

Diagnostic Report

Date & Time Tuesday, February 21, 2017 12:24 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:

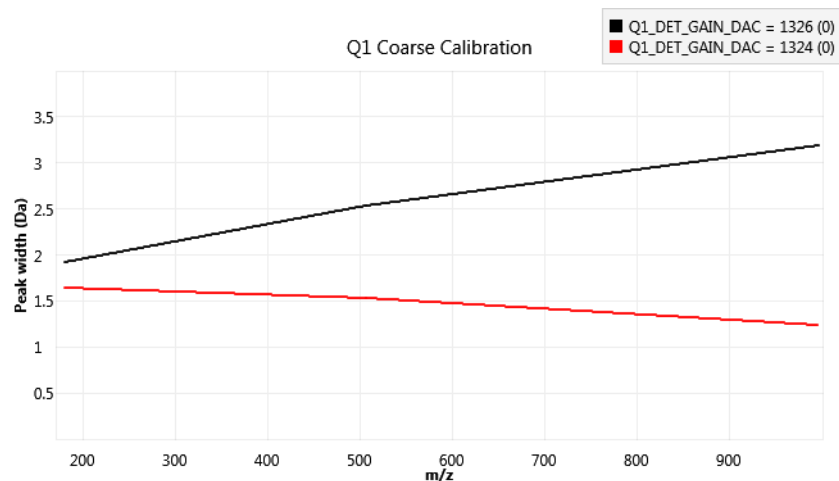
Determining correct quad polarity settings.

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

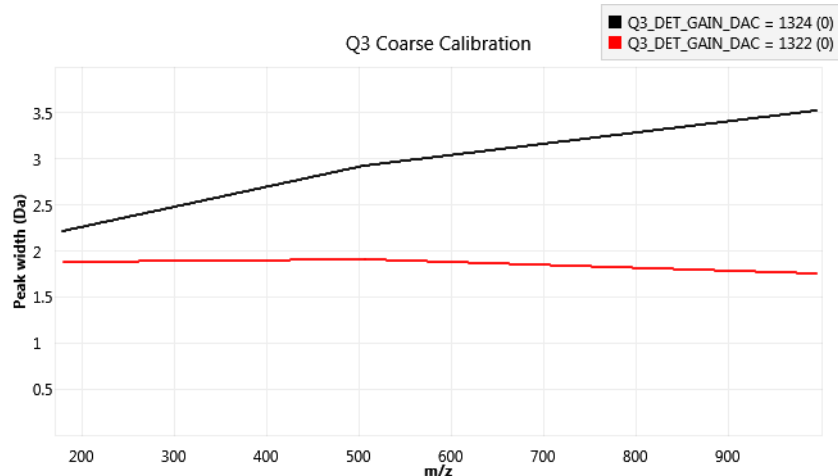


Q1 coarse calibration result:

Gain DAC value= 1324

m/z	FWHM
180.07	1.64
506.19	1.53
995.38	1.23

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Q3 coarse calibration result:

Gain DAC value= 1322

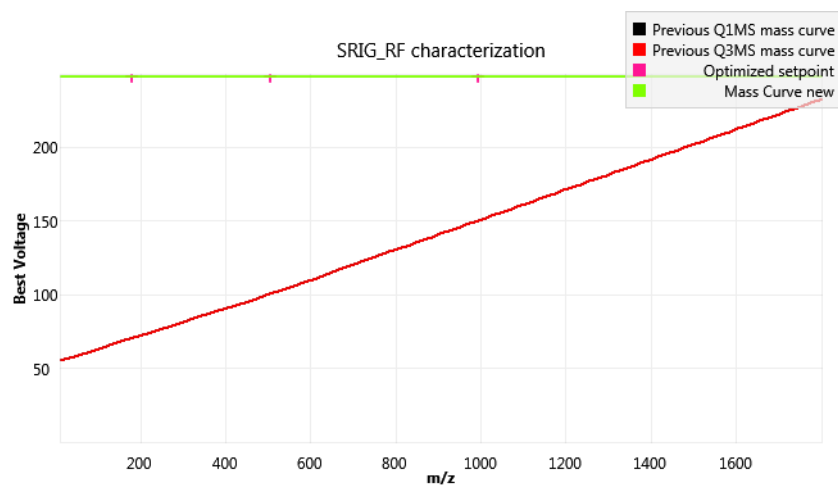
m/z	FWHM
180.07	1.88
506.19	1.90
995.38	1.74

Target Mass	Observed Mass	Mass Jitter	Intensity
180.07	180.00	0.27	162020.70
506.19	506.02	0.37	349605.39
995.38	995.17	0.14	813712.01

SRIG_RF characterization

Calibrant mass Optimized voltage

180.00	248.18
506.02	248.18
995.17	248.18

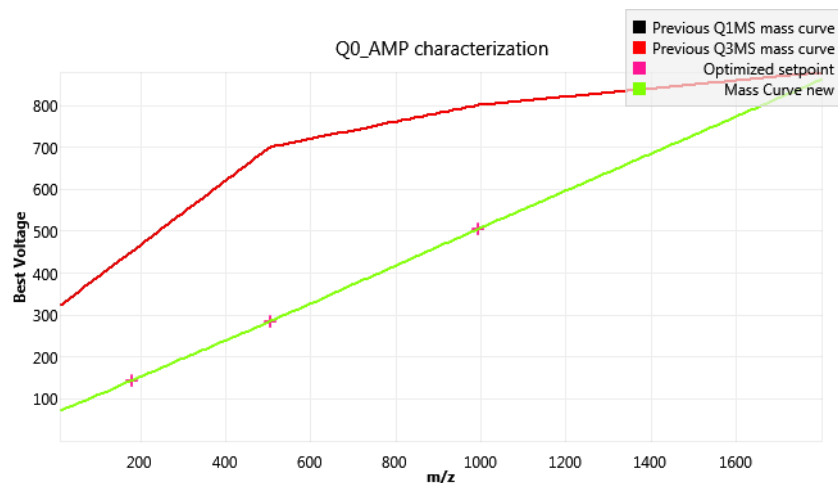


Q0_AMP characterization

Calibrant mass Optimized voltage

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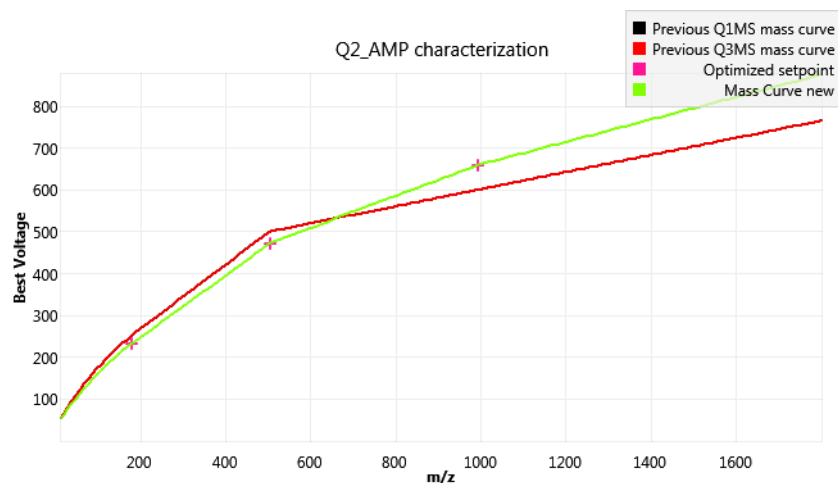
```
-----
180.00      142.49
506.02      283.82
995.17      504.65
=====
```



Q2_AMP characterization

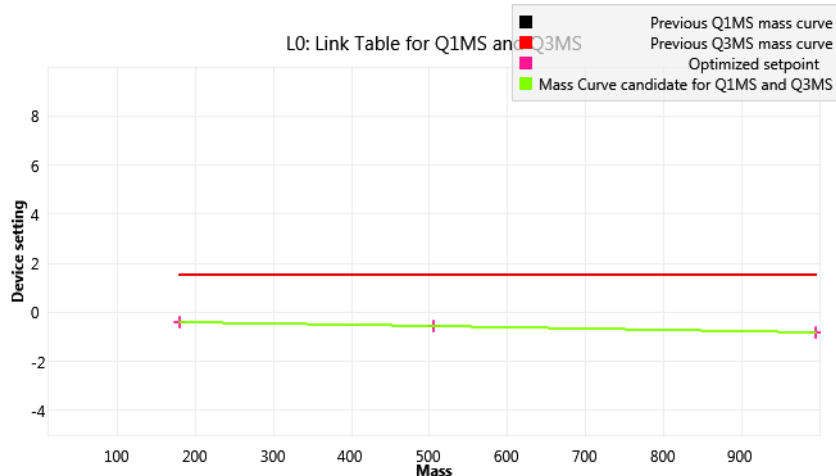
```
=====
Calibrant mass  Optimized voltage
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```

```
180.00      231.57
506.02      472.16
995.17      658.80
=====
```



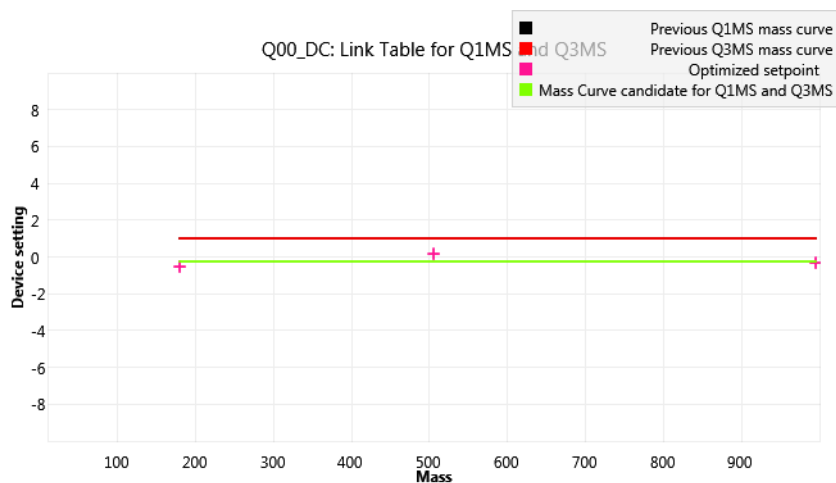
1: Optimize L0 Offset for Q1MS and Q3MS

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TIC changed -3.30 % Keep the candidate setting

2: Optimize Q00 Offset for Q1MS and Q3MS

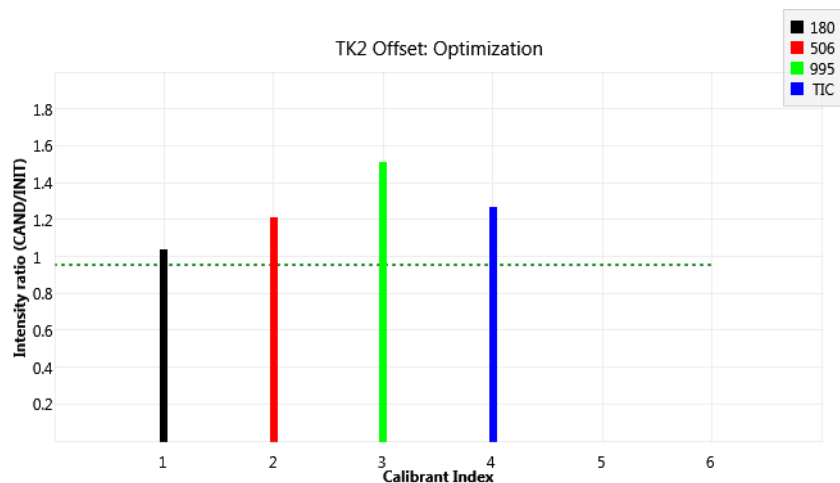
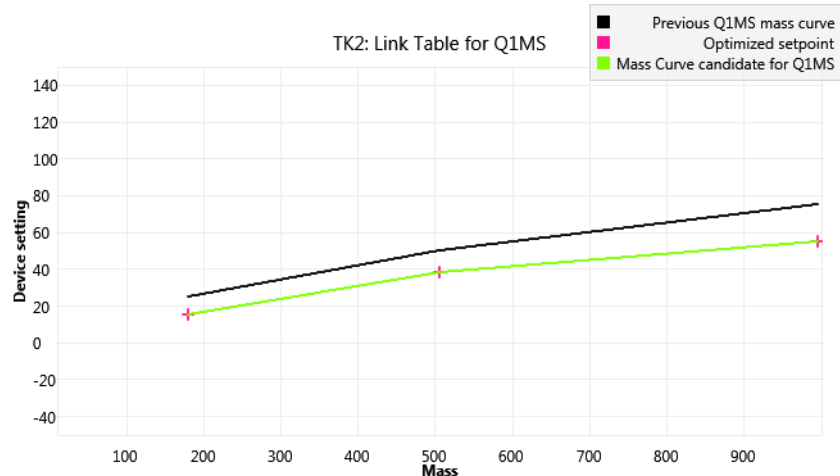


TIC changed 5.40 % Keep the candidate setting

3: Optimize TK2 Offset for Q1MS

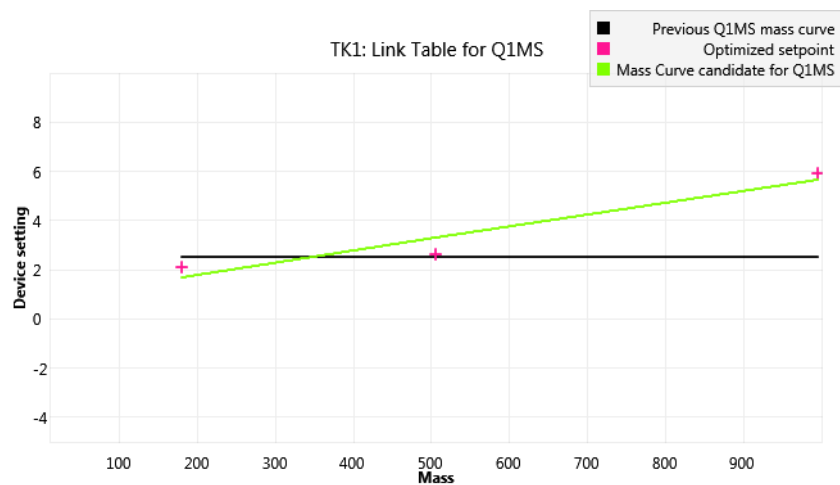


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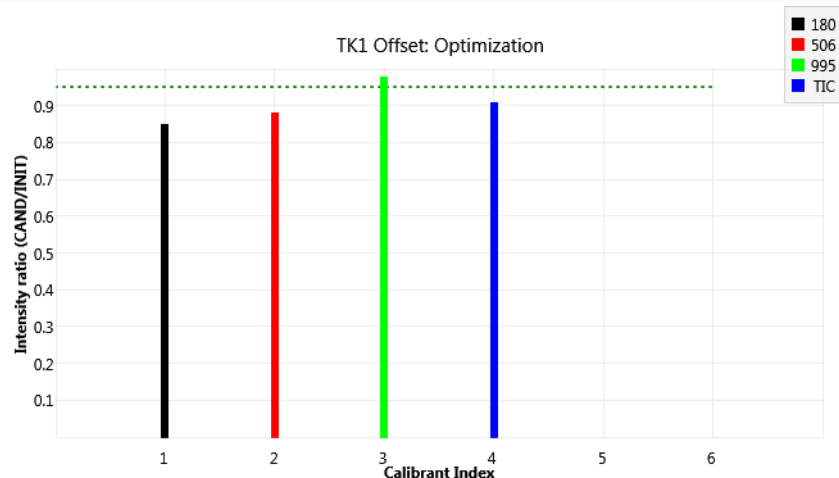


TIC changed 26.79 % Keep the candidate setting

4: Optimize TK1 Offset for Q1MS

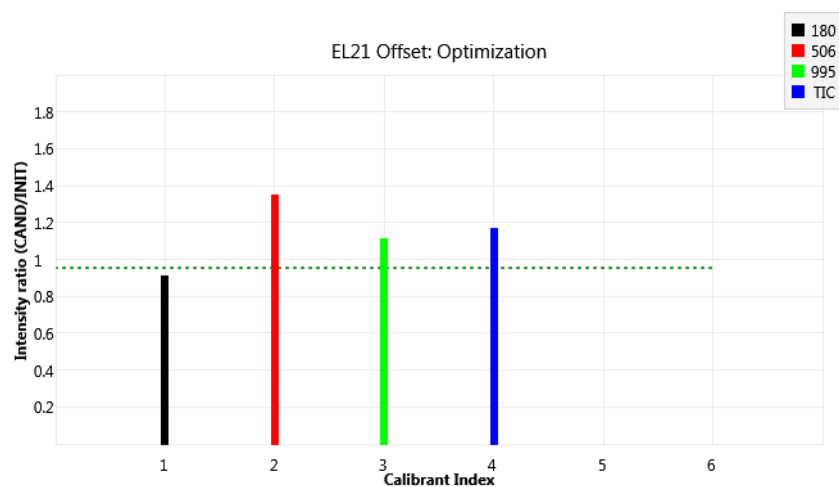
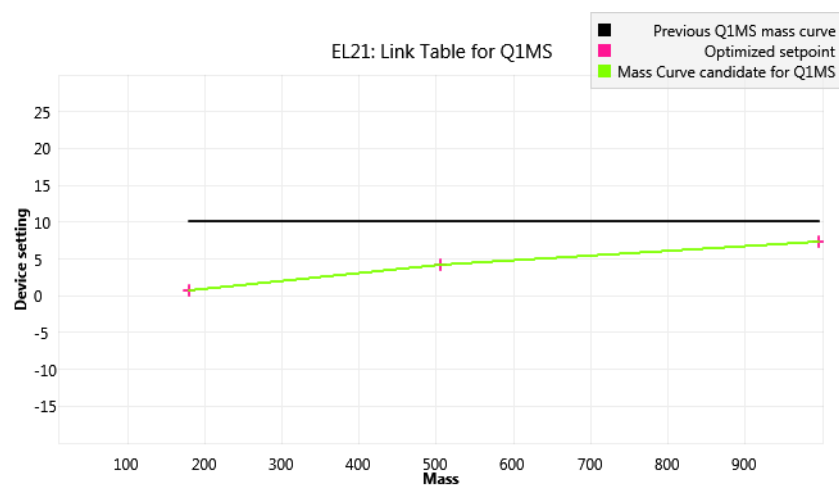


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Initial setting is already optimized. Keep the initial setting

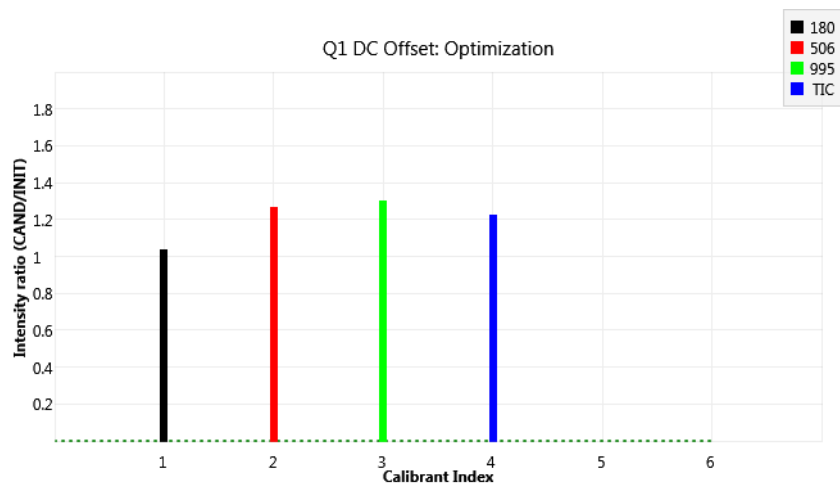
5: Optimize EL21 Offset for Q1MS



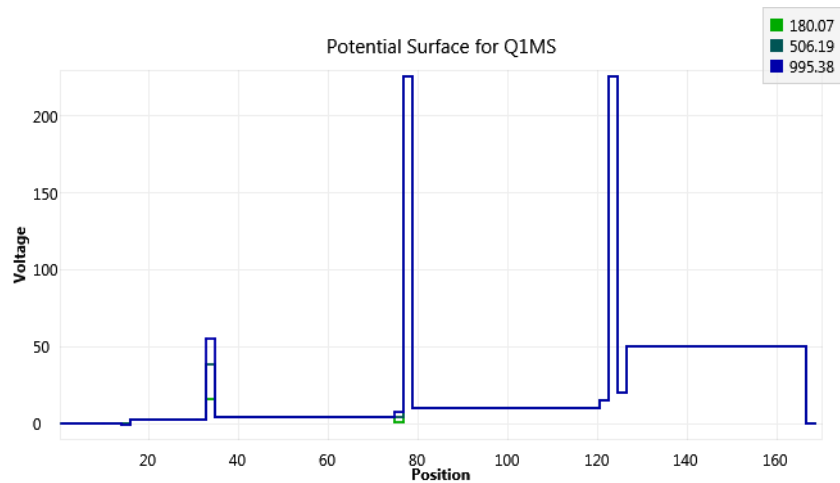
TIC changed 17.04 % Keep the candidate setting

6: Optimize Q1 DC Offset for Q1MS

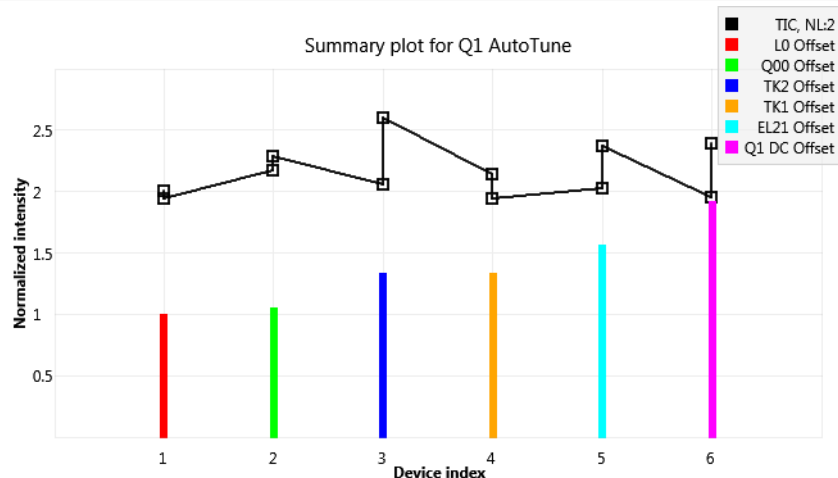
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TIC changed 22.32 % Keep the candidate setting



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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	142.49
Q0_AMP	700.00	283.82
Q0_AMP	800.00	504.65
Q2_AMP	250.00	231.57
Q2_AMP	500.00	472.16
Q2_AMP	600.00	658.80
L0	1.50	-0.41
L0	1.50	-0.58
L0	1.50	-0.83
Q00_DC	1.00	-0.25
Q00_DC	1.00	-0.25
Q00_DC	1.00	-0.25
TK2	25.00	15.13
TK2	50.00	37.96
TK2	75.00	55.09
TK1	2.50	1.67
TK1	2.50	3.26
TK1	2.50	5.65
EL21	10.00	0.63
EL21	10.00	4.18
EL21	10.00	7.22
Q1_DC	3.00	4.05
Q1_DC	3.00	3.91
Q1_DC	3.00	3.69

Target Mass	Observed Mass	Mass Jitter	Intensity
180.07	179.78	0.41	443428.11
506.19	505.76	0.41	1445369.31
995.38	995.38	0.50	792494.96

SRIG_RF characterization

Calibrant mass Optimized voltage

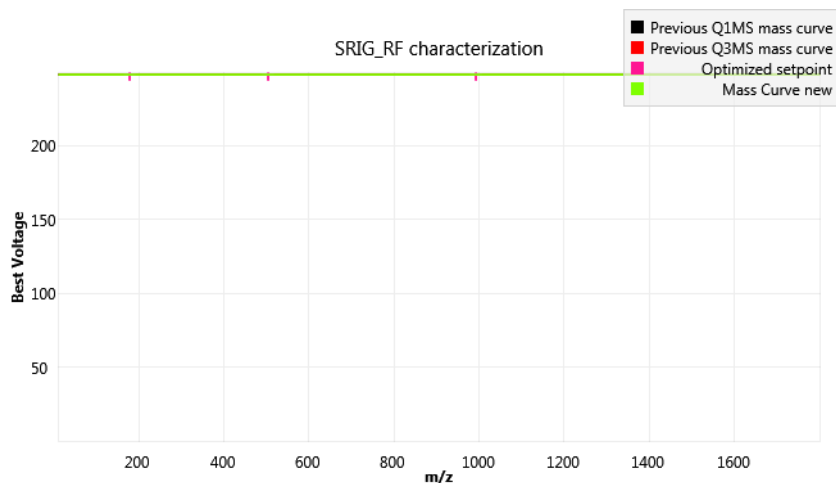
Serial Number: TQH-Q1-0576

Signature:

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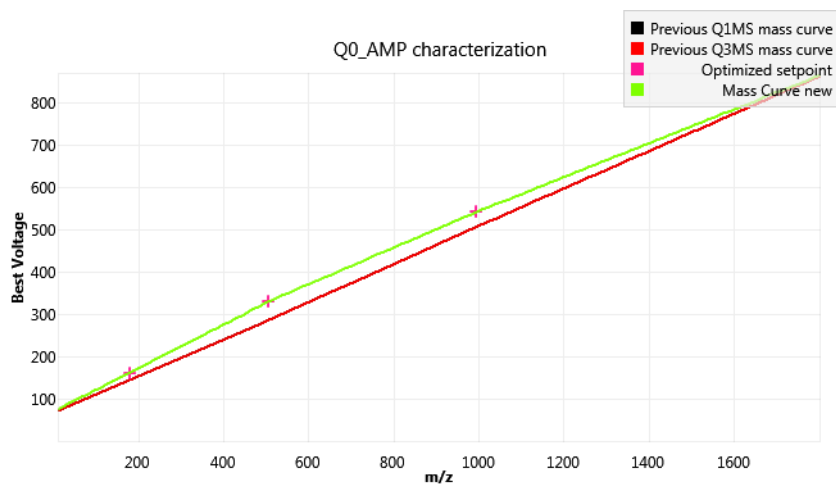
```
-----
179.78      248.18
505.76      248.18
995.38      248.18
=====
```



Q0_AMP characterization

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

```
179.78      160.16
505.76      327.99
995.38      539.98
=====
```

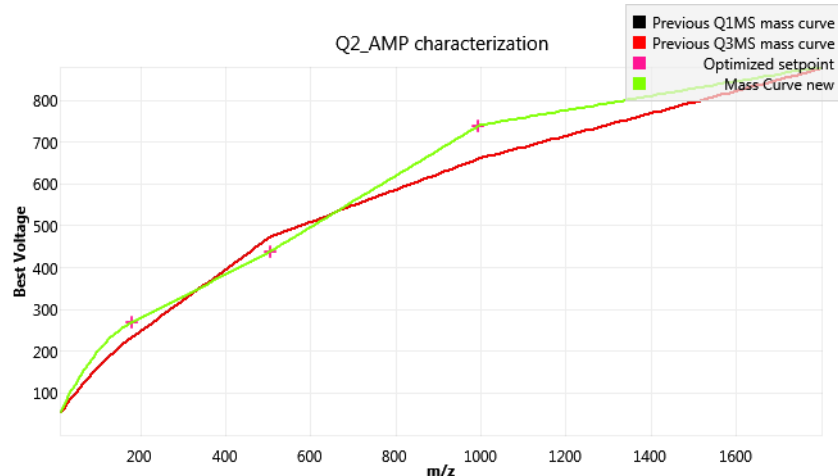


Q2_AMP characterization

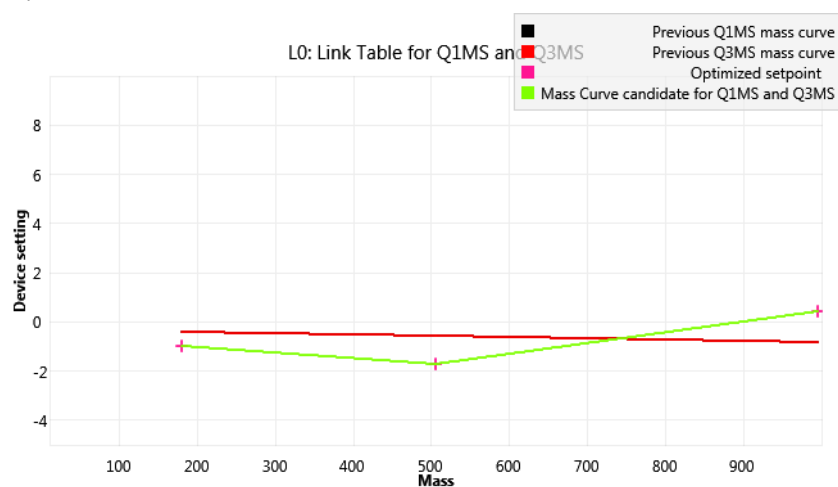
```
=====
Calibrant mass  Optimized voltage
-----
```

```
179.78      267.44
505.76      436.61
995.38      738.79
=====
```

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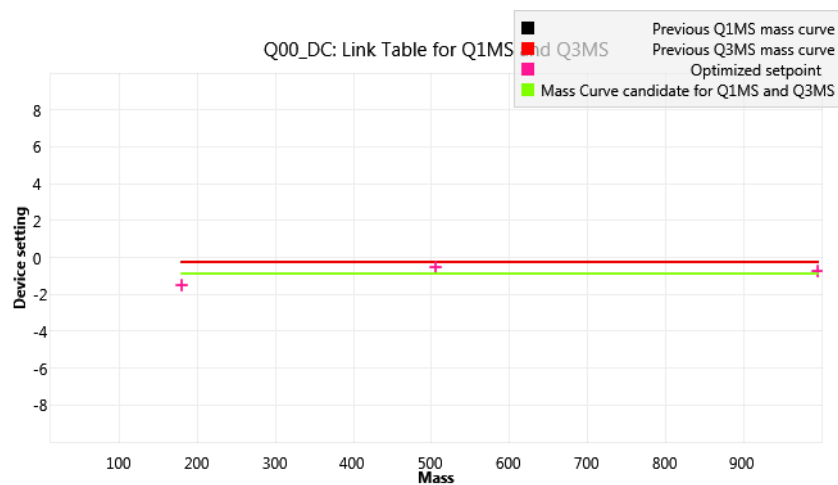


1: Optimize L0 Offset for Q1MS and Q3MS



TIC changed -4.99 % Keep the candidate setting

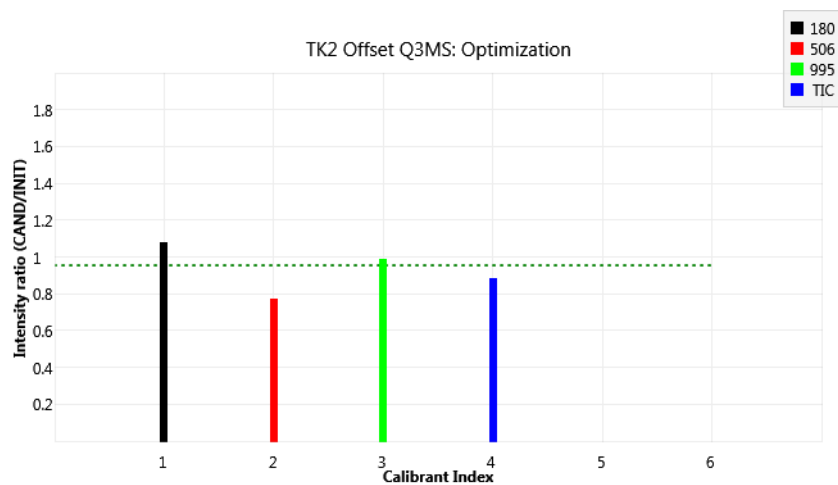
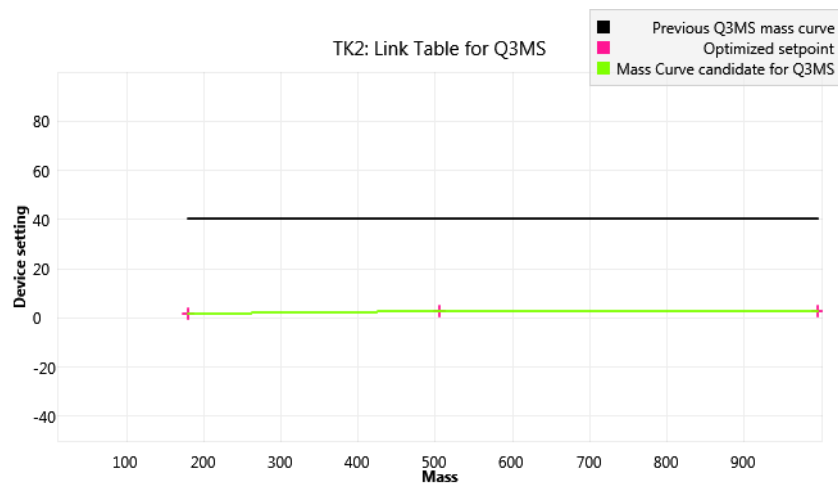
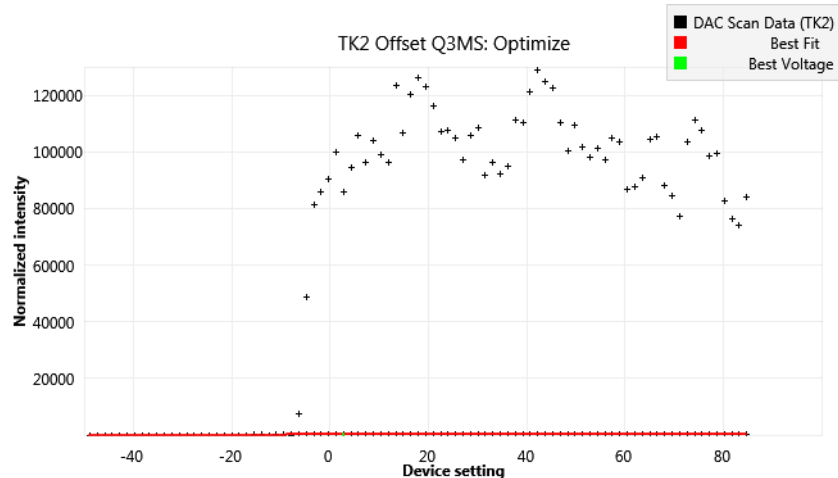
2: Optimize Q00 Offset for Q1MS and Q3MS



Initial setting is already optimized. Keep the initial setting

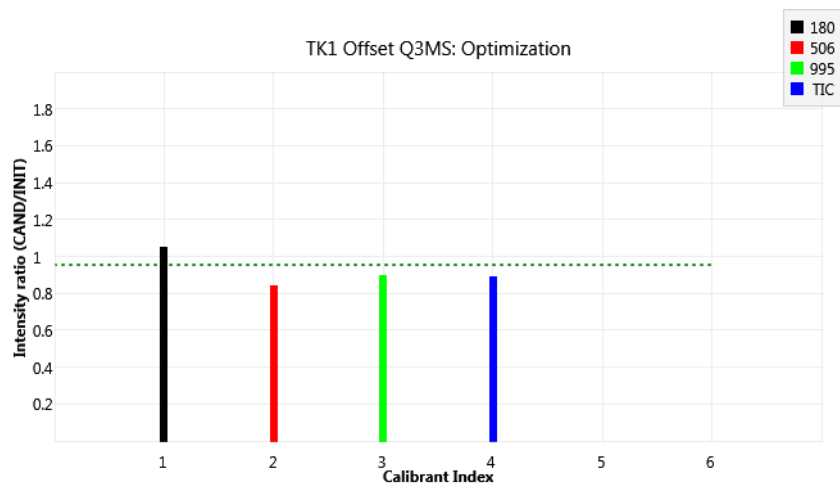
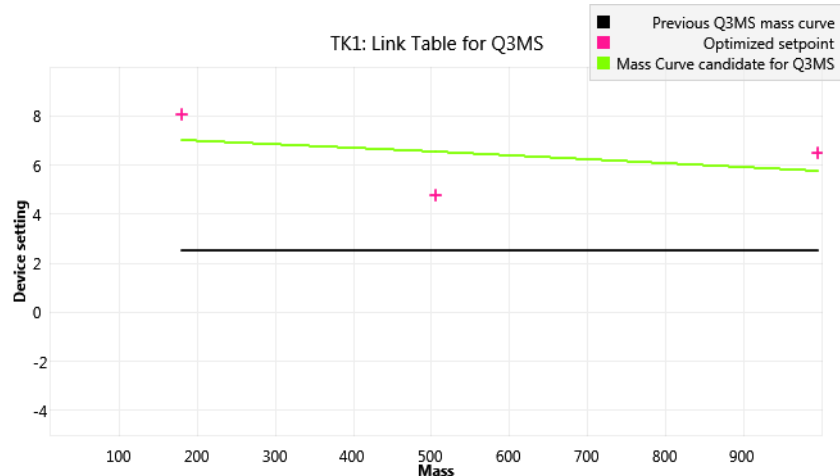
3: Optimize TK2 Offset Q3MS for Q3MS

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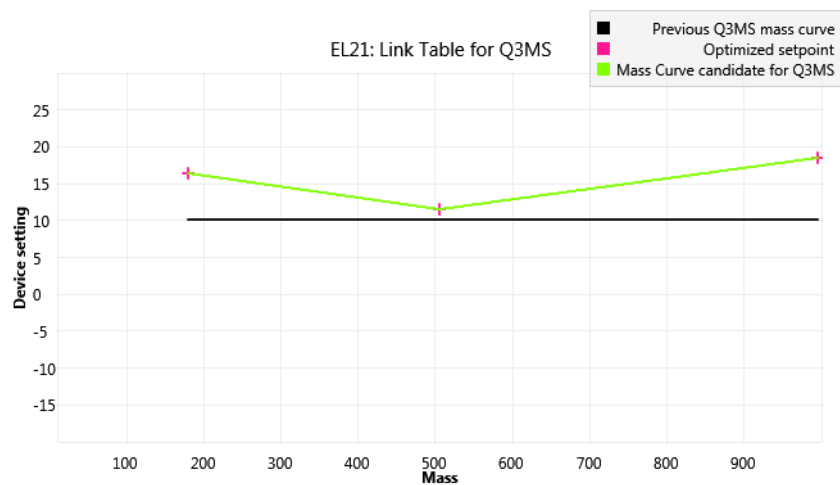
Initial setting is already optimized. Keep the initial setting
4: Optimize TK1 Offset Q3MS for Q3MS

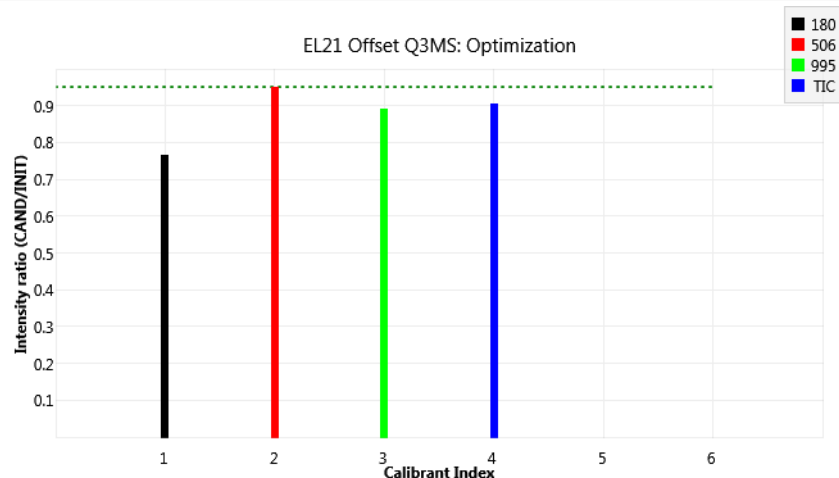
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Initial setting is already optimized. Keep the initial setting

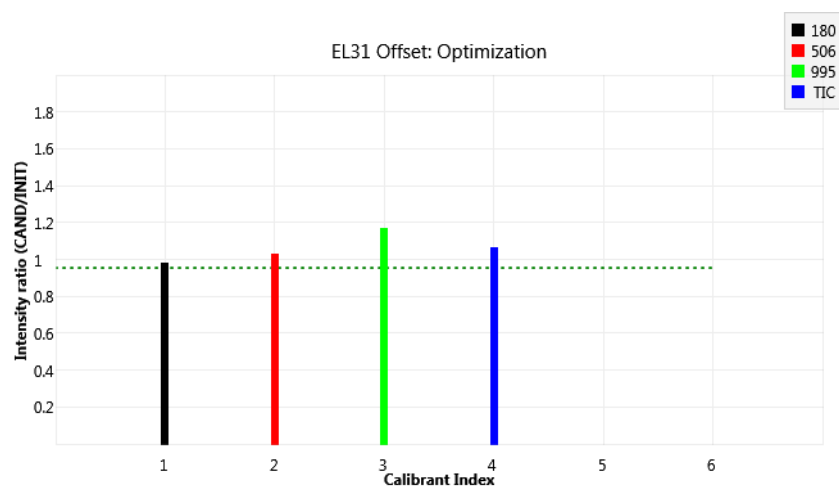
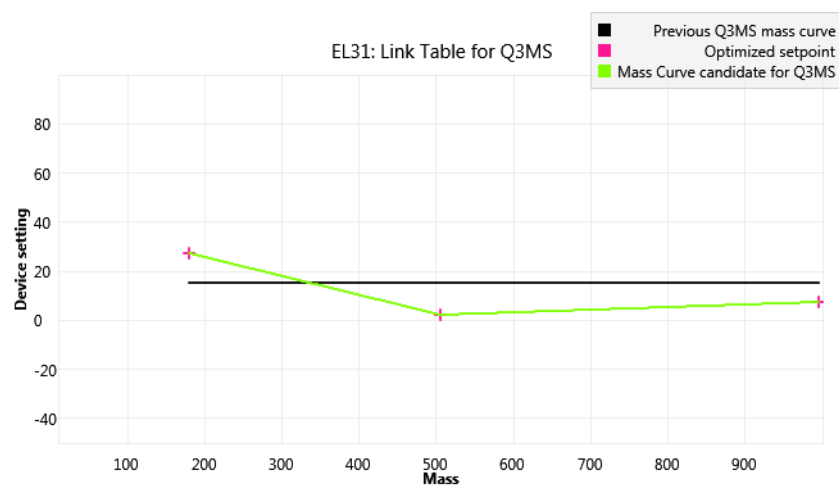
5: Optimize EL21 Offset Q3MS for Q3MS





Initial setting is already optimized. Keep the initial setting

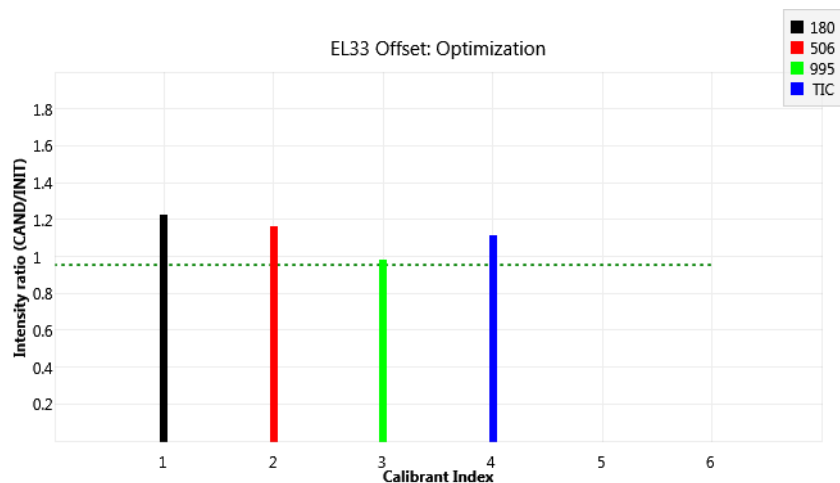
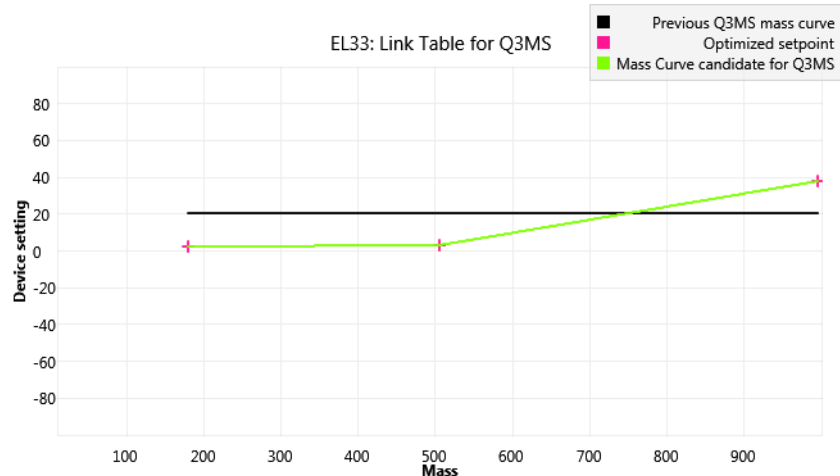
6: Optimize EL31 Offset for Q3MS



TIC changed 6.21 % Keep the candidate setting

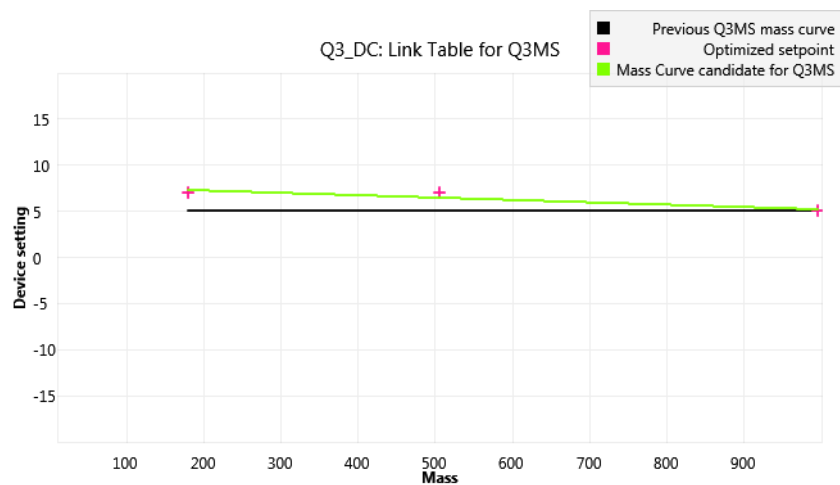
7: Optimize EL33 Offset for Q3MS

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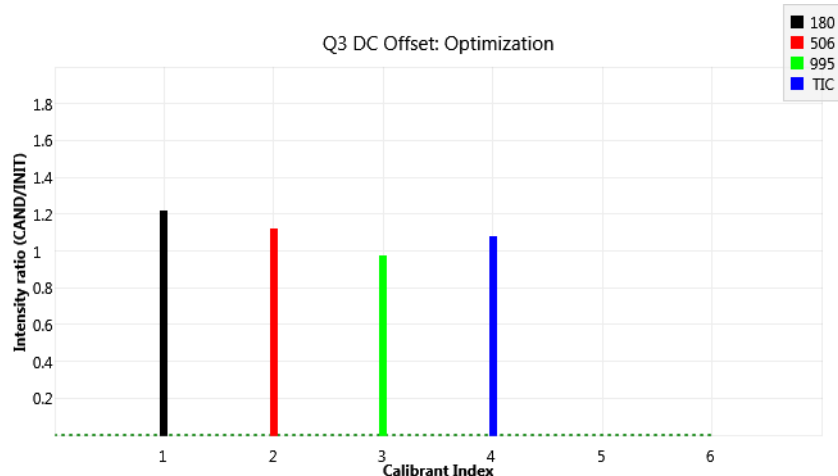


TIC changed 11.04 % Keep the candidate setting

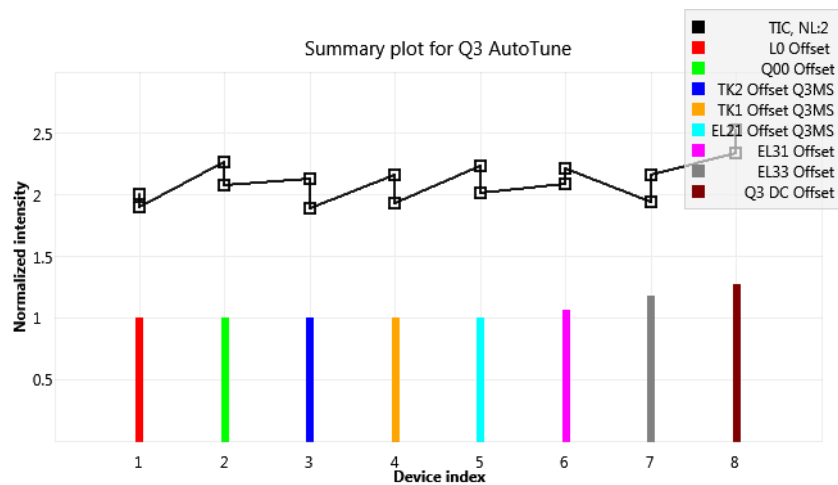
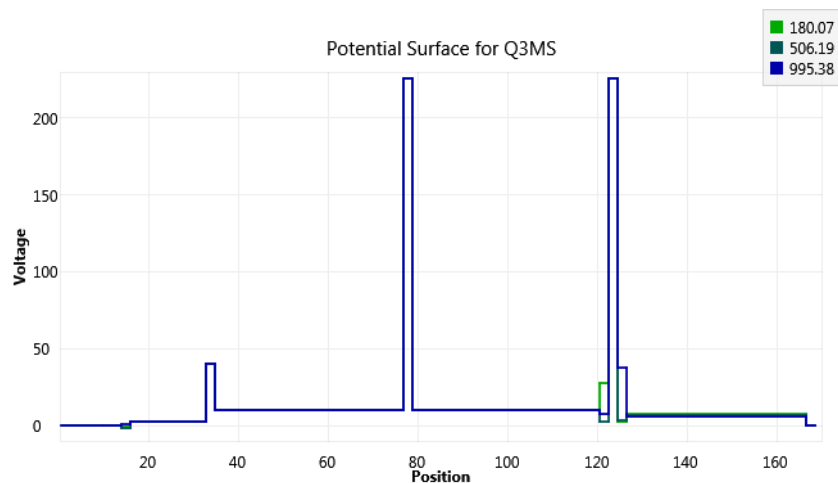
8: Optimize Q3 DC Offset for Q3MS



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TIC changed 7.91 % Keep the candidate setting



Q3 AutoTune Summary

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	142.49	160.16

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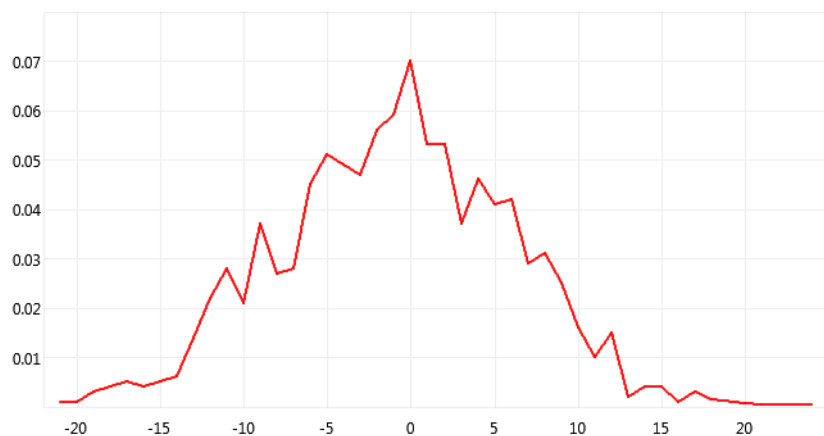
Signature:

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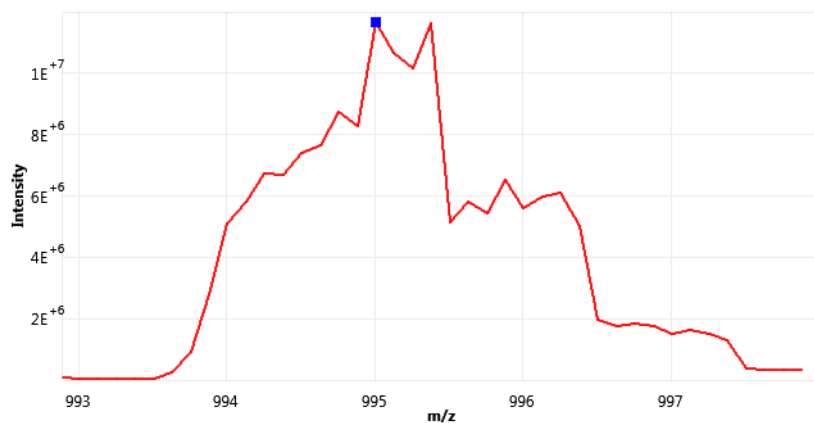
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Q0_AMP	283.82	327.99
Q0_AMP	504.65	539.98
Q2_AMP	231.57	267.44
Q2_AMP	472.16	436.61
Q2_AMP	658.80	738.79
L0	-0.41	-1.00
L0	-0.58	-1.72
L0	-0.83	0.43
Q00_DC	-0.25	-0.93
Q00_DC	-0.25	-0.93
Q00_DC	-0.25	-0.93
TK2	40.00	1.27
TK2	40.00	2.78
TK2	40.00	2.78
TK1	2.50	7.00
TK1	2.50	6.51
TK1	2.50	5.76
EL21	10.00	16.32
EL21	10.00	11.41
EL21	10.00	18.34
EL31	15.00	26.84
EL31	15.00	2.00
EL31	15.00	7.30
EL33	20.00	2.00
EL33	20.00	2.96
EL33	20.00	37.33
Q3_DC	5.00	7.32
Q3_DC	5.00	6.47
Q3_DC	5.00	5.21

Electrometer Noise: -0.9 +/- 6 ADC units

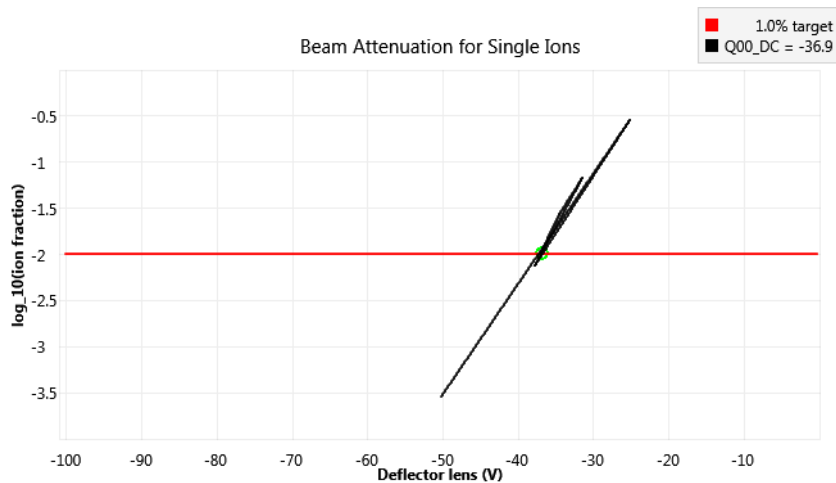


Optimizing Q1 Isolation around 995.38



Fraction of hot pixels is out of tolerance after 10 cycles.

Beam Attenuation for Single Ions



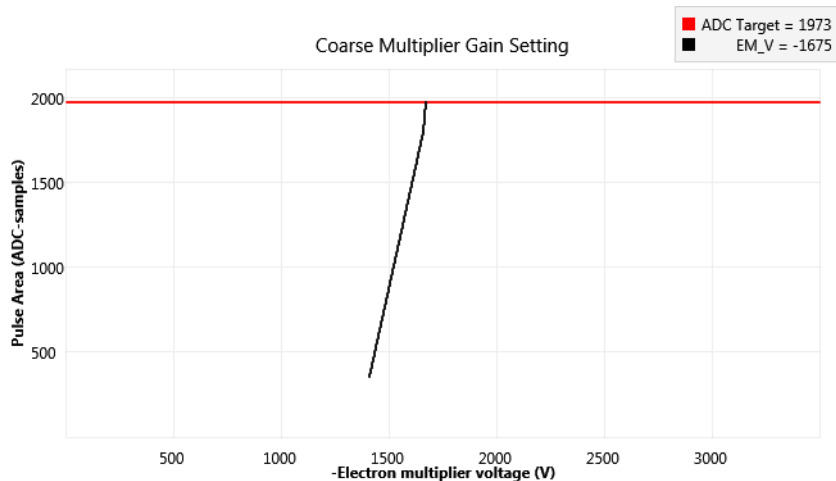
Single ions detected for Q00_DC at -36.8778

Finding the Maximum EM Voltage

CoarseMGSetting for LowGain: EM_V = -1414.78

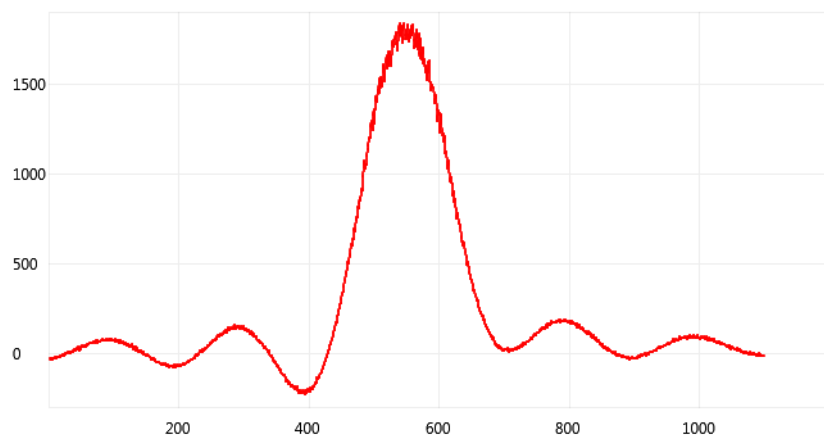
HighGain ADC Target = 1973.19

Coarse Multiplier Gain Setting



Maximum EM_V: -1675.86

Electrometer Pulse Profile

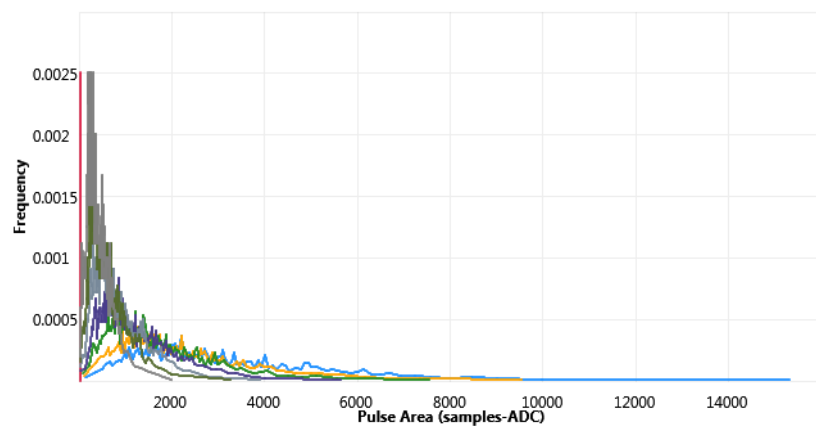


Measure Gain vs Voltage

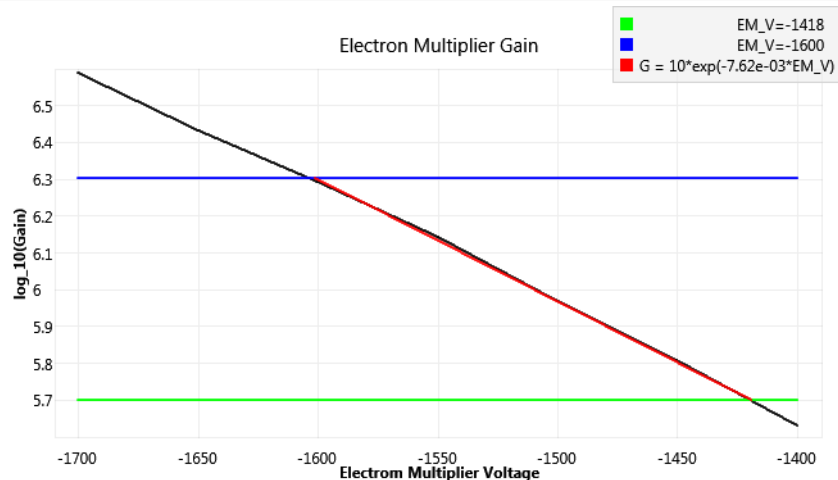
EM Voltage	#P.A. Array	Estimated Gain	Est. Height/Gain
-1700.00	3633.00	3865071.61	0.88
-1650.00	3778.00	2704217.75	0.92
-1600.00	3787.00	1954630.33	0.95
-1550.00	3735.00	1381071.99	1.00
-1500.00	3749.00	926388.14	1.05
-1450.00	3674.00	642289.05	1.10
-1400.00	3618.00	426814.37	1.16

Single Ion Pulse Area Histogram

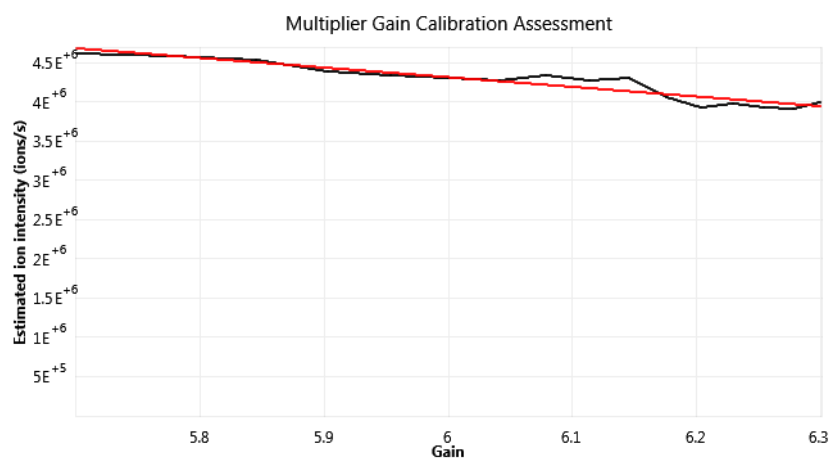
-1400



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Gain assessment: normalized slope = -0.266767



posA = 30.789850215813
 posB = -0.0073042719673097
 Gain=500000: posEMVoltage=-1327.329858961

negA = 10.111083513976
 negB = -0.007617582396654
 Gain=500000: negEMVoltage -1418.9188399671

Calibration parameter comparison passed.

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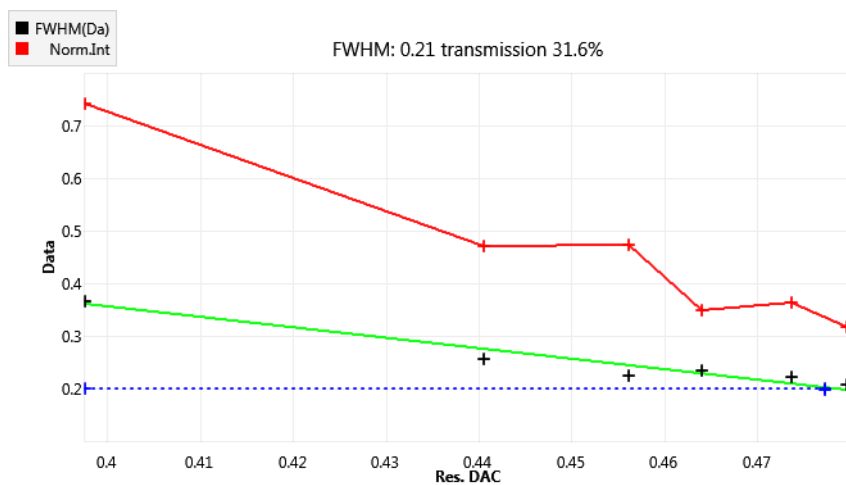
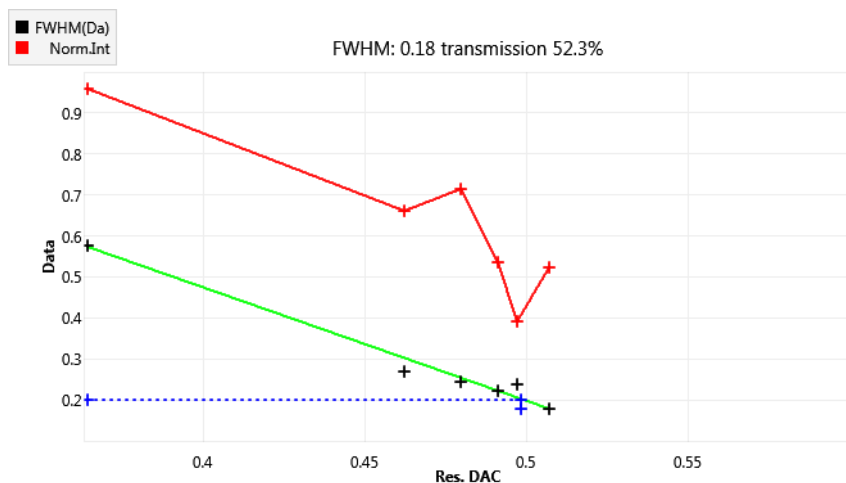
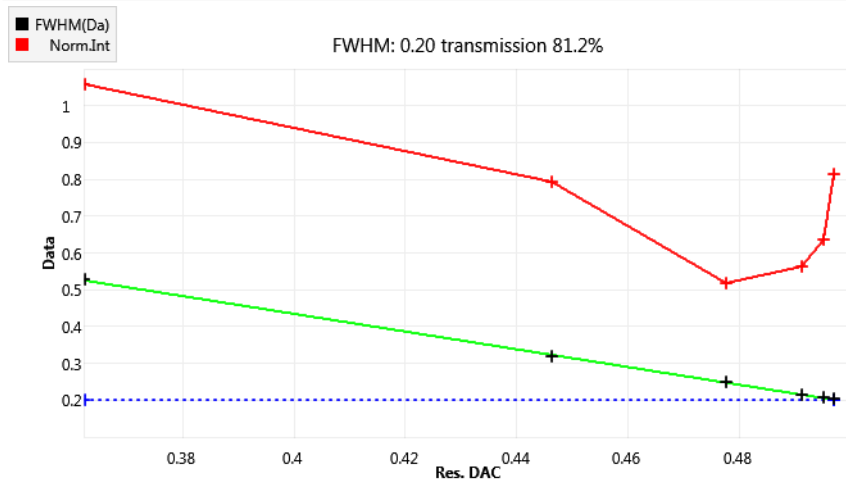
EM Gain Calibration Results

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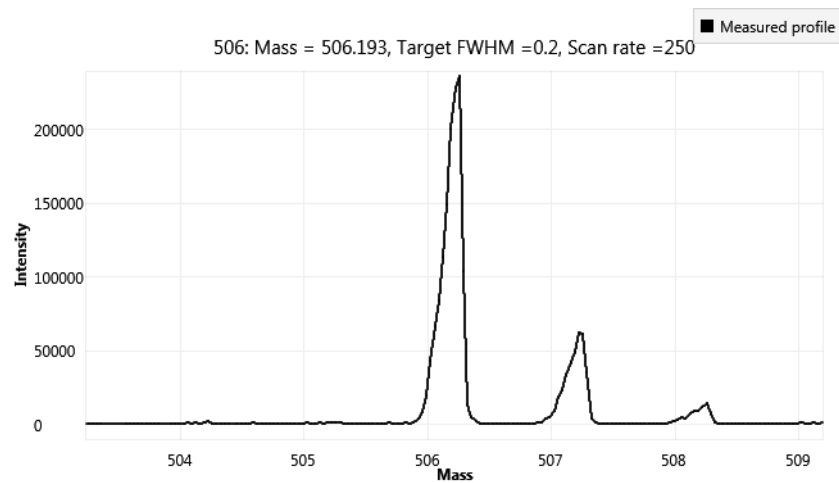
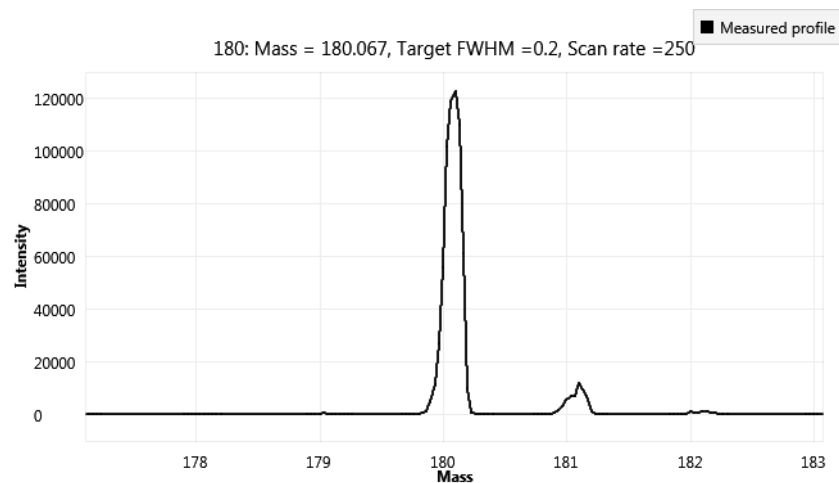
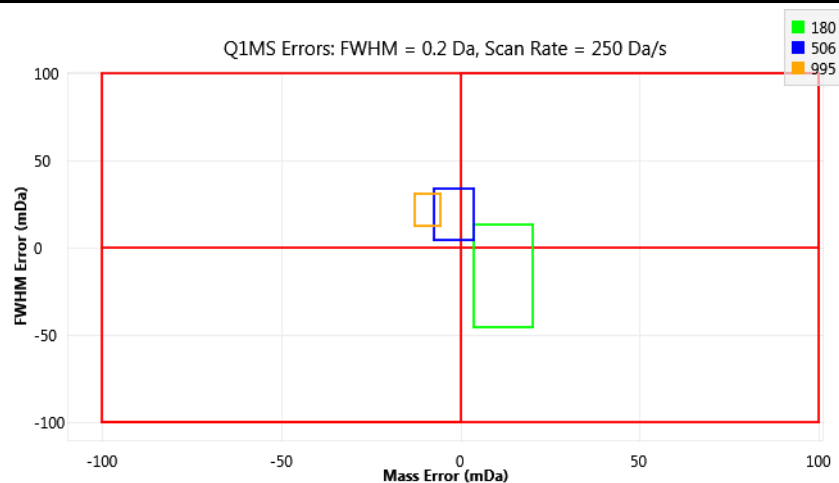
A= 10.1111
 B= -0.00761758
 Full Scan EM Voltage= -1418.92
 SRM Scan EM Voltage= -1600.9
 Q1 coarse calibration result:
 Gain DAC value= 1324

m/z	FWHM
180.07	1.63
506.19	1.58
995.38	1.39

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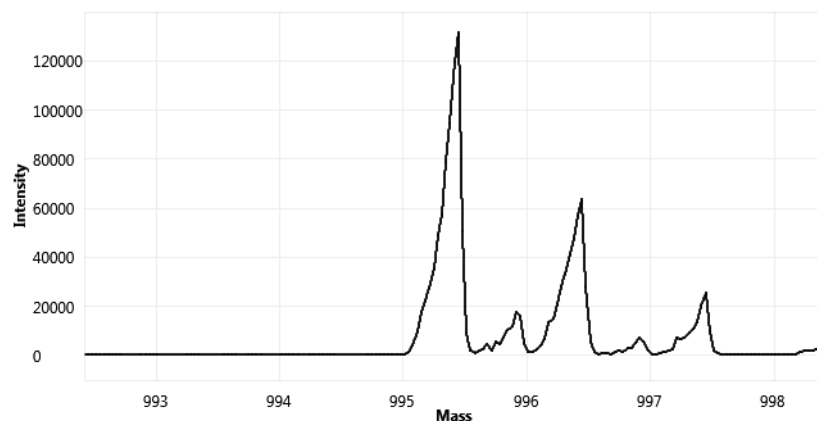
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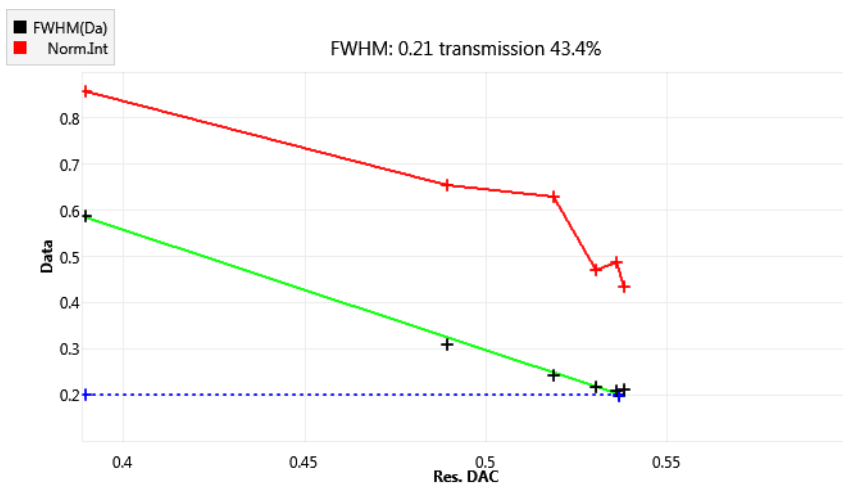
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995: Mass = 995.383, Target FWHM = 0.2, Scan rate = 250

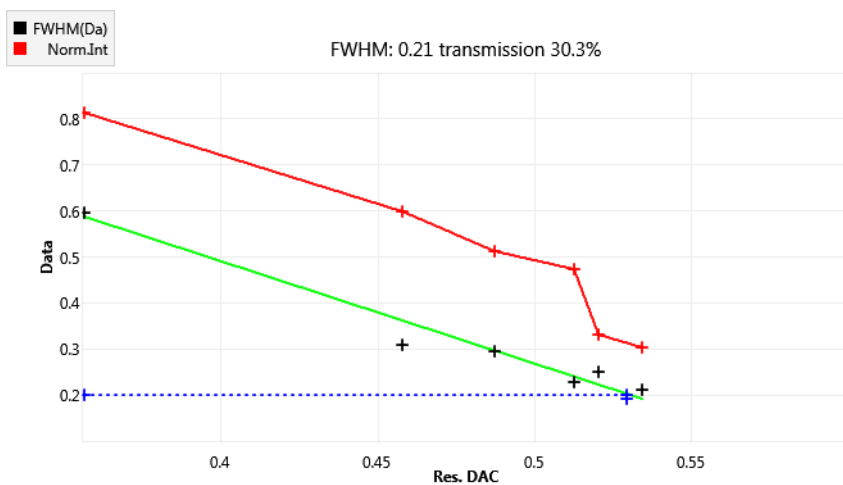
■ Measured profile



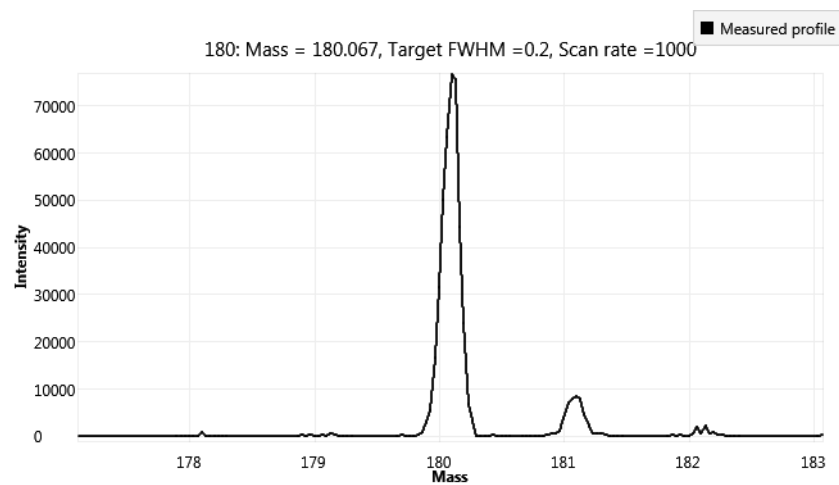
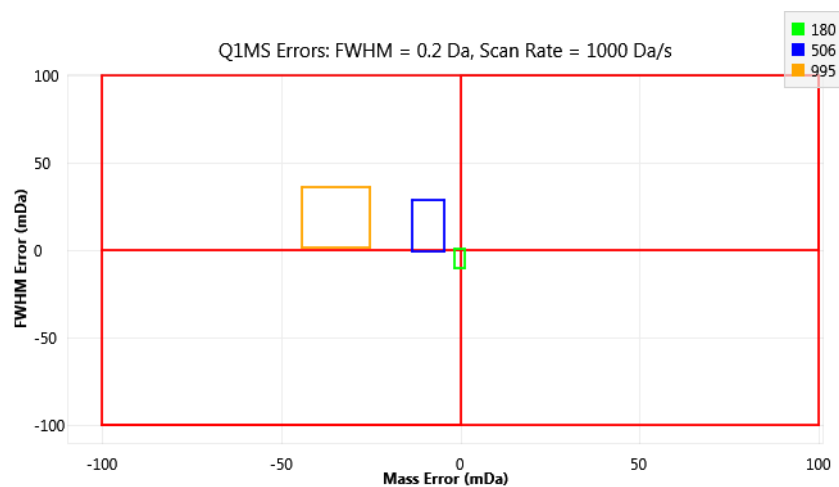
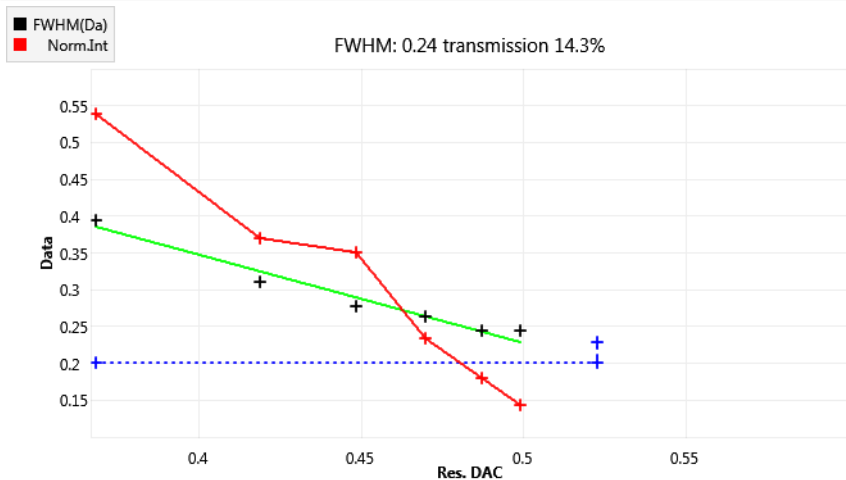
FWHM: 0.21 transmission 43.4%



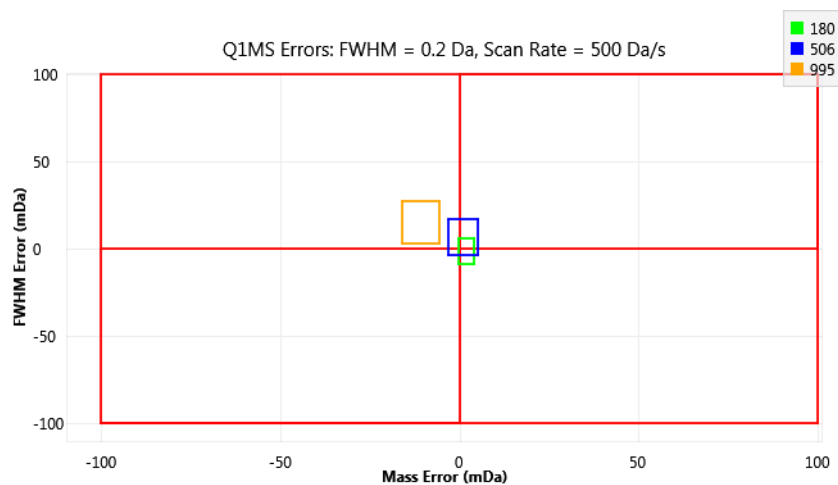
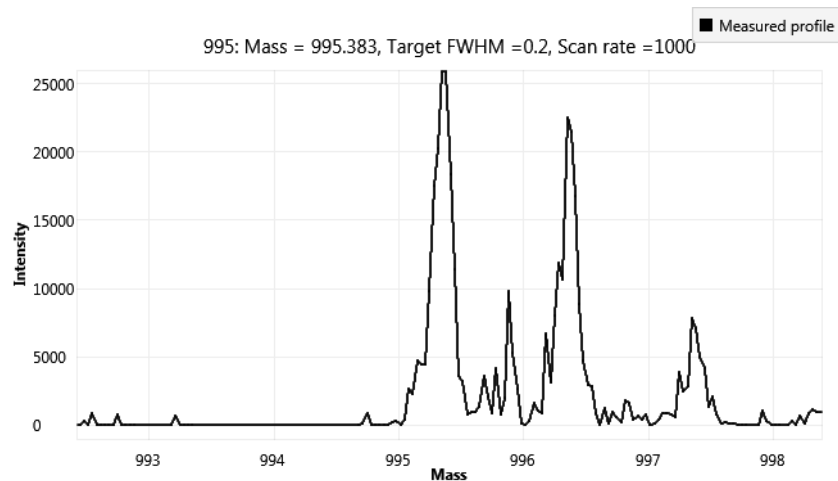
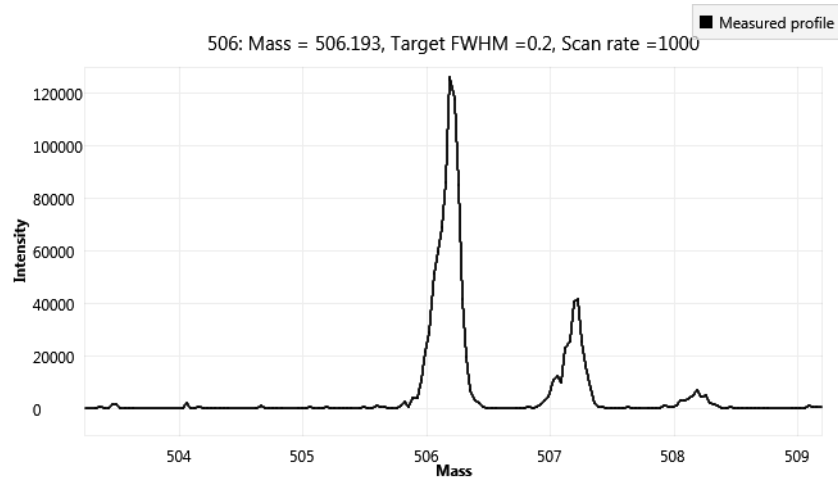
FWHM: 0.21 transmission 30.3%



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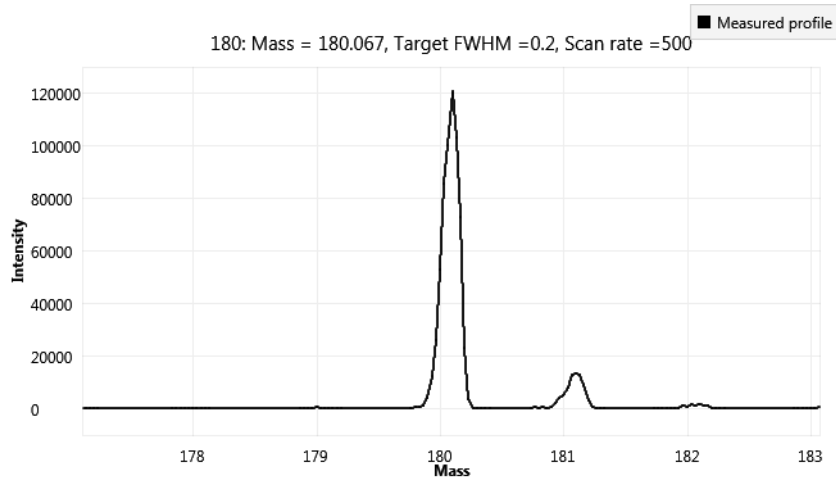


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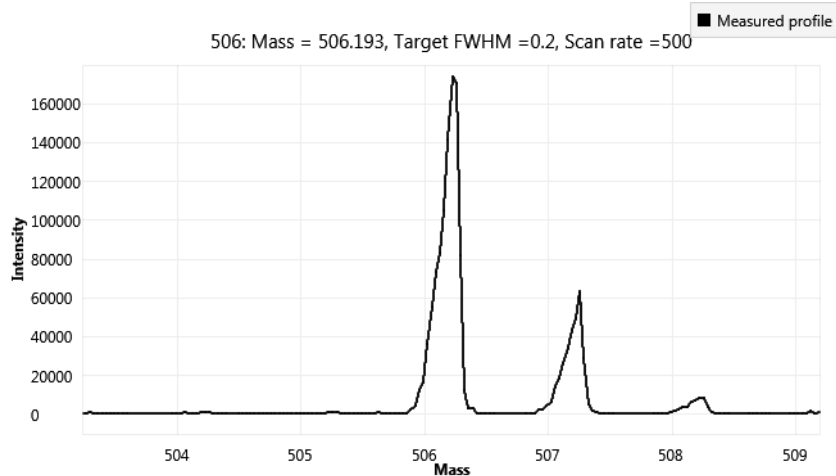


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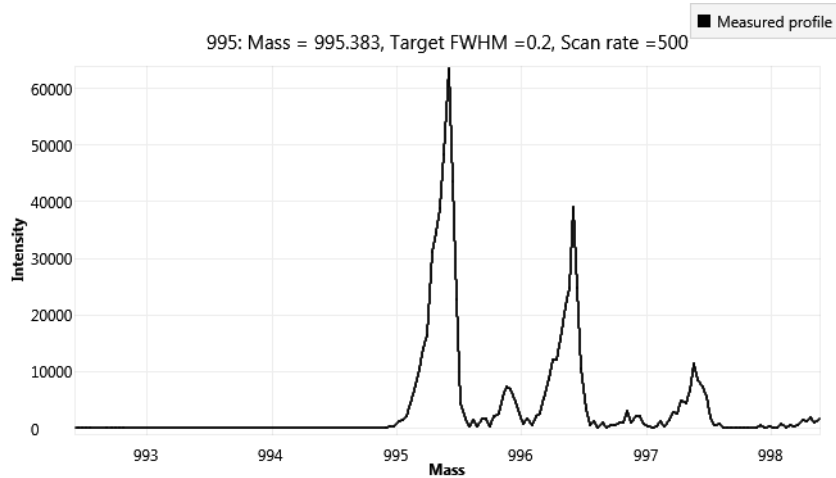
180: Mass = 180.067, Target FWHM = 0.2, Scan rate = 500



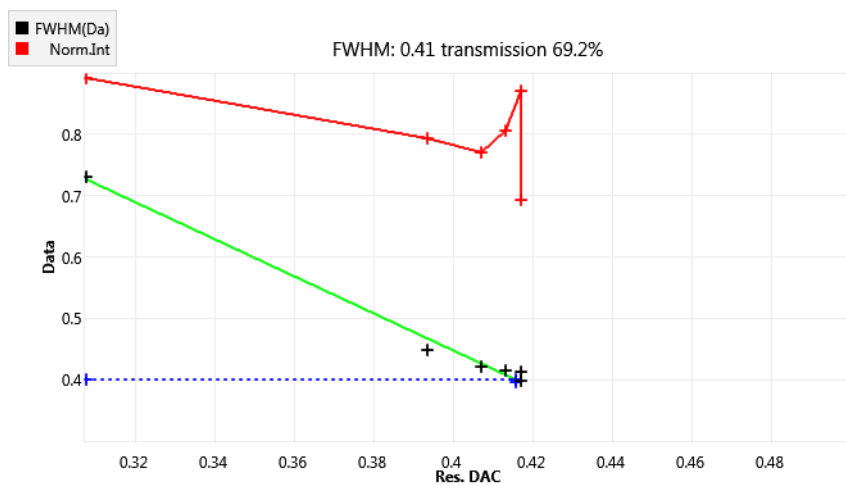
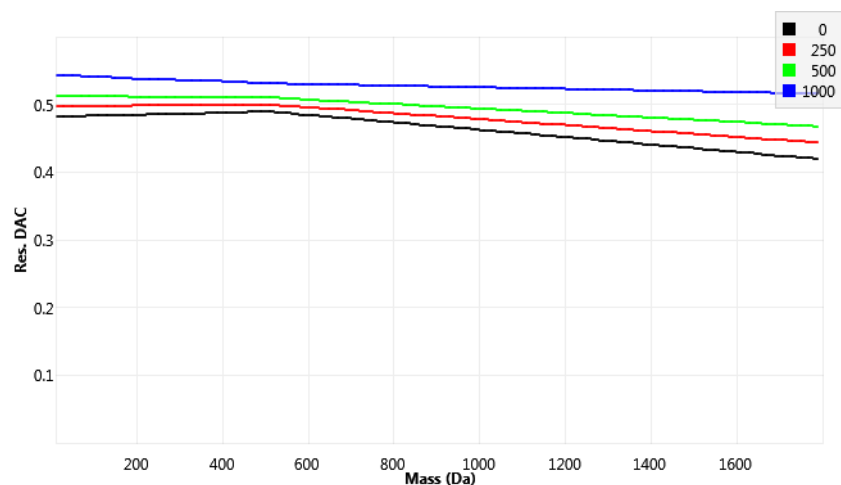
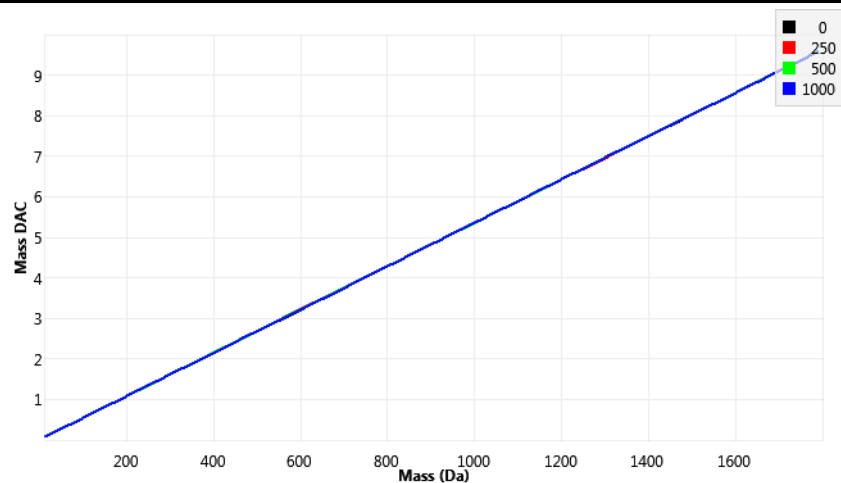
506: Mass = 506.193, Target FWHM = 0.2, Scan rate = 500



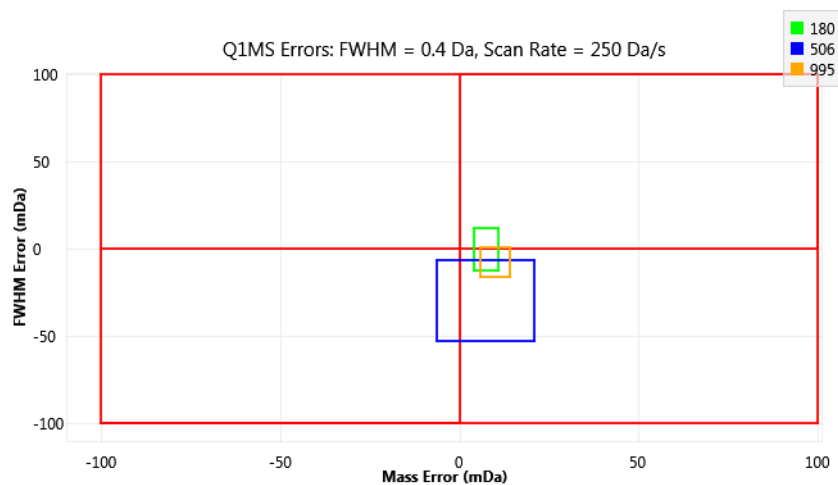
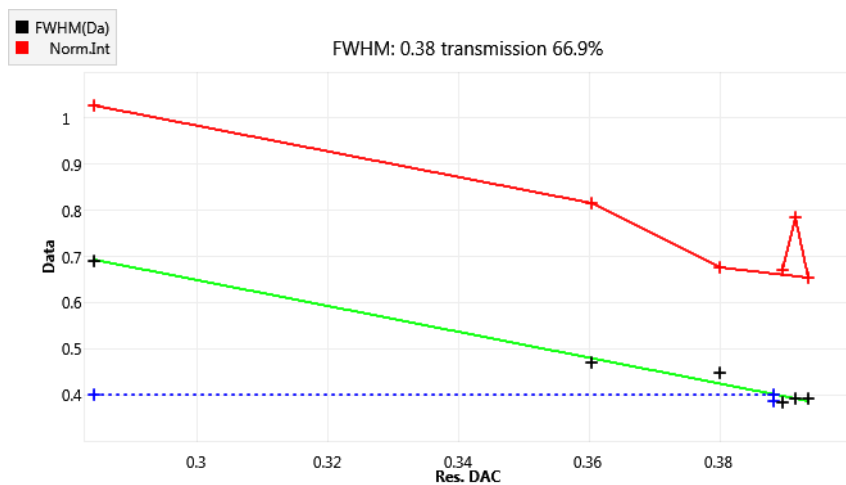
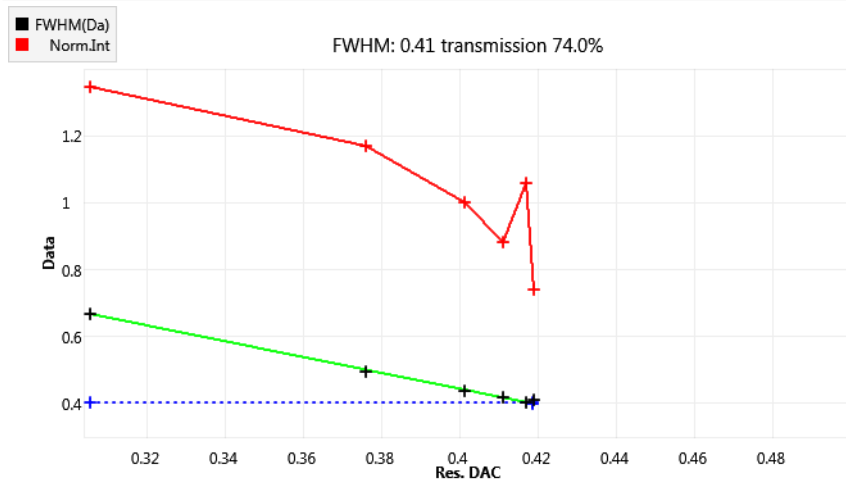
995: Mass = 995.383, Target FWHM = 0.2, Scan rate = 500



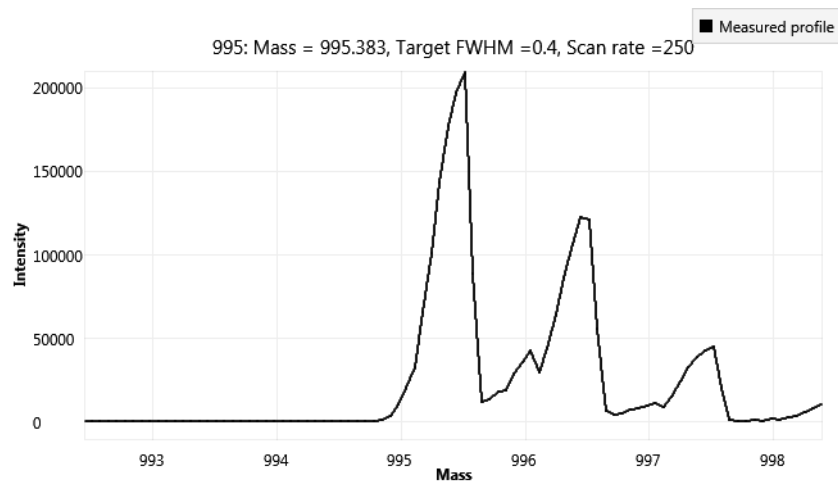
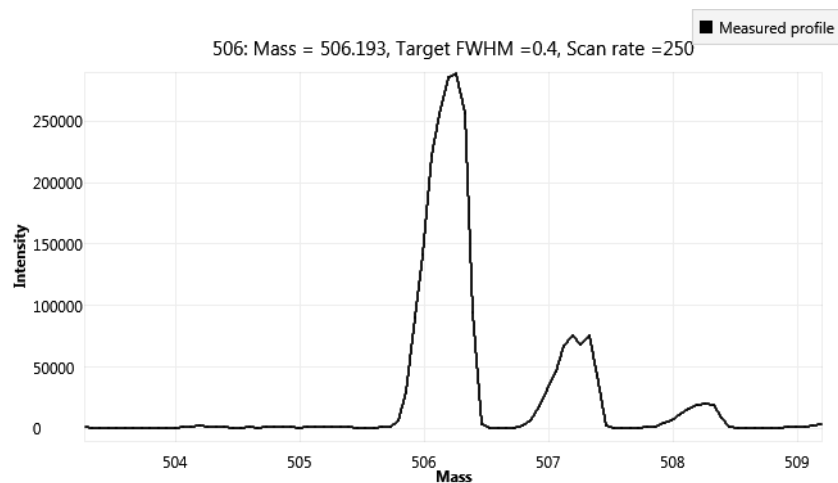
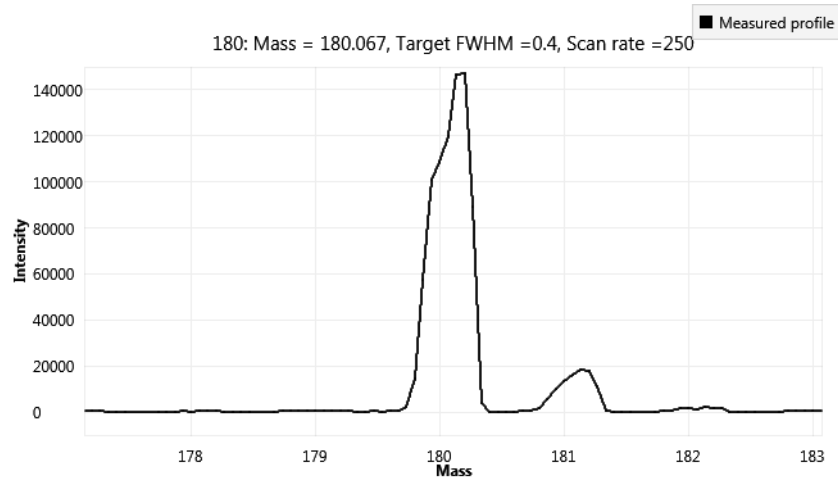
Diagnostic Report



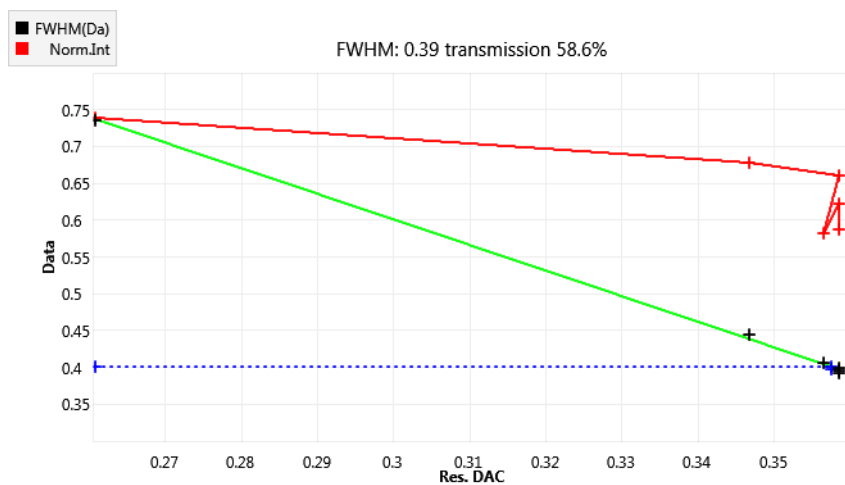
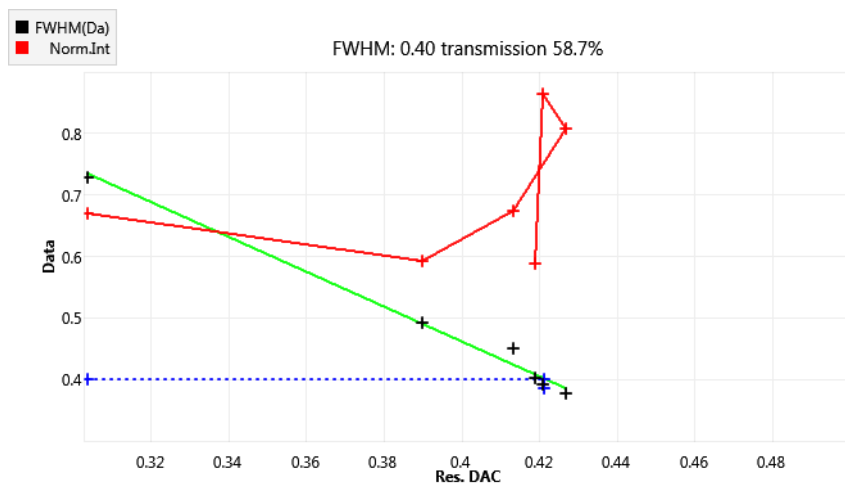
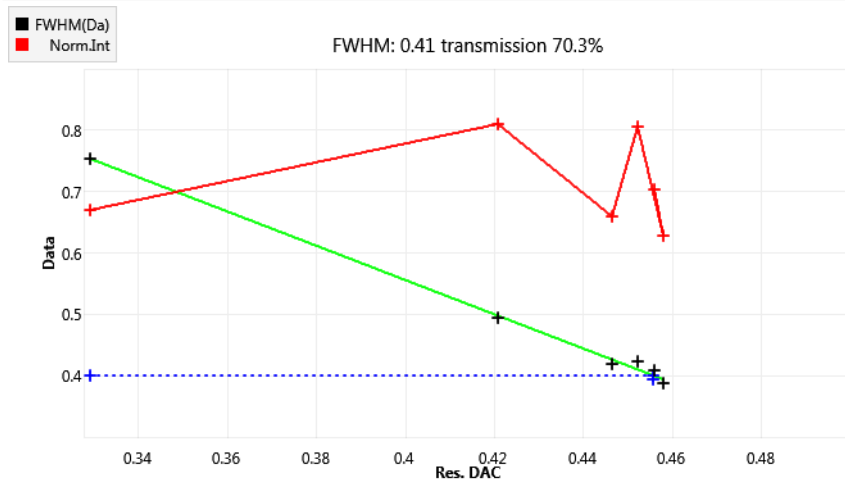
Diagnostic Report



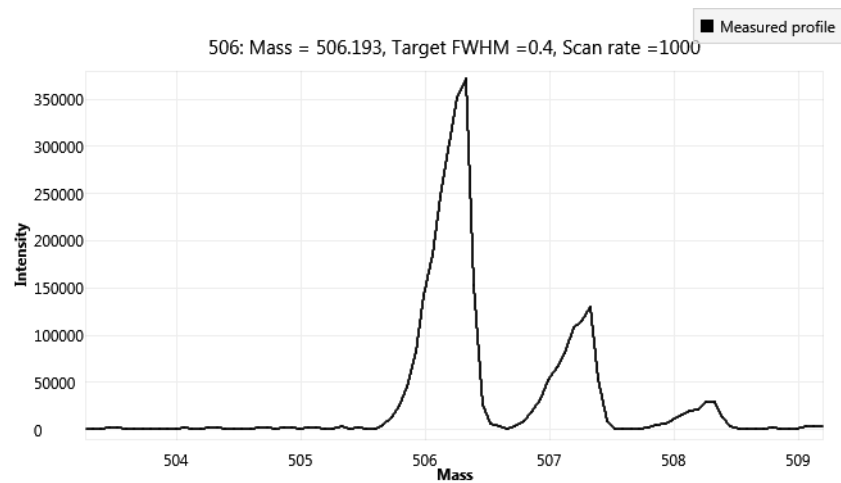
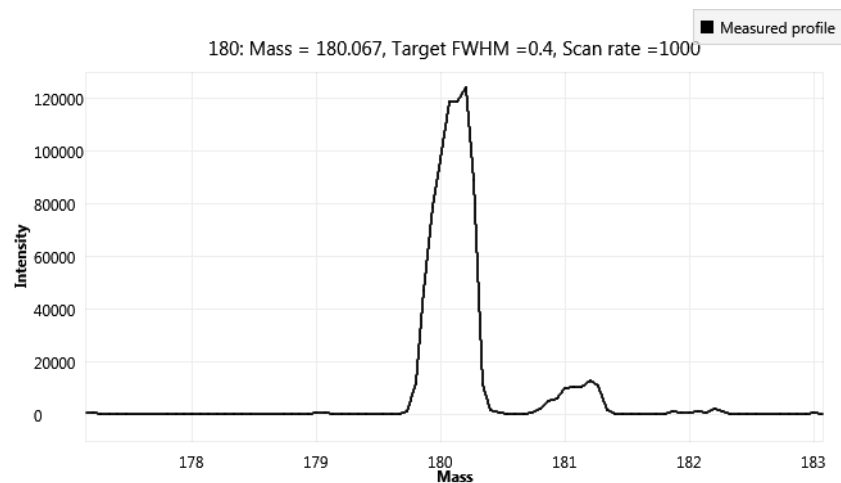
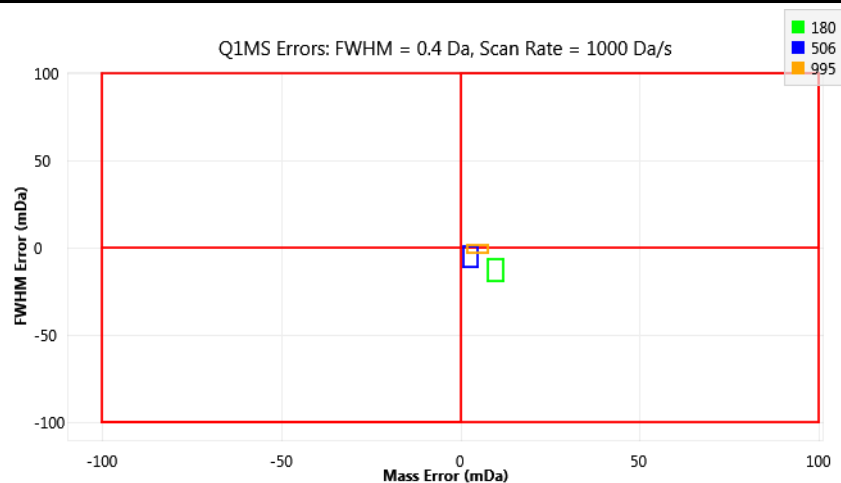
Diagnostic Report



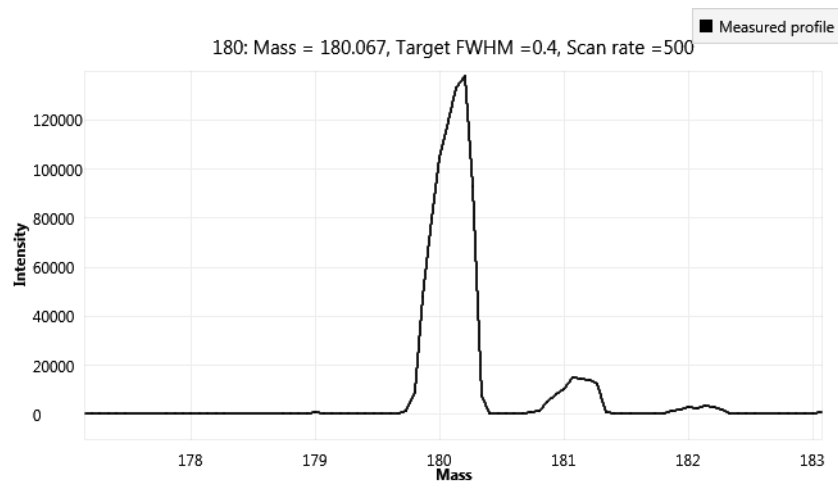
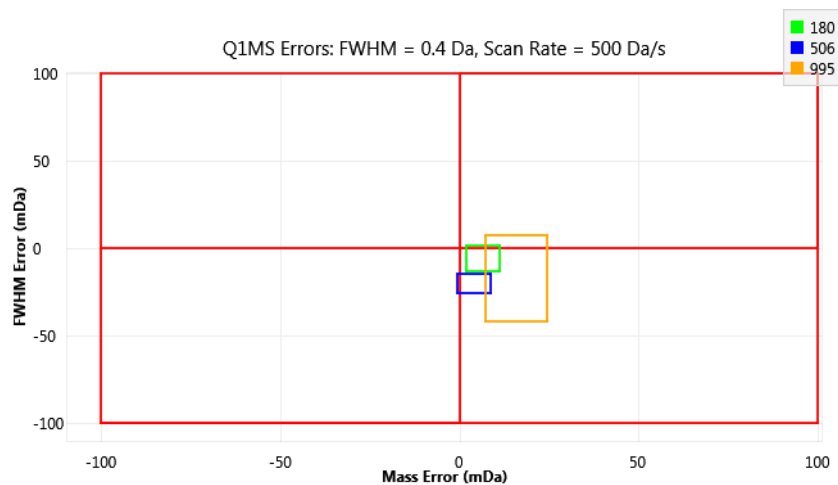
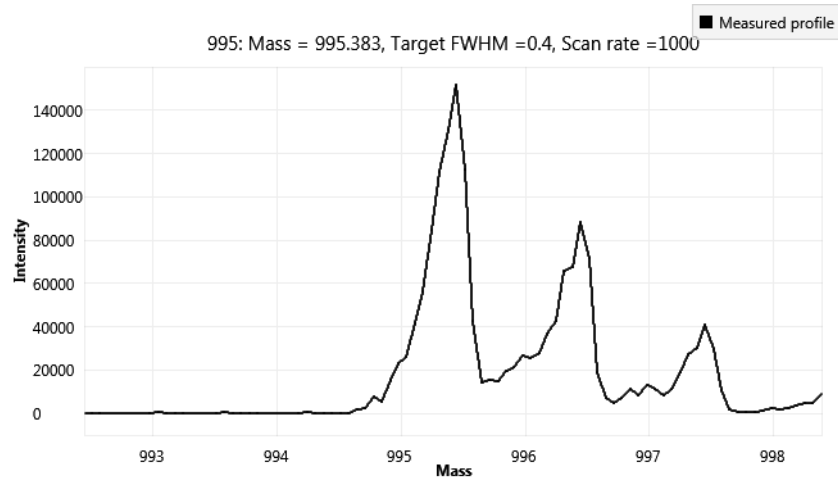
Diagnostic Report



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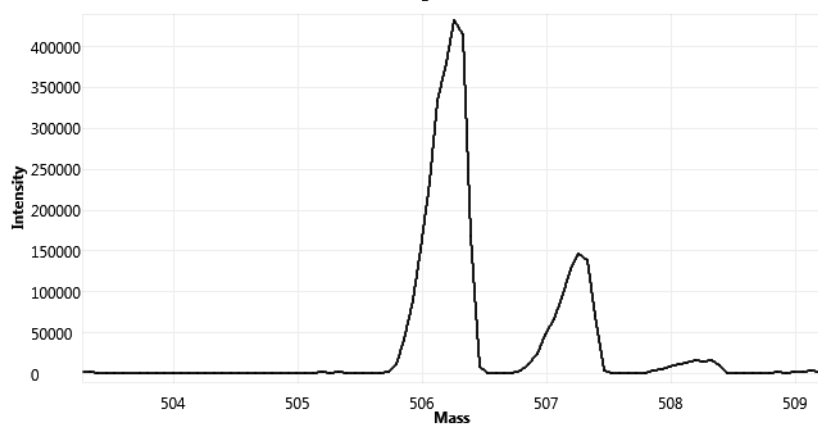


Diagnostic Report

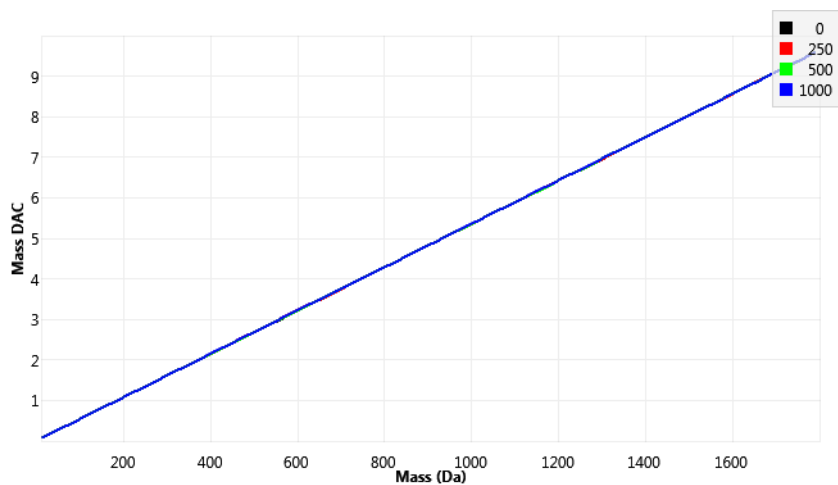
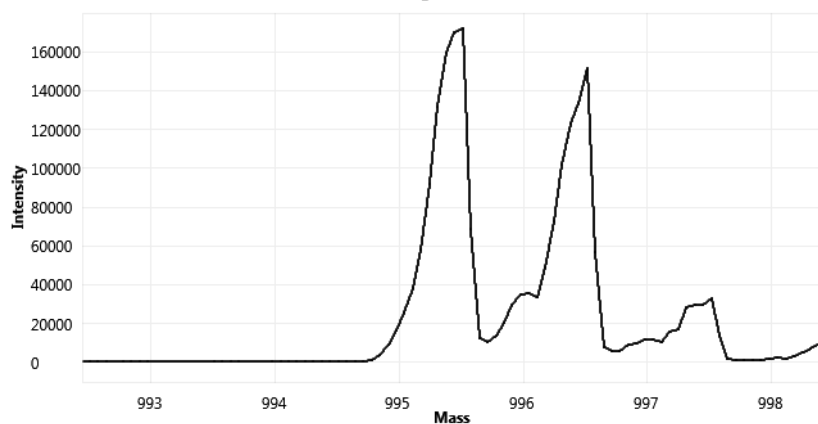


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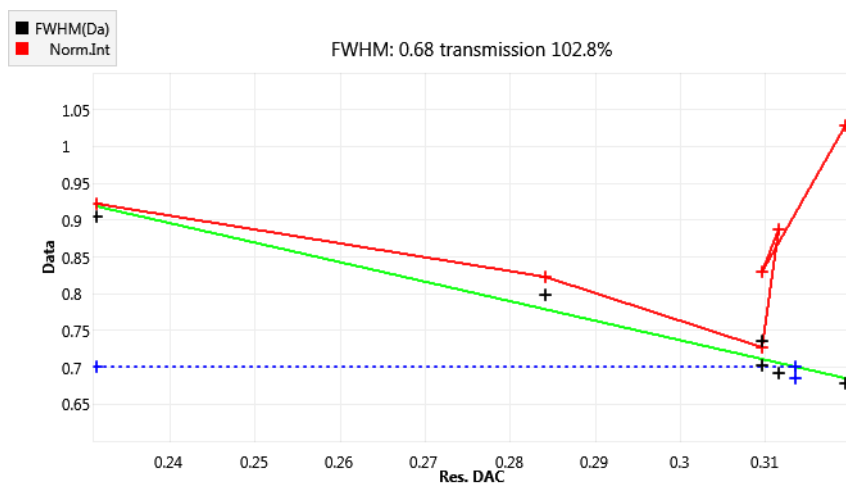
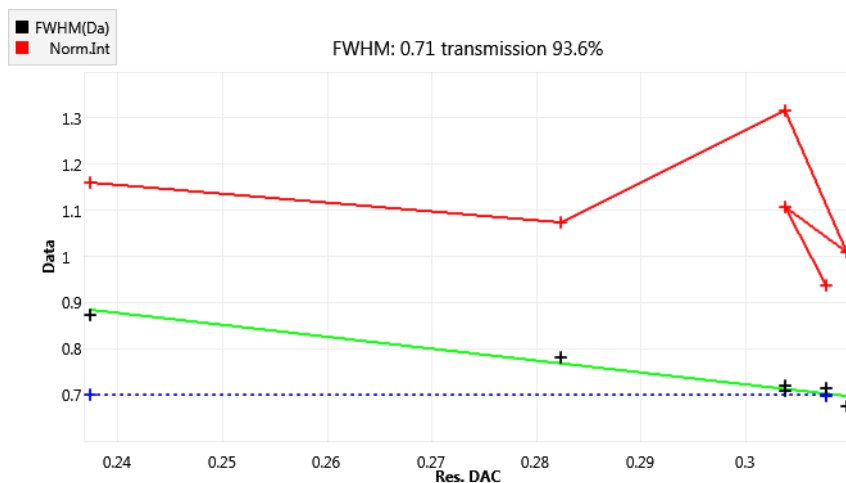
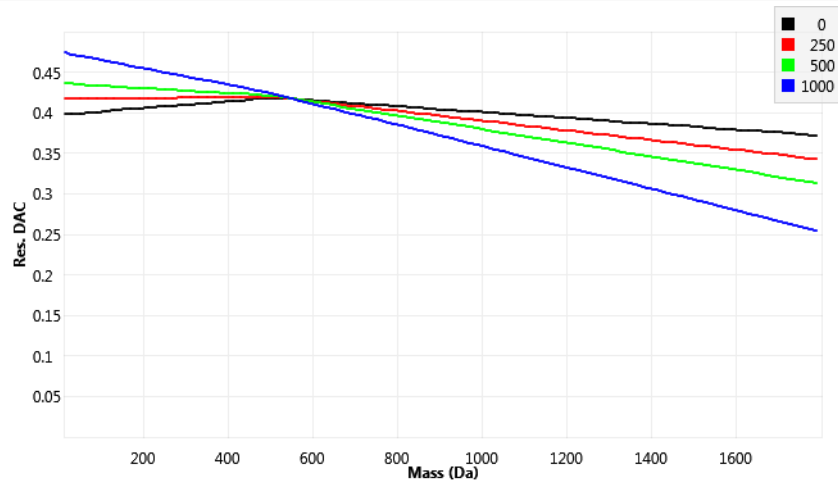
506: Mass = 506.193, Target FWHM = 0.4, Scan rate = 500



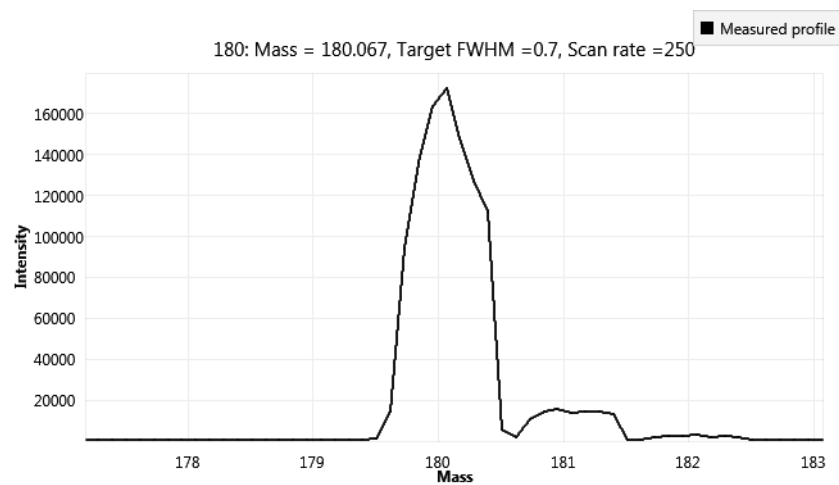
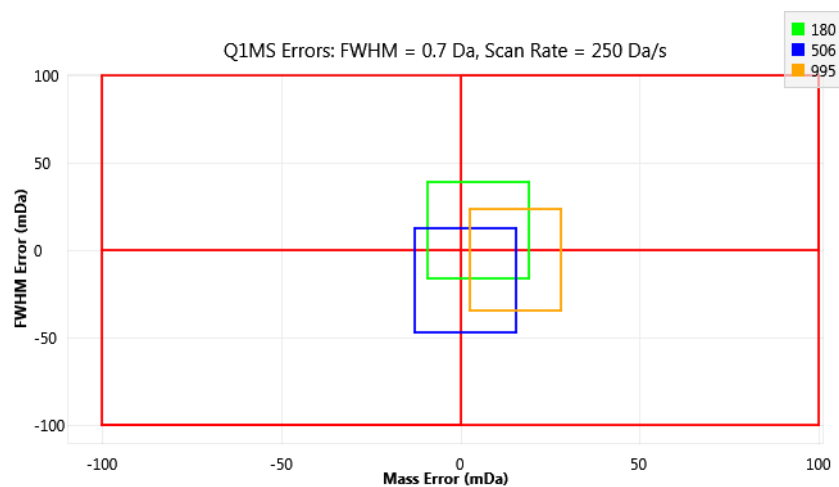
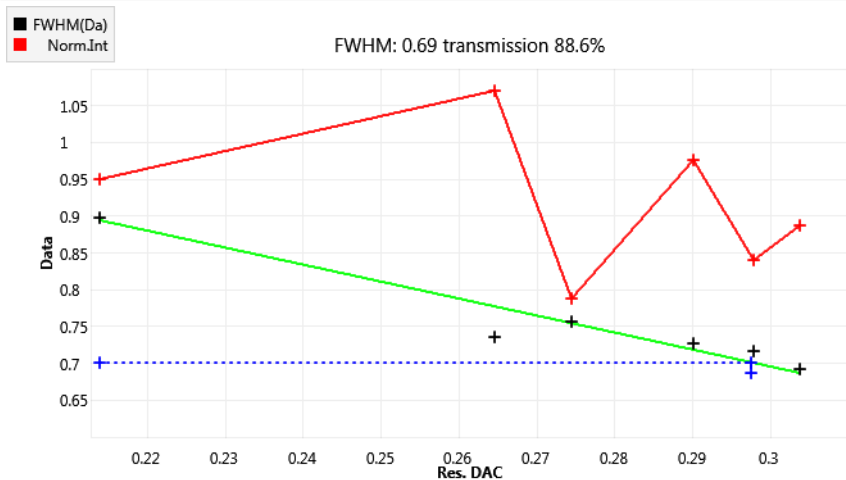
995: Mass = 995.383, Target FWHM = 0.4, Scan rate = 500



Diagnostic Report

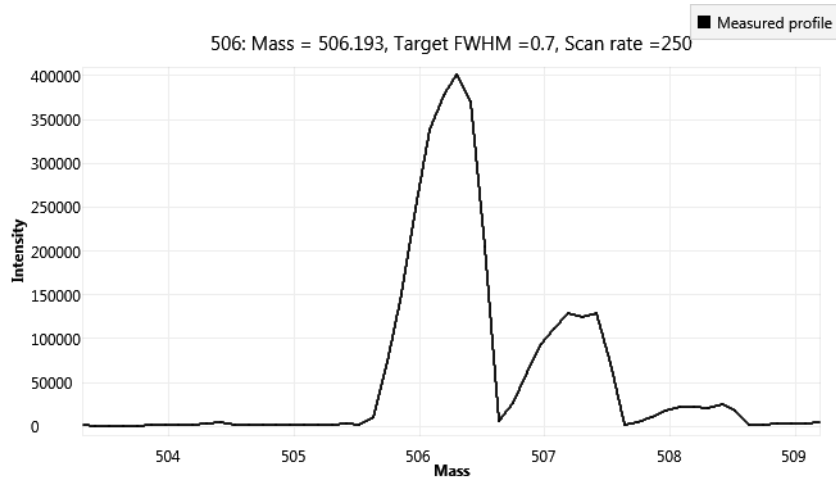


Diagnostic Report

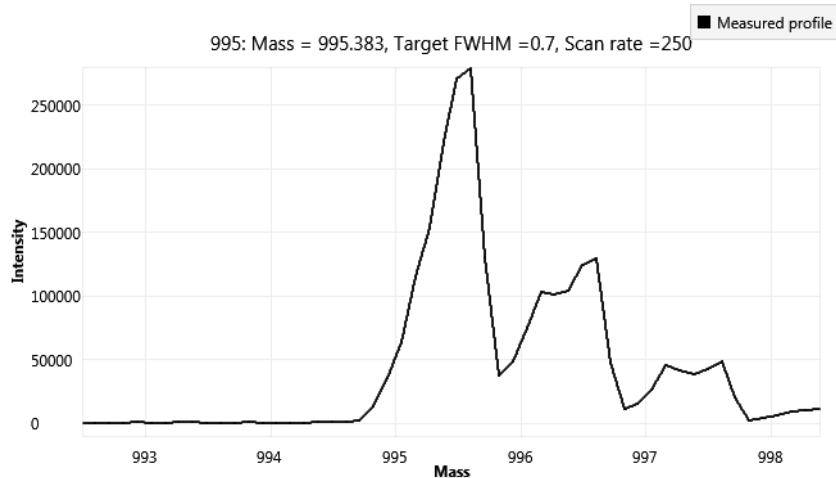


Diagnostic Report

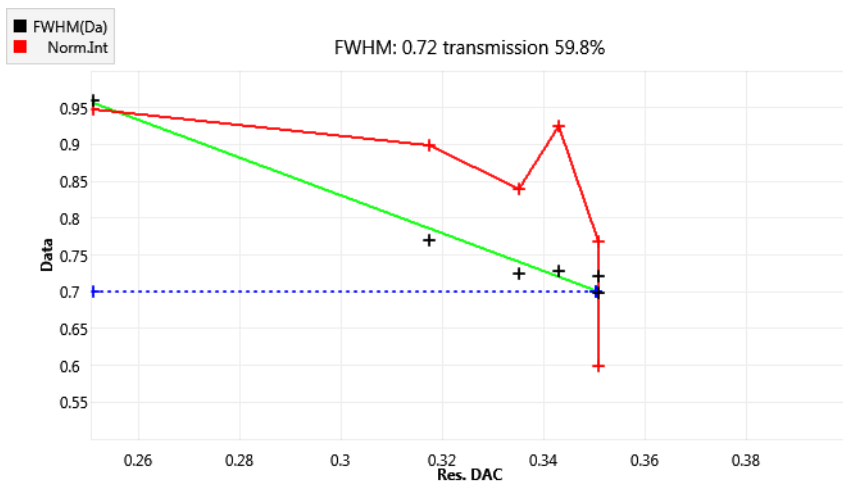
506: Mass = 506.193, Target FWHM = 0.7, Scan rate = 250



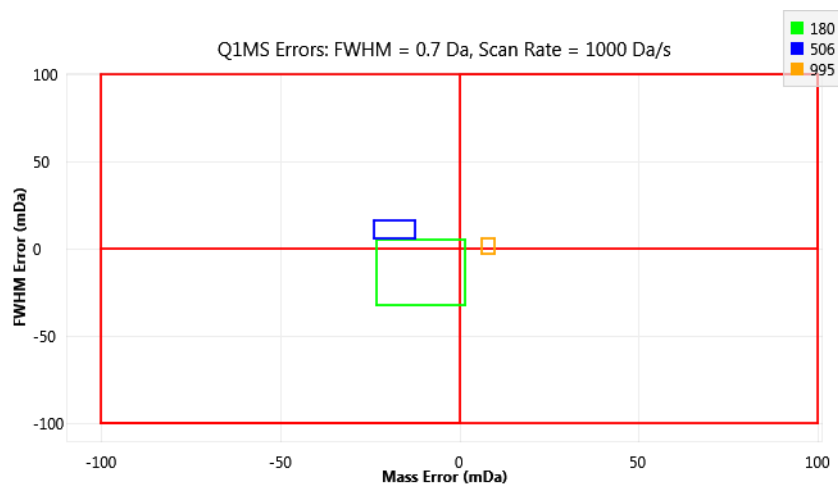
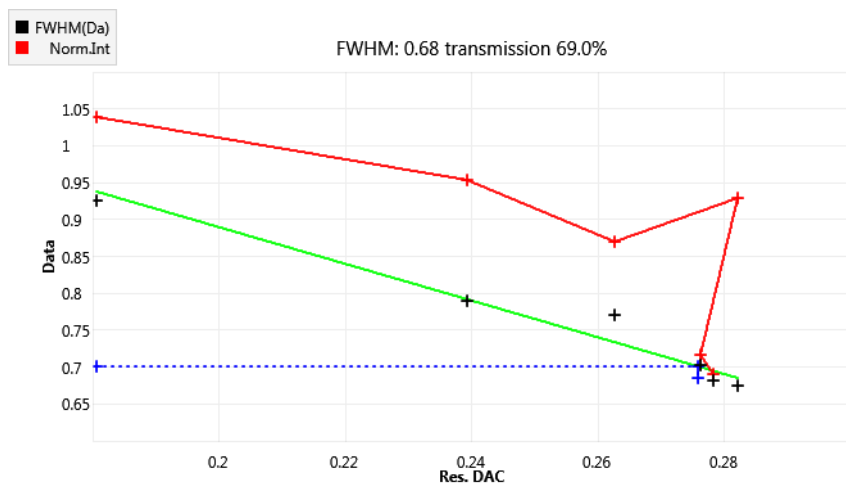
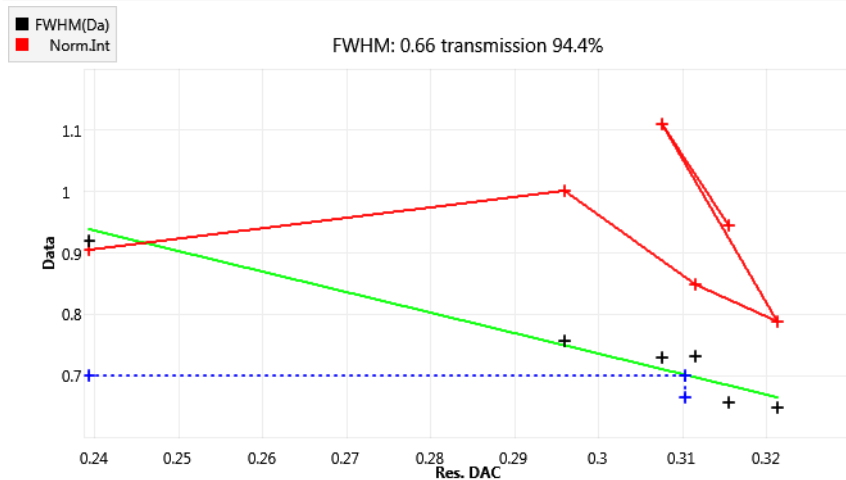
995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 250



FWHM: 0.72 transmission 59.8%

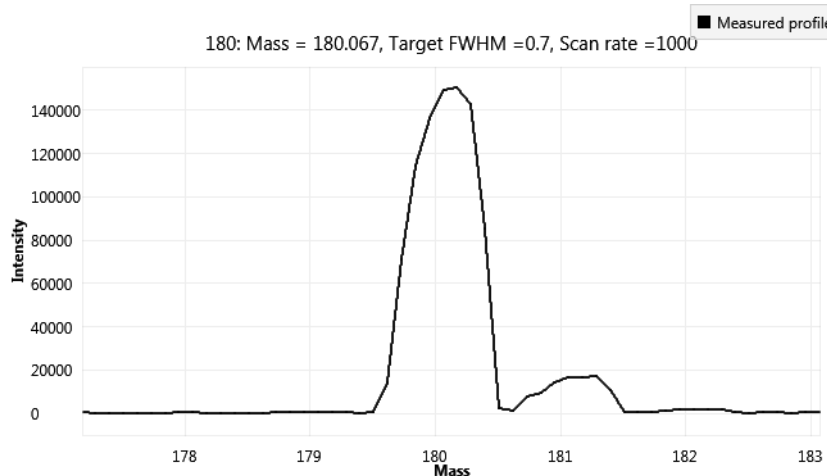


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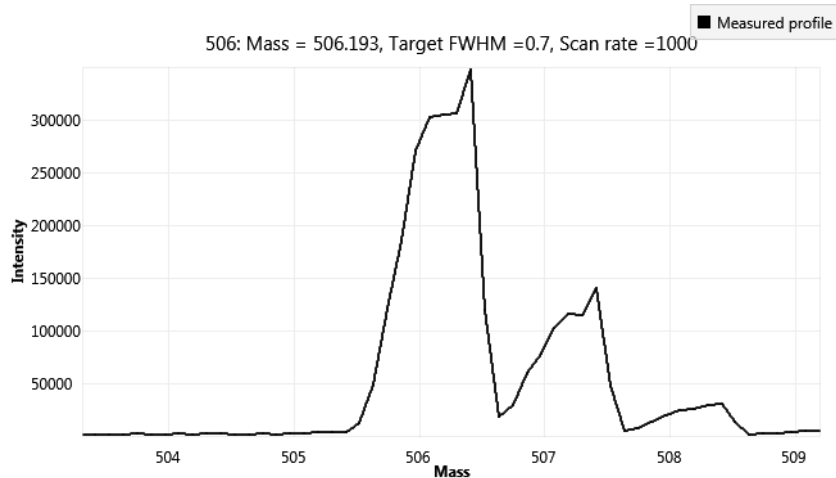


Diagnostic Report

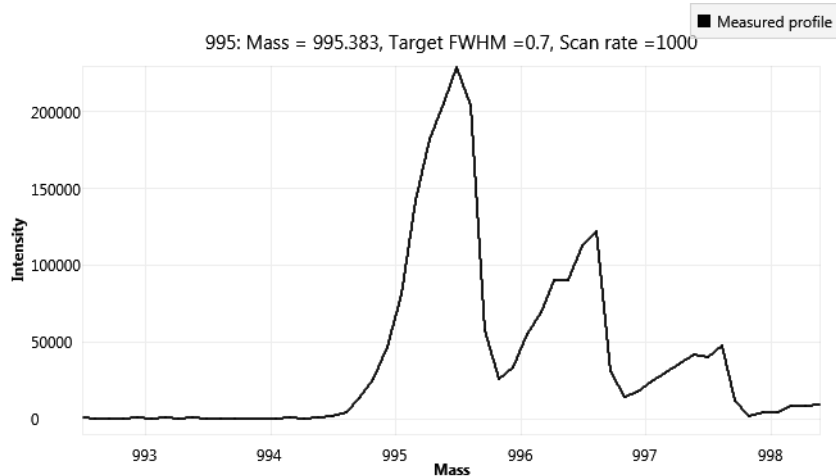
180: Mass = 180.067, Target FWHM = 0.7, Scan rate = 1000



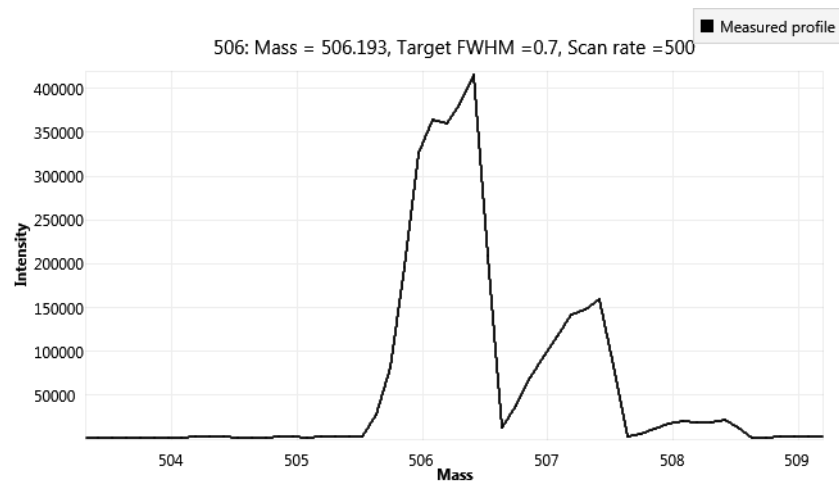
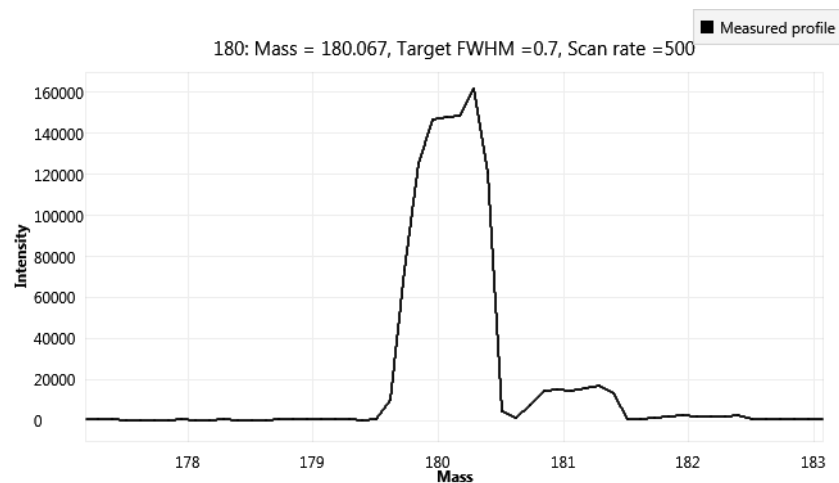
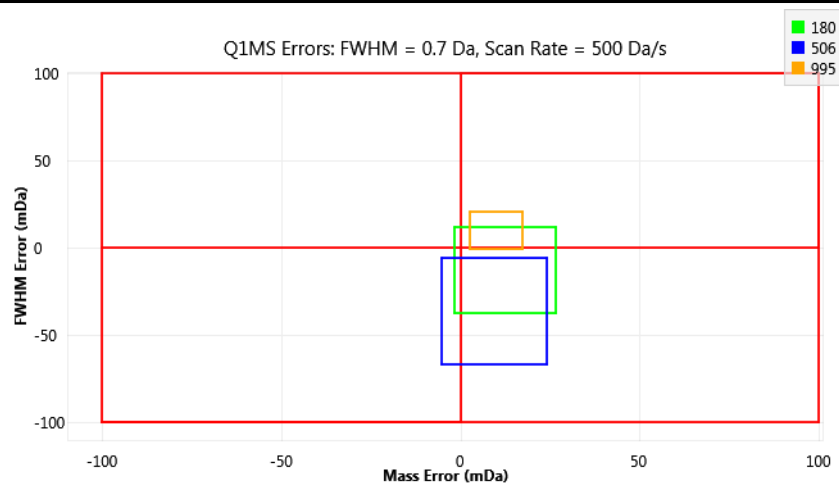
506: Mass = 506.193, Target FWHM = 0.7, Scan rate = 1000



995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 1000

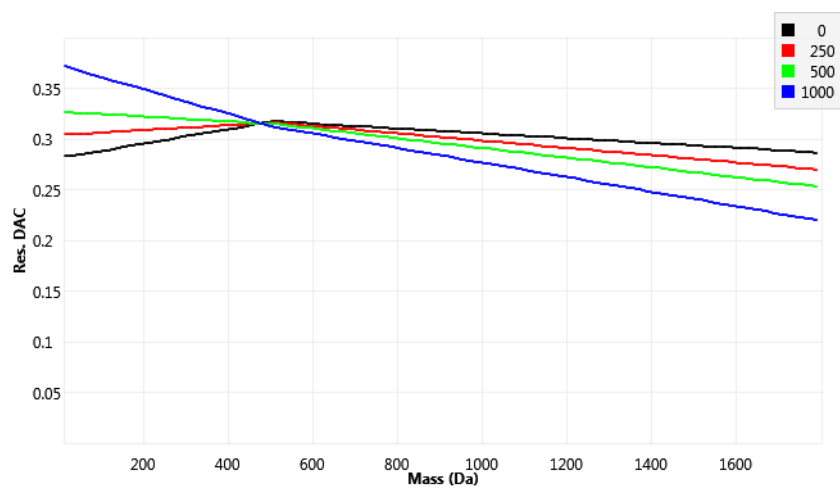
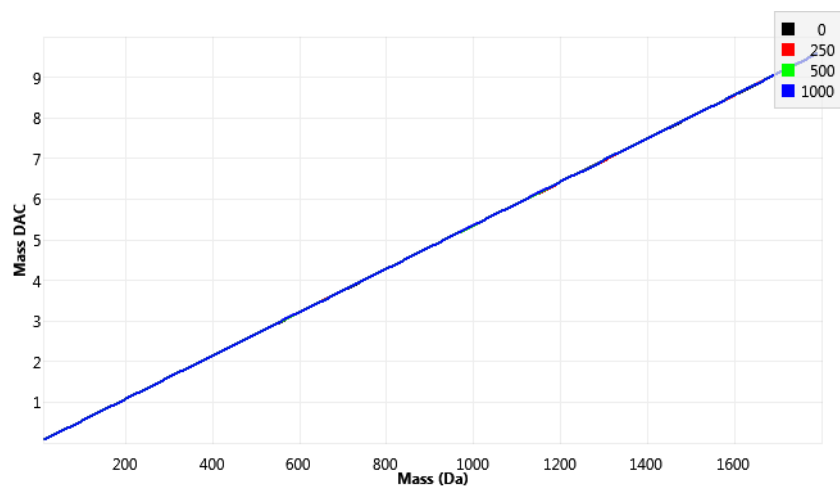
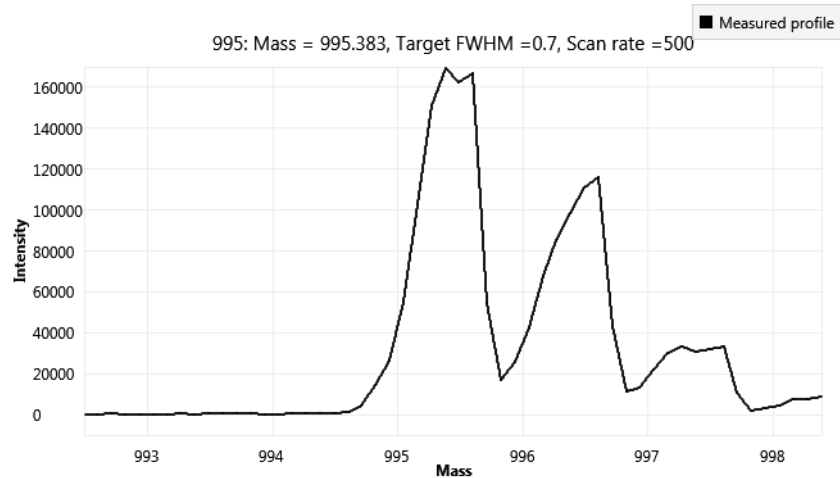


Diagnostic Report

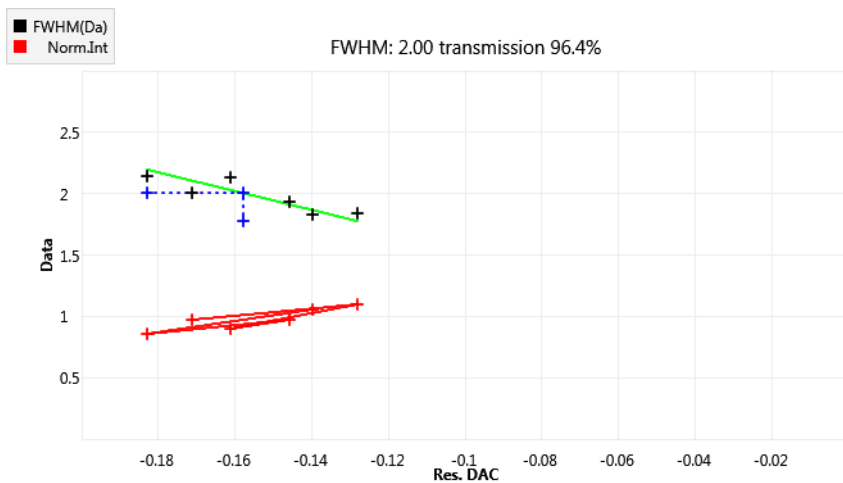
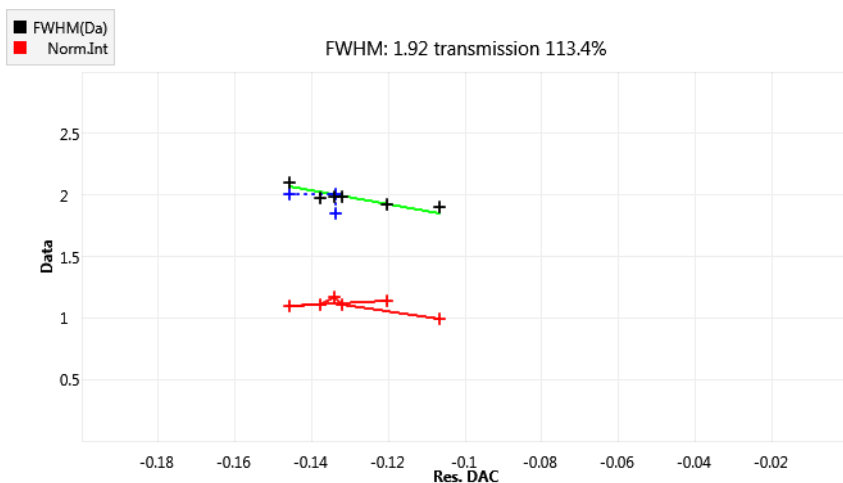
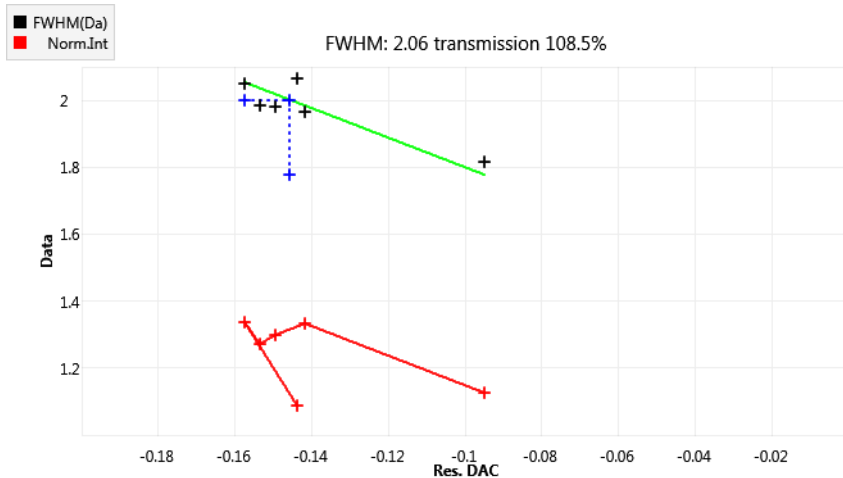


Diagnostic Report

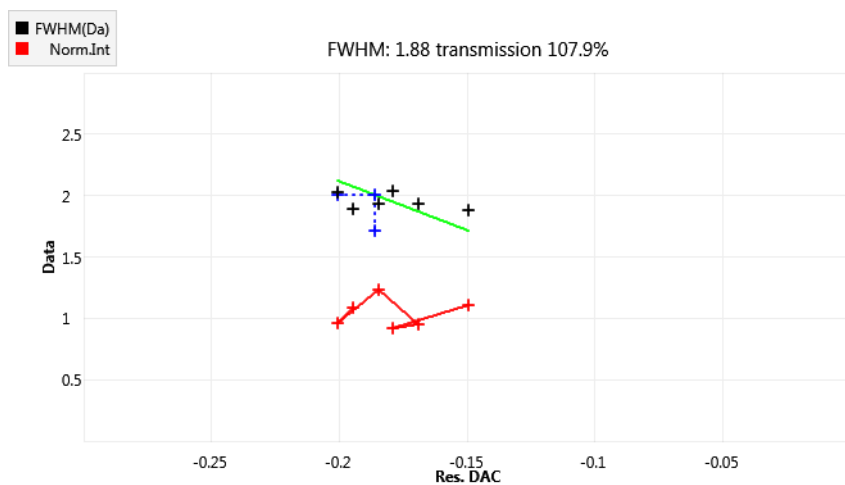
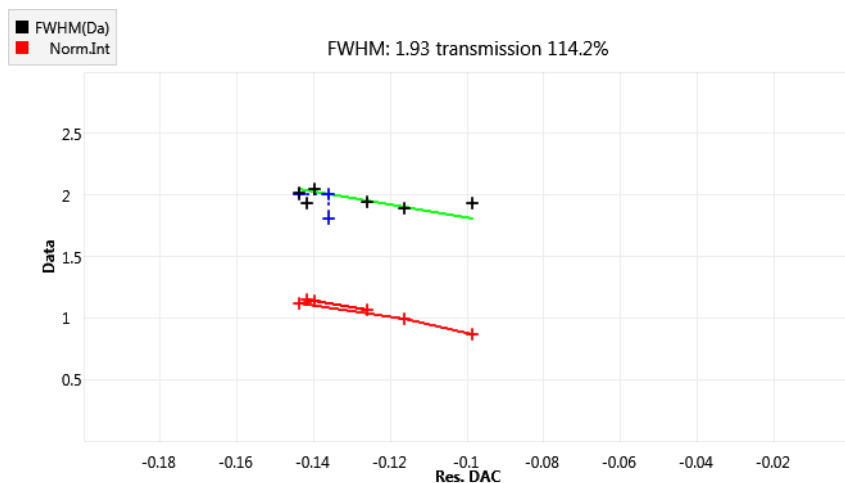
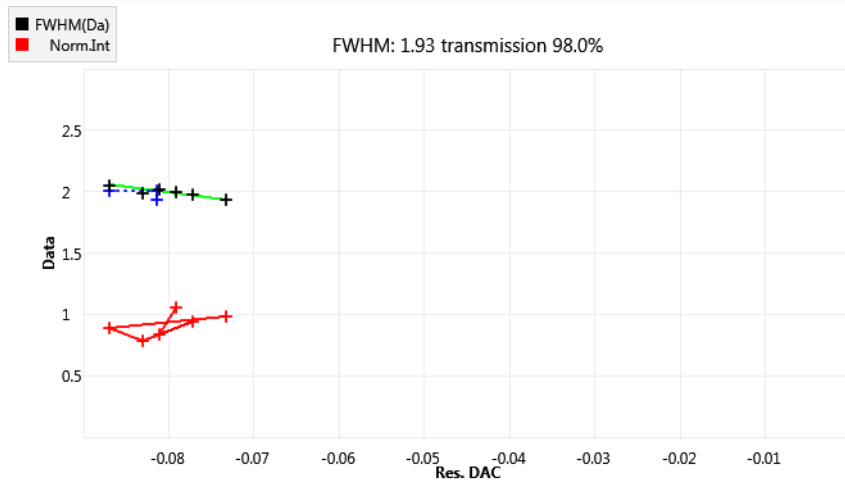
995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 500



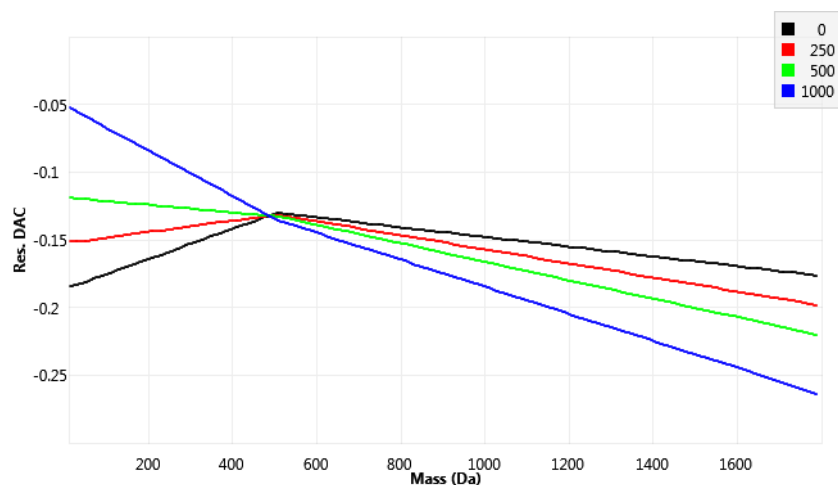
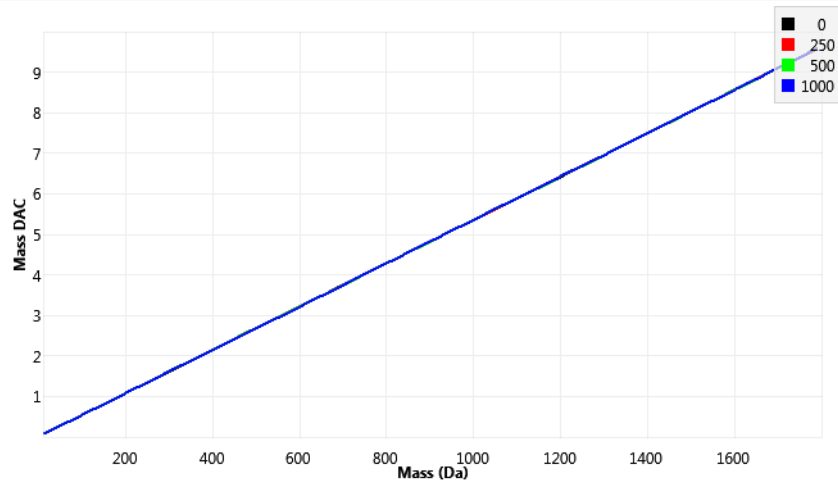
Diagnostic Report



Diagnostic Report



Diagnostic Report

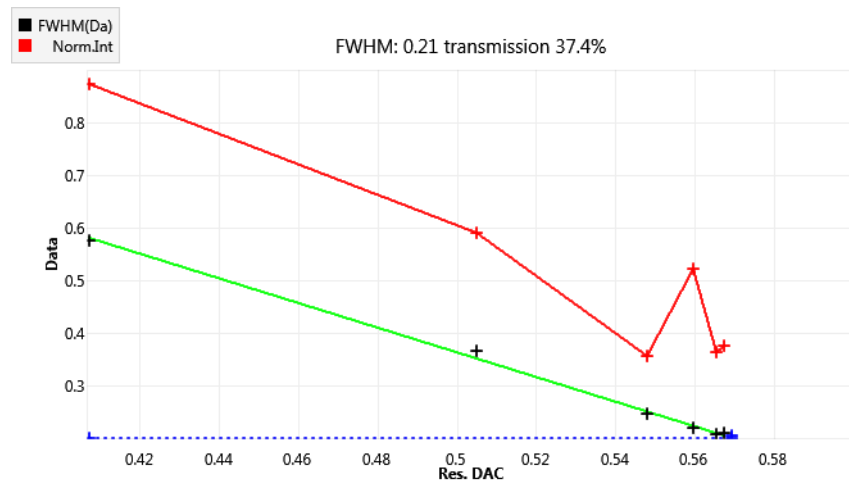


Mass And Resolution Calibration succeeded.

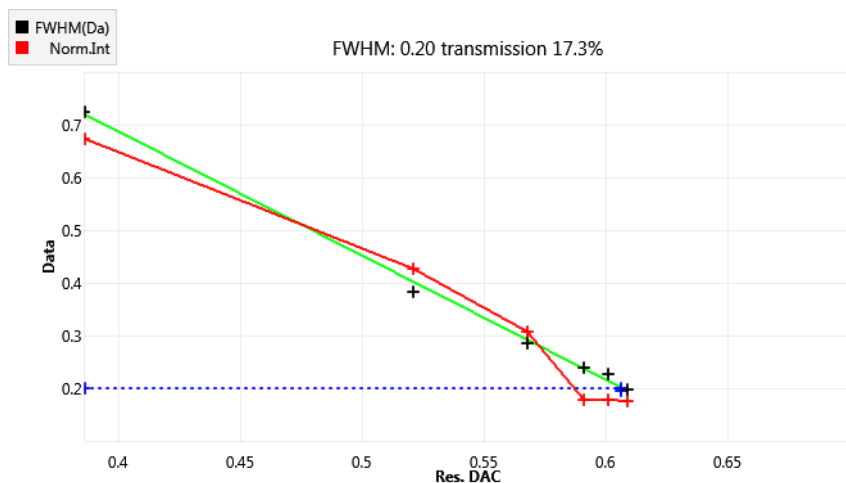
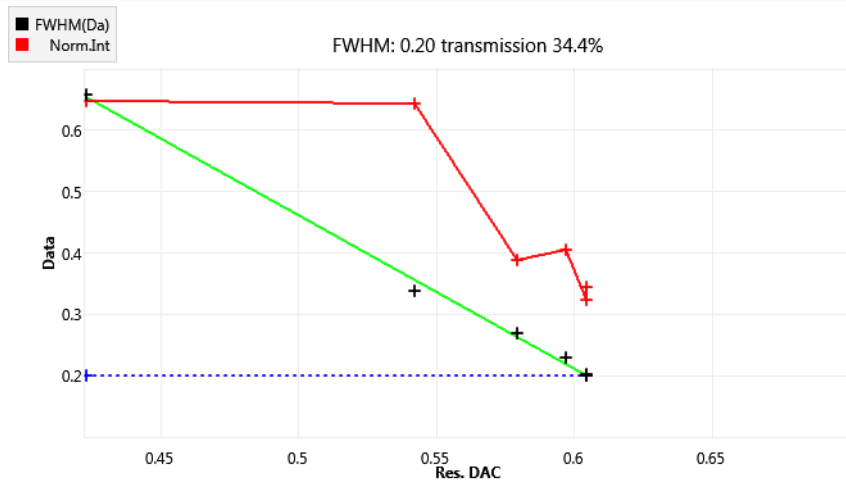
Q3 coarse calibration result:

Gain DAC value= 1322

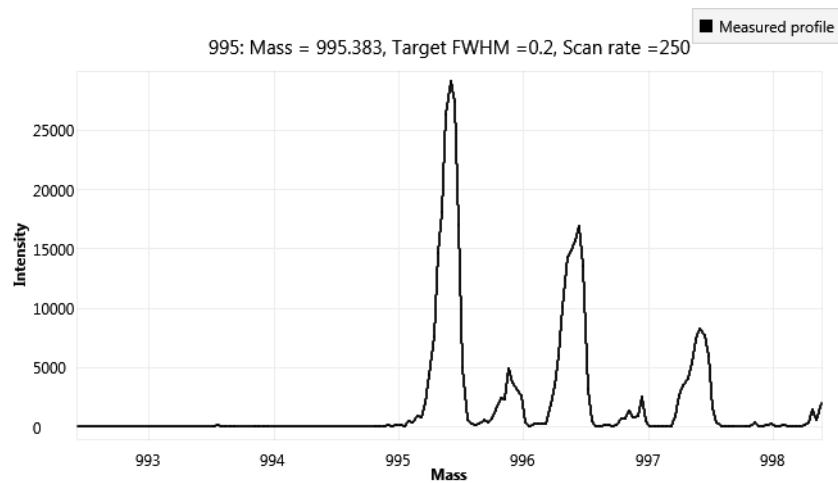
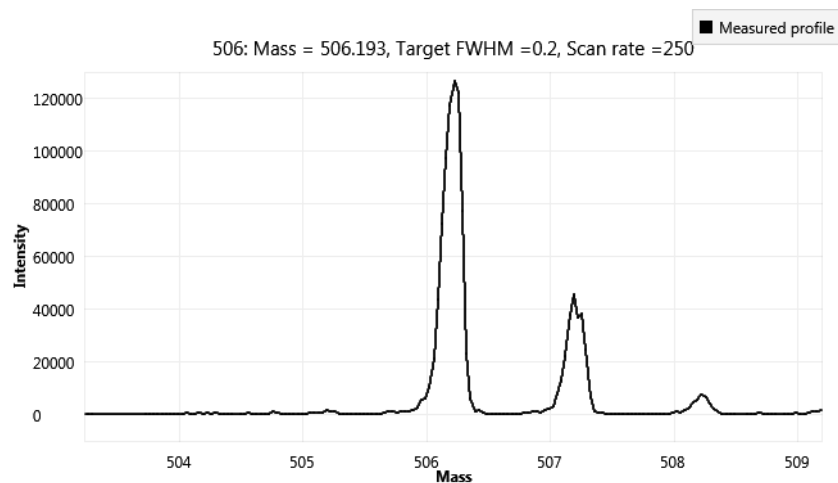
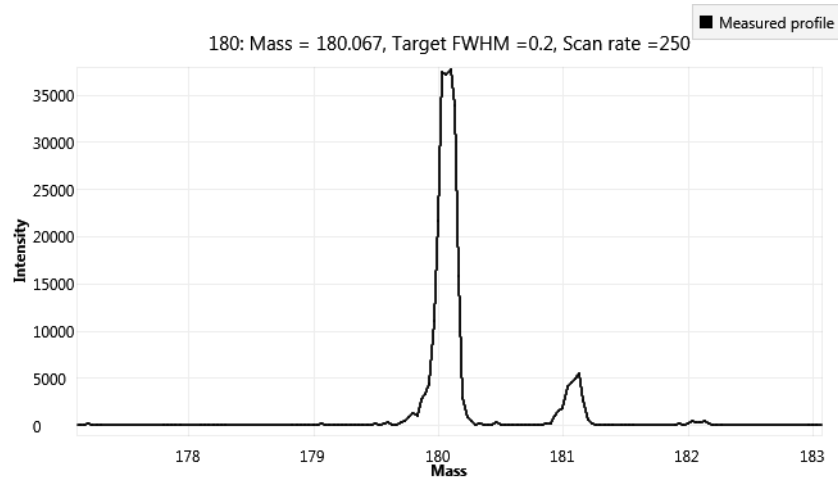
m/z	FWHM
180.07	1.85
506.19	1.89
995.38	1.68



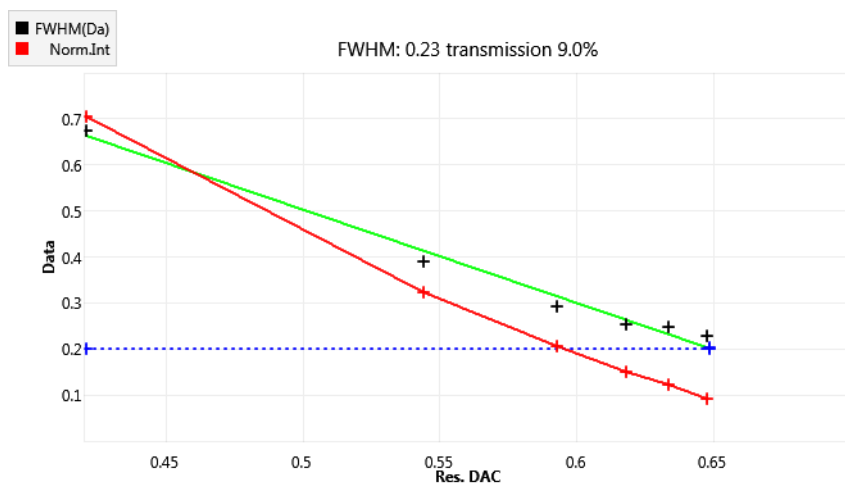
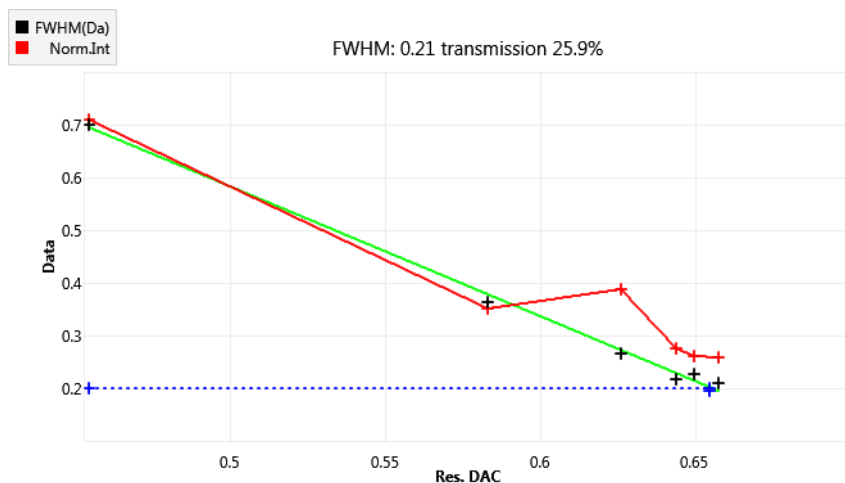
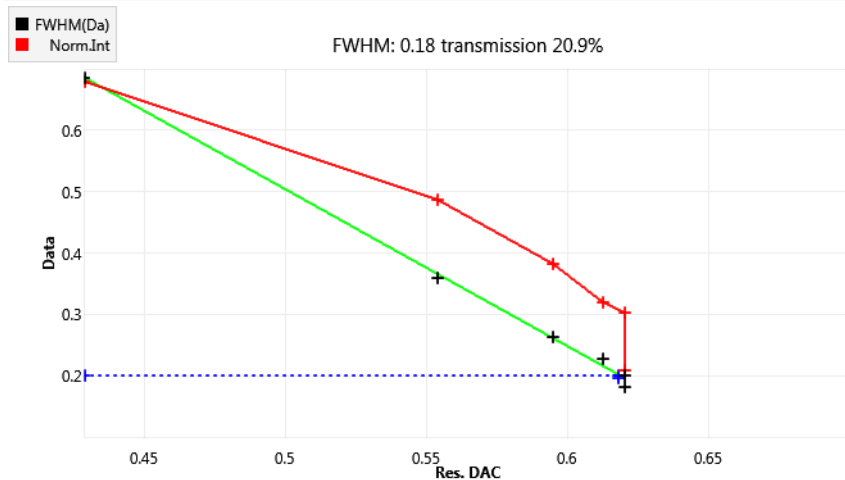
Diagnostic Report



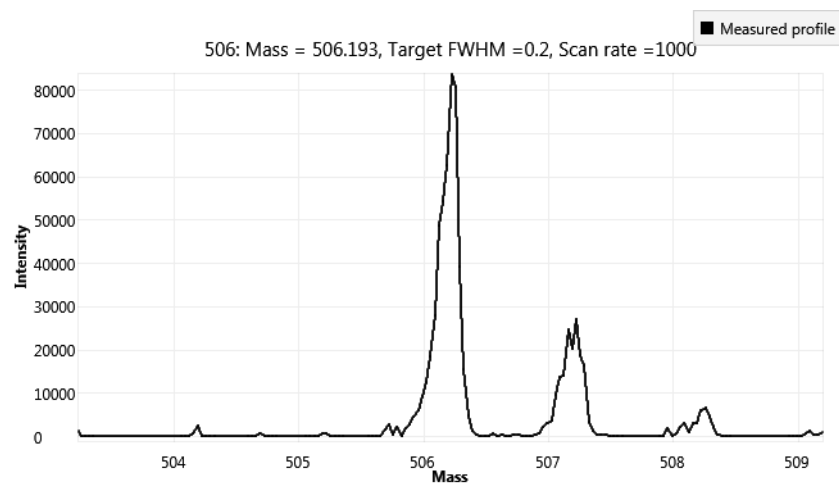
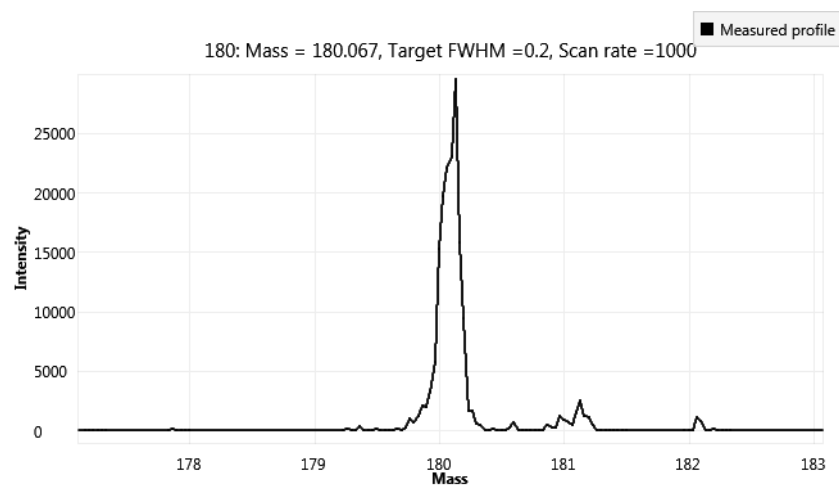
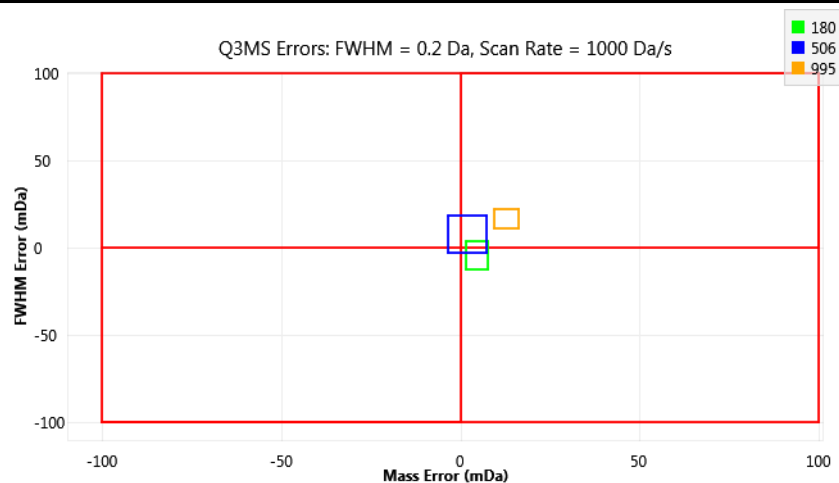
Diagnostic Report



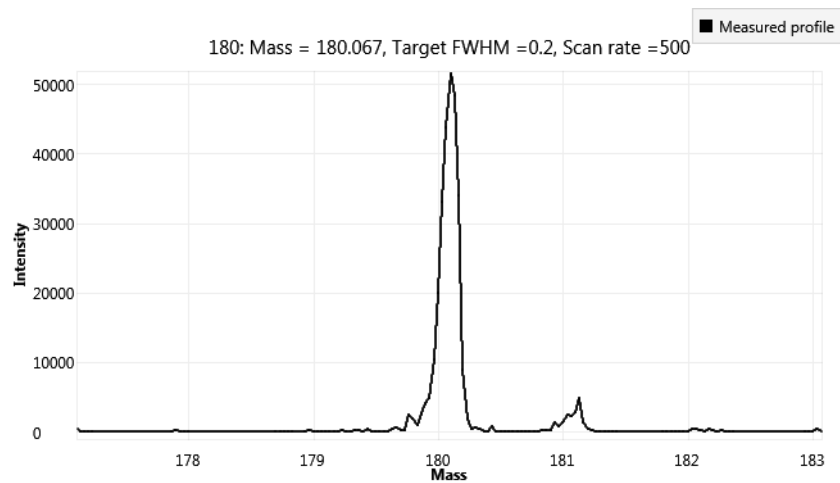
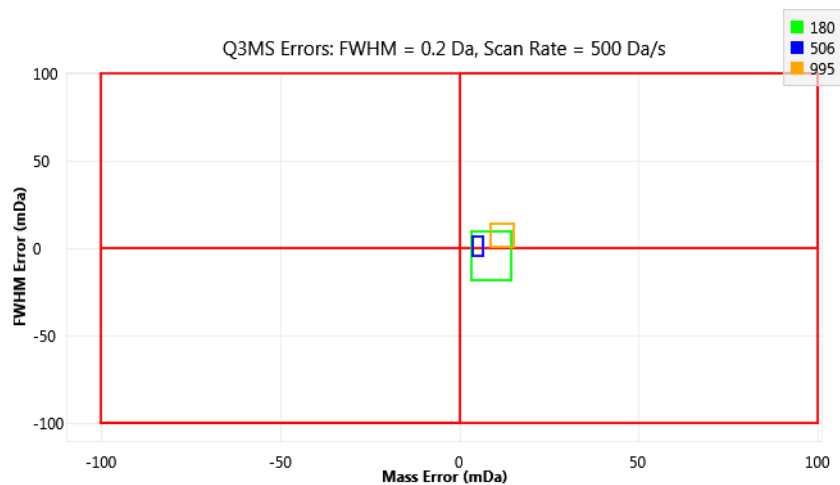
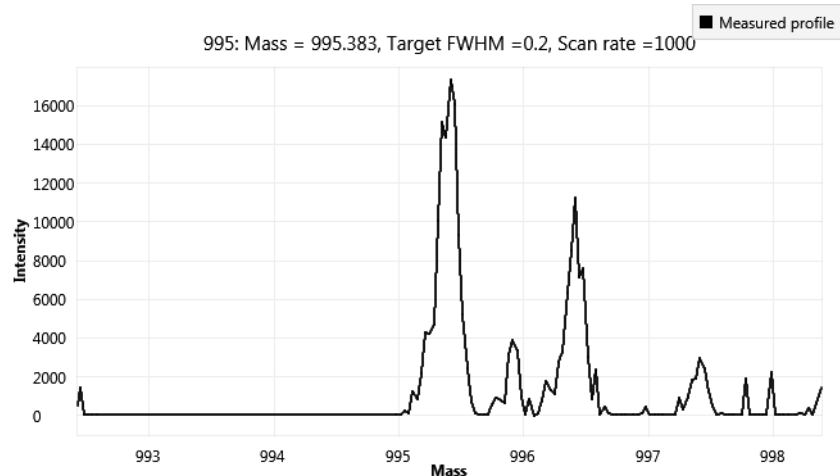
Diagnostic Report



Diagnostic Report

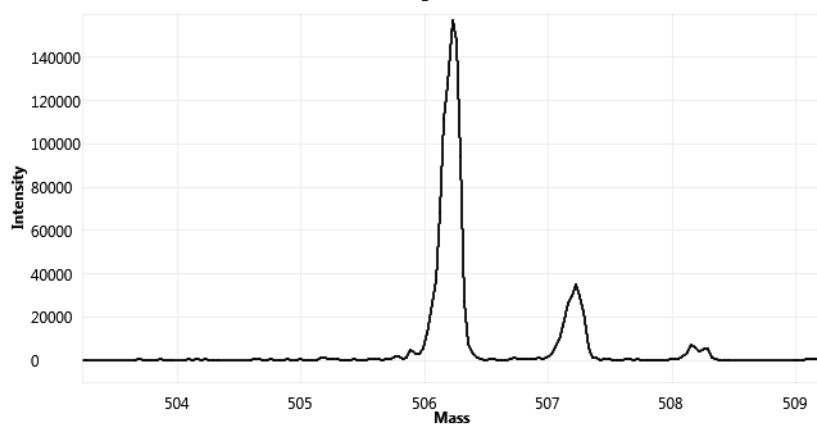


Diagnostic Report

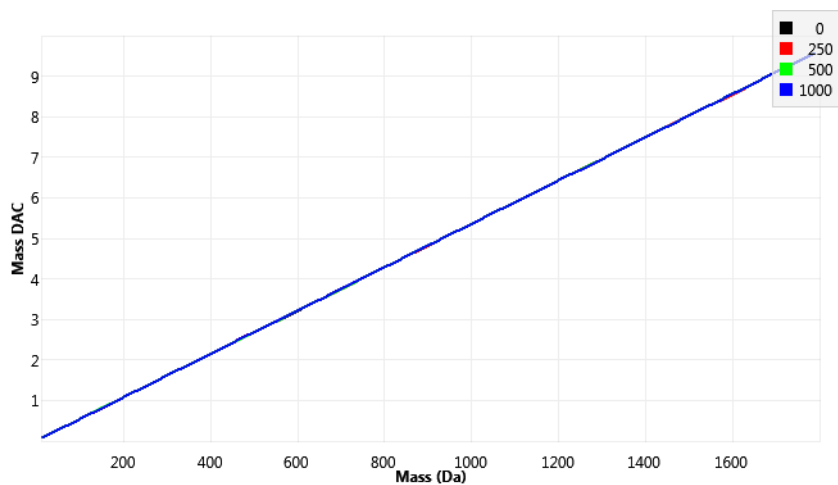
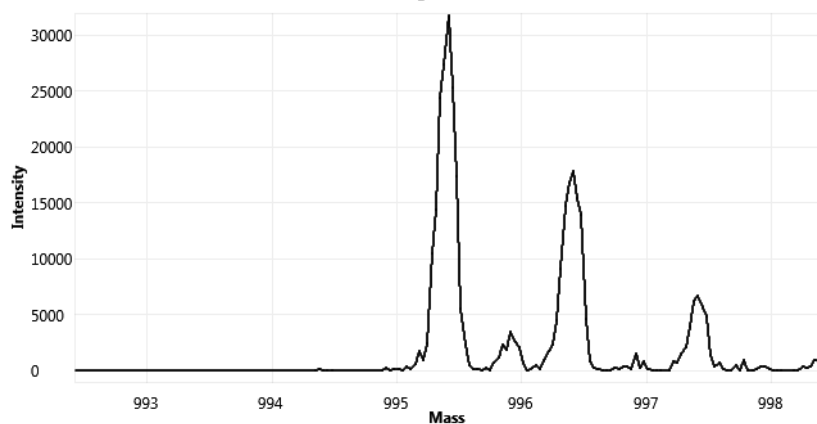


Diagnostic Report

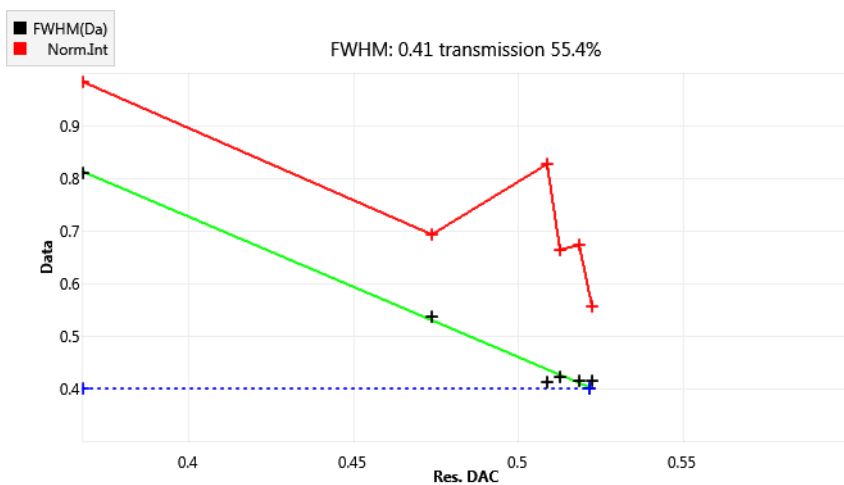
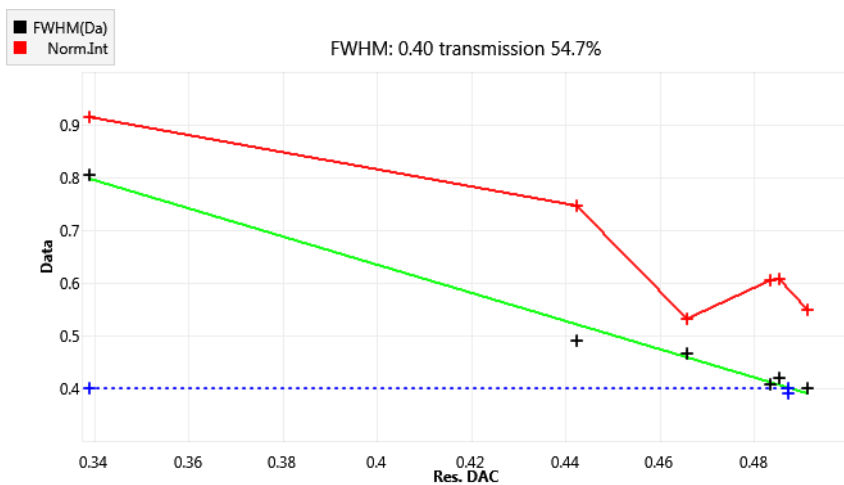
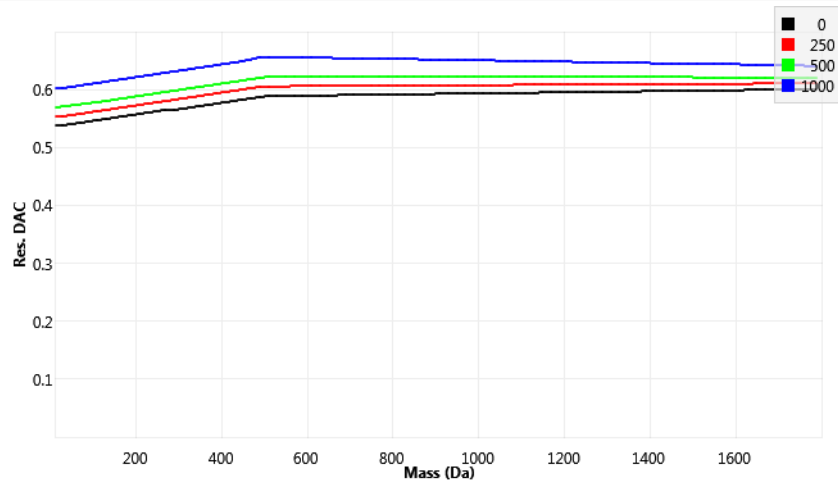
506: Mass = 506.193, Target FWHM = 0.2, Scan rate = 500



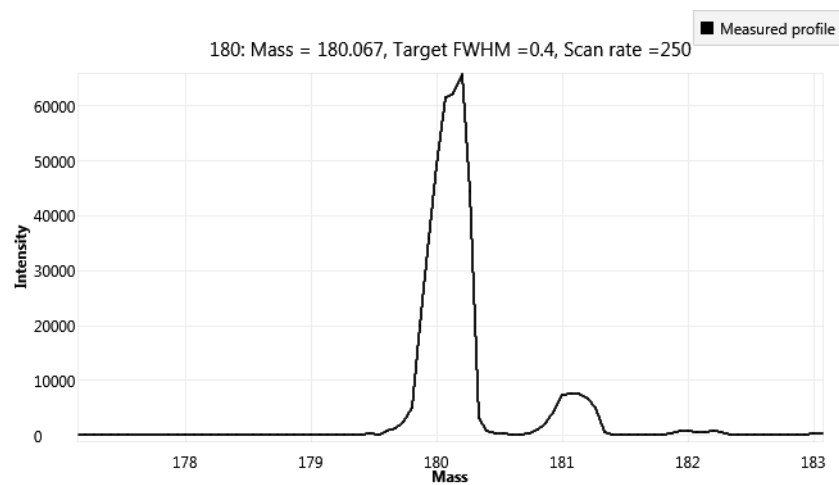
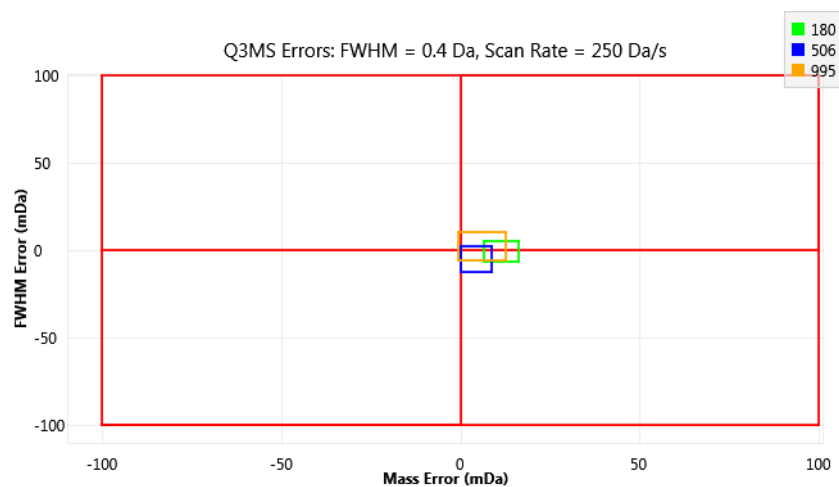
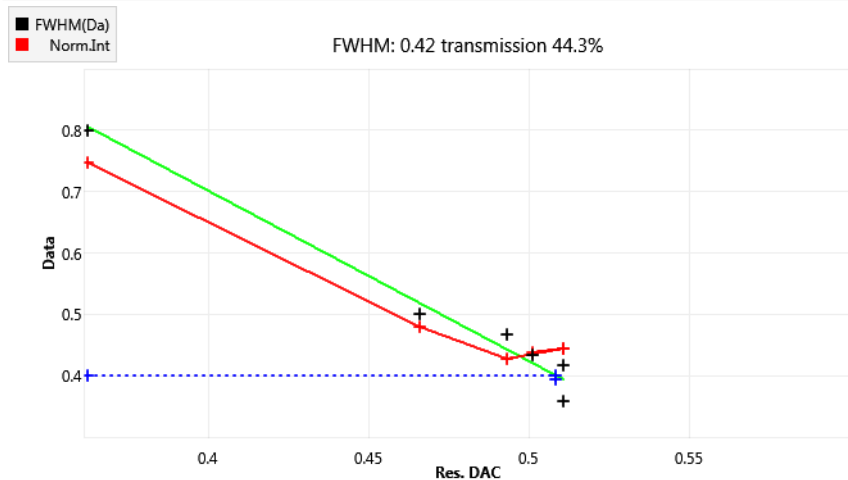
995: Mass = 995.383, Target FWHM = 0.2, Scan rate = 500



Diagnostic Report

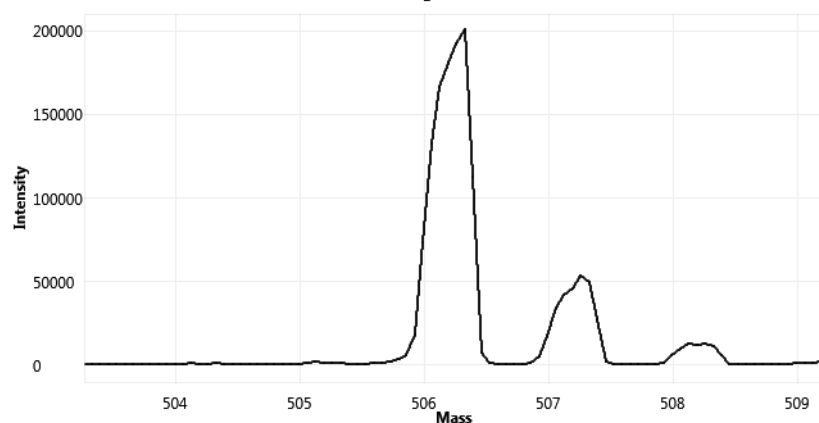


Diagnostic Report

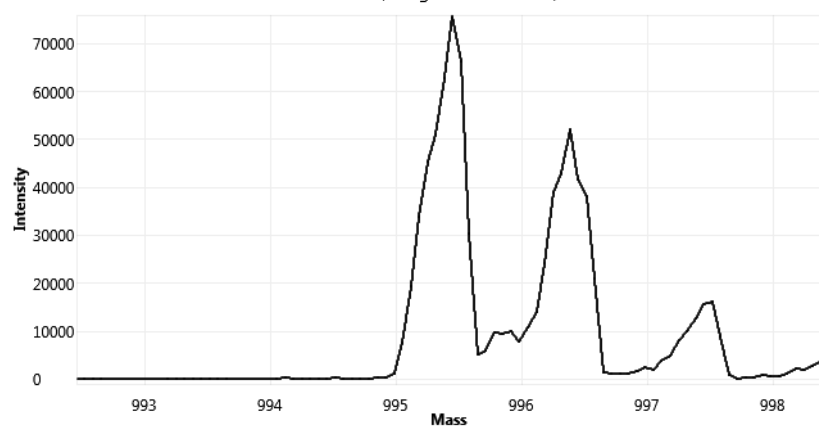


Diagnostic Report

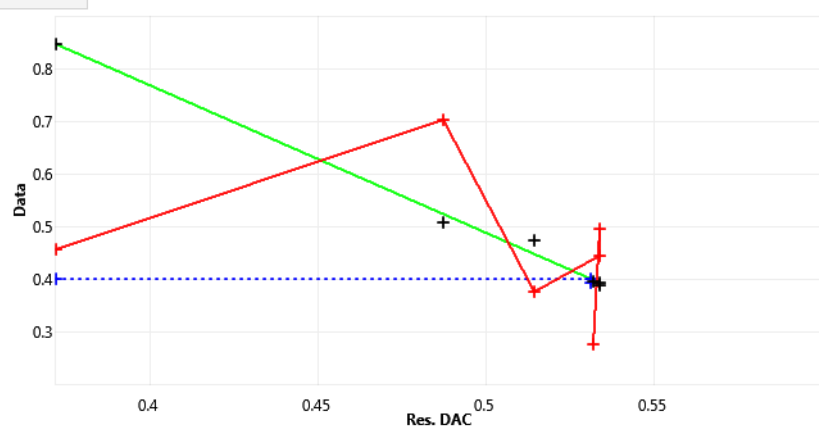
506: Mass = 506.193, Target FWHM = 0.4, Scan rate = 250



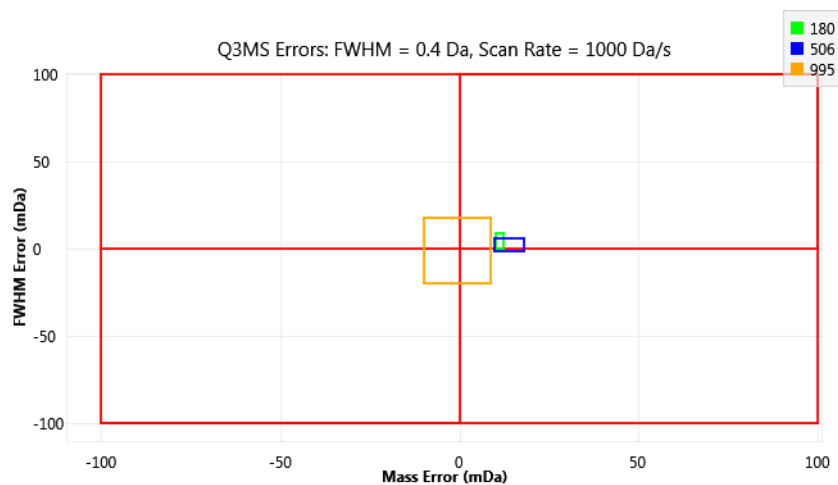
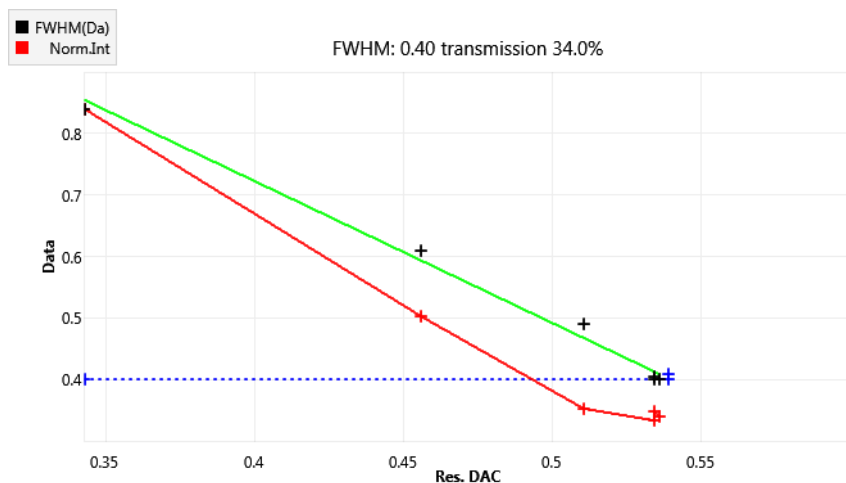
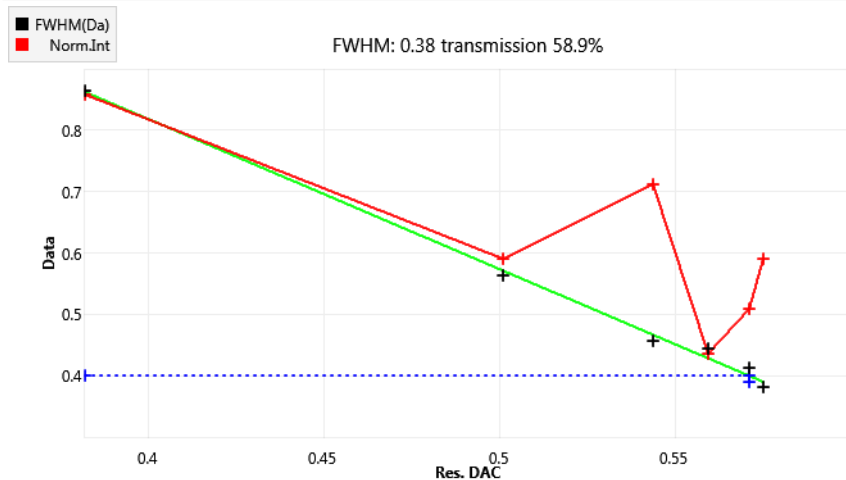
995: Mass = 995.383, Target FWHM = 0.4, Scan rate = 250



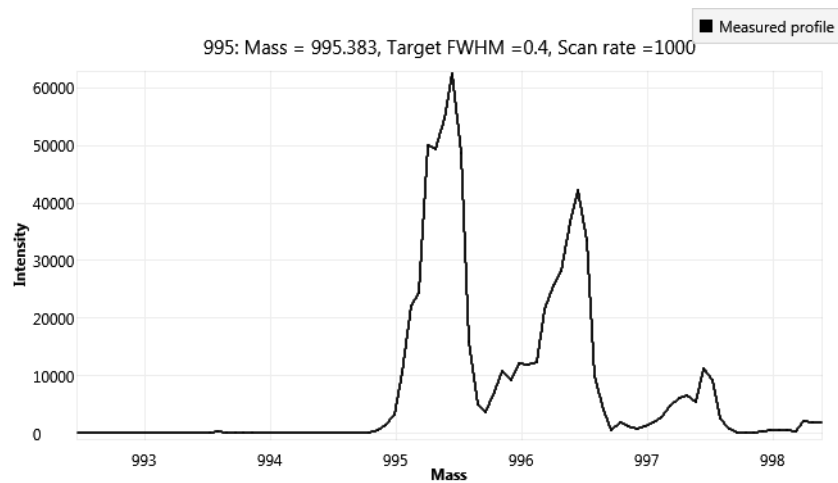
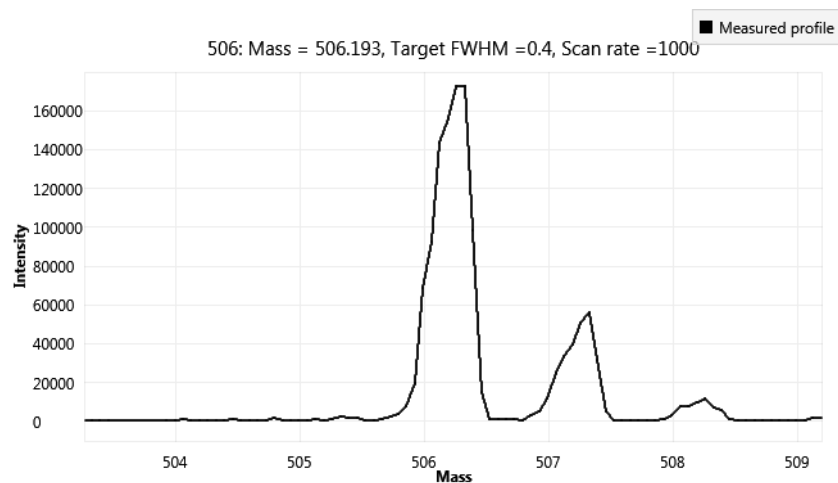
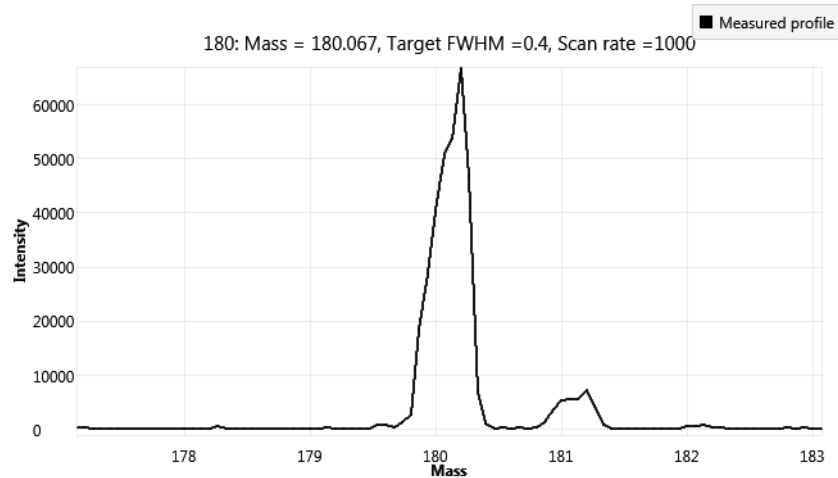
FWHM: 0.40 transmission 27.5%



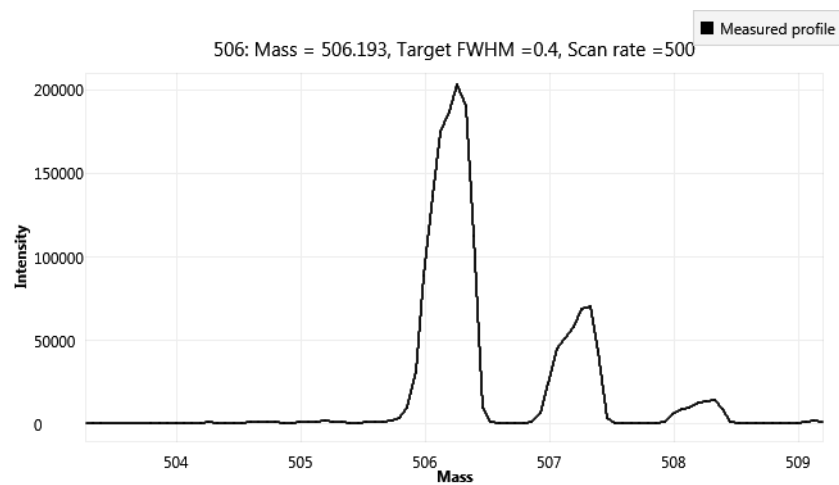
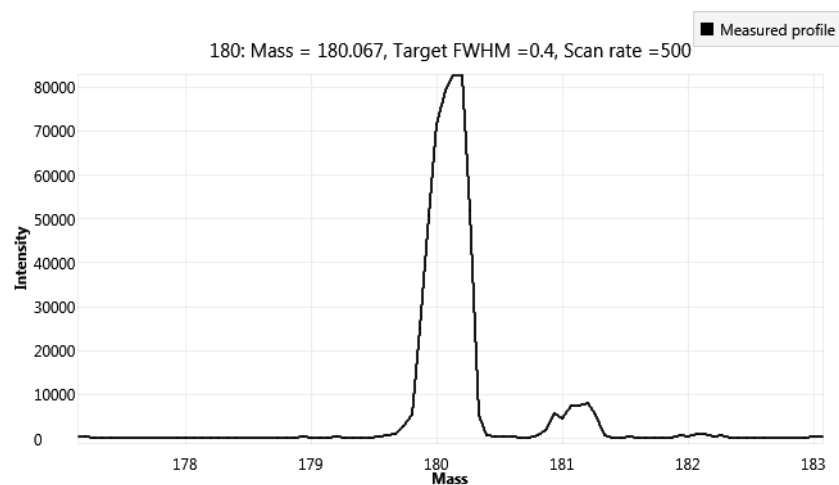
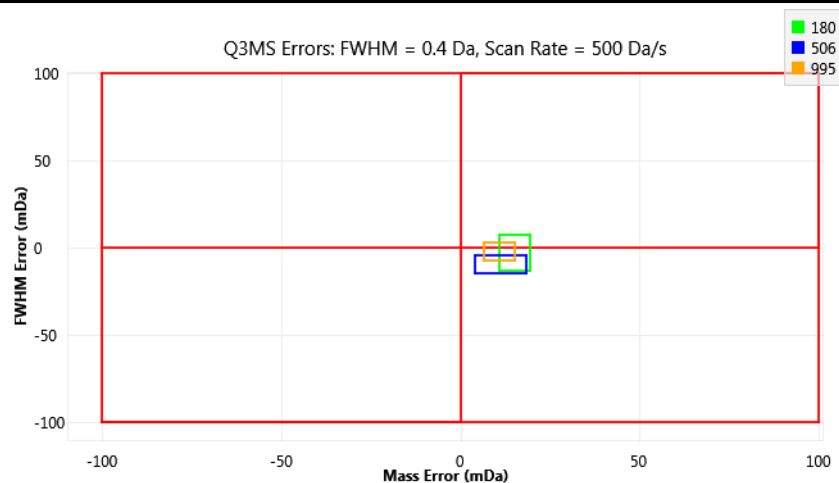
Diagnostic Report



Diagnostic Report



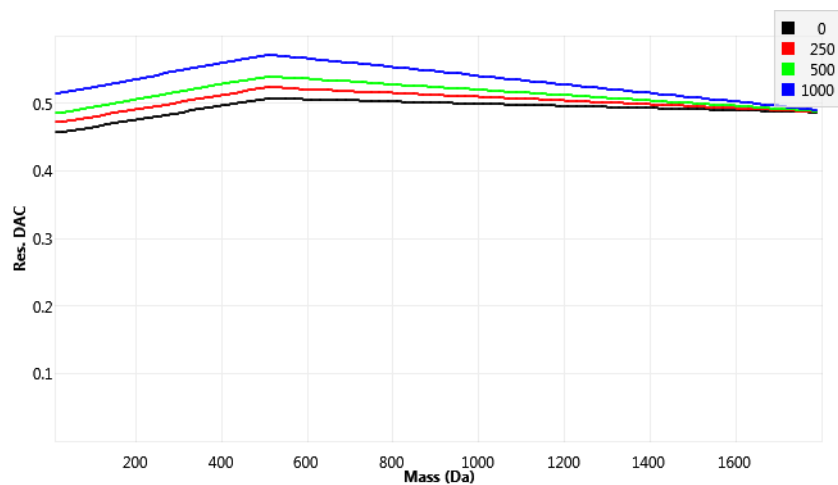
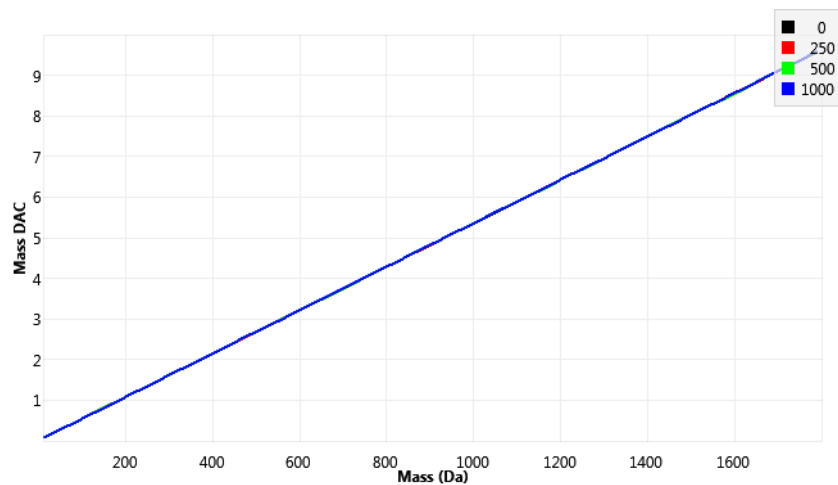
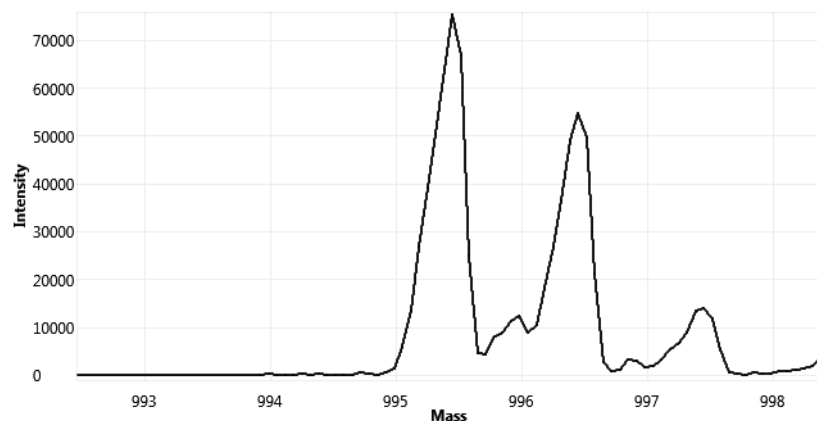
Diagnostic Report



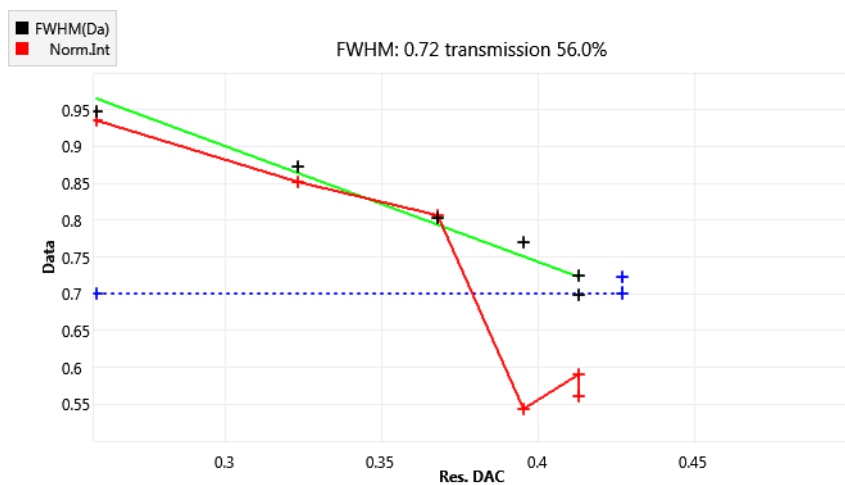
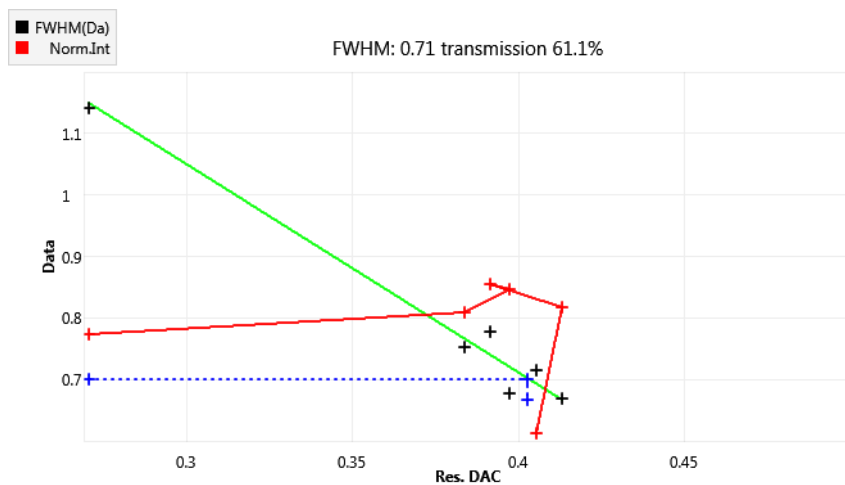
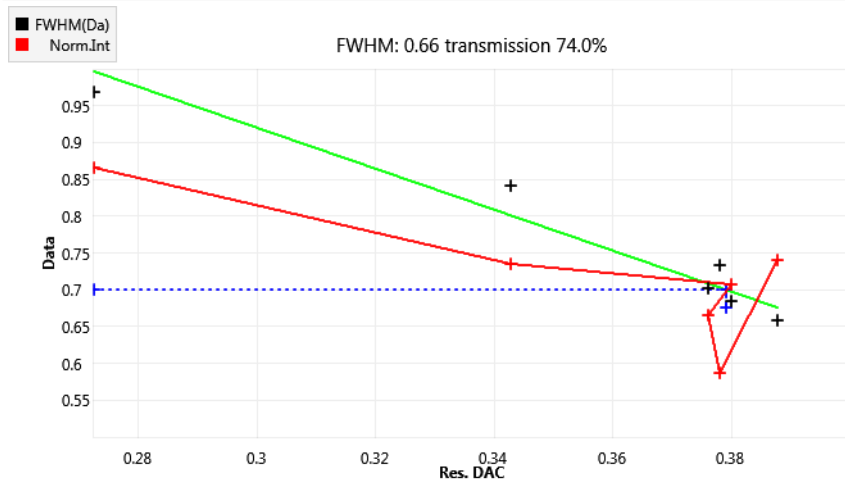
Diagnostic Report

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

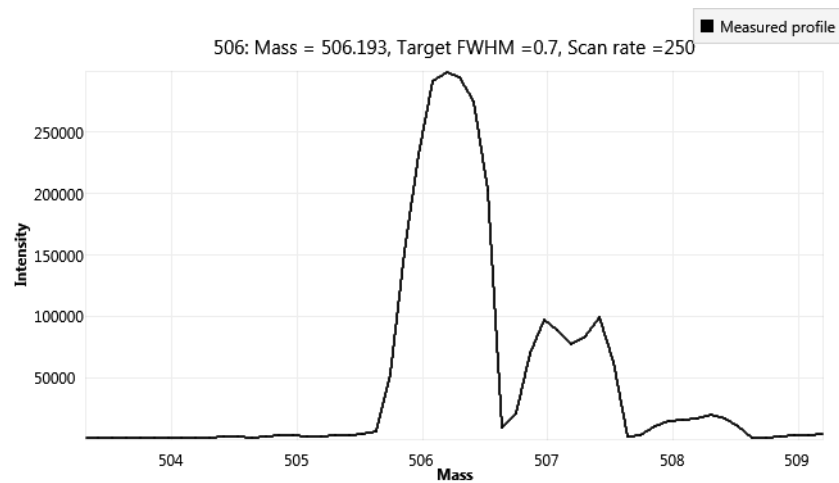
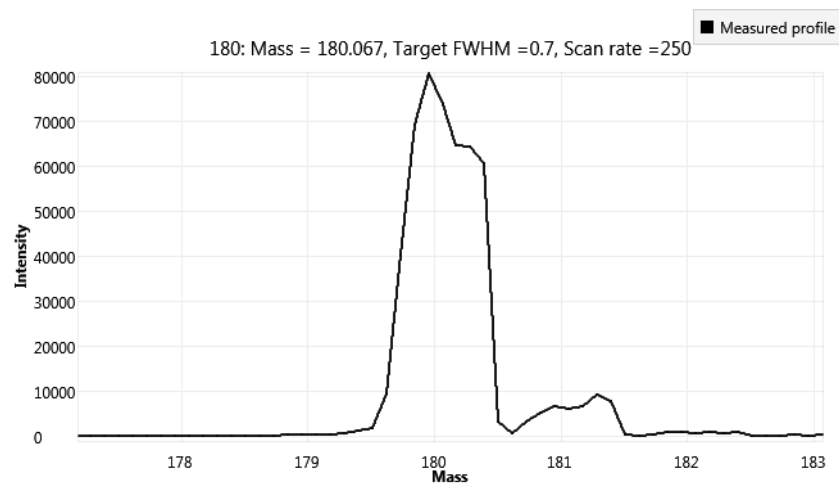
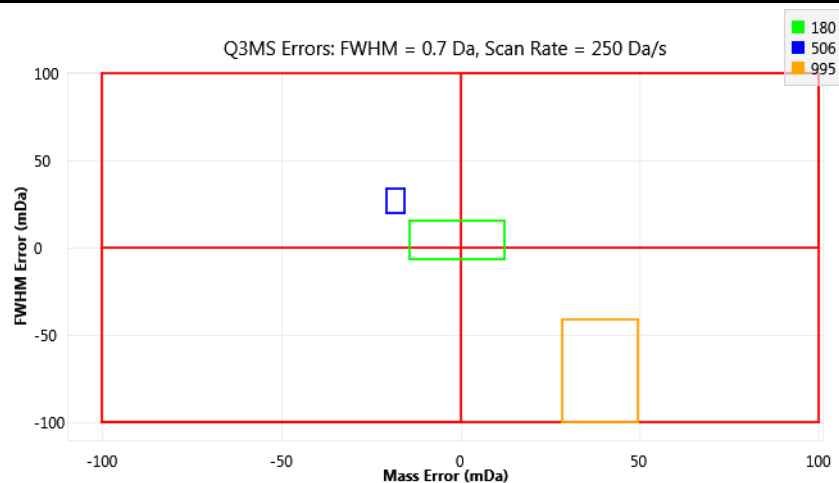
■ Measured profile



Diagnostic Report



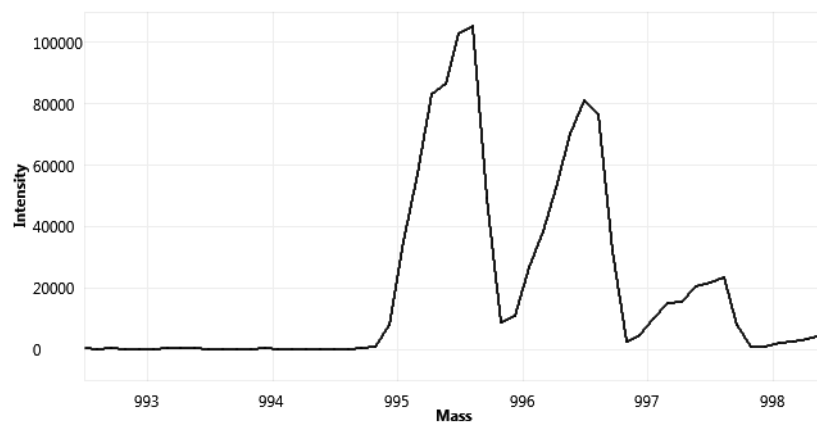
Diagnostic Report



Diagnostic Report

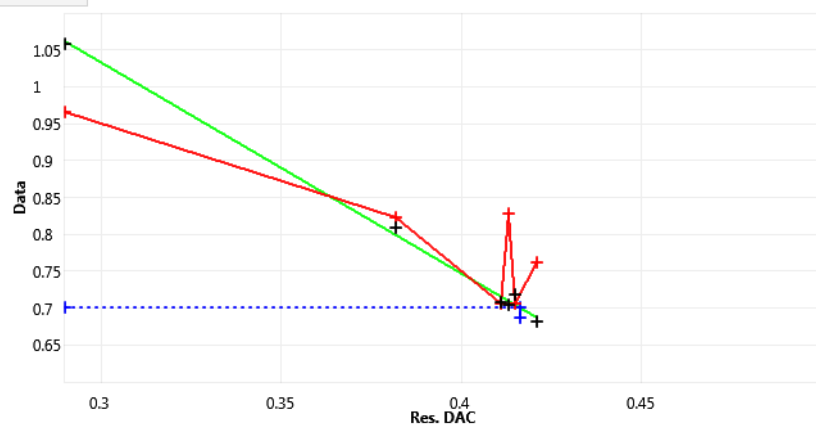
995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 250

■ Measured profile



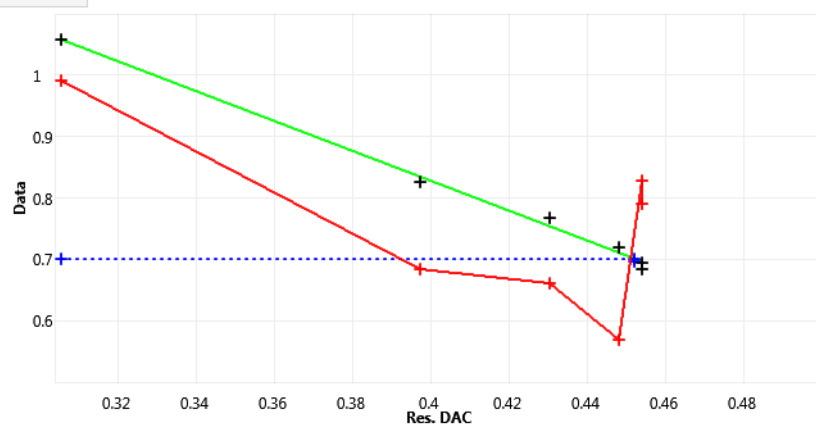
■ FWHM(Da)
■ Norm.Int

FWHM: 0.68 transmission 76.0%

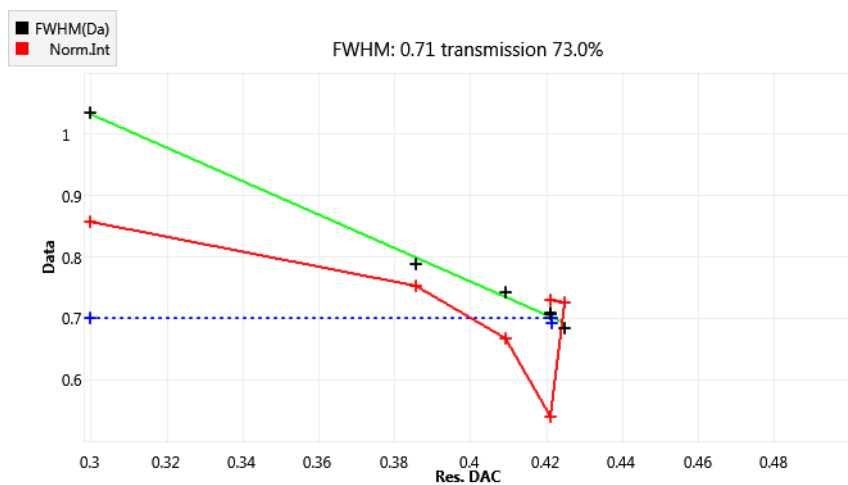
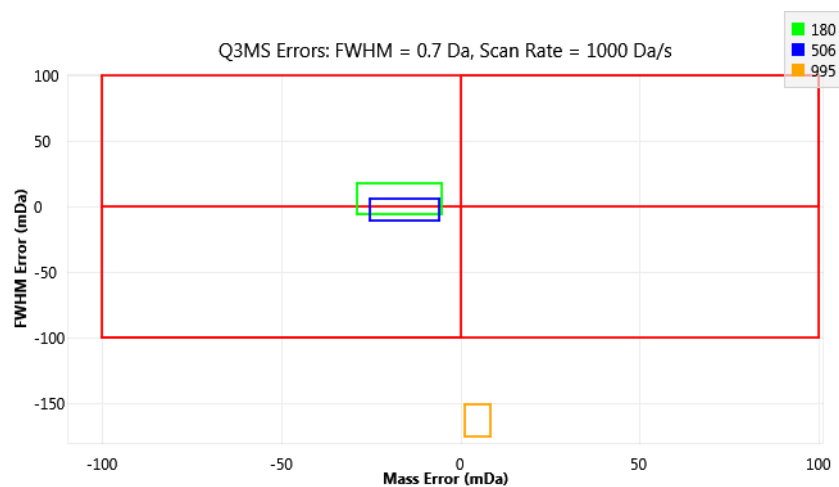
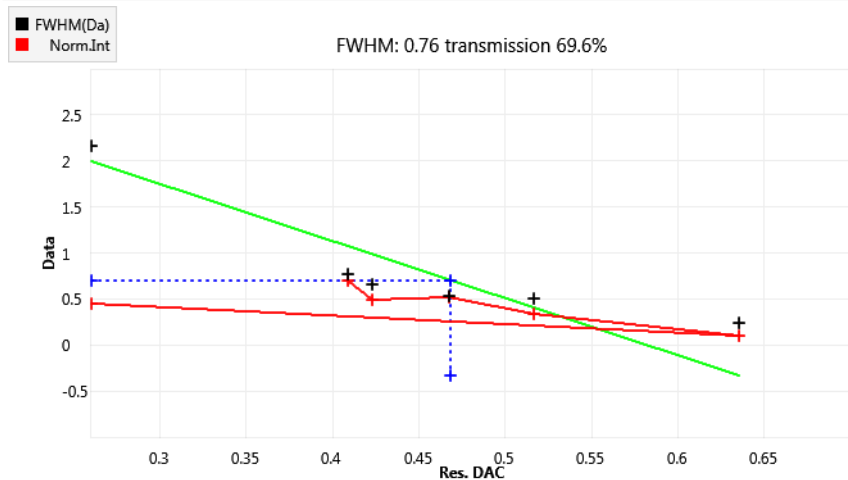


■ FWHM(Da)
■ Norm.Int

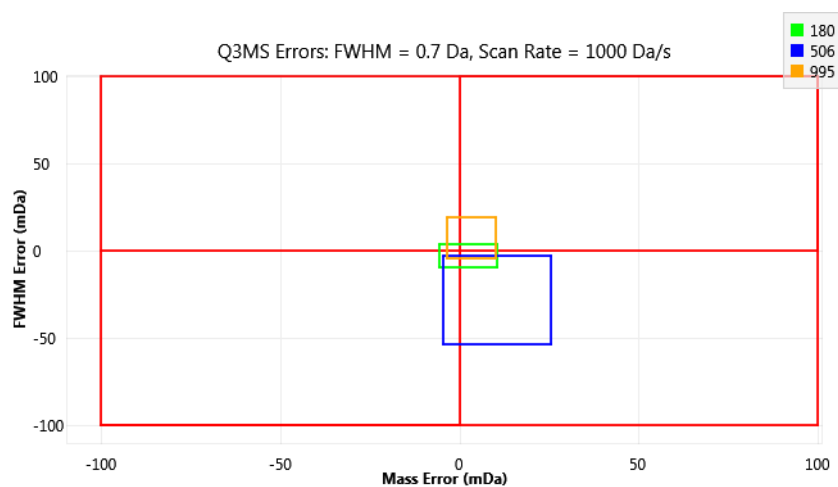
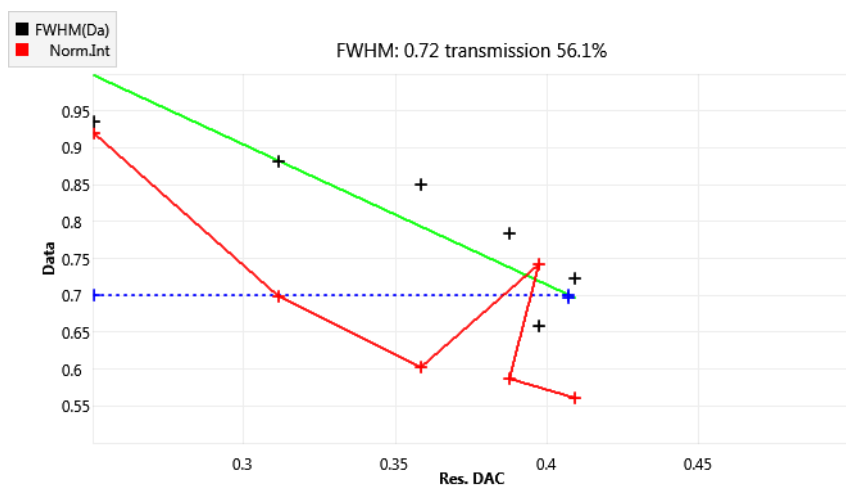
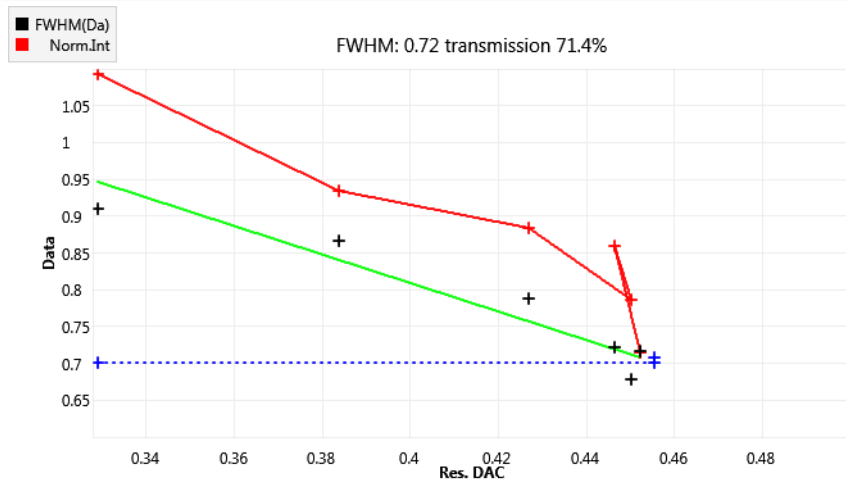
FWHM: 0.68 transmission 78.9%



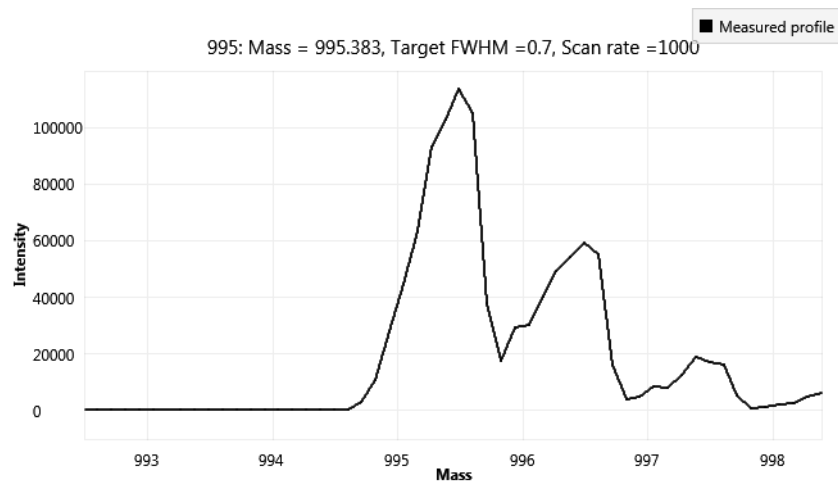
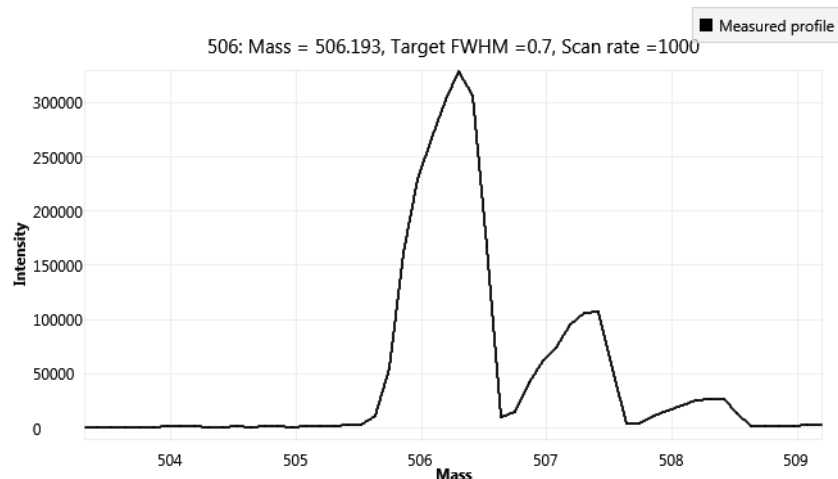
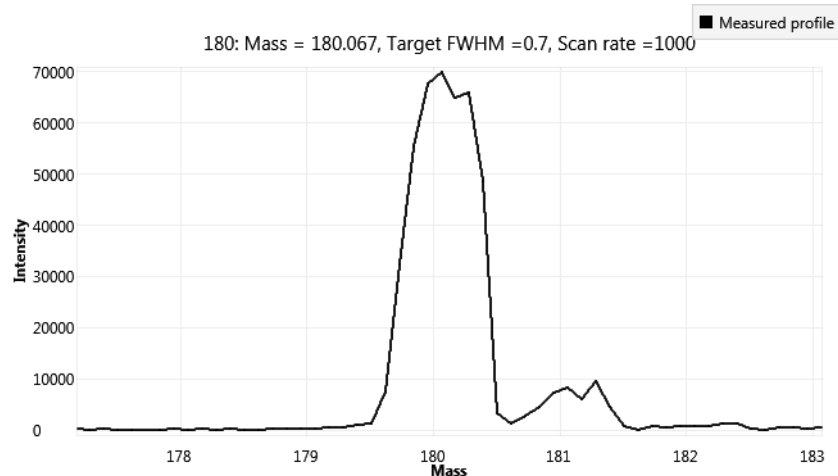
Diagnostic Report



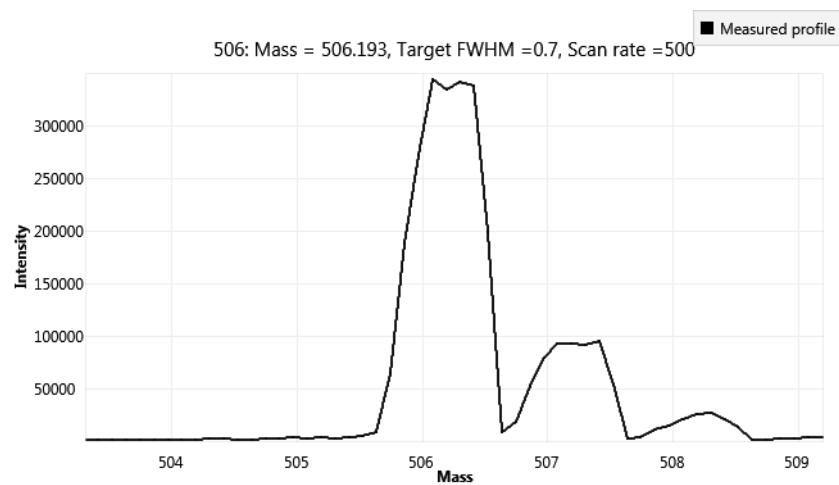
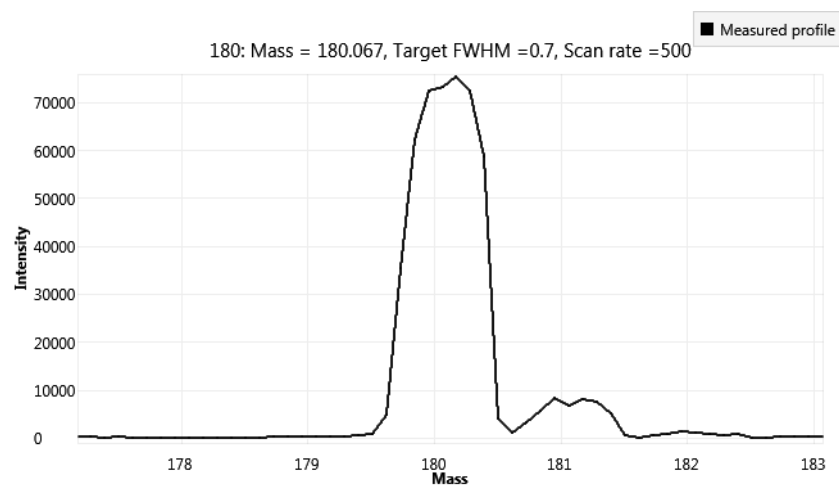
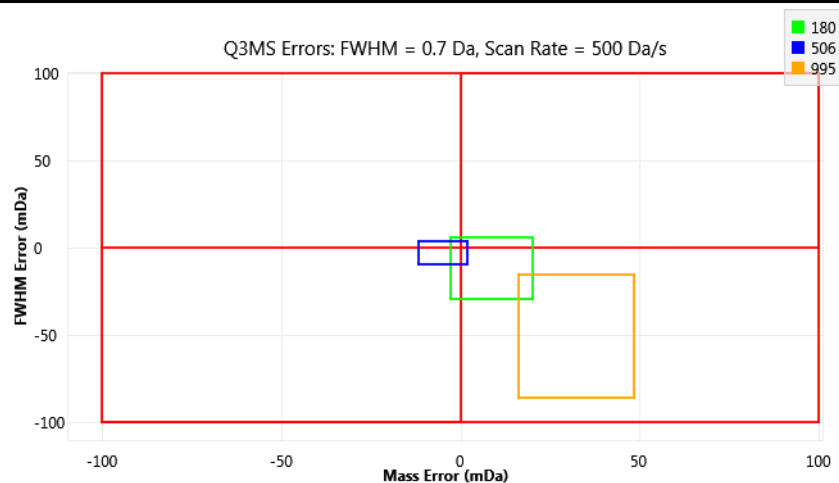
Diagnostic Report



Diagnostic Report

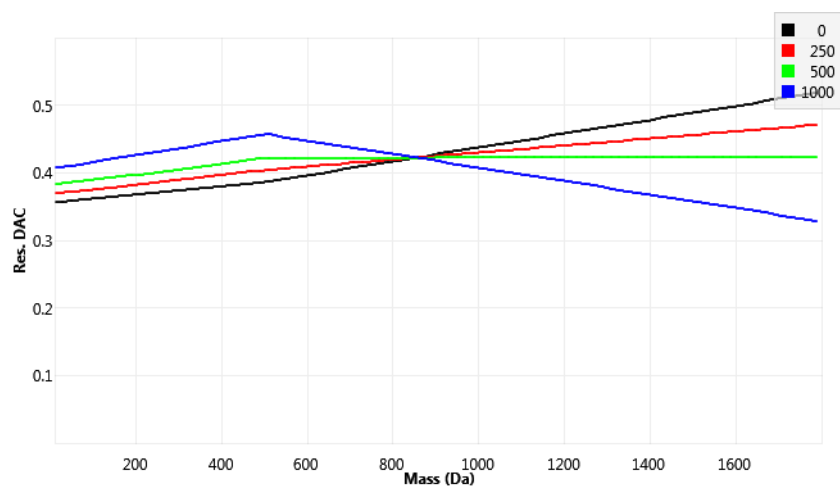
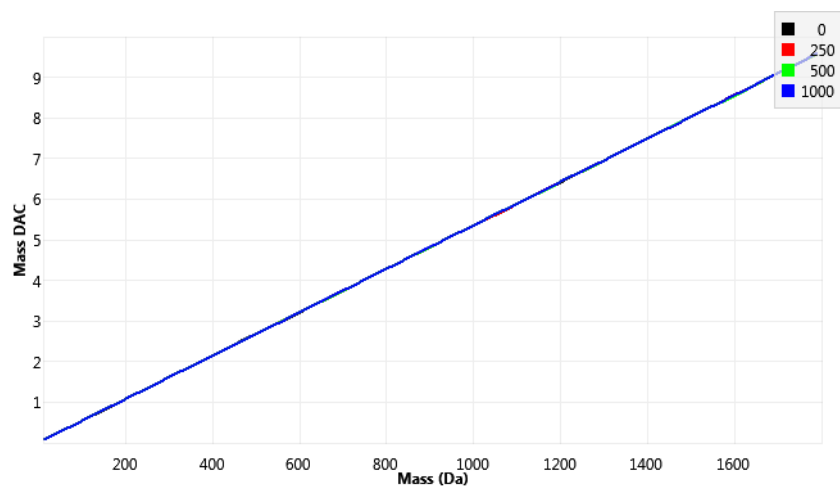
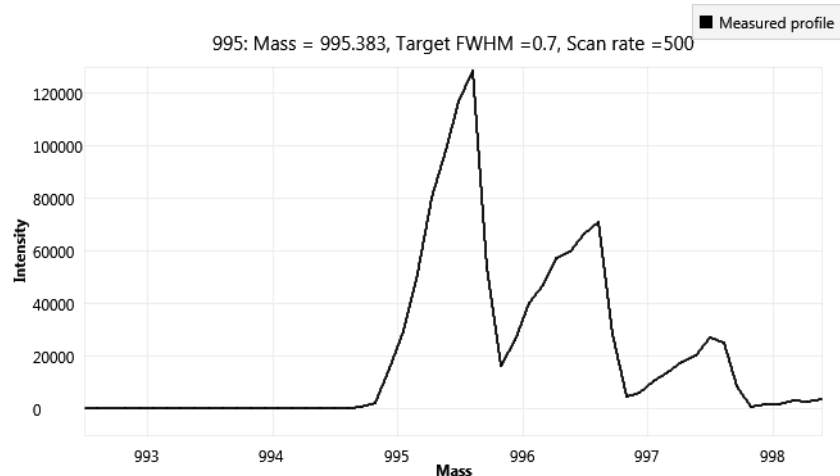


Diagnostic Report

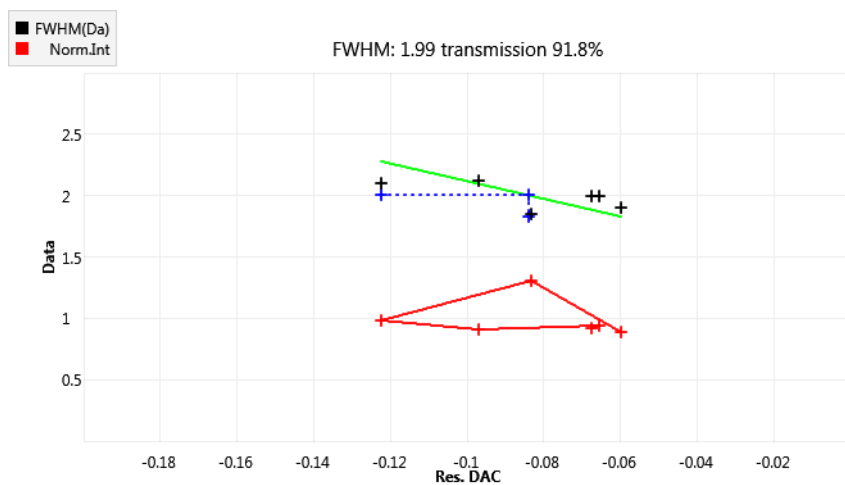
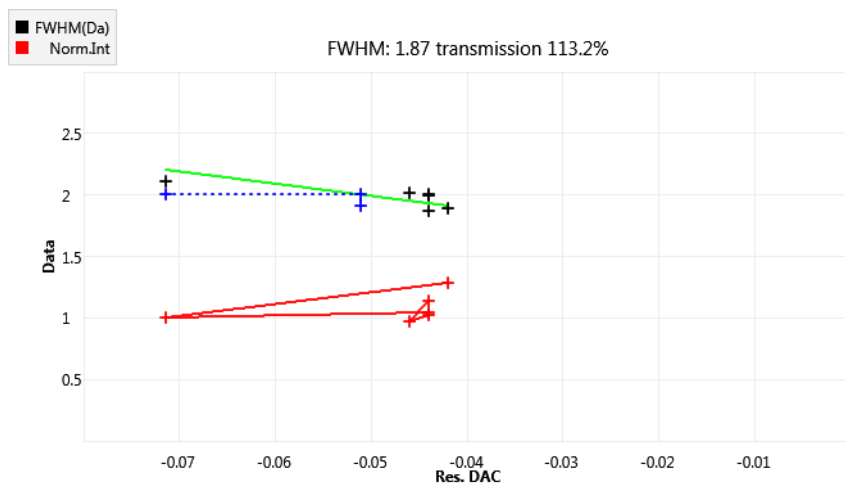
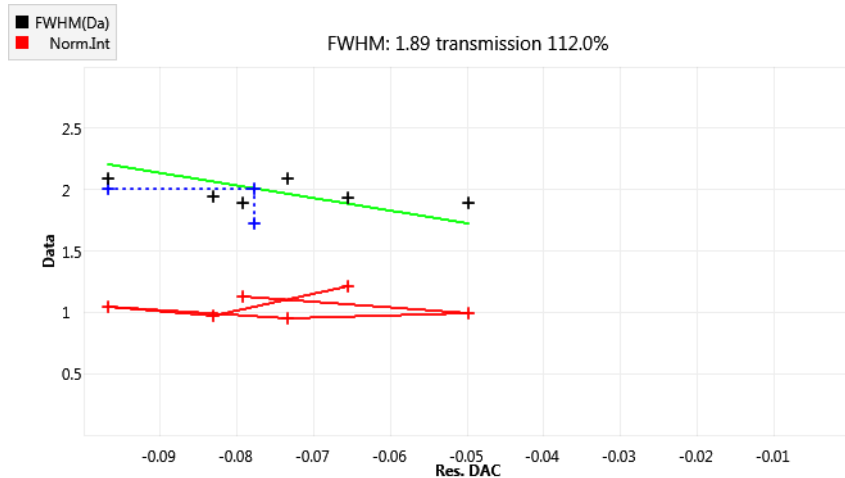


Diagnostic Report

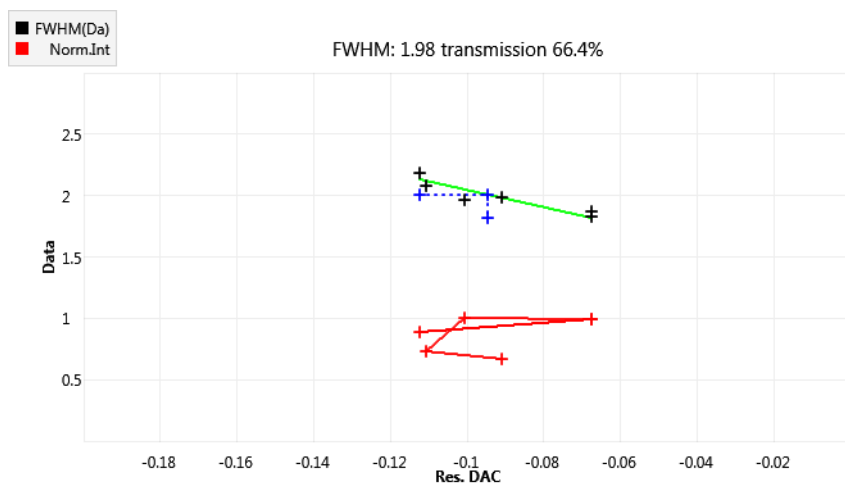
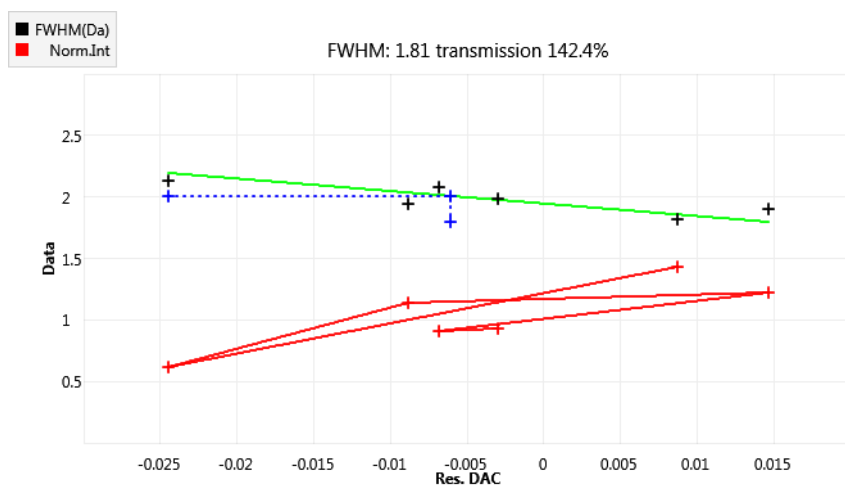
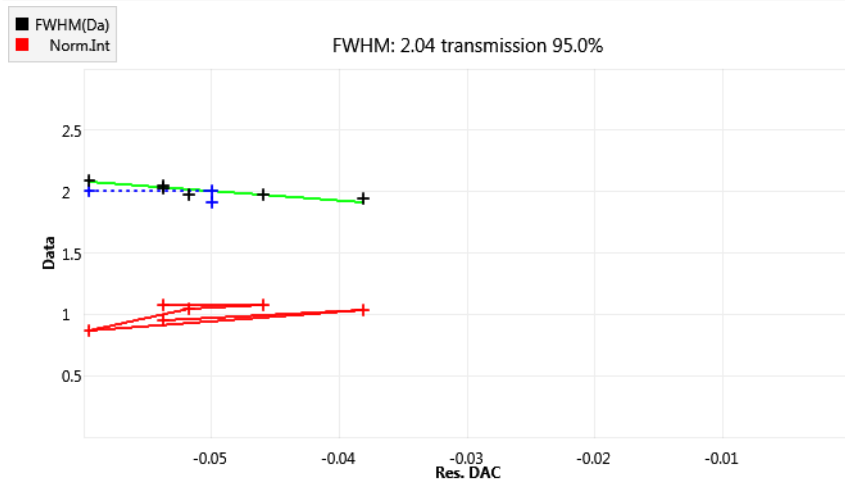
995: Mass = 995.383, Target FWHM = 0.7, Scan rate = 500



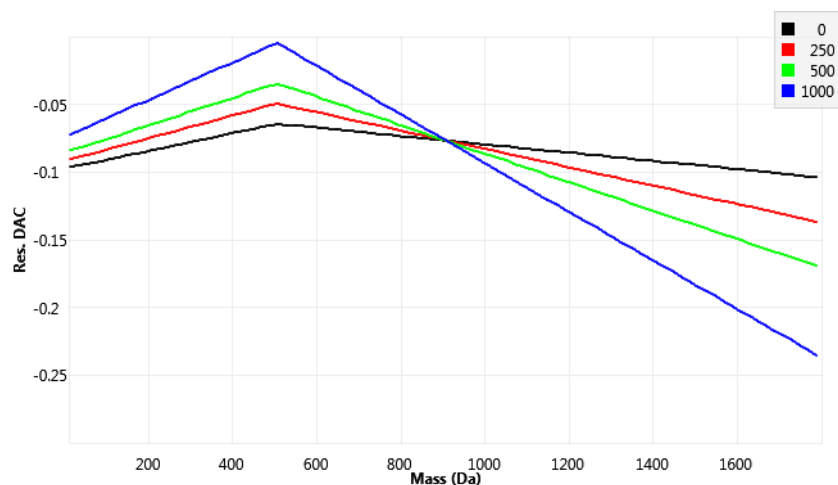
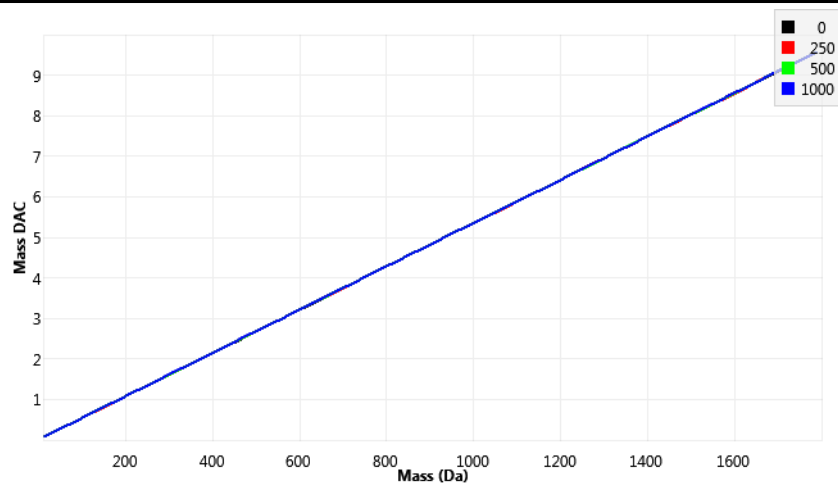
Diagnostic Report



Diagnostic Report

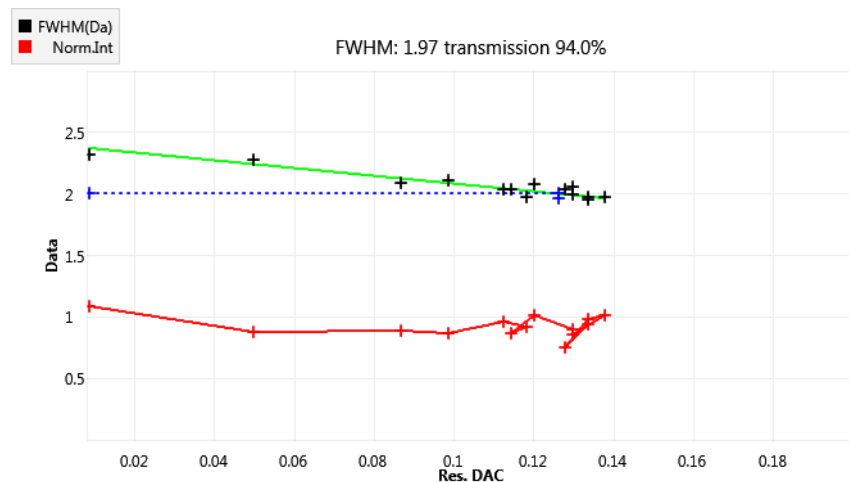


Diagnostic Report

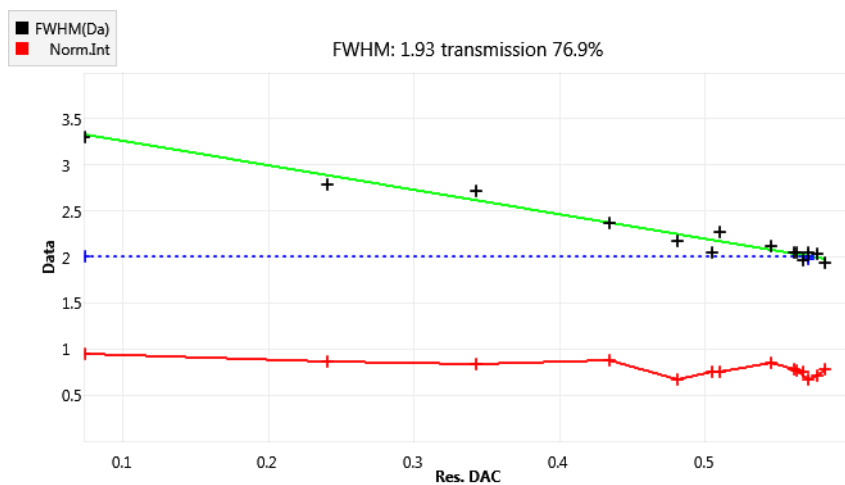
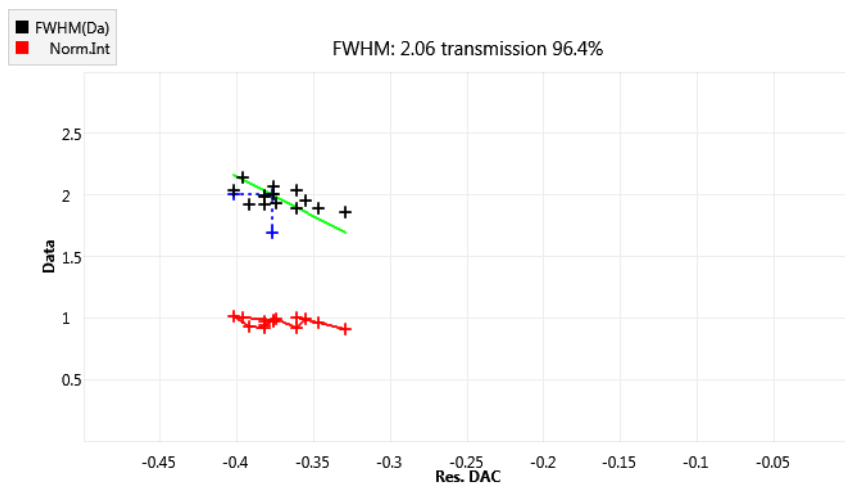
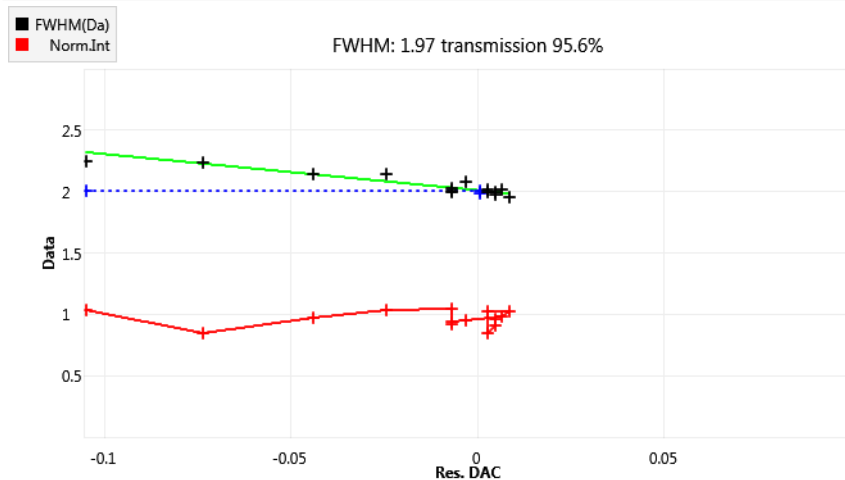


Mass And Resolution Calibration succeeded.

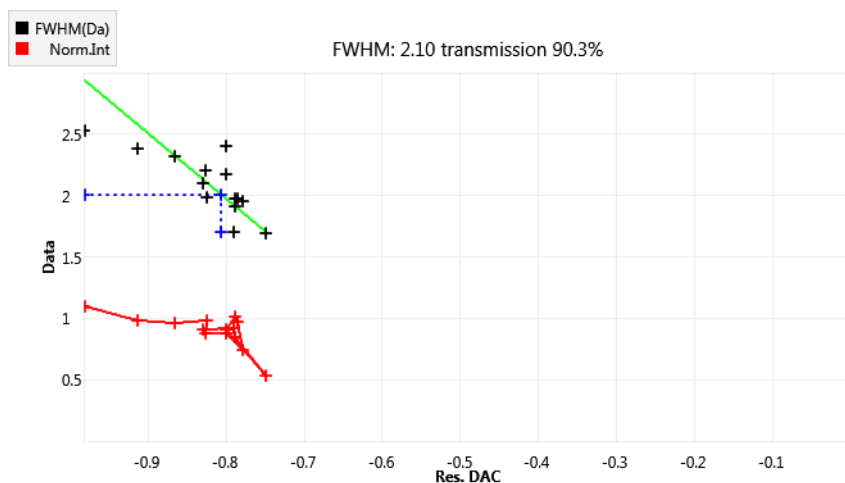
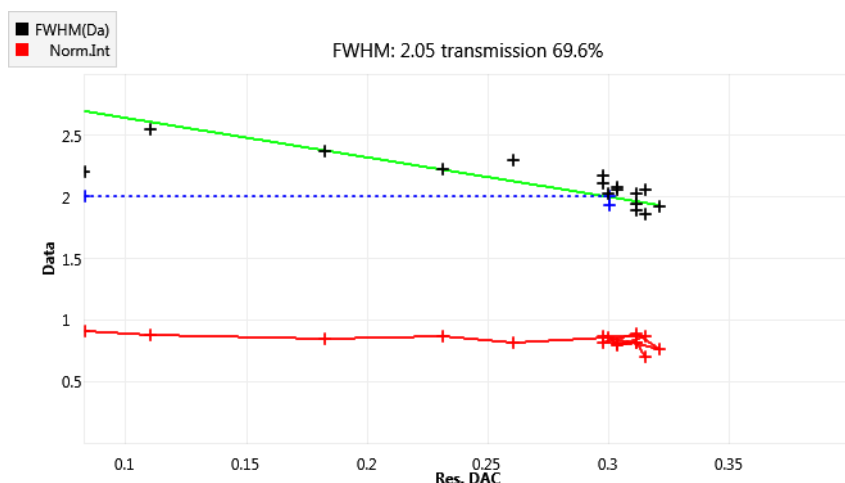
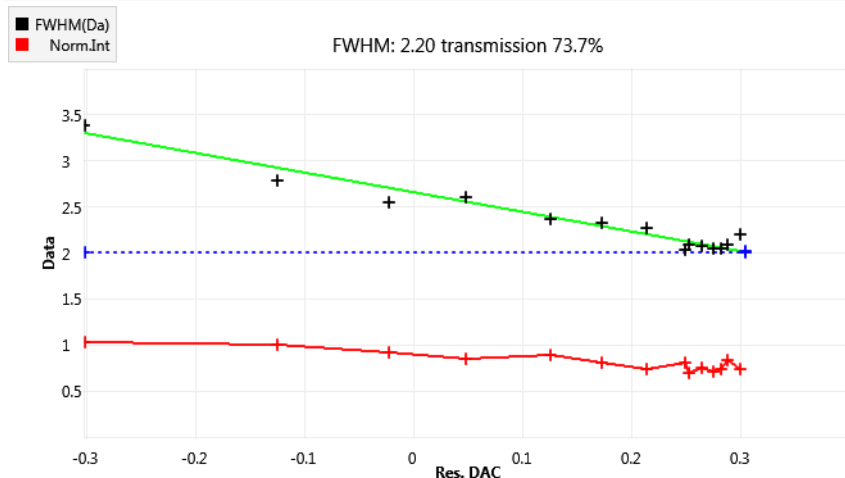
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====Extra High Scan Rate Calibration Start=====



Diagnostic Report



Diagnostic Report



Extra high scan rate calibration passed

System Configuration:

DevMode	false
BreadboardDevMode	false
SetAnalogChannelEnabled(0, false)	
SetAnalogChannelEnabled(1, false)	
DivertValveConfig	1

Serial Number: TQH-Q1-0576

Signature:

Tuesday, February 21, 2017 12:24 PM

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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
DSP Driver	2015-0830-0002
DSP Image	02.00.046.2 20150830
General Purpose Linux Driver	2015-0830-0002
Linux Kernel	2.6.35-ts-powerpc
PPC Image	02.00.046.02 20150830
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