

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

Product: Mobile Phone

Trade Mark: LAVA

Model Number: BLAZE

Family Model: E20V, LZX407

Report No.: S22102501801006

Prepared for

LAVA International Limited

A-56, Sector 64, Noida 201301, U.P. India

Prepared by

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

Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090

Website: <http://www.ntek.org.cn>

TABLE OF CONTENTS

1. GENERAL INFORMATION	5
1.1 PRODUCT DESCRIPTION	5
1.2 RELATED SUBMITTAL(S) / GRANT (S)	7
1.3 TEST METHODOLOGY	7
1.4 TEST FACILITY	7
MEASUREMENT UNCERTAINTY	7
1.5 SPECIAL ACCESSORIES.....	7
1.6 WORST-CASE CONFIGURATION AND MODE.....	7
1.6 SUMMARY OF TEST RESULTS	8
2. SYSTEM TEST CONFIGURATION	10
2.1 EUT CONFIGURATION.....	10
2.2 EUT EXERCISE	10
2.3 CONFIGURATION OF EUT SYSTEM.....	10
2.4 TEST SETUP	11
3.TEST AND MEASUREMENT EQUIPMENT	12
4. OUTPUT POWER	14
4.1 OUTPUT POWER MEASUREMENT	14
6. BANDEDGE AND EMISSION MASK	17
7. OUT OF BAND EMISSIONS	18
7.1 MEASUREMENT METHOD	19
8. RADIATED MEASUREMENT	20
8.1. RADIATED POWER (ERP & EIRP).....	20
8.2 LTE BAND 2.....	21
8.3 LTE BAND 4.....	25
8.4 LTE BAND 5.....	29

8.5 LTE BAND 7.....	31
8.5 LTE BAND 12.....	33
8.6 LTE BAND 17.....	35
8.7 LTE BAND 66.....	37
Factor Gain(dB)=Antenna Gain(dB) + Amplifier Factor (dB).....	40
9. SPURIOUS RADIATION EMISSION	41
9.1 LTE BAND 2.....	43
9.2 LTE BAND 4.....	45
9.3 LTE BAND 5.....	47
9.4 LTE BAND 7.....	49
9.5 LTE BAND 12.....	51
9.6 LTE BAND 17.....	53
9.7 LTE BAND 66.....	55
10. FREQUENCY STABILITY	57
10.1 LTE BAND 2.....	58
10.2 LTE BAND 4.....	60
10.3 LTE BAND 5.....	62
10.4 LTE BAND 7.....	64
10.5 LTE BAND 12.....	66
10.6 LTE BAND 17.....	68
10.7 LTE BAND 66.....	70
11. PEAK-TO-AVERAGE RATIO.....	72
11.1 Description of the PAR Measurement.....	72
11.2 Measuring Instruments.....	72
11.3 Test Procedures.....	72
11.4 Test Setup.....	72

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone
Trade Mark	LAVA
Model Name	BLAZE
Family Model	E20V, LZX407
Model Difference	All models are the same circuit and RF module, except the model name.
FCC ID:	2ARTX-BLAZE
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2, 4, 5, 7, 12, 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 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	PIFA Antenna
Antenna gain:	-2.1dBi
Power Supply:	DC 3.87V/4900mAh from battery or DC 5V from Adapter.
Adapter:	Model: UT-592A-5200ZY Input: 100-240V~50/60Hz 0.35A Output: 5.0V---2.0A 10.0W
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.87V) (Note 1)
HW Version	LAVA_Blaze_HW_V001
SW Version	LAVA_BLAZE_TIGO_LATAM_V001
** 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: 2ARTX-BLAZE** 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 C63.46:2015.

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 C63.46:2015& 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% ($U = 2U_c(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2, Band 4, Band 5, Band 7, Band 12, 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(c), (g), (h) KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913(a)(2) 27.50(b)(10), (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(c)(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(c)(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	Mobile Phone	BLAZE	FCC ID: 2ARTX-BLAZE	EUT

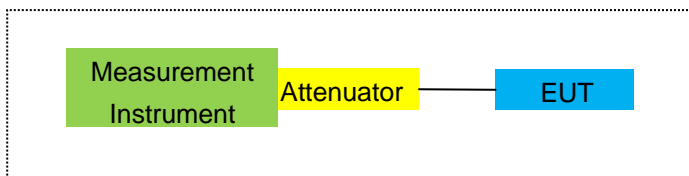
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

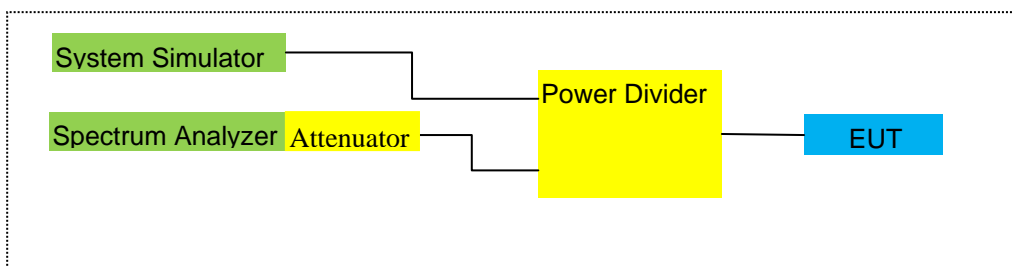
For Radiated Test Cases



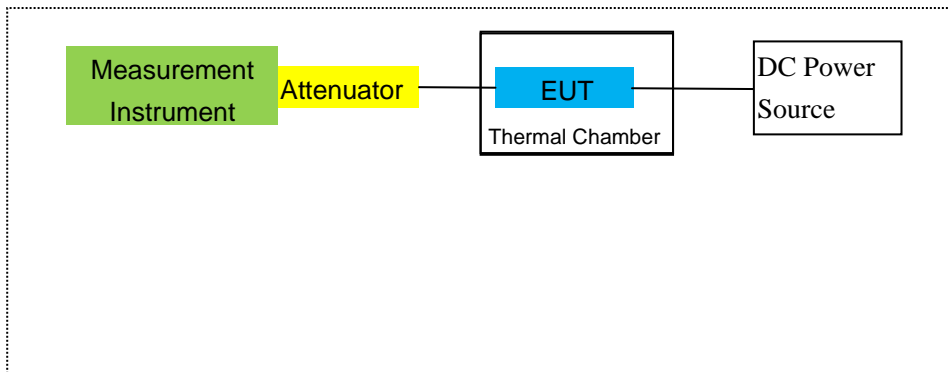
For Conducted Output Power



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	2022.06.16	2023.06.15	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	2020.05.11	2023.05.10	3 year
12	Test Cable	N/A	R-02	N/A	2020.05.11	2023.05.10	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 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 CMW500Test 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 2/4/5/7/12/17/66

RESULTS

Test data reference attachment.

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

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

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 17
- LTE Band 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	-2.53	3.76	28.24	21.95	156.675	Horizontal	Pass
		1880	-2.34	3.91	28.22	21.97	157.398	Horizontal	Pass
		1909.3	-2.25	3.93	28.20	22.02	159.221	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.59	3.77	28.23	21.87	153.815	Horizontal	Pass
		1880	-2.44	3.91	28.24	21.89	154.525	Horizontal	Pass
		1908.5	-2.31	3.94	28.25	22.00	158.489	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.48	3.77	28.31	22.06	160.694	Horizontal	Pass
		1880	-2.10	3.91	28.22	22.21	166.341	Horizontal	Pass
		1907.5	-2.03	3.94	28.20	22.23	167.109	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.34	3.79	28.33	22.20	165.959	Horizontal	Pass
		1880	-2.04	3.95	28.22	22.23	167.109	Horizontal	Pass
		1905	-1.93	3.97	28.19	22.29	169.434	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.30	3.79	28.34	22.25	167.880	Horizontal	Pass
		1880	-2.09	3.95	28.22	22.18	165.196	Horizontal	Pass
		1902.5	-1.95	3.97	28.18	22.26	168.267	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.29	3.81	28.35	22.25	167.880	Horizontal	Pass
		1880	-1.96	3.96	28.22	22.30	169.824	Horizontal	Pass
		1900	-1.90	4.00	28.16	22.26	168.267	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-2.98	3.76	28.24	21.50	141.254	Vertical	Pass
		1880	-3.14	3.91	28.22	21.17	130.918	Vertical	Pass
		1909.3	-2.67	3.93	28.20	21.60	144.544	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.59	3.77	28.23	20.87	122.180	Vertical	Pass
		1880	-2.76	3.91	28.24	21.57	143.549	Vertical	Pass
		1908.5	-3.35	3.94	28.25	20.96	124.738	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.46	3.77	28.31	21.08	128.233	Vertical	Pass
		1880	-3.10	3.91	28.22	21.21	132.130	Vertical	Pass
		1907.5	-3.42	3.94	28.20	20.84	121.339	Vertical	Pass
10.0MHz Band	1/#Mid	1855	-3.84	3.79	28.33	20.70	117.490	Vertical	Pass
		1880	-3.27	3.95	28.22	21.00	125.893	Vertical	Pass

QPSK		1905	-3.12	3.97	28.19	21.10	128.825	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-3.71	3.79	28.34	20.84	121.339	Vertical	Pass
Band		1880	-2.73	3.95	28.22	21.54	142.561	Vertical	Pass
QPSK		1902.5	-3.38	3.97	28.18	20.83	121.060	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.66	3.81	28.35	20.88	122.462	Vertical	Pass
Band		1880	-3.13	3.96	28.22	21.13	129.718	Vertical	Pass
QPSK		1900	-2.94	4.00	28.16	21.22	132.434	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

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	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.65	3.76	28.24	20.83	121.060	Horizontal	Pass
		1880	-3.12	3.91	28.22	21.19	131.522	Horizontal	Pass
		1909.3	-3.05	3.93	28.20	21.22	132.434	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.15	3.77	28.23	21.31	135.207	Horizontal	Pass
		1880	-3.23	3.91	28.24	21.10	128.825	Horizontal	Pass
		1908.5	-3.44	3.94	28.25	20.87	122.180	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.09	3.77	28.31	21.45	139.637	Horizontal	Pass
		1880	-3.00	3.91	28.22	21.31	135.207	Horizontal	Pass
		1907.5	-2.68	3.94	28.20	21.58	143.880	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.14	3.79	28.33	21.40	138.038	Horizontal	Pass
		1880	-3.13	3.95	28.22	21.14	130.017	Horizontal	Pass
		1905	-2.60	3.97	28.19	21.62	145.211	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.12	3.79	28.34	21.43	138.995	Horizontal	Pass
		1880	-2.91	3.95	28.22	21.36	136.773	Horizontal	Pass
		1902.5	-2.87	3.97	28.18	21.34	136.144	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.01	3.81	28.35	21.53	142.233	Horizontal	Pass
		1880	-2.71	3.96	28.22	21.55	142.889	Horizontal	Pass
		1900	-2.53	4.00	28.16	21.63	145.546	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.18	3.76	28.24	20.30	107.152	Vertical	Pass
		1880	-4.02	3.91	28.22	20.29	106.905	Vertical	Pass
		1909.3	-3.74	3.93	28.20	20.53	112.980	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.31	3.77	28.23	20.15	103.514	Vertical	Pass
		1880	-4.38	3.91	28.24	19.95	98.855	Vertical	Pass
		1908.5	-4.12	3.94	28.25	20.19	104.472	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.71	3.77	28.31	19.83	96.161	Vertical	Pass
		1880	-3.88	3.91	28.22	20.43	110.408	Vertical	Pass
		1907.5	-4.01	3.94	28.20	20.25	105.925	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.37	3.79	28.33	20.17	103.992	Vertical	Pass
		1880	-4.13	3.95	28.22	20.14	103.276	Vertical	Pass
		1905	-4.49	3.97	28.19	19.73	93.972	Vertical	Pass
15.0MHz Band 16	1/#Mid	1857.5	-4.31	3.79	28.34	20.24	105.682	Vertical	Pass
		1880	-4.46	3.95	28.22	19.81	95.719	Vertical	Pass

QAM		1902.5	-3.74	3.97	28.18	20.47	111.429	Vertical	Pass
20.0MHz	1/#Mid	1860	-4.15	3.81	28.35	20.39	109.396	Vertical	Pass
Band 16		1880	-4.02	3.96	28.22	20.24	105.682	Vertical	Pass
QAM		1900	-3.72	4.00	28.16	20.44	110.662	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor 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					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	-2.44	3.12	27.58	22.02	159.221	Horizontal	Pass	
		1732.5	-2.43	3.27	27.61	21.91	155.239	Horizontal	Pass	
		1754.3	-2.41	3.29	27.63	21.93	155.955	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-2.61	3.13	27.61	21.87	153.815	Horizontal	Pass	
		1732.5	-2.53	3.27	27.61	21.81	151.705	Horizontal	Pass	
		1753.5	-2.45	3.30	27.62	21.87	153.815	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-2.38	3.13	27.63	22.12	162.930	Horizontal	Pass	
		1732.5	-2.28	3.27	27.61	22.06	160.694	Horizontal	Pass	
		1752.5	-2.16	3.30	27.60	22.14	163.682	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-2.32	3.15	27.64	22.17	164.816	Horizontal	Pass	
		1732.5	-2.09	3.31	27.61	22.21	166.341	Horizontal	Pass	
		1750	-2.11	3.33	27.59	22.15	164.059	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1717.5	-2.33	3.15	27.65	22.17	164.816	Horizontal	Pass	
		1732.5	-2.17	3.31	27.61	22.13	163.305	Horizontal	Pass	
		1747.5	-2.11	3.33	27.57	22.13	163.305	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1720	-2.27	3.17	27.66	22.22	166.725	Horizontal	Pass	
		1732.5	-2.10	3.32	27.61	22.19	165.577	Horizontal	Pass	
		1745	-2.04	3.36	27.56	22.16	164.437	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1710.7	-3.32	3.12	27.58	21.14	130.017	Vertical	Pass	
		1732.5	-3.15	3.27	27.61	21.19	131.522	Vertical	Pass	
		1754.3	-3.17	3.29	27.63	21.17	130.918	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-3.35	3.13	27.61	21.13	129.718	Vertical	Pass	
		1732.5	-3.35	3.27	27.61	20.99	125.603	Vertical	Pass	
		1753.5	-3.31	3.30	27.62	21.01	126.183	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-3.28	3.13	27.63	21.22	132.434	Vertical	Pass	
		1732.5	-3.34	3.27	27.61	21.00	125.893	Vertical	Pass	
		1752.5	-3.32	3.30	27.60	20.98	125.314	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-3.36	3.15	27.64	21.13	129.718	Vertical	Pass	
		1732.5	-3.55	3.31	27.61	20.75	118.850	Vertical	Pass	
		1750	-2.81	3.33	27.59	21.45	139.637	Vertical	Pass	

15.0MHz		1717.5	-3.62	3.15	27.65	20.88	122.462	Vertical	Pass
Band	1/#Mid	1732.5	-3.37	3.31	27.61	20.93	123.880	Vertical	Pass
QPSK		1747.5	-3.17	3.33	27.57	21.07	127.938	Vertical	Pass
20.0MHz		1720	-3.48	3.17	27.66	21.01	126.183	Vertical	Pass
Band	1/#Mid	1732.5	-3.03	3.32	27.61	21.26	133.660	Vertical	Pass
QPSK		1745	-3.37	3.36	27.56	20.83	121.060	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.25	3.12	27.58	21.21	132.130	Horizontal	Pass
		1732.5	-3.10	3.27	27.61	21.24	133.045	Horizontal	Pass
		1754.3	-3.10	3.29	27.63	21.24	133.045	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.19	3.13	27.61	21.29	134.586	Horizontal	Pass
		1732.5	-3.32	3.27	27.61	21.02	126.474	Horizontal	Pass
		1753.5	-3.54	3.30	27.62	20.78	119.674	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.02	3.13	27.63	21.48	140.605	Horizontal	Pass
		1732.5	-2.98	3.27	27.61	21.36	136.773	Horizontal	Pass
		1752.5	-2.67	3.30	27.60	21.63	145.546	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.09	3.15	27.64	21.40	138.038	Horizontal	Pass
		1732.5	-3.28	3.31	27.61	21.02	126.474	Horizontal	Pass
		1750	-2.66	3.33	27.59	21.60	144.544	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.89	3.15	27.65	21.61	144.877	Horizontal	Pass
		1732.5	-2.95	3.31	27.61	21.35	136.458	Horizontal	Pass
		1747.5	-2.97	3.33	27.57	21.27	133.968	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.84	3.17	27.66	21.65	146.218	Horizontal	Pass
		1732.5	-2.85	3.32	27.61	21.44	139.316	Horizontal	Pass
		1745	-2.66	3.36	27.56	21.54	142.561	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.83	3.12	27.58	20.63	115.611	Vertical	Pass
		1732.5	-3.67	3.27	27.61	20.67	116.681	Vertical	Pass
		1754.3	-3.98	3.29	27.63	20.36	108.643	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.84	3.13	27.61	20.64	115.878	Vertical	Pass
		1732.5	-3.84	3.27	27.61	20.50	112.202	Vertical	Pass
		1753.5	-4.42	3.30	27.62	19.90	97.724	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.30	3.13	27.63	20.20	104.713	Vertical	Pass
		1732.5	-4.62	3.27	27.61	19.72	93.756	Vertical	Pass
		1752.5	-3.98	3.30	27.60	20.32	107.647	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.88	3.15	27.64	20.61	115.080	Vertical	Pass
		1732.5	-3.74	3.31	27.61	20.56	113.763	Vertical	Pass
		1750	-4.11	3.33	27.59	20.15	103.514	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-3.92	3.15	27.65	20.58	114.288	Vertical	Pass
		1732.5	-4.48	3.31	27.61	19.82	95.940	Vertical	Pass

QAM		1747.5	-3.75	3.33	27.57	20.49	111.944	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.82	3.17	27.66	19.67	92.683	Vertical	Pass
Band 16		1732.5	-4.29	3.32	27.61	20.00	100.000	Vertical	Pass
QAM		1745	-4.49	3.36	27.56	19.71	93.541	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor 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							Polarization	Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Of Max. ERP		
			(dBm)	(dBm)	(dB)	(dB)	Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	3/#Mid	824.7	6.86	2.01	19.68	2.15	22.38	172.982	Horizontal	Pass	
		836.5	6.74	2.01	19.77	2.15	22.35	171.791	Horizontal	Pass	
		848.3	6.54	2.02	19.82	2.15	22.19	165.577	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	6.63	2.01	19.70	2.15	22.17	164.816	Horizontal	Pass	
		836.5	6.53	2.01	19.77	2.15	22.14	163.682	Horizontal	Pass	
		847.5	6.40	2.02	19.81	2.15	22.04	159.956	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	6.91	2.01	19.71	2.15	22.46	176.198	Horizontal	Pass	
		836.5	6.79	2.01	19.77	2.15	22.40	173.780	Horizontal	Pass	
		846.5	6.63	2.02	19.79	2.15	22.25	167.880	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	6.93	2.01	19.73	2.15	22.50	177.828	Horizontal	Pass	
		836.5	6.88	2.01	19.77	2.15	22.49	177.419	Horizontal	Pass	
		844	6.78	2.02	19.78	2.15	22.39	173.380	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	5.75	2.01	19.68	2.15	21.27	133.968	Vertical	Pass	
		836.5	5.65	2.01	19.77	2.15	21.26	133.660	Vertical	Pass	
		848.3	5.76	2.02	19.82	2.15	21.41	138.357	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	5.97	2.01	19.70	2.15	21.51	141.579	Vertical	Pass	
		836.5	5.28	2.01	19.77	2.15	20.89	122.744	Vertical	Pass	
		847.5	5.89	2.02	19.81	2.15	21.53	142.233	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	5.19	2.01	19.71	2.15	20.74	118.577	Vertical	Pass	
		836.5	6.05	2.01	19.77	2.15	21.66	146.555	Vertical	Pass	
		846.5	5.25	2.02	19.79	2.15	20.87	122.180	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	5.84	2.01	19.73	2.15	21.41	138.357	Vertical	Pass	
		836.5	5.35	2.01	19.77	2.15	20.96	124.738	Vertical	Pass	
		844	5.98	2.02	19.78	2.15	21.59	144.212	Vertical	Pass	

Radiated Power (ERP) for Band 5

Radiated Power (ERP) for Band 5										
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	3/#Mid	824.7	6.01	2.01	19.68	2.15	21.53	142.233	Horizontal	Pass
Band 16		836.5	5.94	2.01	19.77	2.15	21.55	142.889	Horizontal	Pass
QAM		848.3	5.78	2.02	19.82	2.15	21.43	138.995	Horizontal	Pass
3.0MHz	1/#Mid	825.5	6.09	2.01	19.70	2.15	21.63	145.546	Horizontal	Pass
Band 16		836.5	5.80	2.01	19.77	2.15	21.41	138.357	Horizontal	Pass
QAM		847.5	5.28	2.02	19.81	2.15	20.92	123.595	Horizontal	Pass
5.0MHz	1/#Mid	826.5	6.41	2.01	19.71	2.15	21.96	157.036	Horizontal	Pass
Band 16		836.5	6.18	2.01	19.77	2.15	21.79	151.008	Horizontal	Pass
QAM		846.5	5.93	2.02	19.79	2.15	21.55	142.889	Horizontal	Pass
10.0MHz	1/#Mid	829	6.41	2.01	19.73	2.15	21.98	157.761	Horizontal	Pass
Band 16		836.5	6.13	2.01	19.77	2.15	21.74	149.279	Horizontal	Pass
QAM		844	5.67	2.02	19.78	2.15	21.28	134.276	Horizontal	Pass
1.4MHz	1/#Mid	824.7	4.42	2.01	19.68	2.15	19.94	98.628	Vertical	Pass
Band 16		836.5	4.48	2.01	19.77	2.15	20.09	102.094	Vertical	Pass
QAM		848.3	5.38	2.02	19.82	2.15	21.03	126.765	Vertical	Pass
3.0MHz	1/#Mid	825.5	4.95	2.01	19.70	2.15	20.49	111.944	Vertical	Pass
Band 16		836.5	4.54	2.01	19.77	2.15	20.15	103.514	Vertical	Pass
QAM		847.5	5.11	2.02	19.81	2.15	20.75	118.850	Vertical	Pass
5.0MHz	1/#Mid	826.5	6.10	2.01	19.71	2.15	21.65	146.218	Vertical	Pass
Band 16		836.5	4.66	2.01	19.77	2.15	20.27	106.414	Vertical	Pass
QAM		846.5	4.27	2.02	19.79	2.15	19.89	97.499	Vertical	Pass
10.0MHz	1/#Mid	829	5.61	2.01	19.73	2.15	21.18	131.220	Vertical	Pass
Band 16		836.5	4.87	2.01	19.77	2.15	20.48	111.686	Vertical	Pass
QAM		844	5.86	2.02	19.78	2.15	21.47	140.281	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7										
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)			
5.0MHz Band QPSK	1/#Mid	2502.5	-0.72	4.54	27.75	22.49	177.419	Horizontal	Pass	
		2535	-0.55	4.69	27.72	22.48	177.011	Horizontal	Pass	
		2567.5	-0.48	4.71	27.71	22.52	178.649	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	2505	-0.65	4.55	27.76	22.56	180.302	Horizontal	Pass	
		2535	-0.46	4.69	27.72	22.57	180.717	Horizontal	Pass	
		2565	-0.38	4.72	27.70	22.60	181.970	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	-0.66	4.55	27.77	22.56	180.302	Horizontal	Pass	
		2535	-0.52	4.69	27.72	22.51	178.238	Horizontal	Pass	
		2562.5	-0.42	4.72	27.69	22.55	179.887	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	2510	-0.60	4.57	27.78	22.61	182.390	Horizontal	Pass	
		2535	-0.42	4.73	27.72	22.57	180.717	Horizontal	Pass	
		2560	-0.38	4.75	27.68	22.55	179.887	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	2502.5	-1.60	4.54	27.75	21.61	144.877	Vertical	Pass	
		2535	-2.07	4.69	27.72	20.96	124.738	Vertical	Pass	
		2567.5	-1.91	4.71	27.71	21.09	128.529	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	2505	-1.62	4.55	27.76	21.59	144.212	Vertical	Pass	
		2535	-1.54	4.69	27.72	21.49	140.929	Vertical	Pass	
		2565	-1.55	4.72	27.70	21.43	138.995	Vertical	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	-2.11	4.55	27.77	21.11	129.122	Vertical	Pass	
		2535	-1.95	4.69	27.72	21.08	128.233	Vertical	Pass	
		2562.5	-1.46	4.72	27.69	21.51	141.579	Vertical	Pass	
20.0MHz Band QPSK	1/#Mid	2510	-2.47	4.57	27.78	20.74	118.577	Vertical	Pass	
		2535	-1.81	4.73	27.72	21.18	131.220	Vertical	Pass	
		2560	-1.49	4.75	27.68	21.44	139.316	Vertical	Pass	

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.41	4.54	27.75	21.80	151.356	Horizontal	Pass
		2535	-1.10	4.69	27.72	21.93	155.955	Horizontal	Pass
		2567.5	-1.18	4.71	27.71	21.82	152.055	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.30	4.55	27.76	21.91	155.239	Horizontal	Pass
		2535	-1.31	4.69	27.72	21.72	148.594	Horizontal	Pass
		2565	-1.58	4.72	27.70	21.40	138.038	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.48	4.55	27.77	21.74	149.279	Horizontal	Pass
		2535	-1.45	4.69	27.72	21.58	143.880	Horizontal	Pass
		2562.5	-1.06	4.72	27.69	21.91	155.239	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-1.36	4.57	27.78	21.85	153.109	Horizontal	Pass
		2535	-1.03	4.73	27.72	21.96	157.036	Horizontal	Pass
		2560	-1.13	4.75	27.68	21.80	151.356	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.94	4.54	27.75	21.27	133.968	Vertical	Pass
		2535	-2.77	4.69	27.72	20.26	106.170	Vertical	Pass
		2567.5	-2.16	4.71	27.71	20.84	121.339	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.26	4.55	27.76	19.95	98.855	Vertical	Pass
		2535	-1.93	4.69	27.72	21.10	128.825	Vertical	Pass
		2565	-2.27	4.72	27.70	20.71	117.761	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.57	4.55	27.77	20.65	116.145	Vertical	Pass
		2535	-2.91	4.69	27.72	20.12	102.802	Vertical	Pass
		2562.5	-1.94	4.72	27.69	21.03	126.765	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.70	4.57	27.78	20.51	112.460	Vertical	Pass
		2535	-2.19	4.73	27.72	20.80	120.226	Vertical	Pass
		2560	-3.21	4.75	27.68	19.72	93.756	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.5 LTE BAND 12

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP			
			(dBm)	(dBm)	(dB)	(dB)	Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	1/#Mid	699.7	7.54	1.91	19.21	2.15	22.69	185.780	Vertical	Pass	
		707.5	7.46	1.91	19.26	2.15	22.66	184.502	Vertical	Pass	
		715.3	7.24	1.93	19.34	2.15	22.50	177.828	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	7.33	1.91	19.21	2.15	22.48	177.011	Vertical	Pass	
		707.5	7.25	1.91	19.26	2.15	22.45	175.792	Vertical	Pass	
		714.5	7.09	1.93	19.34	2.15	22.35	171.791	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	7.60	1.91	19.23	2.15	22.77	189.234	Vertical	Pass	
		707.5	7.51	1.91	19.26	2.15	22.71	186.638	Vertical	Pass	
		713.5	7.30	1.92	19.33	2.15	22.56	180.302	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	704	7.62	1.91	19.25	2.15	22.81	190.985	Vertical	Pass	
		707.5	7.60	1.91	19.26	2.15	22.80	190.546	Vertical	Pass	
		711	7.45	1.92	19.32	2.15	22.70	186.209	Vertical	Pass	
1.4MHz Band QPSK	1/#Mid	699.7	6.40	1.91	19.21	2.15	21.55	142.889	Horizontal	Pass	
		707.5	6.63	1.91	19.26	2.15	21.83	152.405	Horizontal	Pass	
		715.3	5.83	1.93	19.34	2.15	21.09	128.529	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	6.59	1.91	19.21	2.15	21.74	149.279	Horizontal	Pass	
		707.5	6.74	1.91	19.26	2.15	21.94	156.315	Horizontal	Pass	
		714.5	6.69	1.93	19.34	2.15	21.95	156.675	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	6.56	1.91	19.23	2.15	21.73	148.936	Horizontal	Pass	
		707.5	6.22	1.91	19.26	2.15	21.42	138.676	Horizontal	Pass	
		713.5	5.84	1.92	19.33	2.15	21.10	128.825	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	704	5.93	1.91	19.25	2.15	21.12	129.420	Horizontal	Pass	
		707.5	6.11	1.91	19.26	2.15	21.31	135.207	Horizontal	Pass	
		711	5.95	1.92	19.32	2.15	21.20	131.826	Horizontal	Pass	

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 16 QAM	1/#Mid	699.7	7.41	1.91	19.21	2.15	22.56	180.302	Vertical	Pass
		707.5	7.33	1.91	19.26	2.15	22.53	179.061	Vertical	Pass
		715.3	7.11	1.93	19.34	2.15	22.37	172.584	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	7.20	1.91	19.21	2.15	22.35	171.791	Vertical	Pass
		707.5	7.12	1.91	19.26	2.15	22.32	170.608	Vertical	Pass
		714.5	6.96	1.93	19.34	2.15	22.22	166.725	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.47	1.91	19.23	2.15	22.64	183.654	Vertical	Pass
		707.5	7.38	1.91	19.26	2.15	22.58	181.134	Vertical	Pass
		713.5	7.17	1.92	19.33	2.15	22.43	174.985	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.49	1.91	19.25	2.15	22.68	185.353	Vertical	Pass
		707.5	7.47	1.91	19.26	2.15	22.67	184.927	Vertical	Pass
		711	7.32	1.92	19.32	2.15	22.57	180.717	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	6.36	1.91	19.21	2.15	21.51	141.579	Horizontal	Pass
		707.5	5.81	1.91	19.26	2.15	21.01	126.183	Horizontal	Pass
		715.3	6.14	1.93	19.34	2.15	21.40	138.038	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.76	1.91	19.21	2.15	20.91	123.310	Horizontal	Pass
		707.5	6.25	1.91	19.26	2.15	21.45	139.637	Horizontal	Pass
		714.5	5.59	1.93	19.34	2.15	20.85	121.619	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.65	1.91	19.23	2.15	21.82	152.055	Horizontal	Pass
		707.5	6.47	1.91	19.26	2.15	21.67	146.893	Horizontal	Pass
		713.5	5.99	1.92	19.33	2.15	21.25	133.352	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	6.55	1.91	19.25	2.15	21.74	149.279	Horizontal	Pass
		707.5	5.77	1.91	19.26	2.15	20.97	125.026	Horizontal	Pass
		711	6.43	1.92	19.32	2.15	21.68	147.231	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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

8.6 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	6.94	1.91	19.23	2.15	22.11	162.555	Vertical	Pass
		710	6.80	1.91	19.26	2.15	22.00	158.489	Vertical	Pass
		713.5	6.70	1.92	19.33	2.15	21.96	157.036	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	6.95	1.91	19.25	2.15	22.14	163.682	Vertical	Pass
		710	6.90	1.91	19.26	2.15	22.10	162.181	Vertical	Pass
		711	6.86	1.92	19.32	2.15	22.11	162.555	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	4.90	1.91	19.23	2.15	20.07	101.625	Horizontal	Pass
		710	5.50	1.91	19.26	2.15	20.70	117.490	Horizontal	Pass
		713.5	6.24	1.92	19.33	2.15	21.50	141.254	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	6.00	1.91	19.25	2.15	21.19	131.522	Horizontal	Pass
		710	5.96	1.91	19.26	2.15	21.16	130.617	Horizontal	Pass
		711	6.23	1.92	19.32	2.15	21.48	140.605	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
							Average	Average		
							(dBm)	(mW)		
5.0MHz	1/#Mid	706.5	6.29	1.91	19.23	2.15	21.46	139.959	Vertical	Pass
Band 16		710	6.20	1.91	19.26	2.15	21.40	138.038	Vertical	Pass
QAM		713.5	6.00	1.92	19.33	2.15	21.26	133.660	Vertical	Pass
10.0MHz	1/#Mid	709	5.83	1.91	19.25	2.15	21.02	126.474	Vertical	Pass
Band 16		710	6.36	1.91	19.26	2.15	21.56	143.219	Vertical	Pass
QAM		711	6.09	1.92	19.32	2.15	21.34	136.144	Vertical	Pass
5.0MHz	1/#Mid	706.5	5.36	1.91	19.23	2.15	20.53	112.980	Horizontal	Pass
Band 16		710	5.12	1.91	19.26	2.15	20.32	107.647	Horizontal	Pass
QAM		713.5	5.51	1.92	19.33	2.15	20.77	119.399	Horizontal	Pass
10.0MHz	1/#Mid	709	4.99	1.91	19.25	2.15	20.18	104.232	Horizontal	Pass
Band 16		710	5.65	1.91	19.26	2.15	20.85	121.619	Horizontal	Pass
QAM		711	5.23	1.92	19.32	2.15	20.48	111.686	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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

8.7 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	Max. EIRP	Polarization Of Max. ERP		
						Average (dBm)	Average			Average
							(mW)			
1.4MHz Band QPSK	1/#Mid	1710.7	-2.29	3.76	28.24	22.19	165.577	Horizontal	Pass	
		1745	-2.15	3.91	28.22	22.16	164.437	Horizontal	Pass	
		1779.3	-2.02	3.93	28.2	22.25	167.880	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-2.35	3.77	28.23	22.11	162.555	Horizontal	Pass	
		1745	-2.26	3.91	28.24	22.07	161.065	Horizontal	Pass	
		1778.5	-2.28	3.94	28.25	22.03	159.588	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-2.25	3.77	28.31	22.29	169.434	Horizontal	Pass	
		1745	-1.93	3.91	28.22	22.38	172.982	Horizontal	Pass	
		1777.5	-1.99	3.94	28.2	22.27	168.655	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-2.14	3.79	28.33	22.40	173.780	Horizontal	Pass	
		1745	-1.87	3.95	28.22	22.40	173.780	Horizontal	Pass	
		1775	-1.88	3.97	28.19	22.34	171.396	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1717.5	-2.16	3.79	28.34	22.39	173.380	Horizontal	Pass	
		1745	-1.97	3.95	28.22	22.30	169.824	Horizontal	Pass	
		1772.5	-1.92	3.97	28.18	22.29	169.434	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1720	-2.13	3.81	28.35	22.41	174.181	Horizontal	Pass	
		1745	-1.87	3.96	28.22	22.39	173.380	Horizontal	Pass	
		1770	-1.89	4	28.16	22.27	168.655	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1710.7	-3.40	3.76	28.24	21.08	128.233	Vertical	Pass	
		1745	-2.73	3.91	28.22	21.58	143.880	Vertical	Pass	
		1779.3	-3.42	3.93	28.2	20.85	121.619	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-3.79	3.77	28.23	20.67	116.681	Vertical	Pass	
		1745	-2.80	3.91	28.24	21.53	142.233	Vertical	Pass	
		1778.5	-2.77	3.94	28.25	21.54	142.561	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-3.55	3.77	28.31	20.99	125.603	Vertical	Pass	
		1745	-3.45	3.91	28.22	20.86	121.899	Vertical	Pass	
		1777.5	-2.78	3.94	28.2	21.48	140.605	Vertical	Pass	
10.0MHz Band	1/#Mid	1715	-3.51	3.79	28.34	21.04	127.057	Vertical	Pass	
		1745	-2.84	3.95	28.22	21.43	138.995	Vertical	Pass	

QPSK		1775	-3.01	3.97	28.18	21.20	131.826	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.76	3.81	28.35	20.78	119.674	Vertical	Pass
Band		1745	-3.14	3.96	28.22	21.12	129.420	Vertical	Pass
QPSK		1772.5	-3.02	4	28.16	21.14	130.017	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.20	3.79	28.34	21.35	136.458	Vertical	Pass
Band		1745	-2.86	3.95	28.22	21.41	138.357	Vertical	Pass
QPSK		1770	-2.79	3.97	28.18	21.42	138.676	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	-3.12	3.76	28.24	21.36	136.773	Horizontal	Pass
		1745	-2.73	3.91	28.22	21.58	143.880	Horizontal	Pass
		1779.3	-2.91	3.93	28.2	21.36	136.773	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.51	3.77	28.23	20.95	124.451	Horizontal	Pass
		1745	-2.76	3.91	28.24	21.57	143.549	Horizontal	Pass
		1778.5	-3.05	3.94	28.25	21.26	133.660	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.93	3.77	28.31	21.61	144.877	Horizontal	Pass
		1745	-2.99	3.91	28.22	21.32	135.519	Horizontal	Pass
		1777.5	-2.66	3.94	28.2	21.60	144.544	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.98	3.79	28.33	21.56	143.219	Horizontal	Pass
		1745	-2.64	3.95	28.22	21.63	145.546	Horizontal	Pass
		1775	-2.96	3.97	28.19	21.26	133.660	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.97	3.79	28.34	21.58	143.880	Horizontal	Pass
		1745	-2.79	3.95	28.22	21.48	140.605	Horizontal	Pass
		1772.5	-2.58	3.97	28.18	21.63	145.546	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.80	3.81	28.35	21.74	149.279	Horizontal	Pass
		1745	-2.58	3.96	28.22	21.68	147.231	Horizontal	Pass
		1770	-2.52	4	28.16	21.64	145.881	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.16	3.76	28.24	21.32	135.519	Vertical	Pass
		1745	-3.20	3.91	28.22	21.11	129.122	Vertical	Pass
		1779.3	-4.32	3.93	28.2	19.95	98.855	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.27	3.77	28.23	21.19	131.522	Vertical	Pass
		1745	-3.24	3.91	28.24	21.09	128.529	Vertical	Pass
		1778.5	-3.95	3.94	28.25	20.36	108.643	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.12	3.77	28.31	20.42	110.154	Vertical	Pass
		1745	-3.47	3.91	28.22	20.84	121.339	Vertical	Pass
		1777.5	-3.79	3.94	28.2	20.47	111.429	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.19	3.79	28.34	21.36	136.773	Vertical	Pass
		1745	-3.19	3.95	28.22	21.08	128.233	Vertical	Pass
		1775	-3.45	3.97	28.18	20.76	119.124	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.46	3.81	28.35	21.08	128.233	Vertical	Pass

Band 16		1745	-4.43	3.96	28.22	19.83	96.161	Vertical	Pass
QAM		1772.5	-3.66	4	28.16	20.50	112.202	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.31	3.79	28.34	20.24	105.682	Vertical	Pass
Band 16		1745	-2.93	3.95	28.22	21.34	136.144	Vertical	Pass
QAM		1770	-3.52	3.97	28.18	20.69	117.220	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: §2.1051, §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 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	-47.27	4.04	33.51	-17.80	-13	-4.80	Horizontal
3701.4	-46.63	4.04	33.51	-17.16	-13	-4.16	Vertical
5552.1	-52.70	5.24	35.84	-22.10	-13	-9.10	Vertical
5552.1	-51.11	5.24	35.84	-20.51	-13	-7.51	Horizontal
200.0	-44.87	1.43	16.02	-30.28	-13	-17.28	Vertical
360.1	-34.41	1.30	17.99	-17.72	-13	-4.72	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-53.51	4.04	33.56	-23.99	-13	-10.99	Horizontal
3760.0	-48.80	4.04	33.56	-19.28	-13	-6.28	Vertical
5640.0	-48.17	5.24	35.91	-17.50	-13	-4.50	Vertical
5640.0	-50.68	5.24	35.91	-20.01	-13	-7.01	Horizontal
183.4	-44.87	1.62	16.97	-29.52	-13	-16.52	Vertical
400.0	-43.79	1.74	15.98	-29.56	-13	-16.56	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-52.60	4.04	34.00	-22.64	-13	-9.64	Horizontal
3818.6	-49.47	4.04	34.00	-19.51	-13	-6.51	Vertical
5727.9	-51.34	5.24	36.04	-20.54	-13	-7.54	Vertical
5727.9	-50.52	5.24	36.04	-19.72	-13	-6.72	Horizontal
210.0	-36.94	1.42	17.29	-21.07	-13	-8.07	Vertical
385.0	-41.34	1.50	17.90	-24.93	-13	-11.93	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-47.63	4.07	33.54	-18.16	-13	-5.16	Horizontal
3720.0	-47.27	4.07	33.54	-17.80	-13	-4.80	Vertical
5580.0	-46.67	5.28	35.86	-16.09	-13	-3.09	Vertical
5580.0	-53.79	5.28	35.86	-23.21	-13	-10.21	Horizontal
197.5	-44.10	1.58	16.89	-28.78	-13	-15.78	Vertical
383.1	-35.43	1.76	17.26	-19.93	-13	-6.93	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.42	4.04	33.56	-18.90	-13	-5.90	Horizontal
3760.0	-50.30	4.04	33.56	-20.78	-13	-7.78	Vertical
5640.0	-50.66	5.24	35.91	-19.99	-13	-6.99	Vertical
5640.0	-51.98	5.24	35.91	-21.31	-13	-8.31	Horizontal
175.4	-40.46	1.46	16.27	-25.65	-13	-12.65	Vertical
270.0	-37.97	1.59	15.15	-24.41	-13	-11.41	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-50.52	4.04	34.00	-20.56	-13	-7.56	Horizontal
3800.0	-47.25	4.04	34.00	-17.29	-13	-4.29	Vertical
5700.0	-48.45	5.24	36.04	-17.65	-13	-4.65	Vertical
5700.0	-53.60	5.24	36.04	-22.80	-13	-9.80	Horizontal
203.6	-34.08	1.36	17.39	-18.04	-13	-5.04	Vertical
446.7	-44.65	1.66	15.39	-30.92	-13	-17.92	Horizontal

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	-44.96	4.02	29.80	-19.18	-13	-6.18	Horizontal
3421.4	-46.20	4.02	29.80	-20.42	-13	-7.42	Vertical
5132.1	-50.00	5.24	35.84	-19.40	-13	-6.40	Vertical
5132.1	-52.81	5.24	35.84	-22.21	-13	-9.21	Horizontal
183.1	-38.30	1.68	16.04	-23.94	-13	-10.94	Vertical
315.1	-44.00	1.78	17.74	-28.04	-13	-15.04	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-50.04	4.03	30.00	-24.07	-13	-11.07	Horizontal
3465.0	-46.19	4.03	30.00	-20.22	-13	-7.22	Vertical
5197.5	-49.96	5.25	35.86	-19.35	-13	-6.35	Vertical
5197.5	-51.32	5.25	35.86	-20.71	-13	-7.71	Horizontal
187.9	-44.64	1.72	17.69	-28.67	-13	-15.67	Vertical
307.7	-34.83	1.62	16.02	-20.42	-13	-7.42	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-45.69	4.05	30.01	-19.73	-13	-6.73	Horizontal
3508.6	-45.43	4.05	30.01	-19.47	-13	-6.47	Vertical
5262.9	-48.62	5.26	35.86	-18.02	-13	-5.02	Vertical
5262.9	-53.43	5.26	35.86	-22.83	-13	-9.83	Horizontal
175.7	-43.55	1.80	16.69	-28.66	-13	-15.66	Vertical
260.5	-43.80	1.75	16.66	-28.90	-13	-15.90	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	-52.52	4.02	29.80	-26.74	-13	-13.74	Horizontal
3440.0	-51.29	4.02	29.80	-25.51	-13	-12.51	Vertical
5160.0	-53.68	5.24	35.84	-23.08	-13	-10.08	Vertical
5160.0	-51.25	5.24	35.84	-20.65	-13	-7.65	Horizontal
185.9	-36.83	1.57	17.26	-21.14	-13	-8.14	Vertical
363.5	-36.93	1.78	16.35	-22.36	-13	-9.36	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-49.58	4.03	30.00	-23.61	-13	-10.61	Horizontal
3465.0	-51.99	4.03	30.00	-26.02	-13	-13.02	Vertical
5197.5	-52.86	5.25	35.86	-22.25	-13	-9.25	Vertical
5197.5	-50.86	5.25	35.86	-20.25	-13	-7.25	Horizontal
179.9	-42.71	1.44	17.95	-26.20	-13	-13.20	Vertical
335.9	-40.41	1.65	16.09	-25.97	-13	-12.97	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-44.36	2.91	27.68	-19.59	-13	-6.59	Horizontal
3490.0	-45.62	2.91	27.68	-20.85	-13	-7.85	Vertical
5235.0	-50.69	5.26	35.86	-20.09	-13	-7.09	Vertical
5235.0	-51.50	5.26	35.86	-20.90	-13	-7.90	Horizontal
199.3	-34.04	1.61	16.85	-18.80	-13	-5.80	Vertical
289.1	-35.13	1.61	15.19	-21.55	-13	-8.55	Horizontal

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	-47.87	2.78	27.50	-23.15	-13	-10.15	Horizontal
1649.4	-51.99	2.78	27.50	-27.27	-13	-14.27	Vertical
2474.1	-50.97	2.90	27.80	-26.07	-13	-13.07	Vertical
2474.1	-53.98	2.90	27.80	-29.08	-13	-16.08	Horizontal
197.6	-35.04	1.76	17.59	-19.21	-13	-6.21	Vertical
344.4	-42.10	1.63	15.87	-27.86	-13	-14.86	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-48.93	2.80	27.48	-24.25	-13	-11.25	Horizontal
1673.0	-46.20	2.80	27.48	-21.52	-13	-8.52	Vertical
2509.5	-49.71	2.91	27.70	-24.92	-13	-11.92	Vertical
2509.5	-49.73	2.91	27.70	-24.94	-13	-11.94	Horizontal
190.0	-43.80	1.61	15.68	-29.73	-13	-16.73	Vertical
464.9	-37.37	1.59	17.52	-21.45	-13	-8.45	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-51.45	2.82	27.43	-26.84	-13	-13.84	Horizontal
1696.6	-51.84	2.82	27.43	-27.23	-13	-14.23	Vertical
2544.9	-48.55	2.92	27.74	-23.73	-13	-10.73	Vertical
2544.9	-50.15	2.92	27.74	-25.33	-13	-12.33	Horizontal
203.6	-36.19	1.69	16.67	-21.20	-13	-8.20	Vertical
435.8	-44.57	1.70	17.18	-29.09	-13	-16.09	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-46.72	2.78	27.50	-22.00	-13	-9.00	Horizontal
1658.0	-53.54	2.78	27.50	-28.82	-13	-15.82	Vertical
2487.0	-50.38	2.90	27.80	-25.48	-13	-12.48	Vertical
2487.0	-51.13	2.90	27.80	-26.23	-13	-13.23	Horizontal
195.1	-44.86	1.71	15.57	-31.00	-13	-18.00	Vertical
323.4	-41.95	1.34	16.40	-26.89	-13	-13.89	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-53.60	2.80	27.48	-28.92	-13	-15.92	Horizontal
1673.0	-47.13	2.80	27.48	-22.45	-13	-9.45	Vertical
2509.5	-46.32	2.91	27.70	-21.53	-13	-8.53	Vertical
2509.5	-49.81	2.91	27.70	-25.02	-13	-12.02	Horizontal
177.1	-35.36	1.44	17.04	-19.76	-13	-6.76	Vertical
284.5	-35.96	1.76	17.62	-20.10	-13	-7.10	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.43	2.82	27.43	-19.82	-13	-6.82	Horizontal
1688.0	-51.62	2.82	27.43	-27.01	-13	-14.01	Vertical
2532.0	-51.02	2.92	27.74	-26.20	-13	-13.20	Vertical
2532.0	-51.20	2.92	27.74	-26.38	-13	-13.38	Horizontal
197.2	-41.83	1.74	17.70	-25.87	-13	-12.87	Vertical
422.8	-39.94	1.41	17.46	-23.88	-13	-10.88	Horizontal

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	-63.41	5.23	35.81	-32.83	-25	-7.83	Horizontal
5005.0	-61.23	5.23	35.81	-30.65	-25	-5.65	Vertical
7507.5	-59.28	5.67	36.85	-28.10	-25	-3.10	Vertical
7507.5	-64.83	5.67	36.85	-33.65	-25	-8.65	Horizontal
187.4	-50.46	1.73	17.97	-34.22	-25	-9.22	Vertical
406.0	-48.57	1.38	15.11	-34.84	-25	-9.84	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-59.94	5.23	35.82	-29.35	-25	-4.35	Horizontal
5070.0	-64.55	5.23	35.82	-33.96	-25	-8.96	Vertical
7605.0	-63.82	5.67	36.85	-32.64	-25	-7.64	Vertical
7605.0	-59.22	5.67	36.85	-28.04	-25	-3.04	Horizontal
181.2	-54.39	1.77	16.17	-39.98	-25	-14.98	Vertical
459.2	-49.81	1.63	15.21	-36.23	-25	-11.23	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-64.79	5.24	35.83	-34.20	-25	-9.20	Horizontal
5135.0	-63.03	5.24	35.83	-32.44	-25	-7.44	Vertical
7702.5	-61.06	5.68	36.87	-29.87	-25	-4.87	Vertical
7702.5	-63.29	5.68	36.87	-32.10	-25	-7.10	Horizontal
182.0	-50.26	1.58	17.56	-34.28	-25	-9.28	Vertical
288.4	-51.06	1.45	16.58	-35.93	-25	-10.93	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	-62.60	5.23	35.82	-32.01	-25	-7.01	Horizontal
5020.0	-60.08	5.23	35.82	-29.49	-25	-4.49	Vertical
7530.0	-63.20	5.67	36.86	-32.01	-25	-7.01	Vertical
7530.0	-60.21	5.67	36.86	-29.02	-25	-4.02	Horizontal
200.2	-49.43	1.63	15.76	-35.30	-25	-10.30	Vertical
384.0	-49.26	1.71	15.44	-35.53	-25	-10.53	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.96	5.23	35.82	-31.37	-25	-6.37	Horizontal
5070.0	-61.31	5.23	35.82	-30.72	-25	-5.72	Vertical
7605.0	-59.24	5.67	36.85	-28.06	-25	-3.06	Vertical
7605.0	-64.65	5.67	36.85	-33.47	-25	-8.47	Horizontal
196.9	-44.92	1.79	16.84	-29.86	-25	-4.86	Vertical
304.7	-44.22	1.71	17.64	-28.29	-25	-3.29	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.89	5.24	35.83	-31.30	-25	-6.30	Horizontal
5120.0	-64.62	5.24	35.83	-34.03	-25	-9.03	Vertical
7680.0	-59.41	5.70	36.88	-28.23	-25	-3.23	Vertical
7680.0	-64.03	5.70	36.88	-32.85	-25	-7.85	Horizontal
187.9	-46.68	1.79	16.84	-31.62	-25	-6.62	Vertical
316.1	-47.58	1.71	17.64	-31.65	-25	-6.65	Horizontal

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-47.86	2.60	27.20	-23.26	-13	-10.26	Horizontal
1399.4	-51.03	2.60	27.20	-26.43	-13	-13.43	Vertical
2099.1	-51.17	2.85	27.54	-26.48	-13	-13.48	Vertical
2099.1	-53.19	2.85	27.54	-28.50	-13	-15.50	Horizontal
181.3	-37.23	1.49	17.78	-20.94	-13	-7.94	Vertical
371.4	-38.70	1.36	17.33	-22.73	-13	-9.73	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-44.42	2.61	27.28	-19.75	-13	-6.75	Horizontal
1415.0	-50.51	2.61	27.28	-25.84	-13	-12.84	Vertical
2122.5	-49.08	2.87	27.59	-24.36	-13	-11.36	Vertical
2122.5	-52.43	2.87	27.59	-27.71	-13	-14.71	Horizontal
190.1	-36.75	1.73	15.74	-22.74	-13	-9.74	Vertical
341.4	-35.78	1.62	15.79	-21.61	-13	-8.61	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-48.71	2.63	27.28	-24.06	-13	-11.06	Horizontal
1430.6	-53.94	2.63	27.28	-29.29	-13	-16.29	Vertical
2145.9	-51.63	2.88	27.60	-26.91	-13	-13.91	Vertical
2145.9	-53.22	2.88	27.60	-28.50	-13	-15.50	Horizontal
193.1	-43.41	1.61	18.00	-27.02	-13	-14.02	Vertical
327.8	-41.73	1.45	15.49	-27.70	-13	-14.70	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	-44.64	2.61	27.26	-19.99	-13	-6.99	Horizontal
1408.0	-53.07	2.61	27.26	-28.42	-13	-15.42	Vertical
2112.0	-45.56	2.87	27.58	-20.85	-13	-7.85	Vertical
2112.0	-49.52	2.87	27.58	-24.81	-13	-11.81	Horizontal
183.1	-44.88	1.31	16.97	-29.22	-13	-16.22	Vertical
238.6	-34.36	1.65	16.70	-19.31	-13	-6.31	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-46.72	2.61	27.28	-22.05	-13	-9.05	Horizontal
1415.0	-53.73	2.61	27.28	-29.06	-13	-16.06	Vertical
2122.5	-49.59	2.87	27.59	-24.87	-13	-11.87	Vertical
2122.5	-52.18	2.87	27.59	-27.46	-13	-14.46	Horizontal
204.5	-40.03	1.72	17.99	-23.76	-13	-10.76	Vertical
288.5	-43.92	1.73	17.94	-27.71	-13	-14.71	Horizontal
Test Results for High Channel 711MHz							
1422.0	-52.49	2.62	27.28	-27.83	-13	-14.83	Horizontal
1422.0	-46.47	2.62	27.28	-21.81	-13	-8.81	Vertical
2133.0	-49.47	2.87	27.60	-24.74	-13	-11.74	Vertical
2133.0	-52.11	2.87	27.60	-27.38	-13	-14.38	Horizontal
205.0	-43.78	1.58	15.93	-29.43	-13	-16.43	Vertical
284.7	-35.35	1.36	15.59	-21.12	-13	-8.12	Horizontal

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	-48.51	2.61	27.28	-23.84	-13	-10.84	Horizontal
1413.0	-47.02	2.61	27.28	-22.35	-13	-9.35	Vertical
2119.5	-49.63	2.87	27.59	-24.91	-13	-11.91	Vertical
2119.5	-51.28	2.87	27.59	-26.56	-13	-13.56	Horizontal
212.9	-37.60	1.71	16.15	-23.16	-13	-10.16	Vertical
394.7	-42.36	1.41	17.32	-26.45	-13	-13.45	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-48.62	2.62	27.30	-23.94	-13	-10.94	Horizontal
1420.0	-47.94	2.62	27.30	-23.26	-13	-10.26	Vertical
2130.0	-48.45	2.87	27.62	-23.70	-13	-10.70	Vertical
2130.0	-49.60	2.87	27.62	-24.85	-13	-11.85	Horizontal
185.9	-42.86	1.42	15.25	-29.04	-13	-16.04	Vertical
318.2	-40.06	1.36	17.19	-24.23	-13	-11.23	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-46.62	2.66	27.28	-22.00	-13	-9.00	Horizontal
1427.0	-46.13	2.66	27.28	-21.51	-13	-8.51	Vertical
2140.5	-48.51	2.88	27.60	-23.79	-13	-10.79	Vertical
2140.5	-50.87	2.88	27.60	-26.15	-13	-13.15	Horizontal
178.6	-40.89	1.32	17.29	-24.92	-13	-11.92	Vertical
251.8	-42.15	1.72	16.89	-26.98	-13	-13.98	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	-49.09	2.62	27.30	-24.41	-13	-11.41	Horizontal
1418.0	-50.60	2.62	27.30	-25.92	-13	-12.92	Vertical
2127.0	-48.68	2.87	27.62	-23.93	-13	-10.93	Vertical
2127.0	-50.81	2.87	27.62	-26.06	-13	-13.06	Horizontal
184.8	-44.32	1.35	16.91	-28.76	-13	-15.76	Vertical
372.3	-36.40	1.62	16.31	-21.71	-13	-8.71	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-52.51	2.62	27.30	-27.83	-13	-14.83	Horizontal
1420.0	-52.38	2.62	27.30	-27.70	-13	-14.70	Vertical
2130.0	-48.37	2.87	27.62	-23.62	-13	-10.62	Vertical
2130.0	-53.25	2.87	27.62	-28.50	-13	-15.50	Horizontal
201.5	-34.59	1.51	17.14	-18.96	-13	-5.96	Vertical
247.5	-36.26	1.77	16.88	-21.15	-13	-8.15	Horizontal
Test Results for High Channel 711MHz							
1422.0	-52.52	2.62	27.30	-27.84	-13	-14.84	Horizontal
1422.0	-51.23	2.62	27.30	-26.55	-13	-13.55	Vertical
2133.0	-53.31	2.87	27.62	-28.56	-13	-15.56	Vertical
2133.0	-49.62	2.87	27.62	-24.87	-13	-11.87	Horizontal
201.1	-41.66	1.78	15.95	-27.49	-13	-14.49	Vertical
290.2	-43.98	1.34	17.95	-27.38	-13	-14.38	Horizontal

9.7 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	-45.57	4.02	29.80	-19.79	-13	-6.79	Horizontal
3421.4	-51.44	4.02	29.80	-25.66	-13	-12.66	Vertical
5132.1	-49.84	5.24	35.84	-19.24	-13	-6.24	Vertical
5132.1	-49.68	5.24	35.84	-19.08	-13	-6.08	Horizontal
112.6	-45.01	1.52	15.57	-30.96	-13	-17.96	Vertical
220.5	-47.89	1.33	17.14	-32.08	-13	-19.08	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-46.62	4.03	30.00	-20.65	-13	-7.65	Horizontal
3490.0	-44.10	4.03	30.00	-18.13	-13	-5.13	Vertical
5235.0	-52.06	5.25	35.86	-21.45	-13	-8.45	Vertical
5235.0	-47.73	5.25	35.86	-17.12	-13	-4.12	Horizontal
157.3	-50.76	1.53	17.13	-35.16	-13	-22.16	Vertical
213.1	-54.51	1.41	15.95	-39.97	-13	-26.97	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-44.83	4.05	30.01	-18.87	-13	-5.87	Horizontal
3558.6	-45.53	4.05	30.01	-19.57	-13	-6.57	Vertical
5337.9	-54.84	5.26	35.86	-24.24	-13	-11.24	Vertical
5337.9	-53.27	5.26	35.86	-22.67	-13	-9.67	Horizontal
170.6	-51.30	1.44	15.51	-37.23	-13	-24.23	Vertical
169.0	-44.33	1.78	15.76	-30.35	-13	-17.35	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	-53.99	4.02	29.80	-28.21	-13	-15.21	Horizontal
3440.0	-49.21	4.02	29.80	-23.43	-13	-10.43	Vertical
5160.0	-54.77	5.24	35.84	-24.17	-13	-11.17	Vertical
5160.0	-47.29	5.24	35.84	-16.69	-13	-3.69	Horizontal
268.8	-53.17	1.62	17.02	-37.77	-13	-24.77	Vertical
161.4	-47.66	1.32	17.31	-31.67	-13	-18.67	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-50.97	4.03	30.00	-25.00	-13	-12.00	Horizontal
3490.0	-49.15	4.03	30.00	-23.18	-13	-10.18	Vertical
5235.0	-53.07	5.25	35.86	-22.46	-13	-9.46	Vertical
5235.0	-53.65	5.25	35.86	-23.04	-13	-10.04	Horizontal
159.9	-53.09	1.45	15.17	-39.37	-13	-26.37	Vertical
172.1	-54.42	1.48	17.82	-38.08	-13	-25.08	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-49.73	2.91	27.68	-24.96	-13	-11.96	Horizontal
3540.0	-52.97	2.91	27.68	-28.20	-13	-15.20	Vertical
5310.0	-51.79	5.26	35.86	-21.19	-13	-8.19	Vertical
5310.0	-47.33	5.26	35.86	-16.73	-13	-3.73	Horizontal
197.3	-49.96	1.76	16.38	-35.34	-13	-22.34	Vertical
158.5	-46.97	1.43	17.13	-31.27	-13	-18.27	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 3.4V, Normal, DC 3.87V 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 Band 2
LTE Band 4
- LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17
LTE Band 66

RESULTS

See the following pages.

10.1 LTE BAND 2

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	13.1	0.006964	2.5
3.87	1880	13.8	0.007316	2.5
4.2	1880	12.8	0.006811	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	12.9	0.006874	2.5
Extreme (50C)	1880	12.0	0.006374	2.5
Extreme (40C)	1880	13.3	0.007078	2.5
Extreme (30C)	1880	13.2	0.007022	2.5
Extreme (10C)	1880	14.2	0.007536	2.5
Extreme (0C)	1880	12.0	0.006387	2.5
Extreme (-10C)	1880	13.0	0.006891	2.5
Extreme (-20C)	1880	14.0	0.007424	2.5
Extreme (-30C)	1880	14.8	0.007893	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	9.9	0.005284	2.5
3.87	1880	9.1	0.004817	2.5
4.2	1880	7.8	0.004141	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	9.6	0.005097	2.5
Extreme (50C)	1880	9.3	0.004965	2.5
Extreme (40C)	1880	8.5	0.004524	2.5
Extreme (30C)	1880	8.8	0.004669	2.5
Extreme (10C)	1880	9.0	0.004793	2.5
Extreme (0C)	1880	8.6	0.004554	2.5
Extreme (-10C)	1880	8.7	0.004642	2.5
Extreme (-20C)	1880	9.4	0.005000	2.5
Extreme (-30C)	1880	8.4	0.004490	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	8.9	0.005145	2.5
3.87	1732.5	8.6	0.004941	2.5
4.2	1732.5	8.3	0.004762	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	8.6	0.004936	2.5
Extreme (50C)	1732.5	9.1	0.005254	2.5
Extreme (40C)	1732.5	7.7	0.004451	2.5
Extreme (30C)	1732.5	5.5	0.003152	2.5
Extreme (10C)	1732.5	6.6	0.003810	2.5
Extreme (0C)	1732.5	9.5	0.005456	2.5
Extreme (-10C)	1732.5	8.1	0.004660	2.5
Extreme (-20C)	1732.5	6.7	0.003841	2.5
Extreme (-30C)	1732.5	8.9	0.005113	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	10.1	0.005840	2.5
3.87	1732.5	8.5	0.004895	2.5
4.2	1732.5	7.8	0.004493	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	9.9	0.005741	2.5
Extreme (50C)	1732.5	9.4	0.005402	2.5
Extreme (40C)	1732.5	7.7	0.004443	2.5
Extreme (30C)	1732.5	8.8	0.005079	2.5
Extreme (10C)	1732.5	8.5	0.004909	2.5
Extreme (0C)	1732.5	8.3	0.004786	2.5
Extreme (-10C)	1732.5	9.2	0.005336	2.5
Extreme (-20C)	1732.5	9.1	0.005279	2.5
Extreme (-30C)	1732.5	7.8	0.004496	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	5.5	0.006547	2.5
3.87	836.5	6.4	0.007652	2.5
4.2	836.5	4.7	0.005634	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	6.1	0.007343	2.5
Extreme (50C)	836.5	6.1	0.007245	2.5
Extreme (40C)	836.5	6.5	0.007737	2.5
Extreme (30C)	836.5	6.1	0.007258	2.5
Extreme (10C)	836.5	5.3	0.006357	2.5
Extreme (0C)	836.5	4.9	0.005905	2.5
Extreme (-10C)	836.5	5.8	0.006930	2.5
Extreme (-20C)	836.5	6.3	0.007564	2.5
Extreme (-30C)	836.5	6.5	0.007789	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	5.8	0.006962	2.5
3.87	836.5	7.0	0.008400	2.5
4.2	836.5	4.7	0.005630	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	6.3	0.007590	2.5
Extreme (50C)	836.5	6.0	0.007208	2.5
Extreme (40C)	836.5	6.4	0.007664	2.5
Extreme (30C)	836.5	6.5	0.007798	2.5
Extreme (10C)	836.5	5.1	0.006141	2.5
Extreme (0C)	836.5	4.9	0.005883	2.5
Extreme (-10C)	836.5	5.3	0.006351	2.5
Extreme (-20C)	836.5	6.2	0.007430	2.5
Extreme (-30C)	836.5	6.5	0.007765	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

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	9.8	0.003868	2.5
3.87	2535	9.0	0.003564	2.5
4.2	2535	8.6	0.003378	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	8.9	0.003517	2.5
Extreme (50C)	2535	9.4	0.003700	2.5
Extreme (40C)	2535	8.6	0.003403	2.5
Extreme (30C)	2535	8.7	0.003416	2.5
Extreme (10C)	2535	8.2	0.003228	2.5
Extreme (0C)	2535	8.1	0.003199	2.5
Extreme (-10C)	2535	9.3	0.003681	2.5
Extreme (-20C)	2535	8.8	0.003487	2.5
Extreme (-30C)	2535	8.8	0.003457	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	6.9	0.002722	2.5
3.87	2535	6.8	0.002677	2.5
4.2	2535	5.3	0.002099	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	6.1	0.002401	2.5
Extreme (40C)	2535	5.8	0.002290	2.5
Extreme (30C)	2535	7.0	0.002765	2.5
Extreme (10C)	2535	5.2	0.002062	2.5
Extreme (0C)	2535	5.2	0.002045	2.5
Extreme (-10C)	2535	4.9	0.001943	2.5
Extreme (-20C)	2535	6.2	0.002428	2.5
Extreme (-30C)	2535	5.4	0.002128	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	707.5	8.2	0.011631	2.5
3.87	707.5	10.3	0.014578	2.5
4.2	707.5	8.6	0.012192	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	707.5	9.0	0.012767	2.5
Extreme (50C)	707.5	7.7	0.010868	2.5
Extreme (40C)	707.5	7.6	0.010806	2.5
Extreme (30C)	707.5	8.4	0.011803	2.5
Extreme (10C)	707.5	7.0	0.009873	2.5
Extreme (0C)	707.5	8.9	0.012560	2.5
Extreme (-10C)	707.5	8.7	0.012298	2.5
Extreme (-20C)	707.5	8.9	0.012548	2.5
Extreme (-30C)	707.5	7.6	0.010673	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 16QAM, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	707.5	7.6	0.010702	2.5
3.87	707.5	8.5	0.011970	2.5
4.2	707.5	7.4	0.010454	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	710.0	10.2	0.014318	2.5
3.87	710.0	9.4	0.013179	2.5
4.2	710.0	7.6	0.010738	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	710.0	10.0	0.014071	2.5
Extreme (50C)	710.0	8.9	0.012534	2.5
Extreme (40C)	710.0	8.4	0.011792	2.5
Extreme (30C)	710.0	8.6	0.012157	2.5
Extreme (10C)	710.0	8.6	0.012046	2.5
Extreme (0C)	710.0	7.8	0.011036	2.5
Extreme (-10C)	710.0	9.4	0.013213	2.5
Extreme (-20C)	710.0	9.0	0.012669	2.5
Extreme (-30C)	710.0	8.2	0.011544	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 16QAM, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	710.0	9.9	0.013987	2.5
3.87	710.0	8.6	0.012152	2.5
4.2	710.0	8.3	0.011662	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	710.0	9.0	0.012621	2.5
Extreme (50C)	710.0	9.4	0.013231	2.5
Extreme (40C)	710.0	8.2	0.011616	2.5
Extreme (30C)	710.0	8.9	0.012533	2.5
Extreme (10C)	710.0	8.5	0.012029	2.5
Extreme (0C)	710.0	8.5	0.011932	2.5
Extreme (-10C)	710.0	9.3	0.013030	2.5
Extreme (-20C)	710.0	9.1	0.012804	2.5
Extreme (-30C)	710.0	8.8	0.012424	2.5

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

10.7 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	7.5	0.003915	2.5
3.87	1745	7.1	0.003812	2.5
4.2	1745	8.1	0.004172	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	5.2	0.002985	2.5
Extreme (50C)	1745	8.5	0.004317	2.5
Extreme (40C)	1745	6.9	0.003454	2.5
Extreme (30C)	1745	7.4	0.003974	2.5
Extreme (10C)	1745	8.1	0.004509	2.5
Extreme (0C)	1745	6.1	0.003463	2.5
Extreme (-10C)	1745	6.4	0.003313	2.5
Extreme (-20C)	1745	7.0	0.003852	2.5
Extreme (-30C)	1745	6.3	0.003423	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	8.2	0.00462	2.5
3.87	1745	8.0	0.004436	2.5
4.2	1745	9.4	0.005194	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	9.4	0.005061	2.5
Extreme (50C)	1745	8.7	0.004447	2.5
Extreme (40C)	1745	8.3	0.004757	2.5
Extreme (30C)	1745	8.6	0.004539	2.5
Extreme (10C)	1745	9.0	0.004636	2.5
Extreme (0C)	1745	6.8	0.003824	2.5
Extreme (-10C)	1745	8.7	0.004745	2.5
Extreme (-20C)	1745	8.9	0.004918	2.5
Extreme (-30C)	1745	5.3	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.

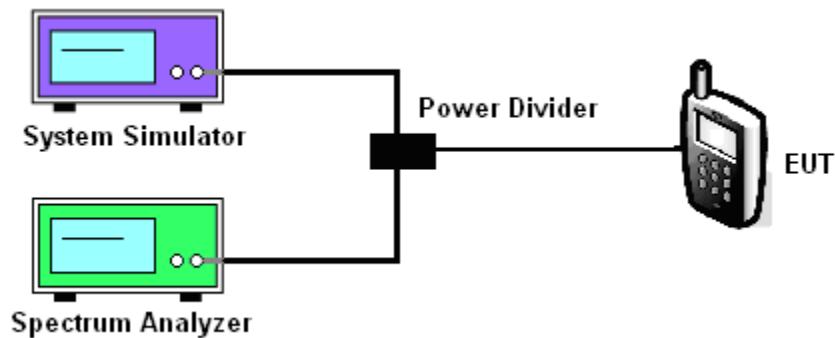
11.2 Measuring Instruments

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 GSM/EGPRS operating modes:
 - a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
 - b. Set EUT in maximum power output, and triggered the burst signal.
 - c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
4. For UMTS 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 2/4/5/7/12/17/66
-

Test data reference attachment.

----END OF REPORT----