

FCC CFR47 PART 22H, 24E, 27, 90S CERTIFICATION TEST REPORT FCC ID: ZSW-30-127

Product: Mobile Phone

Trade Mark: Bmobile

Model Number: BL52 PRO

Family Model: N/A

Report No.: S23032100401005

Prepared for

b mobile HK Limited

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TEST RESULT CERTIFICATION

Applicant's name..... : b mobile HK Limited
Address : Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong, China
Manufacturer's Name..... : b mobile HK Limited
Address : Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong, China
Product name : Mobile Phone
Model and/or type reference : BL52 PRO
Family Model: N/A
Test sample number S230321004001
Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27, Part 90S
Test procedure : ANSI C63.46:2015
ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test
Date (s) of performance of tests 29 Mar. 2023 ~ 18 May. 2023
Date of Issue 18 May. 2023
Test Result..... Pass

Testing Engineer : [Signature]
(Allen Liu)

Authorized Signatory : [Signature]
(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:	Mobile Phone
Trade Mark	Bmobile
Model Name	BL52 PRO
Family Model	N/A
Model Difference	N/A
FCC ID:	ZSW-30-127
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2, 4, 5, 7, 26, 38, 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 26 Uplink: 814MHz-849MHz, Downlink: 859MHz-894MHz; TDD Band 38: Uplink & Downlink: 2570 MHz to 2620 MHz LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	PIFA Antenna
Antenna gain:	B2:0.3 dBi,B4:0.9 dBi,B5:-1.5 dBi,B7:2.5 dBi, B26:-1.4 dBi, B38:2.5 dBi,B66:0.9 dBi,
Power Supply:	DC 3.8V/2500mAh from battery or DC 5V from Adapter.
Adapter:	INPUT: AC 100-240V~50-60Hz 0.2A OUTPUT: DC 5.0V--1A
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.8V) (Note 1)
HW Version	Bmobile_BL52Pro_HW_V001
SW Version	Bmobile_BL52Pro_TEM_MX_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: ZSW-30-127** 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, Part 90S ,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 = 2Uc(y))	2.5dB

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2, Band 4, Band 5, Band 7, Band 26,Band 38, 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	
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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	BL52 PRO	FCC ID: ZSW-30-127	EUT

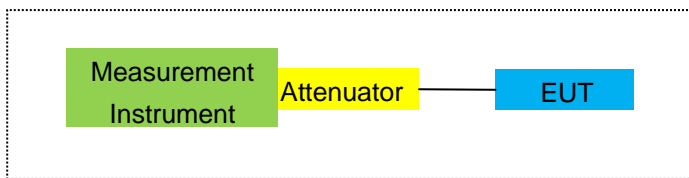
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

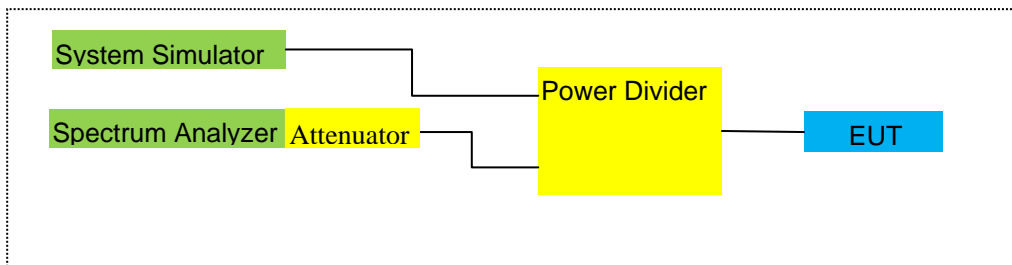
For Radiated Test Cases



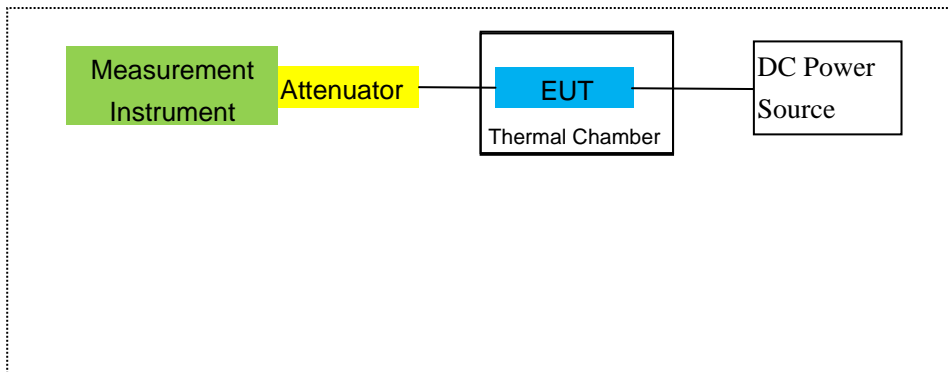
For Conducted Output Power



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	2022.06.17	2023.06.16	1 year
2	Test Receiver	R&S	ESPI	101318	2023.03.27	2024.03.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2023.03.27	2024.03.26	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
5	Horn Antenna	EM	EM-AH-1018 0	2011071402	2023.03.27	2024.03.26	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2022.06.17	2023.06.16	1 year
7	Amplifier	EM	EM-30180	060538	2022.06.17	2023.06.16	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2023.03.27	2024.03.26	1 year
9	Power Meter	R&S	NRVS	100696	2022.06.17	2023.06.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.0 5	2023.03.27	2024.03.26	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2023.03.27	2024.03.26	1 year
15	LISN	R&S	ENV216	101313	2023.03.27	2024.03.26	1 year
16	LISN	EMCO	3816/2	00042990	2023.03.27	2024.03.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2023.03.27	2024.03.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2023.03.27	2024.03.26	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
22	Attenuator	MCE	24-10-34	BN9258	2023.03.27	2024.03.26	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2023.03.27	2024.03.26	1 year
24	test receiver	R&S	ESCI	a0304218	2023.03.27	2024.03.26	1 year

25	Communication Tester	R&S	CMU200	A0304247	2022.06.16	2023.06.15	1 year
26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2023.03.27	2024.03.26	1 year
27	DC Power Source	N/A	PS-6005D	2017040292 3	2020.05.11 2023.05.06	2023.05.10 2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	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 26
- LTE Band 38
- 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) and §90.691

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 2/4/5/7/26/38/66

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) and §90.691

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 Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 26
- LTE Band 38
- 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) and §90.635

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 Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 26
- LTE Band 38
- 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	-2.59	3.76	28.24	21.89	154.525	Horizontal	Pass
		1880	-2.40	3.91	28.22	21.91	155.239	Horizontal	Pass
		1909.3	-2.31	3.93	28.20	21.96	157.036	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.65	3.77	28.23	21.81	151.705	Horizontal	Pass
		1880	-2.50	3.91	28.24	21.83	152.405	Horizontal	Pass
		1908.5	-2.37	3.94	28.25	21.94	156.315	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.54	3.77	28.31	22.00	158.489	Horizontal	Pass
		1880	-2.16	3.91	28.22	22.15	164.059	Horizontal	Pass
		1907.5	-2.09	3.94	28.20	22.17	164.816	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.40	3.79	28.33	22.14	163.682	Horizontal	Pass
		1880	-2.10	3.95	28.22	22.17	164.816	Horizontal	Pass
		1905	-1.99	3.97	28.19	22.23	167.109	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.36	3.79	28.34	22.19	165.577	Horizontal	Pass
		1880	-2.15	3.95	28.22	22.12	162.930	Horizontal	Pass
		1902.5	-2.01	3.97	28.18	22.20	165.959	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.35	3.81	28.35	22.19	165.577	Horizontal	Pass
		1880	-2.02	3.96	28.22	22.24	167.494	Horizontal	Pass
		1900	-1.96	4.00	28.16	22.20	165.959	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.39	3.76	28.24	21.09	128.529	Vertical	Pass
		1880	-2.88	3.91	28.22	21.43	138.995	Vertical	Pass
		1909.3	-3.23	3.93	28.20	21.04	127.057	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.18	3.77	28.23	21.28	134.276	Vertical	Pass
		1880	-3.35	3.91	28.24	20.98	125.314	Vertical	Pass
		1908.5	-3.18	3.94	28.25	21.13	129.718	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.51	3.77	28.31	21.03	126.765	Vertical	Pass
		1880	-3.24	3.91	28.22	21.07	127.938	Vertical	Pass
		1907.5	-3.01	3.94	28.20	21.25	133.352	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.51	3.79	28.33	21.03	126.765	Vertical	Pass
		1880	-2.84	3.95	28.22	21.43	138.995	Vertical	Pass
		1905	-3.42	3.97	28.19	20.80	120.226	Vertical	Pass

15.0MHz		1857.5	-3.14	3.79	28.34	21.41	138.357	Vertical	Pass
Band	1/#Mid	1880	-3.54	3.95	28.22	20.73	118.304	Vertical	Pass
QPSK		1902.5	-3.19	3.97	28.18	21.02	126.474	Vertical	Pass
20.0MHz		1860	-3.36	3.81	28.35	21.18	131.220	Vertical	Pass
Band	1/#Mid	1880	-3.47	3.96	28.22	20.79	119.950	Vertical	Pass
QPSK		1900	-3.46	4.00	28.16	20.70	117.490	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	Max. EIRP	Polarization Of Max. ERP		
						Average (dBm)	Average			Average
							(mW)			
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.71	3.76	28.24	20.77	119.399	Horizontal	Pass	
		1880	-3.18	3.91	28.22	21.13	129.718	Horizontal	Pass	
		1909.3	-3.11	3.93	28.20	21.16	130.617	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.21	3.77	28.23	21.25	133.352	Horizontal	Pass	
		1880	-3.29	3.91	28.24	21.04	127.057	Horizontal	Pass	
		1908.5	-3.50	3.94	28.25	20.81	120.504	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.15	3.77	28.31	21.39	137.721	Horizontal	Pass	
		1880	-3.06	3.91	28.22	21.25	133.352	Horizontal	Pass	
		1907.5	-2.74	3.94	28.20	21.52	141.906	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	1855	-3.20	3.79	28.33	21.34	136.144	Horizontal	Pass	
		1880	-3.19	3.95	28.22	21.08	128.233	Horizontal	Pass	
		1905	-2.66	3.97	28.19	21.56	143.219	Horizontal	Pass	
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.18	3.79	28.34	21.37	137.088	Horizontal	Pass	
		1880	-2.97	3.95	28.22	21.30	134.896	Horizontal	Pass	
		1902.5	-2.93	3.97	28.18	21.28	134.276	Horizontal	Pass	
20.0MHz Band 16 QAM	1/#Mid	1860	-3.07	3.81	28.35	21.47	140.281	Horizontal	Pass	
		1880	-2.77	3.96	28.22	21.49	140.929	Horizontal	Pass	
		1900	-2.59	4.00	28.16	21.57	143.549	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.15	3.76	28.24	20.33	107.895	Vertical	Pass	
		1880	-4.33	3.91	28.22	19.98	99.541	Vertical	Pass	
		1909.3	-4.05	3.93	28.20	20.22	105.196	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.33	3.77	28.23	20.13	103.039	Vertical	Pass	
		1880	-3.91	3.91	28.24	20.42	110.154	Vertical	Pass	
		1908.5	-3.79	3.94	28.25	20.52	112.720	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.34	3.77	28.31	20.20	104.713	Vertical	Pass	
		1880	-3.72	3.91	28.22	20.59	114.551	Vertical	Pass	
		1907.5	-3.70	3.94	28.20	20.56	113.763	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	1855	-4.34	3.79	28.33	20.20	104.713	Vertical	Pass	
		1880	-3.73	3.95	28.22	20.54	113.240	Vertical	Pass	
		1905	-3.67	3.97	28.19	20.55	113.501	Vertical	Pass	
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.28	3.79	28.34	20.27	106.414	Vertical	Pass	
		1880	-4.27	3.95	28.22	20.00	100.000	Vertical	Pass	
		1902.5	-4.33	3.97	28.18	19.88	97.275	Vertical	Pass	

20.0MHz		1860	-4.33	3.81	28.35	20.21	104.954	Vertical	Pass
Band 16	1/#Mid	1880	-4.58	3.96	28.22	19.68	92.897	Vertical	Pass
QAM		1900	-4.51	4.00	28.16	19.65	92.257	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						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 QPSK	1/#Mid	1710.7	-2.50	3.12	27.58	21.96	157.036	Horizontal	Pass
		1732.5	-2.49	3.27	27.61	21.85	153.109	Horizontal	Pass
		1754.3	-2.47	3.29	27.63	21.87	153.815	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.67	3.13	27.61	21.81	151.705	Horizontal	Pass
		1732.5	-2.59	3.27	27.61	21.75	149.624	Horizontal	Pass
		1753.5	-2.51	3.30	27.62	21.81	151.705	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.44	3.13	27.63	22.06	160.694	Horizontal	Pass
		1732.5	-2.34	3.27	27.61	22.00	158.489	Horizontal	Pass
		1752.5	-2.22	3.30	27.60	22.08	161.436	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.38	3.15	27.64	22.11	162.555	Horizontal	Pass
		1732.5	-2.15	3.31	27.61	22.15	164.059	Horizontal	Pass
		1750	-2.17	3.33	27.59	22.09	161.808	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.39	3.15	27.65	22.11	162.555	Horizontal	Pass
		1732.5	-2.23	3.31	27.61	22.07	161.065	Horizontal	Pass
		1747.5	-2.17	3.33	27.57	22.07	161.065	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.33	3.17	27.66	22.16	164.437	Horizontal	Pass
		1732.5	-2.16	3.32	27.61	22.13	163.305	Horizontal	Pass
		1745	-2.10	3.36	27.56	22.10	162.181	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.00	3.12	27.58	21.46	139.959	Vertical	Pass
		1732.5	-3.25	3.27	27.61	21.09	128.529	Vertical	Pass
		1754.3	-2.86	3.29	27.63	21.48	140.605	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.50	3.13	27.61	20.98	125.314	Vertical	Pass
		1732.5	-3.21	3.27	27.61	21.13	129.718	Vertical	Pass
		1753.5	-3.05	3.30	27.62	21.27	133.968	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.69	3.13	27.63	20.81	120.504	Vertical	Pass
		1732.5	-3.49	3.27	27.61	20.85	121.619	Vertical	Pass
		1752.5	-2.86	3.30	27.60	21.44	139.316	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.50	3.15	27.64	20.99	125.603	Vertical	Pass
		1732.5	-3.52	3.31	27.61	20.78	119.674	Vertical	Pass
		1750	-3.46	3.33	27.59	20.80	120.226	Vertical	Pass
15.0MHz Band	1/#Mid	1717.5	-3.70	3.15	27.65	20.80	120.226	Vertical	Pass

Band		1732.5	-3.11	3.31	27.61	21.19	131.522	Vertical	Pass
QPSK		1747.5	-3.17	3.33	27.57	21.07	127.938	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.87	3.17	27.66	20.62	115.345	Vertical	Pass
Band		1732.5	-3.00	3.32	27.61	21.29	134.586	Vertical	Pass
QPSK		1745	-2.66	3.36	27.56	21.54	142.561	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 (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	-3.31	3.12	27.58	21.15	130.317	Horizontal	Pass
		1732.5	-3.16	3.27	27.61	21.18	131.220	Horizontal	Pass
		1754.3	-3.16	3.29	27.63	21.18	131.220	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.25	3.13	27.61	21.23	132.739	Horizontal	Pass
		1732.5	-3.38	3.27	27.61	20.96	124.738	Horizontal	Pass
		1753.5	-3.60	3.30	27.62	20.72	118.032	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.08	3.13	27.63	21.42	138.676	Horizontal	Pass
		1732.5	-3.04	3.27	27.61	21.30	134.896	Horizontal	Pass
		1752.5	-2.73	3.30	27.60	21.57	143.549	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.15	3.15	27.64	21.34	136.144	Horizontal	Pass
		1732.5	-3.34	3.31	27.61	20.96	124.738	Horizontal	Pass
		1750	-2.72	3.33	27.59	21.54	142.561	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.95	3.15	27.65	21.55	142.889	Horizontal	Pass
		1732.5	-3.01	3.31	27.61	21.29	134.586	Horizontal	Pass
		1747.5	-3.03	3.33	27.57	21.21	132.130	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.90	3.17	27.66	21.59	144.212	Horizontal	Pass
		1732.5	-2.91	3.32	27.61	21.38	137.404	Horizontal	Pass
		1745	-2.72	3.36	27.56	21.48	140.605	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.62	3.12	27.58	19.84	96.383	Vertical	Pass
		1732.5	-4.40	3.27	27.61	19.94	98.628	Vertical	Pass
		1754.3	-4.63	3.29	27.63	19.71	93.541	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.50	3.13	27.61	19.98	99.541	Vertical	Pass
		1732.5	-4.38	3.27	27.61	19.96	99.083	Vertical	Pass
		1753.5	-4.15	3.30	27.62	20.17	103.992	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.21	3.13	27.63	20.29	106.905	Vertical	Pass
		1732.5	-3.86	3.27	27.61	20.48	111.686	Vertical	Pass
		1752.5	-4.01	3.30	27.60	20.29	106.905	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.30	3.15	27.64	20.19	104.472	Vertical	Pass
		1732.5	-4.00	3.31	27.61	20.30	107.152	Vertical	Pass
		1750	-4.13	3.33	27.59	20.13	103.039	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.32	3.15	27.65	20.18	104.232	Vertical	Pass
		1732.5	-3.96	3.31	27.61	20.34	108.143	Vertical	Pass
		1747.5	-3.64	3.33	27.57	20.60	114.815	Vertical	Pass

20.0MHz		1720	-4.22	3.17	27.66	20.27	106.414	Vertical	Pass
Band 16	1/#Mid	1732.5	-4.34	3.32	27.61	19.95	98.855	Vertical	Pass
QAM		1745	-4.36	3.36	27.56	19.84	96.383	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 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	3/#Mid	824.7	6.80	2.01	19.68	2.15	22.32	170.608	Horizontal	Pass	
		836.5	6.68	2.01	19.77	2.15	22.29	169.434	Horizontal	Pass	
		848.3	6.48	2.02	19.82	2.15	22.13	163.305	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	6.57	2.01	19.70	2.15	22.11	162.555	Horizontal	Pass	
		836.5	6.47	2.01	19.77	2.15	22.08	161.436	Horizontal	Pass	
		847.5	6.34	2.02	19.81	2.15	21.98	157.761	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	6.85	2.01	19.71	2.15	22.40	173.780	Horizontal	Pass	
		836.5	6.73	2.01	19.77	2.15	22.34	171.396	Horizontal	Pass	
		846.5	6.57	2.02	19.79	2.15	22.19	165.577	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	6.87	2.01	19.73	2.15	22.44	175.388	Horizontal	Pass	
		836.5	6.82	2.01	19.77	2.15	22.43	174.985	Horizontal	Pass	
		844	6.72	2.02	19.78	2.15	22.33	171.002	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	6.07	2.01	19.68	2.15	21.59	144.212	Vertical	Pass	
		836.5	5.74	2.01	19.77	2.15	21.35	136.458	Vertical	Pass	
		848.3	5.26	2.02	19.82	2.15	20.91	123.310	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	5.76	2.01	19.70	2.15	21.30	134.896	Vertical	Pass	
		836.5	5.01	2.01	19.77	2.15	20.62	115.345	Vertical	Pass	
		847.5	5.41	2.02	19.81	2.15	21.05	127.350	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	5.43	2.01	19.71	2.15	20.98	125.314	Vertical	Pass	
		836.5	5.13	2.01	19.77	2.15	20.74	118.577	Vertical	Pass	
		846.5	5.73	2.02	19.79	2.15	21.35	136.458	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	5.92	2.01	19.73	2.15	21.49	140.929	Vertical	Pass	
		836.5	5.22	2.01	19.77	2.15	20.83	121.060	Vertical	Pass	
		844	5.93	2.02	19.78	2.15	21.54	142.561	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	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	3/#Mid	824.7	5.95	2.01	19.68	2.15	21.47	140.281	Horizontal	Pass
		836.5	5.88	2.01	19.77	2.15	21.49	140.929	Horizontal	Pass
		848.3	5.72	2.02	19.82	2.15	21.37	137.088	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	6.03	2.01	19.70	2.15	21.57	143.549	Horizontal	Pass
		836.5	5.74	2.01	19.77	2.15	21.35	136.458	Horizontal	Pass
		847.5	5.22	2.02	19.81	2.15	20.86	121.899	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.35	2.01	19.71	2.15	21.90	154.882	Horizontal	Pass
		836.5	6.12	2.01	19.77	2.15	21.73	148.936	Horizontal	Pass
		846.5	5.87	2.02	19.79	2.15	21.49	140.929	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.35	2.01	19.73	2.15	21.92	155.597	Horizontal	Pass
		836.5	6.07	2.01	19.77	2.15	21.68	147.231	Horizontal	Pass
		844	5.61	2.02	19.78	2.15	21.22	132.434	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	4.45	2.01	19.68	2.15	19.97	99.312	Vertical	Pass
		836.5	4.59	2.01	19.77	2.15	20.20	104.713	Vertical	Pass
		848.3	4.82	2.02	19.82	2.15	20.47	111.429	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.11	2.01	19.70	2.15	19.65	92.257	Vertical	Pass
		836.5	5.68	2.01	19.77	2.15	21.29	134.586	Vertical	Pass
		847.5	3.99	2.02	19.81	2.15	19.63	91.833	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.34	2.01	19.71	2.15	19.89	97.499	Vertical	Pass
		836.5	4.34	2.01	19.77	2.15	19.95	98.855	Vertical	Pass
		846.5	4.54	2.02	19.79	2.15	20.16	103.753	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.18	2.01	19.73	2.15	19.75	94.406	Vertical	Pass
		836.5	5.21	2.01	19.77	2.15	20.82	120.781	Vertical	Pass
		844	5.73	2.02	19.78	2.15	21.34	136.144	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						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 QPSK	1/#Mid	2502.5	-0.78	4.54	27.75	22.43	174.985	Horizontal	Pass
		2535	-0.61	4.69	27.72	22.42	174.582	Horizontal	Pass
		2567.5	-0.54	4.71	27.71	22.46	176.198	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-0.71	4.55	27.76	22.50	177.828	Horizontal	Pass
		2535	-0.52	4.69	27.72	22.51	178.238	Horizontal	Pass
		2565	-0.44	4.72	27.70	22.54	179.473	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-0.72	4.55	27.77	22.50	177.828	Horizontal	Pass
		2535	-0.58	4.69	27.72	22.45	175.792	Horizontal	Pass
		2562.5	-0.48	4.72	27.69	22.49	177.419	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-0.66	4.57	27.78	22.55	179.887	Horizontal	Pass
		2535	-0.48	4.73	27.72	22.51	178.238	Horizontal	Pass
		2560	-0.44	4.75	27.68	22.49	177.419	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-2.36	4.54	27.75	20.85	121.619	Vertical	Pass
		2535	-2.34	4.69	27.72	20.69	117.220	Vertical	Pass
		2567.5	-2.06	4.71	27.71	20.94	124.165	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.44	4.55	27.76	20.77	119.399	Vertical	Pass
		2535	-2.37	4.69	27.72	20.66	116.413	Vertical	Pass
		2565	-1.40	4.72	27.70	21.58	143.880	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.58	4.55	27.77	20.64	115.878	Vertical	Pass
		2535	-1.63	4.69	27.72	21.40	138.038	Vertical	Pass
		2562.5	-2.26	4.72	27.69	20.71	117.761	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.90	4.57	27.78	21.31	135.207	Vertical	Pass
		2535	-1.43	4.73	27.72	21.56	143.219	Vertical	Pass
		2560	-2.00	4.75	27.68	20.93	123.880	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	-1.47	4.54	27.75	21.74	149.279	Horizontal	Pass
		2535	-1.16	4.69	27.72	21.87	153.815	Horizontal	Pass
		2567.5	-1.24	4.71	27.71	21.76	149.968	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.36	4.55	27.76	21.85	153.109	Horizontal	Pass
		2535	-1.37	4.69	27.72	21.66	146.555	Horizontal	Pass
		2565	-1.64	4.72	27.70	21.34	136.144	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.54	4.55	27.77	21.68	147.231	Horizontal	Pass
		2535	-1.51	4.69	27.72	21.52	141.906	Horizontal	Pass
		2562.5	-1.12	4.72	27.69	21.85	153.109	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-1.42	4.57	27.78	21.79	151.008	Horizontal	Pass
		2535	-1.09	4.73	27.72	21.90	154.882	Horizontal	Pass
		2560	-1.19	4.75	27.68	21.74	149.279	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.02	4.54	27.75	20.19	104.472	Vertical	Pass
		2535	-1.53	4.69	27.72	21.50	141.254	Vertical	Pass
		2567.5	-2.32	4.71	27.71	20.68	116.950	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.01	4.55	27.76	21.20	131.826	Vertical	Pass
		2535	-2.10	4.69	27.72	20.93	123.880	Vertical	Pass
		2565	-1.91	4.72	27.70	21.07	127.938	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.62	4.55	27.77	21.60	144.544	Vertical	Pass
		2535	-3.18	4.69	27.72	19.85	96.605	Vertical	Pass
		2562.5	-1.57	4.72	27.69	21.40	138.038	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.45	4.57	27.78	20.76	119.124	Vertical	Pass
		2535	-2.63	4.73	27.72	20.36	108.643	Vertical	Pass
		2560	-1.69	4.75	27.68	21.24	133.045	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)

8.6 LTE BAND 26 A

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz BW QPSK	6/0	814.7	-1.20	3.76	28.24	2.15	21.13	129.72	Horizontal	Pass
		819	-1.00	3.91	28.22	2.15	21.16	130.62	Horizontal	Pass
		823.3	-0.80	3.93	28.20	2.15	21.32	135.52	Horizontal	Pass
3.0MHz BW QPSK	15/0	815.5	-0.52	3.77	28.23	2.15	21.79	151.01	Horizontal	Pass
		819	-0.69	3.91	28.24	2.15	21.49	140.93	Horizontal	Pass
		822.5	-0.66	3.94	28.25	2.15	21.50	141.25	Horizontal	Pass
5.0MHz BW QPSK	25/0	816.5	-1.26	3.77	28.31	2.15	21.13	129.72	Horizontal	Pass
		819	-0.09	3.91	28.22	2.15	22.07	161.06	Horizontal	Pass
		821.5	-0.47	3.94	28.20	2.15	21.64	145.88	Horizontal	Pass
10.0MHz BW QPSK	50/0	819	-0.05	3.91	28.22	2.15	22.11	162.55	Horizontal	Pass
1.4MHz BW QPSK	6/0	814.7	-0.44	3.79	28.34	2.15	21.96	157.04	Vertical	Pass
		819	-0.57	3.95	28.22	2.15	21.55	142.89	Vertical	Pass
		823.3	0.02	3.97	28.18	2.15	22.08	161.44	Vertical	Pass
3.0MHz BW QPSK	15/0	815.5	-0.79	3.77	28.23	2.15	21.52	141.91	Vertical	Pass
		819	-0.49	3.91	28.24	2.15	21.69	147.57	Vertical	Pass
		822.5	-0.37	3.94	28.25	2.15	21.79	151.01	Vertical	Pass
5.0MHz BW QPSK	25/0	816.5	-0.91	3.77	28.31	2.15	21.48	140.60	Vertical	Pass
		819	-0.47	3.91	28.22	2.15	21.69	147.57	Vertical	Pass
		821.5	-0.15	3.94	28.20	2.15	21.96	157.04	Vertical	Pass
10.0MHz BW QPSK	50/0	819	-0.05	3.91	28.22	2.15	22.11	162.55	Vertical	Pass

Radiated Power (ERP) for Band 26(814-824)										
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	6/0	814.7	-1.08	3.76	28.24	2.15	21.25	133.35	Horizontal	Pass
BW 16		819	-0.56	3.91	28.22	2.15	21.60	144.54	Horizontal	Pass
QAM		823.3	-0.22	3.93	28.20	2.15	21.90	154.88	Horizontal	Pass
3.0MHz	15/0	815.5	-0.69	3.77	28.23	2.15	21.62	145.21	Horizontal	Pass
BW 16		819	-0.02	3.91	28.24	2.15	22.16	164.44	Horizontal	Pass
QAM		822.5	-0.08	3.94	28.25	2.15	22.08	161.44	Horizontal	Pass
5.0MHz	25/0	816.5	-1.01	3.77	28.31	2.15	21.38	137.40	Horizontal	Pass
BW 16		819	-0.10	3.91	28.22	2.15	22.06	160.69	Horizontal	Pass
QAM		821.5	-0.29	3.94	28.20	2.15	21.82	152.05	Horizontal	Pass
10.0MHz	50/0	819	-0.66	3.91	28.24	2.15	21.52	141.91	Horizontal	Pass
1.4MHz	6/0	814.7	-0.84	3.79	28.34	2.15	21.56	143.22	Vertical	Pass
BW 16		819	-0.11	3.95	28.22	2.15	22.01	158.85	Vertical	Pass
QAM		823.3	-0.63	3.97	28.18	2.15	21.43	139.00	Vertical	Pass
3.0MHz	15/0	815.5	-0.32	3.77	28.23	2.15	21.99	158.12	Vertical	Pass
BW 16		819	-0.70	3.91	28.24	2.15	21.48	140.60	Vertical	Pass
QAM		822.5	-0.62	3.94	28.25	2.15	21.54	142.56	Vertical	Pass
5.0MHz	25/0	816.5	-1.07	3.77	28.31	2.15	21.32	135.52	Vertical	Pass
BW 16		819	-0.85	3.91	28.22	2.15	21.31	135.21	Vertical	Pass
QAM		821.5	-0.35	3.94	28.20	2.15	21.76	149.97	Vertical	Pass
10.0MHz	50/0	819	0.65	3.91	28.24	2.15	22.83	191.87	Vertical	Pass

8.7 LTE BAND 26B

Radiated Power (ERP) for Band 26(824-849)											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max.			
			Level	Loss	Factor		EIRP	Of Max.			
			(dBm)	(dBm)	(dB)	(dB)	Average	Average			
					(dBm)	(mW)					
1.4MHz Band QPSK	6/0	824.7	5.91	2.01	19.68	2.15	21.43	139.00	Horizontal	Pass	
		836.5	6.42	2.01	19.77	2.15	22.03	159.59	Horizontal	Pass	
		848.3	6.07	2.02	19.82	2.15	21.72	148.59	Horizontal	Pass	
3.0MHz Band QPSK	15/0	825.5	6.59	2.01	19.70	2.15	22.13	163.31	Horizontal	Pass	
		836.5	6.71	2.01	19.77	2.15	22.32	170.61	Horizontal	Pass	
		847.5	6.03	2.02	19.81	2.15	21.67	146.89	Horizontal	Pass	
5.0MHz Band QPSK	25/0	826.5	6.84	2.01	19.71	2.15	22.39	173.38	Horizontal	Pass	
		836.5	6.73	2.01	19.77	2.15	22.34	171.40	Horizontal	Pass	
		846.5	6.26	2.02	19.79	2.15	21.88	154.17	Horizontal	Pass	
10.0MHz Band QPSK	50/0	829	6.78	2.01	19.73	2.15	22.35	171.79	Horizontal	Pass	
		836.5	6.32	2.01	19.77	2.15	21.93	155.96	Horizontal	Pass	
		844	5.82	2.02	19.78	2.15	21.43	139.00	Horizontal	Pass	
15.0MHz Band QPSK	75/0	831.5	6.01	2.01	19.73	2.15	21.58	143.88	Horizontal	Pass	
		836.5	6.64	2.01	19.77	2.15	22.25	167.88	Horizontal	Pass	
		841.5	6.79	2.02	19.78	2.15	22.40	173.78	Horizontal	Pass	
1.4MHz Band QPSK	6/0	824.7	5.99	2.01	19.68	2.15	21.51	141.58	Vertical	Pass	
		836.5	6.53	2.01	19.77	2.15	22.14	163.68	Vertical	Pass	
		848.3	6.52	2.02	19.82	2.15	22.17	164.82	Vertical	Pass	
3.0MHz Band QPSK	15/0	825.5	6.27	2.01	19.70	2.15	21.81	151.71	Vertical	Pass	
		836.5	7.40	2.01	19.77	2.15	23.01	199.99	Vertical	Pass	
		847.5	5.79	2.02	19.81	2.15	21.43	139.00	Vertical	Pass	
5.0MHz Band QPSK	25/0	826.5	6.07	2.01	19.71	2.15	21.62	145.21	Vertical	Pass	
		836.5	6.64	2.01	19.77	2.15	22.25	167.88	Vertical	Pass	
		846.5	5.93	2.02	19.79	2.15	21.55	142.89	Vertical	Pass	
10.0MHz Band QPSK	50/0	829	6.67	2.01	19.73	2.15	22.24	167.49	Vertical	Pass	
		836.5	6.56	2.01	19.77	2.15	22.17	164.82	Vertical	Pass	
		844	6.44	2.02	19.78	2.15	22.05	160.32	Vertical	Pass	
15.0MHz Band QPSK	75/0	831.5	5.99	2.01	19.73	2.15	21.56	143.22	Vertical	Pass	
		836.5	6.61	2.01	19.77	2.15	22.22	166.72	Vertical	Pass	
		841.5	7.65	2.02	19.78	2.15	23.26	211.84	Vertical	Pass	

Radiated Power (ERP) for Band 26(824-849)											
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	6/0	824.7	5.63	2.01	19.68	2.15	21.15	130.32	Horizontal	Pass	
Band 16		836.5	6.41	2.01	19.77	2.15	22.02	159.22	Horizontal	Pass	
QAM		848.3	6.14	2.02	19.82	2.15	21.79	151.01	Horizontal	Pass	
3.0MHz	15/0	825.5	6.46	2.01	19.70	2.15	22.00	158.49	Horizontal	Pass	
Band 16		836.5	5.69	2.01	19.77	2.15	21.30	134.90	Horizontal	Pass	
QAM		847.5	6.02	2.02	19.81	2.15	21.66	146.55	Horizontal	Pass	
5.0MHz	25/0	826.5	6.42	2.01	19.71	2.15	21.97	157.40	Horizontal	Pass	
Band 16		836.5	6.14	2.01	19.77	2.15	21.75	149.62	Horizontal	Pass	
QAM		846.5	5.78	2.02	19.79	2.15	21.40	138.04	Horizontal	Pass	
10.0MHz	50/0	829	6.56	2.01	19.73	2.15	22.13	163.31	Horizontal	Pass	
Band 16		836.5	5.71	2.01	19.77	2.15	21.32	135.52	Horizontal	Pass	
QAM		844	6.33	2.02	19.78	2.15	21.94	156.31	Horizontal	Pass	
15.0MHz	75/0	831.5	6.38	2.01	19.73	2.15	21.95	156.68	Horizontal	Pass	
Band		836.5	5.89	2.01	19.77	2.15	21.50	141.25	Horizontal	Pass	
QPSK		841.5	5.89	2.02	19.78	2.15	21.50	141.25	Horizontal	Pass	
1.4MHz	6/0	824.7	5.98	2.01	19.68	2.15	21.50	141.25	Vertical	Pass	
Band 16		836.5	5.96	2.01	19.77	2.15	21.57	143.55	Vertical	Pass	
QAM		848.3	6.04	2.02	19.82	2.15	21.69	147.57	Vertical	Pass	
3.0MHz	15/0	825.5	5.89	2.01	19.70	2.15	21.43	139.00	Vertical	Pass	
Band 16		836.5	7.12	2.01	19.77	2.15	22.73	187.50	Vertical	Pass	
QAM		847.5	5.51	2.02	19.81	2.15	21.15	130.32	Vertical	Pass	
5.0MHz	25/0	826.5	6.58	2.01	19.71	2.15	22.13	163.31	Vertical	Pass	
Band 16		836.5	6.07	2.01	19.77	2.15	21.68	147.23	Vertical	Pass	
QAM		846.5	5.70	2.02	19.79	2.15	21.32	135.52	Vertical	Pass	
10.0MHz	50/0	829	6.38	2.01	19.73	2.15	21.95	156.68	Vertical	Pass	
Band 16		836.5	5.70	2.01	19.77	2.15	21.31	135.21	Vertical	Pass	
QAM		844	6.34	2.02	19.78	2.15	21.95	156.68	Vertical	Pass	

15.0MHz		831.5	5.81	2.01	19.73	2.15	21.38	137.40	Vertical	Pass
Band	75/0	836.5	6.36	2.01	19.77	2.15	21.97	157.40	Vertical	Pass
QPSK		841.5	7.22	2.02	19.78	2.15	22.83	191.87	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.8 LTE BAND 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.63	115.611	Vertical	Pass
		2595	-2.64	4.88	27.71	21.15	130.317	Vertical	Pass
		2617.5	-2.58	4.93	27.95	20.83	121.060	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	21.57	143.549	Vertical	Pass
		2595	-2.47	4.95	27.81	21.40	138.038	Vertical	Pass
		2617.5	-2.59	5.03	27.69	20.84	121.339	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	20.80	120.226	Vertical	Pass
		2595	-2.6	5	27.65	21.41	138.357	Vertical	Pass
		2615	-2.67	4.87	27.89	21.41	138.357	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	21.54	142.561	Vertical	Pass
		2595	-2.38	4.87	27.87	21.41	138.357	Vertical	Pass
		2615	-2.56	4.94	27.77	21.32	135.519	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	21.40	138.038	Vertical	Pass
		2595	-2.32	4.87	27.84	20.81	120.504	Vertical	Pass
		2612.5	-2.52	4.92	27.93	21.29	134.586	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	21.02	126.474	Vertical	Pass
		2595	-2.53	4.98	27.82	21.28	134.276	Vertical	Pass
		2612.5	-2.6	4.95	27.83	21.40	138.038	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.64	115.878	Vertical	Pass
		2595	-2.37	4.79	27.83	22.21	166.341	Vertical	Pass
		2610	-2.68	4.89	27.87	21.38	137.404	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	21.09	128.529	Vertical	Pass
		2595	-2.88	4.91	27.71	21.24	133.045	Vertical	Pass
		2610	-2.81	4.96	27.92	21.09	128.529	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	21.20	131.826	Horizontal	Pass
		2595	-2.64	4.88	27.71	20.90	123.027	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	21.46	139.959	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	21.49	140.929	Horizontal	Pass
		2595	-2.47	4.95	27.81	21.19	131.522	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	21.47	140.281	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	21.68	147.231	Horizontal	Pass
		2595	-2.6	5	27.65	21.70	147.911	Horizontal	Pass
		2615	-2.67	4.87	27.89	21.48	140.605	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	20.99	125.603	Horizontal	Pass
		2595	-2.38	4.87	27.87	21.56	143.219	Horizontal	Pass
		2615	-2.56	4.94	27.77	21.60	144.544	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.75	118.850	Horizontal	Pass
		2595	-2.32	4.87	27.84	21.40	138.038	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	20.86	121.899	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.98	125.314	Horizontal	Pass
		2595	-2.53	4.98	27.82	21.00	125.893	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	21.24	133.045	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	21.28	134.276	Horizontal	Pass
		2595	-2.37	4.79	27.83	22.35	171.791	Horizontal	Pass
		2610	-2.68	4.89	27.87	20.97	125.026	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	21.72	148.594	Horizontal	Pass
		2595	-2.88	4.91	27.71	21.37	137.088	Horizontal	Pass
		2610	-2.81	4.96	27.92	21.58	143.880	Horizontal	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)

8.9 LTE BAND 66

Radiated Power (EIRP) for Band 66										
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	1710.7	-2.35	3.76	28.24	22.13	163.305	Horizontal	Pass	
		1745	-2.21	3.91	28.22	22.10	162.181	Horizontal	Pass	
		1779.3	-2.08	3.93	28.2	22.19	165.577	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-2.41	3.77	28.23	22.05	160.325	Horizontal	Pass	
		1745	-2.32	3.91	28.24	22.01	158.855	Horizontal	Pass	
		1778.5	-2.34	3.94	28.25	21.97	157.398	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-2.31	3.77	28.31	22.23	167.109	Horizontal	Pass	
		1745	-1.99	3.91	28.22	22.32	170.608	Horizontal	Pass	
		1777.5	-2.05	3.94	28.2	22.21	166.341	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-2.20	3.79	28.33	22.34	171.396	Horizontal	Pass	
		1745	-1.93	3.95	28.22	22.34	171.396	Horizontal	Pass	
		1775	-1.94	3.97	28.19	22.28	169.044	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1717.5	-2.22	3.79	28.34	22.33	171.002	Horizontal	Pass	
		1745	-2.03	3.95	28.22	22.24	167.494	Horizontal	Pass	
		1772.5	-1.98	3.97	28.18	22.23	167.109	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1720	-2.19	3.81	28.35	22.35	171.791	Horizontal	Pass	
		1745	-1.93	3.96	28.22	22.33	171.002	Horizontal	Pass	
		1770	-1.95	4	28.16	22.21	166.341	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1710.7	-3.49	3.76	28.24	20.99	125.603	Vertical	Pass	
		1745	-3.03	3.91	28.22	21.28	134.276	Vertical	Pass	
		1779.3	-2.97	3.93	28.2	21.30	134.896	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-2.93	3.77	28.23	21.53	142.233	Vertical	Pass	
		1745	-3.61	3.91	28.24	20.72	118.032	Vertical	Pass	
		1778.5	-2.96	3.94	28.25	21.35	136.458	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-3.26	3.77	28.31	21.28	134.276	Vertical	Pass	
		1745	-3.41	3.91	28.22	20.90	123.027	Vertical	Pass	
		1777.5	-3.06	3.94	28.2	21.20	131.826	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-3.92	3.79	28.34	20.63	115.611	Vertical	Pass	
		1745	-3.63	3.95	28.22	20.64	115.878	Vertical	Pass	
		1775	-2.83	3.97	28.18	21.38	137.404	Vertical	Pass	

15.0MHz		1717.5	-3.50	3.81	28.35	21.04	127.057	Vertical	Pass
Band	1/#Mid	1745	-2.85	3.96	28.22	21.41	138.357	Vertical	Pass
QPSK		1772.5	-2.94	4	28.16	21.22	132.434	Vertical	Pass
20.0MHz		1720	-3.60	3.79	28.34	20.95	124.451	Vertical	Pass
Band	1/#Mid	1745	-3.39	3.95	28.22	20.88	122.462	Vertical	Pass
QPSK		1770	-3.39	3.97	28.18	20.82	120.781	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	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.18	3.76	28.24	21.30	134.896	Horizontal	Pass
		1745	-2.79	3.91	28.22	21.52	141.906	Horizontal	Pass
		1779.3	-2.97	3.93	28.2	21.30	134.896	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.57	3.77	28.23	20.89	122.744	Horizontal	Pass
		1745	-2.82	3.91	28.24	21.51	141.579	Horizontal	Pass
		1778.5	-3.11	3.94	28.25	21.20	131.826	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.99	3.77	28.31	21.55	142.889	Horizontal	Pass
		1745	-3.05	3.91	28.22	21.26	133.660	Horizontal	Pass
		1777.5	-2.72	3.94	28.2	21.54	142.561	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.04	3.79	28.33	21.50	141.254	Horizontal	Pass
		1745	-2.70	3.95	28.22	21.57	143.549	Horizontal	Pass
		1775	-3.02	3.97	28.19	21.20	131.826	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.03	3.79	28.34	21.52	141.906	Horizontal	Pass
		1745	-2.85	3.95	28.22	21.42	138.676	Horizontal	Pass
		1772.5	-2.64	3.97	28.18	21.57	143.549	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.86	3.81	28.35	21.68	147.231	Horizontal	Pass
		1745	-2.64	3.96	28.22	21.62	145.211	Horizontal	Pass
		1770	-2.58	4	28.16	21.58	143.880	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.97	3.76	28.24	20.51	112.460	Vertical	Pass
		1745	-4.60	3.91	28.22	19.71	93.541	Vertical	Pass
		1779.3	-2.90	3.93	28.2	21.37	137.088	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.72	3.77	28.23	19.74	94.189	Vertical	Pass
		1745	-4.31	3.91	28.24	20.02	100.462	Vertical	Pass
		1778.5	-4.10	3.94	28.25	20.21	104.954	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.48	3.77	28.31	21.06	127.644	Vertical	Pass
		1745	-4.34	3.91	28.22	19.97	99.312	Vertical	Pass
		1777.5	-3.77	3.94	28.2	20.49	111.944	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.12	3.79	28.34	21.43	138.995	Vertical	Pass
		1745	-2.79	3.95	28.22	21.48	140.605	Vertical	Pass
		1775	-3.78	3.97	28.18	20.43	110.408	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-4.40	3.81	28.35	20.14	103.276	Vertical	Pass
		1745	-4.36	3.96	28.22	19.90	97.724	Vertical	Pass

QAM		1772.5	-3.41	4	28.16	20.75	118.850	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.22	3.79	28.34	20.33	107.895	Vertical	Pass
Band 16		1745	-3.68	3.95	28.22	20.59	114.551	Vertical	Pass
QAM		1770	-4.11	3.97	28.18	20.10	102.329	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) and §90.691

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 Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 26
- LTE Band 38
- 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	-48.30	4.04	33.51	-18.83	-13	-5.83	Horizontal
3701.4	-53.04	4.04	33.51	-23.57	-13	-10.57	Vertical
5552.1	-52.54	5.24	35.84	-21.94	-13	-8.94	Vertical
5552.1	-49.37	5.24	35.84	-18.77	-13	-5.77	Horizontal
209.0	-44.18	1.43	16.02	-29.59	-13	-16.59	Vertical
244.1	-42.62	1.30	17.99	-25.93	-13	-12.93	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-53.39	4.04	33.56	-23.87	-13	-10.87	Horizontal
3760.0	-50.66	4.04	33.56	-21.14	-13	-8.14	Vertical
5640.0	-49.33	5.24	35.91	-18.66	-13	-5.66	Vertical
5640.0	-49.57	5.24	35.91	-18.90	-13	-5.90	Horizontal
177.8	-42.12	1.62	16.97	-26.77	-13	-13.77	Vertical
297.7	-37.20	1.74	15.98	-22.97	-13	-9.97	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-50.87	4.04	34.00	-20.91	-13	-7.91	Horizontal
3818.6	-47.40	4.04	34.00	-17.44	-13	-4.44	Vertical
5727.9	-49.42	5.24	36.04	-18.62	-13	-5.62	Vertical
5727.9	-51.96	5.24	36.04	-21.16	-13	-8.16	Horizontal
209.1	-35.13	1.42	17.29	-19.26	-13	-6.26	Vertical
325.4	-37.82	1.50	17.90	-21.41	-13	-8.41	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	-50.22	4.07	33.54	-20.75	-13	-7.75	Horizontal
3720.0	-51.02	4.07	33.54	-21.55	-13	-8.55	Vertical
5580.0	-46.61	5.28	35.86	-16.03	-13	-3.03	Vertical
5580.0	-53.37	5.28	35.86	-22.79	-13	-9.79	Horizontal
208.0	-35.21	1.58	16.89	-19.89	-13	-6.89	Vertical
440.7	-38.99	1.76	17.26	-23.49	-13	-10.49	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.37	4.04	33.56	-19.85	-13	-6.85	Horizontal
3760.0	-51.88	4.04	33.56	-22.36	-13	-9.36	Vertical
5640.0	-50.20	5.24	35.91	-19.53	-13	-6.53	Vertical
5640.0	-50.93	5.24	35.91	-20.26	-13	-7.26	Horizontal
197.2	-42.25	1.46	16.27	-27.44	-13	-14.44	Vertical
414.1	-38.10	1.59	15.15	-24.54	-13	-11.54	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-48.72	4.04	34.00	-18.76	-13	-5.76	Horizontal
3800.0	-47.85	4.04	34.00	-17.89	-13	-4.89	Vertical
5700.0	-49.32	5.24	36.04	-18.52	-13	-5.52	Vertical
5700.0	-50.30	5.24	36.04	-19.50	-13	-6.50	Horizontal
199.3	-43.33	1.36	17.39	-27.29	-13	-14.29	Vertical
454.3	-44.91	1.66	15.39	-31.18	-13	-18.18	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	-48.28	4.02	29.80	-22.50	-13	-9.50	Horizontal
3421.4	-45.87	4.02	29.80	-20.09	-13	-7.09	Vertical
5132.1	-50.44	5.24	35.84	-19.84	-13	-6.84	Vertical
5132.1	-52.80	5.24	35.84	-22.20	-13	-9.20	Horizontal
212.7	-34.57	1.68	16.04	-20.21	-13	-7.21	Vertical
417.6	-37.67	1.78	17.74	-21.71	-13	-8.71	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-53.89	4.03	30.00	-27.92	-13	-14.92	Horizontal
3465.0	-44.36	4.03	30.00	-18.39	-13	-5.39	Vertical
5197.5	-50.46	5.25	35.86	-19.85	-13	-6.85	Vertical
5197.5	-51.88	5.25	35.86	-21.27	-13	-8.27	Horizontal
197.2	-37.09	1.72	17.69	-21.12	-13	-8.12	Vertical
353.1	-40.95	1.62	16.02	-26.54	-13	-13.54	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-47.54	4.05	30.01	-21.58	-13	-8.58	Horizontal
3508.6	-44.88	4.05	30.01	-18.92	-13	-5.92	Vertical
5262.9	-51.22	5.26	35.86	-20.62	-13	-7.62	Vertical
5262.9	-51.14	5.26	35.86	-20.54	-13	-7.54	Horizontal
200.1	-39.76	1.80	16.69	-24.87	-13	-11.87	Vertical
236.9	-37.82	1.75	16.66	-22.92	-13	-9.92	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	-51.17	4.02	29.80	-25.39	-13	-12.39	Horizontal
3440.0	-50.30	4.02	29.80	-24.52	-13	-11.52	Vertical
5160.0	-53.91	5.24	35.84	-23.31	-13	-10.31	Vertical
5160.0	-50.34	5.24	35.84	-19.74	-13	-6.74	Horizontal
191.2	-35.09	1.57	17.26	-19.40	-13	-6.40	Vertical
405.6	-35.91	1.78	16.35	-21.34	-13	-8.34	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-51.16	4.03	30.00	-25.19	-13	-12.19	Horizontal
3465.0	-53.11	4.03	30.00	-27.14	-13	-14.14	Vertical
5197.5	-51.34	5.25	35.86	-20.73	-13	-7.73	Vertical
5197.5	-52.28	5.25	35.86	-21.67	-13	-8.67	Horizontal
186.1	-40.11	1.44	17.95	-23.60	-13	-10.60	Vertical
438.2	-41.39	1.65	16.09	-26.95	-13	-13.95	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-51.75	2.91	27.68	-26.98	-13	-13.98	Horizontal
3490.0	-46.95	2.91	27.68	-22.18	-13	-9.18	Vertical
5235.0	-50.17	5.26	35.86	-19.57	-13	-6.57	Vertical
5235.0	-53.17	5.26	35.86	-22.57	-13	-9.57	Horizontal
186.7	-43.44	1.61	16.85	-28.20	-13	-15.20	Vertical
247.2	-38.81	1.61	15.19	-25.23	-13	-12.23	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	-51.05	2.78	27.50	-26.33	-13	-13.33	Horizontal
1649.4	-46.90	2.78	27.50	-22.18	-13	-9.18	Vertical
2474.1	-53.38	2.90	27.80	-28.48	-13	-15.48	Vertical
2474.1	-52.16	2.90	27.80	-27.26	-13	-14.26	Horizontal
196.3	-35.36	1.76	17.59	-19.53	-13	-6.53	Vertical
295.1	-34.51	1.63	15.87	-20.27	-13	-7.27	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-46.54	2.80	27.48	-21.86	-13	-8.86	Horizontal
1673.0	-53.64	2.80	27.48	-28.96	-13	-15.96	Vertical
2509.5	-47.60	2.91	27.70	-22.81	-13	-9.81	Vertical
2509.5	-51.00	2.91	27.70	-26.21	-13	-13.21	Horizontal
188.7	-40.31	1.61	15.68	-26.24	-13	-13.24	Vertical
392.1	-40.02	1.59	17.52	-24.10	-13	-11.10	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-50.87	2.82	27.43	-26.26	-13	-13.26	Horizontal
1696.6	-50.81	2.82	27.43	-26.20	-13	-13.20	Vertical
2544.9	-47.99	2.92	27.74	-23.17	-13	-10.17	Vertical
2544.9	-52.15	2.92	27.74	-27.33	-13	-14.33	Horizontal
187.4	-43.34	1.69	16.67	-28.35	-13	-15.35	Vertical
461.8	-41.79	1.70	17.18	-26.31	-13	-13.31	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	-50.60	2.78	27.50	-25.88	-13	-12.88	Horizontal
1658.0	-48.30	2.78	27.50	-23.58	-13	-10.58	Vertical
2487.0	-46.49	2.90	27.80	-21.59	-13	-8.59	Vertical
2487.0	-50.41	2.90	27.80	-25.51	-13	-12.51	Horizontal
177.7	-36.65	1.71	15.57	-22.79	-13	-9.79	Vertical
417.8	-42.86	1.34	16.40	-27.80	-13	-14.80	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-45.70	2.80	27.48	-21.02	-13	-8.02	Horizontal
1673.0	-49.30	2.80	27.48	-24.62	-13	-11.62	Vertical
2509.5	-48.11	2.91	27.70	-23.32	-13	-10.32	Vertical
2509.5	-51.12	2.91	27.70	-26.33	-13	-13.33	Horizontal
202.6	-37.27	1.44	17.04	-21.67	-13	-8.67	Vertical
464.6	-40.56	1.76	17.62	-24.70	-13	-11.70	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.89	2.82	27.43	-20.28	-13	-7.28	Horizontal
1688.0	-51.76	2.82	27.43	-27.15	-13	-14.15	Vertical
2532.0	-53.82	2.92	27.74	-29.00	-13	-16.00	Vertical
2532.0	-49.54	2.92	27.74	-24.72	-13	-11.72	Horizontal
202.2	-38.42	1.74	17.70	-22.46	-13	-9.46	Vertical
241.1	-38.45	1.41	17.46	-22.39	-13	-9.39	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	-59.17	5.23	35.81	-28.59	-25	-3.59	Horizontal
5005.0	-61.20	5.23	35.81	-30.62	-25	-5.62	Vertical
7507.5	-63.29	5.67	36.85	-32.11	-25	-7.11	Vertical
7507.5	-64.11	5.67	36.85	-32.93	-25	-7.93	Horizontal
200.4	-54.67	1.73	17.97	-38.43	-25	-13.43	Vertical
392.8	-49.53	1.38	15.11	-35.80	-25	-10.80	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.89	5.23	35.82	-33.30	-25	-8.30	Horizontal
5070.0	-59.35	5.23	35.82	-28.76	-25	-3.76	Vertical
7605.0	-63.97	5.67	36.85	-32.79	-25	-7.79	Vertical
7605.0	-62.57	5.67	36.85	-31.39	-25	-6.39	Horizontal
199.8	-47.83	1.77	16.17	-33.42	-25	-8.42	Vertical
276.2	-45.77	1.63	15.21	-32.19	-25	-7.19	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-62.54	5.24	35.83	-31.95	-25	-6.95	Horizontal
5135.0	-60.31	5.24	35.83	-29.72	-25	-4.72	Vertical
7702.5	-60.11	5.68	36.87	-28.92	-25	-3.92	Vertical
7702.5	-61.37	5.68	36.87	-30.18	-25	-5.18	Horizontal
203.1	-49.59	1.58	17.56	-33.61	-25	-8.61	Vertical
436.0	-47.29	1.45	16.58	-32.16	-25	-7.16	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	-62.44	5.23	35.82	-31.85	-25	-6.85	Horizontal
5020.0	-64.60	5.23	35.82	-34.01	-25	-9.01	Vertical
7530.0	-61.89	5.67	36.86	-30.70	-25	-5.70	Vertical
7530.0	-61.91	5.67	36.86	-30.72	-25	-5.72	Horizontal
207.2	-47.88	1.63	15.76	-33.75	-25	-8.75	Vertical
436.1	-45.49	1.71	15.44	-31.76	-25	-6.76	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.19	5.23	35.82	-32.60	-25	-7.60	Horizontal
5070.0	-61.26	5.23	35.82	-30.67	-25	-5.67	Vertical
7605.0	-61.62	5.67	36.85	-30.44	-25	-5.44	Vertical
7605.0	-64.10	5.67	36.85	-32.92	-25	-7.92	Horizontal
185.0	-50.69	1.79	16.84	-35.63	-25	-10.63	Vertical
335.8	-45.35	1.71	17.64	-29.42	-25	-4.42	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.89	5.24	35.83	-30.30	-25	-5.30	Horizontal
5120.0	-59.28	5.24	35.83	-28.69	-25	-3.69	Vertical
7680.0	-60.71	5.70	36.88	-29.53	-25	-4.53	Vertical
7680.0	-63.59	5.70	36.88	-32.41	-25	-7.41	Horizontal
211.1	-48.88	1.79	16.84	-33.82	-25	-8.82	Vertical
238.9	-47.58	1.71	17.64	-31.65	-25	-6.65	Horizontal

9.5 LTE BAND 26

QPSK EIRP POWER FOR LTE BAND 26(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 814.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1629.4	-48.72	2.78	27.50	-24.00	-13	-11.00	Horizontal
1629.4	-45.90	2.78	27.50	-21.18	-13	-8.18	Vertical
2444.1	-49.44	2.90	27.80	-24.54	-13	-11.54	Vertical
2444.1	-46.27	2.90	27.80	-21.37	-13	-8.37	Horizontal
229.6	-33.68	1.54	16.98	-18.24	-13	-5.24	Vertical
83.3	-32.52	1.47	15.82	-18.17	-13	-5.17	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-49.58	2.80	27.48	-24.90	-13	-11.90	Horizontal
1638.0	-47.44	2.80	27.48	-22.76	-13	-9.76	Vertical
2457.0	-49.08	2.91	27.70	-24.29	-13	-11.29	Vertical
2457.0	-46.41	2.91	27.70	-21.62	-13	-8.62	Horizontal
168.2	-33.07	1.74	16.19	-18.62	-13	-5.62	Vertical
92.9	-32.68	1.46	15.43	-18.71	-13	-5.71	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-47.42	2.82	27.43	-22.81	-13	-9.81	Horizontal
1646.6	-45.51	2.82	27.43	-20.90	-13	-7.90	Vertical
2469.9	-46.25	2.92	27.74	-21.43	-13	-8.43	Vertical
2469.9	-49.73	2.92	27.74	-24.91	-13	-11.91	Horizontal
213.1	-32.04	1.67	17.05	-16.66	-13	-3.66	Vertical
121.7	-34.58	1.42	16.12	-19.88	-13	-6.88	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1638.0	-46.71	2.78	27.50	-21.99	-13	-8.99	Horizontal
1638.0	-41.88	2.78	27.50	-17.16	-13	-4.16	Vertical
2457.0	-49.23	2.90	27.80	-24.33	-13	-11.33	Vertical
2457.0	-47.97	2.90	27.80	-23.07	-13	-10.07	Horizontal
253.7	-34.80	1.43	17.34	-18.89	-13	-5.89	Vertical
256.8	-32.47	1.56	15.71	-18.32	-13	-5.32	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(824MHz~849MHz) (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	-48.35	2.78	27.50	-23.63	-13	-10.63	Horizontal
1649.4	-43.47	2.78	27.50	-18.75	-13	-5.75	Vertical
2474.1	-47.42	2.90	27.80	-22.52	-13	-9.52	Vertical
2474.1	-49.81	2.90	27.80	-24.91	-13	-11.91	Horizontal
237.0	-34.27	1.33	17.34	-18.26	-13	-5.26	Vertical
180.5	-33.21	1.47	16.80	-17.88	-13	-4.88	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-49.80	2.80	27.48	-25.12	-13	-12.12	Horizontal
1673.0	-44.92	2.80	27.48	-20.24	-13	-7.24	Vertical
2509.5	-47.55	2.91	27.70	-22.76	-13	-9.76	Vertical
2509.5	-48.16	2.91	27.70	-23.37	-13	-10.37	Horizontal
140.8	-32.17	1.75	15.46	-18.46	-13	-5.46	Vertical
90.6	-34.67	1.52	16.14	-20.05	-13	-7.05	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-49.43	2.82	27.43	-24.82	-13	-11.82	Horizontal
1696.6	-44.66	2.82	27.43	-20.05	-13	-7.05	Vertical
2544.9	-49.70	2.92	27.74	-24.88	-13	-11.88	Vertical
2544.9	-47.34	2.92	27.74	-22.52	-13	-9.52	Horizontal
171.4	-33.33	1.67	16.09	-18.91	-13	-5.91	Vertical
247.2	-34.32	1.80	17.55	-18.57	-13	-5.57	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(824MHz~849MHz) (15MHZ BANDWIDTH)

Test Results for Low Channel 831.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1663.0	-47.31	2.78	27.50	-22.59	-13	-9.59	Horizontal
1663.0	-43.78	2.78	27.50	-19.06	-13	-6.06	Vertical
2494.5	-47.34	2.90	27.80	-22.44	-13	-9.44	Vertical
2494.5	-48.45	2.90	27.80	-23.55	-13	-10.55	Horizontal
255.4	-32.67	1.52	15.72	-18.47	-13	-5.47	Vertical
163.1	-32.71	1.40	17.03	-17.08	-13	-4.08	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-47.39	2.80	27.48	-22.71	-13	-9.71	Horizontal
1673.0	-42.71	2.80	27.48	-18.03	-13	-5.03	Vertical
2509.5	-47.80	2.91	27.70	-23.01	-13	-10.01	Vertical
2509.5	-48.66	2.91	27.70	-23.87	-13	-10.87	Horizontal
227.1	-32.70	1.74	16.38	-18.06	-13	-5.06	Vertical
101.3	-32.75	1.79	15.20	-19.34	-13	-6.34	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-47.19	2.82	27.43	-22.58	-13	-9.58	Horizontal
1683.0	-49.17	2.82	27.43	-24.56	-13	-11.56	Vertical
2524.5	-46.05	2.92	27.74	-21.23	-13	-8.23	Vertical
2524.5	-47.66	2.92	27.74	-22.84	-13	-9.84	Horizontal
261.1	-34.57	1.78	17.44	-18.91	-13	-5.91	Vertical
120.1	-33.73	1.70	15.93	-19.50	-13	-6.50	Horizontal

9.6 LTE BAND 38

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

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145	-49.69	4.01	27.5	-26.20	-13	-13.20	Horizontal
5145	-53.57	4.01	27.5	-30.08	-13	-17.08	Vertical
7717.5	-53.93	5.09	27.8	-31.22	-13	-18.22	Vertical
7717.5	-52.64	5.09	27.8	-29.93	-13	-16.93	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-51.11	4.1	27.48	-27.73	-13	-14.73	Horizontal
5190	-53.98	4.1	27.48	-30.60	-13	-17.60	Vertical
7785	-51.76	5.42	27.7	-29.48	-13	-16.48	Vertical
7785	-50.75	5.42	27.7	-28.47	-13	-15.47	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-53.16	4.11	27.43	-29.84	-13	-16.84	Horizontal
5234	-50.03	4.11	27.43	-26.71	-13	-13.71	Vertical
7851	-53.25	5.31	27.74	-30.82	-13	-17.82	Vertical
7851	-53.81	5.31	27.74	-31.38	-13	-18.38	Horizontal

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

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-52.54	3.89	27.5	-28.93	-13	-15.93	Horizontal
5160	-49.28	3.89	27.5	-25.67	-13	-12.67	Vertical
7740	-51.97	5.33	27.8	-29.50	-13	-16.50	Vertical
7740	-52.57	5.33	27.8	-30.10	-13	-17.10	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-49.26	4.1	27.48	-25.88	-13	-12.88	Horizontal
5190	-54.40	4.1	27.48	-31.02	-13	-18.02	Vertical
7785	-51.67	5.42	27.7	-29.39	-13	-16.39	Vertical
7785	-51.40	5.42	27.7	-29.12	-13	-16.12	Horizontal
Test Results for High Channel 2610MHz							
5220	-51.43	4.01	27.43	-28.01	-13	-15.01	Horizontal
5220	-49.41	4.01	27.43	-25.99	-13	-12.99	Vertical
7830	-50.57	5.34	27.74	-28.17	-13	-15.17	Vertical
7830	-49.07	5.34	27.74	-26.67	-13	-13.67	Horizontal

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

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

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

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

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	-46.12	4.02	29.80	-20.34	-13	-7.34	Horizontal
3421.4	-54.69	4.02	29.80	-28.91	-13	-15.91	Vertical
5132.1	-51.53	5.24	35.84	-20.93	-13	-7.93	Vertical
5132.1	-52.88	5.24	35.84	-22.28	-13	-9.28	Horizontal
112.6	-53.11	1.52	15.57	-39.06	-13	-26.06	Vertical
220.5	-50.52	1.33	17.14	-34.71	-13	-21.71	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-45.64	4.03	30.00	-19.67	-13	-6.67	Horizontal
3490.0	-51.94	4.03	30.00	-25.97	-13	-12.97	Vertical
5235.0	-54.77	5.25	35.86	-24.16	-13	-11.16	Vertical
5235.0	-50.06	5.25	35.86	-19.45	-13	-6.45	Horizontal
157.3	-53.95	1.53	17.13	-38.35	-13	-25.35	Vertical
213.1	-53.44	1.41	15.95	-38.90	-13	-25.90	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-53.98	4.05	30.01	-28.02	-13	-15.02	Horizontal
3558.6	-50.60	4.05	30.01	-24.64	-13	-11.64	Vertical
5337.9	-49.06	5.26	35.86	-18.46	-13	-5.46	Vertical
5337.9	-53.34	5.26	35.86	-22.74	-13	-9.74	Horizontal
170.6	-46.05	1.44	15.51	-31.98	-13	-18.98	Vertical
169.0	-54.97	1.78	15.76	-40.99	-13	-27.99	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	-46.29	4.02	29.80	-20.51	-13	-7.51	Horizontal
3440.0	-47.77	4.02	29.80	-21.99	-13	-8.99	Vertical
5160.0	-51.23	5.24	35.84	-20.63	-13	-7.63	Vertical
5160.0	-47.74	5.24	35.84	-17.14	-13	-4.14	Horizontal
268.8	-46.77	1.62	17.02	-31.37	-13	-18.37	Vertical
161.4	-45.30	1.32	17.31	-29.31	-13	-16.31	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-50.01	4.03	30.00	-24.04	-13	-11.04	Horizontal
3490.0	-46.40	4.03	30.00	-20.43	-13	-7.43	Vertical
5235.0	-49.44	5.25	35.86	-18.83	-13	-5.83	Vertical
5235.0	-54.76	5.25	35.86	-24.15	-13	-11.15	Horizontal
159.9	-48.08	1.45	15.17	-34.36	-13	-21.36	Vertical
172.1	-50.29	1.48	17.82	-33.95	-13	-20.95	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-44.43	2.91	27.68	-19.66	-13	-6.66	Horizontal
3540.0	-54.79	2.91	27.68	-30.02	-13	-17.02	Vertical
5310.0	-51.45	5.26	35.86	-20.85	-13	-7.85	Vertical
5310.0	-52.13	5.26	35.86	-21.53	-13	-8.53	Horizontal
197.3	-51.97	1.76	16.38	-37.35	-13	-24.35	Vertical
158.5	-47.20	1.43	17.13	-31.50	-13	-18.50	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 3.4V, Normal, DC 3.8V 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 26
- LTE Band 38
- 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	12.9	0.006875	2.5
3.8	1880	13.9	0.007399	2.5
4.2	1880	13.8	0.007320	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	12.8	0.006791	2.5
Extreme (50C)	1880	11.3	0.005986	2.5
Extreme (40C)	1880	13.5	0.007170	2.5
Extreme (30C)	1880	13.3	0.007054	2.5
Extreme (10C)	1880	14.0	0.007472	2.5
Extreme (0C)	1880	12.3	0.006517	2.5
Extreme (-10C)	1880	13.2	0.007025	2.5
Extreme (-20C)	1880	13.7	0.007311	2.5
Extreme (-30C)	1880	15.0	0.007976	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	10.1	0.005347	2.5
3.8	1880	8.6	0.004552	2.5
4.2	1880	8.6	0.004555	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	9.4	0.005023	2.5
Extreme (50C)	1880	8.7	0.004618	2.5
Extreme (40C)	1880	8.5	0.004547	2.5
Extreme (30C)	1880	8.8	0.004680	2.5
Extreme (10C)	1880	9.3	0.004930	2.5
Extreme (0C)	1880	8.4	0.004457	2.5
Extreme (-10C)	1880	8.9	0.004718	2.5
Extreme (-20C)	1880	8.9	0.004750	2.5
Extreme (-30C)	1880	8.4	0.004477	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	9.3	0.005358	2.5
3.8	1732.5	9.1	0.005227	2.5
4.2	1732.5	8.3	0.004803	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	8.2	0.004758	2.5
Extreme (50C)	1732.5	9.3	0.005392	2.5
Extreme (40C)	1732.5	7.5	0.004346	2.5
Extreme (30C)	1732.5	5.6	0.003230	2.5
Extreme (10C)	1732.5	6.7	0.003848	2.5
Extreme (0C)	1732.5	9.0	0.005196	2.5
Extreme (-10C)	1732.5	8.3	0.004775	2.5
Extreme (-20C)	1732.5	6.5	0.003762	2.5
Extreme (-30C)	1732.5	8.4	0.004833	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	10.2	0.005876	2.5
3.8	1732.5	9.0	0.005172	2.5
4.2	1732.5	8.2	0.004714	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	10.2	0.005886	2.5
Extreme (50C)	1732.5	8.9	0.005160	2.5
Extreme (40C)	1732.5	8.5	0.004929	2.5
Extreme (30C)	1732.5	8.8	0.005104	2.5
Extreme (10C)	1732.5	8.6	0.004962	2.5
Extreme (0C)	1732.5	8.3	0.004779	2.5
Extreme (-10C)	1732.5	8.6	0.004959	2.5
Extreme (-20C)	1732.5	8.8	0.005089	2.5
Extreme (-30C)	1732.5	8.6	0.004948	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	6.2	0.007407	2.5
3.8	836.5	6.8	0.008121	2.5
4.2	836.5	4.8	0.005754	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	6.5	0.007820	2.5
Extreme (50C)	836.5	6.2	0.007378	2.5
Extreme (40C)	836.5	5.7	0.006771	2.5
Extreme (30C)	836.5	6.2	0.007372	2.5
Extreme (10C)	836.5	5.8	0.006926	2.5
Extreme (0C)	836.5	4.8	0.005781	2.5
Extreme (-10C)	836.5	5.9	0.007089	2.5
Extreme (-20C)	836.5	6.4	0.007652	2.5
Extreme (-30C)	836.5	6.7	0.008047	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	5.3	0.006381	2.5
3.8	836.5	6.2	0.007442	2.5
4.2	836.5	4.7	0.005571	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	6.5	0.007794	2.5
Extreme (50C)	836.5	5.5	0.006585	2.5
Extreme (40C)	836.5	5.7	0.006821	2.5
Extreme (30C)	836.5	6.6	0.007831	2.5
Extreme (10C)	836.5	5.9	0.007002	2.5
Extreme (0C)	836.5	5.3	0.006319	2.5
Extreme (-10C)	836.5	5.4	0.006491	2.5
Extreme (-20C)	836.5	6.3	0.007533	2.5
Extreme (-30C)	836.5	6.1	0.007241	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	9.9	0.003899	2.5
3.8	2535	9.2	0.003630	2.5
4.2	2535	8.8	0.003483	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	9.5	0.003759	2.5
Extreme (50C)	2535	8.9	0.003498	2.5
Extreme (40C)	2535	8.0	0.003173	2.5
Extreme (30C)	2535	8.8	0.003483	2.5
Extreme (10C)	2535	8.0	0.003140	2.5
Extreme (0C)	2535	8.6	0.003377	2.5
Extreme (-10C)	2535	8.9	0.003513	2.5
Extreme (-20C)	2535	9.1	0.003577	2.5
Extreme (-30C)	2535	8.1	0.003178	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	6.6	0.002584	2.5
3.8	2535	6.1	0.002425	2.5
4.2	2535	6.1	0.002414	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	7.1	0.002808	2.5
Extreme (50C)	2535	5.7	0.002242	2.5
Extreme (40C)	2535	5.4	0.002118	2.5
Extreme (30C)	2535	6.5	0.002546	2.5
Extreme (10C)	2535	5.7	0.002260	2.5
Extreme (0C)	2535	5.4	0.002142	2.5
Extreme (-10C)	2535	5.2	0.002034	2.5
Extreme (-20C)	2535	5.9	0.002336	2.5
Extreme (-30C)	2535	5.8	0.002298	2.5

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

10.5 LTE BAND 26

Band 26 A (814MHz~824MHz) QPSK,10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A QPSK, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	819	13.0	0.01582	2.5
3.8	819	13.8	0.01685	2.5
4.2	819	13.4	0.01634	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A QPSK, (CH 26740RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	819	7.2	0.00883	2.5
Extreme (50C)	819	-4.0	-0.00494	2.5
Extreme (40C)	819	5.4	0.00656	2.5
Extreme (30C)	819	-3.8	-0.00464	2.5
Extreme (10C)	819	6.3	0.00770	2.5
Extreme (0C)	819	4.5	0.00554	2.5
Extreme (-10C)	819	9.2	0.01125	2.5
Extreme (-20C)	819	10.8	0.01317	2.5
Extreme (-30C)	819	6.0	0.00732	2.5

Band 26A (814MHz~824MHz) 16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A 16QAM, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	819	8.9	0.01089	2.5
3.8	819	6.8	0.00834	2.5
4.2	819	5.9	0.00723	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A 16QAM, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	819	7.1	0.00873	2.5
Extreme (50C)	819	4.7	0.00568	2.5
Extreme (40C)	819	5.9	0.00718	2.5
Extreme (30C)	819	5.2	0.00631	2.5
Extreme (10C)	819	6.4	0.00778	2.5
Extreme (0C)	819	4.7	0.00572	2.5
Extreme (-10C)	819	9.5	0.01161	2.5
Extreme (-20C)	819	11.2	0.01371	2.5
Extreme (-30C)	819	6.4	0.00785	2.5

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

Band 26B ((824MHz~849MHz) QPSK,15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B QPSK, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
3.4	836.5	12.5	0.01498	2.5
3.8	836.5	14.3	0.01705	2.5
4.2	836.5	13.3	0.01592	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B QPSK, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
Normal (25C)	836.5	7.8	0.00930	2.5
Extreme (50C)	836.5	4.6	0.00552	2.5
Extreme (40C)	836.5	5.3	0.00636	2.5
Extreme (30C)	836.5	4.5	0.00537	2.5
Extreme (10C)	836.5	6.8	0.00814	2.5
Extreme (0C)	836.5	5.0	0.00594	2.5
Extreme (-10C)	836.5	9.6	0.01142	2.5
Extreme (-20C)	836.5	10.5	0.01256	2.5
Extreme (-30C)	836.5	6.1	0.00730	2.5

Band 26B (824MHz~849MHz) 16QAM, (15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B 16QAM, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
3.4	836.5	13.1	0.01566	2.5
3.8	836.5	13.4	0.01601	2.5
4.2	836.5	13.4	0.01598	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B 16QAM, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
Normal (25C)	836.5	7.1	0.00851	2.5
Extreme (50C)	836.5	4.6	0.00552	2.5
Extreme (40C)	836.5	5.7	0.00684	2.5
Extreme (30C)	836.5	4.9	0.00589	2.5
Extreme (10C)	836.5	6.2	0.00747	2.5
Extreme (0C)	836.5	4.4	0.00531	2.5
Extreme (-10C)	836.5	9.9	0.01179	2.5
Extreme (-20C)	836.5	10.3	0.01234	2.5
Extreme (-30C)	836.5	6.4	0.00771	2.5

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

10.6 LTE BAND 38

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 QPSK, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2595	8.6	0.00332	2.5
3.8	2595	6.5	0.00252	2.5
4.2	2595	7.7	0.00296	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 QPSK, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	7.0	0.00271	2.5
Extreme (50C)	2595	5.2	0.00199	2.5
Extreme (40C)	2595	5.8	0.00225	2.5
Extreme (30C)	2595	5.2	0.00200	2.5
Extreme (10C)	2595	6.3	0.00241	2.5
Extreme (0C)	2595	5.0	0.00192	2.5
Extreme (-10C)	2595	9.9	0.00380	2.5
Extreme (-20C)	2595	10.8	0.00417	2.5
Extreme (-30C)	2595	6.7	0.00257	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 16QAM, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2595	8.7	0.00335	2.5
3.8	2595	6.4	0.00247	2.5
4.2	2595	6.3	0.00244	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 38 16QAM, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	7.9	0.00303	2.5
Extreme (50C)	2595	4.3	0.00167	2.5
Extreme (40C)	2595	5.8	0.00223	2.5
Extreme (30C)	2595	4.5	0.00175	2.5
Extreme (10C)	2595	6.0	0.00232	2.5
Extreme (0C)	2595	4.5	0.00174	2.5
Extreme (-10C)	2595	9.6	0.00370	2.5
Extreme (-20C)	2595	10.4	0.00400	2.5
Extreme (-30C)	2595	6.1	0.00234	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	12.6	0.00721	2.5
3.8	1745	13.3	0.00764	2.5
4.2	1745	13.4	0.00766	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	7.1	0.00405	2.5
Extreme (50C)	1745	4.9	0.00281	2.5
Extreme (40C)	1745	5.5	0.00315	2.5
Extreme (30C)	1745	4.8	0.00278	2.5
Extreme (10C)	1745	6.3	0.00361	2.5
Extreme (0C)	1745	5.3	0.00304	2.5
Extreme (-10C)	1745	10.0	0.00572	2.5
Extreme (-20C)	1745	11.0	0.00632	2.5
Extreme (-30C)	1745	6.3	0.00360	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	12.7	0.00728	2.5
3.8	1745	13.8	0.00789	2.5
4.2	1745	13.0	0.00745	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	7.2	0.00413	2.5
Extreme (50C)	1745	4.3	0.00249	2.5
Extreme (40C)	1745	5.2	0.00298	2.5
Extreme (30C)	1745	4.9	0.00283	2.5
Extreme (10C)	1745	6.8	0.00392	2.5
Extreme (0C)	1745	4.7	0.00269	2.5
Extreme (-10C)	1745	9.3	0.00535	2.5
Extreme (-20C)	1745	10.7	0.00612	2.5
Extreme (-30C)	1745	5.8	0.00333	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.

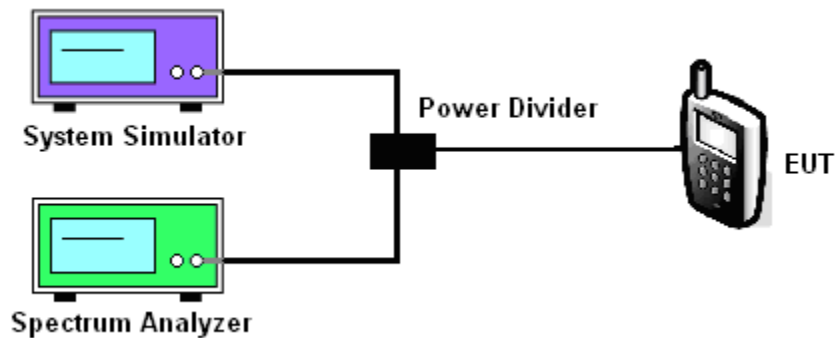
11.2 Measuring Instruments

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 2/4/5/7/26/38/66
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Test data reference attachment.

----END OF REPORT----