

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT

FCC ID: 2AHZ5-TAB

Product: Tablet
Trade Mark: CUBOT
Model No.: TAB KINGKONG MINI
Family Model: TAB KINGKONG S, TAB KINGKONG 2,
TAB KINGKONG 3, TAB 70, TAB 80, TAB 90
Report No.: S25052400910006
Issue Date: Jul. 01, 2025

Prepared for

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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, Xiangjiaotang Community, Bantian Street,
Longgang District, Shenzhen, P.R. 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, Xiangjiaotang Community, Bantian Street,
Longgang District, Shenzhen, P.R. China

Product name..... : Tablet

Model and/or type reference .. : TAB KINGKONG MINI

Trade Mark..... : CUBOT

Family Model..... : TAB KINGKONG S, TAB KINGKONG 2, TAB KINGKONG 3, TAB 70
TAB 80, TAB 90

Test Sample Number..... : S250524009009

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..... May. 24, 2025 ~ Jul. 01, 2025

Date of Issue Jul. 01, 2025

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

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Tablet
Trade Mark	CUBOT
Model Name	TAB KINGKONG MINI
Family Model	TAB KINGKONG S, TAB KINGKONG 2, TAB KINGKONG 3, TAB 70, TAB 80, TAB 90
Model Difference	All models have the same circuit and RF module, except for model names and colors.
FCC ID:	2AHZ5-TAB
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: 2535MHz-2655MHz,
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:	FPC Antenna
Antenna gain:	Band 2: -1.2 dBi, Band 4:-1.0 dBi, Band 5:-2.8 dBi, Band 7: -2.3 dBi, Band 12: -4.1 dBi, Band 17: -4.1 dBi, Band 41: -2.3 dBi
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 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 OR12.0V---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, 10200mAh, 39.474Wh
Power supply	DC 3.87V from battery or DC 5V/9V/12V from adapter1 or DC 5V/9V/12V/15V/20V from adapter2
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V) (Note 1)

HW Version	T30D-UF-V1.2
FW Version	N/A
SW Version	CUBOT_TAB_KINGKONG_MINI_P131_V1.0
** Note1: The High Voltage DC 4.45V and Low Voltage 3.29V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AHZ5-TAB** 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 Xinfu 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% ($U = 2U_c(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/17/41

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	Tablet	TAB KINGKONG MINI	FCC ID: 2AHZ5-TAB	EUT

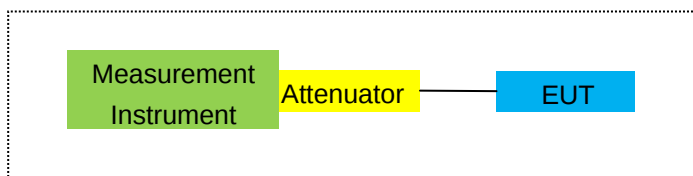
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

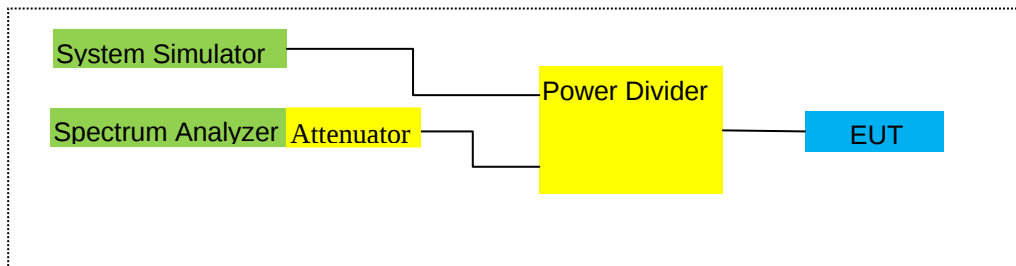
For Radiated Test Cases



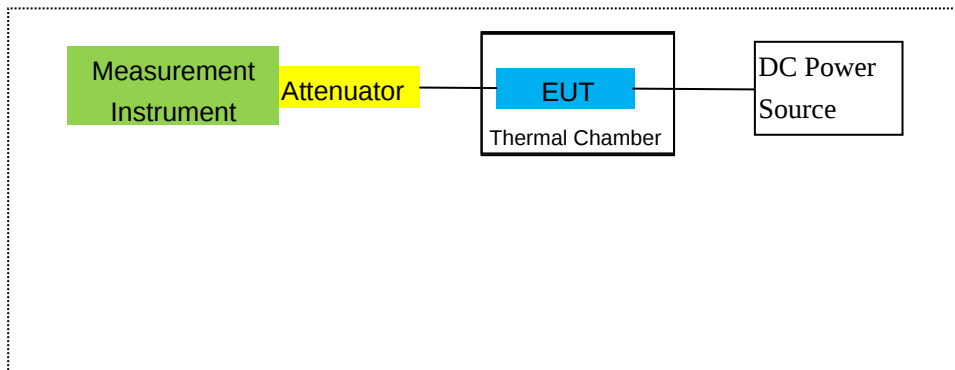
For Conducted Output Power



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	2025.04.17	2026.04.16	1 year
2	Test Receiver	R&S	ESPI	101318	2025.04.17	2026.04.16	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	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	2025.04.17	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	2025.04.17	2026.04.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2025.04.17	2026.04.16	1 year
11	Test Cable	N/A	R-01	N/A	2023.06.17	2026.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2023.06.17	2026.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2023.06.17	2026.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
15	LISN	R&S	ENV216	101313	2025.04.17	2026.04.16	1 year
16	LISN	EMCO	3816/2	00042990	2025.04.17	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	2025.04.17	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	2025.04.17	2026.04.16	1 year
23	EMI Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
24	Universal Radio Communication Tester	R&S	CMU200	105747	2025.04.17	2026.04.16	1 year

25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpac	58226119460030	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	2025.04.17	2026.04.16	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2025.04.17	2026.04.16	1 year
29	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2025.04.17	2026.04.16	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. 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 than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Show citation box.

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

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.

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. 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							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
1.4MHz Band QPSK	1/#Mid	1850.7	-4.02	3.76	28.24	20.46	111.173	Horizontal	2	Pass
		1880	-3.83	3.91	28.22	20.48	111.686	Horizontal	2	Pass
		1909.3	-3.74	3.93	28.20	20.53	112.980	Horizontal	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.08	3.77	28.23	20.38	109.144	Horizontal	2	Pass
		1880	-3.93	3.91	28.24	20.40	109.648	Horizontal	2	Pass
		1908.5	-3.80	3.94	28.25	20.51	112.460	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.97	3.77	28.31	20.57	114.025	Horizontal	2	Pass
		1880	-3.59	3.91	28.22	20.72	118.032	Horizontal	2	Pass
		1907.5	-3.52	3.94	28.20	20.74	118.577	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.83	3.79	28.33	20.71	117.761	Horizontal	2	Pass
		1880	-3.53	3.95	28.22	20.74	118.577	Horizontal	2	Pass
		1905	-3.42	3.97	28.19	20.80	120.226	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-3.79	3.79	28.34	20.76	119.124	Horizontal	2	Pass
		1880	-3.58	3.95	28.22	20.69	117.220	Horizontal	2	Pass
		1902.5	-3.44	3.97	28.18	20.77	119.399	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.78	3.81	28.35	20.76	119.124	Horizontal	2	Pass
		1880	-3.45	3.96	28.22	20.81	120.504	Horizontal	2	Pass
		1900	-3.39	4.00	28.16	20.77	119.399	Horizontal	2	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-5.19	3.76	28.24	19.29	84.918	Vertical	2	Pass
		1880	-4.65	3.91	28.22	19.66	92.470	Vertical	2	Pass
		1909.3	-4.85	3.93	28.20	19.42	87.498	Vertical	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.37	3.77	28.23	20.09	102.094	Vertical	2	Pass
		1880	-4.43	3.91	28.24	19.90	97.724	Vertical	2	Pass
		1908.5	-4.91	3.94	28.25	19.40	87.096	Vertical	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.15	3.77	28.31	19.39	86.896	Vertical	2	Pass
		1880	-4.61	3.91	28.22	19.70	93.325	Vertical	2	Pass
		1907.5	-4.56	3.94	28.20	19.70	93.325	Vertical	2	Pass
10.0MHz Band QPSK	1/#Mid	1855	-5.31	3.79	28.33	19.23	83.753	Vertical	2	Pass
		1880	-4.35	3.95	28.22	19.92	98.175	Vertical	2	Pass
		1905	-4.19	3.97	28.19	20.03	100.693	Vertical	2	Pass
15.0MHz	1/#Mid	1857.5	-5.05	3.79	28.34	19.50	89.125	Vertical	2	Pass

Band		1880	-4.99	3.95	28.22	19.28	84.723	Vertical	2	Pass
QPSK		1902.5	-4.95	3.97	28.18	19.26	84.333	Vertical	2	Pass
20.0MHz	1/#Mid	1860	-4.39	3.81	28.35	20.15	103.514	Vertical	2	Pass
Band		1880	-4.91	3.96	28.22	19.35	86.099	Vertical	2	Pass
QPSK		1900	-4.80	4.00	28.16	19.36	86.298	Vertical	2	Pass

		Radiated Power (EIRP) for Band 2								
Mode	RB/RB SIZE	Frequency	Result						Limit Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.14	3.76	28.24	19.34	85.901	Horizontal	2	Pass
		1880	-4.61	3.91	28.22	19.70	93.325	Horizontal	2	Pass
		1909.3	-4.54	3.93	28.20	19.73	93.972	Horizontal	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.64	3.77	28.23	19.82	95.940	Horizontal	2	Pass
		1880	-4.72	3.91	28.24	19.61	91.411	Horizontal	2	Pass
		1908.5	-4.93	3.94	28.25	19.38	86.696	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.58	3.77	28.31	19.96	99.083	Horizontal	2	Pass
		1880	-4.49	3.91	28.22	19.82	95.940	Horizontal	2	Pass
		1907.5	-4.17	3.94	28.20	20.09	102.094	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.63	3.79	28.33	19.91	97.949	Horizontal	2	Pass
		1880	-4.62	3.95	28.22	19.65	92.257	Horizontal	2	Pass
		1905	-4.09	3.97	28.19	20.13	103.039	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.61	3.79	28.34	19.94	98.628	Horizontal	2	Pass
		1880	-4.40	3.95	28.22	19.87	97.051	Horizontal	2	Pass
		1902.5	-4.36	3.97	28.18	19.85	96.605	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.50	3.81	28.35	20.04	100.925	Horizontal	2	Pass
		1880	-4.20	3.96	28.22	20.06	101.391	Horizontal	2	Pass
		1900	-4.02	4.00	28.16	20.14	103.276	Horizontal	2	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.71	3.76	28.24	18.77	75.336	Vertical	2	Pass
		1880	-5.63	3.91	28.22	18.68	73.790	Vertical	2	Pass
		1909.3	-5.42	3.93	28.20	18.85	76.736	Vertical	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.55	3.77	28.23	18.91	77.804	Vertical	2	Pass
		1880	-5.26	3.91	28.24	19.07	80.724	Vertical	2	Pass
		1908.5	-5.88	3.94	28.25	18.43	69.663	Vertical	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.49	3.77	28.31	19.05	80.353	Vertical	2	Pass
		1880	-5.31	3.91	28.22	19.00	79.433	Vertical	2	Pass
		1907.5	-5.86	3.94	28.20	18.40	69.183	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.89	3.79	28.33	18.65	73.282	Vertical	2	Pass
		1880	-5.76	3.95	28.22	18.51	70.958	Vertical	2	Pass
		1905	-5.76	3.97	28.19	18.46	70.146	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-6.25	3.79	28.34	18.30	67.608	Vertical	2	Pass
		1880	-5.88	3.95	28.22	18.39	69.024	Vertical	2	Pass
		1902.5	-5.83	3.97	28.18	18.38	68.865	Vertical	2	Pass

20.0MHz		1860	-5.80	3.81	28.35	18.74	74.817	Vertical	2	Pass
Band 16	1/#Mid	1880	-5.75	3.96	28.22	18.51	70.958	Vertical	2	Pass
QAM		1900	-5.43	4.00	28.16	18.73	74.645	Vertical	2	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

		Radiated Power (EIRP) for Band 4								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
1.4MHz	1/#Mid	1710.7	-3.93	3.12	27.58	20.53	112.980	Horizontal	1	Pass
Band		1732.5	-3.92	3.27	27.61	20.42	110.154	Horizontal	1	Pass
QPSK		1754.3	-3.90	3.29	27.63	20.44	110.662	Horizontal	1	Pass
3.0MHz	1/#Mid	1711.5	-4.10	3.13	27.61	20.38	109.144	Horizontal	1	Pass
Band		1732.5	-4.02	3.27	27.61	20.32	107.647	Horizontal	1	Pass
QPSK		1753.5	-3.94	3.30	27.62	20.38	109.144	Horizontal	1	Pass
5.0MHz	1/#Mid	1712.5	-3.87	3.13	27.63	20.63	115.611	Horizontal	1	Pass
Band		1732.5	-3.77	3.27	27.61	20.57	114.025	Horizontal	1	Pass
QPSK		1752.5	-3.65	3.30	27.60	20.65	116.145	Horizontal	1	Pass
10.0MHz	1/#Mid	1715	-3.81	3.15	27.64	20.68	116.950	Horizontal	1	Pass
Band		1732.5	-3.58	3.31	27.61	20.72	118.032	Horizontal	1	Pass
QPSK		1750	-3.60	3.33	27.59	20.66	116.413	Horizontal	1	Pass
15.0MHz	1/#Mid	1717.5	-3.82	3.15	27.65	20.68	116.950	Horizontal	1	Pass
Band		1732.5	-3.66	3.31	27.61	20.64	115.878	Horizontal	1	Pass
QPSK		1747.5	-3.60	3.33	27.57	20.64	115.878	Horizontal	1	Pass
20.0MHz	1/#Mid	1720	-3.76	3.17	27.66	20.73	118.304	Horizontal	1	Pass
Band		1732.5	-3.59	3.32	27.61	20.70	117.490	Horizontal	1	Pass
QPSK		1745	-3.53	3.36	27.56	20.67	116.681	Horizontal	1	Pass
1.4MHz	1/#Mid	1710.7	-4.73	3.12	27.58	19.73	93.972	Vertical	1	Pass
Band		1732.5	-5.11	3.27	27.61	19.23	83.753	Vertical	1	Pass
QPSK		1754.3	-4.71	3.29	27.63	19.63	91.833	Vertical	1	Pass
3.0MHz	1/#Mid	1711.5	-4.63	3.13	27.61	19.85	96.605	Vertical	1	Pass
Band		1732.5	-4.16	3.27	27.61	20.18	104.232	Vertical	1	Pass
QPSK		1753.5	-5.00	3.30	27.62	19.32	85.507	Vertical	1	Pass
5.0MHz	1/#Mid	1712.5	-4.49	3.13	27.63	20.01	100.231	Vertical	1	Pass
Band		1732.5	-4.33	3.27	27.61	20.01	100.231	Vertical	1	Pass
QPSK		1752.5	-4.56	3.30	27.60	19.74	94.189	Vertical	1	Pass
10.0MHz	1/#Mid	1715	-5.06	3.15	27.64	19.43	87.700	Vertical	1	Pass
Band		1732.5	-4.55	3.31	27.61	19.75	94.406	Vertical	1	Pass
QPSK		1750	-4.73	3.33	27.59	19.53	89.743	Vertical	1	Pass

15.0MHz		1717.5	-5.26	3.15	27.65	19.24	83.946	Vertical	1	Pass
Band	1/#Mid	1732.5	-4.83	3.31	27.61	19.47	88.512	Vertical	1	Pass
QPSK		1747.5	-4.99	3.33	27.57	19.25	84.140	Vertical	1	Pass
20.0MHz		1720	-5.22	3.17	27.66	19.27	84.528	Vertical	1	Pass
Band	1/#Mid	1732.5	-4.17	3.32	27.61	20.12	102.802	Vertical	1	Pass
QPSK		1745	-4.78	3.36	27.56	19.42	87.498	Vertical	1	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)	Polarization Of Max. ERP		
									Limit	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.74	3.12	27.58	19.72	93.756	Horizontal	1	Pass
		1732.5	-4.59	3.27	27.61	19.75	94.406	Horizontal	1	Pass
		1754.3	-4.59	3.29	27.63	19.75	94.406	Horizontal	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.68	3.13	27.61	19.80	95.499	Horizontal	1	Pass
		1732.5	-4.81	3.27	27.61	19.53	89.743	Horizontal	1	Pass
		1753.5	-5.03	3.30	27.62	19.29	84.918	Horizontal	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.51	3.13	27.63	19.99	99.770	Horizontal	1	Pass
		1732.5	-4.47	3.27	27.61	19.87	97.051	Horizontal	1	Pass
		1752.5	-4.16	3.30	27.60	20.14	103.276	Horizontal	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.58	3.15	27.64	19.91	97.949	Horizontal	1	Pass
		1732.5	-4.77	3.31	27.61	19.53	89.743	Horizontal	1	Pass
		1750	-4.15	3.33	27.59	20.11	102.565	Horizontal	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.38	3.15	27.65	20.12	102.802	Horizontal	1	Pass
		1732.5	-4.44	3.31	27.61	19.86	96.828	Horizontal	1	Pass
		1747.5	-4.46	3.33	27.57	19.78	95.060	Horizontal	1	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.33	3.17	27.66	20.16	103.753	Horizontal	1	Pass
		1732.5	-4.34	3.32	27.61	19.95	98.855	Horizontal	1	Pass
		1745	-4.15	3.36	27.56	20.05	101.158	Horizontal	1	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.38	3.12	27.58	19.08	80.910	Vertical	1	Pass
		1732.5	-5.64	3.27	27.61	18.70	74.131	Vertical	1	Pass
		1754.3	-5.88	3.29	27.63	18.46	70.146	Vertical	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.57	3.13	27.61	18.91	77.804	Vertical	1	Pass
		1732.5	-5.47	3.27	27.61	18.87	77.090	Vertical	1	Pass
		1753.5	-5.51	3.30	27.62	18.81	76.033	Vertical	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.13	3.13	27.63	18.37	68.707	Vertical	1	Pass
		1732.5	-5.84	3.27	27.61	18.50	70.795	Vertical	1	Pass
		1752.5	-5.45	3.30	27.60	18.85	76.736	Vertical	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-6.26	3.15	27.64	18.23	66.527	Vertical	1	Pass
		1732.5	-5.60	3.31	27.61	18.70	74.131	Vertical	1	Pass
		1750	-5.73	3.33	27.59	18.53	71.285	Vertical	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-6.16	3.15	27.65	18.34	68.234	Vertical	1	Pass
		1732.5	-6.08	3.31	27.61	18.22	66.374	Vertical	1	Pass
		1747.5	-6.05	3.33	27.57	18.19	65.917	Vertical	1	Pass

20.0MHz		1720	-5.62	3.17	27.66	18.87	77.090	Vertical	1	Pass
Band 16	1/#Mid	1732.5	-5.80	3.32	27.61	18.49	70.632	Vertical	1	Pass
QAM		1745	-5.46	3.36	27.56	18.74	74.817	Vertical	1	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. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band QPSK	3/#Mid	824.7	5.37	2.01	19.68	2.15	20.89	122.744	Horizontal	7	Pass
		836.5	5.25	2.01	19.77	2.15	20.86	121.899	Horizontal	7	Pass
		848.3	5.05	2.02	19.82	2.15	20.70	117.490	Horizontal	7	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.14	2.01	19.70	2.15	20.68	116.950	Horizontal	7	Pass
		836.5	5.04	2.01	19.77	2.15	20.65	116.145	Horizontal	7	Pass
		847.5	4.91	2.02	19.81	2.15	20.55	113.501	Horizontal	7	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.42	2.01	19.71	2.15	20.97	125.026	Horizontal	7	Pass
		836.5	5.30	2.01	19.77	2.15	20.91	123.310	Horizontal	7	Pass
		846.5	5.14	2.02	19.79	2.15	20.76	119.124	Horizontal	7	Pass
10.0MHz Band QPSK	1/#Mid	829	5.44	2.01	19.73	2.15	21.01	126.183	Horizontal	7	Pass
		836.5	5.39	2.01	19.77	2.15	21.00	125.893	Horizontal	7	Pass
		844	5.29	2.02	19.78	2.15	20.90	123.027	Horizontal	7	Pass
1.4MHz Band QPSK	1/#Mid	824.7	3.96	2.01	19.68	2.15	19.48	88.716	Vertical	7	Pass
		836.5	4.00	2.01	19.77	2.15	19.61	91.411	Vertical	7	Pass
		848.3	4.33	2.02	19.82	2.15	19.98	99.541	Vertical	7	Pass
3.0MHz Band QPSK	1/#Mid	825.5	4.64	2.01	19.70	2.15	20.18	104.232	Vertical	7	Pass
		836.5	4.13	2.01	19.77	2.15	19.74	94.189	Vertical	7	Pass
		847.5	4.15	2.02	19.81	2.15	19.79	95.280	Vertical	7	Pass
5.0MHz Band QPSK	1/#Mid	826.5	3.88	2.01	19.71	2.15	19.43	87.700	Vertical	7	Pass
		836.5	4.08	2.01	19.77	2.15	19.69	93.111	Vertical	7	Pass
		846.5	4.15	2.02	19.79	2.15	19.77	94.842	Vertical	7	Pass
10.0MHz Band QPSK	1/#Mid	829	3.74	2.01	19.73	2.15	19.31	85.310	Vertical	7	Pass
		836.5	4.32	2.01	19.77	2.15	19.93	98.401	Vertical	7	Pass
		844	4.55	2.02	19.78	2.15	20.16	103.753	Vertical	7	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. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band 16 QAM	3/#Mid	824.7	4.52	2.01	19.68	2.15	20.04	100.925	Horizontal	7	Pass
		836.5	4.45	2.01	19.77	2.15	20.06	101.391	Horizontal	7	Pass
		848.3	4.29	2.02	19.82	2.15	19.94	98.628	Horizontal	7	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.60	2.01	19.70	2.15	20.14	103.276	Horizontal	7	Pass
		836.5	4.31	2.01	19.77	2.15	19.92	98.175	Horizontal	7	Pass
		847.5	3.79	2.02	19.81	2.15	19.43	87.700	Horizontal	7	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.92	2.01	19.71	2.15	20.47	111.429	Horizontal	7	Pass
		836.5	4.69	2.01	19.77	2.15	20.30	107.152	Horizontal	7	Pass
		846.5	4.44	2.02	19.79	2.15	20.06	101.391	Horizontal	7	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.92	2.01	19.73	2.15	20.49	111.944	Horizontal	7	Pass
		836.5	4.64	2.01	19.77	2.15	20.25	105.925	Horizontal	7	Pass
		844	4.18	2.02	19.78	2.15	19.79	95.280	Horizontal	7	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	3.66	2.01	19.68	2.15	19.18	82.794	Vertical	7	Pass
		836.5	4.57	2.01	19.77	2.15	20.18	104.232	Vertical	7	Pass
		848.3	4.09	2.02	19.82	2.15	19.74	94.189	Vertical	7	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.97	2.01	19.70	2.15	19.51	89.331	Vertical	7	Pass
		836.5	2.91	2.01	19.77	2.15	18.52	71.121	Vertical	7	Pass
		847.5	3.58	2.02	19.81	2.15	19.22	83.560	Vertical	7	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.62	2.01	19.71	2.15	19.17	82.604	Vertical	7	Pass
		836.5	3.16	2.01	19.77	2.15	18.77	75.336	Vertical	7	Pass
		846.5	2.58	2.02	19.79	2.15	18.20	66.069	Vertical	7	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.13	2.01	19.73	2.15	18.70	74.131	Vertical	7	Pass
		836.5	3.00	2.01	19.77	2.15	18.61	72.611	Vertical	7	Pass
		844	3.40	2.02	19.78	2.15	19.01	79.616	Vertical	7	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 7

		Radiated Power (EIRP) for Band 7								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
5.0MHz Band QPSK	1/#Mid	2502.5	-2.21	4.54	27.75	21.00	125.893	Horizontal	2	Pass
		2535	-2.04	4.69	27.72	20.99	125.603	Horizontal	2	Pass
		2567.5	-1.97	4.71	27.71	21.03	126.765	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.14	4.55	27.76	21.07	127.938	Horizontal	2	Pass
		2535	-1.95	4.69	27.72	21.08	128.233	Horizontal	2	Pass
		2565	-1.87	4.72	27.70	21.11	129.122	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.15	4.55	27.77	21.07	127.938	Horizontal	2	Pass
		2535	-2.01	4.69	27.72	21.02	126.474	Horizontal	2	Pass
		2562.5	-1.91	4.72	27.69	21.06	127.644	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.09	4.57	27.78	21.12	129.420	Horizontal	2	Pass
		2535	-1.91	4.73	27.72	21.08	128.233	Horizontal	2	Pass
		2560	-1.87	4.75	27.68	21.06	127.644	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-4.01	4.54	27.75	19.20	83.176	Vertical	2	Pass
		2535	-3.78	4.69	27.72	19.25	84.140	Vertical	2	Pass
		2567.5	-3.13	4.71	27.71	19.87	97.051	Vertical	2	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.41	4.55	27.76	19.80	95.499	Vertical	2	Pass
		2535	-3.07	4.69	27.72	19.96	99.083	Vertical	2	Pass
		2565	-3.68	4.72	27.70	19.30	85.114	Vertical	2	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.31	4.55	27.77	19.91	97.949	Vertical	2	Pass
		2535	-3.01	4.69	27.72	20.02	100.462	Vertical	2	Pass
		2562.5	-3.79	4.72	27.69	19.18	82.794	Vertical	2	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.10	4.57	27.78	20.11	102.565	Vertical	2	Pass
		2535	-3.56	4.73	27.72	19.43	87.700	Vertical	2	Pass
		2560	-3.74	4.75	27.68	19.19	82.985	Vertical	2	Pass

		Radiated Power (EIRP) for Band 7								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-2.90	4.54	27.75	20.31	107.399	Horizontal	2	Pass
		2535	-2.59	4.69	27.72	20.44	110.662	Horizontal	2	Pass
		2567.5	-2.67	4.71	27.71	20.33	107.895	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.79	4.55	27.76	20.42	110.154	Horizontal	2	Pass
		2535	-2.80	4.69	27.72	20.23	105.439	Horizontal	2	Pass
		2565	-3.07	4.72	27.70	19.91	97.949	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.97	4.55	27.77	20.25	105.925	Horizontal	2	Pass
		2535	-2.94	4.69	27.72	20.09	102.094	Horizontal	2	Pass
		2562.5	-2.55	4.72	27.69	20.42	110.154	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.85	4.57	27.78	20.36	108.643	Horizontal	2	Pass
		2535	-2.52	4.73	27.72	20.47	111.429	Horizontal	2	Pass
		2560	-2.62	4.75	27.68	20.31	107.399	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.27	4.54	27.75	18.94	78.343	Vertical	2	Pass
		2535	-4.35	4.69	27.72	18.68	73.790	Vertical	2	Pass
		2567.5	-3.05	4.71	27.71	19.95	98.855	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.16	4.55	27.76	20.05	101.158	Vertical	2	Pass
		2535	-3.60	4.69	27.72	19.43	87.700	Vertical	2	Pass
		2565	-3.64	4.72	27.70	19.34	85.901	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.54	4.55	27.77	19.68	92.897	Vertical	2	Pass
		2535	-3.80	4.69	27.72	19.23	83.753	Vertical	2	Pass
		2562.5	-3.98	4.72	27.69	18.99	79.250	Vertical	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.53	4.57	27.78	18.68	73.790	Vertical	2	Pass
		2535	-4.28	4.73	27.72	18.71	74.302	Vertical	2	Pass
		2560	-3.39	4.75	27.68	19.54	89.950	Vertical	2	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								Conclusio n
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band QPSK	1/#Mid	699.7	5.74	1.91	19.21	2.15	20.89	122.744	Vertical	3	Pass
		707.5	5.66	1.91	19.26	2.15	20.86	121.899	Vertical	3	Pass
		715.3	5.44	1.93	19.34	2.15	20.70	117.490	Vertical	3	Pass
3.0MHz Band QPSK	1/#Mid	700.5	5.53	1.91	19.21	2.15	20.68	116.950	Vertical	3	Pass
		707.5	5.45	1.91	19.26	2.15	20.65	116.145	Vertical	3	Pass
		714.5	5.29	1.93	19.34	2.15	20.55	113.501	Vertical	3	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.80	1.91	19.23	2.15	20.97	125.026	Vertical	3	Pass
		707.5	5.71	1.91	19.26	2.15	20.91	123.310	Vertical	3	Pass
		713.5	5.50	1.92	19.33	2.15	20.76	119.124	Vertical	3	Pass
10.0MHz Band QPSK	1/#Mid	704	5.82	1.91	19.25	2.15	21.01	126.183	Vertical	3	Pass
		707.5	5.80	1.91	19.26	2.15	21.00	125.893	Vertical	3	Pass
		711	5.65	1.92	19.32	2.15	20.90	123.027	Vertical	3	Pass
1.4MHz Band QPSK	1/#Mid	699.7	4.66	1.91	19.21	2.15	19.81	95.719	Horizontal	3	Pass
		707.5	4.97	1.91	19.26	2.15	20.17	103.992	Horizontal	3	Pass
		715.3	4.81	1.93	19.34	2.15	20.07	101.625	Horizontal	3	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.04	1.91	19.21	2.15	19.19	82.985	Horizontal	3	Pass
		707.5	4.08	1.91	19.26	2.15	19.28	84.723	Horizontal	3	Pass
		714.5	4.22	1.93	19.34	2.15	19.48	88.716	Horizontal	3	Pass
5.0MHz Band QPSK	1/#Mid	701.5	4.59	1.91	19.23	2.15	19.76	94.624	Horizontal	3	Pass
		707.5	4.27	1.91	19.26	2.15	19.47	88.512	Horizontal	3	Pass
		713.5	4.60	1.92	19.33	2.15	19.86	96.828	Horizontal	3	Pass
10.0MHz Band QPSK	1/#Mid	704	4.82	1.91	19.25	2.15	20.01	100.231	Horizontal	3	Pass
		707.5	4.49	1.91	19.26	2.15	19.69	93.111	Horizontal	3	Pass
		711	4.68	1.92	19.32	2.15	19.93	98.401	Horizontal	3	Pass

		Radiated Power (ERP) for Band 12									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP		
						(dB)	Average	Average		Limit	
							(dBm)	(mW)		(W)	
1.4MHz Band 16 QAM	1/#Mid	699.7	5.79	1.91	19.21	2.15	20.94	124.165	Vertical	3	Pass
		707.5	5.71	1.91	19.26	2.15	20.91	123.310	Vertical	3	Pass
		715.3	5.49	1.93	19.34	2.15	20.75	118.850	Vertical	3	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.58	1.91	19.21	2.15	20.73	118.304	Vertical	3	Pass
		707.5	5.50	1.91	19.26	2.15	20.70	117.490	Vertical	3	Pass
		714.5	5.34	1.93	19.34	2.15	20.60	114.815	Vertical	3	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.85	1.91	19.23	2.15	21.02	126.474	Vertical	3	Pass
		707.5	5.76	1.91	19.26	2.15	20.96	124.738	Vertical	3	Pass
		713.5	5.55	1.92	19.33	2.15	20.81	120.504	Vertical	3	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.87	1.91	19.25	2.15	21.06	127.644	Vertical	3	Pass
		707.5	5.85	1.91	19.26	2.15	21.05	127.350	Vertical	3	Pass
		711	5.70	1.92	19.32	2.15	20.95	124.451	Vertical	3	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	4.43	1.91	19.21	2.15	19.58	90.782	Horizontal	3	Pass
		707.5	4.45	1.91	19.26	2.15	19.65	92.257	Horizontal	3	Pass
		715.3	4.50	1.93	19.34	2.15	19.76	94.624	Horizontal	3	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.49	1.91	19.21	2.15	19.64	92.045	Horizontal	3	Pass
		707.5	4.60	1.91	19.26	2.15	19.80	95.499	Horizontal	3	Pass
		714.5	4.33	1.93	19.34	2.15	19.59	90.991	Horizontal	3	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	4.83	1.91	19.23	2.15	20.00	100.000	Horizontal	3	Pass
		707.5	4.67	1.91	19.26	2.15	19.87	97.051	Horizontal	3	Pass
		713.5	4.83	1.92	19.33	2.15	20.09	102.094	Horizontal	3	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.31	1.91	19.25	2.15	19.50	89.125	Horizontal	3	Pass
		707.5	4.08	1.91	19.26	2.15	19.28	84.723	Horizontal	3	Pass
		711	4.24	1.92	19.32	2.15	19.49	88.920	Horizontal	3	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								Conclusio n
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
										(W)	
5.0MHz Band QPSK	1/#Mid	706.5	6.25	1.91	19.23	2.15	21.42	138.676	Vertical	3	Pass
		710	6.11	1.91	19.26	2.15	21.31	135.207	Vertical	3	Pass
		713.5	6.01	1.92	19.33	2.15	21.27	133.968	Vertical	3	Pass
10.0MHz Band QPSK	1/#Mid	709	6.26	1.91	19.25	2.15	21.45	139.637	Vertical	3	Pass
		710	6.21	1.91	19.26	2.15	21.41	138.357	Vertical	3	Pass
		711	6.17	1.92	19.32	2.15	21.42	138.676	Vertical	3	Pass
5.0MHz Band QPSK	1/#Mid	706.5	4.82	1.91	19.23	2.15	19.99	99.770	Horizontal	3	Pass
		710	4.64	1.91	19.26	2.15	19.84	96.383	Horizontal	3	Pass
		713.5	5.05	1.92	19.33	2.15	20.31	107.399	Horizontal	3	Pass
10.0MHz Band QPSK	1/#Mid	709	5.86	1.91	19.25	2.15	21.05	127.350	Horizontal	3	Pass
		710	5.52	1.91	19.26	2.15	20.72	118.032	Horizontal	3	Pass
		711	4.61	1.92	19.32	2.15	19.86	96.828	Horizontal	3	Pass

		Radiated Power (ERP) for Band 17									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
										(W)	
5.0MHz Band 16 QAM	1/#Mid	706.5	5.31	1.91	19.23	2.15	20.48	111.686	Vertical	3	Pass
		710	5.22	1.91	19.26	2.15	20.42	110.154	Vertical	3	Pass
		713.5	5.02	1.92	19.33	2.15	20.28	106.660	Vertical	3	Pass
10.0MHz Band 16 QAM	1/#Mid	709	4.85	1.91	19.25	2.15	20.04	100.925	Vertical	3	Pass
		710	5.38	1.91	19.26	2.15	20.58	114.288	Vertical	3	Pass
		711	5.11	1.92	19.32	2.15	20.36	108.643	Vertical	3	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	4.40	1.91	19.23	2.15	19.57	90.573	Horizontal	3	Pass
		710	4.26	1.91	19.26	2.15	19.46	88.308	Horizontal	3	Pass
		713.5	3.85	1.92	19.33	2.15	19.11	81.470	Horizontal	3	Pass
10.0MHz Band 16 QAM	1/#Mid	709	3.95	1.91	19.25	2.15	19.14	82.035	Horizontal	3	Pass
		710	3.75	1.91	19.26	2.15	18.95	78.524	Horizontal	3	Pass
		711	3.99	1.92	19.32	2.15	19.24	83.946	Horizontal	3	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	Max. EIRP	Polarization Of Max. ERP		
						Average	Average		Limit	
						(dBm)	(mW)		(W)	
5.0MHz Band QPSK	1/#Mid	2537.5	-2.75	4.54	27.75	20.46	111.173	Horizontal	2	Pass
		2595	-2.60	4.69	27.72	20.43	110.408	Horizontal	2	Pass
		2652.5	-2.48	4.71	27.71	20.52	112.720	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	2540	-2.83	4.55	27.76	20.38	109.144	Horizontal	2	Pass
		2595	-2.69	4.69	27.72	20.34	108.143	Horizontal	2	Pass
		2650	-2.68	4.72	27.70	20.30	107.152	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-2.66	4.55	27.77	20.56	113.763	Horizontal	2	Pass
		2595	-2.38	4.69	27.72	20.65	116.145	Horizontal	2	Pass
		2647.5	-2.43	4.72	27.69	20.54	113.240	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	2545	-2.27	4.57	27.78	20.94	124.165	Horizontal	2	Pass
		2595	-2.32	4.73	27.72	20.67	116.681	Horizontal	2	Pass
		2645	-2.32	4.75	27.68	20.61	115.080	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	2537.5	-2.55	4.54	27.75	20.66	116.413	Vertical	2	Pass
		2595	-2.46	4.69	27.72	20.57	114.025	Vertical	2	Pass
		2652.5	-2.44	4.71	27.71	20.56	113.763	Vertical	2	Pass
10.0MHz Band QPSK	1/#Mid	2540	-2.53	4.55	27.76	20.68	116.950	Vertical	2	Pass
		2595	-2.37	4.69	27.72	20.66	116.413	Vertical	2	Pass
		2650	-2.44	4.72	27.70	20.54	113.240	Vertical	2	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-4.27	4.55	27.77	18.95	78.524	Vertical	2	Pass
		2595	-3.75	4.69	27.72	19.28	84.723	Vertical	2	Pass
		2647.5	-3.12	4.72	27.69	19.85	96.605	Vertical	2	Pass
20.0MHz Band QPSK	1/#Mid	2545	-3.56	4.57	27.78	19.65	92.257	Vertical	2	Pass
		2595	-3.85	4.73	27.72	19.14	82.035	Vertical	2	Pass
		2645	-3.01	4.75	27.68	19.92	98.175	Vertical	2	Pass

		Radiated Power (EIRP) for Band 41								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP		
						Average	Average		Limit	
						(dBm)	(mW)		(W)	
5.0MHz Band 16 QAM	1/#Mid	2537.5	-2.93	4.54	27.75	20.28	106.660	Horizontal	2	Pass
		2595	-2.78	4.69	27.72	20.25	105.925	Horizontal	2	Pass
		2652.5	-2.66	4.71	27.71	20.34	108.143	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-3.01	4.55	27.76	20.20	104.713	Horizontal	2	Pass
		2595	-2.87	4.69	27.72	20.16	103.753	Horizontal	2	Pass
		2650	-2.86	4.72	27.70	20.12	102.802	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-2.84	4.55	27.77	20.38	109.144	Horizontal	2	Pass
		2595	-2.56	4.69	27.72	20.47	111.429	Horizontal	2	Pass
		2647.5	-2.61	4.72	27.69	20.36	108.643	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-2.56	4.57	27.78	20.65	116.145	Horizontal	2	Pass
		2595	-2.50	4.73	27.72	20.49	111.944	Horizontal	2	Pass
		2645	-2.50	4.75	27.68	20.43	110.408	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	2537.5	-2.73	4.54	27.75	20.48	111.686	Vertical	2	Pass
		2595	-2.64	4.69	27.72	20.39	109.396	Vertical	2	Pass
		2652.5	-2.62	4.71	27.71	20.38	109.144	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-2.71	4.55	27.76	20.50	112.202	Vertical	2	Pass
		2595	-2.55	4.69	27.72	20.48	111.686	Vertical	2	Pass
		2650	-2.62	4.72	27.70	20.36	108.643	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-3.57	4.55	27.77	19.65	92.257	Vertical	2	Pass
		2595	-3.92	4.69	27.72	19.11	81.470	Vertical	2	Pass
		2647.5	-4.09	4.72	27.69	18.88	77.268	Vertical	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-4.41	4.57	27.78	18.80	75.858	Vertical	2	Pass
		2595	-3.70	4.73	27.72	19.29	84.918	Vertical	2	Pass
		2645	-4.00	4.75	27.68	18.93	78.163	Vertical	2	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 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

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

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

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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

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

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

MODES TESTED

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

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	-48.30	4.04	33.51	-18.83	-13	-5.83	Horizontal
3701.4	-46.80	4.04	33.51	-17.33	-13	-4.33	Vertical
5552.1	-53.92	5.24	35.84	-23.32	-13	-10.32	Vertical
5552.1	-51.24	5.24	35.84	-20.64	-13	-7.64	Horizontal
178.3	-40.95	1.43	16.02	-26.36	-13	-13.36	Vertical
390.1	-34.10	1.30	17.99	-17.41	-13	-4.41	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-51.84	4.04	33.56	-22.32	-13	-9.32	Horizontal
3760.0	-48.51	4.04	33.56	-18.99	-13	-5.99	Vertical
5640.0	-46.12	5.24	35.91	-15.45	-13	-2.45	Vertical
5640.0	-49.04	5.24	35.91	-18.37	-13	-5.37	Horizontal
181.1	-35.95	1.62	16.97	-20.60	-13	-7.60	Vertical
434.7	-41.33	1.74	15.98	-27.10	-13	-14.10	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-47.45	4.04	34.00	-17.49	-13	-4.49	Horizontal
3818.6	-50.05	4.04	34.00	-20.09	-13	-7.09	Vertical
5727.9	-48.52	5.24	36.04	-17.72	-13	-4.72	Vertical
5727.9	-52.39	5.24	36.04	-21.59	-13	-8.59	Horizontal
188.1	-34.02	1.42	17.29	-18.15	-13	-5.15	Vertical
315.7	-42.46	1.50	17.90	-26.05	-13	-13.05	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	-47.64	4.07	33.54	-18.17	-13	-5.17	Horizontal
3720.0	-47.79	4.07	33.54	-18.32	-13	-5.32	Vertical
5580.0	-49.67	5.28	35.86	-19.09	-13	-6.09	Vertical
5580.0	-53.25	5.28	35.86	-22.67	-13	-9.67	Horizontal
199.6	-38.10	1.58	16.89	-22.78	-13	-9.78	Vertical
407.1	-39.58	1.76	17.26	-24.08	-13	-11.08	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-52.64	4.04	33.56	-23.12	-13	-10.12	Horizontal
3760.0	-49.20	4.04	33.56	-19.68	-13	-6.68	Vertical
5640.0	-49.09	5.24	35.91	-18.42	-13	-5.42	Vertical
5640.0	-49.09	5.24	35.91	-18.42	-13	-5.42	Horizontal
195.7	-38.32	1.46	16.27	-23.51	-13	-10.51	Vertical
303.3	-44.79	1.59	15.15	-31.23	-13	-18.23	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-50.85	4.04	34.00	-20.89	-13	-7.89	Horizontal
3800.0	-48.70	4.04	34.00	-18.74	-13	-5.74	Vertical
5700.0	-52.12	5.24	36.04	-21.32	-13	-8.32	Vertical
5700.0	-51.92	5.24	36.04	-21.12	-13	-8.12	Horizontal
180.4	-44.29	1.36	17.39	-28.25	-13	-15.25	Vertical
461.2	-42.39	1.66	15.39	-28.66	-13	-15.66	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-49.42	4.02	29.80	-23.64	-13	-10.64	Horizontal
3421.4	-44.59	4.02	29.80	-18.81	-13	-5.81	Vertical
5132.1	-52.89	5.24	35.84	-22.29	-13	-9.29	Vertical
5132.1	-50.48	5.24	35.84	-19.88	-13	-6.88	Horizontal
194.3	-43.44	1.68	16.04	-29.08	-13	-16.08	Vertical
383.3	-38.72	1.78	17.74	-22.76	-13	-9.76	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-45.30	4.03	30.00	-19.33	-13	-6.33	Horizontal
3465.0	-51.97	4.03	30.00	-26.00	-13	-13.00	Vertical
5197.5	-45.36	5.25	35.86	-14.75	-13	-1.75	Vertical
5197.5	-52.52	5.25	35.86	-21.91	-13	-8.91	Horizontal
195.4	-43.54	1.72	17.69	-27.57	-13	-14.57	Vertical
447.9	-41.49	1.62	16.02	-27.08	-13	-14.08	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-46.25	4.05	30.01	-20.29	-13	-7.29	Horizontal
3508.6	-47.01	4.05	30.01	-21.05	-13	-8.05	Vertical
5262.9	-47.67	5.26	35.86	-17.07	-13	-4.07	Vertical
5262.9	-51.85	5.26	35.86	-21.25	-13	-8.25	Horizontal
213.0	-36.42	1.80	16.69	-21.53	-13	-8.53	Vertical
453.5	-40.79	1.75	16.66	-25.89	-13	-12.89	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	-44.09	4.02	29.80	-18.31	-13	-5.31	Horizontal
3440.0	-53.17	4.02	29.80	-27.39	-13	-14.39	Vertical
5160.0	-52.33	5.24	35.84	-21.73	-13	-8.73	Vertical
5160.0	-52.69	5.24	35.84	-22.09	-13	-9.09	Horizontal
197.8	-34.48	1.57	17.26	-18.79	-13	-5.79	Vertical
373.4	-40.51	1.78	16.35	-25.94	-13	-12.94	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-49.87	4.03	30.00	-23.90	-13	-10.90	Horizontal
3465.0	-45.51	4.03	30.00	-19.54	-13	-6.54	Vertical
5197.5	-47.08	5.25	35.86	-16.47	-13	-3.47	Vertical
5197.5	-53.17	5.25	35.86	-22.56	-13	-9.56	Horizontal
209.9	-37.64	1.44	17.95	-21.13	-13	-8.13	Vertical
377.3	-42.36	1.65	16.09	-27.92	-13	-14.92	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-47.29	2.91	27.68	-22.52	-13	-9.52	Horizontal
3490.0	-49.34	2.91	27.68	-24.57	-13	-11.57	Vertical
5235.0	-51.06	5.26	35.86	-20.46	-13	-7.46	Vertical
5235.0	-51.00	5.26	35.86	-20.40	-13	-7.40	Horizontal
187.5	-42.86	1.61	16.85	-27.62	-13	-14.62	Vertical
284.0	-41.15	1.61	15.19	-27.57	-13	-14.57	Horizontal

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

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

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-48.24	2.78	27.50	-23.52	-13	-10.52	Horizontal
1649.4	-49.20	2.78	27.50	-24.48	-13	-11.48	Vertical
2474.1	-53.11	2.90	27.80	-28.21	-13	-15.21	Vertical
2474.1	-49.61	2.90	27.80	-24.71	-13	-11.71	Horizontal
201.8	-43.80	1.76	17.59	-27.97	-13	-14.97	Vertical
266.9	-44.61	1.63	15.87	-30.37	-13	-17.37	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-48.77	2.80	27.48	-24.09	-13	-11.09	Horizontal
1673.0	-50.92	2.80	27.48	-26.24	-13	-13.24	Vertical
2509.5	-48.65	2.91	27.70	-23.86	-13	-10.86	Vertical
2509.5	-52.89	2.91	27.70	-28.10	-13	-15.10	Horizontal
175.3	-36.38	1.61	15.68	-22.31	-13	-9.31	Vertical
450.2	-34.97	1.59	17.52	-19.05	-13	-6.05	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.76	2.82	27.43	-24.15	-13	-11.15	Horizontal
1696.6	-51.97	2.82	27.43	-27.36	-13	-14.36	Vertical
2544.9	-47.22	2.92	27.74	-22.40	-13	-9.40	Vertical
2544.9	-50.04	2.92	27.74	-25.22	-13	-12.22	Horizontal
198.2	-37.04	1.69	16.67	-22.05	-13	-9.05	Vertical
251.2	-41.95	1.70	17.18	-26.47	-13	-13.47	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	-45.80	2.78	27.50	-21.08	-13	-8.08	Horizontal
1658.0	-50.50	2.78	27.50	-25.78	-13	-12.78	Vertical
2487.0	-45.86	2.90	27.80	-20.96	-13	-7.96	Vertical
2487.0	-50.90	2.90	27.80	-26.00	-13	-13.00	Horizontal
199.6	-40.60	1.71	15.57	-26.74	-13	-13.74	Vertical
411.5	-39.39	1.34	16.40	-24.33	-13	-11.33	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-50.43	2.80	27.48	-25.75	-13	-12.75	Horizontal
1673.0	-47.33	2.80	27.48	-22.65	-13	-9.65	Vertical
2509.5	-49.37	2.91	27.70	-24.58	-13	-11.58	Vertical
2509.5	-53.90	2.91	27.70	-29.11	-13	-16.11	Horizontal
196.8	-42.20	1.44	17.04	-26.60	-13	-13.60	Vertical
305.2	-34.41	1.76	17.62	-18.55	-13	-5.55	Horizontal
Test Results for High Channel 844MHz							
1688.0	-51.27	2.82	27.43	-26.66	-13	-13.66	Horizontal
1688.0	-49.59	2.82	27.43	-24.98	-13	-11.98	Vertical
2532.0	-50.93	2.92	27.74	-26.11	-13	-13.11	Vertical
2532.0	-53.40	2.92	27.74	-28.58	-13	-15.58	Horizontal
187.7	-40.81	1.74	17.70	-24.85	-13	-11.85	Vertical
469.4	-41.78	1.41	17.46	-25.72	-13	-12.72	Horizontal

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

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

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-61.01	5.23	35.81	-30.43	-25	-5.43	Horizontal
5005.0	-61.45	5.23	35.81	-30.87	-25	-5.87	Vertical
7507.5	-64.42	5.67	36.85	-33.24	-25	-8.24	Vertical
7507.5	-59.65	5.67	36.85	-28.47	-25	-3.47	Horizontal
207.4	-49.40	1.73	17.97	-33.16	-25	-8.16	Vertical
354.2	-45.26	1.38	15.11	-31.53	-25	-6.53	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-59.36	5.23	35.82	-28.77	-25	-3.77	Horizontal
5070.0	-59.35	5.23	35.82	-28.76	-25	-3.76	Vertical
7605.0	-63.74	5.67	36.85	-32.56	-25	-7.56	Vertical
7605.0	-63.25	5.67	36.85	-32.07	-25	-7.07	Horizontal
180.2	-45.98	1.77	16.17	-31.57	-25	-6.57	Vertical
460.0	-49.41	1.63	15.21	-35.83	-25	-10.83	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-60.12	5.24	35.83	-29.53	-25	-4.53	Horizontal
5135.0	-61.67	5.24	35.83	-31.08	-25	-6.08	Vertical
7702.5	-64.49	5.68	36.87	-33.30	-25	-8.30	Vertical
7702.5	-63.26	5.68	36.87	-32.07	-25	-7.07	Horizontal
212.6	-49.24	1.58	17.56	-33.26	-25	-8.26	Vertical
374.7	-55.00	1.45	16.58	-39.87	-25	-14.87	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	-59.93	5.23	35.82	-29.34	-25	-4.34	Horizontal
5020.0	-63.00	5.23	35.82	-32.41	-25	-7.41	Vertical
7530.0	-63.08	5.67	36.86	-31.89	-25	-6.89	Vertical
7530.0	-61.04	5.67	36.86	-29.85	-25	-4.85	Horizontal
203.8	-54.96	1.63	15.76	-40.83	-25	-15.83	Vertical
332.8	-52.85	1.71	15.44	-39.12	-25	-14.12	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.85	5.23	35.82	-33.26	-25	-8.26	Horizontal
5070.0	-63.85	5.23	35.82	-33.26	-25	-8.26	Vertical
7605.0	-63.85	5.67	36.85	-32.67	-25	-7.67	Vertical
7605.0	-62.59	5.67	36.85	-31.41	-25	-6.41	Horizontal
199.6	-53.73	1.79	16.84	-38.67	-25	-13.67	Vertical
247.6	-52.52	1.71	17.64	-36.59	-25	-11.59	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-59.06	5.24	35.83	-28.47	-25	-3.47	Horizontal
5120.0	-62.22	5.24	35.83	-31.63	-25	-6.63	Vertical
7680.0	-64.91	5.70	36.88	-33.73	-25	-8.73	Vertical
7680.0	-64.05	5.70	36.88	-32.87	-25	-7.87	Horizontal
201.4	-46.22	1.79	16.84	-31.16	-25	-6.16	Vertical
340.6	-47.43	1.71	17.64	-31.50	-25	-6.50	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	-51.50	2.60	27.20	-26.90	-13	-13.90	Horizontal
1399.4	-53.46	2.60	27.20	-28.86	-13	-15.86	Vertical
2099.1	-47.67	2.85	27.54	-22.98	-13	-9.98	Vertical
2099.1	-50.73	2.85	27.54	-26.04	-13	-13.04	Horizontal
191.9	-37.54	1.49	17.78	-21.25	-13	-8.25	Vertical
341.2	-44.79	1.36	17.33	-28.82	-13	-15.82	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-48.90	2.61	27.28	-24.23	-13	-11.23	Horizontal
1415.0	-53.48	2.61	27.28	-28.81	-13	-15.81	Vertical
2122.5	-53.53	2.87	27.59	-28.81	-13	-15.81	Vertical
2122.5	-50.27	2.87	27.59	-25.55	-13	-12.55	Horizontal
194.1	-34.79	1.73	15.74	-20.78	-13	-7.78	Vertical
417.4	-34.09	1.62	15.79	-19.92	-13	-6.92	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-52.63	2.63	27.28	-27.98	-13	-14.98	Horizontal
1430.6	-52.94	2.63	27.28	-28.29	-13	-15.29	Vertical
2145.9	-52.08	2.88	27.60	-27.36	-13	-14.36	Vertical
2145.9	-52.59	2.88	27.60	-27.87	-13	-14.87	Horizontal
196.9	-35.92	1.61	18.00	-19.53	-13	-6.53	Vertical
256.7	-36.74	1.45	15.49	-22.71	-13	-9.71	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	-52.25	2.61	27.26	-27.60	-13	-14.60	Horizontal
1408.0	-46.59	2.61	27.26	-21.94	-13	-8.94	Vertical
2112.0	-44.16	2.87	27.58	-19.45	-13	-6.45	Vertical
2112.0	-49.09	2.87	27.58	-24.38	-13	-11.38	Horizontal
196.0	-43.24	1.31	16.97	-27.58	-13	-14.58	Vertical
294.6	-44.87	1.65	16.70	-29.82	-13	-16.82	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-44.57	2.61	27.28	-19.90	-13	-6.90	Horizontal
1415.0	-44.53	2.61	27.28	-19.86	-13	-6.86	Vertical
2122.5	-47.73	2.87	27.59	-23.01	-13	-10.01	Vertical
2122.5	-51.52	2.87	27.59	-26.80	-13	-13.80	Horizontal
211.9	-40.46	1.72	17.99	-24.19	-13	-11.19	Vertical
431.2	-36.73	1.73	17.94	-20.52	-13	-7.52	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.91	2.62	27.28	-23.25	-13	-10.25	Horizontal
1422.0	-48.00	2.62	27.28	-23.34	-13	-10.34	Vertical
2133.0	-51.21	2.87	27.60	-26.48	-13	-13.48	Vertical
2133.0	-52.46	2.87	27.60	-27.73	-13	-14.73	Horizontal
212.4	-42.53	1.58	15.93	-28.18	-13	-15.18	Vertical
369.3	-38.72	1.36	15.59	-24.49	-13	-11.49	Horizontal

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

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

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

9.6 LTE BAND 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	-49.14	2.61	27.28	-24.47	-13	-11.47	Horizontal
1413.0	-50.22	2.61	27.28	-25.55	-13	-12.55	Vertical
2119.5	-48.32	2.87	27.59	-23.60	-13	-10.60	Vertical
2119.5	-50.00	2.87	27.59	-25.28	-13	-12.28	Horizontal
178.7	-39.39	1.71	16.15	-24.95	-13	-11.95	Vertical
468.5	-34.42	1.41	17.32	-18.51	-13	-5.51	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-53.21	2.62	27.30	-28.53	-13	-15.53	Horizontal
1420.0	-46.72	2.62	27.30	-22.04	-13	-9.04	Vertical
2130.0	-53.47	2.87	27.62	-28.72	-13	-15.72	Vertical
2130.0	-53.29	2.87	27.62	-28.54	-13	-15.54	Horizontal
192.2	-43.85	1.42	15.25	-30.03	-13	-17.03	Vertical
303.6	-40.86	1.36	17.19	-25.03	-13	-12.03	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-53.06	2.66	27.28	-28.44	-13	-15.44	Horizontal
1427.0	-49.40	2.66	27.28	-24.78	-13	-11.78	Vertical
2140.5	-49.86	2.88	27.60	-25.14	-13	-12.14	Vertical
2140.5	-52.09	2.88	27.60	-27.37	-13	-14.37	Horizontal
187.9	-43.15	1.32	17.29	-27.18	-13	-14.18	Vertical
425.5	-43.88	1.72	16.89	-28.71	-13	-15.71	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	-50.49	2.62	27.30	-25.81	-13	-12.81	Horizontal
1418.0	-51.11	2.62	27.30	-26.43	-13	-13.43	Vertical
2127.0	-51.72	2.87	27.62	-26.97	-13	-13.97	Vertical
2127.0	-51.93	2.87	27.62	-27.18	-13	-14.18	Horizontal
203.6	-41.07	1.35	16.91	-25.51	-13	-12.51	Vertical
324.5	-35.35	1.62	16.31	-20.66	-13	-7.66	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-45.09	2.62	27.30	-20.41	-13	-7.41	Horizontal
1420.0	-47.49	2.62	27.30	-22.81	-13	-9.81	Vertical
2130.0	-44.78	2.87	27.62	-20.03	-13	-7.03	Vertical
2130.0	-51.02	2.87	27.62	-26.27	-13	-13.27	Horizontal
175.4	-38.44	1.51	17.14	-22.81	-13	-9.81	Vertical
448.2	-34.99	1.77	16.88	-19.88	-13	-6.88	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.99	2.62	27.30	-25.31	-13	-12.31	Horizontal
1422.0	-48.03	2.62	27.30	-23.35	-13	-10.35	Vertical
2133.0	-45.01	2.87	27.62	-20.26	-13	-7.26	Vertical
2133.0	-51.96	2.87	27.62	-27.21	-13	-14.21	Horizontal
208.0	-38.18	1.78	15.95	-24.01	-13	-11.01	Vertical
434.5	-42.63	1.34	17.95	-26.03	-13	-13.03	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 2537.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.0	-62.80	5.23	35.81	-32.22	-25	-7.22	Horizontal
5145.0	-64.47	5.23	35.81	-33.89	-25	-8.89	Vertical
7717.5	-64.13	5.67	36.85	-32.95	-25	-7.95	Vertical
7717.5	-60.41	5.67	36.85	-29.23	-25	-4.23	Horizontal
435.3	-45.63	1.38	15.98	-31.03	-25	-6.03	Vertical
465.8	-49.94	1.62	15.66	-35.90	-25	-10.90	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-63.27	5.23	35.82	-32.68	-25	-7.68	Horizontal
5190.0	-63.32	5.23	35.82	-32.73	-25	-7.73	Vertical
7785.0	-60.59	5.67	36.85	-29.41	-25	-4.41	Vertical
7785.0	-59.07	5.67	36.85	-27.89	-25	-2.89	Horizontal
510.4	-45.48	1.62	16.17	-30.93	-25	-5.93	Vertical
562.9	-45.74	1.74	17.63	-29.85	-25	-4.85	Horizontal
Test Results for High Channel 2652.5MHz							
5235.0	-62.31	5.24	35.83	-31.72	-25	-6.72	Horizontal
5235.0	-62.76	5.24	35.83	-32.17	-25	-7.17	Vertical
7852.5	-60.90	5.68	36.87	-29.71	-25	-4.71	Vertical
7852.5	-60.57	5.68	36.87	-29.38	-25	-4.38	Horizontal
197.6	-44.88	1.55	15.84	-30.59	-25	-5.59	Vertical
353.1	-48.00	1.51	17.06	-32.45	-25	-7.45	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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160.0	-61.65	5.23	35.82	-31.06	-25	-6.06	Horizontal
5160.0	-59.47	5.23	35.82	-28.88	-25	-3.88	Vertical
7740.0	-59.42	5.67	36.86	-28.23	-25	-3.23	Vertical
7740.0	-59.47	5.67	36.86	-28.28	-25	-3.28	Horizontal
128.9	-48.16	1.43	15.51	-34.08	-25	-9.08	Vertical
344.8	-46.52	1.40	16.97	-30.95	-25	-5.95	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-62.27	5.23	35.82	-31.68	-25	-6.68	Horizontal
5190.0	-59.71	5.23	35.82	-29.12	-25	-4.12	Vertical
7785.0	-61.79	5.67	36.85	-30.61	-25	-5.61	Vertical
7785.0	-63.67	5.67	36.85	-32.49	-25	-7.49	Horizontal
100.8	-47.33	1.77	16.72	-32.38	-25	-7.38	Vertical
263.5	-48.59	1.31	16.99	-32.91	-25	-7.91	Horizontal
Test Results for High Channel 2645MHz							
5220.0	-64.85	5.24	35.83	-34.26	-25	-9.26	Horizontal
5220.0	-60.25	5.24	35.83	-29.66	-25	-4.66	Vertical
7830.0	-59.76	5.70	36.88	-28.58	-25	-3.58	Vertical
7830.0	-63.68	5.70	36.88	-32.50	-25	-7.50	Horizontal
349.9	-44.44	1.70	15.73	-30.41	-25	-5.41	Vertical
110.3	-44.19	1.75	17.33	-28.61	-25	-3.61	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

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

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

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

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	12.5	0.006635	2.5
3.87	1880	13.8	0.007344	2.5
4.45	1880	13.3	0.007070	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.4	0.006583	2.5
Extreme (50C)	1880	11.3	0.006015	2.5
Extreme (40C)	1880	13.4	0.007149	2.5
Extreme (30C)	1880	13.3	0.007091	2.5
Extreme (10C)	1880	13.7	0.007303	2.5
Extreme (0C)	1880	11.7	0.006210	2.5
Extreme (-10C)	1880	13.0	0.006901	2.5
Extreme (-20C)	1880	14.4	0.007650	2.5
Extreme (-30C)	1880	14.8	0.007874	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	9.9	0.005272	2.5
3.87	1880	8.9	0.004725	2.5
4.45	1880	8.6	0.004564	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.4	0.005022	2.5
Extreme (50C)	1880	8.7	0.004628	2.5
Extreme (40C)	1880	7.8	0.004138	2.5
Extreme (30C)	1880	8.6	0.004557	2.5
Extreme (10C)	1880	8.4	0.004487	2.5
Extreme (0C)	1880	7.6	0.004069	2.5
Extreme (-10C)	1880	8.7	0.004652	2.5
Extreme (-20C)	1880	8.8	0.004685	2.5
Extreme (-30C)	1880	8.6	0.004557	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	8.4	0.004873	2.5
3.87	1732.5	8.5	0.004935	2.5
4.45	1732.5	8.3	0.004795	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.9	0.005134	2.5
Extreme (50C)	1732.5	8.4	0.004860	2.5
Extreme (40C)	1732.5	7.3	0.004232	2.5
Extreme (30C)	1732.5	5.5	0.003176	2.5
Extreme (10C)	1732.5	6.8	0.003927	2.5
Extreme (0C)	1732.5	8.9	0.005138	2.5
Extreme (-10C)	1732.5	8.5	0.004899	2.5
Extreme (-20C)	1732.5	7.1	0.004093	2.5
Extreme (-30C)	1732.5	8.2	0.004728	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	9.5	0.005456	2.5
3.87	1732.5	8.7	0.004996	2.5
4.45	1732.5	8.0	0.004601	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.5	0.005472	2.5
Extreme (50C)	1732.5	8.7	0.005012	2.5
Extreme (40C)	1732.5	8.3	0.004781	2.5
Extreme (30C)	1732.5	8.6	0.004937	2.5
Extreme (10C)	1732.5	8.7	0.005030	2.5
Extreme (0C)	1732.5	7.8	0.004517	2.5
Extreme (-10C)	1732.5	8.6	0.004993	2.5
Extreme (-20C)	1732.5	8.5	0.004916	2.5
Extreme (-30C)	1732.5	8.1	0.004663	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	6.1	0.007262	2.5
3.87	836.5	7.1	0.008521	2.5
4.45	836.5	5.2	0.006181	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.5	0.007796	2.5
Extreme (50C)	836.5	6.3	0.007554	2.5
Extreme (40C)	836.5	6.5	0.007725	2.5
Extreme (30C)	836.5	6.1	0.007294	2.5
Extreme (10C)	836.5	5.2	0.006207	2.5
Extreme (0C)	836.5	5.3	0.006279	2.5
Extreme (-10C)	836.5	5.6	0.006677	2.5
Extreme (-20C)	836.5	5.6	0.006706	2.5
Extreme (-30C)	836.5	6.0	0.007173	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	5.7	0.006793	2.5
3.87	836.5	6.2	0.007457	2.5
4.45	836.5	4.4	0.005216	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.9	0.006997	2.5
Extreme (50C)	836.5	6.2	0.007421	2.5
Extreme (40C)	836.5	6.0	0.007140	2.5
Extreme (30C)	836.5	6.0	0.007172	2.5
Extreme (10C)	836.5	5.6	0.006703	2.5
Extreme (0C)	836.5	5.7	0.006852	2.5
Extreme (-10C)	836.5	5.5	0.006589	2.5
Extreme (-20C)	836.5	6.1	0.007326	2.5
Extreme (-30C)	836.5	6.0	0.007137	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	9.6	0.003780	2.5
3.87	2535	9.2	0.003617	2.5
4.45	2535	8.1	0.003188	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.1	0.003602	2.5
Extreme (50C)	2535	8.6	0.003386	2.5
Extreme (40C)	2535	8.7	0.003429	2.5
Extreme (30C)	2535	9.3	0.003674	2.5
Extreme (10C)	2535	8.0	0.003157	2.5
Extreme (0C)	2535	8.8	0.003458	2.5
Extreme (-10C)	2535	9.7	0.003831	2.5
Extreme (-20C)	2535	8.6	0.003412	2.5
Extreme (-30C)	2535	8.5	0.003347	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	6.5	0.002574	2.5
3.87	2535	6.7	0.002636	2.5
4.45	2535	5.7	0.002256	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.6	0.002611	2.5
Extreme (50C)	2535	5.6	0.002215	2.5
Extreme (40C)	2535	5.8	0.002281	2.5
Extreme (30C)	2535	7.0	0.002746	2.5
Extreme (10C)	2535	5.3	0.002098	2.5
Extreme (0C)	2535	4.8	0.001891	2.5
Extreme (-10C)	2535	5.5	0.002173	2.5
Extreme (-20C)	2535	6.3	0.002489	2.5
Extreme (-30C)	2535	5.3	0.002076	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	8.2	0.011645	2.5
3.87	707.5	10.4	0.014668	2.5
4.45	707.5	8.2	0.011645	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.8	0.012499	2.5
Extreme (50C)	707.5	7.6	0.010800	2.5
Extreme (40C)	707.5	7.2	0.010190	2.5
Extreme (30C)	707.5	8.1	0.011443	2.5
Extreme (10C)	707.5	7.2	0.010177	2.5
Extreme (0C)	707.5	9.4	0.013226	2.5
Extreme (-10C)	707.5	8.4	0.011901	2.5
Extreme (-20C)	707.5	8.6	0.012184	2.5
Extreme (-30C)	707.5	8.0	0.011352	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	7.3	0.010258	2.5
3.87	707.5	7.9	0.011190	2.5
4.45	707.5	7.9	0.011134	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	9.8	0.013733	2.5
3.87	710.0	8.4	0.011877	2.5
4.45	710.0	8.4	0.011892	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.5	0.013408	2.5
Extreme (50C)	710.0	9.2	0.012899	2.5
Extreme (40C)	710.0	8.4	0.011766	2.5
Extreme (30C)	710.0	9.0	0.012691	2.5
Extreme (10C)	710.0	8.6	0.012099	2.5
Extreme (0C)	710.0	7.7	0.010839	2.5
Extreme (-10C)	710.0	9.0	0.012666	2.5
Extreme (-20C)	710.0	8.5	0.011915	2.5
Extreme (-30C)	710.0	7.7	0.010778	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	9.5	0.013425	2.5
3.87	710.0	9.0	0.012661	2.5
4.45	710.0	7.9	0.011194	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.8	0.013817	2.5
Extreme (50C)	710.0	9.1	0.012868	2.5
Extreme (40C)	710.0	8.6	0.012123	2.5
Extreme (30C)	710.0	9.0	0.012614	2.5
Extreme (10C)	710.0	8.1	0.011425	2.5
Extreme (0C)	710.0	8.5	0.011954	2.5
Extreme (-10C)	710.0	9.5	0.013340	2.5
Extreme (-20C)	710.0	9.1	0.012819	2.5
Extreme (-30C)	710.0	8.8	0.012325	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	2595	8.8	0.003377	2.5
3.87	2595	6.2	0.002374	2.5
4.45	2595	7.9	0.003044	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.3	0.002828	2.5
Extreme (50C)	2595	5.1	0.001968	2.5
Extreme (40C)	2595	5.4	0.002074	2.5
Extreme (30C)	2595	5.1	0.001978	2.5
Extreme (10C)	2595	6.4	0.002471	2.5
Extreme (0C)	2595	4.8	0.001863	2.5
Extreme (-10C)	2595	9.9	0.003811	2.5
Extreme (-20C)	2595	11.3	0.004354	2.5
Extreme (-30C)	2595	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	2595	8.1	0.003107	2.5
3.87	2595	6.6	0.002546	2.5
4.45	2595	6.2	0.002386	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.7	0.002970	2.5
Extreme (50C)	2595	4.5	0.001723	2.5
Extreme (40C)	2595	5.3	0.002026	2.5
Extreme (30C)	2595	5.0	0.001912	2.5
Extreme (10C)	2595	6.7	0.002580	2.5
Extreme (0C)	2595	4.6	0.001787	2.5
Extreme (-10C)	2595	9.5	0.003650	2.5
Extreme (-20C)	2595	11.2	0.004325	2.5
Extreme (-30C)	2595	5.7	0.002211	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.

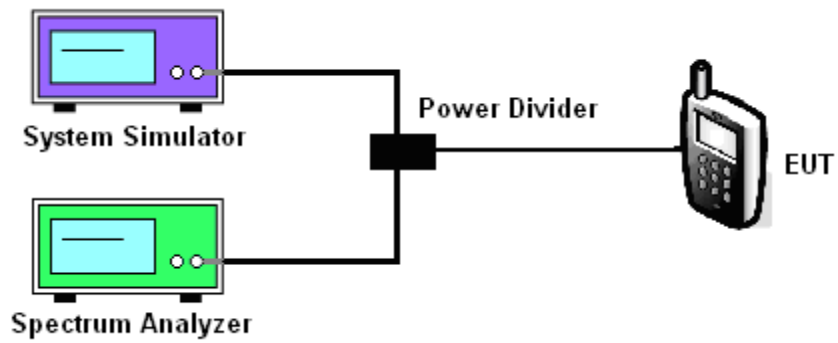
11.2 Measuring Instruments

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-----