

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

FCC ID: O55662422

Product: 6.6 inch 4G Smart Phone
Trade Mark: LOGIC, iSWAG, UNONU
Model Number: L66
Family Model: Connor, Zen
Report No.: STR220707001006E

Prepared for

SWAGTEK

10205 NW 19th Street STE101Miami, FL 33172

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name	SWAGTEK
Address.....	10205 NW 19th Street STE101Miami, FL 33172
Manufacturer's Name	SWAGTEK
Address.....	10205 NW 19th Street STE101Miami, FL 33172
Product name.....	6.6 inch 4G Smart Phone
Model and/or type reference ..	L66
Family Model:	Connor, Zen
Standards	FCC CFR 47 Part 22H, Part 24E, Part 27
Test procedure	ANSI C63.26:2015 ANSI/TIA-603-E-2016
Test sample number	T220707001R002

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.....	Jul 07, 2022 ~ Jul 22, 2022
Date of Issue	Jul 25, 2022
Test Result	Pass

Testing Engineer :



(Allen Liu)

Authorized Signatory :



(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	6.6 inch 4G Smart Phone
Trade Mark	LOGIC, iSWAG, UNONU
Model Name	L66
Family Model	Connor, Zen
Model Difference	All models are the same circuit and RF module, except the Model name.
FCC ID:	O55662422
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2, 4, 5, 7, 12, 13, 17, 66
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 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	PIFA Antenna
Antenna gain:	0.8dBi;
Adapter	Model: MST-0502000-FCC Input: AC100-240V 50-60Hz 0.3A Output: DC5.0V $\overline{\text{---}}$ 2000mA
Battery	DC 3.85V, 4000mAh
Power supply	DC 3.85V from battery or DC 5V from Adapter.
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.85V) (Note 1)
HW Version	G2062F-PR-V1.1

SW Version	LOGIC_L66_GENERIC
** Note1: The High Voltage 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: O55662422** filing to comply with the FCC Part 22H&24E &27.

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.5dB
2	Conducted Emission Test	± 1.38 dB
3	RF power, conducted	± 0.16 dB
4	Spurious emissions, conducted	± 0.21 dB
5	All emissions, radiated(<1G)	± 4.68 dB
6	All emissions, radiated(>1G)	± 4.89 dB
7	Temperature	$\pm 0.5^{\circ}$ C
8	Humidity	$\pm 2\%$
9	Frequency error, conducted	± 0.19 ppm

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2, Band 4, Band 5, Band 7, Band 12, Band 13, Band 17, Band 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.

1.6 SUMMARY OF TEST RESULTS

FCC Part22, Subpart H/ FCC Part24, Subpart E, FCC Part27, Subpart L, KDB 971168 D01 Power Meas License Digital Systems v03			
FCC Rule	Test Item	Verdict	Remark
2.1046	Conducted Output Power	PASS	
22.913(d) 24.232(d) 27.50(d)(5) KDB 971168 D01 Clause 5.7	Peak-to-Average Ratio	PASS	
2.1049 22.917(b) 24.238(b) KDB 971168 D01 Clause 4.2	Occupied Bandwidth	PASS	
2.1051 22.917(a) 24.238(a) 27.53(m), (g), (h) KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913(a)(2) 27.50(c)(10) KDB 971168 D01 Clause 5.6	Effective Radiated Power	PASS	

24.232(c) 27.50(h)(2), (d)(4) KDB 971168 D01 Clause 5.6	Equivalent Isotropic Radiated Power	PASS	
2.1053 22.917(a) 24.238(a) 27.53(g)(h)(m) KDB 971168 D01 Clause 7	Field Strength of Spurious Radiation	PASS	
2.1055 22.355 24.235 27.54 KDB 971168 D01 Clause 9	Frequency Stability for Temperature & Voltage	PASS	
2.1051 22.917(a) 24.238(a) 27.53(g)(h)(m) KDB 971168 D01 Clause 6	Conducted Emission	PASS	
Remark: 1. "N/A" denotes test is not applicable in this Test Report. 2. All test items were verified and recorded according to the standards and without any deviation during the test. 3. No modifications are made to the EUT during all test items.			

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

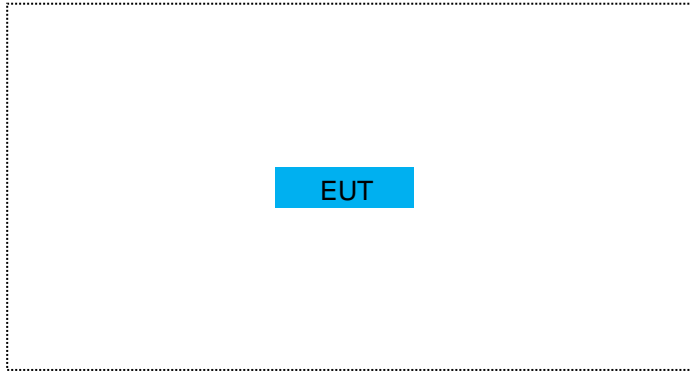
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	6.6 inch 4G Smart Phone	L66	FCC ID: O55662422	EUT

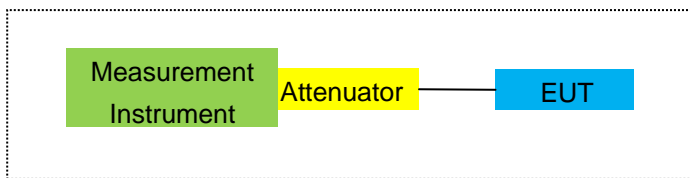
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

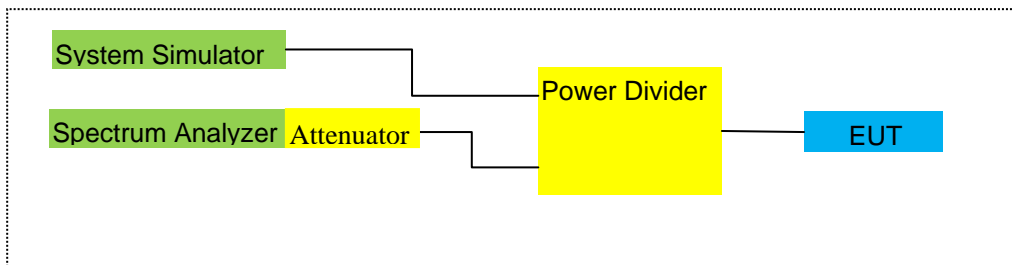
For Radiated Test Cases



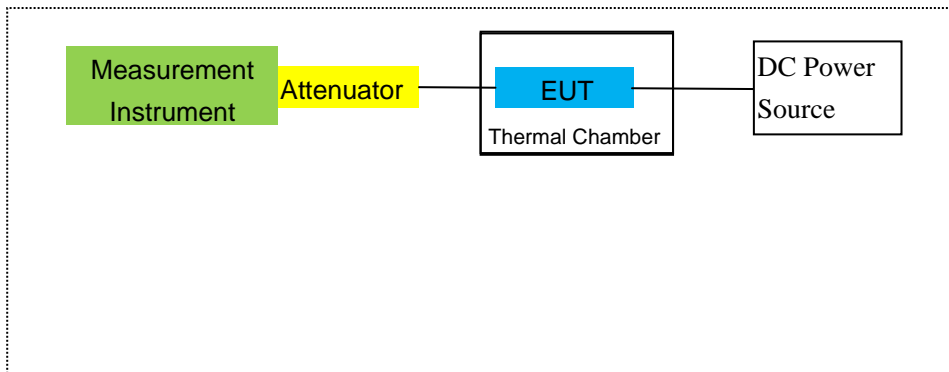
For Conducted Output Power



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	2022.04.06	2023.04.05	1 year
2	Test Receiver	R&S	ESPI	101318	2022.04.06	2023.04.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2023.03.30	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2021.11.07	2022.11.06	1 year
7	Amplifier	EM	EM-30180	060538	2022.06.17	2023.06.16	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2022.04.06	2023.04.05	1 year
9	Power Meter	R&S	NRVS	100696	2022.06.17	2023.06.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2022.04.06	2023.04.05	1 year
11	Test Cable	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
12	Test Cable	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2022.04.06	2023.04.05	1 year
15	LISN	R&S	ENV216	101313	2022.04.06	2023.04.05	1 year
16	LISN	EMCO	3816/2	00042990	2022.04.06	2023.04.05	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2022.04.06	2023.04.05	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2022.04.06	2023.04.05	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2022.06.17	2023.06.16	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2022.04.06	2023.04.05	1 year
24	test receiver	R&S	ESCI	a0304218	2022.04.06	2023.04.05	1 year
25	Communication Tester	R&S	CMU200	A0304247	2022.06.17	2023.06.16	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2022.04.06	2023.04.05	1 year
27	DC Power Source	N/A	PS-6005D	2017040292 3	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2022.06.16	2023.06.15	1 year
29	Communication Tester	R&S	CMW500	148500	2022.06.16	2023.06.15	1 year

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

- LTE Band2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §2.1046, §22.913, §24.232

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

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

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

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

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

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

The transmitter output was connected to a 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 display line

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

MODES TESTED

- LTE Band 2/4/5/7/12/13/17/66

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

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

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

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

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

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

- LTE Band2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17

LTE Band 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.

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported (LTE Band 2/4/7: above 10GHz).

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913(a)(2), §24.232(c) and §27.50 (h)(2), (b)(10), (c)(10), (d)(4)

LIMITS:

22.913(a) (2)- The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
24.232 (c) Mobile and portable stations are limited to 2 watts EIRP.
27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
27.50 (h)(2) Mobile and other user stations in the 2500–2570 MHz and 2620–2690 MHz bands. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

- LTE Band2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-3.22	3.76	28.24	21.26	133.660	Horizontal	Pass
		1880	-3.03	3.91	28.22	21.28	134.276	Horizontal	Pass
		1909.3	-2.94	3.93	28.20	21.33	135.831	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.28	3.77	28.23	21.18	131.220	Horizontal	Pass
		1880	-3.13	3.91	28.24	21.20	131.826	Horizontal	Pass
		1908.5	-3.00	3.94	28.25	21.31	135.207	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.17	3.77	28.31	21.37	137.088	Horizontal	Pass
		1880	-2.79	3.91	28.22	21.52	141.906	Horizontal	Pass
		1907.5	-2.72	3.94	28.20	21.54	142.561	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.03	3.79	28.33	21.51	141.579	Horizontal	Pass
		1880	-2.73	3.95	28.22	21.54	142.561	Horizontal	Pass
		1905	-2.62	3.97	28.19	21.60	144.544	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.99	3.79	28.34	21.56	143.219	Horizontal	Pass
		1880	-2.78	3.95	28.22	21.49	140.929	Horizontal	Pass
		1902.5	-2.64	3.97	28.18	21.57	143.549	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.98	3.81	28.35	21.56	143.219	Horizontal	Pass
		1880	-2.65	3.96	28.22	21.61	144.877	Horizontal	Pass
		1900	-2.59	4.00	28.16	21.57	143.549	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-4.05	3.76	28.24	20.43	110.408	Vertical	Pass
		1880	-4.14	3.91	28.22	20.17	103.992	Vertical	Pass
		1909.3	-3.49	3.93	28.20	20.78	119.674	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.75	3.77	28.23	20.71	117.761	Vertical	Pass
		1880	-3.64	3.91	28.24	20.69	117.220	Vertical	Pass
		1908.5	-3.57	3.94	28.25	20.74	118.577	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.43	3.77	28.31	20.11	102.565	Vertical	Pass
		1880	-3.73	3.91	28.22	20.58	114.288	Vertical	Pass
		1907.5	-3.75	3.94	28.20	20.51	112.460	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.97	3.79	28.33	20.57	114.025	Vertical	Pass
		1880	-3.90	3.95	28.22	20.37	108.893	Vertical	Pass
		1905	-3.42	3.97	28.19	20.80	120.226	Vertical	Pass

15.0MHz		1857.5	-3.83	3.79	28.34	20.72	118.032	Vertical	Pass
Band	1/#Mid	1880	-3.48	3.95	28.22	20.79	119.950	Vertical	Pass
QPSK		1902.5	-3.36	3.97	28.18	20.85	121.619	Vertical	Pass
20.0MHz		1860	-3.67	3.81	28.35	20.87	122.180	Vertical	Pass
Band	1/#Mid	1880	-3.84	3.96	28.22	20.42	110.154	Vertical	Pass
QPSK		1900	-3.86	4.00	28.16	20.30	107.152	Vertical	Pass

Note:

SG Level= Signal generator output

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

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.34	3.76	28.24	20.14	103.276	Horizontal	Pass
		1880	-3.81	3.91	28.22	20.50	112.202	Horizontal	Pass
		1909.3	-3.74	3.93	28.20	20.53	112.980	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.84	3.77	28.23	20.62	115.345	Horizontal	Pass
		1880	-3.92	3.91	28.24	20.41	109.901	Horizontal	Pass
		1908.5	-4.13	3.94	28.25	20.18	104.232	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.78	3.77	28.31	20.76	119.124	Horizontal	Pass
		1880	-3.69	3.91	28.22	20.62	115.345	Horizontal	Pass
		1907.5	-3.37	3.94	28.20	20.89	122.744	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.83	3.79	28.33	20.71	117.761	Horizontal	Pass
		1880	-3.82	3.95	28.22	20.45	110.917	Horizontal	Pass
		1905	-3.29	3.97	28.19	20.93	123.880	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.81	3.79	28.34	20.74	118.577	Horizontal	Pass
		1880	-3.60	3.95	28.22	20.67	116.681	Horizontal	Pass
		1902.5	-3.56	3.97	28.18	20.65	116.145	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.70	3.81	28.35	20.84	121.339	Horizontal	Pass
		1880	-3.40	3.96	28.22	20.86	121.899	Horizontal	Pass
		1900	-3.22	4.00	28.16	20.94	124.165	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.72	3.76	28.24	19.76	94.624	Vertical	Pass
		1880	-4.97	3.91	28.22	19.34	85.901	Vertical	Pass
		1909.3	-4.33	3.93	28.20	19.94	98.628	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.18	3.77	28.23	19.28	84.723	Vertical	Pass
		1880	-4.87	3.91	28.24	19.46	88.308	Vertical	Pass
		1908.5	-5.03	3.94	28.25	19.28	84.723	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.86	3.77	28.31	19.68	92.897	Vertical	Pass
		1880	-5.06	3.91	28.22	19.25	84.140	Vertical	Pass
		1907.5	-4.65	3.94	28.20	19.61	91.411	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.66	3.79	28.33	19.88	97.275	Vertical	Pass
		1880	-4.73	3.95	28.22	19.54	89.950	Vertical	Pass
		1905	-4.69	3.97	28.19	19.53	89.743	Vertical	Pass
15.0MHz Band 16	1/#Mid	1857.5	-5.11	3.79	28.34	19.44	87.902	Vertical	Pass
		1880	-4.32	3.95	28.22	19.95	98.855	Vertical	Pass

QAM		1902.5	-5.09	3.97	28.18	19.12	81.658	Vertical	Pass
20.0MHz	1/#Mid	1860	-4.58	3.81	28.35	19.96	99.083	Vertical	Pass
Band 16		1880	-4.46	3.96	28.22	19.80	95.499	Vertical	Pass
QAM		1900	-4.20	4.00	28.16	19.96	99.083	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP		
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.11	3.12	27.58	22.35	171.791	Horizontal	Pass
		1732.5	-2.10	3.27	27.61	22.24	167.494	Horizontal	Pass
		1754.3	-2.08	3.29	27.63	22.26	168.267	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.28	3.13	27.61	22.20	165.959	Horizontal	Pass
		1732.5	-2.20	3.27	27.61	22.14	163.682	Horizontal	Pass
		1753.5	-2.12	3.30	27.62	22.20	165.959	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.05	3.13	27.63	22.45	175.792	Horizontal	Pass
		1732.5	-1.95	3.27	27.61	22.39	173.380	Horizontal	Pass
		1752.5	-1.83	3.30	27.60	22.47	176.604	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-1.99	3.15	27.64	22.50	177.828	Horizontal	Pass
		1732.5	-1.76	3.31	27.61	22.54	179.473	Horizontal	Pass
		1750	-1.78	3.33	27.59	22.48	177.011	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.00	3.15	27.65	22.50	177.828	Horizontal	Pass
		1732.5	-1.84	3.31	27.61	22.46	176.198	Horizontal	Pass
		1747.5	-1.78	3.33	27.57	22.46	176.198	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-1.94	3.17	27.66	22.55	179.887	Horizontal	Pass
		1732.5	-1.77	3.32	27.61	22.52	178.649	Horizontal	Pass
		1745	-1.71	3.36	27.56	22.49	177.419	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.00	3.12	27.58	21.46	139.959	Vertical	Pass
		1732.5	-2.55	3.27	27.61	21.79	151.008	Vertical	Pass
		1754.3	-2.71	3.29	27.63	21.63	145.546	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.03	3.13	27.61	21.45	139.637	Vertical	Pass
		1732.5	-2.60	3.27	27.61	21.74	149.279	Vertical	Pass
		1753.5	-2.99	3.30	27.62	21.33	135.831	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.96	3.13	27.63	21.54	142.561	Vertical	Pass
		1732.5	-2.85	3.27	27.61	21.49	140.929	Vertical	Pass
		1752.5	-2.48	3.30	27.60	21.82	152.055	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.67	3.15	27.64	21.82	152.055	Vertical	Pass
		1732.5	-2.34	3.31	27.61	21.96	157.036	Vertical	Pass
		1750	-2.54	3.33	27.59	21.72	148.594	Vertical	Pass

15.0MHz		1717.5	-2.65	3.15	27.65	21.85	153.109	Vertical	Pass
Band	1/#Mid	1732.5	-2.72	3.31	27.61	21.58	143.880	Vertical	Pass
QPSK		1747.5	-2.49	3.33	27.57	21.75	149.624	Vertical	Pass
20.0MHz		1720	-2.99	3.17	27.66	21.50	141.254	Vertical	Pass
Band	1/#Mid	1732.5	-2.84	3.32	27.61	21.45	139.637	Vertical	Pass
QPSK		1745	-2.98	3.36	27.56	21.22	132.434	Vertical	Pass

Note:

SG Level= Signal generator output

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

Radiated Power (EIRP) for Band 4									
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)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-2.92	3.12	27.58	21.54	142.561	Horizontal	Pass
		1732.5	-2.77	3.27	27.61	21.57	143.549	Horizontal	Pass
		1754.3	-2.77	3.29	27.63	21.57	143.549	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.86	3.13	27.61	21.62	145.211	Horizontal	Pass
		1732.5	-2.99	3.27	27.61	21.35	136.458	Horizontal	Pass
		1753.5	-3.21	3.30	27.62	21.11	129.122	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.69	3.13	27.63	21.81	151.705	Horizontal	Pass
		1732.5	-2.65	3.27	27.61	21.69	147.571	Horizontal	Pass
		1752.5	-2.34	3.30	27.60	21.96	157.036	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.76	3.15	27.64	21.73	148.936	Horizontal	Pass
		1732.5	-2.95	3.31	27.61	21.35	136.458	Horizontal	Pass
		1750	-2.33	3.33	27.59	21.93	155.955	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.56	3.15	27.65	21.94	156.315	Horizontal	Pass
		1732.5	-2.62	3.31	27.61	21.68	147.231	Horizontal	Pass
		1747.5	-2.64	3.33	27.57	21.60	144.544	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.51	3.17	27.66	21.98	157.761	Horizontal	Pass
		1732.5	-2.52	3.32	27.61	21.77	150.314	Horizontal	Pass
		1745	-2.33	3.36	27.56	21.87	153.815	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.20	3.12	27.58	20.26	106.170	Vertical	Pass
		1732.5	-4.19	3.27	27.61	20.15	103.514	Vertical	Pass
		1754.3	-4.15	3.29	27.63	20.19	104.472	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.92	3.13	27.61	20.56	113.763	Vertical	Pass
		1732.5	-3.40	3.27	27.61	20.94	124.165	Vertical	Pass
		1753.5	-4.22	3.30	27.62	20.10	102.329	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.61	3.13	27.63	20.89	122.744	Vertical	Pass
		1732.5	-3.79	3.27	27.61	20.55	113.501	Vertical	Pass
		1752.5	-3.48	3.30	27.60	20.82	120.781	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.77	3.15	27.64	20.72	118.032	Vertical	Pass
		1732.5	-4.22	3.31	27.61	20.08	101.859	Vertical	Pass
		1750	-3.78	3.33	27.59	20.48	111.686	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-4.07	3.15	27.65	20.43	110.408	Vertical	Pass
		1732.5	-3.53	3.31	27.61	20.77	119.399	Vertical	Pass

QAM		1747.5	-3.33	3.33	27.57	20.91	123.310	Vertical	Pass
20.0MHz		1720	-3.94	3.17	27.66	20.55	113.501	Vertical	Pass
Band 16	1#Mid	1732.5	-3.86	3.32	27.61	20.43	110.408	Vertical	Pass
QAM		1745	-4.13	3.36	27.56	20.07	101.625	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP			
			(dBm)				Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	3/#Mid	824.7	6.99	2.01	19.68	2.15	22.51	178.238	Horizontal	Pass	
		836.5	6.87	2.01	19.77	2.15	22.48	177.011	Horizontal	Pass	
		848.3	6.67	2.02	19.82	2.15	22.32	170.608	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	6.76	2.01	19.70	2.15	22.30	169.824	Horizontal	Pass	
		836.5	6.66	2.01	19.77	2.15	22.27	168.655	Horizontal	Pass	
		847.5	6.53	2.02	19.81	2.15	22.17	164.816	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	7.04	2.01	19.71	2.15	22.59	181.552	Horizontal	Pass	
		836.5	6.92	2.01	19.77	2.15	22.53	179.061	Horizontal	Pass	
		846.5	6.76	2.02	19.79	2.15	22.38	172.982	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	7.06	2.01	19.73	2.15	22.63	183.231	Horizontal	Pass	
		836.5	7.01	2.01	19.77	2.15	22.62	182.810	Horizontal	Pass	
		844	6.91	2.02	19.78	2.15	22.52	178.649	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	6.01	2.01	19.68	2.15	21.53	142.233	Vertical	Pass	
		836.5	5.26	2.01	19.77	2.15	20.87	122.180	Vertical	Pass	
		848.3	5.42	2.02	19.82	2.15	21.07	127.938	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	6.09	2.01	19.70	2.15	21.63	145.546	Vertical	Pass	
		836.5	6.13	2.01	19.77	2.15	21.74	149.279	Vertical	Pass	
		847.5	5.31	2.02	19.81	2.15	20.95	124.451	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	6.08	2.01	19.71	2.15	21.63	145.546	Vertical	Pass	
		836.5	6.17	2.01	19.77	2.15	21.78	150.661	Vertical	Pass	
		846.5	5.62	2.02	19.79	2.15	21.24	133.045	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	5.36	2.01	19.73	2.15	20.93	123.880	Vertical	Pass	
		836.5	6.18	2.01	19.77	2.15	21.79	151.008	Vertical	Pass	
		844	5.87	2.02	19.78	2.15	21.48	140.605	Vertical	Pass	

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	3/#Mid	824.7	6.14	2.01	19.68	2.15	21.66	146.555	Horizontal	Pass
		836.5	6.07	2.01	19.77	2.15	21.68	147.231	Horizontal	Pass
		848.3	5.91	2.02	19.82	2.15	21.56	143.219	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	6.22	2.01	19.70	2.15	21.76	149.968	Horizontal	Pass
		836.5	5.93	2.01	19.77	2.15	21.54	142.561	Horizontal	Pass
		847.5	5.41	2.02	19.81	2.15	21.05	127.350	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.54	2.01	19.71	2.15	22.09	161.808	Horizontal	Pass
		836.5	6.31	2.01	19.77	2.15	21.92	155.597	Horizontal	Pass
		846.5	6.06	2.02	19.79	2.15	21.68	147.231	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.54	2.01	19.73	2.15	22.11	162.555	Horizontal	Pass
		836.5	6.26	2.01	19.77	2.15	21.87	153.815	Horizontal	Pass
		844	5.80	2.02	19.78	2.15	21.41	138.357	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.05	2.01	19.68	2.15	20.57	114.025	Vertical	Pass
		836.5	5.32	2.01	19.77	2.15	20.93	123.880	Vertical	Pass
		848.3	5.93	2.02	19.82	2.15	21.58	143.880	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.79	2.01	19.70	2.15	21.33	135.831	Vertical	Pass
		836.5	4.51	2.01	19.77	2.15	20.12	102.802	Vertical	Pass
		847.5	5.53	2.02	19.81	2.15	21.17	130.918	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.40	2.01	19.71	2.15	20.95	124.451	Vertical	Pass
		836.5	5.00	2.01	19.77	2.15	20.61	115.080	Vertical	Pass
		846.5	5.92	2.02	19.79	2.15	21.54	142.561	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.41	2.01	19.73	2.15	20.98	125.314	Vertical	Pass
		836.5	5.19	2.01	19.77	2.15	20.80	120.226	Vertical	Pass
		844	4.41	2.02	19.78	2.15	20.02	100.462	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)

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
5.0MHz Band QPSK	1/#Mid	2502.5	-2.39	4.54	27.75	20.82	120.781	Horizontal	Pass
		2535	-2.22	4.69	27.72	20.81	120.504	Horizontal	Pass
		2567.5	-2.15	4.71	27.71	20.85	121.619	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.32	4.55	27.76	20.89	122.744	Horizontal	Pass
		2535	-2.13	4.69	27.72	20.90	123.027	Horizontal	Pass
		2565	-2.05	4.72	27.70	20.93	123.880	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.33	4.55	27.77	20.89	122.744	Horizontal	Pass
		2535	-2.19	4.69	27.72	20.84	121.339	Horizontal	Pass
		2562.5	-2.09	4.72	27.69	20.88	122.462	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.27	4.57	27.78	20.94	124.165	Horizontal	Pass
		2535	-2.09	4.73	27.72	20.90	123.027	Horizontal	Pass
		2560	-2.05	4.75	27.68	20.88	122.462	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-3.70	4.54	27.75	19.51	89.331	Vertical	Pass
		2535	-3.10	4.69	27.72	19.93	98.401	Vertical	Pass
		2567.5	-3.54	4.71	27.71	19.46	88.308	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.69	4.55	27.76	19.52	89.536	Vertical	Pass
		2535	-3.43	4.69	27.72	19.60	91.201	Vertical	Pass
		2565	-3.88	4.72	27.70	19.10	81.283	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.71	4.55	27.77	19.51	89.331	Vertical	Pass
		2535	-3.62	4.69	27.72	19.41	87.297	Vertical	Pass
		2562.5	-3.59	4.72	27.69	19.38	86.696	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.69	4.57	27.78	19.52	89.536	Vertical	Pass
		2535	-3.35	4.73	27.72	19.64	92.045	Vertical	Pass
		2560	-3.26	4.75	27.68	19.67	92.683	Vertical	Pass

Radiated Power (EIRP) for Band 7									
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	2502.5	-3.08	4.54	27.75	20.13	103.039	Horizontal	Pass
		2535	-2.77	4.69	27.72	20.26	106.170	Horizontal	Pass
		2567.5	-2.85	4.71	27.71	20.15	103.514	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.97	4.55	27.76	20.24	105.682	Horizontal	Pass
		2535	-2.98	4.69	27.72	20.05	101.158	Horizontal	Pass
		2565	-3.25	4.72	27.70	19.73	93.972	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.15	4.55	27.77	20.07	101.625	Horizontal	Pass
		2535	-3.12	4.69	27.72	19.91	97.949	Horizontal	Pass
		2562.5	-2.73	4.72	27.69	20.24	105.682	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.03	4.57	27.78	20.18	104.232	Horizontal	Pass
		2535	-2.70	4.73	27.72	20.29	106.905	Horizontal	Pass
		2560	-2.80	4.75	27.68	20.13	103.039	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.30	4.54	27.75	19.91	97.949	Vertical	Pass
		2535	-3.58	4.69	27.72	19.45	88.105	Vertical	Pass
		2567.5	-4.66	4.71	27.71	18.34	68.234	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.40	4.55	27.76	19.81	95.719	Vertical	Pass
		2535	-4.98	4.69	27.72	18.05	63.826	Vertical	Pass
		2565	-4.92	4.72	27.70	18.06	63.973	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-5.21	4.55	27.77	18.01	63.241	Vertical	Pass
		2535	-4.25	4.69	27.72	18.78	75.509	Vertical	Pass
		2562.5	-3.49	4.72	27.69	19.48	88.716	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.34	4.57	27.78	18.87	77.090	Vertical	Pass
		2535	-4.20	4.73	27.72	18.79	75.683	Vertical	Pass
		2560	-4.54	4.75	27.68	18.39	69.024	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	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)		Average	Average		
						(dB)	(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	699.7	6.46	1.91	19.21	2.15	21.61	144.877	Vertical	Pass
		707.5	6.38	1.91	19.26	2.15	21.58	143.880	Vertical	Pass
		715.3	6.16	1.93	19.34	2.15	21.42	138.676	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.25	1.91	19.21	2.15	21.40	138.038	Vertical	Pass
		707.5	6.17	1.91	19.26	2.15	21.37	137.088	Vertical	Pass
		714.5	6.01	1.93	19.34	2.15	21.27	133.968	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.52	1.91	19.23	2.15	21.69	147.571	Vertical	Pass
		707.5	6.43	1.91	19.26	2.15	21.63	145.546	Vertical	Pass
		713.5	6.22	1.92	19.33	2.15	21.48	140.605	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	6.54	1.91	19.25	2.15	21.73	148.936	Vertical	Pass
		707.5	6.52	1.91	19.26	2.15	21.72	148.594	Vertical	Pass
		711	6.37	1.92	19.32	2.15	21.62	145.211	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	5.00	1.91	19.21	2.15	20.15	103.514	Horizontal	Pass
		707.5	5.58	1.91	19.26	2.15	20.78	119.674	Horizontal	Pass
		715.3	5.54	1.93	19.34	2.15	20.80	120.226	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.80	1.91	19.21	2.15	19.95	98.855	Horizontal	Pass
		707.5	4.72	1.91	19.26	2.15	19.92	98.175	Horizontal	Pass
		714.5	4.85	1.93	19.34	2.15	20.11	102.565	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.44	1.91	19.23	2.15	20.61	115.080	Horizontal	Pass
		707.5	4.85	1.91	19.26	2.15	20.05	101.158	Horizontal	Pass
		713.5	5.03	1.92	19.33	2.15	20.29	106.905	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	4.85	1.91	19.25	2.15	20.04	100.925	Horizontal	Pass
		707.5	5.49	1.91	19.26	2.15	20.69	117.220	Horizontal	Pass
		711	4.69	1.92	19.32	2.15	19.94	98.628	Horizontal	Pass

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Average		
			(dBm)				Average	Average			
							(dBm)	(mW)			
1.4MHz Band 16 QAM	1/#Mid	699.7	6.26	1.91	19.21	2.15	21.41	138.357	Vertical	Pass	
		707.5	6.18	1.91	19.26	2.15	21.38	137.404	Vertical	Pass	
		715.3	5.96	1.93	19.34	2.15	21.22	132.434	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	700.5	6.05	1.91	19.21	2.15	21.20	131.826	Vertical	Pass	
		707.5	5.97	1.91	19.26	2.15	21.17	130.918	Vertical	Pass	
		714.5	5.81	1.93	19.34	2.15	21.07	127.938	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	701.5	6.32	1.91	19.23	2.15	21.49	140.929	Vertical	Pass	
		707.5	6.23	1.91	19.26	2.15	21.43	138.995	Vertical	Pass	
		713.5	6.02	1.92	19.33	2.15	21.28	134.276	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	704	6.34	1.91	19.25	2.15	21.53	142.233	Vertical	Pass	
		707.5	6.32	1.91	19.26	2.15	21.52	141.906	Vertical	Pass	
		711	6.17	1.92	19.32	2.15	21.42	138.676	Vertical	Pass	
1.4MHz Band 16 QAM	1/#Mid	699.7	4.95	1.91	19.21	2.15	20.10	102.329	Horizontal	Pass	
		707.5	4.90	1.91	19.26	2.15	20.10	102.329	Horizontal	Pass	
		715.3	5.42	1.93	19.34	2.15	20.68	116.950	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	700.5	4.70	1.91	19.21	2.15	19.85	96.605	Horizontal	Pass	
		707.5	4.73	1.91	19.26	2.15	19.93	98.401	Horizontal	Pass	
		714.5	4.64	1.93	19.34	2.15	19.90	97.724	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	701.5	4.87	1.91	19.23	2.15	20.04	100.925	Horizontal	Pass	
		707.5	5.38	1.91	19.26	2.15	20.58	114.288	Horizontal	Pass	
		713.5	4.87	1.92	19.33	2.15	20.13	103.039	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	704	5.28	1.91	19.25	2.15	20.47	111.429	Horizontal	Pass	
		707.5	4.61	1.91	19.26	2.15	19.81	95.719	Horizontal	Pass	
		711	5.44	1.92	19.32	2.15	20.69	117.220	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)

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(mW)		
5.0MHz Band QPSK	25/0	779.5	7.32	1.91	19.23	2.15	22.49	177.46	Horizontal	Pass
		782	8.27	1.91	19.26	2.15	23.47	222.17	Horizontal	Pass
		784.5	8.06	1.92	19.33	2.15	23.32	214.62	Horizontal	Pass
10.0MHz Band QPSK	50/0	782	7.83	1.91	19.25	2.15	23.02	200.24	Horizontal	Pass
			8.13	1.91	19.26	2.15	23.33	215.27	Horizontal	Pass
			8.38	1.92	19.32	2.15	23.63	230.44	Horizontal	Pass
5.0MHz Band QPSK	25/0	779.5	7.98	1.91	19.23	2.15	23.15	206.35	Vertical	Pass
		782	9.07	1.91	19.26	2.15	24.27	267.56	Vertical	Pass
		784.5	8.48	1.92	19.33	2.15	23.74	236.77	Vertical	Pass
10.0MHz Band QPSK	50/0	782	8.22	1.91	19.25	2.15	23.41	219.50	Vertical	Pass
			9.16	1.91	19.26	2.15	24.36	272.90	Vertical	Pass
			8.47	1.92	19.32	2.15	23.72	235.31	Vertical	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
				(dBm)	(mW)					
5.0MHz Band 16 QAM	25/0	779.5	9.15	1.91	19.23	2.15	24.32	270.40	Horizontal	Pass
		782	7.45	1.91	19.26	2.15	22.65	183.96	Horizontal	Pass
		784.5	8.66	1.92	19.33	2.15	23.92	246.57	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	782	7.41	1.91	19.25	2.15	22.60	182.05	Horizontal	Pass
			8.49	1.91	19.26	2.15	23.69	233.69	Horizontal	Pass
			9.05	1.92	19.32	2.15	24.30	269.13	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	779.5	8.27	1.91	19.23	2.15	23.44	220.96	Vertical	Pass
		782	8.89	1.91	19.26	2.15	24.09	256.72	Vertical	Pass
		784.5	9.06	1.92	19.33	2.15	24.32	270.40	Vertical	Pass
10.0MHz Band 16 QAM	50/0	782	9.34	1.91	19.25	2.15	24.53	284.05	Vertical	Pass
			9.12	1.91	19.26	2.15	24.32	270.40	Vertical	Pass
			8.87	1.92	19.32	2.15	24.12	258.01	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)			
5.0MHz Band QPSK	1/#Mid	706.5	7.00	1.91	19.23	2.15	22.17	164.816	Vertical	Pass	
		710	6.86	1.91	19.26	2.15	22.06	160.694	Vertical	Pass	
		713.5	6.76	1.92	19.33	2.15	22.02	159.221	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	709	7.01	1.91	19.25	2.15	22.20	165.959	Vertical	Pass	
		710	6.96	1.91	19.26	2.15	22.16	164.437	Vertical	Pass	
		711	6.92	1.92	19.32	2.15	22.17	164.816	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	706.5	5.71	1.91	19.23	2.15	20.88	122.462	Horizontal	Pass	
		710	5.26	1.91	19.26	2.15	20.46	111.173	Horizontal	Pass	
		713.5	4.99	1.92	19.33	2.15	20.25	105.925	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	709	5.14	1.91	19.25	2.15	20.33	107.895	Horizontal	Pass	
		710	6.67	1.91	19.26	2.15	21.87	153.815	Horizontal	Pass	
		711	6.19	1.92	19.32	2.15	21.44	139.316	Horizontal	Pass	

Radiated Power (ERP) for Band 17											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. EIRP	Max. EIRP			
			(dBm)				Average	Average			
				(dB)	(dBm)	(mW)					
5.0MHz Band 16 QAM	1/#Mid	706.5	6.35	1.91	19.23	2.15	21.52	141.906	Vertical	Pass	
		710	6.26	1.91	19.26	2.15	21.46	139.959	Vertical	Pass	
		713.5	6.06	1.92	19.33	2.15	21.32	135.519	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	709	5.89	1.91	19.25	2.15	21.08	128.233	Vertical	Pass	
		710	6.42	1.91	19.26	2.15	21.62	145.211	Vertical	Pass	
		711	6.15	1.92	19.32	2.15	21.40	138.038	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	706.5	4.94	1.91	19.23	2.15	20.11	102.565	Horizontal	Pass	
		710	4.94	1.91	19.26	2.15	20.14	103.276	Horizontal	Pass	
		713.5	4.85	1.92	19.33	2.15	20.11	102.565	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	709	5.22	1.91	19.25	2.15	20.41	109.901	Horizontal	Pass	
		710	5.24	1.91	19.26	2.15	20.44	110.662	Horizontal	Pass	
		711	5.22	1.92	19.32	2.15	20.47	111.429	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)

8.9 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	Polarization Of Max. ERP	
							Average		
						(mW)			
1.4MHz Band QPSK	1/#Mid	1710.7	-2.01	3.76	28.24	22.47	176.604	Horizontal	Pass
		1745	-1.87	3.91	28.22	22.44	175.388	Horizontal	Pass
		1779.3	-1.74	3.93	28.2	22.53	179.061	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.07	3.77	28.23	22.39	173.380	Horizontal	Pass
		1745	-1.98	3.91	28.24	22.35	171.791	Horizontal	Pass
		1778.5	-2.00	3.94	28.25	22.31	170.216	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-1.97	3.77	28.31	22.57	180.717	Horizontal	Pass
		1745	-1.65	3.91	28.22	22.66	184.502	Horizontal	Pass
		1777.5	-1.71	3.94	28.2	22.55	179.887	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-1.86	3.79	28.33	22.68	185.353	Horizontal	Pass
		1745	-1.59	3.95	28.22	22.68	185.353	Horizontal	Pass
		1775	-1.60	3.97	28.19	22.62	182.810	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-1.88	3.79	28.34	22.67	184.927	Horizontal	Pass
		1745	-1.69	3.95	28.22	22.58	181.134	Horizontal	Pass
		1772.5	-1.64	3.97	28.18	22.57	180.717	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-1.85	3.81	28.35	22.69	185.780	Horizontal	Pass
		1745	-1.59	3.96	28.22	22.67	184.927	Horizontal	Pass
		1770	-1.61	4	28.16	22.55	179.887	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.81	3.76	28.24	21.67	146.893	Vertical	Pass
		1745	-2.69	3.91	28.22	21.62	145.211	Vertical	Pass
		1779.3	-2.34	3.93	28.2	21.93	155.955	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.43	3.77	28.23	21.03	126.765	Vertical	Pass
		1745	-2.58	3.91	28.24	21.75	149.624	Vertical	Pass
		1778.5	-2.50	3.94	28.25	21.81	151.705	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.80	3.77	28.31	21.74	149.279	Vertical	Pass
		1745	-2.51	3.91	28.22	21.80	151.356	Vertical	Pass
		1777.5	-2.34	3.94	28.2	21.92	155.597	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.14	3.79	28.34	21.41	138.357	Vertical	Pass
		1745	-2.66	3.95	28.22	21.61	144.877	Vertical	Pass

		1775	-3.05	3.97	28.18	21.16	130.617	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.60	3.81	28.35	21.94	156.315	Vertical	Pass
		1745	-3.17	3.96	28.22	21.09	128.529	Vertical	Pass
		1772.5	-2.41	4	28.16	21.75	149.624	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.87	3.79	28.34	21.68	147.231	Vertical	Pass
		1745	-2.80	3.95	28.22	21.47	140.281	Vertical	Pass
		1770	-2.87	3.97	28.18	21.34	136.144	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	-2.84	3.76	28.24	21.64	145.881	Horizontal	Pass
		1745	-2.45	3.91	28.22	21.86	153.462	Horizontal	Pass
		1779.3	-2.63	3.93	28.2	21.64	145.881	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.23	3.77	28.23	21.23	132.739	Horizontal	Pass
		1745	-2.48	3.91	28.24	21.85	153.109	Horizontal	Pass
		1778.5	-2.77	3.94	28.25	21.54	142.561	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.65	3.77	28.31	21.89	154.525	Horizontal	Pass
		1745	-2.71	3.91	28.22	21.60	144.544	Horizontal	Pass
		1777.5	-2.38	3.94	28.2	21.88	154.170	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.70	3.79	28.33	21.84	152.757	Horizontal	Pass
		1745	-2.36	3.95	28.22	21.91	155.239	Horizontal	Pass
		1775	-2.68	3.97	28.19	21.54	142.561	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.69	3.79	28.34	21.86	153.462	Horizontal	Pass
		1745	-2.51	3.95	28.22	21.76	149.968	Horizontal	Pass
		1772.5	-2.30	3.97	28.18	21.91	155.239	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.52	3.81	28.35	22.02	159.221	Horizontal	Pass
		1745	-2.30	3.96	28.22	21.96	157.036	Horizontal	Pass
		1770	-2.24	4	28.16	21.92	155.597	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.14	3.76	28.24	20.34	108.143	Vertical	Pass
		1745	-2.59	3.91	28.22	21.72	148.594	Vertical	Pass
		1779.3	-4.15	3.93	28.2	20.12	102.802	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.83	3.77	28.23	20.63	115.611	Vertical	Pass
		1745	-2.97	3.91	28.24	21.36	136.773	Vertical	Pass
		1778.5	-3.19	3.94	28.25	21.12	129.420	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.00	3.77	28.31	21.54	142.561	Vertical	Pass
		1745	-4.15	3.91	28.22	20.16	103.753	Vertical	Pass
		1777.5	-4.05	3.94	28.2	20.21	104.954	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.56	3.79	28.34	19.99	99.770	Vertical	Pass
		1745	-3.96	3.95	28.22	20.31	107.399	Vertical	Pass
		1775	-2.92	3.97	28.18	21.29	134.586	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-4.00	3.81	28.35	20.54	113.240	Vertical	Pass
		1745	-3.53	3.96	28.22	20.73	118.304	Vertical	Pass

QAM		1772.5	-2.79	4	28.16	21.37	137.088	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.58	3.79	28.34	19.97	99.312	Vertical	Pass
Band 16		1745	-4.19	3.95	28.22	20.08	101.859	Vertical	Pass
QAM		1770	-3.17	3.97	28.18	21.04	127.057	Vertical	Pass

Note:

SG Level= Signal generator output

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10}(P)$ [Watts]).

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P)$ [Watts]), where P is the transmitter power in Watts.

TEST PROCEDURE

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

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

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

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

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \text{ Log}_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \text{ Log}_{10}(p)$, dB at the channel edges and $55 + 10 \text{ Log}_{10}(p)$ 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 Band2
LTE Band 4
- LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 13
LTE Band 17
LTE Band 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	-51.62	4.04	33.51	-22.15	-13	-9.15	Horizontal
3701.4	-49.14	4.04	33.51	-19.67	-13	-6.67	Vertical
5552.1	-46.69	5.24	35.84	-16.09	-13	-3.09	Vertical
5552.1	-49.39	5.24	35.84	-18.79	-13	-5.79	Horizontal
176.3	-42.88	1.43	16.02	-28.29	-13	-15.29	Vertical
395.3	-41.12	1.30	17.99	-24.43	-13	-11.43	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-51.17	4.04	33.56	-21.65	-13	-8.65	Horizontal
3760.0	-50.01	4.04	33.56	-20.49	-13	-7.49	Vertical
5640.0	-44.34	5.24	35.91	-13.67	-13	-0.67	Vertical
5640.0	-51.59	5.24	35.91	-20.92	-13	-7.92	Horizontal
201.2	-39.21	1.62	16.97	-23.86	-13	-10.86	Vertical
293.9	-38.81	1.74	15.98	-24.58	-13	-11.58	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-48.88	4.04	34.00	-18.92	-13	-5.92	Horizontal
3818.6	-53.21	4.04	34.00	-23.25	-13	-10.25	Vertical
5727.9	-45.66	5.24	36.04	-14.86	-13	-1.86	Vertical
5727.9	-50.63	5.24	36.04	-19.83	-13	-6.83	Horizontal
187.2	-34.86	1.42	17.29	-18.99	-13	-5.99	Vertical
291.5	-34.89	1.50	17.90	-18.48	-13	-5.48	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	-49.14	4.07	33.54	-19.67	-13	-6.67	Horizontal
3720.0	-53.83	4.07	33.54	-24.36	-13	-11.36	Vertical
5580.0	-47.42	5.28	35.86	-16.84	-13	-3.84	Vertical
5580.0	-49.99	5.28	35.86	-19.41	-13	-6.41	Horizontal
201.5	-41.16	1.58	16.89	-25.84	-13	-12.84	Vertical
428.5	-37.85	1.76	17.26	-22.35	-13	-9.35	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-50.60	4.04	33.56	-21.08	-13	-8.08	Horizontal
3760.0	-44.56	4.04	33.56	-15.04	-13	-2.04	Vertical
5640.0	-49.80	5.24	35.91	-19.13	-13	-6.13	Vertical
5640.0	-52.67	5.24	35.91	-22.00	-13	-9.00	Horizontal
201.3	-39.31	1.46	16.27	-24.50	-13	-11.50	Vertical
310.4	-44.53	1.59	15.15	-30.97	-13	-17.97	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-53.64	4.04	34.00	-23.68	-13	-10.68	Horizontal
3800.0	-46.25	4.04	34.00	-16.29	-13	-3.29	Vertical
5700.0	-46.47	5.24	36.04	-15.67	-13	-2.67	Vertical
5700.0	-50.55	5.24	36.04	-19.75	-13	-6.75	Horizontal
181.4	-36.39	1.36	17.39	-20.35	-13	-7.35	Vertical
339.6	-38.98	1.66	15.39	-25.25	-13	-12.25	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.

9.2 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	-48.60	4.02	29.80	-22.82	-13	-9.82	Horizontal
3421.4	-44.98	4.02	29.80	-19.20	-13	-6.20	Vertical
5132.1	-48.48	5.24	35.84	-17.88	-13	-4.88	Vertical
5132.1	-52.14	5.24	35.84	-21.54	-13	-8.54	Horizontal
213.0	-38.34	1.68	16.04	-23.98	-13	-10.98	Vertical
368.2	-34.80	1.78	17.74	-18.84	-13	-5.84	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-53.88	4.03	30.00	-27.91	-13	-14.91	Horizontal
3465.0	-50.93	4.03	30.00	-24.96	-13	-11.96	Vertical
5197.5	-50.00	5.25	35.86	-19.39	-13	-6.39	Vertical
5197.5	-53.81	5.25	35.86	-23.20	-13	-10.20	Horizontal
204.9	-41.63	1.72	17.69	-25.66	-13	-12.66	Vertical
292.6	-37.66	1.62	16.02	-23.25	-13	-10.25	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-44.24	4.05	30.01	-18.28	-13	-5.28	Horizontal
3508.6	-44.02	4.05	30.01	-18.06	-13	-5.06	Vertical
5262.9	-44.35	5.26	35.86	-13.75	-13	-0.75	Vertical
5262.9	-52.39	5.26	35.86	-21.79	-13	-8.79	Horizontal
184.8	-43.34	1.80	16.69	-28.45	-13	-15.45	Vertical
297.0	-36.69	1.75	16.66	-21.79	-13	-8.79	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	-53.84	4.02	29.80	-28.06	-13	-15.06	Horizontal
3440.0	-47.14	4.02	29.80	-21.36	-13	-8.36	Vertical
5160.0	-48.99	5.24	35.84	-18.39	-13	-5.39	Vertical
5160.0	-53.38	5.24	35.84	-22.78	-13	-9.78	Horizontal
196.4	-37.72	1.57	17.26	-22.03	-13	-9.03	Vertical
366.4	-35.95	1.78	16.35	-21.38	-13	-8.38	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-49.94	4.03	30.00	-23.97	-13	-10.97	Horizontal
3465.0	-49.63	4.03	30.00	-23.66	-13	-10.66	Vertical
5197.5	-50.60	5.25	35.86	-19.99	-13	-6.99	Vertical
5197.5	-49.10	5.25	35.86	-18.49	-13	-5.49	Horizontal
179.2	-38.21	1.44	17.95	-21.70	-13	-8.70	Vertical
395.1	-39.80	1.65	16.09	-25.36	-13	-12.36	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-53.42	2.91	27.68	-28.65	-13	-15.65	Horizontal
3490.0	-51.23	2.91	27.68	-26.46	-13	-13.46	Vertical
5235.0	-48.19	5.26	35.86	-17.59	-13	-4.59	Vertical
5235.0	-52.95	5.26	35.86	-22.35	-13	-9.35	Horizontal
206.2	-42.62	1.61	16.85	-27.38	-13	-14.38	Vertical
244.5	-41.13	1.61	15.19	-27.55	-13	-14.55	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.

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-48.76	2.78	27.50	-24.04	-13	-11.04	Horizontal
1649.4	-48.22	2.78	27.50	-23.50	-13	-10.50	Vertical
2474.1	-53.35	2.90	27.80	-28.45	-13	-15.45	Vertical
2474.1	-53.99	2.90	27.80	-29.09	-13	-16.09	Horizontal
192.6	-42.42	1.76	17.59	-26.59	-13	-13.59	Vertical
440.0	-42.87	1.63	15.87	-28.63	-13	-15.63	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-52.86	2.80	27.48	-28.18	-13	-15.18	Horizontal
1673.0	-52.10	2.80	27.48	-27.42	-13	-14.42	Vertical
2509.5	-49.37	2.91	27.70	-24.58	-13	-11.58	Vertical
2509.5	-50.55	2.91	27.70	-25.76	-13	-12.76	Horizontal
189.0	-38.64	1.61	15.68	-24.57	-13	-11.57	Vertical
417.7	-40.64	1.59	17.52	-24.72	-13	-11.72	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-44.09	2.82	27.43	-19.48	-13	-6.48	Horizontal
1696.6	-47.11	2.82	27.43	-22.50	-13	-9.50	Vertical
2544.9	-47.53	2.92	27.74	-22.71	-13	-9.71	Vertical
2544.9	-50.49	2.92	27.74	-25.67	-13	-12.67	Horizontal
177.2	-42.17	1.69	16.67	-27.18	-13	-14.18	Vertical
253.1	-41.91	1.70	17.18	-26.43	-13	-13.43	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-45.89	2.78	27.50	-21.17	-13	-8.17	Horizontal
1658.0	-45.10	2.78	27.50	-20.38	-13	-7.38	Vertical
2487.0	-53.15	2.90	27.80	-28.25	-13	-15.25	Vertical
2487.0	-49.22	2.90	27.80	-24.32	-13	-11.32	Horizontal
193.1	-35.15	1.71	15.57	-21.29	-13	-8.29	Vertical
259.8	-38.74	1.34	16.40	-23.68	-13	-10.68	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-46.60	2.80	27.48	-21.92	-13	-8.92	Horizontal
1673.0	-53.11	2.80	27.48	-28.43	-13	-15.43	Vertical
2509.5	-49.42	2.91	27.70	-24.63	-13	-11.63	Vertical
2509.5	-50.32	2.91	27.70	-25.53	-13	-12.53	Horizontal
181.2	-37.69	1.44	17.04	-22.09	-13	-9.09	Vertical
443.8	-44.98	1.76	17.62	-29.12	-13	-16.12	Horizontal
Test Results for High Channel 844MHz							
1688.0	-45.50	2.82	27.43	-20.89	-13	-7.89	Horizontal
1688.0	-44.96	2.82	27.43	-20.35	-13	-7.35	Vertical
2532.0	-50.92	2.92	27.74	-26.10	-13	-13.10	Vertical
2532.0	-49.83	2.92	27.74	-25.01	-13	-12.01	Horizontal
207.0	-34.14	1.74	17.70	-18.18	-13	-5.18	Vertical
309.4	-34.72	1.41	17.46	-18.66	-13	-5.66	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.

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-59.78	5.23	35.81	-29.20	-25	-4.20	Horizontal
5005.0	-59.34	5.23	35.81	-28.76	-25	-3.76	Vertical
7507.5	-63.28	5.67	36.85	-32.10	-25	-7.10	Vertical
7507.5	-63.14	5.67	36.85	-31.96	-25	-6.96	Horizontal
208.0	-49.98	1.73	17.97	-33.74	-25	-8.74	Vertical
429.5	-51.39	1.38	15.11	-37.66	-25	-12.66	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.50	5.23	35.82	-32.91	-25	-7.91	Horizontal
5070.0	-62.03	5.23	35.82	-31.44	-25	-6.44	Vertical
7605.0	-63.15	5.67	36.85	-31.97	-25	-6.97	Vertical
7605.0	-64.28	5.67	36.85	-33.10	-25	-8.10	Horizontal
201.8	-53.15	1.77	16.17	-38.74	-25	-13.74	Vertical
345.0	-51.71	1.63	15.21	-38.13	-25	-13.13	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.95	5.24	35.83	-31.36	-25	-6.36	Horizontal
5135.0	-60.87	5.24	35.83	-30.28	-25	-5.28	Vertical
7702.5	-62.41	5.68	36.87	-31.22	-25	-6.22	Vertical
7702.5	-60.28	5.68	36.87	-29.09	-25	-4.09	Horizontal
203.2	-47.26	1.58	17.56	-31.28	-25	-6.28	Vertical
368.5	-52.43	1.45	16.58	-37.30	-25	-12.30	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-59.70	5.23	35.82	-29.11	-25	-4.11	Horizontal
5020.0	-62.28	5.23	35.82	-31.69	-25	-6.69	Vertical
7530.0	-62.55	5.67	36.86	-31.36	-25	-6.36	Vertical
7530.0	-60.73	5.67	36.86	-29.54	-25	-4.54	Horizontal
187.8	-48.35	1.63	15.76	-34.22	-25	-9.22	Vertical
345.4	-46.31	1.71	15.44	-32.58	-25	-7.58	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.48	5.23	35.82	-30.89	-25	-5.89	Horizontal
5070.0	-63.20	5.23	35.82	-32.61	-25	-7.61	Vertical
7605.0	-59.54	5.67	36.85	-28.36	-25	-3.36	Vertical
7605.0	-61.21	5.67	36.85	-30.03	-25	-5.03	Horizontal
201.1	-44.17	1.79	16.84	-29.11	-25	-4.11	Vertical
236.2	-45.71	1.71	17.64	-29.78	-25	-4.78	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.58	5.24	35.83	-29.99	-25	-4.99	Horizontal
5120.0	-62.41	5.24	35.83	-31.82	-25	-6.82	Vertical
7680.0	-63.47	5.70	36.88	-32.29	-25	-7.29	Vertical
7680.0	-59.72	5.70	36.88	-28.54	-25	-3.54	Horizontal
195.5	-48.46	1.79	16.84	-33.40	-25	-8.40	Vertical
324.7	-49.98	1.71	17.64	-34.05	-25	-9.05	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	-48.85	2.60	27.20	-24.25	-13	-11.25	Horizontal
1399.4	-47.22	2.60	27.20	-22.62	-13	-9.62	Vertical
2099.1	-49.48	2.85	27.54	-24.79	-13	-11.79	Vertical
2099.1	-51.37	2.85	27.54	-26.68	-13	-13.68	Horizontal
193.1	-43.86	1.49	17.78	-27.57	-13	-14.57	Vertical
364.8	-36.82	1.36	17.33	-20.85	-13	-7.85	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-52.87	2.61	27.28	-28.20	-13	-15.20	Horizontal
1415.0	-47.18	2.61	27.28	-22.51	-13	-9.51	Vertical
2122.5	-49.66	2.87	27.59	-24.94	-13	-11.94	Vertical
2122.5	-50.30	2.87	27.59	-25.58	-13	-12.58	Horizontal
203.2	-42.72	1.73	15.74	-28.71	-13	-15.71	Vertical
467.5	-37.21	1.62	15.79	-23.04	-13	-10.04	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-50.35	2.63	27.28	-25.70	-13	-12.70	Horizontal
1430.6	-47.49	2.63	27.28	-22.84	-13	-9.84	Vertical
2145.9	-52.51	2.88	27.60	-27.79	-13	-14.79	Vertical
2145.9	-50.45	2.88	27.60	-25.73	-13	-12.73	Horizontal
196.4	-34.75	1.61	18.00	-18.36	-13	-5.36	Vertical
346.6	-39.52	1.45	15.49	-25.49	-13	-12.49	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	-44.54	2.61	27.26	-19.89	-13	-6.89	Horizontal
1408.0	-49.29	2.61	27.26	-24.64	-13	-11.64	Vertical
2112.0	-45.47	2.87	27.58	-20.76	-13	-7.76	Vertical
2112.0	-51.77	2.87	27.58	-27.06	-13	-14.06	Horizontal
187.9	-38.68	1.31	16.97	-23.02	-13	-10.02	Vertical
388.6	-43.65	1.65	16.70	-28.60	-13	-15.60	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-45.84	2.61	27.28	-21.17	-13	-8.17	Horizontal
1415.0	-46.12	2.61	27.28	-21.45	-13	-8.45	Vertical
2122.5	-47.35	2.87	27.59	-22.63	-13	-9.63	Vertical
2122.5	-49.27	2.87	27.59	-24.55	-13	-11.55	Horizontal
212.4	-43.25	1.72	17.99	-26.98	-13	-13.98	Vertical
372.3	-34.37	1.73	17.94	-18.16	-13	-5.16	Horizontal
Test Results for High Channel 711MHz							
1422.0	-52.27	2.62	27.28	-27.61	-13	-14.61	Horizontal
1422.0	-50.97	2.62	27.28	-26.31	-13	-13.31	Vertical
2133.0	-48.88	2.87	27.60	-24.15	-13	-11.15	Vertical
2133.0	-51.15	2.87	27.60	-26.42	-13	-13.42	Horizontal
191.2	-40.23	1.58	15.93	-25.88	-13	-12.88	Vertical
288.7	-34.08	1.36	15.59	-19.85	-13	-6.85	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

9.6 LTE BAND 13

QPSK EIRP POWER FOR 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	-70.65	2.61	27.28	-45.98	-40	-5.98	Horizontal
1559.0	-73.12	2.61	27.28	-48.45	-40	-8.45	Vertical
2338.5	-39.08	2.87	27.59	-14.36	-13	-1.36	Vertical
2338.5	-43.24	2.87	27.59	-18.52	-13	-5.52	Horizontal
120.1	-36.79	1.54	15.61	-22.72	-13	-9.72	Vertical
197.8	-37.69	1.51	15.21	-23.99	-13	-10.99	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-69.36	2.62	27.30	-44.68	-40	-4.68	Horizontal
1564.0	-69.45	2.62	27.30	-44.77	-40	-4.77	Vertical
2346.0	-39.22	2.87	27.62	-14.47	-13	-1.47	Vertical
2346.0	-39.70	2.87	27.62	-14.95	-13	-1.95	Horizontal
131.2	-35.31	1.65	16.17	-20.79	-13	-7.79	Vertical
267.5	-37.52	1.48	16.88	-22.12	-13	-9.12	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-74.74	2.66	27.28	-50.12	-40	-10.12	Horizontal
1569.0	-71.53	2.66	27.28	-46.91	-40	-6.91	Vertical
2353.5	-39.82	2.88	27.60	-15.10	-13	-2.10	Vertical
2353.5	-39.39	2.88	27.60	-14.67	-13	-1.67	Horizontal
80.8	-39.54	1.54	16.40	-24.68	-13	-11.68	Vertical
155.6	-38.28	1.43	15.77	-23.94	-13	-10.94	Horizontal

QPSK EIRP POWER FOR 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	-72.29	2.62	27.30	-47.61	-40	-7.61	Horizontal
1564.0	-72.24	2.62	27.30	-47.56	-40	-7.56	Vertical
2346.0	-43.91	2.87	27.62	-19.16	-13	-6.16	Vertical
2346.0	-44.31	2.87	27.62	-19.56	-13	-6.56	Horizontal
129.1	-39.17	1.43	17.03	-23.57	-13	-10.57	Vertical
86.9	-35.06	1.62	16.63	-20.05	-13	-7.05	Horizontal

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

. 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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-52.19	2.61	27.28	-27.52	-13	-14.52	Horizontal
1413.0	-46.55	2.61	27.28	-21.88	-13	-8.88	Vertical
2119.5	-44.65	2.87	27.59	-19.93	-13	-6.93	Vertical
2119.5	-53.91	2.87	27.59	-29.19	-13	-16.19	Horizontal
201.6	-38.80	1.71	16.15	-24.36	-13	-11.36	Vertical
367.6	-44.26	1.41	17.32	-28.35	-13	-15.35	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-44.82	2.62	27.30	-20.14	-13	-7.14	Horizontal
1420.0	-53.78	2.62	27.30	-29.10	-13	-16.10	Vertical
2130.0	-52.06	2.87	27.62	-27.31	-13	-14.31	Vertical
2130.0	-51.74	2.87	27.62	-26.99	-13	-13.99	Horizontal
200.3	-36.80	1.42	15.25	-22.98	-13	-9.98	Vertical
431.8	-36.88	1.36	17.19	-21.05	-13	-8.05	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-52.18	2.66	27.28	-27.56	-13	-14.56	Horizontal
1427.0	-46.27	2.66	27.28	-21.65	-13	-8.65	Vertical
2140.5	-44.34	2.88	27.60	-19.62	-13	-6.62	Vertical
2140.5	-52.15	2.88	27.60	-27.43	-13	-14.43	Horizontal
182.3	-36.09	1.32	17.29	-20.12	-13	-7.12	Vertical
385.9	-37.91	1.72	16.89	-22.74	-13	-9.74	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-49.41	2.62	27.30	-24.73	-13	-11.73	Horizontal
1418.0	-47.67	2.62	27.30	-22.99	-13	-9.99	Vertical
2127.0	-48.01	2.87	27.62	-23.26	-13	-10.26	Vertical
2127.0	-52.30	2.87	27.62	-27.55	-13	-14.55	Horizontal
209.6	-40.51	1.35	16.91	-24.95	-13	-11.95	Vertical
237.8	-39.36	1.62	16.31	-24.67	-13	-11.67	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-47.43	2.62	27.30	-22.75	-13	-9.75	Horizontal
1420.0	-50.98	2.62	27.30	-26.30	-13	-13.30	Vertical
2130.0	-45.32	2.87	27.62	-20.57	-13	-7.57	Vertical
2130.0	-53.55	2.87	27.62	-28.80	-13	-15.80	Horizontal
190.2	-44.36	1.51	17.14	-28.73	-13	-15.73	Vertical
348.9	-39.93	1.77	16.88	-24.82	-13	-11.82	Horizontal
Test Results for High Channel 711MHz							
1422.0	-44.14	2.62	27.30	-19.46	-13	-6.46	Horizontal
1422.0	-51.97	2.62	27.30	-27.29	-13	-14.29	Vertical
2133.0	-46.36	2.87	27.62	-21.61	-13	-8.61	Vertical
2133.0	-49.38	2.87	27.62	-24.63	-13	-11.63	Horizontal
199.1	-41.82	1.78	15.95	-27.65	-13	-14.65	Vertical
381.1	-40.31	1.34	17.95	-23.71	-13	-10.71	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 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	-54.90	4.02	29.80	-29.12	-13	-16.12	Horizontal
3421.4	-51.78	4.02	29.80	-26.00	-13	-13.00	Vertical
5132.1	-50.58	5.24	35.84	-19.98	-13	-6.98	Vertical
5132.1	-55.00	5.24	35.84	-24.40	-13	-11.40	Horizontal
112.6	-45.91	1.52	15.57	-31.86	-13	-18.86	Vertical
220.5	-54.95	1.33	17.14	-39.14	-13	-26.14	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-53.26	4.03	30.00	-27.29	-13	-14.29	Horizontal
3490.0	-45.41	4.03	30.00	-19.44	-13	-6.44	Vertical
5235.0	-51.91	5.25	35.86	-21.30	-13	-8.30	Vertical
5235.0	-49.93	5.25	35.86	-19.32	-13	-6.32	Horizontal
157.3	-51.71	1.53	17.13	-36.11	-13	-23.11	Vertical
213.1	-54.67	1.41	15.95	-40.13	-13	-27.13	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-49.75	4.05	30.01	-23.79	-13	-10.79	Horizontal
3558.6	-51.33	4.05	30.01	-25.37	-13	-12.37	Vertical
5337.9	-52.68	5.26	35.86	-22.08	-13	-9.08	Vertical
5337.9	-48.27	5.26	35.86	-17.67	-13	-4.67	Horizontal
170.6	-52.96	1.44	15.51	-38.89	-13	-25.89	Vertical
169.0	-53.78	1.78	15.76	-39.80	-13	-26.80	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	-52.68	4.02	29.80	-26.90	-13	-13.90	Horizontal
3440.0	-45.50	4.02	29.80	-19.72	-13	-6.72	Vertical
5160.0	-54.58	5.24	35.84	-23.98	-13	-10.98	Vertical
5160.0	-49.09	5.24	35.84	-18.49	-13	-5.49	Horizontal
268.8	-54.17	1.62	17.02	-38.77	-13	-25.77	Vertical
161.4	-54.29	1.32	17.31	-38.30	-13	-25.30	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-45.00	4.03	30.00	-19.03	-13	-6.03	Horizontal
3490.0	-47.48	4.03	30.00	-21.51	-13	-8.51	Vertical
5235.0	-52.44	5.25	35.86	-21.83	-13	-8.83	Vertical
5235.0	-48.31	5.25	35.86	-17.70	-13	-4.70	Horizontal
159.9	-45.87	1.45	15.17	-32.15	-13	-19.15	Vertical
172.1	-54.01	1.48	17.82	-37.67	-13	-24.67	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-51.31	2.91	27.68	-26.54	-13	-13.54	Horizontal
3540.0	-47.46	2.91	27.68	-22.69	-13	-9.69	Vertical
5310.0	-53.28	5.26	35.86	-22.68	-13	-9.68	Vertical
5310.0	-47.48	5.26	35.86	-16.88	-13	-3.88	Horizontal
197.3	-47.57	1.76	16.38	-32.95	-13	-19.95	Vertical
158.5	-50.86	1.43	17.13	-35.16	-13	-22.16	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.

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 34V, Normal, DC 3.85V and High voltage, DC 4.2V.

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 Band2
LTE Band 4
- LTE Band5
LTE Band 7
LTE Band 12
LTE Band 13
LTE Band 17
LTE Band 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]
3.4	1880	12.7	0.006759	2.5
3.85	1880	13.7	0.007287	2.5
4.2	1880	13.1	0.006952	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.4	0.006617	2.5
Extreme (50C)	1880	12.1	0.006415	2.5
Extreme (40C)	1880	13.9	0.007374	2.5
Extreme (30C)	1880	13.7	0.007288	2.5
Extreme (10C)	1880	13.5	0.007198	2.5
Extreme (0C)	1880	12.1	0.006439	2.5
Extreme (-10C)	1880	13.3	0.007058	2.5
Extreme (-20C)	1880	13.9	0.007387	2.5
Extreme (-30C)	1880	14.4	0.007667	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1880	9.6	0.005096	2.5
3.85	1880	9.3	0.004921	2.5
4.2	1880	8.4	0.004464	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.5	0.005068	2.5
Extreme (50C)	1880	8.8	0.004705	2.5
Extreme (40C)	1880	8.0	0.004230494	2.5
Extreme (30C)	1880	9.4	0.005005533	2.5
Extreme (10C)	1880	8.6	0.004600218	2.5
Extreme (0C)	1880	8.5	0.004546789	2.5
Extreme (-10C)	1880	8.8	0.00470177	2.5
Extreme (-20C)	1880	9.3	0.004925867	2.5
Extreme (-30C)	1880	8.5	0.004498357	2.5

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

10.2 LTE BAND 4

Band 4 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1732.5	8.5	0.004904	2.5
3.85	1732.5	9.2	0.005305	2.5
4.2	1732.5	8.6	0.004992	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.8	0.005066	2.5
Extreme (50C)	1732.5	8.4	0.004852	2.5
Extreme (40C)	1732.5	7.4	0.004270	2.5
Extreme (30C)	1732.5	6.0	0.003466	2.5
Extreme (10C)	1732.5	7.2	0.004171	2.5
Extreme (0C)	1732.5	9.6	0.005552	2.5
Extreme (-10C)	1732.5	7.9	0.004582	2.5
Extreme (-20C)	1732.5	7.3	0.004215	2.5
Extreme (-30C)	1732.5	8.0	0.004605	2.5

Band 4 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1732.5	10.0	0.005796	2.5
3.85	1732.5	8.8	0.005051	2.5
4.2	1732.5	8.5	0.004902	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.8	0.005679	2.5
Extreme (50C)	1732.5	9.3	0.005387	2.5
Extreme (40C)	1732.5	8.5	0.004878	2.5
Extreme (30C)	1732.5	8.8	0.005098	2.5
Extreme (10C)	1732.5	9.1	0.005225	2.5
Extreme (0C)	1732.5	8.1	0.004687	2.5
Extreme (-10C)	1732.5	9.5	0.005461	2.5
Extreme (-20C)	1732.5	9.3	0.005375	2.5
Extreme (-30C)	1732.5	8.5	0.004878	2.5

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

10.3 LTE BAND 5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	836.5	5.7	0.006795	2.5
3.85	836.5	7.0	0.008328	2.5
4.2	836.5	4.5	0.005391	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.3	0.007509	2.5
Extreme (50C)	836.5	6.0	0.007169	2.5
Extreme (40C)	836.5	5.9	0.007005	2.5
Extreme (30C)	836.5	6.3	0.007526	2.5
Extreme (10C)	836.5	5.1	0.006156	2.5
Extreme (0C)	836.5	5.5	0.006520	2.5
Extreme (-10C)	836.5	5.2	0.006256	2.5
Extreme (-20C)	836.5	5.9	0.007099	2.5
Extreme (-30C)	836.5	6.0	0.007222	2.5

Band 5 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	836.5	5.3	0.006357	2.5
3.85	836.5	6.3	0.007565	2.5
4.2	836.5	4.7	0.005598	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.3	0.007572	2.5
Extreme (50C)	836.5	6.2	0.007457	2.5
Extreme (40C)	836.5	5.9	0.007033	2.5
Extreme (30C)	836.5	6.6	0.007856	2.5
Extreme (10C)	836.5	5.0	0.005935	2.5
Extreme (0C)	836.5	5.4	0.006415	2.5
Extreme (-10C)	836.5	5.2	0.006179	2.5
Extreme (-20C)	836.5	6.1	0.007284	2.5
Extreme (-30C)	836.5	6.3	0.007518	2.5

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

10.4 LTE BAND 7

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2535	10.0	0.003944	2.5
3.85	2535	8.6	0.003381	2.5
4.2	2535	8.9	0.003508	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.1	0.003576	2.5
Extreme (50C)	2535	8.6	0.003401	2.5
Extreme (40C)	2535	8.2	0.003216	2.5
Extreme (30C)	2535	8.6	0.003377	2.5
Extreme (10C)	2535	8.4	0.003305	2.5
Extreme (0C)	2535	8.5	0.003346	2.5
Extreme (-10C)	2535	9.9	0.003886	2.5
Extreme (-20C)	2535	8.6	0.003374	2.5
Extreme (-30C)	2535	8.4	0.003327	2.5

Band 7 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2535	6.9	0.002722	2.5
3.85	2535	6.7	0.002657	2.5
4.2	2535	5.8	0.002275	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	5.3	0.002101	2.5
Extreme (40C)	2535	5.1	0.002029	2.5
Extreme (30C)	2535	6.5	0.002554	2.5
Extreme (10C)	2535	6.1	0.002393	2.5
Extreme (0C)	2535	4.7	0.001865	2.5
Extreme (-10C)	2535	5.7	0.002235	2.5
Extreme (-20C)	2535	5.5	0.002178	2.5
Extreme (-30C)	2535	6.0	0.002367	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	8.8	0.012393	2.5
3.85	707.5	10.2	0.014385	2.5
4.2	707.5	8.6	0.012149	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.7	0.012350	2.5
Extreme (50C)	707.5	7.4	0.010512	2.5
Extreme (40C)	707.5	7.0	0.009951	2.5
Extreme (30C)	707.5	8.0	0.011336	2.5
Extreme (10C)	707.5	7.0	0.009909	2.5
Extreme (0C)	707.5	8.8	0.012442	2.5
Extreme (-10C)	707.5	8.7	0.012354	2.5
Extreme (-20C)	707.5	9.4	0.013222	2.5
Extreme (-30C)	707.5	7.9	0.011224	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	7.1	0.009994	2.5
3.85	707.5	8.2	0.011618	2.5
4.2	707.5	7.3	0.010313	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782	12.8	0.018046	2.5
3.85	782	13.9	0.019604	2.5
4.2	782	13.0	0.018249	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	14.7	0.020749	2.5
Extreme (50C)	782	13.9	0.019613	2.5
Extreme (40C)	782	15.0	0.021103	2.5
Extreme (30C)	782	13.9	0.019623	2.5
Extreme (10C)	782	14.1	0.019913	2.5
Extreme (0C)	782	13.7	0.019239	2.5
Extreme (-10C)	782	13.6	0.019201	2.5
Extreme (-20C)	782	13.9	0.019635	2.5
Extreme (-30C)	782	13.3	0.018742	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 16QAM, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782	12.7	0.017855	2.5
3.85	782	13.5	0.019061	2.5
4.2	782	13.1	0.018447	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	12.3	0.017355	2.5
Extreme (50C)	782	11.9	0.016765	2.5
Extreme (40C)	782	13.9	0.019578	2.5
Extreme (30C)	782	13.9	0.019616	2.5
Extreme (10C)	782	14.4	0.020252	2.5
Extreme (0C)	782	12.1	0.017031	2.5
Extreme (-10C)	782	13.2	0.018582	2.5
Extreme (-20C)	782	14.0	0.019783	2.5
Extreme (-30C)	782	14.9	0.020957	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]
3.4	710.0	10.0	0.014015	2.5
3.85	710.0	9.2	0.012962	2.5
4.2	710.0	7.9	0.011094	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.5	0.013446	2.5
Extreme (50C)	710.0	8.8	0.012461	2.5
Extreme (40C)	710.0	8.3	0.011657	2.5
Extreme (30C)	710.0	9.3	0.013073	2.5
Extreme (10C)	710.0	8.7	0.012293	2.5
Extreme (0C)	710.0	8.5	0.011921	2.5
Extreme (-10C)	710.0	9.2	0.013001	2.5
Extreme (-20C)	710.0	8.9	0.012473	2.5
Extreme (-30C)	710.0	8.0	0.011303	2.5

Band 17 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	710.0	9.8	0.013806	2.5
3.85	710.0	9.2	0.013008	2.5
4.2	710.0	8.4	0.011798	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.0	0.012617	2.5
Extreme (50C)	710.0	8.8	0.012342	2.5
Extreme (40C)	710.0	8.7	0.012314	2.5
Extreme (30C)	710.0	9.3	0.013152	2.5
Extreme (10C)	710.0	8.0	0.011236	2.5
Extreme (0C)	710.0	8.4	0.011900	2.5
Extreme (-10C)	710.0	9.2	0.012920	2.5
Extreme (-20C)	710.0	8.8	0.012417	2.5
Extreme (-30C)	710.0	8.1	0.011423	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]
3.4	1745	6.8	0.003915	2.5
3.85	1745	6.9	0.003812	2.5
4.2	1745	7.9	0.004172	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	5.6	0.002985	2.5
Extreme (50C)	1745	7.9	0.004317	2.5
Extreme (40C)	1745	6.3	0.003454	2.5
Extreme (30C)	1745	7.4	0.003974	2.5
Extreme (10C)	1745	8.2	0.004509	2.5
Extreme (0C)	1745	6.7	0.003463	2.5
Extreme (-10C)	1745	6.3	0.003313	2.5
Extreme (-20C)	1745	7.0	0.003852	2.5
Extreme (-30C)	1745	6.2	0.003423	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]
3.4	1745	8.4	0.00462	2.5
3.85	1745	8.3	0.004436	2.5
4.2	1745	9.3	0.005194	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	9.3	0.005061	2.5
Extreme (50C)	1745	8.7	0.004447	2.5
Extreme (40C)	1745	8.6	0.004757	2.5
Extreme (30C)	1745	8.4	0.004539	2.5
Extreme (10C)	1745	8.9	0.004636	2.5
Extreme (0C)	1745	7.6	0.003824	2.5
Extreme (-10C)	1745	8.8	0.004745	2.5
Extreme (-20C)	1745	9.1	0.004918	2.5
Extreme (-30C)	1745	5.9	0.003037	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.

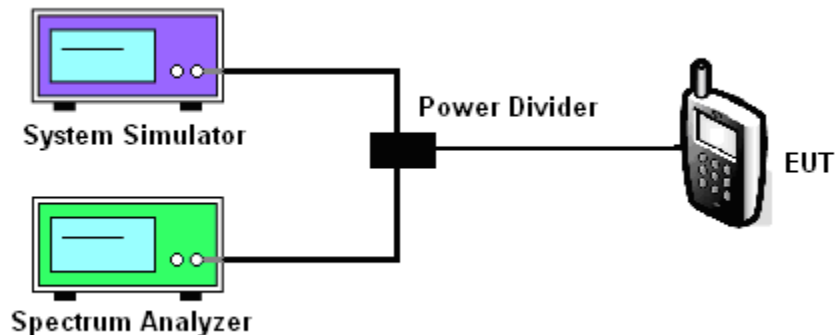
11.2 Measuring Instruments

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 2/4/5/7/12/13/17/66
-

Test data reference attachment.

----END OF REPORT----