

# TEST REPORT



DT&C Co., Ltd.

42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea, 17042  
Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC1911-0282(1)

2. Customer

- Name (FCC) : Point Mobile Co., LTD. / Name (IC) : POINTMOBILE CO.,LTD
- Address (FCC) : B-9F, Kabul Great Valley 32 Digital-ro 9-gil, Geumcheon-gu Seoul South Korea 153-709  
Address (IC) : B-9F Kabul Great Valley, 32, Digital-ro 9-gil, Geumcheon-gu Seoul Korea (Republic Of)

3. Use of Report : FCC & IC Original Grant

4. Product Name / Model Name : Mobile Computer / PM90G1

FCC ID : V2X-PM90G1 / IC : 10664A-PM90G1

5. Test Method Used : KDB971168 D01v03, ANSI/TIA-603-E-2016, ANSI C63.26-2015

Test Specification : §2, §22, §24, §27, §90

RSS-130 Issue 2, 132 Issue 3, 133 Issue 6, 139 Issue 3, 140 Issue 1, 199 Issue 3

6. Date of Test : 2019.06.20 ~ 2019.09.02, 2019.10.23 ~ 2019.10.25

7. Testing Environment : Refer to appended test report.

8. Test Result : Refer to the attached test result.

Affirmation	Tested by  Name : Inhee Bae	 (Signature)	Reviewed by  Name : Geunki Son	 (Signature)
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2019 . 11 . 07 .

DT&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to [report@dtnc.net](mailto:report@dtnc.net)

## Test Report Version

Test Report No.	Date	Description
DRTFCC1911-0282	Nov. 05, 2019	Initial issue
DRTFCC1911-0282(1)	Nov. 07, 2019	Add the conducted power for band 14 in clause 1

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## 1. GENERAL INFORMATION

**Applicant Name(FCC)** : Point Mobile Co., LTD.  
**Applicant Name(IC)** : POINTMOBILE CO.,LTD  
**Address(FCC)** : B-9F, Kabul Great Valley 32 Digital-ro 9-gil, Geumcheon-gu Seoul South Korea 153-709  
**Address(IC)** : B-9F Kabul Great Valley, 32, Digital-ro 9-gil, Geumcheon-gu Seoul Korea (Republic Of)  
**FCC ID** : V2X-PM90G1  
**IC** : 10664A-PM90G1  
**FCC Classification** : PCS Licensed Transmitter held to ear (PCE)  
**EUT Type** : Mobile Computer  
**Model Name(FCC, IC)** : PM90G1  
**Add Model Name(FCC)** : -  
**Add Model Name(IC)** : -  
**Supplying power** : DC 3.85 V  
**Antenna Information** : PIFA Antenna

Mode	TX Frequency (MHz)	Emission Designator	Modulation	ERP(FCC&IC)		EIRP	
				Max power (dBm)	Max power (W)	Max power (dBm)	Max power (W)
LTE Band 12, 17	704 ~ 711	8M95G7D	QPSK	19.18	0.083	-	-
LTE Band 12, 17	704 ~ 711	8M94W7D	16QAM	18.17	0.066	-	-
LTE Band 12, 17	704 ~ 711	8M96W7D	64QAM	17.26	0.053	-	-
LTE Band 12, 17	701.5 ~ 713.5	4M50G7D	QPSK	19.22	0.084	-	-
LTE Band 12, 17	701.5 ~ 713.5	4M51W7D	16QAM	18.28	0.067	-	-
LTE Band 12, 17	701.5 ~ 713.5	4M51W7D	64QAM	17.15	0.052	-	-
LTE Band 12	700.5 ~ 714.5	2M69G7D	QPSK	19.37	0.086	-	-
LTE Band 12	700.5 ~ 714.5	2M70W7D	16QAM	18.47	0.070	-	-
LTE Band 12	700.5 ~ 714.5	2M70W7D	64QAM	17.44	0.055	-	-
LTE Band 12	699.7 ~ 715.3	1M09G7D	QPSK	19.10	0.081	-	-
LTE Band 12	699.7 ~ 715.3	1M09W7D	16QAM	18.24	0.067	-	-
LTE Band 12	699.7 ~ 715.3	1M09W7D	64QAM	17.25	0.053	-	-
LTE Band 13	782 ~ 782	8M93G7D	QPSK	20.54	0.113	-	-
LTE Band 13	782 ~ 782	8M95W7D	16QAM	19.66	0.092	-	-
LTE Band 13	782 ~ 782	8M95W7D	64QAM	18.73	0.075	-	-
LTE Band 13	779.5 ~ 784.5	4M49G7D	QPSK	20.44	0.111	-	-
LTE Band 13	779.5 ~ 784.5	4M49W7D	16QAM	19.48	0.089	-	-
LTE Band 13	779.5 ~ 784.5	4M50W7D	64QAM	18.62	0.073	-	-

Mode	TX Frequency (MHz)	Emission Designator	Modulation	ERP(FCC&IC)		Conducted power(FCC) <sup>Note1</sup>	
				Max power (dBm)	Max power (W)	Max power (dBm)	Max power (W)
LTE Band 14	793 ~ 793	8M94G7D	QPSK	21.26	0.134	23.21	0.209
LTE Band 14	793 ~ 793	8M93W7D	16QAM	20.30	0.107	22.20	0.166
LTE Band 14	793 ~ 793	8M97W7D	64QAM	19.19	0.083	21.14	0.130
LTE Band 14	790.5 ~ 795.5	4M48G7D	QPSK	20.66	0.116	23.07	0.203
LTE Band 14	790.5 ~ 795.5	4M48W7D	16QAM	19.90	0.098	22.03	0.160
LTE Band 14	790.5 ~ 795.5	4M49W7D	64QAM	18.96	0.079	21.03	0.127

Note1: Refer to the RF exposure report.

Mode	TX Frequency (MHz)	Emission Designator	Modulation	ERP(For the FCC)		EIRP(For the IC)	
				Max power (dBm)	Max power (W)	Max power (dBm)	Max power (W)
LTE Band 26	831.5 ~ 841.5	13M4G7D	QPSK	21.32	0.136	23.47	0.222
LTE Band 26	831.5 ~ 841.5	13M4W7D	16QAM	20.22	0.105	22.37	0.173
LTE Band 26	831.5 ~ 841.5	13M4W7D	64QAM	19.14	0.082	21.29	0.135
LTE Band 5, 26	829 ~ 844	8M97G7D	QPSK	20.68	0.117	22.83	0.192
LTE Band 5, 26	829 ~ 844	8M95W7D	16QAM	19.77	0.095	21.92	0.156
LTE Band 5, 26	829 ~ 844	8M96W7D	64QAM	18.90	0.078	21.05	0.127
LTE Band 5, 26	826.5 ~ 846.5	4M50G7D	QPSK	21.02	0.126	23.17	0.207
LTE Band 5, 26	826.5 ~ 846.5	4M49W7D	16QAM	19.80	0.095	21.95	0.157
LTE Band 5, 26	826.5 ~ 846.5	4M51W7D	64QAM	18.85	0.077	21.00	0.126
LTE Band 5, 26	825.5 ~ 847.5	2M69G7D	QPSK	21.03	0.127	23.18	0.208
LTE Band 5, 26	825.5 ~ 847.5	2M70W7D	16QAM	19.87	0.097	22.02	0.159
LTE Band 5, 26	825.5 ~ 847.5	2M69W7D	64QAM	18.79	0.076	20.94	0.124
LTE Band 5, 26	824.7 ~ 848.3	1M09G7D	QPSK	21.00	0.126	23.15	0.207
LTE Band 5, 26	824.7 ~ 848.3	1M09W7D	16QAM	19.92	0.098	22.07	0.161
LTE Band 5, 26	824.7 ~ 848.3	1M09W7D	64QAM	18.84	0.077	20.99	0.126

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP(FCC & IC)	
				Max power(dBm)	Max power(W)
LTE Band 4	1720 ~ 1745	17M9G7D	QPSK	24.80	0.302
LTE Band 4	1720 ~ 1745	17M9W7D	16QAM	23.98	0.250
LTE Band 4	1720 ~ 1745	17M9W7D	64QAM	23.01	0.200
LTE Band 4	1717.5 ~ 1747.5	13M5G7D	QPSK	24.80	0.302
LTE Band 4	1717.5 ~ 1747.5	13M4W7D	16QAM	23.92	0.247
LTE Band 4	1717.5 ~ 1747.5	13M4W7D	64QAM	22.79	0.190
LTE Band 4	1715 ~ 1750	8M97G7D	QPSK	24.54	0.284
LTE Band 4	1715 ~ 1750	8M96W7D	16QAM	23.63	0.231
LTE Band 4	1715 ~ 1750	8M95W7D	64QAM	22.62	0.183
LTE Band 4	1712.5 ~ 1752.5	4M49G7D	QPSK	24.34	0.272
LTE Band 4	1712.5 ~ 1752.5	4M49W7D	16QAM	23.26	0.212
LTE Band 4	1712.5 ~ 1752.5	4M50W7D	64QAM	22.24	0.167
LTE Band 4	1711.5 ~ 1753.5	2M70G7D	QPSK	24.07	0.255
LTE Band 4	1711.5 ~ 1753.5	2M70W7D	16QAM	23.13	0.206
LTE Band 4	1711.5 ~ 1753.5	2M70W7D	64QAM	22.35	0.172
LTE Band 4	1710.7 ~ 1754.3	1M09G7D	QPSK	24.13	0.259
LTE Band 4	1710.7 ~ 1754.3	1M09W7D	16QAM	23.26	0.212
LTE Band 4	1710.7 ~ 1754.3	1M09W7D	64QAM	22.40	0.174

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP(FCC & IC)	
				Max power(dBm)	Max power(W)
LTE Band 2, 25	1860 ~ 1905	17M9G7D	QPSK	25.60	0.363
LTE Band 2, 25	1860 ~ 1905	17M9W7D	16QAM	24.64	0.291
LTE Band 2, 25	1860 ~ 1905	17M9W7D	64QAM	23.66	0.232
LTE Band 2, 25	1857.5 ~ 1907.5	13M4G7D	QPSK	25.41	0.348
LTE Band 2, 25	1857.5 ~ 1907.5	13M4W7D	16QAM	24.62	0.290
LTE Band 2, 25	1857.5 ~ 1907.5	13M4W7D	64QAM	23.47	0.222
LTE Band 2, 25	1855 ~ 1910	8M97G7D	QPSK	25.04	0.319
LTE Band 2, 25	1855 ~ 1910	8M94W7D	16QAM	24.13	0.259
LTE Band 2, 25	1855 ~ 1910	8M97W7D	64QAM	23.23	0.210
LTE Band 2, 25	1852.5 ~ 1912.5	4M50G7D	QPSK	25.16	0.328
LTE Band 2, 25	1852.5 ~ 1912.5	4M50W7D	16QAM	24.30	0.269
LTE Band 2, 25	1852.5 ~ 1912.5	4M50W7D	64QAM	23.25	0.211
LTE Band 2, 25	1851.5 ~ 1913.5	2M69G7D	QPSK	25.31	0.340
LTE Band 2, 25	1851.5 ~ 1913.5	2M69W7D	16QAM	24.50	0.282
LTE Band 2, 25	1851.5 ~ 1913.5	2M70W7D	64QAM	23.41	0.219
LTE Band 2, 25	1850.7 ~ 1914.3	1M08G7D	QPSK	25.25	0.335
LTE Band 2, 25	1850.7 ~ 1914.3	1M09W7D	16QAM	24.42	0.277
LTE Band 2, 25	1850.7 ~ 1914.3	1M09W7D	64QAM	23.53	0.225
LTE Band 41	2506 ~ 2680	17M7G7D	QPSK	24.49	0.281
LTE Band 41	2506 ~ 2680	17M8W7D	16QAM	23.23	0.210
LTE Band 41	2506 ~ 2680	17M9W7D	64QAM	22.36	0.172
LTE Band 41	2503.5 ~ 2682.5	13M3G7D	QPSK	24.43	0.277
LTE Band 41	2503.5 ~ 2682.5	13M2W7D	16QAM	23.31	0.214
LTE Band 41	2503.5 ~ 2682.5	13M4W7D	64QAM	22.45	0.176
LTE Band 41	2501 ~ 2685	8M93G7D	QPSK	25.09	0.323
LTE Band 41	2501 ~ 2685	8M88W7D	16QAM	23.81	0.240
LTE Band 41	2501 ~ 2685	8M80W7D	64QAM	22.86	0.193
LTE Band 41	2498.5 ~ 2687.5	4M48G7D	QPSK	24.77	0.300
LTE Band 41	2498.5 ~ 2687.5	4M47W7D	16QAM	23.61	0.230
LTE Band 41	2498.5 ~ 2687.5	4M49W7D	64QAM	22.53	0.179
LTE Band 7	2510 ~ 2560	17M9G7D	QPSK	24.23	0.265
LTE Band 7	2510 ~ 2560	17M9W7D	16QAM	23.30	0.214
LTE Band 7	2510 ~ 2560	17M9W7D	64QAM	22.24	0.167
LTE Band 7	2507.5 ~ 2562.5	13M4G7D	QPSK	24.40	0.275
LTE Band 7	2507.5 ~ 2562.5	13M5W7D	16QAM	23.33	0.215
LTE Band 7	2507.5 ~ 2562.5	13M4W7D	64QAM	22.36	0.172
LTE Band 7	2505 ~ 2565	8M96G7D	QPSK	24.51	0.282
LTE Band 7	2505 ~ 2565	8M95W7D	16QAM	23.58	0.228
LTE Band 7	2505 ~ 2565	8M96W7D	64QAM	22.56	0.180
LTE Band 7	2502.5 ~ 2567.5	4M49G7D	QPSK	24.37	0.274
LTE Band 7	2502.5 ~ 2567.5	4M49W7D	16QAM	23.30	0.214
LTE Band 7	2502.5 ~ 2567.5	4M50W7D	64QAM	22.42	0.175

## 2. INTRODUCTION

### 2.1 EUT DESCRIPTION

The Equipment Under Test (EUT) supports GSM/WCDMA/LTE Phone with Bluetooth, WLAN, NFC.

### 2.2. EUT CAPABILITIES

This EUT contains the following capabilities:

850/1900 GSM/EDGE, 850/1700/1900 WCDMA/HSUPA, Multi-band LTE, 802.11b/g/n/ac WLAN(2.4GHz)  
802.11a/n/ac WLAN(5GHz), Bluetooth(BDR, EDR, LE), NFC.

### 2.3. TESTING ENVIRONMENT

Ambient Condition	
▪ Temperature	+21 °C ~ +25 °C
▪ Relative Humidity	41 % ~ 47 %

### 2.4 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

### 2.5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C 63.4-2014. All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95 % level of confidence.

Parameter	Measurement uncertainty
Radiated Disturbance (Below 1 GHz)	5.1 dB (The confidence level is about 95 %, k = 2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.4 dB (The confidence level is about 95 %, k = 2)
Radiated Disturbance (Above 18 GHz)	5.3 dB (The confidence level is about 95 %, k = 2)

### 2.6. TEST FACILITY

#### DT&C Co., Ltd.

The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.

The test site complies with the requirements of § 2.948 according to ANSI 63.4-2014.

- FCC MRA Accredited Test Firm No. : KR0034

- IC Test site No. : 5740A-4, 5740A-5

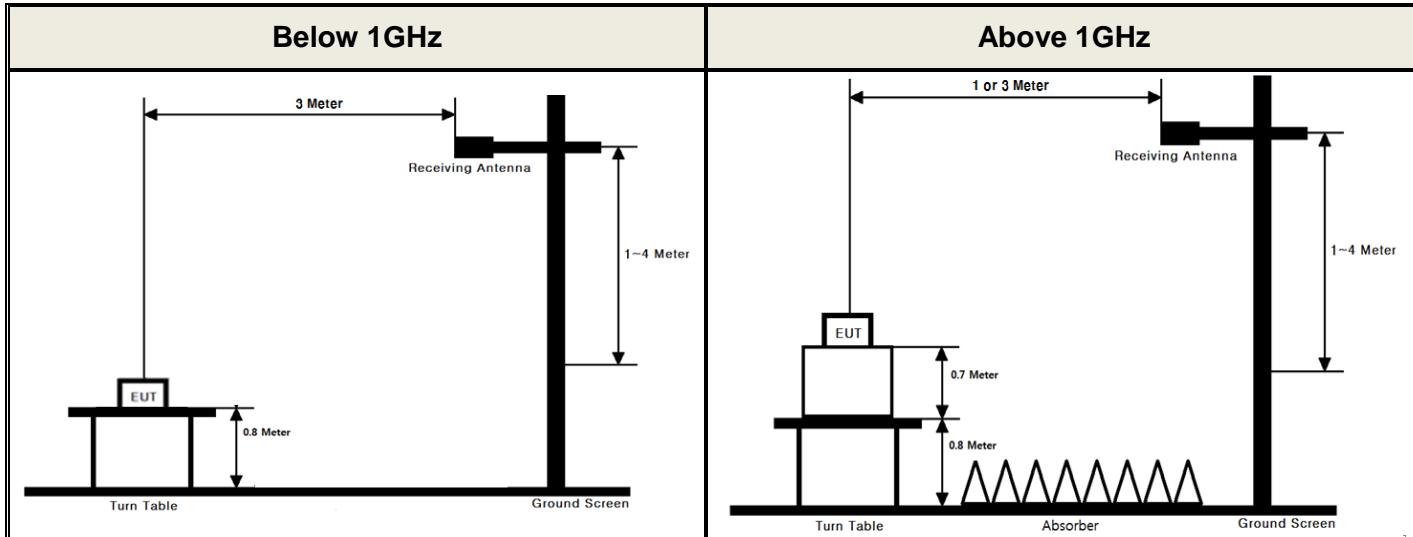
[www.dtnc.net](http://www.dtnc.net)

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### 3. DESCRIPTION OF TESTS

#### 3.1 ERP & EIRP (Effective Radiated Power & Equivalent Isotropic Radiated Power)

##### **Test Set-up**



These measurements were performed at 3 m test site. The equipment under test is placed on a non-conductive table 1.5-meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

##### **Test Procedure**

- **ANSI/TIA-603-E-2016 - Section 2.2.17**
- **KDB971168 D01v03 - Section 5.2.2**
- **ANSI C63.26-2015 – Section 5.2.4.4.1**

##### Test setting

1. Set span to  $2 \times$  to  $3 \times$  the OBW.
2. Set RBW = 1% to 5% of the OBW.
3. Set VBW  $\geq 3 \times$  RBW.
4. Set number of points in sweep  $\geq 2 \times$  span / RBW.
5. Sweep time:
  - 1) Set = auto-couple, or
  - 2) Set  $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$  for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.
6. Detector = power averaging (rms).
7. If the EUT can be configured to transmit continuously, then set the trigger to free run.
8. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).
9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.

10. Compute the power by integrating the spectrum across the OBW of the signal using the instrument's band or channel power measurement function, with the band/channel limits set equal to the OBW band edges. If the instrument does not have a band or channel power function, then sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

The receiver antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminal of the substitute antenna is measured.

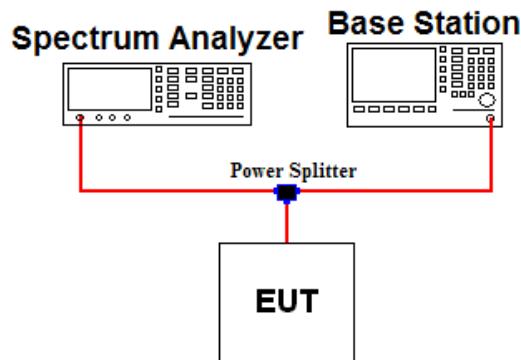
The ERP/EIRP is calculated using the following formula:

**ERP/EIRP = The conducted power at the substitute antenna's terminal [dBm] + Substitute Antenna gain [dBd for ERP , dBi for EIRP]**

For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn antenna and an isotropic antenna are taken into consideration.

### 3.2 PEAK TO AVERAGE RATIO

#### **Test set-up**



#### **Test Procedure**

- KDB971168 D01v03 - Section 5.7.2
- ANSI C63.26-2015 – Section 5.2.3.4

A peak to average ratio measurement is performed at the conducted port of the EUT.

The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The present of time the signal spends at or above the level defines the probability for that particular power level.

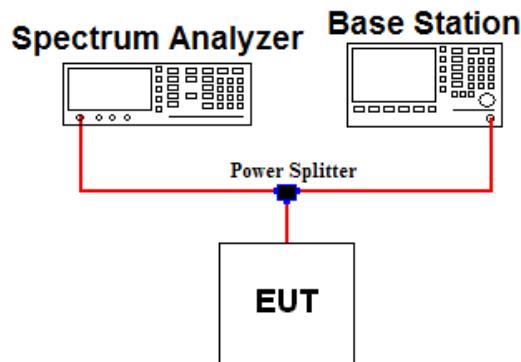
#### Test setting

The spectrum Analyzer's CCDF measurement function is enabled.

1. Set resolution/measurement bandwidth  $\geq$  OBW or specified reference bandwidth.
2. Set the number of counts to a value that stabilizes the measured CCDF curve.
3. Set the measurement interval as follows:
  - 1) For continuous transmissions, set to the greater of  $[10 \times (\text{number of points in sweep}) \times (\text{transmission symbol period})]$  or 1 ms.
  - 2) For burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize. Set the measurement interval to a time that is less than or equal to the burst duration.
  - 3) If there are several carriers in a single antenna port, the peak power shall be determined for each individual carrier (by disabling the other carriers while measuring the required carrier) and the total peak power calculated from the sum of the individual carrier peak powers.
4. Record the maximum PAPR level associated with a probability of 0.1%.
5. The peak power level is calculated from the sum of the PAPR value from step d) to the measured average power.

### 3.3 OCCUPIED BANDWIDTH.

#### **Test set-up**



#### **Test Procedure**

- **KDB971168 D01v03 - Section 4.3**
- **ANSI C63.26-2015 – Section 5.4.4**

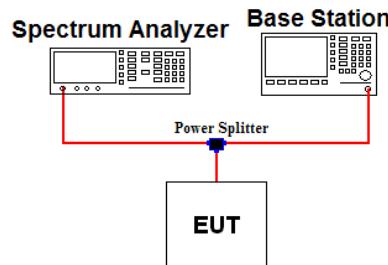
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power of a given emission.

#### Test setting

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 % occupied bandwidth and the 26 dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 ~ 5 % of the expected OBW & VBW  $\geq 3 \times$  RBW
3. Detector = Peak
4. Trace mode = Max hold
5. Sweep = Auto couple
6. The trace was allowed to stabilize
7. If necessary, step 2 ~ 6 were repeated after changing the RBW such that it would be within 1 ~ 5 % of the 99 % occupied bandwidth observed in step 6.

### 3.4 BAND EDGE EMISSIONS AT ANTENNA TERMINAL

#### Test set-up



#### Test Procedure

- KDB971168 D01v03 - Section 6
- ANSI C63.26-2015 – Section 5.7

All out of band emissions are measured by means of a calibrated spectrum analyzer. The EUT was setup to maximum output power at its lowest and highest channel with all bandwidths, modulations and RB configurations.

The power of any spurious emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB.

#### Test setting

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq 1\%$  of the emission bandwidth
4. VBW  $\geq 3 \times$  RBW
5. Detector = RMS & Trace mode = Max hold
6. Sweep time = Auto couple or 1 s for band edge
7. Number of sweep point  $\geq 2 \times$  span / RBW
8. The trace was allowed to stabilize

Note 1: Per Part 22.917(b)(1) / 24.238(b) / 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit.

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 emission are attenuated at least 26 dB below the transmitter power.

Note 2: Per Part 27(g) for operations in the 600 MHz band and the 698-746 MHz band, 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.

Note 3: Per Part 27.53(c.4) for all frequencies between 763-775 MHz and 793-805 MHz, the FCC limit is  $65 + 10\log_{10}(P[\text{Watts}]) = -35\text{dBm}$  in a 6.25kHz bandwidth.

Note 4: For part 27.53(m)(4) 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 than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz.

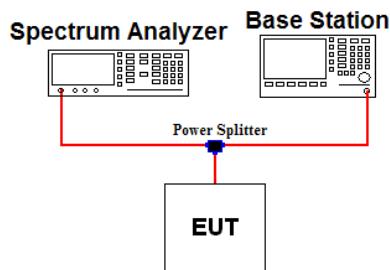
Note 5: Per part 27.53(m)(6) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 MHz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed.

Note 6: Per Part 90.543(e) for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

- (1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $76 + 10 \log (P)$  dB in a 6.25 kHz band segment, for base and fixed stations.
- (2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than  $65 + 10 \log (P)$  dB in a 6.25 kHz band segment, for mobile and portable stations.
- (3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least  $43 + 10 \log (P)$  dB.
- (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
- (5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

### 3.5 EMISSION MASK

#### **Test set-up**



#### **Test Procedure**

- **KDB971168 D01v03 - Section 6**
- **ANSI C63.26-2015 – Section 5.7**

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The EUT was setup to maximum output power at its low, middle, high channel with all bandwidths, modulations and RB configurations.

Transmitters used in the radio services by Part 90 must comply with the emission masks.

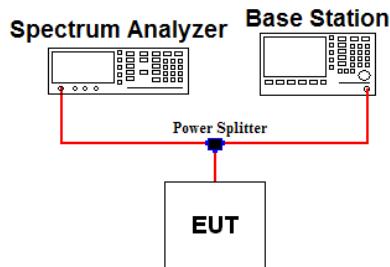
#### Test setting

1. RBW = 100 kHz(Below 1 GHz) or 1 MHz(Above 1 GHz) & VBW  $\geq$  3 X RBW ( Refer to Note 1)
2. Detector = RMS & Trace mode = Max hold
3. Sweep time = Auto couple
4. Number of sweep point  $\geq$  2 X span / RBW
5. The trace was allowed to stabilize

Note 1: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1GHz and 1MHz or greater for frequencies greater than 1GHz.

### 3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL

#### Test set-up



#### Test Procedure

- **KDB971168 D01v03 - Section 6**
- **ANSI C63.26-2015 – Section 5.7**

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The EUT was setup to maximum output power at its low, middle, high channel with all bandwidths, modulations and RB configurations. The spectrum is scanned from 9 kHz up to a frequency including its 10<sup>th</sup> harmonic.

The power of any spurious emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB.

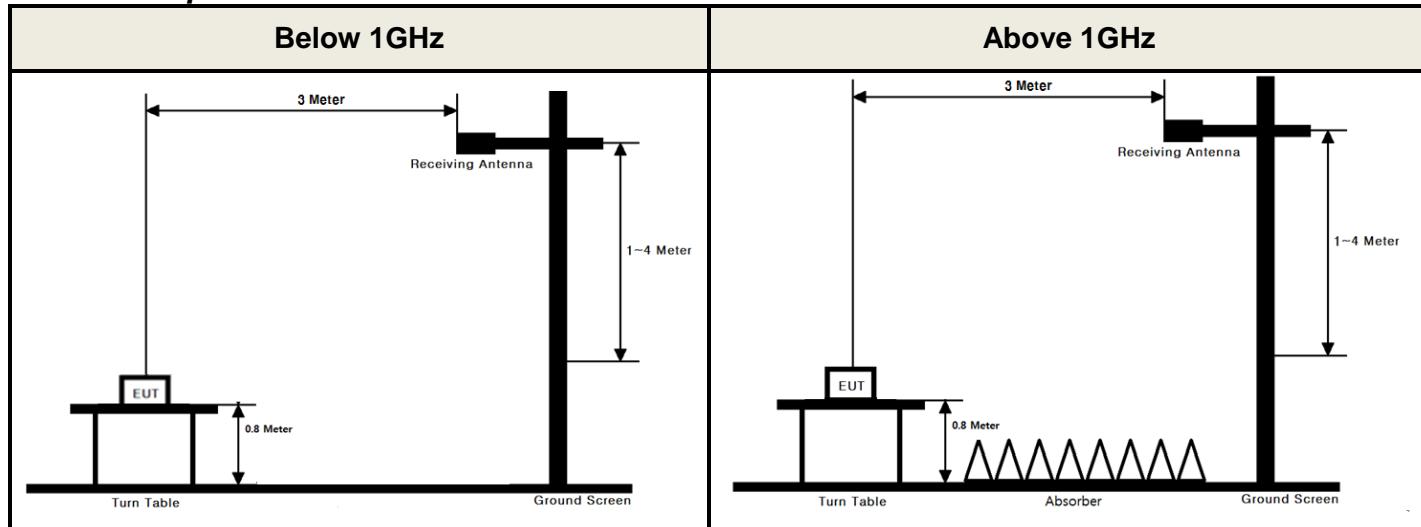
#### Test setting

6. RBW = 100 kHz(Below 1 GHz) or 1 MHz(Above 1 GHz) & VBW  $\geq 3 \times$  RBW ( Refer to Note 1)
7. Detector = RMS & Trace mode = Max hold
8. Sweep time = Auto couple
9. Number of sweep point  $\geq 2 \times$  span / RBW
10. The trace was allowed to stabilize

Note 1: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1GHz and 1MHz or greater for frequencies greater than 1GHz.

### 3.7 UNDESIRABLE EMISSIONS

#### **Test Set-up**



These measurements were performed at 3 test site. The equipment under test is placed on a non-conductive table 0.8-meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna. For measurements above 1 GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.

#### **Test Procedure**

- ANSI/TIA-603-E-2016 - Section 2.2.12
- KDB971168 D01v03 - Section 5.8
- ANSI C63.26-2015 – Section 5.5

#### Test setting

1. RBW = 100 kHz for below 1 GHz and 1 MHz for above 1 GHz / VBW  $\geq 3 \times$  RBW
2. Detector = RMS & Trace mode = Max hold
3. Sweep time = Auto couple
4. Number of sweep point  $\geq 2 \times$  span / RBW
5. The trace was allowed to stabilize

The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer.

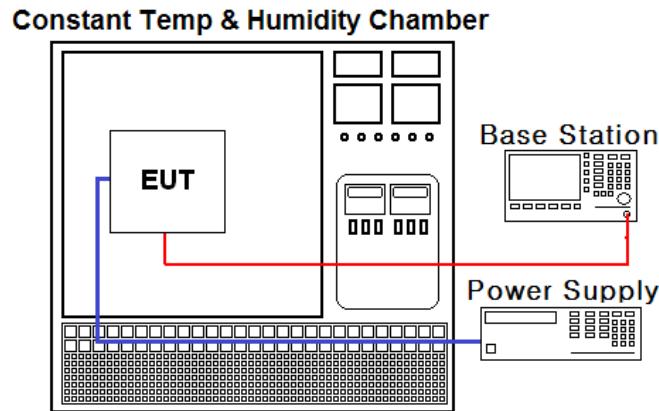
For radiated power measurements below 1 GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

For radiated power measurements above 1 GHz, a Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. The difference between the gain of the horn and an isotropic antenna are taken into consideration.

This measurement was performed with the EUT oriented in 3 orthogonal axis.

### 3.8 FREQUENCY STABILITY

#### Test Set-up



#### Test Procedure

- ANSI/TIA-603-E-2016
- KDB971168 D01v03 - Section 9

The frequency stability of the transmitter is measured by:

a.) **Temperature:**

The temperature is varied from -30 °C to +50 °C using an environmental chamber.

b.) **Primary Supply Voltage:**

The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

#### Specification:

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block for Part 24, 27. The frequency stability of the transmitter shall be maintained within ± 0.000 25 % (± 2.5 ppm) of the center frequency for Part 22.

#### Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature.  
(20 °C to provide a reference)
2. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C.  
A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

## 4. LIST OF TEST EQUIPMENT

- (2019.06.20 ~ 2019.09.02)

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	18/07/09 19/06/26	19/07/09 20/06/26	MY46471251
Spectrum Analyzer	Agilent Technologies	N9020A	18/07/09 19/06/26	19/07/09 20/06/26	MY50410163
Spectrum Analyzer	Agilent Technologies	N9030A	19/03/15	20/03/15	MY53310140
DC power supply	Agilent Technologies	66332A	18/07/02 19/06/25	19/07/02 20/06/25	MY43000394
Multimeter	FLUKE	17B	18/12/18	19/12/18	26030065WS
Power Splitter	Anritsu	K241B	18/12/19	19/12/19	016681
Power Divider	Weinschel	WA1575	18/11/07	19/11/07	WA1575-1
Temp & Humi	MG Indus	THP31R1	18/07/05 19/07/04	19/07/05 20/07/04	20131002-1
Radio Communication Analyzer	ANRITSU	MT8820C	18/12/20	19/12/20	6201274516
Thermohygrometer	BODYCOM	BJ5478	18/12/27	19/12/27	120612-2
Thermohygrometer	BODYCOM	BJ5478	18/12/27	19/12/27	120612-1
Signal Generator	Rohde Schwarz	SMBV100A	18/12/19	19/12/19	255571
Signal Generator	ANRITSU	MG3695C	18/12/20	19/12/20	173501
Loop Antenna	Schwarzbeck	FMZB1513	18/01/30	20/01/30	1513-128
Dipole Antenna	Schwarzbeck	VHA9103	19/02/28	21/02/28	2116
Dipole Antenna	Schwarzbeck	VHA9103	18/04/13	20/04/13	2117
Dipole Antenna	Schwarzbeck	UHA9105	19/02/28	21/02/28	2261
Dipole Antenna	Schwarzbeck	UHA9105	18/04/13	20/04/13	2262
HORN ANT	ETS	3117	18/05/10	20/05/10	00140394
HORN ANT	ETS	3117	18/03/26	20/03/26	00152145
HORN ANT	A.H.Systems	SAS-574	19/04/23	21/04/23	154
HORN ANT	A.H.Systems	SAS-574	17/07/31 19/07/03	19/07/31 21/07/03	155
Amplifier	EMPOWER	BBS3Q7ELU	18/07/10 19/06/24	19/07/10 20/06/24	1020
PreAmplifier	H.P	8447D	18/12/18	19/12/18	2944A07774
PreAmplifier	Agilent	8449B	18/07/05 19/06/27	19/07/05 20/06/27	3008A02108
PreAmplifier	A.H.Systems Inc.	PAM-1840VH	18/07/06 19/06/27	19/07/17 20/06/27	163
High-pass filter	Wainwright	WHKX12-935-1000-15000-40SS	18/07/05 19/06/24	19/07/05 20/06/24	7
High-pass filter	Wainwright	WHKX12-2580-3000-18000-80SS	18/07/05 19/06/24	19/07/05 20/06/24	3
High-pass filter	Wainwright	WHNX8.5/26.5G-6SS	18/07/03 19/06/24	19/07/03 20/06/24	1
Cable	DTNC	Cable	19/01/16	20/01/16	M-01
Cable	DTNC	Cable	19/01/16	20/01/16	M-04
Cable	Junkosha	MWX315	19/01/16	20/01/16	M-05
Cable	Junkosha	MWX221	19/01/16	20/01/16	M-06
Cable	DTNC	Cable	19/01/16	20/01/16	RF-73
Cable	Radiall	Cable	19/01/16	20/01/16	RF-84

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

- (2019.10.23 ~ 2019.10.24)

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	19/06/26	20/06/26	MY50410163
DC power supply	Agilent Technologies	66332A	19/06/25	20/06/25	MY43000394
Multimeter	FLUKE	17B	18/12/18	19/12/18	26030065WS
Power Splitter	Anritsu	K241B	18/12/19	19/12/19	016681
Power Divider	Weinschel	WA1575	19/06/25	20/06/25	WA1575-1
Radio Communication Analyzer	ANRITSU	MT8820C	18/12/20	19/12/20	6201274516
Thermohygrometer	BODYCOM	BJ5478	18/12/27	19/12/27	120612-1
Signal Generator	Rohde Schwarz	SMBV100A	18/12/19	19/12/19	255571
Signal Generator	ANRITSU	MG3695C	18/12/20	19/12/20	173501
Cable	DTNC	Cable	19/01/16	20/01/16	RF-65

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.

Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

## 5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Status Note 1
2.1046	-	Conducted Output Power	N/A	Conducted	C Note2
2.1049	RSS-GEN[6.7]	Occupied Bandwidth	N/A		C
24.232(d) 27.50(d.5)	RSS-130 [4.6] RSS-132 [5.4] RSS-133 [6.4] RSS-139 [6.5] RSS-140 [4.3] RSS-199 [4.4]	Peak to Average Ratio	< 13 dB		C
2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h) 90.543(e.3)	RSS-130 [4.7] RSS-132 [5.5] RSS-133 [6.5] RSS-139 [6.6]	Band Edge / Conducted Spurious Emissions	> 43 + 10log <sub>10</sub> (P) dB at Band edge and for all out-of-band emissions		C
90.210(n)		Emission Mask	Emission Mask B: (1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB. (2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB. (3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.		C
27.53(c.4) 90.543(e.2)	RSS-130 [4.7.2]	Undesirable Emissions in 763 ~ 775MHz & 793 ~ 805MHz	< 65 + 10 log10(P) dB		C
27.53(m)	RSS-199 [4.5]	Band Edge / Conducted Spurious Emissions	> 40 + 10log10 (P) dB at channel edge and 5 MHz from the channel edge > 43 + 10log10 (P) dB at 5 MHz and X MHz from the channel edge > 55 + 10log10 (P) dB at all frequencies more than X MHz from the channel edge		C
2.1055 22.355 24.235 27.54	RSS-130 [4.5] RSS-132 [5.3] RSS-133 [6.3] RSS-139 [6.4] RSS-140 [4.2] RSS-199 [4.3]	Frequency Stability	< 2.5 ppm (Part 22) or Fundamental emissions must stay within Authorized frequency block (Part 24, 27, 90)		C
27.50(b.10) 27.50(c.10)	RSS-130 [4.6] RSS-140 [4.3]	Radiated Output Power (B12, 13, 14, 17)	< 3 Watts max. ERP (FCC & IC)	Radiated	C
22.913(a.5)	RSS-132 [5.4]	Radiated Output Power (B5)	< 7 Watts max. ERP (FCC) < 11.5 Watts max. EIRP (IC)		C
27.50(d.4)	RSS-139 [6.5]	Radiated Output Power (B4)	< 1 Watts max. EIRP (FCC & IC)		C
24.232(c) 27.50(h.2)	RSS-133 [6.4] RSS-199 [4.4]	Radiated Output Power (B2, 7, 41)	< 2 Watts max. EIRP (FCC & IC)		C
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	RSS-130 [4.7] RSS-132 [5.5] RSS-133 [6.5] RSS-139 [6.6] RSS-140 [4.4]	Undesirable Emissions	> 43 + 10log <sub>10</sub> (P) dB for all out-of-band emissions		C
27.53(m)	RSS-199 [4.5]	Undesirable Emissions (B7, 41)	> 55 + 10log <sub>10</sub> (P) dB for all out-of-band emissions		C
27.53(f) 90.543(f)	RSS-130 [4.7.2] RSS-140 [4.4]	Undesirable Emissions in 1559 ~ 1610MHz	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions of less than 700 Hz bandwidth)		C

Note 1: C=Comply NC=Not Comply NT=Not Tested

NA=Not Applicable

Note 2: Refer to RF Exposure Report (Test Report SAR)

## 6. SAMPLE CALCULATION

### A. Emission Designator

#### LTE Band 12, 17(QPSK)

Emission Designator = **8M95G7D**

LTE OBW = 8.9532 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 12, 17(16QAM)

Emission Designator = **8M94W7D**

LTE OBW = 8.9438 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 12, 17(64QAM)

Emission Designator = **8M96W7D**

LTE OBW = 8.956 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 13(QPSK)

Emission Designator = **8M93G7D**

LTE OBW = 8.9296 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 13(16QAM)

Emission Designator = **8M95W7D**

LTE OBW = 8.951 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 13(64QAM)

Emission Designator = **8M95W7D**

LTE OBW = 8.9498 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 14(QPSK)

Emission Designator = **8M95G7D**

LTE OBW = 8.9445 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 14(16QAM)

Emission Designator = **8M93W7D**

LTE OBW = 8.9307 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

#### LTE Band 14(64QAM)

Emission Designator = **8M97W7D**

LTE OBW = 8.9703 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 5, 26(QPSK)**

Emission Designator = **13M4G7D**

LTE OBW = 13.448 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 5, 26(64QAM)**

Emission Designator = **13M4W7D**

LTE OBW = 13.372 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 4(QPSK)**

Emission Designator = **17M9G7D**

LTE OBW = 17.866 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 4(64QAM)**

Emission Designator = **17M9W7D**

LTE OBW = 17.869 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 2, 25(QPSK)**

Emission Designator = **17M9G7D**

LTE OBW = 17.872 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 2, 25(16QAM)**

Emission Designator = **17M9W7D**

LTE OBW = 17.870 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 5, 26(16QAM)**

Emission Designator = **13M4W7D**

LTE OBW = 13.422 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 4(16QAM)**

Emission Designator = **17M9W7D**

LTE OBW = 17.862 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

**LTE Band 2, 25(16QAM)**

Emission Designator = **17M9W7D**

LTE OBW = 17.915 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

### LTE Band 41(QPSK)

Emission Designator = **17M7G7D**

LTE OBW = 17.748 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

### LTE Band 41(64QAM)

Emission Designator = **17M9W7D**

LTE OBW = 17.894 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

### LTE Band 41(16QAM)

Emission Designator = **17M8W7D**

LTE OBW = 17.771 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

### LTE Band 7(QPSK)

Emission Designator = **17M9G7D**

LTE OBW = 17.887 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

### LTE Band 7(16QAM)

Emission Designator = **17M9W7D**

LTE OBW = 17.863 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

### LTE Band 7(64QAM)

Emission Designator = **17M9W7D**

LTE OBW = 17.874 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

## B. For substitution method

### EIRP for Band 7

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Spectrum Reading Value(dBm)	EUT Axis	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
5	2535	QPSK	1/12	-26.01	Z	V	18.48	5.89	24.37	0.274

### ERP or EIRP = Level @ Ant Terminal LEVEL(dBm) + Tx Ant. Gain

- 1) The EUT mounted on a non-conductive turntable is 0.8 meter above test site ground level.
- 2) During the test, the turn table is rotated until the maximum signal is found.
- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with substituted antenna gain is the rating of ERP, EIRP or Radiated spurious emission.

## 7. TEST DATA

### 7.1 OCCUPIED BANDWIDTH

- Plots of the EUT's Occupied Bandwidth are shown in Clause 8.1

### 7.2 PEAK TO AVERAGE RATIO

- Plots of the EUT's Peak- to- Average Ratio are shown in Clause 8.2

### 7.3 BAND EDEG EMISSIONS (Conducted)

- Plots of the EUT's Band Edge Emissions are shown in Clause 8.3

### 7.4 SPURIOUS AND HARMONICS EMISSIONS (Conducted)

- Plots of the EUT's Spurious Emissions are shown in Clause 8.4

### 7.5 EMISSION MASK (Conducted)

- Plots of the EUT's Spurious Emissions are shown in Clause 8.4

## 7.6 ERP & EIRP

### 7.6.1 LTE Band 12, 17

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	704	QPSK	1/49	H	17.81	1.28	19.09	0.081
		16QAM	1/49	H	16.89	1.28	18.17	0.066
		64QAM	1/49	H	15.94	1.28	17.22	0.053
	711	QPSK	1/25	H	17.90	1.28	19.18	0.083
		16QAM	1/25	H	16.82	1.28	18.10	0.065
		64QAM	1/25	H	15.98	1.28	17.26	0.053
5	701.5	QPSK	1/24	H	17.36	1.28	18.64	0.073
		16QAM	1/24	H	16.51	1.28	17.79	0.060
		64QAM	1/24	H	15.43	1.28	16.71	0.047
	707.5	QPSK	1/12	H	17.94	1.28	19.22	0.084
		16QAM	1/12	H	17.00	1.28	18.28	0.067
		64QAM	1/12	H	15.87	1.28	17.15	0.052
	713.5	QPSK	1/12	H	17.42	1.28	18.70	0.074
		16QAM	1/12	H	16.43	1.28	17.71	0.059
		64QAM	1/12	H	15.40	1.28	16.68	0.047

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

### 7.6.2 LTE Band 12

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
3	700.5	QPSK	1/7	H	17.31	1.28	18.59	0.072
		16QAM	1/7	H	16.43	1.28	17.71	0.059
		64QAM	1/7	H	15.37	1.28	16.65	0.046
	707.5	QPSK	1/7	H	18.09	1.28	19.37	0.086
		16QAM	1/7	H	17.19	1.28	18.47	0.070
		64QAM	1/7	H	16.16	1.28	17.44	0.055
	714.5	QPSK	1/7	H	17.38	1.28	18.66	0.073
		16QAM	1/7	H	16.43	1.28	17.71	0.059
		64QAM	1/7	H	15.40	1.28	16.68	0.047
1.4	699.7	QPSK	1/2	H	17.16	1.28	18.44	0.070
		16QAM	1/2	H	16.14	1.28	17.42	0.055
		64QAM	1/2	H	15.12	1.28	16.40	0.044
	707.5	QPSK	1/2	H	17.82	1.28	19.10	0.081
		16QAM	1/2	H	16.96	1.28	18.24	0.067
		64QAM	1/2	H	15.97	1.28	17.25	0.053
	715.3	QPSK	1/2	H	17.11	1.28	18.39	0.069
		16QAM	1/2	H	16.18	1.28	17.46	0.056
		64QAM	1/2	H	15.23	1.28	16.51	0.045

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

**7.6.3 LTE Band 13**

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	782	QPSK	1/25	H	19.28	1.26	20.54	0.113
		16QAM	1/25	H	18.40	1.26	19.66	0.092
		64QAM	1/25	H	17.47	1.26	18.73	0.075
5	779.5	QPSK	1/12	H	19.16	1.26	20.42	0.110
		16QAM	1/12	H	18.22	1.26	19.48	0.089
		64QAM	1/12	H	17.36	1.26	18.62	0.073
	784.5	QPSK	1/12	H	19.19	1.25	20.44	0.111
		16QAM	1/12	H	18.23	1.25	19.48	0.089
		64QAM	1/12	H	17.34	1.25	18.59	0.072

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

**7.6.4 LTE Band 14**

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	793	QPSK	1/0	H	20.01	1.25	21.26	0.134
		16QAM	1/0	H	19.05	1.25	20.30	0.107
		64QAM	1/0	H	17.94	1.25	19.19	0.083
5	790.5	QPSK	1/0	H	19.41	1.25	20.66	0.116
		16QAM	1/0	H	18.54	1.25	19.79	0.095
		64QAM	1/0	H	17.46	1.25	18.71	0.074
	795.5	QPSK	1/0	H	19.34	1.25	20.59	0.115
		16QAM	1/0	H	18.65	1.25	19.90	0.098
		64QAM	1/0	H	17.71	1.25	18.96	0.079

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

**7.6.5 LTE Band 26**

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
15	831.5	QPSK	1/36	H	20.10	1.22	21.32	0.136
		16QAM	1/36	H	19.00	1.22	20.22	0.105
		64QAM	1/36	H	17.92	1.22	19.14	0.082
	841.5	QPSK	1/36	H	19.55	1.22	20.77	0.119
		16QAM	1/36	H	18.66	1.22	19.88	0.097
		64QAM	1/36	H	17.63	1.22	18.85	0.077

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

### 7.6.6 LTE Band 5, 26

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)
10	829	QPSK	1/25	H	19.25	1.23	20.48	0.112
		16QAM	1/25	H	18.30	1.23	19.53	0.090
		64QAM	1/25	H	17.33	1.23	18.56	0.072
	836.5	QPSK	1/25	H	19.46	1.22	20.68	0.117
		16QAM	1/25	H	18.55	1.22	19.77	0.095
		64QAM	1/25	H	17.68	1.22	18.90	0.078
	844	QPSK	1/25	H	19.41	1.21	20.62	0.115
		16QAM	1/25	H	18.33	1.21	19.54	0.090
		64QAM	1/25	H	17.49	1.21	18.70	0.074
5	826.5	QPSK	1/12	H	19.01	1.23	20.24	0.106
		16QAM	1/12	H	18.06	1.23	19.29	0.085
		64QAM	1/12	H	17.10	1.23	18.33	0.068
	836.5	QPSK	1/12	H	19.80	1.22	21.02	0.126
		16QAM	1/12	H	18.58	1.22	19.80	0.095
		64QAM	1/12	H	17.63	1.22	18.85	0.077
	846.5	QPSK	1/12	H	19.04	1.21	20.25	0.106
		16QAM	1/12	H	18.16	1.21	19.37	0.086
		64QAM	1/12	H	17.30	1.21	18.51	0.071
3	825.5	QPSK	1/7	H	18.69	1.23	19.92	0.098
		16QAM	1/7	H	17.78	1.23	19.01	0.080
		64QAM	1/7	H	16.72	1.23	17.95	0.062
	836.5	QPSK	1/7	H	19.81	1.22	21.03	0.127
		16QAM	1/7	H	18.65	1.22	19.87	0.097
		64QAM	1/7	H	17.57	1.22	18.79	0.076
	847.5	QPSK	1/7	H	19.18	1.21	20.39	0.109
		16QAM	1/7	H	18.13	1.21	19.34	0.086
		64QAM	1/7	H	17.26	1.21	18.47	0.070
1.4	824.7	QPSK	1/2	H	18.72	1.23	19.95	0.099
		16QAM	1/2	H	17.66	1.23	18.89	0.077
		64QAM	1/2	H	16.75	1.23	17.98	0.063
	836.5	QPSK	1/2	H	19.78	1.22	21.00	0.126
		16QAM	1/2	H	18.70	1.22	19.92	0.098
		64QAM	1/2	H	17.62	1.22	18.84	0.077
	848.3	QPSK	1/2	H	18.94	1.21	20.15	0.104
		16QAM	1/2	H	18.09	1.21	19.30	0.085
		64QAM	1/2	H	17.15	1.21	18.36	0.069

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

### 7.6.7 LTE Band 4

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	1720	QPSK	1/50	V	18.85	5.95	24.80	0.302
		16QAM	1/50	V	18.03	5.95	23.98	0.250
		64QAM	1/50	V	17.06	5.95	23.01	0.200
	1732.5	QPSK	1/0	V	18.48	5.84	24.32	0.270
		16QAM	1/0	V	17.54	5.84	23.38	0.218
		64QAM	1/0	V	16.58	5.84	22.42	0.175
	1745	QPSK	1/0	V	18.89	5.73	24.62	0.290
		16QAM	1/0	V	17.84	5.73	23.57	0.228
		64QAM	1/0	V	16.75	5.73	22.48	0.177
15	1717.5	QPSK	1/36	V	18.83	5.97	24.80	0.302
		16QAM	1/36	V	17.95	5.97	23.92	0.247
		64QAM	1/36	V	16.82	5.97	22.79	0.190
	1732.5	QPSK	1/36	V	17.85	5.84	23.69	0.234
		16QAM	1/36	V	16.82	5.84	22.66	0.185
		64QAM	1/36	V	15.98	5.84	21.82	0.152
	1747.5	QPSK	1/36	V	17.90	5.70	23.60	0.229
		16QAM	1/36	V	16.94	5.70	22.64	0.184
		64QAM	1/36	V	15.95	5.70	21.65	0.146
10	1715	QPSK	1/25	V	18.54	6.00	24.54	0.284
		16QAM	1/25	V	17.63	6.00	23.63	0.231
		64QAM	1/25	V	16.62	6.00	22.62	0.183
	1732.5	QPSK	1/25	V	18.56	5.84	24.40	0.275
		16QAM	1/25	V	17.27	5.84	23.11	0.205
		64QAM	1/25	V	16.12	5.84	21.96	0.157
	1750	QPSK	1/25	V	17.71	5.68	23.39	0.218
		16QAM	1/25	V	16.88	5.68	22.56	0.180
		64QAM	1/25	V	15.92	5.68	21.60	0.145

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
5	1712.5	QPSK	1/12	V	18.32	6.02	24.34	0.272
		16QAM	1/12	V	17.24	6.02	23.26	0.212
		64QAM	1/12	V	16.22	6.02	22.24	0.167
	1732.5	QPSK	1/12	V	17.71	5.84	23.55	0.226
		16QAM	1/12	V	16.65	5.84	22.49	0.177
		64QAM	1/12	V	15.62	5.84	21.46	0.140
	1752.5	QPSK	1/12	V	17.56	5.65	23.21	0.209
		16QAM	1/12	V	16.69	5.65	22.34	0.171
		64QAM	1/12	V	15.71	5.65	21.36	0.137
3	1711.5	QPSK	1/7	V	18.04	6.03	24.07	0.255
		16QAM	1/7	V	17.10	6.03	23.13	0.206
		64QAM	1/7	V	16.32	6.03	22.35	0.172
	1732.5	QPSK	1/7	V	17.78	5.84	23.62	0.230
		16QAM	1/7	V	16.82	5.84	22.66	0.185
		64QAM	1/7	V	15.89	5.84	21.73	0.149
	1753.5	QPSK	1/7	V	17.60	5.63	23.23	0.210
		16QAM	1/7	V	16.84	5.63	22.47	0.177
		64QAM	1/7	V	15.91	5.63	21.54	0.143
1.4	1710.7	QPSK	1/2	V	18.10	6.03	24.13	0.259
		16QAM	1/2	V	17.23	6.03	23.26	0.212
		64QAM	1/2	V	16.37	6.03	22.40	0.174
	1732.5	QPSK	1/2	V	17.59	5.84	23.43	0.220
		16QAM	1/2	V	16.61	5.84	22.45	0.176
		64QAM	1/2	V	15.64	5.84	21.48	0.141
	1754.3	QPSK	1/2	V	17.53	5.62	23.15	0.207
		16QAM	1/2	V	16.70	5.62	22.32	0.171
		64QAM	1/2	V	15.92	5.62	21.54	0.143

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

### 7.6.8 LTE Band 2, 25

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	1860	QPSK	1/50	V	20.69	4.91	25.60	0.363
		16QAM	1/50	V	19.73	4.91	24.64	0.291
		64QAM	1/50	V	18.75	4.91	23.66	0.232
	1882.5	QPSK	1/50	V	19.13	4.79	23.92	0.247
		16QAM	1/50	V	18.22	4.79	23.01	0.200
		64QAM	1/50	V	17.31	4.79	22.10	0.162
	1905	QPSK	1/50	V	17.85	4.67	22.52	0.179
		16QAM	1/50	V	16.99	4.67	21.66	0.147
		64QAM	1/50	V	15.93	4.67	20.60	0.115
15	1857.5	QPSK	1/36	V	20.49	4.92	25.41	0.348
		16QAM	1/36	V	19.70	4.92	24.62	0.290
		64QAM	1/36	V	18.55	4.92	23.47	0.222
	1882.5	QPSK	1/0	V	20.15	4.79	24.94	0.312
		16QAM	1/0	V	19.22	4.79	24.01	0.252
		64QAM	1/0	V	18.21	4.79	23.00	0.200
	1907.5	QPSK	1/36	V	18.26	4.65	22.91	0.195
		16QAM	1/36	V	17.30	4.65	21.95	0.157
		64QAM	1/36	V	16.33	4.65	20.98	0.125
10	1855	QPSK	1/25	V	20.10	4.94	25.04	0.319
		16QAM	1/25	V	19.19	4.94	24.13	0.259
		64QAM	1/25	V	18.29	4.94	23.23	0.210
	1882.5	QPSK	1/25	V	19.02	4.79	23.81	0.240
		16QAM	1/25	V	18.17	4.79	22.96	0.198
		64QAM	1/25	V	17.20	4.79	21.99	0.158
	1910	QPSK	1/25	V	17.95	4.64	22.59	0.182
		16QAM	1/25	V	17.06	4.64	21.70	0.148
		64QAM	1/25	V	16.20	4.64	20.84	0.121

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
5	1852.5	QPSK	1/12	V	20.21	4.95	25.16	0.328
		16QAM	1/12	V	19.35	4.95	24.30	0.269
		64QAM	1/12	V	18.30	4.95	23.25	0.211
	1882.5	QPSK	1/12	V	19.24	4.79	24.03	0.253
		16QAM	1/12	V	18.29	4.79	23.08	0.203
		64QAM	1/12	V	17.33	4.79	22.12	0.163
	1912.5	QPSK	1/12	V	17.67	4.63	22.30	0.170
		16QAM	1/12	V	16.79	4.63	21.42	0.139
		64QAM	1/12	V	15.84	4.63	20.47	0.111
3	1851.5	QPSK	1/7	V	20.36	4.95	25.31	0.340
		16QAM	1/7	V	19.55	4.95	24.50	0.282
		64QAM	1/7	V	18.46	4.95	23.41	0.219
	1882.5	QPSK	1/7	V	19.14	4.79	23.93	0.247
		16QAM	1/7	V	18.28	4.79	23.07	0.203
		64QAM	1/7	V	17.33	4.79	22.12	0.163
	1913.5	QPSK	1/7	V	17.68	4.62	22.30	0.170
		16QAM	1/7	V	16.76	4.62	21.38	0.137
		64QAM	1/7	V	15.69	4.62	20.31	0.107
1.4	1850.7	QPSK	1/2	V	20.29	4.96	25.25	0.335
		16QAM	1/2	V	19.46	4.96	24.42	0.277
		64QAM	1/2	V	18.57	4.96	23.53	0.225
	1882.5	QPSK	1/2	V	18.96	4.79	23.75	0.237
		16QAM	1/2	V	18.04	4.79	22.83	0.192
		64QAM	1/2	V	17.13	4.79	21.92	0.156
	1914.3	QPSK	1/2	V	17.54	4.61	22.15	0.164
		16QAM	1/2	V	16.53	4.61	21.14	0.130
		64QAM	1/2	V	15.55	4.61	20.16	0.104

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

### 7.6.9 LTE Band 41

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	EIRP (dBm)	EIRP (W)
20	2506	QPSK	1/0	V	18.53	5.96	24.49	0.281
		16QAM	1/0	V	17.27	5.96	23.23	0.210
		64QAM	1/0	V	16.40	5.96	22.36	0.172
	25935	QPSK	1/0	V	16.84	5.91	22.75	0.188
		16QAM	1/0	V	15.70	5.91	21.61	0.145
		64QAM	1/0	V	14.79	5.91	20.70	0.117
	2680	QPSK	1/0	V	16.17	6.18	22.35	0.172
		16QAM	1/0	V	15.38	6.18	21.56	0.143
		64QAM	1/0	V	14.33	6.18	20.51	0.112
15	2503.5	QPSK	1/0	V	18.46	5.97	24.43	0.277
		16QAM	1/0	V	17.34	5.97	23.31	0.214
		64QAM	1/0	V	16.48	5.97	22.45	0.176
	25935	QPSK	1/0	V	17.17	5.91	23.08	0.203
		16QAM	1/0	V	16.19	5.91	22.10	0.162
		64QAM	1/0	V	15.34	5.91	21.25	0.133
	2682.5	QPSK	1/0	V	13.16	6.19	19.35	0.086
		16QAM	1/0	V	12.33	6.19	18.52	0.071
		64QAM	1/0	V	11.45	6.19	17.64	0.058
10	2501	QPSK	1/25	V	19.11	5.98	25.09	0.323
		16QAM	1/25	V	17.83	5.98	23.81	0.240
		64QAM	1/25	V	16.88	5.98	22.86	0.193
	2593	QPSK	1/25	V	17.63	5.91	23.54	0.226
		16QAM	1/25	V	16.92	5.91	22.83	0.192
		64QAM	1/25	V	15.99	5.91	21.90	0.155
	2685	QPSK	1/0	V	17.09	6.20	23.29	0.213
		16QAM	1/0	V	16.00	6.20	22.20	0.166
		64QAM	1/0	V	15.21	6.20	21.41	0.138
5	2498.5	QPSK	1/12	V	18.79	5.98	24.77	0.300
		16QAM	1/12	V	17.63	5.98	23.61	0.230
		64QAM	1/12	V	16.55	5.98	22.53	0.179
	2593	QPSK	1/12	V	17.87	5.91	23.78	0.239
		16QAM	1/12	V	16.80	5.91	22.71	0.187
		64QAM	1/12	V	15.72	5.91	21.63	0.146
	2687.5	QPSK	1/12	V	14.91	6.21	21.12	0.129
		16QAM	1/12	V	14.00	6.21	20.21	0.105
		64QAM	1/12	V	13.11	6.21	19.32	0.086

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

### 7.6.10 LTE Band 7

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBi)	EIRP (dBm)	EIRP (W)
20	2510	QPSK	1/50	V	17.78	5.95	23.73	0.236
		16QAM	1/50	V	16.75	5.95	22.70	0.186
		64QAM	1/50	V	15.87	5.95	21.82	0.152
	2535	QPSK	1/50	V	18.34	5.89	24.23	0.265
		16QAM	1/50	V	17.41	5.89	23.30	0.214
		64QAM	1/50	V	16.35	5.89	22.24	0.167
	2560	QPSK	1/50	V	17.59	5.86	23.45	0.221
		16QAM	1/50	V	16.69	5.86	22.55	0.180
		64QAM	1/50	V	15.72	5.86	21.58	0.144
15	2507.5	QPSK	1/36	V	17.77	5.96	23.73	0.236
		16QAM	1/36	V	16.89	5.96	22.85	0.193
		64QAM	1/36	V	15.95	5.96	21.91	0.155
	2535	QPSK	1/36	V	18.51	5.89	24.40	0.275
		16QAM	1/36	V	17.44	5.89	23.33	0.215
		64QAM	1/36	V	16.47	5.89	22.36	0.172
	2562.5	QPSK	1/36	V	17.50	5.87	23.37	0.217
		16QAM	1/36	V	16.44	5.87	22.31	0.170
		64QAM	1/36	V	15.48	5.87	21.35	0.136
10	2505	QPSK	1/25	V	17.70	5.97	23.67	0.233
		16QAM	1/25	V	16.84	5.97	22.81	0.191
		64QAM	1/25	V	15.96	5.97	21.93	0.156
	2535	QPSK	1/25	V	18.62	5.89	24.51	0.282
		16QAM	1/25	V	17.69	5.89	23.58	0.228
		64QAM	1/25	V	16.67	5.89	22.56	0.180
	2565	QPSK	1/25	V	17.58	5.87	23.45	0.221
		16QAM	1/25	V	16.62	5.87	22.49	0.177
		64QAM	1/25	V	15.66	5.87	21.53	0.142
5	2502.5	QPSK	1/12	V	17.69	5.97	23.66	0.232
		16QAM	1/12	V	16.74	5.97	22.71	0.187
		64QAM	1/12	V	15.81	5.97	21.78	0.151
	2535	QPSK	1/12	V	18.48	5.89	24.37	0.274
		16QAM	1/12	V	17.41	5.89	23.30	0.214
		64QAM	1/12	V	16.53	5.89	22.42	0.175
	2567.5	QPSK	1/12	V	17.47	5.88	23.35	0.216
		16QAM	1/12	V	16.56	5.88	22.44	0.175
		64QAM	1/12	V	15.63	5.88	21.51	0.142

Note: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

## 7.7 UNDESIRABLE EMISSIONS (Radiated)

### 7.7.1 LTE Band 12, 17

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	704	1/49	QPSK	1416.89	H	-54.53	2.86	-51.67	70.76	32.09
				2112.34	V	-50.02	3.06	-46.96	66.05	
				2833.85	H	-54.81	4.92	-49.89	68.98	
			16QAM	1416.71	H	-54.92	2.86	-52.06	70.23	31.17
				2112.40	V	-49.78	3.06	-46.72	64.89	
				2833.87	H	-54.80	4.92	-49.88	68.05	
	711	1/25	64QAM	1417.00	H	-55.63	2.86	-52.77	70.94	30.22
				2111.94	V	-49.64	3.06	-46.58	64.75	
				2833.52	H	-54.10	4.92	-49.18	67.35	
			QPSK	1421.93	H	-56.22	2.91	-53.31	72.49	32.18
				2133.30	V	-48.20	3.15	-45.05	64.23	
				2133.22	H	-50.24	3.15	-47.09	66.27	
			16QAM	1422.16	H	-55.80	2.92	-52.88	70.98	31.10
				2133.53	V	-48.28	3.15	-45.13	63.23	
				2133.12	H	-49.92	3.15	-46.77	64.87	
			64QAM	1422.37	H	-56.49	2.92	-53.57	71.67	30.26
				2133.37	V	-47.49	3.15	-44.34	62.44	
				2133.39	H	-49.56	3.15	-46.41	64.51	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
5	701.5	1/24	QPSK	1407.25	H	-57.07	2.76	-54.31	72.95	31.64
				2111.21	V	-49.36	3.06	-46.30	64.94	
				2815.00	H	-54.25	4.86	-49.39	68.03	
			16QAM	1407.51	H	-55.96	2.77	-53.19	70.98	30.79
				2110.99	V	-48.91	3.06	-45.85	63.64	
				2814.58	H	-53.79	4.86	-48.93	66.72	
			64QAM	1406.73	H	-57.40	2.76	-54.64	72.43	29.71
				2110.83	V	-48.50	3.06	-45.44	63.23	
				2814.64	H	-53.79	4.86	-48.93	66.72	
	707.5	1/12	QPSK	1414.95	H	-55.88	2.84	-53.04	72.26	32.22
				2122.66	V	-47.48	3.11	-44.37	63.59	
				2829.70	H	-53.96	4.91	-49.05	68.27	
			16QAM	1415.19	H	-56.13	2.84	-53.29	71.57	31.28
				2122.49	V	-46.82	3.10	-43.72	62.00	
				2829.37	H	-54.82	4.90	-49.92	68.20	
			64QAM	1415.13	H	-55.22	2.84	-52.38	70.66	30.15
				2122.46	V	-47.29	3.10	-44.19	62.47	
				2829.48	H	-54.44	4.90	-49.54	67.82	
	713.5	1/12	QPSK	1426.89	H	-56.31	2.96	-53.35	72.05	31.70
				2140.46	V	-48.62	3.18	-45.44	64.14	
				2854.42	H	-54.68	4.98	-49.70	68.40	
			16QAM	1427.24	H	-56.47	2.97	-53.50	71.21	30.71
				2140.46	V	-48.64	3.18	-45.46	63.17	
				2854.03	H	-54.22	4.98	-49.24	66.95	
			64QAM	1426.73	H	-56.85	2.96	-53.89	71.60	29.68
				2140.72	V	-49.56	3.18	-46.38	64.09	
				2854.29	H	-54.45	4.98	-49.47	67.18	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### 7.7.2 LTE Band 12

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
3	700.5	1/7	QPSK	1400.72	H	-56.36	2.70	-53.66	72.25	31.59
				2101.42	V	-47.31	3.02	-44.29	62.88	
				2802.13	H	-53.84	4.82	-49.02	67.61	
			16QAM	1401.06	H	-56.31	2.70	-53.61	71.32	30.71
				2101.48	V	-46.88	3.02	-43.86	61.57	
				2801.71	H	-54.13	4.82	-49.31	67.02	
	707.5	1/7	64QAM	1401.06	H	-56.13	2.70	-53.43	71.14	29.65
				2101.54	V	-45.32	3.02	-42.30	60.01	
				2802.02	H	-53.30	4.82	-48.48	66.19	
			QPSK	1415.00	H	-54.89	2.84	-52.05	71.42	32.37
				2122.67	V	-48.02	3.11	-44.91	64.28	
				2829.63	H	-54.80	4.90	-49.90	69.27	
	714.5	1/7	16QAM	1414.72	H	-55.36	2.84	-52.52	70.99	31.47
				2122.68	V	-46.75	3.11	-43.64	62.11	
				2830.36	H	-54.61	4.91	-49.70	68.17	
			64QAM	1414.98	H	-55.87	2.84	-53.03	71.50	30.44
				2122.68	V	-47.14	3.11	-44.03	62.50	
				2829.87	H	-54.21	4.91	-49.30	67.77	
			QPSK	1429.09	H	-56.24	2.99	-53.25	71.91	31.66
				2143.60	V	-47.28	3.19	-44.09	62.75	
				2858.30	H	-54.60	4.99	-49.61	68.27	
			16QAM	1429.01	H	-56.89	2.99	-53.90	71.61	30.71
				2143.75	V	-47.93	3.19	-44.74	62.45	
				2857.42	H	-54.03	4.99	-49.04	66.75	
			64QAM	1428.98	H	-56.97	2.99	-53.98	71.69	29.68
				2143.55	V	-47.36	3.19	-44.17	61.88	
				2857.34	H	-54.22	4.99	-49.23	66.94	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
1.4	699.7	1/2	QPSK	1398.74	H	-55.94	2.68	-53.26	71.70	31.44
				2098.87	V	-48.07	3.01	-45.06	63.50	
				2798.38	H	-54.04	4.80	-49.24	67.68	
			16QAM	1399.44	H	-55.67	2.69	-52.98	70.40	30.42
				2098.69	V	-47.37	3.00	-44.37	61.79	
				2798.10	H	-53.00	4.80	-48.20	65.62	
			64QAM	1398.98	H	-56.01	2.69	-53.32	70.74	29.40
				2098.77	V	-47.12	3.00	-44.12	61.54	
				2798.52	H	-53.27	4.80	-48.47	65.89	
	707.5	1/2	QPSK	1414.59	H	-55.57	2.84	-52.73	71.83	32.10
				2122.24	V	-48.02	3.10	-44.92	64.02	
				2829.95	H	-54.48	4.91	-49.57	68.67	
			16QAM	1415.17	H	-56.50	2.84	-53.66	71.90	31.24
				2122.07	V	-47.28	3.10	-44.18	62.42	
				2829.68	H	-54.69	4.90	-49.79	68.03	
			64QAM	1414.70	H	-55.05	2.84	-52.21	70.45	30.25
				2122.19	V	-46.43	3.10	-43.33	61.57	
				2829.20	H	-54.97	4.90	-50.07	68.31	
	715.3	1/2	QPSK	1430.46	H	-56.58	3.00	-53.58	71.97	31.39
				2145.77	V	-47.27	3.20	-44.07	62.46	
				2861.26	H	-54.60	5.00	-49.60	67.99	
			16QAM	1430.58	H	-56.34	3.00	-53.34	70.80	30.46
				2145.54	V	-47.00	3.20	-43.80	61.26	
				2860.65	H	-54.15	5.00	-49.15	66.61	
			64QAM	1430.54	H	-56.06	3.00	-53.06	70.52	29.51
				2145.91	V	-47.73	3.20	-44.53	61.99	
				2860.01	H	-55.00	5.00	-50.00	67.46	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### 7.7.3 LTE Band 13

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	782	1/25	QPSK	2346.54	V	-49.35	3.78	-45.57	66.11	33.54
				3128.31	H	-54.09	5.02	-49.07	69.61	
			16QAM	2346.39	V	-49.41	3.78	-45.63	65.29	32.66
				3128.19	H	-54.36	5.02	-49.34	69.00	
			64QAM	2345.84	V	-49.54	3.78	-45.76	65.42	31.73
				3127.35	H	-54.88	5.02	-49.86	69.52	
5	779.5	1/12	QPSK	2338.38	V	-49.58	3.77	-45.81	66.23	33.42
				3137.99	H	-53.79	5.03	-48.76	69.18	
			16QAM	2338.42	V	-50.25	3.77	-46.48	65.96	32.48
				3118.48	H	-54.75	5.01	-49.74	69.22	
			64QAM	2338.62	H	-52.22	3.77	-48.45	67.93	31.62
				3118.91	H	-54.33	5.02	-49.31	68.79	
	784.5	1/12	QPSK	2353.52	V	-50.06	3.79	-46.27	66.71	33.44
				3137.99	H	-53.79	5.03	-48.76	69.20	
			16QAM	2353.50	V	-50.59	3.79	-46.80	66.28	32.48
				3138.13	H	-53.93	5.03	-48.90	68.38	
			64QAM	2353.44	V	-50.16	3.79	-46.37	65.85	31.59
				3138.24	H	-54.46	5.03	-49.43	68.91	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### UNDESIRABLE EMISSIONS IN 1559~1610MHz (LTE Band 13)

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Margin (dB)	Limit (dBm/MHz)
								(dBm)	(dB)		
10	782	1/25	QPSK	1564.17	H	-55.72	5.95	-49.77	9.77	-40.00	
			16QAM	1564.25	H	-56.80	5.95	-50.85	10.85		
			64QAM	1563.98	H	-57.77	5.95	-51.82	11.82		
5	779.5	1/12	QPSK	1559.15	H	-57.55	5.94	-51.61	11.61	-40.00	
			16QAM	1559.85	H	-57.96	5.94	-52.02	12.02		
			64QAM	1559.45	H	-57.58	5.94	-51.64	11.64		
	784.5	1/12	QPSK	1568.69	H	-58.02	5.96	-52.06	12.06		
			16QAM	1569.06	H	-58.10	5.96	-52.14	12.14		
			64QAM	1569.20	H	-56.92	5.96	-50.96	10.96		

### 7.7.4 LTE Band 14

B.W (MHz)	Test Freq. (MHz)	Test Mode	RB Size/ Offset	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	793	QPSK	1/0	2365.74	H	-49.23	3.78	-45.45	66.71	34.26
		16QAM	1/0	2365.75	H	-50.58	3.78	-46.80	67.10	33.30
		64QAM	1/0	2365.72	H	-49.55	3.78	-45.77	66.07	32.19
5	790.5	QPSK	1/0	2364.87	H	-49.88	3.78	-46.10	66.76	33.66
		16QAM	1/0	2365.01	H	-50.35	3.78	-46.57	66.36	32.79
		64QAM	1/0	2365.24	H	-49.83	3.78	-46.05	65.84	31.71
	795.5	QPSK	1/0	2380.02	H	-50.02	3.78	-46.24	66.83	33.59
		16QAM	1/0	2380.07	H	-48.88	3.78	-45.10	65.00	32.90
		64QAM	1/0	2380.01	H	-48.84	3.78	-45.06	64.96	31.96

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### UNDESIRABLE EMISSIONS IN 1559~1610MHz (LTE Band 14)

B.W (MHz)	Test Freq. (MHz)	Test Mode	RB Size/ Offset	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Margin (dB)	Limit (dBm/MHz)
								(dBm)	(dB)		
10	793	QPSK	1/0	1576.90	H	-56.64	5.97	-50.67	10.67	-40.00	
		16QAM	1/0	1577.51	H	-58.22	5.97	-52.25	12.25		
		64QAM	1/0	1577.78	H	-58.25	5.97	-52.28	12.28		
5	790.5	QPSK	1/0	1576.53	H	-56.68	5.97	-50.71	10.71	-40.00	
		16QAM	1/0	1576.90	H	-57.52	5.97	-51.55	11.55		
		64QAM	1/0	1576.79	H	-58.01	5.97	-52.04	12.04		
	795.5	QPSK	1/0	1586.76	H	-56.26	5.98	-50.28	10.28		
		16QAM	1/0	1586.28	H	-57.42	5.98	-51.44	11.44		
		64QAM	1/0	1586.88	H	-58.19	5.98	-52.21	12.21		

### 7.7.5 LTE Band 26

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
15	831.5	1/36	QPSK	1662.81	H	-53.63	3.86	-49.77	71.09	34.32
				2494.06	H	-43.59	3.82	-39.77	61.09	
			16QAM	1662.53	H	-52.72	3.86	-48.86	69.08	33.22
				2494.13	H	-44.92	3.82	-41.10	61.32	
			64QAM	1662.57	H	-53.12	3.86	-49.26	69.48	32.14
				2494.16	H	-46.36	3.82	-42.54	62.76	
	841.5	1/36	QPSK	1682.64	H	-52.92	3.92	-49.00	69.77	33.77
				2523.97	H	-43.21	3.77	-39.44	60.21	
			16QAM	1682.71	H	-52.27	3.92	-48.35	68.23	32.88
				2523.79	H	-43.55	3.77	-39.78	59.66	
			64QAM	1682.67	H	-53.24	3.92	-49.32	69.20	31.85
				2524.08	H	-44.57	3.77	-40.80	60.68	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### 7.7.6 LTE Band 5, 26

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	829	1/25	QPSK	1658.45	H	-53.91	3.85	-50.06	70.54	33.48
				2487.37	H	-43.28	3.81	-39.47	59.95	
			16QAM	1658.25	H	-52.88	3.85	-49.03	68.56	32.53
				2487.09	H	-45.41	3.81	-41.60	61.13	
			64QAM	1658.23	H	-52.58	3.85	-48.73	68.26	31.56
				2487.31	H	-45.94	3.81	-42.13	61.66	
	836.5	1/25	QPSK	1673.09	H	-52.16	3.89	-48.27	68.95	33.68
				2509.85	H	-47.98	3.80	-44.18	64.86	
			16QAM	1673.43	H	-52.72	3.89	-48.83	68.60	32.77
				2509.71	H	-47.72	3.80	-43.92	63.69	
			64QAM	1673.11	H	-53.06	3.89	-49.17	68.94	31.90
				2509.59	H	-47.34	3.81	-43.53	63.30	
	844	1/25	QPSK	1688.13	H	-53.13	3.94	-49.19	69.81	33.62
				2532.22	H	-46.32	3.75	-42.57	63.19	
			16QAM	1688.06	H	-52.24	3.94	-48.30	67.84	32.54
				2532.15	H	-46.27	3.75	-42.52	62.06	
			64QAM	1688.08	H	-53.02	3.94	-49.08	68.62	31.70
				2532.24	H	-46.40	3.75	-42.65	62.19	
5	826.5	1/12	QPSK	1652.96	H	-54.34	3.83	-50.51	70.75	33.24
				2479.61	H	-50.54	3.80	-46.74	66.98	
			16QAM	1652.90	H	-54.30	3.83	-50.47	69.76	32.29
				2479.50	H	-48.12	3.80	-44.32	63.61	
			64QAM	1652.90	H	-53.87	3.83	-50.04	69.33	31.33
	836.5	1/12	QPSK	1673.13	H	-54.25	3.89	-50.36	71.38	34.02
				2509.47	H	-51.63	3.81	-47.82	68.84	
			16QAM	1672.98	H	-53.59	3.89	-49.70	69.50	32.80
				2509.35	H	-51.08	3.81	-47.27	67.07	
			64QAM	1672.89	H	-53.72	3.89	-49.83	69.63	31.85
	846.5	1/12	QPSK	1692.84	H	-53.96	3.96	-50.00	70.25	33.25
				2539.72	H	-48.83	3.73	-45.10	65.35	
			16QAM	1692.92	H	-52.74	3.96	-48.78	68.15	32.37
				2539.57	H	-47.56	3.73	-43.83	63.20	
			64QAM	1692.92	H	-53.34	3.96	-49.38	68.75	31.51
				2539.50	H	-46.69	3.73	-42.96	62.33	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)
								(dBm)	(dBc)	
3	825.5	1/7	QPSK	1651.29	H	-53.80	3.82	-49.98	69.90	32.92
				2476.11	H	-51.72	3.79	-47.93	67.85	
			16QAM	1691.00	H	-53.65	3.95	-49.70	68.71	32.01
				2476.65	H	-48.99	3.79	-45.20	64.21	
			64QAM	1650.85	H	-53.56	3.82	-49.74	68.75	30.95
				2476.40	H	-48.49	3.79	-44.70	63.71	
			QPSK	1673.28	H	-52.77	3.89	-48.88	69.91	34.03
				2509.90	H	-52.25	3.80	-48.45	69.48	
	836.5	1/7	16QAM	1673.17	H	-52.35	3.89	-48.46	68.33	32.87
				2509.61	H	-50.89	3.81	-47.08	66.95	
			64QAM	1672.89	H	-52.96	3.89	-49.07	68.94	31.79
				2509.48	H	-50.00	3.81	-46.19	66.06	
			QPSK	1695.02	H	-52.69	3.96	-48.73	69.12	33.39
				2542.48	H	-49.04	3.72	-45.32	65.71	
	847.5	1/7	16QAM	1695.04	H	-52.90	3.96	-48.94	68.28	32.34
				2542.47	H	-50.91	3.72	-47.19	66.53	
			64QAM	1694.80	H	-53.81	3.96	-49.85	69.19	31.47
				2542.39	H	-49.89	3.72	-46.17	65.51	
1.4	824.7	1/2	QPSK	1648.97	H	-53.61	3.82	-49.79	69.74	32.95
				2473.92	H	-46.66	3.79	-42.87	62.82	
			16QAM	1649.22	H	-53.79	3.82	-49.97	68.86	31.89
				2473.76	H	-45.99	3.79	-42.20	61.09	
			64QAM	1649.09	H	-54.41	3.82	-50.59	69.48	30.98
				2473.85	H	-47.02	3.79	-43.23	62.12	
			QPSK	1672.81	H	-53.54	3.89	-49.65	70.65	34.00
	836.5	1/2		2509.33	H	-47.26	3.81	-43.45	64.45	
		16QAM	1672.75	H	-53.39	3.89	-49.50	69.42	32.92	
			2509.21	H	-47.19	3.81	-43.38	63.30		
		64QAM	1672.68	H	-53.43	3.89	-49.54	69.46	31.84	
			2509.39	H	-46.82	3.81	-43.01	62.93		
	848.3	1/2	QPSK	1696.43	H	-53.09	3.97	-49.12	69.27	33.15
				2545.00	H	-50.97	3.71	-47.26	67.41	
			16QAM	1696.26	H	-52.69	3.97	-48.72	68.02	32.30
				2544.69	H	-48.72	3.71	-45.01	64.31	
			64QAM	1696.17	H	-53.23	3.97	-49.26	68.56	31.36
				2544.72	H	-48.84	3.71	-45.13	64.43	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### 7.7.7 LTE Band 4

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	1720	1/50	QPSK	3439.44	V	-53.93	8.05	-45.88	70.68	37.80
				5160.27	V	-48.42	10.28	-38.14	62.94	
			16QAM	3440.32	V	-54.61	8.05	-46.56	70.54	36.98
				5160.24	V	-47.07	10.28	-36.79	60.77	
			64QAM	3440.55	V	-54.10	8.06	-46.04	70.02	36.01
				5160.24	V	-47.82	10.28	-37.54	61.52	
	1732.5	1/0	QPSK	3446.95	V	-53.96	8.07	-45.89	70.21	37.32
				5170.95	V	-48.90	10.29	-38.61	62.93	
			16QAM	3447.18	V	-53.30	8.07	-45.23	68.61	36.38
				5170.77	V	-46.78	10.29	-36.49	59.87	
			64QAM	3447.47	V	-53.67	8.07	-45.60	68.98	35.42
				5170.82	V	-46.59	10.29	-36.30	59.68	
15	1745	1/0	QPSK	3472.56	V	-54.42	8.13	-46.29	70.91	37.62
				5208.21	V	-43.71	10.34	-33.37	57.99	
			16QAM	3473.04	V	-54.36	8.14	-46.22	69.79	36.57
				5208.11	V	-44.25	10.34	-33.91	57.48	
			64QAM	3471.25	V	-54.47	8.13	-46.34	69.91	35.48
				5208.29	V	-44.02	10.34	-33.68	57.25	
	1717.5	1/36	QPSK	3436.48	V	-54.00	8.04	-45.96	70.76	37.80
				5152.05	V	-43.76	10.26	-33.50	58.30	
			16QAM	3436.46	V	-54.26	8.04	-46.22	70.14	36.92
				5151.95	V	-43.26	10.26	-33.00	56.92	
			64QAM	3433.05	V	-54.60	8.04	-46.56	70.48	35.79
				5152.11	V	-43.72	10.26	-33.46	57.38	
15	1732.5	1/36	QPSK	3464.78	V	-54.04	8.12	-45.92	69.61	36.69
				5196.93	V	-44.55	10.34	-34.21	57.90	
				8661.86	V	-49.26	12.97	-36.29	59.98	
			16QAM	3464.92	V	-53.83	8.12	-45.71	68.37	35.66
				5196.99		-44.01	10.34	-33.67	56.33	
			64QAM	8661.76	V	-48.59	12.97	-35.62	58.28	
				3464.22	V	-53.97	8.11	-45.86	68.52	34.82
				5197.11	V	-43.92	10.34	-33.58	56.24	
	1747.5	1/36	QPSK	8662.06	V	-49.48	12.97	-36.51	59.17	34.82
				3495.04	V	-53.38	8.19	-45.19	68.79	
			16QAM	5241.89	V	-43.01	10.32	-32.69	56.29	
				3494.73	V	-55.03	8.19	-46.84	69.48	35.64
			64QAM	5242.02	V	-42.71	10.32	-32.39	55.03	
				3494.17	V	-54.86	8.19	-46.67	69.31	34.65
				5242.04	V	-42.73	10.32	-32.41	55.05	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table..

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	1715	1/25	QPSK	3430.38	V	-52.93	8.03	-44.90	69.44	37.54
				5145.24	V	-44.88	10.26	-34.62	59.16	
			16QAM	3430.32	V	-53.64	8.03	-45.61	69.24	36.63
				5145.33	V	-44.14	10.26	-33.88	57.51	
			64QAM	3429.95	V	-54.07	8.03	-46.04	69.67	35.62
				5145.33	V	-43.24	10.26	-32.98	56.61	
	1732.5	1/25	QPSK	3464.87	V	-53.57	8.12	-45.45	69.85	37.40
				5197.73	V	-43.81	10.34	-33.47	57.87	
				8662.71	V	-49.43	12.97	-36.46	60.86	
			16QAM	3465.58	V	-53.35	8.12	-45.23	68.34	36.11
				5197.63	V	-43.42	10.34	-33.08	56.19	
				8662.86	V	-49.06	12.97	-36.09	59.20	
	1750	1/25	QPSK	3464.68	V	-53.80	8.12	-45.68	68.79	34.96
				5197.72	V	-45.03	10.34	-34.69	57.80	
				8663.72	V	-50.09	12.97	-37.12	60.23	
			16QAM	3500.14	V	-52.89	8.20	-44.69	68.08	36.39
				5250.22	V	-43.48	10.32	-33.16	56.55	
				8750.26	V	-49.58	13.06	-36.52	59.91	
	1712.5	1/12	QPSK	3495.46	V	-53.93	8.19	-45.74	68.30	35.56
				5250.22	V	-43.03	10.32	-32.71	55.27	
				8750.36	V	-49.15	13.06	-36.09	58.65	
			64QAM	3499.65	V	-53.88	8.20	-45.68	68.24	34.60
				5250.14	V	-41.89	10.32	-31.57	54.13	
				8750.62	V	-47.78	13.06	-34.72	57.28	
5	1712.5	1/12	QPSK	3425.01	V	-53.33	8.02	-45.31	69.65	37.34
				5137.34	V	-45.30	10.26	-35.04	59.38	
			16QAM	3424.72	V	-54.01	8.01	-46.00	69.26	36.26
				5137.68	V	-44.60	10.26	-34.34	57.60	
			64QAM	3424.71	V	-52.91	8.01	-44.90	68.16	35.24
				5137.16	V	-44.68	10.26	-34.42	57.68	
	1732.5	1/12	QPSK	3465.17	V	-53.79	8.12	-45.67	69.22	36.55
				5197.42	V	-43.91	10.34	-33.57	57.12	
				8662.09	V	-50.03	12.97	-37.06	60.61	
			16QAM	3465.43	V	-54.19	8.12	-46.07	68.56	35.49
				5197.36	V	-43.23	10.34	-32.89	55.38	
				8661.50	V	-49.50	12.97	-36.53	59.02	
	1752.5	1/12	64QAM	3463.83	V	-54.83	8.11	-46.72	69.21	34.46
				5197.69	V	-44.81	10.34	-34.47	56.96	
				8662.05	V	-49.74	12.97	-36.77	59.26	
			QPSK	3505.22	V	-54.44	8.21	-46.23	69.44	36.21
				5257.58	V	-43.34	10.32	-33.02	56.23	
				3505.48	V	-54.56	8.21	-46.35	68.69	
			16QAM	5257.46	V	-43.00	10.32	-32.68	55.02	35.34
				3505.04	V	-55.00	8.21	-46.79	69.13	
			64QAM	5257.49	V	-42.48	10.32	-32.16	54.50	34.36

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
3	1711.5	1/7	QPSK	3422.77	V	-53.67	8.01	-45.66	69.73	37.07
				5134.47	V	-43.19	10.26	-32.93	57.00	
			16QAM	3423.13	V	68.64	8.01	-46.17	69.30	36.13
				5134.42	V	-45.99	10.26	-35.73	58.86	
			64QAM	3422.62	V	-54.13	8.01	-46.12	69.25	35.35
				5134.46	V	-46.60	10.26	-36.34	59.47	
				3465.09	V	-54.18	8.12	-46.06	69.68	
	1732.5	1/7	QPSK	5197.47	V	-44.19	10.34	-33.85	57.47	36.62
				3465.05	V	-54.02	8.12	-45.90	68.56	
			16QAM	5197.45	V	-42.89	10.34	-32.55	55.21	35.66
				3464.56	V	-54.37	8.11	-46.26	68.92	
			64QAM	5197.60	V	-42.57	10.34	-32.23	54.89	34.73
	1753.5	1/7	QPSK	3507.08	V	-54.78	8.22	-46.56	69.79	36.23
				5260.67	V	-42.51	10.32	-32.19	55.42	
			16QAM	3507.15	V	-54.75	8.22	-46.53	69.00	35.47
				5260.51	V	-41.34	10.32	-31.02	53.49	
			64QAM	3507.66	V	-54.52	8.22	-46.30	68.77	34.54
				5260.55	V	-41.51	10.32	-31.19	53.66	
1.4	1710.7	1/2	QPSK	3421.19	V	-53.80	8.01	-45.79	69.92	37.13
				5132.09	V	-48.61	10.26	-38.35	62.48	
			16QAM	3421.20	V	-53.36	8.01	-45.35	68.61	36.26
				5131.81	V	-48.25	10.26	-37.99	61.25	
			64QAM	3421.38	V	-54.12	8.01	-46.11	69.37	35.40
	1732.5	1/2	QPSK	5131.85	V	-47.14	10.26	-36.88	60.14	
				3464.67	V	-53.08	8.12	-44.96	68.39	36.43
				5197.23	V	-43.45	10.34	-33.11	56.54	
			16QAM	8662.25	V	-50.37	12.97	-37.40	60.83	
				3464.27	V	-54.72	8.11	-46.61	69.06	35.45
				5197.31	V	-42.40	10.34	-32.06	54.51	
	1754.3	1/2	64QAM	8663.08	V	-49.71	12.97	-36.74	59.19	34.48
				3465.14	V	-54.55	8.12	-46.43	68.88	
				5197.36	V	-44.52	10.34	-34.18	56.63	
			QPSK	8662.30	V	-50.33	12.97	-37.36	59.81	36.15
				3508.84	V	-55.05	8.22	-46.83	69.98	
				5262.57	V	-43.80	10.32	-33.48	56.63	
			16QAM	8771.14	V	-48.78	13.04	-35.74	58.89	35.32
				3508.56	V	-54.67	8.22	-46.45	68.77	
				5262.68	V	-41.55	10.32	-31.23	53.55	
			64QAM	8771.72	V	-48.66	13.04	-35.62	57.94	35.54
				3508.65	V	-54.93	8.22	-46.71	69.03	
				5262.58	V	-42.38	10.32	-32.06	54.38	
				8771.42	V	-48.83	13.04	-35.79	58.11	

Note 1: Limit Calculation =  $43 + 10\log_{10}(\text{P[Watts]})$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### 7.7.8 LTE Band 2, 25

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	1860	1/50	QPSK	3720.19	V	-53.36	8.39	-44.97	70.57	38.60
				5580.33	H	-40.44	10.51	-29.93	55.53	
				7440.07	V	-50.40	11.75	-38.65	64.25	
				9300.28	V	-40.29	13.19	-27.10	52.70	
			16QAM	3720.24	V	-52.47	8.39	-44.08	68.72	37.64
				5580.13	H	-38.67	10.51	-28.16	52.80	
				7439.68	V	-49.97	11.75	-38.22	62.86	
				9300.34	V	-39.77	13.19	-26.58	51.22	
			64QAM	3720.33	V	-53.34	8.39	-44.95	69.59	36.66
				5580.19	H	-41.92	10.51	-31.41	56.05	
				7440.41	V	-50.32	11.75	-38.57	63.21	
				9300.48	V	-39.70	13.19	-26.51	51.15	
	1882.5	1/50	QPSK	3765.62	V	-53.40	8.34	-45.06	68.98	36.92
				5647.81	H	-43.57	10.66	-32.91	56.83	
				7529.46	V	-49.80	11.96	-37.84	61.76	
				9412.89	V	-48.86	13.27	-35.59	59.51	
			16QAM	3765.51	V	-52.56	8.34	-44.22	67.23	36.01
				5647.70	H	-43.69	10.66	-33.03	56.04	
				7529.52	V	-50.43	11.96	-38.47	61.48	
				9413.07	V	-48.41	13.27	-35.14	58.15	
			64QAM	3765.89	V	-51.76	8.34	-43.42	66.43	35.10
				5647.73	H	-42.37	10.66	-31.71	54.72	
				7529.77	V	-49.23	11.96	-37.27	60.28	
				9413.01	V	-47.57	13.27	-34.30	57.31	
	1905	1/50	QPSK	3810.32	V	-53.86	8.22	-45.64	68.16	35.52
				5715.24	H	-39.76	10.73	-29.03	51.55	
				7620.23	V	-50.45	12.16	-38.29	60.81	
				9525.37	V	-48.99	13.10	-35.89	58.41	
			16QAM	3810.13	V	-53.04	8.22	-44.82	66.48	34.66
				5715.41	H	-38.38	10.73	-27.65	49.31	
				7620.37	V	-50.64	12.16	-38.48	60.14	
				9524.34	V	-49.00	13.09	-35.91	57.57	
			64QAM	3810.15	V	-52.77	8.22	-44.55	66.21	33.60
				5715.47	H	-43.42	10.73	-32.69	54.35	
				7620.75	V	-49.92	12.16	-37.76	59.42	
				9525.69	V	-47.22	13.10	-34.12	55.78	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
15	1857.5	1/36	QPSK	3715.29	V	-51.76	8.39	-43.37	68.78	38.41
				5571.92	H	-39.78	10.48	-29.30	54.71	
				7429.78	V	-49.10	11.74	-37.36	62.77	
				9286.57	V	-39.84	13.20	-26.64	52.05	
			16QAM	3714.80	V	-52.18	8.39	-43.79	68.41	37.62
				5571.91	H	-45.26	10.48	-34.78	59.40	
				7430.48	V	-49.69	11.74	-37.95	62.57	
				9286.40	V	-40.70	13.20	-27.50	52.12	
	1882.5	1/0	QPSK	3714.42	V	-52.95	8.39	-44.56	69.18	36.47
				5572.20	H	-45.01	10.49	-34.52	59.14	
				7429.80	V	-49.48	11.74	-37.74	62.36	
				9286.75	V	-41.10	13.20	-27.90	52.52	
			16QAM	3751.97	V	-52.81	8.39	-44.42	69.36	37.94
				5627.50	H	-43.12	10.62	-32.50	57.44	
				7501.86	V	-49.75	11.92	-37.83	62.77	
				9378.89	V	-47.25	13.26	-33.99	58.93	
	1907.5	1/36	QPSK	3751.88	V	-52.69	8.39	-44.30	68.31	37.01
				5627.49	H	-42.89	10.62	-32.27	56.28	
				7501.83	V	-49.70	11.92	-37.78	61.79	
				9379.03	V	-47.81	13.26	-34.55	58.56	
			16QAM	3751.69	V	-52.13	8.39	-43.74	67.75	36.00
				5627.61	H	-42.37	10.62	-31.75	55.76	
				7502.51	V	-49.87	11.92	-37.95	61.96	
				9378.98	V	-48.58	13.26	-35.32	59.33	
	1907.5	1/36	QPSK	3814.73	V	-51.23	8.22	-43.01	65.92	35.91
				5722.01	H	-40.40	10.73	-29.67	52.58	
				7629.09	V	-49.48	12.17	-37.31	60.22	
				9536.77	V	-46.51	13.11	-33.40	56.31	
			16QAM	3814.58	V	-50.78	8.22	-42.56	64.51	34.95
				5722.06	H	-37.87	10.73	-27.14	49.09	
				7629.34	V	-48.75	12.17	-36.58	58.53	
				9536.37	V	-47.25	13.11	-34.14	56.09	
	1907.5	1/36	64QAM	3814.40	V	-50.73	8.22	-42.51	64.46	33.98
				5722.00	H	-43.65	10.73	-32.92	54.87	
				7629.05	V	-49.81	12.17	-37.64	59.59	
				9536.18	V	-47.58	13.11	-34.47	56.42	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	1855	1/25	QPSK	3709.85	V	-53.82	8.38	-45.44	70.48	38.04
				5565.28	H	-40.14	10.46	-29.68	54.72	
				7420.52	V	-50.45	11.72	-38.73	63.77	
				9275.45	V	-40.62	13.21	-27.41	52.45	
			16QAM	3710.49	V	-52.45	8.38	-44.07	68.20	37.13
				5565.35	H	-43.05	10.46	-32.59	56.72	
				7420.78	V	-48.17	11.72	-36.45	60.58	
				9275.41	V	-39.47	13.21	-26.26	50.39	
	1882.5	1/25	QPSK	3709.71	V	-53.85	8.38	-45.47	69.60	36.23
				5565.19	H	-43.47	10.46	-33.01	57.14	
				7420.42	V	-50.29	11.72	-38.57	62.70	
				9275.77	V	-39.21	13.21	-26.00	50.13	
			16QAM	3765.07	V	-53.37	8.35	-45.02	68.83	36.81
				5647.83	H	-38.81	10.66	-28.15	51.96	
				7530.26	V	-49.99	11.96	-38.03	61.84	
				9412.79	V	-47.18	13.27	-33.91	57.72	
	1910	1/25	QPSK	3764.86	V	-53.53	8.35	-45.18	68.14	35.96
				5647.73	H	-40.42	10.66	-29.76	52.72	
				7529.78	V	-50.64	11.96	-38.68	61.64	
				9413.35	V	-48.11	13.27	-34.84	57.80	
			16QAM	3765.09	V	-53.67	8.35	-45.32	68.28	34.99
				5647.74	H	-42.07	10.66	-31.41	54.37	
				7529.17	V	-50.23	11.96	-38.27	61.23	
				9412.75	V	-48.50	13.27	-35.23	58.19	
	1910	1/25	QPSK	3819.97	V	-54.22	8.22	-46.00	68.59	35.59
				5730.21	H	-42.43	10.72	-31.71	54.30	
				7640.55	V	-49.54	12.18	-37.36	59.95	
				9550.20	V	-47.05	13.12	-33.93	56.52	
			16QAM	3819.96	V	-54.28	8.22	-46.06	67.76	34.70
				5730.21	H	-42.29	10.72	-31.57	53.27	
				7640.36	V	-49.17	12.18	-36.99	58.69	
				9550.08	V	-46.63	13.12	-33.51	55.21	
	1910	1/25	64QAM	3819.96	V	-54.42	8.22	-46.20	67.90	33.84
				5730.41	H	-43.00	10.72	-32.28	53.98	
				7640.20	V	-49.78	12.18	-37.60	59.30	
				9550.43	V	-46.43	13.12	-33.31	55.01	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
5	1852.5	1/12	QPSK	3704.42	V	-53.32	8.38	-44.94	70.10	38.16
				5557.78	H	-51.02	10.44	-40.58	65.74	
				7408.95	V	-50.69	11.71	-38.98	64.14	
				9262.63	V	-40.79	13.23	-27.56	52.72	
			16QAM	3705.04	V	-51.80	8.38	-43.42	67.72	37.30
				5557.60	H	-51.05	10.44	-40.61	64.91	
				7409.29	V	-50.22	11.71	-38.51	62.81	
				9262.77	V	-40.63	13.23	-27.40	51.70	
			64QAM	3705.29	V	-52.61	8.38	-44.23	68.53	36.25
				5557.71	H	-50.49	10.44	-40.05	64.35	
				7409.44	V	-49.69	11.71	-37.98	62.28	
				9262.62	V	-39.80	13.23	-26.57	50.87	
			QPSK	3764.07	V	-53.10	8.35	-44.75	68.78	37.03
				5647.40	H	-51.54	10.66	-40.88	64.91	
				7530.29	V	-50.20	11.96	-38.24	62.27	
				9412.64	V	-47.35	13.27	-34.08	58.11	
			16QAM	3764.74	V	-53.47	8.35	-45.12	68.20	36.08
				5647.83	H	-51.53	10.66	-40.87	63.95	
				7529.42	V	-50.78	11.96	-38.82	61.90	
				9412.40	V	-46.21	13.27	-32.94	56.02	
			64QAM	3765.13	V	-53.36	8.35	-45.01	68.09	35.12
				5647.76	H	-51.87	10.66	-41.21	64.29	
				7529.61	V	-50.85	11.96	-38.89	61.97	
				9412.23	V	-46.98	13.27	-33.71	56.79	
			QPSK	3825.59	V	-51.73	8.23	-43.50	65.80	35.30
				5737.33	H	-51.78	10.72	-41.06	63.36	
				7650.14	V	-49.72	12.19	-37.53	59.83	
				9562.73	V	-46.99	13.11	-33.88	56.18	
			16QAM	3824.31	V	-52.93	8.22	-44.71	66.13	34.42
				5737.54	H	-51.20	10.72	-40.48	61.90	
				7649.79	V	-49.76	12.19	-37.57	58.99	
				9562.50	V	-46.63	13.11	-33.52	54.94	
			64QAM	3824.95	V	-52.79	8.22	-44.57	65.99	33.47
				5737.21	H	-51.80	10.72	-41.08	62.50	
				7649.74	V	-49.75	12.19	-37.56	58.98	
				9562.70	V	-47.48	13.11	-34.37	55.79	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
3	1851.5	1/7	QPSK	3702.78	V	-52.33	8.38	-43.95	69.26	38.31
				5554.08	H	-50.93	10.42	-40.51	65.82	
				7405.51	V	-50.42	11.71	-38.71	64.02	
				9257.43	V	-41.57	13.23	-28.34	53.65	
			16QAM	3702.95	V	-50.95	8.38	-42.57	67.07	37.50
				5554.52	H	-49.51	10.43	-39.08	63.58	
				7405.56	V	-50.50	11.71	-38.79	63.29	
				9257.36	V	-40.54	13.23	-27.31	51.81	
			64QAM	3703.37	V	-51.25	8.38	-42.87	67.37	36.41
				5554.50	H	-50.85	10.43	-40.42	64.92	
				7405.90	V	-50.48	11.71	-38.77	63.27	
				9257.43	V	-39.76	13.23	-26.53	51.03	
			QPSK	3764.56	V	-53.01	8.35	-44.66	68.59	36.93
				5647.33	H	-50.80	10.66	-40.14	64.07	
				7530.16	V	-50.98	11.96	-39.02	62.95	
				9412.15	V	-46.87	13.27	-33.60	57.53	
			16QAM	3764.79	V	-53.49	8.35	-45.14	68.21	36.07
				5647.36	H	-51.26	10.66	-40.60	63.67	
				7530.61	V	-50.53	11.96	-38.57	61.64	
				9412.21	V	-46.80	13.27	-33.53	56.60	
			64QAM	3765.16	V	-54.12	8.35	-45.77	68.84	35.12
				5647.44	H	-51.21	10.66	-40.55	63.62	
				7529.54	V	-50.39	11.96	-38.43	61.50	
				9412.08	V	-47.19	13.27	-33.92	56.99	
			QPSK	3827.02	V	-52.67	8.23	-44.44	66.74	35.30
				5740.40	H	-52.50	10.72	-41.78	64.08	
				7654.04	V	-49.36	12.19	-37.17	59.47	
				9567.44	V	-47.73	13.10	-34.63	56.93	
			16QAM	3826.97	V	-53.08	8.23	-44.85	66.23	34.38
				5740.50	H	-51.47	10.72	-40.75	62.13	
				7653.77	V	-50.07	12.19	-37.88	59.26	
				9567.36	V	-47.01	13.10	-33.91	55.29	
			64QAM	3827.00	V	-53.17	8.23	-44.94	66.32	33.31
				5740.55	H	-51.92	10.72	-41.20	62.58	
				7653.94	V	-49.50	12.19	-37.31	58.69	
				9567.39	V	-48.02	13.10	-34.92	56.30	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
1.4	1850.7	1/2	QPSK	3701.14	V	-51.23	8.38	-42.85	68.10	38.25
				5552.07	H	-51.43	10.42	-41.01	66.26	
				7402.37	V	-50.73	11.70	-39.03	64.28	
				9252.92	V	-42.05	13.24	-28.81	54.06	
			16QAM	3701.14	V	-52.32	8.38	-43.94	68.36	37.42
				5551.96	H	-51.11	10.42	-40.69	65.11	
				7402.32	V	-50.70	11.70	-39.00	63.42	
				9253.02	V	-40.93	13.24	-27.69	52.11	
	1882.5	1/2	QPSK	3701.20	V	-52.84	8.38	-44.46	68.88	36.53
				5552.02	H	-51.27	10.42	-40.85	65.27	
				7402.57	V	-50.59	11.70	-38.89	63.31	
				9253.35	V	-41.31	13.24	-28.07	52.49	
			16QAM	3765.39	V	-53.63	8.34	-45.29	69.04	36.75
				5647.29	H	-51.66	10.66	-41.00	64.75	
				7529.76	V	-49.69	11.96	-37.73	61.48	
				9412.17	V	-47.39	13.27	-34.12	57.87	
	1914.3	1/2	QPSK	3765.17	V	-53.66	8.35	-45.31	68.14	35.83
				5647.66	H	-51.41	10.66	-40.75	63.58	
				7529.52	V	-50.55	11.96	-38.59	61.42	
				9411.99	V	-46.34	13.27	-33.07	55.90	
			16QAM	3764.51	V	-53.33	8.35	-44.98	67.81	34.92
				5647.32	H	-50.89	10.66	-40.23	63.06	
				7529.58	V	-50.78	11.96	-38.82	61.65	
				9411.92	V	-46.34	13.27	-33.07	55.90	
	1914.3	1/2	QPSK	3828.01	V	-52.07	8.23	-43.84	65.99	35.15
				5742.56	H	-52.08	10.71	-41.37	63.52	
				7657.09	V	-49.11	12.20	-36.91	59.06	
				9571.04	V	-47.84	13.10	-34.74	56.89	
			16QAM	3828.61	V	-51.95	8.23	-43.72	64.86	34.14
				5742.61	H	-51.26	10.71	-40.55	61.69	
				7656.87	V	-50.20	12.20	-38.00	59.14	
				9571.06	V	-47.55	13.10	-34.45	55.59	
	1914.3	1/2	64QAM	3828.45	V	-52.08	8.23	-43.85	64.99	33.16
				5742.77	H	-51.46	10.71	-40.75	61.89	
				7656.74	V	-50.82	12.20	-38.62	59.76	
				9571.30	V	-47.38	13.10	-34.28	55.42	

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### 7.7.9 LTE Band 41

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	2506	1/0	QPSK	4991.55	V	-52.94	9.98	-42.96	67.45	49.49
			16QAM	4992.74	V	-52.74	9.99	-42.75	65.98	48.23
			64QAM	4993.19	V	-52.92	9.99	-42.93	66.16	47.36
	2593.5	1/0	QPSK	5166.91	V	-52.35	10.29	-42.06	64.81	47.75
			16QAM	5165.85	V	-52.37	10.29	-42.08	63.69	46.61
			64QAM	5166.02	V	-52.72	10.29	-42.43	64.04	45.70
	2680	1/0	QPSK	5339.69	V	-52.73	10.29	-42.44	64.79	47.35
			16QAM	5339.71	V	-52.45	10.29	-42.16	63.72	46.56
			64QAM	5339.86	V	-52.37	10.29	-42.08	63.64	45.51
15	2503.5	1/0	QPSK	4992.80	V	-52.72	9.99	-42.73	67.16	49.43
			16QAM	4992.49	V	-53.26	9.99	-43.27	66.58	48.31
			64QAM	4990.88	V	-53.49	9.98	-43.51	66.82	47.45
	2593	1/0	QPSK	5169.62	V	-52.64	10.29	-42.35	65.43	48.08
			16QAM	5169.82	V	-53.04	10.29	-42.75	64.85	47.10
			64QAM	5172.11	V	-53.04	10.30	-42.74	64.84	46.25
	2682.5	1/0	QPSK	5348.67	V	-52.70	10.29	-42.41	61.76	44.35
			16QAM	5348.62	V	-52.60	10.29	-42.31	60.83	43.52
			64QAM	5351.07	V	-52.71	10.29	-42.42	60.94	42.64
10	2501	1/25	QPSK	5002.27	V	-53.49	10.00	-43.49	68.58	50.09
			16QAM	5002.89	V	-53.01	10.01	-43.00	66.81	48.81
			64QAM	5002.64	V	-53.17	10.00	-43.17	66.98	47.86
	2593	1/25	QPSK	5184.66	V	-52.84	10.32	-42.52	66.06	48.54
			16QAM	5184.78	V	-52.51	10.32	-42.19	65.02	47.83
			64QAM	5187.12	V	-52.55	10.32	-42.23	65.06	46.90
	2685	1/0	QPSK	5359.41	V	-52.33	10.29	-42.04	65.33	48.29
			16QAM	5361.09	V	-52.38	10.29	-42.09	64.29	47.20
			64QAM	5361.01	V	-52.20	10.29	-41.91	64.11	46.41
5	2498.5	1/12	QPSK	4995.77	V	-53.54	9.99	-43.55	68.32	49.77
			16QAM	4998.24	V	-53.40	10.00	-43.40	67.01	48.61
			64QAM	4996.50	V	-53.24	9.99	-43.25	66.86	47.53
	2593	1/12	QPSK	5185.37	V	-52.87	10.32	-42.55	66.33	48.78
			16QAM	5184.52	V	-52.63	10.32	-42.31	65.02	47.71
			64QAM	5186.31	V	-52.88	10.32	-42.56	65.27	46.63
	2687.5	1/12	QPSK	5375.59	V	-52.57	10.28	-42.29	63.41	46.12
			16QAM	5376.25	V	-52.71	10.28	-42.43	62.64	45.21
			64QAM	5374.14	V	-52.40	10.28	-42.12	62.33	44.32

Note 1: Limit Calculation =  $43 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10th harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed emissions above table.

### 7.7.10 LTE Band 7

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
20	2510	1/50	QPSK	5021.30	V	-52.72	10.04	-42.68	66.41	48.73
			16QAM	5020.91	V	-52.74	10.04	-42.70	65.40	47.70
			64QAM	5020.63	V	-53.32	10.04	-43.28	65.98	46.82
	2535	1/50	QPSK	5070.11	V	-52.66	10.16	-42.50	66.73	49.23
			16QAM	5069.72	V	-52.83	10.16	-42.67	65.97	48.30
			64QAM	5070.30	V	-52.96	10.16	-42.80	66.10	47.24
	2560	1/50	QPSK	5119.48	V	-52.57	10.27	-42.30	65.75	48.45
			16QAM	5121.25	V	-53.11	10.27	-42.84	65.39	47.55
			64QAM	5121.49	V	-53.09	10.27	-42.82	65.37	46.58
15	2507.5	1/36	QPSK	5014.80	V	-53.23	10.03	-43.20	66.93	48.73
			16QAM	5016.01	V	-53.27	10.03	-43.24	66.09	47.85
			64QAM	5014.94	V	-53.07	10.03	-43.04	65.89	46.91
	2535	1/36	QPSK	5071.42	V	-52.73	10.17	-42.56	66.96	49.40
			16QAM	5070.15	V	-52.77	10.16	-42.61	65.94	48.33
			64QAM	5070.16	V	-52.58	10.16	-42.42	65.75	47.36
	2562.5	1/36	QPSK	5124.84	V	-52.58	10.27	-42.31	65.68	48.37
			16QAM	5124.60	V	-52.77	10.27	-42.50	64.81	47.31
			64QAM	5123.93	V	-53.10	10.27	-42.83	65.14	46.35

Note 1: Limit Calculation =  $55 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBi)	Result		Limit (dBc)
								(dBm)	(dBc)	
10	2510	1/25	QPSK	5010.79	V	-52.86	10.02	-42.84	66.51	48.67
			16QAM	5008.54	V	-53.06	10.02	-43.04	65.85	47.81
			64QAM	5010.73	V	-53.32	10.02	-43.30	66.11	46.93
	2535	1/25	QPSK	5070.35	V	-53.06	10.16	-42.90	67.41	49.51
			16QAM	5070.20	V	-52.81	10.16	-42.65	66.23	48.58
			64QAM	5069.21	V	-53.15	10.16	-42.99	66.57	47.56
	2560	1/25	QPSK	5130.59	V	-52.76	10.26	-42.50	65.95	48.45
			16QAM	5129.08	V	-53.03	10.26	-42.77	65.26	47.49
			64QAM	5130.17	V	-52.54	10.26	-42.28	64.77	46.53
5	2507.5	1/12	QPSK	5005.77	V	-53.33	10.01	-43.32	66.98	48.66
			16QAM	5004.35	V	-53.26	10.01	-43.25	65.96	47.71
			64QAM	5006.45	V	-52.91	10.01	-42.90	65.61	46.78
	2535	1/12	QPSK	5070.01	V	-53.13	10.16	-42.97	67.34	49.37
			16QAM	5069.58	V	-52.99	10.16	-42.83	66.13	48.30
			64QAM	5070.45	V	-53.15	10.16	-42.99	66.29	47.42
	2562.5	1/12	QPSK	5135.44	V	-52.61	10.26	-42.35	65.70	48.35
			16QAM	5135.15	V	-52.76	10.26	-42.50	64.94	47.44
			64QAM	5134.95	V	-52.45	10.26	-42.19	64.63	46.51

Note 1: Limit Calculation =  $55 + 10\log_{10}(P[\text{Watts}])$

Note 2: This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the table above.

Note 3: The frequency spectrum is examined from 9 kHz to the 10<sup>th</sup> harmonic of the fundamental frequency of the transmitter. No other spurious and harmonic emissions were reported greater than listed

## 7.8 FREQUENCY STABILITY

### 7.8.1 LTE Band 12, 17

OPERATING FREQUENCY : 707.5 MHz  
 REFERENCE VOLTAGE : 3.85 VDC  
 LIMIT(FCC&IC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	707,500,009	9	0.0127	0.000001272
100%		-30	707,500,012	12	0.0170	0.000001696
100%		-20	707,499,990	-10	-0.0141	-0.000001413
100%		-10	707,499,989	-11	-0.0155	-0.000001555
100%		0	707,500,007	7	0.0099	0.000000989
100%		+10	707,499,993	-7	-0.0099	-0.000000989
100%		+20	707,500,009	9	0.0127	0.000001272
100%		+30	707,500,008	8	0.0113	0.000001131
100%		+40	707,499,994	-6	-0.0085	-0.000000848
100%		+50	707,499,994	-6	-0.0085	-0.000000848
115%	4.43	+20	707,500,008	8	0.0113	0.000001131
BATT.ENDPOINT	3.05	+20	707,500,004	4	0.0057	0.000000565

**Note.** Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

### 7.8.2 LTE Band 13

OPERATING FREQUENCY : 782 MHz  
 REFERENCE VOLTAGE : 3.85 VDC  
 LIMIT(FCC&IC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	782,000,011	11	0.0141	0.000001407
100%		-30	782,000,008	8	0.0102	0.000001023
100%		-20	782,000,009	9	0.0115	0.000001151
100%		-10	781,999,993	-7	-0.0090	-0.000000895
100%		0	781,999,991	-9	-0.0115	-0.000001151
100%		+10	782,000,010	10	0.0128	0.000001279
100%		+20	782,000,011	11	0.0141	0.000001407
100%		+30	782,000,005	5	0.0064	0.000000639
100%		+40	781,999,995	-5	-0.0064	-0.000000639
100%		+50	782,000,008	8	0.0102	0.000001023
115%	4.43	+20	782,000,004	4	0.0051	0.000000512
BATT.ENDPOINT	3.05	+20	781,999,994	-6	-0.0077	-0.000000767

**Note.** Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. as such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

### 7.8.3 LTE Band 14

OPERATING FREQUENCY : 793 MHz  
 REFERENCE VOLTAGE : 3.85 VDC  
 DEVIATION LIMIT(FCC&IC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	793,000,006	6	0.0076	0.000000757
100%		-30	792,999,992	-8	-0.0101	-0.000001009
100%		-20	792,999,990	-10	-0.0126	-0.000001261
100%		-10	792,999,993	-7	-0.0088	-0.000000883
100%		0	792,999,992	-8	-0.0101	-0.000001009
100%		+10	792,999,994	-6	-0.0076	-0.000000757
100%		+20	793,000,006	6	0.0076	0.000000757
100%		+30	792,999,993	-7	-0.0088	-0.000000883
100%		+40	793,000,007	7	0.0088	0.000000883
100%		+50	793,000,009	9	0.0113	0.000001135
115%	4.43	+20	792,999,992	-8	-0.0101	-0.000001009
BATT.ENDPOINT	3.05	+20	792,999,994	-6	-0.0076	-0.000000757

**Note.** Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. as such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

### 7.8.4 LTE Band 5, 26

OPERATING FREQUENCY : 836.5 MHz  
 REFERENCE VOLTAGE : 3.85 VDC  
 DEVIATION LIMIT(FCC&IC) : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	836,499,993	-7	-0.0084	-0.000000837
100%		-30	836,500,006	6	0.0072	0.000000717
100%		-20	836,500,008	8	0.0096	0.000000956
100%		-10	836,500,004	4	0.0048	0.000000478
100%		0	836,499,991	-9	-0.0108	-0.000001076
100%		+10	836,500,011	11	0.0132	0.000001315
100%		+20	836,499,993	-7	-0.0084	-0.000000837
100%		+30	836,500,010	10	0.0120	0.000001195
100%		+40	836,499,993	-7	-0.0084	-0.000000837
100%		+50	836,499,991	-9	-0.0108	-0.000001076
115%	4.43	+20	836,499,992	-8	-0.0096	-0.000000956
BATT.ENDPOINT	3.05	+20	836,499,994	-6	-0.0072	-0.000000717

### 7.8.5 LTE Band 4

OPERATING FREQUENCY : 1732.5 MHz  
 REFERENCE VOLTAGE : 3.85 VDC  
 LIMIT(FCC&IC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	1,732,500,008	8	0.0046	0.000000462
100%		-30	1,732,499,988	-12	-0.0069	-0.000000693
100%		-20	1,732,499,992	-8	-0.0046	-0.000000462
100%		-10	1,732,499,991	-9	-0.0052	-0.000000519
100%		0	1,732,500,007	7	0.0040	0.000000404
100%		+10	1,732,500,008	8	0.0046	0.000000462
100%		+20	1,732,500,008	8	0.0046	0.000000462
100%		+30	1,732,499,994	-6	-0.0035	-0.000000346
100%		+40	1,732,500,005	5	0.0029	0.000000289
100%		+50	1,732,500,007	7	0.0040	0.000000404
115%	4.43	+20	1,732,499,992	-8	-0.0046	-0.000000462
BATT.ENDPOINT	3.05	+20	1,732,499,995	-5	-0.0029	-0.000000289

**Note.** Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

### 7.8.6 LTE Band 2, 25

OPERATING FREQUENCY : 1882.5 MHz  
REFERENCE VOLTAGE : 3.85 VDC  
LIMIT(FCC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.  
LIMIT(IC) :  $\pm 0.00025\%$  or 2.5 ppm

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	1,882,499,992	-8	-0.0042	-0.000000425
100%		-30	1,882,499,991	-9	-0.0048	-0.000000478
100%		-20	1,882,500,012	12	0.0064	0.000000637
100%		-10	1,882,499,990	-10	-0.0053	-0.000000531
100%		0	1,882,500,010	10	0.0053	0.000000531
100%		+10	1,882,500,007	7	0.0037	0.000000372
100%		+20	1,882,499,992	-8	-0.0042	-0.000000425
100%		+30	1,882,500,006	6	0.0032	0.000000319
100%		+40	1,882,499,994	-6	-0.0032	-0.000000319
100%		+50	1,882,500,008	8	0.0042	0.000000425
115%	4.43	+20	1,882,500,004	4	0.0021	0.000000212
BATT.ENDPOINT	3.05	+20	1,882,499,993	-7	-0.0037	-0.000000372

**Note.** Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

### 7.8.7 LTE Band 41

OPERATING FREQUENCY : 2593 MHz  
 REFERENCE VOLTAGE : 3.85 VDC  
 LIMIT(FCC&IC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	2,592,999,989	-11	-0.0042	-0.000000424
100%		-30	2,593,000,013	13	0.0050	0.000000501
100%		-20	2,593,000,008	8	0.0031	0.000000309
100%		-10	2,592,999,991	-9	-0.0035	-0.000000347
100%		0	2,593,000,009	9	0.0035	0.000000347
100%		+10	2,592,999,990	-10	-0.0039	-0.000000386
100%		+20	2,592,999,989	-11	-0.0042	-0.000000424
100%		+30	2,592,999,988	-12	-0.0046	-0.000000463
100%		+40	2,593,000,012	12	0.0046	0.000000463
100%		+50	2,592,999,992	-8	-0.0031	-0.000000309
115%	4.43	+20	2,593,000,007	7	0.0027	0.000000270
BATT.ENDPOINT	3.05	+20	2,593,000,006	6	0.0023	0.000000231

**Note.** Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

### 7.8.8 LTE Band 7

OPERATING FREQUENCY : 2535 MHz  
 REFERENCE VOLTAGE : 3.85 VDC  
 LIMIT(FCC&IC) : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	2,534,999,993	-7	-0.0028	-0.000000276
100%		-30	2,534,999,992	-8	-0.0032	-0.000000316
100%		-20	2,534,999,990	-10	-0.0039	-0.000000394
100%		-10	2,535,000,007	7	0.0028	0.000000276
100%		0	2,535,000,009	9	0.0036	0.000000355
100%		+10	2,534,999,989	-11	-0.0043	-0.000000434
100%		+20	2,534,999,993	-7	-0.0028	-0.000000276
100%		+30	2,535,000,012	12	0.0047	0.000000473
100%		+40	2,534,999,990	-10	-0.0039	-0.000000394
100%		+50	2,535,000,010	10	0.0039	0.000000394
115%	4.43	+20	2,534,999,991	-9	-0.0036	-0.000000355
BATT.ENDPOINT	3.05	+20	2,534,999,994	-6	-0.0024	-0.000000237

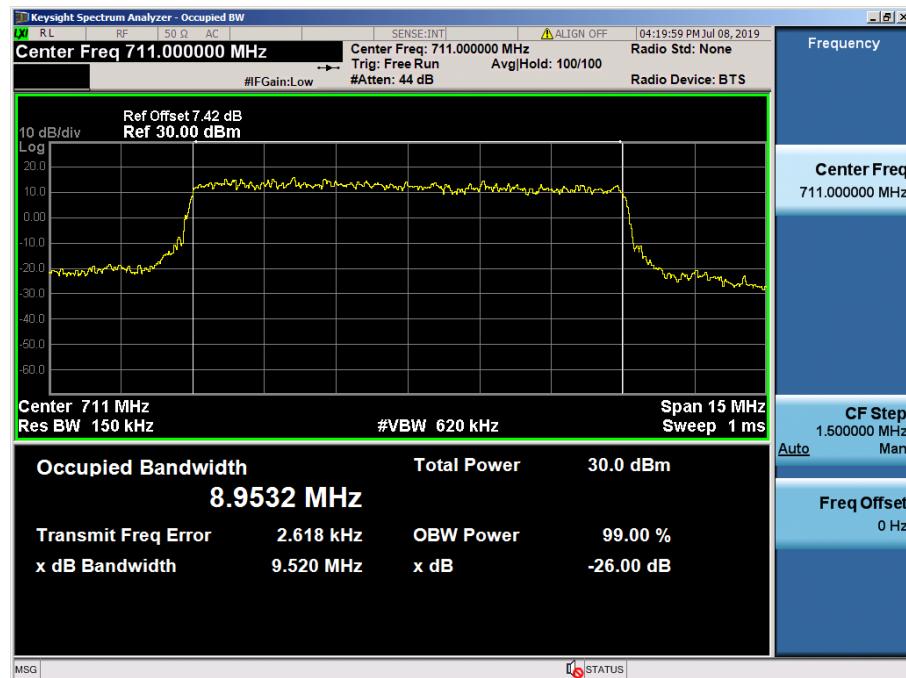
**Note.** Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

## 8. TEST PLOTS

**Note: All bandwidths, RB configurations, and modulations were investigated.  
The worst case test results are reported.**

### 8.1 OCCUPIED BANDWIDTH

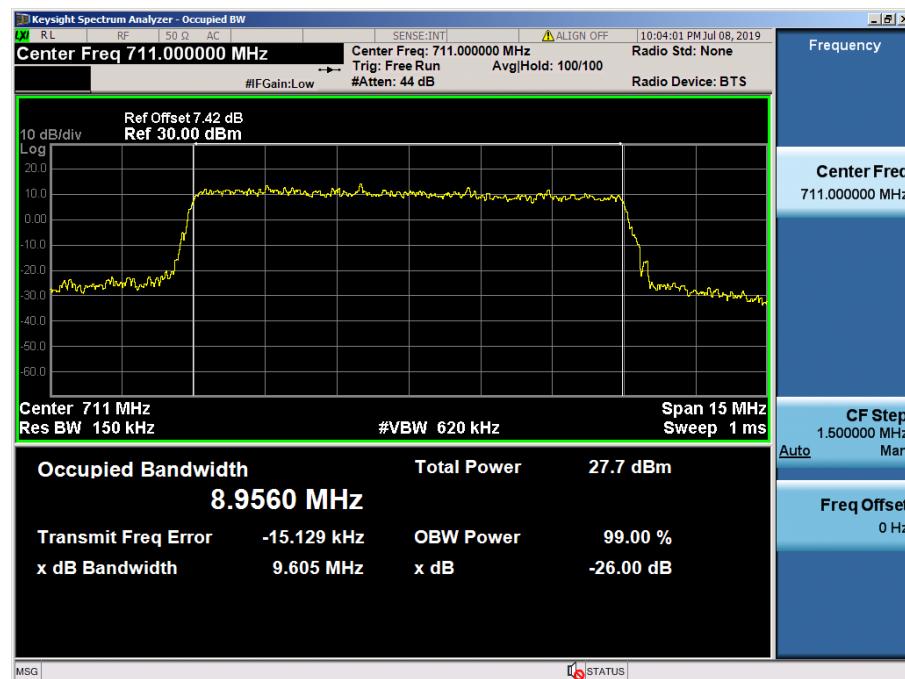
#### 8.1.1 LTE Band 12, 17



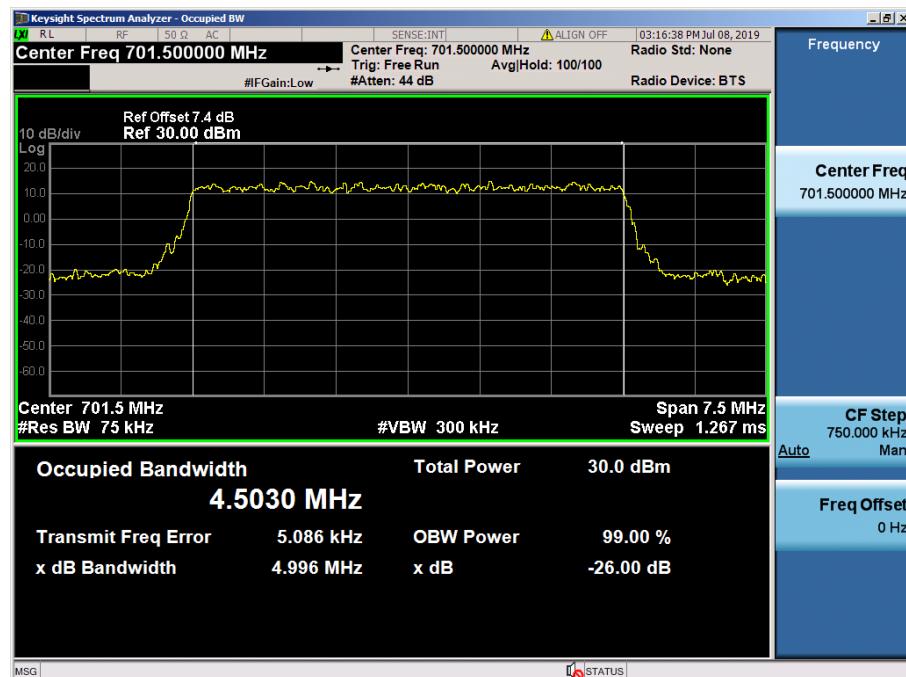
LTE Band 12 / 10 MHz / QPSK - RB Size 50



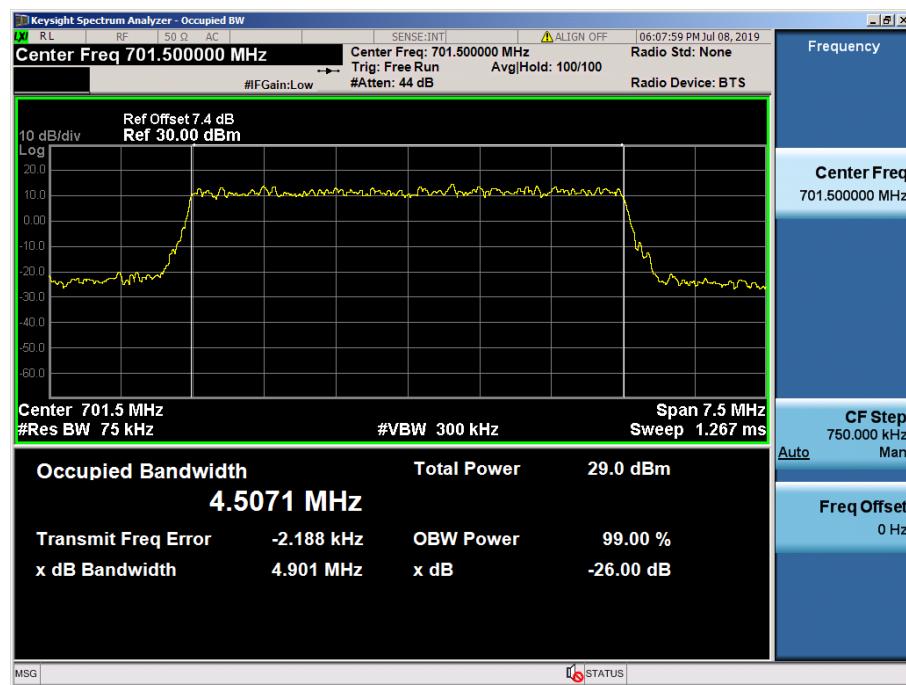
LTE Band 12 / 10 MHz / 16QAM - RB Size 50



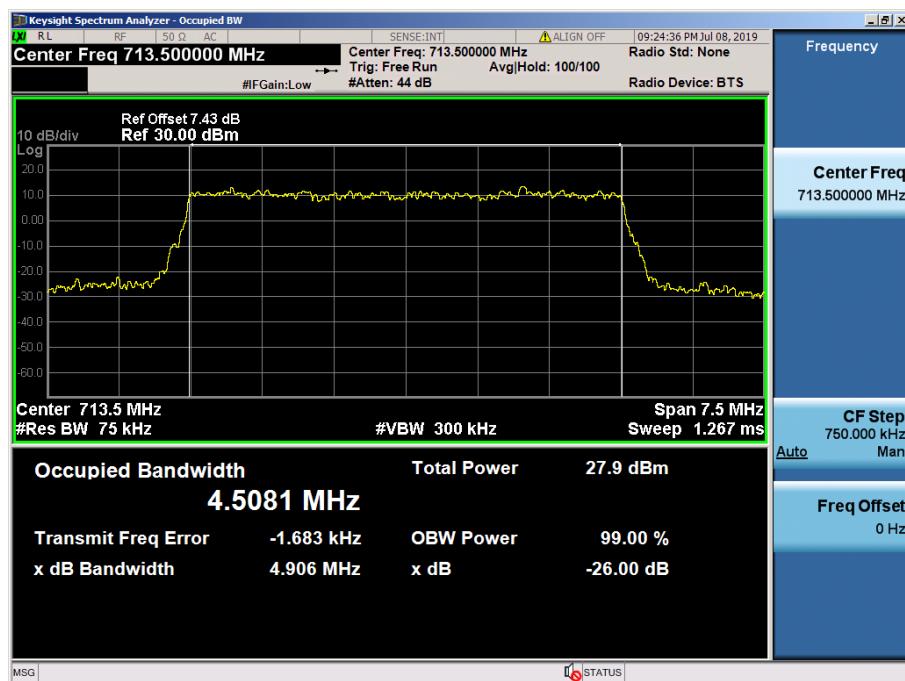
LTE Band 12 / 10 MHz / 64QAM - RB Size 50



LTE Band 12 / 5 MHz / QPSK - RB Size 25



LTE Band 12 / 5 MHz / 16QAM - RB Size 25



LTE Band 12 / 5 MHz / 64QAM - RB Size 25

### 8.1.2 LTE Band 12



LTE Band 12 / 3 MHz / QPSK - RB Size 15



LTE Band 12 / 3 MHz / 16QAM - RB Size 15



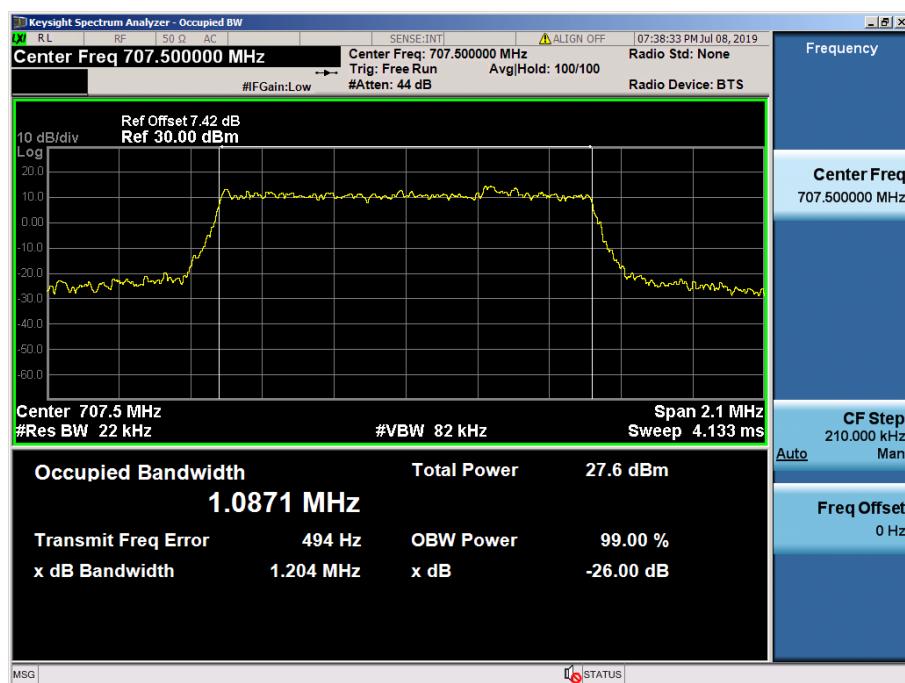
LTE Band 12 / 3 MHz / 64QAM - RB Size 15



LTE Band 12 / 1.4 MHz / QPSK - RB Size 6

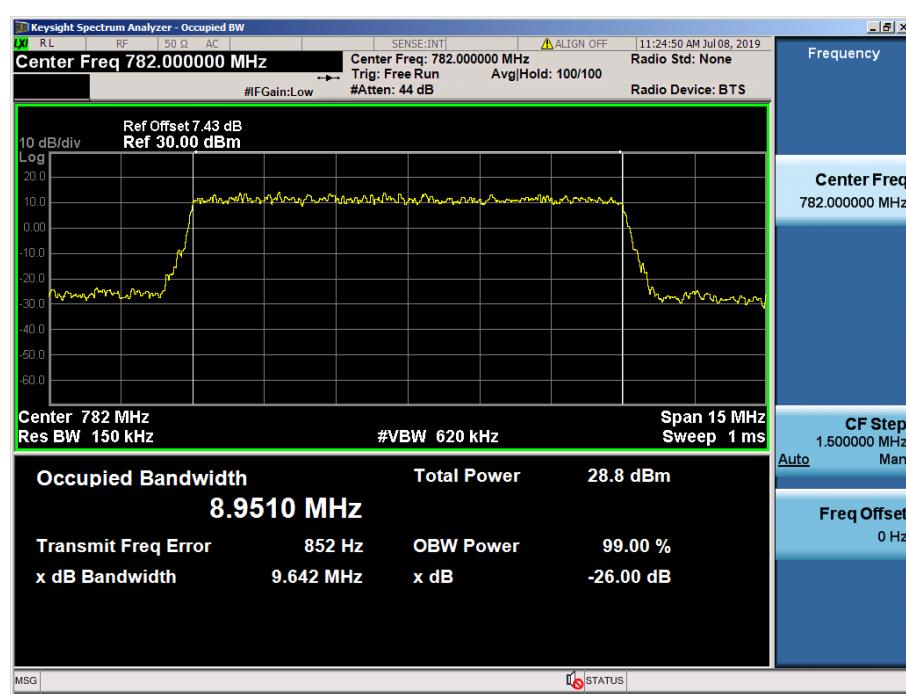
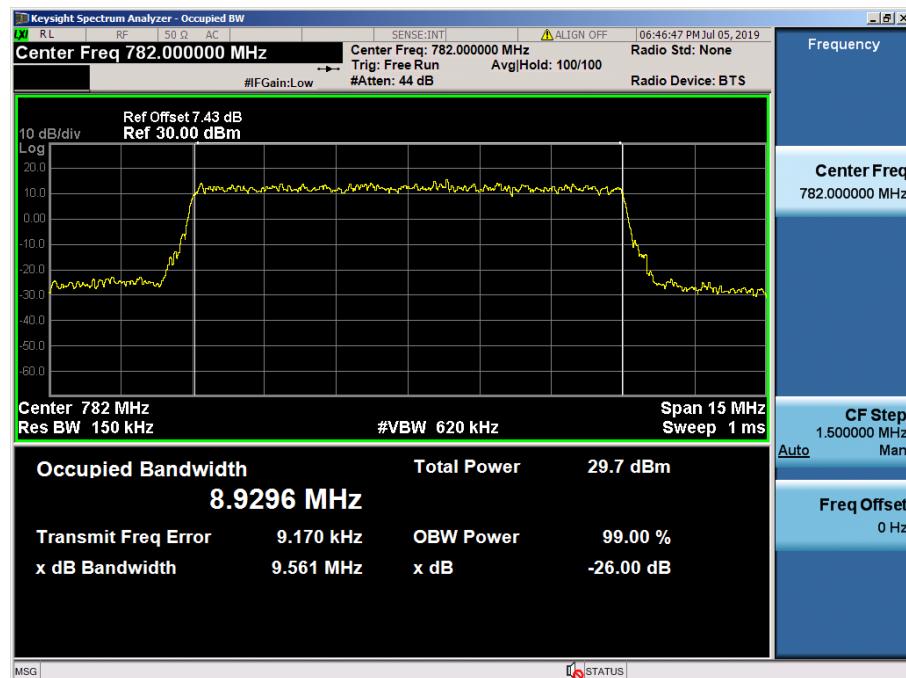


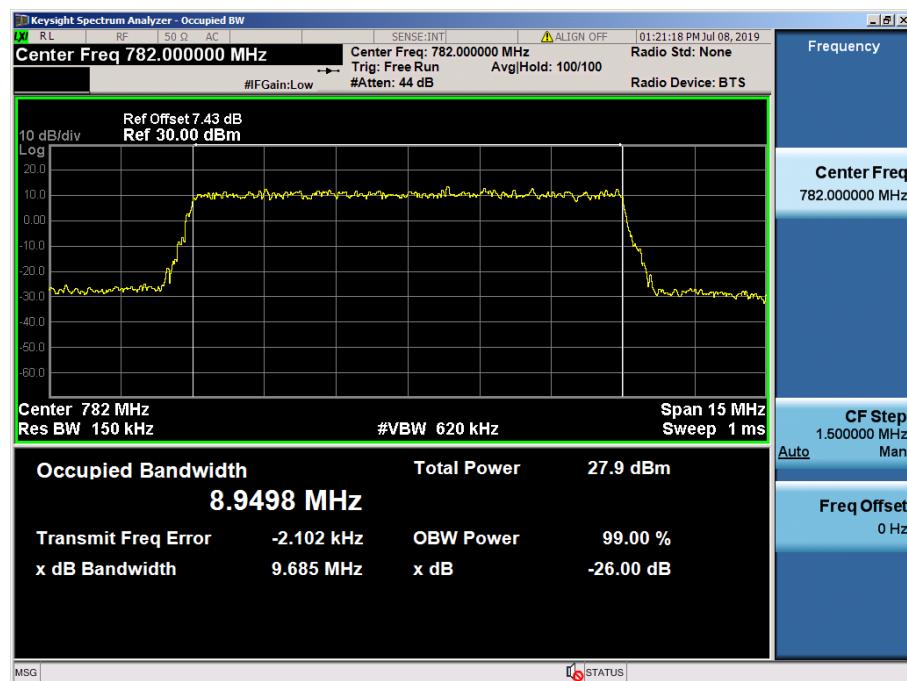
LTE Band 12 / 1.4 MHz / 16QAM - RB Size 6



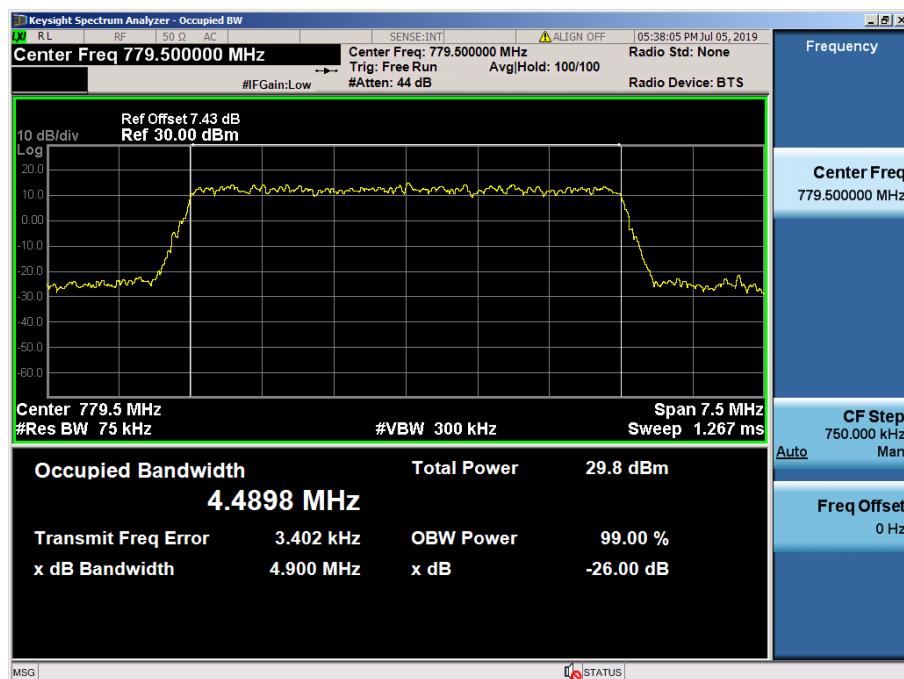
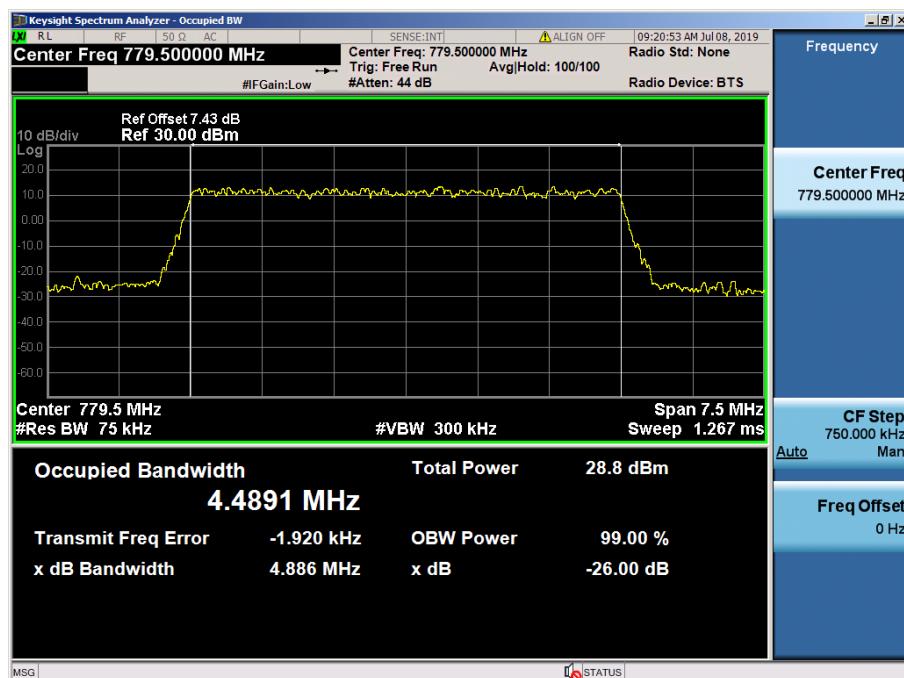
LTE Band 12 / 1.4 MHz / 64QAM - RB Size 6

### 8.1.3 LTE Band 13





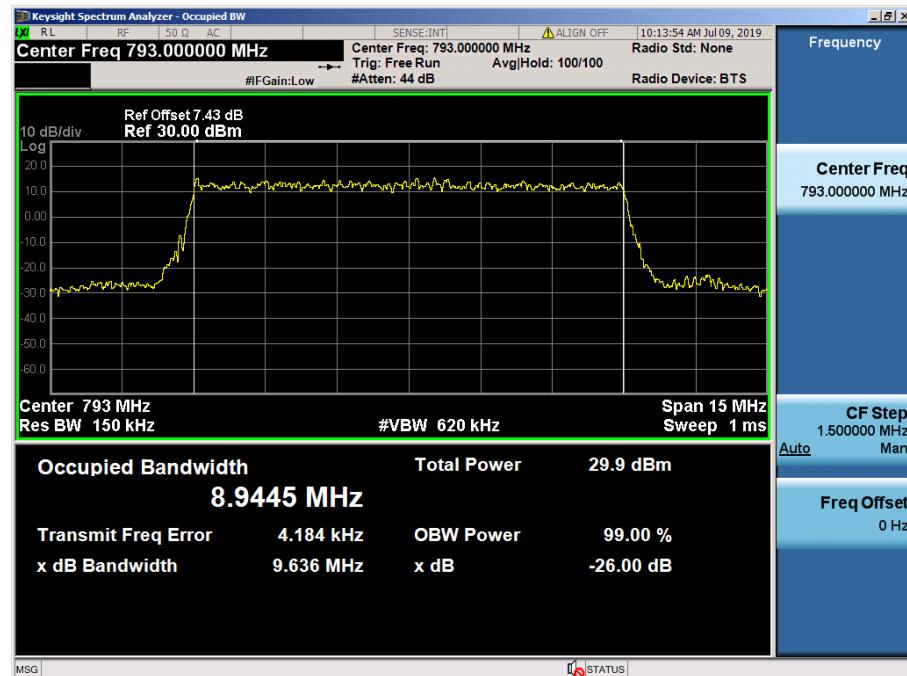
LTE Band 13 / 10 MHz / 64QAM - RB Size 50


**LTE Band 13 / 5 MHz / QPSK - RB Size 25**

**LTE Band 13 / 5 MHz / 16QAM - RB Size 25**

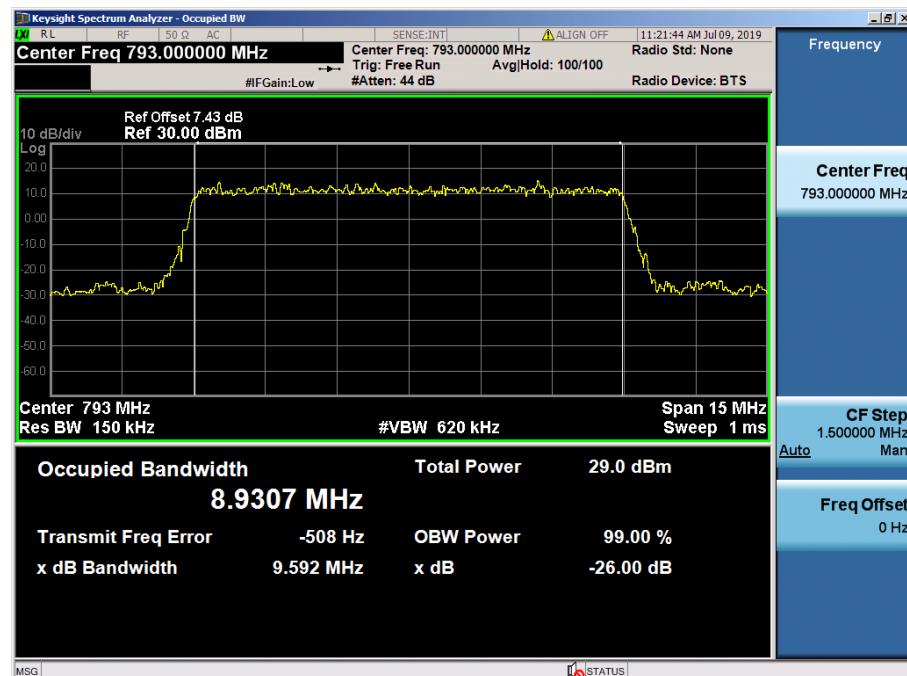


LTE Band 13 / 5 MHz / 64QAM - RB Size 25

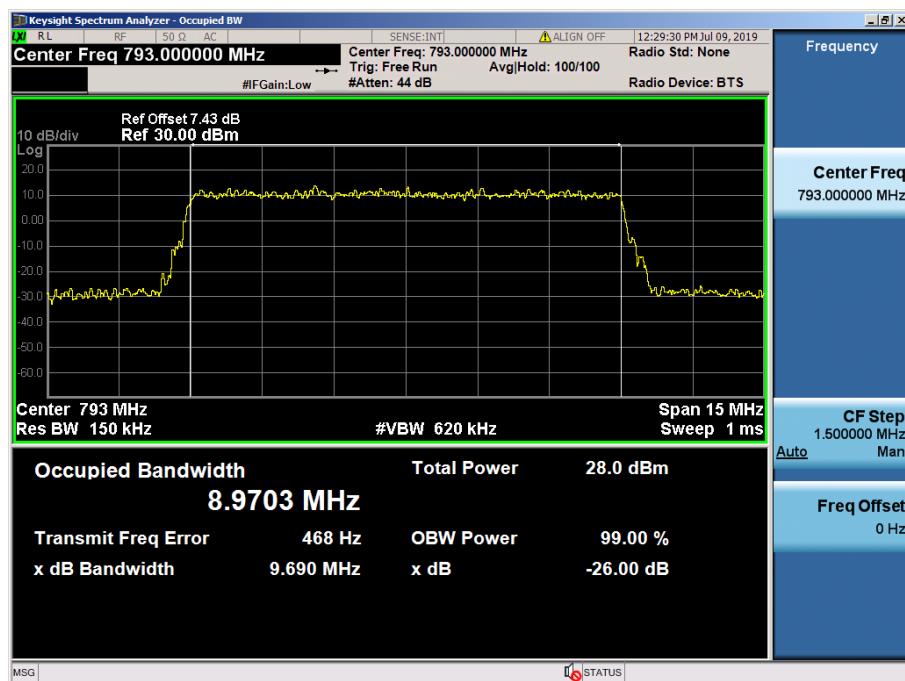
### 8.1.4 LTE Band 14



LTE Band 14 / 10 MHz / QPSK - RB Size 50



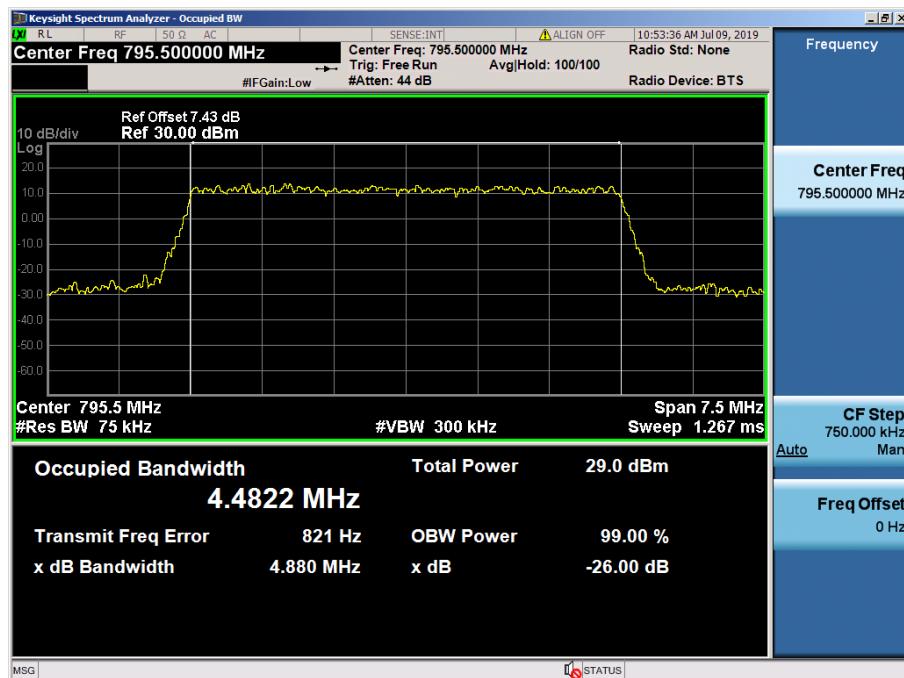
LTE Band 14 / 10 MHz / 16QAM - RB Size 50



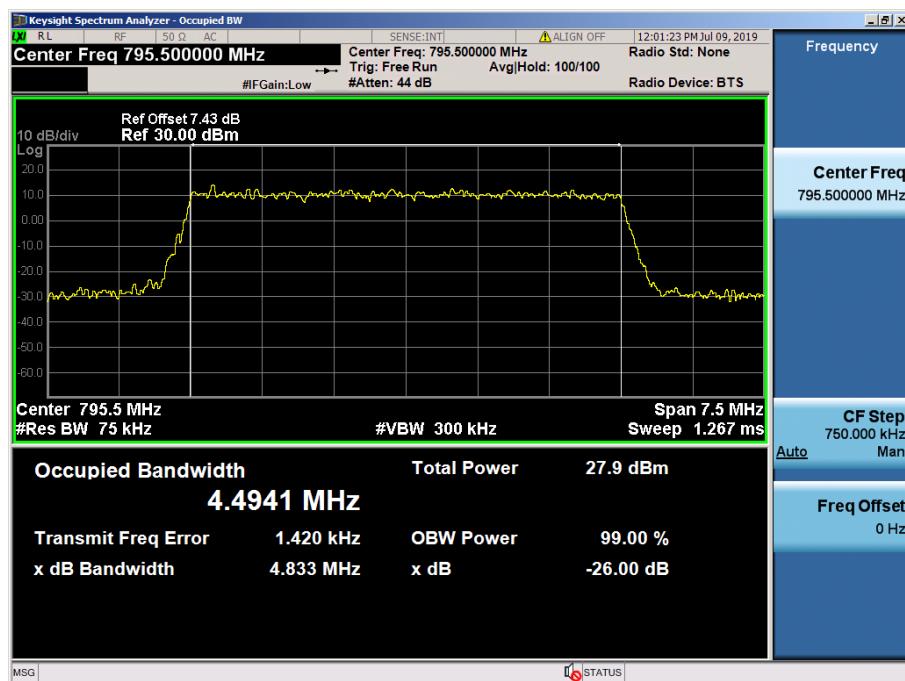
LTE Band 14 / 10 MHz / 64QAM - RB Size 50



LTE Band 14 / 5 MHz / QPSK - RB Size 25

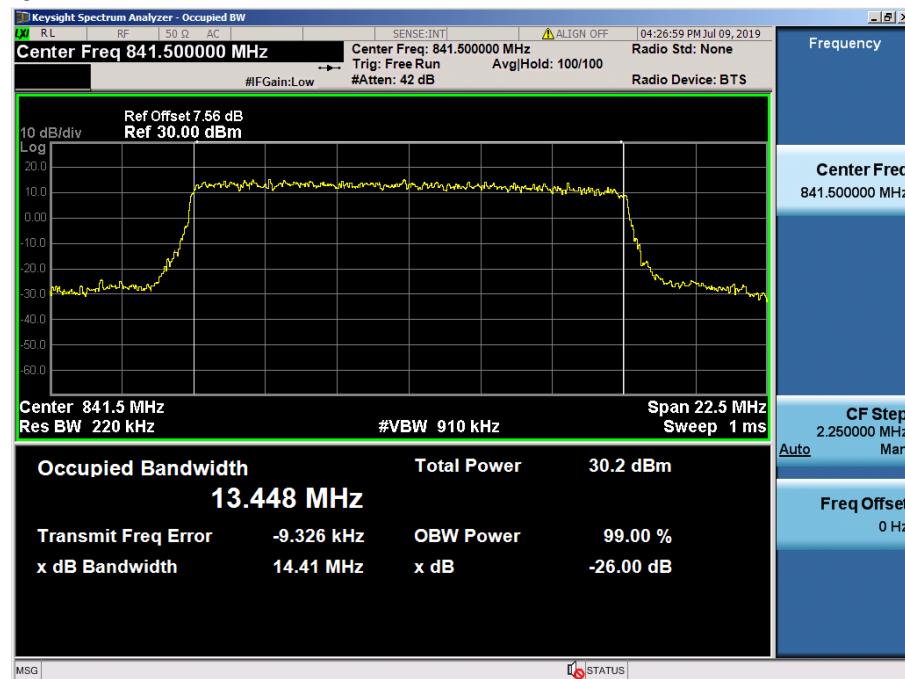


LTE Band 14 / 5 MHz / 16QAM - RB Size 25

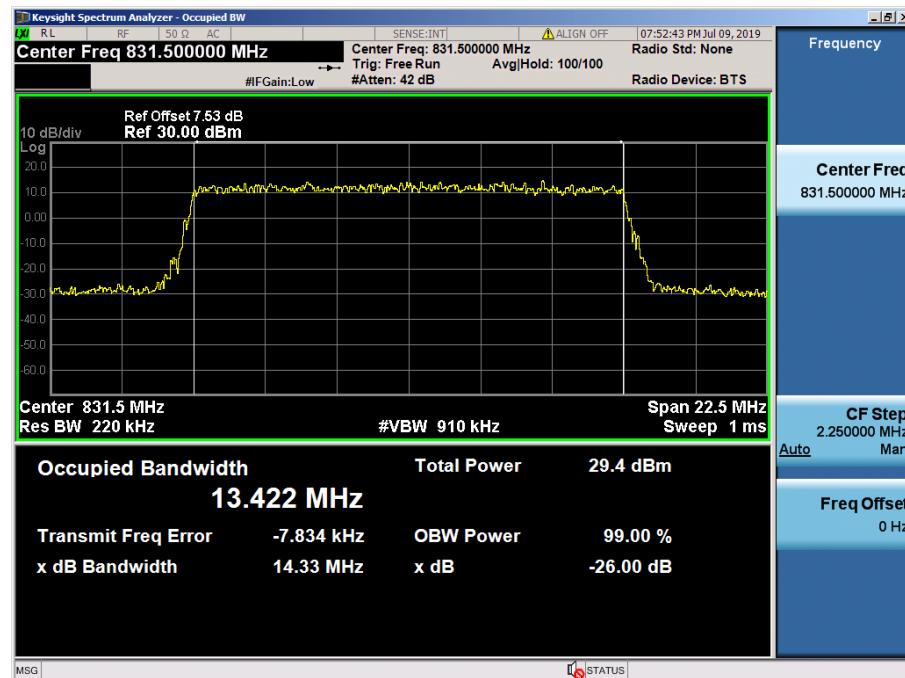


LTE Band 14 / 5 MHz / 64QAM - RB Size 25

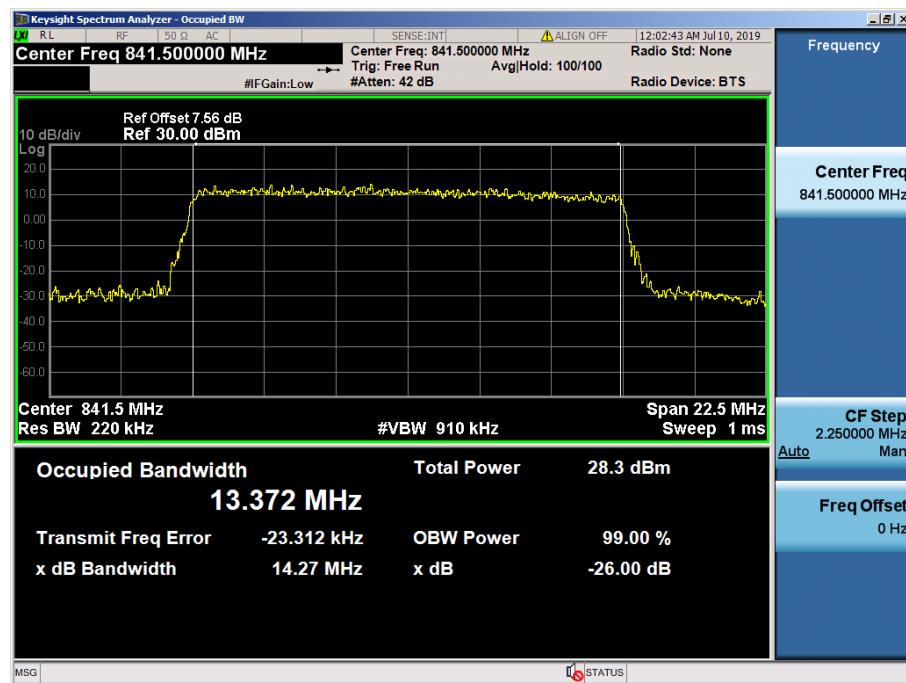
### 8.1.5 LTE Band 26



LTE Band 26 / 15 MHz / QPSK - RB Size 75

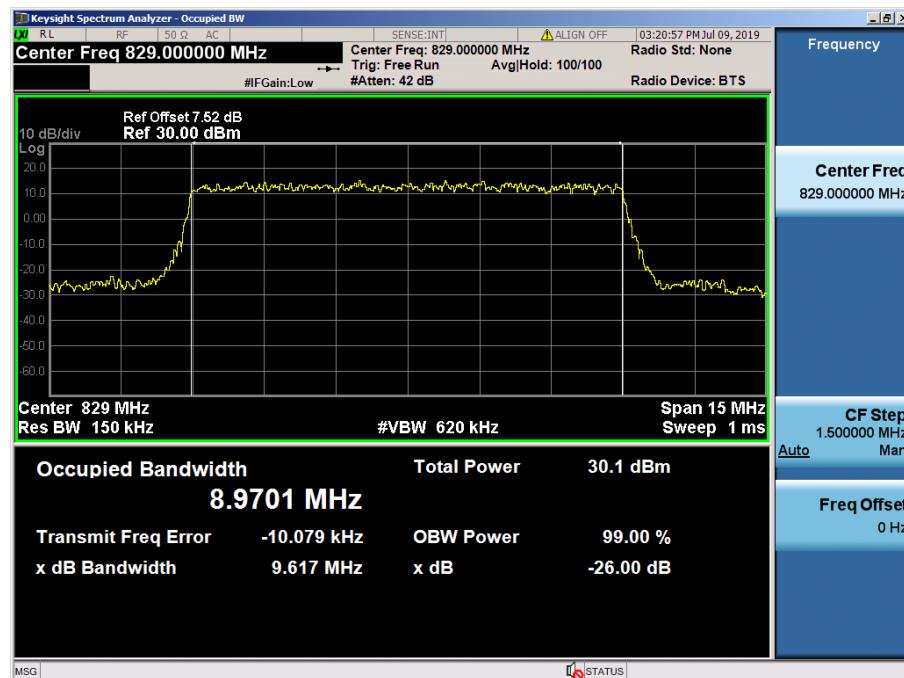


LTE Band 26 / 15 MHz / 16QAM - RB Size 75



LTE Band 26 / 15 MHz / 64QAM - RB Size 75

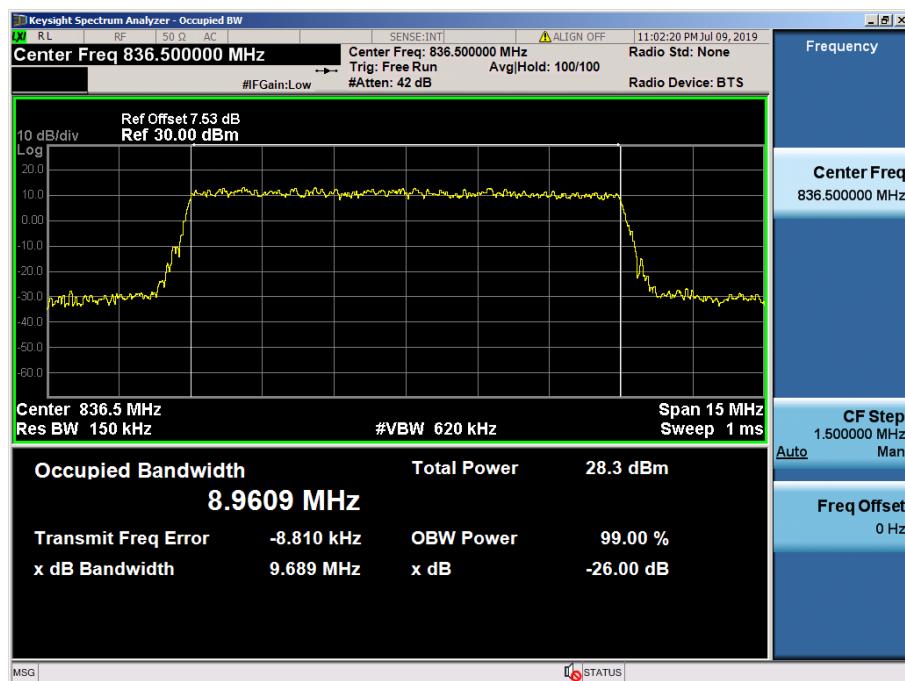
### 8.1.6 LTE Band 5, 26



LTE Band 26 / 10 MHz / QPSK - RB Size 50



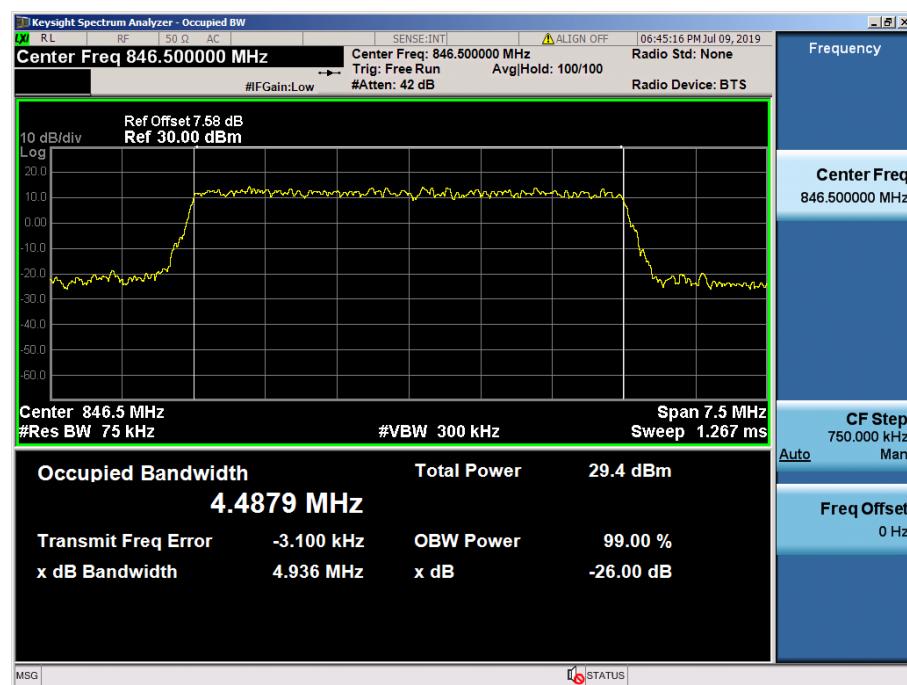
LTE Band 26 / 10 MHz / 16QAM - RB Size 50



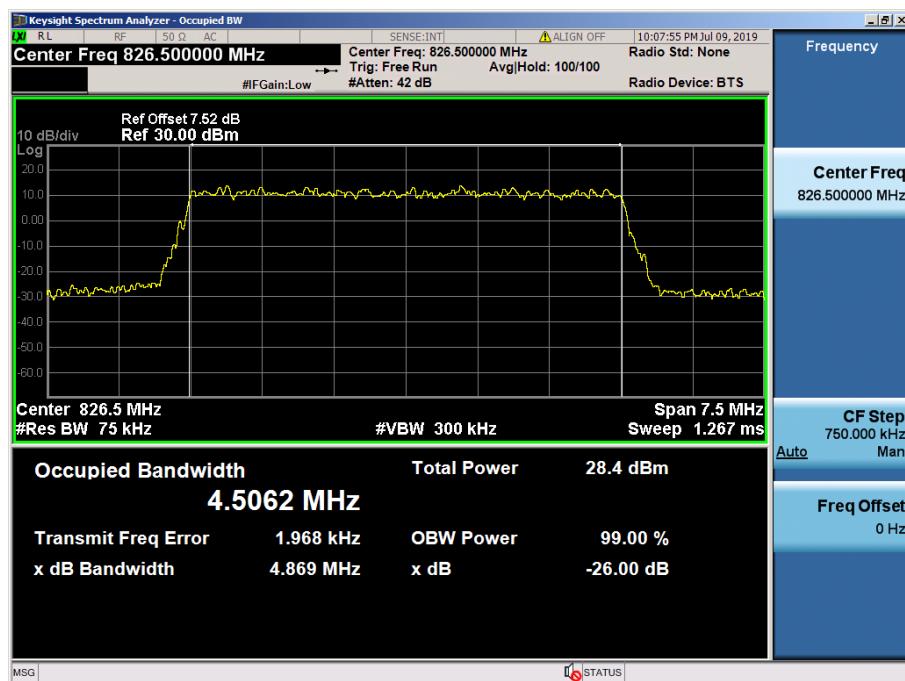
LTE Band 26 / 10 MHz / 64QAM - RB Size 50



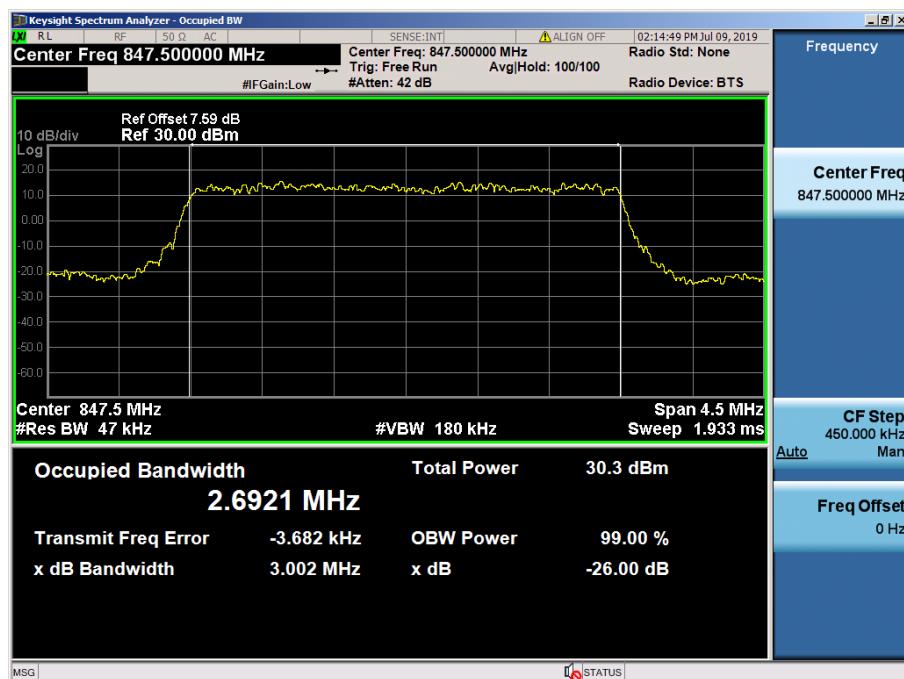
LTE Band 26 / 5 MHz / QPSK - RB Size 25



LTE Band 26 / 5 MHz / 16QAM - RB Size 25



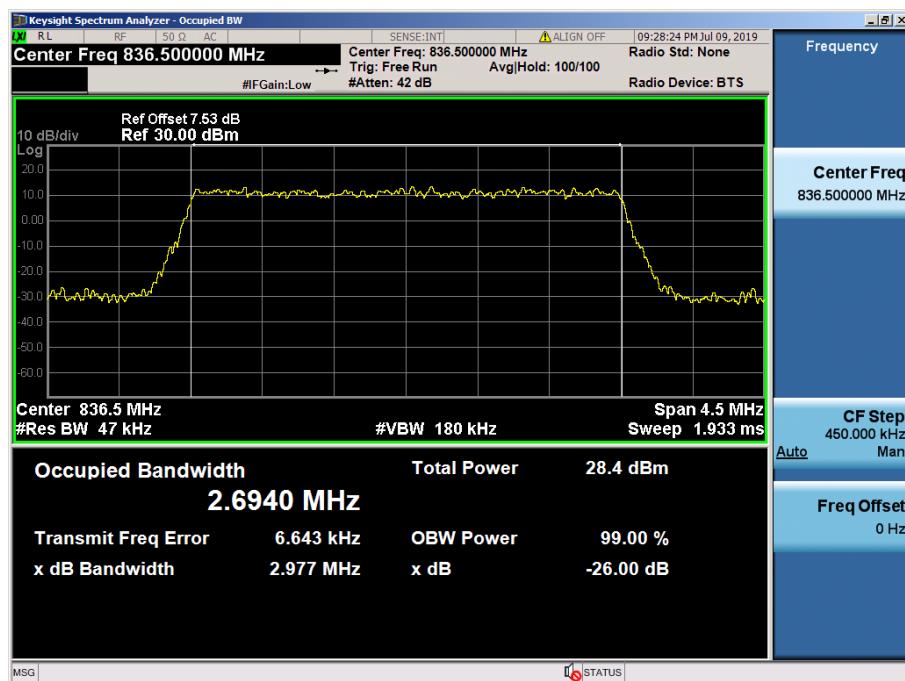
LTE Band 26 / 5 MHz / 64QAM - RB Size 25



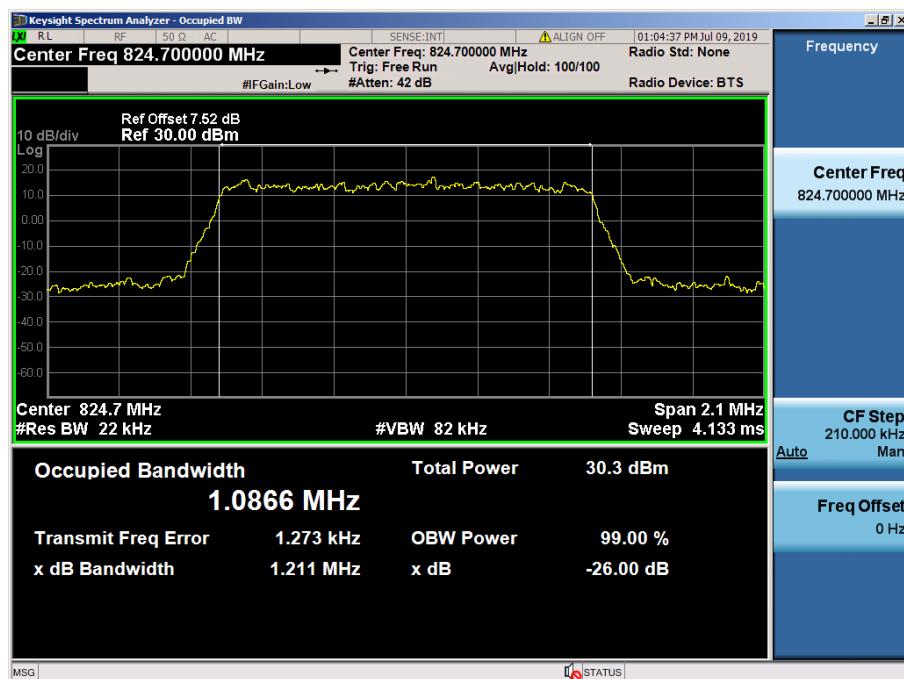
LTE Band 26 / 3 MHz / QPSK - RB Size 15



LTE Band 26 / 3 MHz / 16QAM - RB Size 15



LTE Band 26 / 3 MHz / 64QAM - RB Size 15



LTE Band 26 / 1.4 MHz / QPSK - RB Size 6

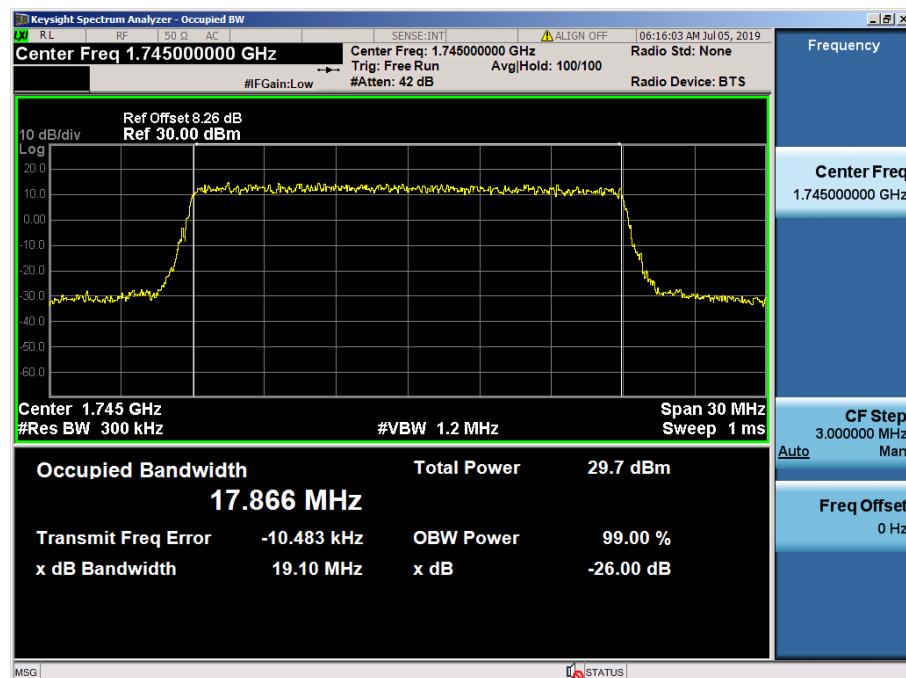


LTE Band 26 / 1.4 MHz / 16QAM - RB Size 6

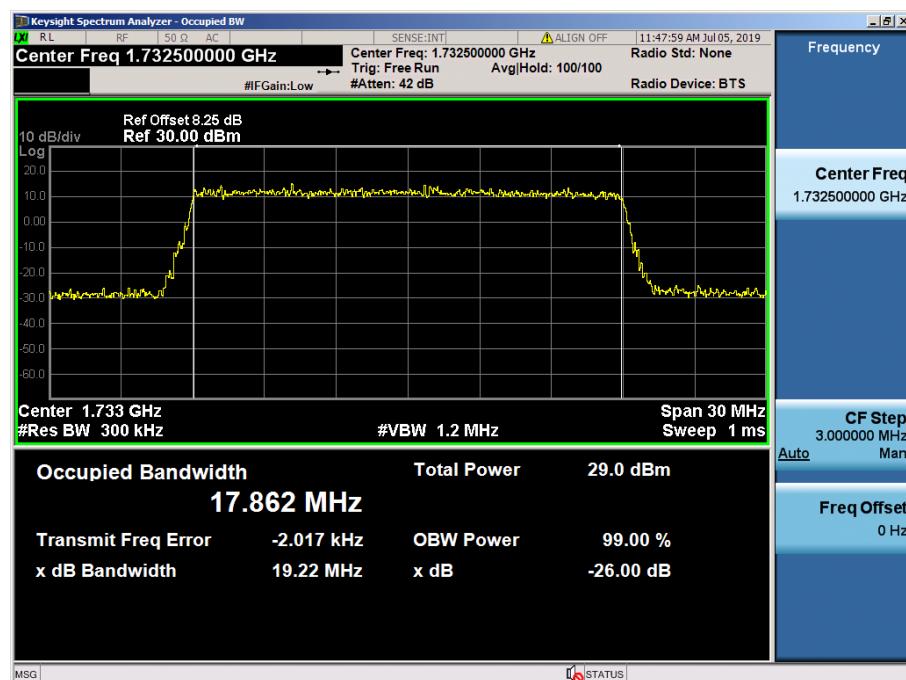


LTE Band 26 / 1.4 MHz / 64QAM - RB Size 6

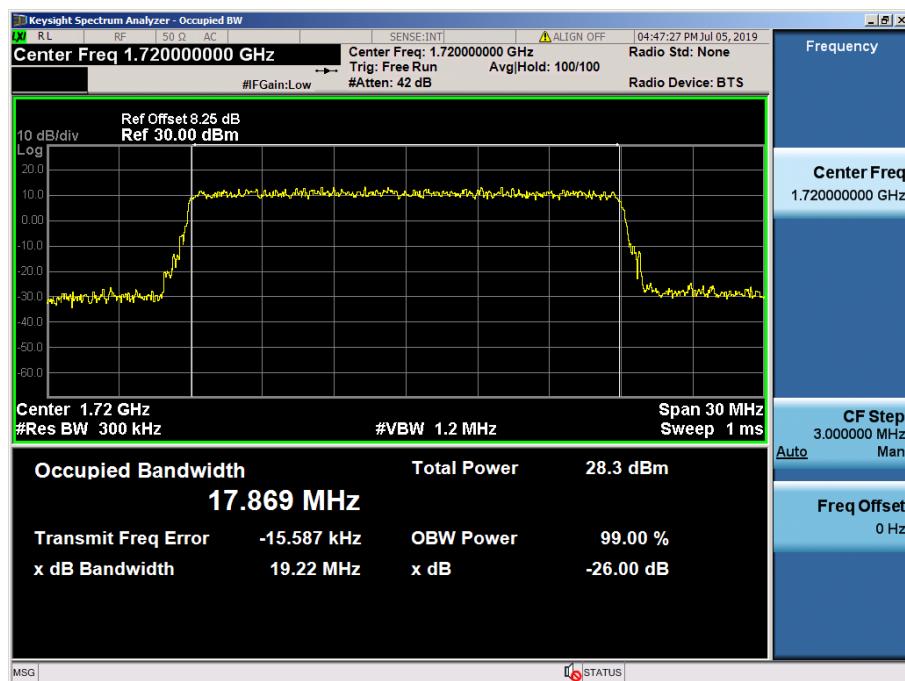
### 8.1.7 LTE Band 4



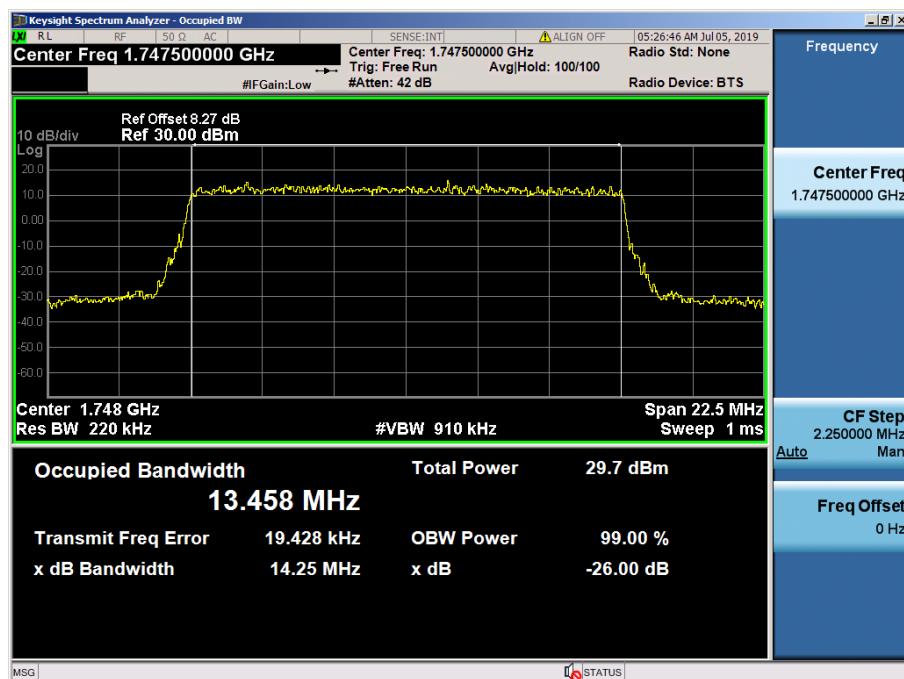
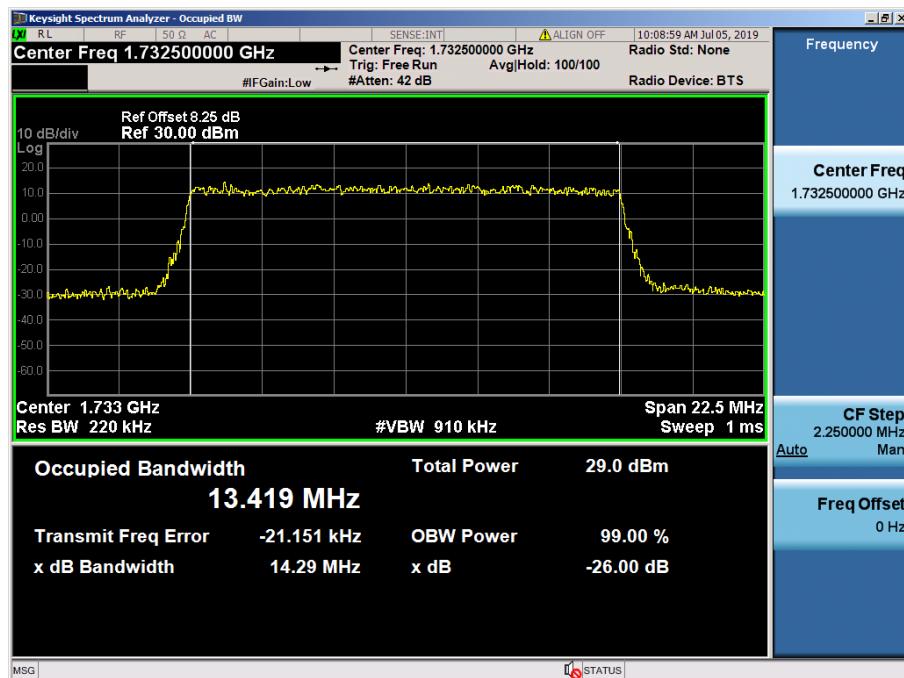
LTE Band 4 / 20 MHz / QPSK - RB Size 100

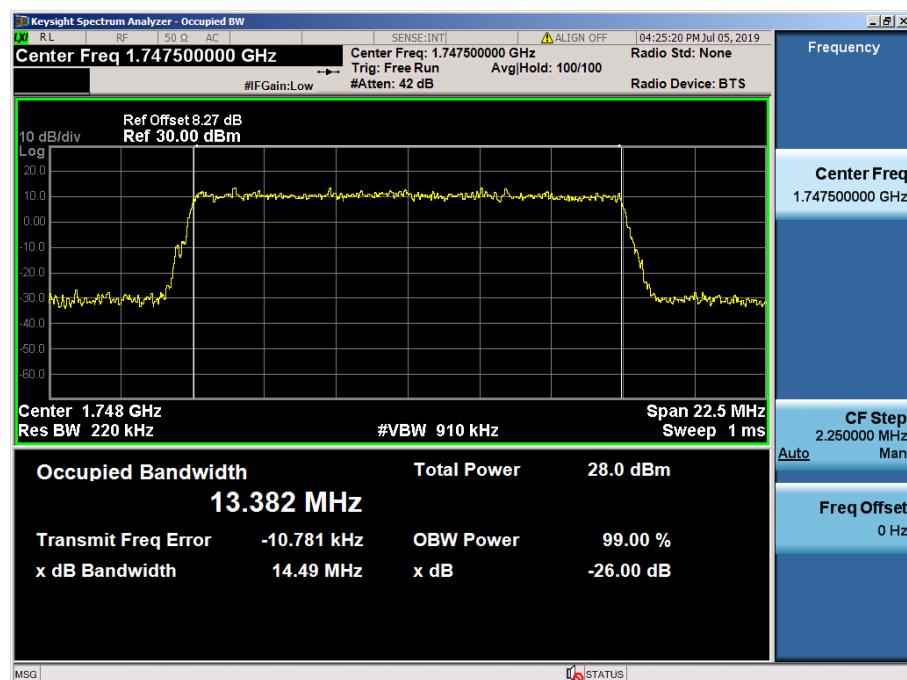


LTE Band 4 / 20 MHz / 16QAM - RB Size 100

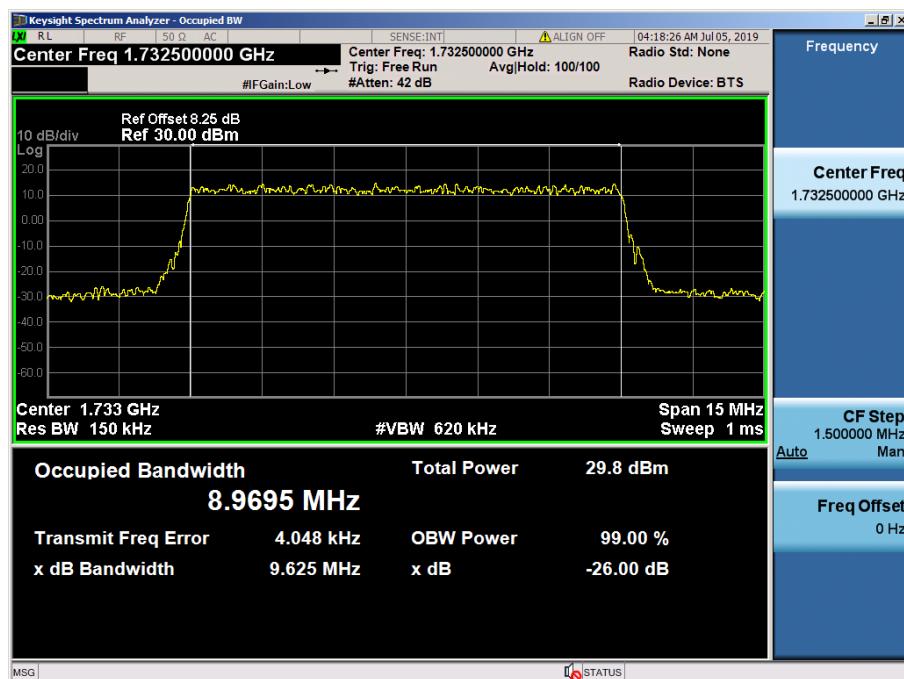


LTE Band 4 / 20 MHz / 64QAM - RB Size 100

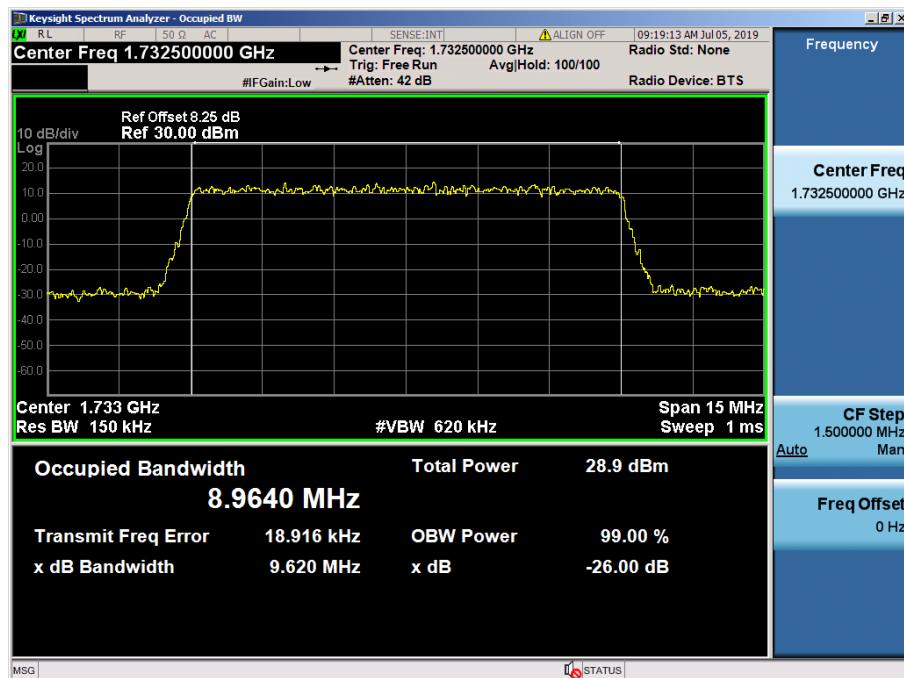

**LTE Band 4 / 15 MHz / QPSK - RB Size 75**

**LTE Band 4 / 15 MHz / 16QAM - RB Size 75**



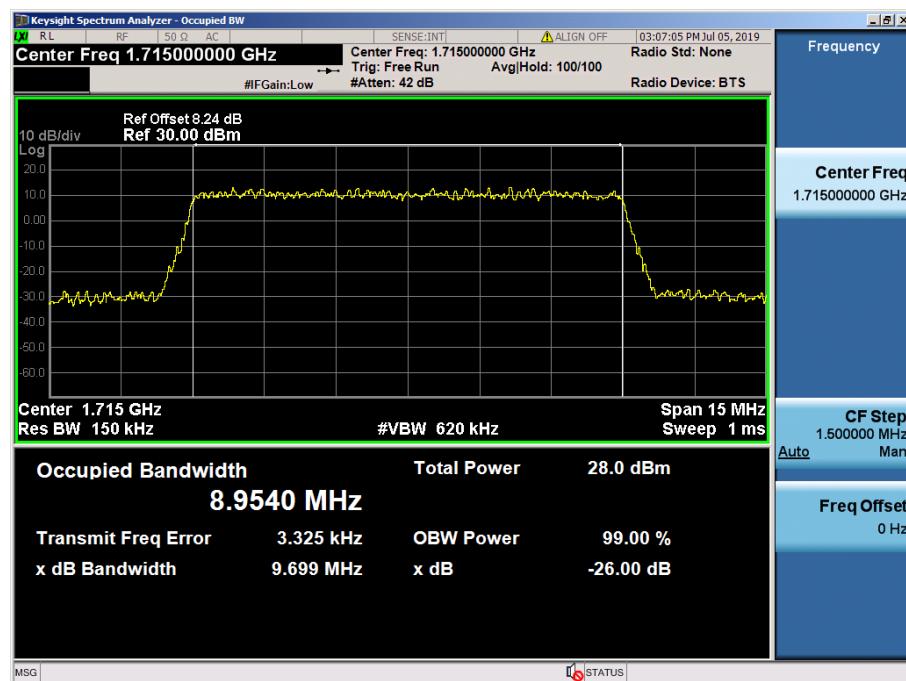
LTE Band 4 / 15 MHz / 64QAM - RB Size 75



LTE Band 4 / 10 MHz / QPSK - RB Size 50



LTE Band 4 / 10 MHz / 16QAM - RB Size 50



LTE Band 4 / 10 MHz / 6416QAM - RB Size 50