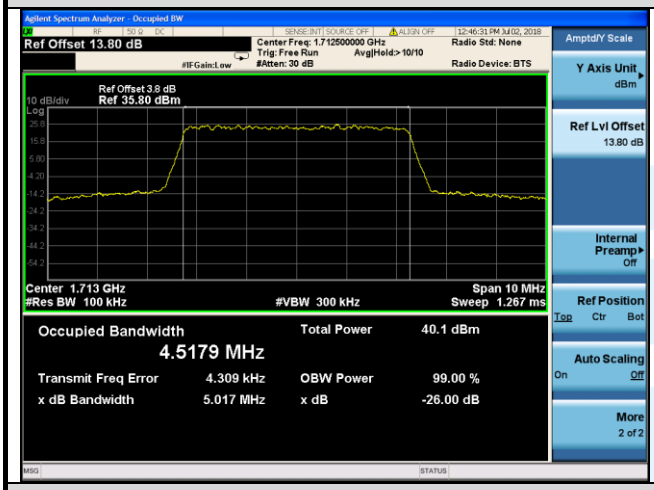
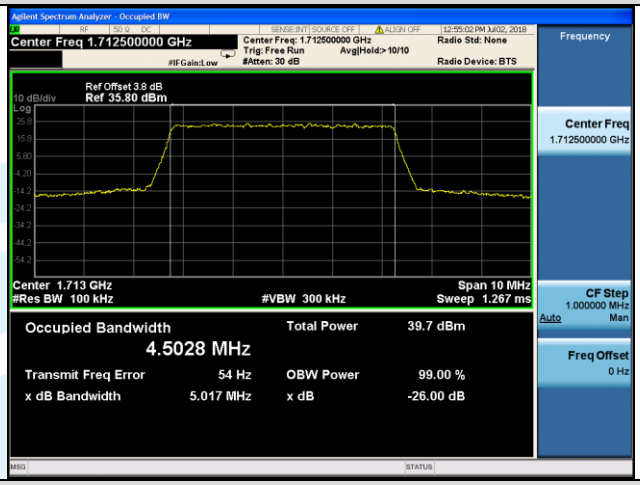
LTE Band 4_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
Lowest Channel	
	
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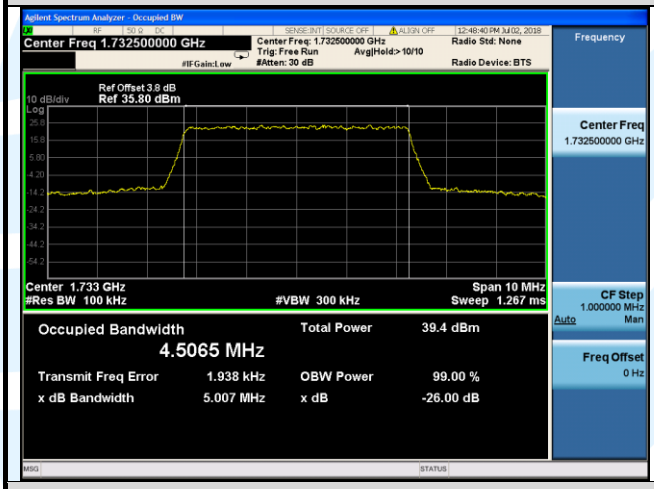
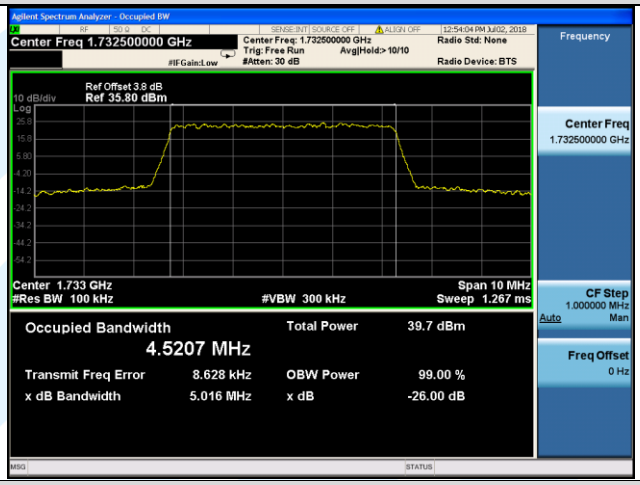
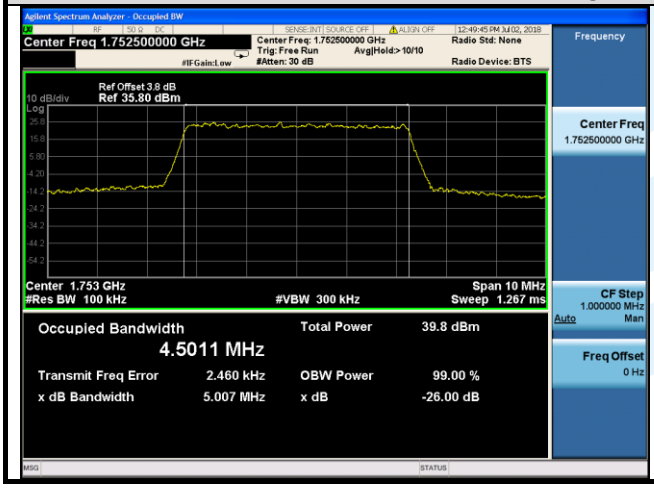
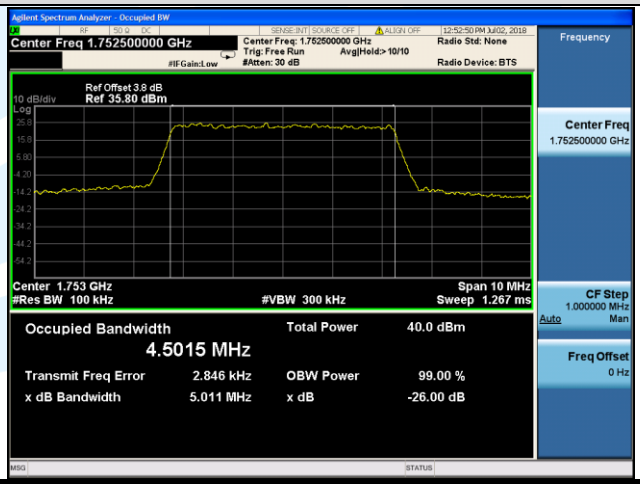
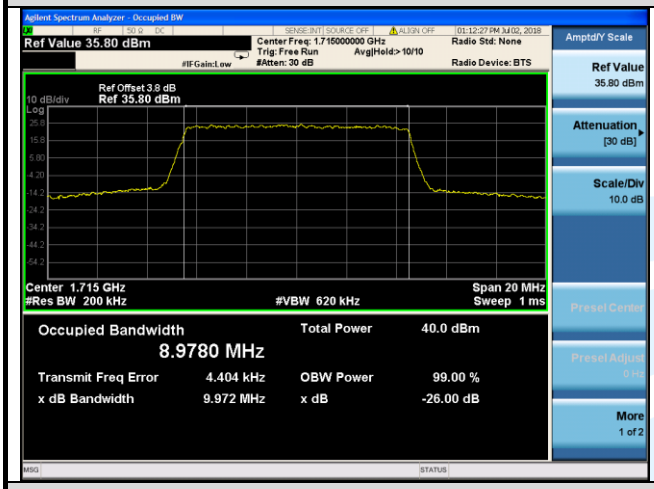
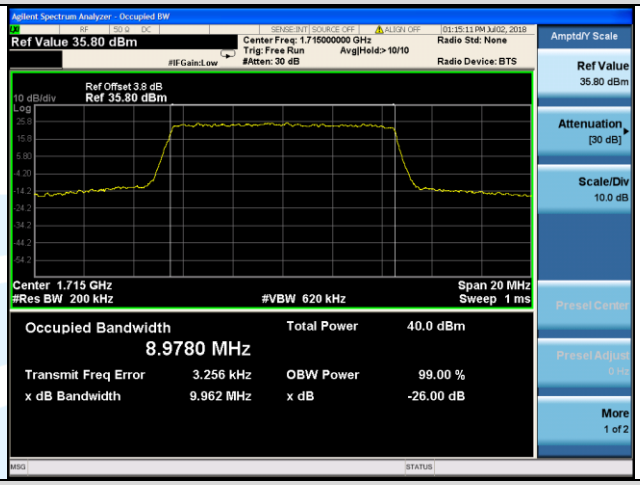
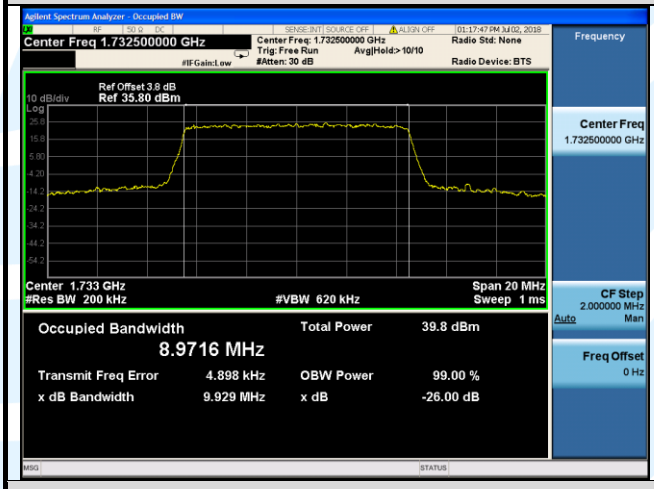
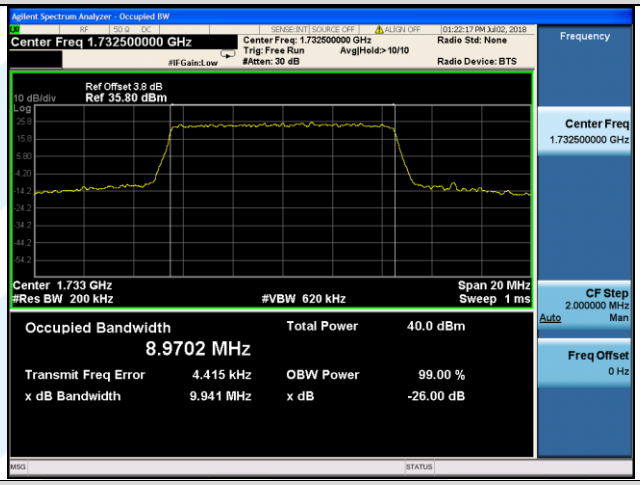
	
Highest Channel	
	

LTE Band 4_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
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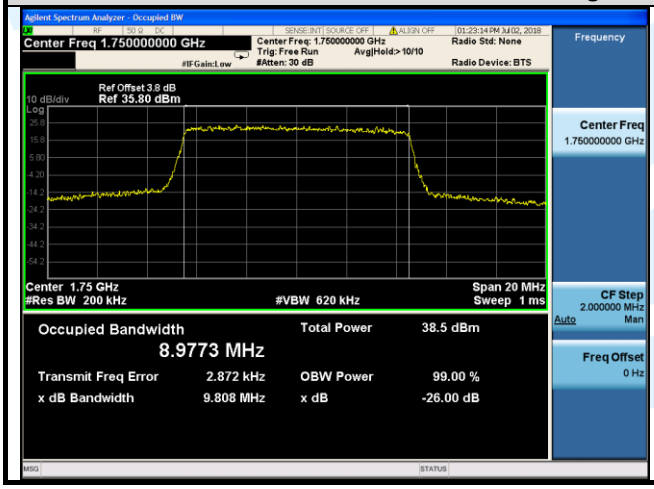
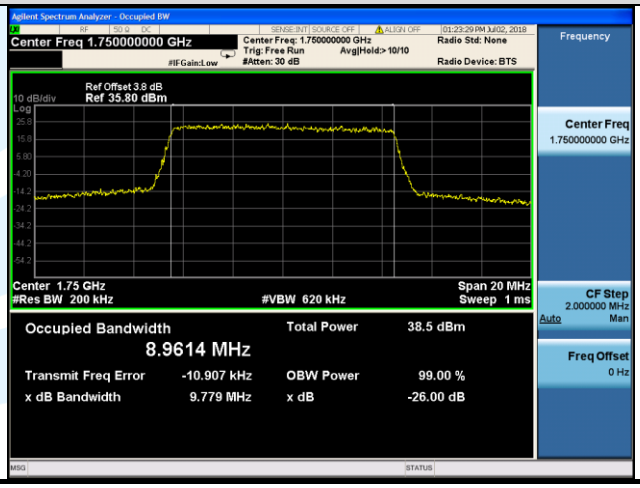
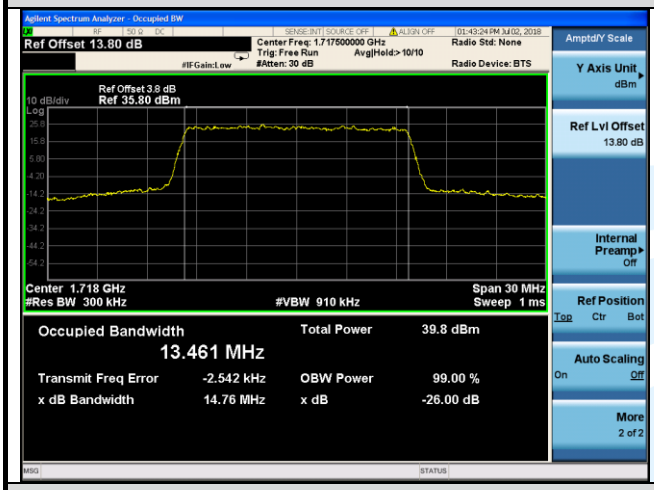
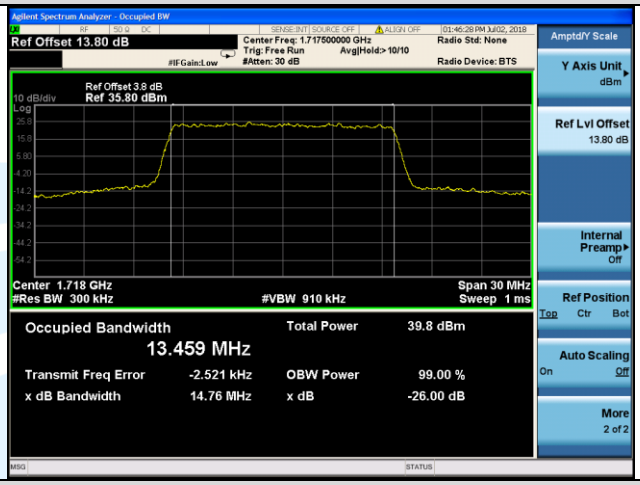
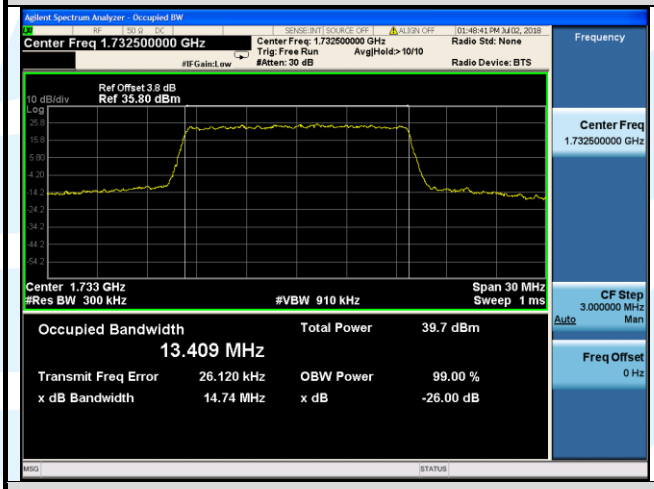
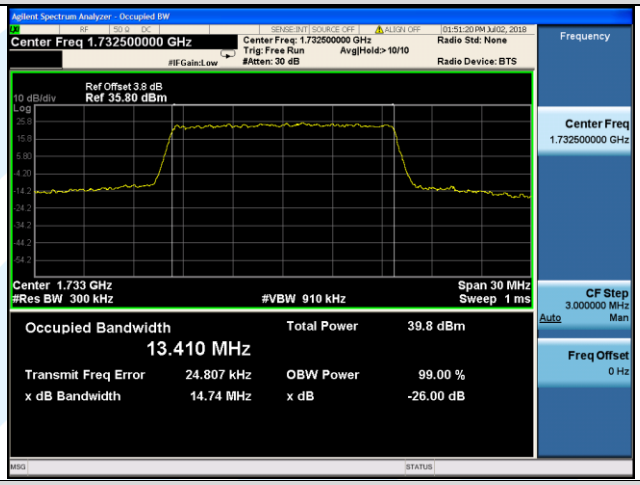
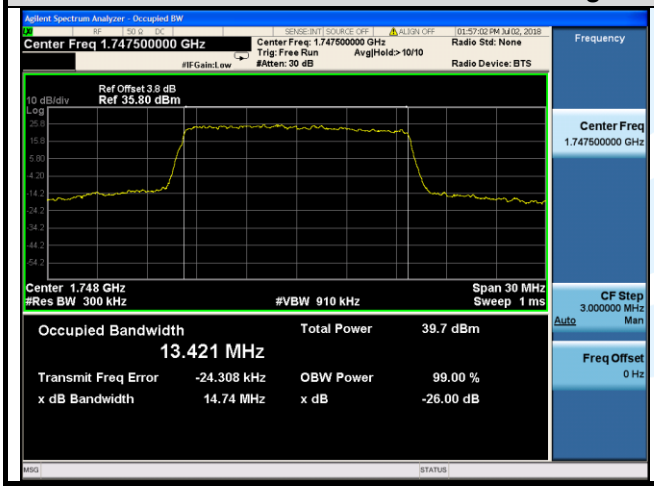
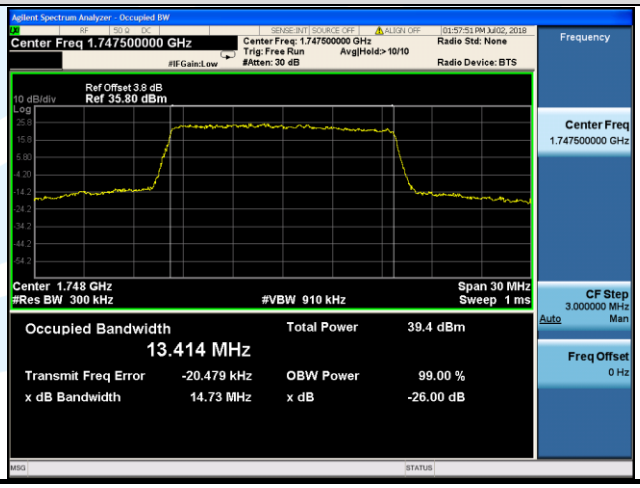
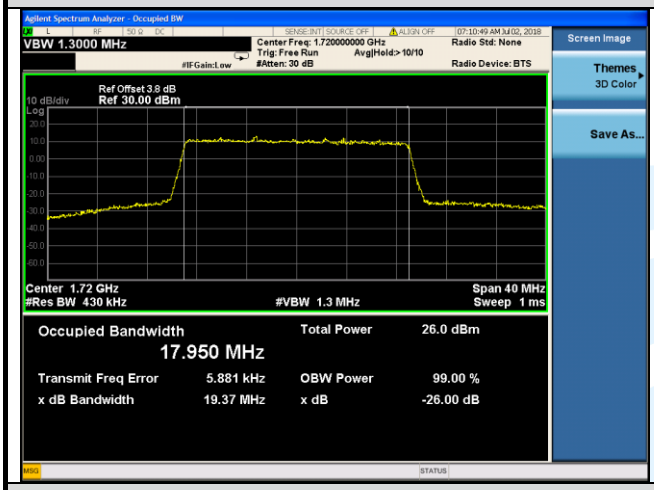
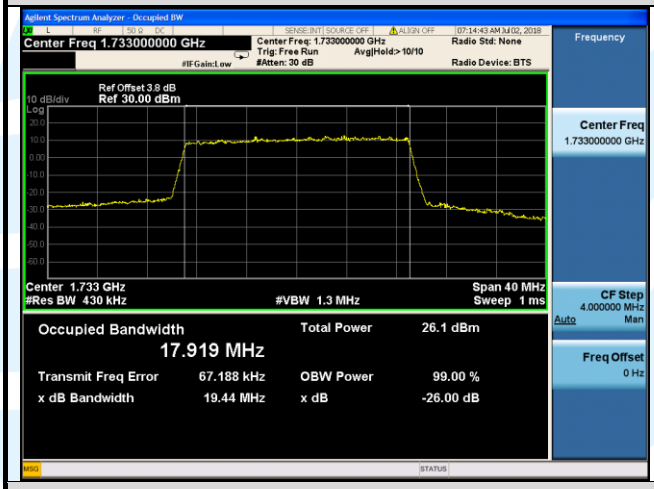
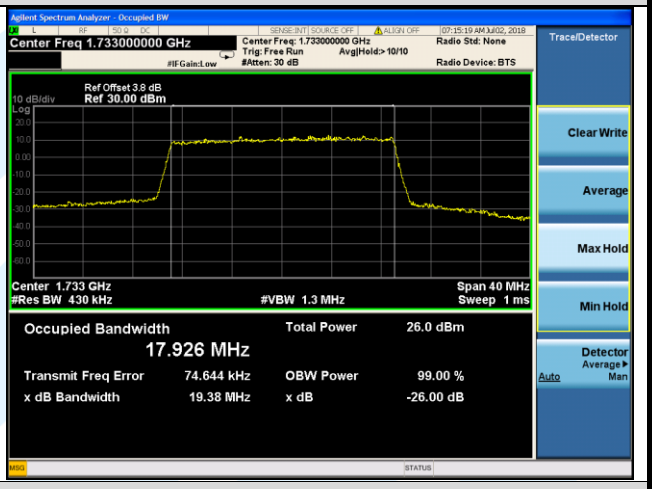
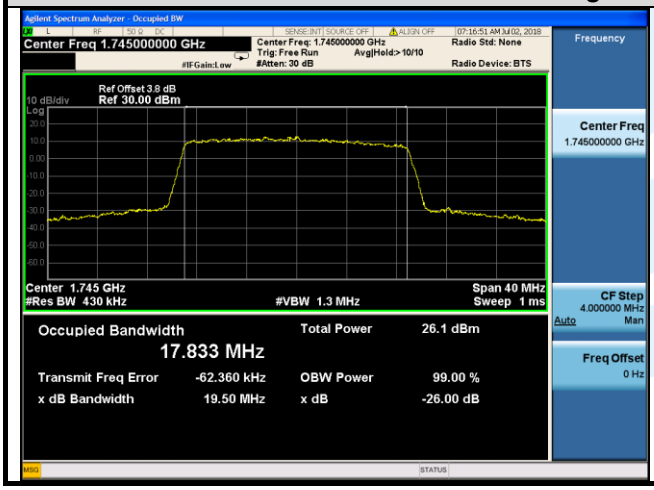
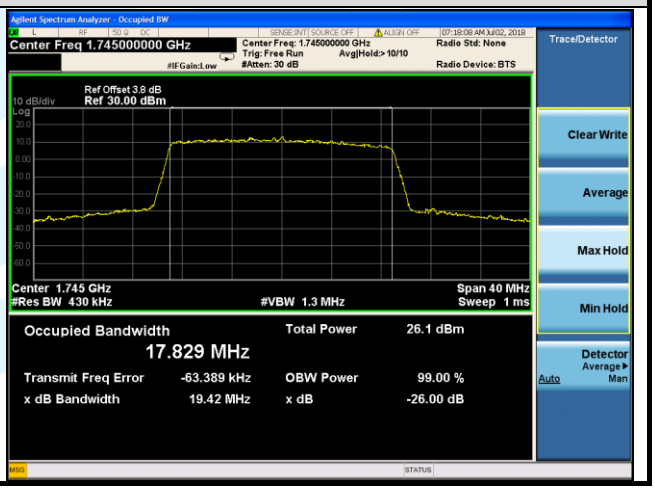
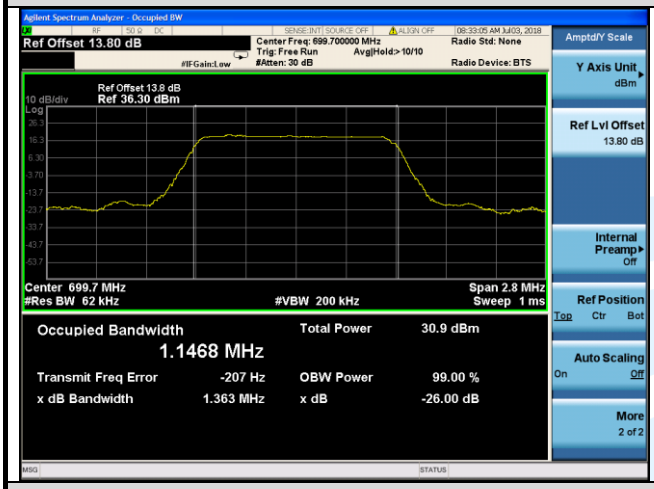
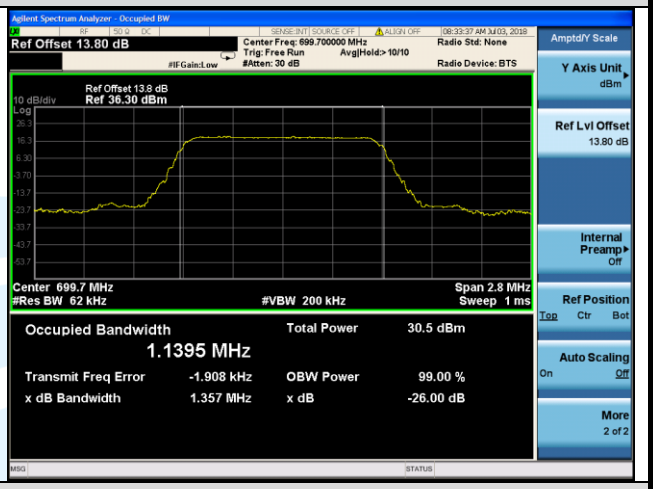
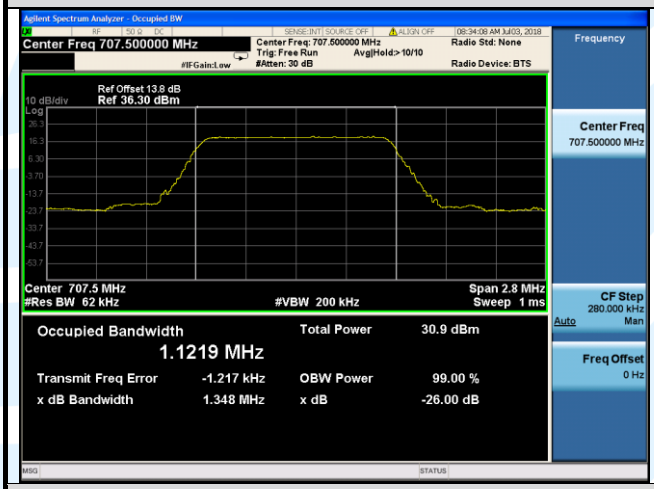
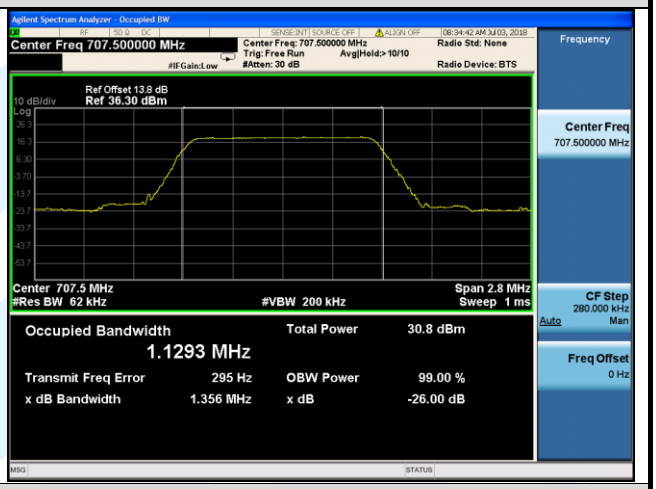
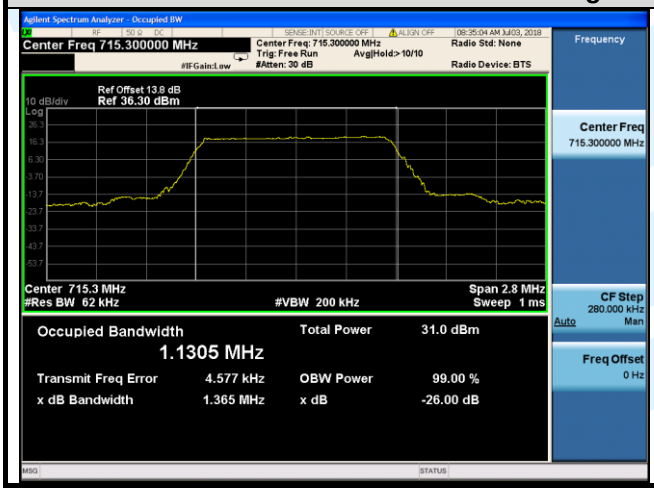
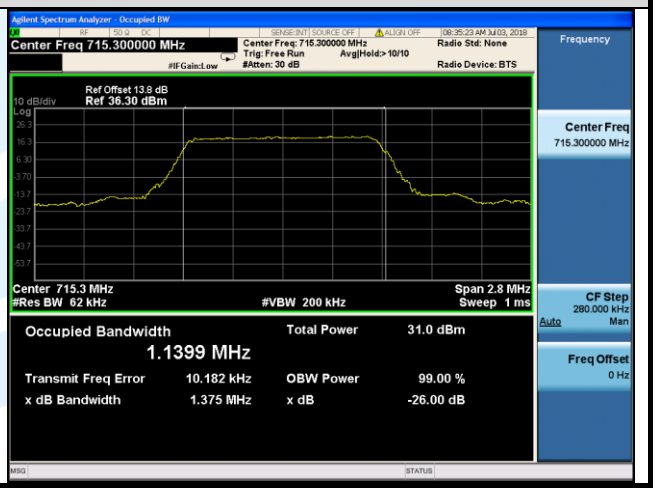
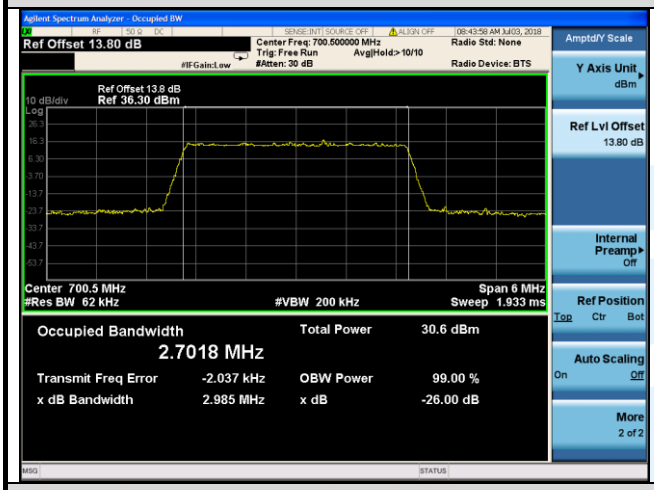
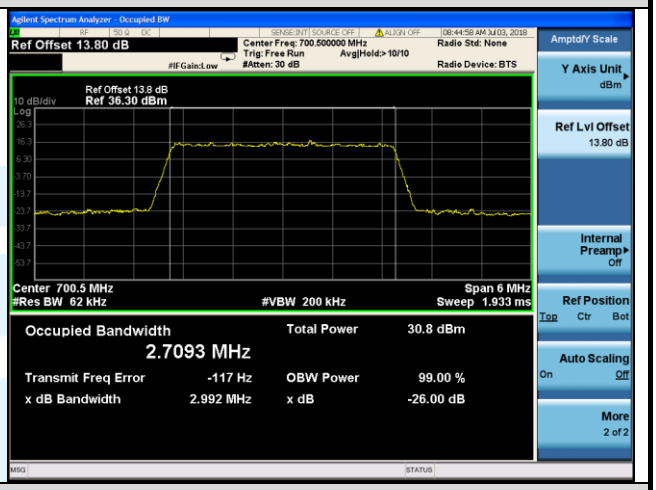
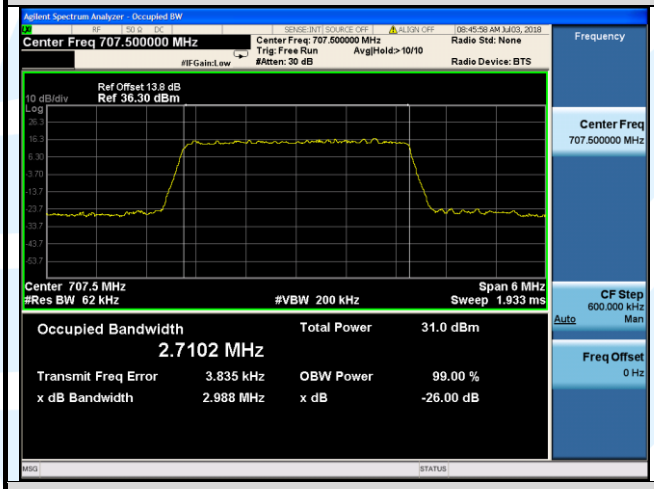
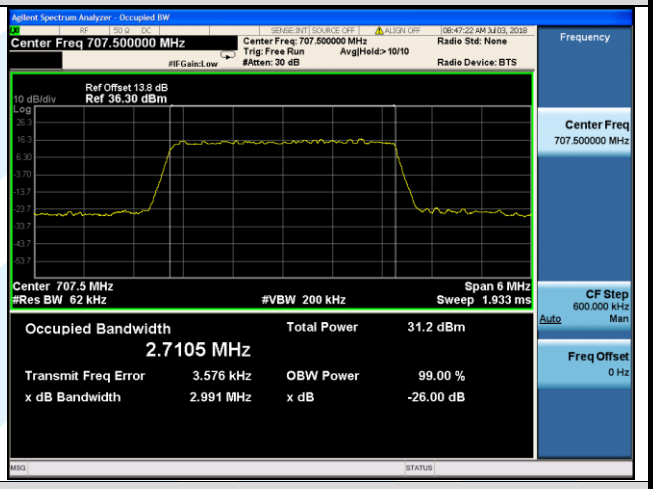
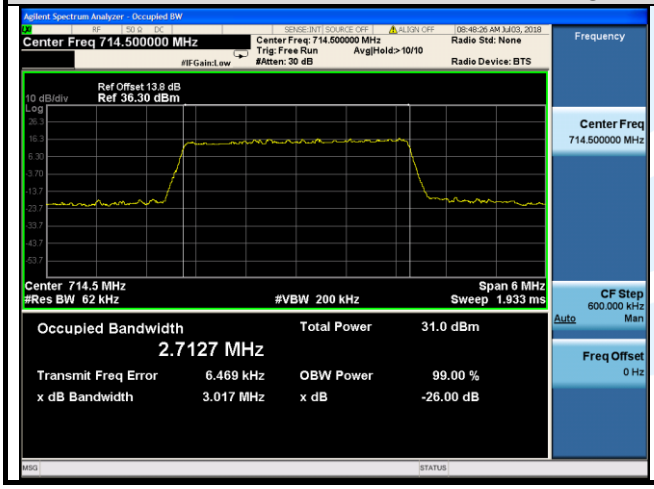
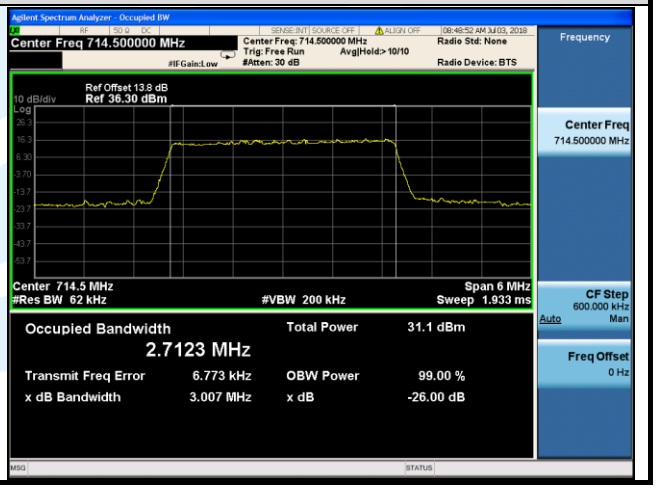
	

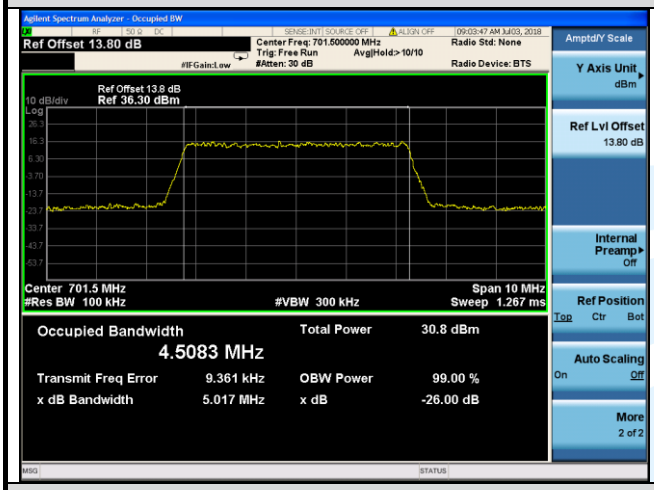
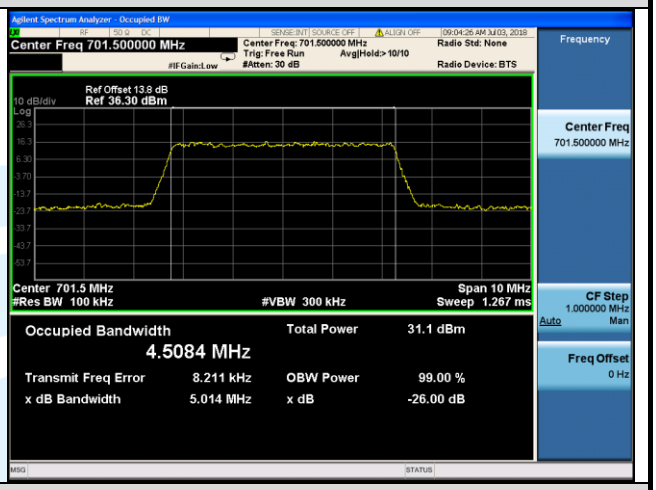
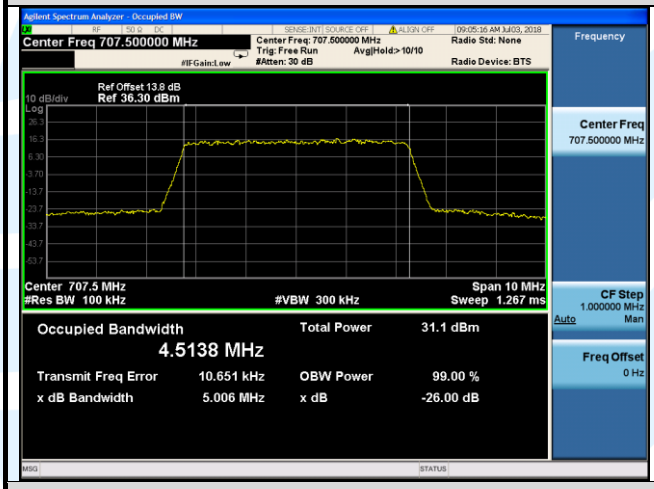
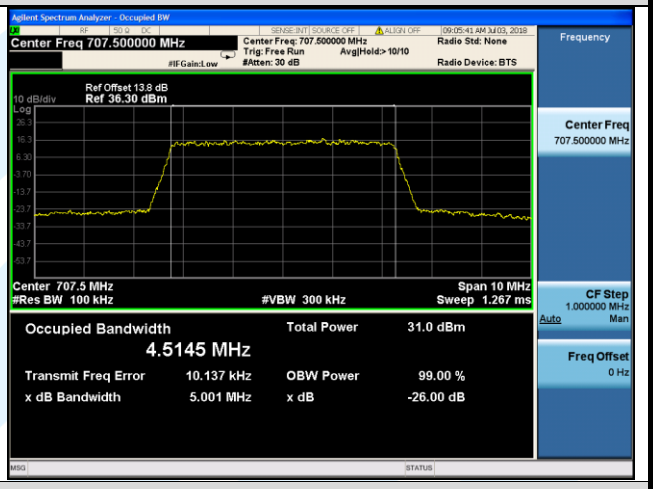
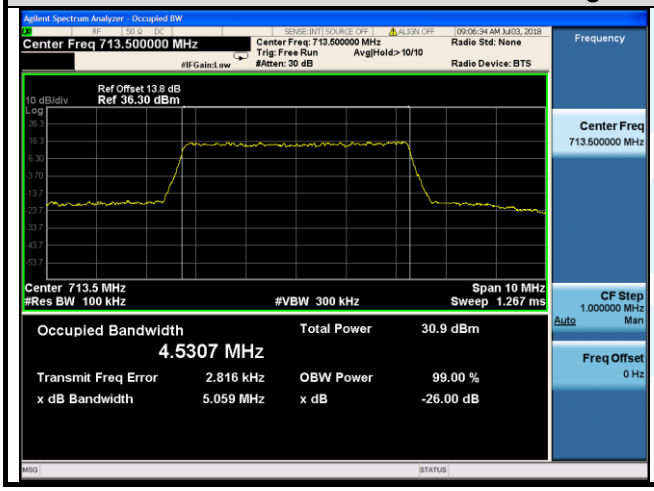
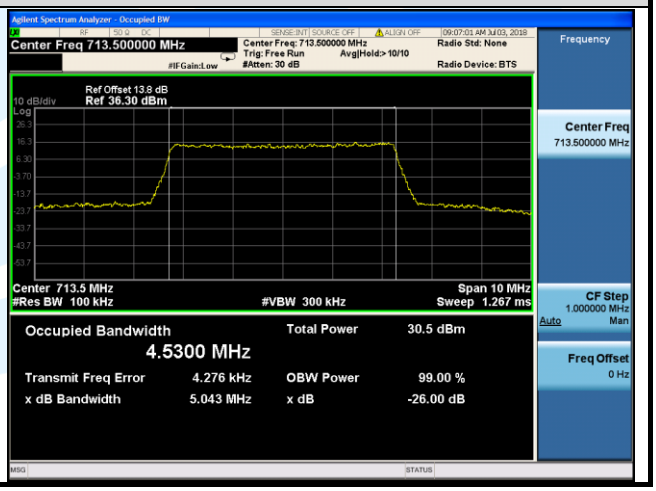
LTE Band 4_ Channel Bandwidth: 15 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

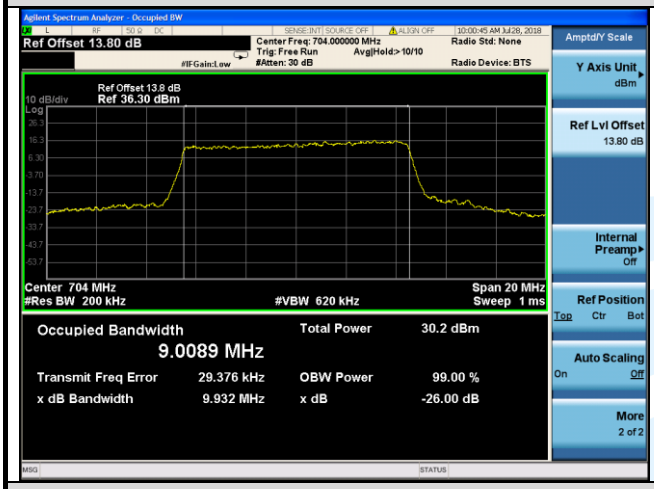
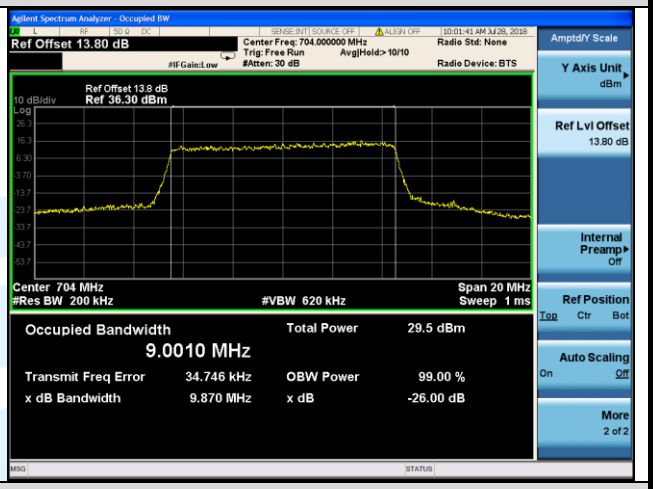
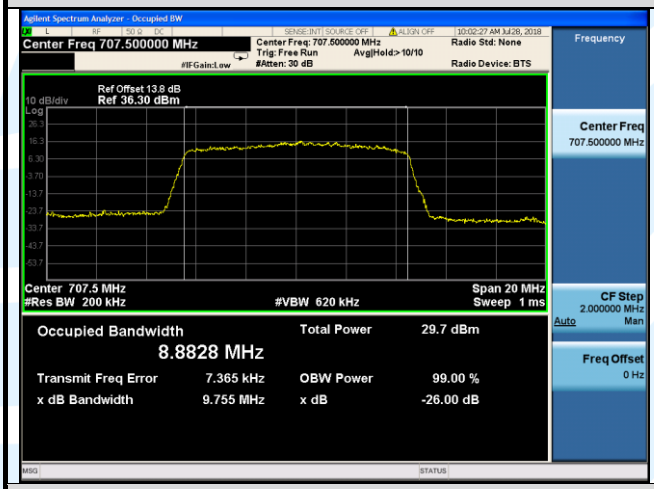
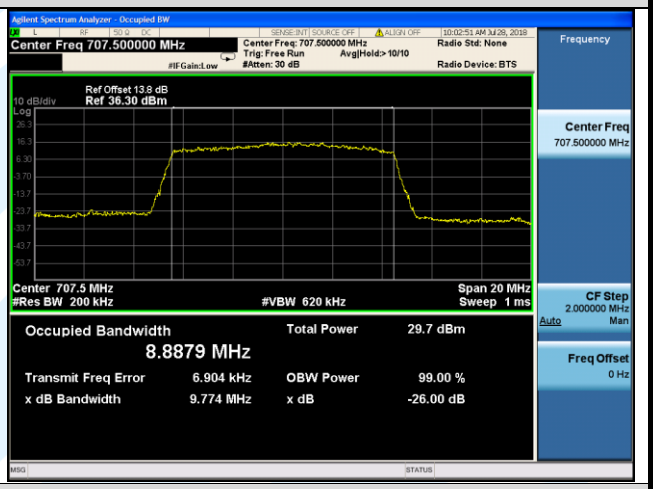
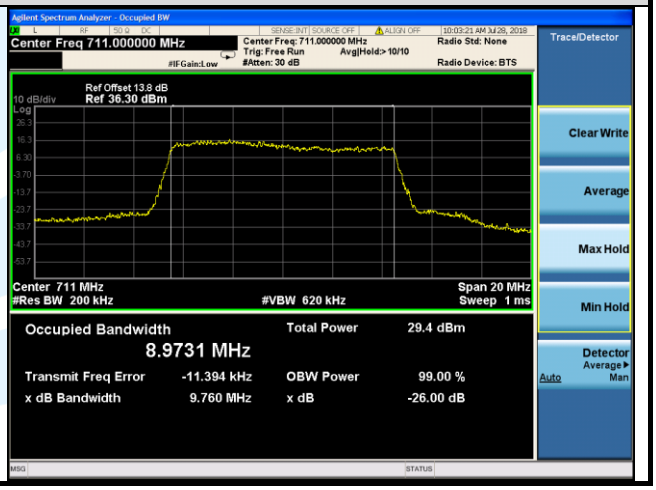
LTE Band 4_ Channel Bandwidth: 20 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 12								
Channel	RB Configuration		26 dB BW (MHz)			99% BW (MHz)		
	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Channel Bandwidth: 1.4 MHz								
Lowest	6	0	1.363	1.357	N/A	1.1468	1.1395	N/A
Middle	6	0	1.348	1.356	N/A	1.1219	1.1293	N/A
Highest	6	0	1.365	1.375	N/A	1.1305	1.1399	N/A
Channel Bandwidth: 3 MHz								
Lowest	15	0	2.985	2.992	N/A	2.7018	2.7093	N/A
Middle	15	0	2.988	2.991	N/A	2.7102	2.7105	N/A
Highest	15	0	3.017	3.007	N/A	2.7127	2.7123	N/A
Channel Bandwidth: 5 MHz								
Lowest	25	0	5.017	5.014	N/A	4.5083	4.5084	N/A
Middle	25	0	5.006	5.001	N/A	4.5138	4.5145	N/A
Highest	25	0	5.059	5.043	N/A	4.5307	4.5300	N/A
Channel Bandwidth: 10 MHz								
Lowest	50	0	9.932	9.870	N/A	9.0089	9.0010	N/A
Middle	50	0	9.755	9.774	N/A	8.8828	8.8879	N/A
Highest	50	0	9.816	9.760	N/A	8.9657	8.9731	N/A

LTE Band 12_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 12_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 12_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 12_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

5.6 BAND EDGE AT ANTENNA TERMINALS

Test Requirement: **LTE Band 4:** FCC 47 CFR Part 27.53(h)(1)
LTE Band 12: FCC 47 CFR Part 27.53(g)

Test Method: ANSI/TIA-603-E-2016 & KDB 971168 D01v03

Limit:

FCC 47 CFR Part 27.53(g): For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

FCC 47 CFR Part 27.53(h)(1): Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB. The emission limit equal to –13 dBm.

FCC 47 CFR Part 27.53(h)(3): Measurement procedure. (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
(ii) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.
(iii) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.
For each band edge measurement:

1) Set the spectrum analyzer span to include the block edge frequency.
2) Set a marker to point the corresponding band edge frequency in each test case.
3) Set display line at -13 dBm
4) Set resolution bandwidth to at least 1% of emission bandwidth.
5) Set spectrum analyzer with RMS detector.
6) Record the max trace plot into the test report

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

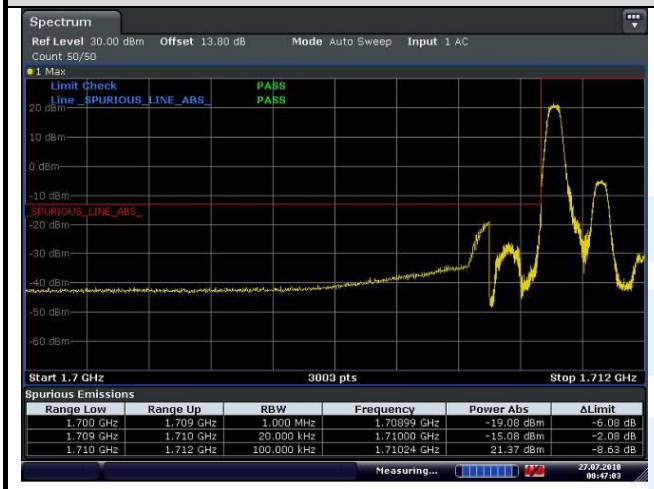
Test Mode: Link mode

Test Results: Pass

LTE Band 4 / 1.4 MHz / QPSK

1 RB	Full RB

Lowest Channel

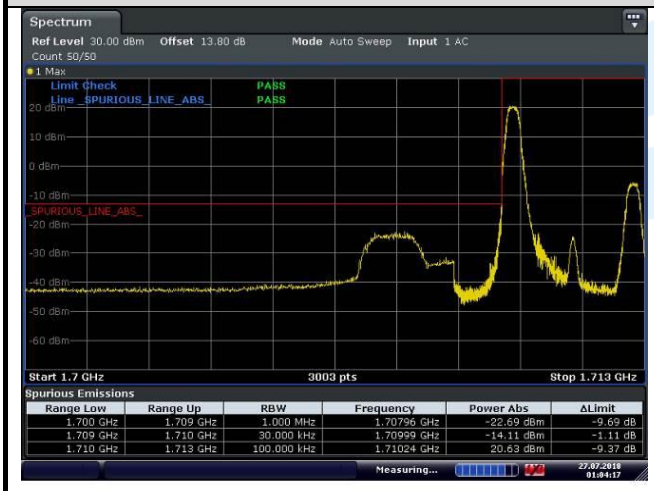


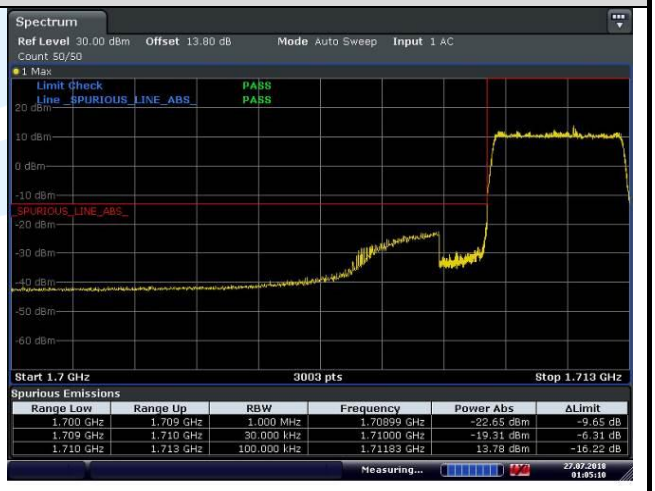
Highest Channel

LTE Band 4 / 3 MHz / QPSK

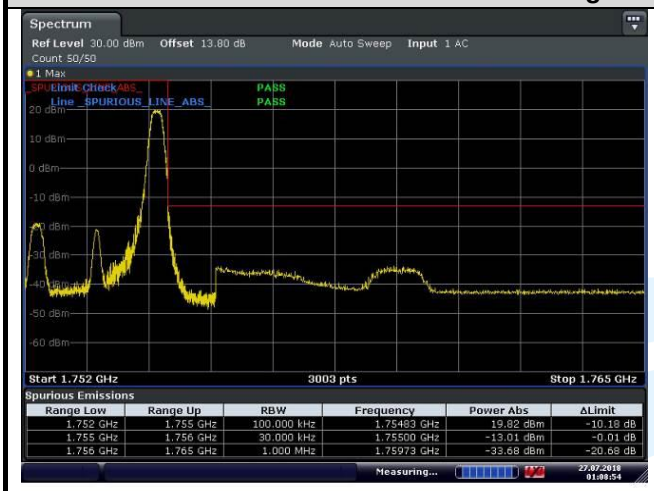
1 RB	Full RB

Lowest Channel





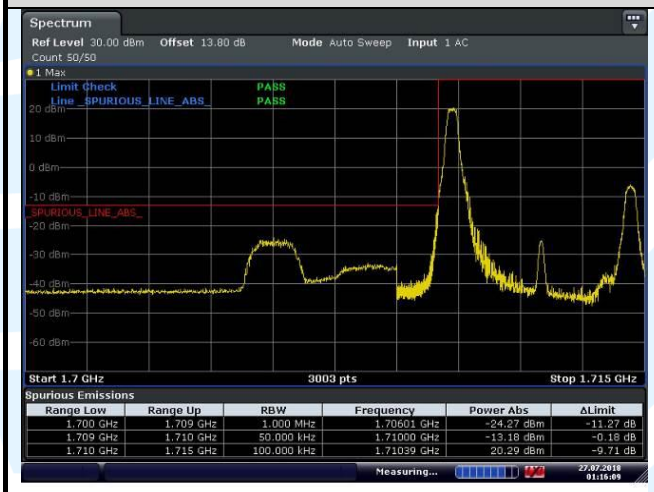
Highest Channel

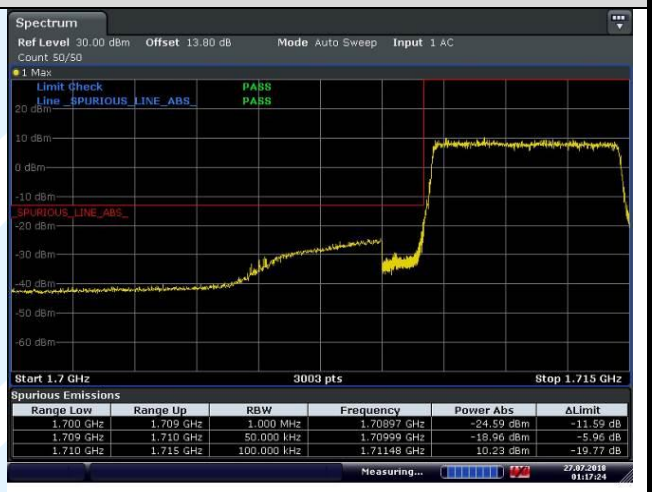


LTE Band 4 / 5 MHz / QPSK

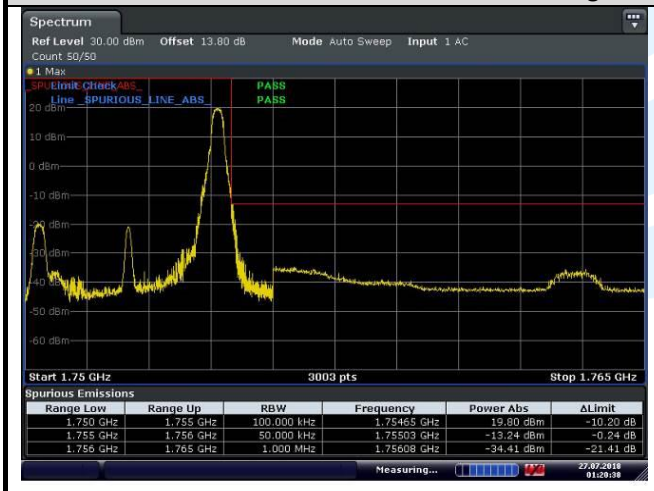
1 RB	Full RB

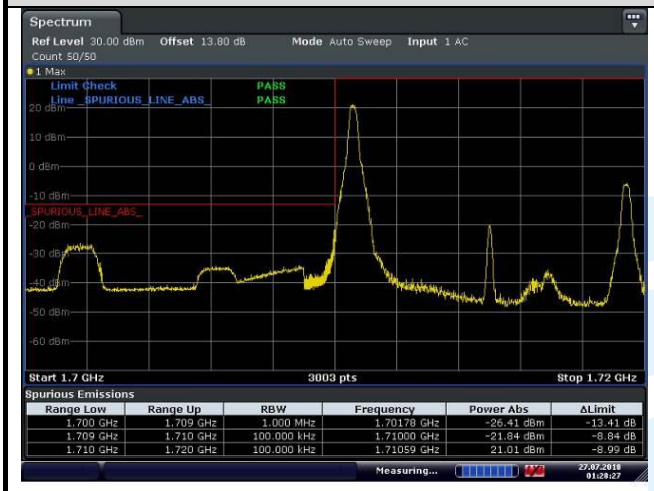
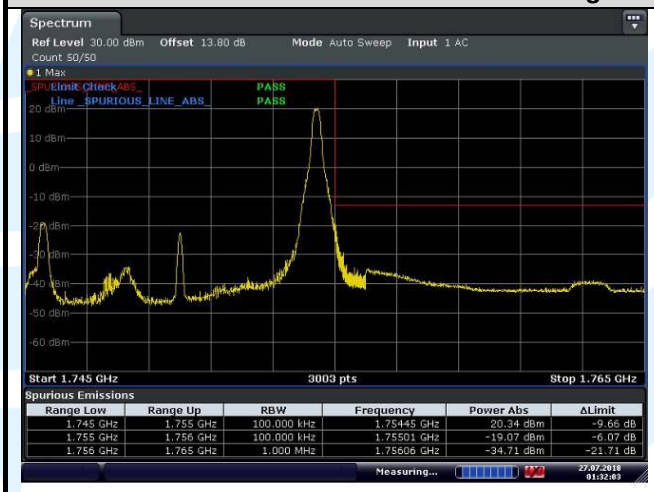
Lowest Channel





Highest Channel



LTE Band 4 / 10 MHz / QPSK	
1 RB	Full RB
Lowest Channel	
	
Highest Channel	
	

LTE Band 4 / 15 MHz / QPSK	
1 RB	Full RB
Lowest Channel