

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT FCC ID: 2BAK2-F112PRO

Product: Smartphone

Trade Mark: 

Model No.: F112 Pro

Family Model: F112, F112 S, F112 P

Report No.: S24103102705006

Issue Date: Jan. 08, 2025

Prepared for

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TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Qichang Intelligent Technology Co., Ltd

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Longgang , Shenzhen

Manufacturer's Name..... : Shenzhen Qichang Intelligent Technology Co., Ltd

Address..... : Room 510, Building 7, Yunli Intelligent Park, No. 7, Bantian Street,
Longgang , Shenzhen

Product name..... : Smartphone

Model and/or type reference .. : F112 Pro

Trade Mark..... : 

Family Model..... : F112, F112 S, F112 P

Test Sample Number..... : S241031027006

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..... Nov. 01, 2024 ~ Jan. 07, 2025

Date of Issue Jan. 08, 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:	Smartphone
Trade Mark	
Model Name	F112 Pro
Family Model	F112, F112 S, F112 P
Model Difference	All models have the same circuit and RF module, except for model names and colors.
FCC ID:	2BAK2-F112PRO
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,7,12,13,17,19, 25 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 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 19 Uplink: 830MHz-845MHz, Downlink: 875MHz-890MHz; LTE FDD Band 25 Uplink: 1850MHz-1915MHz, Downlink: 1930MHz-1995MHz; LTE TDD Band 38 Uplink & Downlink: 2570 MHz to 2620 MHz LTE TDD Band 41 Uplink& Downlink: 2496MHz-2690MHz
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:	Band 2: -0.36 dBi, Band 4: -0.38dBi, Band 5: -1.23 dBi, Band 7: 1.26dBi, Band 12: -0.26dBi, Band 13: -0.26dBi, Band 17: -0.26 dBi, Band 19: -1.23dBi, Band25: -0.41dBi, Band 38: 1.26 dBi, Band41: 1.26 dBi;
Adapter	Model: QZ-0180AAA00 Input: 100-240V~50/60Hz 0.5A Output: 5.0V---3.0A 15.0W or 9.0V---2.0A 18.0W or 12.0V---1.5A 18.0W
Battery	DC 3.87V, 7150mAh, 27.67Wh

Power supply	DC 3.87V from battery or DC 5V/9V/12V from adapter
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V) (Note 1)
HW Version	E393 _ MAIN _PCB_V1.1
SW Version	FOSSiBOT_F112 Pro_F
** 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: 2BAK2-F112PRO** 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 expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/13/17/19/25/38/41

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	Smartphone	F112 Pro	FCC ID: 2BAK2-F112PRO	EUT

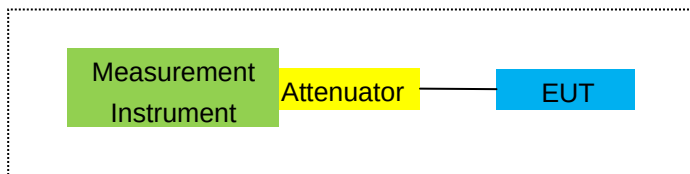
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

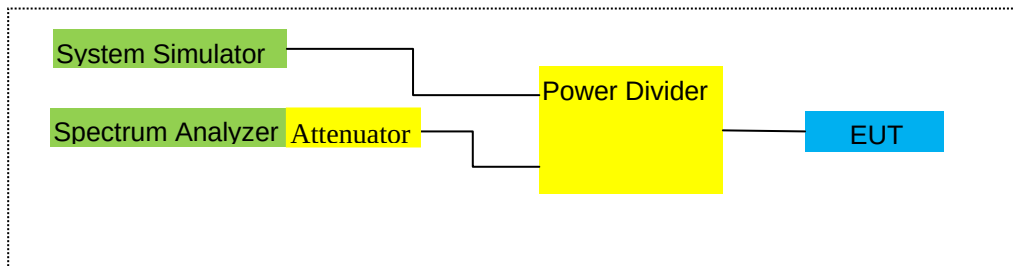
For Radiated Test Cases



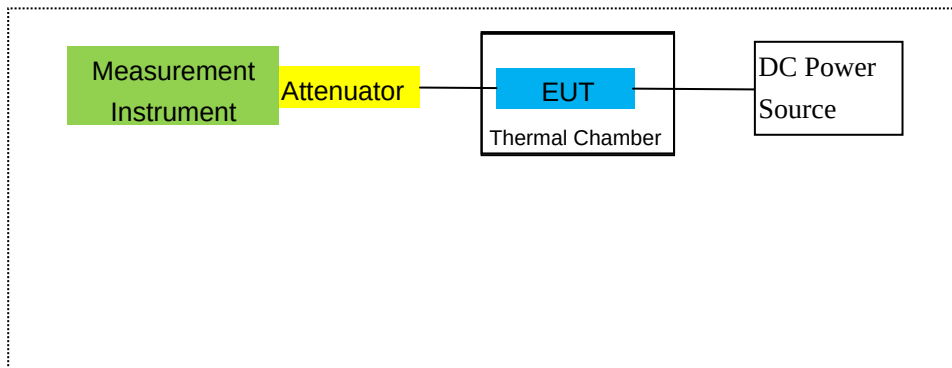
For Conducted Output Power



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	2024.04.25	2027.04.24	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	MWRFTtest	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 2/4/5/7/12/13/17/19/25/38/41

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, and §90.691

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 2/4/5/7/12/13/17/19/25/38/41

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

- ☐ Band 2/4/5/7/12/13/17/19/25/38/41
- ☐

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 and §90.635

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 2/4/5/7/12/13/17/19/25/38/41

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 Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-1.22	3.76	28.24	23.26	211.836	Horizontal	Pass
		1880	-1.12	3.91	28.22	23.19	208.449	Horizontal	Pass
		1909.3	-2.04	3.93	28.20	22.23	167.109	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.09	3.77	28.23	20.37	108.893	Horizontal	Pass
		1880	-3.97	3.91	28.24	20.36	108.643	Horizontal	Pass
		1908.5	-3.97	3.94	28.25	20.34	108.143	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.20	3.77	28.31	20.34	108.143	Horizontal	Pass
		1880	-4.00	3.91	28.22	20.31	107.399	Horizontal	Pass
		1907.5	-3.96	3.94	28.20	20.30	107.152	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.24	3.79	28.33	20.30	107.152	Horizontal	Pass
		1880	-3.98	3.95	28.22	20.29	106.905	Horizontal	Pass
		1905	-3.94	3.97	28.19	20.28	106.660	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.27	3.79	28.34	20.28	106.660	Horizontal	Pass
		1880	-4.00	3.95	28.22	20.27	106.414	Horizontal	Pass
		1902.5	-3.94	3.97	28.18	20.27	106.414	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.31	3.81	28.35	20.23	105.439	Horizontal	Pass
		1880	-4.04	3.96	28.22	20.22	105.196	Horizontal	Pass
		1900	-3.94	4.00	28.16	20.22	105.196	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-4.68	3.76	28.24	19.80	95.499	Vertical	Pass
		1880	-4.13	3.91	28.22	20.18	104.232	Vertical	Pass
		1909.3	-4.45	3.93	28.20	19.82	95.940	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.06	3.77	28.23	20.40	109.648	Vertical	Pass
		1880	-3.95	3.91	28.24	20.38	109.144	Vertical	Pass
		1908.5	-4.02	3.94	28.25	20.29	106.905	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.10	3.77	28.31	20.44	110.662	Vertical	Pass
		1880	-3.81	3.91	28.22	20.50	112.202	Vertical	Pass
		1907.5	-4.38	3.94	28.20	19.88	97.275	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.62	3.79	28.33	19.92	98.175	Vertical	Pass
		1880	-3.88	3.95	28.22	20.39	109.396	Vertical	Pass
		1905	-3.78	3.97	28.19	20.44	110.662	Vertical	Pass
15.0MHz Band	1/#Mid	1857.5	-4.40	3.79	28.34	20.15	103.514	Vertical	Pass
		1880	-4.50	3.95	28.22	19.77	94.842	Vertical	Pass

QPSK		1902.5	-4.39	3.97	28.18	19.82	95.940	Vertical	Pass
20.0MHz	1/#Mid	1860	-4.54	3.81	28.35	20.00	100.000	Vertical	Pass
Band		1880	-4.52	3.96	28.22	19.74	94.189	Vertical	Pass
QPSK		1900	-3.71	4.00	28.16	20.45	110.917	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-2.06	3.76	28.24	22.42	174.582	Horizontal	Pass
		1880	-2.01	3.91	28.22	22.30	169.824	Horizontal	Pass
		1909.3	-3.67	3.93	28.20	20.60	114.815	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.86	3.77	28.23	20.60	114.815	Horizontal	Pass
		1880	-3.75	3.91	28.24	20.58	114.288	Horizontal	Pass
		1908.5	-3.73	3.94	28.25	20.58	114.288	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.96	3.77	28.31	20.58	114.288	Horizontal	Pass
		1880	-3.77	3.91	28.22	20.54	113.240	Horizontal	Pass
		1907.5	-3.72	3.94	28.20	20.54	113.240	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.02	3.79	28.33	20.52	112.720	Horizontal	Pass
		1880	-3.75	3.95	28.22	20.52	112.720	Horizontal	Pass
		1905	-3.73	3.97	28.19	20.49	111.944	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.06	3.79	28.34	20.49	111.944	Horizontal	Pass
		1880	-3.80	3.95	28.22	20.47	111.429	Horizontal	Pass
		1902.5	-3.74	3.97	28.18	20.47	111.429	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.08	3.81	28.35	20.46	111.173	Horizontal	Pass
		1880	-3.82	3.96	28.22	20.44	110.662	Horizontal	Pass
		1900	-3.72	4.00	28.16	20.44	110.662	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.68	3.76	28.24	19.80	95.499	Vertical	Pass
		1880	-3.96	3.91	28.22	20.35	108.393	Vertical	Pass
		1909.3	-4.57	3.93	28.20	19.70	93.325	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.34	3.77	28.23	20.12	102.802	Vertical	Pass
		1880	-3.86	3.91	28.24	20.47	111.429	Vertical	Pass
		1908.5	-4.15	3.94	28.25	20.16	103.753	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.19	3.77	28.31	20.35	108.393	Vertical	Pass
		1880	-4.62	3.91	28.22	19.69	93.111	Vertical	Pass
		1907.5	-3.98	3.94	28.20	20.28	106.660	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.73	3.79	28.33	19.81	95.719	Vertical	Pass
		1880	-4.24	3.95	28.22	20.03	100.693	Vertical	Pass
		1905	-4.49	3.97	28.19	19.73	93.972	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.28	3.79	28.34	20.27	106.414	Vertical	Pass
		1880	-4.52	3.95	28.22	19.75	94.406	Vertical	Pass
		1902.5	-3.99	3.97	28.18	20.22	105.196	Vertical	Pass

20.0MHz	1/#Mid	1860	-4.39	3.81	28.35	20.15	103.514	Vertical	Pass
Band 16		1880	-4.14	3.96	28.22	20.12	102.802	Vertical	Pass
QAM		1900	-4.30	4.00	28.16	19.86	96.828	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 Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-1.66	3.12	27.58	22.80	190.546	Horizontal	Pass
		1732.5	-4.48	3.27	27.61	19.86	96.828	Horizontal	Pass
		1754.3	-4.48	3.29	27.63	19.86	96.828	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.71	3.13	27.61	19.77	94.842	Horizontal	Pass
		1732.5	-4.43	3.27	27.61	19.91	97.949	Horizontal	Pass
		1753.5	-4.45	3.30	27.62	19.87	97.051	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.71	3.13	27.63	19.79	95.280	Horizontal	Pass
		1732.5	-4.42	3.27	27.61	19.92	98.175	Horizontal	Pass
		1752.5	-4.34	3.30	27.60	19.96	99.083	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.73	3.15	27.64	19.76	94.624	Horizontal	Pass
		1732.5	-4.42	3.31	27.61	19.88	97.275	Horizontal	Pass
		1750	-4.44	3.33	27.59	19.82	95.940	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.75	3.15	27.65	19.75	94.406	Horizontal	Pass
		1732.5	-4.87	3.31	27.61	19.43	87.700	Horizontal	Pass
		1747.5	-4.37	3.33	27.57	19.87	97.051	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.76	3.17	27.66	19.73	93.972	Horizontal	Pass
		1732.5	-3.88	3.32	27.61	20.41	109.901	Horizontal	Pass
		1745	-4.25	3.36	27.56	19.95	98.855	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-4.43	3.12	27.58	20.03	100.693	Vertical	Pass
		1732.5	-3.75	3.27	27.61	20.59	114.551	Vertical	Pass
		1754.3	-4.54	3.29	27.63	19.80	95.499	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.71	3.13	27.61	19.77	94.842	Vertical	Pass
		1732.5	-3.79	3.27	27.61	20.55	113.501	Vertical	Pass
		1753.5	-3.92	3.30	27.62	20.40	109.648	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.05	3.13	27.63	20.45	110.917	Vertical	Pass
		1732.5	-4.34	3.27	27.61	20.00	100.000	Vertical	Pass
		1752.5	-4.06	3.30	27.60	20.24	105.682	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.03	3.15	27.64	20.46	111.173	Vertical	Pass
		1732.5	-4.51	3.31	27.61	19.79	95.280	Vertical	Pass
		1750	-4.05	3.33	27.59	20.21	104.954	Vertical	Pass

15.0MHz	1/#Mid	1717.5	-3.96	3.15	27.65	20.54	113.240	Vertical	Pass
Band		1732.5	-3.99	3.31	27.61	20.31	107.399	Vertical	Pass
QPSK		1747.5	-4.59	3.33	27.57	19.65	92.257	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.65	3.17	27.66	19.84	96.383	Vertical	Pass
Band		1732.5	-4.43	3.32	27.61	19.86	96.828	Vertical	Pass
QPSK		1745	-3.75	3.36	27.56	20.45	110.917	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-2.48	3.12	27.58	21.98	157.761	Horizontal	Pass
		1732.5	-4.15	3.27	27.61	20.19	104.472	Horizontal	Pass
		1754.3	-4.17	3.29	27.63	20.17	103.992	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.51	3.13	27.61	19.97	99.312	Horizontal	Pass
		1732.5	-4.23	3.27	27.61	20.11	102.565	Horizontal	Pass
		1753.5	-4.26	3.30	27.62	20.06	101.391	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.31	3.13	27.63	20.19	104.472	Horizontal	Pass
		1732.5	-4.13	3.27	27.61	20.21	104.954	Horizontal	Pass
		1752.5	-4.07	3.30	27.60	20.23	105.439	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.42	3.15	27.64	20.07	101.625	Horizontal	Pass
		1732.5	-4.16	3.31	27.61	20.14	103.276	Horizontal	Pass
		1750	-4.23	3.33	27.59	20.03	100.693	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.60	3.15	27.65	19.90	97.724	Horizontal	Pass
		1732.5	-4.60	3.31	27.61	19.70	93.325	Horizontal	Pass
		1747.5	-4.10	3.33	27.57	20.14	103.276	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.03	3.17	27.66	20.46	111.173	Horizontal	Pass
		1732.5	-4.13	3.32	27.61	20.16	103.753	Horizontal	Pass
		1745	-4.13	3.36	27.56	20.07	101.625	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.55	3.12	27.58	19.91	97.949	Vertical	Pass
		1732.5	-4.60	3.27	27.61	19.74	94.189	Vertical	Pass
		1754.3	-4.07	3.29	27.63	20.27	106.414	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.04	3.13	27.61	20.44	110.662	Vertical	Pass
		1732.5	-4.35	3.27	27.61	19.99	99.770	Vertical	Pass
		1753.5	-4.63	3.30	27.62	19.69	93.111	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.03	3.13	27.63	20.47	111.429	Vertical	Pass
		1732.5	-4.05	3.27	27.61	20.29	106.905	Vertical	Pass
		1752.5	-4.32	3.30	27.60	19.98	99.541	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.74	3.15	27.64	19.75	94.406	Vertical	Pass
		1732.5	-4.41	3.31	27.61	19.89	97.499	Vertical	Pass
		1750	-3.97	3.33	27.59	20.29	106.905	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.60	3.15	27.65	19.90	97.724	Vertical	Pass
		1732.5	-4.47	3.31	27.61	19.83	96.161	Vertical	Pass
		1747.5	-4.07	3.33	27.57	20.17	103.992	Vertical	Pass

20.0MHz	1/#Mid	1720	-4.00	3.17	27.66	20.49	111.944	Vertical	Pass
Band 16		1732.5	-4.43	3.32	27.61	19.86	96.828	Vertical	Pass
QAM		1745	-3.84	3.36	27.56	20.36	108.643	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 Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	3.53	2.01	19.68	2.15	19.05	80.353	Horizontal	Pass
		836.5	2.97	2.01	19.77	2.15	18.58	72.111	Horizontal	Pass
		848.3	2.93	2.02	19.82	2.15	18.58	72.111	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.05	2.01	19.70	2.15	18.59	72.277	Horizontal	Pass
		836.5	2.97	2.01	19.77	2.15	18.58	72.111	Horizontal	Pass
		847.5	2.90	2.02	19.81	2.15	18.54	71.450	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	3.54	2.01	19.71	2.15	19.09	81.096	Horizontal	Pass
		836.5	3.06	2.01	19.77	2.15	18.67	73.621	Horizontal	Pass
		846.5	2.98	2.02	19.79	2.15	18.60	72.444	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	3.02	2.01	19.73	2.15	18.59	72.277	Horizontal	Pass
		836.5	3.02	2.01	19.77	2.15	18.63	72.946	Horizontal	Pass
		844	2.98	2.02	19.78	2.15	18.59	72.277	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	1.45	2.01	19.68	2.15	16.97	49.774	Vertical	Pass
		836.5	1.73	2.01	19.77	2.15	17.34	54.200	Vertical	Pass
		848.3	1.13	2.02	19.82	2.15	16.78	47.643	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	1.74	2.01	19.70	2.15	17.28	53.456	Vertical	Pass
		836.5	1.96	2.01	19.77	2.15	17.57	57.148	Vertical	Pass
		847.5	2.02	2.02	19.81	2.15	17.66	58.345	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	1.50	2.01	19.71	2.15	17.05	50.699	Vertical	Pass
		836.5	1.87	2.01	19.77	2.15	17.48	55.976	Vertical	Pass
		846.5	1.75	2.02	19.79	2.15	17.37	54.576	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	1.74	2.01	19.73	2.15	17.31	53.827	Vertical	Pass
		836.5	2.14	2.01	19.77	2.15	17.75	59.566	Vertical	Pass
		844	1.26	2.02	19.78	2.15	16.87	48.641	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/#Mid	824.7	3.91	2.01	19.68	2.15	19.43	87.700	Horizontal	Pass
		836.5	3.79	2.01	19.77	2.15	19.40	87.096	Horizontal	Pass
		848.3	3.23	2.02	19.82	2.15	18.88	77.268	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.39	2.01	19.70	2.15	18.93	78.163	Horizontal	Pass
		836.5	3.29	2.01	19.77	2.15	18.90	77.625	Horizontal	Pass
		847.5	3.24	2.02	19.81	2.15	18.88	77.268	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.29	2.01	19.71	2.15	18.84	76.560	Horizontal	Pass
		836.5	3.37	2.01	19.77	2.15	18.98	79.068	Horizontal	Pass
		846.5	3.31	2.02	19.79	2.15	18.93	78.163	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.35	2.01	19.73	2.15	18.92	77.983	Horizontal	Pass
		836.5	3.34	2.01	19.77	2.15	18.95	78.524	Horizontal	Pass
		844	3.25	2.02	19.78	2.15	18.86	76.913	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	1.75	2.01	19.68	2.15	17.27	53.333	Vertical	Pass
		836.5	1.96	2.01	19.77	2.15	17.57	57.148	Vertical	Pass
		848.3	1.33	2.02	19.82	2.15	16.98	49.888	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	1.50	2.01	19.70	2.15	17.04	50.582	Vertical	Pass
		836.5	2.07	2.01	19.77	2.15	17.68	58.614	Vertical	Pass
		847.5	1.40	2.02	19.81	2.15	17.04	50.582	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	1.95	2.01	19.71	2.15	17.50	56.234	Vertical	Pass
		836.5	1.47	2.01	19.77	2.15	17.08	51.050	Vertical	Pass
		846.5	1.32	2.02	19.79	2.15	16.94	49.431	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	1.76	2.01	19.73	2.15	17.33	54.075	Vertical	Pass
		836.5	1.78	2.01	19.77	2.15	17.39	54.828	Vertical	Pass
		844	1.86	2.02	19.78	2.15	17.47	55.847	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 Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	-1.70	4.54	27.75	21.51	141.579	Horizontal	Pass
		2535	-1.25	4.69	27.72	21.78	150.661	Horizontal	Pass
		2567.5	-1.18	4.71	27.71	21.82	152.055	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-1.64	4.55	27.76	21.57	143.549	Horizontal	Pass
		2535	-1.21	4.69	27.72	21.82	152.055	Horizontal	Pass
		2565	-1.10	4.72	27.70	21.88	154.170	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-1.57	4.55	27.77	21.65	146.218	Horizontal	Pass
		2535	-1.16	4.69	27.72	21.87	153.815	Horizontal	Pass
		2562.5	-0.55	4.72	27.69	22.42	174.582	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.56	4.57	27.78	21.65	146.218	Horizontal	Pass
		2535	-1.13	4.73	27.72	21.86	153.462	Horizontal	Pass
		2560	-1.06	4.75	27.68	21.87	153.815	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-2.16	4.54	27.75	21.05	127.350	Vertical	Pass
		2535	-2.32	4.69	27.72	20.71	117.761	Vertical	Pass
		2567.5	-2.02	4.71	27.71	20.98	125.314	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.30	4.55	27.76	20.91	123.310	Vertical	Pass
		2535	-2.50	4.69	27.72	20.53	112.980	Vertical	Pass
		2565	-2.00	4.72	27.70	20.98	125.314	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.48	4.55	27.77	20.74	118.577	Vertical	Pass
		2535	-2.22	4.69	27.72	20.81	120.504	Vertical	Pass
		2562.5	-2.48	4.72	27.69	20.49	111.944	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.20	4.57	27.78	21.01	126.183	Vertical	Pass
		2535	-2.58	4.73	27.72	20.41	109.901	Vertical	Pass
		2560	-1.95	4.75	27.68	20.98	125.314	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.30	4.54	27.75	21.91	155.239	Horizontal	Pass
		2535	-0.87	4.69	27.72	22.16	164.437	Horizontal	Pass
		2567.5	-0.77	4.71	27.71	22.23	167.109	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.19	4.55	27.76	22.02	159.221	Horizontal	Pass
		2535	-0.81	4.69	27.72	22.22	166.725	Horizontal	Pass
		2565	-0.76	4.72	27.70	22.22	166.725	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.33	4.55	27.77	21.89	154.525	Horizontal	Pass
		2535	-0.77	4.69	27.72	22.26	168.267	Horizontal	Pass
		2562.5	-0.89	4.72	27.69	22.08	161.436	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-1.19	4.57	27.78	22.02	159.221	Horizontal	Pass
		2535	-0.80	4.73	27.72	22.19	165.577	Horizontal	Pass
		2560	-0.66	4.75	27.68	22.27	168.655	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-2.87	4.54	27.75	20.34	108.143	Vertical	Pass
		2535	-1.80	4.69	27.72	21.23	132.739	Vertical	Pass
		2567.5	-2.09	4.71	27.71	20.91	123.310	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.64	4.55	27.76	20.57	114.025	Vertical	Pass
		2535	-2.29	4.69	27.72	20.74	118.577	Vertical	Pass
		2565	-1.93	4.72	27.70	21.05	127.350	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.71	4.55	27.77	20.51	112.460	Vertical	Pass
		2535	-2.36	4.69	27.72	20.67	116.681	Vertical	Pass
		2562.5	-2.59	4.72	27.69	20.38	109.144	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.14	4.57	27.78	21.07	127.938	Vertical	Pass
		2535	-2.25	4.73	27.72	20.74	118.577	Vertical	Pass
		2560	-2.12	4.75	27.68	20.81	120.504	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 Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	8	1.91	19.21	2.15	23.15	206.538	Horizontal	Pass
		707.5	4.91	1.91	19.26	2.15	20.11	102.565	Horizontal	Pass
		715.3	4.75	1.93	19.34	2.15	20.01	100.231	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.52	1.91	19.21	2.15	19.67	92.683	Horizontal	Pass
		707.5	4.36	1.91	19.26	2.15	19.56	90.365	Horizontal	Pass
		714.5	4.2	1.93	19.34	2.15	19.46	88.308	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	4.56	1.91	19.23	2.15	19.73	93.972	Horizontal	Pass
		707.5	4.42	1.91	19.26	2.15	19.62	91.622	Horizontal	Pass
		713.5	4.28	1.92	19.33	2.15	19.54	89.950	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	4.43	1.91	19.25	2.15	19.62	91.622	Horizontal	Pass
		707.5	4.41	1.91	19.26	2.15	19.61	91.411	Horizontal	Pass
		711	4.35	1.92	19.32	2.15	19.60	91.201	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	699.7	2.83	1.91	19.21	2.15	17.98	62.806	Vertical	Pass
		707.5	2.7	1.91	19.26	2.15	17.90	61.660	Vertical	Pass
		715.3	3.45	1.93	19.34	2.15	18.71	74.302	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	2.91	1.91	19.21	2.15	18.06	63.973	Vertical	Pass
		707.5	3.47	1.91	19.26	2.15	18.67	73.621	Vertical	Pass
		714.5	3.08	1.93	19.34	2.15	18.34	68.234	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	3	1.91	19.23	2.15	18.17	65.615	Vertical	Pass
		707.5	3.13	1.91	19.26	2.15	18.33	68.077	Vertical	Pass
		713.5	3.34	1.92	19.33	2.15	18.60	72.444	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	3.09	1.91	19.25	2.15	18.28	67.298	Vertical	Pass
		707.5	3.1	1.91	19.26	2.15	18.30	67.608	Vertical	Pass
		711	3.32	1.92	19.32	2.15	18.57	71.945	Vertical	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	5.18	1.91	19.21	2.15	20.33	107.895	Horizontal	Pass
		707.5	5.1	1.91	19.26	2.15	20.30	107.152	Horizontal	Pass
		715.3	4.51	1.93	19.34	2.15	19.77	94.842	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.81	1.91	19.21	2.15	19.96	99.083	Horizontal	Pass
		707.5	4.73	1.91	19.26	2.15	19.93	98.401	Horizontal	Pass
		714.5	4.48	1.93	19.34	2.15	19.74	94.189	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	4.72	1.91	19.23	2.15	19.89	97.499	Horizontal	Pass
		707.5	4.76	1.91	19.26	2.15	19.96	99.083	Horizontal	Pass
		713.5	4.64	1.92	19.33	2.15	19.90	97.724	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.65	1.91	19.25	2.15	19.84	96.383	Horizontal	Pass
		707.5	4.76	1.91	19.26	2.15	19.96	99.083	Horizontal	Pass
		711	4.73	1.92	19.32	2.15	19.98	99.541	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	2.83	1.91	19.21	2.15	17.98	62.806	Vertical	Pass
		707.5	2.59	1.91	19.26	2.15	17.79	60.117	Vertical	Pass
		715.3	2.78	1.93	19.34	2.15	18.04	63.680	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	2.59	1.91	19.21	2.15	17.74	59.429	Vertical	Pass
		707.5	2.65	1.91	19.26	2.15	17.85	60.954	Vertical	Pass
		714.5	3.46	1.93	19.34	2.15	18.72	74.473	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	3.16	1.91	19.23	2.15	18.33	68.077	Vertical	Pass
		707.5	3.5	1.91	19.26	2.15	18.70	74.131	Vertical	Pass
		713.5	3.21	1.92	19.33	2.15	18.47	70.307	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	3.32	1.91	19.25	2.15	18.51	70.958	Vertical	Pass
		707.5	3.25	1.91	19.26	2.15	18.45	69.984	Vertical	Pass
		711	2.54	1.92	19.32	2.15	17.79	60.117	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	779.5	7.07	2.02	19.75	2.15	22.65	184.077	Horizontal	Pass
		782	6.95	2.02	19.83	2.15	22.61	182.390	Horizontal	Pass
		784.5	6.78	2.03	19.94	2.15	22.54	179.473	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	782	6.89	2.02	19.83	2.15	22.55	179.887	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	779.5	4.67	2.02	19.75	2.15	20.25	105.925	Vertical	Pass
		782	4.09	2.02	19.83	2.15	19.75	94.406	Vertical	Pass
		784.5	4.02	2.03	19.94	2.15	19.78	95.060	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	782	4.21	2.02	19.83	2.15	19.87	97.051	Horizontal	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	779.5	6.30	2.02	19.75	2.15	21.88	154.170	Horizontal	Pass
		782	6.26	2.02	19.83	2.15	21.92	155.597	Horizontal	Pass
		784.5	6.13	2.03	19.92	2.15	21.87	153.815	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	782	6.79	2.02	19.84	2.15	22.46	176.198	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	779.5	4.83	2.02	19.75	2.15	20.41	109.901	Vertical	Pass
		782	4.62	2.02	19.83	2.15	20.28	106.660	Vertical	Pass
		784.5	4.57	2.03	19.94	2.15	20.33	107.895	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	782	4.51	2.02	19.83	2.15	20.17	103.992	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

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	4.95	1.91	19.23	2.15	20.12	102.802	Horizontal	Pass
		710	4.60	1.91	19.26	2.15	19.80	95.499	Horizontal	Pass
		713.5	4.30	1.92	19.33	2.15	19.56	90.365	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	4.46	1.91	19.25	2.15	19.65	92.257	Horizontal	Pass
		710	4.39	1.91	19.26	2.15	19.59	90.991	Horizontal	Pass
		711	4.33	1.92	19.32	2.15	19.58	90.782	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	706.5	2.65	1.91	19.23	2.15	17.82	60.534	Vertical	Pass
		710	2.63	1.91	19.26	2.15	17.83	60.674	Vertical	Pass
		713.5	3.14	1.92	19.33	2.15	18.40	69.183	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	3.23	1.91	19.25	2.15	18.42	69.502	Vertical	Pass
		710	2.90	1.91	19.26	2.15	18.10	64.565	Vertical	Pass
		711	2.90	1.92	19.32	2.15	18.15	65.313	Vertical	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	5.13	1.91	19.23	2.15	20.30	107.152	Horizontal	Pass
		710	4.74	1.91	19.26	2.15	19.94	98.628	Horizontal	Pass
		713.5	4.61	1.92	19.33	2.15	19.87	97.051	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	4.77	1.91	19.25	2.15	19.96	99.083	Horizontal	Pass
		710	4.79	1.91	19.26	2.15	19.99	99.770	Horizontal	Pass
		711	4.61	1.92	19.32	2.15	19.86	96.828	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	3.12	1.91	19.23	2.15	18.29	67.453	Vertical	Pass
		710	3.03	1.91	19.26	2.15	18.23	66.527	Vertical	Pass
		713.5	2.95	1.92	19.33	2.15	18.21	66.222	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	2.63	1.91	19.25	2.15	17.82	60.534	Vertical	Pass
		710	3.06	1.91	19.26	2.15	18.26	66.988	Vertical	Pass
		711	2.54	1.92	19.32	2.15	17.79	60.117	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.9 LTE BAND 19

Radiated Power (ERP) for Band 19										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	832.5	6.53	2.02	19.78	2.15	22.14	163.682	Horizontal	Pass
		837.5	6.55	2.02	19.85	2.15	22.23	167.109	Horizontal	Pass
		842.5	6.33	2.03	19.99	2.15	22.14	163.682	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	835	6.37	2.02	19.84	2.15	22.04	159.956	Horizontal	Pass
		837.5	4.51	2.02	19.85	2.15	20.19	104.472	Horizontal	Pass
		840	3.39	2.03	19.96	2.15	19.17	82.604	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	837.5	3.62	2.02	19.85	2.15	19.30	85.114	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	832.5	3.25	2.02	19.78	2.15	18.86	76.913	Vertical	Pass
		837.5	3.10	2.02	19.85	2.15	18.78	75.509	Vertical	Pass
		842.5	3.05	2.03	19.99	2.15	18.86	76.913	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	835	3.74	2.02	19.84	2.15	19.41	87.297	Vertical	Pass
		837.5	4.07	2.02	19.85	2.15	19.75	94.406	Vertical	Pass
		840	3.20	2.03	19.96	2.15	18.98	79.068	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	837.5	3.36	2.02	19.85	2.15	19.04	80.168	Horizontal	Pass

Radiated Power (ERP) for Band 19										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	832.5	5.66	2.02	19.78	2.15	21.27	133.968	Horizontal	Pass
		837.5	5.78	2.02	19.85	2.15	21.46	139.959	Horizontal	Pass
		842.5	5.50	2.03	19.99	2.15	21.31	135.207	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	835	4.71	2.02	19.84	2.15	20.38	109.144	Horizontal	Pass
		837.5	3.78	2.02	19.85	2.15	19.46	88.308	Horizontal	Pass
		840	3.69	2.03	19.96	2.15	19.47	88.512	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	837.5	3.88	2.02	19.85	2.15	19.56	90.365	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	832.5	3.18	2.02	19.78	2.15	18.79	75.683	Vertical	Pass
		837.5	3.98	2.02	19.85	2.15	19.66	92.470	Vertical	Pass
		842.5	3.69	2.03	19.99	2.15	19.50	89.125	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	835	3.18	2.02	19.84	2.15	18.85	76.736	Vertical	Pass
		837.5	3.16	2.02	19.85	2.15	18.84	76.560	Vertical	Pass
		840	3.91	2.03	19.96	2.15	19.69	93.111	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	837.5	3.90	2.02	19.85	2.15	19.58	90.782	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.10 LTE BAND 25

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-1.29	3.12	27.58	23.17	207.491	Horizontal	Pass
		1882.5	-4.25	3.27	27.61	20.09	102.094	Horizontal	Pass
		1914.3	-4.23	3.29	27.63	20.11	102.565	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.41	3.13	27.61	20.07	101.625	Horizontal	Pass
		1882.5	-4.27	3.27	27.61	20.07	101.625	Horizontal	Pass
		1753.5	-4.33	3.30	27.62	19.99	99.770	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.29	3.13	27.63	20.21	104.954	Horizontal	Pass
		1882.5	-4.11	3.27	27.61	20.23	105.439	Horizontal	Pass
		1912.5	-4.14	3.30	27.60	20.16	103.753	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.75	3.15	27.64	19.74	94.189	Horizontal	Pass
		1882.5	-4.39	3.31	27.61	19.91	97.949	Horizontal	Pass
		1910	-4.53	3.33	27.59	19.73	93.972	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.76	3.15	27.65	19.74	94.189	Horizontal	Pass
		1882.5	-4.51	3.31	27.61	19.79	95.280	Horizontal	Pass
		1907.5	-4.51	3.33	27.57	19.73	93.972	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.78	3.17	27.66	19.71	93.541	Horizontal	Pass
		1882.5	-4.51	3.32	27.61	19.78	95.060	Horizontal	Pass
		1905	-4.06	3.36	27.56	20.14	103.276	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-5.30	3.12	27.58	19.16	82.414	Vertical	Pass
		1882.5	-5.43	3.27	27.61	18.91	77.804	Vertical	Pass
		1914.3	-4.95	3.29	27.63	19.39	86.896	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.26	3.13	27.61	19.22	83.560	Vertical	Pass
		1882.5	-5.31	3.27	27.61	19.03	79.983	Vertical	Pass
		1753.5	-5.06	3.30	27.62	19.26	84.333	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.70	3.13	27.63	18.80	75.858	Vertical	Pass
		1882.5	-4.82	3.27	27.61	19.52	89.536	Vertical	Pass
		1912.5	-4.94	3.30	27.60	19.36	86.298	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-5.40	3.15	27.64	19.09	81.096	Vertical	Pass
		1882.5	-4.95	3.31	27.61	19.35	86.099	Vertical	Pass
		1910	-5.35	3.33	27.59	18.91	77.804	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	-5.71	3.15	27.65	18.79	75.683	Vertical	Pass
		1882.5	-5.21	3.31	27.61	19.09	81.096	Vertical	Pass
		1907.5	-5.54	3.33	27.57	18.70	74.131	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-5.84	3.17	27.66	18.65	73.282	Vertical	Pass
		1882.5	-5.19	3.32	27.61	19.10	81.283	Vertical	Pass
		1905	-5.45	3.36	27.56	18.75	74.989	Vertical	Pass

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-2.99	3.12	27.58	21.47	140.281	Horizontal	Pass
		1882.5	-3.95	3.27	27.61	20.39	109.396	Horizontal	Pass
		1914.3	-4.08	3.29	27.63	20.26	106.170	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.21	3.13	27.61	20.27	106.414	Horizontal	Pass
		1882.5	-4.02	3.27	27.61	20.32	107.647	Horizontal	Pass
		1753.5	-4.18	3.30	27.62	20.14	103.276	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.07	3.13	27.63	20.43	110.408	Horizontal	Pass
		1882.5	-4.01	3.27	27.61	20.33	107.895	Horizontal	Pass
		1912.5	-3.88	3.30	27.60	20.42	110.154	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.11	3.15	27.64	20.38	109.144	Horizontal	Pass
		1882.5	-3.88	3.31	27.61	20.42	110.154	Horizontal	Pass
		1910	-4.26	3.33	27.59	20.00	100.000	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.59	3.15	27.65	19.91	97.949	Horizontal	Pass
		1882.5	-4.42	3.31	27.61	19.88	97.275	Horizontal	Pass
		1907.5	-4.21	3.33	27.57	20.03	100.693	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.04	3.17	27.66	20.45	110.917	Horizontal	Pass
		1882.5	-4.26	3.32	27.61	20.03	100.693	Horizontal	Pass
		1905	-4.21	3.36	27.56	19.99	99.770	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.20	3.12	27.58	19.26	84.333	Vertical	Pass
		1882.5	-4.96	3.27	27.61	19.38	86.696	Vertical	Pass
		1914.3	-5.29	3.29	27.63	19.05	80.353	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.19	3.13	27.61	19.29	84.918	Vertical	Pass
		1882.5	-5.48	3.27	27.61	18.86	76.913	Vertical	Pass
		1753.5	-5.39	3.30	27.62	18.93	78.163	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.67	3.13	27.63	18.83	76.384	Vertical	Pass
		1882.5	-5.72	3.27	27.61	18.62	72.778	Vertical	Pass
		1912.5	-5.35	3.30	27.60	18.95	78.524	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.08	3.15	27.64	19.41	87.297	Vertical	Pass
		1882.5	-4.81	3.31	27.61	19.49	88.920	Vertical	Pass
		1910	-5.63	3.33	27.59	18.63	72.946	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.27	3.15	27.65	19.23	83.753	Vertical	Pass
		1882.5	-4.83	3.31	27.61	19.47	88.512	Vertical	Pass
		1907.5	-4.78	3.33	27.57	19.46	88.308	Vertical	Pass

20.0MHz	1/#Mid	1860	-5.56	3.17	27.66	18.93	78.163	Vertical	Pass
Band 16		1882.5	-5.56	3.32	27.61	18.73	74.645	Vertical	Pass
QAM		1905	-5.04	3.36	27.56	19.16	82.414	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.11 LTE BAND 38

Radiated Power (EIRP) for Band38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP	Max. EIRP Average (mW)	Polarization Of Max. ERP	
						Average			
						(dBm)			
5.0MHz Band QPSK	25/0	2572.5	22.43	4.54	9.00	26.89	488.65	Horizontal	Pass
		2595	22.54	4.69	9.00	26.85	484.17	Horizontal	Pass
		2617.5	22.60	4.71	9.00	26.89	488.65	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	22.49	4.55	9.00	26.94	494.31	Horizontal	Pass
		2595	22.59	4.69	9.00	26.90	489.78	Horizontal	Pass
		2615	22.69	4.72	9.00	26.97	497.74	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	22.58	4.55	9.00	27.03	504.66	Horizontal	Pass
		2595	22.63	4.69	9.00	26.94	494.31	Horizontal	Pass
		2612.5	22.71	4.72	9.00	26.99	500.03	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	22.63	4.57	9.00	27.06	508.16	Horizontal	Pass
		2595	22.69	4.73	9.00	26.96	496.59	Horizontal	Pass
		2610	22.73	4.75	9.00	26.98	498.88	Horizontal	Pass
5.0MHz Band QPSK	25/0	2572.5	21.67	4.54	9.00	26.13	410.20	Vertical	Pass
		2595	21.72	4.69	9.00	26.03	400.87	Vertical	Pass
		2617.5	21.03	4.71	9.00	25.32	340.41	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	21.62	4.55	9.00	26.07	404.58	Vertical	Pass
		2595	21.21	4.69	9.00	25.52	356.45	Vertical	Pass
		2615	21.02	4.72	9.00	25.30	338.84	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	21.45	4.55	9.00	25.90	389.05	Vertical	Pass
		2595	21.43	4.69	9.00	25.74	374.97	Vertical	Pass
		2612.5	21.12	4.72	9.00	25.40	346.74	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	21.51	4.57	9.00	25.94	392.64	Vertical	Pass
		2595	21.91	4.73	9.00	26.18	414.95	Vertical	Pass
		2610	21.91	4.75	9.00	26.16	413.05	Vertical	Pass

Radiated Power (EIRP) for Band38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	2572.5	21.68	4.54	9.00	26.14	411.15	Horizontal	Pass
		2595	21.78	4.69	9.00	26.09	406.44	Horizontal	Pass
		2617.5	21.81	4.71	9.00	26.10	407.38	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	21.75	4.55	9.00	26.20	416.87	Horizontal	Pass
		2595	21.82	4.69	9.00	26.13	410.20	Horizontal	Pass
		2615	21.97	4.72	9.00	26.25	421.70	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	21.86	4.55	9.00	26.31	427.56	Horizontal	Pass
		2595	21.86	4.69	9.00	26.17	414.00	Horizontal	Pass
		2612.5	21.96	4.72	9.00	26.24	420.73	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	21.87	4.57	9.00	26.30	426.58	Horizontal	Pass
		2595	21.91	4.73	9.00	26.18	414.95	Horizontal	Pass
		2610	21.97	4.75	9.00	26.22	418.79	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	20.22	4.54	9.00	24.68	293.76	Vertical	Pass
		2595	20.67	4.69	9.00	24.98	314.77	Vertical	Pass
		2617.5	20.19	4.71	9.00	24.48	280.54	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	19.92	4.55	9.00	24.37	273.53	Vertical	Pass
		2595	20.16	4.69	9.00	24.47	279.90	Vertical	Pass
		2615	20.33	4.72	9.00	24.61	289.07	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	20.40	4.55	9.00	24.85	305.49	Vertical	Pass
		2595	20.11	4.69	9.00	24.42	276.69	Vertical	Pass
		2612.5	20.37	4.72	9.00	24.65	291.74	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	19.96	4.57	9.00	24.39	274.79	Vertical	Pass
		2595	20.13	4.73	9.00	24.40	275.42	Vertical	Pass
		2610	20.28	4.75	9.00	24.53	283.79	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.12 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	2537.5	4.67	4.54	27.75	27.88	613.762	Horizontal	Pass
		2595	5.47	4.69	27.72	28.50	707.946	Horizontal	Pass
		2652.5	5.69	4.71	27.71	28.69	739.605	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2540	4.76	4.55	27.76	27.97	626.614	Horizontal	Pass
		2595	5.52	4.69	27.72	28.55	716.143	Horizontal	Pass
		2650	5.71	4.72	27.70	28.69	739.605	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	4.91	4.55	27.77	28.13	650.130	Horizontal	Pass
		2595	5.55	4.69	27.72	28.58	721.107	Horizontal	Pass
		2647.5	5.65	4.72	27.69	28.62	727.780	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2545	4.95	4.57	27.78	28.16	654.636	Horizontal	Pass
		2595	5.64	4.73	27.72	28.63	729.458	Horizontal	Pass
		2645	5.63	4.75	27.68	28.56	717.794	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2537.5	3.08	4.54	27.75	26.29	425.598	Vertical	Pass
		2595	3.62	4.69	27.72	26.65	462.381	Vertical	Pass
		2652.5	3.96	4.71	27.71	26.96	496.592	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2540	4.02	4.55	27.76	27.23	528.445	Vertical	Pass
		2595	3.89	4.69	27.72	26.92	492.040	Vertical	Pass
		2650	4.16	4.72	27.70	27.14	517.607	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	3.59	4.55	27.77	26.81	479.733	Vertical	Pass
		2595	3.73	4.69	27.72	26.76	474.242	Vertical	Pass
		2647.5	3.62	4.72	27.69	26.59	456.037	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2545	3.39	4.57	27.78	26.60	457.088	Vertical	Pass
		2595	3.66	4.73	27.72	26.65	462.381	Vertical	Pass
		2645	4.21	4.75	27.68	27.14	517.607	Vertical	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	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/##Mid	2537.5	3.84	4.54	27.75	27.05	506.991	Horizontal	Pass
		2595	4.75	4.69	27.72	27.78	599.791	Horizontal	Pass
		2652.5	4.94	4.71	27.71	27.94	622.300	Horizontal	Pass
10.0MHz Band 16 QAM	1/##Mid	2540	4.00	4.55	27.76	27.21	526.017	Horizontal	Pass
		2595	4.66	4.69	27.72	27.69	587.489	Horizontal	Pass
		2650	4.98	4.72	27.70	27.96	625.173	Horizontal	Pass
15.0MHz Band 16 QAM	1/##Mid	2542.5	4.11	4.55	27.77	27.33	540.754	Horizontal	Pass
		2595	4.83	4.69	27.72	27.86	610.942	Horizontal	Pass
		2647.5	4.98	4.72	27.69	27.95	623.735	Horizontal	Pass
20.0MHz Band 16 QAM	1/##Mid	2545	4.21	4.57	27.78	27.42	552.077	Horizontal	Pass
		2595	4.78	4.73	27.72	27.77	598.412	Horizontal	Pass
		2645	4.85	4.75	27.68	27.78	599.791	Horizontal	Pass
5.0MHz Band 16 QAM	1/##Mid	2537.5	3.93	4.54	27.75	27.14	517.607	Vertical	Pass
		2595	3.31	4.69	27.72	26.34	430.527	Vertical	Pass
		2652.5	3.79	4.71	27.71	26.79	477.529	Vertical	Pass
10.0MHz Band 16 QAM	1/##Mid	2540	3.37	4.55	27.76	26.58	454.988	Vertical	Pass
		2595	3.96	4.69	27.72	26.99	500.035	Vertical	Pass
		2650	3.88	4.72	27.70	26.86	485.289	Vertical	Pass
15.0MHz Band 16 QAM	1/##Mid	2542.5	3.05	4.55	27.77	26.27	423.643	Vertical	Pass
		2595	3.97	4.69	27.72	27.00	501.187	Vertical	Pass
		2647.5	3.71	4.72	27.69	26.68	465.586	Vertical	Pass
20.0MHz Band 16 QAM	1/##Mid	2545	3.70	4.57	27.78	26.91	490.908	Vertical	Pass
		2595	3.87	4.73	27.72	26.86	485.289	Vertical	Pass
		2645	3.86	4.75	27.68	26.79	477.529	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 2/4/5/7/12/13/17/19/25/38/41

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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-48.44	4.04	33.51	-18.97	-13	-5.97	Horizontal
3701.4	-50.76	4.04	33.51	-21.29	-13	-8.29	Vertical
5552.1	-46.91	5.24	35.84	-16.31	-13	-3.31	Vertical
5552.1	-49.94	5.24	35.84	-19.34	-13	-6.34	Horizontal
199.4	-37.69	1.43	16.02	-23.10	-13	-10.10	Vertical
242.2	-41.94	1.30	17.99	-25.25	-13	-12.25	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-44.54	4.04	33.56	-15.02	-13	-2.02	Horizontal
3760.0	-44.24	4.04	33.56	-14.72	-13	-1.72	Vertical
5640.0	-44.63	5.24	35.91	-13.96	-13	-0.96	Vertical
5640.0	-53.75	5.24	35.91	-23.08	-13	-10.08	Horizontal
197.9	-35.81	1.62	16.97	-20.46	-13	-7.46	Vertical
357.5	-38.85	1.74	15.98	-24.62	-13	-11.62	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-44.37	4.04	34.00	-14.41	-13	-1.41	Horizontal
3818.6	-47.28	4.04	34.00	-17.32	-13	-4.32	Vertical
5727.9	-46.57	5.24	36.04	-15.77	-13	-2.77	Vertical
5727.9	-52.60	5.24	36.04	-21.80	-13	-8.80	Horizontal
186.5	-43.80	1.42	17.29	-27.93	-13	-14.93	Vertical
434.4	-38.09	1.50	17.90	-21.68	-13	-8.68	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-44.13	4.07	33.54	-14.66	-13	-1.66	Horizontal
3720.0	-47.48	4.07	33.54	-18.01	-13	-5.01	Vertical
5580.0	-50.98	5.28	35.86	-20.40	-13	-7.40	Vertical
5580.0	-51.77	5.28	35.86	-21.19	-13	-8.19	Horizontal
187.4	-41.86	1.58	16.89	-26.54	-13	-13.54	Vertical
376.1	-35.60	1.76	17.26	-20.10	-13	-7.10	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-46.72	4.04	33.56	-17.20	-13	-4.20	Horizontal
3760.0	-50.77	4.04	33.56	-21.25	-13	-8.25	Vertical
5640.0	-50.32	5.24	35.91	-19.65	-13	-6.65	Vertical
5640.0	-49.94	5.24	35.91	-19.27	-13	-6.27	Horizontal
201.2	-34.95	1.46	16.27	-20.14	-13	-7.14	Vertical
452.7	-43.74	1.59	15.15	-30.18	-13	-17.18	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-53.20	4.04	34.00	-23.24	-13	-10.24	Horizontal
3800.0	-53.35	4.04	34.00	-23.39	-13	-10.39	Vertical
5700.0	-44.97	5.24	36.04	-14.17	-13	-1.17	Vertical
5700.0	-51.72	5.24	36.04	-20.92	-13	-7.92	Horizontal
175.1	-44.47	1.36	17.39	-28.43	-13	-15.43	Vertical
301.8	-39.33	1.66	15.39	-25.60	-13	-12.60	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-52.45	4.02	29.80	-26.67	-13	-13.67	Horizontal
3421.4	-49.81	4.02	29.80	-24.03	-13	-11.03	Vertical
5132.1	-46.01	5.24	35.84	-15.41	-13	-2.41	Vertical
5132.1	-52.04	5.24	35.84	-21.44	-13	-8.44	Horizontal
209.1	-34.91	1.68	16.04	-20.55	-13	-7.55	Vertical
448.0	-35.87	1.78	17.74	-19.91	-13	-6.91	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-51.29	4.03	30.00	-25.32	-13	-12.32	Horizontal
3465.0	-50.75	4.03	30.00	-24.78	-13	-11.78	Vertical
5197.5	-44.71	5.25	35.86	-14.10	-13	-1.10	Vertical
5197.5	-52.15	5.25	35.86	-21.54	-13	-8.54	Horizontal
207.3	-38.29	1.72	17.69	-22.32	-13	-9.32	Vertical
293.3	-35.99	1.62	16.02	-21.58	-13	-8.58	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-49.62	4.05	30.01	-23.66	-13	-10.66	Horizontal
3508.6	-51.93	4.05	30.01	-25.97	-13	-12.97	Vertical
5262.9	-50.28	5.26	35.86	-19.68	-13	-6.68	Vertical
5262.9	-51.38	5.26	35.86	-20.78	-13	-7.78	Horizontal
182.0	-36.88	1.80	16.69	-21.99	-13	-8.99	Vertical
454.2	-42.35	1.75	16.66	-27.45	-13	-14.45	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-44.52	4.02	29.80	-18.74	-13	-5.74	Horizontal
3440.0	-47.46	4.02	29.80	-21.68	-13	-8.68	Vertical
5160.0	-50.61	5.24	35.84	-20.01	-13	-7.01	Vertical
5160.0	-53.98	5.24	35.84	-23.38	-13	-10.38	Horizontal
202.1	-35.50	1.57	17.26	-19.81	-13	-6.81	Vertical
295.3	-35.04	1.78	16.35	-20.47	-13	-7.47	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-45.83	4.03	30.00	-19.86	-13	-6.86	Horizontal
3465.0	-50.49	4.03	30.00	-24.52	-13	-11.52	Vertical
5197.5	-52.63	5.25	35.86	-22.02	-13	-9.02	Vertical
5197.5	-52.89	5.25	35.86	-22.28	-13	-9.28	Horizontal
199.2	-43.90	1.44	17.95	-27.39	-13	-14.39	Vertical
411.0	-35.41	1.65	16.09	-20.97	-13	-7.97	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-48.88	2.91	27.68	-24.11	-13	-11.11	Horizontal
3490.0	-52.49	2.91	27.68	-27.72	-13	-14.72	Vertical
5235.0	-46.03	5.26	35.86	-15.43	-13	-2.43	Vertical
5235.0	-49.21	5.26	35.86	-18.61	-13	-5.61	Horizontal
180.8	-40.00	1.61	16.85	-24.76	-13	-11.76	Vertical
285.1	-34.62	1.61	15.19	-21.04	-13	-8.04	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-47.30	2.78	27.50	-22.58	-13	-9.58	Horizontal
1649.4	-49.13	2.78	27.50	-24.41	-13	-11.41	Vertical
2474.1	-47.77	2.90	27.80	-22.87	-13	-9.87	Vertical
2474.1	-49.06	2.90	27.80	-24.16	-13	-11.16	Horizontal
188.0	-39.12	1.76	17.59	-23.29	-13	-10.29	Vertical
235.1	-40.21	1.63	15.87	-25.97	-13	-12.97	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-48.72	2.80	27.48	-24.04	-13	-11.04	Horizontal
1673.0	-51.56	2.80	27.48	-26.88	-13	-13.88	Vertical
2509.5	-46.93	2.91	27.70	-22.14	-13	-9.14	Vertical
2509.5	-50.16	2.91	27.70	-25.37	-13	-12.37	Horizontal
193.2	-40.26	1.61	15.68	-26.19	-13	-13.19	Vertical
430.5	-37.29	1.59	17.52	-21.37	-13	-8.37	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-49.16	2.82	27.43	-24.55	-13	-11.55	Horizontal
1696.6	-44.08	2.82	27.43	-19.47	-13	-6.47	Vertical
2544.9	-50.55	2.92	27.74	-25.73	-13	-12.73	Vertical
2544.9	-49.15	2.92	27.74	-24.33	-13	-11.33	Horizontal
207.6	-43.58	1.69	16.67	-28.59	-13	-15.59	Vertical
326.7	-34.45	1.70	17.18	-18.97	-13	-5.97	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-45.72	2.78	27.50	-21.00	-13	-8.00	Horizontal
1658.0	-48.31	2.78	27.50	-23.59	-13	-10.59	Vertical
2487.0	-44.97	2.90	27.80	-20.07	-13	-7.07	Vertical
2487.0	-49.93	2.90	27.80	-25.03	-13	-12.03	Horizontal
185.0	-36.76	1.71	15.57	-22.90	-13	-9.90	Vertical
289.0	-39.94	1.34	16.40	-24.88	-13	-11.88	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-49.55	2.80	27.48	-24.87	-13	-11.87	Horizontal
1673.0	-44.11	2.80	27.48	-19.43	-13	-6.43	Vertical
2509.5	-48.36	2.91	27.70	-23.57	-13	-10.57	Vertical
2509.5	-49.45	2.91	27.70	-24.66	-13	-11.66	Horizontal
201.0	-35.56	1.44	17.04	-19.96	-13	-6.96	Vertical
467.8	-38.67	1.76	17.62	-22.81	-13	-9.81	Horizontal
Test Results for High Channel 844MHz							
1688.0	-49.52	2.82	27.43	-24.91	-13	-11.91	Horizontal
1688.0	-44.59	2.82	27.43	-19.98	-13	-6.98	Vertical
2532.0	-49.73	2.92	27.74	-24.91	-13	-11.91	Vertical
2532.0	-52.54	2.92	27.74	-27.72	-13	-14.72	Horizontal
207.4	-43.24	1.74	17.70	-27.28	-13	-14.28	Vertical
331.3	-36.82	1.41	17.46	-20.76	-13	-7.76	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-64.27	5.23	35.81	-33.69	-25	-8.69	Horizontal
5005.0	-63.35	5.23	35.81	-32.77	-25	-7.77	Vertical
7507.5	-62.93	5.67	36.85	-31.75	-25	-6.75	Vertical
7507.5	-63.54	5.67	36.85	-32.36	-25	-7.36	Horizontal
178.7	-44.45	1.73	17.97	-28.21	-25	-3.21	Vertical
236.3	-47.44	1.38	15.11	-33.71	-25	-8.71	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.59	5.23	35.82	-31.00	-25	-6.00	Horizontal
5070.0	-61.51	5.23	35.82	-30.92	-25	-5.92	Vertical
7605.0	-62.37	5.67	36.85	-31.19	-25	-6.19	Vertical
7605.0	-60.88	5.67	36.85	-29.70	-25	-4.70	Horizontal
200.3	-50.88	1.77	16.17	-36.47	-25	-11.47	Vertical
451.9	-45.13	1.63	15.21	-31.55	-25	-6.55	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-63.20	5.24	35.83	-32.61	-25	-7.61	Horizontal
5135.0	-62.69	5.24	35.83	-32.10	-25	-7.10	Vertical
7702.5	-62.00	5.68	36.87	-30.81	-25	-5.81	Vertical
7702.5	-59.17	5.68	36.87	-27.98	-25	-2.98	Horizontal
189.2	-49.53	1.58	17.56	-33.55	-25	-8.55	Vertical
322.9	-45.93	1.45	16.58	-30.80	-25	-5.80	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-63.24	5.23	35.82	-32.65	-25	-7.65	Horizontal
5020.0	-63.17	5.23	35.82	-32.58	-25	-7.58	Vertical
7530.0	-60.21	5.67	36.86	-29.02	-25	-4.02	Vertical
7530.0	-62.26	5.67	36.86	-31.07	-25	-6.07	Horizontal
204.8	-53.11	1.63	15.76	-38.98	-25	-13.98	Vertical
376.5	-45.27	1.71	15.44	-31.54	-25	-6.54	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.68	5.23	35.82	-31.09	-25	-6.09	Horizontal
5070.0	-64.74	5.23	35.82	-34.15	-25	-9.15	Vertical
7605.0	-60.84	5.67	36.85	-29.66	-25	-4.66	Vertical
7605.0	-63.37	5.67	36.85	-32.19	-25	-7.19	Horizontal
187.2	-51.97	1.79	16.84	-36.91	-25	-11.91	Vertical
328.8	-44.24	1.71	17.64	-28.31	-25	-3.31	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.89	5.24	35.83	-30.30	-25	-5.30	Horizontal
5120.0	-60.32	5.24	35.83	-29.73	-25	-4.73	Vertical
7680.0	-60.26	5.70	36.88	-29.08	-25	-4.08	Vertical
7680.0	-60.82	5.70	36.88	-29.64	-25	-4.64	Horizontal
200.1	-47.14	1.79	16.84	-32.08	-25	-7.08	Vertical
297.6	-49.90	1.71	17.64	-33.97	-25	-8.97	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-48.99	2.60	27.20	-24.39	-13	-11.39	Horizontal
1399.4	-51.67	2.60	27.20	-27.07	-13	-14.07	Vertical
2099.1	-49.87	2.85	27.54	-25.18	-13	-12.18	Vertical
2099.1	-49.42	2.85	27.54	-24.73	-13	-11.73	Horizontal
196.4	-36.46	1.49	17.78	-20.17	-13	-7.17	Vertical
325.1	-37.27	1.36	17.33	-21.30	-13	-8.30	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-52.21	2.61	27.28	-27.54	-13	-14.54	Horizontal
1415.0	-50.63	2.61	27.28	-25.96	-13	-12.96	Vertical
2122.5	-50.30	2.87	27.59	-25.58	-13	-12.58	Vertical
2122.5	-49.17	2.87	27.59	-24.45	-13	-11.45	Horizontal
210.7	-43.48	1.73	15.74	-29.47	-13	-16.47	Vertical
280.3	-40.12	1.62	15.79	-25.95	-13	-12.95	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-46.34	2.63	27.28	-21.69	-13	-8.69	Horizontal
1430.6	-46.25	2.63	27.28	-21.60	-13	-8.60	Vertical
2145.9	-53.12	2.88	27.60	-28.40	-13	-15.40	Vertical
2145.9	-53.28	2.88	27.60	-28.56	-13	-15.56	Horizontal
188.5	-38.63	1.61	18.00	-22.24	-13	-9.24	Vertical
443.7	-34.70	1.45	15.49	-20.67	-13	-7.67	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-48.65	2.61	27.26	-24.00	-13	-11.00	Horizontal
1408.0	-46.30	2.61	27.26	-21.65	-13	-8.65	Vertical
2112.0	-52.31	2.87	27.58	-27.60	-13	-14.60	Vertical
2112.0	-50.84	2.87	27.58	-26.13	-13	-13.13	Horizontal
199.7	-43.00	1.31	16.97	-27.34	-13	-14.34	Vertical
408.6	-37.09	1.65	16.70	-22.04	-13	-9.04	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-46.20	2.61	27.28	-21.53	-13	-8.53	Horizontal
1415.0	-51.31	2.61	27.28	-26.64	-13	-13.64	Vertical
2122.5	-49.05	2.87	27.59	-24.33	-13	-11.33	Vertical
2122.5	-49.14	2.87	27.59	-24.42	-13	-11.42	Horizontal
195.9	-41.55	1.72	17.99	-25.28	-13	-12.28	Vertical
412.1	-37.65	1.73	17.94	-21.44	-13	-8.44	Horizontal
Test Results for High Channel 711MHz							
1422.0	-45.47	2.62	27.28	-20.81	-13	-7.81	Horizontal
1422.0	-53.93	2.62	27.28	-29.27	-13	-16.27	Vertical
2133.0	-51.26	2.87	27.60	-26.53	-13	-13.53	Vertical
2133.0	-53.79	2.87	27.60	-29.06	-13	-16.06	Horizontal
182.6	-44.31	1.58	15.93	-29.96	-13	-16.96	Vertical
463.1	-37.64	1.36	15.59	-23.41	-13	-10.41	Horizontal

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

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

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

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

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-70.03	2.61	27.28	-45.36	-40	-5.36	Horizontal
1559.0	-73.56	2.61	27.28	-48.89	-40	-8.89	Vertical
2338.5	-40.70	2.87	27.59	-15.98	-13	-2.98	Vertical
2338.5	-41.53	2.87	27.59	-16.81	-13	-3.81	Horizontal
120.1	-38.30	1.54	15.61	-24.23	-13	-11.23	Vertical
197.8	-37.05	1.51	15.21	-23.35	-13	-10.35	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-71.49	2.62	27.30	-46.81	-40	-6.81	Horizontal
1564.0	-70.24	2.62	27.30	-45.56	-40	-5.56	Vertical
2346.0	-41.39	2.87	27.62	-16.64	-13	-3.64	Vertical
2346.0	-40.28	2.87	27.62	-15.53	-13	-2.53	Horizontal
131.2	-35.15	1.65	16.17	-20.63	-13	-7.63	Vertical
267.5	-37.10	1.48	16.88	-21.70	-13	-8.70	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-72.89	2.66	27.28	-48.27	-40	-8.27	Horizontal
1569.0	-70.58	2.66	27.28	-45.96	-40	-5.96	Vertical
2353.5	-43.36	2.88	27.60	-18.64	-13	-5.64	Vertical
2353.5	-44.11	2.88	27.60	-19.39	-13	-6.39	Horizontal
80.8	-36.22	1.54	16.40	-21.36	-13	-8.36	Vertical
155.6	-37.04	1.43	15.77	-22.70	-13	-9.70	Horizontal

LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-73.79	2.62	27.30	-49.11	-40	-9.11	Horizontal
1564.0	-69.23	2.62	27.30	-44.55	-40	-4.55	Vertical
2346.0	-42.50	2.87	27.62	-17.75	-13	-4.75	Vertical
2346.0	-43.59	2.87	27.62	-18.84	-13	-5.84	Horizontal
129.1	-37.95	1.43	17.03	-22.35	-13	-9.35	Vertical
86.9	-39.91	1.62	16.63	-24.90	-13	-11.90	Horizontal

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

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

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

9.7 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-53.23	2.61	27.28	-28.56	-13	-15.56	Horizontal
1413.0	-46.47	2.61	27.28	-21.80	-13	-8.80	Vertical
2119.5	-44.82	2.87	27.59	-20.10	-13	-7.10	Vertical
2119.5	-51.73	2.87	27.59	-27.01	-13	-14.01	Horizontal
202.9	-34.73	1.71	16.15	-20.29	-13	-7.29	Vertical
339.9	-36.82	1.41	17.32	-20.91	-13	-7.91	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-47.39	2.62	27.30	-22.71	-13	-9.71	Horizontal
1420.0	-53.77	2.62	27.30	-29.09	-13	-16.09	Vertical
2130.0	-53.00	2.87	27.62	-28.25	-13	-15.25	Vertical
2130.0	-54.00	2.87	27.62	-29.25	-13	-16.25	Horizontal
183.3	-43.25	1.42	15.25	-29.43	-13	-16.43	Vertical
232.2	-41.06	1.36	17.19	-25.23	-13	-12.23	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-51.20	2.66	27.28	-26.58	-13	-13.58	Horizontal
1427.0	-49.12	2.66	27.28	-24.50	-13	-11.50	Vertical
2140.5	-47.94	2.88	27.60	-23.22	-13	-10.22	Vertical
2140.5	-49.79	2.88	27.60	-25.07	-13	-12.07	Horizontal
175.6	-39.36	1.32	17.29	-23.39	-13	-10.39	Vertical
301.0	-41.90	1.72	16.89	-26.73	-13	-13.73	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-49.94	2.62	27.30	-25.26	-13	-12.26	Horizontal
1418.0	-47.27	2.62	27.30	-22.59	-13	-9.59	Vertical
2127.0	-45.13	2.87	27.62	-20.38	-13	-7.38	Vertical
2127.0	-49.48	2.87	27.62	-24.73	-13	-11.73	Horizontal
204.4	-44.13	1.35	16.91	-28.57	-13	-15.57	Vertical
267.4	-39.99	1.62	16.31	-25.30	-13	-12.30	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-53.78	2.62	27.30	-29.10	-13	-16.10	Horizontal
1420.0	-53.28	2.62	27.30	-28.60	-13	-15.60	Vertical
2130.0	-48.37	2.87	27.62	-23.62	-13	-10.62	Vertical
2130.0	-53.44	2.87	27.62	-28.69	-13	-15.69	Horizontal
178.1	-35.94	1.51	17.14	-20.31	-13	-7.31	Vertical
270.3	-34.14	1.77	16.88	-19.03	-13	-6.03	Horizontal
Test Results for High Channel 711MHz							
1422.0	-46.75	2.62	27.30	-22.07	-13	-9.07	Horizontal
1422.0	-52.87	2.62	27.30	-28.19	-13	-15.19	Vertical
2133.0	-47.53	2.87	27.62	-22.78	-13	-9.78	Vertical
2133.0	-50.98	2.87	27.62	-26.23	-13	-13.23	Horizontal
197.3	-38.24	1.78	15.95	-24.07	-13	-11.07	Vertical
333.0	-41.88	1.34	17.95	-25.28	-13	-12.28	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.

9.8 LTE BAND 19
LTE BAND 19 (5MHZ BANDWIDTH)

Test Results for Low Channel 832.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1665	-49.33	2.61	27.28	-24.66	-13	-11.66	Horizontal
1665	-53.22	2.61	27.28	-28.55	-13	-15.55	Vertical
2497.5	-47.00	2.87	27.59	-22.28	-13	-9.28	Vertical
2497.5	-51.61	2.87	27.59	-26.89	-13	-13.89	Horizontal
194.0	-34.81	1.71	16.15	-20.37	-13	-7.37	Vertical
291.2	-38.48	1.41	17.32	-22.57	-13	-9.57	Horizontal
Test Results For Mid Channel 837.5MHz							
1675	-49.17	2.62	27.30	-24.49	-13	-11.49	Horizontal
1675	-47.31	2.62	27.30	-22.63	-13	-9.63	Vertical
2512.5	-46.30	2.87	27.62	-21.55	-13	-8.55	Vertical
2512.5	-53.65	2.87	27.62	-28.90	-13	-15.90	Horizontal
184.5	-35.82	1.42	15.25	-22.00	-13	-9.00	Vertical
250.3	-39.75	1.36	17.19	-23.92	-13	-10.92	Horizontal
Test Results for High Channel 842.5MHz							
1685.0	-46.98	2.66	27.28	-22.36	-13	-9.36	Horizontal
1685.0	-51.43	2.66	27.28	-26.81	-13	-13.81	Vertical
2527.5	-46.64	2.88	27.60	-21.92	-13	-8.92	Vertical
2527.5	-51.03	2.88	27.60	-26.31	-13	-13.31	Horizontal
175.5	-42.96	1.32	17.29	-26.99	-13	-13.99	Vertical
463.0	-34.28	1.72	16.89	-19.11	-13	-6.11	Horizontal

LTE BAND 19 (15MHZ BANDWIDTH)

Test Results for Low Channel 837.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1685.0	-49.54	2.62	27.30	-24.86	-13	-11.86	Horizontal
1685.0	-45.15	2.62	27.30	-20.47	-13	-7.47	Vertical
2527.5	-49.77	2.87	27.62	-25.02	-13	-12.02	Vertical
2527.5	-49.50	2.87	27.62	-24.75	-13	-11.75	Horizontal
208.7	-39.81	1.35	16.91	-24.25	-13	-11.25	Vertical
324.7	-35.03	1.62	16.31	-20.34	-13	-7.34	Horizontal

9.9 LTE BAND 25

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-53.36	4.26	29.80	-27.82	-13	-14.82	Horizontal
3701.4	-53.66	4.26	29.80	-28.12	-13	-15.12	Vertical
5552.1	-51.68	5.36	35.84	-21.20	-13	-8.20	Vertical
5552.1	-51.34	5.36	35.84	-20.86	-13	-7.86	Horizontal
209.0	-34.83	1.68	16.04	-20.47	-13	-7.47	Vertical
331.4	-36.88	1.78	17.74	-20.92	-13	-7.92	Horizontal
Test Results for Mid Channel 1882.5MHz							
3765.0	-49.43	4.28	30.00	-23.71	-13	-10.71	Horizontal
3765.0	-52.25	4.28	30.00	-26.53	-13	-13.53	Vertical
5647.5	-51.06	5.41	35.86	-20.61	-13	-7.61	Vertical
5647.5	-51.29	5.41	35.86	-20.84	-13	-7.84	Horizontal
211.4	-41.06	1.72	17.69	-25.09	-13	-12.09	Vertical
261.1	-36.12	1.62	16.02	-21.71	-13	-8.71	Horizontal
Test Results for High Channel 1914.3MHz							
3828.6	-49.96	4.31	30.01	-24.26	-13	-11.26	Horizontal
3828.6	-52.45	4.31	30.01	-26.75	-13	-13.75	Vertical
5742.9	-50.12	5.43	35.86	-19.69	-13	-6.69	Vertical
5742.9	-49.33	5.43	35.86	-18.90	-13	-5.90	Horizontal
177.8	-34.50	1.80	16.69	-19.61	-13	-6.61	Vertical
381.4	-37.42	1.75	16.66	-22.52	-13	-9.52	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-50.15	4.29	29.80	-24.64	-13	-11.64	Horizontal
3720.0	-50.84	4.29	29.80	-25.33	-13	-12.33	Vertical
5580.0	-50.78	5.38	35.84	-20.32	-13	-7.32	Vertical
5580.0	-52.70	5.38	35.84	-22.24	-13	-9.24	Horizontal
184.3	-39.62	1.57	17.26	-23.93	-13	-10.93	Vertical
407.0	-37.76	1.78	16.35	-23.19	-13	-10.19	Horizontal
Test Results for Mid Channel 1882.5MHz							
3765.0	-53.85	4.28	30.00	-28.13	-13	-15.13	Horizontal
3765.0	-51.43	4.28	30.00	-25.71	-13	-12.71	Vertical
5647.5	-51.66	5.41	35.86	-21.21	-13	-8.21	Vertical
5647.5	-49.62	5.41	35.86	-19.17	-13	-6.17	Horizontal
204.1	-38.23	1.44	17.95	-21.72	-13	-8.72	Vertical
344.0	-37.10	1.65	16.09	-22.66	-13	-9.66	Horizontal
Test Results for High Channel 1905MHz							
3810.0	-49.46	4.35	27.68	-26.13	-13	-13.13	Horizontal
3810.0	-51.22	4.35	27.68	-27.89	-13	-14.89	Vertical
5715.0	-53.46	5.42	35.86	-23.02	-13	-10.02	Vertical
5715.0	-51.49	5.42	35.86	-21.05	-13	-8.05	Horizontal
176.5	-41.75	1.61	16.85	-26.51	-13	-13.51	Vertical
270.7	-40.10	1.61	15.19	-26.52	-13	-13.52	Horizontal

9.10 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	-64.23	2.63	27.26	-39.60	-25	-14.60	Horizontal
5145	-61.66	2.63	27.26	-37.03	-25	-12.03	Vertical
7717.5	-59.93	2.67	27.58	-35.02	-25	-10.02	Vertical
7717.5	-64.93	2.67	27.58	-40.02	-25	-15.02	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-64.34	2.62	27.28	-39.68	-25	-14.68	Horizontal
5190	-62.33	2.62	27.28	-37.67	-25	-12.67	Vertical
7785	-63.67	2.85	27.62	-38.90	-25	-13.90	Vertical
7785	-60.34	2.85	27.62	-35.57	-25	-10.57	Horizontal
Test Results for High Channel 2617.5MHz							
5235	-60.46	2.64	27.28	-35.82	-25	-10.82	Horizontal
5235	-59.49	2.64	27.28	-34.85	-25	-9.85	Vertical
7852.5	-62.28	2.85	27.70	-37.43	-25	-12.43	Vertical
7852.5	-64.69	2.85	27.70	-39.84	-25	-14.84	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	-60.69	2.63	27.30	-36.02	-25	-11.02	Horizontal
5160	-60.15	2.63	27.30	-35.48	-25	-10.48	Vertical
7740	-59.68	2.67	27.62	-34.73	-25	-9.73	Vertical
7740	-63.54	2.67	27.62	-38.59	-25	-13.59	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-61.89	2.62	27.33	-37.18	-25	-12.18	Horizontal
5190	-64.02	2.62	27.33	-39.31	-25	-14.31	Vertical
7785	-63.68	2.85	27.67	-38.86	-25	-13.86	Vertical
7785	-62.81	2.85	27.67	-37.99	-25	-12.99	Horizontal
Test Results for High Channel 2610MHz							
5220	-64.22	2.64	27.33	-39.53	-25	-14.53	Horizontal
5220	-63.56	2.64	27.33	-38.87	-25	-13.87	Vertical
7830	-61.76	2.85	27.67	-36.94	-25	-11.94	Vertical
7830	-61.52	2.85	27.67	-36.70	-25	-11.70	Horizontal

9.11 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	-62.49	5.23	35.81	-31.91	-25	-6.91	Horizontal
5145.0	-62.84	5.23	35.81	-32.26	-25	-7.26	Vertical
7717.5	-62.53	5.67	36.85	-31.35	-25	-6.35	Vertical
7717.5	-60.31	5.67	36.85	-29.13	-25	-4.13	Horizontal
187.5	-46.47	1.38	15.98	-31.87	-25	-6.87	Vertical
463.7	-54.98	1.62	15.66	-40.94	-25	-15.94	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-62.20	5.23	35.82	-31.61	-25	-6.61	Horizontal
5190.0	-62.33	5.23	35.82	-31.74	-25	-6.74	Vertical
7785.0	-64.97	5.67	36.85	-33.79	-25	-8.79	Vertical
7785.0	-59.46	5.67	36.85	-28.28	-25	-3.28	Horizontal
178.0	-48.31	1.62	16.17	-33.76	-25	-8.76	Vertical
375.0	-45.20	1.74	17.63	-29.31	-25	-4.31	Horizontal
Test Results for High Channel 2652.5MHz							
5235.0	-59.41	5.24	35.83	-28.82	-25	-3.82	Horizontal
5235.0	-61.45	5.24	35.83	-30.86	-25	-5.86	Vertical
7852.5	-60.67	5.68	36.87	-29.48	-25	-4.48	Vertical
7852.5	-59.84	5.68	36.87	-28.65	-25	-3.65	Horizontal
212.9	-51.80	1.55	15.84	-37.51	-25	-12.51	Vertical
440.6	-52.58	1.51	17.06	-37.03	-25	-12.03	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	-59.84	5.23	35.82	-29.25	-25	-4.25	Horizontal
5160.0	-60.58	5.23	35.82	-29.99	-25	-4.99	Vertical
7740.0	-62.39	5.67	36.86	-31.20	-25	-6.20	Vertical
7740.0	-59.42	5.67	36.86	-28.23	-25	-3.23	Horizontal
201.1	-48.25	1.43	15.51	-34.17	-25	-9.17	Vertical
395.6	-45.87	1.40	16.97	-30.30	-25	-5.30	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-63.64	5.23	35.82	-33.05	-25	-8.05	Horizontal
5190.0	-61.28	5.23	35.82	-30.69	-25	-5.69	Vertical
7785.0	-64.52	5.67	36.85	-33.34	-25	-8.34	Vertical
7785.0	-62.53	5.67	36.85	-31.35	-25	-6.35	Horizontal
212.6	-51.22	1.77	16.72	-36.27	-25	-11.27	Vertical
437.8	-53.78	1.31	16.99	-38.10	-25	-13.10	Horizontal
Test Results for High Channel 2645MHz							
5220.0	-63.67	5.24	35.83	-33.08	-25	-8.08	Horizontal
5220.0	-64.25	5.24	35.83	-33.66	-25	-8.66	Vertical
7830.0	-63.26	5.70	36.88	-32.08	-25	-7.08	Vertical
7830.0	-63.19	5.70	36.88	-32.01	-25	-7.01	Horizontal
191.8	-48.34	1.70	15.73	-34.31	-25	-9.31	Vertical
456.5	-48.49	1.75	17.33	-32.91	-25	-7.91	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

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

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 2/4/5/7/12/13/17/19/25/38/41

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]
3.29	1880	12.3	0.006543	2.5
3.87	1880	13.9	0.007376	2.5
4.45	1880	13.4	0.007117	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.4	0.006619	2.5
Extreme (50C)	1880	12.0	0.006381	2.5
Extreme (40C)	1880	13.9	0.007419	2.5
Extreme (30C)	1880	13.5	0.007199	2.5
Extreme (10C)	1880	13.6	0.007249	2.5
Extreme (0C)	1880	12.3	0.006518	2.5
Extreme (-10C)	1880	12.8	0.006795	2.5
Extreme (-20C)	1880	14.5	0.007696	2.5
Extreme (-30C)	1880	14.8	0.007889	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	10.2	0.005428	2.5
3.87	1880	8.5	0.004503	2.5
4.45	1880	8.0	0.004244	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.7	0.005152	2.5
Extreme (50C)	1880	9.2	0.004876	2.5
Extreme (40C)	1880	7.9	0.004218359	2.5
Extreme (30C)	1880	9.0	0.004807109	2.5
Extreme (10C)	1880	8.4	0.004493629	2.5
Extreme (0C)	1880	8.5	0.004534879	2.5
Extreme (-10C)	1880	8.7	0.004611531	2.5
Extreme (-20C)	1880	8.8	0.004683384	2.5
Extreme (-30C)	1880	7.9	0.004209779	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	8.8	0.005066	2.5
3.87	1732.5	8.5	0.004927	2.5
4.45	1732.5	8.1	0.004648	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.0	0.004601	2.5
Extreme (50C)	1732.5	9.2	0.005302	2.5
Extreme (40C)	1732.5	7.7	0.004450	2.5
Extreme (30C)	1732.5	5.5	0.003184	2.5
Extreme (10C)	1732.5	6.9	0.003991	2.5
Extreme (0C)	1732.5	9.2	0.005329	2.5
Extreme (-10C)	1732.5	8.0	0.004640	2.5
Extreme (-20C)	1732.5	6.9	0.003960	2.5
Extreme (-30C)	1732.5	8.7	0.005041	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	9.8	0.005677	2.5
3.87	1732.5	9.1	0.005265	2.5
4.45	1732.5	8.1	0.004689	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	10.1	0.005802	2.5
Extreme (50C)	1732.5	8.9	0.005143	2.5
Extreme (40C)	1732.5	7.9	0.004575	2.5
Extreme (30C)	1732.5	8.8	0.005075	2.5
Extreme (10C)	1732.5	9.3	0.005367	2.5
Extreme (0C)	1732.5	8.3	0.004786	2.5
Extreme (-10C)	1732.5	9.0	0.005201	2.5
Extreme (-20C)	1732.5	8.5	0.004910	2.5
Extreme (-30C)	1732.5	8.4	0.004872	2.5

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

10.3 LTE BAND 5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	5.5	0.006517	2.5
3.87	836.5	6.6	0.007939	2.5
4.45	836.5	4.8	0.005781	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007371	2.5
Extreme (50C)	836.5	6.3	0.007504	2.5
Extreme (40C)	836.5	6.3	0.007481	2.5
Extreme (30C)	836.5	6.4	0.007600	2.5
Extreme (10C)	836.5	4.9	0.005906	2.5
Extreme (0C)	836.5	5.7	0.006854	2.5
Extreme (-10C)	836.5	5.2	0.006219	2.5
Extreme (-20C)	836.5	5.7	0.006773	2.5
Extreme (-30C)	836.5	6.1	0.007256	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	5.5	0.006550	2.5
3.87	836.5	6.9	0.008222	2.5
4.45	836.5	5.3	0.006319	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.4	0.007652	2.5
Extreme (50C)	836.5	6.1	0.007269	2.5
Extreme (40C)	836.5	6.5	0.007730	2.5
Extreme (30C)	836.5	6.3	0.007474	2.5
Extreme (10C)	836.5	5.8	0.006909	2.5
Extreme (0C)	836.5	5.6	0.006730	2.5
Extreme (-10C)	836.5	5.9	0.007042	2.5
Extreme (-20C)	836.5	5.6	0.006704	2.5
Extreme (-30C)	836.5	6.8	0.008090	2.5

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

10.4 LTE BAND 7

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2535	10.1	0.003995	2.5
3.87	2535	9.3	0.003686	2.5
4.45	2535	8.6	0.003394	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.2	0.003622	2.5
Extreme (50C)	2535	9.0	0.003553	2.5
Extreme (40C)	2535	8.2	0.003225	2.5
Extreme (30C)	2535	9.2	0.003634	2.5
Extreme (10C)	2535	8.0	0.003162	2.5
Extreme (0C)	2535	8.4	0.003313	2.5
Extreme (-10C)	2535	9.7	0.003833	2.5
Extreme (-20C)	2535	9.0	0.003548	2.5
Extreme (-30C)	2535	8.6	0.003376	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	6.9	0.002722	2.5
3.87	2535	6.4	0.002520	2.5
4.45	2535	6.0	0.002379	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.4	0.002116	2.5
Extreme (40C)	2535	5.3	0.002090	2.5
Extreme (30C)	2535	7.0	0.002763	2.5
Extreme (10C)	2535	6.0	0.002353	2.5
Extreme (0C)	2535	5.0	0.001975	2.5
Extreme (-10C)	2535	4.9	0.001929	2.5
Extreme (-20C)	2535	5.7	0.002241	2.5
Extreme (-30C)	2535	5.9	0.002316	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	8.5	0.012075	2.5
3.87	707.5	10.1	0.014305	2.5
4.45	707.5	8.4	0.011870	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.9	0.012554	2.5
Extreme (50C)	707.5	7.1	0.010008	2.5
Extreme (40C)	707.5	7.4	0.010474	2.5
Extreme (30C)	707.5	7.8	0.011082	2.5
Extreme (10C)	707.5	7.6	0.010741	2.5
Extreme (0C)	707.5	9.0	0.012741	2.5
Extreme (-10C)	707.5	8.6	0.012219	2.5
Extreme (-20C)	707.5	9.0	0.012708	2.5
Extreme (-30C)	707.5	8.3	0.011707	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	0.010296	2.5
3.87	707.5	8.1	0.011417	2.5
4.45	707.5	7.7	0.010920	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 13

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	710.0	12.9	0.018121	2.5
3.87	710.0	13.8	0.019450	2.5
4.45	710.0	13.0	0.018246	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	14.0	0.019701	2.5
Extreme (50C)	710.0	13.9	0.019640	2.5
Extreme (40C)	710.0	15.5	0.021762	2.5
Extreme (30C)	710.0	14.0	0.019654	2.5
Extreme (10C)	710.0	13.5	0.019032	2.5
Extreme (0C)	710.0	13.7	0.019266	2.5
Extreme (-10C)	710.0	14.1	0.019924	2.5
Extreme (-20C)	710	14.0	0.019767	2.5
Extreme (-30C)	710	13.5	0.019013	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	710.0	12.9	0.018165	2.5
3.87	710.0	13.7	0.019245	2.5
4.45	710.0	12.9	0.018105	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	12.4	0.017464	2.5
Extreme (50C)	710.0	11.9	0.016822	2.5
Extreme (40C)	710.0	13.3	0.018666	2.5
Extreme (30C)	710.0	13.6	0.019170	2.5
Extreme (10C)	710.0	13.9	0.019611	2.5
Extreme (0C)	710.0	12.3	0.017348	2.5
Extreme (-10C)	710.0	12.6	0.017696	2.5
Extreme (-20C)	710.0	14.5	0.020383	2.5
Extreme (-30C)	710.0	14.9	0.020968	2.5

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

10.7 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	0.013735	2.5
3.87	710.0	9.4	0.013236	2.5
4.45	710.0	7.9	0.011096	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.5	0.013363	2.5
Extreme (50C)	710.0	8.5	0.012029	2.5
Extreme (40C)	710.0	7.9	0.011070	2.5
Extreme (30C)	710.0	8.9	0.012530	2.5
Extreme (10C)	710.0	8.7	0.012223	2.5
Extreme (0C)	710.0	7.7	0.010811	2.5
Extreme (-10C)	710.0	8.7	0.012309	2.5
Extreme (-20C)	710.0	9.2	0.012906	2.5
Extreme (-30C)	710.0	8.3	0.011670	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	10.4	0.014611	2.5
3.87	710.0	9.0	0.012682	2.5
4.45	710.0	8.0	0.011200	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.1	0.012875	2.5
Extreme (50C)	710.0	9.2	0.012961	2.5
Extreme (40C)	710.0	8.3	0.011752	2.5
Extreme (30C)	710.0	9.3	0.013047	2.5
Extreme (10C)	710.0	8.1	0.011440	2.5
Extreme (0C)	710.0	8.4	0.011876	2.5
Extreme (-10C)	710.0	9.2	0.012920	2.5
Extreme (-20C)	710.0	8.9	0.012605	2.5
Extreme (-30C)	710.0	8.5	0.012021	2.5

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

10.8 LTE BAND 19

Band 19 QPSK, (15MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	837.5	10.0	0.011886	2.5
3.87	837.5	9.0	0.010725	2.5
4.45	837.5	8.0	0.009529	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	837.5	9.3	0.011097	2.5
Extreme (50C)	837.5	8.8	0.010557	2.5
Extreme (40C)	837.5	8.9	0.010600	2.5
Extreme (30C)	837.5	8.5	0.010098	2.5
Extreme (10C)	837.5	8.0	0.009518	2.5
Extreme (0C)	837.5	8.5	0.010186	2.5
Extreme (-10C)	837.5	8.9	0.010682	2.5
Extreme (-20C)	837.5	8.5	0.010167	2.5
Extreme (-30C)	837.5	8.0	0.009569	2.5

Band 19 16QAM, (15MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	837.5	6.9	0.008239	2.5
3.87	837.5	6.9	0.008215	2.5
4.45	837.5	5.5	0.006535	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	837.5	6.9	0.008239	2.5
Extreme (50C)	837.5	5.6	0.006674	2.5
Extreme (40C)	837.5	5.2	0.006170	2.5
Extreme (30C)	837.5	6.8	0.008119	2.5
Extreme (10C)	837.5	5.4	0.006432	2.5
Extreme (0C)	837.5	4.8	0.005704	2.5
Extreme (-10C)	837.5	5.1	0.006036	2.5
Extreme (-20C)	837.5	5.8	0.006945	2.5
Extreme (-30C)	837.5	6.1	0.007254	2.5

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

10.9 LTE BAND 25

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 QPSK, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.29	1882.5	9.3	0.004961	2.5
3.87	1882.5	9.4	0.004991	2.5
4.45	1882.5	8.2	0.004376	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 QPSK, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1882.5	10.1	0.005352	2.5
Extreme (50C)	1882.5	8.7	0.004601	2.5
Extreme (40C)	1882.5	8.5	0.004506	2.5
Extreme (30C)	1882.5	9.3	0.004923	2.5
Extreme (10C)	1882.5	9.3	0.004948	2.5
Extreme (0C)	1882.5	7.6	0.004062	2.5
Extreme (-10C)	1882.5	9.5	0.005029	2.5
Extreme (-20C)	1882.5	8.6	0.004572	2.5
Extreme (-30C)	1882.5	7.7	0.004076	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 16QAM, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.29	1882.5	10.0	0.005337	2.5
3.87	1882.5	8.9	0.004712	2.5
4.45	1882.5	8.6	0.004575	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 16QAM, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1882.5	9.8	0.005193	2.5
Extreme (50C)	1882.5	8.6	0.004572	2.5
Extreme (40C)	1882.5	8.6	0.004571	2.5
Extreme (30C)	1882.5	8.9	0.004752	2.5
Extreme (10C)	1882.5	8.4	0.004482	2.5
Extreme (0C)	1882.5	8.1	0.004318	2.5
Extreme (-10C)	1882.5	9.1	0.004847	2.5
Extreme (-20C)	1882.5	9.3	0.004934	2.5
Extreme (-30C)	1882.5	8.2	0.004334	2.5

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

10.10 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]
3.6	2595	8.7	0.003370	2.5
3.8	2595	9.0	0.003480	2.5
4.4	2595	8.3	0.003180	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	8.3	0.003179	2.5
Extreme (50C)	2595	7.8	0.003013	2.5
Extreme (40C)	2595	8.2	0.003150	2.5
Extreme (30C)	2595	7.5	0.002908	2.5
Extreme (10C)	2595	8.2	0.003176	2.5
Extreme (0C)	2595	6.7	0.002597	2.5
Extreme (-10C)	2595	8.4	0.003219	2.5
Extreme (-20C)	2595	8.8	0.003375	2.5
Extreme (-30C)	2595	5.9	0.002277	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	2595	8.7	0.003363	2.5
3.8	2595	8.5	0.003265	2.5
4.4	2595	8.8	0.003388	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	9.0	0.003468	2.5
Extreme (50C)	2595	8.2	0.003158	2.5
Extreme (40C)	2595	8.5	0.003284	2.5
Extreme (30C)	2595	8.5	0.003268	2.5
Extreme (10C)	2595	8.6	0.003329	2.5
Extreme (0C)	2595	6.5	0.002497	2.5
Extreme (-10C)	2595	8.1	0.003140	2.5
Extreme (-20C)	2595	8.5	0.003275	2.5
Extreme (-30C)	2595	5.5	0.002116	2.5

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

10.11 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	8.5	0.003279	2.5
3.87	2595	9.0	0.003468	2.5
4.45	2595	8.8	0.003380	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	9.0	0.003472	2.5
Extreme (50C)	2595	8.0	0.003101	2.5
Extreme (40C)	2595	8.2	0.003173	2.5
Extreme (30C)	2595	8.3	0.003192	2.5
Extreme (10C)	2595	8.8	0.003384	2.5
Extreme (0C)	2595	6.8	0.002625	2.5
Extreme (-10C)	2595	8.1	0.003102	2.5
Extreme (-20C)	2595	8.3	0.003200	2.5
Extreme (-30C)	2595	5.1	0.001979	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	8.9	0.003420	2.5
3.87	2595	9.3	0.003599	2.5
4.45	2595	8.2	0.003160	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	8.7	0.003356	2.5
Extreme (50C)	2595	8.0	0.003066	2.5
Extreme (40C)	2595	8.9	0.003428	2.5
Extreme (30C)	2595	8.2	0.003166	2.5
Extreme (10C)	2595	8.4	0.003238	2.5
Extreme (0C)	2595	6.1	0.002369	2.5
Extreme (-10C)	2595	9.0	0.003454	2.5
Extreme (-20C)	2595	8.8	0.003385	2.5
Extreme (-30C)	2595	5.6	0.002174	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

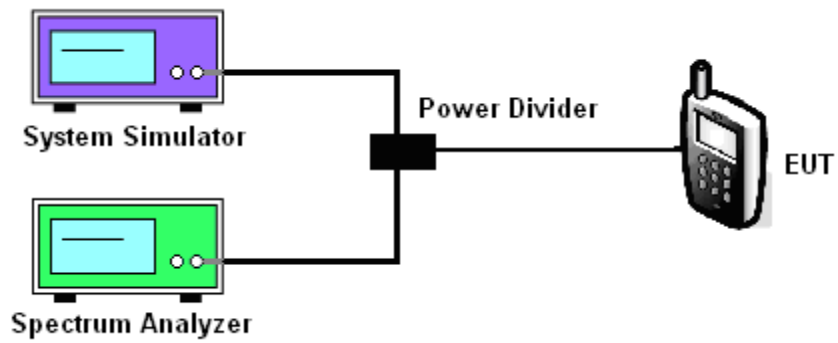
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

LTE Band 2/4/5/7/12/13/17/19/25/38/41

Test data reference attachment.

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