FCC CFR47 PART 22H, 24E, 27
CERTIFICATION TEST REPORT
FCC ID: 2AOWK-5008TF

Product:	Mobile Phone
Trade Mark:	ulefone
Model No.:	GQ5008TF
Family Model:	Armor 27T, Armor 27, Armor 27 Ultra, Armor 27T Ultra, Armor 27 Lite, Armor 27s, Armor 27s Pro
Report No.:	S24080806805006
Issue Date:	Sept. 12, 2024

Prepared for

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TEST RESULT CERTIFICATION

Applicant's name ..... :	Shenzhen Gotron Electronic CO.,LTD.
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Manufacturer's Name ..... :	Shenzhen Gotron Electronic CO.,LTD.
Address ..... :	7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China
Product name ..... :	Mobile Phone
Model and/or type reference ...:	GQ5008TF
Trade Mark ..... :	ulefone
Family Model ..... :	Armor 27T, Armor 27, Armor 27 Ultra, Armor 27T Ultra, Armor 27 Lite, Armor 27s, Armor 27s Pro
Test Sample Number	S240808068005
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 ..... Aug. 08, 2024 ~ Sept. 12, 2024

Date of Issue ..... Sept. 12, 2024

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

Prepared By :	Reviewed By :	Approved By :
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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone
Trade Mark	ulefone
Model Name	GQ5008TF
Family Model	Armor 27T, Armor 27, Armor 27 Ultra, Armor 27T Ultra, Armor 27 Lite, Armor 27s, Armor 27s Pro
Model Difference	All models are the same circuit and RF module, except for model names.
FCC ID:	2AOWK-5008TF
Frequency Bands:	U.S. Bands: ☒LTE FDD Band 2, 4, 5, 7,12, 17, 66 TDD Band 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 Uplink& Downlink: 2535MHz-2655MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
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:	LDS Antenna
Antenna gain:	Band 2: 0.46 dBi, Band 4: -1.18dBi, Band 5: -0.95 dBi, Band 7: 2.37dBi, Band 12: -1.88dBi, Band 17: -2.63 dBi, Band 41:2.37 dBi , Band 66: -1.18dBi
Adapter	Model: UF82PD3303 Input: 100-240V~50/60Hz 0.8A Output: 5.0V⎓3.0A 15.0W or 9.0V⎓3.0A 27.0W or 12.0V⎓2.5A 30.0W or 15.0V⎓2.0A 30.0W or 20.0V⎓1.5A 30.0W PPS: 5.0V-11.0V⎓3.0A or 5.0V-16.0V⎓2.0A 33.0W Max
Battery	DC 3.87V, 10600mAh, 41.022Wh
Power supply	DC 3.87V from battery or DC 5V/9V/12V/15V/20V from adapter
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V)（Note 1）
HW Version	A300H_01
SW Version	N/A
** 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: 2AOWK-5008TF** filing to comply with the FCC Part 22H&24E&27.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27, ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.26:2015& ANSI C63.4: 2014.

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/17/41/66

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

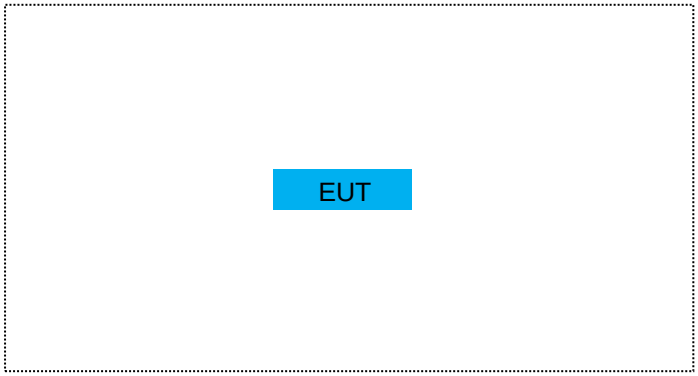
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	GQ5008TF	FCC ID: 2AOWK-5008TF	EUT

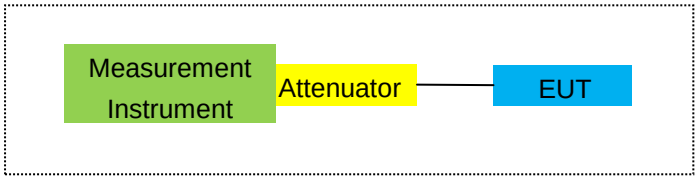
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

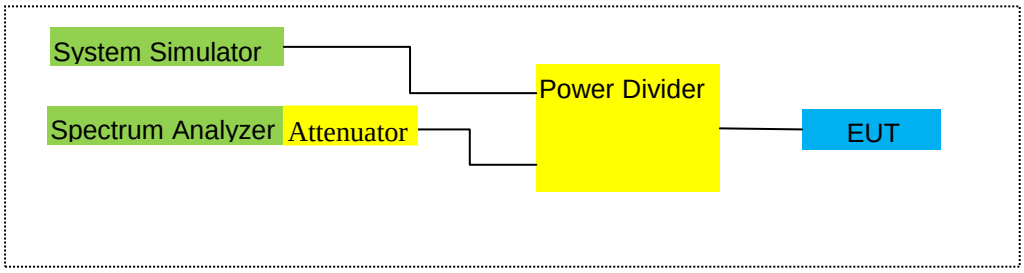
For Radiated Test Cases



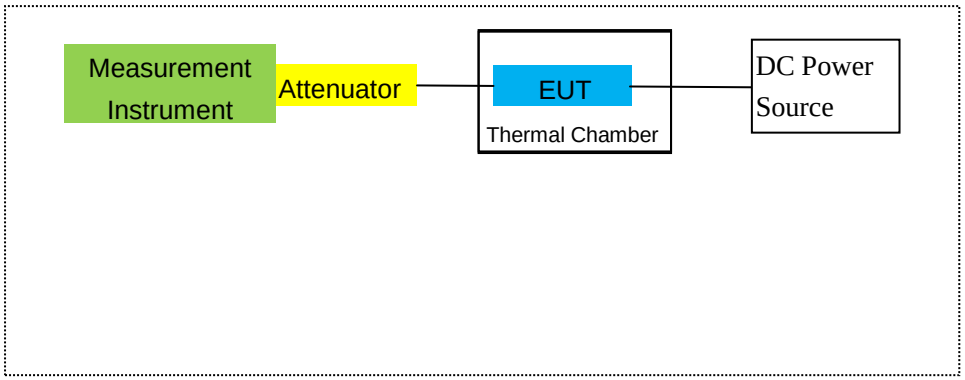
For Conducted Output Power



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	20170402923	2024.04.25	2027.04.24	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

Measurement Software

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

Band 2/4/5/7/12/17/41/66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53,
FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

(m)(4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.Show citation box.
(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

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 Log10(f/6.1) decibels or 50 + 10 Log10(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 + 10Log10(P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

TEST PROCEDURE

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

Set a marker to point the corresponding band edge frequency in each test case.

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

MODES TESTED

Band 2/4/5/7/12/17/41/66

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

□

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

MODES TESTED

□ Band 2/4/5/7/12/17/41/66

□

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.
90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17
KDB 971168 v02r01 RF power output using broadband peak and average power meter method.
KDB 971168 D01 Power Meas License Digital Systems v02r01, “Measurement Guidance for Certification of Licensed Digital Transmitters”

MODES TESTED

- Band 2/4/5/7/12/17/41/66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-5.11	3.76	28.24	19.37	86.497	Horizontal	Pass
		1880	-4.92	3.91	28.22	19.39	86.896	Horizontal	Pass
		1909.3	-4.83	3.93	28.20	19.44	87.902	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.17	3.77	28.23	19.29	84.918	Horizontal	Pass
		1880	-5.02	3.91	28.24	19.31	85.310	Horizontal	Pass
		1908.5	-4.89	3.94	28.25	19.42	87.498	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.06	3.77	28.31	19.48	88.716	Horizontal	Pass
		1880	-4.68	3.91	28.22	19.63	91.833	Horizontal	Pass
		1907.5	-4.61	3.94	28.20	19.65	92.257	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.92	3.79	28.33	19.62	91.622	Horizontal	Pass
		1880	-4.62	3.95	28.22	19.65	92.257	Horizontal	Pass
		1905	-4.51	3.97	28.19	19.71	93.541	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.88	3.79	28.34	19.67	92.683	Horizontal	Pass
		1880	-4.67	3.95	28.22	19.60	91.201	Horizontal	Pass
		1902.5	-4.53	3.97	28.18	19.68	92.897	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.87	3.81	28.35	19.67	92.683	Horizontal	Pass
		1880	-4.54	3.96	28.22	**19.72**	93.756	Horizontal	Pass
		1900	-4.48	4.00	28.16	19.68	92.897	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-5.67	3.76	28.24	18.81	76.033	Vertical	Pass
		1880	-5.65	3.91	28.22	18.66	73.451	Vertical	Pass
		1909.3	-5.59	3.93	28.20	18.68	73.790	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.79	3.77	28.23	18.67	73.621	Vertical	Pass
		1880	-5.88	3.91	28.24	18.45	69.984	Vertical	Pass
		1908.5	-6.06	3.94	28.25	18.25	66.834	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.65	3.77	28.31	18.89	77.446	Vertical	Pass
		1880	-5.66	3.91	28.22	18.65	73.282	Vertical	Pass
		1907.5	-6.00	3.94	28.20	18.26	66.988	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-5.83	3.79	28.33	18.71	74.302	Vertical	Pass
		1880	-5.96	3.95	28.22	18.31	67.764	Vertical	Pass
		1905	-5.93	3.97	28.19	18.29	67.453	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-5.60	3.79	28.34	18.95	78.524	Vertical	Pass

Band		1880	-5.99	3.95	28.22	18.28	67.298	Vertical	Pass
QPSK		1902.5	-5.64	3.97	28.18	18.57	71.945	Vertical	Pass
20.0MHz		1860	-6.17	3.81	28.35	18.37	68.707	Vertical	Pass
Band	1/#Mid	1880	-5.73	3.96	28.22	18.53	71.285	Vertical	Pass
QPSK		1900	-5.73	4.00	28.16	18.43	69.663	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz		1850.7	-6.23	3.76	28.24	18.25	66.834	Horizontal	Pass
Band 16	1/#Mid	1880	-5.70	3.91	28.22	18.61	72.611	Horizontal	Pass
QAM		1909.3	-5.63	3.93	28.20	18.64	73.114	Horizontal	Pass
3.0MHz		1851.5	-5.73	3.77	28.23	18.73	74.645	Horizontal	Pass
Band 16	1/#Mid	1880	-5.81	3.91	28.24	18.52	71.121	Horizontal	Pass
QAM		1908.5	-6.02	3.94	28.25	18.29	67.453	Horizontal	Pass
5.0MHz		1852.5	-5.67	3.77	28.31	18.87	77.090	Horizontal	Pass
Band 16	1/#Mid	1880	-5.58	3.91	28.22	18.73	74.645	Horizontal	Pass
QAM		1907.5	-5.26	3.94	28.20	19.00	79.433	Horizontal	Pass
10.0MHz		1855	-5.72	3.79	28.33	18.82	76.208	Horizontal	Pass
Band 16	1/#Mid	1880	-5.71	3.95	28.22	18.56	71.779	Horizontal	Pass
QAM		1905	-5.18	3.97	28.19	19.04	80.168	Horizontal	Pass
15.0MHz		1857.5	-5.70	3.79	28.34	18.85	76.736	Horizontal	Pass
Band 16	1/#Mid	1880	-5.49	3.95	28.22	18.78	75.509	Horizontal	Pass
QAM		1902.5	-5.45	3.97	28.18	18.76	75.162	Horizontal	Pass
20.0MHz		1860	-5.59	3.81	28.35	18.95	78.524	Horizontal	Pass
Band 16	1/#Mid	1880	-5.29	3.96	28.22	18.97	78.886	Horizontal	Pass
QAM		1900	-5.11	4.00	28.16	**19.05**	80.353	Horizontal	Pass
1.4MHz		1850.7	-6.73	3.76	28.24	17.75	59.566	Vertical	Pass
Band 16	1/#Mid	1880	-6.26	3.91	28.22	18.05	63.826	Vertical	Pass
QAM		1909.3	-6.44	3.93	28.20	17.83	60.674	Vertical	Pass
3.0MHz		1851.5	-7.13	3.77	28.23	17.33	54.075	Vertical	Pass
Band 16	1/#Mid	1880	-6.77	3.91	28.24	17.56	57.016	Vertical	Pass
QAM		1908.5	-6.37	3.94	28.25	17.94	62.230	Vertical	Pass
5.0MHz		1852.5	-6.90	3.77	28.31	17.64	58.076	Vertical	Pass
Band 16	1/#Mid	1880	-7.01	3.91	28.22	17.30	53.703	Vertical	Pass
QAM		1907.5	-6.25	3.94	28.20	18.01	63.241	Vertical	Pass
10.0MHz	1/#Mid	1855	-6.99	3.79	28.33	17.55	56.885	Vertical	Pass

Band 16		1880	-6.96	3.95	28.22	17.31	53.827	Vertical	Pass
QAM		1905	-6.57	3.97	28.19	17.65	58.210	Vertical	Pass
15.0MHz		1857.5	-7.28	3.79	28.34	17.27	53.333	Vertical	Pass
Band 16	1/#Mid	1880	-6.29	3.95	28.22	17.98	62.806	Vertical	Pass
QAM		1902.5	-6.62	3.97	28.18	17.59	57.412	Vertical	Pass
20.0MHz		1860	-6.96	3.81	28.35	17.58	57.280	Vertical	Pass
Band 16	1/#Mid	1880	-6.56	3.96	28.22	17.70	58.884	Vertical	Pass
QAM		1900	-7.04	4.00	28.16	17.12	51.523	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-5.02	3.12	27.58	19.44	87.902	Horizontal	Pass
		1732.5	-5.01	3.27	27.61	19.33	85.704	Horizontal	Pass
		1754.3	-4.99	3.29	27.63	19.35	86.099	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.19	3.13	27.61	19.29	84.918	Horizontal	Pass
		1732.5	-5.11	3.27	27.61	19.23	83.753	Horizontal	Pass
		1753.5	-5.03	3.30	27.62	19.29	84.918	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.96	3.13	27.63	19.54	89.950	Horizontal	Pass
		1732.5	-4.86	3.27	27.61	19.48	88.716	Horizontal	Pass
		1752.5	-4.74	3.30	27.60	19.56	90.365	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.90	3.15	27.64	19.59	90.991	Horizontal	Pass
		1732.5	-4.67	3.31	27.61	19.63	91.833	Horizontal	Pass
		1750	-4.69	3.33	27.59	19.57	90.573	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.91	3.15	27.65	19.59	90.991	Horizontal	Pass
		1732.5	-4.75	3.31	27.61	19.55	90.157	Horizontal	Pass
		1747.5	-4.69	3.33	27.57	19.55	90.157	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.85	3.17	27.66	**19.64**	92.045	Horizontal	Pass
		1732.5	-4.68	3.32	27.61	19.61	91.411	Horizontal	Pass
		1745	-4.62	3.36	27.56	19.58	90.782	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-6.08	3.12	27.58	18.38	68.865	Vertical	Pass
		1732.5	-6.19	3.27	27.61	18.15	65.313	Vertical	Pass
		1754.3	-5.40	3.29	27.63	18.94	78.343	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.48	3.13	27.61	19.00	79.433	Vertical	Pass
		1732.5	-6.13	3.27	27.61	18.21	66.222	Vertical	Pass
		1753.5	-6.00	3.30	27.62	18.32	67.920	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.86	3.13	27.63	18.64	73.114	Vertical	Pass
		1732.5	-5.29	3.27	27.61	19.05	80.353	Vertical	Pass
		1752.5	-5.94	3.30	27.60	18.36	68.549	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.69	3.15	27.64	18.80	75.858	Vertical	Pass
		1732.5	-6.12	3.31	27.61	18.18	65.766	Vertical	Pass
		1750	-5.59	3.33	27.59	18.67	73.621	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-6.04	3.15	27.65	18.46	70.146	Vertical	Pass

Band		1732.5	-5.94	3.31	27.61	18.36	68.549	Vertical	Pass
QPSK		1747.5	-5.17	3.33	27.57	19.07	80.724	Vertical	Pass
20.0MHz		1720	-6.20	3.17	27.66	18.29	67.453	Vertical	Pass
Band	1/#Mid	1732.5	-5.27	3.32	27.61	19.02	79.799	Vertical	Pass
QPSK		1745	-5.47	3.36	27.56	18.73	74.645	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz		1710.7	-5.83	3.12	27.58	18.63	72.946	Horizontal	Pass
Band 16	1/#Mid	1732.5	-5.68	3.27	27.61	18.66	73.451	Horizontal	Pass
QAM		1754.3	-5.68	3.29	27.63	18.66	73.451	Horizontal	Pass
3.0MHz		1711.5	-5.77	3.13	27.61	18.71	74.302	Horizontal	Pass
Band 16	1/#Mid	1732.5	-5.90	3.27	27.61	18.44	69.823	Horizontal	Pass
QAM		1753.5	-6.12	3.30	27.62	18.20	66.069	Horizontal	Pass
5.0MHz		1712.5	-5.60	3.13	27.63	18.90	77.625	Horizontal	Pass
Band 16	1/#Mid	1732.5	-5.56	3.27	27.61	18.78	75.509	Horizontal	Pass
QAM		1752.5	-5.25	3.30	27.60	19.05	80.353	Horizontal	Pass
10.0MHz		1715	-5.67	3.15	27.64	18.82	76.208	Horizontal	Pass
Band 16	1/#Mid	1732.5	-5.86	3.31	27.61	18.44	69.823	Horizontal	Pass
QAM		1750	-5.24	3.33	27.59	19.02	79.799	Horizontal	Pass
15.0MHz		1717.5	-5.47	3.15	27.65	19.03	79.983	Horizontal	Pass
Band 16	1/#Mid	1732.5	-5.53	3.31	27.61	18.77	75.336	Horizontal	Pass
QAM		1747.5	-5.55	3.33	27.57	18.69	73.961	Horizontal	Pass
20.0MHz		1720	-5.42	3.17	27.66	**19.07**	80.724	Horizontal	Pass
Band 16	1/#Mid	1732.5	-5.43	3.32	27.61	18.86	76.913	Horizontal	Pass
QAM		1745	-5.24	3.36	27.56	18.96	78.705	Horizontal	Pass
1.4MHz		1710.7	-6.72	3.12	27.58	17.74	59.429	Vertical	Pass
Band 16	1/#Mid	1732.5	-6.91	3.27	27.61	17.43	55.335	Vertical	Pass
QAM		1754.3	-6.47	3.29	27.63	17.87	61.235	Vertical	Pass
3.0MHz		1711.5	-7.36	3.13	27.61	17.12	51.523	Vertical	Pass
Band 16	1/#Mid	1732.5	-6.93	3.27	27.61	17.41	55.081	Vertical	Pass
QAM		1753.5	-6.63	3.30	27.62	17.69	58.749	Vertical	Pass
5.0MHz		1712.5	-6.89	3.13	27.63	17.61	57.677	Vertical	Pass
Band 16	1/#Mid	1732.5	-6.77	3.27	27.61	17.57	57.148	Vertical	Pass
QAM		1752.5	-6.80	3.30	27.60	17.50	56.234	Vertical	Pass
10.0MHz	1/#Mid	1715	-6.85	3.15	27.64	17.64	58.076	Vertical	Pass

Band 16		1732.5	-7.02	3.31	27.61	17.28	53.456	Vertical	Pass
QAM		1750	-6.72	3.33	27.59	17.54	56.754	Vertical	Pass
15.0MHz		1717.5	-6.64	3.15	27.65	17.86	61.094	Vertical	Pass
Band 16	1/#Mid	1732.5	-6.88	3.31	27.61	17.42	55.208	Vertical	Pass
QAM		1747.5	-6.74	3.33	27.57	17.50	56.234	Vertical	Pass
20.0MHz		1720	-6.44	3.17	27.66	18.05	63.826	Vertical	Pass
Band 16	1/#Mid	1732.5	-6.93	3.32	27.61	17.36	54.450	Vertical	Pass
QAM		1745	-6.62	3.36	27.56	17.58	57.280	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	4.28	2.01	19.68	2.15	19.80	95.499	Horizontal	Pass
		836.5	4.16	2.01	19.77	2.15	19.77	94.842	Horizontal	Pass
		848.3	3.96	2.02	19.82	2.15	19.61	91.411	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	4.05	2.01	19.70	2.15	19.59	90.991	Horizontal	Pass
		836.5	3.95	2.01	19.77	2.15	19.56	90.365	Horizontal	Pass
		847.5	3.82	2.02	19.81	2.15	19.46	88.308	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.33	2.01	19.71	2.15	19.88	97.275	Horizontal	Pass
		836.5	4.21	2.01	19.77	2.15	19.82	95.940	Horizontal	Pass
		846.5	4.05	2.02	19.79	2.15	19.67	92.683	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	4.35	2.01	19.73	2.15	**19.92**	98.175	Horizontal	Pass
		836.5	4.30	2.01	19.77	2.15	19.91	97.949	Horizontal	Pass
		844	4.20	2.02	19.78	2.15	19.81	95.719	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	2.73	2.01	19.68	2.15	18.25	66.834	Vertical	Pass
		836.5	2.86	2.01	19.77	2.15	18.47	70.307	Vertical	Pass
		848.3	2.92	2.02	19.82	2.15	18.57	71.945	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	2.81	2.01	19.70	2.15	18.35	68.391	Vertical	Pass
		836.5	3.17	2.01	19.77	2.15	18.78	75.509	Vertical	Pass
		847.5	2.48	2.02	19.81	2.15	18.12	64.863	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	3.38	2.01	19.71	2.15	18.93	78.163	Vertical	Pass
		836.5	3.27	2.01	19.77	2.15	18.88	77.268	Vertical	Pass
		846.5	2.70	2.02	19.79	2.15	18.32	67.920	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	2.93	2.01	19.73	2.15	18.50	70.795	Vertical	Pass
		836.5	2.76	2.01	19.77	2.15	18.37	68.707	Vertical	Pass
		844	3.09	2.02	19.78	2.15	18.70	74.131	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/#Mid	824.7	3.43	2.01	19.68	2.15	18.95	78.524	Horizontal	Pass
		836.5	3.36	2.01	19.77	2.15	18.97	78.886	Horizontal	Pass
		848.3	3.20	2.02	19.82	2.15	18.85	76.736	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.51	2.01	19.70	2.15	19.05	80.353	Horizontal	Pass
		836.5	3.22	2.01	19.77	2.15	18.83	76.384	Horizontal	Pass
		847.5	2.70	2.02	19.81	2.15	18.34	68.234	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.83	2.01	19.71	2.15	19.38	86.696	Horizontal	Pass
		836.5	3.60	2.01	19.77	2.15	19.21	83.368	Horizontal	Pass
		846.5	3.35	2.02	19.79	2.15	18.97	78.886	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.83	2.01	19.73	2.15	**19.40**	87.096	Horizontal	Pass
		836.5	3.55	2.01	19.77	2.15	19.16	82.414	Horizontal	Pass
		844	3.09	2.02	19.78	2.15	18.70	74.131	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	2.83	2.01	19.68	2.15	18.35	68.391	Vertical	Pass
		836.5	2.05	2.01	19.77	2.15	17.66	58.345	Vertical	Pass
		848.3	2.76	2.02	19.82	2.15	18.41	69.343	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	2.52	2.01	19.70	2.15	18.06	63.973	Vertical	Pass
		836.5	1.61	2.01	19.77	2.15	17.22	52.723	Vertical	Pass
		847.5	1.77	2.02	19.81	2.15	17.41	55.081	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	1.74	2.01	19.71	2.15	17.29	53.580	Vertical	Pass
		836.5	1.50	2.01	19.77	2.15	17.11	51.404	Vertical	Pass
		846.5	3.32	2.02	19.79	2.15	18.94	78.343	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	1.60	2.01	19.73	2.15	17.17	52.119	Vertical	Pass
		836.5	2.66	2.01	19.77	2.15	18.27	67.143	Vertical	Pass
		844	2.56	2.02	19.78	2.15	18.17	65.615	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	-3.30	4.54	27.75	19.91	97.949	Horizontal	Pass
		2535	-3.13	4.69	27.72	19.90	97.724	Horizontal	Pass
		2567.5	-3.06	4.71	27.71	19.94	98.628	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.23	4.55	27.76	19.98	99.541	Horizontal	Pass
		2535	-3.04	4.69	27.72	19.99	99.770	Horizontal	Pass
		2565	-2.96	4.72	27.70	20.02	100.462	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.24	4.55	27.77	19.98	99.541	Horizontal	Pass
		2535	-3.10	4.69	27.72	19.93	98.401	Horizontal	Pass
		2562.5	-3.00	4.72	27.69	19.97	99.312	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.18	4.57	27.78	**20.03**	100.693	Horizontal	Pass
		2535	-3.00	4.73	27.72	19.99	99.770	Horizontal	Pass
		2560	-2.96	4.75	27.68	19.97	99.312	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-4.47	4.54	27.75	18.74	74.817	Vertical	Pass
		2535	-3.97	4.69	27.72	19.06	80.538	Vertical	Pass
		2567.5	-3.95	4.71	27.71	19.05	80.353	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-4.15	4.55	27.76	19.06	80.538	Vertical	Pass
		2535	-4.35	4.69	27.72	18.68	73.790	Vertical	Pass
		2565	-4.59	4.72	27.70	18.39	69.024	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-4.67	4.55	27.77	18.55	71.614	Vertical	Pass
		2535	-4.60	4.69	27.72	18.43	69.663	Vertical	Pass
		2562.5	-3.97	4.72	27.69	19.00	79.433	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-4.57	4.57	27.78	18.64	73.114	Vertical	Pass
		2535	-4.46	4.73	27.72	18.53	71.285	Vertical	Pass
		2560	-4.10	4.75	27.68	18.83	76.384	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.99	4.54	27.75	19.22	83.560	Horizontal	Pass
		2535	-3.68	4.69	27.72	19.35	86.099	Horizontal	Pass
		2567.5	-3.76	4.71	27.71	19.24	83.946	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.88	4.55	27.76	19.33	85.704	Horizontal	Pass
		2535	-3.89	4.69	27.72	19.14	82.035	Horizontal	Pass
		2565	-4.16	4.72	27.70	18.82	76.208	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.06	4.55	27.77	19.16	82.414	Horizontal	Pass
		2535	-4.03	4.69	27.72	19.00	79.433	Horizontal	Pass
		2562.5	-3.64	4.72	27.69	19.33	85.704	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.94	4.57	27.78	19.27	84.528	Horizontal	Pass
		2535	-3.61	4.73	27.72	**19.38**	86.696	Horizontal	Pass
		2560	-3.71	4.75	27.68	19.22	83.560	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.72	4.54	27.75	18.49	70.632	Vertical	Pass
		2535	-5.03	4.69	27.72	18.00	63.096	Vertical	Pass
		2567.5	-4.78	4.71	27.71	18.22	66.374	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-5.99	4.55	27.76	17.22	52.723	Vertical	Pass
		2535	-5.54	4.69	27.72	17.49	56.105	Vertical	Pass
		2565	-5.83	4.72	27.70	17.15	51.880	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.77	4.55	27.77	18.45	69.984	Vertical	Pass
		2535	-5.32	4.69	27.72	17.71	59.020	Vertical	Pass
		2562.5	-4.30	4.72	27.69	18.67	73.621	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-5.68	4.57	27.78	17.53	56.624	Vertical	Pass
		2535	-4.04	4.73	27.72	18.95	78.524	Vertical	Pass
		2560	-4.26	4.75	27.68	18.67	73.621	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	4.65	1.91	19.21	2.15	19.80	95.499	Vertical	Pass
		707.5	4.57	1.91	19.26	2.15	19.77	94.842	Vertical	Pass
		715.3	4.35	1.93	19.34	2.15	19.61	91.411	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.44	1.91	19.21	2.15	19.59	90.991	Vertical	Pass
		707.5	4.36	1.91	19.26	2.15	19.56	90.365	Vertical	Pass
		714.5	4.20	1.93	19.34	2.15	19.46	88.308	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	4.71	1.91	19.23	2.15	19.88	97.275	Vertical	Pass
		707.5	4.62	1.91	19.26	2.15	19.82	95.940	Vertical	Pass
		713.5	4.41	1.92	19.33	2.15	19.67	92.683	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	4.73	1.91	19.25	2.15	**19.92**	98.175	Vertical	Pass
		707.5	4.71	1.91	19.26	2.15	19.91	97.949	Vertical	Pass
		711	4.56	1.92	19.32	2.15	19.81	95.719	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	3.64	1.91	19.21	2.15	18.79	75.683	Horizontal	Pass
		707.5	3.51	1.91	19.26	2.15	18.71	74.302	Horizontal	Pass
		715.3	3.64	1.93	19.34	2.15	18.90	77.625	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	3.21	1.91	19.21	2.15	18.36	68.549	Horizontal	Pass
		707.5	2.96	1.91	19.26	2.15	18.16	65.464	Horizontal	Pass
		714.5	3.20	1.93	19.34	2.15	18.46	70.146	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	3.63	1.91	19.23	2.15	18.80	75.858	Horizontal	Pass
		707.5	3.46	1.91	19.26	2.15	18.66	73.451	Horizontal	Pass
		713.5	3.66	1.92	19.33	2.15	18.92	77.983	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	3.24	1.91	19.25	2.15	18.43	69.663	Horizontal	Pass
		707.5	3.17	1.91	19.26	2.15	18.37	68.707	Horizontal	Pass
		711	2.98	1.92	19.32	2.15	18.23	66.527	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	699.7	4.68	1.91	19.21	2.15	19.83	96.161	Vertical	Pass
		707.5	4.60	1.91	19.26	2.15	19.80	95.499	Vertical	Pass
		715.3	4.38	1.93	19.34	2.15	19.64	92.045	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.47	1.91	19.21	2.15	19.62	91.622	Vertical	Pass
		707.5	4.39	1.91	19.26	2.15	19.59	90.991	Vertical	Pass
		714.5	4.23	1.93	19.34	2.15	19.49	88.920	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	4.74	1.91	19.23	2.15	19.91	97.949	Vertical	Pass
		707.5	4.65	1.91	19.26	2.15	19.85	96.605	Vertical	Pass
		713.5	4.44	1.92	19.33	2.15	19.70	93.325	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.76	1.91	19.25	2.15	**19.95**	98.855	Vertical	Pass
		707.5	4.74	1.91	19.26	2.15	19.94	98.628	Vertical	Pass
		711	4.59	1.92	19.32	2.15	19.84	96.383	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	3.49	1.91	19.21	2.15	18.64	73.114	Horizontal	Pass
		707.5	3.39	1.91	19.26	2.15	18.59	72.277	Horizontal	Pass
		715.3	3.41	1.93	19.34	2.15	18.67	73.621	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	3.37	1.91	19.21	2.15	18.52	71.121	Horizontal	Pass
		707.5	3.27	1.91	19.26	2.15	18.47	70.307	Horizontal	Pass
		714.5	3.57	1.93	19.34	2.15	18.83	76.384	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	3.28	1.91	19.23	2.15	18.45	69.984	Horizontal	Pass
		707.5	3.72	1.91	19.26	2.15	18.92	77.983	Horizontal	Pass
		713.5	3.67	1.92	19.33	2.15	18.93	78.163	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	3.28	1.91	19.25	2.15	18.47	70.307	Horizontal	Pass
		707.5	3.64	1.91	19.26	2.15	18.84	76.560	Horizontal	Pass
		711	3.70	1.92	19.32	2.15	18.95	78.524	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	5.14	1.91	19.23	2.15	20.31	107.399	Vertical	Pass
		710	5.00	1.91	19.26	2.15	20.20	104.713	Vertical	Pass
		713.5	4.90	1.92	19.33	2.15	20.16	103.753	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	5.15	1.91	19.25	2.15	**20.34**	108.143	Vertical	Pass
		710	5.10	1.91	19.26	2.15	20.30	107.152	Vertical	Pass
		711	5.06	1.92	19.32	2.15	20.31	107.399	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	3.16	1.91	19.23	2.15	18.33	68.077	Horizontal	Pass
		710	3.37	1.91	19.26	2.15	18.57	71.945	Horizontal	Pass
		713.5	2.90	1.92	19.33	2.15	18.16	65.464	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	4.05	1.91	19.25	2.15	19.24	83.946	Horizontal	Pass
		710	4.60	1.91	19.26	2.15	19.80	95.499	Horizontal	Pass
		711	4.70	1.92	19.32	2.15	19.95	98.855	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	4.58	1.91	19.23	2.15	19.75	94.406	Vertical	Pass
		710	4.49	1.91	19.26	2.15	19.69	93.111	Vertical	Pass
		713.5	4.29	1.92	19.33	2.15	19.55	90.157	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	4.12	1.91	19.25	2.15	19.31	85.310	Vertical	Pass
		710	4.65	1.91	19.26	2.15	**19.85**	96.605	Vertical	Pass
		711	4.38	1.92	19.32	2.15	19.63	91.833	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	3.27	1.91	19.23	2.15	18.44	69.823	Horizontal	Pass
		710	3.15	1.91	19.26	2.15	18.35	68.391	Horizontal	Pass
		713.5	3.21	1.92	19.33	2.15	18.47	70.307	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	3.57	1.91	19.25	2.15	18.76	75.162	Horizontal	Pass
		710	3.88	1.91	19.26	2.15	19.08	80.910	Horizontal	Pass
		711	3.16	1.92	19.32	2.15	18.41	69.343	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.8 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2537.5	-3.48	4.54	27.75	19.73	93.972	Horizontal	Pass
		2595	-3.33	4.69	27.72	19.70	93.325	Horizontal	Pass
		2652.5	-3.21	4.71	27.71	19.79	95.280	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2540	-3.56	4.55	27.76	19.65	92.257	Horizontal	Pass
		2595	-3.42	4.69	27.72	19.61	91.411	Horizontal	Pass
		2650	-3.41	4.72	27.70	19.57	90.573	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-3.39	4.55	27.77	19.83	96.161	Horizontal	Pass
		2595	-3.11	4.69	27.72	19.92	98.175	Horizontal	Pass
		2647.5	-3.16	4.72	27.69	19.81	95.719	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2545	-3.27	4.57	27.78	19.94	98.628	Horizontal	Pass
		2595	-3.05	4.73	27.72	19.94	98.628	Horizontal	Pass
		2645	-3.05	4.75	27.68	19.88	97.275	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2537.5	-3.28	4.54	27.75	19.93	98.401	Vertical	Pass
		2595	-3.19	4.69	27.72	19.84	96.383	Vertical	Pass
		265.2	-3.17	4.71	27.71	19.83	96.161	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2540	-3.26	4.55	27.76	18.42	69.502	Vertical	Pass
		2595	-3.10	4.69	27.72	19.93	98.401	Vertical	Pass
		2650	-3.17	4.72	27.70	19.81	95.719	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-4.54	4.55	27.77	18.68	73.790	Vertical	Pass
		2595	-4.66	4.69	27.72	18.37	68.707	Vertical	Pass
		2647.5	-4.70	4.72	27.69	18.27	67.143	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2545	-4.82	4.57	27.78	18.39	69.024	Vertical	Pass
		2595	-4.37	4.73	27.72	18.62	72.778	Vertical	Pass
		2645	-4.51	4.75	27.68	**19.95**	98.855	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2537.5	-3.62	4.54	27.75	19.59	90.991	Horizontal	Pass
		2595	-3.47	4.69	27.72	19.56	90.365	Horizontal	Pass
		2652.5	-3.35	4.71	27.71	19.65	92.257	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-3.70	4.55	27.76	19.51	89.331	Horizontal	Pass
		2595	-3.56	4.69	27.72	19.47	88.512	Horizontal	Pass
		2650	-3.55	4.72	27.70	19.43	87.700	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-3.53	4.55	27.77	19.69	93.111	Horizontal	Pass
		2595	-3.25	4.69	27.72	19.78	95.060	Horizontal	Pass
		2647.5	-3.30	4.72	27.69	19.67	92.683	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-3.41	4.57	27.78	19.80	95.499	Horizontal	Pass
		2595	-3.19	4.73	27.72	19.80	95.499	Horizontal	Pass
		2645	-3.19	4.75	27.68	19.74	94.189	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2537.5	-3.42	4.54	27.75	19.79	95.280	Vertical	Pass
		2595	-3.33	4.69	27.72	19.70	93.325	Vertical	Pass
		265.2	-3.31	4.71	27.71	19.69	93.111	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-3.40	4.55	27.76	18.38	68.865	Vertical	Pass
		2595	-3.24	4.69	27.72	19.79	95.280	Vertical	Pass
		2650	-3.31	4.72	27.70	19.67	92.683	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-4.75	4.55	27.77	18.47	70.307	Vertical	Pass
		2595	-4.77	4.69	27.72	18.26	66.988	Vertical	Pass
		2647.5	-3.93	4.72	27.69	19.04	80.168	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-4.73	4.57	27.78	18.48	70.469	Vertical	Pass
		2595	-4.21	4.73	27.72	18.78	75.509	Vertical	Pass
		2645	-4.55	4.75	27.68	**19.81**	95.719	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)

8.9 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-4.89	3.76	28.24	19.14	82.035	Horizontal	Pass
		1745	-4.75	3.91	28.22	19.11	81.470	Horizontal	Pass
		1779.3	-4.62	3.93	28.2	19.20	83.176	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.95	3.77	28.23	19.06	80.538	Horizontal	Pass
		1745	-4.86	3.91	28.24	19.02	79.799	Horizontal	Pass
		1778.5	-4.88	3.94	28.25	18.98	79.068	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.85	3.77	28.31	19.24	83.946	Horizontal	Pass
		1745	-4.53	3.91	28.22	19.33	85.704	Horizontal	Pass
		1777.5	-4.59	3.94	28.2	19.22	83.560	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.74	3.79	28.33	19.35	86.099	Horizontal	Pass
		1745	-4.47	3.95	28.22	19.35	86.099	Horizontal	Pass
		1775	-4.48	3.97	28.19	19.29	84.918	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.76	3.79	28.34	19.34	85.901	Horizontal	Pass
		1745	-4.57	3.95	28.22	19.25	84.140	Horizontal	Pass
		1772.5	-4.52	3.97	28.18	19.24	83.946	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.73	3.81	28.35	**19.36**	86.298	Horizontal	Pass
		1745	-4.47	3.96	28.22	19.34	85.901	Horizontal	Pass
		1770	-4.49	4	28.16	19.22	83.560	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-5.71	3.76	28.24	18.32	67.920	Vertical	Pass
		1745	-5.78	3.91	28.22	18.08	64.269	Vertical	Pass
		1779.3	-5.22	3.93	28.2	18.60	72.444	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-6.05	3.77	28.23	17.96	62.517	Vertical	Pass
		1745	-5.43	3.91	28.24	18.45	69.984	Vertical	Pass
		1778.5	-5.25	3.94	28.25	18.61	72.611	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-6.22	3.77	28.31	17.87	61.235	Vertical	Pass
		1745	-5.48	3.91	28.22	18.38	68.865	Vertical	Pass
		1777.5	-5.77	3.94	28.2	18.04	63.680	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-5.82	3.79	28.34	18.28	67.298	Vertical	Pass
		1745	-5.68	3.95	28.22	18.14	65.163	Vertical	Pass

QPSK		1775	-5.53	3.97	28.18	18.23	66.527	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-5.68	3.81	28.35	18.41	69.343	Vertical	Pass
Band		1745	-5.22	3.96	28.22	18.59	72.277	Vertical	Pass
QPSK		1772.5	-5.98	4	28.16	17.73	59.293	Vertical	Pass
20.0MHz	1/#Mid	1720	-5.87	3.79	28.34	18.23	66.527	Vertical	Pass
Band		1745	-6.13	3.95	28.22	17.69	58.749	Vertical	Pass
QPSK		1770	-6.11	3.97	28.18	17.65	58.210	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.72	3.76	28.24	18.76	75.162	Horizontal	Pass
		1745	-5.33	3.91	28.22	18.98	79.068	Horizontal	Pass
		1779.3	-5.51	3.93	28.2	18.76	75.162	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.11	3.77	28.23	18.35	68.391	Horizontal	Pass
		1745	-5.36	3.91	28.24	18.97	78.886	Horizontal	Pass
		1778.5	-5.65	3.94	28.25	18.66	73.451	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.53	3.77	28.31	19.01	79.616	Horizontal	Pass
		1745	-5.59	3.91	28.22	18.72	74.473	Horizontal	Pass
		1777.5	-5.26	3.94	28.2	19.00	79.433	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.58	3.79	28.33	18.96	78.705	Horizontal	Pass
		1745	-5.24	3.95	28.22	19.03	79.983	Horizontal	Pass
		1775	-5.56	3.97	28.19	18.66	73.451	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-5.57	3.79	28.34	18.98	79.068	Horizontal	Pass
		1745	-5.39	3.95	28.22	18.88	77.268	Horizontal	Pass
		1772.5	-5.18	3.97	28.18	19.03	79.983	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-5.40	3.81	28.35	**19.14**	82.035	Horizontal	Pass
		1745	-5.18	3.96	28.22	19.08	80.910	Horizontal	Pass
		1770	-5.12	4	28.16	19.04	80.168	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.93	3.76	28.24	18.55	71.614	Vertical	Pass
		1745	-6.00	3.91	28.22	18.31	67.764	Vertical	Pass
		1779.3	-7.19	3.93	28.2	17.08	51.050	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.04	3.77	28.23	18.42	69.502	Vertical	Pass
		1745	-7.14	3.91	28.24	17.19	52.360	Vertical	Pass
		1778.5	-6.61	3.94	28.25	17.70	58.884	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.01	3.77	28.31	18.53	71.285	Vertical	Pass
		1745	-5.76	3.91	28.22	18.55	71.614	Vertical	Pass
		1777.5	-6.57	3.94	28.2	17.69	58.749	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-6.32	3.79	28.34	18.23	66.527	Vertical	Pass
		1745	-5.36	3.95	28.22	18.91	77.804	Vertical	Pass
		1775	-5.78	3.97	28.18	18.43	69.663	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-6.77	3.81	28.35	17.77	59.841	Vertical	Pass

Band 16		1745	-6.80	3.96	28.22	17.46	55.719	Vertical	Pass
QAM		1772.5	-6.02	4	28.16	18.14	65.163	Vertical	Pass
20.0MHz	1/#Mid	1720	-6.57	3.79	28.34	17.98	62.806	Vertical	Pass
Band 16		1745	-6.84	3.95	28.22	17.43	55.335	Vertical	Pass
QAM		1770	-6.34	3.97	28.18	17.87	61.235	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 log10(P) dB.

TEST PROCEDURE

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

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

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

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:
a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (p) at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

LTE Band 2/4/5/7/12/17/41/66

RESULTS
PASS

9.1 LTE BAND 2

QPSK EIRP POWER FOR LTE BAND 2 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3701.4	-45.76	4.04	33.51	-16.29	-13	-3.29	Horizontal
3701.4	-51.62	4.04	33.51	-22.15	-13	-9.15	Vertical
5552.1	-53.51	5.24	35.84	-22.91	-13	-9.91	Vertical
5552.1	-51.33	5.24	35.84	-20.73	-13	-7.73	Horizontal
189.1	-35.88	1.43	16.02	-21.29	-13	-8.29	Vertical
439.1	-35.51	1.30	17.99	-18.82	-13	-5.82	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-45.47	4.04	33.56	-15.95	-13	-2.95	Horizontal
3760.0	-52.60	4.04	33.56	-23.08	-13	-10.08	Vertical
5640.0	-45.77	5.24	35.91	-15.10	-13	-2.10	Vertical
5640.0	-53.64	5.24	35.91	-22.97	-13	-9.97	Horizontal
188.9	-37.73	1.62	16.97	-22.38	-13	-9.38	Vertical
366.7	-43.09	1.74	15.98	-28.86	-13	-15.86	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-52.06	4.04	34.00	-22.10	-13	-9.10	Horizontal
3818.6	-53.67	4.04	34.00	-23.71	-13	-10.71	Vertical
5727.9	-51.88	5.24	36.04	-21.08	-13	-8.08	Vertical
5727.9	-50.26	5.24	36.04	-19.46	-13	-6.46	Horizontal
192.1	-37.94	1.42	17.29	-22.07	-13	-9.07	Vertical
386.2	-36.91	1.50	17.90	-20.50	-13	-7.50	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3720.0	-53.81	4.07	33.54	-24.34	-13	-11.34	Horizontal
3720.0	-49.17	4.07	33.54	-19.70	-13	-6.70	Vertical
5580.0	-51.82	5.28	35.86	-21.24	-13	-8.24	Vertical
5580.0	-50.25	5.28	35.86	-19.67	-13	-6.67	Horizontal
192.4	-44.45	1.58	16.89	-29.13	-13	-16.13	Vertical
250.3	-43.11	1.76	17.26	-27.61	-13	-14.61	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-46.16	4.04	33.56	-16.64	-13	-3.64	Horizontal
3760.0	-52.42	4.04	33.56	-22.90	-13	-9.90	Vertical
5640.0	-49.73	5.24	35.91	-19.06	-13	-6.06	Vertical
5640.0	-50.91	5.24	35.91	-20.24	-13	-7.24	Horizontal
200.4	-35.93	1.46	16.27	-21.12	-13	-8.12	Vertical
380.6	-34.93	1.59	15.15	-21.37	-13	-8.37	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-45.19	4.04	34.00	-15.23	-13	-2.23	Horizontal
3800.0	-46.31	4.04	34.00	-16.35	-13	-3.35	Vertical
5700.0	-47.60	5.24	36.04	-16.80	-13	-3.80	Vertical
5700.0	-50.90	5.24	36.04	-20.10	-13	-7.10	Horizontal
199.7	-38.81	1.36	17.39	-22.77	-13	-9.77	Vertical
375.3	-44.36	1.66	15.39	-30.63	-13	-17.63	Horizontal

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

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3421.4	-49.39	4.02	29.80	-23.61	-13	-10.61	Horizontal
3421.4	-46.37	4.02	29.80	-20.59	-13	-7.59	Vertical
5132.1	-52.35	5.24	35.84	-21.75	-13	-8.75	Vertical
5132.1	-50.80	5.24	35.84	-20.20	-13	-7.20	Horizontal
175.9	-40.65	1.68	16.04	-26.29	-13	-13.29	Vertical
330.4	-38.37	1.78	17.74	-22.41	-13	-9.41	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.74	4.03	30.00	-22.77	-13	-9.77	Horizontal
3465.0	-50.23	4.03	30.00	-24.26	-13	-11.26	Vertical
5197.5	-48.63	5.25	35.86	-18.02	-13	-5.02	Vertical
5197.5	-52.45	5.25	35.86	-21.84	-13	-8.84	Horizontal
203.2	-42.10	1.72	17.69	-26.13	-13	-13.13	Vertical
343.4	-34.74	1.62	16.02	-20.33	-13	-7.33	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-53.81	4.05	30.01	-27.85	-13	-14.85	Horizontal
3508.6	-48.64	4.05	30.01	-22.68	-13	-9.68	Vertical
5262.9	-46.31	5.26	35.86	-15.71	-13	-2.71	Vertical
5262.9	-51.68	5.26	35.86	-21.08	-13	-8.08	Horizontal
189.9	-38.06	1.80	16.69	-23.17	-13	-10.17	Vertical
460.0	-44.83	1.75	16.66	-29.93	-13	-16.93	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3440.0	-50.34	4.02	29.80	-24.56	-13	-11.56	Horizontal
3440.0	-48.70	4.02	29.80	-22.92	-13	-9.92	Vertical
5160.0	-50.61	5.24	35.84	-20.01	-13	-7.01	Vertical
5160.0	-51.45	5.24	35.84	-20.85	-13	-7.85	Horizontal
190.6	-40.73	1.57	17.26	-25.04	-13	-12.04	Vertical
348.6	-41.26	1.78	16.35	-26.69	-13	-13.69	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-51.44	4.03	30.00	-25.47	-13	-12.47	Horizontal
3465.0	-46.99	4.03	30.00	-21.02	-13	-8.02	Vertical
5197.5	-46.83	5.25	35.86	-16.22	-13	-3.22	Vertical
5197.5	-49.18	5.25	35.86	-18.57	-13	-5.57	Horizontal
180.8	-40.07	1.44	17.95	-23.56	-13	-10.56	Vertical
415.3	-34.08	1.65	16.09	-19.64	-13	-6.64	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-44.69	2.91	27.68	-19.92	-13	-6.92	Horizontal
3490.0	-53.16	2.91	27.68	-28.39	-13	-15.39	Vertical
5235.0	-46.11	5.26	35.86	-15.51	-13	-2.51	Vertical
5235.0	-49.61	5.26	35.86	-19.01	-13	-6.01	Horizontal
198.1	-40.22	1.61	16.85	-24.98	-13	-11.98	Vertical
251.0	-37.82	1.61	15.19	-24.24	-13	-11.24	Horizontal

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

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1649.4	-45.88	2.78	27.50	-21.16	-13	-8.16	Horizontal
1649.4	-51.64	2.78	27.50	-26.92	-13	-13.92	Vertical
2474.1	-44.40	2.90	27.80	-19.50	-13	-6.50	Vertical
2474.1	-53.22	2.90	27.80	-28.32	-13	-15.32	Horizontal
210.6	-40.12	1.76	17.59	-24.29	-13	-11.29	Vertical
315.9	-40.08	1.63	15.87	-25.84	-13	-12.84	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-49.83	2.80	27.48	-25.15	-13	-12.15	Horizontal
1673.0	-45.92	2.80	27.48	-21.24	-13	-8.24	Vertical
2509.5	-50.96	2.91	27.70	-26.17	-13	-13.17	Vertical
2509.5	-50.62	2.91	27.70	-25.83	-13	-12.83	Horizontal
191.2	-38.52	1.61	15.68	-24.45	-13	-11.45	Vertical
413.7	-35.12	1.59	17.52	-19.20	-13	-6.20	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-47.35	2.82	27.43	-22.74	-13	-9.74	Horizontal
1696.6	-52.64	2.82	27.43	-28.03	-13	-15.03	Vertical
2544.9	-51.76	2.92	27.74	-26.94	-13	-13.94	Vertical
2544.9	-49.28	2.92	27.74	-24.46	-13	-11.46	Horizontal
192.5	-37.11	1.69	16.67	-22.12	-13	-9.12	Vertical
266.6	-34.31	1.70	17.18	-18.83	-13	-5.83	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1658.0	-47.91	2.78	27.50	-23.19	-13	-10.19	Horizontal
1658.0	-46.74	2.78	27.50	-22.02	-13	-9.02	Vertical
2487.0	-49.13	2.90	27.80	-24.23	-13	-11.23	Vertical
2487.0	-53.99	2.90	27.80	-29.09	-13	-16.09	Horizontal
184.9	-35.35	1.71	15.57	-21.49	-13	-8.49	Vertical
376.8	-44.05	1.34	16.40	-28.99	-13	-15.99	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-53.71	2.80	27.48	-29.03	-13	-16.03	Horizontal
1673.0	-51.16	2.80	27.48	-26.48	-13	-13.48	Vertical
2509.5	-50.84	2.91	27.70	-26.05	-13	-13.05	Vertical
2509.5	-52.80	2.91	27.70	-28.01	-13	-15.01	Horizontal
201.6	-39.96	1.44	17.04	-24.36	-13	-11.36	Vertical
262.7	-38.10	1.76	17.62	-22.24	-13	-9.24	Horizontal
Test Results for High Channel 844MHz							
1688.0	-49.29	2.82	27.43	-24.68	-13	-11.68	Horizontal
1688.0	-47.80	2.82	27.43	-23.19	-13	-10.19	Vertical
2532.0	-49.27	2.92	27.74	-24.45	-13	-11.45	Vertical
2532.0	-50.39	2.92	27.74	-25.57	-13	-12.57	Horizontal
209.6	-39.23	1.74	17.70	-23.27	-13	-10.27	Vertical
261.2	-37.91	1.41	17.46	-21.85	-13	-8.85	Horizontal

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

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5005.0	-64.49	5.23	35.81	-33.91	-25	-8.91	Horizontal
5005.0	-61.61	5.23	35.81	-31.03	-25	-6.03	Vertical
7507.5	-62.76	5.67	36.85	-31.58	-25	-6.58	Vertical
7507.5	-63.16	5.67	36.85	-31.98	-25	-6.98	Horizontal
196.5	-45.27	1.73	17.97	-29.03	-25	-4.03	Vertical
376.0	-48.28	1.38	15.11	-34.55	-25	-9.55	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-64.78	5.23	35.82	-34.19	-25	-9.19	Horizontal
5070.0	-63.17	5.23	35.82	-32.58	-25	-7.58	Vertical
7605.0	-63.38	5.67	36.85	-32.20	-25	-7.20	Vertical
7605.0	-59.52	5.67	36.85	-28.34	-25	-3.34	Horizontal
194.9	-52.01	1.77	16.17	-37.60	-25	-12.60	Vertical
422.9	-50.79	1.63	15.21	-37.21	-25	-12.21	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.28	5.24	35.83	-30.69	-25	-5.69	Horizontal
5135.0	-63.78	5.24	35.83	-33.19	-25	-8.19	Vertical
7702.5	-64.25	5.68	36.87	-33.06	-25	-8.06	Vertical
7702.5	-64.39	5.68	36.87	-33.20	-25	-8.20	Horizontal
183.2	-48.40	1.58	17.56	-32.42	-25	-7.42	Vertical
231.6	-50.56	1.45	16.58	-35.43	-25	-10.43	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5020.0	-63.22	5.23	35.82	-32.63	-25	-7.63	Horizontal
5020.0	-62.18	5.23	35.82	-31.59	-25	-6.59	Vertical
7530.0	-62.70	5.67	36.86	-31.51	-25	-6.51	Vertical
7530.0	-59.75	5.67	36.86	-28.56	-25	-3.56	Horizontal
190.6	-47.46	1.63	15.76	-33.33	-25	-8.33	Vertical
282.1	-49.68	1.71	15.44	-35.95	-25	-10.95	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.43	5.23	35.82	-31.84	-25	-6.84	Horizontal
5070.0	-61.87	5.23	35.82	-31.28	-25	-6.28	Vertical
7605.0	-64.00	5.67	36.85	-32.82	-25	-7.82	Vertical
7605.0	-59.45	5.67	36.85	-28.27	-25	-3.27	Horizontal
209.0	-53.77	1.79	16.84	-38.71	-25	-13.71	Vertical
372.6	-50.23	1.71	17.64	-34.30	-25	-9.30	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.39	5.24	35.83	-30.80	-25	-5.80	Horizontal
5120.0	-63.78	5.24	35.83	-33.19	-25	-8.19	Vertical
7680.0	-60.98	5.70	36.88	-29.80	-25	-4.80	Vertical
7680.0	-60.51	5.70	36.88	-29.33	-25	-4.33	Horizontal
201.7	-49.45	1.79	16.84	-34.39	-25	-9.39	Vertical
340.6	-44.94	1.71	17.64	-29.01	-25	-4.01	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1399.4	-49.69	2.60	27.20	-25.09	-13	-12.09	Horizontal
1399.4	-46.32	2.60	27.20	-21.72	-13	-8.72	Vertical
2099.1	-46.48	2.85	27.54	-21.79	-13	-8.79	Vertical
2099.1	-49.15	2.85	27.54	-24.46	-13	-11.46	Horizontal
175.9	-44.24	1.49	17.78	-27.95	-13	-14.95	Vertical
340.6	-35.90	1.36	17.33	-19.93	-13	-6.93	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-46.99	2.61	27.28	-22.32	-13	-9.32	Horizontal
1415.0	-46.48	2.61	27.28	-21.81	-13	-8.81	Vertical
2122.5	-48.48	2.87	27.59	-23.76	-13	-10.76	Vertical
2122.5	-53.32	2.87	27.59	-28.60	-13	-15.60	Horizontal
207.3	-42.72	1.73	15.74	-28.71	-13	-15.71	Vertical
345.2	-44.82	1.62	15.79	-30.65	-13	-17.65	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-50.98	2.63	27.28	-26.33	-13	-13.33	Horizontal
1430.6	-48.33	2.63	27.28	-23.68	-13	-10.68	Vertical
2145.9	-53.35	2.88	27.60	-28.63	-13	-15.63	Vertical
2145.9	-49.52	2.88	27.60	-24.80	-13	-11.80	Horizontal
176.1	-40.87	1.61	18.00	-24.48	-13	-11.48	Vertical
255.7	-36.09	1.45	15.49	-22.06	-13	-9.06	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1408.0	-47.17	2.61	27.26	-22.52	-13	-9.52	Horizontal
1408.0	-52.80	2.61	27.26	-28.15	-13	-15.15	Vertical
2112.0	-47.73	2.87	27.58	-23.02	-13	-10.02	Vertical
2112.0	-52.62	2.87	27.58	-27.91	-13	-14.91	Horizontal
180.7	-43.41	1.31	16.97	-27.75	-13	-14.75	Vertical
305.4	-38.37	1.65	16.70	-23.32	-13	-10.32	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-45.51	2.61	27.28	-20.84	-13	-7.84	Horizontal
1415.0	-46.30	2.61	27.28	-21.63	-13	-8.63	Vertical
2122.5	-51.15	2.87	27.59	-26.43	-13	-13.43	Vertical
2122.5	-50.01	2.87	27.59	-25.29	-13	-12.29	Horizontal
202.8	-41.46	1.72	17.99	-25.19	-13	-12.19	Vertical
247.2	-37.25	1.73	17.94	-21.04	-13	-8.04	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.25	2.62	27.28	-24.59	-13	-11.59	Horizontal
1422.0	-50.82	2.62	27.28	-26.16	-13	-13.16	Vertical
2133.0	-45.99	2.87	27.60	-21.26	-13	-8.26	Vertical
2133.0	-49.87	2.87	27.60	-25.14	-13	-12.14	Horizontal
209.8	-42.19	1.58	15.93	-27.84	-13	-14.84	Vertical
462.2	-44.79	1.36	15.59	-30.56	-13	-17.56	Horizontal

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

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.6 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1413.0	-46.00	2.61	27.28	-21.33	-13	-8.33	Horizontal
1413.0	-49.97	2.61	27.28	-25.30	-13	-12.30	Vertical
2119.5	-47.67	2.87	27.59	-22.95	-13	-9.95	Vertical
2119.5	-52.36	2.87	27.59	-27.64	-13	-14.64	Horizontal
202.7	-35.99	1.71	16.15	-21.55	-13	-8.55	Vertical
433.5	-44.96	1.41	17.32	-29.05	-13	-16.05	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-49.97	2.62	27.30	-25.29	-13	-12.29	Horizontal
1420.0	-51.80	2.62	27.30	-27.12	-13	-14.12	Vertical
2130.0	-46.09	2.87	27.62	-21.34	-13	-8.34	Vertical
2130.0	-49.80	2.87	27.62	-25.05	-13	-12.05	Horizontal
202.1	-39.25	1.42	15.25	-25.43	-13	-12.43	Vertical
378.5	-38.87	1.36	17.19	-23.04	-13	-10.04	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-53.19	2.66	27.28	-28.57	-13	-15.57	Horizontal
1427.0	-47.76	2.66	27.28	-23.14	-13	-10.14	Vertical
2140.5	-52.20	2.88	27.60	-27.48	-13	-14.48	Vertical
2140.5	-52.24	2.88	27.60	-27.52	-13	-14.52	Horizontal
186.9	-41.05	1.32	17.29	-25.08	-13	-12.08	Vertical
283.7	-44.62	1.72	16.89	-29.45	-13	-16.45	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1418.0	-51.22	2.62	27.30	-26.54	-13	-13.54	Horizontal
1418.0	-50.35	2.62	27.30	-25.67	-13	-12.67	Vertical
2127.0	-51.23	2.87	27.62	-26.48	-13	-13.48	Vertical
2127.0	-50.90	2.87	27.62	-26.15	-13	-13.15	Horizontal
180.8	-34.15	1.35	16.91	-18.59	-13	-5.59	Vertical
445.7	-39.96	1.62	16.31	-25.27	-13	-12.27	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-47.17	2.62	27.30	-22.49	-13	-9.49	Horizontal
1420.0	-47.08	2.62	27.30	-22.40	-13	-9.40	Vertical
2130.0	-52.50	2.87	27.62	-27.75	-13	-14.75	Vertical
2130.0	-51.36	2.87	27.62	-26.61	-13	-13.61	Horizontal
204.9	-37.32	1.51	17.14	-21.69	-13	-8.69	Vertical
355.6	-34.37	1.77	16.88	-19.26	-13	-6.26	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.03	2.62	27.30	-22.35	-13	-9.35	Horizontal
1422.0	-53.41	2.62	27.30	-28.73	-13	-15.73	Vertical
2133.0	-52.14	2.87	27.62	-27.39	-13	-14.39	Vertical
2133.0	-53.92	2.87	27.62	-29.17	-13	-16.17	Horizontal
187.6	-38.48	1.78	15.95	-24.31	-13	-11.31	Vertical
244.9	-43.30	1.34	17.95	-26.70	-13	-13.70	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.7 LTE BAND 41

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

Test Results for Low Channel 2537.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit（dBm）	Margin(dBm)	Polarity
5075.0	-59.62	5.23	35.81	-29.04	-25	-4.04	Horizontal
5075.0	-59.90	5.23	35.81	-29.32	-25	-4.32	Vertical
7612.5	-62.25	5.67	36.85	-31.07	-25	-6.07	Vertical
7612.5	-59.00	5.67	36.85	-27.82	-25	-2.82	Horizontal
435.3	-49.59	1.38	15.98	-34.99	-25	-9.99	Vertical
465.8	-47.88	1.62	15.66	-33.84	-25	-8.84	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-62.10	5.23	35.82	-31.51	-25	-6.51	Horizontal
5190.0	-64.55	5.23	35.82	-33.96	-25	-8.96	Vertical
7785.0	-64.75	5.67	36.85	-33.57	-25	-8.57	Vertical
7785.0	-59.22	5.67	36.85	-28.04	-25	-3.04	Horizontal
510.4	-48.10	1.62	16.17	-33.55	-25	-8.55	Vertical
562.9	-47.53	1.74	17.63	-31.64	-25	-6.64	Horizontal
Test Results for High Channel 2652.5MHz							
5305.0	-63.82	5.24	35.83	-33.23	-25	-8.23	Horizontal
5305.0	-60.22	5.24	35.83	-29.63	-25	-4.63	Vertical
7957.5	-59.09	5.68	36.87	-27.90	-25	-2.90	Vertical
7957.5	-62.78	5.68	36.87	-31.59	-25	-6.59	Horizontal
197.6	-44.72	1.55	15.84	-30.43	-25	-5.43	Vertical
353.1	-44.23	1.51	17.06	-28.68	-25	-3.68	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
5090.0	-62.17	5.23	35.82	-31.58	-25	-6.58	Horizontal
5090.0	-61.00	5.23	35.82	-30.41	-25	-5.41	Vertical
7635.0	-61.80	5.67	36.86	-30.61	-25	-5.61	Vertical
7635.0	-63.65	5.67	36.86	-32.46	-25	-7.46	Horizontal
128.9	-45.03	1.43	15.51	-30.95	-25	-5.95	Vertical
344.8	-46.30	1.40	16.97	-30.73	-25	-5.73	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-61.11	5.23	35.82	-30.52	-25	-5.52	Horizontal
5190.0	-63.05	5.23	35.82	-32.46	-25	-7.46	Vertical
7785.0	-64.37	5.67	36.85	-33.19	-25	-8.19	Vertical
7785.0	-60.63	5.67	36.85	-29.45	-25	-4.45	Horizontal
100.8	-47.11	1.77	16.72	-32.16	-25	-7.16	Vertical
263.5	-44.71	1.31	16.99	-29.03	-25	-4.03	Horizontal
Test Results for High Channel 2645MHz							
5290.0	-61.11	5.24	35.83	-30.52	-25	-5.52	Horizontal
5290.0	-63.65	5.24	35.83	-33.06	-25	-8.06	Vertical
7935.0	-63.27	5.70	36.88	-32.09	-25	-7.09	Vertical
7935.0	-64.25	5.70	36.88	-33.07	-25	-8.07	Horizontal
349.9	-49.91	1.70	15.73	-35.88	-25	-10.88	Vertical
110.3	-47.69	1.75	17.33	-32.11	-25	-7.11	Horizontal

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

. Over Limit= : PMea(dBm)-Limit(dBm)

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

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

9.8 LTE BAND 66

QPSK EIRP POWER FOR LTE BAND 66 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit（dBm）	Margin(dBm)	Polarity
3421.4	-48.05	4.02	29.80	-22.27	-13	-9.27	Horizontal
3421.4	-46.93	4.02	29.80	-21.15	-13	-8.15	Vertical
5132.1	-51.80	5.24	35.84	-21.20	-13	-8.20	Vertical
5132.1	-51.39	5.24	35.84	-20.79	-13	-7.79	Horizontal
112.6	-47.95	1.52	15.57	-33.90	-13	-20.90	Vertical
220.5	-52.25	1.33	17.14	-36.44	-13	-23.44	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-49.07	4.03	30.00	-23.10	-13	-10.10	Horizontal
3490.0	-54.12	4.03	30.00	-28.15	-13	-15.15	Vertical
5235.0	-50.11	5.25	35.86	-19.50	-13	-6.50	Vertical
5235.0	-53.46	5.25	35.86	-22.85	-13	-9.85	Horizontal
157.3	-54.51	1.53	17.13	-38.91	-13	-25.91	Vertical
213.1	-49.39	1.41	15.95	-34.85	-13	-21.85	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-50.56	4.05	30.01	-24.60	-13	-11.60	Horizontal
3558.6	-53.72	4.05	30.01	-27.76	-13	-14.76	Vertical
5337.9	-53.90	5.26	35.86	-23.30	-13	-10.30	Vertical
5337.9	-54.86	5.26	35.86	-24.26	-13	-11.26	Horizontal
170.6	-54.31	1.44	15.51	-40.24	-13	-27.24	Vertical
169.0	-47.61	1.78	15.76	-33.63	-13	-20.63	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (20MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit（dBm）	Margin(dBm)	Polarity
3440.0	-52.50	4.02	29.80	-26.72	-13	-13.72	Horizontal
3440.0	-47.27	4.02	29.80	-21.49	-13	-8.49	Vertical
5160.0	-54.71	5.24	35.84	-24.11	-13	-11.11	Vertical
5160.0	-50.41	5.24	35.84	-19.81	-13	-6.81	Horizontal
268.8	-46.41	1.62	17.02	-31.01	-13	-18.01	Vertical
161.4	-51.19	1.32	17.31	-35.20	-13	-22.20	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-44.92	4.03	30.00	-18.95	-13	-5.95	Horizontal
3490.0	-50.45	4.03	30.00	-24.48	-13	-11.48	Vertical
5235.0	-51.79	5.25	35.86	-21.18	-13	-8.18	Vertical
5235.0	-50.61	5.25	35.86	-20.00	-13	-7.00	Horizontal
159.9	-54.32	1.45	15.17	-40.60	-13	-27.60	Vertical
172.1	-47.30	1.48	17.82	-30.96	-13	-17.96	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-53.15	2.91	27.68	-28.38	-13	-15.38	Horizontal
3540.0	-47.02	2.91	27.68	-22.25	-13	-9.25	Vertical
5310.0	-52.87	5.26	35.86	-22.27	-13	-9.27	Vertical
5310.0	-54.86	5.26	35.86	-24.26	-13	-11.26	Horizontal
197.3	-47.81	1.76	16.38	-33.19	-13	-20.19	Vertical
158.5	-44.68	1.43	17.13	-28.98	-13	-15.98	Horizontal

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

. Over Limit= : PMea(dBm)-Limit(dBm)

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

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54, §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°C
- Voltage =low voltage, DC 329V, Normal, DC 3.87V and High voltage, DC 4.45V.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to -30ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 2/4/5/7/12/17/41/66

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	12.7	0.006742	2.5
3.87	1880	14.2	0.007541	2.5
4.45	1880	13.6	0.007256	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.5	0.006629	2.5
Extreme (50C)	1880	11.3	0.006014	2.5
Extreme (40C)	1880	13.2	0.007021	2.5
Extreme (30C)	1880	13.8	0.007353	2.5
Extreme (10C)	1880	14.4	0.007651	2.5
Extreme (0C)	1880	11.8	0.006274	2.5
Extreme (-10C)	1880	12.7	0.006750	2.5
Extreme (-20C)	1880	14.5	0.007718	2.5
Extreme (-30C)	1880	14.9	0.007923	2.5

Band 2 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1880	9.9	0.005244	2.5
3.87	1880	8.8	0.004685	2.5
4.45	1880	7.8	0.004166	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.5	0.005048	2.5
Extreme (50C)	1880	8.5	0.004501	2.5
Extreme (40C)	1880	7.9	0.004178	2.5
Extreme (30C)	1880	9.2	0.004916	2.5
Extreme (10C)	1880	9.0	0.004777	2.5
Extreme (0C)	1880	8.1	0.004291	2.5
Extreme (-10C)	1880	9.1	0.004865	2.5
Extreme (-20C)	1880	8.9	0.004751	2.5
Extreme (-30C)	1880	8.1	0.004294	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	8.7	0.005036	2.5
3.87	1732.5	9.0	0.005183	2.5
4.45	1732.5	7.9	0.004588	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.4	0.004831	2.5
Extreme (50C)	1732.5	8.5	0.004896	2.5
Extreme (40C)	1732.5	7.8	0.004494	2.5
Extreme (30C)	1732.5	6.2	0.003574	2.5
Extreme (10C)	1732.5	6.7	0.003869	2.5
Extreme (0C)	1732.5	9.6	0.005520	2.5
Extreme (-10C)	1732.5	8.2	0.004728	2.5
Extreme (-20C)	1732.5	7.3	0.004238	2.5
Extreme (-30C)	1732.5	8.7	0.005032	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	10.2	0.005916	2.5
3.87	1732.5	8.5	0.004913	2.5
4.45	1732.5	8.6	0.004961	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.6	0.005522	2.5
Extreme (50C)	1732.5	8.8	0.005053	2.5
Extreme (40C)	1732.5	8.1	0.004683	2.5
Extreme (30C)	1732.5	9.2	0.005303	2.5
Extreme (10C)	1732.5	8.5	0.004896	2.5
Extreme (0C)	1732.5	7.7	0.004420	2.5
Extreme (-10C)	1732.5	9.3	0.005388	2.5
Extreme (-20C)	1732.5	8.4	0.004876	2.5
Extreme (-30C)	1732.5	7.7	0.004441	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	5.6	0.006693	2.5
3.87	836.5	6.8	0.008140	2.5
4.45	836.5	5.2	0.006169	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.8	0.006963	2.5
Extreme (50C)	836.5	6.1	0.007315	2.5
Extreme (40C)	836.5	6.1	0.007314	2.5
Extreme (30C)	836.5	6.5	0.007764	2.5
Extreme (10C)	836.5	5.4	0.006511	2.5
Extreme (0C)	836.5	4.8	0.005783	2.5
Extreme (-10C)	836.5	5.3	0.006364	2.5
Extreme (-20C)	836.5	6.4	0.007622	2.5
Extreme (-30C)	836.5	6.7	0.008024	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	6.1	0.007322	2.5
3.87	836.5	7.0	0.008388	2.5
4.45	836.5	4.3	0.005160	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.0	0.007185	2.5
Extreme (50C)	836.5	6.3	0.007491	2.5
Extreme (40C)	836.5	6.5	0.007793	2.5
Extreme (30C)	836.5	6.4	0.007599	2.5
Extreme (10C)	836.5	5.6	0.006654	2.5
Extreme (0C)	836.5	5.3	0.006351	2.5
Extreme (-10C)	836.5	5.9	0.007070	2.5
Extreme (-20C)	836.5	6.1	0.007346	2.5
Extreme (-30C)	836.5	6.7	0.008052	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]
4.45	2535	9.9	0.003911	2.5
3.87	2535	8.4	0.003328	2.5
3.29	2535	8.1	0.003179	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.3	0.003670	2.5
Extreme (50C)	2535	8.6	0.003401	2.5
Extreme (40C)	2535	8.1	0.003180	2.5
Extreme (30C)	2535	8.4	0.003333	2.5
Extreme (10C)	2535	8.5	0.003363	2.5
Extreme (0C)	2535	8.3	0.003267	2.5
Extreme (-10C)	2535	9.1	0.003586	2.5
Extreme (-20C)	2535	9.4	0.003697	2.5
Extreme (-30C)	2535	7.9	0.003128	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	6.6	0.002610	2.5
3.87	2535	6.1	0.002392	2.5
4.45	2535	6.1	0.002426	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.4	0.002526	2.5
Extreme (50C)	2535	5.4	0.002149	2.5
Extreme (40C)	2535	5.2	0.002034	2.5
Extreme (30C)	2535	6.6	0.002585	2.5
Extreme (10C)	2535	5.8	0.002288	2.5
Extreme (0C)	2535	5.3	0.002106	2.5
Extreme (-10C)	2535	5.4	0.002116	2.5
Extreme (-20C)	2535	5.7	0.002260	2.5
Extreme (-30C)	2535	5.8	0.002298	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	8.7	0.012301	2.5
3.87	707.5	10.1	0.014298	2.5
4.45	707.5	9.0	0.012775	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.3	0.013108	2.5
Extreme (50C)	707.5	7.0	0.009959	2.5
Extreme (40C)	707.5	7.2	0.010146	2.5
Extreme (30C)	707.5	8.3	0.011763	2.5
Extreme (10C)	707.5	7.4	0.010529	2.5
Extreme (0C)	707.5	8.5	0.012040	2.5
Extreme (-10C)	707.5	8.7	0.012351	2.5
Extreme (-20C)	707.5	8.7	0.012309	2.5
Extreme (-30C)	707.5	7.6	0.010804	2.5

Band 12 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	707.5	7.2	0.010208	2.5
3.87	707.5	7.9	0.011172	2.5
4.45	707.5	7.0	0.009884	2.5

Frequency error vs. Temperature

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

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

10.6 LTE BAND 17

Band 17 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	710.0	9.4	0.013233	2.5
3.87	710.0	8.5	0.012029	2.5
4.45	710.0	7.6	0.010720	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.4	0.013172	2.5
Extreme (50C)	710.0	8.8	0.012383	2.5
Extreme (40C)	710.0	8.3	0.011695	2.5
Extreme (30C)	710.0	8.6	0.012100	2.5
Extreme (10C)	710.0	9.0	0.012691	2.5
Extreme (0C)	710.0	8.6	0.012092	2.5
Extreme (-10C)	710.0	8.5	0.011994	2.5
Extreme (-20C)	710.0	8.5	0.012033	2.5
Extreme (-30C)	710.0	7.8	0.011017	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	0.014629	2.5
3.87	710.0	9.2	0.013012	2.5
4.45	710.0	8.4	0.011797	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.2	0.012975	2.5
Extreme (50C)	710.0	8.6	0.012107	2.5
Extreme (40C)	710.0	8.2	0.011535	2.5
Extreme (30C)	710.0	8.9	0.012570	2.5
Extreme (10C)	710.0	7.6	0.010762	2.5
Extreme (0C)	710.0	8.3	0.011660	2.5
Extreme (-10C)	710.0	9.1	0.012863	2.5
Extreme (-20C)	710.0	9.1	0.012811	2.5
Extreme (-30C)	710.0	8.8	0.012458	2.5

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

10.7 LTE BAND 41

Band 41 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2595	8.2	0.003162	2.5
3.87	2595	6.9	0.002659	2.5
4.45	2595	7.2	0.002779	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.9	0.003061	2.5
Extreme (50C)	2595	4.6	0.001773	2.5
Extreme (40C)	2595	5.4	0.002092	2.5
Extreme (30C)	2595	4.6	0.001762	2.5
Extreme (10C)	2595	6.8	0.002622	2.5
Extreme (0C)	2595	5.1	0.001956	2.5
Extreme (-10C)	2595	9.1	0.003501	2.5
Extreme (-20C)	2595	10.9	0.004198	2.5
Extreme (-30C)	2595	6.5	0.002523	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	8.5	0.003295	2.5
3.87	2595	6.7	0.002584	2.5
4.45	2595	6.0	0.002329	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.3	0.002811	2.5
Extreme (50C)	2595	5.3	0.002042	2.5
Extreme (40C)	2595	5.5	0.002111	2.5
Extreme (30C)	2595	4.6	0.001782	2.5
Extreme (10C)	2595	6.8	0.002607	2.5
Extreme (0C)	2595	4.6	0.001779	2.5
Extreme (-10C)	2595	9.3	0.003592	2.5
Extreme (-20C)	2595	10.3	0.003986	2.5
Extreme (-30C)	2595	5.7	0.002210	2.5

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

10.8 LTE BAND 66

Band 66 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	1745	12.5	0.00714	2.5
3.87	1745	13.8	0.00789	2.5
4.45	1745	13.3	0.00761	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.4	0.004267	2.5
Extreme (50C)	1745	4.9	0.002826	2.5
Extreme (40C)	1745	5.6	0.003226	2.5
Extreme (30C)	1745	4.9	0.002800	2.5
Extreme (10C)	1745	6.9	0.003930	2.5
Extreme (0C)	1745	5.1	0.002936	2.5
Extreme (-10C)	1745	9.4	0.005408	2.5
Extreme (-20C)	1745	10.8	0.006201	2.5
Extreme (-30C)	1745	6.1	0.003498	2.5

Band 66 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]
4.45	1745	13.1	0.007514	2.5
3.87	1745	13.9	0.007938	2.5
3.29	1745	13.7	0.007836	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.7	0.004434	2.5
Extreme (50C)	1745	4.9	0.002835	2.5
Extreme (40C)	1745	4.9	0.002817	2.5
Extreme (30C)	1745	4.6	0.002628	2.5
Extreme (10C)	1745	6.4	0.003676	2.5
Extreme (0C)	1745	5.0	0.002854	2.5
Extreme (-10C)	1745	9.3	0.005334	2.5
Extreme (-20C)	1745	10.6	0.006052	2.5
Extreme (-30C)	1745	6.0	0.003429	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

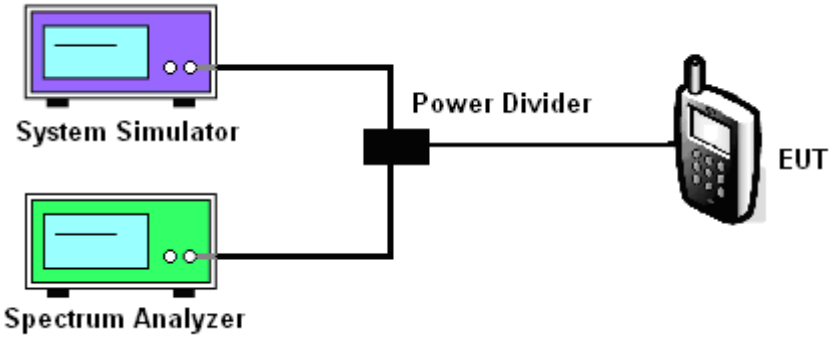
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

LTE Band 2/4/5/7/12/17/41/66

Test data reference attachment.

----END OF REPORT----