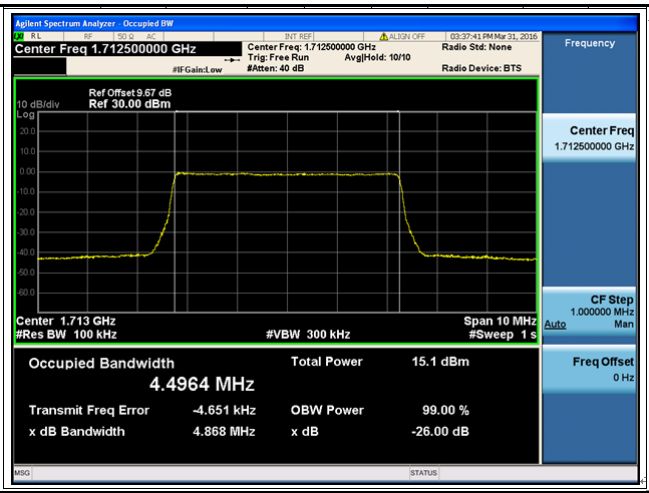
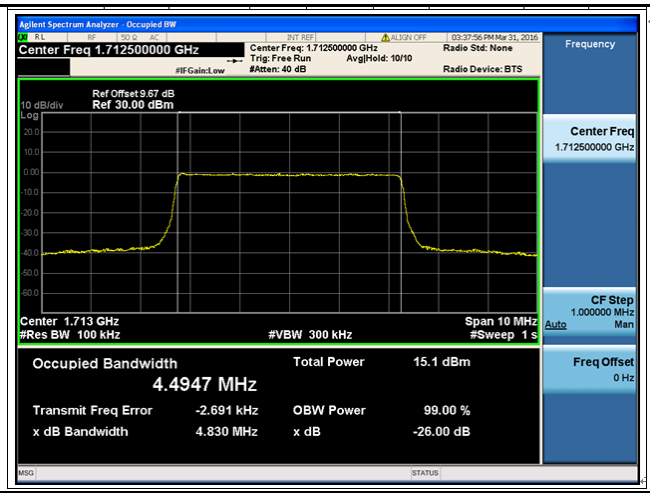
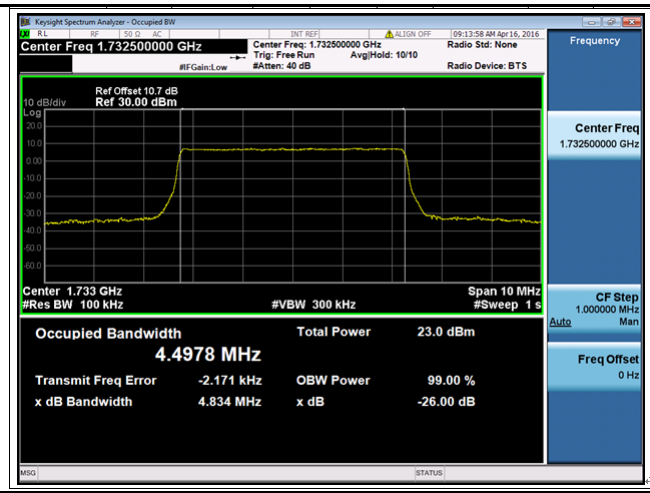


LTE band 4 - Low CH QPSK-5

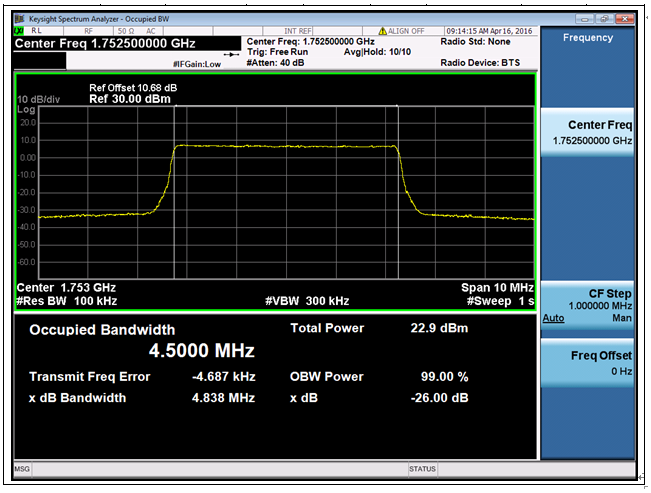


LTE band 4 - Low CH 16QAM-5

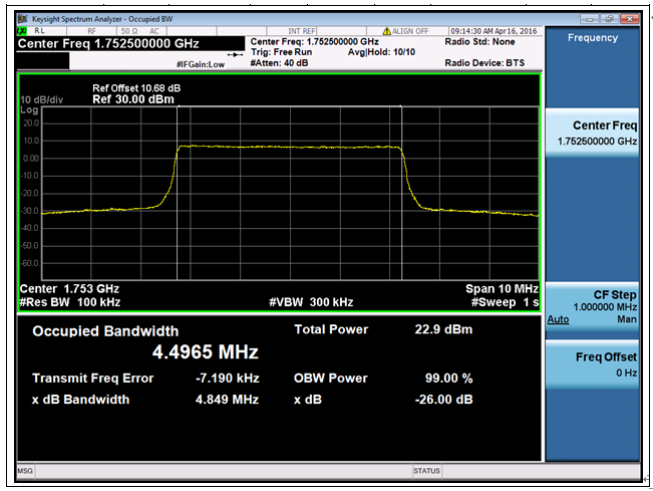
LTE band 4 - Middle CH QPSK-5



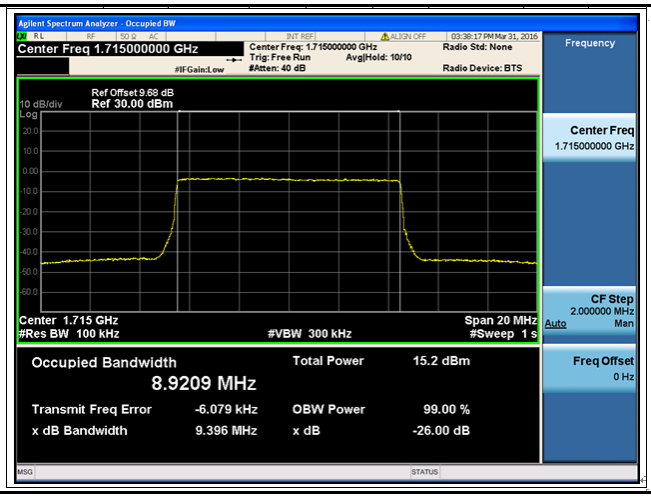
LTE band 4 - Middle CH 16QAM-5



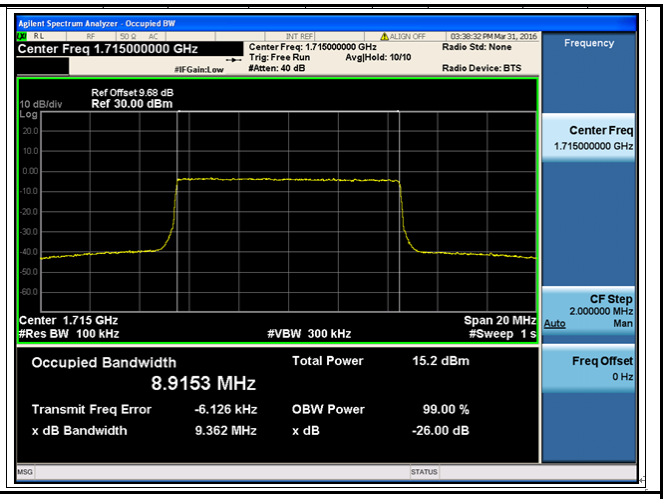
LTE band 4 - High CH QPSK-5



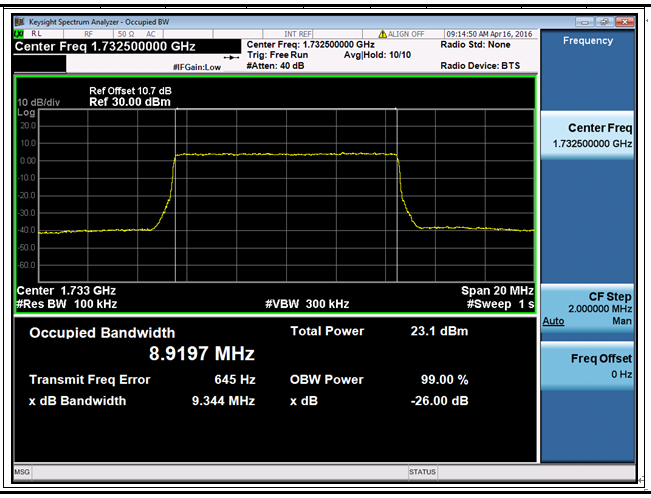
LTE band 4 - High CH 16QAM-5



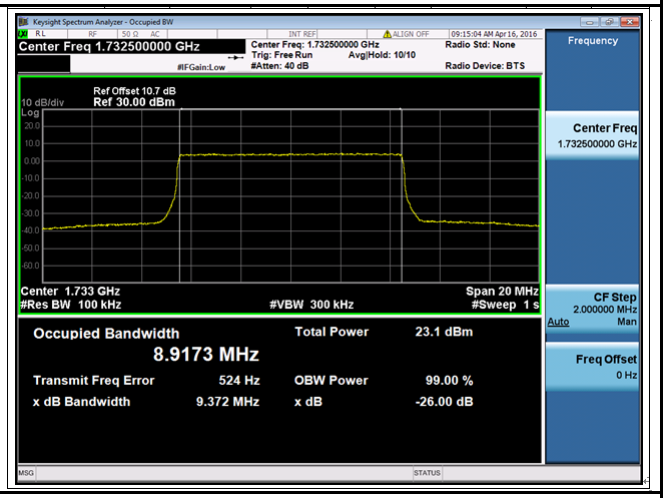
LTE band 4 - Low CH QPSK-10



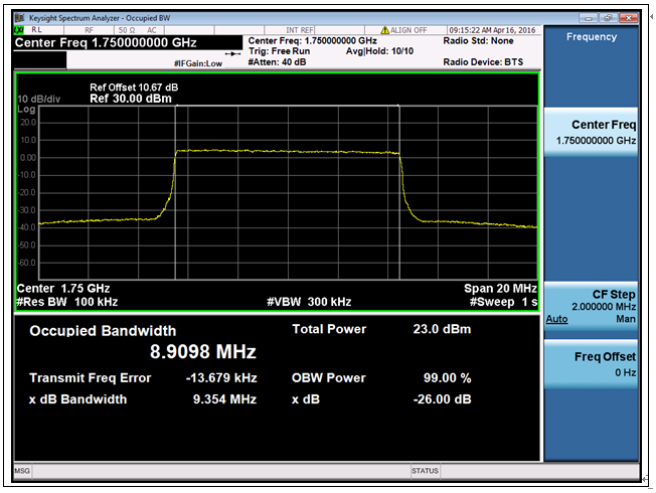
LTE band 4 - Low CH 16QAM-10



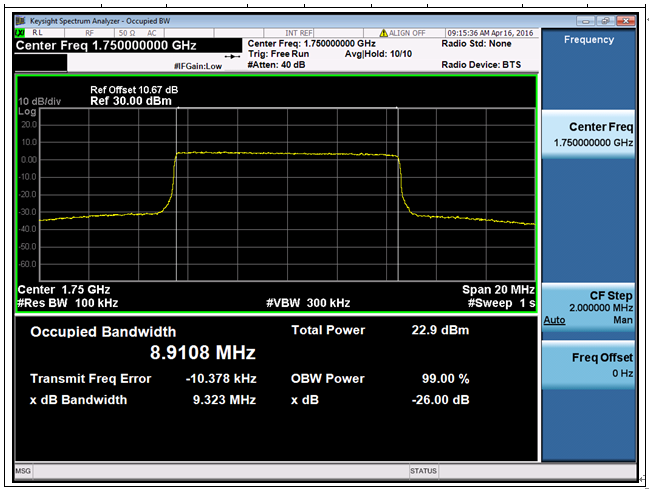
LTE band 4 - Middle CH QPSK-10



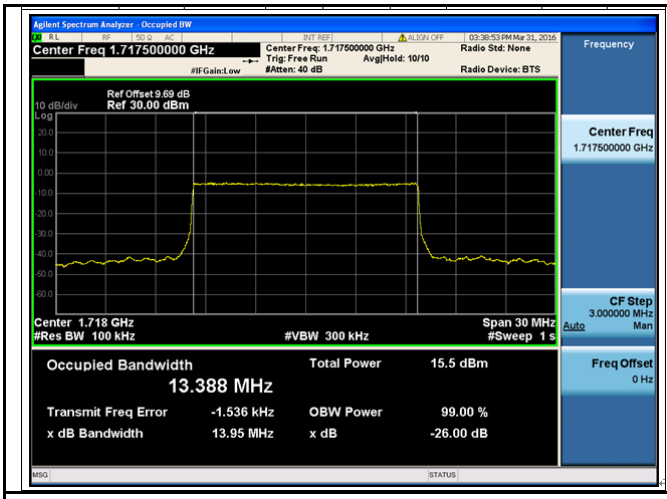
LTE band 4 - Middle CH 16QAM-10



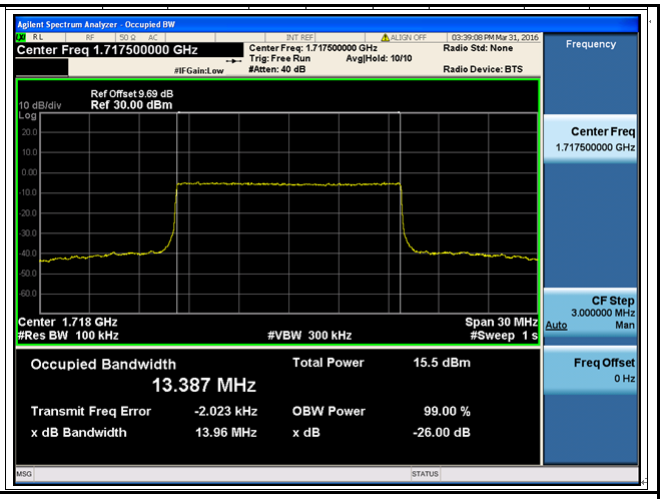
LTE band 4 - High CH QPSK-10



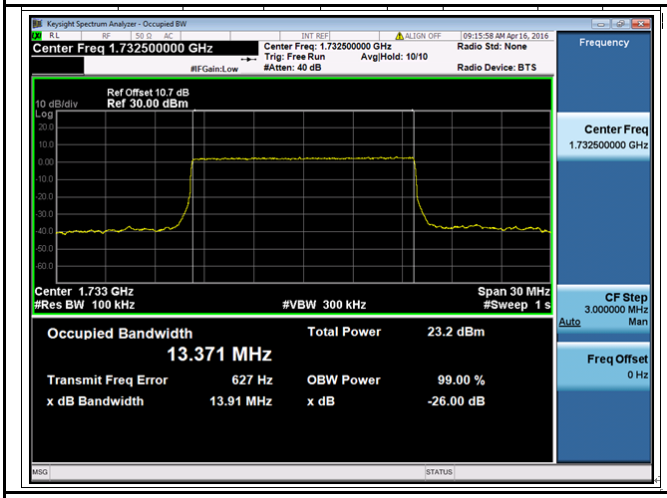
LTE band 4 - High CH 16QAM-10



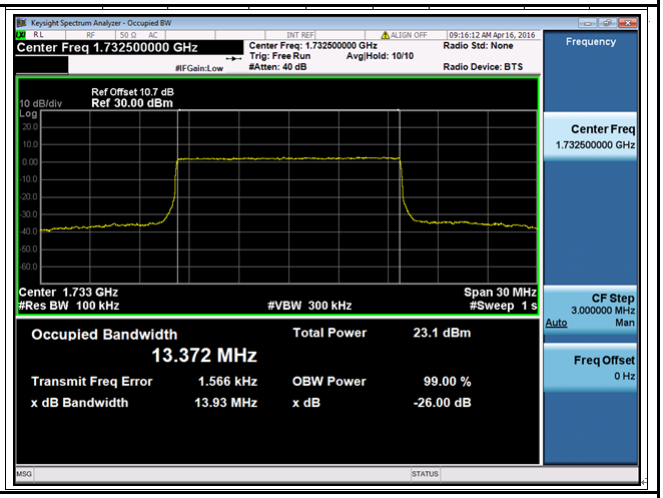
LTE band 4 - Low CH QPSK-15



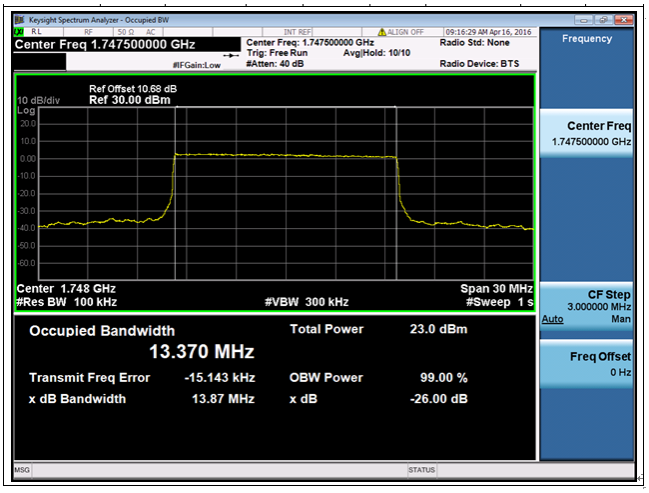
LTE band 4 - Low CH 16QAM-15



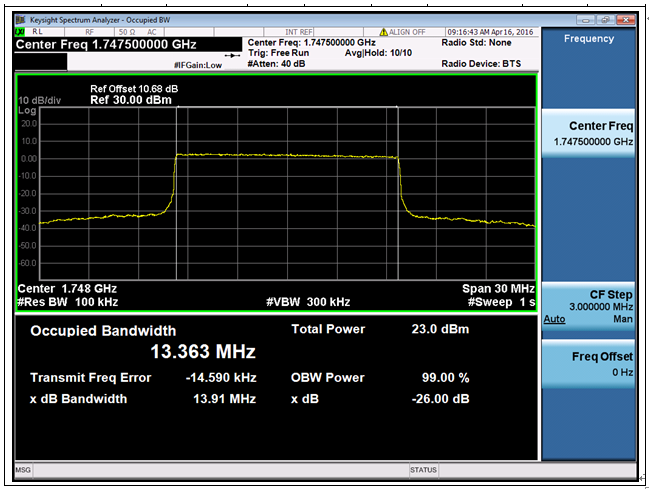
LTE band 4 - Middle CH QPSK-15



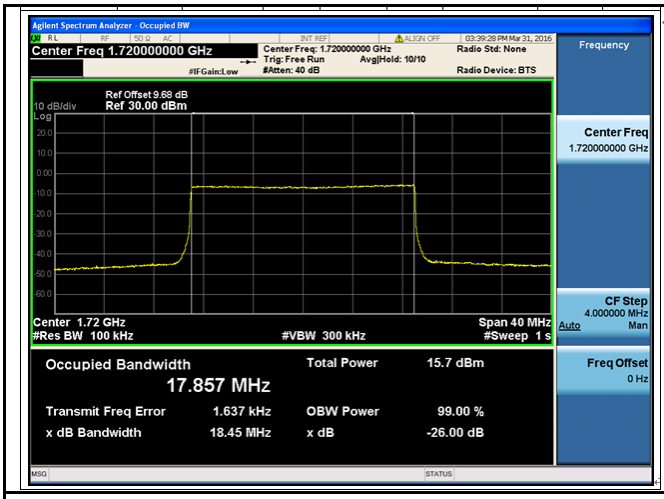
LTE band 4 - Middle CH 16QAM-15



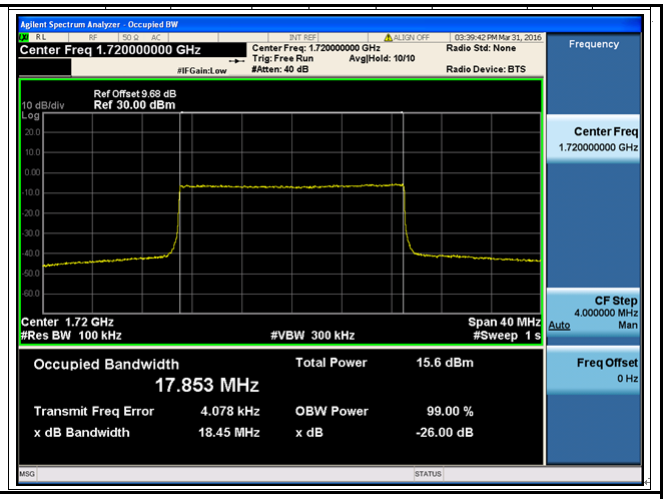
LTE band 4 - High CH QPSK-15



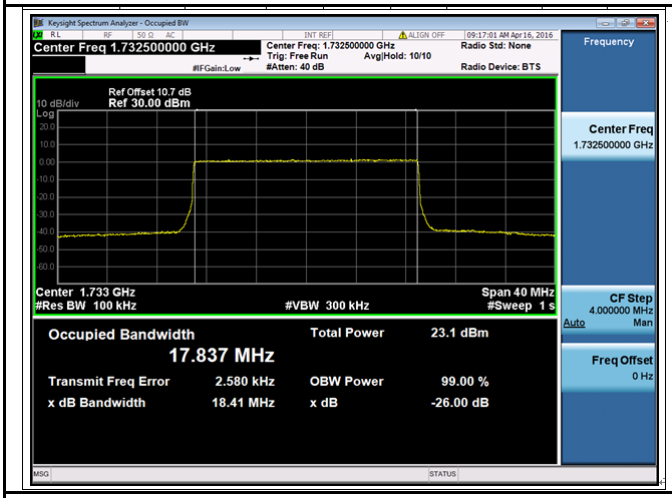
LTE band 4 - High CH 16QAM-15



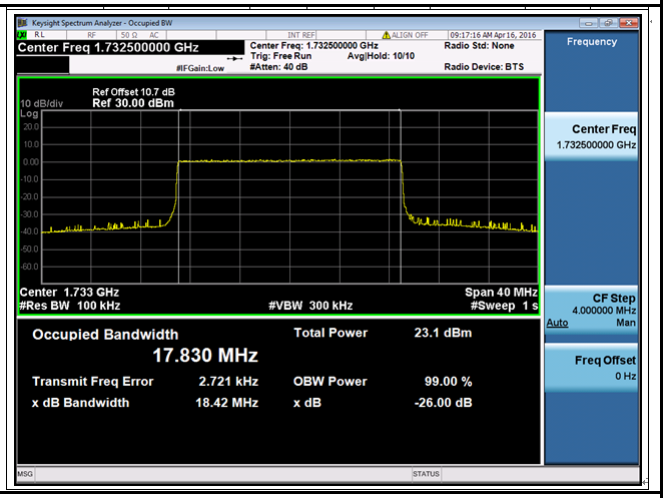
LTE band 4 - Low CH QPSK-20



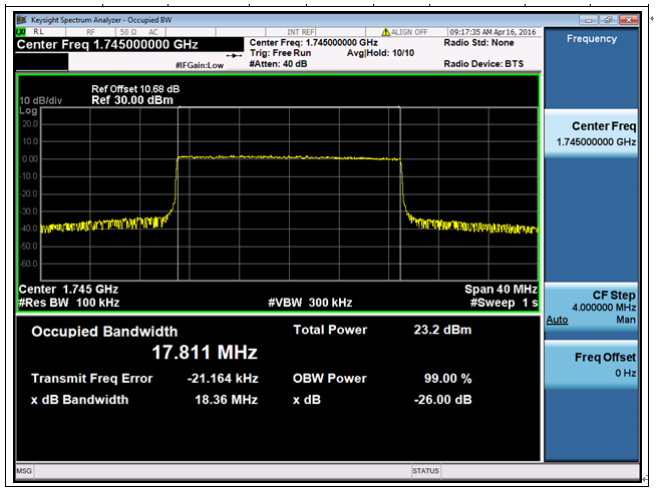
LTE band 4 - Low CH 16QAM-20



LTE band 4 - Middle CH QPSK-20



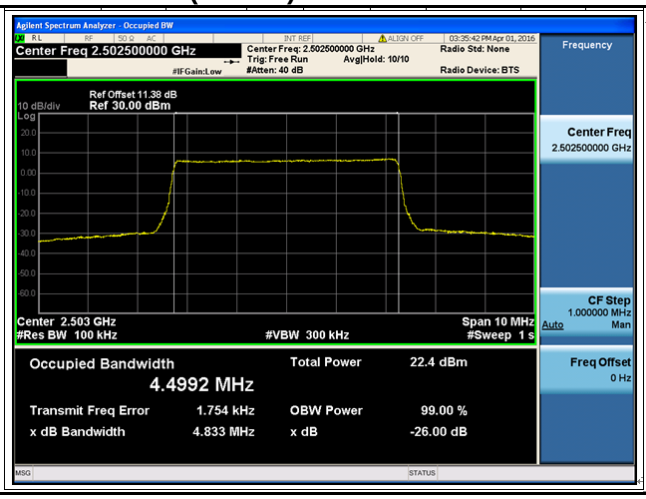
LTE band 4 - Middle CH 16QAM-20



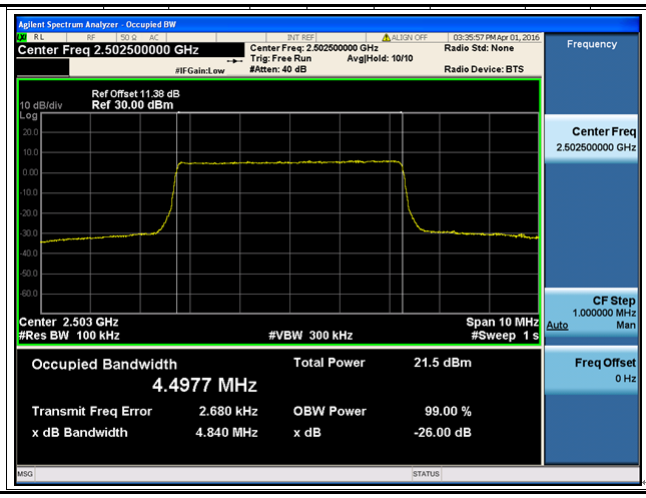
LTE band 4 - High CH QPSK-20

LTE band 4 - High CH 16QAM-20

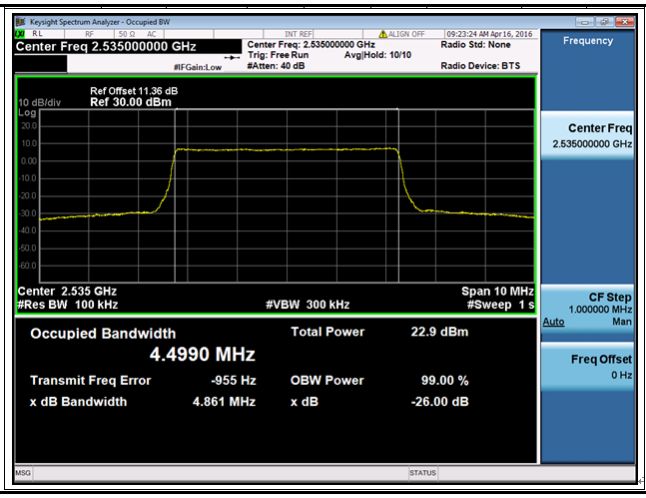
LTE Band 7 (Part 27)



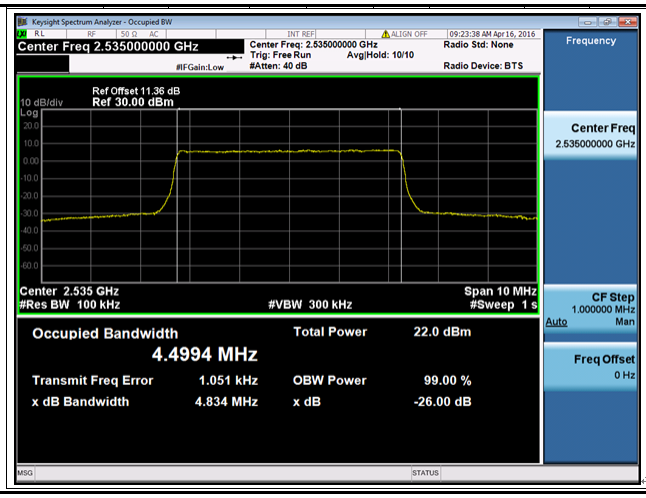
LTE band 7 - Low CH QPSK-5



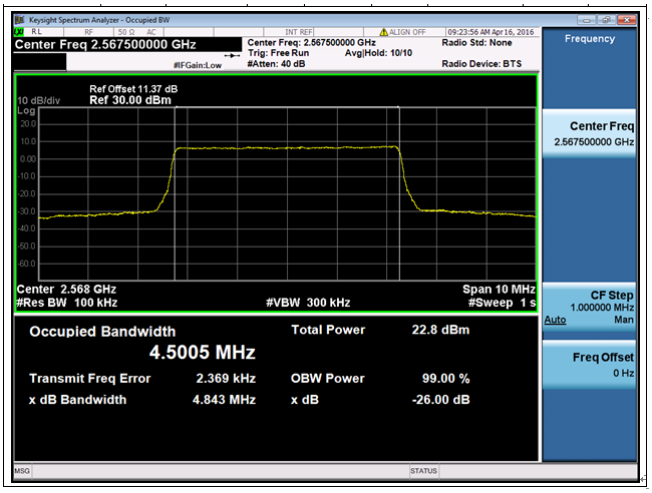
LTE band 7 - Low CH 16QAM-5



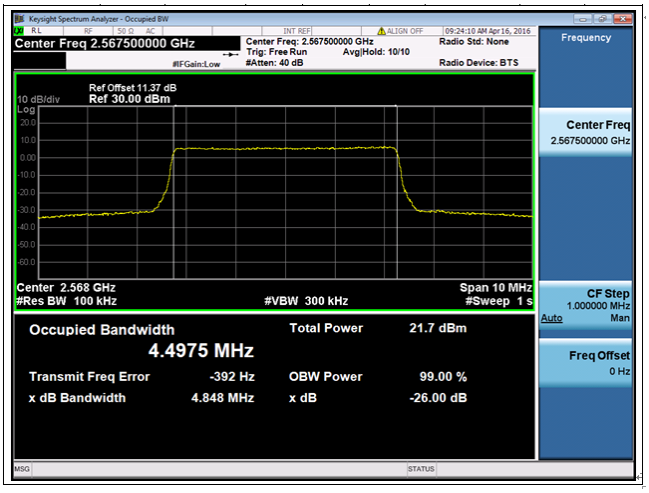
LTE band 7 - Middle CH QPSK-5



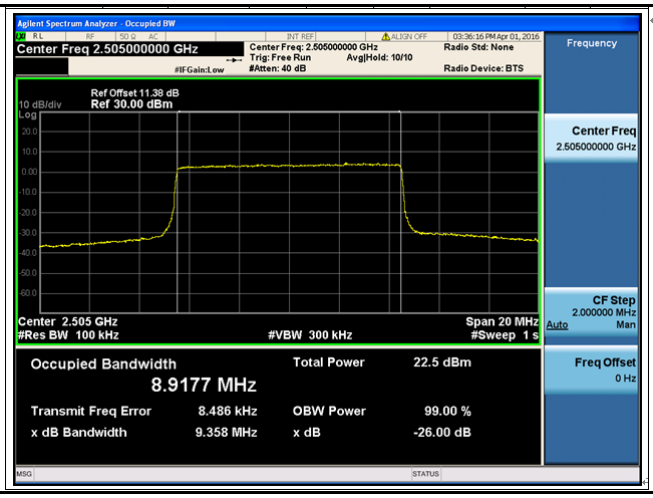
LTE band 7 - Middle CH 16QAM-5



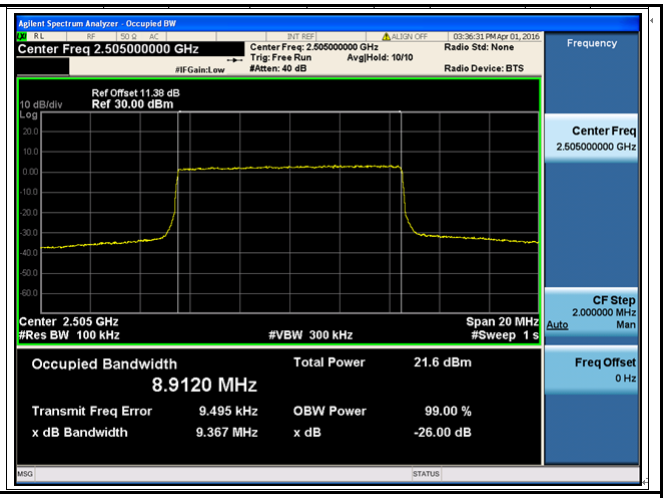
LTE band 7 - High CH QPSK-5



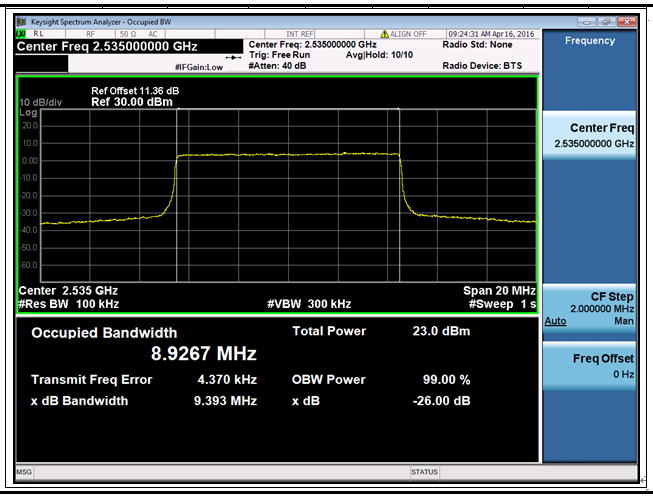
LTE band 7 - High CH 16QAM-5



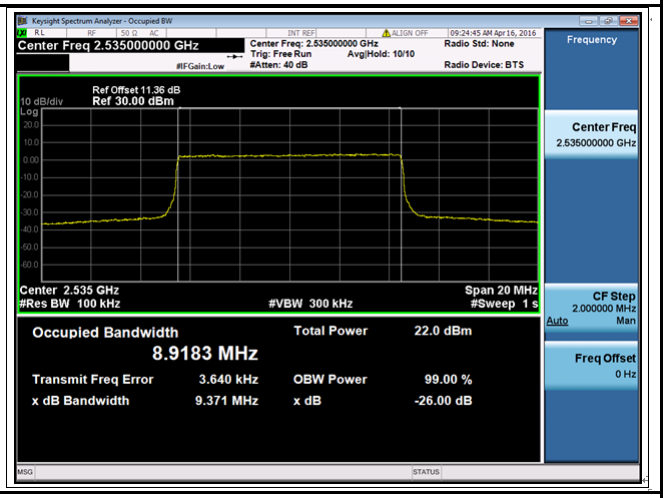
LTE band 7 - Low CH QPSK-10



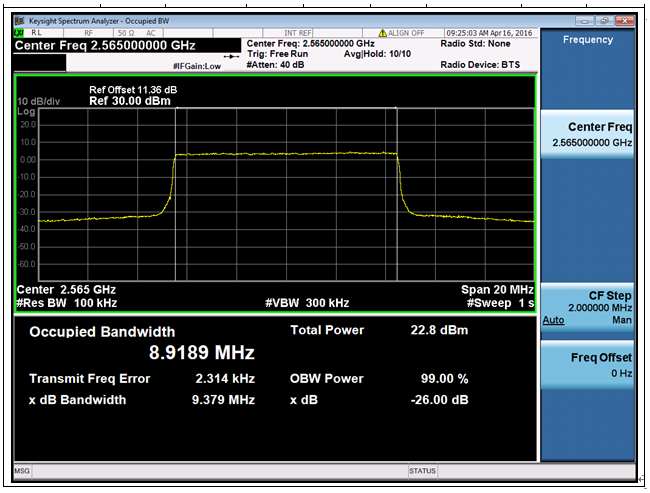
LTE band 7 - Low CH 16QAM-10



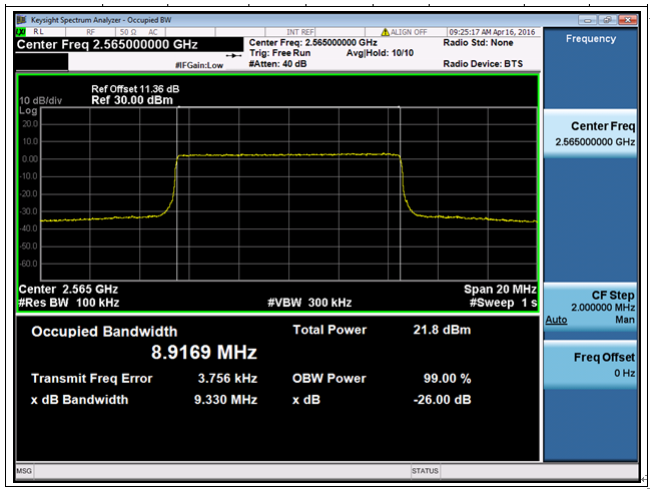
LTE band 7 - Middle CH QPSK-10



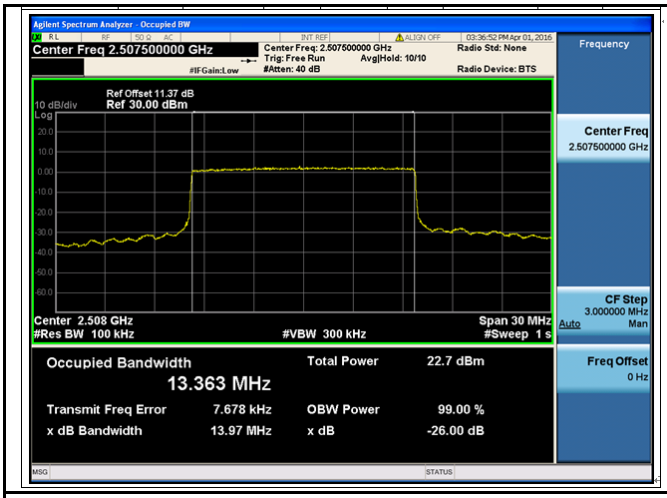
LTE band 7 - Middle CH 16QAM-10



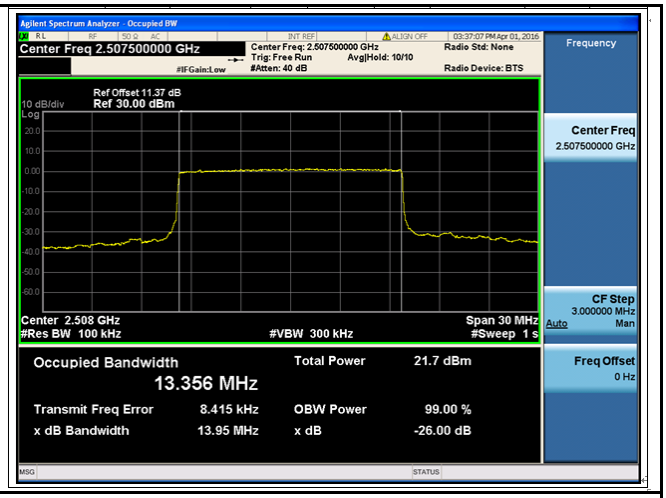
LTE band 7 - High CH QPSK-10



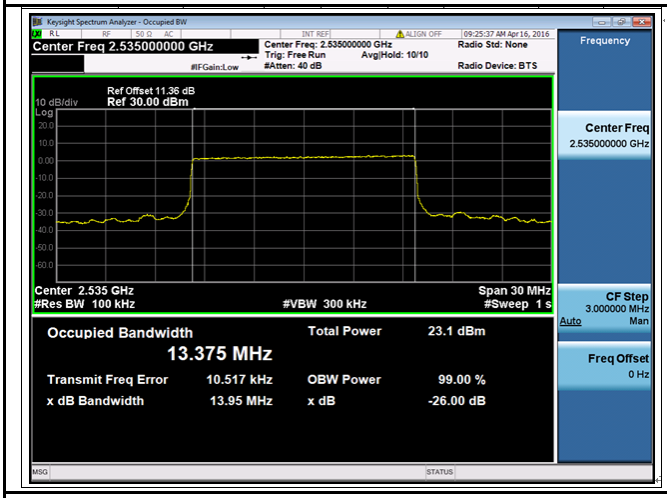
LTE band 7 - High CH 16QAM-10



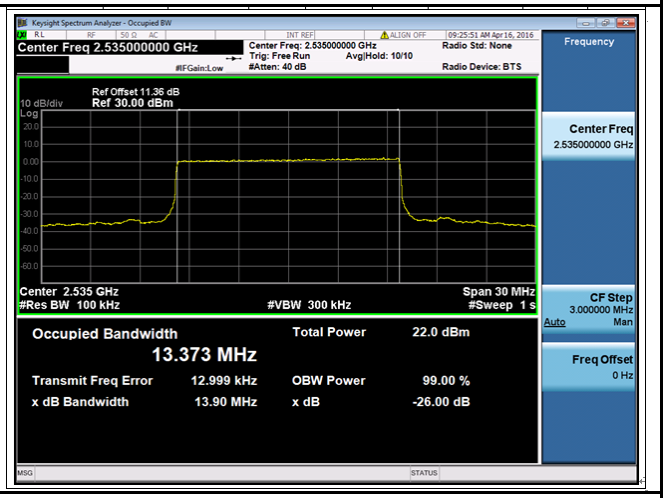
LTE band 7 - Low CH QPSK-15



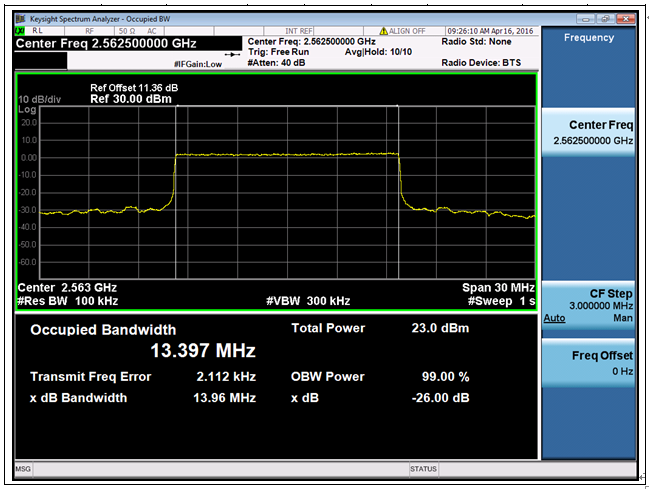
LTE band 7 - Low CH 16QAM-15



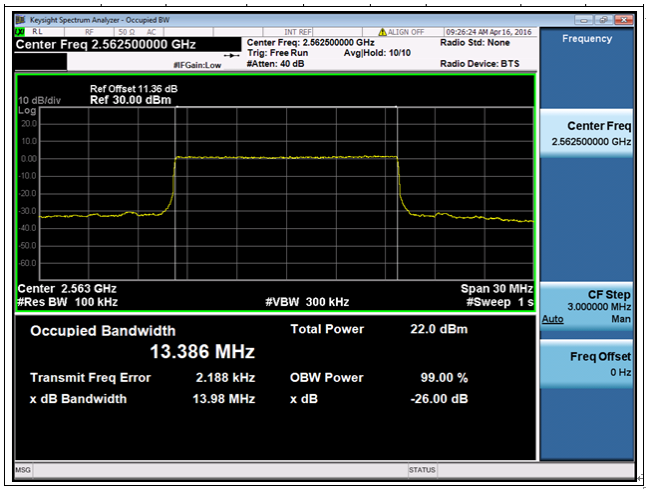
LTE band 7 - Middle CH QPSK-15



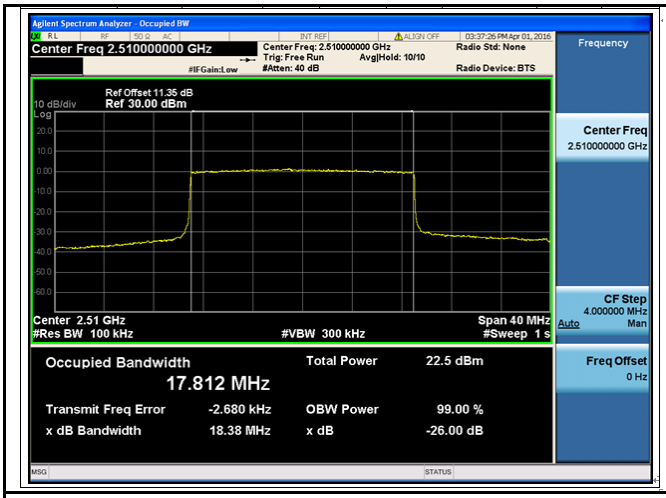
LTE band 7 - Middle CH 16QAM-15



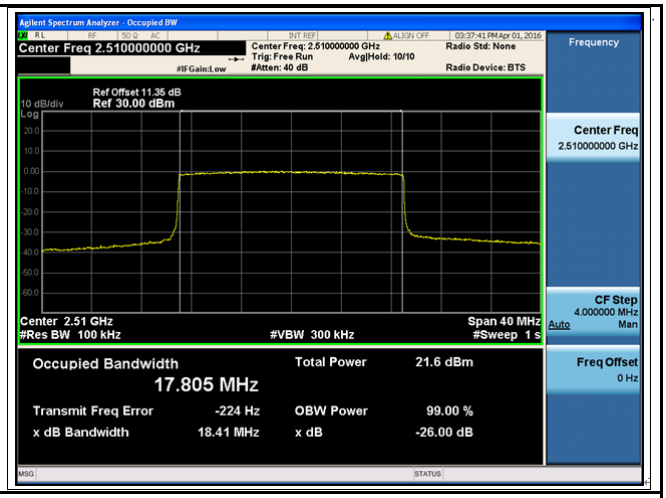
LTE band 7 - High CH QPSK-15



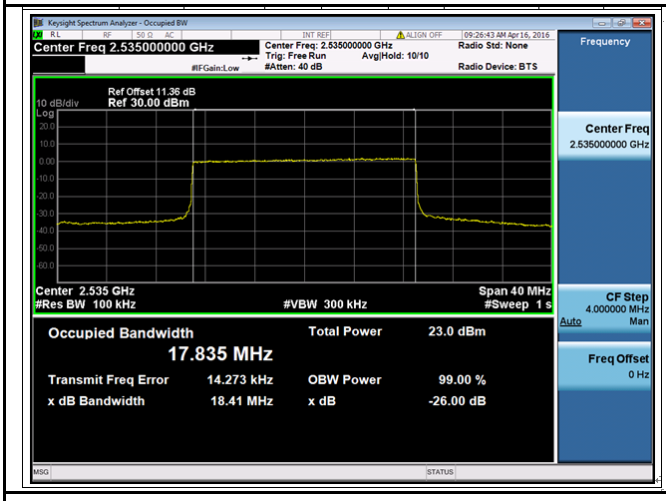
LTE band 7 - High CH 16QAM-15



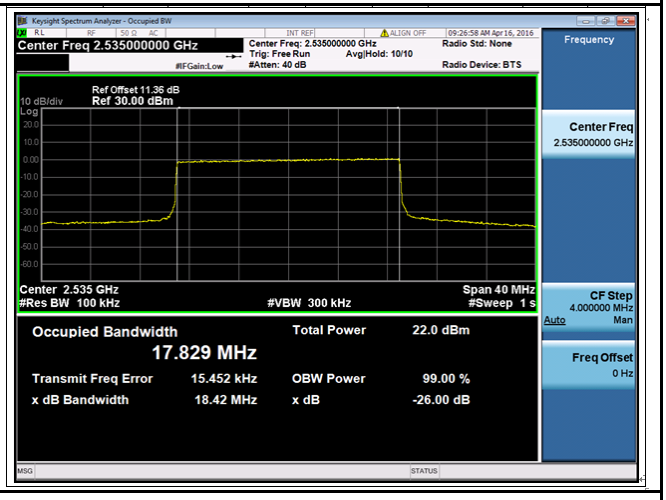
LTE band 7 - Low CH QPSK-20



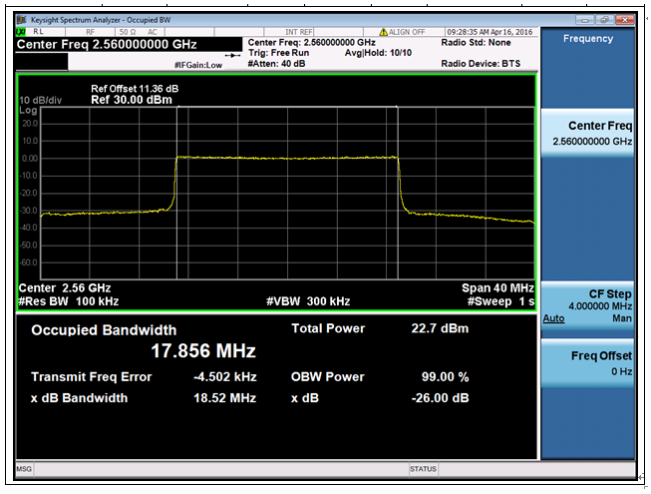
LTE band 7 - Low CH 16QAM-20



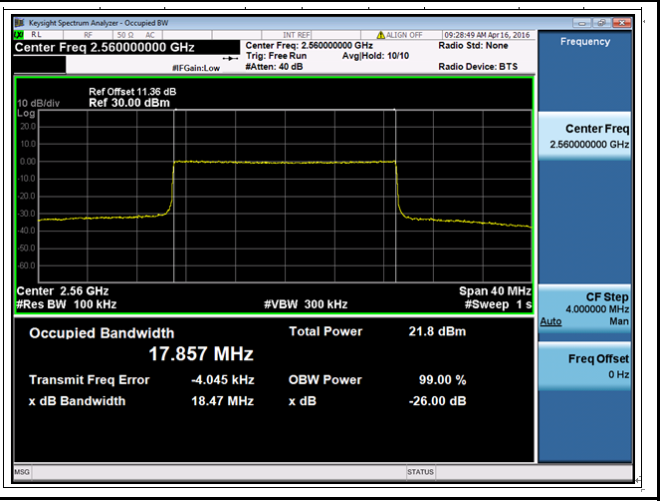
LTE band 7 - Middle CH QPSK-20



LTE band 7 - Middle CH 16QAM-20



LTE band 7 - High CH QPSK-20



LTE band 7 - High CH 16QAM-20

10 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Test Requirement:	FCC Part 2.1051, 24.238(a), 27.53(h)
Test Method:	TIA/EIA-603-D:2010
Test Mode:	Transmitting

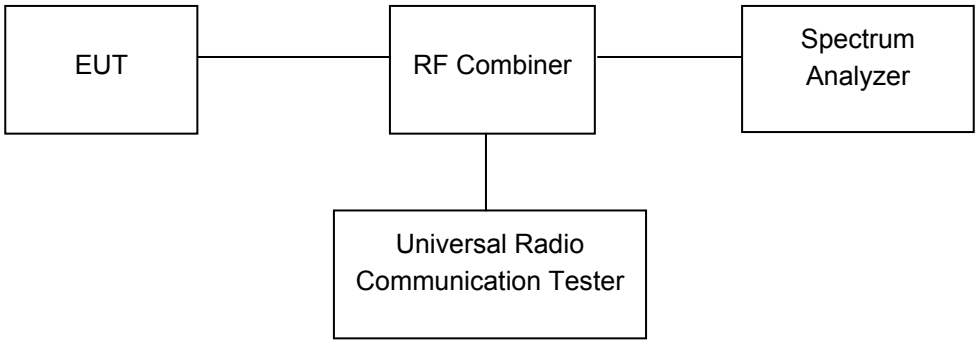
10.1 EUT Operation

Operating Environment **:**

Temperature:	23.5 °C
Humidity:	52.1 % RH
Atmospheric Pressure:	101.3kPa

10.2 Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonics.



10.3 Test Result

PASS

LTE Band

Please refer to the Appendix Band 2/4/7 LTE Transmitter Spurious Emissions.

11 SPURIOUS RADIATED EMISSIONS

Test Requirement:	FCC Part 2.1053,24.238, 27.53(h)
Test Method:	TIA/EIA-603-D:2010
Test Mode:	Transmitting

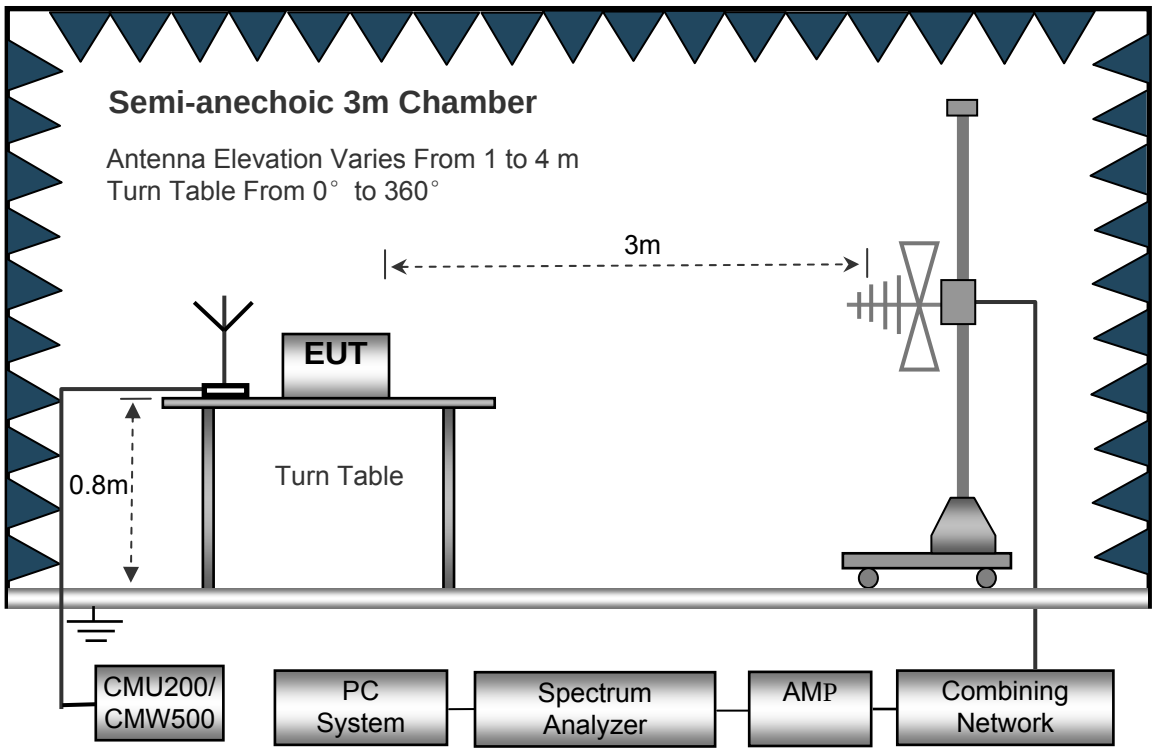
11.1 EUT Operation

Operating Environment **:**

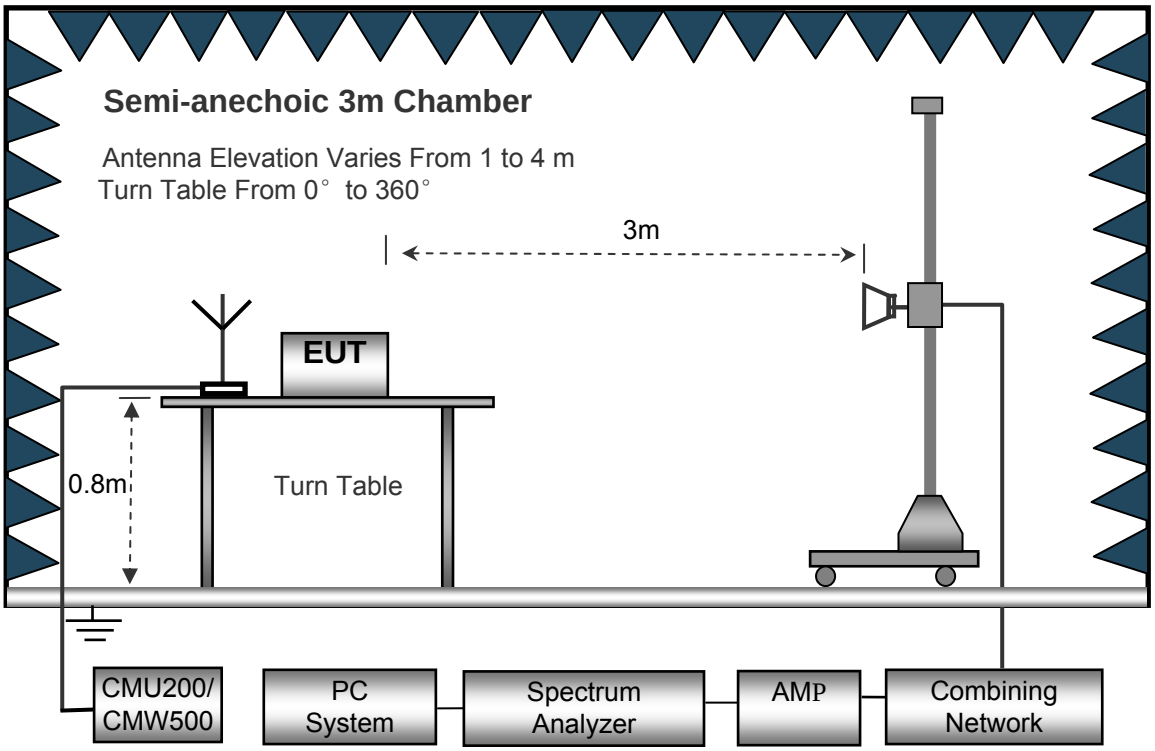
Temperature:	23.5 °C
Humidity:	52.1 % RH
Atmospheric Pressure:	101.2kPa

11.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site. The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



11.3 Spectrum Analyzer Setup

30MHz ~ 1GHz

Sweep Speed	Auto
Detector	PK
Resolution Bandwidth	100kHz
Video Bandwidth	300kHz

Above 1GHz

Sweep Speed	Auto
Detector	PK
Resolution Bandwidth	1MHz
Video Bandwidth	3MHz
Detector	Ave.
Resolution Bandwidth	1MHz
Video Bandwidth	10Hz

11.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from 30MHz up to the tenth harmonic of the highest fundamental frequency.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
7. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.
   Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level
   Spurious attenuation limit in dB = 43 + 10 Log10 (power out in Watts)
8. Repeat above procedures until the measurements for all frequencies are completed.

11.5 Summary of Test Results

Remark: Test performed from 30MHz to 10th harmonics with low/middle/high channels, only the worst data were recorded.

LTE Band 2 (Part 24E)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 2 Channel 18607										
201.33	46.93	211	1.5	H	-63.58	0.15	0.00	-63.73	-13.00	-50.73
201.33	36.61	225	1.4	V	-70.98	0.15	0.00	-71.13	-13.00	-58.13
3701.40	65.95	345	1.6	H	-45.59	2.37	12.50	-35.46	-13.00	-22.46
3701.40	59.98	166	1.2	V	-49.83	2.37	12.50	-39.70	-13.00	-26.70
5552.10	53.58	98	1.6	H	-56.03	2.86	12.90	-45.99	-13.00	-32.99
5552.10	44.73	195	1.9	V	-64.15	2.86	12.90	-54.11	-13.00	-41.11
LTE BAND 2 Channel 18900										
201.33	47.36	238	1.5	H	-63.15	0.15	0.00	-63.30	-13.00	-50.30
201.33	35.65	352	1.4	V	-71.94	0.15	0.00	-72.09	-13.00	-59.09
3760.00	59.59	293	2.0	H	-51.95	2.37	12.50	-41.82	-13.00	-28.82
3760.00	53.07	330	1.1	V	-56.74	2.37	12.50	-46.61	-13.00	-33.61
5640.00	45.59	120	2.1	H	-64.02	2.86	12.90	-53.98	-13.00	-40.98
5640.00	37.52	255	1.7	V	-71.36	2.86	12.90	-61.32	-13.00	-48.32
LTE BAND 2 Channel 19193										
201.33	47.48	76	1.3	H	-63.03	0.15	0.00	-63.18	-13.00	-50.18
201.33	35.69	39	1.4	V	-71.90	0.15	0.00	-72.05	-13.00	-59.05
3818.60	52.91	323	1.2	H	-57.94	2.37	12.60	-47.71	-13.00	-34.71
3818.60	45.73	339	2.1	V	-63.58	2.37	12.60	-53.35	-13.00	-40.35
5727.90	39.51	337	1.6	H	-69.84	2.86	12.90	-59.80	-13.00	-46.80
5727.90	30.51	324	1.4	V	-77.99	2.86	12.90	-67.95	-13.00	-54.95

LTE Band 4 (Part 27)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 4 Channel 19957										
201.33	39.42	181	2.1	H	-71.09	0.15	0.00	-71.24	-13.00	-58.24
201.33	29.68	22	1.6	V	-77.91	0.15	0.00	-78.06	-13.00	-65.06
3435.00	65.95	173	1.5	H	-47.10	2.34	12.40	-37.04	-13.00	-24.04
3435.00	59.98	237	1.7	V	-51.17	2.34	12.40	-41.11	-13.00	-28.11
5152.50	53.58	298	1.7	H	-55.83	2.79	12.70	-45.92	-13.00	-32.92
5152.50	44.73	258	1.2	V	-64.04	2.79	12.70	-54.13	-13.00	-41.13
LTE BAND 4 Channel 20175										
201.33	40.21	259	2.0	H	-70.30	0.15	0.00	-70.45	-13.00	-57.45
201.33	29.99	345	1.2	V	-77.60	0.15	0.00	-77.75	-13.00	-64.75
3465.00	57.98	269	1.1	H	-55.07	2.37	12.50	-44.94	-13.00	-31.94
3465.00	52.27	347	1.6	V	-58.88	2.37	12.50	-48.75	-13.00	-35.75
5197.50	46.32	176	1.1	H	-63.09	2.79	12.70	-53.18	-13.00	-40.18
5197.50	38.01	324	1.8	V	-70.76	2.79	12.70	-60.85	-13.00	-47.85
LTE BAND 4 Channel 20393										
201.33	40.38	238	1.9	H	-70.13	0.15	0.00	-70.28	-13.00	-57.28
201.33	30.43	13	2.2	V	-77.16	0.15	0.00	-77.31	-13.00	-64.31
3508.00	51.86	351	1.1	H	-60.78	2.37	12.50	-50.65	-13.00	-37.65
3508.00	45.10	105	1.3	V	-65.63	2.37	12.50	-55.50	-13.00	-42.50
5262.00	39.30	265	1.8	H	-70.28	2.81	12.80	-60.29	-13.00	-47.29
5262.00	30.45	35	1.3	V	-78.35	2.81	12.80	-68.36	-13.00	-55.36

LTE Band 7 (Part 27)

Frequency	Receiver Reading	Turn table Angle	RX Antenna		Substituted			Absolute Level	Result	
			Height	Polar	SG Level	Cable	Antenna Gain		Limit	Margin
(MHz)	(dBμV)	Degree	(m)	(H/V)	(dBm)	(dB)	(dB)	(dBm)	(dBm)	(dB)
LTE BAND 7 Channel 20775										
201.33	38.70	129	1.2	H	-71.81	0.15	0.00	-71.96	-13.00	-58.96
201.33	30.40	125	1.2	V	-77.19	0.15	0.00	-77.34	-13.00	-64.34
5010.00	65.95	25	1.7	H	-43.29	2.79	12.70	-33.38	-13.00	-20.38
5010.00	59.98	318	2.2	V	-48.79	2.79	12.70	-38.88	-13.00	-25.88
7515.00	53.58	301	1.1	H	-52.96	3.12	11.50	-44.58	-13.00	-31.58
7515.00	44.73	77	2.0	V	-60.70	3.12	11.50	-52.32	-13.00	-39.32
LTE BAND 7 Channel 21100										
201.33	39.04	295	1.7	H	-71.47	0.15	0.00	-71.62	-13.00	-58.62
201.33	30.57	106	2.1	V	-77.02	0.15	0.00	-77.17	-13.00	-64.17
5070.00	59.69	357	1.4	H	-49.55	2.37	12.50	-39.42	-13.00	-26.42
5070.00	52.00	205	1.5	V	-56.77	2.37	12.50	-46.64	-13.00	-33.64
7605.00	46.33	252	1.3	H	-60.21	3.12	11.50	-51.83	-13.00	-38.83
7605.00	38.41	329	2.2	V	-67.02	3.12	11.50	-58.64	-13.00	-45.64
LTE BAND 7 Channel 21425										
201.33	39.15	38	1.0	H	-71.36	0.15	0.00	-71.51	-13.00	-58.51
201.33	31.23	352	1.9	V	-76.36	0.15	0.00	-76.51	-13.00	-63.51
5135.00	51.87	346	1.1	H	-57.54	2.37	12.50	-47.41	-13.00	-34.41
5135.00	44.94	272	2.0	V	-63.83	2.37	12.50	-53.70	-13.00	-40.70
7702.50	38.53	128	2.1	H	-66.70	3.12	11.50	-58.32	-13.00	-45.32
7702.50	30.65	197	1.4	V	-74.24	3.12	11.50	-65.86	-13.00	-52.86

Note: 1) Absolute Level = SG Level - Cable loss + Antenna Gain

2) Margin = Limit- Absolute Level

12 Band Edge Measurement

Test Requirement:	FCC Part 2.1051, 24.238(a), 27.53(h)
Test Method:	TIA/EIA-603-D:2010
Test Mode:	Transmitting

12.1 EUT Operation

Operating Environment **:**

Temperature:	23.5 °C
Humidity:	52.3 % RH
Atmospheric Pressure:	101.3kPa

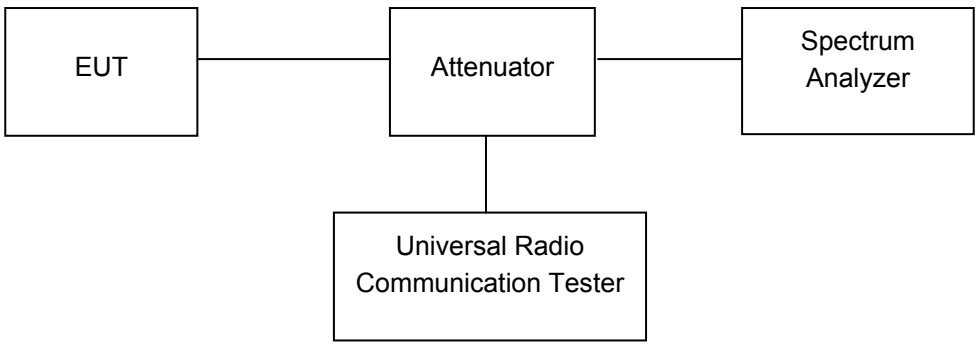
12.2 Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

According to FCC Part 22.917(a), the power of any emissions 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.

According to FCC Part 24.238(a), the power of any emissions 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 center of the spectrum analyzer was set to block edge frequency



12.3 Test Result

PASS

LTE Band

Please refer to the Appendix Band 2/4/7 LTE Band Edge.

13 FREQUENCY STABILITY

Test Requirement: FCC Part 2.1055, 24.235, 27.5(h),27.54

Test Method: TIA/EIA-603-D:2010

Test Mode: Transmitting

13.1 EUT Operation

Operating Environment **:**

Temperature: 22.9 °C

Humidity: 52.0 % RH

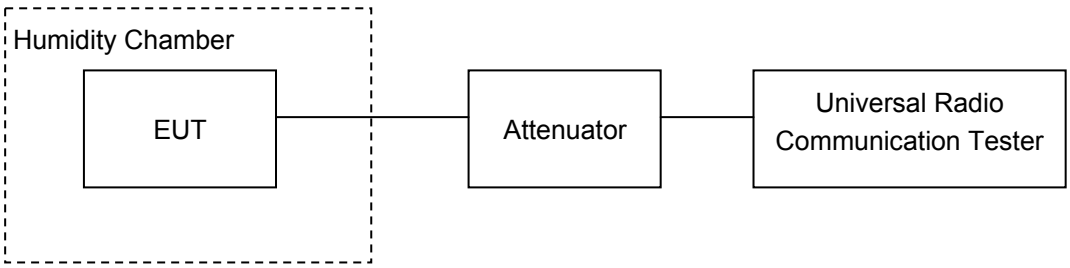
Atmospheric Pressure: 101.3kPa

13.2 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



13.3 Test Result

LTE Band 2 (Part 24E)

Test Frequency:1880.0MHz QPSK 1.4MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-31	-0.0165	2.5
40		-35	-0.0186	2.5
30		-38	-0.0202	2.5
20		-34	-0.0181	2.5
10		-27	-0.0144	2.5
0		-40	-0.0213	2.5
-10		-36	-0.0191	2.5
-20		-30	-0.0160	2.5
-30		-34	-0.0181	2.5
20	3.3	-31	-0.0165	2.5
20	4.2	-39	-0.0207	2.5

Test Frequency:1880.0MHz 16QAM 1.4MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	65	0.0346	2.5
40		52	0.0277	2.5
30		58	0.0309	2.5
20		60	0.0319	2.5
10		58	0.0309	2.5
0		59	0.0314	2.5
-10		59	0.0314	2.5
-20		62	0.0330	2.5
-30		57	0.0303	2.5
20	3.3	68	0.0362	2.5
20	4.2	53	0.0282	2.5

LTE Band 2 (Part 24E)

Test Frequency:1880.0MHz QPSK 3MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	9	0.0048	2.5
40		10	0.0053	2.5
30		9	0.0048	2.5
20		6	0.0032	2.5
10		15	0.0080	2.5
0		8	0.0043	2.5
-10		0	0.0000	2.5
-20		-1	-0.0005	2.5
-30		-2	-0.0011	2.5
20	3.3	-2	-0.0011	2.5
20	4.2	11	0.0059	2.5

Test Frequency:1880.0MHz 16QAM 3MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	96	0.0511	2.5
40		103	0.0548	2.5
30		107	0.0569	2.5
20		101	0.0537	2.5
10		95	0.0505	2.5
0		99	0.0527	2.5
-10		97	0.0516	2.5
-20		94	0.0500	2.5
-30		98	0.0521	2.5
20	3.3	104	0.0553	2.5
20	4.2	100	0.0532	2.5

LTE Band 2 (Part 24E)

Test Frequency:1880.0MHz QPSK 5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	18	0.0096	2.5
40		27	0.0144	2.5
30		23	0.0122	2.5
20		22	0.0117	2.5
10		28	0.0149	2.5
0		27	0.0144	2.5
-10		20	0.0106	2.5
-20		31	0.0165	2.5
-30		26	0.0138	2.5
20	3.3	22	0.0117	2.5
20	4.2	25	0.0133	2.5

Test Frequency:1880.0MHz 16QAM 5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	54	0.0287	2.5
40		59	0.0314	2.5
30		63	0.0335	2.5
20		63	0.0335	2.5
10		64	0.0340	2.5
0		70	0.0372	2.5
-10		68	0.0362	2.5
-20		60	0.0319	2.5
-30		58	0.0309	2.5
20	3.3	65	0.0346	2.5
20	4.2	57	0.0303	2.5

LTE Band 2 (Part 24E)

Test Frequency:1880.0MHz QPSK 10MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	22	0.0117	2.5
40		25	0.0133	2.5
30		13	0.0069	2.5
20		18	0.0096	2.5
10		15	0.0080	2.5
0		19	0.0101	2.5
-10		14	0.0074	2.5
-20		26	0.0138	2.5
-30		25	0.0133	2.5
20	3.3	21	0.0112	2.5
20	4.2	17	0.0090	2.5

Test Frequency:1880.0MHz 16QAM 10MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	34	0.0181	2.5
40		29	0.0154	2.5
30		24	0.0128	2.5
20		33	0.0176	2.5
10		37	0.0197	2.5
0		34	0.0181	2.5
-10		35	0.0186	2.5
-20		30	0.0160	2.5
-30		25	0.0133	2.5
20	3.3	29	0.0154	2.5
20	4.2	37	0.0197	2.5

LTE Band 2 (Part 24E)

Test Frequency:1880.0MHz QPSK 15MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	28	0.0149	2.5
40		34	0.0181	2.5
30		32	0.0170	2.5
20		26	0.0138	2.5
10		28	0.0149	2.5
0		30	0.0160	2.5
-10		34	0.0181	2.5
-20		28	0.0149	2.5
-30		33	0.0176	2.5
20	3.3	33	0.0176	2.5
20	4.2	24	0.0128	2.5

Test Frequency:1880.0MHz 16QAM 15MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	34	0.0181	2.5
40		38	0.0202	2.5
30		29	0.0154	2.5
20		35	0.0186	2.5
10		27	0.0144	2.5
0		36	0.0191	2.5
-10		28	0.0149	2.5
-20		30	0.0160	2.5
-30		43	0.0229	2.5
20	3.3	36	0.0191	2.5
20	4.2	43	0.0229	2.5

LTE Band 2 (Part 24E)

Test Frequency:1880.0MHz QPSK 20MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	22	0.0117	2.5
40		27	0.0144	2.5
30		29	0.0154	2.5
20		21	0.0112	2.5
10		14	0.0074	2.5
0		16	0.0085	2.5
-10		23	0.0122	2.5
-20		14	0.0074	2.5
-30		13	0.0069	2.5
20	3.3	29	0.0154	2.5
20	4.2	20	0.0106	2.5

Test Frequency:1880.0MHz 16QAM 20MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	32	0.0170	2.5
40		39	0.0207	2.5
30		43	0.0229	2.5
20		34	0.0181	2.5
10		41	0.0218	2.5
0		32	0.0170	2.5
-10		41	0.0218	2.5
-20		30	0.0160	2.5
-30		28	0.0149	2.5
20	3.3	36	0.0191	2.5
20	4.2	34	0.0181	2.5

LTE Band 4 (Part 27)

Test Frequency:1732.5MHz QPSK 1.4MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-42	-0.0242	2.5
40		-46	-0.0266	2.5
30		-45	-0.0260	2.5
20		-39	-0.0225	2.5
10		-41	-0.0237	2.5
0		-43	-0.0248	2.5
-10		-48	-0.0277	2.5
-20		-34	-0.0196	2.5
-30		-48	-0.0277	2.5
20	3.3	-45	-0.0260	2.5
20	4.2	-44	-0.0254	2.5

Test Frequency:1732.5MHz 16QAM 1.4MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	39	0.0225	2.5
40		31	0.0179	2.5
30		37	0.0214	2.5
20		36	0.0208	2.5
10		36	0.0208	2.5
0		30	0.0173	2.5
-10		29	0.0167	2.5
-20		45	0.0260	2.5
-30		44	0.0254	2.5
20	3.3	37	0.0214	2.5
20	4.2	35	0.0202	2.5

LTE Band 4 (Part 27)

Test Frequency:1732.5MHz QPSK 3MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-1	-0.0006	2.5
40		-4	-0.0023	2.5
30		-6	-0.0035	2.5
20		-8	-0.0046	2.5
10		-3	-0.0017	2.5
0		-8	-0.0046	2.5
-10		-14	-0.0081	2.5
-20		-16	-0.0092	2.5
-30		-6	-0.0035	2.5
20	3.3	-7	-0.0040	2.5
20	4.2	-15	-0.0087	2.5

Test Frequency:1732.5MHz 16QAM 3MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	84	0.0485	2.5
40		69	0.0398	2.5
30		69	0.0398	2.5
20		76	0.0439	2.5
10		78	0.0450	2.5
0		80	0.0462	2.5
-10		73	0.0421	2.5
-20		76	0.0439	2.5
-30		73	0.0421	2.5
20	3.3	76	0.0439	2.5
20	4.2	76	0.0439	2.5

LTE Band 4 (Part 27)

Test Frequency:1732.5MHz QPSK 5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	-4	-0.0023	2.5
40		3	0.0017	2.5
30		1	0.0006	2.5
20		0	0.0000	2.5
10		8	0.0046	2.5
0		7	0.0040	2.5
-10		7	0.0040	2.5
-20		0	0.0000	2.5
-30		8	0.0046	2.5
20	3.3	-3	-0.0017	2.5
20	4.2	8	0.0046	2.5

Test Frequency:1732.5MHz 16QAM 5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	29	0.0167	2.5
40		34	0.0196	2.5
30		23	0.0133	2.5
20		28	0.0162	2.5
10		27	0.0156	2.5
0		25	0.0144	2.5
-10		30	0.0173	2.5
-20		31	0.0179	2.5
-30		36	0.0208	2.5
20	3.3	22	0.0127	2.5
20	4.2	37	0.0214	2.5

LTE Band 4 (Part 27)

Test Frequency:1732.5MHz QPSK 10MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	5	0.0029	2.5
40		13	0.0075	2.5
30		10	0.0058	2.5
20		13	0.0075	2.5
10		10	0.0058	2.5
0		4	0.0023	2.5
-10		20	0.0115	2.5
-20		11	0.0063	2.5
-30		11	0.0063	2.5
20	3.3	11	0.0063	2.5
20	4.2	19	0.0110	2.5

Test Frequency:1732.5MHz 16QAM 10MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	32	0.0185	2.5
40		26	0.0150	2.5
30		21	0.0121	2.5
20		27	0.0156	2.5
10		27	0.0156	2.5
0		30	0.0173	2.5
-10		34	0.0196	2.5
-20		33	0.0190	2.5
-30		26	0.0150	2.5
20	3.3	22	0.0127	2.5
20	4.2	23	0.0133	2.5

LTE Band 4 (Part 27)

Test Frequency:1732.5MHz QPSK 15MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	21	0.0121	2.5
40		15	0.0087	2.5
30		14	0.0081	2.5
20		17	0.0098	2.5
10		15	0.0087	2.5
0		24	0.0139	2.5
-10		8	0.0046	2.5
-20		8	0.0046	2.5
-30		14	0.0081	2.5
20	3.3	14	0.0081	2.5
20	4.2	17	0.0098	2.5

Test Frequency:1732.5MHz 16QAM 15MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	32	0.0185	2.5
40		34	0.0196	2.5
30		29	0.0167	2.5
20		27	0.0156	2.5
10		26	0.0150	2.5
0		22	0.0127	2.5
-10		26	0.0150	2.5
-20		32	0.0185	2.5
-30		28	0.0162	2.5
20	3.3	28	0.0162	2.5
20	4.2	21	0.0121	2.5

LTE Band 4 (Part 27)

Test Frequency:1732.5MHz QPSK 20MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	17	0.0098	2.5
40		22	0.0127	2.5
30		13	0.0075	2.5
20		19	0.0110	2.5
10		16	0.0092	2.5
0		13	0.0075	2.5
-10		15	0.0087	2.5
-20		25	0.0144	2.5
-30		19	0.0110	2.5
20	3.3	15	0.0087	2.5
20	4.2	14	0.0081	2.5

Test Frequency:1732.5MHz 16QAM 20MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	36	0.0208	2.5
40		36	0.0208	2.5
30		26	0.0150	2.5
20		31	0.0179	2.5
10		32	0.0185	2.5
0		40	0.0231	2.5
-10		40	0.0231	2.5
-20		34	0.0196	2.5
-30		40	0.0231	2.5
20	3.3	31	0.0179	2.5
20	4.2	39	0.0225	2.5

LTE Band 7 (Part 27)

Test Frequency:2535MHz QPSK 5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	4	0.0016	2.5
40		13	0.0051	2.5
30		2	0.0008	2.5
20		10	0.0039	2.5
10		9	0.0036	2.5
0		12	0.0047	2.5
-10		15	0.0059	2.5
-20		14	0.0055	2.5
-30		3	0.0012	2.5
20	3.3	7	0.0028	2.5
20	4.2	6	0.0024	2.5

Test Frequency:2535MHz 16QAM 5MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	47	0.0185	2.5
40		50	0.0197	2.5
30		43	0.0170	2.5
20		43	0.0170	2.5
10		40	0.0158	2.5
0		47	0.0185	2.5
-10		47	0.0185	2.5
-20		34	0.0134	2.5
-30		51	0.0201	2.5
20	3.3	48	0.0189	2.5
20	4.2	36	0.0142	2.5

LTE Band 7 (Part 27)

Test Frequency:2535MHz QPSK 10MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	11	0.0043	2.5
40		19	0.0075	2.5
30		18	0.0071	2.5
20		19	0.0075	2.5
10		18	0.0071	2.5
0		18	0.0071	2.5
-10		18	0.0071	2.5
-20		12	0.0047	2.5
-30		26	0.0103	2.5
20	3.3	16	0.0063	2.5
20	4.2	18	0.0071	2.5

Test Frequency:2535MHz 16QAM 10MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	18	0.0071	2.5
40		20	0.0079	2.5
30		3	0.0012	2.5
20		12	0.0047	2.5
10		5	0.0020	2.5
0		7	0.0028	2.5
-10		10	0.0039	2.5
-20		13	0.0051	2.5
-30		7	0.0028	2.5
20	3.3	15	0.0059	2.5
20	4.2	8	0.0032	2.5

LTE Band 7 (Part 27)

Test Frequency:2535MHz QPSK 15MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	7	0.0028	2.5
40		3	0.0012	2.5
30		9	0.0036	2.5
20		5	0.0020	2.5
10		13	0.0051	2.5
0		3	0.0012	2.5
-10		6	0.0024	2.5
-20		8	0.0032	2.5
-30		-1	-0.0004	2.5
20	3.3	6	0.0024	2.5
20	4.2	-1	-0.0004	2.5

Test Frequency:2535MHz 16QAM 15MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	0	0.0000	2.5
40		5	0.0020	2.5
30		2	0.0008	2.5
20		2	0.0008	2.5
10		6	0.0024	2.5
0		8	0.0032	2.5
-10		-4	-0.0016	2.5
-20		8	0.0032	2.5
-30		-6	-0.0024	2.5
20	3.3	2	0.0008	2.5
20	4.2	3	0.0012	2.5

LTE Band 7 (Part 27)

Test Frequency:2535MHz QPSK 20MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	12	0.0047	2.5
40		15	0.0059	2.5
30		19	0.0075	2.5
20		17	0.0067	2.5
10		9	0.0036	2.5
0		16	0.0063	2.5
-10		12	0.0047	2.5
-20		20	0.0079	2.5
-30		10	0.0039	2.5
20	3.3	11	0.0043	2.5
20	4.2	14	0.0055	2.5

Test Frequency:2535MHz 16QAM 20MHz				
Temperature (℃)	Power Supply (VDC)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
50	3.7	33	0.0130	2.5
40		40	0.0158	2.5
30		41	0.0162	2.5
20		40	0.0158	2.5
10		33	0.0130	2.5
0		43	0.0170	2.5
-10		32	0.0126	2.5
-20		42	0.0166	2.5
-30		48	0.0189	2.5
20	3.3	39	0.0154	2.5
20	4.2	32	0.0126	2.5

14 RF Exposure

Remark: refer to SAR test report: WTS16S0447526E

====== End of Report ======