FCC CFR47 PART 22H, 24E, 27
CERTIFICATION TEST REPORT
FCC ID: 2AHZ5KP5

Product:	Smartphone
Trade Mark:	CUBOT
Model No.:	KINGKONG POWER 5
Family Model:	N/A
Report No.:	S25031906402006
Issue Date:	May. 12, 2025

Prepared for

Shenzhen Huafurui Technology Co., Ltd.

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name	:	Shenzhen Huafurui Technology Co., Ltd.
Address	:	Unit 601-03, 6/F, Block A, Building 1,Ganfeng Technology Building, No. 993 Jiaxian Road,Shenzhen,China
Manufacturer's Name	:	Shenzhen Huafurui Technology Co., Ltd.
Address	:	Unit 601-03, 6/F, Block A, Building 1,Ganfeng Technology Building, No. 993 Jiaxian Road,Shenzhen,China
Product name	:	Smartphone
Model and/or type reference	:	KINGKONG POWER 5
Trade Mark	:	CUBOT
Family Model	:	N/A
Test Sample Number		S250319064002
Standards	:	FCC CFR 47 Part 22H, Part 24E, Part 27
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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Date of Test .....

Date (s) of performance of tests ..... Mar. 19, 2025 ~ May. 12, 2025

Date of Issue ..... May. 12, 2025

Test Result ..... **Pass**

Prepared By	:	Allen Liu (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:	Smartphone
Trade Mark	CUBOT
Model Name	KINGKONG POWER 5
Family Model	N/A
Model Difference	N/A
FCC ID:	2AHZ5KP5
Frequency Bands:	U.S. Bands: ☒LTE FDD Band 2, 4, 5, 7,12, 17 TDD Band 41
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 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 Uplink& Downlink: 2593MHz-2650MHz,
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	PIFA Antenna
Antenna gain:	Band2:-1.1dBi; Band4:-1.13dBi; Band5:-2.4dBi; Band7:-1.32dBi; Band12:-4.81dBi; Band17:-4.81dBi; Band41:-0.4dBi;
Adapter	Adapter 1: Model:HJ-PD33W-US Input:100-240V~50-60Hz 0.8A Output: 5.0V⎓3.0A 15.0W OR 9.0V⎓3.0A 27.0W OR 12.0V⎓2.75A 33.0W MAX Adapter 2: Model:TD-203G200170UF01 Input:100-240V~50-60Hz 0.6A Output: 5.0V⎓3.0A 15.0W OR 9.0V⎓3.0A 27.0W OR 12.0V⎓2.5A 30.0W OR 15.0V⎓2.0A 30.0W OR 20.0V⎓1.5A 30.0W PPS:3.3V-16V/2A OR 3.3V-11V/3A

Battery	DC 3.87V, 15300mAh, 59.211Wh
Power supply	DC 3.87V from Battery or DC 5V/9V/12V from Adapter 1 or DC 5V/9V/12V/15V/20V from Adapter 2.
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V)（Note 1）
HW Version	E233-C1
SW Version	CUBOT_KINGKONG_POWER_5_F011C_V08
** Note1: The High Voltage DC 4.43V and Low Voltage 3.27V 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: 2AHZ5KP5** filing to comply with the FCC Part 22H&24E&27.

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, 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.

No. 24 Xinfa East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of 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,

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 = 2Uc(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 2/4/5/7/12/17/41

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.

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

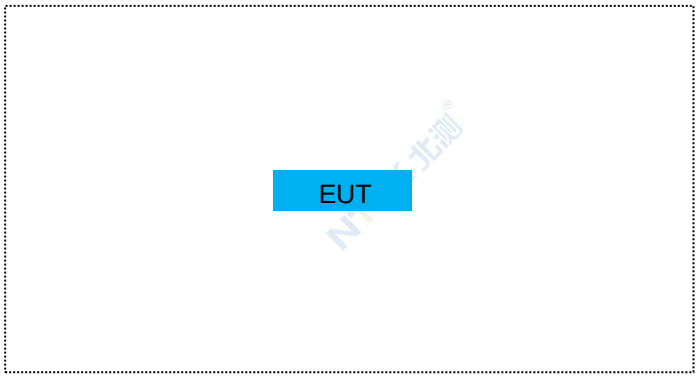
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smartphone	KINGKONG POWER 5	FCC ID: 2AHZ5KP5	EUT

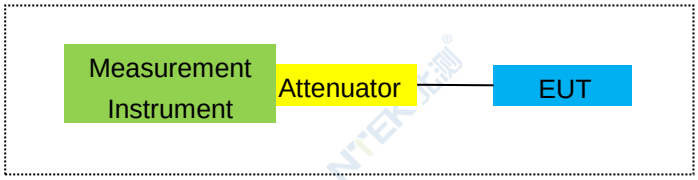
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

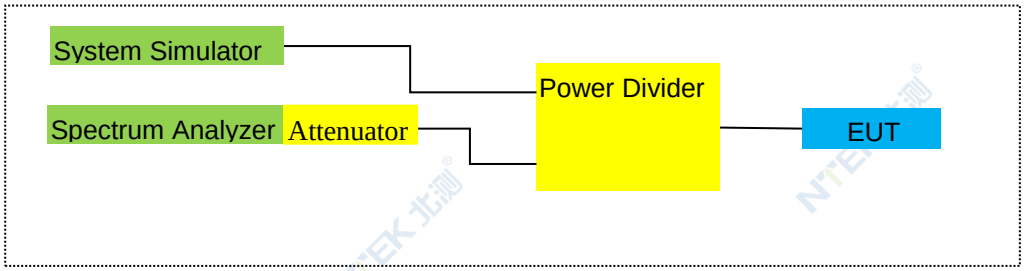
For Radiated Test Cases



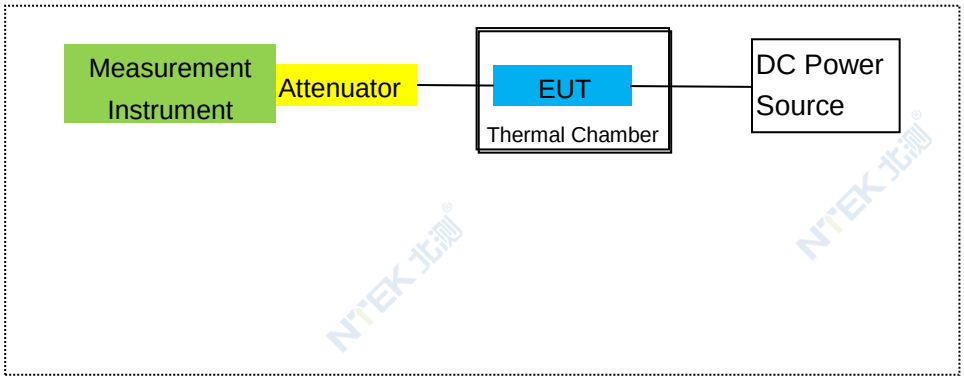
For Conducted Output Power



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 2025.04.17	2025.04.24 2026.04.16	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26 2025.04.17	2025.04.25 2026.04.16	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12 2025.05.11	2025.05.11 2026.05.10	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024.5.18	2027.5.17	3 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2024.5.18	2027.5.17	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26 2025.04.17	2025.04.25 2026.04.16	1 year
8	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 year
9	Power Meter	R&S	NRVS	100696	2024.04.26 2025.04.17	2025.04.25 2026.04.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26 2025.04.17	2025.04.25 2026.04.16	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 2025.04.17	2025.04.25 2026.04.16	1 year
15	LISN	R&S	ENV216	101313	2024.04.25 2025.04.17	2025.04.24 2026.04.16	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25 2025.04.17	2025.04.24 2026.04.16	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
18	Field strength probe	narda	EP601	711WX81278	2024.04.25 2025.04.17	2025.04.24 2026.04.16	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	MY41000130	2024.04.26 2025.04.17	2025.04.25 2026.04.16	1 year

23	EMI Test Receiver	R&S	ESCI	101160	2024.04.26 2025.04.17	2025.04.25 2026.04.16	1 year
24	Universal Radio Communication Tester	R&S	CMU200	105747	2024.04.26 2025.04.17	2025.04.25 2026.04.16	1 year
25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpac	582261194600030	2024.05.30	2027.05.29	3 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	2024.5.30	2025.5.29	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2024.5.25	2025.5.24	1 year
29	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2024.5.25	2025.5.24	1 year
30	Communication Tester	R&S	CMW500	148500	2024.5.30	2025.5.29	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	MWRFtest	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 2/4/5/7/12/17/41

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

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 2/4/5/7/12/17/41

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

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 2/4/5/7/12/17/41

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

LIMITS:

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

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 2/4/5/7/12/17/41

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 (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)		
1.4MHz Band QPSK	1/#Mid	1850.7	-5.35	3.76	28.24	19.13	81.846	2	Horizontal	Pass
		1880	-5.16	3.91	28.22	19.15	82.224	2	Horizontal	Pass
		1909.3	-5.07	3.93	28.20	19.20	83.176	2	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.41	3.77	28.23	19.05	80.353	2	Horizontal	Pass
		1880	-5.26	3.91	28.24	19.07	80.724	2	Horizontal	Pass
		1908.5	-5.13	3.94	28.25	19.18	82.794	2	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.30	3.77	28.31	19.24	83.946	2	Horizontal	Pass
		1880	-4.92	3.91	28.22	19.39	86.896	2	Horizontal	Pass
		1907.5	-4.85	3.94	28.20	19.41	87.297	2	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-5.16	3.79	28.33	19.38	86.696	2	Horizontal	Pass
		1880	-4.86	3.95	28.22	19.41	87.297	2	Horizontal	Pass
		1905	-4.75	3.97	28.19	19.47	88.512	2	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-5.12	3.79	28.34	19.43	87.700	2	Horizontal	Pass
		1880	-4.91	3.95	28.22	19.36	86.298	2	Horizontal	Pass
		1902.5	-4.77	3.97	28.18	19.44	87.902	2	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-5.11	3.81	28.35	19.43	87.700	2	Horizontal	Pass
		1880	-4.78	3.96	28.22	**19.48**	88.716	2	Horizontal	Pass
		1900	-4.72	4.00	28.16	19.44	87.902	2	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-6.52	3.76	28.24	17.96	62.517	2	Vertical	Pass
		1880	-5.98	3.91	28.22	18.33	68.077	2	Vertical	Pass
		1909.3	-6.18	3.93	28.20	18.09	64.417	2	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.70	3.77	28.23	18.76	75.162	2	Vertical	Pass
		1880	-5.76	3.91	28.24	18.57	71.945	2	Vertical	Pass
		1908.5	-6.24	3.94	28.25	18.07	64.121	2	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-6.48	3.77	28.31	18.06	63.973	2	Vertical	Pass
		1880	-5.94	3.91	28.22	18.37	68.707	2	Vertical	Pass
		1907.5	-5.89	3.94	28.20	18.37	68.707	2	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-6.64	3.79	28.33	17.90	61.660	2	Vertical	Pass
		1880	-5.68	3.95	28.22	18.59	72.277	2	Vertical	Pass
		1905	-5.52	3.97	28.19	18.70	74.131	2	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	-6.38	3.79	28.34	18.17	65.615	2	Vertical	Pass
		1880	-6.32	3.95	28.22	17.95	62.373	2	Vertical	Pass
		1902.5	-6.28	3.97	28.18	17.93	62.087	2	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-5.72	3.81	28.35	18.82	76.208	2	Vertical	Pass
		1880	-6.24	3.96	28.22	18.02	63.387	2	Vertical	Pass
		1900	-6.13	4.00	28.16	18.03	63.533	2	Vertical	Pass

	Radiated Power (EIRP) for Band 2										
Mode	RB/RB SIZE	Frequency		Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.47	3.76	28.24	18.01	63.241	2	Horizontal	Pass	
		1880	-5.94	3.91	28.22	18.37	68.707	2	Horizontal	Pass	
		1909.3	-5.87	3.93	28.20	18.40	69.183	2	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.97	3.77	28.23	18.49	70.632	2	Horizontal	Pass	
		1880	-6.05	3.91	28.24	18.28	67.298	2	Horizontal	Pass	
		1908.5	-6.26	3.94	28.25	18.05	63.826	2	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.91	3.77	28.31	18.63	72.946	2	Horizontal	Pass	
		1880	-5.82	3.91	28.22	18.49	70.632	2	Horizontal	Pass	
		1907.5	-5.50	3.94	28.20	18.76	75.162	2	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	1855	-5.96	3.79	28.33	18.58	72.111	2	Horizontal	Pass	
		1880	-5.95	3.95	28.22	18.32	67.920	2	Horizontal	Pass	
		1905	-5.42	3.97	28.19	18.80	75.858	2	Horizontal	Pass	
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.94	3.79	28.34	18.61	72.611	2	Horizontal	Pass	
		1880	-5.73	3.95	28.22	18.54	71.450	2	Horizontal	Pass	
		1902.5	-5.69	3.97	28.18	18.52	71.121	2	Horizontal	Pass	
20.0MHz Band 16 QAM	1/#Mid	1860	-5.83	3.81	28.35	18.71	74.302	2	Horizontal	Pass	
		1880	-5.53	3.96	28.22	18.73	74.645	2	Horizontal	Pass	
		1900	-5.35	4.00	28.16	**18.81**	76.033	2	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-7.04	3.76	28.24	17.44	55.463	2	Vertical	Pass	
		1880	-6.96	3.91	28.22	17.35	54.325	2	Vertical	Pass	
		1909.3	-6.75	3.93	28.20	17.52	56.494	2	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-6.88	3.77	28.23	17.58	57.280	2	Vertical	Pass	
		1880	-6.59	3.91	28.24	17.74	59.429	2	Vertical	Pass	
		1908.5	-7.21	3.94	28.25	17.10	51.286	2	Vertical	Pass	

5.0MHz Band 16 QAM	1/#Mid	1852.5	-6.82	3.77	28.31	17.72	59.156	2	Vertical	Pass
		1880	-6.64	3.91	28.22	17.67	58.479	2	Vertical	Pass
		1907.5	-7.19	3.94	28.20	17.07	50.933	2	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-7.22	3.79	28.33	17.32	53.951	2	Vertical	Pass
		1880	-7.09	3.95	28.22	17.18	52.240	2	Vertical	Pass
		1905	-7.09	3.97	28.19	17.13	51.642	2	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-7.58	3.79	28.34	16.97	49.774	2	Vertical	Pass
		1880	-7.21	3.95	28.22	17.06	50.816	2	Vertical	Pass
		1902.5	-7.16	3.97	28.18	17.05	50.699	2	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-7.13	3.81	28.35	17.41	55.081	2	Vertical	Pass
		1880	-7.08	3.96	28.22	17.18	52.240	2	Vertical	Pass
		1900	-6.76	4.00	28.16	17.40	54.954	2	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						Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)		
1.4MHz Band QPSK	1/#Mid	1710.7	-5.26	3.12	27.58	19.20	83.176	1	Horizontal	Pass
		1732.5	-5.25	3.27	27.61	19.09	81.096	1	Horizontal	Pass
		1754.3	-5.23	3.29	27.63	19.11	81.470	1	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.43	3.13	27.61	19.05	80.353	1	Horizontal	Pass
		1732.5	-5.35	3.27	27.61	18.99	79.250	1	Horizontal	Pass
		1753.5	-5.27	3.30	27.62	19.05	80.353	1	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.20	3.13	27.63	19.30	85.114	1	Horizontal	Pass
		1732.5	-5.10	3.27	27.61	19.24	83.946	1	Horizontal	Pass
		1752.5	-4.98	3.30	27.60	19.32	85.507	1	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.14	3.15	27.64	19.35	86.099	1	Horizontal	Pass
		1732.5	-4.91	3.31	27.61	19.39	86.896	1	Horizontal	Pass
		1750	-4.93	3.33	27.59	19.33	85.704	1	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-5.15	3.15	27.65	19.35	86.099	1	Horizontal	Pass
		1732.5	-4.99	3.31	27.61	19.31	85.310	1	Horizontal	Pass
		1747.5	-4.93	3.33	27.57	19.31	85.310	1	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-5.09	3.17	27.66	**19.40**	87.096	1	Horizontal	Pass
		1732.5	-4.92	3.32	27.61	19.37	86.497	1	Horizontal	Pass
		1745	-4.86	3.36	27.56	19.34	85.901	1	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-6.06	3.12	27.58	18.40	69.183	1	Vertical	Pass
		1732.5	-6.44	3.27	27.61	17.90	61.660	1	Vertical	Pass
		1754.3	-6.04	3.29	27.63	18.30	67.608	1	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.96	3.13	27.61	18.52	71.121	1	Vertical	Pass
		1732.5	-5.49	3.27	27.61	18.85	76.736	1	Vertical	Pass
		1753.5	-6.33	3.30	27.62	17.99	62.951	1	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.82	3.13	27.63	18.68	73.790	1	Vertical	Pass
		1732.5	-5.66	3.27	27.61	18.68	73.790	1	Vertical	Pass
		1752.5	-5.89	3.30	27.60	18.41	69.343	1	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-6.39	3.15	27.64	18.10	64.565	1	Vertical	Pass
		1732.5	-5.88	3.31	27.61	18.42	69.502	1	Vertical	Pass
		1750	-6.06	3.33	27.59	18.20	66.069	1	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-6.59	3.15	27.65	17.91	61.802	1	Vertical	Pass
		1732.5	-6.16	3.31	27.61	18.14	65.163	1	Vertical	Pass
		1747.5	-6.32	3.33	27.57	17.92	61.944	1	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-6.55	3.17	27.66	17.94	62.230	1	Vertical	Pass
		1732.5	-5.50	3.32	27.61	18.79	75.683	1	Vertical	Pass
		1745	-6.11	3.36	27.56	18.09	64.417	1	Vertical	Pass

	Radiated Power (EIRP) for Band 4										
Mode	RB/RB SIZE	Frequency		Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-6.07	3.12	27.58	18.39	69.024	1	Horizontal		Pass
		1732.5	-5.92	3.27	27.61	18.42	69.502	1	Horizontal		Pass
		1754.3	-5.92	3.29	27.63	18.42	69.502	1	Horizontal		Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.01	3.13	27.61	18.47	70.307	1	Horizontal		Pass
		1732.5	-6.14	3.27	27.61	18.20	66.069	1	Horizontal		Pass
		1753.5	-6.36	3.30	27.62	17.96	62.517	1	Horizontal		Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.84	3.13	27.63	18.66	73.451	1	Horizontal		Pass
		1732.5	-5.80	3.27	27.61	18.54	71.450	1	Horizontal		Pass
		1752.5	-5.49	3.30	27.60	18.81	76.033	1	Horizontal		Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.91	3.15	27.64	18.58	72.111	1	Horizontal		Pass
		1732.5	-6.10	3.31	27.61	18.20	66.069	1	Horizontal		Pass
		1750	-5.48	3.33	27.59	18.78	75.509	1	Horizontal		Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-5.71	3.15	27.65	18.79	75.683	1	Horizontal		Pass
		1732.5	-5.77	3.31	27.61	18.53	71.285	1	Horizontal		Pass
		1747.5	-5.79	3.33	27.57	18.45	69.984	1	Horizontal		Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-5.66	3.17	27.66	**18.83**	76.384	1	Horizontal		Pass
		1732.5	-5.67	3.32	27.61	18.62	72.778	1	Horizontal		Pass
		1745	-5.48	3.36	27.56	18.72	74.473	1	Horizontal		Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-6.71	3.12	27.58	17.75	59.566	1	Vertical		Pass
		1732.5	-6.97	3.27	27.61	17.37	54.576	1	Vertical		Pass
		1754.3	-7.21	3.29	27.63	17.13	51.642	1	Vertical		Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.90	3.13	27.61	17.58	57.280	1	Vertical		Pass
		1732.5	-6.80	3.27	27.61	17.54	56.754	1	Vertical		Pass
		1753.5	-6.84	3.30	27.62	17.48	55.976	1	Vertical		Pass
5.0MHz Band 16	1/#Mid	1712.5	-7.46	3.13	27.63	17.04	50.582	1	Vertical		Pass
		1732.5	-7.17	3.27	27.61	17.17	52.119	1	Vertical		Pass

QAM		1752.5	-6.78	3.30	27.60	17.52	56.494	1	Vertical	Pass
10.0MHz	1/#Mid	1715	-7.59	3.15	27.64	16.90	48.978	1	Vertical	Pass
Band 16		1732.5	-6.93	3.31	27.61	17.37	54.576	1	Vertical	Pass
QAM		1750	-7.06	3.33	27.59	17.20	52.481	1	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-7.49	3.15	27.65	17.01	50.234	1	Vertical	Pass
Band 16		1732.5	-7.41	3.31	27.61	16.89	48.865	1	Vertical	Pass
QAM		1747.5	-7.38	3.33	27.57	16.86	48.529	1	Vertical	Pass
20.0MHz	1/#Mid	1720	-6.95	3.17	27.66	17.54	56.754	1	Vertical	Pass
Band 16		1732.5	-7.13	3.32	27.61	17.16	52.000	1	Vertical	Pass
QAM		1745	-6.79	3.36	27.56	17.41	55.081	1	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 (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP		
1.4MHz Band QPSK	3/#Mid	824.7	4.04	2.01	19.68	2.15	19.56	90.365	7	Horizontal		Pass
		836.5	3.92	2.01	19.77	2.15	19.53	89.743	7	Horizontal		Pass
		848.3	3.72	2.02	19.82	2.15	19.37	86.497	7	Horizontal		Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.81	2.01	19.70	2.15	19.35	86.099	7	Horizontal		Pass
		836.5	3.71	2.01	19.77	2.15	19.32	85.507	7	Horizontal		Pass
		847.5	3.58	2.02	19.81	2.15	19.22	83.560	7	Horizontal		Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.09	2.01	19.71	2.15	19.64	92.045	7	Horizontal		Pass
		836.5	3.97	2.01	19.77	2.15	19.58	90.782	7	Horizontal		Pass
		846.5	3.81	2.02	19.79	2.15	19.43	87.700	7	Horizontal		Pass
10.0MHz Band QPSK	1/#Mid	829	4.11	2.01	19.73	2.15	**19.68**	92.897	7	Horizontal		Pass
		836.5	4.06	2.01	19.77	2.15	19.67	92.683	7	Horizontal		Pass
		844	3.96	2.02	19.78	2.15	19.57	90.573	7	Horizontal		Pass
1.4MHz Band QPSK	1/#Mid	824.7	2.63	2.01	19.68	2.15	18.15	65.313	7	Vertical		Pass
		836.5	2.67	2.01	19.77	2.15	18.28	67.298	7	Vertical		Pass
		848.3	3.00	2.02	19.82	2.15	18.65	73.282	7	Vertical		Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.31	2.01	19.70	2.15	18.85	76.736	7	Vertical		Pass
		836.5	2.80	2.01	19.77	2.15	18.41	69.343	7	Vertical		Pass
		847.5	2.82	2.02	19.81	2.15	18.46	70.146	7	Vertical		Pass
5.0MHz Band QPSK	1/#Mid	826.5	2.55	2.01	19.71	2.15	18.10	64.565	7	Vertical		Pass
		836.5	2.75	2.01	19.77	2.15	18.36	68.549	7	Vertical		Pass
		846.5	2.82	2.02	19.79	2.15	18.44	69.823	7	Vertical		Pass
10.0MHz Band QPSK	1/#Mid	829	2.41	2.01	19.73	2.15	17.98	62.806	7	Vertical		Pass
		836.5	2.99	2.01	19.77	2.15	18.60	72.444	7	Vertical		Pass
		844	3.22	2.02	19.78	2.15	18.83	76.384	7	Vertical		Pass

	Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result									Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP		
1.4MHz Band 16 QAM	3/#Mid	824.7	3.19	2.01	19.68	2.15	18.71	74.302	7	Horizontal	Pass	
		836.5	3.12	2.01	19.77	2.15	18.73	74.645	7	Horizontal	Pass	
		848.3	2.96	2.02	19.82	2.15	18.61	72.611	7	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	3.27	2.01	19.70	2.15	18.81	76.033	7	Horizontal	Pass	
		836.5	2.98	2.01	19.77	2.15	18.59	72.277	7	Horizontal	Pass	
		847.5	2.46	2.02	19.81	2.15	18.10	64.565	7	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	3.59	2.01	19.71	2.15	19.14	82.035	7	Horizontal	Pass	
		836.5	3.36	2.01	19.77	2.15	18.97	78.886	7	Horizontal	Pass	
		846.5	3.11	2.02	19.79	2.15	18.73	74.645	7	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	829	3.59	2.01	19.73	2.15	**19.16**	82.414	7	Horizontal	Pass	
		836.5	3.31	2.01	19.77	2.15	18.92	77.983	7	Horizontal	Pass	
		844	2.85	2.02	19.78	2.15	18.46	70.146	7	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	824.7	2.33	2.01	19.68	2.15	17.85	60.954	7	Vertical	Pass	
		836.5	3.24	2.01	19.77	2.15	18.85	76.736	7	Vertical	Pass	
		848.3	2.76	2.02	19.82	2.15	18.41	69.343	7	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	2.64	2.01	19.70	2.15	18.18	65.766	7	Vertical	Pass	
		836.5	1.58	2.01	19.77	2.15	17.19	52.360	7	Vertical	Pass	
		847.5	2.25	2.02	19.81	2.15	17.89	61.518	7	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	2.29	2.01	19.71	2.15	17.84	60.814	7	Vertical	Pass	
		836.5	1.83	2.01	19.77	2.15	17.44	55.463	7	Vertical	Pass	
		846.5	1.25	2.02	19.79	2.15	16.87	48.641	7	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	829	1.80	2.01	19.73	2.15	17.37	54.576	7	Vertical	Pass	
		836.5	1.67	2.01	19.77	2.15	17.28	53.456	7	Vertical	Pass	
		844	2.07	2.02	19.78	2.15	17.68	58.614	7	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						Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)		
5.0MHz Band QPSK	1/#Mid	2502.5	-3.54	4.54	27.75	19.67	92.683	2	Horizontal	Pass
		2535	-3.37	4.69	27.72	19.66	92.470	2	Horizontal	Pass
		2567.5	-3.30	4.71	27.71	19.70	93.325	2	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.47	4.55	27.76	19.74	94.189	2	Horizontal	Pass
		2535	-3.28	4.69	27.72	19.75	94.406	2	Horizontal	Pass
		2565	-3.20	4.72	27.70	19.78	95.060	2	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.48	4.55	27.77	19.74	94.189	2	Horizontal	Pass
		2535	-3.34	4.69	27.72	19.69	93.111	2	Horizontal	Pass
		2562.5	-3.24	4.72	27.69	19.73	93.972	2	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.42	4.57	27.78	**19.79**	95.280	2	Horizontal	Pass
		2535	-3.24	4.73	27.72	19.75	94.406	2	Horizontal	Pass
		2560	-3.20	4.75	27.68	19.73	93.972	2	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-5.34	4.54	27.75	17.87	61.235	2	Vertical	Pass
		2535	-5.11	4.69	27.72	17.92	61.944	2	Vertical	Pass
		2567.5	-4.46	4.71	27.71	18.54	71.450	2	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-4.74	4.55	27.76	18.47	70.307	2	Vertical	Pass
		2535	-4.40	4.69	27.72	18.63	72.946	2	Vertical	Pass
		2565	-5.01	4.72	27.70	17.97	62.661	2	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-4.64	4.55	27.77	18.58	72.111	2	Vertical	Pass
		2535	-4.34	4.69	27.72	18.69	73.961	2	Vertical	Pass
		2562.5	-5.12	4.72	27.69	17.85	60.954	2	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-4.43	4.57	27.78	18.78	75.509	2	Vertical	Pass
		2535	-4.89	4.73	27.72	18.10	64.565	2	Vertical	Pass
		2560	-5.07	4.75	27.68	17.86	61.094	2	Vertical	Pass

	Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.23	4.54	27.75	18.98	79.068	2	Horizontal	Pass
		2535	-3.92	4.69	27.72	19.11	81.470	2	Horizontal	Pass
		2567.5	-4.00	4.71	27.71	19.00	79.433	2	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-4.12	4.55	27.76	19.09	81.096	2	Horizontal	Pass
		2535	-4.13	4.69	27.72	18.90	77.625	2	Horizontal	Pass
		2565	-4.40	4.72	27.70	18.58	72.111	2	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.30	4.55	27.77	18.92	77.983	2	Horizontal	Pass
		2535	-4.27	4.69	27.72	18.76	75.162	2	Horizontal	Pass
		2562.5	-3.88	4.72	27.69	19.09	81.096	2	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.18	4.57	27.78	19.03	79.983	2	Horizontal	Pass
		2535	-3.85	4.73	27.72	**19.14**	82.035	2	Horizontal	Pass
		2560	-3.95	4.75	27.68	18.98	79.068	2	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-5.60	4.54	27.75	17.61	57.677	2	Vertical	Pass
		2535	-5.68	4.69	27.72	17.35	54.325	2	Vertical	Pass
		2567.5	-4.38	4.71	27.71	18.62	72.778	2	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-4.49	4.55	27.76	18.72	74.473	2	Vertical	Pass
		2535	-4.93	4.69	27.72	18.10	64.565	2	Vertical	Pass
		2565	-4.97	4.72	27.70	18.01	63.241	2	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.87	4.55	27.77	18.35	68.391	2	Vertical	Pass
		2535	-5.13	4.69	27.72	17.90	61.660	2	Vertical	Pass
		2562.5	-5.31	4.72	27.69	17.66	58.345	2	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-5.86	4.57	27.78	17.35	54.325	2	Vertical	Pass
		2535	-5.61	4.73	27.72	17.38	54.702	2	Vertical	Pass
		2560	-4.72	4.75	27.68	18.21	66.222	2	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. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP		
1.4MHz Band QPSK	1/#Mid	699.7	4.41	1.91	19.21	2.15	19.56	90.365	3	Vertical		Pass
		707.5	4.33	1.91	19.26	2.15	19.53	89.743	3	Vertical		Pass
		715.3	4.11	1.93	19.34	2.15	19.37	86.497	3	Vertical		Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.20	1.91	19.21	2.15	19.35	86.099	3	Vertical		Pass
		707.5	4.12	1.91	19.26	2.15	19.32	85.507	3	Vertical		Pass
		714.5	3.96	1.93	19.34	2.15	19.22	83.560	3	Vertical		Pass
5.0MHz Band QPSK	1/#Mid	701.5	4.47	1.91	19.23	2.15	19.64	92.045	3	Vertical		Pass
		707.5	4.38	1.91	19.26	2.15	19.58	90.782	3	Vertical		Pass
		713.5	4.17	1.92	19.33	2.15	19.43	87.700	3	Vertical		Pass
10.0MHz Band QPSK	1/#Mid	704	4.49	1.91	19.25	2.15	**19.68**	92.897	3	Vertical		Pass
		707.5	4.47	1.91	19.26	2.15	19.67	92.683	3	Vertical		Pass
		711	4.32	1.92	19.32	2.15	19.57	90.573	3	Vertical		Pass
1.4MHz Band QPSK	1/#Mid	699.7	3.33	1.91	19.21	2.15	18.48	70.469	3	Horizontal		Pass
		707.5	3.64	1.91	19.26	2.15	18.84	76.560	3	Horizontal		Pass
		715.3	3.48	1.93	19.34	2.15	18.74	74.817	3	Horizontal		Pass
3.0MHz Band QPSK	1/#Mid	700.5	2.71	1.91	19.21	2.15	17.86	61.094	3	Horizontal		Pass
		707.5	2.75	1.91	19.26	2.15	17.95	62.373	3	Horizontal		Pass
		714.5	2.89	1.93	19.34	2.15	18.15	65.313	3	Horizontal		Pass
5.0MHz Band QPSK	1/#Mid	701.5	3.26	1.91	19.23	2.15	18.43	69.663	3	Horizontal		Pass
		707.5	2.94	1.91	19.26	2.15	18.14	65.163	3	Horizontal		Pass
		713.5	3.27	1.92	19.33	2.15	18.53	71.285	3	Horizontal		Pass
10.0MHz Band QPSK	1/#Mid	704	3.49	1.91	19.25	2.15	18.68	73.790	3	Horizontal		Pass
		707.5	3.16	1.91	19.26	2.15	18.36	68.549	3	Horizontal		Pass
		711	3.35	1.92	19.32	2.15	18.60	72.444	3	Horizontal		Pass

	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. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	699.7	4.48	1.91	19.21	2.15	19.63	91.833	3	Vertical	Pass
		707.5	4.40	1.91	19.26	2.15	19.60	91.201	3	Vertical	Pass
		715.3	4.18	1.93	19.34	2.15	19.44	87.902	3	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.27	1.91	19.21	2.15	19.42	87.498	3	Vertical	Pass
		707.5	4.19	1.91	19.26	2.15	19.39	86.896	3	Vertical	Pass
		714.5	4.03	1.93	19.34	2.15	19.29	84.918	3	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	4.54	1.91	19.23	2.15	19.71	93.541	3	Vertical	Pass
		707.5	4.45	1.91	19.26	2.15	19.65	92.257	3	Vertical	Pass
		713.5	4.24	1.92	19.33	2.15	19.50	89.125	3	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.56	1.91	19.25	2.15	**19.75**	94.406	3	Vertical	Pass
		707.5	4.54	1.91	19.26	2.15	19.74	94.189	3	Vertical	Pass
		711	4.39	1.92	19.32	2.15	19.64	92.045	3	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	3.12	1.91	19.21	2.15	18.27	67.143	3	Horizontal	Pass
		707.5	3.14	1.91	19.26	2.15	18.34	68.234	3	Horizontal	Pass
		715.3	3.19	1.93	19.34	2.15	18.45	69.984	3	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	3.18	1.91	19.21	2.15	18.33	68.077	3	Horizontal	Pass
		707.5	3.29	1.91	19.26	2.15	18.49	70.632	3	Horizontal	Pass
		714.5	3.02	1.93	19.34	2.15	18.28	67.298	3	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	3.52	1.91	19.23	2.15	18.69	73.961	3	Horizontal	Pass
		707.5	3.36	1.91	19.26	2.15	18.56	71.779	3	Horizontal	Pass
		713.5	3.52	1.92	19.33	2.15	18.78	75.509	3	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	3.00	1.91	19.25	2.15	18.19	65.917	3	Horizontal	Pass
		707.5	2.77	1.91	19.26	2.15	17.97	62.661	3	Horizontal	Pass
		711	2.93	1.92	19.32	2.15	18.18	65.766	3	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)

ERP(dBm)=EIRP-2.15

8.7 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. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP		
5.0MHz Band QPSK	1/#Mid	706.5	4.94	1.91	19.23	2.15	20.11	102.565	3	Vertical		Pass
		710	4.80	1.91	19.26	2.15	20.00	100.000	3	Vertical		Pass
		713.5	4.70	1.92	19.33	2.15	19.96	99.083	3	Vertical		Pass
10.0MHz Band QPSK	1/#Mid	709	4.95	1.91	19.25	2.15	**20.14**	103.276	3	Vertical		Pass
		710	4.90	1.91	19.26	2.15	20.10	102.329	3	Vertical		Pass
		711	4.86	1.92	19.32	2.15	20.11	102.565	3	Vertical		Pass
5.0MHz Band QPSK	1/#Mid	706.5	3.51	1.91	19.23	2.15	18.68	73.790	3	Horizontal		Pass
		710	3.33	1.91	19.26	2.15	18.53	71.285	3	Horizontal		Pass
		713.5	3.74	1.92	19.33	2.15	19.00	79.433	3	Horizontal		Pass
10.0MHz Band QPSK	1/#Mid	709	4.55	1.91	19.25	2.15	19.74	94.189	3	Horizontal		Pass
		710	4.21	1.91	19.26	2.15	19.41	87.297	3	Horizontal		Pass
		711	3.30	1.92	19.32	2.15	18.55	71.614	3	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. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	4.26	1.91	19.23	2.15	19.43	87.700	3	Vertical	Pass
		710	4.17	1.91	19.26	2.15	19.37	86.497	3	Vertical	Pass
		713.5	3.97	1.92	19.33	2.15	19.23	83.753	3	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	3.80	1.91	19.25	2.15	18.99	79.250	3	Vertical	Pass
		710	4.33	1.91	19.26	2.15	**19.53**	89.743	3	Vertical	Pass
		711	4.06	1.92	19.32	2.15	19.31	85.310	3	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	3.35	1.91	19.23	2.15	18.52	71.121	3	Horizontal	Pass
		710	3.21	1.91	19.26	2.15	18.41	69.343	3	Horizontal	Pass
		713.5	2.80	1.92	19.33	2.15	18.06	63.973	3	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	2.90	1.91	19.25	2.15	18.09	64.417	3	Horizontal	Pass
		710	2.70	1.91	19.26	2.15	17.90	61.660	3	Horizontal	Pass
		711	2.94	1.92	19.32	2.15	18.19	65.917	3	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)

8.8 LTE BAND 41

	Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2595.5	-3.80	4.54	27.75	19.41	87.297	2	Horizontal	Pass
		2621.5	-3.65	4.69	27.72	19.38	86.696	2	Horizontal	Pass
		2647.5	-3.53	4.71	27.71	19.47	88.512	2	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2598	-3.88	4.55	27.76	19.33	85.704	2	Horizontal	Pass
		2621.5	-3.74	4.69	27.72	19.29	84.918	2	Horizontal	Pass
		2645	-3.73	4.72	27.70	19.25	84.140	2	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2600.5	-3.71	4.55	27.77	19.51	89.331	2	Horizontal	Pass
		2621.5	-3.43	4.69	27.72	19.60	91.201	2	Horizontal	Pass
		2642.5	-3.48	4.72	27.69	19.49	88.920	2	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2603	-3.32	4.57	27.78	**19.89**	97.499	2	Horizontal	Pass
		2621.5	-3.37	4.73	27.72	19.62	91.622	2	Horizontal	Pass
		2640	-3.37	4.75	27.68	19.56	90.365	2	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2595.5	-3.60	4.54	27.75	19.61	91.411	2	Vertical	Pass
		2621.5	-3.51	4.69	27.72	19.52	89.536	2	Vertical	Pass
		2647.5	-3.49	4.71	27.71	19.51	89.331	2	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2598	-3.58	4.55	27.76	19.63	91.833	2	Vertical	Pass
		2621.5	-3.42	4.69	27.72	19.61	91.411	2	Vertical	Pass
		2645	-3.49	4.72	27.70	19.49	88.920	2	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2600.5	-4.99	4.55	27.77	18.23	66.527	2	Vertical	Pass
		2621.5	-5.12	4.69	27.72	17.91	61.802	2	Vertical	Pass
		2642.5	-4.27	4.72	27.69	18.70	74.131	2	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2603	-4.86	4.57	27.78	18.35	68.391	2	Vertical	Pass
		2621.5	-4.28	4.73	27.72	18.71	74.302	2	Vertical	Pass
		2640	-4.52	4.75	27.68	18.41	69.343	2	Vertical	Pass

	Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)		
5.0MHz Band 16 QAM	1/#Mid	2595.5	-3.63	4.54	27.75	19.58	90.782	2	Horizontal	Pass
		2621.5	-3.48	4.69	27.72	19.55	90.157	2	Horizontal	Pass
		2647.5	-3.36	4.71	27.71	19.64	92.045	2	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2598	-3.71	4.55	27.76	19.50	89.125	2	Horizontal	Pass
		2621.5	-3.57	4.69	27.72	19.46	88.308	2	Horizontal	Pass
		2645	-3.56	4.72	27.70	19.42	87.498	2	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2600.5	-3.54	4.55	27.77	19.68	92.897	2	Horizontal	Pass
		2621.5	-3.26	4.69	27.72	19.77	94.842	2	Horizontal	Pass
		2642.5	-3.31	4.72	27.69	19.66	92.470	2	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2603	-3.26	4.57	27.78	**19.95**	98.855	2	Horizontal	Pass
		2621.5	-3.20	4.73	27.72	19.79	95.280	2	Horizontal	Pass
		2640	-3.20	4.75	27.68	19.73	93.972	2	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2595.5	-3.43	4.54	27.75	19.78	95.060	2	Vertical	Pass
		2621.5	-3.34	4.69	27.72	19.69	93.111	2	Vertical	Pass
		2647.5	-3.32	4.71	27.71	19.68	92.897	2	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2598	-3.41	4.55	27.76	19.80	95.499	2	Vertical	Pass
		2621.5	-3.25	4.69	27.72	19.78	95.060	2	Vertical	Pass
		2645	-3.32	4.72	27.70	19.66	92.470	2	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2600.5	-4.41	4.55	27.77	18.81	76.033	2	Vertical	Pass
		2621.5	-4.93	4.69	27.72	18.10	64.565	2	Vertical	Pass
		2642.5	-4.57	4.72	27.69	18.40	69.183	2	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2603	-4.59	4.57	27.78	18.62	72.778	2	Vertical	Pass
		2621.5	-4.12	4.73	27.72	18.87	77.090	2	Vertical	Pass
		2640	-4.65	4.75	27.68	18.28	67.298	2	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)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

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 log10(P) dB.

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 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (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 2/4/5/7/12/17/41

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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3701.4	-46.14	4.04	33.51	-16.67	-13	-3.67	Horizontal
3701.4	-49.28	4.04	33.51	-19.81	-13	-6.81	Vertical
5552.1	-50.30	5.24	35.84	-19.70	-13	-6.70	Vertical
5552.1	-52.94	5.24	35.84	-22.34	-13	-9.34	Horizontal
184.0	-39.79	1.43	16.02	-25.20	-13	-12.20	Vertical
364.5	-37.02	1.30	17.99	-20.33	-13	-7.33	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-52.27	4.04	33.56	-22.75	-13	-9.75	Horizontal
3760.0	-46.64	4.04	33.56	-17.12	-13	-4.12	Vertical
5640.0	-48.06	5.24	35.91	-17.39	-13	-4.39	Vertical
5640.0	-50.33	5.24	35.91	-19.66	-13	-6.66	Horizontal
175.1	-37.72	1.62	16.97	-22.37	-13	-9.37	Vertical
339.4	-42.88	1.74	15.98	-28.65	-13	-15.65	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-49.55	4.04	34.00	-19.59	-13	-6.59	Horizontal
3818.6	-47.09	4.04	34.00	-17.13	-13	-4.13	Vertical
5727.9	-50.25	5.24	36.04	-19.45	-13	-6.45	Vertical
5727.9	-50.11	5.24	36.04	-19.31	-13	-6.31	Horizontal
177.5	-40.47	1.42	17.29	-24.60	-13	-11.60	Vertical
287.4	-42.44	1.50	17.90	-26.03	-13	-13.03	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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3720.0	-48.16	4.07	33.54	-18.69	-13	-5.69	Horizontal
3720.0	-50.84	4.07	33.54	-21.37	-13	-8.37	Vertical
5580.0	-51.89	5.28	35.86	-21.31	-13	-8.31	Vertical
5580.0	-53.73	5.28	35.86	-23.15	-13	-10.15	Horizontal
210.8	-41.78	1.58	16.89	-26.46	-13	-13.46	Vertical
266.1	-34.22	1.76	17.26	-18.72	-13	-5.72	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-53.09	4.04	33.56	-23.57	-13	-10.57	Horizontal
3760.0	-48.50	4.04	33.56	-18.98	-13	-5.98	Vertical
5640.0	-51.11	5.24	35.91	-20.44	-13	-7.44	Vertical
5640.0	-51.46	5.24	35.91	-20.79	-13	-7.79	Horizontal
185.2	-36.78	1.46	16.27	-21.97	-13	-8.97	Vertical
378.2	-43.34	1.59	15.15	-29.78	-13	-16.78	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-53.48	4.04	34.00	-23.52	-13	-10.52	Horizontal
3800.0	-52.90	4.04	34.00	-22.94	-13	-9.94	Vertical
5700.0	-49.37	5.24	36.04	-18.57	-13	-5.57	Vertical
5700.0	-52.12	5.24	36.04	-21.32	-13	-8.32	Horizontal
183.6	-42.89	1.36	17.39	-26.85	-13	-13.85	Vertical
458.4	-38.24	1.66	15.39	-24.51	-13	-11.51	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3421.4	-51.42	4.02	29.80	-25.64	-13	-12.64	Horizontal
3421.4	-47.94	4.02	29.80	-22.16	-13	-9.16	Vertical
5132.1	-53.85	5.24	35.84	-23.25	-13	-10.25	Vertical
5132.1	-51.97	5.24	35.84	-21.37	-13	-8.37	Horizontal
185.8	-41.91	1.68	16.04	-27.55	-13	-14.55	Vertical
277.2	-35.79	1.78	17.74	-19.83	-13	-6.83	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-50.14	4.03	30.00	-24.17	-13	-11.17	Horizontal
3465.0	-44.41	4.03	30.00	-18.44	-13	-5.44	Vertical
5197.5	-52.91	5.25	35.86	-22.30	-13	-9.30	Vertical
5197.5	-51.65	5.25	35.86	-21.04	-13	-8.04	Horizontal
188.7	-34.82	1.72	17.69	-18.85	-13	-5.85	Vertical
379.6	-38.58	1.62	16.02	-24.17	-13	-11.17	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-50.44	4.05	30.01	-24.48	-13	-11.48	Horizontal
3508.6	-44.92	4.05	30.01	-18.96	-13	-5.96	Vertical
5262.9	-47.04	5.26	35.86	-16.44	-13	-3.44	Vertical
5262.9	-52.59	5.26	35.86	-21.99	-13	-8.99	Horizontal
176.6	-41.81	1.80	16.69	-26.92	-13	-13.92	Vertical
302.0	-43.95	1.75	16.66	-29.05	-13	-16.05	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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3440.0	-46.33	4.02	29.80	-20.55	-13	-7.55	Horizontal
3440.0	-53.57	4.02	29.80	-27.79	-13	-14.79	Vertical
5160.0	-47.93	5.24	35.84	-17.33	-13	-4.33	Vertical
5160.0	-49.02	5.24	35.84	-18.42	-13	-5.42	Horizontal
190.8	-44.70	1.57	17.26	-29.01	-13	-16.01	Vertical
323.6	-42.53	1.78	16.35	-27.96	-13	-14.96	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.75	4.03	30.00	-22.78	-13	-9.78	Horizontal
3465.0	-51.69	4.03	30.00	-25.72	-13	-12.72	Vertical
5197.5	-46.83	5.25	35.86	-16.22	-13	-3.22	Vertical
5197.5	-53.20	5.25	35.86	-22.59	-13	-9.59	Horizontal
183.6	-37.36	1.44	17.95	-20.85	-13	-7.85	Vertical
231.6	-44.69	1.65	16.09	-30.25	-13	-17.25	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-49.59	2.91	27.68	-24.82	-13	-11.82	Horizontal
3490.0	-50.33	2.91	27.68	-25.56	-13	-12.56	Vertical
5235.0	-51.20	5.26	35.86	-20.60	-13	-7.60	Vertical
5235.0	-49.29	5.26	35.86	-18.69	-13	-5.69	Horizontal
212.3	-40.20	1.61	16.85	-24.96	-13	-11.96	Vertical
242.2	-42.12	1.61	15.19	-28.54	-13	-15.54	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1649.4	-48.30	2.78	27.50	-23.58	-13	-10.58	Horizontal
1649.4	-52.79	2.78	27.50	-28.07	-13	-15.07	Vertical
2474.1	-47.88	2.90	27.80	-22.98	-13	-9.98	Vertical
2474.1	-51.46	2.90	27.80	-26.56	-13	-13.56	Horizontal
209.9	-36.32	1.76	17.59	-20.49	-13	-7.49	Vertical
236.0	-36.76	1.63	15.87	-22.52	-13	-9.52	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-45.67	2.80	27.48	-20.99	-13	-7.99	Horizontal
1673.0	-46.27	2.80	27.48	-21.59	-13	-8.59	Vertical
2509.5	-52.84	2.91	27.70	-28.05	-13	-15.05	Vertical
2509.5	-53.62	2.91	27.70	-28.83	-13	-15.83	Horizontal
212.4	-39.84	1.61	15.68	-25.77	-13	-12.77	Vertical
268.1	-43.15	1.59	17.52	-27.23	-13	-14.23	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-50.95	2.82	27.43	-26.34	-13	-13.34	Horizontal
1696.6	-50.22	2.82	27.43	-25.61	-13	-12.61	Vertical
2544.9	-52.39	2.92	27.74	-27.57	-13	-14.57	Vertical
2544.9	-52.70	2.92	27.74	-27.88	-13	-14.88	Horizontal
184.2	-37.14	1.69	16.67	-22.15	-13	-9.15	Vertical
436.0	-42.10	1.70	17.18	-26.62	-13	-13.62	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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1658.0	-49.07	2.78	27.50	-24.35	-13	-11.35	Horizontal
1658.0	-44.94	2.78	27.50	-20.22	-13	-7.22	Vertical
2487.0	-50.33	2.90	27.80	-25.43	-13	-12.43	Vertical
2487.0	-53.31	2.90	27.80	-28.41	-13	-15.41	Horizontal
189.0	-35.31	1.71	15.57	-21.45	-13	-8.45	Vertical
464.9	-39.05	1.34	16.40	-23.99	-13	-10.99	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-49.24	2.80	27.48	-24.56	-13	-11.56	Horizontal
1673.0	-50.04	2.80	27.48	-25.36	-13	-12.36	Vertical
2509.5	-52.92	2.91	27.70	-28.13	-13	-15.13	Vertical
2509.5	-50.81	2.91	27.70	-26.02	-13	-13.02	Horizontal
194.6	-44.28	1.44	17.04	-28.68	-13	-15.68	Vertical
287.9	-38.10	1.76	17.62	-22.24	-13	-9.24	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.19	2.82	27.43	-19.58	-13	-6.58	Horizontal
1688.0	-46.58	2.82	27.43	-21.97	-13	-8.97	Vertical
2532.0	-44.31	2.92	27.74	-19.49	-13	-6.49	Vertical
2532.0	-52.44	2.92	27.74	-27.62	-13	-14.62	Horizontal
186.6	-35.24	1.74	17.70	-19.28	-13	-6.28	Vertical
439.4	-35.66	1.41	17.46	-19.60	-13	-6.60	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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
5005.0	-61.72	5.23	35.81	-31.14	-25	-6.14	Horizontal
5005.0	-60.89	5.23	35.81	-30.31	-25	-5.31	Vertical
7507.5	-63.67	5.67	36.85	-32.49	-25	-7.49	Vertical
7507.5	-62.27	5.67	36.85	-31.09	-25	-6.09	Horizontal
184.9	-48.34	1.73	17.97	-32.10	-25	-7.10	Vertical
335.6	-51.46	1.38	15.11	-37.73	-25	-12.73	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.06	5.23	35.82	-29.47	-25	-4.47	Horizontal
5070.0	-64.21	5.23	35.82	-33.62	-25	-8.62	Vertical
7605.0	-62.25	5.67	36.85	-31.07	-25	-6.07	Vertical
7605.0	-60.42	5.67	36.85	-29.24	-25	-4.24	Horizontal
192.4	-44.62	1.77	16.17	-30.21	-25	-5.21	Vertical
280.0	-48.97	1.63	15.21	-35.39	-25	-10.39	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.44	5.24	35.83	-30.85	-25	-5.85	Horizontal
5135.0	-63.46	5.24	35.83	-32.87	-25	-7.87	Vertical
7702.5	-62.44	5.68	36.87	-31.25	-25	-6.25	Vertical
7702.5	-64.38	5.68	36.87	-33.19	-25	-8.19	Horizontal
203.9	-51.30	1.58	17.56	-35.32	-25	-10.32	Vertical
287.6	-52.57	1.45	16.58	-37.44	-25	-12.44	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
5020.0	-60.47	5.23	35.82	-29.88	-25	-4.88	Horizontal
5020.0	-60.92	5.23	35.82	-30.33	-25	-5.33	Vertical
7530.0	-62.04	5.67	36.86	-30.85	-25	-5.85	Vertical
7530.0	-61.78	5.67	36.86	-30.59	-25	-5.59	Horizontal
178.2	-54.71	1.63	15.76	-40.58	-25	-15.58	Vertical
356.9	-47.11	1.71	15.44	-33.38	-25	-8.38	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.13	5.23	35.82	-30.54	-25	-5.54	Horizontal
5070.0	-62.06	5.23	35.82	-31.47	-25	-6.47	Vertical
7605.0	-60.29	5.67	36.85	-29.11	-25	-4.11	Vertical
7605.0	-62.58	5.67	36.85	-31.40	-25	-6.40	Horizontal
205.2	-48.81	1.79	16.84	-33.75	-25	-8.75	Vertical
276.7	-46.11	1.71	17.64	-30.18	-25	-5.18	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.89	5.24	35.83	-31.30	-25	-6.30	Horizontal
5120.0	-60.56	5.24	35.83	-29.97	-25	-4.97	Vertical
7680.0	-61.32	5.70	36.88	-30.14	-25	-5.14	Vertical
7680.0	-63.19	5.70	36.88	-32.01	-25	-7.01	Horizontal
207.5	-49.14	1.79	16.84	-34.08	-25	-9.08	Vertical
353.2	-48.99	1.71	17.64	-33.06	-25	-8.06	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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1399.4	-50.39	2.60	27.20	-25.79	-13	-12.79	Horizontal
1399.4	-49.00	2.60	27.20	-24.40	-13	-11.40	Vertical
2099.1	-48.17	2.85	27.54	-23.48	-13	-10.48	Vertical
2099.1	-52.57	2.85	27.54	-27.88	-13	-14.88	Horizontal
194.2	-39.03	1.49	17.78	-22.74	-13	-9.74	Vertical
392.3	-43.08	1.36	17.33	-27.11	-13	-14.11	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-53.05	2.61	27.28	-28.38	-13	-15.38	Horizontal
1415.0	-53.27	2.61	27.28	-28.60	-13	-15.60	Vertical
2122.5	-44.69	2.87	27.59	-19.97	-13	-6.97	Vertical
2122.5	-52.68	2.87	27.59	-27.96	-13	-14.96	Horizontal
179.2	-41.81	1.73	15.74	-27.80	-13	-14.80	Vertical
392.9	-40.22	1.62	15.79	-26.05	-13	-13.05	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-53.59	2.63	27.28	-28.94	-13	-15.94	Horizontal
1430.6	-53.77	2.63	27.28	-29.12	-13	-16.12	Vertical
2145.9	-46.61	2.88	27.60	-21.89	-13	-8.89	Vertical
2145.9	-49.89	2.88	27.60	-25.17	-13	-12.17	Horizontal
204.4	-39.39	1.61	18.00	-23.00	-13	-10.00	Vertical
242.1	-35.18	1.45	15.49	-21.15	-13	-8.15	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 Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1408.0	-44.45	2.61	27.26	-19.80	-13	-6.80	Horizontal
1408.0	-44.56	2.61	27.26	-19.91	-13	-6.91	Vertical
2112.0	-46.67	2.87	27.58	-21.96	-13	-8.96	Vertical
2112.0	-50.08	2.87	27.58	-25.37	-13	-12.37	Horizontal
209.1	-34.97	1.31	16.97	-19.31	-13	-6.31	Vertical
383.8	-44.37	1.65	16.70	-29.32	-13	-16.32	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-51.65	2.61	27.28	-26.98	-13	-13.98	Horizontal
1415.0	-46.87	2.61	27.28	-22.20	-13	-9.20	Vertical
2122.5	-44.59	2.87	27.59	-19.87	-13	-6.87	Vertical
2122.5	-50.64	2.87	27.59	-25.92	-13	-12.92	Horizontal
209.2	-41.93	1.72	17.99	-25.66	-13	-12.66	Vertical
288.3	-43.67	1.73	17.94	-27.46	-13	-14.46	Horizontal
Test Results for High Channel 711MHz							
1422.0	-50.80	2.62	27.28	-26.14	-13	-13.14	Horizontal
1422.0	-51.53	2.62	27.28	-26.87	-13	-13.87	Vertical
2133.0	-53.15	2.87	27.60	-28.42	-13	-15.42	Vertical
2133.0	-53.97	2.87	27.60	-29.24	-13	-16.24	Horizontal
182.1	-43.68	1.58	15.93	-29.33	-13	-16.33	Vertical
388.0	-44.29	1.36	15.59	-30.06	-13	-17.06	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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 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
1413.0	-49.73	2.61	27.28	-25.06	-13	-12.06	Horizontal
1413.0	-44.79	2.61	27.28	-20.12	-13	-7.12	Vertical
2119.5	-53.65	2.87	27.59	-28.93	-13	-15.93	Vertical
2119.5	-51.21	2.87	27.59	-26.49	-13	-13.49	Horizontal
201.0	-41.88	1.71	16.15	-27.44	-13	-14.44	Vertical
251.1	-44.90	1.41	17.32	-28.99	-13	-15.99	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-47.99	2.62	27.30	-23.31	-13	-10.31	Horizontal
1420.0	-51.26	2.62	27.30	-26.58	-13	-13.58	Vertical
2130.0	-50.24	2.87	27.62	-25.49	-13	-12.49	Vertical
2130.0	-50.61	2.87	27.62	-25.86	-13	-12.86	Horizontal
205.8	-43.21	1.42	15.25	-29.39	-13	-16.39	Vertical
309.7	-40.35	1.36	17.19	-24.52	-13	-11.52	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-50.06	2.66	27.28	-25.44	-13	-12.44	Horizontal
1427.0	-46.50	2.66	27.28	-21.88	-13	-8.88	Vertical
2140.5	-51.13	2.88	27.60	-26.41	-13	-13.41	Vertical
2140.5	-52.35	2.88	27.60	-27.63	-13	-14.63	Horizontal
206.2	-34.50	1.32	17.29	-18.53	-13	-5.53	Vertical
454.4	-39.86	1.72	16.89	-24.69	-13	-11.69	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
1418.0	-45.20	2.62	27.30	-20.52	-13	-7.52	Horizontal
1418.0	-49.71	2.62	27.30	-25.03	-13	-12.03	Vertical
2127.0	-44.09	2.87	27.62	-19.34	-13	-6.34	Vertical
2127.0	-53.07	2.87	27.62	-28.32	-13	-15.32	Horizontal
212.6	-36.82	1.35	16.91	-21.26	-13	-8.26	Vertical
448.4	-40.97	1.62	16.31	-26.28	-13	-13.28	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-51.18	2.62	27.30	-26.50	-13	-13.50	Horizontal
1420.0	-53.69	2.62	27.30	-29.01	-13	-16.01	Vertical
2130.0	-47.43	2.87	27.62	-22.68	-13	-9.68	Vertical
2130.0	-49.47	2.87	27.62	-24.72	-13	-11.72	Horizontal
202.8	-43.47	1.51	17.14	-27.84	-13	-14.84	Vertical
415.5	-42.06	1.77	16.88	-26.95	-13	-13.95	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.92	2.62	27.30	-24.24	-13	-11.24	Horizontal
1422.0	-45.04	2.62	27.30	-20.36	-13	-7.36	Vertical
2133.0	-44.06	2.87	27.62	-19.31	-13	-6.31	Vertical
2133.0	-49.69	2.87	27.62	-24.94	-13	-11.94	Horizontal
191.0	-44.62	1.78	15.95	-30.45	-13	-17.45	Vertical
418.8	-35.21	1.34	17.95	-18.61	-13	-5.61	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.

9.7 LTE BAND 41

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

Test Results for Low Channel 2595.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit（dBm）	Margin(dBm)	Polarity
5191.0	-60.81	5.23	35.81	-30.23	-25	-5.23	Horizontal
5191.0	-59.16	5.23	35.81	-28.58	-25	-3.58	Vertical
7786.5	-60.66	5.67	36.85	-29.48	-25	-4.48	Vertical
7786.5	-63.65	5.67	36.85	-32.47	-25	-7.47	Horizontal
435.3	-49.86	1.38	15.98	-35.26	-25	-10.26	Vertical
465.8	-47.80	1.62	15.66	-33.76	-25	-8.76	Horizontal
Test Results for Mid Channel 2621.5MHz							
5243.0	-62.27	5.23	35.82	-31.68	-25	-6.68	Horizontal
5243.0	-61.37	5.23	35.82	-30.78	-25	-5.78	Vertical
7864.5	-63.38	5.67	36.85	-32.20	-25	-7.20	Vertical
7864.5	-64.24	5.67	36.85	-33.06	-25	-8.06	Horizontal
510.4	-45.20	1.62	16.17	-30.65	-25	-5.65	Vertical
562.9	-44.13	1.74	17.63	-28.24	-25	-3.24	Horizontal
Test Results for High Channel 2647.5MHz							
5295.0	-63.52	5.24	35.83	-32.93	-25	-7.93	Horizontal
5295.0	-62.29	5.24	35.83	-31.70	-25	-6.70	Vertical
7942.5	-60.28	5.68	36.87	-29.09	-25	-4.09	Vertical
7942.5	-61.65	5.68	36.87	-30.46	-25	-5.46	Horizontal
197.6	-49.90	1.55	15.84	-35.61	-25	-10.61	Vertical
353.1	-50.00	1.51	17.06	-34.45	-25	-9.45	Horizontal

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

Test Results for Low Channel 2603MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit（dBm）	Margin(dBm)	Polarity
5206.0	-59.76	5.23	35.82	-29.17	-25	-4.17	Horizontal
5206.0	-64.06	5.23	35.82	-33.47	-25	-8.47	Vertical
7809.0	-61.30	5.67	36.86	-30.11	-25	-5.11	Vertical
7809.0	-64.08	5.67	36.86	-32.89	-25	-7.89	Horizontal
128.9	-49.71	1.43	15.51	-35.63	-25	-10.63	Vertical
344.8	-47.05	1.40	16.97	-31.48	-25	-6.48	Horizontal
Test Results for Mid Channel 2621.5MHz							
5243.0	-61.30	5.23	35.82	-30.71	-25	-5.71	Horizontal
5243.0	-62.42	5.23	35.82	-31.83	-25	-6.83	Vertical
7864.5	-61.40	5.67	36.85	-30.22	-25	-5.22	Vertical
7864.5	-64.43	5.67	36.85	-33.25	-25	-8.25	Horizontal
100.8	-45.13	1.77	16.72	-30.18	-25	-5.18	Vertical
263.5	-44.35	1.31	16.99	-28.67	-25	-3.67	Horizontal
Test Results for High Channel 2640MHz							
5280.0	-61.52	5.24	35.83	-30.93	-25	-5.93	Horizontal
5280.0	-64.32	5.24	35.83	-33.73	-25	-8.73	Vertical
7920.0	-63.06	5.70	36.88	-31.88	-25	-6.88	Vertical
7920.0	-61.38	5.70	36.88	-30.20	-25	-5.20	Horizontal
349.9	-49.90	1.70	15.73	-35.87	-25	-10.87	Vertical
110.3	-46.76	1.75	17.33	-31.18	-25	-6.18	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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,

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°C

Voltage =low voltage, DC 3.29V, Normal, DC 3.87V and High voltage, DC 4.45V.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to -30ºC 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 +50ºC is reached.

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 2/4/5/7/12/17/41

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	12.4	0.006616	2.5
3.87	1880	13.4	0.007106	2.5
4.45	1880	13.6	0.007220	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.6	0.006696	2.5
Extreme (50C)	1880	12.1	0.006419	2.5
Extreme (40C)	1880	14.1	0.007508	2.5
Extreme (30C)	1880	13.6	0.007255	2.5
Extreme (10C)	1880	13.7	0.007290	2.5
Extreme (0C)	1880	12.2	0.006490	2.5
Extreme (-10C)	1880	12.7	0.006729	2.5
Extreme (-20C)	1880	13.8	0.007352	2.5
Extreme (-30C)	1880	14.5	0.007718	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	9.3	0.004951	2.5
3.87	1880	9.1	0.004837	2.5
4.45	1880	8.2	0.004378	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.5	0.005033	2.5
Extreme (50C)	1880	8.7	0.004612	2.5
Extreme (40C)	1880	8.3	0.004412	2.5
Extreme (30C)	1880	8.9	0.004737	2.5
Extreme (10C)	1880	8.9	0.004737	2.5
Extreme (0C)	1880	8.2	0.004382	2.5
Extreme (-10C)	1880	8.5	0.004535	2.5
Extreme (-20C)	1880	9.3	0.004946	2.5
Extreme (-30C)	1880	8.3	0.004429	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	8.3	0.004819	2.5
3.87	1732.5	8.9	0.005162	2.5
4.45	1732.5	8.1	0.004702	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.1	0.004666	2.5
Extreme (50C)	1732.5	9.0	0.005203	2.5
Extreme (40C)	1732.5	7.6	0.004394	2.5
Extreme (30C)	1732.5	5.9	0.003378	2.5
Extreme (10C)	1732.5	7.5	0.004322	2.5
Extreme (0C)	1732.5	9.4	0.005421	2.5
Extreme (-10C)	1732.5	8.3	0.004764	2.5
Extreme (-20C)	1732.5	6.4	0.003723	2.5
Extreme (-30C)	1732.5	8.2	0.004755	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	9.6	0.005519	2.5
3.87	1732.5	8.5	0.004894	2.5
4.45	1732.5	8.5	0.004904	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.3	0.005370	2.5
Extreme (50C)	1732.5	9.0	0.005177	2.5
Extreme (40C)	1732.5	8.2	0.004706	2.5
Extreme (30C)	1732.5	9.4	0.005452	2.5
Extreme (10C)	1732.5	8.8	0.005097	2.5
Extreme (0C)	1732.5	7.9	0.004569	2.5
Extreme (-10C)	1732.5	9.1	0.005250	2.5
Extreme (-20C)	1732.5	8.8	0.005068	2.5
Extreme (-30C)	1732.5	8.0	0.004630	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	5.9	0.007083	2.5
3.87	836.5	6.5	0.007764	2.5
4.45	836.5	4.5	0.005339	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.8	0.006959	2.5
Extreme (50C)	836.5	5.8	0.006944	2.5
Extreme (40C)	836.5	6.4	0.007650	2.5
Extreme (30C)	836.5	6.7	0.007955	2.5
Extreme (10C)	836.5	5.7	0.006814	2.5
Extreme (0C)	836.5	5.0	0.006028	2.5
Extreme (-10C)	836.5	6.0	0.007226	2.5
Extreme (-20C)	836.5	6.6	0.007854	2.5
Extreme (-30C)	836.5	6.0	0.007193	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	5.3	0.006356	2.5
3.87	836.5	6.3	0.007579	2.5
4.45	836.5	5.1	0.006079	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007468	2.5
Extreme (50C)	836.5	6.0	0.007220	2.5
Extreme (40C)	836.5	6.0	0.007125	2.5
Extreme (30C)	836.5	6.0	0.007196	2.5
Extreme (10C)	836.5	5.2	0.006207	2.5
Extreme (0C)	836.5	5.5	0.006596	2.5
Extreme (-10C)	836.5	5.3	0.006332	2.5
Extreme (-20C)	836.5	6.2	0.007441	2.5
Extreme (-30C)	836.5	6.8	0.008088	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	10.1	0.003971	2.5
3.87	2535	9.1	0.003587	2.5
4.45	2535	8.3	0.003260	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.4	0.003702	2.5
Extreme (50C)	2535	9.4	0.003697	2.5
Extreme (40C)	2535	8.4	0.003333	2.5
Extreme (30C)	2535	8.6	0.003412	2.5
Extreme (10C)	2535	7.9	0.003106	2.5
Extreme (0C)	2535	8.1	0.003194	2.5
Extreme (-10C)	2535	9.2	0.003627	2.5
Extreme (-20C)	2535	8.6	0.003409	2.5
Extreme (-30C)	2535	8.3	0.003280	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	6.8	0.002686	2.5
3.87	2535	6.8	0.002697	2.5
4.45	2535	5.8	0.002276	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.3	0.002476	2.5
Extreme (50C)	2535	5.7	0.002252	2.5
Extreme (40C)	2535	5.4	0.002133	2.5
Extreme (30C)	2535	6.7	0.002626	2.5
Extreme (10C)	2535	6.2	0.002445	2.5
Extreme (0C)	2535	5.5	0.002188	2.5
Extreme (-10C)	2535	4.8	0.001896	2.5
Extreme (-20C)	2535	5.9	0.002326	2.5
Extreme (-30C)	2535	6.1	0.002423	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	9.1	0.012799	2.5
3.87	707.5	10.3	0.014575	2.5
4.45	707.5	8.9	0.012563	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.1	0.012869	2.5
Extreme (50C)	707.5	7.9	0.011158	2.5
Extreme (40C)	707.5	7.7	0.010863	2.5
Extreme (30C)	707.5	8.4	0.011850	2.5
Extreme (10C)	707.5	7.4	0.010423	2.5
Extreme (0C)	707.5	8.9	0.012629	2.5
Extreme (-10C)	707.5	8.4	0.011897	2.5
Extreme (-20C)	707.5	8.9	0.012590	2.5
Extreme (-30C)	707.5	7.5	0.010551	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	7.2	0.010247	2.5
3.87	707.5	7.8	0.011070	2.5
4.45	707.5	7.7	0.010907	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	6.5	0.009175	2.5
Extreme (50C)	707.5	5.5	0.007765	2.5
Extreme (40C)	707.5	6.4	0.009110	2.5
Extreme (30C)	707.5	-7.7	-0.010912	2.5
Extreme (10C)	707.5	-8.2	-0.011590	2.5
Extreme (0C)	707.5	2.9	0.004100	2.5
Extreme (-10C)	707.5	-5.2	-0.007292	2.5
Extreme (-20C)	707.5	-8.7	-0.012302	2.5
Extreme (-30C)	707.5	-10.2	-0.014350	2.5

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

10.6 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	710.0	9.4	0.013200	2.5
3.87	710.0	8.8	0.012347	2.5
4.45	710.0	8.0	0.011274	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.9	0.013890	2.5
Extreme (50C)	710.0	8.5	0.012000	2.5
Extreme (40C)	710.0	8.3	0.011683	2.5
Extreme (30C)	710.0	9.3	0.013114	2.5
Extreme (10C)	710.0	9.1	0.012835	2.5
Extreme (0C)	710.0	8.3	0.011674	2.5
Extreme (-10C)	710.0	8.7	0.012309	2.5
Extreme (-20C)	710.0	8.9	0.012598	2.5
Extreme (-30C)	710.0	7.6	0.010764	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	710.0	9.9	0.013940	2.5
3.87	710.0	9.2	0.012895	2.5
4.45	710.0	8.1	0.011404	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.1	0.012876	2.5
Extreme (50C)	710.0	8.4	0.011847	2.5
Extreme (40C)	710.0	8.9	0.012530	2.5
Extreme (30C)	710.0	9.1	0.012831	2.5
Extreme (10C)	710.0	7.6	0.010740	2.5
Extreme (0C)	710.0	8.4	0.011815	2.5
Extreme (-10C)	710.0	9.6	0.013546	2.5
Extreme (-20C)	710.0	8.7	0.012234	2.5
Extreme (-30C)	710.0	8.8	0.012386	2.5

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

10.7 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	2621.5	8.3	0.003220	2.5
3.87	2621.5	6.6	0.002545	2.5
4.45	2621.5	7.9	0.003045	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2621.5	7.2	0.002765	2.5
Extreme (50C)	2621.5	5.1	0.001982	2.5
Extreme (40C)	2621.5	5.2	0.002022	2.5
Extreme (30C)	2621.5	4.5	0.001746	2.5
Extreme (10C)	2621.5	6.2	0.002383	2.5
Extreme (0C)	2621.5	4.7	0.001809	2.5
Extreme (-10C)	2621.5	9.3	0.003577	2.5
Extreme (-20C)	2621.5	10.6	0.004089	2.5
Extreme (-30C)	2621.5	6.1	0.002344	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	2621.5	8.6	0.003319	2.5
3.87	2621.5	6.4	0.002466	2.5
4.45	2621.5	7.0	0.002691	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2621.5	7.0	0.002691	2.5
Extreme (50C)	2621.5	5.2	0.001997	2.5
Extreme (40C)	2621.5	5.8	0.002223	2.5
Extreme (30C)	2621.5	4.5	0.001728	2.5
Extreme (10C)	2621.5	6.9	0.002665	2.5
Extreme (0C)	2621.5	4.4	0.001708	2.5
Extreme (-10C)	2621.5	9.6	0.003698	2.5
Extreme (-20C)	2621.5	10.7	0.004136	2.5
Extreme (-30C)	2621.5	6.3	0.002426	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.

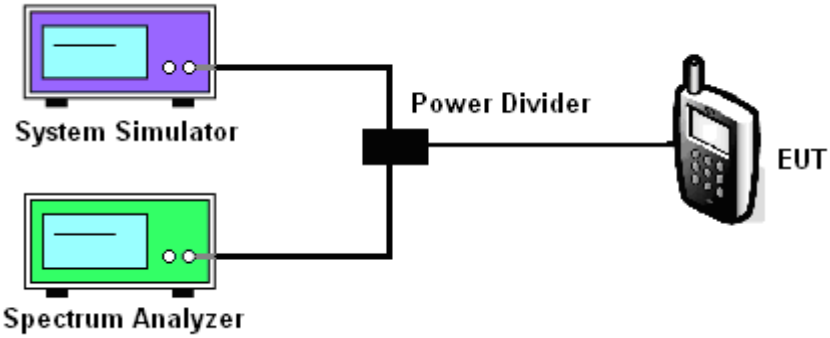
11.2 Measuring Instruments

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 2/4/5/7/12/17/41

Test data reference attachment.

----END OF REPORT----