TEST REPORT

Dt&C

DT&C Co., Ltd.

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Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC2007-0199(2)
2. Customer
   - Name : LG Electronics USA, Inc.
   - Address : 111 Sylvan Avenue, North Building Englewood Cliffs, NJ 07632
3. Use of Report : FCC Original Grant
4. Product Name / Model Name : Mobile Phone / LM-G910EMW
   FCC ID : ZNFG910EMW
5. Test Method Used : KDB971168 D01v03, ANSI/TIA-603-E-2016, ANSI C63.26-2015
   Test Specification : §2, §22, §24(E), §27
6. Date of Test : 2020.04.09 ~ 2020.05.18, 2020.06.11 ~ 2020.07.01
7. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing
8. Testing Environment : Refer to appended test report.
9. Test Result : Refer to the attached test result.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

Affirmation	Tested by Name : JungWoo Kim (Signature)	Reviewed by Name : GeunKi Son (Signature)

2020 . 07 . 10 .

DT&C Co., Ltd.

Not abided by KS Q ISO / IEC 17025 and KOLAS accreditation.

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

Test Report Version

Test Report No.	Date	Description	Revised by	Reviewed by
DRTFCC2007-0199	Jul. 03, 2020	Initial issue	InHee Bae	GeunKi Son
DRTFCC2007-0199(1)	Jul. 09, 2020	Revised the section 1	JungWoo Kim	GeunKi Son
DRTFCC2007-0199(2)	Jul. 10, 2020	Revised the section 1	JungWoo Kim	GeunKi Son

Table of Contents

1. GENERAL INFORMATION

1.1 Explanations for Reference Test Data

1.1.1 Introduction

This report includes the LTE B12(17),13,7,41 test data of FCC ID: ZNFG910HMW with reference to KDB 484596 D01v01.
The applicant takes full responsibility that the test data as reference section below represents compliance for FCC ID: ZNFG910EMW.

Reference FCC ID	Exhibit type	Separated FCC ID
ZNFG910HMW	Original Grant	ZNFG910EMW

1.1.2 Explain the Differences

FCC ID: ZNFG910EMW is same the internal printed circuit board with FCC ID: ZNFG910HMW. Two products differ only the depopulation of components for the purposes of adding or removing frequency bands of operating in non US. (It does not changed the SW/HW component of LTE B12(17),13,7,41)

Change Bands(Frequency) Information

FCC ID	ZNFG910EMW	ZNFG910HMW
LTE	B1,2,3,4,5,7,8,12,13,17,20,28,32,38,39,40,41,66	B1,2,3,4,5,7,8,12,13,17,20,25,26,28,38,40,41,66

Component changes information

REF.	ZNFG910EMW	ZNFG910HMW	Changes(vs ZNFG910HMW)
U1201	EAN64893201	EAN64996301	MB L-PAMID
FL1360	EAM64393501	DNI	B32 PRx SAW added (B32 is supported)
FL1301	EAN64973501	DNI	B32 DRx module added (B32 is supported)
FL5610	EAM62491401	DNI	GPS Extractor (for B32) added
FL5602	DNI	EAM65742901	GPS SAW deleted
FL1201	EAM64390401	DNI	B39 PRx SAW added (B39 is supported)

1.1.3 Spot Check Verification Data

Equipment Class	FCC Part	Capability	Mode (BW)	RB Size/ offset	Tx Freq. (MHz)	Test item	Reference FCC ID: ZNF-G910HMW		Separated FCC ID: ZNF-G910EMW		Limit (dBm)	Deviation (dB)
							Frequency (MHz)	Result (dBm)	Frequency (MHz)	Result (dBm)		
PCE	Part 27	LTE B12	QPSK (5 MHz)	1/24	701.5	ERP	-	21.16	-	18.20	34.77	-2.96
PCE	Part 27	LTE B12	64QAM (10 MHz)	1/0	711	Spurious emission	1 412.06	-53.84	1 412.67	-55.22	-13.00	-1.38
PCE	Part 27	LTE B13	QPSK (10 MHz)	1/0	782	ERP	-	19.67	-	20.60	34.77	0.93
PCE	Part 27	LTE B13	QPSK (10 MHz)	1/25	782	Spurious emission	1 562.88	-51.55	1 564.93	-51.12	-40.00	0.43
PCE	Part 27	LTE B7	QPSK (20 MHz)	1/99	2 560	EIRP	-	22.17	-	21.41	34.77	-0.76
PCE	Part 27	LTE B7	64QAM (20 MHz)	1/50	2 510	Spurious emission	7 530.32	-36.35	7 605.28	-35.41	-13.00	0.94
PCE	Part 27	LTE B41	QPSK (10 MHz)	1/25	2 593	EIRP	-	22.35	-	23.13	33.01	0.78
PCE	Part 27	LTE B41	16QAM (20 MHz)	1/50	2 680	Spurious emission	7 519.41	-36.65	7 779.30	-35.40	-25.00	1.25

Note1: The spot check were performed based on worst-case results reported in the original FCC report.
The spot check test results are within 3dB and two products shows a good correlation. It also complies with the FCC limit.

1.1.4 Refer Section

Reference FCC ID: ZNFG910HMW

Equipment Class	FCC Part	Capability	Frequency Range(MHz)	Exhibit type	Report title	Reference Sections
PCE	Part 27	LTE B12(17)	699 ~ 716	Original Grant	PCE-LTE	All
PCE	Part 27	LTE B13	777 ~ 787	Original Grant	PCE-LTE	All
PCE	Part 27	LTE B7	2 500 ~ 2 570	Original Grant	PCE-LTE	All
PCE	Part 27	LTE B41	2 496 ~ 2 690	Original Grant	PCE-LTE	All

1.2 EUT Information

Applicant Name : LG Electronics USA, Inc.

Address : 111 Sylvan Avenue, North Building Englewood Cliffs, NJ 07632

FCC ID : ZNFG910EMW

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

EUT Type : Mobile Phone

Model Name : LM-G910EMW

Add Model Name : LMG910EMW, G910EMW

Supplying power : DC 3.87 V

Antenna Information : PIFA Antenna

Mode	TX Frequency (MHz)	Emission Designator	Modulation	ERP	
				Max power (dBm)	Max power (W)
LTE Band 12, 17	704 ~ 711	8M93G7D	QPSK	20.94	0.124
LTE Band 12, 17	704 ~ 711	8M95W7D	16QAM	19.75	0.094
LTE Band 12, 17	704 ~ 711	8M97W7D	64QAM	18.50	0.071
LTE Band 12, 17	701.5 ~ 713.5	4M48G7D	QPSK	21.16	0.131
LTE Band 12, 17	701.5 ~ 713.5	4M50W7D	16QAM	19.70	0.093
LTE Band 12, 17	701.5 ~ 713.5	4M50W7D	64QAM	18.66	0.073
LTE Band 12	700.5 ~ 714.5	2M70G7D	QPSK	20.70	0.117
LTE Band 12	700.5 ~ 714.5	2M69W7D	16QAM	19.23	0.084
LTE Band 12	700.5 ~ 714.5	2M69W7D	64QAM	18.15	0.065
LTE Band 12	699.7 ~ 715.3	1M09G7D	QPSK	20.23	0.105
LTE Band 12	699.7 ~ 715.3	1M09W7D	16QAM	18.93	0.078
LTE Band 12	699.7 ~ 715.3	1M09W7D	64QAM	18.01	0.063
LTE Band 13	782 ~ 782	8M90G7D	QPSK	19.67	0.093
LTE Band 13	782 ~ 782	8M90W7D	16QAM	18.17	0.066
LTE Band 13	782 ~ 782	8M94W7D	64QAM	17.09	0.051
LTE Band 13	779.5 ~ 784.5	4M49G7D	QPSK	19.59	0.091
LTE Band 13	779.5 ~ 784.5	4M47W7D	16QAM	18.21	0.066
LTE Band 13	779.5 ~ 784.5	4M48W7D	64QAM	17.02	0.050
LTE Band 5	829 ~ 844	8M94G7D	QPSK	21.41	0.138
LTE Band 5	829 ~ 844	8M95W7D	16QAM	19.78	0.095
LTE Band 5	829 ~ 844	8M96W7D	64QAM	18.76	0.075
LTE Band 5	826.5 ~ 846.5	4M50G7D	QPSK	21.05	0.127
LTE Band 5	826.5 ~ 846.5	4M50W7D	16QAM	19.84	0.096
LTE Band 5	826.5 ~ 846.5	4M50W7D	64QAM	18.90	0.078
LTE Band 5	825.5 ~ 847.5	2M70G7D	QPSK	21.16	0.131
LTE Band 5	825.5 ~ 847.5	2M70W7D	16QAM	19.65	0.092
LTE Band 5	825.5 ~ 847.5	2M69W7D	64QAM	18.49	0.071
LTE Band 5	824.7 ~ 848.3	1M08G7D	QPSK	20.95	0.124
LTE Band 5	824.7 ~ 848.3	1M09W7D	16QAM	19.56	0.090
LTE Band 5	824.7 ~ 848.3	1M09W7D	64QAM	18.71	0.074

Mode	TX Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max power(dBm)	Max power(W)
LTE Band 66, 4	1 720 ~ 1 770	17M9G7D	QPSK	22.61	0.182
LTE Band 66, 4	1 720 ~ 1 770	17M9W7D	16QAM	21.96	0.157
LTE Band 66, 4	1 720 ~ 1 770	17M9W7D	64QAM	20.85	0.122
LTE Band 66, 4	1 717.5 ~ 1 772.5	13M4G7D	QPSK	22.36	0.172
LTE Band 66, 4	1 717.5 ~ 1 772.5	13M4W7D	16QAM	21.58	0.144
LTE Band 66, 4	1 717.5 ~ 1 772.5	13M4W7D	64QAM	20.63	0.116
LTE Band 66, 4	1 715 ~ 1 775	8M97G7D	QPSK	22.38	0.173
LTE Band 66, 4	1 715 ~ 1 775	8M96W7D	16QAM	21.70	0.148
LTE Band 66, 4	1 715 ~ 1 775	8M97W7D	64QAM	20.48	0.112
LTE Band 66, 4	1 712.5 ~ 1 777.5	4M48G7D	QPSK	22.27	0.169
LTE Band 66, 4	1 712.5 ~ 1 777.5	4M49W7D	16QAM	21.55	0.143
LTE Band 66, 4	1 712.5 ~ 1 777.5	4M49W7D	64QAM	20.51	0.112
LTE Band 66, 4	1 711.5 ~ 1 778.5	2M69G7D	QPSK	22.12	0.163
LTE Band 66, 4	1 711.5 ~ 1 778.5	2M70W7D	16QAM	21.41	0.138
LTE Band 66, 4	1 711.5 ~ 1 778.5	2M69W7D	64QAM	20.23	0.105
LTE Band 66, 4	1 710.7 ~ 1 779.3	1M09G7D	QPSK	21.94	0.156
LTE Band 66, 4	1 710.7 ~ 1 779.3	1M09W7D	16QAM	21.28	0.134
LTE Band 66, 4	1 710.7 ~ 1 779.3	1M09W7D	64QAM	20.07	0.102
LTE Band 2	1 860 ~ 1 900	17M9G7D	QPSK	24.77	0.300
LTE Band 2	1 860 ~ 1 900	17M9W7D	16QAM	24.25	0.266
LTE Band 2	1 860 ~ 1 900	17M9W7D	64QAM	22.94	0.197
LTE Band 2	1 857.5 ~ 1 902.5	13M4G7D	QPSK	24.15	0.260
LTE Band 2	1 857.5 ~ 1 902.5	13M4W7D	16QAM	23.33	0.215
LTE Band 2	1 857.5 ~ 1 902.5	13M4W7D	64QAM	22.29	0.169
LTE Band 2	1 855 ~ 1 905	8M96G7D	QPSK	22.84	0.192
LTE Band 2	1 855 ~ 1 905	8M95W7D	16QAM	22.11	0.163
LTE Band 2	1 855 ~ 1 905	8M96W7D	64QAM	21.16	0.131
LTE Band 2	1 852.5 ~ 1 907.5	4M49G7D	QPSK	23.07	0.203
LTE Band 2	1 852.5 ~ 1 907.5	4M49W7D	16QAM	21.72	0.149
LTE Band 2	1 852.5 ~ 1 907.5	4M48W7D	64QAM	20.63	0.116
LTE Band 2	1 851.5 ~ 1 908.5	2M69G7D	QPSK	23.78	0.239
LTE Band 2	1 851.5 ~ 1 908.5	2M69W7D	16QAM	23.18	0.208
LTE Band 2	1 851.5 ~ 1 908.5	2M69W7D	64QAM	22.09	0.162
LTE Band 2	1 850.7 ~ 1 909.3	1M09G7D	QPSK	23.46	0.222
LTE Band 2	1 850.7 ~ 1 909.3	1M09W7D	16QAM	22.94	0.197
LTE Band 2	1 850.7 ~ 1 909.3	1M09W7D	64QAM	21.81	0.152
LTE Band 41	2 506 ~ 2 680	17M8G7D	QPSK	21.72	0.149
LTE Band 41	2 506 ~ 2 680	17M8W7D	16QAM	21.17	0.131
LTE Band 41	2 506 ~ 2 680	17M9W7D	64QAM	20.35	0.108
LTE Band 41	2 503.5 ~ 2 682.5	13M4G7D	QPSK	21.97	0.157
LTE Band 41	2 503.5 ~ 2 682.5	13M3W7D	16QAM	21.31	0.135
LTE Band 41	2 503.5 ~ 2 682.5	13M4W7D	64QAM	20.26	0.106
LTE Band 41	2 501 ~ 2 685	8M93G7D	QPSK	22.35	0.172
LTE Band 41	2 501 ~ 2 685	8M74W7D	16QAM	21.57	0.144
LTE Band 41	2 501 ~ 2 685	8M91W7D	64QAM	20.68	0.117
LTE Band 41	2 498.5 ~ 2 687.5	4M48G7D	QPSK	22.18	0.165
LTE Band 41	2 498.5 ~ 2 687.5	4M42W7D	16QAM	21.56	0.143
LTE Band 41	2 498.5 ~ 2 687.5	4M44W7D	64QAM	20.64	0.116
LTE Band 7	2 510 ~ 2 560	17M9G7D	QPSK	22.17	0.165
LTE Band 7	2 510 ~ 2 560	17M9W7D	16QAM	21.39	0.138
LTE Band 7	2 510 ~ 2 560	17M9W7D	64QAM	20.40	0.110
LTE Band 7	2 507.5 ~ 2 562.5	13M5G7D	QPSK	21.94	0.156
LTE Band 7	2 507.5 ~ 2 562.5	13M4W7D	16QAM	21.31	0.135
LTE Band 7	2 507.5 ~ 2 562.5	13M4W7D	64QAM	19.95	0.099
LTE Band 7	2 505 ~ 2 565	8M96G7D	QPSK	21.77	0.150
LTE Band 7	2 505 ~ 2 565	8M94W7D	16QAM	21.17	0.131
LTE Band 7	2 505 ~ 2 565	8M96W7D	64QAM	20.04	0.101
LTE Band 7	2 502.5 ~ 2 567.5	4M49G7D	QPSK	21.99	0.158
LTE Band 7	2 502.5 ~ 2 567.5	4M48W7D	16QAM	21.13	0.130
LTE Band 7	2 502.5 ~ 2 567.5	4M49W7D	64QAM	20.30	0.107

2. INTRODUCTION

2.1 EUT DESCRIPTION

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

2.2. EUT CAPABILITIES

This EUT contains the following capabilities:
GSM/EDGE 850/1 900, WCDMA/HSUPA 850/1 700/1 900, Multi-band LTE, 802.11b/g/n/ac WLAN(2.4 GHz)
802.11a/n/ac WLAN(5 GHz), Bluetooth(BDR, EDR, LE), NFC, WPC, Dual Display.

2.3. TESTING ENVIRONMENT

Ambient Condition	
▪ Temperature	+20 ℃ ~ +25 ℃
▪ Relative Humidity	38 % ~ 45 %

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)	4.9 dB (The confidence level is about 95 %, k = 2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.1 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)

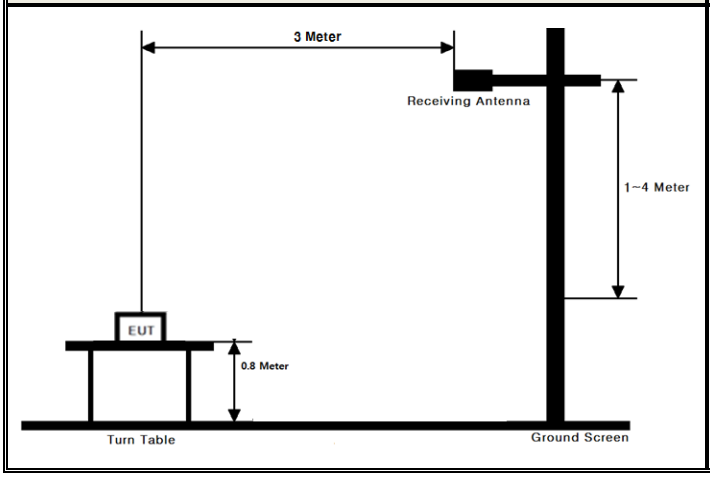
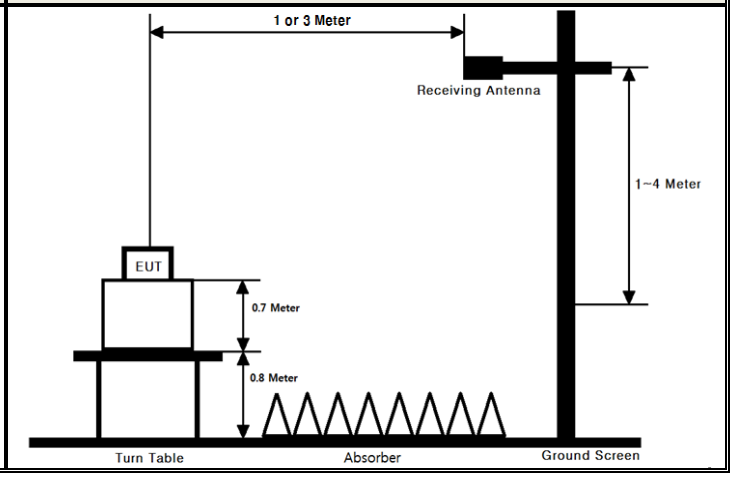
2.6. TEST FACILITY

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

Below 1 GHz	Above 1 GHz
	

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

Test Procedure

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

Test setting

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

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

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

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

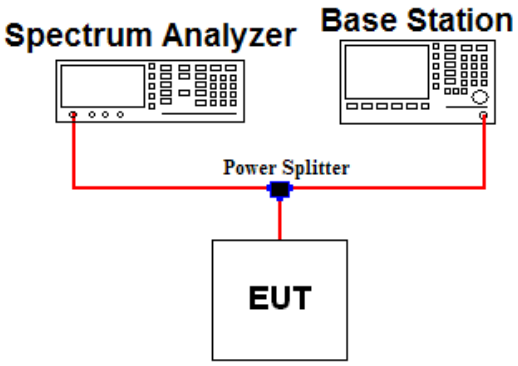
The ERP / EIRP is calculated using the following formula:

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

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

3.2 PEAK TO AVERAGE RATIO

Test set-up



Test Procedure

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

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

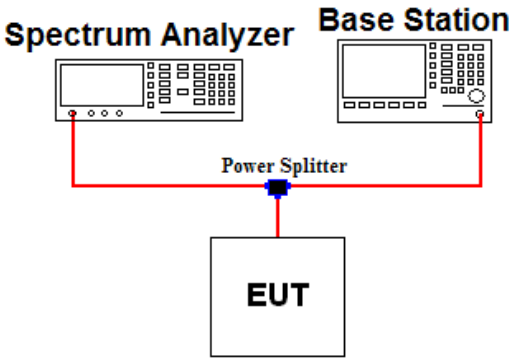
Test setting

The spectrum Analyzer`s CCDF measurement function is enabled.

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

3.3 OCCUPIED BANDWIDTH.

Test set-up



Test Procedure

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

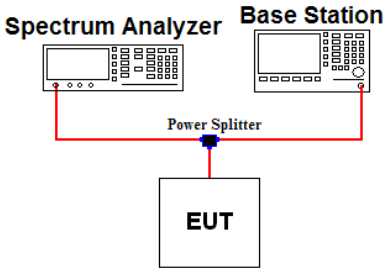
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power of a given emission.

Test setting

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

3.4 BAND EDGE EMISSIONS AT ANTENNA TERMINAL

Test set-up



Test Procedure

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

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

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

Test setting

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

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

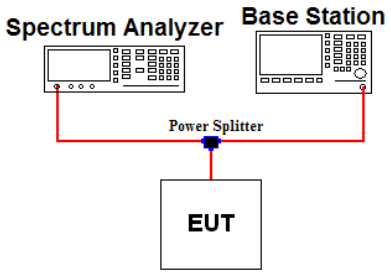
Note 2: Per Part 27(g) for operations in the 600 MHz band and the 698-746 MHz band, compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Note 3: For part 27.53(m)(4) the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2 490.5 MHz and 2 496 MHz and 55 + 10 log (P) dB at or below 2 490.5 MHz.

Note 4: Per part 27.53(m)(6) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 MHz band is 2 495 MHz -2 496 MHz, in which case a resolution bandwidth of at least one percent may be employed.

3.5 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL

Test set-up



Test Procedure

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

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

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

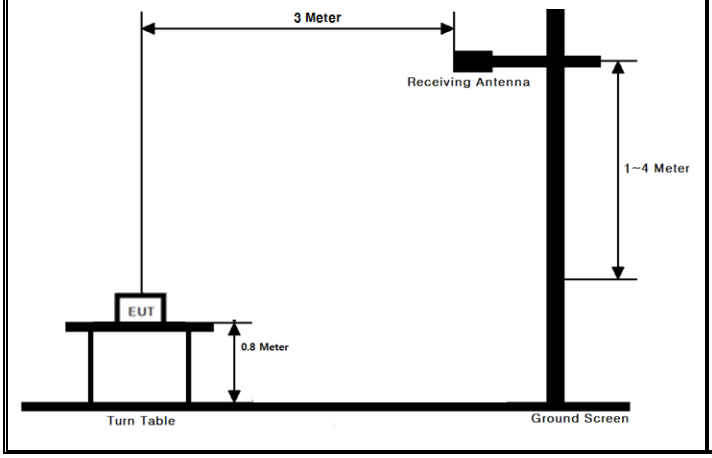
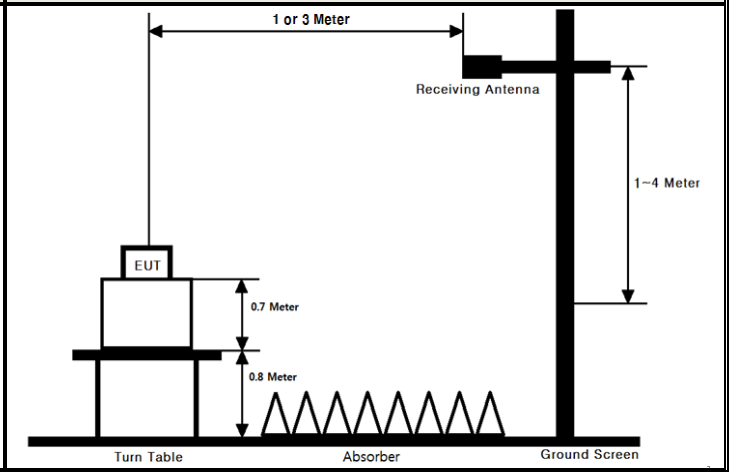
Test setting

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

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

3.6 UNDESIRABLE EMISSIONS

Test Set-up

Below 1 GHz	Above 1 GHz
	

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

Test Procedure

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

Test setting

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

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

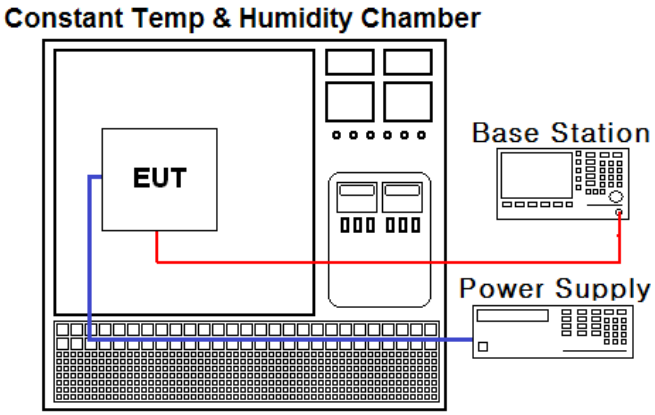
For radiated power measurements below 1 GHz, a half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading.

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

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

3.7 FREQUENCY STABILITY

Test Set-up



Test Procedure

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

The frequency stability of the transmitter is measured by:

a.) **Temperature:**
The temperature is varied from -30 °C to +50 °C using an environmental chamber.

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

Specification:

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

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature.
(20 °C to provide a reference)

2. The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C.
A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

4. LIST OF TEST EQUIPMENT

Original Test Date: 2020.04.09 ~ 2020.05.18

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	19/06/26	20/06/26	MY50410163
Spectrum Analyzer	Agilent Technologies	N9030A	19/12/16	20/12/16	MY53310140
Spectrum Analyzer	Agilent Technologies	N9020A	19/06/26	20/06/26	US47360812
DC power supply	Agilent Technologies	66332A	19/06/25	20/06/25	MY43000394
Multimeter	FLUKE	17B+	19/12/17	20/12/17	36390701WS
Power Divider	Weinschel	WA1575	19/06/25	20/06/25	WA1575-1
I/O Adapter	Anritus	MN8110B	NA	NA	6201468128
Temp & Humi	SJ Science	SJ-TH-S50	19/06/25	20/06/25	U5542113
Radio Communication Analyzer	Anritus	MT8820C	19/06/26	20/06/26	6201127429
Thermohygrometer	BODYCOM	BJ5478	19/12/16	20/12/16	120612-2
Thermohygrometer	BODYCOM	BJ5478	19/12/16	20/12/16	120612-1
Signal Generator	Rohde Schwarz	SMBV100A	19/12/16	20/12/16	255571
Signal Generator	ANRITSU	MG3695C	19/12/16	20/12/16	173501
Loop Antenna	ETS-Lindgren	6502	19/09/18	21/09/18	00226186
Bilog Antenna	Schwarzbeck	VULB 9160	19/04/23	21/04/23	9160-3362
Dipole Antenna	Schwarzbeck	VHA9103	19/02/28	21/02/28	2116
Dipole Antenna	Schwarzbeck	VHA9103	18/04/13 20/04/10	20/04/13 22/04/10	2117
Dipole Antenna	Schwarzbeck	UHA9105	19/02/28	21/02/28	2261
Dipole Antenna	Schwarzbeck	UHA9105	18/04/13 20/04/10	20/04/13 22/04/10	2262
HORN ANT	ETS	3117	18/05/10 20/04/24	20/05/10 22/04/24	00140394
HORN ANT	ETS	3117	20/03/26	22/03/26	00152145
HORN ANT	A.H.Systems	SAS-574	19/04/23	21/04/23	154
HORN ANT	A.H.Systems	SAS-574	19/07/03	21/07/03	155
Amplifier	EMPOWER	BBS3Q7ELU	19/06/24	20/06/24	1020
PreAmplifier	H.P	8447D	19/12/16	20/12/16	2944A07774
PreAmplifier	Agilent	8449B	19/06/27	20/06/27	3008A02108
High-pass filter	Wainwright	WHKX12-935-1000-15000-40SS	19/06/24	20/06/24	7
High-pass filter	Wainwright	WHKX12-2580-3000-18000-80SS	19/06/24	20/06/24	3
High-pass filter	Wainwright	WHNX8.5/26.5G-6SS	19/06/24	20/06/24	1
Cable	DTNC	Cable	20/01/13	21/01/13	M-01
Cable	DTNC	Cable	20/01/13	21/01/13	M-02
Cable	Junkosha	MWX315	20/01/13	21/01/13	M-05
Cable	Junkosha	MWX221	20/01/13	21/01/13	M-06
Cable	DTNC	Cable	20/01/13	21/01/13	RF-84

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.
Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

New Test Date: 2020.06.11 ~ 2020.07.01

Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal. Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	19/06/26 20/06/24	20/06/26 21/06/24	MY50410163
Spectrum Analyzer	Agilent Technologies	N9030A	19/12/16	20/12/16	MY53310140
Spectrum Analyzer	Agilent Technologies	N9020A	19/06/26 20/06/24	20/06/26 21/06/24	US47360812
DC power supply	Agilent Technologies	66332A	19/06/25 20/06/24	20/06/25 21/06/24	MY43000394
Multimeter	FLUKE	17B+	19/12/17	20/12/17	36390701WS
Power Divider	Weinschel	WA1575	19/06/25 20/06/24	20/06/25 21/06/24	WA1575-1
I/O Adapter	Anritus	MN8110B	NA	NA	6201468128
Temp & Humi	SJ Science	SJ-TH-S50	19/06/25 20/06/24	20/06/25 21/06/24	U5542113
Radio Communication Analyzer	Anritus	MT8820C	19/06/26 20/06/24	20/06/26 21/06/24	6201127429
Thermohygrometer	BODYCOM	BJ5478	19/12/16	20/12/16	120612-2
Thermohygrometer	BODYCOM	BJ5478	19/12/16	20/12/16	120612-1
Signal Generator	Rohde Schwarz	SMBV100A	19/12/16	20/12/16	255571
Signal Generator	ANRITSU	MG3695C	19/12/16	20/12/16	173501
Loop Antenna	ETS-Lindgren	6502	19/09/18	21/09/18	00226186
Bilog Antenna	Schwarzbeck	VULB 9160	19/04/23	21/04/23	9160-3362
Dipole Antenna	Schwarzbeck	VHA9103	19/02/28	21/02/28	2116
Dipole Antenna	Schwarzbeck	VHA9103	20/04/10	22/04/10	2117
Dipole Antenna	Schwarzbeck	UHA9105	19/02/28	21/02/28	2261
Dipole Antenna	Schwarzbeck	UHA9105	20/04/10	22/04/10	2262
HORN ANT	ETS	3117	20/04/24	22/04/24	00140394
HORN ANT	ETS	3117	20/03/26	22/03/26	00152145
HORN ANT	A.H.Systems	SAS-574	19/04/23	21/04/23	154
HORN ANT	A.H.Systems	SAS-574	19/07/03	21/07/03	155
Amplifier	EMPOWER	BBS3Q7ELU	19/06/24 20/06/24	20/06/24 21/06/24	1020
PreAmplifier	H.P	8447D	19/12/16	20/12/16	2944A07774
PreAmplifier	Agilent	8449B	19/06/27 20/06/24	20/06/27 21/06/24	3008A02108
High-pass filter	Wainwright	WHKX12-935-1000-15000-40SS	19/06/24 20/06/24	20/06/24 21/06/24	7
High-pass filter	Wainwright	WHKX12-2580-3000-18000-80SS	19/06/24 20/06/24	20/06/24 21/06/24	3
High-pass filter	Wainwright	WHNX8.5/26.5G-6SS	19/06/24 20/06/24	20/06/24 21/06/24	1
Cable	DTNC	Cable	20/01/13	21/01/13	M-01
Cable	DTNC	Cable	20/01/13	21/01/13	M-02
Cable	Junkosha	MWX315	20/01/13	21/01/13	M-05
Cable	Junkosha	MWX221	20/01/13	21/01/13	M-06
Cable	DTNC	Cable	20/01/13	21/01/13	RF-55

Note1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.
Note2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	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.2) 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 + 10log10 (P) dB at channel edge and 5 MHz from the channel edge > 43 + 10log10 (P) dB at 5 MHz and X MHz from the channel edge > 55 + 10log10 (P) dB at all frequencies more than X MHz from the channel edge		C
2.1055 22.355 24.235 27.54	Frequency Stability	< 2.5 ppm (Part 22) Fundamental emissions must stay within Authorized frequency block (Part 24, 27)		C
27.50(b.10) 27.50(c.10)	Radiated Output Power (B12, 13, 17)	< 3 Watts max. ERP	Radiated	C
22.913(a.5)	Radiated Output Power (B5)	< 7 Watts max. ERP		C
27.50(d.4)	Radiated Output Power (B66, 4)	< 1 Watts max. EIRP		C
24.232(c)	Radiated Output Power(B2)	< 2 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(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

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 & Can use Dual Screen.
So per KDB648474 D03v01r04, the radiated test items were performed all not charging, charging and Dual Screen conditions. For wireless charging condition, the handset is placed on the representative charging pad under normal conditions and in a simulated call configuration.
And the worst case data was reported.

6. SAMPLE CALCULATION

A. Emission Designator

LTE Band 12, 17(QPSK)

Emission Designator = **8M93G7D**
LTE OBW = 8.934 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 12, 17(16QAM)

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

LTE Band 12, 17(64QAM)

Emission Designator = **8M97W7D**
LTE OBW = 8.973 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(QPSK)

Emission Designator = **8M90G7D**
LTE OBW = 8.904 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(16QAM)

Emission Designator = **8M90W7D**
LTE OBW = 8.903 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 13(64QAM)

Emission Designator = **8M94W7D**
LTE OBW = 8.938 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(QPSK)

Emission Designator = **8M94G7D**
LTE OBW = 8.942 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(16QAM)

Emission Designator = **8M95W7D**
LTE OBW = 8.954 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 5(64QAM)

Emission Designator = **8M96W7D**
LTE OBW = 8.956 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 66, 4(QPSK)

Emission Designator = **17M9G7D**
LTE OBW = 17.899 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 66, 4(16QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.883 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 66, 4(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.888 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(QPSK)

Emission Designator =**17M9G7D**
LTE OBW = 17.872 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(16QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.872 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 2(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.889 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 41(QPSK)

Emission Designator = **17M8G7D**
LTE OBW = 17.829 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 41(16QAM)

Emission Designator = **17M8W7D**
LTE OBW = 17.760 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 41(64QAM)

Emission Designator = **17M9W7D**
LTE OBW = 17.941 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data Transmission

LTE Band 7(QPSK)

Emission Designator = **17M9G7D**

LTE OBW = 17.884 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data Transmission

LTE Band 7(16QAM)

Emission Designator = **17M9W7D**

LTE OBW = 17.882 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

LTE Band 7(64QAM)

Emission Designator = **17M9W7D**

LTE OBW = 17.896 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data Transmission

B. For substitution method

1) The EUT was placed on a turntable with 0.8 meter height for frequency below 1 GHz and 1.5 meter height for frequency above 1 GHz respectively above ground.
2) The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3) During the test, the turn table is rotated until the maximum signal is found.
4) Record the field strength meter's level. (ex. Spectrum reading level is -8.5 dBm)
5) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
6) Increase the signal generator output till the field strength meter's level is equal to the item (4). (ex. Signal generator level is -18.04 dBm)
7) The gain of the cable and amplifier between the signal generator and terminals of substituted antenna is 46.92 dB at test frequency.
8) Record the level at substituted antenna terminal. (ex. 28.88 dBm)
9) The result is calculated as below;

EIRP(dBm) = LEVLE@ANTENNA TERMINAL + TX Antenna Gain (dBi)
ERP(dBm) = LEVLE@ANTENNA TERMINAL + TX Antenna Gain (dBd)
Where, TX Antenna Gain (dBd) = TX Antenna Gain (dBi) -2.15 dB

7.TEST DATA

7.1 OCCUPIED BANDWIDTH

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

7.2 PEAK TO AVERAGE RATIO

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

7.3 BAND EDEG EMISSIONS (Conducted)

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

7.4 SPURIOUS AND HARMONICS EMISSIONS (Conducted)

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

7.5 ERP & EIRP

- Test Notes

1) This is device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported in the below table.

7.5.1 LTE Band 12, 17

- Measurement data: Without wireless charging pad

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)	Note
10	704	QPSK	1/25	H	21.59	-0.65	20.94	0.124	-
		16QAM	1/25	H	20.40	-0.65	19.75	0.094	-
		64QAM	1/25	H	19.15	-0.65	18.50	0.071	-
	711	QPSK	1/0	H	21.26	-0.63	20.63	0.116	-
		16QAM	1/0	H	19.99	-0.63	19.36	0.086	-
		64QAM	1/0	H	18.85	-0.63	18.22	0.066	-
5	701.5	QPSK	1/24	H	21.82	-0.66	21.16	0.131	-
		16QAM	1/24	H	20.28	-0.66	19.62	0.092	-
		64QAM	1/24	H	19.32	-0.66	18.66	0.073	-
		QPSK	1/24	H	20.76	-0.66	20.10	0.102	With Dual Display (180°)
	707.5	QPSK	1/0	H	21.35	-0.64	20.71	0.118	-
		16QAM	1/0	H	20.34	-0.64	19.70	0.093	-
		64QAM	1/0	H	18.98	-0.64	18.34	0.068	-
	713.5	QPSK	1/0	H	20.28	-0.62	19.66	0.092	-
		16QAM	1/0	H	18.77	-0.62	18.15	0.065	-
		64QAM	1/0	H	17.85	-0.62	17.23	0.053	-

7.5.2 LTE Band 12

- Measurement data: Without wireless charging pad

Channel Bandwidth (MHz)	Test Frequency (MHz)	Test Mode	RB Size/ Offset	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain (dBd)	ERP (dBm)	ERP (W)	Note
3	700.5	QPSK	1/7	H	20.84	-0.66	20.18	0.104	-
		16QAM	1/7	H	19.76	-0.66	19.10	0.081	-
		64QAM	1/7	H	18.81	-0.66	18.15	0.065	-
	707.5	QPSK	1/7	H	21.34	-0.64	20.70	0.117	-
		16QAM	1/7	H	19.87	-0.64	19.23	0.084	-
		64QAM	1/7	H	18.79	-0.64	18.15	0.065	-
	714.5	QPSK	1/7	H	20.80	-0.62	20.18	0.104	-
		16QAM	1/7	H	19.31	-0.62	18.69	0.074	-
		64QAM	1/7	H	18.18	-0.62	17.56	0.057	-
1.4	699.7	QPSK	1/2	H	20.88	-0.66	20.22	0.105	-
		16QAM	1/2	H	19.59	-0.66	18.93	0.078	-
		64QAM	1/2	H	18.67	-0.66	18.01	0.063	-
	707.5	QPSK	1/2	H	20.77	-0.64	20.13	0.103	-
		16QAM	1/2	H	19.33	-0.64	18.69	0.074	-
		64QAM	1/2	H	18.30	-0.64	17.66	0.058	-
	715.3	QPSK	1/2	H	20.85	-0.62	20.23	0.105	-
		16QAM	1/2	H	19.34	-0.62	18.72	0.074	-
		64QAM	1/2	H	18.27	-0.62	17.65	0.058	-

- 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)	Note
10	704	QPSK	1/25	H	20.83	-0.65	20.18	0.104	-
		16QAM	1/25	H	19.70	-0.65	19.05	0.080	-
		64QAM	1/25	H	18.76	-0.65	18.11	0.065	-
5	701.5	QPSK	1/24	H	20.71	-0.66	20.05	0.101	-
		16QAM	1/24	H	19.76	-0.66	19.10	0.081	-
		64QAM	1/24	H	18.61	-0.66	17.95	0.062	-
		QPSK	1/24	H	19.45	-0.66	18.79	0.076	With Dual Display (180°)
3	707.5	QPSK	1/7	H	20.68	-0.64	20.04	0.101	-
		16QAM	1/7	H	19.37	-0.64	18.73	0.075	-
		64QAM	1/7	H	18.31	-0.64	17.67	0.058	-
1.4	715.3	QPSK	1/2	H	20.22	-0.62	19.60	0.091	-
		16QAM	1/2	H	19.17	-0.62	18.55	0.072	-
		64QAM	1/2	H	18.05	-0.62	17.43	0.055	-

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)	Note
10	782	QPSK	1/0	V	20.12	-0.45	19.67	0.093	-
		16QAM	1/0	V	18.62	-0.45	18.17	0.066	-
		64QAM	1/0	V	17.54	-0.45	17.09	0.051	-
		QPSK	1/0	V	18.22	-0.45	17.77	0.060	With Dual Display (180°)
5	779.5	QPSK	1/12	V	20.04	-0.45	19.59	0.091	-
		16QAM	1/12	V	18.66	-0.45	18.21	0.066	-
		64QAM	1/12	V	17.47	-0.45	17.02	0.050	-
	784.5	QPSK	1/0	V	19.99	-0.44	19.55	0.090	-
		16QAM	1/0	V	18.60	-0.44	18.16	0.065	-
		64QAM	1/0	V	17.23	-0.44	16.79	0.048	-

- 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)	Note
10	782	QPSK	1/0	H	19.89	-0.45	19.44	0.088	-
		16QAM	1/0	H	18.53	-0.45	18.08	0.064	-
		64QAM	1/0	H	17.38	-0.45	16.93	0.049	-
		QPSK	1/0	H	18.08	-0.45	17.63	0.058	With Dual Display (180°)
5	779.5	QPSK	1/12	H	19.62	-0.45	19.17	0.083	-
		16QAM	1/12	H	18.31	-0.45	17.86	0.061	-
		64QAM	1/12	H	17.30	-0.45	16.85	0.048	-

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)	Note
10	829	QPSK	1/0	H	21.92	-0.67	21.25	0.133	-
		16QAM	1/0	H	19.95	-0.67	19.28	0.085	-
		64QAM	1/0	H	18.82	-0.67	18.15	0.065	-
		QPSK	1/0	H	20.66	-0.67	19.99	0.100	With Dual Display (180°)
	836.5	QPSK	1/0	H	21.45	-0.74	20.71	0.118	-
		16QAM	1/0	H	19.71	-0.74	18.97	0.079	-
		64QAM	1/0	H	18.82	-0.74	18.08	0.064	-
	844	QPSK	1/0	H	21.57	-0.81	20.76	0.119	-
		16QAM	1/0	H	19.99	-0.81	19.18	0.083	-
		64QAM	1/0	H	19.12	-0.81	18.31	0.068	-
5	826.5	QPSK	1/0	H	21.54	-0.65	20.89	0.123	-
		16QAM	1/0	H	19.83	-0.65	19.18	0.083	-
		64QAM	1/0	H	18.87	-0.65	18.22	0.066	-
	836.5	QPSK	1/12	H	21.75	-0.74	21.01	0.126	-
		16QAM	1/12	H	19.93	-0.74	19.19	0.083	-
		64QAM	1/12	H	19.10	-0.74	18.36	0.069	-
	846.5	QPSK	1/0	H	19.87	-0.83	19.04	0.080	-
		16QAM	1/0	H	18.12	-0.83	17.29	0.054	-
		64QAM	1/0	H	16.95	-0.83	16.12	0.041	-
3	825.5	QPSK	1/0	H	21.76	-0.64	21.12	0.129	-
		16QAM	1/0	H	19.87	-0.64	19.23	0.084	-
		64QAM	1/0	H	18.74	-0.64	18.10	0.065	-
	836.5	QPSK	1/7	H	21.81	-0.74	21.07	0.128	-
		16QAM	1/7	H	20.18	-0.74	19.44	0.088	-
		64QAM	1/7	H	19.12	-0.74	18.38	0.069	-
	847.5	QPSK	1/0	H	19.17	-0.84	18.33	0.068	-
		16QAM	1/0	H	17.61	-0.84	16.77	0.048	-
		64QAM	1/0	H	16.50	-0.84	15.66	0.037	-
1.4	824.7	QPSK	1/2	H	21.44	-0.63	20.81	0.121	-
		16QAM	1/2	H	19.65	-0.63	19.02	0.080	-
		64QAM	1/2	H	18.72	-0.63	18.09	0.064	-
	836.5	QPSK	1/5	H	21.47	-0.74	20.73	0.118	-
		16QAM	1/5	H	19.81	-0.74	19.07	0.081	-
		64QAM	1/5	H	18.99	-0.74	18.25	0.067	-
	848.3	QPSK	1/2	H	18.73	-0.85	17.88	0.061	-
		16QAM	1/2	H	16.97	-0.85	16.12	0.041	-
		64QAM	1/2	H	16.06	-0.85	15.21	0.033	-

- 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)	Note
10	829	QPSK	1/0	H	22.08	-0.67	21.41	0.138	-
		16QAM	1/0	H	20.45	-0.67	19.78	0.095	-
		64QAM	1/0	H	19.43	-0.67	18.76	0.075	-
		QPSK	1/0	H	21.27	-0.67	20.60	0.115	With Dual Display (180°)
5	836.5	QPSK	1/12	H	21.79	-0.74	21.05	0.127	
		16QAM	1/12	H	20.58	-0.74	19.84	0.096	
		64QAM	1/12	H	19.64	-0.74	18.90	0.078	
3	825.5	QPSK	1/0	H	21.80	-0.64	21.16	0.131	
		16QAM	1/0	H	20.29	-0.64	19.65	0.092	
		64QAM	1/0	H	19.13	-0.64	18.49	0.071	
1.4	824.7	QPSK	1/2	H	21.58	-0.63	20.95	0.124	
		16QAM	1/2	H	20.19	-0.63	19.56	0.090	
		64QAM	1/2	H	19.34	-0.63	18.71	0.074	

7.5.5 LTE Band 66, 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)	Note
20	1 720	QPSK	1/99	V	15.67	5.28	20.95	0.124	-
		16QAM	1/99	V	14.84	5.28	20.12	0.103	-
		64QAM	1/99	V	13.91	5.28	19.19	0.083	-
	1 745	QPSK	1/0	V	16.79	5.38	22.17	0.165	-
		16QAM	1/0	V	15.71	5.38	21.09	0.129	-
		64QAM	1/0	V	14.90	5.38	20.28	0.107	-
	1 770	QPSK	1/0	V	17.06	5.20	22.26	0.168	-
		16QAM	1/0	V	16.36	5.20	21.56	0.143	-
		64QAM	1/0	V	15.32	5.20	20.52	0.113	-
		QPSK	1/0	H	16.82	5.20	22.02	0.159	With Dual Display (180°)
15	1 717.5	QPSK	1/74	V	15.14	5.27	20.41	0.110	-
		16QAM	1/74	V	14.03	5.27	19.30	0.085	-
		64QAM	1/74	V	12.98	5.27	18.25	0.067	-
	1 745	QPSK	1/0	V	16.35	5.38	21.73	0.149	-
		16QAM	1/0	V	15.29	5.38	20.67	0.117	-
		64QAM	1/0	V	14.06	5.38	19.44	0.088	-
	1 772.5	QPSK	1/0	V	16.75	5.18	21.93	0.156	-
		16QAM	1/0	V	15.47	5.18	20.65	0.116	-
		64QAM	1/0	V	14.57	5.18	19.75	0.094	-
10	1 715	QPSK	1/0	V	15.18	5.26	20.44	0.111	-
		16QAM	1/0	V	14.49	5.26	19.75	0.094	-
		64QAM	1/0	V	13.64	5.26	18.90	0.078	-
	1 745	QPSK	1/0	V	16.11	5.38	21.49	0.141	-
		16QAM	1/0	V	15.07	5.38	20.45	0.111	-
		64QAM	1/0	V	13.94	5.38	19.32	0.086	-
	1 775	QPSK	1/25	V	16.80	5.15	21.95	0.157	-
		16QAM	1/25	V	15.72	5.15	20.87	0.122	-
		64QAM	1/25	V	14.79	5.15	19.94	0.099	-

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)	Note
5	1 712.5	QPSK	1/24	V	15.30	5.25	20.55	0.114	-
		16QAM	1/24	V	14.15	5.25	19.40	0.087	-
		64QAM	1/24	V	12.88	5.25	18.13	0.065	-
	1 745	QPSK	1/0	V	16.14	5.38	21.52	0.142	-
		16QAM	1/0	V	15.41	5.38	20.79	0.120	-
		64QAM	1/0	V	14.16	5.38	19.54	0.090	-
	1 777.5	QPSK	1/24	V	16.65	5.13	21.78	0.151	-
		16QAM	1/24	V	15.76	5.13	20.89	0.123	-
		64QAM	1/24	V	14.52	5.13	19.65	0.092	-
3	1 711.5	QPSK	1/7	V	14.98	5.25	20.23	0.105	-
		16QAM	1/7	V	13.47	5.25	18.72	0.074	-
		64QAM	1/7	V	12.24	5.25	17.49	0.056	-
	1 745	QPSK	1/7	V	16.21	5.38	21.59	0.144	-
		16QAM	1/7	V	15.30	5.38	20.68	0.117	-
		64QAM	1/7	V	14.07	5.38	19.45	0.088	-
	1 778.5	QPSK	1/7	V	16.66	5.12	21.78	0.151	-
		16QAM	1/7	V	15.55	5.12	20.67	0.117	-
		64QAM	1/7	V	14.80	5.12	19.92	0.098	-
1.4	1 710.7	QPSK	1/2	V	15.19	5.24	20.43	0.110	-
		16QAM	1/2	V	14.34	5.24	19.58	0.091	-
		64QAM	1/2	V	13.44	5.24	18.68	0.074	-
	1 745	QPSK	1/0	V	15.93	5.38	21.31	0.135	-
		16QAM	1/0	V	15.04	5.38	20.42	0.110	-
		64QAM	1/0	V	14.20	5.38	19.58	0.091	-
	1 779.3	QPSK	1/5	V	16.29	5.11	21.40	0.138	-
		16QAM	1/5	V	15.38	5.11	20.49	0.112	-
		64QAM	1/5	V	14.31	5.11	19.42	0.087	-

- 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)	Note
20	1 770	QPSK	1/0	H	17.41	5.20	22.61	0.182	-
		16QAM	1/0	H	16.76	5.20	21.96	0.157	-
		64QAM	1/0	H	15.65	5.20	20.85	0.122	-
		QPSK	1/0	H	18.65	5.20	23.85	0.243	With Dual Display (180°)
15	1 772.5	QPSK	1/0	H	17.18	5.18	22.36	0.172	
		16QAM	1/0	H	16.40	5.18	21.58	0.144	
		64QAM	1/0	H	15.45	5.18	20.63	0.116	
10	1 775	QPSK	1/25	H	17.23	5.15	22.38	0.173	
		16QAM	1/25	H	16.55	5.15	21.70	0.148	
		64QAM	1/25	H	15.33	5.15	20.48	0.112	
5	1 777.5	QPSK	1/24	H	17.14	5.13	22.27	0.169	
		16QAM	1/24	H	16.42	5.13	21.55	0.143	
		64QAM	1/24	H	15.38	5.13	20.51	0.112	
3	1 778.5	QPSK	1/7	H	17.00	5.12	22.12	0.163	
		16QAM	1/7	H	16.29	5.12	21.41	0.138	
		64QAM	1/7	H	15.11	5.12	20.23	0.105	
1.4	1 779.3	QPSK	1/5	H	16.83	5.11	21.94	0.156	
		16QAM	1/5	H	16.17	5.11	21.28	0.134	
		64QAM	1/5	H	14.96	5.11	20.07	0.102	

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)	Note
20	1 860	QPSK	1/0	V	17.56	4.80	22.36	0.172	-
		16QAM	1/0	V	16.16	4.80	20.96	0.125	-
		64QAM	1/0	V	15.38	4.80	20.18	0.104	-
	1 880	QPSK	1/50	V	18.30	4.60	22.90	0.195	-
		16QAM	1/50	V	17.19	4.60	21.79	0.151	-
		64QAM	1/50	V	16.00	4.60	20.60	0.115	-
	1 900	QPSK	1/0	V	18.75	4.40	23.15	0.207	-
		16QAM	1/0	V	17.50	4.40	21.90	0.155	-
		64QAM	1/0	V	16.57	4.40	20.97	0.125	-
		QPSK	1/0	V	15.09	4.40	19.49	0.089	With Dual Display (180˚)
15	1 857.5	QPSK	1/0	V	17.54	4.83	22.37	0.173	-
		16QAM	1/0	V	16.15	4.83	20.98	0.125	-
		64QAM	1/0	V	15.20	4.83	20.03	0.101	-
	1 880	QPSK	1/0	V	18.34	4.60	22.94	0.197	-
		16QAM	1/0	V	17.22	4.60	21.82	0.152	-
		64QAM	1/0	V	16.01	4.60	20.61	0.115	-
	1 902.5	QPSK	1/0	V	18.67	4.41	23.08	0.203	-
		16QAM	1/0	V	17.70	4.41	22.11	0.163	-
		64QAM	1/0	V	16.39	4.41	20.80	0.120	-
10	1 855	QPSK	1/0	V	17.34	4.85	22.19	0.166	-
		16QAM	1/0	V	16.05	4.85	20.90	0.123	-
		64QAM	1/0	V	14.99	4.85	19.84	0.096	-
	1 880	QPSK	1/0	V	18.51	4.60	23.11	0.205	-
		16QAM	1/0	V	17.47	4.60	22.07	0.161	-
		64QAM	1/0	V	16.10	4.60	20.70	0.117	-
	1 905	QPSK	1/25	V	18.58	4.42	23.00	0.200	-
		16QAM	1/25	V	17.69	4.42	22.11	0.163	-
		64QAM	1/25	V	16.43	4.42	20.85	0.122	-

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)	Note
5	1 852.5	QPSK	1/12	V	17.05	4.88	21.93	0.156	-
		16QAM	1/12	V	15.86	4.88	20.74	0.119	-
		64QAM	1/12	V	14.72	4.88	19.60	0.091	-
	1 880	QPSK	1/0	V	18.47	4.60	23.07	0.203	-
		16QAM	1/0	V	17.12	4.60	21.72	0.149	-
		64QAM	1/0	V	16.03	4.60	20.63	0.116	-
	1 907.5	QPSK	1/12	V	18.31	4.43	22.74	0.188	-
		16QAM	1/12	V	17.11	4.43	21.54	0.143	-
		64QAM	1/12	V	16.18	4.43	20.61	0.115	-
3	1 851.5	QPSK	1/0	V	17.31	4.89	22.20	0.166	-
		16QAM	1/0	V	16.06	4.89	20.95	0.124	-
		64QAM	1/0	V	14.95	4.89	19.84	0.096	-
	1 880	QPSK	1/0	V	18.28	4.60	22.88	0.194	-
		16QAM	1/0	V	16.94	4.60	21.54	0.143	-
		64QAM	1/0	V	15.96	4.60	20.56	0.114	-
	1 908.5	QPSK	1/7	V	18.54	4.43	22.97	0.198	-
		16QAM	1/7	V	17.33	4.43	21.76	0.150	-
		64QAM	1/7	V	16.22	4.43	20.65	0.116	-
1.4	1 850.7	QPSK	1/0	V	17.25	4.89	22.14	0.164	-
		16QAM	1/0	V	15.87	4.89	20.76	0.119	-
		64QAM	1/0	V	15.11	4.89	20.00	0.100	-
	1 880	QPSK	1/2	V	18.26	4.60	22.86	0.193	-
		16QAM	1/2	V	17.21	4.60	21.81	0.152	-
		64QAM	1/2	V	16.11	4.60	20.71	0.118	-
	1 909.3	QPSK	1/2	V	18.55	4.44	22.99	0.199	-
		16QAM	1/2	V	17.25	4.44	21.69	0.148	-
		64QAM	1/2	V	16.33	4.44	20.77	0.119	-

- 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)	Note
20	1 900	QPSK	1/0	H	20.37	4.40	24.77	0.300	-
		16QAM	1/0	H	19.85	4.40	24.25	0.266	-
		64QAM	1/0	H	18.54	4.40	22.94	0.197	-
		QPSK	1/0	H	17.50	4.40	21.90	0.155	With Dual Display (180°)
15	1 902.5	QPSK	1/0	H	19.74	4.41	24.15	0.260	-
		16QAM	1/0	H	18.92	4.41	23.33	0.215	-
		64QAM	1/0	H	17.88	4.41	22.29	0.169	-
10	1 880	QPSK	1/0	H	18.24	4.60	22.84	0.192	-
		16QAM	1/0	H	17.43	4.60	22.03	0.160	-
		64QAM	1/0	H	16.56	4.60	21.16	0.131	-
5	1 880	QPSK	1/0	H	17.81	4.60	22.41	0.174	-
		16QAM	1/0	H	17.06	4.60	21.66	0.147	-
		64QAM	1/0	H	16.00	4.60	20.60	0.115	-
3	1 908.5	QPSK	1/7	H	19.35	4.43	23.78	0.239	-
		16QAM	1/7	H	18.75	4.43	23.18	0.208	-
		64QAM	1/7	H	17.66	4.43	22.09	0.162	-
1.4	1 909.3	QPSK	1/2	H	19.02	4.44	23.46	0.222	-
		16QAM	1/2	H	18.50	4.44	22.94	0.197	-
		64QAM	1/2	H	17.37	4.44	21.81	0.152	-

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)	Note
20	2 506	QPSK	1/50	H	15.13	5.92	21.05	0.127	-
		16QAM	1/50	H	14.51	5.92	20.43	0.110	-
		64QAM	1/50	H	13.67	5.92	19.59	0.091	-
	2 593	QPSK	1/50	H	15.53	6.19	21.72	0.149	-
		16QAM	1/50	H	14.98	6.19	21.17	0.131	-
		64QAM	1/50	H	14.16	6.19	20.35	0.108	-
	2 680	QPSK	1/50	H	14.93	6.34	21.27	0.134	-
		16QAM	1/50	H	14.28	6.34	20.62	0.115	-
		64QAM	1/50	H	13.84	6.34	20.18	0.104	-
15	2 503.5	QPSK	1/36	H	15.11	5.91	21.02	0.126	-
		16QAM	1/36	H	14.39	5.91	20.30	0.107	-
		64QAM	1/36	H	13.58	5.91	19.49	0.089	-
	2 593	QPSK	1/36	H	15.78	6.19	21.97	0.157	-
		16QAM	1/36	H	15.12	6.19	21.31	0.135	-
		64QAM	1/36	H	14.04	6.19	20.23	0.105	-
	2 682.5	QPSK	1/36	H	15.00	6.33	21.33	0.136	-
		16QAM	1/36	H	14.29	6.33	20.62	0.115	-
		64QAM	1/36	H	13.93	6.33	20.26	0.106	-
10	2 501	QPSK	1/25	H	15.51	5.90	21.41	0.138	-
		16QAM	1/25	H	14.95	5.90	20.85	0.122	-
		64QAM	1/25	H	14.16	5.90	20.06	0.101	-
	2 593	QPSK	1/25	H	16.16	6.19	22.35	0.172	-
		16QAM	1/25	H	15.38	6.19	21.57	0.144	-
		64QAM	1/25	H	14.49	6.19	20.68	0.117	-
		QPSK	1/25	H	15.44	6.19	21.63	0.146	With Dual Display (180°)
	2 685	QPSK	1/25	H	15.16	6.32	21.48	0.141	-
		16QAM	1/25	H	14.52	6.32	20.84	0.121	-
		64QAM	1/25	H	13.71	6.32	20.03	0.101	-
5	2 498.5	QPSK	1/12	H	15.87	5.89	21.76	0.150	-
		16QAM	1/12	H	14.92	5.89	20.81	0.121	-
		64QAM	1/12	H	14.01	5.89	19.90	0.098	-
	2 593	QPSK	1/12	H	15.99	6.19	22.18	0.165	-
		16QAM	1/12	H	15.37	6.19	21.56	0.143	-
		64QAM	1/12	H	14.45	6.19	20.64	0.116	-
	2 687.5	QPSK	1/12	H	14.92	6.31	21.23	0.133	-
		16QAM	1/12	H	14.48	6.31	20.79	0.120	-
		64QAM	1/12	H	13.63	6.31	19.94	0.099	-

- 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)	Note
20	2 593	QPSK	1/50	H	15.41	6.19	21.60	0.145	-
		16QAM	1/50	H	14.73	6.19	20.92	0.124	-
		64QAM	1/50	H	14.00	6.19	20.19	0.104	-
15	2 593	QPSK	1/36	H	15.61	6.19	21.80	0.151	-
		16QAM	1/36	H	14.87	6.19	21.06	0.128	-
		64QAM	1/36	H	13.89	6.19	20.08	0.102	-
10	2 593	QPSK	1/25	H	15.96	6.19	22.15	0.164	-
		16QAM	1/25	H	15.24	6.19	21.43	0.139	-
		64QAM	1/25	H	14.30	6.19	20.49	0.112	-
		QPSK	1/25	H	15.01	6.19	21.20	0.132	With Dual Display (180°)
5	2 593	QPSK	1/12	H	15.72	6.19	21.91	0.155	-
		16QAM	1/12	H	15.19	6.19	21.38	0.137	-
		64QAM	1/12	H	14.26	6.19	20.45	0.111	-

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)	Note
20	2 510	QPSK	1/50	H	15.08	5.94	21.02	0.126	-
		16QAM	1/50	H	14.17	5.94	20.11	0.103	-
		64QAM	1/50	H	13.05	5.94	18.99	0.079	-
	2 535	QPSK	1/50	H	15.46	6.04	21.50	0.141	-
		16QAM	1/50	H	14.89	6.04	20.93	0.124	-
		64QAM	1/50	H	13.91	6.04	19.95	0.099	-
	2 560	QPSK	1/99	H	15.91	6.12	22.03	0.160	-
		16QAM	1/99	H	15.27	6.12	21.39	0.138	-
		64QAM	1/99	H	14.28	6.12	20.40	0.110	-
		QPSK	1/99	H	15.49	6.12	21.61	0.145	With Dual Display (180°)
15	2 507.5	QPSK	1/36	H	15.59	5.93	21.52	0.142	-
		16QAM	1/36	H	15.01	5.93	20.94	0.124	-
		64QAM	1/36	H	13.94	5.93	19.87	0.097	-
	2 535	QPSK	1/36	H	15.90	6.04	21.94	0.156	-
		16QAM	1/36	H	15.27	6.04	21.31	0.135	-
		64QAM	1/36	H	13.91	6.04	19.95	0.099	-
	2 562.5	QPSK	1/36	H	15.64	6.13	21.77	0.150	-
		16QAM	1/36	H	15.00	6.13	21.13	0.130	-
		64QAM	1/36	H	13.79	6.13	19.92	0.098	-
10	2 505	QPSK	1/25	H	15.07	5.92	20.99	0.126	-
		16QAM	1/25	H	14.22	5.92	20.14	0.103	-
		64QAM	1/25	H	13.07	5.92	18.99	0.079	-
	2 535	QPSK	1/25	H	15.73	6.04	21.77	0.150	-
		16QAM	1/25	H	15.13	6.04	21.17	0.131	-
		64QAM	1/25	H	14.00	6.04	20.04	0.101	-
	2 565	QPSK	1/25	H	15.19	6.13	21.32	0.136	-
		16QAM	1/25	H	14.55	6.13	20.68	0.117	-
		64QAM	1/25	H	13.34	6.13	19.47	0.089	-
5	2 502.5	QPSK	1/12	H	15.85	5.91	21.76	0.150	-
		16QAM	1/12	H	15.08	5.91	20.99	0.126	-
		64QAM	1/12	H	13.87	5.91	19.78	0.095	-
	2 535	QPSK	1/12	H	15.64	6.04	21.68	0.147	-
		16QAM	1/12	H	14.78	6.04	20.82	0.121	-
		64QAM	1/12	H	13.88	6.04	19.92	0.098	-
	2 567.5	QPSK	1/12	H	15.85	6.14	21.99	0.158	-
		16QAM	1/12	H	14.99	6.14	21.13	0.130	-
		64QAM	1/12	H	14.16	6.14	20.30	0.107	-

- 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)	Note
20	2 560	QPSK	1/99	H	15.43	6.12	21.55	0.143	-
		16QAM	1/99	H	14.72	6.12	20.84	0.121	-
		64QAM	1/99	H	13.96	6.12	20.08	0.102	-
		QPSK	1/99	H	16.05	6.12	22.17	0.165	With Dual Display (180°)
15	2 535	QPSK	1/36	H	15.35	6.04	21.39	0.138	-
		16QAM	1/36	H	14.79	6.04	20.83	0.121	-
		64QAM	1/36	H	13.54	6.04	19.58	0.091	-
10	2 535	QPSK	1/25	H	15.32	6.04	21.36	0.137	-
		16QAM	1/25	H	14.64	6.04	20.68	0.117	-
		64QAM	1/25	H	13.45	6.04	19.49	0.089	-
5	2 567.5	QPSK	1/12	H	15.39	6.14	21.53	0.142	-
		16QAM	1/12	H	14.63	6.14	20.77	0.119	-
		64QAM	1/12	H	13.68	6.14	19.82	0.096	-

7.6 UNDESIRABLE EMISSIONS (Radiated)

- Test Notes

1) This device was tested under all bandwidths, modulations and RB configurations and the worst case data are reported.
2) 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.
3) Limit Calculation for Band 2/4/5/12/13/17/66 = 43 + 10log10 (P[Watts])
4) Limit Calculation for Band 7/41 = 55 + $10\log_{10}$ (P[Watts])
5) Limit Calculation for 1 559 MHz ~ 1 610 MHz in Band 13 = −70 dBW/MHz (equivalent isotropically radiated power for wideband signals)

7.6.1 LTE Band 12, 17

- Measurement data: Without wireless charging pad

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)	Note
								(dBm)	(dBc)		
10	704	1/25	QPSK	1 407.26	V	-56.88	2.48	-54.40	75.34	33.94	-
			16QAM	1 407.14	V	-56.55	2.48	-54.07	73.82	32.75	-
			64QAM	1 407.61	V	-56.55	2.48	-54.07	72.57	31.50	-
	711	1/0	QPSK	1 412.34	V	-56.45	2.50	-53.95	74.58	33.63	-
			16QAM	1 411.67	V	-56.42	2.50	-53.92	73.28	32.26	-
			64QAM	1 412.06	V	-56.34	2.50	-53.84	72.06	31.22	-
5	701.5	1/24	QPSK	1 409.06	V	-56.80	2.49	-54.31	75.47	34.16	-
			16QAM	1 407.97	V	-56.97	2.48	-54.49	74.11	32.62	-
			64QAM	1 408.33	V	-56.81	2.48	-54.33	72.99	31.66	-
			QPSK	1 409.18	V	-57.12	2.49	-54.63	74.73	33.10	With Dual Display (180˚)

- 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)	Note
								(dBm)	(dBc)		
10	704	1/25	QPSK	1 407.54	V	-57.90	2.48	-55.42	75.60	33.18	-
5	701.5	1/24	QPSK	1 407.66	V	-57.28	2.48	-54.80	73.59	31.79	With Dual Display (180˚)

7.6.2 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)	Note
								(dBm)	(dBc)		
10	782	1/0	QPSK	1 553.44	V	-58.30	4.18	-54.12	73.79	32.67	-
			16QAM	1 553.76	V	-58.47	4.18	-54.29	72.46	31.17	-
			64QAM	1 555.34	V	-58.23	4.19	-54.04	71.13	30.09	-
			QPSK	1 554.39	V	-57.78	4.19	-53.59	71.36	30.77	With Dual Display (180˚)

- 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)	Note
								(dBm)	(dBc)		
10	782	1/0	QPSK	1 553.71	V	-58.59	4.18	-54.41	73.85	32.44	-
				1 553.87	V	-58.04	4.18	-53.86	71.49	30.63	With Dual Display (180˚)

UNDESIRABLE EMISSIONS IN 1 559 MHz ~ 1 610 MHz (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	Margin	Limit (dBm/MHz)	Note
								(dBm)	(dB)		
10	782	1/25	QPSK	1 563.92	V	-58.24	6.41	-51.83	11.83	-40.00	-
				1 562.55	V	-58.12	6.40	-51.72	11.72	-40.00	With Dual Display (180˚)

- 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	Margin	Limit (dBm/MHz)	Note
								(dBm)	(dB)		
10	782	1/25	QPSK	1 563.17	V	-58.37	6.41	-51.96	11.96	-40.00	-
				1 562.88	V	-57.95	6.40	-51.55	11.55	-40.00	With Dual Display (180˚)

7.6.3 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)	Note
								(dBm)	(dBc)		
10	829	1/0	QPSK	1 648.13	V	-57.12	4.16	-52.96	74.21	34.25	-
			16QAM	1 647.63	V	-56.95	4.17	-52.78	72.06	32.28	-
			64QAM	1 647.78	V	-57.24	4.17	-53.07	71.22	31.15	-
			QPSK	1 647.57	V	-57.07	4.17	-52.90	72.89	32.99	With Dual Display (180˚)
	836.5	1/0	QPSK	1 662.85	V	-56.97	3.87	-53.10	73.81	33.71	-
			16QAM	1 663.99	V	-56.72	3.84	-52.88	71.85	31.97	-
			64QAM	1 663.39	V	-57.19	3.86	-53.33	71.41	31.08	-
	844	1/0	QPSK	1 677.03	V	-56.12	3.56	-52.56	73.32	33.76	-
			16QAM	1 678.10	V	-57.05	3.53	-53.52	72.70	32.18	-
			64QAM	1 678.35	V	-57.03	3.53	-53.50	71.81	31.31	-

- Measurement data: With wireless charging pad

B.W (MHz)	Test Freq. (MHz)	RB Size/ Offset	Test Mode	Freq.(MHz)	Ant Pol (H/V)	Level(dBm) @ Ant Terminal	TX Ant Gain(dBd)	Result		Limit (dBc)	Note
								(dBm)	(dBc)		
10	829	1/0	QPSK	1 649.07	V	-56.90	4.16	-52.74	74.15	34.41	-
				1 647.96	V	-57.30	4.17	-53.13	73.73	33.60	With Dual Display (180˚)

7.6.4 LTE Band 66, 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)	Note
								(dBm)	(dBc)		
20	1 720	1/99	QPSK	3 456.07	H	-55.51	7.81	-47.70	68.65	33.95	-
				5 186.81	H	-46.08	10.37	-35.71	56.66		-
			16QAM	3 457.49	H	-55.18	7.81	-47.37	67.49	33.12	-
				5 186.74	H	-45.20	10.37	-34.83	54.95		-
			64QAM	3 456.70	H	-55.63	7.81	-47.82	67.01	32.19	-
				5 186.64	H	-44.55	10.37	-34.18	53.37		-
	1 745	1/0	QPSK	3 471.75	H	-55.74	7.84	-47.90	70.07	35.17	-
				5 208.29	H	-47.45	10.38	-37.07	59.24		-
			16QAM	3 471.08	H	-55.78	7.84	-47.94	69.03	34.09	-
				5 208.30	H	-46.04	10.38	-35.66	56.75		-
			64QAM	3 472.77	H	-56.19	7.85	-48.34	68.62	33.28	-
				5 208.40	H	-44.83	10.38	-34.45	54.73		-
	1 770	1/0	QPSK	3 457.31	H	-55.07	7.81	-47.26	69.52	35.26	-
				5 283.10	H	-47.28	10.37	-36.91	59.17		-
			16QAM	3 523.26	H	-55.58	7.99	-47.59	69.15	34.56	-
				5 283.36	H	-45.69	10.37	-35.32	56.88		-
			64QAM	3 524.40	H	-55.64	8.00	-47.64	68.16	33.52	-
				5 283.34	H	-44.67	10.37	-34.30	54.82		-
			QPSK	5 283.27	H	-47.53	10.37	-37.16	59.18	35.02	With Dual Display (180°)

- 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)	Note
								(dBm)	(dBc)		
20	1 770	1/0	QPSK	3 522.07	H	-54.69	7.99	-46.70	69.31	35.61	-
				5 283.14	H	-48.63	10.37	-38.26	60.87		-
			QPSK	5 283.35	H	-50.72	10.37	-40.35	64.20	36.85	With Dual Display (180˚)

7.6.5 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)	Note
								(dBm)	(dBc)		
20	1860	1/0	QPSK	3 702.21	H	-52.55	8.30	-44.25	66.61	35.36	-
				5 553.36	H	-49.63	10.52	-39.11	61.47		-
			16QAM	3 702.32	H	-51.96	8.30	-43.66	64.62	33.96	-
				5 553.27	H	-47.03	10.52	-36.51	57.47		-
			64QAM	3 702.20	H	-52.82	8.30	-44.52	64.70	33.18	-
				5 553.33	H	-46.42	10.52	-35.90	56.08		-
	1880	1/50	QPSK	3 760.10	H	-53.49	8.42	-45.07	67.97	35.90	-
				5 640.15	H	-49.28	10.72	-38.56	61.46		-
			16QAM	3 760.21	H	-53.41	8.42	-44.99	66.78	34.79	-
				5 640.24	H	-46.68	10.72	-35.96	57.75		-
			64QAM	3 760.15	H	-54.02	8.42	-45.60	66.20	33.60	-
				5 640.37	H	-47.20	10.72	-36.48	57.08		-
	1900	1/0	QPSK	3 782.18	H	-54.85	8.46	-46.39	69.54	36.15	-
				5 673.31	H	-50.07	10.65	-39.42	62.57		-
			16QAM	3 782.95	H	-54.85	8.47	-46.38	68.28	34.90	-
				5 673.15	H	-47.89	10.65	-37.24	59.14		-
			64QAM	3 782.50	H	-54.95	8.47	-46.48	67.45	33.97	-
				5 673.15	H	-47.85	10.65	-37.20	58.17		-
			QPSK	5 670.30	H	-52.48	10.66	-41.82	61.31	32.49	With Dual Display (180˚)

- 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)	Note
								(dBm)	(dBc)		
20	1900	1/0	QPSK	3 779.44	V	-53.24	8.46	-44.78	69.55	37.77	-
				5 672.07	V	-51.84	10.66	-41.18	65.95		-
			QPSK	5 671.84	X	-52.44	10.66	-41.78	63.68	34.90	With Dual Display (180˚)

7.6.6 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)	Note
								(dBm)	(dBc)		
20	2 506	1/50	QPSK	5 010.66	H	-52.12	10.22	-41.90	62.95	46.05	-
				7 518.01	H	-49.26	12.14	-37.12	58.17		-
			16QAM	5 011.18	H	-52.16	10.22	-41.94	62.37	45.43	-
				7 516.70	H	-48.90	12.13	-36.77	57.20		-
			64QAM	5 012.64	H	-52.10	10.23	-41.87	61.46	44.59	-
				7 519.41	H	-48.84	12.14	-36.70	56.29		-
	2 593	1/50	QPSK	5 186.35	H	-51.94	10.37	-41.57	63.29	46.72	-
				7 778.62	H	-49.49	12.30	-37.19	58.91		-
			16QAM	5 186.34	H	-52.29	10.37	-41.92	63.09	46.17	-
				7 780.31	H	-49.19	12.30	-36.89	58.06		-
			64QAM	5 187.02	H	-52.00	10.37	-41.63	61.98	45.35	-
				7 779.95	H	-49.29	12.30	-36.99	57.34		-
	2 680	1/50	QPSK	5 359.38	H	-52.02	10.48	-41.54	62.81	46.27	-
				8 041.42	H	-49.59	12.58	-37.01	58.28		-
			16QAM	5 359.55	H	-52.09	10.48	-41.61	62.23	45.62	-
				8 039.44	H	-49.23	12.58	-36.65	57.27		-
			64QAM	5 361.39	H	-51.60	10.48	-41.12	61.30	45.18	-
				8 038.70	H	-49.30	12.58	-36.72	56.90		-
10	2 593	1/25	QPSK	5 186.13	H	-52.60	10.37	-42.23	64.58	47.35	-
				7 779.57	H	-49.15	12.30	-36.85	59.19		-
			16QAM	5 185.84	H	-51.91	10.37	-41.54	63.11	46.57	-
				7 780.35	H	-49.38	12.30	-37.08	58.65		-
			64QAM	5 185.17	H	-51.90	10.37	-41.53	62.21	45.68	-
				7 779.67	H	-49.26	12.30	-36.96	57.64		-
			QPSK	5 185.84	H	-51.93	10.37	-41.56	63.19	46.63	With Dual Display (180°)

- 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)	Note
								(dBm)	(dBc)		
20	2 593	1/50	QPSK	5 185.36	H	-51.99	10.37	-41.62	63.22	46.60	-
10	2 593	1/25	QPSK	5 184.57	H	-51.78	10.37	-41.41	63.56	47.15	-
			QPSK	5 185.57	H	-52.19	10.37	-41.82	63.02	46.20	With Dual Display (180°)

7.6.7 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)	Note
								(dBm)	(dBc)		
20	2 510	1/50	QPSK	5 020.98	V	-52.98	10.24	-42.74	63.76	46.02	-
				7 530.87	V	-48.36	12.16	-36.20	57.22		-
			16QAM	5 021.26	V	-52.99	10.24	-42.75	62.86	45.11	-
				7 531.34	V	-48.42	12.16	-36.26	56.37		-
			64QAM	5 018.64	V	-52.79	10.24	-42.55	61.54	43.99	-
				7 530.32	V	-48.51	12.16	-36.35	55.34		-
	2 535	1/50	QPSK	5 069.56	V	-53.22	10.30	-42.92	64.42	46.50	-
				7605.63	V	-48.52	12.20	-36.32	57.82		-
			16QAM	5 068.87	V	-53.25	10.30	-42.95	63.88	45.93	-
				7 605.78	V	-48.53	12.20	-36.33	57.26		-
			64QAM	5 069.74	V	-52.91	10.30	-42.61	62.56	44.95	-
				7 603.52	V	-48.64	12.20	-36.44	56.39		-
	2 560	1/99	QPSK	5 140.07	V	-53.14	10.30	-42.84	64.87	47.03	-
				7 710.30	V	-48.63	12.22	-36.41	58.44		-
			16QAM	5 139.04	V	-53.35	10.30	-43.05	64.44	46.39	-
				7 711.16	V	-48.76	12.22	-36.54	57.93		-
			64QAM	5 139.11	V	-52.74	10.30	-42.44	62.84	45.40	-
				7 711.84	V	-48.76	12.22	-36.54	56.94		-
			QPSK	5 139.08	V	-52.66	10.30	-42.36	63.97	46.61	With Dual Display (180°)

- 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)	Note
								(dBm)	(dBc)		
20	2 560	1/99	QPSK	5 141.36	V	-52.85	10.30	-42.55	64.10	46.55	-
				7 710.54	V	-48.85	12.22	-36.63	58.18		-
			QPSK	5 139.26	V	-52.58	10.30	-42.28	64.45	47.17	With Dual Display (180°)

7.7 FREQUENCY STABILITY

- Test Notes

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 in-band 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.

7.7.1 LTE Band 12, 17

OPERATING FREQUENCY : 707.5 MHz
REFERENCE VOLTAGE : 3.87 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100 %	3.87	+20(Ref)	707,500,008	+8	+0.011 3	+0.000 001 131
100 %		-30	707,500,009	+9	+0.012 7	+0.000 001 272
100 %		-20	707,500,011	+11	+0.015 5	+0.000 001 555
100 %		-10	707,499,990	-10	-0.014 1	-0.000 001 413
100 %		0	707,499,986	-14	-0.019 8	-0.000 001 979
100 %		+10	707,499,984	-16	-0.022 6	-0.000 002 261
100 %		+20	707,500,008	+8	+0.011 3	+0.000 001 131
100 %		+30	707,499,993	-7	-0.009 9	-0.000 000 989
100 %		+40	707,500,008	+8	+0.011 3	+0.000 001 131
100 %		+50	707,500,005	+5	+0.007 1	+0.000 000 707
115 %	4.45	+20	707,500,006	+6	+0.008 5	+0.000 000 848
BATT.ENDPOINT	3.10	+20	707,499,990	-10	-0.014 1	-0.000 001 413

7.7.2 LTE Band 13

OPERATING FREQUENCY : 782 MHz
REFERENCE VOLTAGE : 3.87 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100 %	3.87	+20(Ref)	782,000,006	+6	+0.007 7	+0.000 000 767
100 %		-30	782,000,012	+12	+0.015 3	+0.000 001 535
100 %		-20	781,999,989	-11	-0.014 1	-0.000 001 407
100 %		-10	781,999,995	-5	-0.006 4	-0.000 000 639
100 %		0	782,000,010	+10	+0.012 8	+0.000 001 279
100 %		+10	782,000,008	+8	+0.010 2	+0.000 001 023
100 %		+20	782,000,006	+6	+0.007 7	+0.000 000 767
100 %		+30	781,999,991	-9	-0.011 5	-0.000 001 151
100 %		+40	781,999,992	-8	-0.010 2	-0.000 001 023
100 %		+50	781,999,988	-12	-0.015 3	-0.000 001 535
115 %	4.45	+20	782,000,008	+8	+0.010 2	+0.000 001 023
BATT.ENDPOINT	3.10	+20	781,999,992	-8	-0.010 2	-0.000 001 023

7.7.3 LTE Band 5

OPERATING FREQUENCY : 836.5 MHz
REFERENCE VOLTAGE : 3.87 VDC
DEVIATION LIMIT : ± 0.000 25 % or 2.5 ppm

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100 %	3.87	+20(Ref)	836,500,007	+7	+0.008 4	+0.000 000 837
100 %		-30	836,499,993	-7	-0.008 4	-0.000 000 837
100 %		-20	836,500,008	+8	+0.009 6	+0.000 000 956
100 %		-10	836,500,011	+11	+0.013 2	+0.000 001 315
100 %		0	836,499,990	-10	-0.012 0	-0.000 001 195
100 %		+10	836,499,989	-11	-0.013 2	-0.000 001 315
100 %		+20	836,500,007	+7	+0.008 4	+0.000 000 837
100 %		+30	836,500,009	+9	+0.010 8	+0.000 001 076
100 %		+40	836,500,009	+9	+0.010 8	+0.000 001 076
100 %		+50	836,500,008	+8	+0.009 6	+0.000 000 956
115 %	4.45	+20	836,500,006	+6	+0.007 2	+0.000 000 717
BATT.ENDPOINT	3.10	+20	836,499,995	-5	-0.006 0	-0.000 000 598

7.7.4 LTE Band 66, 4

OPERATING FREQUENCY : 1 745.0 MHz
REFERENCE VOLTAGE 3.87 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100 %	3.87	+20(Ref)	1,745,000,012	+12	+0.006 9	+0.000 000 688
100 %		-30	1,744,999,985	-15	-0.008 6	-0.000 000 860
100 %		-20	1,745,000,013	+13	+0.007 4	+0.000 000 745
100 %		-10	1,745,000,009	+9	+0.005 2	+0.000 000 516
100 %		0	1,744,999,991	-9	-0.005 2	-0.000 000 516
100 %		+10	1,745,000,011	+11	+0.006 3	+0.000 000 630
100 %		+20	1,745,000,012	+12	+0.006 9	+0.000 000 688
100 %		+30	1,745,000,014	+14	+0.008 0	+0.000 000 802
100 %		+40	1,745,000,010	+10	+0.005 7	+0.000 000 573
100 %		+50	1,744,999,988	-12	-0.006 9	-0.000 000 688
115 %	4.45	+20	1,744,999,987	-13	-0.007 4	-0.000 000 745
BATT.ENDPOINT	3.10	+20	1,745,000,008	+8	+0.004 6	+0.000 000 458

7.7.5 LTE Band 2

OPERATING FREQUENCY : 1 880 MHz
REFERENCE VOLTAGE 3.87 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100 %	3.87	+20(Ref)	1,880,000,008	+8	+0.004 3	+0.000 000 426
100 %		-30	1,879,999,991	-9	-0.004 8	-0.000 000 479
100 %		-20	1,879,999,988	-12	-0.006 4	-0.000 000 638
100 %		-10	1,879,999,992	-8	-0.004 3	-0.000 000 426
100 %		0	1,880,000,010	+10	+0.005 3	+0.000 000 532
100 %		+10	1,879,999,994	-6	-0.003 2	-0.000 000 319
100 %		+20	1,880,000,008	+8	+0.004 3	+0.000 000 426
100 %		+30	1,880,000,008	+8	+0.004 3	+0.000 000 426
100 %		+40	1,880,000,007	+7	+0.003 7	+0.000 000 372
100 %		+50	1,880,000,009	+9	+0.004 8	+0.000 000 479
115 %	4.45	+20	1,880,000,012	+12	+0.006 4	+0.000 000 638
BATT.ENDPOINT	3.10	+20	1,879,999,990	-10	-0.005 3	-0.000 000 532

7.7.6 LTE Band 41

OPERATING FREQUENCY : 2 593 MHz
REFERENCE VOLTAGE 3.87 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100 %	3.87	+20(Ref)	2,593,000,013	+13	+0.005 0	+0.000 000 501
100 %		-30	2,593,000,008	+8	+0.003 1	+0.000 000 309
100 %		-20	2,592,999,993	-7	-0.002 7	-0.000 000 270
100 %		-10	2,592,999,994	-6	-0.002 3	-0.000 000 231
100 %		0	2,592,999,990	-10	-0.003 9	-0.000 000 386
100 %		+10	2,592,999,991	-9	-0.003 5	-0.000 000 347
100 %		+20	2,593,000,013	+13	+0.005 0	+0.000 000 501
100 %		+30	2,593,000,014	+14	+0.005 4	+0.000 000 540
100 %		+40	2,592,999,989	-11	-0.004 2	-0.000 000 424
100 %		+50	2,592,999,990	-10	-0.003 9	-0.000 000 386
115 %	4.45	+20	2,593,000,013	+13	+0.005 0	+0.000 000 501
BATT.ENDPOINT	3.10	+20	2,592,999,990	-10	-0.003 9	-0.000 000 386

7.7.7 LTE Band 7

OPERATING FREQUENCY : 2 535 MHz
REFERENCE VOLTAGE 3.87 VDC
LIMIT : The frequency stability shall be sufficient to ensure that the fundamental emission stays wthin the authorized frequency block.

VOLTAGE (%)	POWER (V DC)	TEMP (℃)	FREQUENCY (Hz)	FREQ.Dev (Hz)	Deviation	
					(ppm)	(%)
100 %	3.87	+20(Ref)	2,535,000,010	+10	+0.003 9	+0.000 000 394
100 %		-30	2,534,999,985	-15	-0.005 9	-0.000 000 592
100 %		-20	2,534,999,989	-11	-0.004 3	-0.000 000 434
100 %		-10	2,534,999,986	-14	-0.005 5	-0.000 000 552
100 %		0	2,534,999,991	-9	-0.003 6	-0.000 000 355
100 %		+10	2,534,999,990	-10	-0.003 9	-0.000 000 394
100 %		+20	2,535,000,010	+10	+0.003 9	+0.000 000 394
100 %		+30	2,535,000,012	+12	+0.004 7	+0.000 000 473
100 %		+40	2,534,999,992	-8	-0.003 2	-0.000 000 316
100 %		+50	2,534,999,987	-13	-0.005 1	-0.000 000 513
115 %	4.45	+20	2,535,000,007	+7	+0.002 8	+0.000 000 276
BATT.ENDPOINT	3.10	+20	2,534,999,985	-15	-0.005 9	-0.000 000 592

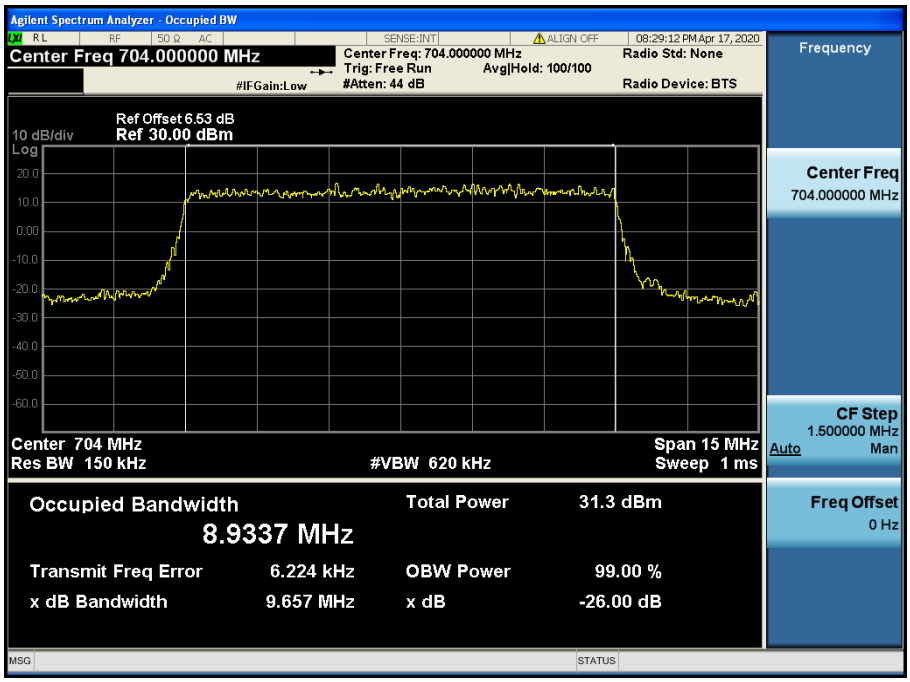
8. TEST PLOTS

- Test Notes:

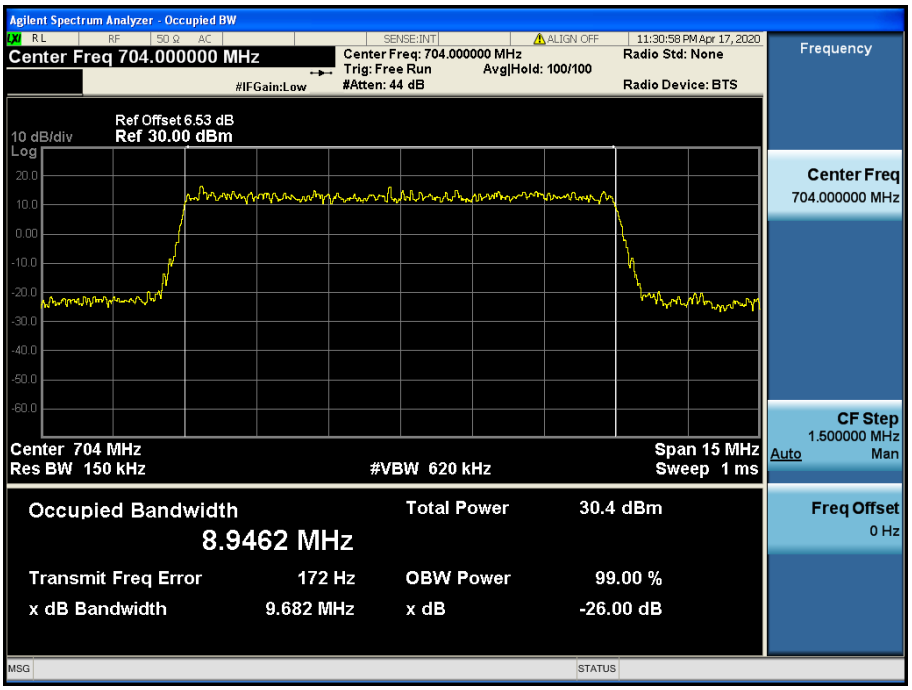
All bandwidths, RB configurations, and modulations were investigated.
The worst case test results are reported.

8.1 OCCUPIED BANDWIDTH

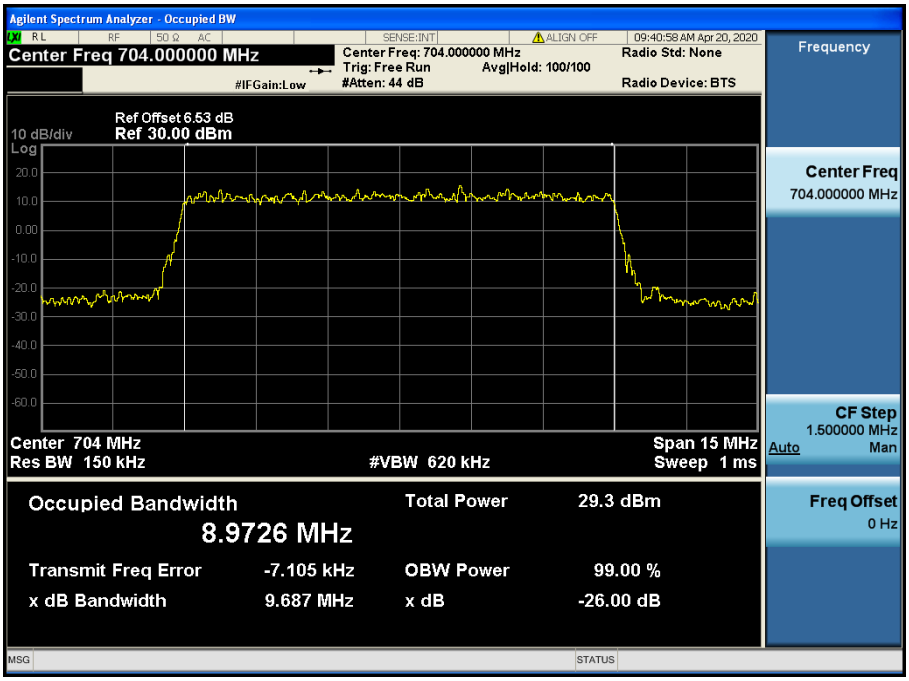
8.1.1 LTE Band 12, 17



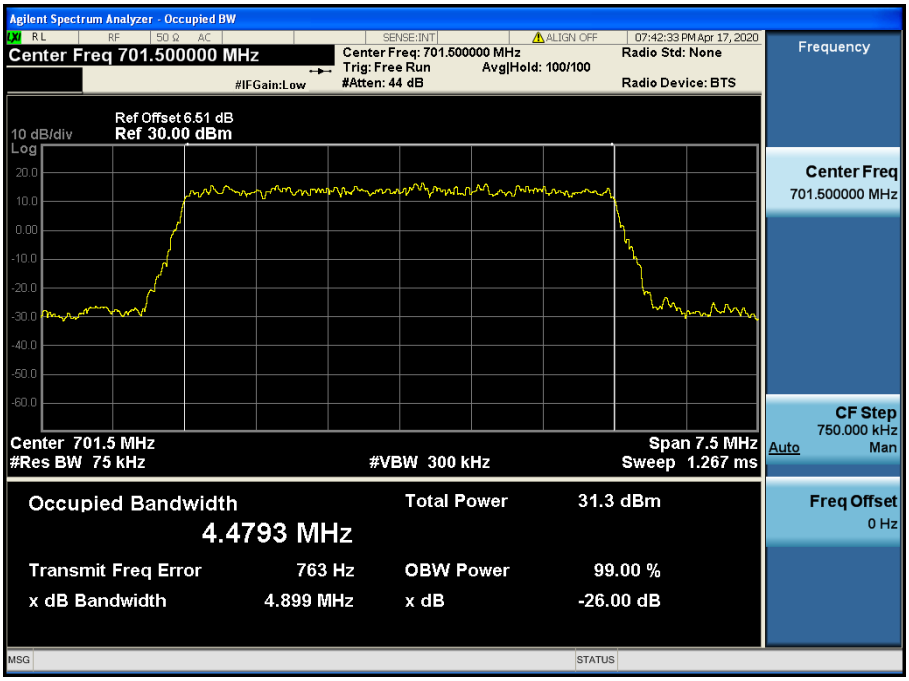
LTE Band 12, 17 / 10 MHz / QPSK - RB Size 50



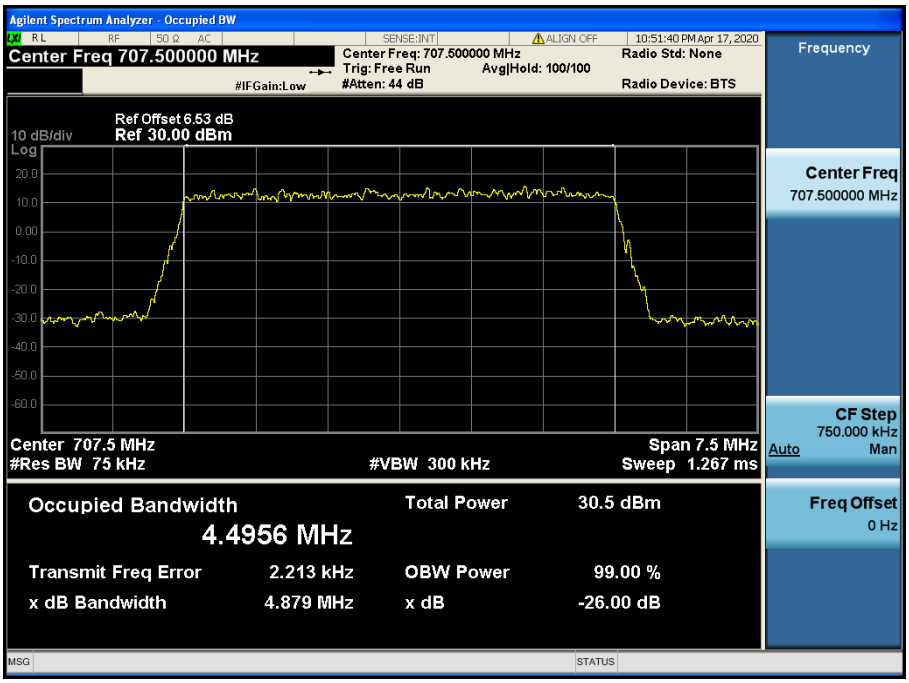
LTE Band 12, 17 / 10 MHz / 16QAM - RB Size 50



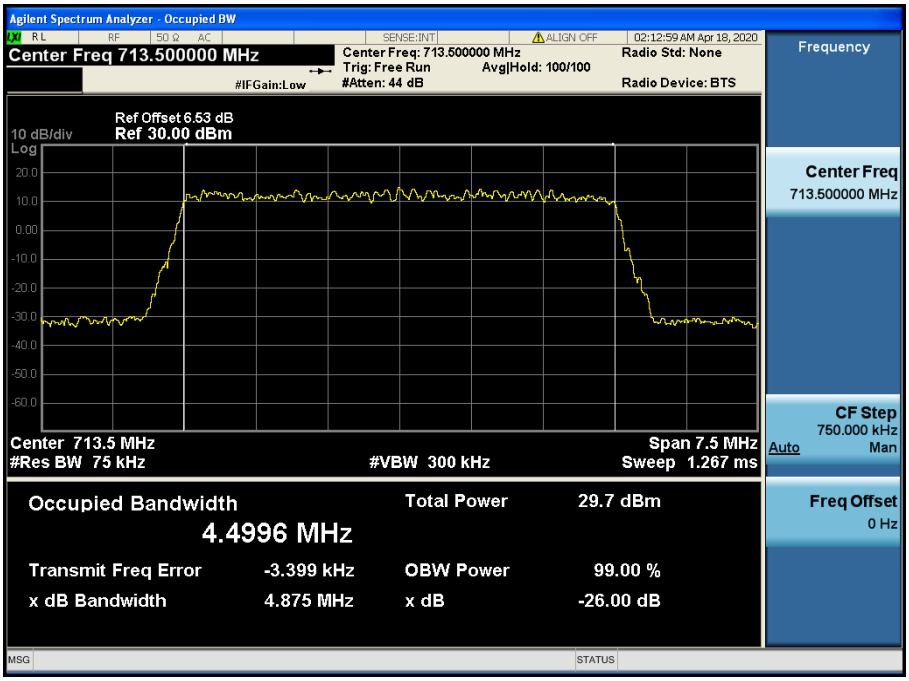
LTE Band 12, 17 / 10 MHz / 64QAM- RB Size 50



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

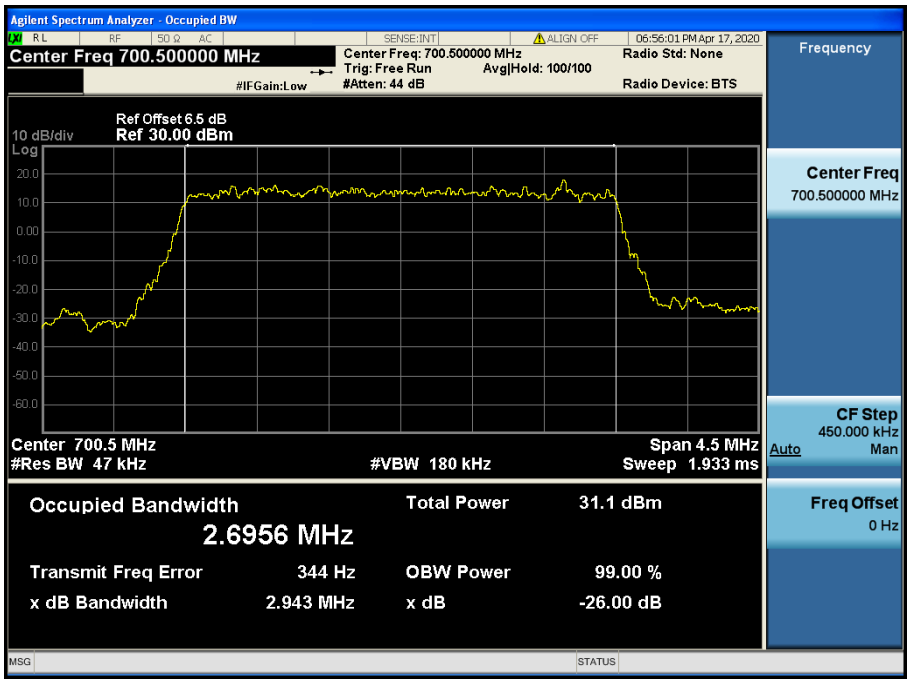


LTE Band 12, 17 / 5 MHz / 16QAM - RB Size 25

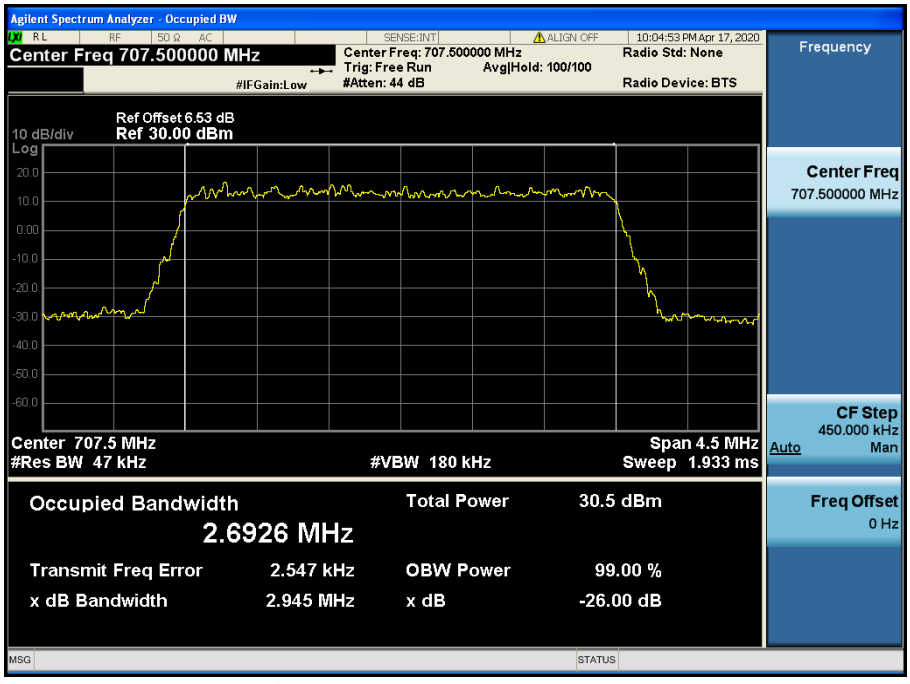


LTE Band 12, 17 / 5 MHz / 64QAM - RB Size 25

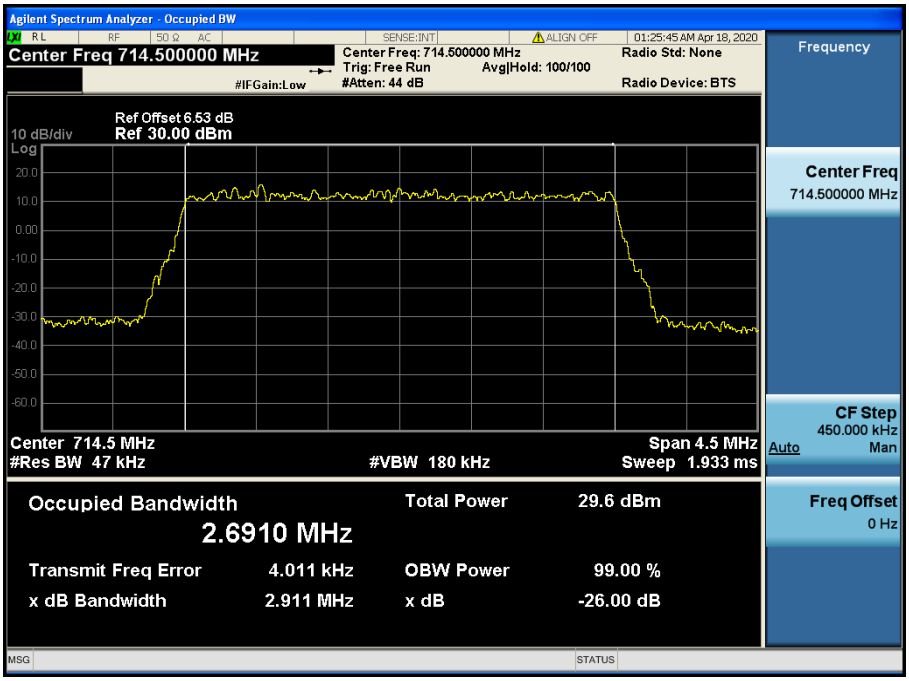
8.1.2 LTE Band 12



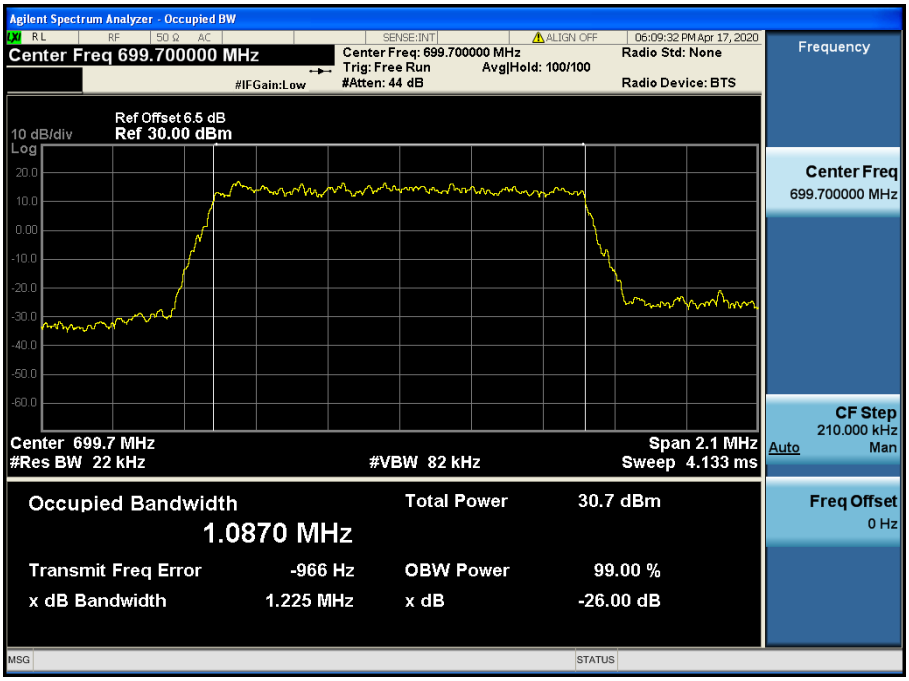
LTE Band 12 / 3 MHz / QPSK - RB Size 15



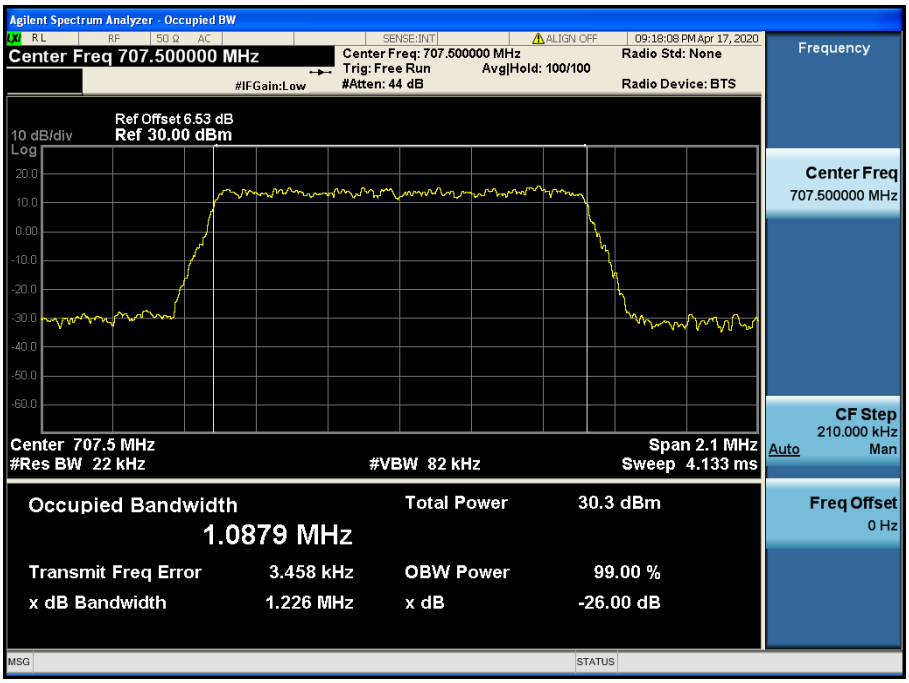
LTE Band 12 / 3 MHz / 16QAM - RB Size 15



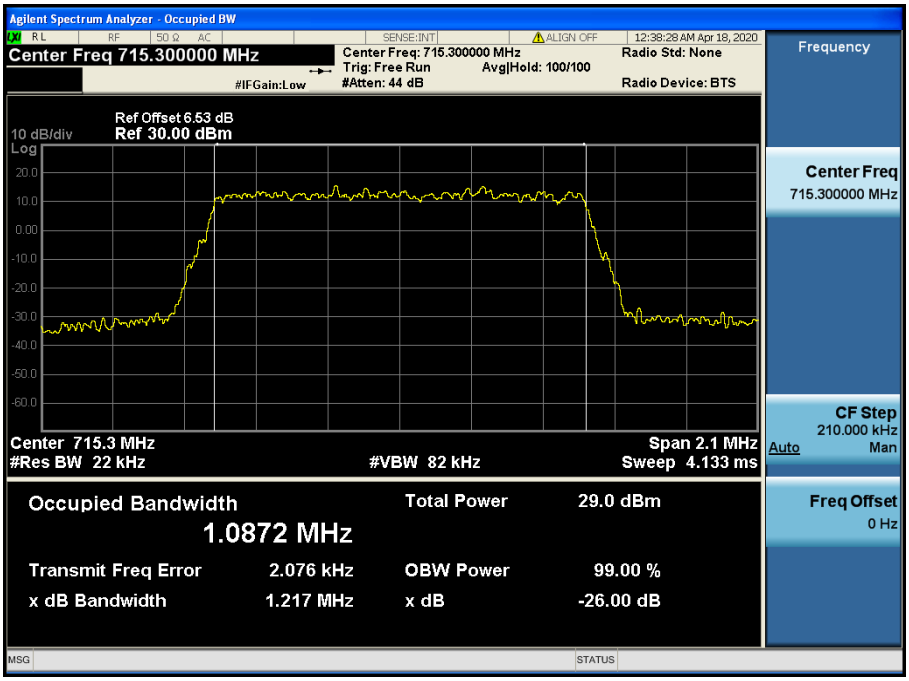
LTE Band 12 / 3 MHz / 64QAM - RB Size 15



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

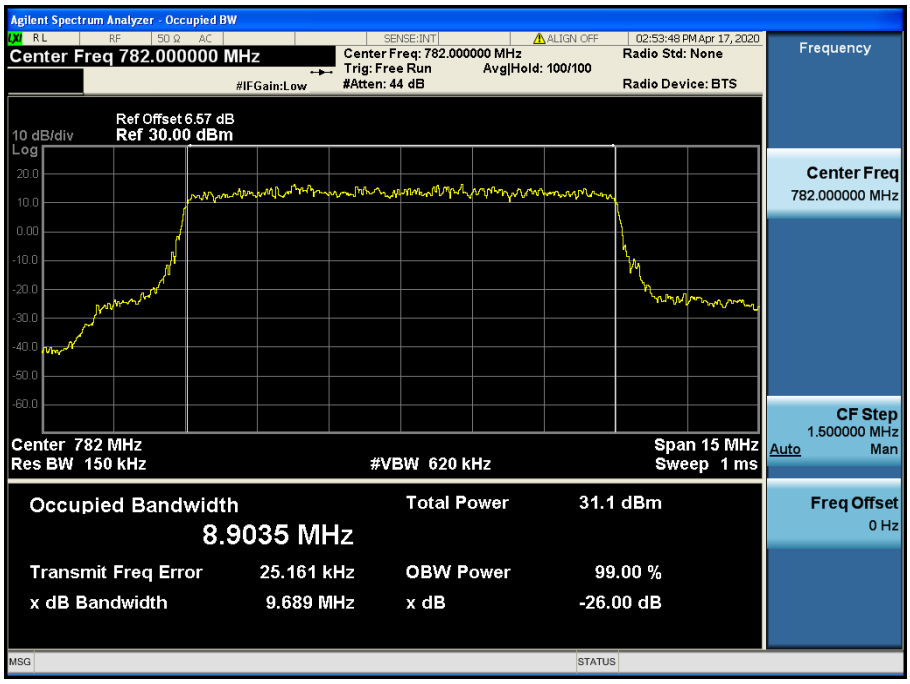


LTE Band 12 / 1.4 MHz / 16QAM - RB Size 6

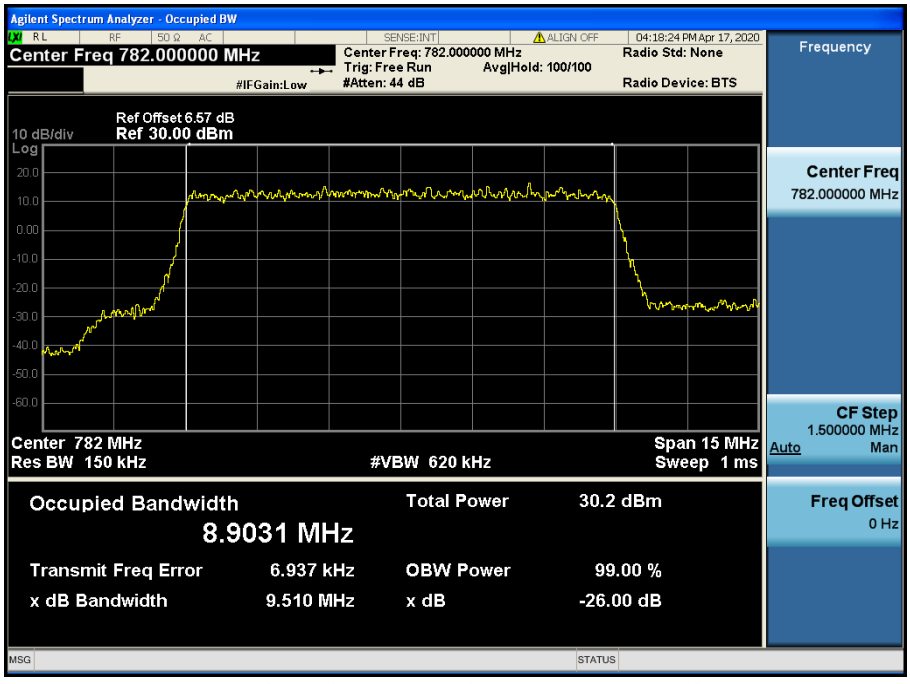


LTE Band 12 / 1.4 MHz / 64QAM - RB Size 6

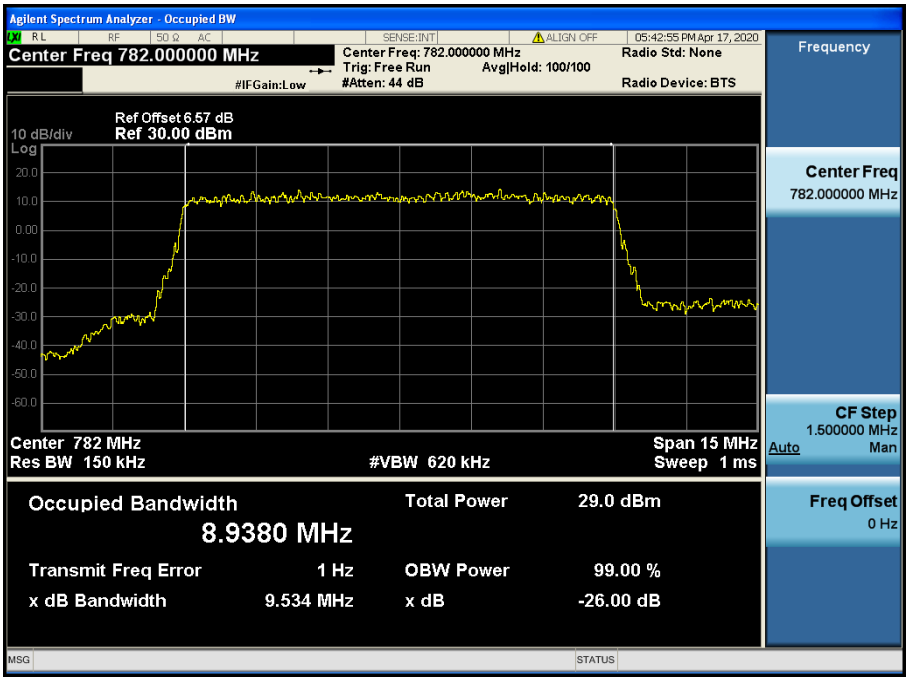
8.1.3 LTE Band 13



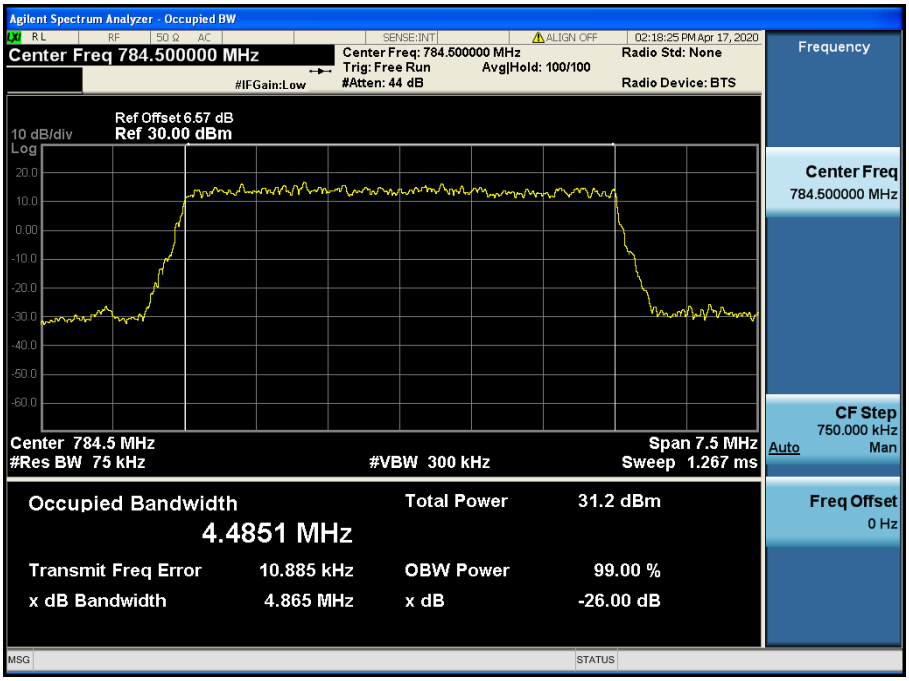
LTE Band 13 / 10 MHz / QPSK - RB Size 50



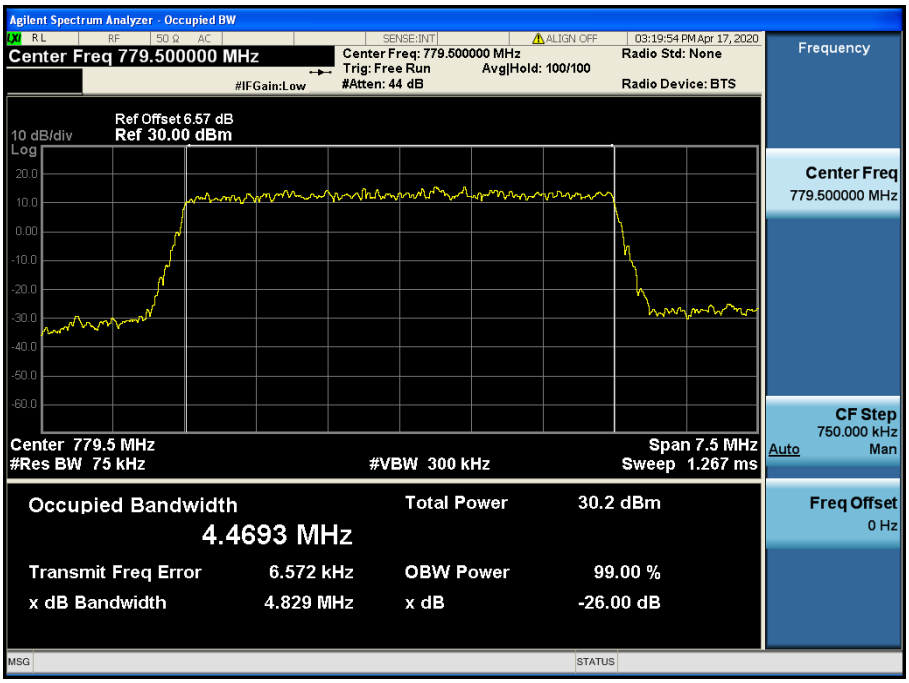
LTE Band 13 / 10 MHz / 16QAM - RB Size 50



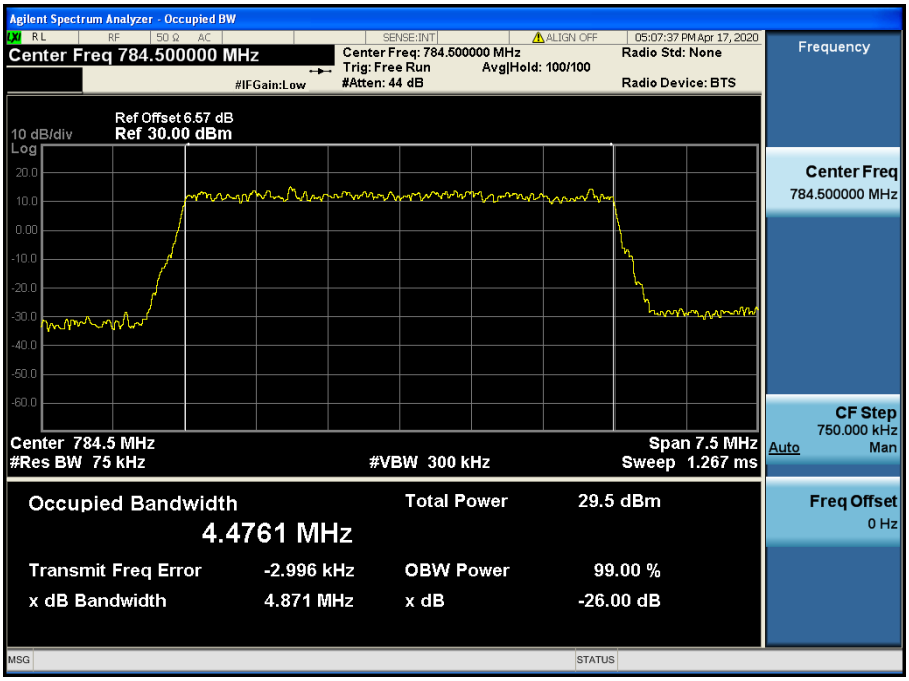
LTE Band 13 / 10 MHz / 64QAM - RB Size 50



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

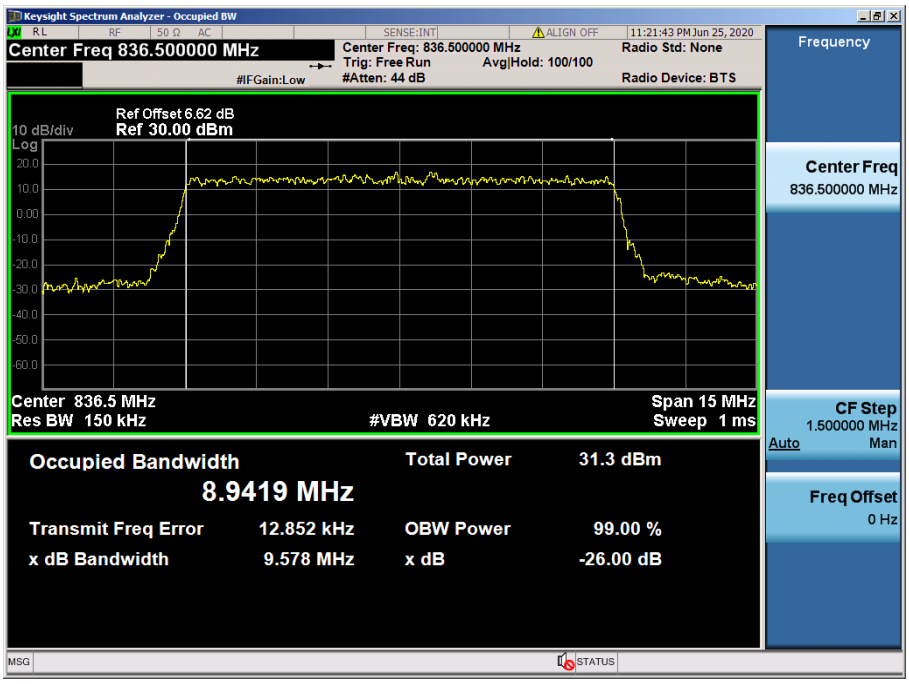


LTE Band 13 / 5 MHz / 16QAM - RB Size 25



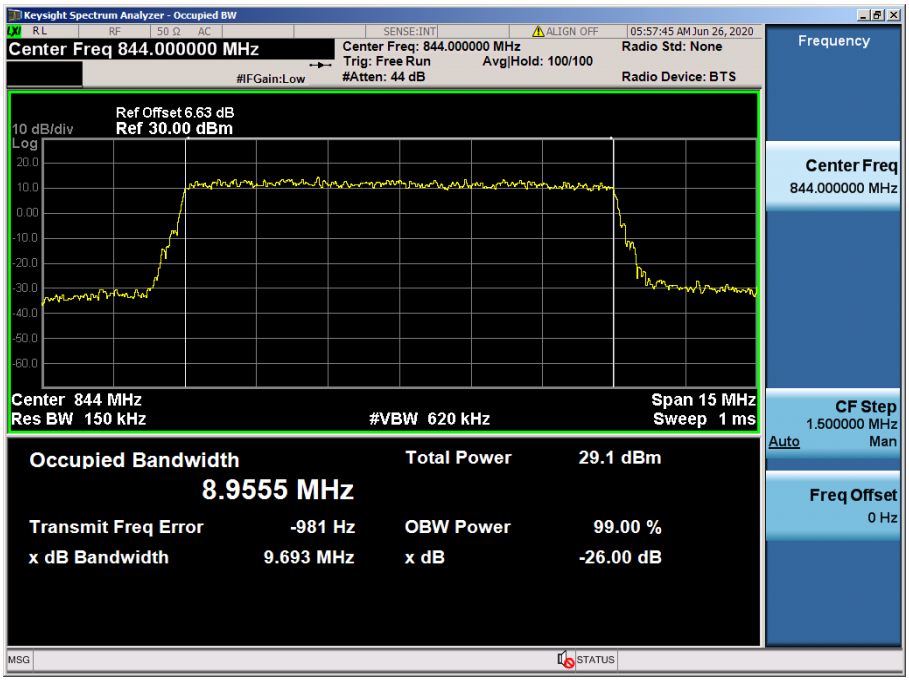
LTE Band 13 / 5 MHz / 64QAM - RB Size 25

8.1.4 LTE Band 5

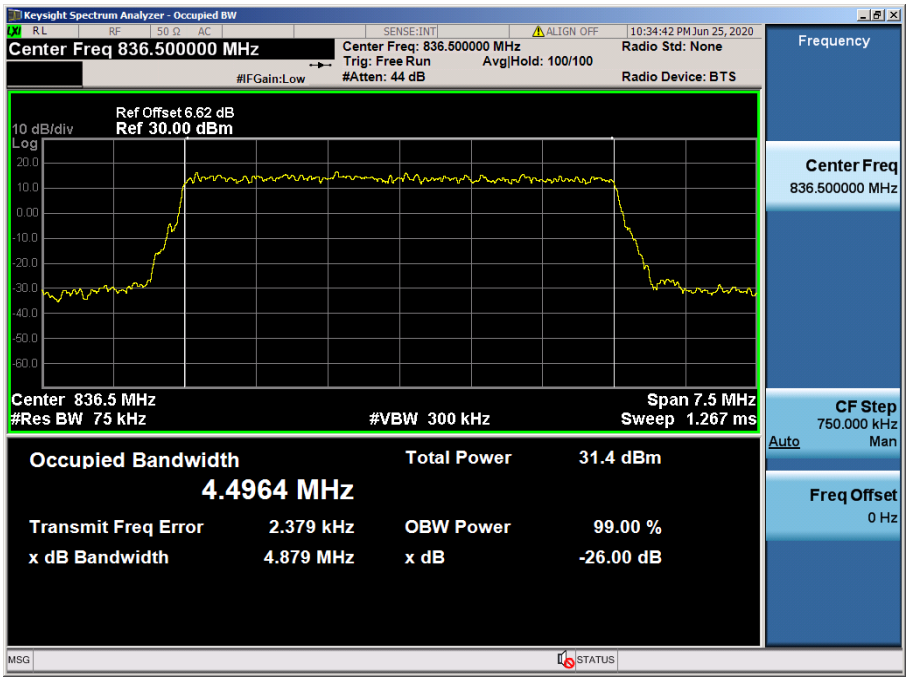


LTE Band 5 / 10 MHz / QPSK - RB Size 50

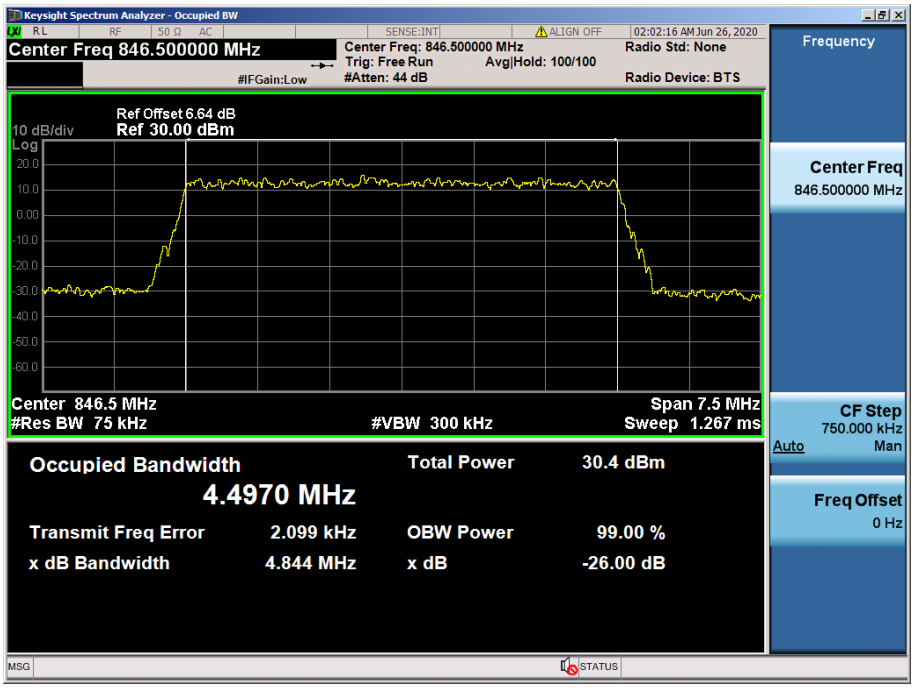
LTE Band 5 / 10 MHz / 16QAM - RB Size 50



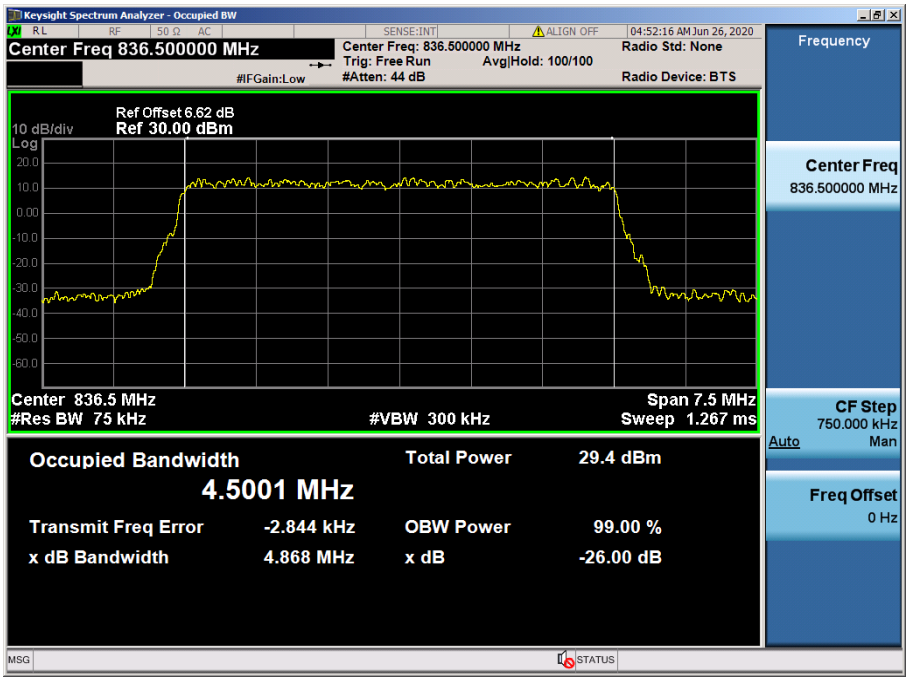
LTE Band 5 / 10 MHz / 64QAM - RB Size 50



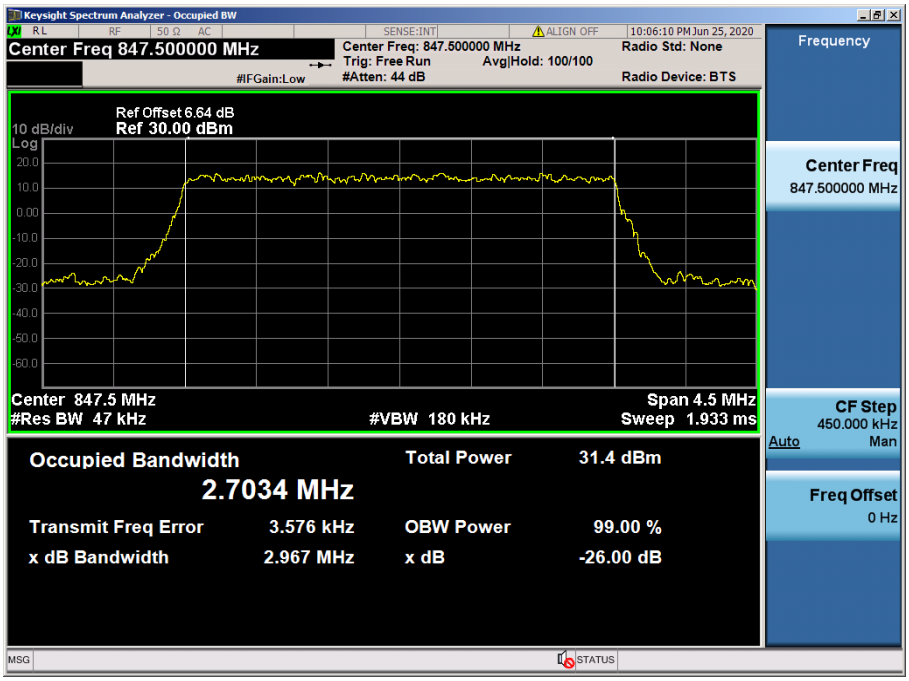
LTE Band 5 / 5 MHz / QPSK - RB Size 25



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

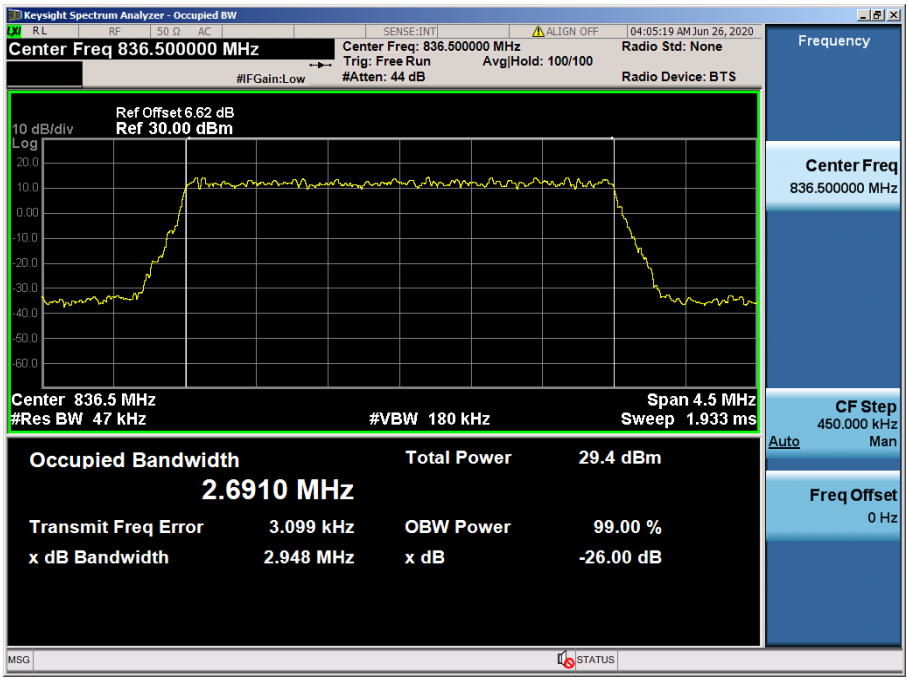


LTE Band 5 / 5 MHz / 64QAM - RB Size 25

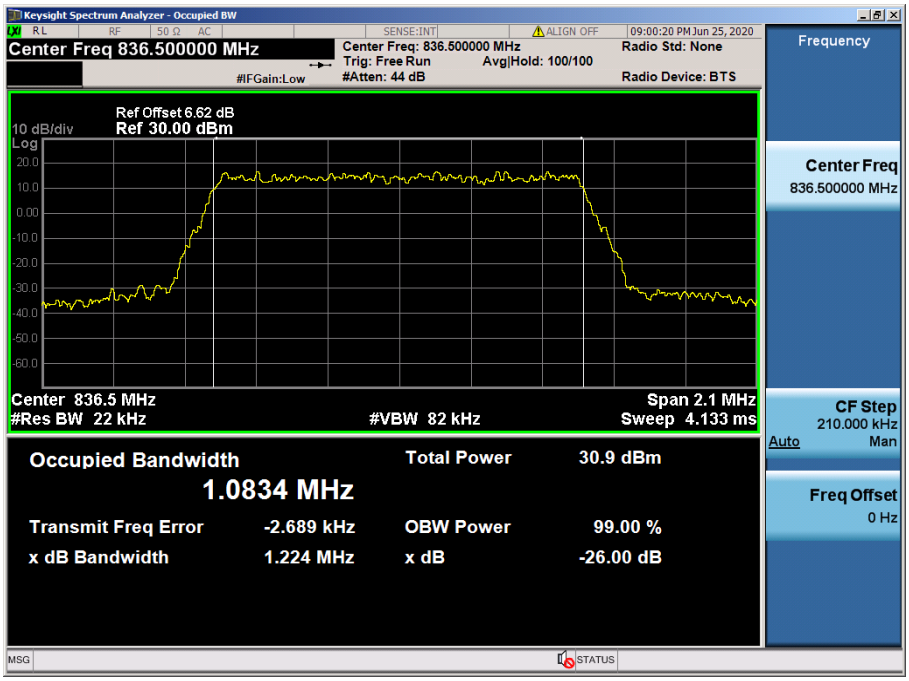


LTE Band 5 / 3 MHz / QPSK - RB Size 15

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



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



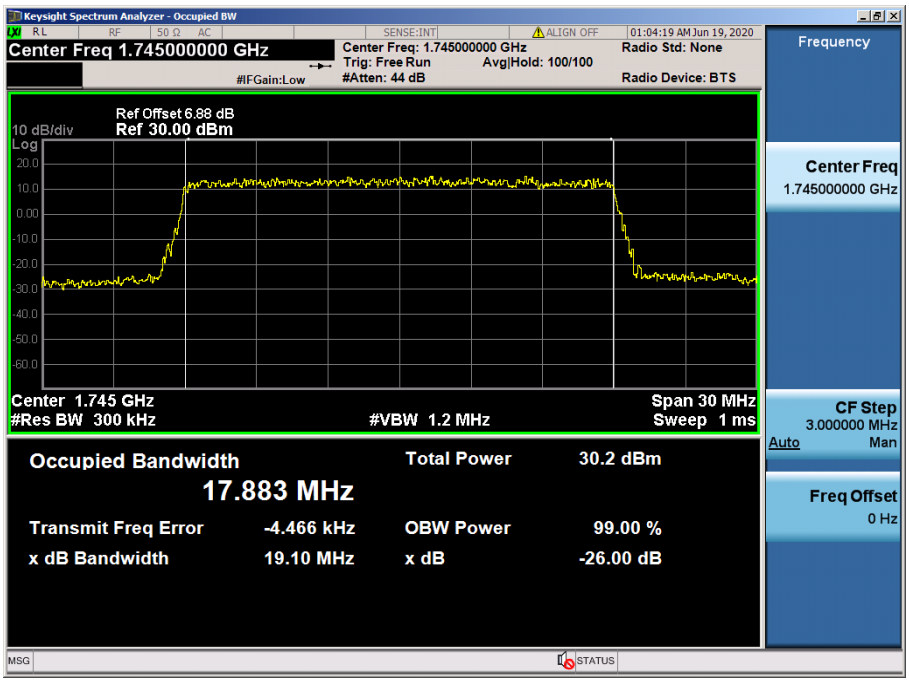
LTE Band 5 / 1.4 MHz / QPSK - RB Size 6

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

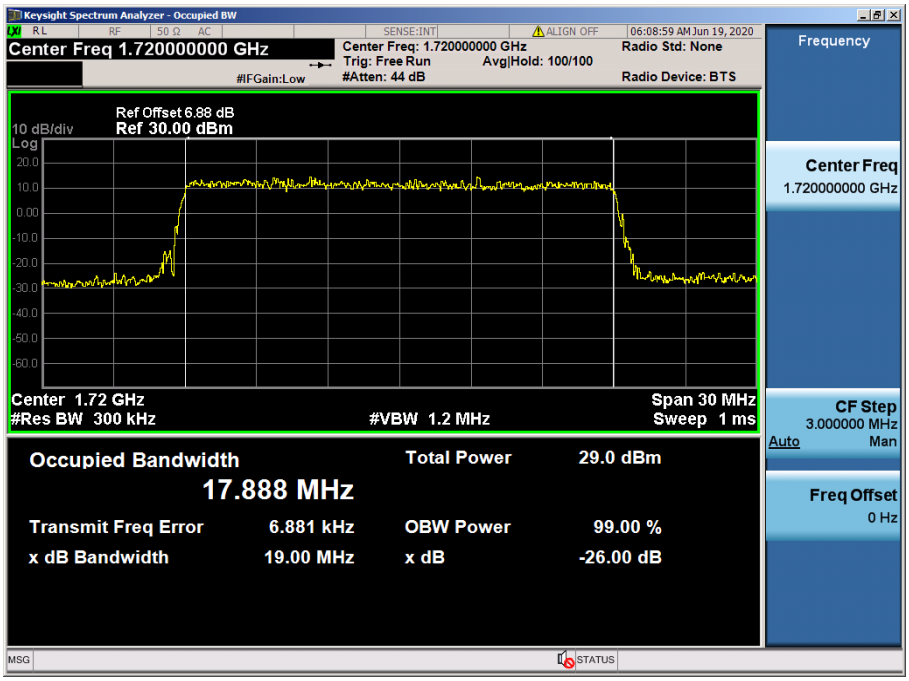
LTE Band 5 / 1.4 MHz / 64QAM - RB Size 6

8.1.5 LTE Band 66, 4

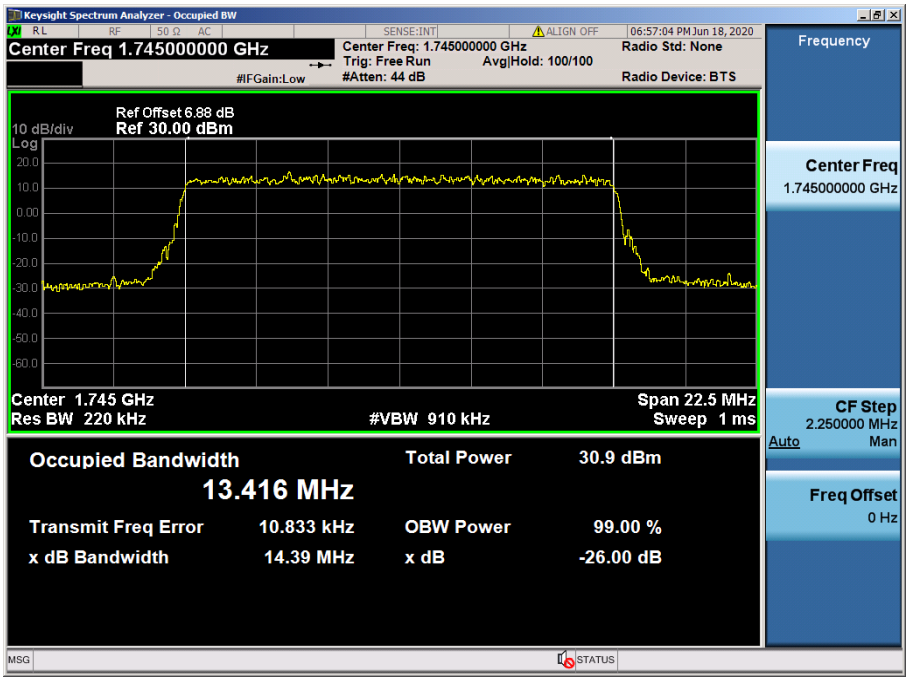
LTE Band 66, 4 / 20 MHz / QPSK - RB Size 100



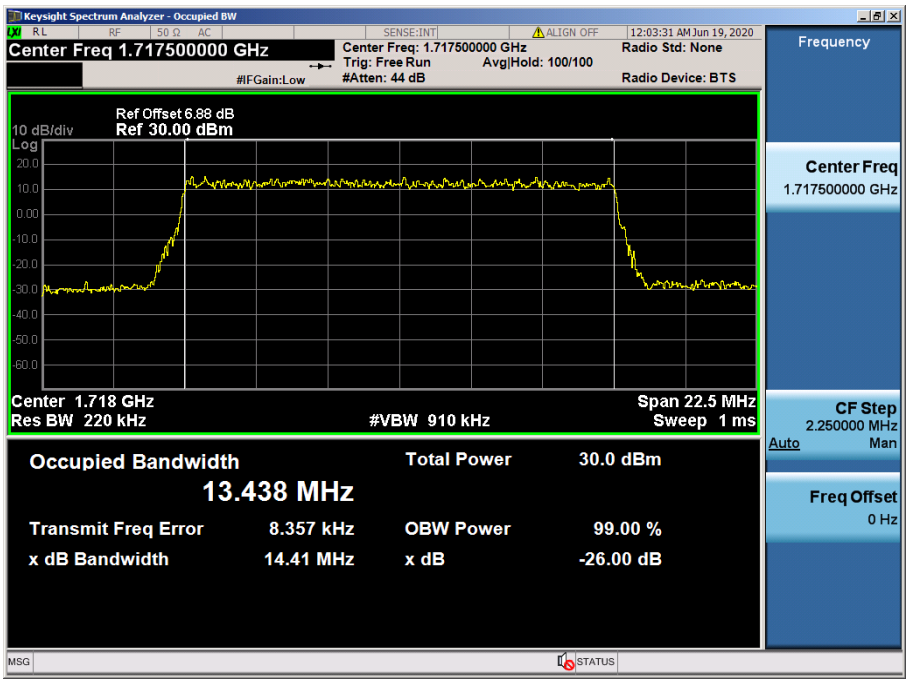
LTE Band 66, 4 / 20 MHz / 16QAM - RB Size 100



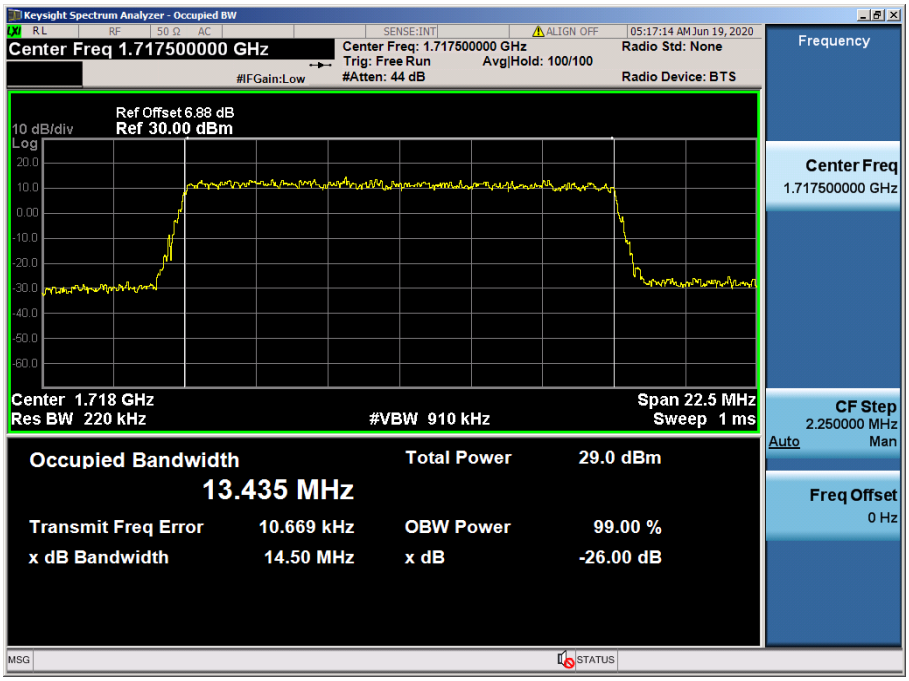
LTE Band 66, 4 / 20 MHz / 64QAM - RB Size 100



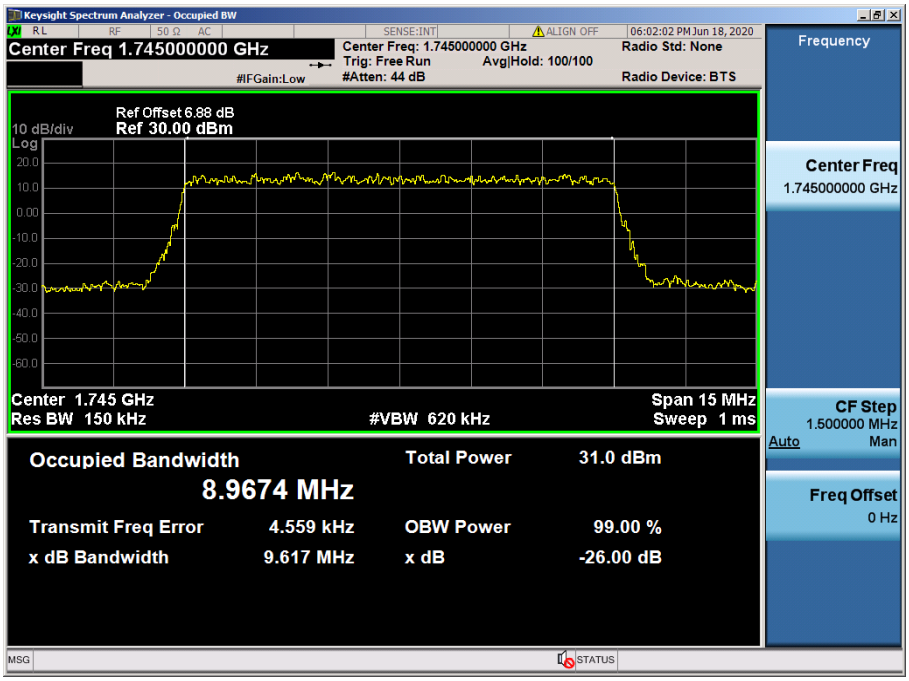
LTE Band 66, 4 / 15 MHz / QPSK - RB Size 75



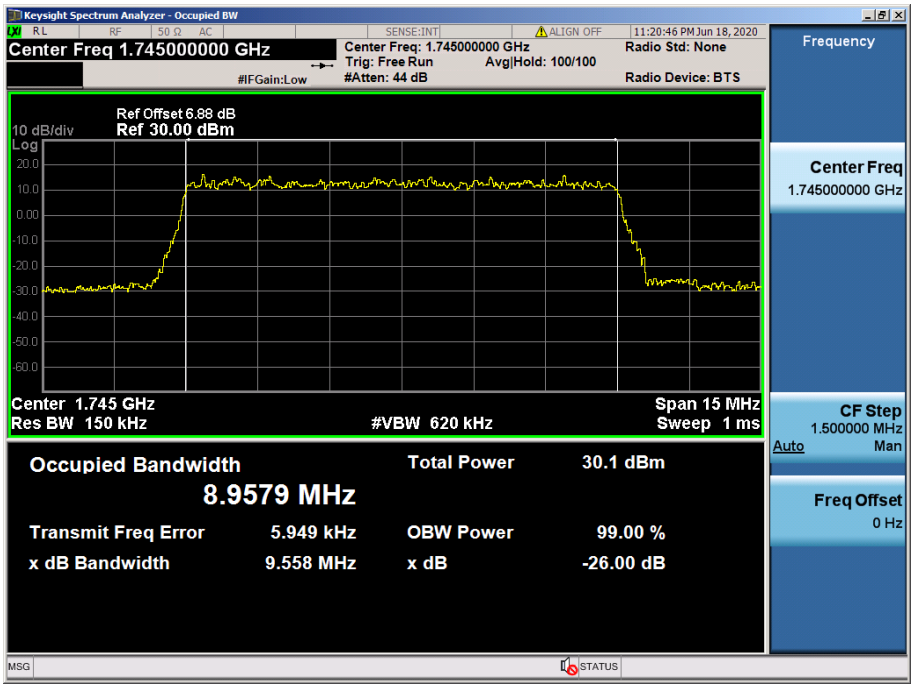
LTE Band 66, 4 / 15 MHz / 16QAM - RB Size 75



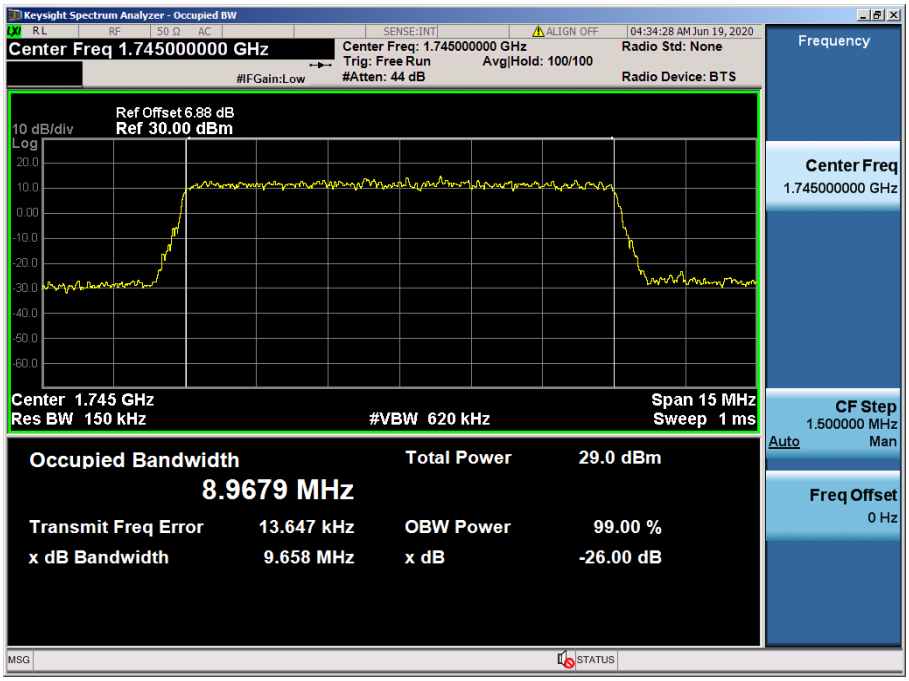
LTE Band 66, 4 / 15 MHz / 64QAM - RB Size 75



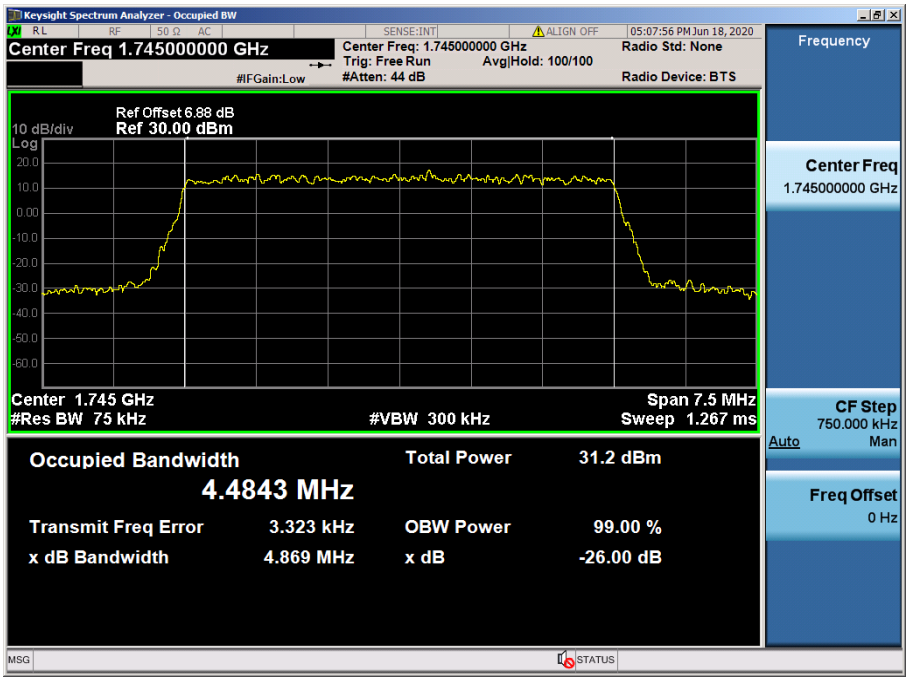
LTE Band 66, 4 / 10 MHz / QPSK - RB Size 50



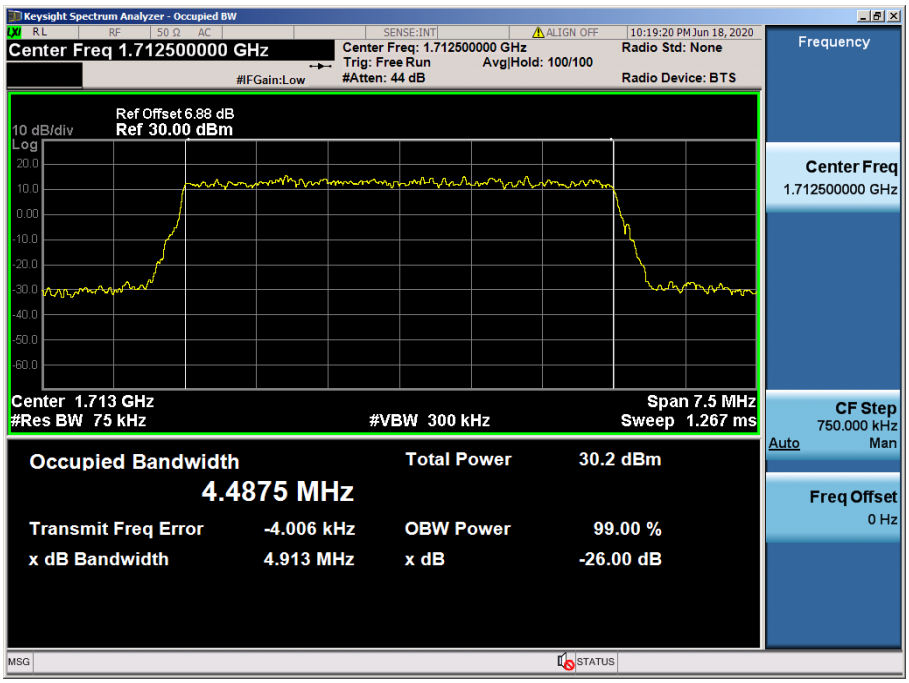
LTE Band 66, 4 / 10 MHz / 16QAM - RB Size 50



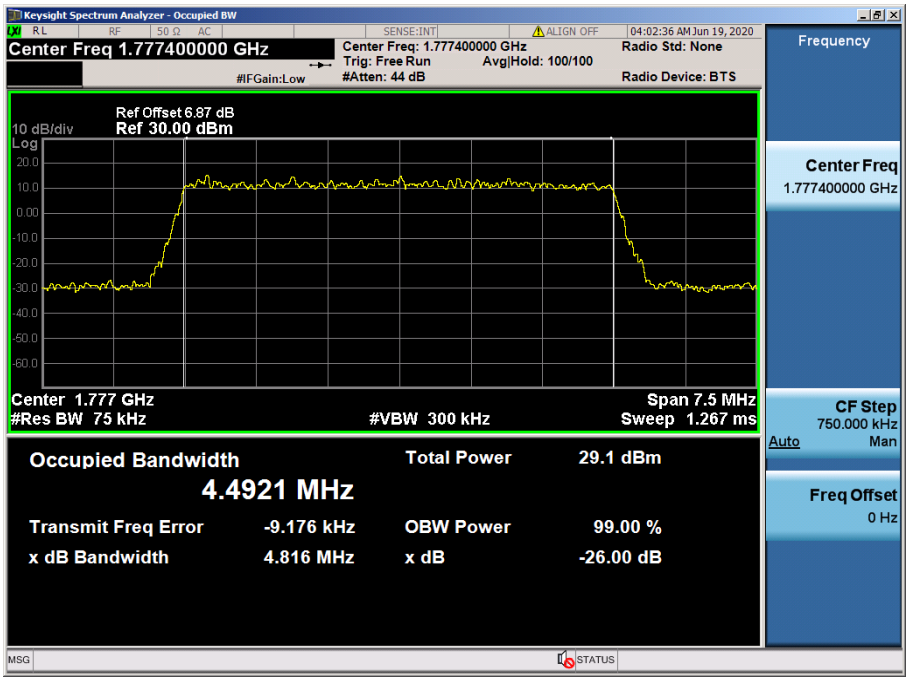
LTE Band 66, 4 / 10 MHz / 64QAM - RB Size 50



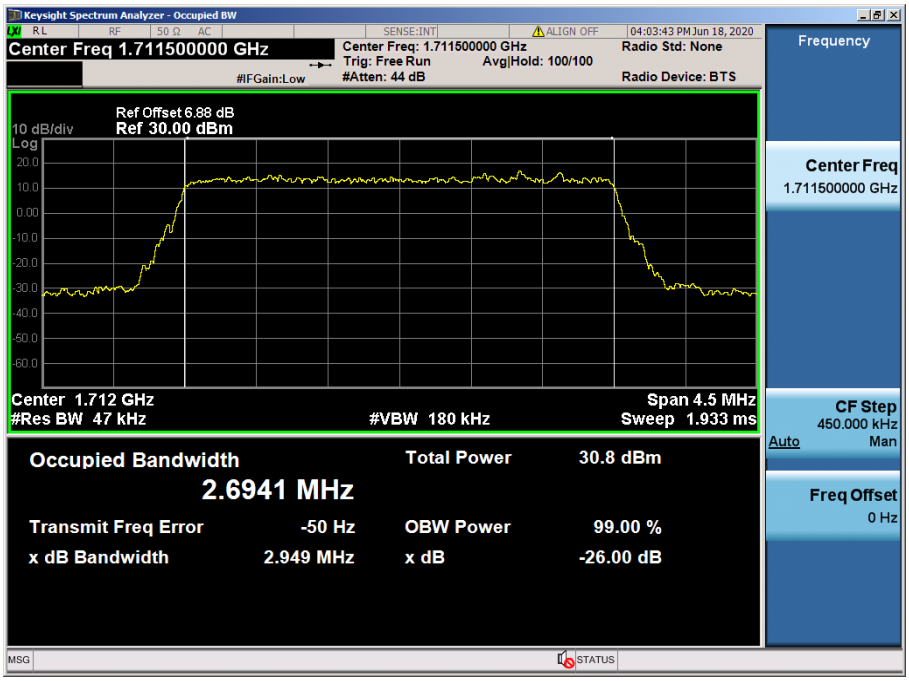
LTE Band 66, 4 / 5 MHz / QPSK - RB Size 25



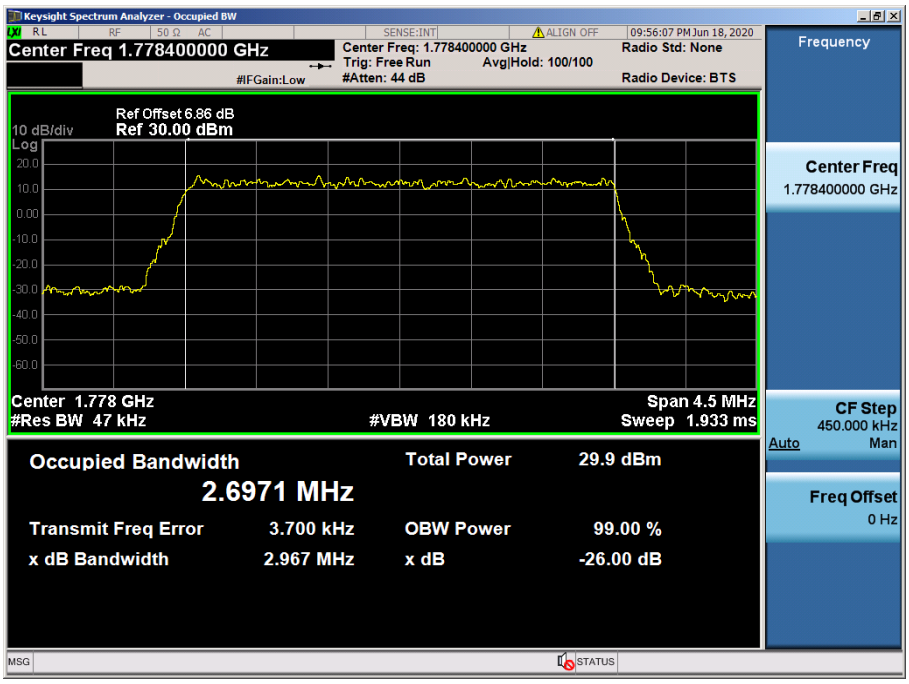
LTE Band 66, 4 / 5 MHz / 16QAM - RB Size 25



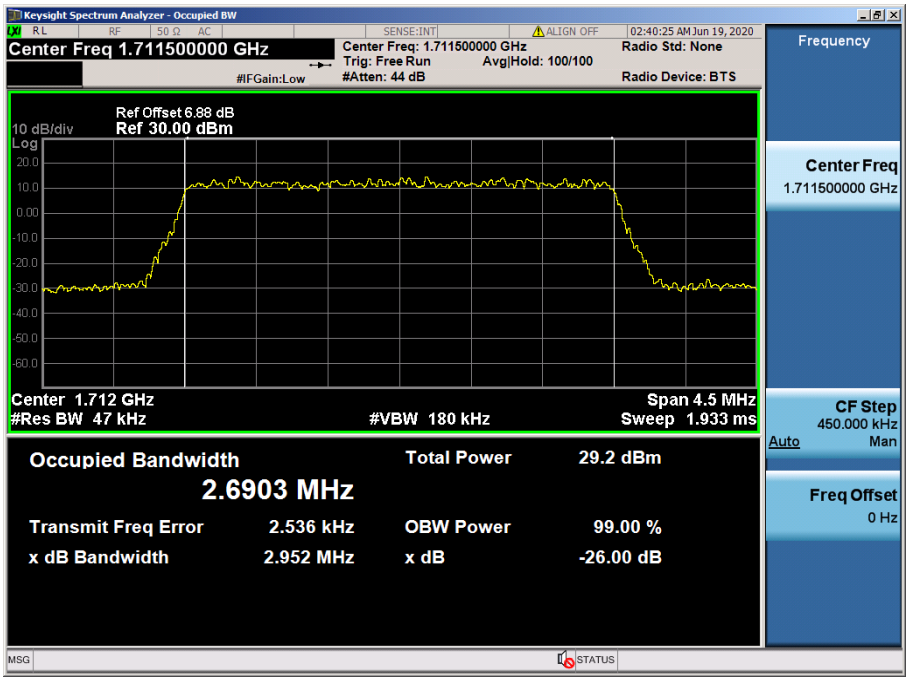
LTE Band 66, 4 / 5 MHz / 64QAM - RB Size 25



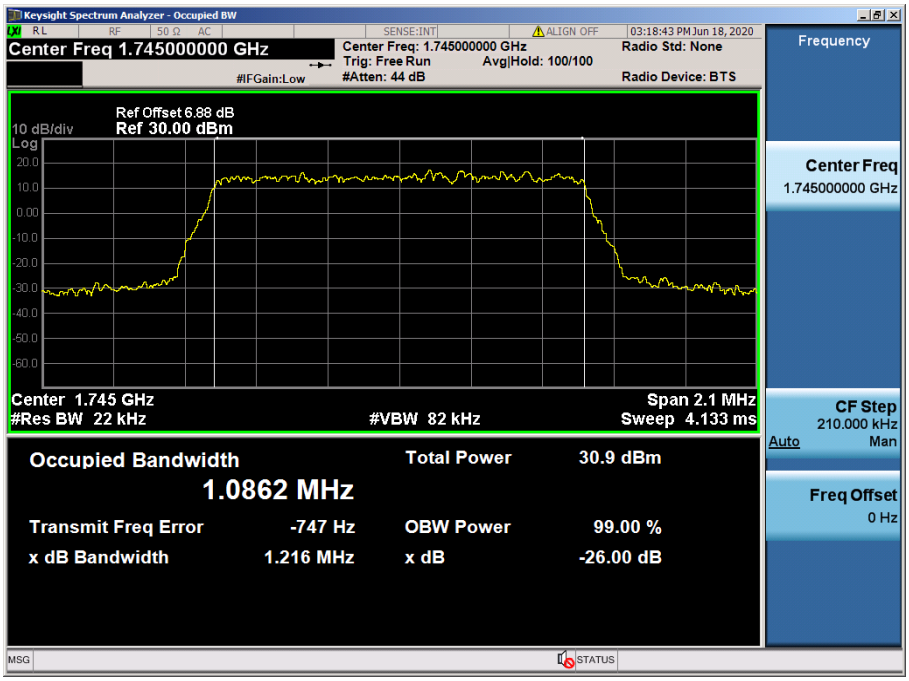
LTE Band 66, 4 / 3 MHz / QPSK - RB Size 15



LTE Band 66, 4 / 3 MHz / 16QAM - RB Size 15

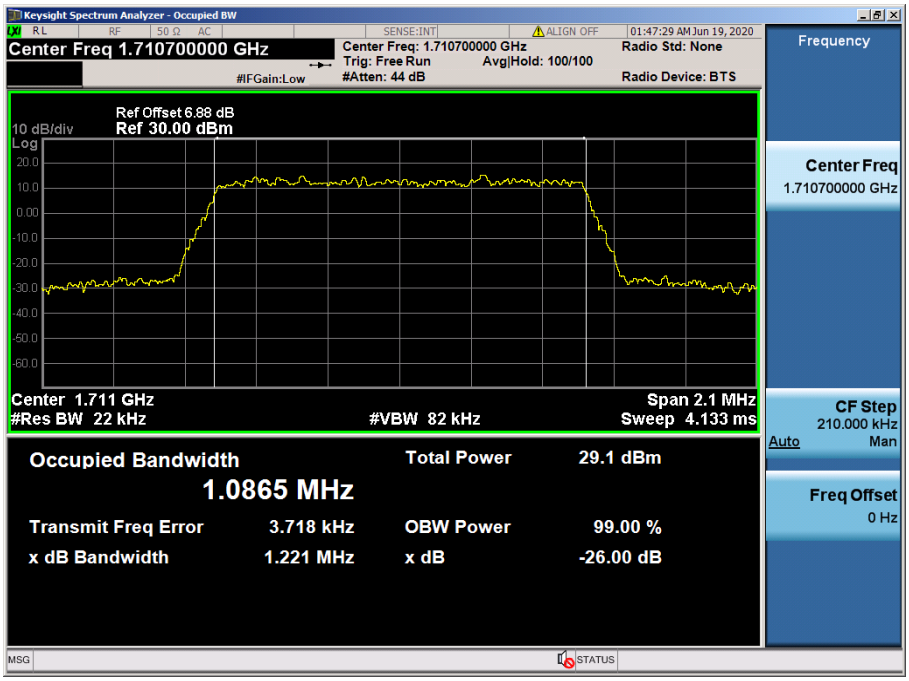


LTE Band 66, 4 / 3 MHz / 64QAM - RB Size 15



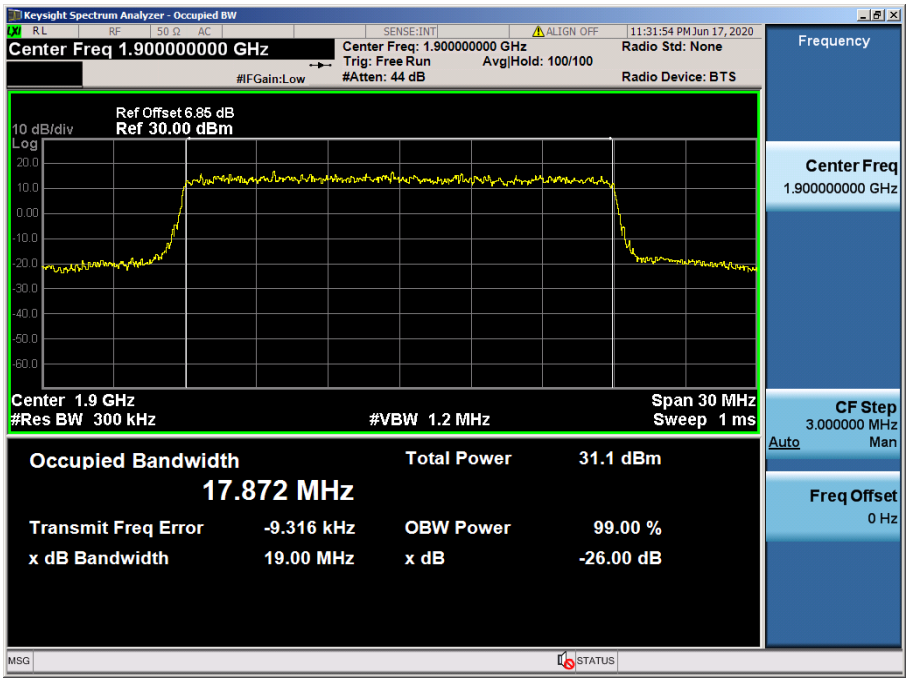
LTE Band 66, 4 / 1.4 MHz / QPSK - RB Size 6

LTE Band 66, 4 / 1.4 MHz / 16QAM - RB Size 6

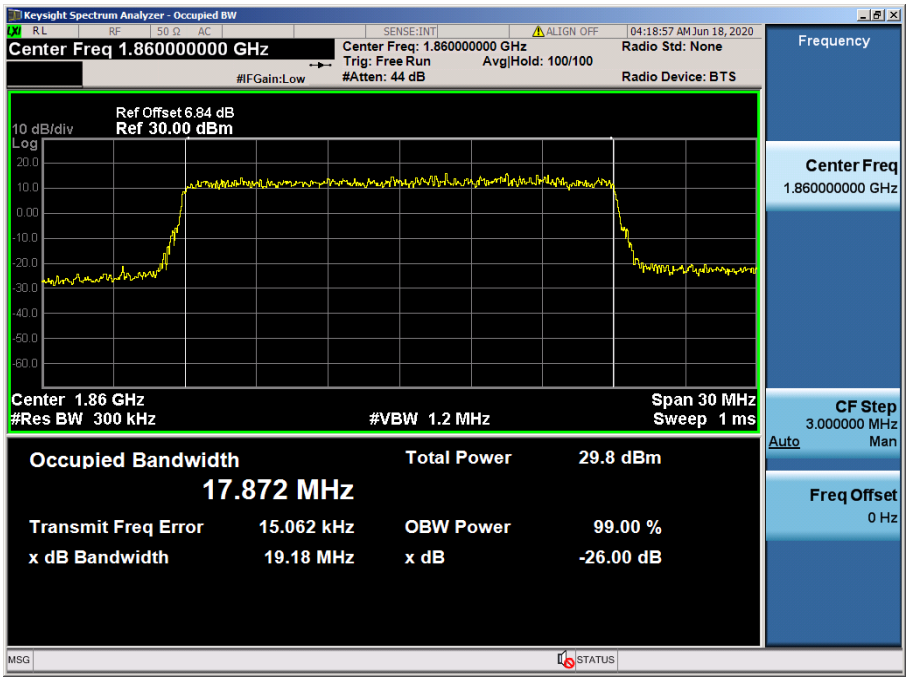


LTE Band 4 / 1.4 MHz / 64QAM - RB Size 6

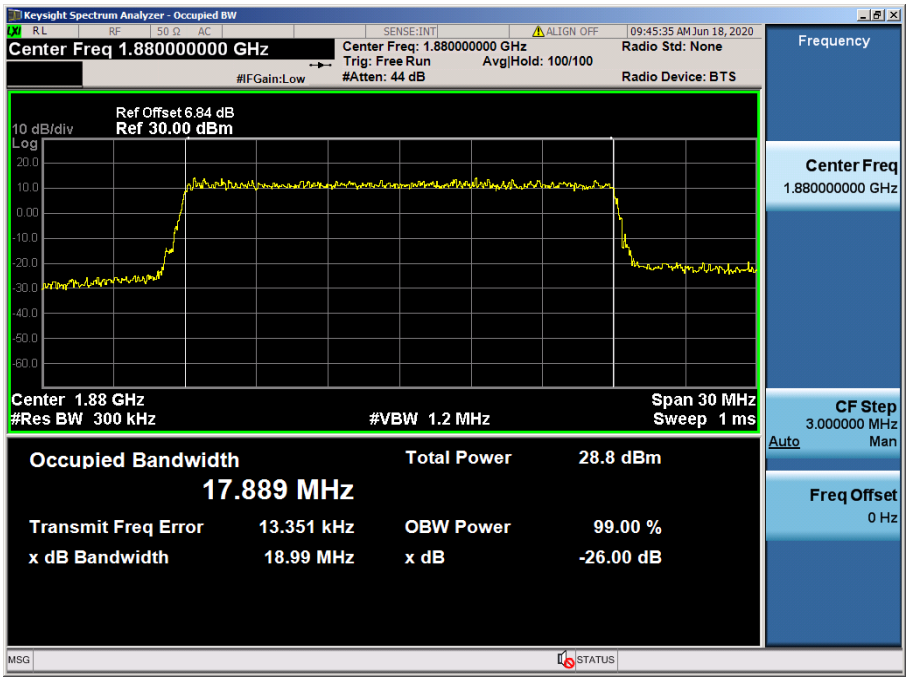
8.1.6 LTE Band 2



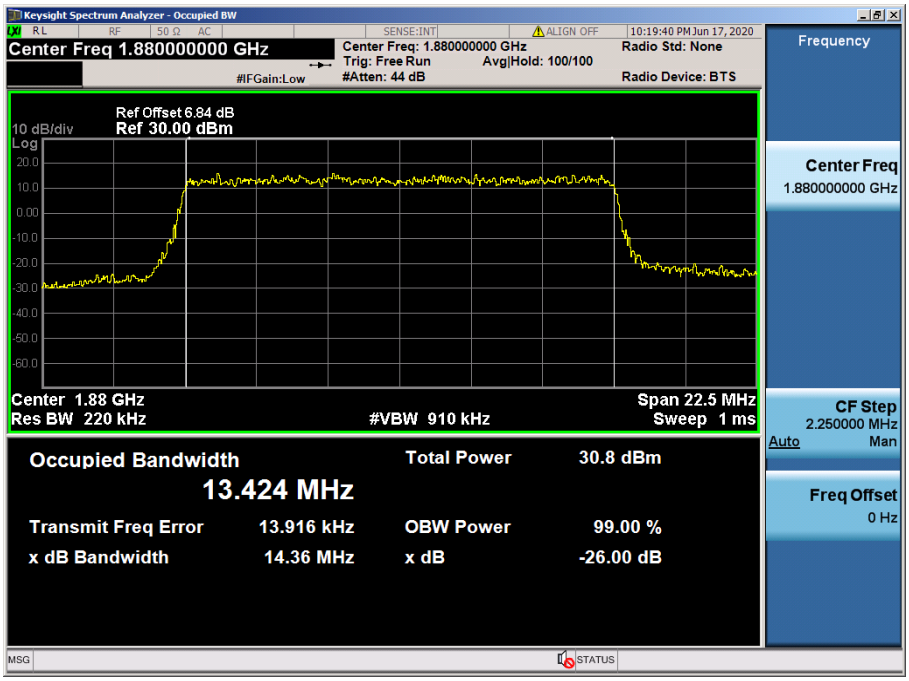
LTE Band 2 / 20 MHz / QPSK - RB Size 100



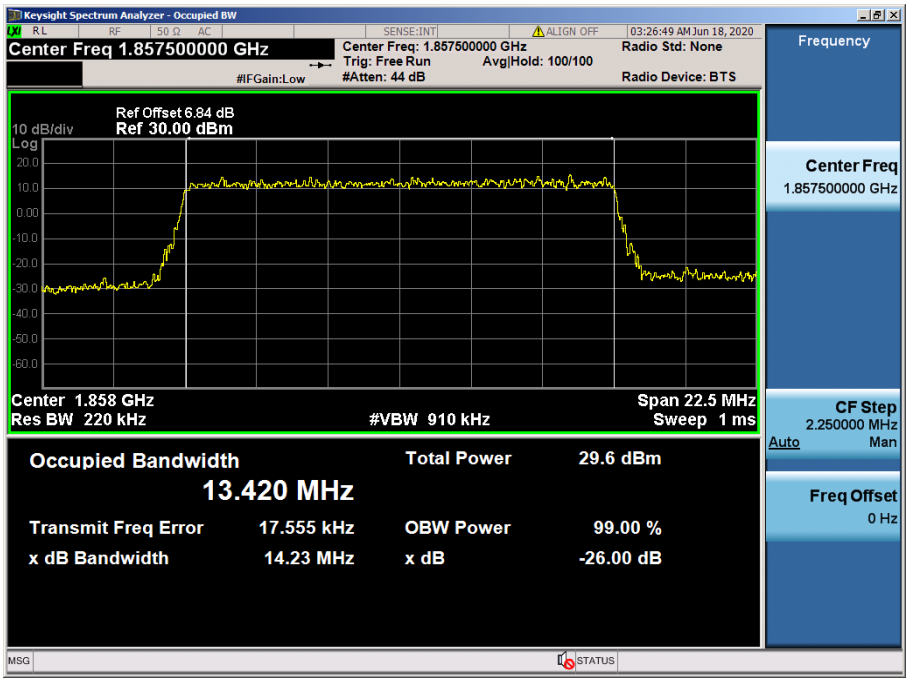
LTE Band 2 / 20 MHz / 16QAM - RB Size 100



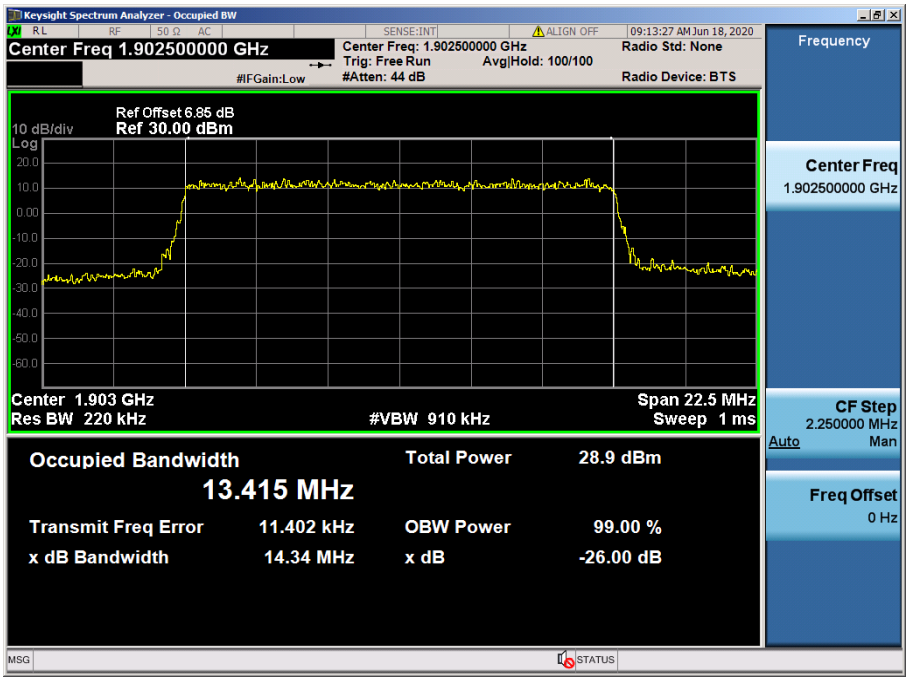
LTE Band 2 / 20 MHz / 64QAM - RB Size 100



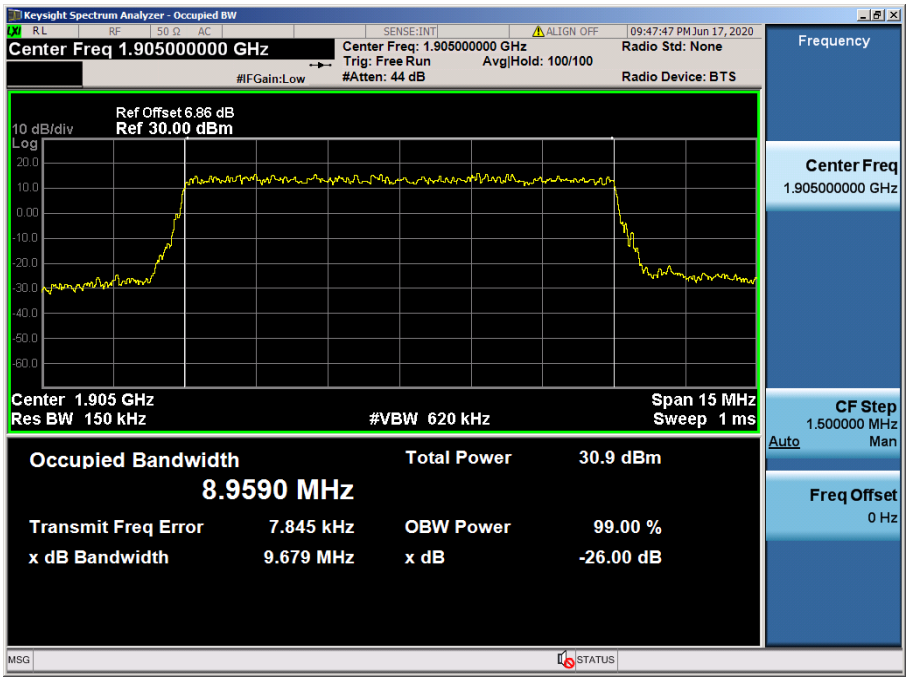
LTE Band 2 / 15 MHz / QPSK - RB Size 75



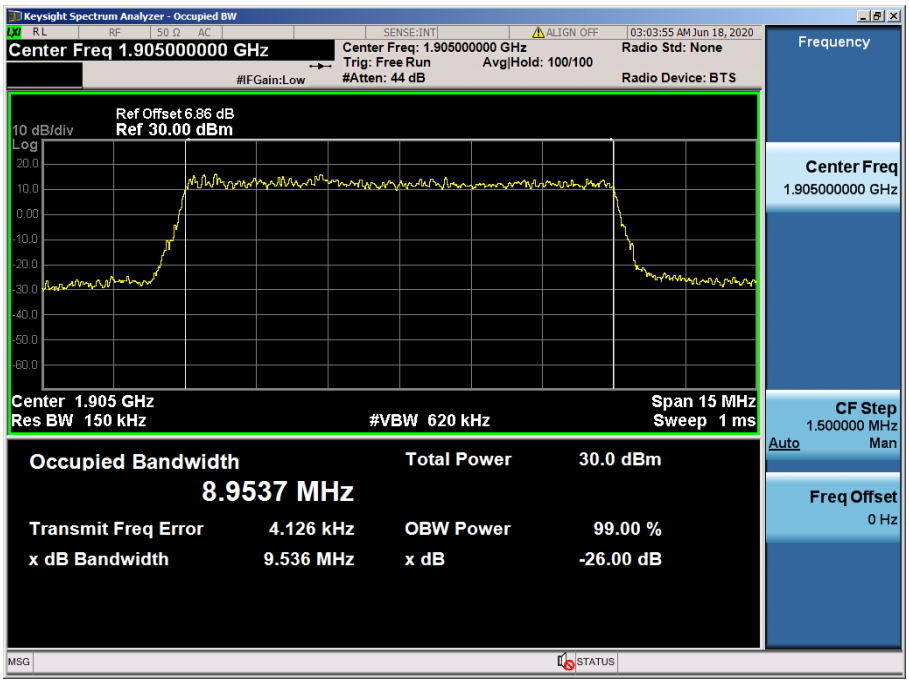
LTE Band 2 / 15 MHz / 16QAM - RB Size 75



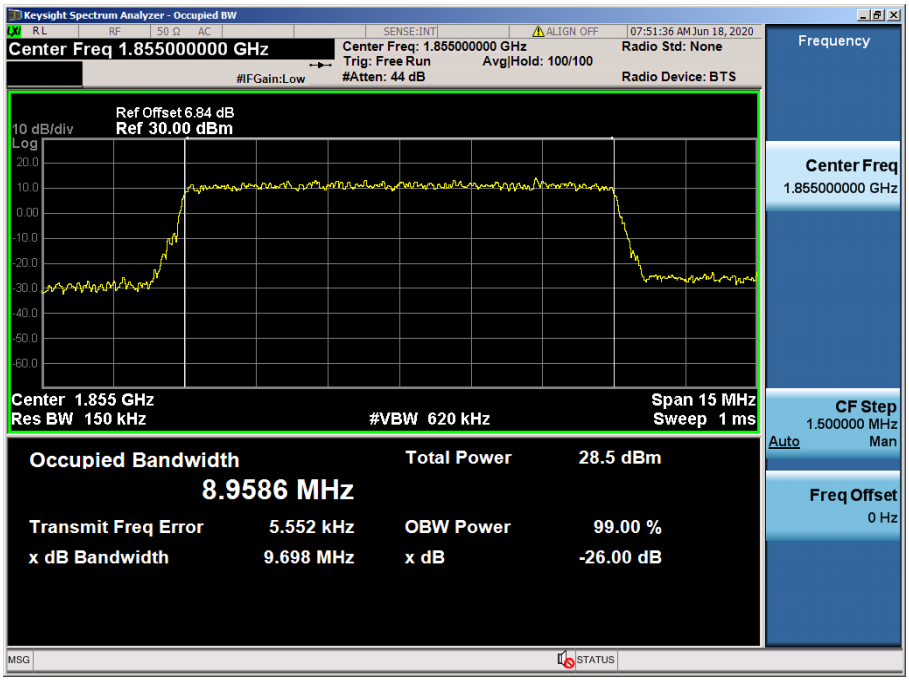
LTE Band 2 / 15 MHz / 64QAM - RB Size 75



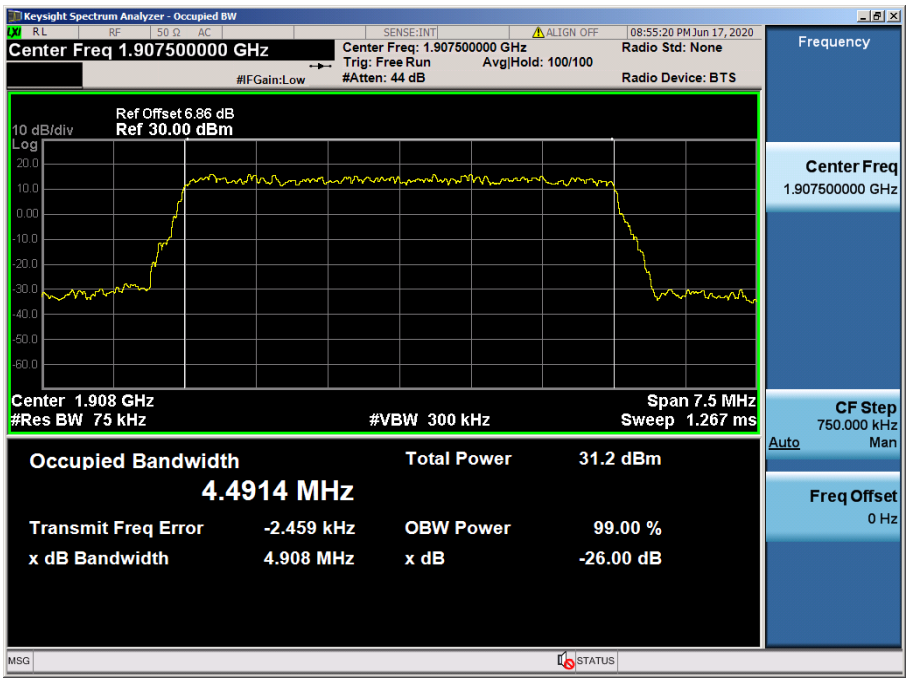
LTE Band 2 / 10 MHz / QPSK - RB Size 50



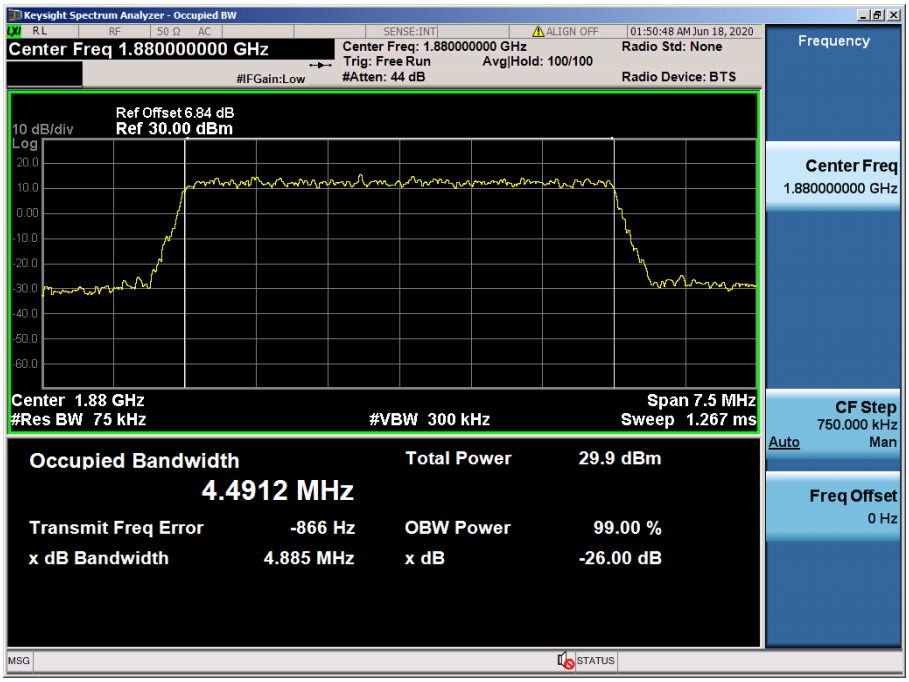
LTE Band 2 / 10 MHz / 16QAM - RB Size 50



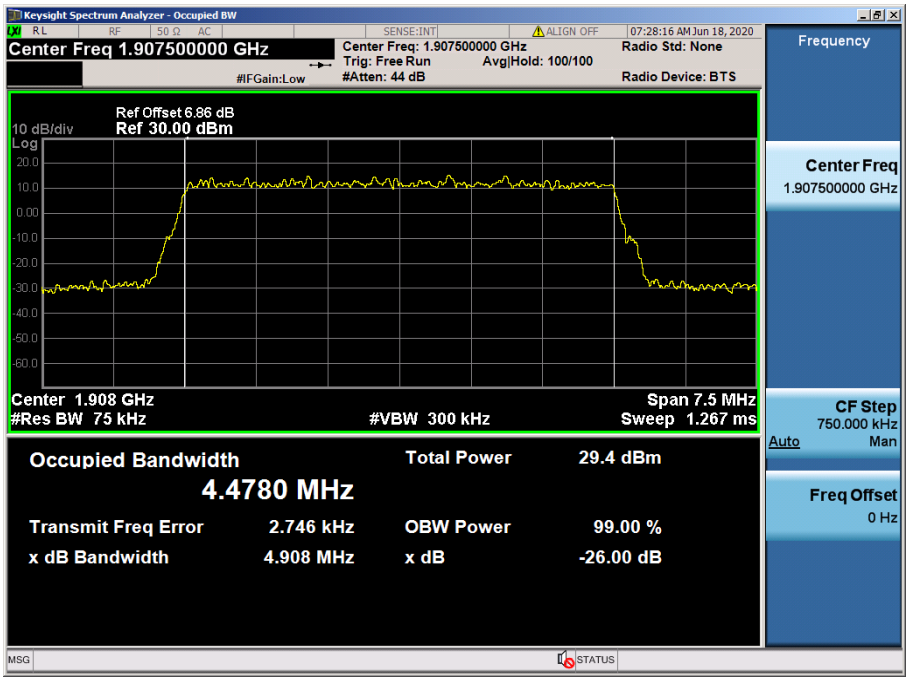
LTE Band 2 / 10 MHz / 64QAM - RB Size 50



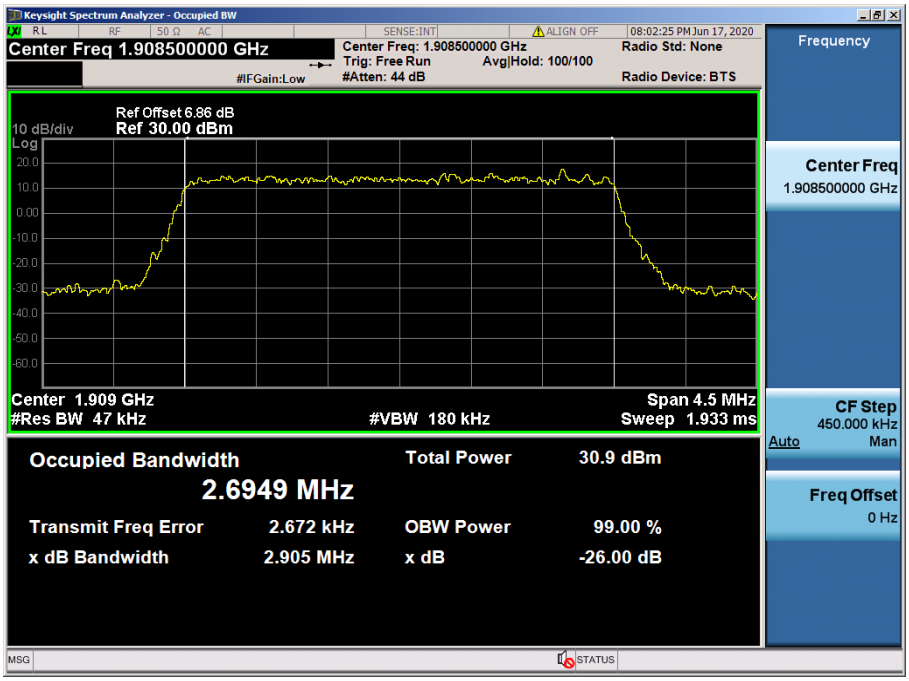
LTE Band 2 / 5 MHz / QPSK - RB Size 25



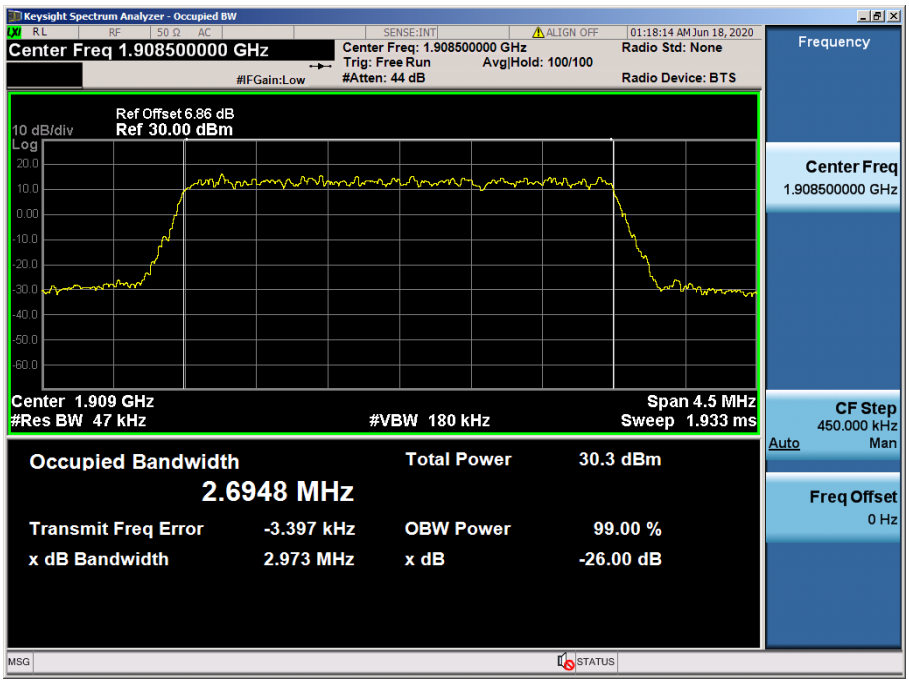
LTE Band 2 / 5 MHz / 16QAM - RB Size 25



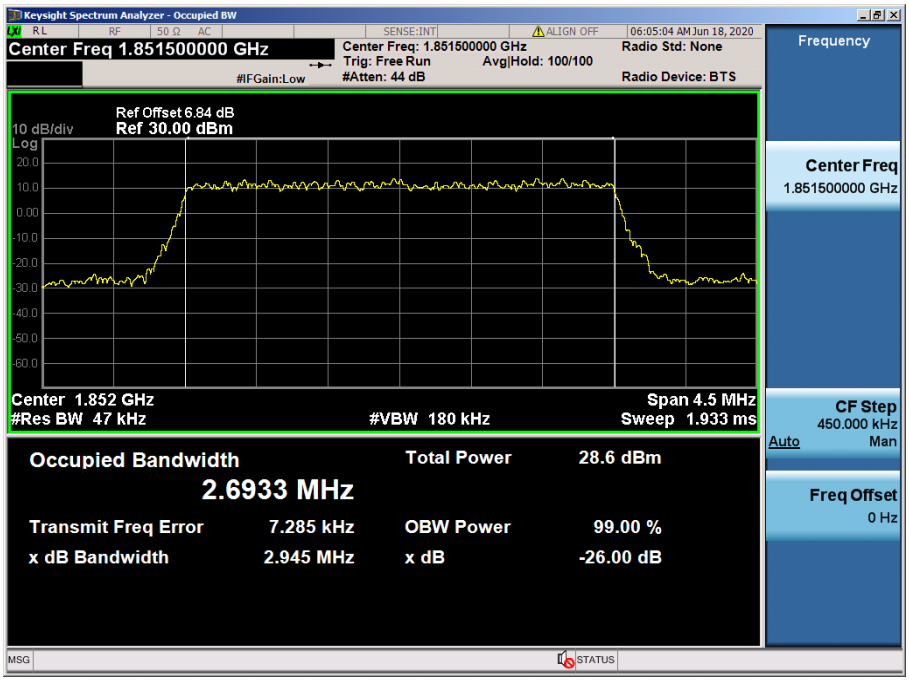
LTE Band 2 / 5 MHz / 64QAM - RB Size 25



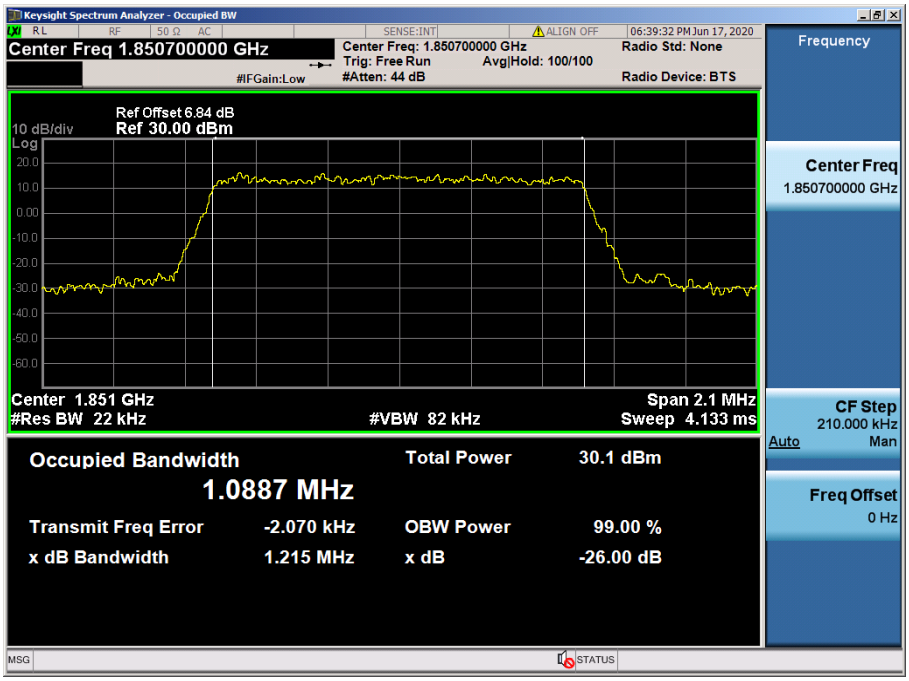
LTE Band 2 / 3 MHz / QPSK - RB Size 15



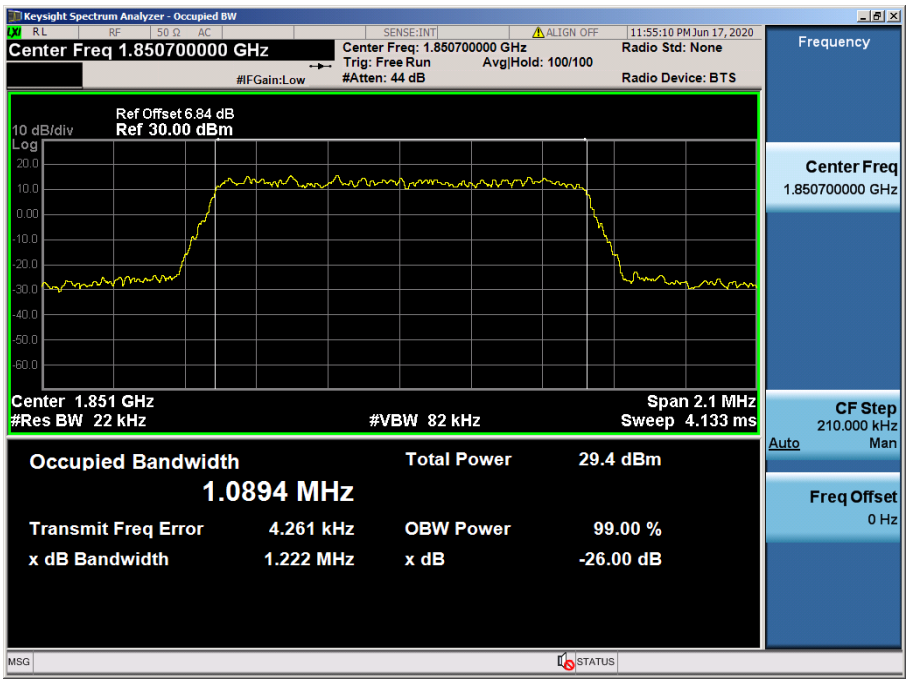
LTE Band 2 / 3 MHz / 16QAM - RB Size 15



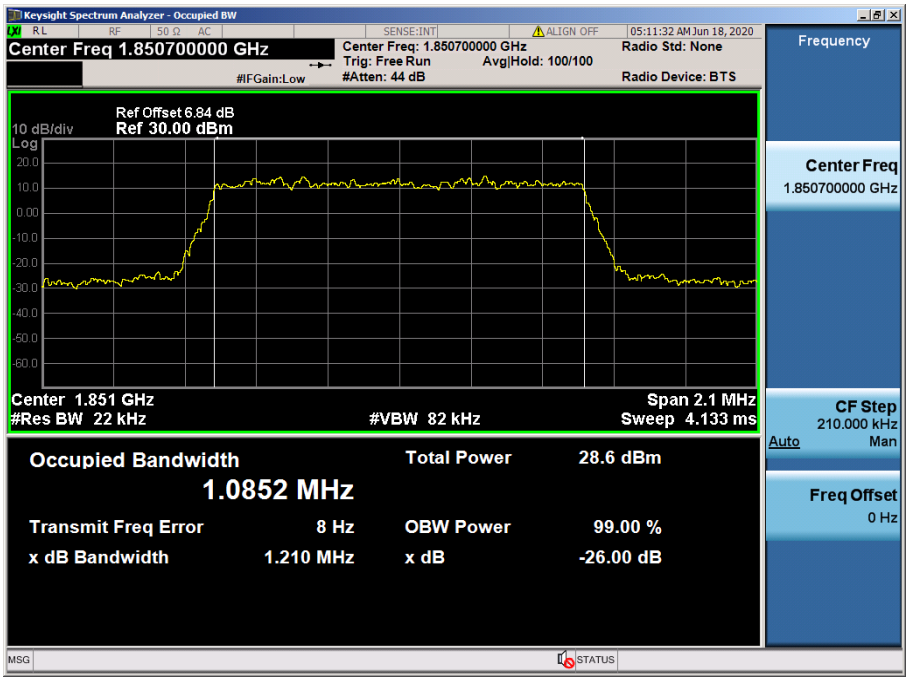
LTE Band 2 / 3 MHz / 64QAM - RB Size 15



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

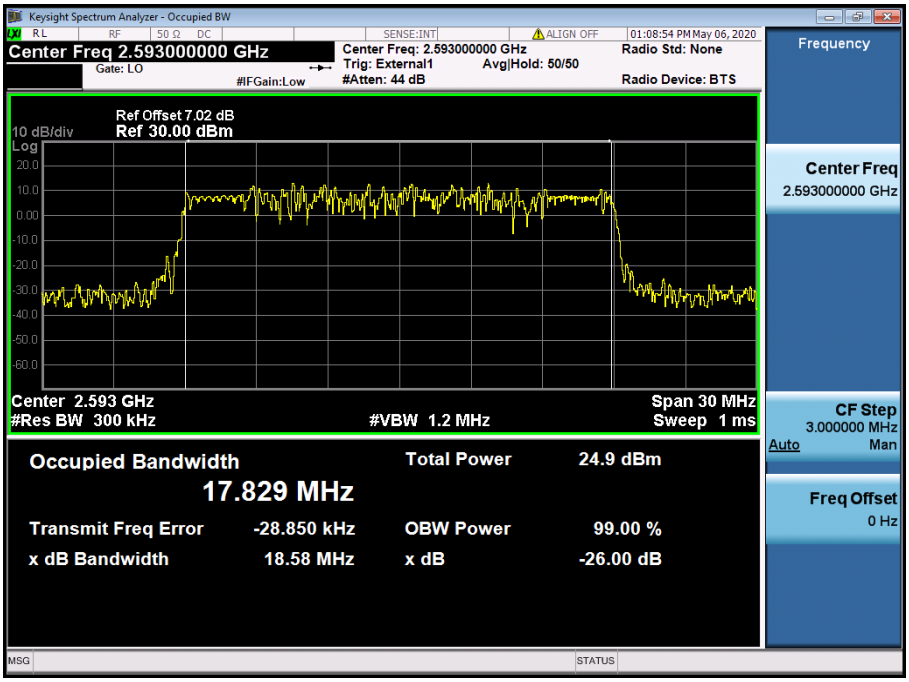


LTE Band 2 / 1.4 MHz / 16QAM - RB Size 6

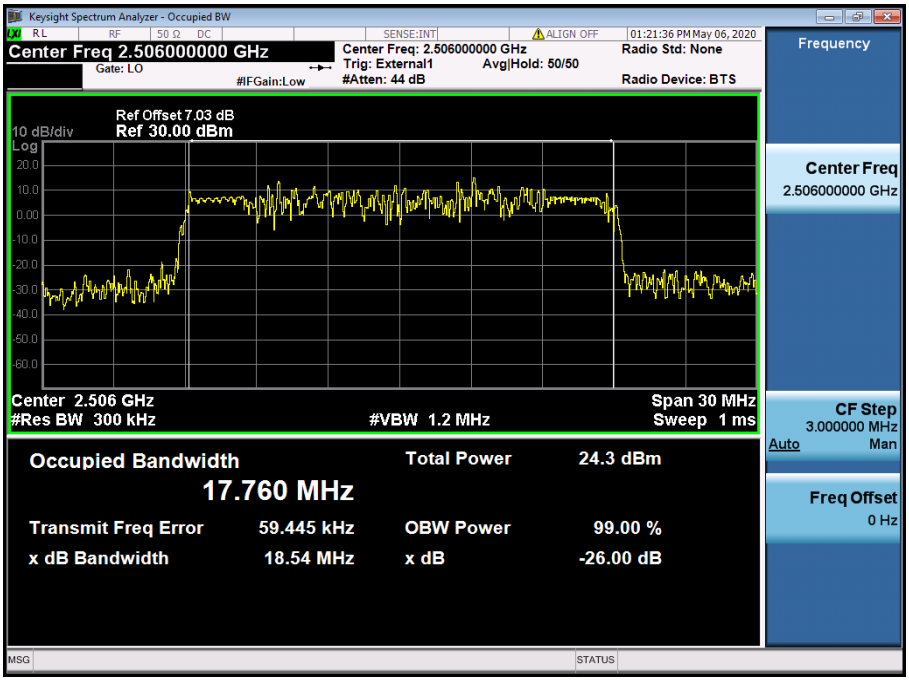


LTE Band 2 / 1.4 MHz / 64QAM - RB Size 6

8.1.7 LTE Band 41



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



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