

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	<input checked="" type="checkbox"/> DC <input type="checkbox"/> 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:	<input checked="" type="checkbox"/> 9 kHz – 9.4 GHz				
Detector:	<input checked="" type="checkbox"/> Peak(for Formal)				
RBW/VBW:	<input checked="" type="checkbox"/> 1/10kHz for 9kHz – 150kHz; <input checked="" type="checkbox"/> 10/100kHz for 150kHz – 30 MHz; <input checked="" type="checkbox"/> 100/1000kHz for 30MHz – 1GHz; <input checked="" type="checkbox"/> 1/50MHz for 1GHz – 9.4GHz				
Type of Facility:	<input checked="" type="checkbox"/> Testbench				
Distance:	<input checked="" type="checkbox"/> Direct Connection				
Arrangement of EUT:	<input type="checkbox"/> Table-top only <input type="checkbox"/> Floor-standing only <input checked="" type="checkbox"/> 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 <input checked="" type="checkbox"/> Non-Compliant <input type="checkbox"/> Not Applicable <input type="checkbox"/>					

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.**

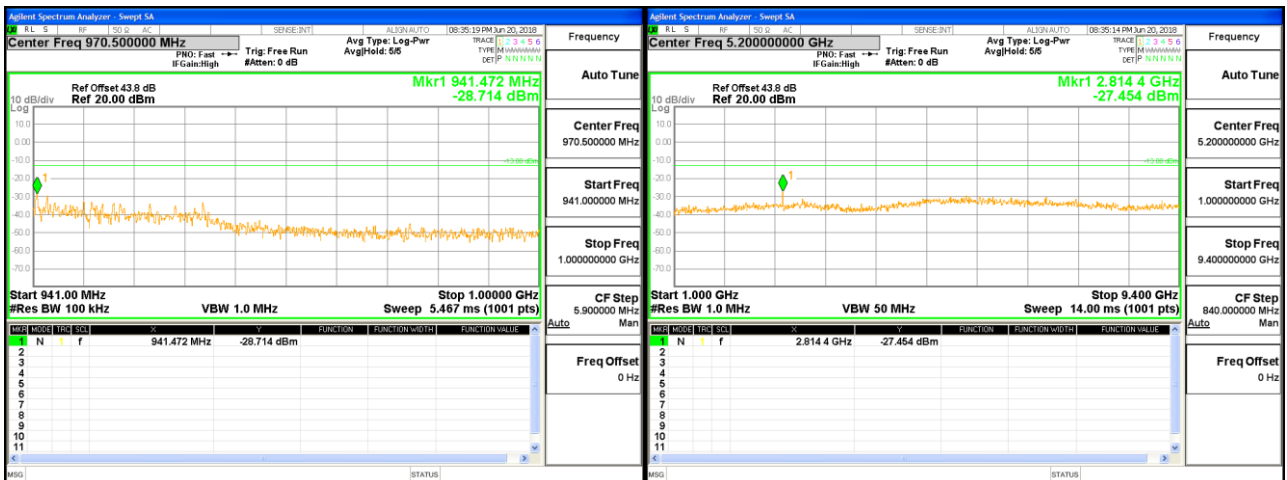
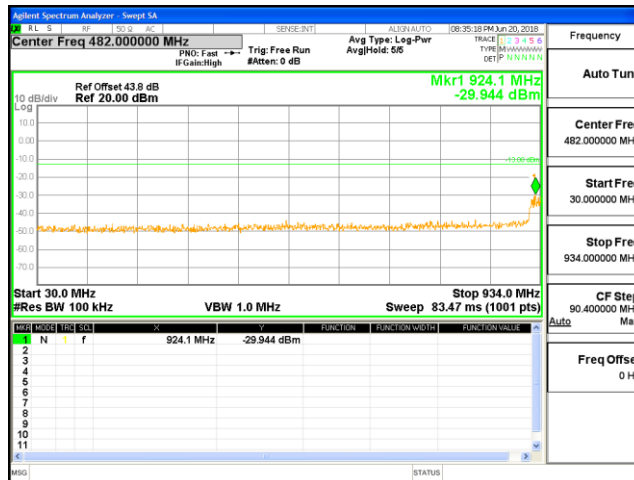
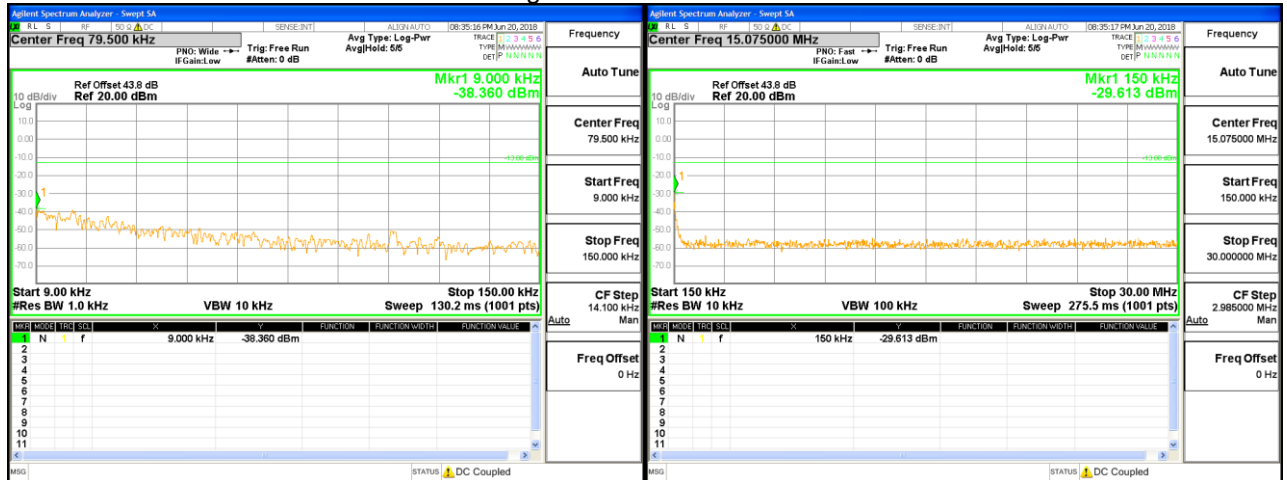
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    graph LR
        VSG[Vector Signal Generator] --- hdHost[hdHost]
        hdHost --- EUT[EUT]
        EUT --- Att[40 dB Attenuator]
        Att --- SA[Spectrum Analyzer]
    
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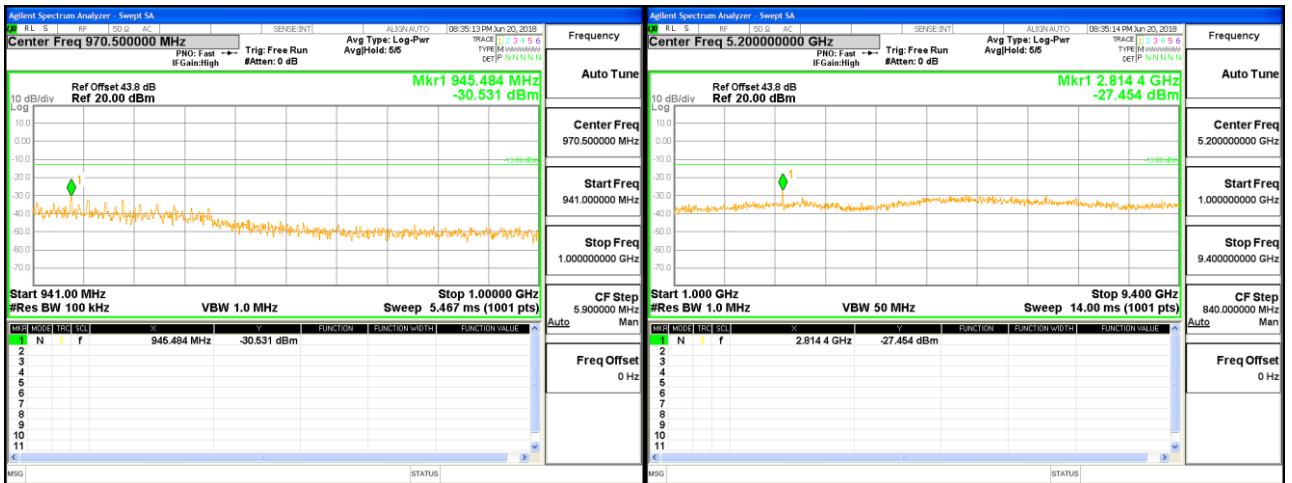
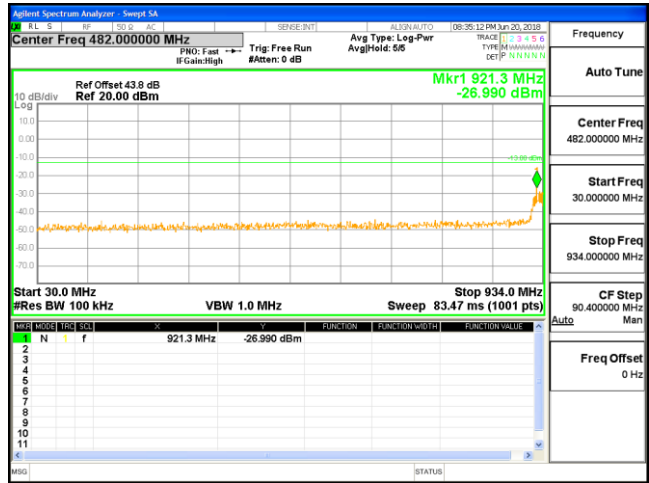
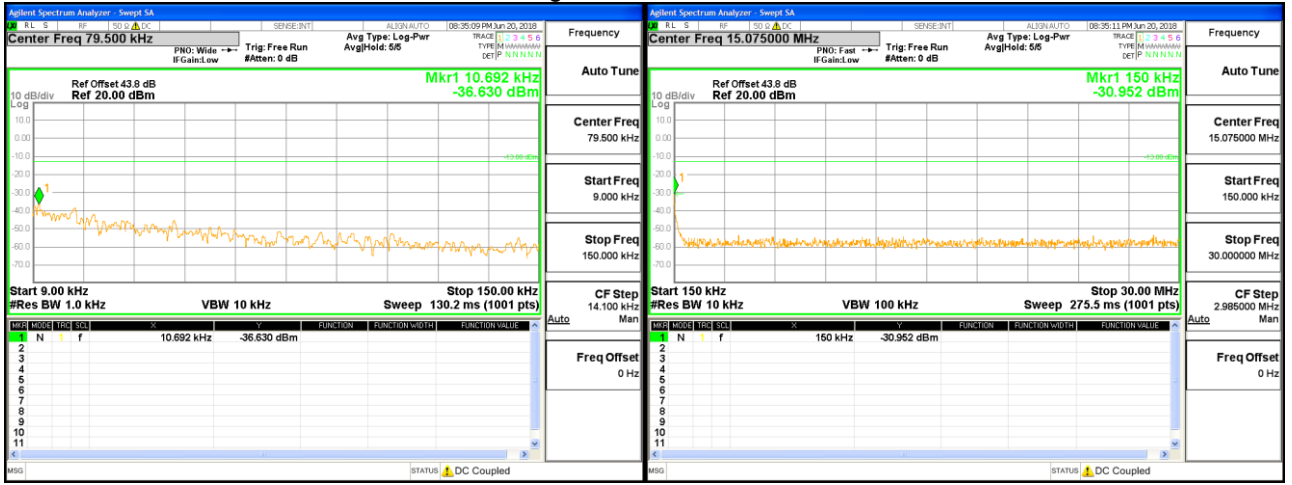
Results

At Input Power 0.5 dB below AGC threshold

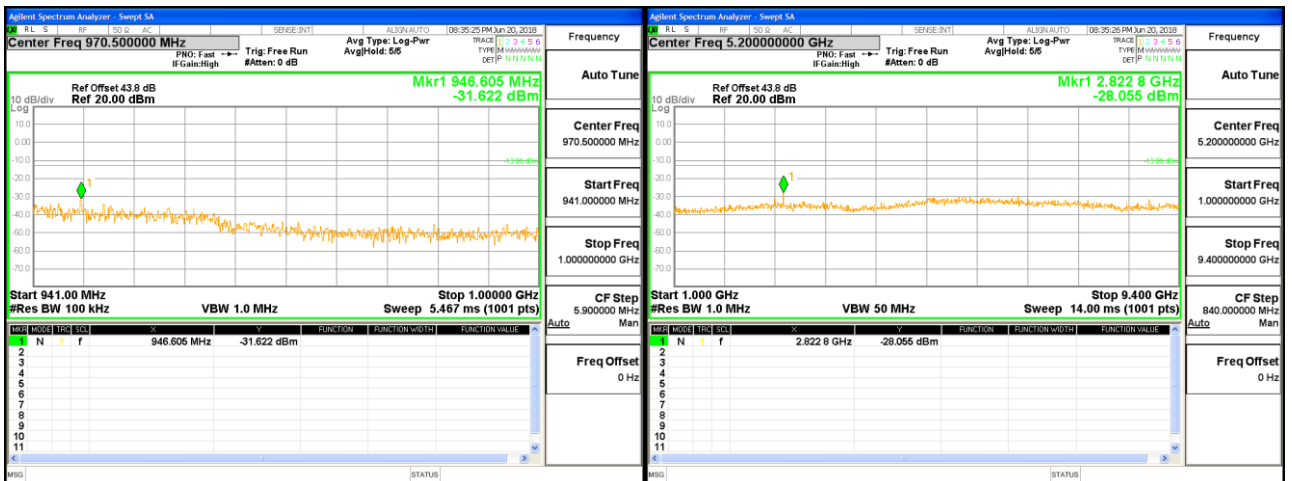
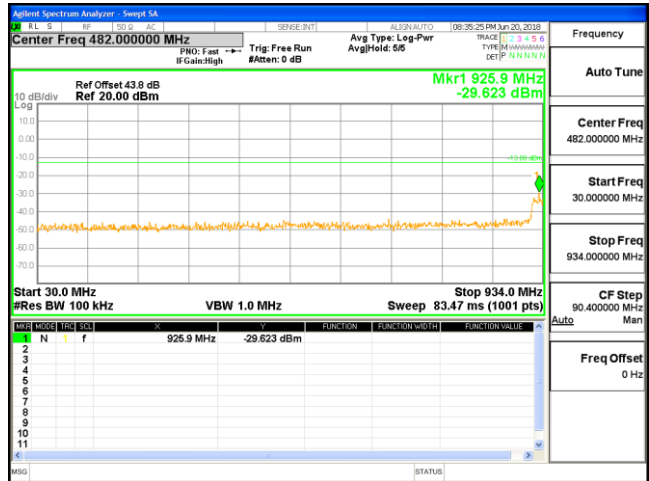
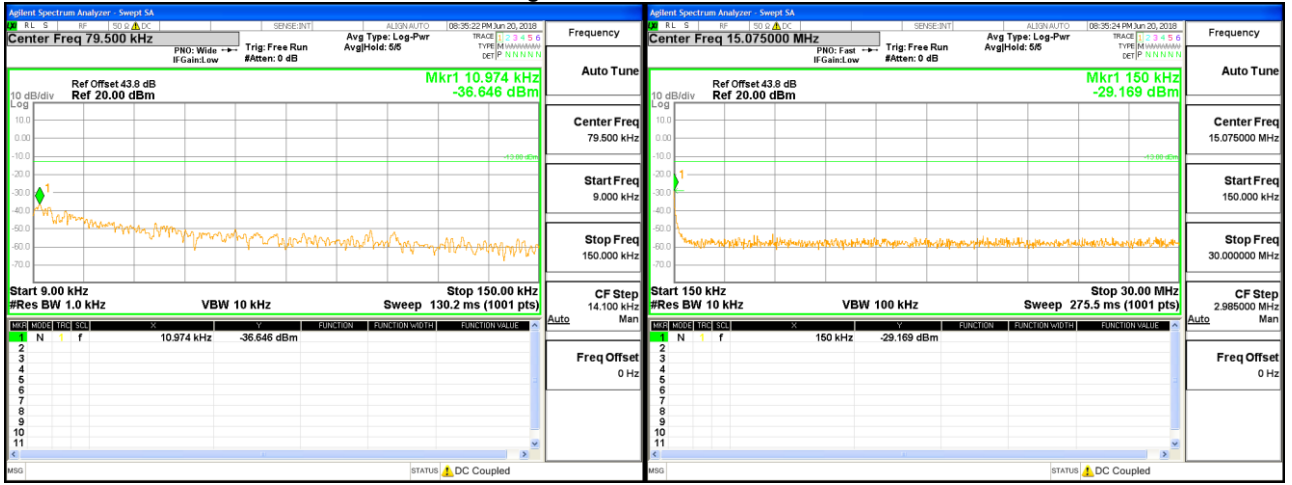
Signal at 935.0125 MHz



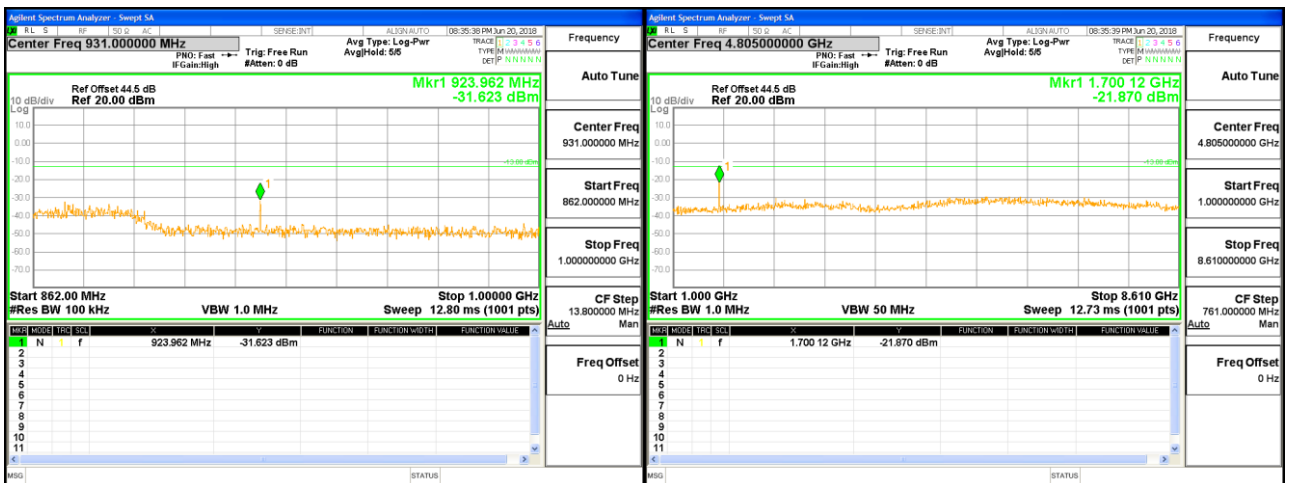
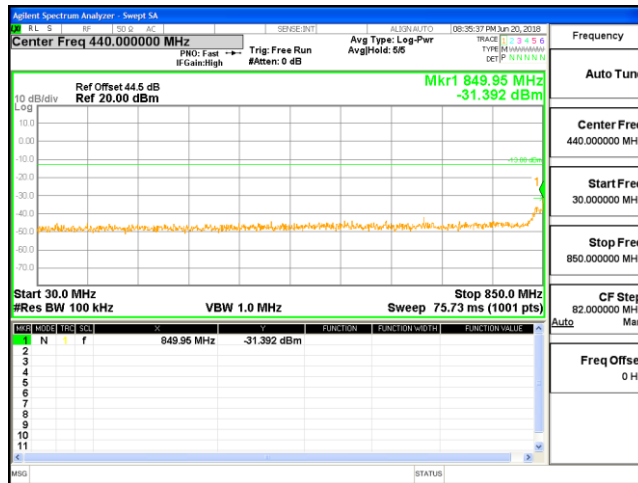
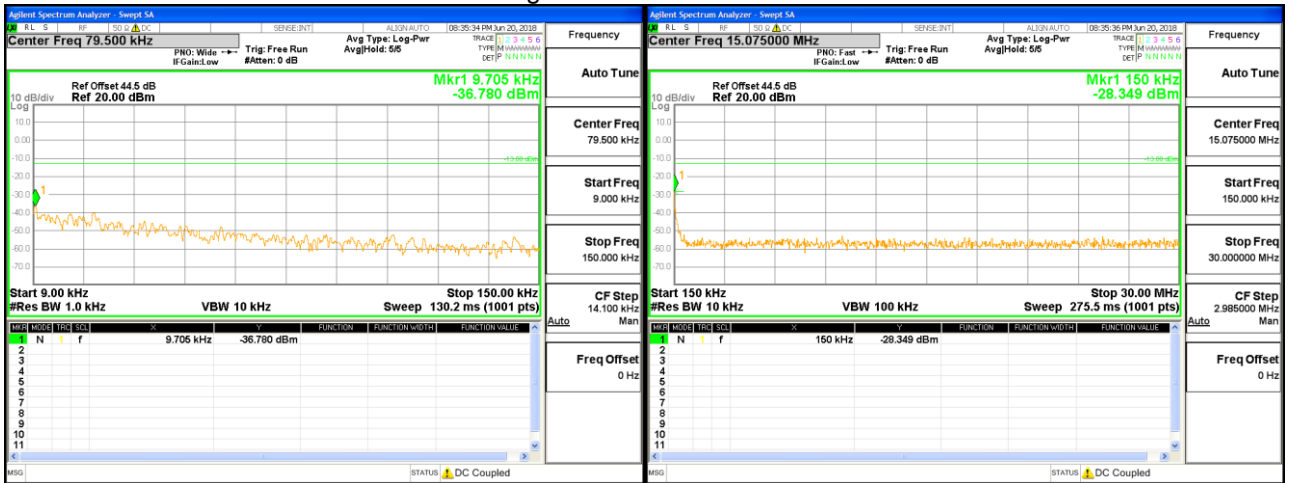
Signal at 937.5 MHz



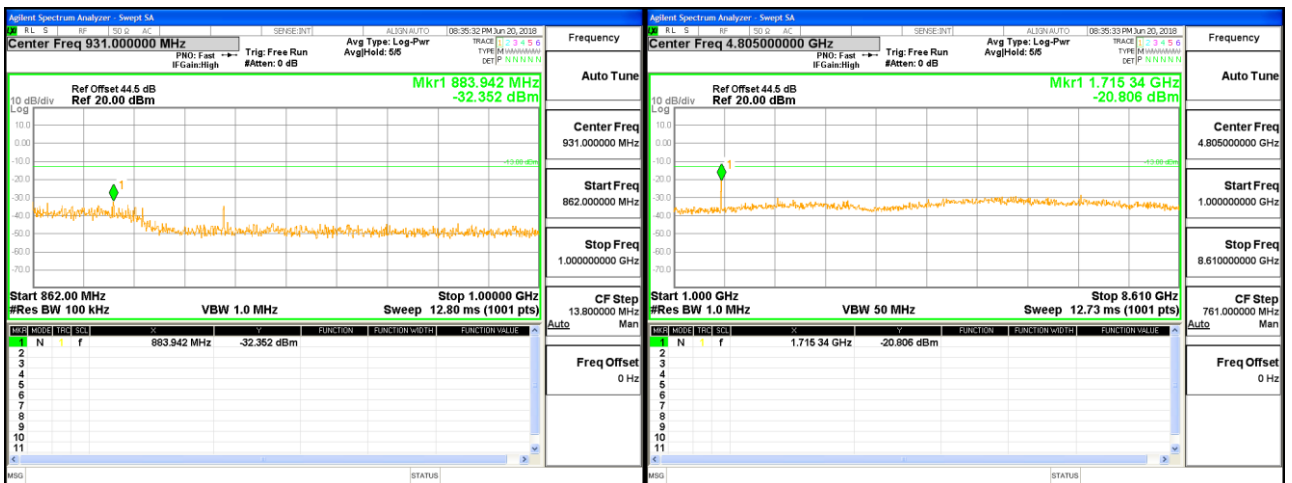
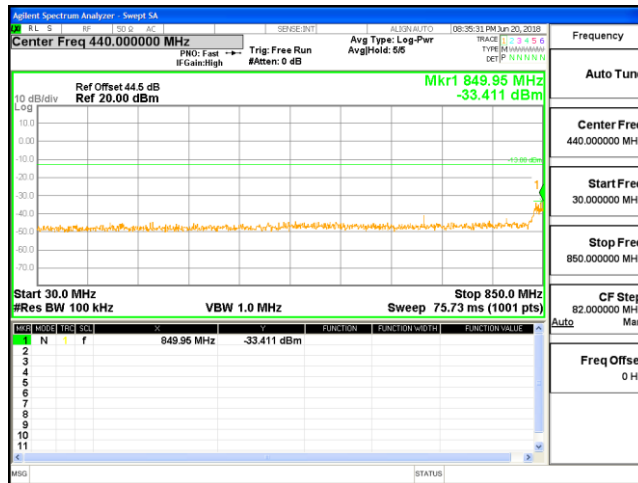
Signal at 940.9875 MHz



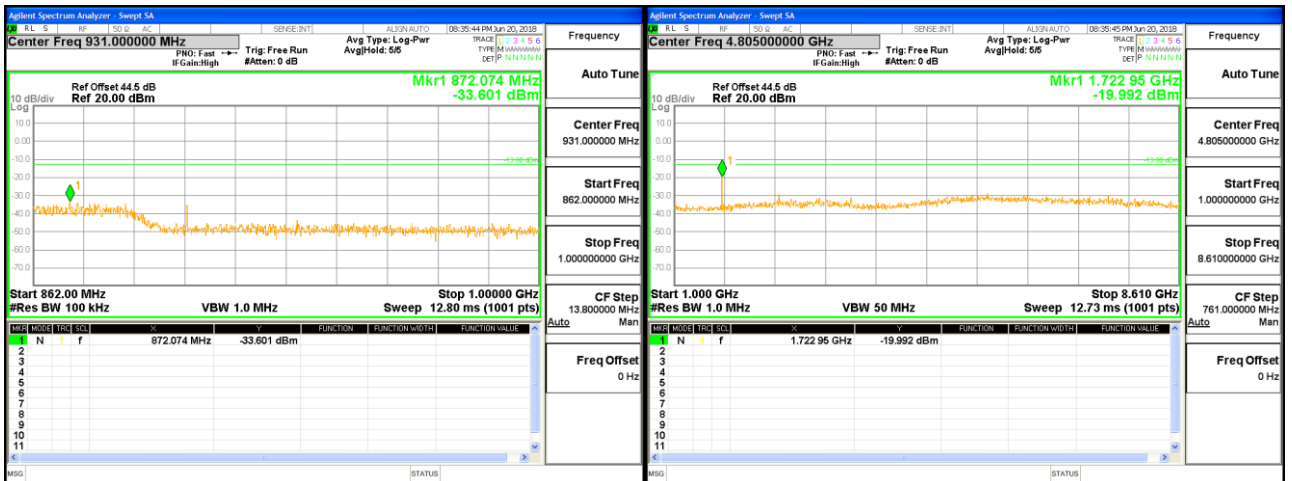
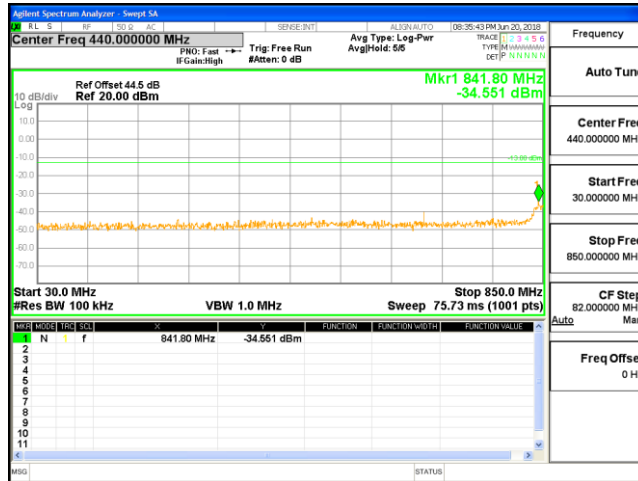
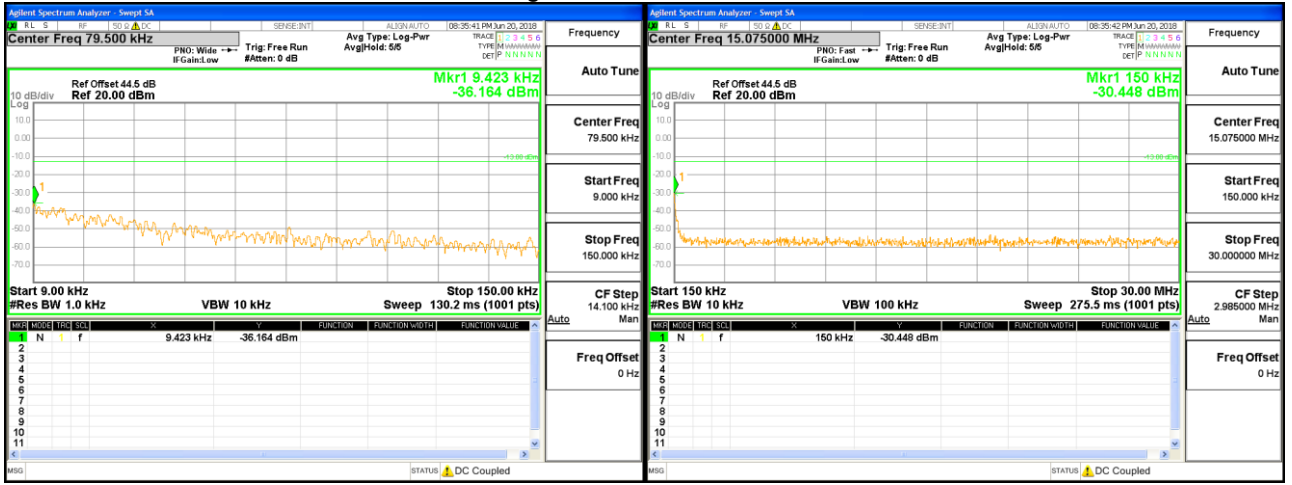
Signal at 851.0125 MHz



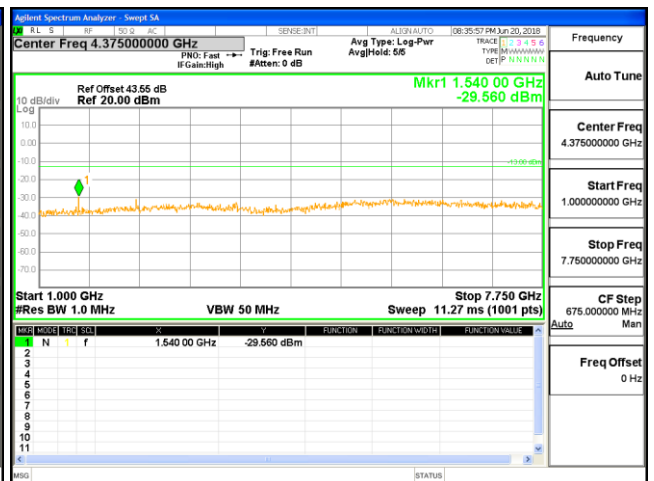
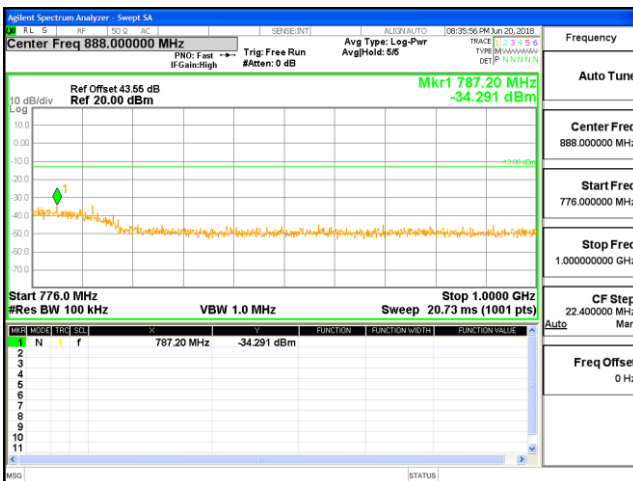
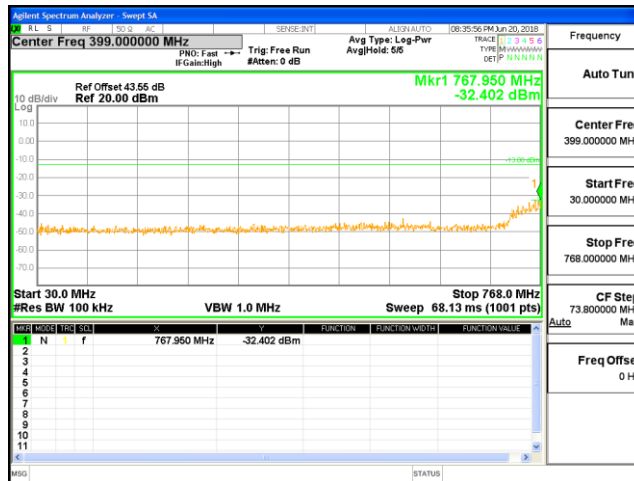
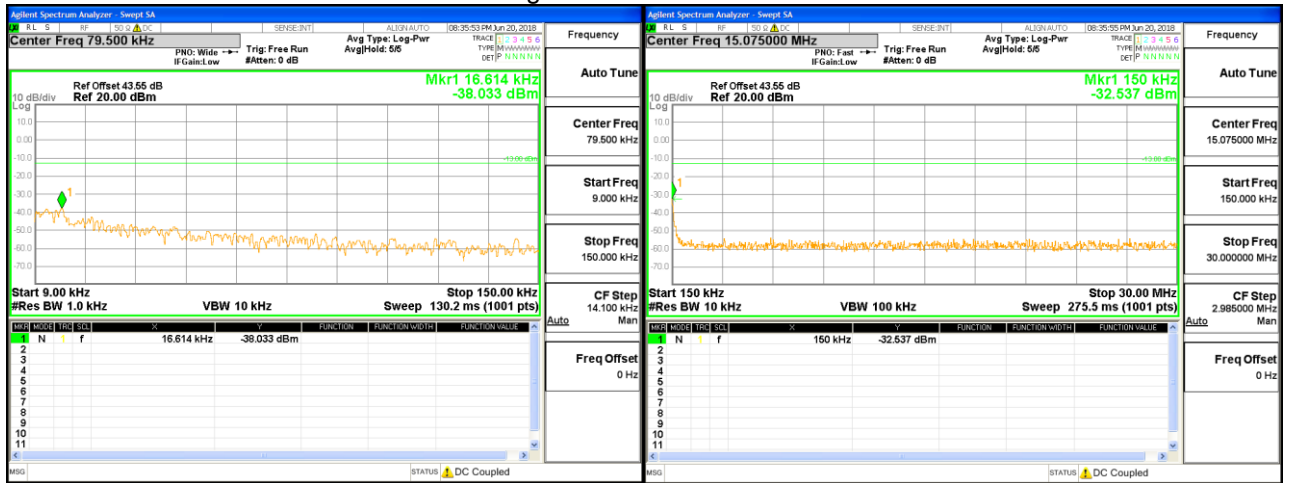
Signal at 856 MHz



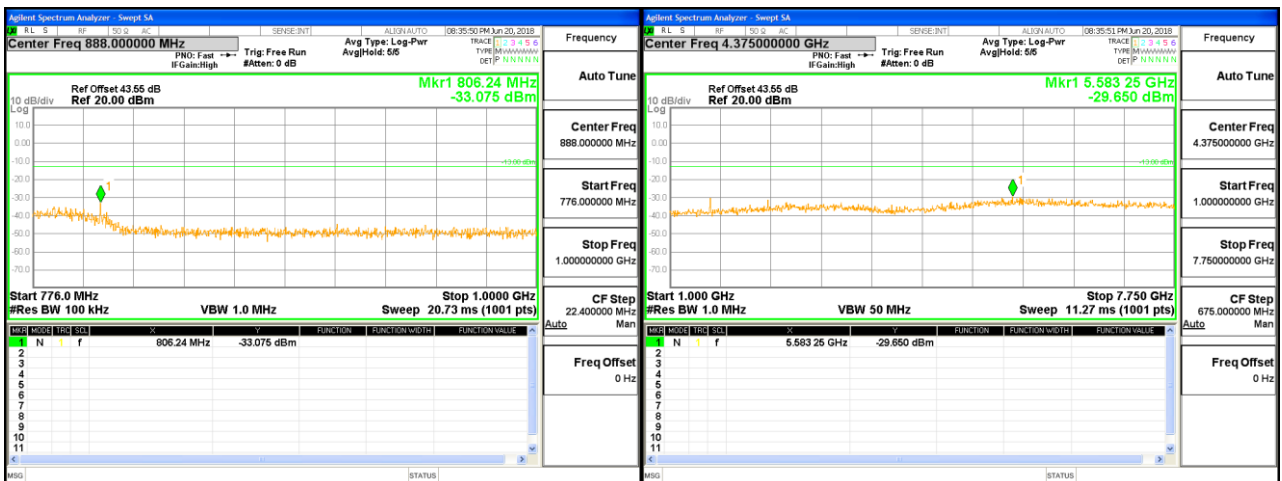
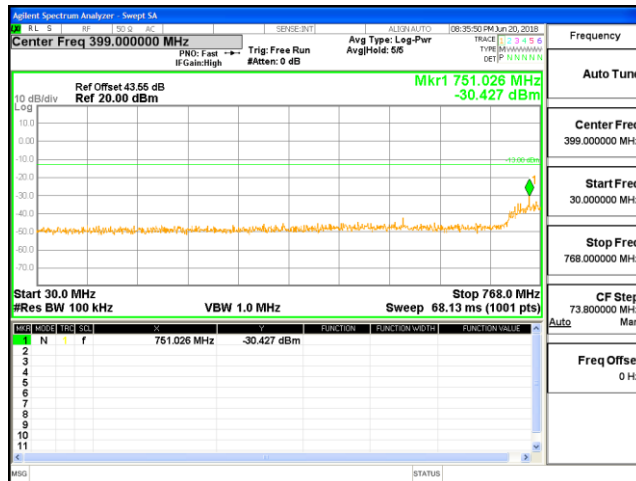
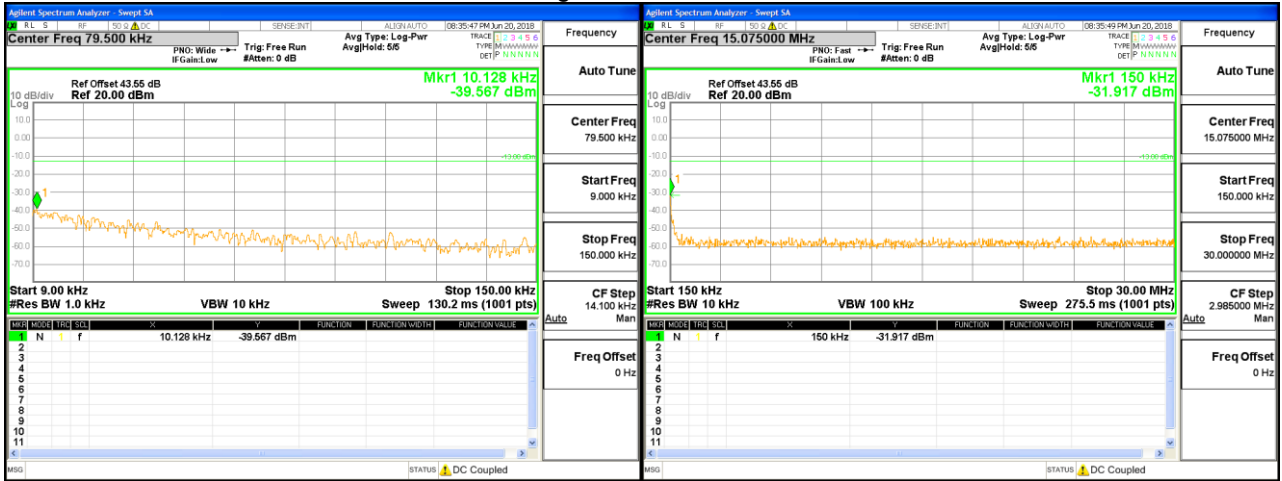
Signal at 860.9875 MHz



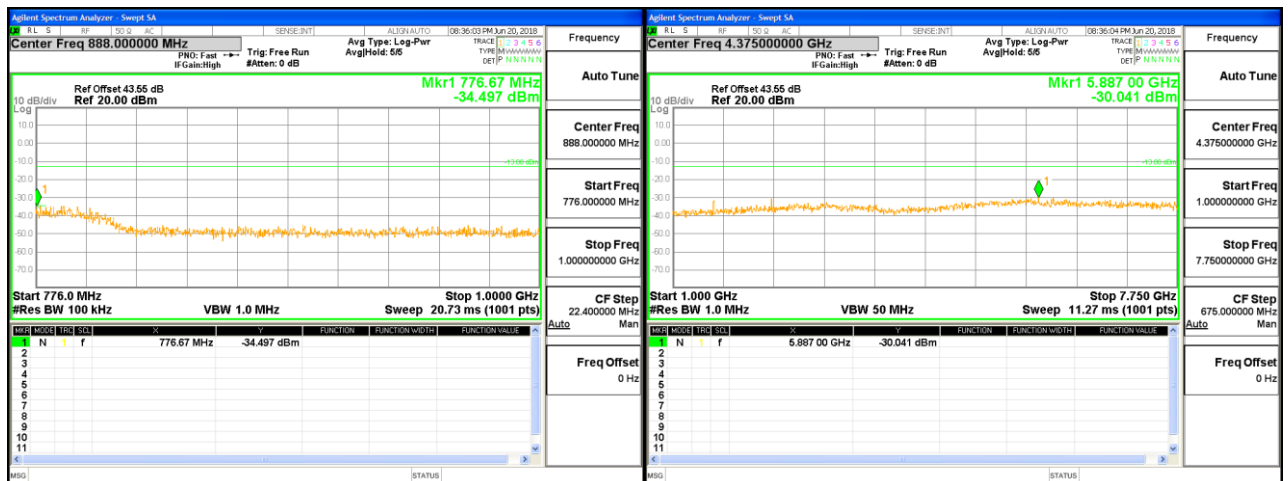
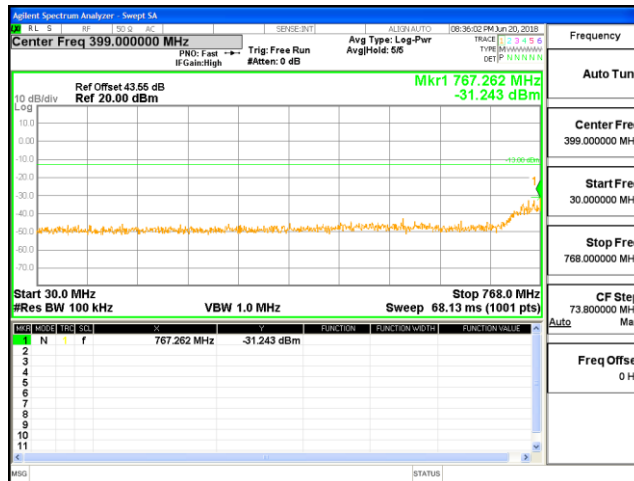
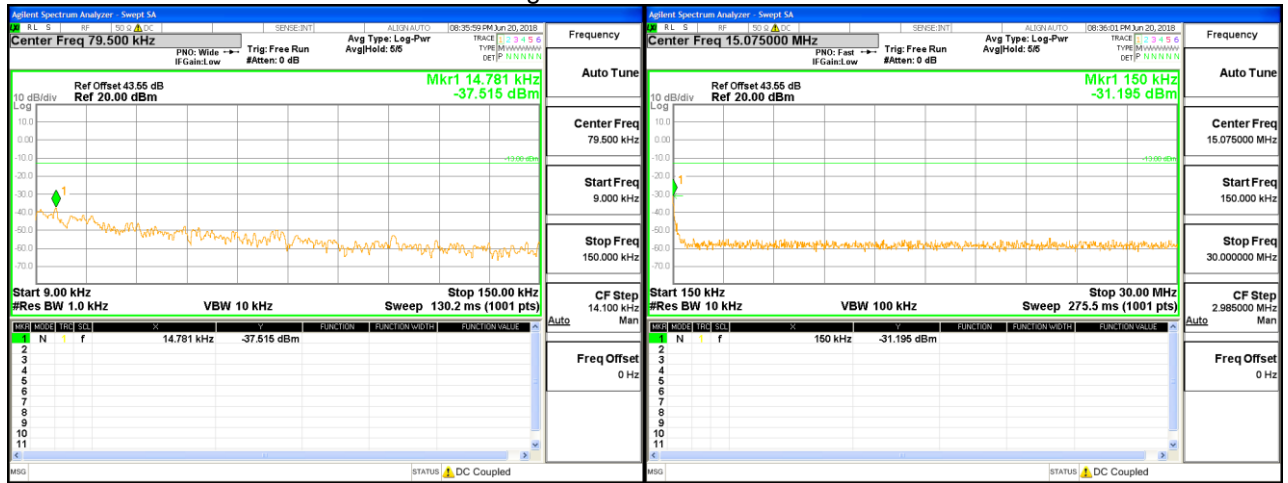
Signal at 769.0125 MHz



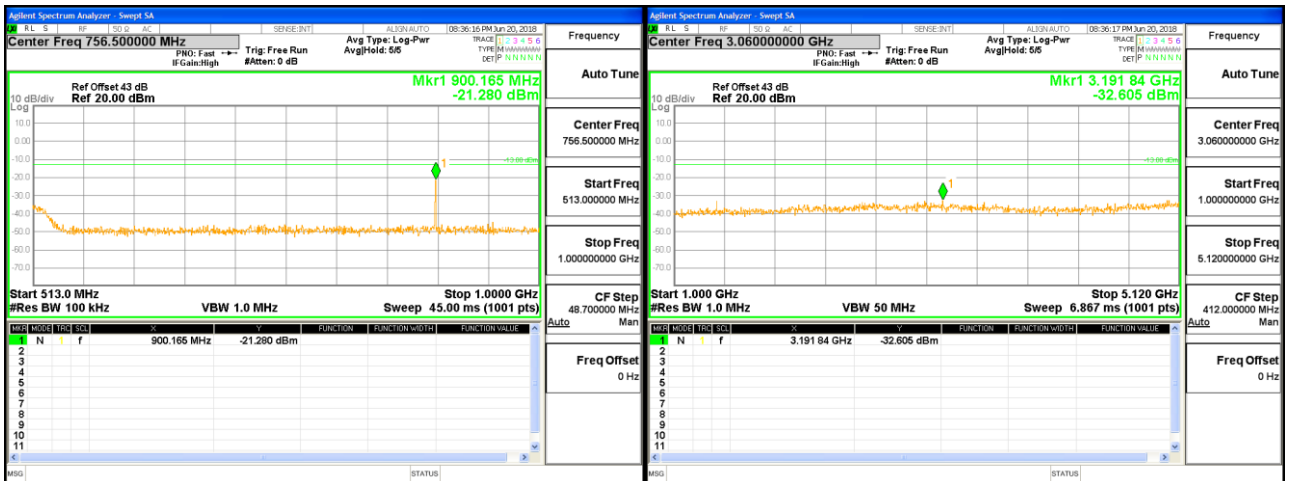
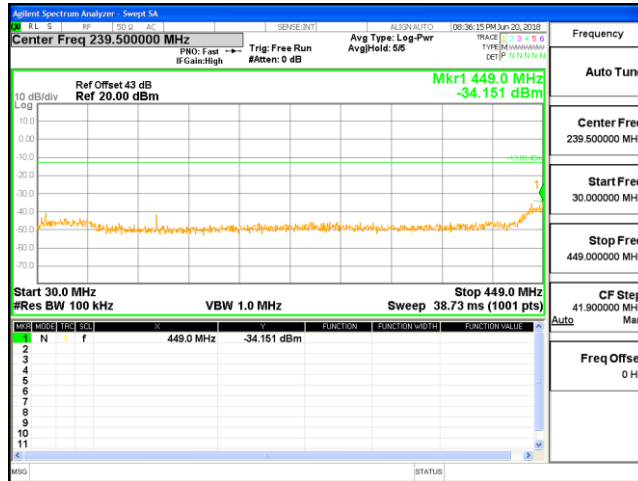
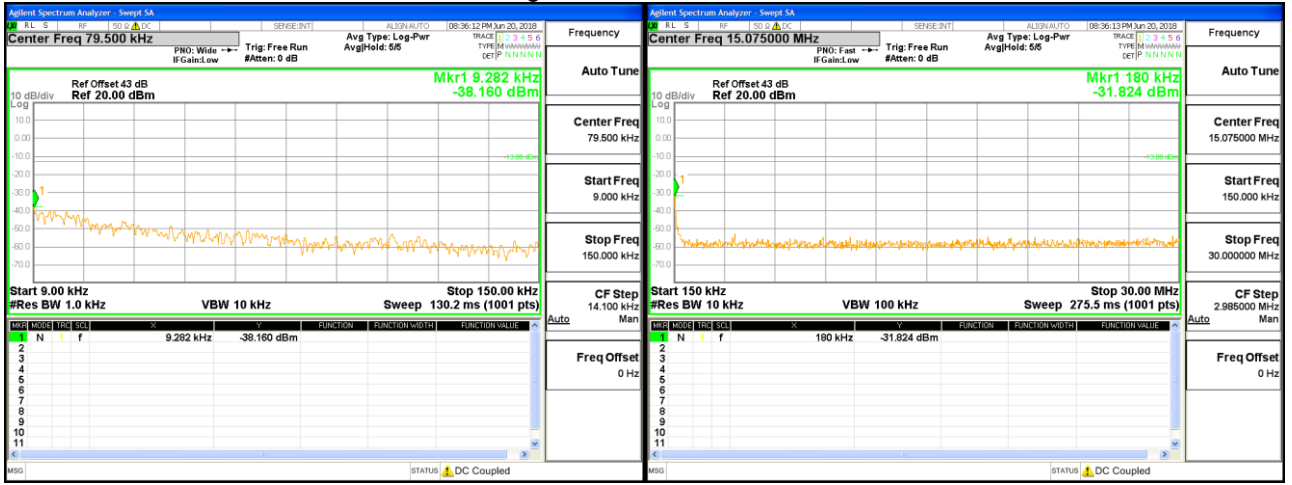
Signal at 772 MHz



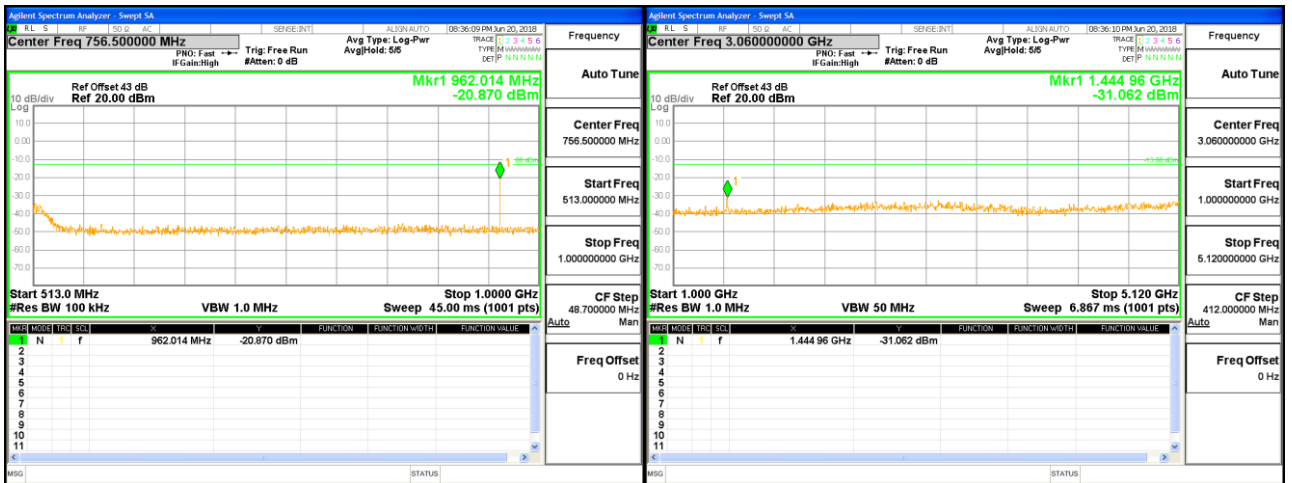
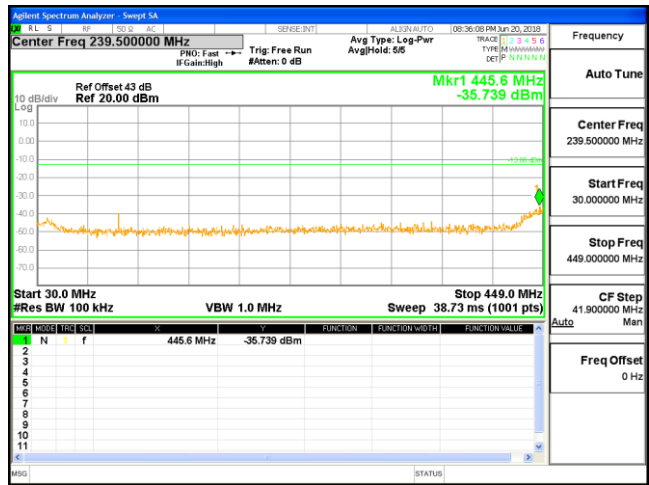
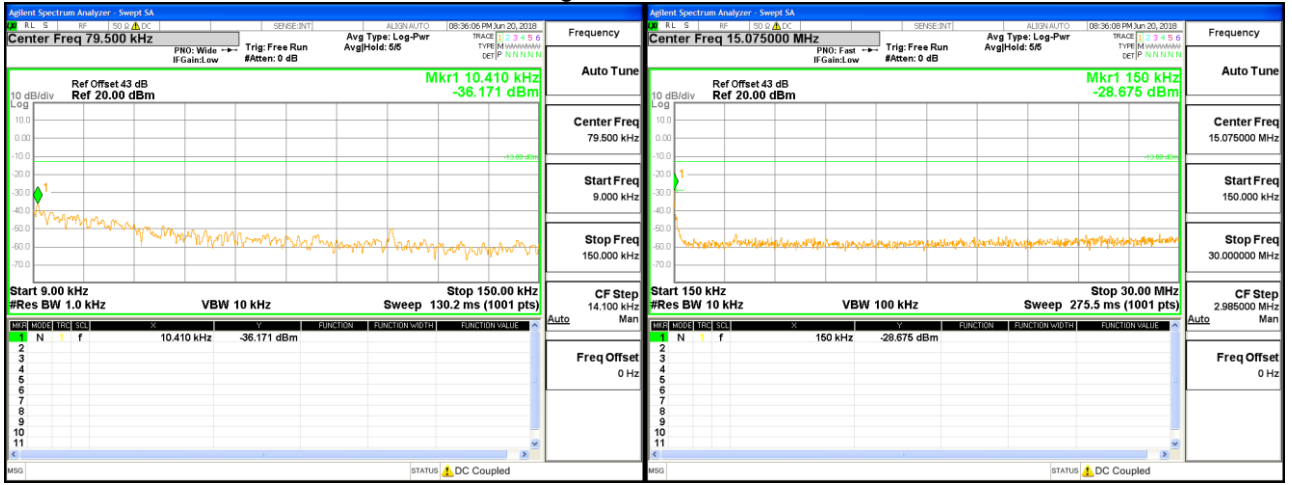
Signal at 774.9875 MHz



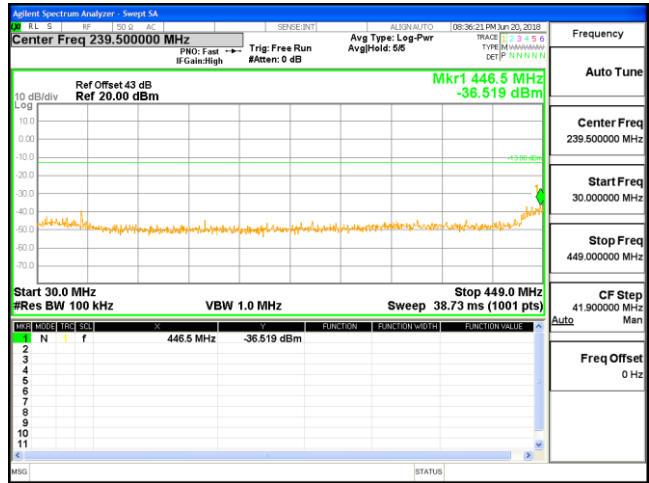
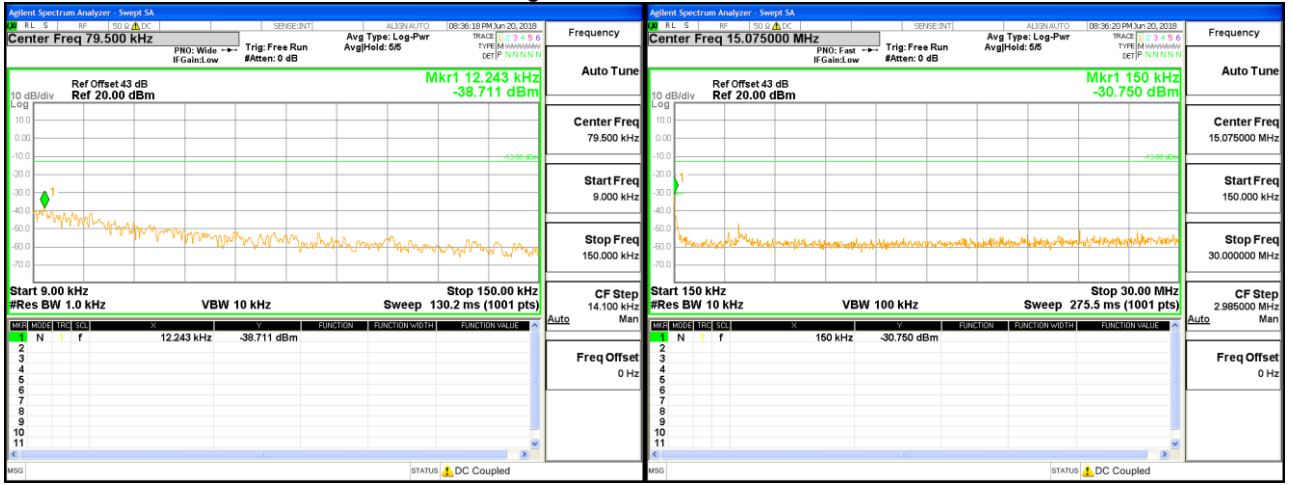
Signal at 450.0125 MHz



Signal at 481 MHz



Signal at 511.9875 MHz



Unwanted Emissions for 700 Band Operating Broadband Signal (Conducted)

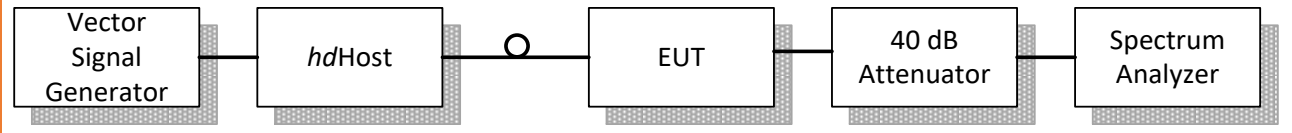
Governing Doc	FCC Part 2 2.1046(a) FCC Part 90.543 (e)	Room Temperature (°C)	30.5		
Test Procedure	ANSI/TIA-603- E-2016; FCC KDB 935210 D05 Indus Booster Basic Meas v01r02: October 27, 2017 Section 3.6	Relative Humidity (%)	34.9		
Test Location	Burnaby	Barometric Pressure (kPa)	101.3		
Test Engineer	Jeremy Lee	Date	Jun 20, 2018		
EUT Voltage	<input checked="" type="checkbox"/> DC <input type="checkbox"/> 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:	<input checked="" type="checkbox"/> 9 kHz – 9.4 GHz				
Detector:	<input checked="" type="checkbox"/> Peak(for Formal)				
RBW/VBW:	<input checked="" type="checkbox"/> 1/10kHz for 9kHz – 150kHz; <input checked="" type="checkbox"/> 10/100kHz for 150kHz – 30 MHz; <input checked="" type="checkbox"/> 100/1000kHz for 30MHz – 1GHz; <input checked="" type="checkbox"/> 1/50MHz for 1GHz – 9.4GHz				
Type of Facility:	<input checked="" type="checkbox"/> Testbench				
Distance:	<input checked="" type="checkbox"/> Direct Connection				
Arrangement of EUT:	<input type="checkbox"/> Table-top only <input type="checkbox"/> Floor-standing only <input checked="" type="checkbox"/> Rack Mounted				
<p>Band 700: No emission is higher than the -13 dBm emission limit.</p> <p>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.</p>					
Compliant <input checked="" type="checkbox"/> Non-Compliant <input type="checkbox"/> Not Applicable <input type="checkbox"/>					

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.

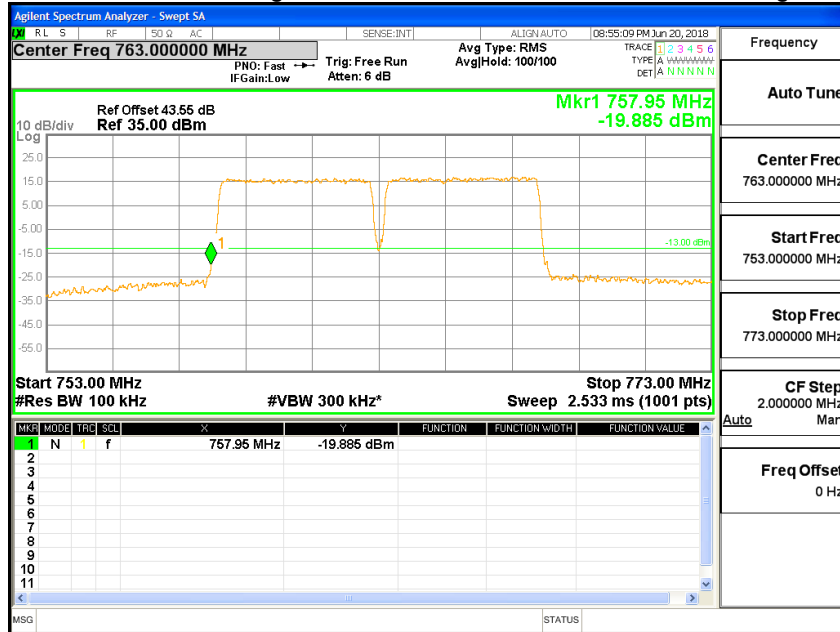
The EUT was set to **Operation Mode #1 with configuration Mode #1**.



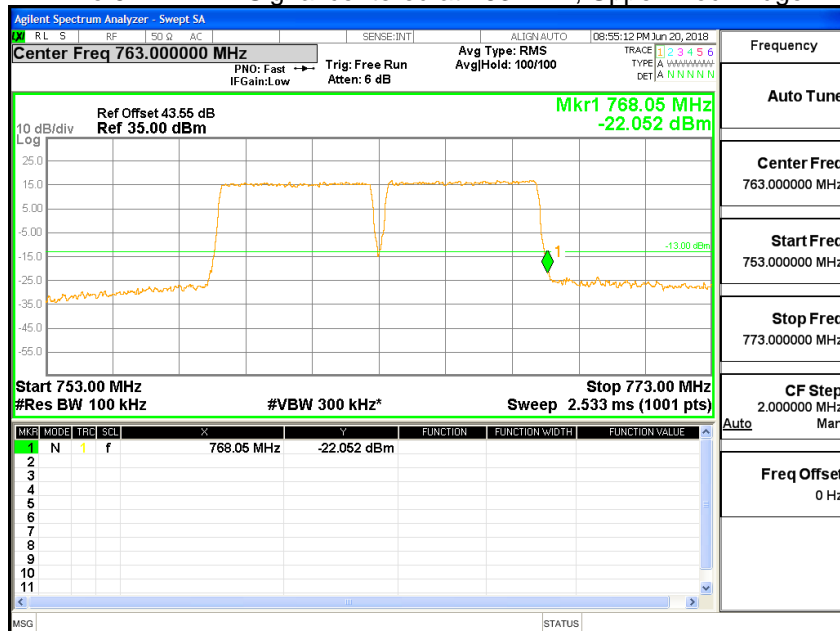
Results – Out-of-band Emissions

At Input Power 0.5 dB below AGC threshold

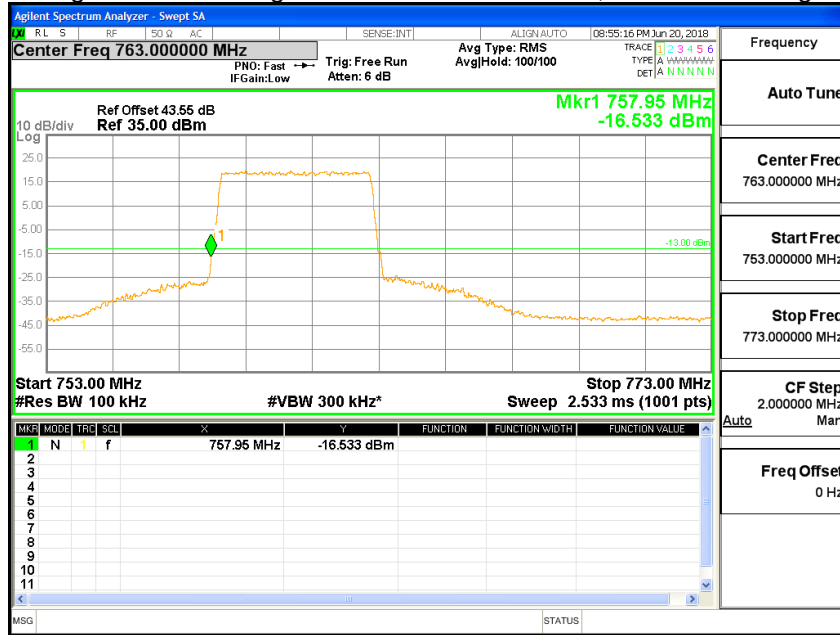
Two 5MHz LTE Signal centered at 763 MHz, Lower Block Edge



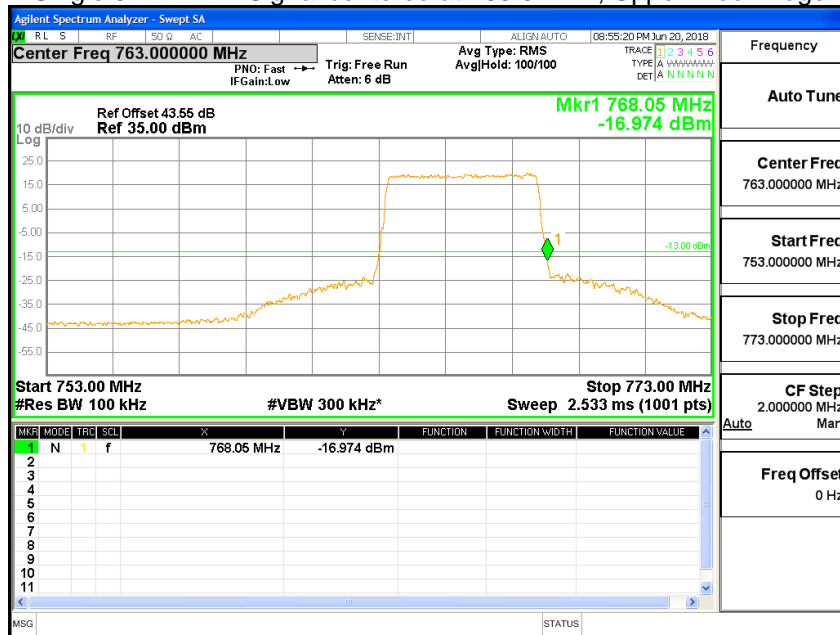
Two 5MHz LTE Signal centered at 763 MHz, Upper Block Edge



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

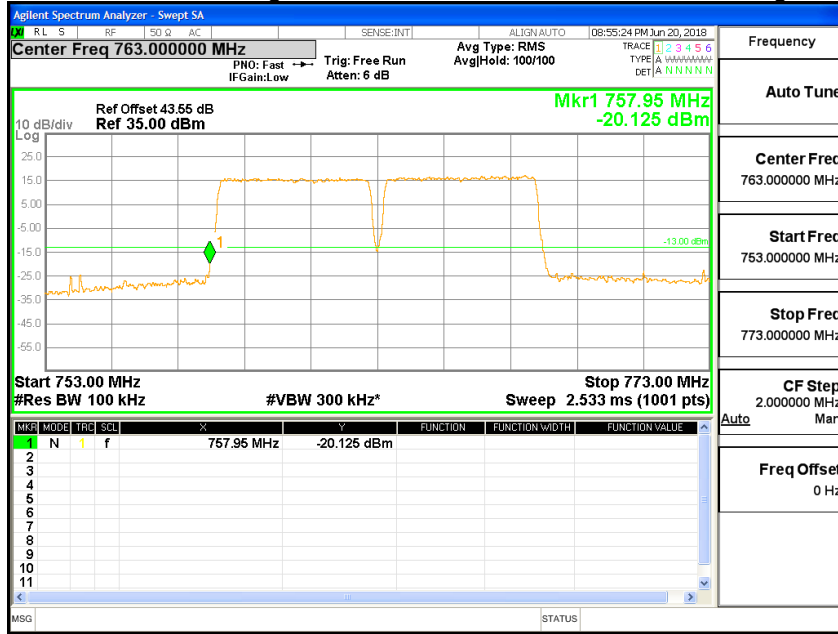


Single 5MHz LTE Signal centered at 765.5 MHz, Upper Block Edge

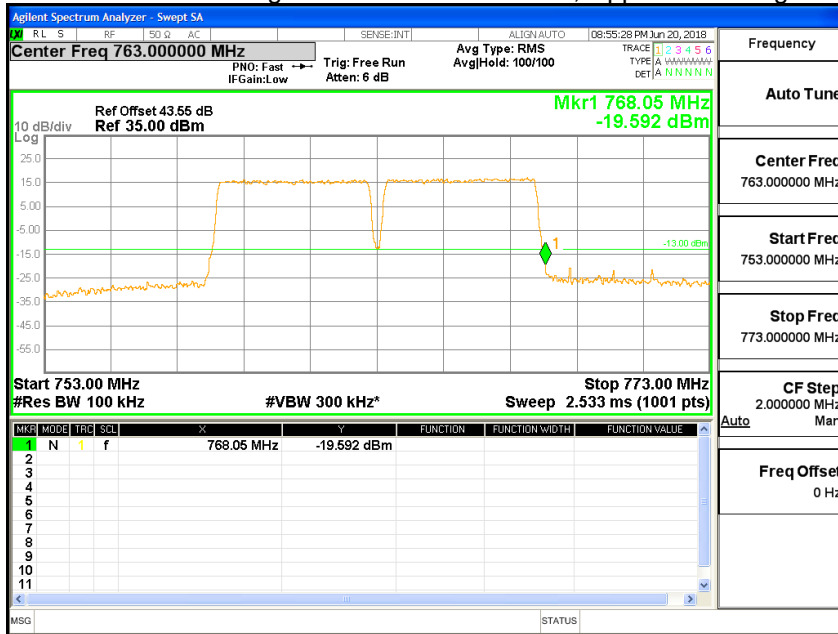


At Input Power 3 dB above AGC threshold

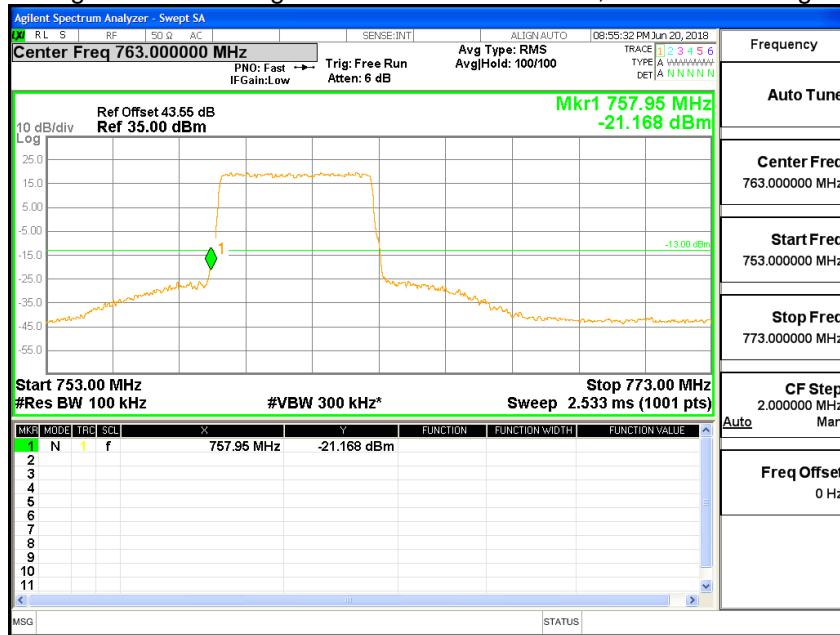
Two 5MHz LTE Signal centered at 763 MHz, Lower Block Edge



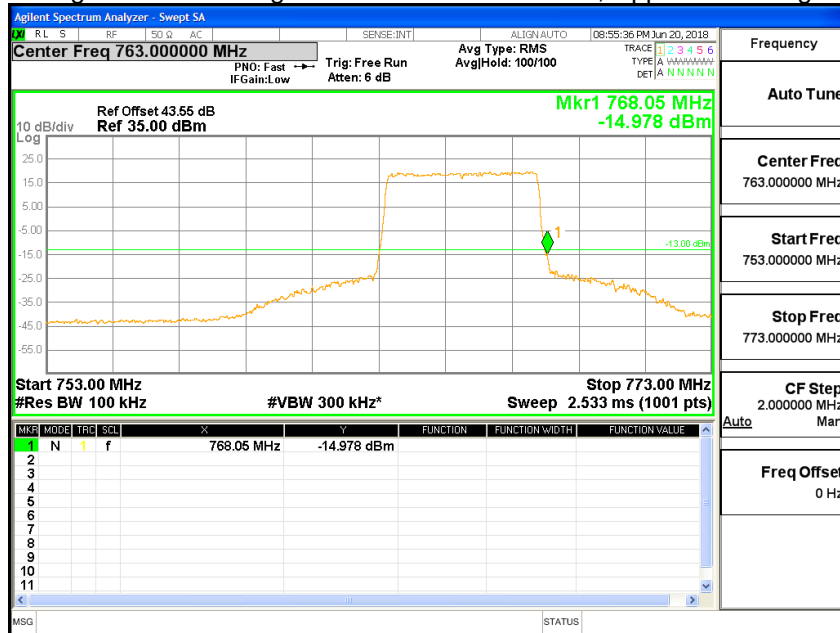
Two 5MHz LTE Signal centered at 763 MHz, Upper Block Edge



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



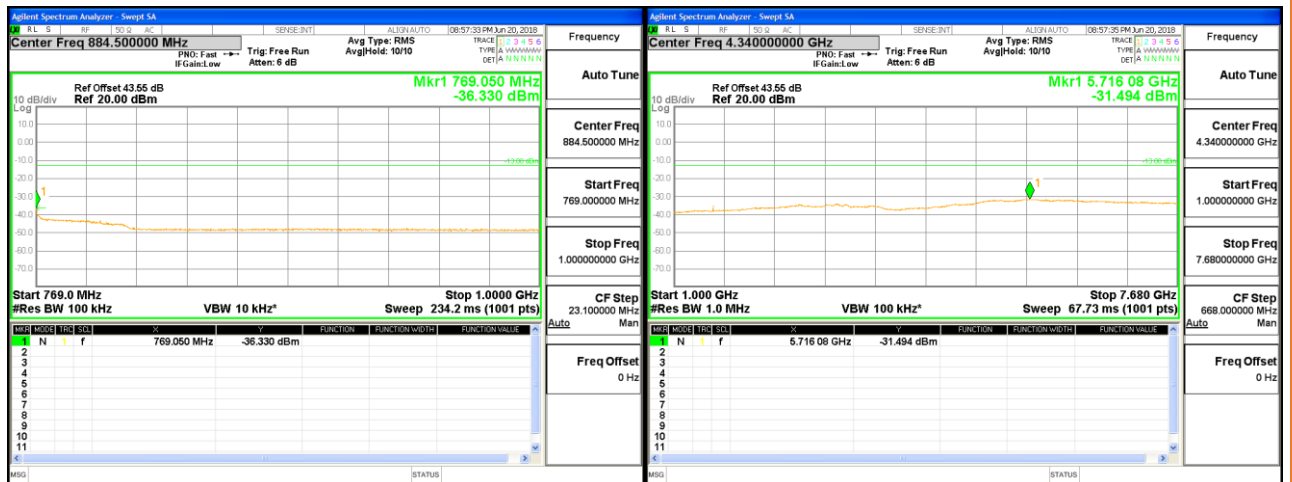
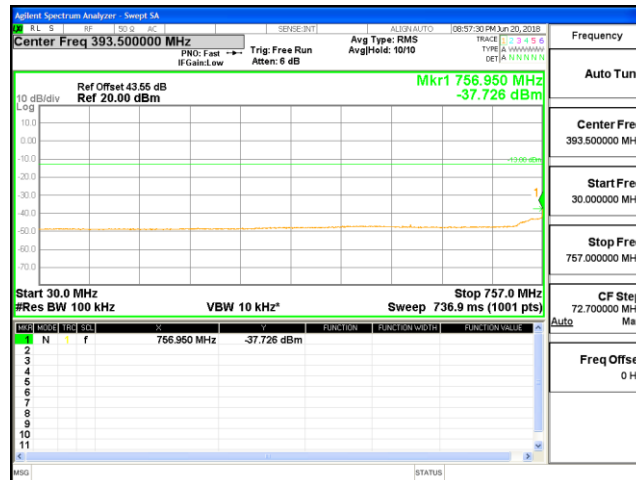
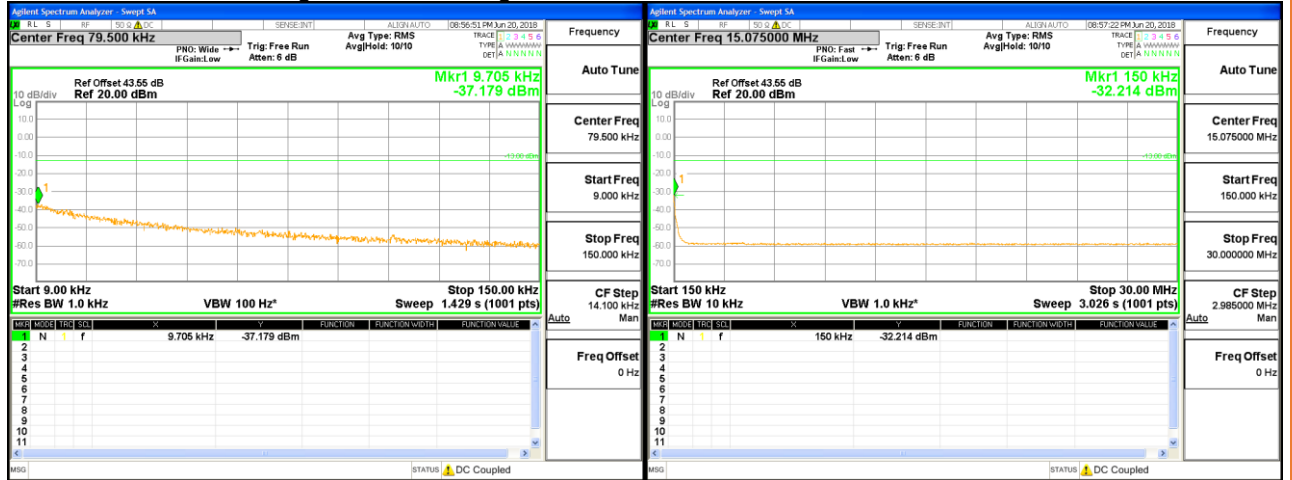
Single 5MHz LTE Signal centered at 765.5 MHz, Upper Block Edge



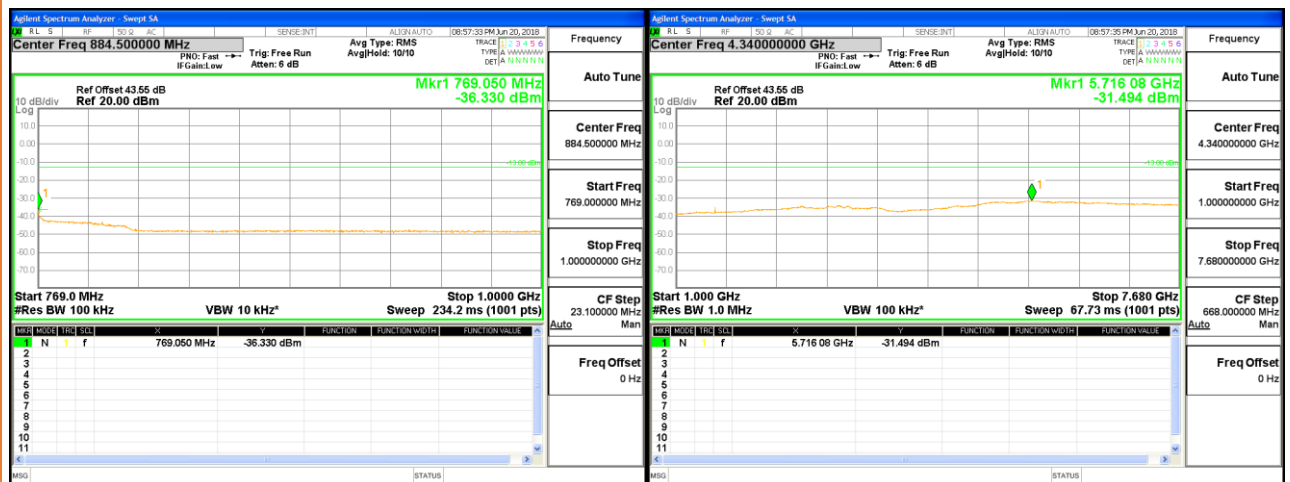
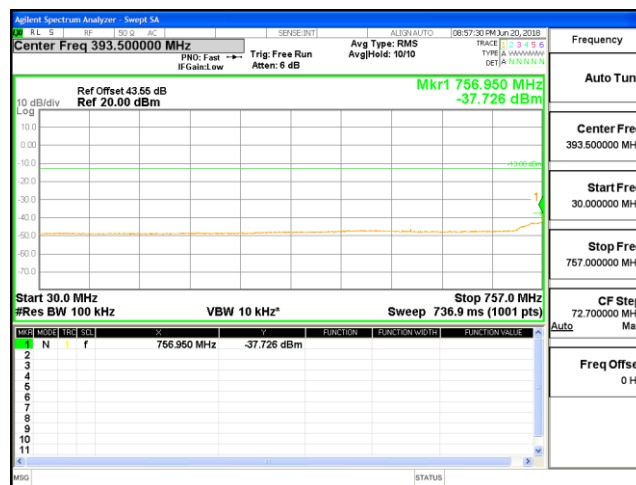
Results – Spurious Emissions

At Input Power 0.5 dB below AGC threshold

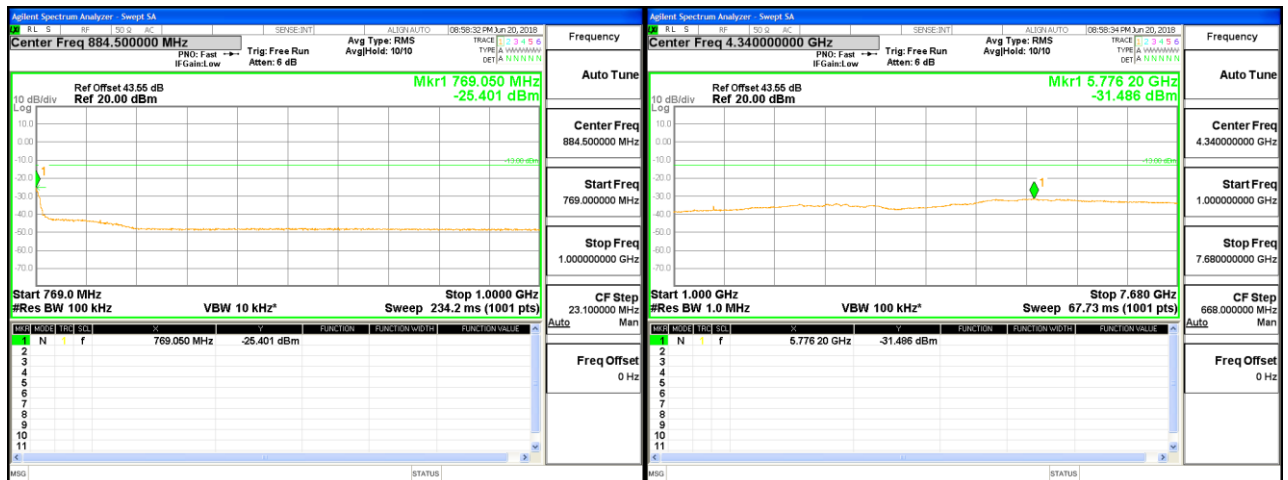
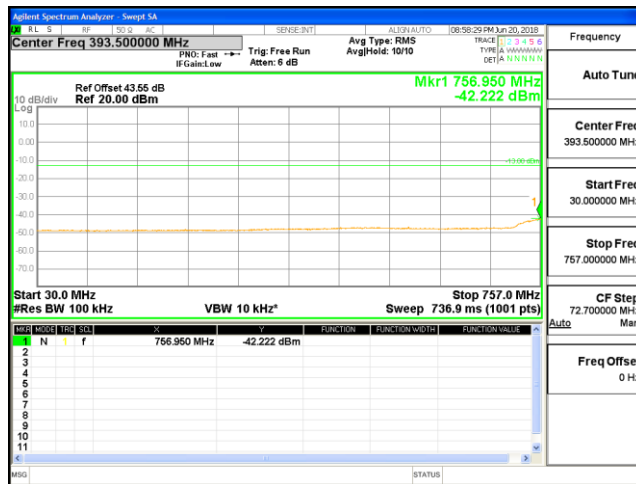
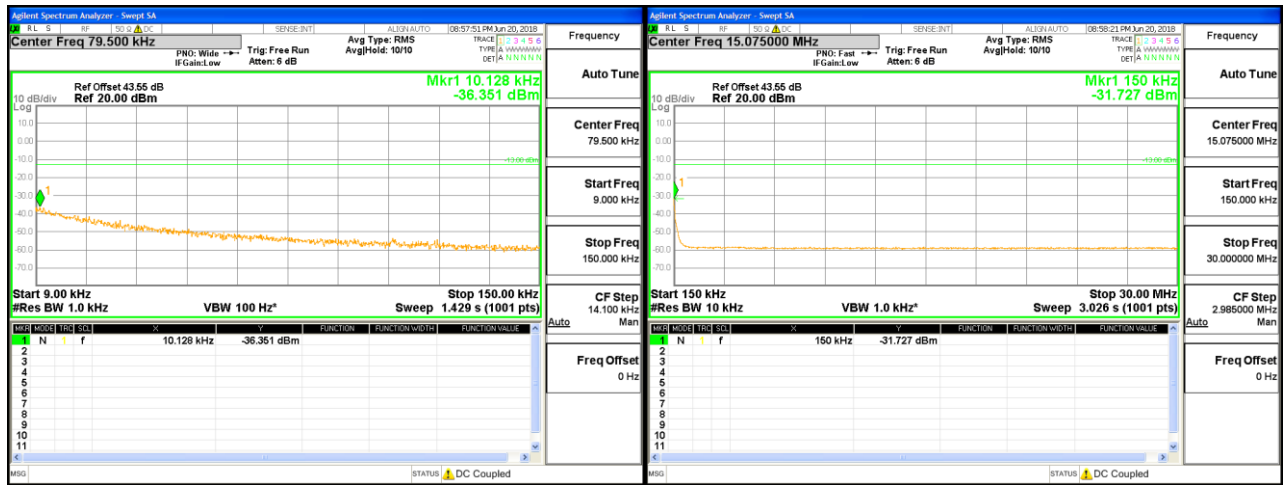
Single 5MHz LTE Signal centered at 760.5 MHz, Lowest Channel



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



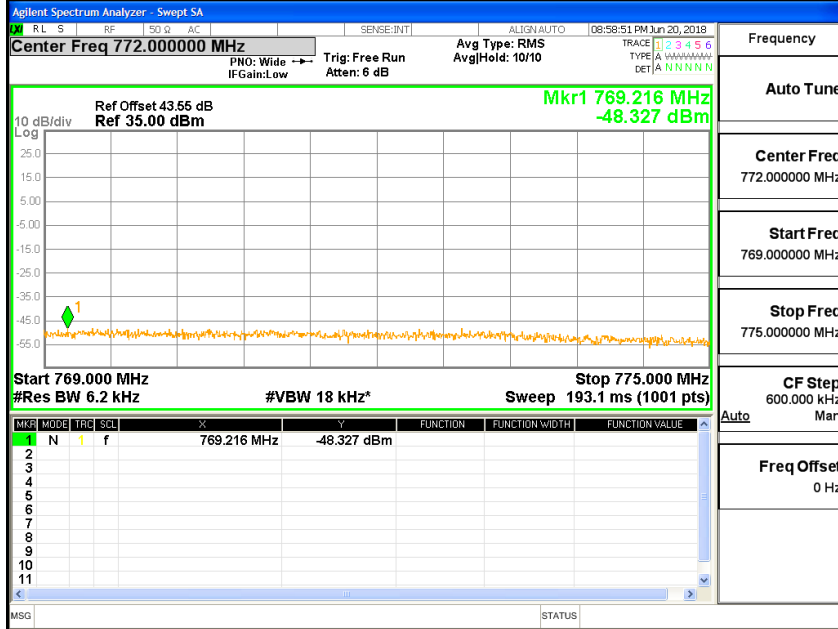
Single 5MHz LTE Signal centered at 765.5 MHz, Highest Channel



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



Results – Out-of-band Intermodulation Emission

At Input Power 0.5 dB below AGC threshold

Two Channel 5MHz LTE Signal centered at 763 MHz

