

TEST REPORT



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1. Report No : DRTFCC1804-0079(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-G710EM
FCC ID : ZNFG710EM
5. Test Method Used : KDB971168 D01v03r01, ANSI/TIA-603-E-2016, ANSI C63.26-2015
Test Specification : §2, §22, §24(E), §27
6. Date of Test : 2018.03.05 ~ 2018.03.27
7. Testing Environment : Refer to appended test report.
8. Test Result : Refer to the attached test result.

Affirmation	Tested by	Reviewed by
	Name : InHee Bae 	Name : Geunki Son  (Signature)

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2018 . 04 . 27 .

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

Test Report Version

Test Report No.	Date	Description
DRTFCC1804-0079	Apr. 17 2018	Initial issue
DRTFCC1804-0079(1)	Apr. 27, 2018	Update add Model

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1. GENERAL INFORMATION

Applicant Name : LG Electronics MobileComm USA, Inc.
Address : 1000 Sylvan Ave., Englewood Cliffs, New Jersey, United States, 07632
FCC ID : ZNFG710EM
FCC Classification : PCS Licensed Transmitter held to ear (PCE)
EUT Type : Mobile Phone
Model Name : LM-G710EM
Add Model Name : LMG710EM, G710EM, LM-G710EA, LMG710EA, G710EA, LM-G710EMW, LMG710EMW, G710EMW, LM-G710EAW, LMG710EAW, G710EAW
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	704 ~ 711	8M98G7D	QPSK	13.88	0.024
LTE Band 12	704 ~ 711	8M94W7D	16QAM	13.21	0.021
LTE Band 12	704 ~ 711	8M96W7D	64QAM	11.97	0.016
LTE Band 12	701.5 ~ 713.5	4M48G7D	QPSK	13.83	0.024
LTE Band 12	701.5 ~ 713.5	4M49W7D	16QAM	13.16	0.021
LTE Band 12	701.5 ~ 713.5	4M50W7D	64QAM	11.92	0.016
LTE Band 12	700.5 ~ 714.5	2M69G7D	QPSK	13.66	0.023
LTE Band 12	700.5 ~ 714.5	2M69W7D	16QAM	12.99	0.020
LTE Band 12	700.5 ~ 714.5	2M69W7D	64QAM	11.75	0.015
LTE Band 12	699.7 ~ 715.3	1M09G7D	QPSK	12.84	0.019
LTE Band 12	699.7 ~ 715.3	1M09W7D	16QAM	12.17	0.016
LTE Band 12	699.7 ~ 715.3	1M09W7D	64QAM	10.93	0.012
LTE Band 17	709 ~ 711	8M93G7D	QPSK	13.59	0.023
LTE Band 17	709 ~ 711	8M94W7D	16QAM	12.79	0.019
LTE Band 17	709 ~ 711	8M97W7D	64QAM	11.76	0.015
LTE Band 17	706.5 ~ 713.5	4M48G7D	QPSK	13.34	0.022
LTE Band 17	706.5 ~ 713.5	4M49W7D	16QAM	12.54	0.018
LTE Band 17	706.5 ~ 713.5	4M50W7D	64QAM	11.51	0.014
LTE Band 13	782 ~ 782	8M93G7D	QPSK	17.57	0.057
LTE Band 13	782 ~ 782	8M93W7D	16QAM	16.67	0.046
LTE Band 13	782 ~ 782	8M94W7D	64QAM	15.91	0.039
LTE Band 13	779.5 ~ 784.5	4M50G7D	QPSK	17.33	0.054
LTE Band 13	779.5 ~ 784.5	4M48W7D	16QAM	16.43	0.044
LTE Band 13	779.5 ~ 784.5	4M49W7D	64QAM	15.67	0.037
LTE Band 5	829 ~ 844	8M94G7D	QPSK	19.66	0.092
LTE Band 5	829 ~ 844	8M96W7D	16QAM	19.01	0.080
LTE Band 5	829 ~ 844	8M96W7D	64QAM	18.05	0.064
LTE Band 5	826.5 ~ 846.5	4M48G7D	QPSK	19.87	0.097
LTE Band 5	826.5 ~ 846.5	4M49W7D	16QAM	19.22	0.084
LTE Band 5	826.5 ~ 846.5	4M50W7D	64QAM	18.26	0.067
LTE Band 5	825.5 ~ 847.5	2M69G7D	QPSK	19.98	0.100
LTE Band 5	825.5 ~ 847.5	2M69W7D	16QAM	19.33	0.086
LTE Band 5	825.5 ~ 847.5	2M70W7D	64QAM	18.37	0.069
LTE Band 5	824.7 ~ 848.3	1M09G7D	QPSK	19.93	0.098
LTE Band 5	824.7 ~ 848.3	1M09W7D	16QAM	19.28	0.085
LTE Band 5	824.7 ~ 848.3	1M08W7D	64QAM	18.32	0.068

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max power(dBm)	Max power(W)
LTE Band 4	1720 ~ 1745	17M9G7D	QPSK	23.81	0.240
LTE Band 4	1720 ~ 1745	17M9W7D	16QAM	22.94	0.197
LTE Band 4	1720 ~ 1745	17M9W7D	64QAM	22.20	0.166
LTE Band 4	1717.5 ~ 1747.5	13M4G7D	QPSK	23.91	0.246
LTE Band 4	1717.5 ~ 1747.5	13M4W7D	16QAM	23.04	0.201
LTE Band 4	1717.5 ~ 1747.5	13M4W7D	64QAM	22.30	0.170
LTE Band 4	1715 ~ 1750	8M97G7D	QPSK	23.87	0.244
LTE Band 4	1715 ~ 1750	8M95W7D	16QAM	23.00	0.200
LTE Band 4	1715 ~ 1750	8M96W7D	64QAM	22.26	0.168
LTE Band 4	1712.5 ~ 1752.5	4M48G7D	QPSK	23.56	0.227
LTE Band 4	1712.5 ~ 1752.5	4M50W7D	16QAM	22.69	0.186
LTE Band 4	1712.5 ~ 1752.5	4M48W7D	64QAM	21.95	0.157
LTE Band 4	1711.5 ~ 1753.5	2M70G7D	QPSK	23.68	0.233
LTE Band 4	1711.5 ~ 1753.5	2M69W7D	16QAM	22.81	0.191
LTE Band 4	1711.5 ~ 1753.5	2M69W7D	64QAM	22.07	0.161
LTE Band 4	1710.7 ~ 1754.3	1M09G7D	QPSK	23.66	0.232
LTE Band 4	1710.7 ~ 1754.3	1M09W7D	16QAM	22.79	0.190
LTE Band 4	1710.7 ~ 1754.3	1M09W7D	64QAM	22.05	0.160
LTE Band 2	1860 ~ 1900	17M9G7D	QPSK	21.96	0.157
LTE Band 2	1860 ~ 1900	17M9W7D	16QAM	21.19	0.132
LTE Band 2	1860 ~ 1900	17M9W7D	64QAM	19.98	0.100
LTE Band 2	1857.5 ~ 1902.5	13M4G7D	QPSK	22.14	0.164
LTE Band 2	1857.5 ~ 1902.5	13M5W7D	16QAM	21.37	0.137
LTE Band 2	1857.5 ~ 1902.5	13M4W7D	64QAM	20.16	0.104
LTE Band 2	1855 ~ 1905	8M97G7D	QPSK	22.04	0.160
LTE Band 2	1855 ~ 1905	8M96W7D	16QAM	21.27	0.134
LTE Band 2	1855 ~ 1905	8M94W7D	64QAM	20.06	0.101
LTE Band 2	1852.5 ~ 1907.5	4M49G7D	QPSK	22.57	0.181
LTE Band 2	1852.5 ~ 1907.5	4M50W7D	16QAM	21.80	0.151
LTE Band 2	1852.5 ~ 1907.5	4M49W7D	64QAM	20.59	0.115
LTE Band 2	1851.5 ~ 1908.5	2M69G7D	QPSK	22.74	0.188
LTE Band 2	1851.5 ~ 1908.5	2M69W7D	16QAM	21.97	0.157
LTE Band 2	1851.5 ~ 1908.5	2M69W7D	64QAM	20.76	0.119
LTE Band 2	1850.7 ~ 1909.3	1M09G7D	QPSK	22.02	0.159
LTE Band 2	1850.7 ~ 1909.3	1M09W7D	16QAM	21.25	0.133
LTE Band 2	1850.7 ~ 1909.3	1M09W7D	64QAM	20.04	0.101

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max power(dBm)	Max power(W)
LTE Band 41	2506 ~ 2680	17M7G7D	QPSK	19.80	0.095
LTE Band 41	2506 ~ 2680	17M7W7D	16QAM	18.84	0.077
LTE Band 41	2506 ~ 2680	17M9W7D	64QAM	18.05	0.064
LTE Band 41	2503.5 ~ 2682.5	13M4G7D	QPSK	18.41	0.069
LTE Band 41	2503.5 ~ 2682.5	13M3W7D	16QAM	17.45	0.056
LTE Band 41	2503.5 ~ 2682.5	13M3W7D	64QAM	16.66	0.046
LTE Band 41	2501 ~ 2685	8M82G7D	QPSK	19.30	0.085
LTE Band 41	2501 ~ 2685	8M72W7D	16QAM	18.34	0.068
LTE Band 41	2501 ~ 2685	8M88W7D	64QAM	17.55	0.057
LTE Band 41	2498.5 ~ 2687.5	4M37G7D	QPSK	19.21	0.083
LTE Band 41	2498.5 ~ 2687.5	4M50W7D	16QAM	18.25	0.067
LTE Band 41	2498.5 ~ 2687.5	4M48W7D	64QAM	17.46	0.056
LTE Band 7	2510 ~ 2560	17M9G7D	QPSK	18.64	0.073
LTE Band 7	2510 ~ 2560	17M9W7D	16QAM	17.88	0.061
LTE Band 7	2510 ~ 2560	17M9W7D	64QAM	16.98	0.050
LTE Band 7	2507.5 ~ 2562.5	13M4G7D	QPSK	18.66	0.073
LTE Band 7	2507.5 ~ 2562.5	13M4W7D	16QAM	17.90	0.062
LTE Band 7	2507.5 ~ 2562.5	13M4W7D	64QAM	17.00	0.050
LTE Band 7	2505 ~ 2565	8M97G7D	QPSK	18.43	0.070
LTE Band 7	2505 ~ 2565	8M97W7D	16QAM	17.67	0.058
LTE Band 7	2505 ~ 2565	8M96W7D	64QAM	16.77	0.048
LTE Band 7	2502.5 ~ 2567.5	4M49G7D	QPSK	19.05	0.080
LTE Band 7	2502.5 ~ 2567.5	4M50W7D	16QAM	18.29	0.067
LTE Band 7	2502.5 ~ 2567.5	4M49W7D	64QAM	17.39	0.055

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	+22 °C ~ +24 °C
▪ Relative Humidity	38 % ~ 42 %

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 %, $k = 2$)

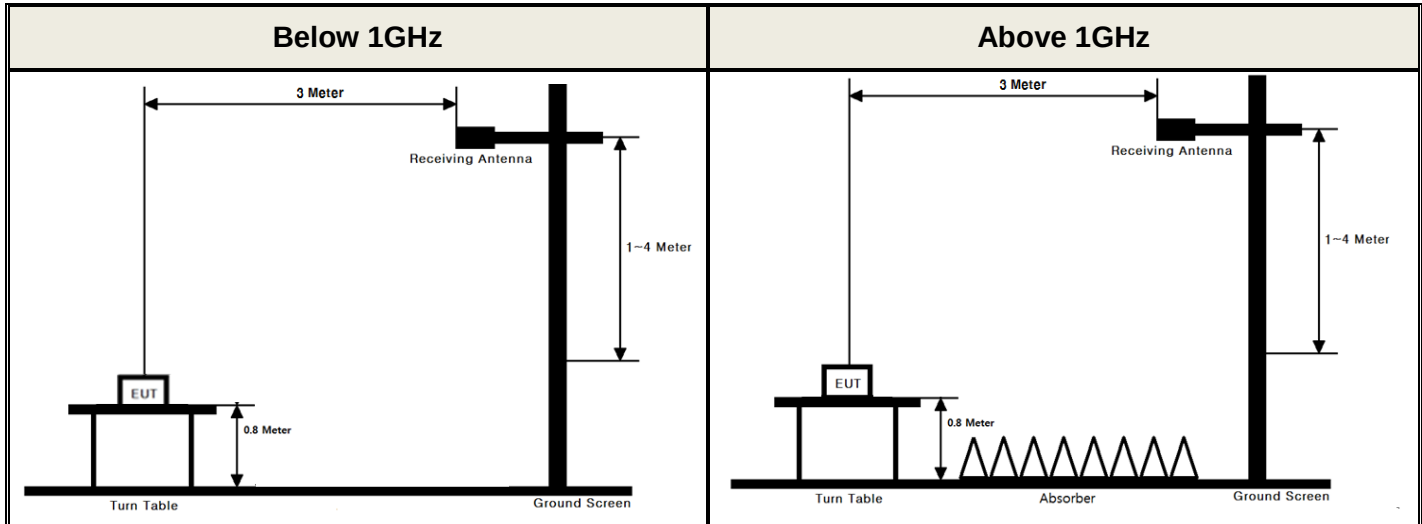
2.6. TEST FACILITY

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		
www.dtnc.net		
Telephone	:	+ 82-31-321-2664
FAX	:	+ 82-31-321-1664

3. DESCRIPTION OF TESTS

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

Test Set-up



These measurements were performed at 3 m test site. The equipment under test is placed on a non-conductive table 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 D01v03r01 - 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 $\geq 3 \times$ RBW.
4. Set number of points in sweep $\geq 2 \times$ span / RBW.
5. Sweep time:
 - 1) Set = auto-couple, or
 - 2) Set $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$ for single sweep (automation-compatible) measurement. Transmission period is the on and off time of the transmitter.
6. Detector = power averaging (rms).
7. If the EUT can be configured to transmit continuously, then set the trigger to free run.
8. If the EUT cannot be configured to transmit continuously, then use a sweep trigger with the level set to enable triggering only on full power bursts and configure the EUT to transmit at full power for the entire duration of each sweep. Verify that the sweep time is less than or equal to the transmission burst duration. Time gating can also be used under similar constraints (i.e., configured such that measurement data is collected only during active full-power transmissions).
9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over multiple symbols, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.

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

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

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

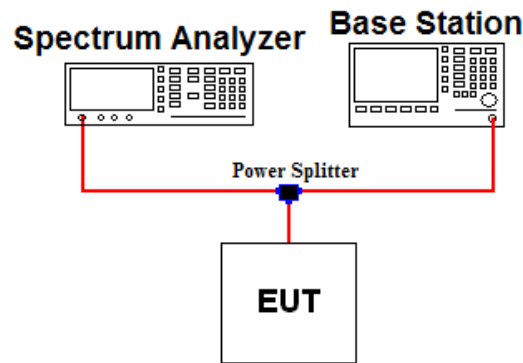
The ERP/EIRP is calculated using the following formula:

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

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

3.2 PEAK TO AVERAGE RATIO

Test set-up



Test Procedure

- KDB971168 D01v03r01 - Section 5.7.2
- ANSI C63.26-2015 – Section 5.2.3.4

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

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

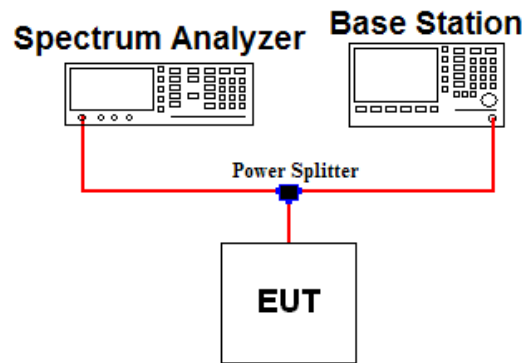
Test setting

The spectrum Analyzer's CCDF measurement function is enabled.

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

3.3 OCCUPIED BANDWIDTH.

Test set-up



Test Procedure

- KDB971168 D01v03r01 - Section 4.3
- ANSI C63.26-2015 – Section 5.4.4

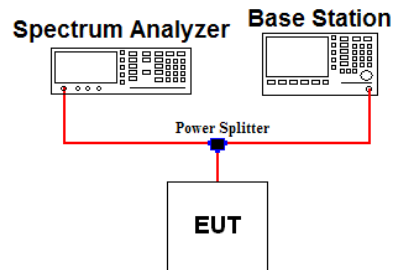
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power of a given emission.

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. $RBW = 1 \sim 5 \%$ of the expected OBW & $VBW \geq 3 \times RBW$
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 D01v03r01 - 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 $\geq 3 \times$ RBW
5. Detector = RMS & Trace mode = Max hold
6. Sweep time = Auto couple or 1 s for band edge
7. Number of sweep point $\geq 2 \times$ span / RBW
8. The trace was allowed to stabilize

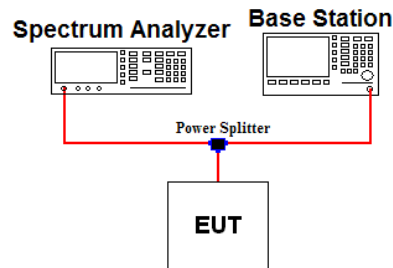
Note 1: Per Part 22.917(b)(1) / 24.238(b) / 27.53(h) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

Note 2: Per Part 27.53(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 3: Per Part 27.53(c.4) for all frequencies between 763-775 MHz and 793-805 MHz, the FCC limit is $65 + 10\log_{10}(P[\text{Watts}]) = -35\text{dBm}$ in a 6.25kHz bandwidth.

3.5 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL

Test set-up



Test Procedure

- KDB971168 D01v03r01 - 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 10th harmonic.

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

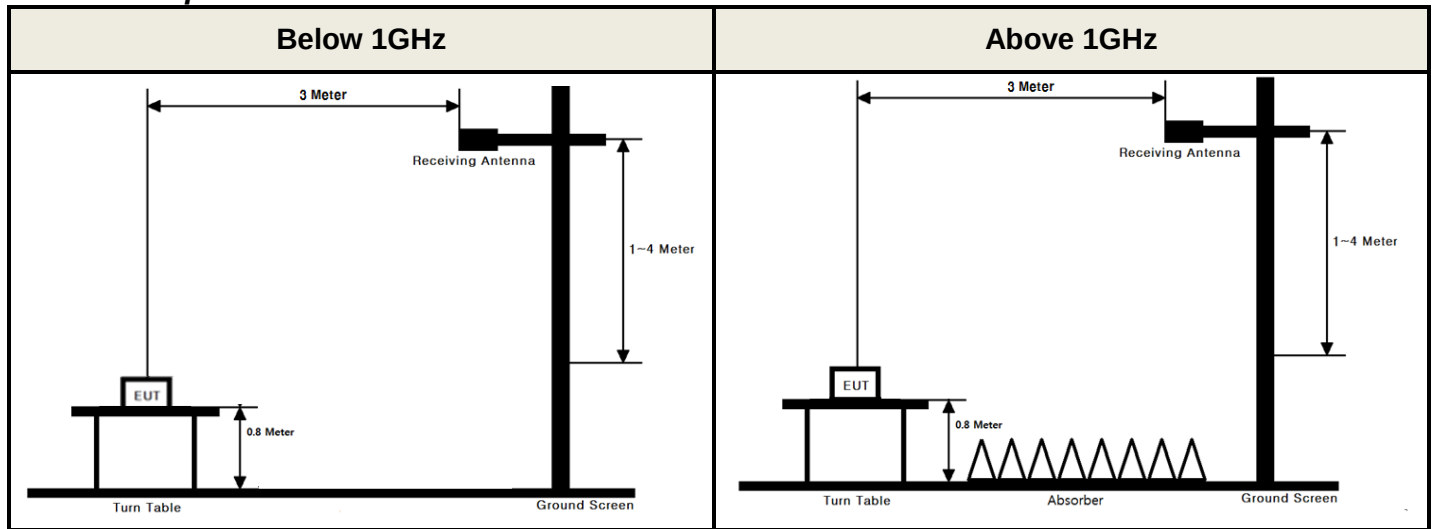
Test setting

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

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



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 D01v03r01 - Section 5.8
- ANSI C63.26-2015 – Section 5.5

Test setting

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

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

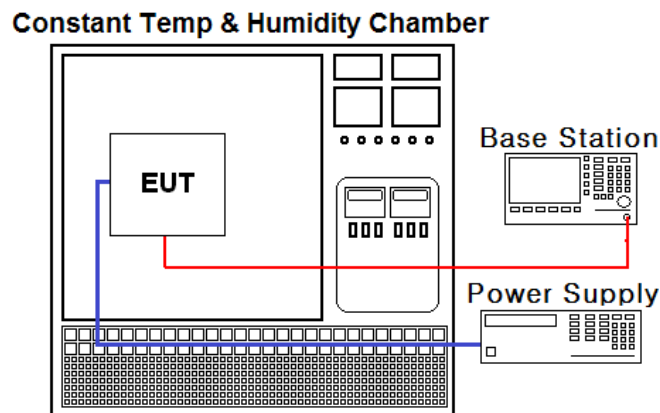
For radiated power measurements below 1 GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

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

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

3.7 FREQUENCY STABILITY

Test Set-up



Test Procedure

- ANSI/TIA-603-E-2016
- KDB971168 D01v03r01 - 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 $\pm 0.00025\%$ (± 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	17/07/12	18/07/12	MY50410399
Spectrum Analyzer	Agilent Technologies	N9030A	17/09/07	18/09/07	MY53310140
DC power supply	Agilent Technologies	66332A	17/09/05	18/09/05	MY43000440
Multimeter	FLUKE	17B	17/12/26	18/12/26	26030065WS
Temp & Humi Test Chamber	SJ Science	SJ-TH-S50	17/09/07	18/09/07	U5542113
Thermohygrometer	BODYCOM	BJ5478	18/01/03	19/01/03	120612-2
Radio Communication Analyzer	Anritsu	MT8820C	17/09/07	18/09/07	6201127429
Radio Communication Analyzer	KEYSIGHT	E7515A	17/12/27	18/12/27	MY57270113
Attenuator	SMAJK	SMAJK-2-3	17/09/06	18/09/06	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	ETS	6502	17/03/24	19/03/24	3471
BILOG ANTENNA	Schwarzbeck	VULB 9160	16/11/11	18/11/11	3151
Dipole Antenna	Schwarzbeck	VHA9103	17/03/14	19/03/14	2116
Dipole Antenna	Schwarzbeck	VHA9103	16/04/15	18/04/15	2117
Dipole Antenna	Schwarzbeck	UHA9105	17/03/14	19/03/14	2261
Dipole Antenna	Schwarzbeck	UHA9105	16/04/15	18/04/15	2262
HORN ANT	ETS	3117	16/05/03	18/05/03	140394
HORN ANT	ETS	3117	17/08/02	19/08/02	154312
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
PreAmplifier	H.P	8447D	17/12/26	18/12/26	2944A07774
Amplifier	RF Bay Inc	MPA-40-40	17/12/28	18/12/28	21151801
Amplifier	EMPOWER	BBS3Q7ELU	17/09/06	18/09/06	1020
PreAmplifier	Agilent	8449B	17/09/05	18/09/05	3008A02108
PreAmplifier	A.H.Systems Inc.	PAM-1840VH	17/09/17	18/09/17	163
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
Power Splitter	Anritsu	K241B	17/09/07	18/09/07	1701099

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(m)	Band Edge / Conducted Spurious Emissions	> 40 + 10log ₁₀ (P) dB at channel edge and 5 MHz from the channel edge > 43 + 10log ₁₀ (P) dB at 5 MHz and X MHz from the channel edge > 55 + 10log ₁₀ (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 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) 24.232(c)	Radiated Output Power (B5)	< 7 Watts max. ERP		C
27.50(d.4)	Radiated Output Power (B4)	< 1 Watts max. EIRP		C
27.50(h.2)	Radiated Output Power(B7, 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(m)	Undesirable Emissions(B7, 41)	> 55 + 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)		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(QPSK)

Emission Designator = **8M98G7D**
LTE OBW = 8.978 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 12(64QAM)

Emission Designator = **8M96W7D**
LTE OBW = 8.960 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 17(QPSK)

Emission Designator = **8M93G7D**
LTE OBW = 8.931 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 17(64QAM)

Emission Designator = **8M97W7D**
LTE OBW = 8.966 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(QPSK)

Emission Designator = **8M93G7D**
LTE OBW = 8.929 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(64QAM)

Emission Designator = **8M94W7D**
LTE OBW = 8.943 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 12(16QAM)

Emission Designator = **8M94W7D**
LTE OBW = 8.944 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 17(16QAM)

Emission Designator = **8M94W7D**
LTE OBW = 8.940 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(16QAM)

Emission Designator = **8M93W7D**
LTE OBW = 8.935 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(QPSK)

Emission Designator = **8M94G7D**
LTE OBW = 8.943 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(64QAM)

Emission Designator = **8M96W7D**
LTE OBW = 8.965 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 4(QPSK)

Emission Designator = **17M9G7D**
LTE OBW = 17.871 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 4(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.917 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(QPSK)

Emission Designator = **17M9G7D**
LTE OBW = 17.857 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.917 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(16QAM)

Emission Designator = **8M96W7D**
LTE OBW = 8.955 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 4(16QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.906 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(16QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.946 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 41(QPSK)Emission Designator = **17M7G7D**

LTE OBW = 17.691 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

LTE Band 41(16QAM)Emission Designator = **17M7W7D**

LTE OBW = 17.723 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

LTE Band 41(64QAM)Emission Designator = **17M9W7D**

LTE OBW = 17.897 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

LTE Band 7(QPSK)Emission Designator = **17M9G7D**

LTE OBW = 17.874 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

LTE Band 7(16QAM)Emission Designator = **17M9W7D**

LTE OBW = 17.868 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

LTE Band 7(64QAM)Emission Designator = **17M9W7D**

LTE OBW = 17.870 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)
15	1732.5	QPSK	1/36	-21.99	Y	H	18.16	5.75	23.91	0.246

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 EDGE 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

- 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	1/49	H	11.89	1.28	13.17	0.021
		16QAM	1/49	H	11.22	1.28	12.50	0.018
		64QAM	1/49	H	9.98	1.28	11.26	0.013
	707.5	QPSK	1/49	H	12.58	1.28	13.86	0.024
		16QAM	1/49	H	11.91	1.28	13.19	0.021
		64QAM	1/49	H	10.67	1.28	11.95	0.016
	711	QPSK	1/49	H	12.60	1.28	13.88	0.024
		16QAM	1/49	H	11.93	1.28	13.21	0.021
		64QAM	1/49	H	10.69	1.28	11.97	0.016
5	701.5	QPSK	1/24	H	11.78	1.28	13.06	0.020
		16QAM	1/24	H	11.11	1.28	12.39	0.017
		64QAM	1/24	H	9.87	1.28	11.15	0.013
	707.5	QPSK	1/24	H	12.42	1.28	13.70	0.023
		16QAM	1/24	H	11.75	1.28	13.03	0.020
		64QAM	1/24	H	10.51	1.28	11.79	0.015
	713.5	QPSK	1/24	H	12.55	1.28	13.83	0.024
		16QAM	1/24	H	11.88	1.28	13.16	0.021
		64QAM	1/24	H	10.64	1.28	11.92	0.016
3	700.5	QPSK	1/14	H	11.73	1.28	13.01	0.020
		16QAM	1/14	H	11.06	1.28	12.34	0.017
		64QAM	1/14	H	9.82	1.28	11.10	0.013
	707.5	QPSK	1/14	H	12.38	1.28	13.66	0.023
		16QAM	1/14	H	11.71	1.28	12.99	0.020
		64QAM	1/14	H	10.47	1.28	11.75	0.015
	714.5	QPSK	1/14	H	12.28	1.28	13.56	0.023
		16QAM	1/14	H	11.61	1.28	12.89	0.019
		64QAM	1/14	H	10.37	1.28	11.65	0.015
1.4	699.7	QPSK	1/5	H	10.83	1.28	12.11	0.016
		16QAM	1/5	H	10.16	1.28	11.44	0.014
		64QAM	1/5	H	8.92	1.28	10.20	0.010
	707.5	QPSK	1/5	H	11.56	1.28	12.84	0.019
		16QAM	1/5	H	10.89	1.28	12.17	0.016
		64QAM	1/5	H	9.65	1.28	10.93	0.012
	715.3	QPSK	1/5	H	11.40	1.28	12.68	0.019
		16QAM	1/5	H	10.73	1.28	12.01	0.016
		64QAM	1/5	H	9.49	1.28	10.77	0.012

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	711	QPSK	1/49	H	13.14	1.28	14.42	0.028
5	713.5	QPSK	1/24	H	12.64	1.28	13.92	0.025
3	707.5	QPSK	1/14	H	12.37	1.28	13.65	0.023
1.4	707.5	QPSK	1/5	H	12.19	1.28	13.47	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.

7.5.2 LTE Band 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	709	QPSK	1/49	H	12.31	1.28	13.59	0.023
		16QAM	1/49	H	11.51	1.28	12.79	0.019
		64QAM	1/49	H	10.48	1.28	11.76	0.015
	711	QPSK	1/49	H	12.22	1.28	13.50	0.022
		16QAM	1/49	H	11.42	1.28	12.70	0.019
		64QAM	1/49	H	10.39	1.28	11.67	0.015
5	706.5	QPSK	1/24	H	11.79	1.28	13.07	0.020
		16QAM	1/24	H	10.99	1.28	12.27	0.017
		64QAM	1/24	H	9.96	1.28	11.24	0.013
	710	QPSK	1/24	H	12.02	1.28	13.30	0.021
		16QAM	1/24	H	11.22	1.28	12.50	0.018
		64QAM	1/24	H	10.19	1.28	11.47	0.014
	713.5	QPSK	1/24	H	12.06	1.28	13.34	0.022
		16QAM	1/24	H	11.26	1.28	12.54	0.018
		64QAM	1/24	H	10.23	1.28	11.51	0.014

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	709	QPSK	1/49	H	12.65	1.28	13.93	0.025
5	713.5	QPSK	1/24	H	12.21	1.28	13.49	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.

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	16.31	1.26	17.57	0.057
		16QAM	1/0	V	15.41	1.26	16.67	0.046
		64QAM	1/0	V	14.65	1.26	15.91	0.039
5	779.5	QPSK	1/0	V	16.07	1.26	17.33	0.054
		16QAM	1/0	V	15.17	1.26	16.43	0.044
		64QAM	1/0	V	14.41	1.26	15.67	0.037
	784.5	QPSK	1/0	V	15.96	1.25	17.21	0.053
		16QAM	1/0	V	15.06	1.25	16.31	0.043
		64QAM	1/0	V	14.30	1.25	15.55	0.036

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	15.58	1.26	16.84	0.048
5	779.5	QPSK	1/0	H	15.03	1.26	16.29	0.043

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	1/0	V	18.43	1.23	19.66	0.092
		16QAM	1/0	V	17.78	1.23	19.01	0.080
		64QAM	1/0	V	16.82	1.23	18.05	0.064
	836.5	QPSK	1/0	V	18.09	1.22	19.31	0.085
		16QAM	1/0	V	17.44	1.22	18.66	0.073
		64QAM	1/0	V	16.48	1.22	17.70	0.059
	844	QPSK	1/0	V	17.86	1.21	19.07	0.081
		16QAM	1/0	V	17.21	1.21	18.42	0.070
		64QAM	1/0	V	16.25	1.21	17.46	0.056
5	826.5	QPSK	1/0	V	18.64	1.23	19.87	0.097
		16QAM	1/0	V	17.99	1.23	19.22	0.084
		64QAM	1/0	V	17.03	1.23	18.26	0.067
	836.5	QPSK	1/0	V	17.73	1.22	18.95	0.079
		16QAM	1/0	V	17.08	1.22	18.30	0.068
		64QAM	1/0	V	16.12	1.22	17.34	0.054
	846.5	QPSK	1/0	V	17.85	1.21	19.06	0.081
		16QAM	1/0	V	17.20	1.21	18.41	0.069
		64QAM	1/0	V	16.24	1.21	17.45	0.056
3	825.5	QPSK	1/0	V	18.75	1.23	19.98	0.100
		16QAM	1/0	V	18.10	1.23	19.33	0.086
		64QAM	1/0	V	17.14	1.23	18.37	0.069
	836.5	QPSK	1/0	V	17.38	1.22	18.60	0.072
		16QAM	1/0	V	16.73	1.22	17.95	0.062
		64QAM	1/0	V	15.77	1.22	16.99	0.050
	847.5	QPSK	1/0	V	17.54	1.21	18.75	0.075
		16QAM	1/0	V	16.89	1.21	18.10	0.065
		64QAM	1/0	V	15.93	1.21	17.14	0.052
1.4	824.7	QPSK	1/0	V	18.70	1.23	19.93	0.098
		16QAM	1/0	V	18.05	1.23	19.28	0.085
		64QAM	1/0	V	17.09	1.23	18.32	0.068
	836.5	QPSK	1/0	V	17.34	1.22	18.56	0.072
		16QAM	1/0	V	16.69	1.22	17.91	0.062
		64QAM	1/0	V	15.73	1.22	16.95	0.050
	848.3	QPSK	1/0	V	17.53	1.21	18.74	0.075
		16QAM	1/0	V	16.88	1.21	18.09	0.064
		64QAM	1/0	V	15.92	1.21	17.13	0.052

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	1/0	H	20.40	1.23	21.63	0.146
5	826.5	QPSK	1/0	H	20.37	1.23	21.60	0.145
3	825.5	QPSK	1/0	H	20.17	1.23	21.40	0.138
1.4	824.7	QPSK	1/0	H	19.98	1.23	21.21	0.132

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	1/50	H	17.51	5.82	23.33	0.215
		16QAM	1/50	H	16.64	5.82	22.46	0.176
		64QAM	1/50	H	15.90	5.82	21.72	0.149
	1732.5	QPSK	1/50	H	18.06	5.75	23.81	0.240
		16QAM	1/50	H	17.19	5.75	22.94	0.197
		64QAM	1/50	H	16.45	5.75	22.20	0.166
	1745	QPSK	1/50	H	17.48	5.67	23.15	0.207
		16QAM	1/50	H	16.61	5.67	22.28	0.169
		64QAM	1/50	H	15.87	5.67	21.54	0.143
15	1717.5	QPSK	1/36	H	17.84	5.84	23.68	0.233
		16QAM	1/36	H	16.97	5.84	22.81	0.191
		64QAM	1/36	H	16.23	5.84	22.07	0.161
	1732.5	QPSK	1/36	H	18.16	5.75	23.91	0.246
		16QAM	1/36	H	17.29	5.75	23.04	0.201
		64QAM	1/36	H	16.55	5.75	22.30	0.170
	1747.5	QPSK	1/0	H	17.66	5.66	23.32	0.215
		16QAM	1/0	H	16.79	5.66	22.45	0.176
		64QAM	1/0	H	16.05	5.66	21.71	0.148
10	1715	QPSK	1/25	H	17.85	5.85	23.70	0.234
		16QAM	1/25	H	16.98	5.85	22.83	0.192
		64QAM	1/25	H	16.24	5.85	22.09	0.162
	1732.5	QPSK	1/25	H	18.12	5.75	23.87	0.244
		16QAM	1/25	H	17.25	5.75	23.00	0.200
		64QAM	1/25	H	16.51	5.75	22.26	0.168
	1750	QPSK	1/0	H	16.85	5.64	22.49	0.177
		16QAM	1/0	H	15.98	5.64	21.62	0.145
		64QAM	1/0	H	15.24	5.64	20.88	0.122

- 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	1/12	H	17.55	5.87	23.42	0.220
		16QAM	1/12	H	16.68	5.87	22.55	0.180
		64QAM	1/12	H	15.94	5.87	21.81	0.152
	1732.5	QPSK	1/12	H	17.81	5.75	23.56	0.227
		16QAM	1/12	H	16.94	5.75	22.69	0.186
		64QAM	1/12	H	16.20	5.75	21.95	0.157
	1752.5	QPSK	1/12	H	16.97	5.63	22.60	0.182
		16QAM	1/12	H	16.10	5.63	21.73	0.149
		64QAM	1/12	H	15.36	5.63	20.99	0.126
3	1711.5	QPSK	1/7	H	17.61	5.87	23.48	0.223
		16QAM	1/7	H	16.74	5.87	22.61	0.182
		64QAM	1/7	H	16.00	5.87	21.87	0.154
	1732.5	QPSK	1/7	H	17.93	5.75	23.68	0.233
		16QAM	1/7	H	17.06	5.75	22.81	0.191
		64QAM	1/7	H	16.32	5.75	22.07	0.161
	1753.5	QPSK	1/7	H	17.03	5.62	22.65	0.184
		16QAM	1/7	H	16.16	5.62	21.78	0.151
		64QAM	1/7	H	15.42	5.62	21.04	0.127
1.4	1710.7	QPSK	1/2	H	17.20	5.88	23.08	0.203
		16QAM	1/2	H	16.33	5.88	22.21	0.166
		64QAM	1/2	H	15.59	5.88	21.47	0.140
	1732.5	QPSK	1/2	H	17.91	5.75	23.66	0.232
		16QAM	1/2	H	17.04	5.75	22.79	0.190
		64QAM	1/2	H	16.30	5.75	22.05	0.160
	1754.3	QPSK	1/2	H	17.16	5.61	22.77	0.189
		16QAM	1/2	H	16.29	5.61	21.90	0.155
		64QAM	1/2	H	15.55	5.61	21.16	0.131

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	1732.5	QPSK	1/50	H	16.10	5.75	21.85	0.153
15	1732.5	QPSK	1/36	H	16.04	5.75	21.79	0.151
10	1732.5	QPSK	1/25	H	16.12	5.75	21.87	0.154
5	1732.5	QPSK	1/12	H	15.95	5.75	21.70	0.148
3	1732.5	QPSK	1/7	H	16.23	5.75	21.98	0.158
1.4	1732.5	QPSK	1/2	H	15.92	5.75	21.67	0.147

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	1/50	H	16.94	5.02	21.96	0.157
		16QAM	1/50	H	16.17	5.02	21.19	0.132
		64QAM	1/50	H	14.96	5.02	19.98	0.100
	1880	QPSK	1/50	H	16.99	4.91	21.90	0.155
		16QAM	1/50	H	16.22	4.91	21.13	0.130
		64QAM	1/50	H	15.01	4.91	19.92	0.098
	1900	QPSK	1/50	H	16.68	4.81	21.49	0.141
		16QAM	1/50	H	15.91	4.81	20.72	0.118
		64QAM	1/50	H	14.70	4.81	19.51	0.089
15	1857.5	QPSK	1/36	H	17.11	5.03	22.14	0.164
		16QAM	1/36	H	16.34	5.03	21.37	0.137
		64QAM	1/36	H	15.13	5.03	20.16	0.104
	1880	QPSK	1/36	H	16.54	4.91	21.45	0.140
		16QAM	1/36	H	15.77	4.91	20.68	0.117
		64QAM	1/36	H	14.56	4.91	19.47	0.089
	1902.5	QPSK	1/36	H	16.49	4.80	21.29	0.135
		16QAM	1/36	H	15.72	4.80	20.52	0.113
		64QAM	1/36	H	14.51	4.80	19.31	0.085
10	1855	QPSK	1/25	H	16.99	5.05	22.04	0.160
		16QAM	1/25	H	16.22	5.05	21.27	0.134
		64QAM	1/25	H	15.01	5.05	20.06	0.101
	1880	QPSK	1/25	H	17.10	4.91	22.01	0.159
		16QAM	1/25	H	16.33	4.91	21.24	0.133
		64QAM	1/25	H	15.12	4.91	20.03	0.101
	1905	QPSK	1/25	H	16.58	4.79	21.37	0.137
		16QAM	1/25	H	15.81	4.79	20.60	0.115
		64QAM	1/25	H	14.60	4.79	19.39	0.087

- 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	1/12	H	17.51	5.06	22.57	0.181
		16QAM	1/12	H	16.74	5.06	21.80	0.151
		64QAM	1/12	H	15.53	5.06	20.59	0.115
	1880	QPSK	1/12	H	16.95	4.91	21.86	0.153
		16QAM	1/12	H	16.18	4.91	21.09	0.129
		64QAM	1/12	H	14.97	4.91	19.88	0.097
	1907.5	QPSK	1/12	H	14.98	4.77	19.75	0.094
		16QAM	1/12	H	14.21	4.77	18.98	0.079
		64QAM	1/12	H	13.00	4.77	17.77	0.060
3	1851.5	QPSK	1/7	H	17.68	5.06	22.74	0.188
		16QAM	1/7	H	16.91	5.06	21.97	0.157
		64QAM	1/7	H	15.70	5.06	20.76	0.119
	1880	QPSK	1/7	H	17.01	4.91	21.92	0.156
		16QAM	1/7	H	16.24	4.91	21.15	0.130
		64QAM	1/7	H	15.03	4.91	19.94	0.099
	1908.5	QPSK	1/14	H	15.30	4.77	20.07	0.102
		16QAM	1/14	H	14.53	4.77	19.30	0.085
		64QAM	1/14	H	13.32	4.77	18.09	0.064
1.4	1850.7	QPSK	1/2	H	16.95	5.07	22.02	0.159
		16QAM	1/2	H	16.18	5.07	21.25	0.133
		64QAM	1/2	H	14.97	5.07	20.04	0.101
	1880	QPSK	1/2	H	16.70	4.91	21.61	0.145
		16QAM	1/2	H	15.93	4.91	20.84	0.121
		64QAM	1/2	H	14.72	4.91	19.63	0.092
	1909.3	QPSK	1/2	H	15.14	4.76	19.90	0.098
		16QAM	1/2	H	14.37	4.76	19.13	0.082
		64QAM	1/2	H	13.16	4.76	17.92	0.062

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	1/50	H	16.00	5.02	21.02	0.126
15	1857.5	QPSK	1/36	H	15.77	5.03	20.80	0.120
10	1855	QPSK	1/25	H	16.34	5.05	21.39	0.138
5	1852.5	QPSK	1/12	H	16.37	5.06	21.43	0.139
3	1851.5	QPSK	1/7	H	16.35	5.06	21.41	0.138
1.4	1850.7	QPSK	1/2	H	16.20	5.07	21.27	0.134

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	13.26	6.19	19.45	0.088
		16QAM	1/0	V	12.30	6.19	18.49	0.071
		64QAM	1/0	V	11.51	6.19	17.70	0.059
	2593	QPSK	1/99	V	13.57	6.23	19.80	0.095
		16QAM	1/99	V	12.61	6.23	18.84	0.077
		64QAM	1/99	V	11.82	6.23	18.05	0.064
	2680	QPSK	1/50	V	9.85	6.49	16.34	0.043
		16QAM	1/50	V	8.89	6.49	15.38	0.035
		64QAM	1/50	V	8.10	6.49	14.59	0.029
15	2503.5	QPSK	1/36	V	11.73	6.19	17.92	0.062
		16QAM	1/36	V	10.77	6.19	16.96	0.050
		64QAM	1/36	V	9.98	6.19	16.17	0.041
	2593	QPSK	1/36	V	12.18	6.23	18.41	0.069
		16QAM	1/36	V	11.22	6.23	17.45	0.056
		64QAM	1/36	V	10.43	6.23	16.66	0.046
	2682.5	QPSK	1/36	V	10.09	6.50	16.59	0.046
		16QAM	1/36	V	9.13	6.50	15.63	0.037
		64QAM	1/36	V	8.34	6.50	14.84	0.030
10	2501	QPSK	1/0	V	11.99	6.19	18.18	0.066
		16QAM	1/0	V	11.03	6.19	17.22	0.053
		64QAM	1/0	V	10.24	6.19	16.43	0.044
	2593	QPSK	1/0	V	13.07	6.23	19.30	0.085
		16QAM	1/0	V	12.11	6.23	18.34	0.068
		64QAM	1/0	V	11.32	6.23	17.55	0.057
	2685	QPSK	1/0	V	10.49	6.51	17.00	0.050
		16QAM	1/0	V	9.53	6.51	16.04	0.040
		64QAM	1/0	V	8.74	6.51	15.25	0.033
5	2498.5	QPSK	1/0	V	12.50	6.19	18.69	0.074
		16QAM	1/0	V	11.54	6.19	17.73	0.059
		64QAM	1/0	V	10.75	6.19	16.94	0.049
	2593	QPSK	1/0	V	12.98	6.23	19.21	0.083
		16QAM	1/0	V	12.02	6.23	18.25	0.067
		64QAM	1/0	V	11.23	6.23	17.46	0.056
	2687.5	QPSK	1/0	V	10.92	6.52	17.44	0.055
		16QAM	1/0	V	9.96	6.52	16.48	0.044
		64QAM	1/0	V	9.17	6.52	15.69	0.037

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	2593	QPSK	1/99	V	12.09	6.23	18.32	0.068
15	2593	QPSK	1/36	V	10.87	6.23	17.10	0.051
10	2593	QPSK	1/0	V	12.59	6.23	18.82	0.076
5	2593	QPSK	1/0	V	11.65	6.23	17.88	0.061

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	1/50	V	11.84	6.19	18.03	0.064
		16QAM	1/50	V	11.08	6.19	17.27	0.053
		64QAM	1/50	V	10.18	6.19	16.37	0.043
	2535	QPSK	1/50	V	12.43	6.21	18.64	0.073
		16QAM	1/50	V	11.67	6.21	17.88	0.061
		64QAM	1/50	V	10.77	6.21	16.98	0.050
	2560	QPSK	1/50	V	12.41	6.21	18.62	0.073
		16QAM	1/50	V	11.65	6.21	17.86	0.061
		64QAM	1/50	V	10.75	6.21	16.96	0.050
15	2507.5	QPSK	1/0	V	12.43	6.19	18.62	0.073
		16QAM	1/0	V	11.67	6.19	17.86	0.061
		64QAM	1/0	V	10.77	6.19	16.96	0.050
	2535	QPSK	1/36	V	12.33	6.21	18.54	0.071
		16QAM	1/36	V	11.57	6.21	17.78	0.060
		64QAM	1/36	V	10.67	6.21	16.88	0.049
	2562.5	QPSK	1/0	V	12.45	6.21	18.66	0.073
		16QAM	1/0	V	11.69	6.21	17.90	0.062
		64QAM	1/0	V	10.79	6.21	17.00	0.050
10	2505	QPSK	1/25	V	12.24	6.19	18.43	0.070
		16QAM	1/25	V	11.48	6.19	17.67	0.058
		64QAM	1/25	V	10.58	6.19	16.77	0.048
	2535	QPSK	1/25	V	12.02	6.21	18.23	0.067
		16QAM	1/25	V	11.26	6.21	17.47	0.056
		64QAM	1/25	V	10.36	6.21	16.57	0.045
	2565	QPSK	1/0	V	12.02	6.22	18.24	0.067
		16QAM	1/0	V	11.26	6.22	17.48	0.056
		64QAM	1/0	V	10.36	6.22	16.58	0.045
5	2502.5	QPSK	1/12	V	12.86	6.19	19.05	0.080
		16QAM	1/12	V	12.10	6.19	18.29	0.067
		64QAM	1/12	V	11.20	6.19	17.39	0.055
	2535	QPSK	1/12	V	12.20	6.21	18.41	0.069
		16QAM	1/12	V	11.44	6.21	17.65	0.058
		64QAM	1/12	V	10.54	6.21	16.75	0.047
	2567.5	QPSK	1/12	V	11.43	6.22	17.65	0.058
		16QAM	1/12	V	10.67	6.22	16.89	0.049
		64QAM	1/12	V	9.77	6.22	15.99	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.

- 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	1/50	H	11.13	6.21	17.34	0.054
15	2562.5	QPSK	1/0	H	11.08	6.21	17.29	0.054
10	2505	QPSK	1/25	H	9.91	6.19	16.10	0.041
5	2502.5	QPSK	1/0	H	9.63	6.19	15.82	0.038

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

- 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	1/49	QPSK	2125.58	H	-53.66	2.65	-51.01	64.18	26.17
		1/49	16QAM	2125.73	H	-53.98	2.65	-51.33	63.83	25.50
		1/49	64QAM	2125.88	H	-53.90	2.66	-51.24	63.74	24.26
	707.5	1/49	QPSK	2135.89	H	-45.75	2.75	-43.00	56.86	26.86
		1/49	16QAM	2136.04	H	-46.07	2.75	-43.32	56.51	26.19
		1/49	64QAM	2136.19	H	-45.99	2.75	-43.24	56.43	24.95
	711	1/49	QPSK	2146.02	H	-51.35	2.84	-48.51	62.39	26.88
		1/49	16QAM	2146.17	H	-51.67	2.84	-48.83	62.04	26.21
		1/49	64QAM	2146.32	H	-51.59	2.84	-48.75	61.96	24.97
5	701.5	1/24	QPSK	2111.04	H	-52.94	2.52	-50.42	63.48	26.06
		1/24	16QAM	2111.31	H	-53.46	2.52	-50.94	63.33	25.39
		1/24	64QAM	2110.67	H	-53.60	2.52	-51.08	63.47	24.15
	707.5	1/24	QPSK	2128.68	H	-52.18	2.68	-49.50	63.20	26.70
		1/24	16QAM	2128.95	H	-52.70	2.68	-50.02	63.05	26.03
		1/24	64QAM	2128.31	H	-52.84	2.68	-50.16	63.19	24.79
	713.5	1/24	QPSK	2146.84	H	-52.00	2.85	-49.15	62.98	26.83
		1/24	16QAM	2147.11	H	-52.52	2.85	-49.67	62.83	26.16
		1/24	64QAM	2146.47	H	-52.66	2.84	-49.82	62.98	24.92
3	700.5	1/14	QPSK	2105.34	H	-53.03	2.47	-50.56	63.57	26.01
		1/14	16QAM	2105.77	H	-53.71	2.47	-51.24	63.58	25.34
		1/14	64QAM	2104.97	H	-53.69	2.47	-51.22	63.56	24.10
	707.5	1/14	QPSK	2126.45	H	-52.82	2.66	-50.16	63.82	26.66
		1/14	16QAM	2126.88	H	-53.49	2.66	-50.83	63.82	25.99
		1/14	64QAM	2126.08	H	-53.48	2.66	-50.82	63.81	24.75
	714.5	1/14	QPSK	2147.12	H	-51.63	2.85	-48.78	62.34	26.56
		1/14	16QAM	2147.55	H	-52.31	2.85	-49.46	62.35	25.89
		1/14	64QAM	2146.75	H	-52.29	2.85	-49.44	62.33	24.65
1.4	699.7	1/5	QPSK	2100.23	H	-53.88	2.42	-51.46	63.57	25.11
		1/5	16QAM	2099.80	H	-54.49	2.42	-52.07	63.51	24.44
		1/5	64QAM	2100.39	H	-54.79	2.42	-52.37	63.81	23.20
	707.5	1/5	QPSK	2123.60	H	-52.98	2.63	-50.35	63.19	25.84
		1/5	16QAM	2123.17	H	-53.59	2.63	-50.96	63.13	25.17
		1/5	64QAM	2123.76	H	-53.89	2.64	-51.25	63.42	23.93
	715.3	1/5	QPSK	2147.56	H	-52.30	2.85	-49.45	62.13	25.68
		1/5	16QAM	2147.13	H	-52.91	2.85	-50.06	62.07	25.01
		1/5	64QAM	2147.72	H	-53.21	2.85	-50.36	62.37	23.77

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

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

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

- 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	711	1/49	QPSK	2146.31	H	-50.80	2.84	-47.96	62.38	27.42
5	713.5	1/24	QPSK	2147.00	H	-51.01	2.85	-48.16	62.08	26.92
3	707.5	1/14	QPSK	2126.57	H	-53.00	2.66	-50.34	63.99	26.65
1.4	707.5	1/5	QPSK	2124.24	H	-54.30	2.64	-51.66	65.13	26.47

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

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

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

7.6.2 LTE Band 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	709	1/49	QPSK	2140.38	H	-44.76	2.79	-41.97	55.56	26.59
		1/49	16QAM	2140.32	H	-45.01	2.79	-42.22	55.01	25.79
		1/49	64QAM	2140.81	H	-45.35	2.79	-42.56	55.35	24.76
	711	1/49	QPSK	2146.09	H	-52.04	2.84	-49.20	62.70	26.50
		1/49	16QAM	2146.03	H	-52.29	2.84	-49.45	62.15	25.70
		1/49	64QAM	2146.52	H	-52.63	2.84	-49.79	62.49	24.67
5	706.5	1/24	QPSK	2126.43	H	-52.14	2.66	-49.48	62.55	26.07
		1/24	16QAM	2126.28	H	-53.10	2.66	-50.44	62.71	25.27
		1/24	64QAM	2126.86	H	-52.76	2.66	-50.10	62.37	24.24
	710	1/24	QPSK	2136.61	H	-50.91	2.75	-48.16	61.46	26.30
		1/24	16QAM	2136.46	H	-51.87	2.75	-49.12	61.62	25.50
		1/24	64QAM	2137.04	H	-51.54	2.76	-48.78	61.28	24.47
	713.5	1/24	QPSK	2147.18	H	-50.79	2.85	-47.94	61.28	26.34
		1/24	16QAM	2147.03	H	-51.75	2.85	-48.90	61.44	25.54
		1/24	64QAM	2147.61	H	-51.42	2.85	-48.57	61.11	24.51

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

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

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

- 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	709	1/49	QPSK	2140.10	H	-52.00	2.78	-49.22	63.15	26.93
5	713.5	1/24	QPSK	2146.79	H	-50.59	2.85	-47.74	61.23	26.49

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

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

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

7.6.3 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	1555.25	H	-54.45	3.64	-50.81	68.38	30.57
				2332.77	H	-24.38	3.97	-20.41	37.98	
				3887.91	H	-51.76	6.49	-45.27	62.84	
		1/0	16QAM	1554.76	H	-55.11	3.64	-51.47	68.14	29.67
				2332.28	H	-25.05	3.96	-21.09	37.76	
				3887.42	H	-52.42	6.48	-45.94	62.61	
		1/0	64QAM	1554.76	H	-55.26	3.64	-51.62	68.29	28.91
				2332.28	H	-25.20	3.96	-21.24	37.91	
				3887.42	H	-52.57	6.48	-46.09	62.76	
5	779.5	1/0	QPSK	1554.58	H	-55.40	3.64	-51.76	69.09	30.33
				2332.28	H	-35.94	3.96	-31.98	49.31	
		1/0	16QAM	1554.60	H	-56.38	3.64	-52.74	69.17	29.43
				2332.30	H	-37.21	3.96	-33.25	49.68	
		1/0	64QAM	1554.31	H	-56.72	3.64	-53.08	69.51	28.67
				2332.01	H	-37.40	3.96	-33.44	49.87	
	784.5	1/0	QPSK	2347.00	H	-26.58	3.99	-22.59	39.80	30.21
		1/0	16QAM	2347.02	H	-27.77	3.99	-23.78	40.09	29.31
		1/0	64QAM	2346.73	H	-28.16	3.99	-24.17	40.48	28.55

- 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	1555.38	H	-54.95	3.64	-51.31	68.15	29.84
				2332.81	H	-26.50	3.97	-22.53	39.37	
5	779.5	1/0	QPSK	1554.44	H	-55.00	3.64	-51.36	67.65	29.29
				2332.07	H	-27.44	3.96	-23.48	39.77	

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

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

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

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

- 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)
5	784.5	1/0	QPSK	1564.63	H	-55.10	6.35	-48.75	8.75	-40.00
		1/0	16QAM	1564.65	H	-55.69	6.35	-49.34	9.34	
		1/0	64QAM	1564.36	H	-55.98	6.35	-49.63	9.63	

- 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)
5	784.5	1/0	QPSK	1564.49	H	-56.06	6.35	-49.71	9.71	-40.00

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	1/0	QPSK	1649.16	H	-46.33	3.77	-42.56	62.22	32.66
				2473.64	H	-32.77	4.05	-28.72	48.38	
				4123.06	H	-45.32	7.16	-38.16	57.82	
			16QAM	1649.01	H	-46.78	3.77	-43.01	62.02	32.01
				2473.49	H	-33.22	4.05	-29.17	48.18	
				4122.91	H	-45.76	7.16	-38.60	57.61	
			64QAM	1649.21	H	-46.74	3.77	-42.97	61.98	31.05
				2473.69	H	-33.18	4.05	-29.13	48.14	
				4123.11	H	-45.73	7.16	-38.57	57.58	
	836.5	1/0	QPSK	1649.16	H	-46.33	3.77	-42.56	61.87	32.31
				2496.37	H	-35.38	4.04	-31.34	50.65	
				4123.06	H	-45.32	7.16	-38.16	57.47	
			16QAM	1649.01	H	-46.78	3.77	-43.01	61.67	31.66
				2496.22	H	-35.81	4.04	-31.77	50.43	
				4122.91	H	-45.76	7.16	-38.60	57.26	
			64QAM	1649.21	H	-46.74	3.77	-42.97	61.63	30.70
				2496.42	H	-35.79	4.04	-31.75	50.41	
				4123.11	H	-45.73	7.16	-38.57	57.23	
	844	1/0	QPSK	1649.16	H	-46.33	3.77	-42.56	61.63	32.07
				2518.91	H	-41.36	4.05	-37.31	56.38	
				4123.06	H	-45.32	7.16	-38.16	57.23	
			16QAM	1649.01	H	-46.78	3.77	-43.01	61.43	31.42
				2518.76	H	-41.80	4.05	-37.75	56.17	
				4122.91	H	-45.76	7.16	-38.60	57.02	
			64QAM	1649.21	H	-46.74	3.77	-42.97	61.39	30.46
				2518.96	H	-41.77	4.05	-37.72	56.14	
				4123.11	H	-45.73	7.16	-38.57	56.99	

- 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)	
5	826.5	1/0	QPSK	1648.60	H	-46.34	3.77	-42.57	62.44	32.87
				2473.07	H	-31.93	4.05	-27.88	47.75	
				4121.69	H	-44.84	7.16	-37.68	57.55	
			16QAM	1648.18	H	-46.70	3.77	-42.93	62.15	32.22
				2472.65	H	-32.29	4.05	-28.24	47.46	
				4121.27	H	-45.20	7.16	-38.04	57.26	
			64QAM	1648.39	H	-46.93	3.77	-43.16	62.38	31.26
				2472.86	H	-32.52	4.05	-28.47	47.69	
				4121.48	H	-45.43	7.16	-38.27	57.49	
	836.5	1/0	QPSK	1668.73	H	-49.16	3.78	-45.38	64.33	31.95
				2503.01	H	-36.52	4.04	-32.48	51.43	
				4171.62	H	-48.61	7.21	-41.40	60.35	
			16QAM	1668.31	H	-49.52	3.78	-45.74	64.04	31.30
				2502.59	H	-36.88	4.04	-32.84	51.14	
				4171.20	H	-48.97	7.21	-41.76	60.06	
			64QAM	1668.52	H	-49.75	3.78	-45.97	64.27	30.34
				2502.80	H	-37.11	4.04	-33.07	51.37	
				4171.41	H	-49.20	7.21	-41.99	60.29	
	846.5	1/0	QPSK	1688.56	H	-52.72	3.79	-48.93	67.99	32.06
				2532.81	H	-46.48	4.05	-42.43	61.49	
				4221.39	H	-52.03	7.22	-44.81	63.87	
			16QAM	1688.14	H	-53.09	3.79	-49.30	67.71	31.41
				2532.39	H	-46.84	4.05	-42.79	61.20	
				4220.97	H	-52.39	7.22	-45.17	63.58	
			64QAM	1688.35	H	-53.32	3.79	-49.53	67.94	30.45
				2532.60	H	-47.07	4.05	-43.02	61.43	
				4221.18	H	-52.62	7.22	-45.40	63.81	
3	825.5	1/0	QPSK	1648.42	H	-46.84	3.77	-43.07	63.05	32.98
				2472.76	H	-30.99	4.05	-26.94	46.92	
				4121.24	H	-45.12	7.16	-37.96	57.94	
			16QAM	1648.10	H	-47.85	3.77	-44.08	63.41	32.33
				2472.44	H	-31.99	4.05	-27.94	47.27	
				4120.92	H	-46.12	7.16	-38.96	58.29	
			64QAM	1648.26	H	-47.05	3.77	-43.28	62.61	31.37
				2472.60	H	-31.20	4.05	-27.15	46.48	
				4121.08	H	-45.33	7.16	-38.17	57.50	
	836.5	1/0	QPSK	1670.30	H	-49.81	3.78	-46.03	64.63	31.60
				2505.71	H	-36.93	4.04	-32.89	51.49	
				4176.26	H	-49.85	7.22	-42.63	61.23	
			16QAM	1669.98	H	-50.81	3.78	-47.03	64.98	30.95
				2505.39	H	-37.93	4.04	-33.89	51.84	
				4175.94	H	-50.85	7.22	-43.63	61.58	
			64QAM	1670.14	H	-50.02	3.78	-46.24	64.19	29.99
				2505.55	H	-37.14	4.04	-33.10	51.05	
				4176.10	H	-50.06	7.22	-42.84	60.79	

- 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	847.5	1/0	QPSK	1692.26	H	-53.88	3.79	-50.09	68.84	31.75
				2538.79	H	-46.36	4.06	-42.30	61.05	
				4230.93	H	-52.05	7.21	-44.84	63.59	
			16QAM	1691.94	H	-54.88	3.79	-51.09	69.19	31.10
				2538.47	H	-47.36	4.06	-43.30	61.40	
				4230.61	H	-53.05	7.21	-45.84	63.94	
			64QAM	1692.10	H	-54.09	3.79	-50.30	68.40	30.14
				2538.63	H	-46.57	4.06	-42.51	60.61	
				4230.77	H	-52.26	7.21	-45.05	63.15	
1.4	824.7	1/0	QPSK	1648.55	H	-46.91	3.77	-43.14	63.07	32.93
				2472.96	H	-31.89	4.05	-27.84	47.77	
				4121.08	H	-44.92	7.16	-37.76	57.69	
			16QAM	1648.12	H	-47.80	3.77	-44.03	63.31	32.28
				2472.53	H	-32.77	4.05	-28.72	48.00	
				4120.65	H	-45.80	7.16	-38.64	57.92	
			64QAM	1648.41	H	-47.21	3.77	-43.44	62.72	31.32
				2472.82	H	-32.19	4.05	-28.14	47.42	
				4120.94	H	-45.22	7.16	-38.06	57.34	
	836.5	1/0	QPSK	1672.08	H	-49.38	3.78	-45.60	64.16	31.56
				2508.37	H	-38.48	4.04	-34.44	53.00	
				4179.96	H	-50.87	7.22	-43.65	62.21	
			16QAM	1671.65	H	-50.27	3.78	-46.49	64.40	30.91
				2507.94	H	-39.36	4.04	-35.32	53.23	
				4179.53	H	-51.75	7.22	-44.53	62.44	
			64QAM	1671.94	H	-49.68	3.78	-45.90	63.81	29.95
				2508.23	H	-38.78	4.04	-34.74	52.65	
				4179.82	H	-51.17	7.22	-43.95	61.86	
	848.3	1/0	QPSK	1695.28	H	-54.72	3.79	-50.93	69.67	31.74
				2543.84	H	-46.88	4.06	-42.82	61.56	
			16QAM	1694.85	H	-55.60	3.79	-51.81	69.90	31.09
				2543.41	H	-47.76	4.06	-43.70	61.79	
			64QAM	1695.14	H	-55.02	3.79	-51.23	69.32	30.13
				2543.70	H	-47.18	4.06	-43.12	61.21	

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

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

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

- 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	844	1/0	QPSK	1649.12	H	-45.19	3.77	-41.42	63.05	34.63
				2473.66	H	-27.81	4.05	-23.76	45.39	
				4123.00	H	-47.56	7.16	-40.40	62.03	
5	846.5	1/0	QPSK	1648.71	H	-45.44	3.77	-41.67	63.27	34.60
				2472.87	H	-27.44	4.05	-23.39	44.99	
				4121.76	H	-47.33	7.16	-40.17	61.77	
3	836.5	1/0	QPSK	1648.62	H	-45.29	3.77	-41.52	62.92	34.40
				2472.78	H	-29.06	4.05	-25.01	46.41	
				4121.03	H	-47.95	7.16	-40.79	62.19	
1.4	836.55	1/0	QPSK	1648.43	H	-45.41	3.77	-41.64	62.85	34.21
				2472.76	H	-28.42	4.05	-24.37	45.58	
				4121.21	H	-47.84	7.16	-40.68	61.89	

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

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

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

7.6.5 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	1/50	QPSK	3440.18	H	-52.30	8.30	-44.00	67.33	36.33
			16QAM	3440.32	H	-52.59	8.30	-44.29	66.75	35.46
			64QAM	3440.46	H	-52.84	8.30	-44.54	67.00	34.72
	1732.5	1/50	QPSK	3464.71	H	-54.47	8.39	-46.08	69.89	36.81
			16QAM	3464.85	H	-54.76	8.39	-46.37	69.31	35.94
			64QAM	3464.99	H	-55.01	8.39	-46.62	69.56	35.20
	1745	1/50	QPSK	3490.32	H	-54.01	8.48	-45.53	68.68	36.15
			16QAM	3490.46	H	-54.30	8.48	-45.82	68.10	35.28
			64QAM	3490.60	H	-54.55	8.48	-46.07	68.35	34.54
15	1717.5	1/36	QPSK	3434.79	H	-51.88	8.28	-43.60	67.28	36.68
			16QAM	3434.79	H	-52.56	8.28	-44.28	67.09	35.81
			64QAM	3434.95	H	-52.32	8.28	-44.04	66.85	35.07
	1732.5	1/36	QPSK	3464.38	H	-53.79	8.39	-45.40	69.31	36.91
			16QAM	3464.38	H	-54.47	8.39	-46.08	69.12	36.04
			64QAM	3464.54	H	-54.23	8.39	-45.84	68.88	35.30
	1747.5	1/0	QPSK	3481.78	H	-53.32	8.45	-44.87	68.19	36.32
			16QAM	3481.78	H	-54.00	8.45	-45.55	68.00	35.45
			64QAM	3481.94	H	-53.76	8.45	-45.31	67.76	34.71
10	1715	1/25	QPSK	3430.29	H	-51.70	8.27	-43.43	67.13	36.70
			16QAM	3430.62	H	-52.56	8.27	-44.29	67.12	35.83
			64QAM	3430.74	H	-52.69	8.27	-44.42	67.25	35.09
	1732.5	1/25	QPSK	3465.22	H	-51.90	8.39	-43.51	67.38	36.87
			16QAM	3465.55	H	-52.76	8.39	-44.37	67.37	36.00
			64QAM	3465.67	H	-52.89	8.39	-44.50	67.50	35.26
	1750	1/0	QPSK	3491.24	H	-53.74	8.48	-45.26	67.75	35.49
			16QAM	3491.57	H	-54.60	8.48	-46.12	67.74	34.62
			64QAM	3491.69	H	-54.73	8.48	-46.25	67.87	33.88
5	1712.5	1/12	QPSK	3425.00	H	-52.36	8.25	-44.11	67.53	36.42
			16QAM	3425.38	H	-52.95	8.25	-44.70	67.25	35.55
			64QAM	3425.00	H	-52.98	8.25	-44.73	67.28	34.81
	1732.5	1/12	QPSK	3464.91	H	-52.33	8.39	-43.94	67.50	36.56
			16QAM	3465.29	H	-52.92	8.39	-44.53	67.22	35.69
			64QAM	3464.91	H	-52.95	8.39	-44.56	67.25	34.95
	1752.5	1/12	QPSK	3505.06	H	-53.38	8.51	-44.87	67.47	35.60
			16QAM	3505.44	H	-54.00	8.51	-45.49	67.22	34.73
			64QAM	3505.06	H	-54.00	8.51	-45.49	67.22	33.99

- 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	1/7	QPSK	3423.04	H	-52.55	8.24	-44.31	67.79	36.48
			16QAM	3423.22	H	-53.42	8.24	-45.18	67.79	35.61
			64QAM	3423.00	H	-52.77	8.24	-44.53	67.14	34.87
	1732.5	1/7	QPSK	3465.10	H	-53.30	8.39	-44.91	68.59	36.68
			16QAM	3465.28	H	-54.17	8.39	-45.78	68.59	35.81
			64QAM	3465.06	H	-53.52	8.39	-45.13	67.94	35.07
	1753.5	1/7	QPSK	3506.88	H	-53.06	8.51	-44.55	67.20	35.65
			16QAM	3507.06	H	-53.93	8.51	-45.42	67.20	34.78
			64QAM	3506.84	H	-53.28	8.51	-44.77	66.55	34.04
1.4	1710.7	1/2	QPSK	3421.25	H	-52.26	8.23	-44.03	67.11	36.08
			16QAM	3421.13	H	-52.85	8.23	-44.62	66.83	35.21
			64QAM	3421.29	H	-52.76	8.23	-44.53	66.74	34.47
	1732.5	1/2	QPSK	3464.82	H	-53.23	8.39	-44.84	68.50	36.66
			16QAM	3464.70	H	-53.82	8.39	-45.43	68.22	35.79
			64QAM	3464.86	H	-53.73	8.39	-45.34	68.13	35.05
	1754.3	1/2	QPSK	3508.49	H	-53.34	8.51	-44.83	67.60	35.77
			16QAM	3508.37	H	-53.93	8.51	-45.42	67.32	34.90
			64QAM	3508.53	H	-53.84	8.51	-45.33	67.23	34.16

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

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

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

- 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	1732.5	1/50	QPSK	3464.94	H	-53.02	8.39	-44.63	66.48	34.85
15	1732.5	1/36	QPSK	3464.97	H	-52.96	8.39	-44.57	66.36	34.79
10	1732.5	1/25	QPSK	3465.34	H	-53.06	8.39	-44.67	66.54	34.87
5	1732.5	1/12	QPSK	3464.73	H	-52.66	8.39	-44.27	65.97	34.70
3	1732.5	1/7	QPSK	3465.04	H	-52.49	8.39	-44.10	66.08	34.98
1.4	1732.5	1/2	QPSK	3464.73	H	-53.20	8.39	-44.81	66.48	34.67

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

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

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

7.6.6 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	1/50	QPSK	3721.54	V	-54.07	8.50	-45.57	67.53	34.96
			16QAM	3717.62	V	-53.87	8.50	-45.37	66.56	34.19
			64QAM	3717.23	V	-53.42	8.50	-44.92	66.11	32.98
	1880	1/50	QPSK	3758.38	V	-53.62	8.51	-45.11	67.01	34.90
			16QAM	3761.31	V	-53.11	8.51	-44.60	65.73	34.13
			64QAM	3759.03	V	-53.40	8.51	-44.89	66.02	32.92
	1900	1/50	QPSK	3802.34	V	-52.89	8.53	-44.36	65.85	34.49
			16QAM	3796.51	V	-53.16	8.53	-44.63	65.35	33.72
			64QAM	3802.01	V	-53.12	8.53	-44.59	65.31	32.51
15	1857.5	1/36	QPSK	3713.90	V	-54.24	8.50	-45.74	67.88	35.14
			16QAM	3716.58	V	-54.04	8.50	-45.54	66.91	34.37
			64QAM	3714.26	V	-54.17	8.50	-45.67	67.04	33.16
	1880	1/36	QPSK	3758.74	V	-53.65	8.51	-45.14	66.59	34.45
			16QAM	3760.68	V	-53.53	8.51	-45.02	65.70	33.68
			64QAM	3758.40	V	-54.22	8.51	-45.71	66.39	32.47
	1902.5	1/36	QPSK	3806.53	V	-54.39	8.54	-45.85	67.14	34.29
			16QAM	3804.76	V	-53.68	8.54	-45.14	65.66	33.52
			64QAM	3803.55	V	-53.67	8.53	-45.14	65.66	32.31
10	1855	1/25	QPSK	3708.57	V	-53.69	8.49	-45.20	67.24	35.04
			16QAM	3709.39	V	-53.47	8.49	-44.98	66.25	34.27
			64QAM	3709.04	V	-53.66	8.49	-45.17	66.44	33.06
	1880	1/25	QPSK	3757.64	V	-53.61	8.51	-45.10	67.11	35.01
			16QAM	3761.74	V	-53.49	8.51	-44.98	66.22	34.24
			64QAM	3758.52	V	-53.73	8.51	-45.22	66.46	33.03
	1905	1/25	QPSK	3809.97	V	-53.77	8.54	-45.23	66.60	34.37
			16QAM	3808.63	V	-53.56	8.54	-45.02	65.62	33.60
			64QAM	3810.63	V	-53.41	8.54	-44.87	65.47	32.39
5	1852.5	1/12	QPSK	3707.28	V	-53.83	8.49	-45.34	67.91	35.57
			16QAM	3704.31	V	-54.22	8.49	-45.73	67.53	34.80
			64QAM	3703.40	V	-53.62	8.49	-45.13	66.93	33.59
	1880	1/12	QPSK	3760.22	V	-53.85	8.51	-45.34	67.20	34.86
			16QAM	3757.98	V	-53.29	8.51	-44.78	65.87	34.09
			64QAM	3761.97	V	-54.09	8.51	-45.58	66.67	32.88
	1907.5	1/12	QPSK	3813.78	V	-53.78	8.55	-45.23	64.98	32.75
			16QAM	3816.81	V	-53.47	8.55	-44.92	63.90	31.98
			64QAM	3817.20	V	-53.40	8.55	-44.85	63.83	30.77

- 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	1/7	QPSK	3704.44	V	-53.76	8.49	-45.27	68.01	35.74
			16QAM	3701.67	V	-53.38	8.49	-44.89	66.86	34.97
			64QAM	3703.47	V	-53.97	8.49	-45.48	67.45	33.76
	1880	1/7	QPSK	3761.43	V	-53.84	8.51	-45.33	67.25	34.92
			16QAM	3757.69	V	-53.83	8.51	-45.32	66.47	34.15
			64QAM	3759.36	V	-53.84	8.51	-45.33	66.48	32.94
	1908.5	1/14	QPSK	3818.07	V	-53.31	8.55	-44.76	64.83	33.07
			16QAM	3822.39	V	-53.11	8.56	-44.55	63.85	32.30
			64QAM	3819.81	V	-53.03	8.55	-44.48	63.78	31.09
1.4	1850.7	1/2	QPSK	3700.58	V	-53.24	8.49	-44.75	66.77	35.02
			16QAM	3702.93	V	-54.07	8.49	-45.58	66.83	34.25
			64QAM	3701.76	V	-53.92	8.49	-45.43	66.68	33.04
	1880	1/2	QPSK	3760.04	V	-53.60	8.51	-45.09	66.70	34.61
			16QAM	3758.11	V	-53.45	8.51	-44.94	65.78	33.84
			64QAM	3758.09	V	-53.94	8.51	-45.43	66.27	32.63
	1909.3	1/2	QPSK	3819.37	V	-53.26	8.55	-44.71	64.61	32.90
			16QAM	3820.69	V	-53.20	8.55	-44.65	63.78	32.13
			64QAM	3816.35	V	-53.08	8.55	-44.53	63.66	30.92

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

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

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

- 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	1/50	QPSK	3721.01	H	-54.37	8.50	-45.87	66.89	34.02
15	1857.5	1/36	QPSK	3717.28	H	-54.35	8.50	-45.85	66.65	33.80
10	1855	1/25	QPSK	3709.93	H	-54.54	8.49	-46.05	67.44	34.39
5	1852.5	1/12	QPSK	3706.76	H	-54.97	8.49	-46.48	67.91	34.43
3	1851.5	1/7	QPSK	3700.76	H	-54.85	8.49	-46.36	67.77	34.41
1.4	1850.7	1/2	QPSK	3701.00	H	-54.60	8.49	-46.11	67.38	34.27

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

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

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

7.6.7 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	4990.99	V	-53.42	10.09	-43.33	62.78	44.45
			16QAM	4991.54	V	-53.88	10.09	-43.79	62.28	43.49
			64QAM	4992.98	V	-53.77	10.10	-43.67	62.16	42.70
	2593	1/99	QPSK	5205.60	V	-53.20	10.45	-42.75	62.55	44.80
			16QAM	5204.99	V	-53.42	10.45	-42.97	61.81	43.84
			64QAM	5206.41	V	-52.85	10.45	-42.40	61.24	43.05
	2680	1/50	QPSK	5359.46	V	-52.33	10.56	-41.77	58.11	41.34
			16QAM	5359.65	V	-52.93	10.56	-42.37	57.75	40.38
			64QAM	5357.72	V	-52.54	10.55	-41.99	57.37	39.59
15	2503.5	1/36	QPSK	5007.71	V	-53.16	10.12	-43.04	60.96	42.92
			16QAM	5007.21	V	-53.41	10.12	-43.29	60.25	41.96
			64QAM	5004.93	V	-53.65	10.12	-43.53	60.49	41.17
	2593	1/36	QPSK	5185.79	V	-53.08	10.43	-42.65	61.06	43.41
			16QAM	5183.57	V	-52.91	10.42	-42.49	59.94	42.45
			64QAM	5184.36	V	-53.12	10.42	-42.70	60.15	41.66
	2682.5	1/36	QPSK	5366.35	V	-52.56	10.56	-42.00	58.59	41.59
			16QAM	5364.63	V	-52.42	10.56	-41.86	57.49	40.63
			64QAM	5363.15	V	-52.77	10.56	-42.21	57.84	39.84
10	2501	1/0	QPSK	4993.32	V	-53.25	10.10	-43.15	61.33	43.18
			16QAM	4991.83	V	-53.34	10.10	-43.24	60.46	42.22
			64QAM	4992.86	V	-53.45	10.10	-43.35	60.57	41.43
	2593	1/0	QPSK	5176.45	V	-53.73	10.41	-43.32	62.62	44.30
			16QAM	5175.68	V	-52.82	10.41	-42.41	60.75	43.34
			64QAM	5174.40	V	-52.79	10.41	-42.38	60.72	42.55
	2685	1/0	QPSK	5358.18	V	-52.22	10.55	-41.67	58.67	42.00
			16QAM	5357.99	V	-52.94	10.55	-42.39	58.43	41.04
			64QAM	5359.29	V	-52.52	10.56	-41.96	58.00	40.25
5	2498.5	1/0	QPSK	4990.15	V	-53.49	10.09	-43.40	62.09	43.69
			16QAM	4992.15	V	-53.50	10.10	-43.40	61.13	42.73
			64QAM	4991.88	V	-53.60	10.10	-43.50	61.23	41.94
	2593	1/0	QPSK	5179.81	V	-53.31	10.42	-42.89	62.10	44.21
			16QAM	5182.33	V	-53.38	10.42	-42.96	61.21	43.25
			64QAM	5183.38	V	-52.84	10.42	-42.42	60.67	42.46
	2687.5	1/0	QPSK	5367.50	V	-52.46	10.56	-41.90	59.34	42.44
			16QAM	5371.71	V	-52.77	10.56	-42.21	58.69	41.48
			64QAM	5369.22	V	-53.02	10.56	-42.46	58.94	40.69

- 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	2593	1/99	QPSK	5203.98	V	-52.81	10.45	-42.36	60.68	43.32
15	2593	1/36	QPSK	5187.68	V	-52.75	10.43	-42.32	59.42	42.10
10	2593	1/0	QPSK	5178.32	V	-53.12	10.41	-42.71	61.53	43.82
5	2593	1/0	QPSK	5181.57	V	-52.83	10.42	-42.41	60.29	42.88

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

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

Note 3: The frequency spectrum is examined from 9 kHz to the 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	1/50	QPSK	5020.47	V	-53.02	10.14	-42.88	60.91	43.03
			16QAM	5018.66	V	-52.82	10.14	-42.68	59.95	42.27
			64QAM	5017.68	V	-52.71	10.14	-42.57	59.84	41.37
	2535	1/50	QPSK	5068.73	V	-52.51	10.23	-42.28	60.92	43.64
			16QAM	5070.63	V	-52.53	10.23	-42.30	60.18	42.88
			64QAM	5069.16	V	-52.58	10.23	-42.35	60.23	41.98
	2560	1/50	QPSK	5120.49	V	-52.59	10.31	-42.28	60.90	43.62
			16QAM	5121.39	V	-52.37	10.32	-42.05	59.91	42.86
			64QAM	5121.35	V	-52.67	10.32	-42.35	60.21	41.96
15	2507.5	1/0	QPSK	5001.57	V	-52.72	10.11	-42.61	61.23	43.62
			16QAM	5001.09	V	-52.65	10.11	-42.54	60.40	42.86
			64QAM	5000.16	V	-53.27	10.11	-43.16	61.02	41.96
	2535	1/36	QPSK	5069.76	V	-52.33	10.23	-42.10	60.64	43.54
			16QAM	5068.37	V	-52.85	10.23	-42.62	60.40	42.78
			64QAM	5068.10	V	-52.05	10.23	-41.82	59.60	41.88
	2562.5	1/0	QPSK	5112.29	V	-51.92	10.30	-41.62	60.28	43.66
			16QAM	5109.71	V	-52.05	10.30	-41.75	59.65	42.90
			64QAM	5108.98	V	-52.55	10.30	-42.25	60.15	42.00
10	2505	1/25	QPSK	5012.48	V	-52.60	10.13	-42.47	60.90	43.43
			16QAM	5010.71	V	-53.04	10.13	-42.91	60.58	42.67
			64QAM	5008.16	V	-52.64	10.12	-42.52	60.19	41.77
	2535	1/25	QPSK	5069.47	V	-52.34	10.23	-42.11	60.34	43.23
			16QAM	5071.97	V	-52.66	10.23	-42.43	59.90	42.47
			64QAM	5070.37	V	-51.86	10.23	-41.63	59.10	41.57
	2565	1/0	QPSK	5120.76	V	-52.11	10.32	-41.79	60.03	43.24
			16QAM	5120.96	V	-52.10	10.32	-41.78	59.26	42.48
			64QAM	5121.70	V	-52.27	10.32	-41.95	59.43	41.58
5	2502.5	1/12	QPSK	5004.08	V	-52.59	10.12	-42.47	61.52	44.05
			16QAM	5004.94	V	-53.38	10.12	-43.26	61.55	43.29
			64QAM	5007.17	V	-53.37	10.12	-43.25	61.54	42.39
	2535	1/12	QPSK	5067.95	V	-52.02	10.23	-41.79	60.20	43.41
			16QAM	5072.25	V	-53.34	10.23	-43.11	60.76	42.65
			64QAM	5070.48	V	-52.65	10.23	-42.42	60.07	41.75
	2567.5	1/12	QPSK	5134.70	V	-51.81	10.34	-41.47	59.12	42.65
			16QAM	5136.90	V	-52.30	10.34	-41.96	58.85	41.89
			64QAM	5136.94	V	-52.95	10.34	-42.61	59.50	40.99

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

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

Note 3: The frequency spectrum is examined from 9 kHz to the 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	1/50	QPSK	5022.22	H	-52.71	10.15	-42.56	59.90	42.34
15	2562.5	1/0	QPSK	5109.19	H	-52.34	10.30	-42.04	59.33	42.29
10	2505	1/25	QPSK	5008.37	H	-52.88	10.12	-42.76	58.86	41.10
5	2502.5	1/0	QPSK	4998.87	H	-52.81	10.11	-42.70	58.52	40.82

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

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

Note 3: The frequency spectrum is examined from 9 kHz to the 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

OPERATING FREQUENCY : 707.5 MHz

REFERENCE VOLTAGE : 3.85 VDC

LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	707,500,005	+5	0.0071	0.000000707
100%		-30	707,500,001	+1	0.0014	0.000000141
100%		-20	707,500,003	+3	0.0042	0.000000424
100%		-10	707,499,996	-4	-0.0057	-0.000000565
100%		0	707,499,998	-2	-0.0028	-0.000000283
100%		+10	707,500,002	+2	0.0028	0.000000283
100%		+20	707,500,005	+5	0.0071	0.000000707
100%		+30	707,500,006	+6	0.0085	0.000000848
100%		+40	707,500,003	+3	0.0042	0.000000424
100%		+50	707,500,001	+1	0.0014	0.000000141
115%	4.43	+20	707,499,996	-4	-0.0057	-0.000000565
BATT.ENDPOINT	2.95	+20	707,499,997	-3	-0.0042	-0.000000424

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 17

OPERATING FREQUENCY : 710 MHz

REFERENCE VOLTAGE : 3.85 VDC

LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	710,000,001	+1	0.0014	0.000000141
100%		-30	709,999,996	-4	-0.0056	-0.000000563
100%		-20	710,000,002	+2	0.0028	0.000000282
100%		-10	709,999,996	-4	-0.0056	-0.000000563
100%		0	709,999,997	-3	-0.0042	-0.000000423
100%		+10	710,000,005	+5	0.0070	0.000000704
100%		+20	710,000,001	+1	0.0014	0.000000141
100%		+30	710,000,003	+3	0.0042	0.000000423
100%		+40	710,000,005	+5	0.0070	0.000000704
100%		+50	709,999,996	-4	-0.0056	-0.000000563
115%	4.43	+20	710,000,008	+8	0.0113	0.000001127
BATT.ENDPOINT	2.95	+20	710,000,005	+5	0.0070	0.000000704

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 13

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

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	781,999,997	-3	-0.0038	-0.000000384
100%		-30	782,000,001	+1	0.0013	0.000000128
100%		-20	781,999,996	-4	-0.0051	-0.000000512
100%		-10	781,999,999	-1	-0.0013	-0.000000128
100%		0	782,000,003	+3	0.0038	0.000000384
100%		+10	782,000,006	+6	0.0077	0.000000767
100%		+20	781,999,997	-3	-0.0038	-0.000000384
100%		+30	782,000,008	+8	0.0102	0.000001023
100%		+40	781,999,995	-5	-0.0064	-0.000000639
100%		+50	782,000,002	+2	0.0026	0.000000256
115%	4.43	+20	782,000,006	+6	0.0077	0.000000767
BATT.ENDPOINT	2.95	+20	781,999,997	-3	-0.0038	-0.000000384

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.

7.7.4 LTE Band 5

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

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	836,500,006	+6	0.0072	0.000000717
100%		-30	836,499,997	-3	-0.0036	-0.000000359
100%		-20	836,499,996	-4	-0.0048	-0.000000478
100%		-10	836,499,999	-1	-0.0012	-0.000000120
100%		0	836,500,002	+2	0.0024	0.000000239
100%		+10	836,500,003	+3	0.0036	0.000000359
100%		+20	836,500,006	+6	0.0072	0.000000717
100%		+30	836,500,004	+4	0.0048	0.000000478
100%		+40	836,499,998	-2	-0.0024	-0.000000239
100%		+50	836,500,003	+3	0.0036	0.000000359
115%	4.43	+20	836,500,005	+5	0.0060	0.000000598
BATT.ENDPOINT	2.95	+20	836,499,997	-3	-0.0036	-0.000000359

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 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 within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	1,732,500,003	+3	0.0017	0.000000173
100%		-30	1,732,499,996	-4	-0.0023	-0.000000231
100%		-20	1,732,500,002	+2	0.0012	0.000000115
100%		-10	1,732,500,001	+1	0.0006	0.000000058
100%		0	1,732,499,997	-3	-0.0017	-0.000000173
100%		+10	1,732,500,001	+1	0.0006	0.000000058
100%		+20	1,732,500,003	+3	0.0017	0.000000173
100%		+30	1,732,499,998	-2	-0.0012	-0.000000115
100%		+40	1,732,500,003	+3	0.0017	0.000000173
100%		+50	1,732,500,001	+1	0.0006	0.000000058
115%	4.43	+20	1,732,500,004	+4	0.0023	0.000000231
BATT.ENDPOINT	2.95	+20	1,732,499,998	-2	-0.0012	-0.000000115

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 2

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

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	1,880,000,004	+4	0.0021	0.000000213
100%		-30	1,879,999,993	-7	-0.0037	-0.000000372
100%		-20	1,879,999,995	-5	-0.0027	-0.000000266
100%		-10	1,880,000,002	+2	0.0011	0.000000106
100%		0	1,879,999,999	-1	-0.0005	-0.000000053
100%		+10	1,880,000,003	+3	0.0016	0.000000160
100%		+20	1,880,000,004	+4	0.0021	0.000000213
100%		+30	1,880,000,004	+4	0.0021	0.000000213
100%		+40	1,879,999,999	-1	-0.0005	-0.000000053
100%		+50	1,880,000,003	+3	0.0016	0.000000160
115%	4.43	+20	1,880,000,007	+7	0.0037	0.000000372
BATT.ENDPOINT	2.95	+20	1,880,000,004	+4	0.0021	0.000000213

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 41

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

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	2,592,999,996	-4	-0.0015	-0.000000154
100%		-30	2,593,000,003	+3	0.0012	0.000000116
100%		-20	2,592,999,995	-5	-0.0019	-0.000000193
100%		-10	2,592,999,997	-3	-0.0012	-0.000000116
100%		0	2,592,999,999	-1	-0.0004	-0.000000039
100%		+10	2,593,000,001	+1	0.0004	0.000000039
100%		+20	2,592,999,996	-4	-0.0015	-0.000000154
100%		+30	2,593,000,003	+3	0.0012	0.000000116
100%		+40	2,593,000,007	+7	0.0027	0.000000270
100%		+50	2,593,000,006	+6	0.0023	0.000000231
115%	4.43	+20	2,593,000,005	+5	0.0019	0.000000193
BATT.ENDPOINT	2.95	+20	2,592,999,997	-3	-0.0012	-0.000000116

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.

7.7.8 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 within the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (°C)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100%	3.85	+20(Ref)	2,535,000,002	+2	0.0008	0.000000079
100%		-30	2,535,000,005	+5	0.0020	0.000000197
100%		-20	2,535,000,003	+3	0.0012	0.000000118
100%		-10	2,534,999,996	-4	-0.0016	-0.000000158
100%		0	2,534,999,997	-3	-0.0012	-0.000000118
100%		+10	2,534,999,999	-1	-0.0004	-0.000000039
100%		+20	2,535,000,002	+2	0.0008	0.000000079
100%		+30	2,535,000,002	+2	0.0008	0.000000079
100%		+40	2,535,000,006	+6	0.0024	0.000000237
100%		+50	2,535,000,007	+7	0.0028	0.000000276
115%	4.43	+20	2,535,000,003	+3	0.0012	0.000000118
BATT.ENDPOINT	2.95	+20	2,534,999,996	-4	-0.0016	-0.000000158

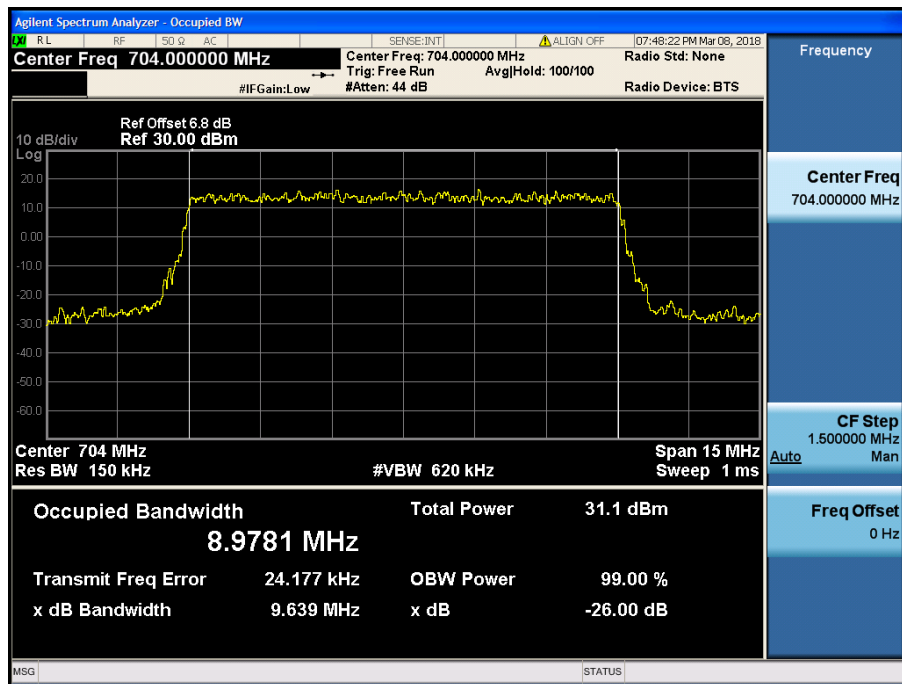
Note. Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. as such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability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

8. TEST PLOTS

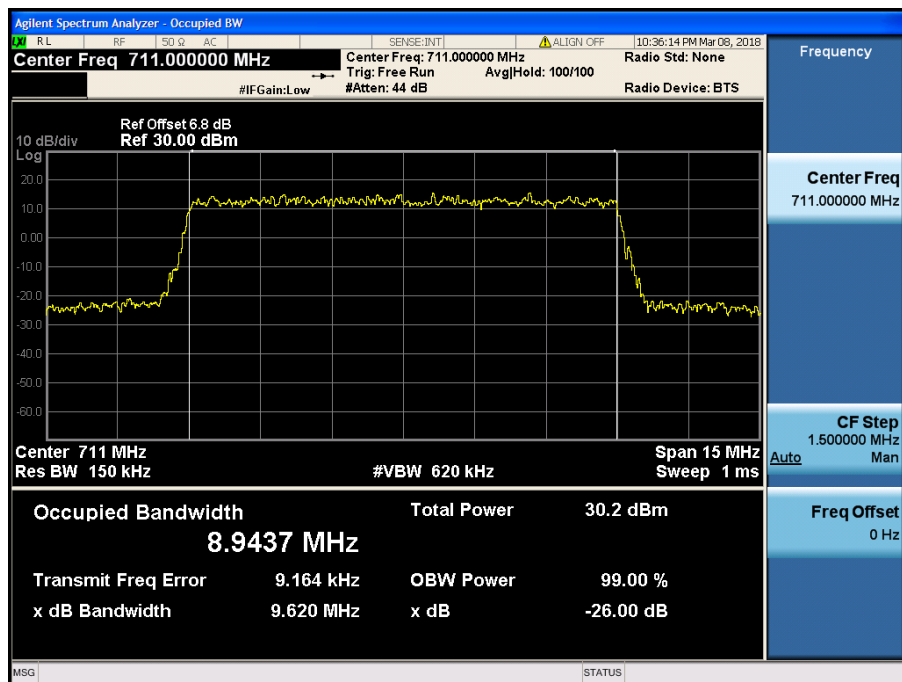
Note: All bandwidths, RB configurations, and modulations were investigated.
The worst case test results are reported.

8.1 OCCUPIED BANDWIDTH

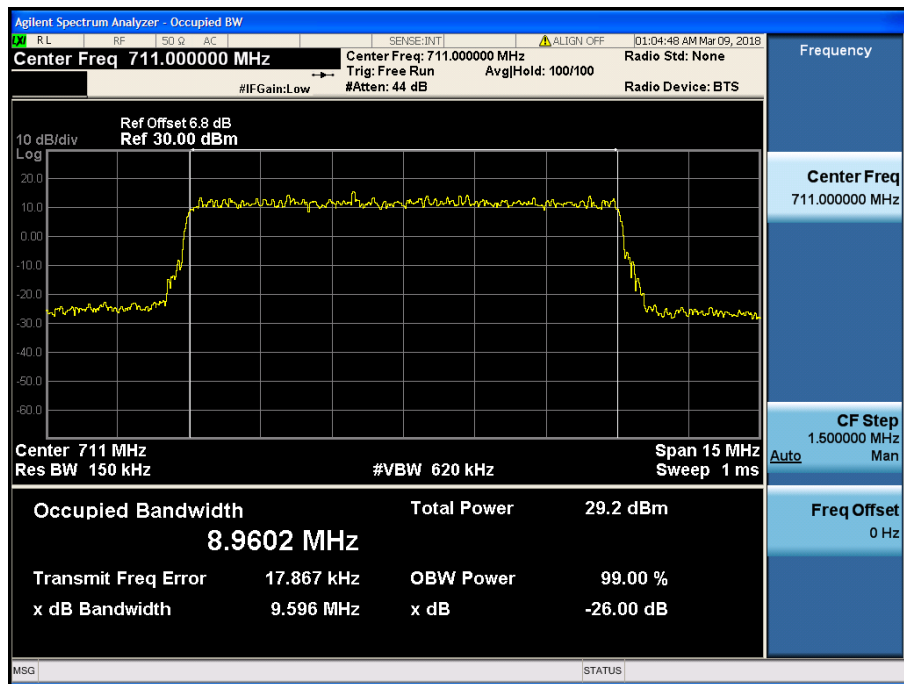
8.1.1 LTE Band 12



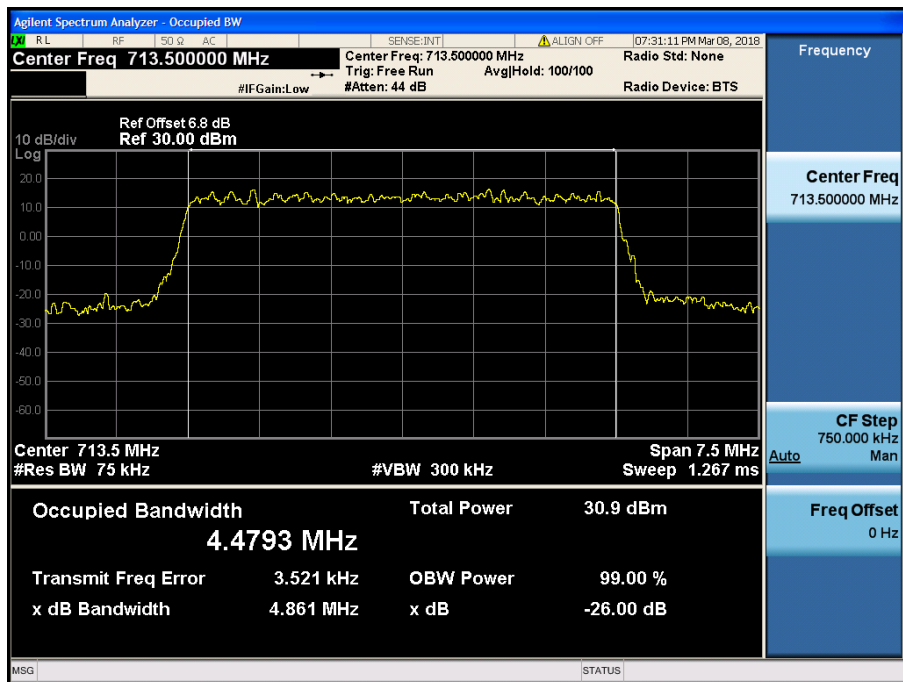
LTE Band 12 / 10 MHz / QPSK - RB Size 50



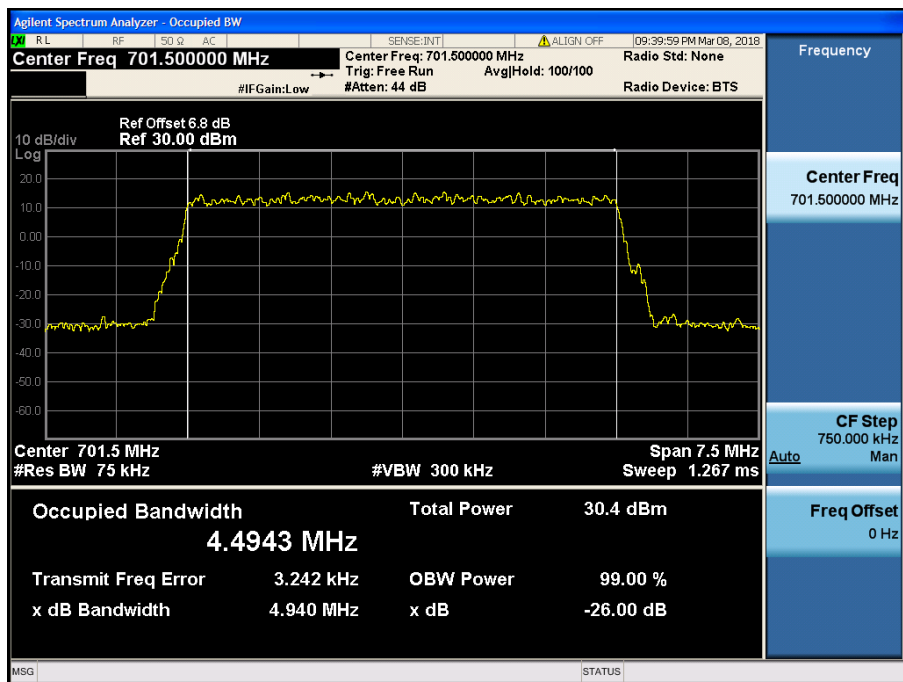
LTE Band 12 / 10 MHz / 16QAM - RB Size 50



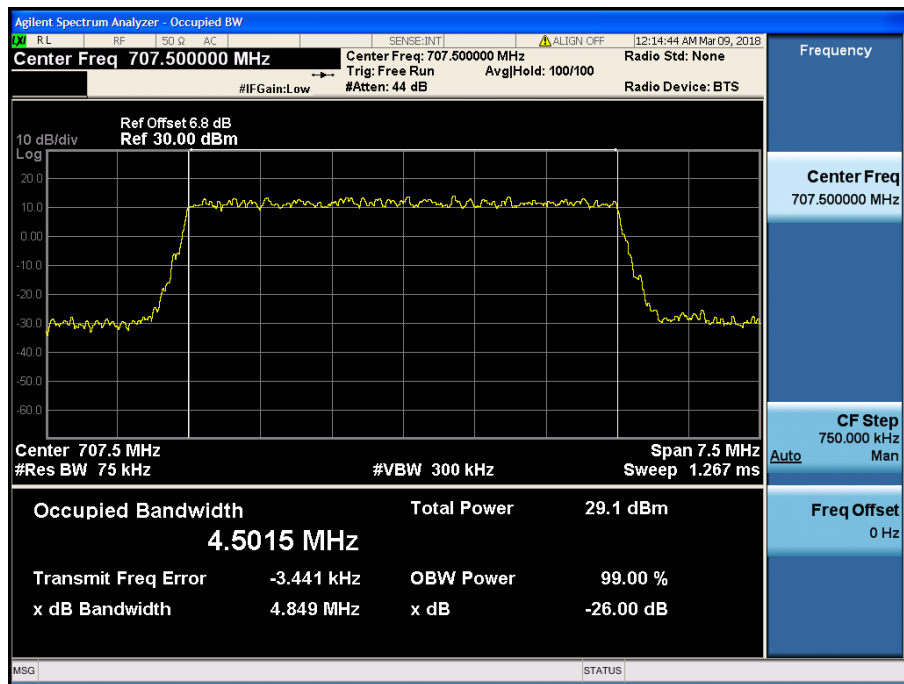
LTE Band 12 / 10 MHz / 64QAM - RB Size 50



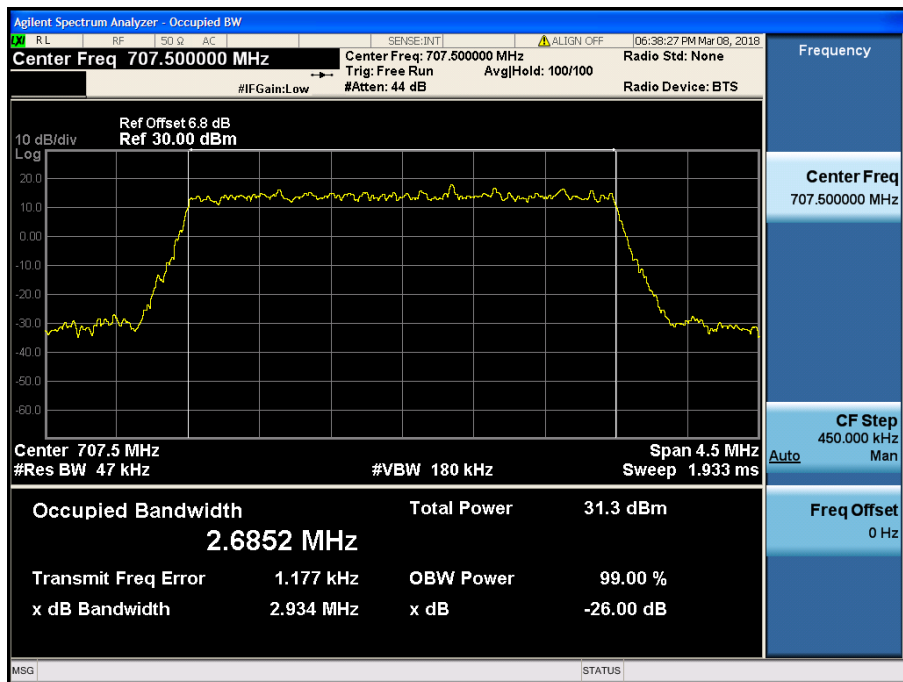
LTE Band 12 / 5 MHz / QPSK - RB Size 25



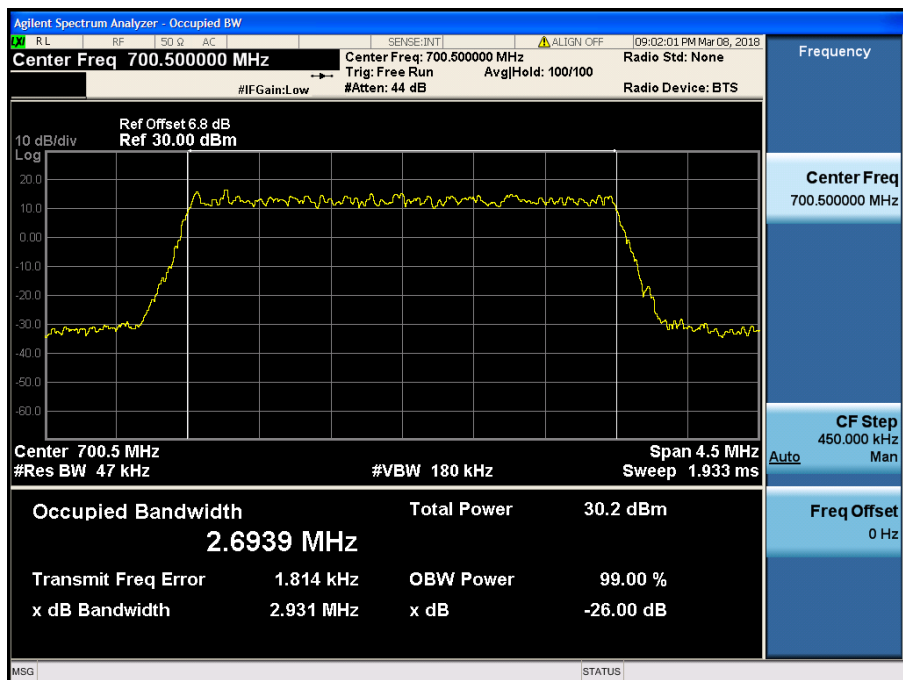
LTE Band 12 / 5 MHz / 16QAM - RB Size 25



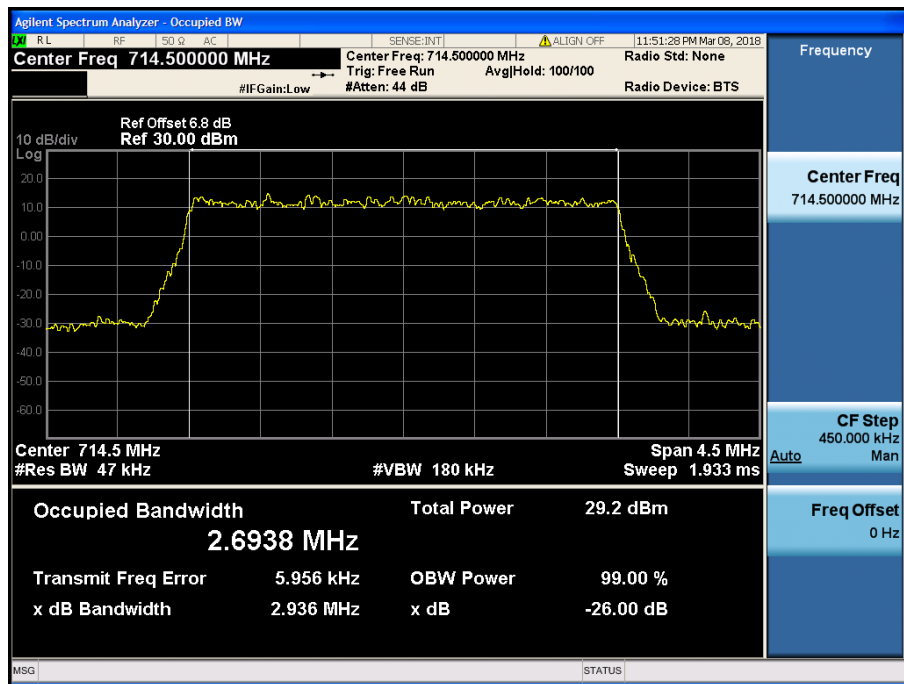
LTE Band 12 / 5 MHz / 64QAM - RB Size 25



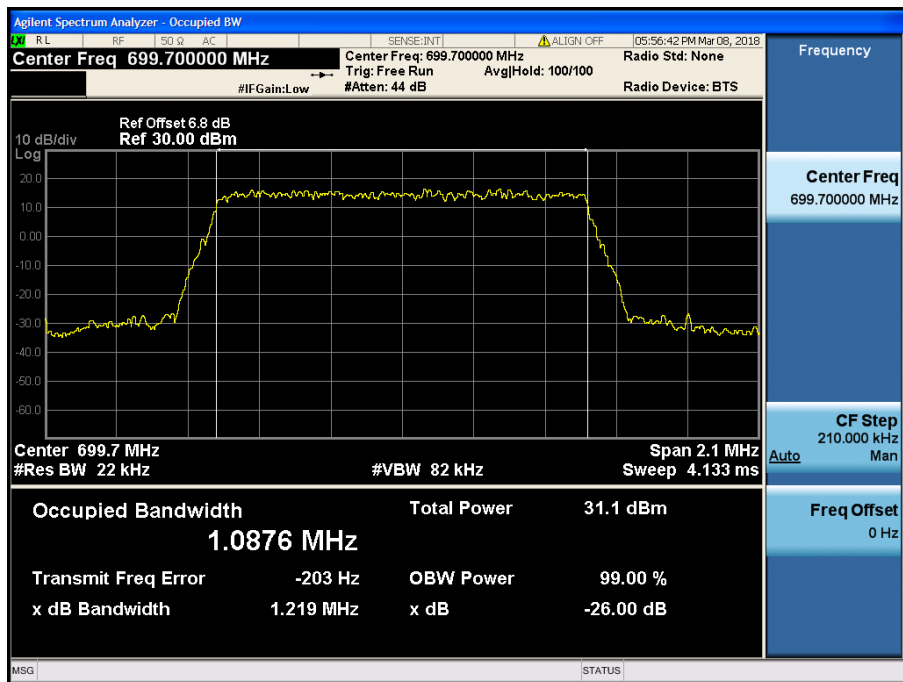
LTE Band 12 / 3 MHz / QPSK - RB Size 15



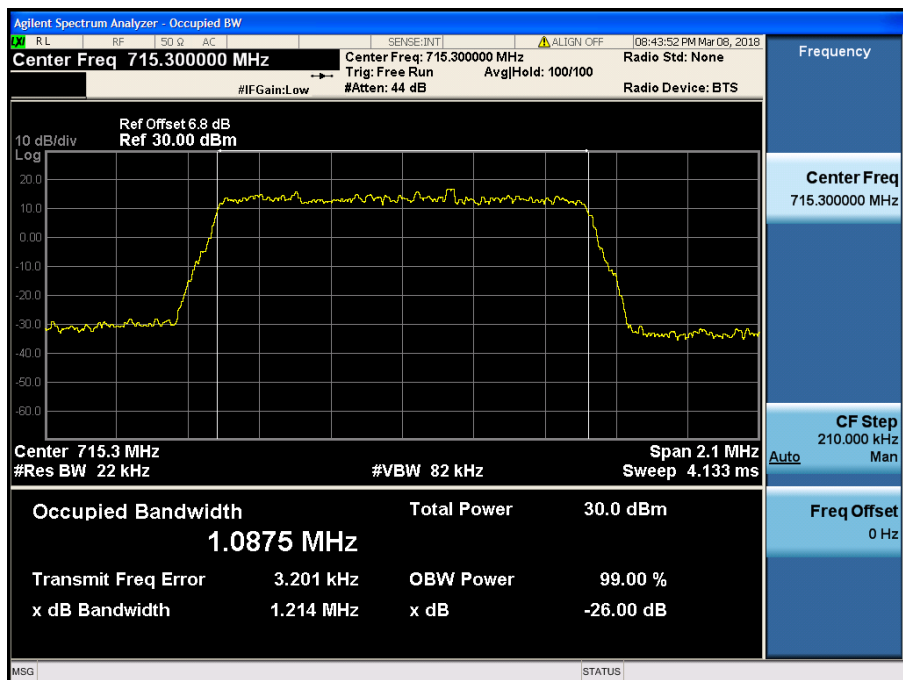
LTE Band 12 / 3 MHz / 16QAM - RB Size 15



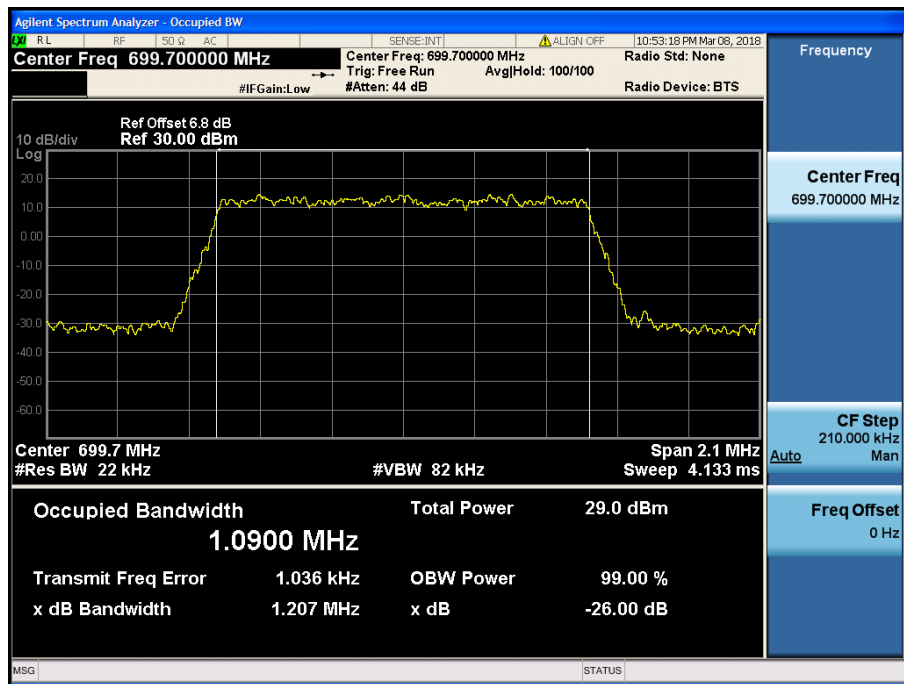
LTE Band 12 / 3 MHz / 64QAM - RB Size 15



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

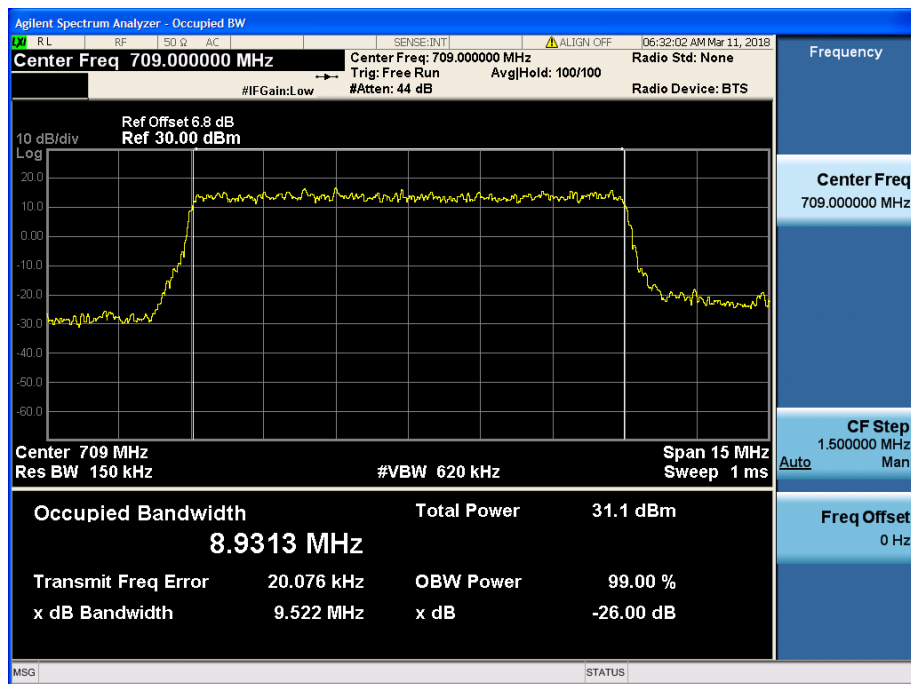


LTE Band 12 / 1.4 MHz / 16QAM - RB Size 6

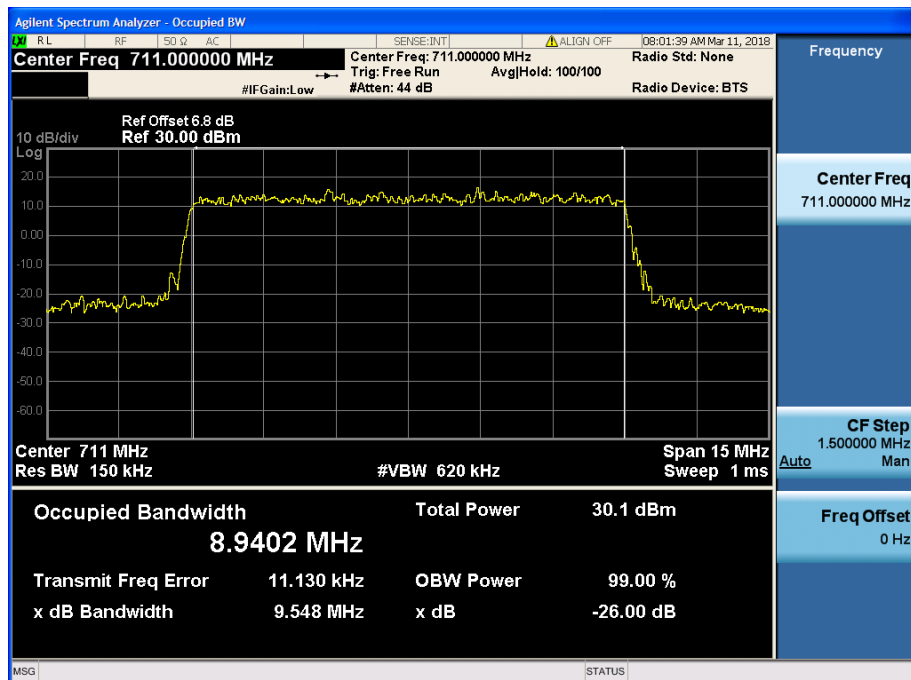


LTE Band 12 / 1.4 MHz / 64QAM - RB Size 6

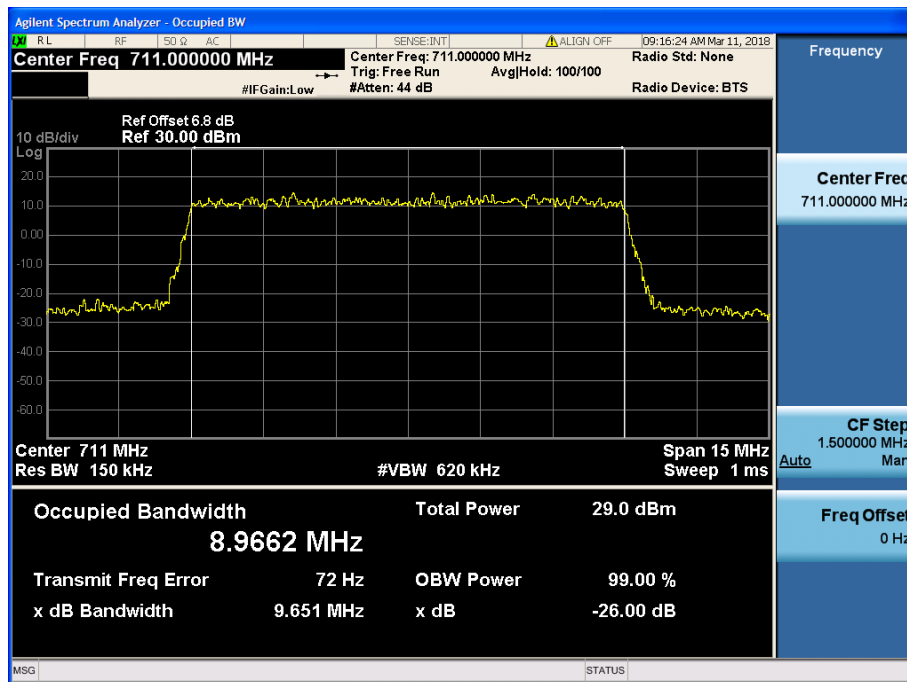
8.1.2 LTE Band 17



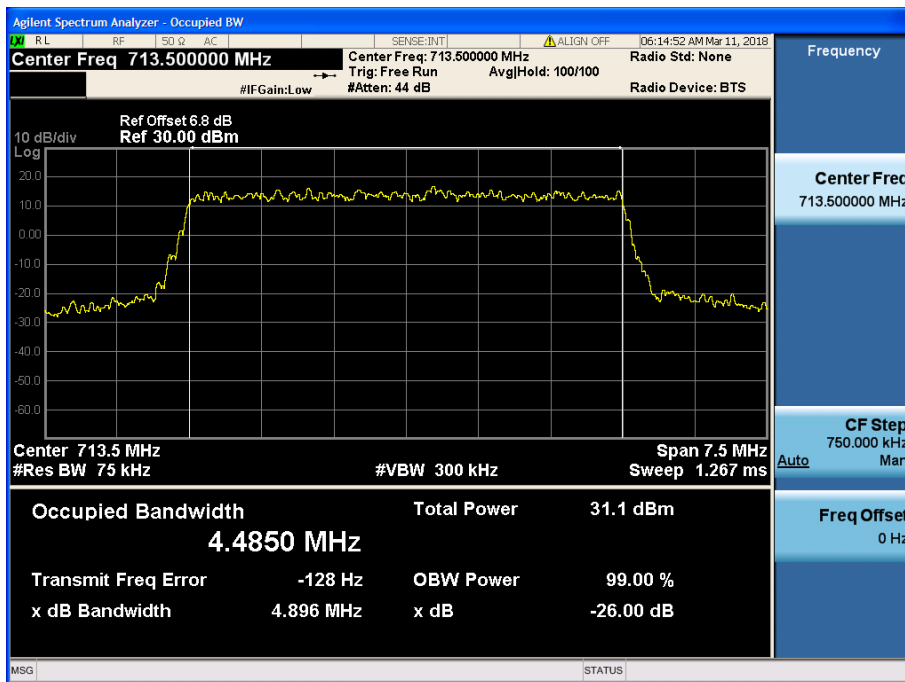
LTE Band 17 / 10 MHz / QPSK - RB Size 50



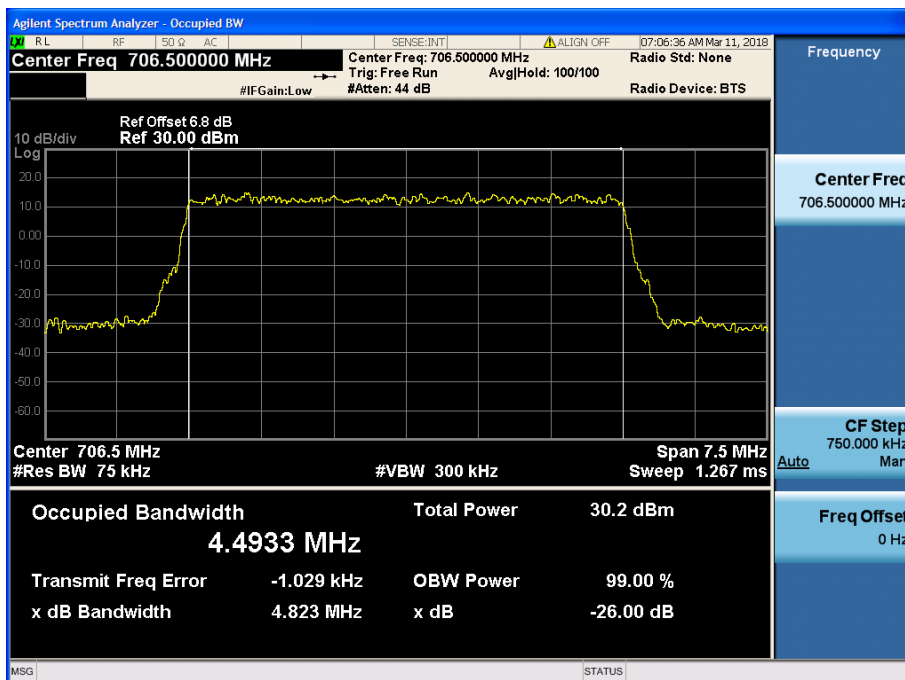
LTE Band 17 / 10 MHz / 16QAM - RB Size 50



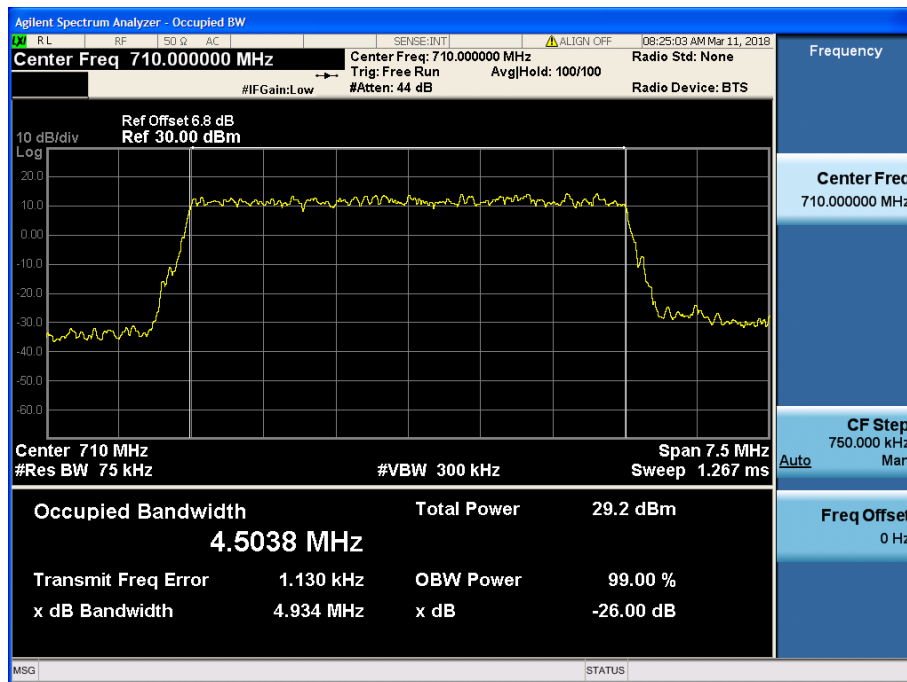
LTE Band 17 / 10 MHz / 64QAM - RB Size 50



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

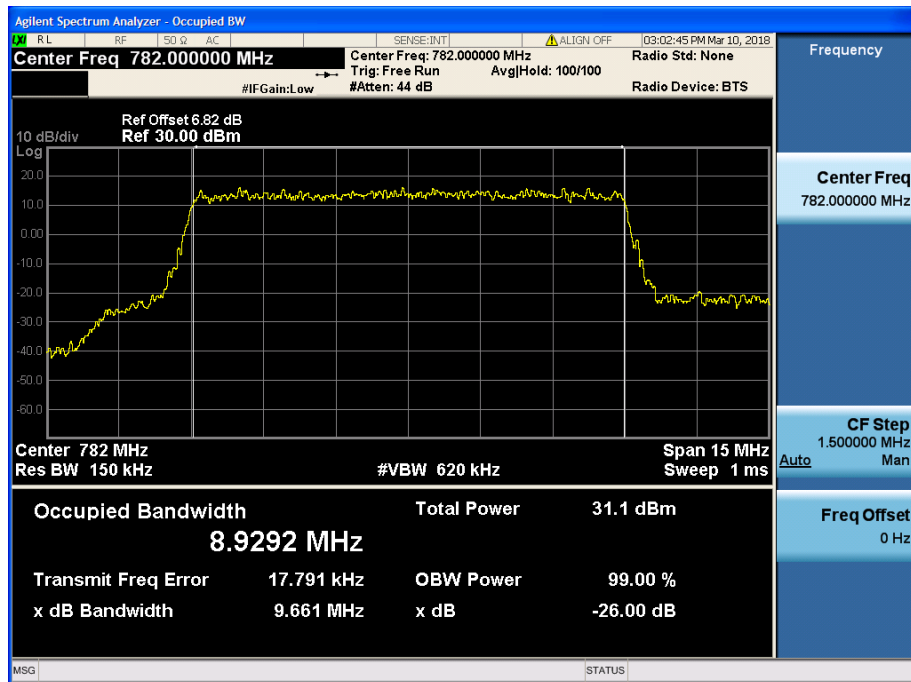


LTE Band 17 / 5 MHz / 16QAM - RB Size 25

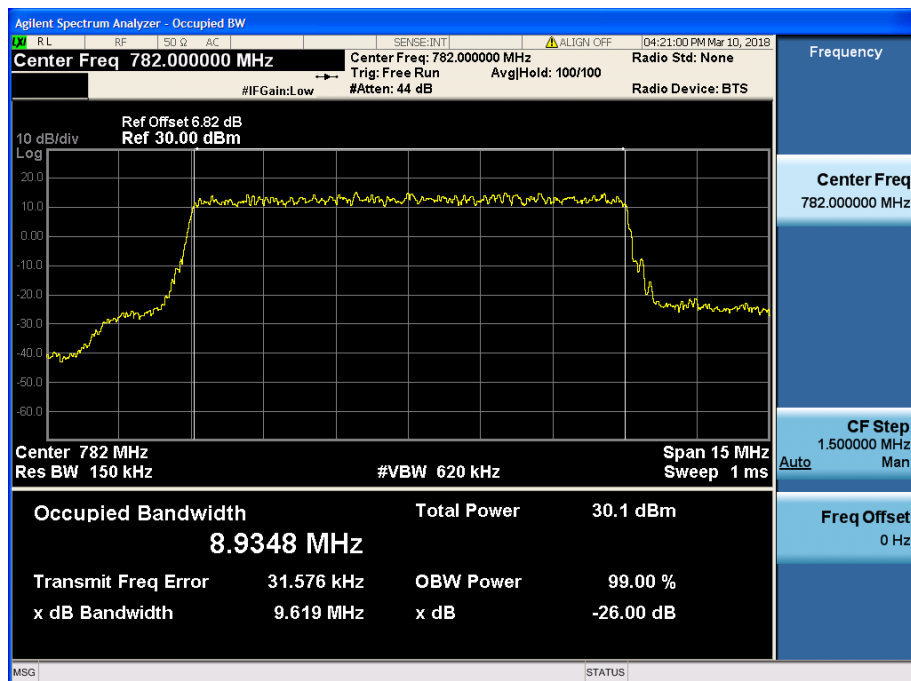


LTE Band 17 / 5 MHz / 64QAM - RB Size 25

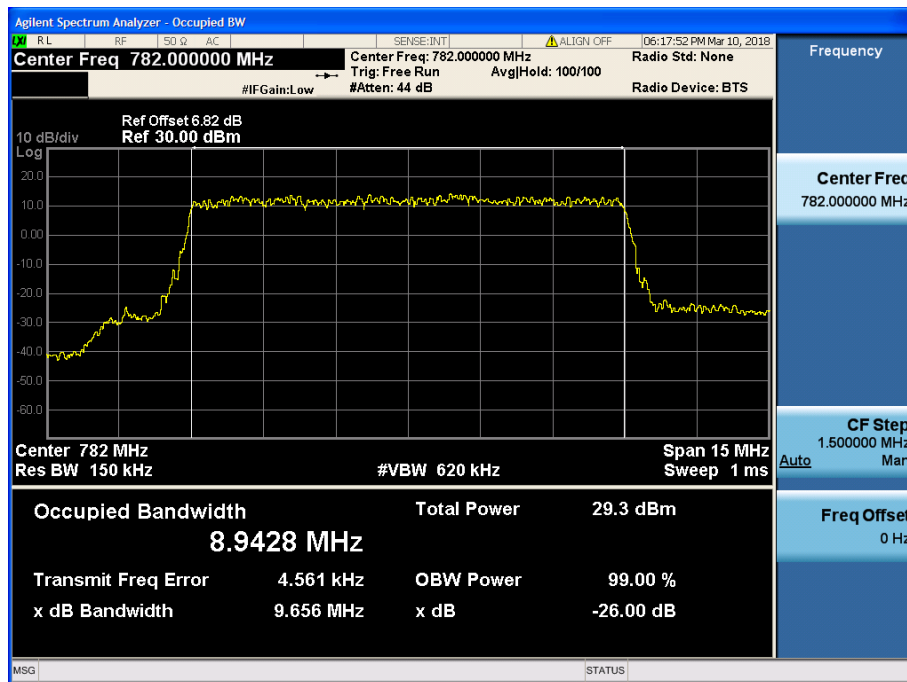
8.1.3 LTE Band 13



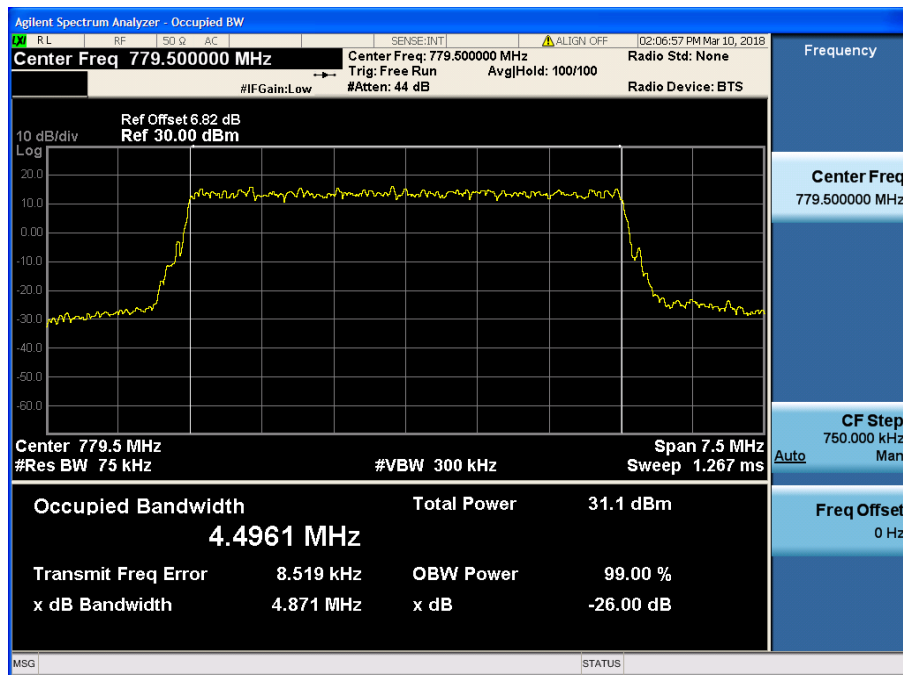
LTE Band 13 / 10 MHz / QPSK - RB Size 50



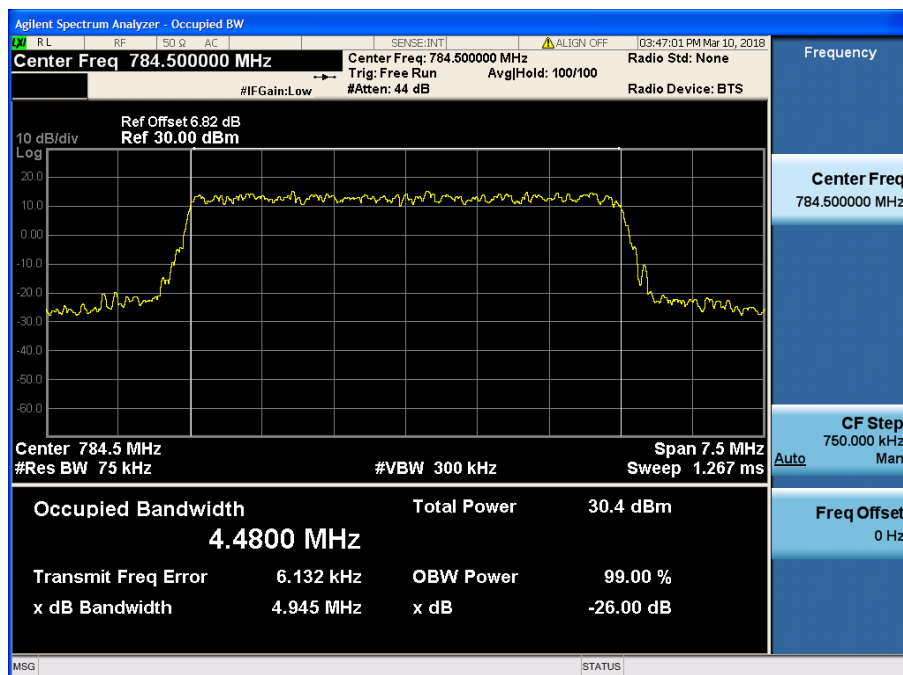
LTE Band 13 / 10 MHz / 16QAM - RB Size 50



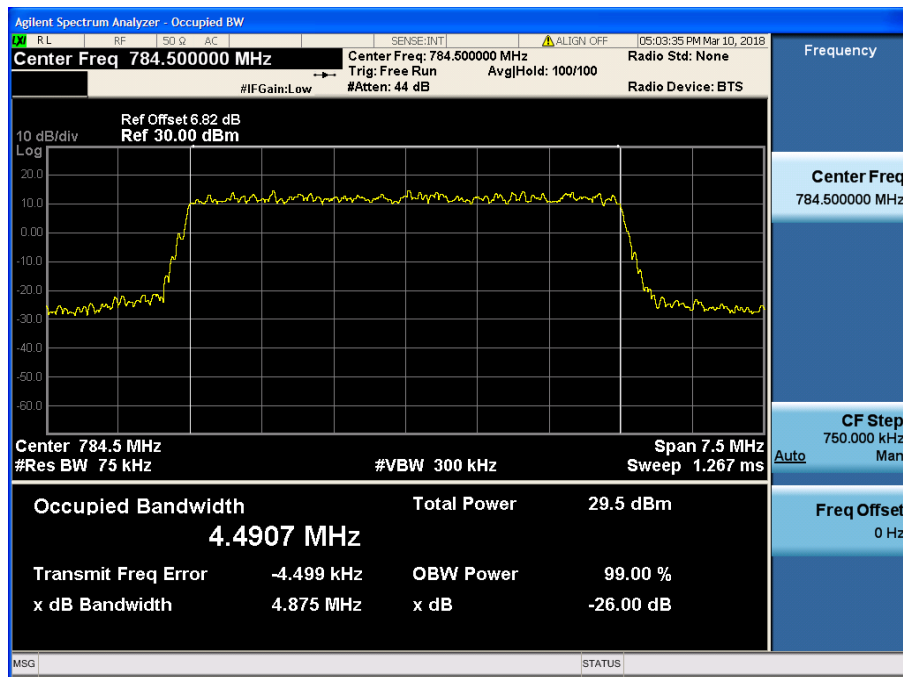
LTE Band 13 / 10 MHz / 64QAM - RB Size 50



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

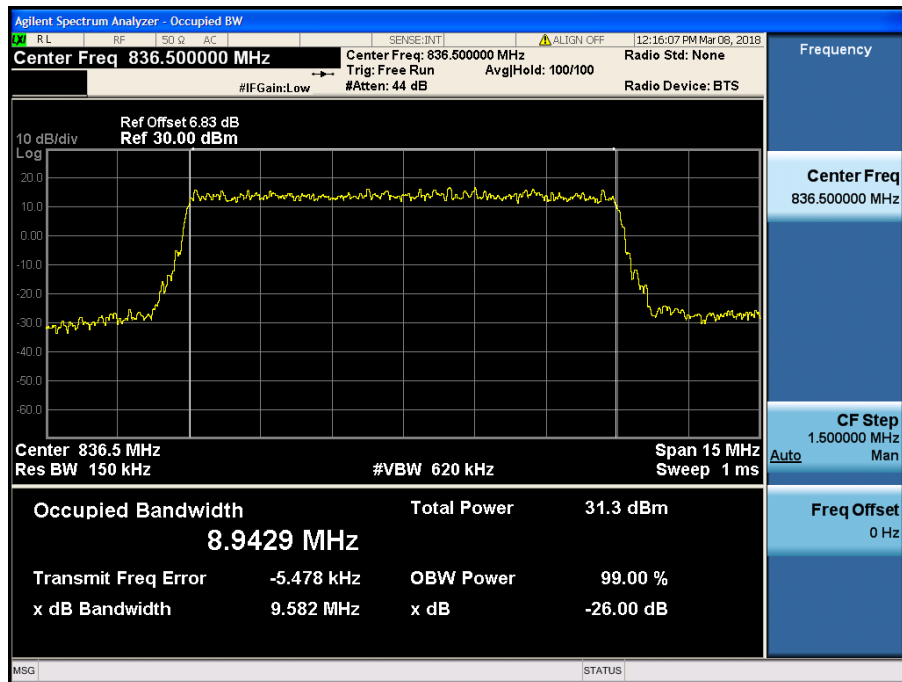


LTE Band 13 / 5 MHz / 16QAM - RB Size 25

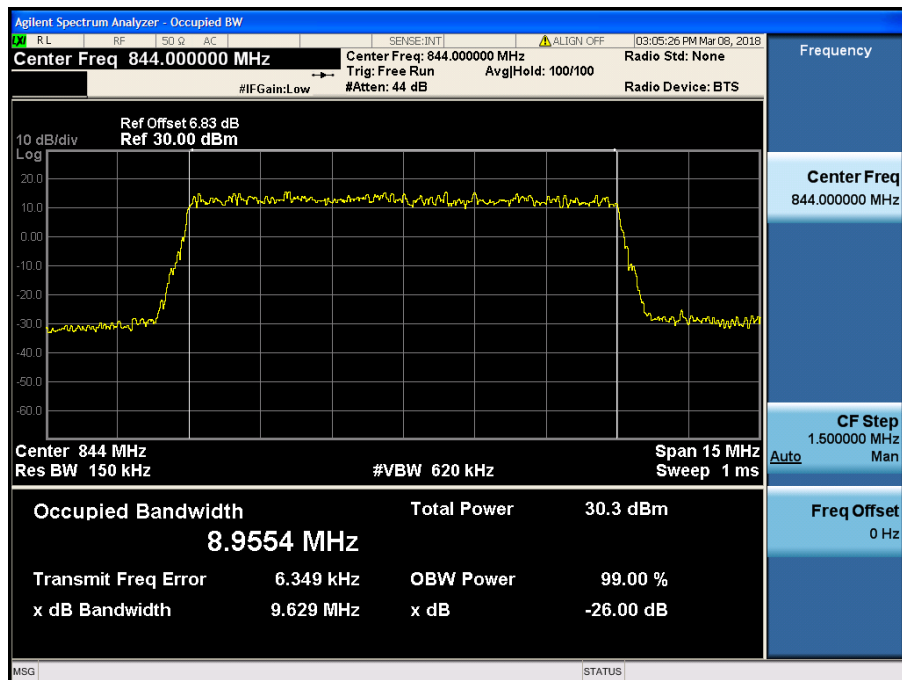


LTE Band 13 / 5 MHz / 64QAM - RB Size 25

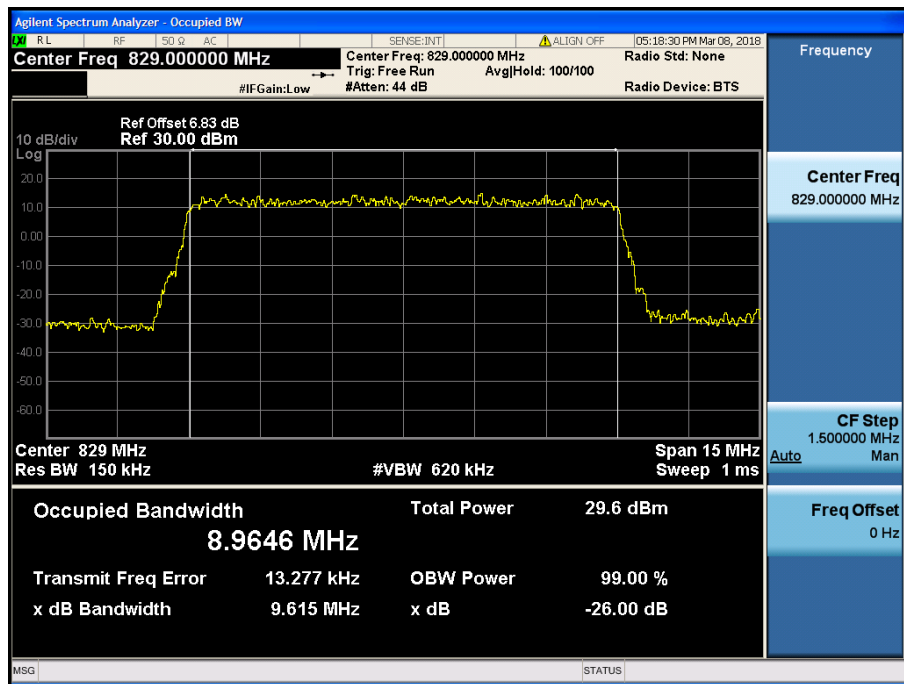
8.1.4 LTE Band 5



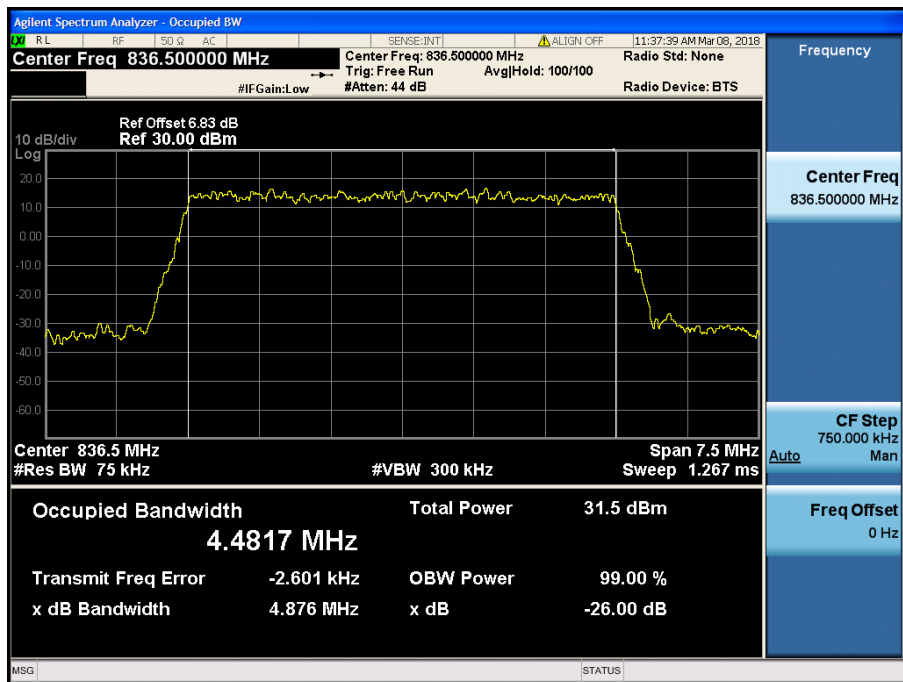
LTE Band 5 / 10 MHz / QPSK - RB Size 50



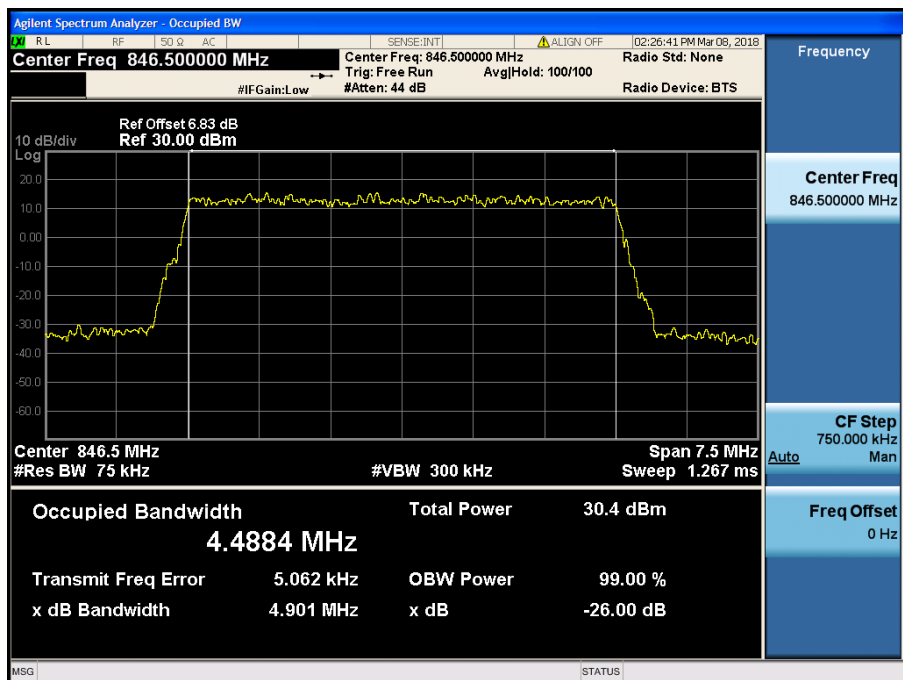
LTE Band 5 / 10 MHz / 16QAM - RB Size 50



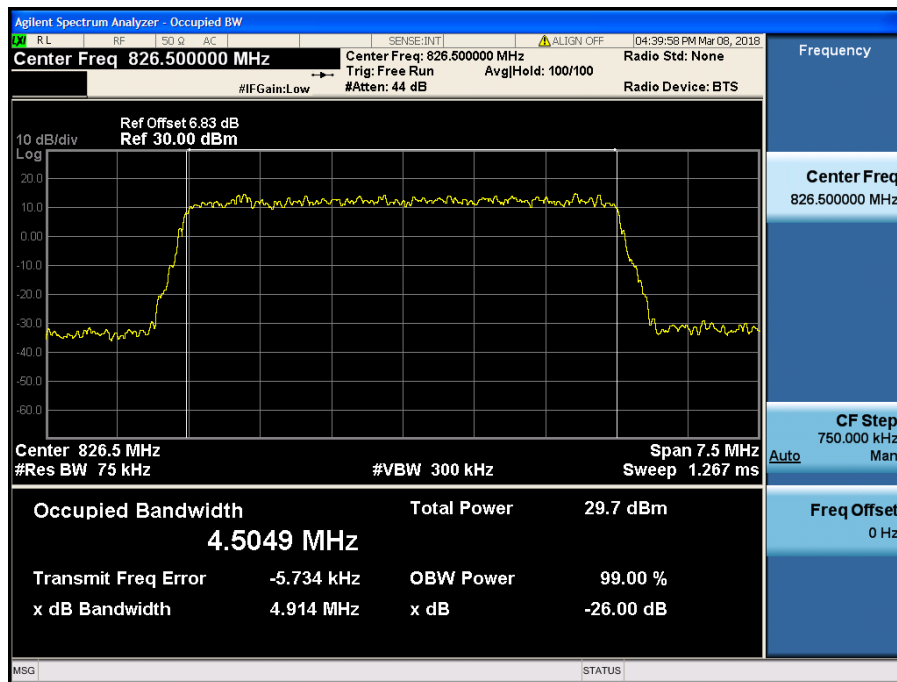
LTE Band 5 / 10 MHz / 64QAM - RB Size 50



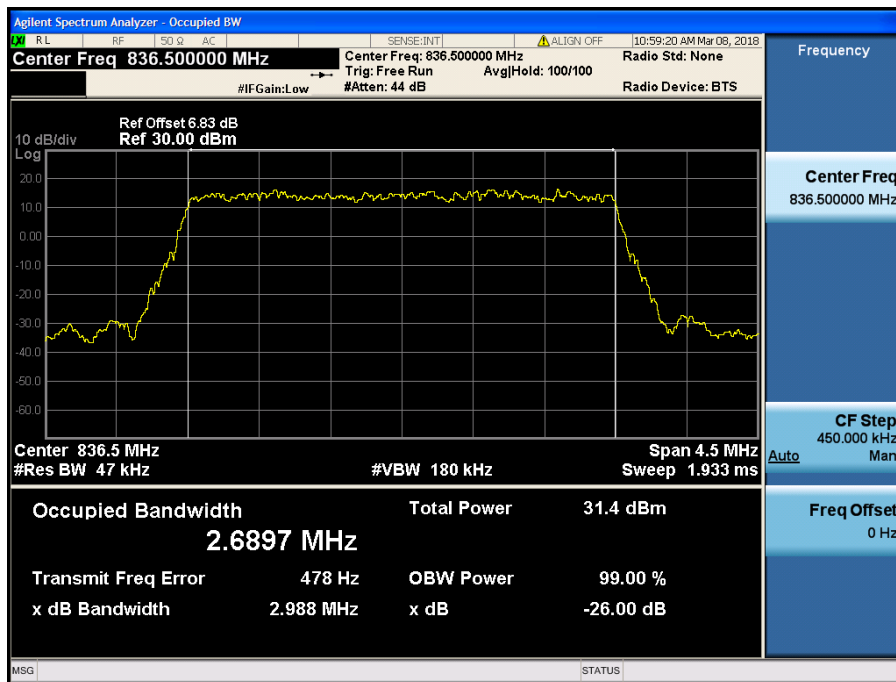
LTE Band 5 / 5 MHz / QPSK - RB Size 25



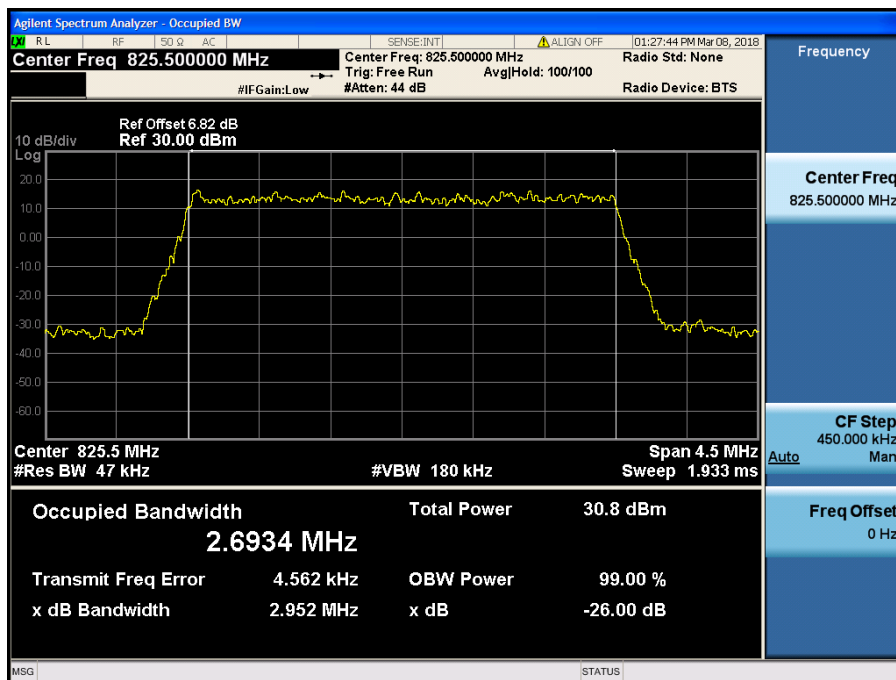
LTE Band 5 / 5 MHz / 16QAM - RB Size 25



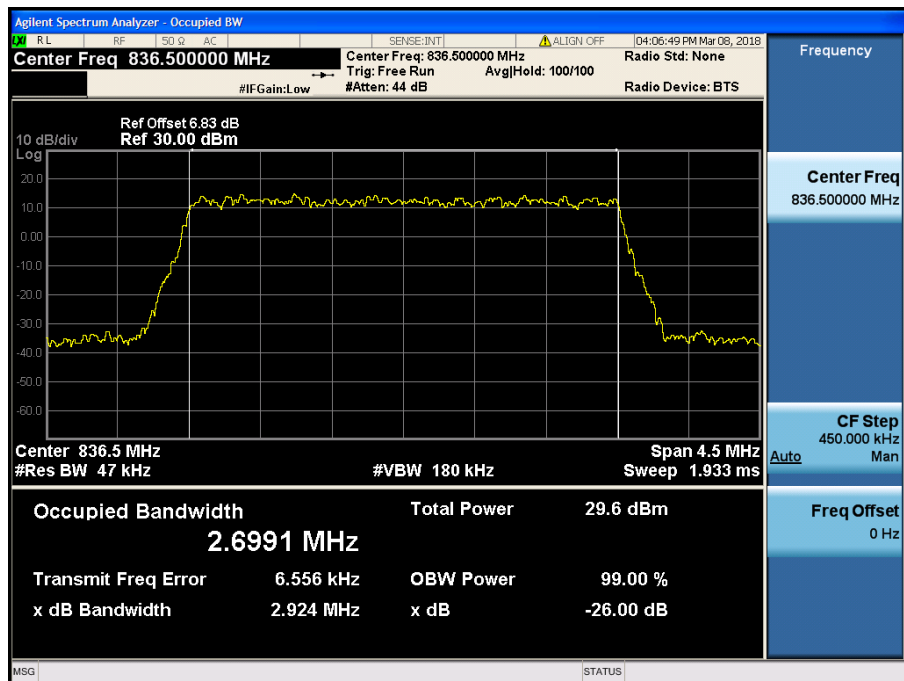
LTE Band 5 / 5 MHz / 64QAM - RB Size 25



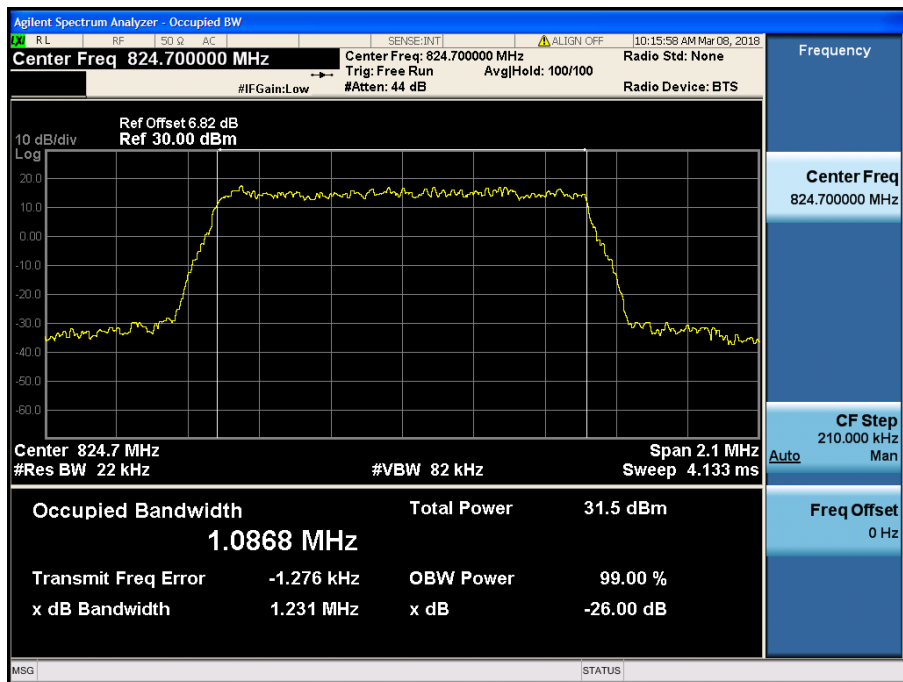
LTE Band 5 / 3 MHz / QPSK - RB Size 15



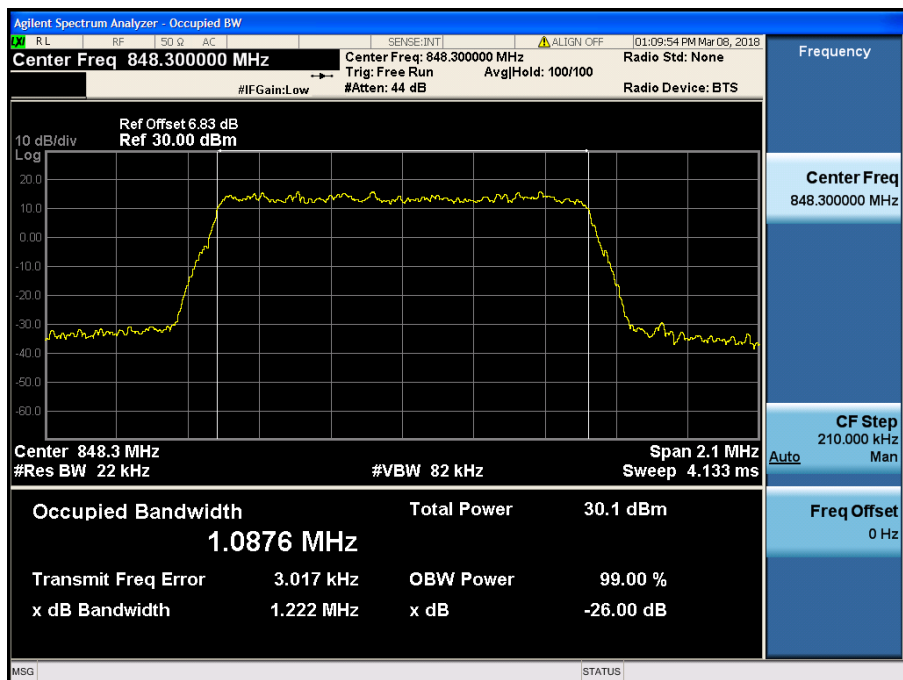
LTE Band 5 / 3 MHz / 16QAM - RB Size 15



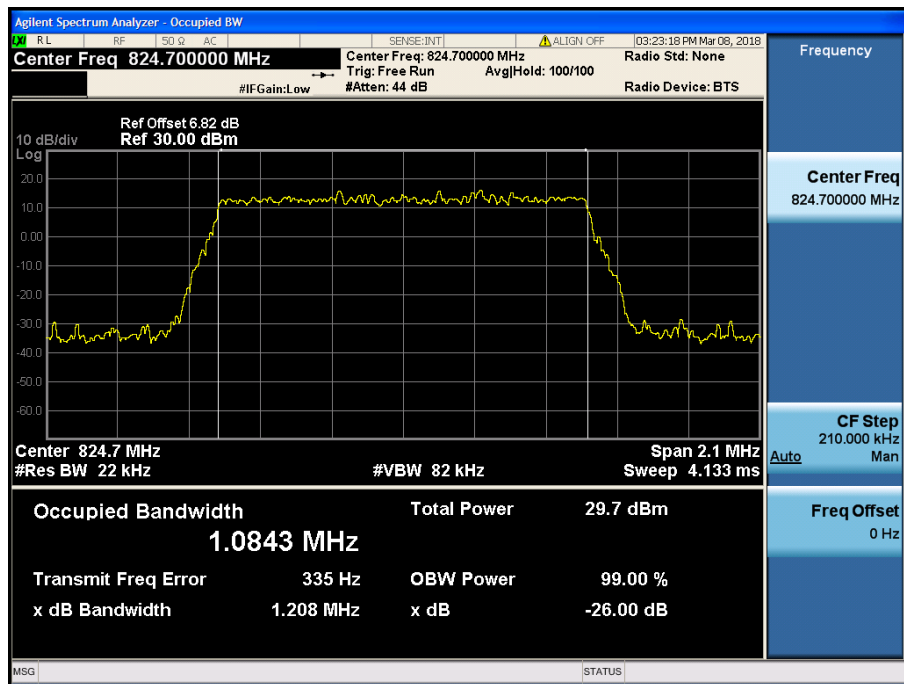
LTE Band 5 / 3 MHz / 64QAM - RB Size 15



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

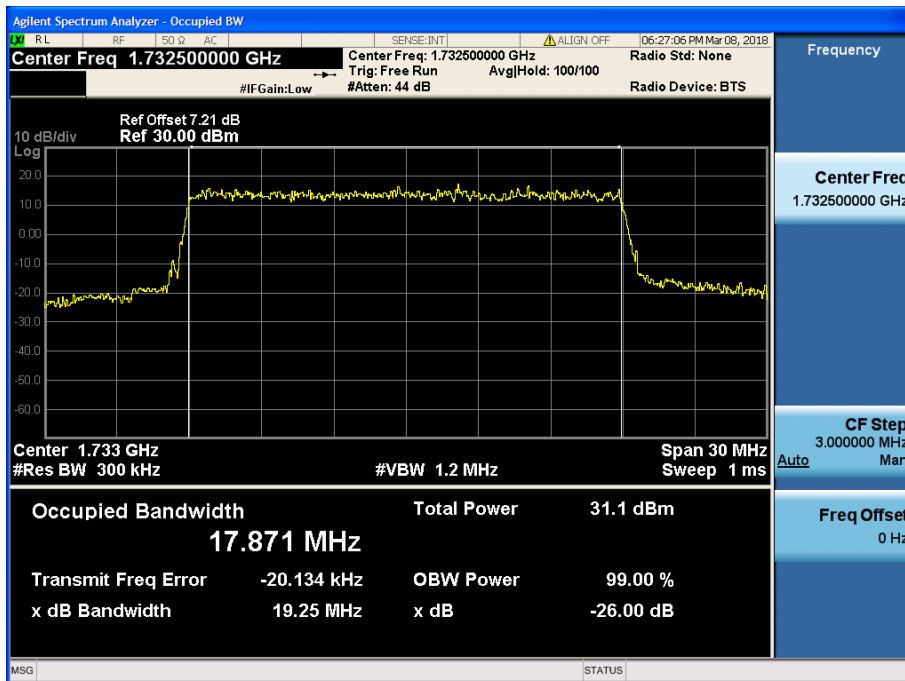


LTE Band 5 / 1.4 MHz / 16QAM - RB Size 6

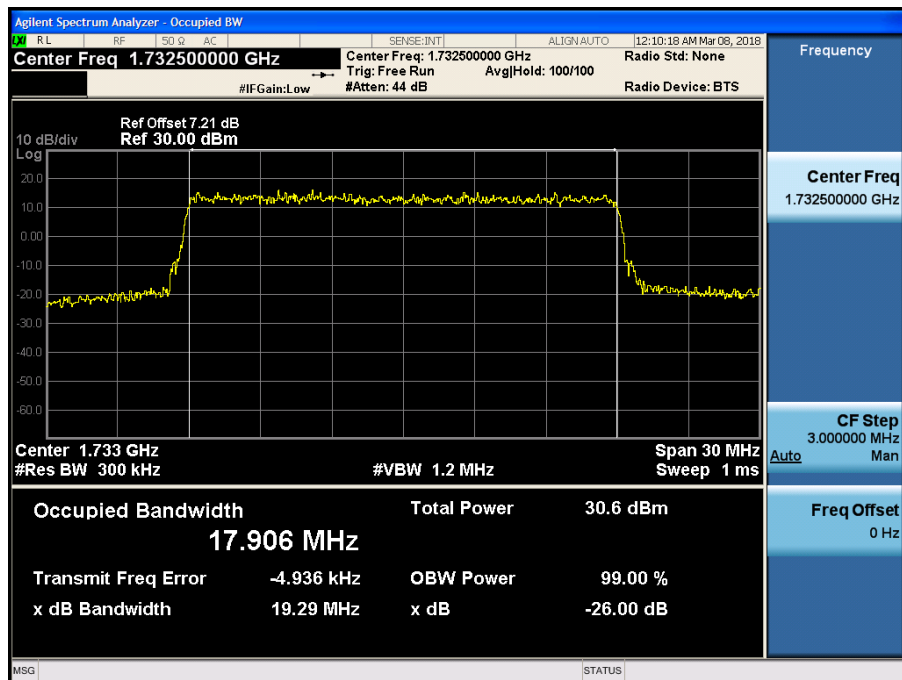


LTE Band 5 / 1.4 MHz / 64QAM - RB Size 6

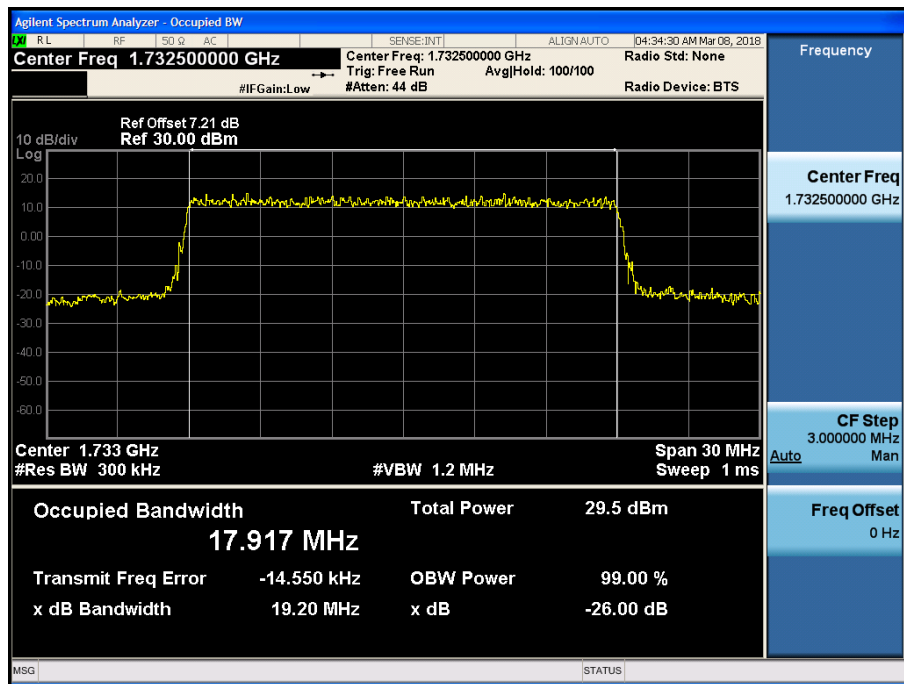
8.1.5 LTE Band 4



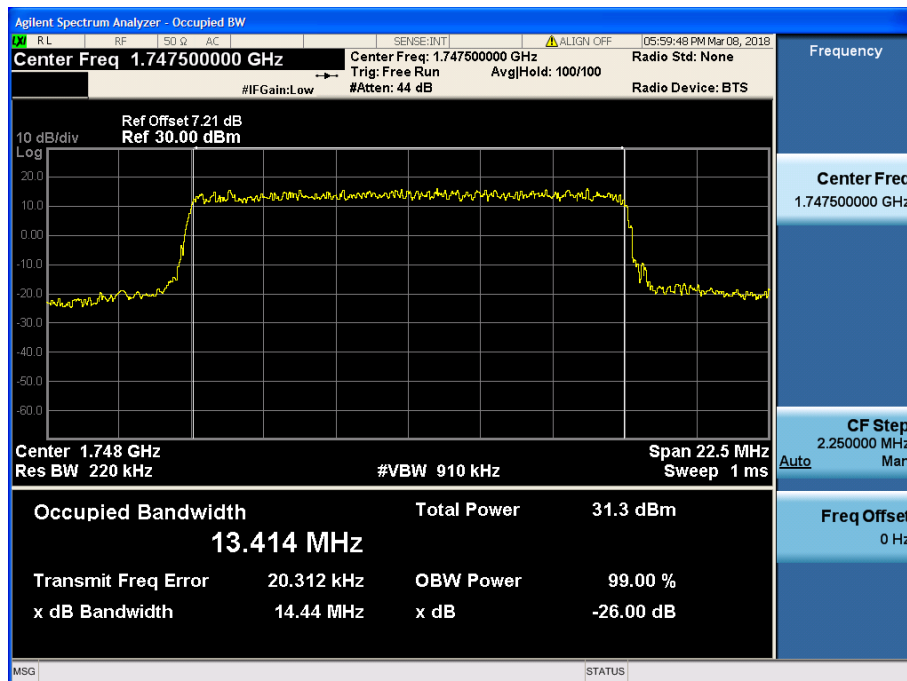
LTE Band 4 / 20 MHz / QPSK - RB Size 100



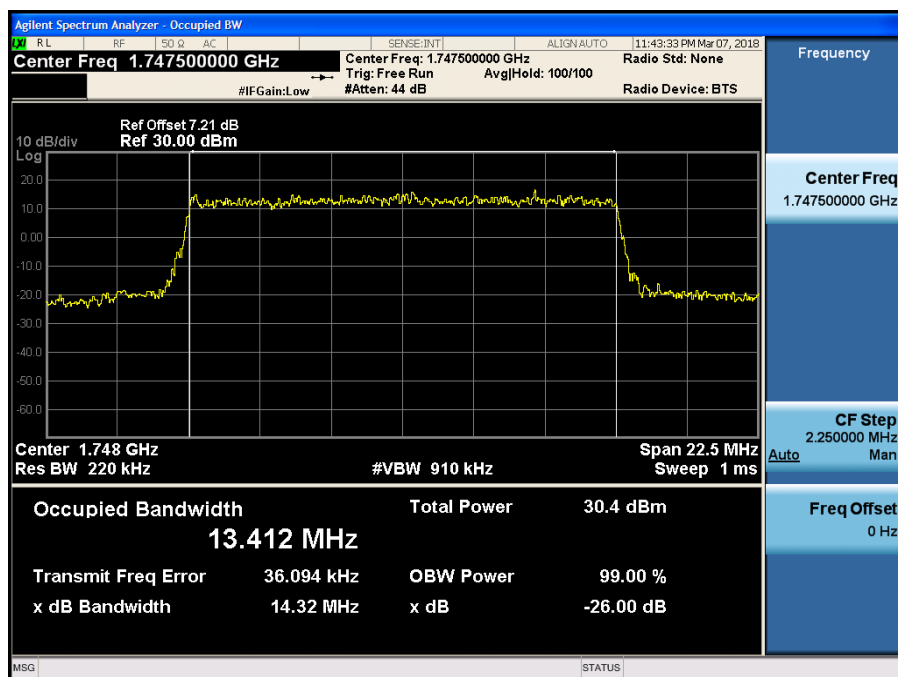
LTE Band 4 / 20 MHz / 16QAM - RB Size 100



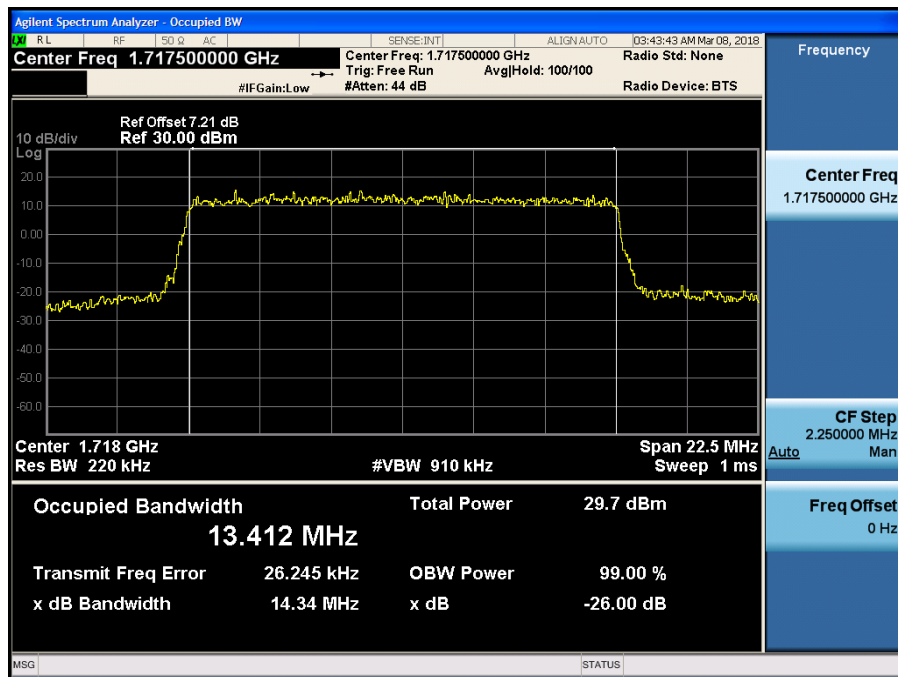
LTE Band 4 / 20 MHz / 64QAM - RB Size 100



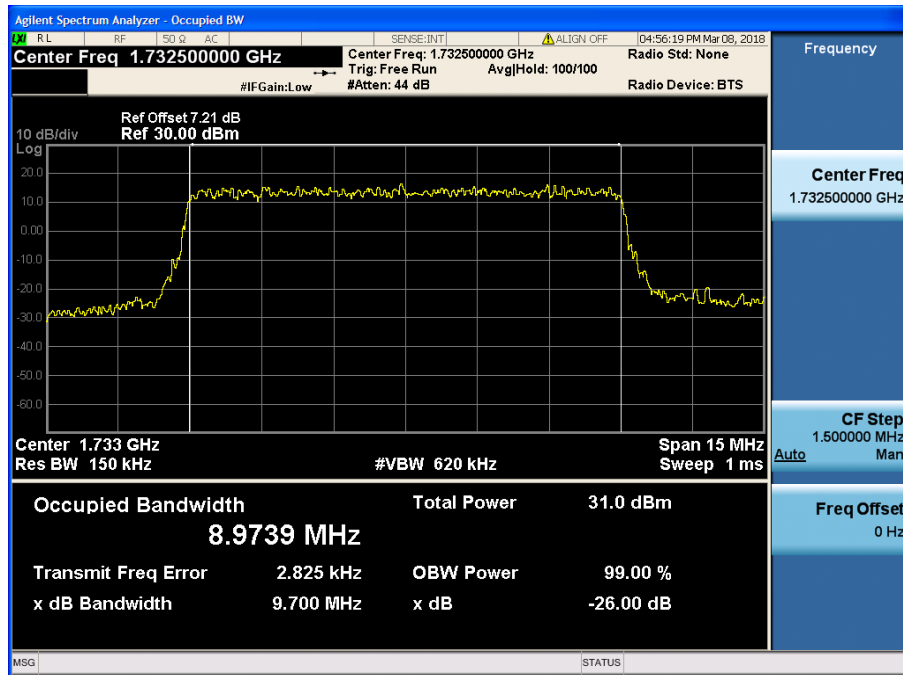
LTE Band 4 / 15 MHz / QPSK - RB Size 75



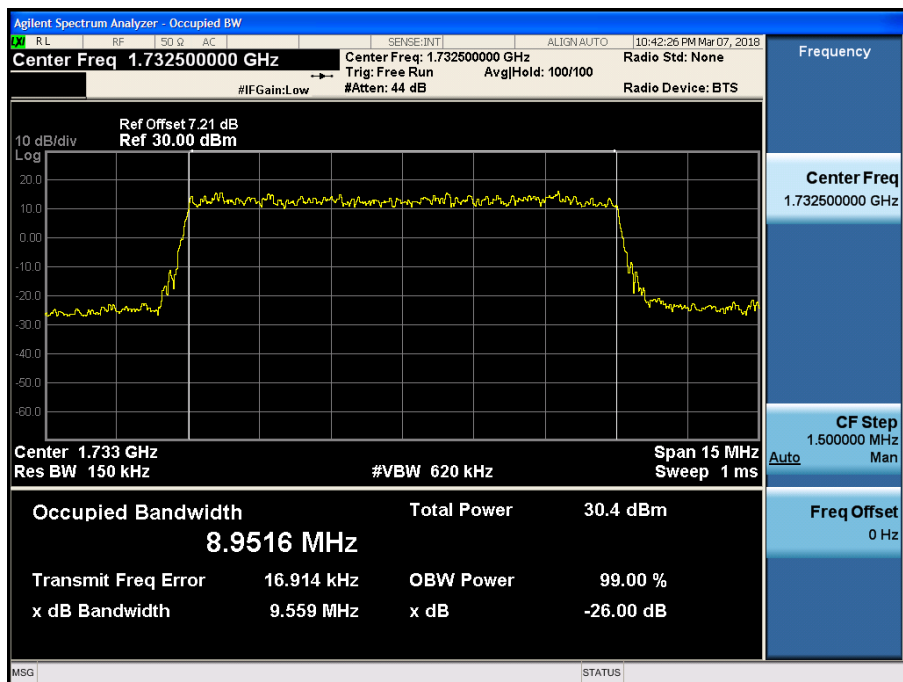
LTE Band 4 / 15 MHz / 16QAM - RB Size 75



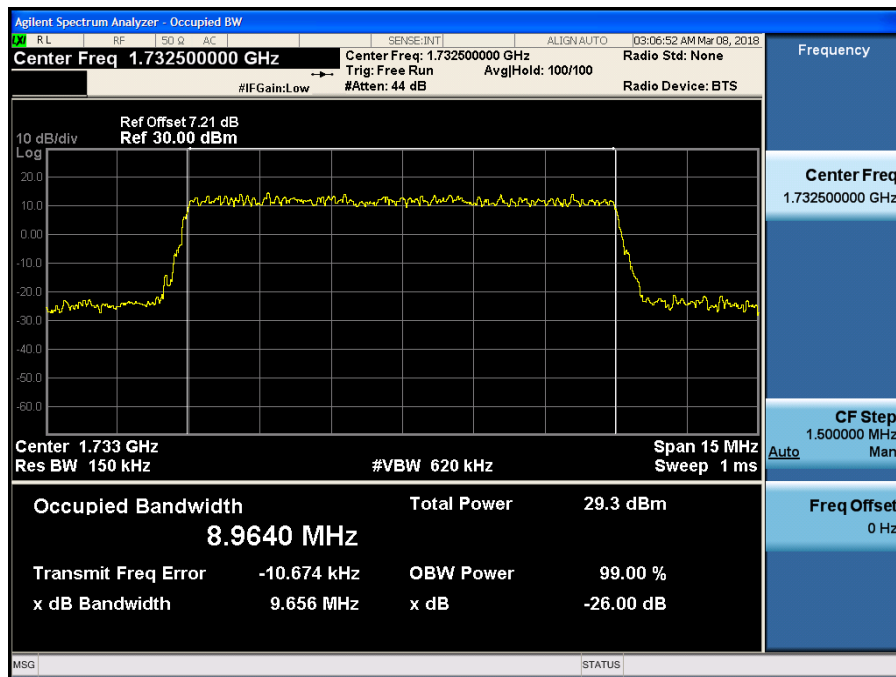
LTE Band 4 / 15 MHz / 64QAM - RB Size 75



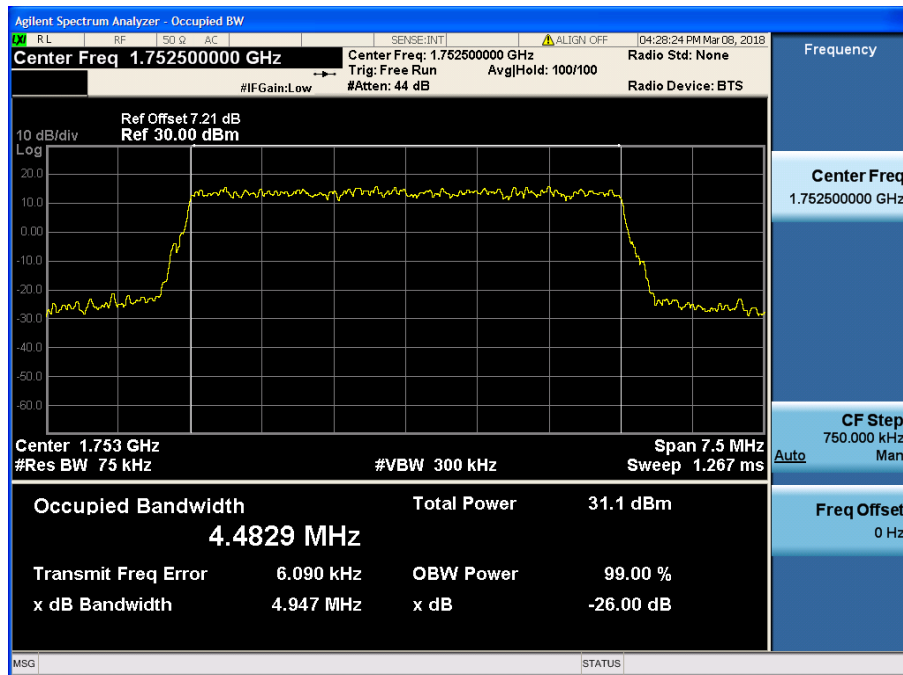
LTE Band 4 / 10 MHz / QPSK - RB Size 50



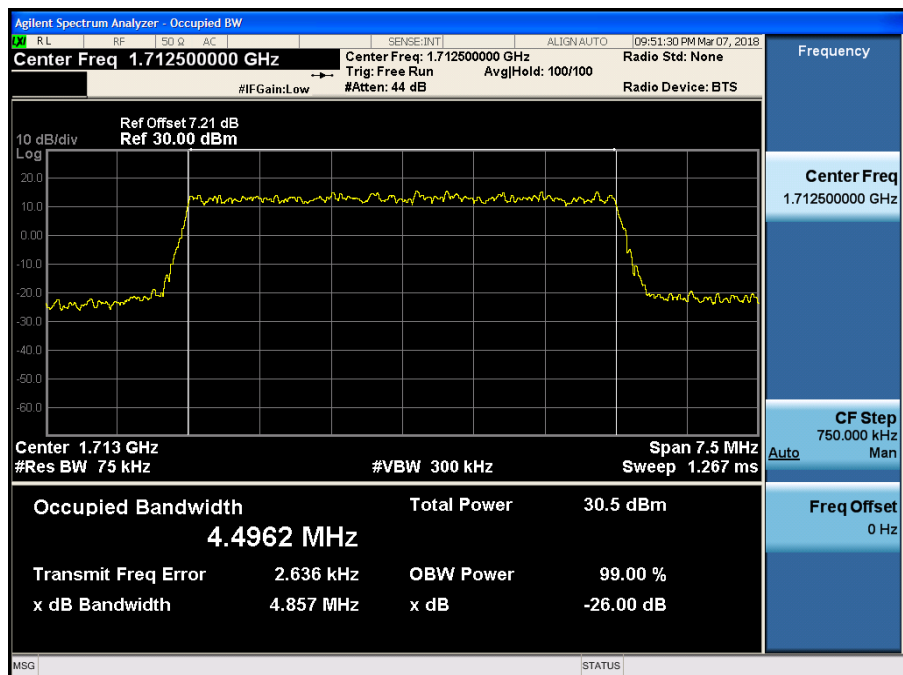
LTE Band 4 / 10 MHz / 16QAM - RB Size 50



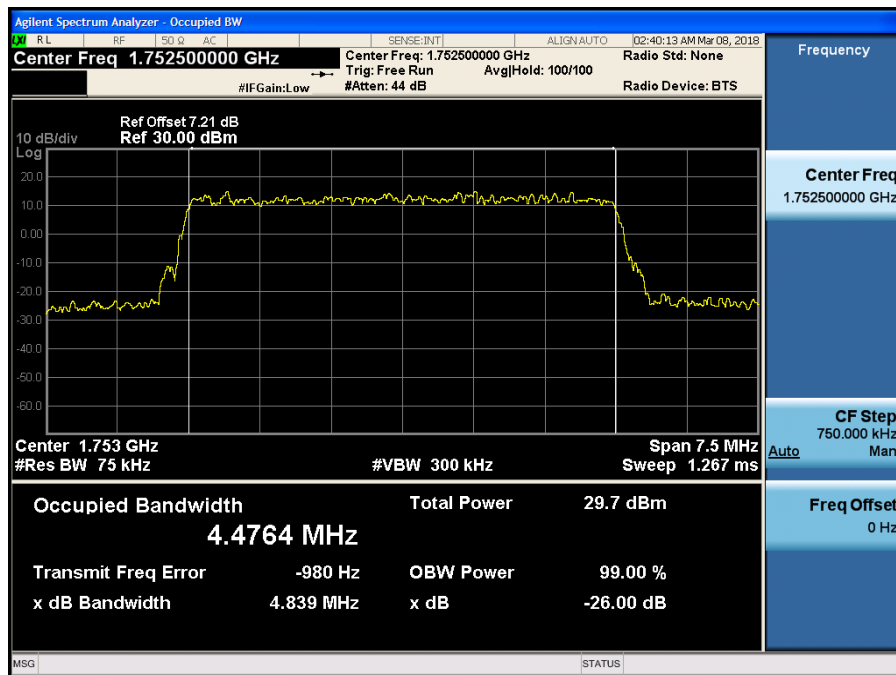
LTE Band 4 / 10 MHz / 64QAM - RB Size 50



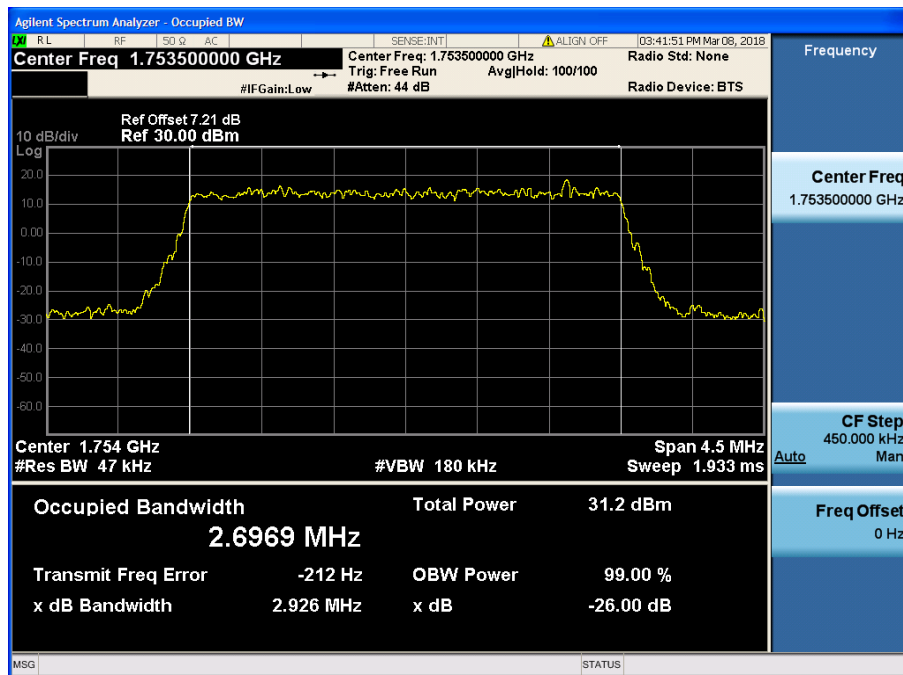
LTE Band 4 / 5 MHz / QPSK - RB Size 25



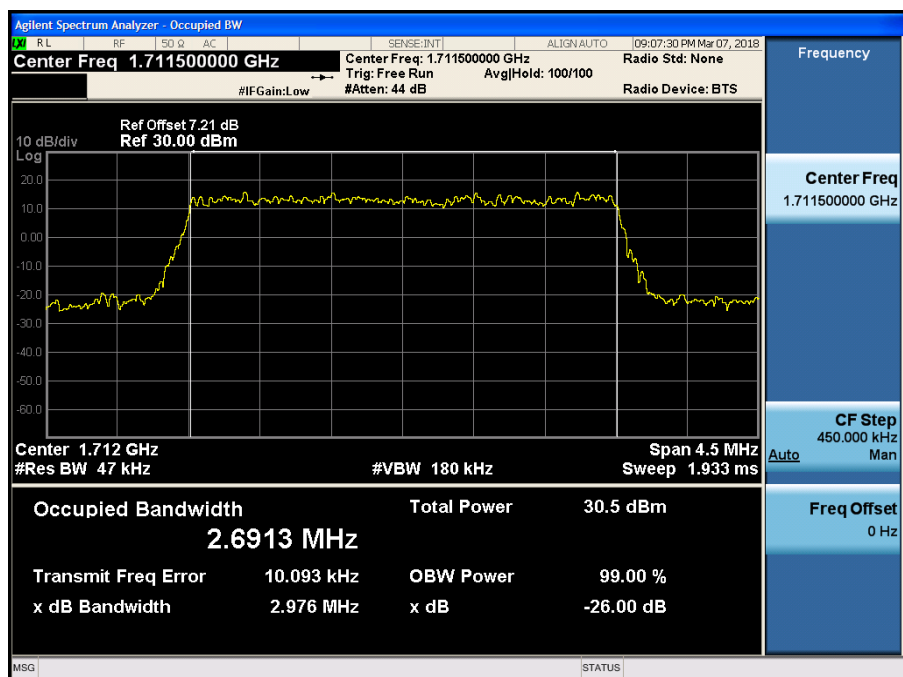
LTE Band 4 / 5 MHz / 16QAM - RB Size 25



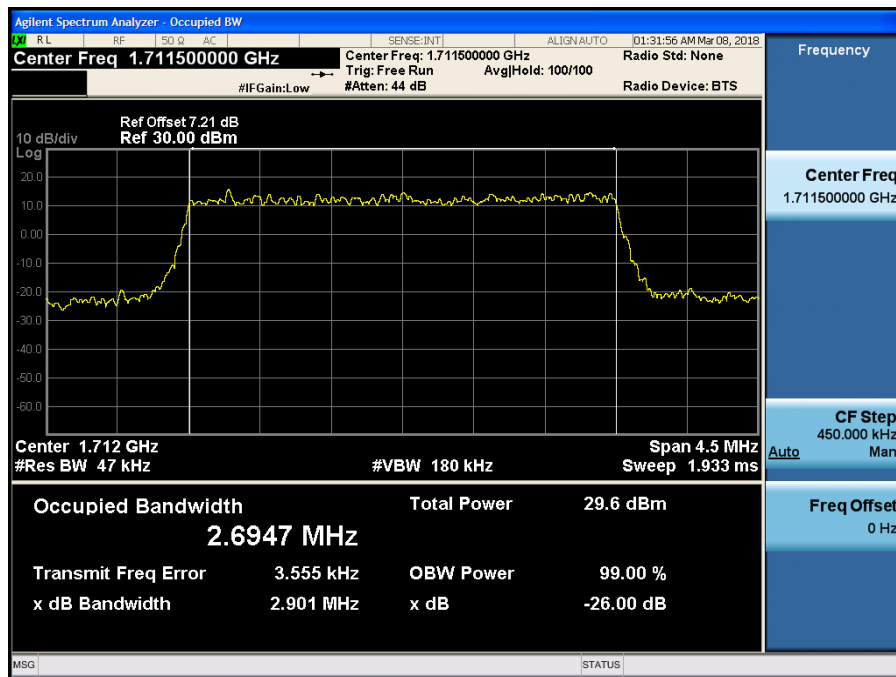
LTE Band 4 / 5 MHz / 64QAM - RB Size 25



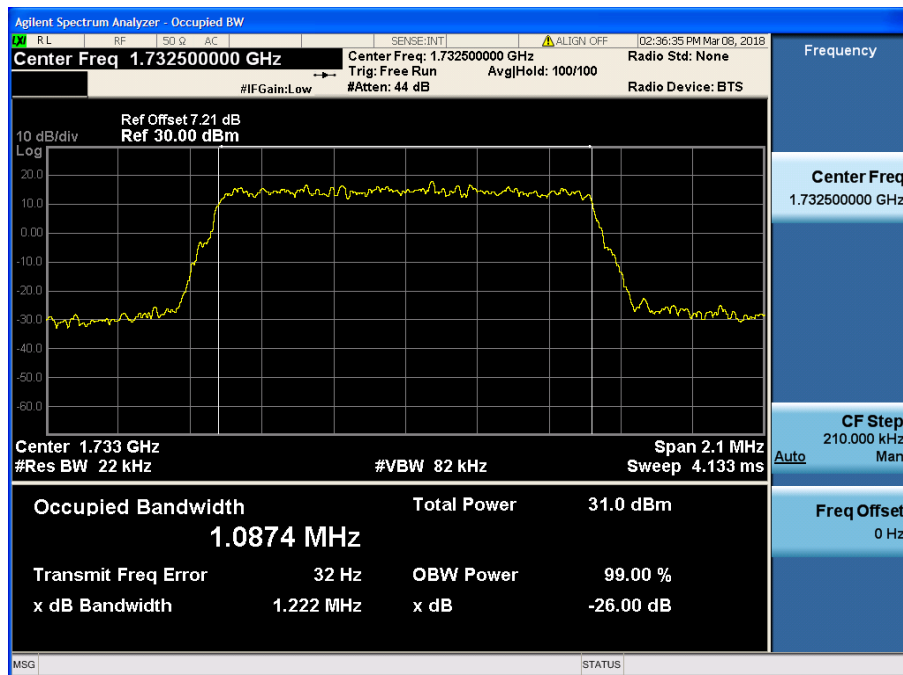
LTE Band 4 / 3 MHz / QPSK - RB Size 15



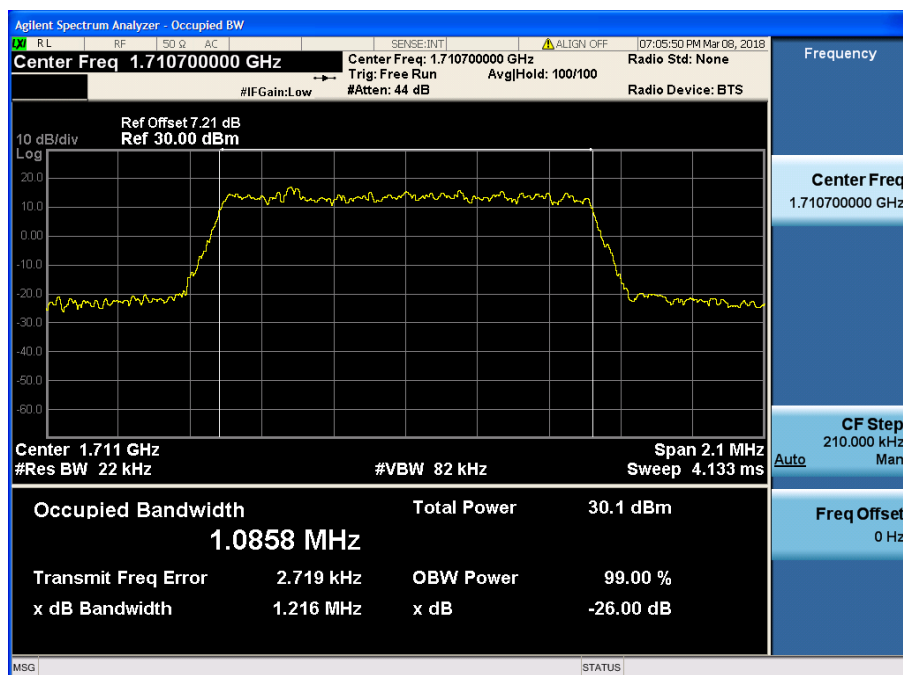
LTE Band 4 / 3 MHz / 16QAM - RB Size 15



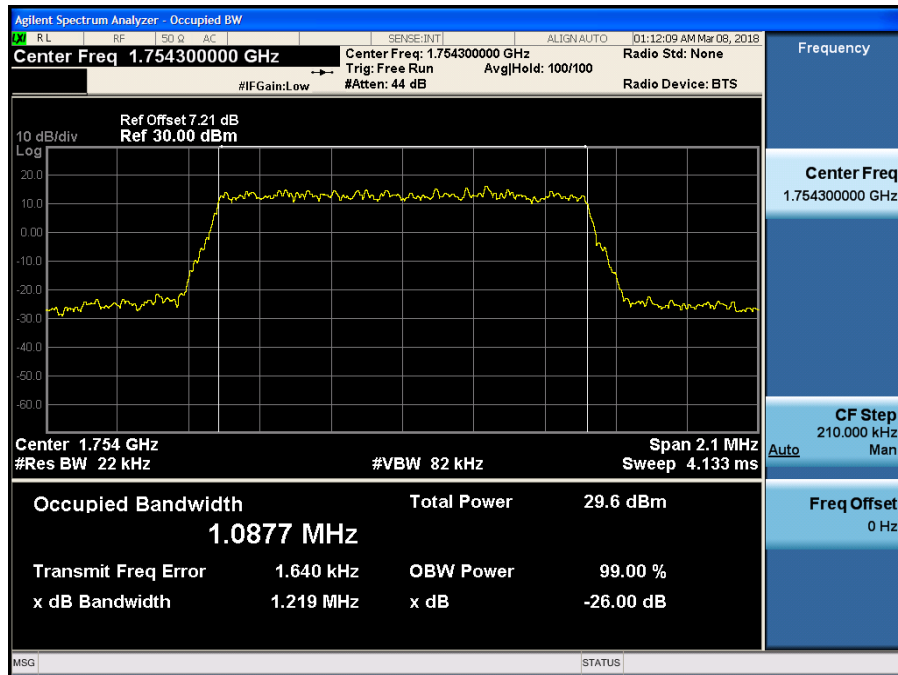
LTE Band 4 / 3 MHz / 64QAM - RB Size 15



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

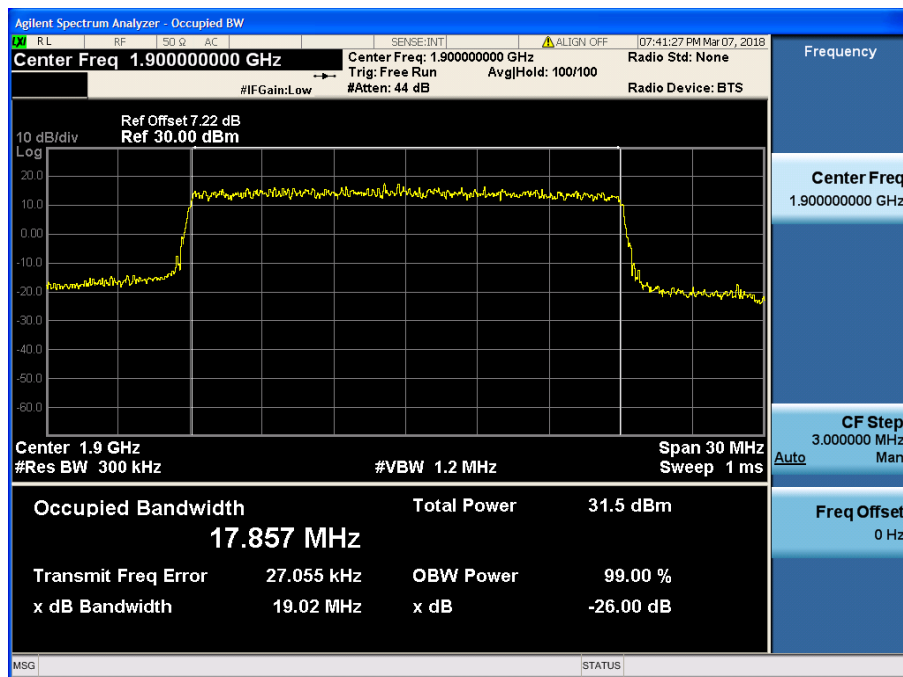


LTE Band 4 / 1.4 MHz / 16QAM - RB Size 6

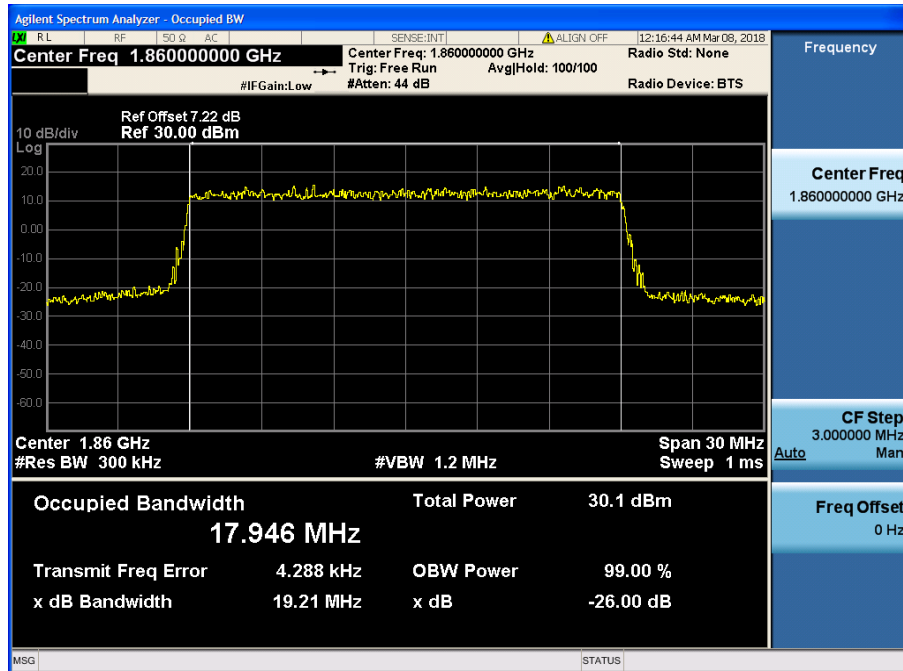


LTE Band 4 / 1.4 MHz / 64QAM - RB Size 6

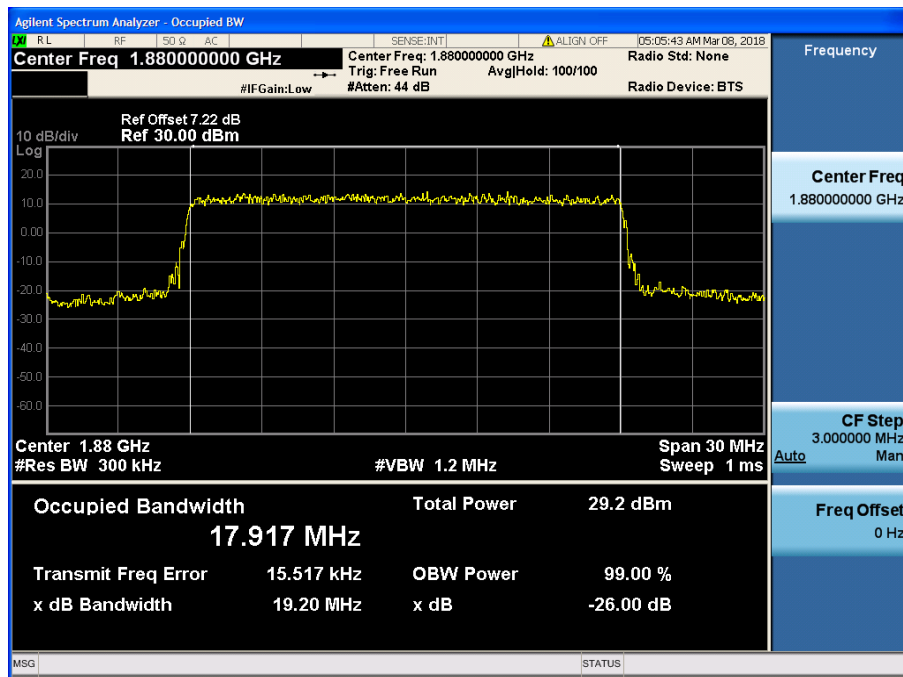
8.1.6 LTE Band 2



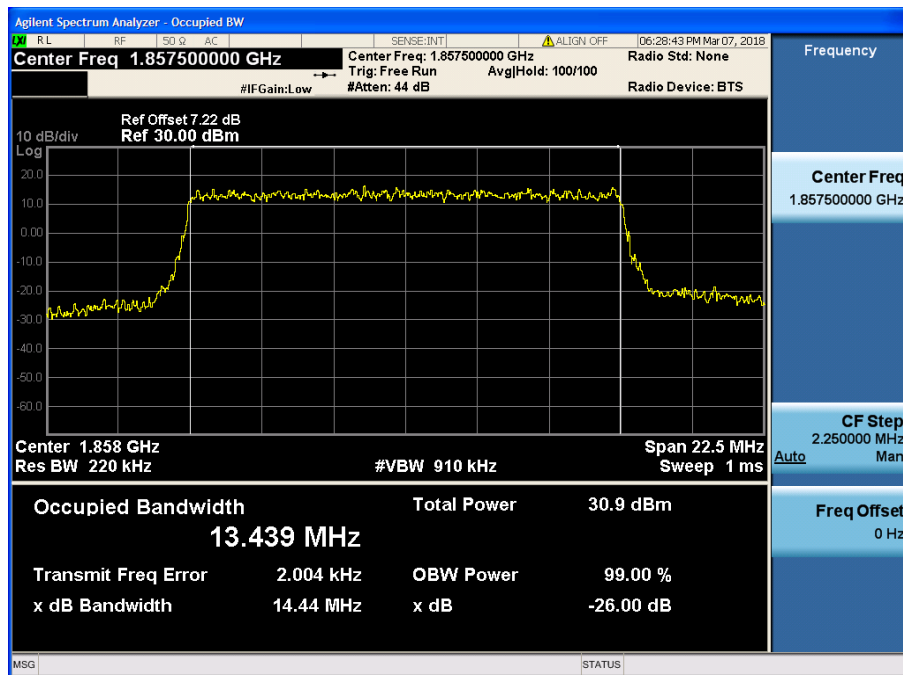
LTE Band 2 / 20 MHz / QPSK - RB Size 100



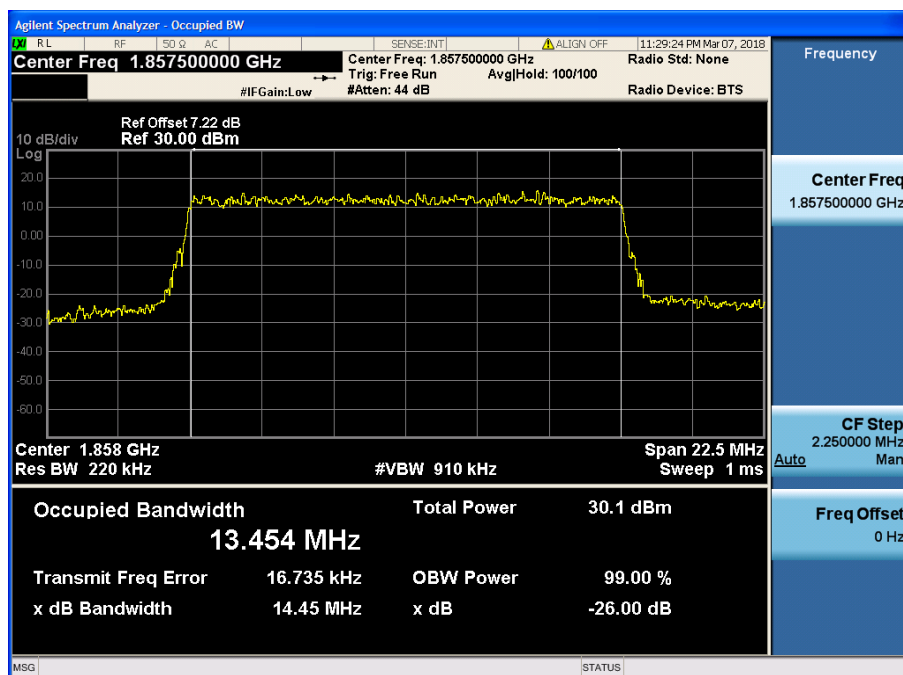
LTE Band 2 / 20 MHz / 16QAM - RB Size 100



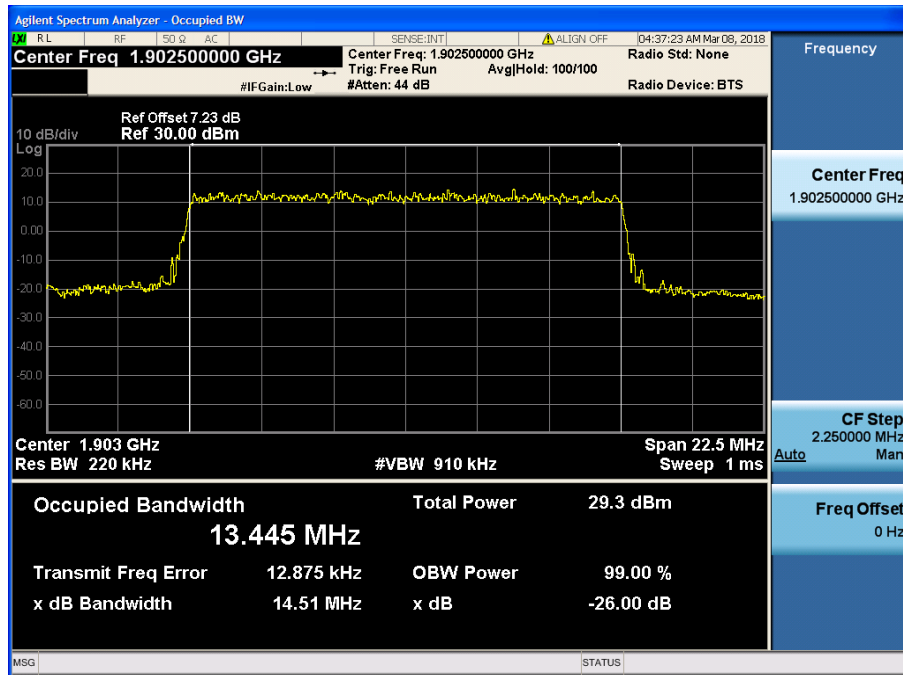
LTE Band 2 / 20 MHz / 64QAM - RB Size 100



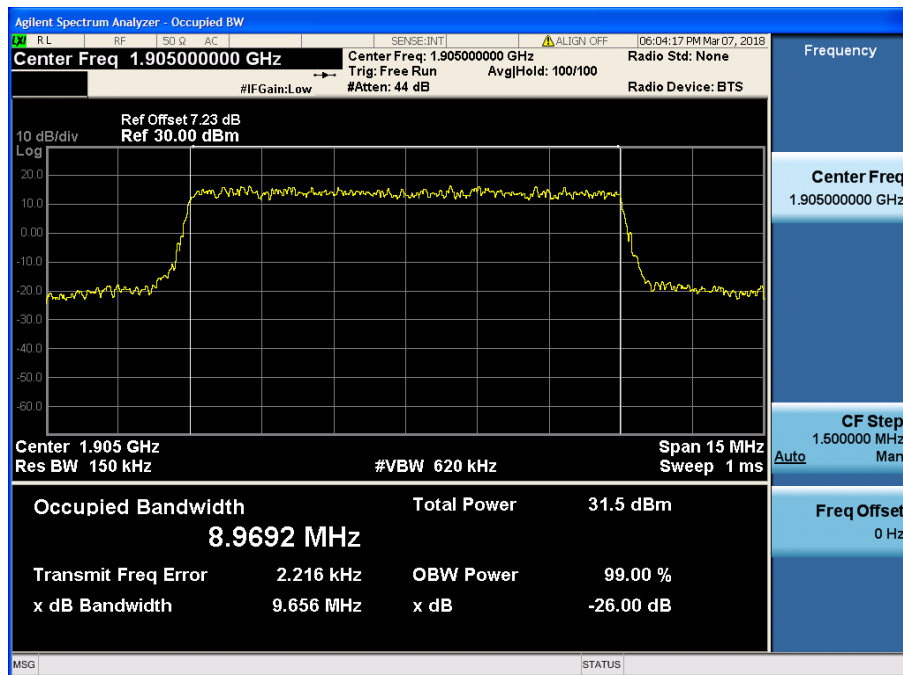
LTE Band 2 / 15 MHz / QPSK - RB Size 75



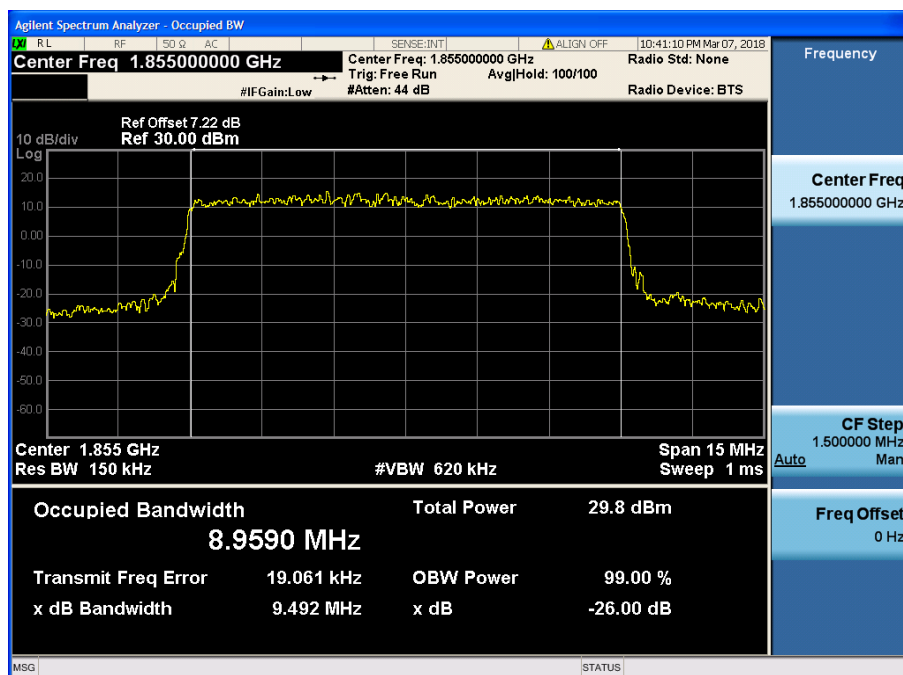
LTE Band 2 / 15 MHz / 16QAM - RB Size 75



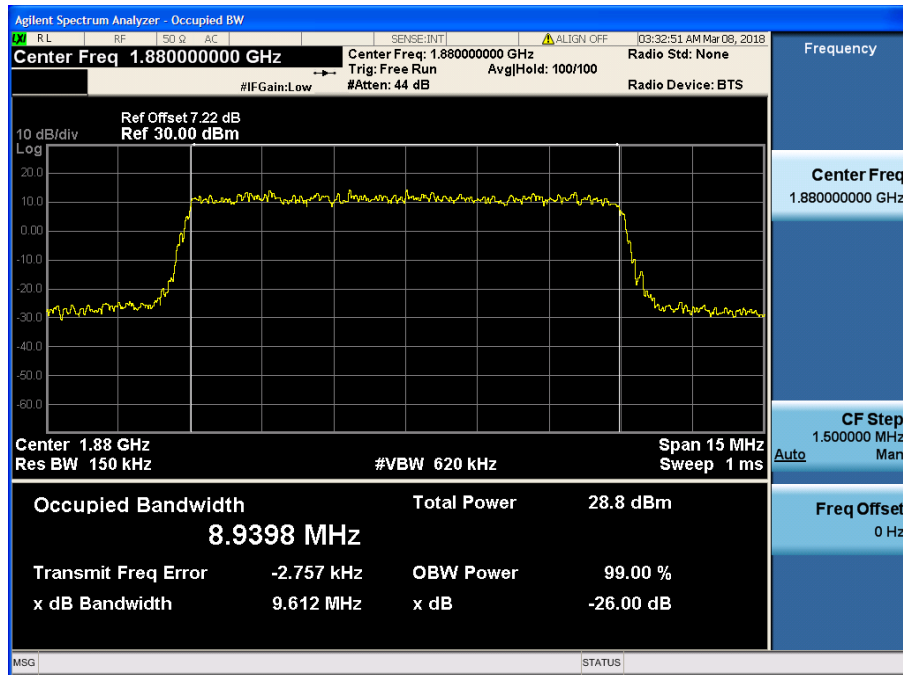
LTE Band 2 / 15 MHz / 64QAM - RB Size 75



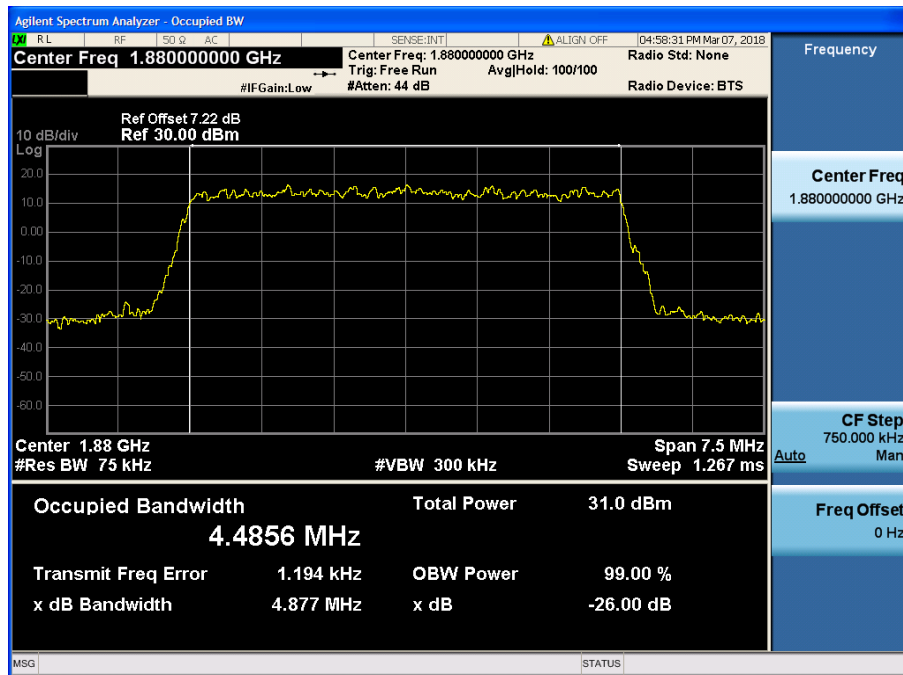
LTE Band 2 / 10 MHz / QPSK - RB Size 50



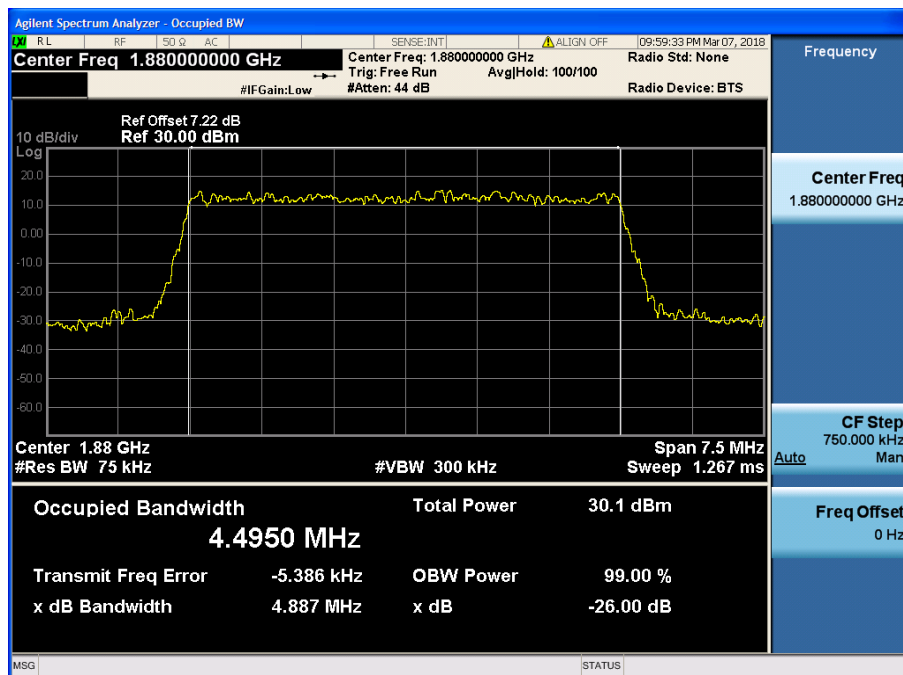
LTE Band 2 / 10 MHz / 16QAM - RB Size 50



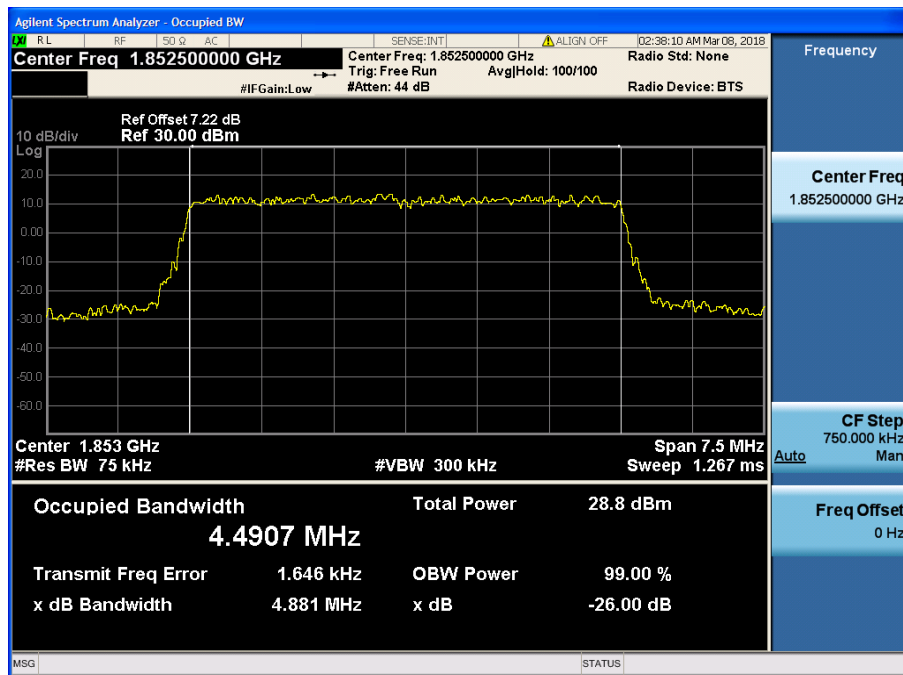
LTE Band 2 / 10 MHz / 64QAM - RB Size 50



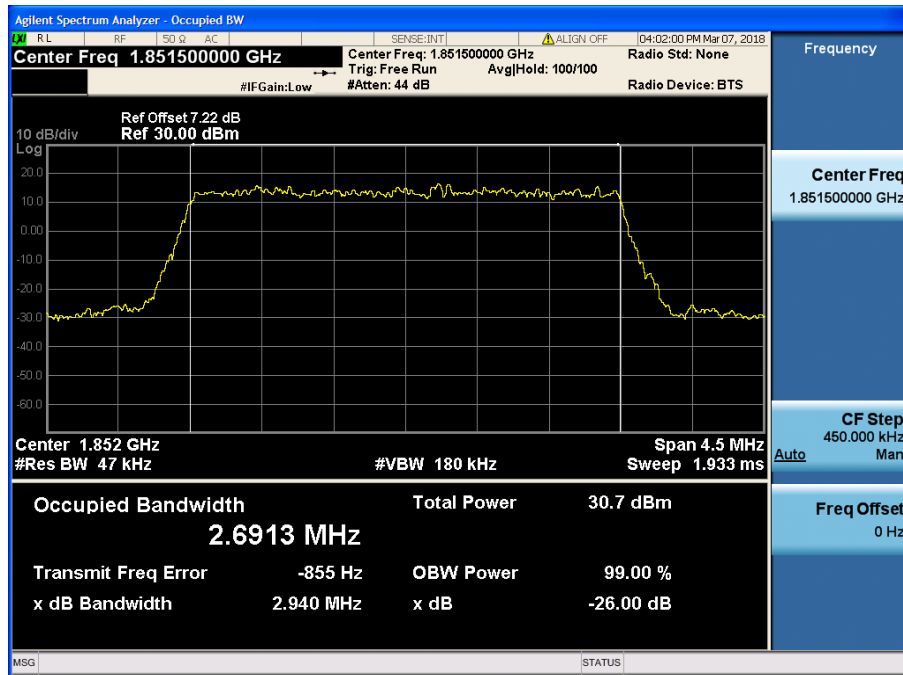
LTE Band 2 / 5 MHz / QPSK - RB Size 25



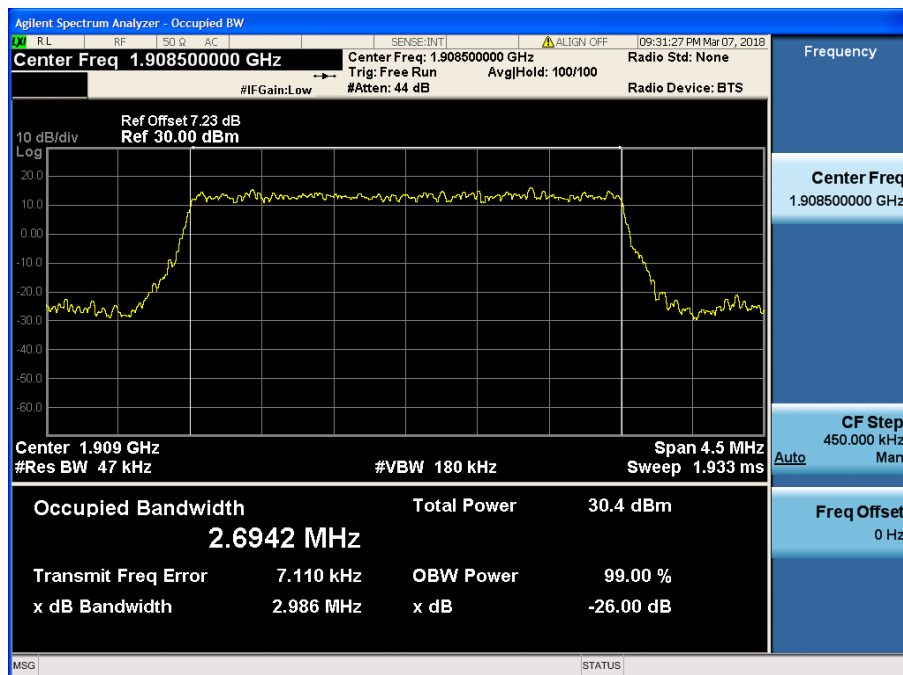
LTE Band 2 / 5 MHz / 16QAM - RB Size 25



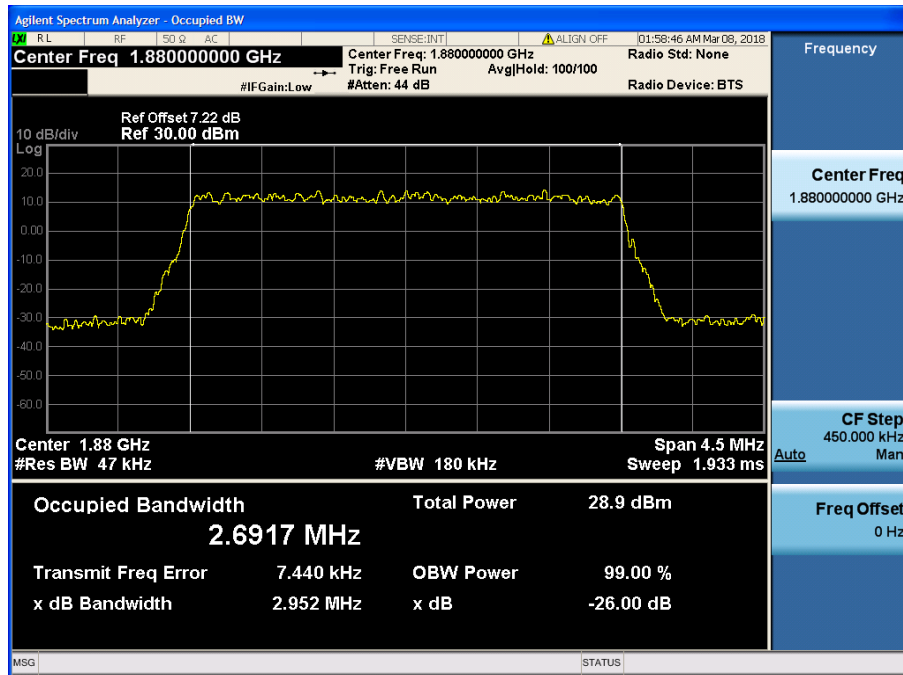
LTE Band 2 / 5 MHz / 64QAM - RB Size 25



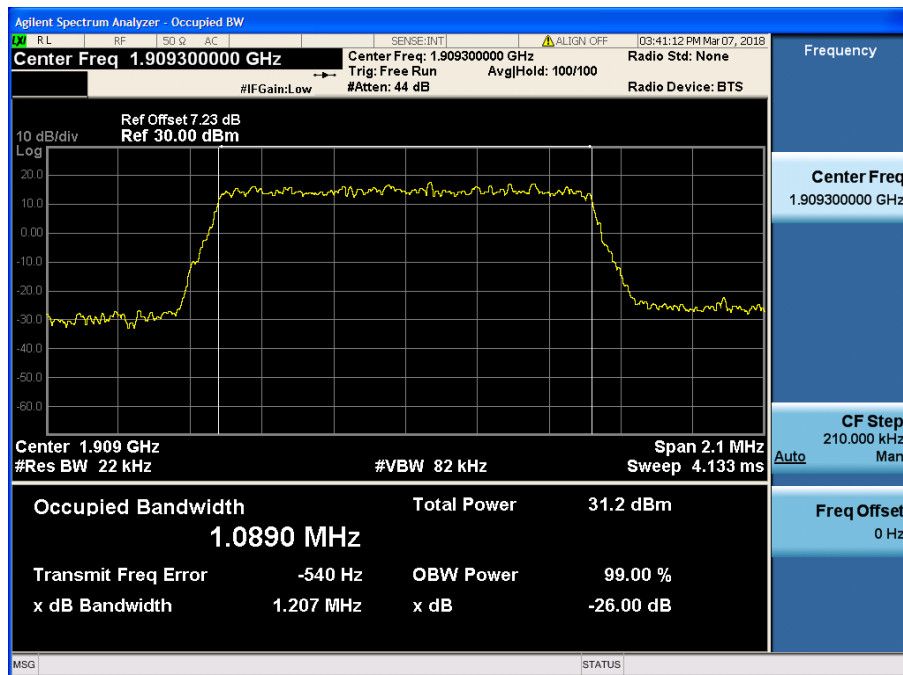
LTE Band 2 / 3 MHz / QPSK - RB Size 15



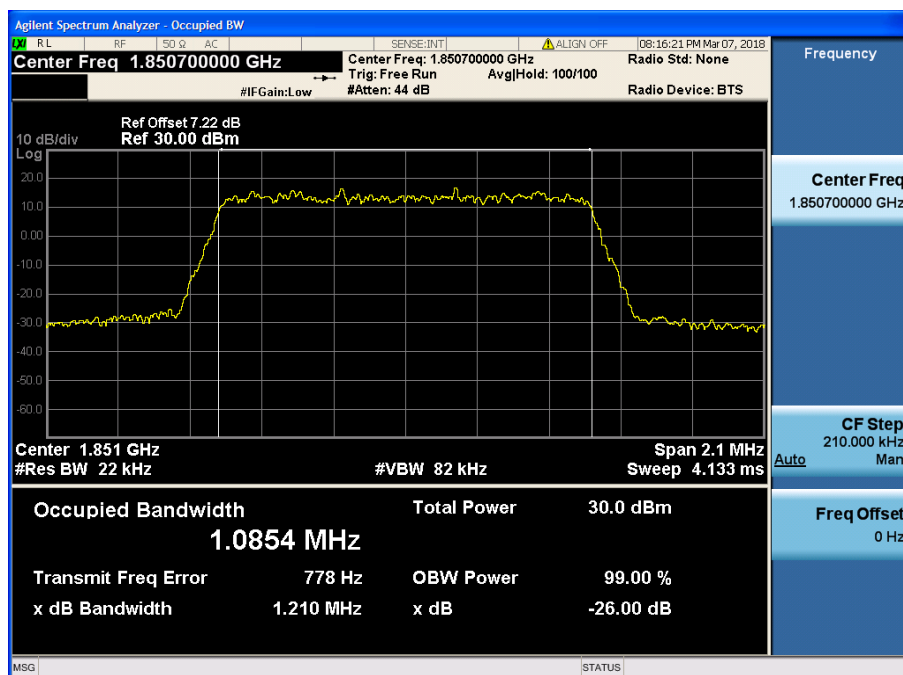
LTE Band 2 / 3 MHz / 16QAM - RB Size 15



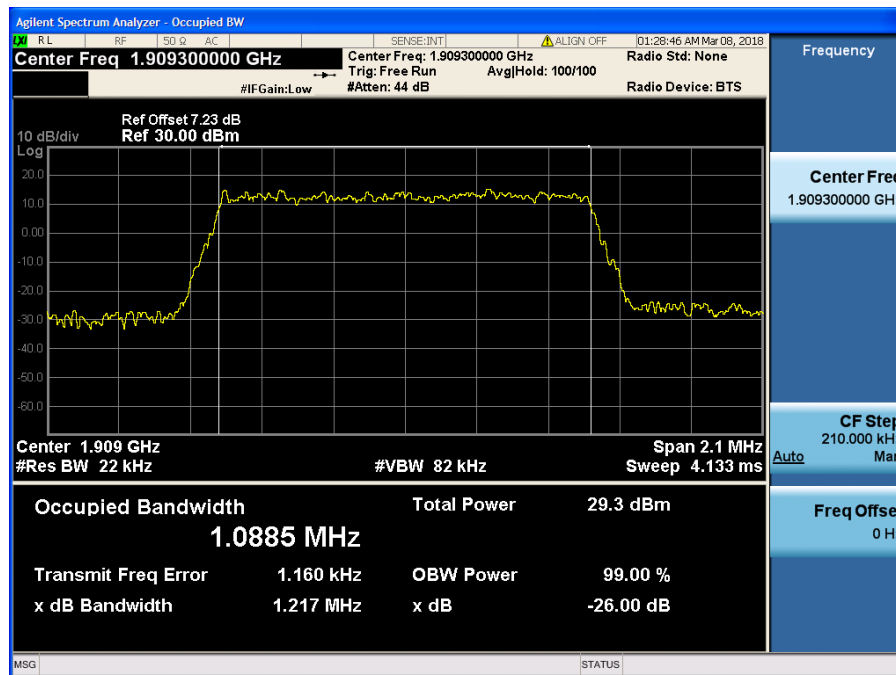
LTE Band 2 / 3 MHz / 64QAM - RB Size 15



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

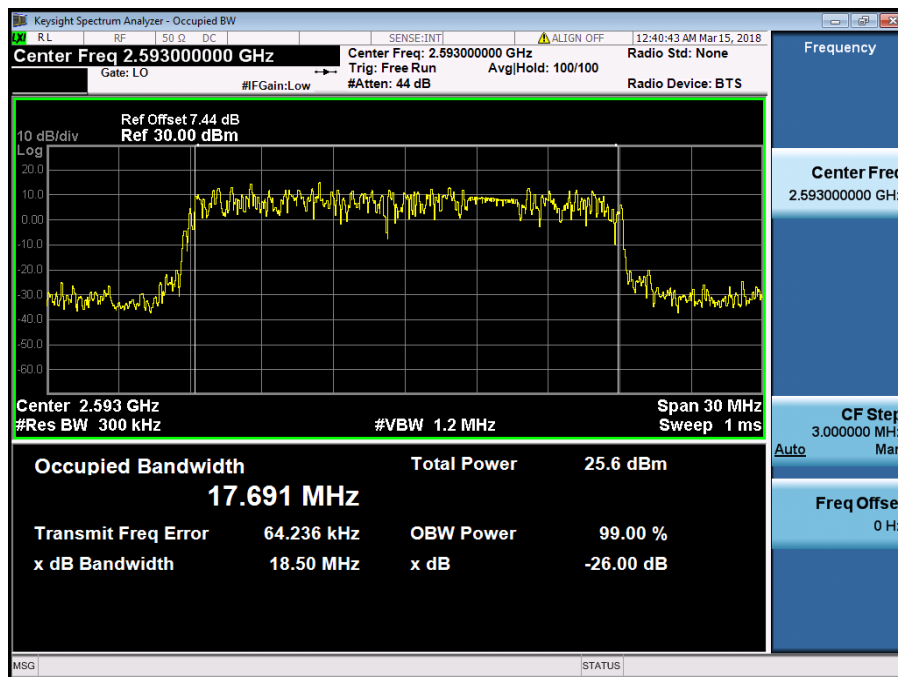


LTE Band 2 / 1.4 MHz / 16QAM - RB Size 6

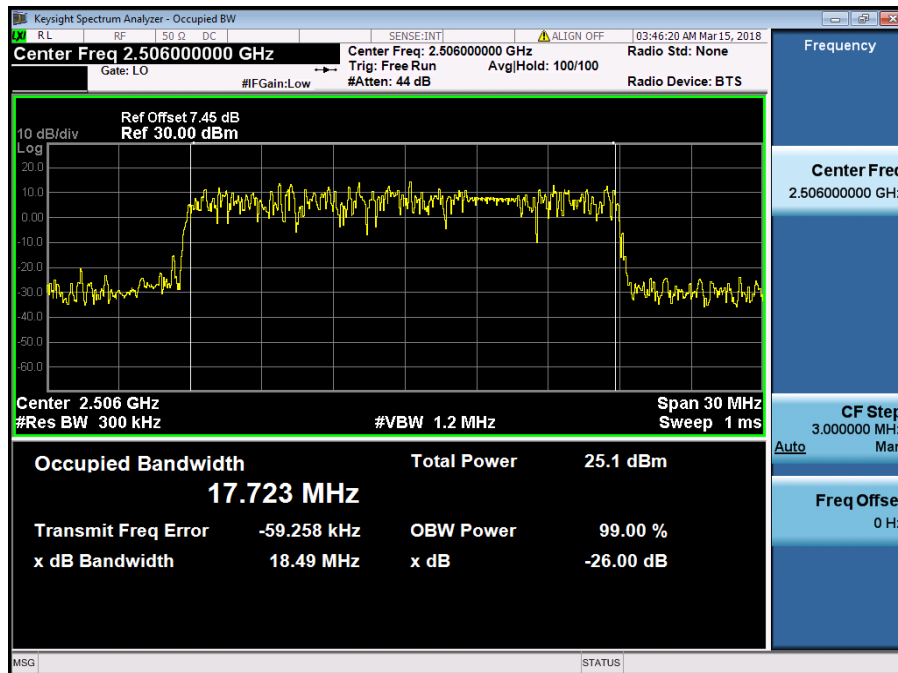


LTE Band 2 / 1.4 MHz / 64QAM - RB Size 6

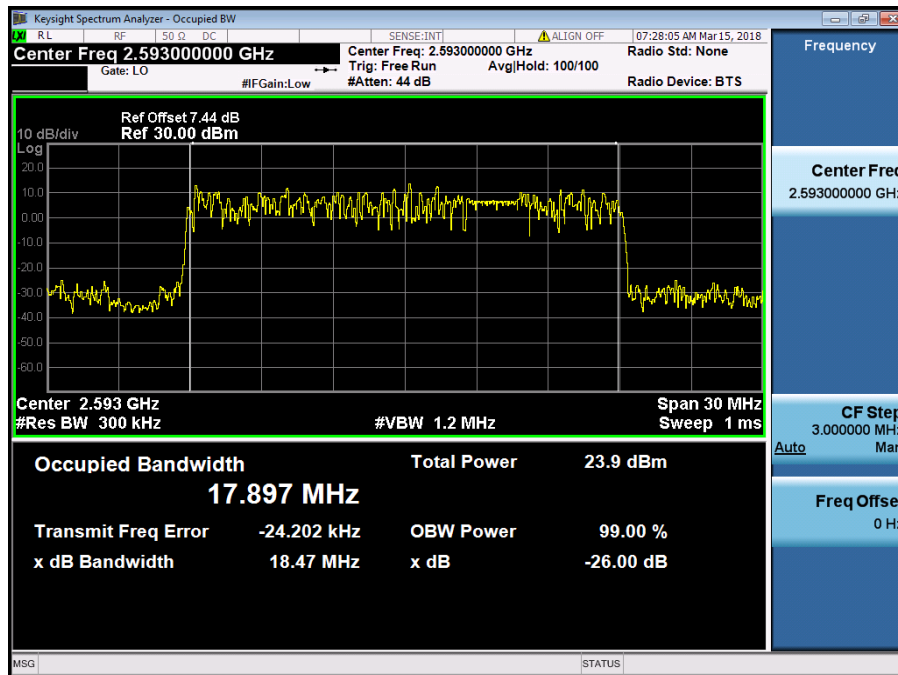
8.1.7 LTE Band 41



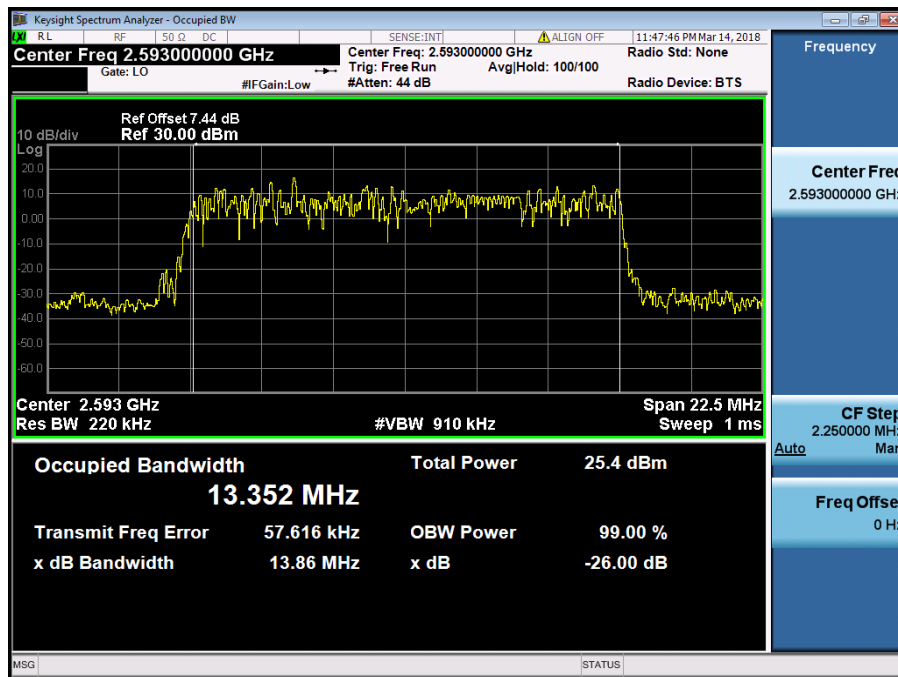
LTE Band 41 / 20 MHz / QPSK - RB Size 100



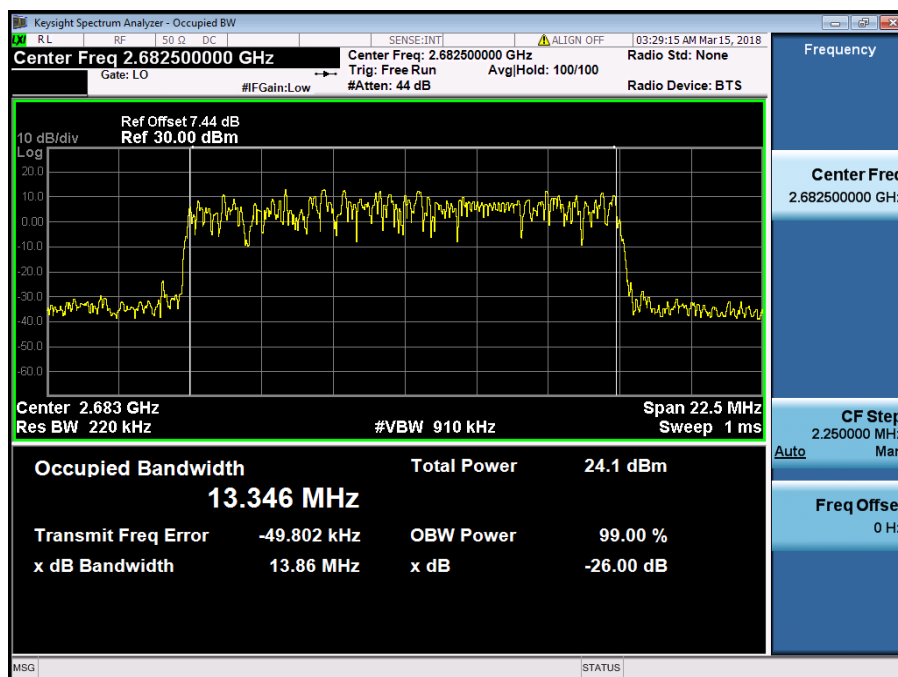
LTE Band 41 / 20 MHz / 16QAM - RB Size 100



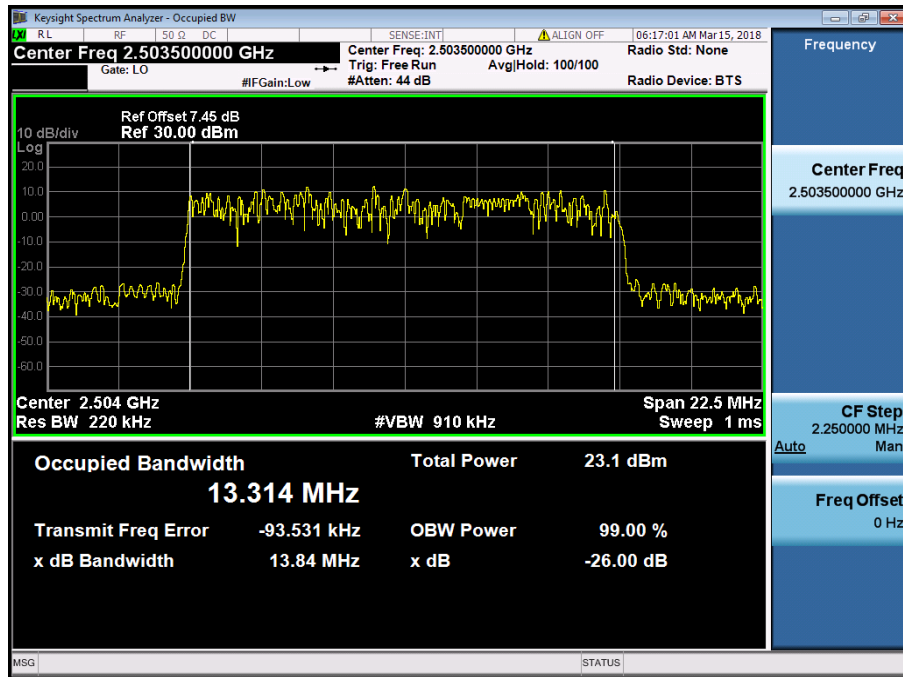
LTE Band 41 / 20 MHz / 64QAM - RB Size 100



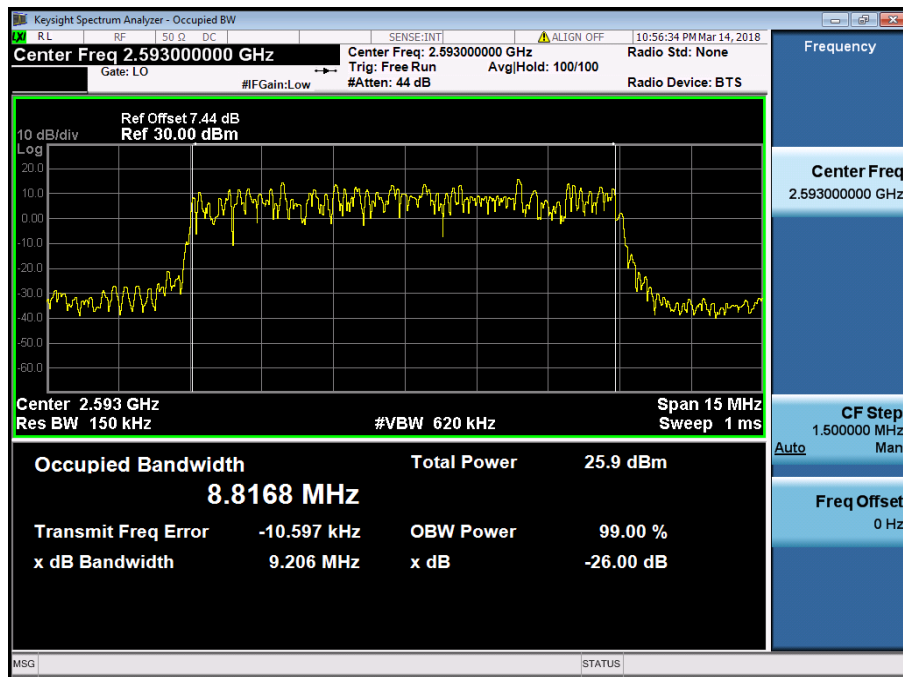
LTE Band 41 / 15 MHz / QPSK - RB Size 75



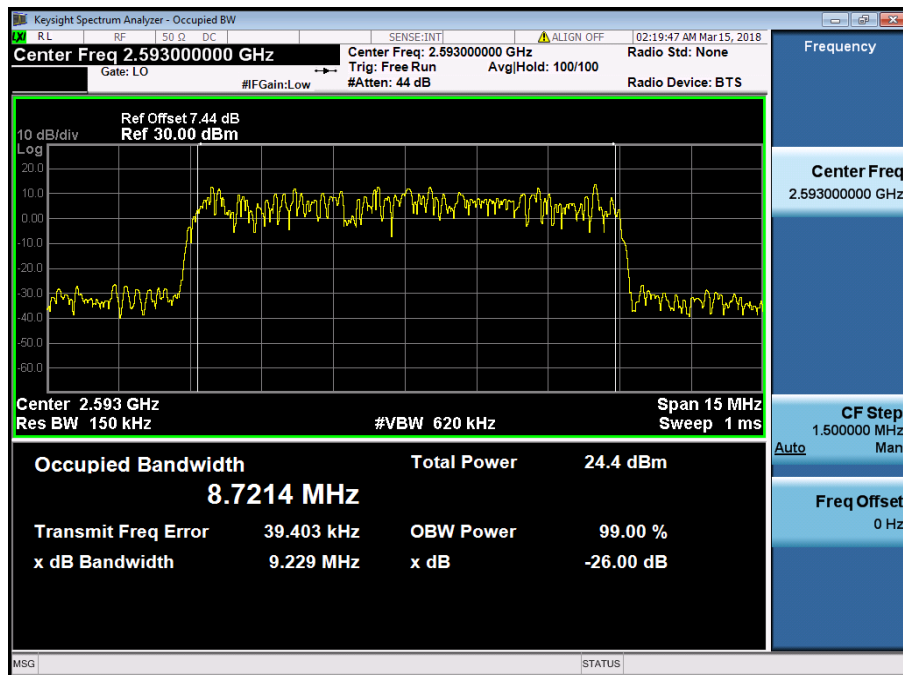
LTE Band 41 / 15 MHz / 16QAM - RB Size 75



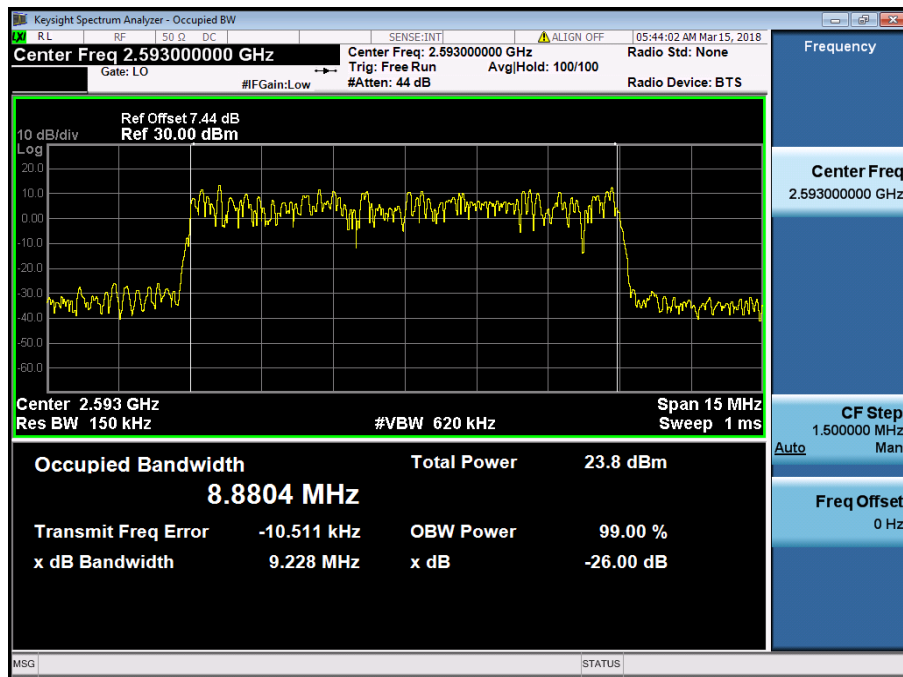
LTE Band 41 / 15 MHz / 64QAM - RB Size 75



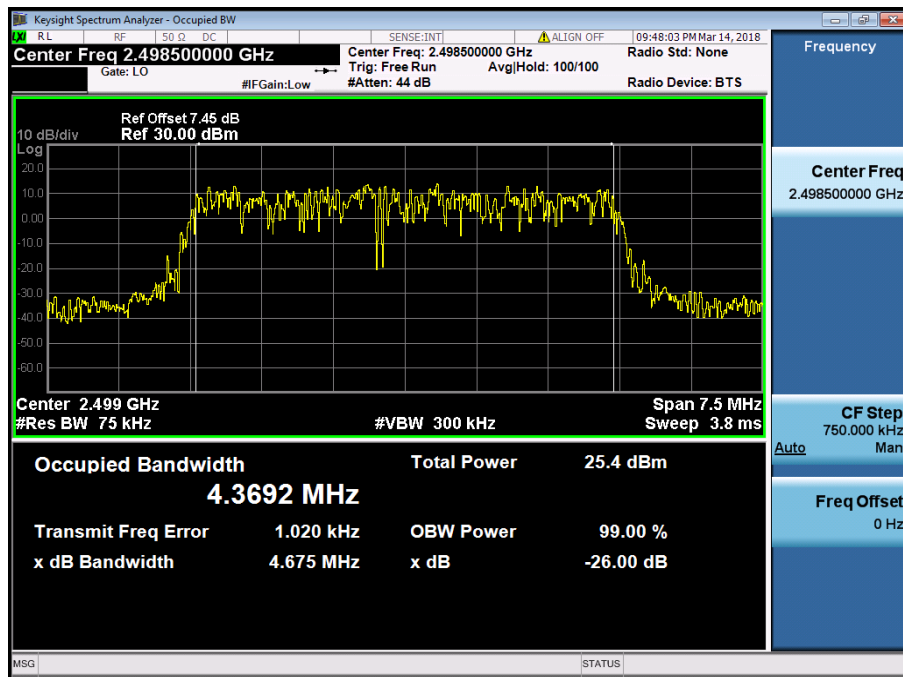
LTE Band 41 / 10 MHz / QPSK - RB Size 50



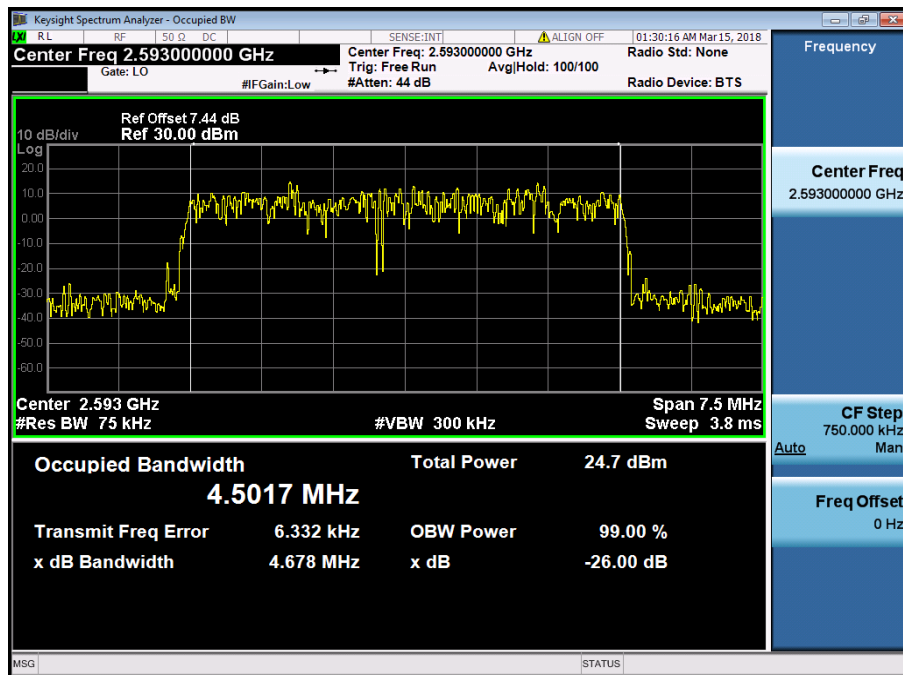
LTE Band 41 / 10 MHz / 16QAM - RB Size 50



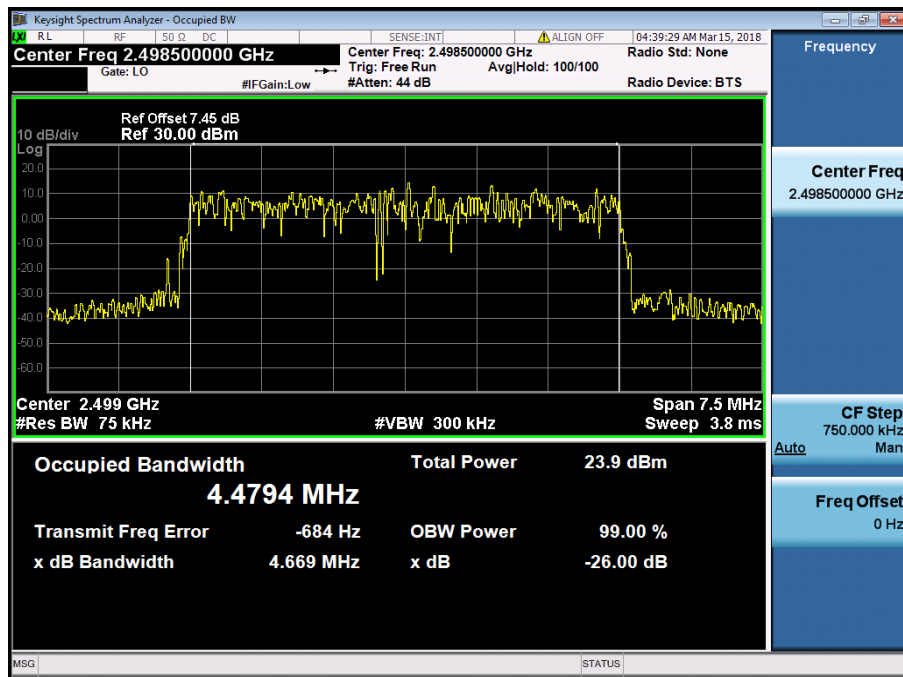
LTE Band 41 / 10 MHz / 64QAM - RB Size 50



LTE Band 41 / 5 MHz / QPSK - RB Size 25

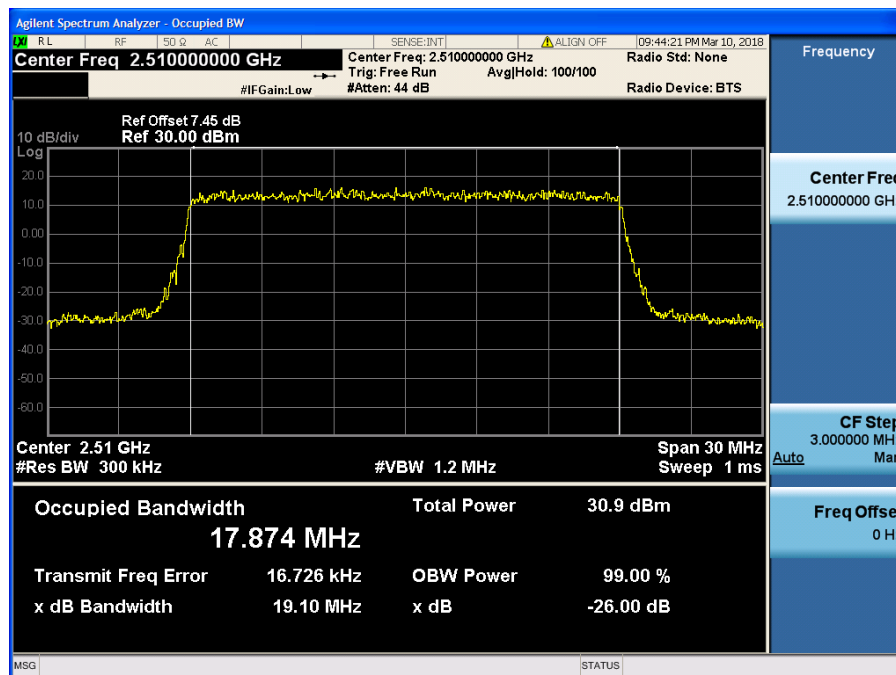


LTE Band 41 / 5 MHz / 16QAM - RB Size 25

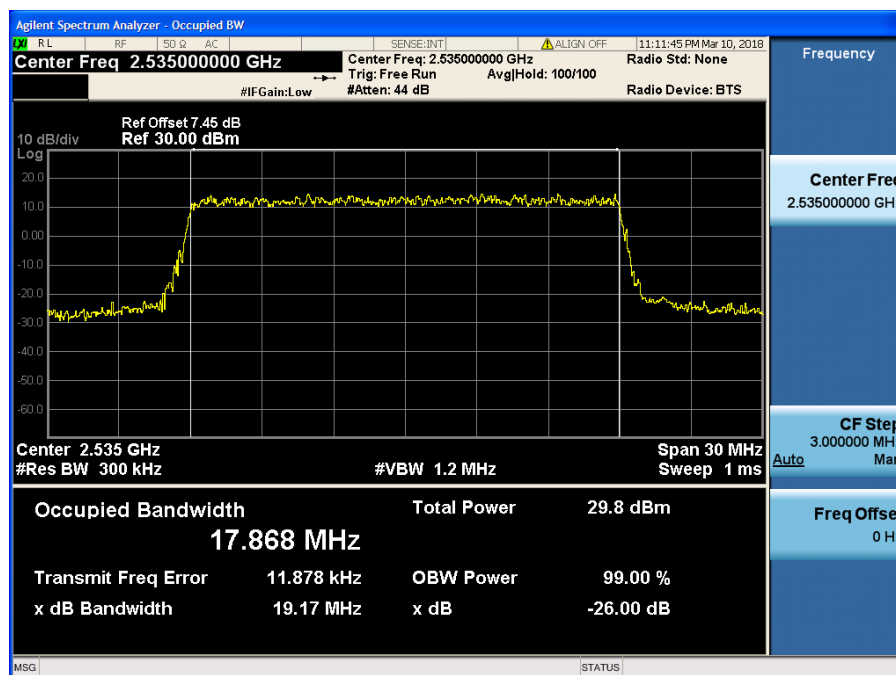


LTE Band 41 / 5 MHz / 64QAM - RB Size 25

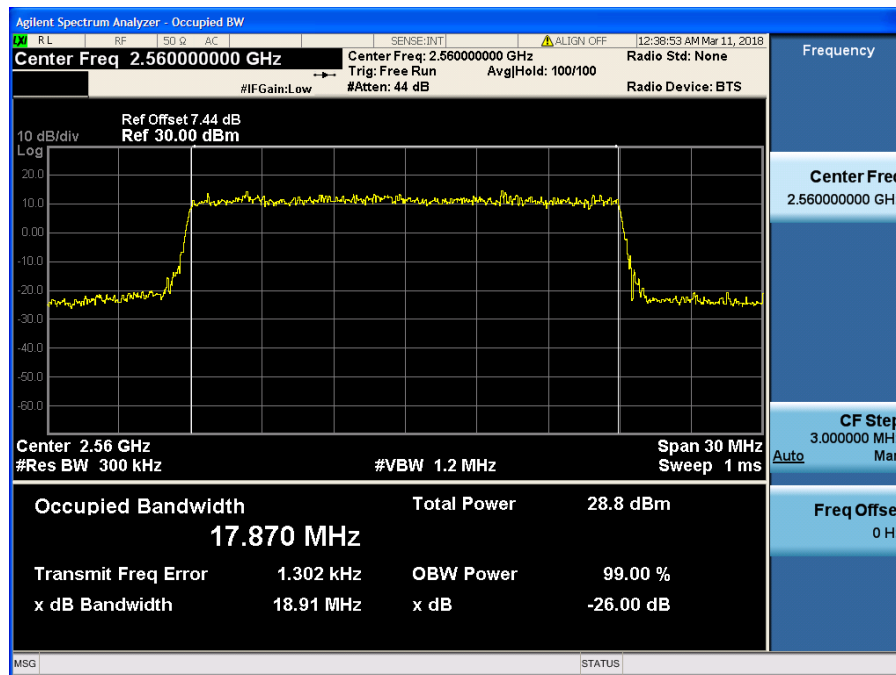
8.1.8 LTE Band 7



LTE Band 7 / 20 MHz / QPSK - RB Size 100



LTE Band 7 / 20 MHz / 16QAM - RB Size 100



LTE Band 7 / 20 MHz / 64QAM - RB Size 100