

Diagnostic Report

Date & Time Monday, February 20, 2017 12:19 PM
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	-	-	-	-

Initial Startup Calibration:

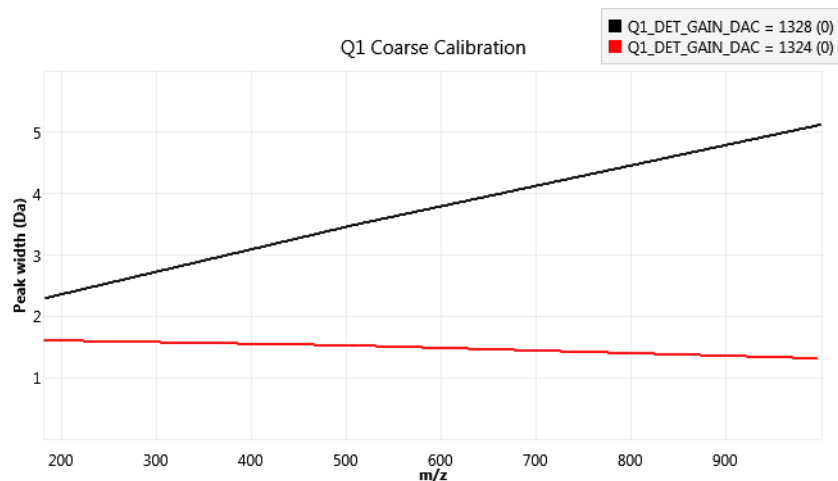
Determining correct quad polarity settings.

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

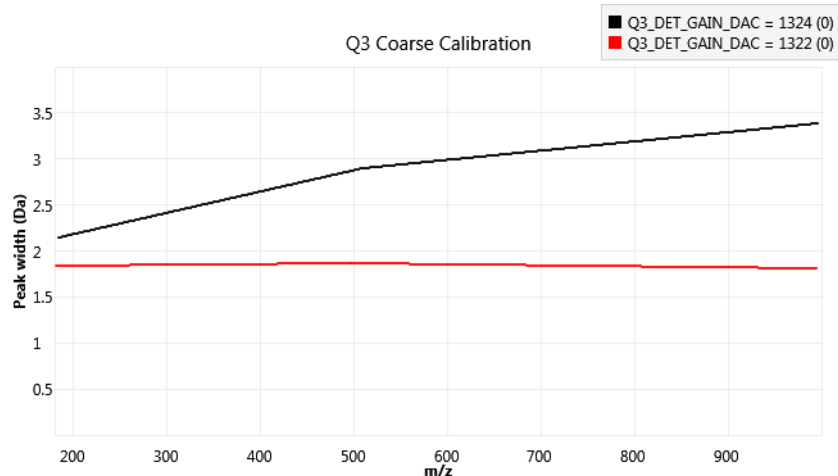


Q1 coarse calibration result:

Gain DAC value= 1324

m/z	FWHM
180.07	1.61
506.19	1.52
995.38	1.31

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Q3 coarse calibration result:

Gain DAC value= 1322

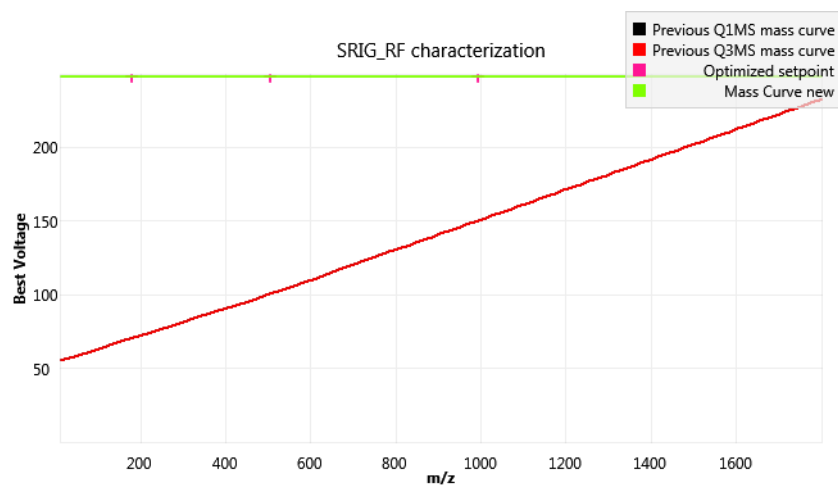
m/z	FWHM
180.07	1.84
506.19	1.86
995.38	1.80

Target Mass	Observed Mass	Mass Jitter	Intensity
180.07	180.30	0.14	1013389.24
506.19	505.86	0.35	2212465.89
995.38	995.01	0.33	3250801.76

SRIG_RF characterization

Calibrant mass Optimized voltage

180.30	248.18
505.86	248.18
995.01	248.18

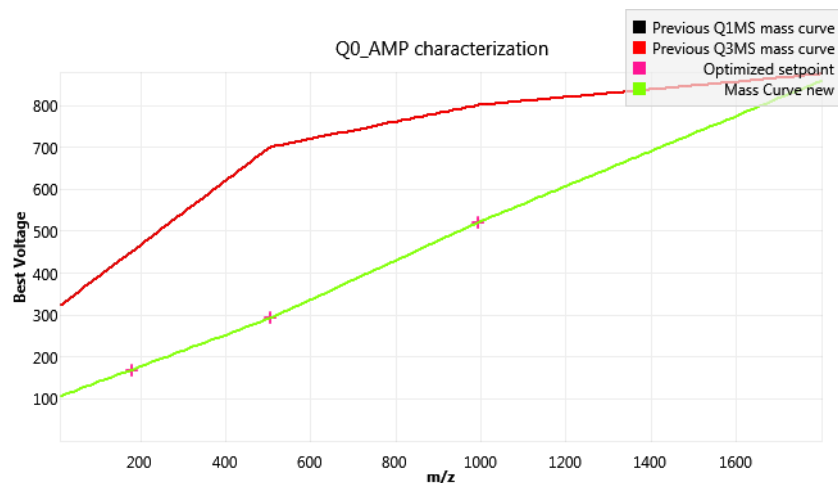


Q0_AMP characterization

Calibrant mass Optimized voltage

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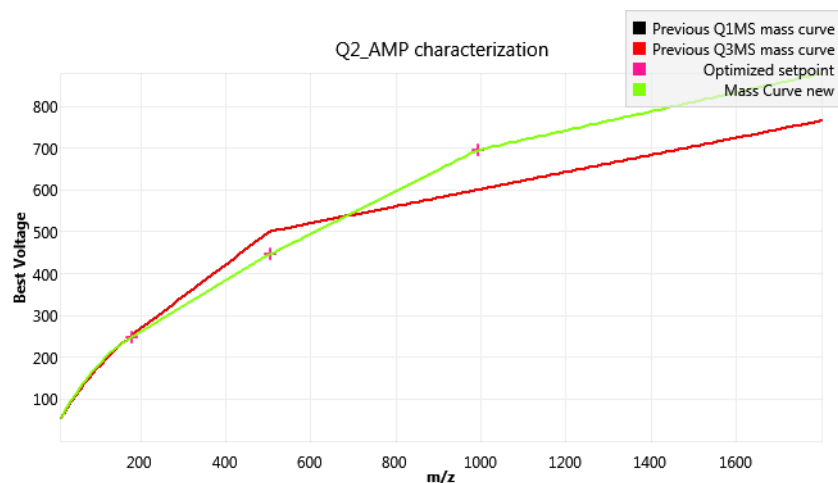
```
-----
180.30      168.33
505.86      291.48
995.01      520.18
=====
```



Q2_AMP characterization

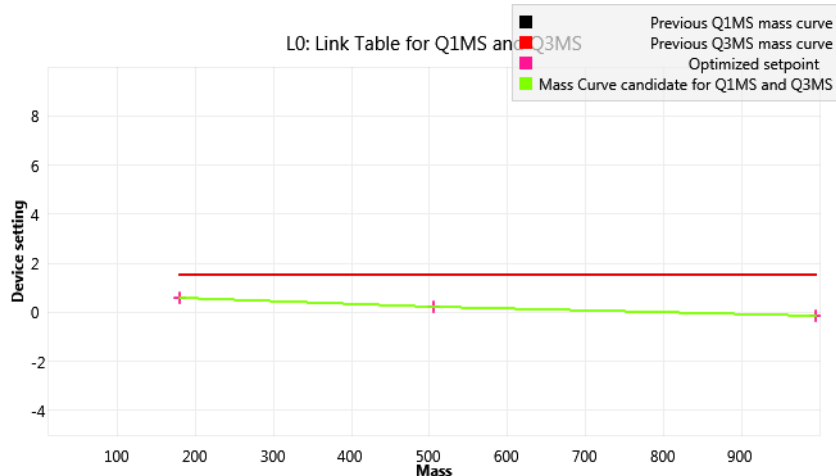
```
=====
Calibrant mass  Optimized voltage
-----
```

```
180.30      248.07
505.86      445.73
995.01      694.71
=====
```



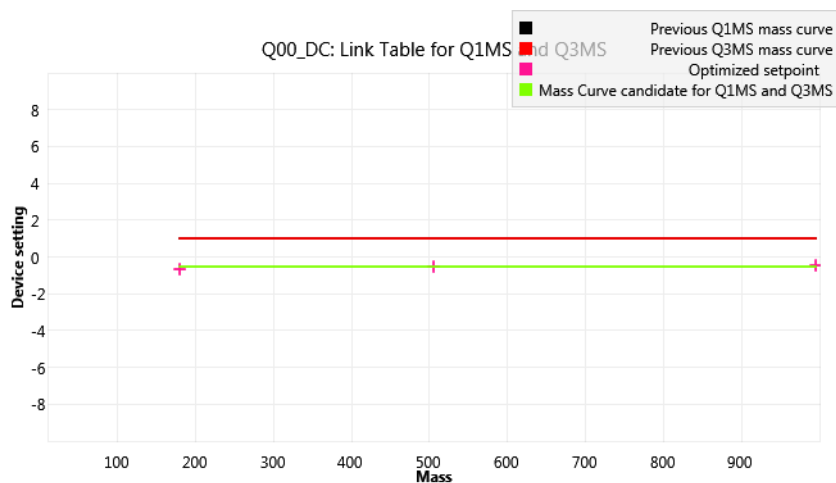
1: Optimize L0 Offset for Q1MS and Q3MS

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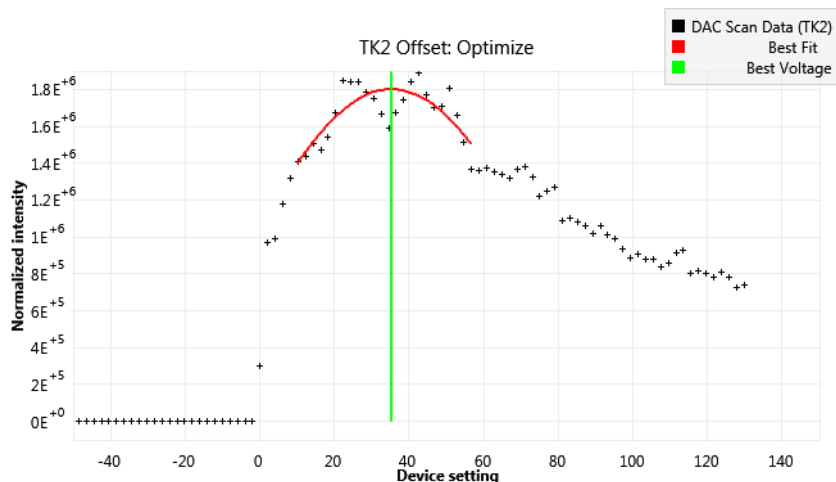
TIC changed 3.73 % Keep the candidate setting

2: Optimize Q00 Offset for Q1MS and Q3MS

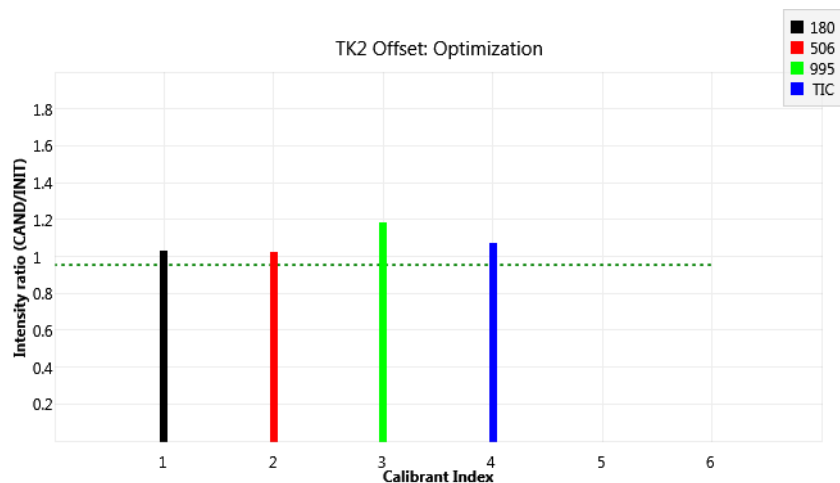
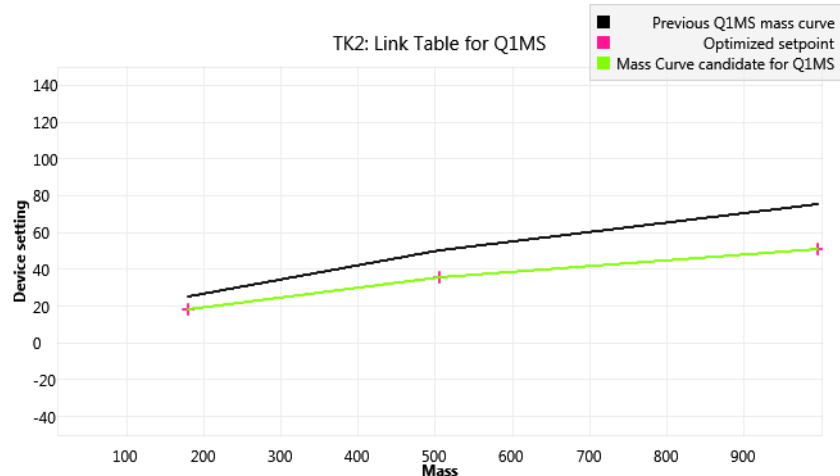


TIC changed 0.80 % Keep the candidate setting

3: Optimize TK2 Offset for Q1MS

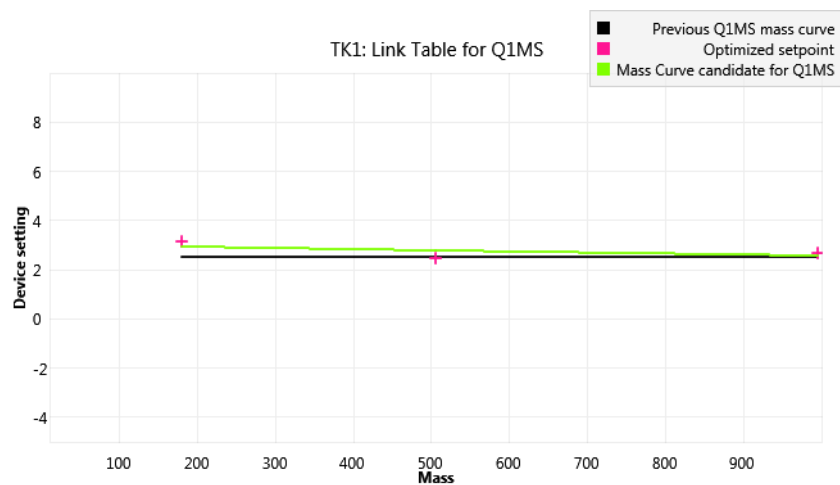


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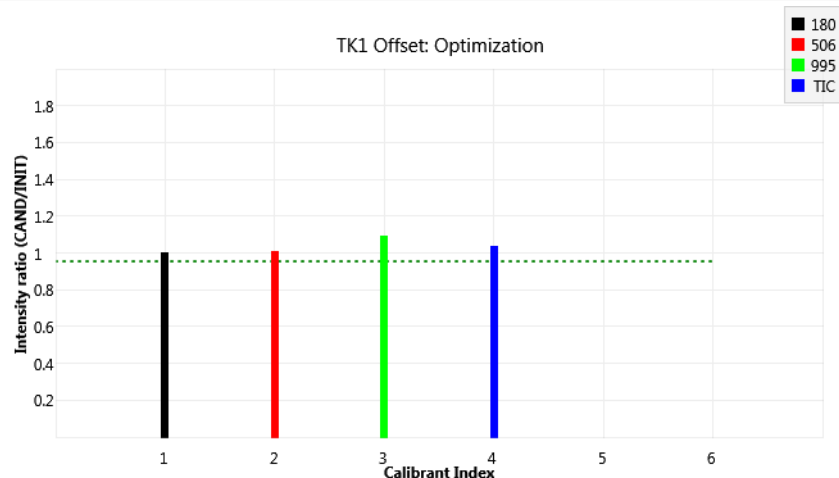


TIC changed 7.27 % Keep the candidate setting

4: Optimize TK1 Offset for Q1MS

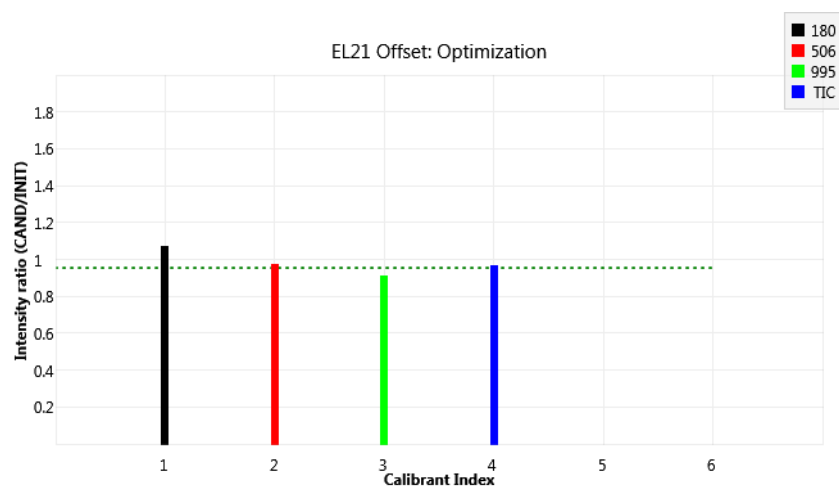
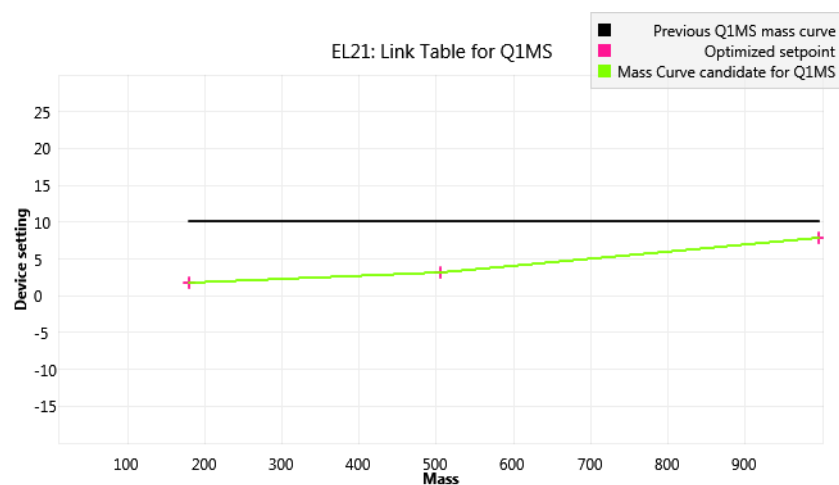


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TIC changed 3.42 % Keep the candidate setting

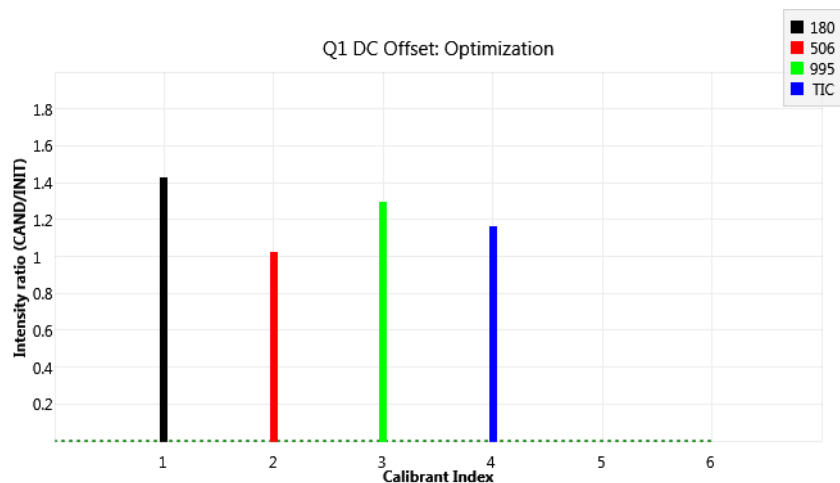
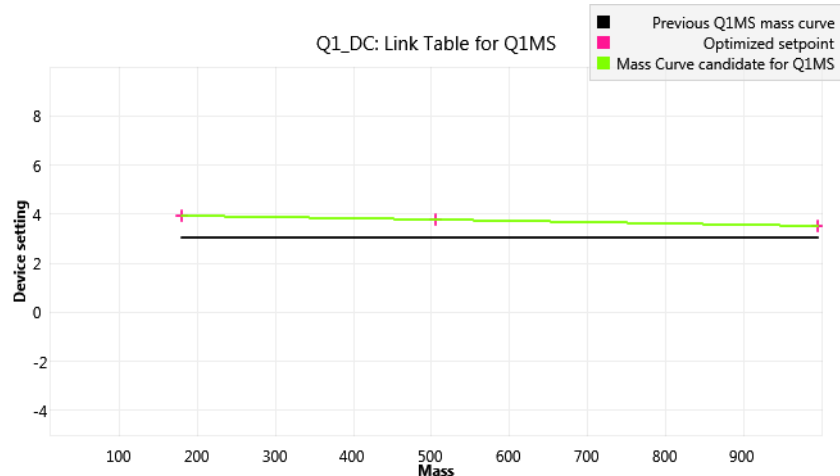
5: Optimize EL21 Offset for Q1MS



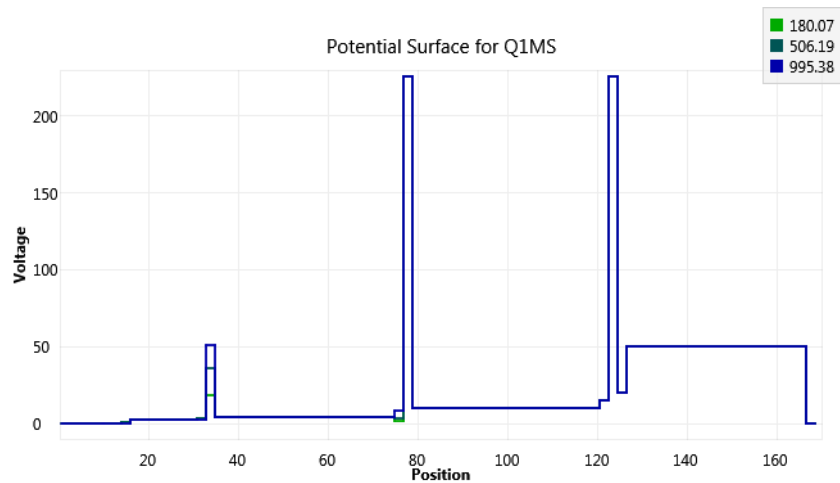
TIC changed -3.40 % Keep the candidate setting

6: Optimize Q1 DC Offset for Q1MS

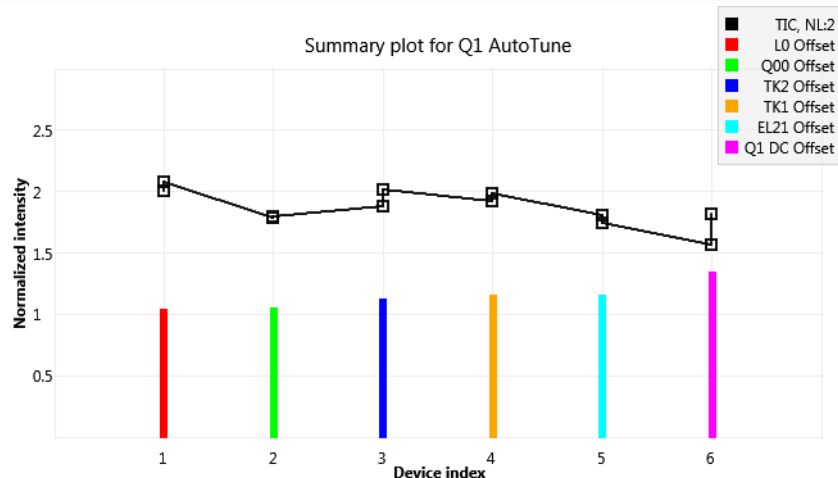
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TIC changed 15.86 % Keep the candidate setting



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Q1 AutoTune Summary

Device	Previous Setting	Current Setting
SRIG_RF	70.00	248.18
SRIG_RF	100.00	248.18
SRIG_RF	150.00	248.18
Q0_AMP	450.00	168.33
Q0_AMP	700.00	291.48
Q0_AMP	800.00	520.18
Q2_AMP	250.00	248.07
Q2_AMP	500.00	445.73
Q2_AMP	600.00	694.71
L0	1.50	0.58
L0	1.50	0.18
L0	1.50	-0.14
Q00_DC	1.00	-0.58
Q00_DC	1.00	-0.58
Q00_DC	1.00	-0.58
TK2	25.00	18.06
TK2	50.00	35.46
TK2	75.00	50.35
TK1	2.50	2.93
TK1	2.50	2.77
TK1	2.50	2.54
EL21	10.00	1.65
EL21	10.00	3.16
EL21	10.00	7.72
Q1_DC	3.00	3.93
Q1_DC	3.00	3.76
Q1_DC	3.00	3.50

Target Mass	Observed Mass	Mass Jitter	Intensity
180.07	180.06	0.32	4194015.08
506.19	506.12	0.30	14780934.10
995.38	995.14	0.35	9525251.10

SRIG_RF characterization

Calibrant mass Optimized voltage

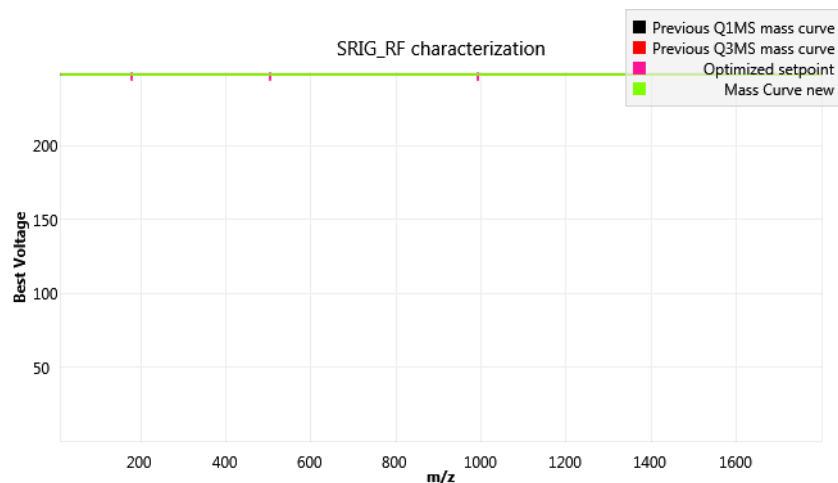
Serial Number: TQH-Q1-0576

Signature:

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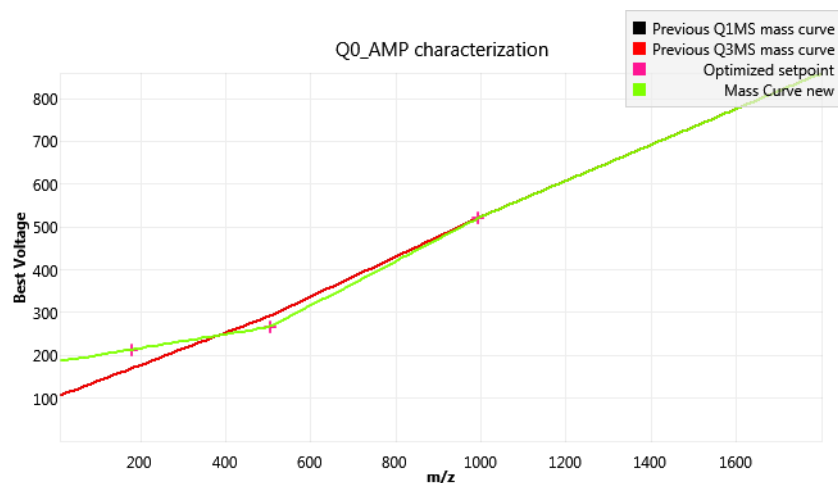
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```
-----
180.06      248.18
506.12      248.18
995.14      248.18
=====
```



Q0_AMP characterization

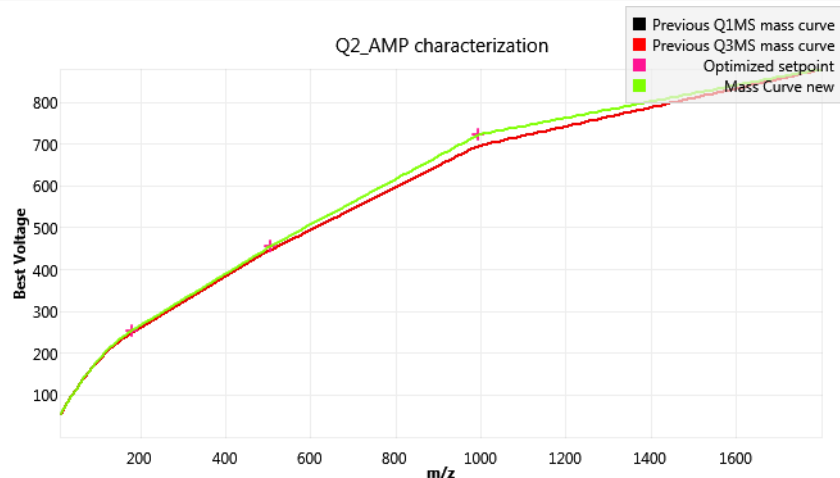
```
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Calibrant mass  Optimized voltage
-----
180.06      212.31
506.12      265.09
995.14      520.18
=====
```



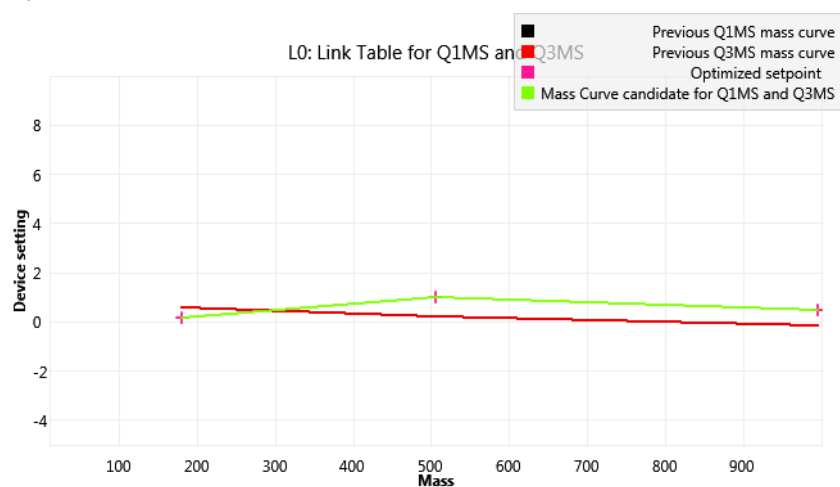
Q2_AMP characterization

```
=====
Calibrant mass  Optimized voltage
-----
180.06      252.52
506.12      454.62
995.14      721.39
=====
```

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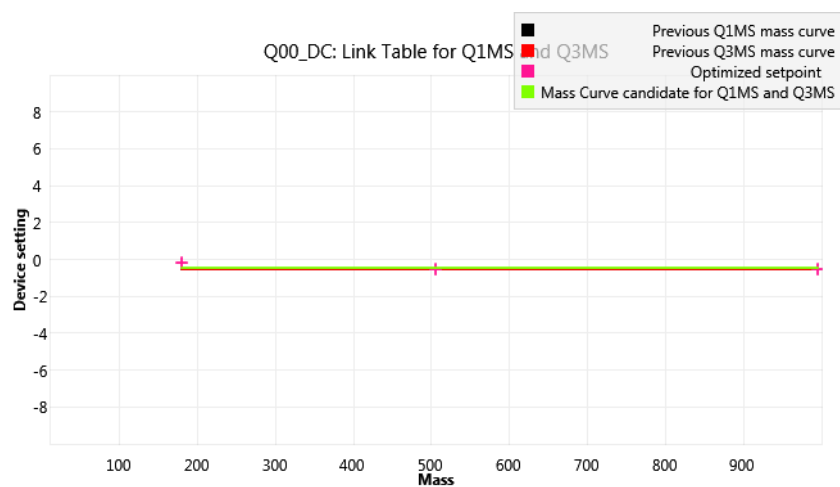


1: Optimize L0 Offset for Q1MS and Q3MS



TIC changed -3.86 % Keep the candidate setting

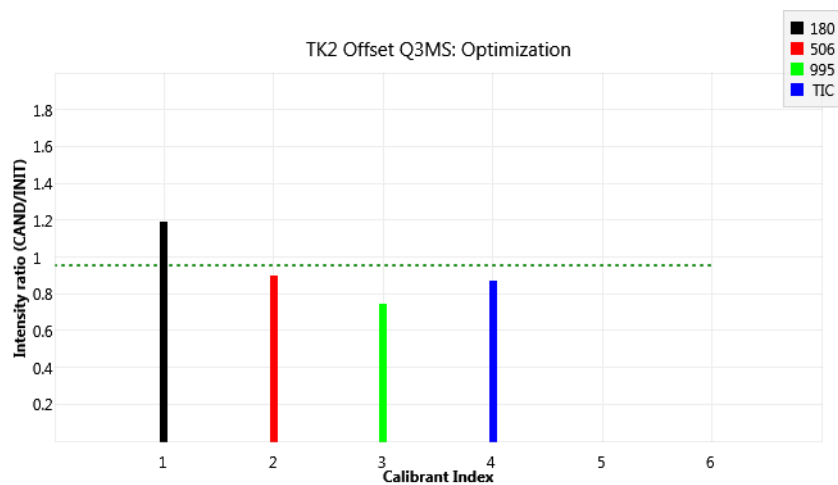
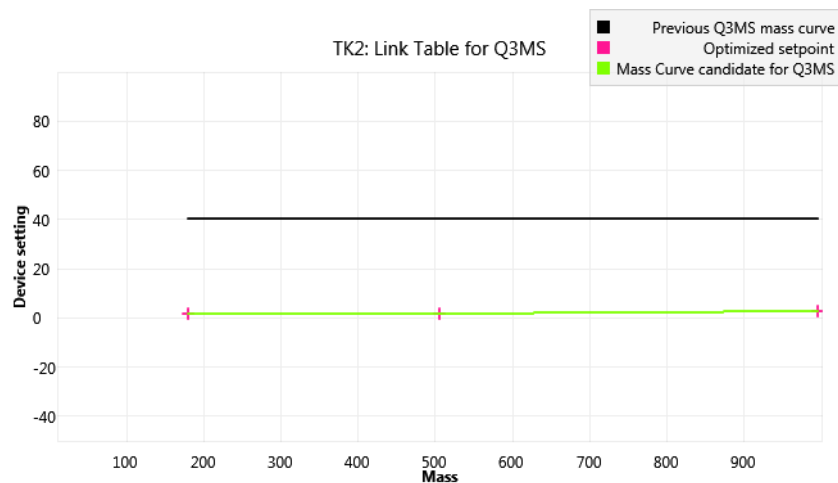
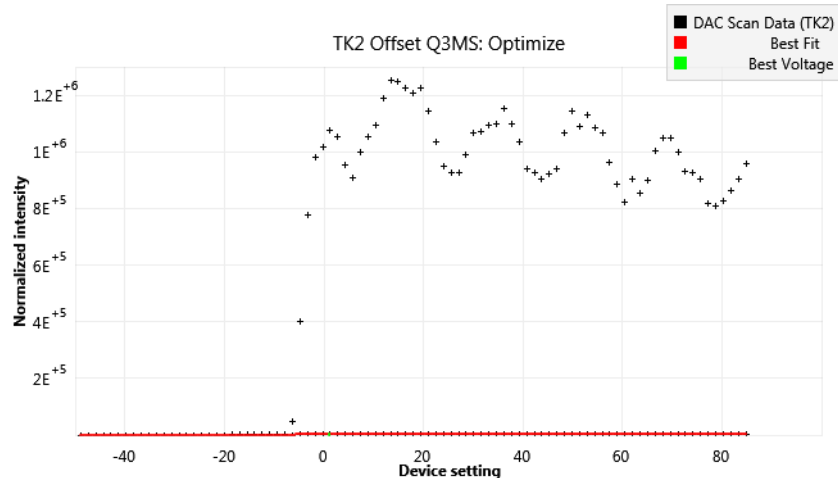
2: Optimize Q00 Offset for Q1MS and Q3MS



TIC changed 16.01 % Keep the candidate setting

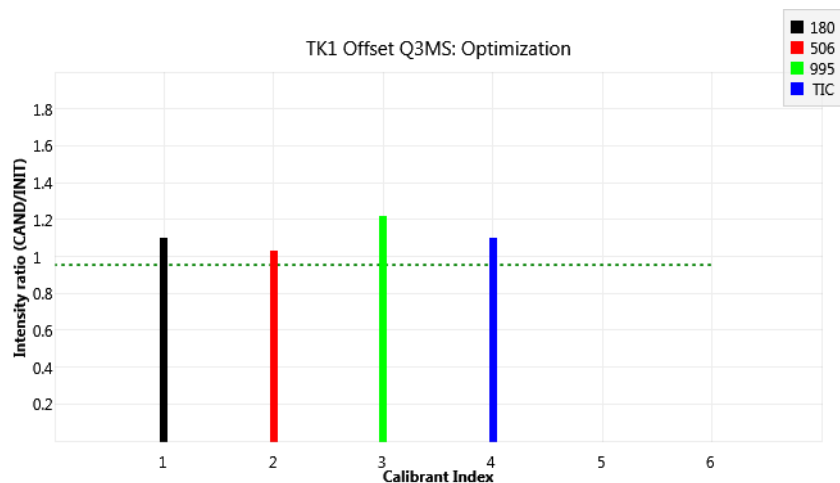
3: Optimize TK2 Offset Q3MS for Q3MS

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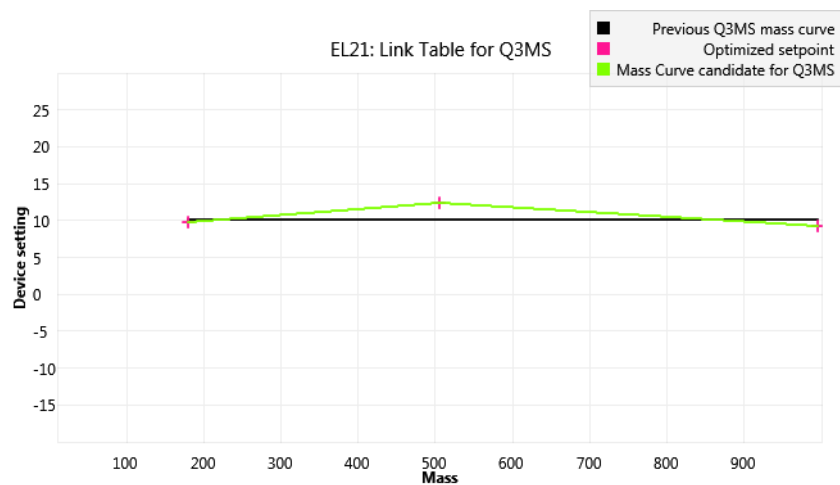
Initial setting is already optimized. Keep the initial setting
4: Optimize TK1 Offset Q3MS for Q3MS

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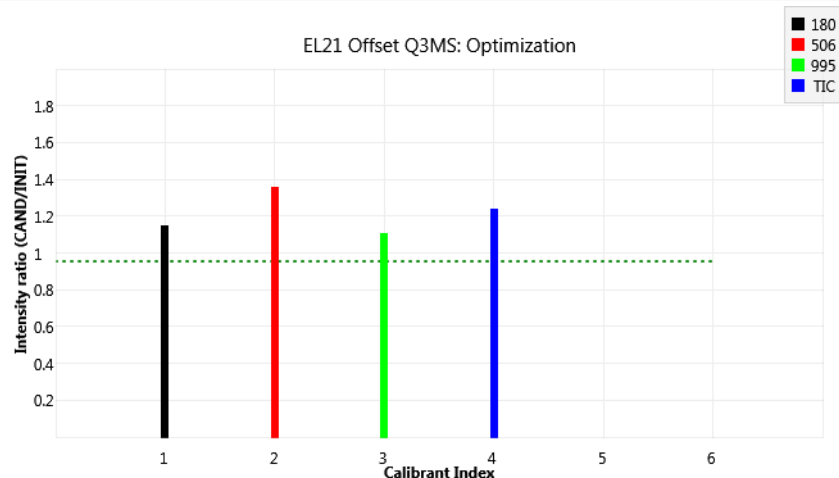


TIC changed 9.69 % Keep the candidate setting

5: Optimize EL21 Offset Q3MS for Q3MS

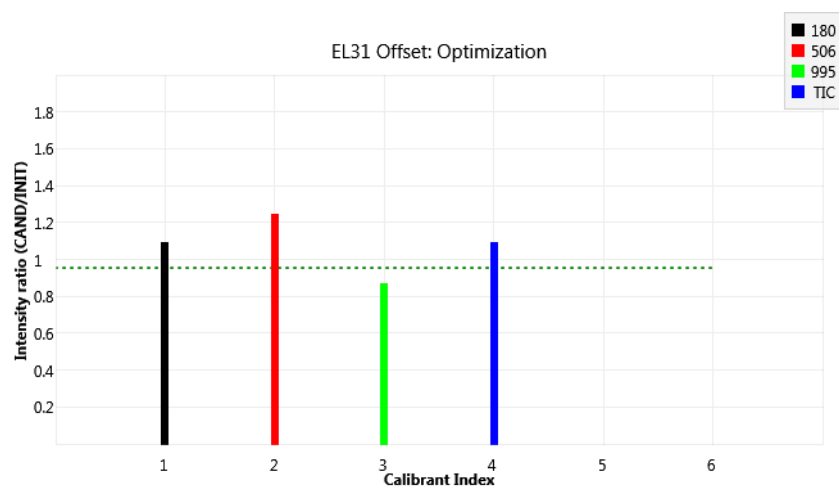
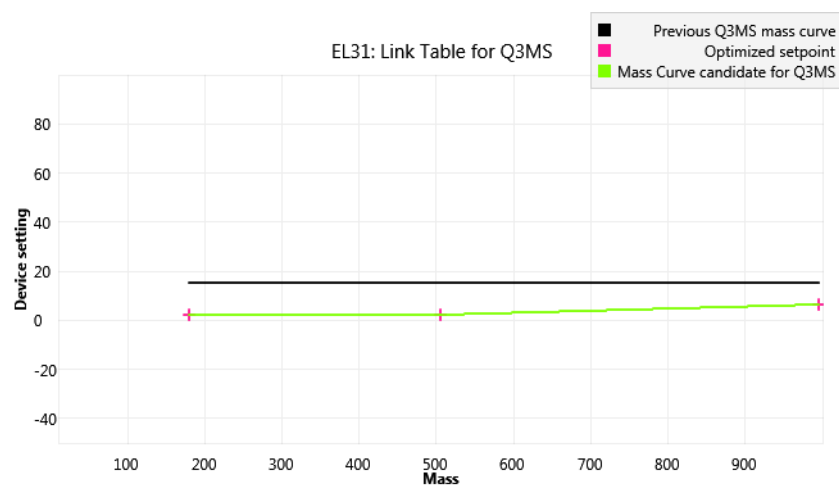


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TIC changed 23.71 % Keep the candidate setting

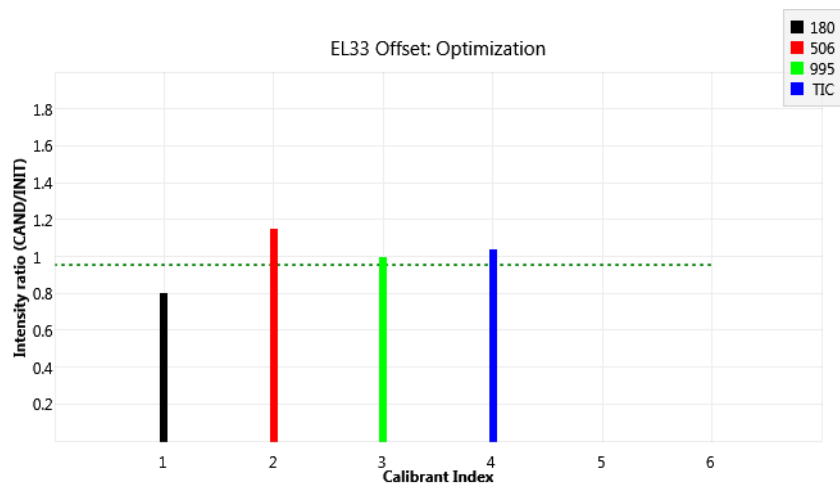
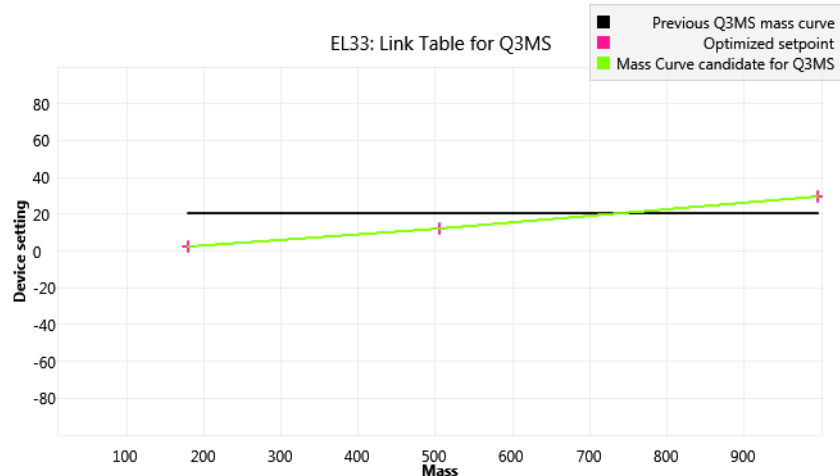
6: Optimize EL31 Offset for Q3MS



TIC changed 9.13 % Keep the candidate setting

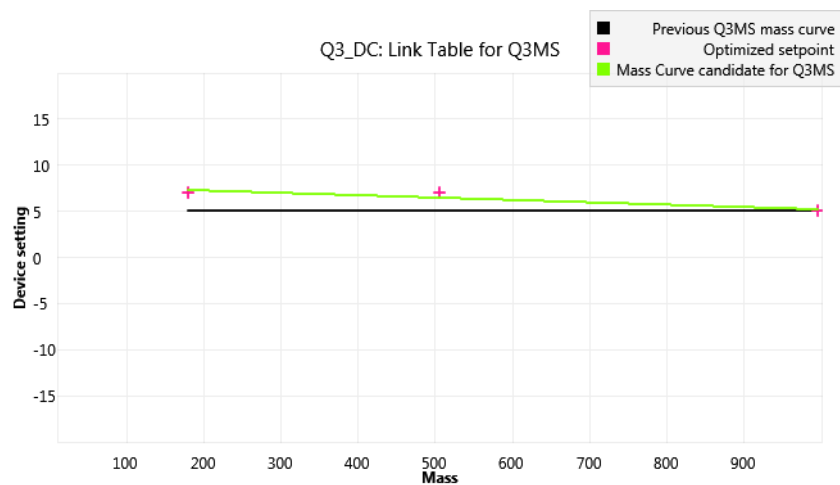
7: Optimize EL33 Offset for Q3MS

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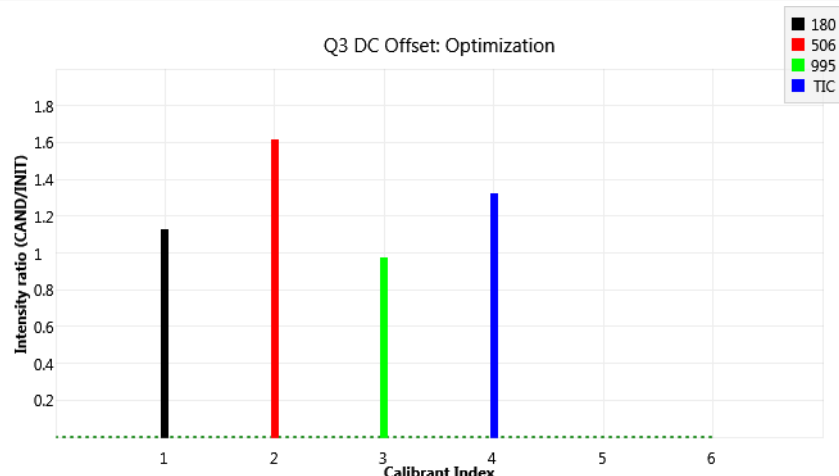


TIC changed 3.70 % Keep the candidate setting

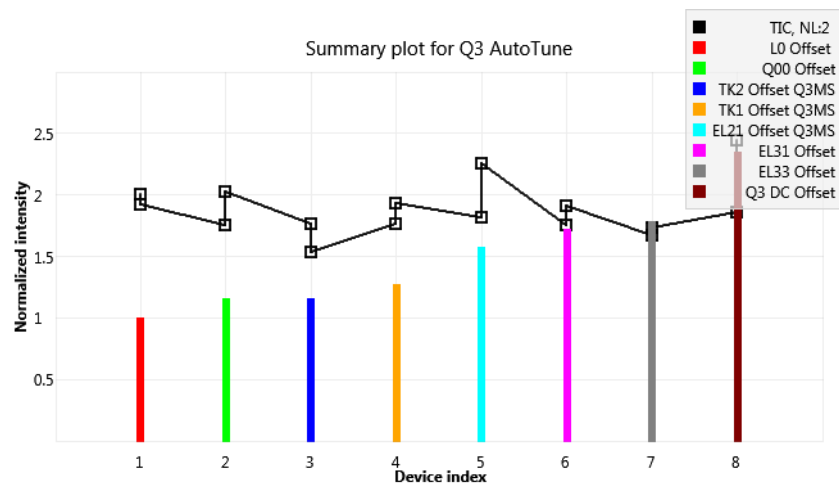
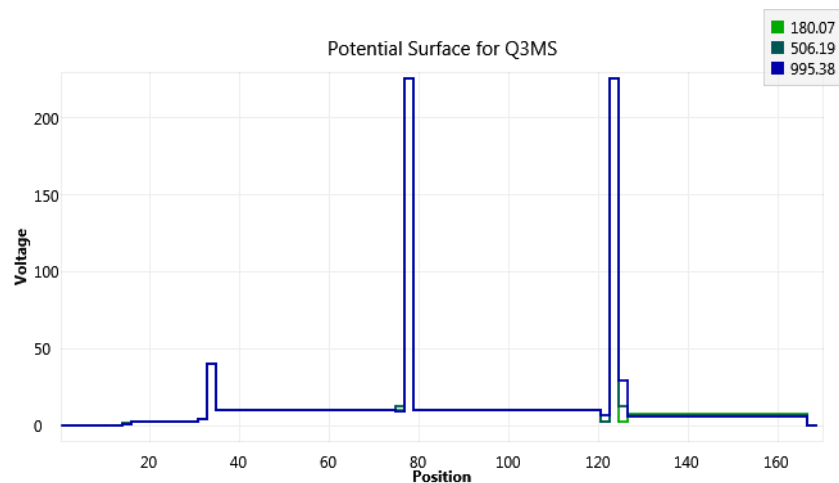
8: Optimize Q3 DC Offset for Q3MS



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TIC changed 31.92 % Keep the candidate setting



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Q3 AutoTune Summary

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Device Previous Setting Current Setting

SRIG_R 248.18 248.18

SRIG_R 248.18 248.18

SRIG_R 248.18 248.18

Q0_AMP 168.33 212.31

Serial Number: TQH-Q1-0576

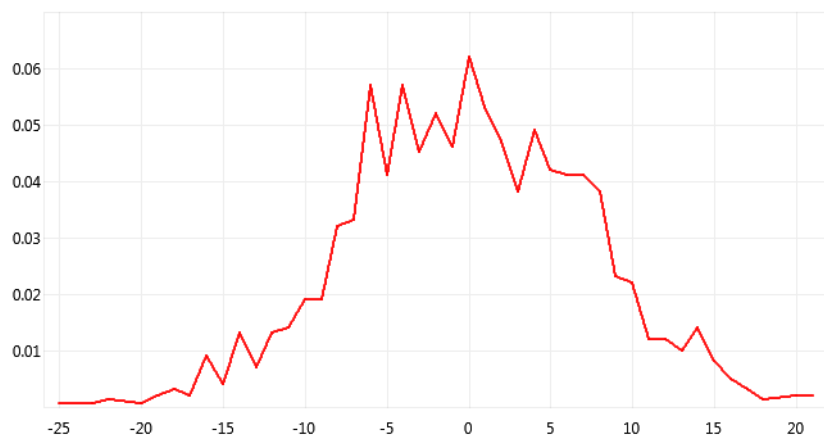
Signature:

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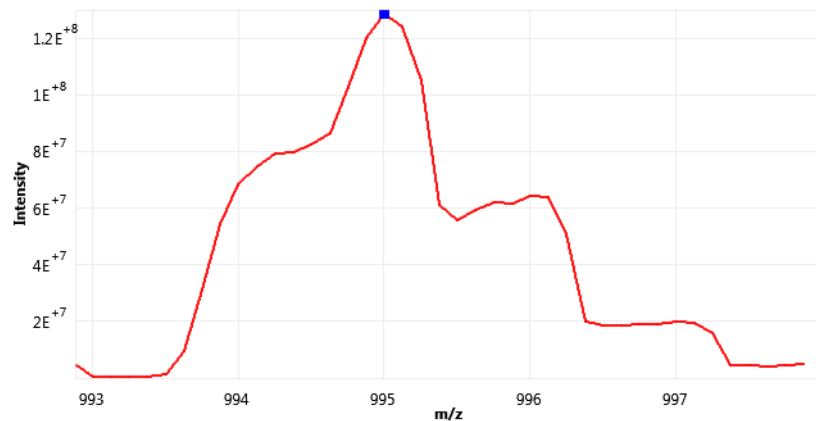
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Q0_AMP	291.48	265.09
Q0_AMP	520.18	520.18
Q2_AMP	248.07	252.52
Q2_AMP	445.73	454.62
Q2_AMP	694.71	721.39
L0	0.58	0.12
L0	0.18	0.97
L0	-0.14	0.44
Q00_DC	-0.58	-0.47
Q00_DC	-0.58	-0.47
Q00_DC	-0.58	-0.47
TK2	40.00	1.27
TK2	40.00	1.27
TK2	40.00	2.78
TK1	2.50	3.61
TK1	2.50	3.55
TK1	2.50	3.47
EL21	10.00	9.75
EL21	10.00	12.28
EL21	10.00	9.23
EL31	15.00	2.00
EL31	15.00	2.00
EL31	15.00	6.21
EL33	20.00	2.00
EL33	20.00	11.77
EL33	20.00	29.17
Q3_DC	5.00	7.32
Q3_DC	5.00	6.47
Q3_DC	5.00	5.21

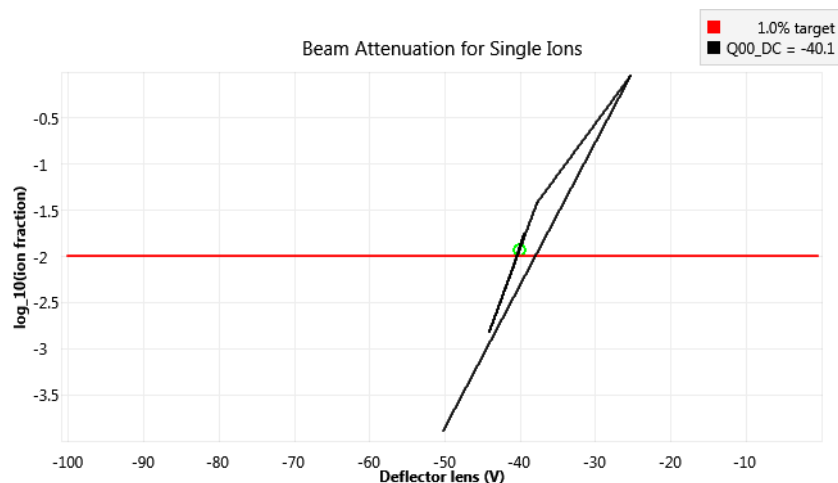
Electrometer Noise: -0.0 +/- 7 ADC units



Optimizing Q1 Isolation around 995.38



Beam Attenuation for Single Ions



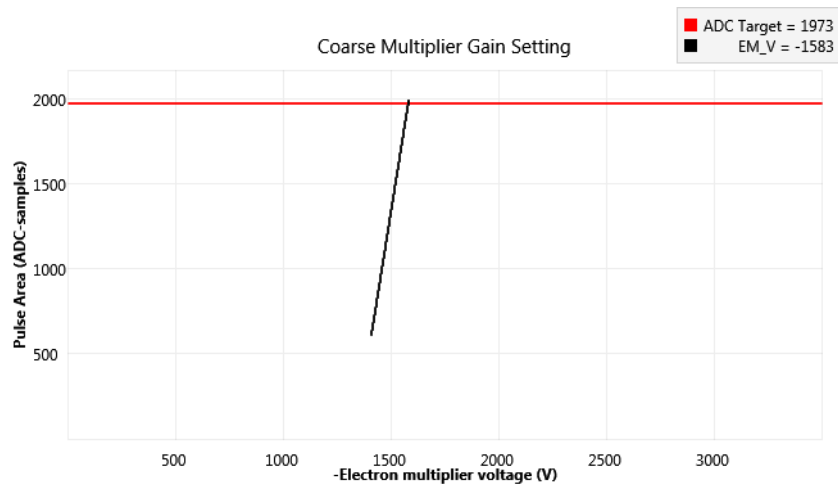
Single ions detected for Q00_DC at -40.1255

Finding the Maximum EM Voltage

CoarseMGSetting for LowGain: EM_V = -1414.78

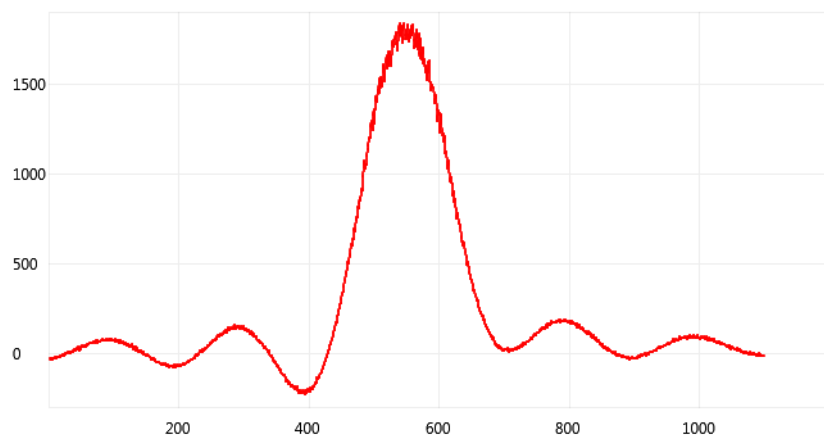
HighGain ADC Target = 1973.19

Coarse Multiplier Gain Setting



Maximum EM_V: -1583.79

Electrometer Pulse Profile

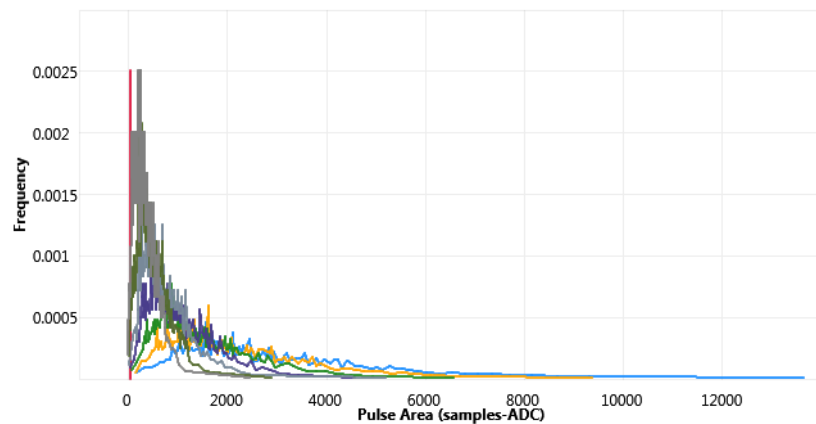


Measure Gain vs Voltage

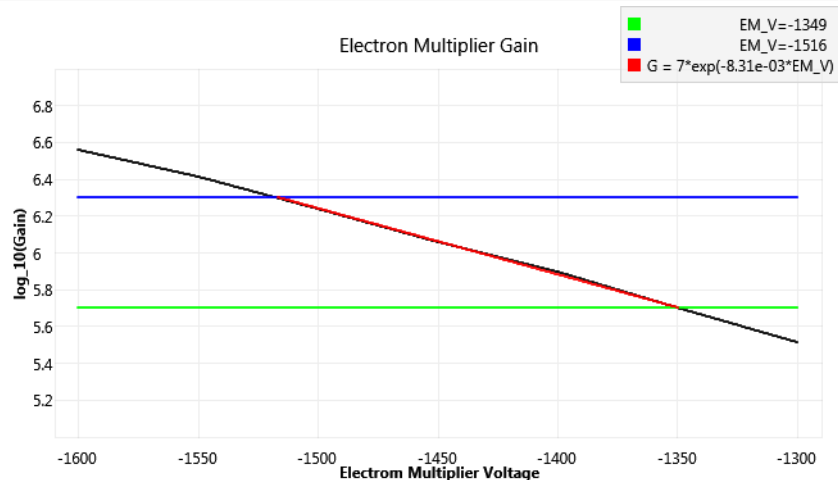
EM Voltage	#P.A. Array	Estimated Gain	Est. Height/Gain
-1600.00	2948.00	3630911.68	0.89
-1550.00	3118.00	2574389.20	0.93
-1500.00	3304.00	1718795.64	0.97
-1450.00	3052.00	1141350.91	1.02
-1400.00	3132.00	787914.46	1.07
-1350.00	3077.00	500403.20	1.13
-1300.00	2893.00	325411.49	1.21

Single Ion Pulse Area Histogram

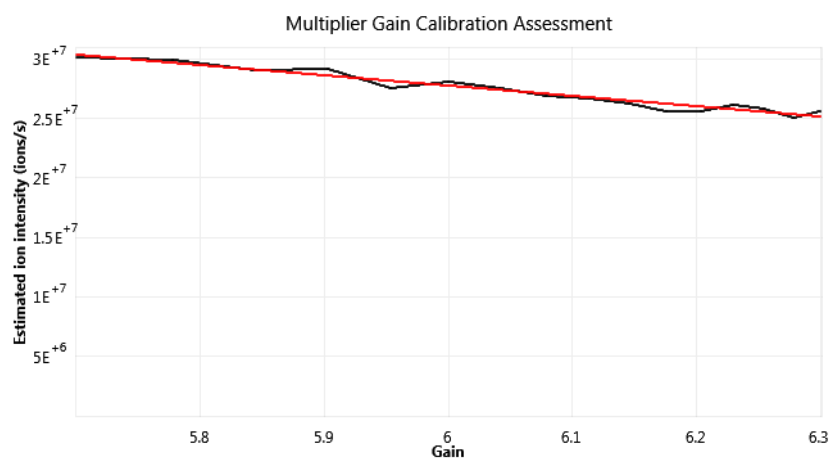
-1300



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Gain assessment: normalized slope = -0.289075



posA = 5.9875217369166
posB = -0.0089927827825826
Gain=500000: posEMVoltage=-1260.1978784855

negA = 6.7587437276627
negB = -0.0083062617709796
Gain=500000: negEMVoltage -1349.7680006779

Calibration parameter comparison passed.

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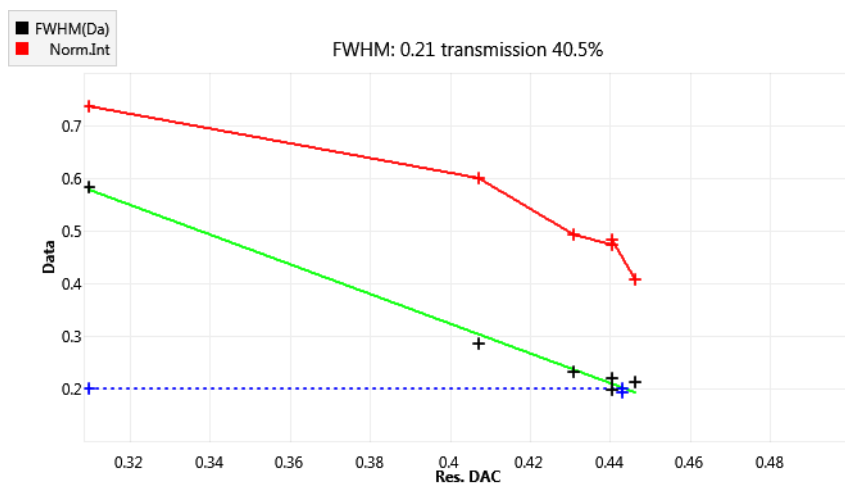
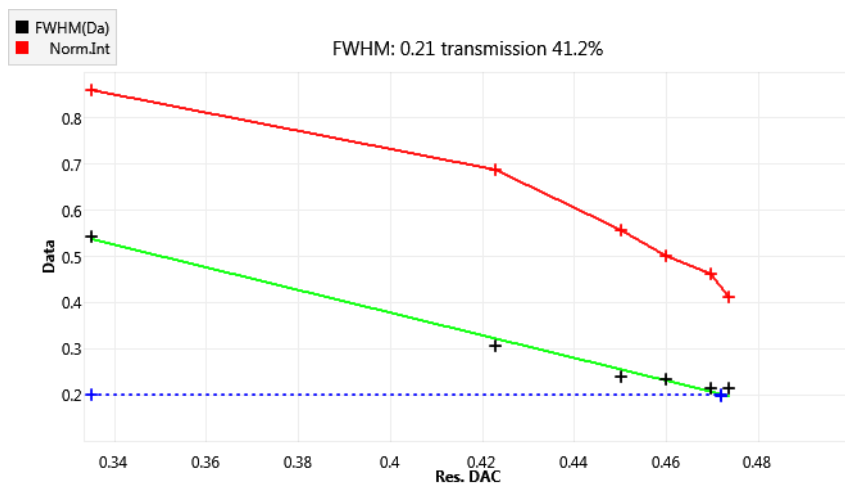
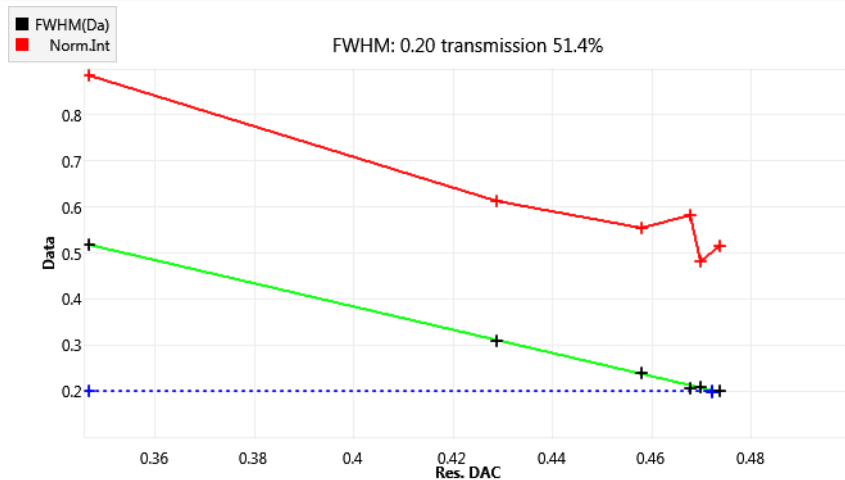
EM Gain Calibration Results

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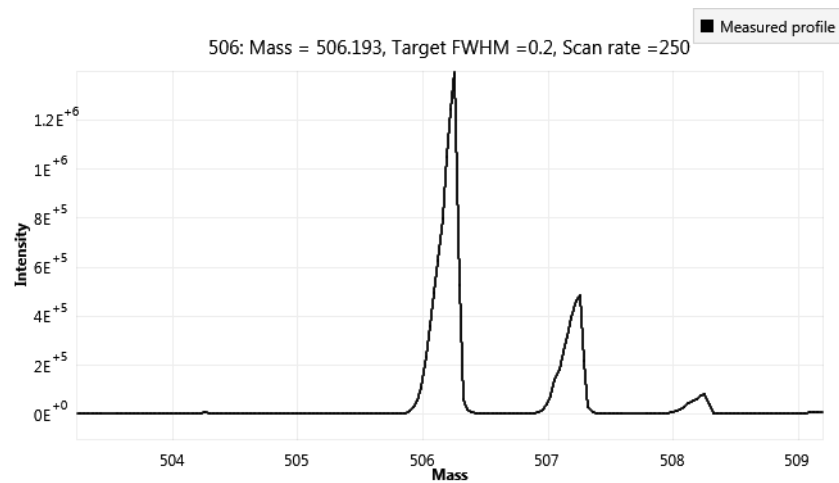
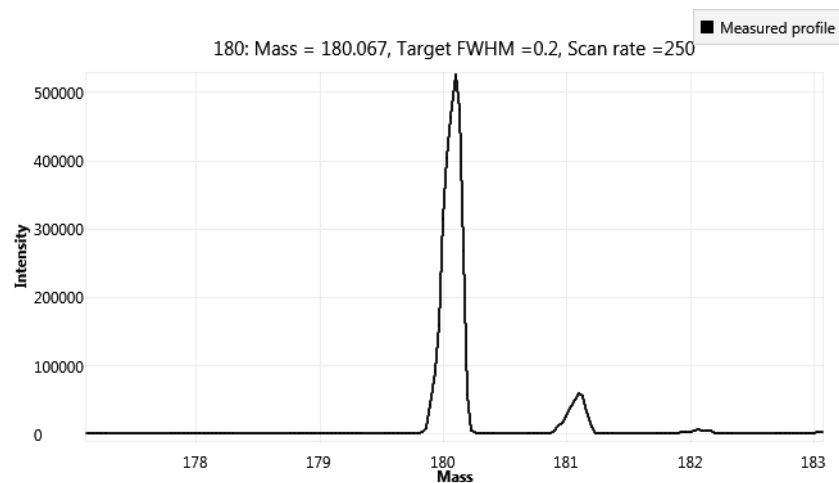
A= 6.75874
B= -0.00830626
Full Scan EM Voltage= -1349.77
SRM Scan EM Voltage= -1516.67
Q1 coarse calibration result:
Gain DAC value= 1324

m/z	FWHM
180.07	1.65
506.19	1.51
995.38	1.38

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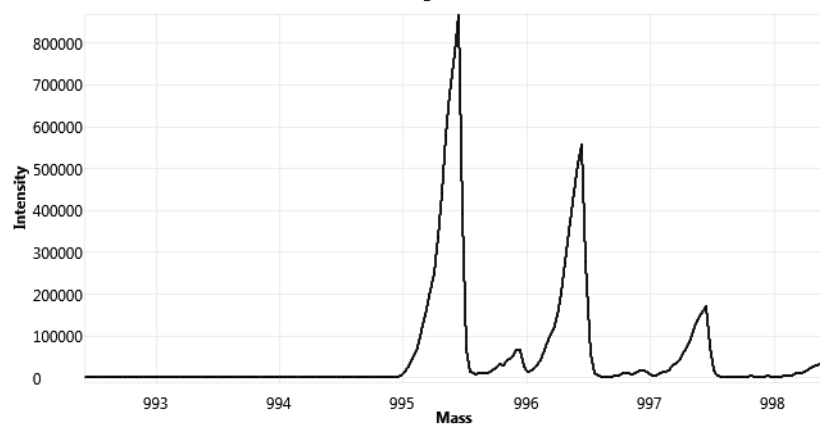


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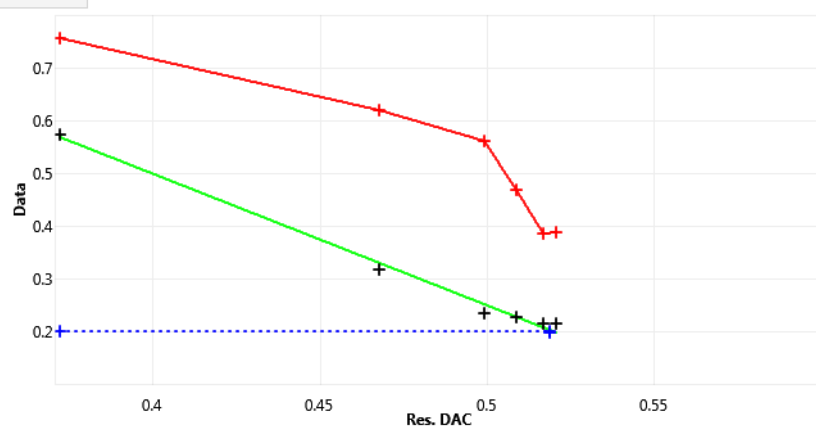
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995: Mass = 995.383, Target FWHM = 0.2, Scan rate = 250



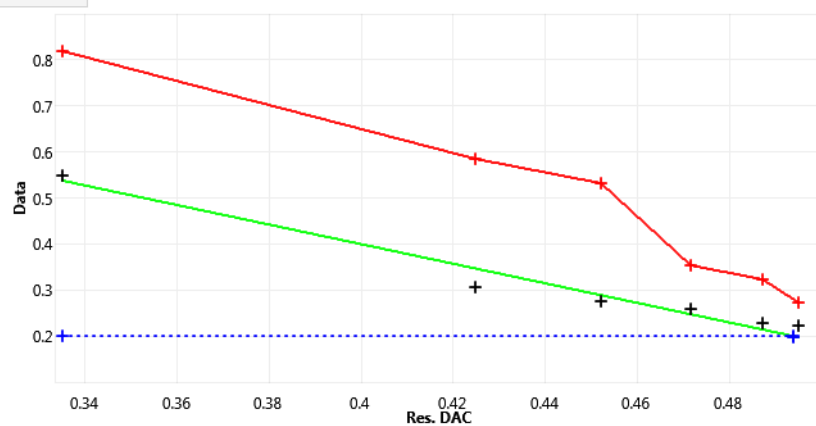
■ FWHM(Da)
■ Norm.Int

FWHM: 0.21 transmission 38.8%

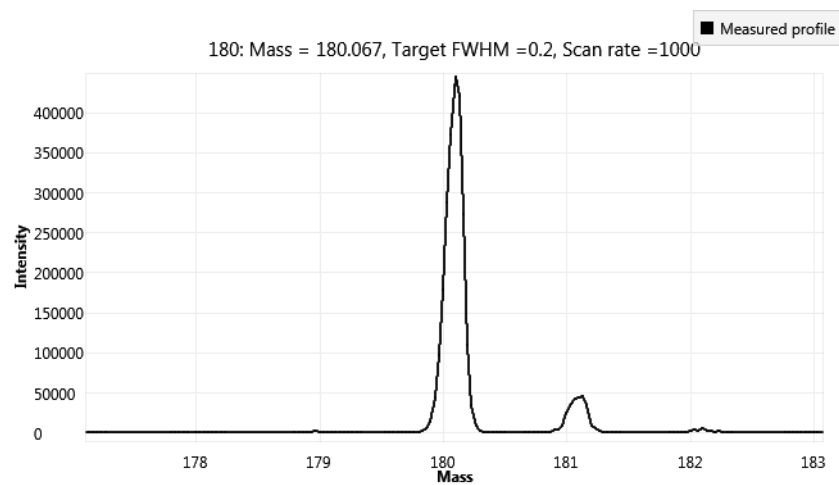
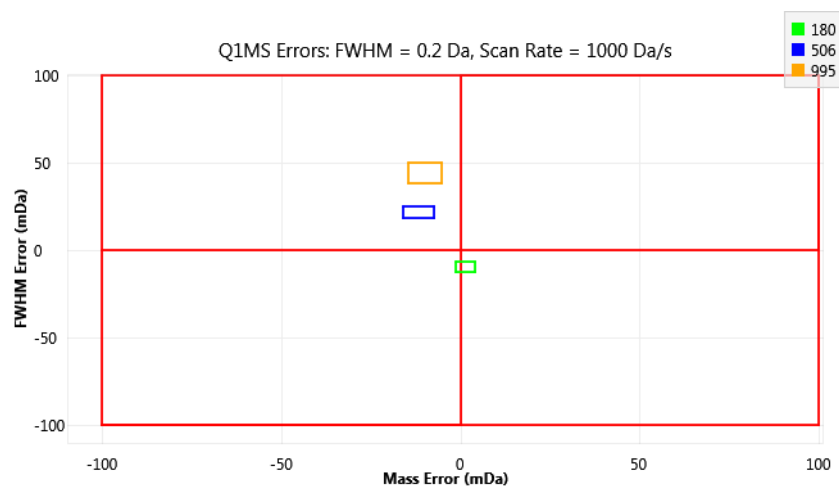
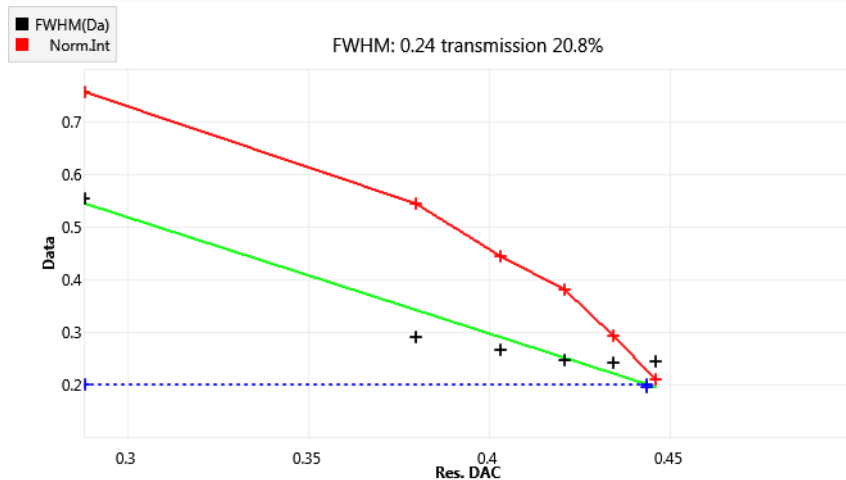


■ FWHM(Da)
■ Norm.Int

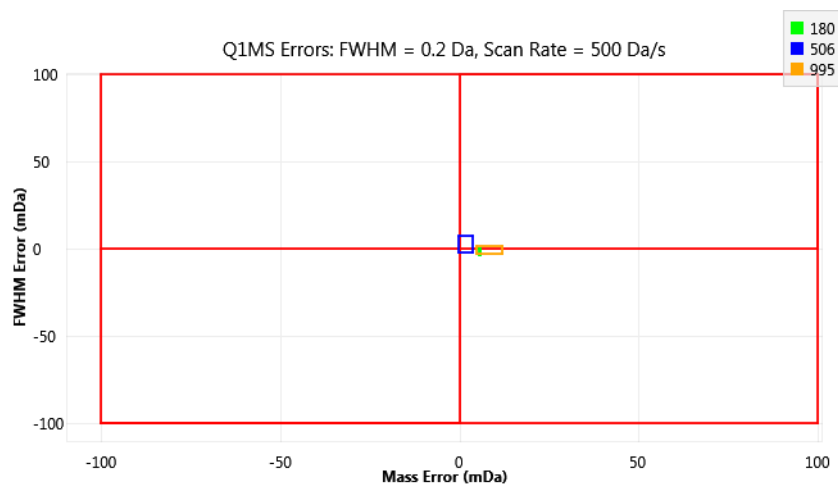
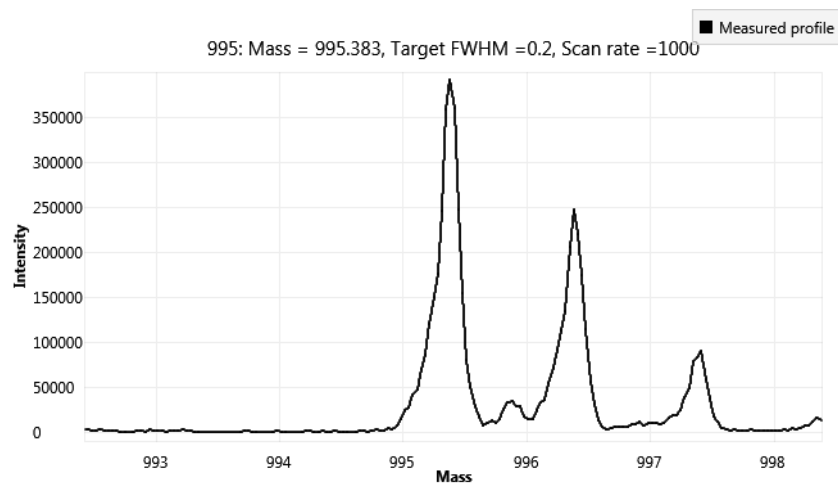
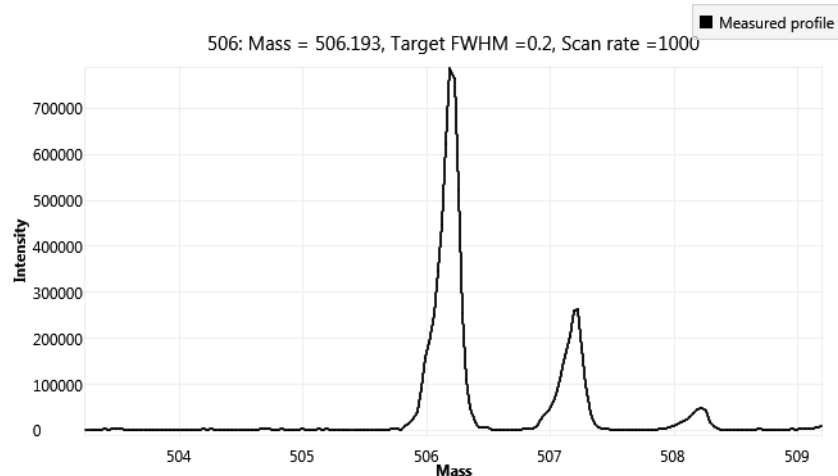
FWHM: 0.22 transmission 27.2%



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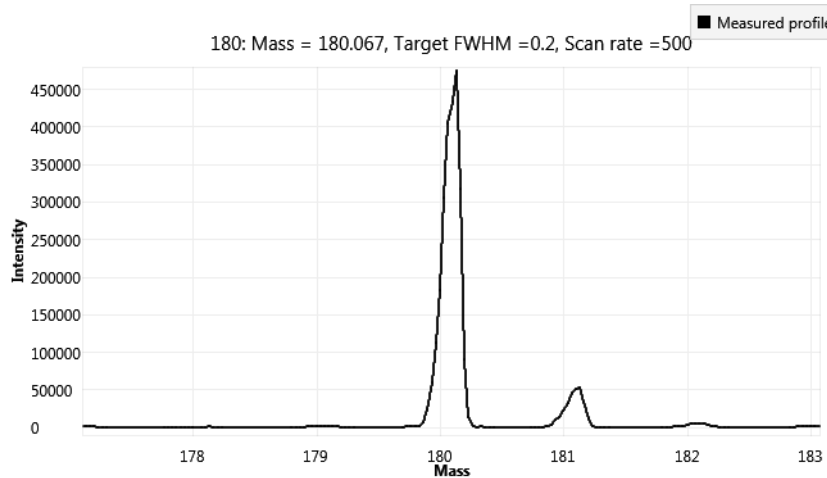


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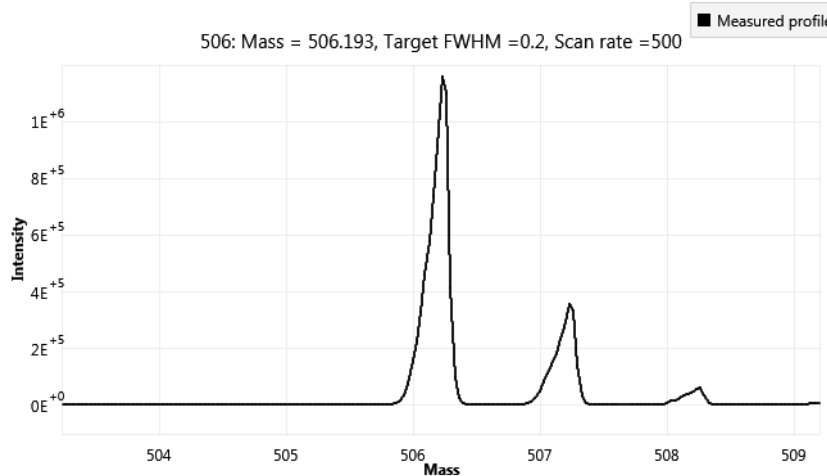


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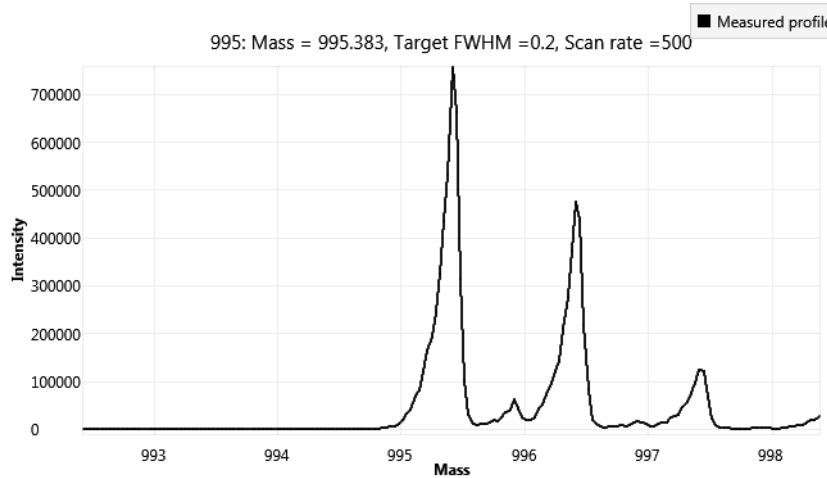
180: Mass = 180.067, Target FWHM = 0.2, Scan rate = 500



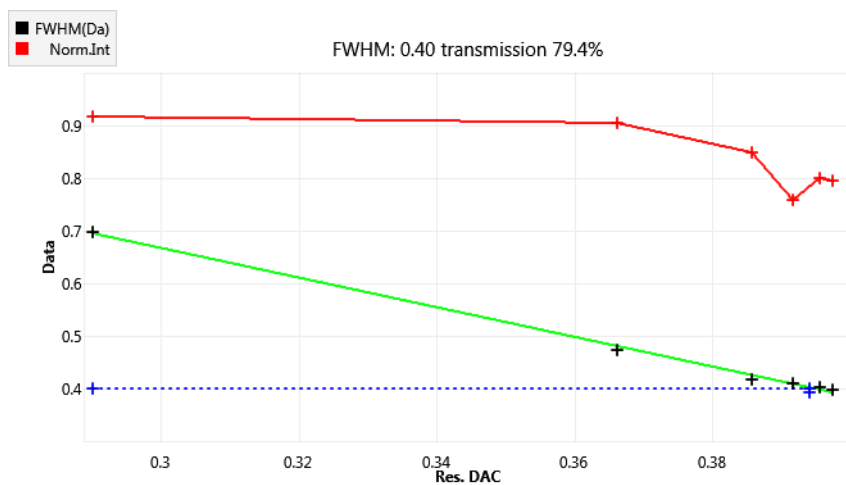
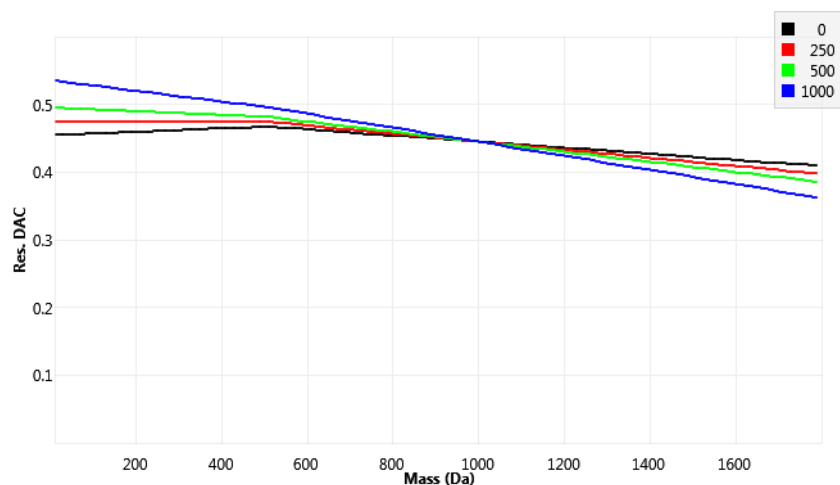
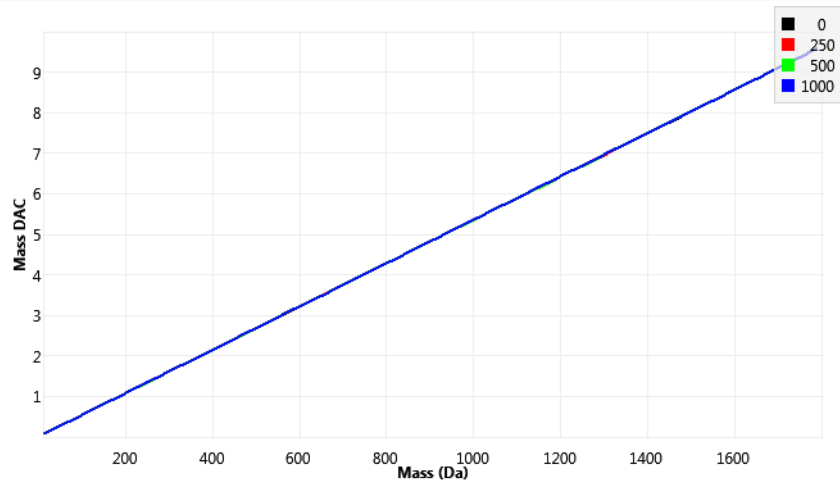
506: Mass = 506.193, Target FWHM = 0.2, Scan rate = 500



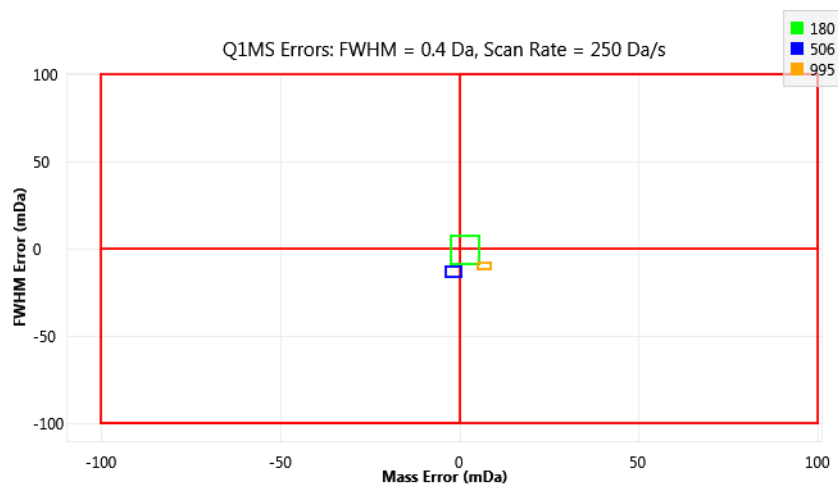
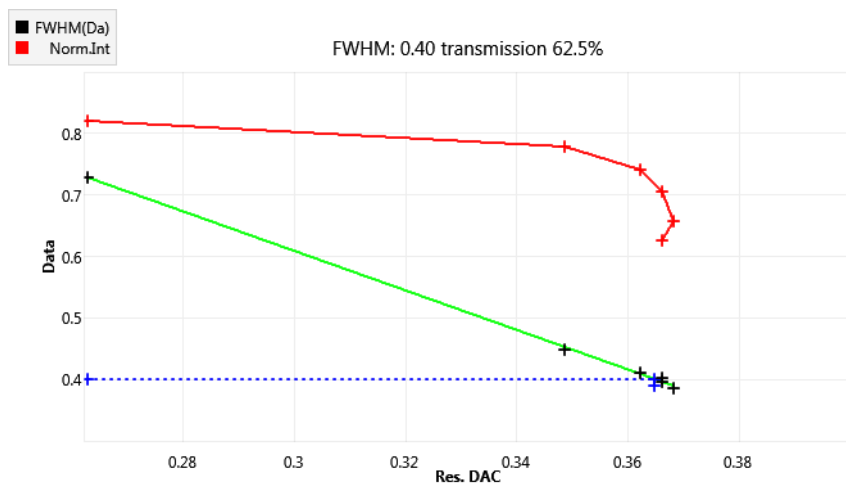
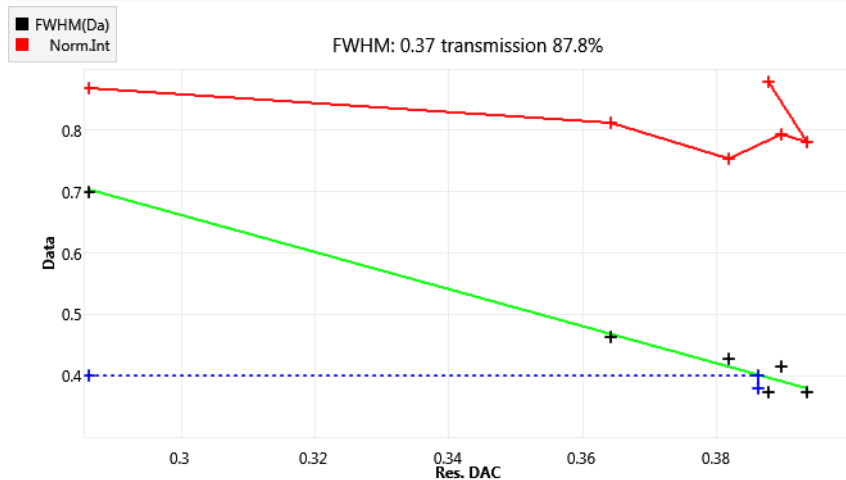
995: Mass = 995.383, Target FWHM = 0.2, Scan rate = 500



Diagnostic Report

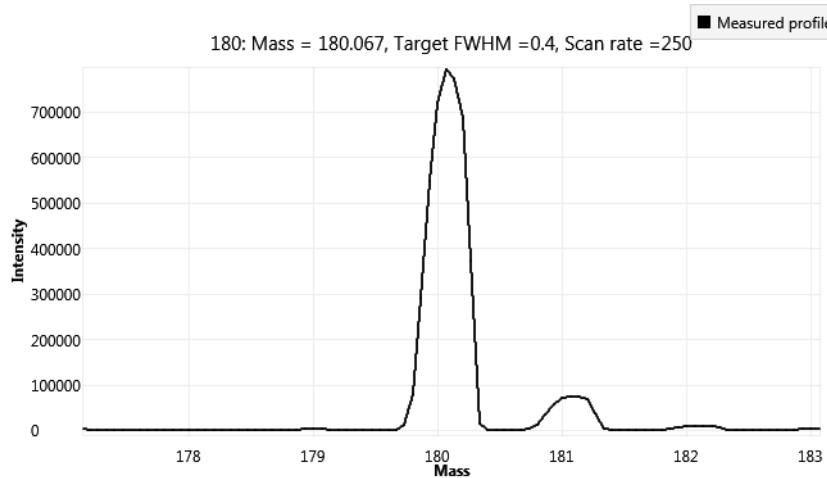


Diagnostic Report

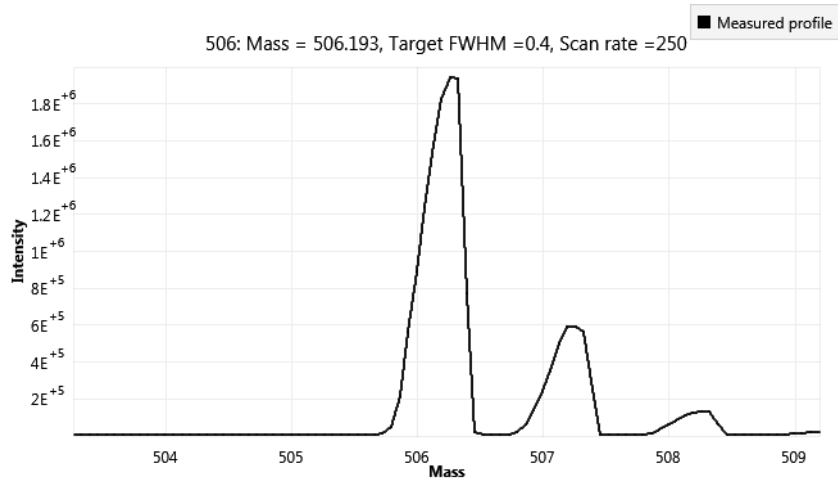


Diagnostic Report

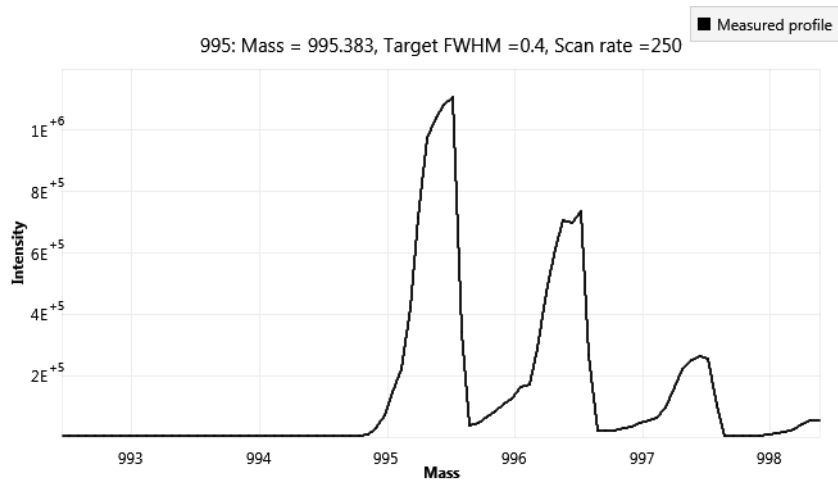
180: Mass = 180.067, Target FWHM = 0.4, Scan rate = 250



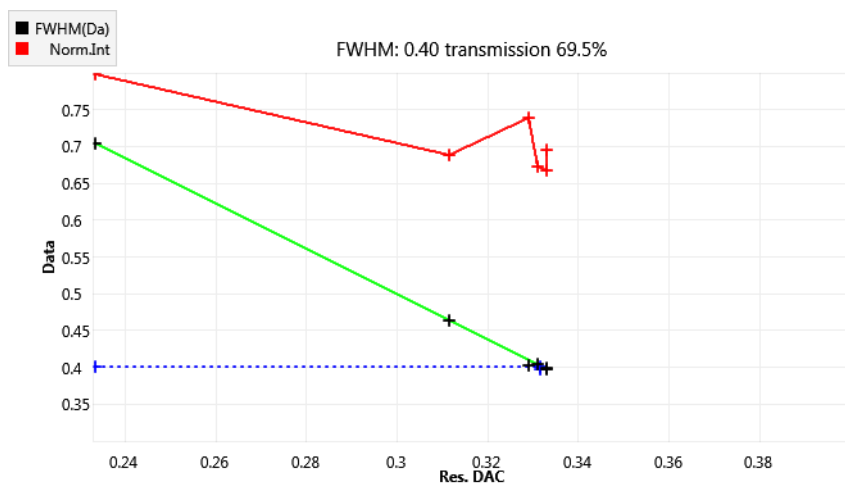
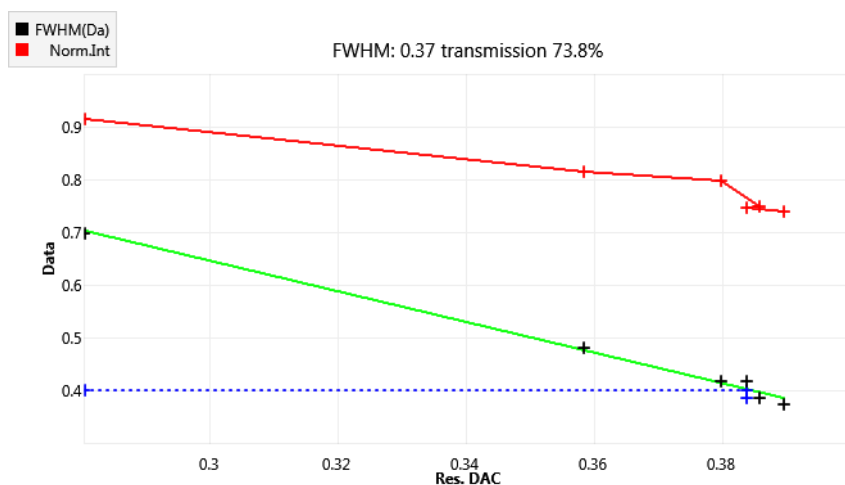
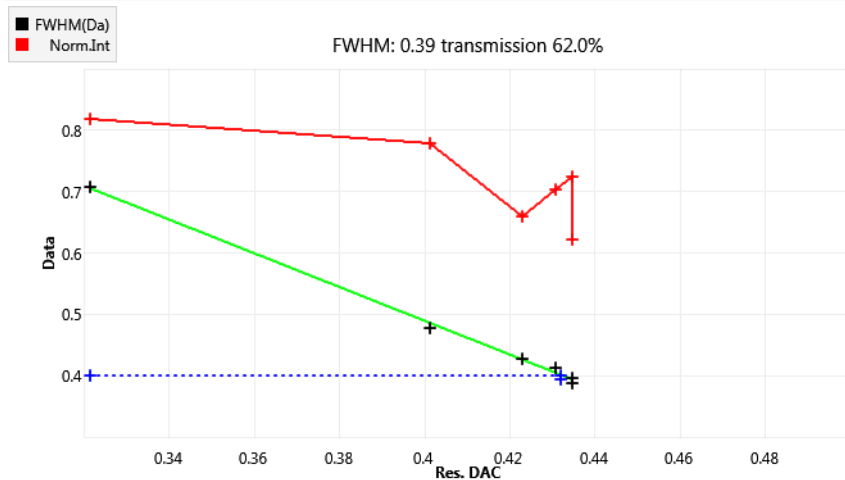
506: Mass = 506.193, Target FWHM = 0.4, Scan rate = 250



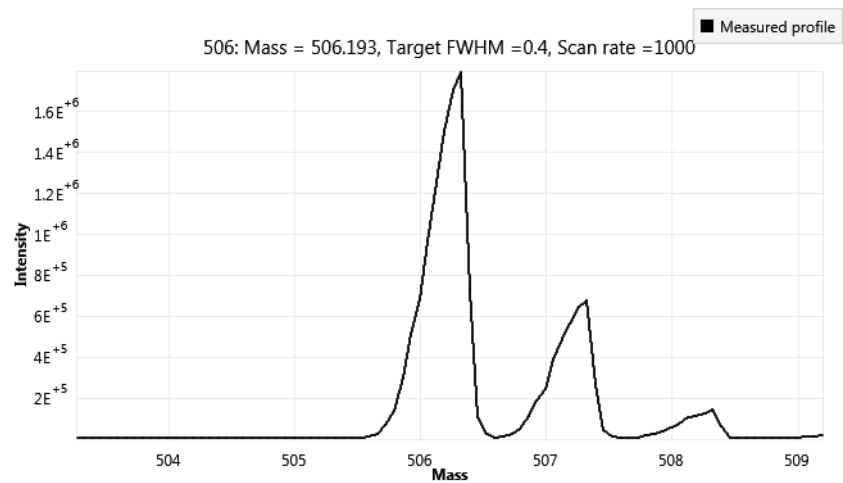
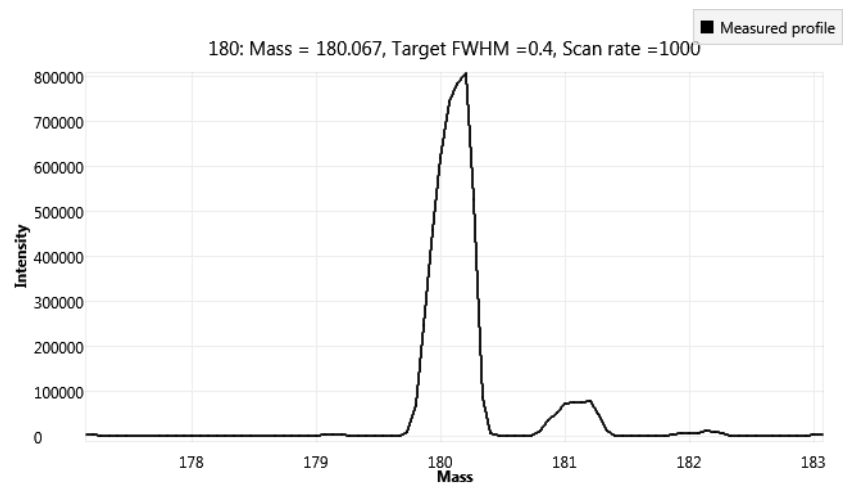
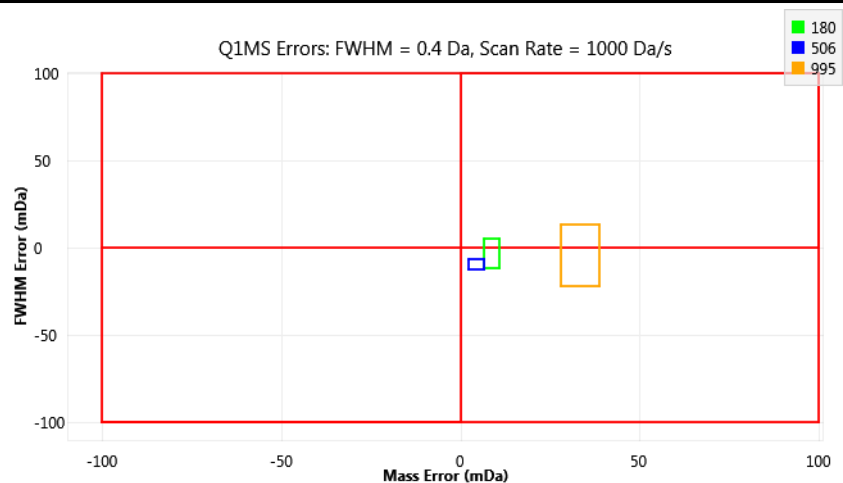
995: Mass = 995.383, Target FWHM = 0.4, Scan rate = 250



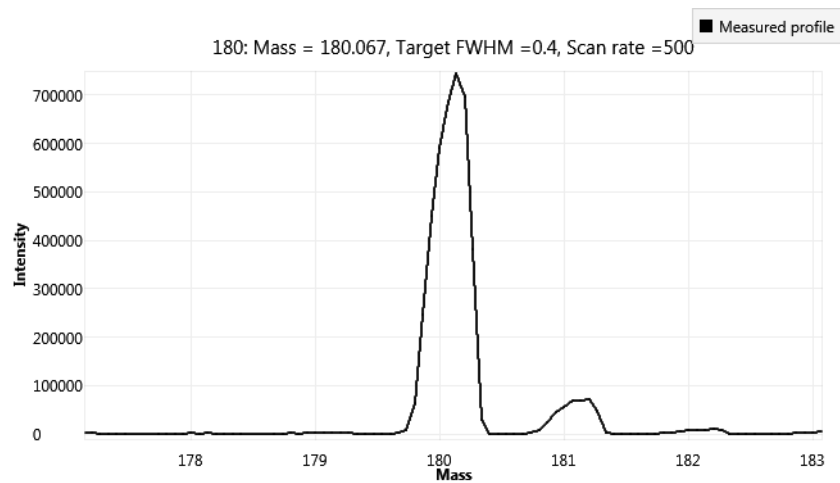
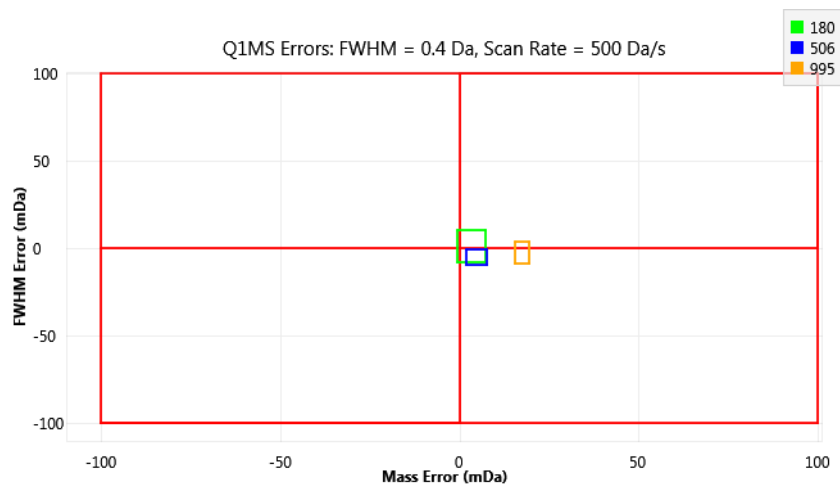
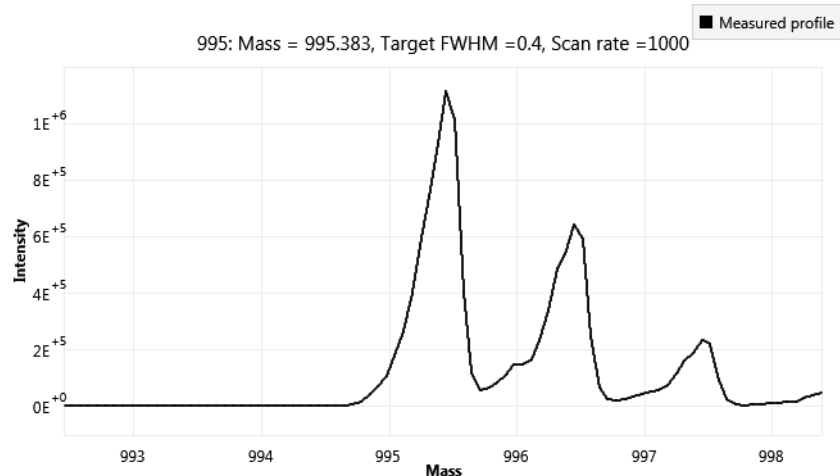
Diagnostic Report



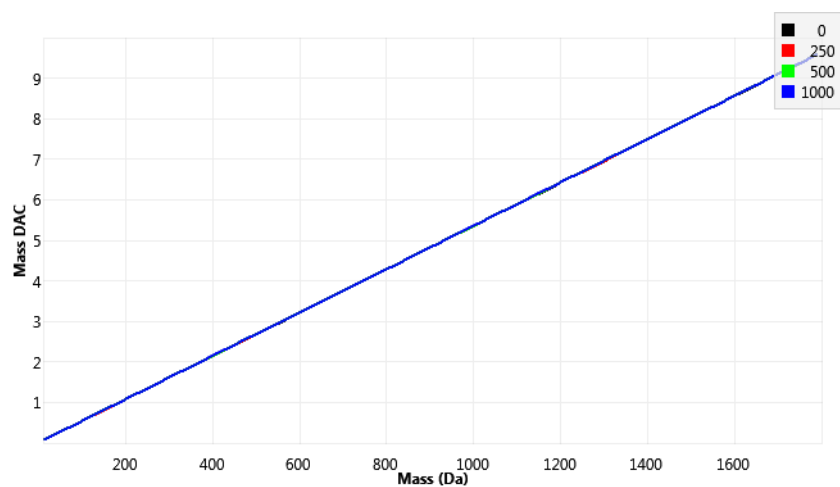
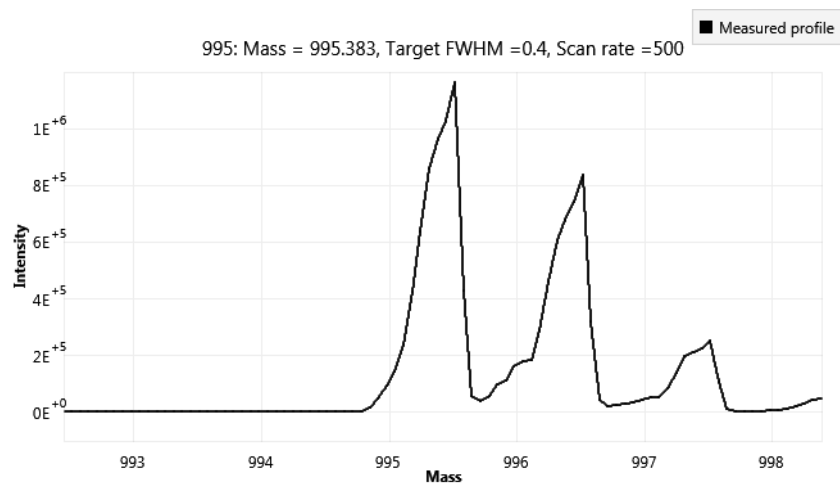
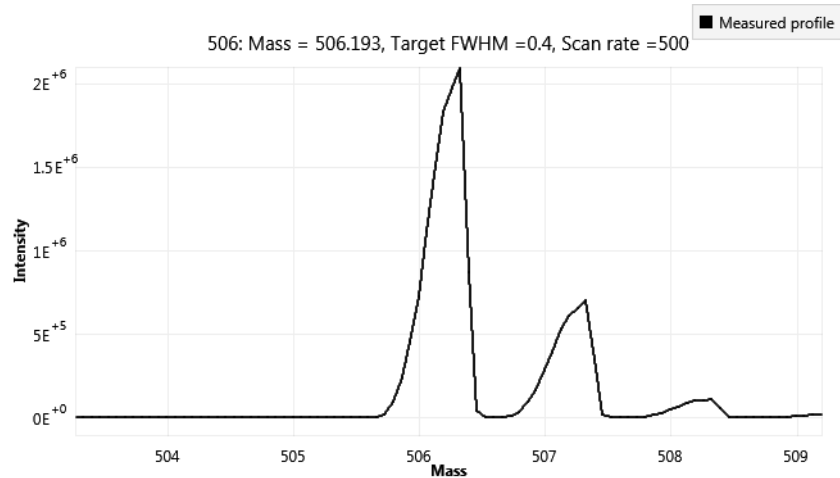
Diagnostic Report



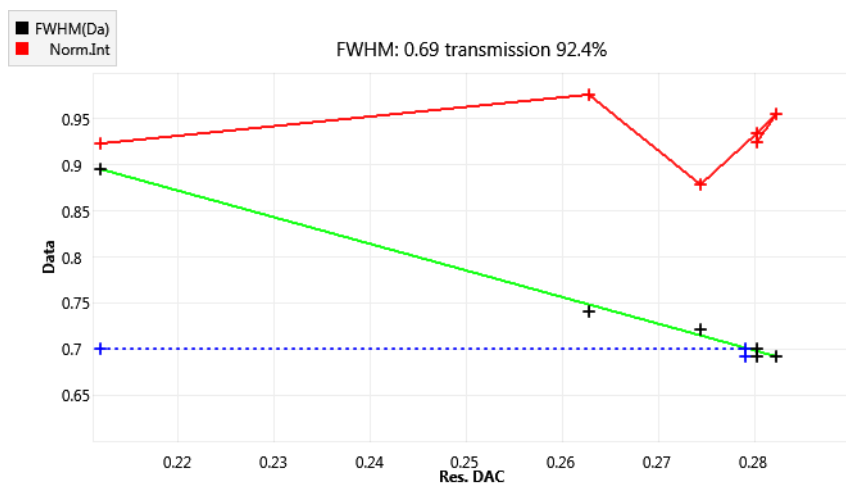
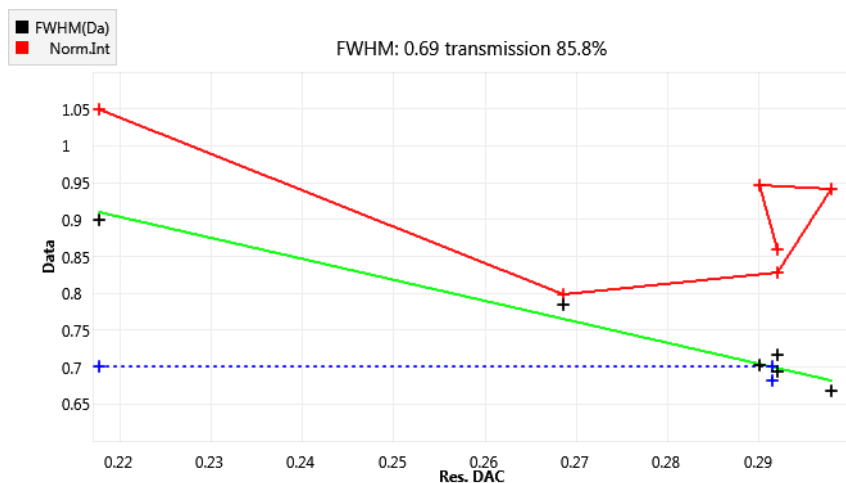
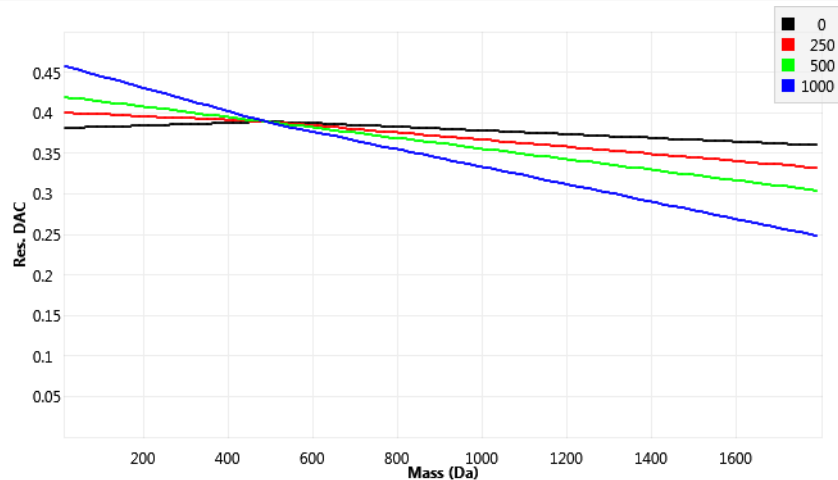
Diagnostic Report



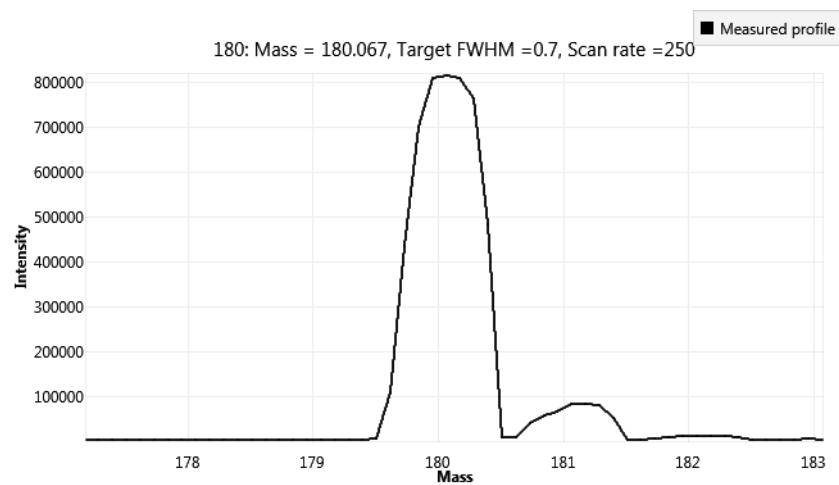
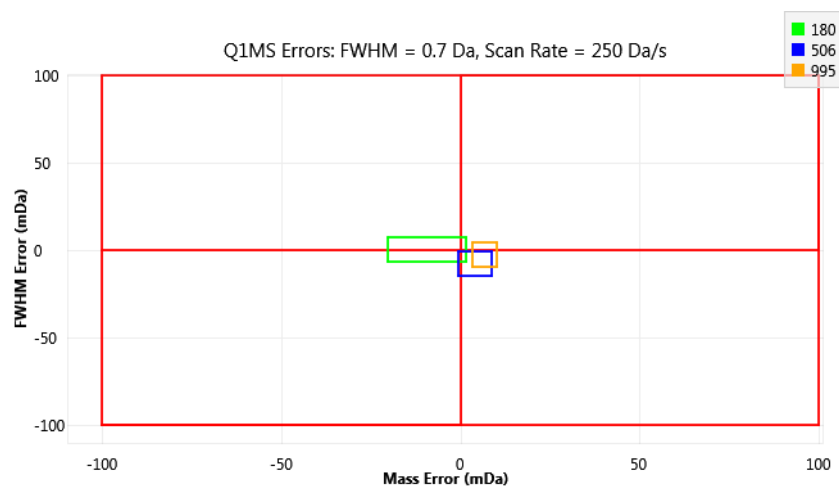
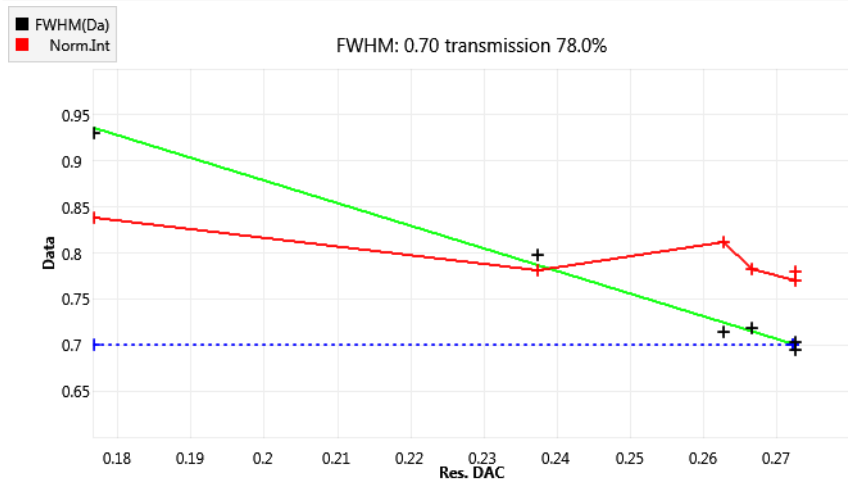
Diagnostic Report



Diagnostic Report

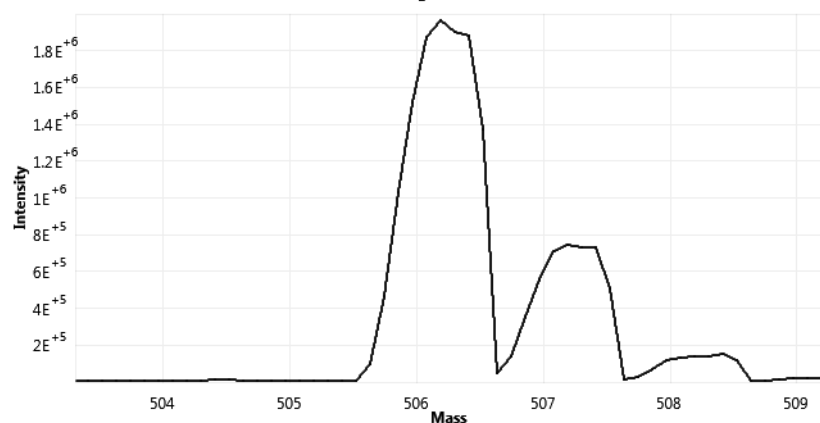


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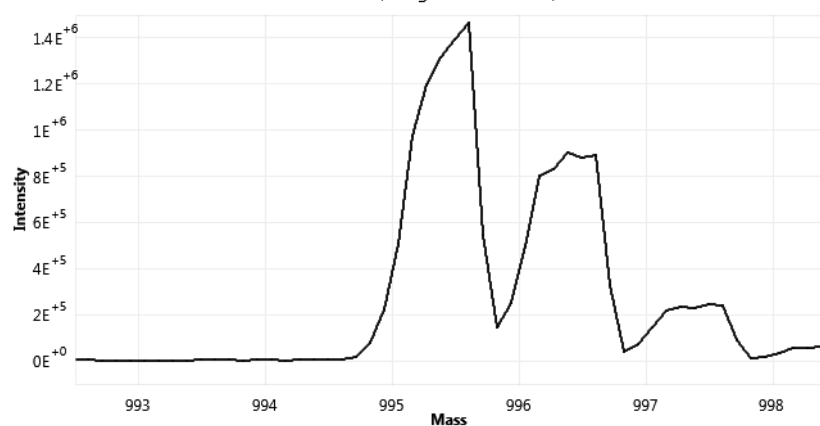


Diagnostic Report

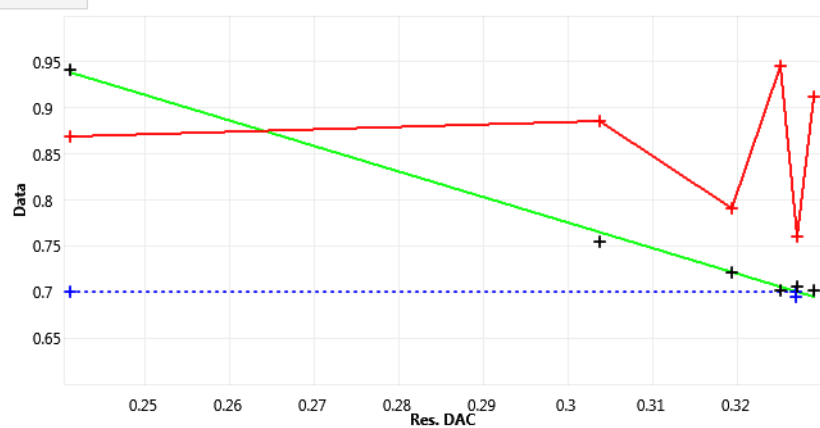
506: Mass = 506.193, Target FWHM = 0.7, Scan rate = 250



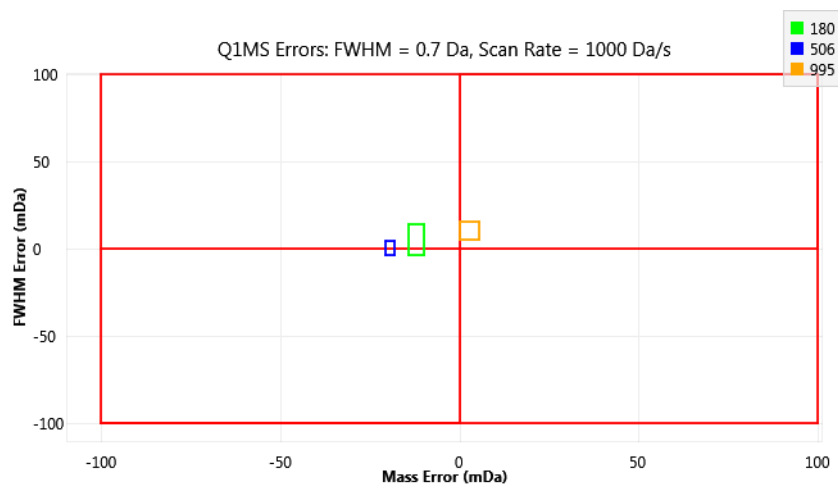
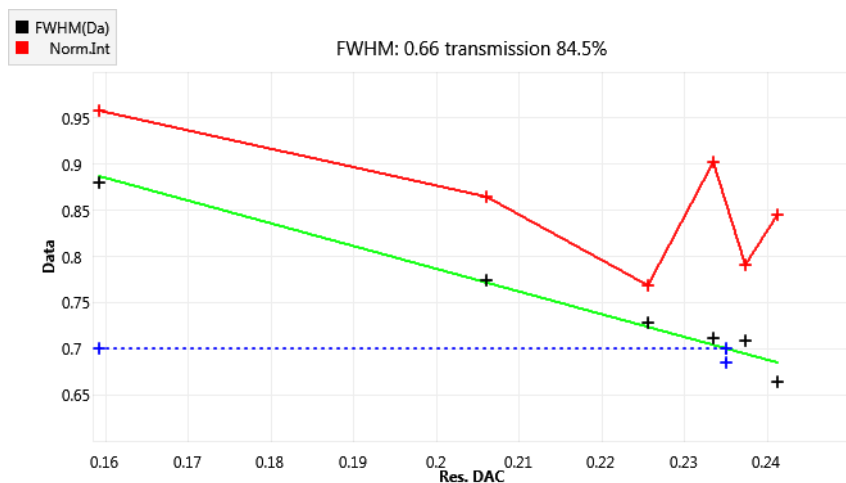
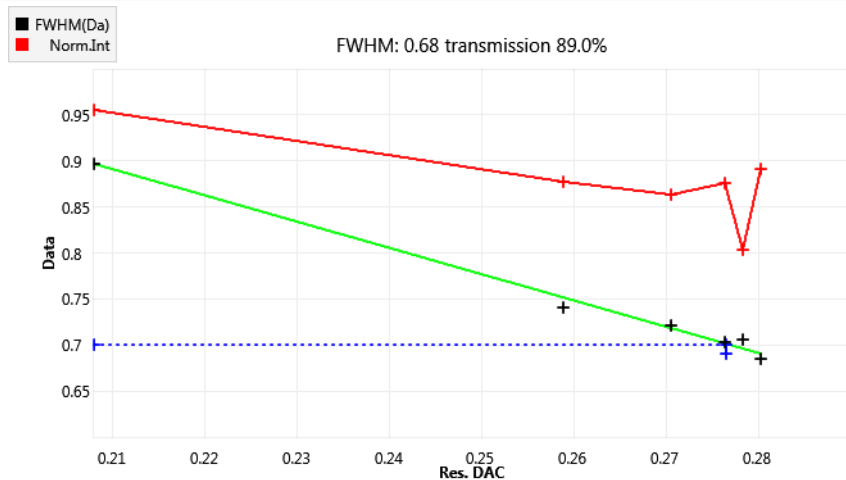
995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 250



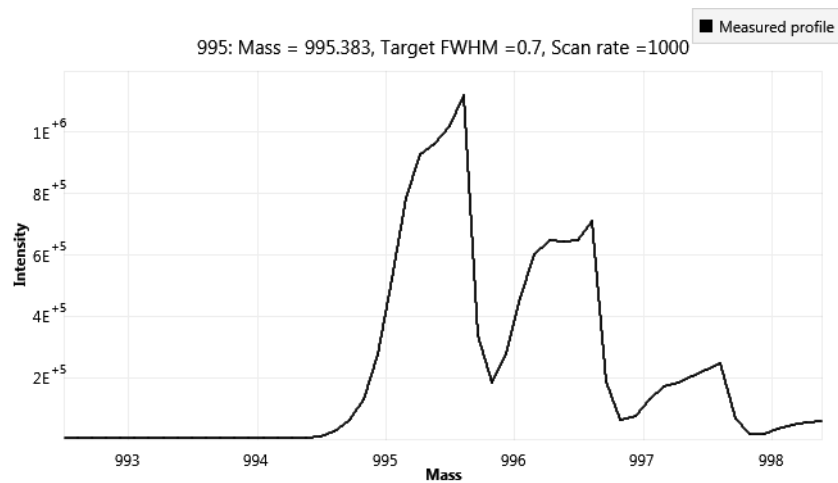
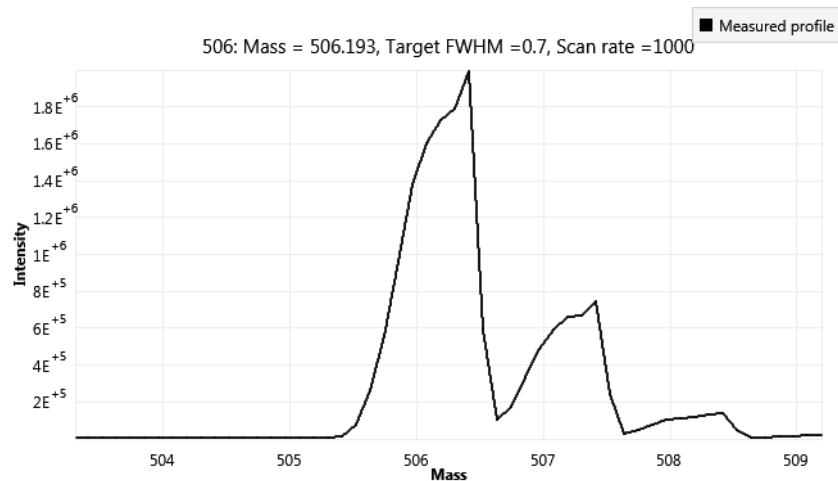
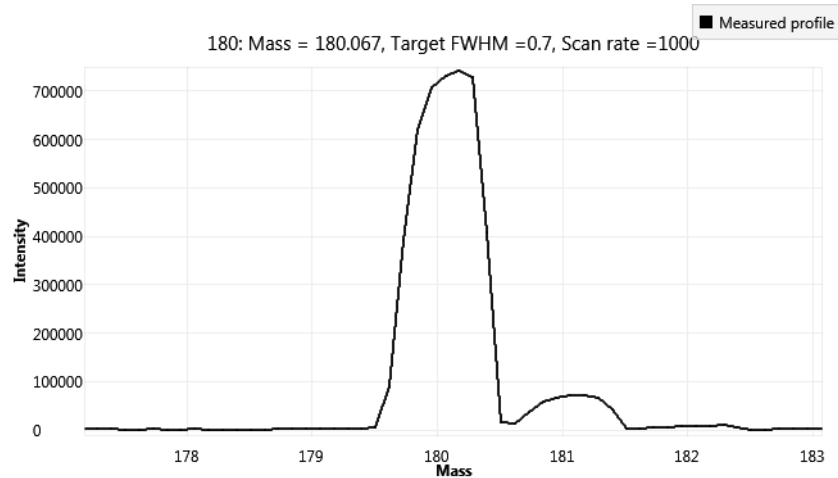
FWHM: 0.70 transmission 91.1%



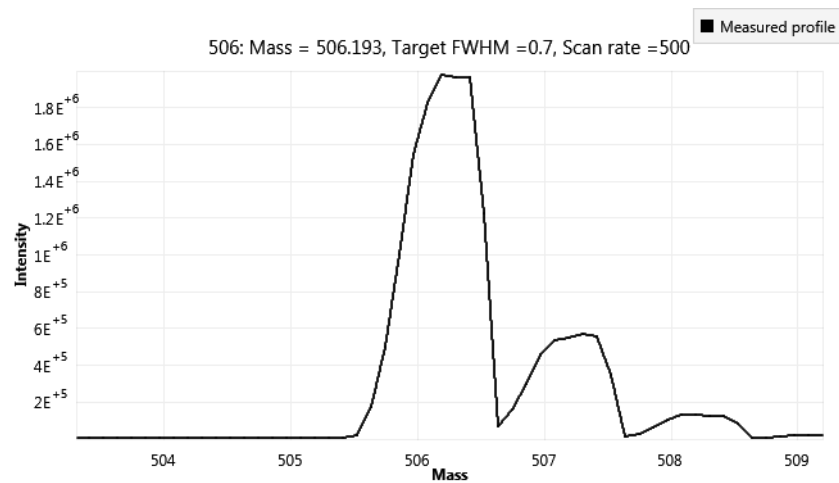
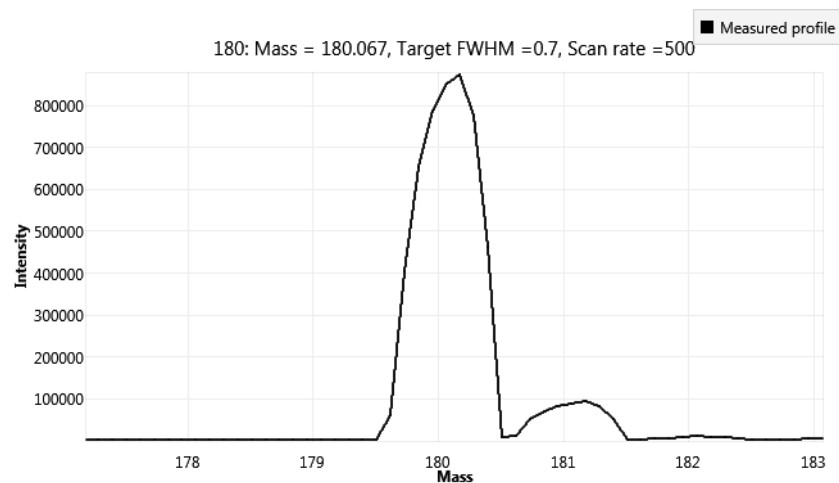
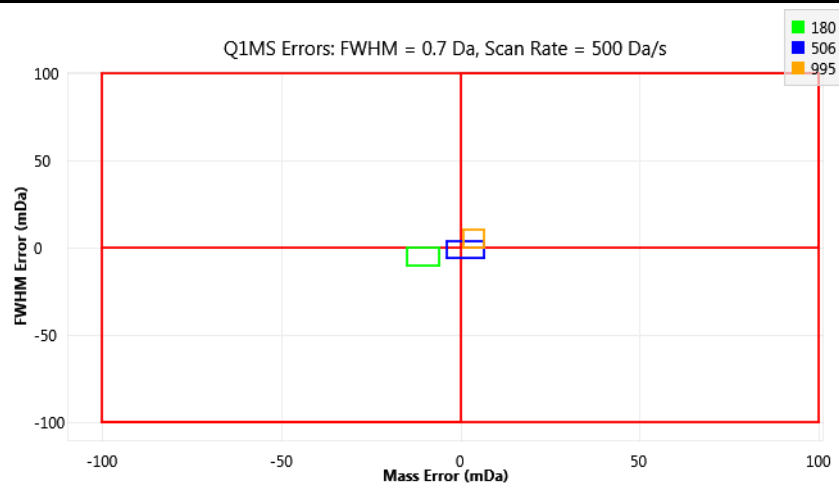
Diagnostic Report



Diagnostic Report



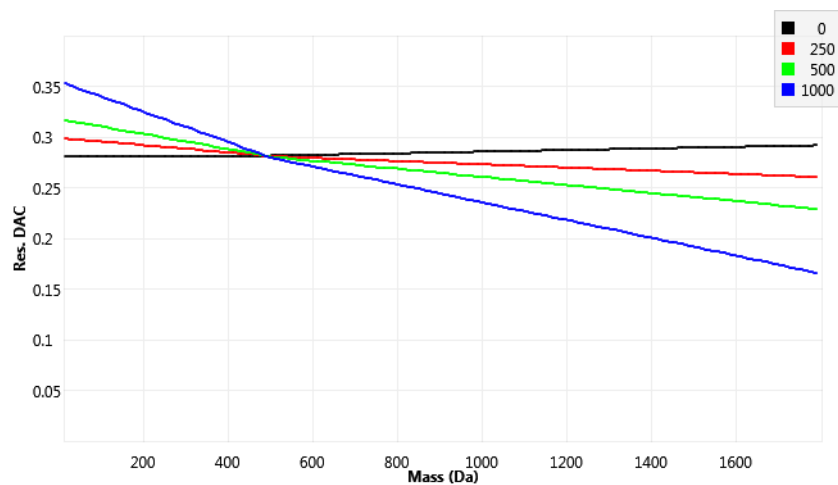
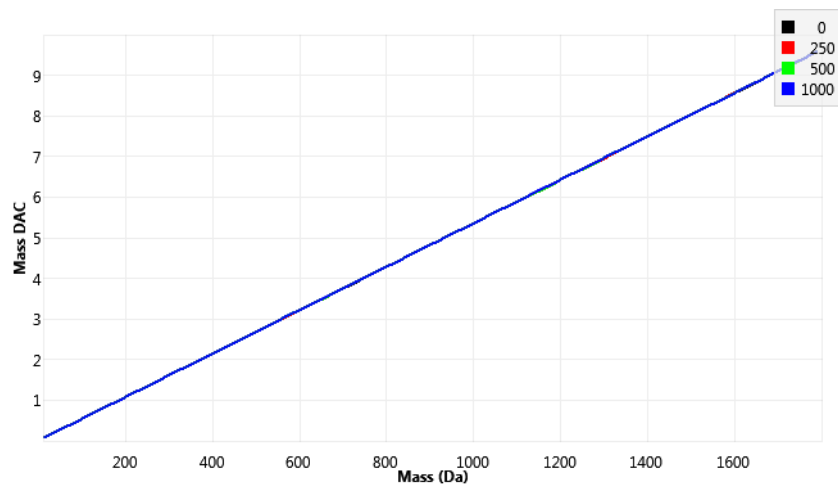
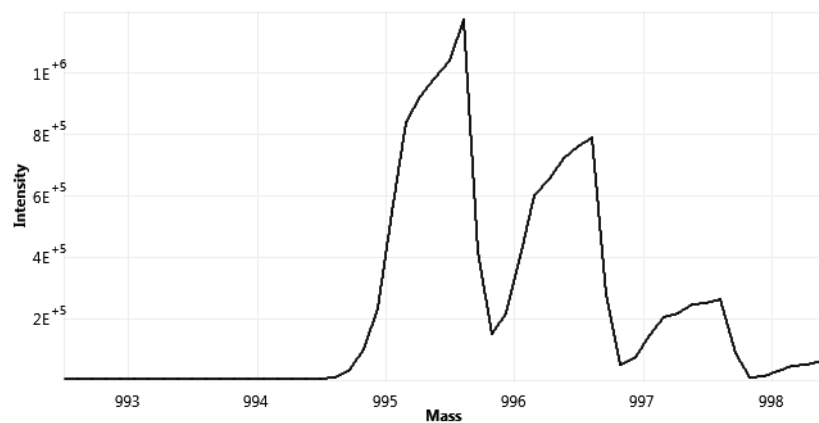
Diagnostic Report



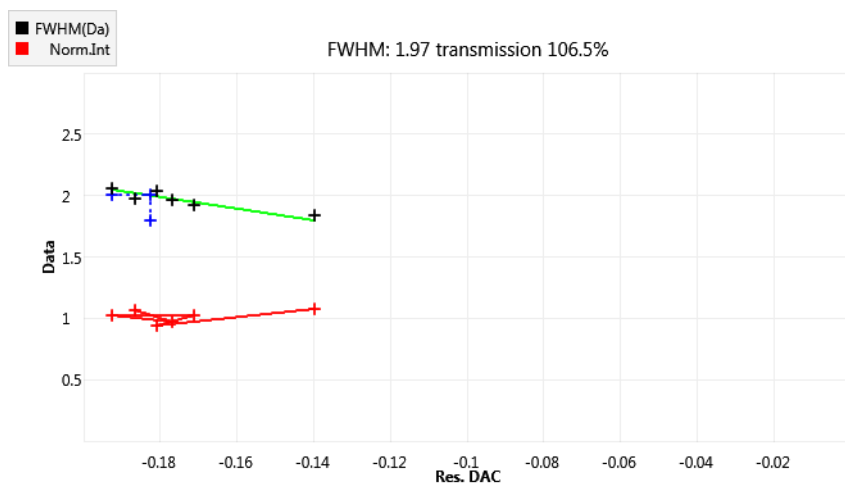
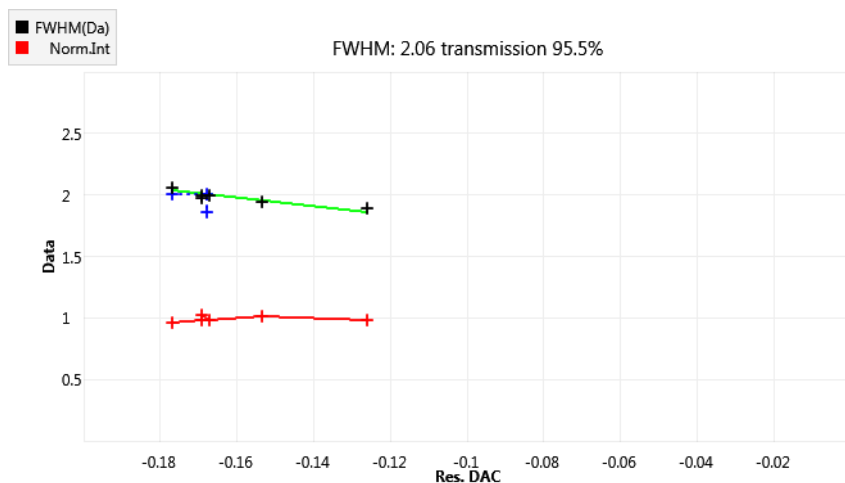
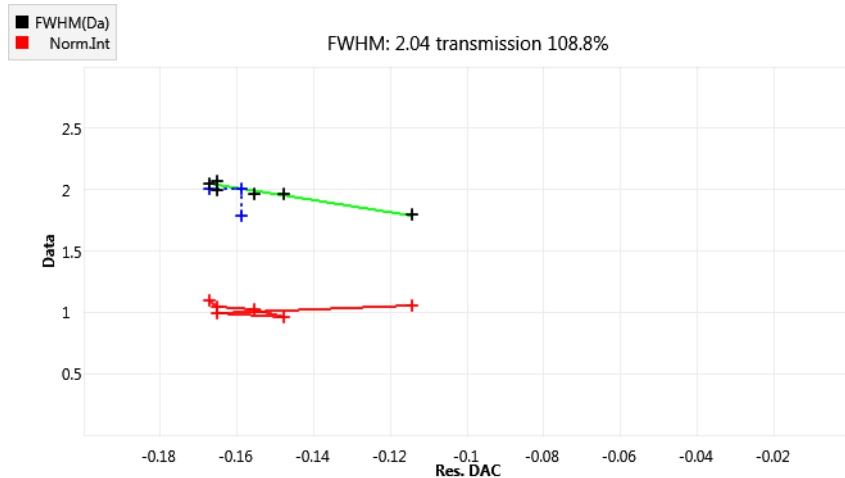
Diagnostic Report

995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 500

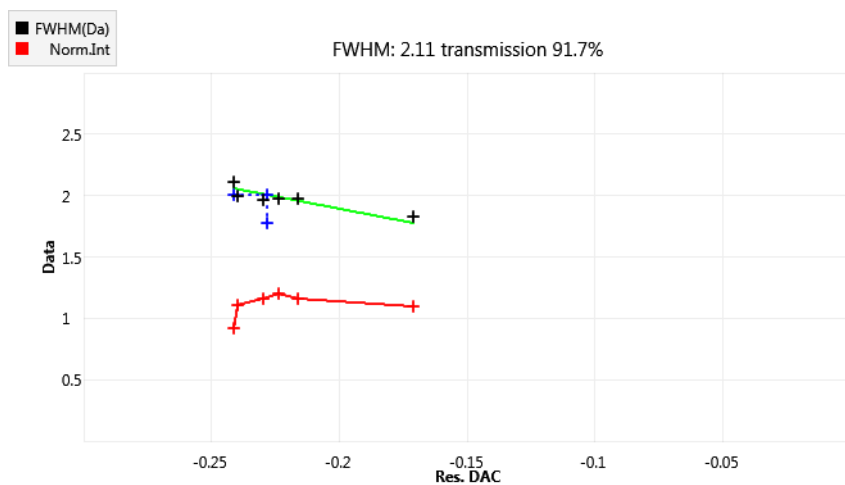
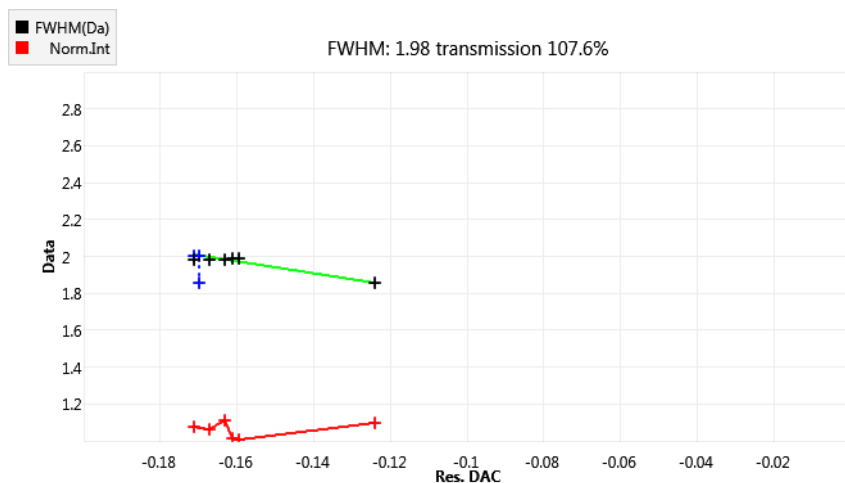
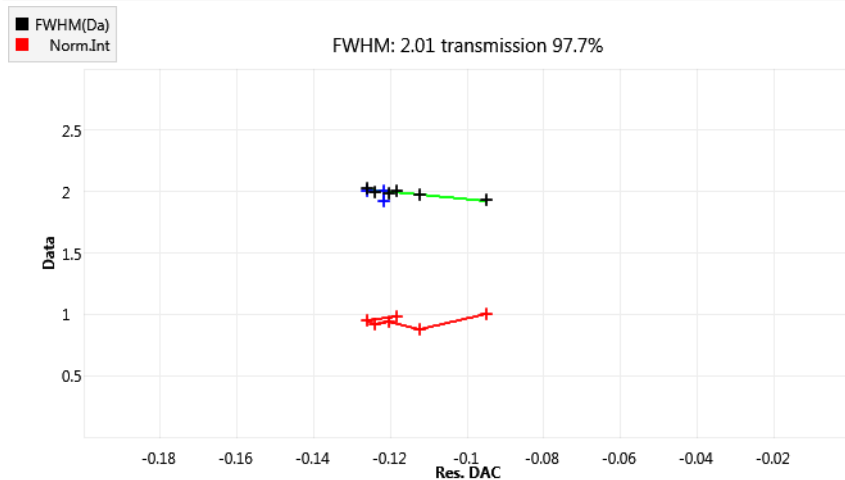
■ Measured profile



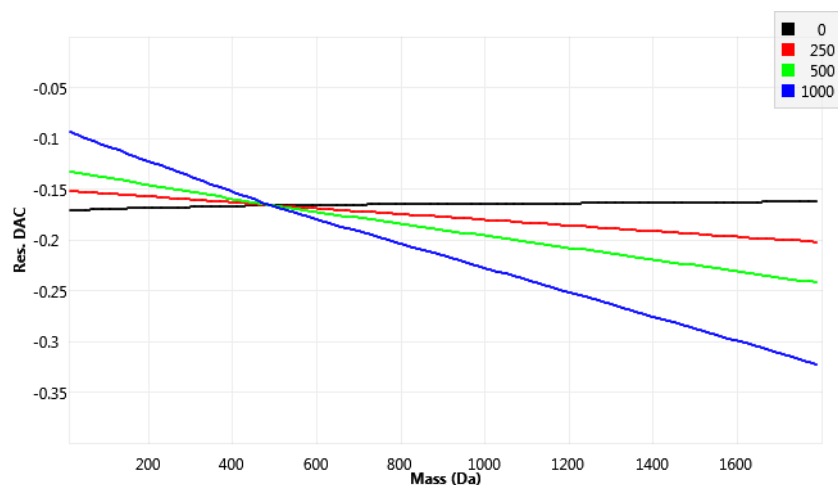
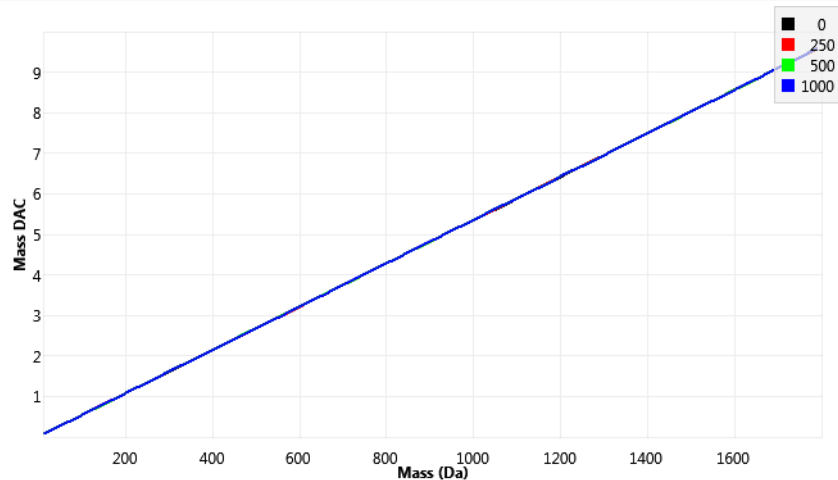
Diagnostic Report



Diagnostic Report



Diagnostic Report

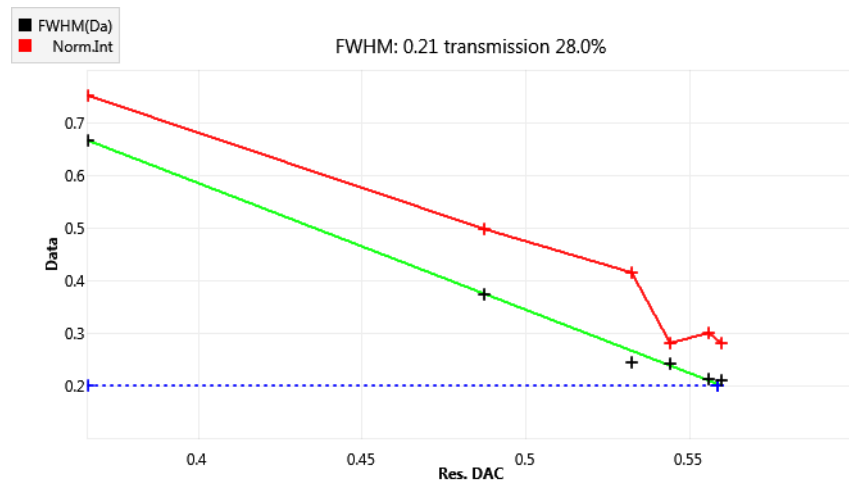


Mass And Resolution Calibration succeeded.

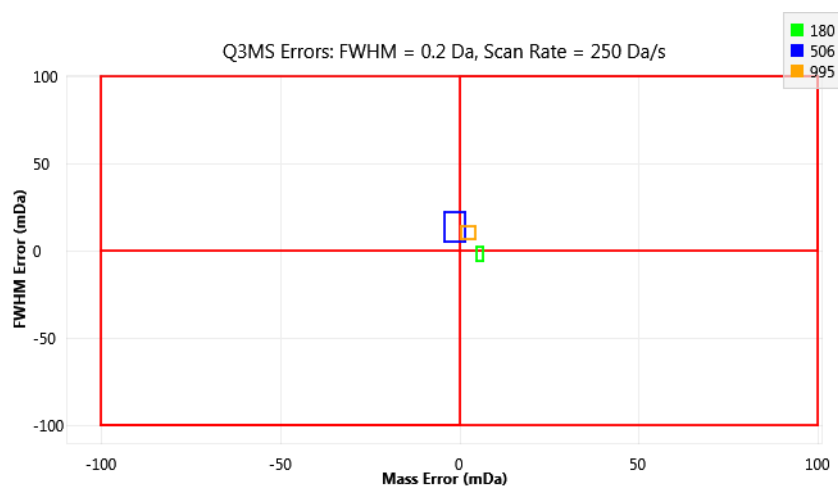
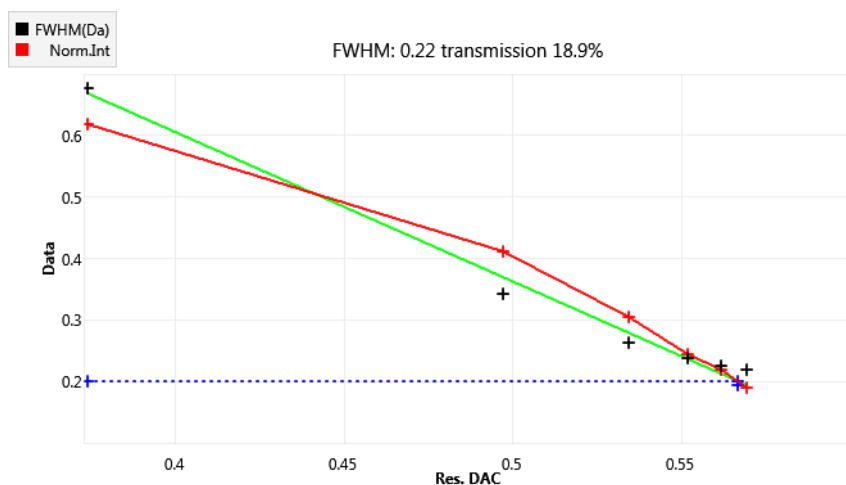
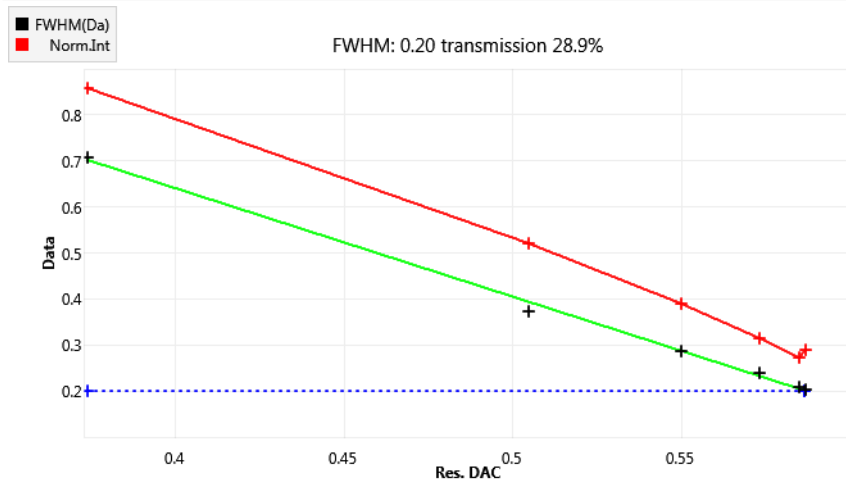
Q3 coarse calibration result:

Gain DAC value= 1322

m/z	FWHM
180.07	1.85
506.19	1.85
995.38	1.66

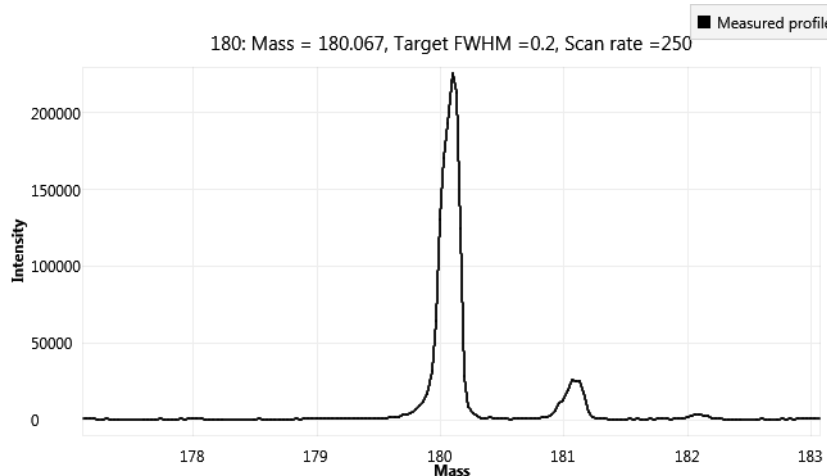


Diagnostic Report

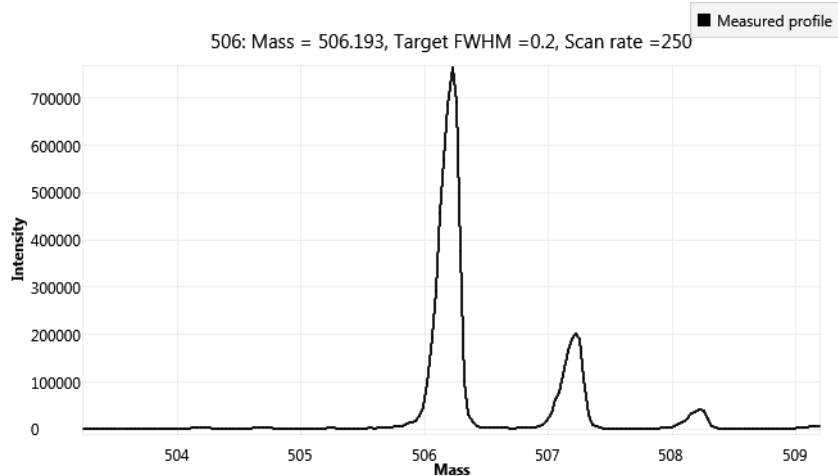


Diagnostic Report

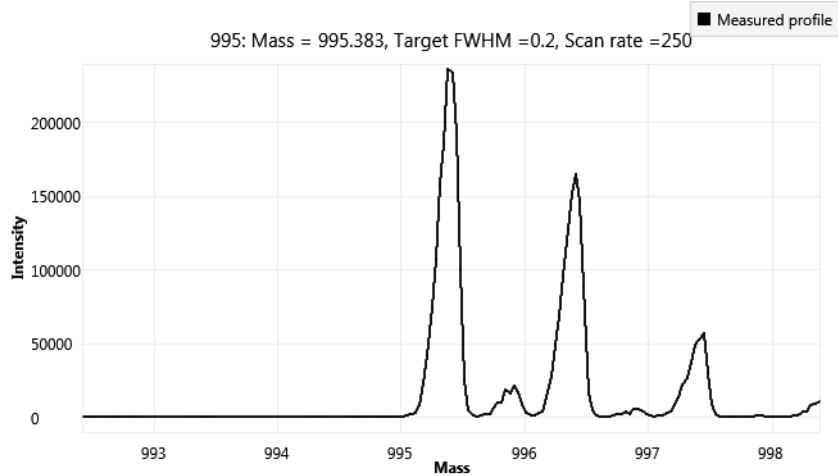
180: Mass = 180.067, Target FWHM = 0.2, Scan rate = 250



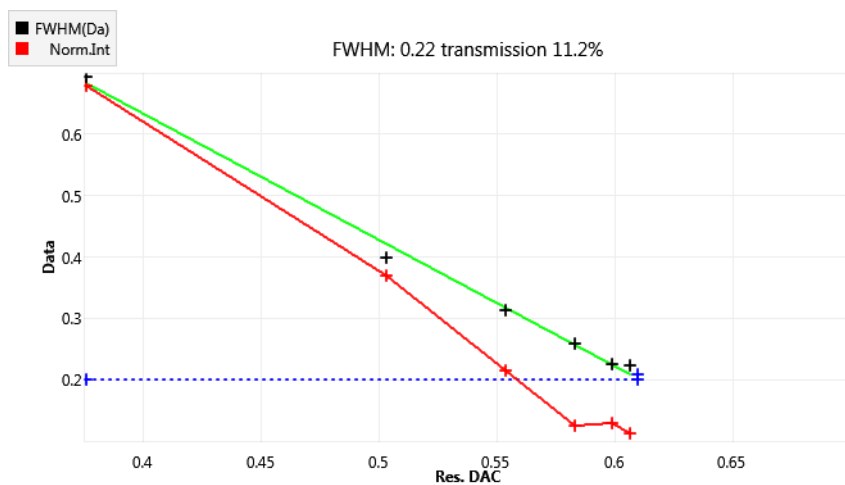
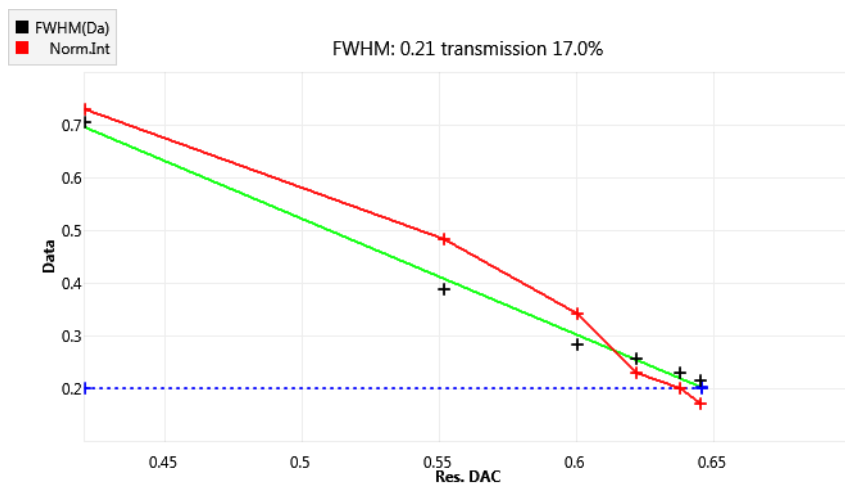
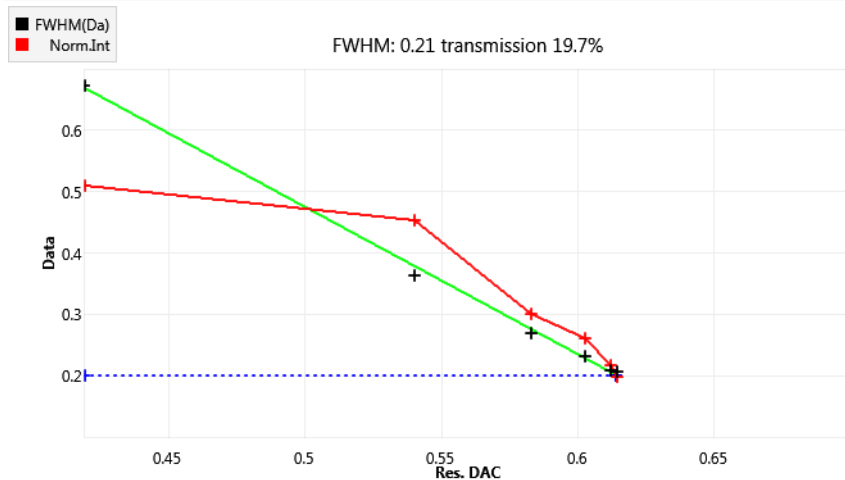
506: Mass = 506.193, Target FWHM = 0.2, Scan rate = 250



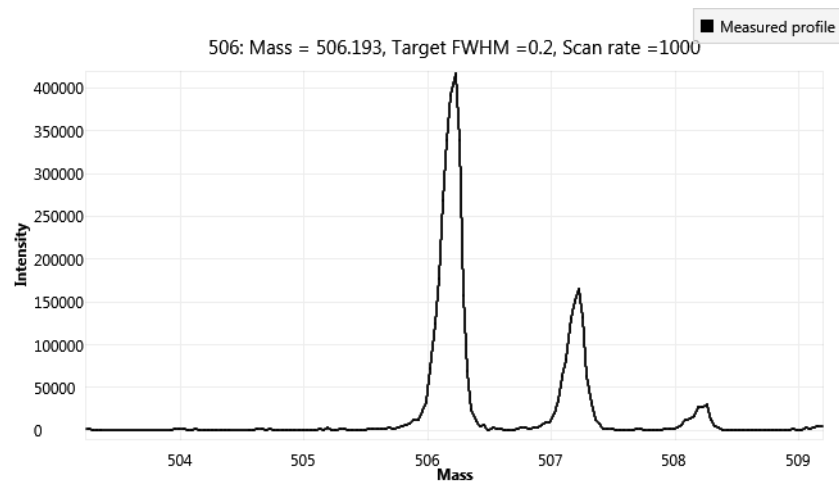
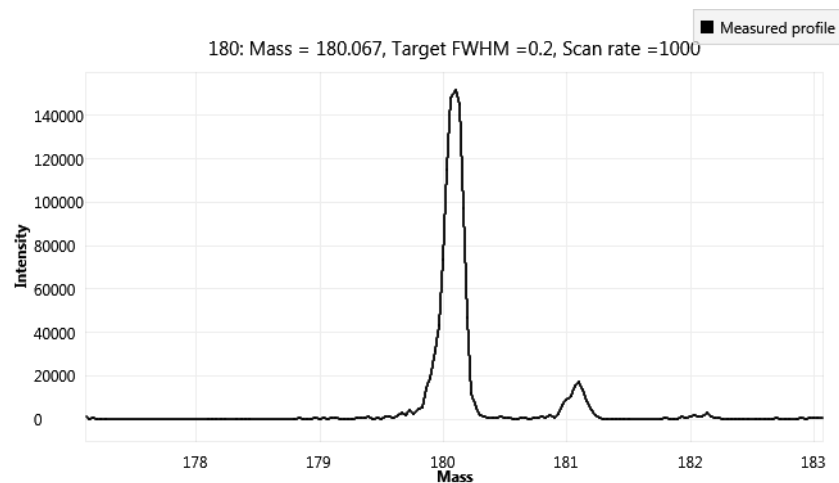
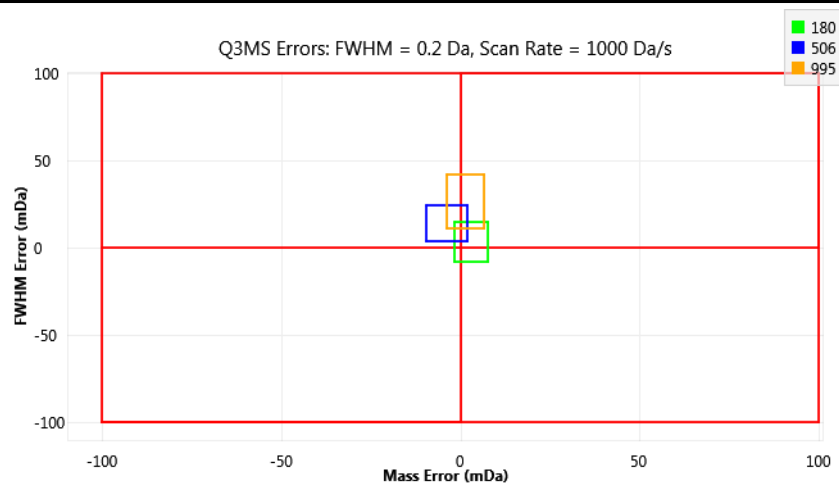
995: Mass = 995.383, Target FWHM = 0.2, Scan rate = 250



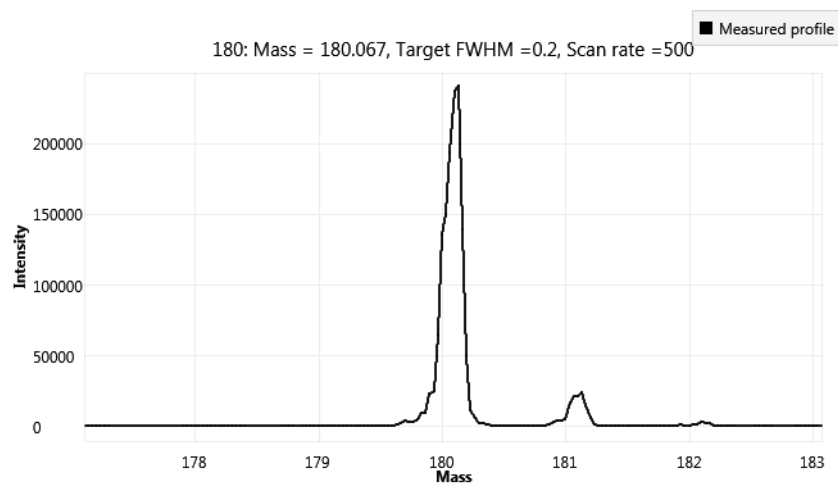
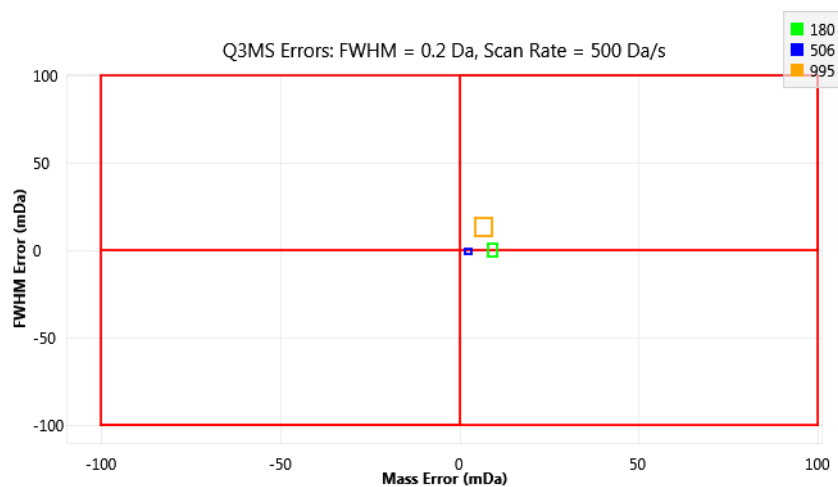
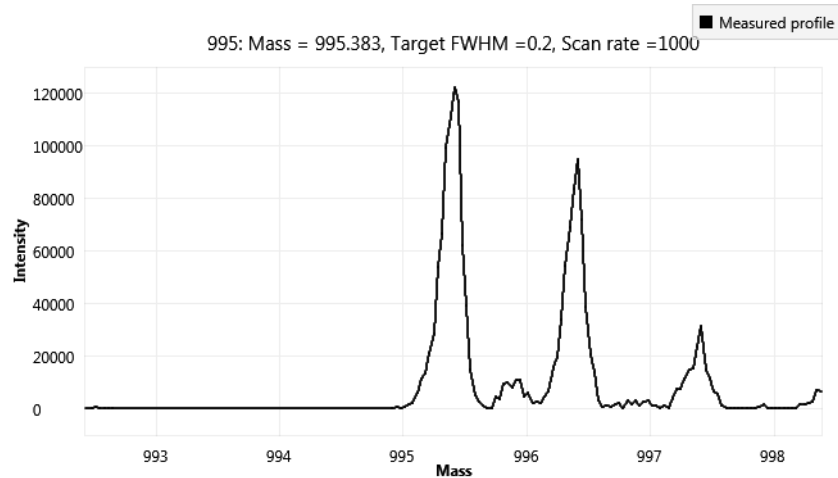
Diagnostic Report



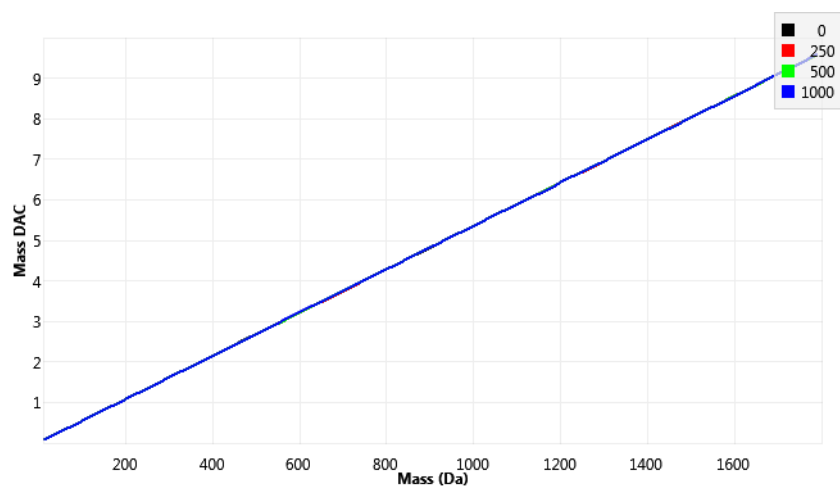
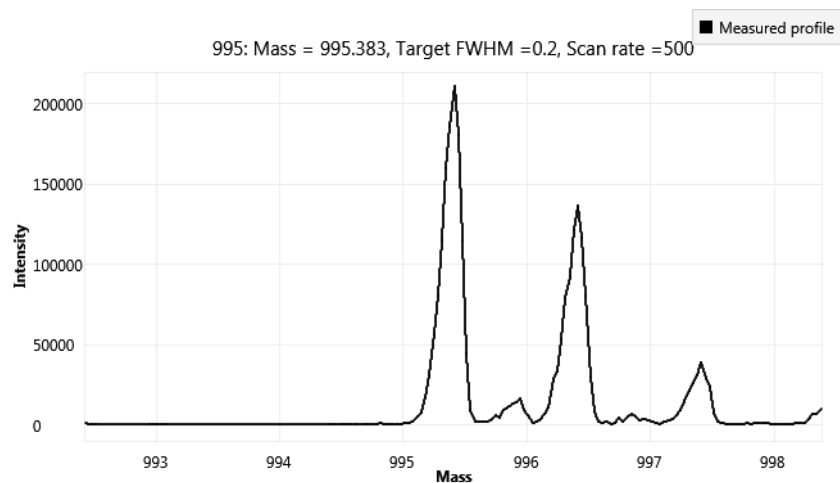
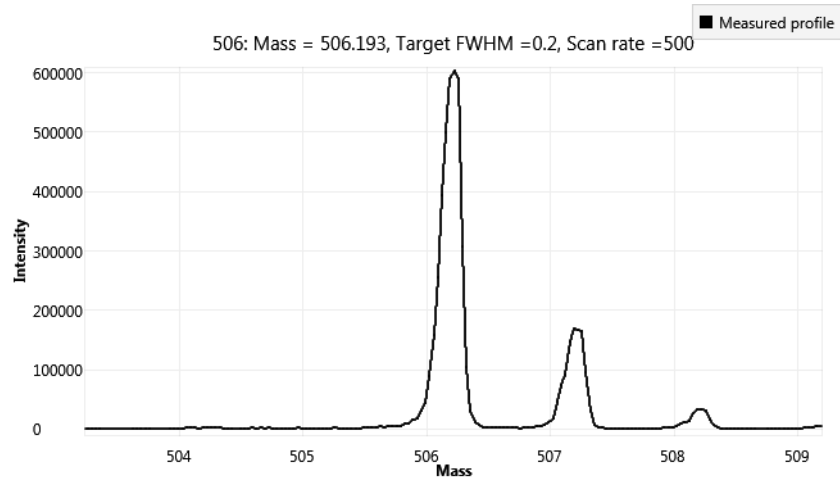
Diagnostic Report



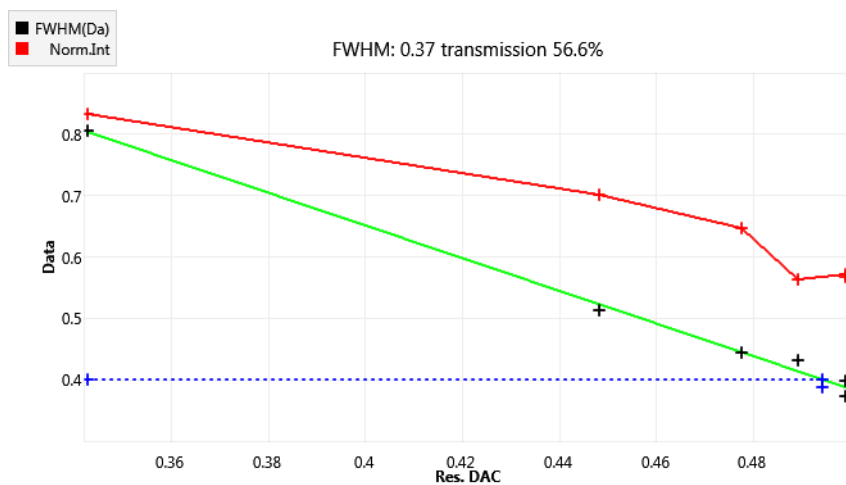
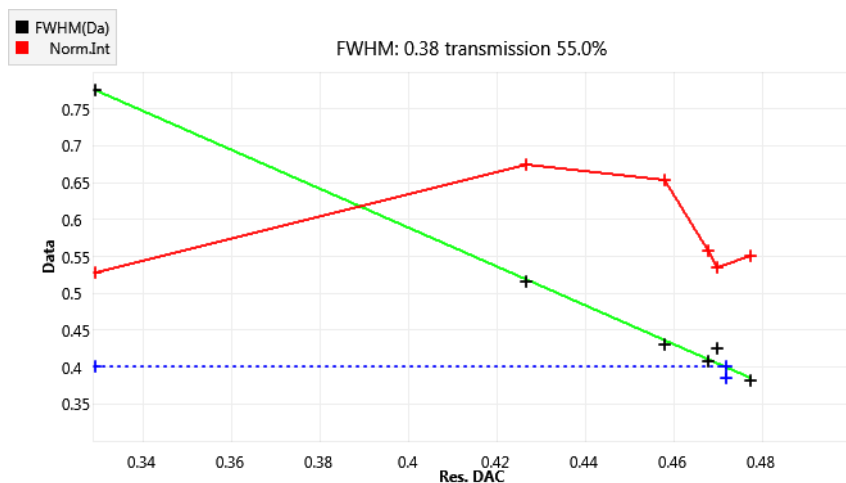
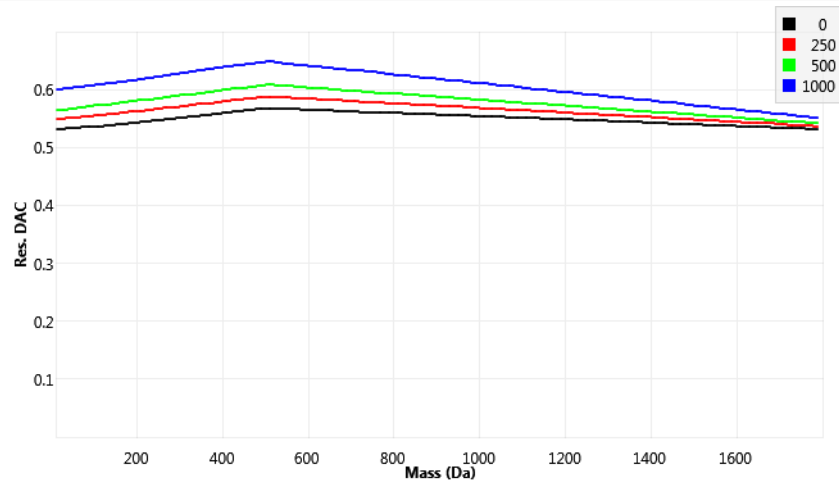
Diagnostic Report



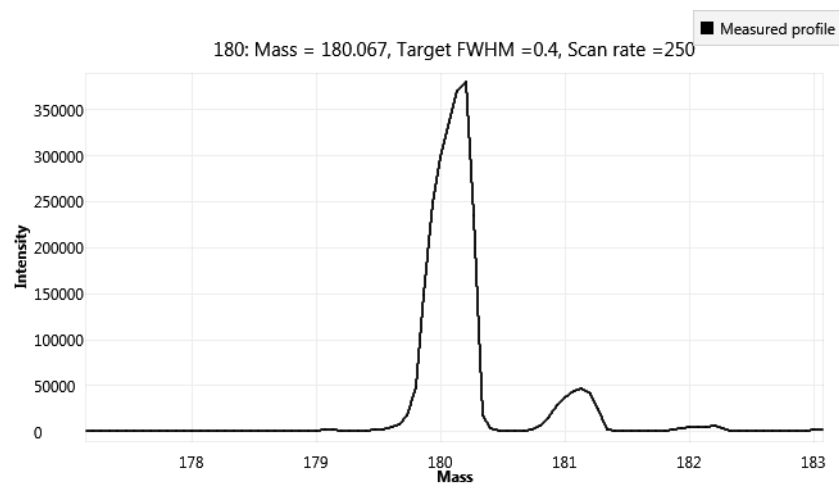
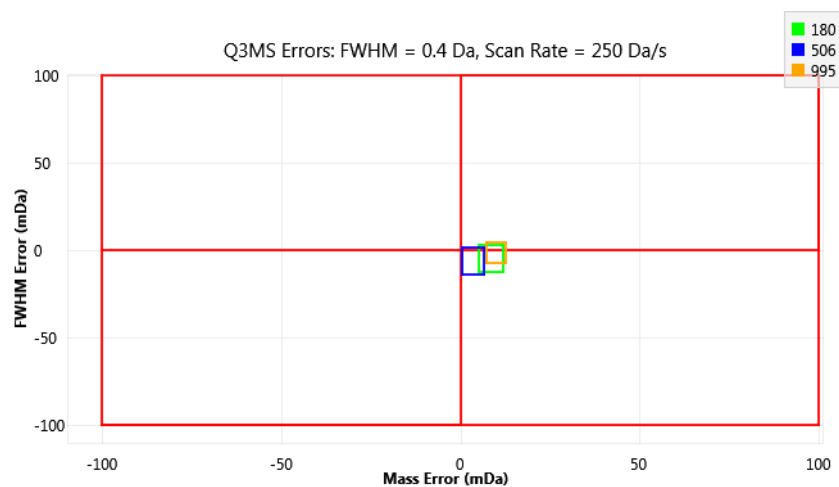
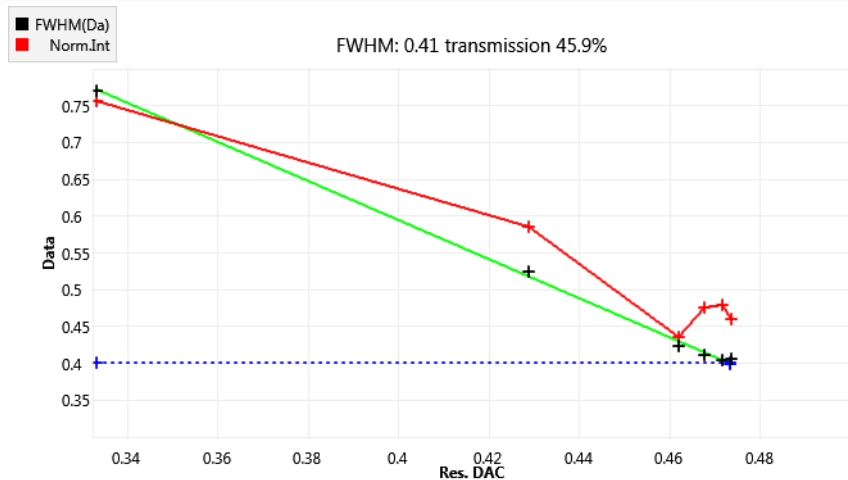
Diagnostic Report



Diagnostic Report

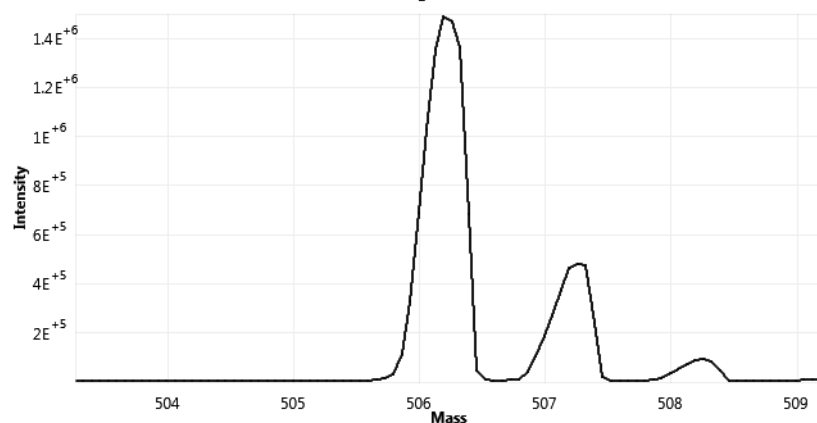


Diagnostic Report

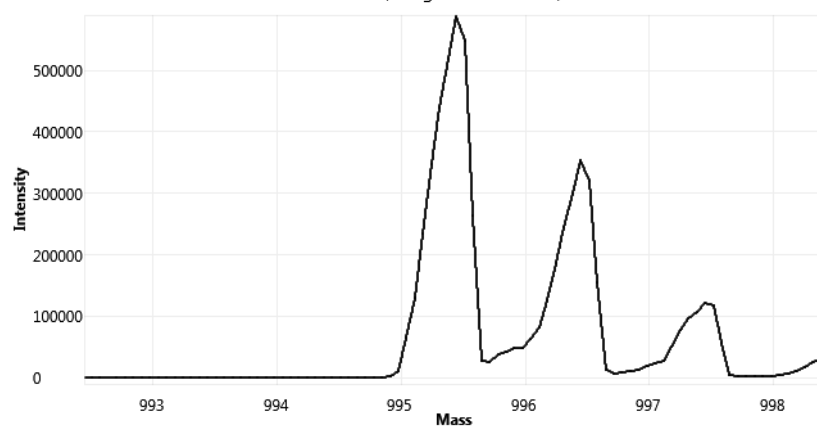


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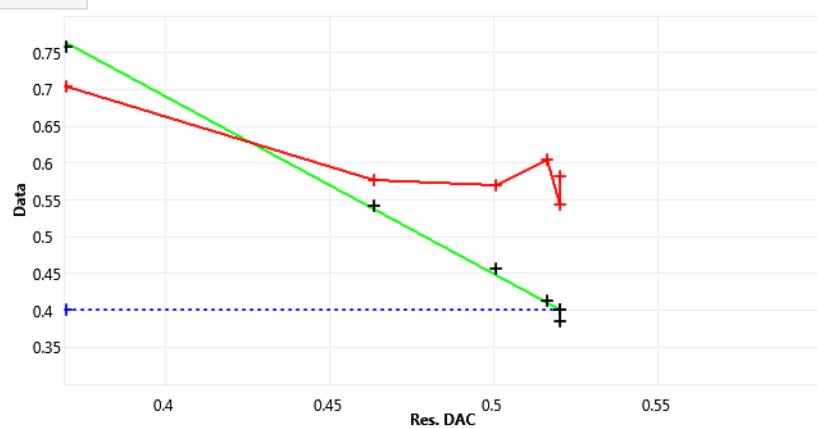
506: Mass = 506.193, Target FWHM = 0.4, Scan rate = 250



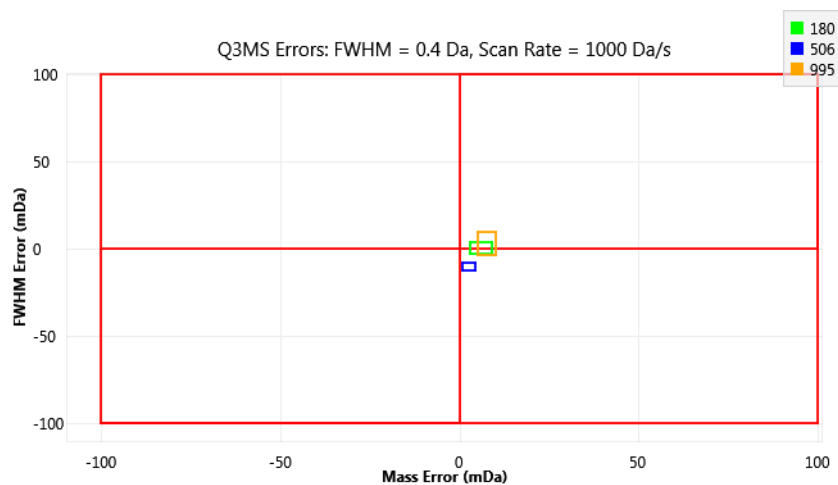
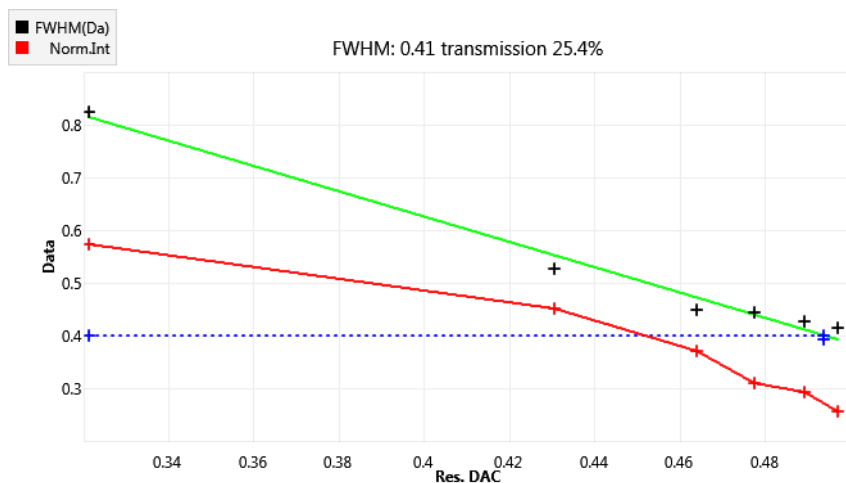
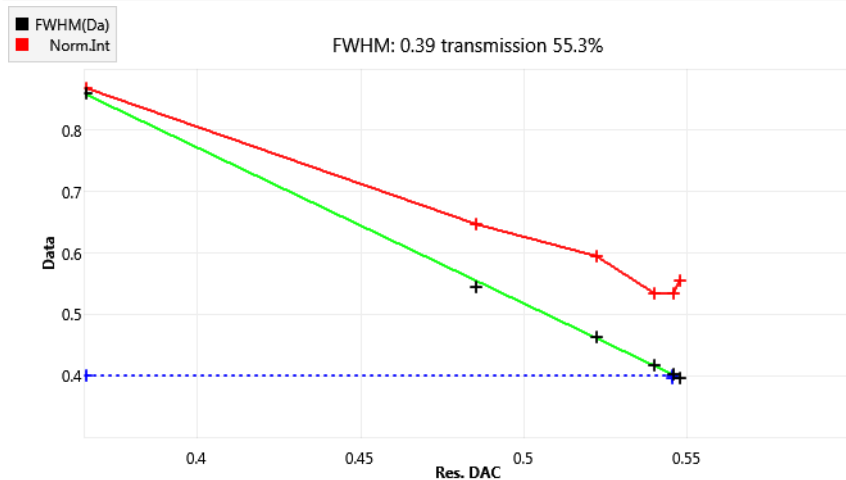
995: Mass = 995.383, Target FWHM = 0.4, Scan rate = 250



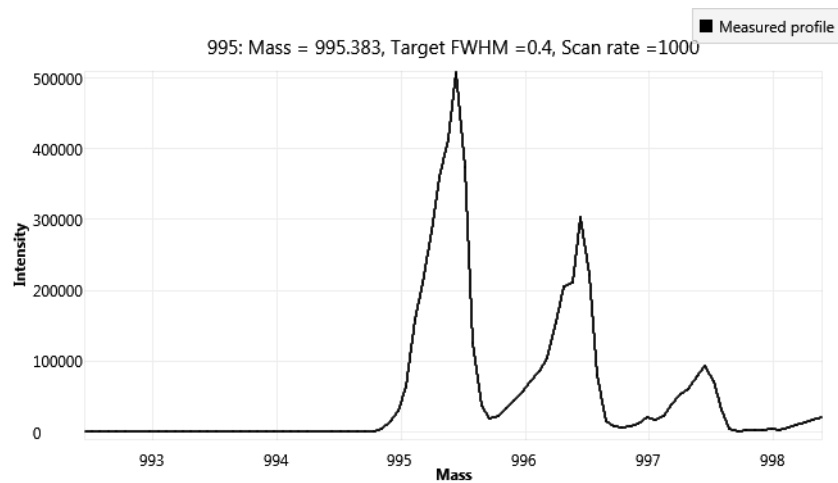
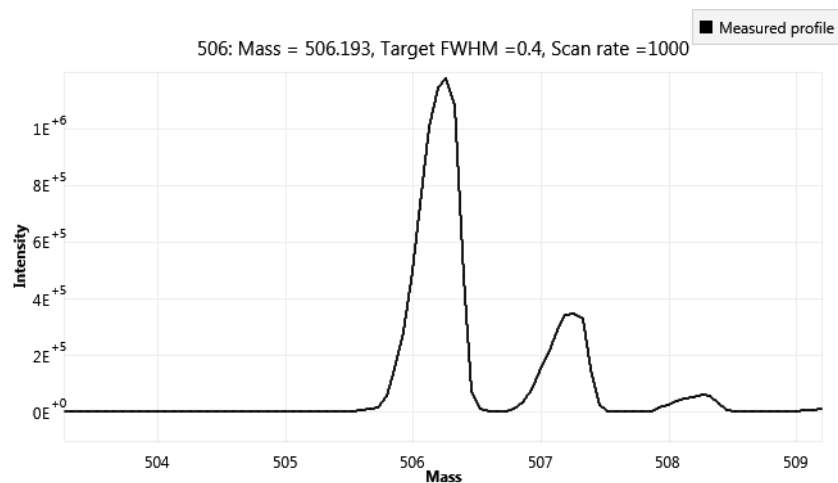
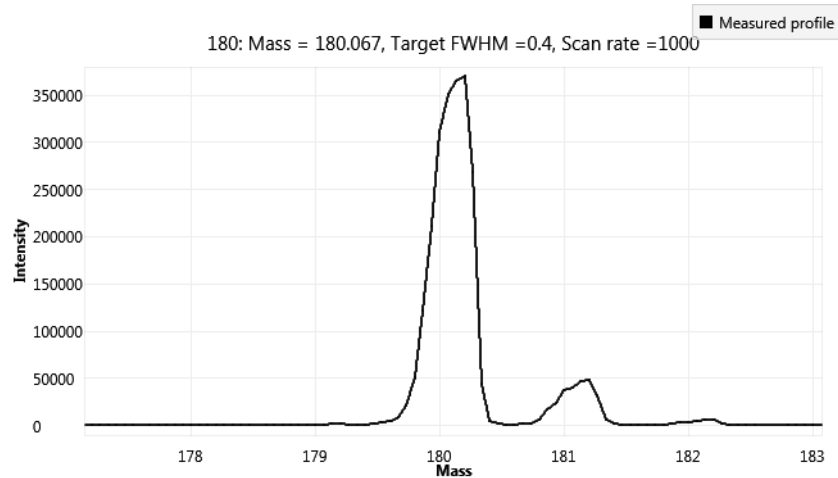
FWHM: 0.39 transmission 58.1%



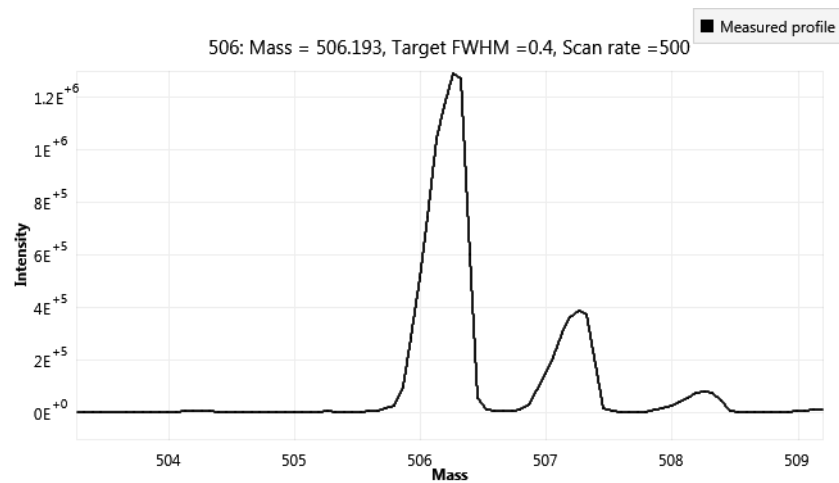
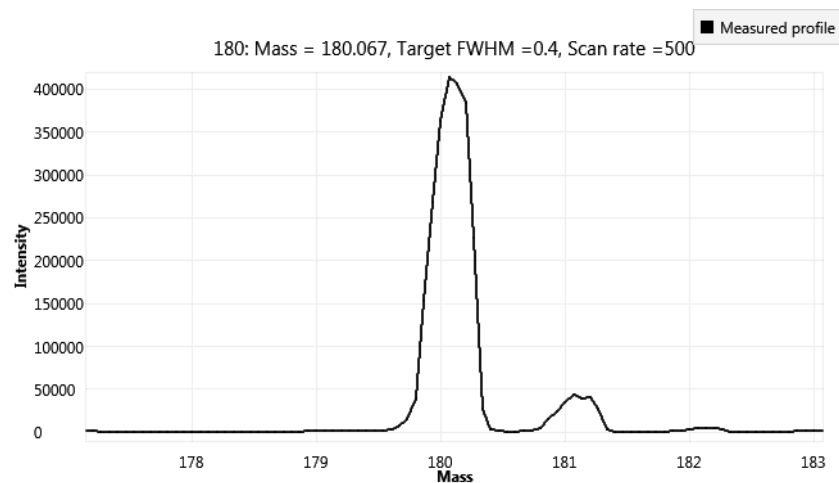
Diagnostic Report



Diagnostic Report

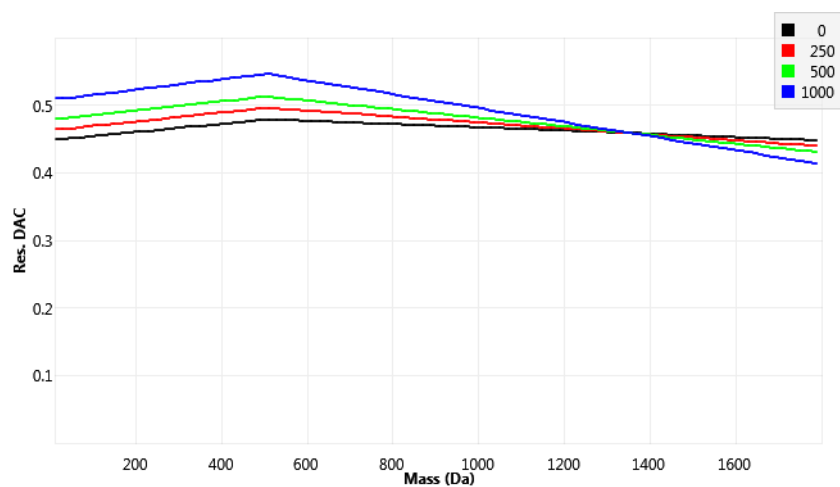
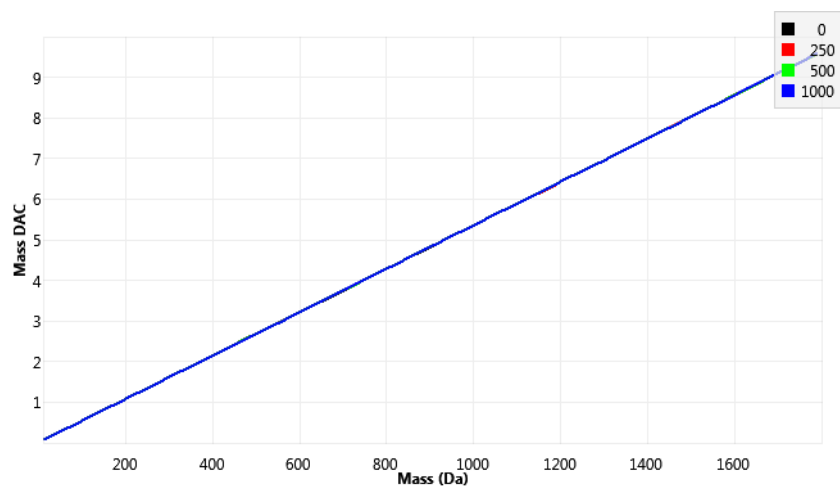
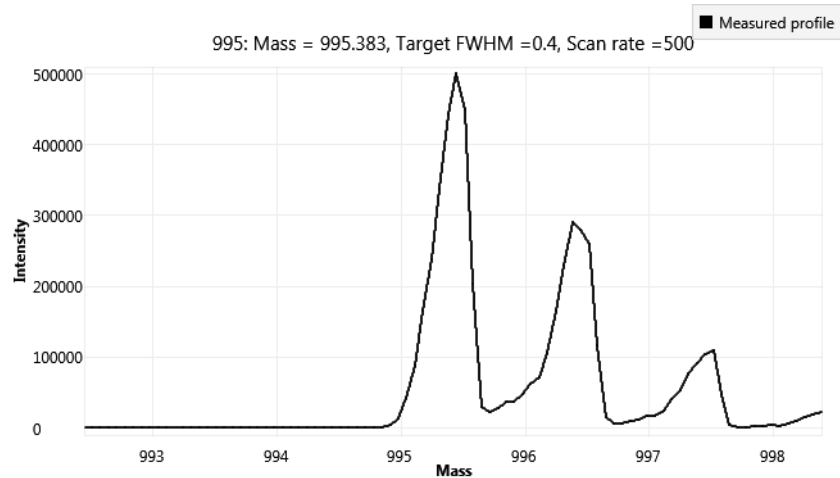


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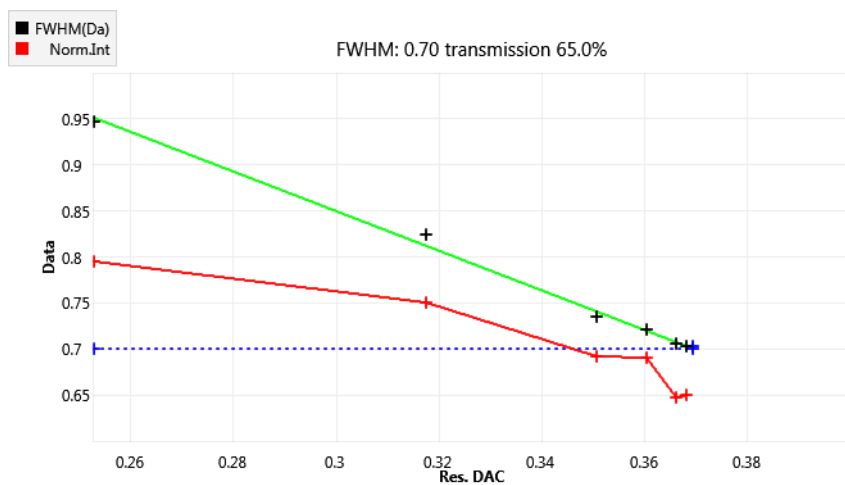
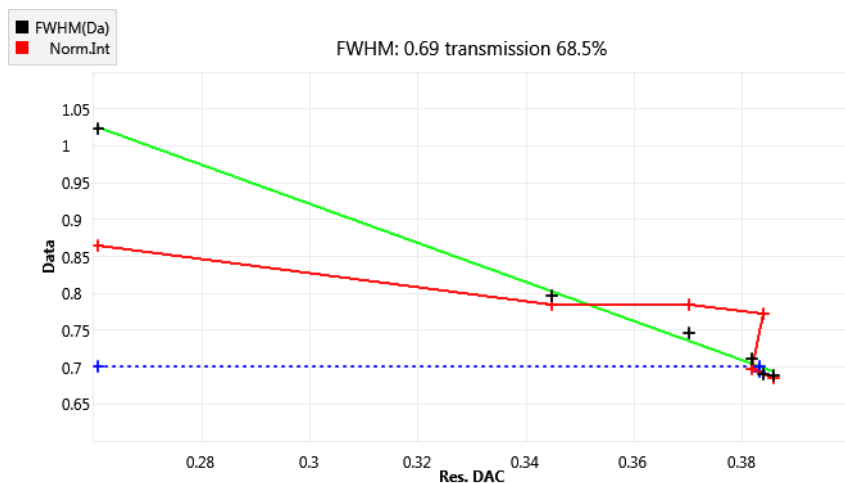
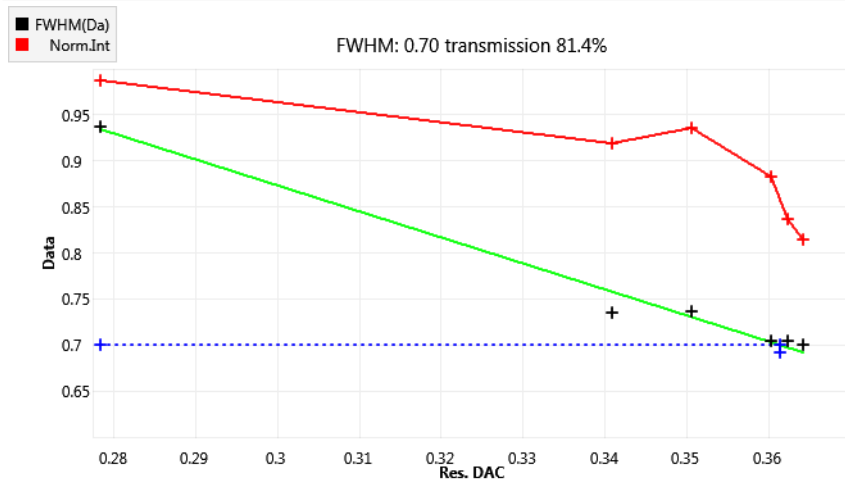


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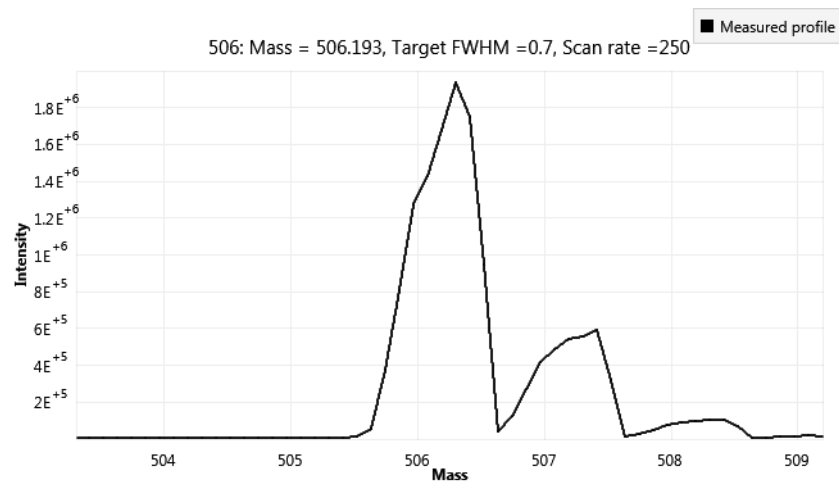
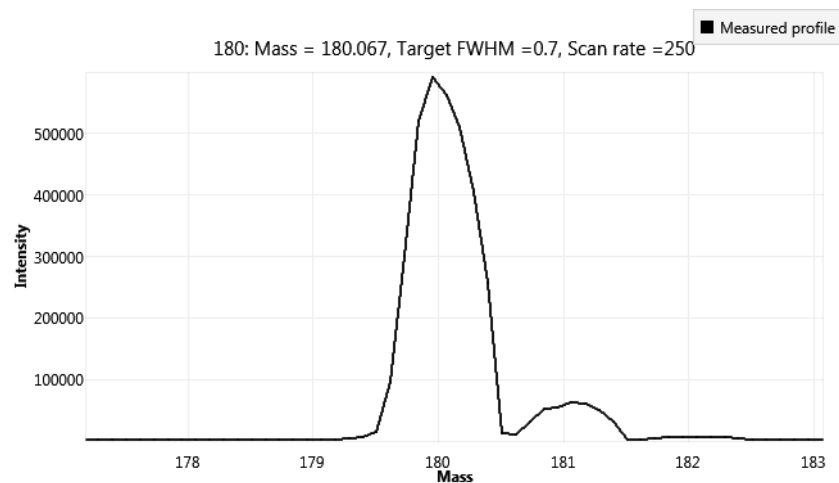
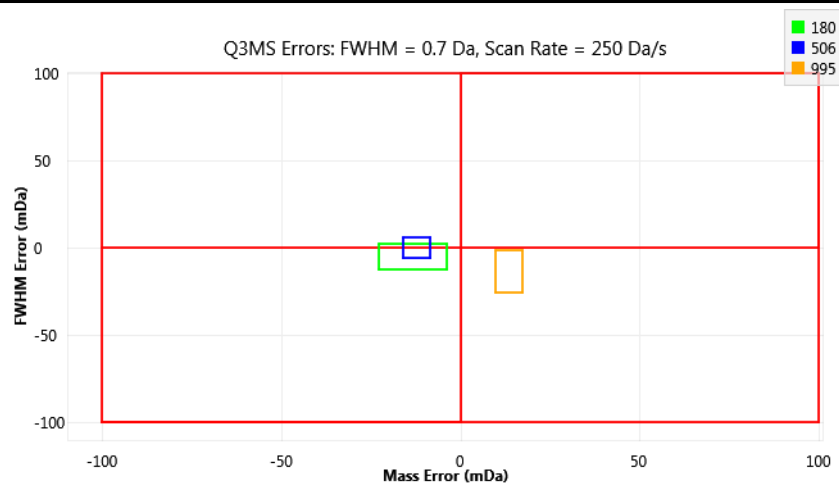
995: Mass = 995.383, Target FWHM = 0.4, Scan rate = 500



Diagnostic Report

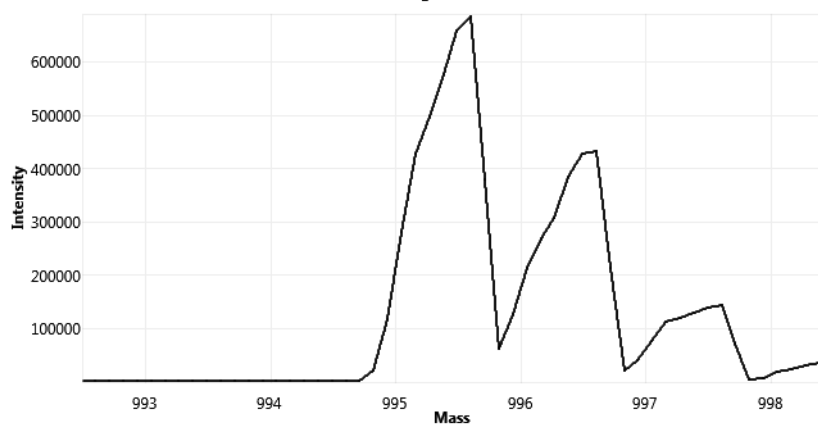


Diagnostic Report



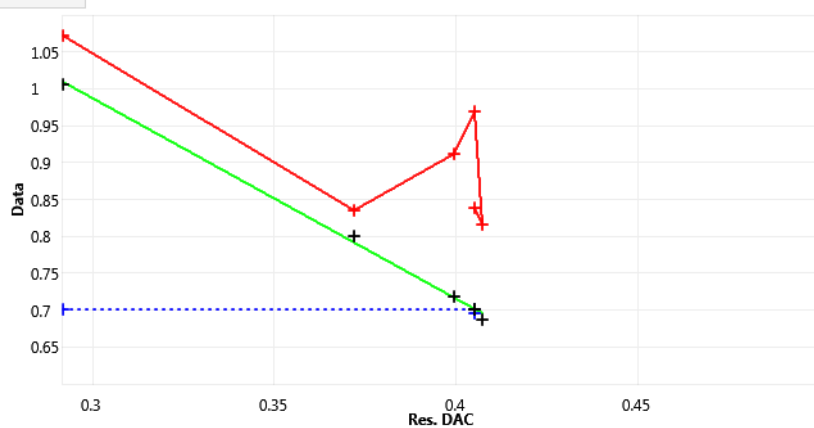
Diagnostic Report

995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 250



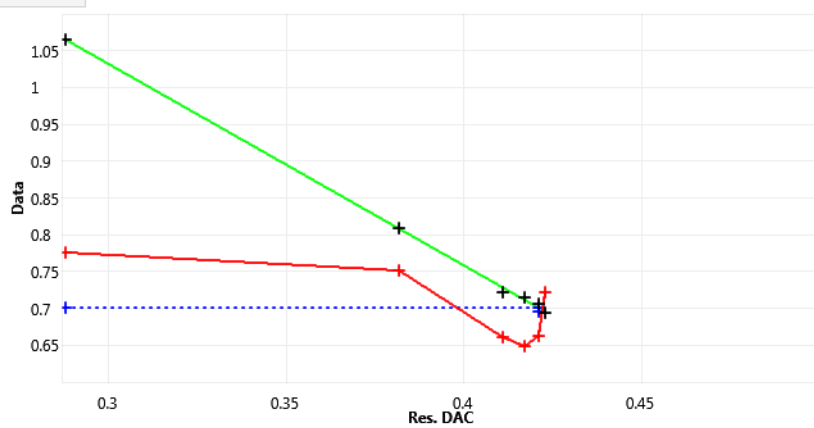
■ FWHM(Da)
■ Norm.Int

FWHM: 0.70 transmission 83.8%

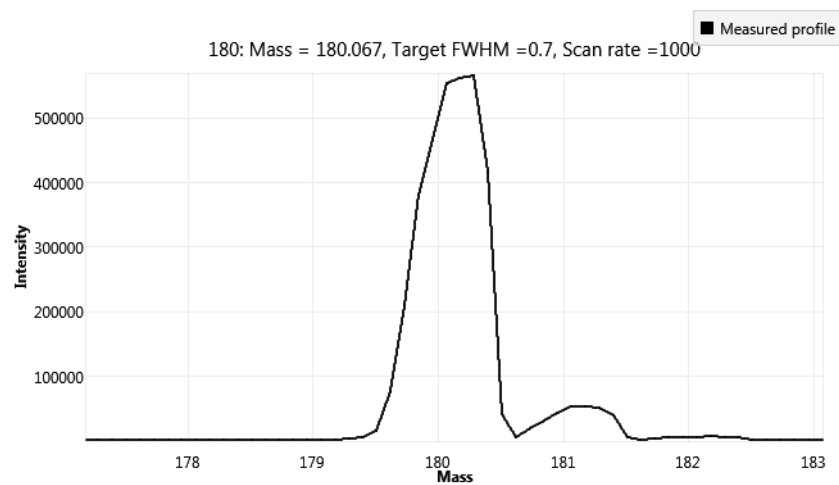
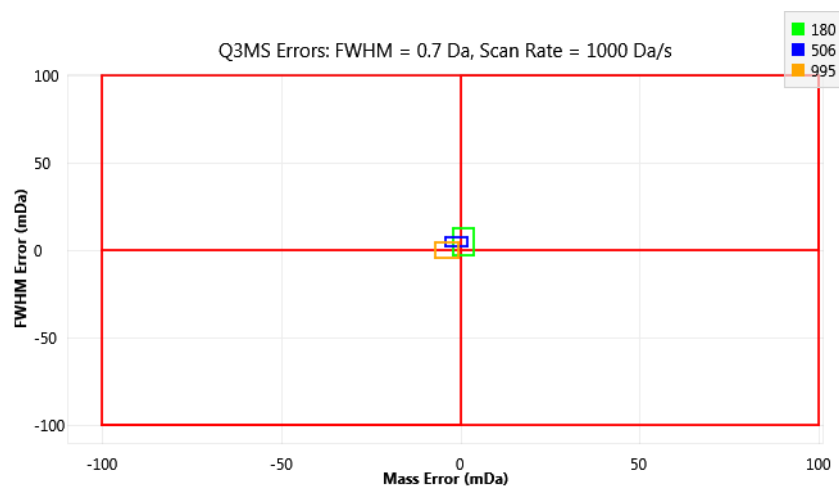
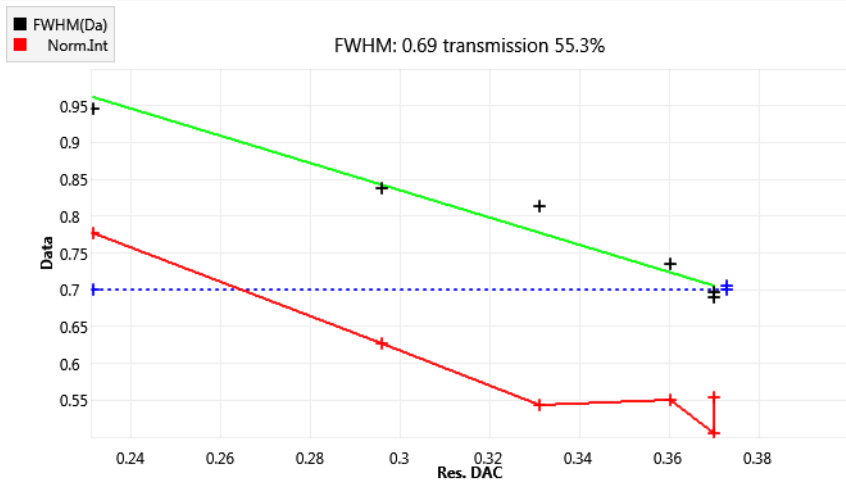


■ FWHM(Da)
■ Norm.Int

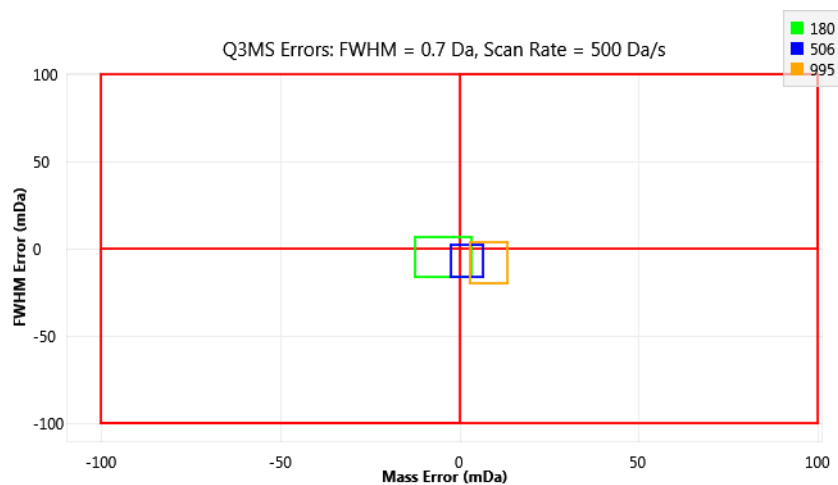
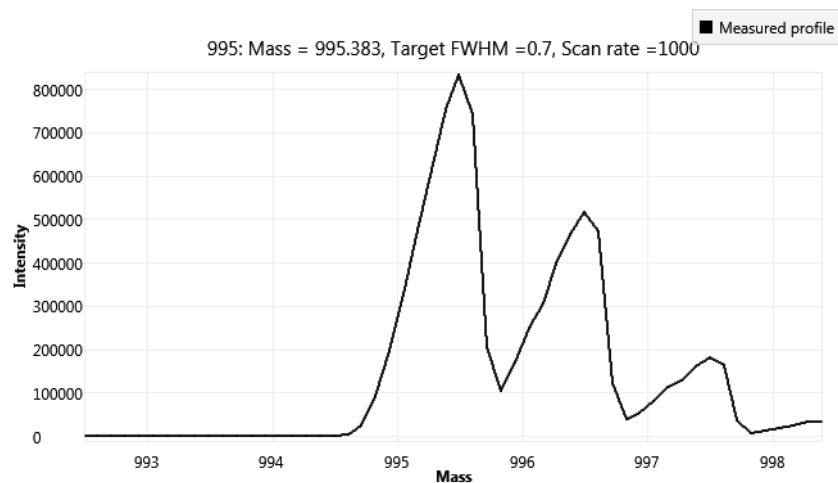
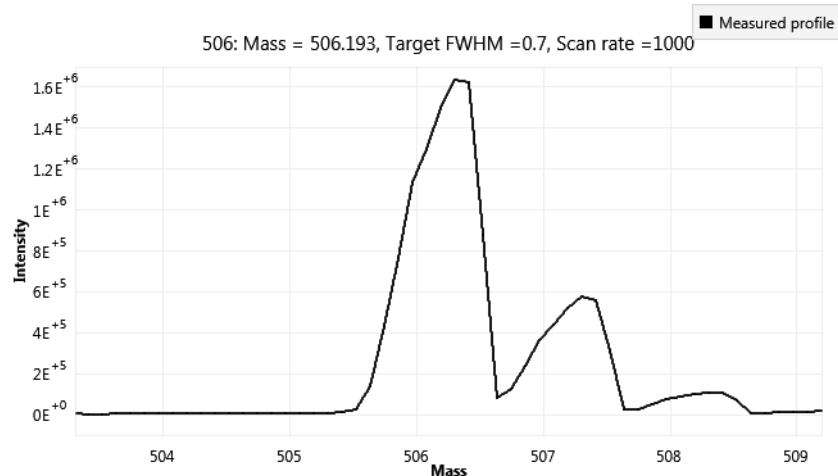
FWHM: 0.69 transmission 72.1%



Diagnostic Report

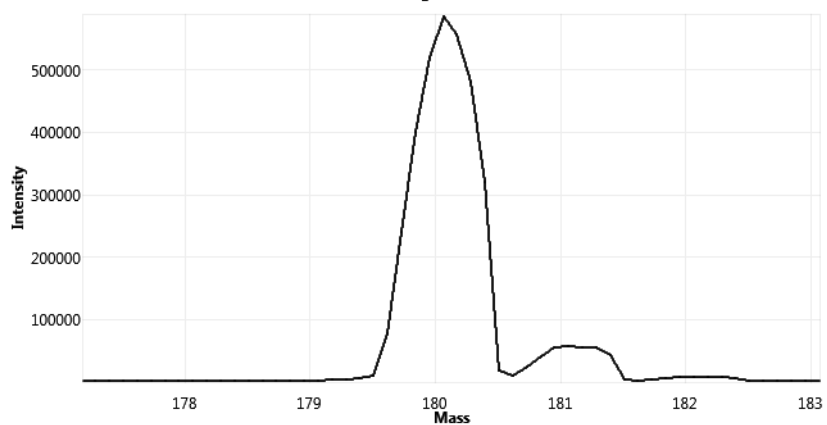


Diagnostic Report

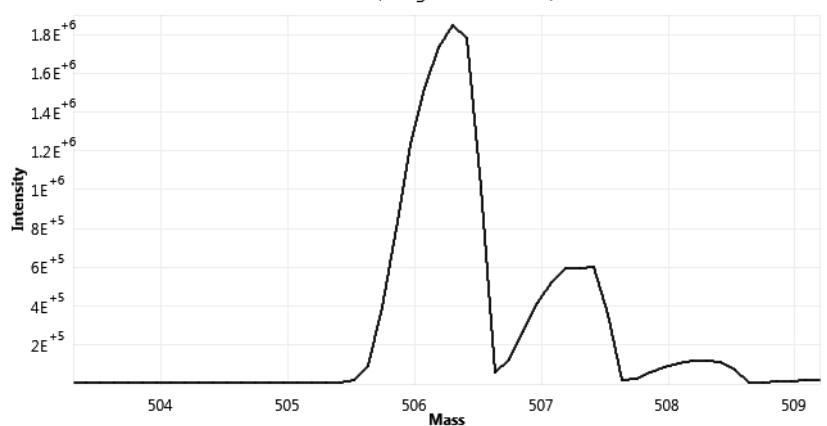


Diagnostic Report

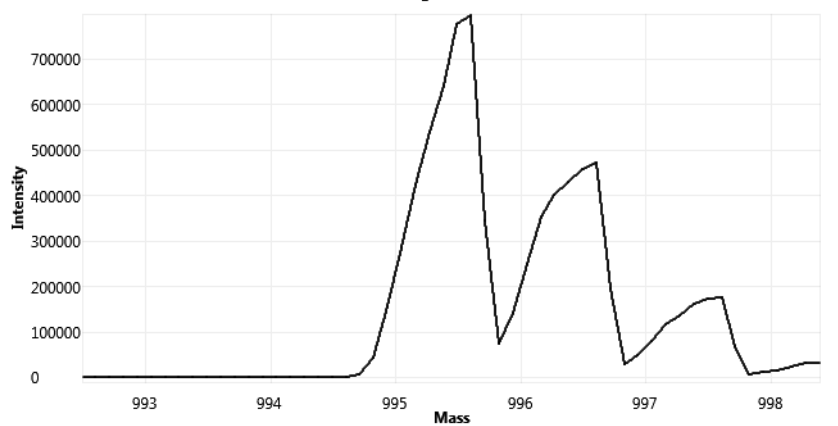
180: Mass = 180.067, Target FWHM = 0.7, Scan rate = 500



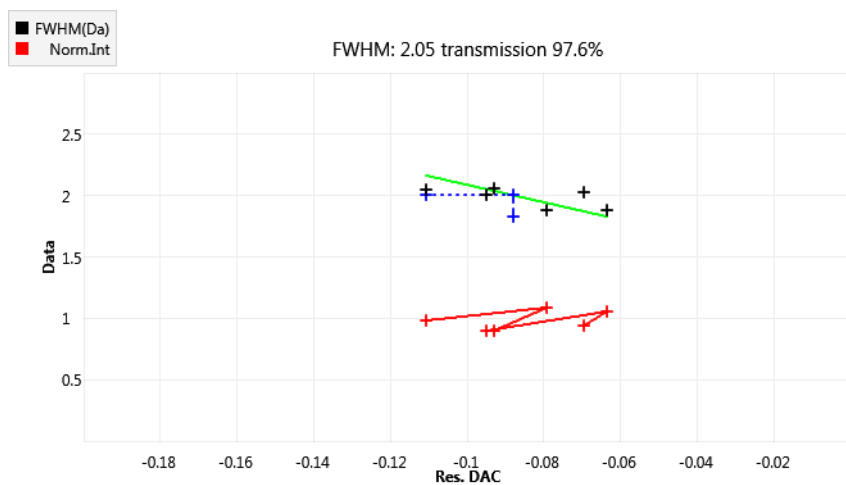
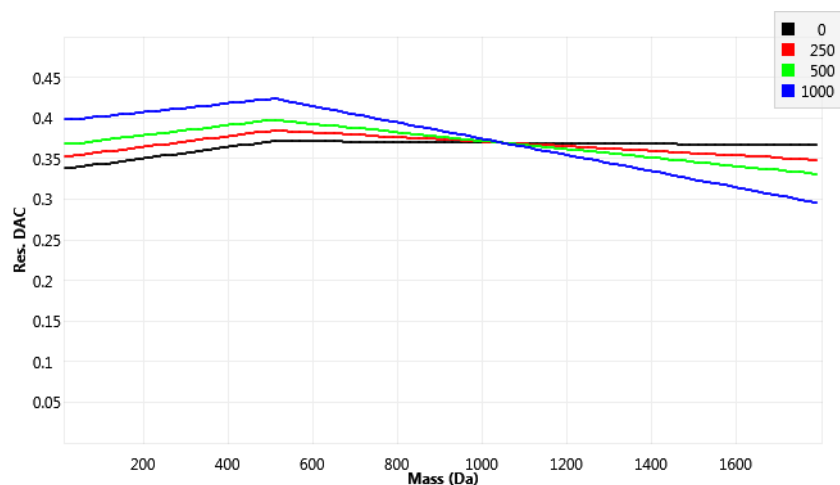
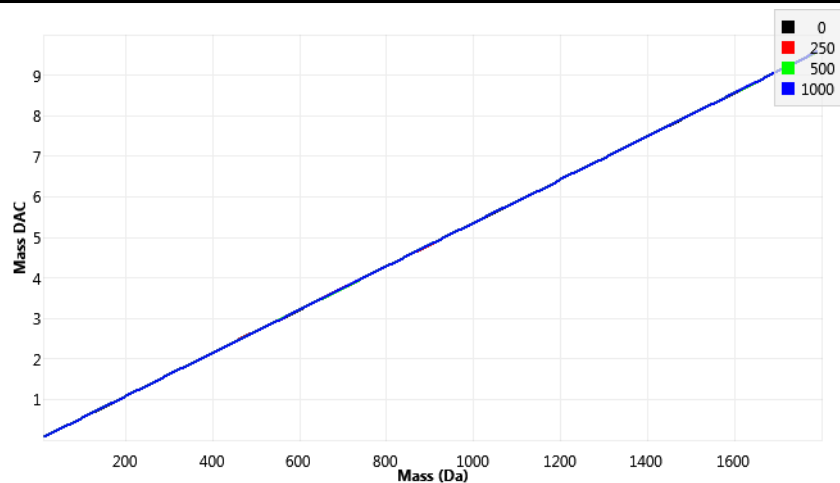
506: Mass = 506.193, Target FWHM = 0.7, Scan rate = 500



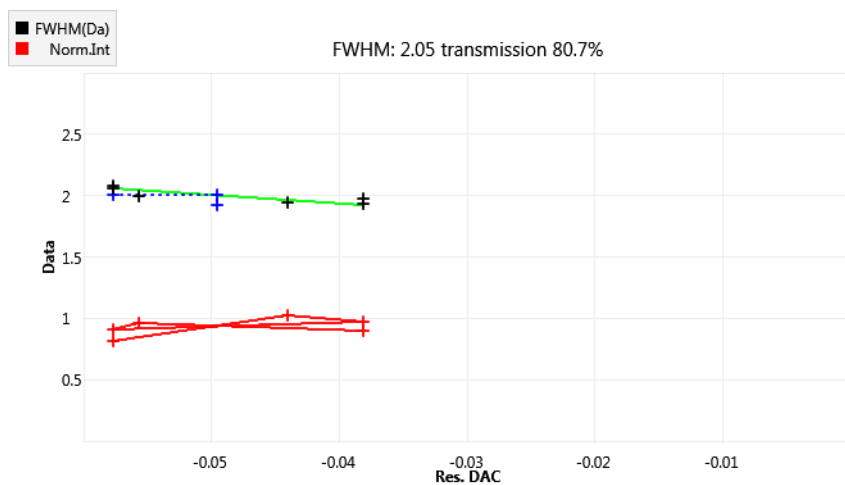
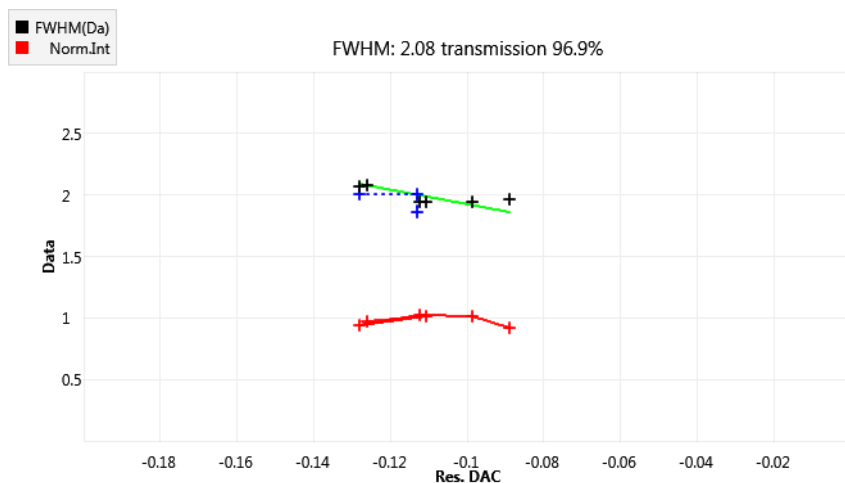
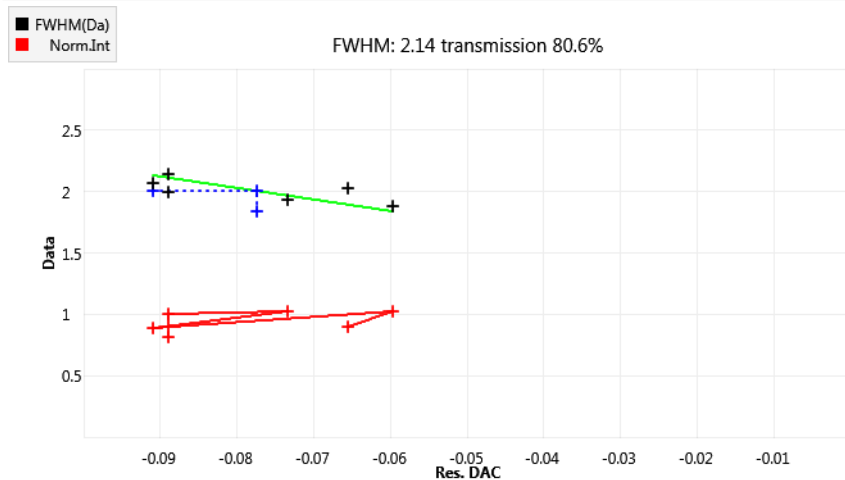
995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 500



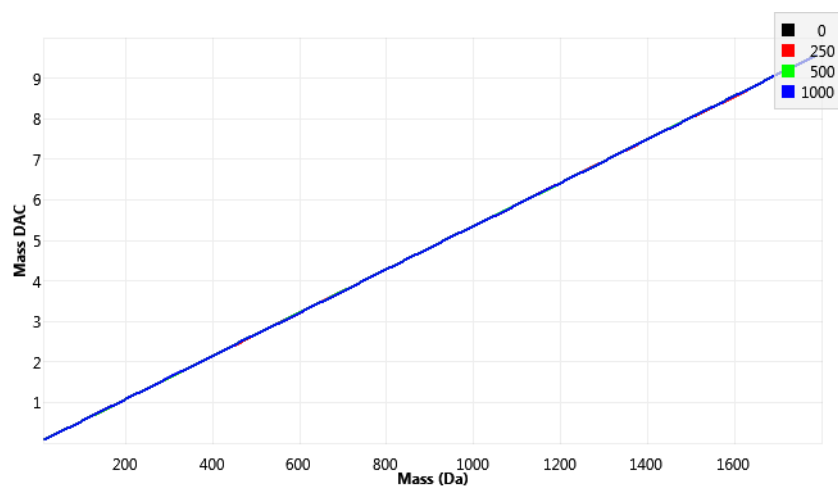
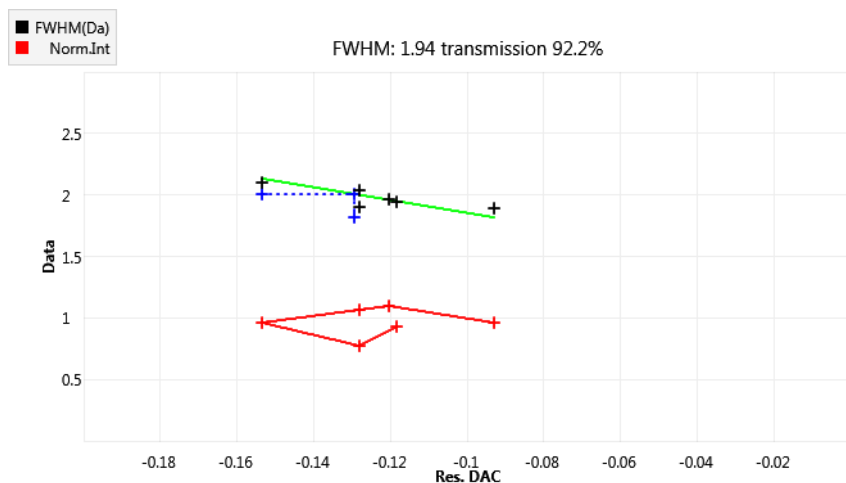
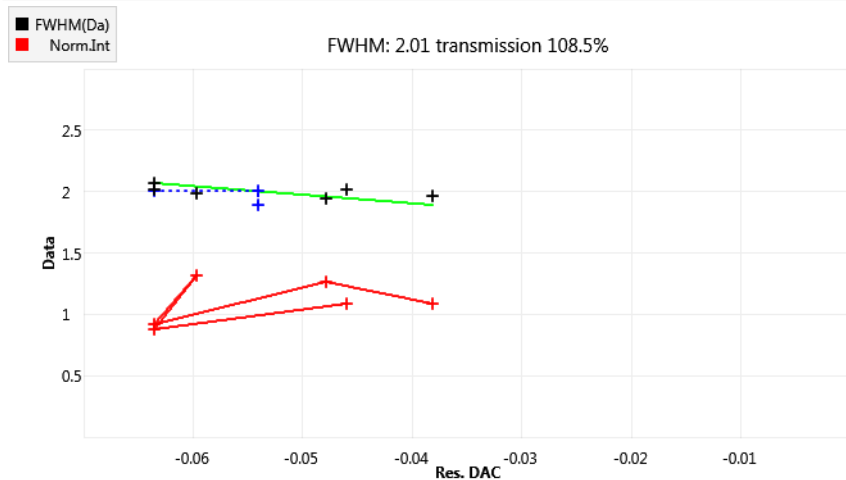
Diagnostic Report



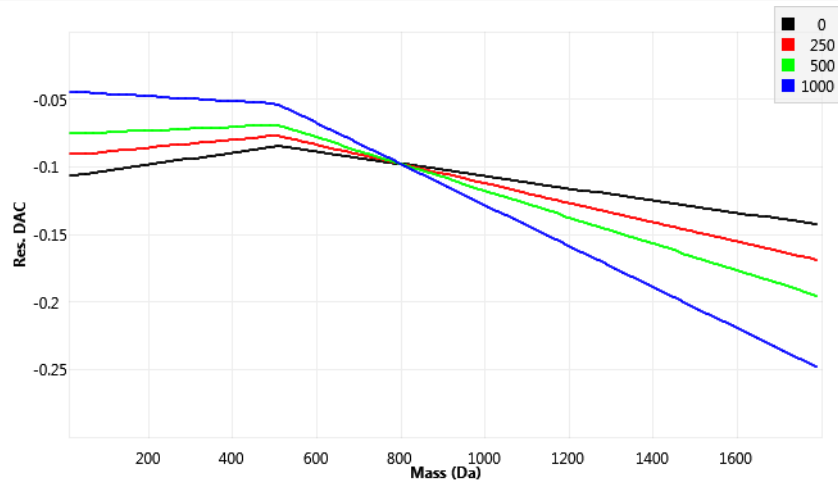
Diagnostic Report



Diagnostic Report

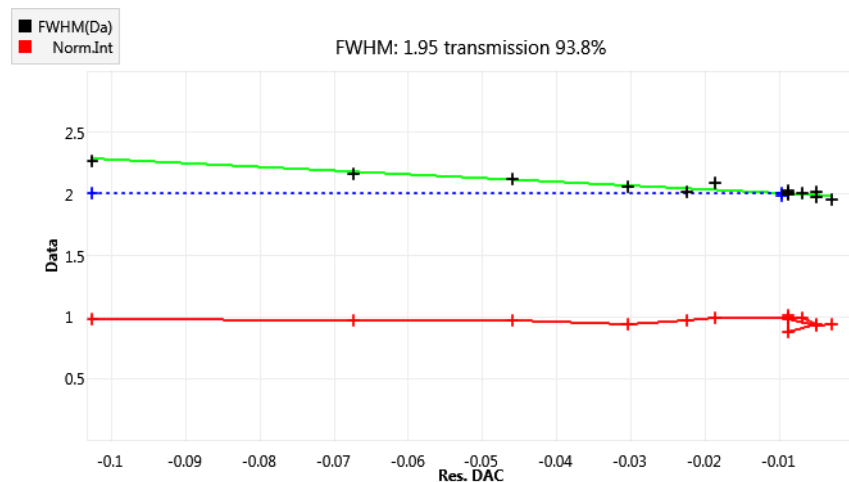
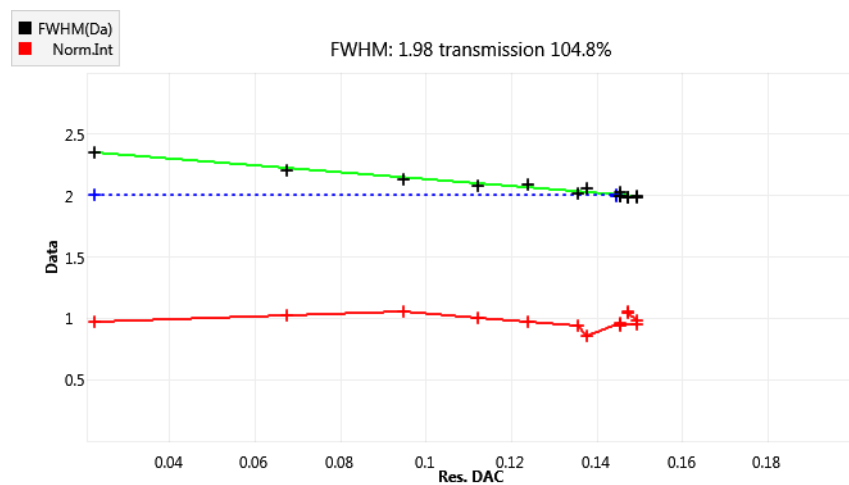


Diagnostic Report

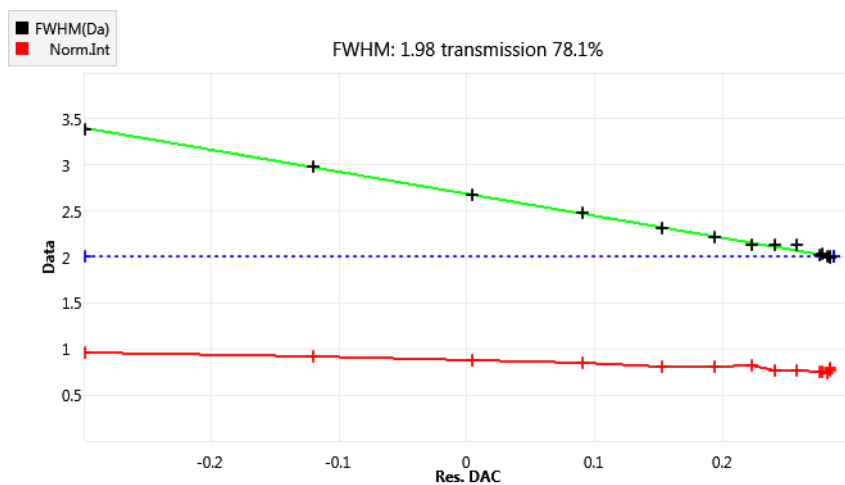
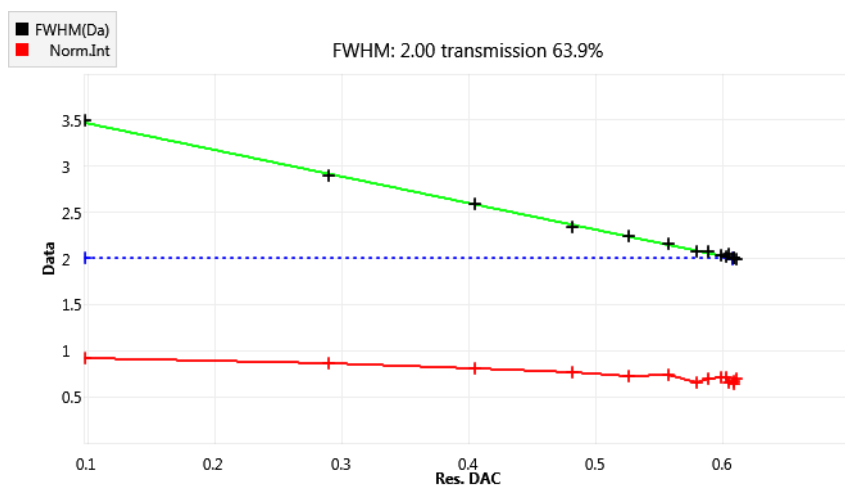
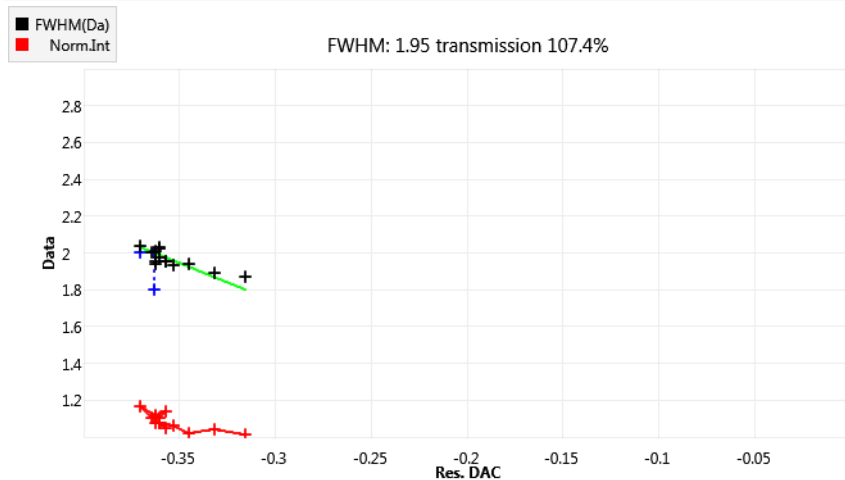


Mass And Resolution Calibration succeeded.

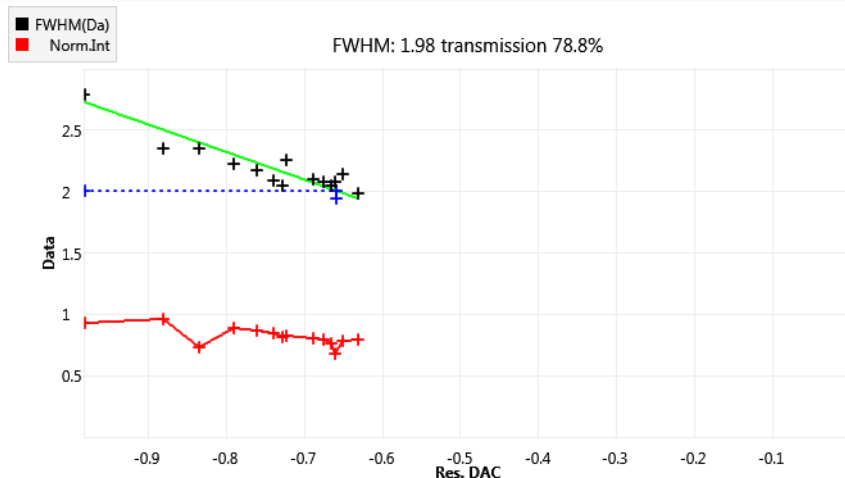
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===Extra High Scan Rate Calibration Start=====



Diagnostic Report



Diagnostic Report



Extra high scan rate calibration passed

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
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
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Serial Number: TQH-Q1-0576

Signature:

Monday, February 20, 2017 12:19 PM

Diagnostic Report



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