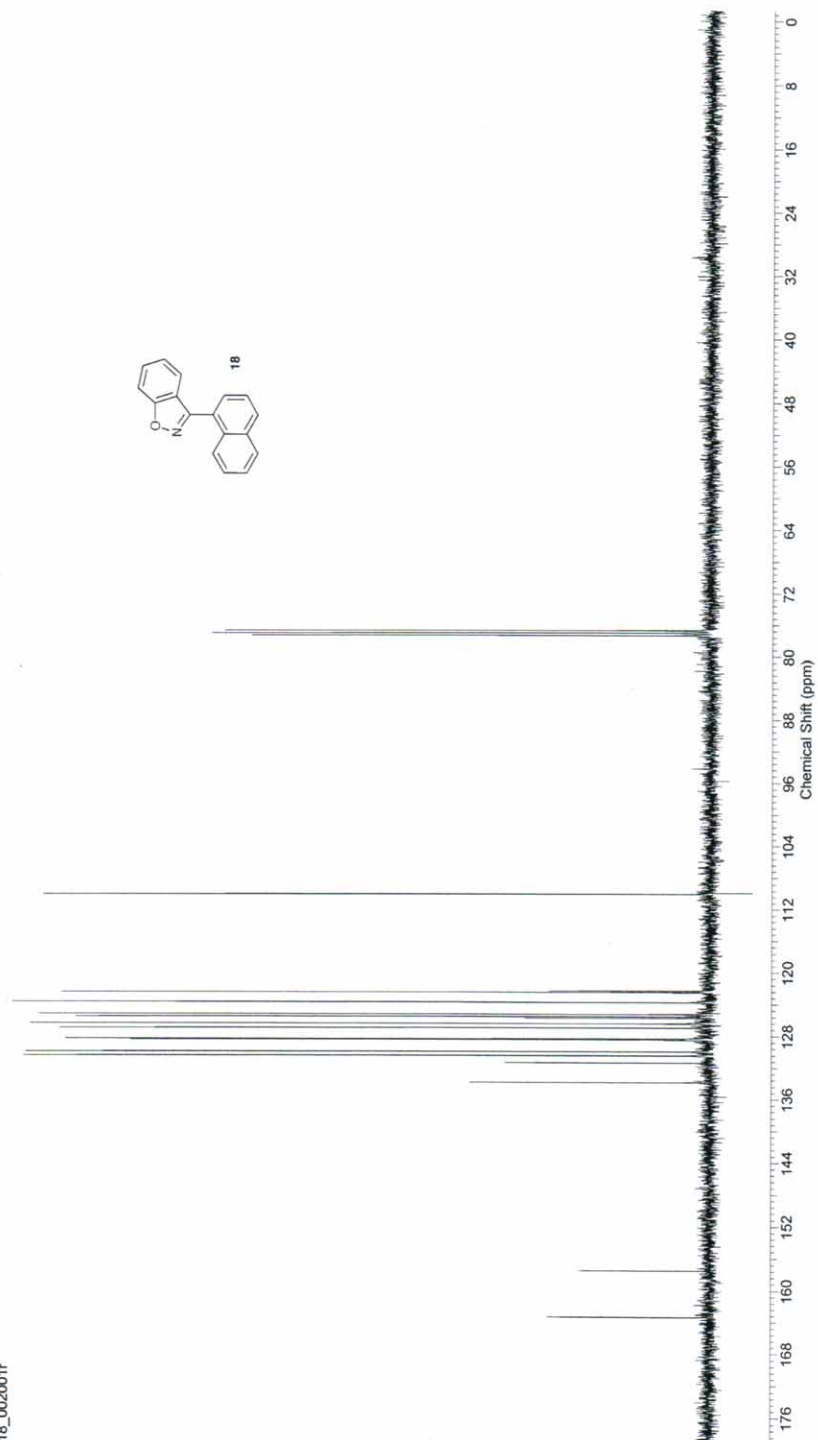
c_spl.CS1R163-i_001001r



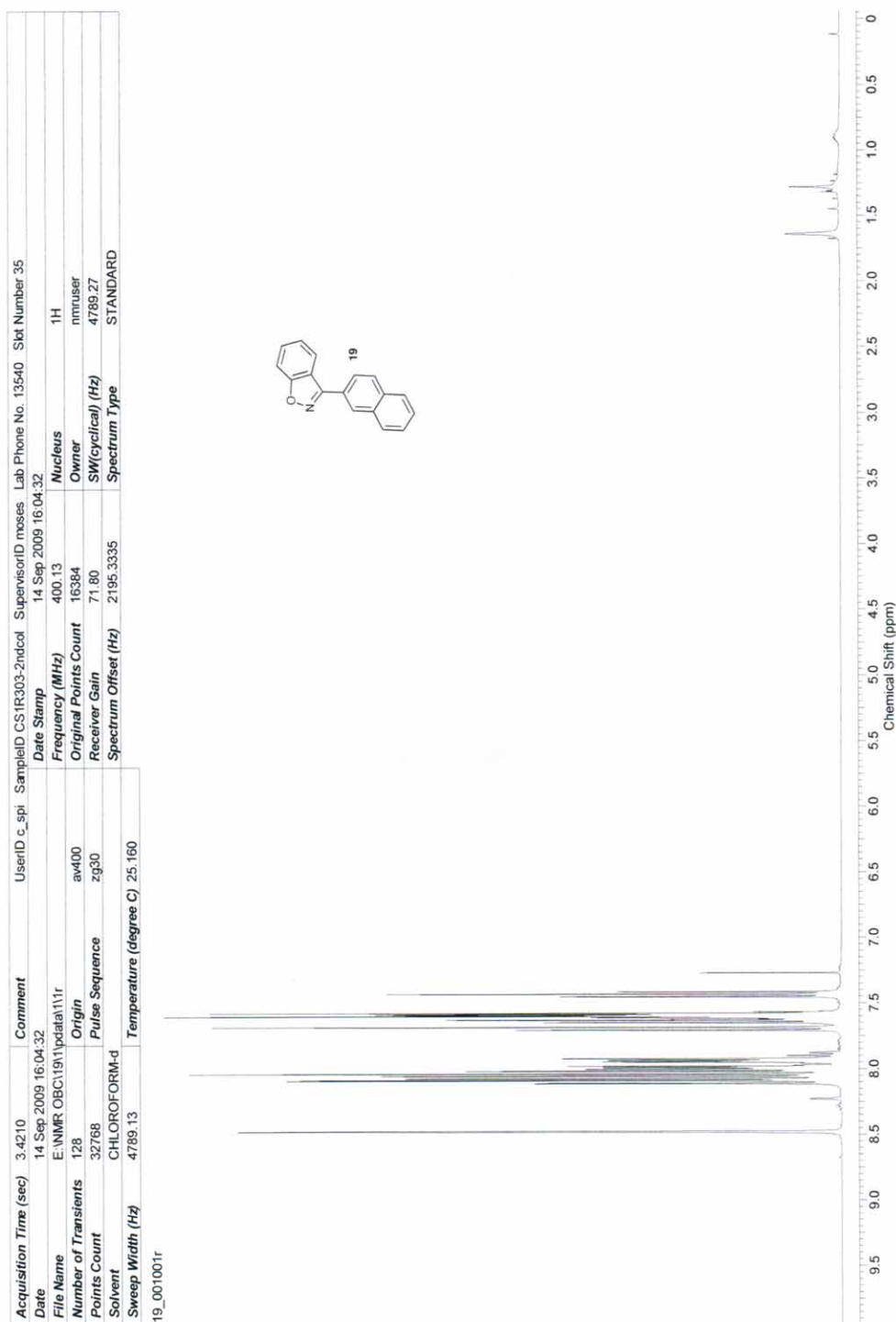
¹³C NMR of 3-(1-Naphthalen)-1,2-benzisoxazole (18) (Table 2, entry 5):

Acquisition Time (sec)	0.6832	Comment	UserID c_spi SampleID Cs1R163-I SupervisorID moses Lab Phone No. 13540 Sbl Number 37
Date	07 May 2009 14:52:00		
File Name	E:\NMR_OBC\18\2\data\11r	Date Stamp	07 May 2009 14:52:00
Number of Transients	128	Frequency (MHz)	100.61
Points Count	32768	Original Points Count	16384
Solvent	CHLOROFORM-d	Receiver Gain	18390.40
Sweep Width (Hz)	23980.08	Spectrum Offset (Hz)	11056.9131
		Temperature (degree C)	25.160
		Nucleus	13C
		Owner	intruser
		SW(cyclical) (Hz)	23980.81
		Spectrum Type	STANDARD

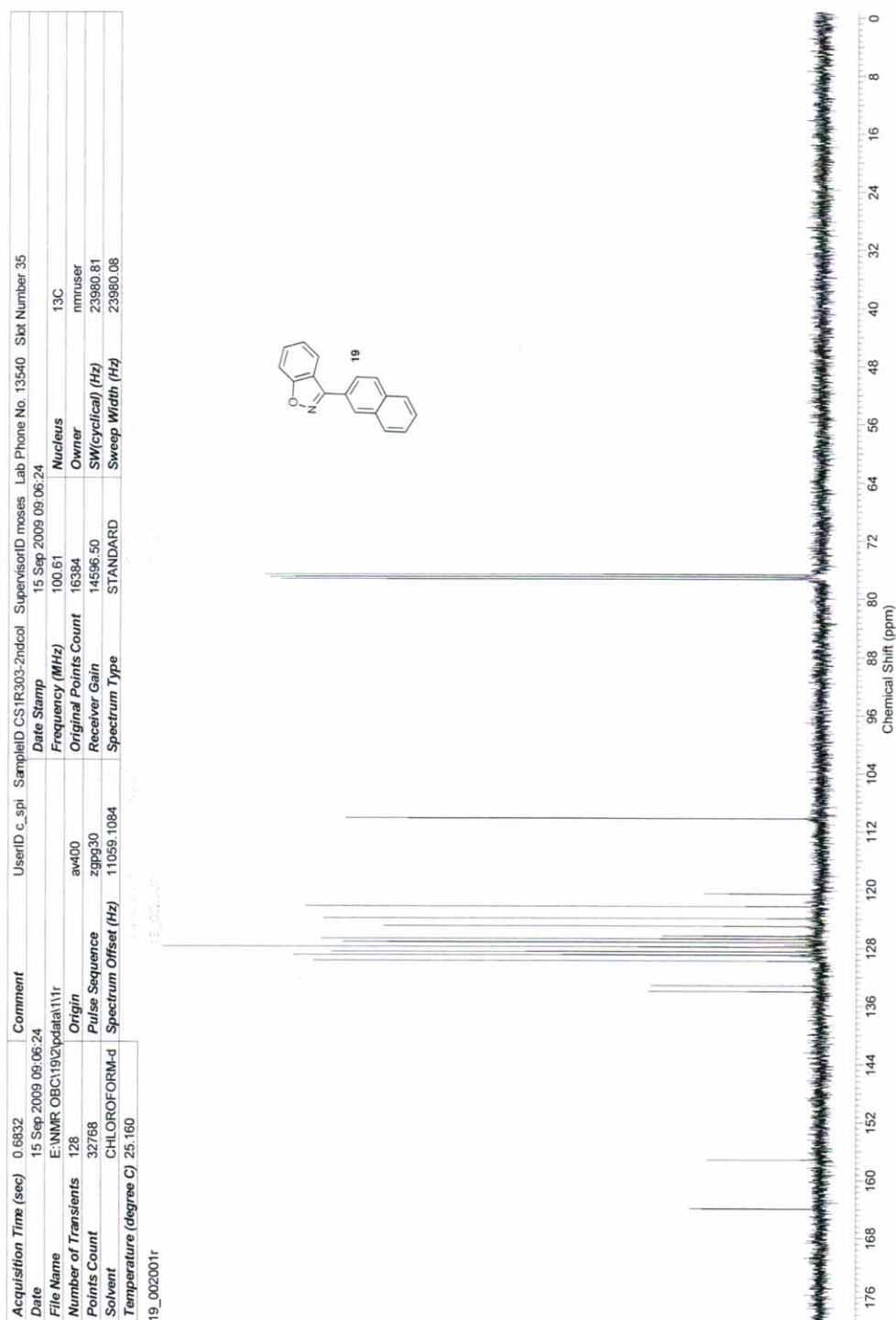
18_002001r



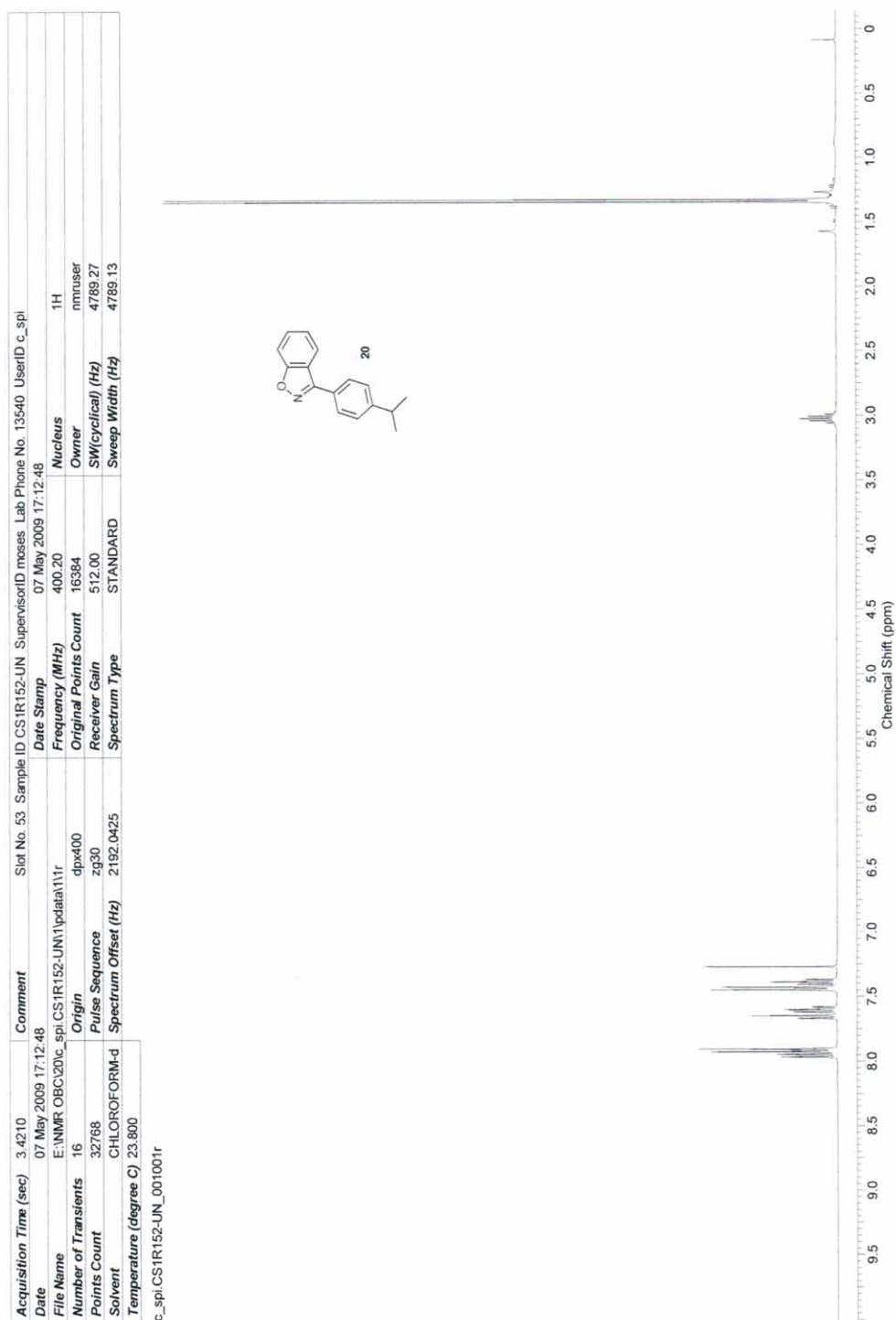
¹H NMR of 3-(2-Naphthalen)-1,2-benzisoxazole (19) (Table 2, entry 6):



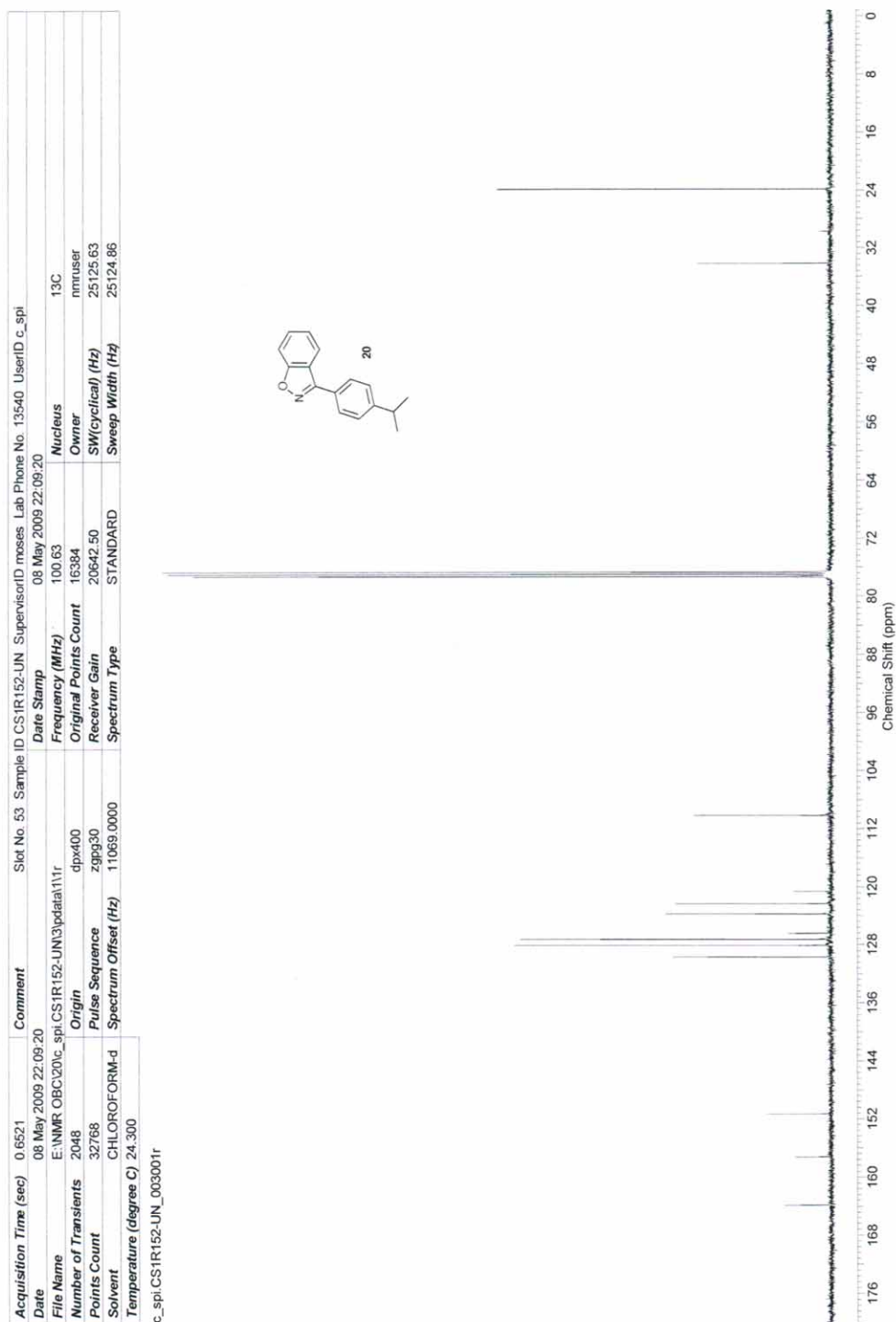
¹³C NMR of 3-(2-Naphthalen)-1,2-benzisoxazole (19) (Table 2, entry 6):



¹H NMR of 3-(4-Isopropylphenyl)-1,2-benzisoxazole (17) (Table 2, entry 7):



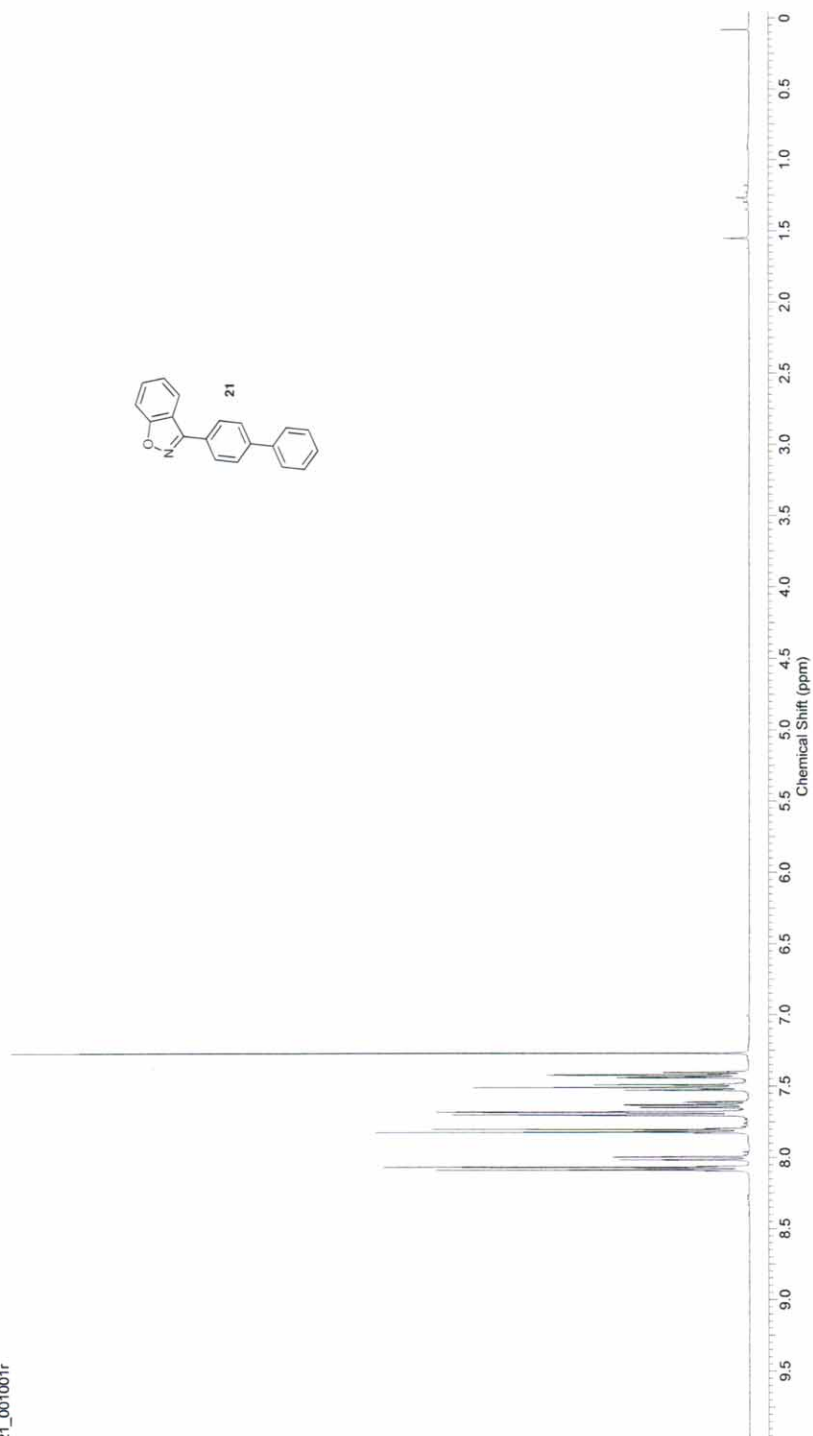
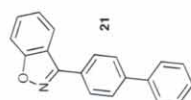
¹³C NMR of 3-(4-Isopropylphenyl)-1,2-benzisoxazole (20) (Table 2, entry 7):



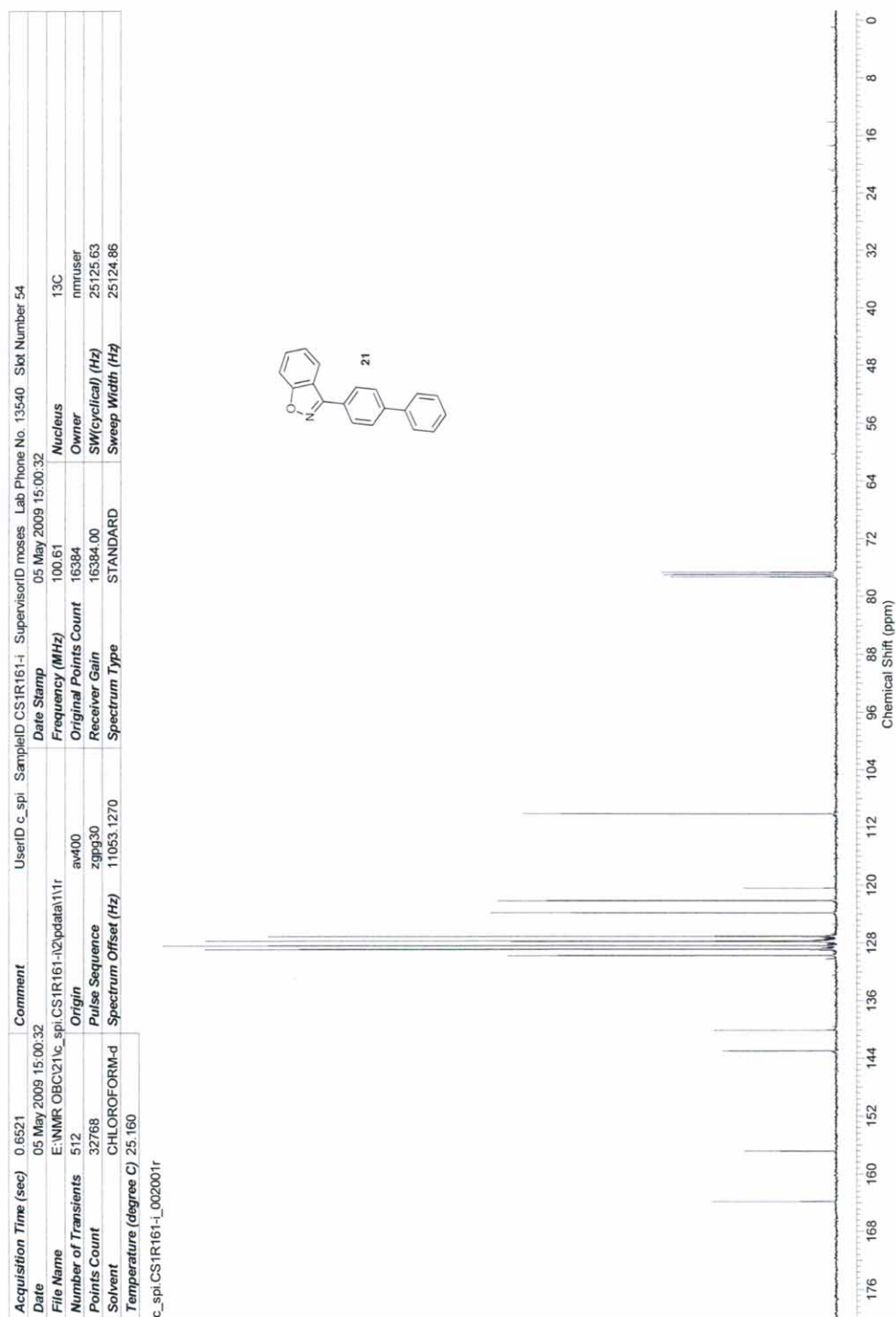
¹H NMR of 3-(4-Biphenyl)-1,2-benzisoxazole (21) (Table 2, entry 8):

Acquisition Time (sec)	3.4210	Comment	UserID c_spi	SampleID CS1R161-vac	SupervisorID mosses	Lab Phone No. 13540	Slot Number 5
Date	08 May 2009 15:32:32			Date Stamp	08 May 2009 15:32:32		
File Name	E:\NMR_OBC2\1\update\11r			Frequency (MHz)	400.13	Nucleus	¹ H
Number of Transients	16	Origin	av400	Original Points Count	16384	Owner	nmruser
Points Count	32768	Pulse Sequence	zg30	Receiver Gain	362.00	SW (cycles) (Hz)	4789.27
Solvent	CHLOROFORM-d			Spectrum Offset (Hz)	2195.1875	Spectrum Type	STANDARD
Sweep Width (Hz)	4789.13	Temperature (degree C)	25.160				

21_001001r



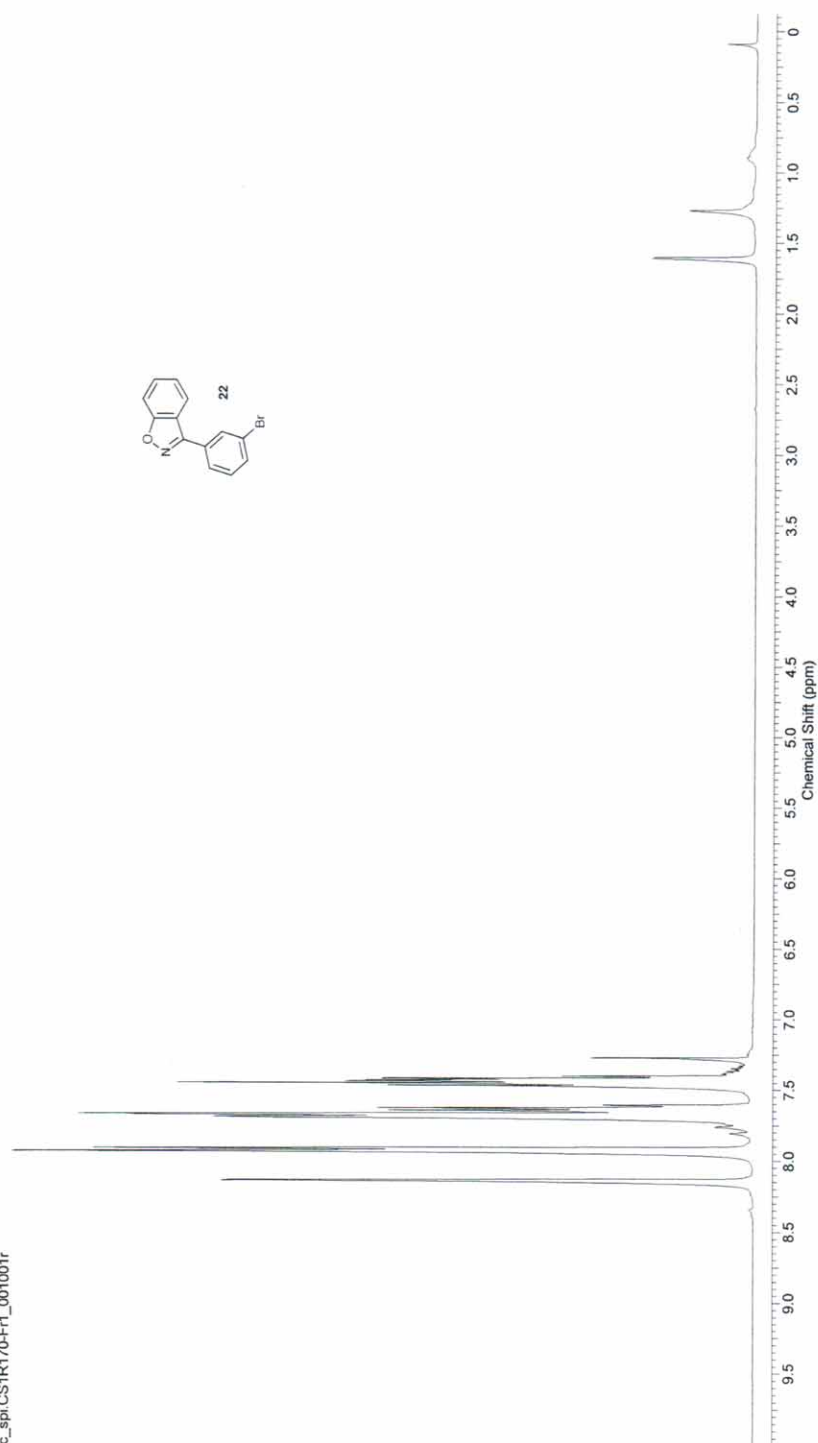
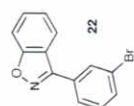
¹³C NMR of 3-(4-Biphenyl)-1,2-benzisoxazole (21) (Table 2, entry 8):



¹H NMR of 3-(3-Bromophenyl)-1,2-benzisoxazole (22) (Table 2, entry 9):

Acquisition Time (sec)	3.4210	Comment	UserID c_spl	SampleID CS1R170-Fr1	SupervisorID moses	Lab Phone No. 13540	Slot Number 34
Date	13 May 2009 08:00:16			Date Stamp	13 May 2009 08:00:16		
File Name	E:\NMR OBC\22\c_spl\CS1R170-Fr1\1\data\11r	Origin	av400	Frequency (MHz)	400.13	Nucleus	¹ H
Number of Transients	128	Pulse Sequence	zg30	Original Points Count	16384	Owner	nmruser
Points Count	32768	Spectrum Offset (Hz)	2196.3567	Receiver Gain	128.00	SW(cyclical) (Hz)	4789.27
Solvent	CHLOROFORM-d			Spectrum Type	STANDARD	Sweep Width (Hz)	4789.13
Temperature (degree C)	25.160						

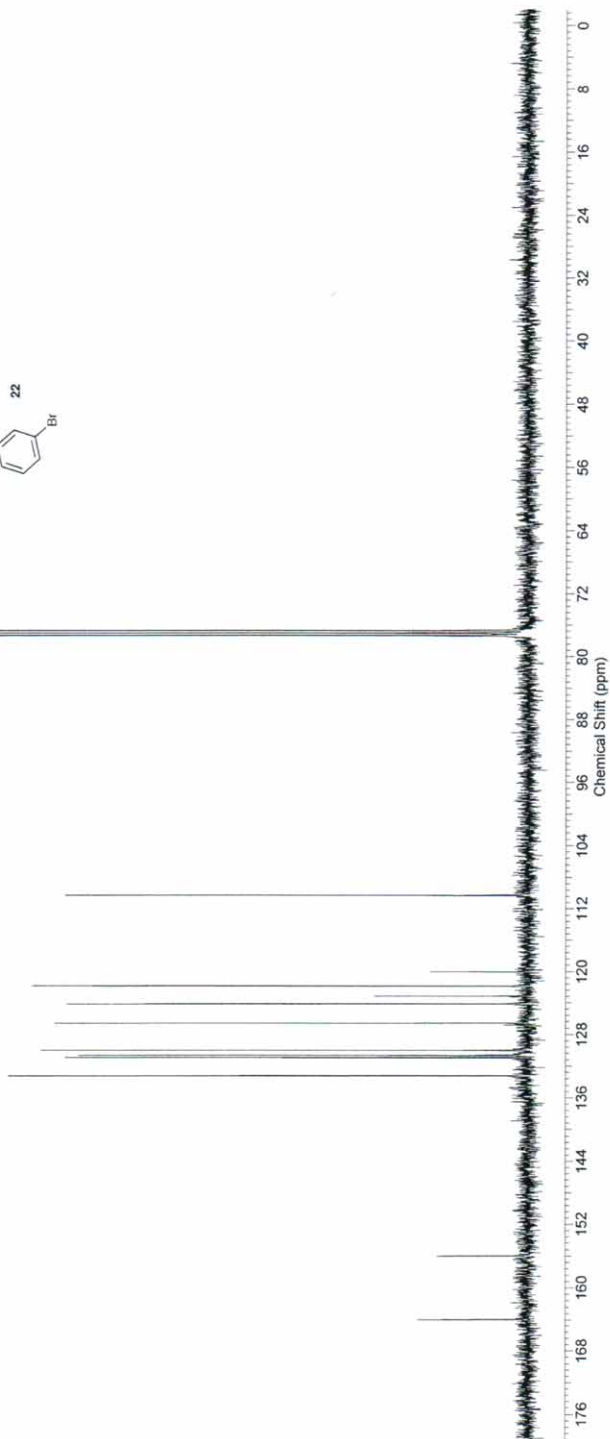
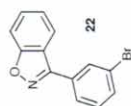
c_spl\CS1R170-Fr1_001001r



¹³C NMR of 3-(3-Bromophenyl)-1,2-benzisoxazole (22) (Table 2, entry 9):

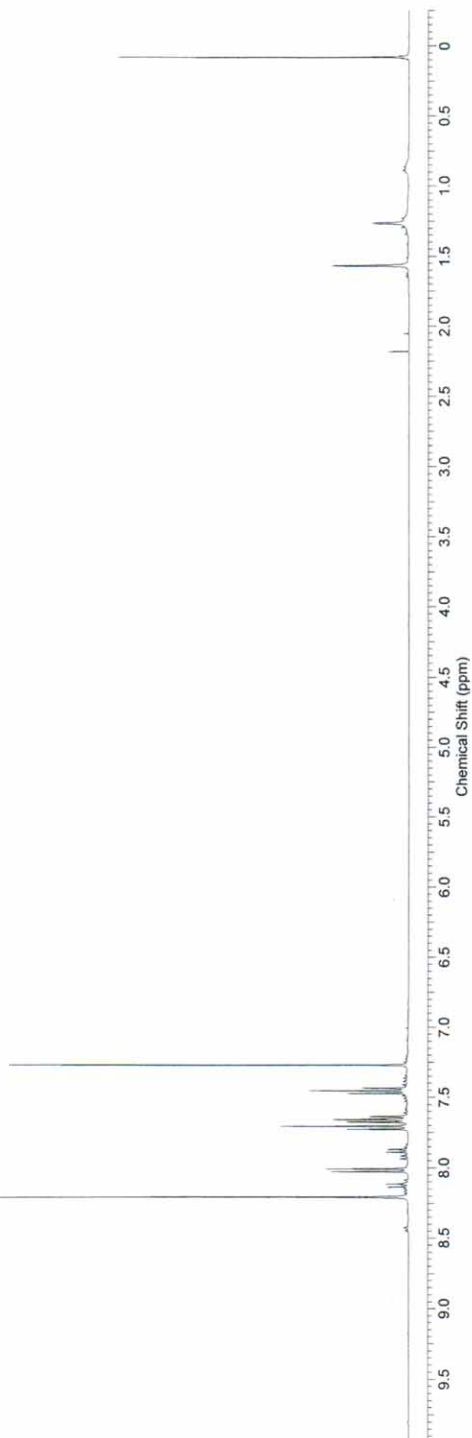
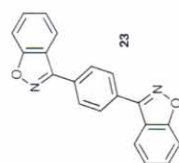
Acquisition Time (sec)	0.6521	Comment	UserID c_spi	SampleID CS1R170-Fr1	SupervisorID moses	Lab Phone No. 13540	Slot Number 34
Date	13 May 2009 08:17:20			Date Stamp	13 May 2009 08:17:20		
File Name	E:\NMR OBC\22\c_spi\CS1R170-Fr1\data111r			Frequency (MHz)	100.61	Nucleus	¹³ C
Number of Transients	512	Origin	av400	Original Points Count	16384	Owner	nmruser
Points Count	32768	Pulse Sequence	zgpg30	Receiver Gain	16384.00	SW(cyclical) (Hz)	25125.63
Solvent	CHLOROFORM-d	Spectrum Offset (Hz)	11061.5605	Spectrum Type	STANDARD	Sweep Width (Hz)	25124.86
Temperature (degree C)	25.160						

c_spi\CS1R170-Fr1_002001r



¹H NMR of 1,4-Bis-(1,2-benzisoxazole)benzene (23) (Table 2, entry 11):

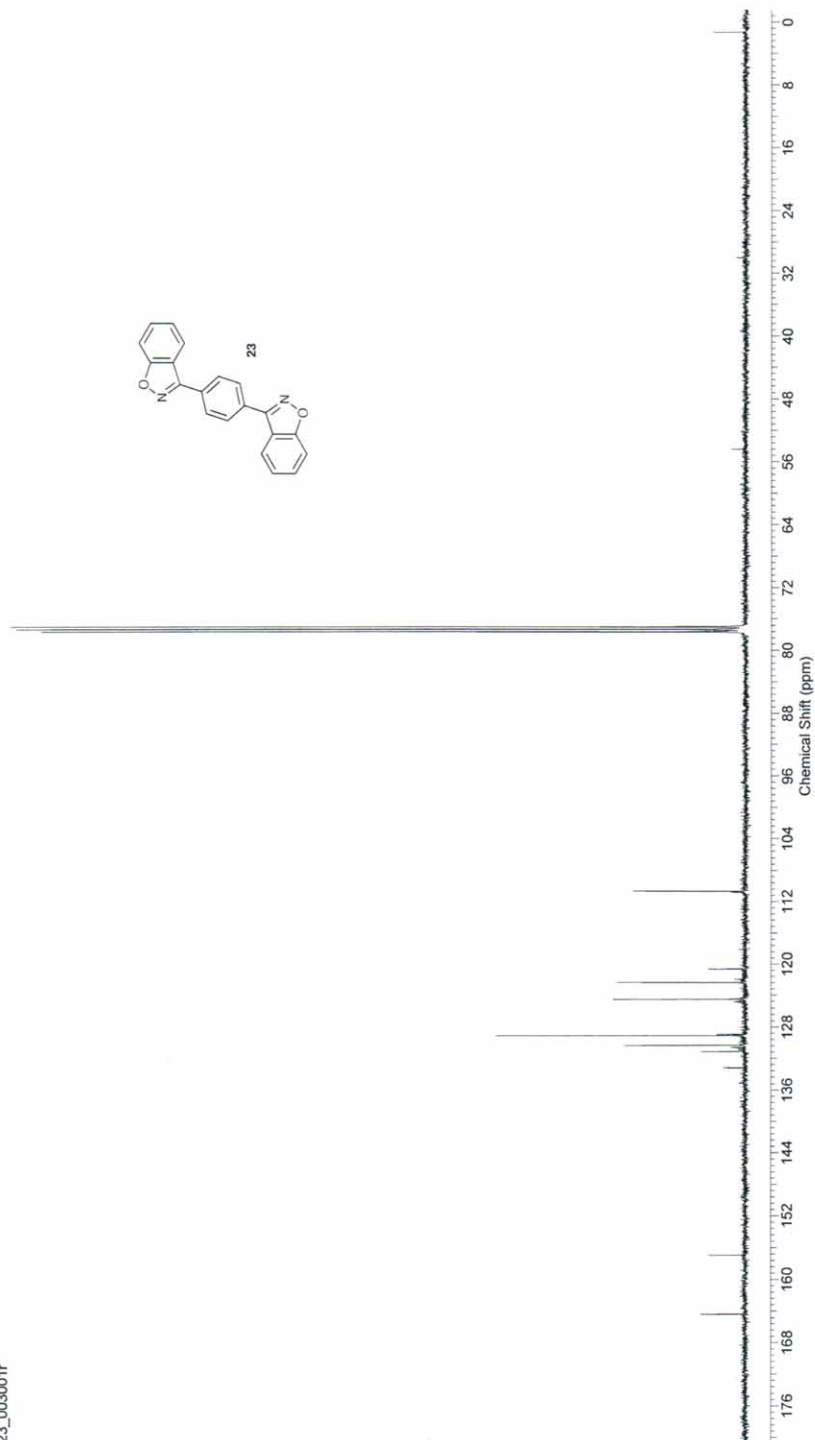
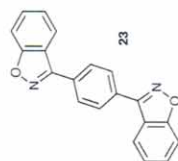
Date	Acquisition Time (sec)	Comment	UserID c_spi	SampleID CSIRI78-F2	SupervisorID moosej	Lab Phone No. 13540	Skt Number 31
27 May 2009 10:10:24	3.4210	E:\NMR OBC\231\data\11r			27 May 2009 10:10:24		
File Name					Frequency (MHz)	Nucleus	1H
Number of Transients	128	Origin	aw400		Original Points Count	16384	nmruser
Points Count	32768	Pulse Sequence	zg30		Receiver Gain	256.00	4789.27
Solvent					Spectrum Offset (Hz)	2195.1875	STANDARD
Sweep Width (Hz)		CHLOROFORM-d			Spectrum Type		
Sweep Width (Hz)	4789.13	Temperature (degrees C)	25.160				



¹³C NMR of 1,4-Bis-(1,2-benzisoxazole)benzene (23) (Table 2, entry 11):

Acquisition Time (sec)	0.6832	Comment	UserID c_spi	SampleID CS1R178-F2	SupervisorID moses	Lab Phone No. 13540	Slot Number 42
Date	02 Jun 2009 18:38:08			Date Stamp	02 Jun 2009 18:38:08		
File Name	E:\NMR OBC\23\3\data111r			Frequency (MHz)	100.61	Nucleus	¹³ C
Number of Transients	2048	Origin		Original Points Count	16384	Owner	nmruser
Points Count	32768	Pulse Sequence	zgpg30	Receiver Gain	11585.20	SW(cyclical) (Hz)	23980.81
Solvent	CHLOROFORM-d			Spectrum Offset (Hz)	11095.7002	Spectrum Type	STANDARD
Sweep Width (Hz)	23980.08	Temperature (degree C)	26.160				

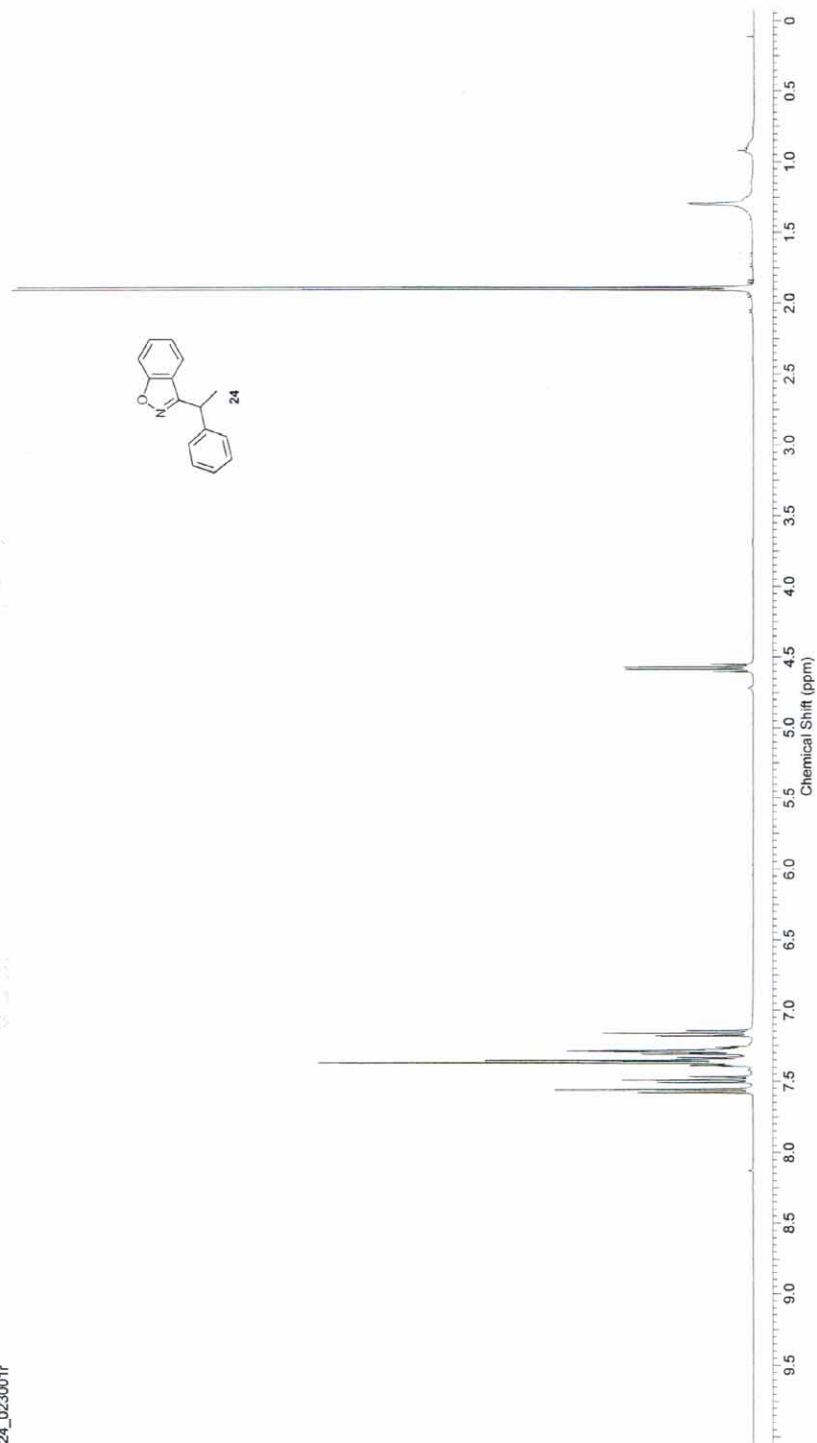
23_003001r



¹H NMR of 3-(1-Phenyl-ethyl)-1,2-benzisoxazole (24) (Table 2, entry 12):

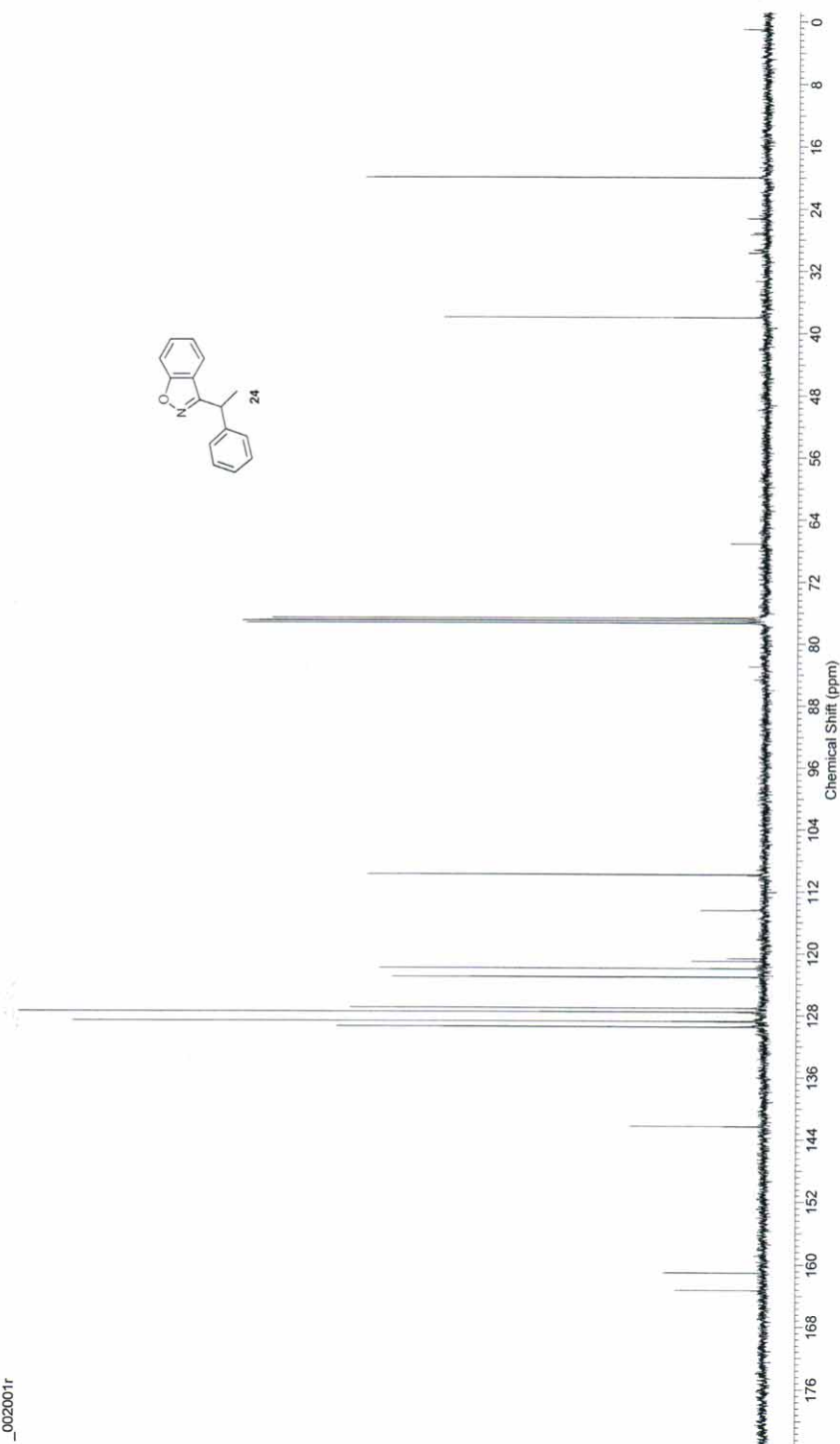
Acquisition Time (sec)	3.4210	Comment	Slot No. 38	Sample ID CS1R284-prep	SupervisorID moses	Lab Phone No. 13540	UserID c_spl
Date	14 Sep 2009 09:34:08			Date Stamp	14 Sep 2009 09:34:08		
File Name	E:\NMR OBC\2423\data111r			Frequency (MHz)	400.20	Nucleus	¹ H
Number of Transients	16	Origin	dpv400	Original Points Count	16384	Owner	nmuser
Points Count	32768	Pulse Sequence	zg30	Receiver Gain	287.40	SW(cyclical) (Hz)	4789.27
Solvent	CHLOROFORM-d			Spectrum Offset (Hz)	2201.1008	Spectrum Type	STANDARD
Sweep Width (Hz)	4789.13	Temperature (degree C)	22.700				

24_0023001r



¹³C NMR of 3-(1-Phenyl-ethyl)-1,2-benzisoxazole (24) (Table 2, entry 12):

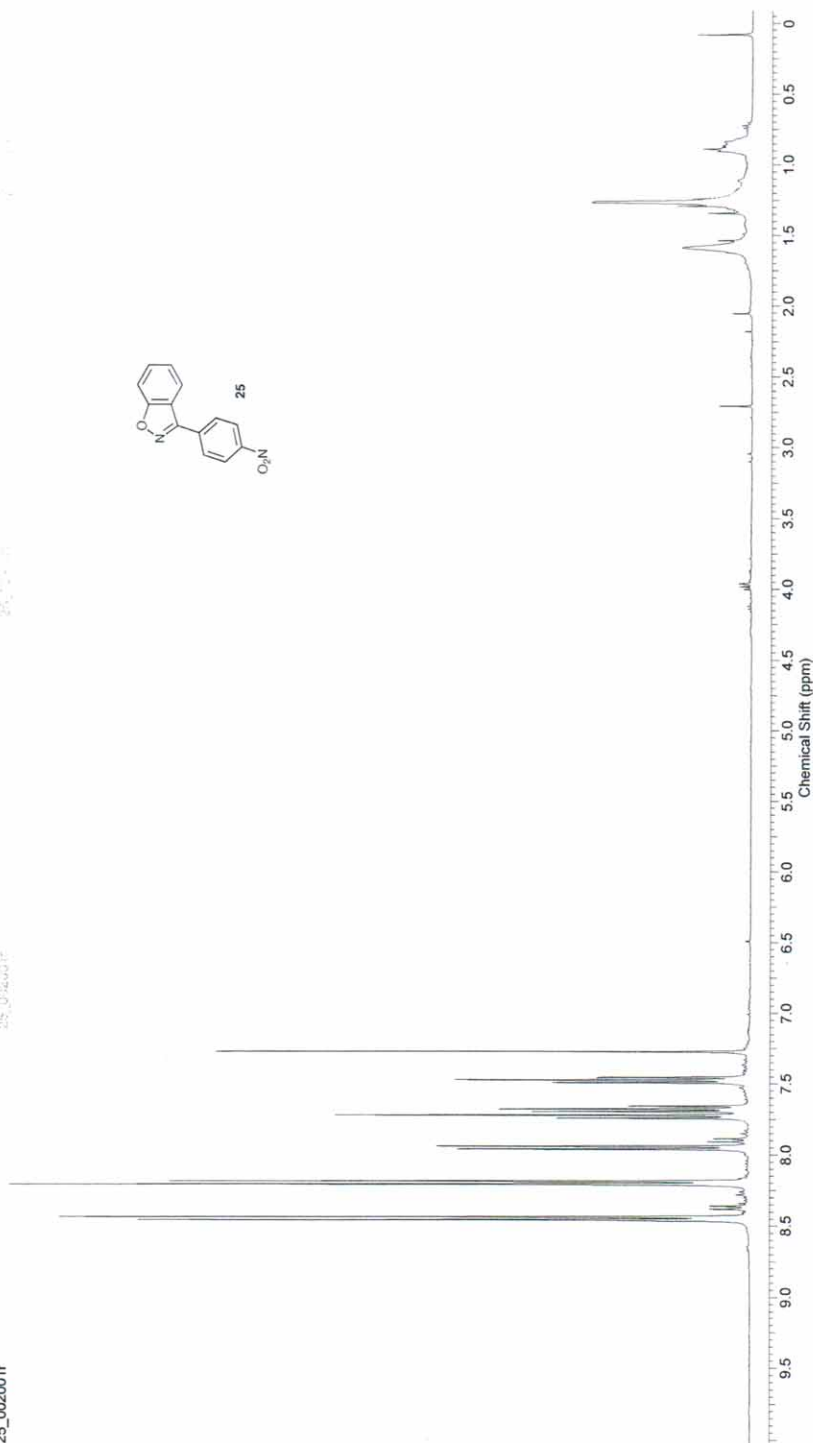
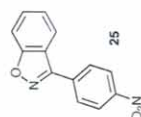
Acquisition Time (sec)	0.6521	UserID c_spl	SampleID CS1R284	SupervisorID moses	Lab Phone No. 13540	Sit Number 51	
Date	05 Aug 2009 15:09:04	Date Stamp	05 Aug 2009 15:09:04				
File Name	E:\2pdata\111r	Frequency (MHz)	100.61	Nucleus	13C	Number of Transients	512
Origin	av400	Original Points Count	16384	Owner	nmuser	Points Count	32768
Pulse Sequence	zgpg30	Receiver Gain	11565.20	SW(cyclical) (Hz)	25125.63	Solvent	CHLOROFORM-d
Spectrum Offset (Hz)	11061.5605	Spectrum Type	STANDARD	Sweep Width (Hz)	25124.86	Temperature (degree C)	25.160
002001r							



¹H NMR of 3-(4-Nitrophenyl)-1,2-benzisoxazole (25) (Table 2, entry 13):

Acquisition Time (sec)	3.4210	Comment	UserID c_spi	SampleID CS1R167-product	SupervisorID moses	Lab Phone No. 13540	Slot Number 33
Date	18 May 2009 15:49:36			Date Stamp	18 May 2009 15:49:36		
File Name	E:\NMR OBC\252\data\111r			Frequency (MHz)	400.13	Nucleus	¹ H
Number of Transients	16	Origin	av400	Original Points Count	16384	Owner	intruser
Points Count	32768	Pulse Sequence	zg30	Receiver Gain	181.00	SW(cyclical) (Hz)	4789.27
Solvent	CHLOROFORM-d			Spectrum Offset (Hz)	2195.3335	Spectrum Type	STANDARD
Sweep Width (Hz)	4789.13	Temperature (degree C)	25.160				

25_002001r



¹³C NMR of 3-(4-Nitrophenyl)-1,2-benzisoxazole (25) (Table 2, entry 13):

Acquisition Time (sec)	0.6521	UserID	c_spl	SampleID	CSIR167-product	SupervisorID	mosees	Lab Phone No.	13540	Slit Number	33
Date	18 May 2009 15:47:28	Date Stamp									
File Name	E:\NMR\OBC\25\1\data\11r	Frequency (MHz)						Nucleus		13C	
Number of Transients	512	Original Points Count						Owner		nmuser	
Points Count	32768	Pulse Sequence	zgpg30					SW(cyclical) (Hz)		25125.63	
Solvent	CHLOROFORM-d	Spectrum Offset (Hz)	11095.2988					Sweep Width (Hz)		25124.85	
Temperature (degree C)	25.160										

