

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT FCC ID: 2BKL6-L5512

Product: Intelligent Handheld terminal

Trade Mark: uphone

Model No.: L5512

Family Model: N/A

Report No.: S24101604905006

Issue Date: Nov. 14, 2024

Prepared for

Shenzhen Tianlong Century Technology Development Co., Ltd.
3F, 5F, Industrial Building, No.1, Quanxinyuan Industrial Zone, Tongsheng
Community, Dalang Street, Longhua District, Shenzhen

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan
District, Shenzhen, Guangdong, People's Republic of China
Tel. 0755-23200050 Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Tianlong Century TechnologyDevelopment Co.,Ltd.
Address..... : 3F, 5F, Industrial Building, No.1, Quanyinyuan Industrial Zone,
Tongsheng Community, Dalang Street, Longhua District, Shenzhen
Manufacturer's Name..... : Shenzhen Tianlong Century TechnologyDevelopment Co.,Ltd.
Address..... : 3F, 5F, Industrial Building, No.1, Quanyinyuan Industrial Zone,
Tongsheng Community, Dalang Street, Longhua District, Shenzhen
Product name..... : Intelligent Handheld terminal
Model and/or type reference .. : L5512
Trade Mark..... : uphone
Family Model..... : N/A
Test Sample Number..... : S241016049005
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..... Oct. 16, 2024 ~ Nov. 14, 2024

Date of Issue Nov. 14, 2024

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

Prepared : 
By : _____
Allen Liu
(Project Engineer)

Reviewed : 
By : _____
Aaron Cheng
(Supervisor)

Approved : 
By : _____
Alex Li
(Manager)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Intelligent Handheld terminal
Trade Mark	uphone
Model Name	L5512
Family Model	N/A
Model Difference	N/A
FCC ID:	2BKL6-L5512
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 17 TDD Band 38, 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 38 Uplink& Downlink: 2570MHz-2620MHz 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:	PIFA Antenna
Antenna gain:	0.7dBi
Adapter	N/A
Battery	DC 3.85V, 9000mAh, 34.65Wh
Power supply	DC 3.85V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 3.27V to DC 4.43V (Nominal DC 3.85V) (Note 1)
HW Version	S559_MB_V1.0
SW Version	N/A
** Note1: The High Voltage DC 4.43V and Low Voltage 3.27V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2BKL6-L5512** 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 2/4/5/7/12/17/38/41

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	Intelligent Handheld terminal	L5512	FCC ID: 2BKL6-L5512	EUT

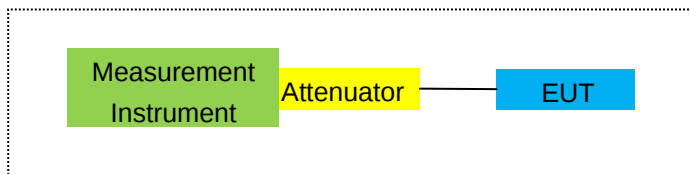
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

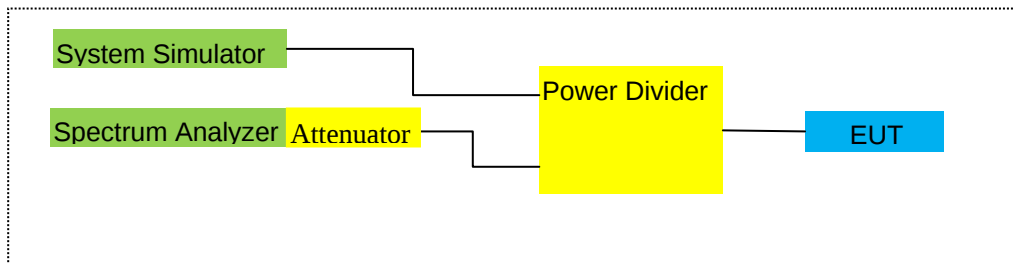
For Radiated Test Cases



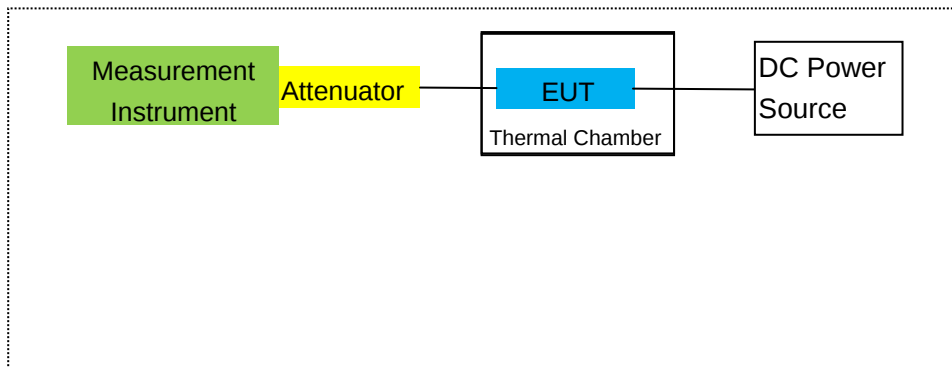
For Conducted Output Power



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



For Frequency Stability



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

3.TEST AND MEASUREMENT EQUIPMENT

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

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

26	DC Power Source	N/A	PS-6005D	2017040292 3	2023.05.06	2026.05.05	3 year
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Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

Measurement Software

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

☐

Band 2/4/5/7/12/17/38/41

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;

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

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

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

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

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 2/4/5/7/12/17/38/41

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 2/4/5/7/12/17/38/41
- ☐

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

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

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

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

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

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

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

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

☐ Band 2/4/5/7/12/17/38/41

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	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-5.22	3.76	28.24	19.26	84.333	Horizontal	Pass
		1880	-5.03	3.91	28.22	19.28	84.723	Horizontal	Pass
		1909.3	-4.94	3.93	28.20	19.33	85.704	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.28	3.77	28.23	19.18	82.794	Horizontal	Pass
		1880	-5.13	3.91	28.24	19.20	83.176	Horizontal	Pass
		1908.5	-5.00	3.94	28.25	19.31	85.310	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.17	3.77	28.31	19.37	86.497	Horizontal	Pass
		1880	-4.79	3.91	28.22	19.52	89.536	Horizontal	Pass
		1907.5	-4.72	3.94	28.20	19.54	89.950	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-5.03	3.79	28.33	19.51	89.331	Horizontal	Pass
		1880	-4.73	3.95	28.22	19.54	89.950	Horizontal	Pass
		1905	-4.62	3.97	28.19	19.60	91.201	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.99	3.79	28.34	19.56	90.365	Horizontal	Pass
		1880	-4.78	3.95	28.22	19.49	88.920	Horizontal	Pass
		1902.5	-4.64	3.97	28.18	19.57	90.573	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.98	3.81	28.35	19.56	90.365	Horizontal	Pass
		1880	-4.65	3.96	28.22	19.61	91.411	Horizontal	Pass
		1900	-4.59	4.00	28.16	19.57	90.573	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-6.39	3.76	28.24	18.09	64.417	Vertical	Pass
		1880	-5.85	3.91	28.22	18.46	70.146	Vertical	Pass
		1909.3	-6.05	3.93	28.20	18.22	66.374	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.57	3.77	28.23	18.89	77.446	Vertical	Pass
		1880	-5.63	3.91	28.24	18.70	74.131	Vertical	Pass
		1908.5	-6.11	3.94	28.25	18.20	66.069	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-6.35	3.77	28.31	18.19	65.917	Vertical	Pass
		1880	-5.81	3.91	28.22	18.50	70.795	Vertical	Pass
		1907.5	-5.76	3.94	28.20	18.50	70.795	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-6.51	3.79	28.33	18.03	63.533	Vertical	Pass
		1880	-5.55	3.95	28.22	18.72	74.473	Vertical	Pass
		1905	-5.39	3.97	28.19	18.83	76.384	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-6.25	3.79	28.34	18.30	67.608	Vertical	Pass

Band QPSK		1880	-6.19	3.95	28.22	18.08	64.269	Vertical	Pass
		1902.5	-6.15	3.97	28.18	18.06	63.973	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-5.59	3.81	28.35	18.95	78.524	Vertical	Pass
		1880	-6.11	3.96	28.22	18.15	65.313	Vertical	Pass
		1900	-6.00	4.00	28.16	18.16	65.464	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.34	3.76	28.24	18.14	65.163	Horizontal	Pass
		1880	-5.81	3.91	28.22	18.50	70.795	Horizontal	Pass
		1909.3	-5.74	3.93	28.20	18.53	71.285	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.84	3.77	28.23	18.62	72.778	Horizontal	Pass
		1880	-5.92	3.91	28.24	18.41	69.343	Horizontal	Pass
		1908.5	-6.13	3.94	28.25	18.18	65.766	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.78	3.77	28.31	18.76	75.162	Horizontal	Pass
		1880	-5.69	3.91	28.22	18.62	72.778	Horizontal	Pass
		1907.5	-5.37	3.94	28.20	18.89	77.446	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.83	3.79	28.33	18.71	74.302	Horizontal	Pass
		1880	-5.82	3.95	28.22	18.45	69.984	Horizontal	Pass
		1905	-5.29	3.97	28.19	18.93	78.163	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.81	3.79	28.34	18.74	74.817	Horizontal	Pass
		1880	-5.60	3.95	28.22	18.67	73.621	Horizontal	Pass
		1902.5	-5.56	3.97	28.18	18.65	73.282	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-5.70	3.81	28.35	18.84	76.560	Horizontal	Pass
		1880	-5.40	3.96	28.22	18.86	76.913	Horizontal	Pass
		1900	-5.22	4.00	28.16	18.94	78.343	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.91	3.76	28.24	17.57	57.148	Vertical	Pass
		1880	-6.83	3.91	28.22	17.48	55.976	Vertical	Pass
		1909.3	-6.62	3.93	28.20	17.65	58.210	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-6.75	3.77	28.23	17.71	59.020	Vertical	Pass
		1880	-6.46	3.91	28.24	17.87	61.235	Vertical	Pass
		1908.5	-7.08	3.94	28.25	17.23	52.845	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-6.69	3.77	28.31	17.85	60.954	Vertical	Pass
		1880	-6.51	3.91	28.22	17.80	60.256	Vertical	Pass
		1907.5	-7.06	3.94	28.20	17.20	52.481	Vertical	Pass
10.0MHz	1/#Mid	1855	-7.09	3.79	28.33	17.45	55.590	Vertical	Pass

Band 16 QAM		1880	-6.96	3.95	28.22	17.31	53.827	Vertical	Pass
		1905	-6.96	3.97	28.19	17.26	53.211	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-7.45	3.79	28.34	17.10	51.286	Vertical	Pass
Band 16		1880	-7.08	3.95	28.22	17.19	52.360	Vertical	Pass
QAM		1902.5	-7.03	3.97	28.18	17.18	52.240	Vertical	Pass
20.0MHz	1/#Mid	1860	-7.00	3.81	28.35	17.54	56.754	Vertical	Pass
Band 16		1880	-6.95	3.96	28.22	17.31	53.827	Vertical	Pass
QAM		1900	-6.63	4.00	28.16	17.53	56.624	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-5.13	3.12	27.58	19.33	85.704	Horizontal	Pass
		1732.5	-5.12	3.27	27.61	19.22	83.560	Horizontal	Pass
		1754.3	-5.10	3.29	27.63	19.24	83.946	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.30	3.13	27.61	19.18	82.794	Horizontal	Pass
		1732.5	-5.22	3.27	27.61	19.12	81.658	Horizontal	Pass
		1753.5	-5.14	3.30	27.62	19.18	82.794	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.07	3.13	27.63	19.43	87.700	Horizontal	Pass
		1732.5	-4.97	3.27	27.61	19.37	86.497	Horizontal	Pass
		1752.5	-4.85	3.30	27.60	19.45	88.105	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.01	3.15	27.64	19.48	88.716	Horizontal	Pass
		1732.5	-4.78	3.31	27.61	19.52	89.536	Horizontal	Pass
		1750	-4.80	3.33	27.59	19.46	88.308	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-5.02	3.15	27.65	19.48	88.716	Horizontal	Pass
		1732.5	-4.86	3.31	27.61	19.44	87.902	Horizontal	Pass
		1747.5	-4.80	3.33	27.57	19.44	87.902	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.96	3.17	27.66	19.53	89.743	Horizontal	Pass
		1732.5	-4.79	3.32	27.61	19.50	89.125	Horizontal	Pass
		1745	-4.73	3.36	27.56	19.47	88.512	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-5.93	3.12	27.58	18.53	71.285	Vertical	Pass
		1732.5	-6.31	3.27	27.61	18.03	63.533	Vertical	Pass
		1754.3	-5.91	3.29	27.63	18.43	69.663	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.83	3.13	27.61	18.65	73.282	Vertical	Pass
		1732.5	-5.36	3.27	27.61	18.98	79.068	Vertical	Pass
		1753.5	-6.20	3.30	27.62	18.12	64.863	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.69	3.13	27.63	18.81	76.033	Vertical	Pass
		1732.5	-5.53	3.27	27.61	18.81	76.033	Vertical	Pass
		1752.5	-5.76	3.30	27.60	18.54	71.450	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-6.26	3.15	27.64	18.23	66.527	Vertical	Pass
		1732.5	-5.75	3.31	27.61	18.55	71.614	Vertical	Pass
		1750	-5.93	3.33	27.59	18.33	68.077	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-6.46	3.15	27.65	18.04	63.680	Vertical	Pass
		1732.5	-6.03	3.31	27.61	18.27	67.143	Vertical	Pass
		1747.5	-6.19	3.33	27.57	18.05	63.826	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-6.42	3.17	27.66	18.07	64.121	Vertical	Pass
		1732.5	-5.37	3.32	27.61	18.92	77.983	Vertical	Pass
		1745	-5.98	3.36	27.56	18.22	66.374	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.94	3.12	27.58	18.52	71.121	Horizontal	Pass
		1732.5	-5.79	3.27	27.61	18.55	71.614	Horizontal	Pass
		1754.3	-5.79	3.29	27.63	18.55	71.614	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.88	3.13	27.61	18.60	72.444	Horizontal	Pass
		1732.5	-6.01	3.27	27.61	18.33	68.077	Horizontal	Pass
		1753.5	-6.23	3.30	27.62	18.09	64.417	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.71	3.13	27.63	18.79	75.683	Horizontal	Pass
		1732.5	-5.67	3.27	27.61	18.67	73.621	Horizontal	Pass
		1752.5	-5.36	3.30	27.60	18.94	78.343	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.78	3.15	27.64	18.71	74.302	Horizontal	Pass
		1732.5	-5.97	3.31	27.61	18.33	68.077	Horizontal	Pass
		1750	-5.35	3.33	27.59	18.91	77.804	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-5.58	3.15	27.65	18.92	77.983	Horizontal	Pass
		1732.5	-5.64	3.31	27.61	18.66	73.451	Horizontal	Pass
		1747.5	-5.66	3.33	27.57	18.58	72.111	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-5.53	3.17	27.66	18.96	78.705	Horizontal	Pass
		1732.5	-5.54	3.32	27.61	18.75	74.989	Horizontal	Pass
		1745	-5.35	3.36	27.56	18.85	76.736	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-6.58	3.12	27.58	17.88	61.376	Vertical	Pass
		1732.5	-6.84	3.27	27.61	17.50	56.234	Vertical	Pass
		1754.3	-7.08	3.29	27.63	17.26	53.211	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.77	3.13	27.61	17.71	59.020	Vertical	Pass
		1732.5	-6.67	3.27	27.61	17.67	58.479	Vertical	Pass
		1753.5	-6.71	3.30	27.62	17.61	57.677	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-7.33	3.13	27.63	17.17	52.119	Vertical	Pass
		1732.5	-7.04	3.27	27.61	17.30	53.703	Vertical	Pass
		1752.5	-6.65	3.30	27.60	17.65	58.210	Vertical	Pass

10.0MHz	1/#Mid	1715	-7.46	3.15	27.64	17.03	50.466	Vertical	Pass
Band 16		1732.5	-6.80	3.31	27.61	17.50	56.234	Vertical	Pass
QAM		1750	-6.93	3.33	27.59	17.33	54.075	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-7.36	3.15	27.65	17.14	51.761	Vertical	Pass
Band 16		1732.5	-7.28	3.31	27.61	17.02	50.350	Vertical	Pass
QAM		1747.5	-7.25	3.33	27.57	16.99	50.003	Vertical	Pass
20.0MHz	1/#Mid	1720	-6.82	3.17	27.66	17.67	58.479	Vertical	Pass
Band 16		1732.5	-7.00	3.32	27.61	17.29	53.580	Vertical	Pass
QAM		1745	-6.66	3.36	27.56	17.54	56.754	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	4.17	2.01	19.68	2.15	19.69	93.111	Horizontal	Pass
		836.5	4.05	2.01	19.77	2.15	19.66	92.470	Horizontal	Pass
		848.3	3.85	2.02	19.82	2.15	19.50	89.125	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.94	2.01	19.70	2.15	19.48	88.716	Horizontal	Pass
		836.5	3.84	2.01	19.77	2.15	19.45	88.105	Horizontal	Pass
		847.5	3.71	2.02	19.81	2.15	19.35	86.099	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.22	2.01	19.71	2.15	19.77	94.842	Horizontal	Pass
		836.5	4.10	2.01	19.77	2.15	19.71	93.541	Horizontal	Pass
		846.5	3.94	2.02	19.79	2.15	19.56	90.365	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	4.24	2.01	19.73	2.15	19.81	95.719	Horizontal	Pass
		836.5	4.19	2.01	19.77	2.15	19.80	95.499	Horizontal	Pass
		844	4.09	2.02	19.78	2.15	19.70	93.325	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	2.76	2.01	19.68	2.15	18.28	67.298	Vertical	Pass
		836.5	2.80	2.01	19.77	2.15	18.41	69.343	Vertical	Pass
		848.3	3.13	2.02	19.82	2.15	18.78	75.509	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.44	2.01	19.70	2.15	18.98	79.068	Vertical	Pass
		836.5	2.93	2.01	19.77	2.15	18.54	71.450	Vertical	Pass
		847.5	2.95	2.02	19.81	2.15	18.59	72.277	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	2.68	2.01	19.71	2.15	18.23	66.527	Vertical	Pass
		836.5	2.88	2.01	19.77	2.15	18.49	70.632	Vertical	Pass
		846.5	2.95	2.02	19.79	2.15	18.57	71.945	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	2.54	2.01	19.73	2.15	18.11	64.714	Vertical	Pass
		836.5	3.12	2.01	19.77	2.15	18.73	74.645	Vertical	Pass
		844	3.35	2.02	19.78	2.15	18.96	78.705	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/##Mid	824.7	3.32	2.01	19.68	2.15	18.84	76.560	Horizontal	Pass
		836.5	3.25	2.01	19.77	2.15	18.86	76.913	Horizontal	Pass
		848.3	3.09	2.02	19.82	2.15	18.74	74.817	Horizontal	Pass
3.0MHz Band 16 QAM	1/##Mid	825.5	3.40	2.01	19.70	2.15	18.94	78.343	Horizontal	Pass
		836.5	3.11	2.01	19.77	2.15	18.72	74.473	Horizontal	Pass
		847.5	2.59	2.02	19.81	2.15	18.23	66.527	Horizontal	Pass
5.0MHz Band 16 QAM	1/##Mid	826.5	3.72	2.01	19.71	2.15	19.27	84.528	Horizontal	Pass
		836.5	3.49	2.01	19.77	2.15	19.10	81.283	Horizontal	Pass
		846.5	3.24	2.02	19.79	2.15	18.86	76.913	Horizontal	Pass
10.0MHz Band 16 QAM	1/##Mid	829	3.72	2.01	19.73	2.15	19.29	84.918	Horizontal	Pass
		836.5	3.44	2.01	19.77	2.15	19.05	80.353	Horizontal	Pass
		844	2.98	2.02	19.78	2.15	18.59	72.277	Horizontal	Pass
1.4MHz Band 16 QAM	1/##Mid	824.7	2.46	2.01	19.68	2.15	17.98	62.806	Vertical	Pass
		836.5	3.37	2.01	19.77	2.15	18.98	79.068	Vertical	Pass
		848.3	2.89	2.02	19.82	2.15	18.54	71.450	Vertical	Pass
3.0MHz Band 16 QAM	1/##Mid	825.5	2.77	2.01	19.70	2.15	18.31	67.764	Vertical	Pass
		836.5	1.71	2.01	19.77	2.15	17.32	53.951	Vertical	Pass
		847.5	2.38	2.02	19.81	2.15	18.02	63.387	Vertical	Pass
5.0MHz Band 16 QAM	1/##Mid	826.5	2.42	2.01	19.71	2.15	17.97	62.661	Vertical	Pass
		836.5	1.96	2.01	19.77	2.15	17.57	57.148	Vertical	Pass
		846.5	1.38	2.02	19.79	2.15	17.00	50.119	Vertical	Pass
10.0MHz Band 16 QAM	1/##Mid	829	1.93	2.01	19.73	2.15	17.50	56.234	Vertical	Pass
		836.5	1.80	2.01	19.77	2.15	17.41	55.081	Vertical	Pass
		844	2.20	2.02	19.78	2.15	17.81	60.395	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	-3.41	4.54	27.75	19.80	95.499	Horizontal	Pass
		2535	-3.24	4.69	27.72	19.79	95.280	Horizontal	Pass
		2567.5	-3.17	4.71	27.71	19.83	96.161	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.34	4.55	27.76	19.87	97.051	Horizontal	Pass
		2535	-3.15	4.69	27.72	19.88	97.275	Horizontal	Pass
		2565	-3.07	4.72	27.70	19.91	97.949	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.35	4.55	27.77	19.87	97.051	Horizontal	Pass
		2535	-3.21	4.69	27.72	19.82	95.940	Horizontal	Pass
		2562.5	-3.11	4.72	27.69	19.86	96.828	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.29	4.57	27.78	19.92	98.175	Horizontal	Pass
		2535	-3.11	4.73	27.72	19.88	97.275	Horizontal	Pass
		2560	-3.07	4.75	27.68	19.86	96.828	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-5.21	4.54	27.75	18.00	63.096	Vertical	Pass
		2535	-4.98	4.69	27.72	18.05	63.826	Vertical	Pass
		2567.5	-4.33	4.71	27.71	18.67	73.621	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-4.61	4.55	27.76	18.60	72.444	Vertical	Pass
		2535	-4.27	4.69	27.72	18.76	75.162	Vertical	Pass
		2565	-4.88	4.72	27.70	18.10	64.565	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-4.51	4.55	27.77	18.71	74.302	Vertical	Pass
		2535	-4.21	4.69	27.72	18.82	76.208	Vertical	Pass
		2562.5	-4.99	4.72	27.69	17.98	62.806	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-4.30	4.57	27.78	18.91	77.804	Vertical	Pass
		2535	-4.76	4.73	27.72	18.23	66.527	Vertical	Pass
		2560	-4.94	4.75	27.68	17.99	62.951	Vertical	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	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.10	4.54	27.75	19.11	81.470	Horizontal	Pass
		2535	-3.79	4.69	27.72	19.24	83.946	Horizontal	Pass
		2567.5	-3.87	4.71	27.71	19.13	81.846	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.99	4.55	27.76	19.22	83.560	Horizontal	Pass
		2535	-4.00	4.69	27.72	19.03	79.983	Horizontal	Pass
		2565	-4.27	4.72	27.70	18.71	74.302	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.17	4.55	27.77	19.05	80.353	Horizontal	Pass
		2535	-4.14	4.69	27.72	18.89	77.446	Horizontal	Pass
		2562.5	-3.75	4.72	27.69	19.22	83.560	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.05	4.57	27.78	19.16	82.414	Horizontal	Pass
		2535	-3.72	4.73	27.72	19.27	84.528	Horizontal	Pass
		2560	-3.82	4.75	27.68	19.11	81.470	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-5.47	4.54	27.75	17.74	59.429	Vertical	Pass
		2535	-5.55	4.69	27.72	17.48	55.976	Vertical	Pass
		2567.5	-4.25	4.71	27.71	18.75	74.989	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-4.36	4.55	27.76	18.85	76.736	Vertical	Pass
		2535	-4.80	4.69	27.72	18.23	66.527	Vertical	Pass
		2565	-4.84	4.72	27.70	18.14	65.163	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.74	4.55	27.77	18.48	70.469	Vertical	Pass
		2535	-5.00	4.69	27.72	18.03	63.533	Vertical	Pass
		2562.5	-5.18	4.72	27.69	17.79	60.117	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-5.73	4.57	27.78	17.48	55.976	Vertical	Pass
		2535	-5.48	4.73	27.72	17.51	56.364	Vertical	Pass
		2560	-4.59	4.75	27.68	18.34	68.234	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	4.54	1.91	19.21	2.15	19.69	93.111	Vertical	Pass
		707.5	4.46	1.91	19.26	2.15	19.66	92.470	Vertical	Pass
		715.3	4.24	1.93	19.34	2.15	19.50	89.125	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.33	1.91	19.21	2.15	19.48	88.716	Vertical	Pass
		707.5	4.25	1.91	19.26	2.15	19.45	88.105	Vertical	Pass
		714.5	4.09	1.93	19.34	2.15	19.35	86.099	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	4.60	1.91	19.23	2.15	19.77	94.842	Vertical	Pass
		707.5	4.51	1.91	19.26	2.15	19.71	93.541	Vertical	Pass
		713.5	4.30	1.92	19.33	2.15	19.56	90.365	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	4.62	1.91	19.25	2.15	19.81	95.719	Vertical	Pass
		707.5	4.60	1.91	19.26	2.15	19.80	95.499	Vertical	Pass
		711	4.45	1.92	19.32	2.15	19.70	93.325	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	3.46	1.91	19.21	2.15	18.61	72.611	Horizontal	Pass
		707.5	3.77	1.91	19.26	2.15	18.97	78.886	Horizontal	Pass
		715.3	3.61	1.93	19.34	2.15	18.87	77.090	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	2.84	1.91	19.21	2.15	17.99	62.951	Horizontal	Pass
		707.5	2.88	1.91	19.26	2.15	18.08	64.269	Horizontal	Pass
		714.5	3.02	1.93	19.34	2.15	18.28	67.298	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	3.39	1.91	19.23	2.15	18.56	71.779	Horizontal	Pass
		707.5	3.07	1.91	19.26	2.15	18.27	67.143	Horizontal	Pass
		713.5	3.40	1.92	19.33	2.15	18.66	73.451	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	3.62	1.91	19.25	2.15	18.81	76.033	Horizontal	Pass
		707.5	3.29	1.91	19.26	2.15	18.49	70.632	Horizontal	Pass
		711	3.48	1.92	19.32	2.15	18.73	74.645	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	4.61	1.91	19.21	2.15	19.76	94.624	Vertical	Pass
		707.5	4.53	1.91	19.26	2.15	19.73	93.972	Vertical	Pass
		715.3	4.31	1.93	19.34	2.15	19.57	90.573	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.40	1.91	19.21	2.15	19.55	90.157	Vertical	Pass
		707.5	4.32	1.91	19.26	2.15	19.52	89.536	Vertical	Pass
		714.5	4.16	1.93	19.34	2.15	19.42	87.498	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	4.67	1.91	19.23	2.15	19.84	96.383	Vertical	Pass
		707.5	4.58	1.91	19.26	2.15	19.78	95.060	Vertical	Pass
		713.5	4.37	1.92	19.33	2.15	19.63	91.833	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.69	1.91	19.25	2.15	19.88	97.275	Vertical	Pass
		707.5	4.67	1.91	19.26	2.15	19.87	97.051	Vertical	Pass
		711	4.52	1.92	19.32	2.15	19.77	94.842	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	3.25	1.91	19.21	2.15	18.40	69.183	Horizontal	Pass
		707.5	3.27	1.91	19.26	2.15	18.47	70.307	Horizontal	Pass
		715.3	3.32	1.93	19.34	2.15	18.58	72.111	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	3.31	1.91	19.21	2.15	18.46	70.146	Horizontal	Pass
		707.5	3.42	1.91	19.26	2.15	18.62	72.778	Horizontal	Pass
		714.5	3.15	1.93	19.34	2.15	18.41	69.343	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	3.65	1.91	19.23	2.15	18.82	76.208	Horizontal	Pass
		707.5	3.49	1.91	19.26	2.15	18.69	73.961	Horizontal	Pass
		713.5	3.65	1.92	19.33	2.15	18.91	77.804	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	3.13	1.91	19.25	2.15	18.32	67.920	Horizontal	Pass
		707.5	2.90	1.91	19.26	2.15	18.10	64.565	Horizontal	Pass
		711	3.06	1.92	19.32	2.15	18.31	67.764	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	5.07	1.91	19.23	2.15	20.24	105.682	Vertical	Pass
		710	4.93	1.91	19.26	2.15	20.13	103.039	Vertical	Pass
		713.5	4.83	1.92	19.33	2.15	20.09	102.094	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	5.08	1.91	19.25	2.15	20.27	106.414	Vertical	Pass
		710	5.03	1.91	19.26	2.15	20.23	105.439	Vertical	Pass
		711	4.99	1.92	19.32	2.15	20.24	105.682	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	3.64	1.91	19.23	2.15	18.81	76.033	Horizontal	Pass
		710	3.46	1.91	19.26	2.15	18.66	73.451	Horizontal	Pass
		713.5	3.87	1.92	19.33	2.15	19.13	81.846	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	4.68	1.91	19.25	2.15	19.87	97.051	Horizontal	Pass
		710	4.34	1.91	19.26	2.15	19.54	89.950	Horizontal	Pass
		711	3.43	1.92	19.32	2.15	18.68	73.790	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	4.48	1.91	19.23	2.15	19.65	92.257	Vertical	Pass
		710	4.39	1.91	19.26	2.15	19.59	90.991	Vertical	Pass
		713.5	4.19	1.92	19.33	2.15	19.45	88.105	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	4.02	1.91	19.25	2.15	19.21	83.368	Vertical	Pass
		710	4.55	1.91	19.26	2.15	19.75	94.406	Vertical	Pass
		711	4.28	1.92	19.32	2.15	19.53	89.743	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	3.57	1.91	19.23	2.15	18.74	74.817	Horizontal	Pass
		710	3.43	1.91	19.26	2.15	18.63	72.946	Horizontal	Pass
		713.5	3.02	1.92	19.33	2.15	18.28	67.298	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	3.12	1.91	19.25	2.15	18.31	67.764	Horizontal	Pass
		710	2.92	1.91	19.26	2.15	18.12	64.863	Horizontal	Pass
		711	3.16	1.92	19.32	2.15	18.41	69.343	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.8 LTE BAND 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	17.90	61.660	Vertical	Pass
		2595	-2.64	4.88	27.71	18.35	68.391	Vertical	Pass
		2617.5	-2.58	4.93	27.95	18.27	67.143	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	17.97	62.661	Vertical	Pass
		2595	-2.47	4.95	27.81	18.29	67.453	Vertical	Pass
		2617.5	-2.59	5.03	27.69	18.57	71.945	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	18.46	70.146	Vertical	Pass
		2595	-2.6	5	27.65	18.64	73.114	Vertical	Pass
		2615	-2.67	4.87	27.89	18.58	72.111	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	18.42	69.502	Vertical	Pass
		2595	-2.38	4.87	27.87	18.04	63.680	Vertical	Pass
		2615	-2.56	4.94	27.77	18.66	73.451	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	17.99	62.951	Vertical	Pass
		2595	-2.32	4.87	27.84	18.33	68.077	Vertical	Pass
		2612.5	-2.52	4.92	27.93	18.85	76.736	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	18.08	64.269	Vertical	Pass
		2595	-2.53	4.98	27.82	18.11	64.714	Vertical	Pass
		2612.5	-2.6	4.95	27.83	18.24	66.681	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	18.42	69.502	Vertical	Pass
		2595	-2.37	4.79	27.83	19.48	88.716	Vertical	Pass
		2610	-2.68	4.89	27.87	18.84	76.560	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	18.35	68.391	Vertical	Pass
		2595	-2.88	4.91	27.71	17.94	62.230	Vertical	Pass
		2610	-2.81	4.96	27.92	18.46	70.146	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	18.37	68.707	Horizontal	Pass
		2595	-2.64	4.88	27.71	17.93	62.087	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	18.39	69.024	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	18.27	67.143	Horizontal	Pass
		2595	-2.47	4.95	27.81	18.22	66.374	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	17.95	62.373	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	18.52	71.121	Horizontal	Pass
		2595	-2.6	5	27.65	18.21	66.222	Horizontal	Pass
		2615	-2.67	4.87	27.89	18.47	70.307	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	18.51	70.958	Horizontal	Pass
		2595	-2.38	4.87	27.87	18.41	69.343	Horizontal	Pass
		2615	-2.56	4.94	27.77	18.91	77.804	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	18.65	73.282	Horizontal	Pass
		2595	-2.32	4.87	27.84	18.45	69.984	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	18.37	68.707	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	18.83	76.384	Horizontal	Pass
		2595	-2.53	4.98	27.82	18.05	63.826	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	18.39	69.024	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	18.44	69.823	Horizontal	Pass
		2595	-2.37	4.79	27.83	19.52	89.536	Horizontal	Pass
		2610	-2.68	4.89	27.87	18.39	69.024	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	18.10	64.565	Horizontal	Pass
		2595	-2.88	4.91	27.71	19.57	90.573	Horizontal	Pass
		2610	-2.81	4.96	27.92	18.10	64.565	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

8.9 LTE BAND 41

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	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2498.5	-3.58	4.54	27.75	19.63	91.833	Horizontal	Pass
		2593	-3.43	4.69	27.72	19.60	91.201	Horizontal	Pass
		2687.5	-3.31	4.71	27.71	19.69	93.111	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2501	-3.66	4.55	27.76	19.55	90.157	Horizontal	Pass
		2593	-3.52	4.69	27.72	19.51	89.331	Horizontal	Pass
		2685	-3.51	4.72	27.70	19.47	88.512	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	-3.49	4.55	27.77	19.73	93.972	Horizontal	Pass
		2593	-3.21	4.69	27.72	19.82	95.940	Horizontal	Pass
		2682.5	-3.26	4.72	27.69	19.71	93.541	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2506	-3.10	4.57	27.78	20.11	102.565	Horizontal	Pass
		2593	-3.15	4.73	27.72	19.84	96.383	Horizontal	Pass
		2680	-3.15	4.75	27.68	19.78	95.060	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2498.5	-3.38	4.54	27.75	19.83	96.161	Vertical	Pass
		2593	-3.29	4.69	27.72	19.74	94.189	Vertical	Pass
		2687.5	-3.27	4.71	27.71	19.73	93.972	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2501	-3.36	4.55	27.76	19.85	96.605	Vertical	Pass
		2593	-3.20	4.69	27.72	19.83	96.161	Vertical	Pass
		2685	-3.27	4.72	27.70	19.71	93.541	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	-4.64	4.55	27.77	18.58	72.111	Vertical	Pass
		2593	-4.07	4.69	27.72	18.96	78.705	Vertical	Pass
		2682.5	-4.54	4.72	27.69	18.43	69.663	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2506	-4.22	4.57	27.78	18.99	79.250	Vertical	Pass
		2593	-4.44	4.73	27.72	18.55	71.614	Vertical	Pass
		2680	-3.84	4.75	27.68	19.09	81.096	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)			Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2498.5	-3.81	4.54	27.75	19.40	87.096	Horizontal	Pass
		2593	-3.66	4.69	27.72	19.37	86.497	Horizontal	Pass
		2687.5	-3.54	4.71	27.71	19.46	88.308	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	-3.89	4.55	27.76	19.32	85.507	Horizontal	Pass
		2593	-3.75	4.69	27.72	19.28	84.723	Horizontal	Pass
		2685	-3.74	4.72	27.70	19.24	83.946	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	-3.72	4.55	27.77	19.50	89.125	Horizontal	Pass
		2593	-3.44	4.69	27.72	19.59	90.991	Horizontal	Pass
		2682.5	-3.49	4.72	27.69	19.48	88.716	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	-3.44	4.57	27.78	19.77	94.842	Horizontal	Pass
		2593	-3.38	4.73	27.72	19.61	91.411	Horizontal	Pass
		2680	-3.38	4.75	27.68	19.55	90.157	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2498.5	-3.61	4.54	27.75	19.60	91.201	Vertical	Pass
		2593	-3.52	4.69	27.72	19.51	89.331	Vertical	Pass
		2687.5	-3.50	4.71	27.71	19.50	89.125	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	-3.59	4.55	27.76	19.62	91.622	Vertical	Pass
		2593	-3.43	4.69	27.72	19.60	91.201	Vertical	Pass
		2685	-3.50	4.72	27.70	19.48	88.716	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	-5.14	4.55	27.77	18.08	64.269	Vertical	Pass
		2593	-4.39	4.69	27.72	18.64	73.114	Vertical	Pass
		2682.5	-4.58	4.72	27.69	18.39	69.024	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	-5.01	4.57	27.78	18.20	66.069	Vertical	Pass
		2593	-4.56	4.73	27.72	18.43	69.663	Vertical	Pass
		2680	-5.02	4.75	27.68	17.91	61.802	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

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

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

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

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 2/4/5/7/12/17/38/41

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	-45.39	4.04	33.51	-15.92	-13	-2.92	Horizontal
3701.4	-48.88	4.04	33.51	-19.41	-13	-6.41	Vertical
5552.1	-50.28	5.24	35.84	-19.68	-13	-6.68	Vertical
5552.1	-53.97	5.24	35.84	-23.37	-13	-10.37	Horizontal
209.5	-44.90	1.43	16.02	-30.31	-13	-17.31	Vertical
288.9	-40.47	1.30	17.99	-23.78	-13	-10.78	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.29	4.04	33.56	-18.77	-13	-5.77	Horizontal
3760.0	-46.23	4.04	33.56	-16.71	-13	-3.71	Vertical
5640.0	-52.54	5.24	35.91	-21.87	-13	-8.87	Vertical
5640.0	-53.25	5.24	35.91	-22.58	-13	-9.58	Horizontal
191.0	-41.91	1.62	16.97	-26.56	-13	-13.56	Vertical
466.1	-39.90	1.74	15.98	-25.67	-13	-12.67	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-48.13	4.04	34.00	-18.17	-13	-5.17	Horizontal
3818.6	-47.25	4.04	34.00	-17.29	-13	-4.29	Vertical
5727.9	-45.93	5.24	36.04	-15.13	-13	-2.13	Vertical
5727.9	-50.05	5.24	36.04	-19.25	-13	-6.25	Horizontal
205.4	-44.41	1.42	17.29	-28.54	-13	-15.54	Vertical
316.9	-42.73	1.50	17.90	-26.32	-13	-13.32	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	-51.17	4.07	33.54	-21.70	-13	-8.70	Horizontal
3720.0	-48.30	4.07	33.54	-18.83	-13	-5.83	Vertical
5580.0	-47.86	5.28	35.86	-17.28	-13	-4.28	Vertical
5580.0	-53.37	5.28	35.86	-22.79	-13	-9.79	Horizontal
179.2	-35.03	1.58	16.89	-19.71	-13	-6.71	Vertical
427.9	-42.52	1.76	17.26	-27.02	-13	-14.02	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.33	4.04	33.56	-19.81	-13	-6.81	Horizontal
3760.0	-53.15	4.04	33.56	-23.63	-13	-10.63	Vertical
5640.0	-52.34	5.24	35.91	-21.67	-13	-8.67	Vertical
5640.0	-49.75	5.24	35.91	-19.08	-13	-6.08	Horizontal
193.1	-38.81	1.46	16.27	-24.00	-13	-11.00	Vertical
382.9	-41.36	1.59	15.15	-27.80	-13	-14.80	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-48.65	4.04	34.00	-18.69	-13	-5.69	Horizontal
3800.0	-45.22	4.04	34.00	-15.26	-13	-2.26	Vertical
5700.0	-51.73	5.24	36.04	-20.93	-13	-7.93	Vertical
5700.0	-51.49	5.24	36.04	-20.69	-13	-7.69	Horizontal
181.5	-38.69	1.36	17.39	-22.65	-13	-9.65	Vertical
463.2	-44.56	1.66	15.39	-30.83	-13	-17.83	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	-50.56	4.02	29.80	-24.78	-13	-11.78	Horizontal
3421.4	-48.81	4.02	29.80	-23.03	-13	-10.03	Vertical
5132.1	-51.12	5.24	35.84	-20.52	-13	-7.52	Vertical
5132.1	-51.23	5.24	35.84	-20.63	-13	-7.63	Horizontal
198.3	-43.36	1.68	16.04	-29.00	-13	-16.00	Vertical
260.6	-39.41	1.78	17.74	-23.45	-13	-10.45	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.14	4.03	30.00	-20.17	-13	-7.17	Horizontal
3465.0	-51.29	4.03	30.00	-25.32	-13	-12.32	Vertical
5197.5	-46.95	5.25	35.86	-16.34	-13	-3.34	Vertical
5197.5	-52.90	5.25	35.86	-22.29	-13	-9.29	Horizontal
177.3	-42.75	1.72	17.69	-26.78	-13	-13.78	Vertical
468.0	-34.35	1.62	16.02	-19.94	-13	-6.94	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-51.41	4.05	30.01	-25.45	-13	-12.45	Horizontal
3508.6	-44.68	4.05	30.01	-18.72	-13	-5.72	Vertical
5262.9	-48.36	5.26	35.86	-17.76	-13	-4.76	Vertical
5262.9	-52.40	5.26	35.86	-21.80	-13	-8.80	Horizontal
205.6	-37.78	1.80	16.69	-22.89	-13	-9.89	Vertical
269.9	-36.94	1.75	16.66	-22.04	-13	-9.04	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	-50.23	4.02	29.80	-24.45	-13	-11.45	Horizontal
3440.0	-53.96	4.02	29.80	-28.18	-13	-15.18	Vertical
5160.0	-53.55	5.24	35.84	-22.95	-13	-9.95	Vertical
5160.0	-52.78	5.24	35.84	-22.18	-13	-9.18	Horizontal
190.5	-44.37	1.57	17.26	-28.68	-13	-15.68	Vertical
293.3	-39.72	1.78	16.35	-25.15	-13	-12.15	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-45.96	4.03	30.00	-19.99	-13	-6.99	Horizontal
3465.0	-46.89	4.03	30.00	-20.92	-13	-7.92	Vertical
5197.5	-49.73	5.25	35.86	-19.12	-13	-6.12	Vertical
5197.5	-51.22	5.25	35.86	-20.61	-13	-7.61	Horizontal
212.6	-44.16	1.44	17.95	-27.65	-13	-14.65	Vertical
302.7	-43.80	1.65	16.09	-29.36	-13	-16.36	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-45.53	2.91	27.68	-20.76	-13	-7.76	Horizontal
3490.0	-47.06	2.91	27.68	-22.29	-13	-9.29	Vertical
5235.0	-52.32	5.26	35.86	-21.72	-13	-8.72	Vertical
5235.0	-49.48	5.26	35.86	-18.88	-13	-5.88	Horizontal
178.8	-36.21	1.61	16.85	-20.97	-13	-7.97	Vertical
375.2	-38.62	1.61	15.19	-25.04	-13	-12.04	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	-48.86	2.78	27.50	-24.14	-13	-11.14	Horizontal
1649.4	-46.49	2.78	27.50	-21.77	-13	-8.77	Vertical
2474.1	-52.89	2.90	27.80	-27.99	-13	-14.99	Vertical
2474.1	-49.83	2.90	27.80	-24.93	-13	-11.93	Horizontal
207.4	-36.54	1.76	17.59	-20.71	-13	-7.71	Vertical
417.5	-42.67	1.63	15.87	-28.43	-13	-15.43	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-47.32	2.80	27.48	-22.64	-13	-9.64	Horizontal
1673.0	-51.80	2.80	27.48	-27.12	-13	-14.12	Vertical
2509.5	-46.88	2.91	27.70	-22.09	-13	-9.09	Vertical
2509.5	-52.78	2.91	27.70	-27.99	-13	-14.99	Horizontal
206.2	-39.51	1.61	15.68	-25.44	-13	-12.44	Vertical
409.7	-36.18	1.59	17.52	-20.26	-13	-7.26	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-51.17	2.82	27.43	-26.56	-13	-13.56	Horizontal
1696.6	-44.11	2.82	27.43	-19.50	-13	-6.50	Vertical
2544.9	-52.44	2.92	27.74	-27.62	-13	-14.62	Vertical
2544.9	-53.52	2.92	27.74	-28.70	-13	-15.70	Horizontal
184.7	-41.68	1.69	16.67	-26.69	-13	-13.69	Vertical
231.9	-41.89	1.70	17.18	-26.41	-13	-13.41	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	-46.23	2.78	27.50	-21.51	-13	-8.51	Horizontal
1658.0	-46.53	2.78	27.50	-21.81	-13	-8.81	Vertical
2487.0	-53.28	2.90	27.80	-28.38	-13	-15.38	Vertical
2487.0	-50.89	2.90	27.80	-25.99	-13	-12.99	Horizontal
212.6	-41.75	1.71	15.57	-27.89	-13	-14.89	Vertical
306.1	-40.59	1.34	16.40	-25.53	-13	-12.53	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-50.47	2.80	27.48	-25.79	-13	-12.79	Horizontal
1673.0	-46.80	2.80	27.48	-22.12	-13	-9.12	Vertical
2509.5	-48.36	2.91	27.70	-23.57	-13	-10.57	Vertical
2509.5	-51.02	2.91	27.70	-26.23	-13	-13.23	Horizontal
198.1	-38.80	1.44	17.04	-23.20	-13	-10.20	Vertical
331.0	-37.99	1.76	17.62	-22.13	-13	-9.13	Horizontal
Test Results for High Channel 844MHz							
1688.0	-49.27	2.82	27.43	-24.66	-13	-11.66	Horizontal
1688.0	-51.45	2.82	27.43	-26.84	-13	-13.84	Vertical
2532.0	-46.01	2.92	27.74	-21.19	-13	-8.19	Vertical
2532.0	-50.34	2.92	27.74	-25.52	-13	-12.52	Horizontal
202.0	-37.21	1.74	17.70	-21.25	-13	-8.25	Vertical
270.9	-35.34	1.41	17.46	-19.28	-13	-6.28	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	-59.02	5.23	35.81	-28.44	-25	-3.44	Horizontal
5005.0	-59.45	5.23	35.81	-28.87	-25	-3.87	Vertical
7507.5	-61.00	5.67	36.85	-29.82	-25	-4.82	Vertical
7507.5	-61.40	5.67	36.85	-30.22	-25	-5.22	Horizontal
184.0	-54.50	1.73	17.97	-38.26	-25	-13.26	Vertical
266.6	-46.64	1.38	15.11	-32.91	-25	-7.91	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.88	5.23	35.82	-30.29	-25	-5.29	Horizontal
5070.0	-59.28	5.23	35.82	-28.69	-25	-3.69	Vertical
7605.0	-64.64	5.67	36.85	-33.46	-25	-8.46	Vertical
7605.0	-63.82	5.67	36.85	-32.64	-25	-7.64	Horizontal
191.7	-52.99	1.77	16.17	-38.58	-25	-13.58	Vertical
374.0	-52.22	1.63	15.21	-38.64	-25	-13.64	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-60.37	5.24	35.83	-29.78	-25	-4.78	Horizontal
5135.0	-63.40	5.24	35.83	-32.81	-25	-7.81	Vertical
7702.5	-59.38	5.68	36.87	-28.19	-25	-3.19	Vertical
7702.5	-64.96	5.68	36.87	-33.77	-25	-8.77	Horizontal
189.4	-51.68	1.58	17.56	-35.70	-25	-10.70	Vertical
298.7	-49.11	1.45	16.58	-33.98	-25	-8.98	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	-61.77	5.23	35.82	-31.18	-25	-6.18	Horizontal
5020.0	-64.52	5.23	35.82	-33.93	-25	-8.93	Vertical
7530.0	-59.19	5.67	36.86	-28.00	-25	-3.00	Vertical
7530.0	-63.65	5.67	36.86	-32.46	-25	-7.46	Horizontal
200.3	-52.63	1.63	15.76	-38.50	-25	-13.50	Vertical
343.7	-49.94	1.71	15.44	-36.21	-25	-11.21	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.29	5.23	35.82	-29.70	-25	-4.70	Horizontal
5070.0	-60.14	5.23	35.82	-29.55	-25	-4.55	Vertical
7605.0	-59.37	5.67	36.85	-28.19	-25	-3.19	Vertical
7605.0	-63.49	5.67	36.85	-32.31	-25	-7.31	Horizontal
183.4	-44.73	1.79	16.84	-29.67	-25	-4.67	Vertical
320.7	-50.25	1.71	17.64	-34.32	-25	-9.32	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-62.55	5.24	35.83	-31.96	-25	-6.96	Horizontal
5120.0	-59.10	5.24	35.83	-28.51	-25	-3.51	Vertical
7680.0	-63.83	5.70	36.88	-32.65	-25	-7.65	Vertical
7680.0	-60.49	5.70	36.88	-29.31	-25	-4.31	Horizontal
203.9	-45.47	1.79	16.84	-30.41	-25	-5.41	Vertical
460.9	-46.73	1.71	17.64	-30.80	-25	-5.80	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	-47.16	2.60	27.20	-22.56	-13	-9.56	Horizontal
1399.4	-49.28	2.60	27.20	-24.68	-13	-11.68	Vertical
2099.1	-49.46	2.85	27.54	-24.77	-13	-11.77	Vertical
2099.1	-53.05	2.85	27.54	-28.36	-13	-15.36	Horizontal
208.2	-42.59	1.49	17.78	-26.30	-13	-13.30	Vertical
291.4	-38.96	1.36	17.33	-22.99	-13	-9.99	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-51.52	2.61	27.28	-26.85	-13	-13.85	Horizontal
1415.0	-51.06	2.61	27.28	-26.39	-13	-13.39	Vertical
2122.5	-46.64	2.87	27.59	-21.92	-13	-8.92	Vertical
2122.5	-52.14	2.87	27.59	-27.42	-13	-14.42	Horizontal
205.9	-36.72	1.73	15.74	-22.71	-13	-9.71	Vertical
244.3	-41.97	1.62	15.79	-27.80	-13	-14.80	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-51.21	2.63	27.28	-26.56	-13	-13.56	Horizontal
1430.6	-44.18	2.63	27.28	-19.53	-13	-6.53	Vertical
2145.9	-44.67	2.88	27.60	-19.95	-13	-6.95	Vertical
2145.9	-53.99	2.88	27.60	-29.27	-13	-16.27	Horizontal
208.5	-38.31	1.61	18.00	-21.92	-13	-8.92	Vertical
247.6	-38.87	1.45	15.49	-24.84	-13	-11.84	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	-48.88	2.61	27.26	-24.23	-13	-11.23	Horizontal
1408.0	-52.57	2.61	27.26	-27.92	-13	-14.92	Vertical
2112.0	-48.78	2.87	27.58	-24.07	-13	-11.07	Vertical
2112.0	-52.81	2.87	27.58	-28.10	-13	-15.10	Horizontal
199.4	-42.28	1.31	16.97	-26.62	-13	-13.62	Vertical
404.0	-40.30	1.65	16.70	-25.25	-13	-12.25	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-51.94	2.61	27.28	-27.27	-13	-14.27	Horizontal
1415.0	-44.33	2.61	27.28	-19.66	-13	-6.66	Vertical
2122.5	-46.55	2.87	27.59	-21.83	-13	-8.83	Vertical
2122.5	-52.73	2.87	27.59	-28.01	-13	-15.01	Horizontal
211.4	-36.65	1.72	17.99	-20.38	-13	-7.38	Vertical
307.9	-42.29	1.73	17.94	-26.08	-13	-13.08	Horizontal
Test Results for High Channel 711MHz							
1422.0	-45.55	2.62	27.28	-20.89	-13	-7.89	Horizontal
1422.0	-44.57	2.62	27.28	-19.91	-13	-6.91	Vertical
2133.0	-49.18	2.87	27.60	-24.45	-13	-11.45	Vertical
2133.0	-53.81	2.87	27.60	-29.08	-13	-16.08	Horizontal
204.7	-43.57	1.58	15.93	-29.22	-13	-16.22	Vertical
321.4	-44.88	1.36	15.59	-30.65	-13	-17.65	Horizontal

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

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

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

9.6 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	-50.51	2.61	27.28	-25.84	-13	-12.84	Horizontal
1413.0	-51.61	2.61	27.28	-26.94	-13	-13.94	Vertical
2119.5	-52.53	2.87	27.59	-27.81	-13	-14.81	Vertical
2119.5	-49.29	2.87	27.59	-24.57	-13	-11.57	Horizontal
209.0	-37.18	1.71	16.15	-22.74	-13	-9.74	Vertical
309.8	-42.23	1.41	17.32	-26.32	-13	-13.32	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-48.77	2.62	27.30	-24.09	-13	-11.09	Horizontal
1420.0	-52.91	2.62	27.30	-28.23	-13	-15.23	Vertical
2130.0	-46.75	2.87	27.62	-22.00	-13	-9.00	Vertical
2130.0	-51.50	2.87	27.62	-26.75	-13	-13.75	Horizontal
209.9	-44.48	1.42	15.25	-30.66	-13	-17.66	Vertical
464.2	-36.44	1.36	17.19	-20.61	-13	-7.61	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-46.82	2.66	27.28	-22.20	-13	-9.20	Horizontal
1427.0	-51.93	2.66	27.28	-27.31	-13	-14.31	Vertical
2140.5	-49.47	2.88	27.60	-24.75	-13	-11.75	Vertical
2140.5	-49.75	2.88	27.60	-25.03	-13	-12.03	Horizontal
195.6	-34.72	1.32	17.29	-18.75	-13	-5.75	Vertical
457.9	-43.95	1.72	16.89	-28.78	-13	-15.78	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	-52.01	2.62	27.30	-27.33	-13	-14.33	Horizontal
1418.0	-47.45	2.62	27.30	-22.77	-13	-9.77	Vertical
2127.0	-50.22	2.87	27.62	-25.47	-13	-12.47	Vertical
2127.0	-52.35	2.87	27.62	-27.60	-13	-14.60	Horizontal
193.0	-42.75	1.35	16.91	-27.19	-13	-14.19	Vertical
265.4	-35.53	1.62	16.31	-20.84	-13	-7.84	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-53.79	2.62	27.30	-29.11	-13	-16.11	Horizontal
1420.0	-52.99	2.62	27.30	-28.31	-13	-15.31	Vertical
2130.0	-47.05	2.87	27.62	-22.30	-13	-9.30	Vertical
2130.0	-52.49	2.87	27.62	-27.74	-13	-14.74	Horizontal
178.8	-40.53	1.51	17.14	-24.90	-13	-11.90	Vertical
406.2	-38.77	1.77	16.88	-23.66	-13	-10.66	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.81	2.62	27.30	-24.13	-13	-11.13	Horizontal
1422.0	-46.95	2.62	27.30	-22.27	-13	-9.27	Vertical
2133.0	-49.90	2.87	27.62	-25.15	-13	-12.15	Vertical
2133.0	-52.97	2.87	27.62	-28.22	-13	-15.22	Horizontal
188.1	-41.92	1.78	15.95	-27.75	-13	-14.75	Vertical
443.4	-40.69	1.34	17.95	-24.09	-13	-11.09	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 38

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

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145	-51.00	4.01	27.5	-27.51	-25	-2.51	Horizontal
5145	-54.31	4.01	27.5	-30.82	-25	-5.82	Vertical
7717.5	-52.62	5.09	27.8	-29.91	-25	-4.91	Vertical
7717.5	-55.02	5.09	27.8	-32.31	-25	-7.31	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-52.41	4.1	27.48	-29.03	-25	-4.03	Horizontal
5190	-53.04	4.1	27.48	-29.66	-25	-4.66	Vertical
7785	-51.11	5.42	27.7	-28.83	-25	-3.83	Vertical
7785	-50.08	5.42	27.7	-27.80	-25	-2.80	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-54.75	4.11	27.43	-31.43	-25	-6.43	Horizontal
5234	-52.90	4.11	27.43	-29.58	-25	-4.58	Vertical
7851	-50.65	5.31	27.74	-28.22	-25	-3.22	Vertical
7851	-52.48	5.31	27.74	-30.05	-25	-5.05	Horizontal

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

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-51.33	3.89	27.5	-27.72	-25	-2.72	Horizontal
5160	-52.30	3.89	27.5	-28.69	-25	-3.69	Vertical
7740	-54.54	5.33	27.8	-32.07	-25	-7.07	Vertical
7740	-51.18	5.33	27.8	-28.71	-25	-3.71	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-52.57	4.1	27.48	-29.19	-25	-4.19	Horizontal
5190	-53.90	4.1	27.48	-30.52	-25	-5.52	Vertical
7785	-52.74	5.42	27.7	-30.46	-25	-5.46	Vertical
7785	-49.72	5.42	27.7	-27.44	-25	-2.44	Horizontal
Test Results for High Channel 2610MHz							
5220	-52.10	4.01	27.43	-28.68	-25	-3.68	Horizontal
5220	-52.83	4.01	27.43	-29.41	-25	-4.41	Vertical
7830	-51.77	5.34	27.74	-29.37	-25	-4.37	Vertical
7830	-52.90	5.34	27.74	-30.50	-25	-5.50	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.

9.8 LTE BAND 41

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

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4997.0	-61.69	5.23	35.81	-31.11	-25	-6.11	Horizontal
4997.0	-59.07	5.23	35.81	-28.49	-25	-3.49	Vertical
7495.5	-59.82	5.67	36.85	-28.64	-25	-3.64	Vertical
7495.5	-59.37	5.67	36.85	-28.19	-25	-3.19	Horizontal
435.3	-45.04	1.38	15.98	-30.44	-25	-5.44	Vertical
465.8	-47.24	1.62	15.66	-33.20	-25	-8.20	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-62.36	5.23	35.82	-31.77	-25	-6.77	Horizontal
5186.0	-59.29	5.23	35.82	-28.70	-25	-3.70	Vertical
7779.0	-60.35	5.67	36.85	-29.17	-25	-4.17	Vertical
7779.0	-61.30	5.67	36.85	-30.12	-25	-5.12	Horizontal
510.4	-48.73	1.62	16.17	-34.18	-25	-9.18	Vertical
562.9	-46.66	1.74	17.63	-30.77	-25	-5.77	Horizontal
Test Results for High Channel 2687.5MHz							
5375.0	-64.57	5.24	35.83	-33.98	-25	-8.98	Horizontal
5375.0	-62.02	5.24	35.83	-31.43	-25	-6.43	Vertical
8062.5	-59.65	5.68	36.87	-28.46	-25	-3.46	Vertical
8062.5	-63.02	5.68	36.87	-31.83	-25	-6.83	Horizontal
197.6	-47.90	1.55	15.84	-33.61	-25	-8.61	Vertical
353.1	-45.24	1.51	17.06	-29.69	-25	-4.69	Horizontal

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

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5012.0	-63.72	5.23	35.82	-33.13	-25	-8.13	Horizontal
5012.0	-62.54	5.23	35.82	-31.95	-25	-6.95	Vertical
7518.0	-61.15	5.67	36.86	-29.96	-25	-4.96	Vertical
7518.0	-61.68	5.67	36.86	-30.49	-25	-5.49	Horizontal
128.9	-45.08	1.43	15.51	-31.00	-25	-6.00	Vertical
344.8	-45.99	1.40	16.97	-30.42	-25	-5.42	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-60.03	5.23	35.82	-29.44	-25	-4.44	Horizontal
5186.0	-63.16	5.23	35.82	-32.57	-25	-7.57	Vertical
7779.0	-62.95	5.67	36.85	-31.77	-25	-6.77	Vertical
7779.0	-64.36	5.67	36.85	-33.18	-25	-8.18	Horizontal
100.8	-47.13	1.77	16.72	-32.18	-25	-7.18	Vertical
263.5	-49.14	1.31	16.99	-33.46	-25	-8.46	Horizontal
Test Results for High Channel 2680MHz							
5360.0	-59.15	5.24	35.83	-28.56	-25	-3.56	Horizontal
5360.0	-63.61	5.24	35.83	-33.02	-25	-8.02	Vertical
8040.0	-59.86	5.70	36.88	-28.68	-25	-3.68	Vertical
8040.0	-59.70	5.70	36.88	-28.52	-25	-3.52	Horizontal
349.9	-47.76	1.70	15.73	-33.73	-25	-8.73	Vertical
110.3	-48.61	1.75	17.33	-33.03	-25	-8.03	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, §90.213

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.27V, Normal, DC 3.85V and High voltage, DC 4.43V.

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 2/4/5/7/12/17/38/41

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]
3.27	1880	12.7	0.006765	2.5
3.85	1880	13.8	0.007336	2.5
4.43	1880	13.7	0.007266	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.7	0.006755	2.5
Extreme (50C)	1880	11.4	0.006056	2.5
Extreme (40C)	1880	14.2	0.007529	2.5
Extreme (30C)	1880	13.1	0.006949	2.5
Extreme (10C)	1880	14.0	0.007449	2.5
Extreme (0C)	1880	12.4	0.006622	2.5
Extreme (-10C)	1880	13.3	0.007091	2.5
Extreme (-20C)	1880	13.9	0.007418	2.5
Extreme (-30C)	1880	14.6	0.007786	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]
3.27	1880	10.2	0.005440	2.5
3.85	1880	8.8	0.004701	2.5
4.43	1880	8.2	0.004347	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.4	0.004993	2.5
Extreme (50C)	1880	9.3	0.004930	2.5
Extreme (40C)	1880	7.9	0.004206	2.5
Extreme (30C)	1880	9.4	0.004988	2.5
Extreme (10C)	1880	8.9	0.004739	2.5
Extreme (0C)	1880	8.0	0.004239	2.5
Extreme (-10C)	1880	9.0	0.004765	2.5
Extreme (-20C)	1880	9.1	0.004861	2.5
Extreme (-30C)	1880	7.9	0.004202	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]
3.27	1732.5	8.7	0.005009	2.5
3.85	1732.5	8.9	0.005166	2.5
4.43	1732.5	8.5	0.004879	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.8	0.005066	2.5
Extreme (50C)	1732.5	8.7	0.005002	2.5
Extreme (40C)	1732.5	7.1	0.004079	2.5
Extreme (30C)	1732.5	5.6	0.003204	2.5
Extreme (10C)	1732.5	7.2	0.004131	2.5
Extreme (0C)	1732.5	9.3	0.005370	2.5
Extreme (-10C)	1732.5	8.0	0.004646	2.5
Extreme (-20C)	1732.5	6.4	0.003702	2.5
Extreme (-30C)	1732.5	8.8	0.005079	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]
3.27	1732.5	9.9	0.005732	2.5
3.85	1732.5	9.2	0.005305	2.5
4.43	1732.5	8.1	0.004693	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.9	0.005706	2.5
Extreme (50C)	1732.5	8.4	0.004861	2.5
Extreme (40C)	1732.5	8.0	0.004643	2.5
Extreme (30C)	1732.5	8.6	0.004977	2.5
Extreme (10C)	1732.5	9.1	0.005240	2.5
Extreme (0C)	1732.5	8.0	0.004643	2.5
Extreme (-10C)	1732.5	8.8	0.005104	2.5
Extreme (-20C)	1732.5	8.7	0.005010	2.5
Extreme (-30C)	1732.5	8.0	0.004624	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]
3.27	836.5	6.1	0.007283	2.5
3.85	836.5	6.3	0.007567	2.5
4.43	836.5	4.7	0.005649	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007455	2.5
Extreme (50C)	836.5	6.1	0.007341	2.5
Extreme (40C)	836.5	5.6	0.006697	2.5
Extreme (30C)	836.5	6.6	0.007855	2.5
Extreme (10C)	836.5	5.2	0.006213	2.5
Extreme (0C)	836.5	5.5	0.006628	2.5
Extreme (-10C)	836.5	5.9	0.007016	2.5
Extreme (-20C)	836.5	6.5	0.007715	2.5
Extreme (-30C)	836.5	6.0	0.007196	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]
3.27	836.5	5.6	0.006663	2.5
3.85	836.5	6.6	0.007865	2.5
4.43	836.5	4.7	0.005591	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.8	0.006935	2.5
Extreme (50C)	836.5	5.7	0.006833	2.5
Extreme (40C)	836.5	6.2	0.007414	2.5
Extreme (30C)	836.5	6.1	0.007337	2.5
Extreme (10C)	836.5	5.3	0.006380	2.5
Extreme (0C)	836.5	5.1	0.006113	2.5
Extreme (-10C)	836.5	5.7	0.006850	2.5
Extreme (-20C)	836.5	6.0	0.007172	2.5
Extreme (-30C)	836.5	6.0	0.007115	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]
3.27	2535	9.9	0.003911	2.5
3.85	2535	8.4	0.003328	2.5
4.43	2535	8.1	0.003179	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.6	0.003793	2.5
Extreme (50C)	2535	9.2	0.003639	2.5
Extreme (40C)	2535	8.2	0.003232	2.5
Extreme (30C)	2535	9.3	0.003688	2.5
Extreme (10C)	2535	8.1	0.003176	2.5
Extreme (0C)	2535	8.6	0.003377	2.5
Extreme (-10C)	2535	9.6	0.003793	2.5
Extreme (-20C)	2535	8.7	0.003425	2.5
Extreme (-30C)	2535	8.4	0.003318	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]
3.27	2535	6.8	0.002693	2.5
3.85	2535	6.9	0.002705	2.5
4.43	2535	6.0	0.002349	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	7.2	0.002827	2.5
Extreme (50C)	2535	5.9	0.002327	2.5
Extreme (40C)	2535	5.1	0.002013	2.5
Extreme (30C)	2535	7.0	0.002770	2.5
Extreme (10C)	2535	5.4	0.002130	2.5
Extreme (0C)	2535	5.0	0.001979	2.5
Extreme (-10C)	2535	5.2	0.002060	2.5
Extreme (-20C)	2535	6.1	0.002390	2.5
Extreme (-30C)	2535	6.2	0.002443	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]
3.27	707.5	8.6	0.012119	2.5
3.85	707.5	9.6	0.013559	2.5
4.43	707.5	9.0	0.012739	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.9	0.012541	2.5
Extreme (50C)	707.5	7.4	0.010477	2.5
Extreme (40C)	707.5	7.3	0.010272	2.5
Extreme (30C)	707.5	8.2	0.011533	2.5
Extreme (10C)	707.5	7.6	0.010709	2.5
Extreme (0C)	707.5	9.1	0.012798	2.5
Extreme (-10C)	707.5	8.0	0.011253	2.5
Extreme (-20C)	707.5	8.9	0.012553	2.5
Extreme (-30C)	707.5	8.3	0.011720	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]
3.27	707.5	7.6	0.010762	2.5
3.85	707.5	7.8	0.011041	2.5
4.43	707.5	7.2	0.010184	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]
3.27	710.0	9.5	0.013424	2.5
3.85	710.0	9.4	0.013219	2.5
4.43	710.0	8.0	0.011246	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.6	0.013494	2.5
Extreme (50C)	710.0	9.0	0.012719	2.5
Extreme (40C)	710.0	8.5	0.012036	2.5
Extreme (30C)	710.0	8.8	0.012429	2.5
Extreme (10C)	710.0	9.3	0.013068	2.5
Extreme (0C)	710.0	7.6	0.010710	2.5
Extreme (-10C)	710.0	8.9	0.012543	2.5
Extreme (-20C)	710.0	8.6	0.012130	2.5
Extreme (-30C)	710.0	7.7	0.010815	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]
3.27	710.0	9.6	0.013531	2.5
3.85	710.0	9.0	0.012716	2.5
4.43	710.0	8.1	0.011461	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.1	0.012847	2.5
Extreme (50C)	710.0	8.9	0.012580	2.5
Extreme (40C)	710.0	8.8	0.012454	2.5
Extreme (30C)	710.0	9.3	0.013072	2.5
Extreme (10C)	710.0	8.2	0.011480	2.5
Extreme (0C)	710.0	8.1	0.011366	2.5
Extreme (-10C)	710.0	9.2	0.012922	2.5
Extreme (-20C)	710.0	8.7	0.012297	2.5
Extreme (-30C)	710.0	8.5	0.011931	2.5

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

10.7 LTE BAND 38

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2595	8.7	0.003349	2.5
3.85	2595	6.9	0.002665	2.5
4.43	2595	7.1	0.002752	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.3	0.002816	2.5
Extreme (50C)	2595	4.7	0.001804	2.5
Extreme (40C)	2595	5.8	0.002234	2.5
Extreme (30C)	2595	4.9	0.001875	2.5
Extreme (10C)	2595	6.0	0.002304	2.5
Extreme (0C)	2595	4.6	0.001759	2.5
Extreme (-10C)	2595	9.8	0.003796	2.5
Extreme (-20C)	2595	10.8	0.004168	2.5
Extreme (-30C)	2595	6.4	0.002479	2.5

Band 38 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]
3.27	2595	8.1	0.003105	2.5
3.85	2595	6.3	0.002416	2.5
4.43	2595	6.6	0.002560	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.1	0.002747	2.5
Extreme (50C)	2595	5.2	0.002001	2.5
Extreme (40C)	2595	4.9	0.001896	2.5
Extreme (30C)	2595	5.1	0.001975	2.5
Extreme (10C)	2595	6.3	0.002445	2.5
Extreme (0C)	2595	5.2	0.002005	2.5
Extreme (-10C)	2595	9.8	0.003774	2.5
Extreme (-20C)	2595	11.0	0.004221	2.5
Extreme (-30C)	2595	5.8	0.002226	2.5

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

10.8 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]
3.27	2593	8.4	0.003232	2.5
3.85	2593	6.2	0.002389	2.5
4.43	2593	7.1	0.002754	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	7.4	0.002844	2.5
Extreme (50C)	2593	4.7	0.001806	2.5
Extreme (40C)	2593	5.3	0.002055	2.5
Extreme (30C)	2593	5.2	0.002003	2.5
Extreme (10C)	2593	6.4	0.002454	2.5
Extreme (0C)	2593	4.5	0.001725	2.5
Extreme (-10C)	2593	9.3	0.003572	2.5
Extreme (-20C)	2593	11.2	0.004338	2.5
Extreme (-30C)	2593	5.7	0.002208	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]
3.27	2593	8.6	0.003299	2.5
3.85	2593	6.1	0.002337	2.5
4.43	2593	6.5	0.002490	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	7.2	0.002774	2.5
Extreme (50C)	2593	5.2	0.002019	2.5
Extreme (40C)	2593	5.1	0.001974	2.5
Extreme (30C)	2593	4.8	0.001853	2.5
Extreme (10C)	2593	6.1	0.002351	2.5
Extreme (0C)	2593	4.5	0.001753	2.5
Extreme (-10C)	2593	10.0	0.003855	2.5
Extreme (-20C)	2593	11.3	0.004352	2.5
Extreme (-30C)	2593	5.9	0.002286	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.

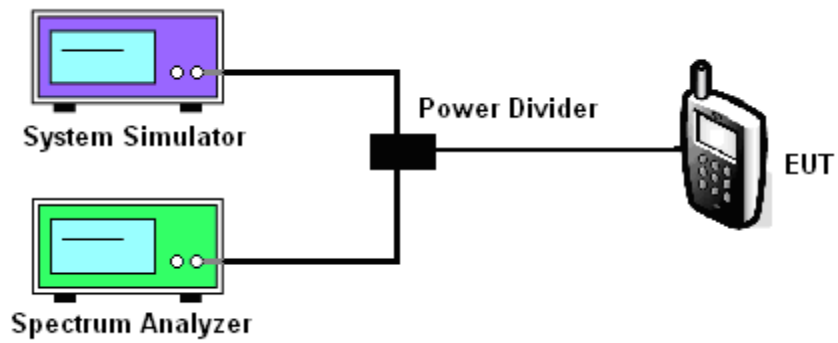
11.2 Measuring Instruments

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 2/4/5/7/12/17/38/41

Test data reference attachment.

-----END OF REPORT-----