FCC CFR47 PART 22H, 24E, 27
CERTIFICATION TEST REPORT
FCC ID: 2AHZ5KK5

Product：	Smartphone
Trade Mark：	CUBOT
Model Number：	KINGKONG 5
Family Model：	N/A
Report No.：	S21091302203006

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 1401 14/F, Jin qi zhi gu mansion Liu xian street ,Xili, Nan shan district,Shenzhen, China
Manufacturer's Name..... :	Shenzhen Huafurui Technology Co., Ltd
Address..... :	Unit 1401 14/F, Jin qi zhi gu mansion Liu xian street ,Xili, Nan shan district,Shenzhen, China
Product name..... :	Smartphone
Model and/or type reference .. :	KINGKONG 5
Family Model：	N/A
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. This report shall not be reproduced except in full, without the written approval of NTEK, this document may be altered or revised by NTEK, personal only, and shall be noted in the revision of the document.

Date of Test	
Date (s) of performance of tests.....	Sep 14. 2021~Oct 18, 2021
Date of Issue	Oct 19, 2021
Test Result.....	**Pass**

Testing Engineer : 

(Allen Liu)

Authorized Signatory : 

(Alex Li)

TABLE OF CONTENTS

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 5
Family Model	N/A
Model Difference	N/A
FCC ID:	2AHZ5KK5
Frequency Bands:	U.S. Bands: ☒LTE FDD Band 2, 4, 5, 7, 12, 17 ☒LTE 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: 2535MHz-2655MHz, (Number Of Channel see note 2)
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	FPC Antenna
Antenna gain:	Band 2:0.41dBi, Band 4: 0.22dBi, Band 5: 0.15dBi, Band 7: 0.38dBi, Band 12: 0.11dBi, Band 17: 0.1dBi, Band 41: 0.37dBi
Power Supply:	DC 3.85V, 5000mAh from battery or DC 5V from Adapter.
Adapter:	Model: HJ-0502000W2-US Input: 100-240V~50/60Hz 0.3A Output: 5V⎓2000mA
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.85V)（Note 1）
HW Version	TE826_MAIN_PCB_V1.1
SW Version	CUBOT_KINGKONG 5_B023C_V02_20210513

** Note1: The High Voltage 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.

Note2:

Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	40065	2537.5
	10	40090	2540
	15	40115	2542.5
	20	40140	2545
Mid Range	5/10/15/20	40640	2595
High Range	5	41215	2652.5
	10	41190	2650
	15	41165	2647.5
	20	41140	2645

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AHZ5KK5** 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.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.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 = 2Uc(y))	2.5dB
2	Conducted Emission Test	±1.38dB
3	RF power, conducted	±0.16dB
4	Spurious emissions, conducted	±0.21dB
5	All emissions, radiated(<1G)	±4.68dB
6	All emissions, radiated(>1G)	±4.89dB
7	Temperature	±0.5°C
8	Humidity	±2%
9	Frequency error, conducted	±0.19 ppm

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, Band 4, Band 5, Band 7, Band 12, Band 17, Band 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.

1.6 SUMMARY OF TEST RESULTS

FCC Part22, Subpart H/ FCC Part24, Subpart E, FCC Part27, Subpart L, KDB 971168 D01 Power Meas License Digital Systems v03			
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(c), (g), (h) KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913(a)(2) 27.50(b)(10), (c)(10) KDB 971168 D01 Clause 5.6	Effective Radiated Power	PASS	
24.232(c) 27.50(h)(2), (d)(4) KDB 971168 D01 Clause 5.6	Equivalent Isotropic Radiated Power	PASS	

2.1053 22.917(a) 24.238(a) 27.53(c)(g)(h)(m) KDB 971168 D01 Clause 7	Field Strength of Spurious Radiation	PASS	
2.1055 22.355 24.235 27.54 KDB 971168 D01 Clause 9	Frequency Stability for Temperature & Voltage	PASS	
2.1051 22.917(a) 24.238(a) 27.53(c)(g)(h)(m) KDB 971168 D01 Clause 6	Conducted Emission	PASS	

Remark:

1. “N/A” denotes test is not applicable in this Test Report.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. No modifications are made to the EUT during all test items.

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

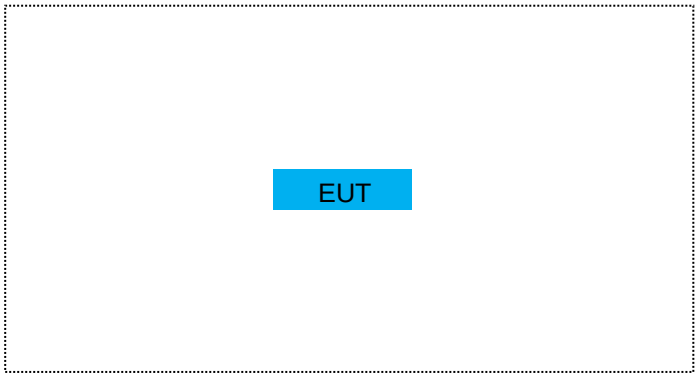
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smartphone	KINGKONG 5	FCC ID: 2AHZ5KK5	EUT

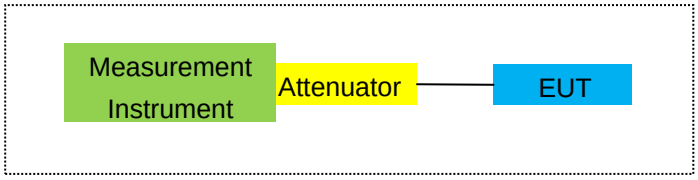
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

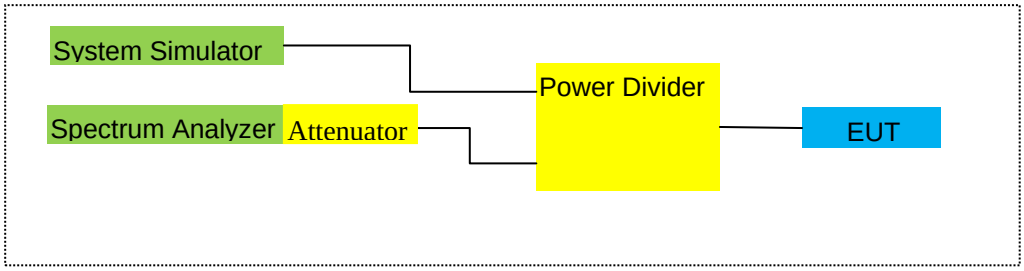
For Radiated Test Cases



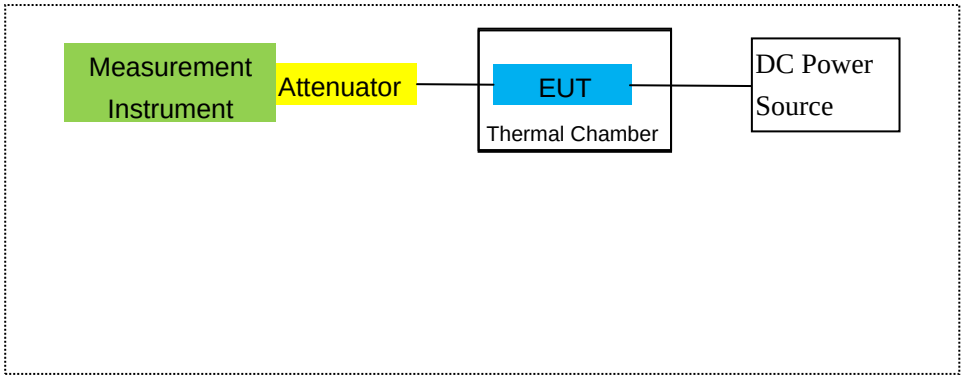
For Conducted Output Power



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	2021.07.01	2022.06.30	1 year
2	Test Receiver	R&S	ESPI	101318	2021.04.27	2022.04.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.29	2022.03.28	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2021.03.29	2022.03.28	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.11.20	2021.11.19	1 year
7	Amplifier	EM	EM-30180	060538	2021.07.01	2022.06.30	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2021.04.27	2022.04.26	1 year
9	Power Meter	R&S	NRVS	100696	2021.07.01	2022.06.30	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2021.04.27	2022.04.26	1 year
11	Test Cable	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
12	Test Cable	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
14	Test Receiver	R&S	ESCI	101160	2021.04.27	2022.04.26	1 year
15	LISN	R&S	ENV216	101313	2021.04.27	2022.04.26	1 year
16	LISN	EMCO	3816/2	00042990	2021.04.27	2022.04.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2021.04.27	2022.04.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2021.04.27	2022.04.26	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2020.05.11	2021.05.10	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2021.04.27	2022.04.26	1 year
24	test receiver	R&S	ESCI	a0304218	2021.04.27	2022.04.26	1 year
25	Communication Tester	R&S	CMU200	A0304247	2021.07.01	2022.06.30	1 year
26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2021.04.27	2022.04.26	1 year

27	DC Power Source	N/A	PS-6005D	20170402923	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2021.07.01	2022.06.30	1 year
29	Communication Tester	R&S	CMW500	148500	2021.07.01	2022.06.30	1 year
30	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2021.07.01	2022.06.30	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.

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

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

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051,§22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

FCC: §2.1046, §22.913, §24.232

LIMITS

The minimum permissible attenuation level of any spurious emission is 43 + log10(P[Watts]), where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is 65 + 10log10(P) = -35dBm in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, 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.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test 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 display line

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

MODES TESTED

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

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051,§22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

LIMITS

The minimum permissible attenuation level of any spurious emission is 43 + log10(P[Watts]), where P is the transmitter power in Watts.
The minimum permissible attenuation level for Band 7 is as following.
Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is 65 + 10log10(P) = -35dBm in a 6.25kHz bandwidth.
Per 27.53(m) for operations in the BRS/EBS bands, 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.

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

MODES TESTED

- LTE Band2

LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17
LTE Band 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(a)(2), §24.232(c) and §27.50 (h)(2), (b)(10), (c)(10), (d)(4)

LIMITS:

22.913(a) (2)- 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.
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 in the 2500–2570 MHz and 2620–2690 MHz bands. 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

- LTE Band2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 41

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
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	1/#Mid	1850.7	-1.70	3.76	28.24	22.78	189.671	Horizontal	Pass
		1880	-1.51	3.91	28.22	22.80	190.546	Horizontal	Pass
		1909.3	-1.42	3.93	28.20	22.85	192.752	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-1.76	3.77	28.23	22.70	186.209	Horizontal	Pass
		1880	-1.61	3.91	28.24	22.72	187.068	Horizontal	Pass
		1908.5	-1.48	3.94	28.25	22.83	191.867	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.65	3.77	28.31	22.89	194.536	Horizontal	Pass
		1880	-1.27	3.91	28.22	23.04	201.372	Horizontal	Pass
		1907.5	-1.20	3.94	28.20	23.06	202.302	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.51	3.79	28.33	23.03	200.909	Horizontal	Pass
		1880	-1.21	3.95	28.22	23.06	202.302	Horizontal	Pass
		1905	-1.10	3.97	28.19	23.12	205.116	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-1.47	3.79	28.34	23.08	203.236	Horizontal	Pass
		1880	-1.26	3.95	28.22	23.01	199.986	Horizontal	Pass
		1902.5	-1.12	3.97	28.18	23.09	203.704	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-1.46	3.81	28.35	23.08	203.236	Horizontal	Pass
		1880	-1.13	3.96	28.22	**23.13**	205.589	Horizontal	Pass
		1900	-1.07	4.00	28.16	23.09	203.704	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-2.06	3.76	28.24	22.42	174.582	Vertical	Pass
		1880	-2.52	3.91	28.22	21.79	151.008	Vertical	Pass
		1909.3	-2.37	3.93	28.20	21.90	154.882	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.04	3.77	28.23	22.42	174.582	Vertical	Pass
		1880	-2.65	3.91	28.24	21.68	147.231	Vertical	Pass
		1908.5	-2.08	3.94	28.25	22.23	167.109	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.49	3.77	28.31	22.05	160.325	Vertical	Pass
		1880	-2.70	3.91	28.22	21.61	144.877	Vertical	Pass
		1907.5	-2.71	3.94	28.20	21.55	142.889	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.23	3.79	28.33	22.31	170.216	Vertical	Pass
		1880	-2.01	3.95	28.22	22.26	168.267	Vertical	Pass
		1905	-2.16	3.97	28.19	22.06	160.694	Vertical	Pass

15.0MHz	1/#Mid	1857.5	-2.87	3.79	28.34	21.68	147.231	Vertical	Pass
Band		1880	-1.96	3.95	28.22	22.31	170.216	Vertical	Pass
QPSK		1902.5	-1.88	3.97	28.18	22.33	171.002	Vertical	Pass
20.0MHz	1/#Mid	1860	-2.80	3.81	28.35	21.74	149.279	Vertical	Pass
Band		1880	-2.45	3.96	28.22	21.81	151.705	Vertical	Pass
QPSK		1900	-1.80	4.00	28.16	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)

Radiated Power (EIRP) for Band 2									
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	1/#Mid	1850.7	-2.82	3.76	28.24	21.66	146.555	Horizontal	Pass
		1880	-2.29	3.91	28.22	22.02	159.221	Horizontal	Pass
		1909.3	-2.22	3.93	28.20	22.05	160.325	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-2.32	3.77	28.23	22.14	163.682	Horizontal	Pass
		1880	-2.40	3.91	28.24	21.93	155.955	Horizontal	Pass
		1908.5	-2.61	3.94	28.25	21.70	147.911	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-2.26	3.77	28.31	22.28	169.044	Horizontal	Pass
		1880	-2.17	3.91	28.22	22.14	163.682	Horizontal	Pass
		1907.5	-1.85	3.94	28.20	22.41	174.181	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-2.31	3.79	28.33	22.23	167.109	Horizontal	Pass
		1880	-2.30	3.95	28.22	21.97	157.398	Horizontal	Pass
		1905	-1.77	3.97	28.19	22.45	175.792	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.29	3.79	28.34	22.26	168.267	Horizontal	Pass
		1880	-2.08	3.95	28.22	22.19	165.577	Horizontal	Pass
		1902.5	-2.04	3.97	28.18	22.17	164.816	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-2.18	3.81	28.35	22.36	172.187	Horizontal	Pass
		1880	-1.88	3.96	28.22	22.38	172.982	Horizontal	Pass
		1900	-1.70	4.00	28.16	**22.46**	176.198	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.44	3.76	28.24	21.04	127.057	Vertical	Pass
		1880	-3.70	3.91	28.22	20.61	115.080	Vertical	Pass
		1909.3	-3.57	3.93	28.20	20.70	117.490	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.48	3.77	28.23	20.98	125.314	Vertical	Pass
		1880	-2.93	3.91	28.24	21.40	138.038	Vertical	Pass
		1908.5	-3.60	3.94	28.25	20.71	117.761	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.16	3.77	28.31	21.38	137.404	Vertical	Pass
		1880	-3.75	3.91	28.22	20.56	113.763	Vertical	Pass
		1907.5	-2.93	3.94	28.20	21.33	135.831	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.07	3.79	28.33	21.47	140.281	Vertical	Pass
		1880	-3.01	3.95	28.22	21.26	133.660	Vertical	Pass
		1905	-3.62	3.97	28.19	20.60	114.815	Vertical	Pass
15.0MHz Band 16	1/#Mid	1857.5	-3.93	3.79	28.34	20.62	115.345	Vertical	Pass
		1880	-3.69	3.95	28.22	20.58	114.288	Vertical	Pass

QAM		1902.5	-3.31	3.97	28.18	20.90	123.027	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.64	3.81	28.35	20.90	123.027	Vertical	Pass
Band 16		1880	-2.95	3.96	28.22	21.31	135.207	Vertical	Pass
QAM		1900	-3.64	4.00	28.16	20.52	112.720	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
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	1/#Mid	1710.7	-1.61	3.12	27.58	22.85	192.752	Horizontal	Pass
		1732.5	-1.60	3.27	27.61	22.74	187.932	Horizontal	Pass
		1754.3	-1.58	3.29	27.63	22.76	188.799	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-1.78	3.13	27.61	22.70	186.209	Horizontal	Pass
		1732.5	-1.70	3.27	27.61	22.64	183.654	Horizontal	Pass
		1753.5	-1.62	3.30	27.62	22.70	186.209	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-1.55	3.13	27.63	22.95	197.242	Horizontal	Pass
		1732.5	-1.45	3.27	27.61	22.89	194.536	Horizontal	Pass
		1752.5	-1.33	3.30	27.60	22.97	198.153	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-1.49	3.15	27.64	23.00	199.526	Horizontal	Pass
		1732.5	-1.26	3.31	27.61	23.04	201.372	Horizontal	Pass
		1750	-1.28	3.33	27.59	22.98	198.609	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-1.50	3.15	27.65	23.00	199.526	Horizontal	Pass
		1732.5	-1.34	3.31	27.61	22.96	197.697	Horizontal	Pass
		1747.5	-1.28	3.33	27.57	22.96	197.697	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-1.44	3.17	27.66	**23.05**	201.837	Horizontal	Pass
		1732.5	-1.27	3.32	27.61	23.02	200.447	Horizontal	Pass
		1745	-1.21	3.36	27.56	22.99	199.067	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-1.99	3.12	27.58	22.47	176.604	Vertical	Pass
		1732.5	-2.36	3.27	27.61	21.98	157.761	Vertical	Pass
		1754.3	-2.61	3.29	27.63	21.73	148.936	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.24	3.13	27.61	22.24	167.494	Vertical	Pass
		1732.5	-2.18	3.27	27.61	22.16	164.437	Vertical	Pass
		1753.5	-2.47	3.30	27.62	21.85	153.109	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.13	3.13	27.63	22.37	172.584	Vertical	Pass
		1732.5	-2.44	3.27	27.61	21.90	154.882	Vertical	Pass
		1752.5	-2.22	3.30	27.60	22.08	161.436	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.01	3.15	27.64	22.48	177.011	Vertical	Pass
		1732.5	-2.69	3.31	27.61	21.61	144.877	Vertical	Pass
		1750	-2.43	3.33	27.59	21.83	152.405	Vertical	Pass

15.0MHz	1/#Mid	1717.5	-2.38	3.15	27.65	22.12	162.930	Vertical	Pass
Band		1732.5	-2.44	3.31	27.61	21.86	153.462	Vertical	Pass
QPSK		1747.5	-2.03	3.33	27.57	22.21	166.341	Vertical	Pass
20.0MHz	1/#Mid	1720	-2.98	3.17	27.66	21.51	141.579	Vertical	Pass
Band		1732.5	-1.94	3.32	27.61	22.35	171.791	Vertical	Pass
QPSK		1745	-2.42	3.36	27.56	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)

Radiated Power (EIRP) for Band 4									
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	1/#Mid	1710.7	-2.42	3.12	27.58	22.04	159.956	Horizontal	Pass
		1732.5	-2.27	3.27	27.61	22.07	161.065	Horizontal	Pass
		1754.3	-2.27	3.29	27.63	22.07	161.065	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.36	3.13	27.61	22.12	162.930	Horizontal	Pass
		1732.5	-2.49	3.27	27.61	21.85	153.109	Horizontal	Pass
		1753.5	-2.71	3.30	27.62	21.61	144.877	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.19	3.13	27.63	22.31	170.216	Horizontal	Pass
		1732.5	-2.15	3.27	27.61	22.19	165.577	Horizontal	Pass
		1752.5	-1.84	3.30	27.60	22.46	176.198	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.26	3.15	27.64	22.23	167.109	Horizontal	Pass
		1732.5	-2.45	3.31	27.61	21.85	153.109	Horizontal	Pass
		1750	-1.83	3.33	27.59	22.43	174.985	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.06	3.15	27.65	22.44	175.388	Horizontal	Pass
		1732.5	-2.12	3.31	27.61	22.18	165.196	Horizontal	Pass
		1747.5	-2.14	3.33	27.57	22.10	162.181	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.01	3.17	27.66	**22.48**	177.011	Horizontal	Pass
		1732.5	-2.02	3.32	27.61	22.27	168.655	Horizontal	Pass
		1745	-1.83	3.36	27.56	22.37	172.584	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.70	3.12	27.58	20.76	119.124	Vertical	Pass
		1732.5	-3.44	3.27	27.61	20.90	123.027	Vertical	Pass
		1754.3	-3.37	3.29	27.63	20.97	125.026	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.19	3.13	27.61	21.29	134.586	Vertical	Pass
		1732.5	-2.99	3.27	27.61	21.35	136.458	Vertical	Pass
		1753.5	-3.60	3.30	27.62	20.72	118.032	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.89	3.13	27.63	20.61	115.080	Vertical	Pass
		1732.5	-3.67	3.27	27.61	20.67	116.681	Vertical	Pass
		1752.5	-3.58	3.30	27.60	20.72	118.032	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.87	3.15	27.64	20.62	115.345	Vertical	Pass
		1732.5	-3.44	3.31	27.61	20.86	121.899	Vertical	Pass
		1750	-3.09	3.33	27.59	21.17	130.918	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-3.63	3.15	27.65	20.87	122.180	Vertical	Pass
		1732.5	-3.72	3.31	27.61	20.58	114.288	Vertical	Pass

QAM		1747.5	-2.99	3.33	27.57	21.25	133.352	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.59	3.17	27.66	20.90	123.027	Vertical	Pass
Band 16		1732.5	-3.11	3.32	27.61	21.18	131.220	Vertical	Pass
QAM		1745	-3.48	3.36	27.56	20.72	118.032	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

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 Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	7.69	2.01	19.68	2.15	23.21	209.411	Horizontal	Pass
		836.5	7.57	2.01	19.77	2.15	23.18	207.970	Horizontal	Pass
		848.3	7.37	2.02	19.82	2.15	23.02	200.447	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	7.46	2.01	19.70	2.15	23.00	199.526	Horizontal	Pass
		836.5	7.36	2.01	19.77	2.15	22.97	198.153	Horizontal	Pass
		847.5	7.23	2.02	19.81	2.15	22.87	193.642	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	7.74	2.01	19.71	2.15	23.29	213.304	Horizontal	Pass
		836.5	7.62	2.01	19.77	2.15	23.23	210.378	Horizontal	Pass
		846.5	7.46	2.02	19.79	2.15	23.08	203.236	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	7.76	2.01	19.73	2.15	**23.33**	215.278	Horizontal	Pass
		836.5	7.71	2.01	19.77	2.15	23.32	214.783	Horizontal	Pass
		844	7.61	2.02	19.78	2.15	23.22	209.894	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	6.18	2.01	19.68	2.15	21.70	147.911	Vertical	Pass
		836.5	5.94	2.01	19.77	2.15	21.55	142.889	Vertical	Pass
		848.3	6.79	2.02	19.82	2.15	22.44	175.388	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.29	2.01	19.70	2.15	21.83	152.405	Vertical	Pass
		836.5	6.65	2.01	19.77	2.15	22.26	168.267	Vertical	Pass
		847.5	6.64	2.02	19.81	2.15	22.28	169.044	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.50	2.01	19.71	2.15	22.05	160.325	Vertical	Pass
		836.5	6.84	2.01	19.77	2.15	22.45	175.792	Vertical	Pass
		846.5	6.01	2.02	19.79	2.15	21.63	145.546	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	6.44	2.01	19.73	2.15	22.01	158.855	Vertical	Pass
		836.5	6.22	2.01	19.77	2.15	21.83	152.405	Vertical	Pass
		844	6.03	2.02	19.78	2.15	21.64	145.881	Vertical	Pass

Radiated Power (ERP) for Band 5										
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	3/#Mid	824.7	6.84	2.01	19.68	2.15	22.36	172.187	Horizontal	Pass
		836.5	6.77	2.01	19.77	2.15	22.38	172.982	Horizontal	Pass
		848.3	6.61	2.02	19.82	2.15	22.26	168.267	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	6.92	2.01	19.70	2.15	22.46	176.198	Horizontal	Pass
		836.5	6.63	2.01	19.77	2.15	22.24	167.494	Horizontal	Pass
		847.5	6.11	2.02	19.81	2.15	21.75	149.624	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	7.24	2.01	19.71	2.15	22.79	190.108	Horizontal	Pass
		836.5	7.01	2.01	19.77	2.15	22.62	182.810	Horizontal	Pass
		846.5	6.76	2.02	19.79	2.15	22.38	172.982	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	7.24	2.01	19.73	2.15	**22.81**	190.985	Horizontal	Pass
		836.5	6.96	2.01	19.77	2.15	22.57	180.717	Horizontal	Pass
		844	6.50	2.02	19.78	2.15	22.11	162.555	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.42	2.01	19.68	2.15	20.94	124.165	Vertical	Pass
		836.5	6.42	2.01	19.77	2.15	22.03	159.588	Vertical	Pass
		848.3	5.63	2.02	19.82	2.15	21.28	134.276	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	6.50	2.01	19.70	2.15	22.04	159.956	Vertical	Pass
		836.5	5.96	2.01	19.77	2.15	21.57	143.549	Vertical	Pass
		847.5	5.50	2.02	19.81	2.15	21.14	130.017	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.45	2.01	19.71	2.15	22.00	158.489	Vertical	Pass
		836.5	5.42	2.01	19.77	2.15	21.03	126.765	Vertical	Pass
		846.5	6.34	2.02	19.79	2.15	21.96	157.036	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.68	2.01	19.73	2.15	21.25	133.352	Vertical	Pass
		836.5	5.07	2.01	19.77	2.15	20.68	116.950	Vertical	Pass
		844	4.99	2.02	19.78	2.15	20.60	114.815	Vertical	Pass

Note:
ERP=EIRP-2.15
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
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	1/#Mid	2502.5	0.11	4.54	27.75	23.32	214.783	Horizontal	Pass
		2535	0.28	4.69	27.72	23.31	214.289	Horizontal	Pass
		2567.5	0.35	4.71	27.71	23.35	216.272	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	0.18	4.55	27.76	23.39	218.273	Horizontal	Pass
		2535	0.37	4.69	27.72	23.40	218.776	Horizontal	Pass
		2565	0.45	4.72	27.70	23.43	220.293	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	0.17	4.55	27.77	23.39	218.273	Horizontal	Pass
		2535	0.31	4.69	27.72	23.34	215.774	Horizontal	Pass
		2562.5	0.41	4.72	27.69	23.38	217.771	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	0.23	4.57	27.78	**23.44**	220.800	Horizontal	Pass
		2535	0.41	4.73	27.72	23.40	218.776	Horizontal	Pass
		2560	0.45	4.75	27.68	23.38	217.771	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-1.24	4.54	27.75	21.97	157.398	Vertical	Pass
		2535	-0.94	4.69	27.72	22.09	161.808	Vertical	Pass
		2567.5	-0.71	4.71	27.71	22.29	169.434	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-1.01	4.55	27.76	22.20	165.959	Vertical	Pass
		2535	-1.23	4.69	27.72	21.80	151.356	Vertical	Pass
		2565	-0.81	4.72	27.70	22.17	164.816	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-1.44	4.55	27.77	21.78	150.661	Vertical	Pass
		2535	-0.88	4.69	27.72	22.15	164.059	Vertical	Pass
		2562.5	-0.98	4.72	27.69	21.99	158.125	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.36	4.57	27.78	21.85	153.109	Vertical	Pass
		2535	-1.10	4.73	27.72	21.89	154.525	Vertical	Pass
		2560	-1.08	4.75	27.68	21.85	153.109	Vertical	Pass

Radiated Power (EIRP) for Band 7									
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	1/#Mid	2502.5	-0.58	4.54	27.75	22.63	183.231	Horizontal	Pass
		2535	-0.27	4.69	27.72	22.76	188.799	Horizontal	Pass
		2567.5	-0.35	4.71	27.71	22.65	184.077	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-0.47	4.55	27.76	22.74	187.932	Horizontal	Pass
		2535	-0.48	4.69	27.72	22.55	179.887	Horizontal	Pass
		2565	-0.75	4.72	27.70	22.23	167.109	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-0.65	4.55	27.77	22.57	180.717	Horizontal	Pass
		2535	-0.62	4.69	27.72	22.41	174.181	Horizontal	Pass
		2562.5	-0.23	4.72	27.69	22.74	187.932	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-0.53	4.57	27.78	22.68	185.353	Horizontal	Pass
		2535	-0.20	4.73	27.72	**22.79**	190.108	Horizontal	Pass
		2560	-0.30	4.75	27.68	22.63	183.231	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-0.74	4.54	27.75	22.47	176.604	Vertical	Pass
		2535	-0.86	4.69	27.72	22.17	164.816	Vertical	Pass
		2567.5	-1.02	4.71	27.71	21.98	157.761	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.03	4.55	27.76	22.18	165.196	Vertical	Pass
		2535	-0.95	4.69	27.72	22.08	161.436	Vertical	Pass
		2565	-1.49	4.72	27.70	21.49	140.929	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.83	4.55	27.77	21.39	137.721	Vertical	Pass
		2535	-0.98	4.69	27.72	22.05	160.325	Vertical	Pass
		2562.5	-1.06	4.72	27.69	21.91	155.239	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-1.28	4.57	27.78	21.93	155.955	Vertical	Pass
		2535	-2.38	4.73	27.72	20.61	115.080	Vertical	Pass
		2560	-1.69	4.75	27.68	21.24	133.045	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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 Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	8.06	1.91	19.21	2.15	23.21	209.411	Vertical	Pass
		707.5	7.98	1.91	19.26	2.15	23.18	207.970	Vertical	Pass
		715.3	7.76	1.93	19.34	2.15	23.02	200.447	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	7.85	1.91	19.21	2.15	23.00	199.526	Vertical	Pass
		707.5	7.77	1.91	19.26	2.15	22.97	198.153	Vertical	Pass
		714.5	7.61	1.93	19.34	2.15	22.87	193.642	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	8.12	1.91	19.23	2.15	23.29	213.304	Vertical	Pass
		707.5	8.03	1.91	19.26	2.15	23.23	210.378	Vertical	Pass
		713.5	7.82	1.92	19.33	2.15	23.08	203.236	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	8.14	1.91	19.25	2.15	**23.33**	215.278	Vertical	Pass
		707.5	8.12	1.91	19.26	2.15	23.32	214.783	Vertical	Pass
		711	7.97	1.92	19.32	2.15	23.22	209.894	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	7.21	1.91	19.21	2.15	22.36	172.187	Horizontal	Pass
		707.5	6.57	1.91	19.26	2.15	21.77	150.314	Horizontal	Pass
		715.3	6.55	1.93	19.34	2.15	21.81	151.705	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.54	1.91	19.21	2.15	21.69	147.571	Horizontal	Pass
		707.5	7.26	1.91	19.26	2.15	22.46	176.198	Horizontal	Pass
		714.5	6.60	1.93	19.34	2.15	21.86	153.462	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.56	1.91	19.23	2.15	21.73	148.936	Horizontal	Pass
		707.5	7.11	1.91	19.26	2.15	22.31	170.216	Horizontal	Pass
		713.5	6.85	1.92	19.33	2.15	22.11	162.555	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	6.54	1.91	19.25	2.15	21.73	148.936	Horizontal	Pass
		707.5	6.84	1.91	19.26	2.15	22.04	159.956	Horizontal	Pass
		711	6.39	1.92	19.32	2.15	21.64	145.881	Horizontal	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	1/#Mid	699.7	8.16	1.91	19.21	2.15	23.31	214.289	Vertical	Pass
		707.5	8.08	1.91	19.26	2.15	23.28	212.814	Vertical	Pass
		715.3	7.86	1.93	19.34	2.15	23.12	205.116	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	7.95	1.91	19.21	2.15	23.10	204.174	Vertical	Pass
		707.5	7.87	1.91	19.26	2.15	23.07	202.768	Vertical	Pass
		714.5	7.71	1.93	19.34	2.15	22.97	198.153	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	8.22	1.91	19.23	2.15	23.39	218.273	Vertical	Pass
		707.5	8.13	1.91	19.26	2.15	23.33	215.278	Vertical	Pass
		713.5	7.92	1.92	19.33	2.15	23.18	207.970	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	8.24	1.91	19.25	2.15	**23.43**	220.293	Vertical	Pass
		707.5	8.22	1.91	19.26	2.15	23.42	219.786	Vertical	Pass
		711	8.07	1.92	19.32	2.15	23.32	214.783	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	7.03	1.91	19.21	2.15	22.18	165.196	Horizontal	Pass
		707.5	6.40	1.91	19.26	2.15	21.60	144.544	Horizontal	Pass
		715.3	6.38	1.93	19.34	2.15	21.64	145.881	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	7.45	1.91	19.21	2.15	22.60	181.970	Horizontal	Pass
		707.5	6.46	1.91	19.26	2.15	21.66	146.555	Horizontal	Pass
		714.5	7.32	1.93	19.34	2.15	22.58	181.134	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.89	1.91	19.23	2.15	22.06	160.694	Horizontal	Pass
		707.5	6.67	1.91	19.26	2.15	21.87	153.815	Horizontal	Pass
		713.5	6.98	1.92	19.33	2.15	22.24	167.494	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.04	1.91	19.25	2.15	22.23	167.109	Horizontal	Pass
		707.5	6.79	1.91	19.26	2.15	21.99	158.125	Horizontal	Pass
		711	6.82	1.92	19.32	2.15	22.07	161.065	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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 Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	8.62	1.91	19.23	2.15	23.79	239.332	Vertical	Pass
		710	8.48	1.91	19.26	2.15	23.68	233.346	Vertical	Pass
		713.5	8.38	1.92	19.33	2.15	23.64	231.206	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	8.63	1.91	19.25	2.15	**23.82**	240.991	Vertical	Pass
		710	8.58	1.91	19.26	2.15	23.78	238.781	Vertical	Pass
		711	8.54	1.92	19.32	2.15	23.79	239.332	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	7.01	1.91	19.23	2.15	22.18	165.196	Horizontal	Pass
		710	7.11	1.91	19.26	2.15	22.31	170.216	Horizontal	Pass
		713.5	6.45	1.92	19.33	2.15	21.71	148.252	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	7.68	1.91	19.25	2.15	22.87	193.642	Horizontal	Pass
		710	8.00	1.91	19.26	2.15	23.20	208.930	Horizontal	Pass
		711	7.48	1.92	19.32	2.15	22.73	187.499	Horizontal	Pass

Radiated Power (ERP) for Band 17										
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	1/#Mid	706.5	7.97	1.91	19.23	2.15	23.14	206.063	Vertical	Pass
		710	7.88	1.91	19.26	2.15	23.08	203.236	Vertical	Pass
		713.5	7.68	1.92	19.33	2.15	22.94	196.789	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	7.51	1.91	19.25	2.15	22.70	186.209	Vertical	Pass
		710	8.04	1.91	19.26	2.15	**23.24**	210.863	Vertical	Pass
		711	7.77	1.92	19.32	2.15	23.02	200.447	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	6.54	1.91	19.23	2.15	21.71	148.252	Horizontal	Pass
		710	6.92	1.91	19.26	2.15	22.12	162.930	Horizontal	Pass
		713.5	6.45	1.92	19.33	2.15	21.71	148.252	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	7.41	1.91	19.25	2.15	22.60	181.970	Horizontal	Pass
		710	6.67	1.91	19.26	2.15	21.87	153.815	Horizontal	Pass
		711	6.52	1.92	19.32	2.15	21.77	150.314	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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 Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2537.5	-0.19	4.54	27.75	23.02	200.447	Horizontal	Pass
		2595	-0.04	4.69	27.72	22.99	199.067	Horizontal	Pass
		2652.5	0.08	4.71	27.71	23.08	203.236	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2540	-0.27	4.55	27.76	22.94	196.789	Horizontal	Pass
		2595	-0.13	4.69	27.72	22.90	194.984	Horizontal	Pass
		2650	-0.12	4.72	27.70	22.86	193.197	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-0.10	4.55	27.77	23.12	205.116	Horizontal	Pass
		2595	0.18	4.69	27.72	23.21	209.411	Horizontal	Pass
		2647.5	0.13	4.72	27.69	23.10	204.174	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2545	0.22	4.57	27.78	**23.43**	220.293	Horizontal	Pass
		2595	0.24	4.73	27.72	23.23	210.378	Horizontal	Pass
		2645	0.24	4.75	27.68	23.17	207.491	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2537.5	0.01	4.54	27.75	23.22	209.894	Vertical	Pass
		2595	0.10	4.69	27.72	23.13	205.589	Vertical	Pass
		2652.5	0.12	4.71	27.71	23.12	205.116	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2540	0.03	4.55	27.76	23.24	210.863	Vertical	Pass
		2595	0.19	4.69	27.72	23.22	209.894	Vertical	Pass
		2650	0.12	4.72	27.70	23.10	204.174	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-1.00	4.55	27.77	22.22	166.725	Vertical	Pass
		2595	-0.53	4.69	27.72	22.50	177.828	Vertical	Pass
		2647.5	-0.65	4.72	27.69	22.32	170.608	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2545	-1.68	4.57	27.78	21.53	142.233	Vertical	Pass
		2595	-0.95	4.73	27.72	22.04	159.956	Vertical	Pass
		2645	-1.17	4.75	27.68	21.76	149.968	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	1/#Mid	2537.5	-0.29	4.54	27.75	22.92	195.884	Horizontal	Pass
		2595	-0.14	4.69	27.72	22.89	194.536	Horizontal	Pass
		2652.5	-0.02	4.71	27.71	22.98	198.609	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-0.37	4.55	27.76	22.84	192.309	Horizontal	Pass
		2595	-0.23	4.69	27.72	22.80	190.546	Horizontal	Pass
		2650	-0.22	4.72	27.70	22.76	188.799	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-0.20	4.55	27.77	23.02	200.447	Horizontal	Pass
		2595	0.08	4.69	27.72	23.11	204.644	Horizontal	Pass
		2647.5	0.03	4.72	27.69	23.00	199.526	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	0.32	4.57	27.78	**23.53**	225.424	Horizontal	Pass
		2595	0.14	4.73	27.72	23.13	205.589	Horizontal	Pass
		2645	0.14	4.75	27.68	23.07	202.768	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2537.5	-0.09	4.54	27.75	23.12	205.116	Vertical	Pass
		2595	0.00	4.69	27.72	23.03	200.909	Vertical	Pass
		2652.5	0.02	4.71	27.71	23.02	200.447	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-0.07	4.55	27.76	23.14	206.063	Vertical	Pass
		2595	0.09	4.69	27.72	23.12	205.116	Vertical	Pass
		2650	0.02	4.72	27.70	23.00	199.526	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-1.77	4.55	27.77	21.45	139.637	Vertical	Pass
		2595	-1.09	4.69	27.72	21.94	156.315	Vertical	Pass
		2647.5	-0.69	4.72	27.69	22.28	169.044	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-1.19	4.57	27.78	22.02	159.221	Vertical	Pass
		2595	-1.45	4.73	27.72	21.54	142.561	Vertical	Pass
		2645	-1.22	4.75	27.68	21.71	148.252	Vertical	Pass

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1051,§22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is 55 + log10 (P [Watts]).
The minimum permissible attenuation level of any spurious emission is 43 + log10 (P [Watts]), where P is the transmitter power in Watts.

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
- LTE Band 4
- ☐ LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3701.4	-50.62	4.04	33.51	-21.15	-13	-8.15	Horizontal
3701.4	-48.18	4.04	33.51	-18.71	-13	-5.71	Vertical
5552.1	-45.78	5.24	35.84	-15.18	-13	-2.18	Vertical
5552.1	-53.48	5.24	35.84	-22.88	-13	-9.88	Horizontal
191.4	-37.08	1.43	16.02	-22.49	-13	-9.49	Vertical
266.3	-44.98	1.30	17.99	-28.29	-13	-15.29	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.30	4.04	33.56	-17.78	-13	-4.78	Horizontal
3760.0	-50.07	4.04	33.56	-20.55	-13	-7.55	Vertical
5640.0	-49.14	5.24	35.91	-18.47	-13	-5.47	Vertical
5640.0	-51.22	5.24	35.91	-20.55	-13	-7.55	Horizontal
191.1	-43.27	1.62	16.97	-27.92	-13	-14.92	Vertical
307.1	-34.57	1.74	15.98	-20.34	-13	-7.34	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-50.28	4.04	34.00	-20.32	-13	-7.32	Horizontal
3818.6	-46.43	4.04	34.00	-16.47	-13	-3.47	Vertical
5727.9	-52.41	5.24	36.04	-21.61	-13	-8.61	Vertical
5727.9	-50.18	5.24	36.04	-19.38	-13	-6.38	Horizontal
211.7	-38.82	1.42	17.29	-22.95	-13	-9.95	Vertical
463.0	-38.14	1.50	17.90	-21.73	-13	-8.73	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
3720.0	-46.07	4.07	33.54	-16.60	-13	-3.60	Horizontal
3720.0	-45.45	4.07	33.54	-15.98	-13	-2.98	Vertical
5580.0	-49.99	5.28	35.86	-19.41	-13	-6.41	Vertical
5580.0	-49.49	5.28	35.86	-18.91	-13	-5.91	Horizontal
187.9	-44.81	1.58	16.89	-29.49	-13	-16.49	Vertical
469.4	-44.49	1.76	17.26	-28.99	-13	-15.99	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.47	4.04	33.56	-19.95	-13	-6.95	Horizontal
3760.0	-48.16	4.04	33.56	-18.64	-13	-5.64	Vertical
5640.0	-49.00	5.24	35.91	-18.33	-13	-5.33	Vertical
5640.0	-50.14	5.24	35.91	-19.47	-13	-6.47	Horizontal
197.5	-35.34	1.46	16.27	-20.53	-13	-7.53	Vertical
365.7	-34.79	1.59	15.15	-21.23	-13	-8.23	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-53.09	4.04	34.00	-23.13	-13	-10.13	Horizontal
3800.0	-52.80	4.04	34.00	-22.84	-13	-9.84	Vertical
5700.0	-53.06	5.24	36.04	-22.26	-13	-9.26	Vertical
5700.0	-53.29	5.24	36.04	-22.49	-13	-9.49	Horizontal
178.9	-38.74	1.36	17.39	-22.70	-13	-9.70	Vertical
273.2	-36.75	1.66	15.39	-23.02	-13	-10.02	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3421.4	-44.10	4.02	29.80	-18.32	-13	-5.32	Horizontal
3421.4	-52.37	4.02	29.80	-26.59	-13	-13.59	Vertical
5132.1	-46.11	5.24	35.84	-15.51	-13	-2.51	Vertical
5132.1	-50.88	5.24	35.84	-20.28	-13	-7.28	Horizontal
200.4	-39.14	1.68	16.04	-24.78	-13	-11.78	Vertical
278.5	-34.23	1.78	17.74	-18.27	-13	-5.27	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.19	4.03	30.00	-22.22	-13	-9.22	Horizontal
3465.0	-44.86	4.03	30.00	-18.89	-13	-5.89	Vertical
5197.5	-47.59	5.25	35.86	-16.98	-13	-3.98	Vertical
5197.5	-52.69	5.25	35.86	-22.08	-13	-9.08	Horizontal
179.5	-43.77	1.72	17.69	-27.80	-13	-14.80	Vertical
279.4	-34.88	1.62	16.02	-20.47	-13	-7.47	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-50.19	4.05	30.01	-24.23	-13	-11.23	Horizontal
3508.6	-49.18	4.05	30.01	-23.22	-13	-10.22	Vertical
5262.9	-48.15	5.26	35.86	-17.55	-13	-4.55	Vertical
5262.9	-49.29	5.26	35.86	-18.69	-13	-5.69	Horizontal
208.8	-34.98	1.80	16.69	-20.09	-13	-7.09	Vertical
437.3	-42.02	1.75	16.66	-27.12	-13	-14.12	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
3440.0	-44.11	4.02	29.80	-18.33	-13	-5.33	Horizontal
3440.0	-51.96	4.02	29.80	-26.18	-13	-13.18	Vertical
5160.0	-44.69	5.24	35.84	-14.09	-13	-1.09	Vertical
5160.0	-52.96	5.24	35.84	-22.36	-13	-9.36	Horizontal
182.9	-35.90	1.57	17.26	-20.21	-13	-7.21	Vertical
341.0	-36.76	1.78	16.35	-22.19	-13	-9.19	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.26	4.03	30.00	-22.29	-13	-9.29	Horizontal
3465.0	-45.73	4.03	30.00	-19.76	-13	-6.76	Vertical
5197.5	-46.59	5.25	35.86	-15.98	-13	-2.98	Vertical
5197.5	-52.04	5.25	35.86	-21.43	-13	-8.43	Horizontal
188.2	-43.15	1.44	17.95	-26.64	-13	-13.64	Vertical
460.6	-43.13	1.65	16.09	-28.69	-13	-15.69	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-45.40	2.91	27.68	-20.63	-13	-7.63	Horizontal
3490.0	-48.83	2.91	27.68	-24.06	-13	-11.06	Vertical
5235.0	-47.22	5.26	35.86	-16.62	-13	-3.62	Vertical
5235.0	-50.11	5.26	35.86	-19.51	-13	-6.51	Horizontal
186.2	-39.28	1.61	16.85	-24.04	-13	-11.04	Vertical
447.4	-42.05	1.61	15.19	-28.47	-13	-15.47	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1649.4	-45.63	2.78	27.50	-20.91	-13	-7.91	Horizontal
1649.4	-46.45	2.78	27.50	-21.73	-13	-8.73	Vertical
2474.1	-53.70	2.90	27.80	-28.80	-13	-15.80	Vertical
2474.1	-53.93	2.90	27.80	-29.03	-13	-16.03	Horizontal
197.6	-44.35	1.76	17.59	-28.52	-13	-15.52	Vertical
275.3	-43.26	1.63	15.87	-29.02	-13	-16.02	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-47.94	2.80	27.48	-23.26	-13	-10.26	Horizontal
1673.0	-51.73	2.80	27.48	-27.05	-13	-14.05	Vertical
2509.5	-46.89	2.91	27.70	-22.10	-13	-9.10	Vertical
2509.5	-53.20	2.91	27.70	-28.41	-13	-15.41	Horizontal
212.2	-36.22	1.61	15.68	-22.15	-13	-9.15	Vertical
235.4	-37.94	1.59	17.52	-22.02	-13	-9.02	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-49.79	2.82	27.43	-25.18	-13	-12.18	Horizontal
1696.6	-46.44	2.82	27.43	-21.83	-13	-8.83	Vertical
2544.9	-48.49	2.92	27.74	-23.67	-13	-10.67	Vertical
2544.9	-52.20	2.92	27.74	-27.38	-13	-14.38	Horizontal
193.2	-38.43	1.69	16.67	-23.44	-13	-10.44	Vertical
406.1	-37.28	1.70	17.18	-21.80	-13	-8.80	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
1658.0	-51.96	2.78	27.50	-27.24	-13	-14.24	Horizontal
1658.0	-49.25	2.78	27.50	-24.53	-13	-11.53	Vertical
2487.0	-47.70	2.90	27.80	-22.80	-13	-9.80	Vertical
2487.0	-50.07	2.90	27.80	-25.17	-13	-12.17	Horizontal
200.1	-34.94	1.71	15.57	-21.08	-13	-8.08	Vertical
311.7	-36.89	1.34	16.40	-21.83	-13	-8.83	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-52.62	2.80	27.48	-27.94	-13	-14.94	Horizontal
1673.0	-50.40	2.80	27.48	-25.72	-13	-12.72	Vertical
2509.5	-47.33	2.91	27.70	-22.54	-13	-9.54	Vertical
2509.5	-49.73	2.91	27.70	-24.94	-13	-11.94	Horizontal
209.0	-39.90	1.44	17.04	-24.30	-13	-11.30	Vertical
304.6	-41.03	1.76	17.62	-25.17	-13	-12.17	Horizontal
Test Results for High Channel 844MHz							
1688.0	-53.45	2.82	27.43	-28.84	-13	-15.84	Horizontal
1688.0	-52.38	2.82	27.43	-27.77	-13	-14.77	Vertical
2532.0	-53.36	2.92	27.74	-28.54	-13	-15.54	Vertical
2532.0	-52.39	2.92	27.74	-27.57	-13	-14.57	Horizontal
196.5	-38.41	1.74	17.70	-22.45	-13	-9.45	Vertical
367.9	-44.39	1.41	17.46	-28.33	-13	-15.33	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5005.0	-59.09	5.23	35.81	-28.51	-25	-3.51	Horizontal
5005.0	-62.85	5.23	35.81	-32.27	-25	-7.27	Vertical
7507.5	-63.03	5.67	36.85	-31.85	-25	-6.85	Vertical
7507.5	-63.68	5.67	36.85	-32.50	-25	-7.50	Horizontal
195.2	-50.64	1.73	17.97	-34.40	-25	-9.40	Vertical
390.7	-49.50	1.38	15.11	-35.77	-25	-10.77	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.65	5.23	35.82	-31.06	-25	-6.06	Horizontal
5070.0	-64.78	5.23	35.82	-34.19	-25	-9.19	Vertical
7605.0	-63.39	5.67	36.85	-32.21	-25	-7.21	Vertical
7605.0	-62.62	5.67	36.85	-31.44	-25	-6.44	Horizontal
208.3	-47.74	1.77	16.17	-33.33	-25	-8.33	Vertical
440.3	-51.76	1.63	15.21	-38.18	-25	-13.18	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-60.08	5.24	35.83	-29.49	-25	-4.49	Horizontal
5135.0	-63.93	5.24	35.83	-33.34	-25	-8.34	Vertical
7702.5	-61.47	5.68	36.87	-30.28	-25	-5.28	Vertical
7702.5	-61.87	5.68	36.87	-30.68	-25	-5.68	Horizontal
189.4	-48.58	1.58	17.56	-32.60	-25	-7.60	Vertical
373.3	-48.69	1.45	16.58	-33.56	-25	-8.56	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5020.0	-63.76	5.23	35.82	-33.17	-25	-8.17	Horizontal
5020.0	-63.07	5.23	35.82	-32.48	-25	-7.48	Vertical
7530.0	-62.23	5.67	36.86	-31.04	-25	-6.04	Vertical
7530.0	-61.18	5.67	36.86	-29.99	-25	-4.99	Horizontal
184.4	-54.59	1.63	15.76	-40.46	-25	-15.46	Vertical
312.0	-44.30	1.71	15.44	-30.57	-25	-5.57	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.57	5.23	35.82	-30.98	-25	-5.98	Horizontal
5070.0	-59.98	5.23	35.82	-29.39	-25	-4.39	Vertical
7605.0	-59.01	5.67	36.85	-27.83	-25	-2.83	Vertical
7605.0	-61.46	5.67	36.85	-30.28	-25	-5.28	Horizontal
194.9	-54.55	1.79	16.84	-39.49	-25	-14.49	Vertical
274.7	-47.33	1.71	17.64	-31.40	-25	-6.40	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-62.58	5.24	35.83	-31.99	-25	-6.99	Horizontal
5120.0	-61.69	5.24	35.83	-31.10	-25	-6.10	Vertical
7680.0	-60.33	5.70	36.88	-29.15	-25	-4.15	Vertical
7680.0	-64.09	5.70	36.88	-32.91	-25	-7.91	Horizontal
187.1	-45.68	1.79	16.84	-30.62	-25	-5.62	Vertical
407.2	-47.96	1.71	17.64	-32.03	-25	-7.03	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.

9.5 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	-51.39	2.60	27.20	-26.79	-13	-13.79	Horizontal
1399.4	-52.41	2.60	27.20	-27.81	-13	-14.81	Vertical
2099.1	-52.32	2.85	27.54	-27.63	-13	-14.63	Vertical
2099.1	-50.74	2.85	27.54	-26.05	-13	-13.05	Horizontal
186.3	-40.14	1.49	17.78	-23.85	-13	-10.85	Vertical
394.0	-43.84	1.36	17.33	-27.87	-13	-14.87	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-48.26	2.61	27.28	-23.59	-13	-10.59	Horizontal
1415.0	-53.76	2.61	27.28	-29.09	-13	-16.09	Vertical
2122.5	-47.85	2.87	27.59	-23.13	-13	-10.13	Vertical
2122.5	-49.13	2.87	27.59	-24.41	-13	-11.41	Horizontal
176.1	-44.28	1.73	15.74	-30.27	-13	-17.27	Vertical
462.1	-37.28	1.62	15.79	-23.11	-13	-10.11	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-49.23	2.63	27.28	-24.58	-13	-11.58	Horizontal
1430.6	-47.24	2.63	27.28	-22.59	-13	-9.59	Vertical
2145.9	-46.97	2.88	27.60	-22.25	-13	-9.25	Vertical
2145.9	-50.42	2.88	27.60	-25.70	-13	-12.70	Horizontal
185.1	-36.36	1.61	18.00	-19.97	-13	-6.97	Vertical
344.6	-35.33	1.45	15.49	-21.30	-13	-8.30	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
1408.0	-50.66	2.61	27.26	-26.01	-13	-13.01	Horizontal
1408.0	-47.36	2.61	27.26	-22.71	-13	-9.71	Vertical
2112.0	-45.70	2.87	27.58	-20.99	-13	-7.99	Vertical
2112.0	-50.65	2.87	27.58	-25.94	-13	-12.94	Horizontal
207.6	-36.70	1.31	16.97	-21.04	-13	-8.04	Vertical
243.8	-41.55	1.65	16.70	-26.50	-13	-13.50	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-49.56	2.61	27.28	-24.89	-13	-11.89	Horizontal
1415.0	-50.29	2.61	27.28	-25.62	-13	-12.62	Vertical
2122.5	-44.15	2.87	27.59	-19.43	-13	-6.43	Vertical
2122.5	-51.60	2.87	27.59	-26.88	-13	-13.88	Horizontal
181.7	-40.90	1.72	17.99	-24.63	-13	-11.63	Vertical
255.4	-38.22	1.73	17.94	-22.01	-13	-9.01	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.74	2.62	27.28	-24.08	-13	-11.08	Horizontal
1422.0	-50.91	2.62	27.28	-26.25	-13	-13.25	Vertical
2133.0	-49.14	2.87	27.60	-24.41	-13	-11.41	Vertical
2133.0	-50.12	2.87	27.60	-25.39	-13	-12.39	Horizontal
199.9	-41.71	1.58	15.93	-27.36	-13	-14.36	Vertical
239.0	-41.05	1.36	15.59	-26.82	-13	-13.82	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1413.0	-44.62	2.61	27.28	-19.95	-13	-6.95	Horizontal
1413.0	-51.55	2.61	27.28	-26.88	-13	-13.88	Vertical
2119.5	-45.05	2.87	27.59	-20.33	-13	-7.33	Vertical
2119.5	-51.27	2.87	27.59	-26.55	-13	-13.55	Horizontal
179.9	-39.79	1.71	16.15	-25.35	-13	-12.35	Vertical
412.1	-43.14	1.41	17.32	-27.23	-13	-14.23	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-53.21	2.62	27.30	-28.53	-13	-15.53	Horizontal
1420.0	-48.29	2.62	27.30	-23.61	-13	-10.61	Vertical
2130.0	-48.89	2.87	27.62	-24.14	-13	-11.14	Vertical
2130.0	-53.53	2.87	27.62	-28.78	-13	-15.78	Horizontal
209.3	-34.75	1.42	15.25	-20.93	-13	-7.93	Vertical
257.6	-36.71	1.36	17.19	-20.88	-13	-7.88	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-53.58	2.66	27.28	-28.96	-13	-15.96	Horizontal
1427.0	-49.00	2.66	27.28	-24.38	-13	-11.38	Vertical
2140.5	-53.32	2.88	27.60	-28.60	-13	-15.60	Vertical
2140.5	-49.85	2.88	27.60	-25.13	-13	-12.13	Horizontal
204.3	-42.87	1.32	17.29	-26.90	-13	-13.90	Vertical
286.4	-34.91	1.72	16.89	-19.74	-13	-6.74	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1418.0	-48.16	2.62	27.30	-23.48	-13	-10.48	Horizontal
1418.0	-51.23	2.62	27.30	-26.55	-13	-13.55	Vertical
2127.0	-47.23	2.87	27.62	-22.48	-13	-9.48	Vertical
2127.0	-51.24	2.87	27.62	-26.49	-13	-13.49	Horizontal
209.6	-35.00	1.35	16.91	-19.44	-13	-6.44	Vertical
418.4	-35.42	1.62	16.31	-20.73	-13	-7.73	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-51.74	2.62	27.30	-27.06	-13	-14.06	Horizontal
1420.0	-51.87	2.62	27.30	-27.19	-13	-14.19	Vertical
2130.0	-52.21	2.87	27.62	-27.46	-13	-14.46	Vertical
2130.0	-50.46	2.87	27.62	-25.71	-13	-12.71	Horizontal
196.8	-36.28	1.51	17.14	-20.65	-13	-7.65	Vertical
469.5	-34.80	1.77	16.88	-19.69	-13	-6.69	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.09	2.62	27.30	-23.41	-13	-10.41	Horizontal
1422.0	-44.32	2.62	27.30	-19.64	-13	-6.64	Vertical
2133.0	-49.39	2.87	27.62	-24.64	-13	-11.64	Vertical
2133.0	-50.09	2.87	27.62	-25.34	-13	-12.34	Horizontal
204.6	-39.65	1.78	15.95	-25.48	-13	-12.48	Vertical
401.2	-41.10	1.34	17.95	-24.50	-13	-11.50	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.

9.7 LTE BAND 41

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

Test Results for Low Channel 2537.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5075	-63.18	5.23	35.81	-32.60	-25	-7.60	Horizontal
5075	-63.59	5.23	35.81	-33.01	-25	-8.01	Vertical
7612.5	-61.23	5.67	36.85	-30.05	-25	-5.05	Vertical
7612.5	-61.81	5.67	36.85	-30.63	-25	-5.63	Horizontal
435.3	-44.10	1.38	15.98	-29.50	-25	-4.50	Vertical
465.8	-44.32	1.62	15.66	-30.28	-25	-5.28	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-63.98	5.23	35.82	-33.39	-25	-8.39	Horizontal
5190.0	-60.15	5.23	35.82	-29.56	-25	-4.56	Vertical
7785.0	-59.76	5.67	36.85	-28.58	-25	-3.58	Vertical
7785.0	-59.70	5.67	36.85	-28.52	-25	-3.52	Horizontal
510.4	-47.67	1.62	16.17	-33.12	-25	-8.12	Vertical
562.9	-46.16	1.74	17.63	-30.27	-25	-5.27	Horizontal
Test Results for High Channel 2652.5MHz							
5305	-60.05	5.24	35.83	-29.46	-25	-4.46	Horizontal
5305	-63.59	5.24	35.83	-33.00	-25	-8.00	Vertical
7957.5	-63.91	5.68	36.87	-32.72	-25	-7.72	Vertical
7957.5	-60.04	5.68	36.87	-28.85	-25	-3.85	Horizontal
197.6	-47.70	1.55	15.84	-33.41	-25	-8.41	Vertical
353.1	-49.69	1.51	17.06	-34.14	-25	-9.14	Horizontal

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

Test Results for Low Channel 2545MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5090	-61.98	5.23	35.82	-31.39	-25	-6.39	Horizontal
5090	-60.97	5.23	35.82	-30.38	-25	-5.38	Vertical
7635	-59.11	5.67	36.86	-27.92	-25	-2.92	Vertical
7635	-64.99	5.67	36.86	-33.80	-25	-8.80	Horizontal
128.9	-44.66	1.43	15.51	-30.58	-25	-5.58	Vertical
344.8	-44.03	1.40	16.97	-28.46	-25	-3.46	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-60.23	5.23	35.82	-29.64	-25	-4.64	Horizontal
5190.0	-63.51	5.23	35.82	-32.92	-25	-7.92	Vertical
7785.0	-63.79	5.67	36.85	-32.61	-25	-7.61	Vertical
7785.0	-61.43	5.67	36.85	-30.25	-25	-5.25	Horizontal
100.8	-46.83	1.77	16.72	-31.88	-25	-6.88	Vertical
263.5	-48.23	1.31	16.99	-32.55	-25	-7.55	Horizontal
Test Results for High Channel 2645MHz							
5290	-61.50	5.24	35.83	-30.91	-25	-5.91	Horizontal
5290	-62.15	5.24	35.83	-31.56	-25	-6.56	Vertical
7935	-59.73	5.70	36.88	-28.55	-25	-3.55	Vertical
7935	-63.21	5.70	36.88	-32.03	-25	-7.03	Horizontal
349.9	-45.32	1.70	15.73	-31.29	-25	-6.29	Vertical
110.3	-47.06	1.75	17.33	-31.48	-25	-6.48	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.

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 3.4V, Normal, DC 3.85V and High voltage, DC 4.2V.

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

LTE Band 4

- LTE Band5

LTE Band 7

LTE Band 12

LTE Band 17

LTE Band 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]
3.4	1880	12.6	0.006697	2.5
3.85	1880	14.2	0.007561	2.5
4.2	1880	13.2	0.007043	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.6	0.006694	2.5
Extreme (50C)	1880	12.0	0.006399	2.5
Extreme (40C)	1880	13.9	0.007367	2.5
Extreme (30C)	1880	13.0	0.006918	2.5
Extreme (10C)	1880	14.1	0.007475	2.5
Extreme (0C)	1880	12.6	0.006679	2.5
Extreme (-10C)	1880	12.5	0.006654	2.5
Extreme (-20C)	1880	13.8	0.007348	2.5
Extreme (-30C)	1880	14.2	0.007575	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]
3.4	1880	9.7	0.005172	2.5
3.85	1880	9.0	0.004806	2.5
4.2	1880	8.1	0.004285	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.5	0.005064	2.5
Extreme (50C)	1880	8.5	0.004498	2.5
Extreme (40C)	1880	8.6	0.004555	2.5
Extreme (30C)	1880	9.3	0.004948	2.5
Extreme (10C)	1880	8.8	0.004692	2.5
Extreme (0C)	1880	7.7	0.004098	2.5
Extreme (-10C)	1880	8.8	0.004698	2.5
Extreme (-20C)	1880	8.5	0.004510	2.5
Extreme (-30C)	1880	8.3	0.004430	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]
3.4	1732.5	9.1	0.005243	2.5
3.85	1732.5	9.2	0.005329	2.5
4.2	1732.5	8.8	0.005096	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.1	0.004687	2.5
Extreme (50C)	1732.5	9.0	0.005167	2.5
Extreme (40C)	1732.5	7.0	0.004058	2.5
Extreme (30C)	1732.5	6.1	0.003535	2.5
Extreme (10C)	1732.5	6.8	0.003896	2.5
Extreme (0C)	1732.5	9.4	0.005419	2.5
Extreme (-10C)	1732.5	8.3	0.004807	2.5
Extreme (-20C)	1732.5	6.5	0.003741	2.5
Extreme (-30C)	1732.5	8.1	0.004700	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]
3.4	1732.5	9.8	0.005678	2.5
3.85	1732.5	8.9	0.005150	2.5
4.2	1732.5	7.9	0.004573	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	10.2	0.005864	2.5
Extreme (50C)	1732.5	8.5	0.004931	2.5
Extreme (40C)	1732.5	8.0	0.004610	2.5
Extreme (30C)	1732.5	9.0	0.005205	2.5
Extreme (10C)	1732.5	9.2	0.005326	2.5
Extreme (0C)	1732.5	8.4	0.004823	2.5
Extreme (-10C)	1732.5	8.6	0.004948	2.5
Extreme (-20C)	1732.5	8.5	0.004929	2.5
Extreme (-30C)	1732.5	7.7	0.004434	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]
3.4	836.5	5.7	0.006869	2.5
3.85	836.5	6.9	0.008267	2.5
4.2	836.5	4.7	0.005581	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.7	0.006853	2.5
Extreme (50C)	836.5	6.1	0.007253	2.5
Extreme (40C)	836.5	6.2	0.007454	2.5
Extreme (30C)	836.5	6.7	0.008033	2.5
Extreme (10C)	836.5	5.8	0.006898	2.5
Extreme (0C)	836.5	5.7	0.006823	2.5
Extreme (-10C)	836.5	5.5	0.006626	2.5
Extreme (-20C)	836.5	6.3	0.007561	2.5
Extreme (-30C)	836.5	6.1	0.007316	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]
3.4	836.5	5.8	0.006979	2.5
3.85	836.5	6.8	0.008111	2.5
4.2	836.5	5.3	0.006293	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.0	0.007232	2.5
Extreme (50C)	836.5	6.2	0.007428	2.5
Extreme (40C)	836.5	6.6	0.007871	2.5
Extreme (30C)	836.5	6.6	0.007865	2.5
Extreme (10C)	836.5	5.1	0.006066	2.5
Extreme (0C)	836.5	5.5	0.006626	2.5
Extreme (-10C)	836.5	5.9	0.007026	2.5
Extreme (-20C)	836.5	5.6	0.006724	2.5
Extreme (-30C)	836.5	6.8	0.008109	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]
3.4	2535	9.8	0.003864	2.5
3.85	2535	9.2	0.003622	2.5
4.2	2535	8.3	0.003272	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.5	0.003734	2.5
Extreme (50C)	2535	9.0	0.003556	2.5
Extreme (40C)	2535	8.7	0.003421	2.5
Extreme (30C)	2535	8.6	0.003380	2.5
Extreme (10C)	2535	8.1	0.003182	2.5
Extreme (0C)	2535	8.2	0.003234	2.5
Extreme (-10C)	2535	9.6	0.003775	2.5
Extreme (-20C)	2535	9.4	0.003698	2.5
Extreme (-30C)	2535	8.8	0.003484	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]
3.4	2535	6.9	0.002722	2.5
3.85	2535	6.4	0.002529	2.5
4.2	2535	5.3	0.002093	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.6	0.002209	2.5
Extreme (40C)	2535	5.1	0.002025	2.5
Extreme (30C)	2535	6.9	0.002706	2.5
Extreme (10C)	2535	6.1	0.002406	2.5
Extreme (0C)	2535	4.7	0.001853	2.5
Extreme (-10C)	2535	5.1	0.002024	2.5
Extreme (-20C)	2535	6.0	0.002354	2.5
Extreme (-30C)	2535	5.7	0.002249	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]
3.4	707.5	8.6	0.012130	2.5
3.85	707.5	9.9	0.014037	2.5
4.2	707.5	9.0	0.012781	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.1	0.012823	2.5
Extreme (50C)	707.5	7.9	0.011227	2.5
Extreme (40C)	707.5	7.1	0.009969	2.5
Extreme (30C)	707.5	8.4	0.011876	2.5
Extreme (10C)	707.5	7.7	0.010873	2.5
Extreme (0C)	707.5	9.0	0.012725	2.5
Extreme (-10C)	707.5	8.3	0.011737	2.5
Extreme (-20C)	707.5	8.6	0.012206	2.5
Extreme (-30C)	707.5	7.6	0.010689	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]
3.4	707.5	7.7	0.010912	2.5
3.85	707.5	8.7	0.012349	2.5
4.2	707.5	7.6	0.010688	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]
3.4	710	9.3	0.013133	2.5
3.85	710	9.0	0.012680	2.5
4.2	710	8.4	0.011900	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	9.4	0.013247	2.5
Extreme (50C)	710	8.5	0.011945	2.5
Extreme (40C)	710	7.8	0.010935	2.5
Extreme (30C)	710	9.5	0.013370	2.5
Extreme (10C)	710	8.4	0.011846	2.5
Extreme (0C)	710	8.0	0.011300	2.5
Extreme (-10C)	710	9.3	0.013114	2.5
Extreme (-20C)	710	8.7	0.012225	2.5
Extreme (-30C)	710	8.0	0.011279	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]
3.4	710	10.3	0.014568	2.5
3.85	710	8.6	0.012130	2.5
4.2	710	8.0	0.011333	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	9.1	0.012756	2.5
Extreme (50C)	710	8.8	0.012437	2.5
Extreme (40C)	710	8.1	0.011455	2.5
Extreme (30C)	710	9.1	0.012782	2.5
Extreme (10C)	710	8.4	0.011827	2.5
Extreme (0C)	710	8.6	0.012125	2.5
Extreme (-10C)	710	9.2	0.012962	2.5
Extreme (-20C)	710	9.0	0.012736	2.5
Extreme (-30C)	710	8.8	0.012353	2.5

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

10.6 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]
3.4	2595	6.5	0.002521	2.5
3.85	2595	7.4	0.002854	2.5
4.2	2595	7.1	0.002722	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	5.3	0.002061	2.5
Extreme (50C)	2595	7.8	0.002990	2.5
Extreme (40C)	2595	6.0	0.002329	2.5
Extreme (30C)	2595	7.0	0.002699	2.5
Extreme (10C)	2595	7.9	0.003042	2.5
Extreme (0C)	2595	6.2	0.002398	2.5
Extreme (-10C)	2595	5.6	0.002148	2.5
Extreme (-20C)	2595	7.0	0.002682	2.5
Extreme (-30C)	2595	5.5	0.002109	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]
3.4	2595	6.9	0.002654	2.5
3.85	2595	6.9	0.002643	2.5
4.2	2595	7.5	0.002880	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	5.1	0.001954	2.5
Extreme (50C)	2595	7.5	0.002898	2.5
Extreme (40C)	2595	6.3	0.002437	2.5
Extreme (30C)	2595	7.2	0.002756	2.5
Extreme (10C)	2595	7.0	0.002708	2.5
Extreme (0C)	2595	6.6	0.002552	2.5
Extreme (-10C)	2595	5.5	0.002101	2.5
Extreme (-20C)	2595	7.0	0.002681	2.5
Extreme (-30C)	2595	5.6	0.002158	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.

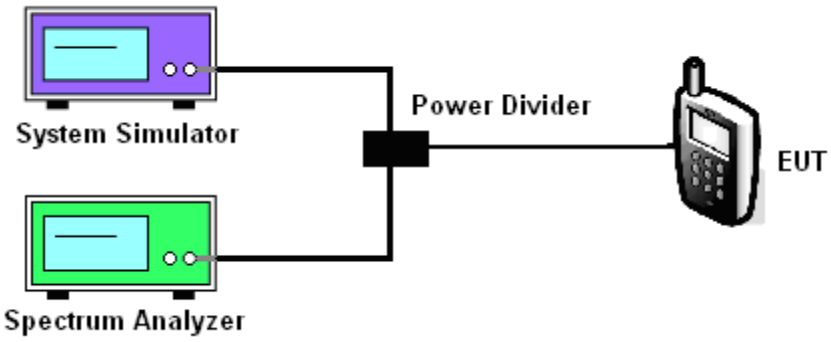
11.2 Measuring Instruments

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----