

FCC CFR47 PART 22H, 24E, 27, 90S CERTIFICATION TEST REPORT FCC ID: 2BBNY-X4200

Product: Spatial Computing Box

Trade Mark: XREAL

Model No.: X4200

Family Model: N/A

Report No.: S24080507317005

Issue Date: Dec. 13, 2024

Prepared for

Xreal Inc.

440N. Wolfe Rd. Unit E417 Sunnyvale, CA 94085

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District,
Shenzhen, Guangdong, China

Tel. 0755-23200050 Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name: Xreal Inc.

Address: 440N. Wolfe Rd. Unit E417 Sunnyvale, CA 94085

Manufacturer's Name: Xreal Inc

Address: 440N. Wolfe Rd. Unit E417 Sunnyvale, CA 94085

Product name: Spatial Computing Box

Model and/or type reference: X4200

Trade Mark: XREAL

Family Model: N/A

Test Sample Number: S240805073018

Date of Test: Aug. 05, 2024 ~ Dec. 13, 2024

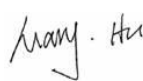
Standards: FCC CFR 47 Part 22H, Part 24E, Part 27, 90S

Test procedure: ANSI C63.26:2015

ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Prepared : 
By : Mary Hu
(Project Engineer)

Reviewed : 
By : Aaron Cheng
(Supervisor)

Approved : 
By : Alex Li
(Manager)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Spatial Computing Box
Trade Mark	XREAL
Model Name	X4200
Family Model	N/A
Model Difference	N/A
FCC ID:	2BBNY-X4200
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 66 TDD Band 38, 41, 71
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 14 Uplink: 788MHz-798MHz, Downlink: 758MHz-768MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 25 Uplink: 1850MHz-1915MHz, Downlink: 1930MHz-1995MHz; LTE FDD Band 26A Uplink: 814MHz-824MHz, Downlink: 859MHz-869MHz; LTE FDD Band 26B Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE TDD Band 38 Uplink & Downlink: 2570 MHz to 2620 MHz LTE TDD Band 41 Uplink& Downlink: 2496MHz-2690MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz; LTE TDD Band 71 Uplink: 663MHz-698MHz, Downlink: 617MHz-652MHz;
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
Antenna:	FPC Antenna
Antenna gain:	Band 2: -3.87dBi, Band 4: -1.49dBi, Band 5: -2.33dBi, Band 7: -0.1dBi , Band 12: -2.31dBi , Band 13: -2.41dBi , Band 14: -2.76dBi , Band 17: -2.31dBi, Band 25: -3.87dBi, Band 26: -2.33dBi, Band 38: 0.71dBi, Band 41: 0.25dBi, Band 66: -1.49dBi, Band 71: -2.31dBi
Adapter	N/A

Battery	DC 3.87V, 4300mAh
Power supply	DC 3.87V from battery or DC 5V from Type-C port
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V) (Note 1)
HW Version	X4200_DVT2
SW Version	N/A
** Note1: The High Voltage DC 4.45V and Low Voltage 3.29V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2BBNY-X4200** filing to comply with the FCC Part 22H&24E&27&90S.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27, Part 90S, ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District, Shenzhen, Guangdong, China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.26:2015& ANSI C63.4: 2014.

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: Band 2, 4, 5, 7, 12, 13, 14,17, 25, 26, 38, 40, 66, 71

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

1.7 SUMMARY OF TEST RESULTS

FCC Part22, Subpart H/ FCC Part24, Subpart E, FCC Part27, Part 90 KDB 971168 D01 Power Meas License Digital Systems v03r01			
FCC Rule	Test Item	Verdict	Remark
2.1046	Conducted Output Power	PASS	
22.913(d) 24.232(d) 27.50(d)(5) KDB 971168 D01 Clause 5.7	Peak-to-Average Ratio	PASS	
2.1049 22.917(b) 24.238(b) KDB 971168 D01 Clause 4.2	Occupied Bandwidth	PASS	
2.1051 22.917(a) 24.238(a) 27.53(g), (h), (m) 90.543 90.691 KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913(a)(2) 27.50(b)(10), (c)(10) 90.542 90.635 KDB 971168 D01 Clause 5.6	Effective Radiated Power	PASS	
24.232(c) 27.50(h)(2), (d)(4) 90.542 90.635 KDB 971168 D01 Clause 5.6	Equivalent Isotropic Radiated Power	PASS	
2.1053 22.917(a) 24.238(a) 27.53(g), (h), (m) 90.543 90.691 KDB 971168 D01 Clause 7	Field Strength of Spurious Radiation	PASS	
2.1055 22.355 24.235 27.54 90.213 90.539 KDB 971168 D01 Clause 9	Frequency Stability for Temperature & Voltage	PASS	

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Spatial Computing Box	X4200	FCC ID: 2BBNY-X4200	EUT

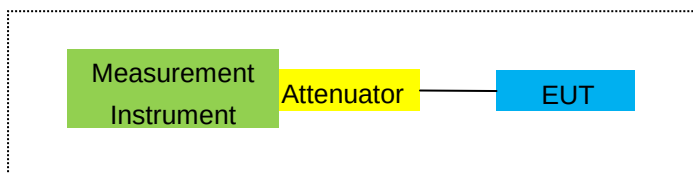
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

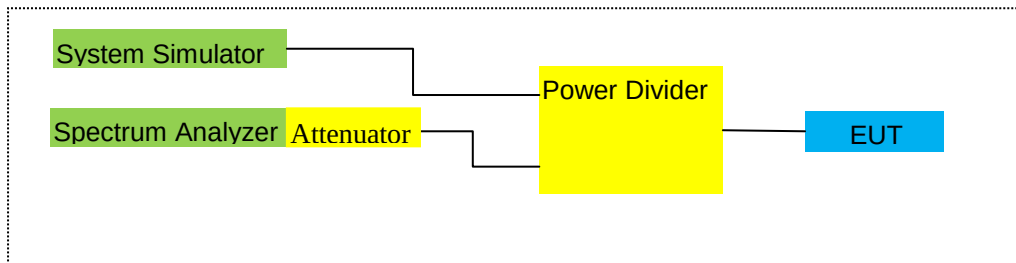
For Radiated Test Cases



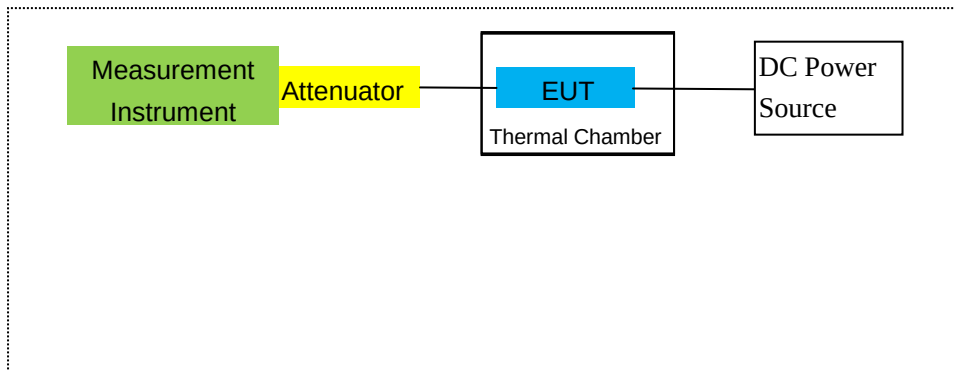
For Conducted Output Power



For Peak-to Average Ratio, Occupied Bandwidth, Conducted Band edge and Conducted Spurious Emission



For Frequency Stability



Note: EUT built-in battery-powered, the battery is fully-charged.

3.TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2024.03.12	2025.03.11	1 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2024.03.12	2025.03.11	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
23	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
24	Communication Tester	R&S	CMU200	A0304247	2024.03.12	2025.03.11	1 year
25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year

26	DC Power Source	N/A	PS-6005D	20170402923	2024.04.25	2027.04.24	3 year
27	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2024.05.30	2025.05.29	1 year
28	Communication Tester	R&S	CMW500	148500	2024.05.30	2025.05.29	1 year
29	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2024.05.25	2025.05.24	1 year
30	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2024.05.12	2025.05.11	1 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRTest	MTS 8200	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	raditeq	RadiMation	2023.1.3	RadiatedTest
4	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of "NS_01".³

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10, 15, 20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

☐

Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 38, 40, 66, 71

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53,

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Show citation box.

(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$

decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

90.543 (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

90.543 (f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

—

TEST PROCEDURE

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

Set a marker to point the corresponding band edge frequency in each test case.

Set resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 38, 40, 66, 71

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

LIMITS

1. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.
2. The Band 7/41 emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log (P)$ dB.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

☐

- ☐ Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

- ☐ Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 38, 40, 66, 71

☐

7.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635

LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232 (c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.

27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

KDB 971168 D01 Power Meas License Digital Systems v02r01, "Measurement Guidance for Certification of Licensed Digital Transmitters"

MODES TESTED

- ☐ Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 38, 40, 66, 71

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
1.4MHz Band QPSK	6/0	1850.7	17.00	3.76	8.90	22.14	163.682	Horizontal	Pass
		1880	13.76	3.91	8.90	18.75	74.989	Horizontal	Pass
		1909.3	14.19	3.93	8.90	19.16	82.414	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	13.24	3.77	8.90	18.37	68.707	Horizontal	Pass
		1880	14.30	3.91	8.90	19.29	84.918	Horizontal	Pass
		1908.5	15.63	3.94	8.90	20.59	114.551	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	15.19	3.77	8.90	20.32	107.647	Horizontal	Pass
		1880	16.42	3.91	8.90	21.41	138.357	Horizontal	Pass
		1907.5	15.79	3.94	8.90	20.75	118.850	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	16.13	3.79	8.90	21.24	133.045	Horizontal	Pass
		1880	17.08	3.95	8.90	22.03	159.588	Horizontal	Pass
		1905	15.23	3.97	8.90	20.16	103.753	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	15.13	3.79	8.90	20.24	105.682	Horizontal	Pass
		1880	16.27	3.95	8.90	21.22	132.434	Horizontal	Pass
		1902.5	14.88	3.97	8.90	19.81	95.719	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	15.76	3.81	8.90	20.85	121.619	Horizontal	Pass
		1880	14.14	3.96	8.90	19.08	80.910	Horizontal	Pass
		1900	15.92	4.00	8.90	20.82	120.781	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	15.15	3.76	8.90	20.29	106.905	Vertical	Pass
		1880	14.32	3.91	8.90	19.31	85.310	Vertical	Pass
		1909.3	14.93	3.93	8.90	19.9	97.724	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	15.41	3.77	8.90	20.54	113.240	Vertical	Pass
		1880	15.99	3.91	8.90	20.98	125.314	Vertical	Pass
		1908.5	14.34	3.94	8.90	19.3	85.114	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	15.02	3.77	8.90	20.15	103.514	Vertical	Pass
		1880	14.38	3.91	8.90	19.37	86.497	Vertical	Pass
		1907.5	16.39	3.94	8.90	21.35	136.458	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	14.32	3.79	8.90	19.43	87.700	Vertical	Pass
		1880	12.95	3.95	8.90	17.9	61.660	Vertical	Pass
		1905	13.85	3.97	8.90	18.78	75.509	Vertical	Pass
15.0MHz Band QPSK	75/0	1857.5	14.51	3.79	8.90	19.62	91.622	Vertical	Pass
		1880	15.04	3.95	8.90	19.99	99.770	Vertical	Pass
		1902.5	16.22	3.97	8.90	21.15	130.317	Vertical	Pass
20.0MHz Band QPSK	100/0	1860	17.20	3.81	8.90	22.29	169.434	Vertical	Pass
		1880	15.38	3.96	8.90	20.32	107.647	Vertical	Pass
		1900	15.37	4.00	8.90	20.27	106.414	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band 16 QAM	6/0	1850.7	14.60	3.76	8.90	21.24	133.045	Horizontal	Pass
		1880	15.75	3.91	8.90	20.28	106.660	Horizontal	Pass
		1909.3	15.45	3.93	8.90	21.07	127.938	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	15.29	3.77	8.90	19.74	94.189	Horizontal	Pass
		1880	14.95	3.91	8.90	20.76	119.124	Horizontal	Pass
		1908.5	14.55	3.94	8.90	19.86	96.828	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	15.14	3.77	8.90	21.56	143.219	Horizontal	Pass
		1880	15.50	3.91	8.90	19.96	99.083	Horizontal	Pass
		1907.5	14.00	3.94	8.90	19.1	81.283	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	15.35	3.79	8.90	21.29	134.586	Horizontal	Pass
		1880	14.05	3.95	8.90	20.42	110.154	Horizontal	Pass
		1905	15.36	3.97	8.90	21.55	142.889	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.68	3.79	8.90	20.99	125.603	Horizontal	Pass
		1880	15.77	3.95	8.90	20.04	100.925	Horizontal	Pass
		1902.5	15.65	3.97	8.90	21.74	149.279	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	13.84	3.81	8.90	19.47	88.512	Horizontal	Pass
		1880	16.17	3.96	8.90	20.4	109.648	Horizontal	Pass
		1900	14.55	4.00	8.90	19.04	80.168	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	14.61	3.76	8.90	21.27	133.968	Vertical	Pass
		1880	15.84	3.91	8.90	19.79	95.280	Vertical	Pass
		1909.3	15.13	3.93	8.90	20.52	112.720	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	13.77	3.77	8.90	19.57	90.573	Vertical	Pass
		1880	14.83	3.91	8.90	21.07	127.938	Vertical	Pass
		1908.5	14.56	3.94	8.90	20.17	103.992	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	13.76	3.77	8.90	21.97	157.398	Vertical	Pass
		1880	15.05	3.91	8.90	21.84	152.757	Vertical	Pass
		1907.5	15.69	3.94	8.90	20.58	114.288	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	13.98	3.79	8.90	21.27	133.968	Vertical	Pass
		1880	15.57	3.95	8.90	20.5	112.202	Vertical	Pass
		1905	15.12	3.97	8.90	20.42	110.154	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.85	3.79	8.90	20.08	101.859	Vertical	Pass
		1880	14.87	3.95	8.90	22.11	162.555	Vertical	Pass
		1902.5	13.66	3.97	8.90	20.91	123.310	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1860	14.29	3.81	8.90	21.82	152.055	Vertical	Pass
		1880	14.90	3.96	8.90	22.55	179.887	Vertical	Pass
		1900	13.78	4.00	8.90	20.45	110.917	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
1.4MHz Band QPSK	6/0	1710.7	13.67	3.12	8.90	19.45	88.105	Horizontal	Pass
		1732.5	13.07	3.27	8.90	18.7	74.131	Horizontal	Pass
		1754.3	15.55	3.29	8.90	21.16	130.617	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	13.85	3.13	8.90	19.62	91.622	Horizontal	Pass
		1732.5	14.29	3.27	8.90	19.92	98.175	Horizontal	Pass
		1753.5	14.35	3.30	8.90	19.95	98.855	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	15.41	3.13	8.90	21.18	131.220	Horizontal	Pass
		1732.5	15.44	3.27	8.90	21.07	127.938	Horizontal	Pass
		1752.5	14.26	3.30	8.90	19.86	96.828	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	14.46	3.15	8.90	20.21	104.954	Horizontal	Pass
		1732.5	14.88	3.31	8.90	20.47	111.429	Horizontal	Pass
		1750	14.84	3.33	8.90	20.41	109.901	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	14.44	3.15	8.90	20.19	104.472	Horizontal	Pass
		1732.5	14.55	3.31	8.90	20.14	103.276	Horizontal	Pass
		1747.5	15.85	3.33	8.90	21.42	138.676	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	13.39	3.17	8.90	19.12	81.658	Horizontal	Pass
		1732.5	13.48	3.32	8.90	19.06	80.538	Horizontal	Pass
		1745	13.77	3.36	8.90	19.31	85.310	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	14.00	3.12	8.90	19.78	95.060	Vertical	Pass
		1732.5	14.48	3.27	8.90	20.11	102.565	Vertical	Pass
		1754.3	15.28	3.29	8.90	20.89	122.744	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	14.61	3.13	8.90	20.38	109.144	Vertical	Pass
		1732.5	15.65	3.27	8.90	21.28	134.276	Vertical	Pass
		1753.5	15.47	3.30	8.90	21.07	127.938	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	14.46	3.13	8.90	20.23	105.439	Vertical	Pass
		1732.5	15.05	3.27	8.90	20.68	116.950	Vertical	Pass
		1752.5	13.69	3.30	8.90	19.29	84.918	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	12.46	3.15	8.90	18.21	66.222	Vertical	Pass
		1732.5	15.66	3.31	8.90	21.25	133.352	Vertical	Pass
		1750	13.99	3.33	8.90	19.56	90.365	Vertical	Pass
15.0MHz Band QPSK	75/0	1717.5	15.56	3.15	8.90	21.31	135.207	Vertical	Pass
		1732.5	15.55	3.31	8.90	21.14	130.017	Vertical	Pass
		1747.5	14.31	3.33	8.90	19.88	97.275	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	16.22	3.17	8.90	21.95	156.675	Vertical	Pass
		1732.5	16.39	3.32	8.90	21.97	157.398	Vertical	Pass
		1745	13.62	3.36	8.90	19.16	82.414	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
			(dBm)			(dBm)	(mW)		
1.4MHz Band 16 QAM	6/0	1710.7	15.22	3.12	8.90	21	125.893	Horizontal	Pass
		1732.5	15.91	3.27	8.90	21.54	142.561	Horizontal	Pass
		1754.3	15.23	3.29	8.90	20.84	121.339	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	13.78	3.13	8.90	19.55	90.157	Horizontal	Pass
		1732.5	14.99	3.27	8.90	20.62	115.345	Horizontal	Pass
		1753.5	15.64	3.30	8.90	21.24	133.045	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	13.62	3.13	8.90	19.39	86.896	Horizontal	Pass
		1732.5	13.07	3.27	8.90	18.7	74.131	Horizontal	Pass
		1752.5	14.85	3.30	8.90	20.45	110.917	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	15.58	3.15	8.90	21.33	135.831	Horizontal	Pass
		1732.5	14.19	3.31	8.90	19.78	95.060	Horizontal	Pass
		1750	13.29	3.33	8.90	18.86	76.913	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	14.87	3.15	8.90	20.62	115.345	Horizontal	Pass
		1732.5	15.26	3.31	8.90	20.85	121.619	Horizontal	Pass
		1747.5	14.53	3.33	8.90	20.1	102.329	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	14.11	3.17	8.90	19.84	96.383	Horizontal	Pass
		1732.5	15.08	3.32	8.90	20.66	116.413	Horizontal	Pass
		1745	15.62	3.36	8.90	21.16	130.617	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	15.34	3.12	8.90	21.12	129.420	Vertical	Pass
		1732.5	15.11	3.27	8.90	20.74	118.577	Vertical	Pass
		1754.3	15.35	3.29	8.90	20.96	124.738	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	15.16	3.13	8.90	20.93	123.880	Vertical	Pass
		1732.5	15.03	3.27	8.90	20.66	116.413	Vertical	Pass
		1753.5	14.49	3.30	8.90	20.09	102.094	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	15.92	3.13	8.90	21.69	147.571	Vertical	Pass
		1732.5	15.44	3.27	8.90	21.07	127.938	Vertical	Pass
		1752.5	14.15	3.30	8.90	19.75	94.406	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	14.37	3.15	8.90	20.12	102.802	Vertical	Pass
		1732.5	15.26	3.31	8.90	20.85	121.619	Vertical	Pass
		1750	15.66	3.33	8.90	21.23	132.739	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1717.5	13.83	3.15	8.90	19.58	90.782	Vertical	Pass
		1732.5	14.60	3.31	8.90	20.19	104.472	Vertical	Pass
		1747.5	16.17	3.33	8.90	21.74	149.279	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1720	14.79	3.17	8.90	20.52	112.720	Vertical	Pass
		1732.5	16.30	3.32	8.90	21.88	154.170	Vertical	Pass
		1745	15.84	3.36	8.90	21.38	137.404	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	6/0	824.7	19.45	2.01	5.30	2.15	20.59	114.551	Horizontal	Pass
		836.5	20.26	2.01	5.30	2.15	21.4	138.038	Horizontal	Pass
		848.3	19.13	2.02	5.70	2.15	20.66	116.413	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	20.62	2.01	5.30	2.15	21.76	149.968	Horizontal	Pass
		836.5	20.54	2.01	5.30	2.15	21.68	147.231	Horizontal	Pass
		847.5	19.70	2.02	5.70	2.15	21.23	132.739	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	19.19	2.01	5.30	2.15	20.33	107.895	Horizontal	Pass
		836.5	20.28	2.01	5.30	2.15	21.42	138.676	Horizontal	Pass
		846.5	20.32	2.02	5.70	2.15	21.85	153.109	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	19.43	2.01	5.30	2.15	20.57	114.025	Horizontal	Pass
		836.5	20.58	2.01	5.30	2.15	21.72	148.594	Horizontal	Pass
		844	19.03	2.02	5.70	2.15	20.56	113.763	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	21.31	2.01	5.30	2.15	22.45	175.792	Vertical	Pass
		836.5	21.02	2.01	5.30	2.15	22.16	164.437	Vertical	Pass
		848.3	19.83	2.02	5.70	2.15	21.36	136.773	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	20.63	2.01	5.30	2.15	21.77	150.314	Vertical	Pass
		836.5	20.21	2.01	5.30	2.15	21.35	136.458	Vertical	Pass
		847.5	18.38	2.02	5.70	2.15	19.91	97.949	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	18.41	2.01	5.30	2.15	19.55	90.157	Vertical	Pass
		836.5	20.52	2.01	5.30	2.15	21.66	146.555	Vertical	Pass
		846.5	19.36	2.02	5.70	2.15	20.89	122.744	Vertical	Pass
10.0MHz Band QPSK	50/0	829	18.32	2.01	5.30	2.15	19.46	88.308	Vertical	Pass
		836.5	21.80	2.01	5.30	2.15	22.94	196.789	Vertical	Pass
		844	19.05	2.02	5.70	2.15	20.58	114.288	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	6/0	824.7	19.29	2.01	5.30	2.15	20.43	110.408	Horizontal	Pass
		836.5	19.88	2.01	5.30	2.15	21.02	126.474	Horizontal	Pass
		848.3	18.76	2.02	5.70	2.15	20.29	106.905	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	19.29	2.01	5.30	2.15	20.43	110.408	Horizontal	Pass
		836.5	18.29	2.01	5.30	2.15	19.43	87.700	Horizontal	Pass
		847.5	18.93	2.02	5.70	2.15	20.46	111.173	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	19.33	2.01	5.30	2.15	20.47	111.429	Horizontal	Pass
		836.5	18.20	2.01	5.30	2.15	19.34	85.901	Horizontal	Pass
		846.5	18.86	2.02	5.70	2.15	20.39	109.396	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	18.33	2.01	5.30	2.15	19.47	88.512	Horizontal	Pass
		836.5	18.32	2.01	5.30	2.15	19.46	88.308	Horizontal	Pass
		844	18.45	2.02	5.70	2.15	19.98	99.541	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	20.06	2.01	5.30	2.15	21.20	131.826	Vertical	Pass
		836.5	19.61	2.01	5.30	2.15	20.75	118.850	Vertical	Pass
		848.3	19.21	2.02	5.70	2.15	20.74	118.577	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	17.59	2.01	5.30	2.15	18.73	74.645	Vertical	Pass
		836.5	19.14	2.01	5.30	2.15	20.28	106.660	Vertical	Pass
		847.5	17.93	2.02	5.70	2.15	19.46	88.308	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	18.79	2.01	5.30	2.15	19.93	98.401	Vertical	Pass
		836.5	16.72	2.01	5.30	2.15	17.86	61.094	Vertical	Pass
		846.5	18.87	2.02	5.70	2.15	20.40	109.648	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	18.03	2.01	5.30	2.15	19.17	82.604	Vertical	Pass
		836.5	20.66	2.01	5.30	2.15	21.80	151.356	Vertical	Pass
		844	20.23	2.02	5.70	2.15	21.76	149.968	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
			(dBm)			(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2502.5	16.78	4.54	9.00	21.24	133.045	Horizontal	Pass
		2535	16.86	4.69	9.00	21.17	130.918	Horizontal	Pass
		2567.5	14.37	4.71	9.00	18.66	73.451	Horizontal	Pass
10.0MHz Band QPSK	50/0	2505	14.34	4.55	9.00	18.79	75.683	Horizontal	Pass
		2535	16.61	4.69	9.00	20.92	123.595	Horizontal	Pass
		2565	16.64	4.72	9.00	20.92	123.595	Horizontal	Pass
15.0MHz Band QPSK	75/0	2507.5	17.39	4.55	9.00	21.84	152.757	Horizontal	Pass
		2535	16.40	4.69	9.00	20.71	117.761	Horizontal	Pass
		2562.5	16.27	4.72	9.00	20.55	113.501	Horizontal	Pass
20.0MHz Band QPSK	100/0	2510	14.94	4.57	9.00	19.37	86.497	Horizontal	Pass
		2535	17.13	4.73	9.00	21.4	138.038	Horizontal	Pass
		2560	16.23	4.75	9.00	20.48	111.686	Horizontal	Pass
5.0MHz Band QPSK	25/0	2502.5	16.19	4.54	9.00	20.65	116.145	Vertical	Pass
		2535	17.59	4.69	9.00	21.9	154.882	Vertical	Pass
		2567.5	17.64	4.71	9.00	21.93	155.955	Vertical	Pass
10.0MHz Band QPSK	50/0	2505	15.46	4.55	9.00	19.91	97.949	Vertical	Pass
		2535	17.26	4.69	9.00	21.57	143.549	Vertical	Pass
		2565	17.19	4.72	9.00	21.47	140.281	Vertical	Pass
15.0MHz Band QPSK	75/0	2507.5	16.79	4.55	9.00	21.24	133.045	Vertical	Pass
		2535	17.91	4.69	9.00	22.22	166.725	Vertical	Pass
		2562.5	16.30	4.72	9.00	20.58	114.288	Vertical	Pass
20.0MHz Band QPSK	100/0	2510	17.67	4.57	9.00	22.1	162.181	Vertical	Pass
		2535	17.55	4.73	9.00	21.82	152.055	Vertical	Pass
		2560	18.07	4.75	9.00	22.32	170.608	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	25/0	2502.5	15.05	4.54	9.00	19.51	89.331	Horizontal	Pass
		2535	16.20	4.69	9.00	20.51	112.460	Horizontal	Pass
		2567.5	15.91	4.71	9.00	20.2	104.713	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2505	16.26	4.55	9.00	20.71	117.761	Horizontal	Pass
		2535	16.27	4.69	9.00	20.58	114.288	Horizontal	Pass
		2565	16.73	4.72	9.00	21.01	126.183	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2507.5	16.92	4.55	9.00	21.37	137.088	Horizontal	Pass
		2535	17.04	4.69	9.00	21.35	136.458	Horizontal	Pass
		2562.5	15.64	4.72	9.00	19.92	98.175	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2510	16.15	4.57	9.00	20.58	114.288	Horizontal	Pass
		2535	14.52	4.73	9.00	18.79	75.683	Horizontal	Pass
		2560	16.17	4.75	9.00	20.42	110.154	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2502.5	16.38	4.54	9.00	20.84	121.339	Vertical	Pass
		2535	17.16	4.69	9.00	21.47	140.281	Vertical	Pass
		2567.5	17.09	4.71	9.00	21.38	137.404	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2505	16.09	4.55	9.00	20.54	113.240	Vertical	Pass
		2535	16.81	4.69	9.00	21.12	129.420	Vertical	Pass
		2565	15.74	4.72	9.00	20.02	100.462	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2507.5	16.54	4.55	9.00	20.99	125.603	Vertical	Pass
		2535	16.15	4.69	9.00	20.46	111.173	Vertical	Pass
		2562.5	15.13	4.72	9.00	19.41	87.297	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2510	16.93	4.57	9.00	21.36	136.773	Vertical	Pass
		2535	16.06	4.73	9.00	20.33	107.895	Vertical	Pass
		2560	17.24	4.75	9.00	21.49	140.929	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Factor (dB)+ SG Level (dBm)- Cable Loss(dBm)

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	699.7	19.12	1.91	5.60	2.15	20.66	116.413	Horizontal	Pass
		707.5	19.69	1.91	5.70	2.15	21.33	135.831	Horizontal	Pass
		715.3	17.50	1.93	5.80	2.15	19.22	83.560	Horizontal	Pass
3.0MHz Band QPSK	15/0	700.5	17.86	1.91	5.60	2.15	19.40	87.096	Horizontal	Pass
		707.5	18.61	1.91	5.70	2.15	20.25	105.925	Horizontal	Pass
		714.5	18.71	1.93	5.80	2.15	20.43	110.408	Horizontal	Pass
5.0MHz Band QPSK	25/0	701.5	18.89	1.91	5.60	2.15	20.43	110.408	Horizontal	Pass
		707.5	19.36	1.91	5.70	2.15	21.00	125.893	Horizontal	Pass
		713.5	19.25	1.92	5.80	2.15	20.98	125.314	Horizontal	Pass
10.0Hz Band QPSK	50/0	704	18.75	1.91	5.60	2.15	20.29	106.905	Horizontal	Pass
		707.5	17.85	1.91	5.70	2.15	19.49	88.920	Horizontal	Pass
		711	17.40	1.92	5.80	2.15	19.13	81.846	Horizontal	Pass
1.4MHz Band QPSK	6/0	699.7	17.84	1.91	5.60	2.15	19.38	86.696	Vertical	Pass
		707.5	18.68	1.91	5.70	2.15	20.32	107.647	Vertical	Pass
		715.3	17.45	1.93	5.80	2.15	19.17	82.604	Vertical	Pass
3.0MHz Band QPSK	15/0	700.5	18.72	1.91	5.60	2.15	20.26	106.170	Vertical	Pass
		707.5	17.56	1.91	5.70	2.15	19.20	83.176	Vertical	Pass
		714.5	19.31	1.93	5.80	2.15	21.03	126.765	Vertical	Pass
5.0MHz Band QPSK	25/0	701.5	17.97	1.91	5.60	2.15	19.51	89.331	Vertical	Pass
		707.5	18.61	1.91	5.70	2.15	20.25	105.925	Vertical	Pass
		713.5	18.63	1.92	5.80	2.15	20.36	108.643	Vertical	Pass
10.0Hz Band QPSK	50/0	704	17.78	1.91	5.60	2.15	19.32	85.507	Vertical	Pass
		707.5	18.00	1.91	5.70	2.15	19.64	92.045	Vertical	Pass
		711	19.75	1.92	5.80	2.15	21.48	140.605	Vertical	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	699.7	18.61	1.91	5.60	2.15	20.15	103.514	Horizontal	Pass
		707.5	18.92	1.91	5.70	2.15	20.56	113.763	Horizontal	Pass
		715.3	18.68	1.93	5.80	2.15	20.40	109.648	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	700.5	19.60	1.91	5.60	2.15	21.14	130.017	Horizontal	Pass
		707.5	17.26	1.91	5.70	2.15	18.90	77.625	Horizontal	Pass
		714.5	17.78	1.93	5.80	2.15	19.50	89.125	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	701.5	17.69	1.91	5.60	2.15	19.23	83.753	Horizontal	Pass
		707.5	19.87	1.91	5.70	2.15	21.51	141.579	Horizontal	Pass
		713.5	19.56	1.92	5.80	2.15	21.29	134.586	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	704	19.09	1.91	5.60	2.15	20.63	115.611	Horizontal	Pass
		707.5	17.70	1.91	5.70	2.15	19.34	85.901	Horizontal	Pass
		711	19.32	1.92	5.80	2.15	21.05	127.350	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	699.7	17.04	1.91	5.60	2.15	18.58	72.111	Vertical	Pass
		707.5	19.29	1.91	5.70	2.15	20.93	123.880	Vertical	Pass
		715.3	18.74	1.93	5.80	2.15	20.46	111.173	Vertical	Pass
3.0MHz Band 16 QAM	15/0	700.5	19.92	1.91	5.60	2.15	21.46	139.959	Vertical	Pass
		707.5	19.04	1.91	5.70	2.15	20.68	116.950	Vertical	Pass
		714.5	20.00	1.93	5.80	2.15	21.72	148.594	Vertical	Pass
5.0MHz Band 16 QAM	25/0	701.5	18.70	1.91	5.60	2.15	20.24	105.682	Vertical	Pass
		707.5	19.84	1.91	5.70	2.15	21.48	140.605	Vertical	Pass
		713.5	17.76	1.92	5.80	2.15	19.49	88.920	Vertical	Pass
10.0MHz Band 16 QAM	50/0	704	19.40	1.91	5.60	2.15	20.94	124.165	Vertical	Pass
		707.5	20.19	1.91	5.70	2.15	21.83	152.405	Vertical	Pass
		711	18.96	1.92	5.80	2.15	20.69	117.220	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	779.5	16.66	1.91	5.80	2.15	18.40	69.125	Horizontal	Pass
		782	18.46	1.91	5.60	2.15	20.00	100.000	Horizontal	Pass
		784.5	18.43	1.92	5.70	2.15	20.06	101.437	Horizontal	Pass
10.0MHz Band QPSK	50/0	782	18	1.91	5.8	2.15	19.74	94.189	Horizontal	Pass
5.0MHz Band QPSK	25/0	779.5	17.37	1.91	5.80	2.15	19.11	81.495	Vertical	Pass
		782	18.15	1.91	5.60	2.15	19.69	93.111	Vertical	Pass
		784.5	17.69	1.92	5.70	2.15	19.32	85.532	Vertical	Pass
10.0MHz Band 16 QAM	50/0	782	19.18	1.91	5.8	2.15	20.92	123.595	Vertical	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	779.5	17.56	1.91	5.80	2.15	19.30	85.114	779.5	Pass
		782	18.10	1.91	5.60	2.15	19.64	92.045	782	Pass
		784.5	17.27	1.92	5.70	2.15	18.90	77.625	784.5	Pass
10.0MHz Band 16 QAM	50/0	782	18.07	1.91	5.8	2.15	19.81	95.719	782	Pass
5.0MHz Band 16 QAM	25/0	779.5	17.45	1.91	5.80	2.15	19.19	82.985	779.5	Pass
		782	18.16	1.91	5.60	2.15	19.70	93.325	782	Pass
		784.5	18.03	1.92	5.70	2.15	19.66	92.470	784.5	Pass
10.0MHz Band 16 QAM	50/0	782	17.47	1.91	5.8	2.15	19.21	83.368	782	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

ERP(dBm)=EIRP-2.15

8.8 LTE BAND 14

Radiated Power (ERP) for Band 14										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	705.5	7.92	1.91	19.21	2.15	23.07	202.768	Horizontal	Pass
		720.5	7.98	1.93	19.34	2.15	23.24	210.863	Horizontal	Pass
		745.5	7.43	1.96	19.52	2.15	22.84	192.309	Horizontal	Pass
10.0MHz Band QPSK	50/0	793.00	7.68	1.92	19.25	2.15	22.86	193.197	Horizontal	Pass
5.0MHz Band QPSK	25/0	790.5	8.20	1.91	19.21	2.15	23.35	216.093	Vertical	Pass
		793	7.86	1.93	19.34	2.15	23.12	205.116	Vertical	Pass
		795.5	7.48	1.96	19.52	2.15	22.89	194.737	Vertical	Pass
10.0MHz Band 16 QAM	50/0	793.00	8.38	1.92	19.25	2.15	23.56	226.986	Vertical	Pass

Radiated Power (ERP) for Band 14										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	705.5	6.81	1.91	19.21	2.15	21.96	157.036	Horizontal	Pass
		720.5	6.77	1.93	19.34	2.15	22.03	159.588	Horizontal	Pass
		745.5	6.40	1.96	19.52	2.15	21.81	151.705	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	793.00	6.85	1.92	19.25	2.15	22.03	159.588	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	790.5	6.41	1.91	19.21	2.15	21.56	143.092	Vertical	Pass
		793	6.87	1.93	19.34	2.15	22.13	163.153	Vertical	Pass
		795.5	6.18	1.96	19.52	2.15	21.59	144.089	Vertical	Pass
10.0MHz Band 16 QAM	50/0	793.00	7.28	1.92	19.25	2.15	22.46	176.198	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

ERP(dBm)=EIRP-2.15

8.9 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	706.5	18.71	1.91	5.60	2.15	20.25	105.925	Vertical	Pass
		710	20.17	1.91	5.70	2.15	21.81	151.705	Vertical	Pass
		713.5	20.41	1.92	5.80	2.15	22.14	163.682	Vertical	Pass
10.0MHz Band QPSK	50/0	709	18.38	1.91	5.60	2.15	19.92	98.175	Vertical	Pass
		710	19.46	1.91	5.70	2.15	21.10	128.825	Vertical	Pass
		711	17.18	1.92	5.80	2.15	18.91	77.804	Vertical	Pass
5.0MHz Band QPSK	25/0	706.5	18.25	1.91	5.60	2.15	19.79	95.280	Horizontal	Pass
		710	17.90	1.91	5.70	2.15	19.54	89.950	Horizontal	Pass
		713.5	18.87	1.92	5.80	2.15	20.60	114.815	Horizontal	Pass
10.0MHz Band QPSK	50/0	709	20.04	1.91	5.60	2.15	21.58	143.880	Horizontal	Pass
		710	20.65	1.91	5.70	2.15	22.29	169.434	Horizontal	Pass
		711	19.60	1.92	5.80	2.15	21.33	135.831	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	706.5	16.81	1.91	5.6	2.15	21.61	144.877	Vertical	Pass
		710	16.39	1.91	5.7	2.15	21.01	126.183	Vertical	Pass
		713.5	17.43	1.92	5.8	2.15	21.62	145.211	Vertical	Pass
10.0MHz Band 16 QAM	50/0	709	15.91	1.91	5.6	2.15	21.29	134.586	Vertical	Pass
		710	15.84	1.91	5.7	2.15	21.96	157.036	Vertical	Pass
		711	15.59	1.92	5.8	2.15	21.83	152.405	Vertical	Pass
5.0MHz Band 16 QAM	25/0	706.5	17.52	1.91	5.6	2.15	21.61	144.877	Horizontal	Pass
		710	17.46	1.91	5.7	2.15	21.71	148.252	Horizontal	Pass
		713.5	16.25	1.92	5.8	2.15	21.34	136.144	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	709	17.30	1.91	5.6	2.15	21.73	148.936	Horizontal	Pass
		710	17.57	1.91	5.7	2.15	22.23	167.109	Horizontal	Pass
		711	16.65	1.92	5.8	2.15	22.43	174.985	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Factor (dB)+ SG Level (dBm)- Cable Loss(dBm)

8.10 LTE BAND 25

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1850.7	17.87	3.12	8.90	23.65	231.739	Horizontal	Pass
		1882.5	17.04	3.27	8.90	22.67	184.927	Horizontal	Pass
		1914.3	17.30	3.29	8.90	22.91	195.434	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	17.53	3.13	8.90	23.3	213.796	Horizontal	Pass
		1882.5	17.74	3.27	8.90	23.37	217.270	Horizontal	Pass
		1913.5	16.80	3.30	8.90	22.4	173.780	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	16.62	3.13	8.90	22.39	173.380	Horizontal	Pass
		1882.5	17.15	3.27	8.90	22.78	189.671	Horizontal	Pass
		1912.5	17.10	3.30	8.90	22.7	186.209	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	16.95	3.15	8.90	22.7	186.209	Horizontal	Pass
		1882.5	17.82	3.31	8.90	23.41	219.280	Horizontal	Pass
		1910	16.69	3.33	8.90	22.26	168.267	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	17.83	3.15	8.90	23.58	228.034	Horizontal	Pass
		1882.5	17.57	3.31	8.90	23.16	207.014	Horizontal	Pass
		1907.5	17.74	3.33	8.90	23.31	214.289	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	16.09	3.17	8.90	21.82	152.055	Horizontal	Pass
		1882.5	17.78	3.32	8.90	23.36	216.770	Horizontal	Pass
		1905	17.05	3.36	8.90	22.59	181.552	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	17.97	3.12	8.90	23.75	237.137	Vertical	Pass
		1882.5	17.16	3.27	8.90	22.79	190.108	Vertical	Pass
		1914.3	16.99	3.29	8.90	22.6	181.970	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	17.91	3.13	8.90	23.68	233.346	Vertical	Pass
		1882.5	17.38	3.27	8.90	23.01	199.986	Vertical	Pass
		1913.5	17.52	3.30	8.90	23.12	205.116	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	17.88	3.13	8.90	23.65	231.739	Vertical	Pass
		1882.5	17.35	3.27	8.90	22.98	198.609	Vertical	Pass
		1912.5	17.11	3.30	8.90	22.71	186.638	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	16.94	3.15	8.90	22.69	185.780	Vertical	Pass
		1882.5	17.98	3.31	8.90	23.57	227.510	Vertical	Pass
		1910	16.60	3.33	8.90	22.17	164.816	Vertical	Pass
15.0MHz Band QPSK	75/0	1857.5	16.89	3.15	8.90	22.64	183.654	Vertical	Pass
		1882.5	17.79	3.31	8.90	23.38	217.771	Vertical	Pass
		1907.5	16.70	3.33	8.90	22.27	168.655	Vertical	Pass
20.0MHz Band QPSK	100/0	1860	15.67	3.17	8.90	21.4	138.038	Vertical	Pass
		1882.5	17.78	3.32	8.90	23.36	216.770	Vertical	Pass
		1905	18.33	3.36	8.90	23.87	243.781	Vertical	Pass

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1850.7	17.21	3.12	8.90	22.99	199.067	Horizontal	Pass
		1882.5	16.79	3.27	8.90	22.42	174.582	Horizontal	Pass
		1914.3	16.97	3.29	8.90	22.58	181.134	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	16.69	3.13	8.90	22.46	176.198	Horizontal	Pass
		1882.5	17.00	3.27	8.90	22.63	183.231	Horizontal	Pass
		1913.5	17.27	3.30	8.90	22.87	193.642	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	16.98	3.13	8.90	22.75	188.365	Horizontal	Pass
		1882.5	17.43	3.27	8.90	23.06	202.302	Horizontal	Pass
		1912.5	16.98	3.30	8.90	22.58	181.134	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	16.84	3.15	8.90	22.59	181.552	Horizontal	Pass
		1882.5	17.19	3.31	8.90	22.78	189.671	Horizontal	Pass
		1910	17.04	3.33	8.90	22.61	182.390	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	17.25	3.15	8.90	23	199.526	Horizontal	Pass
		1882.5	16.77	3.31	8.90	22.36	172.187	Horizontal	Pass
		1907.5	16.73	3.33	8.90	22.3	169.824	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	17.09	3.17	8.90	22.82	191.426	Horizontal	Pass
		1882.5	17.51	3.32	8.90	23.09	203.704	Horizontal	Pass
		1905	16.36	3.36	8.90	21.9	154.882	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	17.65	3.12	8.90	23.43	220.293	Vertical	Pass
		1882.5	17.19	3.27	8.90	22.82	191.426	Vertical	Pass
		1914.3	16.95	3.29	8.90	22.56	180.302	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	17.00	3.13	8.90	22.77	189.234	Vertical	Pass
		1882.5	17.36	3.27	8.90	22.99	199.067	Vertical	Pass
		1913.5	17.76	3.30	8.90	23.36	216.770	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	17.75	3.13	8.90	23.52	224.905	Vertical	Pass
		1882.5	16.54	3.27	8.90	22.17	164.816	Vertical	Pass
		1912.5	17.30	3.30	8.90	22.9	194.984	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	17.06	3.15	8.90	22.81	190.985	Vertical	Pass
		1882.5	17.71	3.31	8.90	23.3	213.796	Vertical	Pass
		1910	17.73	3.33	8.90	23.3	213.796	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1857.5	16.99	3.15	8.90	22.74	187.932	Vertical	Pass
		1882.5	17.67	3.31	8.90	23.26	211.836	Vertical	Pass
		1907.5	17.21	3.33	8.90	22.78	189.671	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1860	17.95	3.17	8.90	23.68	233.346	Vertical	Pass
		1882.5	17.63	3.32	8.90	23.21	209.411	Vertical	Pass
		1905	16.98	3.36	8.90	22.52	178.649	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.11 LTE BAND 26 A

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
1.4MHz BW QPSK	6/0	814.7	22.43	3.76	5.60	2.15	22.12	162.930	Horizontal	Pass
		819	22.85	3.91	5.70	2.15	22.49	177.419	Horizontal	Pass
		823.3	21.47	3.93	5.80	2.15	21.19	131.522	Horizontal	Pass
3.0MHz BW QPSK	15/0	815.5	22.86	3.77	5.60	2.15	22.54	179.473	Horizontal	Pass
		819	22.98	3.91	5.70	2.15	22.62	182.810	Horizontal	Pass
		822.5	21.89	3.94	5.80	2.15	21.6	144.544	Horizontal	Pass
5.0MHz BW QPSK	25/0	816.5	22.23	3.77	5.60	2.15	21.91	155.239	Horizontal	Pass
		819	22.38	3.91	5.70	2.15	22.02	159.221	Horizontal	Pass
		821.5	22.71	3.94	5.80	2.15	22.42	174.582	Horizontal	Pass
10.0MHz BW QPSK	50/0	819	22.57	3.91	5.70	2.15	22.21	166.341	Horizontal	Pass
1.4MHz BW QPSK	6/0	814.7	21.93	3.79	5.60	2.15	21.59	144.212	Vertical	Pass
		819	23.33	3.95	5.70	2.15	22.93	196.336	Vertical	Pass
		823.3	22.34	3.97	5.80	2.15	22.02	159.221	Vertical	Pass
3.0MHz BW QPSK	15/0	815.5	21.87	3.77	5.60	2.15	21.55	142.889	Vertical	Pass
		819	22.39	3.91	5.70	2.15	22.03	159.588	Vertical	Pass
		822.5	21.55	3.94	5.80	2.15	21.26	133.660	Vertical	Pass
5.0MHz BW QPSK	25/0	816.5	22.40	3.77	5.60	2.15	22.08	161.436	Vertical	Pass
		819	22.69	3.91	5.70	2.15	22.33	171.002	Vertical	Pass
		821.5	22.71	3.94	5.80	2.15	22.42	174.582	Vertical	Pass
10.0MHz BW QPSK	50/0	819	23.32	3.91	5.70	2.15	22.96	197.697	Vertical	Pass

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
1.4MHz BW 16 QAM	6/0	814.7	21.79	3.76	5.60	2.15	21.48	140.605	Horizontal	Pass
		819	22.39	3.91	5.70	2.15	22.03	159.588	Horizontal	Pass
		823.3	20.97	3.93	5.80	2.15	20.69	117.220	Horizontal	Pass
3.0MHz BW 16 QAM	15/0	815.5	21.88	3.77	5.60	2.15	21.56	143.219	Horizontal	Pass
		819	22.30	3.91	5.70	2.15	21.94	156.315	Horizontal	Pass
		822.5	21.19	3.94	5.80	2.15	20.9	123.027	Horizontal	Pass
5.0MHz BW 16 QAM	25/0	816.5	21.53	3.77	5.60	2.15	21.21	132.130	Horizontal	Pass
		819	21.69	3.91	5.70	2.15	21.33	135.831	Horizontal	Pass
		821.5	21.92	3.94	5.80	2.15	21.63	145.546	Horizontal	Pass
10.0MHz BW 16 QAM	50/0	819	22.04	3.91	5.70	2.15	21.68	147.231	Horizontal	Pass
1.4MHz BW 16 QAM	6/0	814.7	21.13	3.79	5.60	2.15	20.79	119.950	Vertical	Pass
		819	22.51	3.95	5.70	2.15	22.11	162.555	Vertical	Pass
		823.3	21.28	3.97	5.80	2.15	20.96	124.738	Vertical	Pass
3.0MHz BW 16 QAM	15/0	815.5	21.00	3.77	5.60	2.15	20.68	116.950	Vertical	Pass
		819	21.88	3.91	5.70	2.15	21.52	141.906	Vertical	Pass
		822.5	20.54	3.94	5.80	2.15	20.25	105.925	Vertical	Pass
5.0MHz BW 16 QAM	25/0	816.5	21.84	3.77	5.60	2.15	21.52	141.906	Vertical	Pass
		819	21.97	3.91	5.70	2.15	21.61	144.877	Vertical	Pass
		821.5	22.07	3.94	5.80	2.15	21.78	150.661	Vertical	Pass
10.0MHz BW 16 QAM	50/0	819	22.72	3.91	5.70	2.15	22.36	172.187	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

ERP(dBm)=EIRP-2.15

8.12 LTE BAND 26B

Radiated Power (ERP) for for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	6/0	824.7	21.36	2.01	5.30	2.15	22.5	177.828	Horizontal	Pass
		836.5	19.72	2.01	5.30	2.15	20.86	121.899	Horizontal	Pass
		848.3	20.37	2.02	5.70	2.15	21.9	154.882	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	19.71	2.01	5.30	2.15	20.85	121.619	Horizontal	Pass
		836.5	20.27	2.01	5.30	2.15	21.41	138.357	Horizontal	Pass
		847.5	19.11	2.02	5.70	2.15	20.64	115.878	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	18.71	2.01	5.30	2.15	19.85	96.605	Horizontal	Pass
		836.5	18.86	2.01	5.30	2.15	20	100.000	Horizontal	Pass
		846.5	19.96	2.02	5.70	2.15	21.49	140.929	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	18.94	2.01	5.30	2.15	20.08	101.859	Horizontal	Pass
		836.5	19.08	2.01	5.30	2.15	20.22	105.196	Horizontal	Pass
		844	18.90	2.02	5.70	2.15	20.43	110.408	Horizontal	Pass
15.0MHz Band QPSK	75/0	831.5	20.92	2.01	5.30	2.15	22.06	160.694	Horizontal	Pass
		836.5	19.99	2.01	5.30	2.15	21.13	129.718	Horizontal	Pass
		841.5	19.65	2.02	5.70	2.15	21.18	131.220	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	20.52	2.01	5.30	2.15	21.66	146.555	Vertical	Pass
		836.5	20.18	2.01	5.30	2.15	21.32	135.519	Vertical	Pass
		848.3	20.39	2.02	5.70	2.15	21.92	155.597	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	19.20	2.01	5.30	2.15	20.34	108.143	Vertical	Pass
		836.5	20.31	2.01	5.30	2.15	21.45	139.637	Vertical	Pass
		847.5	19.64	2.02	5.70	2.15	21.17	130.918	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	19.59	2.01	5.30	2.15	20.73	118.304	Vertical	Pass
		836.5	20.80	2.01	5.30	2.15	21.94	156.315	Vertical	Pass
		846.5	19.49	2.02	5.70	2.15	21.02	126.474	Vertical	Pass
10.0MHz Band QPSK	50/0	829	20.34	2.01	5.30	2.15	21.48	140.605	Vertical	Pass
		836.5	20.16	2.01	5.30	2.15	21.3	134.896	Vertical	Pass
		844	20.90	2.02	5.70	2.15	22.43	174.985	Vertical	Pass
15.0MHz Band QPSK	75/0	831.5	20.32	2.01	5.30	2.15	21.46	139.959	Vertical	Pass
		836.5	21.63	2.01	5.30	2.15	22.77	189.234	Vertical	Pass
		841.5	19.91	2.02	5.70	2.15	21.44	139.316	Vertical	Pass

Radiated Power (ERP) for for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR Average (dBm)	Max. EPR Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	824.7	19.26	2.01	5.30	2.15	20.4	109.648	Horizontal	Pass
		836.5	18.24	2.01	5.30	2.15	19.38	86.696	Horizontal	Pass
		848.3	17.58	2.02	5.70	2.15	19.11	81.470	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	17.00	2.01	5.30	2.15	18.14	65.163	Horizontal	Pass
		836.5	18.76	2.01	5.30	2.15	19.9	97.724	Horizontal	Pass
		847.5	18.19	2.02	5.70	2.15	19.72	93.756	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	17.57	2.01	5.30	2.15	18.71	74.302	Horizontal	Pass
		836.5	17.84	2.01	5.30	2.15	18.98	79.068	Horizontal	Pass
		846.5	16.89	2.02	5.70	2.15	18.42	69.502	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	17.36	2.01	5.30	2.15	18.5	70.795	Horizontal	Pass
		836.5	19.19	2.01	5.30	2.15	20.33	107.895	Horizontal	Pass
		844	17.92	2.02	5.70	2.15	19.45	88.105	Horizontal	Pass
15.0MHz Band QPSK	75/0	831.5	17.87	2.01	5.30	2.15	19.01	79.616	Horizontal	Pass
		836.5	18.00	2.01	5.30	2.15	19.14	82.035	Horizontal	Pass
		841.5	18.46	2.02	5.70	2.15	19.99	99.770	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	18.07	2.01	5.30	2.15	19.21	83.368	Vertical	Pass
		836.5	18.99	2.01	5.30	2.15	20.13	103.039	Vertical	Pass
		848.3	18.37	2.02	5.70	2.15	19.9	97.724	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	16.93	2.01	5.30	2.15	18.07	64.121	Vertical	Pass
		836.5	16.99	2.01	5.30	2.15	18.13	65.013	Vertical	Pass
		847.5	17.96	2.02	5.70	2.15	19.49	88.920	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	18.41	2.01	5.30	2.15	19.55	90.157	Vertical	Pass
		836.5	17.75	2.01	5.30	2.15	18.89	77.446	Vertical	Pass
		846.5	19.78	2.02	5.70	2.15	21.31	135.207	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	20.21	2.01	5.30	2.15	21.35	136.458	Vertical	Pass
		836.5	19.10	2.01	5.30	2.15	20.24	105.682	Vertical	Pass
		844	17.72	2.02	5.70	2.15	19.25	84.140	Vertical	Pass
15.0MHz Band QPSK	75/0	831.5	18.51	2.01	5.30	2.15	19.65	92.257	Vertical	Pass
		836.5	18.97	2.01	5.30	2.15	20.11	102.565	Vertical	Pass
		841.5	20.25	2.02	5.70	2.15	21.78	150.661	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

ERP(dBm)=EIRP-2.15

8.13 LTE BAND 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average (dBm)	Average (mW)		
5.0MHz Band QPSK	25/0	2572.5	17.12	4.54	9.00	21.58	143.880	Horizontal	Pass
		2595	17.90	4.69	9.00	22.21	166.341	Horizontal	Pass
		2617.5	15.38	4.71	9.00	19.67	92.683	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	16.93	4.55	9.00	21.38	137.404	Horizontal	Pass
		2595	17.20	4.69	9.00	21.51	141.579	Horizontal	Pass
		2615	18.70	4.72	9.00	22.98	198.609	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	18.12	4.55	9.00	22.57	180.717	Horizontal	Pass
		2595	17.34	4.69	9.00	21.65	146.218	Horizontal	Pass
		2612.5	16.77	4.72	9.00	21.05	127.350	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	15.83	4.57	9.00	20.26	106.170	Horizontal	Pass
		2595	17.53	4.73	9.00	21.8	151.356	Horizontal	Pass
		2610	16.94	4.75	9.00	21.19	131.522	Horizontal	Pass
5.0MHz Band QPSK	25/0	2572.5	17.82	4.54	9.00	22.28	169.044	Vertical	Pass
		2595	17.49	4.69	9.00	21.8	151.356	Vertical	Pass
		2617.5	17.51	4.71	9.00	21.8	151.356	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	16.57	4.55	9.00	21.02	126.474	Vertical	Pass
		2595	18.98	4.69	9.00	23.29	213.304	Vertical	Pass
		2615	17.79	4.72	9.00	22.07	161.065	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	17.41	4.55	9.00	21.86	153.462	Vertical	Pass
		2595	17.53	4.69	9.00	21.84	152.757	Vertical	Pass
		2612.5	18.62	4.72	9.00	22.9	194.984	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	17.52	4.57	9.00	21.95	156.675	Vertical	Pass
		2595	17.65	4.73	9.00	21.92	155.597	Vertical	Pass
		2610	19.31	4.75	9.00	23.56	226.986	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	25/0	2572.5	16.36	4.54	9.00	20.82	120.781	Horizontal	Pass
		2595	15.62	4.69	9.00	19.93	98.401	Horizontal	Pass
		2617.5	17.27	4.71	9.00	21.56	143.219	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	16.01	4.55	9.00	20.46	111.173	Horizontal	Pass
		2595	16.32	4.69	9.00	20.63	115.611	Horizontal	Pass
		2615	17.91	4.72	9.00	22.19	165.577	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	17.24	4.55	9.00	21.69	147.571	Horizontal	Pass
		2595	17.12	4.69	9.00	21.43	138.995	Horizontal	Pass
		2612.5	17.47	4.72	9.00	21.75	149.624	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	18.05	4.57	9.00	22.48	177.011	Horizontal	Pass
		2595	16.22	4.73	9.00	20.49	111.944	Horizontal	Pass
		2610	17.23	4.75	9.00	21.48	140.605	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	15.69	4.54	9.00	20.15	103.514	Vertical	Pass
		2595	16.85	4.69	9.00	21.16	130.617	Vertical	Pass
		2617.5	17.69	4.71	9.00	21.98	157.761	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	16.68	4.55	9.00	21.13	129.718	Vertical	Pass
		2595	18.29	4.69	9.00	22.6	181.970	Vertical	Pass
		2615	16.17	4.72	9.00	20.45	110.917	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	18.04	4.55	9.00	22.49	177.419	Vertical	Pass
		2595	17.16	4.69	9.00	21.47	140.281	Vertical	Pass
		2612.5	16.56	4.72	9.00	20.84	121.339	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	17.70	4.57	9.00	22.13	163.305	Vertical	Pass
		2595	17.79	4.73	9.00	22.06	160.694	Vertical	Pass
		2610	18.74	4.75	9.00	22.99	199.067	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Factor (dB)+ SG Level (dBm)- Cable Loss(dBm)

8.14 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2498.5	18.89	4.54	9.00	23.35	216.272	Horizontal	Pass
		2593	18.57	4.69	9.00	22.88	194.089	Horizontal	Pass
		2687.5	17.25	4.71	9.00	21.54	142.561	Horizontal	Pass
10.0MHz Band QPSK	50/0	2501	18.99	4.55	9.00	23.44	220.800	Horizontal	Pass
		2593	18.34	4.69	9.00	22.65	184.077	Horizontal	Pass
		2685	17.45	4.72	9.00	21.73	148.936	Horizontal	Pass
15.0MHz Band QPSK	75/0	2503.5	16.09	4.55	9.00	20.54	113.240	Horizontal	Pass
		2593	18.32	4.69	9.00	22.63	183.231	Horizontal	Pass
		2682.5	18.89	4.72	9.00	23.17	207.491	Horizontal	Pass
20.0MHz Band QPSK	100/0	2506	17.91	4.57	9.00	22.34	171.396	Horizontal	Pass
		2593	18.03	4.73	9.00	22.3	169.824	Horizontal	Pass
		2680	18.97	4.75	9.00	23.22	209.894	Horizontal	Pass
5.0MHz Band QPSK	25/0	2498.5	18.89	4.54	9.00	23.35	216.272	Vertical	Pass
		2593	17.48	4.69	9.00	21.79	151.008	Vertical	Pass
		2687.5	17.26	4.71	9.00	21.55	142.889	Vertical	Pass
10.0MHz Band QPSK	50/0	2501	16.53	4.55	9.00	20.98	125.314	Vertical	Pass
		2593	17.65	4.69	9.00	21.96	157.036	Vertical	Pass
		2685	18.11	4.72	9.00	22.39	173.380	Vertical	Pass
15.0MHz Band QPSK	75/0	2503.5	16.76	4.55	9.00	21.21	132.130	Vertical	Pass
		2593	18.60	4.69	9.00	22.91	195.434	Vertical	Pass
		2682.5	18.13	4.72	9.00	22.41	174.181	Vertical	Pass
20.0MHz Band QPSK	100/0	2506	19.13	4.57	9.00	23.56	226.986	Vertical	Pass
		2593	16.54	4.73	9.00	20.81	120.504	Vertical	Pass
		2680	18.13	4.75	9.00	22.38	172.982	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	2498.5	16.45	4.54	9.00	20.91	123.310	Horizontal	Pass
		2593	17.63	4.69	9.00	21.94	156.315	Horizontal	Pass
		2687.5	18.59	4.71	9.00	22.88	194.089	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2501	17.88	4.55	9.00	22.33	171.002	Horizontal	Pass
		2593	18.57	4.69	9.00	22.88	194.089	Horizontal	Pass
		2685	18.93	4.72	9.00	23.21	209.411	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2503.5	18.42	4.55	9.00	22.87	193.642	Horizontal	Pass
		2593	18.61	4.69	9.00	22.92	195.884	Horizontal	Pass
		2682.5	19.00	4.72	9.00	23.28	212.814	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2506	18.26	4.57	9.00	22.69	185.780	Horizontal	Pass
		2593	18.61	4.73	9.00	22.88	194.089	Horizontal	Pass
		2680	18.58	4.75	9.00	22.83	191.867	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2498.5	18.67	4.54	9.00	23.13	205.589	Vertical	Pass
		2593	18.46	4.69	9.00	22.77	189.234	Vertical	Pass
		2687.5	18.79	4.71	9.00	23.08	203.236	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2501	18.73	4.55	9.00	23.18	207.970	Vertical	Pass
		2593	17.69	4.69	9.00	22	158.489	Vertical	Pass
		2685	17.05	4.72	9.00	21.33	135.831	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2503.5	18.43	4.55	9.00	22.88	194.089	Vertical	Pass
		2593	18.38	4.69	9.00	22.69	185.780	Vertical	Pass
		2682.5	18.60	4.72	9.00	22.88	194.089	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2506	18.39	4.57	9.00	22.82	191.426	Vertical	Pass
		2593	19.14	4.73	9.00	23.41	219.280	Vertical	Pass
		2680	19.19	4.75	9.00	23.44	220.800	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.15 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	15.09	3.12	8.90	19.74	94.189	Horizontal	Pass
		1745	13.86	3.27	8.90	18.57	71.945	Horizontal	Pass
		1779.3	16.28	3.29	8.90	21.29	134.586	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	14.20	3.13	8.90	18.97	78.886	Horizontal	Pass
		1745	14.87	3.27	8.90	20.3	107.152	Horizontal	Pass
		1778.5	15.56	3.30	8.90	20.02	100.462	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	16.05	3.13	8.90	21.07	127.938	Horizontal	Pass
		1745	16.21	3.27	8.90	20.93	123.880	Horizontal	Pass
		1777.5	14.87	3.30	8.90	19.67	92.683	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	15.19	3.15	8.90	20.45	110.917	Horizontal	Pass
		1745	15.29	3.31	8.90	20.67	116.681	Horizontal	Pass
		1775	16.10	3.33	8.90	21.45	139.637	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	15.36	3.15	8.90	20.47	111.429	Horizontal	Pass
		1745	15.89	3.31	8.90	21.36	136.773	Horizontal	Pass
		1772.5	16.64	3.33	8.90	21.4	138.038	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	13.97	3.17	8.90	19.97	99.312	Horizontal	Pass
		1745	15.42	3.32	8.90	20.93	123.880	Horizontal	Pass
		1770	15.22	3.36	8.90	20.6	114.815	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	15.71	3.12	8.90	20.18	104.232	Vertical	Pass
		1745	16.21	3.27	8.90	21.21	132.130	Vertical	Pass
		1779.3	15.56	3.29	8.90	21.1	128.825	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	16.08	3.13	8.90	20.92	123.595	Vertical	Pass
		1745	16.14	3.27	8.90	20.96	124.738	Vertical	Pass
		1778.5	16.41	3.30	8.90	20.36	108.643	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	15.17	3.13	8.90	20.46	111.173	Vertical	Pass
		1745	15.65	3.27	8.90	19.4	87.096	Vertical	Pass
		1777.5	14.24	3.30	8.90	19.61	91.411	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	12.72	3.15	8.90	17.94	62.230	Vertical	Pass
		1745	16.63	3.31	8.90	21.59	144.212	Vertical	Pass
		1775	15.66	3.33	8.90	19.14	82.035	Vertical	Pass
15.0MHz Band QPSK	75/0	1717.5	16.69	3.15	8.90	21.33	135.831	Vertical	Pass
		1745	16.08	3.31	8.90	21.57	143.549	Vertical	Pass
		1772.5	15.30	3.33	8.90	20.81	120.504	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	17.39	3.17	8.90	22.67	184.927	Vertical	Pass
		1745	17.54	3.32	8.90	21.07	127.938	Vertical	Pass
		1770	14.41	3.36	8.90	18.27	67.143	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1710.7	16.07	3.12	8.9	21.85	153.109	Horizontal	Pass
		1745	16.19	3.27	8.9	21.82	152.055	Horizontal	Pass
		1779.3	16.54	3.29	8.9	22.15	164.059	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	16.07	3.13	8.9	21.84	152.757	Horizontal	Pass
		1745	15.74	3.27	8.9	21.37	137.088	Horizontal	Pass
		1778.5	16.44	3.3	8.9	22.04	159.956	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	15.29	3.13	8.9	21.06	127.644	Horizontal	Pass
		1745	14.14	3.27	8.9	19.77	94.842	Horizontal	Pass
		1777.5	15.51	3.3	8.9	21.11	129.122	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	16.39	3.15	8.9	22.14	163.682	Horizontal	Pass
		1745	14.41	3.31	8.9	20	100.000	Horizontal	Pass
		1775	14.19	3.33	8.9	19.76	94.624	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	14.54	3.15	8.9	20.29	106.905	Horizontal	Pass
		1745	15.85	3.31	8.9	21.44	139.316	Horizontal	Pass
		1772.5	16.02	3.33	8.9	21.59	144.212	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	15.57	3.17	8.9	21.3	134.896	Horizontal	Pass
		1745	15.84	3.32	8.9	21.42	138.676	Horizontal	Pass
		1770	15.89	3.36	8.9	21.43	138.995	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	15.44	3.12	8.9	21.22	132.434	Vertical	Pass
		1745	15.74	3.27	8.9	21.37	137.088	Vertical	Pass
		1779.3	15.32	3.29	8.9	20.93	123.880	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	14.79	3.13	8.9	20.56	113.763	Vertical	Pass
		1745	14.80	3.27	8.9	20.43	110.408	Vertical	Pass
		1778.5	15.90	3.3	8.9	21.5	141.254	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	16.55	3.13	8.9	22.32	170.608	Vertical	Pass
		1745	16.14	3.27	8.9	21.77	150.314	Vertical	Pass
		1777.5	14.80	3.3	8.9	20.4	109.648	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	14.58	3.15	8.9	20.33	107.895	Vertical	Pass
		1745	16.59	3.31	8.9	22.18	165.196	Vertical	Pass
		1775	16.80	3.33	8.9	22.37	172.584	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1717.5	15.39	3.15	8.9	21.14	130.017	Vertical	Pass
		1745	15.80	3.31	8.9	21.39	137.721	Vertical	Pass
		1772.5	15.84	3.33	8.9	21.41	138.357	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1720	16.39	3.17	8.9	22.12	162.930	Vertical	Pass
		1745	16.33	3.32	8.9	21.91	155.239	Vertical	Pass
		1770	16.90	3.36	8.9	22.44	175.388	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

8.16 LTE BAND 71

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	665.5	4.17	1.91	19.68	2.15	19.79	95.383	Vertical	Pass
		680.5	5.22	1.91	19.77	2.15	20.93	123.862	Vertical	Pass
		695.5	3.27	1.93	19.82	2.15	19.01	79.629	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	668	5.04	1.91	19.70	2.15	20.68	117.007	Vertical	Pass
		680.5	2.97	1.91	19.77	2.15	18.68	73.851	Vertical	Pass
		693	3.14	1.93	19.81	2.15	18.87	77.003	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	670.5	5.34	1.91	19.71	2.15	20.99	125.569	Vertical	Pass
		680.5	4.57	1.91	19.77	2.15	20.28	106.740	Vertical	Pass
		690.5	3.11	1.92	19.79	2.15	18.83	76.413	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	673	6.34	1.91	19.73	2.15	22.01	158.927	Vertical	Pass
		683	5.65	1.91	19.77	2.15	21.36	136.901	Vertical	Pass
		688	5.02	1.92	19.78	2.15	20.73	118.196	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	665.5	3.43	1.91	19.68	2.15	19.05	80.330	Horizontal	Pass
		680.5	4.40	1.91	19.77	2.15	20.11	102.510	Horizontal	Pass
		695.5	5.36	1.93	19.82	2.15	21.10	128.914	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	668	4.64	1.91	19.70	2.15	20.28	106.594	Horizontal	Pass
		680.5	5.81	1.91	19.77	2.15	21.52	141.914	Horizontal	Pass
		693	6.06	1.93	19.81	2.15	21.79	151.054	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	670.5	4.98	1.91	19.71	2.15	20.63	115.573	Horizontal	Pass
		680.5	4.81	1.91	19.77	2.15	20.52	112.762	Horizontal	Pass
		690.5	5.10	1.92	19.79	2.15	20.82	120.890	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	673	3.38	1.91	19.73	2.15	19.05	80.353	Horizontal	Pass
		683	4.31	1.91	19.77	2.15	20.02	100.436	Horizontal	Pass
		688	6.56	1.92	19.78	2.15	22.27	168.761	Horizontal	Pass

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	665.5	4.46	1.91	19.68	2.15	20.08	101.823	Vertical	Pass
		680.5	5.53	1.91	19.77	2.15	21.24	133.124	Vertical	Pass
		695.5	4.20	1.93	19.82	2.15	19.94	98.736	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	668	5.01	1.91	19.70	2.15	20.65	116.145	Vertical	Pass
		680.5	5.65	1.91	19.77	2.15	21.36	136.839	Vertical	Pass
		693	3.58	1.93	19.81	2.15	19.31	85.342	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	670.5	3.69	1.91	19.71	2.15	19.34	85.975	Vertical	Pass
		680.5	5.60	1.91	19.77	2.15	21.31	135.337	Vertical	Pass
		690.5	2.63	1.92	19.79	2.15	18.35	68.403	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	673	4.69	1.91	19.73	2.15	20.36	108.643	Vertical	Pass
		683	4.40	1.91	19.77	2.15	20.11	102.565	Vertical	Pass
		688	4.63	1.92	19.78	2.15	20.34	108.151	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	665.5	4.71	1.91	19.68	2.15	20.33	107.895	Horizontal	Pass
		680.5	3.25	1.91	19.77	2.15	18.96	78.696	Horizontal	Pass
		695.5	3.59	1.93	19.82	2.15	19.33	85.714	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	668	3.35	1.91	19.70	2.15	18.99	79.197	Horizontal	Pass
		680.5	3.20	1.91	19.77	2.15	18.91	77.880	Horizontal	Pass
		693	5.49	1.93	19.81	2.15	21.22	132.347	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	670.5	4.04	1.91	19.71	2.15	19.69	93.103	Horizontal	Pass
		680.5	2.79	1.91	19.77	2.15	18.50	70.841	Horizontal	Pass
		690.5	3.78	1.92	19.79	2.15	19.50	89.216	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	673	4.49	1.91	19.73	2.15	20.16	103.872	Horizontal	Pass
		683	4.62	1.91	19.77	2.15	20.33	107.829	Horizontal	Pass
		688	5.76	1.92	19.78	2.15	21.47	140.360	Horizontal	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691

LIMIT

§22.917 (e) and §24.238 and §90.691 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

§27.53 (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

90.543 (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

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

90.543 (f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. 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. A

narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). 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 emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, 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. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). 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 emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB at the channel edges and $55 + 10 \log_{10}(p)$ at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

LTE Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 38, 40, 66, 71

RESULTS

PASS

9.1 LTE BAND 2

QPSK EIRP POWER FOR LTE BAND 2 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-47.30	4.04	33.51	-17.83	-13	-4.83	Horizontal
3701.4	-49.44	4.04	33.51	-19.97	-13	-6.97	Vertical
5552.1	-50.71	5.24	35.84	-20.11	-13	-7.11	Vertical
5552.1	-50.87	5.24	35.84	-20.27	-13	-7.27	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-47.64	4.04	33.56	-18.12	-13	-5.12	Horizontal
3760	-48.36	4.04	33.56	-18.84	-13	-5.84	Vertical
5640	-53.51	5.24	35.91	-22.84	-13	-9.84	Vertical
5640	-51.66	5.24	35.91	-20.99	-13	-7.99	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-51.86	4.04	34.00	-21.90	-13	-8.90	Horizontal
3818.6	-49.10	4.04	34.00	-19.14	-13	-6.14	Vertical
5727.9	-52.16	5.24	36.04	-21.36	-13	-8.36	Vertical
5727.9	-49.87	5.24	36.04	-19.07	-13	-6.07	Horizontal

QPSK EIRP POWER FOR LTE BAND 2 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720	-50.05	4.07	33.54	-20.58	-13	-7.58	Horizontal
3720	-50.07	4.07	33.54	-20.60	-13	-7.60	Vertical
5580	-49.36	5.28	35.86	-18.78	-13	-5.78	Vertical
5580	-54.32	5.28	35.86	-23.74	-13	-10.74	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-48.17	4.04	33.56	-18.65	-13	-5.65	Horizontal
3760	-47.82	4.04	33.56	-18.30	-13	-5.30	Vertical
5640	-57.00	5.24	35.91	-26.33	-13	-13.33	Vertical
5640	-50.50	5.24	35.91	-19.83	-13	-6.83	Horizontal
Test Results for High Channel 1900MHz							
3800	-54.44	4.04	34.00	-24.48	-13	-11.48	Horizontal
3800	-54.94	4.04	34.00	-24.98	-13	-11.98	Vertical
5700	-49.62	5.24	36.04	-18.82	-13	-5.82	Vertical
5700	-54.95	5.24	36.04	-24.15	-13	-11.15	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.2 LTE BAND 4

QPSK EIRP POWER FOR LTE BAND 4 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-47.01	4.02	29.80	-21.23	-13	-8.23	Horizontal
3421.4	-51.01	4.02	29.80	-25.23	-13	-12.23	Vertical
5132.1	-54.01	5.24	35.84	-23.41	-13	-10.41	Vertical
5132.1	-57.99	5.24	35.84	-27.39	-13	-14.39	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-49.73	4.03	30.00	-23.76	-13	-10.76	Horizontal
3465	-48.77	4.03	30.00	-22.80	-13	-9.80	Vertical
5197.5	-57.40	5.25	35.86	-26.79	-13	-13.79	Vertical
5197.5	-54.09	5.25	35.86	-23.48	-13	-10.48	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-50.50	4.05	30.01	-24.54	-13	-11.54	Horizontal
3508.6	-47.18	4.05	30.01	-21.22	-13	-8.22	Vertical
5262.9	-57.29	5.26	35.86	-26.69	-13	-13.69	Vertical
5262.9	-50.32	5.26	35.86	-19.72	-13	-6.72	Horizontal

QPSK EIRP POWER FOR LTE BAND 4 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440	-53.48	4.02	29.80	-27.70	-13	-14.70	Horizontal
3440	-54.92	4.02	29.80	-29.14	-13	-16.14	Vertical
5160	-51.39	5.24	35.84	-20.79	-13	-7.79	Vertical
5160	-49.80	5.24	35.84	-19.20	-13	-6.20	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-53.96	4.03	30.00	-27.99	-13	-14.99	Horizontal
3465	-48.54	4.03	30.00	-22.57	-13	-9.57	Vertical
5197.5	-55.20	5.25	35.86	-24.59	-13	-11.59	Vertical
5197.5	-54.82	5.25	35.86	-24.21	-13	-11.21	Horizontal
Test Results for High Channel 1745MHz							
2490	-47.11	2.91	27.68	-22.34	-13	-9.34	Horizontal
3490	-47.85	2.91	27.68	-23.08	-13	-10.08	Vertical
5235	-50.58	5.26	35.86	-19.98	-13	-6.98	Vertical
5235	-52.71	5.26	35.86	-22.11	-13	-9.11	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.3 LTE BAND 5

QPSK EIRP POWER FOR LTE BAND 5 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-47.20	2.78	27.50	-22.48	-13	-9.48	Horizontal
1649.4	-53.86	2.78	27.50	-29.14	-13	-16.14	Vertical
2474.1	-55.76	2.90	27.80	-30.86	-13	-17.86	Vertical
2474.1	-58.00	2.90	27.80	-33.10	-13	-20.10	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-52.98	2.78	27.48	-28.28	-13	-15.28	Horizontal
1673	-47.14	2.78	27.48	-22.44	-13	-9.44	Vertical
2509.5	-50.79	2.91	27.70	-26.00	-13	-13.00	Vertical
2509.5	-52.51	2.91	27.70	-27.72	-13	-14.72	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.89	2.78	27.43	-24.24	-13	-11.24	Horizontal
1696.6	-48.12	2.78	27.43	-23.47	-13	-10.47	Vertical
2544.9	-51.44	2.92	27.74	-26.62	-13	-13.62	Vertical
2544.9	-56.06	2.92	27.74	-31.24	-13	-18.24	Horizontal

QPSK EIRP POWER FOR LTE BAND 5 (10MHZ BANDWIDTH)

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658	-49.55	2.78	27.50	-24.83	-13	-11.83	Horizontal
1658	-52.39	2.78	27.50	-27.67	-13	-14.67	Vertical
2487	-49.37	2.90	27.80	-24.47	-13	-11.47	Vertical
2487	-51.41	2.90	27.80	-26.51	-13	-13.51	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-51.58	2.78	27.48	-26.88	-13	-13.88	Horizontal
1673	-48.26	2.78	27.48	-23.56	-13	-10.56	Vertical
2509.5	-57.85	2.91	27.70	-33.06	-13	-20.06	Vertical
2509.5	-50.12	2.91	27.70	-25.33	-13	-12.33	Horizontal
Test Results for High Channel 848.3MHz							
1688	-48.54	2.78	27.43	-23.89	-13	-10.89	Horizontal
1688	-52.07	2.78	27.43	-27.42	-13	-14.42	Vertical
2532	-53.87	2.92	27.74	-29.05	-13	-16.05	Vertical
2532	-54.99	2.92	27.74	-30.17	-13	-17.17	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.4 LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (5.0MHZ BANDWIDTH)

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005	-57.74	5.23	35.81	-27.16	-25	-2.16	Horizontal
5005	-58.57	5.23	35.81	-27.99	-25	-2.99	Vertical
7507.5	-61.51	5.67	36.85	-30.33	-25	-5.33	Vertical
7507.5	-61.55	5.67	36.85	-30.37	-25	-5.37	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-57.38	5.23	35.82	-26.79	-25	-1.79	Horizontal
5070	-60.72	5.23	35.82	-30.13	-25	-5.13	Vertical
7605	-59.07	5.67	36.85	-27.89	-25	-2.89	Vertical
7605	-62.61	5.67	36.85	-31.43	-25	-6.43	Horizontal
Test Results for High Channel 2567.5MHz							
5135	-58.30	5.24	35.83	-27.71	-25	-2.71	Horizontal
5135	-57.23	5.24	35.83	-26.64	-25	-1.64	Vertical
7702.5	-64.12	5.68	36.87	-32.93	-25	-7.93	Vertical
7702.5	-59.24	5.68	36.87	-28.05	-25	-3.05	Horizontal

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020	-59.20	5.23	35.82	-28.61	-25	-3.61	Horizontal
5020	-59.05	5.23	35.82	-28.46	-25	-3.46	Vertical
7530	-60.30	5.67	36.86	-29.11	-25	-4.11	Vertical
7530	-63.22	5.67	36.86	-32.03	-25	-7.03	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-60.57	5.23	35.82	-29.98	-25	-4.98	Horizontal
5070	-60.84	5.23	35.82	-30.25	-25	-5.25	Vertical
7605	-62.95	5.67	36.85	-31.77	-25	-6.77	Vertical
7605	-64.08	5.67	36.85	-32.90	-25	-7.90	Horizontal
Test Results for High Channel 2560MHz							
5120	-57.65	5.24	35.83	-27.06	-25	-2.06	Horizontal
5120	-60.34	5.24	35.83	-29.75	-25	-4.75	Vertical
7680	-64.51	5.70	36.88	-33.33	-25	-8.33	Vertical
7680	-59.03	5.70	36.88	-27.85	-25	-2.85	Horizontal

Note: Spurious Emission Level = Spectrum Analyzer Read Value + Cable Loss+ Antenna Factor + 11.74

. Margin = Spurious Emission Level - Limit

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.5 LTE BAND 12

QPSK EIRP POWER FOR LTE BAND 12 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-51.96	2.60	27.2	-27.36	-13	-14.36	Horizontal
1399.4	-50.26	2.60	27.2	-25.66	-13	-12.66	Vertical
2099.1	-56.77	2.85	27.54	-32.08	-13	-19.08	Vertical
2099.1	-54.12	2.85	27.54	-29.43	-13	-16.43	Horizontal
Test Results For Mid Channel 707.5MHz							
1415	-50.73	2.61	27.28	-26.06	-13	-13.06	Horizontal
1415	-51.21	2.61	27.28	-26.54	-13	-13.54	Vertical
2122.5	-56.15	2.87	27.59	-31.43	-13	-18.43	Vertical
2122.5	-57.24	2.87	27.59	-32.52	-13	-19.52	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-52.69	2.63	27.28	-28.04	-13	-15.04	Horizontal
1430.6	-51.44	2.63	27.28	-26.79	-13	-13.79	Vertical
2145.9	-57.86	2.88	27.60	-33.14	-13	-20.14	Vertical
2145.9	-57.46	2.88	27.60	-32.74	-13	-19.74	Horizontal

QPSK EIRP POWER FOR LTE BAND 12 (10MHZ BANDWIDTH)

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408	-53.84	2.61	27.26	-29.19	-13	-16.19	Horizontal
1408	-47.53	2.61	27.26	-22.88	-13	-9.88	Vertical
2112	-56.47	2.87	27.58	-31.76	-13	-18.76	Vertical
2112	-57.93	2.87	27.58	-33.22	-13	-20.22	Horizontal
Test Results for Mid Channel 707.5MHz							
1415	-47.92	2.61	27.28	-23.25	-13	-10.25	Horizontal
1415	-47.89	2.61	27.28	-23.22	-13	-10.22	Vertical
2122.5	-51.54	2.87	27.59	-26.82	-13	-13.82	Vertical
2122.5	-51.17	2.87	27.59	-26.45	-13	-13.45	Horizontal
Test Results for High Channel 711MHz							
1422	-51.87	2.62	27.28	-27.21	-13	-14.21	Horizontal
1422	-48.02	2.62	27.28	-23.36	-13	-10.36	Vertical
2133	-52.90	2.87	27.60	-28.17	-13	-15.17	Vertical
2133	-52.35	2.87	27.60	-27.62	-13	-14.62	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.6 LTE BAND 13
LTE BAND 13 (5MHZ BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559	-72.16	2.61	27.28	-47.49	-40	-7.49	Horizontal
1559	-76.13	2.61	27.28	-51.46	-40	-11.46	Vertical
2338.5	-56.72	2.87	27.59	-32.00	-13	-19.00	Vertical
2338.5	-54.67	2.87	27.59	-29.95	-13	-16.95	Horizontal
Test Results For Mid Channel 782MHz							
1564	-74.63	2.62	27.30	-49.95	-40	-9.95	Horizontal
1564	-72.04	2.62	27.30	-47.36	-40	-7.36	Vertical
2346	-56.72	2.87	27.62	-31.97	-13	-18.97	Vertical
2346	-54.67	2.87	27.62	-29.92	-13	-16.92	Horizontal
Test Results for High Channel 784.5MHz							
1569	-77.34	2.66	27.28	-52.72	-40	-12.72	Horizontal
1569	-75.14	2.66	27.28	-50.52	-40	-10.52	Vertical
2353.5	-56.72	2.88	27.60	-32.00	-13	-19.00	Vertical
2353.5	-54.67	2.88	27.60	-29.95	-13	-16.95	Horizontal

LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Low Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564	-76.98	2.62	27.30	-52.30	-40	-12.30	Horizontal
1564	-72.25	2.62	27.30	-47.57	-40	-7.57	Vertical
2346	-56.72	2.87	27.62	-31.97	-13	-18.97	Vertical
2346	-54.67	2.87	27.62	-29.92	-13	-16.92	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + AR_{pl}(dBm)$

. Over Limit = : $P_{Mea}(dBm) - Limit(dBm)$

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.7 LTE BAND 14

LTE BAND 14 (5MHZ BANDWIDTH)

Test Results for Low Channel 790.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1581	-48.30	2.61	27.28	-23.63	-13	-10.63	Horizontal
1581	-54.50	2.61	27.28	-29.83	-13	-16.83	Vertical
2371.5	-50.91	2.87	27.59	-26.19	-13	-13.19	Vertical
2371.5	-55.13	2.87	27.59	-30.41	-13	-17.41	Horizontal
Test Results For Mid Channel 793MHz							
1586	-50.96	2.62	27.30	-26.28	-13	-13.28	Horizontal
1586	-53.43	2.62	27.30	-28.75	-13	-15.75	Vertical
2379	-55.84	2.87	27.62	-31.09	-13	-18.09	Vertical
2379	-50.84	2.87	27.62	-26.09	-13	-13.09	Horizontal
Test Results for High Channel 795.5MHz							
1591	-52.33	2.66	27.28	-27.71	-13	-14.71	Horizontal
1591	-54.84	2.66	27.28	-30.22	-13	-17.22	Vertical
2386.5	-57.86	2.88	27.60	-33.14	-13	-20.14	Vertical
2386.5	-49.07	2.88	27.60	-24.35	-13	-11.35	Horizontal

LTE BAND 14 (10MHZ BANDWIDTH)

Test Results for Low Channel 793MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1586	-54.11	2.62	27.30	-29.43	-13	-16.43	Horizontal
1586	-47.83	2.62	27.30	-23.15	-13	-10.15	Vertical
2379	-53.44	2.87	27.62	-28.69	-13	-15.69	Vertical
2379	-57.40	2.87	27.62	-32.65	-13	-19.65	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.8 LTE BAND 17

QPSK EIRP POWER FOR LTE BAND 17 (5MHZ BANDWIDTH)

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413	-54.18	2.61	27.28	-29.51	-13	-16.51	Horizontal
1413	-50.49	2.61	27.28	-25.82	-13	-12.82	Vertical
2119.5	-57.47	2.87	27.59	-32.75	-13	-19.75	Vertical
2119.5	-52.52	2.87	27.59	-27.80	-13	-14.80	Horizontal
Test Results For Mid Channel 710MHz							
1420	-50.59	2.62	27.30	-25.91	-13	-12.91	Horizontal
1420	-54.98	2.62	27.30	-30.30	-13	-17.30	Vertical
2130	-53.49	2.87	27.62	-28.74	-13	-15.74	Vertical
2130	-49.09	2.87	27.62	-24.34	-13	-11.34	Horizontal
Test Results for High Channel 713.5MHz							
1427	-53.21	2.66	27.28	-28.59	-13	-15.59	Horizontal
1427	-53.01	2.66	27.28	-28.39	-13	-15.39	Vertical
2140.5	-57.03	2.88	27.60	-32.31	-13	-19.31	Vertical
2140.5	-54.67	2.88	27.60	-29.95	-13	-16.95	Horizontal

QPSK EIRP POWER FOR LTE BAND 17 (10MHZ BANDWIDTH)

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418	-54.83	2.62	27.30	-30.15	-13	-17.15	Horizontal
1418	-47.58	2.62	27.30	-22.90	-13	-9.90	Vertical
2127	-54.39	2.87	27.62	-29.64	-13	-16.64	Vertical
2127	-57.64	2.87	27.62	-32.89	-13	-19.89	Horizontal
Test Results for Mid Channel 710MHz							
1420	-49.95	2.62	27.30	-25.27	-13	-12.27	Horizontal
1420	-47.79	2.62	27.30	-23.11	-13	-10.11	Vertical
2130	-57.81	2.87	27.62	-33.06	-13	-20.06	Vertical
2130	-56.28	2.87	27.62	-31.53	-13	-18.53	Horizontal
Test Results for High Channel 711MHz							
1422	-53.78	2.62	27.30	-29.10	-13	-16.10	Horizontal
1422	-57.31	2.62	27.30	-32.63	-13	-19.63	Vertical
2133	-56.72	2.87	27.62	-31.97	-13	-18.97	Vertical
2133	-54.67	2.87	27.62	-29.92	-13	-16.92	Horizontal

Note: Spurious Emission Level = Spectrum Analyzer Read Value + Cable Loss+ Antenna Factor + 11.74

. Margin = Spurious Emission Level - Limit

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.9 LTE BAND 25

QPSK EIRP POWER FOR LTE BAND 25 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-48.38	2.61	27.26	-23.73	-13	-10.73	Horizontal
3701.4	-51.92	2.61	27.26	-27.27	-13	-14.27	Vertical
5552.1	-53.85	2.87	27.58	-29.14	-13	-16.14	Vertical
5552.1	-54.48	2.87	27.58	-29.77	-13	-16.77	Horizontal
Test Results for Mid Channel 1882.5MHz							
3765	-50.68	2.63	27.28	-26.03	-13	-13.03	Horizontal
3765	-51.75	2.63	27.28	-27.10	-13	-14.10	Vertical
5647.5	-49.61	2.88	27.62	-24.87	-13	-11.87	Vertical
5647.5	-55.12	2.88	27.62	-30.38	-13	-17.38	Horizontal
Test Results for High Channel 1914.3MHz							
3828.6	-49.04	2.65	27.28	-24.41	-13	-11.41	Horizontal
3828.6	-52.17	2.65	27.28	-27.54	-13	-14.54	Vertical
5742.9	-52.38	2.88	27.70	-27.56	-13	-14.56	Vertical
5742.9	-50.57	2.88	27.70	-25.75	-13	-12.75	Horizontal

QPSK EIRP POWER FOR LTE BAND 25 (20MHZ BANDWIDTH)

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720	-52.15	2.62	27.30	-27.47	-13	-14.47	Horizontal
3720	-50.56	2.62	27.30	-25.88	-13	-12.88	Vertical
5580	-52.25	2.87	27.62	-27.50	-13	-14.50	Vertical
5580	-53.79	2.87	27.62	-29.04	-13	-16.04	Horizontal
Test Results for Mid Channel 1882.5MHz							
3765	-48.27	2.64	27.33	-23.58	-13	-10.58	Horizontal
3765	-51.57	2.64	27.33	-26.88	-13	-13.88	Vertical
5647.5	-54.67	2.88	27.67	-29.88	-13	-16.88	Vertical
5647.5	-51.27	2.88	27.67	-26.48	-13	-13.48	Horizontal
Test Results for High Channel 1905MHz							
3810	-49.58	2.64	27.33	-24.89	-13	-11.89	Horizontal
3810	-49.84	2.64	27.33	-25.15	-13	-12.15	Vertical
5715	-54.78	2.88	27.67	-29.99	-13	-16.99	Vertical
5715	-54.42	2.88	27.67	-29.63	-13	-16.63	Horizontal

9.10 LTE BAND 26A

QPSK EIRP POWER FOR LTE BAND 26A(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 814.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1629.4	-51.02	2.78	27.5	-26.30	-13	-13.30	Horizontal
1629.4	-52.22	2.78	27.5	-27.50	-13	-14.50	Vertical
2444.1	-49.62	2.9	27.8	-24.72	-13	-11.72	Vertical
2444.1	-51.46	2.9	27.8	-26.56	-13	-13.56	Horizontal
Test Results For Mid Channel 819MHz							
1638	-47.61	2.8	27.48	-22.93	-13	-9.93	Horizontal
1638	-48.41	2.8	27.48	-23.73	-13	-10.73	Vertical
2457.5	-57.33	2.91	27.7	-32.54	-13	-19.54	Vertical
2457.5	-56.20	2.91	27.7	-31.41	-13	-18.41	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-48.22	2.82	27.43	-23.61	-13	-10.61	Horizontal
1646.6	-47.14	2.82	27.43	-22.53	-13	-9.53	Vertical
2469.9	-57.14	2.92	27.74	-32.32	-13	-19.32	Vertical
2469.9	-49.20	2.92	27.74	-24.38	-13	-11.38	Horizontal

QPSK EIRP POWER FOR LTE BAND 26A(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1638	-51.85	2.82	27.43	-27.24	-13	-14.24	Horizontal
1638	-47.50	2.82	27.43	-22.89	-13	-9.89	Vertical
2457.5	-54.39	2.91	27.74	-29.56	-13	-16.56	Vertical
2457.5	-53.78	2.91	27.74	-28.95	-13	-15.95	Horizontal

9.11 LTE BAND 26B

QPSK EIRP POWER FOR LTE BAND 26B(824MHz~849MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-53.60	2.78	27.28	-29.10	-13	-16.10	Horizontal
1649.4	-49.04	2.78	27.28	-24.54	-13	-11.54	Vertical
2474.1	-53.89	2.9	27.59	-29.20	-13	-16.20	Vertical
2474.1	-51.30	2.9	27.59	-26.61	-13	-13.61	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-48.94	2.78	27.3	-24.42	-13	-11.42	Horizontal
1673	-47.14	2.78	27.3	-22.62	-13	-9.62	Vertical
2509.4	-50.34	2.91	27.62	-25.63	-13	-12.63	Vertical
2509.4	-53.59	2.91	27.62	-28.88	-13	-15.88	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-49.89	2.78	27.28	-25.39	-13	-12.39	Horizontal
1696.6	-49.99	2.78	27.28	-25.49	-13	-12.49	Vertical
2544.9	-51.19	2.92	27.6	-26.51	-13	-13.51	Vertical
2544.9	-52.93	2.92	27.6	-28.25	-13	-15.25	Horizontal

QPSK EIRP POWER FOR LTE BAND 26B(824MHz~849MHz) (15MHZ BANDWIDTH)

Test Results for Low Channel 831.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1663	-51.47	2.78	27.3	-26.95	-13	-13.95	Horizontal
1663	-48.91	2.78	27.3	-24.39	-13	-11.39	Vertical
2494.5	-49.39	2.9	27.62	-24.67	-13	-11.67	Vertical
2494.5	-53.65	2.9	27.62	-28.93	-13	-15.93	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-47.21	2.78	27.3	-22.69	-13	-9.69	Horizontal
1673	-52.36	2.78	27.3	-27.84	-13	-14.84	Vertical
2509.5	-55.30	2.91	27.62	-30.59	-13	-17.59	Vertical
2509.5	-57.25	2.91	27.62	-32.54	-13	-19.54	Horizontal
Test Results for High Channel 841.5MHz							
1683	-53.44	2.78	27.3	-28.92	-13	-15.92	Horizontal
1683	-53.39	2.78	27.3	-28.87	-13	-15.87	Vertical
2524.5	-57.62	2.92	27.62	-32.92	-13	-19.92	Vertical
2524.5	-54.85	2.92	27.62	-30.15	-13	-17.15	Horizontal

9.12 LTE BAND 38

QPSK EIRP POWER FOR LTE BAND 38 (5MHZ BANDWIDTH)

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145	-56.32	2.63	27.26	-31.69	-25	-6.69	Horizontal
5145	-60.88	2.63	27.26	-36.25	-25	-11.25	Vertical
7717.5	-58.15	2.67	27.58	-33.24	-25	-8.24	Vertical
7717.5	-60.07	2.67	27.58	-35.16	-25	-10.16	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-52.13	2.62	27.28	-27.47	-25	-2.47	Horizontal
5190	-53.56	2.62	27.28	-28.90	-25	-3.90	Vertical
7785	-54.94	2.85	27.62	-30.17	-25	-5.17	Vertical
7785	-57.17	2.85	27.62	-32.40	-25	-7.40	Horizontal
Test Results for High Channel 2617.5MHz							
5235	-53.13	2.64	27.28	-28.49	-25	-3.49	Horizontal
5235	-54.81	2.64	27.28	-30.17	-25	-5.17	Vertical
7852.5	-52.12	2.85	27.70	-27.27	-25	-2.27	Vertical
7852.5	-55.41	2.85	27.70	-30.56	-25	-5.56	Horizontal

QPSK EIRP POWER FOR LTE BAND 38 (20MHZ BANDWIDTH)

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-53.62	2.63	27.30	-28.95	-25	-3.95	Horizontal
5160	-55.53	2.63	27.30	-30.86	-25	-5.86	Vertical
7740	-54.27	2.67	27.62	-29.32	-25	-4.32	Vertical
7740	-51.31	2.67	27.62	-26.36	-25	-1.36	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-53.74	2.62	27.33	-29.03	-25	-4.03	Horizontal
5190	-56.19	2.62	27.33	-31.48	-25	-6.48	Vertical
7785	-54.36	2.85	27.67	-29.54	-25	-4.54	Vertical
7785	-57.01	2.85	27.67	-32.19	-25	-7.19	Horizontal
Test Results for High Channel 2610MHz							
5220	-53.66	2.64	27.33	-28.97	-25	-3.97	Horizontal
5220	-58.24	2.64	27.33	-33.55	-25	-8.55	Vertical
7830	-55.28	2.85	27.67	-30.46	-25	-5.46	Vertical
7830	-59.03	2.85	27.67	-34.21	-25	-9.21	Horizontal

9.13 LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2598.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4997	-54.82	2.63	27.26	-30.19	-25	-5.19	Horizontal
4997	-54.90	2.63	27.26	-30.27	-25	-5.27	Vertical
7495.5	-59.74	2.67	27.58	-34.83	-25	-9.83	Vertical
7495.5	-57.95	2.67	27.58	-33.04	-25	-8.04	Horizontal
Test Results for Mid Channel 2593MHz							
5186	-56.08	2.62	27.28	-31.42	-25	-6.42	Horizontal
5186	-56.50	2.62	27.28	-31.84	-25	-6.84	Vertical
7779	-58.60	2.85	27.62	-33.83	-25	-8.83	Vertical
7779	-56.33	2.85	27.62	-31.56	-25	-6.56	Horizontal
Test Results for High Channel 2697.5MHz							
5375	-54.58	2.64	27.28	-29.94	-25	-4.94	Horizontal
5375	-57.33	2.64	27.28	-32.69	-25	-7.69	Vertical
8062.5	-59.25	2.85	27.70	-34.40	-25	-9.40	Vertical
8062.5	-60.19	2.85	27.70	-35.34	-25	-10.34	Horizontal

QPSK EIRP POWER FOR LTE BAND 41 (20MHZ BANDWIDTH)

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5012	-54.90	2.63	27.30	-30.23	-25	-5.23	Horizontal
5012	-56.97	2.63	27.30	-32.30	-25	-7.30	Vertical
7518	-55.10	2.67	27.62	-30.15	-25	-5.15	Vertical
7518	-54.63	2.67	27.62	-29.68	-25	-4.68	Horizontal
Test Results for Mid Channel 2593MHz							
5186	-56.97	2.62	27.33	-32.26	-25	-7.26	Horizontal
5186	-55.68	2.62	27.33	-30.97	-25	-5.97	Vertical
7779	-58.91	2.85	27.67	-34.09	-25	-9.09	Vertical
7779	-56.55	2.85	27.67	-31.73	-25	-6.73	Horizontal
Test Results for High Channel 2680MHz							
5360	-56.91	2.64	27.33	-32.22	-25	-7.22	Horizontal
5360	-54.59	2.64	27.33	-29.90	-25	-4.90	Vertical
8040	-60.48	2.85	27.67	-35.66	-25	-10.66	Vertical
8040	-55.88	2.85	27.67	-31.06	-25	-6.06	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + ARpl(dBm)$

. Over Limit = : $P_{Mea}(dBm) - Limit(dBm)$

. We test both H direction and V direction, recorded worst case direction.

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.14 LTE BAND 66

QPSK EIRP POWER FOR LTE BAND 66 (5MHZ BANDWIDTH)

Test Results for Low Channel 1710.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-53.83	2.61	27.28	-29.16	-13	-16.16	Horizontal
3421.4	-50.18	2.61	27.28	-25.51	-13	-12.51	Vertical
5132.1	-54.17	2.87	27.59	-29.45	-13	-16.45	Vertical
5132.1	-52.65	2.87	27.59	-27.93	-13	-14.93	Horizontal
Test Results for Mid Channel 1745MHz							
3490	-49.46	2.62	27.3	-24.78	-13	-11.78	Horizontal
3490	-48.31	2.62	27.3	-23.63	-13	-10.63	Vertical
5337.9	-57.20	2.87	27.62	-32.45	-13	-19.45	Vertical
5337.9	-54.03	2.87	27.62	-29.28	-13	-16.28	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-49.93	2.66	27.28	-25.31	-13	-12.31	Horizontal
3558.6	-54.20	2.66	27.28	-29.58	-13	-16.58	Vertical
5337.9	-50.32	2.88	27.6	-25.60	-13	-12.60	Vertical
5337.9	-50.56	2.88	27.6	-25.84	-13	-12.84	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (10MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440	-48.18	2.62	27.3	-23.50	-13	-10.50	Horizontal
3440	-48.70	2.62	27.3	-24.02	-13	-11.02	Vertical
5160	-53.11	2.87	27.62	-28.36	-13	-15.36	Vertical
5160	-52.53	2.87	27.62	-27.78	-13	-14.78	Horizontal
Test Results for Mid Channel 1745MHz							
3490	-52.97	2.62	27.3	-28.29	-13	-15.29	Horizontal
3490	-52.37	2.62	27.3	-27.69	-13	-14.69	Vertical
5337.9	-54.50	2.87	27.62	-29.75	-13	-16.75	Vertical
5337.9	-56.99	2.87	27.62	-32.24	-13	-19.24	Horizontal
Test Results for High Channel 1770MHz							
3540	-51.92	2.62	27.3	-27.24	-13	-14.24	Horizontal
3540	-49.52	2.62	27.3	-24.84	-13	-11.84	Vertical
5310	-52.18	2.87	27.62	-27.43	-13	-14.43	Vertical
5310	-56.44	2.87	27.62	-31.69	-13	-18.69	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (dBm)

. Over Limit= : P_{Mea}(dBm)-Limit(dBm)

. Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

9.15 LTE BAND 71

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 665.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1331	-52.66	2.61	27.28	-27.99	-13	-14.99	Horizontal
1331	-48.61	2.61	27.28	-23.94	-13	-10.94	Vertical
1996.5	-53.15	2.87	27.59	-28.43	-13	-15.43	Vertical
1996.5	-51.56	2.87	27.59	-26.84	-13	-13.84	Horizontal
Test Results for Mid Channel 680.5MHz							
1361	-51.91	2.62	27.30	-27.23	-13	-14.23	Horizontal
1361	-53.55	2.62	27.30	-28.87	-13	-15.87	Vertical
2041.5	-53.14	2.87	27.62	-28.39	-13	-15.39	Vertical
2041.5	-49.78	2.87	27.62	-25.03	-13	-12.03	Horizontal
Test Results for High Channel 695.5MHz							
1391	-49.78	2.66	27.28	-25.16	-13	-12.16	Horizontal
1391	-48.81	2.66	27.28	-24.19	-13	-11.19	Vertical
2086.5	-53.44	2.88	27.60	-28.72	-13	-15.72	Vertical
2086.5	-57.38	2.88	27.60	-32.66	-13	-19.66	Horizontal

QPSK EIRP POWER FOR LTE BAND 71 (20MHZ BANDWIDTH)

Test Results for Low Channel 673MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1346	-49.49	2.62	27.30	-24.81	-13	-11.81	Horizontal
1346	-53.50	2.62	27.30	-28.82	-13	-15.82	Vertical
2019	-57.94	2.87	27.62	-33.19	-13	-20.19	Vertical
2019	-56.59	2.87	27.62	-31.84	-13	-18.84	Horizontal
Test Results for Mid Channel 683MHz							
1366	-48.79	2.62	27.30	-24.11	-13	-11.11	Horizontal
1366	-48.56	2.62	27.30	-23.88	-13	-10.88	Vertical
2049	-55.22	2.87	27.62	-30.47	-13	-17.47	Vertical
2049	-52.99	2.87	27.62	-28.24	-13	-15.24	Horizontal
Test Results for High Channel 688MHz							
1376	-49.75	2.62	27.30	-25.07	-13	-12.07	Horizontal
1376	-53.96	2.62	27.30	-29.28	-13	-16.28	Vertical
2064	-54.72	2.87	27.62	-29.97	-13	-16.97	Vertical
2064	-52.51	2.87	27.62	-27.76	-13	-14.76	Horizontal

Note: $P_{Mea}(dBm) = Power(dBm) + ARpl(dBm)$

. Over Limit = $P_{Mea}(dBm) - Limit(dBm)$

. We test both H direction and V direction, recorded worst case direction.

Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case.

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54, §90.213

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.29V, Normal, DC 3.87V and High voltage, DC 4.45V.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to -30°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

LTE Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 38, 40, 66, 71

RESULTS

See the following pages.

10.1 LTE BAND 2

Band 2 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1880	4	0.002128	2.5
3.87	1880	3	0.001596	2.5
4.45	1880	16	0.008511	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	11	0.005851	2.5
Extreme (50C)	1880	12	0.006383	2.5
Extreme (40C)	1880	10	0.005319	2.5
Extreme (30C)	1880	14	0.007447	2.5
Extreme (10C)	1880	15	0.007979	2.5
Extreme (0C)	1880	11	0.005851	2.5
Extreme (-10C)	1880	4	0.002128	2.5
Extreme (-20C)	1880	15	0.007979	2.5
Extreme (-30C)	1880	11	0.005851	2.5

Band 2 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1880	4	0.002128	2.5
3.87	1880	17	0.009043	2.5
4.45	1880	11	0.005851	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	4	0.002128	2.5
Extreme (50C)	1880	18	0.009574	2.5
Extreme (40C)	1880	13	0.006915	2.5
Extreme (30C)	1880	1	0.000532	2.5
Extreme (10C)	1880	17	0.009043	2.5
Extreme (0C)	1880	11	0.005851	2.5
Extreme (-10C)	1880	8	0.004255	2.5
Extreme (-20C)	1880	10	0.005319	2.5
Extreme (-30C)	1880	16	0.008511	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.2 LTE BAND 4

Band 4 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1732.5	23	0.013276	2.5
3.87	1732.5	3	0.001732	2.5
4.45	1732.5	21	0.012121	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	6	0.003463	2.5
Extreme (50C)	1732.5	13	0.007504	2.5
Extreme (40C)	1732.5	12	0.006926	2.5
Extreme (30C)	1732.5	16	0.009235	2.5
Extreme (10C)	1732.5	9	0.005195	2.5
Extreme (0C)	1732.5	27	0.015584	2.5
Extreme (-10C)	1732.5	21	0.012121	2.5
Extreme (-20C)	1732.5	4	0.002309	2.5
Extreme (-30C)	1732.5	11	0.006349	2.5

Band 4 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1732.5	7	0.004040	2.5
3.87	1732.5	19	0.010967	2.5
4.45	1732.5	15	0.008658	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	2	0.001154	2.5
Extreme (50C)	1732.5	19	0.010967	2.5
Extreme (40C)	1732.5	2	0.001154	2.5
Extreme (30C)	1732.5	9	0.005195	2.5
Extreme (10C)	1732.5	1	0.000577	2.5
Extreme (0C)	1732.5	3	0.001732	2.5
Extreme (-10C)	1732.5	12	0.006926	2.5
Extreme (-20C)	1732.5	13	0.007504	2.5
Extreme (-30C)	1732.5	1	0.000577	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.3 LTE BAND 5

Band 5 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	11	0.013150	2.5
3.87	836.5	11	0.013150	2.5
4.45	836.5	8	0.009564	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	17	0.020323	2.5
Extreme (50C)	836.5	11	0.013150	2.5
Extreme (40C)	836.5	16	0.019127	2.5
Extreme (30C)	836.5	13	0.015541	2.5
Extreme (10C)	836.5	15	0.017932	2.5
Extreme (0C)	836.5	9	0.010759	2.5
Extreme (-10C)	836.5	13	0.015541	2.5
Extreme (-20C)	836.5	14	0.016736	2.5
Extreme (-30C)	836.5	9	0.010759	2.5

Band 5 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	19	0.022714	2.5
3.87	836.5	1	0.001195	2.5
4.45	836.5	15	0.017932	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	12	0.014345	2.5
Extreme (50C)	836.5	16	0.019127	2.5
Extreme (40C)	836.5	11	0.013150	2.5
Extreme (30C)	836.5	13	0.015541	2.5
Extreme (10C)	836.5	2	0.002391	2.5
Extreme (0C)	836.5	11	0.013150	2.5
Extreme (-10C)	836.5	12	0.014345	2.5
Extreme (-20C)	836.5	16	0.019127	2.5
Extreme (-30C)	836.5	18	0.021518	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.4 LTE BAND 7

Band 7 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2535	8	0.003156	2.5
3.87	2535	13	0.005128	2.5
4.45	2535	17	0.006706	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6	0.002367	2.5
Extreme (50C)	2535	15	0.005917	2.5
Extreme (40C)	2535	21	0.008284	2.5
Extreme (30C)	2535	20	0.007890	2.5
Extreme (10C)	2535	0	0.000000	2.5
Extreme (0C)	2535	18	0.007101	2.5
Extreme (-10C)	2535	14	0.005523	2.5
Extreme (-20C)	2535	8	0.003156	2.5
Extreme (-30C)	2535	15	0.005917	2.5

Band 7 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2535	11	0.004339	2.5
3.87	2535	17	0.006706	2.5
4.45	2535	5	0.001972	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	20	0.007890	2.5
Extreme (50C)	2535	18	0.007101	2.5
Extreme (40C)	2535	15	0.005917	2.5
Extreme (30C)	2535	11	0.004339	2.5
Extreme (10C)	2535	9	0.003550	2.5
Extreme (0C)	2535	10	0.003945	2.5
Extreme (-10C)	2535	3	0.001183	2.5
Extreme (-20C)	2535	17	0.006706	2.5
Extreme (-30C)	2535	25	0.009862	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.5 LTE BAND 12

Band 12 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	707.5	14	0.019788	2.5
3.87	707.5	8	0.011307	2.5
4.45	707.5	11	0.015548	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	22	0.031095	2.5
Extreme (50C)	707.5	10	0.014134	2.5
Extreme (40C)	707.5	13	0.018375	2.5
Extreme (30C)	707.5	16	0.022615	2.5
Extreme (10C)	707.5	16	0.022615	2.5
Extreme (0C)	707.5	9	0.012721	2.5
Extreme (-10C)	707.5	10	0.014134	2.5
Extreme (-20C)	707.5	16	0.022615	2.5
Extreme (-30C)	707.5	14	0.019788	2.5

Band 12 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	707.5	15	0.021201	2.5
3.87	707.5	13	0.018375	2.5
4.45	707.5	9	0.012721	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	16	0.022615	2.5
Extreme (50C)	707.5	2	0.002827	2.5
Extreme (40C)	707.5	7	0.009894	2.5
Extreme (30C)	707.5	15	0.021201	2.5
Extreme (10C)	707.5	14	0.019788	2.5
Extreme (0C)	707.5	9	0.012721	2.5
Extreme (-10C)	707.5	13	0.018375	2.5
Extreme (-20C)	707.5	1	0.001413	2.5
Extreme (-30C)	707.5	16	0.022615	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.6 LTE BAND 13

Band 13 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	782.0	2	0.002558	2.5
3.87	782.0	11	0.014066	2.5
4.45	782.0	13	0.016624	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	10	0.012788	2.5
Extreme (50C)	782.0	11	0.014066	2.5
Extreme (40C)	782.0	6	0.007673	2.5
Extreme (30C)	782.0	14	0.017903	2.5
Extreme (10C)	782.0	11	0.014066	2.5
Extreme (0C)	782.0	6	0.007673	2.5
Extreme (-10C)	782.0	11	0.014066	2.5
Extreme (-20C)	782.0	13	0.016624	2.5
Extreme (-30C)	782.0	12	0.015345	2.5

Band 13 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	782.0	13	0.016624	2.5
3.87	782.0	18	0.023018	2.5
4.45	782.0	2	0.002558	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	12	0.015345	2.5
Extreme (50C)	782.0	1	0.001279	2.5
Extreme (40C)	782.0	6	0.007673	2.5
Extreme (30C)	782.0	12	0.015345	2.5
Extreme (10C)	782.0	10	0.012788	2.5
Extreme (0C)	782.0	18	0.023018	2.5
Extreme (-10C)	782.0	20	0.025575	2.5
Extreme (-20C)	782.0	7	0.008951	2.5
Extreme (-30C)	782.0	12	0.015345	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.7 LTE BAND 14

Band 14 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	728	8	0.010989	2.5
3.87	728	7	0.009615	2.5
4.45	728	24	0.032967	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	728	7	0.009615	2.5
Extreme (50C)	728	17	0.023352	2.5
Extreme (40C)	728	13	0.017857	2.5
Extreme (30C)	728	15	0.020604	2.5
Extreme (10C)	728	13	0.017857	2.5
Extreme (0C)	728	14	0.019231	2.5
Extreme (-10C)	728	3	0.004121	2.5
Extreme (-20C)	728	1	0.001374	2.5
Extreme (-30C)	728	6	0.008242	2.5

Band 14 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	728	17	0.023352	2.5
3.87	728	12	0.016484	2.5
4.45	728	9	0.012363	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	728	10	0.013736	2.5
Extreme (50C)	728	16	0.021978	2.5
Extreme (40C)	728	8	0.010989	2.5
Extreme (30C)	728	5	0.006868	2.5
Extreme (10C)	728	13	0.017857	2.5
Extreme (0C)	728	11	0.015110	2.5
Extreme (-10C)	728	15	0.020604	2.5
Extreme (-20C)	728	13	0.017857	2.5
Extreme (-30C)	728	26	0.035714	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.8 LTE BAND 17

Band 17 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	710	2	0.002817	2.5
3.87	710	13	0.018310	2.5
4.45	710	9	0.012676	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	16	0.022535	2.5
Extreme (50C)	710	8	0.011268	2.5
Extreme (40C)	710	16	0.022535	2.5
Extreme (30C)	710	13	0.018310	2.5
Extreme (10C)	710	10	0.014085	2.5
Extreme (0C)	710	16	0.022535	2.5
Extreme (-10C)	710	13	0.018310	2.5
Extreme (-20C)	710	2	0.002817	2.5
Extreme (-30C)	710	19	0.026761	2.5

Band 17 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	710	13	0.018310	2.5
3.87	710	15	0.021127	2.5
4.45	710	26	0.036620	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	17	0.023944	2.5
Extreme (50C)	710	7	0.009859	2.5
Extreme (40C)	710	17	0.023944	2.5
Extreme (30C)	710	15	0.021127	2.5
Extreme (10C)	710	16	0.022535	2.5
Extreme (0C)	710	15	0.021127	2.5
Extreme (-10C)	710	13	0.018310	2.5
Extreme (-20C)	710	13	0.018310	2.5
Extreme (-30C)	710	17	0.023944	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.9 LTE BAND 25

Band 25 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1882.5	16	0.008499	2.5
3.87	1882.5	8	0.004250	2.5
4.45	1882.5	11	0.005843	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	14	0.007437	2.5
Extreme (50C)	1882.5	3	0.001594	2.5
Extreme (40C)	1882.5	4	0.002125	2.5
Extreme (30C)	1882.5	2	0.001062	2.5
Extreme (10C)	1882.5	15	0.007968	2.5
Extreme (0C)	1882.5	2	0.001062	2.5
Extreme (-10C)	1882.5	13	0.006906	2.5
Extreme (-20C)	1882.5	12	0.006375	2.5
Extreme (-30C)	1882.5	17	0.009031	2.5

Band 25 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1882.5	3	0.001594	2.5
3.87	1882.5	12	0.006375	2.5
4.45	1882.5	13	0.006906	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	8	0.004250	2.5
Extreme (50C)	1882.5	15	0.007968	2.5
Extreme (40C)	1882.5	3	0.001594	2.5
Extreme (30C)	1882.5	15	0.007968	2.5
Extreme (10C)	1882.5	13	0.006906	2.5
Extreme (0C)	1882.5	14	0.007437	2.5
Extreme (-10C)	1882.5	8	0.004250	2.5
Extreme (-20C)	1882.5	15	0.007968	2.5
Extreme (-30C)	1882.5	8	0.004250	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.10 LTE BAND 26A

Band 26A QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	819	17	0.020757	2.5
3.87	819	9	0.010989	2.5
4.45	819	14	0.017094	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819	11	0.013431	2.5
Extreme (50C)	819	13	0.015873	2.5
Extreme (40C)	819	15	0.018315	2.5
Extreme (30C)	819	9	0.010989	2.5
Extreme (10C)	819	13	0.015873	2.5
Extreme (0C)	819	10	0.012210	2.5
Extreme (-10C)	819	8	0.009768	2.5
Extreme (-20C)	819	9	0.010989	2.5
Extreme (-30C)	819	4	0.004884	2.5

Band 26A 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	819	2	0.002442	2.5
3.87	819	14	0.017094	2.5
4.45	819	13	0.015873	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819	18	0.021978	2.5
Extreme (50C)	819	16	0.019536	2.5
Extreme (40C)	819	7	0.008547	2.5
Extreme (30C)	819	15	0.018315	2.5
Extreme (10C)	819	16	0.019536	2.5
Extreme (0C)	819	8	0.009768	2.5
Extreme (-10C)	819	16	0.019536	2.5
Extreme (-20C)	819	10	0.012210	2.5
Extreme (-30C)	819	12	0.014652	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.11 LTE BAND 26B

Band 26B QPSK, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	13	0.015541	2.5
3.87	836.5	16	0.019127	2.5
4.45	836.5	15	0.017932	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	16	0.019127	2.5
Extreme (50C)	836.5	3	0.003586	2.5
Extreme (40C)	836.5	9	0.010759	2.5
Extreme (30C)	836.5	13	0.015541	2.5
Extreme (10C)	836.5	14	0.016736	2.5
Extreme (0C)	836.5	4	0.004782	2.5
Extreme (-10C)	836.5	12	0.014345	2.5
Extreme (-20C)	836.5	1	0.001195	2.5
Extreme (-30C)	836.5	21	0.025105	2.5

Band 26B 16QAM, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	1	0.001195	2.5
3.87	836.5	15	0.017932	2.5
4.45	836.5	18	0.021518	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	10	0.011955	2.5
Extreme (50C)	836.5	14	0.016736	2.5
Extreme (40C)	836.5	17	0.020323	2.5
Extreme (30C)	836.5	6	0.007173	2.5
Extreme (10C)	836.5	12	0.014345	2.5
Extreme (0C)	836.5	19	0.022714	2.5
Extreme (-10C)	836.5	0	0.000000	2.5
Extreme (-20C)	836.5	16	0.011237	2.5
Extreme (-30C)	836.5	19	0.007292	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication

10.12 LTE BAND 38

Band 38 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2595	1	0.000385	2.5
3.87	2595	16	0.006166	2.5
4.45	2595	16	0.006166	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	15	0.005780	2.5
Extreme (50C)	2595	21	0.008092	2.5
Extreme (40C)	2595	3	0.001156	2.5
Extreme (30C)	2595	15	0.005780	2.5
Extreme (10C)	2595	3	0.001156	2.5
Extreme (0C)	2595	1	0.000385	2.5
Extreme (-10C)	2595	7	0.002697	2.5
Extreme (-20C)	2595	14	0.005395	2.5
Extreme (-30C)	2595	18	0.006936	2.5

Band 38 16QAM, (15MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2595	13	0.005010	2.5
3.87	2595	15	0.005780	2.5
4.45	2595	16	0.006166	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	18	0.006936	2.5
Extreme (50C)	2595	12	0.004624	2.5
Extreme (40C)	2595	13	0.005010	2.5
Extreme (30C)	2595	12	0.004624	2.5
Extreme (10C)	2595	13	0.005010	2.5
Extreme (0C)	2595	13	0.005010	2.5
Extreme (-10C)	2595	9	0.003468	2.5
Extreme (-20C)	2595	1	0.000385	2.5
Extreme (-30C)	2595	6	0.002312	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication

10.13 LTE BAND 41

Band 41 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2595	10	0.003854	2.5
3.87	2595	16	0.006166	2.5
4.45	2595	13	0.005010	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	3	0.001156	2.5
Extreme (50C)	2595	10	0.003854	2.5
Extreme (40C)	2595	15	0.005780	2.5
Extreme (30C)	2595	10	0.003854	2.5
Extreme (10C)	2595	15	0.005780	2.5
Extreme (0C)	2595	13	0.005010	2.5
Extreme (-10C)	2595	23	0.008863	2.5
Extreme (-20C)	2595	21	0.008092	2.5
Extreme (-30C)	2595	3	0.001156	2.5

Band 41 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2595	15	0.005780	2.5
3.87	2595	12	0.004624	2.5
4.45	2595	9	0.003468	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	20	0.007707	2.5
Extreme (50C)	2595	19	0.007322	2.5
Extreme (40C)	2595	3	0.001156	2.5
Extreme (30C)	2595	26	0.010019	2.5
Extreme (10C)	2595	15	0.005780	2.5
Extreme (0C)	2595	5	0.001927	2.5
Extreme (-10C)	2595	24	0.009249	2.5
Extreme (-20C)	2595	8	0.003083	2.5
Extreme (-30C)	2595	16	0.006166	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.14 LTE BAND 66

Band 66 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1745	13	0.007450	2.5
3.87	1745	3	0.001719	2.5
4.45	1745	7	0.004011	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	11	0.006304	2.5
Extreme (50C)	1745	15	0.008596	2.5
Extreme (40C)	1745	1	0.000573	2.5
Extreme (30C)	1745	2	0.001146	2.5
Extreme (10C)	1745	11	0.006304	2.5
Extreme (0C)	1745	3	0.001719	2.5
Extreme (-10C)	1745	6	0.003438	2.5
Extreme (-20C)	1745	1	0.000573	2.5
Extreme (-30C)	1745	24	0.013754	2.5

Band 66 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1745	19	0.010888	2.5
3.87	1745	16	0.009169	2.5
4.45	1745	23	0.013181	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	12	0.006877	2.5
Extreme (50C)	1745	14	0.008023	2.5
Extreme (40C)	1745	10	0.005731	2.5
Extreme (30C)	1745	16	0.009169	2.5
Extreme (10C)	1745	18	0.010315	2.5
Extreme (0C)	1745	26	0.014900	2.5
Extreme (-10C)	1745	15	0.008596	2.5
Extreme (-20C)	1745	16	0.009169	2.5
Extreme (-30C)	1745	12	0.006877	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

10.15 LTE BAND 71

Band 71 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	683	16	0.023426	2.5
3.87	683	18	0.026354	2.5
4.45	683	13	0.019034	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	683	12	0.017570	2.5
Extreme (50C)	683	11	0.016105	2.5
Extreme (40C)	683	16	0.023426	2.5
Extreme (30C)	683	5	0.007321	2.5
Extreme (10C)	683	9	0.013177	2.5
Extreme (0C)	683	14	0.020498	2.5
Extreme (-10C)	683	12	0.017570	2.5
Extreme (-20C)	683	5	0.007321	2.5
Extreme (-30C)	683	25	0.036603	2.5

Band 71 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	683	14	0.020498	2.5
3.87	683	13	0.019034	2.5
4.45	683	3	0.004392	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	683	18	0.026354	2.5
Extreme (50C)	683	14	0.020498	2.5
Extreme (40C)	683	11	0.016105	2.5
Extreme (30C)	683	12	0.017570	2.5
Extreme (10C)	683	3	0.004392	2.5
Extreme (0C)	683	6	0.008785	2.5
Extreme (-10C)	683	20	0.029283	2.5
Extreme (-20C)	683	18	0.026354	2.5
Extreme (-30C)	683	11	0.016105	2.5

***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

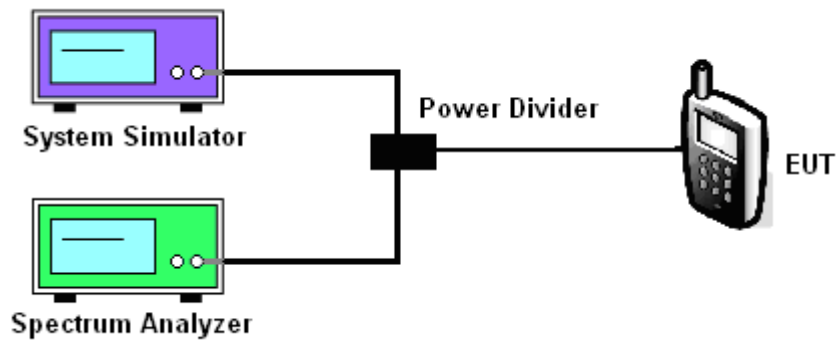
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For LTE operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



MODES TESTED

LTE Band 2, 4, 5, 7, 12, 13, 14, 17, 25, 26, 38, 41, 66, 71

Test data reference attachment.

----END OF REPORT----