

Diagnostic Report

Date & Time Monday, February 20, 2017 10:16 AM
Instrument Model TSQ Quantiva
Instrument Serial TQH-Q1-0576
Software Version 2.0.1292.15

Name	Result	Value	Minimum	Maximum	Comment
Initial Startup Calibration	Passed	-	-	-	-
Q1 Coarse Calibration	Passed	-	-	-	-
Q3 Coarse Calibration	Passed	-	-	-	-
Q1 Autotune	Passed	-	-	-	-
Q3 Autotune	Passed	-	-	-	-
EM Gain Calibration	Passed	-	-	-	-
Q1 Mass and Resolution Calibration	Passed	-	-	-	-
Q3 Mass and Resolution Calibration	Passed	-	-	-	-
Q3 High Speed Mass and Resolution Calibration	Passed	-	-	-	-
Q2 Low Mass Calibration	Passed	-	-	-	-

Initial Startup Calibration:

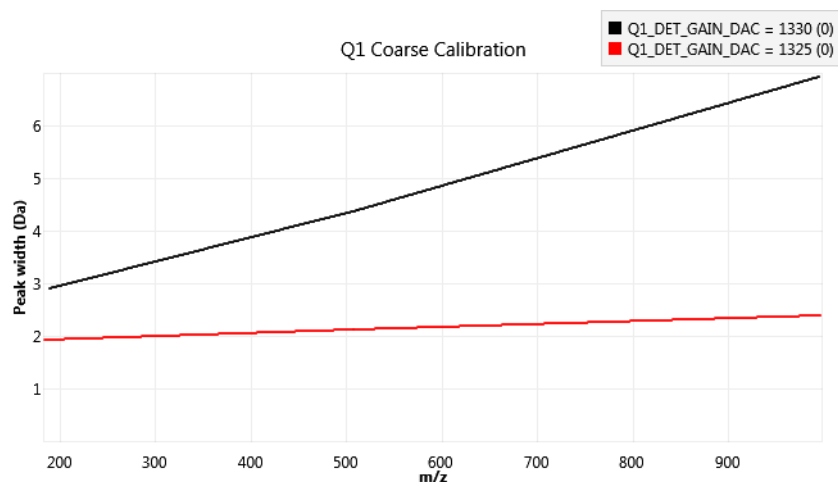
Determining correct quad polarity settings.

Selecting 0 for positive Q1 Rod Polarity

Selecting 1 for negative Q1 Rod Polarity

Selecting 0 for positive Q3 Rod Polarity

Selecting 1 for negative Q3 Rod Polarity

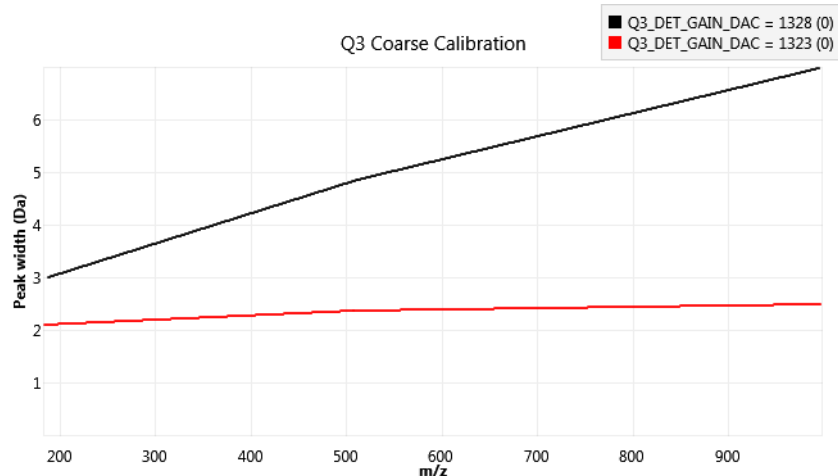


Q1 coarse calibration result:

Gain DAC value= 1325

m/z	FWHM
182.08	1.93
508.21	2.10
997.40	2.39

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Q3 coarse calibration result:

Gain DAC value= 1323

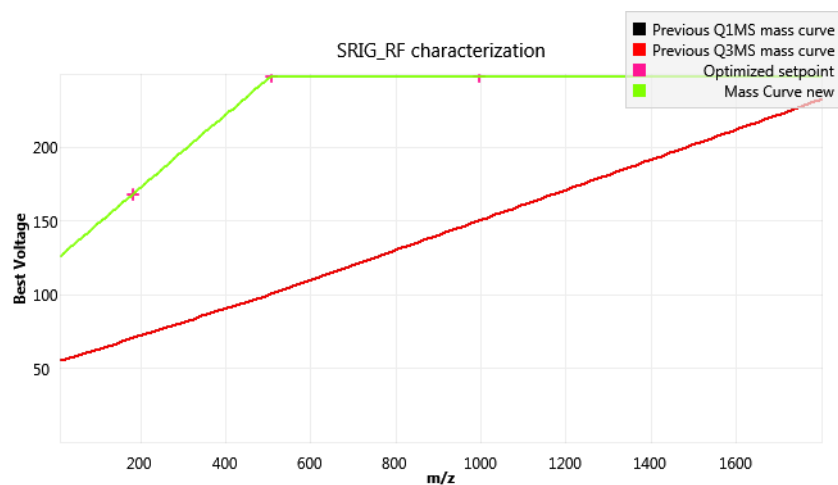
m/z	FWHM
182.08	2.09
508.21	2.35
997.40	2.49

Target Mass	Observed Mass	Mass Jitter	Intensity
182.08	182.18	0.41	59646685.60
508.21	508.02	0.51	33382626.00
997.40	996.90	0.43	14797881.10

SRIG_RF characterization

Calibrant mass Optimized voltage

182.18	167.63
508.02	248.18
996.90	248.18



Q0_AMP characterization

Calibrant mass Optimized voltage

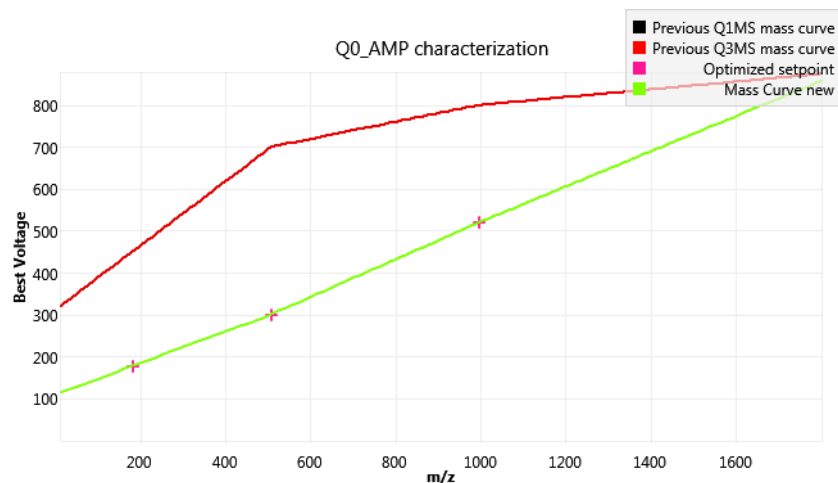
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182.18 177.13
508.02 300.27
996.90 520.18
=====

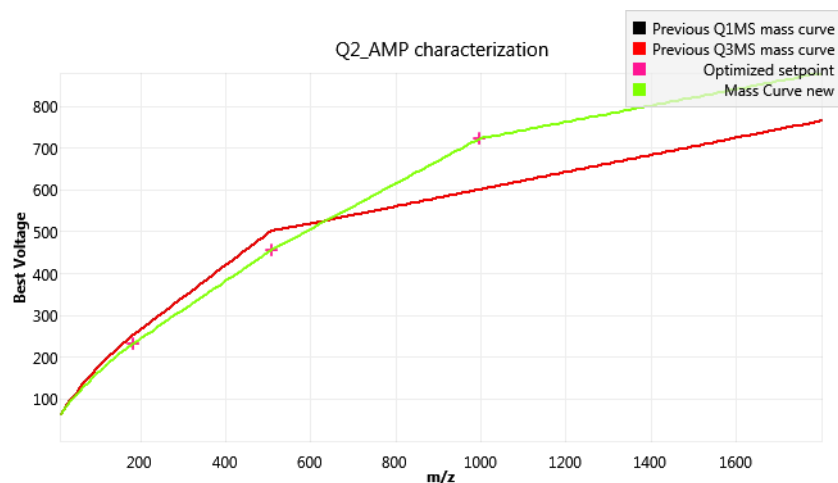


Q2_AMP characterization

=====

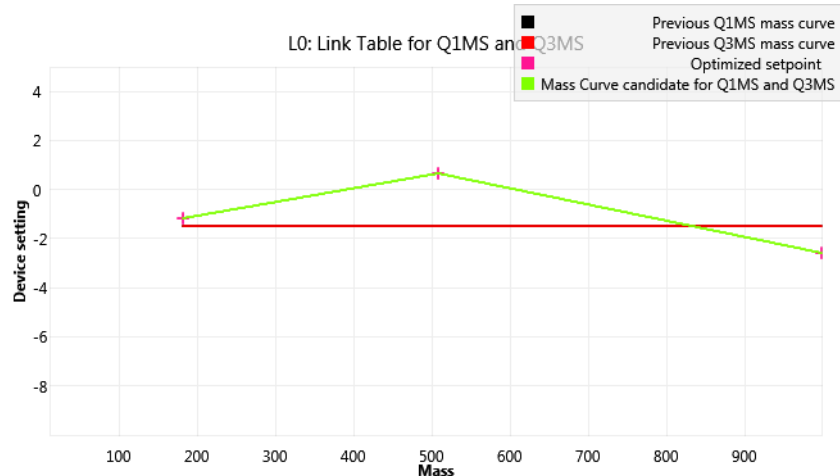
Calibrant mass	Optimized voltage
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182.18 230.37
508.02 454.62
996.90 721.39
=====



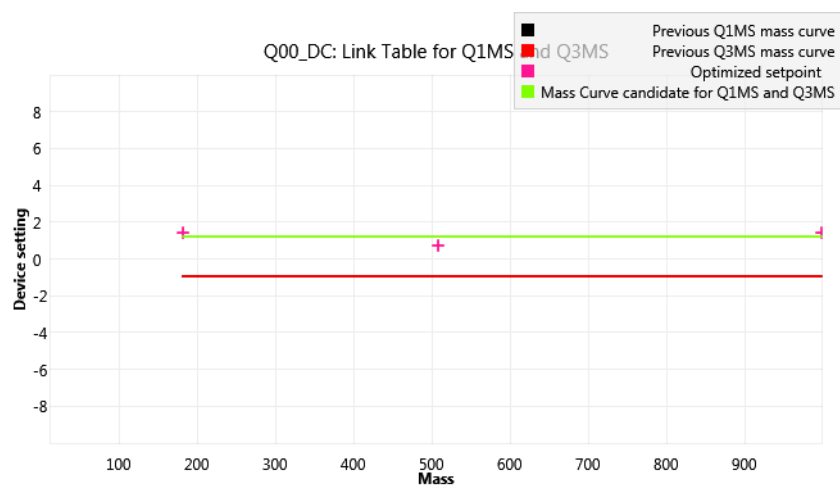
1: Optimize L0 Offset for Q1MS and Q3MS

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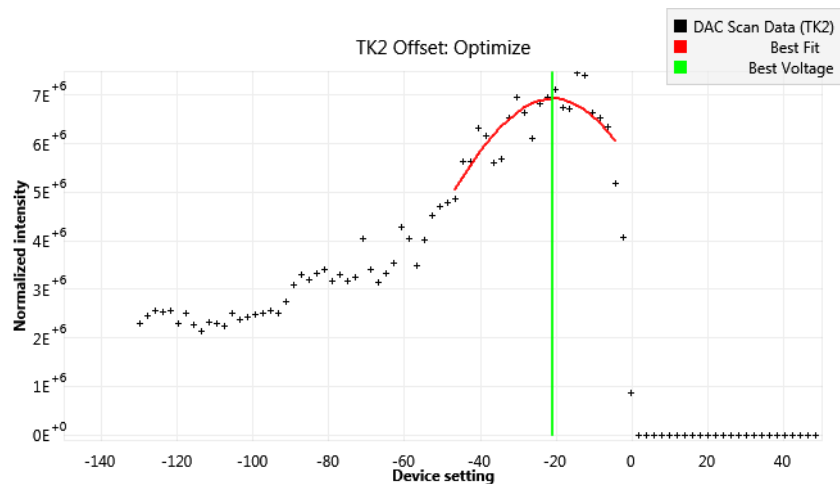
Initial setting is already optimized. Keep the initial setting

2: Optimize Q00 Offset for Q1MS and Q3MS

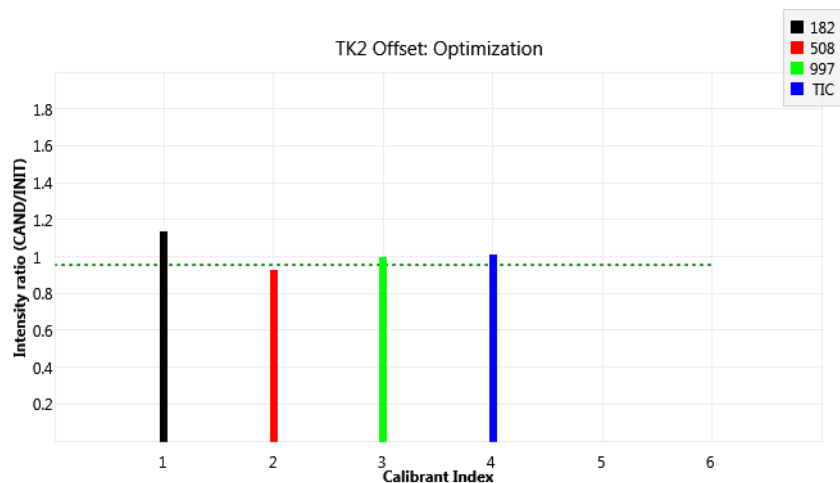
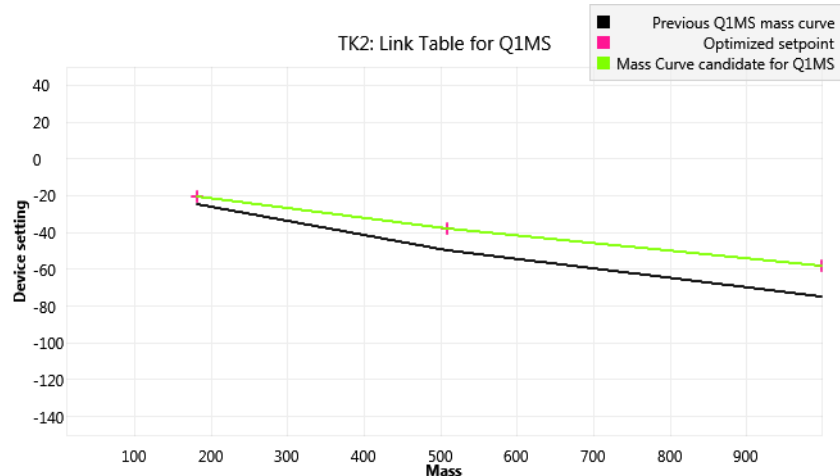


TIC changed 30.06 % Keep the candidate setting

3: Optimize TK2 Offset for Q1MS

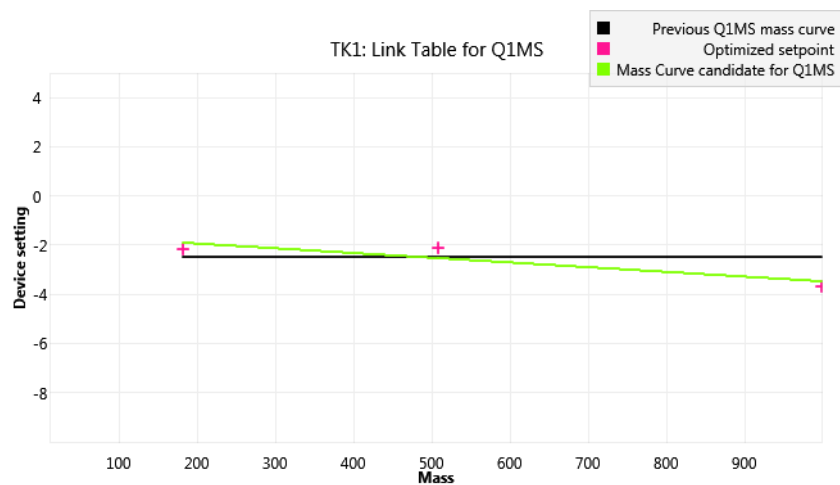


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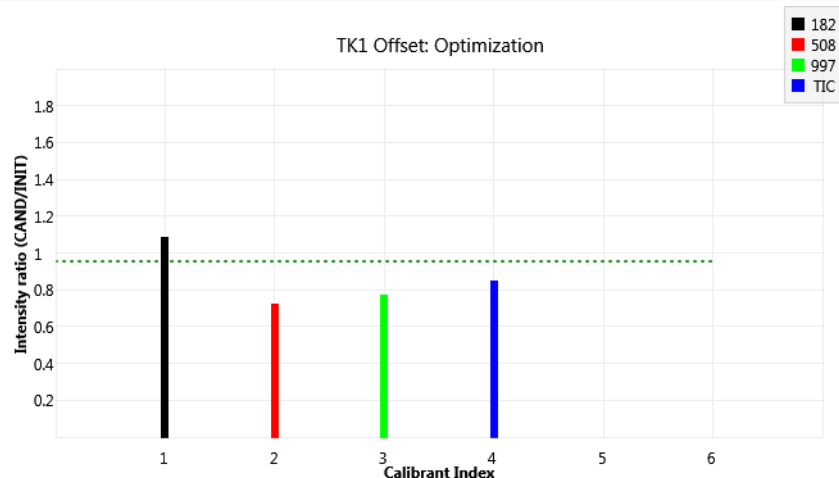


TIC changed 0.92 % Keep the candidate setting

4: Optimize TK1 Offset for Q1MS

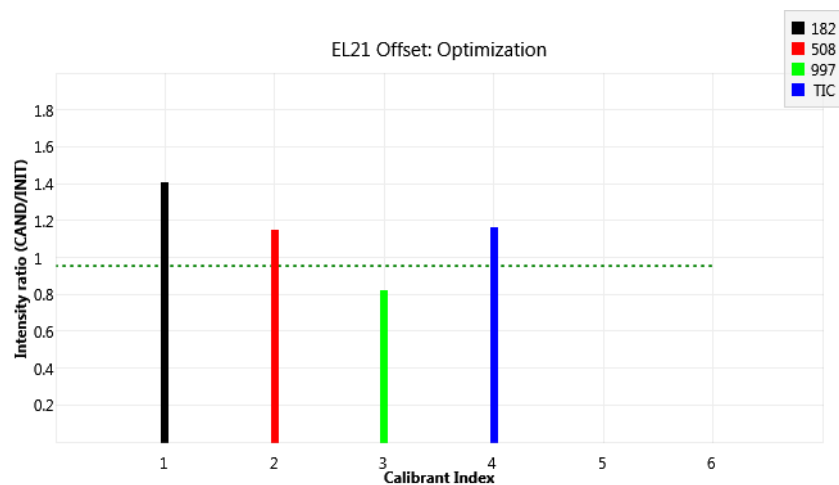
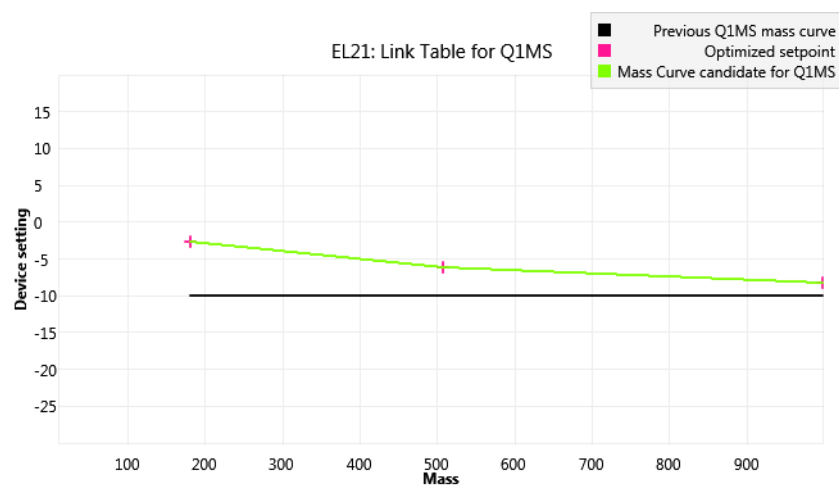


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Initial setting is already optimized. Keep the initial setting

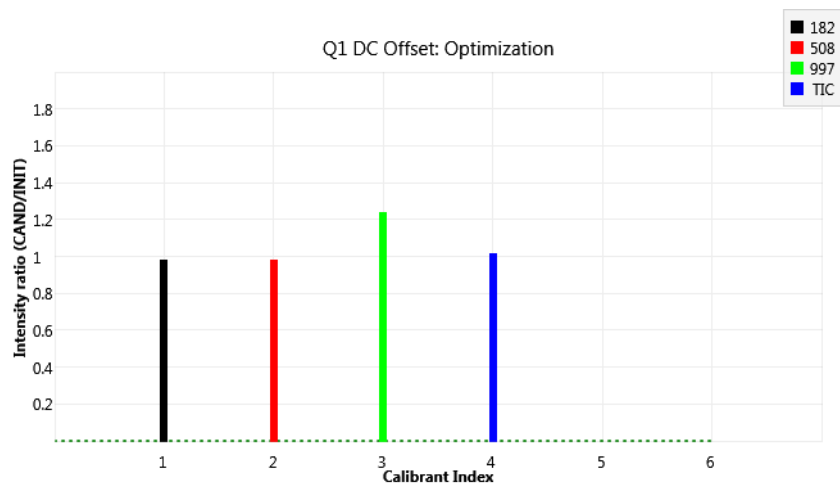
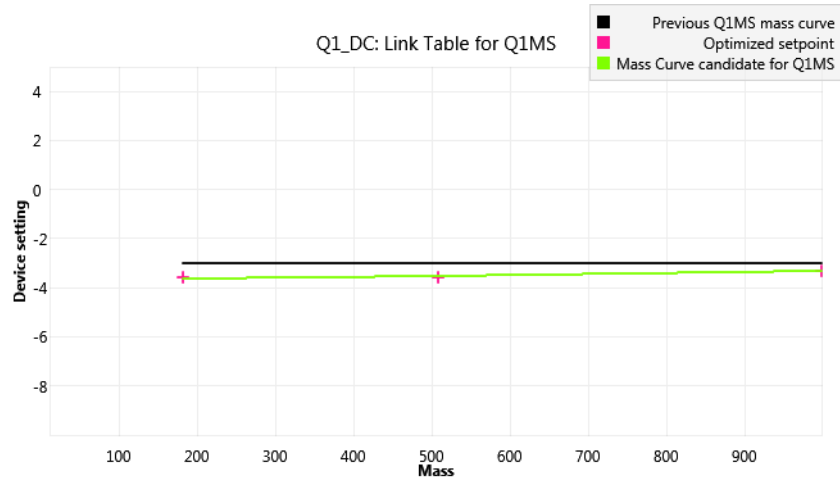
5: Optimize EL21 Offset for Q1MS



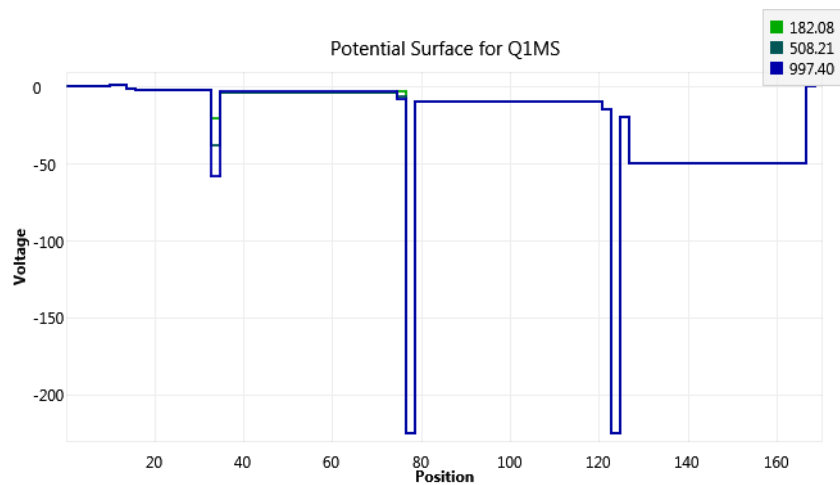
TIC changed 16.07 % Keep the candidate setting

6: Optimize Q1 DC Offset for Q1MS

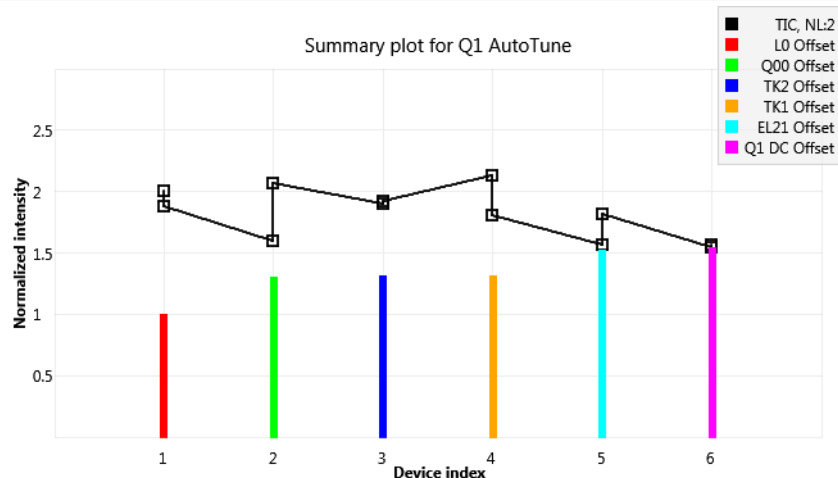
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TIC changed 1.34 % Keep the candidate setting



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Q1 AutoTune Summary

Device	Previous Setting	Current Setting
SRIG_RF	70.00	167.63
SRIG_RF	100.00	248.18
SRIG_RF	150.00	248.18
Q0_AMP	450.00	177.13
Q0_AMP	700.00	300.27
Q0_AMP	800.00	520.18
Q2_AMP	250.00	230.37
Q2_AMP	500.00	454.62
Q2_AMP	600.00	721.39
L0	-1.50	-1.19
L0	-1.50	0.62
L0	-1.50	-2.61
Q00_DC	-1.00	1.18
Q00_DC	-1.00	1.18
Q00_DC	-1.00	1.18
TK2	-25.00	-20.88
TK2	-50.00	-38.06
TK2	-75.00	-58.35
TK1	-2.50	-1.92
TK1	-2.50	-2.56
TK1	-2.50	-3.51
EL21	-10.00	-2.66
EL21	-10.00	-6.20
EL21	-10.00	-8.23
Q1_DC	-3.00	-3.67
Q1_DC	-3.00	-3.54
Q1_DC	-3.00	-3.35

Target Mass	Observed Mass	Mass Jitter	Intensity
182.08	182.38	0.56	45754787.00
508.21	507.72	0.37	65058509.40
997.40	997.07	0.64	21700744.00

SRIG_RF characterization

Calibrant mass Optimized voltage

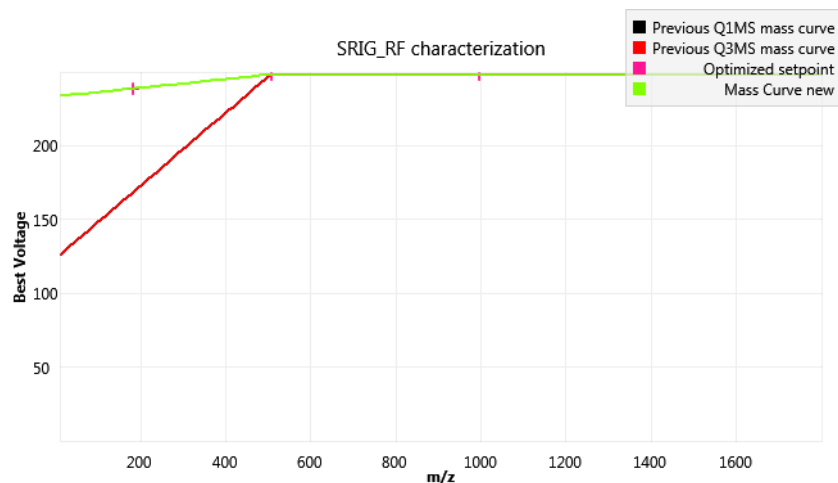
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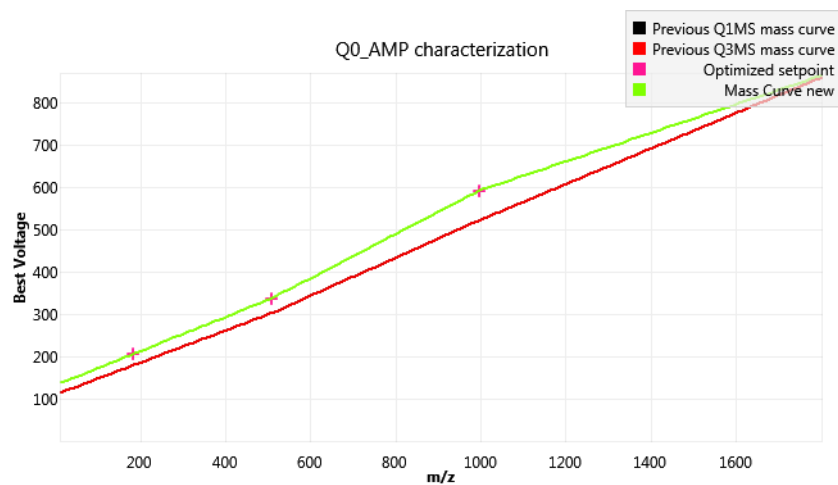
```
-----
182.38      238.46
507.72      248.18
997.07      248.18
=====
```



Q0_AMP characterization

```
=====
Calibrant mass  Optimized voltage
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```

```
182.38      203.52
507.72      335.46
997.07      590.55
=====
```

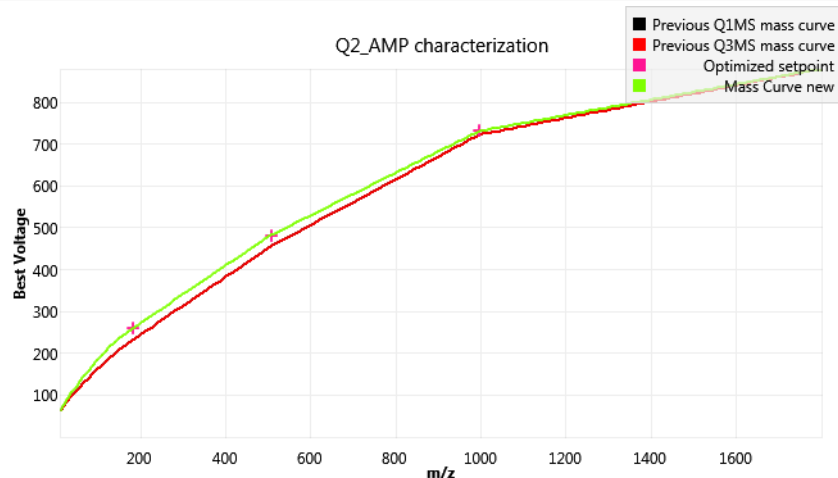


Q2_AMP characterization

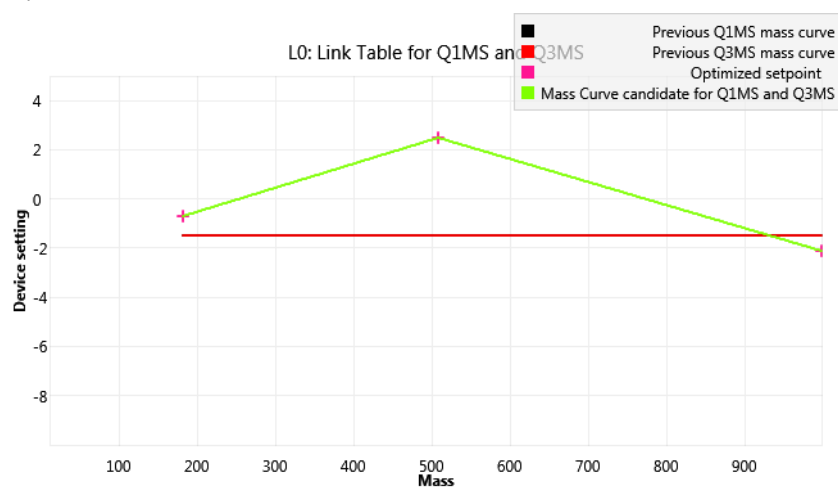
```
=====
Calibrant mass  Optimized voltage
-----
```

```
182.38      258.19
507.72      481.30
997.07      730.28
=====
```

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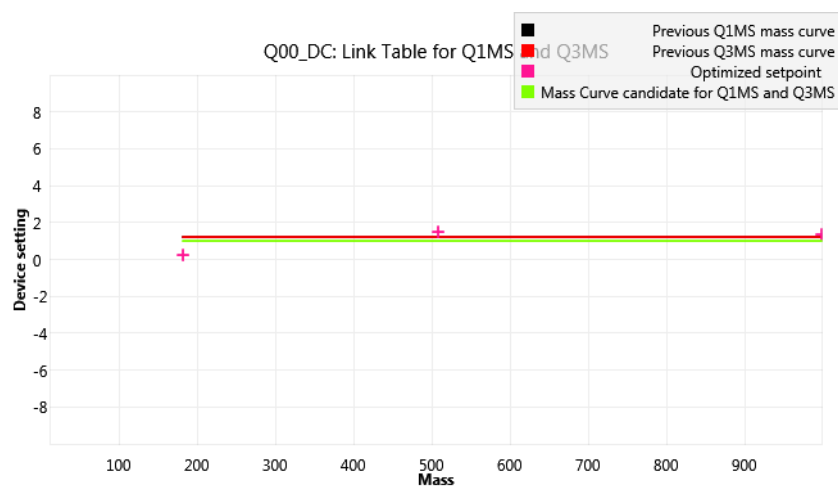


1: Optimize L0 Offset for Q1MS and Q3MS



TIC changed 10.58 % Keep the candidate setting

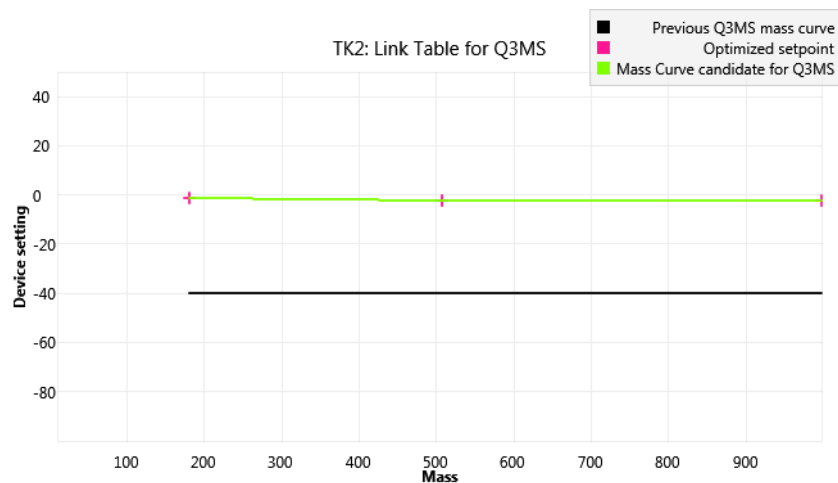
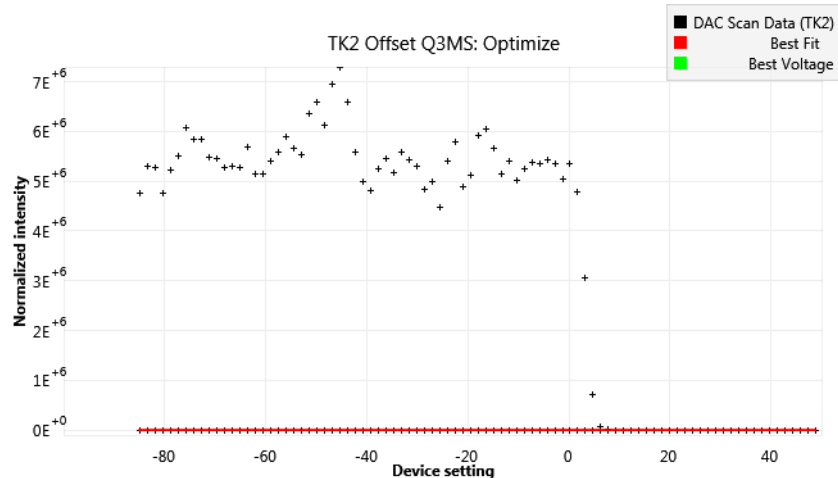
2: Optimize Q00 Offset for Q1MS and Q3MS



TIC changed 22.54 % Keep the candidate setting

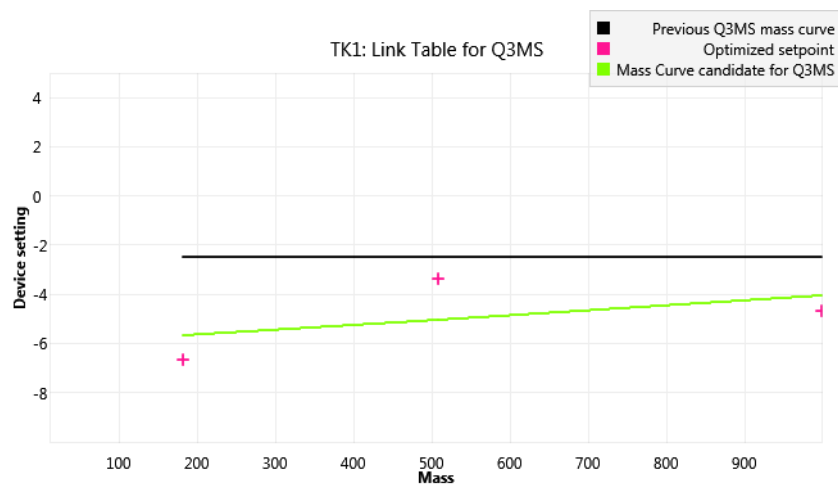
3: Optimize TK2 Offset Q3MS for Q3MS

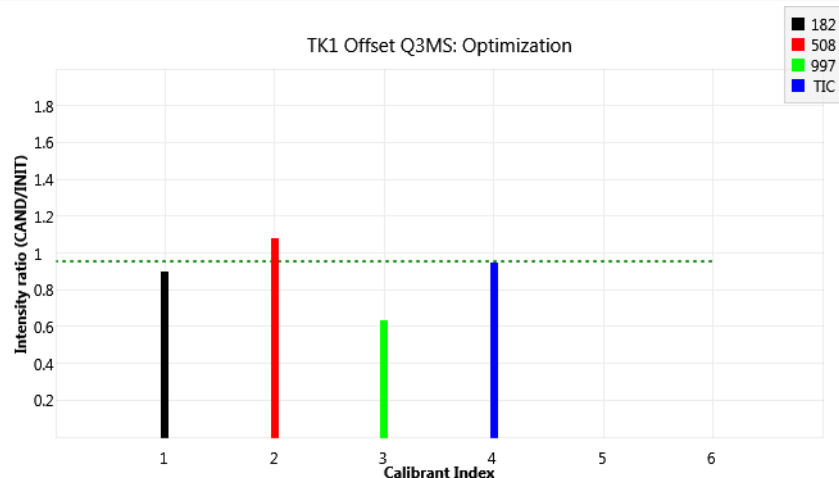
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no signal for 508.21

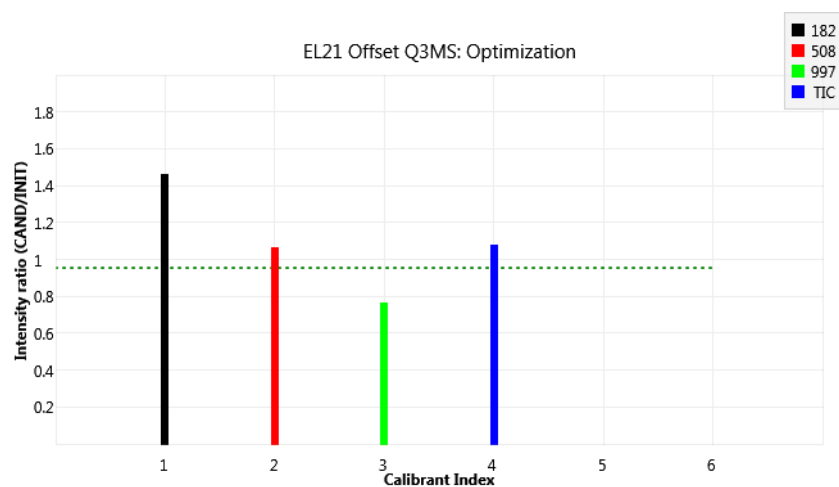
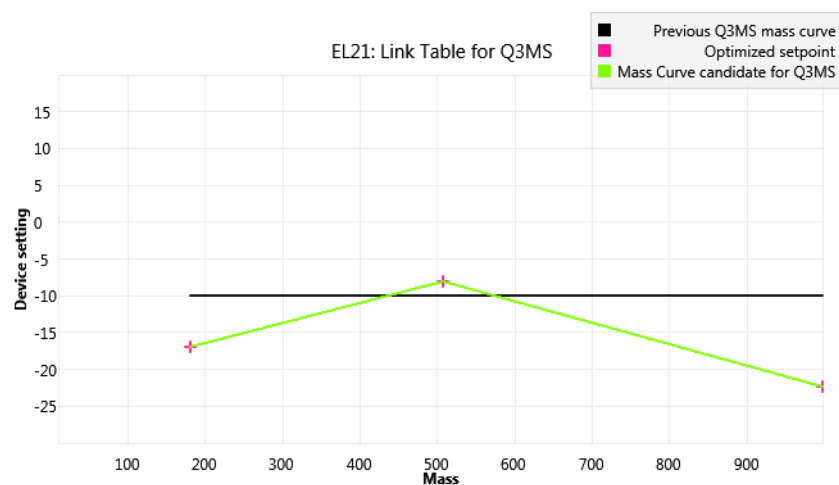
3: Optimize TK1 Offset Q3MS for Q3MS





Initial setting is already optimized. Keep the initial setting

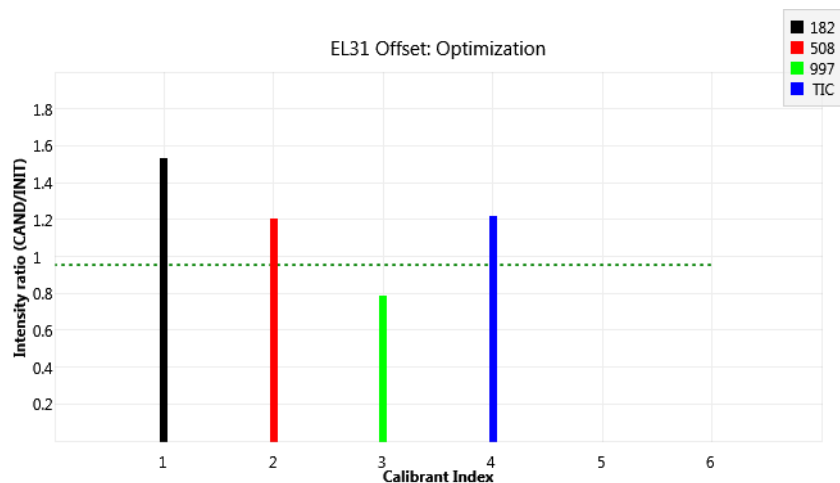
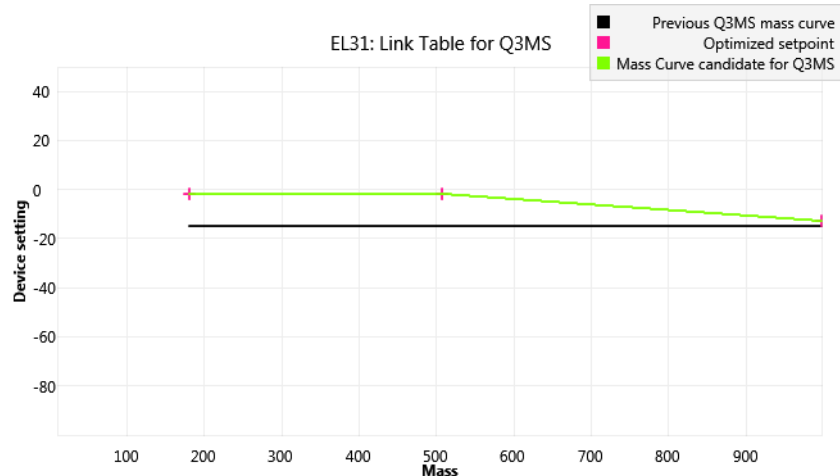
4: Optimize EL21 Offset Q3MS for Q3MS



TIC changed 7.72 % Keep the candidate setting

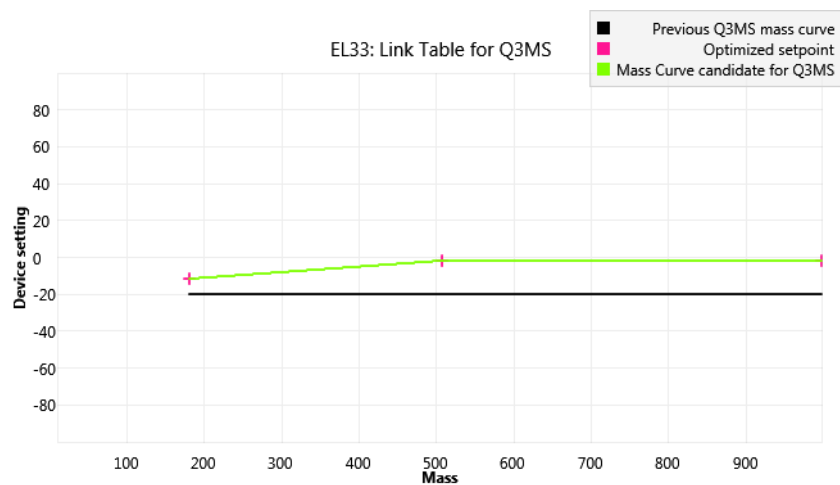
5: Optimize EL31 Offset for Q3MS

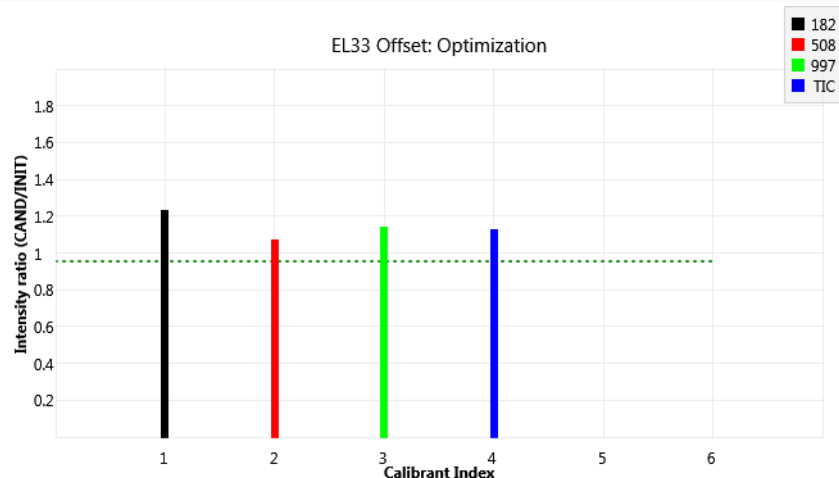
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TIC changed 21.93 % Keep the candidate setting

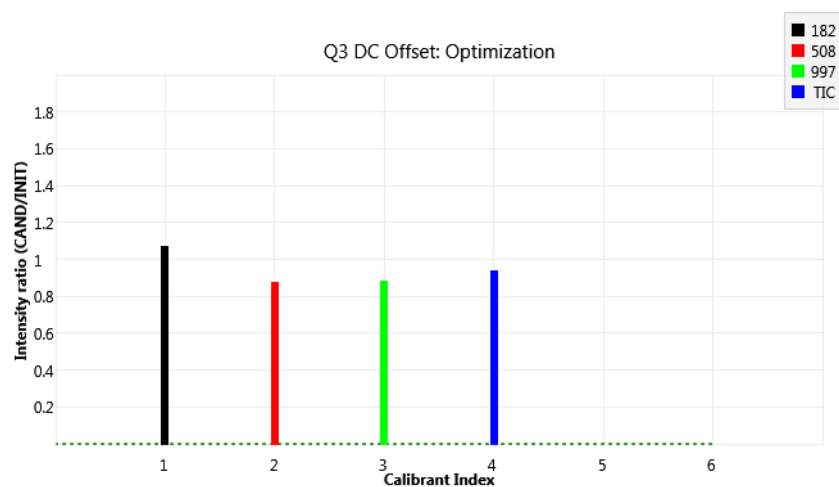
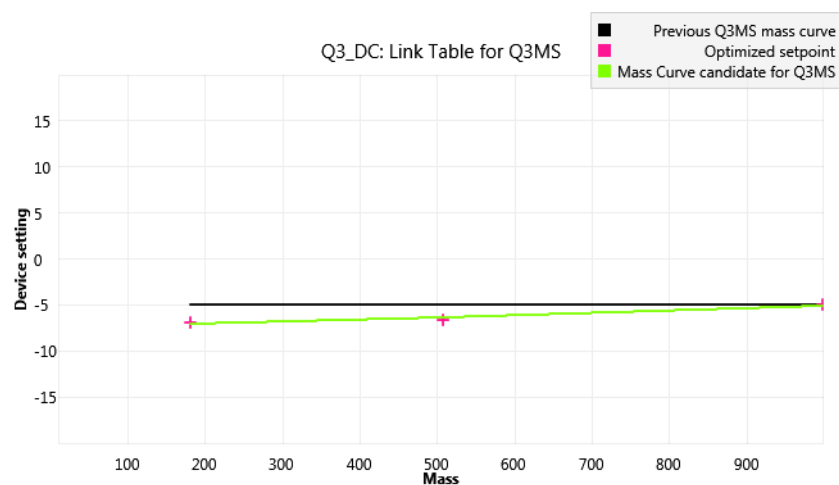
6: Optimize EL33 Offset for Q3MS





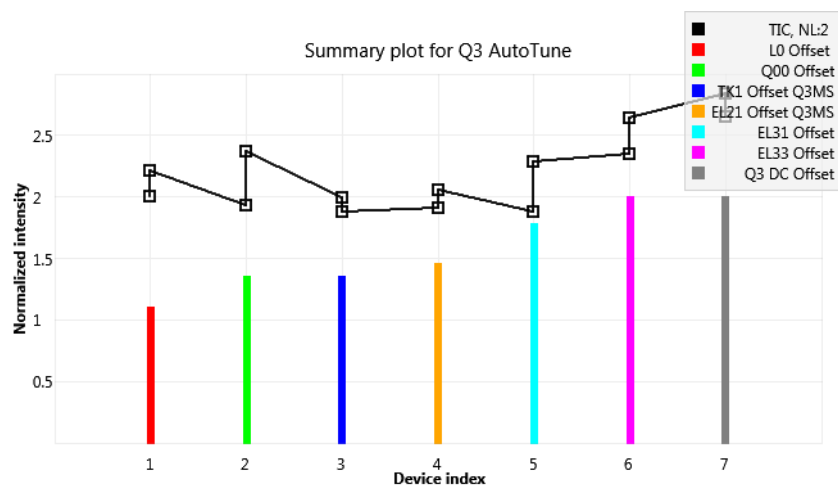
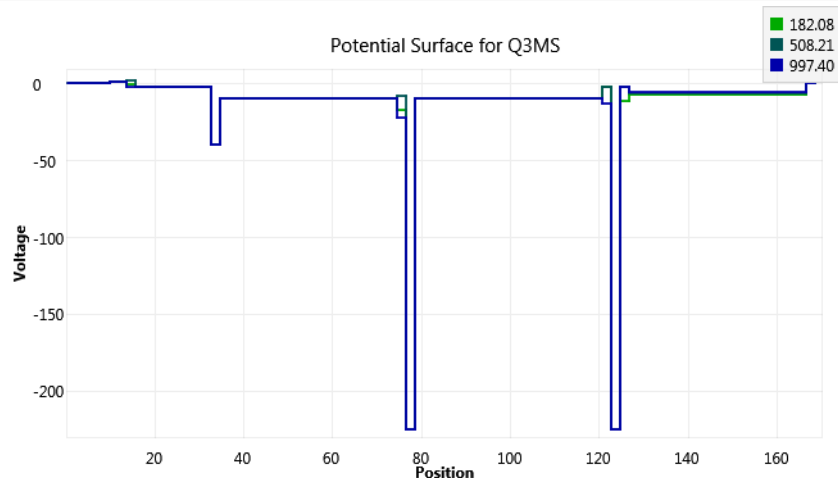
TIC changed 12.72 % Keep the candidate setting

7: Optimize Q3 DC Offset for Q3MS



TIC changed -6.58 % Keep the candidate setting

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Q3 AutoTune Summary

Device Previous Setting Current Setting

SRIG_R	167.63	238.46
SRIG_R	248.18	248.18
SRIG_R	248.18	248.18
Q0_AMP	177.13	203.52
Q0_AMP	300.27	335.46
Q0_AMP	520.18	590.55
Q2_AMP	230.37	258.19
Q2_AMP	454.62	481.30
Q2_AMP	721.39	730.28
L0	-1.50	-0.70
L0	-1.50	2.44
L0	-1.50	-2.14
Q00_DC	1.18	1.00
Q00_DC	1.18	1.00
Q00_DC	1.18	1.00
TK1	-2.50	-5.69
TK1	-2.50	-5.04
TK1	-2.50	-4.06
EL21	-10.00	-16.99
EL21	-10.00	-8.19
EL21	-10.00	-22.41

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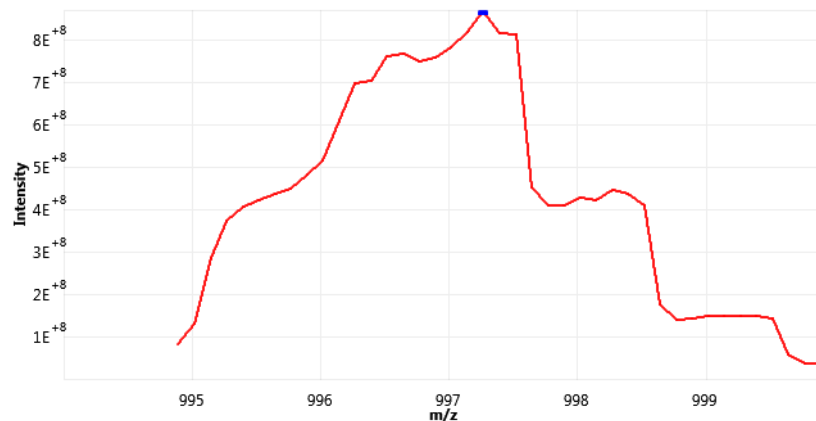
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EL31	-15.00	-2.00
EL31	-15.00	-2.00
EL31	-15.00	-12.95
EL33	-20.00	-11.53
EL33	-20.00	-2.22
EL33	-20.00	-2.00
Q3_DC	-5.00	-7.17
Q3_DC	-5.00	-6.35
Q3_DC	-5.00	-5.11

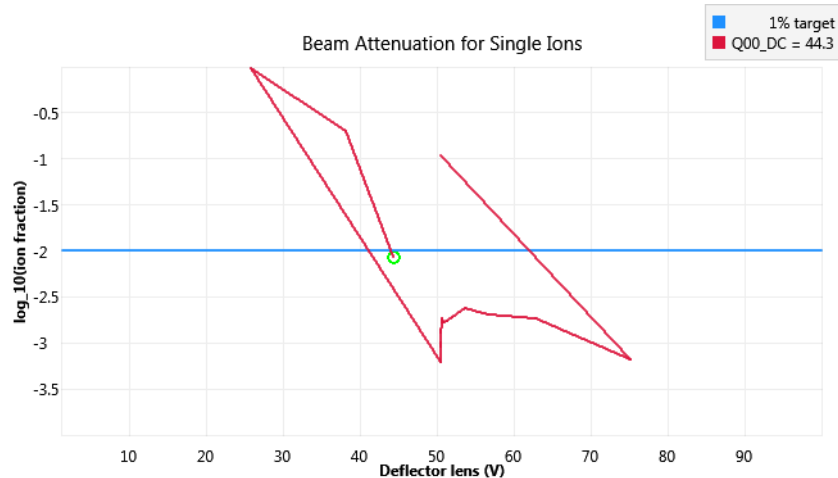
Electrometer Noise: -1.0 +/- 7 ADC units



Optimizing Q1 Isolation around 997.40



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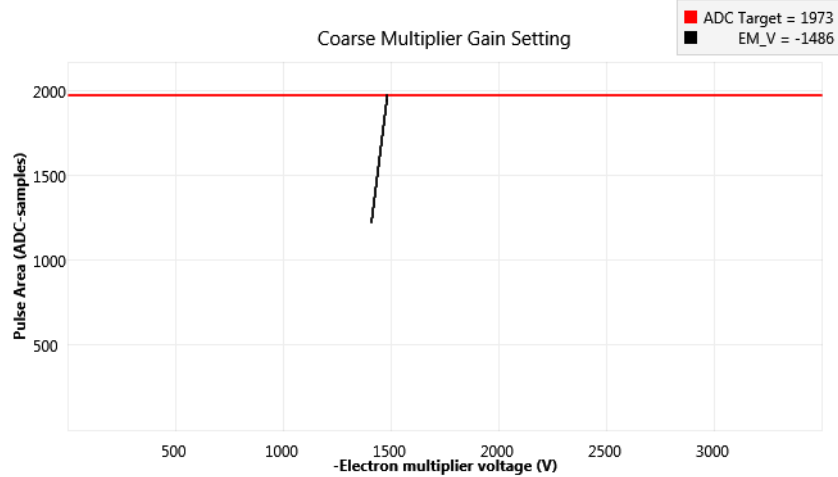


Single ions detected for Q00_DC at 44.3133

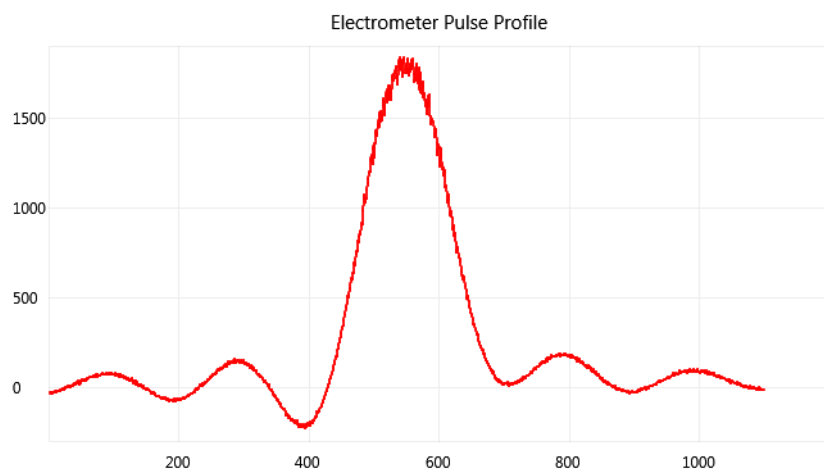
Finding the Maximum EM Voltage

CoarseMGSetting for LowGain: EM_V = -1414.78

HighGain ADC Target = 1973.19



Maximum EM_V: -1486.44



Measure Gain vs Voltage

EM Voltage #P.A. Array Estimated Gain Est. Height/Gain

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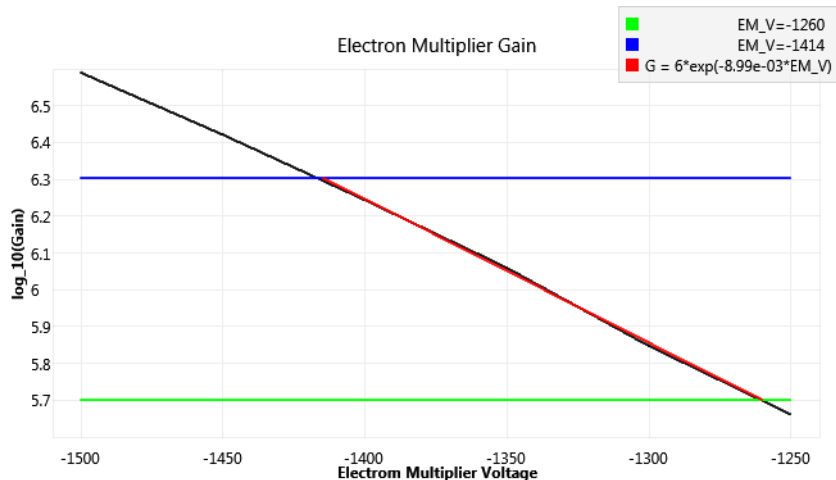
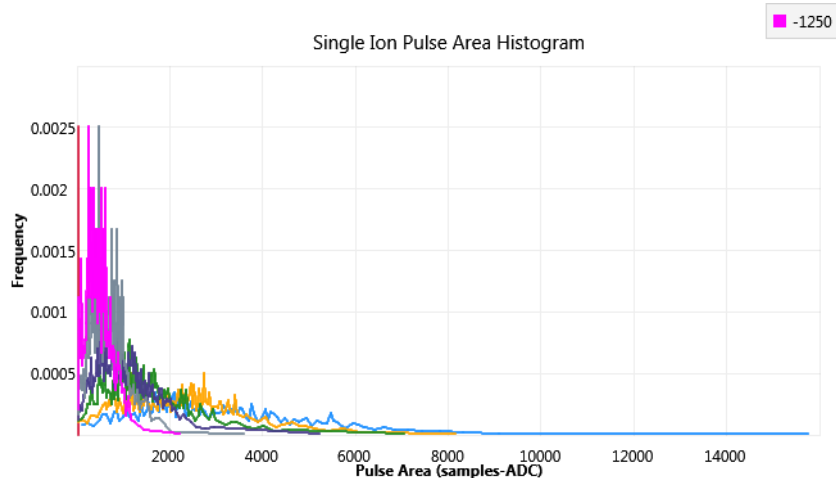
Signature:

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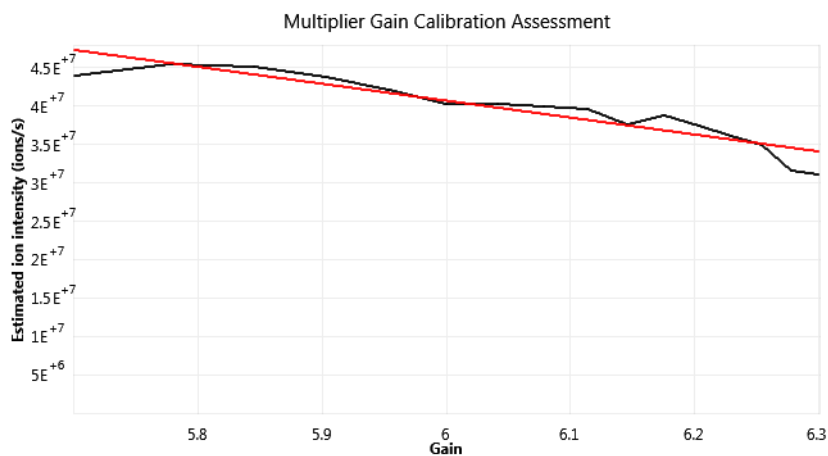
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-1500.00	1375.00	3864685.06	0.88
-1450.00	1590.00	2640860.57	0.92
-1400.00	1216.00	1748703.75	0.97
-1350.00	1401.00	1139791.08	1.02
-1300.00	1196.00	702933.26	1.08
-1250.00	1335.00	458952.04	1.15



Gain assessment: normalized slope = -0.499385



posA = 5.9875217369166

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posB = -0.0089927827825826

Gain=500000: posEMVoltage=-1260.1978784855

negA = 100

negB = -0.007

Gain=500000: negEMVoltage -1216.741884488

Calibration parameter comparison passed.

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EM Gain Calibration Results

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A= 5.98752

B= -0.00899278

Full Scan EM Voltage= -1260.2

SRM Scan EM Voltage= -1414.35

Q1 coarse calibration result:

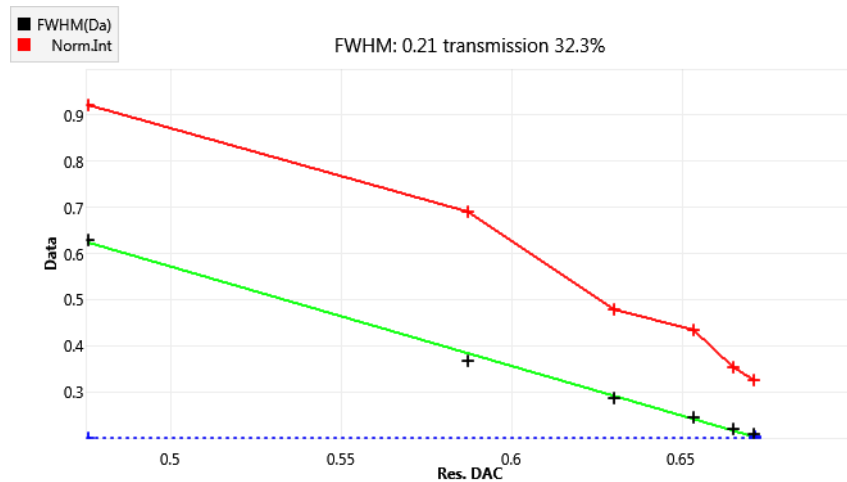
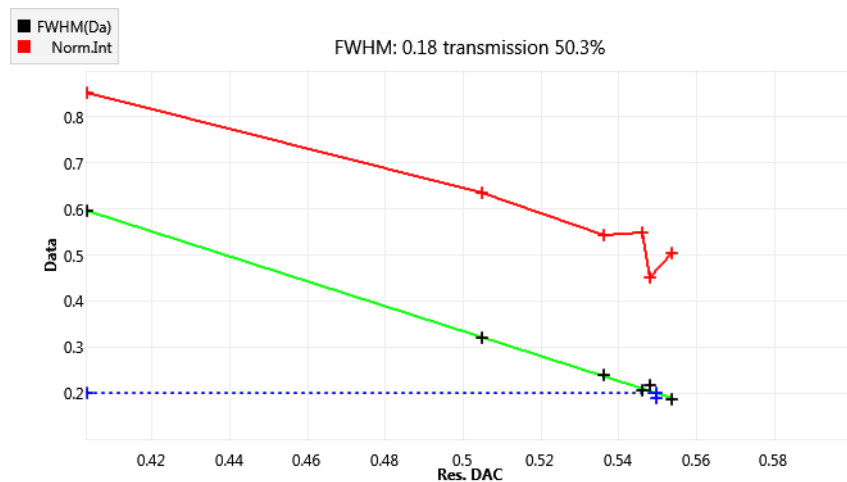
Gain DAC value= 1325

m/z FWHM

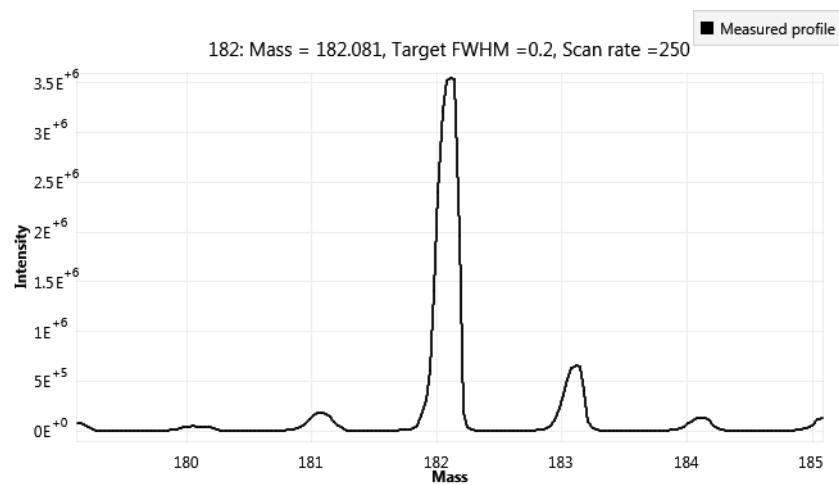
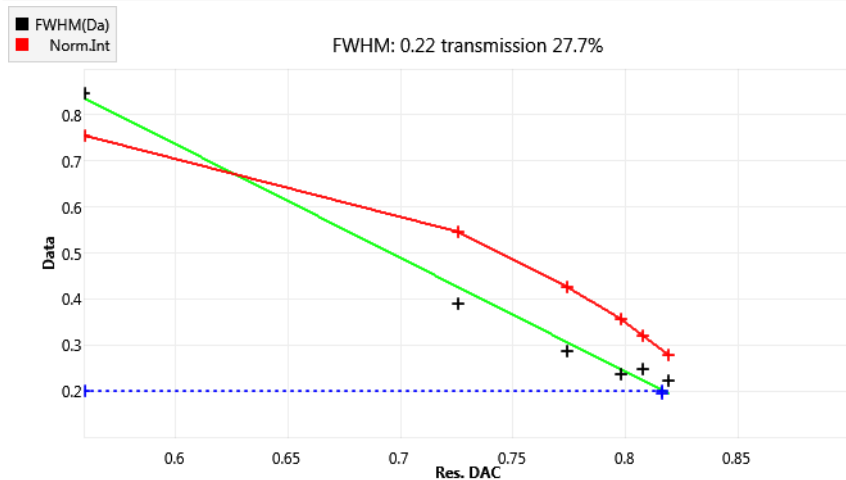
182.08 1.93

508.21 2.06

997.40 2.35

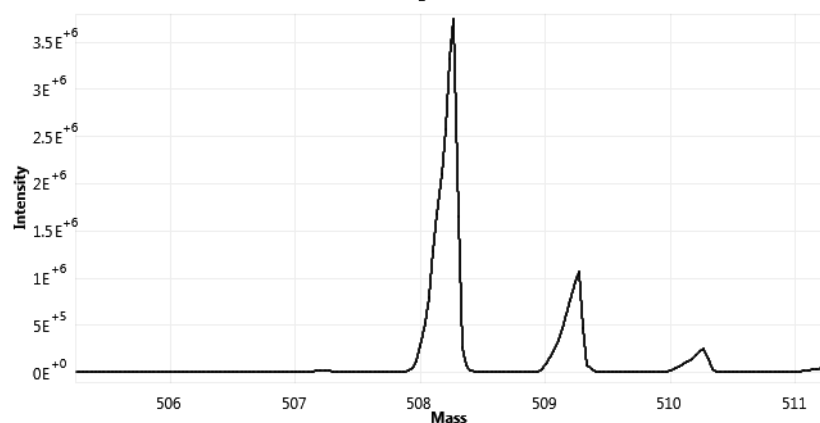


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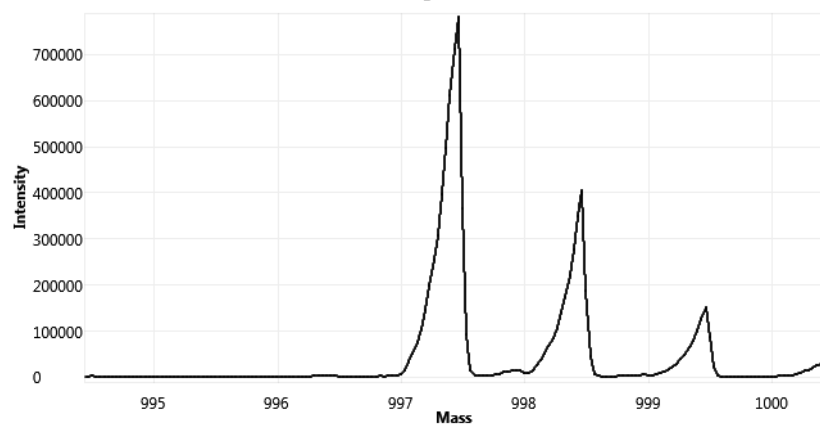


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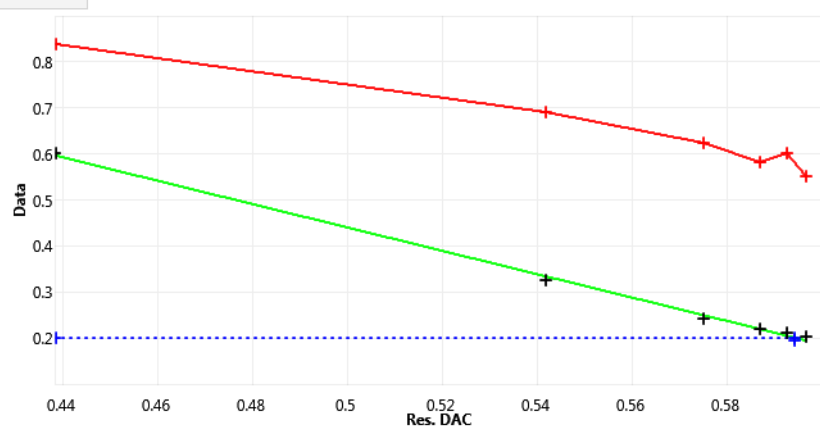
508: Mass = 508.208, Target FWHM = 0.2, Scan rate = 250



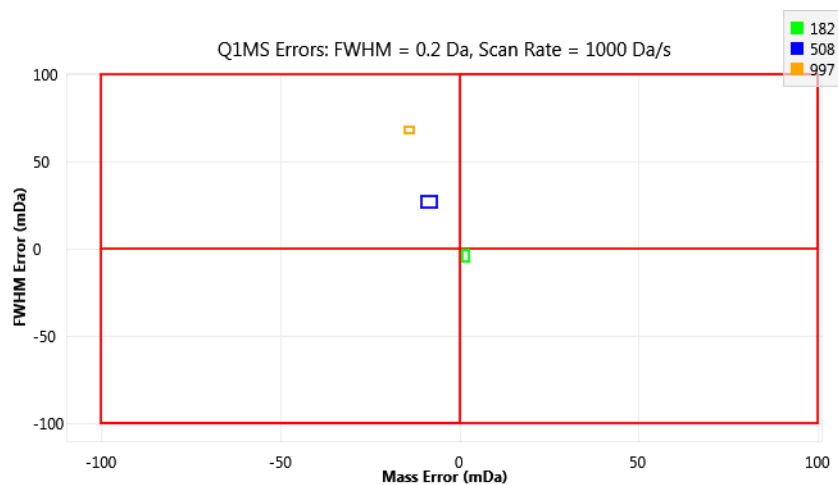
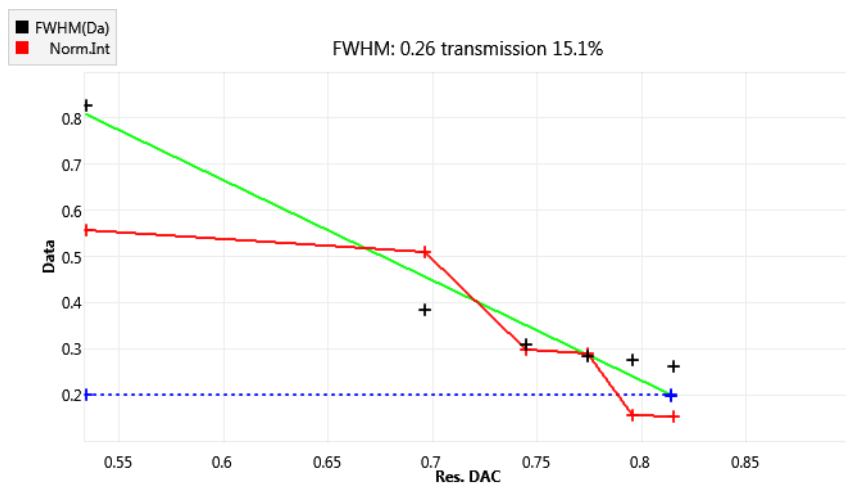
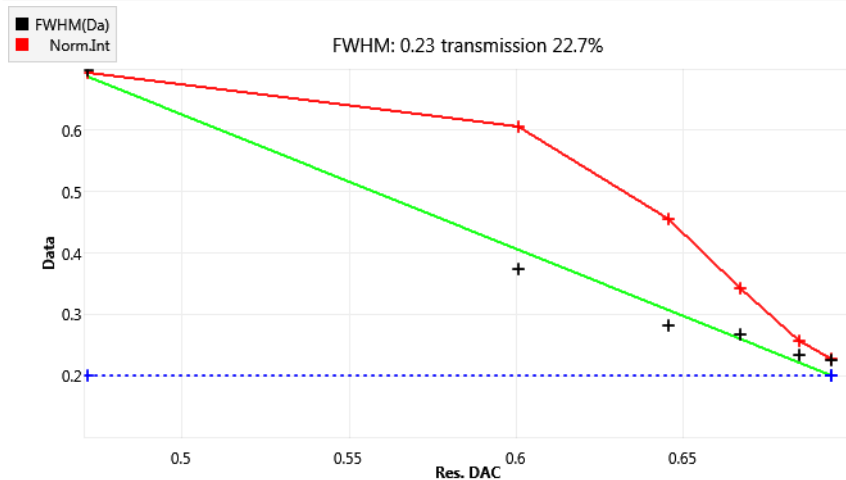
997: Mass = 997.398, Target FWHM = 0.2, Scan rate = 250



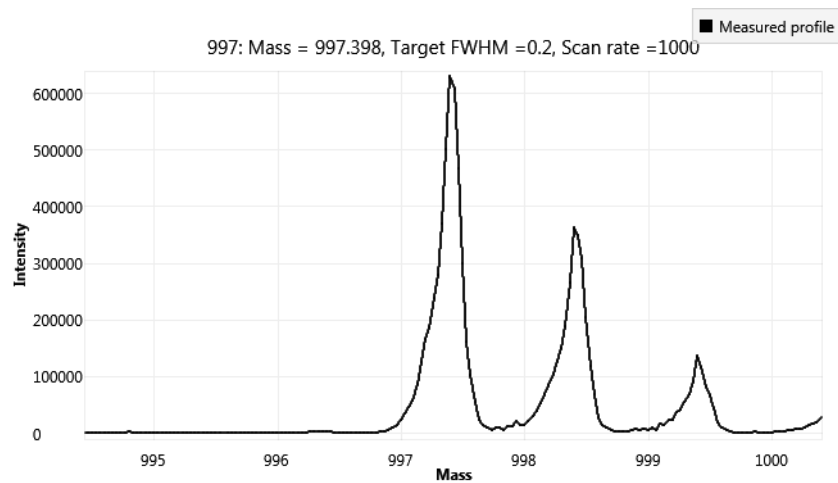
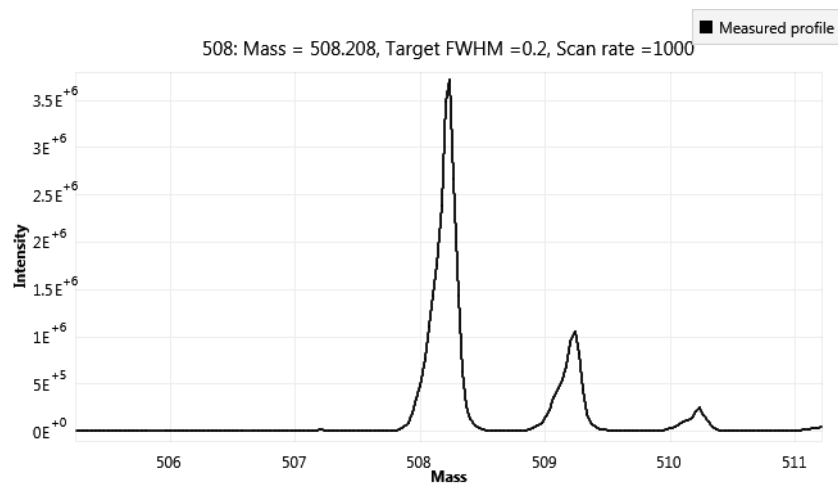
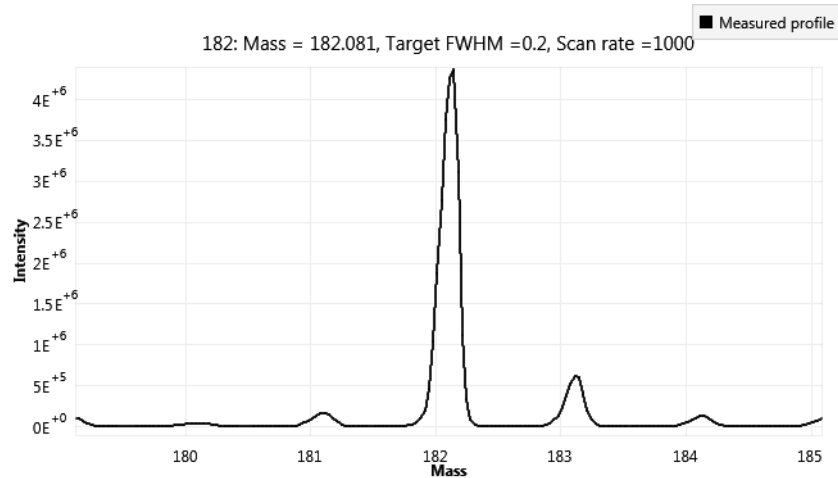
FWHM: 0.20 transmission 55.1%



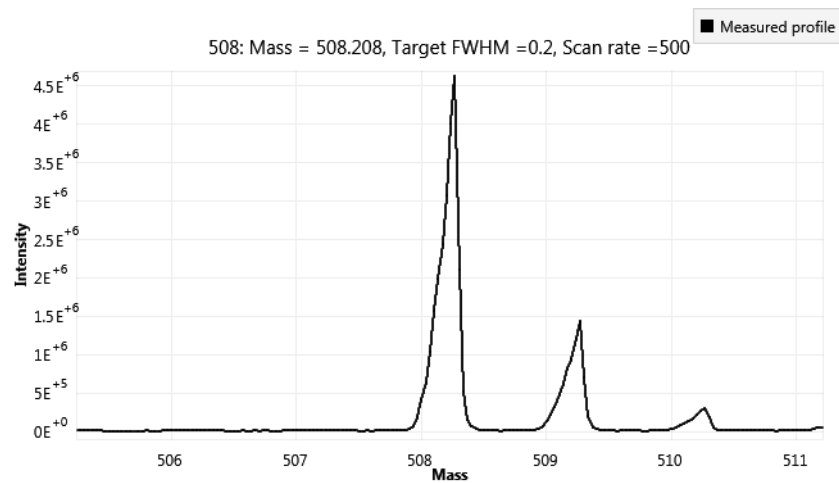
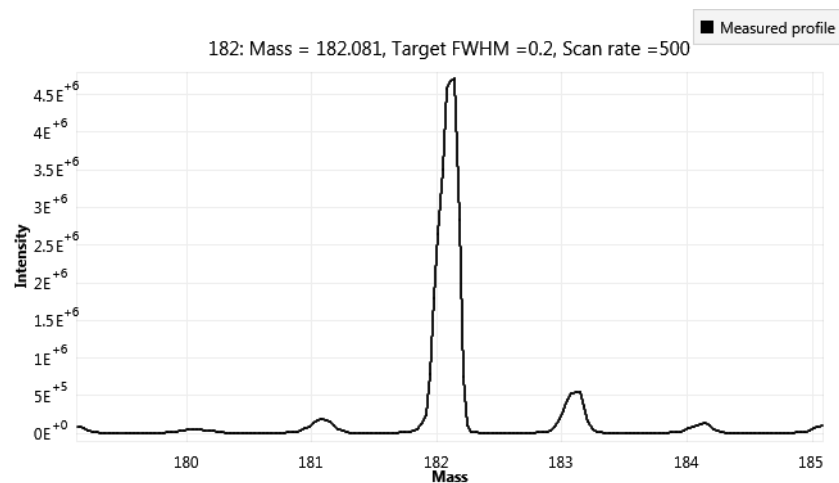
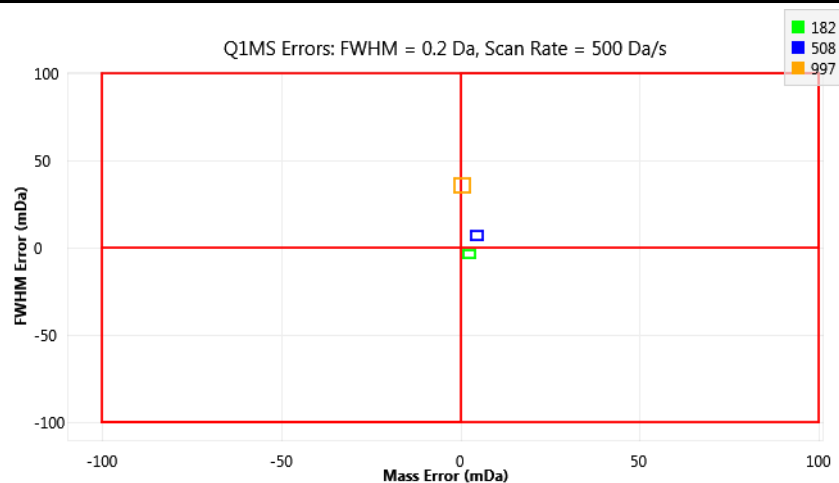
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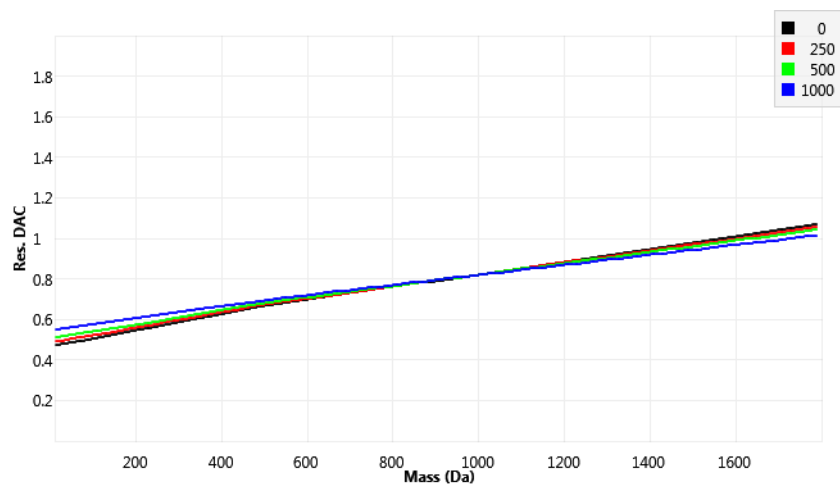
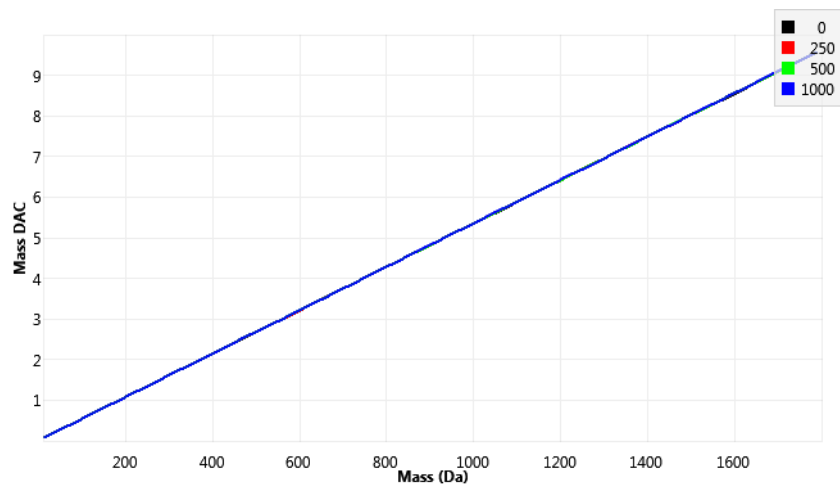
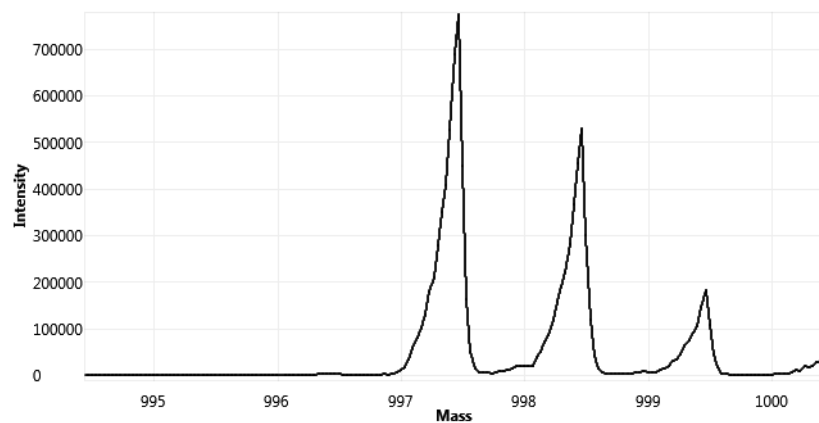
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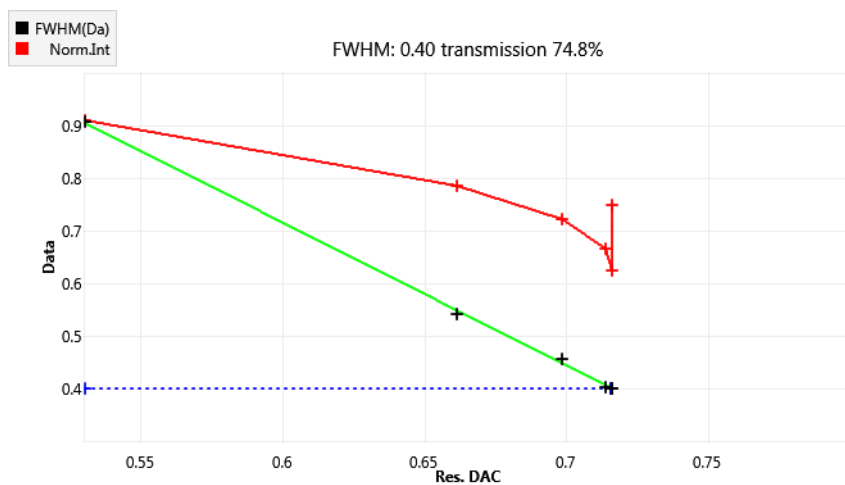
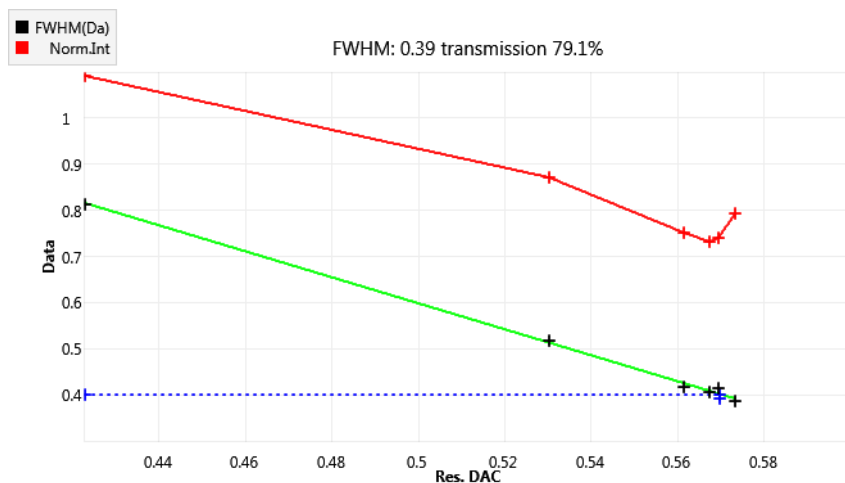
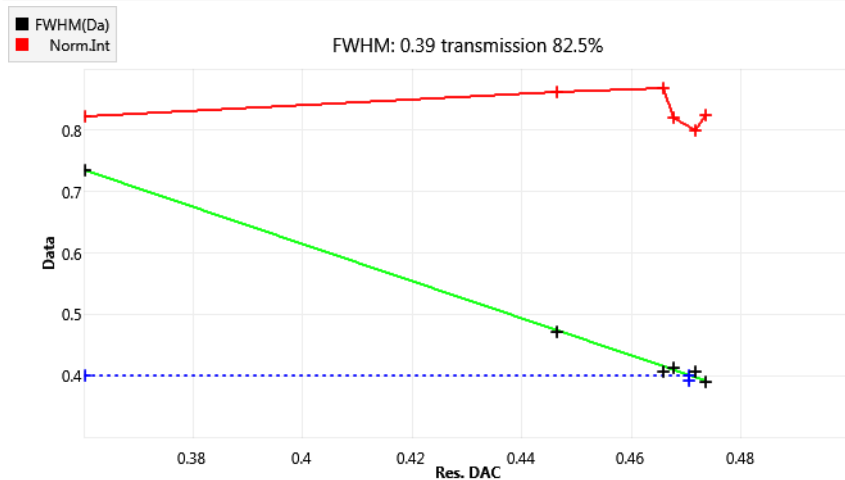
Diagnostic Report

997: Mass = 997.398, Target FWHM = 0.2, Scan rate = 500

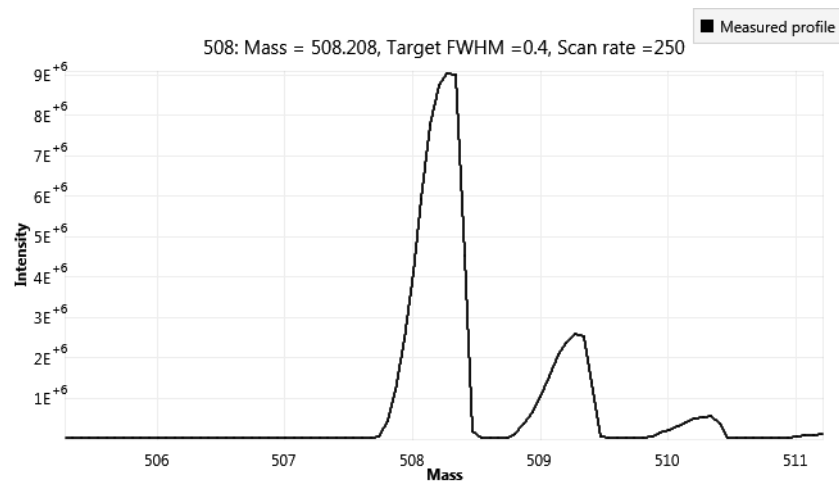
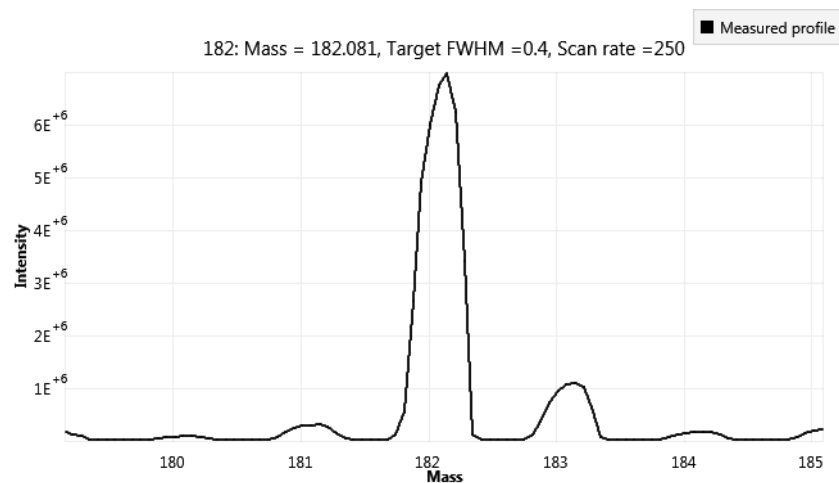
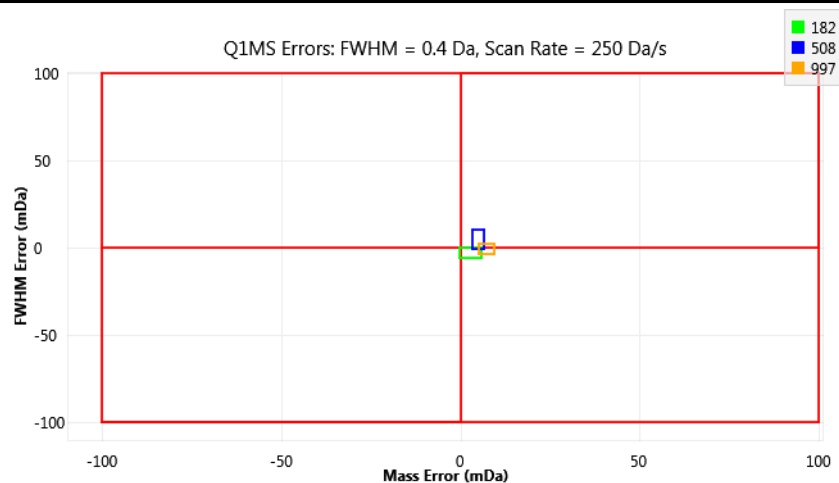
■ Measured profile



Diagnostic Report

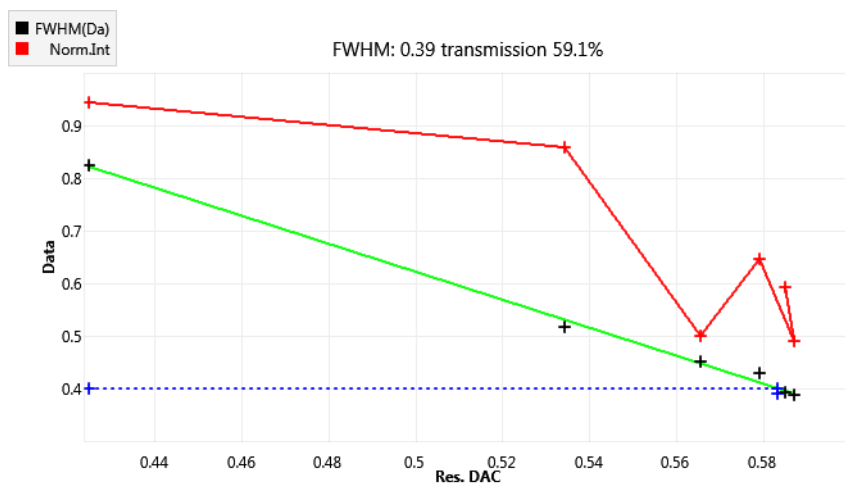
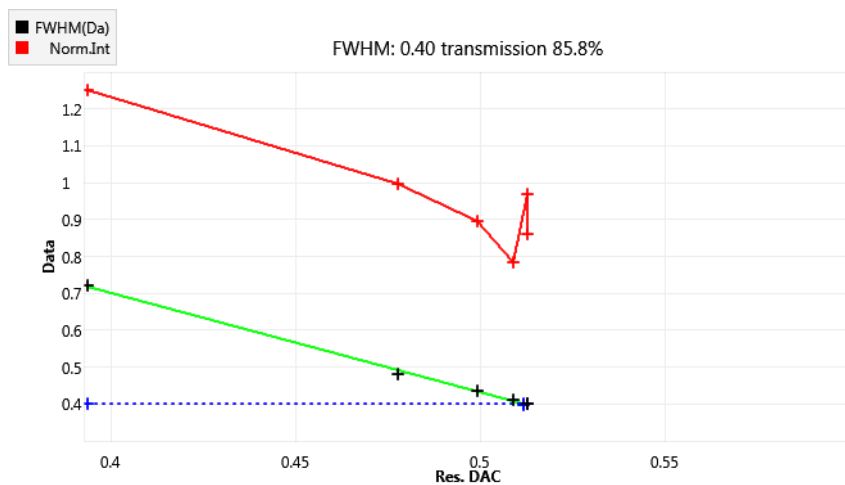
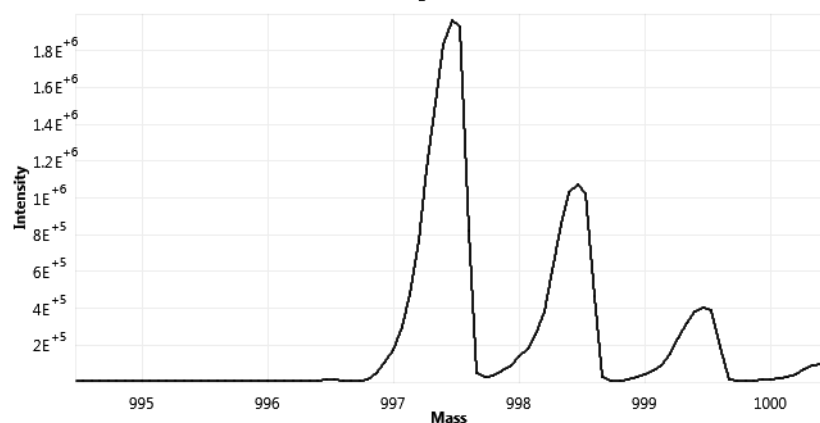


Diagnostic Report

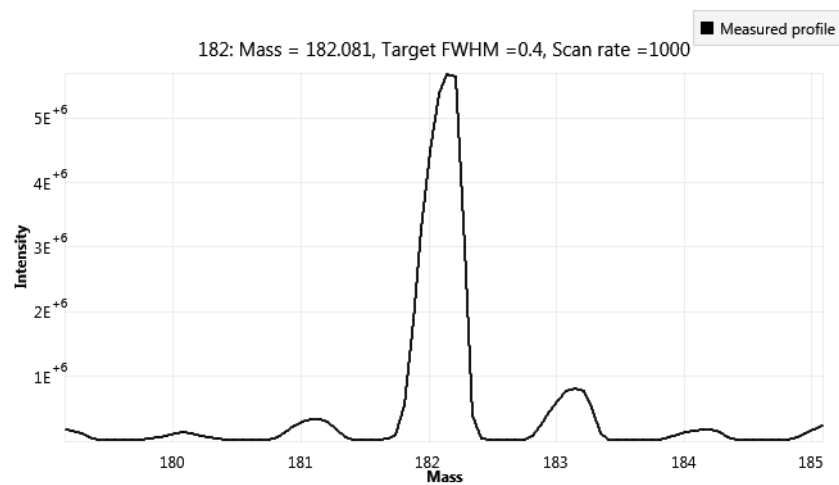
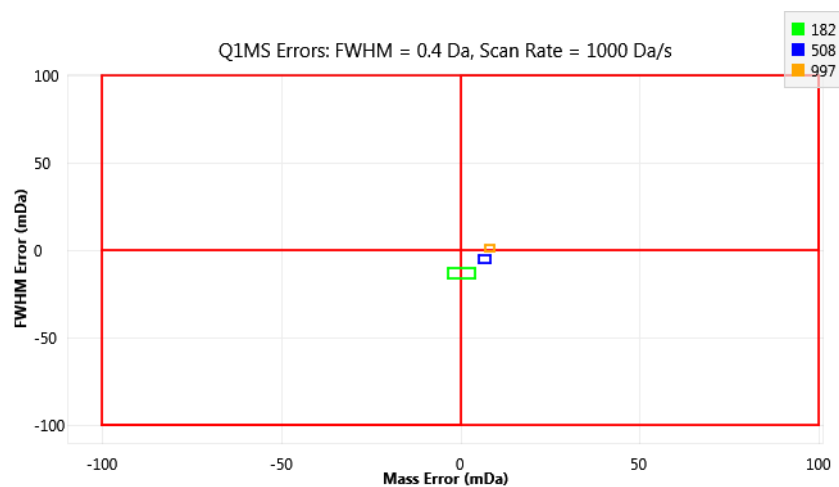
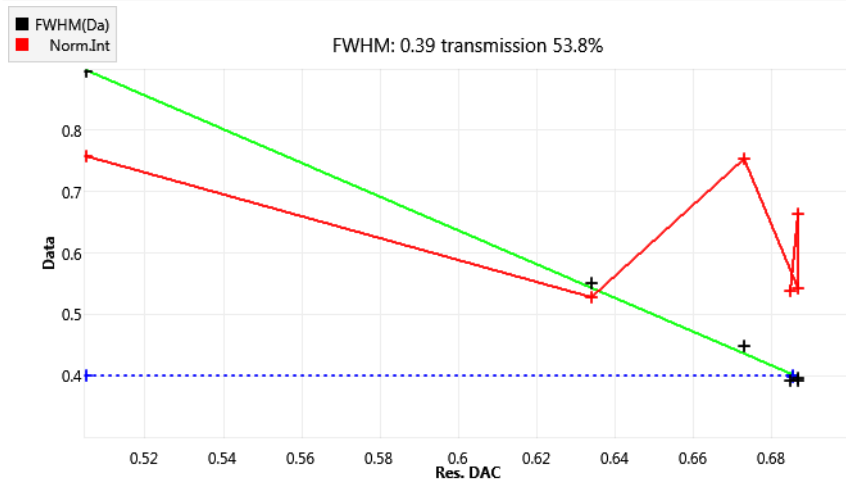


Diagnostic Report

997: Mass = 997.398, Target FWHM = 0.4, Scan rate = 250

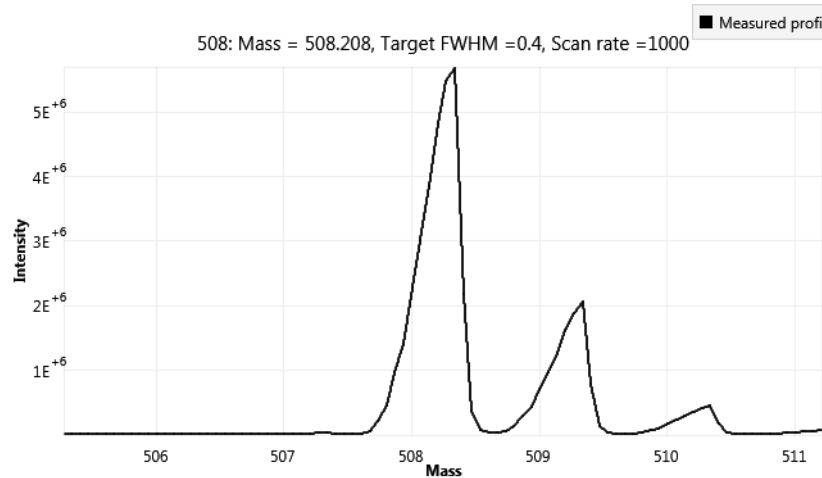


Diagnostic Report

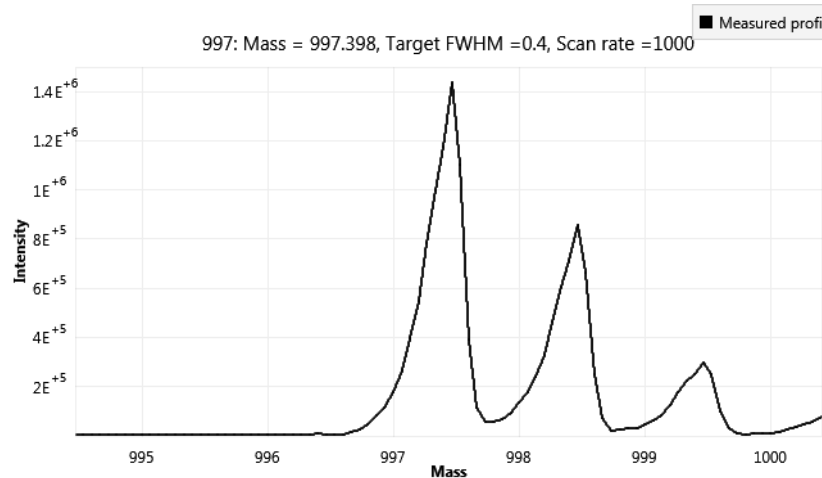


Diagnostic Report

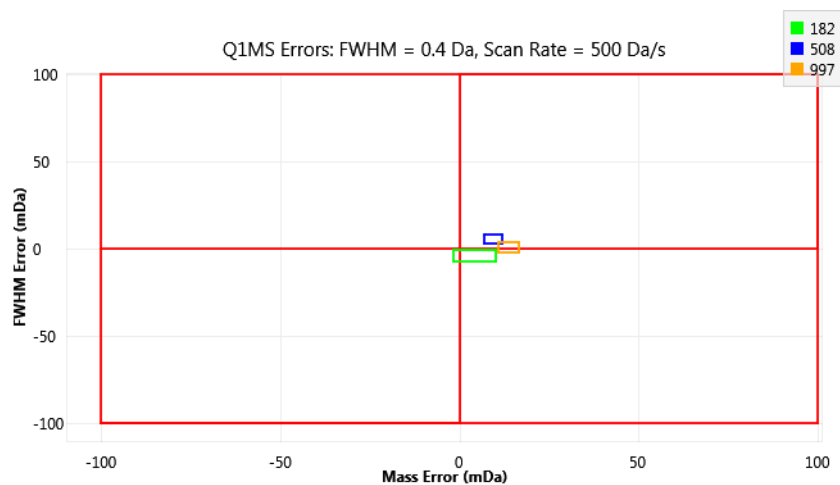
508: Mass = 508.208, Target FWHM = 0.4, Scan rate = 1000



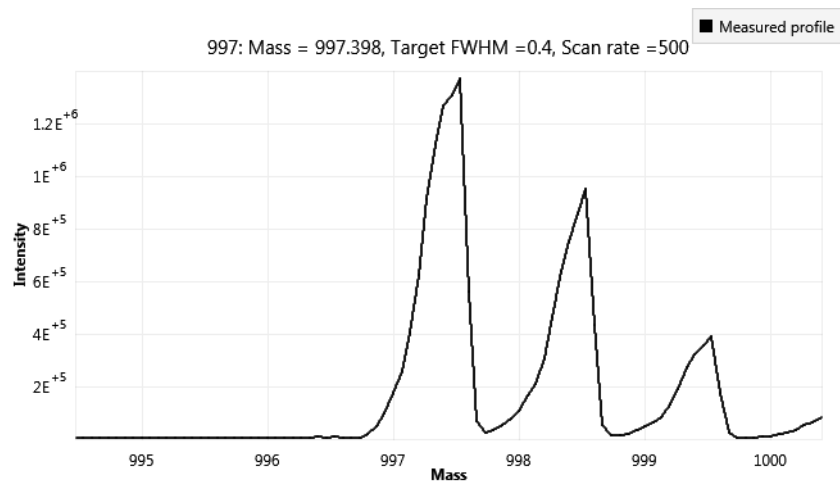
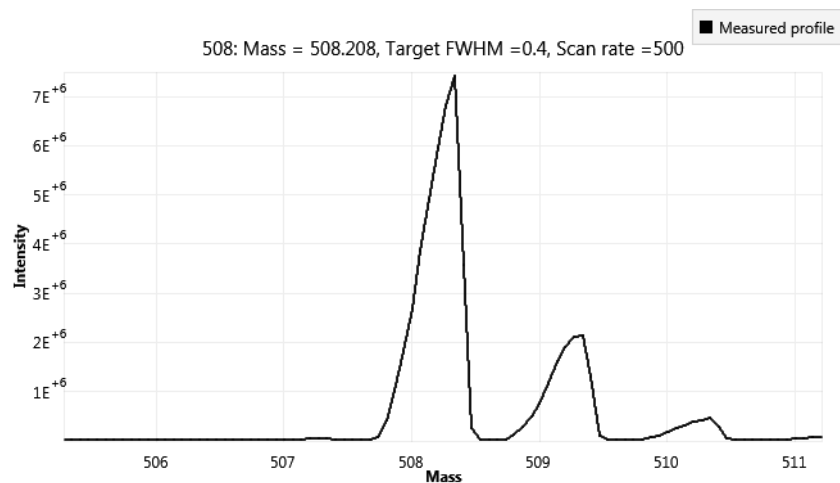
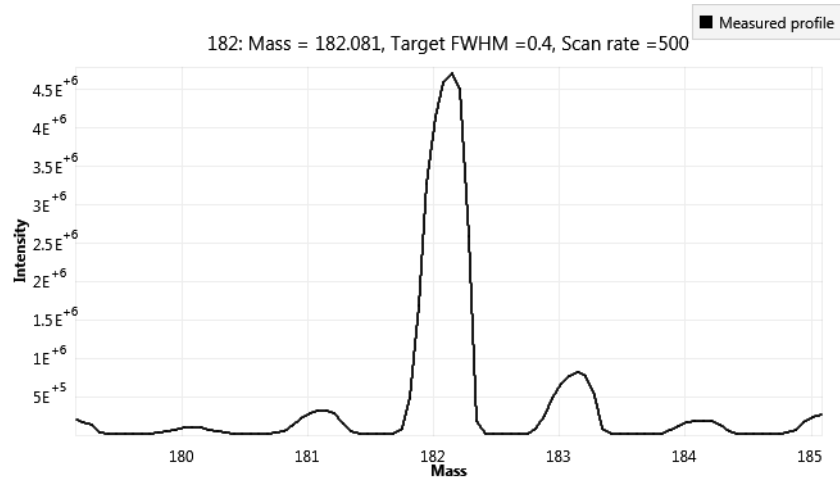
997: Mass = 997.398, Target FWHM = 0.4, Scan rate = 1000



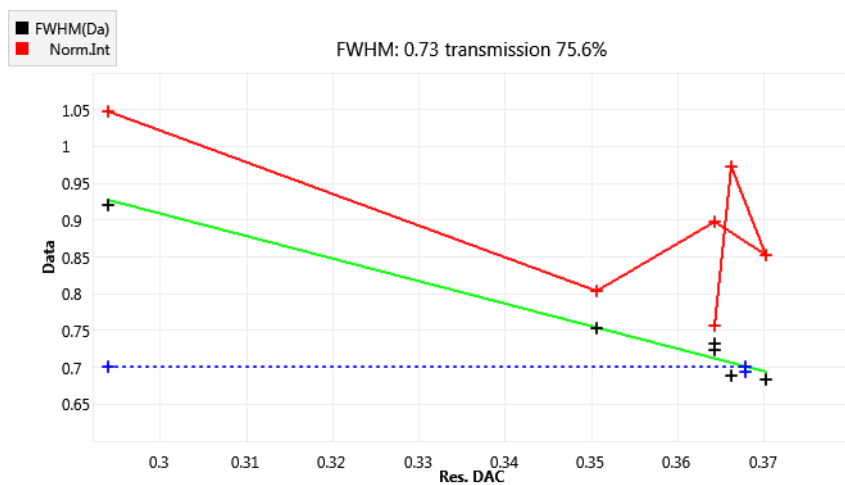
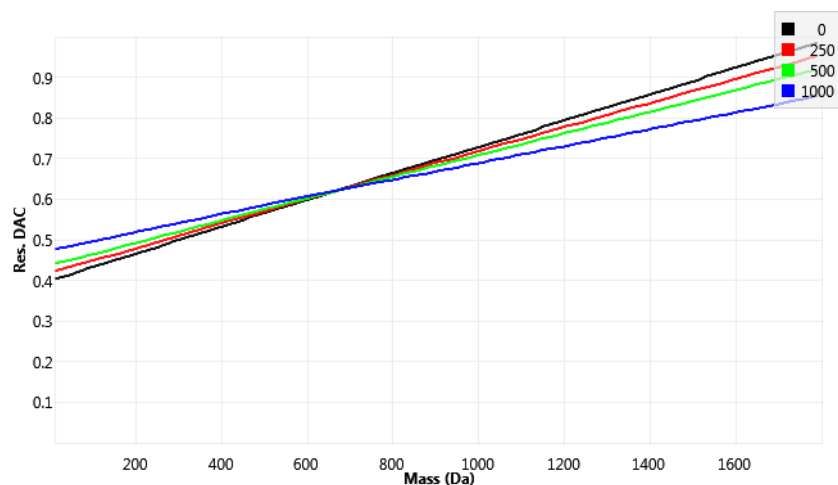
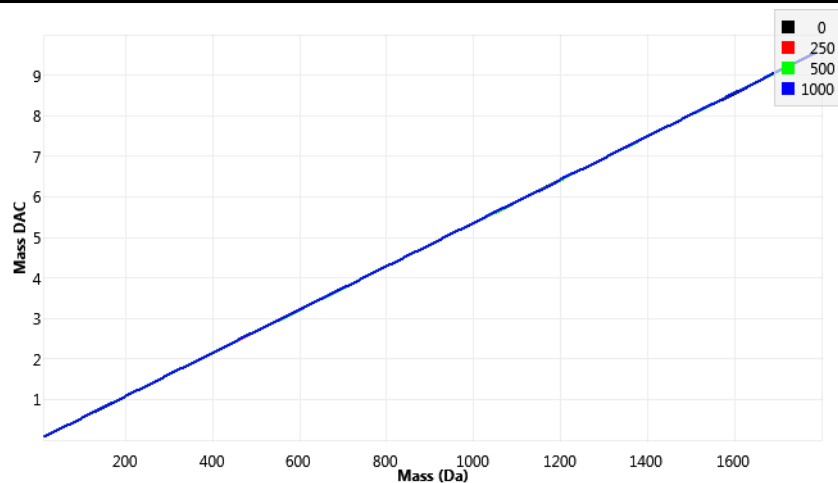
Q1MS Errors: FWHM = 0.4 Da, Scan Rate = 500 Da/s



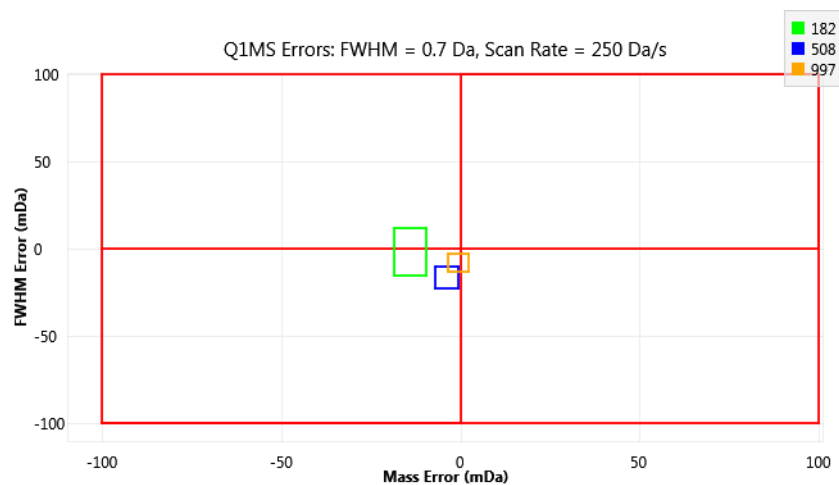
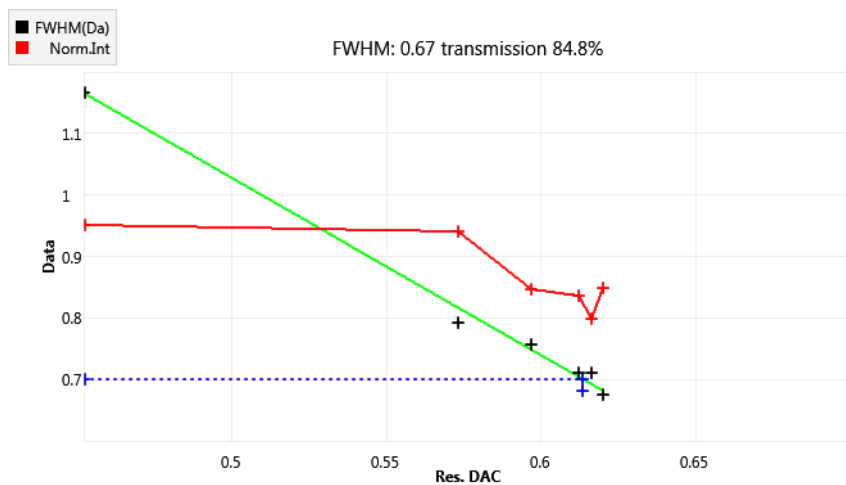
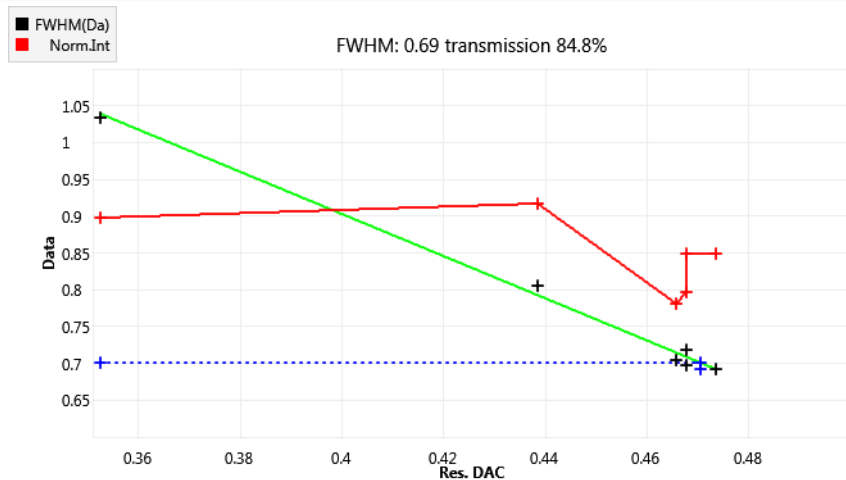
Diagnostic Report



Diagnostic Report



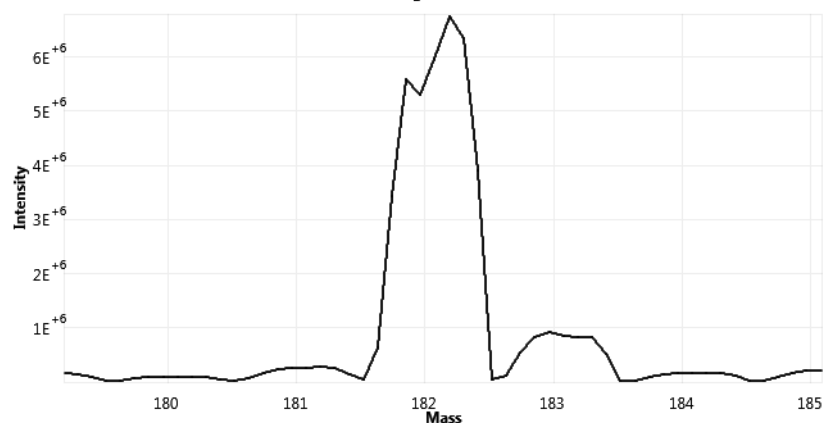
Diagnostic Report



Diagnostic Report

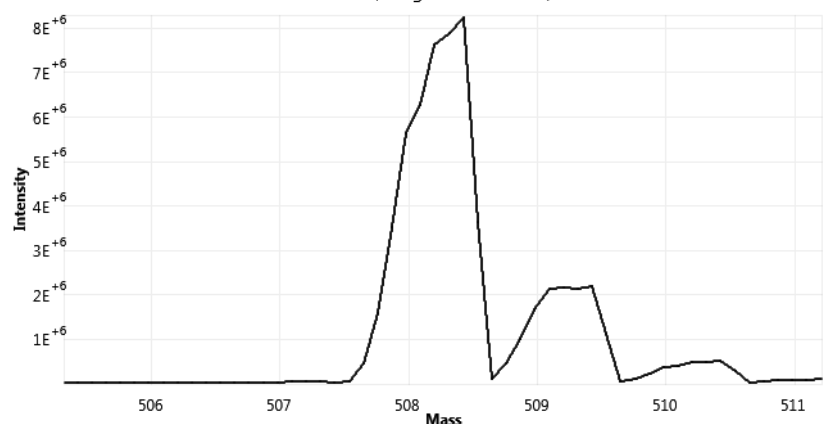
182: Mass = 182.081, Target FWHM = 0.7, Scan rate = 250

■ Measured profile



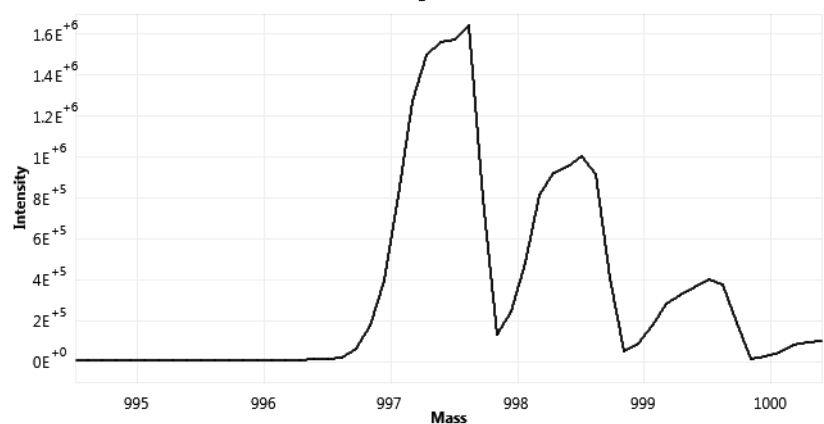
508: Mass = 508.208, Target FWHM = 0.7, Scan rate = 250

■ Measured profile

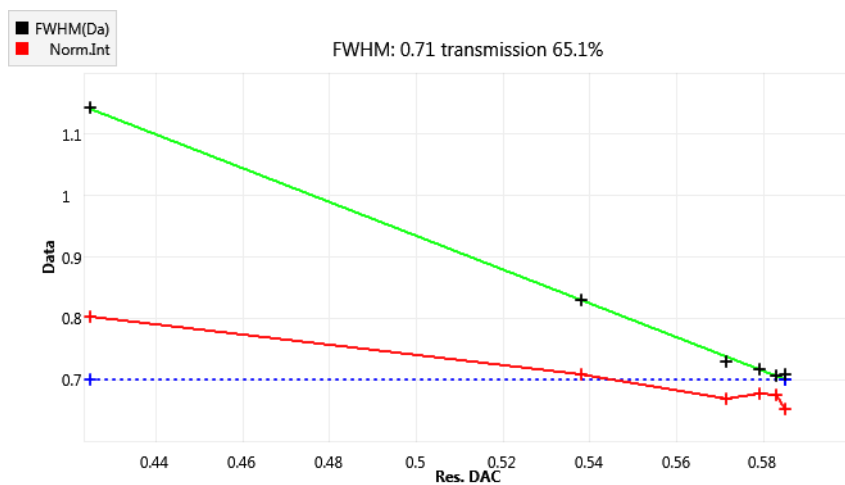
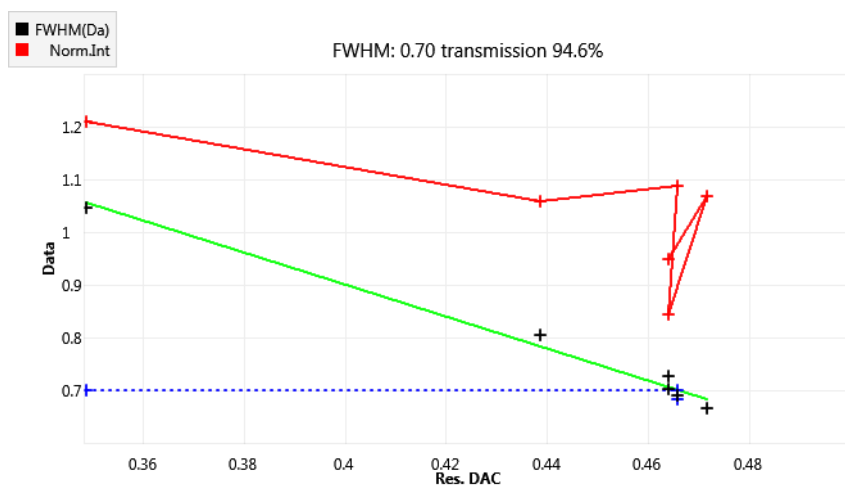
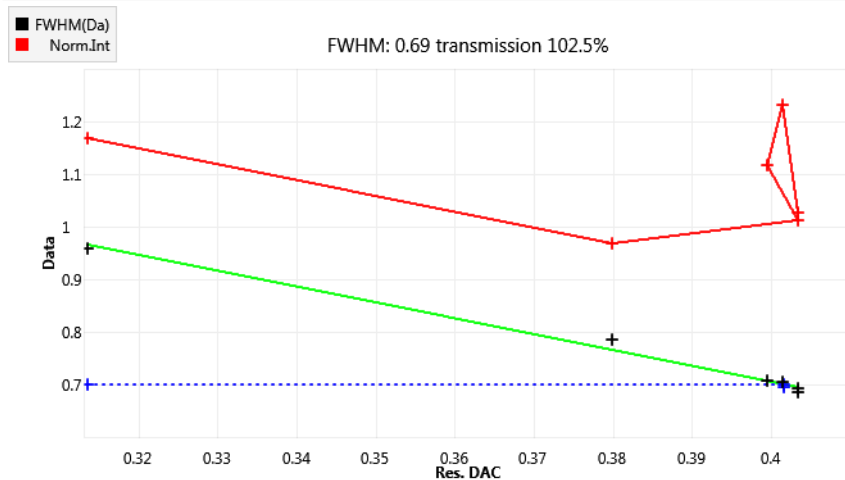


997: Mass = 997.398, Target FWHM = 0.7, Scan rate = 250

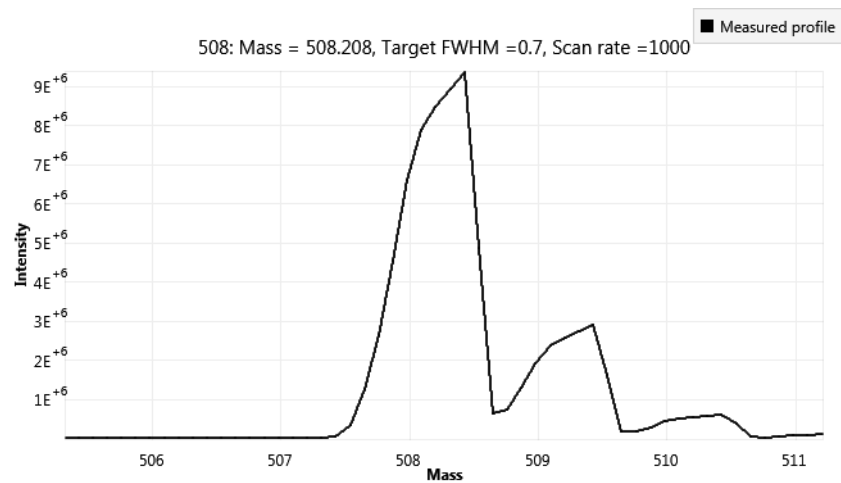
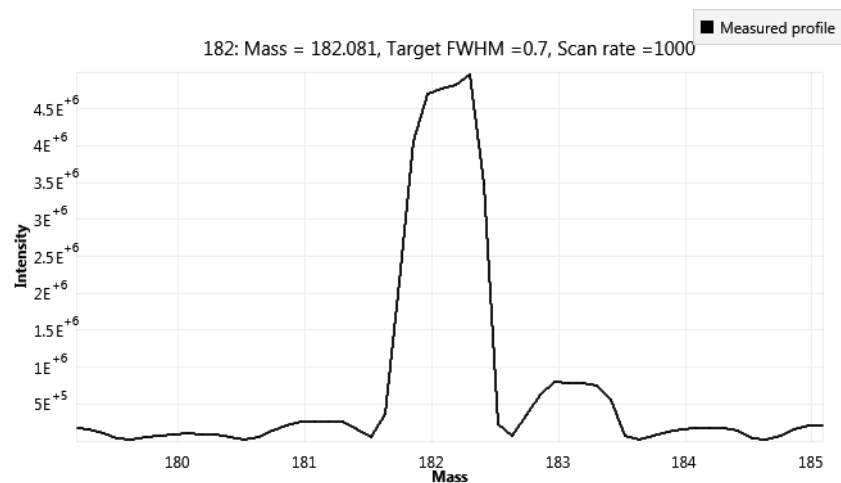
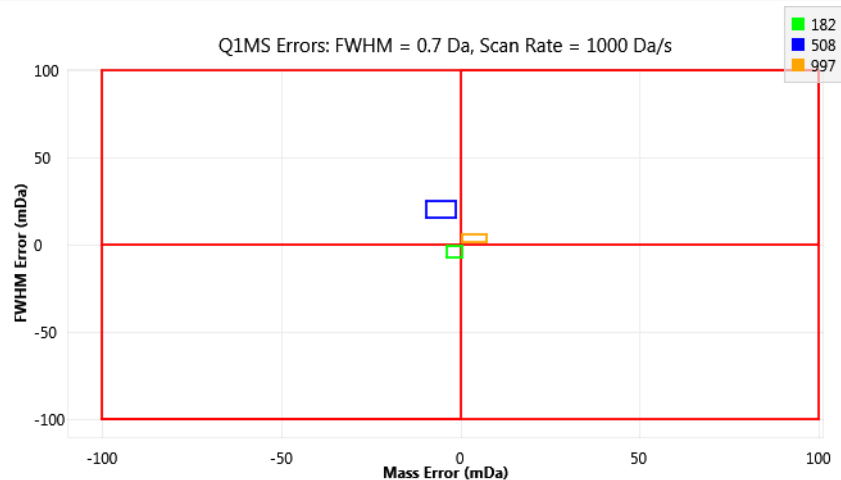
■ Measured profile



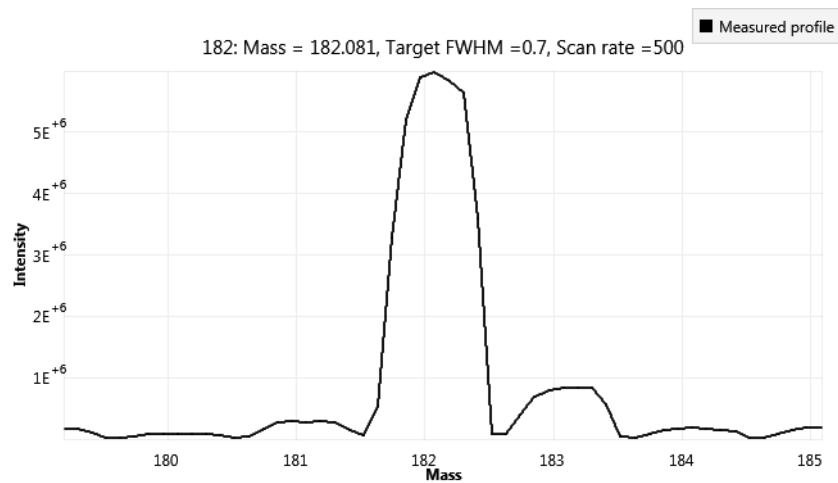
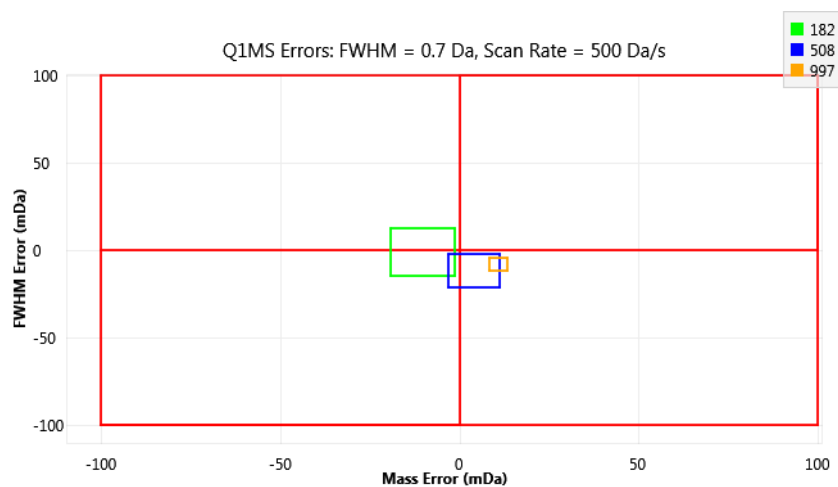
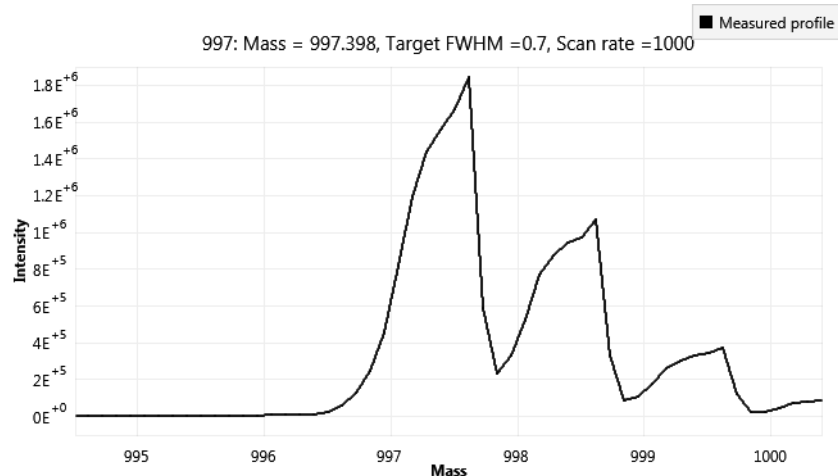
Diagnostic Report



Diagnostic Report



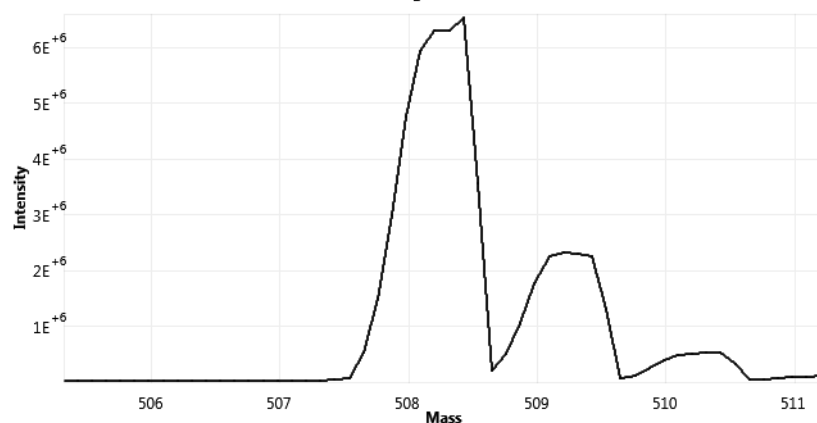
Diagnostic Report



Diagnostic Report

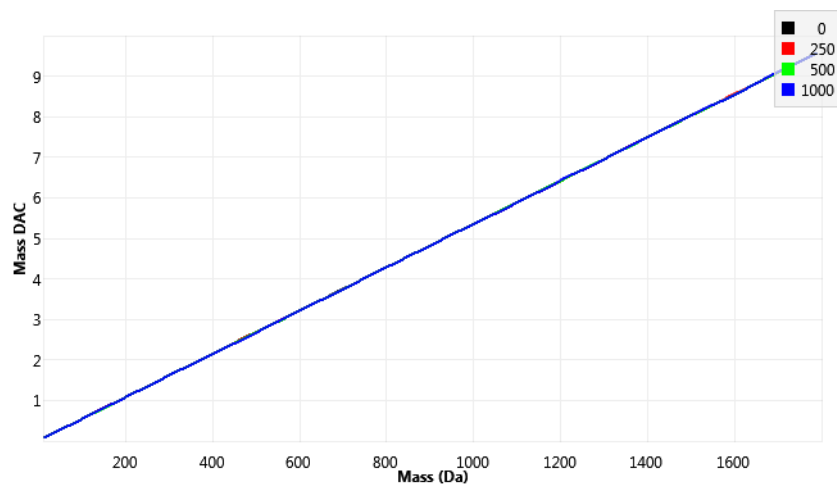
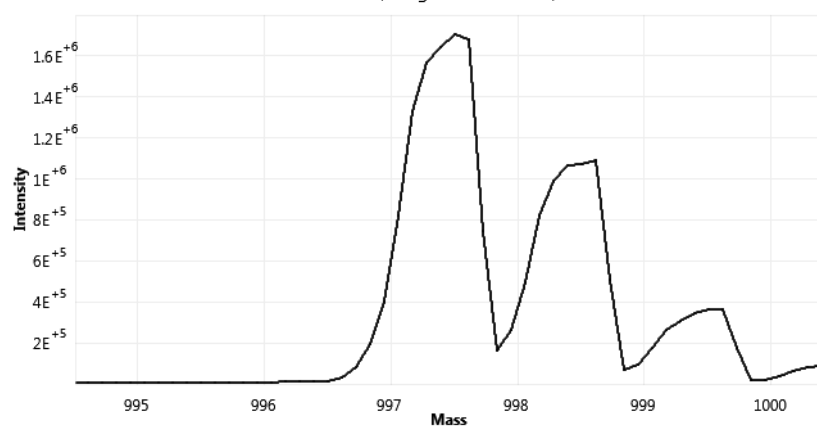
508: Mass = 508.208, Target FWHM = 0.7, Scan rate = 500

■ Measured profile

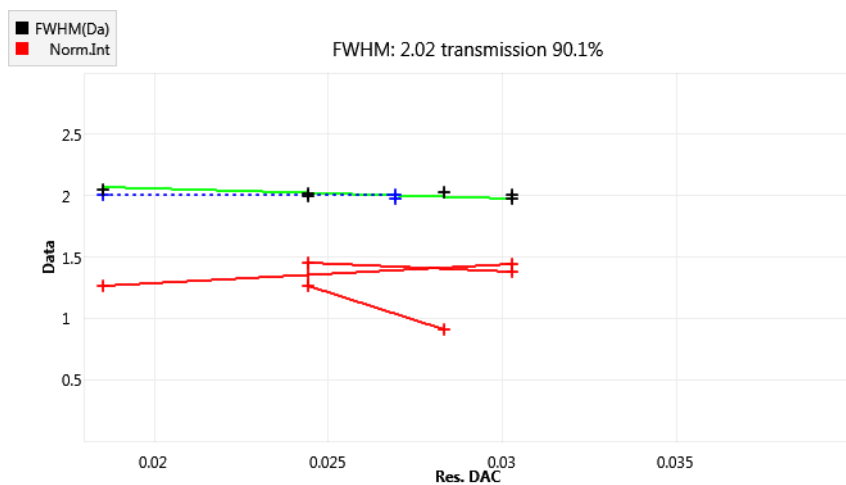
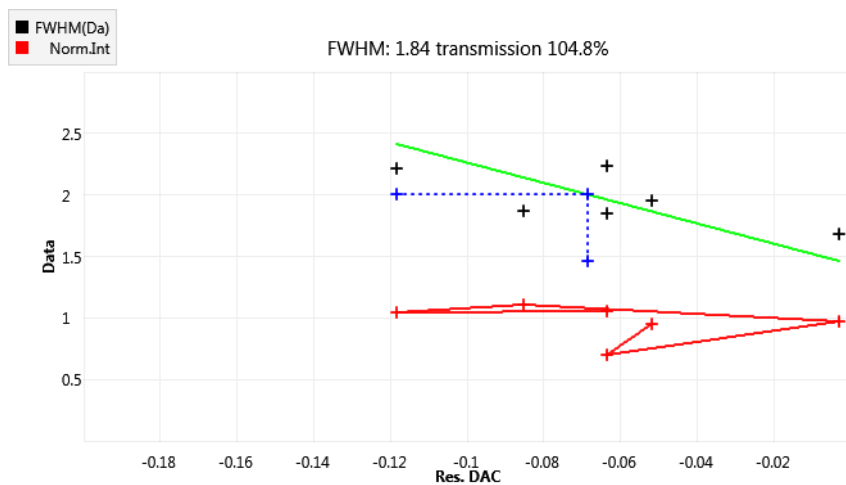
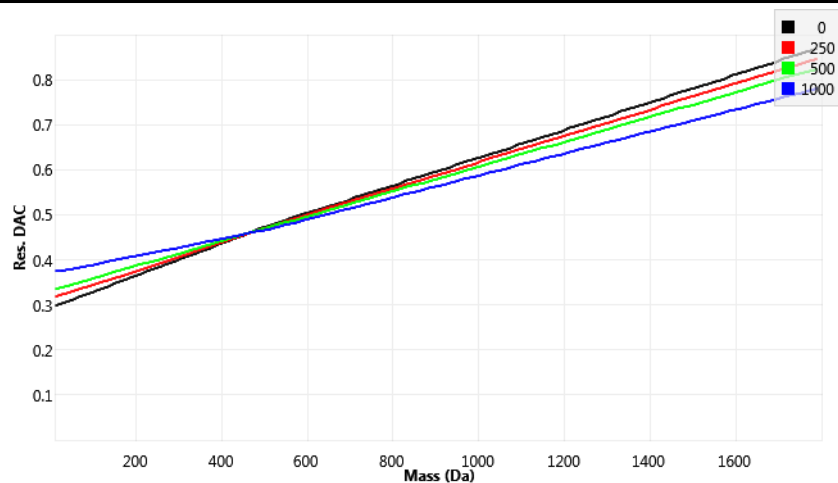


997: Mass = 997.398, Target FWHM = 0.7, Scan rate = 500

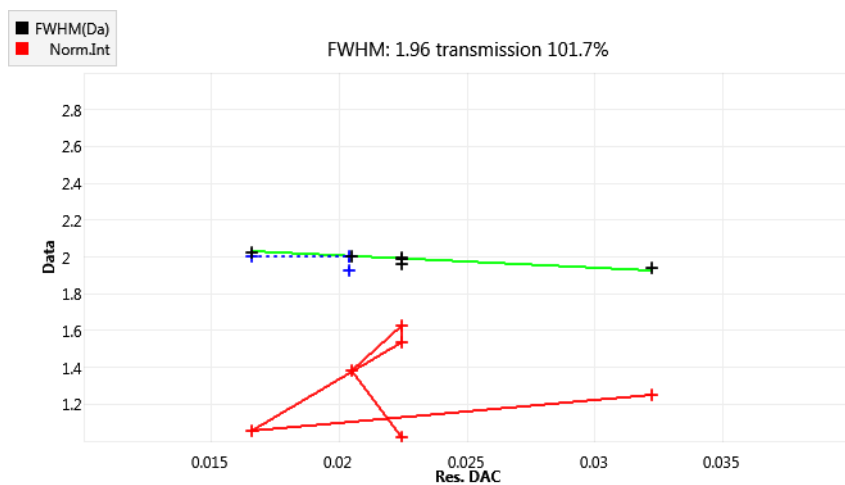
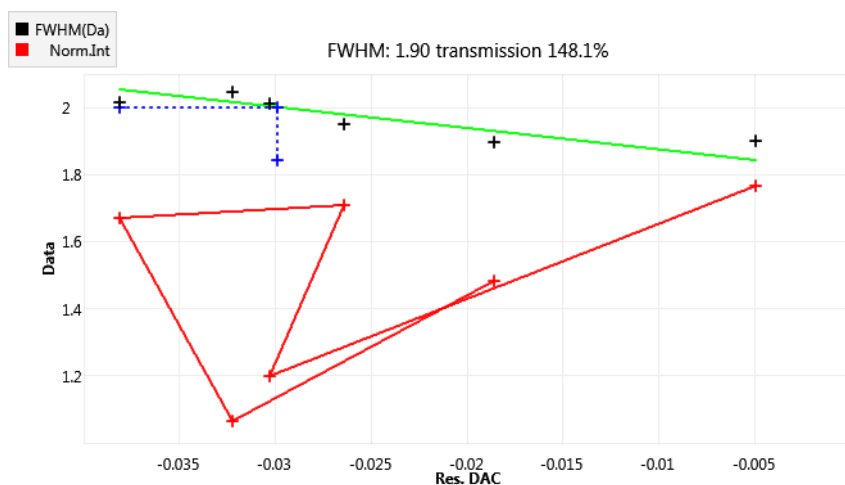
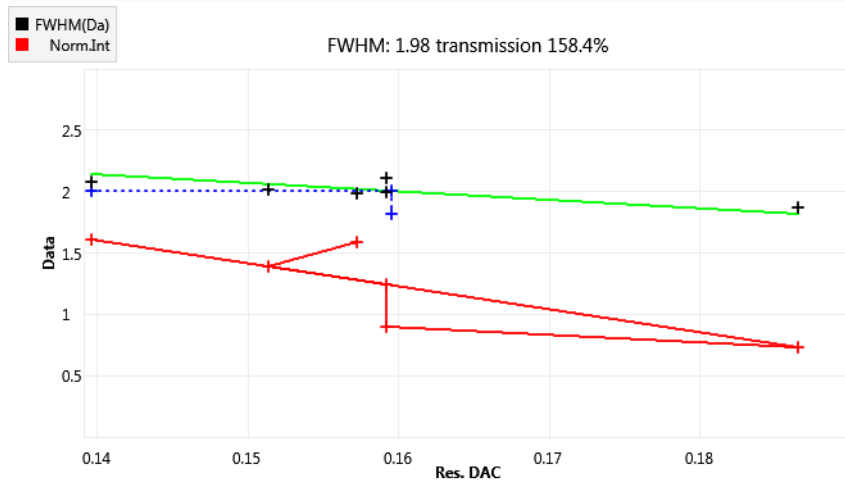
■ Measured profile



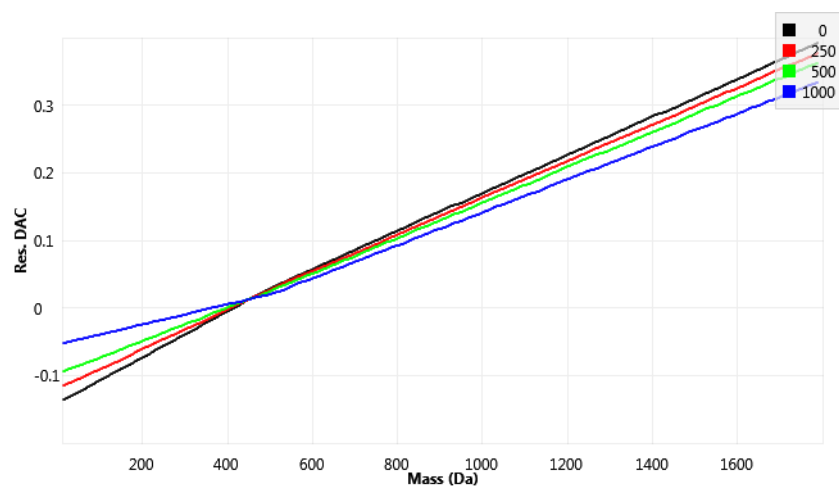
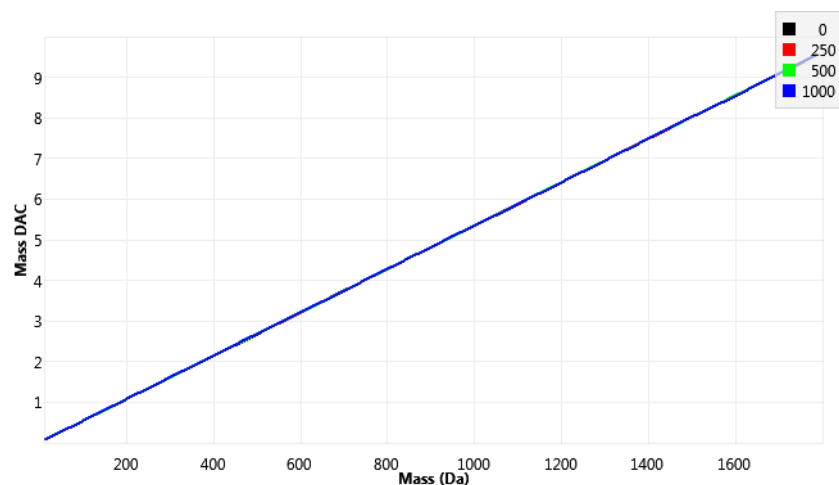
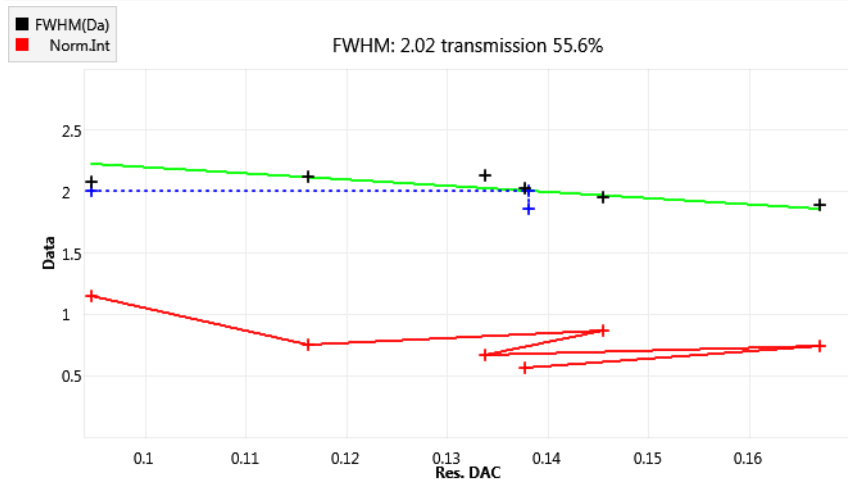
Diagnostic Report



Diagnostic Report



Diagnostic Report



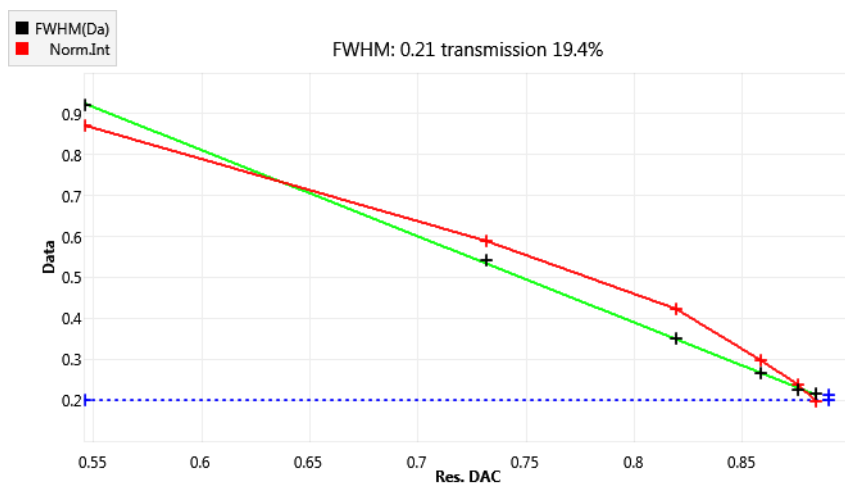
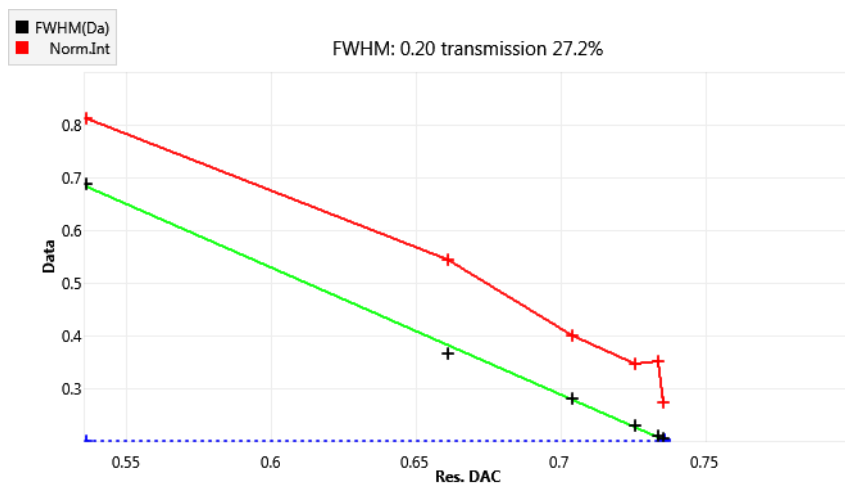
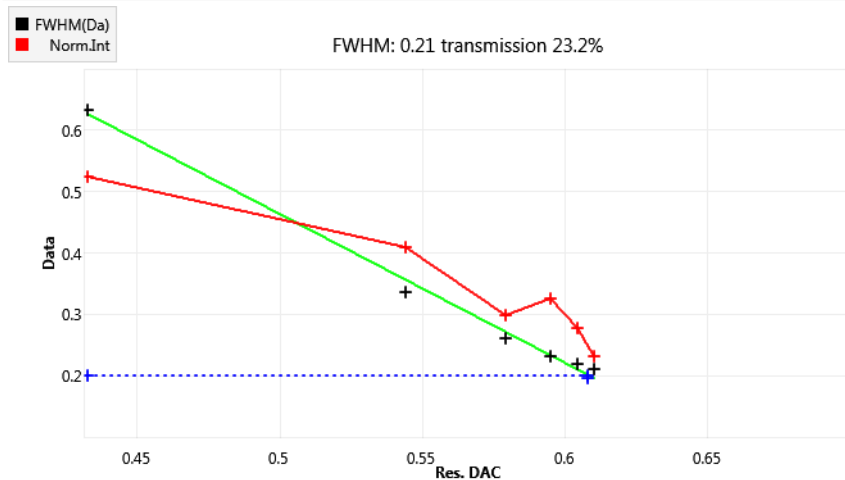
Mass And Resolution Calibration succeeded.

Q3 coarse calibration result:

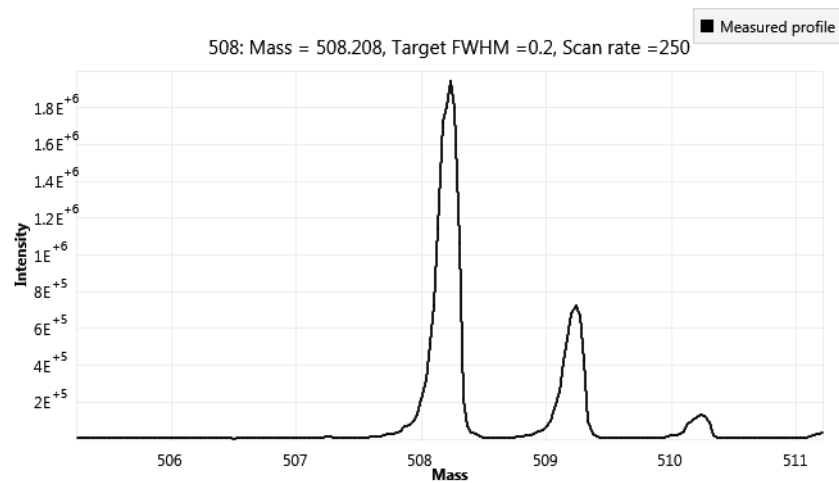
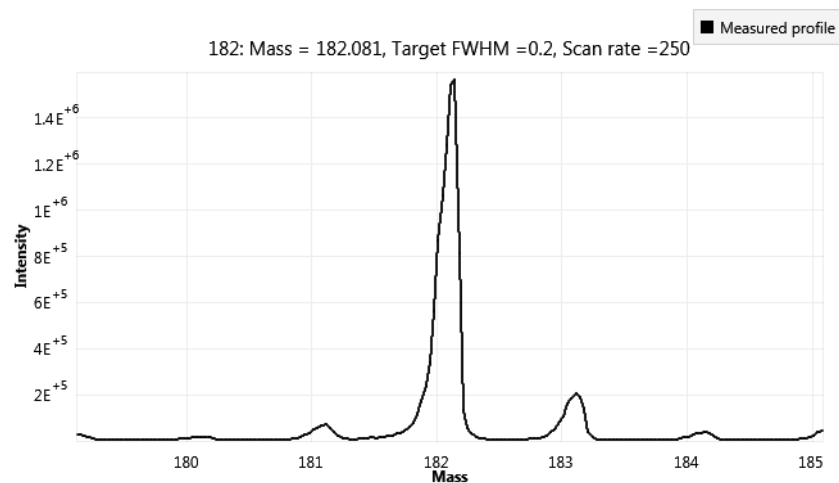
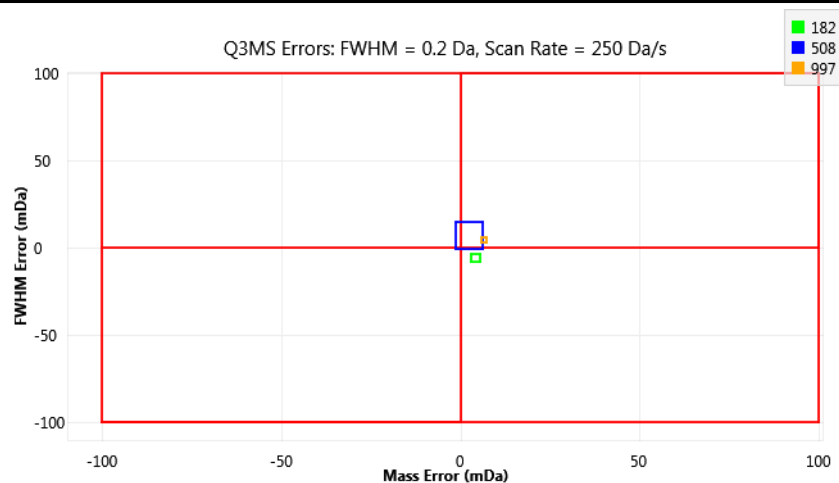
Gain DAC value= 1323

m/z	FWHM
182.08	2.03
508.21	2.26
997.40	2.41

Diagnostic Report

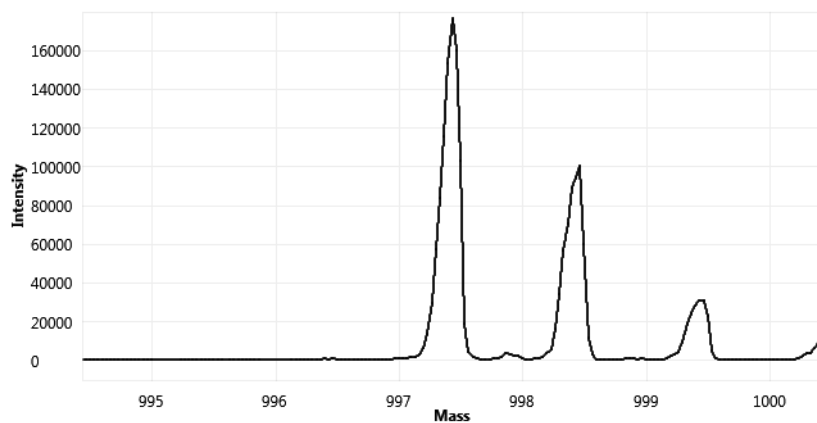


Diagnostic Report



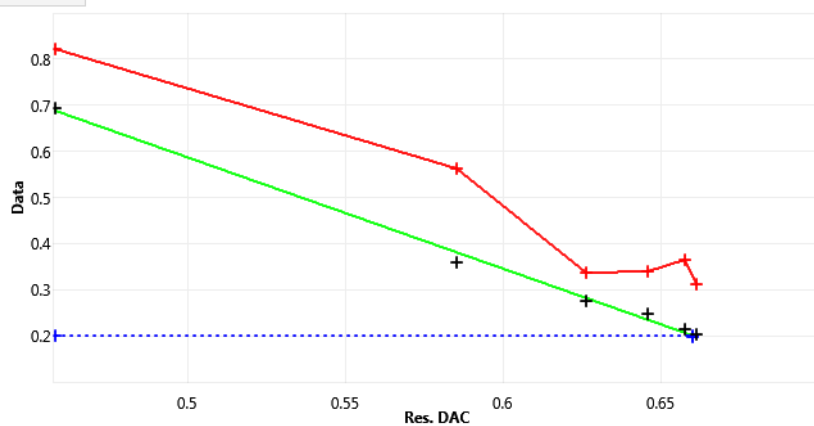
Diagnostic Report

997: Mass = 997.398, Target FWHM = 0.2, Scan rate = 250



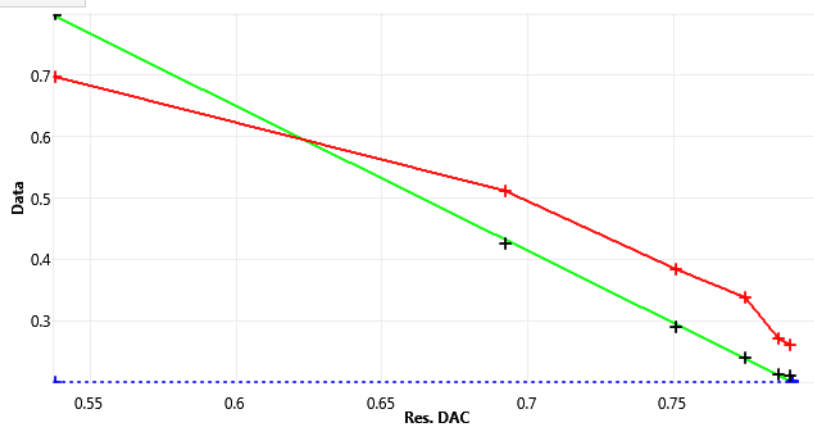
■ FWHM(Da)
■ Norm.Int

FWHM: 0.20 transmission 31.1%

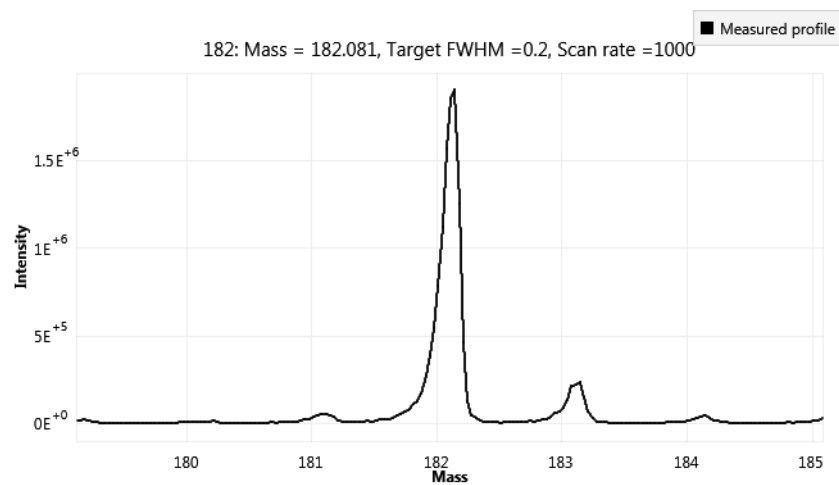
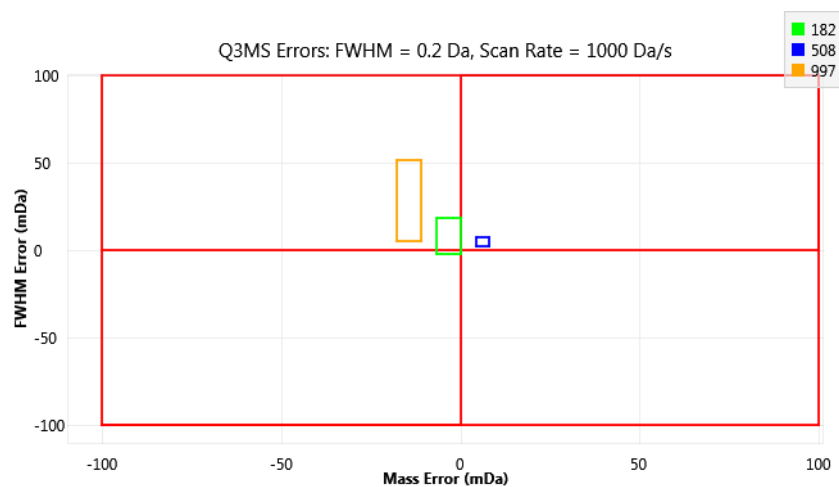
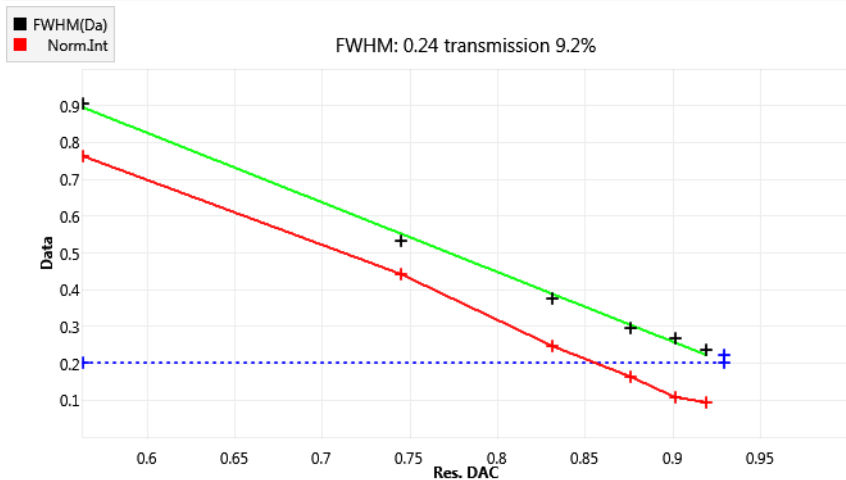


■ FWHM(Da)
■ Norm.Int

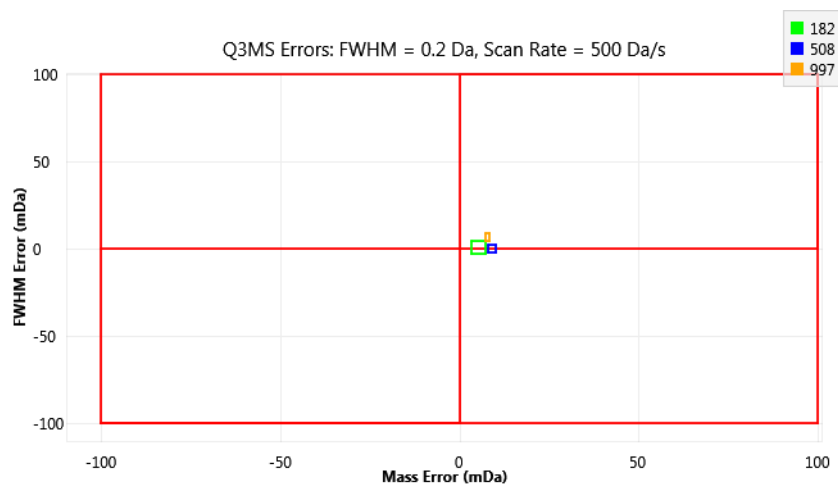
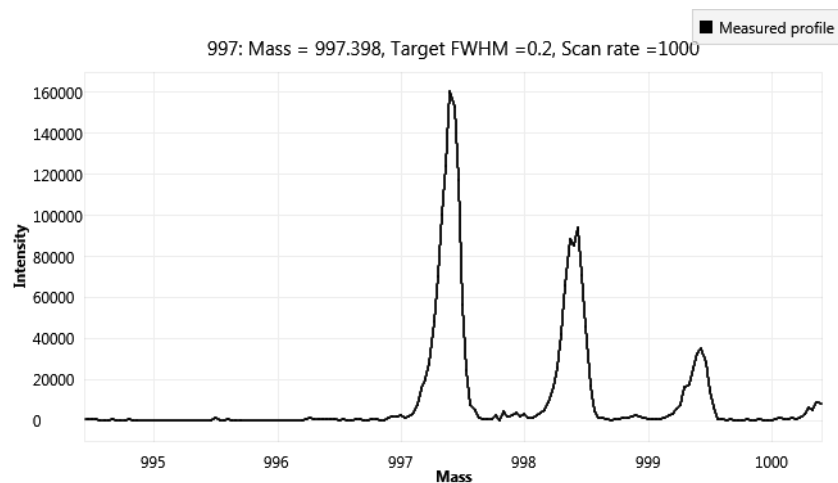
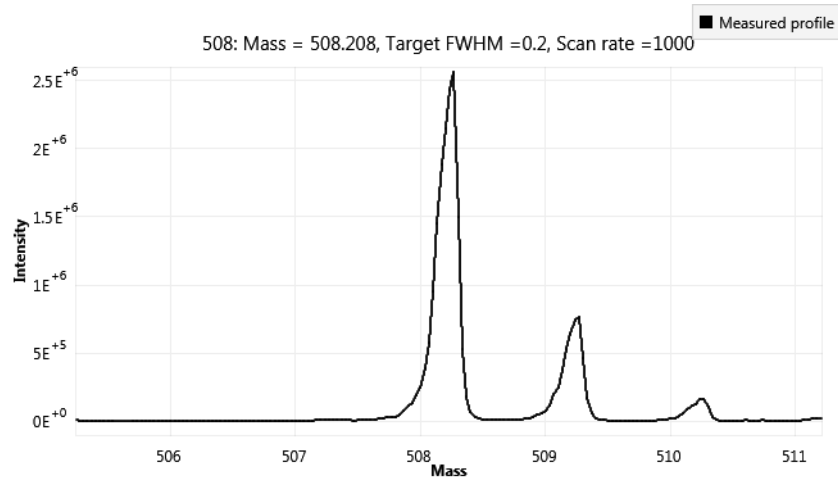
FWHM: 0.21 transmission 26.1%



Diagnostic Report

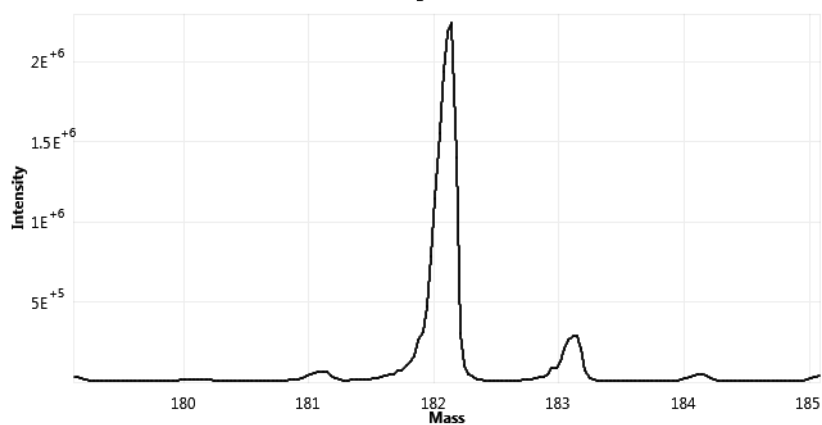


Diagnostic Report

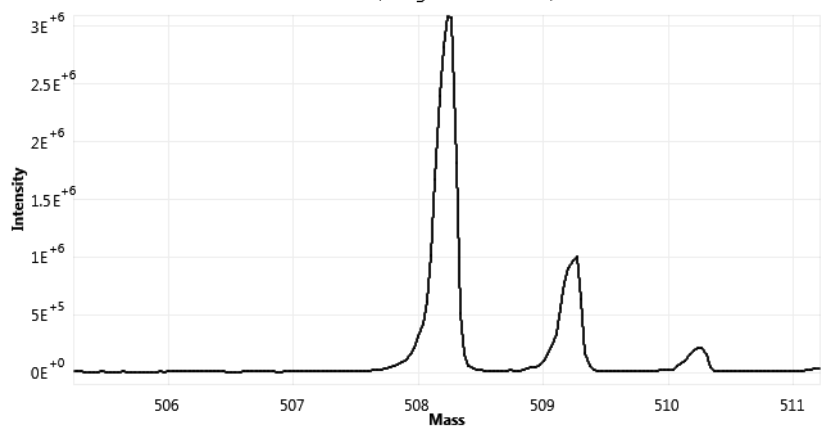


Diagnostic Report

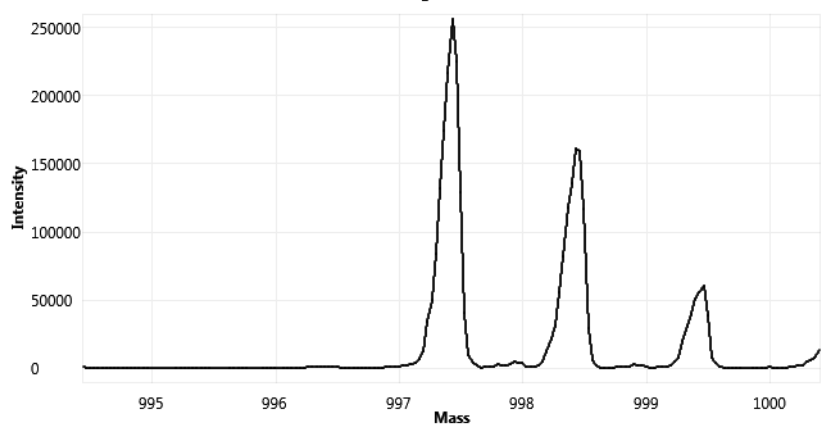
182: Mass = 182.081, Target FWHM = 0.2, Scan rate = 500



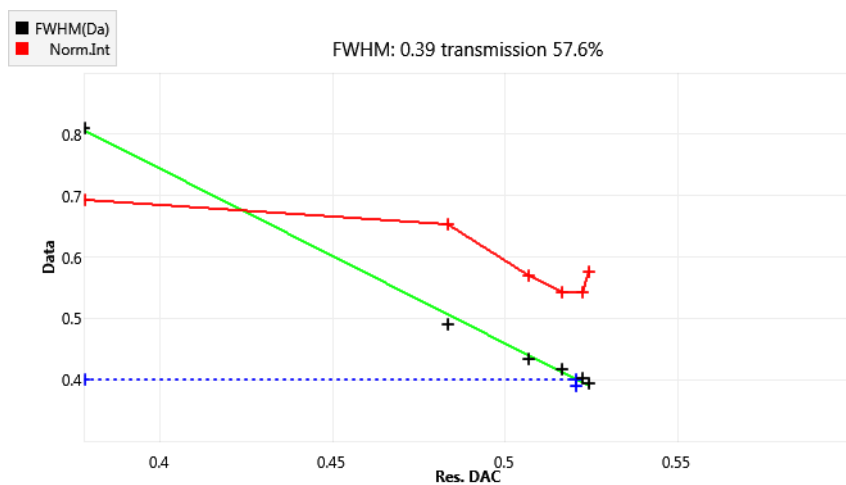
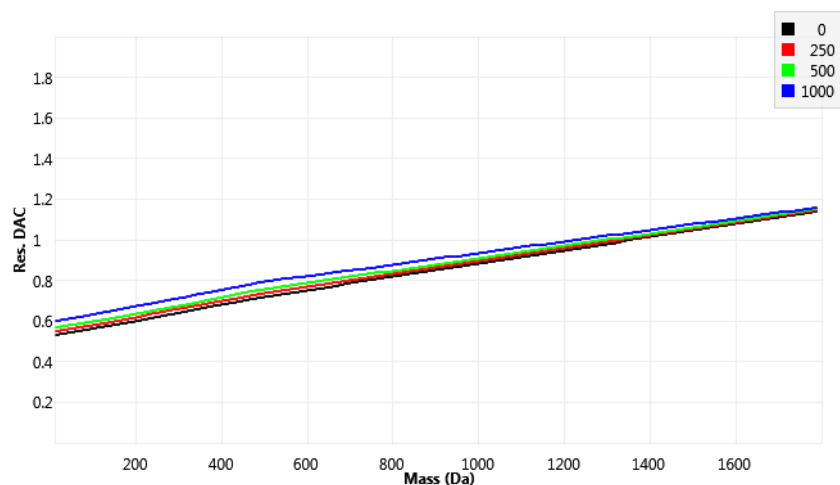
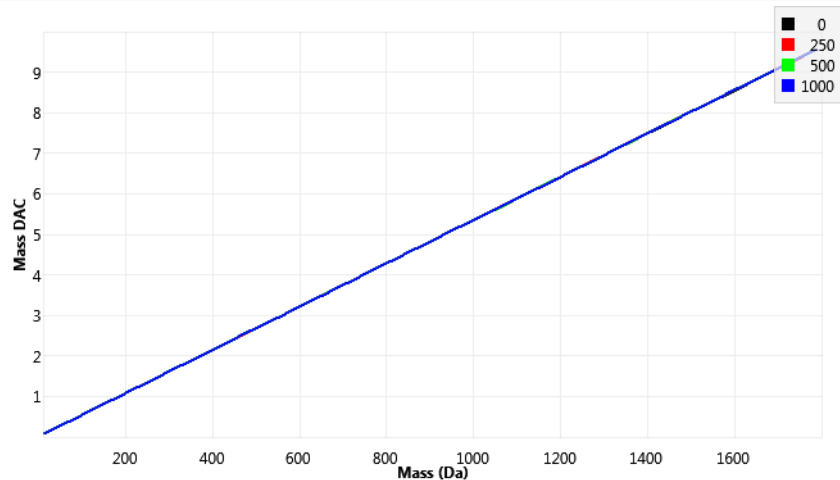
508: Mass = 508.208, Target FWHM = 0.2, Scan rate = 500



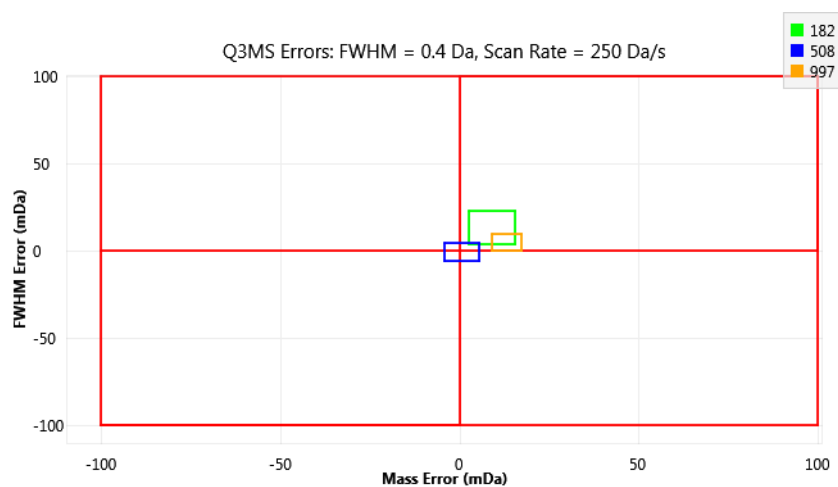
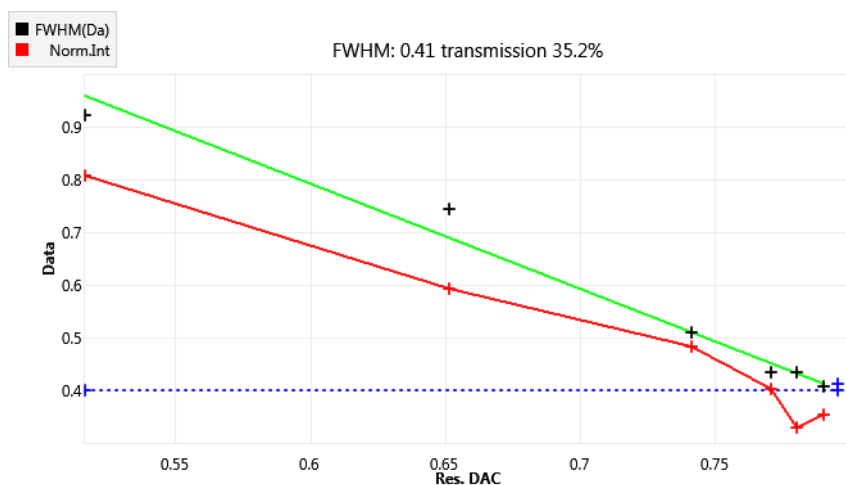
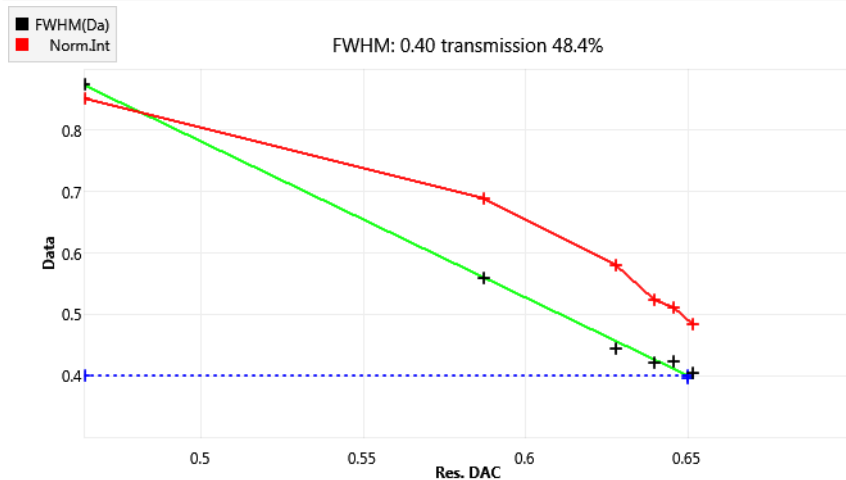
997: Mass = 997.398, Target FWHM = 0.2, Scan rate = 500



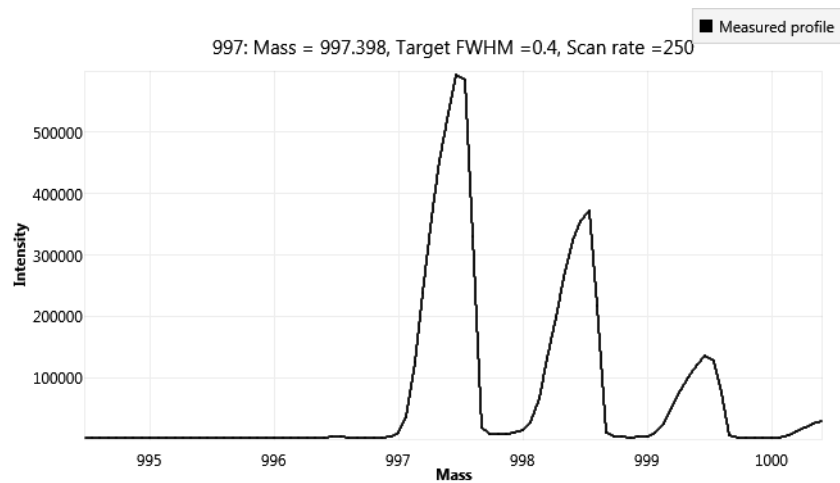
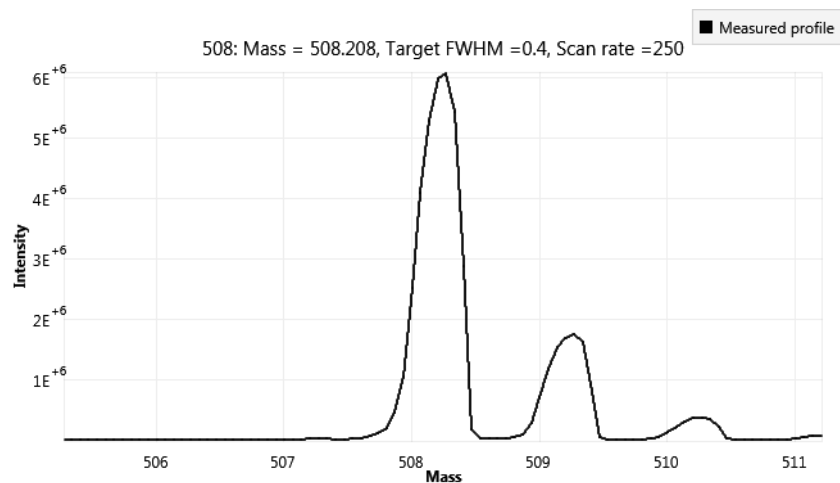
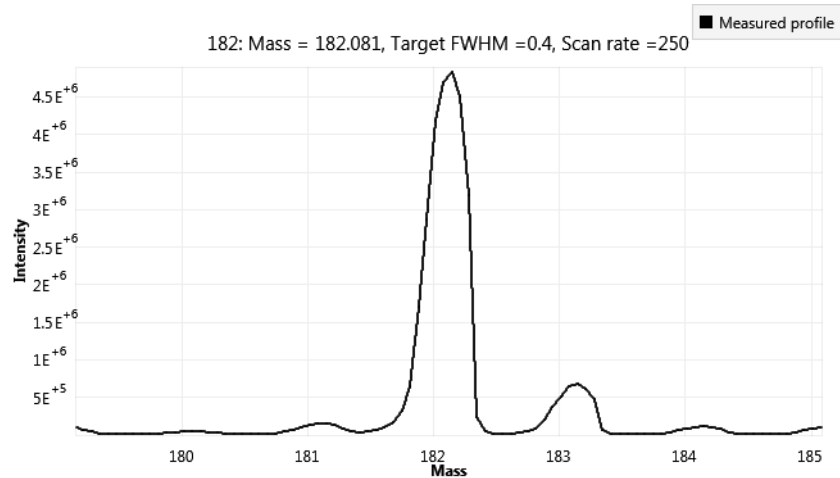
Diagnostic Report



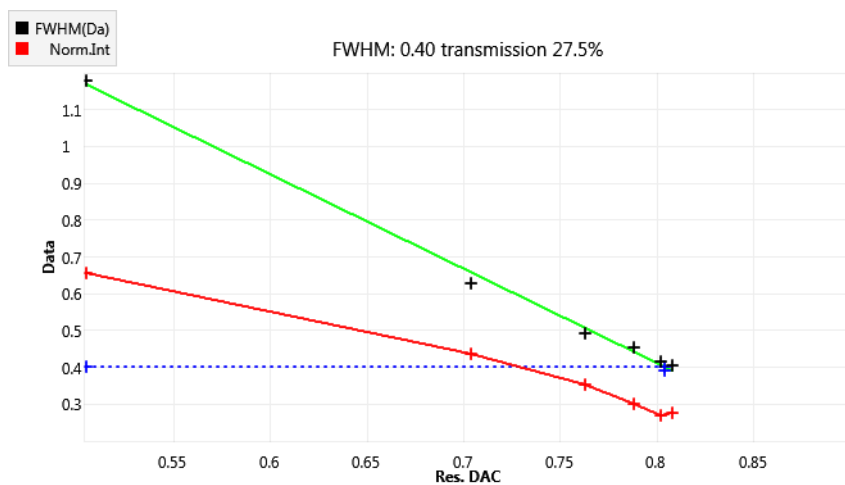
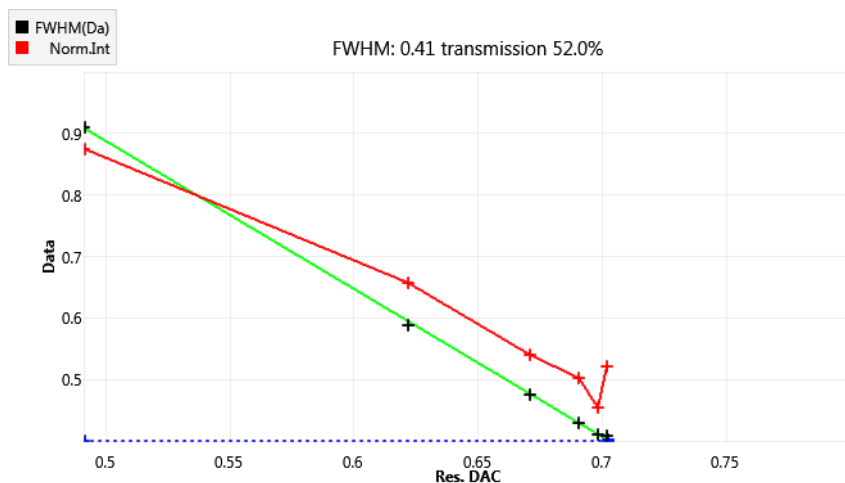
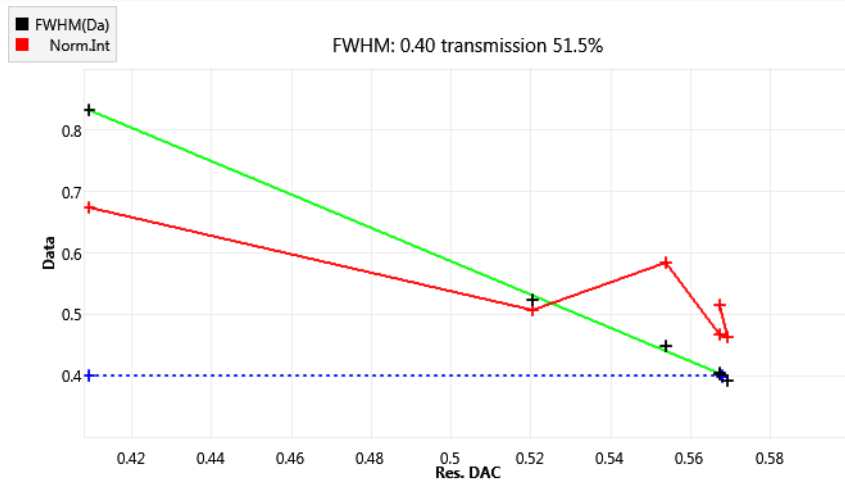
Diagnostic Report



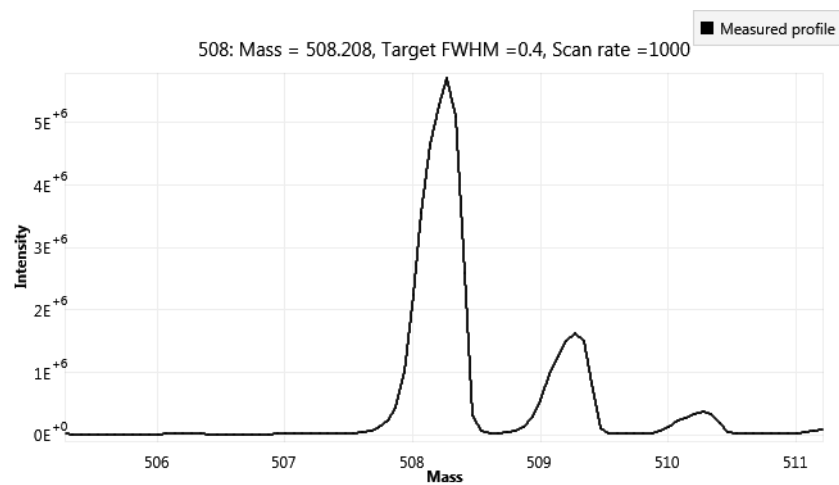
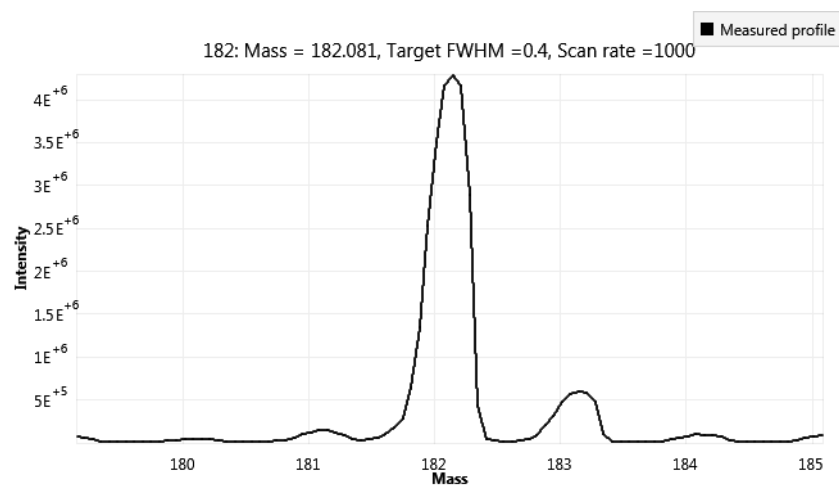
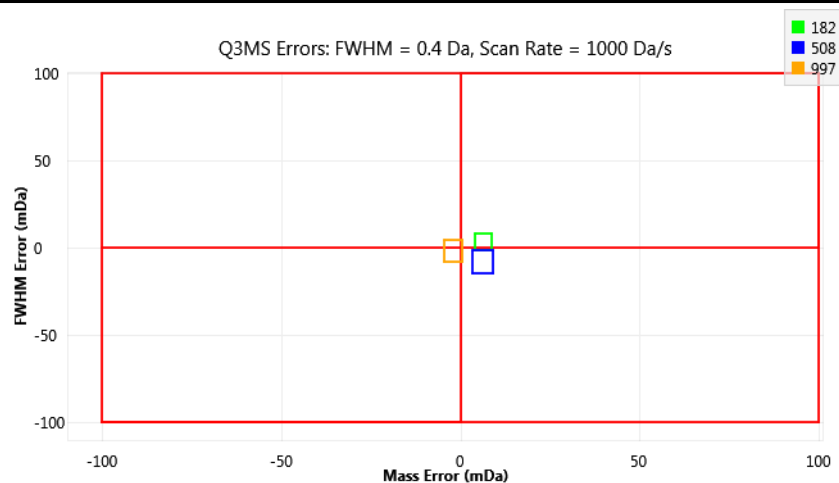
Diagnostic Report



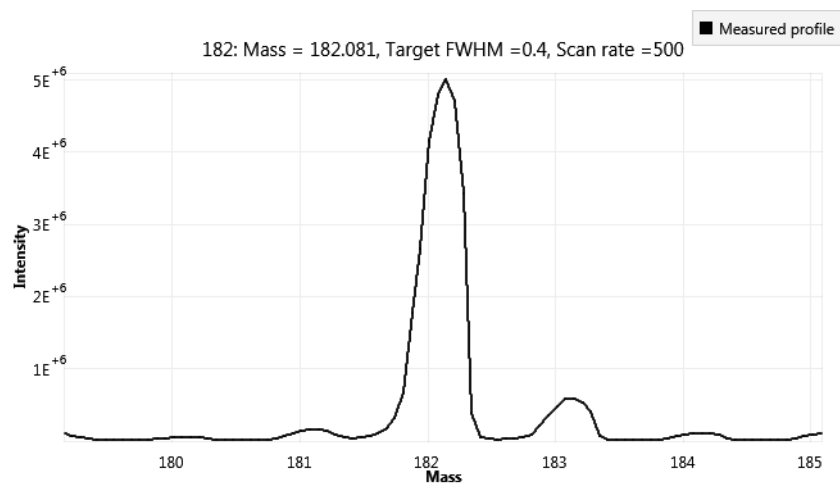
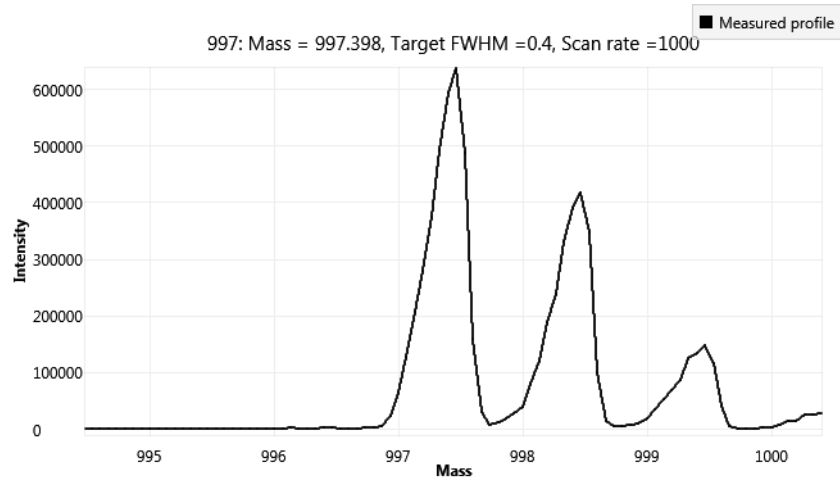
Diagnostic Report



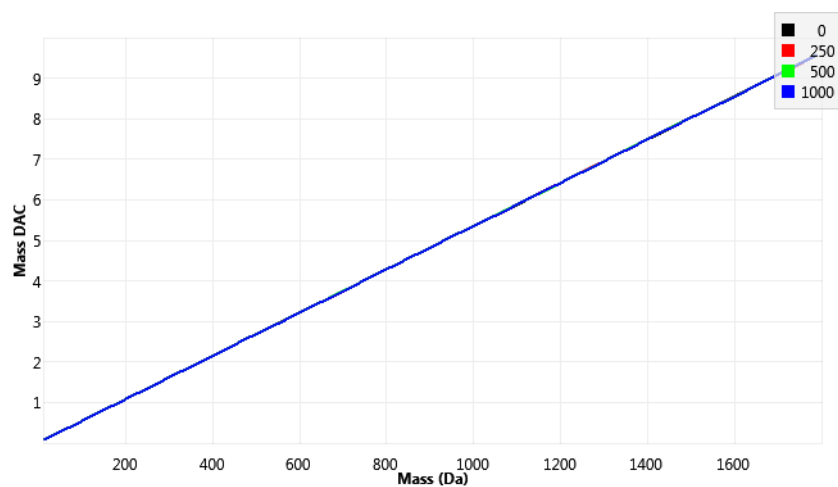
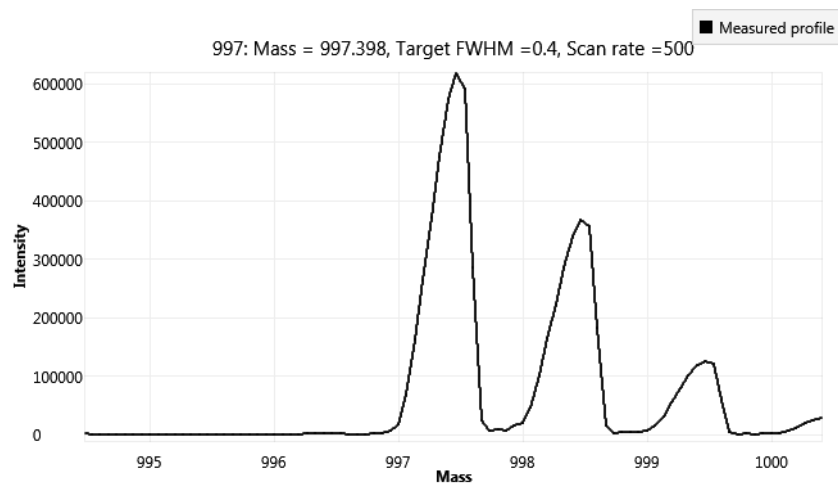
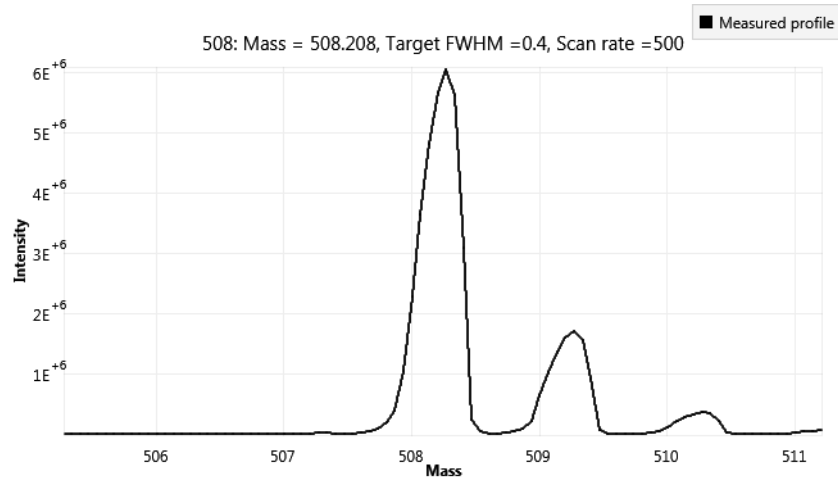
Diagnostic Report



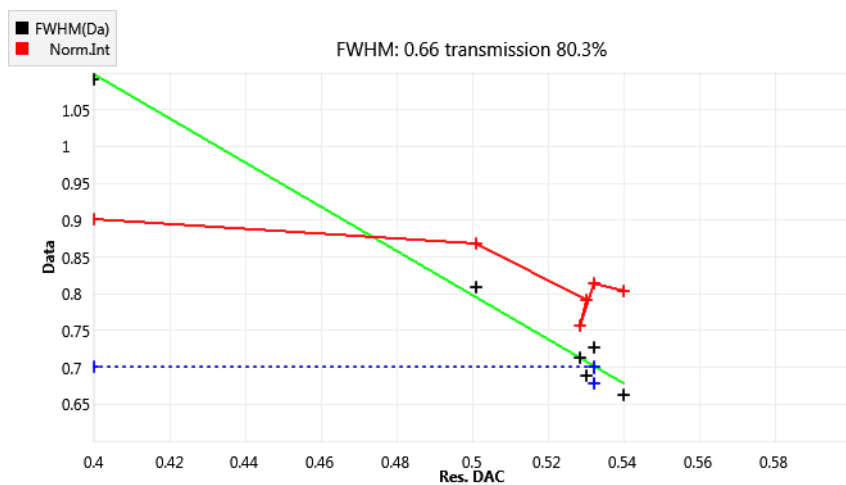
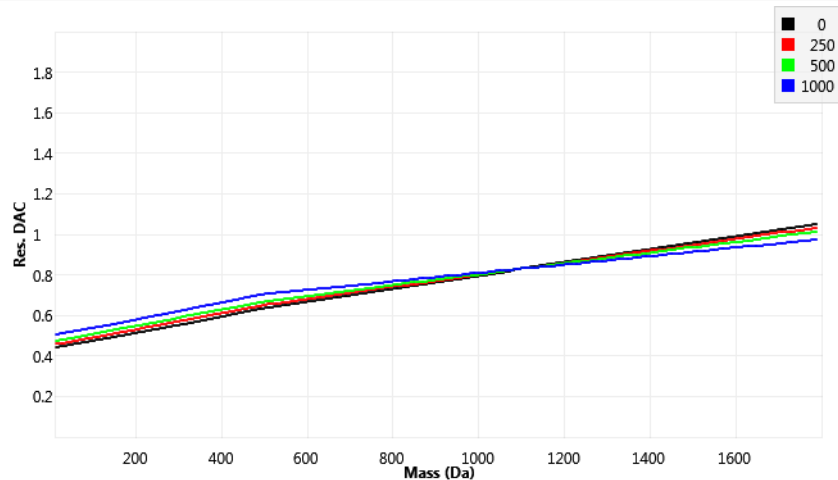
Diagnostic Report



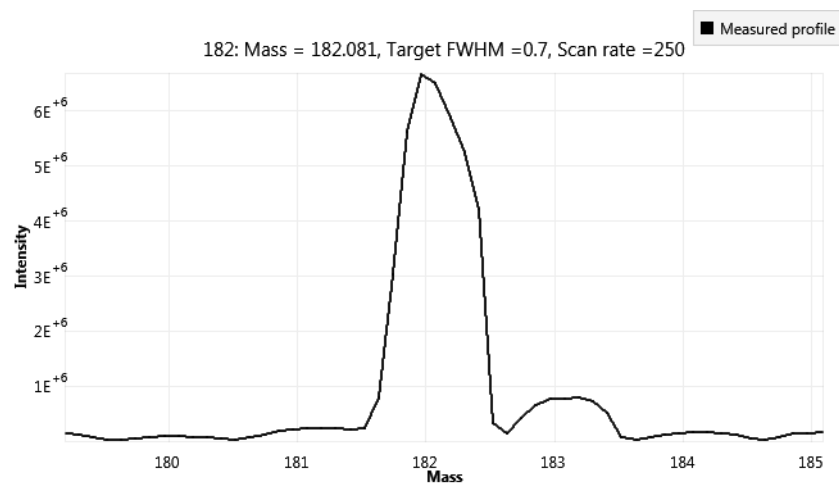
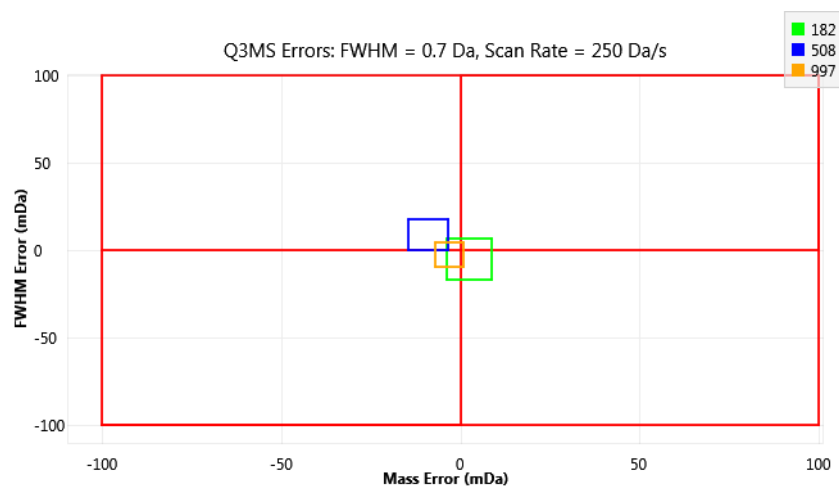
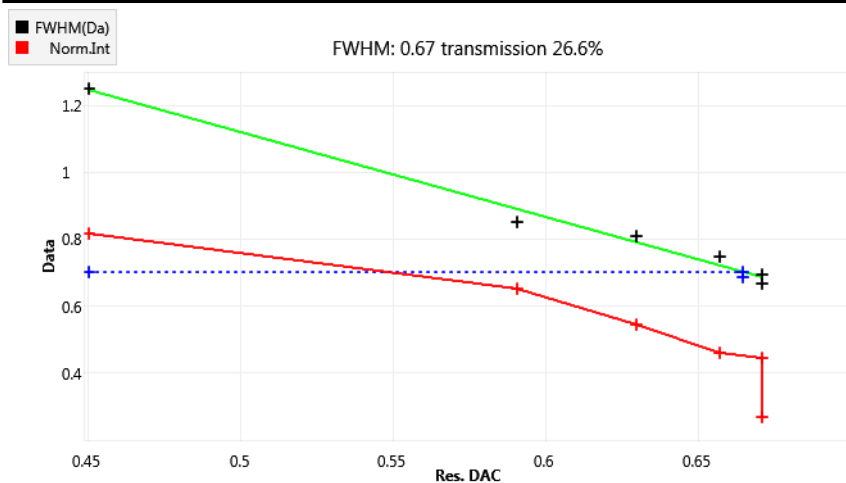
Diagnostic Report



Diagnostic Report



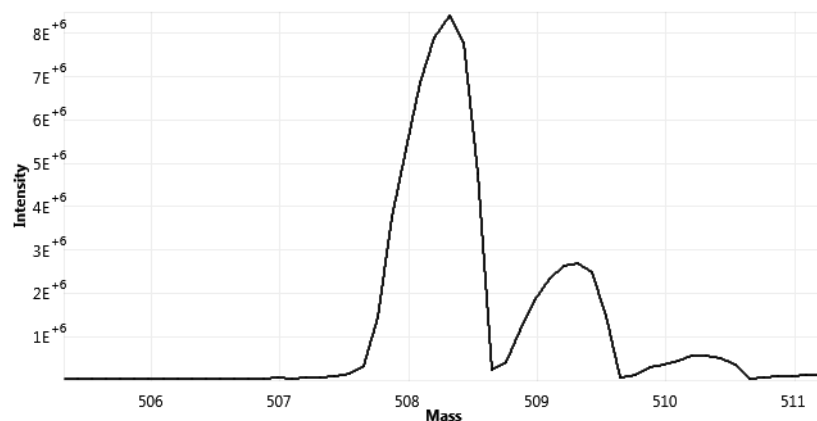
Diagnostic Report



Diagnostic Report

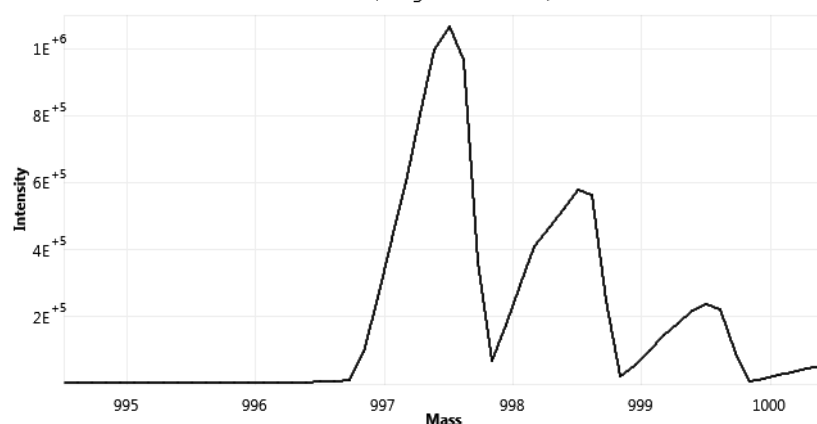
508: Mass = 508.208, Target FWHM = 0.7, Scan rate = 250

■ Measured profile



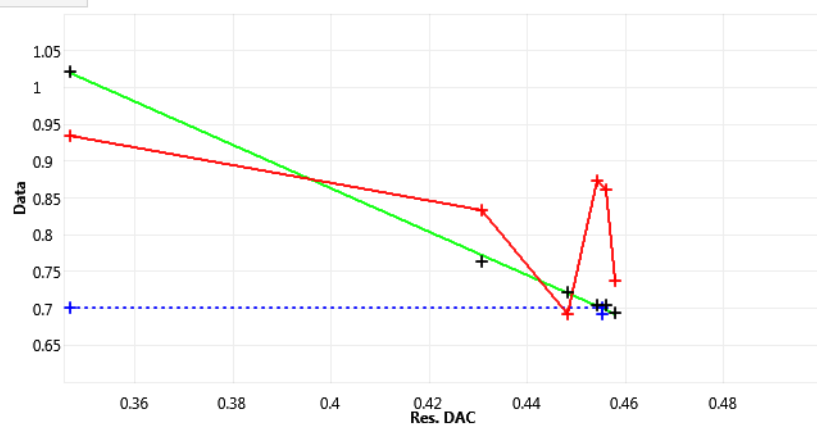
997: Mass = 997.398, Target FWHM = 0.7, Scan rate = 250

■ Measured profile

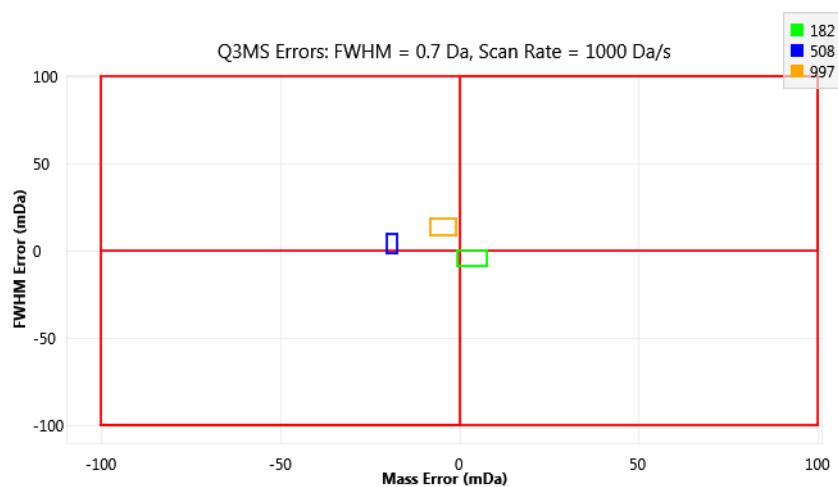
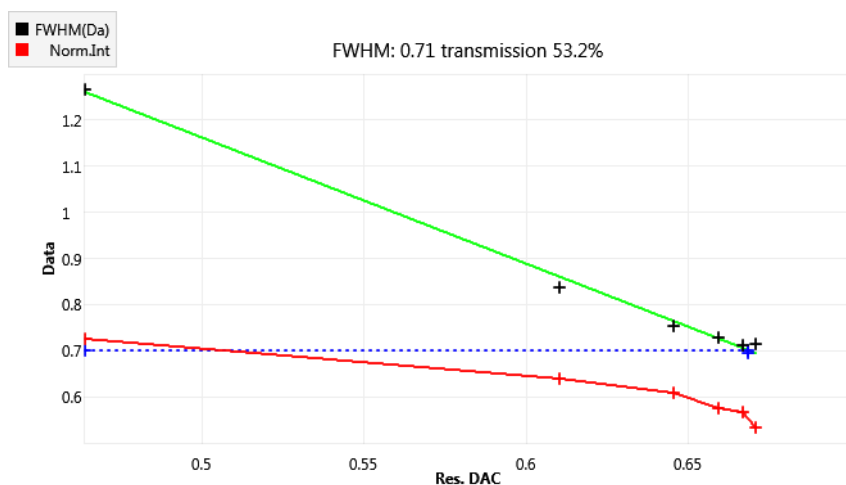
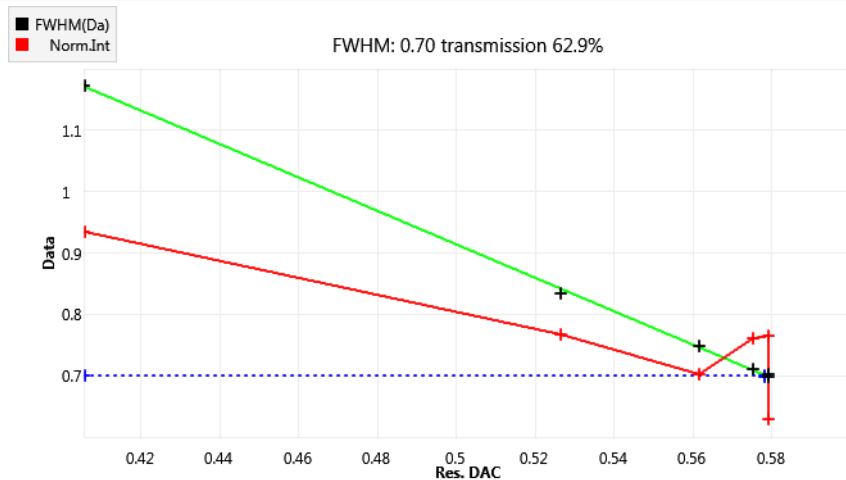


FWHM: 0.69 transmission 73.7%

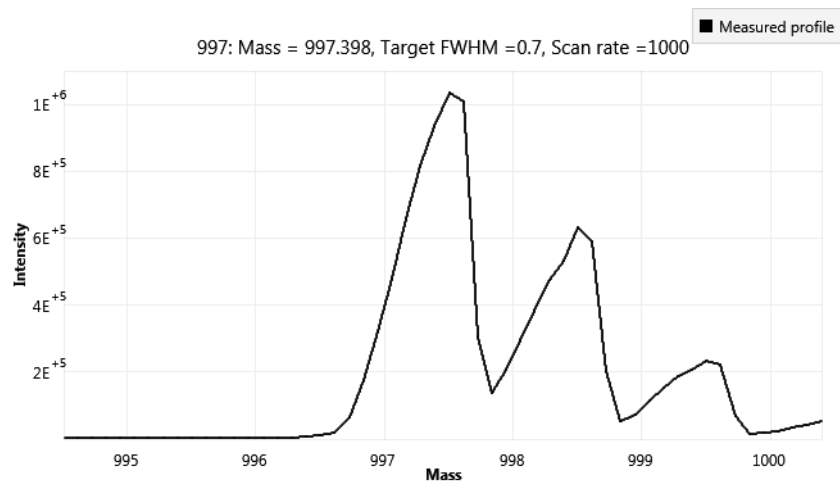
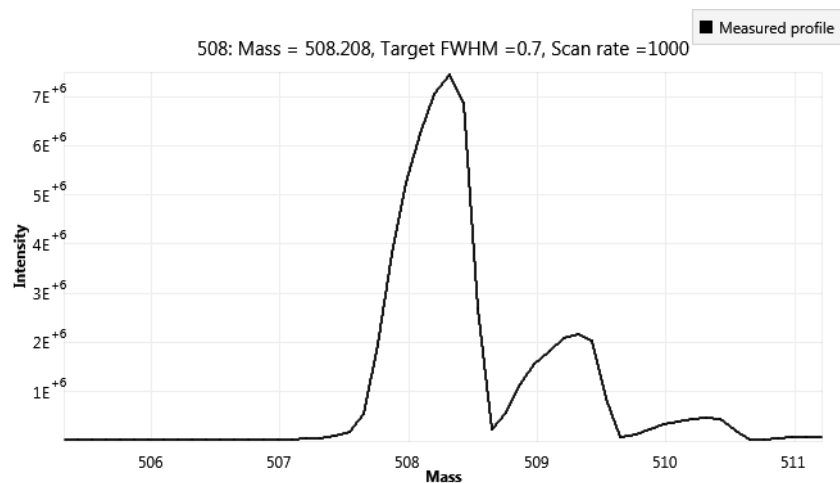
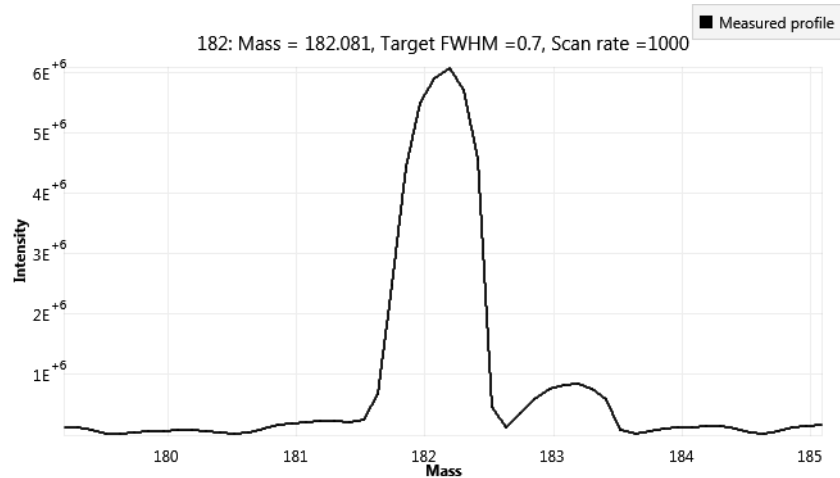
■ FWHM(Da)
■ Norm.Int



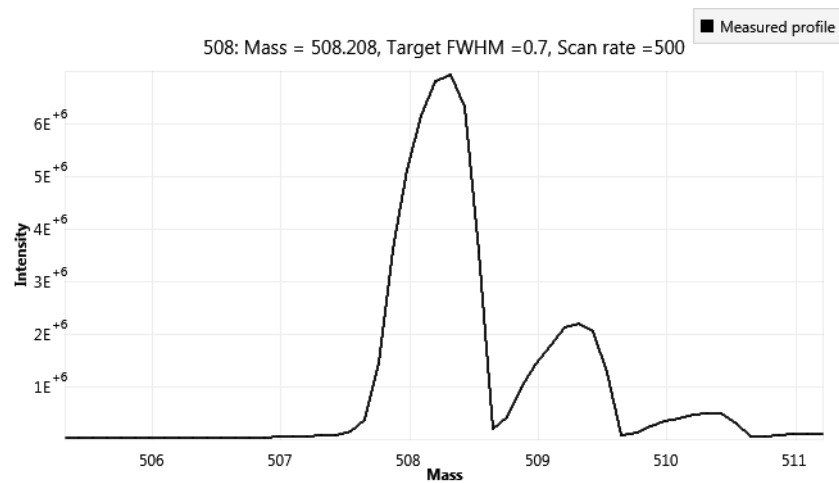
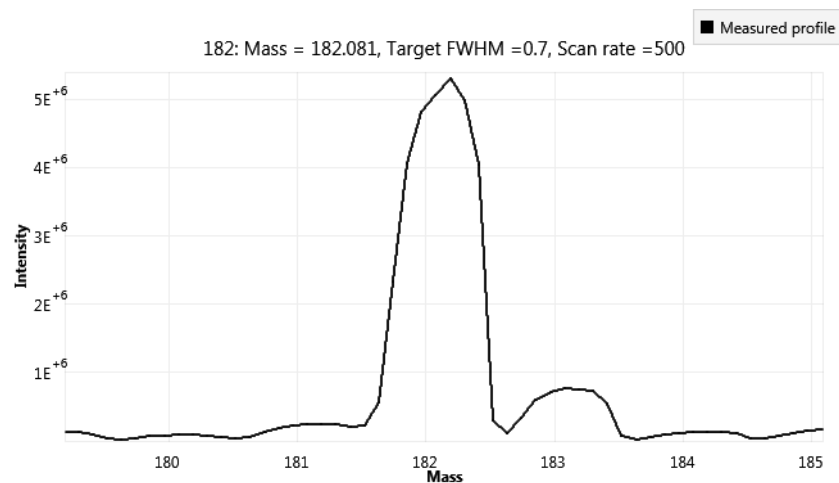
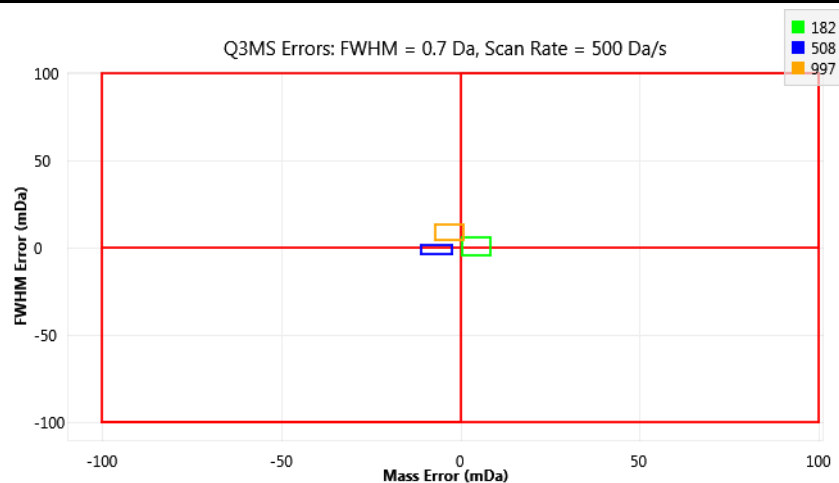
Diagnostic Report



Diagnostic Report

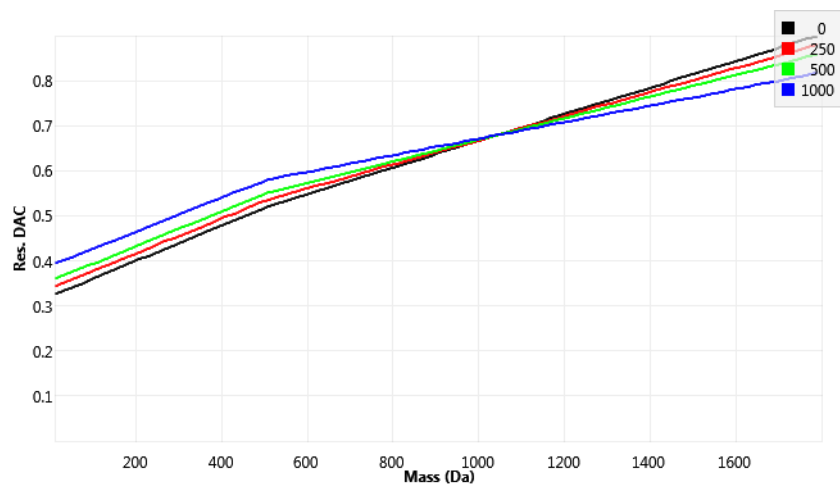
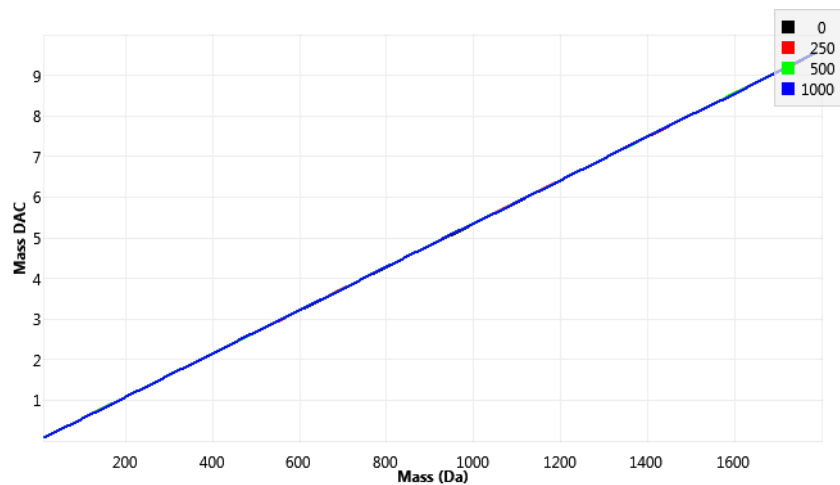
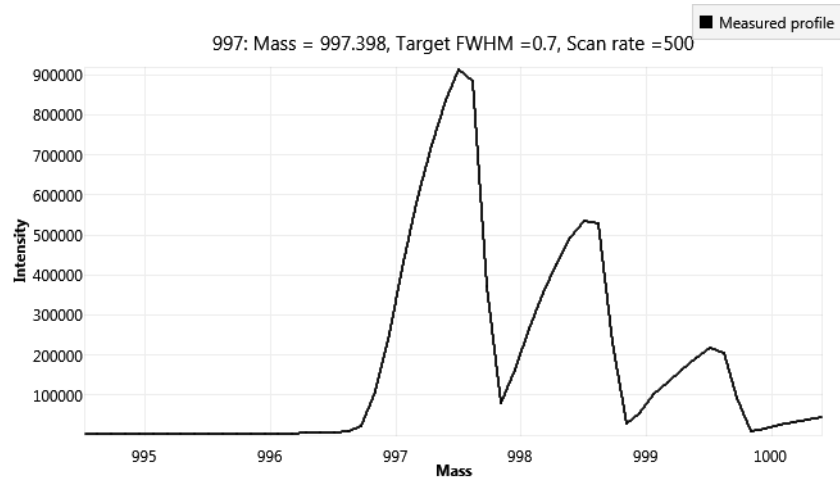


Diagnostic Report

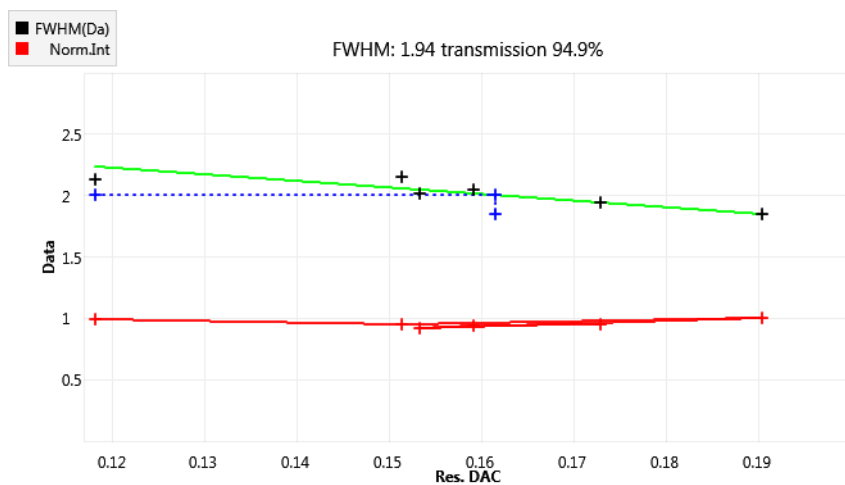
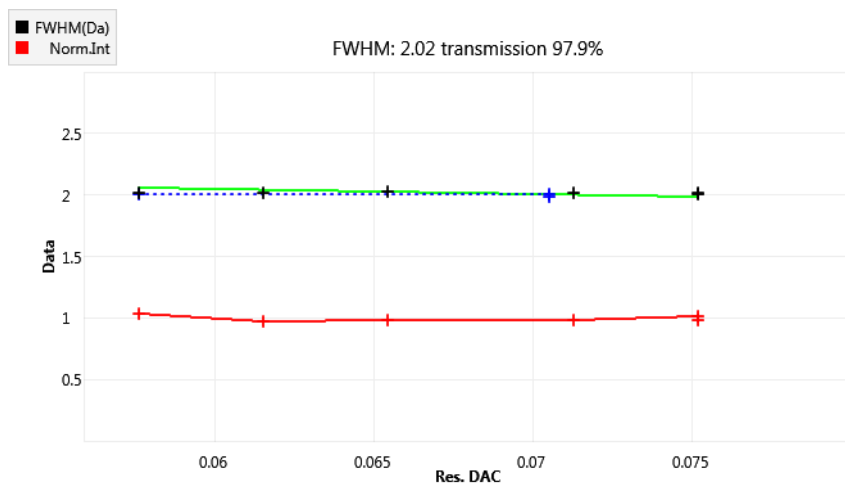
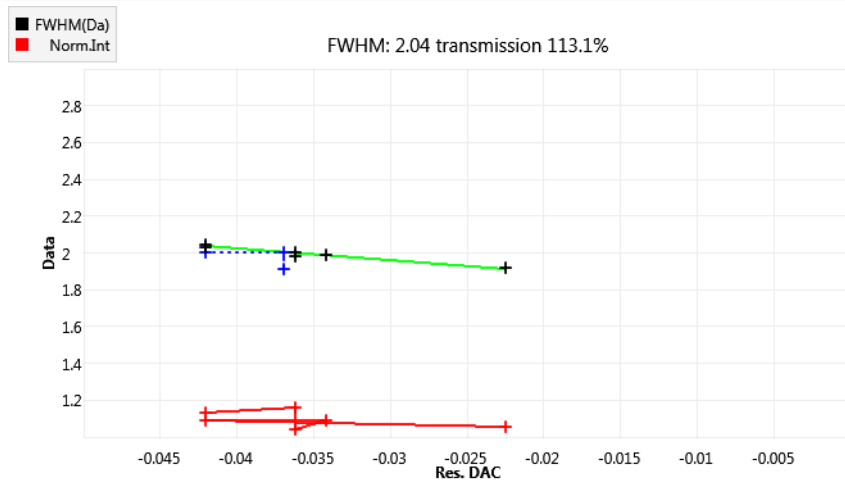


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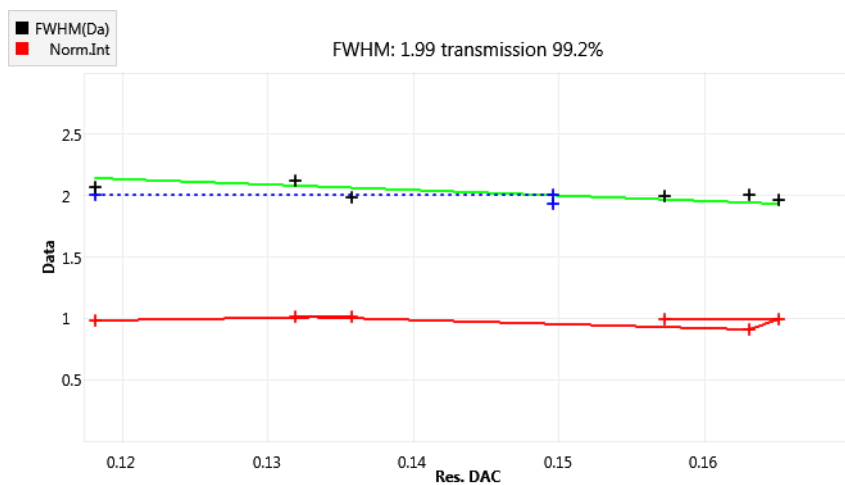
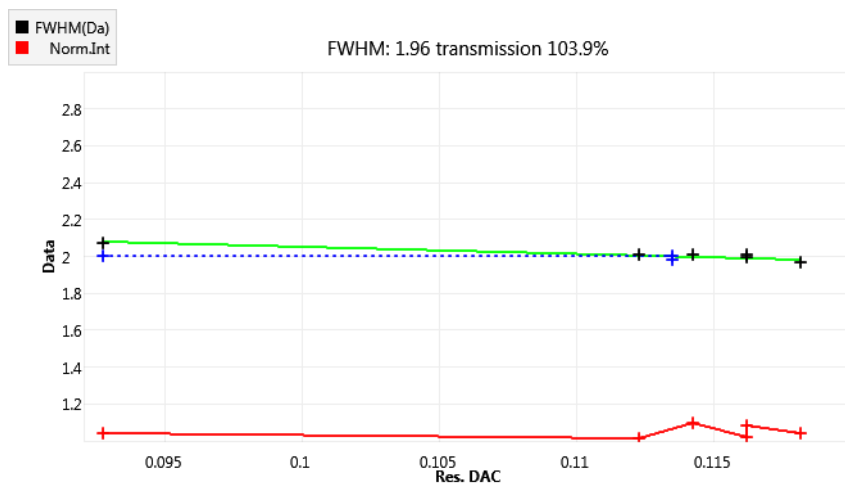
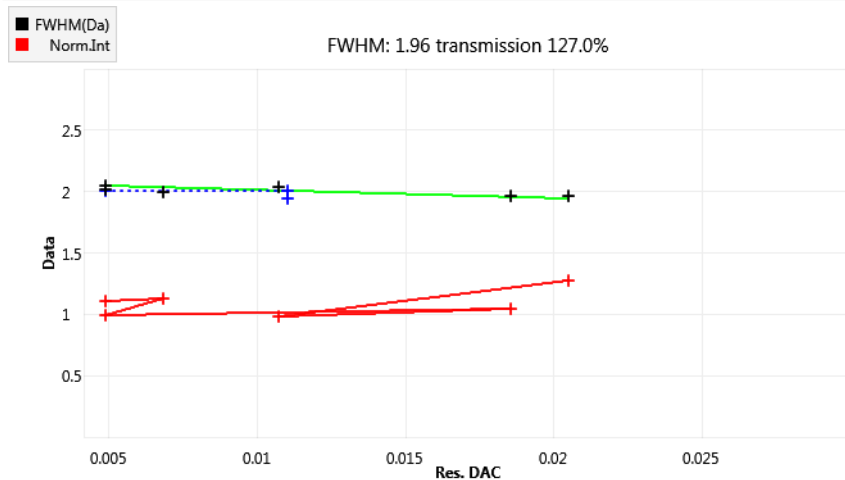
997: Mass = 997.398, Target FWHM = 0.7, Scan rate = 500



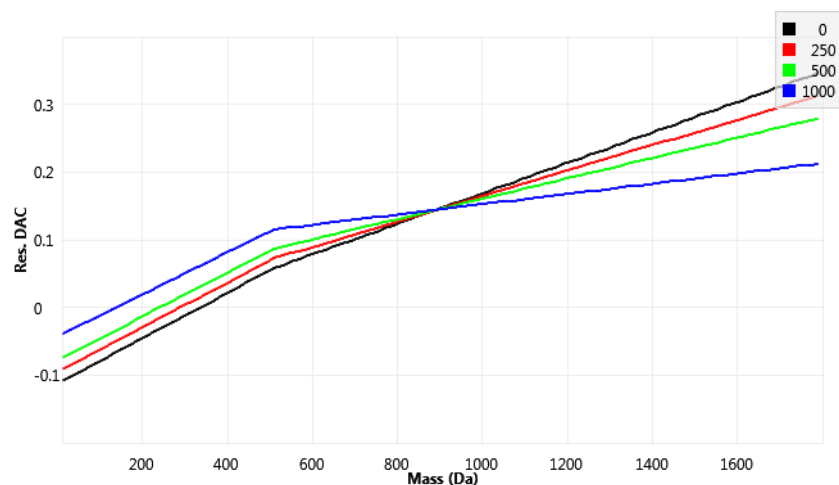
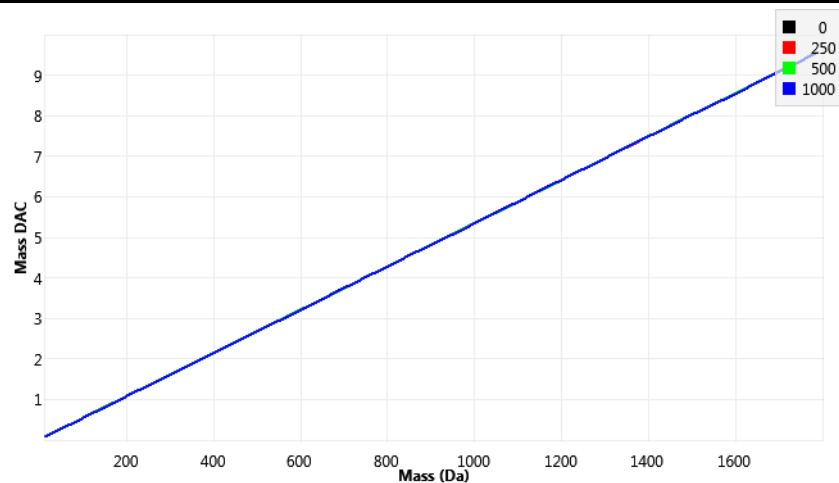
Diagnostic Report



Diagnostic Report

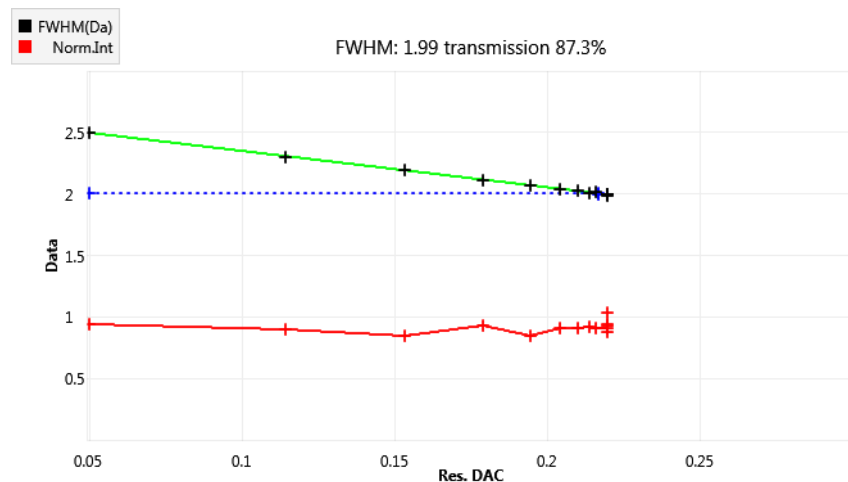


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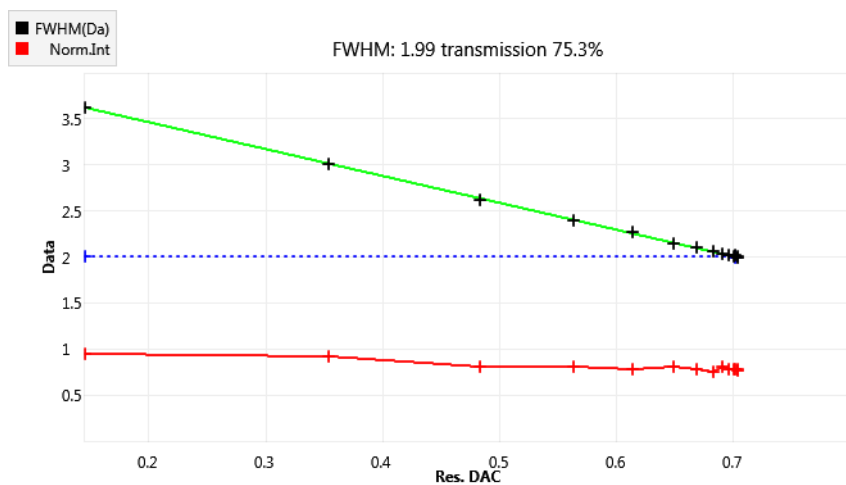
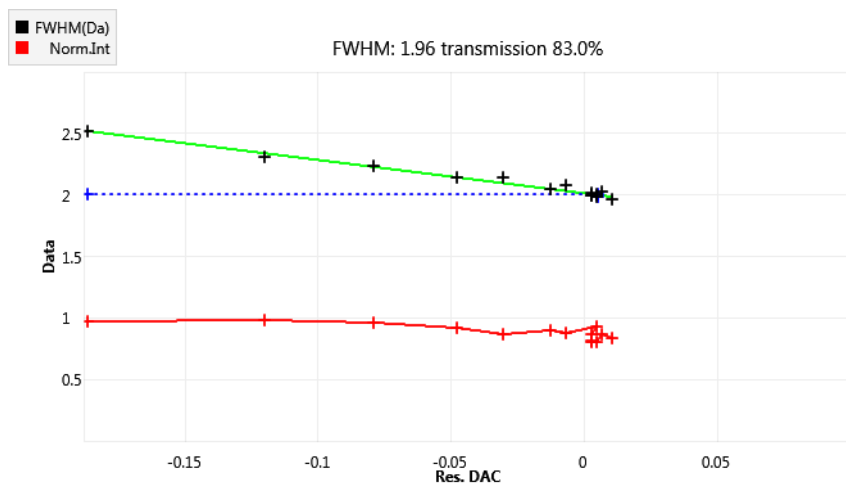
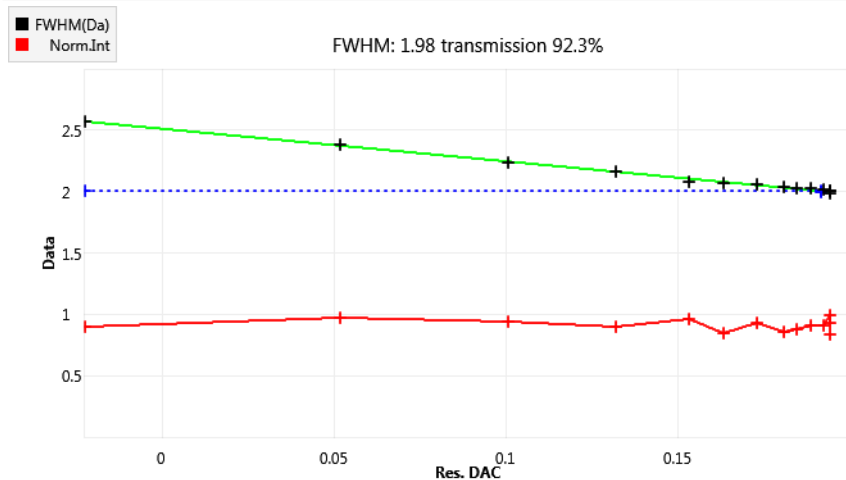


Mass And Resolution Calibration succeeded.

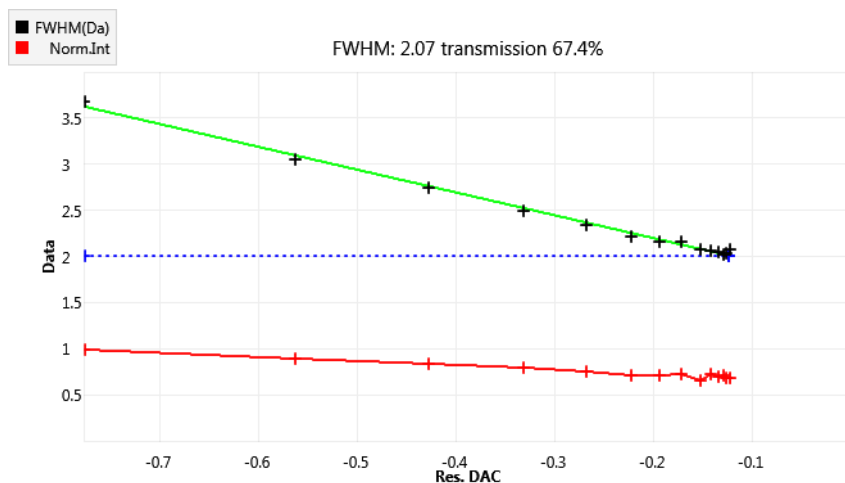
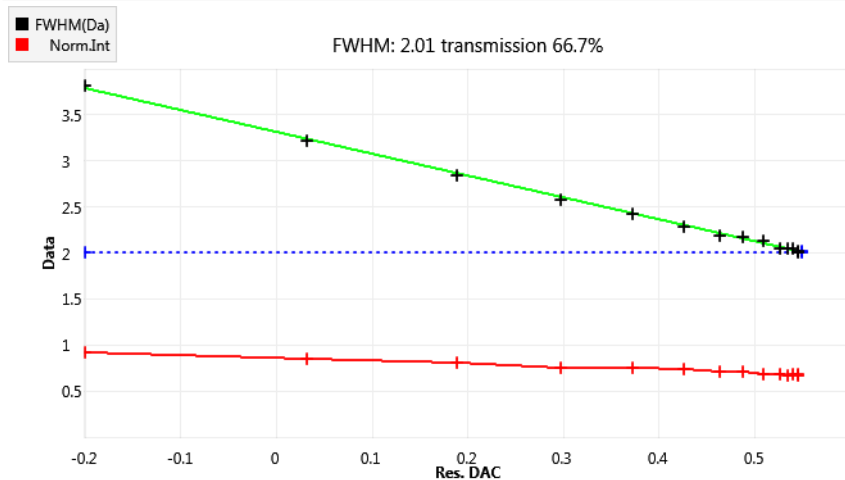
=====
====Extra High Scan Rate Calibration Start=====



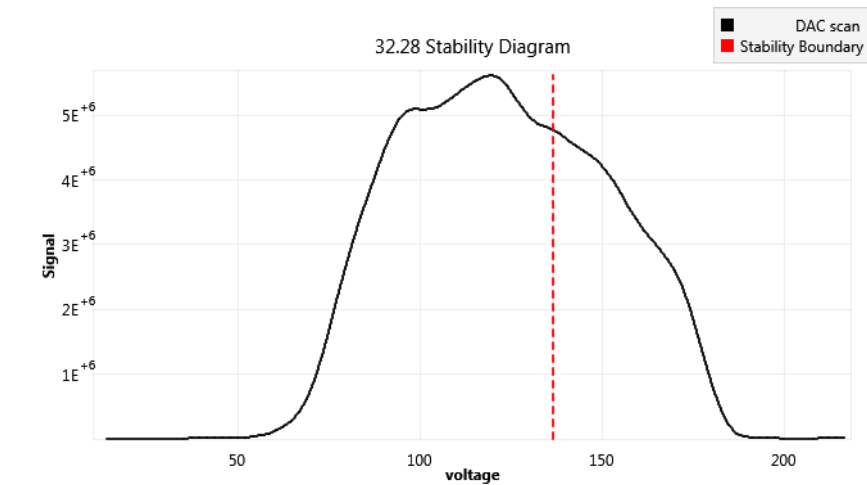
Diagnostic Report



Diagnostic Report



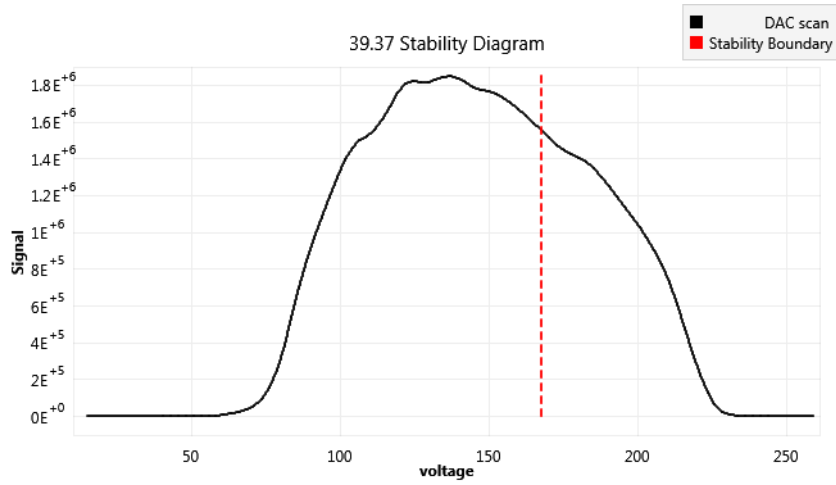
Extra high scan rate calibration passed



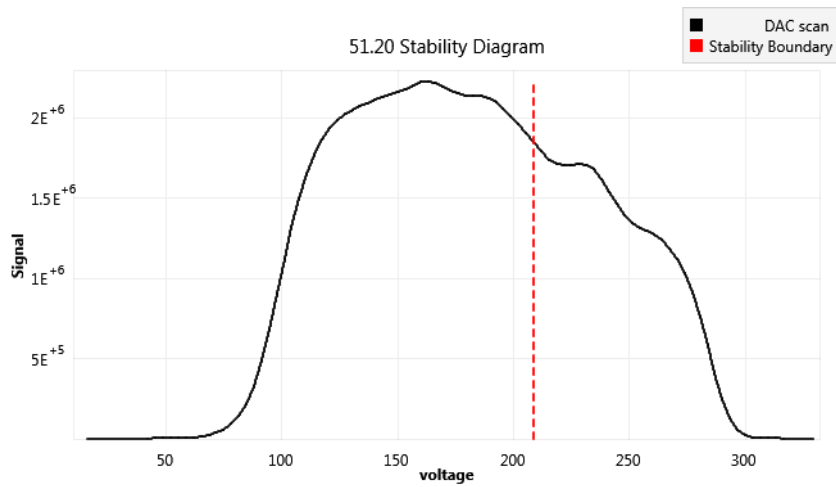
Q2 AMP mass to V

```
=====
mass  voltage
-----
32.28 136.38
```

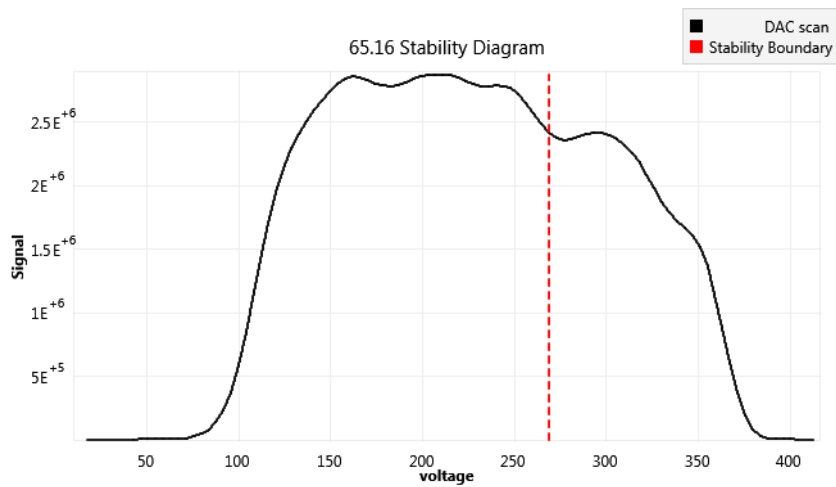
Diagnostic Report



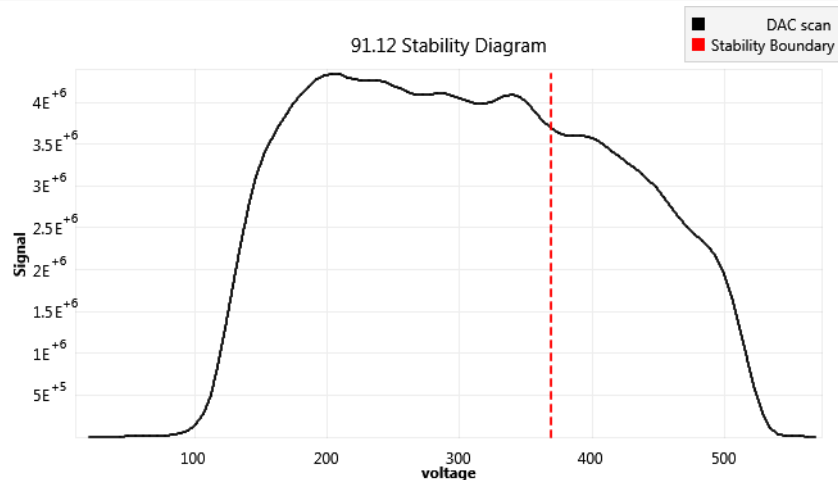
39.37 167.59



51.20 208.91

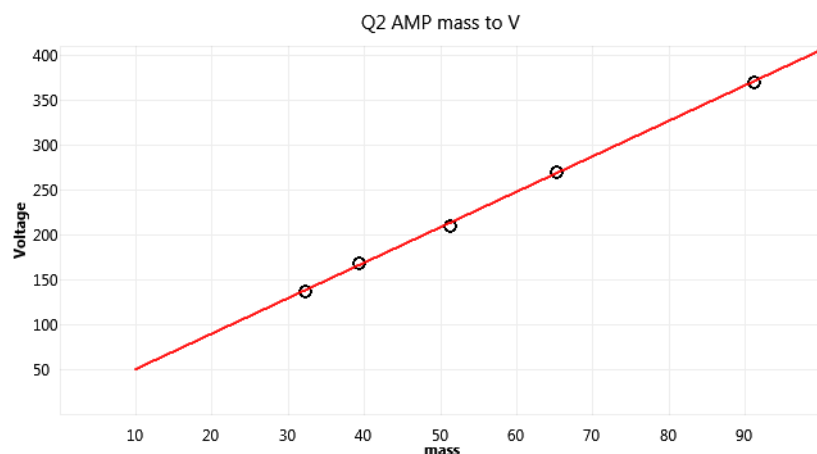


65.16 269.02



91.12 369.18

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System Configuration:

DevMode	false
BreadboardDevMode	false
SetAnalogChannelEnabled(0, false)	
SetAnalogChannelEnabled(1, false)	
DivertValveConfig	1
SyringePumpConfigured	true
ContactClosureConfig	0
CIDGasType	0
WaitForGasFlowsToStabilize	true
WaitForTemperaturesToStabilize	true
DisableRunCheck	false
KeepLastMethodSettings	true
SetDivertValveSerialNumber("A", "1245")	
SetDivertValveSerialNumber("B", "4567")	
ActiveSourceType	1
InstalledSourceType	1
EnableSweepGasForNSISource	true
LockMassSourceConfigured	false

Serial Number: TQH-Q1-0576

Signature:

Monday, February 20, 2017 10:16 AM

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ETDSourceConfigured	false
EnableIonGaugeCheck	true
EnableVacuumCheck	true
EnableTurboCheck	true
EnableBoardIdentification	true
EnableIonSourceIdentification	true
LowConvectronGaugePressureWarning	true
LowSheathGasFlowWarning	true
LowAuxGasFlowWarning	true
LowSweepGasFlowWarning	true
LowCollisionGasFlowWarning	true
CurrentCalMix	0

Embedded System Information:

Acquisition Driver	2015-0830-0002
Acquisition Driver	2015-0830-0002
DSP Driver	2015-0830-0002
DSP Driver	2015-0830-0002
DSP Image	02.00.046.2 20150830
DSP Image	02.00.046.2 20150830
General Purpose Linux Driver	2015-0830-0002
General Purpose Linux Driver	2015-0830-0002
Linux Kernel	2.6.35-ts-powerpc
Linux Kernel	2.6.35-ts-powerpc
PPC Image	02.00.046.02 20150830
PPC Image	02.00.046.02 20150830
PPC MAC Address	00:01:EC:00:E4:52
PPC MAC Address	00:01:EC:00:E4:52
CPU	02.00.117.0 20150429 20140207
Electrometer	02.0D.053.0 20160810 20150428
Host FPGA	02.00.117.0 20150429
LBP	02.0D.048.0 20150428 20150427
RD	02.0D.048.0 20150428 20150427
RD2	02.0D.048.0 20150428 20150427
RFA1	02.0D.048.0 20150428 20150427
RFA2	02.0D.048.0 20150428 20150427
RFC1	02.0D.048.0 20150428 20150427
RFC2	02.0D.048.0 20150428 20150427
SRC	02.0D.048.0 20150428 20150427