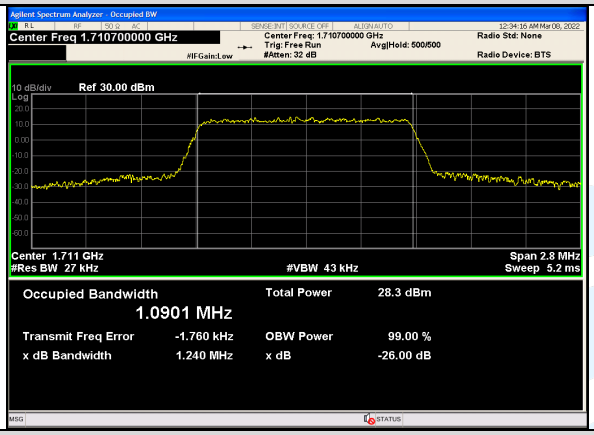
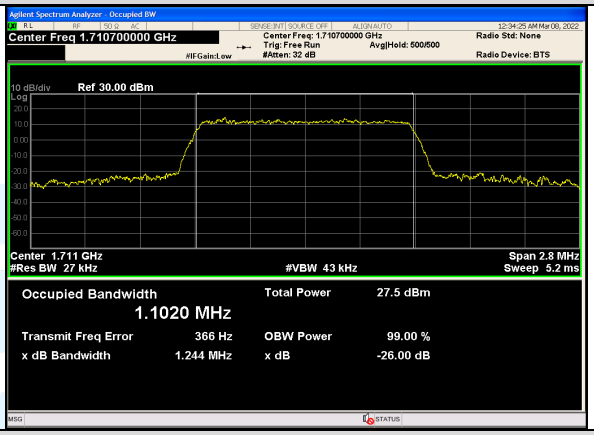
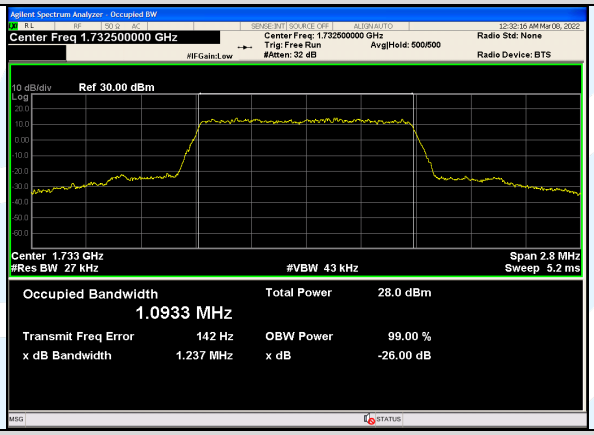
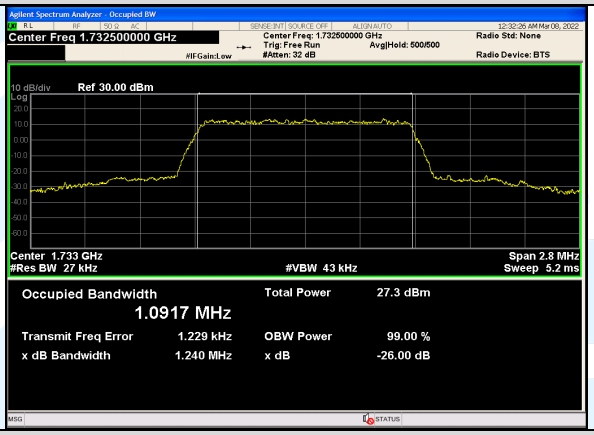
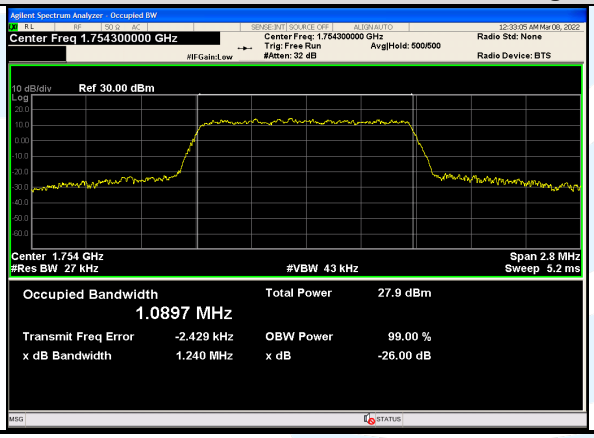
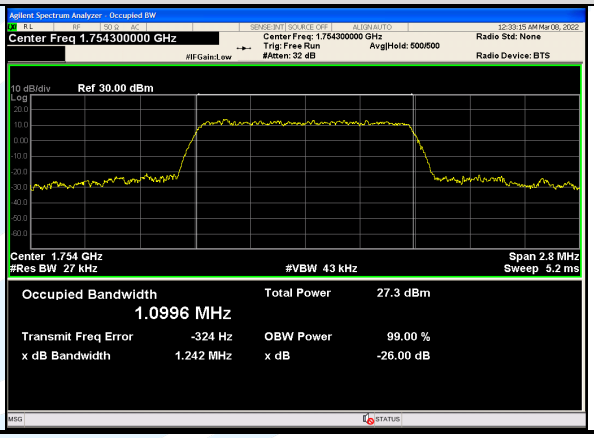
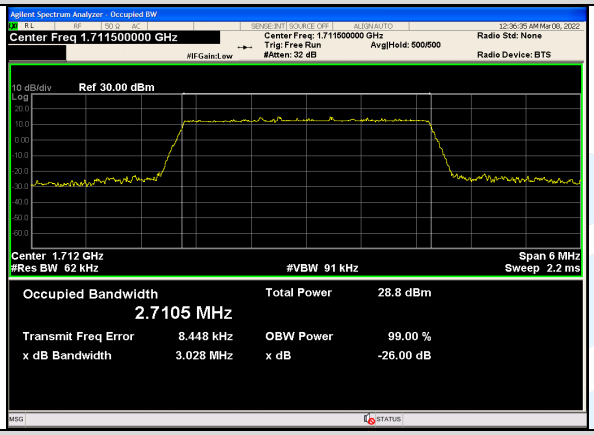
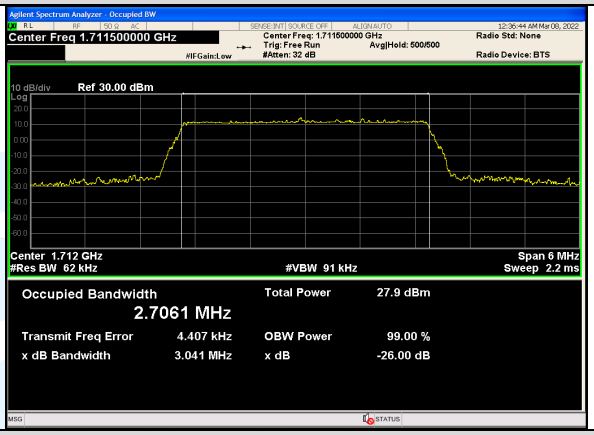
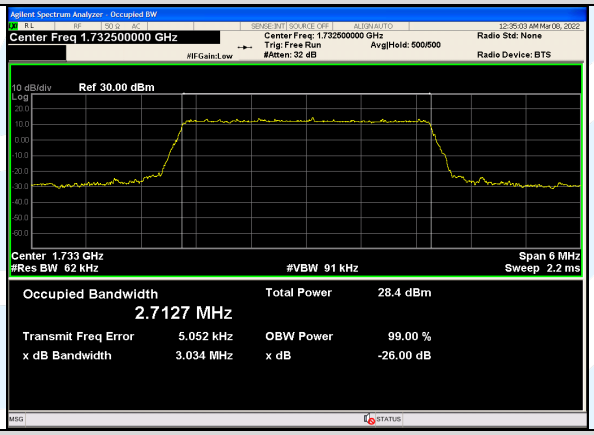
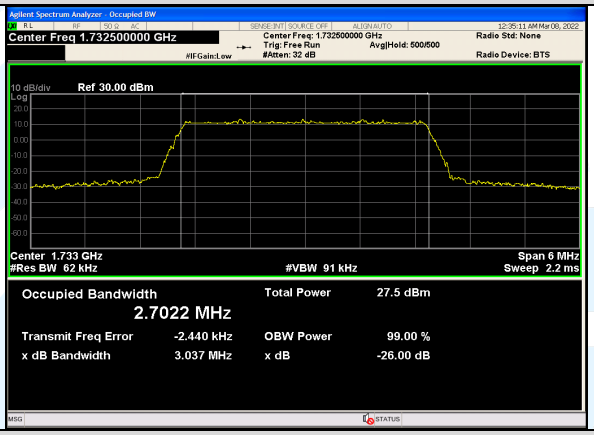
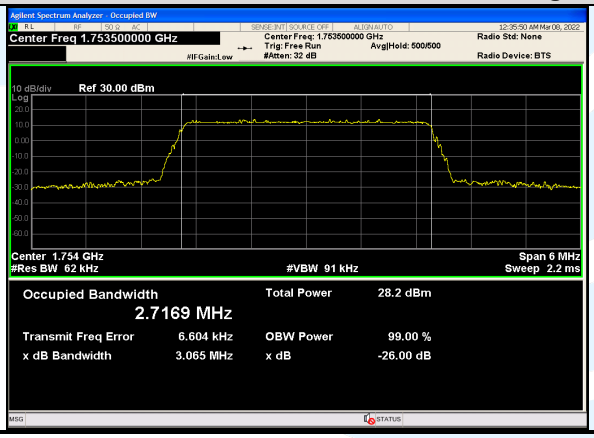
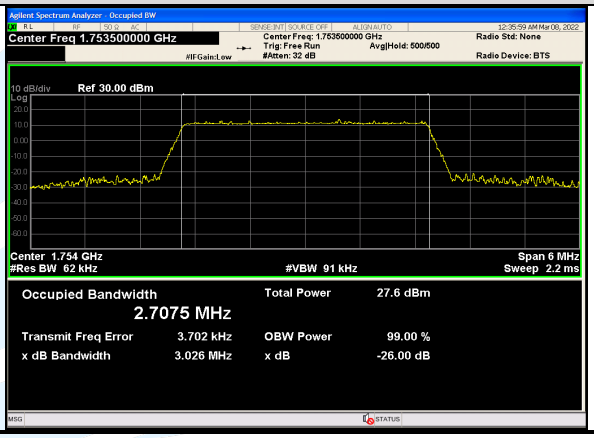
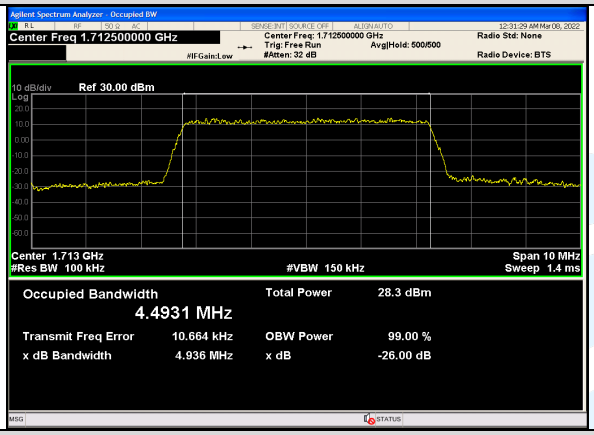
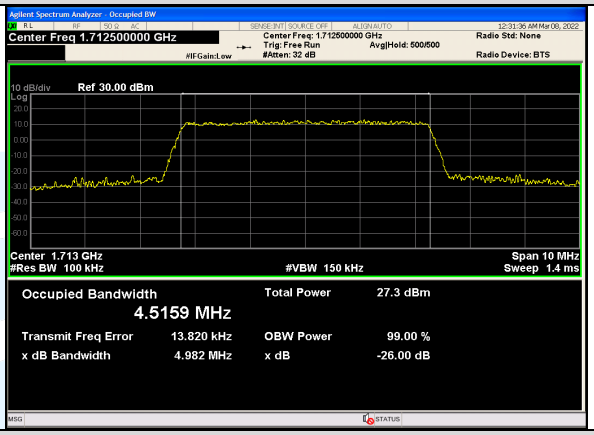
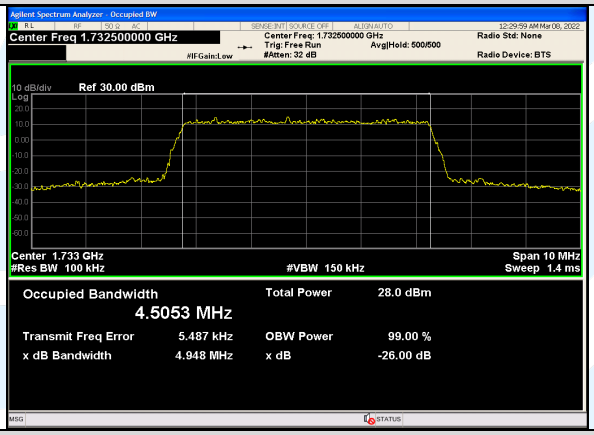
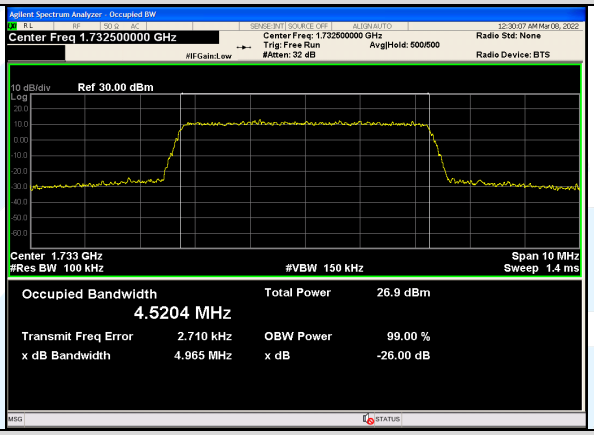
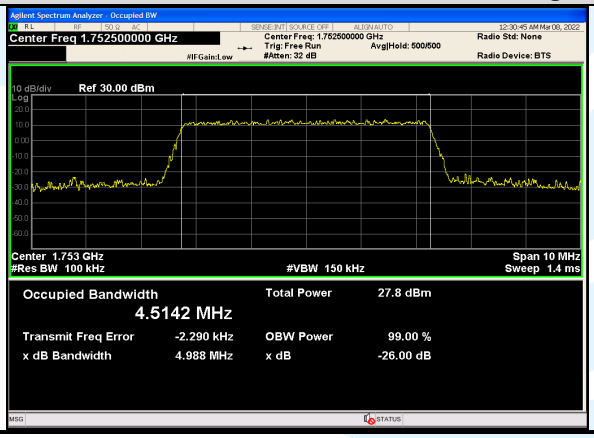
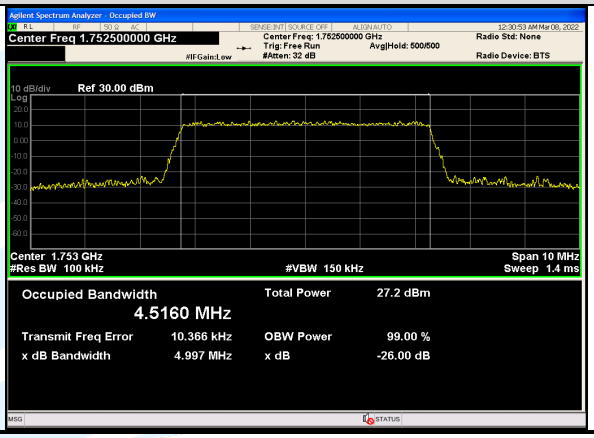
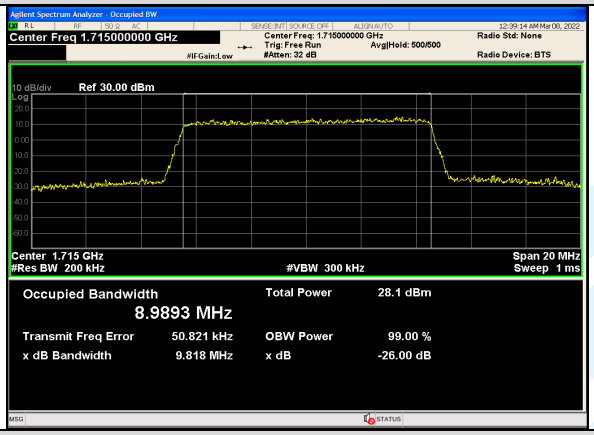
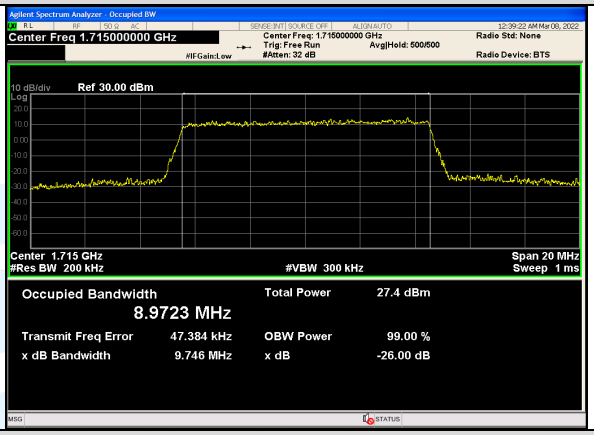
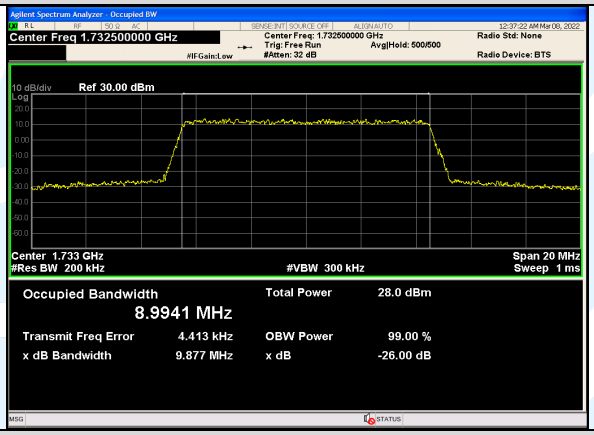
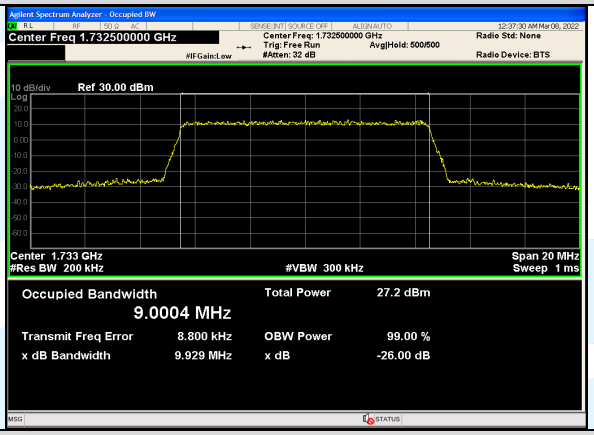
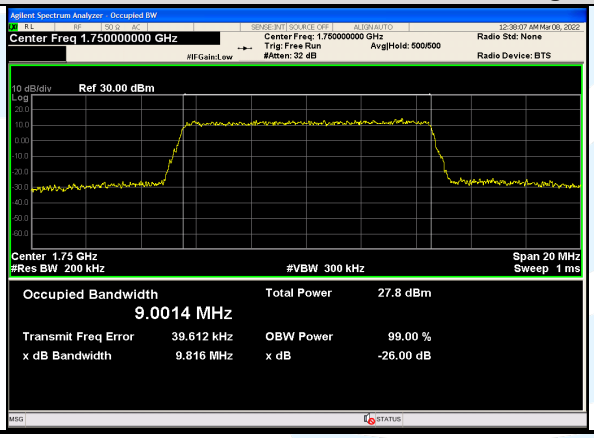
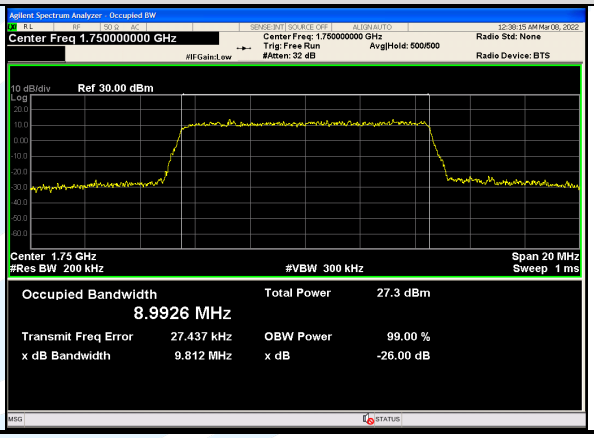
5.5.2 LTE Band 4

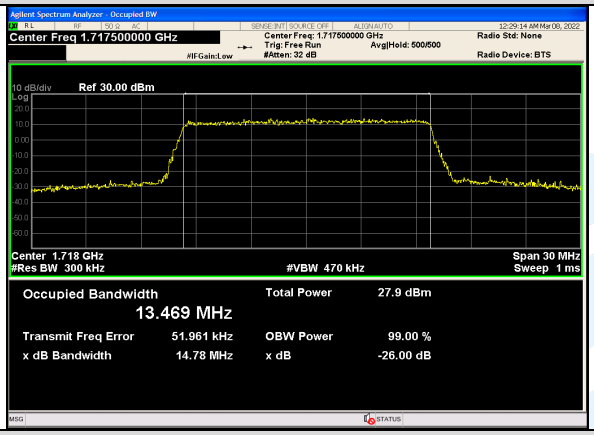
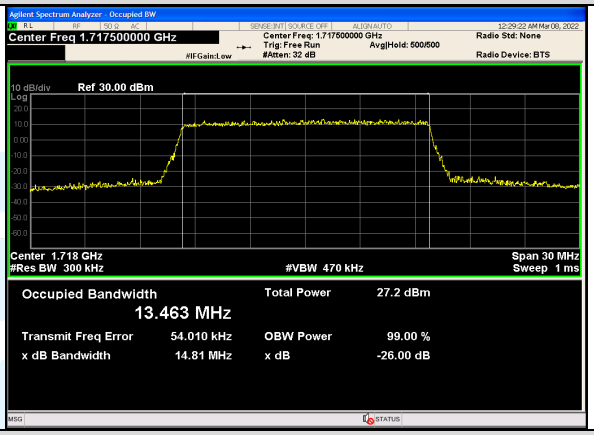
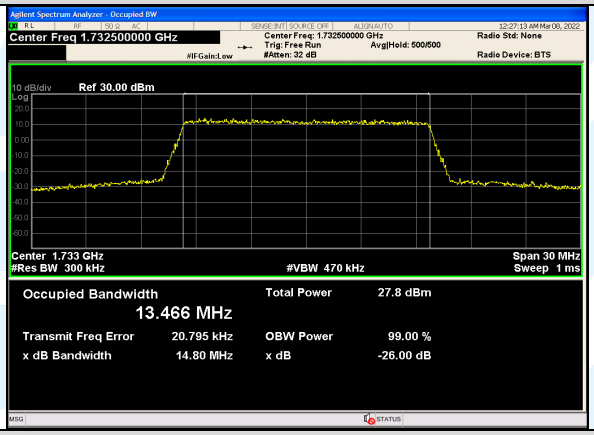
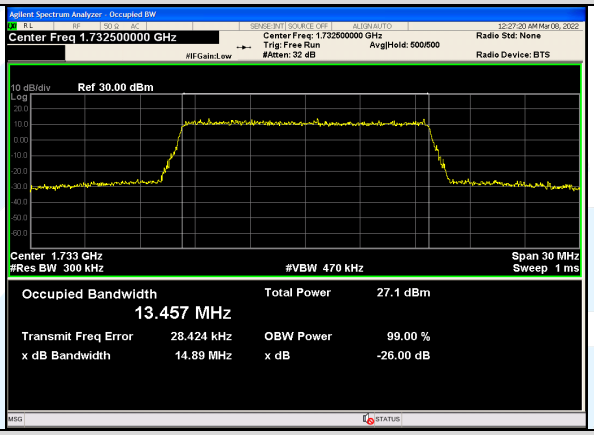
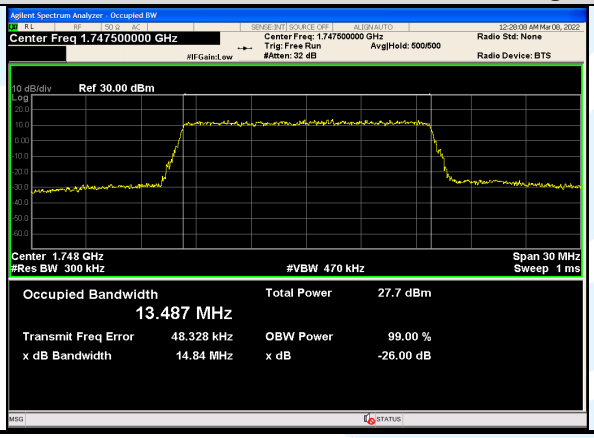
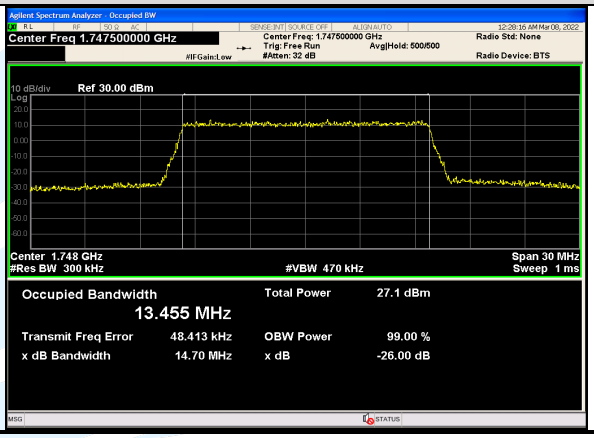
LTE Band 4								
Channel	RB Configuration		99% BW (MHz)			26 dB BW (MHz)		
	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Channel Bandwidth: 1.4 MHz								
Lowest	6	0	1.09	1.10	/	1.24	1.24	/
Middle	6	0	1.09	1.09	/	1.24	1.24	/
Highest	6	0	1.09	1.10	/	1.24	1.24	/
Channel Bandwidth: 3 MHz								
Lowest	15	0	2.71	2.71	/	3.03	3.04	/
Middle	15	0	2.71	2.70	/	3.03	3.04	/
Highest	15	0	2.72	2.71	/	3.06	3.03	/
Channel Bandwidth: 5 MHz								
Lowest	25	0	4.49	4.52	/	4.94	4.98	/
Middle	25	0	4.51	4.52	/	4.95	4.97	/
Highest	25	0	4.51	4.52	/	4.99	5.00	/
Channel Bandwidth: 10 MHz								
Lowest	50	0	8.99	8.97	/	9.82	9.75	/
Middle	50	0	8.99	9.00	/	9.88	9.93	/
Highest	50	0	9.00	8.99	/	9.82	9.81	/
Channel Bandwidth: 15 MHz								
Lowest	75	0	13.47	13.46	/	14.78	14.81	/
Middle	75	0	13.47	13.46	/	14.80	14.89	/
Highest	75	0	13.49	13.45	/	14.84	14.70	/
Channel Bandwidth: 20 MHz								
Lowest	100	0	17.92	17.94	/	19.58	19.45	/
Middle	100	0	17.99	17.95	/	19.66	19.53	/
Highest	100	0	18.00	17.99	/	19.64	19.54	/

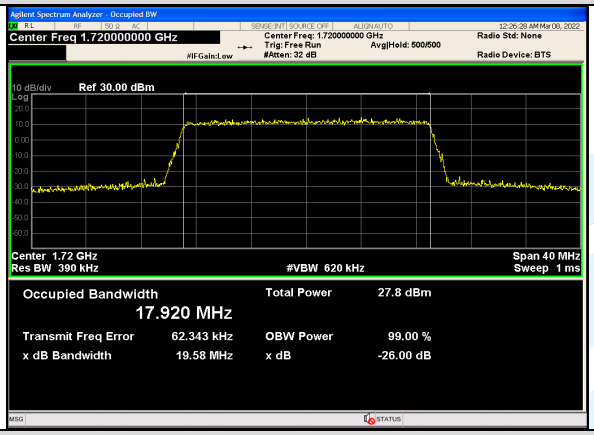
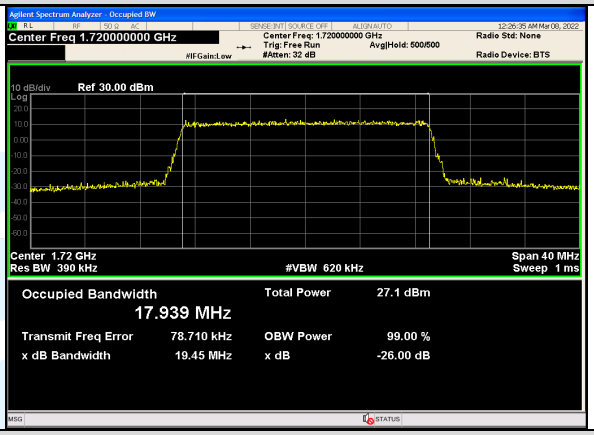
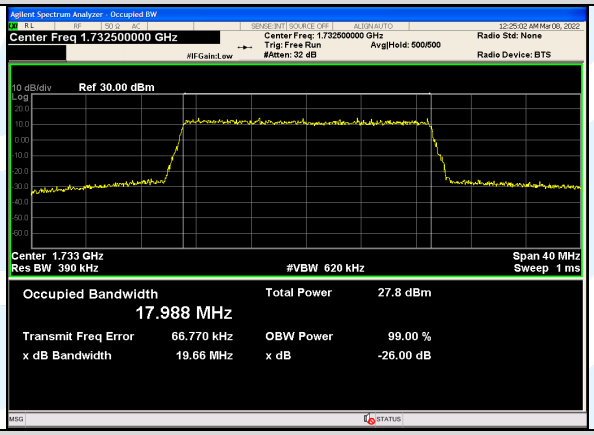
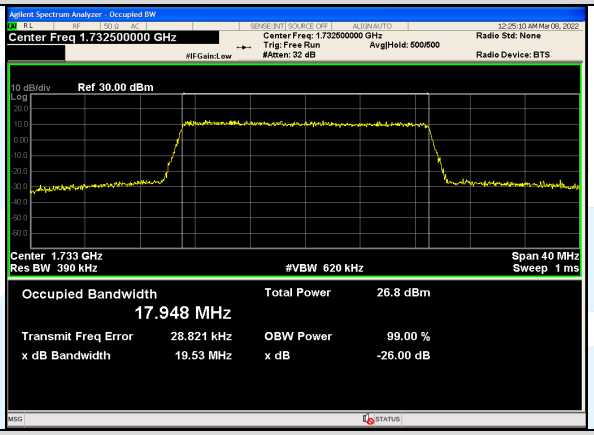
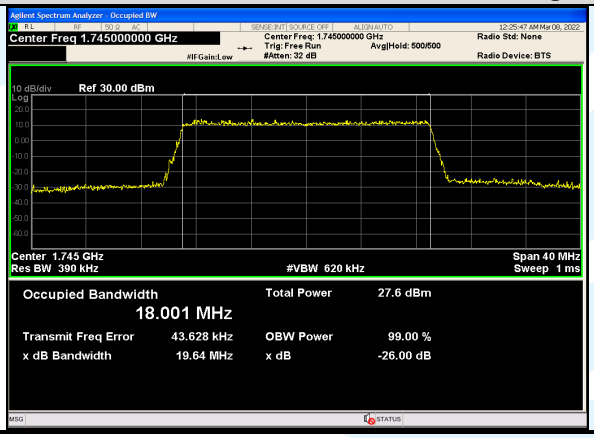
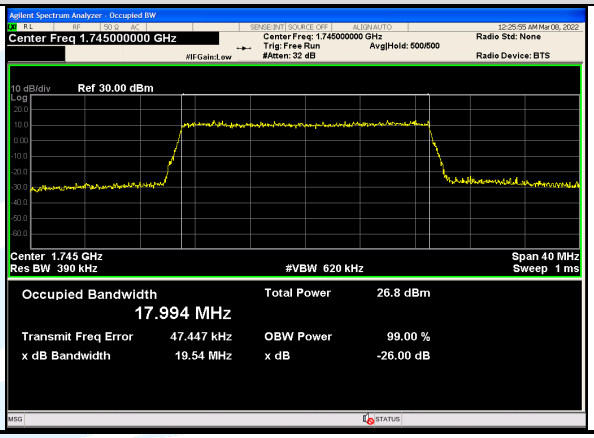
LTE Band 4_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 4_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

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

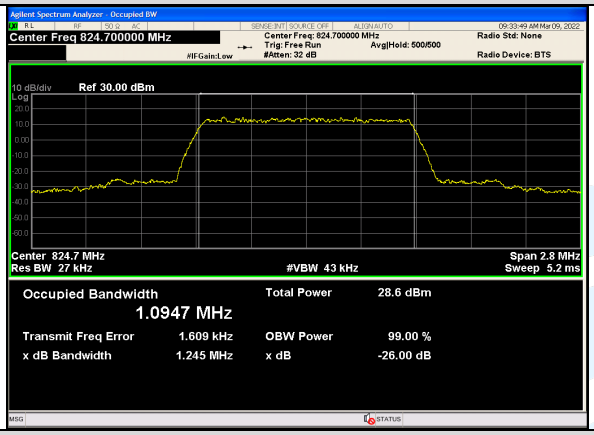
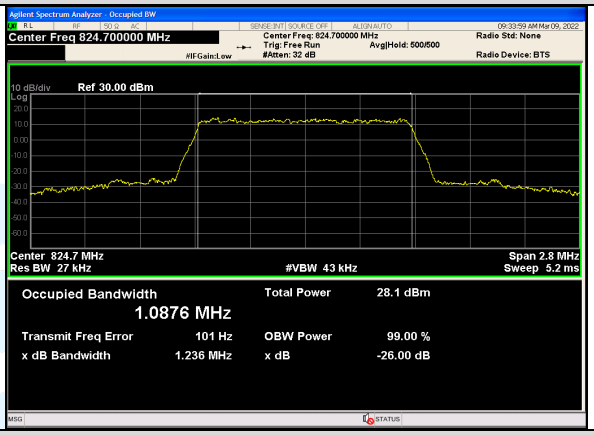
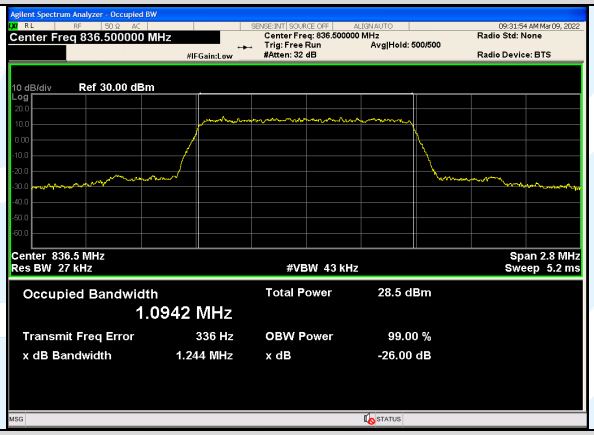
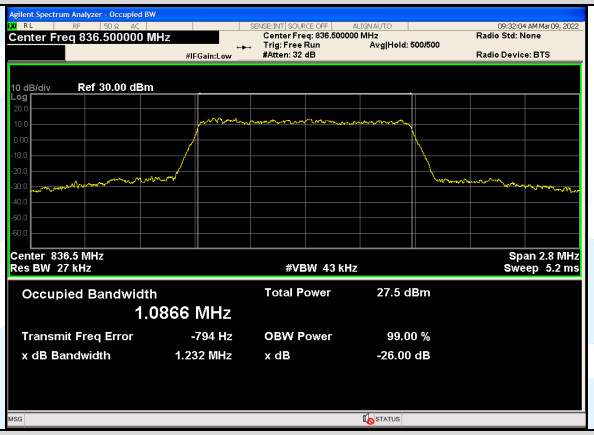
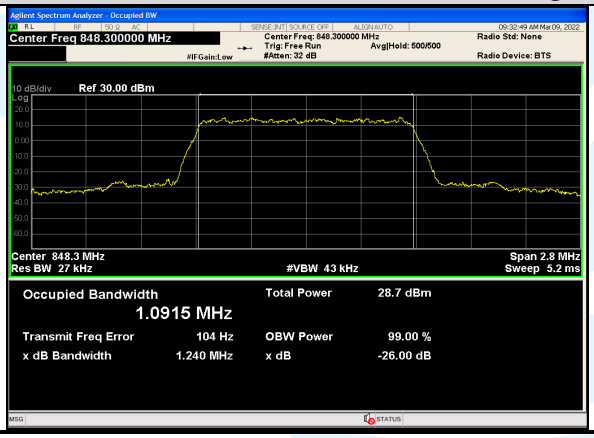
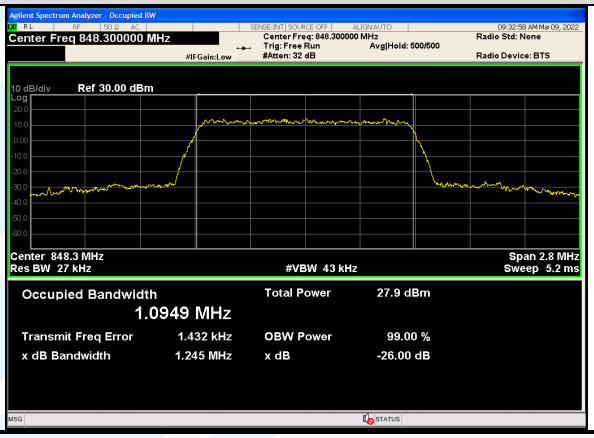
LTE Band 4_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

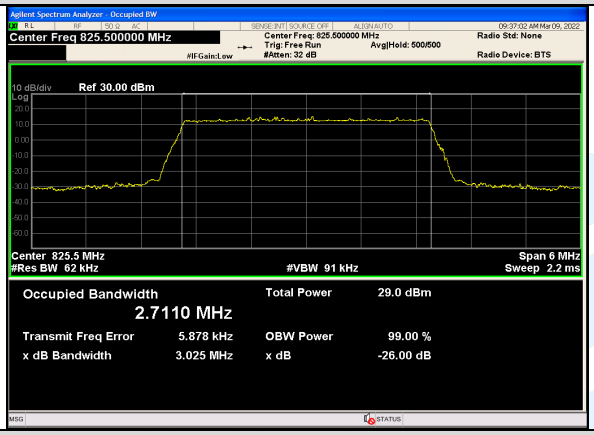
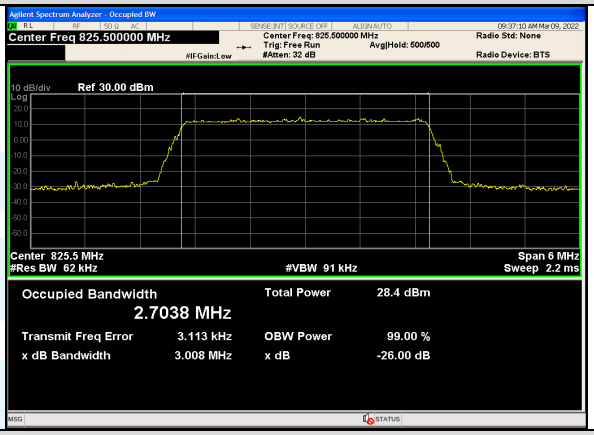
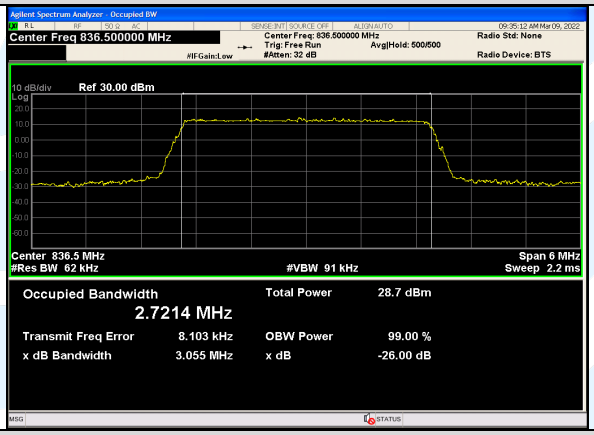
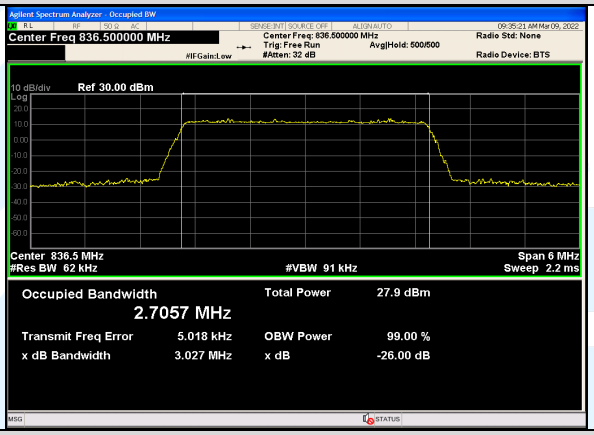
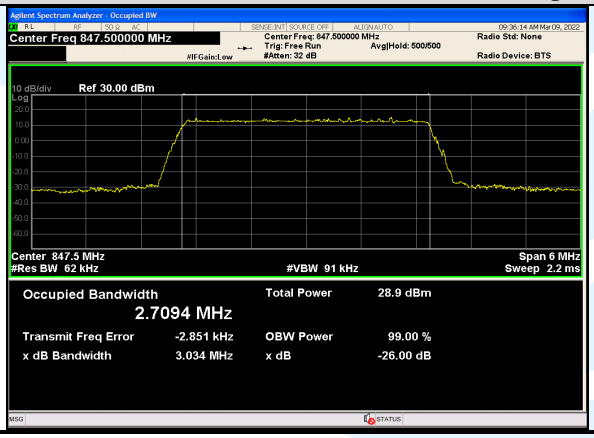
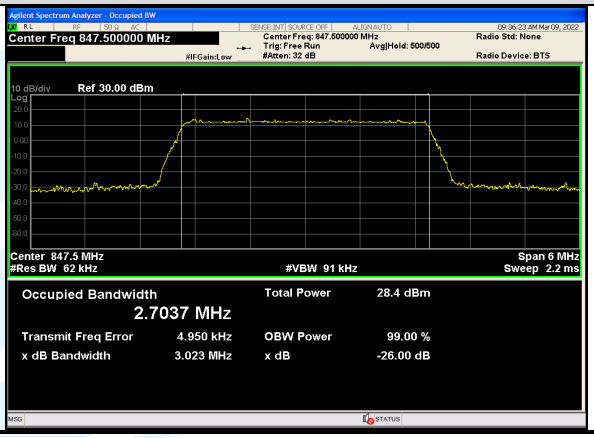
LTE Band 4_ Channel Bandwidth: 15 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

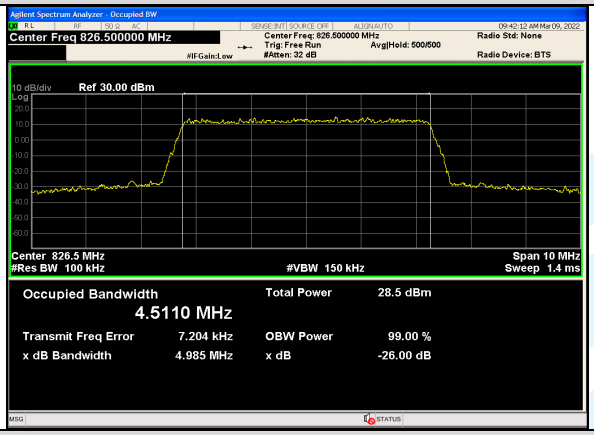
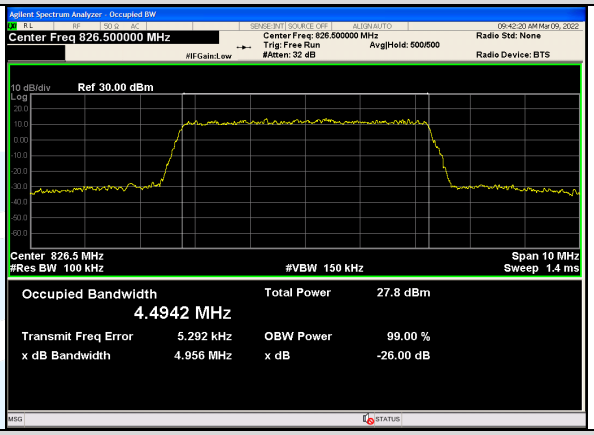
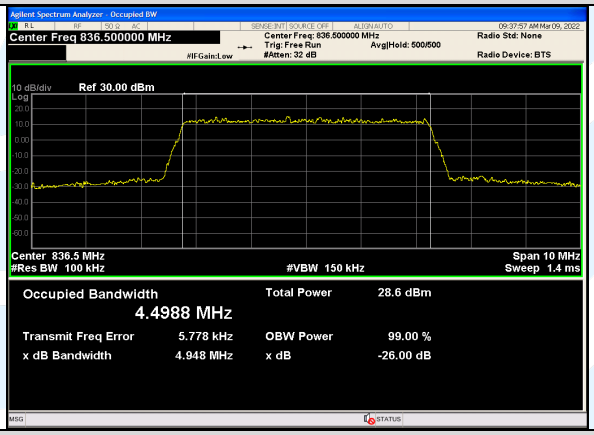
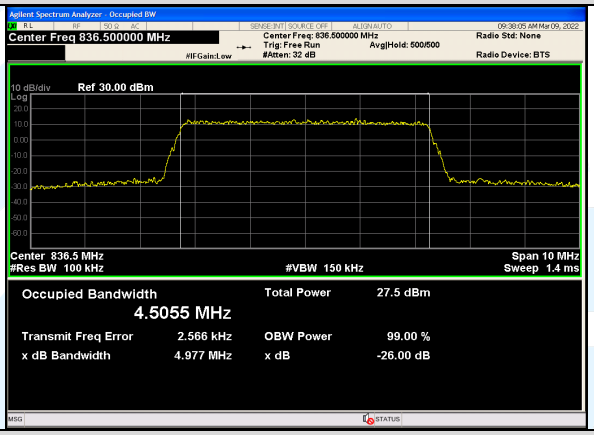
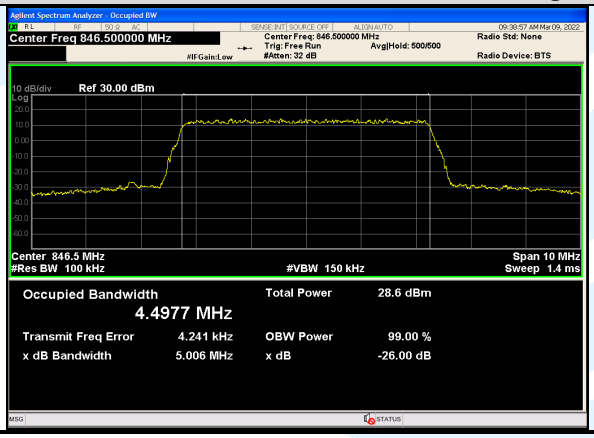
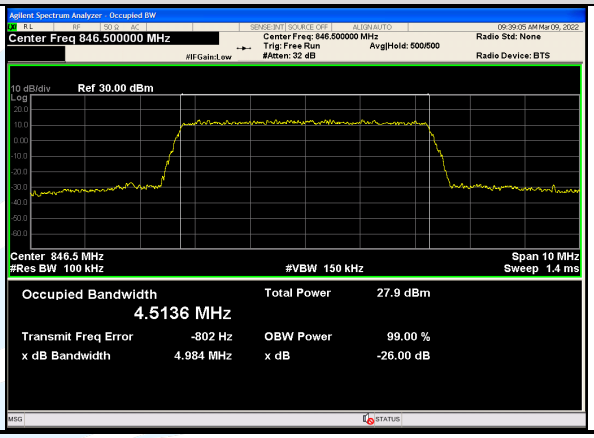
LTE Band 4_ Channel Bandwidth: 20 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

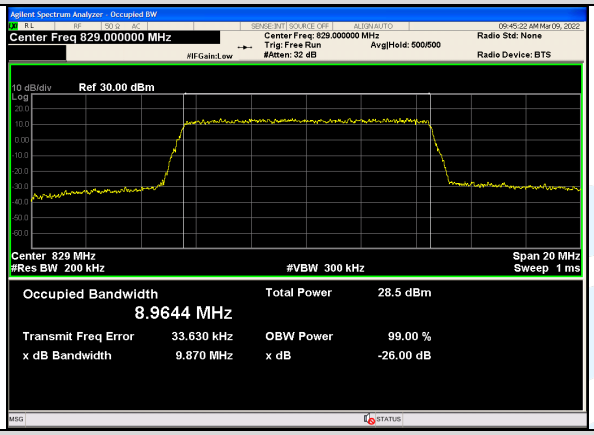
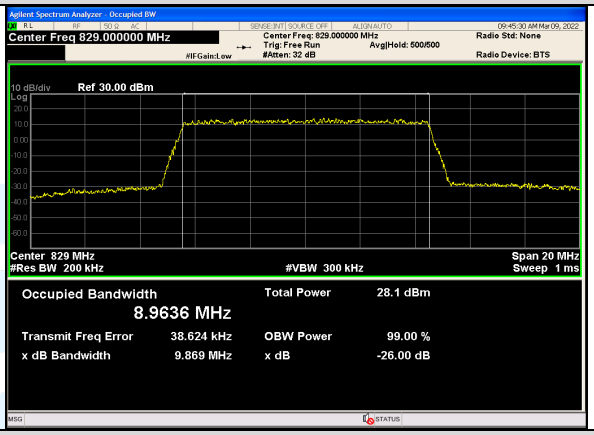
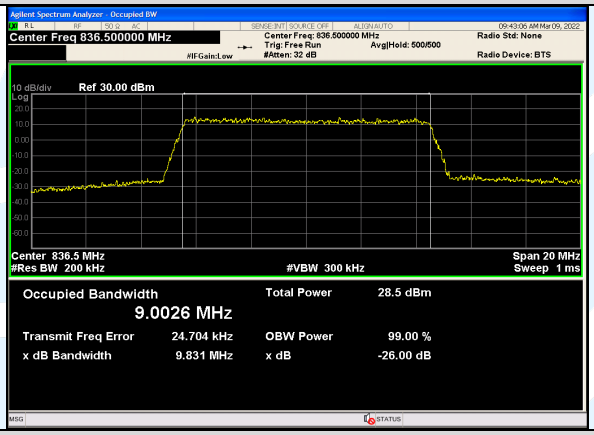
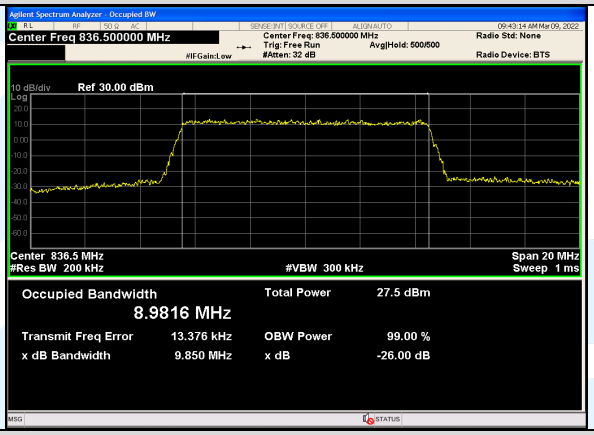
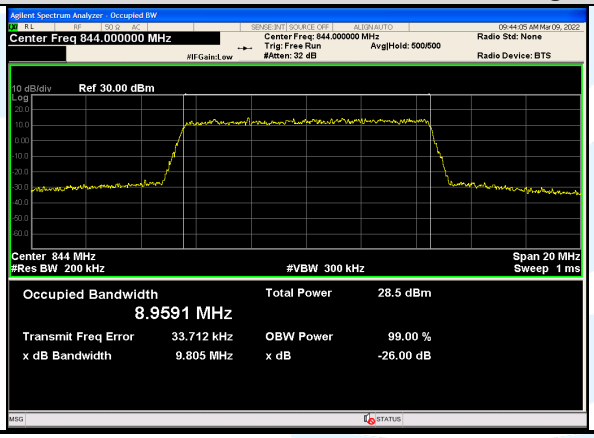
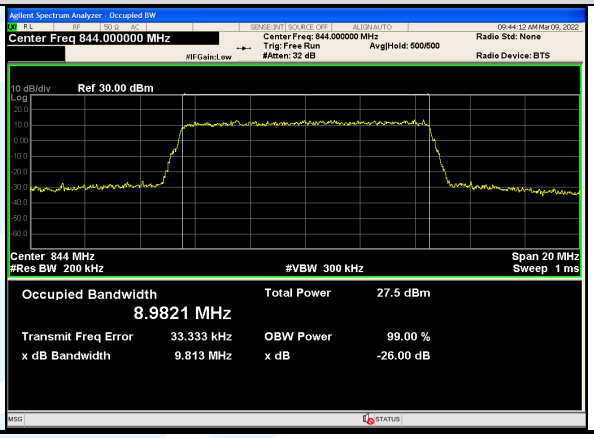
5.5.3 LTE Band 5

LTE Band 5								
Channel	RB Configuration		99% BW (MHz)			26 dB BW (MHz)		
	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Channel Bandwidth: 1.4 MHz								
Lowest	6	0	1.09	1.09	/	1.24	1.24	/
Middle	6	0	1.09	1.09	/	1.24	1.23	/
Highest	6	0	1.09	1.09	/	1.24	1.24	/
Channel Bandwidth: 3 MHz								
Lowest	15	0	2.71	2.70	/	3.03	3.01	/
Middle	15	0	2.72	2.71	/	3.05	3.03	/
Highest	15	0	2.71	2.70	/	3.03	3.02	/
Channel Bandwidth: 5 MHz								
Lowest	25	0	4.51	4.49	/	4.98	4.96	/
Middle	25	0	4.50	4.51	/	4.95	4.98	/
Highest	25	0	4.50	4.51	/	5.01	4.98	/
Channel Bandwidth: 10 MHz								
Lowest	50	0	8.96	8.96	/	9.87	9.87	/
Middle	50	0	9.00	8.98	/	9.83	9.85	/
Highest	50	0	8.96	8.98	/	9.81	9.81	/

LTE Band 5_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

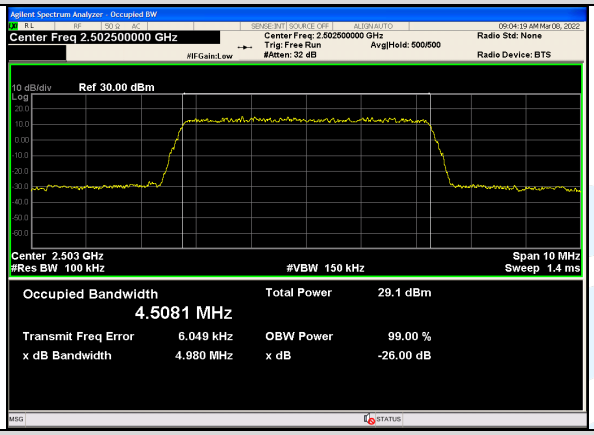
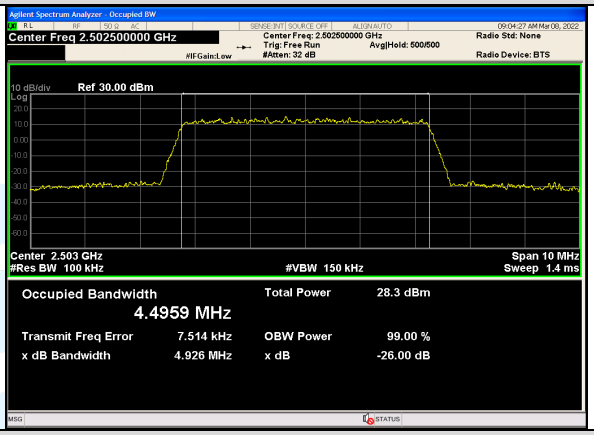
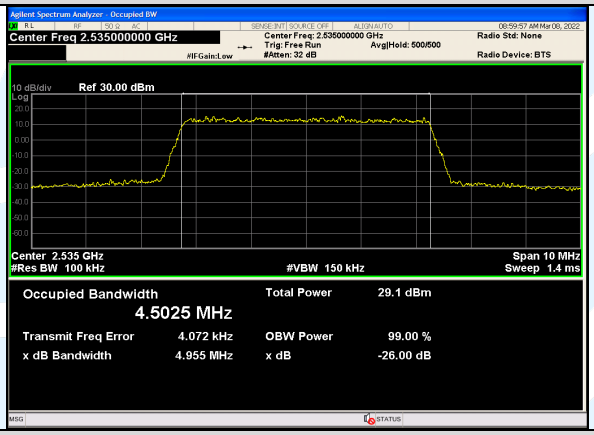
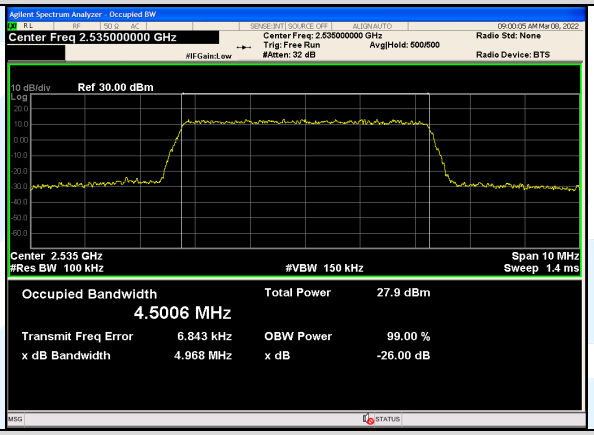
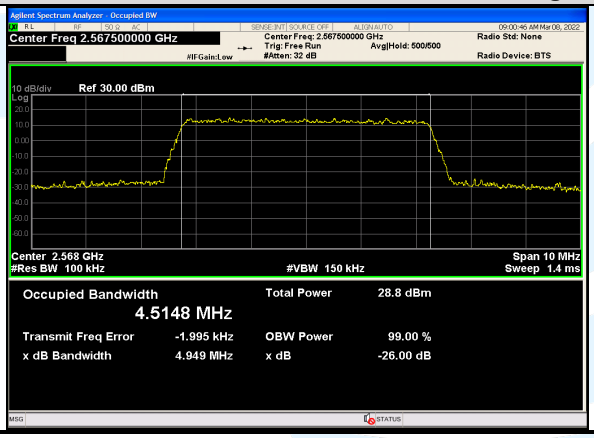
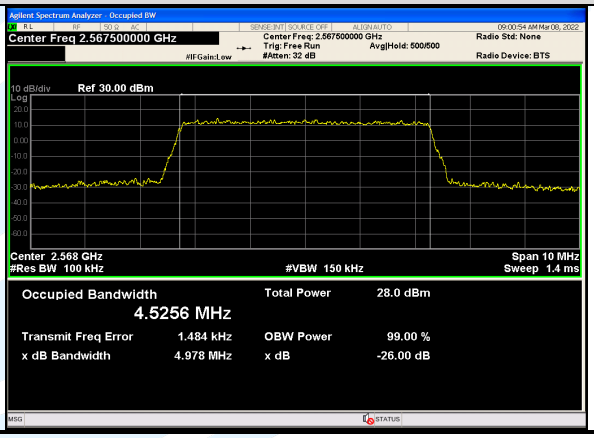
LTE Band 5_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

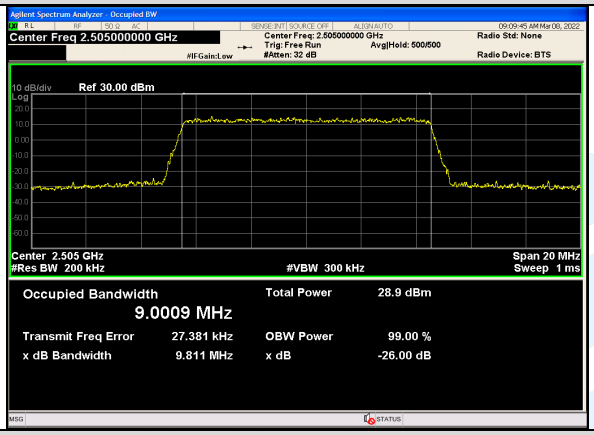
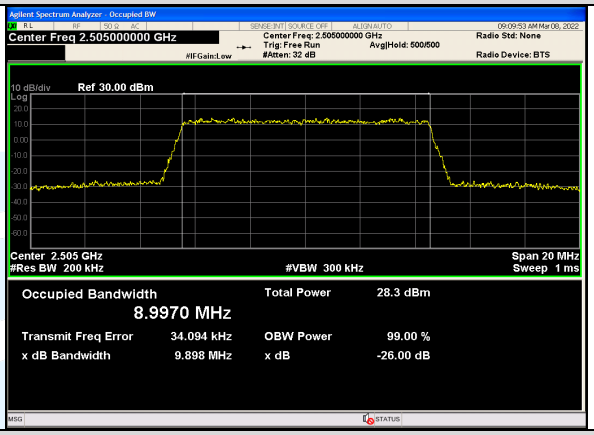
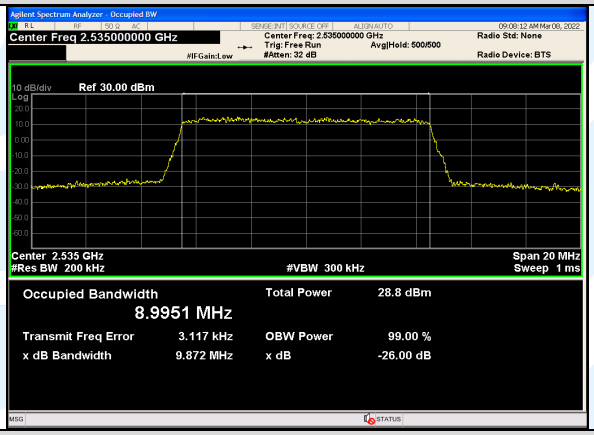
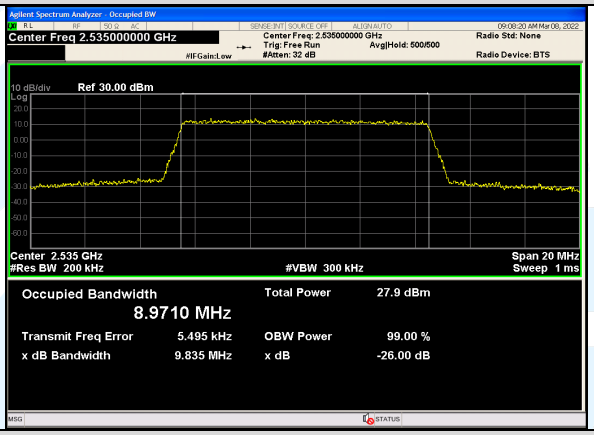
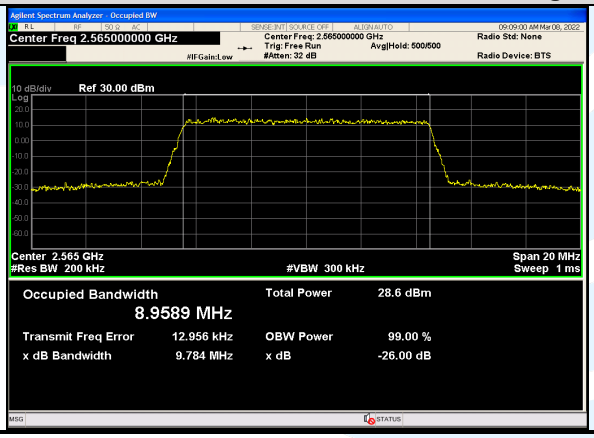
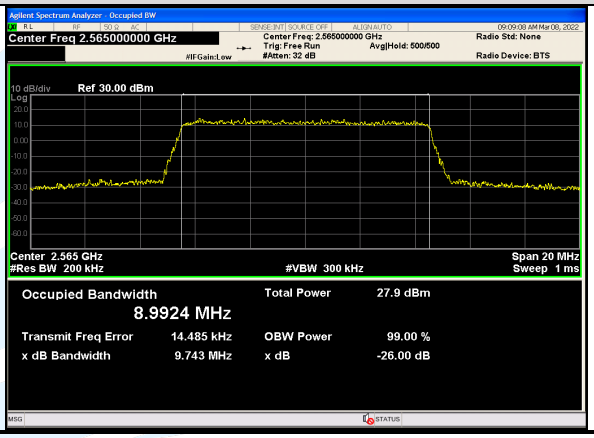
LTE Band 5_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

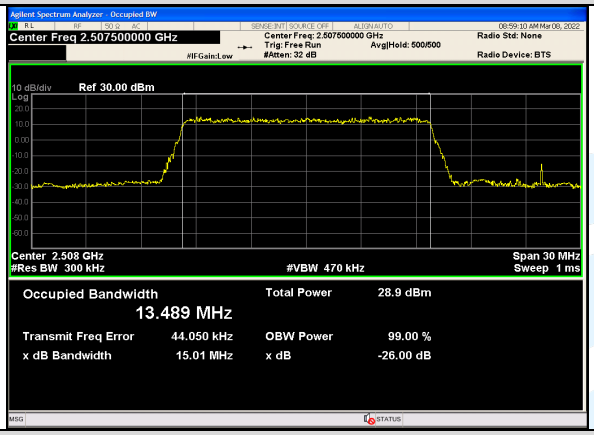
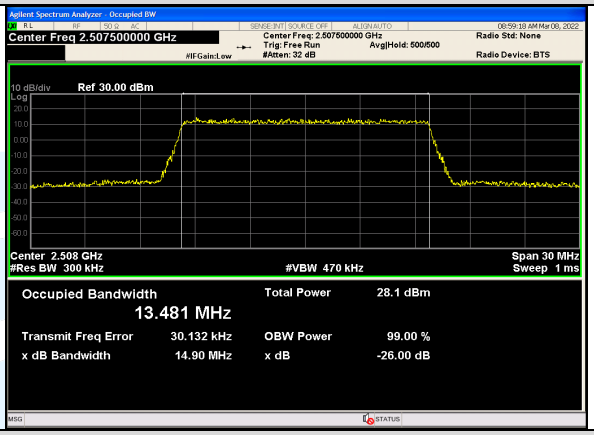
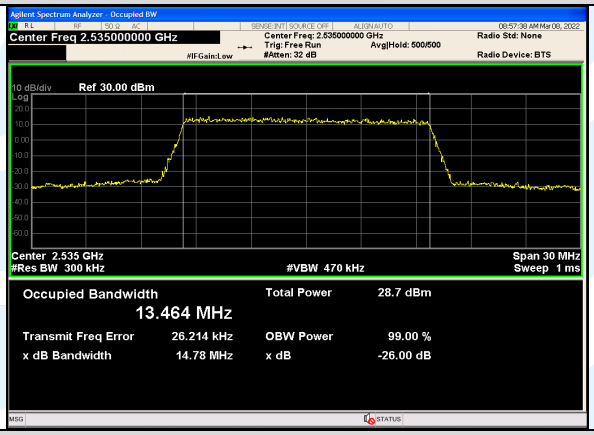
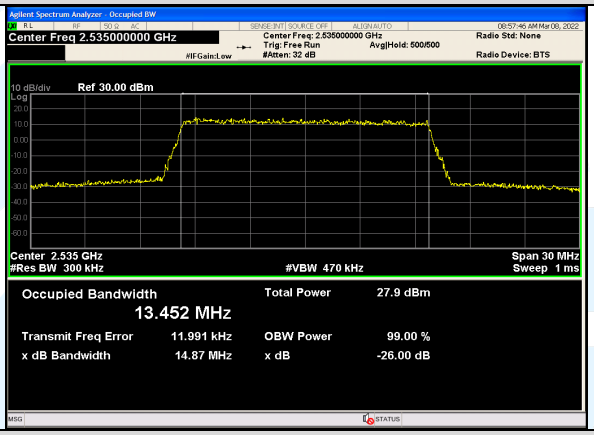
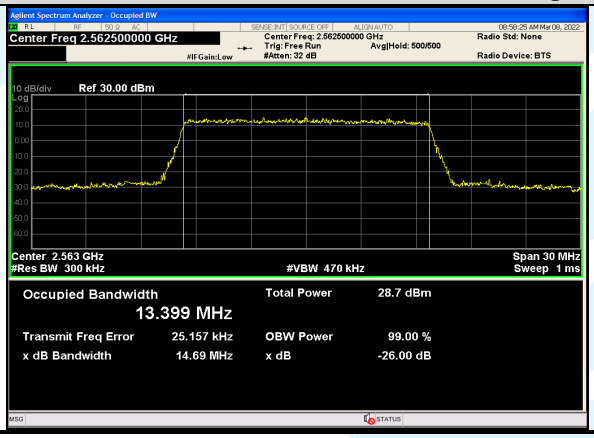
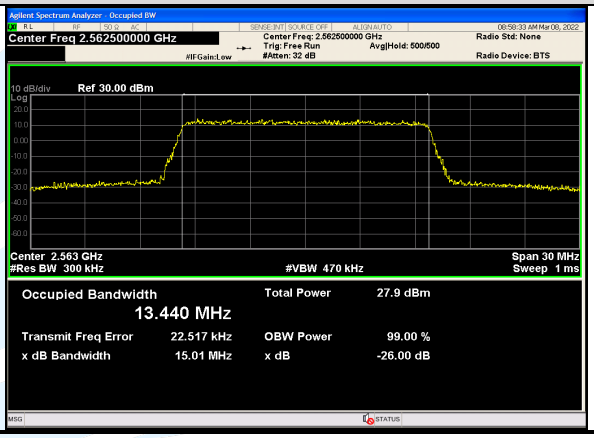
LTE Band 5_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

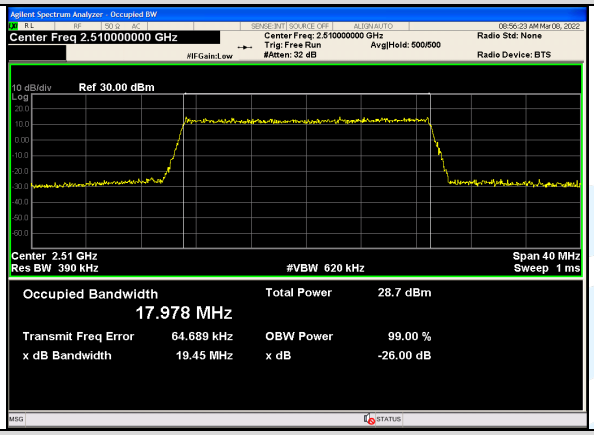
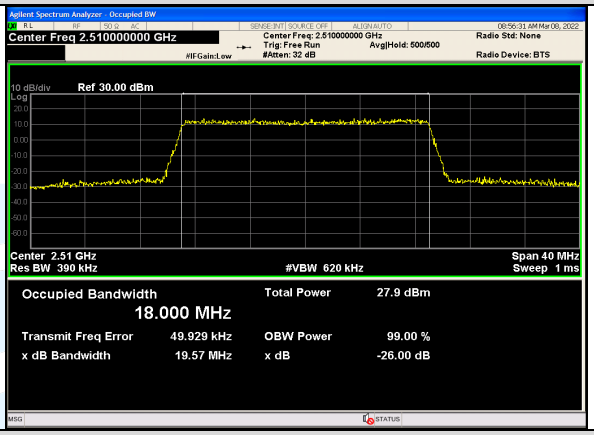
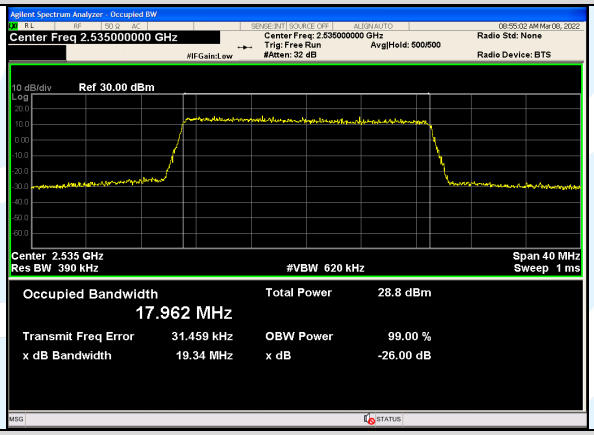
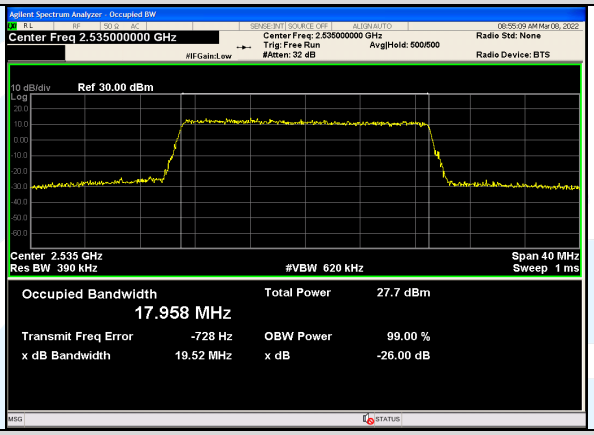
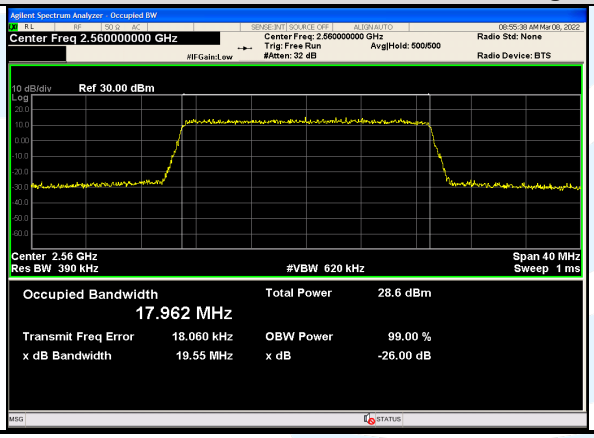
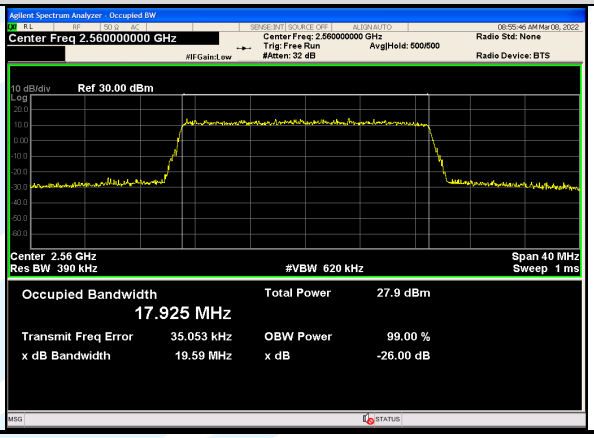
5.5.4 LTE Band 7

LTE Band 7								
Channel	RB Configuration		99% BW (MHz)			26 dB BW (MHz)		
	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Channel Bandwidth: 5 MHz								
Lowest	25	0	4.51	4.50	/	4.98	4.93	/
Middle	25	0	4.50	4.50	/	4.96	4.97	/
Highest	25	0	4.51	4.53	/	4.95	4.98	/
Channel Bandwidth: 10 MHz								
Lowest	50	0	9.00	9.00	/	9.81	9.90	/
Middle	50	0	9.00	8.97	/	9.87	9.84	/
Highest	50	0	8.96	8.99	/	9.78	9.74	/
Channel Bandwidth: 15 MHz								
Lowest	75	0	13.49	13.48	/	15.01	14.90	/
Middle	75	0	13.46	13.45	/	14.78	14.87	/
Highest	75	0	13.40	13.44	/	14.69	15.01	/
Channel Bandwidth: 20 MHz								
Lowest	100	0	17.98	18.00	/	19.45	19.57	/
Middle	100	0	17.96	17.96	/	19.34	19.52	/
Highest	100	0	17.96	17.92	/	19.55	19.59	/

LTE Band 7_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

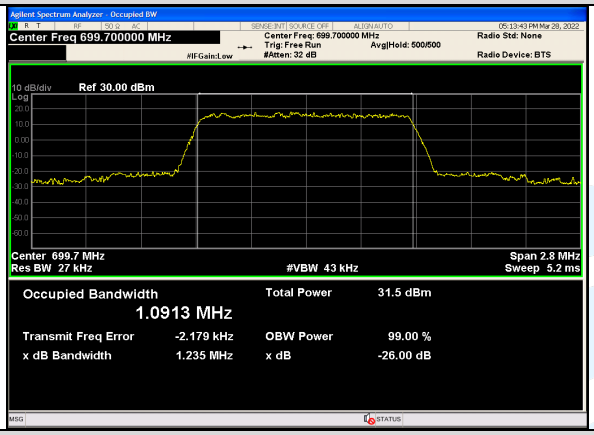
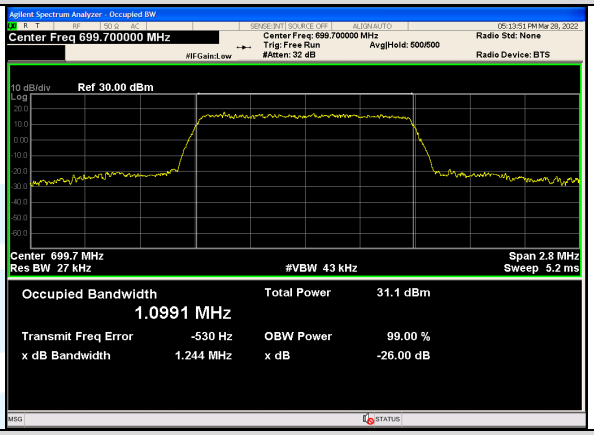
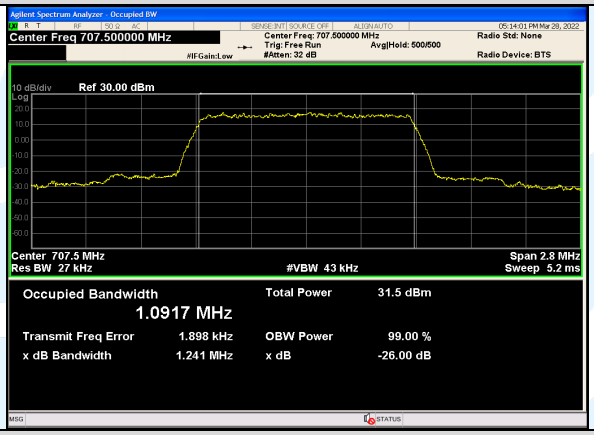
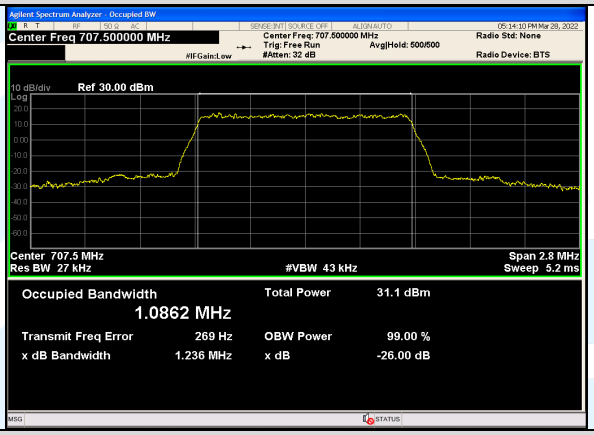
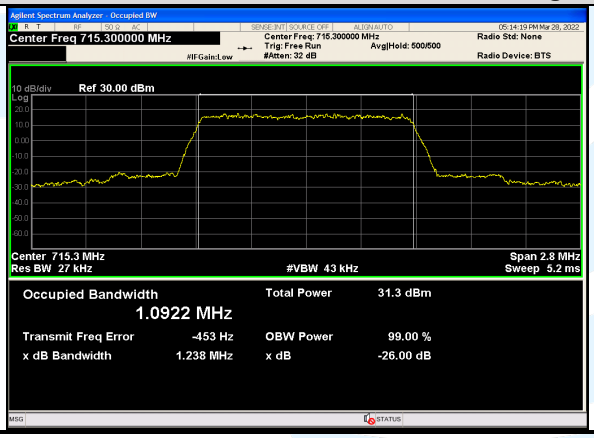
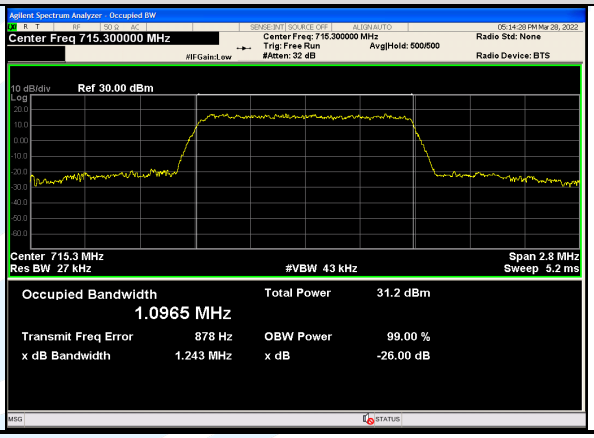
LTE Band 7_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

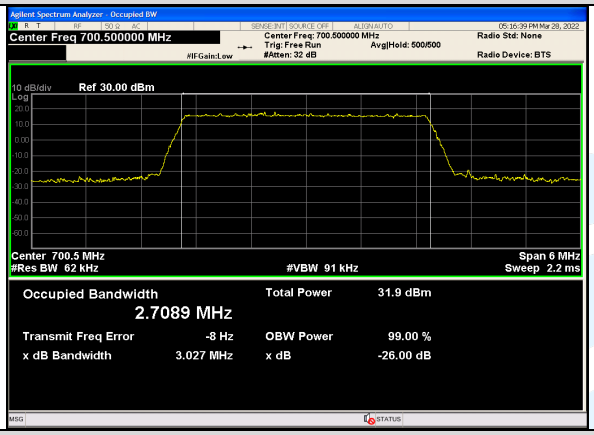
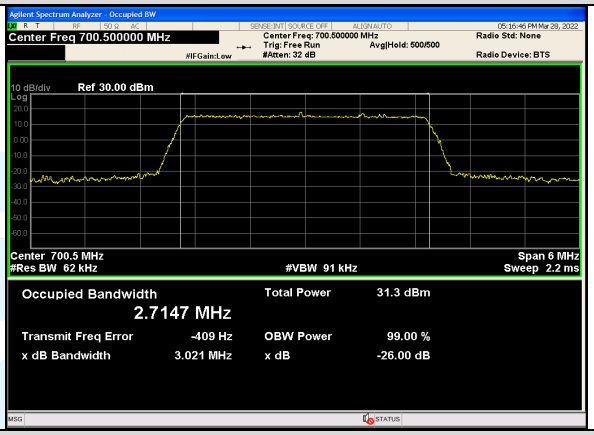
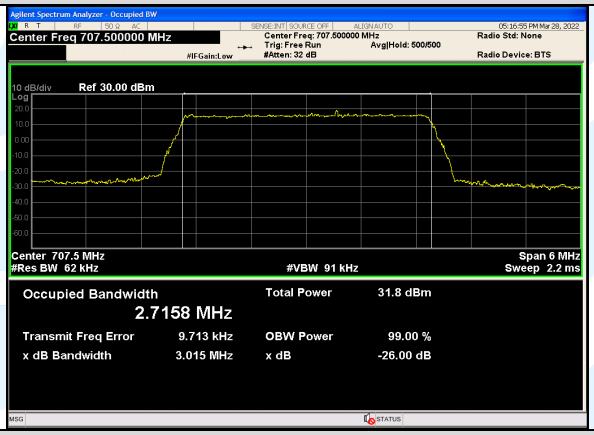
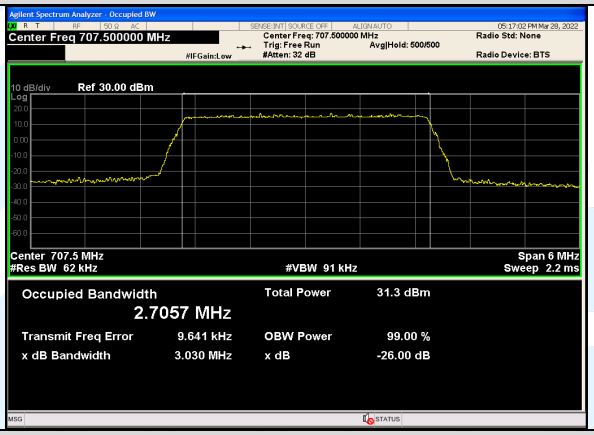
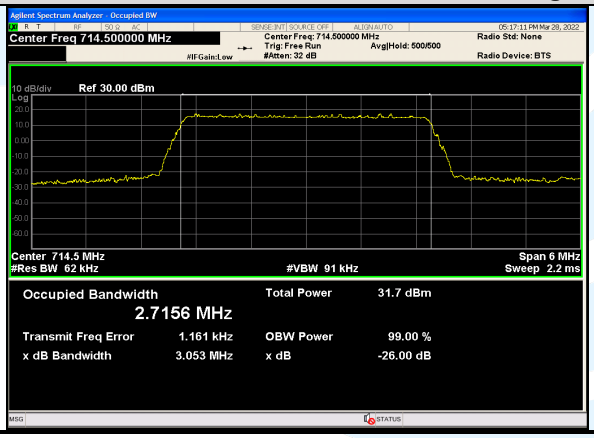
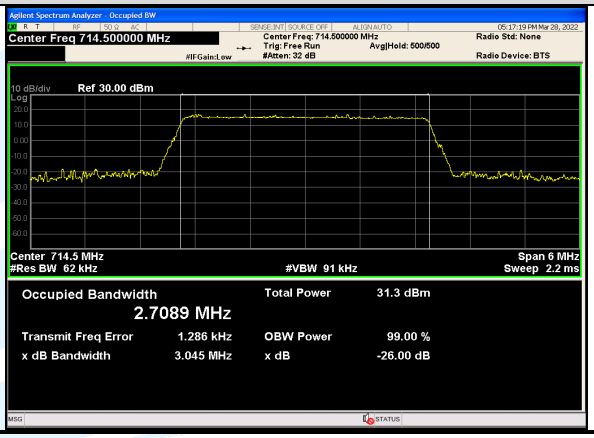
LTE Band 7_ Channel Bandwidth: 15 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

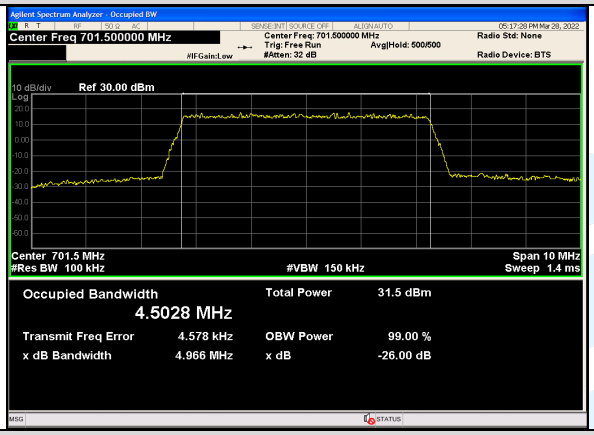
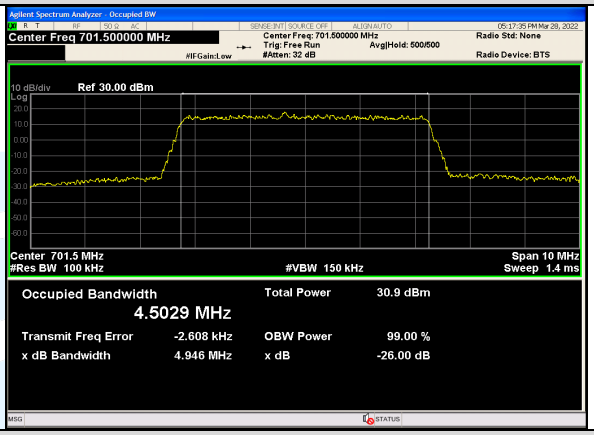
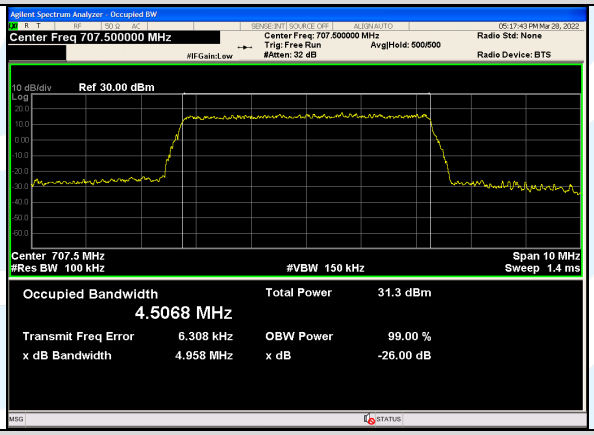
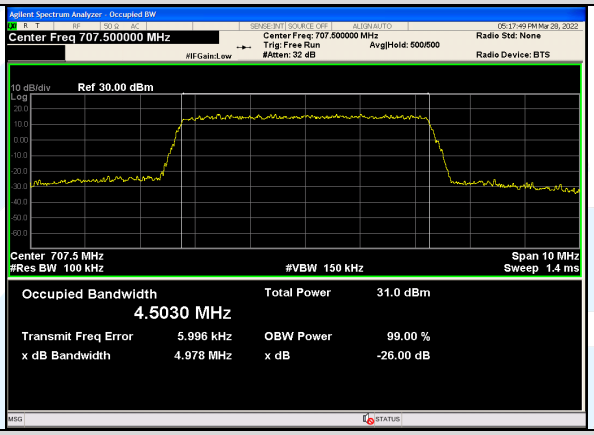
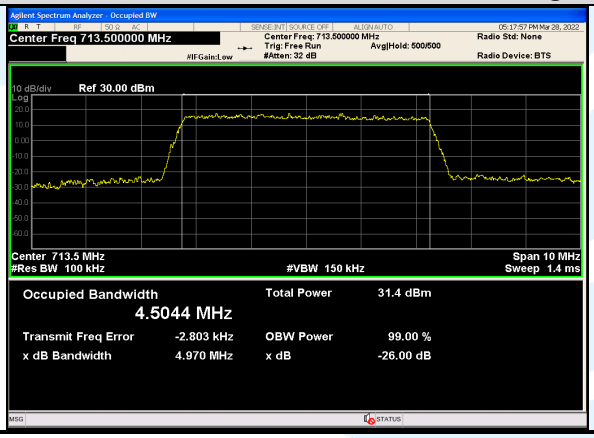
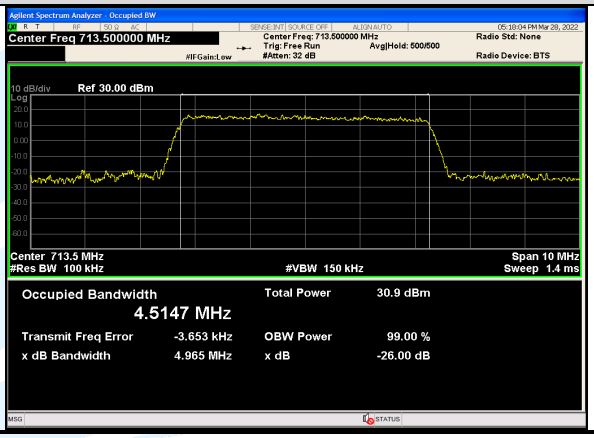
LTE Band 7_ Channel Bandwidth: 20 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

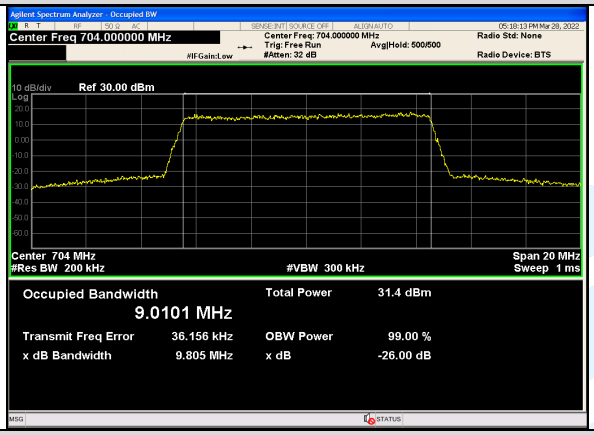
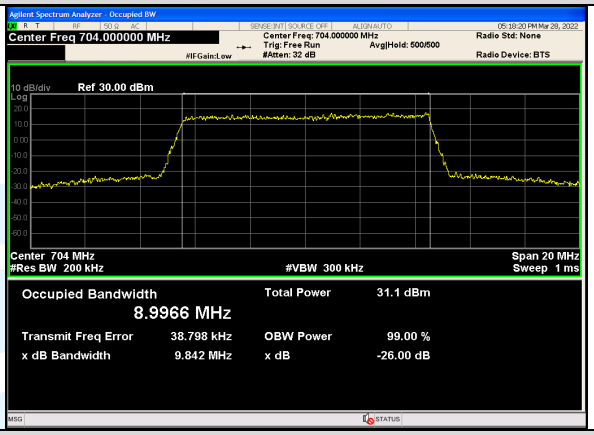
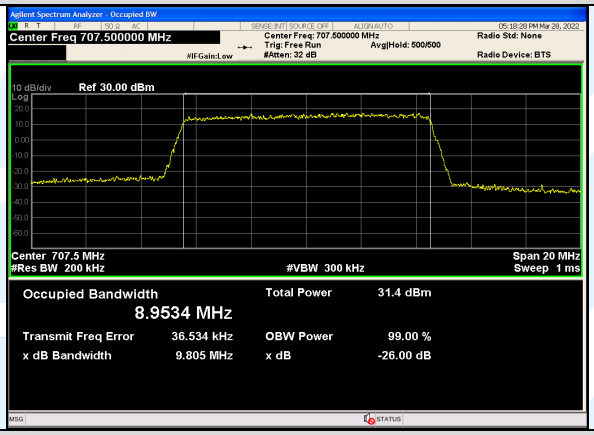
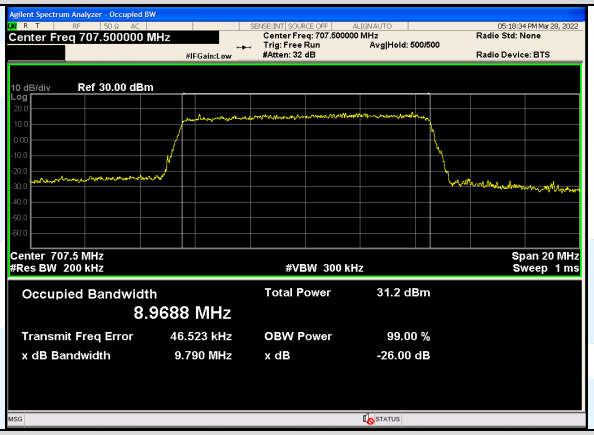
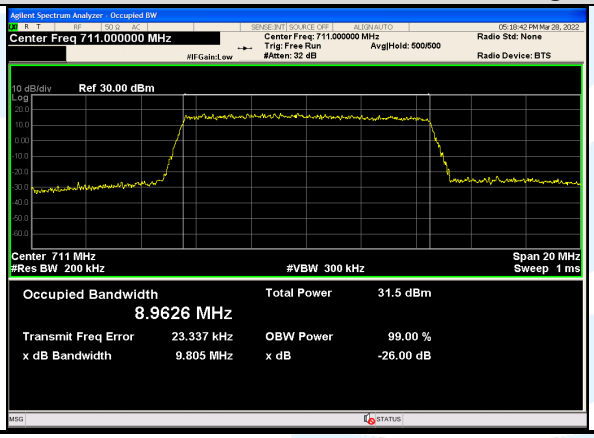
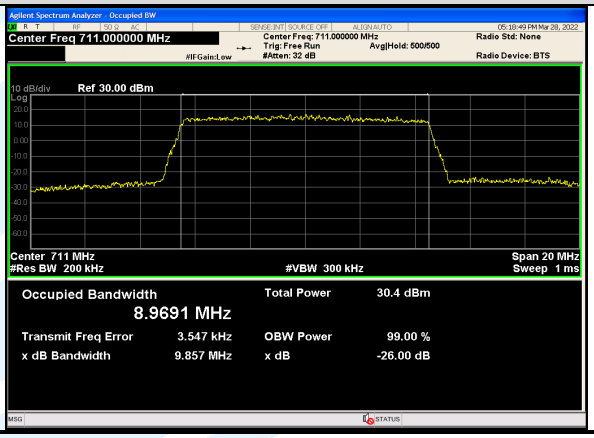
5.5.5 LTE Band 12

LTE Band 12								
Channel	RB Configuration		99% BW (MHz)			26 dB BW (MHz)		
	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Channel Bandwidth: 1.4 MHz								
Lowest	6	0	1.09	1.10	/	1.23	1.24	/
Middle	6	0	1.09	1.09	/	1.24	1.24	/
Highest	6	0	1.09	1.10	/	1.24	1.24	/
Channel Bandwidth: 3 MHz								
Lowest	15	0	2.71	2.71	/	3.03	3.02	/
Middle	15	0	2.72	2.71	/	3.02	3.03	/
Highest	15	0	2.72	2.71	/	3.05	3.05	/
Channel Bandwidth: 5 MHz								
Lowest	25	0	4.50	4.50	/	4.97	4.95	/
Middle	25	0	4.51	4.50	/	4.96	4.98	/
Highest	25	0	4.50	4.51	/	4.97	4.97	/
Channel Bandwidth: 10 MHz								
Lowest	50	0	9.01	9.00	/	9.80	9.84	/
Middle	50	0	8.95	8.97	/	9.81	9.79	/
Highest	50	0	8.96	8.97	/	9.81	9.86	/

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

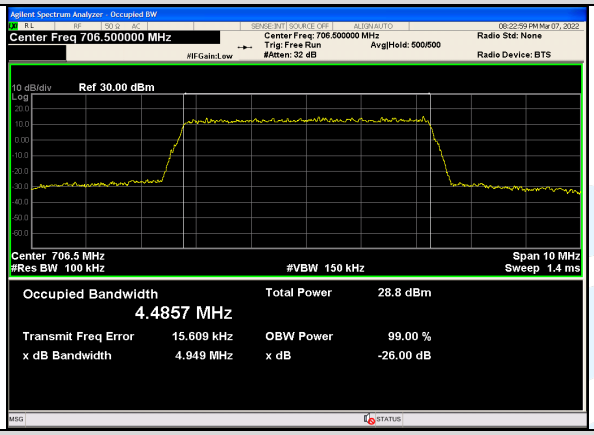
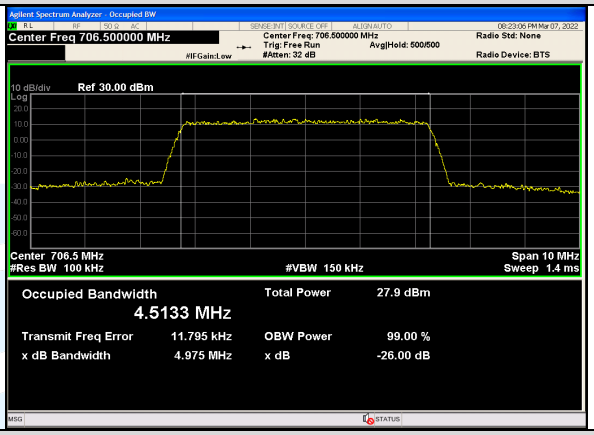
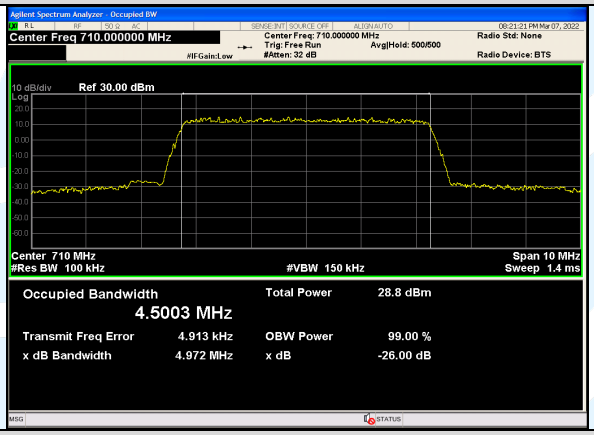
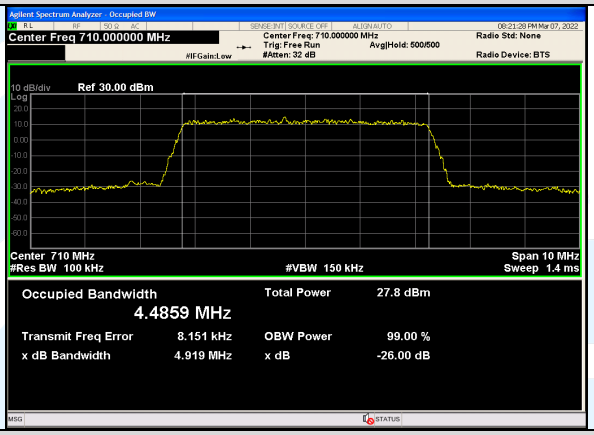
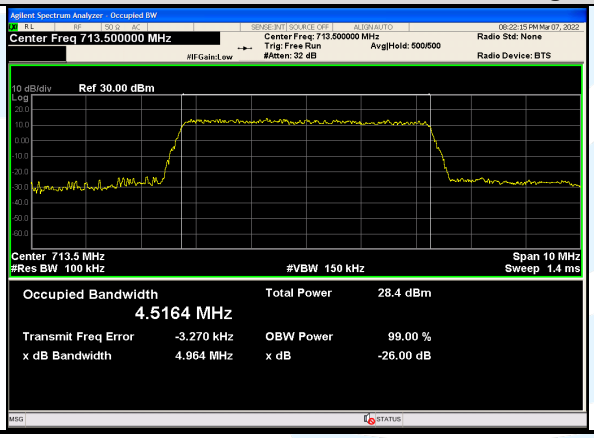
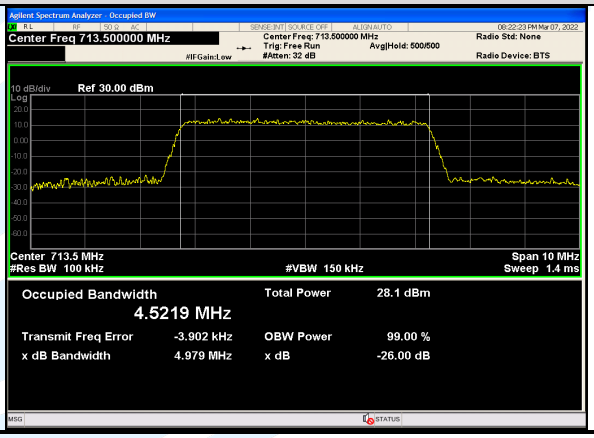
LTE Band 12_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

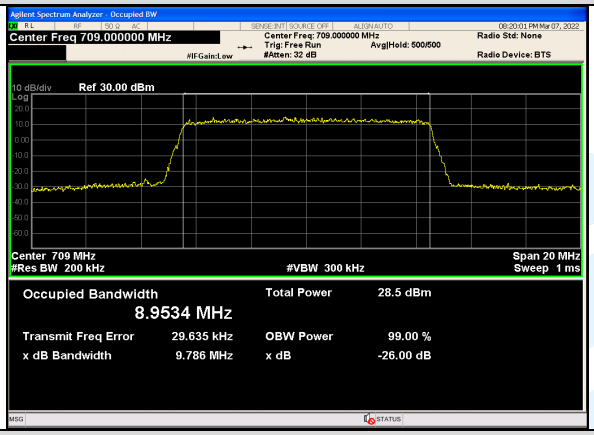
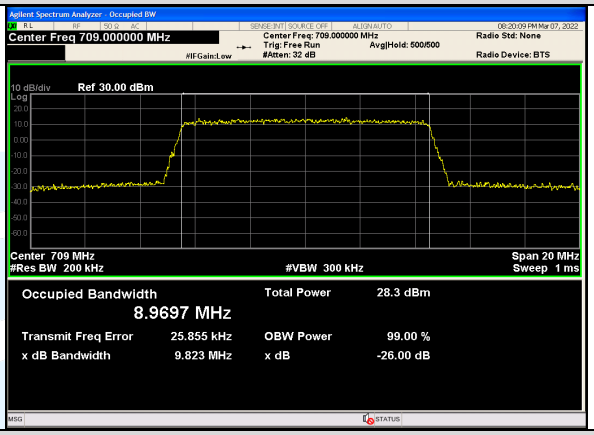
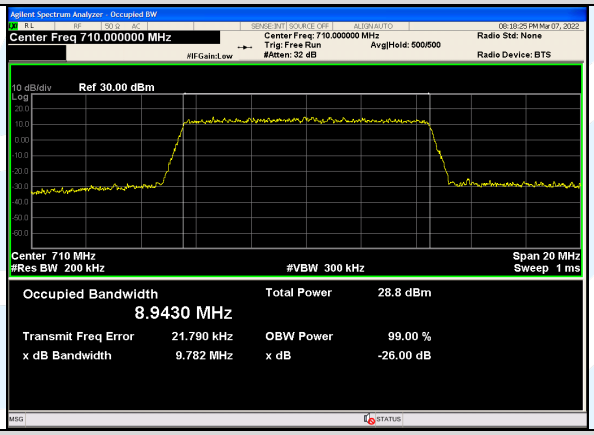
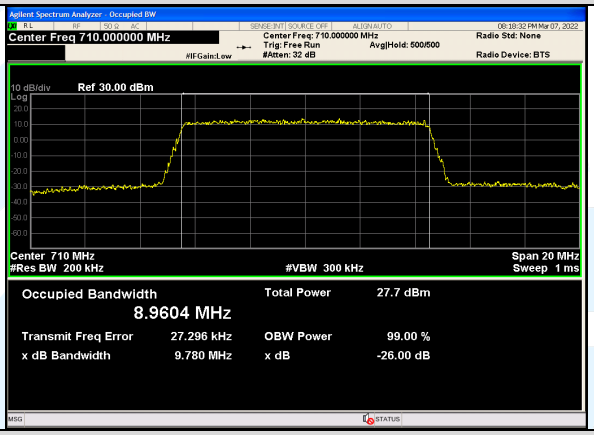
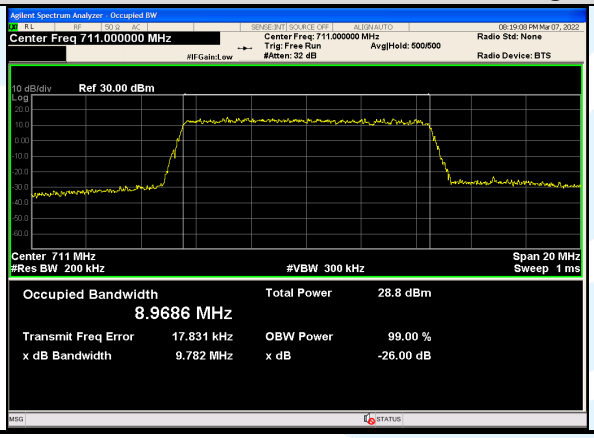
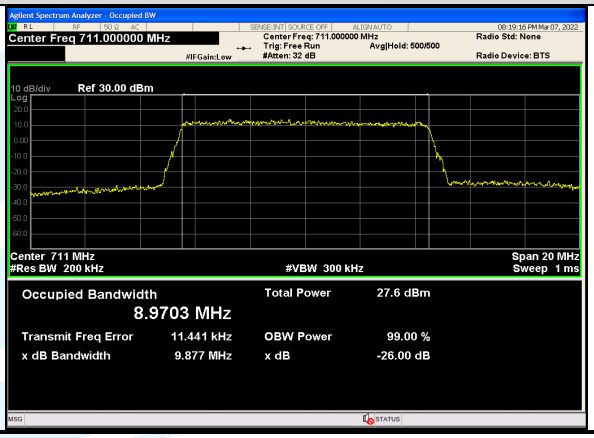
LTE Band 12_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

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

5.5.6 LTE Band 17

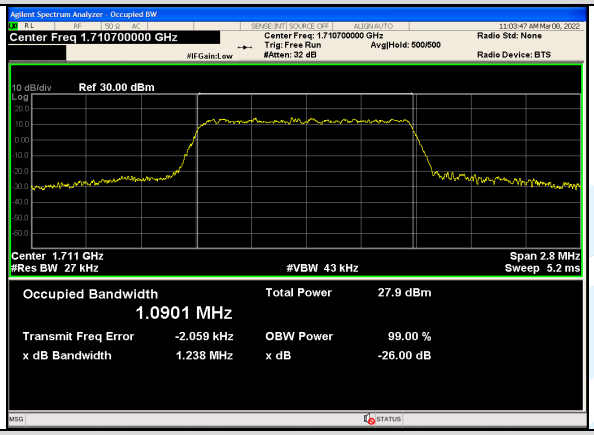
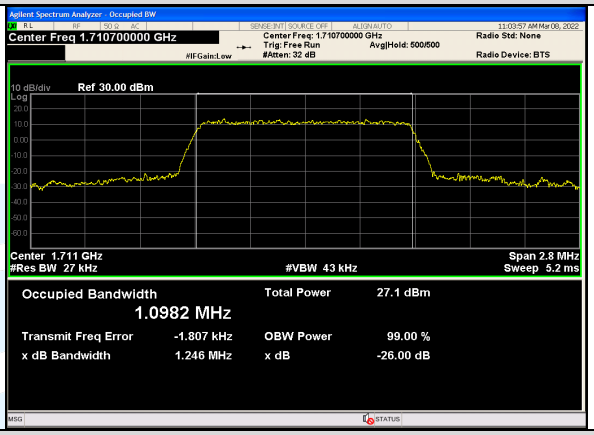
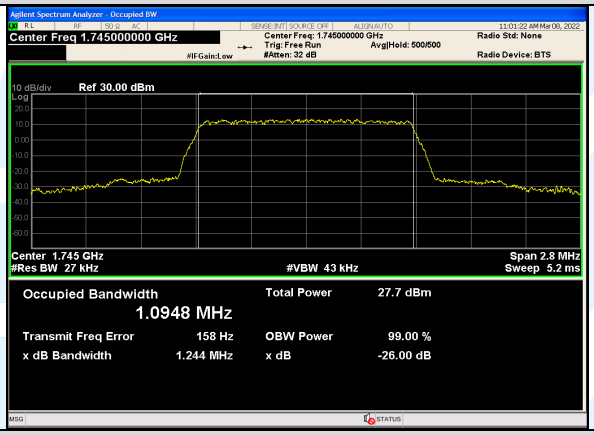
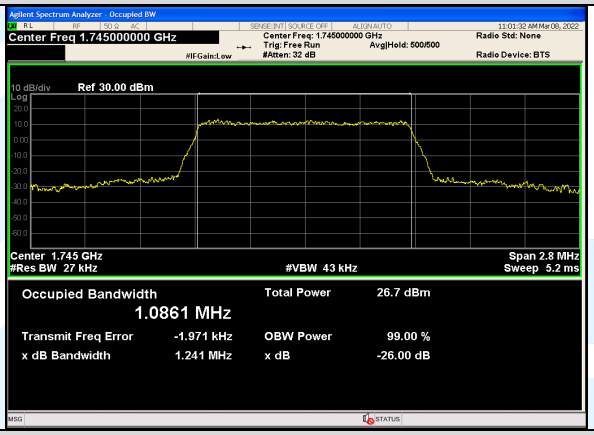
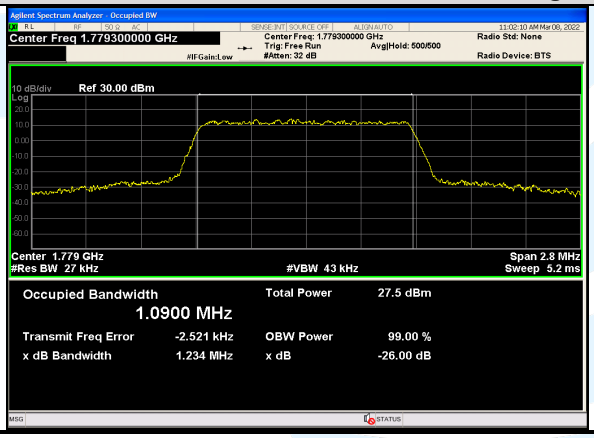
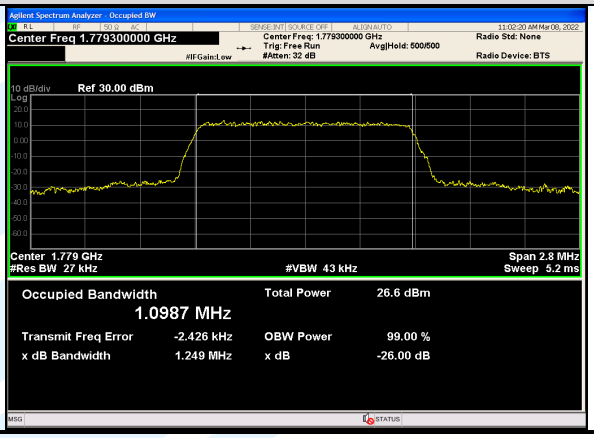
LTE Band 17								
Channel	RB Configuration		99% BW (MHz)			26 dB BW (MHz)		
	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Channel Bandwidth: 5 MHz								
Lowest	25	0	4.49	4.51	/	4.95	4.98	/
Middle	25	0	4.50	4.49	/	4.97	4.92	/
Highest	25	0	4.52	4.52	/	4.96	4.98	/
Channel Bandwidth: 10 MHz								
Lowest	50	0	8.95	8.97	/	9.79	9.82	/
Middle	50	0	8.94	8.96	/	9.78	9.78	/
Highest	50	0	8.97	8.97	/	9.78	9.88	/

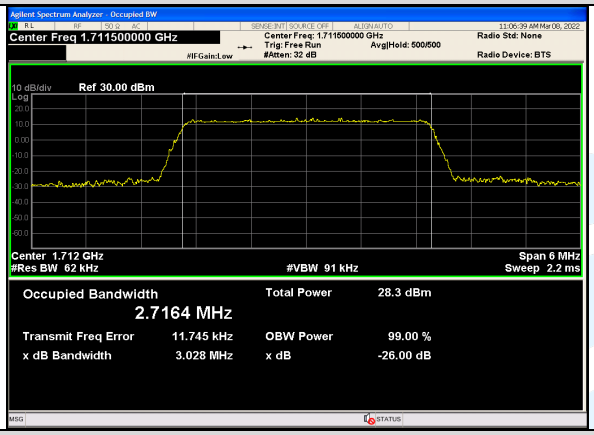
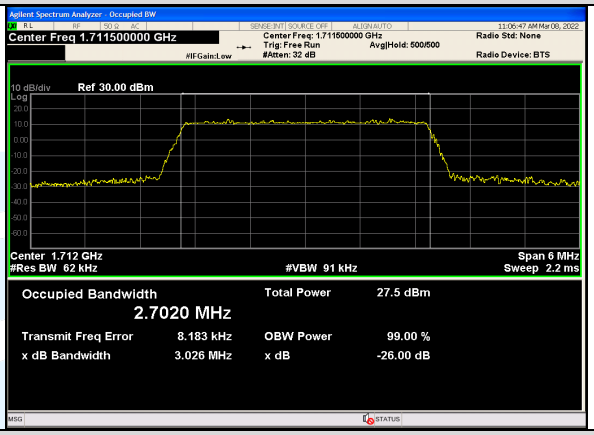
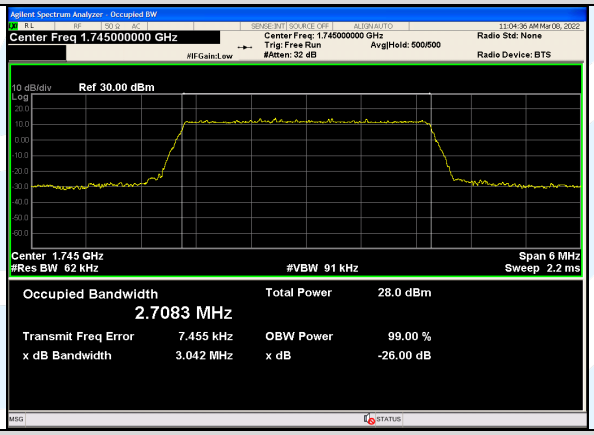
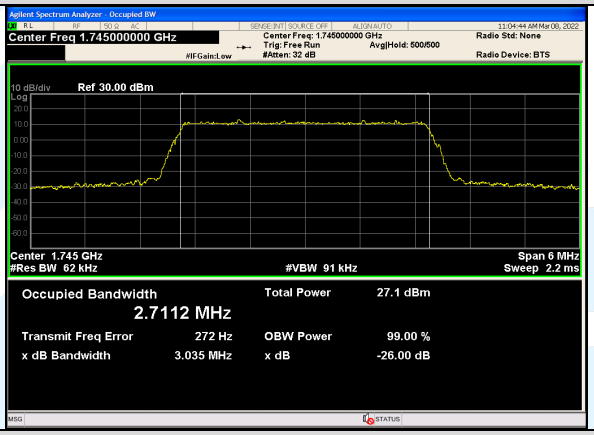
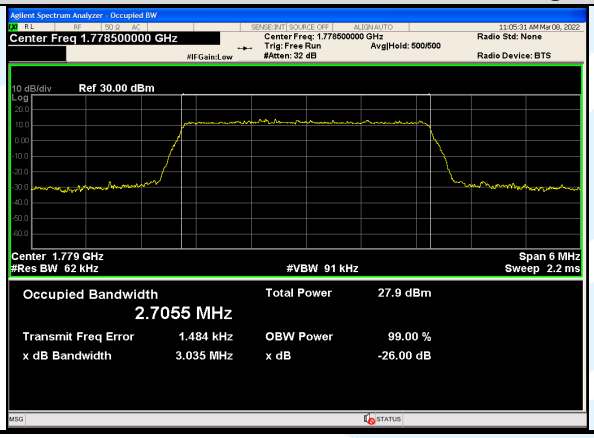
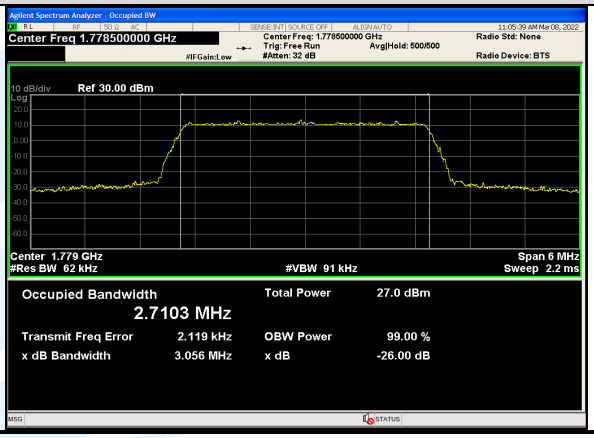
LTE Band 17_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

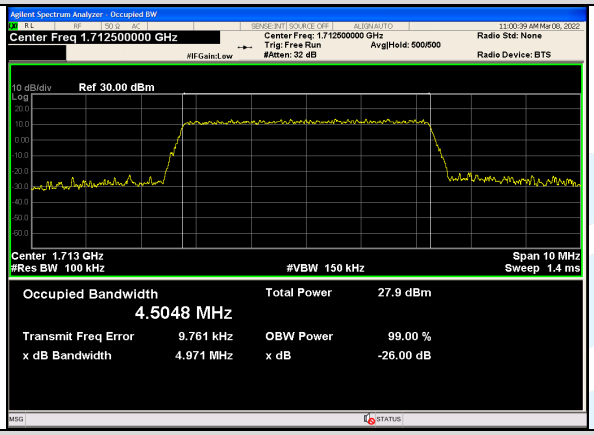
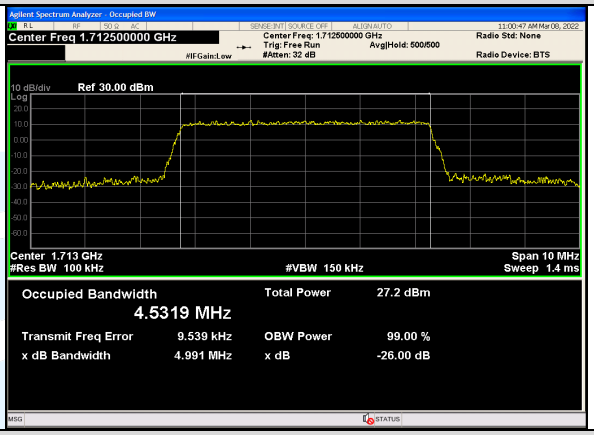
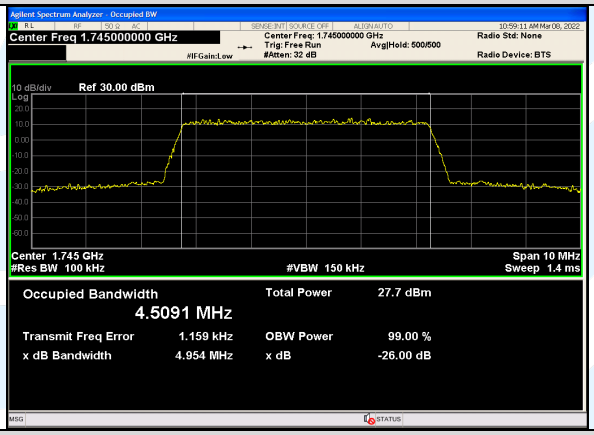
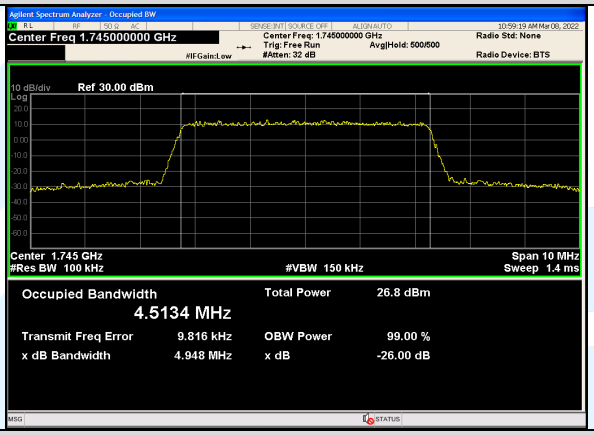
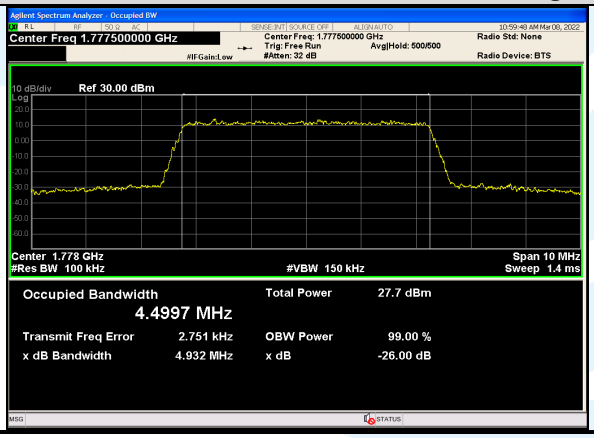
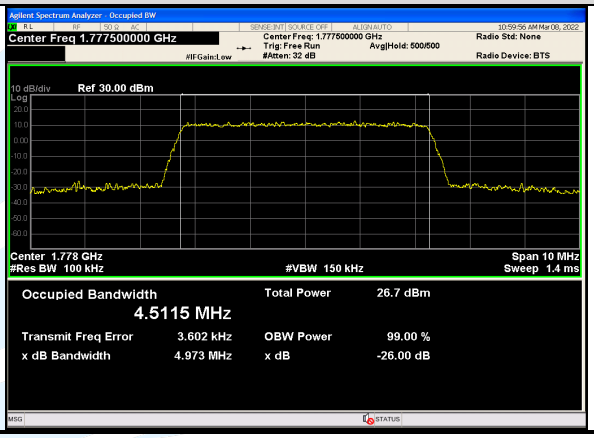
LTE Band 17_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

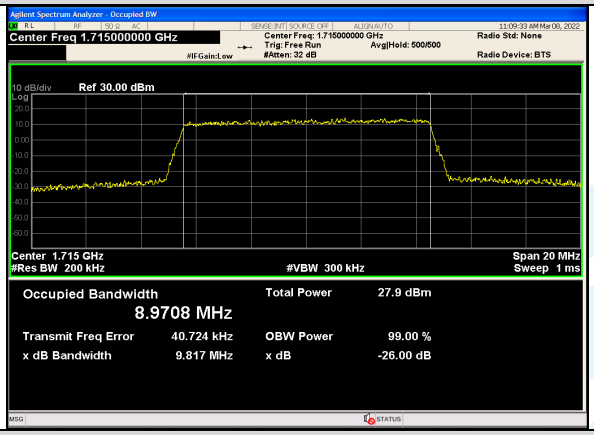
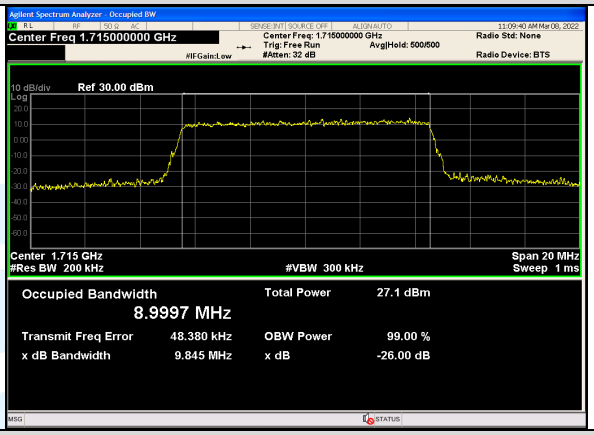
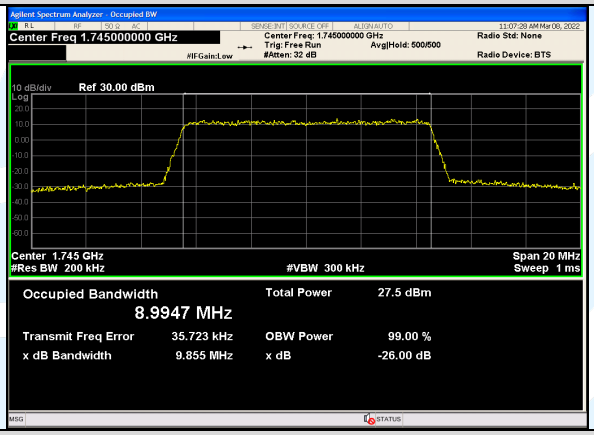
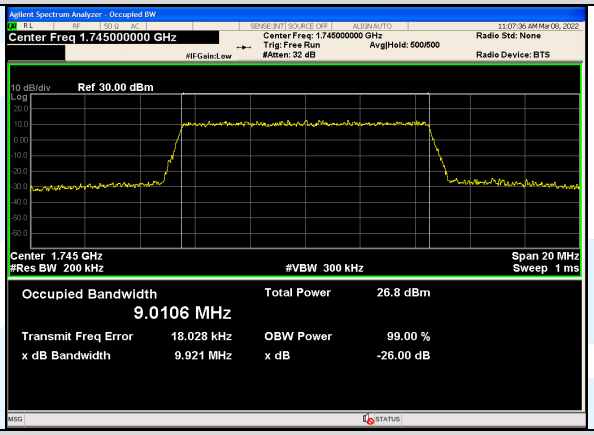
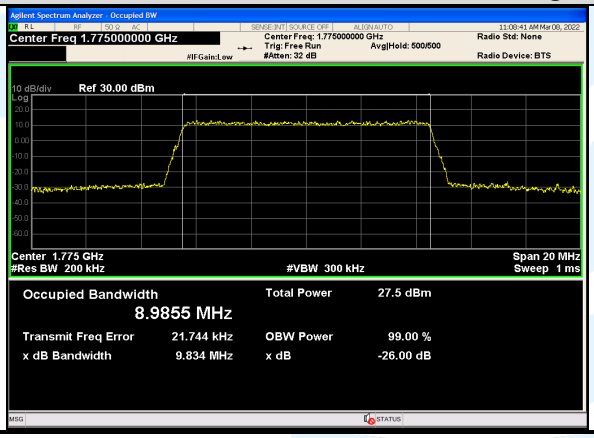
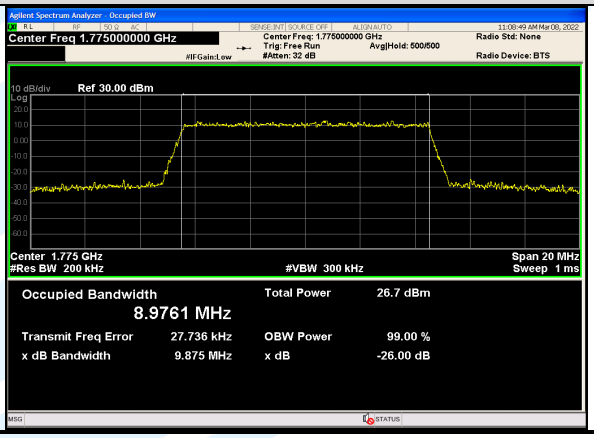
5.5.7 LTE Band 66

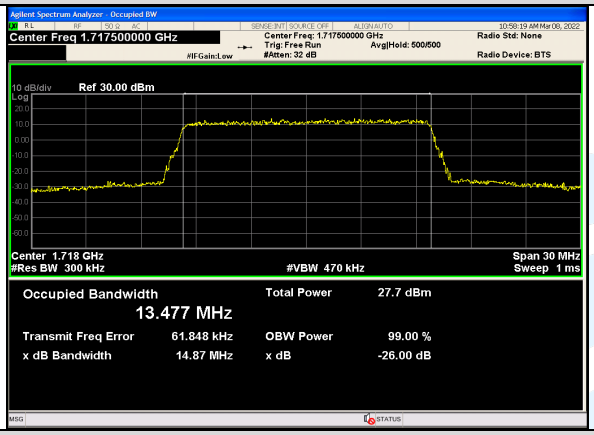
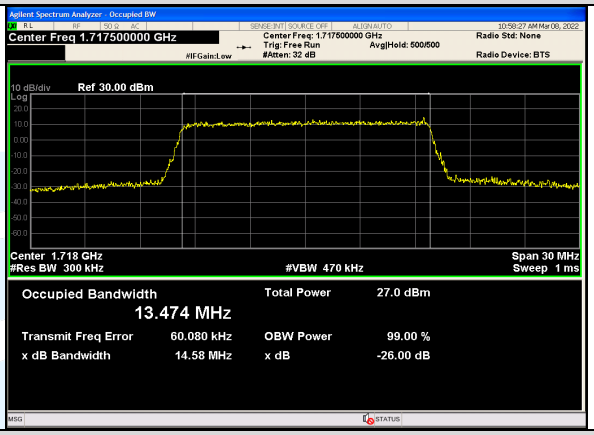
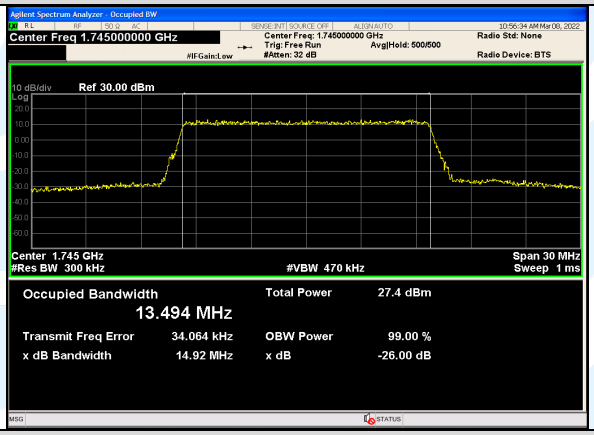
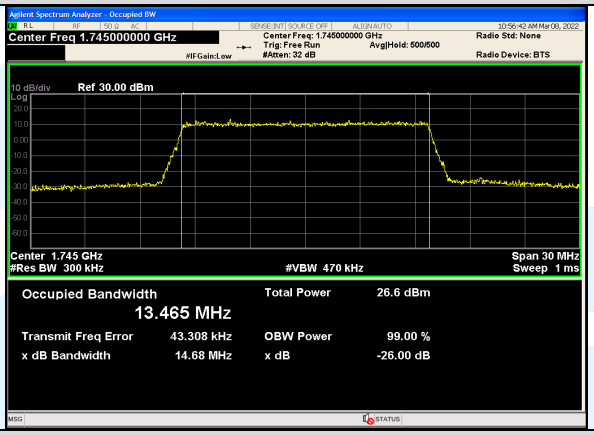
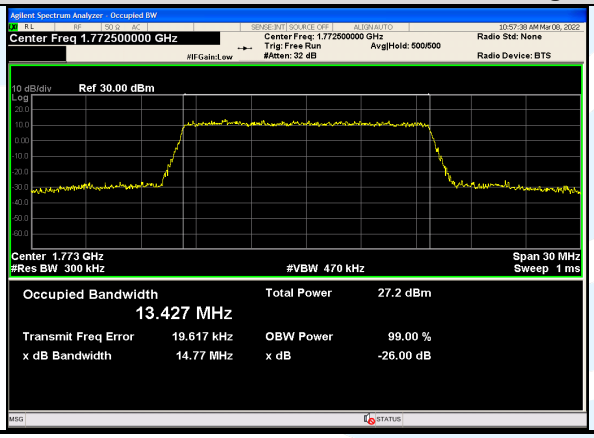
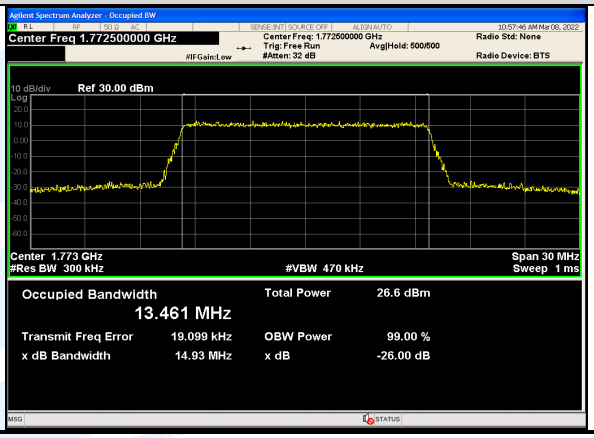
LTE Band 66								
Channel	RB Configuration		99% BW (MHz)			26 dB BW (MHz)		
	Size	Offset	QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
Channel Bandwidth: 1.4 MHz								
Lowest	6	0	1.09	1.10	/	1.24	1.25	/
Middle	6	0	1.09	1.09	/	1.24	1.24	/
Highest	6	0	1.09	1.10	/	1.23	1.25	/
Channel Bandwidth: 3 MHz								
Lowest	15	0	2.72	2.70	/	3.03	3.03	/
Middle	15	0	2.71	2.71	/	3.04	3.03	/
Highest	15	0	2.71	2.71	/	3.03	3.06	/
Channel Bandwidth: 5 MHz								
Lowest	25	0	4.50	4.53	/	4.97	4.99	/
Middle	25	0	4.51	4.51	/	4.95	4.95	/
Highest	25	0	4.50	4.51	/	4.93	4.97	/
Channel Bandwidth: 10 MHz								
Lowest	50	0	8.97	9.00	/	9.82	9.85	/
Middle	50	0	8.99	9.01	/	9.85	9.92	/
Highest	50	0	8.99	8.98	/	9.83	9.88	/
Channel Bandwidth: 15 MHz								
Lowest	75	0	13.48	13.47	/	14.87	14.58	/
Middle	75	0	13.49	13.47	/	14.92	14.68	/
Highest	75	0	13.43	13.46	/	14.77	14.93	/
Channel Bandwidth: 20 MHz								
Lowest	100	0	17.94	17.93	/	19.47	19.52	/
Middle	100	0	17.97	17.99	/	19.71	19.64	/
Highest	100	0	17.97	17.92	/	19.65	19.45	/

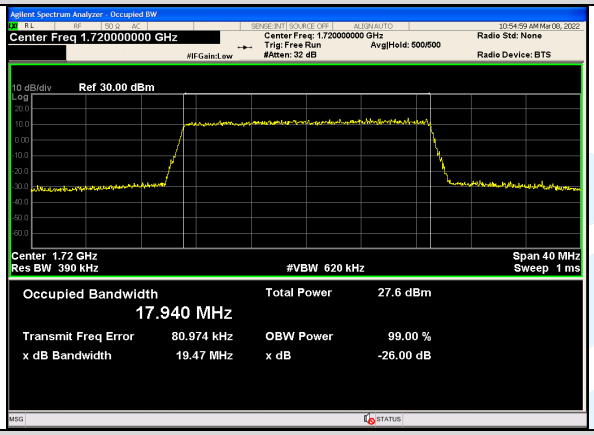
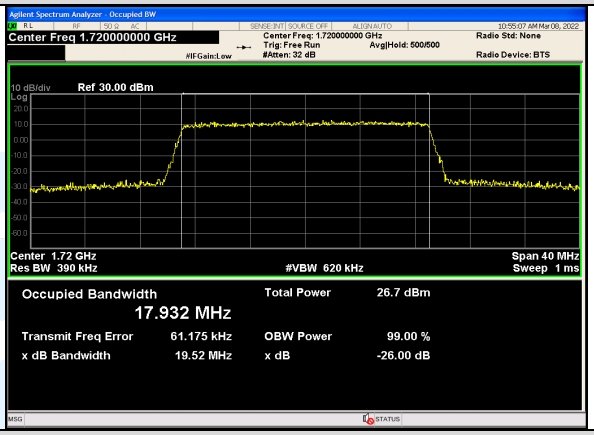
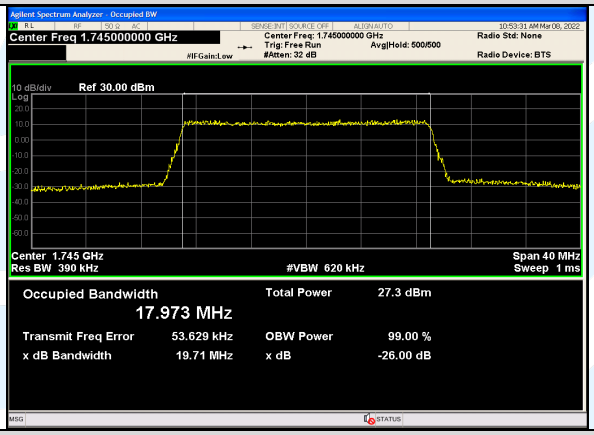
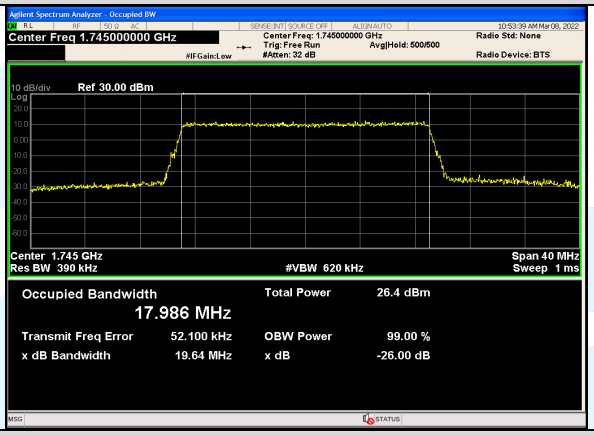
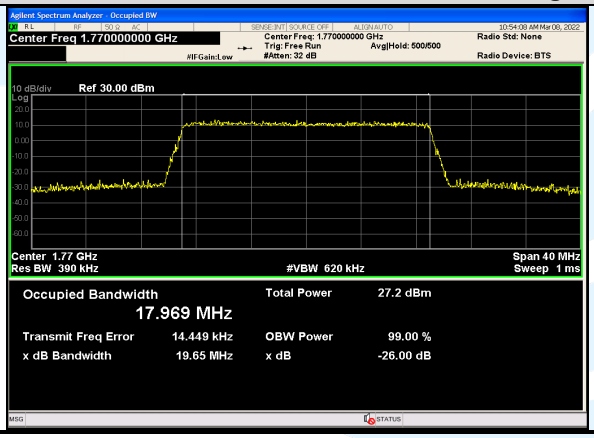
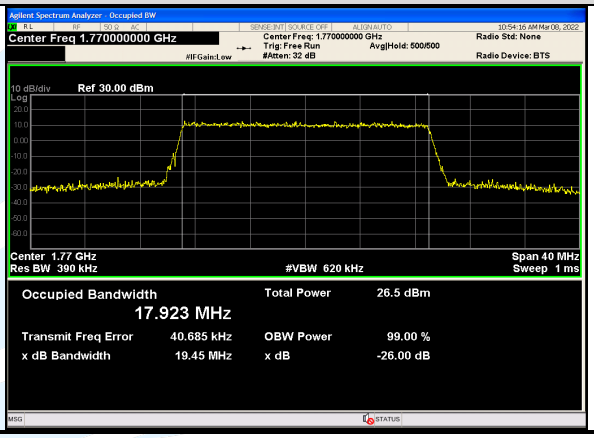
LTE Band 66_ Channel Bandwidth: 1.4 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 66_ Channel Bandwidth: 3 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 66_ Channel Bandwidth: 5 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 66_ Channel Bandwidth: 10 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 66_ Channel Bandwidth: 15 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

LTE Band 66_ Channel Bandwidth: 20 MHz	
QPSK	16QAM
Lowest Channel	
	
Middle Channel	
	
Highest Channel	
	

5.6 BAND EDGE AT ANTENNA TERMINALS

Test Requirement: **LTE Band 2:** FCC 47 CFR Part 24.238(a)
LTE Band 4 & LTE Band 66: FCC 47 CFR Part 27.53(h)(1)
LTE Band 5: FCC 47 CFR Part 22.917(a)
LTE Band 7: FCC 47 CFR Part 27.53(m)(4)
LTE Band 12 & Band 17: FCC 47 CFR Part 27.53(g)

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limit:

FCC 47 CFR Part 24.238(a), 27.53(h)(1), 22.917(a):
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13 dBm.

FCC 47 CFR Part 27.53(m)(4):
For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

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.

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