TEST REPORT

Dt&C

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 : DRTFCC1804-0120(1)
2. Customer
   - Name : LG Electronics MobileComm USA, Inc.
   - Address : 1000 Sylvan Ave., Englewood Cliffs, New Jersey, United States, 07632
3. Use of Report : FCC Original Grant
4. Product Name / Model Name : Mobile Phone / LM-V350EM
   FCC ID : ZNFV350EM
5. Test Method Used : KDB971168 D01v03, ANSI/TIA-603-E-2016, ANSI C63.26-2015
   Test Specification : §2, §22, §24(E), §27
6. Date of Test : 2018.03.21 ~ 2018.04.09, 2018.05.04 ~ 2018.05.05
7. Testing Environment : Refer to appended test report.
8. Test Result : Refer to the attached test result.

Affirmation	Tested by Name : JaeJin Lee (Signature)	Reviewed by Name : Geunki Son (Signature)

2018 . 05 . 07 .

DT&C Co., Ltd.

If this report is required to confirmation of authenticity, please contact to report@dtnc.net

Test Report Version

Test Report No.	Date	Description
DRTFCC1804-0120	Apr. 30, 2018	Initial issue
DRTFCC1804-0120(1)	May. 07, 2018	Added Band13

Table of Contents

1. GENERAL INFORMATION

Applicant Name : LG Electronics MobileComm USA, Inc.

Address : 1000 Sylvan Ave., Englewood Cliffs, New Jersey, United States, 07632

FCC ID : ZNFV350EM

FCC Classification : PCS Licensed Transmitter held to ear (PCE)

EUT Type : Mobile Phone

Model Name : LM-V350EM

Add Model Name : LMV350EM, V350EM

Supplying power : DC 3.85 V

Antenna Information : PIFA Antenna

Mode	TX Frequency (MHz)	Emission Designator	Modulation	ERP	
				Max power (dBm)	Max power (W)
LTE Band 12,17	704 ~ 711	8M95G7D	QPSK	18.07	0.064
LTE Band 12,17	704 ~ 711	8M95W7D	16QAM	17.11	0.051
LTE Band 12,17	704 ~ 711	8M96W7D	64QAM	16.37	0.043
LTE Band 12,17	701.5 ~ 713.5	4M48G7D	QPSK	18.18	0.066
LTE Band 12,17	701.5 ~ 713.5	4M48W7D	16QAM	16.89	0.049
LTE Band 12,17	701.5 ~ 713.5	4M51W7D	64QAM	16.22	0.042
LTE Band 12	700.5 ~ 714.5	2M70G7D	QPSK	18.34	0.068
LTE Band 12	700.5 ~ 714.5	2M69W7D	16QAM	17.42	0.055
LTE Band 12	700.5 ~ 714.5	2M69W7D	64QAM	16.33	0.043
LTE Band 12	699.7 ~ 715.3	1M09G7D	QPSK	18.65	0.073
LTE Band 12	699.7 ~ 715.3	1M09W7D	16QAM	17.77	0.060
LTE Band 12	699.7 ~ 715.3	1M09W7D	64QAM	17.01	0.050
LTE Band 13	782 ~ 782	8M91G7D	QPSK	17.47	0.056
LTE Band 13	782 ~ 782	8M92W7D	16QAM	16.25	0.042
LTE Band 13	782 ~ 782	8M96W7D	64QAM	15.65	0.037
LTE Band 13	779.5 ~ 784.5	4M49G7D	QPSK	17.34	0.054
LTE Band 13	779.5 ~ 784.5	4M48W7D	16QAM	16.21	0.042
LTE Band 13	779.5 ~ 784.5	4M49W7D	64QAM	15.53	0.036
LTE Band 5	829 ~ 844	8M99G7D	QPSK	19.72	0.094
LTE Band 5	829 ~ 844	8M95W7D	16QAM	18.94	0.078
LTE Band 5	829 ~ 844	8M97W7D	64QAM	18.12	0.065
LTE Band 5	826.5 ~ 846.5	4M48G7D	QPSK	20.07	0.102
LTE Band 5	826.5 ~ 846.5	4M47W7D	16QAM	18.82	0.076
LTE Band 5	826.5 ~ 846.5	4M50W7D	64QAM	17.80	0.060
LTE Band 5	825.5 ~ 847.5	2M70G7D	QPSK	20.48	0.112
LTE Band 5	825.5 ~ 847.5	2M70W7D	16QAM	19.45	0.088
LTE Band 5	825.5 ~ 847.5	2M69W7D	64QAM	18.60	0.072
LTE Band 5	824.7 ~ 848.3	1M09G7D	QPSK	20.54	0.113
LTE Band 5	824.7 ~ 848.3	1M09W7D	16QAM	19.62	0.092
LTE Band 5	824.7 ~ 848.3	1M09W7D	64QAM	18.89	0.077

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max power(dBm)	Max power(W)
LTE Band 4	1720 ~ 1745	17M9G7D	QPSK	23.29	0.213
LTE Band 4	1720 ~ 1745	17M9W7D	16QAM	22.65	0.184
LTE Band 4	1720 ~ 1745	17M9W7D	64QAM	21.82	0.152
LTE Band 4	1717.5 ~ 1747.5	13M4G7D	QPSK	23.35	0.216
LTE Band 4	1717.5 ~ 1747.5	13M4W7D	16QAM	22.68	0.185
LTE Band 4	1717.5 ~ 1747.5	13M4W7D	64QAM	21.84	0.153
LTE Band 4	1715 ~ 1750	8M96G7D	QPSK	22.94	0.197
LTE Band 4	1715 ~ 1750	8M97W7D	16QAM	22.36	0.172
LTE Band 4	1715 ~ 1750	8M97W7D	64QAM	21.61	0.145
LTE Band 4	1712.5 ~ 1752.5	4M48G7D	QPSK	23.03	0.201
LTE Band 4	1712.5 ~ 1752.5	4M49W7D	16QAM	22.60	0.182
LTE Band 4	1712.5 ~ 1752.5	4M49W7D	64QAM	21.64	0.146
LTE Band 4	1711.5 ~ 1753.5	2M69G7D	QPSK	23.07	0.203
LTE Band 4	1711.5 ~ 1753.5	2M70W7D	16QAM	22.57	0.181
LTE Band 4	1711.5 ~ 1753.5	2M69W7D	64QAM	22.01	0.159
LTE Band 4	1710.7 ~ 1754.3	1M08G7D	QPSK	22.67	0.185
LTE Band 4	1710.7 ~ 1754.3	1M09W7D	16QAM	21.83	0.152
LTE Band 4	1710.7 ~ 1754.3	1M09W7D	64QAM	21.23	0.133
LTE Band 2	1860 ~ 1900	17M9G7D	QPSK	20.46	0.111
LTE Band 2	1860 ~ 1900	17M9W7D	16QAM	19.83	0.096
LTE Band 2	1860 ~ 1900	17M9W7D	64QAM	18.77	0.075
LTE Band 2	1857.5 ~ 1902.5	13M4G7D	QPSK	20.66	0.116
LTE Band 2	1857.5 ~ 1902.5	13M4W7D	16QAM	19.95	0.099
LTE Band 2	1857.5 ~ 1902.5	13M4W7D	64QAM	18.80	0.076
LTE Band 2	1855 ~ 1905	8M97G7D	QPSK	19.88	0.097
LTE Band 2	1855 ~ 1905	8M96W7D	16QAM	19.20	0.083
LTE Band 2	1855 ~ 1905	8M95W7D	64QAM	17.87	0.061
LTE Band 2	1852.5 ~ 1907.5	4M49G7D	QPSK	19.94	0.099
LTE Band 2	1852.5 ~ 1907.5	4M49W7D	16QAM	19.21	0.083
LTE Band 2	1852.5 ~ 1907.5	4M51W7D	64QAM	18.34	0.068
LTE Band 2	1851.5 ~ 1908.5	2M69G7D	QPSK	19.44	0.088
LTE Band 2	1851.5 ~ 1908.5	2M69W7D	16QAM	18.92	0.078
LTE Band 2	1851.5 ~ 1908.5	2M69W7D	64QAM	17.73	0.059
LTE Band 2	1850.7 ~ 1909.3	1M08G7D	QPSK	19.28	0.085
LTE Band 2	1850.7 ~ 1909.3	1M09W7D	16QAM	18.53	0.071
LTE Band 2	1850.7 ~ 1909.3	1M09W7D	64QAM	17.57	0.057

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max power(dBm)	Max power(W)
LTE Band 41	2506 ~ 2680	17M9G7D	QPSK	21.87	0.154
LTE Band 41	2506 ~ 2680	17M7W7D	16QAM	20.55	0.114
LTE Band 41	2506 ~ 2680	17M9W7D	64QAM	19.21	0.083
LTE Band 41	2503.5 ~ 2682.5	13M3G7D	QPSK	21.57	0.144
LTE Band 41	2503.5 ~ 2682.5	13M3W7D	16QAM	20.20	0.105
LTE Band 41	2503.5 ~ 2682.5	13M3W7D	64QAM	19.29	0.085
LTE Band 41	2501 ~ 2685	8M78G7D	QPSK	21.08	0.128
LTE Band 41	2501 ~ 2685	8M73W7D	16QAM	20.11	0.103
LTE Band 41	2501 ~ 2685	8M88W7D	64QAM	19.27	0.085
LTE Band 41	2498.5 ~ 2687.5	4M44G7D	QPSK	19.53	0.090
LTE Band 41	2498.5 ~ 2687.5	4M50W7D	16QAM	18.57	0.072
LTE Band 41	2498.5 ~ 2687.5	4M48W7D	64QAM	17.34	0.054
LTE Band 7	2510 ~ 2560	17M9G7D	QPSK	19.04	0.080
LTE Band 7	2510 ~ 2560	17M9W7D	16QAM	17.61	0.058
LTE Band 7	2510 ~ 2560	17M9W7D	64QAM	17.47	0.056
LTE Band 7	2507.5 ~ 2562.5	13M4G7D	QPSK	19.45	0.088
LTE Band 7	2507.5 ~ 2562.5	13M4W7D	16QAM	18.52	0.071
LTE Band 7	2507.5 ~ 2562.5	13M4W7D	64QAM	17.92	0.062
LTE Band 7	2505 ~ 2565	8M98G7D	QPSK	19.45	0.088
LTE Band 7	2505 ~ 2565	8M93W7D	16QAM	18.87	0.077
LTE Band 7	2505 ~ 2565	8M96W7D	64QAM	17.96	0.063
LTE Band 7	2502.5 ~ 2567.5	4M49G7D	QPSK	19.65	0.092
LTE Band 7	2502.5 ~ 2567.5	4M49W7D	16QAM	18.96	0.079
LTE Band 7	2502.5 ~ 2567.5	4M49W7D	64QAM	18.18	0.066

2. INTRODUCTION

2.1 EUT DESCRIPTION

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

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, WPC

2.3. TESTING ENVIRONMENT

Ambient Condition	
▪ Temperature	+21 ℃ ~ +24 ℃
▪ Relative Humidity	40 % ~ 44 %

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 comply with the requirements of § 2.948 according to ANSI 63.4-2014.

- FCC MRA Accredited Test Firm No. : KR0034

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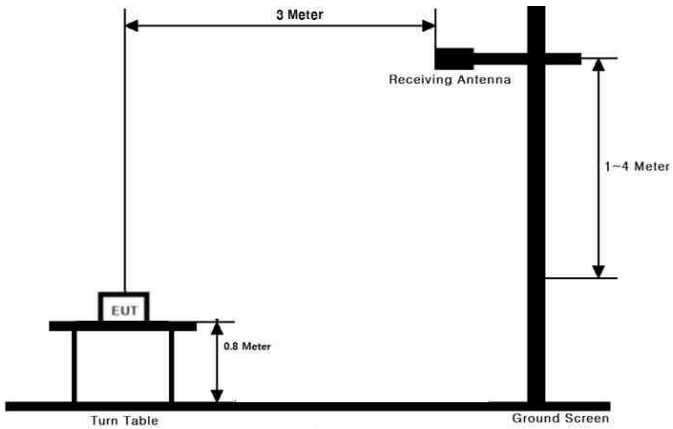
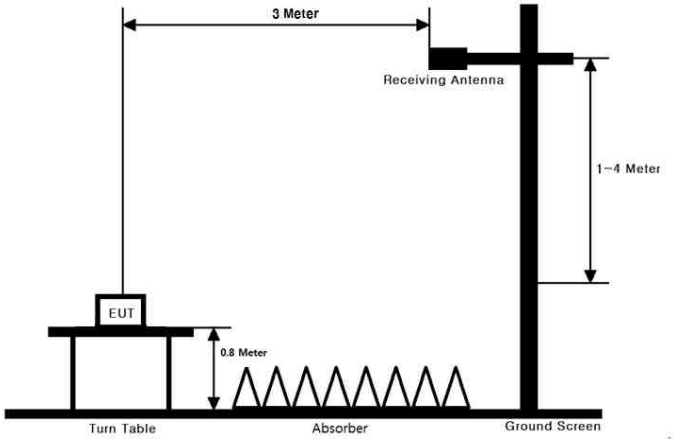
3. DESCRIPTION OF TESTS

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

Test Set-up

Below 1GHz	Above 1GHz
	

These measurements were performed at 3 m 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 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 x to 3 x the OBW.
2. Set RBW = 1% to 5% of the OBW.
3. Set VBW ≥ 3 x RBW.
4. Set number of points in sweep ≥ 2 × span / RBW.
5. Sweep time:
   1) Set = auto-couple, or
   2) Set ≥ [10 × (number of points in sweep) × (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.

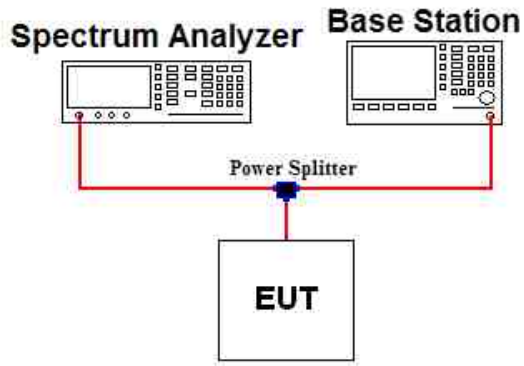
The ERP/EIRP is calculated using the following formula:

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.

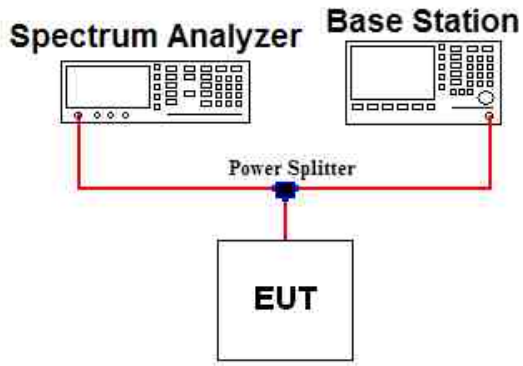
Test setting

The spectrum Analyzer`s CCDF measurement function is enabled.

1. Set resolution/measurement bandwidth ≥ 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 × (number of points in sweep) × (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 form 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**

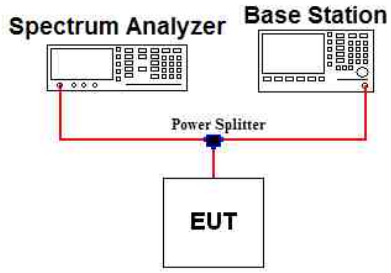
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power of a given emission.

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 ≥ 3 X RBW
3. Detector = Peak
4. Trance 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 ≥ 1 % of the emission bandwidth
4. VBW ≥ 3 X RBW
5. Detector = RMS & Trace mode = Max hold
6. Sweep time = Auto couple or 1 s for band edge
7. Number of sweep point ≥ 2 X 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.5) for operations in the 776-788 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.

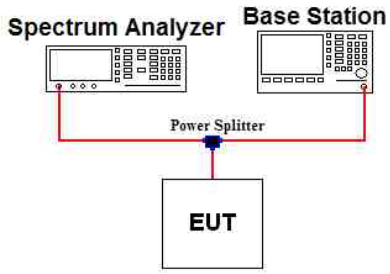
Note 4: Per Part 27.53(c.4) for all frequencies between 763-775 MHz and 793-805 MHz, the FCC limit is 65 + 10log10(P[Watts])= -35dBm in a 6.25kHz bandwidth.

Note 5: 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 that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz.

Note 6: 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.

3.5 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^{th} harmonic.

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

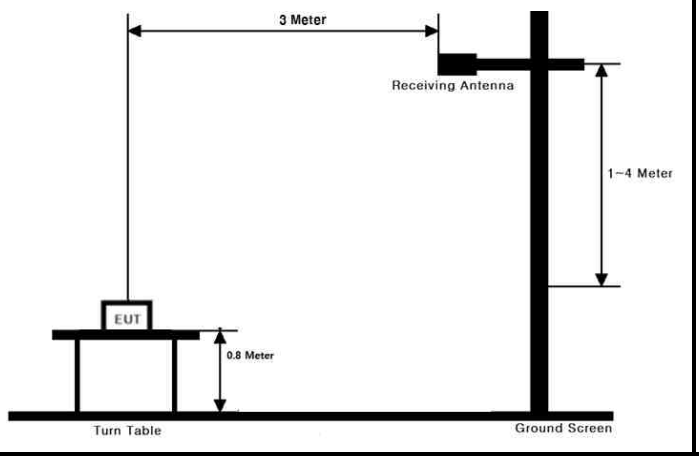
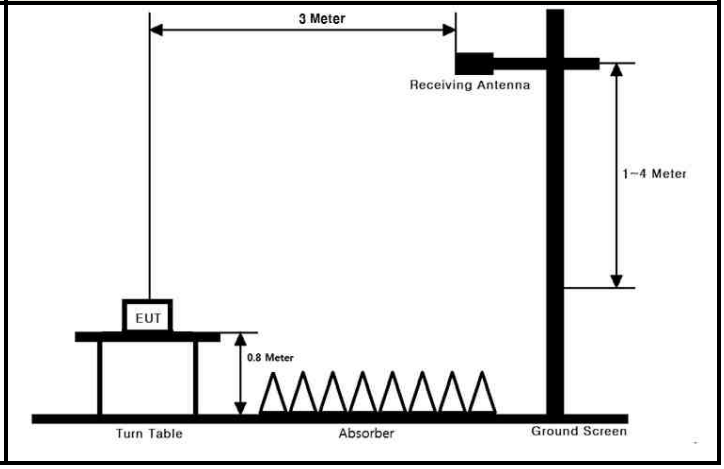
Test setting

1. RBW = 100 kHz(Below 1 GHz) or 1 MHz(Above 1 GHz) & VBW ≥ 3 X RBW (Refer to Note 1)
2. Detector = RMS & Trace mode = Max hold
3. Sweep time = Auto couple
4. Number of sweep point ≥ 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 UNDESIRABLE EMISSIONS

Test Set-up

Below 1GHz	Above 1GHz
	

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 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 2.2.12**
- **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 ≥ 3 X RBW
2. Detector = RMS & Trace mode = Max hold
3. Sweep time = Auto couple
4. Number of sweep point ≥ 2 X 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.

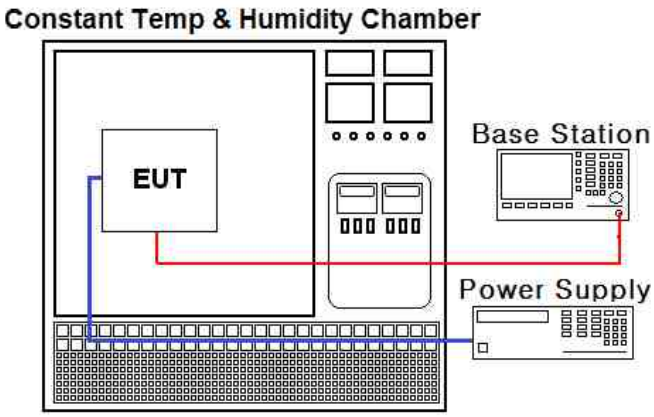
For radiated power measurements below 1 GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

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.

3.7 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

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	17/09/05	18/09/05	MY46471251
Spectrum Analyzer	Agilent Technologies	N9020A	17/09/06	18/09/06	MY48011075
Spectrum Analyzer	Agilent Technologies	N9030A	17/09/07	18/09/07	MY53310140
DC power supply	Agilent Technologies	66332A	17/09/05	18/09/05	US37473422
Multimeter	FLUKE	17B	17/12/26	18/12/26	26030065WS
Power Splitter	Anritsu	K241B	17/12/27	18/12/27	1301183
Temp & Humi	SJ Science	SJ-TH-S50	17/09/07	18/09/07	U5542113
Radio Communication Analyzer	KEYSIGHT	E7515A	17/09/07	18/09/07	MY55210201
Radio Communication Analyzer	Anritsu	MT8820C	17/07/17	18/07/17	6200951873
Thermohygrometer	BODYCOM	BJ5478	18/01/03	19/01/03	120612-1
Thermohygrometer	BODYCOM	BJ5478	18/01/03	19/01/03	120612-2
Signal Generator	Rohde Schwarz	SMBV100A	17/12/27	18/12/27	255571
Signal Generator	Rohde Schwarz	SMF100A	17/12/27	18/12/27	102341
Loop Antenna	Schwarzbeck	FMZB1513	18/01/30	20/01/30	1513-128
BILOG ANTENNA	Schwarzbeck	VULB 9160	16/08/05	18/08/05	9160-3362
Dipole Antenna	Schwarzbeck	VHA9103	17/03/14	19/03/14	2116
Dipole Antenna	Schwarzbeck	VHA9103	16/04/15 18/04/13	18/04/15 20/04/13	2117
Dipole Antenna	Schwarzbeck	UHA9105	17/03/14	19/03/14	2261
Dipole Antenna	Schwarzbeck	UHA9105	16/04/15 18/04/13	18/04/15 20/04/13	2262
HORN ANT	ETS	3117	16/05/13	18/05/13	00140394
HORN ANT	ETS	3117	17/08/02	19/08/02	00154312
HORN ANT	A.H.Systems	SAS-574	17/04/25	19/04/25	154
HORN ANT	A.H.Systems	SAS-574	17/07/31	19/07/31	155
Amplifier	RFBAY.Inc	MPA-40-40	17/12/28	18/12/28	21151801
Amplifier	EMPOWER	BBS3Q7ELU	17/09/06	18/09/06	1020
PreAmplifier	TSJ	MLA-010K01-B01-27	18/03/05	19/03/05	1844539
PreAmplifier	Agilent	8449B	17/09/05	18/09/05	3008A02108
High-pass filter	Wainwright	WHKX12-935-1000-15000-40SS	17/09/05	18/09/05	7
High-pass filter	Wainwright	WHKX12-2580-3000-18000-80SS	17/09/05	18/09/05	3
High-pass filter	Wainwright	WHNX8.0/26.5-6SS	17/09/05	18/09/05	3

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

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Status Note 1
2.1046	Conducted Output Power	N/A	Conducted	C Note2
2.1049	Occupied Bandwidth	N/A		C
24.232(d) 27.50(d.5)	Peak to Average Ratio	< 13 dB		C
2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Band Edge / Conducted Spurious Emissions	> 43 + 10log$_{10}$(P) dB at Band edge and for all out-of-band emissions		C
27.53(c.4)	Undesirable Emissions in 763 ~ 775MHz & 793 ~ 805MHz	< 65 + 10 log10(P) dB		
27.53(m)	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	Frequency Stability	< 2.5 ppm (Part 22) Fundamental emissions must stay within Authorized frequency block (Part 24, 27)		C
27.50(b.10) 27.50(c.10)	Radiated Output Power (B12,13, 17)	< 3 Watts max. ERP	Radiated Note3	C
22.913(a.2)	Radiated Output Power (B5)	< 7 Watts max. ERP		C
27.50(d.4)	Radiated Output Power (B4)	< 1 Watts max. EIRP		C
24.232(c) 27.50(h.2)	Radiated Output Power(B2, 7, 41)	< 2 Watts max. EIRP		C
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions	> 43 + 10log$_{10}$(P) dB for all out-of-band emissions		C
27.53(f)	Undesirable Emissions in 1559 ~ 1610MHz	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions of less than 700 Hz bandwidth)		
27.53(m)	Undesirable Emissions(B7, 41)	> 55 + 10log$_{10}$(P) dB for all out-of-band emissions		C

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable
Note 2: Refer to RF Exposure Report (Test Report SAR)
Note 3: This device supports wireless charging capability.
So per KDB648474 D03v01r04, the radiated test items were performed both normal and charging conditions. For wireless charging condition, the handset is placed on the representative charging pad under normal conditions and in a simulated call configuration.
And the worst case data was reported.

6. SAMPLE CALCULATION

A. Emission Designator

LTE Band 12,17(QPSK)

Emission Designator = **8M95G7D**
LTE OBW = 8.951 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 12,17(16QAM)

Emission Designator = **8M95W7D**
LTE OBW = 8.946 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 12,17(64QAM)

Emission Designator = **8M96W7D**
LTE OBW = 8.957 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(QPSK)

Emission Designator = 8**M91G7D**
LTE OBW = 8.910 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(16QAM)

Emission Designator = 8**M92W7D**
LTE OBW = 8.924 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(64QAM)

Emission Designator = 8**M96W7D**
LTE OBW = 8.962 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(QPSK)

Emission Designator = **8M99G7D**
LTE OBW = 8.993 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(16QAM)

Emission Designator = **8M95W7D**
LTE OBW = 8.949 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(64QAM)

Emission Designator = **8M97W7D**
LTE OBW = 8.968 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 4(QPSK)

Emission Designator = **17M9G7D**
LTE OBW = 17.877 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 4(16QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.887 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 4(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.948 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(QPSK)

Emission Designator = **17M9G7D**
LTE OBW = 17.865 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(16QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.869 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.873 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 41(QPSK)

Emission Designator = **17M9G7D**
LTE OBW = 17.851 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 41(16QAM)

Emission Designator = **17M7W7D**
LTE OBW = 17.719 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 41(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.892 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 7(QPSK)

Emission Designator = **17M9G7D**
LTE OBW = 17.897 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 7(16QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.885 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 7(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.879 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

B. For substitution method

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 (dBd)	EIRP (dBm)	EIRP (W)
20	1720	QPSK	1/0	-22.66	X	H	17.47	5.82	23.29	0.213

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 ERP & EIRP

7.5.1 LTE Band 12, 17

- Measurement data: Without wireless charging pad

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	1/25	V	16.79	1.28	18.07	0.064
		16QAM	1/25	V	15.83	1.28	17.11	0.051
		64QAM	1/25	V	15.09	1.28	16.37	0.043
	711	QPSK	1/25	V	15.74	1.28	17.02	0.050
		16QAM	1/25	V	14.50	1.28	15.78	0.038
		64QAM	1/25	V	13.73	1.28	15.01	0.032
5	701.5	QPSK	1/12	V	16.90	1.28	18.18	0.066
		16QAM	1/12	V	15.61	1.28	16.89	0.049
		64QAM	1/12	V	14.94	1.28	16.22	0.042
	707.5	QPSK	1/12	V	16.13	1.28	17.41	0.055
		16QAM	1/12	V	14.77	1.28	16.05	0.040
		64QAM	1/12	V	13.99	1.28	15.27	0.034
	713.5	QPSK	1/12	V	14.96	1.28	16.24	0.042
		16QAM	1/12	V	13.85	1.28	15.13	0.033
		64QAM	1/12	V	12.78	1.28	14.06	0.025

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

- Measurement data: With wireless charging pad

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	1/25	H	16.60	1.28	17.88	0.061
5	701.5	QPSK	1/12	H	16.68	1.28	17.96	0.063

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

7.5.2 LTE Band 12

- Measurement data: Without wireless charging pad

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	V	17.06	1.28	18.34	0.068
		16QAM	1/7	V	16.14	1.28	17.42	0.055
		64QAM	1/7	V	15.05	1.28	16.33	0.043
	707.5	QPSK	1/7	V	16.11	1.28	17.39	0.055
		16QAM	1/7	V	14.95	1.28	16.23	0.042
		64QAM	1/7	V	14.11	1.28	15.39	0.035
	714.5	QPSK	1/7	V	14.75	1.28	16.03	0.040
		16QAM	1/7	V	13.89	1.28	15.17	0.033
		64QAM	1/7	V	12.92	1.28	14.20	0.026
1.4	699.7	QPSK	1/2	V	17.37	1.28	18.65	0.073
		16QAM	1/2	V	16.49	1.28	17.77	0.060
		64QAM	1/2	V	15.73	1.28	17.01	0.050
	707.5	QPSK	1/2	V	16.04	1.28	17.32	0.054
		16QAM	1/2	V	15.23	1.28	16.51	0.045
		64QAM	1/2	V	14.09	1.28	15.37	0.034
	715.3	QPSK	1/2	V	15.28	1.28	16.56	0.045
		16QAM	1/2	V	14.34	1.28	15.62	0.036
		64QAM	1/2	V	13.11	1.28	14.39	0.027

- Measurement data: With wireless charging pad

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	707.5	QPSK	1/7	H	16.63	1.28	17.91	0.062
1.4	707.5	QPSK	1/2	H	16.49	1.28	17.77	0.060

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

7.5.3 LTE Band 13

- Measurement data: Without wireless charging pad

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	1/0	V	16.21	1.26	17.47	0.056
		16QAM	1/0	V	14.99	1.26	16.25	0.042
		64QAM	1/0	V	14.39	1.26	15.65	0.037
5	779.5	QPSK	1/0	V	16.08	1.26	17.34	0.054
		16QAM	1/0	V	14.95	1.26	16.21	0.042
		64QAM	1/0	V	14.27	1.26	15.53	0.036
	784.5	QPSK	1/0	V	15.98	1.25	17.23	0.053
		16QAM	1/0	V	14.61	1.25	15.86	0.039
		64QAM	1/0	V	13.95	1.25	15.20	0.033

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

- Measurement data: With wireless charging pad

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	1/0	H	14.49	1.26	15.75	0.038
5	784.5	QPSK	1/0	H	14.77	1.25	16.02	0.040

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

7.5.4 LTE Band 5

- Measurement data: Without wireless charging pad

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	1/49	V	18.49	1.23	19.72	0.094
		16QAM	1/49	V	17.71	1.23	18.94	0.078
		64QAM	1/49	V	16.89	1.23	18.12	0.065
	836.5	QPSK	1/49	V	17.95	1.22	19.17	0.083
		16QAM	1/49	V	16.93	1.22	18.15	0.065
		64QAM	1/49	V	16.17	1.22	17.39	0.055
	844	QPSK	1/49	V	18.12	1.21	19.33	0.086
		16QAM	1/49	V	17.19	1.21	18.40	0.069
		64QAM	1/49	V	16.30	1.21	17.51	0.056
5	826.5	QPSK	1/24	V	18.50	1.23	19.73	0.094
		16QAM	1/24	V	17.38	1.23	18.61	0.073
		64QAM	1/24	V	16.25	1.23	17.48	0.056
	836.5	QPSK	1/24	V	17.47	1.22	18.69	0.074
		16QAM	1/24	V	16.21	1.22	17.43	0.055
		64QAM	1/24	V	14.92	1.22	16.14	0.041
	846.5	QPSK	1/24	V	18.86	1.21	20.07	0.102
		16QAM	1/24	V	17.61	1.21	18.82	0.076
		64QAM	1/24	V	16.59	1.21	17.80	0.060
3	825.5	QPSK	1/14	V	19.01	1.23	20.24	0.106
		16QAM	1/14	V	18.22	1.23	19.45	0.088
		64QAM	1/14	V	17.37	1.23	18.60	0.072
	836.5	QPSK	1/14	V	17.43	1.22	18.65	0.073
		16QAM	1/14	V	16.31	1.22	17.53	0.057
		64QAM	1/14	V	15.12	1.22	16.34	0.043
	847.5	QPSK	1/14	V	19.27	1.21	20.48	0.112
		16QAM	1/14	V	18.11	1.21	19.32	0.086
		64QAM	1/14	V	17.28	1.21	18.49	0.071
1.4	824.7	QPSK	1/5	V	18.73	1.23	19.96	0.099
		16QAM	1/5	V	18.14	1.23	19.37	0.086
		64QAM	1/5	V	17.40	1.23	18.63	0.073
	836.5	QPSK	1/5	V	17.26	1.22	18.48	0.070
		16QAM	1/5	V	16.00	1.22	17.22	0.053
		64QAM	1/5	V	15.39	1.22	16.61	0.046
	848.3	QPSK	1/5	V	19.33	1.21	20.54	0.113
		16QAM	1/5	V	18.41	1.21	19.62	0.092
		64QAM	1/5	V	17.68	1.21	18.89	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.

- Measurement data: With wireless charging pad

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	1/49	H	19.36	1.23	20.59	0.115
5	826.5	QPSK	1/24	H	18.92	1.23	20.15	0.104
3	825.5	QPSK	1/14	H	19.18	1.23	20.41	0.110
1.4	848.3	QPSK	1/5	H	19.16	1.21	20.37	0.109

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

7.5.5 LTE Band 4

- Measurement data: Without wireless charging pad

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	1/0	H	17.47	5.82	23.29	0.213
		16QAM	1/0	H	16.83	5.82	22.65	0.184
		64QAM	1/0	H	16.00	5.82	21.82	0.152
	1732.5	QPSK	1/0	H	16.96	5.75	22.71	0.187
		16QAM	1/0	H	16.06	5.75	21.81	0.152
		64QAM	1/0	H	15.11	5.75	20.86	0.122
	1745	QPSK	1/50	H	15.69	5.67	21.36	0.137
		16QAM	1/50	H	15.16	5.67	20.83	0.121
		64QAM	1/50	H	14.21	5.67	19.88	0.097
15	1717.5	QPSK	1/0	H	17.51	5.84	23.35	0.216
		16QAM	1/0	H	16.84	5.84	22.68	0.185
		64QAM	1/0	H	16.00	5.84	21.84	0.153
	1732.5	QPSK	1/0	H	17.04	5.75	22.79	0.190
		16QAM	1/0	H	16.18	5.75	21.93	0.156
		64QAM	1/0	H	15.30	5.75	21.05	0.127
	1747.5	QPSK	1/36	H	16.05	5.66	21.71	0.148
		16QAM	1/36	H	15.27	5.66	20.93	0.124
		64QAM	1/36	H	14.46	5.66	20.12	0.103
10	1715	QPSK	1/0	H	17.09	5.85	22.94	0.197
		16QAM	1/0	H	16.51	5.85	22.36	0.172
		64QAM	1/0	H	15.76	5.85	21.61	0.145
	1732.5	QPSK	1/0	H	16.82	5.75	22.57	0.181
		16QAM	1/0	H	15.95	5.75	21.70	0.148
		64QAM	1/0	H	15.21	5.75	20.96	0.125
	1750	QPSK	1/0	H	15.80	5.64	21.44	0.139
		16QAM	1/0	H	14.97	5.64	20.61	0.115
		64QAM	1/0	H	14.31	5.64	19.95	0.099

- Measurement data: Without wireless charging pad

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	1/0	H	17.16	5.87	23.03	0.201
		16QAM	1/0	H	16.73	5.87	22.60	0.182
		64QAM	1/0	H	15.77	5.87	21.64	0.146
	1732.5	QPSK	1/0	H	17.21	5.75	22.96	0.198
		16QAM	1/0	H	16.31	5.75	22.06	0.161
		64QAM	1/0	H	15.27	5.75	21.02	0.126
	1752.5	QPSK	1/0	H	16.24	5.63	21.87	0.154
		16QAM	1/0	H	15.57	5.63	21.20	0.132
		64QAM	1/0	H	14.67	5.63	20.30	0.107
3	1711.5	QPSK	1/0	H	17.15	5.87	23.02	0.200
		16QAM	1/0	H	16.70	5.87	22.57	0.181
		64QAM	1/0	H	16.14	5.87	22.01	0.159
	1732.5	QPSK	1/0	H	17.32	5.75	23.07	0.203
		16QAM	1/0	H	16.63	5.75	22.38	0.173
		64QAM	1/0	H	15.80	5.75	21.55	0.143
	1753.5	QPSK	1/0	H	16.59	5.62	22.21	0.166
		16QAM	1/0	H	15.81	5.62	21.43	0.139
		64QAM	1/0	H	15.04	5.62	20.66	0.116
1.4	1710.7	QPSK	1/0	H	16.79	5.88	22.67	0.185
		16QAM	1/0	H	15.95	5.88	21.83	0.152
		64QAM	1/0	H	15.35	5.88	21.23	0.133
	1732.5	QPSK	1/0	H	16.35	5.75	22.10	0.162
		16QAM	1/0	H	16.06	5.75	21.81	0.152
		64QAM	1/0	H	15.03	5.75	20.78	0.120
	1754.3	QPSK	1/0	H	16.27	5.61	21.88	0.154
		16QAM	1/0	H	15.47	5.61	21.08	0.128
		64QAM	1/0	H	14.72	5.61	20.33	0.108

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

- Measurement data: With wireless charging pad

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	1/0	H	18.24	5.82	24.06	0.255
15	1717.5	QPSK	1/0	H	18.33	5.84	24.17	0.261
10	1715	QPSK	1/0	H	17.86	5.85	23.71	0.235
5	1712.5	QPSK	1/0	H	18.02	5.87	23.89	0.245
3	1732.5	QPSK	1/0	H	18.08	5.75	23.83	0.242
1.4	1710.7	QPSK	1/0	H	17.57	5.88	23.45	0.221

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

7.5.6 LTE Band 2

- Measurement data: Without wireless charging pad

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	1/0	H	15.44	5.02	20.46	0.111
		16QAM	1/0	H	14.81	5.02	19.83	0.096
		64QAM	1/0	H	13.75	5.02	18.77	0.075
	1880	QPSK	1/0	H	15.15	4.91	20.06	0.101
		16QAM	1/0	H	14.54	4.91	19.45	0.088
		64QAM	1/0	H	13.45	4.91	18.36	0.069
	1900	QPSK	1/50	H	14.43	4.81	19.24	0.084
		16QAM	1/50	H	13.86	4.81	18.67	0.074
		64QAM	1/50	H	12.61	4.81	17.42	0.055
15	1857.5	QPSK	1/0	H	15.63	5.03	20.66	0.116
		16QAM	1/0	H	14.92	5.03	19.95	0.099
		64QAM	1/0	H	13.77	5.03	18.80	0.076
	1880	QPSK	1/0	H	14.56	4.91	19.47	0.089
		16QAM	1/0	H	13.71	4.91	18.62	0.073
		64QAM	1/0	H	12.23	4.91	17.14	0.052
	1902.5	QPSK	1/36	H	14.15	4.80	18.95	0.079
		16QAM	1/36	H	13.37	4.80	18.17	0.066
		64QAM	1/36	H	12.56	4.80	17.36	0.054
10	1855	QPSK	1/0	H	14.83	5.05	19.88	0.097
		16QAM	1/0	H	14.15	5.05	19.20	0.083
		64QAM	1/0	H	12.82	5.05	17.87	0.061
	1880	QPSK	1/0	H	14.53	4.91	19.44	0.088
		16QAM	1/0	H	13.59	4.91	18.50	0.071
		64QAM	1/0	H	12.54	4.91	17.45	0.056
	1905	QPSK	1/25	H	14.58	4.79	19.37	0.086
		16QAM	1/25	H	13.74	4.79	18.53	0.071
		64QAM	1/25	H	12.80	4.79	17.59	0.057

- Measurement data: Without wireless charging pad

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	1/0	H	14.88	5.06	19.94	0.099
		16QAM	1/0	H	14.15	5.06	19.21	0.083
		64QAM	1/0	H	13.28	5.06	18.34	0.068
	1880	QPSK	1/0	H	14.43	4.91	19.34	0.086
		16QAM	1/0	H	13.84	4.91	18.75	0.075
		64QAM	1/0	H	12.52	4.91	17.43	0.055
	1907.5	QPSK	1/0	H	14.32	4.77	19.09	0.081
		16QAM	1/0	H	13.69	4.77	18.46	0.070
		64QAM	1/0	H	13.06	4.77	17.83	0.061
3	1851.5	QPSK	1/0	H	14.38	5.06	19.44	0.088
		16QAM	1/0	H	13.86	5.06	18.92	0.078
		64QAM	1/0	H	12.67	5.06	17.73	0.059
	1880	QPSK	1/0	H	14.34	4.91	19.25	0.084
		16QAM	1/0	H	13.60	4.91	18.51	0.071
		64QAM	1/0	H	12.62	4.91	17.53	0.057
	1908.5	QPSK	1/0	H	13.98	4.77	18.75	0.075
		16QAM	1/0	H	13.30	4.77	18.07	0.064
		64QAM	1/0	H	12.38	4.77	17.15	0.052
1.4	1850.7	QPSK	1/0	H	14.21	5.07	19.28	0.085
		16QAM	1/0	H	13.46	5.07	18.53	0.071
		64QAM	1/0	H	12.50	5.07	17.57	0.057
	1880	QPSK	1/0	H	14.09	4.91	19.00	0.079
		16QAM	1/0	H	13.55	4.91	18.46	0.070
		64QAM	1/0	H	12.27	4.91	17.18	0.052
	1909.3	QPSK	1/0	H	13.70	4.76	18.46	0.070
		16QAM	1/0	H	12.92	4.76	17.68	0.059
		64QAM	1/0	H	11.95	4.76	16.71	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.

- Measurement data: With wireless charging pad

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	1/0	H	16.13	5.02	21.15	0.130
15	1857.5	QPSK	1/0	H	16.52	5.03	21.55	0.143
10	1855	QPSK	1/0	H	15.45	5.05	20.50	0.112
5	1852.5	QPSK	1/0	H	15.52	5.06	20.58	0.114
3	1851.5	QPSK	1/0	H	14.97	5.06	20.03	0.101
1.4	1850.7	QPSK	1/0	H	14.83	5.07	19.90	0.098

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

7.5.7 LTE Band 41

- Measurement data: Without wireless charging pad

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	2506	QPSK	1/0	V	15.20	6.19	21.39	0.138
		16QAM	1/0	V	14.01	6.19	20.20	0.105
		64QAM	1/0	V	12.34	6.19	18.53	0.071
	2593	QPSK	1/0	V	15.64	6.23	21.87	0.154
		16QAM	1/0	V	14.32	6.23	20.55	0.114
		64QAM	1/0	V	12.98	6.23	19.21	0.083
	2680	QPSK	1/0	V	10.88	6.49	17.37	0.055
		16QAM	1/0	V	9.32	6.49	15.81	0.038
		64QAM	1/0	V	8.15	6.49	14.64	0.029
15	2503.5	QPSK	1/0	V	14.81	6.19	21.00	0.126
		16QAM	1/0	V	13.00	6.19	19.19	0.083
		64QAM	1/0	V	12.18	6.19	18.37	0.069
	2593	QPSK	1/0	V	15.34	6.23	21.57	0.144
		16QAM	1/0	V	13.97	6.23	20.20	0.105
		64QAM	1/0	V	13.06	6.23	19.29	0.085
	2682.5	QPSK	1/0	V	10.43	6.50	16.93	0.049
		16QAM	1/0	V	9.05	6.50	15.55	0.036
		64QAM	1/0	V	7.86	6.50	14.36	0.027
10	2501	QPSK	1/0	V	14.64	6.19	20.83	0.121
		16QAM	1/0	V	13.83	6.19	20.02	0.100
		64QAM	1/0	V	12.94	6.19	19.13	0.082
	2593	QPSK	1/0	V	14.85	6.23	21.08	0.128
		16QAM	1/0	V	13.88	6.23	20.11	0.103
		64QAM	1/0	V	13.04	6.23	19.27	0.085
	2685	QPSK	1/0	V	10.27	6.51	16.78	0.048
		16QAM	1/0	V	9.03	6.51	15.54	0.036
		64QAM	1/0	V	7.86	6.51	14.37	0.027
5	2498.5	QPSK	1/0	V	13.11	6.19	19.30	0.085
		16QAM	1/0	V	11.82	6.19	18.01	0.063
		64QAM	1/0	V	11.00	6.19	17.19	0.052
	2593	QPSK	1/0	V	13.30	6.23	19.53	0.090
		16QAM	1/0	V	12.34	6.23	18.57	0.072
		64QAM	1/0	V	11.11	6.23	17.34	0.054
	2687.5	QPSK	1/0	V	9.23	6.52	15.75	0.038
		16QAM	1/0	V	7.60	6.52	14.12	0.026
		64QAM	1/0	V	7.00	6.52	13.52	0.022

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

- Measurement data: With wireless charging pad

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	2506	QPSK	1/0	H	14.25	6.19	20.44	0.111
15	2593	QPSK	1/0	H	14.30	6.23	20.53	0.113
10	2593	QPSK	1/0	H	14.39	6.23	20.62	0.115
5	2593	QPSK	1/0	H	12.76	6.23	18.99	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.

7.5.8 LTE Band 7

- Measurement data: Without wireless charging pad

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	1/99	V	12.37	6.19	18.56	0.072
		16QAM	1/99	V	11.29	6.19	17.48	0.056
		64QAM	1/99	V	10.40	6.19	16.59	0.046
	2535	QPSK	1/0	V	12.83	6.21	19.04	0.080
		16QAM	1/0	V	11.40	6.21	17.61	0.058
		64QAM	1/0	V	11.26	6.21	17.47	0.056
	2560	QPSK	1/0	V	11.66	6.21	17.87	0.061
		16QAM	1/0	V	11.18	6.21	17.39	0.055
		64QAM	1/0	V	10.55	6.21	16.76	0.047
15	2507.5	QPSK	1/74	V	12.72	6.19	18.91	0.078
		16QAM	1/74	V	12.10	6.19	18.29	0.067
		64QAM	1/74	V	10.99	6.19	17.18	0.052
	2535	QPSK	1/74	V	13.24	6.21	19.45	0.088
		16QAM	1/74	V	12.31	6.21	18.52	0.071
		64QAM	1/74	V	11.71	6.21	17.92	0.062
	2562.5	QPSK	1/0	V	12.63	6.21	18.84	0.077
		16QAM	1/0	V	12.14	6.21	18.35	0.068
		64QAM	1/0	V	11.00	6.21	17.21	0.053
10	2505	QPSK	1/49	V	13.11	6.19	19.30	0.085
		16QAM	1/49	V	12.24	6.19	18.43	0.070
		64QAM	1/49	V	11.21	6.19	17.40	0.055
	2535	QPSK	1/0	V	13.24	6.21	19.45	0.088
		16QAM	1/0	V	12.66	6.21	18.87	0.077
		64QAM	1/0	V	11.75	6.21	17.96	0.063
	2565	QPSK	1/0	V	12.66	6.22	18.88	0.077
		16QAM	1/0	V	12.10	6.22	18.32	0.068
		64QAM	1/0	V	11.21	6.22	17.43	0.055
5	2502.5	QPSK	1/24	V	12.98	6.19	19.17	0.083
		16QAM	1/24	V	12.08	6.19	18.27	0.067
		64QAM	1/24	V	11.27	6.19	17.46	0.056
	2535	QPSK	1/0	V	13.44	6.21	19.65	0.092
		16QAM	1/0	V	12.75	6.21	18.96	0.079
		64QAM	1/0	V	11.97	6.21	18.18	0.066
	2567.5	QPSK	1/0	V	12.73	6.22	18.95	0.079
		16QAM	1/0	V	12.05	6.22	18.27	0.067
		64QAM	1/0	V	11.21	6.22	17.43	0.055

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

- **Measurement data: With wireless charging pad**

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	2535	QPSK	1/0	H	14.35	6.21	20.56	0.114
15	2535	QPSK	1/74	H	14.61	6.21	20.82	0.121
10	2505	QPSK	1/49	H	14.74	6.19	20.93	0.124
5	2502.5	QPSK	1/24	H	14.52	6.19	20.71	0.118

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 UNDESIRABLE EMISSIONS (Radiated)

7.6.1 LTE Band 12,17

- Measurement data: Without wireless charging pad

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	1/25	QPSK	2112.49	H	-53.42	2.53	-50.89	68.96	31.07
			16QAM	2112.47	H	-53.86	2.53	-51.33	68.44	30.11
			64QAM	2112.00	H	-53.54	2.53	-51.01	68.12	29.37
	711	1/25	QPSK	2133.36	H	-53.90	2.72	-51.18	68.20	30.02
			16QAM	2133.06	H	-53.76	2.72	-51.04	66.82	28.78
			64QAM	2133.06	H	-53.66	2.72	-50.94	66.72	28.01
5	701.5	1/12	QPSK	2104.81	H	-53.53	2.46	-51.07	69.25	31.18
			16QAM	2104.52	H	-53.00	2.46	-50.54	67.43	29.89
			64QAM	2105.11	H	-53.72	2.47	-51.25	68.14	29.22
	707.5	1/12	QPSK	2122.51	H	-53.00	2.62	-50.38	67.79	30.41
			16QAM	2122.33	H	-53.01	2.62	-50.39	66.44	29.05
			64QAM	2122.62	H	-53.57	2.63	-50.94	66.99	28.27
	713.5	1/12	QPSK	2140.25	H	-53.70	2.79	-50.91	67.15	29.24
			16QAM	2140.46	H	-53.42	2.79	-50.63	65.76	28.13
			64QAM	2140.77	H	-53.90	2.79	-51.11	66.24	27.06

Note 1: Limit Calculation = 43 + $10\log_{10}$ (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.

- Measurement data: With wireless charging pad

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	1/25	QPSK	2112.53	H	-53.65	4.68	-48.97	66.85	30.88
5	701.5	1/12	QPSK	2104.89	H	-54.04	4.61	-49.43	67.39	30.96

Note 1: Limit Calculation = 43 + $10\log_{10}$ (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.

7.6.2 LTE Band 12

- Measurement data: Without wireless charging pad

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	2101.19	H	-53.83	2.43	-51.40	69.74	31.34
			16QAM	2101.74	H	-53.11	2.44	-50.67	68.09	30.42
			64QAM	2101.43	H	-54.08	2.43	-51.65	69.07	29.33
	707.5	1/7	QPSK	2122.85	H	-52.62	2.63	-49.99	67.38	30.39
			16QAM	2122.83	H	-53.66	2.63	-51.03	67.26	29.23
			64QAM	2122.28	H	-53.86	2.62	-51.24	67.47	28.39
	714.5	1/7	QPSK	2143.37	H	-52.65	2.81	-49.84	65.87	29.03
			16QAM	2143.42	H	-54.07	2.82	-51.25	66.42	28.17
			64QAM	2143.33	H	-53.56	2.81	-50.75	65.92	27.20
1.4	699.7	1/2	QPSK	2098.76	H	-52.67	2.42	-50.25	68.90	31.65
			16QAM	2098.68	H	-53.24	2.42	-50.82	68.59	30.77
			64QAM	2098.73	H	-53.42	2.42	-51.00	68.77	30.01
	707.5	1/2	QPSK	2122.35	H	-52.49	2.62	-49.87	67.19	30.32
			16QAM	2122.46	H	-52.85	2.62	-50.23	66.74	29.51
			64QAM	2122.45	H	-53.10	2.62	-50.48	66.99	28.37
	715.3	1/2	QPSK	2145.94	H	-52.59	2.84	-49.75	66.31	29.56
			16QAM	2145.65	H	-53.16	2.84	-50.32	65.94	28.62
			64QAM	2145.66	H	-53.57	2.84	-50.73	66.35	27.39

Note 1: Limit Calculation = 43 + $10\log_{10}$ (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.

- Measurement data: With wireless charging pad

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	707.5	1/7	QPSK	2122.93	H	-53.08	4.78	-48.30	66.21	30.91
1.4	707.5	1/2	QPSK	2122.30	H	-53.57	4.77	-48.80	66.57	30.77

Note 1: Limit Calculation = 43 + $10\log_{10}$ (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.

7.6.3 LTE Band 13

- Measurement data: Without wireless charging pad

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	1/0	QPSK	2332.62	H	-52.62	3.97	-48.65	66.12	30.47
		1/0	16QAM	2332.40	H	-52.67	3.97	-48.70	64.95	29.25
		1/0	64QAM	2332.73	H	-53.24	3.97	-49.27	65.52	28.65
5	779.5	1/0	QPSK	2332.09	H	-52.31	3.96	-48.35	65.69	30.34
		1/0	16QAM	2332.00	H	-52.43	3.96	-48.47	64.68	29.21
		1/0	64QAM	2332.20	H	-52.26	3.96	-48.30	64.51	28.53
	784.5	1/0	QPSK	2346.82	H	-52.41	3.99	-48.42	65.65	30.23
		1/0	16QAM	2347.02	H	-52.53	3.99	-48.54	64.40	28.86
		1/0	64QAM	2346.88	H	-52.11	3.99	-48.12	63.98	28.20

- Measurement data: With wireless charging pad

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	1/0	QPSK	2332.50	H	-52.46	3.97	-48.49	64.24	28.75
5	784.5	1/0	QPSK	2346.91	H	-52.57	3.99	-48.58	64.60	29.02

Note 1: Limit Calculation = 43 + $10\log_{10}$ (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.

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

- Measurement data: Without wireless charging pad

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 (dBm)	Margin (dB)	Limit (dBm/MHz)
10	782	1/49	QPSK	1572.77	V	-56.67	6.32	-50.35	10.35	-40
		1/49	16QAM	1572.72	V	-57.36	6.32	-51.04	11.04	
		1/49	64QAM	1573.09	V	-57.10	6.31	-50.79	10.79	
5	779.5	1/24	QPSK	1563.45	V	-56.76	6.36	-50.40	10.40	
		1/24	16QAM	1563.22	V	-56.76	6.36	-50.40	10.40	
		1/24	64QAM	1563.35	V	-56.87	6.36	-50.51	10.51	
	784.5	1/24	QPSK	1573.16	V	-56.96	6.31	-50.65	10.65	
		1/24	16QAM	1573.39	V	-56.80	6.31	-50.49	10.49	
		1/24	64QAM	1573.33	V	-56.62	6.31	-50.31	10.31	

- Measurement data: With wireless charging pad

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 (dBm)	Margin (dB)	Limit (dBm/MHz)
10	782	1/49	QPSK	1572.82	H	-57.41	6.32	-51.09	11.09	-40
5	779.5	1/24	QPSK	1564.50	H	-57.34	6.35	-50.99	10.99	
	784.5	1/24	QPSK	1573.14	H	-57.32	6.31	-51.01	11.01	

Note 1: Limit Calculation = −70 dBW/MHz (equivalent isotropically radiated power for wideband signals)

Note 2: 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 5

- Measurement data: Without wireless charging pad

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	1/49	QPSK	1667.43	V	-56.23	3.78	-52.45	72.17	32.72
			16QAM	1667.14	V	-56.09	3.78	-52.31	71.25	31.94
			64QAM	1666.94	V	-56.47	3.78	-52.69	71.63	31.12
	836.5	1/49	QPSK	1681.82	V	-55.12	3.78	-51.34	70.51	32.17
			16QAM	1681.64	V	-56.14	3.78	-52.36	70.51	31.15
			64QAM	1681.56	V	-56.59	3.78	-52.81	70.96	30.39
	844	1/49	QPSK	1696.76	V	-55.91	3.79	-52.12	71.45	32.33
			16QAM	1696.85	V	-56.37	3.79	-52.58	70.98	31.40
			64QAM	1697.02	V	-56.33	3.79	-52.54	70.94	30.51
5	826.5	1/24	QPSK	1657.20	V	-56.23	3.78	-52.45	72.18	32.73
			16QAM	1656.94	V	-56.71	3.78	-52.93	71.54	31.61
			64QAM	1657.32	V	-56.47	3.78	-52.69	71.30	30.48
	836.5	1/24	QPSK	1677.30	V	-56.07	3.78	-52.29	70.98	31.69
			16QAM	1677.69	V	-56.40	3.78	-52.62	70.05	30.43
			64QAM	1677.34	V	-56.29	3.78	-52.51	69.94	29.14
	846.5	1/24	QPSK	1697.54	V	-56.09	3.79	-52.30	72.37	33.07
			16QAM	1697.12	V	-55.83	3.79	-52.04	70.86	31.82
			64QAM	1698.65	V	-56.59	3.79	-52.80	71.62	30.80
3	825.5	1/14	QPSK	1653.45	V	-56.84	3.78	-53.06	73.30	33.24
			16QAM	1653.38	V	-56.85	3.78	-53.07	72.52	32.45
			64QAM	1653.82	V	-56.31	3.78	-52.53	71.98	31.60
	836.5	1/14	QPSK	1675.61	V	-55.98	3.78	-52.20	70.85	31.65
			16QAM	1675.27	V	-55.85	3.78	-52.07	69.60	30.53
			64QAM	1675.05	V	-56.21	3.78	-52.43	69.96	29.34
	847.5	1/14	QPSK	1697.94	V	-55.95	3.79	-52.16	72.64	33.48
			16QAM	1697.71	V	-55.98	3.79	-52.19	71.51	32.32
			64QAM	1697.61	V	-55.64	3.79	-51.85	71.17	31.49
1.4	824.7	1/5	QPSK	1650.74	V	-56.44	3.78	-52.66	72.62	32.96
			16QAM	1650.43	V	-56.86	3.78	-53.08	72.45	32.37
			64QAM	1650.22	V	-56.68	3.78	-52.90	72.27	31.63
	836.5	1/5	QPSK	1673.92	V	-55.57	3.78	-51.79	70.27	31.48
			16QAM	1673.68	V	-55.75	3.78	-51.97	69.19	30.22
			64QAM	1673.64	V	-56.34	3.78	-52.56	69.78	29.61
	848.3	1/5	QPSK	1695.82	V	-56.14	3.79	-52.35	72.89	33.54
			16QAM	1695.82	V	-55.94	3.79	-52.15	71.77	32.62
			64QAM	1695.99	V	-56.10	3.79	-52.31	71.93	31.89

Note 1: Limit Calculation = 43 + 10log$_{10}$ (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.

- Measurement data: With wireless charging pad

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	1/49	QPSK	1667.53	V	-56.12	3.78	-52.34	72.93	33.59
5	826.5	1/24	QPSK	1657.34	V	-55.77	3.78	-51.99	72.14	33.15
3	825.5	1/14	QPSK	1653.53	V	-56.57	3.78	-52.79	73.20	33.41
1.4	848.3	1/5	QPSK	1695.96	V	-55.59	3.79	-51.80	72.17	33.37

Note 1: Limit Calculation = 43 + $10\log_{10}$ (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.

7.6.5 LTE Band 4

- Measurement data: Without wireless charging pad

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	1/0	QPSK	3422.55	H	-55.48	8.24	-47.24	70.53	36.29
			16QAM	3423.01	H	-54.98	8.24	-46.74	69.39	35.65
			64QAM	3422.20	H	-55.28	8.24	-47.04	69.69	34.82
	1732.5	1/0	QPSK	3447.01	H	-55.40	8.32	-47.08	69.79	35.71
			16QAM	3447.52	H	-55.48	8.33	-47.15	68.96	34.81
			64QAM	3447.18	H	-55.61	8.33	-47.28	69.09	33.86
	1745	1/50	QPSK	3490.16	H	-55.26	8.48	-46.78	68.14	34.36
			16QAM	3489.82	H	-55.45	8.47	-46.98	67.81	33.83
			64QAM	3490.30	H	-54.95	8.48	-46.47	67.30	32.88
15	1717.5	1/0	QPSK	3421.59	H	-55.34	8.24	-47.10	70.45	36.35
			16QAM	3421.91	H	-54.67	8.24	-46.43	69.11	35.68
			64QAM	3421.85	H	-54.85	8.24	-46.61	69.29	34.84
	1732.5	1/0	QPSK	3452.48	H	-55.57	8.34	-47.23	70.02	35.79
			16QAM	3451.22	H	-54.82	8.34	-46.48	68.41	34.93
			64QAM	3451.86	H	-55.11	8.34	-46.77	68.70	34.05
	1747.5	1/36	QPSK	3495.58	H	-55.46	8.49	-46.97	68.68	34.71
			16QAM	3494.84	H	-55.64	8.49	-47.15	68.08	33.93
			64QAM	3494.94	H	-54.83	8.49	-46.34	67.27	33.12
10	1715	1/0	QPSK	3421.46	H	-54.89	8.24	-46.65	69.59	35.94
			16QAM	3421.53	H	-54.97	8.24	-46.73	69.09	35.36
			64QAM	3421.03	H	-55.01	8.23	-46.78	69.14	34.61
	1732.5	1/0	QPSK	3455.97	H	-55.54	8.36	-47.18	69.75	35.57
			16QAM	3456.46	H	-55.32	8.36	-46.96	68.66	34.70
			64QAM	3455.67	H	-55.36	8.35	-47.01	68.71	33.96
	1750	1/0	QPSK	3490.39	H	-55.70	8.48	-47.22	68.66	34.44
			16QAM	3491.76	H	-55.28	8.48	-46.80	67.41	33.61
			64QAM	3491.21	H	-54.92	8.48	-46.44	67.05	32.95
5	1712.5	1/0	QPSK	3420.71	H	-54.62	8.23	-46.39	69.42	36.03
			16QAM	3420.13	H	-54.87	8.23	-46.64	69.24	35.60
			64QAM	3420.60	H	-55.30	8.23	-47.07	69.67	34.64
	1732.5	1/0	QPSK	3460.71	H	-55.30	8.37	-46.93	69.89	35.96
			16QAM	3460.30	H	-55.38	8.37	-47.01	69.07	35.06
			64QAM	3460.51	H	-55.14	8.37	-46.77	68.83	34.02
	1752.5	1/0	QPSK	3501.25	H	-55.34	8.51	-46.83	68.70	34.87
			16QAM	3500.31	H	-55.64	8.51	-47.13	68.33	34.20
			64QAM	3500.33	H	-55.54	8.51	-47.03	68.23	33.30

- Measurement data: Without wireless charging pad

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	1/0	QPSK	3420.13	H	-54.91	8.23	-46.68	69.70	36.02
			16QAM	3420.25	H	-54.65	8.23	-46.42	68.99	35.57
			64QAM	3420.39	H	-54.67	8.23	-46.44	69.01	35.01
	1732.5	1/0	QPSK	3462.33	H	-54.71	8.38	-46.33	69.40	36.07
			16QAM	3462.55	H	-54.65	8.38	-46.27	68.65	35.38
			64QAM	3462.02	H	-55.08	8.38	-46.70	69.08	34.55
	1753.5	1/0	QPSK	3504.82	H	-55.43	8.51	-46.92	69.13	35.21
			16QAM	3504.35	H	-55.44	8.51	-46.93	68.36	34.43
			64QAM	3504.50	H	-55.39	8.51	-46.88	68.31	33.66
1.4	1710.7	1/0	QPSK	3420.23	H	-55.05	8.23	-46.82	69.49	35.67
			16QAM	3420.89	H	-54.63	8.23	-46.40	68.23	34.83
			64QAM	3420.14	H	-55.32	8.23	-47.09	68.92	34.23
	1732.5	1/0	QPSK	3463.32	H	-55.09	8.38	-46.71	68.81	35.10
			16QAM	3463.98	H	-54.78	8.38	-46.40	68.21	34.81
			64QAM	3463.59	H	-55.20	8.38	-46.82	68.63	33.78
	1754.3	1/0	QPSK	3507.41	H	-55.51	8.51	-47.00	68.88	34.88
			16QAM	3507.70	H	-54.67	8.51	-46.16	67.24	34.08
			64QAM	3508.07	H	-55.04	8.51	-46.53	67.61	33.33

Note 1: Limit Calculation = 43 + $10\log_{10}$(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.

- Measurement data: With wireless charging pad

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	1/0	QPSK	3422.18	H	-54.61	8.24	-46.37	70.43	37.06
15	1717.5	1/0	QPSK	3423.06	H	-54.28	8.24	-46.04	70.21	37.17
10	1715	1/0	QPSK	3421.61	H	-54.38	8.24	-46.14	69.85	36.71
5	1712.5	1/0	QPSK	3420.88	H	-54.00	8.23	-45.77	69.66	36.89
3	1732.5	1/0	QPSK	3462.64	H	-54.30	8.38	-45.92	69.75	36.83
1.4	1710.7	1/0	QPSK	3420.20	H	-54.33	8.23	-46.10	69.55	36.45

Note 1: Limit Calculation = 43 + $10\log_{10}$(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.

7.6.6 LTE Band 2

- Measurement data: Without wireless charging pad

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	1/0	QPSK	3702.08	H	-54.19	8.49	-45.70	66.16	33.46
			16QAM	3702.15	H	-54.92	8.49	-46.43	66.26	32.83
			64QAM	3702.36	H	-54.98	8.49	-46.49	66.32	31.77
	1880	1/0	QPSK	3741.87	H	-54.82	8.51	-46.31	66.37	33.06
			16QAM	3741.96	H	-55.34	8.51	-46.83	66.28	32.45
			64QAM	3742.33	H	-54.62	8.51	-46.11	65.56	31.36
	1900	1/50	QPSK	3800.88	H	-54.15	8.53	-45.62	64.86	32.24
			16QAM	3800.64	H	-54.37	8.53	-45.84	64.51	31.67
			64QAM	3800.45	H	-54.19	8.53	-45.66	64.33	30.42
15	1857.5	1/0	QPSK	3701.98	H	-54.54	8.49	-46.05	66.71	33.66
			16QAM	3702.03	H	-55.39	8.49	-46.90	66.85	32.95
			64QAM	3702.63	H	-54.62	8.49	-46.13	66.08	31.80
	1880	1/0	QPSK	3747.09	H	-54.88	8.51	-46.37	65.84	32.47
			16QAM	3746.89	H	-54.63	8.51	-46.12	64.74	31.62
			64QAM	3746.73	H	-55.46	8.51	-46.95	65.57	30.14
	1902.5	1/36	QPSK	3805.24	H	-54.71	8.54	-46.17	65.12	31.95
			16QAM	3804.92	H	-54.67	8.54	-46.13	64.30	31.17
			64QAM	3804.51	H	-54.62	8.54	-46.08	64.25	30.36
10	1855	1/0	QPSK	3701.27	H	-55.39	8.49	-46.90	66.78	32.88
			16QAM	3700.65	H	-55.00	8.49	-46.51	65.71	32.20
			64QAM	3701.00	H	-54.76	8.49	-46.27	65.47	30.87
	1880	1/0	QPSK	3751.50	H	-54.37	8.51	-45.86	65.30	32.44
			16QAM	3751.25	H	-54.52	8.51	-46.01	64.51	31.50
			64QAM	3751.67	H	-54.51	8.51	-46.00	64.50	30.45
	1905	1/25	QPSK	3809.58	H	-54.84	8.54	-46.30	65.67	32.37
			16QAM	3810.69	H	-54.96	8.54	-46.42	64.95	31.53
			64QAM	3810.11	H	-54.72	8.54	-46.18	64.71	30.59
5	1852.5	1/0	QPSK	3700.53	H	-55.18	8.49	-46.69	66.63	32.94
			16QAM	3699.71	H	-55.65	8.49	-47.16	66.37	32.21
			64QAM	3700.50	H	-55.02	8.49	-46.53	65.74	31.34
	1880	1/0	QPSK	3755.14	H	-55.24	8.51	-46.73	66.07	32.34
			16QAM	3756.15	H	-54.76	8.51	-46.25	65.00	31.75
			64QAM	3754.99	H	-54.73	8.51	-46.22	64.97	30.43
	1907.5	1/0	QPSK	3810.31	H	-54.76	8.54	-46.22	65.31	32.09
			16QAM	3810.94	H	-54.89	8.54	-46.35	64.81	31.46
			64QAM	3810.96	H	-54.50	8.54	-45.96	64.42	30.83

- Measurement data: Without wireless charging pad

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	1/0	QPSK	3700.72	H	-54.69	8.49	-46.20	65.64	32.44
			16QAM	3700.09	H	-55.08	8.49	-46.59	65.51	31.92
			64QAM	3699.63	H	-54.82	8.49	-46.33	65.25	30.73
	1880	1/0	QPSK	3757.10	H	-55.12	8.51	-46.61	65.86	32.25
			16QAM	3756.79	H	-55.14	8.51	-46.63	65.14	31.51
			64QAM	3758.03	H	-54.47	8.51	-45.96	64.47	30.53
	1908.5	1/0	QPSK	3814.31	H	-54.40	8.55	-45.85	64.60	31.75
			16QAM	3814.64	H	-54.77	8.55	-46.22	64.29	31.07
			64QAM	3814.82	H	-54.74	8.55	-46.19	64.26	30.15
1.4	1850.7	1/0	QPSK	3700.42	H	-54.67	8.49	-46.18	65.46	32.28
			16QAM	3700.29	H	-55.74	8.49	-47.25	65.78	31.53
			64QAM	3700.00	H	-55.18	8.49	-46.69	65.22	30.57
	1880	1/0	QPSK	3758.10	H	-55.14	8.51	-46.63	65.63	32.00
			16QAM	3758.50	H	-55.51	8.51	-47.00	65.46	31.46
			64QAM	3759.28	H	-54.59	8.51	-46.08	64.54	30.18
	1909.3	1/0	QPSK	3817.05	H	-54.13	8.55	-45.58	64.04	31.46
			16QAM	3817.27	H	-54.90	8.55	-46.35	64.03	30.68
			64QAM	3817.82	H	-54.71	8.55	-46.16	63.84	29.71

Note 1: Limit Calculation = 43 + $10\log_{10}$(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.

- Measurement data: With wireless charging pad

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	1/0	QPSK	3702.15	H	-54.14	8.49	-45.65	66.80	34.15
15	1857.5	1/0	QPSK	3702.31	H	-54.51	8.49	-46.02	67.57	34.55
10	1855	1/0	QPSK	3701.85	H	-54.05	8.49	-45.56	66.06	33.50
5	1852.5	1/0	QPSK	3700.41	H	-54.97	8.49	-46.48	67.06	33.58
3	1851.5	1/0	QPSK	3700.61	H	-54.82	8.49	-46.33	66.36	33.03
1.4	1850.7	1/0	QPSK	3700.34	H	-54.98	8.49	-46.49	66.39	32.90

Note 1: Limit Calculation = 43 + $10\log_{10}$(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.

7.6.7 LTE Band 41

- Measurement data: Without wireless charging pad

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	4994.42	H	-51.78	10.10	-41.68	63.07	46.39
			16QAM	4994.54	H	-52.17	10.10	-42.07	62.27	45.20
			64QAM	4994.93	H	-51.91	10.10	-41.81	62.01	43.53
	2593	1/0	QPSK	5168.36	H	-52.01	10.40	-41.61	63.48	46.87
			16QAM	5168.03	H	-51.73	10.40	-41.33	61.88	45.55
			64QAM	5168.54	H	-51.38	10.40	-40.98	61.53	44.21
	2680	1/0	QPSK	5341.88	H	-51.76	10.55	-41.21	58.58	42.37
			16QAM	5342.65	H	-52.40	10.55	-41.85	57.66	40.81
			64QAM	5342.11	H	-52.40	10.55	-41.85	57.66	39.64
15	2503.5	1/0	QPSK	4994.34	H	-52.85	10.10	-42.75	63.75	46.00
			16QAM	4993.56	H	-51.99	10.10	-41.89	61.08	44.19
			64QAM	4993.96	H	-52.36	10.10	-42.26	61.45	43.37
	2593	1/0	QPSK	5173.22	H	-52.22	10.40	-41.82	63.39	46.57
			16QAM	5173.40	H	-51.66	10.40	-41.26	61.46	45.20
			64QAM	5172.44	H	-52.25	10.40	-41.85	62.05	44.29
	2682.5	1/0	QPSK	5352.36	H	-52.19	10.55	-41.64	58.57	41.93
			16QAM	5351.81	H	-51.91	10.55	-41.36	56.91	40.55
			64QAM	5352.09	H	-52.36	10.55	-41.81	57.36	39.36
10	2501	1/0	QPSK	4993.77	H	-51.89	10.10	-41.79	62.62	45.83
			16QAM	4993.55	H	-52.37	10.10	-42.27	62.29	45.02
			64QAM	4993.31	H	-52.17	10.10	-42.07	62.09	44.13
	2593	1/0	QPSK	5177.42	H	-52.11	10.41	-41.70	62.78	46.08
			16QAM	5177.54	H	-52.49	10.41	-42.08	62.19	45.11
			64QAM	5177.17	H	-51.53	10.41	-41.12	61.23	44.27
	2685	1/0	QPSK	5361.47	H	-51.90	10.56	-41.34	58.12	41.78
			16QAM	5361.87	H	-52.06	10.56	-41.50	57.04	40.54
			64QAM	5361.70	H	-51.84	10.56	-41.28	56.82	39.37
5	2498.5	1/0	QPSK	4991.94	H	-52.70	10.10	-42.60	61.90	44.30
			16QAM	4992.54	H	-52.78	10.10	-42.68	60.69	43.01
			64QAM	4992.95	H	-52.71	10.10	-42.61	60.62	42.19
	2593	1/0	QPSK	5182.00	H	-52.43	10.42	-42.01	61.54	44.53
			16QAM	5181.27	H	-52.08	10.42	-41.66	60.23	43.57
			64QAM	5180.99	H	-51.92	10.42	-41.50	60.07	42.34
	2687.5	1/0	QPSK	5370.70	H	-52.17	10.56	-41.61	57.36	40.75
			16QAM	5371.20	H	-52.10	10.56	-41.54	55.66	39.12
			64QAM	5370.28	H	-52.38	10.56	-41.82	55.94	38.52

- Measurement data: With wireless charging pad

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	4994.07	H	-52.36	10.10	-42.26	62.70	45.44
15	2593	1/0	QPSK	5172.62	H	-51.73	10.40	-41.33	61.86	45.53
10	2593	1/0	QPSK	5176.96	H	-51.58	10.41	-41.17	61.79	45.62
5	2593	1/0	QPSK	5181.53	H	-52.39	10.42	-41.97	60.96	43.99

Note 1: Limit Calculation = 55 + 10log$_{10}$ (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.

7.6.8 LTE Band 7

- Measurement data: Without wireless charging pad

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	1/99	QPSK	5037.57	H	-53.09	10.17	-42.92	61.48	43.56
			16QAM	5037.45	H	-53.19	10.17	-43.02	60.50	42.48
			64QAM	5037.72	H	-53.05	10.17	-42.88	60.36	41.59
	2535	1/0	QPSK	5052.42	H	-53.49	10.20	-43.29	62.33	44.04
			16QAM	5052.12	H	-53.28	10.20	-43.08	60.69	42.61
			64QAM	5052.43	H	-53.31	10.20	-43.11	60.72	42.47
	2560	1/0	QPSK	5102.34	H	-53.09	10.28	-42.81	60.68	42.87
			16QAM	5102.29	H	-53.34	10.28	-43.06	60.45	42.39
			64QAM	5102.30	H	-53.07	10.28	-42.79	60.18	41.76
15	2507.5	1/74	QPSK	5027.84	H	-53.45	10.16	-43.29	62.20	43.91
			16QAM	5027.94	H	-52.92	10.16	-42.76	61.05	43.29
			64QAM	5028.23	H	-53.04	10.16	-42.88	61.17	42.18
	2535	1/74	QPSK	5083.05	H	-53.13	10.25	-42.88	62.33	44.45
			16QAM	5083.56	H	-53.15	10.25	-42.90	61.42	43.52
			64QAM	5083.60	H	-53.26	10.25	-43.01	61.53	42.92
	2562.5	1/0	QPSK	5111.75	H	-52.74	10.30	-42.44	61.28	43.84
			16QAM	5111.94	H	-52.90	10.30	-42.60	60.95	43.35
			64QAM	5111.44	H	-53.28	10.30	-42.98	61.33	42.21
10	2505	1/49	QPSK	5018.94	H	-52.91	10.14	-42.77	62.07	44.30
			16QAM	5018.58	H	-52.99	10.14	-42.85	61.28	43.43
			64QAM	5018.74	H	-52.79	10.14	-42.65	61.08	42.40
	2535	1/0	QPSK	5061.24	H	-53.37	10.21	-43.16	62.61	44.45
			16QAM	5061.56	H	-53.24	10.21	-43.03	61.90	43.87
			64QAM	5061.51	H	-53.41	10.21	-43.20	62.07	42.96
	2565	1/0	QPSK	5121.23	H	-52.76	10.32	-42.44	61.32	43.88
			16QAM	5121.54	H	-52.83	10.32	-42.51	60.83	43.32
			64QAM	5121.31	H	-53.17	10.32	-42.85	61.17	42.43
5	2502.5	1/24	QPSK	5009.53	H	-52.97	10.13	-42.84	62.01	44.17
			16QAM	5009.84	H	-53.46	10.13	-43.33	61.60	43.27
			64QAM	5009.99	H	-52.71	10.13	-42.58	60.85	42.46
	2535	1/0	QPSK	5065.82	H	-53.37	10.22	-43.15	62.80	44.65
			16QAM	5065.90	H	-53.38	10.22	-43.16	62.12	43.96
			64QAM	5065.58	H	-52.98	10.22	-42.76	61.72	43.18
	2567.5	1/0	QPSK	5130.68	H	-52.71	10.33	-42.38	61.33	43.95
			16QAM	5130.26	H	-52.92	10.33	-42.59	60.86	43.27
			64QAM	5130.18	H	-52.80	10.33	-42.47	60.74	42.43

Note 1: Limit Calculation = 55 + 10log$_{10}$(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.

- Measurement data: With wireless charging pad

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	2535	1/0	QPSK	5052.53	H	-52.02	10.20	-41.82	62.38	45.56
15	2535	1/74	QPSK	5083.21	H	-52.39	10.25	-42.14	62.96	45.82
10	2505	1/49	QPSK	5018.99	H	-51.72	10.14	-41.58	62.51	45.93
5	2502.5	1/24	QPSK	5009.64	H	-51.97	10.13	-41.84	62.55	45.71

Note 1: Limit Calculation = 55 + 10log$_{10}$ (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 FREQUENCY STABILITY

7.7.1 LTE Band 12,17

OPERATING FREQUENCY : 707.5 MHz
REFERENCE VOLTAGE : 3.85 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	707,500,004	+4	0.0057	0.000000565
100%		-30	707,500,005	+5	0.0071	0.000000707
100%		-20	707,500,009	+9	0.0127	0.000001272
100%		-10	707,500,001	+1	0.0014	0.000000141
100%		0	707,499,999	-1	-0.0014	-0.000000141
100%		+10	707,499,997	-3	-0.0042	-0.000000424
100%		+20	707,500,004	+4	0.0057	0.000000565
100%		+30	707,500,000	0	0.0000	0.000000000
100%		+40	707,500,004	+4	0.0057	0.000000565
100%		+50	707,500,003	+3	0.0042	0.000000424
115%	4.43	+20	707,500,007	+7	0.0099	0.000000989
BATT.ENDPOINT	2.95	+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.

7.7.2 LTE Band 13

OPERATING FREQUENCY : 782 MHz
REFERENCE VOLTAGE : 3.85 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	782,000,004	+4	0.0051	0.000000512
100%		-30	782,000,007	+7	0.0090	0.000000895
100%		-20	782,000,003	+3	0.0038	0.000000384
100%		-10	782,000,006	+6	0.0077	0.000000767
100%		0	782,000,001	+1	0.0013	0.000000128
100%		+10	782,000,005	+5	0.0064	0.000000639
100%		+20	782,000,004	+4	0.0051	0.000000512
100%		+30	782,000,003	+3	0.0038	0.000000384
100%		+40	781,999,999	-1	-0.0013	-0.000000128
100%		+50	782,000,004	+4	0.0051	0.000000512
115%	4.43	+20	781,999,994	-6	-0.0077	-0.000000767
BATT.ENDPOINT	2.95	+20	782,000,001	+1	0.0013	0.000000128

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.

7.7.3 LTE Band 5

OPERATING FREQUENCY : 836.5 MHz
REFERENCE VOLTAGE : 3.85 VDC
DEVIATION LIMIT : ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	836,500,001	+1	0.0012	0.000000120
100%		-30	836,500,003	+3	0.0036	0.000000359
100%		-20	836,499,997	-3	-0.0036	-0.000000359
100%		-10	836,500,003	+3	0.0036	0.000000359
100%		0	836,500,008	+8	0.0096	0.000000956
100%		+10	836,499,999	-1	-0.0012	-0.000000120
100%		+20	836,500,001	+1	0.0012	0.000000120
100%		+30	836,500,003	+3	0.0036	0.000000359
100%		+40	836,499,997	-3	-0.0036	-0.000000359
100%		+50	836,499,999	-1	-0.0012	-0.000000120
115%	4.43	+20	836,500,004	+4	0.0048	0.000000478
BATT.ENDPOINT	2.95	+20	836,500,003	+3	0.0036	0.000000359

7.7.4 LTE Band 4

OPERATING FREQUENCY : 1732.5 MHz
REFERENCE VOLTAGE 3.85 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	1,732,500,004	+4	0.0023	0.000000231
100%		-30	1,732,500,007	+7	0.0040	0.000000404
100%		-20	1,732,500,003	+3	0.0017	0.000000173
100%		-10	1,732,500,001	+1	0.0006	0.000000058
100%		0	1,732,499,996	-4	-0.0023	-0.000000231
100%		+10	1,732,500,005	+5	0.0029	0.000000289
100%		+20	1,732,500,004	+4	0.0023	0.000000231
100%		+30	1,732,500,003	+3	0.0017	0.000000173
100%		+40	1,732,500,001	+1	0.0006	0.000000058
100%		+50	1,732,500,004	+4	0.0023	0.000000231
115%	4.43	+20	1,732,500,002	+2	0.0012	0.000000115
BATT.ENDPOINT	2.95	+20	1,732,499,997	-3	-0.0017	-0.000000173

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.

7.7.5 LTE Band 2

OPERATING FREQUENCY : 1880 MHz
REFERENCE VOLTAGE 3.85 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	1,880,000,006	+6	0.0032	0.000000319
100%		-30	1,879,999,999	-1	-0.0005	-0.000000053
100%		-20	1,879,999,997	-3	-0.0016	-0.000000160
100%		-10	1,880,000,004	+4	0.0021	0.000000213
100%		0	1,879,999,997	-3	-0.0016	-0.000000160
100%		+10	1,880,000,007	+7	0.0037	0.000000372
100%		+20	1,880,000,006	+6	0.0032	0.000000319
100%		+30	1,880,000,008	+8	0.0043	0.000000426
100%		+40	1,879,999,997	-3	-0.0016	-0.000000160
100%		+50	1,879,999,999	-1	-0.0005	-0.000000053
115%	4.43	+20	1,880,000,003	+3	0.0016	0.000000160
BATT.ENDPOINT	2.95	+20	1,880,000,007	+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.

7.7.6 LTE Band 41

OPERATING FREQUENCY : 2593 MHz
REFERENCE VOLTAGE 3.85 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	2,592,999,996	-4	-0.0015	-0.000000154
100%		-30	2,592,999,999	-1	-0.0004	-0.000000039
100%		-20	2,592,999,997	-3	-0.0012	-0.000000116
100%		-10	2,593,000,001	+1	0.0004	0.000000039
100%		0	2,593,000,008	+8	0.0031	0.000000309
100%		+10	2,593,000,003	+3	0.0012	0.000000116
100%		+20	2,592,999,996	-4	-0.0015	-0.000000154
100%		+30	2,593,000,007	+7	0.0027	0.000000270
100%		+40	2,593,000,003	+3	0.0012	0.000000116
100%		+50	2,592,999,998	-2	-0.0008	-0.000000077
115%	4.43	+20	2,592,999,996	-4	-0.0015	-0.000000154
BATT.ENDPOINT	2.95	+20	2,592,999,999	-1	-0.0004	-0.000000039

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.

7.7.7 LTE Band 7

OPERATING FREQUENCY : 2535 MHz
REFERENCE VOLTAGE : 3.85 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	2,535,000,003	+3	0.0012	0.000000118
100%		-30	2,535,000,007	+7	0.0028	0.000000276
100%		-20	2,535,000,003	+3	0.0012	0.000000118
100%		-10	2,535,000,004	+4	0.0016	0.000000158
100%		0	2,535,000,000	0	0.0000	0.000000000
100%		+10	2,535,000,001	+1	0.0004	0.000000039
100%		+20	2,535,000,003	+3	0.0012	0.000000118
100%		+30	2,535,000,004	+4	0.0016	0.000000158
100%		+40	2,535,000,003	+3	0.0012	0.000000118
100%		+50	2,535,000,005	+5	0.0020	0.000000197
115%	4.43	+20	2,534,999,999	-1	-0.0004	-0.000000039
BATT.ENDPOINT	2.95	+20	2,535,000,003	+3	0.0012	0.000000118

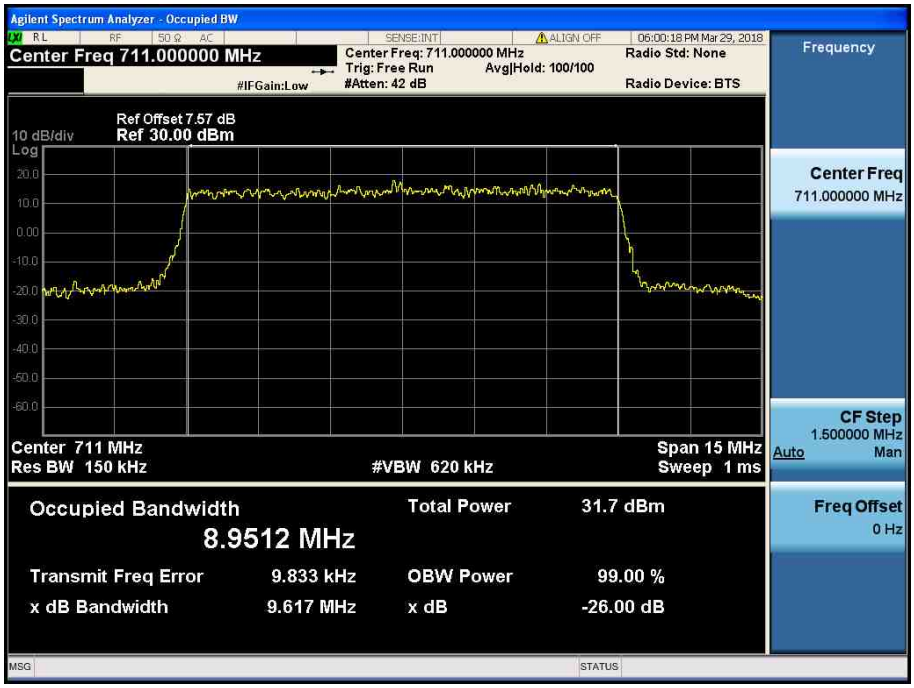
Note. Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. as such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability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

8. TEST PLOTS

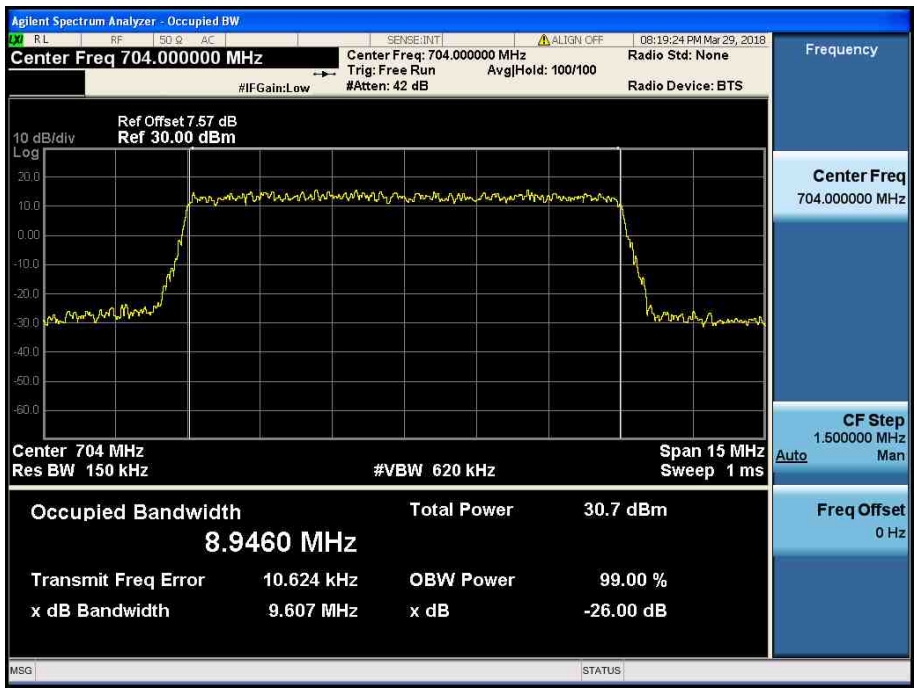
Note: All bandwidths, RB configurations, and modulations were investigated.
The worst case test results are reported.

8.1 OCCUPIED BANDWIDTH

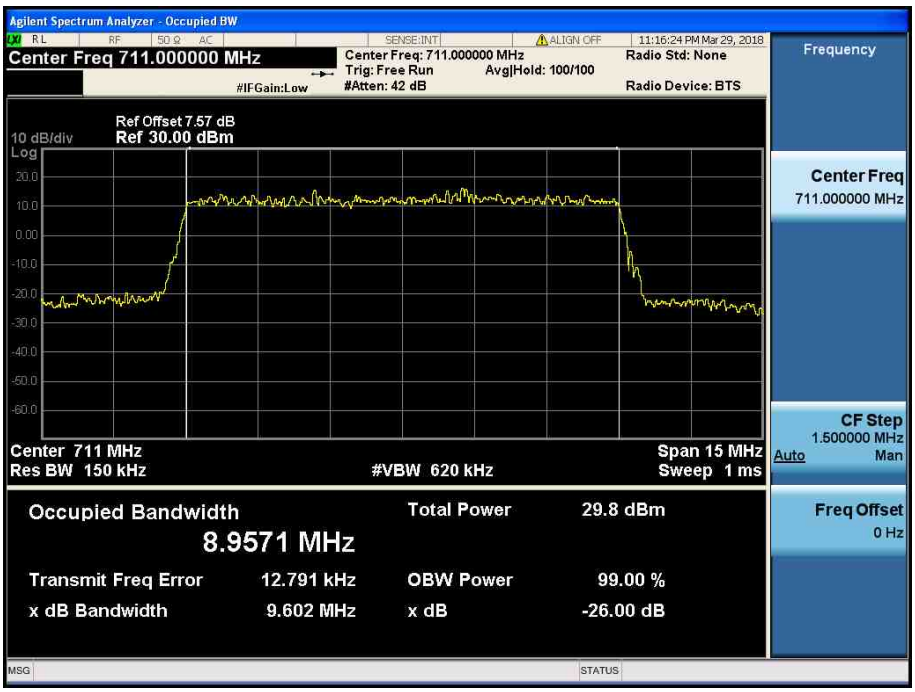
8.1.1 LTE Band 12,17



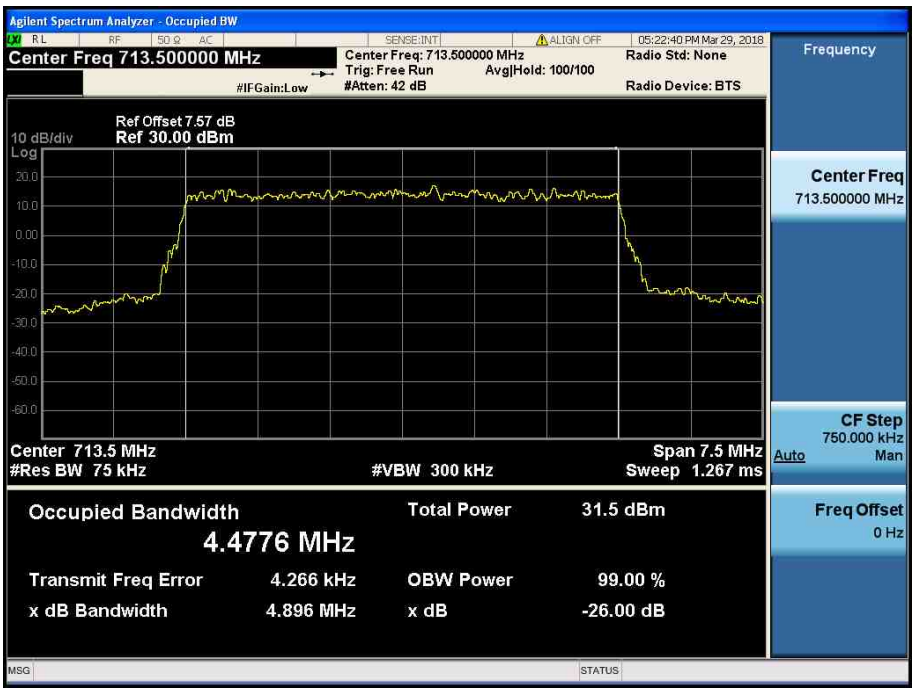
LTE Band 12,17 / 10 MHz / QPSK - RB Size 50



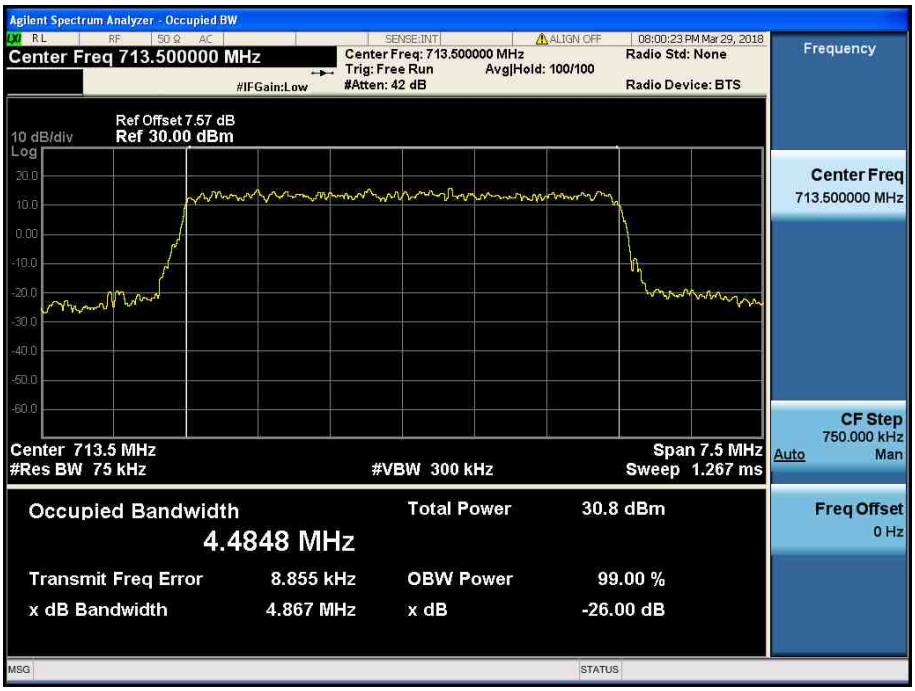
LTE Band 12,17 / 10 MHz / 16QAM - RB Size 50



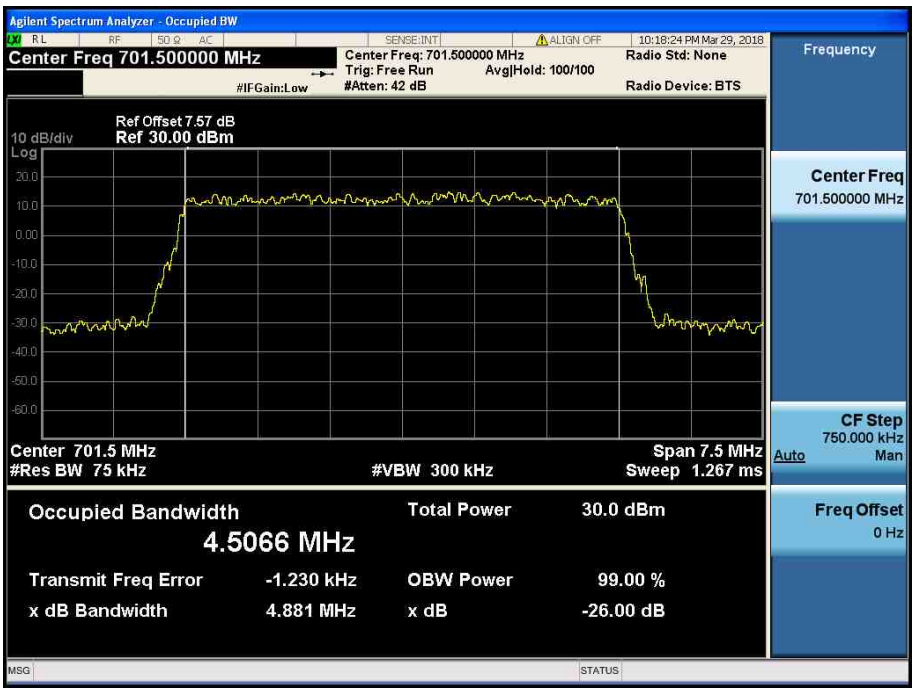
LTE Band 12,17 / 10 MHz / 64QAM- RB Size 50



LTE Band 12,17 / 5 MHz / QPSK - RB Size 25



LTE Band 12,17 / 5 MHz / 16QAM - RB Size 25

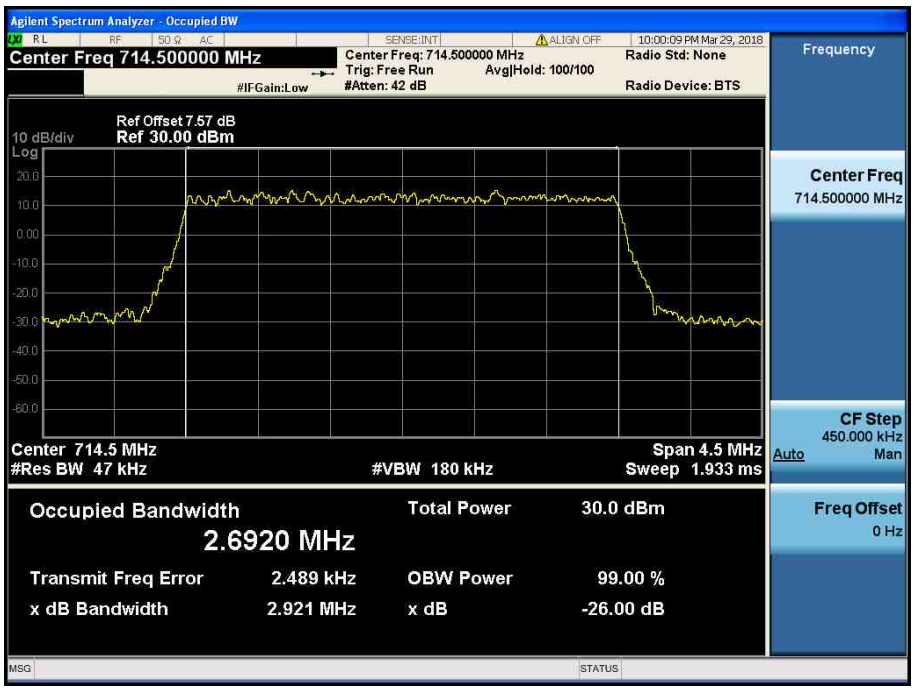


LTE Band 12,17 / 5 MHz / 64QAM - RB Size 25

8.1.2 LTE Band 12

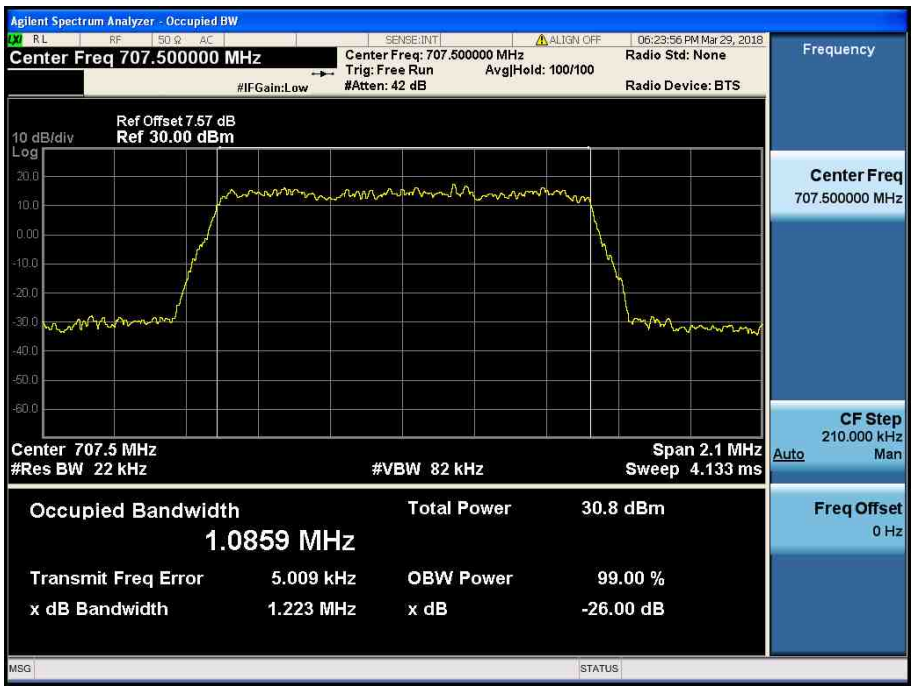
LTE Band 12 / 3 MHz / QPSK - RB Size 15

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

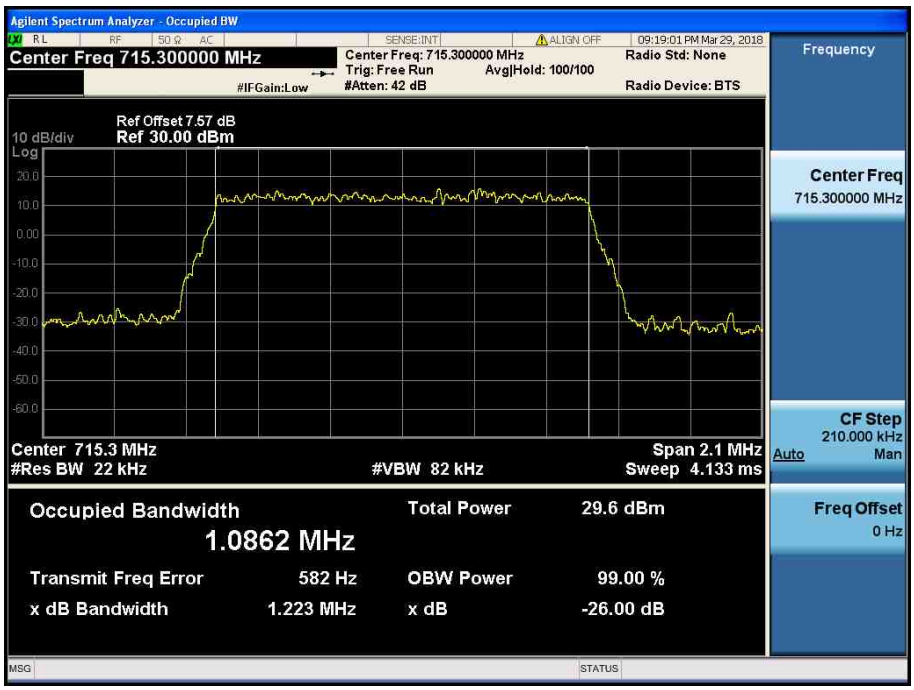


LTE Band 12 / 3 MHz / 64QAM - RB Size 15

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

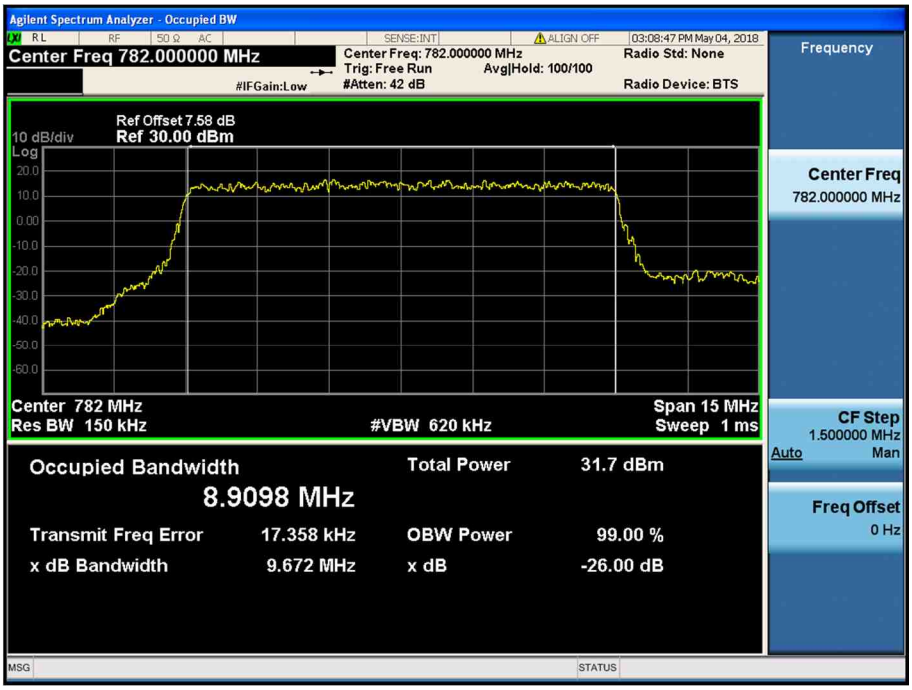


LTE Band 12 / 1.4 MHz / 16QAM - RB Size 6

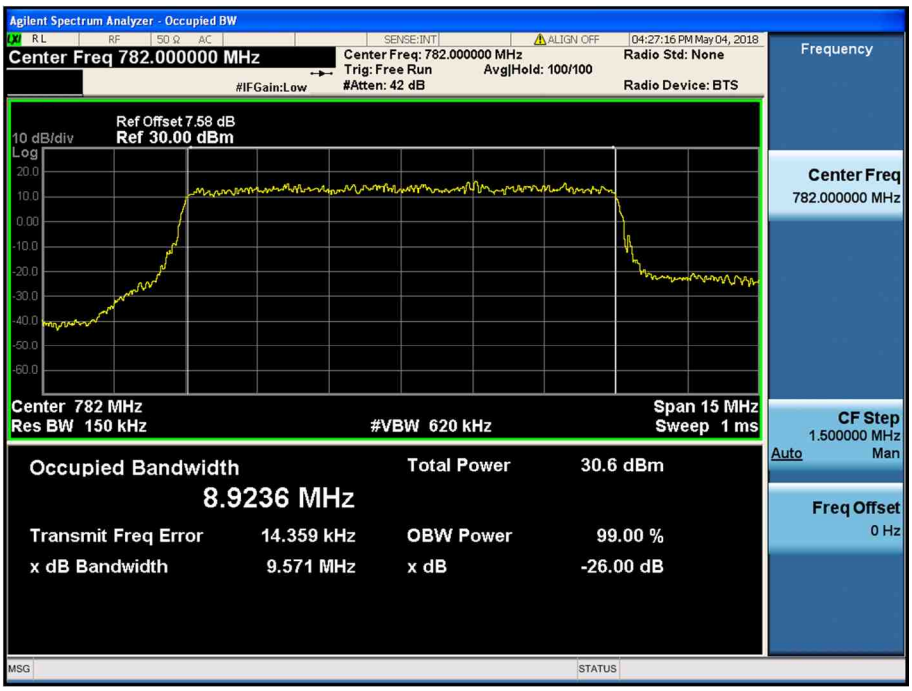


LTE Band 12 / 1.4 MHz / 64QAM - RB Size 6

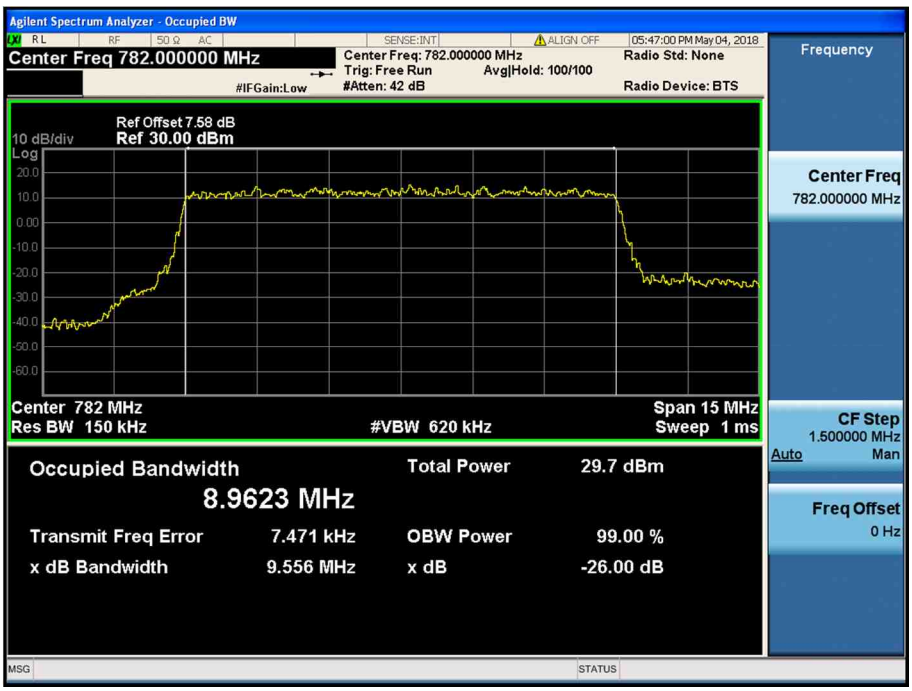
8.1.3 LTE Band 13



LTE Band 13 / 10 MHz / QPSK - RB Size 50

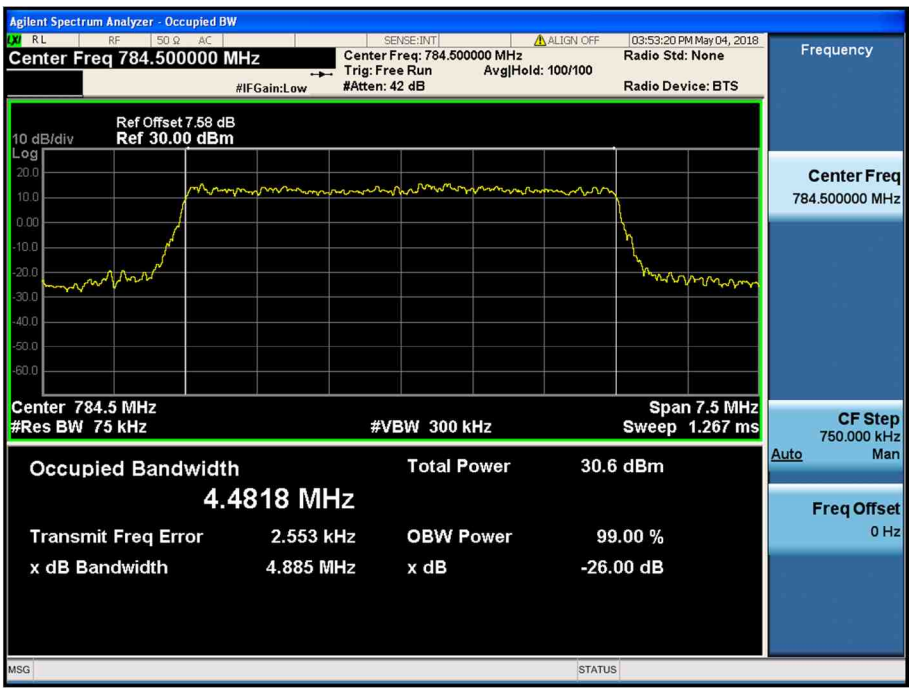


LTE Band 13 / 10 MHz / 16QAM - RB Size 50

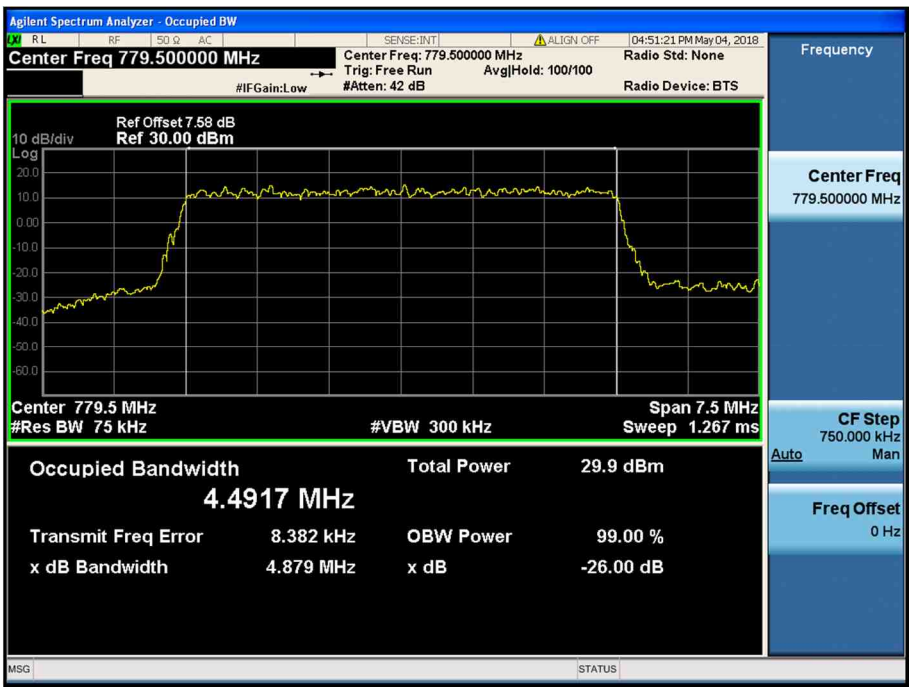


LTE Band 13 / 10 MHz / 64QAM - RB Size 50

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

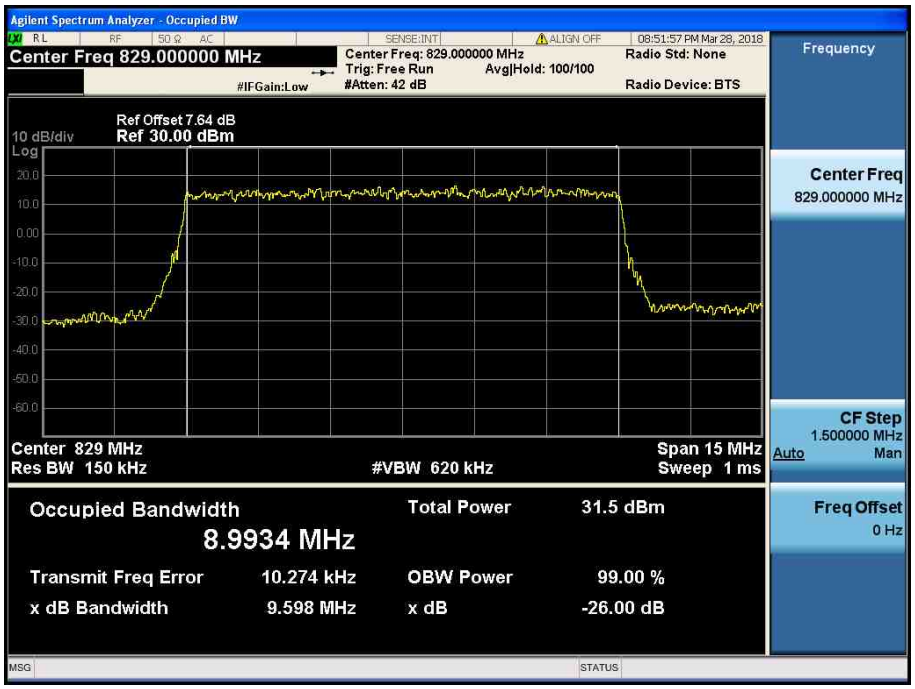


LTE Band 13 / 5 MHz / 16QAM - RB Size 25



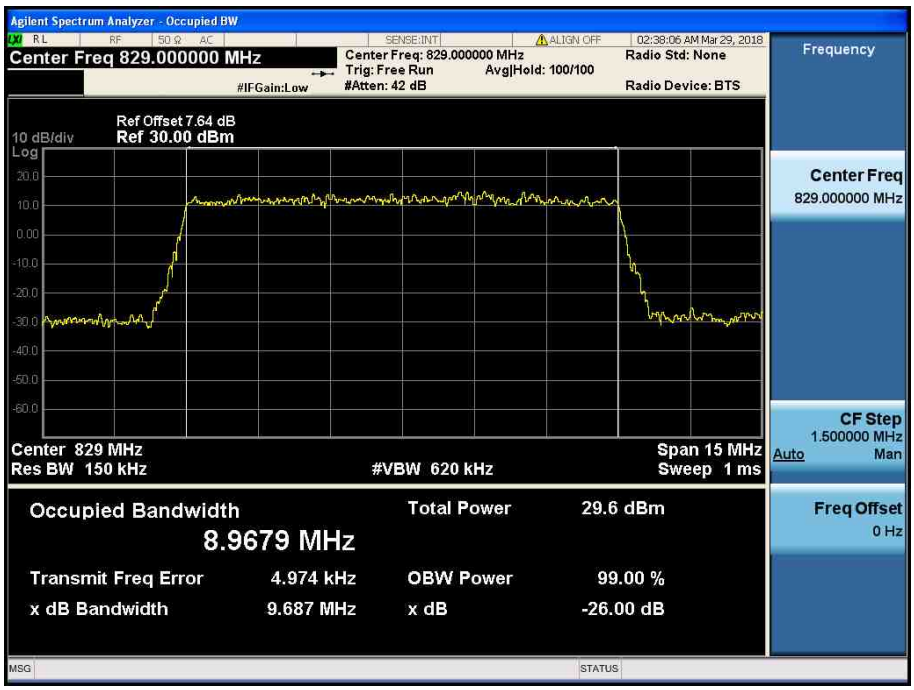
LTE Band 13 / 5 MHz / 64QAM - RB Size 25

8.1.4 LTE Band 5

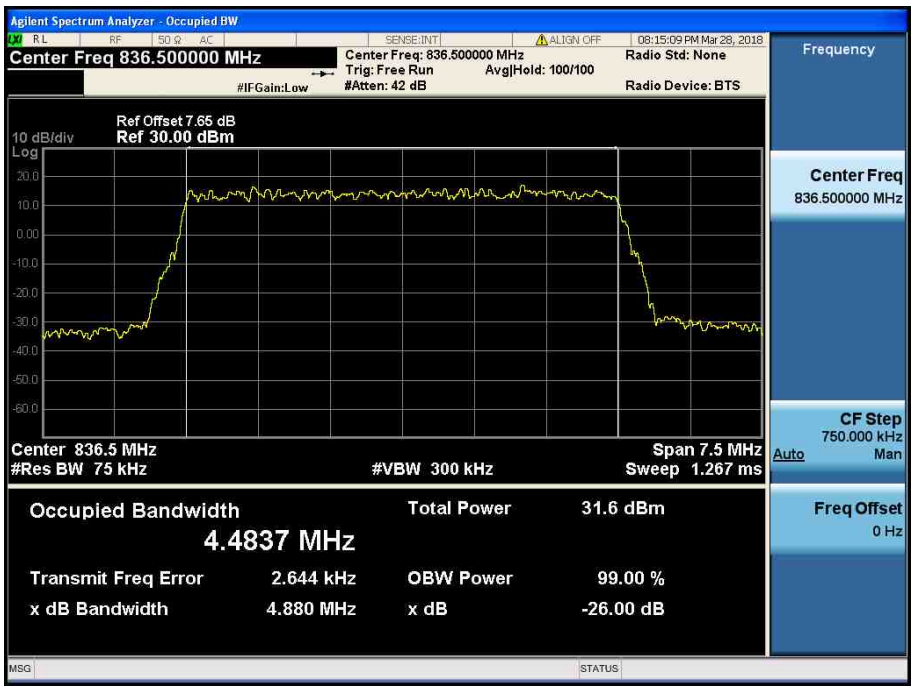


LTE Band 5 / 10 MHz / QPSK - RB Size 50

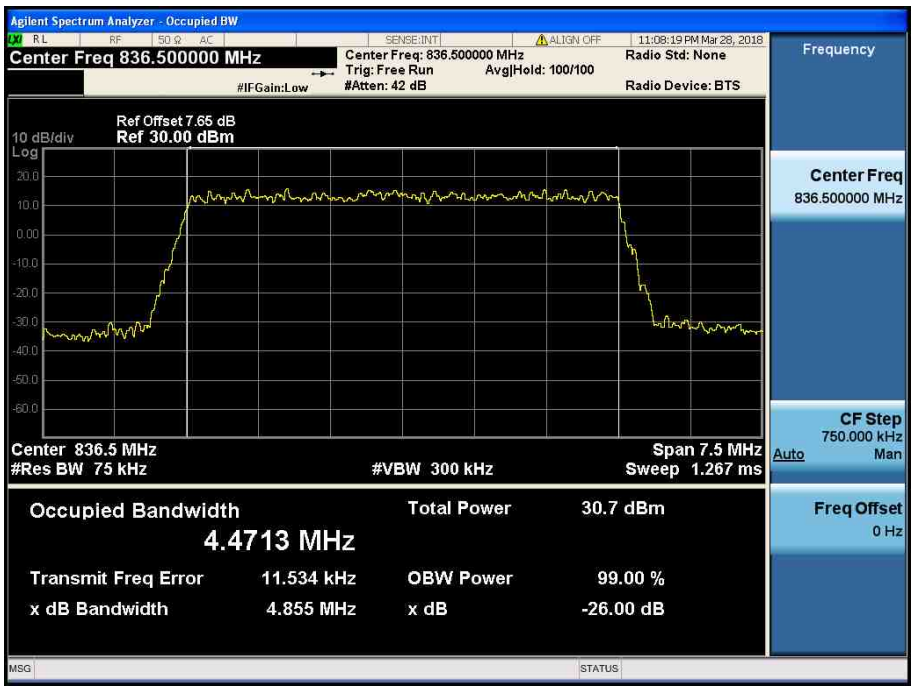
LTE Band 5 / 10 MHz / 16QAM - RB Size 50



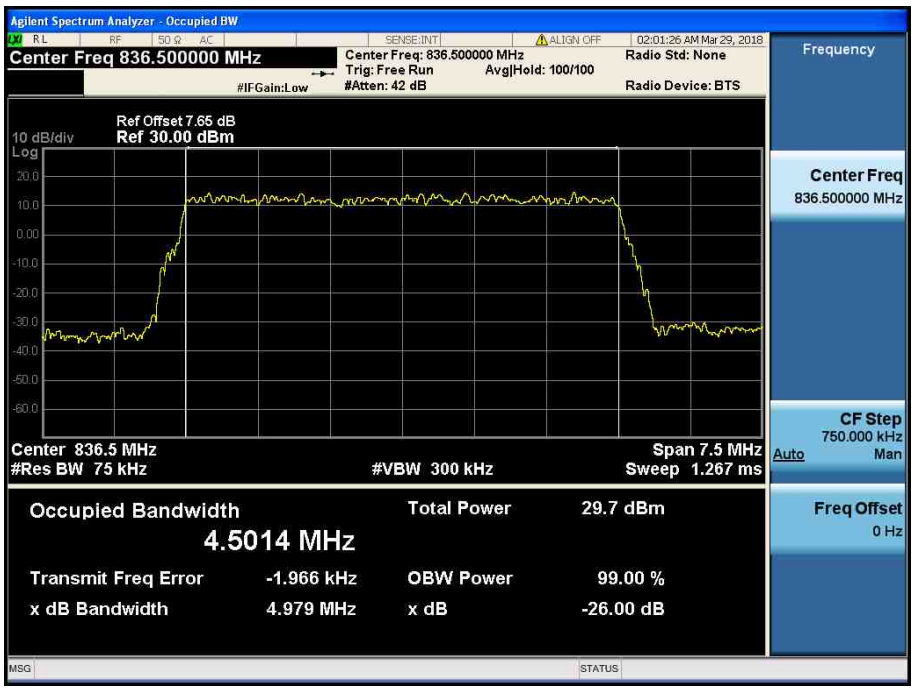
LTE Band 5 / 10 MHz / 64QAM - RB Size 50



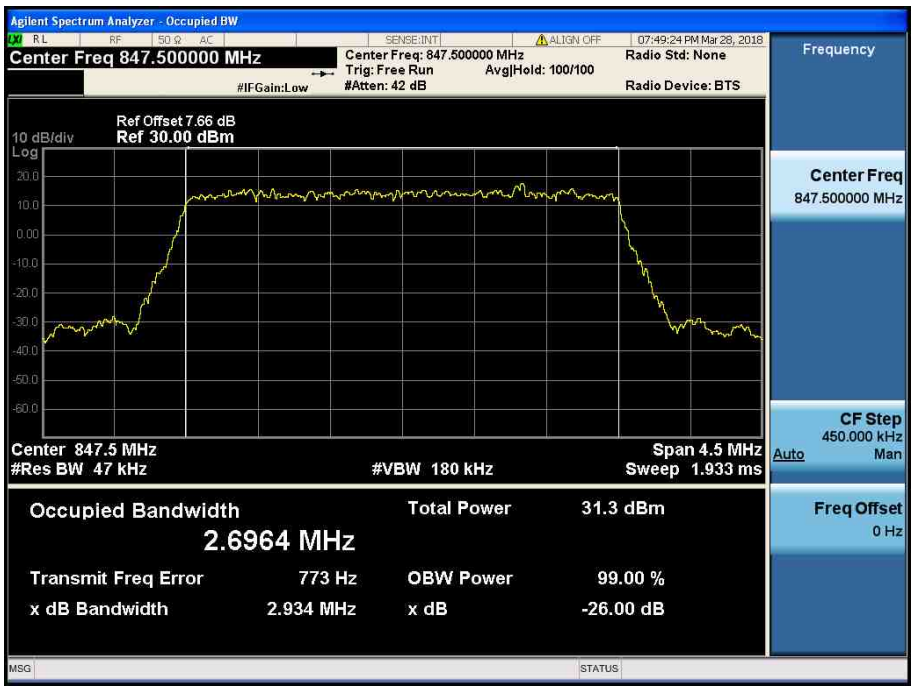
LTE Band 5 / 5 MHz / QPSK - RB Size 25



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



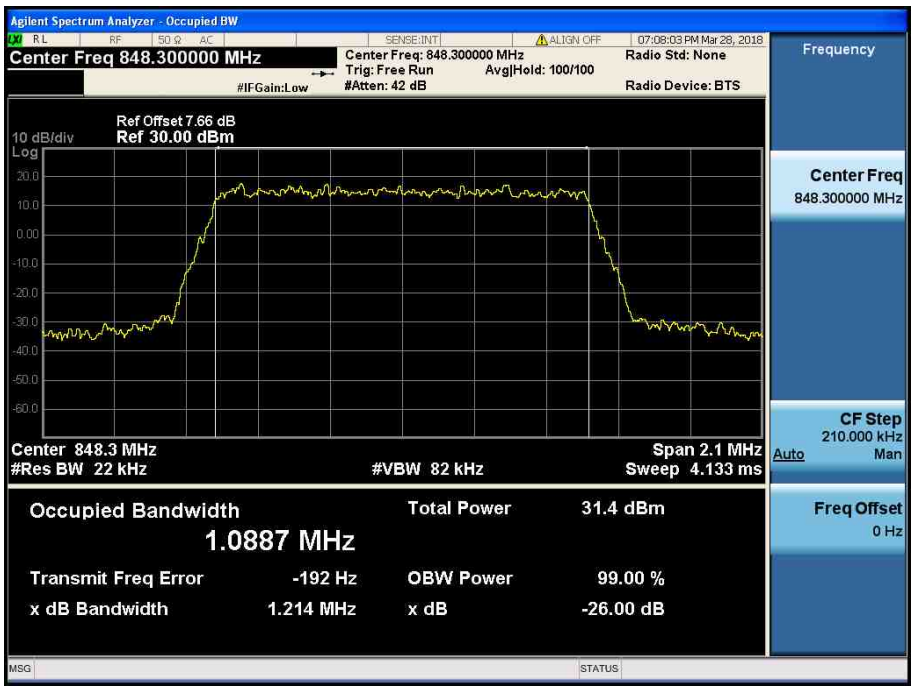
LTE Band 5 / 5 MHz / 64QAM - RB Size 25



LTE Band 5 / 3 MHz / QPSK - RB Size 15

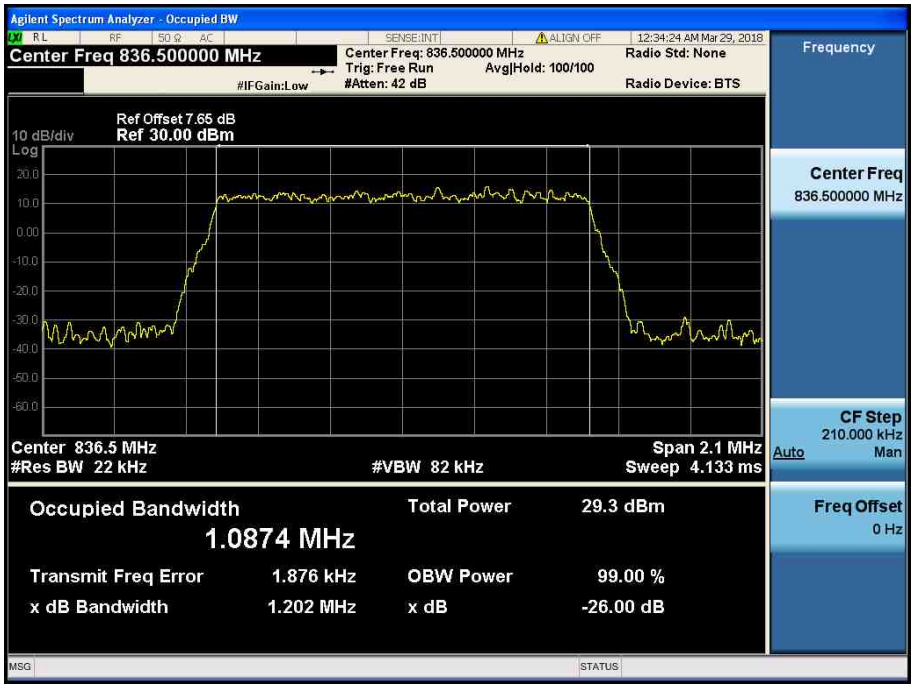
LTE Band 5 / 3 MHz / 16QAM - RB Size 15

LTE Band 5 / 3 MHz / 64QAM - RB Size 15



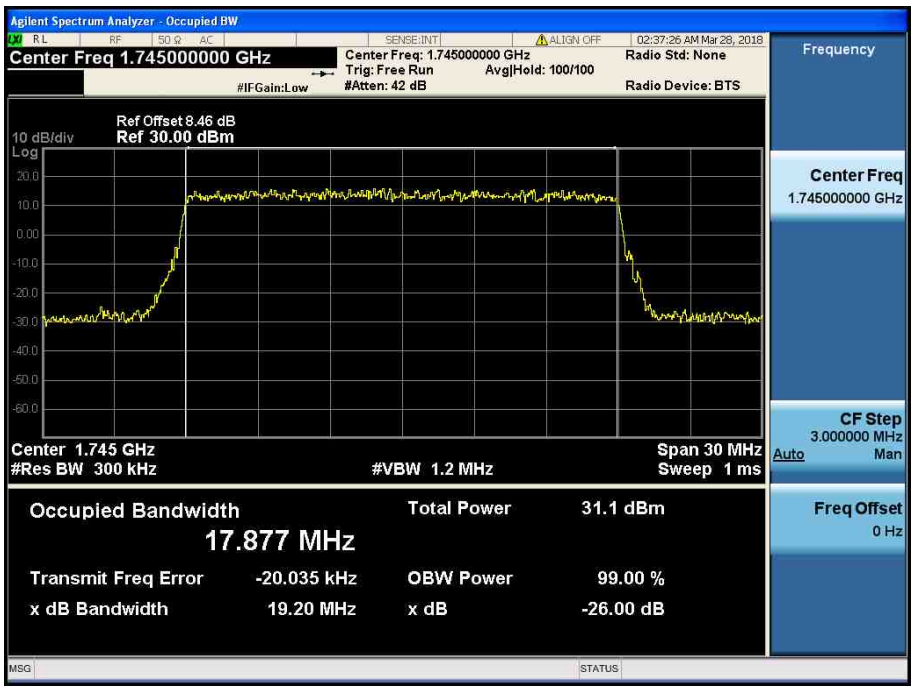
LTE Band 5 / 1.4 MHz / QPSK - RB Size 6

LTE Band 5 / 1.4 MHz / 16QAM - RB Size 6

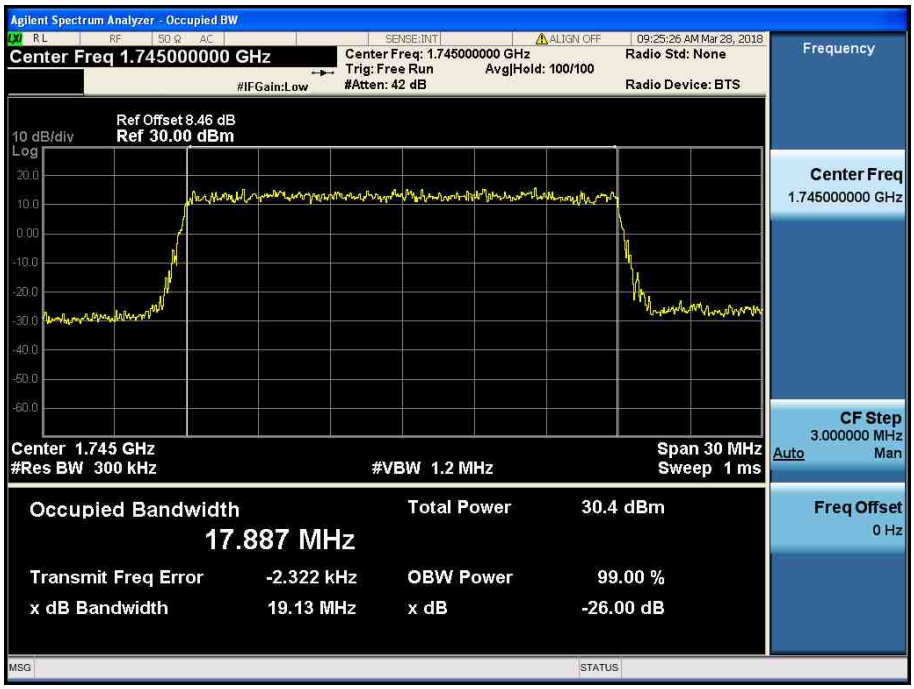


LTE Band 5 / 1.4 MHz / 64QAM - RB Size 6

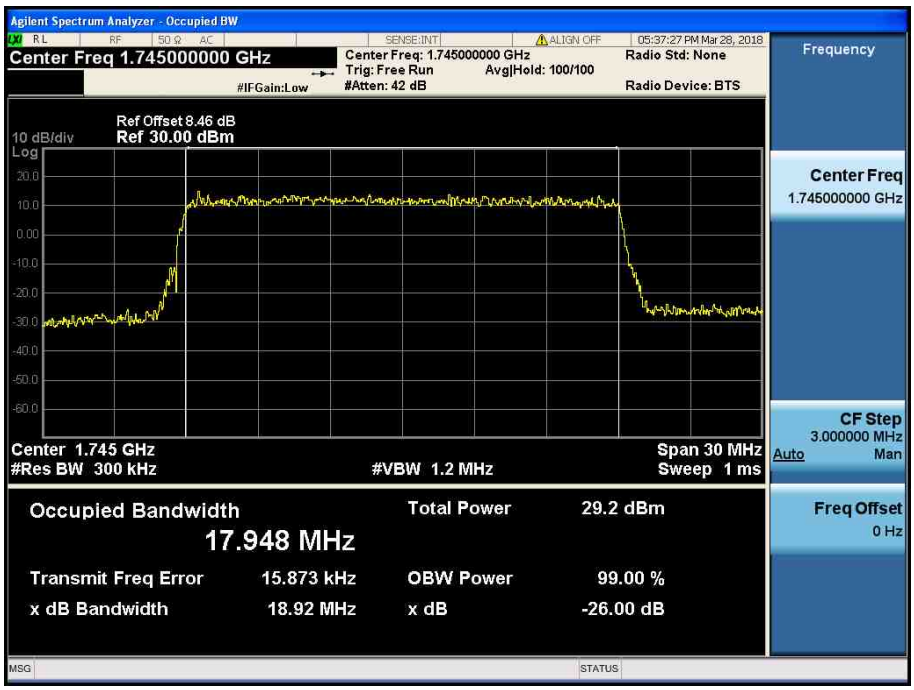
8.1.5 LTE Band 4



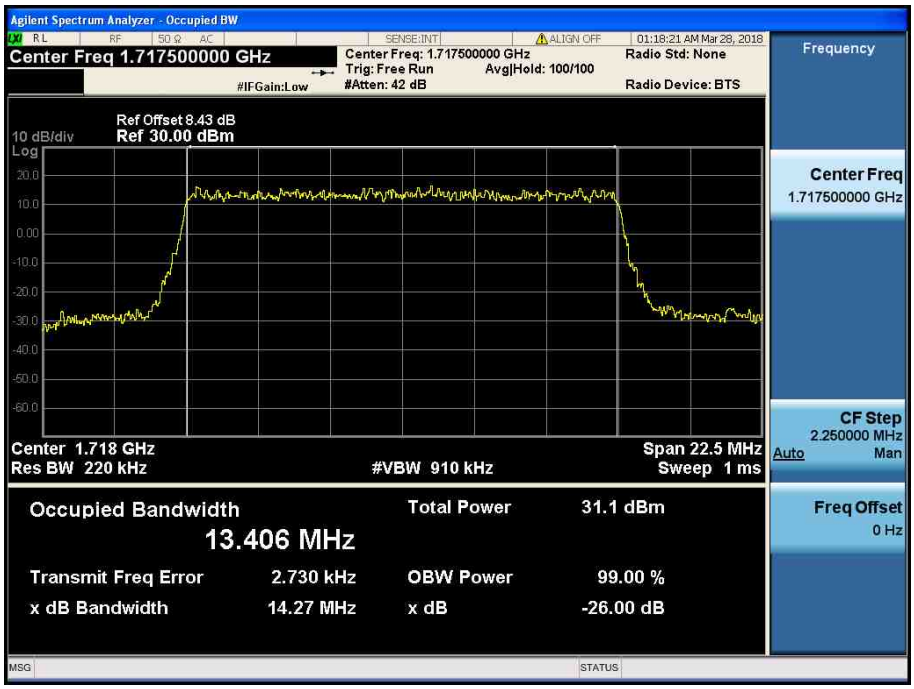
LTE Band 4 / 20 MHz / QPSK - RB Size 100



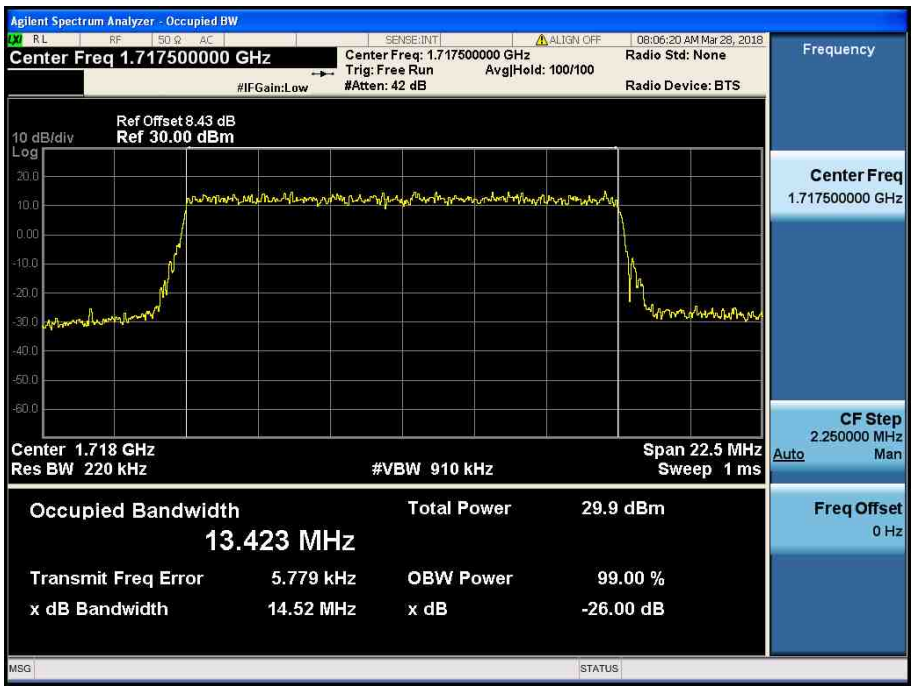
LTE Band 4 / 20 MHz / 16QAM - RB Size 100



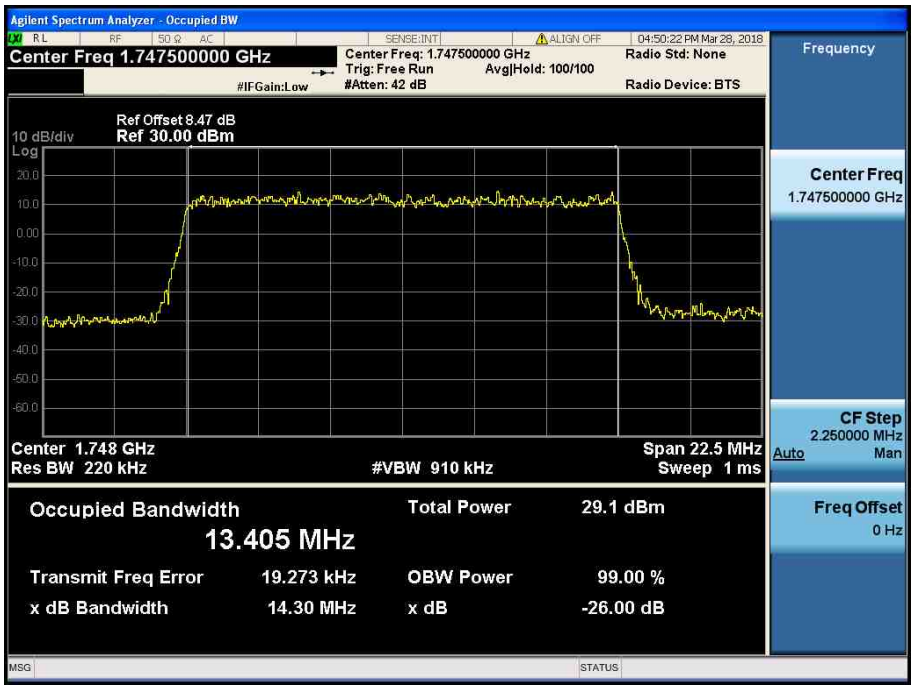
LTE Band 4 / 20 MHz / 64QAM - RB Size 100



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

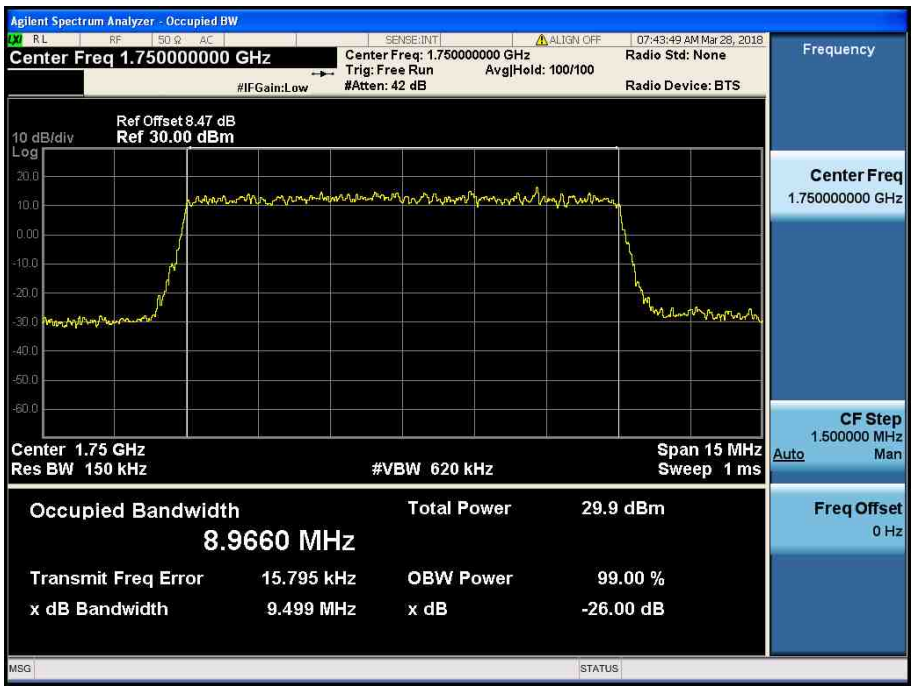


LTE Band 4 / 15 MHz / 16QAM - RB Size 75



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

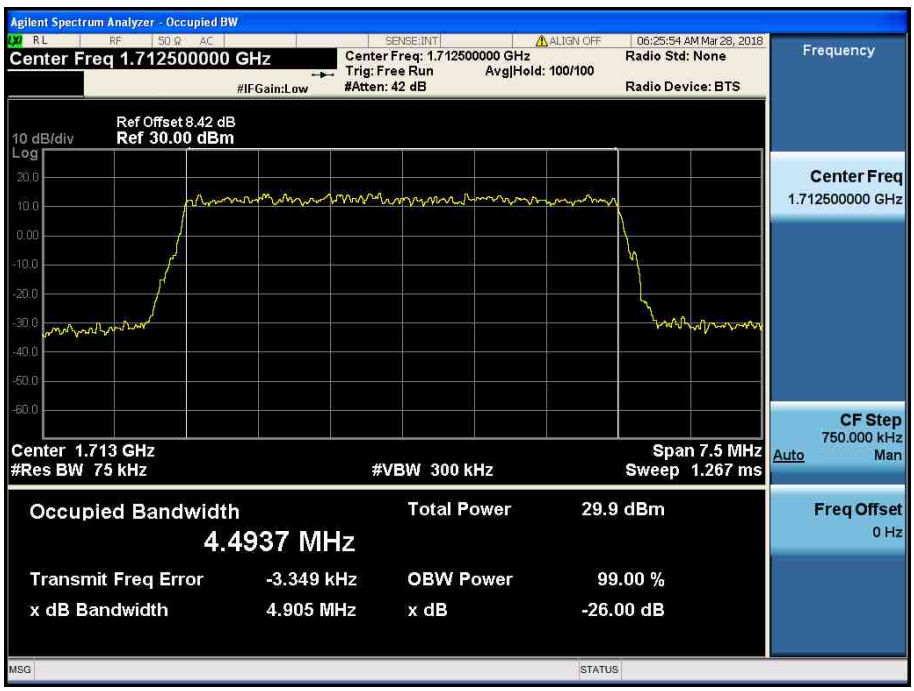
LTE Band 4 / 10 MHz / QPSK - RB Size 50



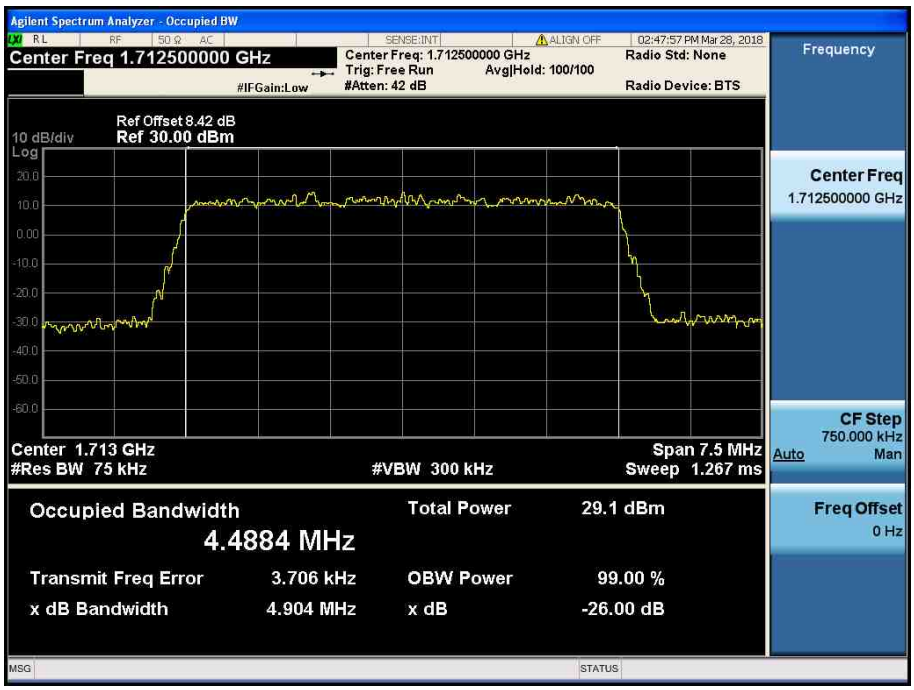
LTE Band 4 / 10 MHz / 16QAM - RB Size 50

LTE Band 4 / 10 MHz / 64QAM - RB Size 50

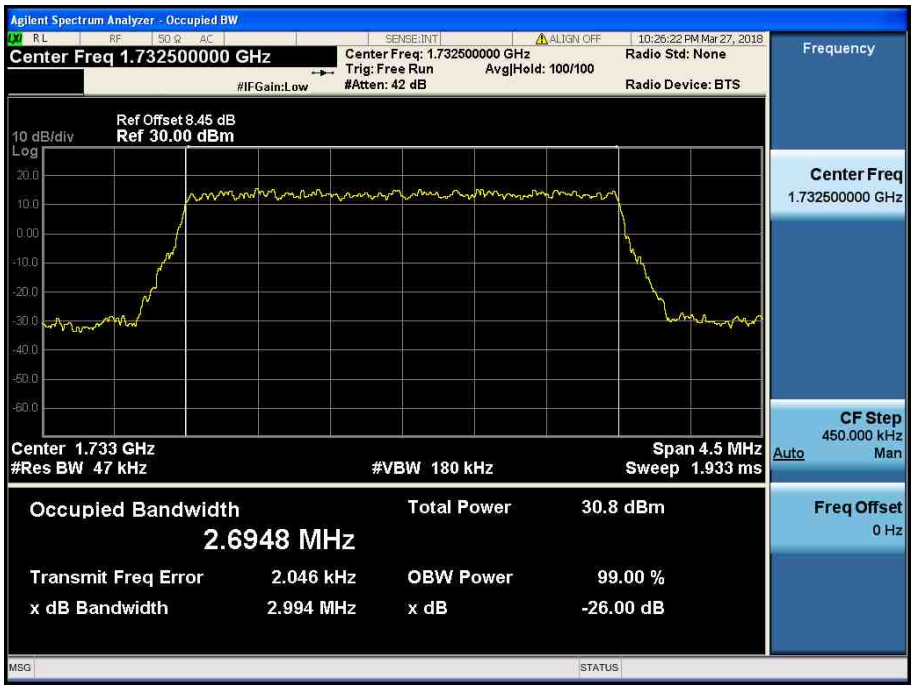
LTE Band 4 / 5 MHz / QPSK - RB Size 25



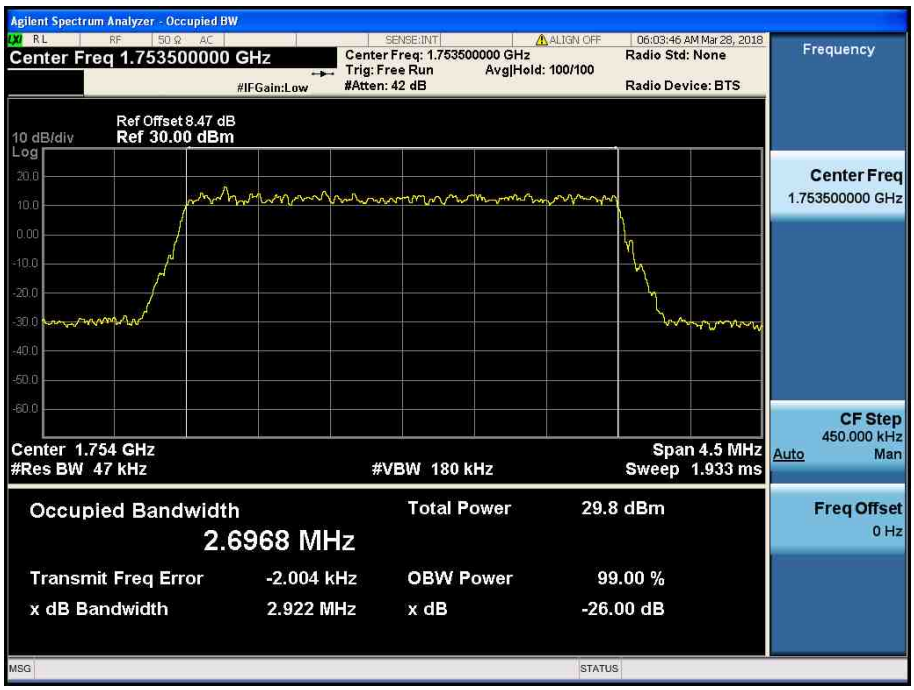
LTE Band 4 / 5 MHz / 16QAM - RB Size 25



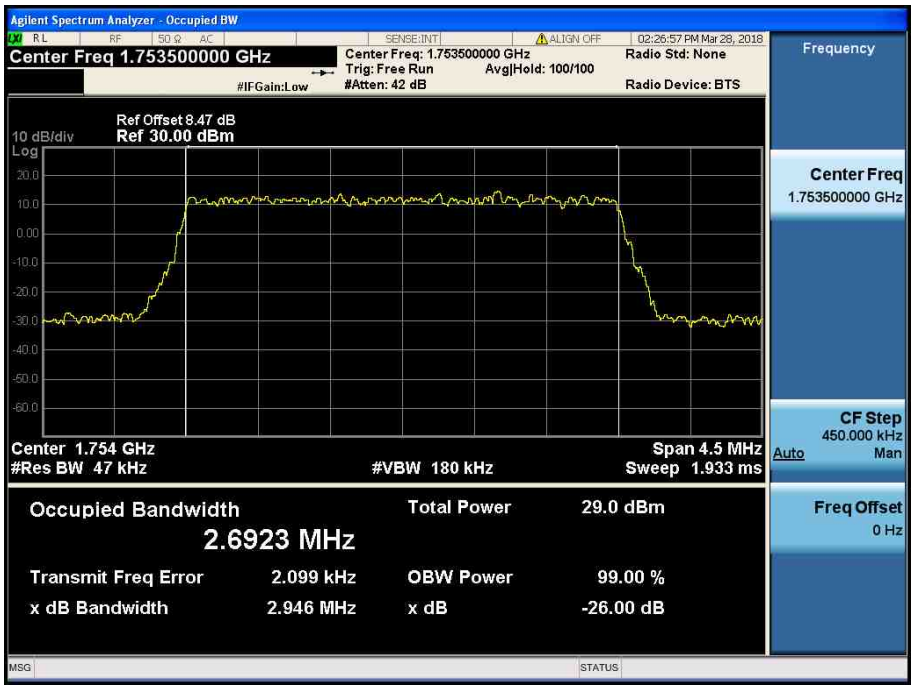
LTE Band 4 / 5 MHz / 64QAM - RB Size 25



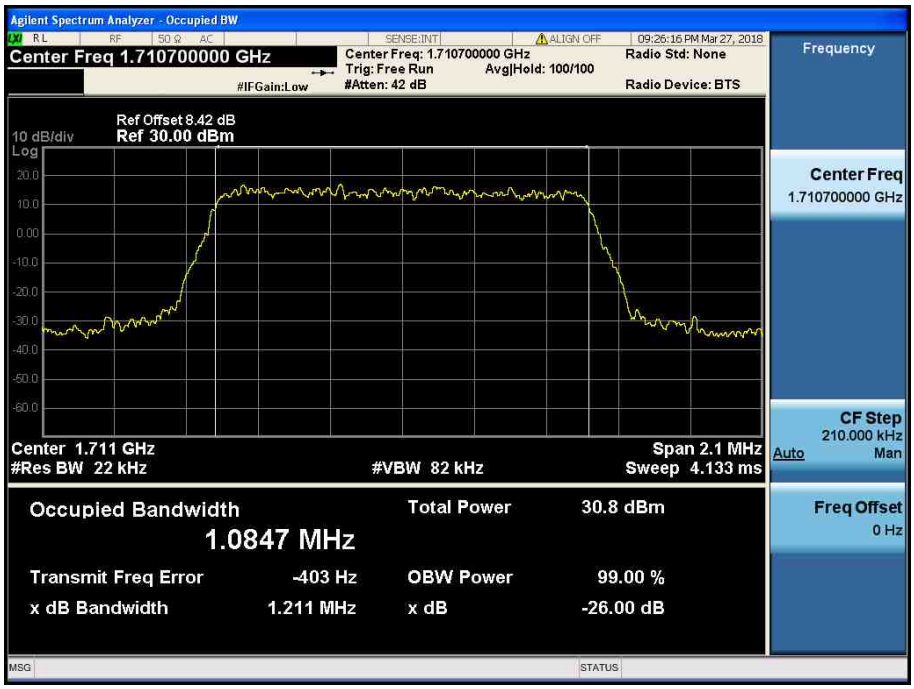
LTE Band 4 / 3 MHz / QPSK - RB Size 15



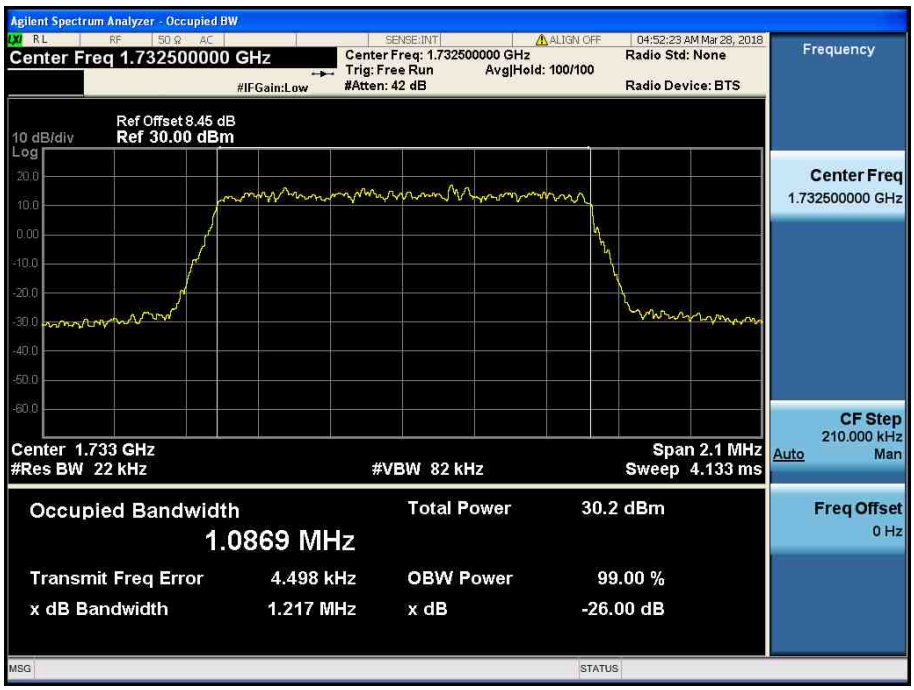
LTE Band 4 / 3 MHz / 16QAM - RB Size 15



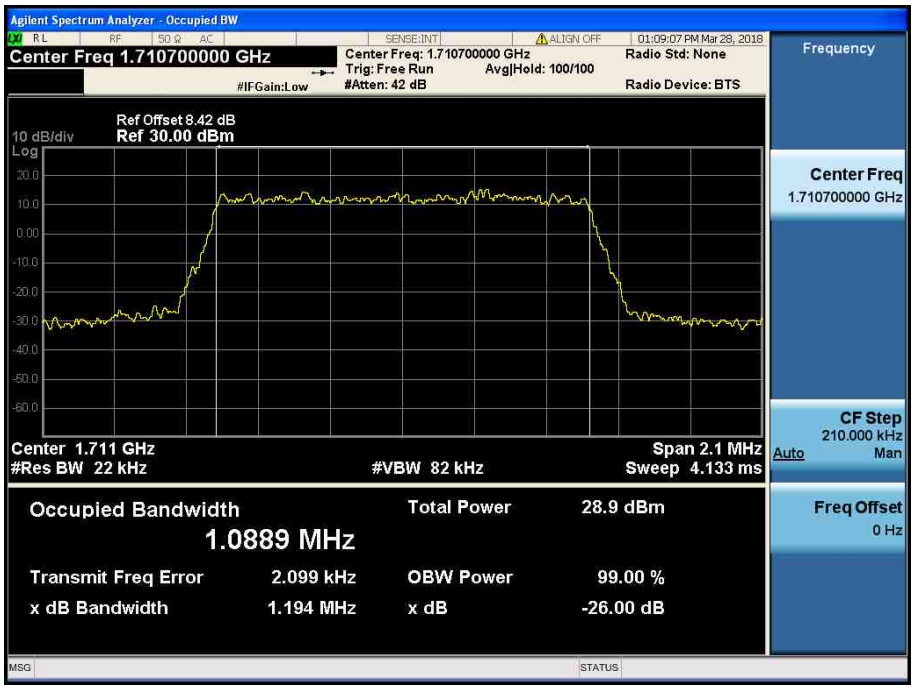
LTE Band 4 / 3 MHz / 64QAM - RB Size 15



LTE Band 4 / 1.4 MHz / QPSK - RB Size 6

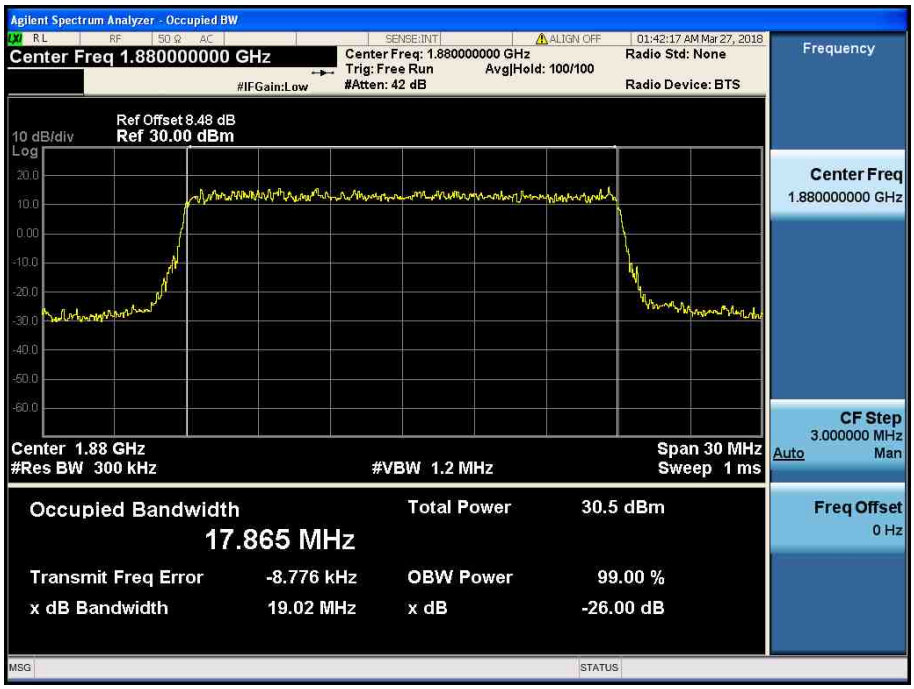


LTE Band 4 / 1.4 MHz / 16QAM - RB Size 6

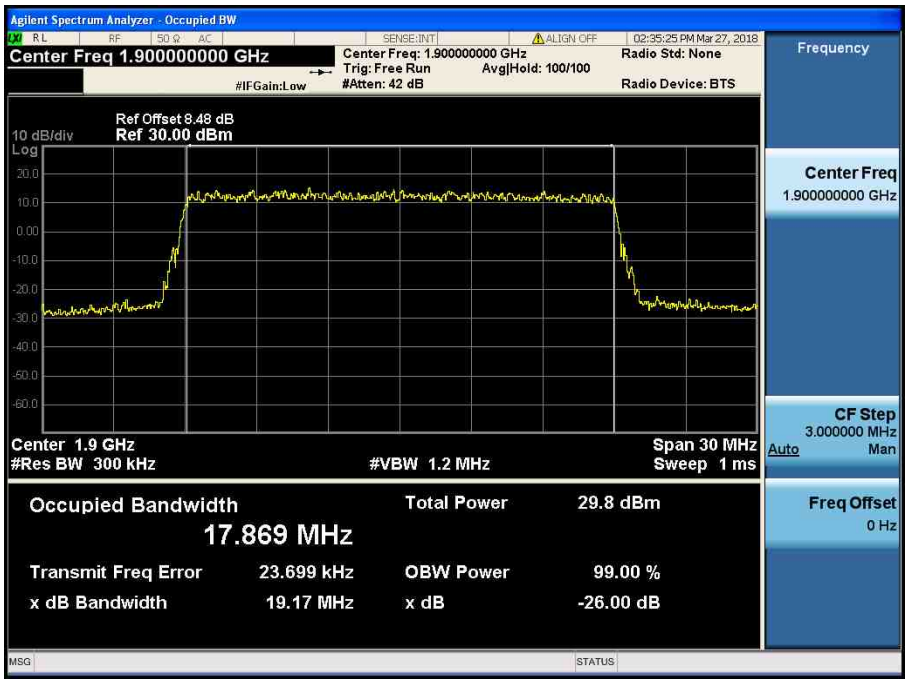


LTE Band 4 / 1.4 MHz / 64QAM - RB Size 6

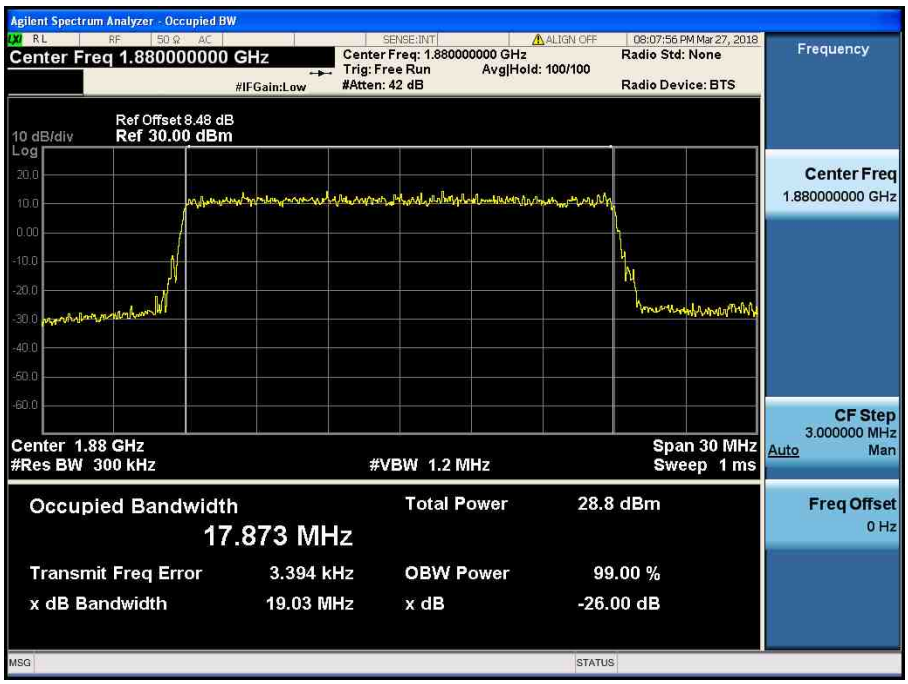
8.1.6 LTE Band 2



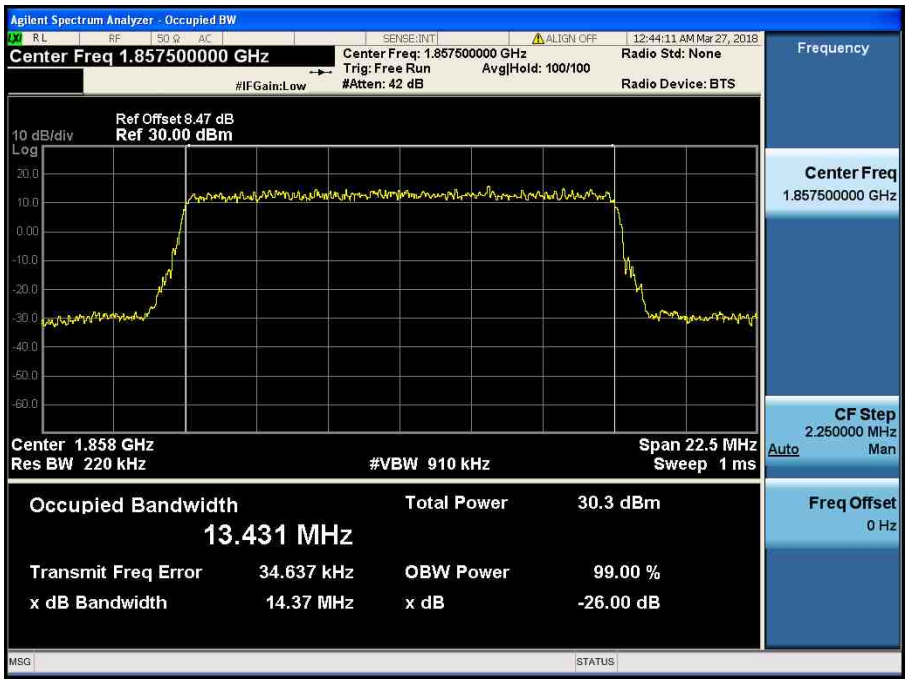
LTE Band 2 / 20 MHz / QPSK - RB Size 100



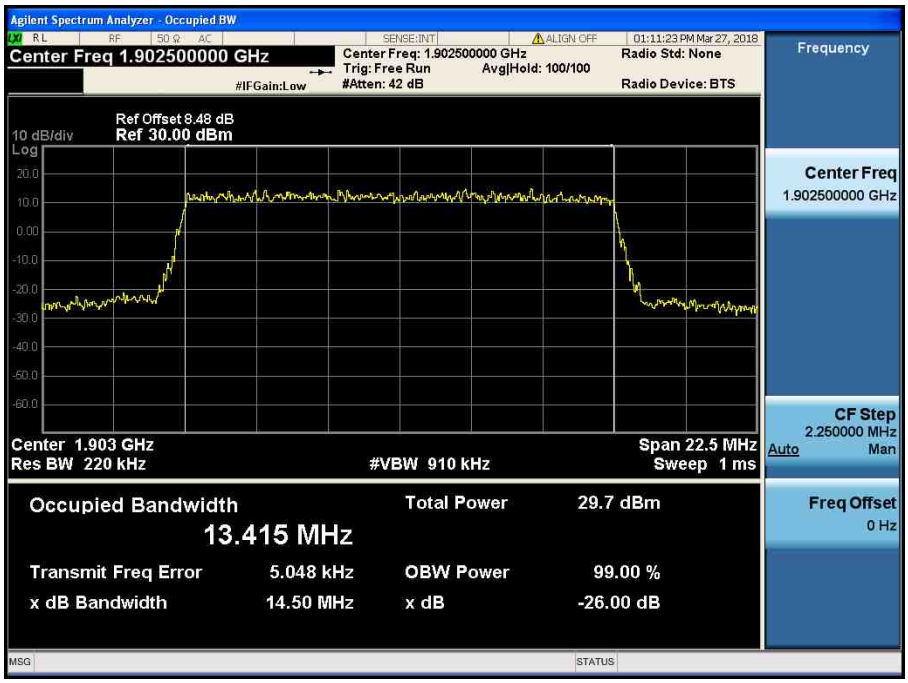
LTE Band 2 / 20 MHz / 16QAM - RB Size 100



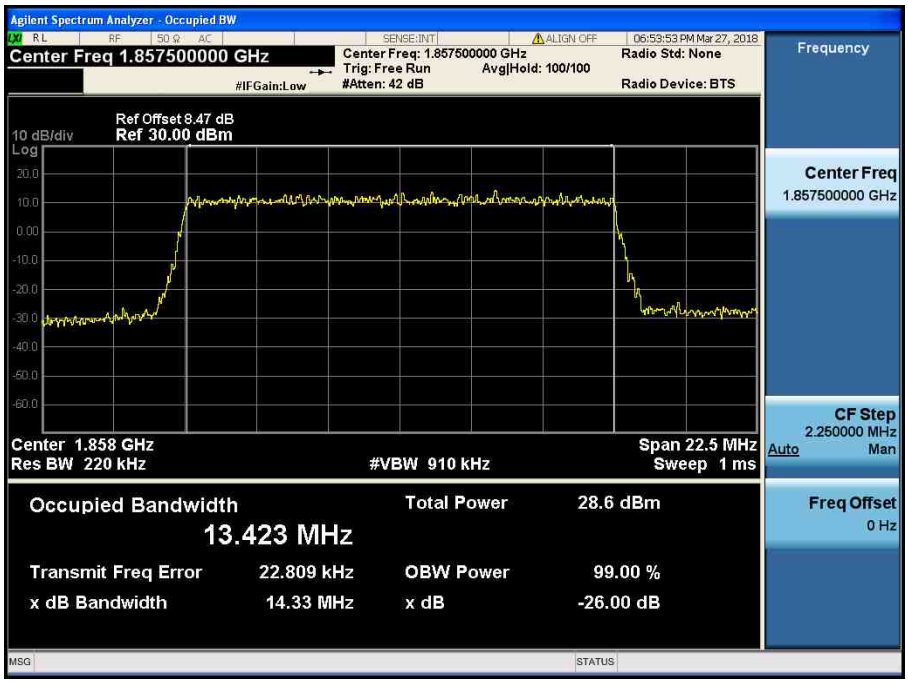
LTE Band 2 / 20 MHz / 64QAM - RB Size 100



LTE Band 2 / 15 MHz / QPSK - RB Size 75



LTE Band 2 / 15 MHz / 16QAM - RB Size 75



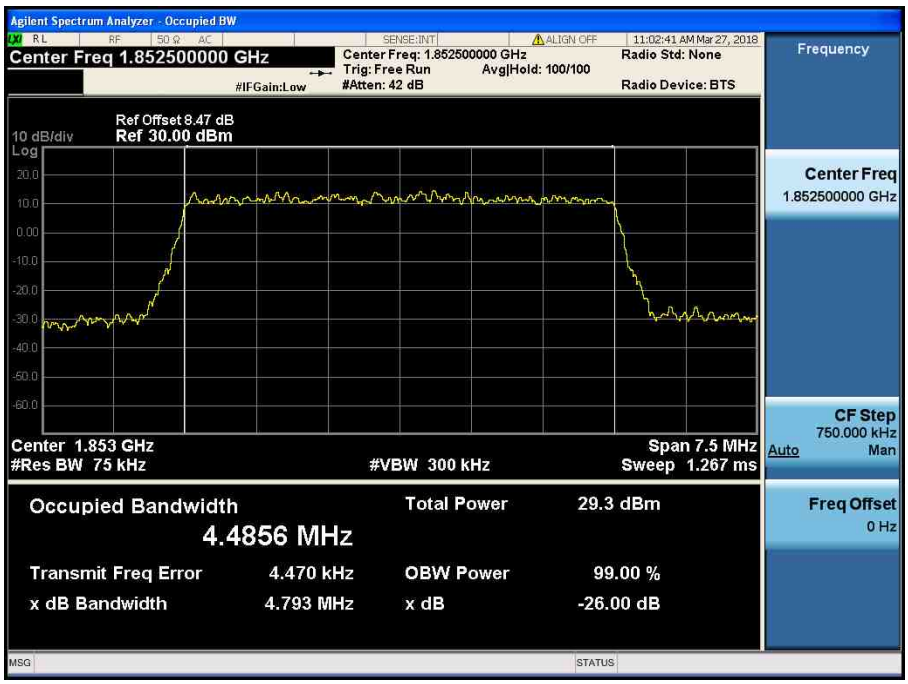
LTE Band 2 / 15 MHz / 64QAM - RB Size 75

LTE Band 2 / 10 MHz / QPSK - RB Size 50

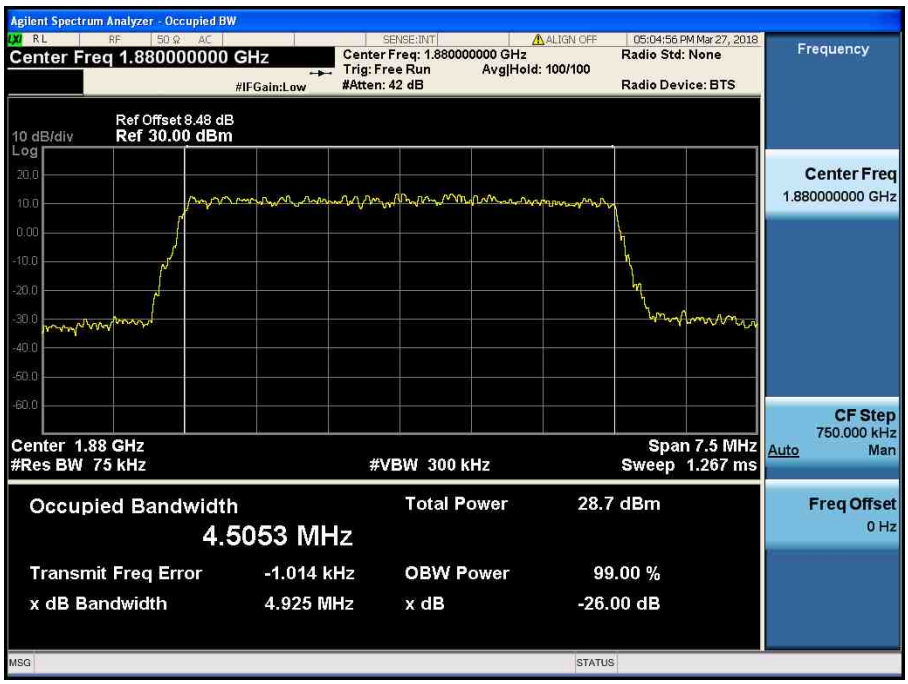
LTE Band 2 / 10 MHz / 16QAM - RB Size 50

LTE Band 2 / 10 MHz / 64QAM - RB Size 50

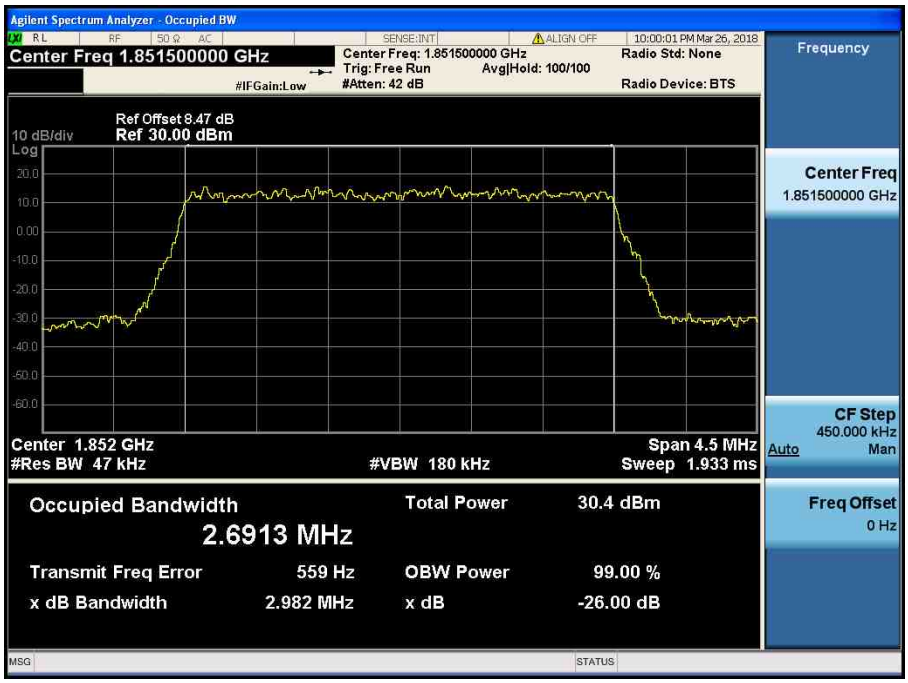
LTE Band 2 / 5 MHz / QPSK - RB Size 25



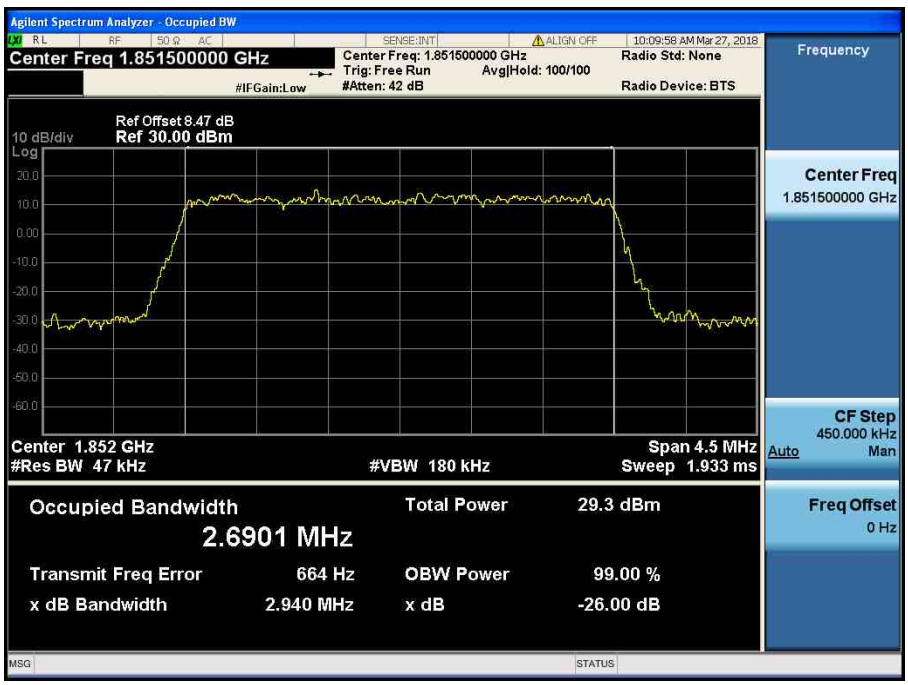
LTE Band 2 / 5 MHz / 16QAM - RB Size 25



LTE Band 2 / 5 MHz / 64QAM - RB Size 25

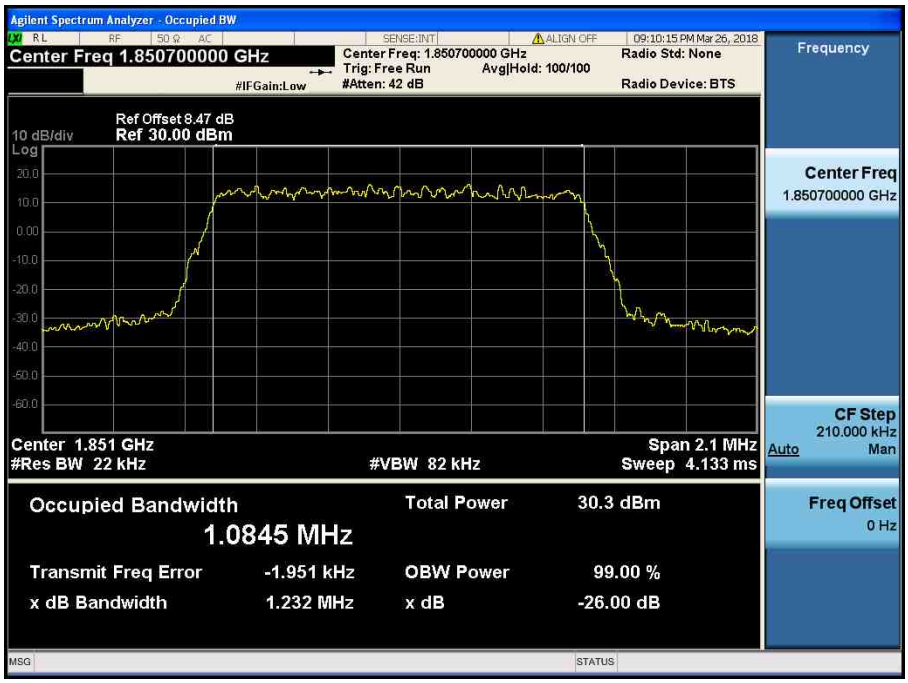


LTE Band 2 / 3 MHz / QPSK - RB Size 15

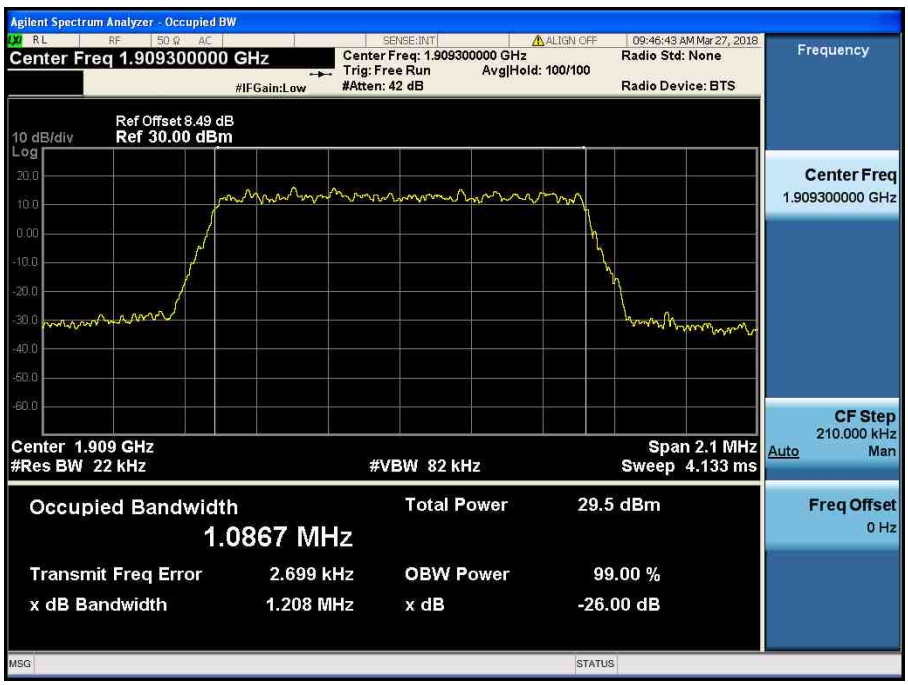


LTE Band 2 / 3 MHz / 16QAM - RB Size 15

LTE Band 2 / 3 MHz / 64QAM - RB Size 15



LTE Band 2 / 1.4 MHz / QPSK - RB Size 6



LTE Band 2 / 1.4 MHz / 16QAM - RB Size 6