

<b>Name:</b>	<b>Amlodipine-D4 Maleate</b>
<b>Lot#:</b>	GR-18-177
<b>Test Date:</b>	06/15/2023 (re-test date: 06/15/2028)
<b>CAS No.:</b>	1185246-15-4
<b>MF:</b>	C <sub>24</sub> H <sub>25</sub> D <sub>4</sub> ClN <sub>2</sub> O <sub>9</sub>
<b>MW:</b>	528.97
<b>Appearance:</b>	White Solid
<b>Purity:</b>	99.7% by HPLC (average of two sample preparations); 99.9% atom D
<b><sup>1</sup>H-NMR:</b>	Conforms
<b>MS-DART (+)</b>	Conforms (shows peaks at m/z = 413.2, 415.2 [M(base)+H] <sup>+</sup> , exhibits the expected pattern for mono-chloro compounds)
<b>Storage</b>	Store at -18°C in a dry place away from direct sunlight

Approved by:

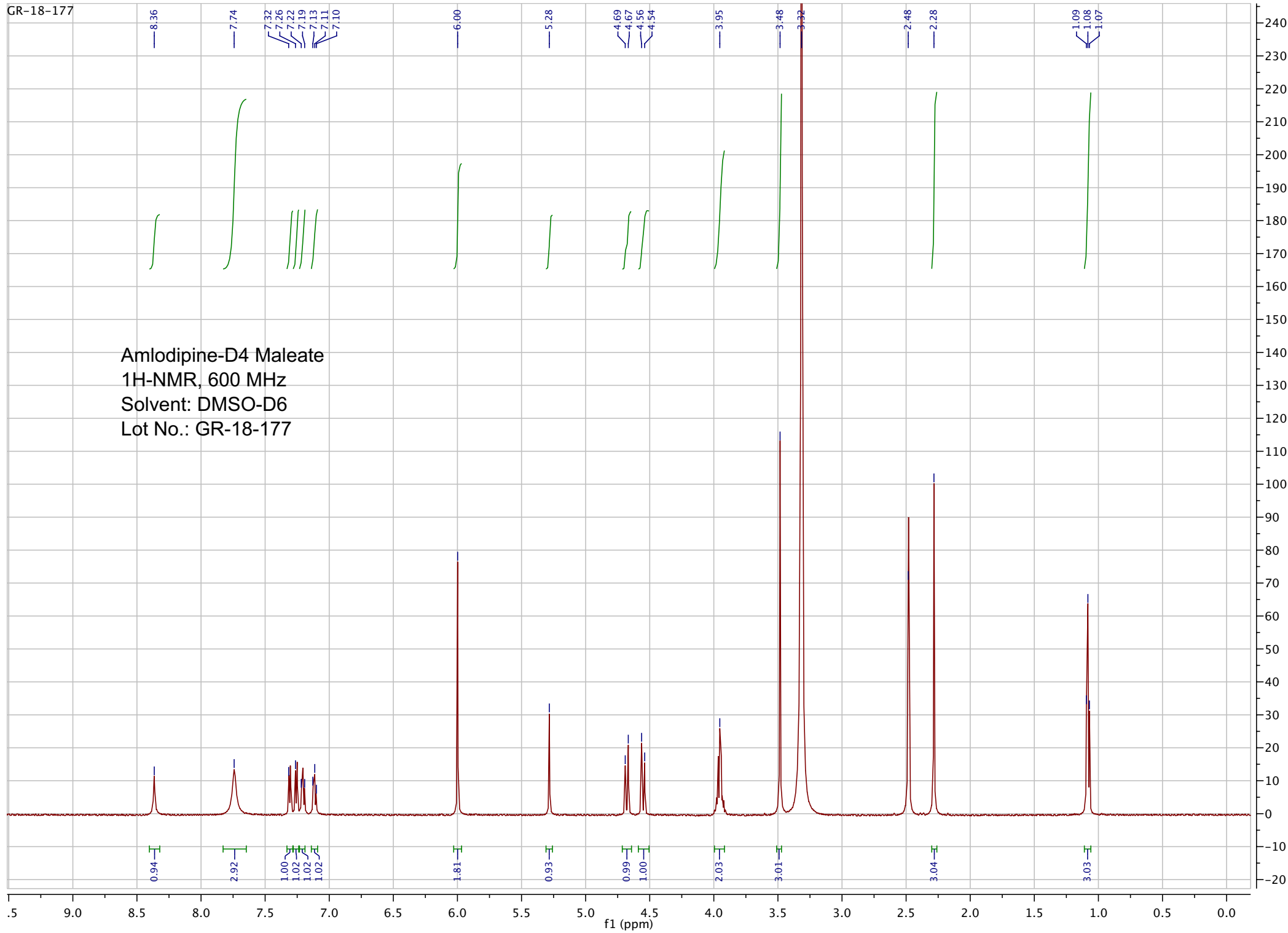
Date: 06/20/2023

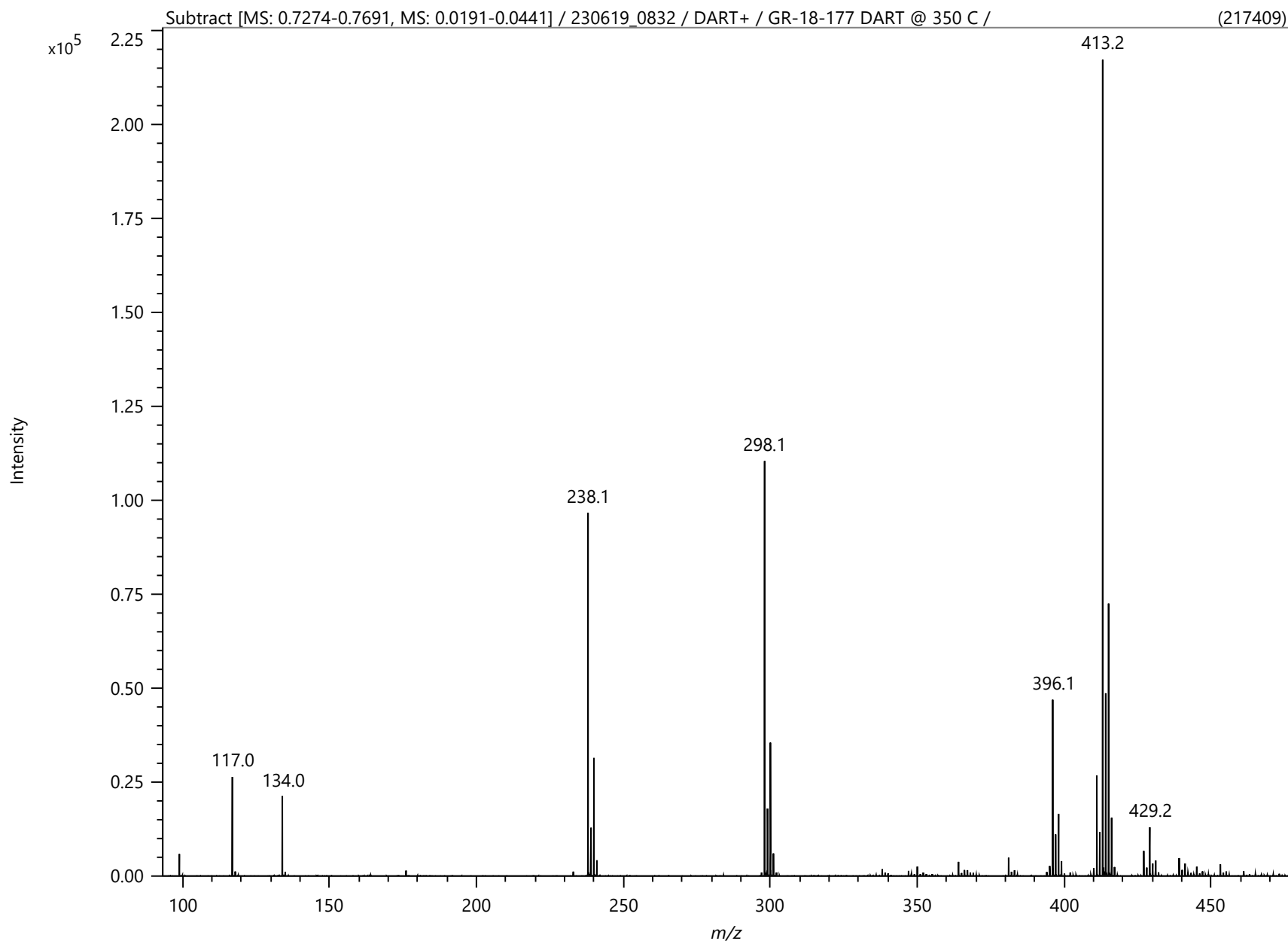


Viorica Rusu, QC/QA Manager

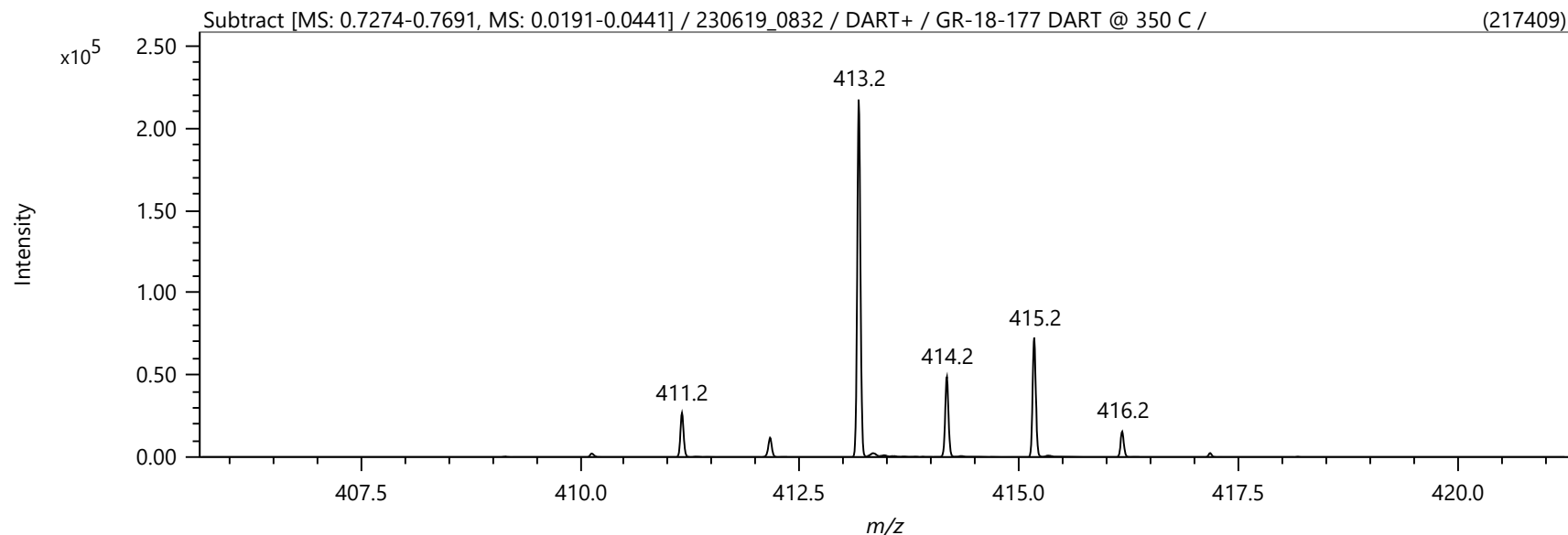
GR-18-177

Amlodipine-D4 Maleate  
1H-NMR, 600 MHz  
Solvent: DMSO-D6  
Lot No.: GR-18-177





Spectrum



Elemental Composition

Parameters

Tolerance: ±10.00 mDa  
 Electron: Even  
 Charge: +1  
 DBE: -1.5 - 100.0

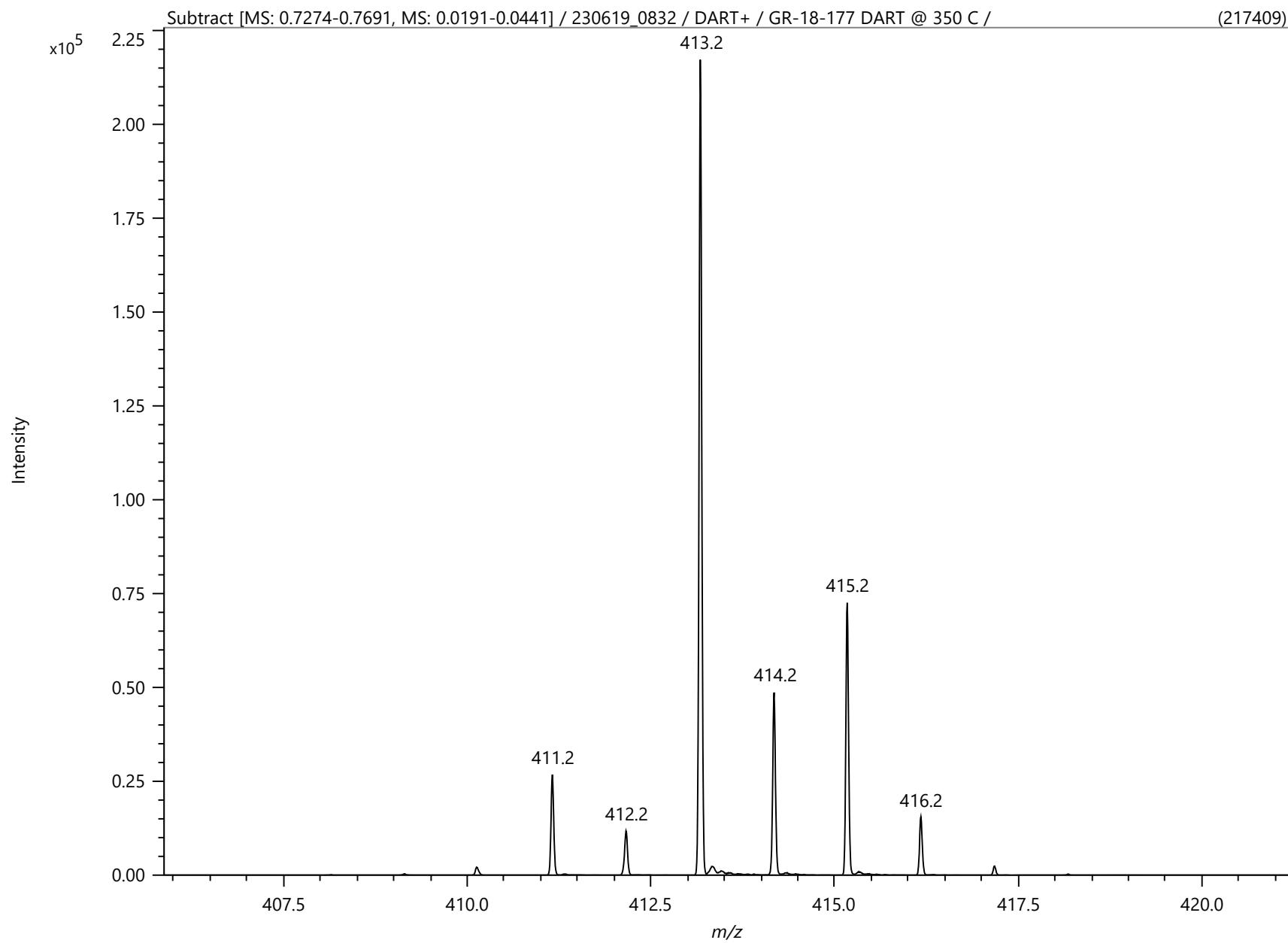
Elements Set 1:

Symbol	C	H	O	N	Cl	D
Min	0	0	0	0	0	4
Max	100	200	20	10	1	4

Results

Mass	Intensity	Formula	Calculated Mass	Mass Difference [mDa]	Mass Difference [ppm]	DBE
413.17454	217409.33	C20 H21 O9 D4	413.17442	0.12	0.29	8.5
		C16 H18 N8 O3 Cl D4	413.17490	-0.36	-0.88	9.5
		C15 H22 N4 O7 Cl D4	413.17356	0.98	2.36	4.5
		C21 H17 N4 O5 D4	413.17575	-1.22	-2.95	13.5
		C17 H13 N10 O3 D4	413.17307	1.47	3.55	14.5
		C14 H26 O11 Cl D4	413.17222	2.31	5.60	-0.5

Mass	Intensity	Formula	Calculated Mass	Mass Difference [mDa]	Mass Difference [ppm]	DBE
		C22 H13 N8 O D4	413.17709	-2.55	-6.18	18.5
		C16 H17 N6 O7 D4	413.17173	2.81	6.79	9.5
		C27 H18 N2 Cl D4	413.17171	2.83	6.84	17.5
		C20 H22 N2 O5 Cl D4	413.17758	-3.05	-7.37	8.5
		C9 H21 N6 O12 D4	413.17760	-3.07	-7.42	0.5
		C11 H18 N10 O5 Cl D4	413.17087	3.66	8.86	5.5
		C15 H21 N2 O11 D4	413.17039	4.14	10.03	4.5
		C21 H18 N6 O Cl D4	413.17892	-4.38	-10.61	13.5
		C10 H17 N10 O8 D4	413.17894	-4.41	-10.66	5.5
		C28 H13 N4 D4	413.16988	4.66	11.27	22.5
		C10 H22 N6 O9 Cl D4	413.16954	5.00	12.10	0.5
		C26 H17 N2 O3 D4	413.17978	-5.24	-12.68	17.5
		C13 H25 O14 D4	413.18029	-5.75	-13.92	-0.5
		C27 H17 O4 D4	413.16854	5.99	14.51	17.5
		C9 H22 N8 O8 Cl D4	413.18077	-6.24	-15.09	0.5
		C11 H17 N8 O9 D4	413.16771	6.83	16.53	5.5
		C22 H18 N4 O2 Cl D4	413.16769	6.85	16.58	13.5
		C25 H22 O3 Cl D4	413.18161	-7.07	-17.11	12.5
		C14 H21 N4 O10 D4	413.18163	-7.09	-17.16	4.5
		C10 H21 N4 O13 D4	413.16637	8.17	19.76	0.5
		C21 H22 O6 Cl D4	413.16635	8.19	19.81	8.5
		C15 H17 N8 O6 D4	413.18296	-8.43	-20.40	9.5
		C23 H13 N6 O2 D4	413.16586	8.68	21.00	18.5
		C13 H26 N2 O10 Cl D4	413.18346	-8.92	-21.59	-0.5
		C31 H17 O D4	413.18380	-9.26	-22.42	21.5
		C18 H14 N10 Cl D4	413.16500	9.53	23.08	14.5



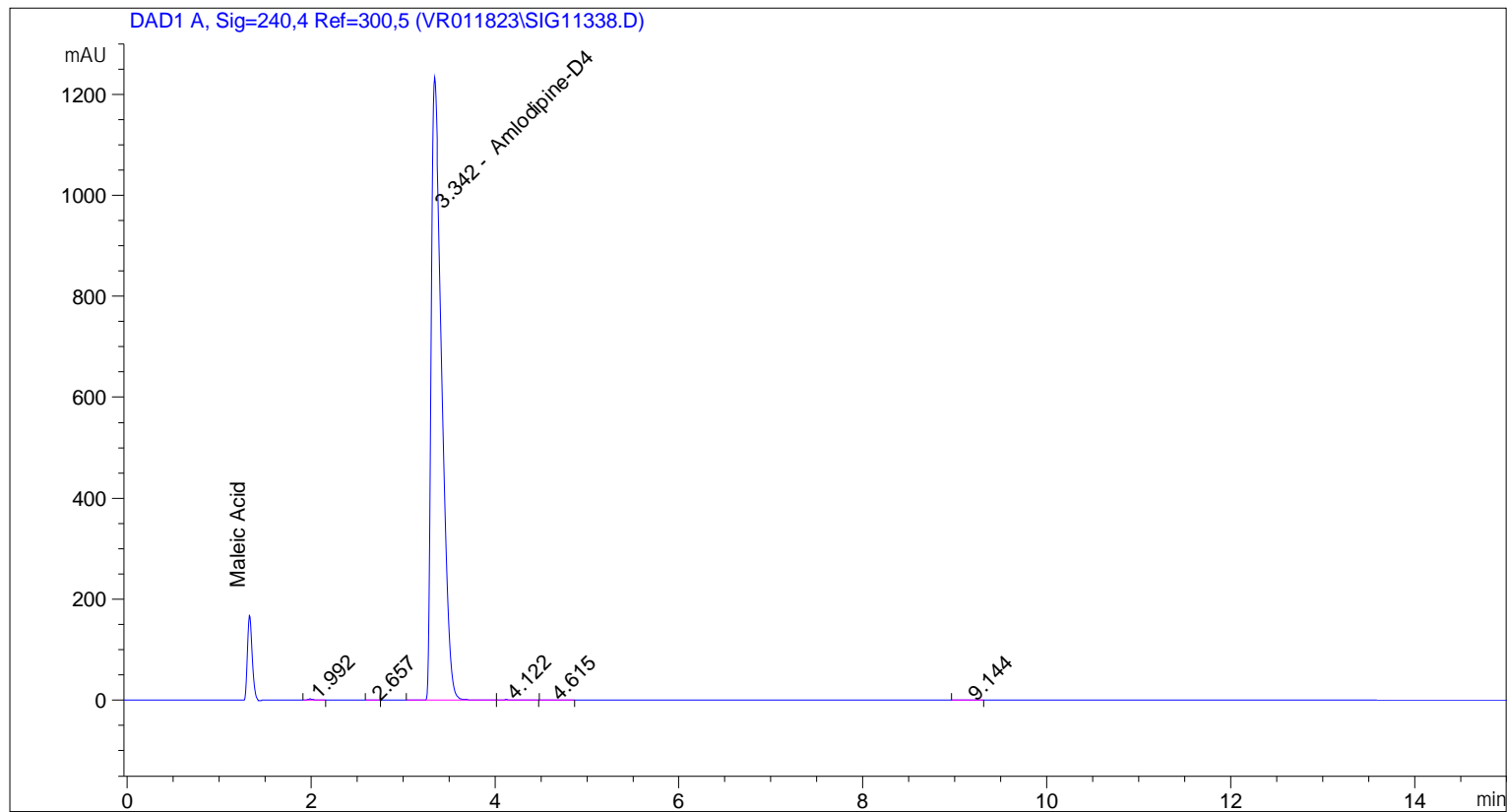
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m/z	Area	Area%
409.1459	3747.38	0.24
410.1357	19196.32	1.25
411.1596	191484.8	12.48
412.1615	94319.93	6.15
413.1745	1534126	100
414.1774	355379.3	23.16
415.1734	515190.9	33.58
416.1768	111923.7	7.3
417.1785	17435.15	1.14
418.1739	2327.64	0.15
419.1827	549.48	0.04
420.1129	138.16	0.01

Calc. m/z	Abund
413.1776	100
414.1808	22.8137
415.1755	35.4724
416.1783	7.6972
417.1807	1.1604
418.1831	0.1327
419.1856	0.0124
420.1881	0.001

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Acq. Operator   : vrusu
Acq. Instrument : Instrument 1                Location : Vial 53
Injection Date  : 6/15/2023 1:45:55 PM
                                           Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\VR061523_177.M
Last changed    : 6/15/2023 1:44:57 PM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR061723_177PM.M
Last changed    : 6/15/2023 2:24:52 PM by vrusu
  
```



Area Percent Report

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Sorted By           : Signal
Calib. Data Modified : 6/15/2023 2:23:12 PM
Multiplier          : 1.0000
Dilution            : 1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

Signal 1: DAD1 A, Sig=240,4 Ref=300,5

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	1.992	BB	0.0653	10.02617	0.1017	?
2	2.657	BB	0.0629	2.24667	0.0228	?
3	3.342	BV	0.1230	9833.92578	99.7453	Amlodipine-D4
4	4.122	VB	0.1100	7.86072	0.0797	?
5	4.615	BB	0.1048	2.27762	0.0231	?
6	9.144	BB	0.1481	2.69508	0.0273	?

Totals : 9859.03203

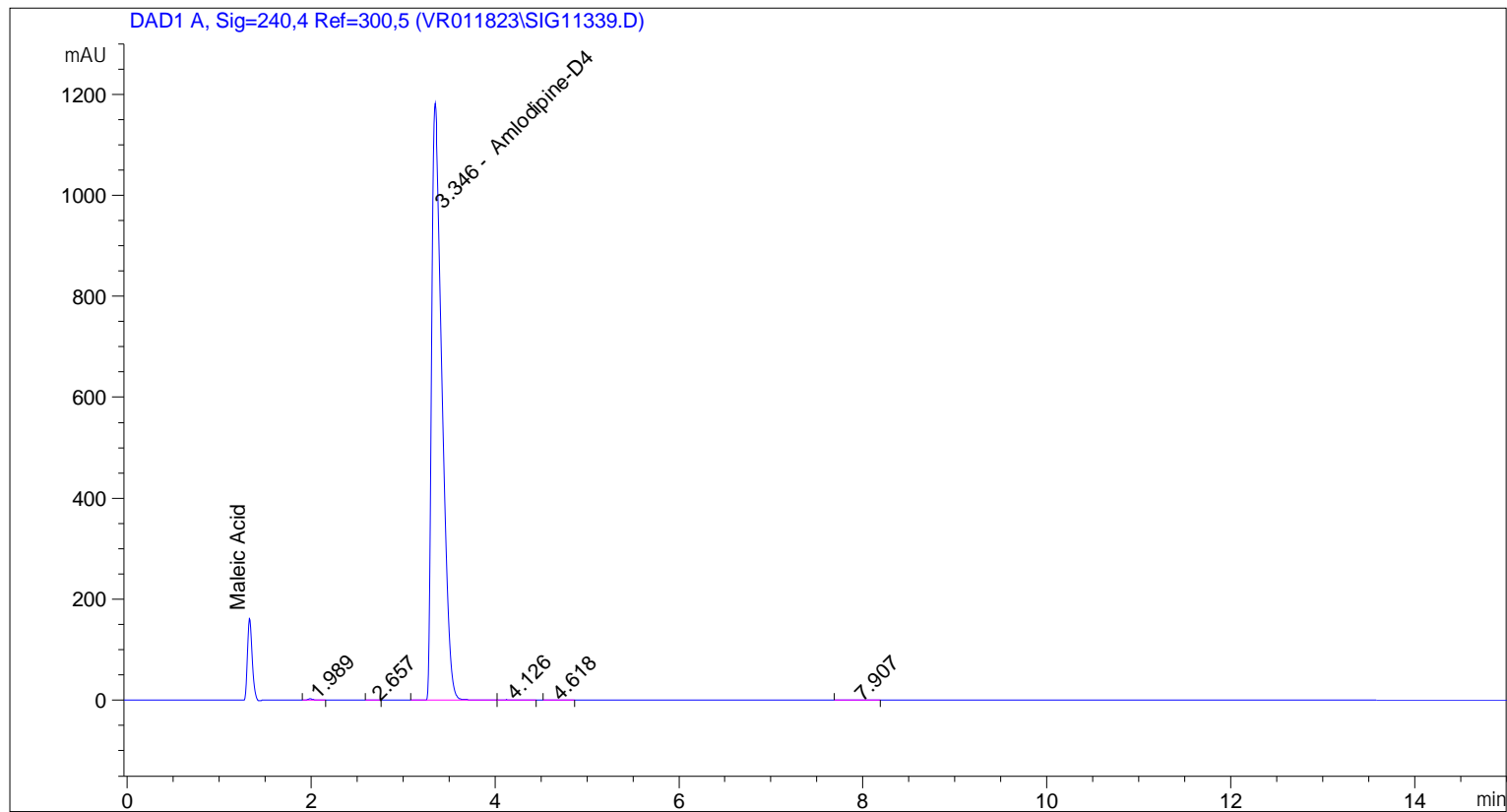


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\*\*\* End of Report \*\*\*

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Acq. Operator   : vrusu
Acq. Instrument : Instrument 1                Location : Vial 54
Injection Date  : 6/15/2023 2:03:07 PM
                                           Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\VR061523_177.M
Last changed    : 6/15/2023 2:02:07 PM by vrusu
Analysis Method : C:\CHEM32\1\METHODS\VR061723_177PM.M
Last changed    : 6/15/2023 2:24:52 PM by vrusu
  
```



=====  
 Area Percent Report  
 =====

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Sorted By      :      Signal
Calib. Data Modified :      6/15/2023 2:23:12 PM
Multiplier:    :      1.0000
Dilution:     :      1.0000
Use Multiplier & Dilution Factor with ISTDs
  
```

Signal 1: DAD1 A, Sig=240,4 Ref=300,5

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Area %	Name
1	1.989	BB	0.0655	11.24344	0.1198	?
2	2.657	BB	0.0620	1.97897	0.0211	?
3	3.346	BV	0.1224	9359.66211	99.7279	Amlodipine-D4
4	4.126	VB	0.1086	7.36896	0.0785	?
5	4.618	BB	0.1170	2.23060	0.0238	?
6	7.907	BB	0.1248	2.71683	0.0289	?

Totals : 9385.20090

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\*\*\* End of Report \*\*\*