Supporting Information

Cobalt-Catalyzed Selective Unsymmetrical Dioxidation of *gem*-Difluoroalkenes

Douglas L. Orsi,[†] Justin T. Douglas,[@] Jacob P. Sorrentino,[§] Ryan A. Altman[%,*]

[†]Vanderbilt Center for Neuroscience Drug Discovery, Vanderbilt University, Nashville, TN 37232

[@]The University of Kansas, Molecular Structures Group, Nuclear Magnetic Resonance Laboratory, Lawrence, KS 66045

[§]The University of Kansas, Department of Medicinal Chemistry, Lawrence, KS 66045

[%]Department of Medicinal Chemistry and Molecular Pharmacology and Department of Chemistry, Purdue University, West Lafayette, IN 47907

*Corresponding Author Email: raaltman@purdue.edu

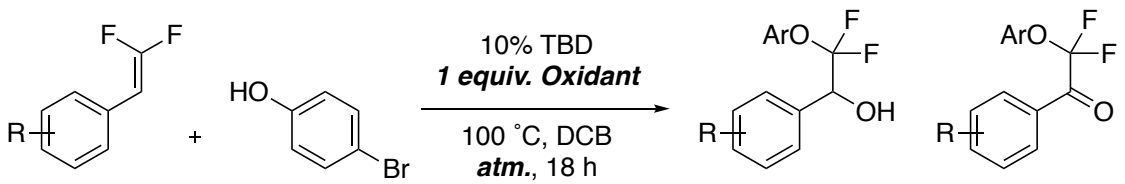
Table of Contents

General Procedure for the Selective Unsymmetric Dioxygenation of Difluoroalkenes with Phenols (B):

An oven-dried 20 mL scintillation vial, equipped with a magnetic stirbar, was charged with difluoroalkene (0.50 mmol), phenol (1.50 mmol), and $Co(acac)_2$ (0.050–0.20 mmol). The system was purged with O_2 gas for 1 min before anhydrous DCB (2.0 mL) was added to the system under a stream of O_2 gas. The system was sealed with a PTFE-lined screw-top cap and stirred for 1 min at R.T. Subsequently, the vial was placed into a pre-heated reaction block and stirred vigorously at 90–140 °C for 24–48 h. The vial was cooled to R.T., and 50 μL of TFT was added *via* microsyringe. The solution was diluted with approximately 1 mL of DCM and then stirred at R.T. for 10 min to allow adequate mixing. After mixing, an aliquot was removed from the vial and passed through a pad of silica gel into an NMR tube using acetone as eluent to remove $Co(acac)_2$, after which the reaction was analyzed by ^{19}F NMR for completion and selectivity. After ^{19}F NMR analysis, the aliquot was sampled for TLC analysis (visualized with 10% phosphomolybdic acid in EtOH) then returned to the vial. Aqueous base (sat. NaOH or Na_2CO_3) was added to the solution and stirred for 30 min, and then extracted with DCM (four times). The combined organic layers were washed with brine, dried over Na_2SO_4, concentrated *in vacuo*, and then purified by flash chromatography using EtOAc and hexanes.

Optimization of Reaction Conditions:

Table S1: Reactions with Oxidants:



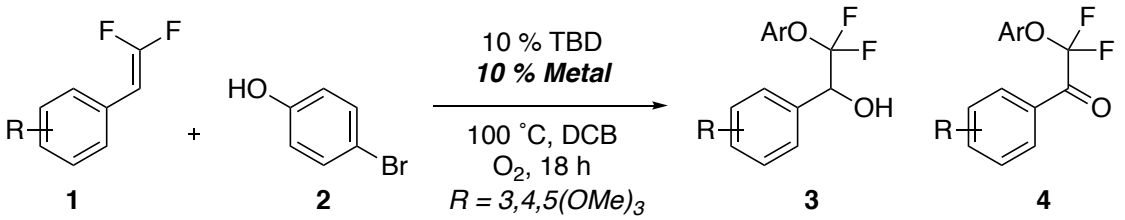
1 **2** **3** **4**

Oxidant	Atmosphere	**1**	**3**	**4**
MnO_2	O_2	0	0	0
$K_2S_2O_8$	O_2	15	23	15
$KMnO_4$	O_2	38	13	9
Oxone	O_2	48	5	1
DMP	O_2	16	14	9
NMO	O_2	53	3	7
IBX	O_2	27	35	15
$K_2S_2O_8$	air	21	8	0
$KMnO_4$	air	46	0	0
mCPBA	air	23	0	0
IBX	air	61	0	0
H_2O_2 (30 %)	air	40	11	6
^{t}BuOOH	air	34	0	0
Iodopentoxide	air	trace	trace	trace
Cumene Hydroperoxide	air	28	3	1
$(^t$BuO$)_2$	air	40	trace	1.5
H_2O_2-Urea	air	39	6	6
Oxone	air	37	0	0
DMP*	air	36	0	0
NMO	air	67	0	0

* = Reacted on addition at room temperature

Following General Procedure B, 0.023 g (0.10 mmol) of compound **1** was reacted with 0.052 g (0.30 mmol) of 4-bromophenol in the presence of 0.0014 g (0.010 mmol) of TBD, and 0.10 mmol of oxidant in 0.40 mL of DCB at 100 °C for 18 h. Reactions were analyzed by ^{19}F NMR with a 0.010 mL (0.080 mmol) TFT standard.

Table S2: Reactions with Oxidizing Metals:

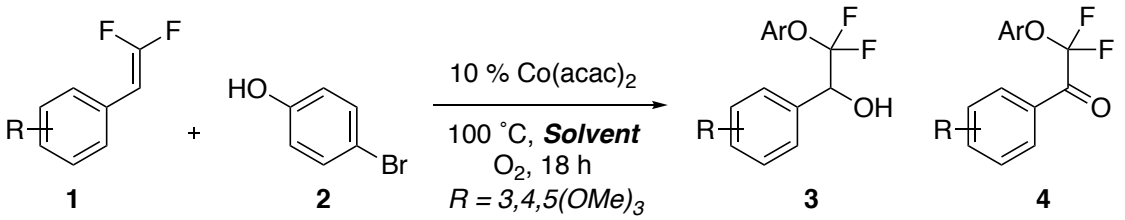


1 **2** **3** **4**

Metal	**1**	**3**	**4**
$Pd(OAc)_2$	5	38	26
$Pd_2(dba)_3$	5	47	17
$FeCl_3$	4	38	23
$Fe(OAc)_2$	5	41	35
CuCl	4	24	23
$Cu(OAc)_2$	0	30	33
$AuCl_3$	0	0	0
Ag_2CO_3	10	43	24
$AgNO_3$	5	32	27
$[Ir(cod)Cl]_2$	26	30	22
$RhCl_3–H_2O$	6	46	29
$Co(acac)_2$	6	74	13

Following General Procedure B, 0.023 g (0.10 mmol) of compound **1** was reacted with 0.052 g (0.30 mmol) of 4-bromophenol in the presence of 0.0014 g (0.010 mmol) of TBD, and 0.010 mmol of metal in 0.40 mL of DCB at 100 °C for 18 h. Reactions were analyzed by ^{19}F NMR with a 0.01 mL (0.080 mmol) TFT standard.

Table S3: Solvent Screening:



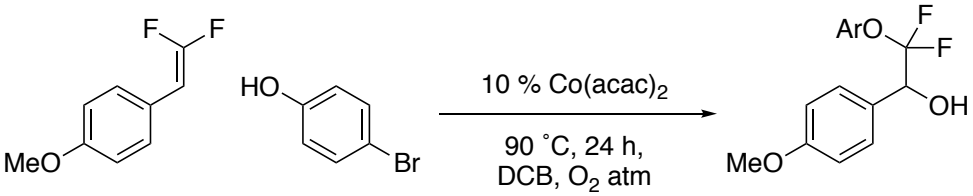
1 **2** **3** **4**

Solvent	**1**	**3**	**4**
DCB	7	63	5
H_2O	35	32	1
IPA	64	7	0.5
1,4-Dioxane	61	5	0
MeCN	45	20	2
DMF	55	15	5
PhMe	28	55	2
DMSO	49	9	5

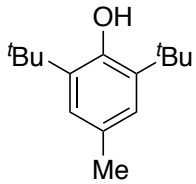
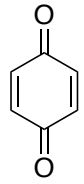
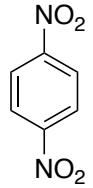
Following General Procedure B, 0.023 g (0.10 mmol) of compound **1** was reacted with 0.052 g (0.30 mmol) of 4-bromophenol in the presence of 0.003 g (0.010 mmol) of $Co(acac)_2$ in 0.40 mL of solvent at 100 °C for 18 h. Reactions were analyzed by ^{19}F NMR with a 0.010 mL (0.080 mmol) TFT standard.

Experimental Procedures for Mechanistic Experiments:

Table S4: Radical Trap Experiments:



4a **2** **5a**

Radical Trap	*Conv.*	*Pdt*	*Ketone*
	68%	0%	0%
	100%	0%	0%
	92%	54%	5.5%

Reaction with Butylated Hydroxy-Toluene (BHT):

Following General Procedure B, 0.085 g (0.50 mmol) of compound **4a** was reacted with 0.260 g (1.50 mmol) of 4-bromophenol in the presence of 0.331 g (1.50 mmol) of BHT and 0.013 g (0.050 mmol) of $Co(acac)_2$ at 110 °C for 15 h. The reaction was cooled to R.T., and 0.050 mL (0.40 mmol) of TFT was added. The resulting mixture was diluted with DCM and filtered through silica gel with acetone. The reaction yield and selectivity were determined by ^{19}F NMR analysis of the crude reaction mixture, and non-fluorinated adducts were observed through GC-MS analysis.

Reaction with 1,4-Benzoquinone:

Following General Procedure B, 0.085 g (0.50 mmol) of compound **4a** was reacted with 0.260 g (1.50 mmol) of 4-bromophenol in the presence of 0.162 g (1.50 mmol) of 1,4-benzoquinone and 0.013 g (0.050 mmol) of $Co(acac)_2$ at 110 °C for 15 h. The reaction was cooled to R.T., and 0.050 mL (0.40 mmol) of TFT was added. The resulting mixture was diluted with DCM and filtered through silica gel with acetone. The reaction yield and selectivity were determined by ^{19}F NMR analysis of the crude reaction mixture, and non-fluorinated adducts were observed through GC-MS analysis.

Reaction with 1,4-Dinitrobenzene:

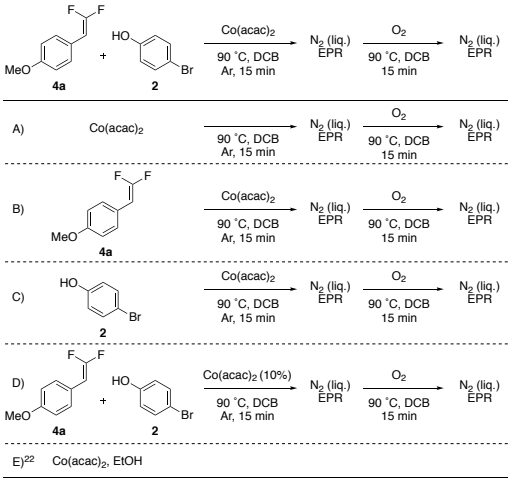
Following General Procedure B, 0.085 g (0.50 mmol) of compound **4a** was reacted with 0.260 g (1.50 mmol) of 4-bromophenol in the presence of 0.252 g (1.50 mmol) of 1,4-dinitrobenzene and 0.013 g (0.050 mmol) of $Co(acac)_2$ at 110 °C for 15 h. The reaction was cooled to R.T., and 0.050 mL (0.40 mmol) of TFT was added. The resulting mixture was diluted with DCM and filtered through silica gel with acetone. The reaction yield and selectivity were determined by ^{19}F NMR analysis of the crude reaction mixture, and non-fluorinated adducts were observed through GC-MS analysis.

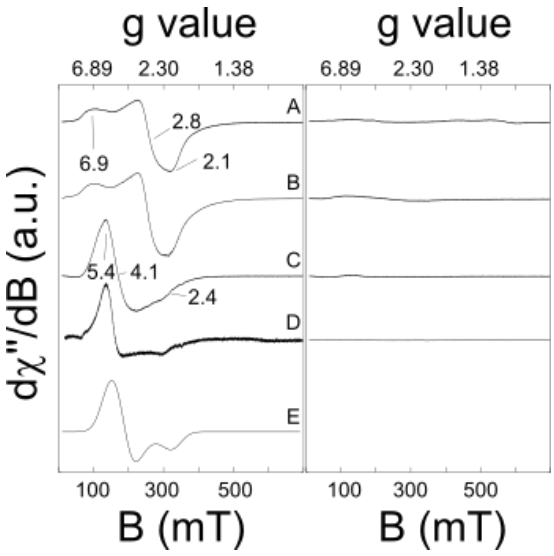
EPR Experiments:

Electron Paramagnetic Resonance (EPR), also known as Electron Spin Resonance (ESR) spectroscopy was used to probe the proposed reaction mechanism. EPR is a magnetic resonance spectroscopy sensitive to the oxidation state and molecular structure of molecules with unpaired electrons, such as transition metal complexes and stable radicals.[2] The proposed mechanism involves paramagnetic cobalt, reactive oxygen species, and organic radicals; thus, EPR was used to validate the role of these species in the general reaction.

Figure S1: EPR Experiments at 7 K to Analyze the Electronic Character of the Co:

EPR at 7 K revealed that Co does not interact with the difluoroalkene (A vs. B). The Co catalyst coordinates with phenol (A vs. C) in a similar fashion to a known $(EtOH)_2Co(acac)_2$ complex (E). However, the interaction with phenol does not involve a redox event, as the Co remains Co(II). The presumed $(PhOH)_2Co(acac)_2$ does not react with the difluoroalkene in the absence of O_2 (C vs. D). Upon addition of O_2, Co(II) (Left Frame) rapidly oxidizes to Co(III) (Right Frame), at which point the metal is no longer paramagnetic and EPR spectra cannot be obtained.





Under Ar **Under O_2**

A) Reacting $Co(acac)_2$ and O_2:

$Co(acac)_2$ (0.021 g, 0.082 mmol) was added to an oven dried one dram vial. The vial was sealed with a screw-top cap containing a PTFE-lined silicon septum, and the reaction was evacuated and backfilled three times with N_2. DCB (1.0 mL) was added, and a 100 µL aliquot of the reaction mixture was transferred to an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K. The reaction was then put under an O_2 balloon, and stirred at 90 °C for 30 min A 100 µL aliquot of the reaction mixture was transferred into an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K.

B) Reacting $Co(acac)_2$ and 4a under O_2:

Following General Procedure B, in an oven-dried one dram vial compound **4a** (0.043 g, 0.25 mmol) was reacted with $Co(acac)_2$ (0.064 g, 0.25 mmol) in DCB (1.0 mL). An O_2 balloon was added, and a 100 µL aliquot of the reaction mixture was transferred to an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K. The reaction was then put under an O_2 balloon, and stirred at 90 °C for 30 min. A 100 µL aliquot of the reaction mixture was transferred into an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K.

C) Reacting $Co(acac)_2$ and 4-bromophenol under O_2:

Following General Procedure B, in an oven-dried one dram vial of 4-bromophenol (0.13 g, 0.75 mmol) was reacted with $Co(acac)_2$ (0.064 g, 0.25 mmol) in DCB (1.0 mL). An O_2 balloon was added, and a 100 µL aliquot of the reaction mixture was transferred to an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K. The reaction was then put under an O_2 balloon, and stirred at 90 °C for 30 min. A 100 µL aliquot of the reaction mixture was transferred into an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K.

D) Following Full Reaction Course:

Following General Procedure B, in an oven-dried one dram vial of compound **4a** (0.043 g, 0.25 mmol) was reacted with 4-bromophenol (0.13 g, 0.75 mmol) in the presence of $Co(acac)_2$ (0.006 g, 0.03 mmol) in DCB (1.0 mL). An O_2 balloon was added, and a 100 µL aliquot of the reaction mixture was transferred to an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K. The reaction was then put under an O_2 balloon, and stirred at 90 °C for 30 min. A 100 µL aliquot of the reaction mixture was transferred into an EPR tube, frozen in liquid N_2, and then subjected to EPR analysis at 7 K.

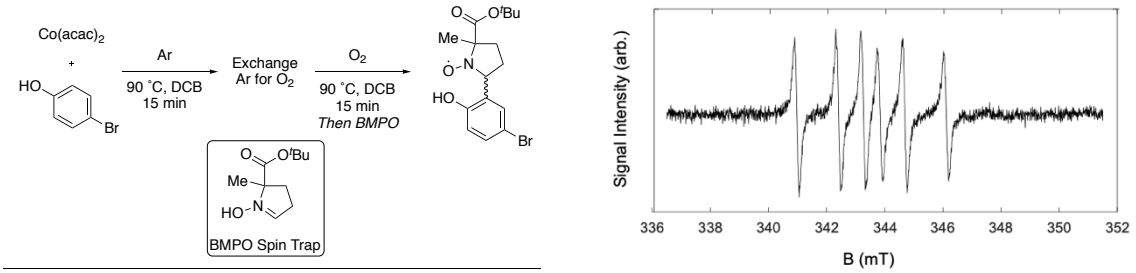
EPR Parameters: Full Reaction Course and $Co(acac)_2$ with Phenol under Ar:

Table S5: EPR Parameters of Spectral Types Observed, 10 K

Spectrum ID	g-values	Line Width	Experiments
A	7, 2.5, 2.5	75	Co(II) and Ar Co(II) and **4a** and Ar
B	5, 3, 2	150	Co(II) and O_2 Co(II) and **4a** and O_2
C	5.8, 3.8, 2.5	50	Co(II), **2**, and Ar Co(II), **2**, **4a**, and Ar
D	4.5, 2	75	Co(II), **2**, and O_2 Co(II), **2**, **4a**, and O_2

Table S6: Summary of EPR Parameters for Full Dipolar Zero-Field-Splitting Hamiltonian		
	Spectrum A/B	Spectrum C/D
S	3/2	3/2
G	2.2	2.2
Nucleus	Co	Co
A (MHz)	0	0
Line Width	100	100
D (MHz)	500,000	500,000
E (MHz)	166,667	0

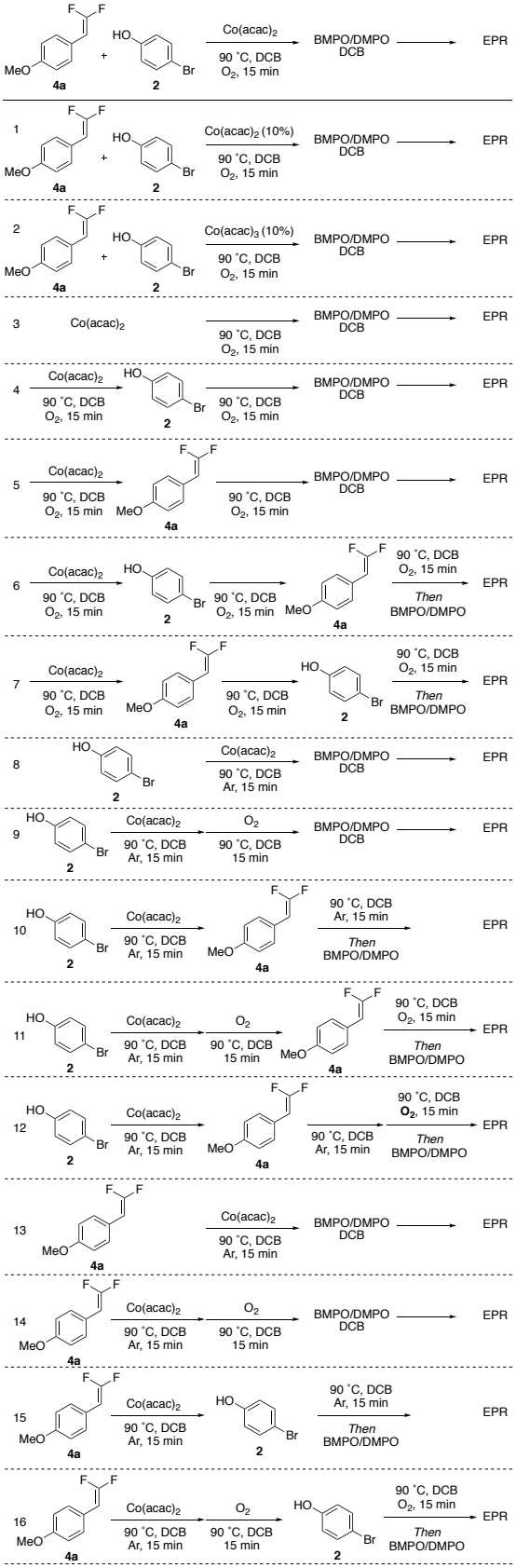
Figure S2: EPR Spin Trapping of Phenol Radical with BMPO:

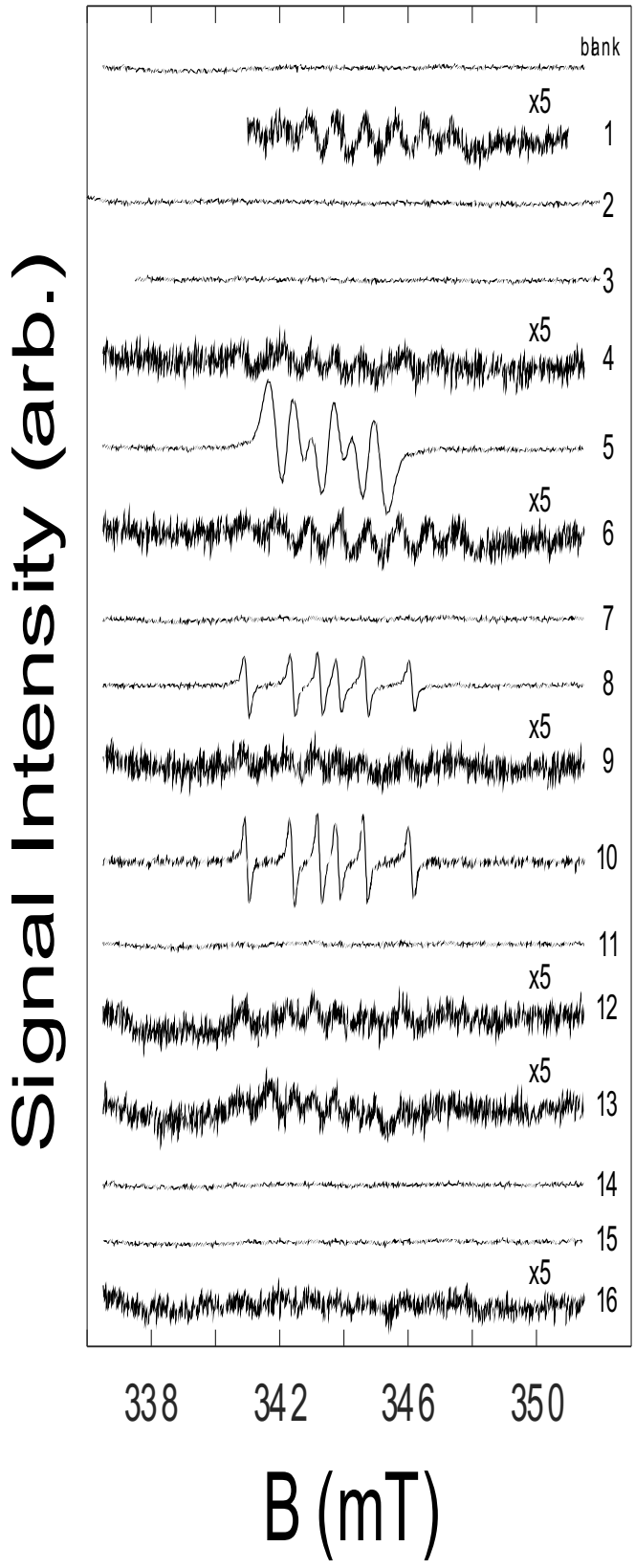


EPR Spin Trapping with BMPO or DMPO:

To elucidate the presence and source of reactive oxygen species and organic radicals, EPR Spin Trapping analysis with the nitrone spin traps BMPO and DMPO was performed (Figure S2). To determine the source of the reactive oxygen species and/or organic radicals, each potential reaction pathway was investigated in a string of half reactions, involving spin trapping reagents and EPR analysis (Figure S3). From these experiments, organic radicals and reactive oxygen species were only trapped in the presence of Co, phenol, and O_2, consistent with our proposed mechanism in which Co activates O_2 to generate a reactive oxygen species that abstracts a hydrogen radical from phenol to generate a reactive organic radical. In all other conditions, no signal above baseline noise was observed, with the exception of difluoroalkene and Co in the presence of Ar. However, this signal likely results from the known background reaction between N–O species and difluoroalkenes and not along the Co-catalyzed reaction pathway.

Figure S3: EPR Spin Trapping with BMPO or DMPO:





Pathway A (spectrum 1): Following General Procedure A, in an oven-dried one dram vial of compound **4a** (0.017 g, 0.10 mmol) was reacted with 4-bromophenol (0.052 g, 0.30 mmol) in the presence of $Co(acac)_2$ (0.0026 g, 0.010 mmol) in DCB (0.40 mL). An O_2 balloon was added, and the reaction was stirred at 90 °C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 1).

Pathway A-2 (spectrum 2): Following General Procedure A, in an oven-dried one dram vial of compound **4a** (0.017 g, 0.10 mmol) was reacted with 4-bromophenol (0.052 g, 0.30 mmol) in the presence of $Co(acac)_3$ (0.0038 g, 0.010 mmol) in DCB (0.40 mL). An O_2 balloon was added, and the reaction was stirred at 90 °C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 2).

Pathway B (spectra 3, 4, and 6): $Co(acac)_2$ (0.026 g, 0.10 mmol) was added to an oven dried one dram vial. The vial was sealed with a screw-top cap containing a PTFE-lined silicon septum, and the reaction was evacuated and backfilled three times with N_2. DCB (0.40 mL) was added, then put under an O_2 balloon and stirred at 90 °C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 3). Then 4-bromophenol (0.052 g, 0.30 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 4). Then **4a** (0.017 g, 0.10 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 6).

Pathway C (spectra 5 and 7): $Co(acac)_2$ (0.026 g, 0.10 mmol) was added to an oven dried one dram vial. The vial was sealed with a screw-top cap containing a PTFE-lined silicon septum, and the reaction was evacuated and backfilled three times with N_2. DCB (0.40 mL) was added, then put under an O_2 balloon and stirred at 90 °C for 15 min. Then **4a** (0.017 g, 0.10 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 5). Then 4-bromophenol (0.052 g, 0.30 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 7). *Note:* Spectrum 5 demonstrates the background reaction of N-O oxides or radicals with difluoroalkenes, as observed in ^{19}F NMR control reactions with BMPO or TEMPO in the absence of $Co(acac)_2$.

Pathway D (spectra 8, 9, and 11): $Co(acac)_2$ (0.026 g, 0.10 mmol) and 4-bromophenol (0.052 g, 0.30 mmol) was added to an oven dried one dram vial. The vial was sealed with a screw-top cap containing a PTFE-lined silicon septum, and the reaction was evacuated and backfilled three times with N_2. DCB (0.40 mL) was added, then put under an Ar balloon and stirred at 90 °C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 8). Then Ar was exchanged for O_2, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 9). Then **4a** (0.017 g, 0.10 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 11).

Pathway E (spectra 10 and 12): $Co(acac)_2$ (0.026 g, 0.10 mmol) and 4-bromophenol (0.052 g, 0.30 mmol) was added to an oven dried one dram vial. The vial was sealed with a screw-top cap containing a PTFE-lined silicon septum, and the reaction was evacuated and backfilled three times with N_2. DCB (0.40 mL) was added, then put under an Ar balloon and stirred at 90 °C for 15 min. Then **4a** (0.017 g, 0.10 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 10). Then Ar was exchanged for O_2, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 12).

Pathway F (spectra 13, 14, and 16): $Co(acac)_2$ (0.026 g, 0.10 mmol) and **4a** (0.017 g, 0.10 mmol) was added to an oven dried one dram vial. The vial was sealed with a screw-top cap containing a PTFE-lined silicon septum, and the reaction was evacuated and backfilled three times with N_2. DCB (0.40 mL) was added, then put under an Ar balloon and stirred at 90 °C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 13). Then Ar was exchanged for O_2, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 14). Then 4-bromophenol (0.052 g, 0.30 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 16).

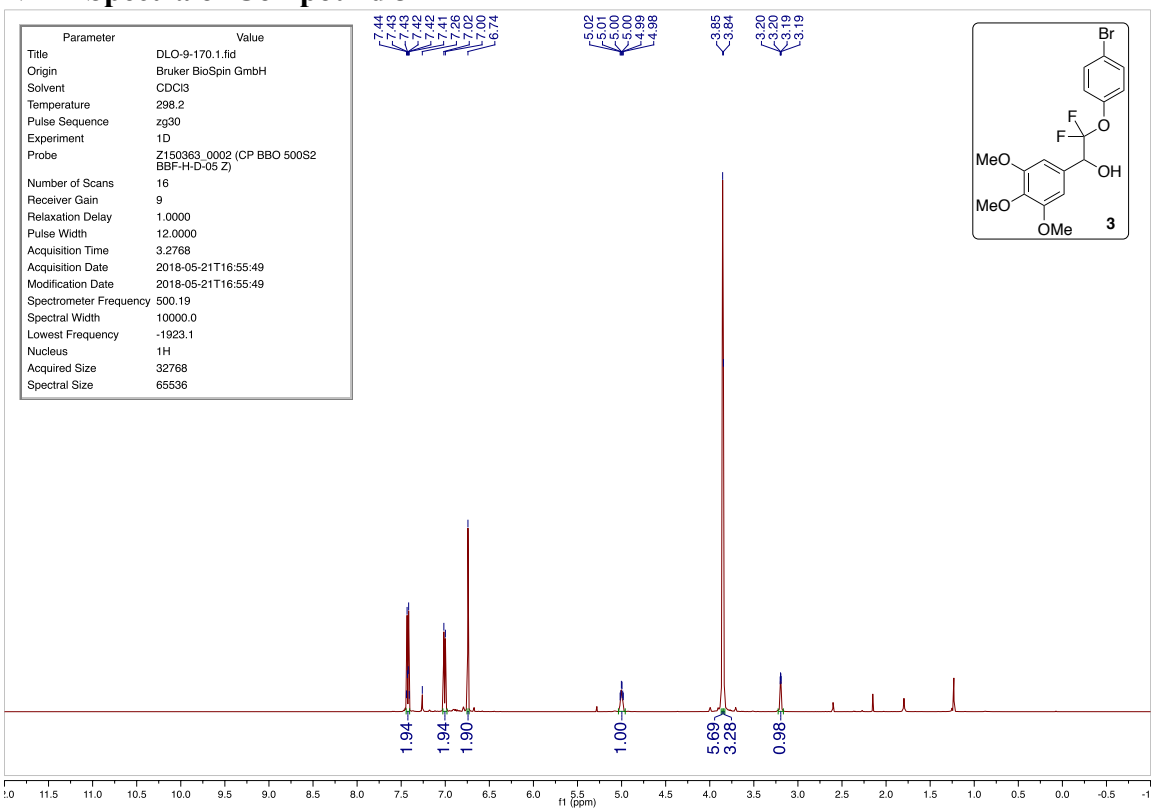
Pathway G (spectrum 15): $Co(acac)_2$ (0.026 g, 0.10 mmol) and **4a** (0.017 g, 0.10 mmol) was added to an oven dried one dram vial. The vial was sealed with a screw-top cap containing a PTFE-lined silicon septum, and the reaction was evacuated and backfilled three times with N_2. DCB (0.40 mL) was added, then put under an Ar balloon and stirred at 90 °C for 15 min. Then 4-bromophenol (0.052 g, 0.30 mmol) in 0.40 mL DCB was added, and the reaction stirred at 90 ˚C for 15 min. A 100 µL aliquot of the reaction mixture was transferred into an Eppendorf tube containing 10 µL of a 20 mg/200 µL DCB sample of BMPO or DMPO, mixed on a Vortex mixer, and then a capillary tube sample removed for EPR analysis at R.T. (Figure S3-1, Spectrum 15).

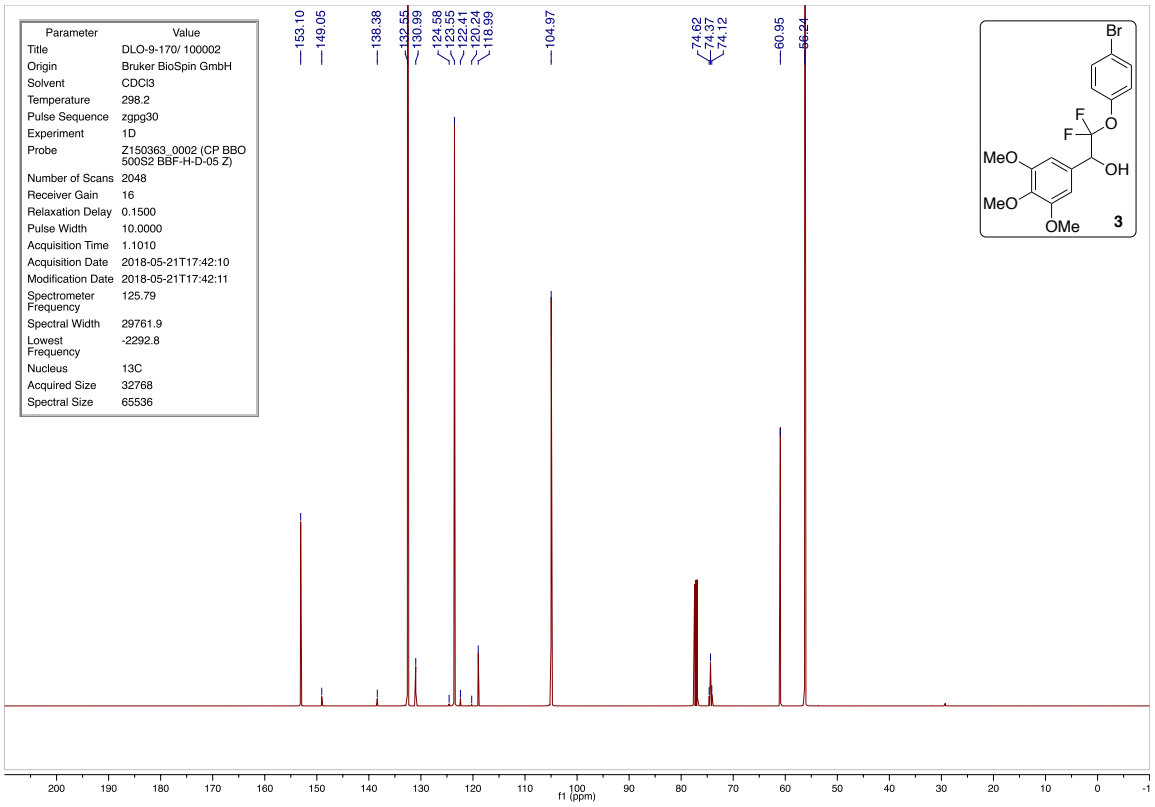
EPR Parameters from Spin Trapping Experimentation

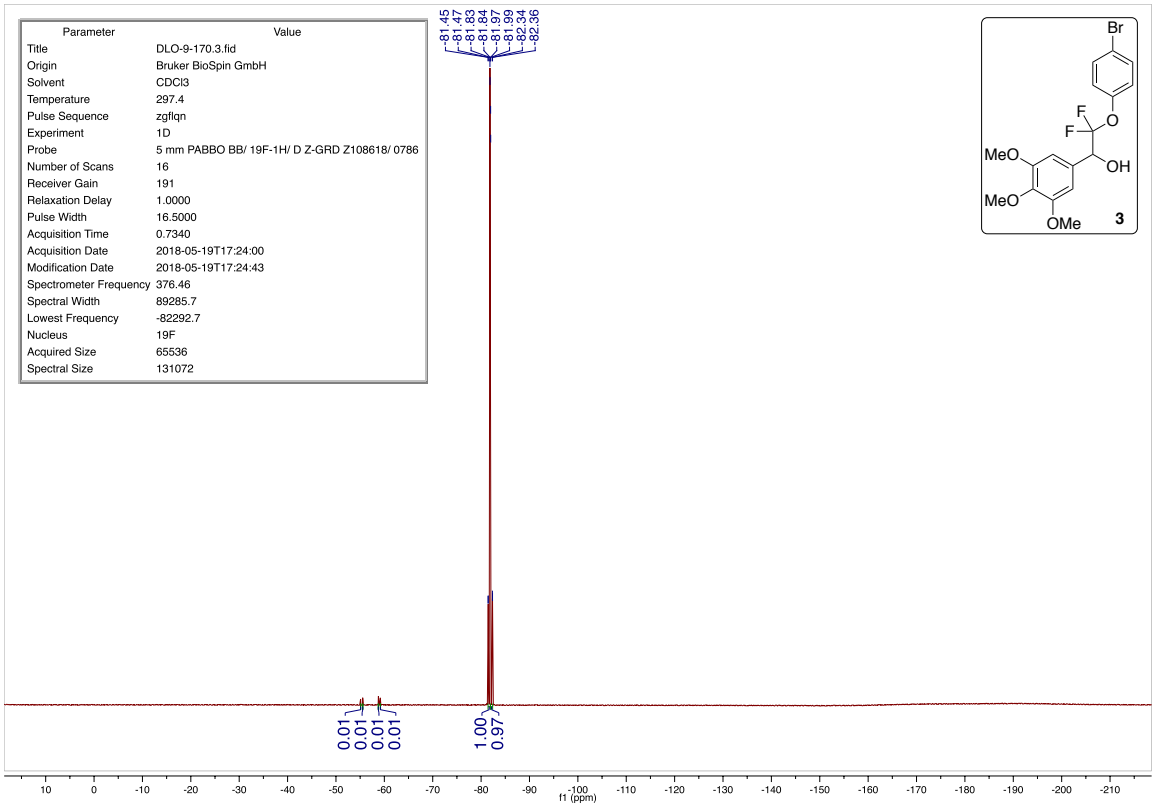
Table S7: Spectral Simulation Parameters for Spectrum 5			
Center Field (mT)	344		
Sweep Width (mT)	15		
Microwave Frequency (GHz)	9.6426		
G	2.0055		
A (MHz)	1 – ^{14}N	35.3525 (1.2615 mT)	N = 1
	2 – ^{1}H	20.0400 (0.6161 mT)	N = 1
Iwpp (mT)	0.45		

Table S8: Spectral Simulation Parameters for Spectrum 8			
Center Field (mT)	344		
Sweep Width (mT)	15		
Microwave Frequency (GHz)	9.6433		
G	2.0055		
A (MHz)	1 – ^{14}N	39.2349 (1.40 mT)	N = 1
	2 – ^{1}H	64.4574 (2.30 mT)	N = 1
Iwpp (mT)	0.45		

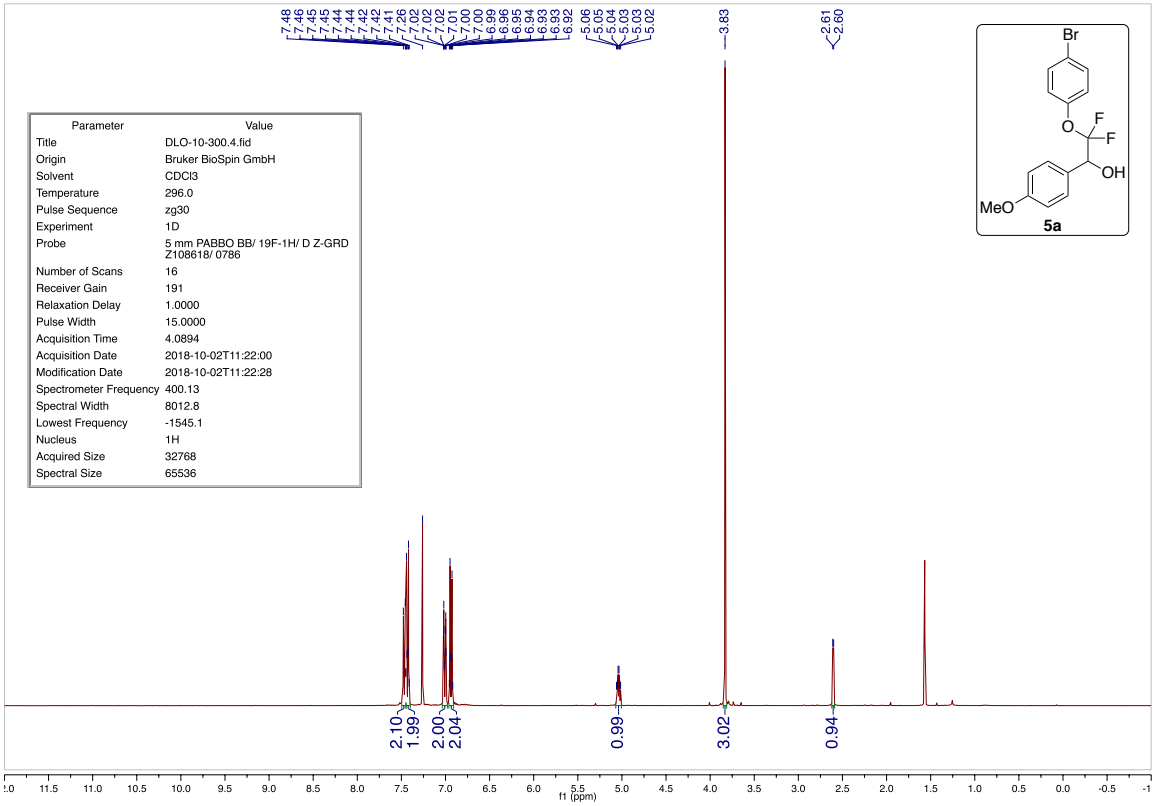
NMR Spectra of Compound 3

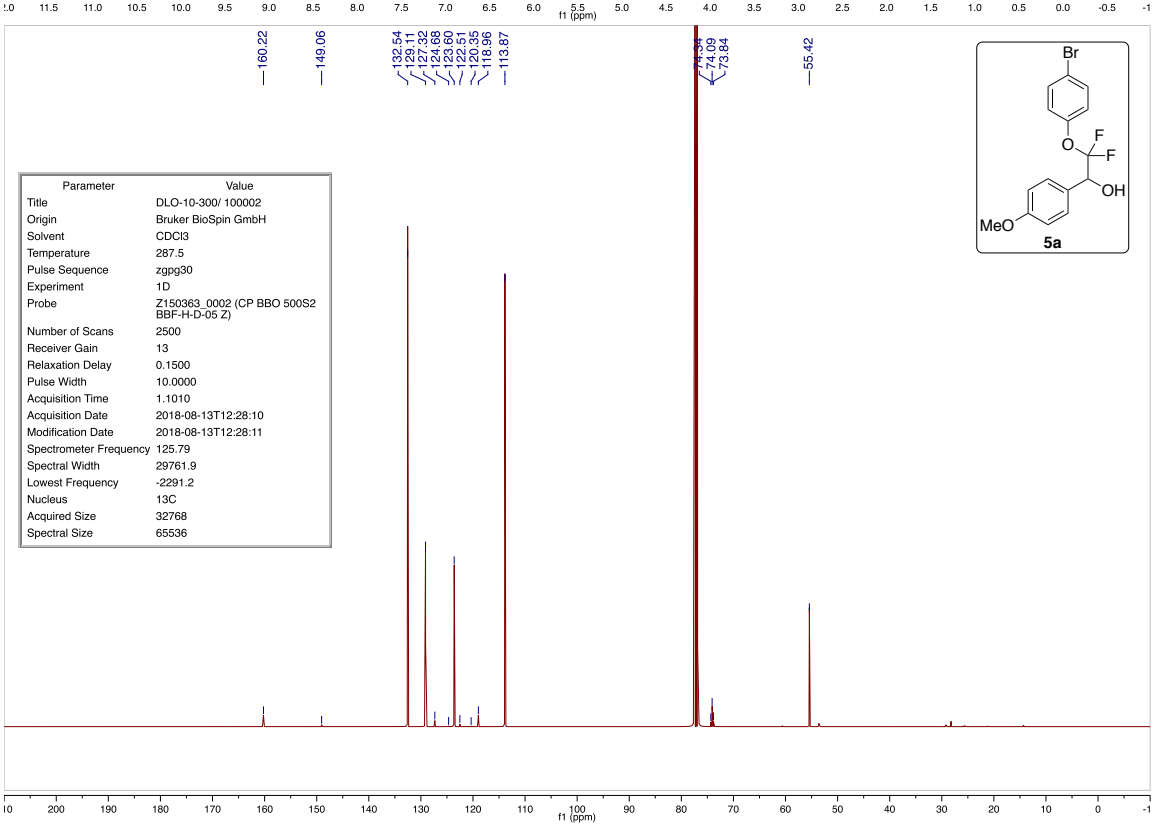




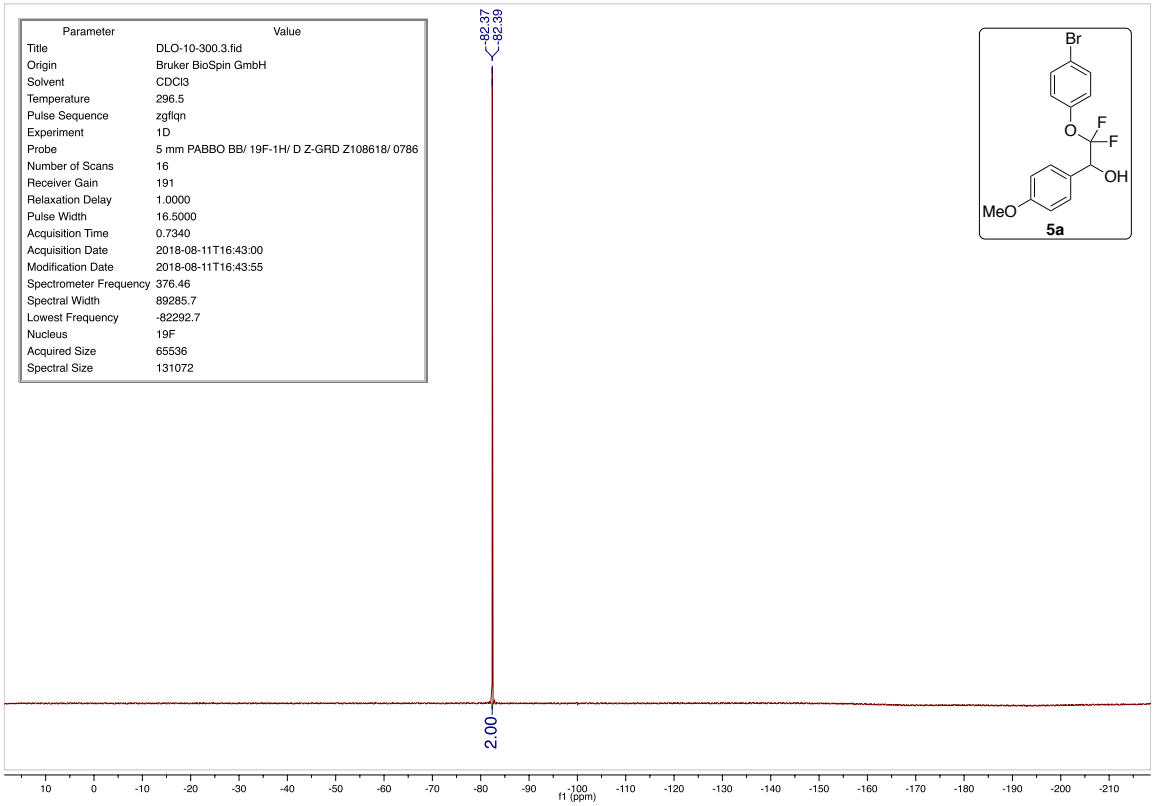

Parameter Value
Title DLO-9-170.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 297.4
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-05-19T17:24:00
Modification Date 2018-05-19T17:24:43
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.45
-81.47
-81.83
-81.84
-81.97
-81.99
-82.34
-82.36
0.01
0.01
0.01
0.01
1.00
0.97
Br
F
F
O
MeO
OH
MeO
OMe
3
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200 -210
f1 (ppm)

NMR Spectra of Compounds in Table 2

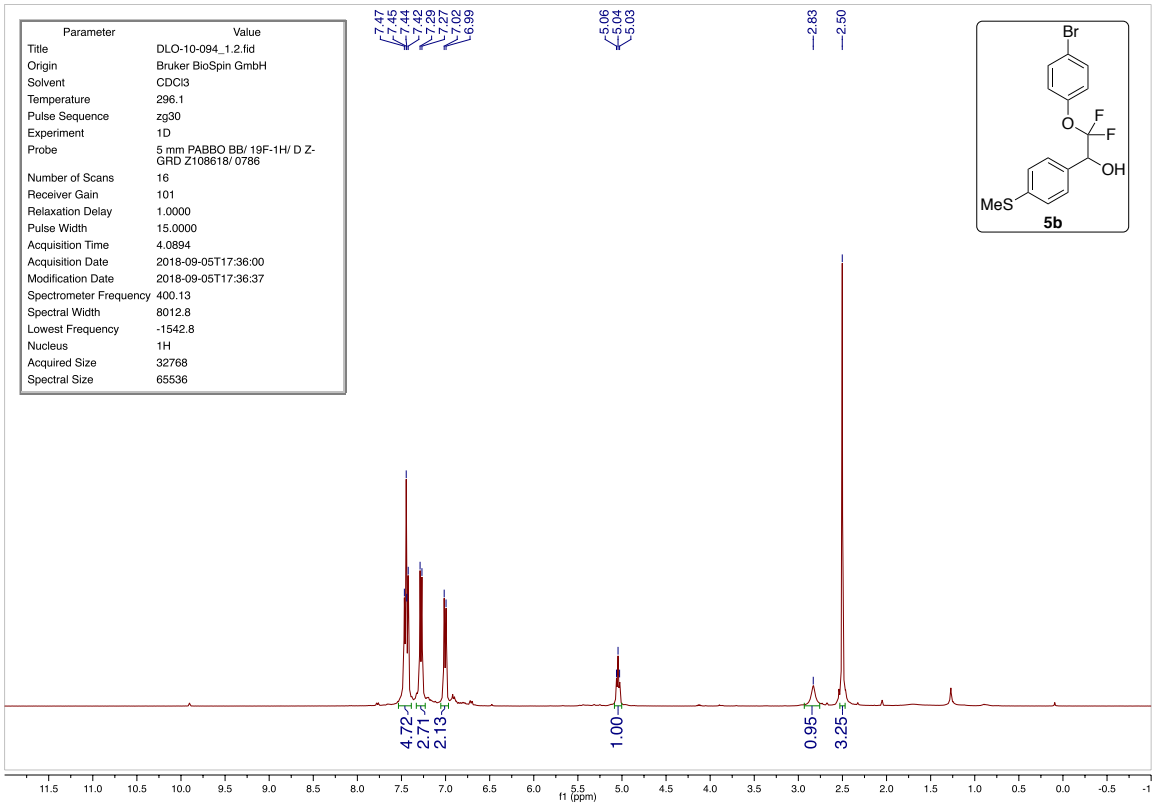


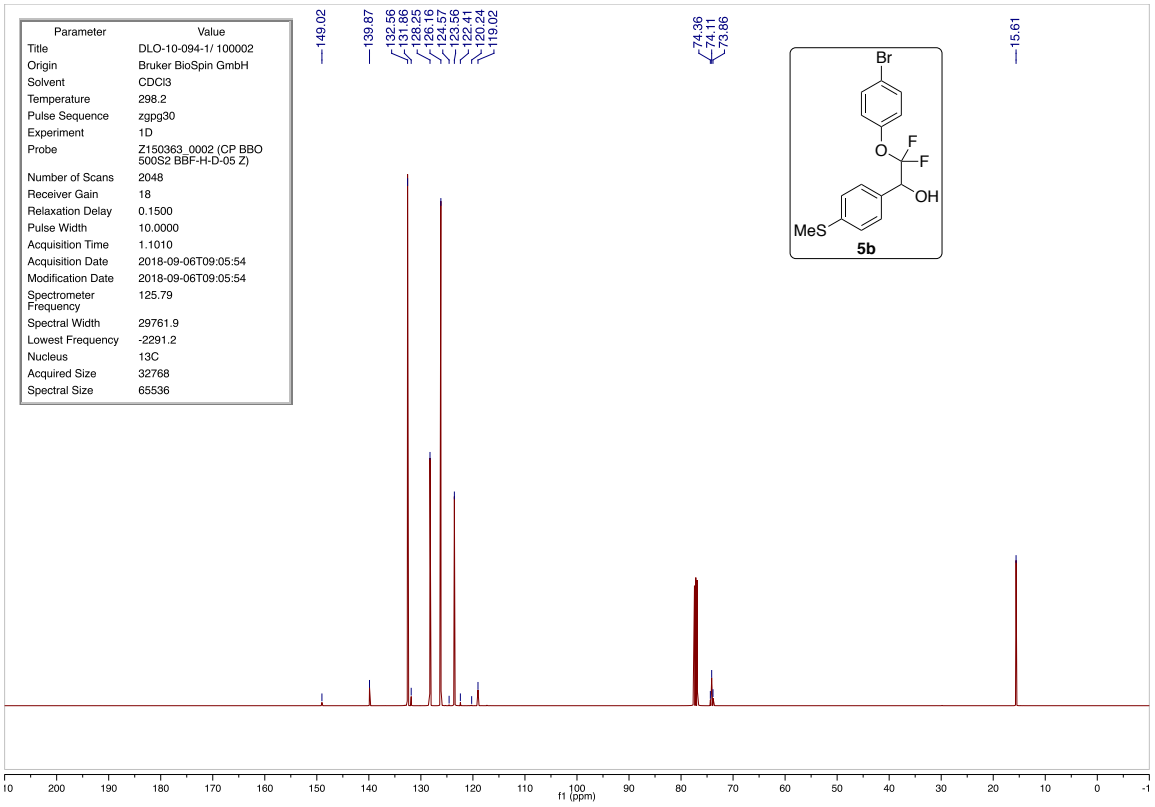


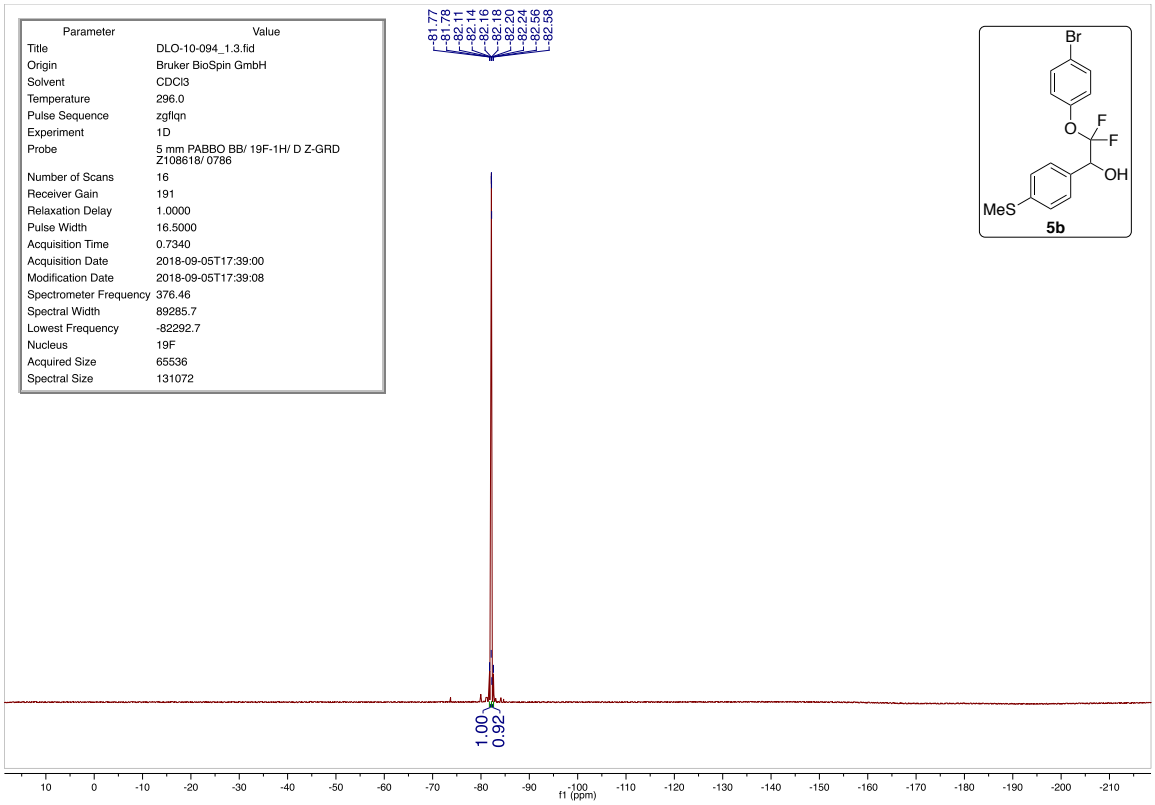
Parameter	Value
Title	DLO-10-300.3.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.5
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-08-11T16:43:00
Modification Date	2018-08-11T16:43:55
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

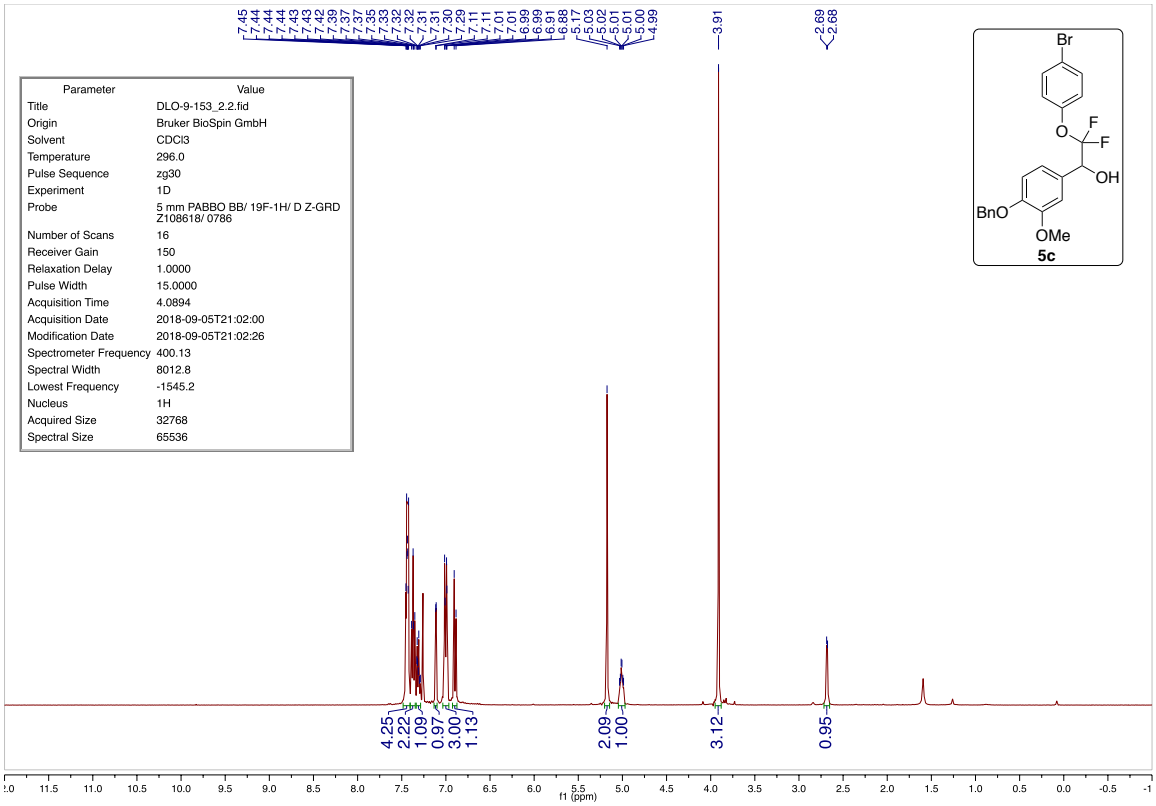


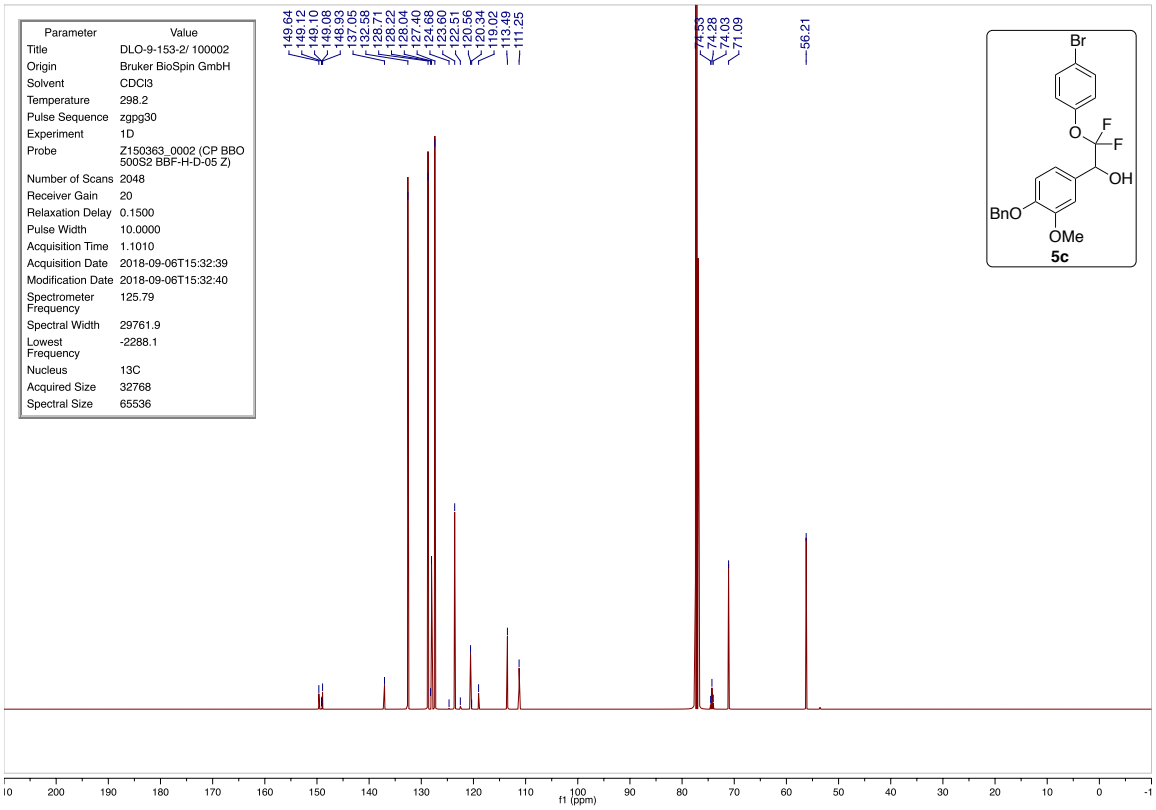
Parameter	Value
Title	DLO-10-094_1.2.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.1
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	101
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-09-05T17:36:00
Modification Date	2018-09-05T17:36:37
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1542.8
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

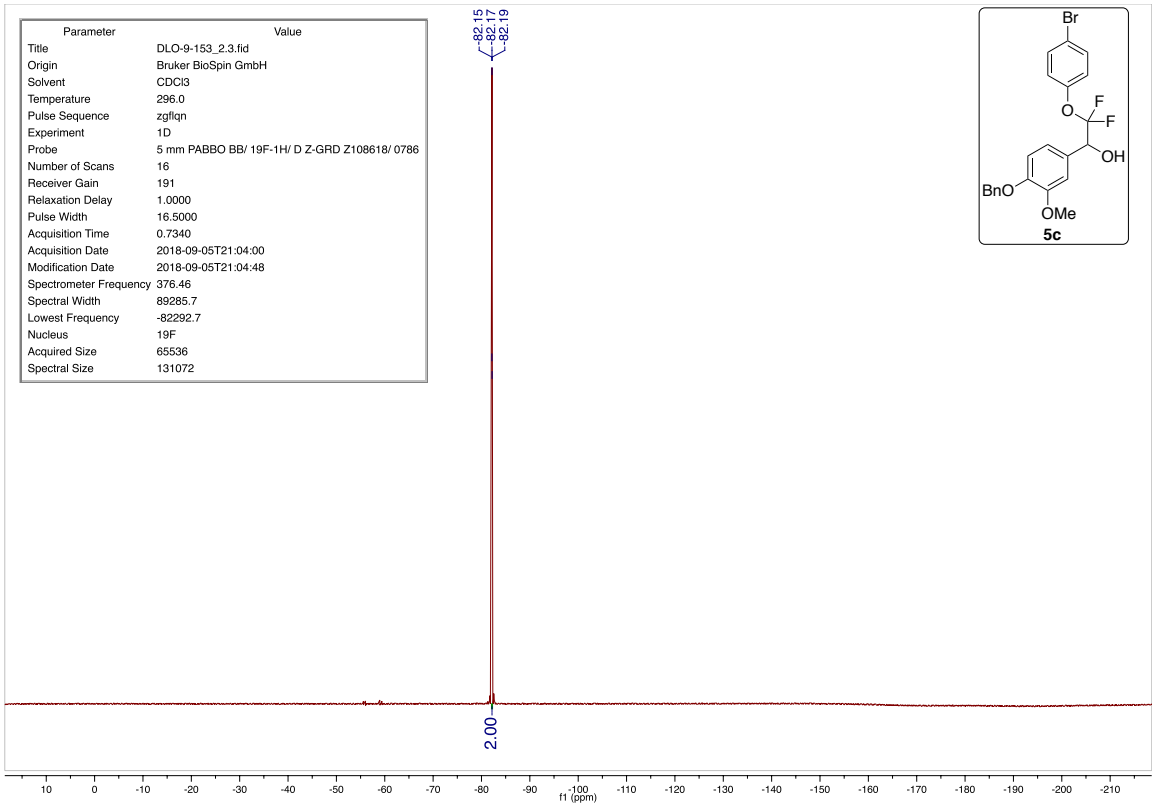


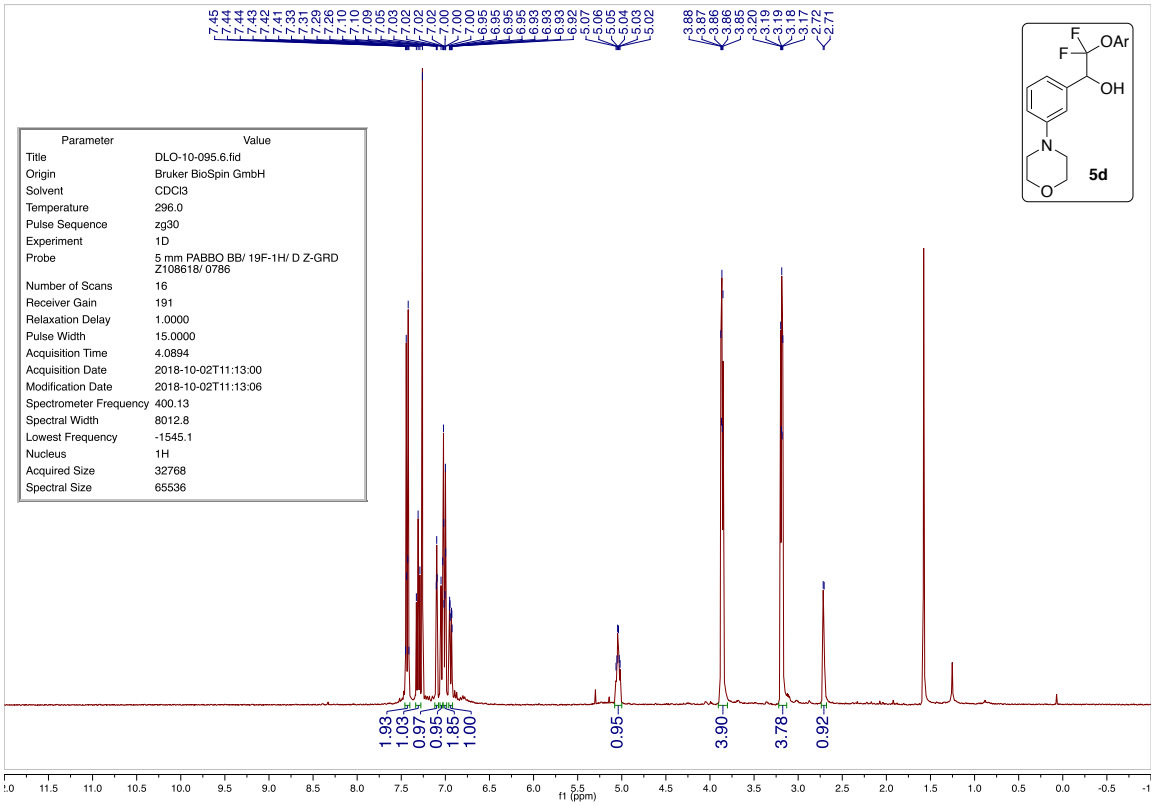

Parameter Value
Title DLO-10-094-1/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 18
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-06T09:05:54
Modification Date 2018-09-06T09:05:54
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2291.2
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
149.02
139.87
132.56
131.86
128.25
126.16
124.57
123.56
123.11
120.24
119.02
74.36
74.11
73.86
15.61
Br
O
F
F
OH
MeS
5b
f1 (ppm)

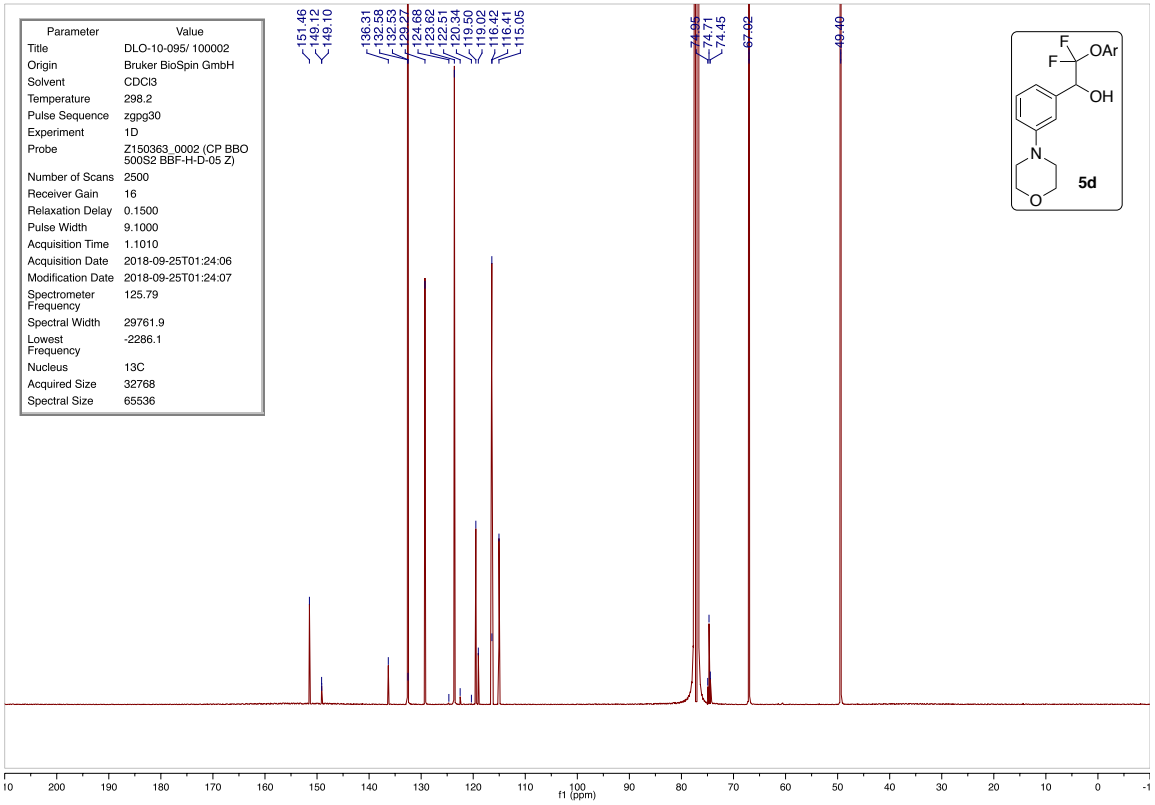

Parameter Value
Title DLO-10-094_1.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-05T17:39:00
Modification Date 2018-09-05T17:39:08
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
81.77
81.78
82.11
82.14
82.16
82.18
82.20
82.24
82.56
82.58
1.00
0.92
Br
O
F
F
OH
MeS
5b
f1 (ppm)

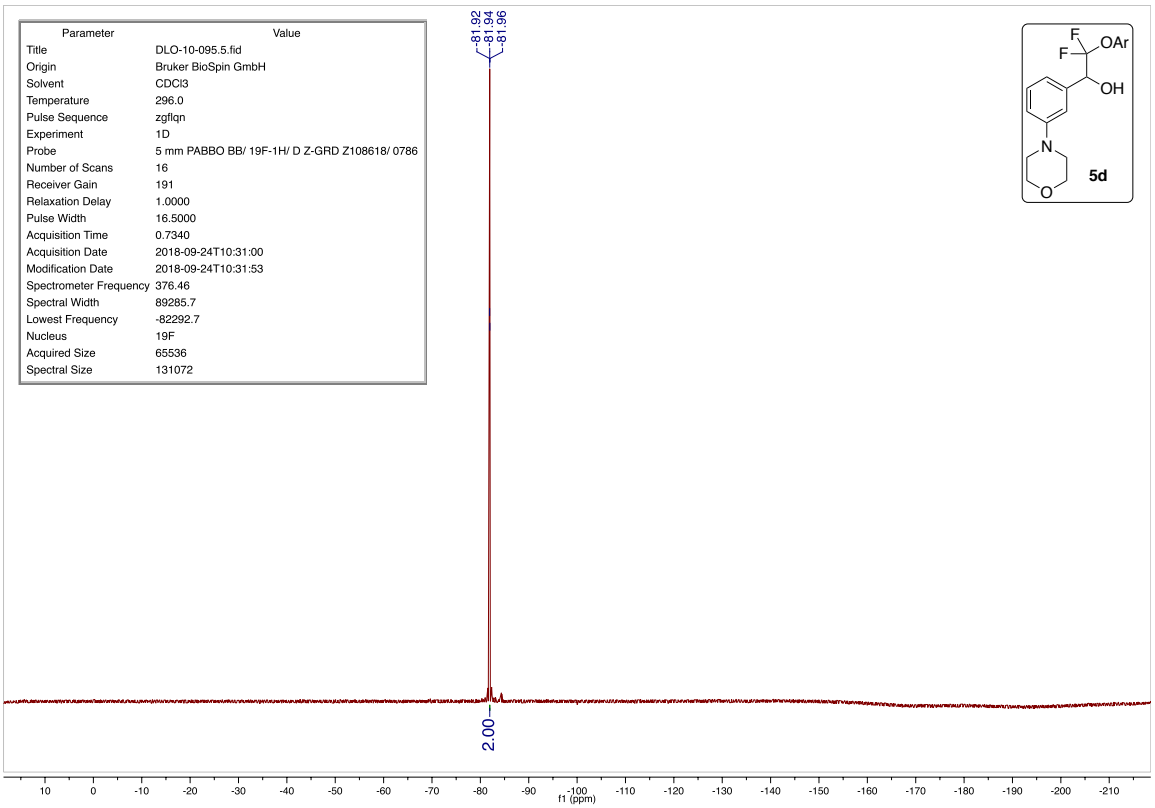

7.45
7.44
7.44
7.44
7.43
7.43
7.42
7.39
7.37
7.37
7.35
7.33
7.32
7.31
7.31
7.30
7.29
7.11
7.11
7.01
7.01
6.99
6.89
6.91
6.88
5.17
5.03
5.02
5.01
5.01
5.00
4.99
3.91
2.69
2.68
Parameter Value
Title DLO-9-153_2.2.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 150
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-05T21:02:00
Modification Date 2018-09-05T21:02:26
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.2
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
Br
O
F
F
OH
BnO
OMe
5c
4.25
2.22
1.09
0.97
3.00
1.13
2.09
1.00
3.12
0.95
f1 (ppm)

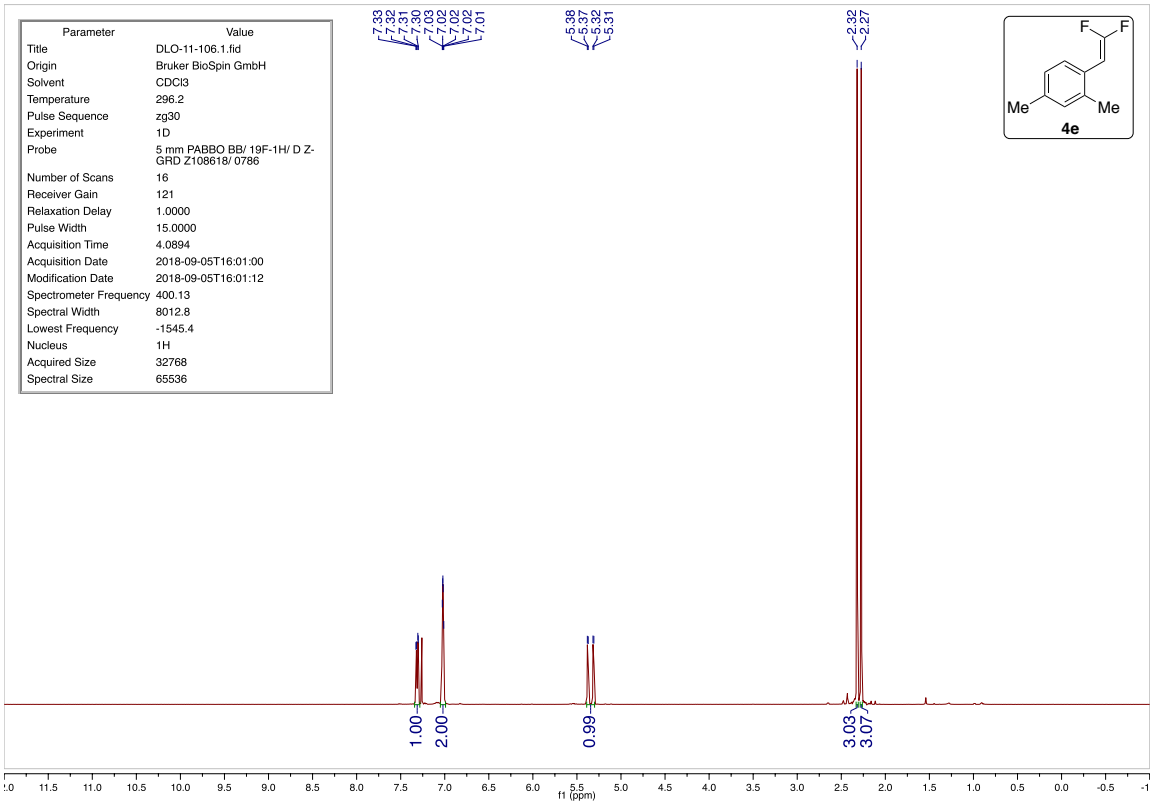

149.64
149.12
149.10
149.08
148.93
137.05
132.58
128.71
128.22
128.04
127.40
124.68
123.60
122.51
120.56
120.34
119.02
113.49
111.25
74.33
74.28
74.03
71.09
56.21
Parameter Value
Title DLO-9-153-2/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 20
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-06T15:32:39
Modification Date 2018-09-06T15:32:40
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2288.1
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
Br
O
F
F
OH
BnO
OMe
5c
f1 (ppm)

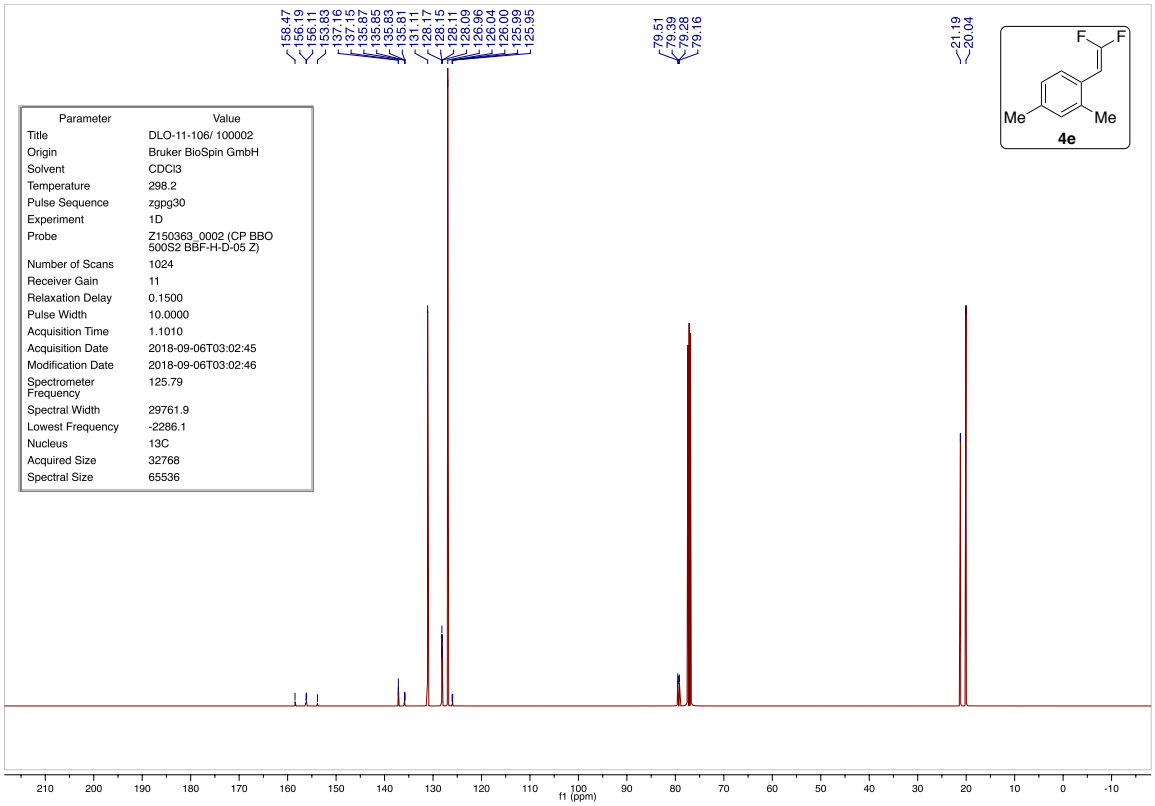

Parameter Value
Title DLO-9-153_2.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-05T21:04:00
Modification Date 2018-09-05T21:04:48
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-82.15
-82.17
-82.19
2.00
f1 (ppm)
Br
O
F
F
OH
BnO
OMe
5c

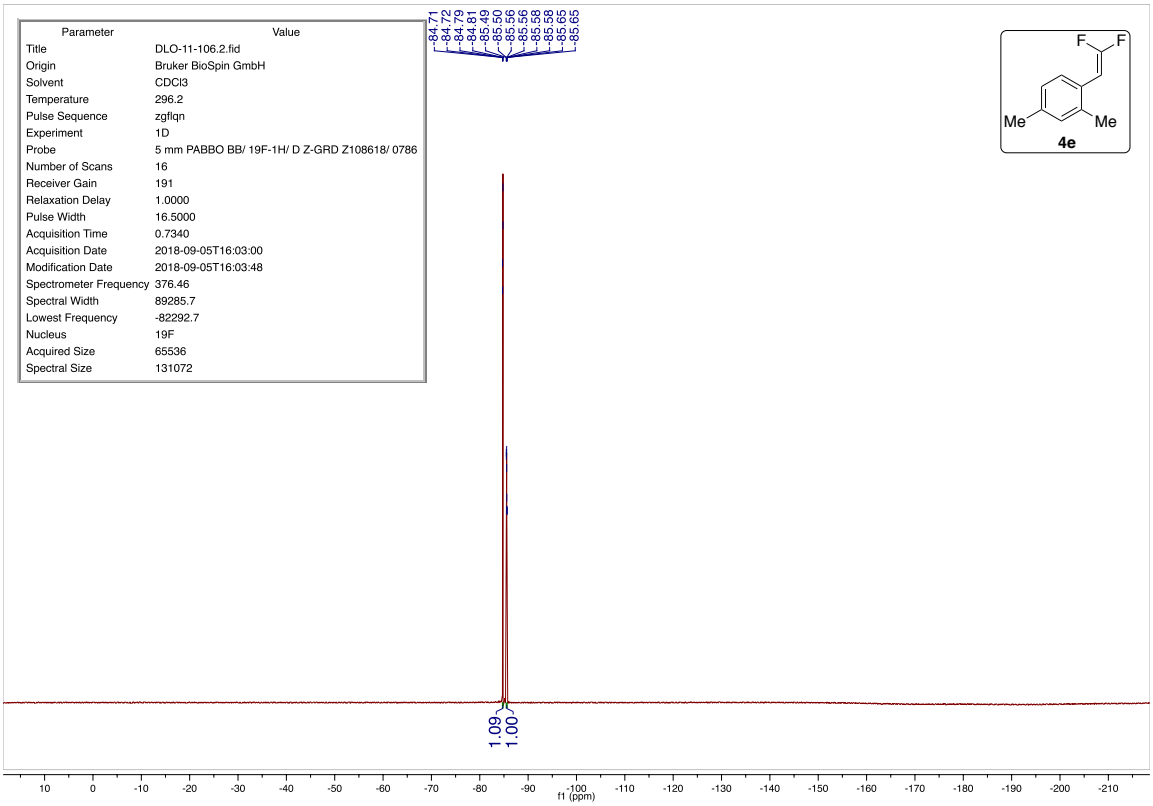

7.45
7.44
7.44
7.43
7.42
7.41
7.33
7.31
7.29
7.26
7.10
7.10
7.09
7.05
7.03
7.02
7.02
7.02
7.00
7.00
6.95
6.95
6.95
6.93
6.93
6.92
5.07
5.06
5.05
5.04
5.03
5.02
3.88
3.87
3.86
3.86
3.85
3.20
3.19
3.19
3.18
3.17
2.72
2.71
Parameter Value
Title DLO-10-095.6.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-10-02T11:13:00
Modification Date 2018-10-02T11:13:06
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.1
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
1.93
1.03
0.97
0.95
1.85
1.00
0.95
3.90
3.78
0.92
f1 (ppm)
F
F
OAr
OH
N
O
5d


Parameter Value
Title DLO-10-095/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2500
Receiver Gain 16
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-09-25T01:24:06
Modification Date 2018-09-25T01:24:07
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2286.1
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
151.46
149.12
149.10
136.31
132.58
132.53
129.27
124.68
123.62
122.51
120.34
119.50
119.02
116.42
116.41
115.05
74.95
74.71
74.45
67.02
49.40
F
F
OAr
OH
N
O
5d
f1 (ppm)

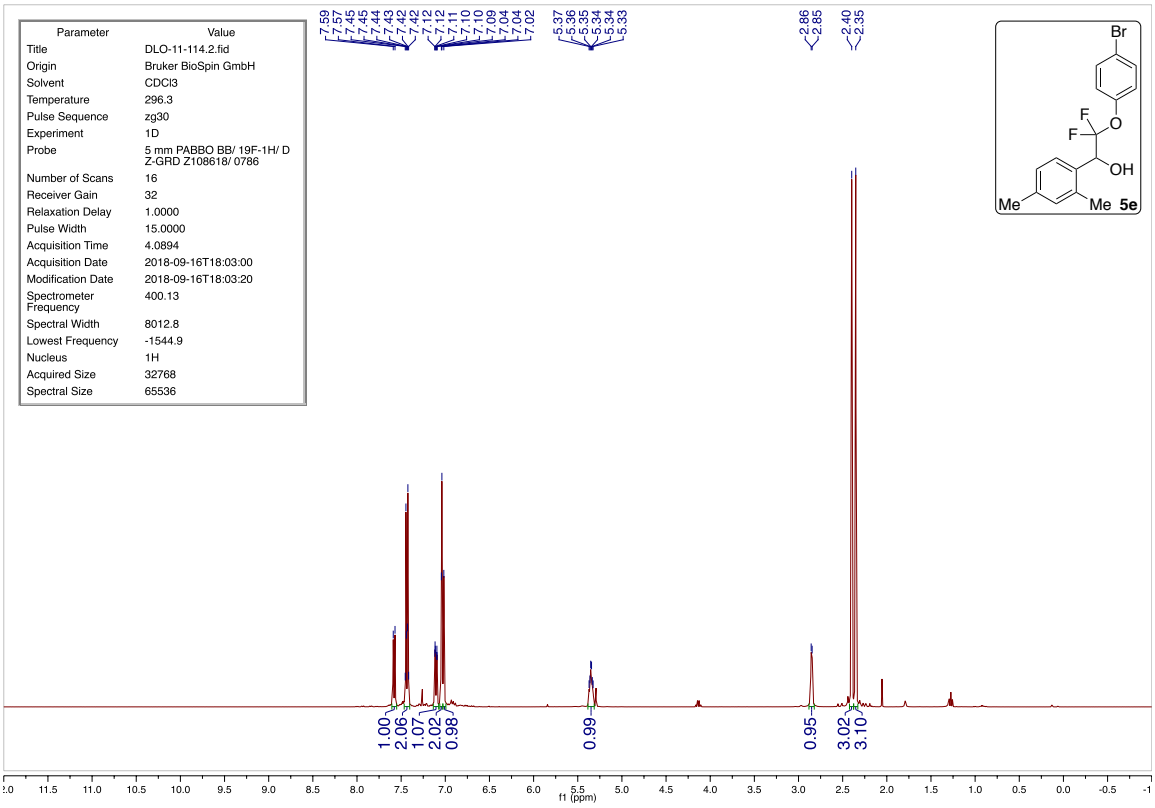

Parameter Value
Title DLO-10-095.5.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-24T10:31:00
Modification Date 2018-09-24T10:31:53
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
81.92
81.94
81.96
2.00
F
F
OAr
OH
N
O
5d
f1 (ppm)


Parameter Value
Title DLO-11-106.1.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.2
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 121
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-05T16:01:00
Modification Date 2018-09-05T16:01:12
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.4
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.33
7.32
7.31
7.30
7.03
7.02
7.02
7.02
7.01
5.38
5.37
5.32
5.31
2.32
2.27
F
F
Me
Me
4e
1.00
2.00
0.99
3.03
3.07
f1 (ppm)

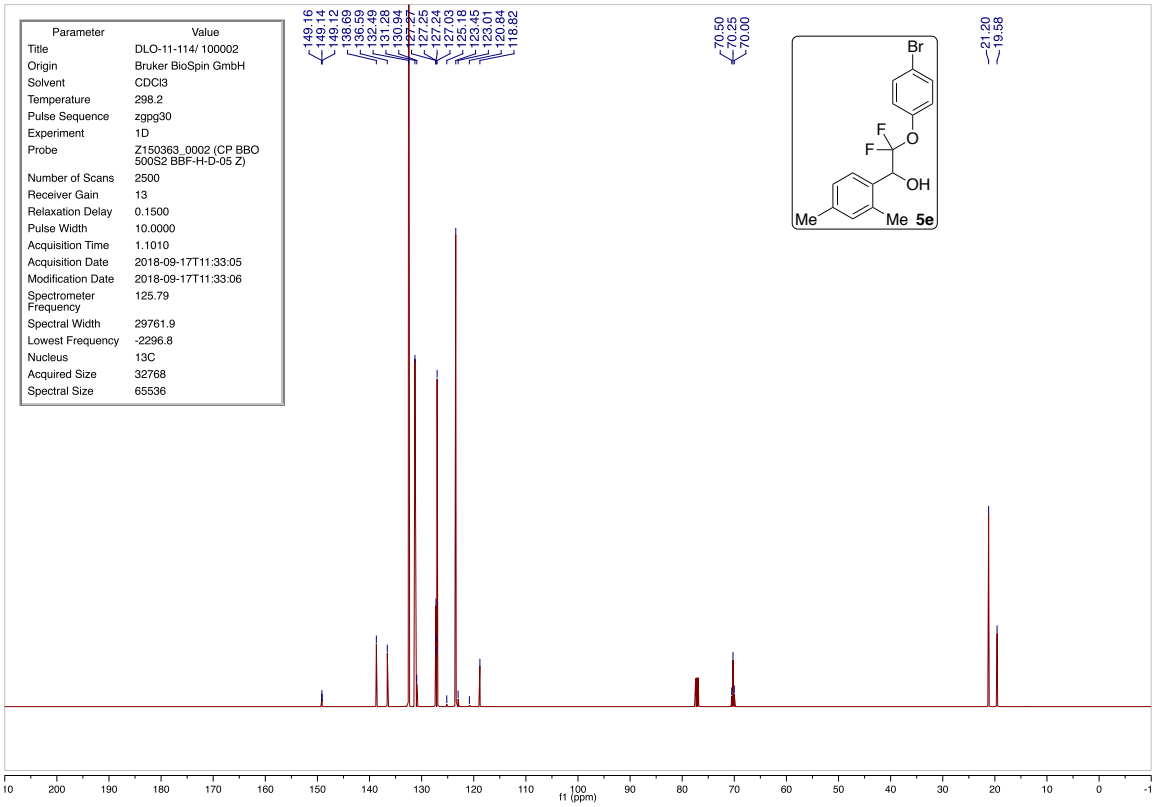

Parameter Value
Title DLO-11-106/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 1024
Receiver Gain 11
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-06T03:02:45
Modification Date 2018-09-06T03:02:46
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2286.1
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
158.47
156.19
156.11
153.83
137.16
137.15
135.87
135.85
135.83
135.81
131.11
128.17
128.15
128.11
128.09
126.96
126.04
126.00
125.99
125.95
79.51
79.39
79.28
79.16
21.19
20.04
F
F
Me
Me
4e
f1 (ppm)

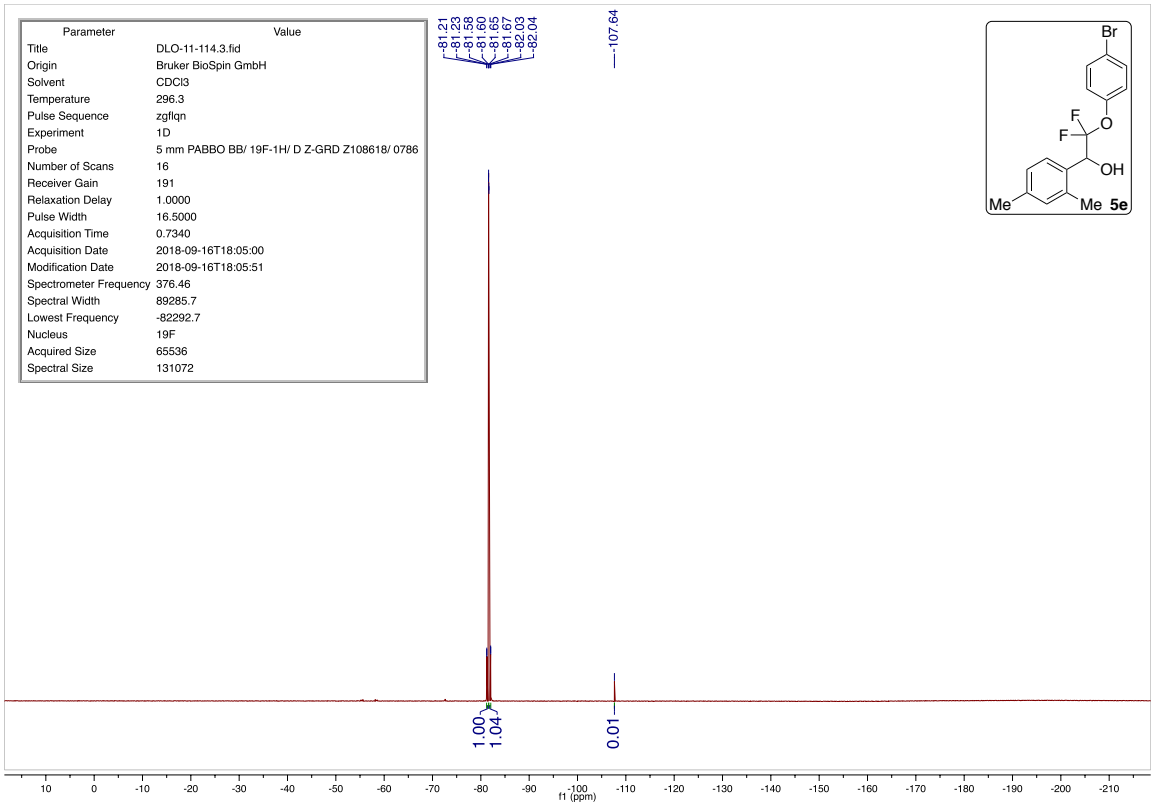


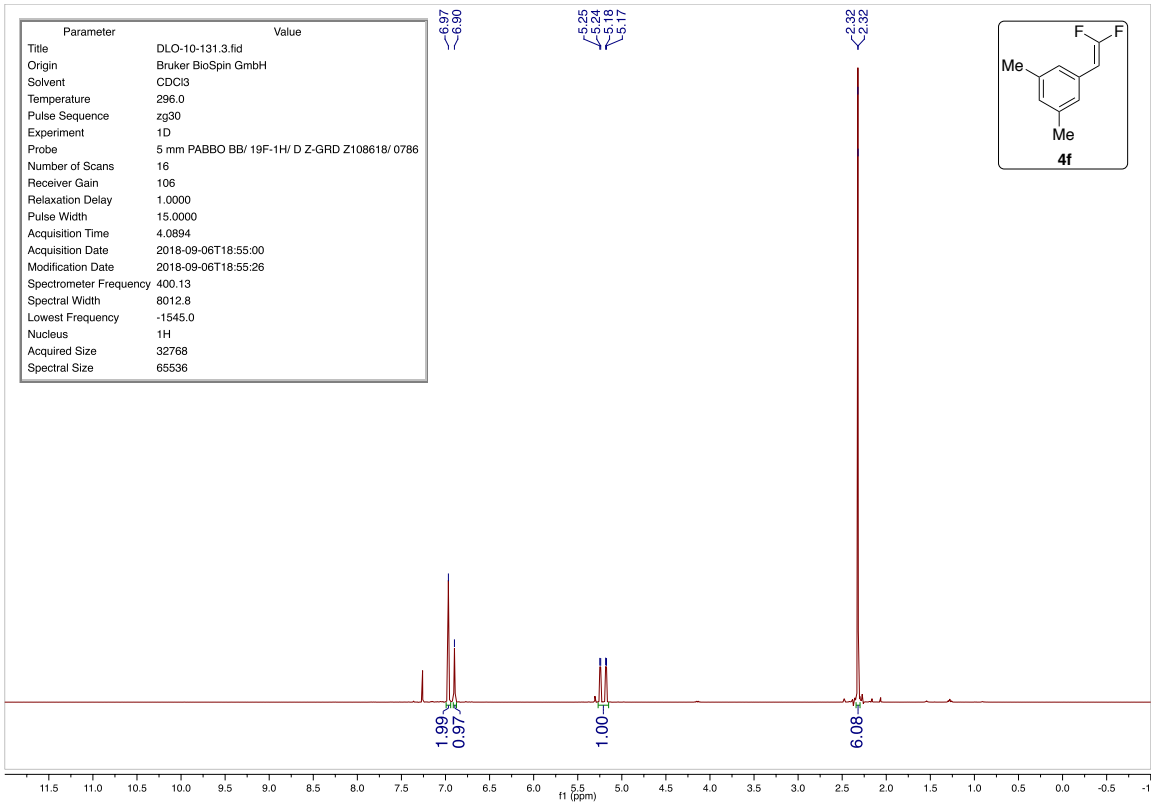
Parameter	Value
Title	DLO-11-106.2.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.2
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-09-05T16:03:00
Modification Date	2018-09-05T16:03:48
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

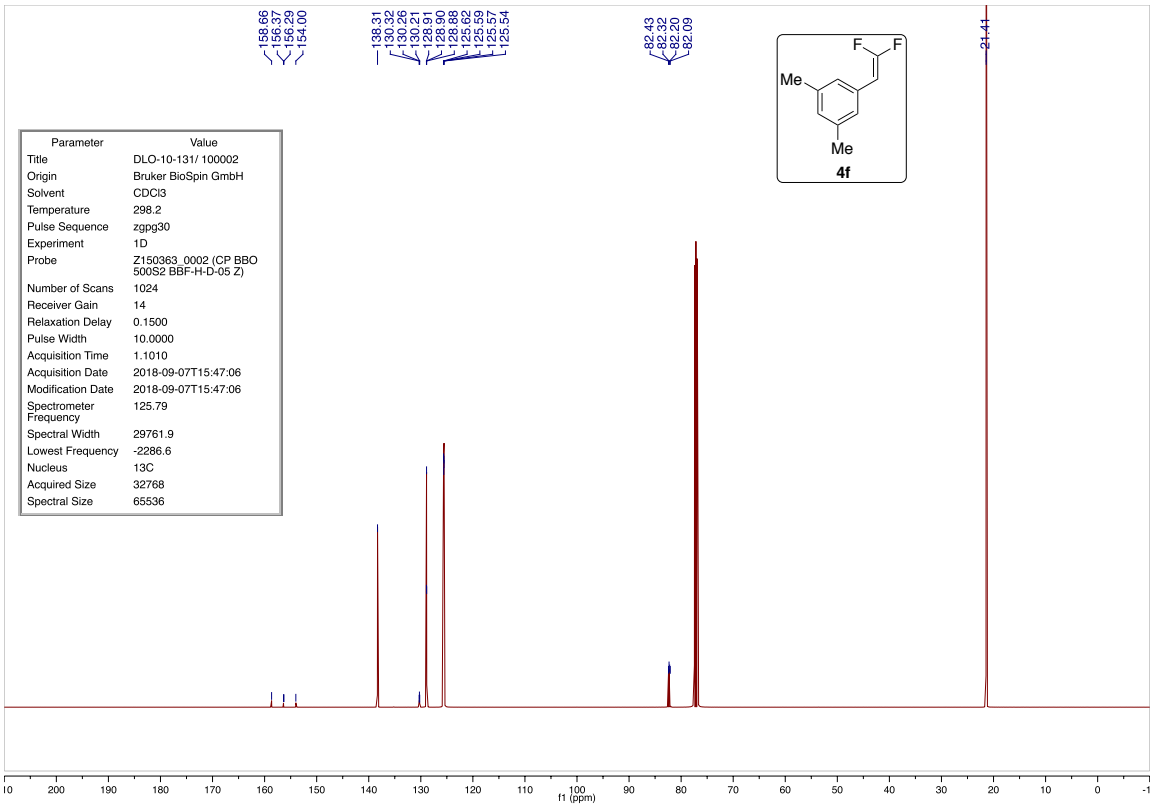


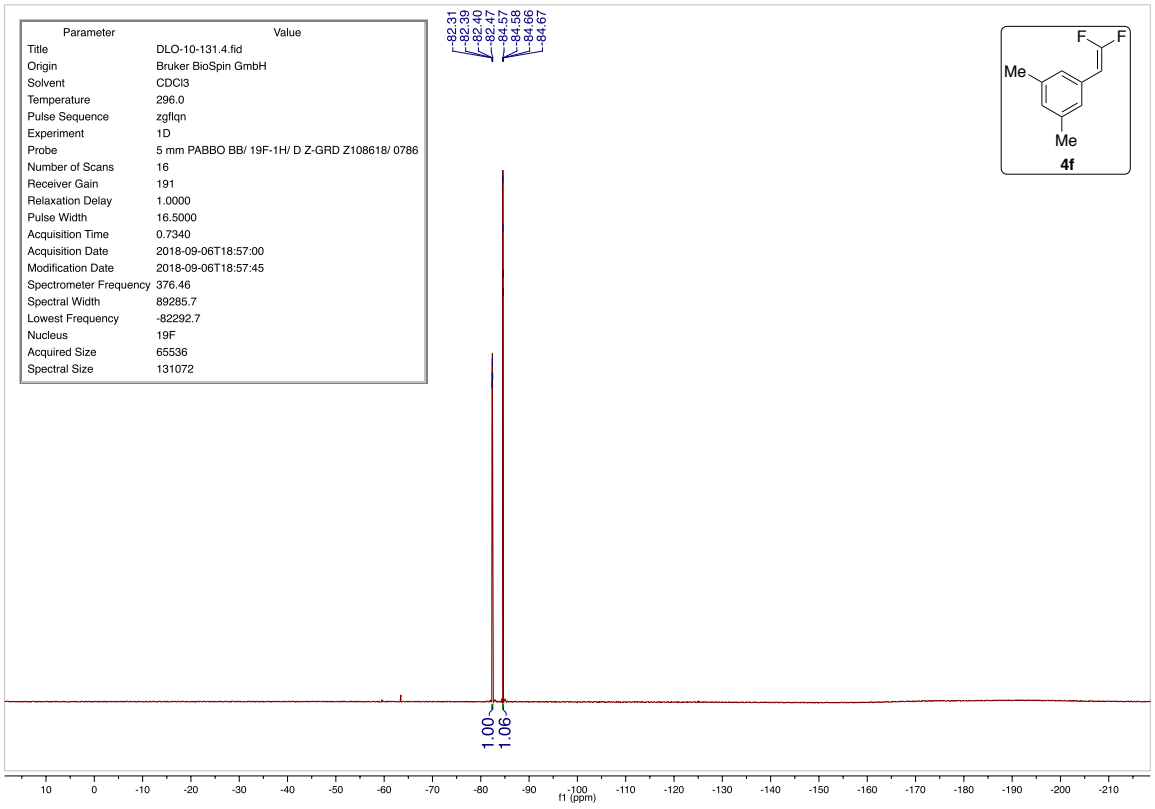
Parameter	Value
Title	DLO-11-114.2.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.3
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	32
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-09-16T18:03:00
Modification Date	2018-09-16T18:03:20
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1544.9
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

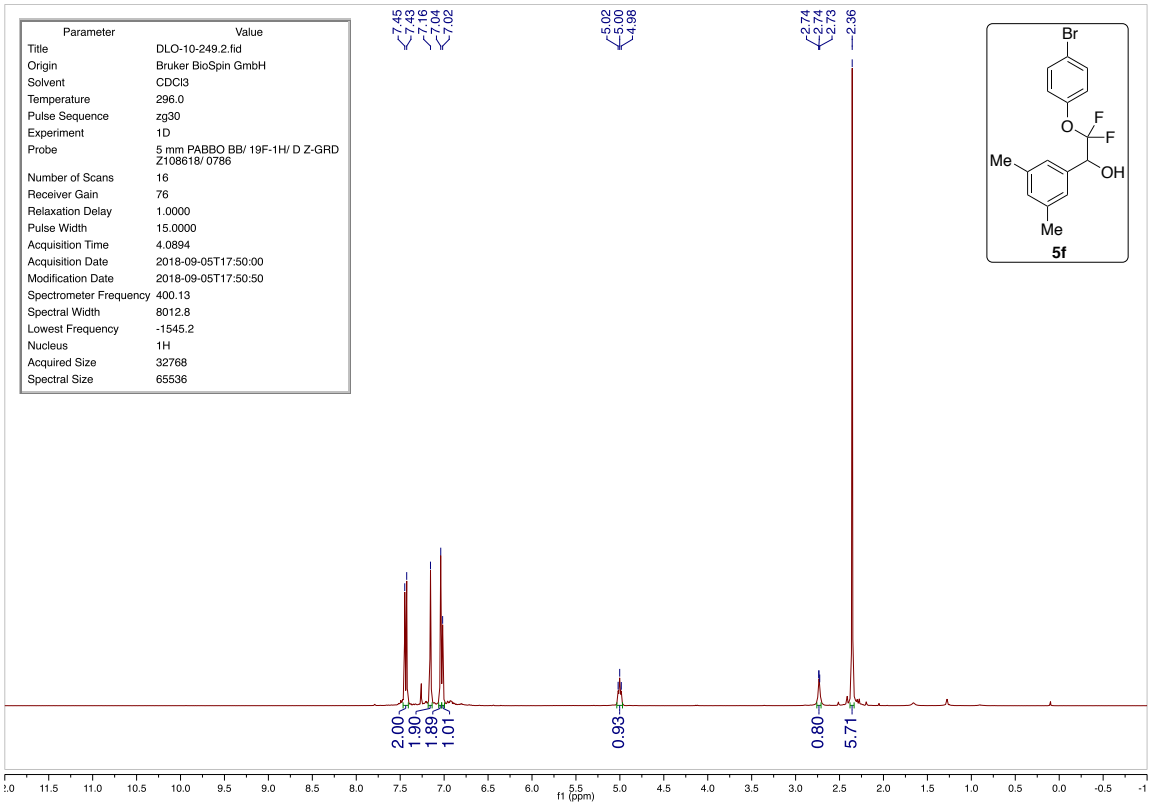

Parameter Value
Title DLO-11-114/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2500
Receiver Gain 13
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-17T11:33:05
Modification Date 2018-09-17T11:33:06
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2296.8
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
149.16
149.14
149.12
138.69
136.59
132.49
131.28
130.94
129.37
127.25
127.24
127.03
125.18
123.45
123.01
120.84
118.82
70.50
70.25
70.00
21.20
19.58
Br
F
F
O
OH
Me
Me 5e
f1 (ppm)

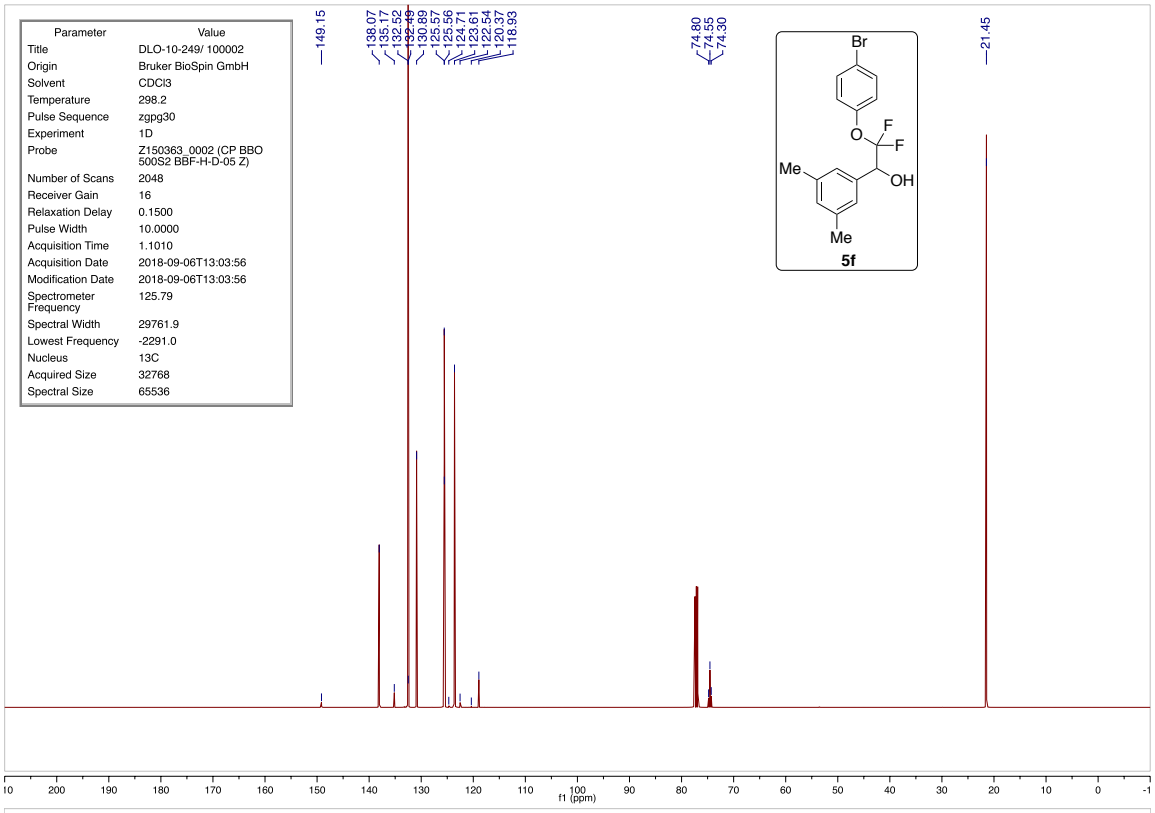

Parameter Value
Title DLO-11-114.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.3
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-16T18:05:00
Modification Date 2018-09-16T18:05:51
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.21
-81.23
-81.58
-81.60
-81.65
-81.67
-82.03
-82.04
-107.64
1.00
1.04
0.01
Br
F
F
O
OH
Me
Me 5e
f1 (ppm)

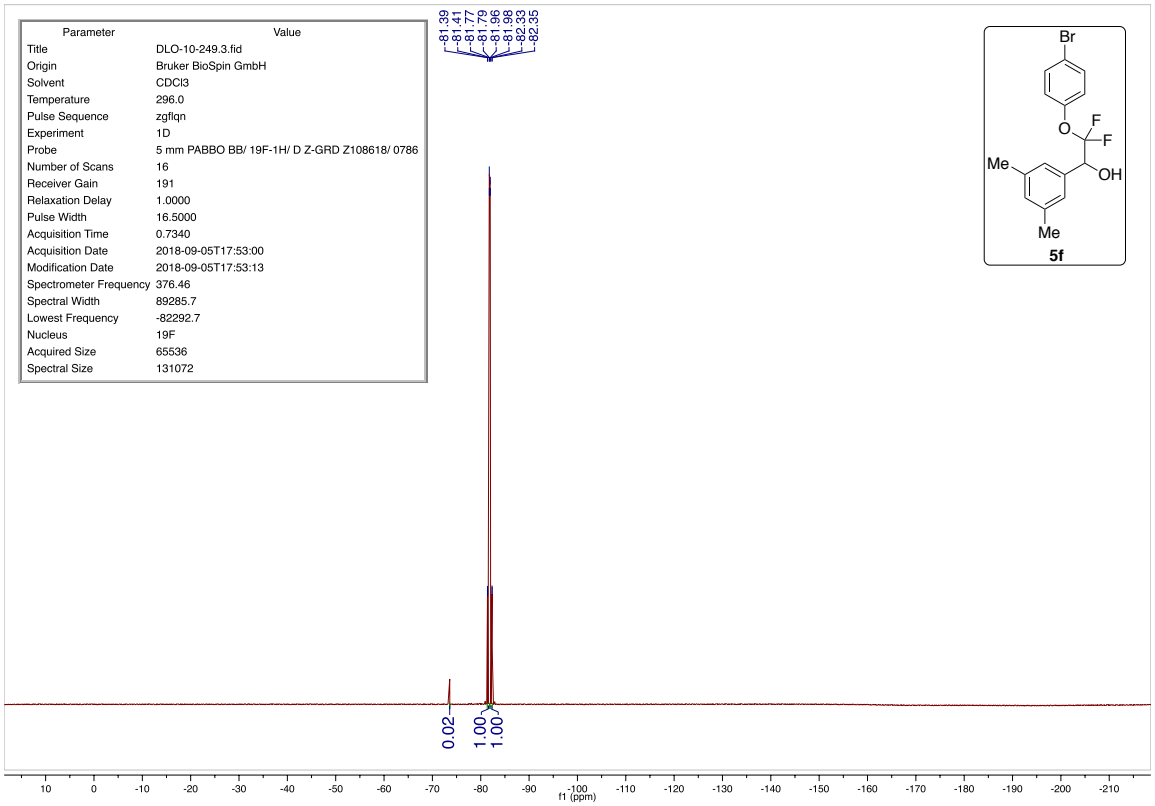

Parameter Value
Title DLO-10-131.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 106
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-06T18:55:00
Modification Date 2018-09-06T18:55:26
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.0
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
6.97
6.90
5.25
5.24
5.18
5.17
2.32
2.32
F
F
Me
Me
4f
1.99
0.97
1.00
6.08
f1 (ppm)

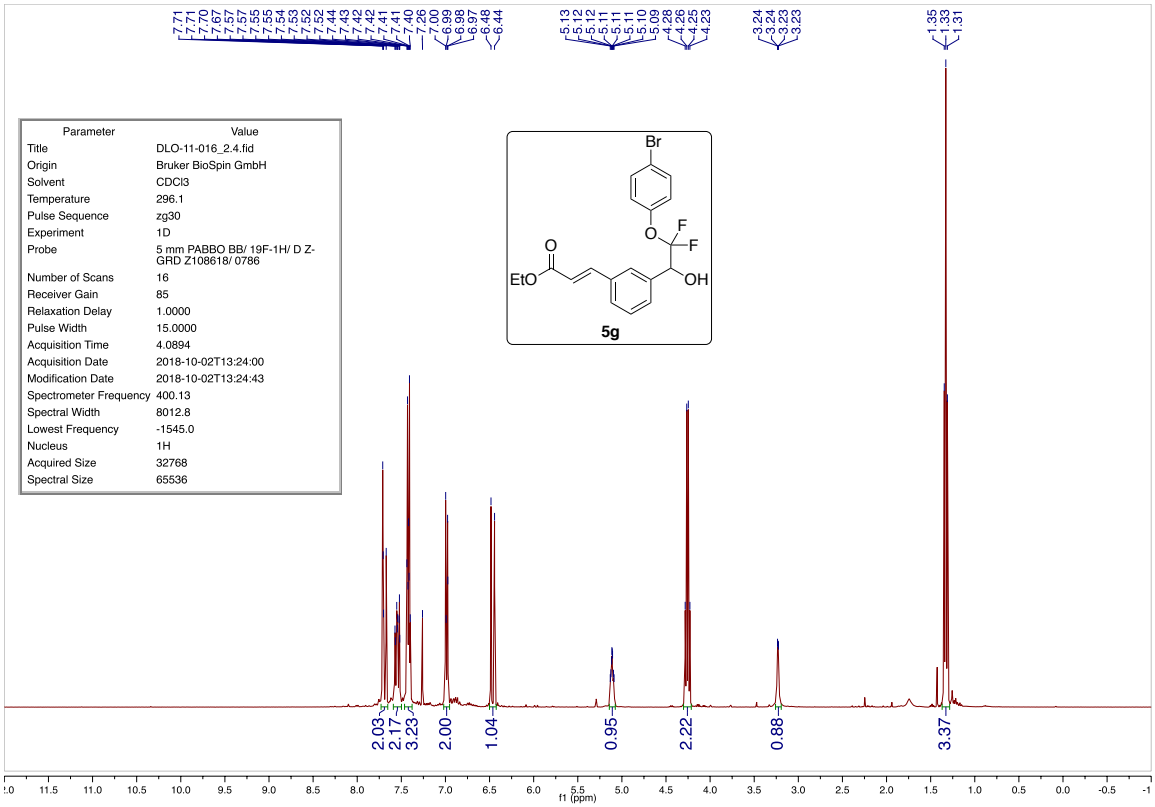

Parameter Value
Title DLO-10-131/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 1024
Receiver Gain 14
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-07T15:47:06
Modification Date 2018-09-07T15:47:06
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2286.6
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
158.66
156.37
156.29
154.00
138.31
130.32
130.26
130.21
128.91
128.90
128.88
125.62
125.59
125.57
125.54
82.43
82.32
82.20
82.09
21.41
F
F
Me
Me
4f
f1 (ppm)

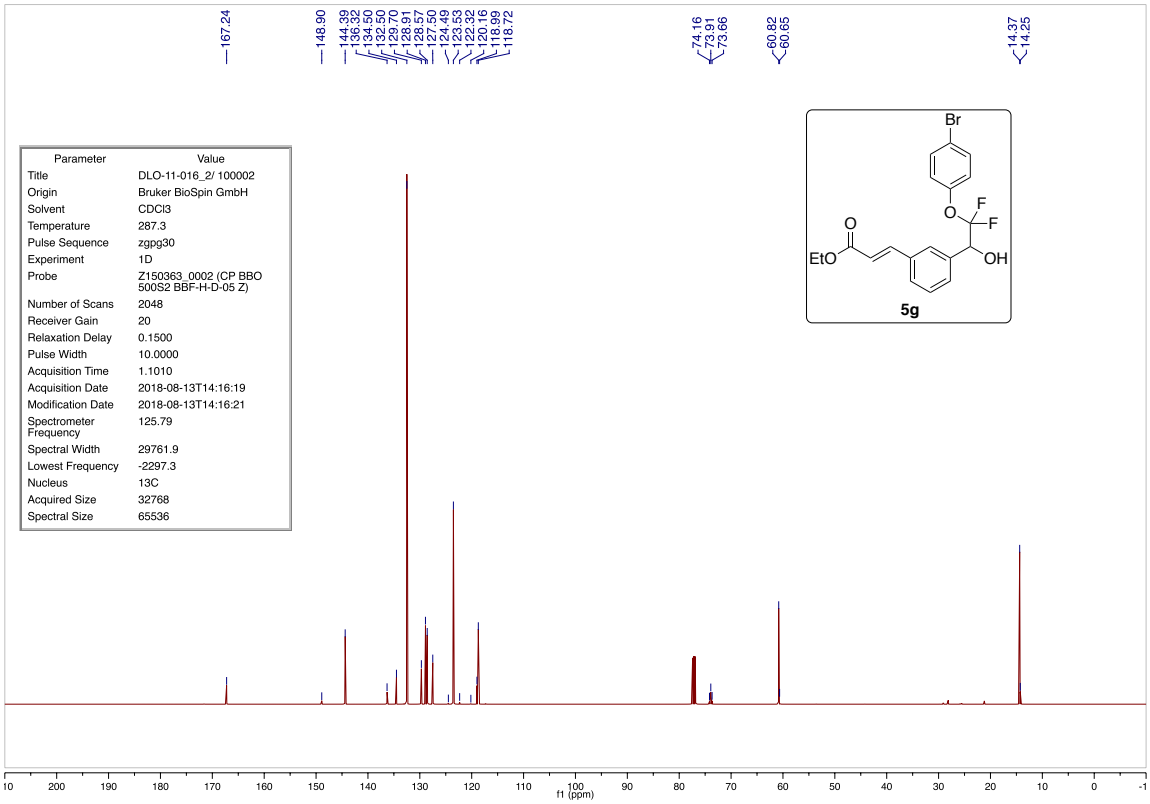

Parameter Value
Title DLO-10-131.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-06T18:57:00
Modification Date 2018-09-06T18:57:45
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-82.31
-82.39
-82.40
-82.47
-84.57
-84.58
-84.66
-84.67
F
F
Me
Me
4f
1.00
1.06
f1 (ppm)


Parameter Value
Title DLO-10-249.2.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 76
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-05T17:50:00
Modification Date 2018-09-05T17:50:50
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.2
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.45
7.43
7.16
7.04
7.02
5.02
5.00
4.98
2.74
2.74
2.73
2.36
Br
O
F
F
Me
OH
Me
5f
2.00
1.90
1.89
1.01
0.93
0.80
5.71
f1 (ppm)

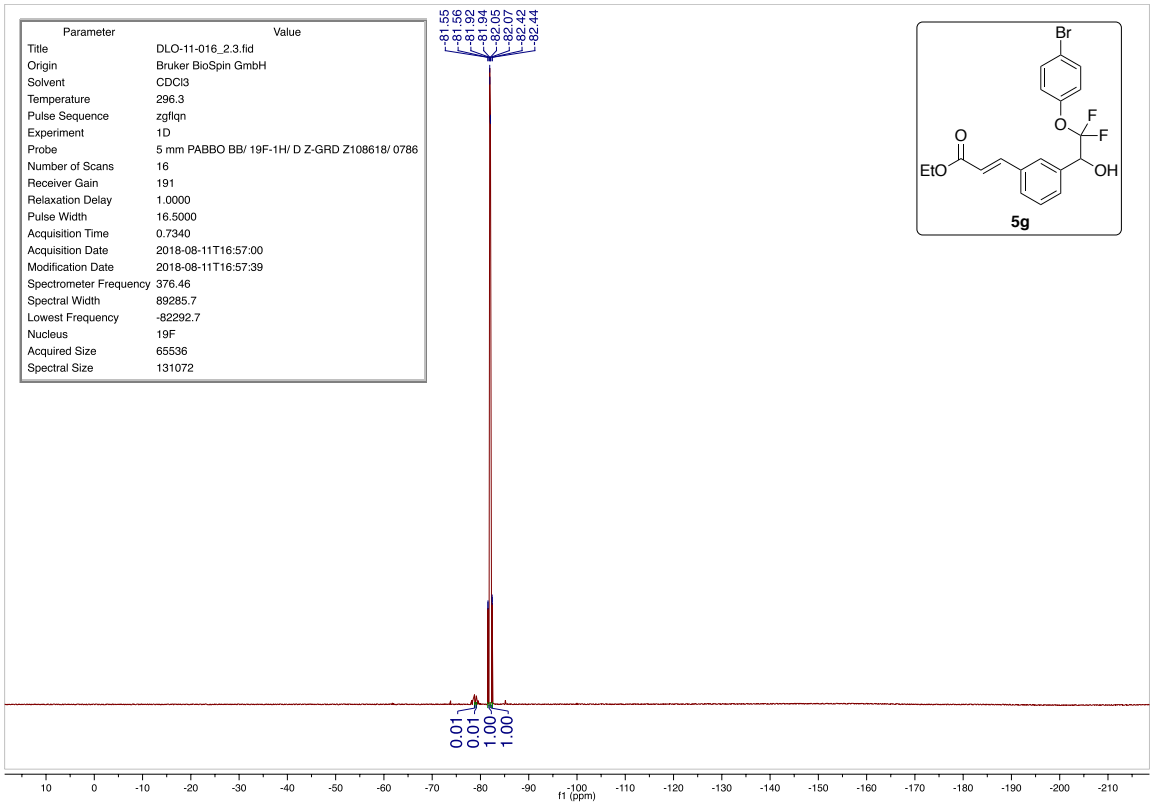

Parameter Value
Title DLO-10-249/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 16
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-06T13:03:56
Modification Date 2018-09-06T13:03:56
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2291.0
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
149.15
138.07
135.77
133.52
132.49
130.89
125.57
125.56
124.71
123.61
122.54
120.37
118.93
74.80
74.55
74.30
21.45
Br
O
F
F
Me
OH
Me
5f
f1 (ppm)


Parameter Value
Title DLO-10-249.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-05T17:53:00
Modification Date 2018-09-05T17:53:13
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.39
-81.41
-81.77
-81.79
-81.98
-82.33
-82.35
0.02
1.00
1.00
Br
O
F
F
Me
OH
Me
5f
f1 (ppm)


7.71
7.71
7.70
7.67
7.57
7.57
7.55
7.55
7.54
7.53
7.52
7.52
7.44
7.43
7.42
7.42
7.41
7.41
7.40
7.26
7.00
6.99
6.98
6.97
6.48
6.44
5.13
5.12
5.12
5.11
5.11
5.11
5.10
5.09
4.28
4.26
4.25
4.23
3.24
3.24
3.23
3.23
1.35
1.33
1.31
Parameter Value
Title DLO-11-016_2.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 85
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-10-02T13:24:00
Modification Date 2018-10-02T13:24:43
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.0
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
Br
F
O
F
O
EtO
OH
5g
2.03
2.17
3.23
2.00
1.04
0.95
2.22
0.88
3.37
f1 (ppm)

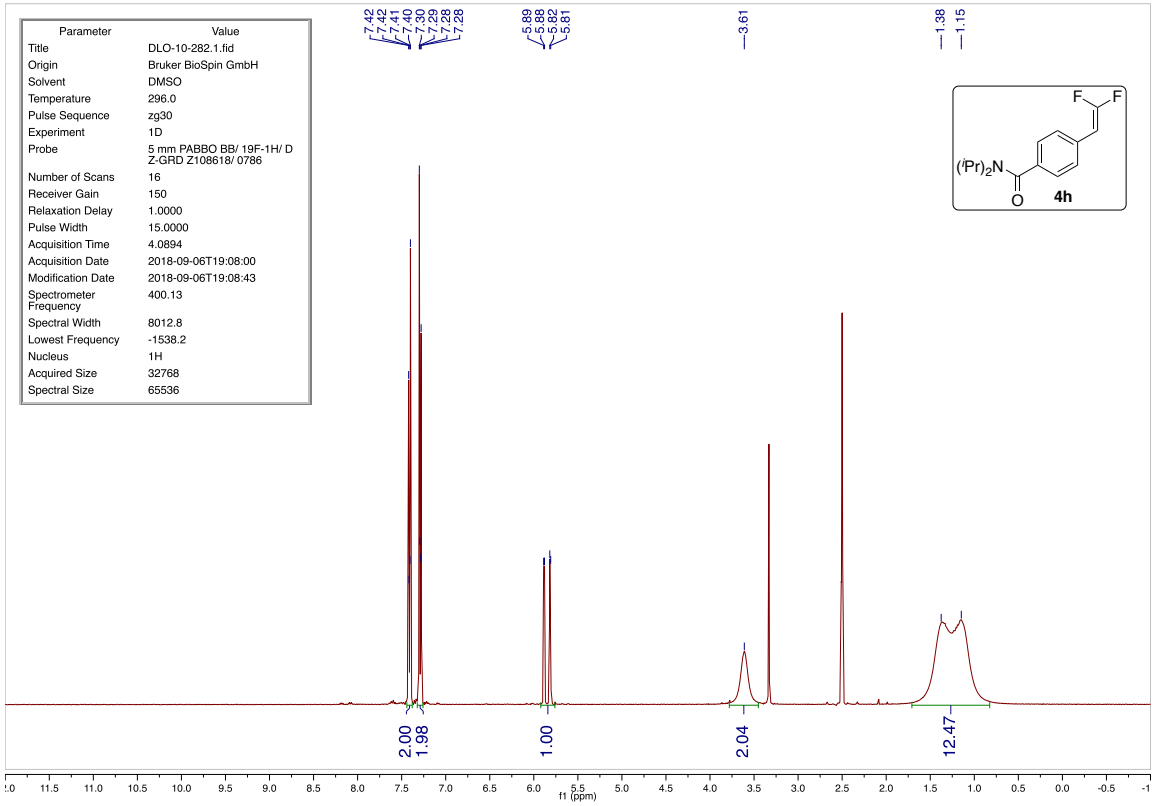

167.24
148.90
144.39
135.32
134.50
132.50
129.70
128.91
128.57
127.50
124.49
123.53
122.32
120.16
119.99
118.72
74.16
73.91
73.66
60.82
60.65
14.37
14.25
Parameter Value
Title DLO-11-016_2/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 287.3
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 20
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-08-13T14:16:19
Modification Date 2018-08-13T14:16:21
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2297.3
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
Br
F
O
F
O
EtO
OH
5g
f1 (ppm)

Parameter	Value
Title	DLO-11-016_2.3.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.3
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-08-11T16:57:00
Modification Date	2018-08-11T16:57:39
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

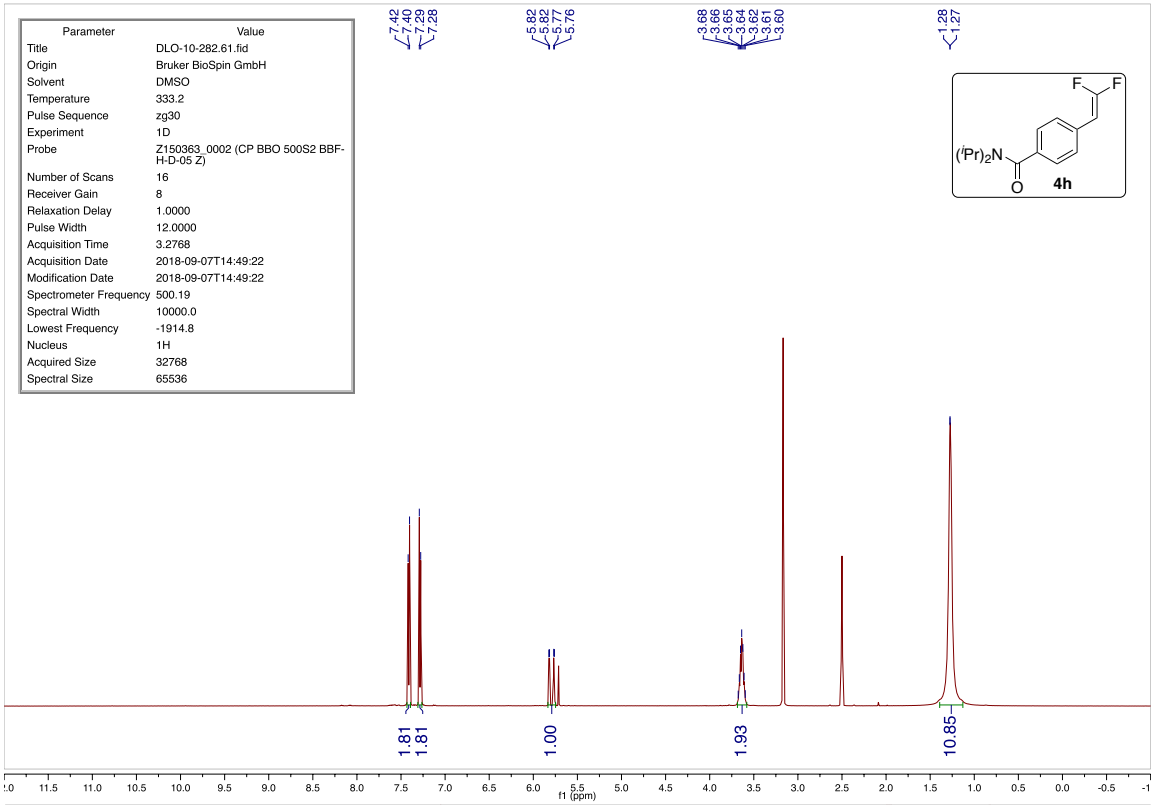


5g

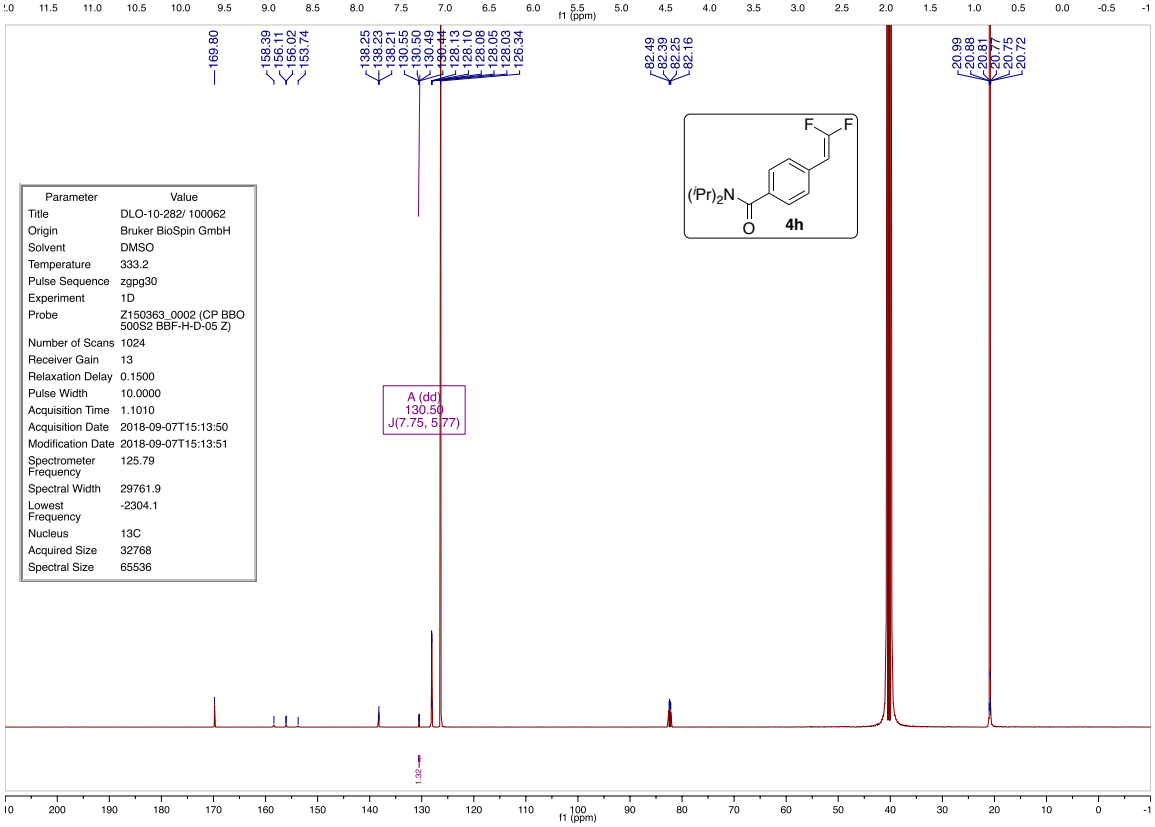
Parameter	Value
Title	DLO-10-282.1.fid
Origin	Bruker BioSpin GmbH
Solvent	DMSO
Temperature	296.0
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	150
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-09-06T19:08:00
Modification Date	2018-09-06T19:08:43
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1538.2
Nucleus	1H
Acquired Size	32768
Spectral Size	65536



4h

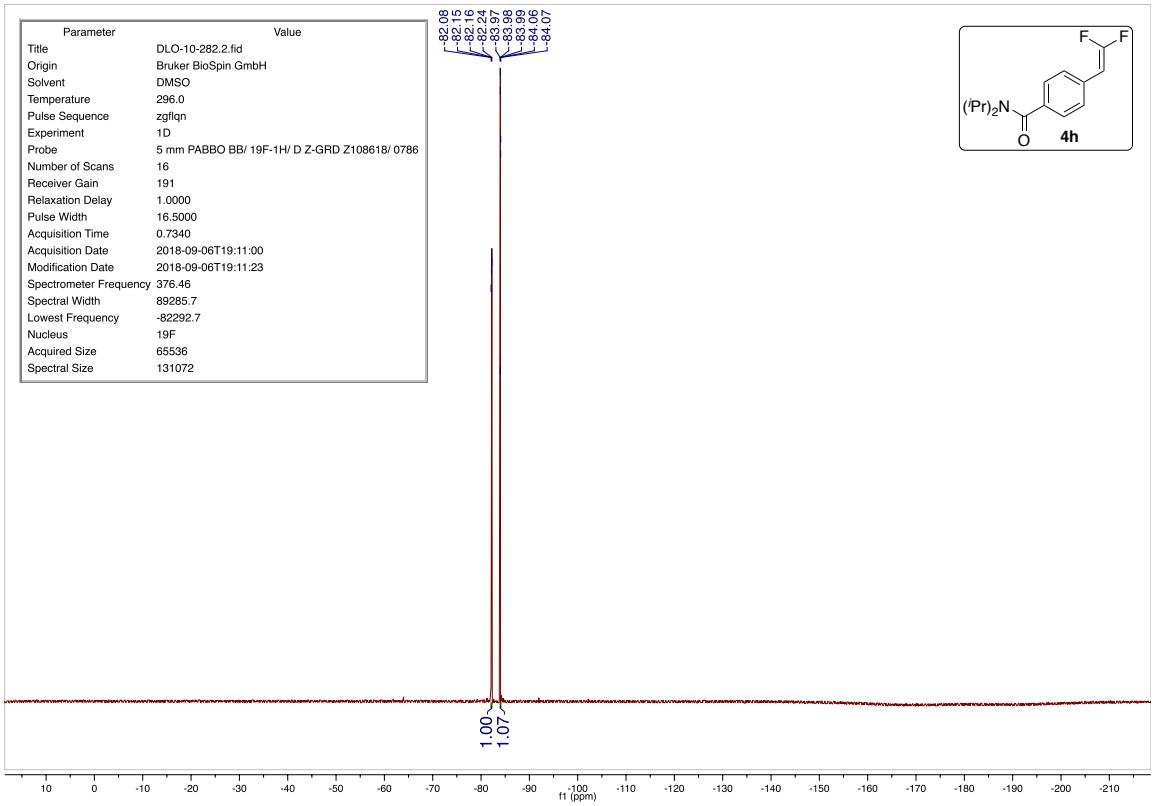


Parameter	Value
Title	DLO-10-282.61.fid
Origin	Bruker BioSpin GmbH
Solvent	DMSO
Temperature	333.2
Pulse Sequence	zg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	16
Receiver Gain	8
Relaxation Delay	1.0000
Pulse Width	12.0000
Acquisition Time	3.2768
Acquisition Date	2018-09-07T14:49:22
Modification Date	2018-09-07T14:49:22
Spectrometer Frequency	500.19
Spectral Width	10000.0
Lowest Frequency	-1914.8
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

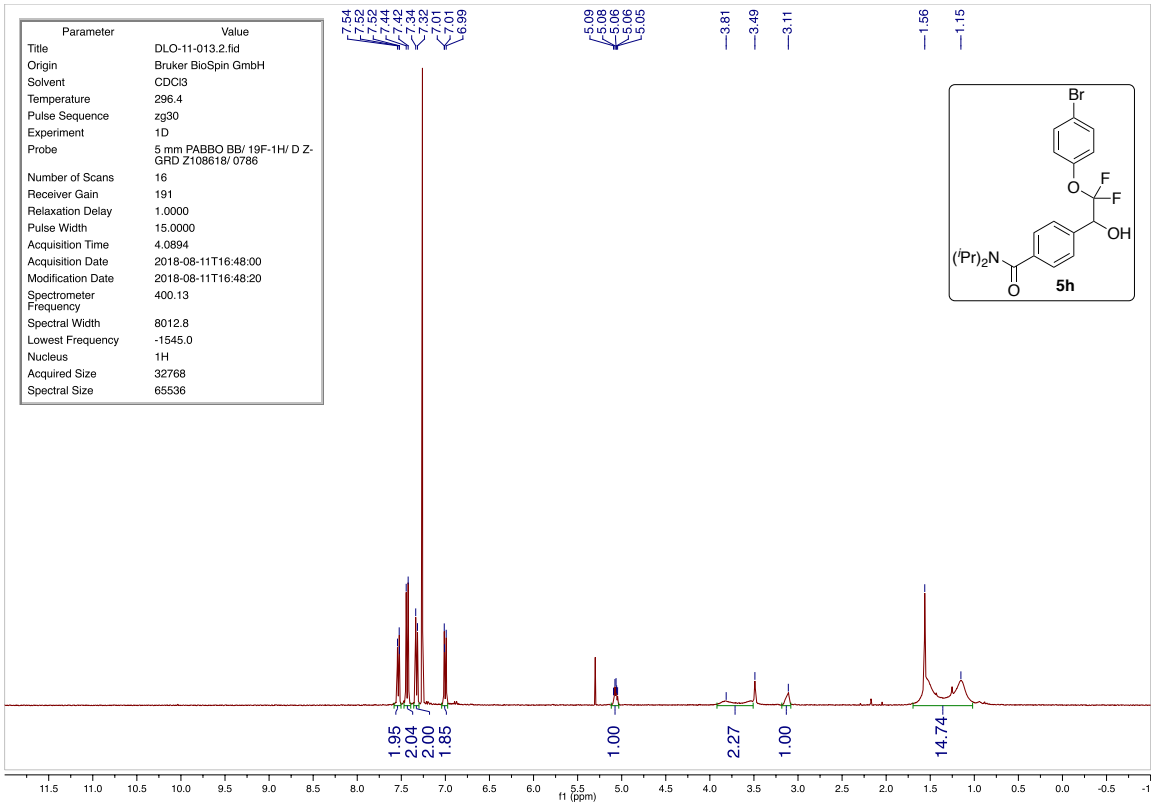


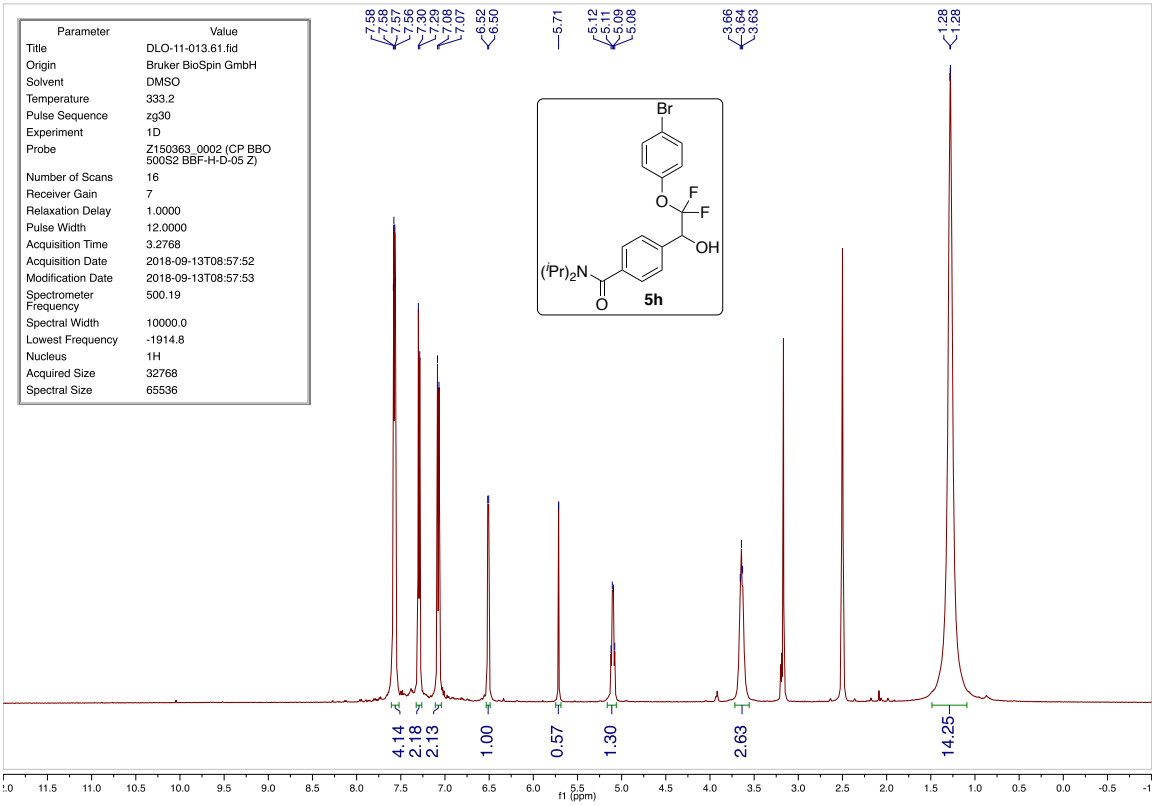
Parameter	Value
Title	DLO-10-282/ 100062
Origin	Bruker BioSpin GmbH
Solvent	DMSO
Temperature	333.2
Pulse Sequence	zgpg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	1024
Receiver Gain	13
Relaxation Delay	0.1500
Pulse Width	10.0000
Acquisition Time	1.1010
Acquisition Date	2018-09-07T15:13:50
Modification Date	2018-09-07T15:13:51
Spectrometer Frequency	125.79
Spectral Width	29761.9
Lowest Frequency	-2304.1
Nucleus	13C
Acquired Size	32768
Spectral Size	65536

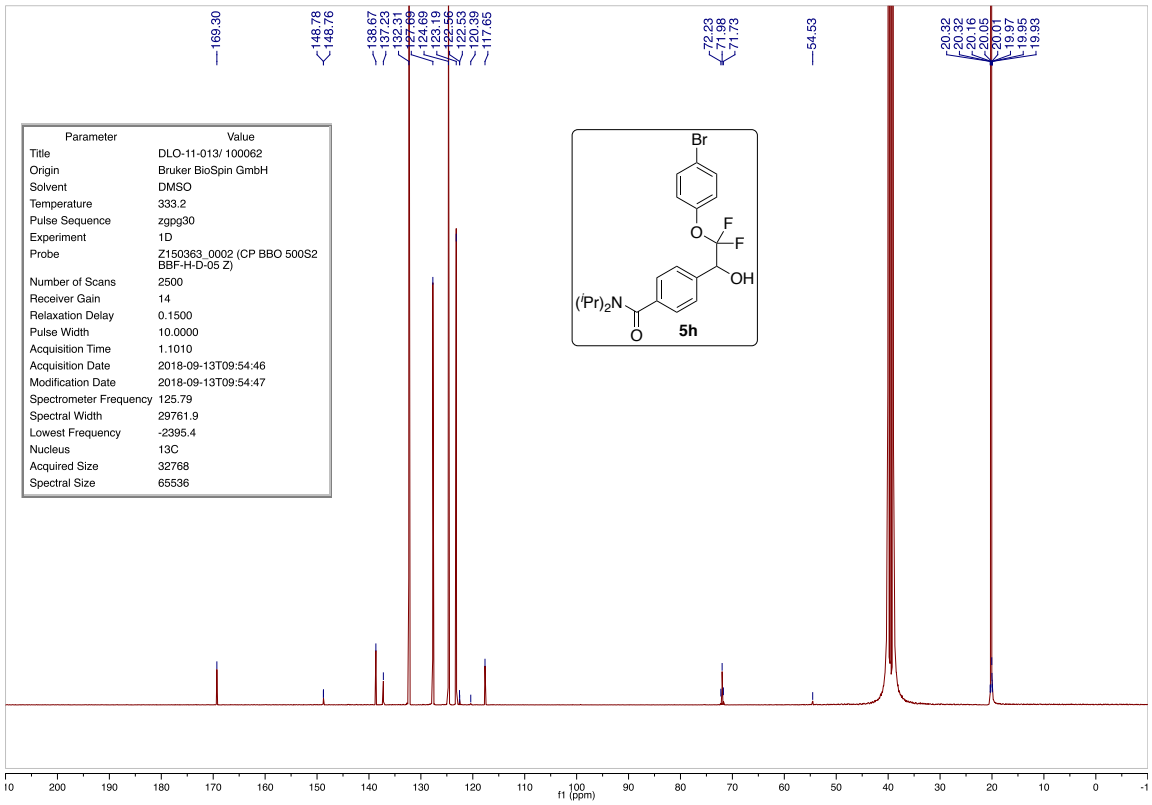
Parameter	Value
Title	DLO-10-282.2.fid
Origin	Bruker BioSpin GmbH
Solvent	DMSO
Temperature	296.0
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-09-06T19:11:00
Modification Date	2018-09-06T19:11:23
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

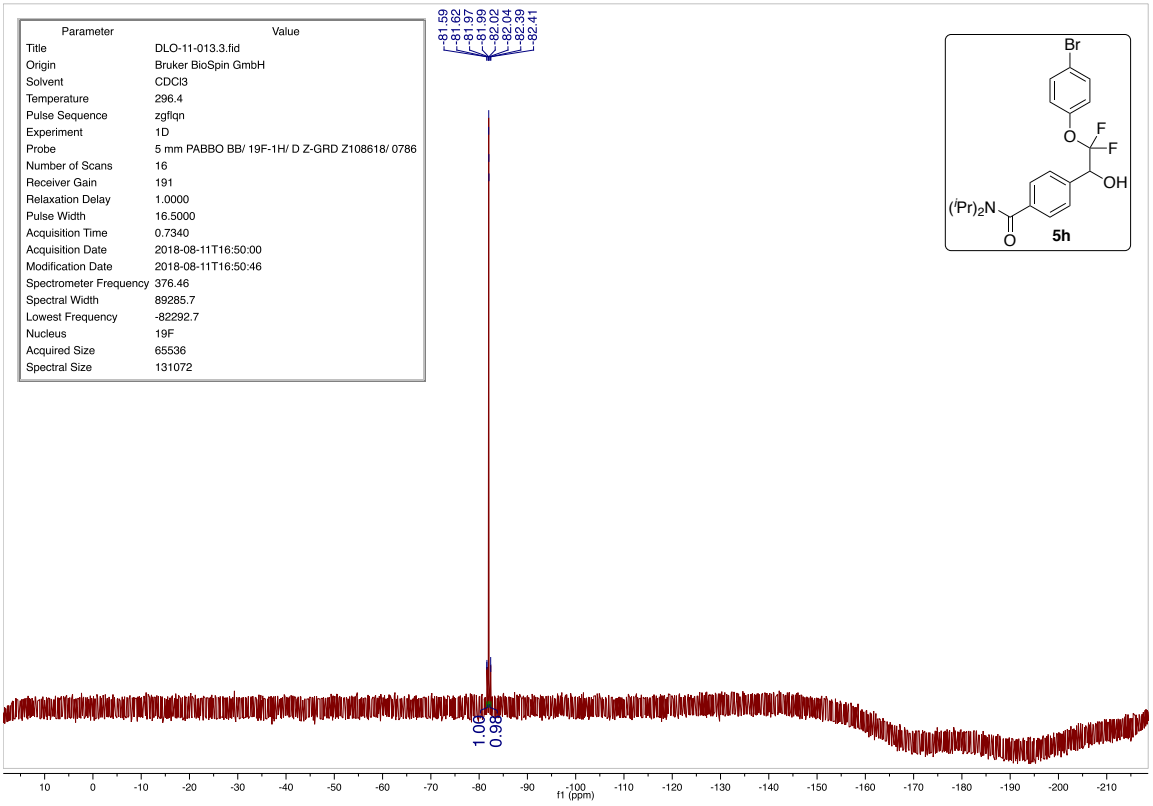


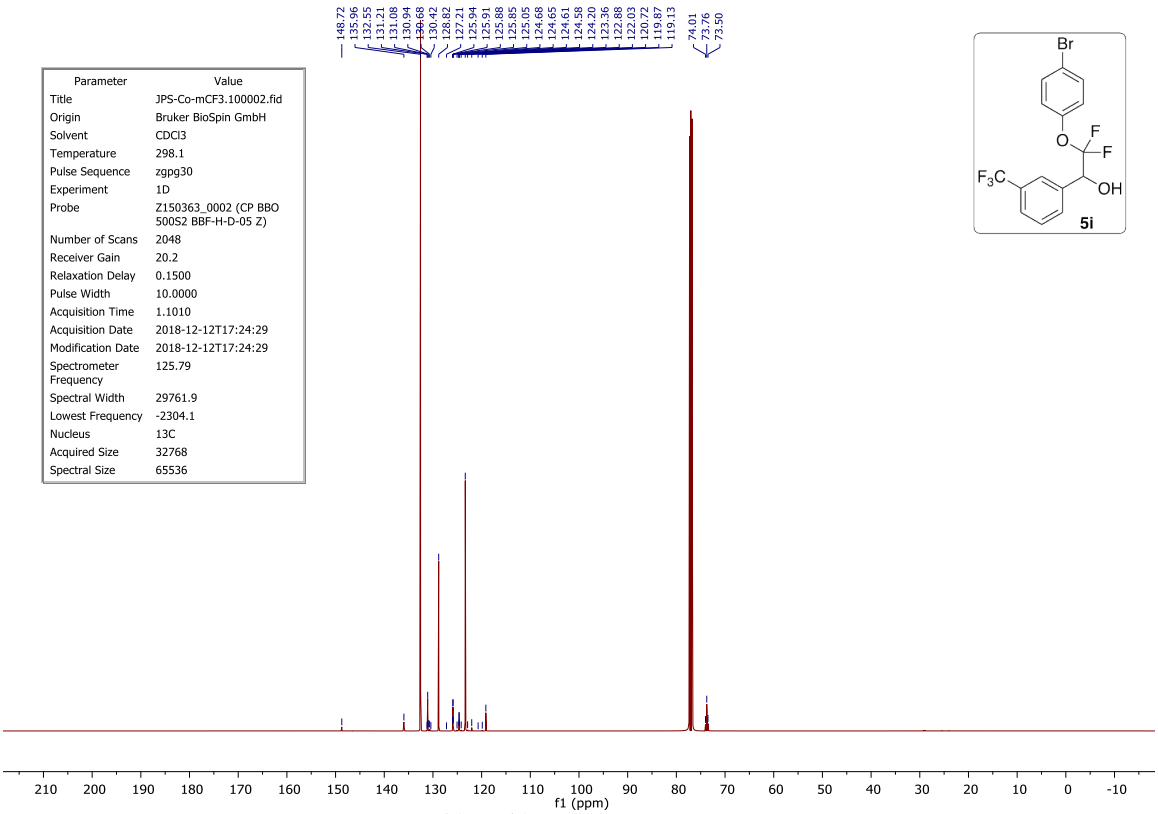
Parameter	Value
Title	DLO-11-013.2.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.4
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-08-11T16:48:00
Modification Date	2018-08-11T16:48:20
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1545.0
Nucleus	1H
Acquired Size	32768
Spectral Size	65536



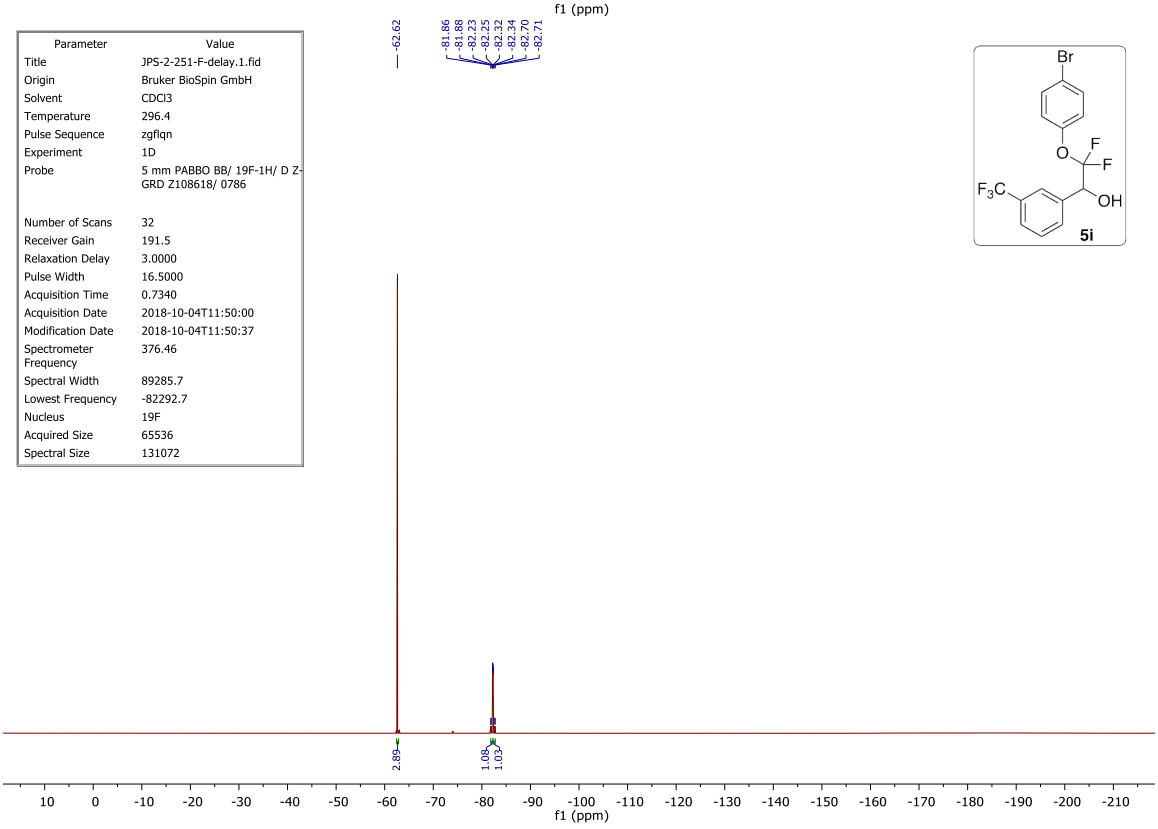

Parameter Value
Title DLO-11-013.61.fid
Origin Bruker BioSpin GmbH
Solvent DMSO
Temperature 333.2
Pulse Sequence zg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 16
Receiver Gain 7
Relaxation Delay 1.0000
Pulse Width 12.0000
Acquisition Time 3.2768
Acquisition Date 2018-09-13T08:57:52
Modification Date 2018-09-13T08:57:53
Spectrometer Frequency 500.19
Spectral Width 10000.0
Lowest Frequency -1914.8
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.58
7.58
7.57
7.57
7.56
7.30
7.29
7.08
7.07
6.52
6.50
5.71
5.12
5.11
5.09
5.08
3.66
3.64
3.63
1.28
1.28
Br
O
F
F
OH
(iPr)2N
O
5h
4.14
2.18
2.13
1.00
0.57
1.30
2.63
14.25
f1 (ppm)


169.30
148.78
148.76
138.67
137.23
137.01
127.69
124.69
123.19
122.56
122.53
120.39
117.65
72.23
71.98
71.73
54.53
20.32
20.32
20.16
20.05
20.01
19.97
19.95
19.93
Parameter Value
Title DLO-11-013/ 100062
Origin Bruker BioSpin GmbH
Solvent DMSO
Temperature 333.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2500
Receiver Gain 14
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-13T09:54:46
Modification Date 2018-09-13T09:54:47
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2395.4
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
Br
O
F
F
OH
(iPr)2N
O
5h
f1 (ppm)

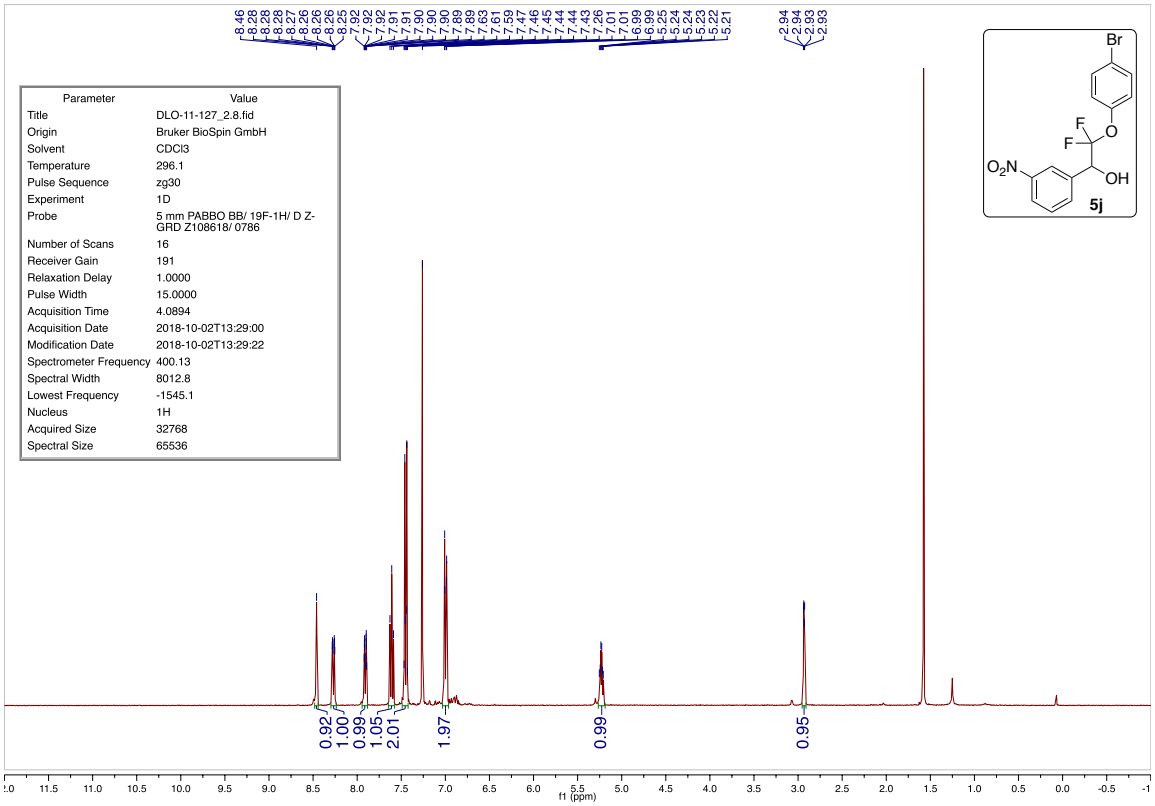

Parameter Value
Title DLO-11-013.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.4
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-08-11T16:50:00
Modification Date 2018-08-11T16:50:46
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.59
-81.62
-81.97
-81.99
-82.02
-82.04
-82.39
-82.41
1.06
0.96
Br
O
F
F
OH
(iPr)2N
O
5h
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200 -210
f1 (ppm)

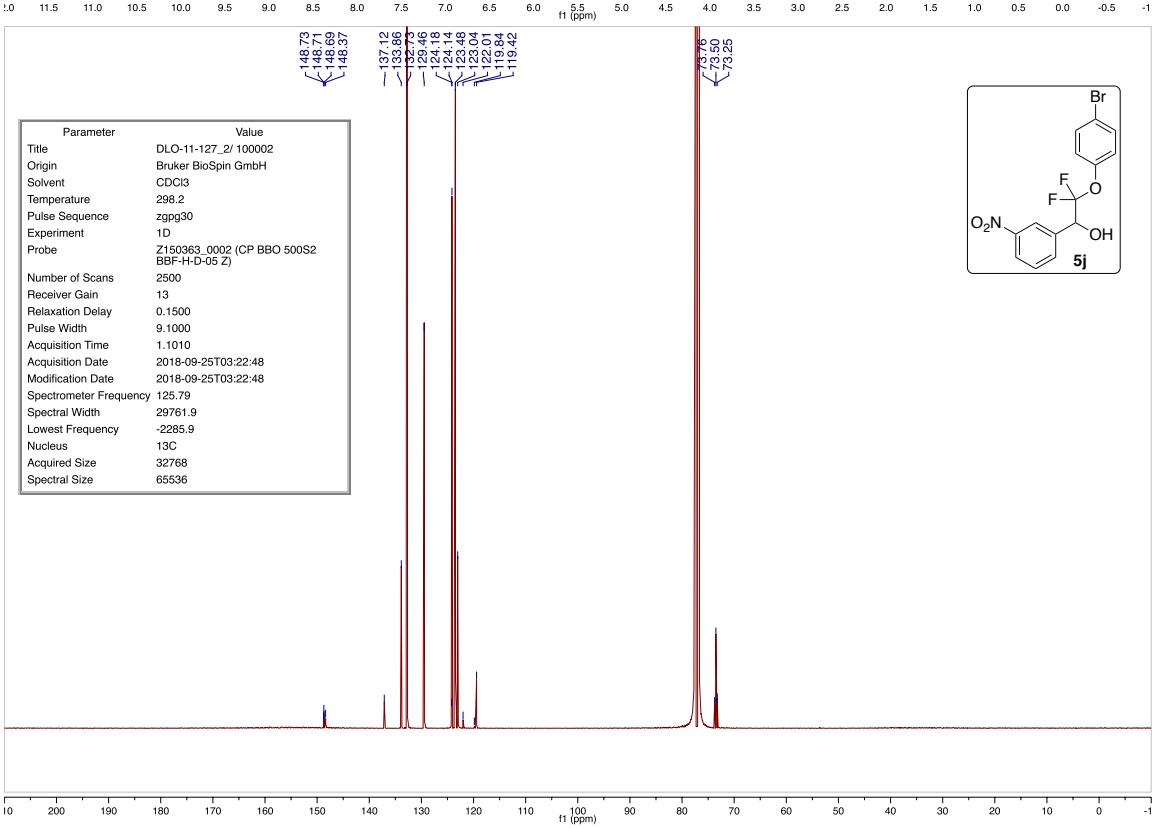


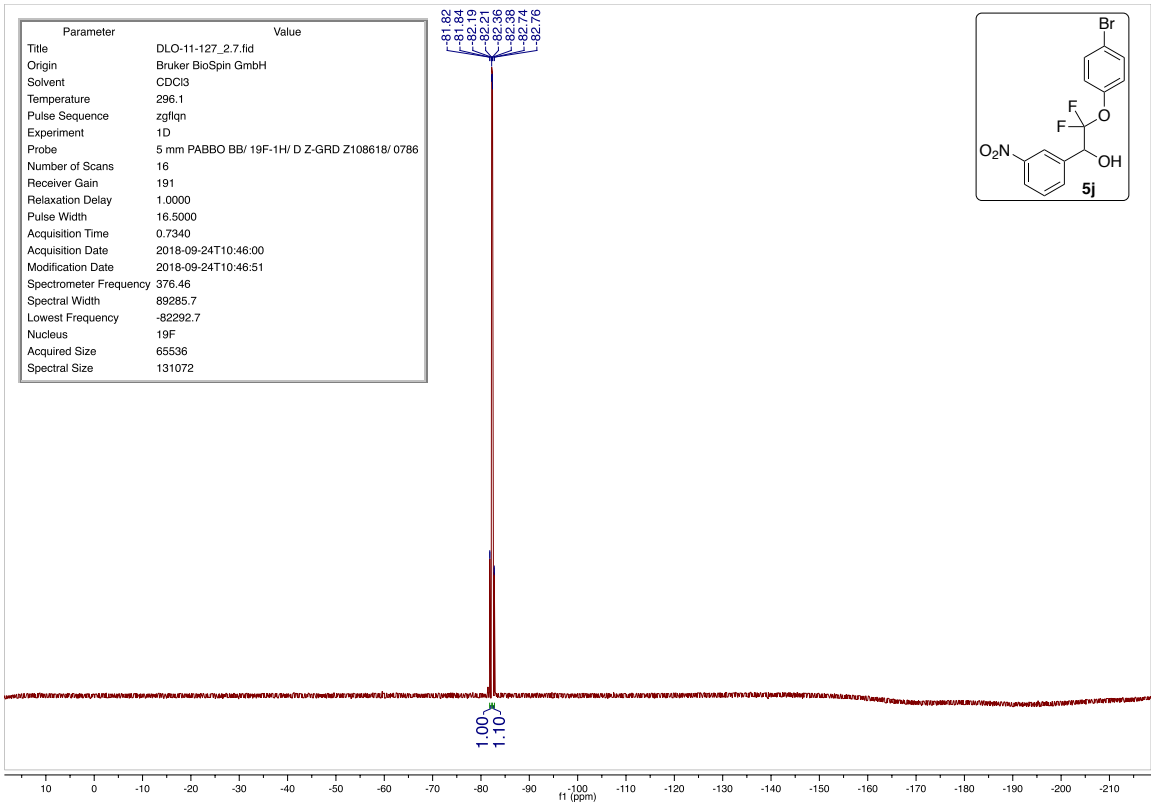
Parameter	Value
Title	JPS-Co-mCF3.100002.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	298.1
Pulse Sequence	zgpg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	2048
Receiver Gain	20.2
Relaxation Delay	0.1500
Pulse Width	10.0000
Acquisition Time	1.1010
Acquisition Date	2018-12-12T17:24:29
Modification Date	2018-12-12T17:24:29
Spectrometer Frequency	125.79
Spectral Width	29761.9
Lowest Frequency	-2304.1
Nucleus	13C
Acquired Size	32768
Spectral Size	65536

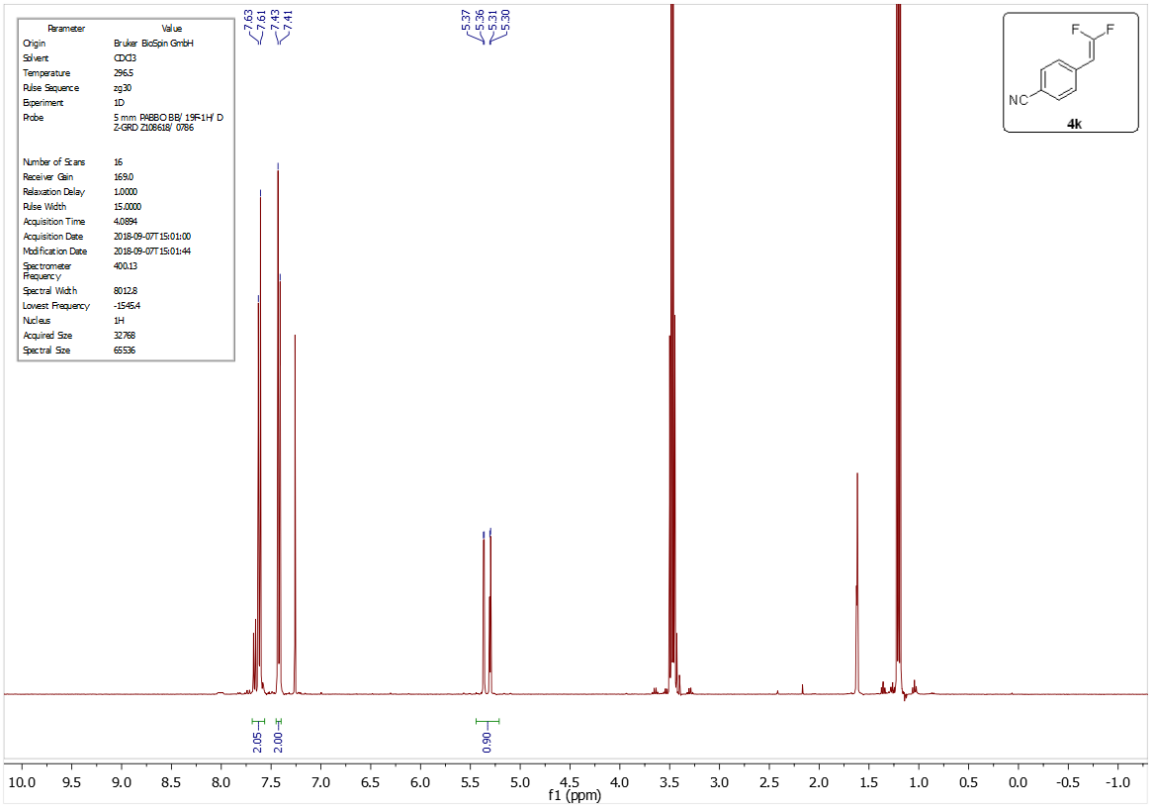


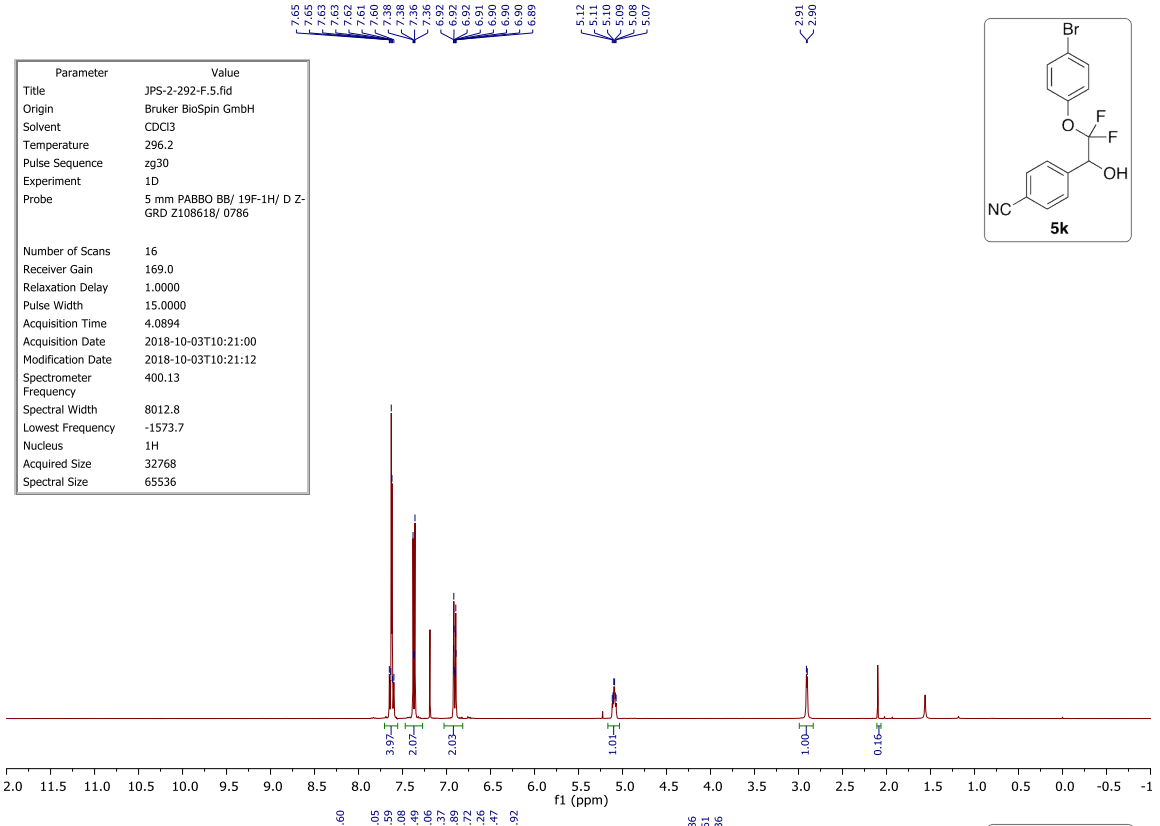
Parameter	Value
Title	JPS-2-251-F-delay.1.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.4
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	32
Receiver Gain	191.5
Relaxation Delay	3.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-10-04T11:50:00
Modification Date	2018-10-04T11:50:37
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

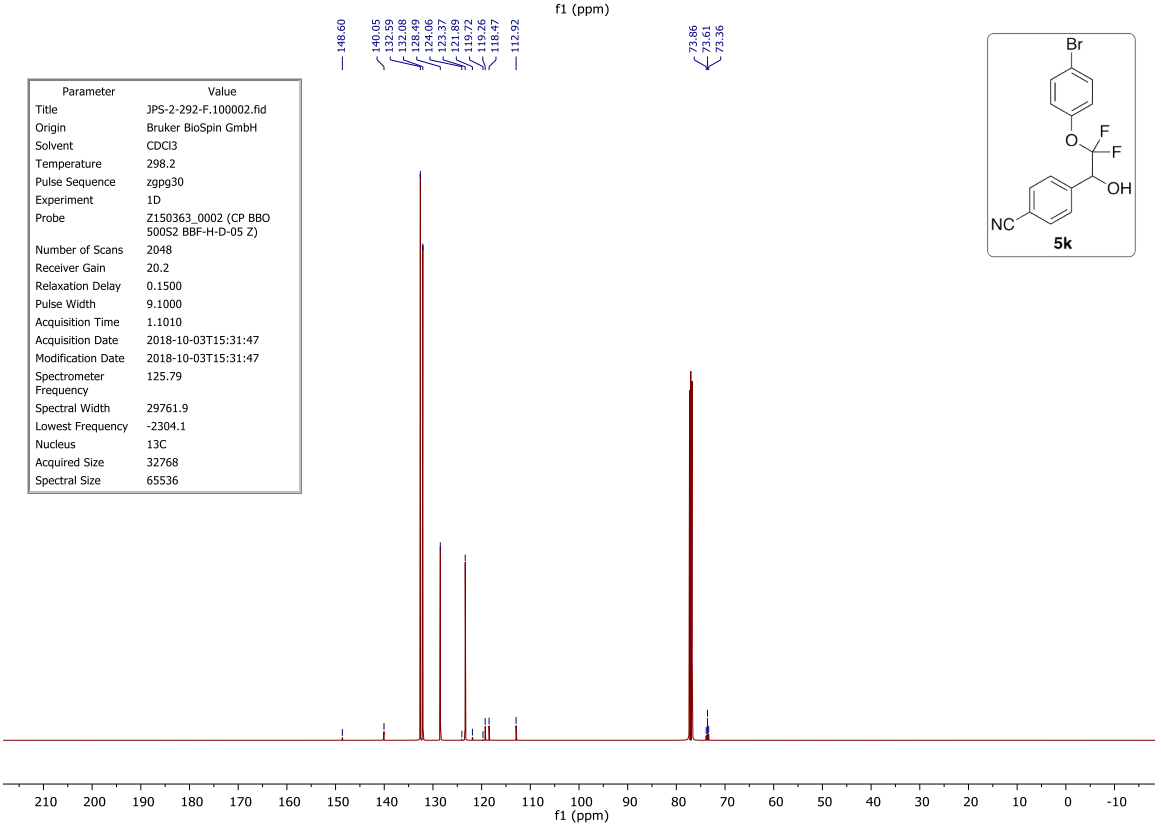

8.46
8.28
8.28
8.28
8.28
8.27
8.26
8.26
8.26
8.25
7.92
7.92
7.91
7.91
7.90
7.90
7.90
7.89
7.89
7.63
7.61
7.59
7.47
7.46
7.45
7.44
7.44
7.43
7.26
7.01
7.01
6.99
6.99
5.25
5.24
5.24
5.23
5.22
5.21
2.94
2.94
2.93
2.93
Parameter Value
Title DLO-11-127_2.8.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-10-02T13:29:00
Modification Date 2018-10-02T13:29:22
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.1
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
Br
F
F
O
O2N
OH
5j
0.92
1.00
0.99
1.05
2.01
1.97
0.99
0.95
f1 (ppm)


148.73
148.71
148.69
148.37
137.12
133.86
133.73
129.46
124.18
124.14
123.48
123.04
122.01
119.84
119.42
73.76
73.50
73.25
Parameter Value
Title DLO-11-127_2/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2500
Receiver Gain 13
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-09-25T03:22:48
Modification Date 2018-09-25T03:22:48
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2285.9
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
Br
F
F
O
O2N
OH
5j
f1 (ppm)

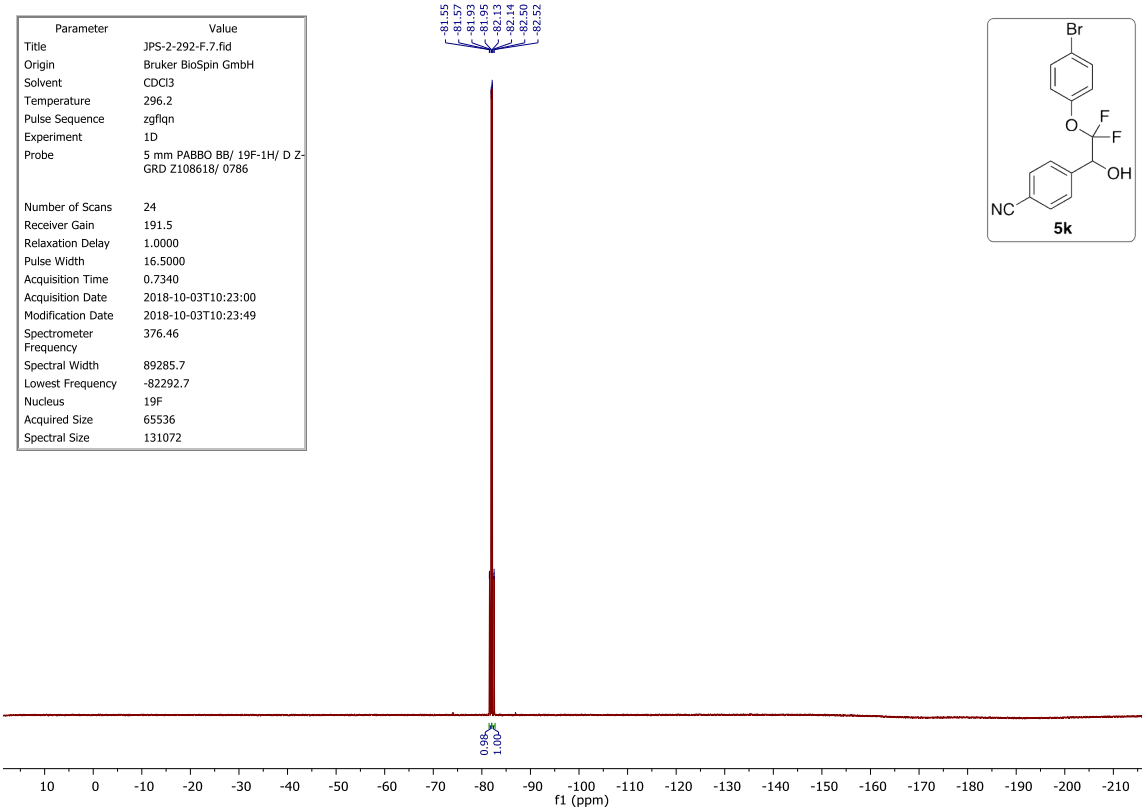

Parameter Value
Title DLO-11-127_2.7.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-24T10:46:00
Modification Date 2018-09-24T10:46:51
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.82
-81.84
-82.19
-82.21
-82.36
-82.38
-82.74
-82.76
Br
F
F
O
O2N
OH
5j
1.00
1.10
f1 (ppm)


Parameter Value
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.5
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 169.0
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-07T15:01:00
Modification Date 2018-09-07T15:01:44
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.4
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.63
7.61
7.43
7.41
5.37
5.36
5.31
5.30
F
F
NC
4k
2.05
2.00
0.90
f1 (ppm)

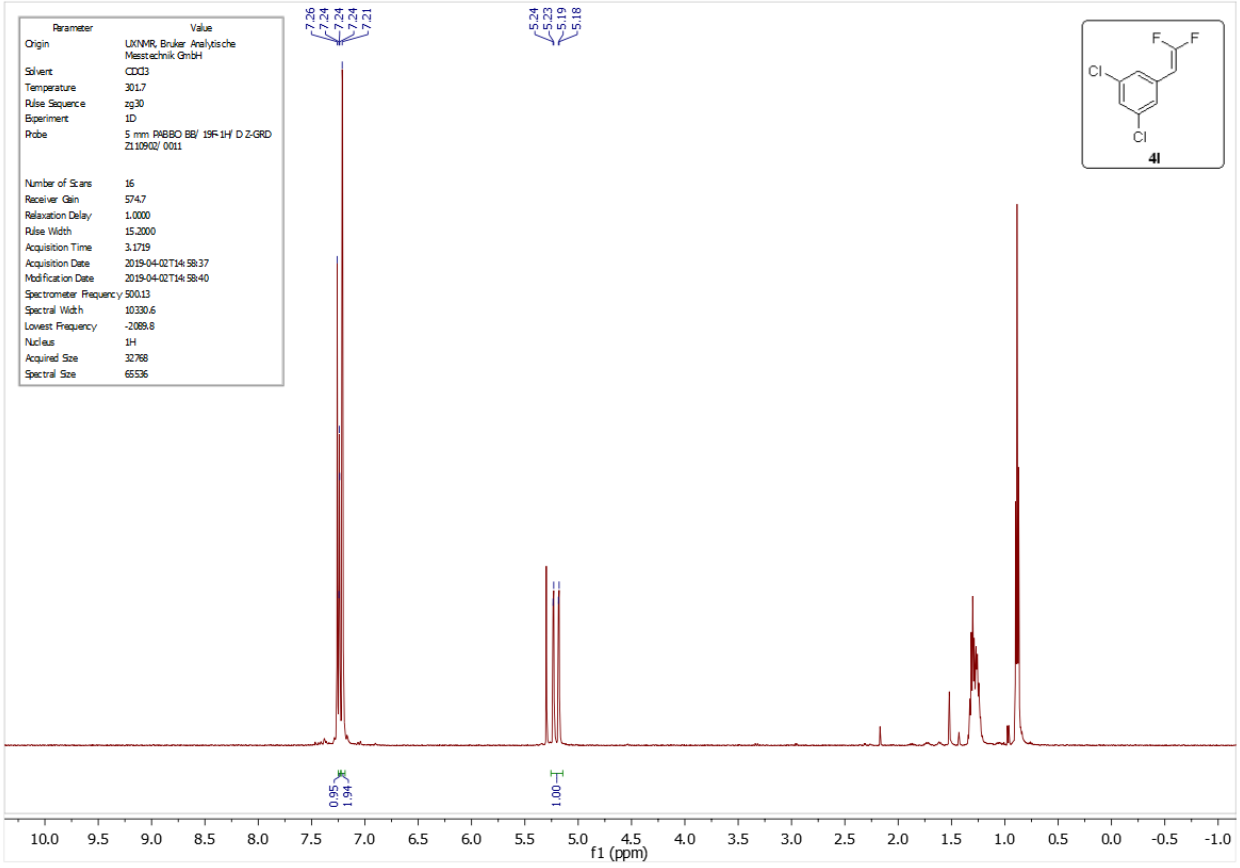

7.65 7.65 7.63 7.63 7.62 7.61 7.60 7.38 7.36 7.36 6.92 6.92 6.91 6.90 6.90 6.90 6.89
5.12 5.11 5.10 5.09 5.08 5.07
2.91 2.90
Parameter Value
Title JPS-2-292-F.5.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.2
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 169.0
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-10-03T10:21:00
Modification Date 2018-10-03T10:21:12
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1573.7
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
Br
F
O
F
OH
NC
5k
3.97 2.07 2.03 1.01 1.00 0.16
f1 (ppm)

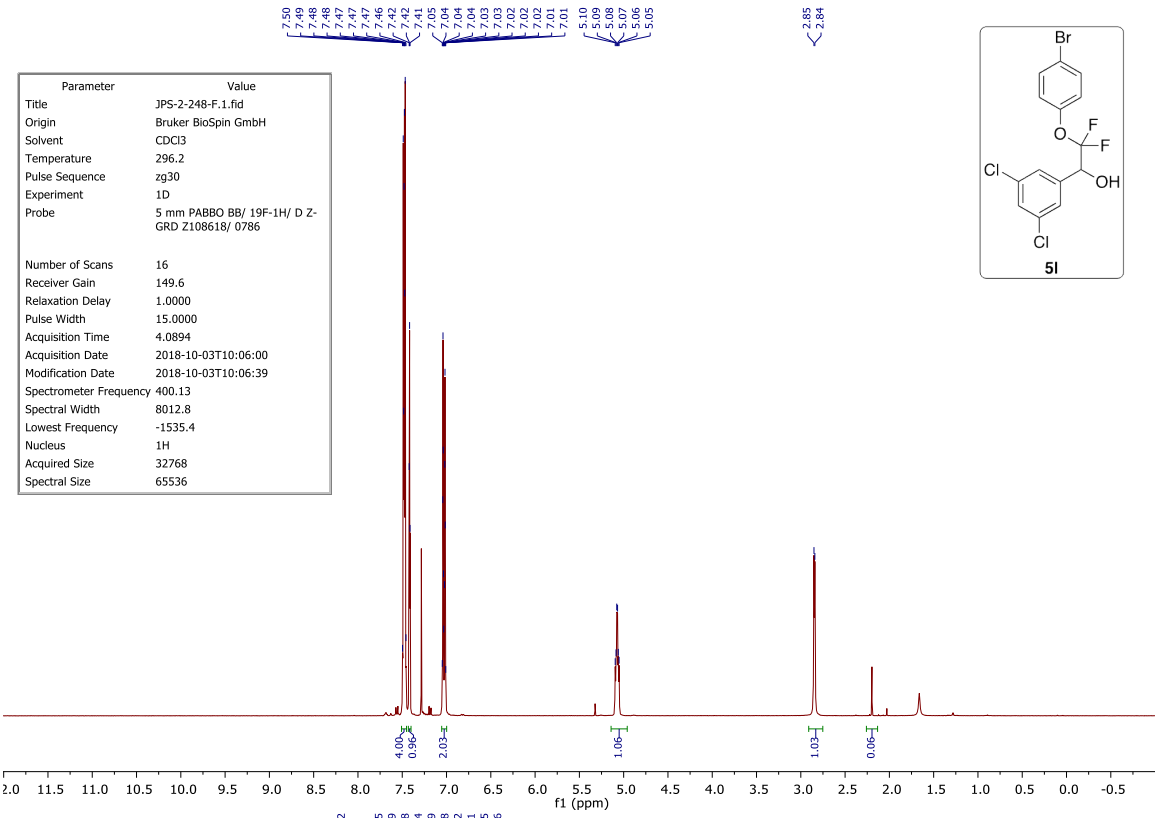

148.60 140.05 132.59 132.08 128.49 124.06 123.37 121.89 119.22 118.47 112.92
73.86 73.61 73.36
Parameter Value
Title JPS-2-292-F.100002.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 20.2
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-10-03T15:31:47
Modification Date 2018-10-03T15:31:47
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2304.1
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
Br
F
O
F
OH
NC
5k
f1 (ppm)

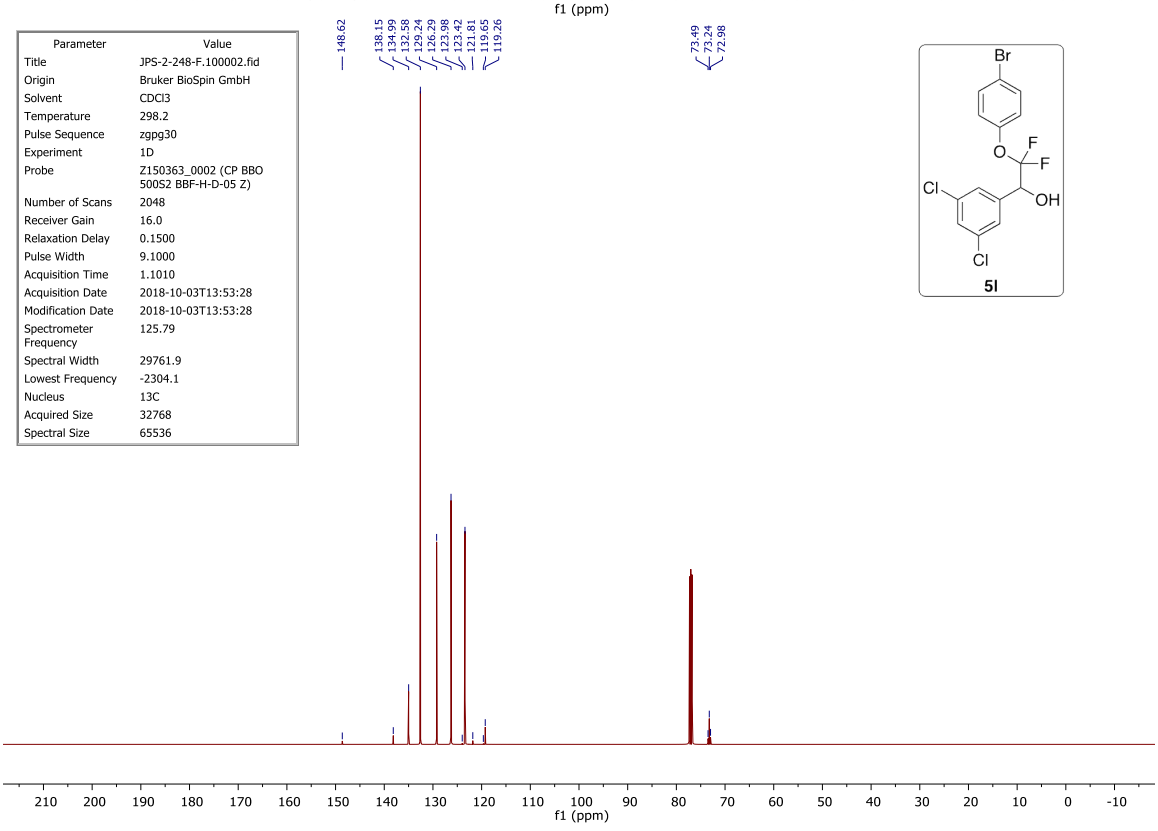
Parameter	Value
Title	JPS-2-292-F.7.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.2
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	24
Receiver Gain	191.5
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-10-03T10:23:00
Modification Date	2018-10-03T10:23:49
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

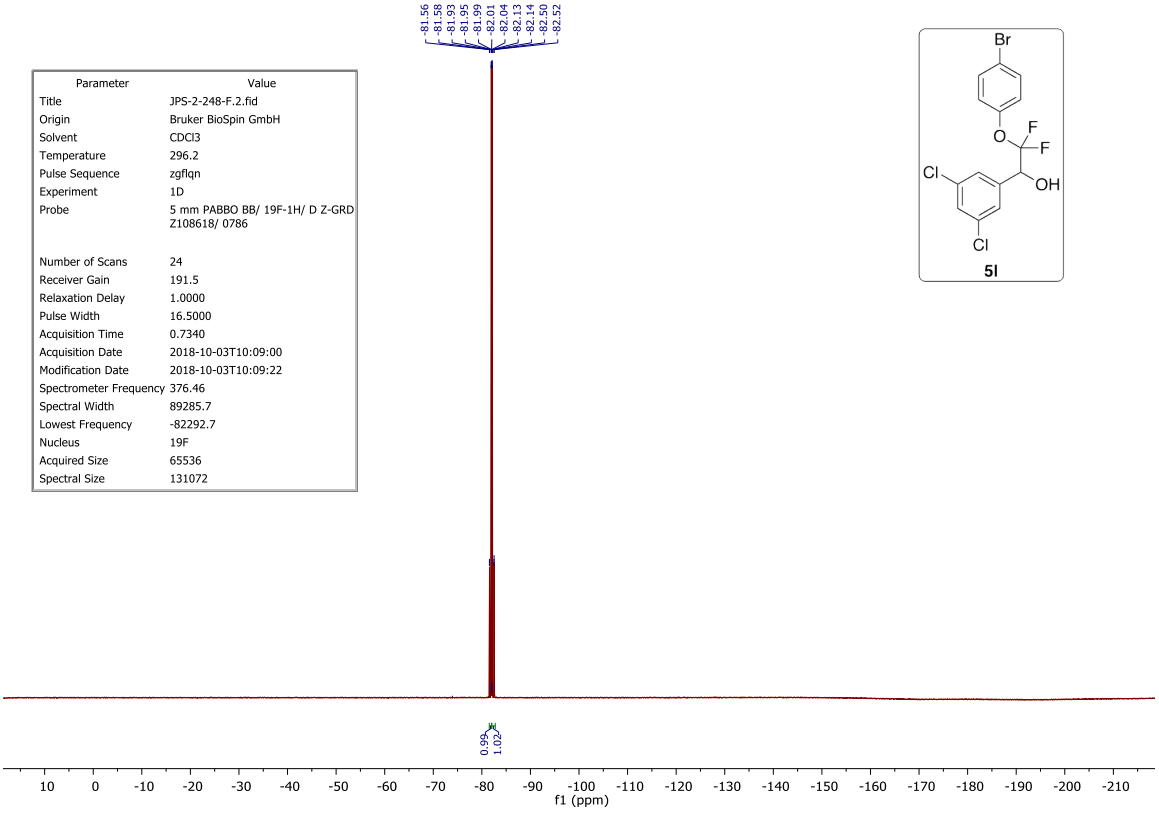


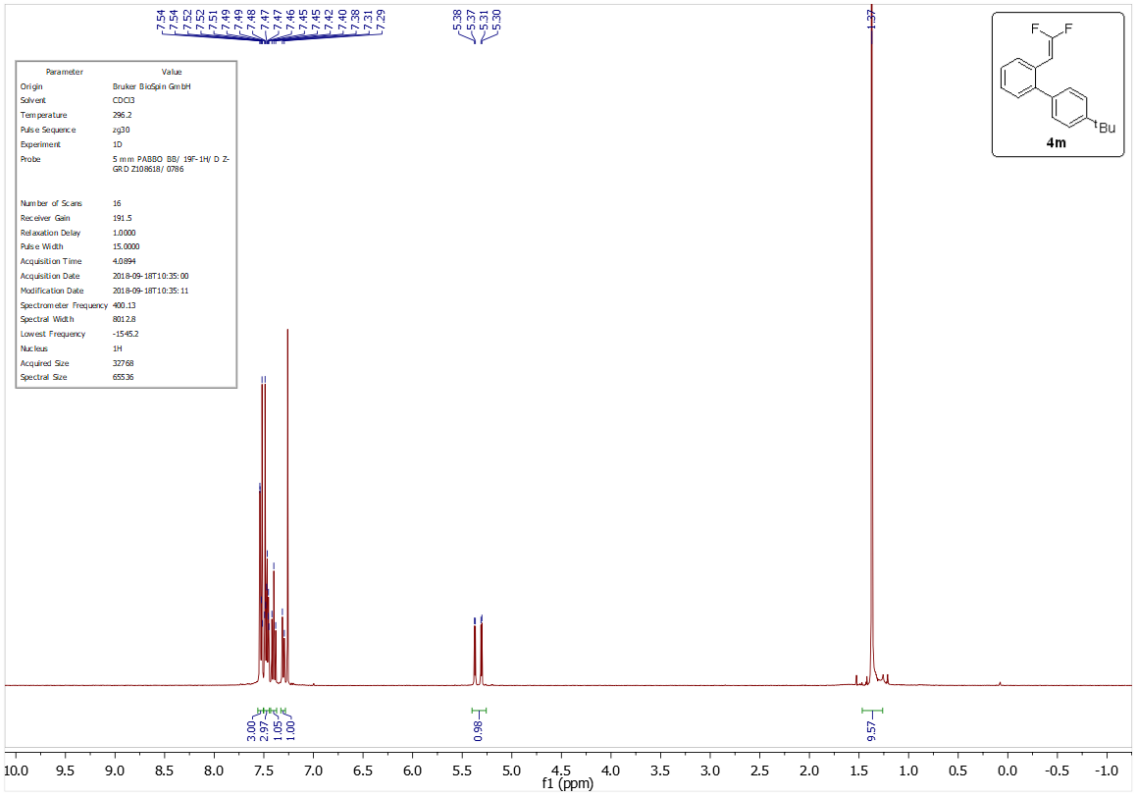
Parameter	Value
Origin	LXNMR, Bruker Analytische Messtechnik GmbH
Solvent	CDCl3
Temperature	301.7
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z110902/ 0011
Number of Scans	16
Receiver Gain	574.7
Relaxation Delay	1.0000
Pulse Width	15.2000
Acquisition Time	3.1719
Acquisition Date	2019-04-02T14:58:37
Modification Date	2019-04-02T14:58:40
Spectrometer Frequency	500.13
Spectral Width	10330.6
Lowest Frequency	-2089.8
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

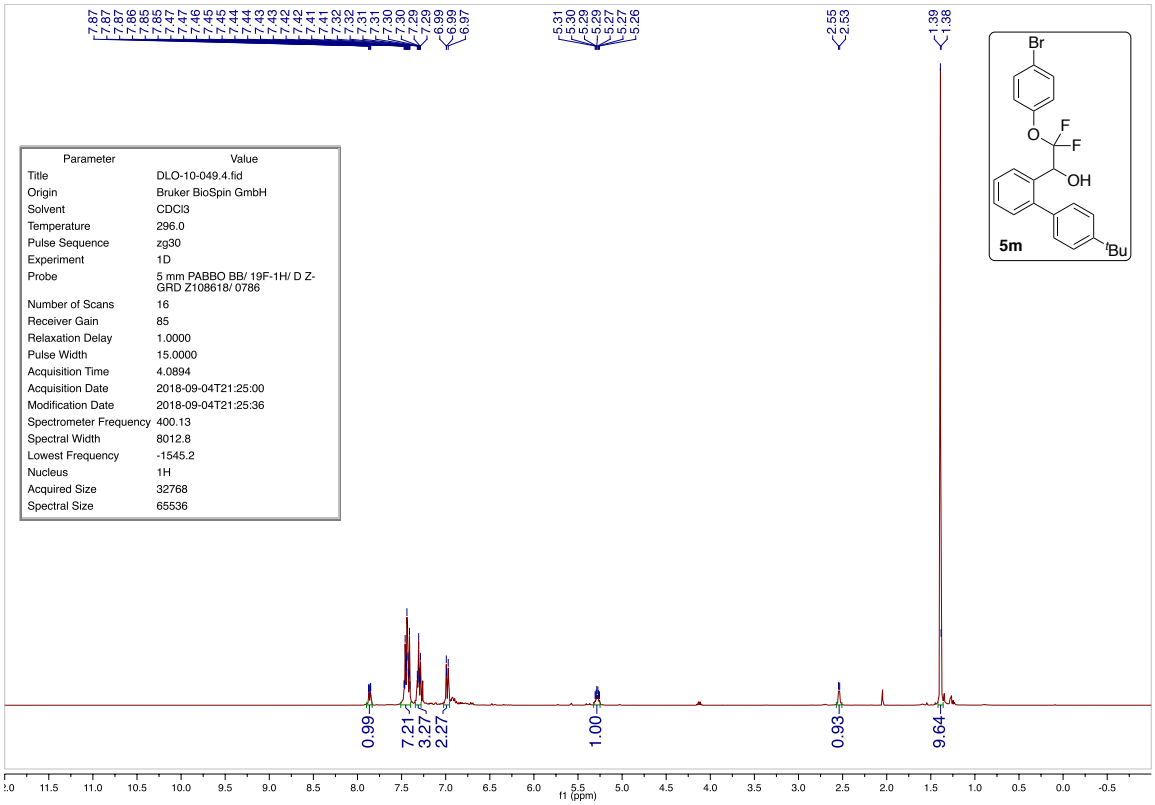


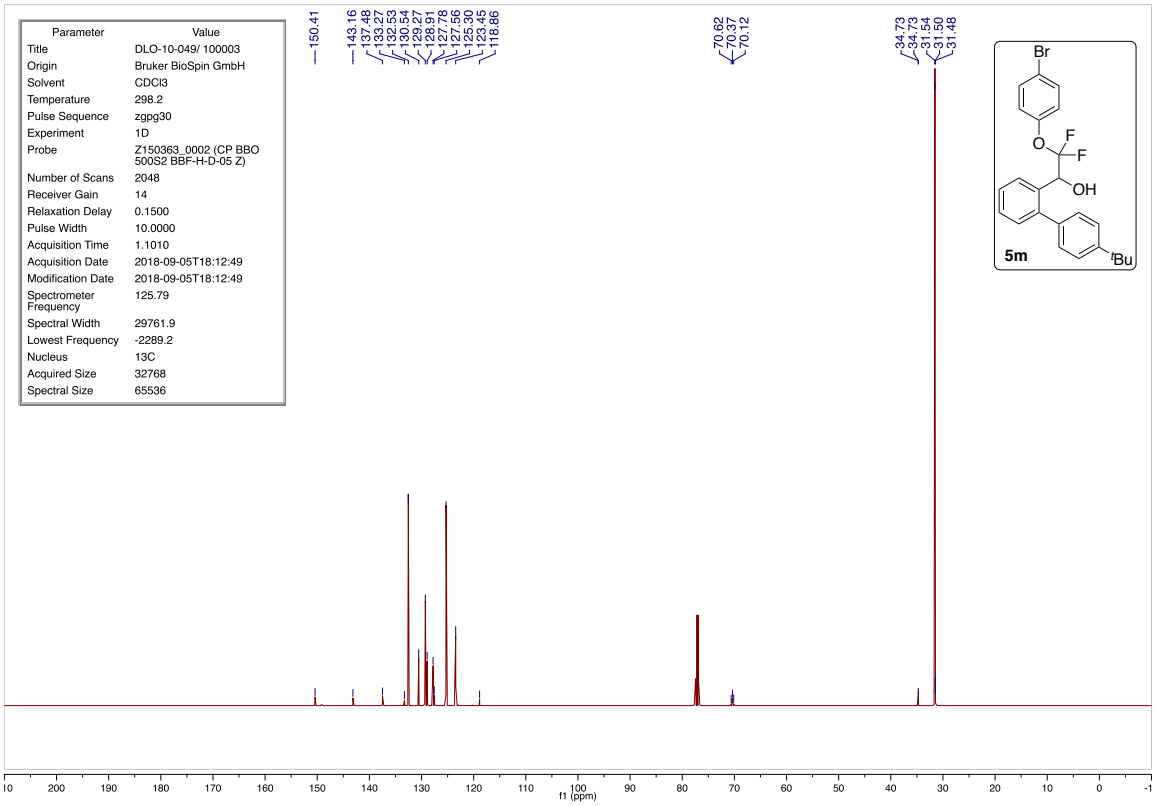

7.50 7.49 7.48 7.48 7.47 7.47 7.47 7.46 7.42 7.42 7.41 7.05 7.04 7.04 7.04 7.03 7.03 7.02 7.02 7.02 7.01 7.01
5.10 5.09 5.08 5.07 5.06 5.05
2.85 2.84
Parameter Value
Title JPS-2-248-F.1.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.2
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 149.6
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-10-03T10:06:00
Modification Date 2018-10-03T10:06:39
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1535.4
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
Br
O
F
F
Cl
OH
Cl
5l
4.00
0.96
2.03
1.06
1.03
0.06
f1 (ppm)

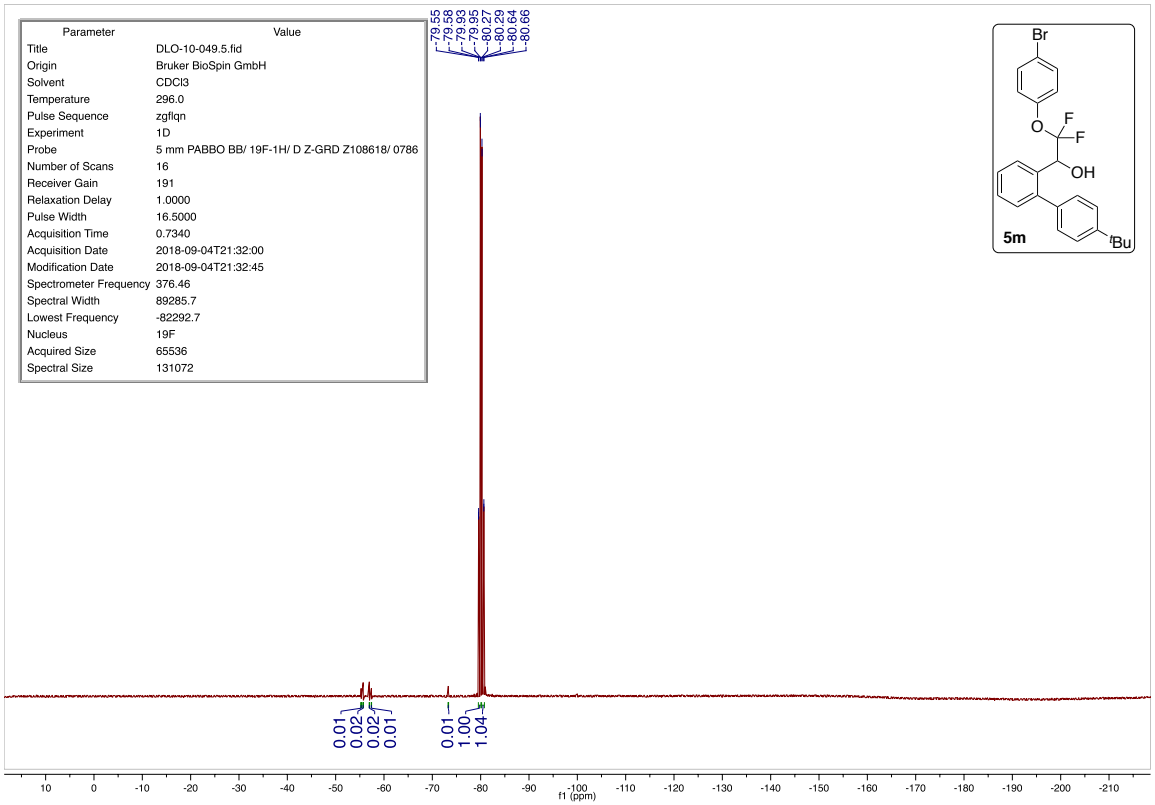

148.62
138.15 134.99 132.58 129.24 126.29 123.98 123.42 121.81 119.65 119.26
73.49 73.24 72.98
Parameter Value
Title JPS-2-248-F.100002.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 16.0
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-10-03T13:53:28
Modification Date 2018-10-03T13:53:28
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2304.1
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
Br
O
F
F
Cl
OH
Cl
5l
f1 (ppm)

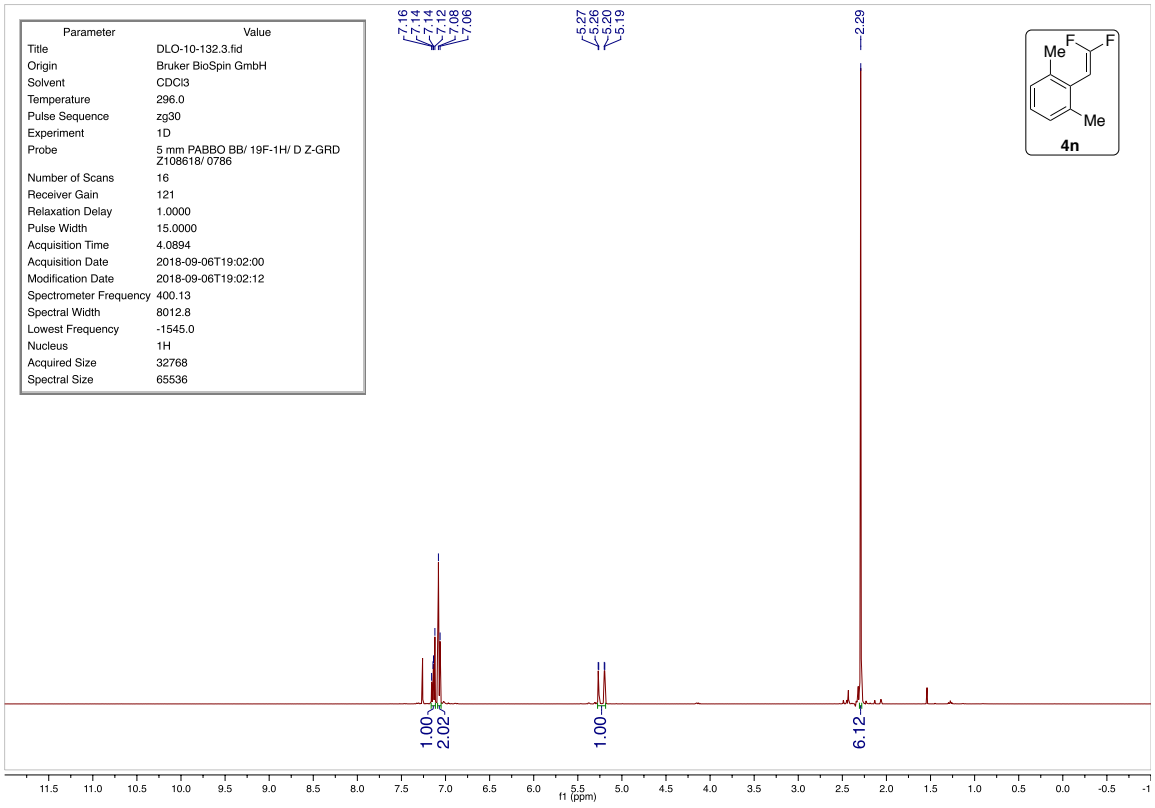

-81.56
-81.58
-81.93
-81.95
-81.99
-82.01
-82.04
-82.13
-82.14
-82.50
-82.52
Parameter Value
Title JPS-2-248-F.2.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.2
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 24
Receiver Gain 191.5
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-10-03T10:09:00
Modification Date 2018-10-03T10:09:22
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
Br
O
F
F
Cl
OH
Cl
5l
0.99
1.02
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200 -210
f1 (ppm)

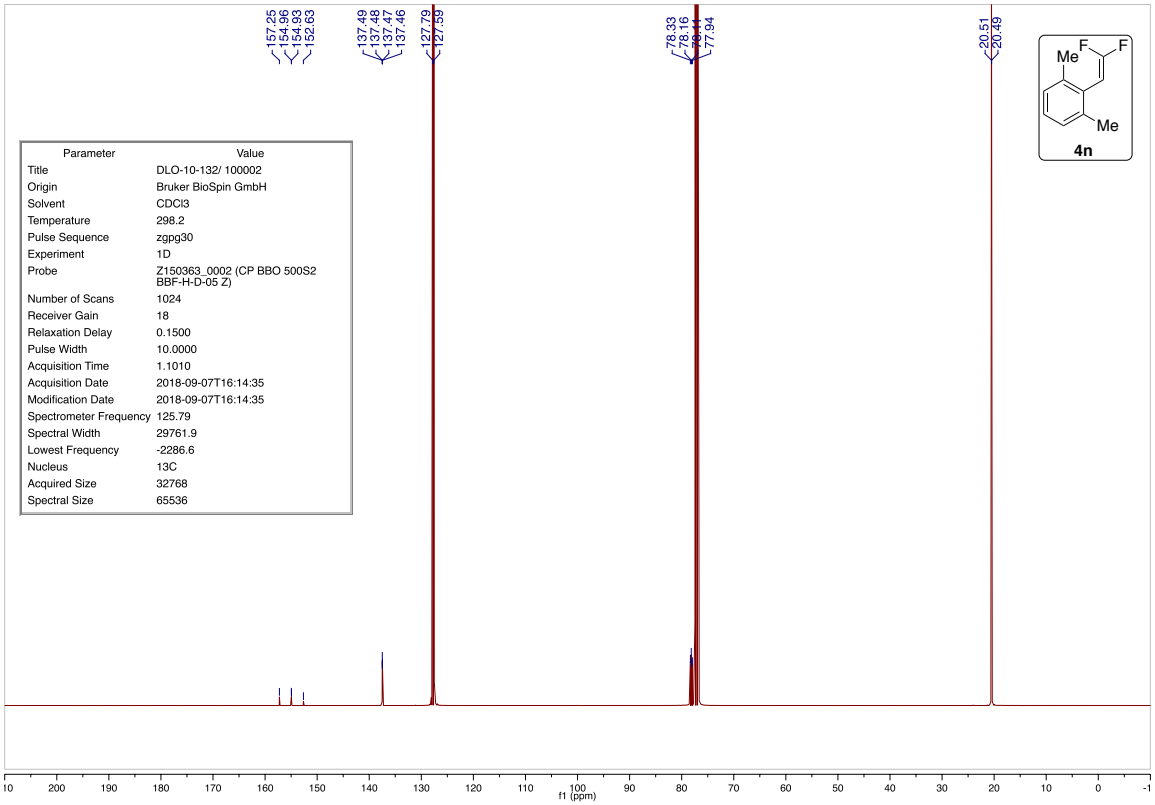

7.54
7.54
7.52
7.52
7.51
7.49
7.48
7.48
7.47
7.47
7.47
7.46
7.45
7.45
7.42
7.40
7.38
7.31
7.29
5.38
5.37
5.31
5.30
1.37
Parameter Value
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.2
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191.5
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-18T10:35:00
Modification Date 2018-09-18T10:35:11
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.2
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
F
F
tBu
4m
3.00
2.97
1.05
1.00
0.98
9.57
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 -1.0
f1 (ppm)


7.87
7.87
7.87
7.86
7.86
7.85
7.47
7.47
7.46
7.45
7.45
7.44
7.44
7.43
7.43
7.42
7.42
7.41
7.41
7.32
7.31
7.31
7.30
7.30
7.29
7.29
6.99
6.97
5.31
5.30
5.29
5.29
5.27
5.27
5.26
2.55
2.53
1.39
1.38
Parameter Value
Title DLO-10-049.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 85
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-04T21:25:00
Modification Date 2018-09-04T21:25:36
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.2
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
Br
O
F
F
OH
5m
tBu
0.99
7.21
3.27
2.27
1.00
0.93
9.64
f1 (ppm)

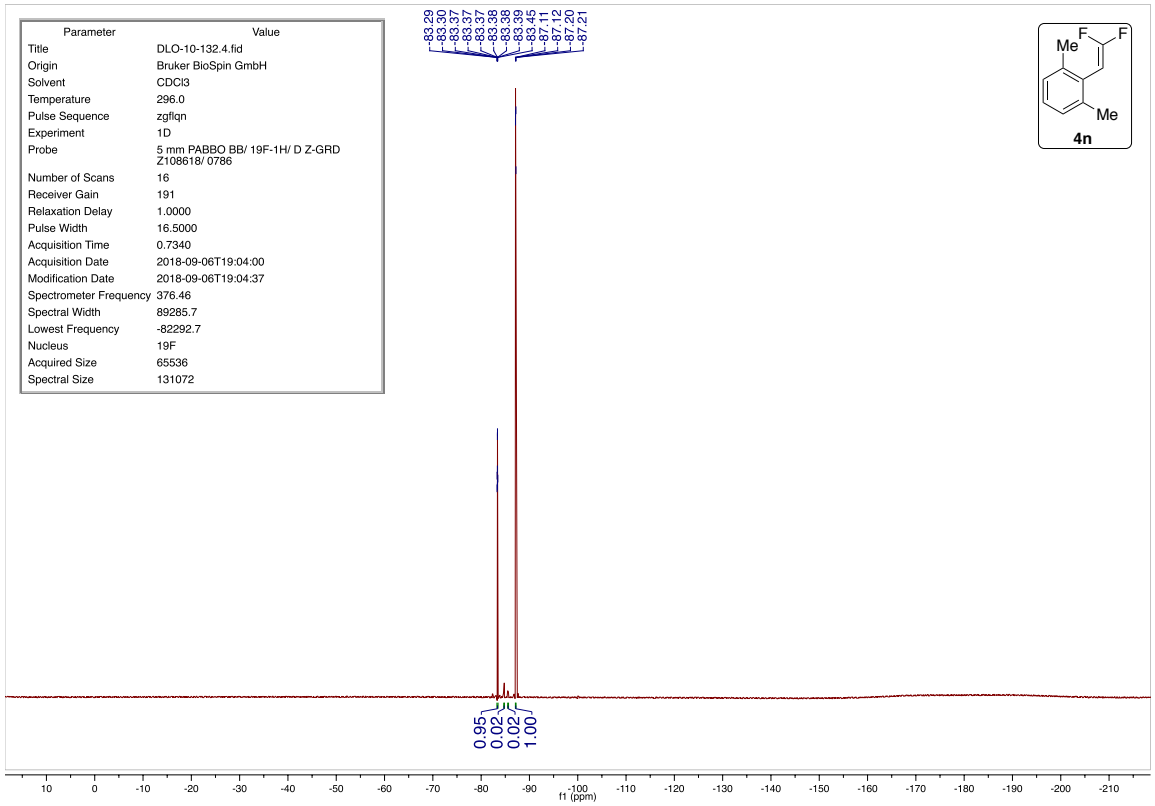

Parameter Value
Title DLO-10-049/ 100003
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 14
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-05T18:12:49
Modification Date 2018-09-05T18:12:49
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2289.2
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
150.41
143.16
137.48
133.27
132.53
130.54
129.27
128.91
127.78
127.56
125.30
123.45
118.86
70.62
70.37
70.12
34.73
34.73
31.54
31.50
31.48
Br
O
F
F
OH
5m
tBu
f1 (ppm)


Parameter Value
Title DLO-10-049.5.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-04T21:32:00
Modification Date 2018-09-04T21:32:45
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-79.55
-79.58
-79.93
-79.95
-80.27
-80.29
-80.64
-80.66
0.01
0.02
0.02
0.01
0.01
1.00
1.04
Br
O
F
F
OH
5m
tBu
f1 (ppm)


Parameter Value
Title DLO-10-132.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 121
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-06T19:02:00
Modification Date 2018-09-06T19:02:12
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.0
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.16
7.14
7.14
7.12
7.08
7.06
5.27
5.26
5.20
5.19
2.29
1.00
2.02
1.00
6.12
Me
F
F
Me
4n
f1 (ppm)

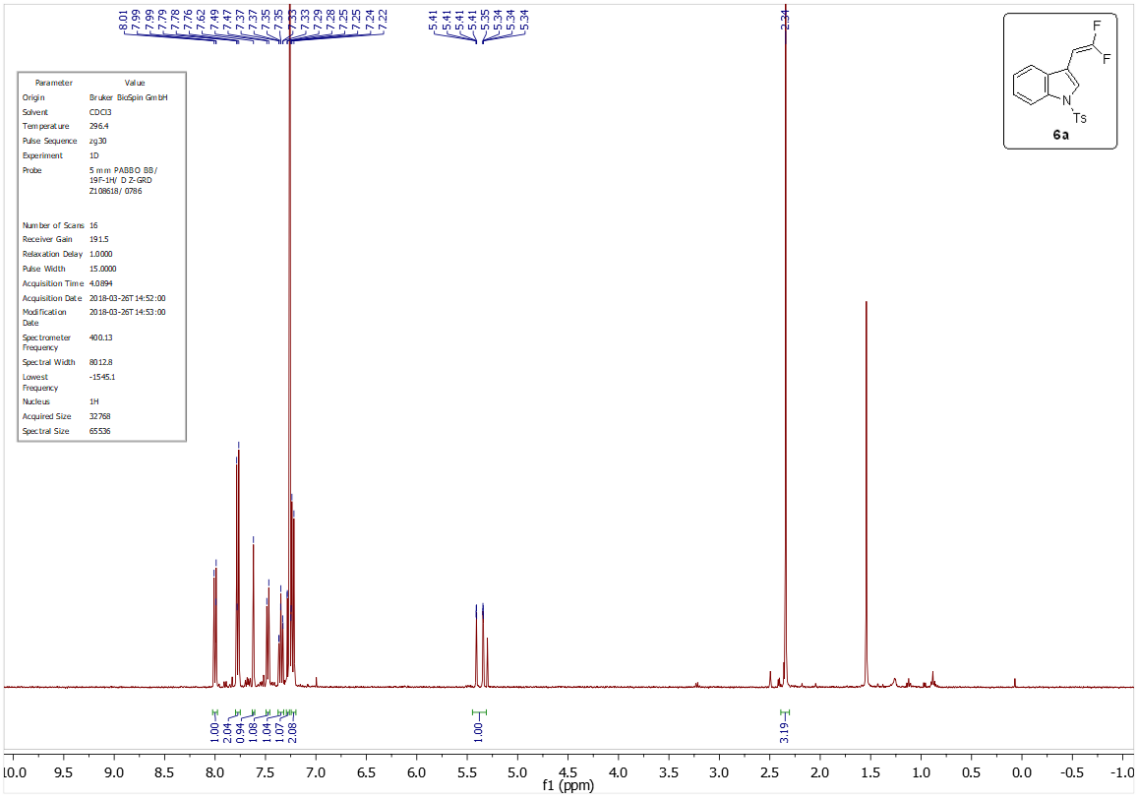


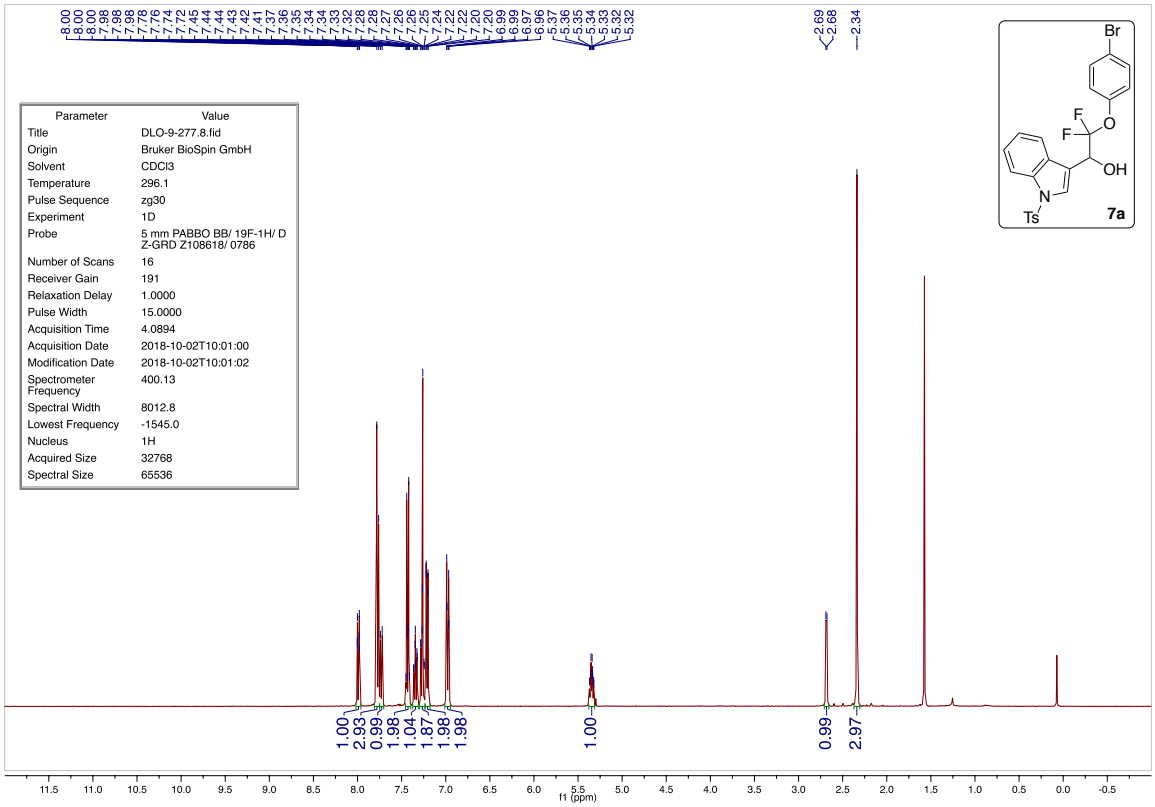
Parameter	Value
Title	DLO-10-132/ 100002
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	298.2
Pulse Sequence	zgpg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	1024
Receiver Gain	18
Relaxation Delay	0.1500
Pulse Width	10.0000
Acquisition Time	1.1010
Acquisition Date	2018-09-07T16:14:35
Modification Date	2018-09-07T16:14:35
Spectrometer Frequency	125.79
Spectral Width	29761.9
Lowest Frequency	-2286.6
Nucleus	13C
Acquired Size	32768
Spectral Size	65536

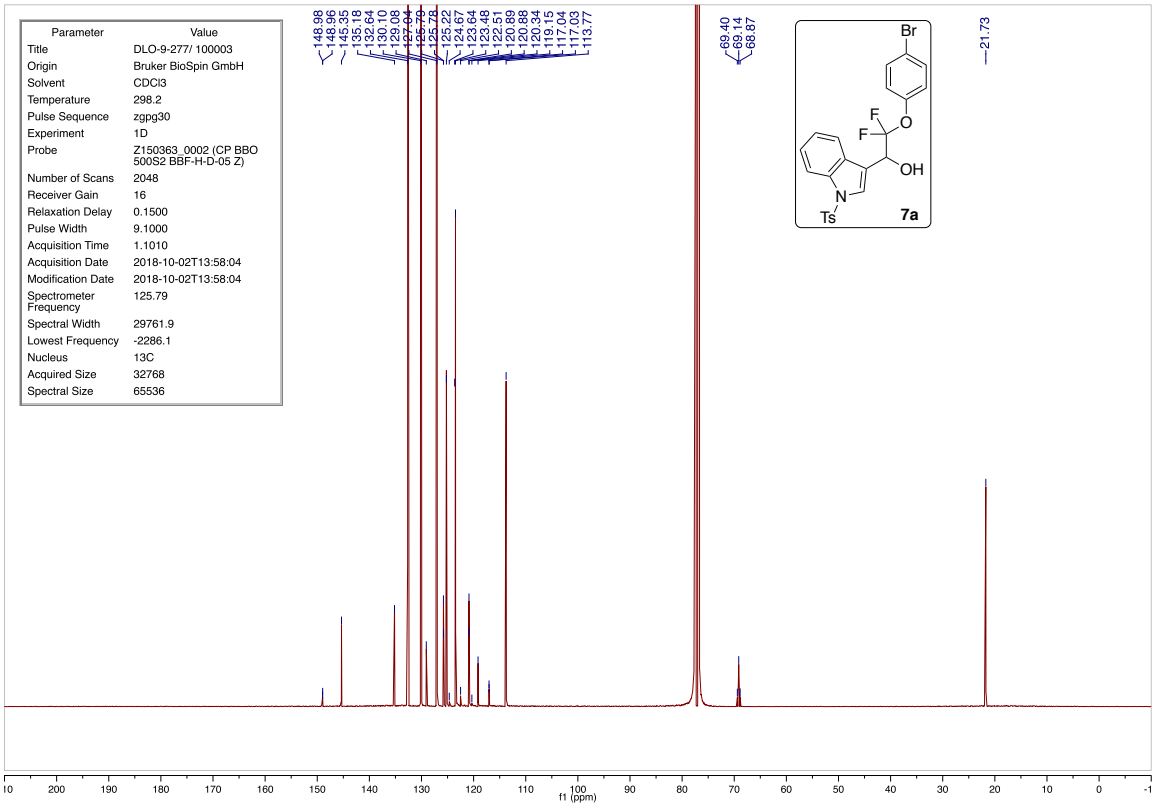


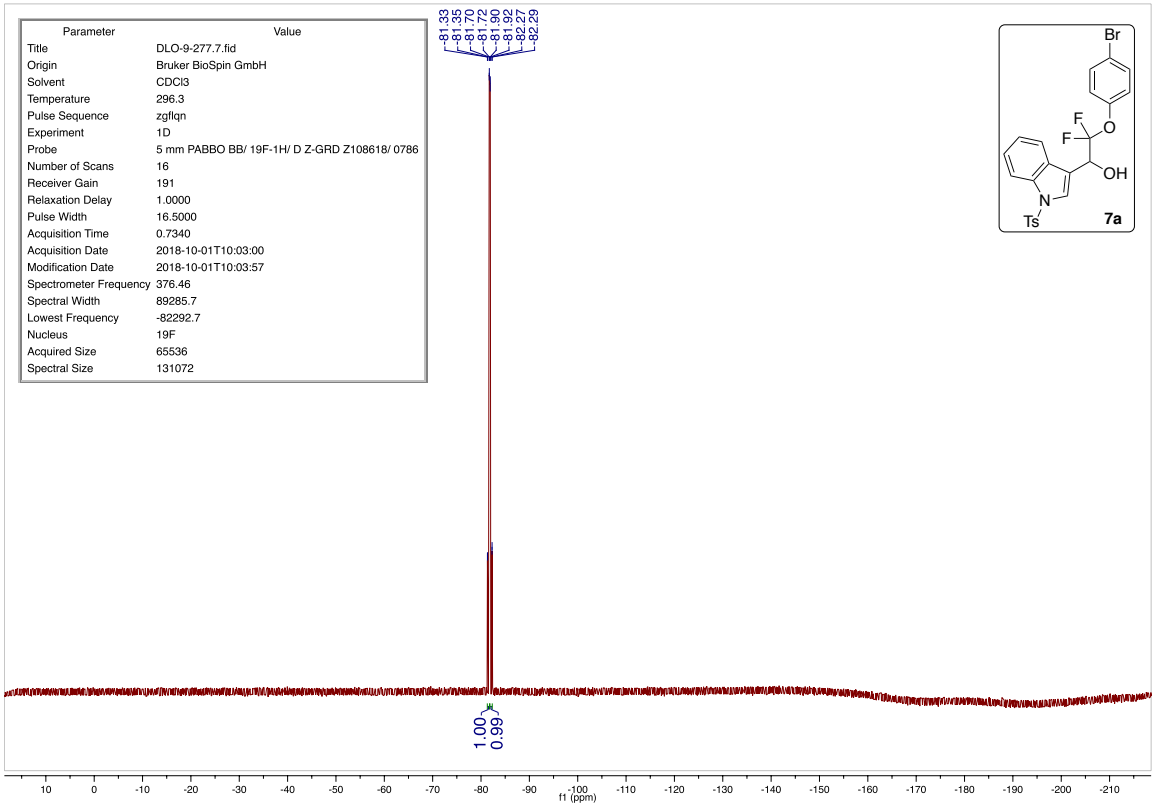
Parameter	Value
Title	DLO-10-132.4.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.0
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-09-06T19:04:00
Modification Date	2018-09-06T19:04:37
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

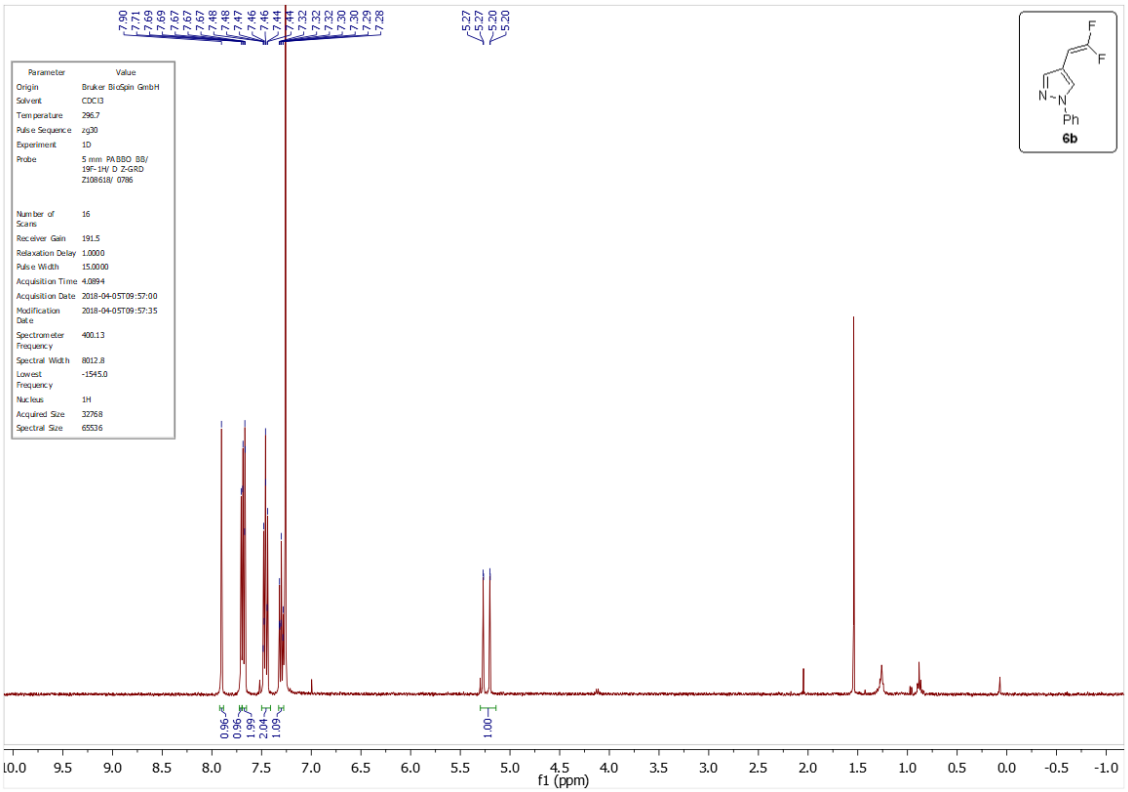
NMR Spectra of Compounds in Table 3:

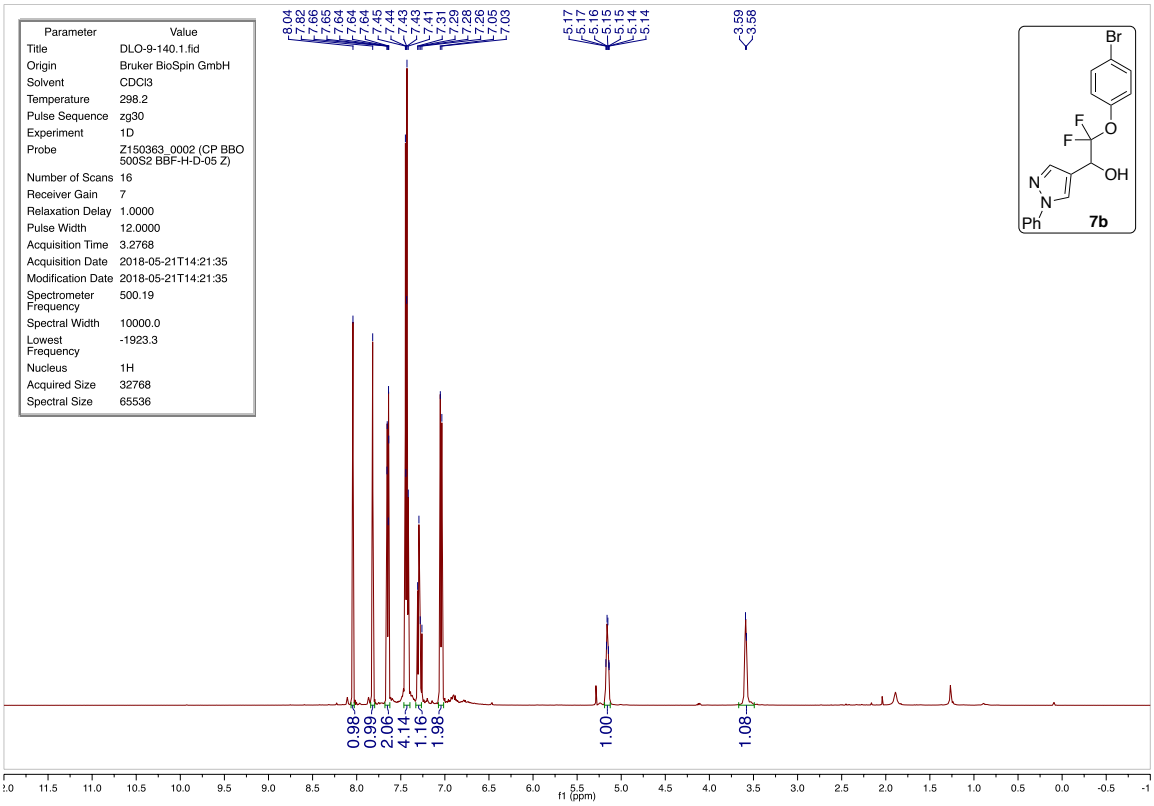


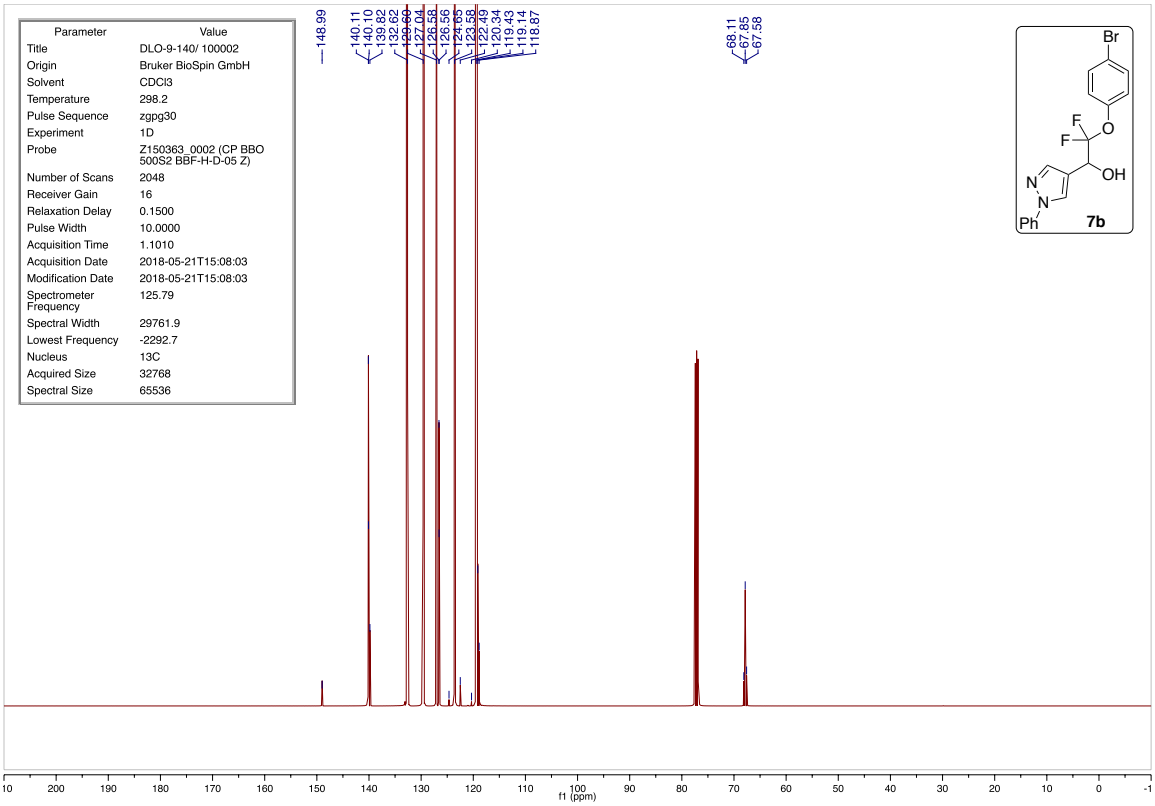


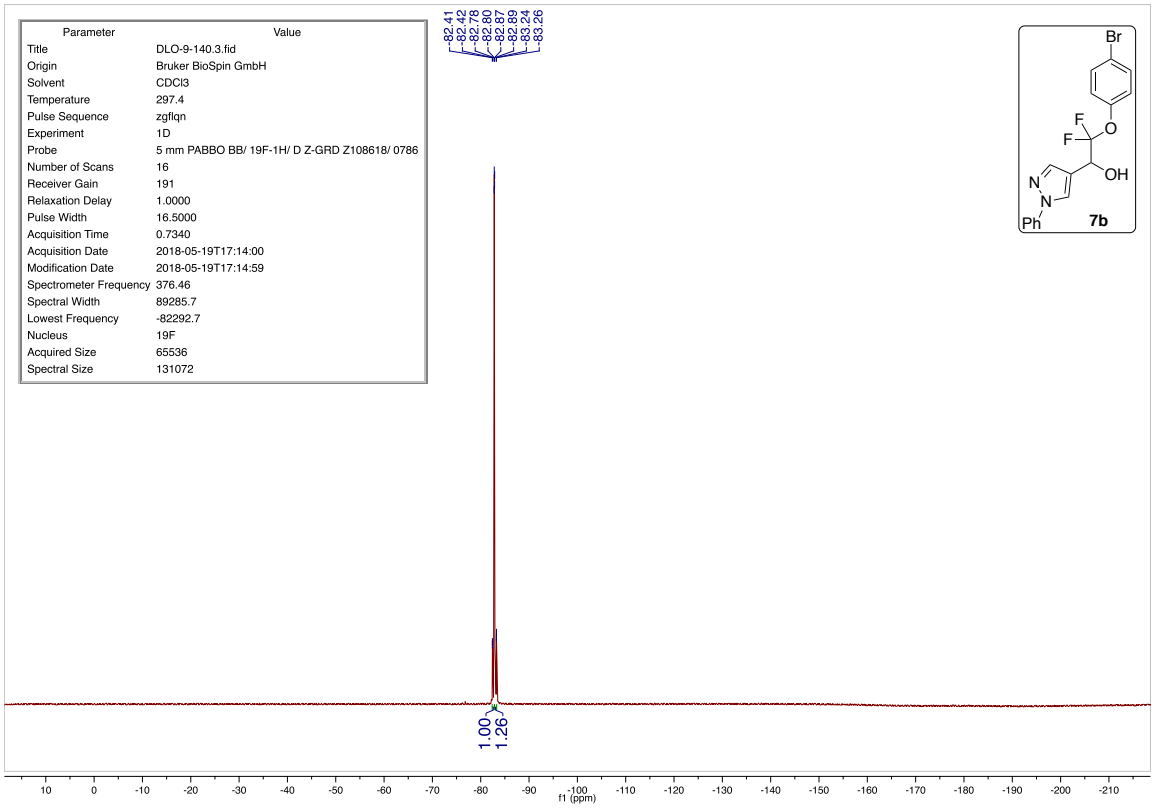

Parameter Value
Title DLO-9-277/ 100003
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 16
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-10-02T13:58:04
Modification Date 2018-10-02T13:58:04
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2286.1
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
148.98
148.96
145.35
135.18
131.64
130.10
129.08
127.04
125.79
125.78
125.22
124.67
123.64
123.48
122.51
120.89
120.88
120.34
119.15
117.04
117.03
113.77
69.40
69.14
68.87
21.73
Br
F
F
O
OH
N
Ts
7a
f1 (ppm)

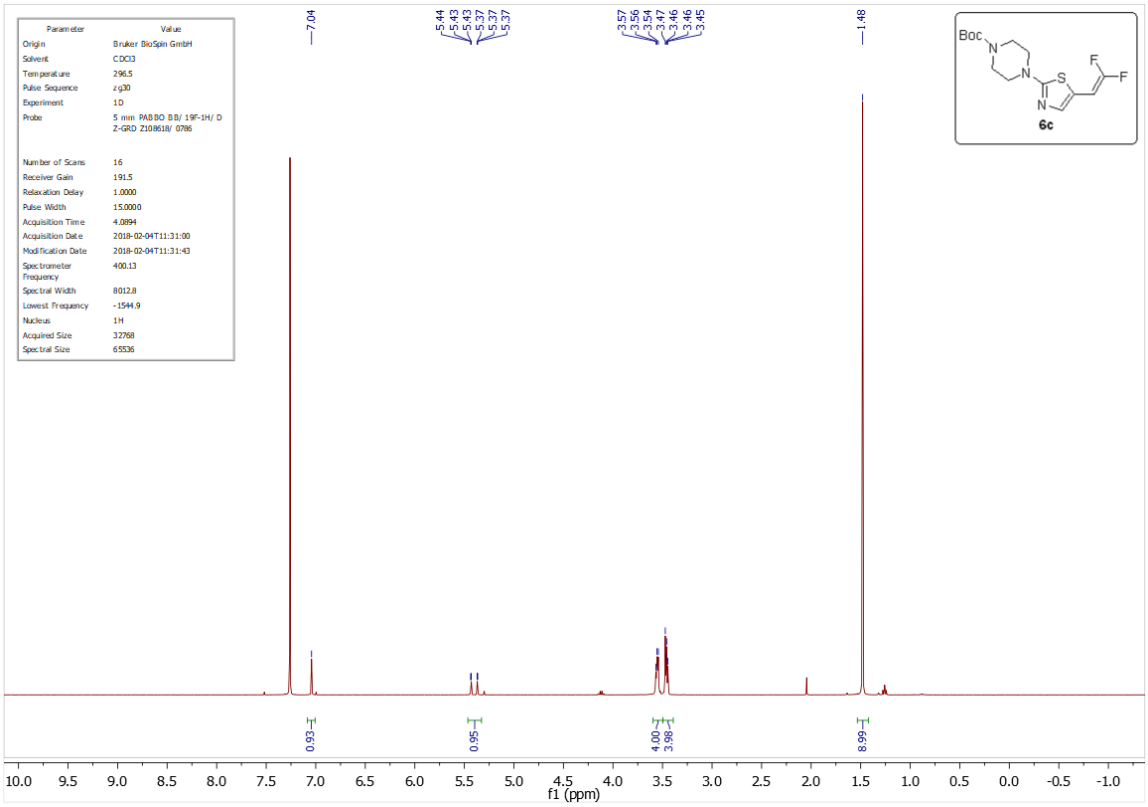

Parameter Value
Title DLO-9-277.7.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.3
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-10-01T10:03:00
Modification Date 2018-10-01T10:03:57
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
81.33
81.35
81.70
81.72
81.90
81.92
82.27
82.29
1.00
0.99
Br
F
F
O
OH
N
Ts
7a
f1 (ppm)

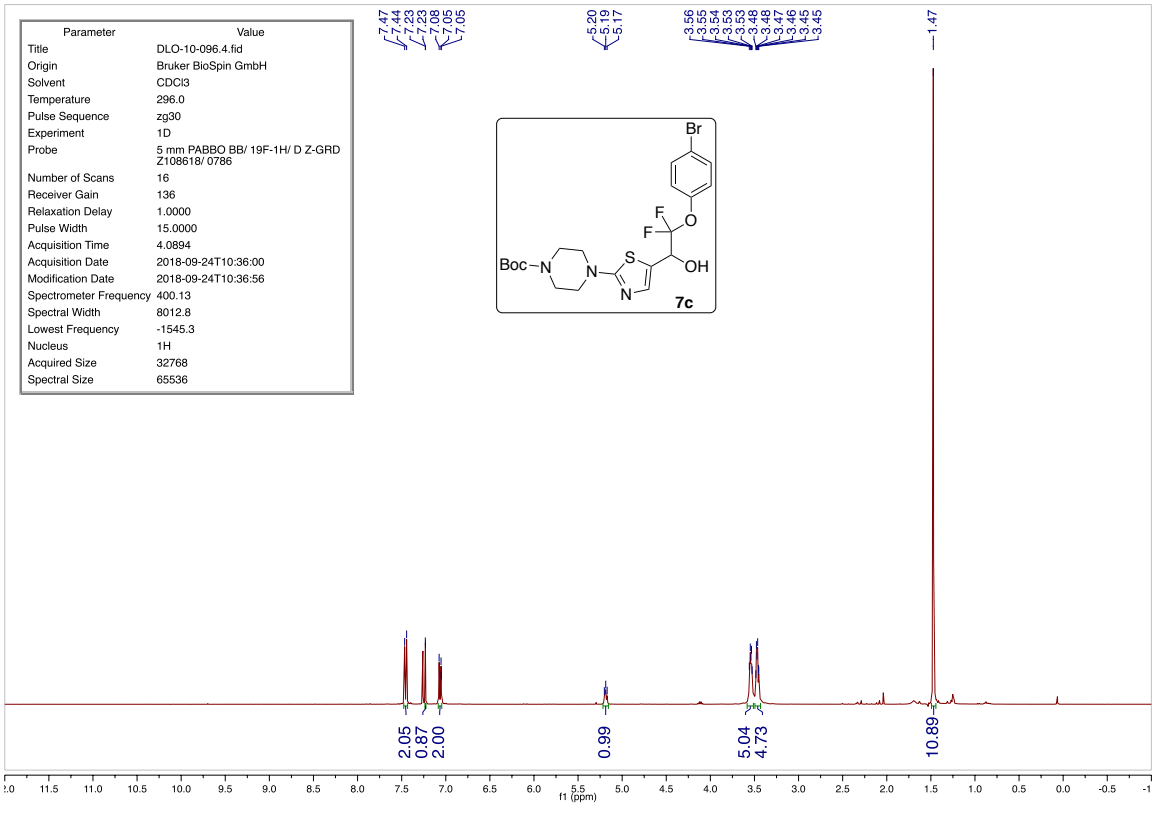

7.90
7.71
7.69
7.69
7.67
7.67
7.67
7.48
7.48
7.47
7.46
7.46
7.44
7.44
7.32
7.32
7.32
7.30
7.30
7.29
7.28
5.27
5.27
5.20
5.20
Parameter Value
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.7
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191.5
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-04-05T09:57:00
Modification Date 2018-04-05T09:57:35
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.0
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
F
F
N
N
Ph
6b
0.96
0.96
1.99
2.04
1.09
1.00
f1 (ppm)

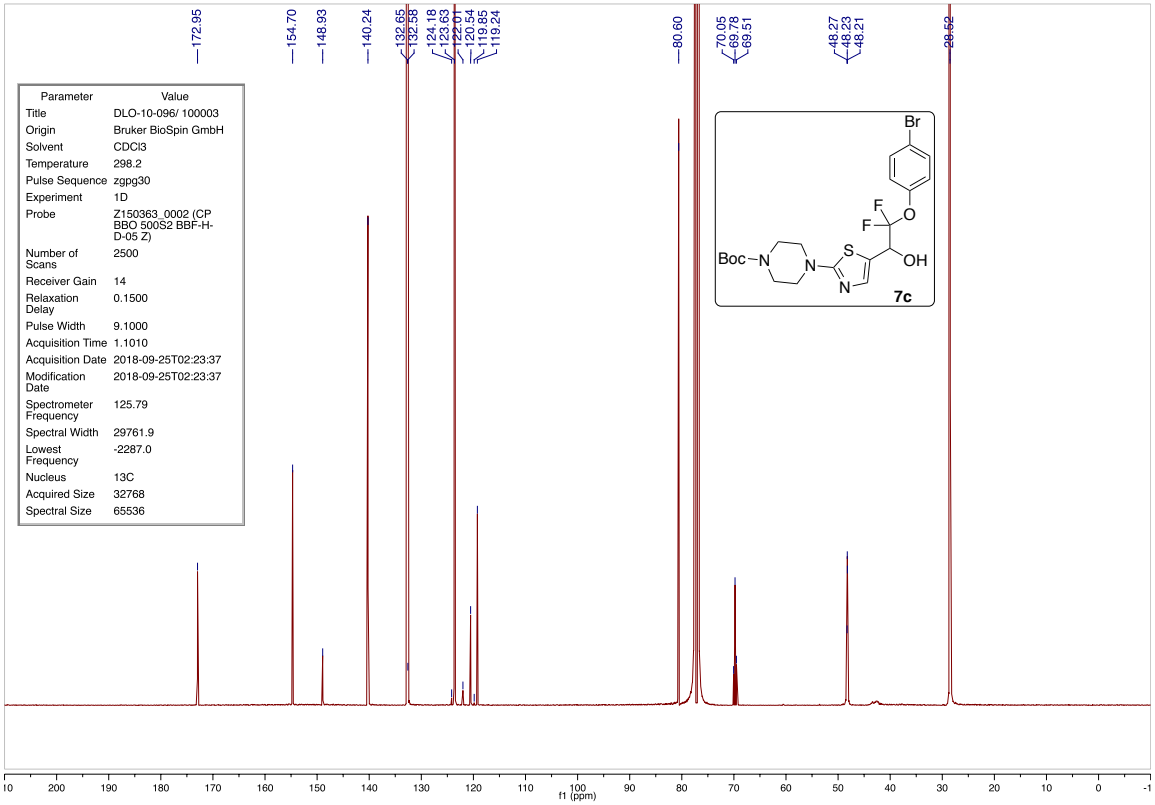

Parameter Value
Title DLO-9-140.1.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 16
Receiver Gain 7
Relaxation Delay 1.0000
Pulse Width 12.0000
Acquisition Time 3.2768
Acquisition Date 2018-05-21T14:21:35
Modification Date 2018-05-21T14:21:35
Spectrometer Frequency 500.19
Spectral Width 10000.0
Lowest Frequency -1923.3
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
8.04
7.82
7.66
7.65
7.64
7.64
7.64
7.45
7.44
7.43
7.43
7.41
7.31
7.29
7.28
7.26
7.05
7.03
5.17
5.17
5.16
5.15
5.15
5.14
5.14
3.59
3.58
Br
F
F
O
OH
N
N
Ph
7b
0.98
0.99
2.06
4.14
1.16
1.98
1.00
1.08
f1 (ppm)


Parameter Value
Title DLO-9-140/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 16
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-05-21T15:08:03
Modification Date 2018-05-21T15:08:03
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2292.7
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
148.99
140.11
140.10
139.82
132.62
129.80
127.04
126.58
126.56
124.65
123.58
122.49
120.34
119.43
119.14
118.87
68.11
67.85
67.58
Br
F
F
O
OH
N
N
Ph
7b
f1 (ppm)

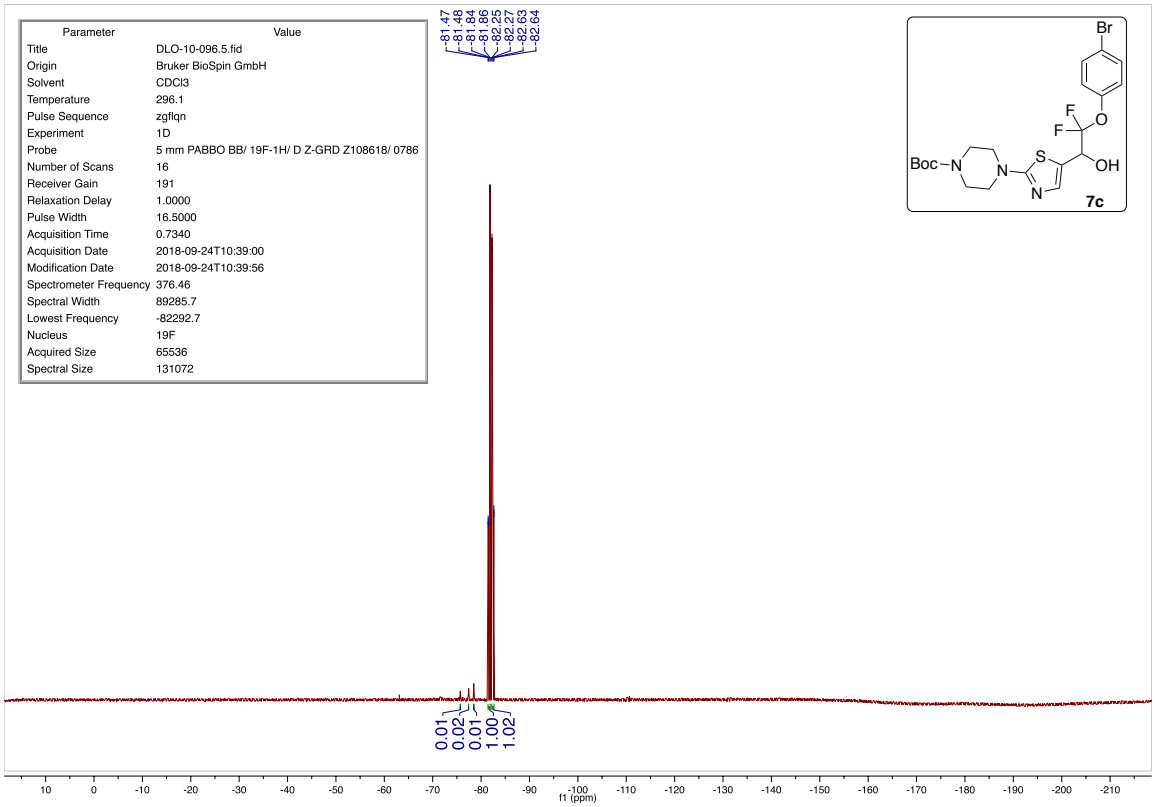

Parameter Value
Title DLO-9-140.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 297.4
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-05-19T17:14:00
Modification Date 2018-05-19T17:14:59
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
82.41
82.42
82.78
82.80
82.87
82.89
83.24
83.26
1.00
1.26
Br
F
F
O
OH
N
N
Ph
7b
f1 (ppm)


Parameter Value
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.5
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191.5
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-02-04T11:31:00
Modification Date 2018-02-04T11:31:43
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1544.9
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.04
5.44
5.43
5.43
5.37
5.37
5.37
3.57
3.56
3.54
3.47
3.46
3.46
3.45
1.48
Boc
F
F
6c
0.93
0.95
4.00
3.98
8.99
f1 (ppm)

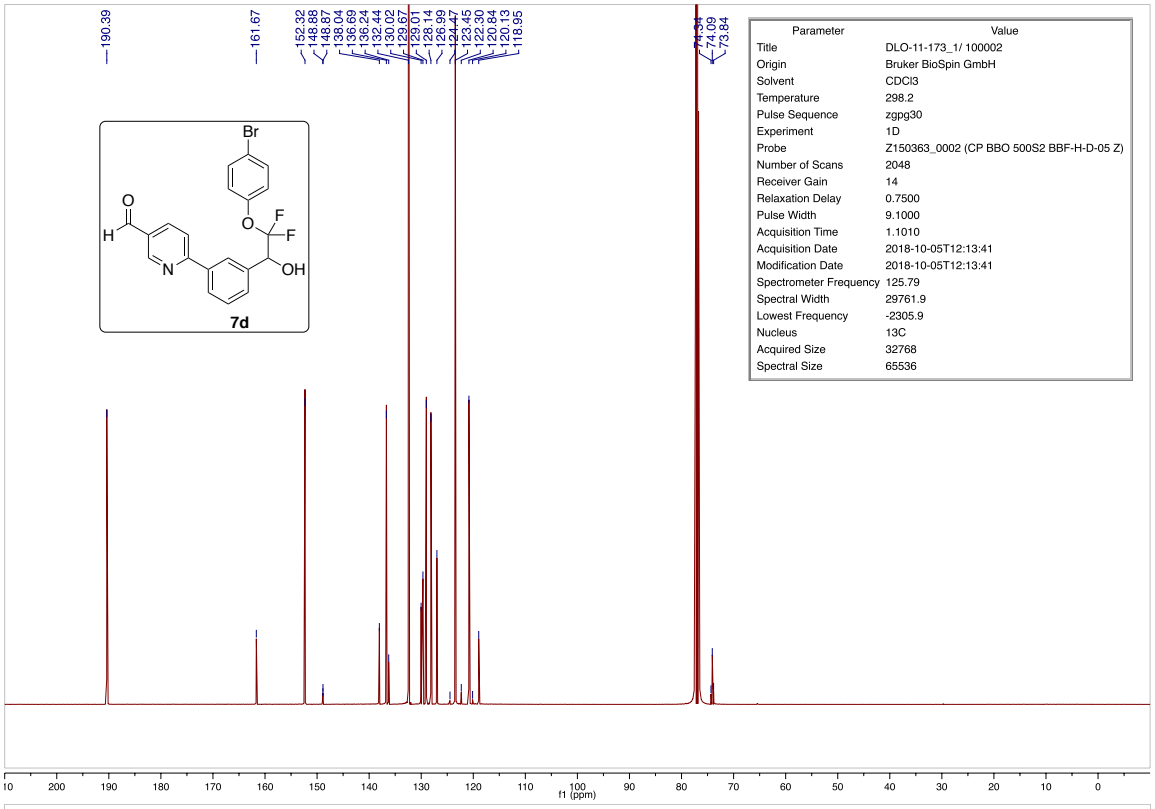

Parameter Value
Title DLO-10-096.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 136
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-24T10:36:00
Modification Date 2018-09-24T10:36:56
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.3
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.47
7.44
7.23
7.23
7.08
7.05
7.05
5.20
5.19
5.17
3.56
3.55
3.54
3.53
3.53
3.48
3.47
3.46
3.45
3.45
1.47
Br
F
F
O
Boc
N
N
S
N
OH
7c
2.05
0.87
2.00
0.99
5.04
4.73
10.89
f1 (ppm)



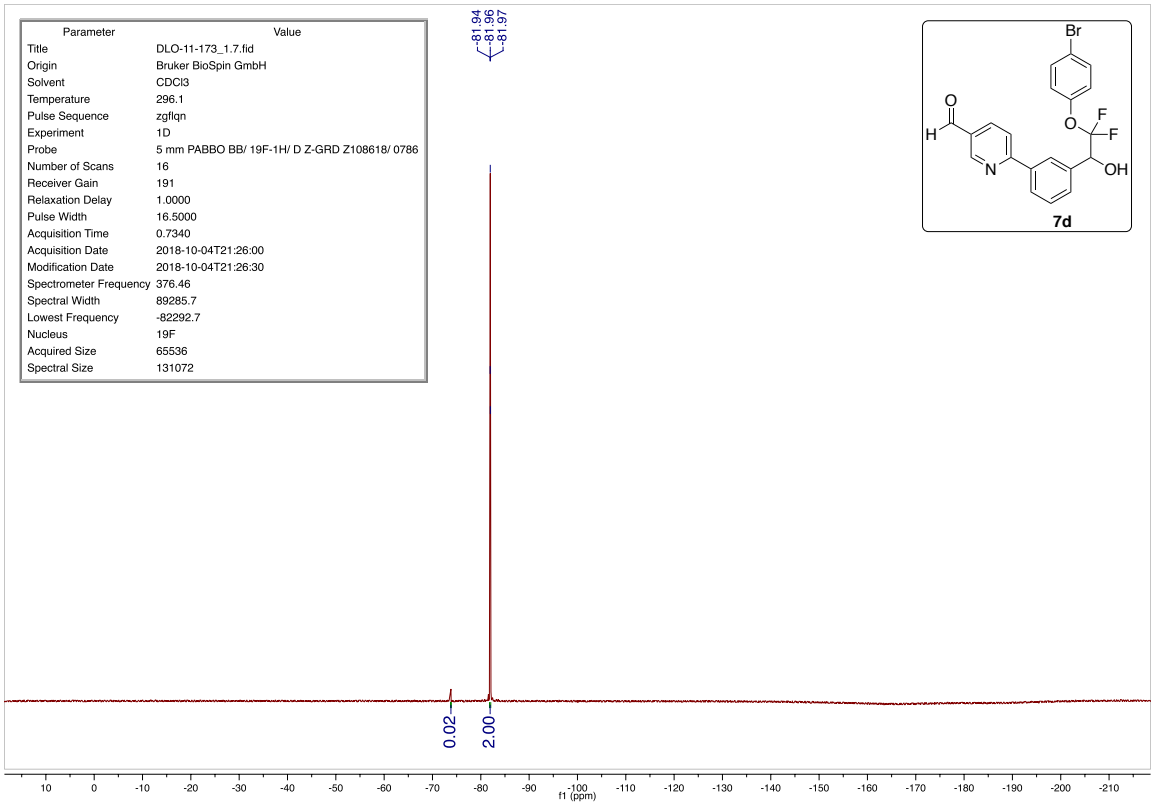
Parameter	Value
Title	DLO-10-096/ 100003
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	298.2
Pulse Sequence	zgpg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	2500
Receiver Gain	14
Relaxation Delay	0.1500
Pulse Width	9.1000
Acquisition Time	1.1010
Acquisition Date	2018-09-25T02:23:37
Modification Date	2018-09-25T02:23:37
Spectrometer Frequency	125.79
Spectral Width	29761.9
Lowest Frequency	-2287.0
Nucleus	13C
Acquired Size	32768
Spectral Size	65536



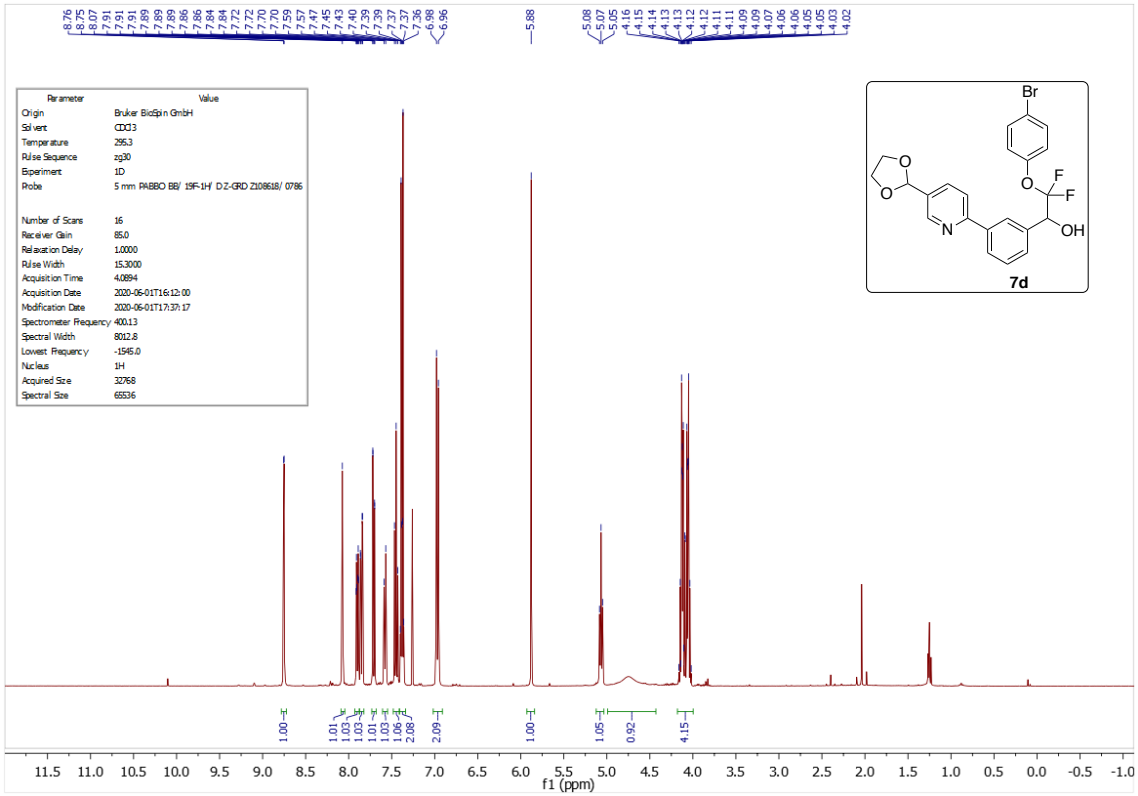
Parameter	Value
Title	DLO-10-096.5.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.1
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-09-24T10:39:00
Modification Date	2018-09-24T10:39:56
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

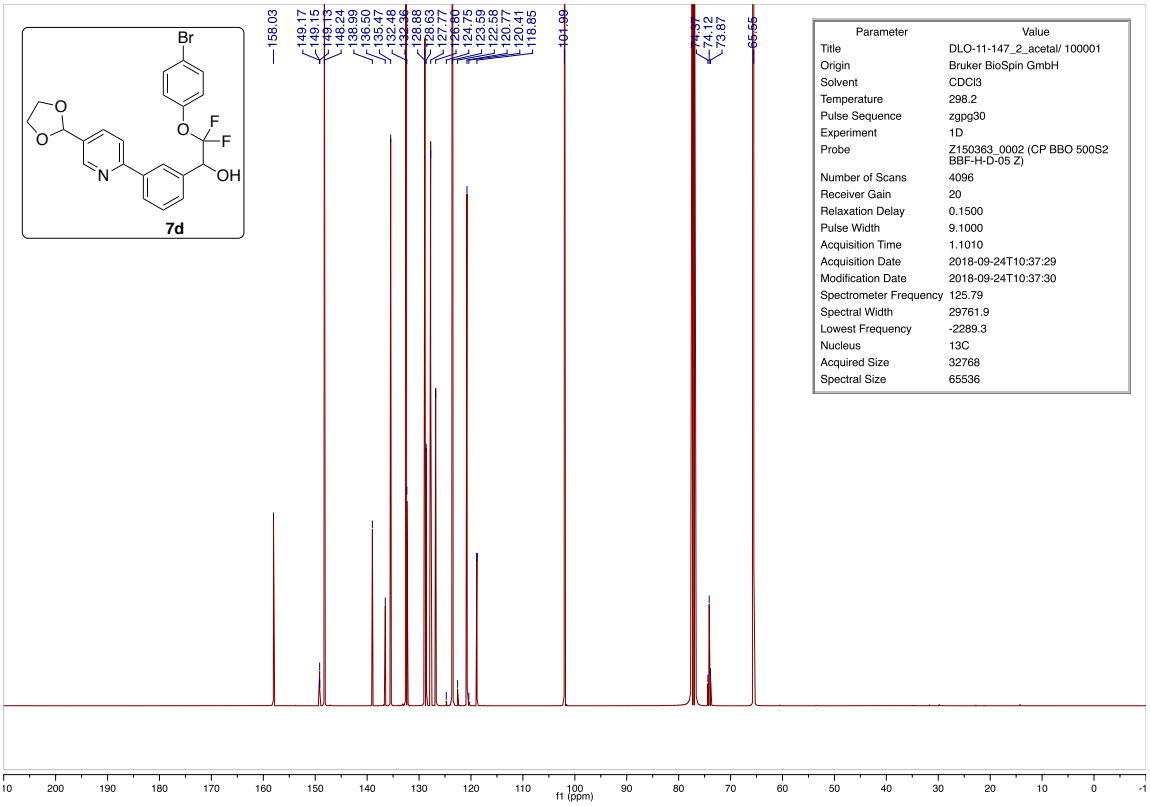


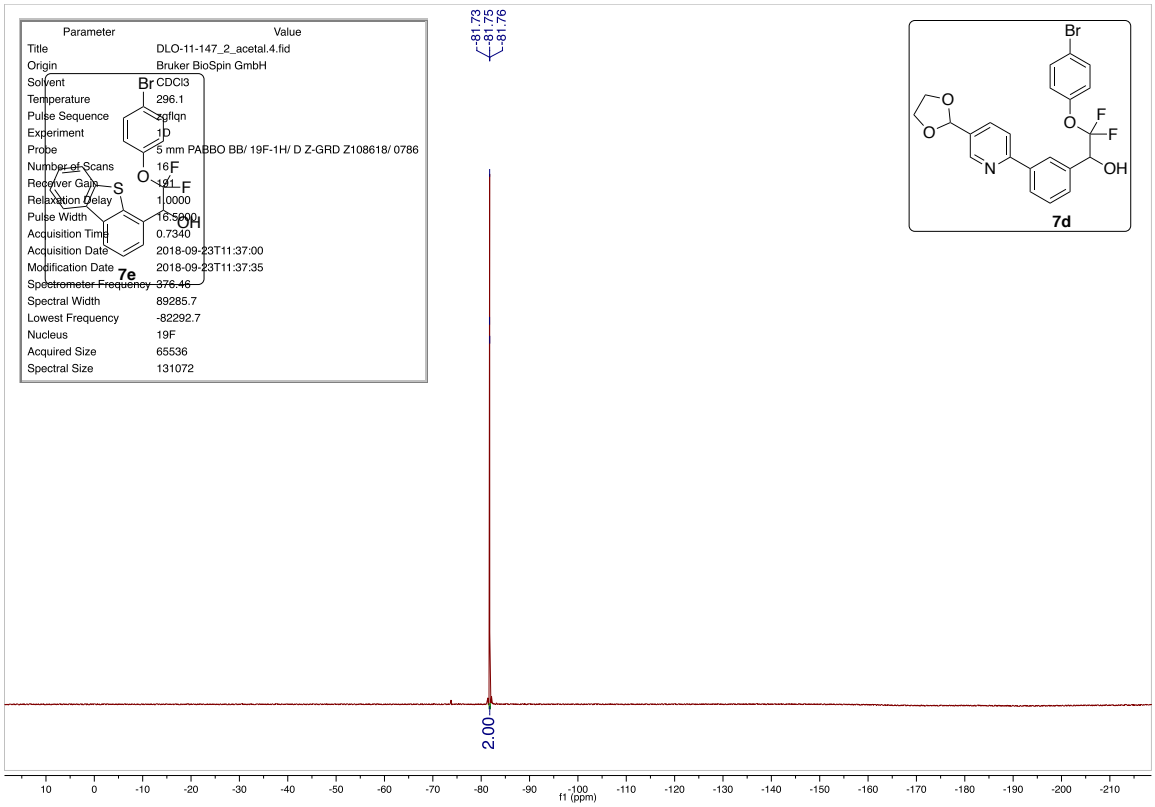
Parameter	Value
Title	DLO-11-173_1/ 100002
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	298.2
Pulse Sequence	zgpg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	2048
Receiver Gain	14
Relaxation Delay	0.7500
Pulse Width	9.1000
Acquisition Time	1.1010
Acquisition Date	2018-10-05T12:13:41
Modification Date	2018-10-05T12:13:41
Spectrometer Frequency	125.79
Spectral Width	29761.9
Lowest Frequency	-2305.9
Nucleus	13C
Acquired Size	32768
Spectral Size	65536

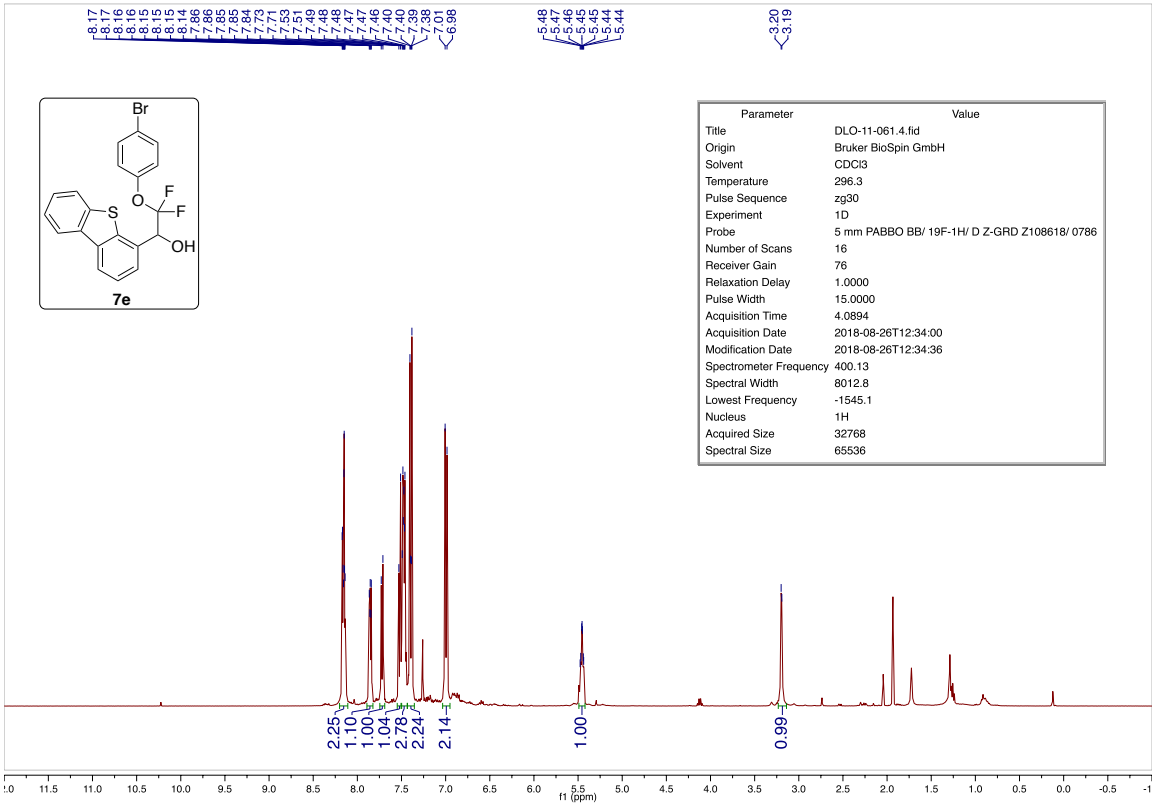


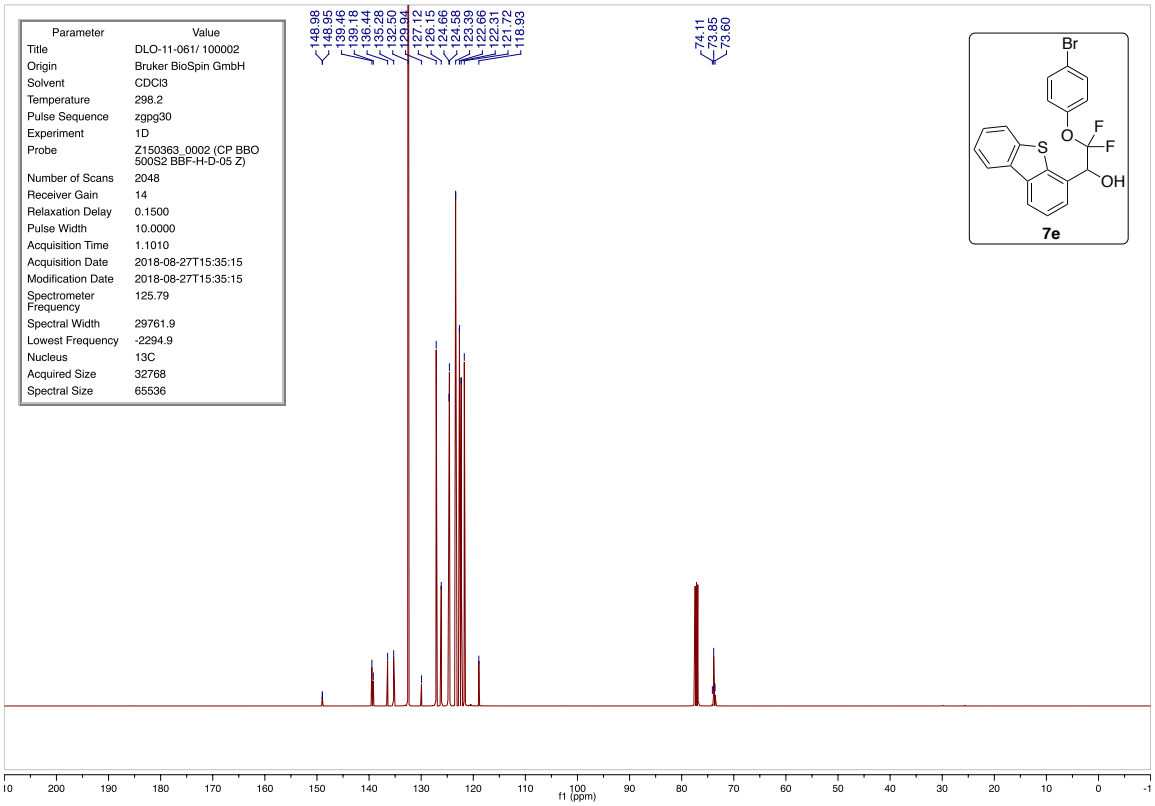
Parameter	Value
Title	DLO-11-173_1.7.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.1
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-10-04T21:26:00
Modification Date	2018-10-04T21:26:30
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

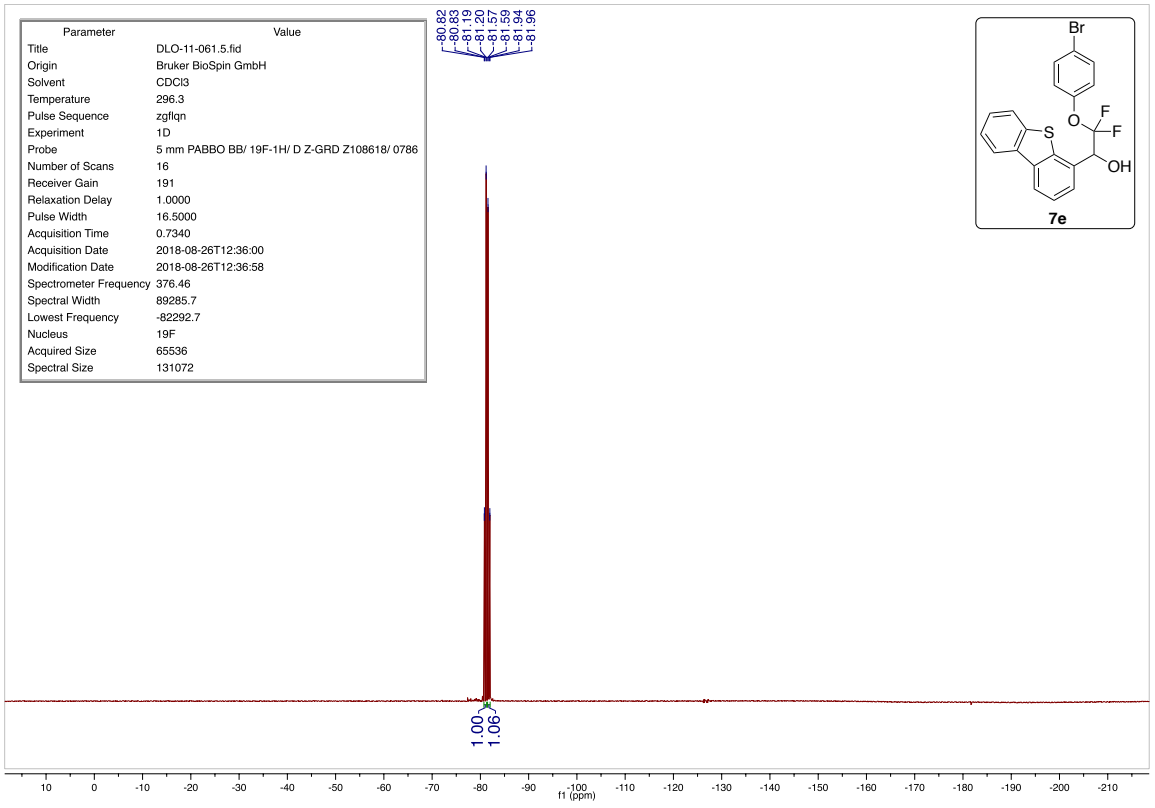

Parameter Value
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 295.3
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 85.0
Relaxation Delay 1.0000
Pulse Width 15.3000
Acquisition Time 4.0894
Acquisition Date 2020-06-01T16:12:00
Modification Date 2020-06-01T17:37:17
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.0
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7d
f1 (ppm)


Parameter Value
Title DLO-11-147_2_acetal/ 100001
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 4096
Receiver Gain 20
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-09-24T10:37:29
Modification Date 2018-09-24T10:37:30
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2289.3
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
7d
f1 (ppm)

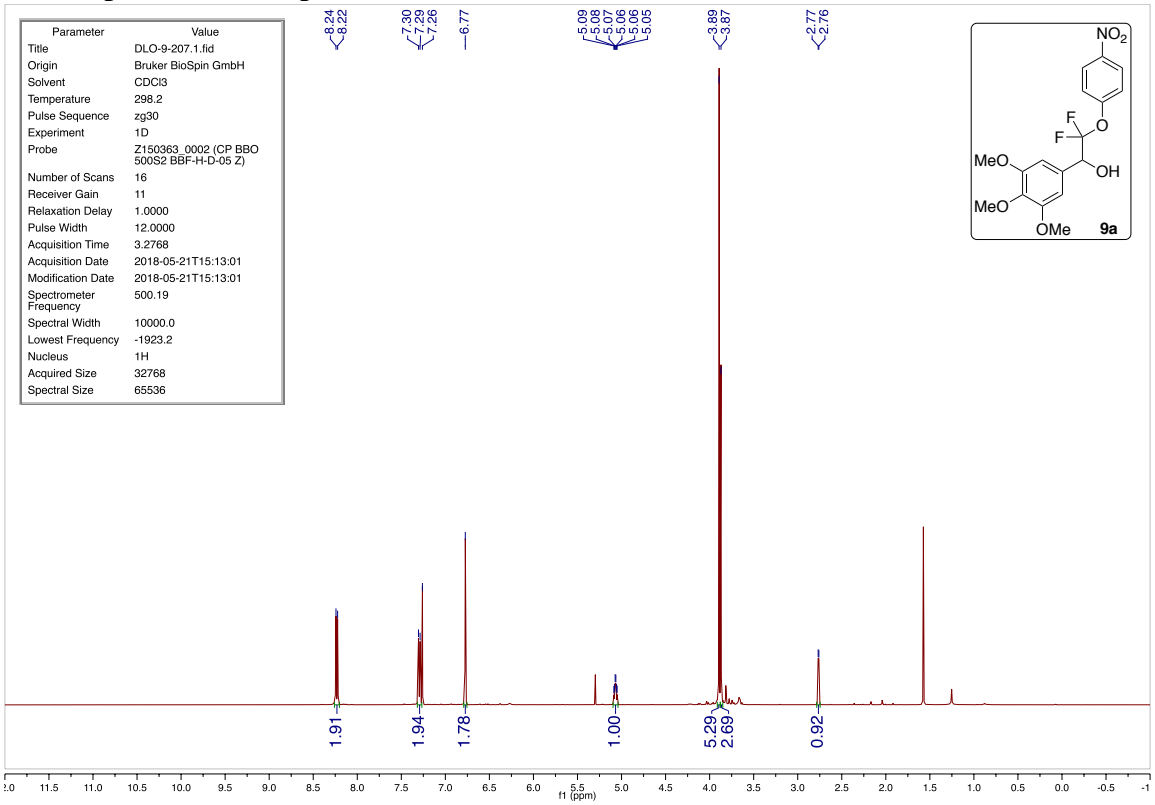

Parameter Value
Title DLO-11-147_2_acetal.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5800
Acquisition Time 0.7340
Acquisition Date 2018-09-23T11:37:00
Modification Date 2018-09-23T11:37:35
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
7e
-81.73
-81.75
-81.76
2.00
7d
f1 (ppm)

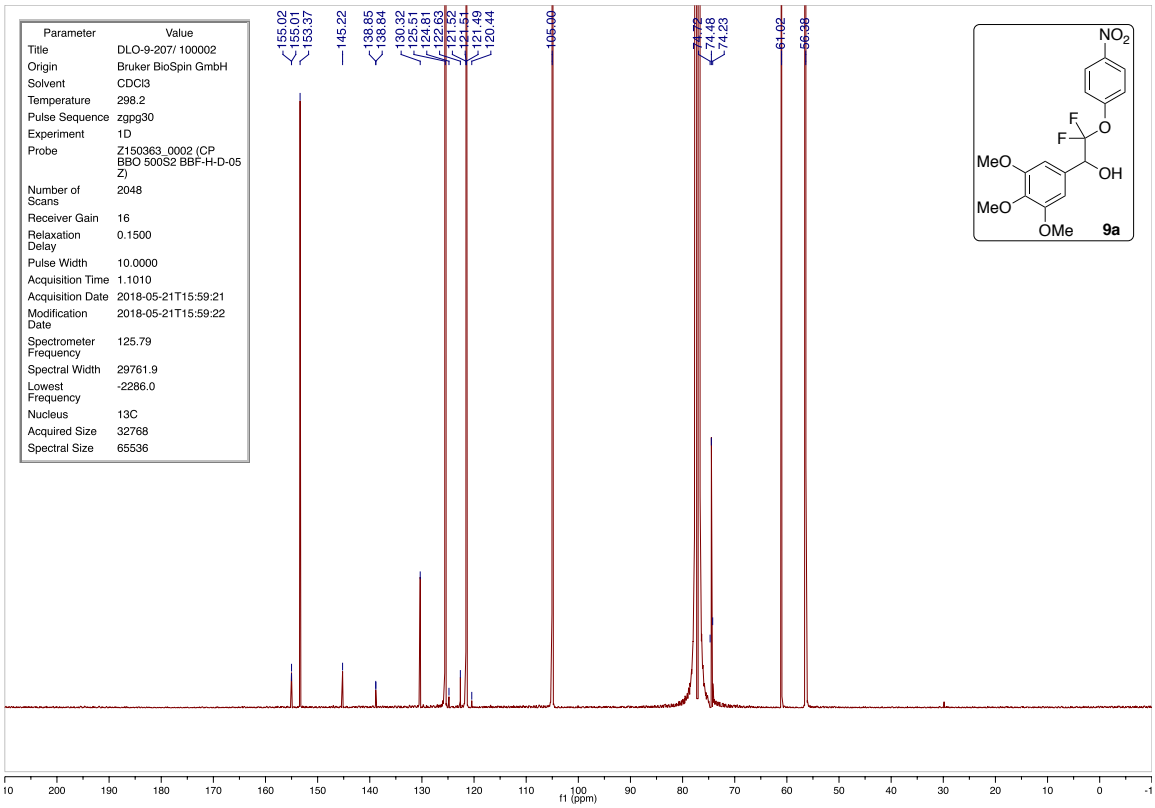

8.17
8.17
8.16
8.16
8.15
8.15
8.15
8.14
7.86
7.86
7.85
7.84
7.73
7.71
7.51
7.49
7.48
7.48
7.47
7.47
7.46
7.40
7.40
7.39
7.38
7.01
6.98
5.48
5.47
5.46
5.45
5.45
5.45
5.44
3.20
3.19
7e
Parameter Value
Title DLO-11-061.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.3
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 76
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-08-26T12:34:00
Modification Date 2018-08-26T12:34:36
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.1
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
2.25
1.10
1.00
1.04
2.78
2.24
2.14
1.00
0.99
f1 (ppm)

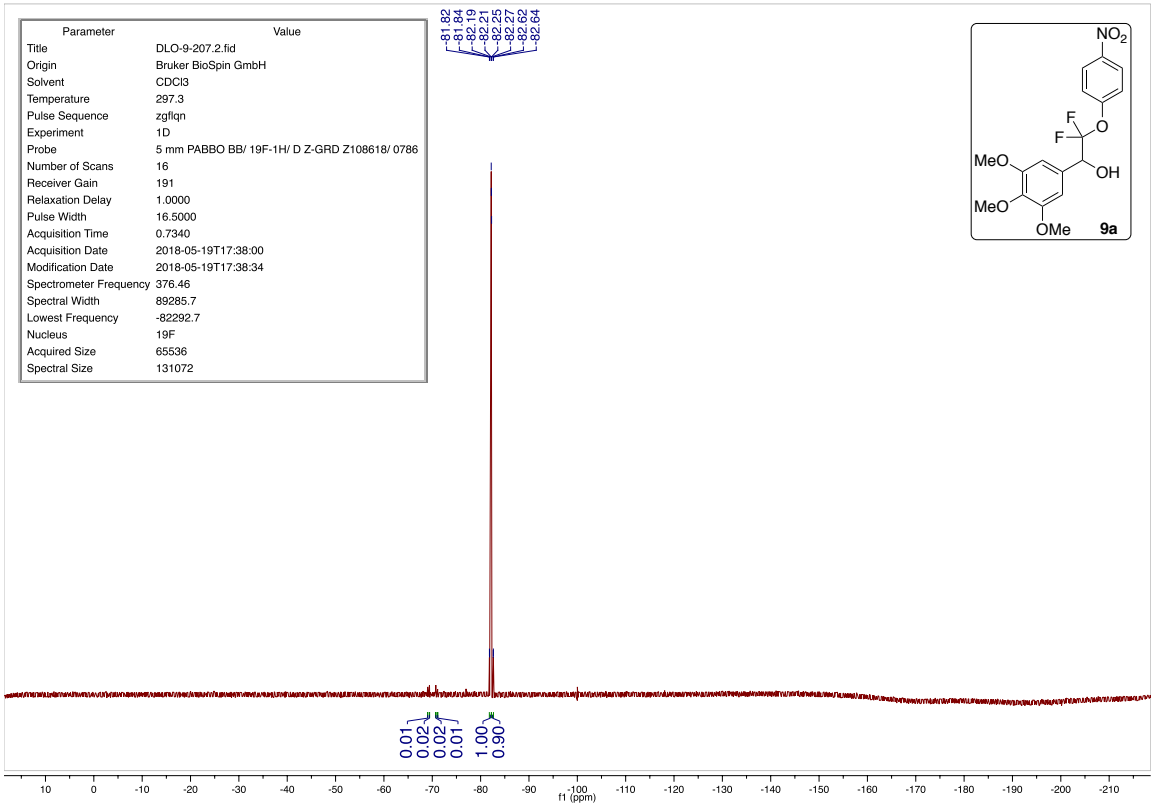

Parameter Value
Title DLO-11-061/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 14
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-08-27T15:35:15
Modification Date 2018-08-27T15:35:15
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2294.9
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
148.98
148.85
139.46
139.18
136.44
135.28
132.50
129.94
127.12
126.15
124.66
124.58
123.89
123.85
122.31
121.72
118.93
74.11
73.85
73.60
Br
O
F
F
S
OH
7e
f1 (ppm)

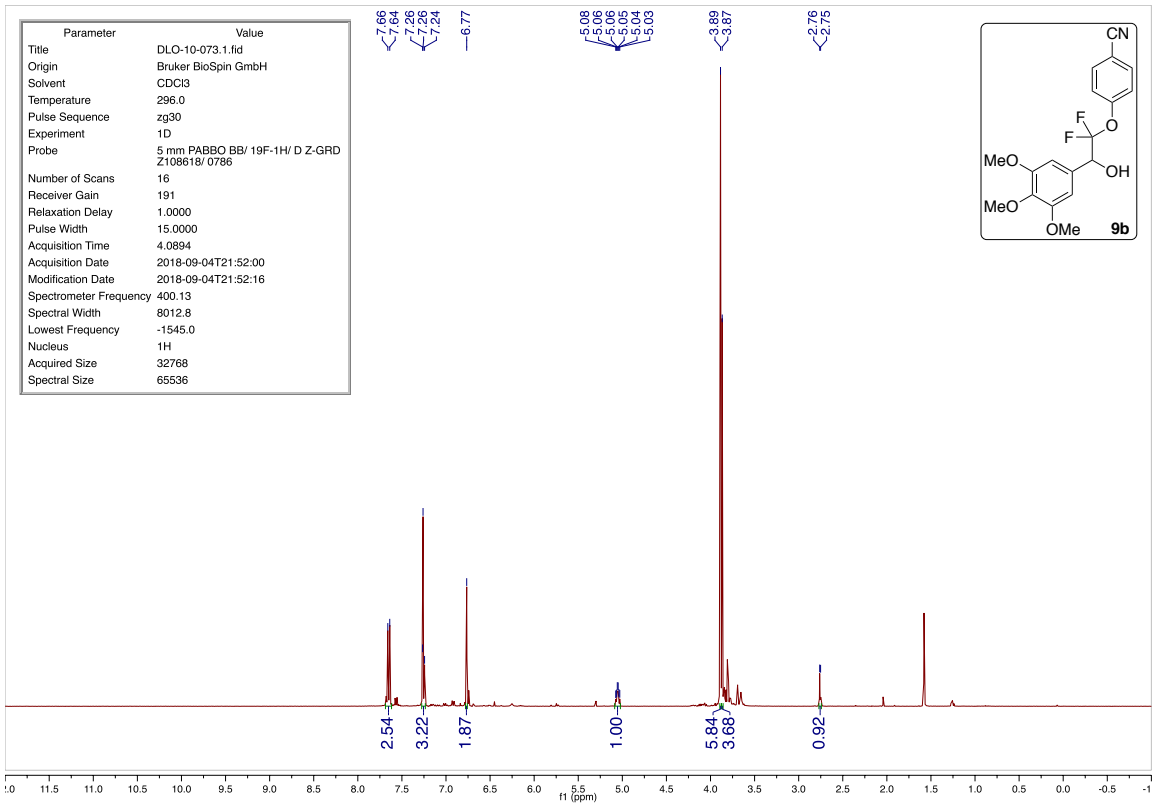

Parameter Value
Title DLO-11-061.5.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.3
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-08-26T12:36:00
Modification Date 2018-08-26T12:36:58
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
80.82
80.83
81.19
81.20
81.57
81.59
81.94
81.96
1.00
1.06
Br
O
F
F
S
OH
7e
f1 (ppm)

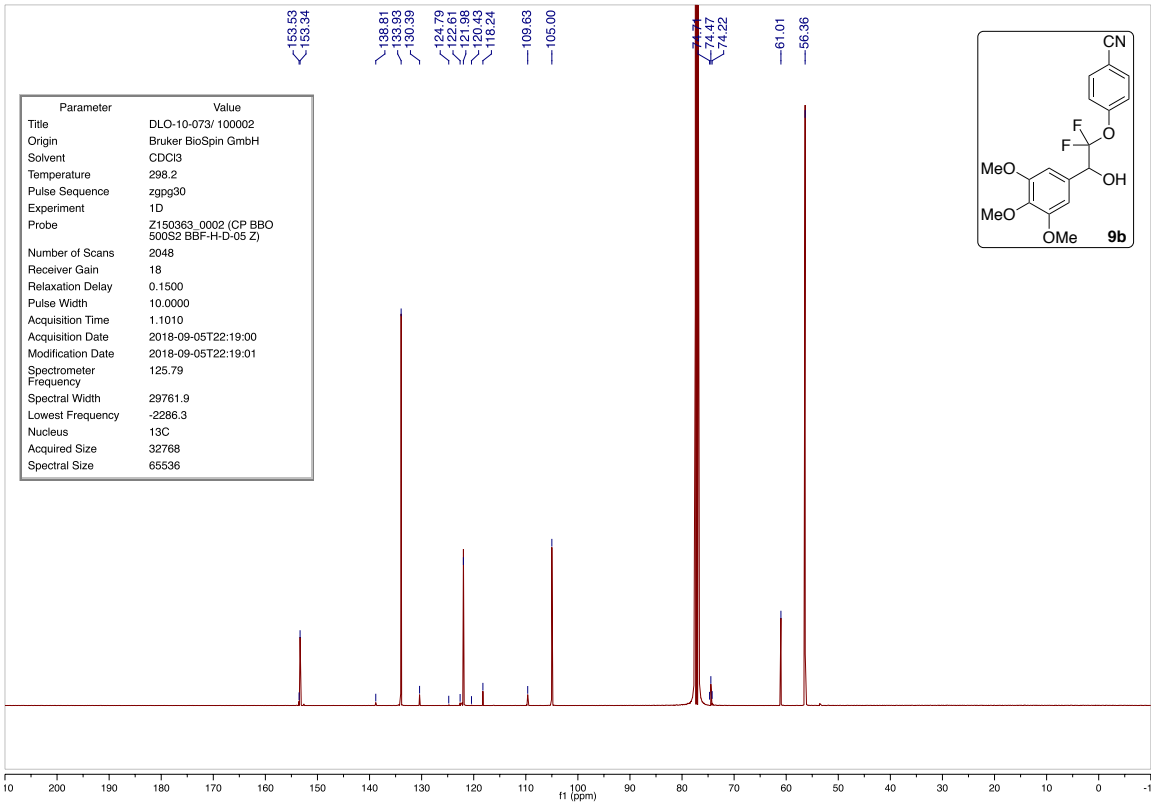
NMR Spectra of Compounds in Table 4:

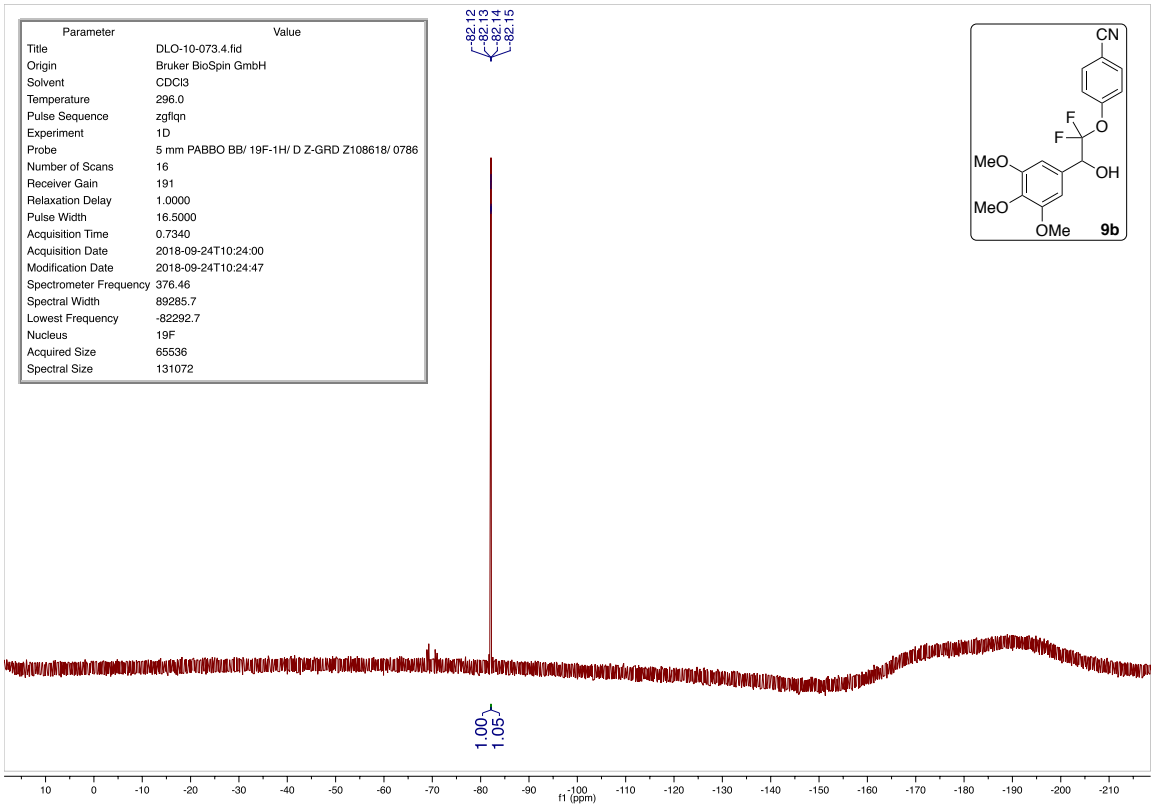


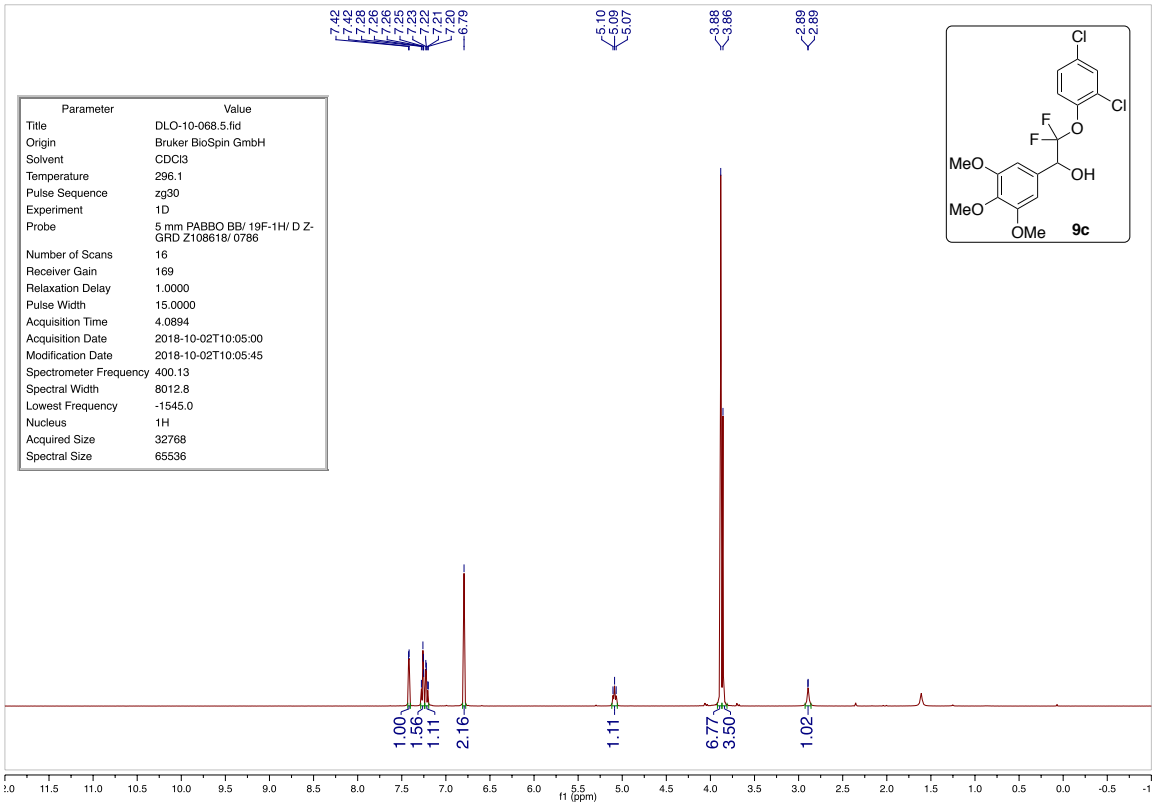



Parameter Value
Title DLO-9-207.2.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 297.3
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-05-19T17:38:00
Modification Date 2018-05-19T17:38:34
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.82
-81.84
-82.19
-82.21
-82.25
-82.27
-82.62
-82.64
NO2
F
F
O
MeO
OH
MeO
OMe
9a
0.01
0.02
0.02
0.01
1.00
0.90
f1 (ppm)

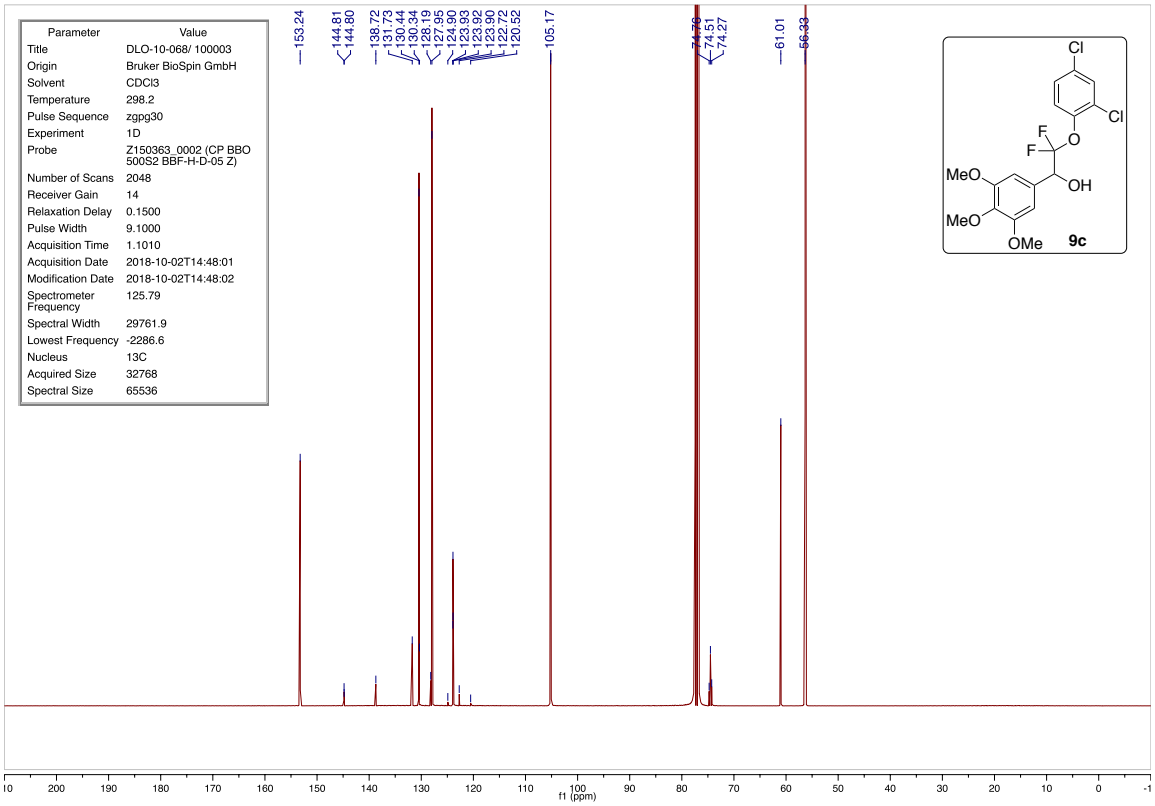

Parameter Value
Title DLO-10-073.1.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-04T21:52:00
Modification Date 2018-09-04T21:52:16
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.0
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.66
7.64
7.26
7.26
7.24
6.77
5.08
5.06
5.06
5.05
5.04
5.03
3.89
3.87
2.76
2.75
CN
F
F
O
MeO
OH
MeO
OMe
9b
2.54
3.22
1.87
1.00
5.84
3.68
0.92
f1 (ppm)


153.53
153.34
138.81
133.93
130.39
124.79
122.61
121.98
120.43
118.24
109.63
105.00
74.71
74.47
74.22
61.01
56.36
Parameter Value
Title DLO-10-073/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 18
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-05T22:19:00
Modification Date 2018-09-05T22:19:01
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2286.3
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
CN
F
F
O
MeO
OH
MeO
OMe
9b
f1 (ppm)

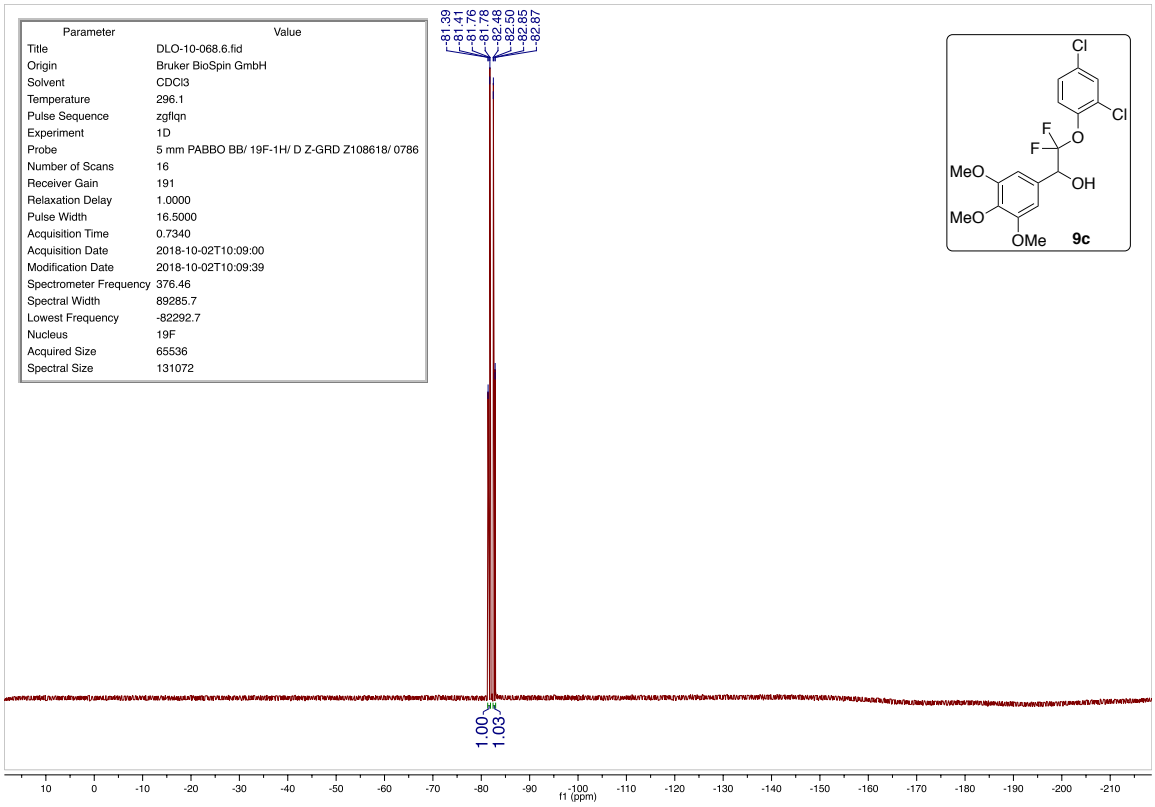

-82.12
-82.13
-82.14
-82.15
Parameter Value
Title DLO-10-073.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-24T10:24:00
Modification Date 2018-09-24T10:24:47
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
1.00
1.05
CN
F
F
O
MeO
OH
MeO
OMe
9b
f1 (ppm)

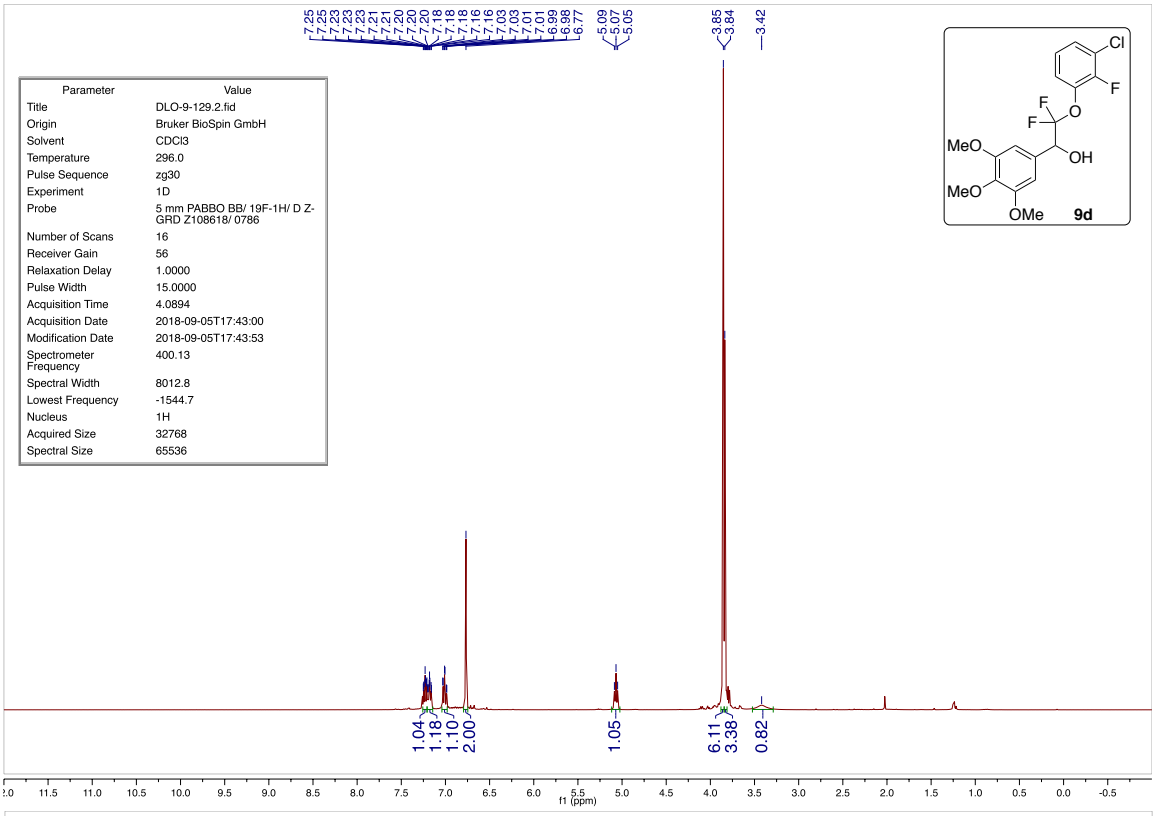


Parameter	Value
Title	DLO-10-068.5.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.1
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	169
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-10-02T10:05:00
Modification Date	2018-10-02T10:05:45
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1545.0
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

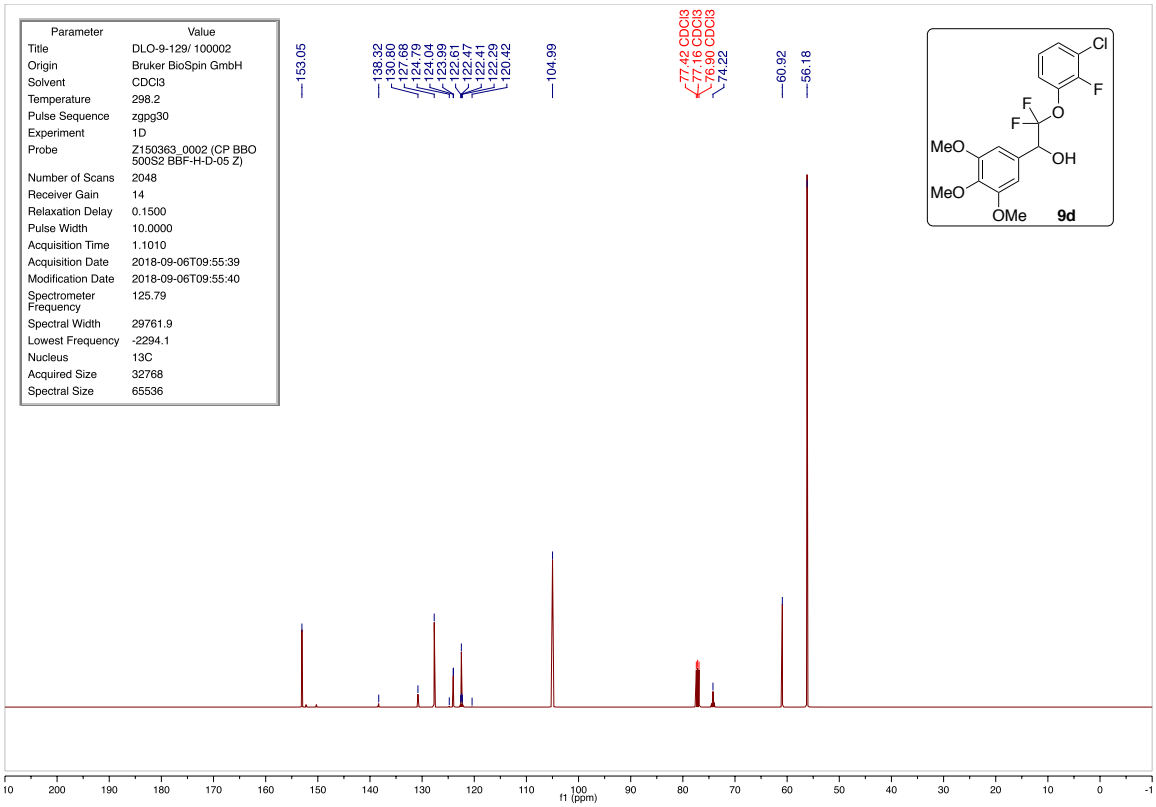


Parameter	Value
Title	DLO-10-068/ 100003
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	298.2
Pulse Sequence	zgpg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	2048
Receiver Gain	14
Relaxation Delay	0.1500
Pulse Width	9.1000
Acquisition Time	1.1010
Acquisition Date	2018-10-02T14:48:01
Modification Date	2018-10-02T14:48:02
Spectrometer Frequency	125.79
Spectral Width	29761.9
Lowest Frequency	-2286.6
Nucleus	13C
Acquired Size	32768
Spectral Size	65536

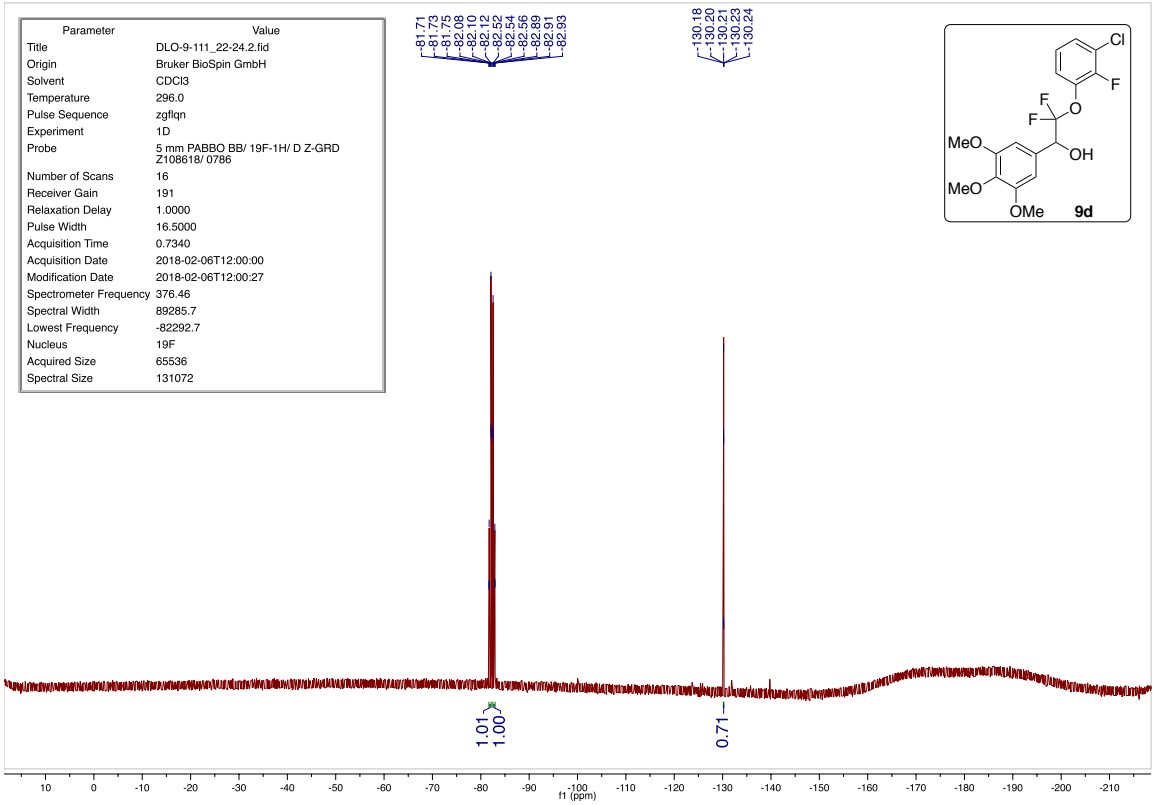

Parameter Value
Title DLO-10-068.6.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-10-02T10:09:00
Modification Date 2018-10-02T10:09:39
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.39
-81.41
-81.76
-81.78
-82.48
-82.50
-82.85
-82.87
Cl
Cl
F
F
O
MeO
OH
MeO
OMe
9c
1.00
1.03
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
-180
-190
-200
-210
f1 (ppm)

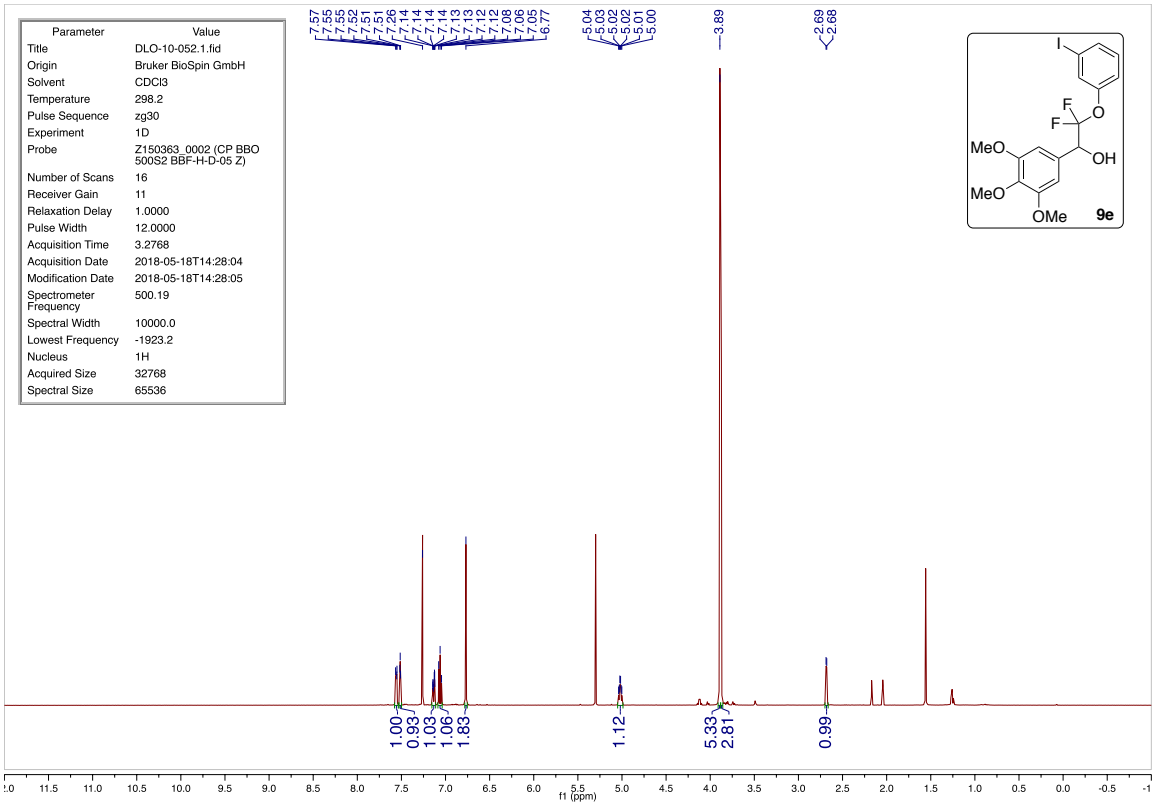


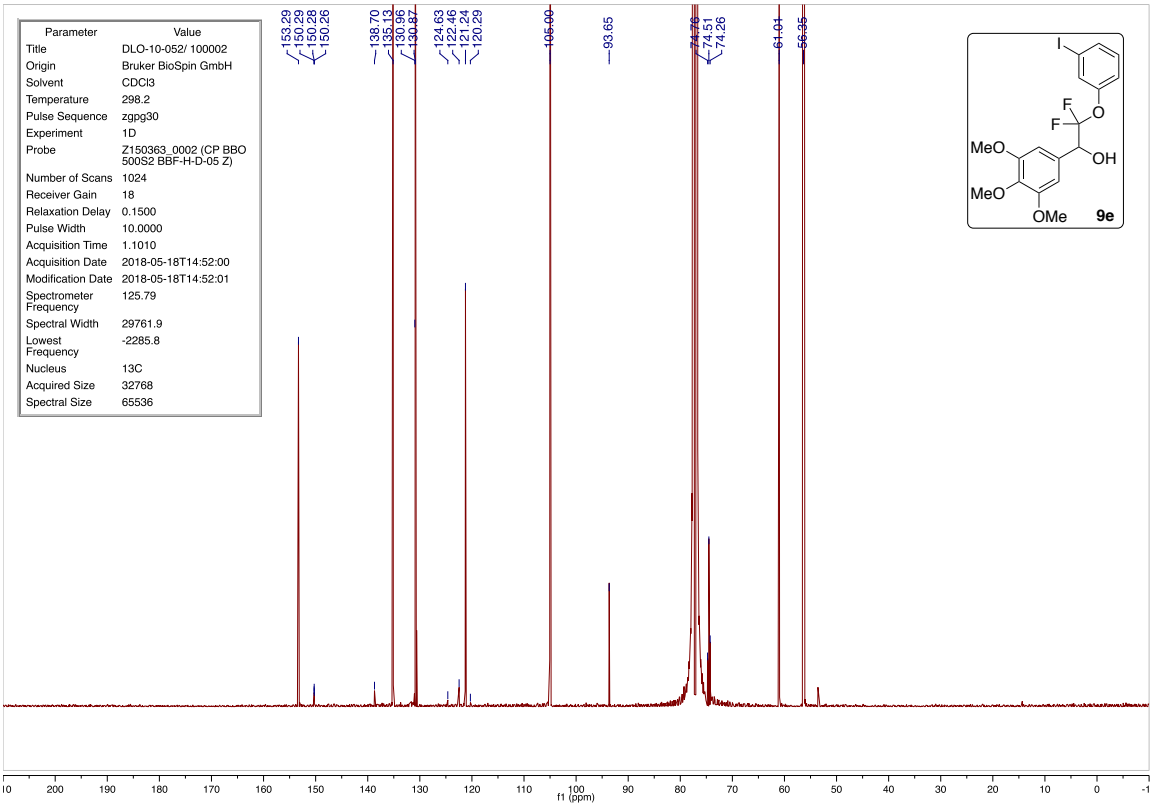
Parameter	Value
Title	DLO-9-129.2.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.0
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	56
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-09-05T17:43:00
Modification Date	2018-09-05T17:43:53
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1544.7
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

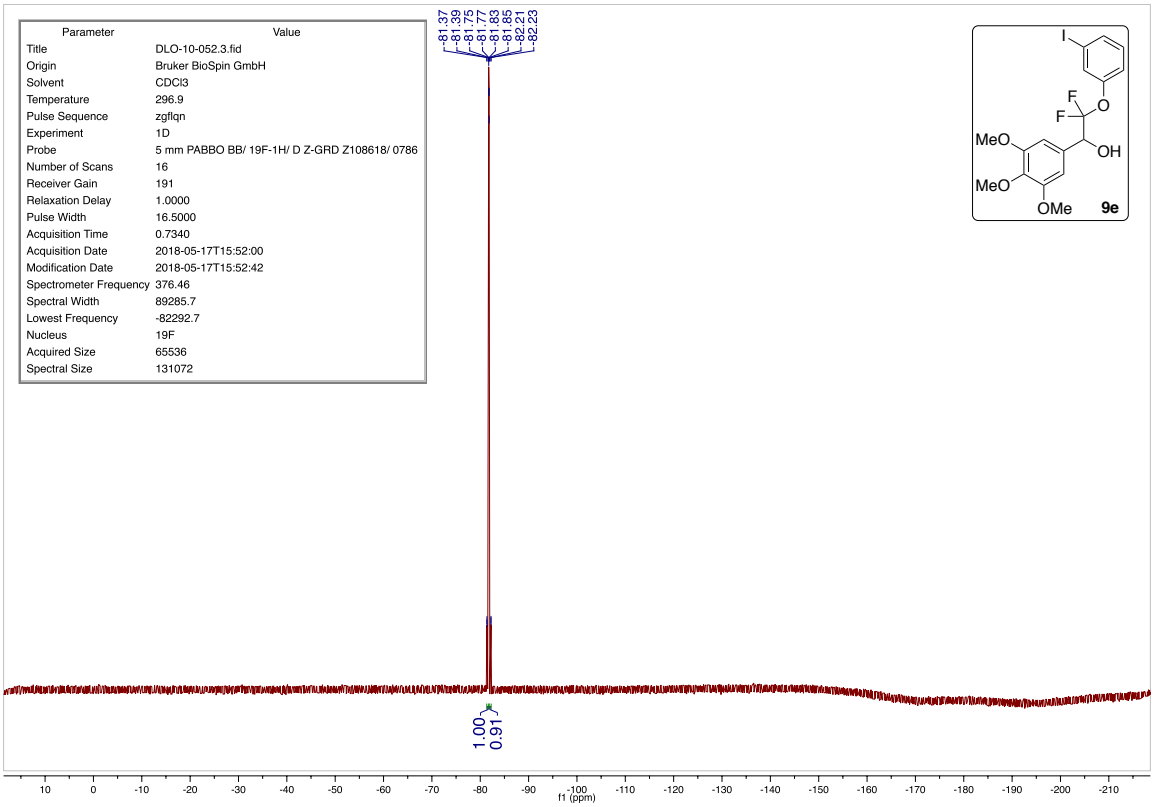


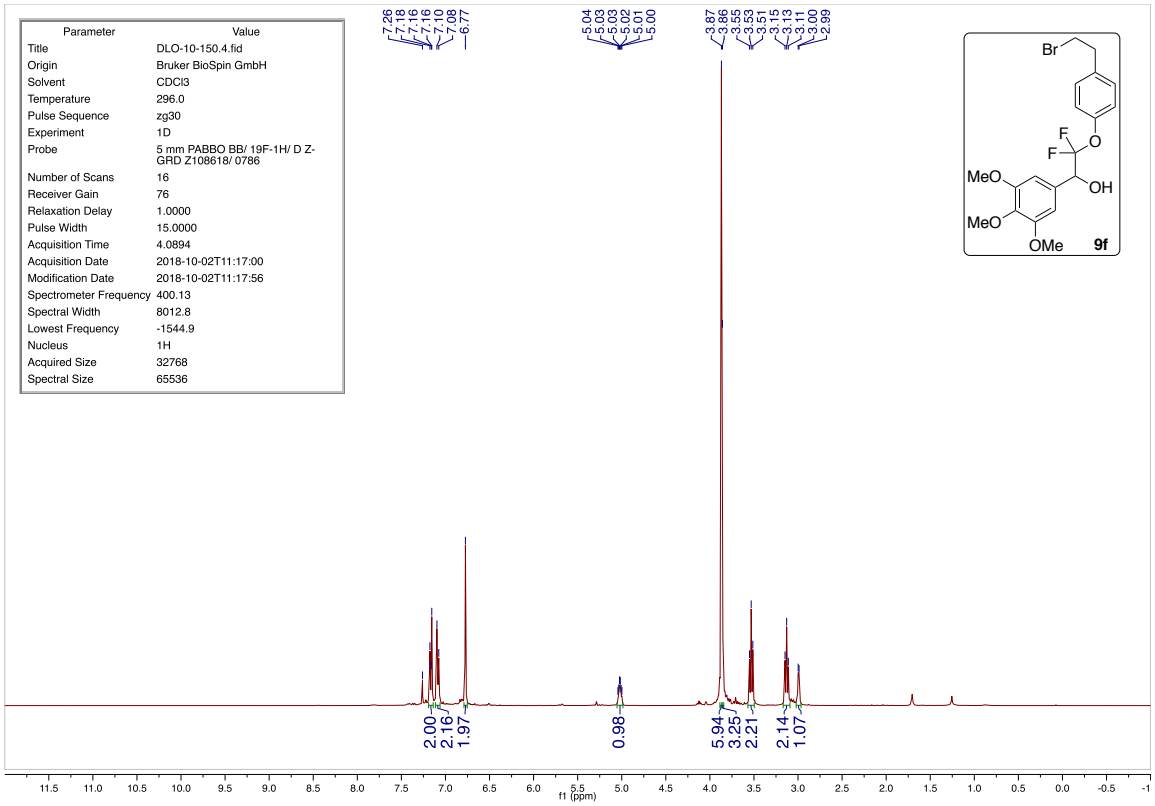
Parameter	Value
Title	DLO-9-129/ 100002
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	298.2
Pulse Sequence	zgpg30
Experiment	1D
Probe	Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans	2048
Receiver Gain	14
Relaxation Delay	0.1500
Pulse Width	10.0000
Acquisition Time	1.1010
Acquisition Date	2018-09-06T09:55:39
Modification Date	2018-09-06T09:55:40
Spectrometer Frequency	125.79
Spectral Width	29761.9
Lowest Frequency	-2294.1
Nucleus	13C
Acquired Size	32768
Spectral Size	65536

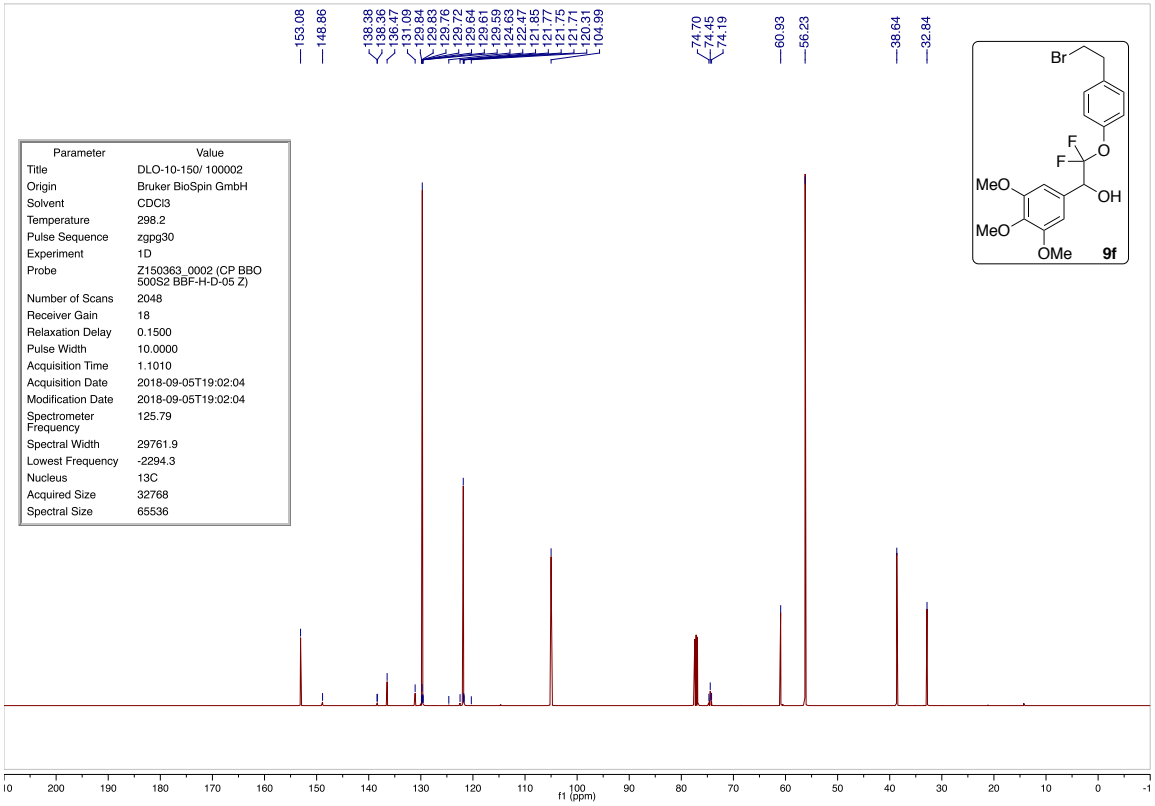

Parameter Value
Title DLO-9-111_22-24.2.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-02-06T12:00:00
Modification Date 2018-02-06T12:00:27
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-81.71
-81.73
-81.75
-82.08
-82.10
-82.12
-82.52
-82.54
-82.56
-82.89
-82.91
-82.93
-130.18
-130.20
-130.21
-130.23
-130.24
Cl
F
F
O
MeO
OH
MeO
OMe
9d
1.01
1.00
0.71
f1 (ppm)


Parameter Value
Title DLO-10-052.1.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 16
Receiver Gain 11
Relaxation Delay 1.0000
Pulse Width 12.0000
Acquisition Time 3.2768
Acquisition Date 2018-05-18T14:28:04
Modification Date 2018-05-18T14:28:05
Spectrometer Frequency 500.19
Spectral Width 10000.0
Lowest Frequency -1923.2
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.57
7.55
7.55
7.52
7.51
7.51
7.26
7.14
7.14
7.14
7.14
7.13
7.13
7.12
7.12
7.08
7.06
7.05
6.77
5.04
5.03
5.02
5.02
5.01
5.00
3.89
2.69
2.68
I
F
F
O
MeO
OH
MeO
OMe
9e
1.00
0.93
1.03
1.06
1.83
1.12
5.33
2.81
0.99
f1 (ppm)

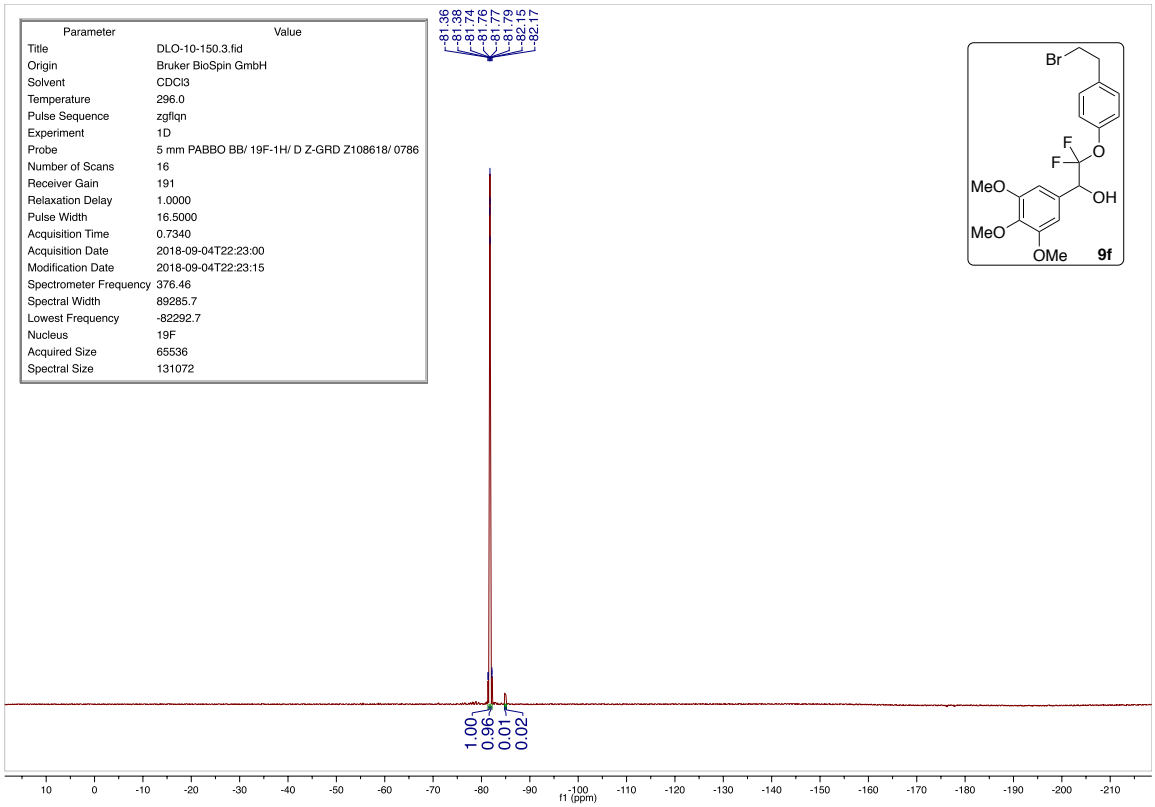

Parameter Value
Title DLO-10-052/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 1024
Receiver Gain 18
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-05-18T14:52:00
Modification Date 2018-05-18T14:52:01
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2285.8
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
153.29
150.29
150.28
150.28
138.70
135.13
130.96
130.87
124.63
121.45
121.24
120.29
106.00
93.65
74.76
74.51
74.26
61.01
56.35
I
F
F
O
MeO
OH
MeO
OMe
9e
f1 (ppm)


Parameter Value
Title DLO-10-052.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.9
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-05-17T15:52:00
Modification Date 2018-05-17T15:52:42
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
81.37
81.39
81.75
81.77
81.83
81.85
82.21
82.23
1.00
0.91
I
F
F
O
MeO
OH
MeO
OMe
9e
f1 (ppm)

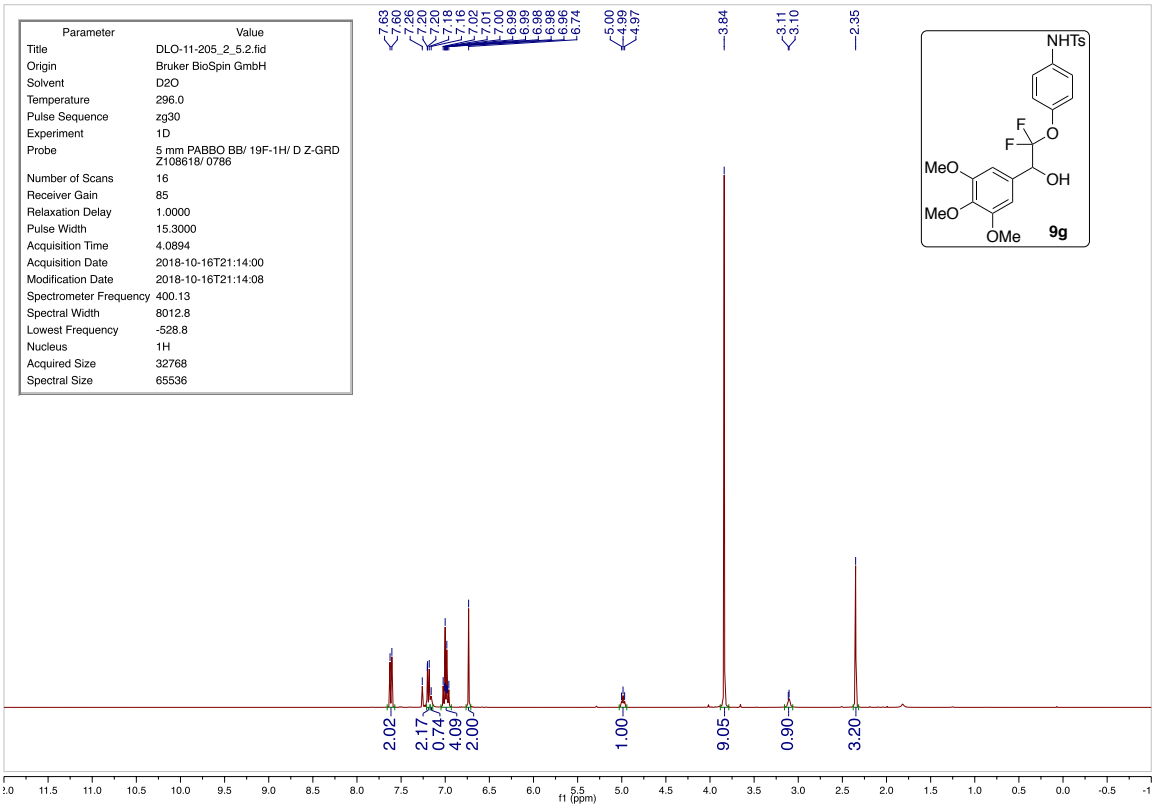

Parameter Value
Title DLO-10-150.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.0
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 76
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-10-02T11:17:00
Modification Date 2018-10-02T11:17:56
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1544.9
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.26 7.18 7.16 7.16 7.10 7.08 6.77
5.04 5.03 5.03 5.02 5.01 5.00
3.87 3.86 3.55 3.53 3.51 3.15 3.13 3.11 3.00 2.99
2.00 2.16 1.97 0.98 5.94 3.25 2.21 2.14 1.07
f1 (ppm)
Br
F
F
O
MeO
OH
MeO
OMe
9f

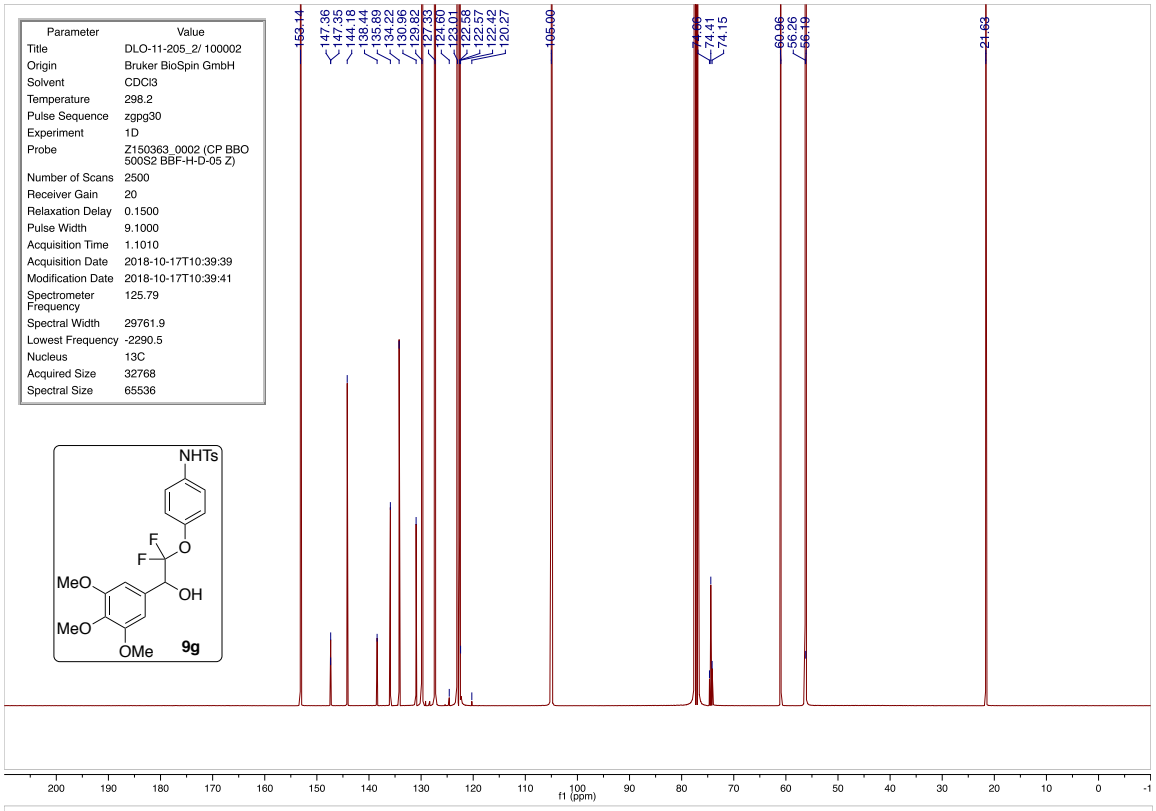

153.08 148.86 138.38 138.36 136.47 131.09 129.84 129.83 129.76 129.72 129.64 129.61 129.59 124.63 122.47 121.85 121.77 121.75 121.71 120.31 104.99
74.70 74.45 74.19
60.93 56.23
38.64 32.84
Parameter Value
Title DLO-10-150/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 18
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-09-05T19:02:04
Modification Date 2018-09-05T19:02:04
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2294.3
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
f1 (ppm)
Br
F
F
O
MeO
OH
MeO
OMe
9f

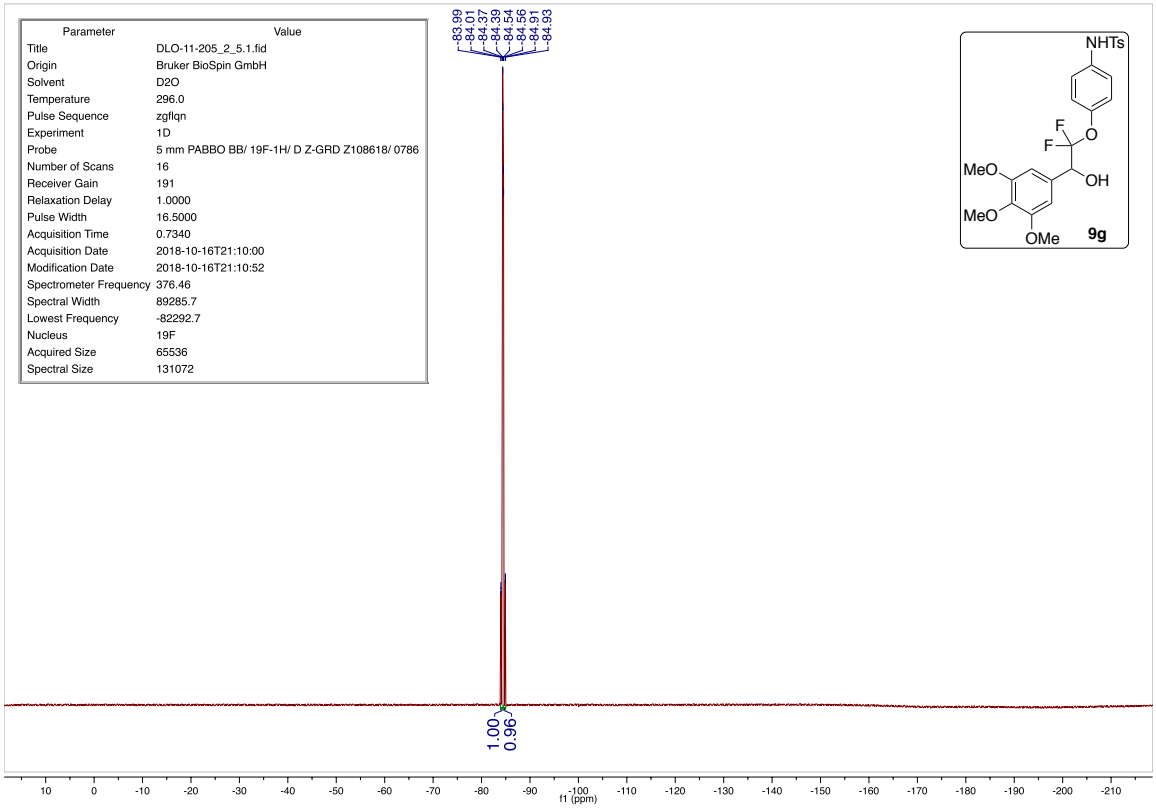
Parameter	Value
Title	DLO-10-150.3.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.0
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-09-04T22:23:00
Modification Date	2018-09-04T22:23:15
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

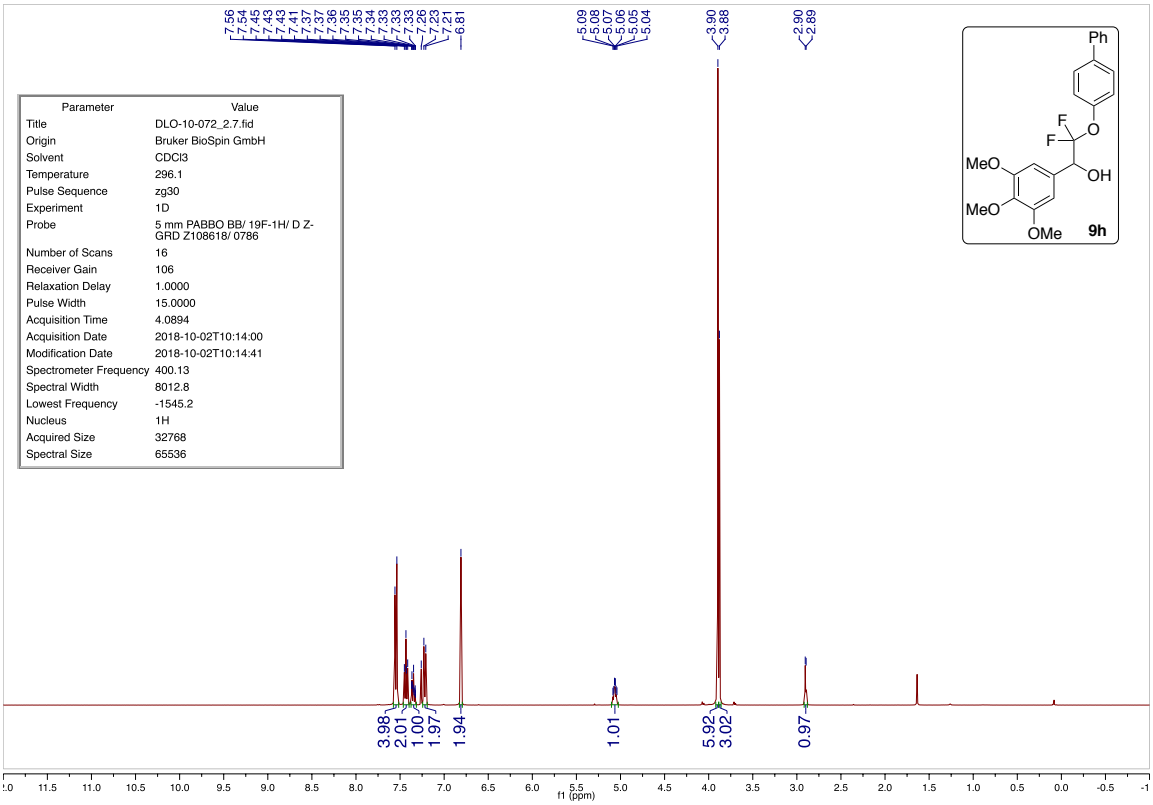


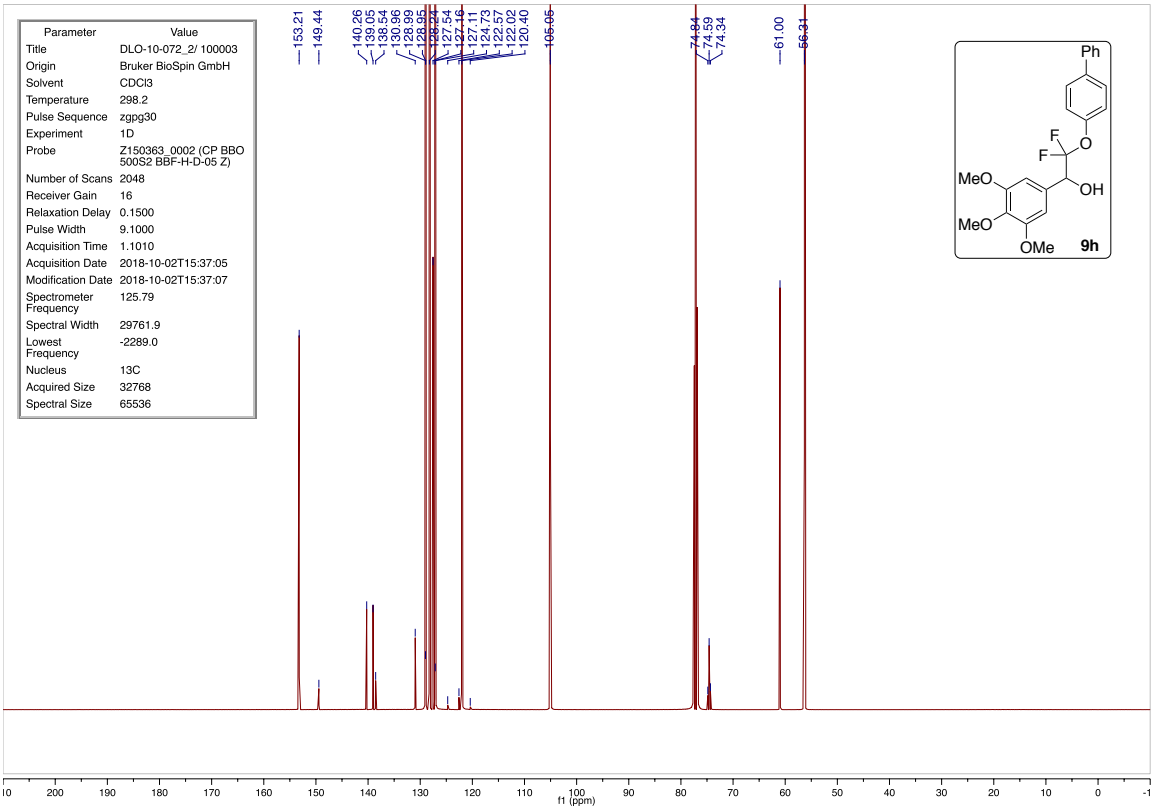
Parameter	Value
Title	DLO-11-205_2_5.2.fid
Origin	Bruker BioSpin GmbH
Solvent	D2O
Temperature	296.0
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	85
Relaxation Delay	1.0000
Pulse Width	15.3000
Acquisition Time	4.0894
Acquisition Date	2018-10-16T21:14:00
Modification Date	2018-10-16T21:14:08
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-528.8
Nucleus	1H
Acquired Size	32768
Spectral Size	65536



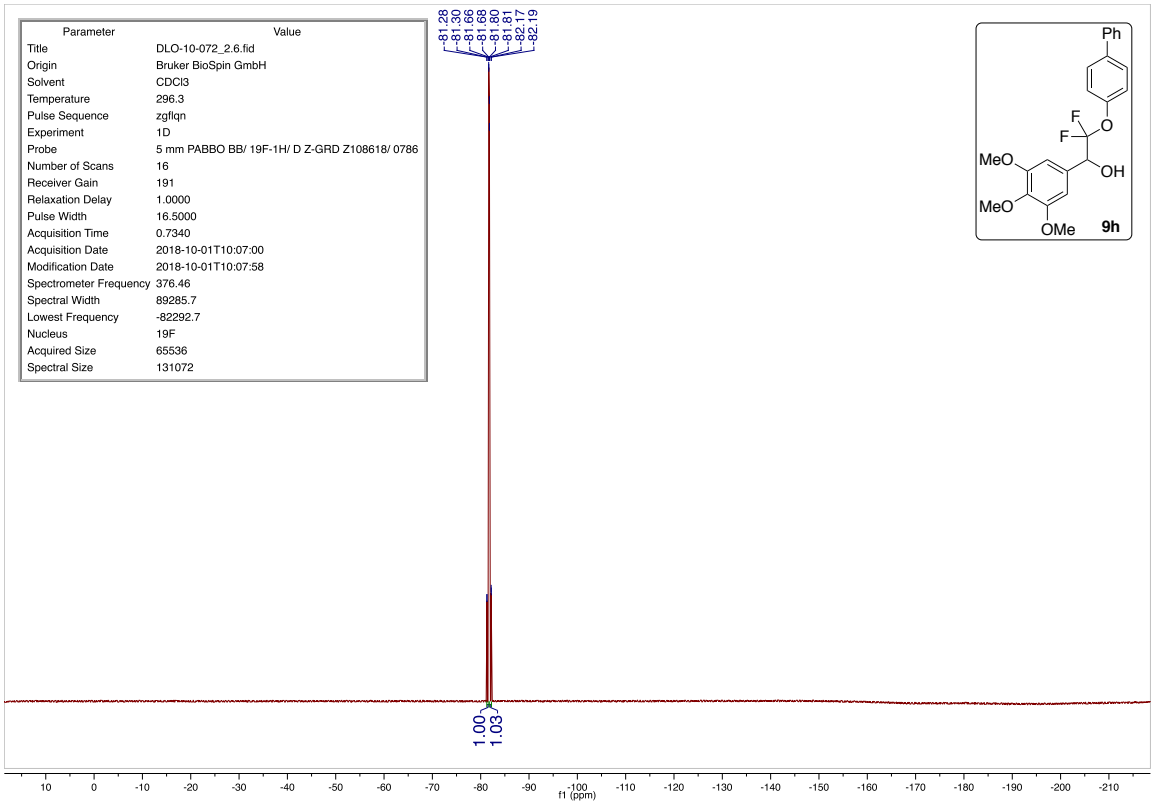

Parameter Value
Title DLO-11-205_2/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2500
Receiver Gain 20
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-10-17T10:39:39
Modification Date 2018-10-17T10:39:41
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2290.5
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
153.14
147.36
147.35
144.18
138.44
135.89
134.22
130.96
129.82
127.33
124.01
123.88
122.57
122.42
120.27
105.00
74.66
74.41
74.15
60.96
56.26
56.19
21.63
NHTs
F
F
O
MeO
OH
MeO
OMe
9g
f1 (ppm)


Parameter Value
Title DLO-11-205_2_5.1.fid
Origin Bruker BioSpin GmbH
Solvent D2O
Temperature 296.0
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-10-16T21:10:00
Modification Date 2018-10-16T21:10:52
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-83.99
-84.01
-84.37
-84.39
-84.54
-84.56
-84.91
-84.93
1.00
0.96
NHTs
F
F
O
MeO
OH
MeO
OMe
9g
f1 (ppm)

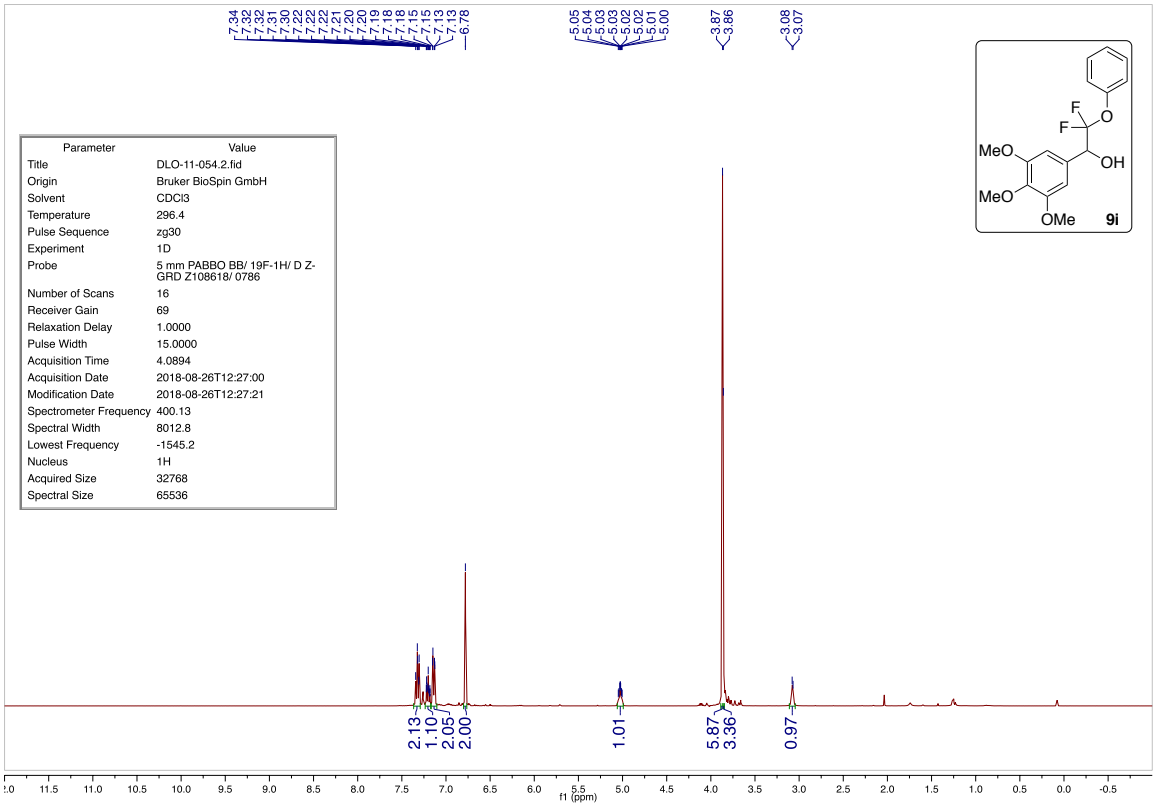

7.56
7.54
7.45
7.43
7.43
7.41
7.37
7.37
7.36
7.35
7.35
7.34
7.33
7.33
7.33
7.26
7.23
7.21
6.81
5.09
5.08
5.07
5.06
5.05
5.04
3.90
3.88
2.90
2.89
Parameter Value
Title DLO-10-072_2.7.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 106
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-10-02T10:14:00
Modification Date 2018-10-02T10:14:41
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.2
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
Ph
F
F
O
MeO
OH
MeO
OMe
9h
3.98
2.01
1.00
1.97
1.94
1.01
5.92
3.02
0.97
f1 (ppm)

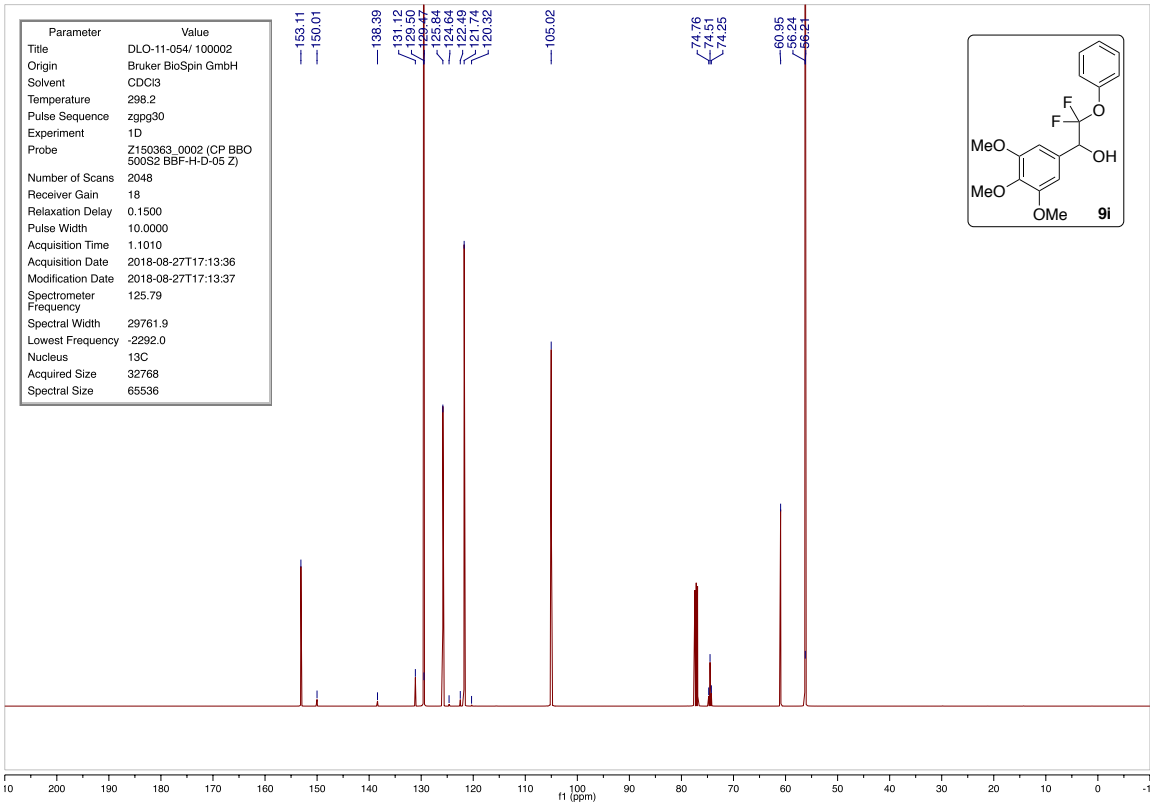

153.21
149.44
140.26
139.05
138.54
130.84
128.99
128.95
128.24
127.54
127.16
127.11
124.73
122.57
122.02
120.40
105.05
74.84
74.59
74.34
61.00
56.31
Parameter Value
Title DLO-10-072_2/ 100003
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 16
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-10-02T15:37:05
Modification Date 2018-10-02T15:37:07
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2289.0
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
Ph
F
F
O
MeO
OH
MeO
OMe
9h
f1 (ppm)

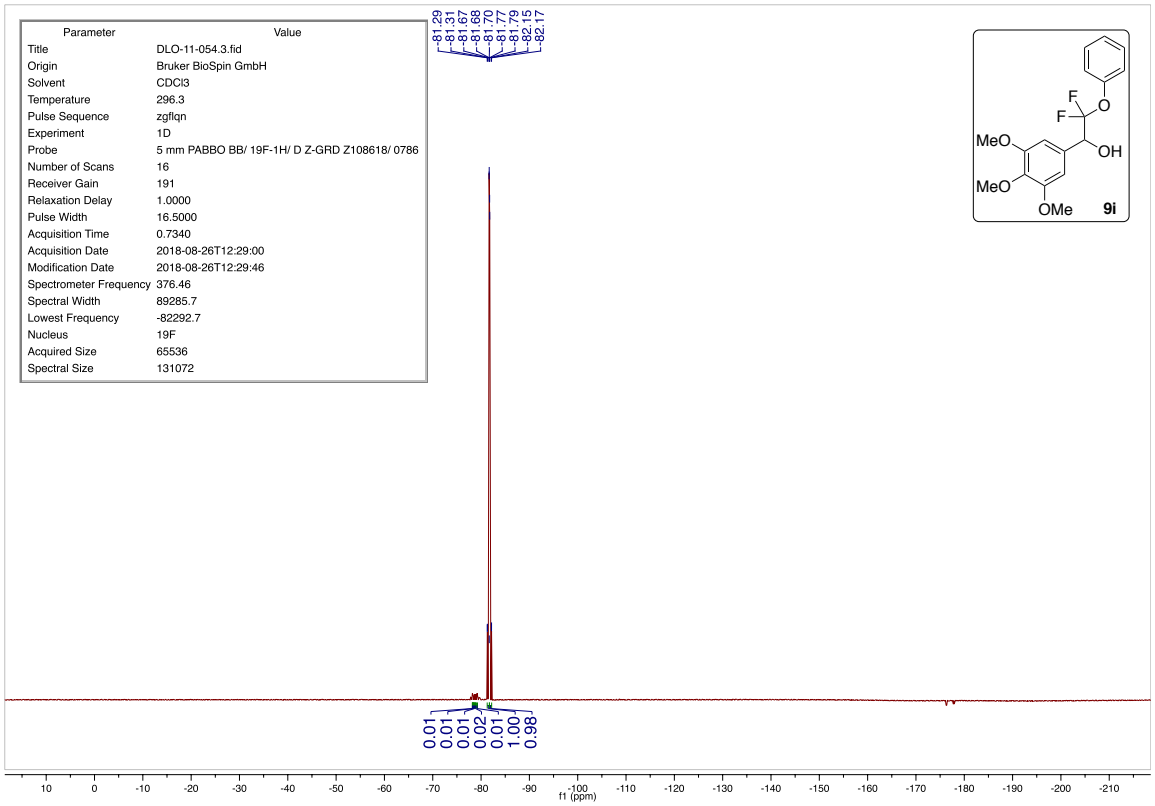
Parameter	Value
Title	DLO-10-072_2.6.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.3
Pulse Sequence	zgflqn
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	16.5000
Acquisition Time	0.7340
Acquisition Date	2018-10-01T10:07:00
Modification Date	2018-10-01T10:07:58
Spectrometer Frequency	376.46
Spectral Width	89285.7
Lowest Frequency	-82292.7
Nucleus	19F
Acquired Size	65536
Spectral Size	131072

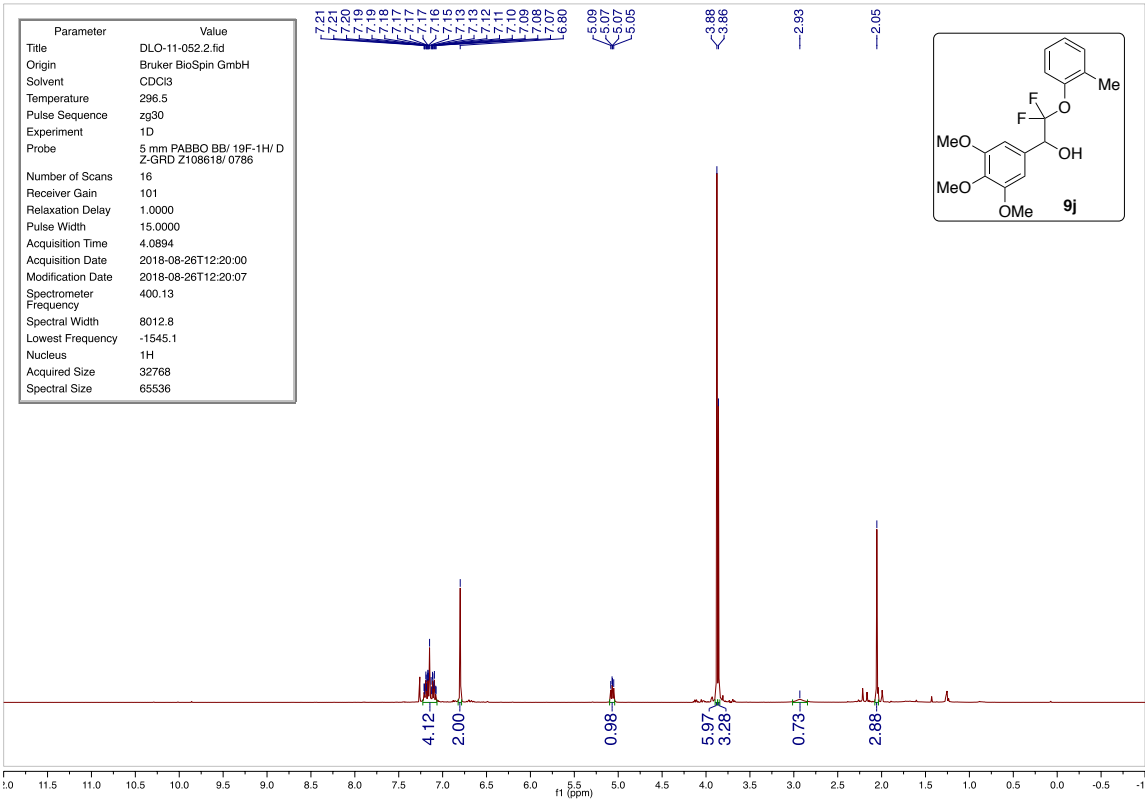


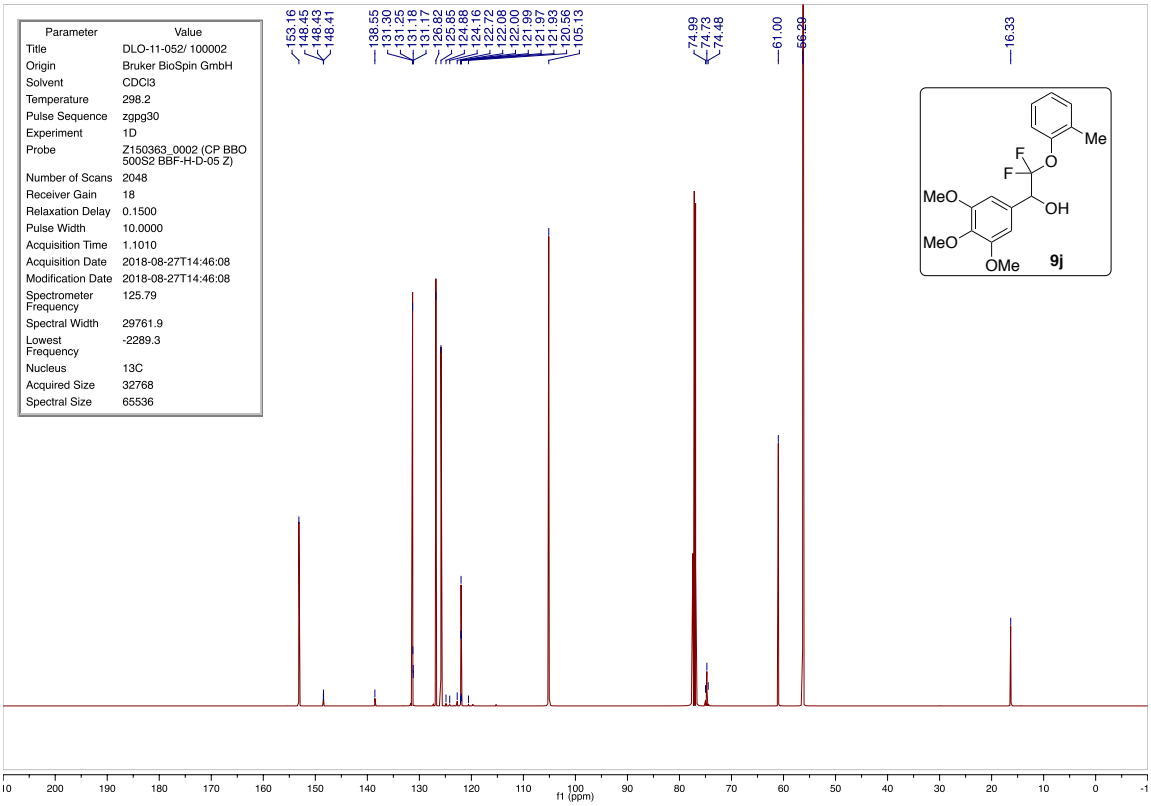
Parameter	Value
Title	DLO-11-054.2.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.4
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	69
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-08-26T12:27:00
Modification Date	2018-08-26T12:27:21
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1545.2
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

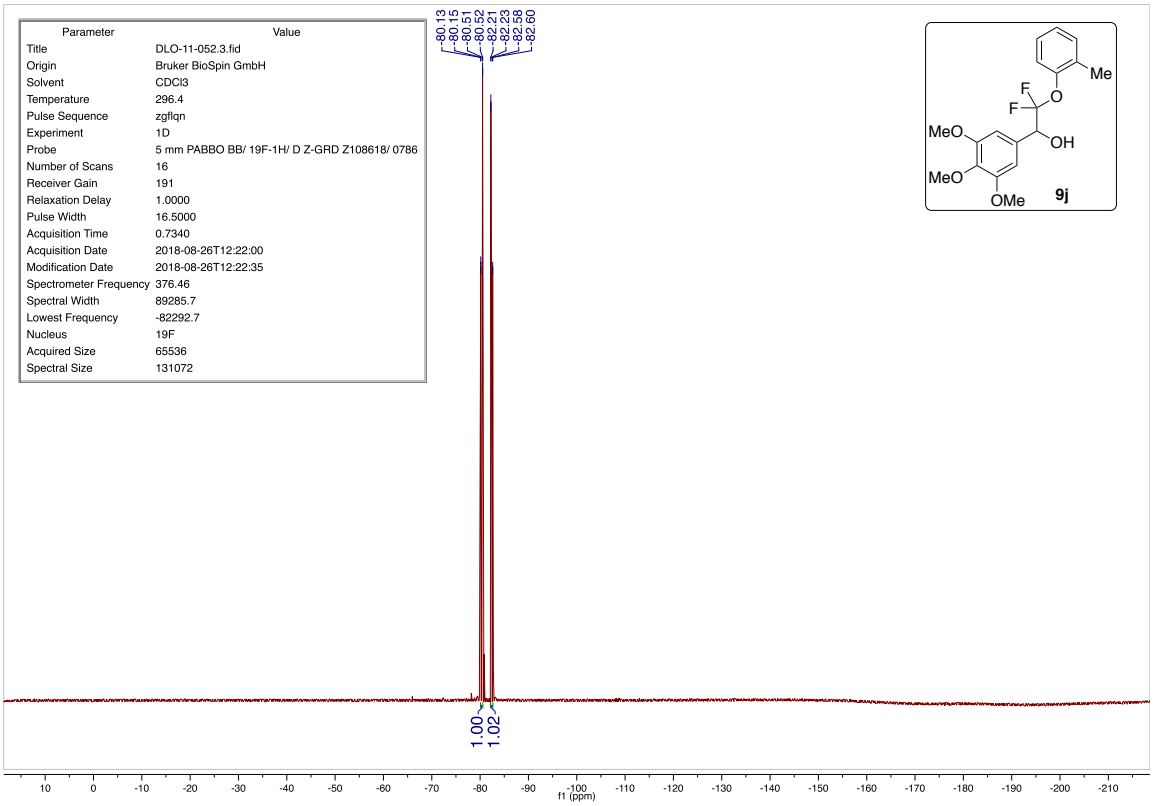


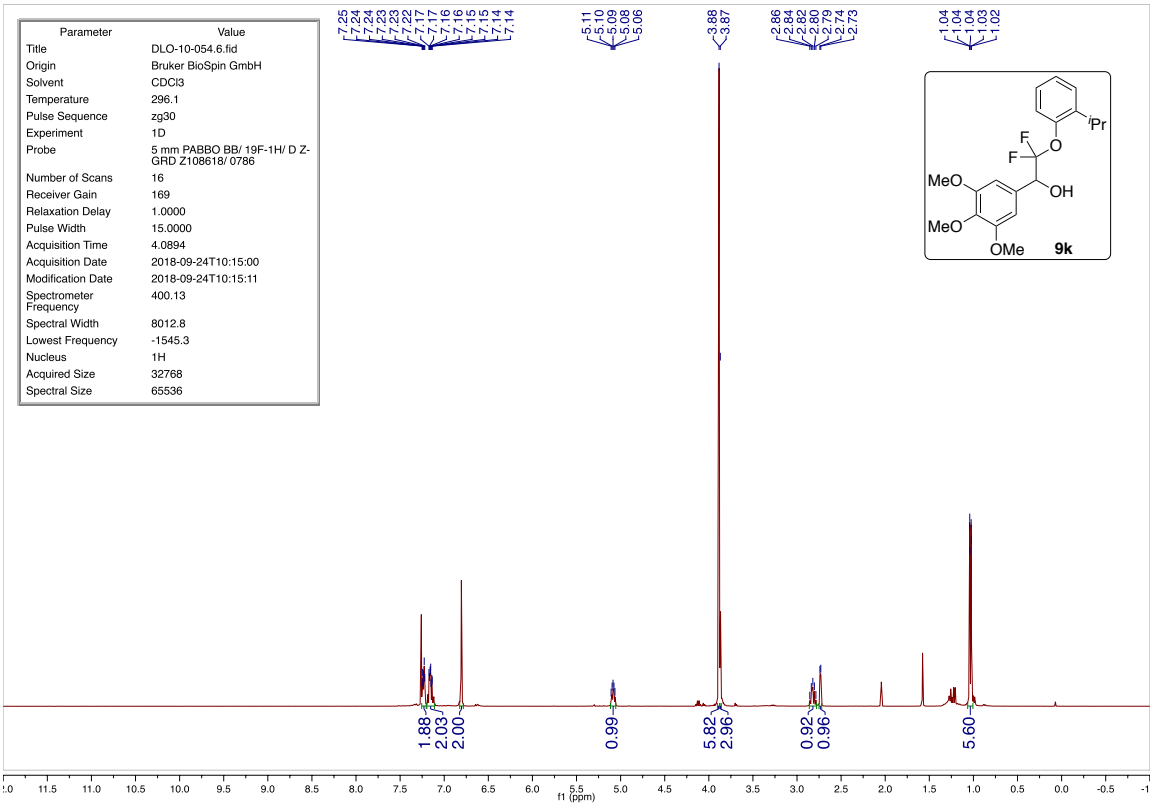

Parameter Value
Title DLO-11-054/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 18
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-08-27T17:13:36
Modification Date 2018-08-27T17:13:37
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2292.0
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
153.11
150.01
138.39
131.12
129.50
128.47
125.84
124.64
122.49
121.74
120.32
105.02
74.76
74.51
74.25
60.95
56.24
56.21
F
F
O
MeO
OH
MeO
OMe
9i
f1 (ppm)

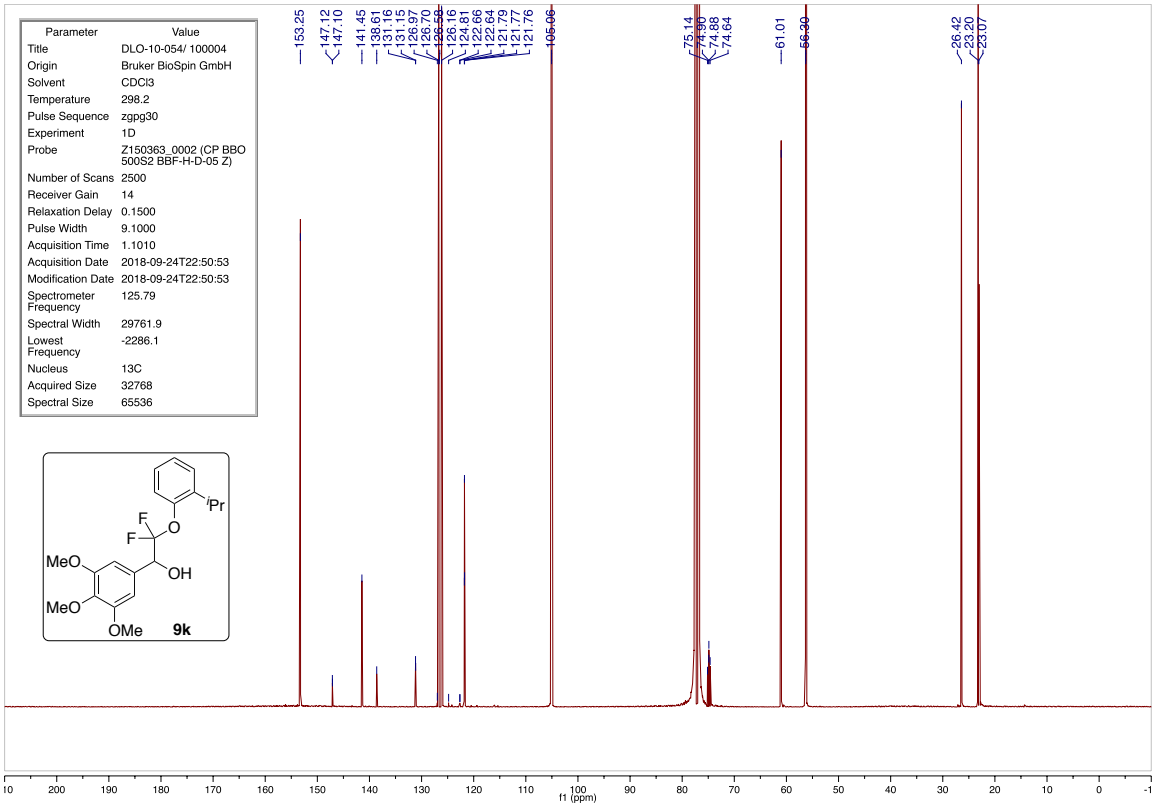

Parameter Value
Title DLO-11-054.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.3
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-08-26T12:29:00
Modification Date 2018-08-26T12:29:46
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
81.29
81.31
81.67
81.68
81.70
81.77
81.79
82.15
82.17
0.01
0.01
0.01
0.02
0.01
1.00
0.98
F
F
O
MeO
OH
MeO
OMe
9i
f1 (ppm)

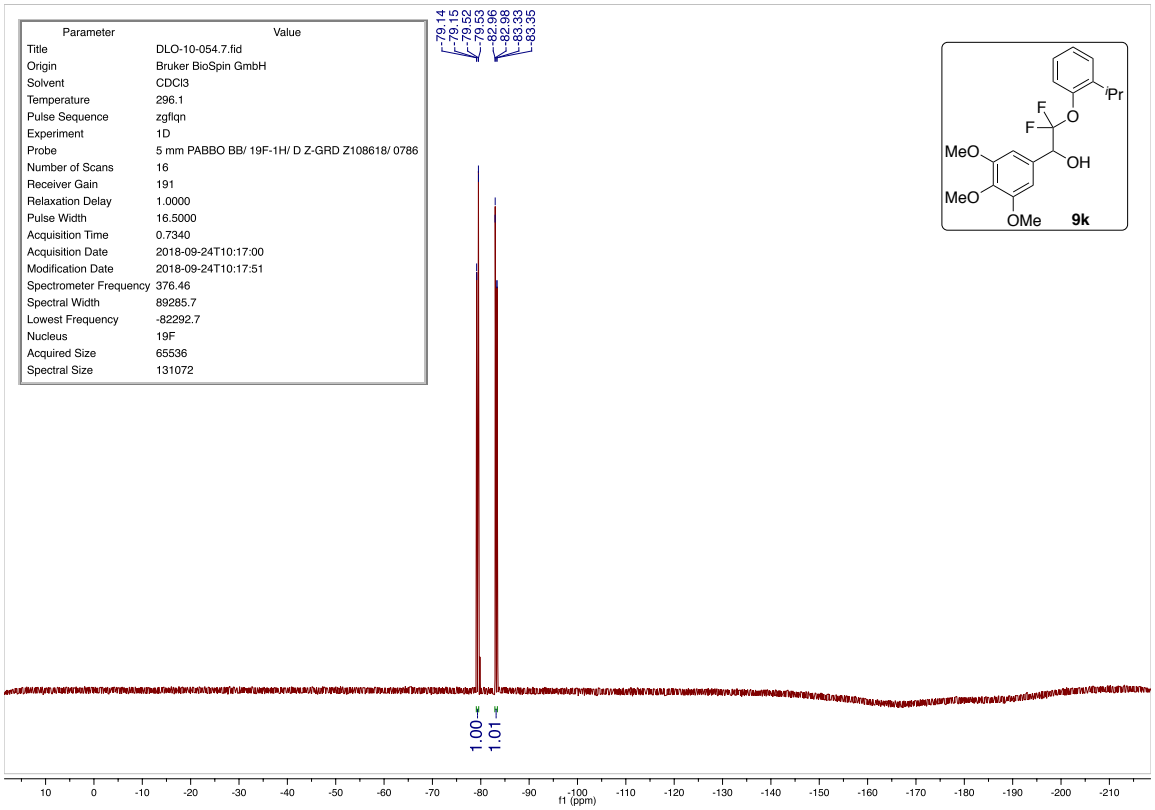

Parameter Value
Title DLO-11-052.2.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.5
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 101
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-08-26T12:20:00
Modification Date 2018-08-26T12:20:07
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.1
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.21 7.21 7.20 7.19 7.19 7.18 7.17 7.17 7.17 7.16 7.15 7.13 7.13 7.12 7.11 7.10 7.09 7.08 7.07 6.80
5.09 5.07 5.07 5.05
3.88 3.86
2.93
2.05
4.12 2.00 0.98 5.97 3.28 0.73 2.88
f1 (ppm)
Me
F
F
O
MeO
OH
MeO
OMe
9j

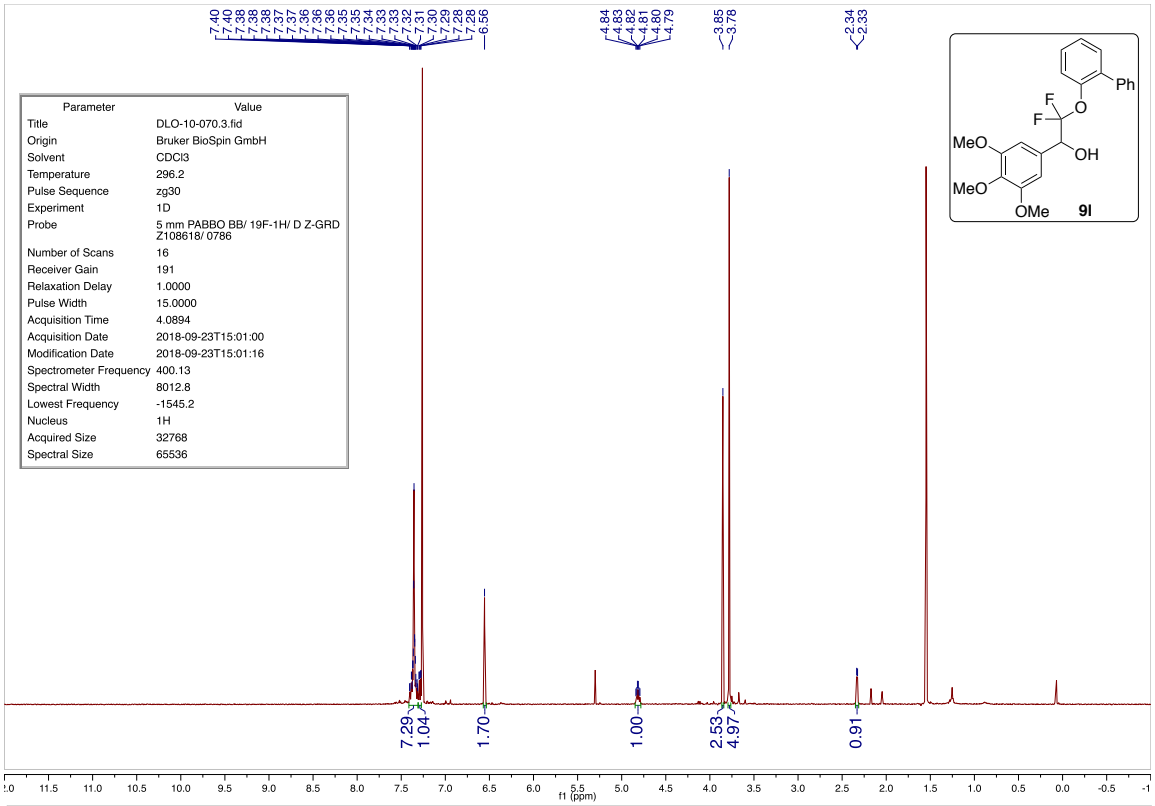

Parameter Value
Title DLO-11-052/ 100002
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2048
Receiver Gain 18
Relaxation Delay 0.1500
Pulse Width 10.0000
Acquisition Time 1.1010
Acquisition Date 2018-08-27T14:46:08
Modification Date 2018-08-27T14:46:08
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2289.3
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
153.16 148.45 148.43 148.41
138.55 131.30 131.25 131.18 131.17 129.82 125.88 124.88 124.16 122.72 122.08 122.00 121.99 121.97 121.93 120.56 105.13
74.99 74.73 74.48
61.00
56.29
16.33
f1 (ppm)
Me
F
F
O
MeO
OH
MeO
OMe
9j


Parameter Value
Title DLO-11-052.3.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.4
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-08-26T12:22:00
Modification Date 2018-08-26T12:22:35
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-80.13
-80.15
-80.51
-80.52
-82.21
-82.23
-82.58
-82.60
1.00
1.02
Me
F
F
O
MeO
OH
MeO
OMe
9j
f1 (ppm)

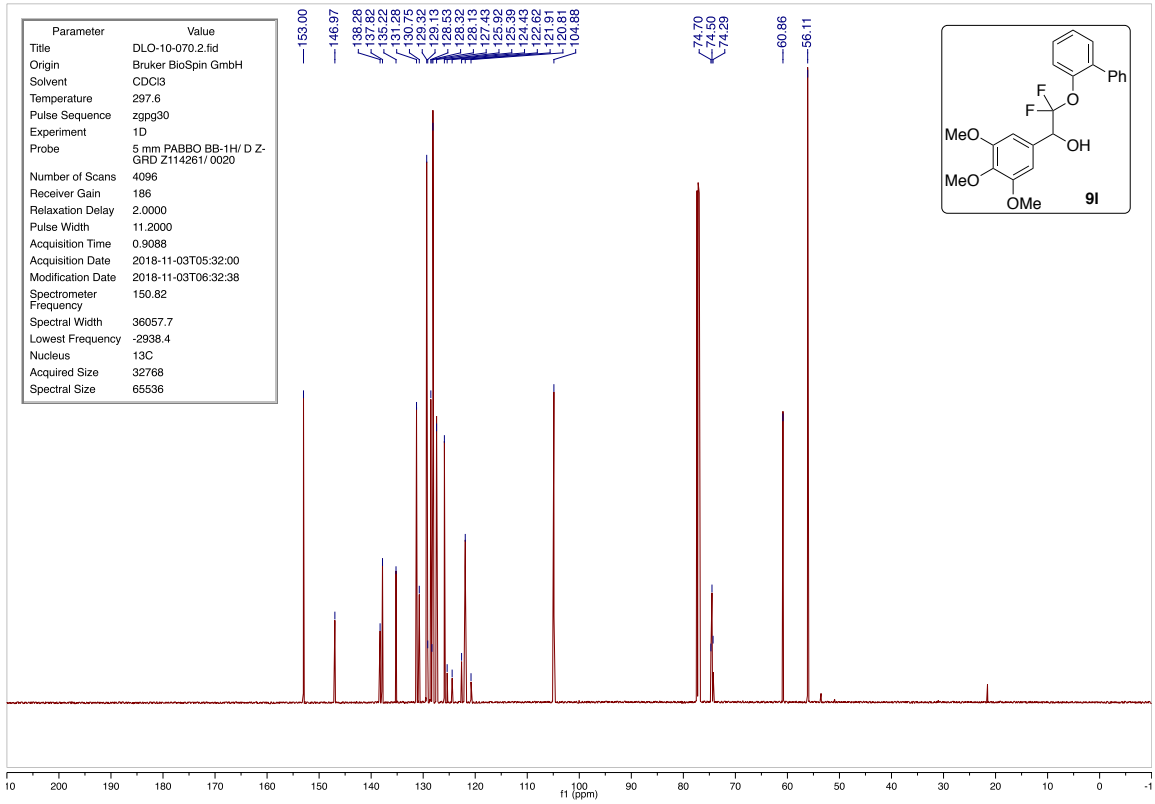

Parameter Value
Title DLO-10-054.6.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zg30
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 169
Relaxation Delay 1.0000
Pulse Width 15.0000
Acquisition Time 4.0894
Acquisition Date 2018-09-24T10:15:00
Modification Date 2018-09-24T10:15:11
Spectrometer Frequency 400.13
Spectral Width 8012.8
Lowest Frequency -1545.3
Nucleus 1H
Acquired Size 32768
Spectral Size 65536
7.25
7.24
7.24
7.23
7.23
7.22
7.17
7.17
7.16
7.16
7.15
7.15
7.14
7.14
5.11
5.10
5.09
5.08
5.06
3.88
3.87
2.86
2.84
2.82
2.80
2.79
2.74
2.73
1.04
1.04
1.04
1.03
1.02
iPr
F
F
O
MeO
OH
MeO
OMe
9k
1.88
2.03
2.00
0.99
5.82
2.96
0.92
0.96
5.60
f1 (ppm)


Parameter Value
Title DLO-10-054/ 100004
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 298.2
Pulse Sequence zgpg30
Experiment 1D
Probe Z150363_0002 (CP BBO 500S2 BBF-H-D-05 Z)
Number of Scans 2500
Receiver Gain 14
Relaxation Delay 0.1500
Pulse Width 9.1000
Acquisition Time 1.1010
Acquisition Date 2018-09-24T22:50:53
Modification Date 2018-09-24T22:50:53
Spectrometer Frequency 125.79
Spectral Width 29761.9
Lowest Frequency -2286.1
Nucleus 13C
Acquired Size 32768
Spectral Size 65536
153.25
147.12
147.10
141.45
138.61
131.16
131.15
126.97
126.70
126.69
126.16
124.81
122.66
122.64
121.79
121.77
121.76
105.06
75.14
74.90
74.88
74.64
61.01
56.30
26.42
23.20
23.07
F
F
O
iPr
MeO
OH
MeO
OMe
9k
f1 (ppm)

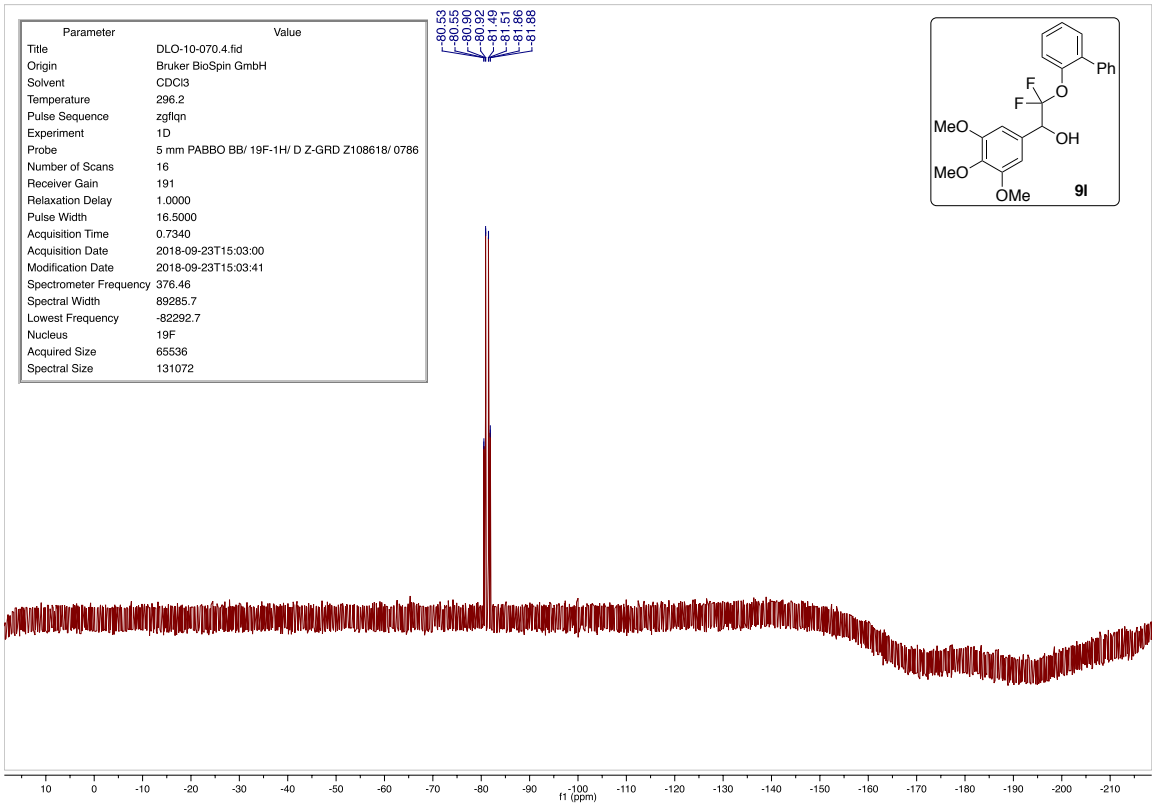

Parameter Value
Title DLO-10-054.7.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.1
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-24T10:17:00
Modification Date 2018-09-24T10:17:51
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-79.14
-79.15
-79.52
-79.53
-82.96
-82.98
-83.33
-83.35
1.00
1.01
F
F
O
iPr
MeO
OH
MeO
OMe
9k
f1 (ppm)



Parameter	Value
Title	DLO-10-070.3.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	296.2
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans	16
Receiver Gain	191
Relaxation Delay	1.0000
Pulse Width	15.0000
Acquisition Time	4.0894
Acquisition Date	2018-09-23T15:01:00
Modification Date	2018-09-23T15:01:16
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1545.2
Nucleus	1H
Acquired Size	32768
Spectral Size	65536



Parameter	Value
Title	DLO-10-070.2.fid
Origin	Bruker BioSpin GmbH
Solvent	CDCl3
Temperature	297.6
Pulse Sequence	zgpg30
Experiment	1D
Probe	5 mm PABBO BB-1H/ D Z-GRD Z114261/ 0020
Number of Scans	4096
Receiver Gain	186
Relaxation Delay	2.0000
Pulse Width	11.2000
Acquisition Time	0.9088
Acquisition Date	2018-11-03T05:32:00
Modification Date	2018-11-03T06:32:38
Spectrometer Frequency	150.82
Spectral Width	36057.7
Lowest Frequency	-2938.4
Nucleus	13C
Acquired Size	32768
Spectral Size	65536


Parameter Value
Title DLO-10-070.4.fid
Origin Bruker BioSpin GmbH
Solvent CDCl3
Temperature 296.2
Pulse Sequence zgflqn
Experiment 1D
Probe 5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0786
Number of Scans 16
Receiver Gain 191
Relaxation Delay 1.0000
Pulse Width 16.5000
Acquisition Time 0.7340
Acquisition Date 2018-09-23T15:03:00
Modification Date 2018-09-23T15:03:41
Spectrometer Frequency 376.46
Spectral Width 89285.7
Lowest Frequency -82292.7
Nucleus 19F
Acquired Size 65536
Spectral Size 131072
-80.53
-80.55
-80.90
-80.92
-81.49
-81.51
-81.86
-81.88
F
O
Ph
F
MeO
OH
MeO
OMe
9l
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
-160
-170
-180
-190
-200
-210
f1 (ppm)