Unwanted Emissions for 4 Bands Operating PLMRS and PSRS Service (Conducted)

Governing Doc	FCC Part 2 2.1046(a) FCC Part 90.210	Room Temperature (°C)	30.5
Test Procedure	ANSI/TIA-603- E-2016; FCC KDB 935210 D05 Indus Booster Basic Meas v01r02: October 27, 2017 Section 4.7.3	Relative Humidity (%)	34.9
Test Location	Burnaby	Barometric Pressure (kPa)	101.3
Test Engineer	Jeremy Lee	Date	Jun 20, 2018
EUT Voltage	☒ DC	☐ 120VAC @ 60Hz	

Test Equipment Used	Manufacturer	Model	Serial Number	Calibration	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	08/04/17	08/04/18
Spectrum Analyzer	Keysight	N9010A	MY50520285	08/07/17	08/07/18

Frequency Range:	☒ 9 kHz – 9.4 GHz
Detector:	☒ Peak(for Formal)
RBW/VBW:	☒1/10kHz for 9kHz – 150kHz; ☒ 10/100kHz for 150kHz – 30 MHz; ☒ 100/1000kHz for 30MHz – 1GHz; ☒ 1/50MHz for 1GHz – 9.4GHz
Type of Facility:	☒ Testbench
Distance:	☒ Direct Connection
Arrangement of EUT:	☐ Table-top only ☐ Floor-standing only ☒ Rack Mounted

Band800, Band 700 and Band 450: No emission is higher than the -13 dBm emission limit.
Band 900: No emission is higher than the -20 dBm emission limit.

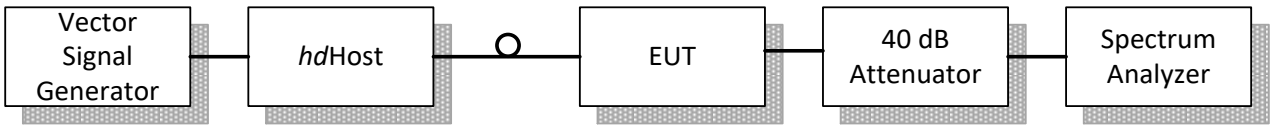
Compliant ☒ Non-Compliant ☐ Not Applicable ☐

Test setup

Description of test set-up:

Unwanted emission was measured by connecting a Spectrum Analyzer to the RF output connector via 40dB Attenuator. The input power was adjusted to produce maximum output power on the antenna port and just below the AGC threshold. The CW input signal was set to the lowest channel, center channel and the highest channel of the EUT operating band.

The EUT was set to **Operation Mode #1 with configuration Mode #1.**



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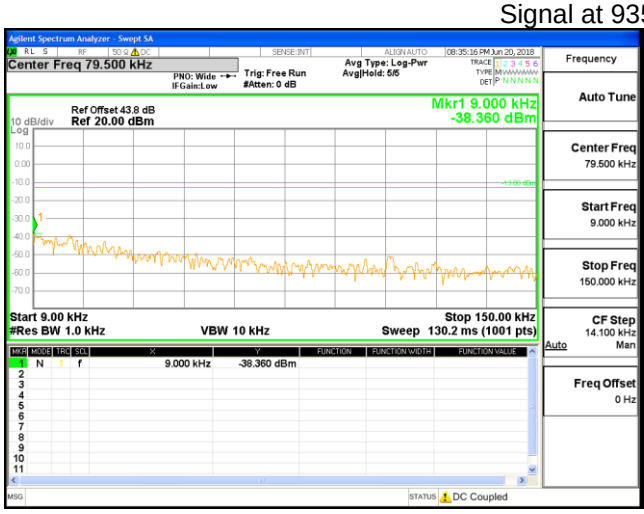
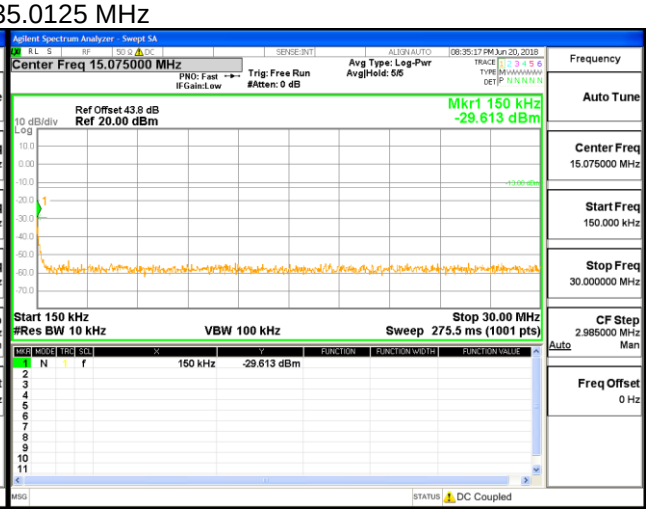
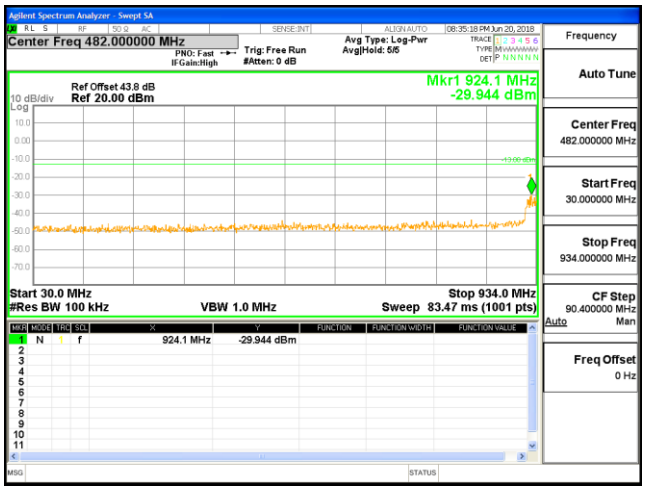
Results

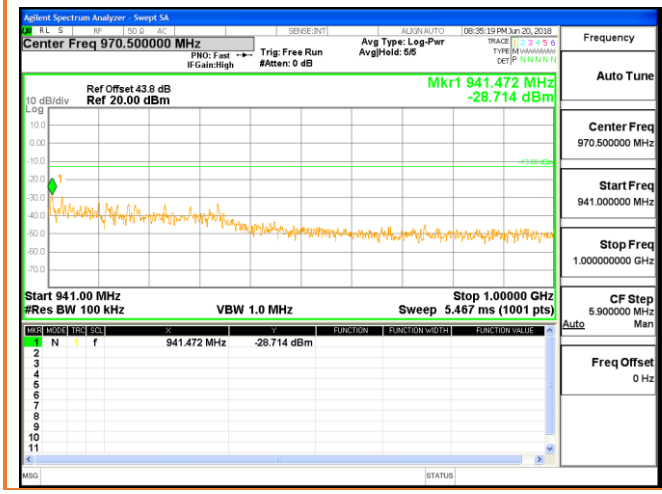
At Input Power 0.5 dB below AGC threshold

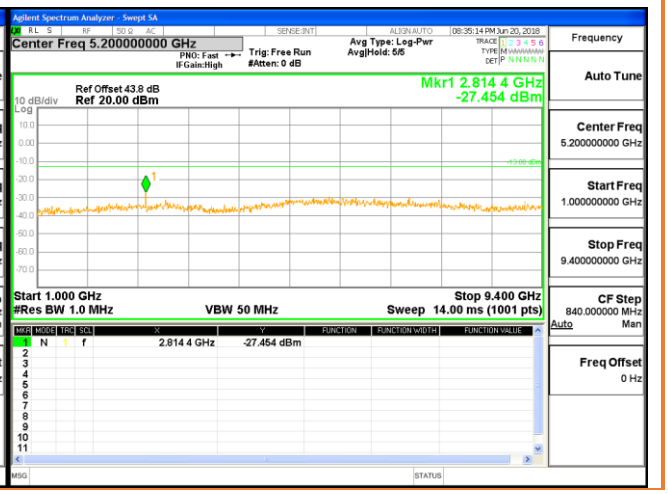
Signal at 935.0125 MHz











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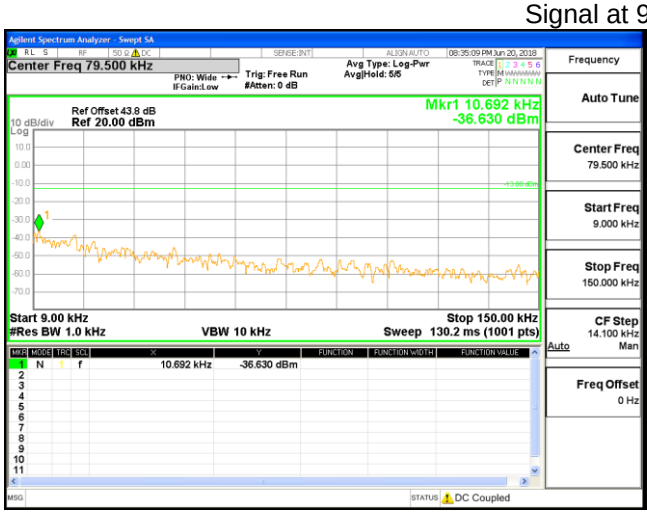
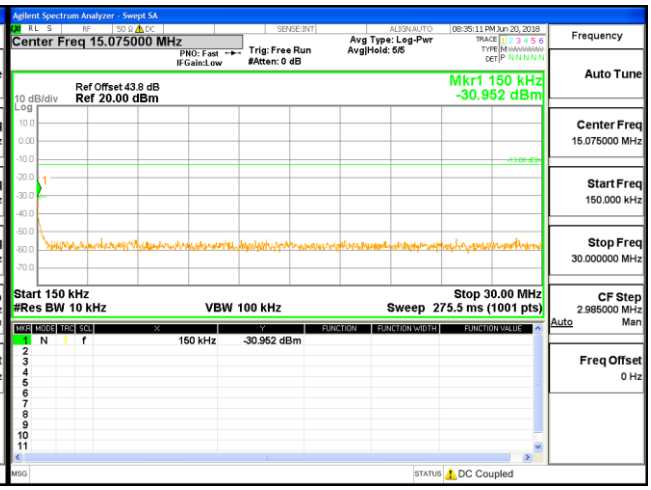
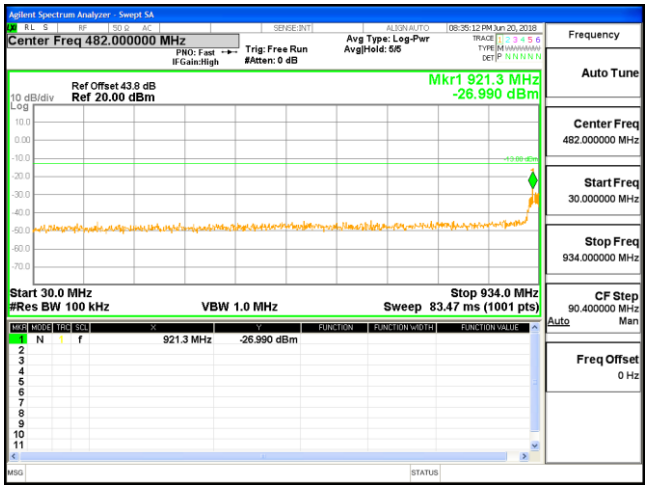
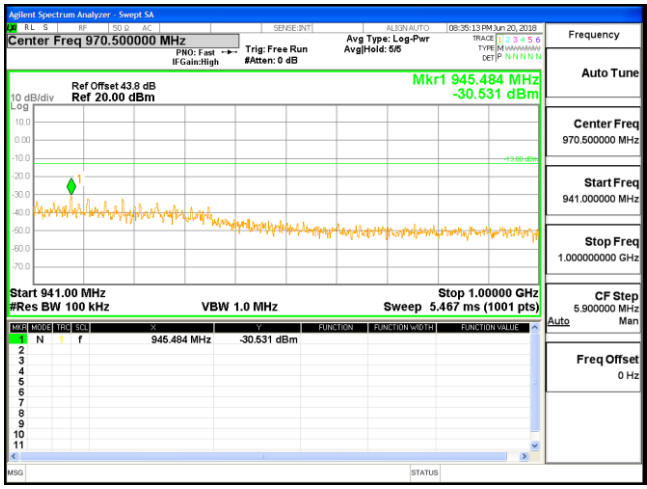
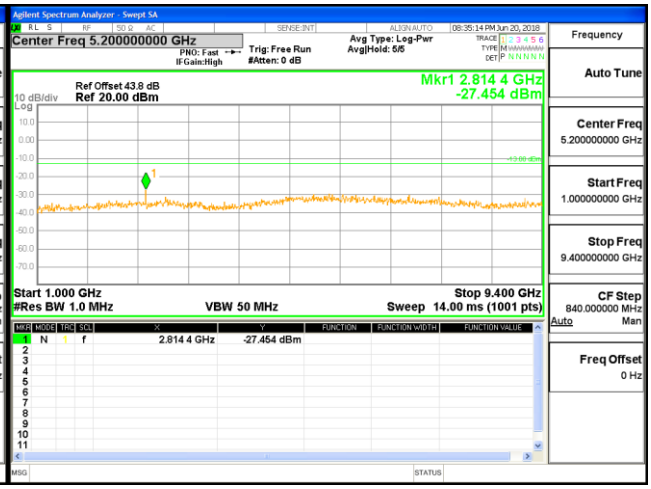
Signal at 937.5 MHz











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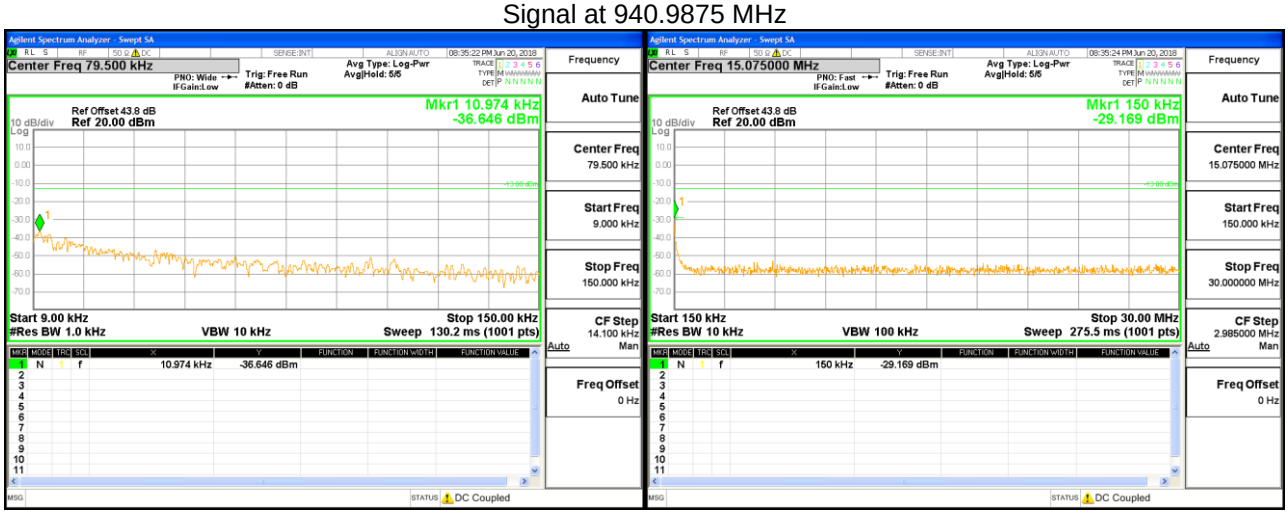
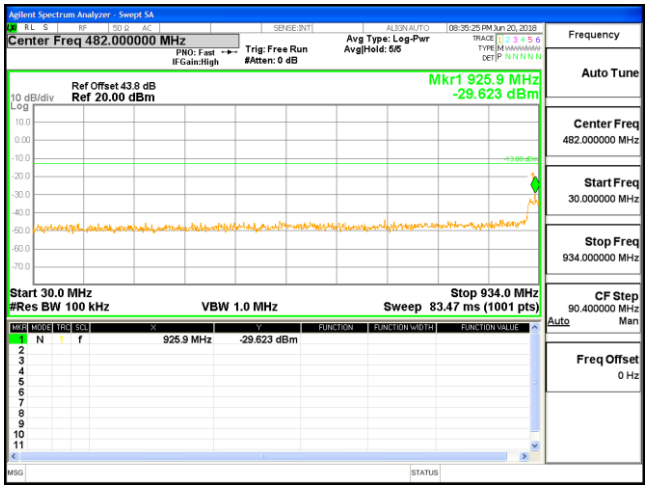
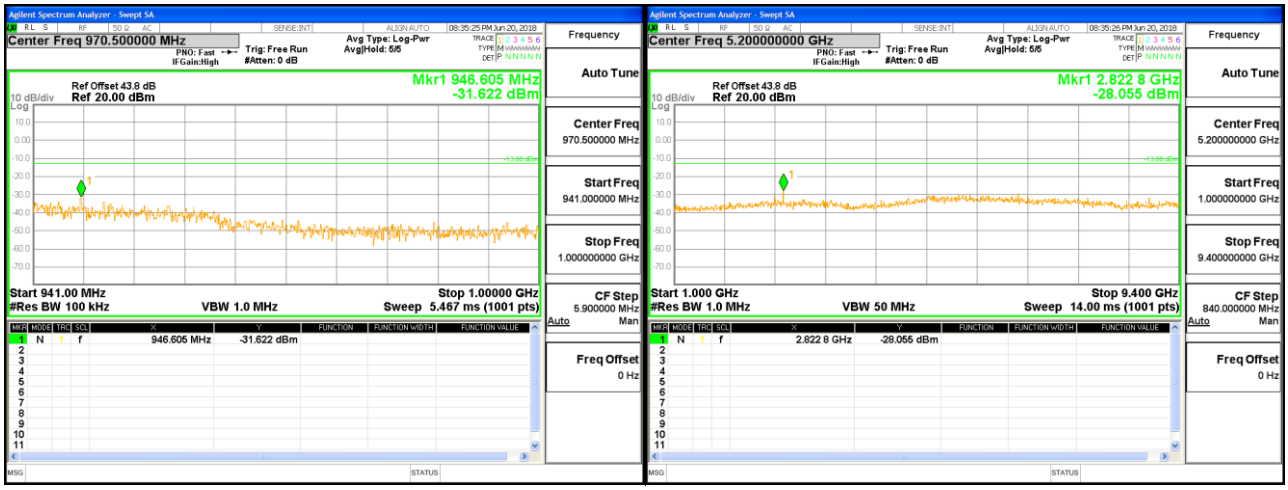
Signal at 940.9875 MHz







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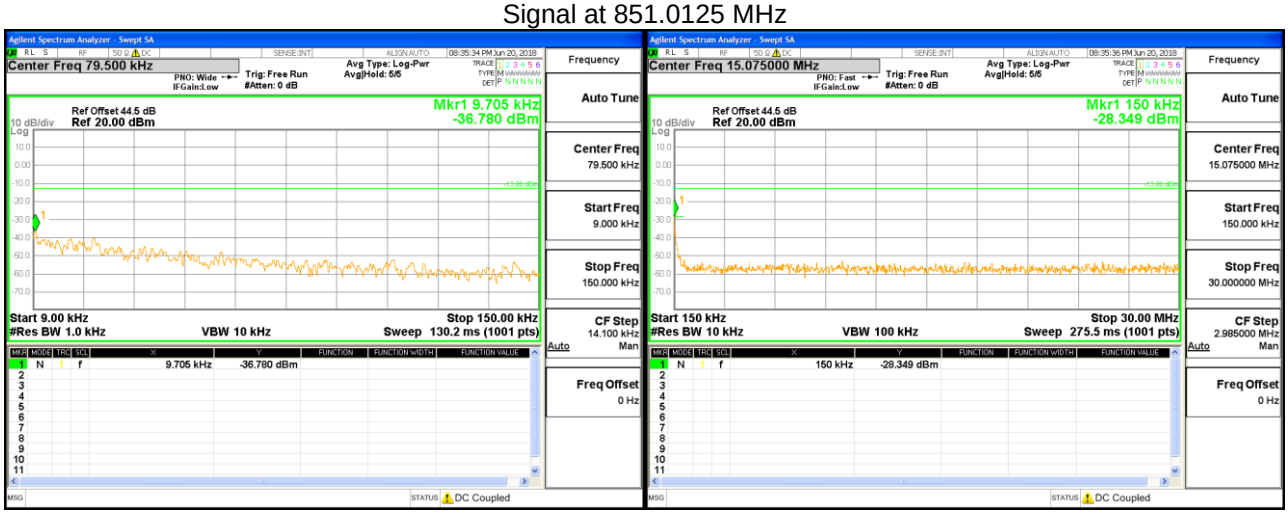
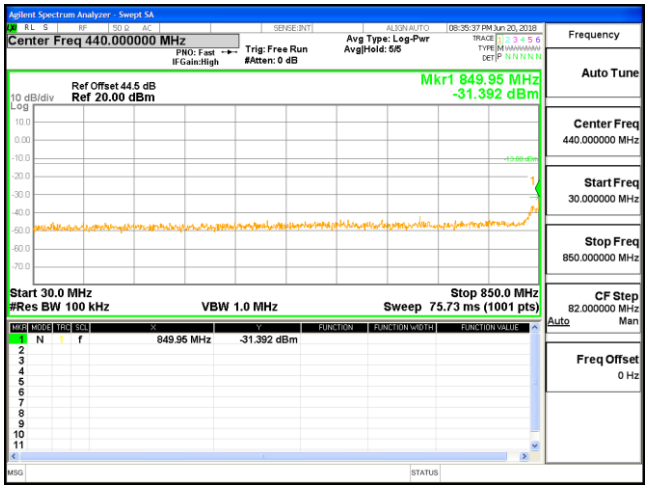
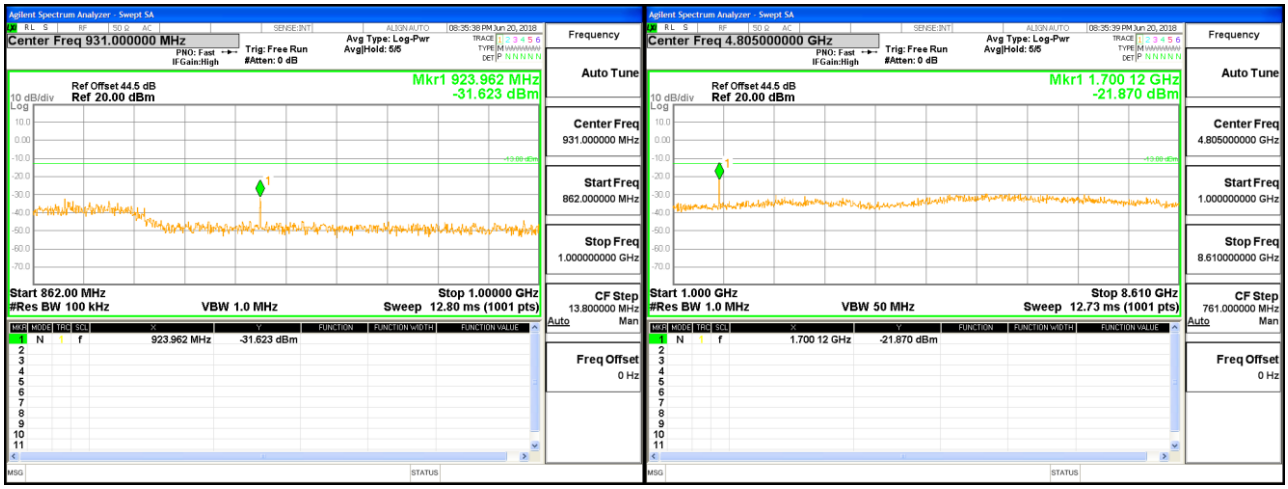
Signal at 851.0125 MHz







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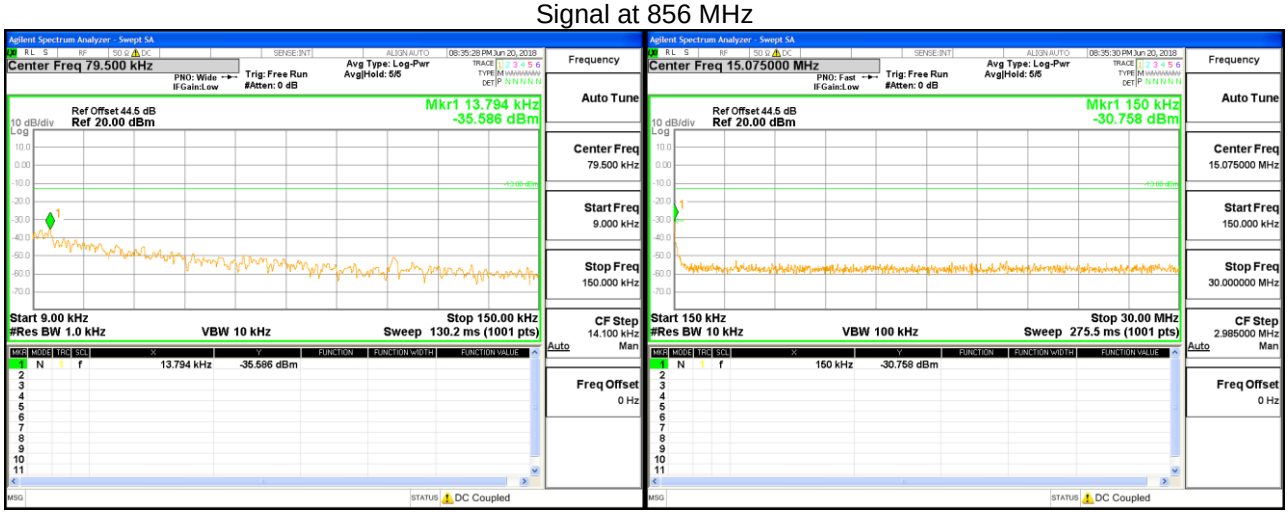
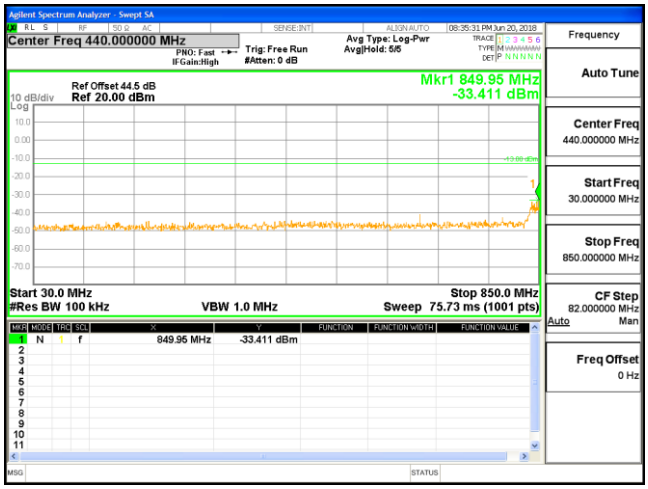
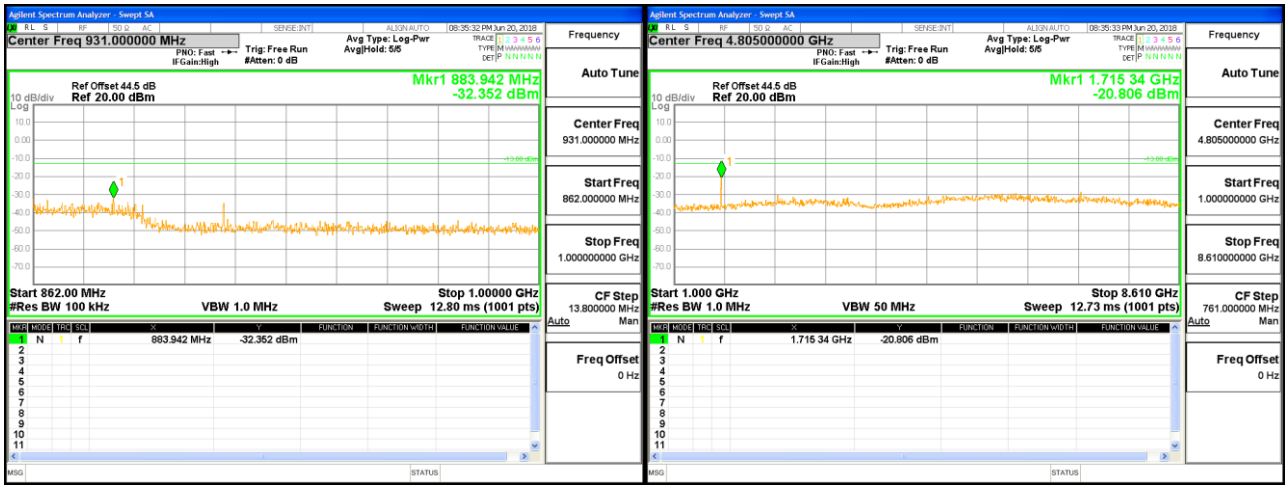
Signal at 856 MHz







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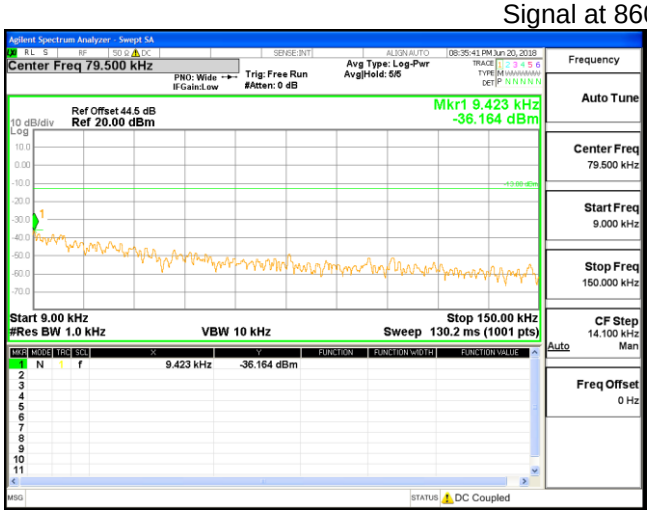
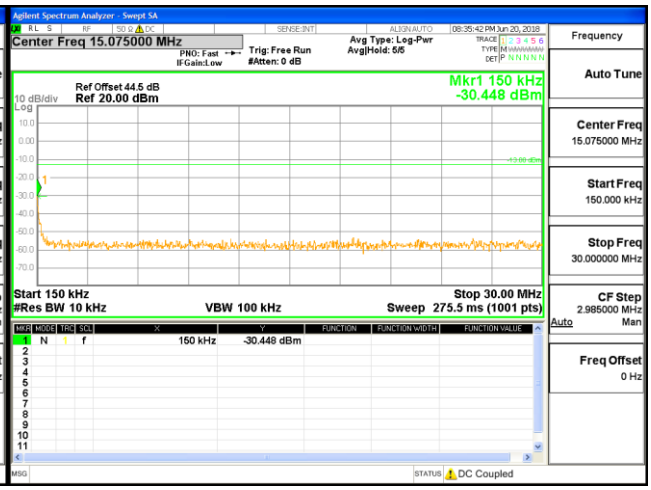
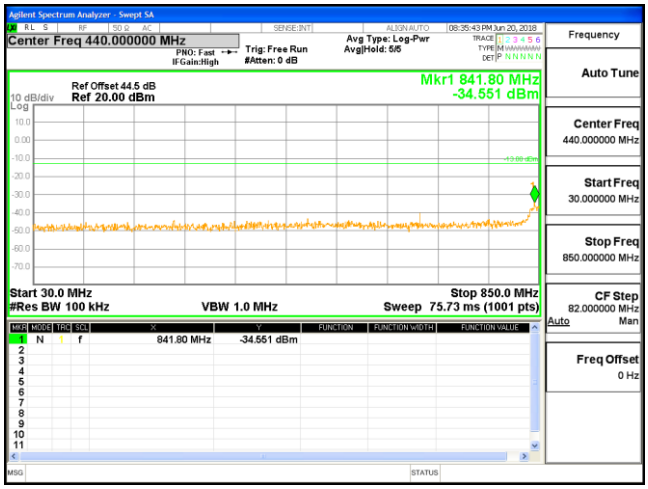
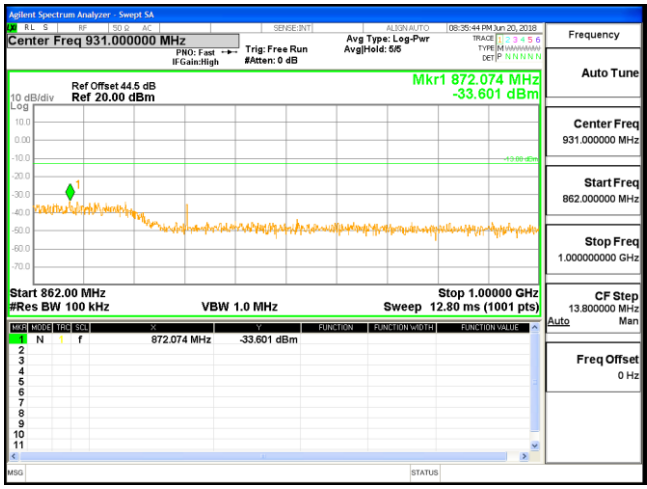
Signal at 860.9875 MHz









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Signal at 769.0125 MHz

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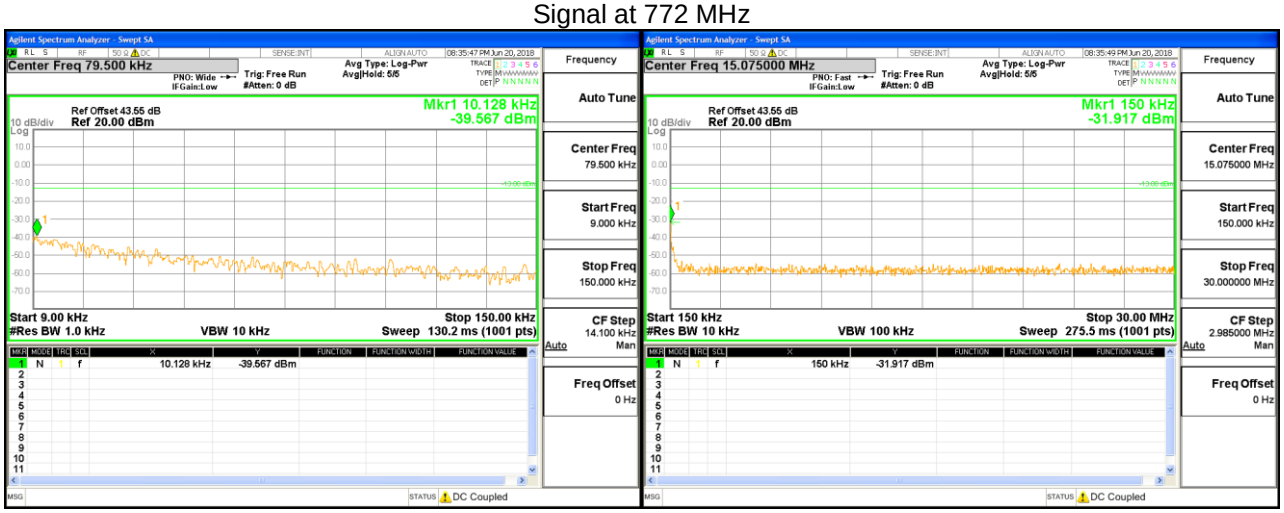
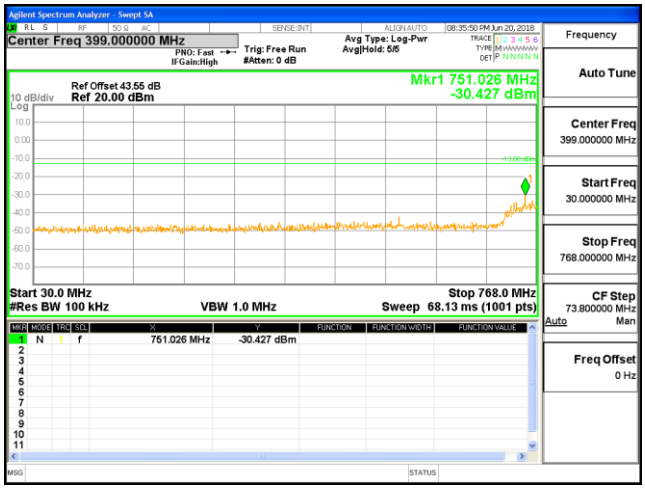
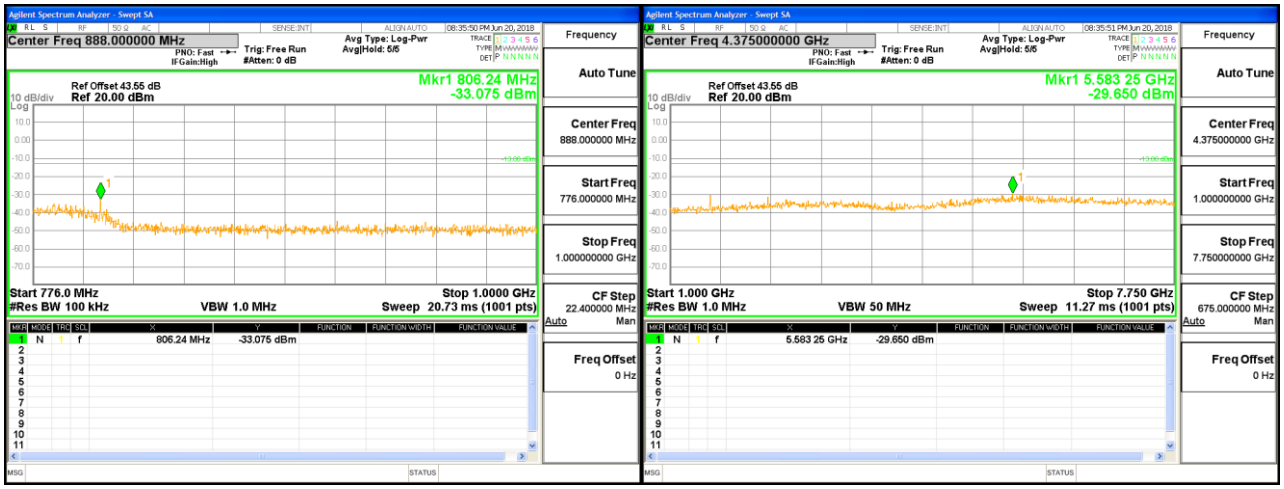
Signal at 772 MHz







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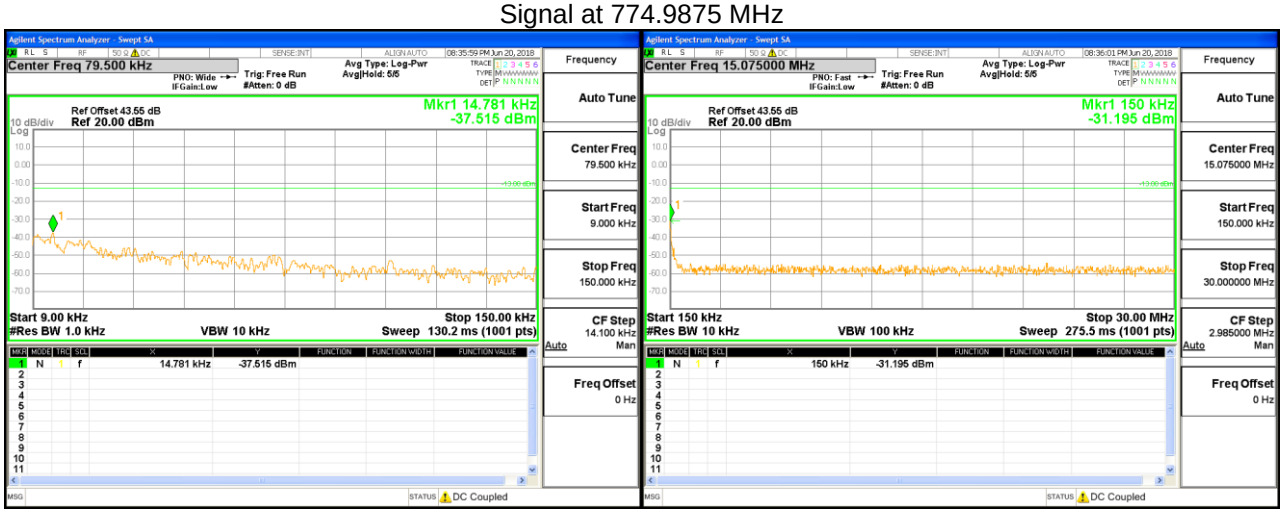
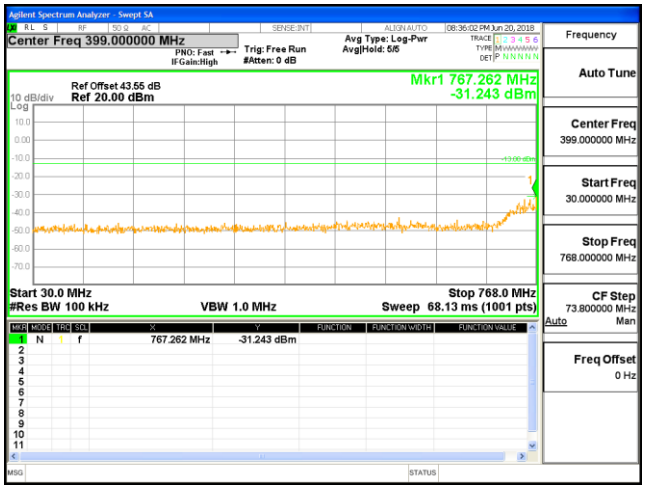
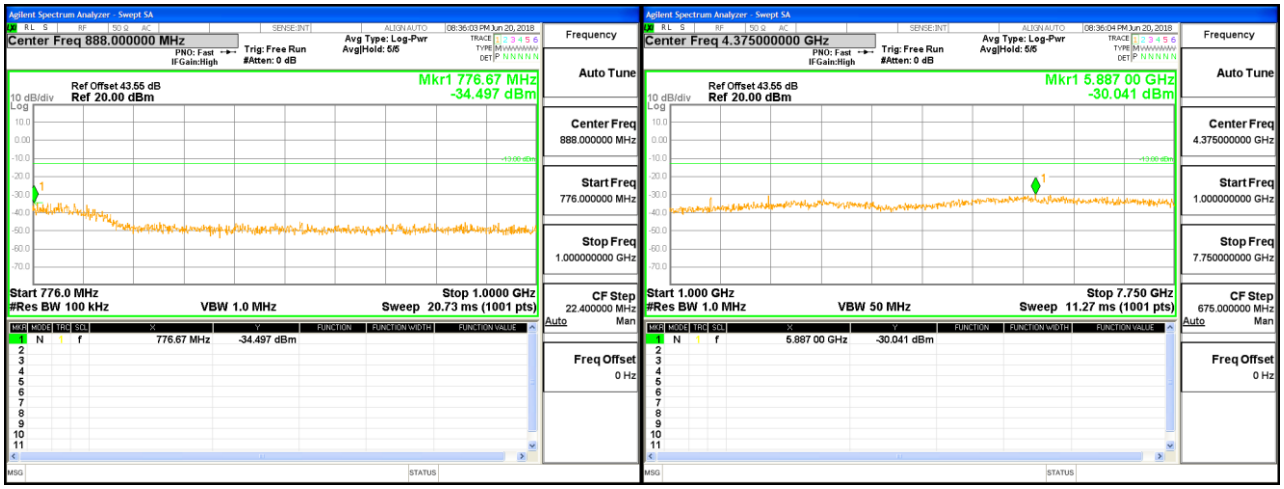
Signal at 774.9875 MHz







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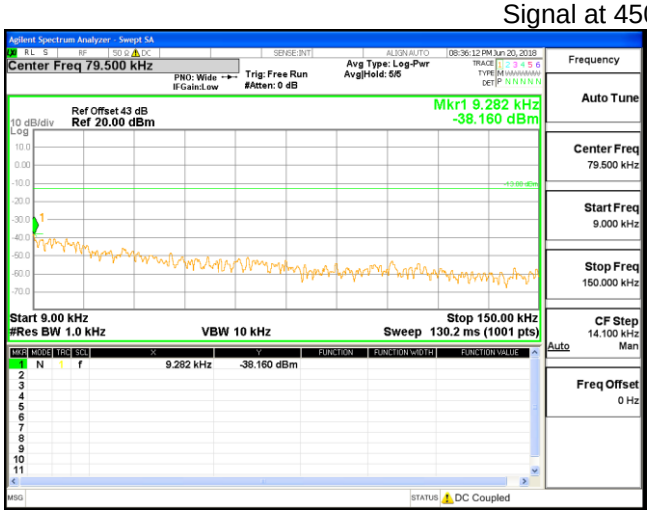
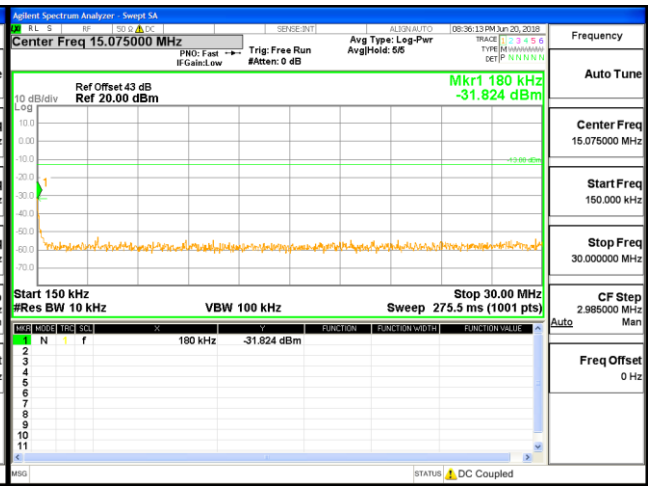
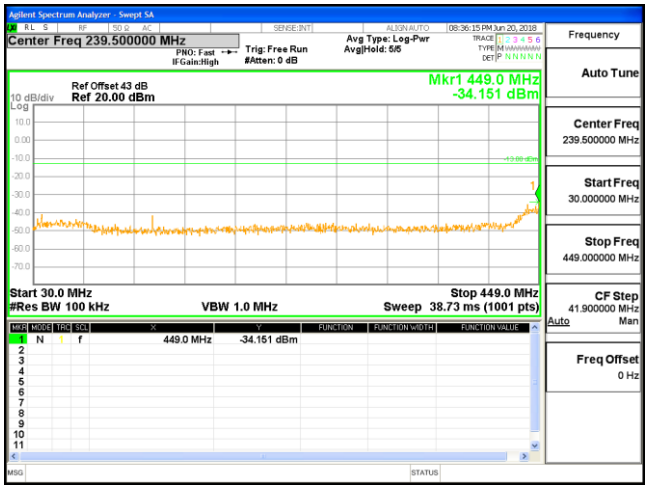
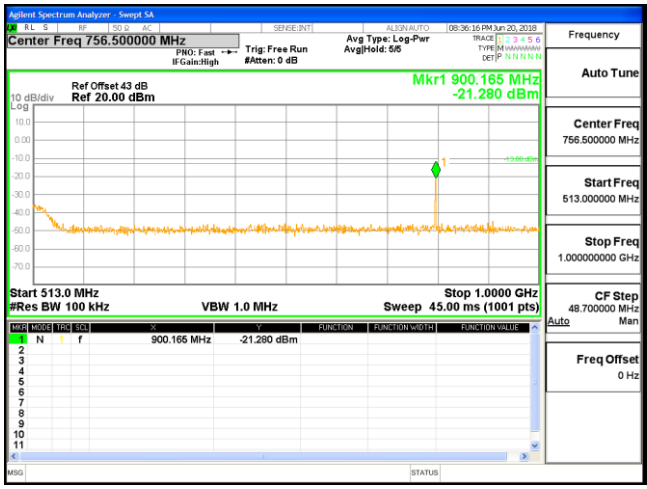
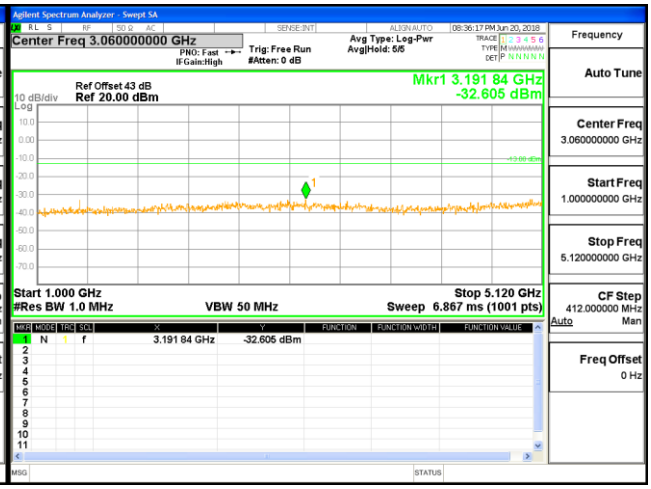
Signal at 450.0125 MHz











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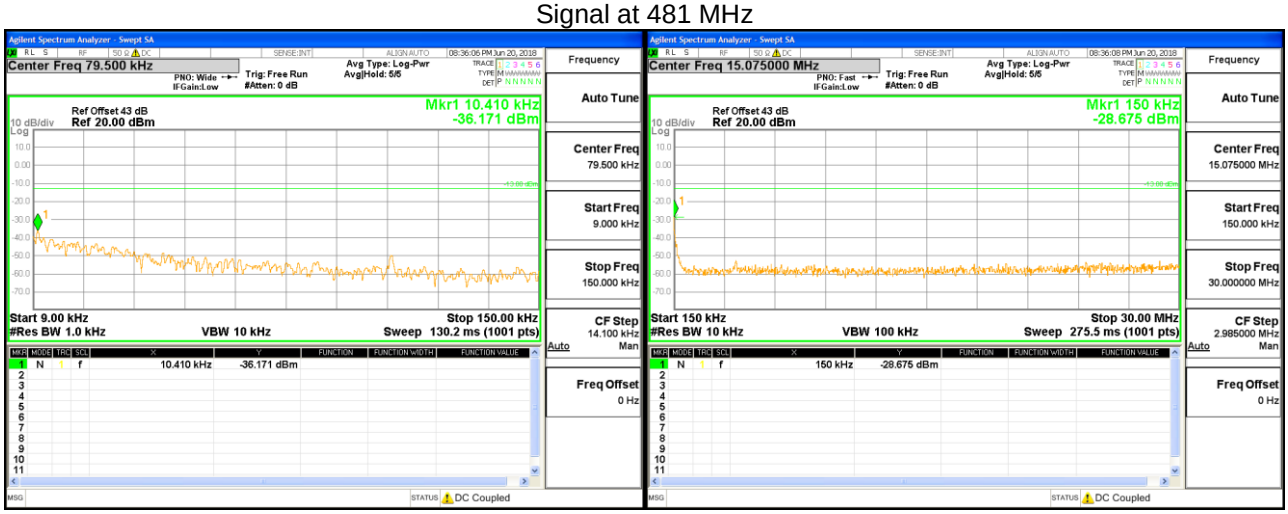
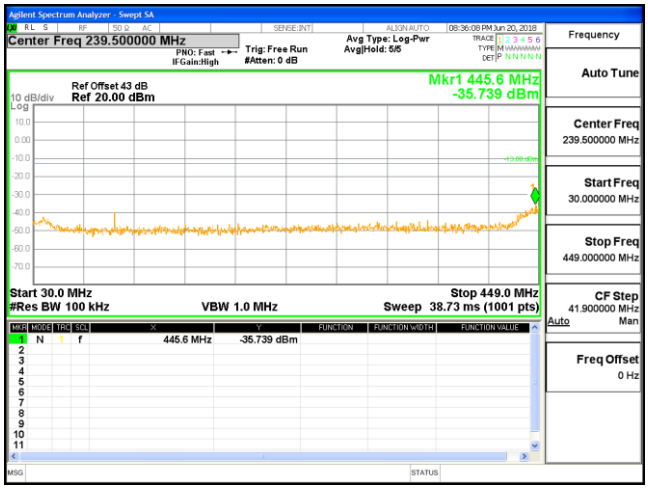
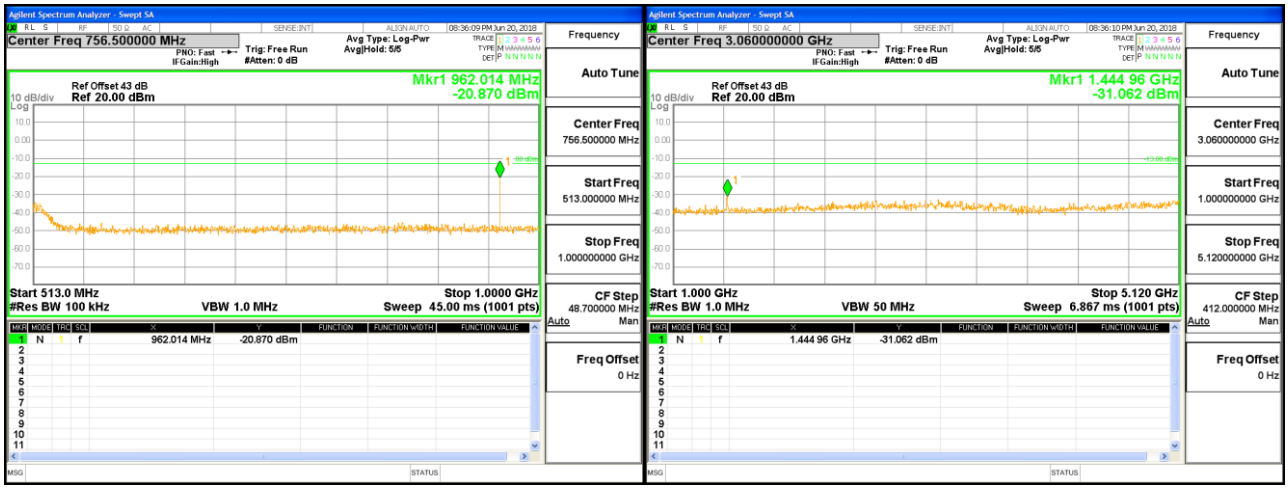
Signal at 481 MHz







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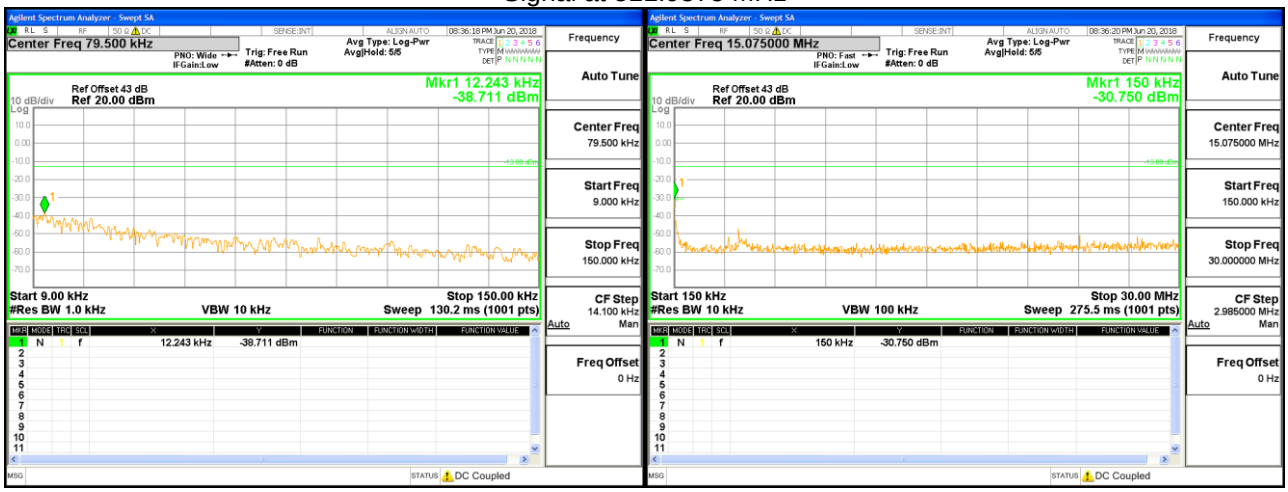
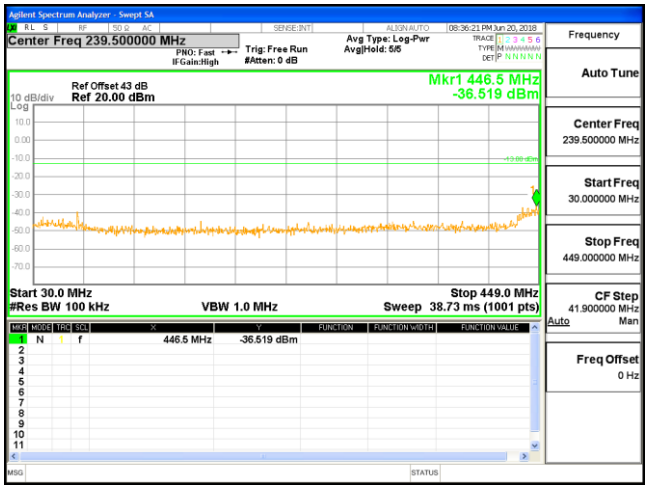
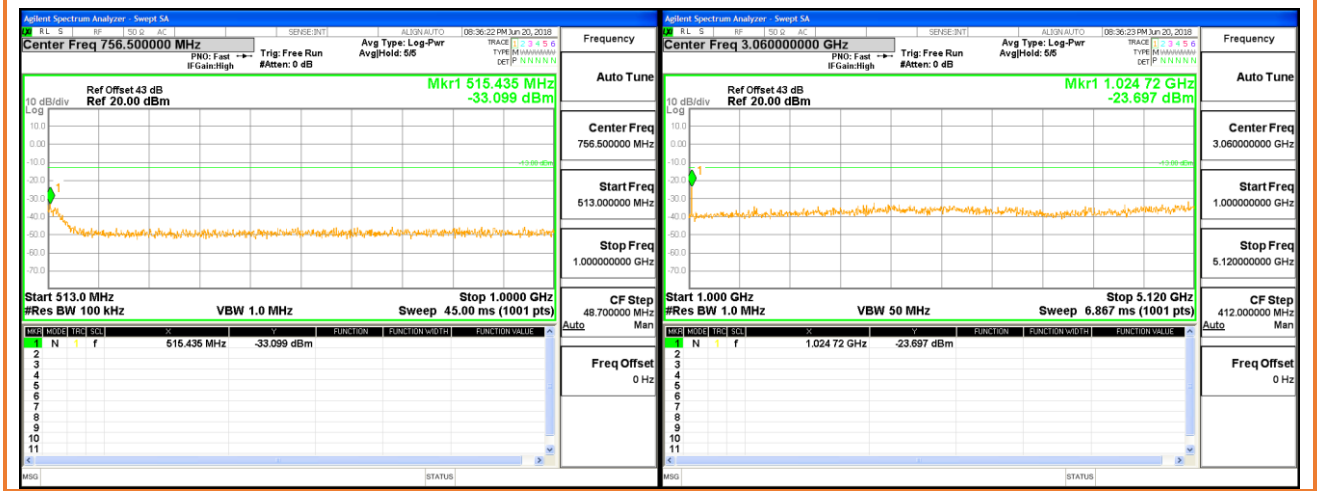
Signal at 511.9875 MHz







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Unwanted Emissions for 700 Band Operating Broadband Signal (Conducted)

Governing Doc	FCC Part 2 2.1046(a) FCC Part 90.543 (e)	Room Temperature (°C)	30.5
Test Procedure	ANSI/TIA-603- E-2016; FCC KDB 935210 D05 Indus Booster Basic Meas v01r02: October 27, 2017 Section 3.6	Relative Humidity (%)	34.9
Test Location	Burnaby	Barometric Pressure (kPa)	101.3
Test Engineer	Jeremy Lee	Date	Jun 20, 2018
EUT Voltage	☒ DC	☐ 120VAC @ 60Hz	

Test Equipment Used	Manufacturer	Model	Serial Number	Calibration	Calibration due
Signal Generator	Keysight	N5172B	MY53050270	08/04/17	08/04/18
Spectrum Analyzer	Keysight	N9010A	MY50520285	08/07/17	08/07/18

Frequency Range:	☒ 9 kHz – 9.4 GHz
Detector:	☒ Peak(for Formal)
RBW/VBW:	☒1/10kHz for 9kHz – 150kHz; ☒ 10/100kHz for 150kHz – 30 MHz; ☒ 100/1000kHz for 30MHz – 1GHz; ☒ 1/50MHz for 1GHz – 9.4GHz
Type of Facility:	☒ Testbench
Distance:	☒ Direct Connection
Arrangement of EUT:	☐ Table-top only ☐ Floor-standing only ☒ Rack Mounted

Band 700: No emission is higher than the -13 dBm emission limit.

For operations in the 758-768 MHz and 788-798 MHz bands, the power emission on all frequencies between 769-775 MHz and 799-805 MHz, the emission is below the transmitter power (P=3.16W of DUT) by a factor not less than 76 + 10log(P) dB in a 6.25kHz band segment (per part90.543 (e)(1)), i.e. lower than -46 dBm/6.25kHz.

Compliant ☒ Non-Compliant ☐ Not Applicable ☐

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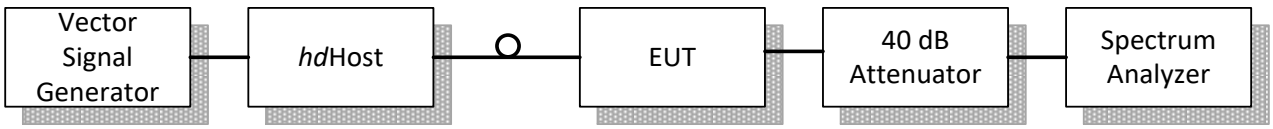
Test setup

Description of test set-up:
Unwanted emission was measured by connecting a Spectrum Analyzer to the RF output connector via 40dB Attenuator. The input power was adjusted to produce maximum output power on the antenna port and just below the AGC threshold. The CW input signal was set to the lowest channel, center channel and the highest channel of the EUT operating band. The EUT was set to **Operation Mode #1 with configuration Mode #1.**



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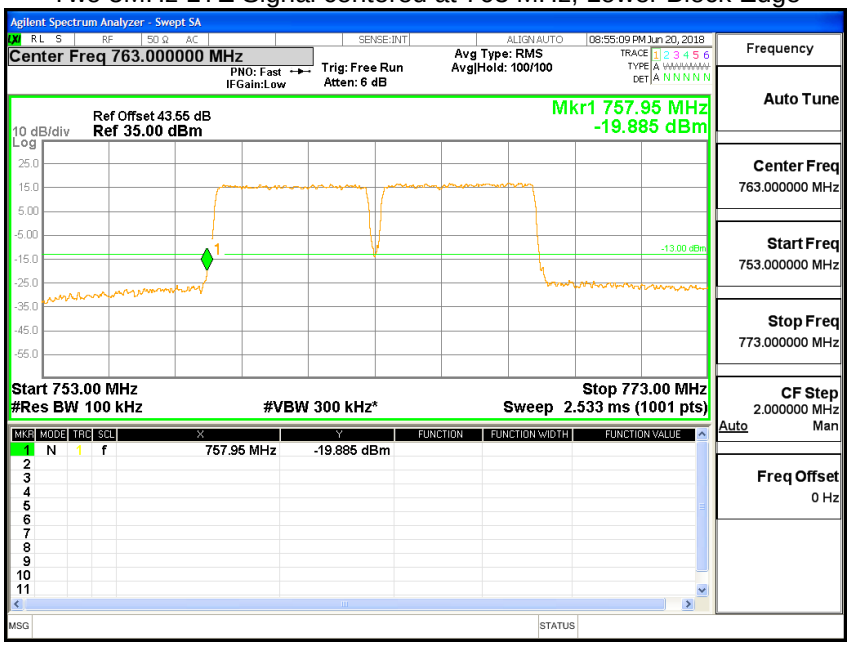
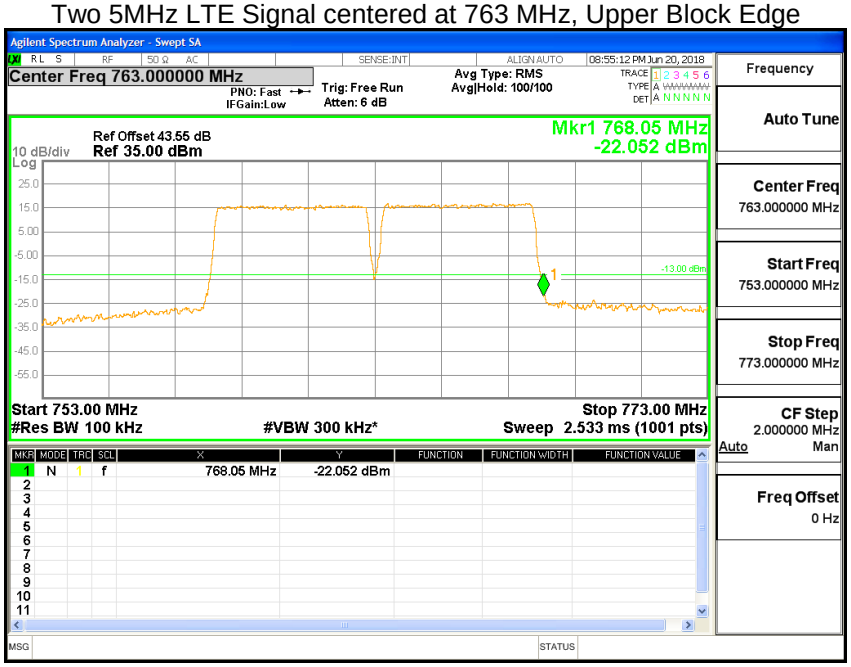
Results – Out-of-band Emissions

At Input Power 0.5 dB below AGC threshold

Two 5MHz LTE Signal centered at 763 MHz, Lower Block Edge



Two 5MHz LTE Signal centered at 763 MHz, Upper Block Edge



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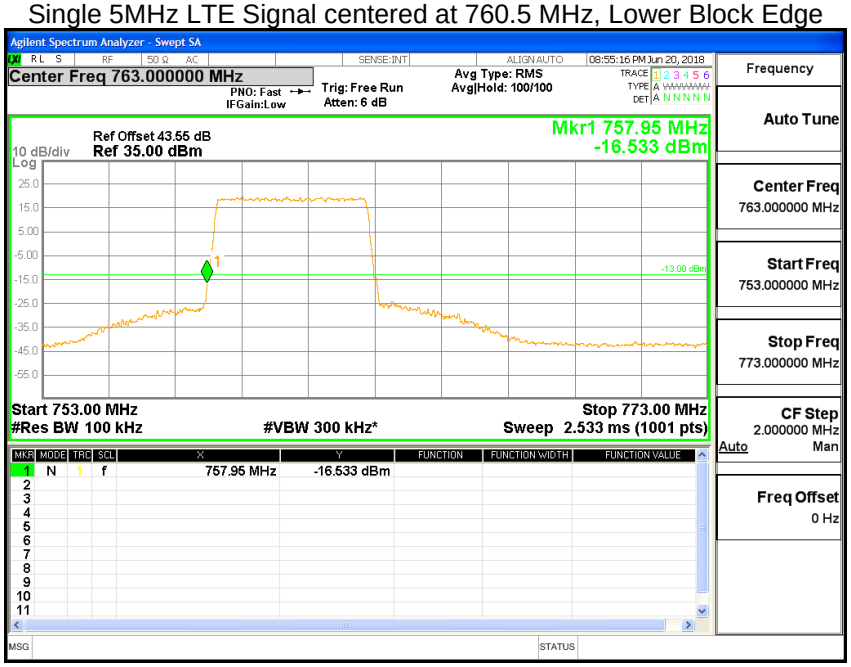
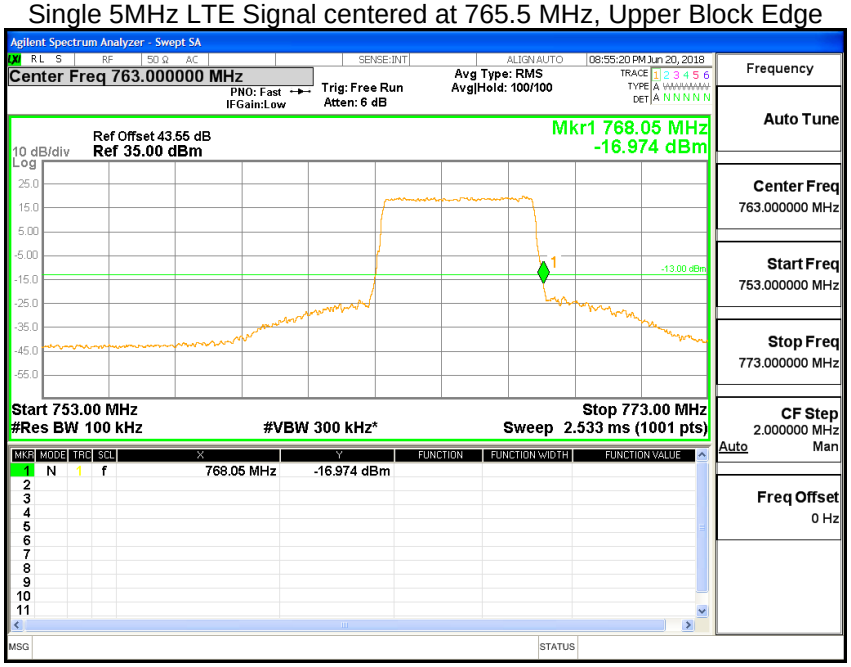
Single 5MHz LTE Signal centered at 760.5 MHz, Lower Block Edge



Single 5MHz LTE Signal centered at 765.5 MHz, Upper Block Edge



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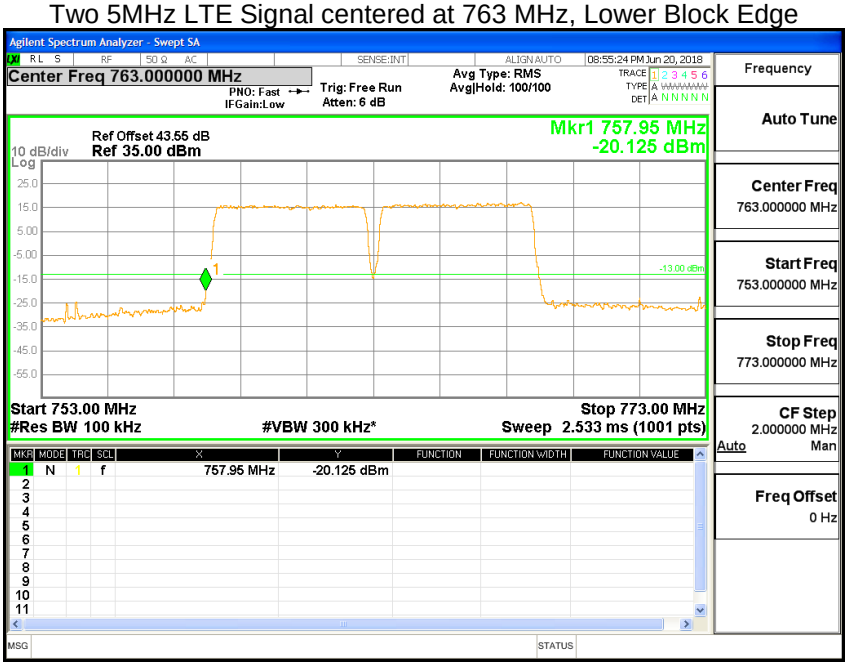
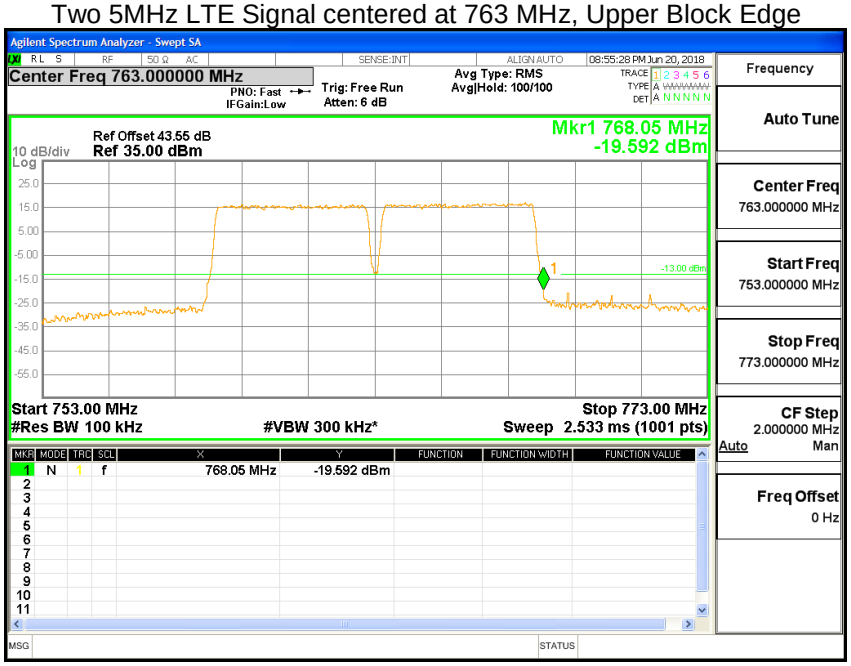
At Input Power 3 dB above AGC threshold

Two 5MHz LTE Signal centered at 763 MHz, Lower Block Edge



Two 5MHz LTE Signal centered at 763 MHz, Upper Block Edge



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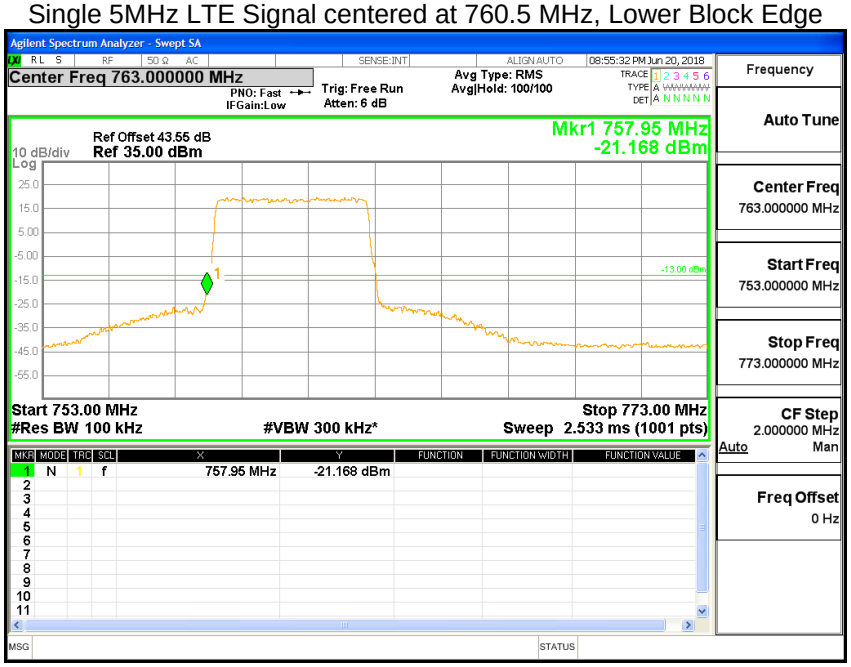
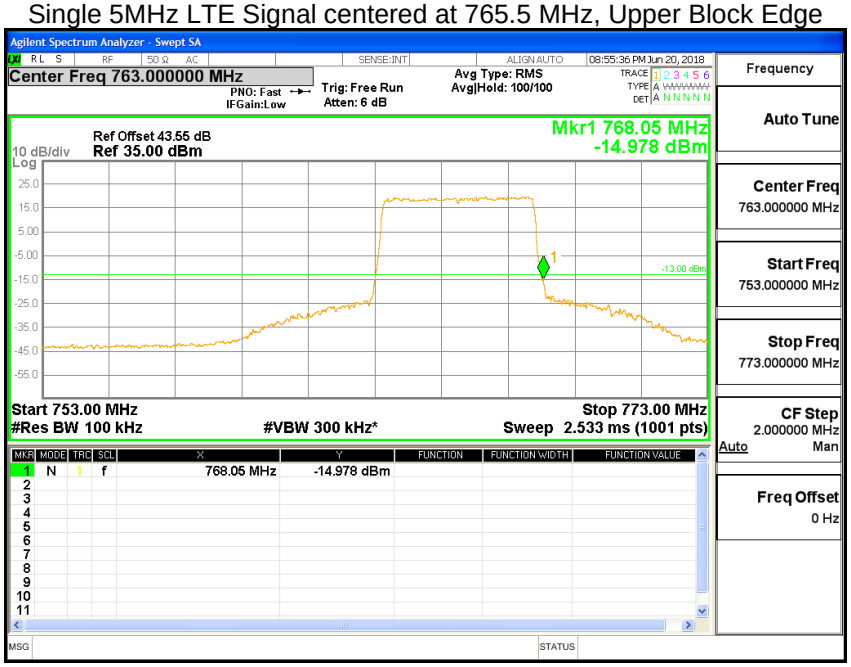
Single 5MHz LTE Signal centered at 760.5 MHz, Lower Block Edge



Single 5MHz LTE Signal centered at 765.5 MHz, Upper Block Edge



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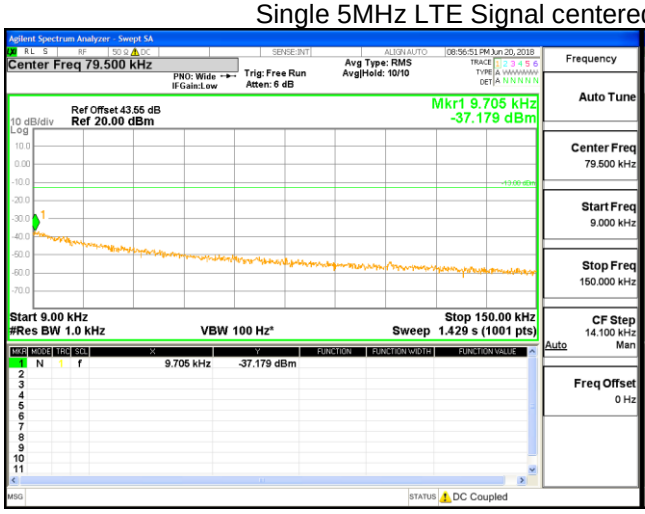
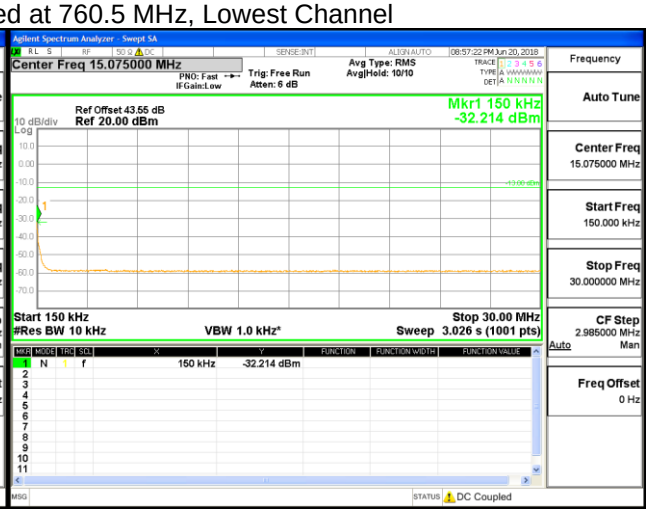
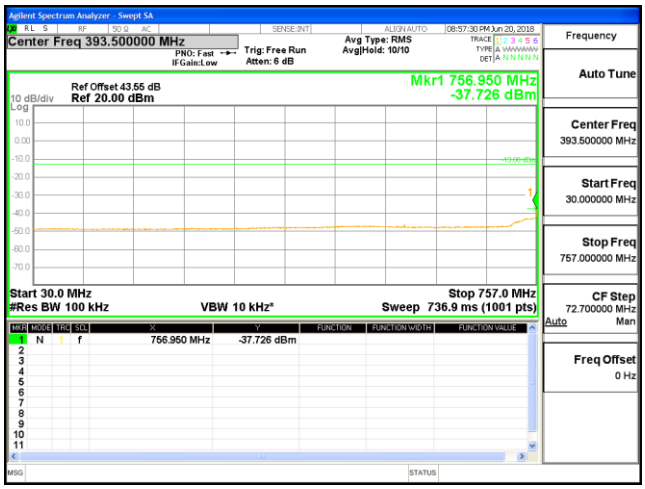
Results – Spurious Emissions

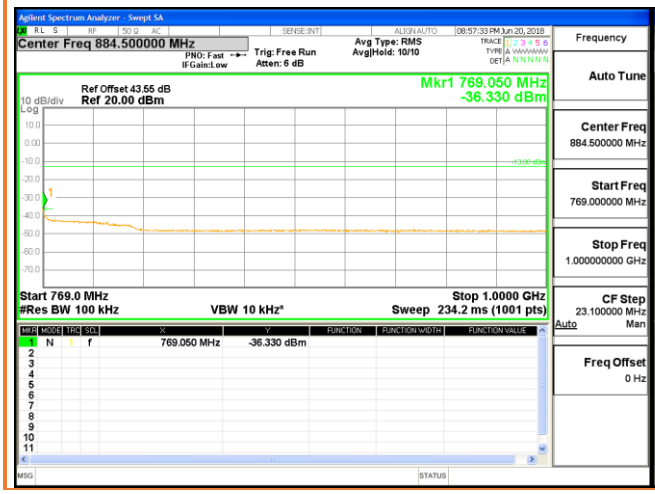
At Input Power 0.5 dB below AGC threshold

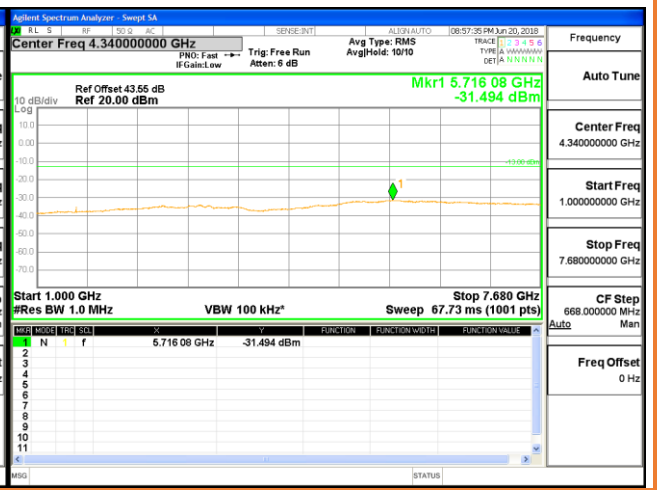
Single 5MHz LTE Signal centered at 760.5 MHz, Lowest Channel











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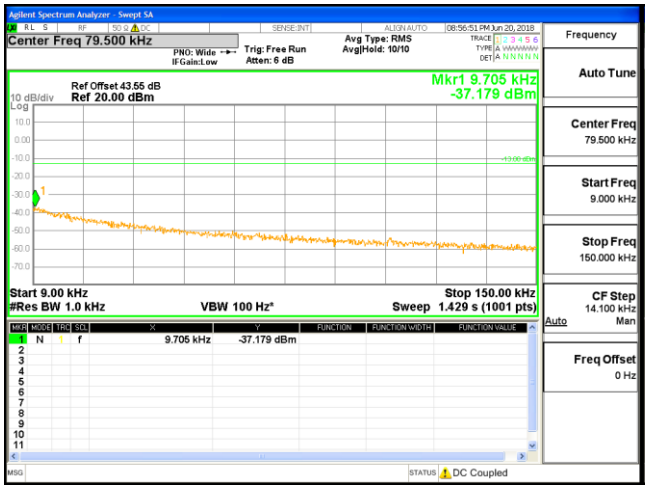
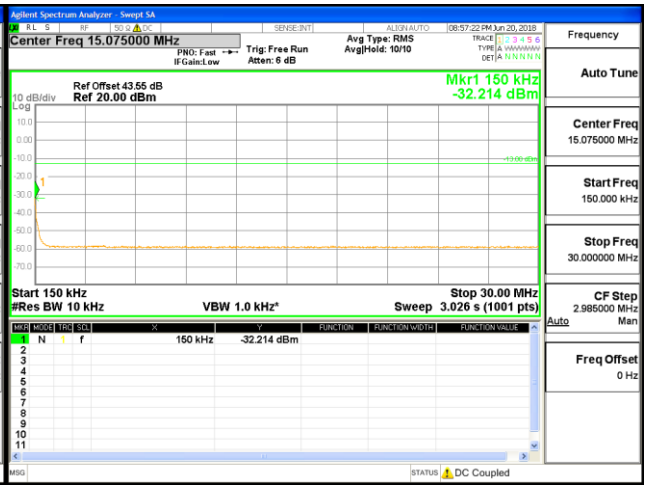
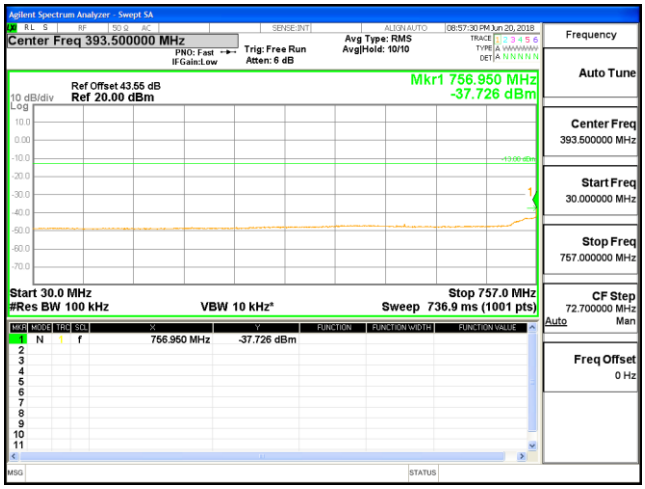
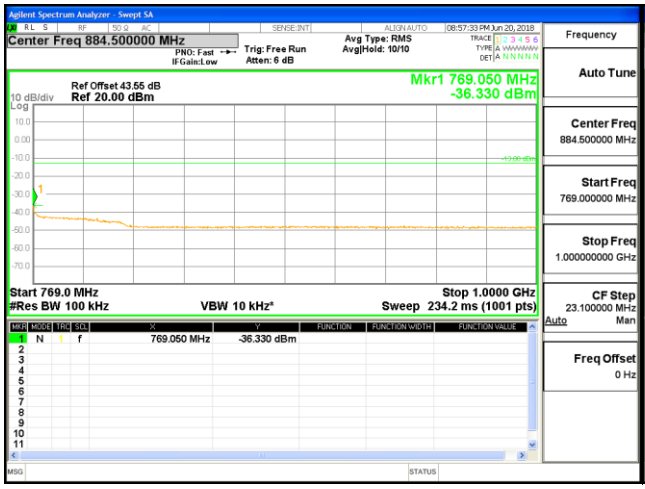
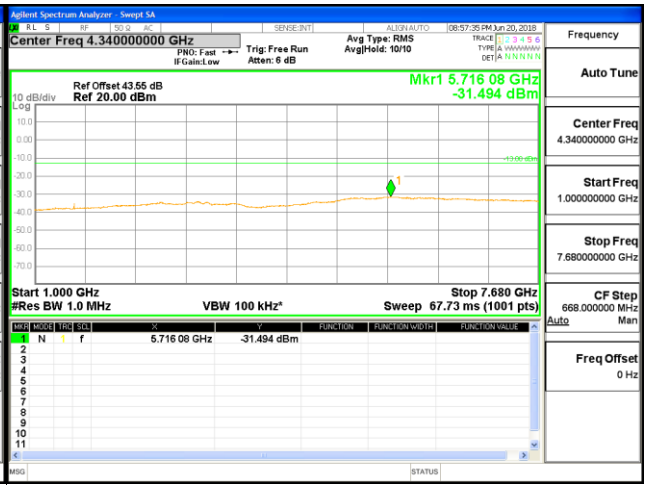
Single 5MHz LTE Signal centered at 763 MHz, Middle Channel











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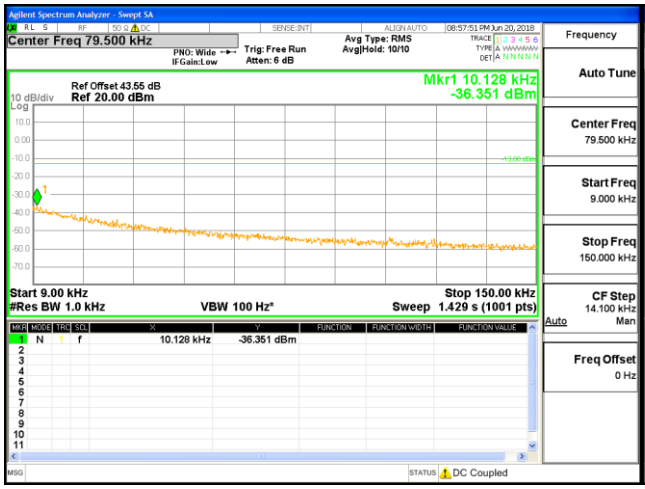
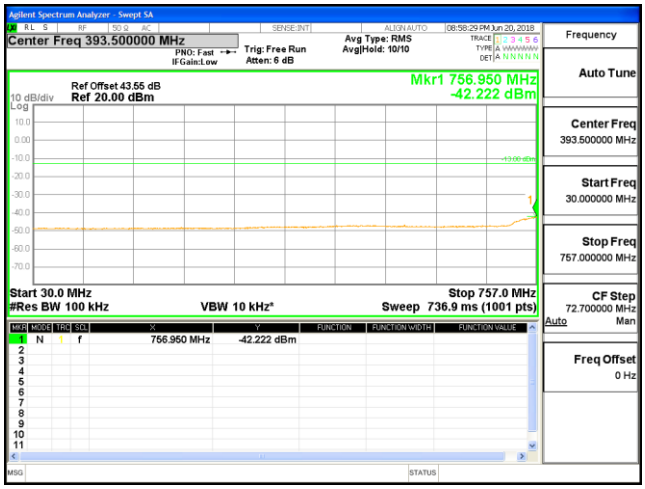
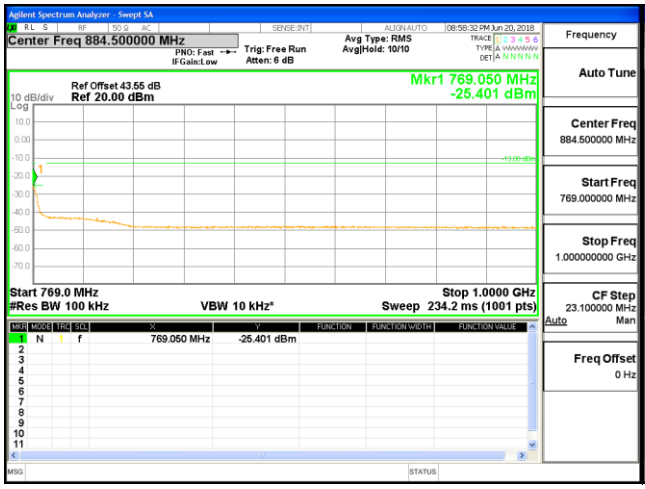
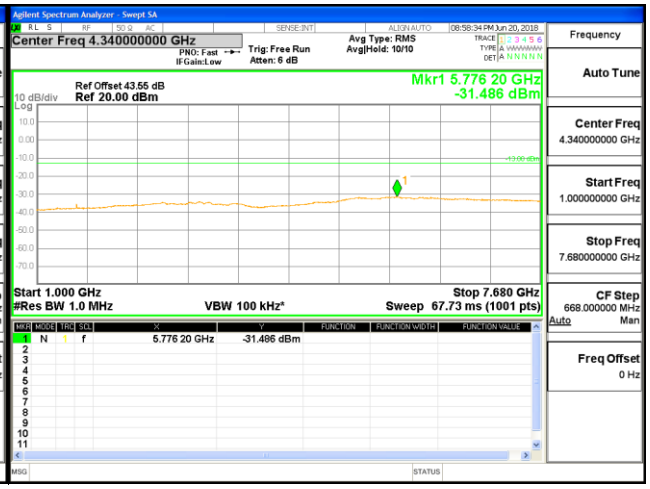
Single 5MHz LTE Signal centered at 765.5 MHz, Highest Channel









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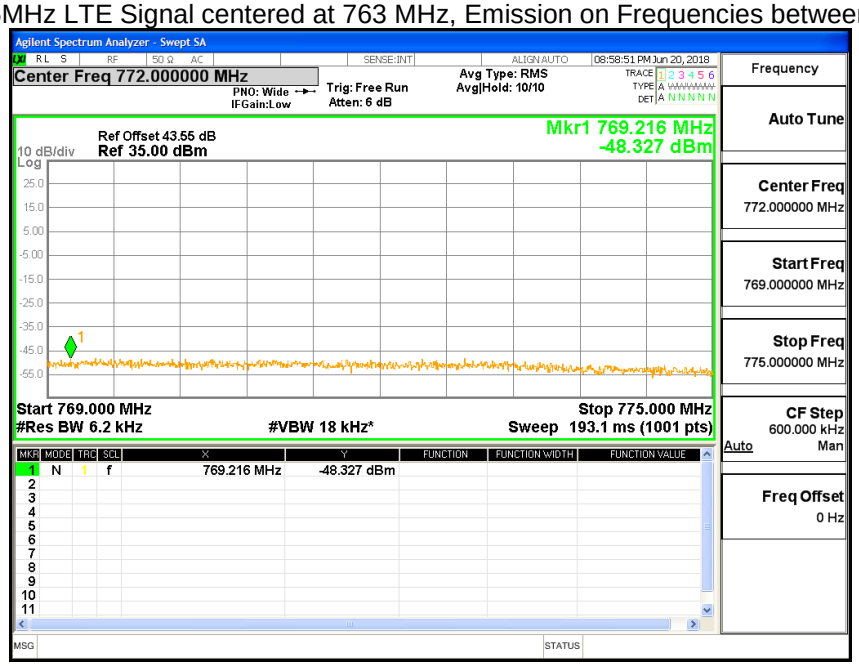
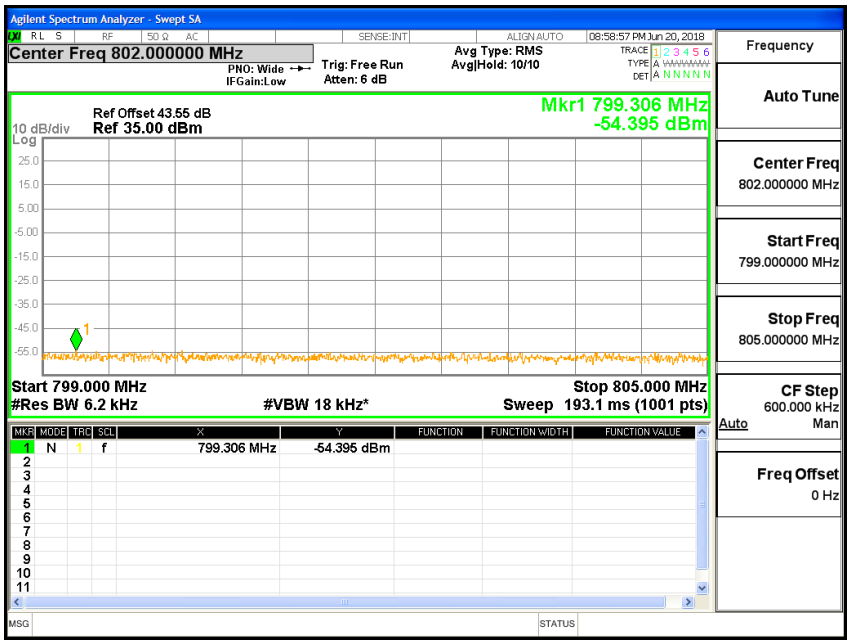
Results – Spurious Emissions on Adjacent Narrow Band Frequency Range

At Input Power 0.5 dB below AGC threshold

Two Channel 5MHz LTE Signal centered at 763 MHz, Emission on Frequencies between 769-775 MHz



Two Channel 5MHz LTE Signal centered at 763 MHz, Emission on Frequencies between 799-805 MHz



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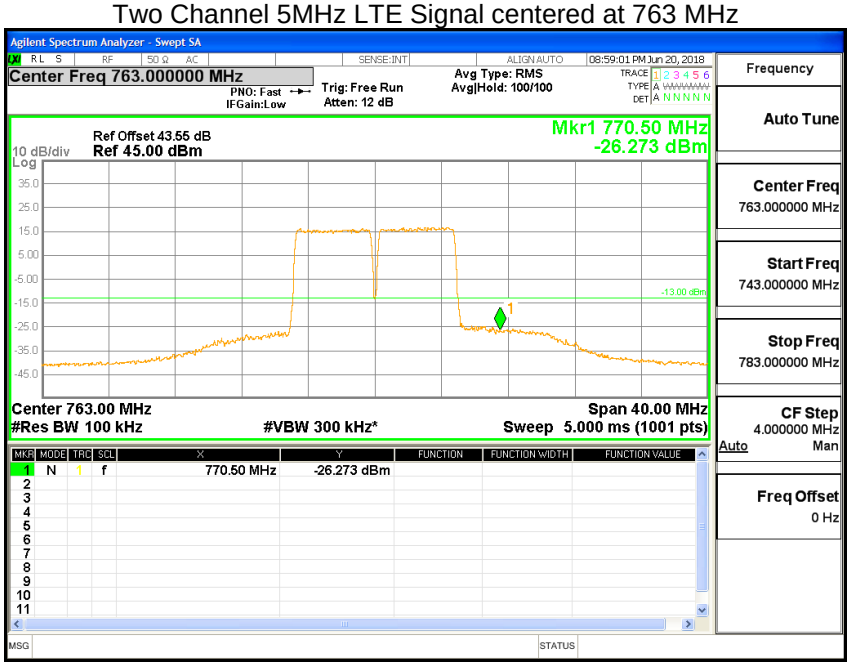
Results – Out-of-band Intermodulation Emission

At Input Power 0.5 dB below AGC threshold

Two Channel 5MHz LTE Signal centered at 763 MHz



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