

FCC CFR47 PART 22H, 24E, 27, 90S CERTIFICATION TEST REPORT

FCC ID: ZSW-30-130

Product: Mobile Phone

Trade Mark: Bmobile

Model Number: ULTRA

Family Model: N/A

Report No.: S23070504201006

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 : ULTRA
Family Model: N/A
Test sample number S230705042001
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 06 Jul. 2023 ~ 26 Jul. 2023
Date of Issue 26 Jul. 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	ULTRA
Family Model	N/A
Model Difference	N/A
FCC ID:	ZSW-30-130
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2, 4, 5, 7, 12, 13, 17, 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 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 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:	0.8 dBi,
Power Supply:	DC 4.45V/5000mAh from battery or DC 5V from Adapter.
Adapter:	INPUT: AC 100-240V~50-60Hz 0.3A OUTPUT: DC 5.0V---2A
Extreme Vol. Limits:	DC 4.0V to DC 4.9V (Nominal DC 4.45V) (Note 1)

HW Version	Bmobile_ULTRA_HW_V1.0
SW Version	Bmobile_ULTRA_TIGO_LATAM_V001
** Note1: The High Voltage 4.9V and Low Voltage 4.0V 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-30-130** filing to comply with the FCC Part 22H&24E &27&90S.

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 12, Band 13, Band 17, 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.

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	ULTRA	FCC ID: ZSW-30-130	EUT

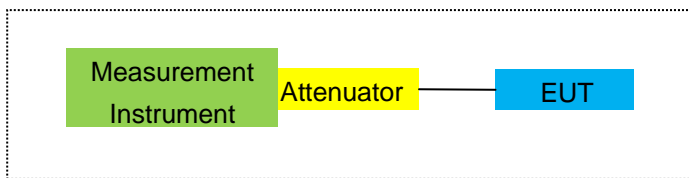
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

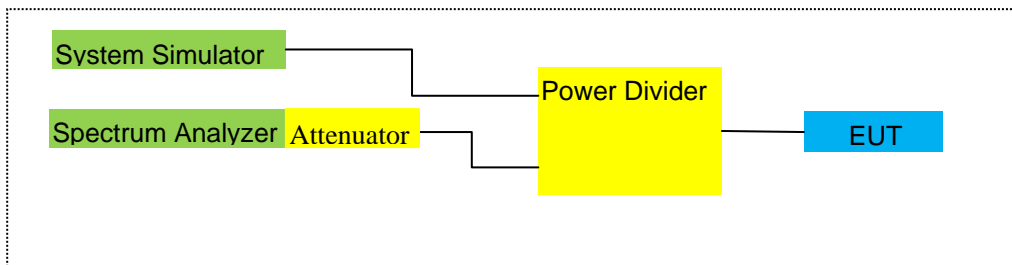
For Radiated Test Cases



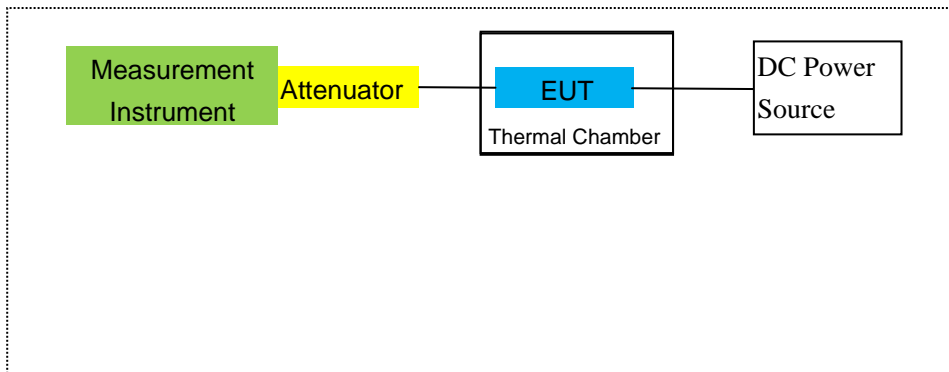
For Conducted Output Power



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	2023.05.29	2024.05.28	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	2023.05.06	2026.05.05	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2023.03.27	2024.03.26	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2023.05.29	2024.05.28	1 year
7	Amplifier	EM	EM-30180	060538	2023.05.29	2024.05.28	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	2023.05.29	2024.05.28	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	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	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	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	2023.05.29	2024.05.28	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	2023.05.06	2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2023.05.29	2024.05.28	1 year
29	Communication Tester	R&S	CMW500	148500	2023.05.29	2024.05.28	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 Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- 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 CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

Set display line

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

MODES TESTED

- LTE Band2/4/5/7/12/13/17/26/38/66

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 12
- LTE Band 13
- LTE Band 17

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 12
- LTE Band 13
- LTE Band 17
- 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	-2.58	3.76	28.24	21.90	154.882	Horizontal	Pass
		1880	-2.39	3.91	28.22	21.92	155.597	Horizontal	Pass
		1909.3	-2.30	3.93	28.20	21.97	157.398	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.64	3.77	28.23	21.82	152.055	Horizontal	Pass
		1880	-2.49	3.91	28.24	21.84	152.757	Horizontal	Pass
		1908.5	-2.36	3.94	28.25	21.95	156.675	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.53	3.77	28.31	22.01	158.855	Horizontal	Pass
		1880	-2.15	3.91	28.22	22.16	164.437	Horizontal	Pass
		1907.5	-2.08	3.94	28.20	22.18	165.196	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.39	3.79	28.33	22.15	164.059	Horizontal	Pass
		1880	-2.09	3.95	28.22	22.18	165.196	Horizontal	Pass
		1905	-1.98	3.97	28.19	22.24	167.494	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.35	3.79	28.34	22.20	165.959	Horizontal	Pass
		1880	-2.14	3.95	28.22	22.13	163.305	Horizontal	Pass
		1902.5	-2.00	3.97	28.18	22.21	166.341	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.34	3.81	28.35	22.20	165.959	Horizontal	Pass
		1880	-2.01	3.96	28.22	22.25	167.880	Horizontal	Pass
		1900	-1.95	4.00	28.16	22.21	166.341	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.70	3.76	28.24	20.78	119.674	Vertical	Pass
		1880	-3.43	3.91	28.22	20.88	122.462	Vertical	Pass
		1909.3	-3.40	3.93	28.20	20.87	122.180	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.32	3.77	28.23	21.14	130.017	Vertical	Pass
		1880	-2.82	3.91	28.24	21.51	141.579	Vertical	Pass
		1908.5	-3.24	3.94	28.25	21.07	127.938	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.45	3.77	28.31	21.09	128.529	Vertical	Pass
		1880	-3.27	3.91	28.22	21.04	127.057	Vertical	Pass
		1907.5	-2.76	3.94	28.20	21.50	141.254	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.80	3.79	28.33	20.74	118.577	Vertical	Pass
		1880	-3.25	3.95	28.22	21.02	126.474	Vertical	Pass
		1905	-2.98	3.97	28.19	21.24	133.045	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	-3.31	3.79	28.34	21.24	133.045	Vertical	Pass
		1880	-2.75	3.95	28.22	21.52	141.906	Vertical	Pass
		1902.5	-3.23	3.97	28.18	20.98	125.314	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.90	3.81	28.35	20.64	115.878	Vertical	Pass
		1880	-3.31	3.96	28.22	20.95	124.451	Vertical	Pass
		1900	-3.36	4.00	28.16	20.80	120.226	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.70	3.76	28.24	20.78	119.674	Horizontal	Pass
		1880	-3.17	3.91	28.22	21.14	130.017	Horizontal	Pass
		1909.3	-3.10	3.93	28.20	21.17	130.918	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.20	3.77	28.23	21.26	133.660	Horizontal	Pass
		1880	-3.28	3.91	28.24	21.05	127.350	Horizontal	Pass
		1908.5	-3.49	3.94	28.25	20.82	120.781	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.14	3.77	28.31	21.40	138.038	Horizontal	Pass
		1880	-3.05	3.91	28.22	21.26	133.660	Horizontal	Pass
		1907.5	-2.73	3.94	28.20	21.53	142.233	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.19	3.79	28.33	21.35	136.458	Horizontal	Pass
		1880	-3.18	3.95	28.22	21.09	128.529	Horizontal	Pass
		1905	-2.65	3.97	28.19	21.57	143.549	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.17	3.79	28.34	21.38	137.404	Horizontal	Pass
		1880	-2.96	3.95	28.22	21.31	135.207	Horizontal	Pass
		1902.5	-2.92	3.97	28.18	21.29	134.586	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.06	3.81	28.35	21.48	140.605	Horizontal	Pass
		1880	-2.76	3.96	28.22	21.50	141.254	Horizontal	Pass
		1900	-2.58	4.00	28.16	21.58	143.880	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.07	3.76	28.24	20.41	109.901	Vertical	Pass
		1880	-4.39	3.91	28.22	19.92	98.175	Vertical	Pass
		1909.3	-3.80	3.93	28.20	20.47	111.429	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.11	3.77	28.23	20.35	108.393	Vertical	Pass
		1880	-4.51	3.91	28.24	19.82	95.940	Vertical	Pass
		1908.5	-4.68	3.94	28.25	19.63	91.833	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.50	3.77	28.31	20.04	100.925	Vertical	Pass
		1880	-4.60	3.91	28.22	19.71	93.541	Vertical	Pass
		1907.5	-4.38	3.94	28.20	19.88	97.275	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.47	3.79	28.33	20.07	101.625	Vertical	Pass
		1880	-3.70	3.95	28.22	20.57	114.025	Vertical	Pass
		1905	-4.07	3.97	28.19	20.15	103.514	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.00	3.79	28.34	20.55	113.501	Vertical	Pass
		1880	-3.67	3.95	28.22	20.60	114.815	Vertical	Pass
		1902.5	-4.12	3.97	28.18	20.09	102.094	Vertical	Pass

20.0MHz		1860	-4.25	3.81	28.35	20.29	106.905	Vertical	Pass
Band 16	1/#Mid	1880	-3.85	3.96	28.22	20.41	109.901	Vertical	Pass
QAM		1900	-4.18	4.00	28.16	19.98	99.541	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 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	
			(dBm)			Average	Average	Of Max. ERP	
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.49	3.12	27.58	21.97	157.398	Horizontal	Pass
		1732.5	-2.48	3.27	27.61	21.86	153.462	Horizontal	Pass
		1754.3	-2.46	3.29	27.63	21.88	154.170	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.66	3.13	27.61	21.82	152.055	Horizontal	Pass
		1732.5	-2.58	3.27	27.61	21.76	149.968	Horizontal	Pass
		1753.5	-2.50	3.30	27.62	21.82	152.055	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.43	3.13	27.63	22.07	161.065	Horizontal	Pass
		1732.5	-2.33	3.27	27.61	22.01	158.855	Horizontal	Pass
		1752.5	-2.21	3.30	27.60	22.09	161.808	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.37	3.15	27.64	22.12	162.930	Horizontal	Pass
		1732.5	-2.14	3.31	27.61	22.16	164.437	Horizontal	Pass
		1750	-2.16	3.33	27.59	22.10	162.181	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.38	3.15	27.65	22.12	162.930	Horizontal	Pass
		1732.5	-2.22	3.31	27.61	22.08	161.436	Horizontal	Pass
		1747.5	-2.16	3.33	27.57	22.08	161.436	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.32	3.17	27.66	22.17	164.816	Horizontal	Pass
		1732.5	-2.15	3.32	27.61	22.14	163.682	Horizontal	Pass
		1745	-2.09	3.36	27.56	22.11	162.555	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.21	3.12	27.58	21.25	133.352	Vertical	Pass
		1732.5	-3.24	3.27	27.61	21.10	128.825	Vertical	Pass
		1754.3	-2.73	3.29	27.63	21.61	144.877	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.17	3.13	27.61	21.31	135.207	Vertical	Pass
		1732.5	-3.10	3.27	27.61	21.24	133.045	Vertical	Pass
		1753.5	-3.34	3.30	27.62	20.98	125.314	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.25	3.13	27.63	21.25	133.352	Vertical	Pass
		1732.5	-3.52	3.27	27.61	20.82	120.781	Vertical	Pass
		1752.5	-3.18	3.30	27.60	21.12	129.420	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.16	3.15	27.64	21.33	135.831	Vertical	Pass
		1732.5	-3.29	3.31	27.61	21.01	126.183	Vertical	Pass
		1750	-2.74	3.33	27.59	21.52	141.906	Vertical	Pass

15.0MHz		1717.5	-3.52	3.15	27.65	20.98	125.314	Vertical	Pass
Band	1/#Mid	1732.5	-2.80	3.31	27.61	21.50	141.254	Vertical	Pass
QPSK		1747.5	-2.86	3.33	27.57	21.38	137.404	Vertical	Pass
20.0MHz		1720	-3.14	3.17	27.66	21.35	136.458	Vertical	Pass
Band	1/#Mid	1732.5	-3.21	3.32	27.61	21.08	128.233	Vertical	Pass
QPSK		1745	-3.26	3.36	27.56	20.94	124.165	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	1/#Mid	1710.7	-3.30	3.12	27.58	21.16	130.617	Horizontal	Pass
Band 16		1732.5	-3.15	3.27	27.61	21.19	131.522	Horizontal	Pass
QAM		1754.3	-3.15	3.29	27.63	21.19	131.522	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.24	3.13	27.61	21.24	133.045	Horizontal	Pass
Band 16		1732.5	-3.37	3.27	27.61	20.97	125.026	Horizontal	Pass
QAM		1753.5	-3.59	3.30	27.62	20.73	118.304	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.07	3.13	27.63	21.43	138.995	Horizontal	Pass
Band 16		1732.5	-3.03	3.27	27.61	21.31	135.207	Horizontal	Pass
QAM		1752.5	-2.72	3.30	27.60	21.58	143.880	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.14	3.15	27.64	21.35	136.458	Horizontal	Pass
Band 16		1732.5	-3.33	3.31	27.61	20.97	125.026	Horizontal	Pass
QAM		1750	-2.71	3.33	27.59	21.55	142.889	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-2.94	3.15	27.65	21.56	143.219	Horizontal	Pass
Band 16		1732.5	-3.00	3.31	27.61	21.30	134.896	Horizontal	Pass
QAM		1747.5	-3.02	3.33	27.57	21.22	132.434	Horizontal	Pass
20.0MHz	1/#Mid	1720	-2.89	3.17	27.66	21.60	144.544	Horizontal	Pass
Band 16		1732.5	-2.90	3.32	27.61	21.39	137.721	Horizontal	Pass
QAM		1745	-2.71	3.36	27.56	21.49	140.929	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-4.26	3.12	27.58	20.20	104.713	Vertical	Pass
Band 16		1732.5	-4.54	3.27	27.61	19.80	95.499	Vertical	Pass
QAM		1754.3	-4.43	3.29	27.63	19.91	97.949	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-4.16	3.13	27.61	20.32	107.647	Vertical	Pass
Band 16		1732.5	-4.60	3.27	27.61	19.74	94.189	Vertical	Pass
QAM		1753.5	-4.58	3.30	27.62	19.74	94.189	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.64	3.13	27.63	19.86	96.828	Vertical	Pass
Band 16		1732.5	-3.84	3.27	27.61	20.50	112.202	Vertical	Pass
QAM		1752.5	-3.82	3.30	27.60	20.48	111.686	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.53	3.15	27.64	19.96	99.083	Vertical	Pass
Band 16		1732.5	-3.98	3.31	27.61	20.32	107.647	Vertical	Pass
QAM		1750	-4.05	3.33	27.59	20.21	104.954	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-4.26	3.15	27.65	20.24	105.682	Vertical	Pass
Band 16		1732.5	-3.87	3.31	27.61	20.43	110.408	Vertical	Pass
QAM		1747.5	-4.04	3.33	27.57	20.20	104.713	Vertical	Pass

20.0MHz		1720	-4.06	3.17	27.66	20.43	110.408	Vertical	Pass
Band 16	1/#Mid	1732.5	-4.16	3.32	27.61	20.13	103.039	Vertical	Pass
QAM		1745	-3.65	3.36	27.56	20.55	113.501	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							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 QPSK	3/#Mid	824.7	6.81	2.01	19.68	2.15	22.33	171.002	Horizontal	Pass
		836.5	6.69	2.01	19.77	2.15	22.30	169.824	Horizontal	Pass
		848.3	6.49	2.02	19.82	2.15	22.14	163.682	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.58	2.01	19.70	2.15	22.12	162.930	Horizontal	Pass
		836.5	6.48	2.01	19.77	2.15	22.09	161.808	Horizontal	Pass
		847.5	6.35	2.02	19.81	2.15	21.99	158.125	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.86	2.01	19.71	2.15	22.41	174.181	Horizontal	Pass
		836.5	6.74	2.01	19.77	2.15	22.35	171.791	Horizontal	Pass
		846.5	6.58	2.02	19.79	2.15	22.20	165.959	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	6.88	2.01	19.73	2.15	22.45	175.792	Horizontal	Pass
		836.5	6.83	2.01	19.77	2.15	22.44	175.388	Horizontal	Pass
		844	6.73	2.02	19.78	2.15	22.34	171.396	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	5.82	2.01	19.68	2.15	21.34	136.144	Vertical	Pass
		836.5	5.96	2.01	19.77	2.15	21.57	143.549	Vertical	Pass
		848.3	5.70	2.02	19.82	2.15	21.35	136.458	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.04	2.01	19.70	2.15	21.58	143.880	Vertical	Pass
		836.5	5.97	2.01	19.77	2.15	21.58	143.880	Vertical	Pass
		847.5	5.29	2.02	19.81	2.15	20.93	123.880	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.60	2.01	19.71	2.15	21.15	130.317	Vertical	Pass
		836.5	5.95	2.01	19.77	2.15	21.56	143.219	Vertical	Pass
		846.5	5.64	2.02	19.79	2.15	21.26	133.660	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.26	2.01	19.73	2.15	20.83	121.060	Vertical	Pass
		836.5	5.14	2.01	19.77	2.15	20.75	118.850	Vertical	Pass
		844	5.56	2.02	19.78	2.15	21.17	130.918	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	5.96	2.01	19.68	2.15	21.48	140.605	Horizontal	Pass
		836.5	5.89	2.01	19.77	2.15	21.50	141.254	Horizontal	Pass
		848.3	5.73	2.02	19.82	2.15	21.38	137.404	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	6.04	2.01	19.70	2.15	21.58	143.880	Horizontal	Pass
		836.5	5.75	2.01	19.77	2.15	21.36	136.773	Horizontal	Pass
		847.5	5.23	2.02	19.81	2.15	20.87	122.180	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.36	2.01	19.71	2.15	21.91	155.239	Horizontal	Pass
		836.5	6.13	2.01	19.77	2.15	21.74	149.279	Horizontal	Pass
		846.5	5.88	2.02	19.79	2.15	21.50	141.254	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.36	2.01	19.73	2.15	21.93	155.955	Horizontal	Pass
		836.5	6.08	2.01	19.77	2.15	21.69	147.571	Horizontal	Pass
		844	5.62	2.02	19.78	2.15	21.23	132.739	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	4.69	2.01	19.68	2.15	20.21	104.954	Vertical	Pass
		836.5	6.00	2.01	19.77	2.15	21.61	144.877	Vertical	Pass
		848.3	5.07	2.02	19.82	2.15	20.72	118.032	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.42	2.01	19.70	2.15	19.96	99.083	Vertical	Pass
		836.5	5.68	2.01	19.77	2.15	21.29	134.586	Vertical	Pass
		847.5	5.90	2.02	19.81	2.15	21.54	142.561	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.68	2.01	19.71	2.15	21.23	132.739	Vertical	Pass
		836.5	4.96	2.01	19.77	2.15	20.57	114.025	Vertical	Pass
		846.5	5.52	2.02	19.79	2.15	21.14	130.017	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.04	2.01	19.73	2.15	20.61	115.080	Vertical	Pass
		836.5	4.08	2.01	19.77	2.15	19.69	93.111	Vertical	Pass
		844	4.06	2.02	19.78	2.15	19.67	92.683	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7										
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP			
			(dBm)			Average	Average			
						(dBm)	(mW)			
5.0MHz Band QPSK	1/#Mid	2502.5	-0.77	4.54	27.75	22.44	175.388	Horizontal	Pass	
		2535	-0.60	4.69	27.72	22.43	174.985	Horizontal	Pass	
		2567.5	-0.53	4.71	27.71	22.47	176.604	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	2505	-0.70	4.55	27.76	22.51	178.238	Horizontal	Pass	
		2535	-0.51	4.69	27.72	22.52	178.649	Horizontal	Pass	
		2565	-0.43	4.72	27.70	22.55	179.887	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	-0.71	4.55	27.77	22.51	178.238	Horizontal	Pass	
		2535	-0.57	4.69	27.72	22.46	176.198	Horizontal	Pass	
		2562.5	-0.47	4.72	27.69	22.50	177.828	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	2510	-0.65	4.57	27.78	22.56	180.302	Horizontal	Pass	
		2535	-0.47	4.73	27.72	22.52	178.649	Horizontal	Pass	
		2560	-0.43	4.75	27.68	22.50	177.828	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	2502.5	-1.65	4.54	27.75	21.56	143.219	Vertical	Pass	
		2535	-2.39	4.69	27.72	20.64	115.878	Vertical	Pass	
		2567.5	-2.08	4.71	27.71	20.92	123.595	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	2505	-1.95	4.55	27.76	21.26	133.660	Vertical	Pass	
		2535	-1.60	4.69	27.72	21.43	138.995	Vertical	Pass	
		2565	-1.55	4.72	27.70	21.43	138.995	Vertical	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	-2.04	4.55	27.77	21.18	131.220	Vertical	Pass	
		2535	-2.06	4.69	27.72	20.97	125.026	Vertical	Pass	
		2562.5	-1.80	4.72	27.69	21.17	130.918	Vertical	Pass	
20.0MHz Band QPSK	1/#Mid	2510	-2.00	4.57	27.78	21.21	132.130	Vertical	Pass	
		2535	-2.24	4.73	27.72	20.75	118.850	Vertical	Pass	
		2560	-1.51	4.75	27.68	21.42	138.676	Vertical	Pass	

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.46	4.54	27.75	21.75	149.624	Horizontal	Pass
		2535	-1.15	4.69	27.72	21.88	154.170	Horizontal	Pass
		2567.5	-1.23	4.71	27.71	21.77	150.314	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.35	4.55	27.76	21.86	153.462	Horizontal	Pass
		2535	-1.36	4.69	27.72	21.67	146.893	Horizontal	Pass
		2565	-1.63	4.72	27.70	21.35	136.458	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.53	4.55	27.77	21.69	147.571	Horizontal	Pass
		2535	-1.50	4.69	27.72	21.53	142.233	Horizontal	Pass
		2562.5	-1.11	4.72	27.69	21.86	153.462	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-1.41	4.57	27.78	21.80	151.356	Horizontal	Pass
		2535	-1.08	4.73	27.72	21.91	155.239	Horizontal	Pass
		2560	-1.18	4.75	27.68	21.75	149.624	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.53	4.54	27.75	19.68	92.897	Vertical	Pass
		2535	-2.04	4.69	27.72	20.99	125.603	Vertical	Pass
		2567.5	-2.74	4.71	27.71	20.26	106.170	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.32	4.55	27.76	20.89	122.744	Vertical	Pass
		2535	-1.87	4.69	27.72	21.16	130.617	Vertical	Pass
		2565	-3.14	4.72	27.70	19.84	96.383	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.41	4.55	27.77	19.81	95.719	Vertical	Pass
		2535	-3.25	4.69	27.72	19.78	95.060	Vertical	Pass
		2562.5	-2.73	4.72	27.69	20.24	105.682	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.85	4.57	27.78	20.36	108.643	Vertical	Pass
		2535	-3.32	4.73	27.72	19.67	92.683	Vertical	Pass
		2560	-1.99	4.75	27.68	20.94	124.165	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 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	699.7	7.18	1.91	19.21	2.15	22.33	171.002	Vertical	Pass
		707.5	7.10	1.91	19.26	2.15	22.30	169.824	Vertical	Pass
		715.3	6.88	1.93	19.34	2.15	22.14	163.682	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.97	1.91	19.21	2.15	22.12	162.930	Vertical	Pass
		707.5	6.89	1.91	19.26	2.15	22.09	161.808	Vertical	Pass
		714.5	6.73	1.93	19.34	2.15	21.99	158.125	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.24	1.91	19.23	2.15	22.41	174.181	Vertical	Pass
		707.5	7.15	1.91	19.26	2.15	22.35	171.791	Vertical	Pass
		713.5	6.94	1.92	19.33	2.15	22.20	165.959	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	7.26	1.91	19.25	2.15	22.45	175.792	Vertical	Pass
		707.5	7.24	1.91	19.26	2.15	22.44	175.388	Vertical	Pass
		711	7.09	1.92	19.32	2.15	22.34	171.396	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	6.10	1.91	19.21	2.15	21.25	133.352	Horizontal	Pass
		707.5	6.19	1.91	19.26	2.15	21.39	137.721	Horizontal	Pass
		715.3	5.71	1.93	19.34	2.15	20.97	125.026	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	5.93	1.91	19.21	2.15	21.08	128.233	Horizontal	Pass
		707.5	6.31	1.91	19.26	2.15	21.51	141.579	Horizontal	Pass
		714.5	5.90	1.93	19.34	2.15	21.16	130.617	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.88	1.91	19.23	2.15	21.05	127.350	Horizontal	Pass
		707.5	6.12	1.91	19.26	2.15	21.32	135.519	Horizontal	Pass
		713.5	6.25	1.92	19.33	2.15	21.51	141.579	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	5.65	1.91	19.25	2.15	20.84	121.339	Horizontal	Pass
		707.5	6.38	1.91	19.26	2.15	21.58	143.880	Horizontal	Pass
		711	5.65	1.92	19.32	2.15	20.90	123.027	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	7.04	1.91	19.21	2.15	22.19	165.577	Vertical	Pass
		707.5	6.96	1.91	19.26	2.15	22.16	164.437	Vertical	Pass
		715.3	6.74	1.93	19.34	2.15	22.00	158.489	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.83	1.91	19.21	2.15	21.98	157.761	Vertical	Pass
		707.5	6.75	1.91	19.26	2.15	21.95	156.675	Vertical	Pass
		714.5	6.59	1.93	19.34	2.15	21.85	153.109	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.10	1.91	19.23	2.15	22.27	168.655	Vertical	Pass
		707.5	7.01	1.91	19.26	2.15	22.21	166.341	Vertical	Pass
		713.5	6.80	1.92	19.33	2.15	22.06	160.694	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.12	1.91	19.25	2.15	22.31	170.216	Vertical	Pass
		707.5	7.10	1.91	19.26	2.15	22.30	169.824	Vertical	Pass
		711	6.95	1.92	19.32	2.15	22.20	165.959	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	5.69	1.91	19.21	2.15	20.84	121.339	Horizontal	Pass
		707.5	6.02	1.91	19.26	2.15	21.22	132.434	Horizontal	Pass
		715.3	5.46	1.93	19.34	2.15	20.72	118.032	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.33	1.91	19.21	2.15	20.48	111.686	Horizontal	Pass
		707.5	6.24	1.91	19.26	2.15	21.44	139.316	Horizontal	Pass
		714.5	5.94	1.93	19.34	2.15	21.20	131.826	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.28	1.91	19.23	2.15	21.45	139.637	Horizontal	Pass
		707.5	5.57	1.91	19.26	2.15	20.77	119.399	Horizontal	Pass
		713.5	5.24	1.92	19.33	2.15	20.50	112.202	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	6.13	1.91	19.25	2.15	21.32	135.519	Horizontal	Pass
		707.5	5.84	1.91	19.26	2.15	21.04	127.057	Horizontal	Pass
		711	6.16	1.92	19.32	2.15	21.41	138.357	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
5.0MHz Band QPSK	25/0	779.5	6.67	1.91	19.23	2.15	21.84	152.76	Horizontal	Pass
		782	6.52	1.91	19.26	2.15	21.72	148.59	Horizontal	Pass
		784.5	5.82	1.92	19.33	2.15	21.08	128.23	Horizontal	Pass
10.0MHz Band QPSK	50/0	782	5.29	1.91	19.25	2.15	20.48	111.69	Horizontal	Pass
			6.82	1.91	19.26	2.15	22.02	159.22	Horizontal	Pass
			4.97	1.92	19.32	2.15	20.22	105.20	Horizontal	Pass
5.0MHz Band QPSK	25/0	779.5	5.27	1.91	19.23	2.15	20.44	110.66	Vertical	Pass
		782	5.44	1.91	19.26	2.15	20.64	115.88	Vertical	Pass
		784.5	5.65	1.92	19.33	2.15	20.91	123.31	Vertical	Pass
10.0MHz Band QPSK	50/0	782	5.81	1.91	19.25	2.15	21.00	125.89	Vertical	Pass
			5.01	1.91	19.26	2.15	20.21	104.95	Vertical	Pass
			5.26	1.92	19.32	2.15	20.51	112.46	Vertical	Pass

Radiated Power (ERP) for Band 13											
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)			
5.0MHz Band 16 QAM	25/0	779.5	6.82	1.91	19.23	2.15	21.99	158.12	Horizontal	Pass	
		782	5.15	1.91	19.26	2.15	20.35	108.39	Horizontal	Pass	
		784.5	5.20	1.92	19.33	2.15	20.46	111.17	Horizontal	Pass	
10.0MHz Band 16 QAM	50/0	782	5.49	1.91	19.25	2.15	20.68	116.95	Horizontal	Pass	
			6.81	1.91	19.26	2.15	22.01	158.85	Horizontal	Pass	
			5.44	1.92	19.32	2.15	20.69	117.22	Horizontal	Pass	
5.0MHz Band 16 QAM	25/0	779.5	5.64	1.91	19.23	2.15	20.81	120.50	Vertical	Pass	
		782	5.97	1.91	19.26	2.15	21.17	130.92	Vertical	Pass	
		784.5	5.26	1.92	19.33	2.15	20.52	112.72	Vertical	Pass	
10.0MHz Band 16 QAM	50/0	782	5.19	1.91	19.25	2.15	20.38	109.14	Vertical	Pass	
			5.65	1.91	19.26	2.15	20.85	121.62	Vertical	Pass	
			5.78	1.92	19.32	2.15	21.03	126.77	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 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)		Average	Average	Of Max. ERP	
							(dB)	(dBm)	(mW)	
5.0MHz Band QPSK	1/#Mid	706.5	7.50	1.91	19.23	2.15	22.67	184.927	Vertical	Pass
		710	7.36	1.91	19.26	2.15	22.56	180.302	Vertical	Pass
		713.5	7.26	1.92	19.33	2.15	22.52	178.649	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	7.51	1.91	19.25	2.15	22.70	186.209	Vertical	Pass
		710	7.46	1.91	19.26	2.15	22.66	184.502	Vertical	Pass
		711	7.42	1.92	19.32	2.15	22.67	184.927	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	6.77	1.91	19.23	2.15	21.94	156.315	Horizontal	Pass
		710	6.18	1.91	19.26	2.15	21.38	137.404	Horizontal	Pass
		713.5	5.86	1.92	19.33	2.15	21.12	129.420	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	7.01	1.91	19.25	2.15	22.20	165.959	Horizontal	Pass
		710	5.69	1.91	19.26	2.15	20.89	122.744	Horizontal	Pass
		711	7.21	1.92	19.32	2.15	22.46	176.198	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)		Average	Average		
							(dB)	(dBm)		
5.0MHz Band 16 QAM	1/#Mid	706.5	6.85	1.91	19.23	2.15	22.02	159.221	Vertical	Pass
		710	6.76	1.91	19.26	2.15	21.96	157.036	Vertical	Pass
		713.5	6.56	1.92	19.33	2.15	21.82	152.055	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.39	1.91	19.25	2.15	21.58	143.880	Vertical	Pass
		710	6.92	1.91	19.26	2.15	22.12	162.930	Vertical	Pass
		711	6.65	1.92	19.32	2.15	21.90	154.882	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	5.35	1.91	19.23	2.15	20.52	112.720	Horizontal	Pass
		710	5.67	1.91	19.26	2.15	20.87	122.180	Horizontal	Pass
		713.5	5.68	1.92	19.33	2.15	20.94	124.165	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	5.41	1.91	19.25	2.15	20.60	114.815	Horizontal	Pass
		710	5.86	1.91	19.26	2.15	21.06	127.644	Horizontal	Pass
		711	6.18	1.92	19.32	2.15	21.43	138.995	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.9 LTE BAND 26 A

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max.	Polarization	
			Level	Loss	Factor		EIRP	Of Max.		
			(dBm)	(dBm)	(dB)		Average	ERP		
			(dB)	Average						
						(dBm)	(mW)			
1.4MHz BW QPSK	6/0	814.7	-1.83	3.76	28.24	2.15	20.50	112.20	Horizontal	Pass
		819	-1.55	3.91	28.22	2.15	20.61	115.08	Horizontal	Pass
		823.3	-0.70	3.93	28.20	2.15	21.42	138.68	Horizontal	Pass
3.0MHz BW QPSK	15/0	815.5	-1.61	3.77	28.23	2.15	20.70	117.49	Horizontal	Pass
		819	-1.15	3.91	28.24	2.15	21.03	126.77	Horizontal	Pass
		822.5	-0.72	3.94	28.25	2.15	21.44	139.32	Horizontal	Pass
5.0MHz BW QPSK	25/0	816.5	-0.93	3.77	28.31	2.15	21.46	139.96	Horizontal	Pass
		819	-1.01	3.91	28.22	2.15	21.15	130.32	Horizontal	Pass
		821.5	-1.59	3.94	28.20	2.15	20.52	112.72	Horizontal	Pass
10.0MHz BW QPSK	50/0	819	-0.94	3.91	28.22	2.15	21.22	132.43	Horizontal	Pass
1.4MHz BW QPSK	6/0	814.7	-1.46	3.79	28.34	2.15	20.94	124.17	Vertical	Pass
		819	-0.68	3.95	28.22	2.15	21.44	139.32	Vertical	Pass
		823.3	-1.00	3.97	28.18	2.15	21.06	127.64	Vertical	Pass
3.0MHz BW QPSK	15/0	815.5	-1.07	3.77	28.23	2.15	21.24	133.05	Vertical	Pass
		819	-1.00	3.91	28.24	2.15	21.18	131.22	Vertical	Pass
		822.5	-1.27	3.94	28.25	2.15	20.89	122.74	Vertical	Pass
5.0MHz BW QPSK	25/0	816.5	-1.74	3.77	28.31	2.15	20.65	116.14	Vertical	Pass
		819	-1.01	3.91	28.22	2.15	21.15	130.32	Vertical	Pass
		821.5	-1.38	3.94	28.20	2.15	20.73	118.30	Vertical	Pass
10.0MHz BW QPSK	50/0	819	-0.08	3.91	28.22	2.15	22.08	161.44	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	-1.73	3.76	28.24	2.15	20.60	114.82	Horizontal	Pass
BW 16		819	-0.94	3.91	28.22	2.15	21.22	132.43	Horizontal	Pass
QAM		823.3	-0.95	3.93	28.20	2.15	21.17	130.92	Horizontal	Pass
3.0MHz	15/0	815.5	-0.94	3.77	28.23	2.15	21.37	137.09	Horizontal	Pass
BW 16		819	-1.35	3.91	28.24	2.15	20.83	121.06	Horizontal	Pass
QAM		822.5	-1.17	3.94	28.25	2.15	20.99	125.60	Horizontal	Pass
5.0MHz	25/0	816.5	-1.44	3.77	28.31	2.15	20.95	124.45	Horizontal	Pass
BW 16		819	-1.23	3.91	28.22	2.15	20.93	123.88	Horizontal	Pass
QAM		821.5	-1.13	3.94	28.20	2.15	20.98	125.31	Horizontal	Pass
10.0MHz	50/0	819	-1.11	3.91	28.24	2.15	21.07	127.94	Horizontal	Pass
1.4MHz	6/0	814.7	-1.00	3.79	28.34	2.15	21.40	138.04	Vertical	Pass
BW 16		819	-0.88	3.95	28.22	2.15	21.24	133.05	Vertical	Pass
QAM		823.3	-0.94	3.97	28.18	2.15	21.12	129.42	Vertical	Pass
3.0MHz	15/0	815.5	-0.79	3.77	28.23	2.15	21.52	141.91	Vertical	Pass
BW 16		819	-1.30	3.91	28.24	2.15	20.88	122.46	Vertical	Pass
QAM		822.5	-1.27	3.94	28.25	2.15	20.89	122.74	Vertical	Pass
5.0MHz	25/0	816.5	-1.35	3.77	28.31	2.15	21.04	127.06	Vertical	Pass
BW 16		819	-1.51	3.91	28.22	2.15	20.65	116.14	Vertical	Pass
QAM		821.5	-0.78	3.94	28.20	2.15	21.33	135.83	Vertical	Pass
10.0MHz	50/0	819	0.00	3.91	28.24	2.15	22.18	165.20	Vertical	Pass

8.10 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				
			(dBm)	(dBm)	(dB)	(dB)	Average	Average			
			(dBm)	(mW)							
1.4MHz Band QPSK	6/0	824.7	4.98	2.01	19.68	2.15	20.50	112.20	Horizontal	Pass	
		836.5	5.12	2.01	19.77	2.15	20.73	118.30	Horizontal	Pass	
		848.3	5.10	2.02	19.82	2.15	20.75	118.85	Horizontal	Pass	
3.0MHz Band QPSK	15/0	825.5	5.58	2.01	19.70	2.15	21.12	129.42	Horizontal	Pass	
		836.5	5.23	2.01	19.77	2.15	20.84	121.34	Horizontal	Pass	
		847.5	5.83	2.02	19.81	2.15	21.47	140.28	Horizontal	Pass	
5.0MHz Band QPSK	25/0	826.5	5.41	2.01	19.71	2.15	20.96	124.74	Horizontal	Pass	
		836.5	5.69	2.01	19.77	2.15	21.30	134.90	Horizontal	Pass	
		846.5	5.06	2.02	19.79	2.15	20.68	116.95	Horizontal	Pass	
10.0MHz Band QPSK	50/0	829	5.76	2.01	19.73	2.15	21.33	135.83	Horizontal	Pass	
		836.5	5.56	2.01	19.77	2.15	21.17	130.92	Horizontal	Pass	
		844	5.07	2.02	19.78	2.15	20.68	116.95	Horizontal	Pass	
15.0MHz Band QPSK	75/0	831.5	5.02	2.01	19.73	2.15	20.59	114.55	Horizontal	Pass	
		836.5	5.82	2.01	19.77	2.15	21.43	139.00	Horizontal	Pass	
		841.5	4.93	2.02	19.78	2.15	20.54	113.24	Horizontal	Pass	
1.4MHz Band QPSK	6/0	824.7	5.81	2.01	19.68	2.15	21.33	135.83	Vertical	Pass	
		836.5	5.20	2.01	19.77	2.15	20.81	120.50	Vertical	Pass	
		848.3	5.39	2.02	19.82	2.15	21.04	127.06	Vertical	Pass	
3.0MHz Band QPSK	15/0	825.5	5.80	2.01	19.70	2.15	21.34	136.14	Vertical	Pass	
		836.5	6.47	2.01	19.77	2.15	22.08	161.44	Vertical	Pass	
		847.5	4.86	2.02	19.81	2.15	20.50	112.20	Vertical	Pass	
5.0MHz Band QPSK	25/0	826.5	5.23	2.01	19.71	2.15	20.78	119.67	Vertical	Pass	
		836.5	5.51	2.01	19.77	2.15	21.12	129.42	Vertical	Pass	
		846.5	5.14	2.02	19.79	2.15	20.76	119.12	Vertical	Pass	
10.0MHz Band QPSK	50/0	829	5.44	2.01	19.73	2.15	21.01	126.18	Vertical	Pass	
		836.5	5.52	2.01	19.77	2.15	21.13	129.72	Vertical	Pass	
		844	5.23	2.02	19.78	2.15	20.84	121.34	Vertical	Pass	
15.0MHz Band QPSK	75/0	831.5	5.21	2.01	19.73	2.15	20.78	119.67	Vertical	Pass	
		836.5	5.48	2.01	19.77	2.15	21.09	128.53	Vertical	Pass	
		841.5	6.77	2.02	19.78	2.15	22.38	172.98	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 (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP			
			(dBm)				Average	Average			
							(dBm)	(mW)			
1.4MHz Band 16 QAM	6/0	824.7	4.92	2.01	19.68	2.15	20.44	110.66	Horizontal	Pass	
		836.5	5.56	2.01	19.77	2.15	21.17	130.92	Horizontal	Pass	
		848.3	5.06	2.02	19.82	2.15	20.71	117.76	Horizontal	Pass	
3.0MHz Band 16 QAM	15/0	825.5	5.78	2.01	19.70	2.15	21.32	135.52	Horizontal	Pass	
		836.5	5.49	2.01	19.77	2.15	21.10	128.82	Horizontal	Pass	
		847.5	4.96	2.02	19.81	2.15	20.60	114.82	Horizontal	Pass	
5.0MHz Band 16 QAM	25/0	826.5	5.31	2.01	19.71	2.15	20.86	121.90	Horizontal	Pass	
		836.5	5.24	2.01	19.77	2.15	20.85	121.62	Horizontal	Pass	
		846.5	5.00	2.02	19.79	2.15	20.62	115.35	Horizontal	Pass	
10.0MHz Band 16 QAM	50/0	829	4.92	2.01	19.73	2.15	20.49	111.94	Horizontal	Pass	
		836.5	5.66	2.01	19.77	2.15	21.27	133.97	Horizontal	Pass	
		844	5.74	2.02	19.78	2.15	21.35	136.46	Horizontal	Pass	
15.0MHz Band QPSK	75/0	831.5	5.69	2.01	19.73	2.15	21.26	133.66	Horizontal	Pass	
		836.5	4.87	2.01	19.77	2.15	20.48	111.69	Horizontal	Pass	
		841.5	5.72	2.02	19.78	2.15	21.33	135.83	Horizontal	Pass	
1.4MHz Band 16 QAM	6/0	824.7	5.28	2.01	19.68	2.15	20.80	120.23	Vertical	Pass	
		836.5	5.73	2.01	19.77	2.15	21.34	136.14	Vertical	Pass	
		848.3	4.80	2.02	19.82	2.15	20.45	110.92	Vertical	Pass	
3.0MHz Band 16 QAM	15/0	825.5	5.62	2.01	19.70	2.15	21.16	130.62	Vertical	Pass	
		836.5	6.41	2.01	19.77	2.15	22.02	159.22	Vertical	Pass	
		847.5	4.80	2.02	19.81	2.15	20.44	110.66	Vertical	Pass	
5.0MHz Band 16 QAM	25/0	826.5	4.94	2.01	19.71	2.15	20.49	111.94	Vertical	Pass	
		836.5	5.61	2.01	19.77	2.15	21.22	132.43	Vertical	Pass	
		846.5	5.74	2.02	19.79	2.15	21.36	136.77	Vertical	Pass	
10.0MHz Band 16 QAM	50/0	829	5.12	2.01	19.73	2.15	20.69	117.22	Vertical	Pass	
		836.5	4.90	2.01	19.77	2.15	20.51	112.46	Vertical	Pass	
		844	4.99	2.02	19.78	2.15	20.60	114.82	Vertical	Pass	

15.0MHz		831.5	5.80	2.01	19.73	2.15	21.37	137.09	Vertical	Pass
Band	75/0	836.5	5.00	2.01	19.77	2.15	20.61	115.08	Vertical	Pass
QPSK		841.5	6.61	2.02	19.78	2.15	22.22	166.72	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.11 LTE BAND 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Antenna	Max.	Max. EIRP	Polarization	
			Level	Loss	Gain	EIRP	Average	Of Max.	
			(dBm)	(dBm)	(dB)	Average	Average	ERP	
			(dBm)	(mW)					
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.50	112.202	Vertical	Pass
		2595	-2.64	4.88	27.71	20.52	112.720	Vertical	Pass
		2617.5	-2.58	4.93	27.95	20.71	117.761	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	21.25	133.352	Vertical	Pass
		2595	-2.47	4.95	27.81	21.18	131.220	Vertical	Pass
		2617.5	-2.59	5.03	27.69	21.19	131.522	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	21.09	128.529	Vertical	Pass
		2595	-2.6	5	27.65	20.71	117.761	Vertical	Pass
		2615	-2.67	4.87	27.89	21.35	136.458	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	21.11	129.122	Vertical	Pass
		2595	-2.38	4.87	27.87	21.05	127.350	Vertical	Pass
		2615	-2.56	4.94	27.77	21.16	130.617	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.56	113.763	Vertical	Pass
		2595	-2.32	4.87	27.84	21.07	127.938	Vertical	Pass
		2612.5	-2.52	4.92	27.93	21.25	133.352	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.98	125.314	Vertical	Pass
		2595	-2.53	4.98	27.82	20.63	115.611	Vertical	Pass
		2612.5	-2.6	4.95	27.83	21.31	135.207	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	21.08	128.233	Vertical	Pass
		2595	-2.37	4.79	27.83	20.64	115.878	Vertical	Pass
		2610	-2.68	4.89	27.87	20.74	118.577	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	20.53	112.980	Vertical	Pass
		2595	-2.88	4.91	27.71	20.85	121.619	Vertical	Pass
		2610	-2.81	4.96	27.92	21.44	139.316	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP		
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.76	119.124	Horizontal	Pass
		2595	-2.64	4.88	27.71	20.37	108.893	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	20.74	118.577	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	20.80	120.226	Horizontal	Pass
		2595	-2.47	4.95	27.81	20.97	125.026	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	20.53	112.980	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	20.89	122.744	Horizontal	Pass
		2595	-2.6	5	27.65	20.34	108.143	Horizontal	Pass
		2615	-2.67	4.87	27.89	20.74	118.577	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	21.20	131.826	Horizontal	Pass
		2595	-2.38	4.87	27.87	20.90	123.027	Horizontal	Pass
		2615	-2.56	4.94	27.77	21.01	126.183	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.66	116.413	Horizontal	Pass
		2595	-2.32	4.87	27.84	20.86	121.899	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	21.13	129.718	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.61	115.080	Horizontal	Pass
		2595	-2.53	4.98	27.82	20.58	114.288	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	20.85	121.619	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	21.01	126.183	Horizontal	Pass
		2595	-2.37	4.79	27.83	21.91	155.239	Horizontal	Pass
		2610	-2.68	4.89	27.87	21.10	128.825	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	20.97	125.026	Horizontal	Pass
		2595	-2.88	4.91	27.71	22.08	161.436	Horizontal	Pass
		2610	-2.81	4.96	27.92	20.42	110.154	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)

8.12 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	-2.48	3.76	28.24	22.00	158.489	Horizontal	Pass	
		1745	-2.34	3.91	28.22	21.97	157.398	Horizontal	Pass	
		1779.3	-2.21	3.93	28.2	22.06	160.694	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-2.54	3.77	28.23	21.92	155.597	Horizontal	Pass	
		1745	-2.45	3.91	28.24	21.88	154.170	Horizontal	Pass	
		1778.5	-2.47	3.94	28.25	21.84	152.757	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-2.44	3.77	28.31	22.10	162.181	Horizontal	Pass	
		1745	-2.12	3.91	28.22	22.19	165.577	Horizontal	Pass	
		1777.5	-2.18	3.94	28.2	22.08	161.436	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-2.33	3.79	28.33	22.21	166.341	Horizontal	Pass	
		1745	-2.06	3.95	28.22	22.21	166.341	Horizontal	Pass	
		1775	-2.07	3.97	28.19	22.15	164.059	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1717.5	-2.35	3.79	28.34	22.20	165.959	Horizontal	Pass	
		1745	-2.16	3.95	28.22	22.11	162.555	Horizontal	Pass	
		1772.5	-2.11	3.97	28.18	22.10	162.181	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1720	-2.32	3.81	28.35	22.22	166.725	Horizontal	Pass	
		1745	-2.06	3.96	28.22	22.20	165.959	Horizontal	Pass	
		1770	-2.08	4	28.16	22.08	161.436	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1710.7	-3.66	3.76	28.24	20.82	120.781	Vertical	Pass	
		1745	-3.40	3.91	28.22	20.91	123.310	Vertical	Pass	
		1779.3	-3.62	3.93	28.2	20.65	116.145	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-3.47	3.77	28.23	20.99	125.603	Vertical	Pass	
		1745	-3.18	3.91	28.24	21.15	130.317	Vertical	Pass	
		1778.5	-2.95	3.94	28.25	21.36	136.773	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-3.36	3.77	28.31	21.18	131.220	Vertical	Pass	
		1745	-3.28	3.91	28.22	21.03	126.765	Vertical	Pass	
		1777.5	-3.26	3.94	28.2	21.00	125.893	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-3.66	3.79	28.34	20.89	122.744	Vertical	Pass	
		1745	-3.11	3.95	28.22	21.16	130.617	Vertical	Pass	
		1775	-2.97	3.97	28.18	21.24	133.045	Vertical	Pass	

15.0MHz		1717.5	-3.32	3.81	28.35	21.22	132.434	Vertical	Pass
Band	1/#Mid	1745	-3.28	3.96	28.22	20.98	125.314	Vertical	Pass
QPSK		1772.5	-2.95	4	28.16	21.21	132.130	Vertical	Pass
20.0MHz		1720	-3.89	3.79	28.34	20.66	116.413	Vertical	Pass
Band	1/#Mid	1745	-3.01	3.95	28.22	21.26	133.660	Vertical	Pass
QPSK		1770	-3.16	3.97	28.18	21.05	127.350	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz	1/#Mid	1710.7	-3.31	3.76	28.24	21.17	130.918	Horizontal	Pass
Band 16		1745	-2.92	3.91	28.22	21.39	137.721	Horizontal	Pass
QAM		1779.3	-3.10	3.93	28.2	21.17	130.918	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.70	3.77	28.23	20.76	119.124	Horizontal	Pass
Band 16		1745	-2.95	3.91	28.24	21.38	137.404	Horizontal	Pass
QAM		1778.5	-3.24	3.94	28.25	21.07	127.938	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.12	3.77	28.31	21.42	138.676	Horizontal	Pass
Band 16		1745	-3.18	3.91	28.22	21.13	129.718	Horizontal	Pass
QAM		1777.5	-2.85	3.94	28.2	21.41	138.357	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.17	3.79	28.33	21.37	137.088	Horizontal	Pass
Band 16		1745	-2.83	3.95	28.22	21.44	139.316	Horizontal	Pass
QAM		1775	-3.15	3.97	28.19	21.07	127.938	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-3.16	3.79	28.34	21.39	137.721	Horizontal	Pass
Band 16		1745	-2.98	3.95	28.22	21.29	134.586	Horizontal	Pass
QAM		1772.5	-2.77	3.97	28.18	21.44	139.316	Horizontal	Pass
20.0MHz	1/#Mid	1720	-2.99	3.81	28.35	21.55	142.889	Horizontal	Pass
Band 16		1745	-2.77	3.96	28.22	21.49	140.929	Horizontal	Pass
QAM		1770	-2.71	4	28.16	21.45	139.637	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-4.98	3.76	28.24	19.50	89.125	Vertical	Pass
Band 16		1745	-4.24	3.91	28.22	20.07	101.625	Vertical	Pass
QAM		1779.3	-3.92	3.93	28.2	20.35	108.393	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-3.04	3.77	28.23	21.42	138.676	Vertical	Pass
Band 16		1745	-3.30	3.91	28.24	21.03	126.765	Vertical	Pass
QAM		1778.5	-4.42	3.94	28.25	19.89	97.499	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-3.38	3.77	28.31	21.16	130.617	Vertical	Pass
Band 16		1745	-4.49	3.91	28.22	19.82	95.940	Vertical	Pass
QAM		1777.5	-3.54	3.94	28.2	20.72	118.032	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.70	3.79	28.34	19.85	96.605	Vertical	Pass
Band 16		1745	-3.12	3.95	28.22	21.15	130.317	Vertical	Pass
QAM		1775	-3.89	3.97	28.18	20.32	107.647	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-4.59	3.81	28.35	19.95	98.855	Vertical	Pass
Band 16		1745	-3.71	3.96	28.22	20.55	113.501	Vertical	Pass

QAM		1772.5	-3.31	4	28.16	20.85	121.619	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.19	3.79	28.34	20.36	108.643	Vertical	Pass
Band 16		1745	-4.20	3.95	28.22	20.07	101.625	Vertical	Pass
QAM		1770	-3.32	3.97	28.18	20.89	122.744	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 12
- LTE Band 13
- LTE Band 17
- 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	-46.08	4.04	33.51	-16.61	-13	-3.61	Horizontal
3701.4	-48.11	4.04	33.51	-18.64	-13	-5.64	Vertical
5552.1	-47.79	5.24	35.84	-17.19	-13	-4.19	Vertical
5552.1	-52.92	5.24	35.84	-22.32	-13	-9.32	Horizontal
184.0	-37.33	1.43	16.02	-22.74	-13	-9.74	Vertical
368.6	-34.00	1.30	17.99	-17.31	-13	-4.31	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-50.02	4.04	33.56	-20.50	-13	-7.50	Horizontal
3760.0	-45.61	4.04	33.56	-16.09	-13	-3.09	Vertical
5640.0	-51.57	5.24	35.91	-20.90	-13	-7.90	Vertical
5640.0	-52.02	5.24	35.91	-21.35	-13	-8.35	Horizontal
192.2	-40.71	1.62	16.97	-25.36	-13	-12.36	Vertical
400.2	-38.60	1.74	15.98	-24.37	-13	-11.37	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-46.94	4.04	34.00	-16.98	-13	-3.98	Horizontal
3818.6	-48.40	4.04	34.00	-18.44	-13	-5.44	Vertical
5727.9	-52.15	5.24	36.04	-21.35	-13	-8.35	Vertical
5727.9	-52.07	5.24	36.04	-21.27	-13	-8.27	Horizontal
201.5	-39.88	1.42	17.29	-24.01	-13	-11.01	Vertical
274.6	-44.46	1.50	17.90	-28.05	-13	-15.05	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	-51.30	4.07	33.54	-21.83	-13	-8.83	Horizontal
3720.0	-45.76	4.07	33.54	-16.29	-13	-3.29	Vertical
5580.0	-50.71	5.28	35.86	-20.13	-13	-7.13	Vertical
5580.0	-51.14	5.28	35.86	-20.56	-13	-7.56	Horizontal
175.2	-43.20	1.58	16.89	-27.88	-13	-14.88	Vertical
462.3	-43.87	1.76	17.26	-28.37	-13	-15.37	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.81	4.04	33.56	-18.29	-13	-5.29	Horizontal
3760.0	-45.92	4.04	33.56	-16.40	-13	-3.40	Vertical
5640.0	-51.38	5.24	35.91	-20.71	-13	-7.71	Vertical
5640.0	-53.66	5.24	35.91	-22.99	-13	-9.99	Horizontal
182.7	-37.52	1.46	16.27	-22.71	-13	-9.71	Vertical
312.1	-38.52	1.59	15.15	-24.96	-13	-11.96	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-48.21	4.04	34.00	-18.25	-13	-5.25	Horizontal
3800.0	-51.95	4.04	34.00	-21.99	-13	-8.99	Vertical
5700.0	-51.45	5.24	36.04	-20.65	-13	-7.65	Vertical
5700.0	-51.40	5.24	36.04	-20.60	-13	-7.60	Horizontal
195.4	-36.40	1.36	17.39	-20.36	-13	-7.36	Vertical
433.2	-37.45	1.66	15.39	-23.72	-13	-10.72	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	-50.94	4.02	29.80	-25.16	-13	-12.16	Horizontal
3421.4	-51.90	4.02	29.80	-26.12	-13	-13.12	Vertical
5132.1	-50.94	5.24	35.84	-20.34	-13	-7.34	Vertical
5132.1	-49.92	5.24	35.84	-19.32	-13	-6.32	Horizontal
181.7	-38.88	1.68	16.04	-24.52	-13	-11.52	Vertical
387.2	-34.06	1.78	17.74	-18.10	-13	-5.10	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-47.59	4.03	30.00	-21.62	-13	-8.62	Horizontal
3465.0	-44.78	4.03	30.00	-18.81	-13	-5.81	Vertical
5197.5	-52.12	5.25	35.86	-21.51	-13	-8.51	Vertical
5197.5	-53.43	5.25	35.86	-22.82	-13	-9.82	Horizontal
175.1	-41.46	1.72	17.69	-25.49	-13	-12.49	Vertical
398.8	-44.89	1.62	16.02	-30.48	-13	-17.48	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-50.59	4.05	30.01	-24.63	-13	-11.63	Horizontal
3508.6	-46.60	4.05	30.01	-20.64	-13	-7.64	Vertical
5262.9	-53.10	5.26	35.86	-22.50	-13	-9.50	Vertical
5262.9	-52.88	5.26	35.86	-22.28	-13	-9.28	Horizontal
204.2	-39.57	1.80	16.69	-24.68	-13	-11.68	Vertical
328.0	-38.43	1.75	16.66	-23.53	-13	-10.53	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-50.76	4.02	29.80	-24.98	-13	-11.98	Horizontal
3440.0	-47.45	4.02	29.80	-21.67	-13	-8.67	Vertical
5160.0	-53.89	5.24	35.84	-23.29	-13	-10.29	Vertical
5160.0	-53.54	5.24	35.84	-22.94	-13	-9.94	Horizontal
193.7	-41.60	1.57	17.26	-25.91	-13	-12.91	Vertical
302.3	-35.42	1.78	16.35	-20.85	-13	-7.85	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.54	4.03	30.00	-20.57	-13	-7.57	Horizontal
3465.0	-53.96	4.03	30.00	-27.99	-13	-14.99	Vertical
5197.5	-51.66	5.25	35.86	-21.05	-13	-8.05	Vertical
5197.5	-52.55	5.25	35.86	-21.94	-13	-8.94	Horizontal
211.8	-34.30	1.44	17.95	-17.79	-13	-4.79	Vertical
374.9	-35.87	1.65	16.09	-21.43	-13	-8.43	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-44.66	2.91	27.68	-19.89	-13	-6.89	Horizontal
3490.0	-50.76	2.91	27.68	-25.99	-13	-12.99	Vertical
5235.0	-47.81	5.26	35.86	-17.21	-13	-4.21	Vertical
5235.0	-52.14	5.26	35.86	-21.54	-13	-8.54	Horizontal
177.1	-41.44	1.61	16.85	-26.20	-13	-13.20	Vertical
413.2	-36.09	1.61	15.19	-22.51	-13	-9.51	Horizontal

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-47.30	2.78	27.50	-22.58	-13	-9.58	Horizontal
1649.4	-44.97	2.78	27.50	-20.25	-13	-7.25	Vertical
2474.1	-51.37	2.90	27.80	-26.47	-13	-13.47	Vertical
2474.1	-49.76	2.90	27.80	-24.86	-13	-11.86	Horizontal
189.8	-35.48	1.76	17.59	-19.65	-13	-6.65	Vertical
257.7	-37.06	1.63	15.87	-22.82	-13	-9.82	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-47.87	2.80	27.48	-23.19	-13	-10.19	Horizontal
1673.0	-52.55	2.80	27.48	-27.87	-13	-14.87	Vertical
2509.5	-51.83	2.91	27.70	-27.04	-13	-14.04	Vertical
2509.5	-53.40	2.91	27.70	-28.61	-13	-15.61	Horizontal
193.2	-37.17	1.61	15.68	-23.10	-13	-10.10	Vertical
256.5	-43.09	1.59	17.52	-27.17	-13	-14.17	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-46.04	2.82	27.43	-21.43	-13	-8.43	Horizontal
1696.6	-49.17	2.82	27.43	-24.56	-13	-11.56	Vertical
2544.9	-45.86	2.92	27.74	-21.04	-13	-8.04	Vertical
2544.9	-49.30	2.92	27.74	-24.48	-13	-11.48	Horizontal
188.6	-43.26	1.69	16.67	-28.27	-13	-15.27	Vertical
319.4	-36.94	1.70	17.18	-21.46	-13	-8.46	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	-44.58	2.78	27.50	-19.86	-13	-6.86	Horizontal
1658.0	-44.25	2.78	27.50	-19.53	-13	-6.53	Vertical
2487.0	-46.30	2.90	27.80	-21.40	-13	-8.40	Vertical
2487.0	-53.90	2.90	27.80	-29.00	-13	-16.00	Horizontal
207.7	-39.02	1.71	15.57	-25.16	-13	-12.16	Vertical
359.6	-36.68	1.34	16.40	-21.62	-13	-8.62	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-47.21	2.80	27.48	-22.53	-13	-9.53	Horizontal
1673.0	-52.69	2.80	27.48	-28.01	-13	-15.01	Vertical
2509.5	-52.08	2.91	27.70	-27.29	-13	-14.29	Vertical
2509.5	-50.38	2.91	27.70	-25.59	-13	-12.59	Horizontal
196.4	-35.51	1.44	17.04	-19.91	-13	-6.91	Vertical
299.0	-35.05	1.76	17.62	-19.19	-13	-6.19	Horizontal
Test Results for High Channel 844MHz							
1688.0	-53.86	2.82	27.43	-29.25	-13	-16.25	Horizontal
1688.0	-53.04	2.82	27.43	-28.43	-13	-15.43	Vertical
2532.0	-47.10	2.92	27.74	-22.28	-13	-9.28	Vertical
2532.0	-53.48	2.92	27.74	-28.66	-13	-15.66	Horizontal
175.8	-37.47	1.74	17.70	-21.51	-13	-8.51	Vertical
468.4	-34.56	1.41	17.46	-18.50	-13	-5.50	Horizontal

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-63.32	5.23	35.81	-32.74	-25	-7.74	Horizontal
5005.0	-62.44	5.23	35.81	-31.86	-25	-6.86	Vertical
7507.5	-62.08	5.67	36.85	-30.90	-25	-5.90	Vertical
7507.5	-62.11	5.67	36.85	-30.93	-25	-5.93	Horizontal
212.9	-51.84	1.73	17.97	-35.60	-25	-10.60	Vertical
343.1	-47.65	1.38	15.11	-33.92	-25	-8.92	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.50	5.23	35.82	-30.91	-25	-5.91	Horizontal
5070.0	-62.87	5.23	35.82	-32.28	-25	-7.28	Vertical
7605.0	-59.88	5.67	36.85	-28.70	-25	-3.70	Vertical
7605.0	-62.65	5.67	36.85	-31.47	-25	-6.47	Horizontal
201.3	-51.83	1.77	16.17	-37.42	-25	-12.42	Vertical
300.9	-53.38	1.63	15.21	-39.80	-25	-14.80	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-59.07	5.24	35.83	-28.48	-25	-3.48	Horizontal
5135.0	-63.90	5.24	35.83	-33.31	-25	-8.31	Vertical
7702.5	-61.12	5.68	36.87	-29.93	-25	-4.93	Vertical
7702.5	-62.63	5.68	36.87	-31.44	-25	-6.44	Horizontal
204.7	-50.00	1.58	17.56	-34.02	-25	-9.02	Vertical
343.9	-53.42	1.45	16.58	-38.29	-25	-13.29	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	-62.68	5.23	35.82	-32.09	-25	-7.09	Horizontal
5020.0	-64.84	5.23	35.82	-34.25	-25	-9.25	Vertical
7530.0	-63.91	5.67	36.86	-32.72	-25	-7.72	Vertical
7530.0	-62.35	5.67	36.86	-31.16	-25	-6.16	Horizontal
203.9	-50.75	1.63	15.76	-36.62	-25	-11.62	Vertical
352.5	-47.60	1.71	15.44	-33.87	-25	-8.87	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-64.24	5.23	35.82	-33.65	-25	-8.65	Horizontal
5070.0	-61.80	5.23	35.82	-31.21	-25	-6.21	Vertical
7605.0	-60.52	5.67	36.85	-29.34	-25	-4.34	Vertical
7605.0	-59.46	5.67	36.85	-28.28	-25	-3.28	Horizontal
197.2	-45.11	1.79	16.84	-30.05	-25	-5.05	Vertical
392.2	-45.22	1.71	17.64	-29.29	-25	-4.29	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.14	5.24	35.83	-30.55	-25	-5.55	Horizontal
5120.0	-61.20	5.24	35.83	-30.61	-25	-5.61	Vertical
7680.0	-61.17	5.70	36.88	-29.99	-25	-4.99	Vertical
7680.0	-62.34	5.70	36.88	-31.16	-25	-6.16	Horizontal
179.9	-45.18	1.79	16.84	-30.12	-25	-5.12	Vertical
269.3	-47.93	1.71	17.64	-32.00	-25	-7.00	Horizontal

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-52.98	2.60	27.20	-28.38	-13	-15.38	Horizontal
1399.4	-44.15	2.60	27.20	-19.55	-13	-6.55	Vertical
2099.1	-51.42	2.85	27.54	-26.73	-13	-13.73	Vertical
2099.1	-49.04	2.85	27.54	-24.35	-13	-11.35	Horizontal
212.8	-39.61	1.49	17.78	-23.32	-13	-10.32	Vertical
410.3	-37.89	1.36	17.33	-21.92	-13	-8.92	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-51.58	2.61	27.28	-26.91	-13	-13.91	Horizontal
1415.0	-46.99	2.61	27.28	-22.32	-13	-9.32	Vertical
2122.5	-48.76	2.87	27.59	-24.04	-13	-11.04	Vertical
2122.5	-52.39	2.87	27.59	-27.67	-13	-14.67	Horizontal
204.8	-38.54	1.73	15.74	-24.53	-13	-11.53	Vertical
281.8	-35.76	1.62	15.79	-21.59	-13	-8.59	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-47.47	2.63	27.28	-22.82	-13	-9.82	Horizontal
1430.6	-48.28	2.63	27.28	-23.63	-13	-10.63	Vertical
2145.9	-47.85	2.88	27.60	-23.13	-13	-10.13	Vertical
2145.9	-52.81	2.88	27.60	-28.09	-13	-15.09	Horizontal
187.4	-35.10	1.61	18.00	-18.71	-13	-5.71	Vertical
425.6	-43.90	1.45	15.49	-29.87	-13	-16.87	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-45.87	2.61	27.26	-21.22	-13	-8.22	Horizontal
1408.0	-48.90	2.61	27.26	-24.25	-13	-11.25	Vertical
2112.0	-48.93	2.87	27.58	-24.22	-13	-11.22	Vertical
2112.0	-50.27	2.87	27.58	-25.56	-13	-12.56	Horizontal
205.4	-43.74	1.31	16.97	-28.08	-13	-15.08	Vertical
292.1	-43.62	1.65	16.70	-28.57	-13	-15.57	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-45.77	2.61	27.28	-21.10	-13	-8.10	Horizontal
1415.0	-53.47	2.61	27.28	-28.80	-13	-15.80	Vertical
2122.5	-49.68	2.87	27.59	-24.96	-13	-11.96	Vertical
2122.5	-49.34	2.87	27.59	-24.62	-13	-11.62	Horizontal
194.4	-34.03	1.72	17.99	-17.76	-13	-4.76	Vertical
375.7	-37.17	1.73	17.94	-20.96	-13	-7.96	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.66	2.62	27.28	-23.00	-13	-10.00	Horizontal
1422.0	-52.15	2.62	27.28	-27.49	-13	-14.49	Vertical
2133.0	-45.64	2.87	27.60	-20.91	-13	-7.91	Vertical
2133.0	-51.68	2.87	27.60	-26.95	-13	-13.95	Horizontal
209.7	-37.74	1.58	15.93	-23.39	-13	-10.39	Vertical
433.0	-35.60	1.36	15.59	-21.37	-13	-8.37	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.6 LTE BAND 13
QPSK EIRP POWER FOR LTE BAND 13 (5MHz BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-72.13	2.61	27.28	-47.46	-40	-7.46	Horizontal
1559.0	-70.80	2.61	27.28	-46.13	-40	-6.13	Vertical
2338.5	-44.60	2.87	27.59	-19.88	-13	-6.88	Vertical
2338.5	-42.80	2.87	27.59	-18.08	-13	-5.08	Horizontal
120.1	-34.72	1.54	15.61	-20.65	-13	-7.65	Vertical
197.8	-34.44	1.51	15.21	-20.74	-13	-7.74	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-72.87	2.62	27.30	-48.19	-40	-8.19	Horizontal
1564.0	-72.47	2.62	27.30	-47.79	-40	-7.79	Vertical
2346.0	-48.02	2.87	27.62	-23.27	-13	-10.27	Vertical
2346.0	-42.60	2.87	27.62	-17.85	-13	-4.85	Horizontal
131.2	-37.07	1.65	16.17	-22.55	-13	-9.55	Vertical
267.5	-34.41	1.48	16.88	-19.01	-13	-6.01	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-70.43	2.66	27.28	-45.81	-40	-5.81	Horizontal
1569.0	-69.45	2.66	27.28	-44.83	-40	-4.83	Vertical
2353.5	-43.56	2.88	27.60	-18.84	-13	-5.84	Vertical
2353.5	-44.58	2.88	27.60	-19.86	-13	-6.86	Horizontal
80.8	-34.85	1.54	16.40	-19.99	-13	-6.99	Vertical
155.6	-35.66	1.43	15.77	-21.32	-13	-8.32	Horizontal

QPSK EIRP POWER FOR LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-69.31	2.62	27.30	-44.63	-40	-4.63	Horizontal
1564.0	-71.29	2.62	27.30	-46.61	-40	-6.61	Vertical
2346.0	-42.28	2.87	27.62	-17.53	-13	-4.53	Vertical
2346.0	-42.34	2.87	27.62	-17.59	-13	-4.59	Horizontal
129.1	-38.13	1.43	17.03	-22.53	-13	-9.53	Vertical
86.9	-37.99	1.62	16.63	-22.98	-13	-9.98	Horizontal

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

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

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

9.7 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-50.56	2.61	27.28	-25.89	-13	-12.89	Horizontal
1413.0	-45.73	2.61	27.28	-21.06	-13	-8.06	Vertical
2119.5	-47.06	2.87	27.59	-22.34	-13	-9.34	Vertical
2119.5	-51.87	2.87	27.59	-27.15	-13	-14.15	Horizontal
204.9	-42.52	1.71	16.15	-28.08	-13	-15.08	Vertical
297.4	-36.99	1.41	17.32	-21.08	-13	-8.08	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-46.98	2.62	27.30	-22.30	-13	-9.30	Horizontal
1420.0	-44.87	2.62	27.30	-20.19	-13	-7.19	Vertical
2130.0	-47.46	2.87	27.62	-22.71	-13	-9.71	Vertical
2130.0	-49.07	2.87	27.62	-24.32	-13	-11.32	Horizontal
175.0	-37.00	1.42	15.25	-23.18	-13	-10.18	Vertical
247.0	-36.33	1.36	17.19	-20.50	-13	-7.50	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-52.12	2.66	27.28	-27.50	-13	-14.50	Horizontal
1427.0	-52.16	2.66	27.28	-27.54	-13	-14.54	Vertical
2140.5	-47.75	2.88	27.60	-23.03	-13	-10.03	Vertical
2140.5	-49.47	2.88	27.60	-24.75	-13	-11.75	Horizontal
200.6	-41.48	1.32	17.29	-25.51	-13	-12.51	Vertical
237.4	-41.78	1.72	16.89	-26.61	-13	-13.61	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-52.20	2.62	27.30	-27.52	-13	-14.52	Horizontal
1418.0	-49.66	2.62	27.30	-24.98	-13	-11.98	Vertical
2127.0	-52.49	2.87	27.62	-27.74	-13	-14.74	Vertical
2127.0	-52.26	2.87	27.62	-27.51	-13	-14.51	Horizontal
189.9	-43.19	1.35	16.91	-27.63	-13	-14.63	Vertical
248.6	-37.55	1.62	16.31	-22.86	-13	-9.86	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-49.02	2.62	27.30	-24.34	-13	-11.34	Horizontal
1420.0	-50.74	2.62	27.30	-26.06	-13	-13.06	Vertical
2130.0	-47.56	2.87	27.62	-22.81	-13	-9.81	Vertical
2130.0	-49.89	2.87	27.62	-25.14	-13	-12.14	Horizontal
195.1	-39.79	1.51	17.14	-24.16	-13	-11.16	Vertical
452.2	-43.87	1.77	16.88	-28.76	-13	-15.76	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.62	2.62	27.30	-24.94	-13	-11.94	Horizontal
1422.0	-46.59	2.62	27.30	-21.91	-13	-8.91	Vertical
2133.0	-51.41	2.87	27.62	-26.66	-13	-13.66	Vertical
2133.0	-49.51	2.87	27.62	-24.76	-13	-11.76	Horizontal
188.0	-39.69	1.78	15.95	-25.52	-13	-12.52	Vertical
468.7	-43.24	1.34	17.95	-26.64	-13	-13.64	Horizontal

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

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

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

9.8 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	-48.54	2.78	27.50	-23.82	-13	-10.82	Horizontal
1629.4	-46.75	2.78	27.50	-22.03	-13	-9.03	Vertical
2444.1	-47.74	2.90	27.80	-22.84	-13	-9.84	Vertical
2444.1	-49.64	2.90	27.80	-24.74	-13	-11.74	Horizontal
229.6	-34.27	1.54	16.98	-18.83	-13	-5.83	Vertical
83.3	-33.40	1.47	15.82	-19.05	-13	-6.05	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-46.62	2.80	27.48	-21.94	-13	-8.94	Horizontal
1638.0	-45.52	2.80	27.48	-20.84	-13	-7.84	Vertical
2457.0	-49.89	2.91	27.70	-25.10	-13	-12.10	Vertical
2457.0	-49.89	2.91	27.70	-25.10	-13	-12.10	Horizontal
168.2	-32.18	1.74	16.19	-17.73	-13	-4.73	Vertical
92.9	-34.53	1.46	15.43	-20.56	-13	-7.56	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-47.32	2.82	27.43	-22.71	-13	-9.71	Horizontal
1646.6	-49.12	2.82	27.43	-24.51	-13	-11.51	Vertical
2469.9	-49.87	2.92	27.74	-25.05	-13	-12.05	Vertical
2469.9	-47.96	2.92	27.74	-23.14	-13	-10.14	Horizontal
213.1	-33.40	1.67	17.05	-18.02	-13	-5.02	Vertical
121.7	-32.94	1.42	16.12	-18.24	-13	-5.24	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	-46.05	2.78	27.50	-21.33	-13	-8.33	Horizontal
1638.0	-45.91	2.78	27.50	-21.19	-13	-8.19	Vertical
2457.0	-48.86	2.90	27.80	-23.96	-13	-10.96	Vertical
2457.0	-47.43	2.90	27.80	-22.53	-13	-9.53	Horizontal
253.7	-33.39	1.43	17.34	-17.48	-13	-4.48	Vertical
256.8	-34.91	1.56	15.71	-20.76	-13	-7.76	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	-46.48	2.78	27.50	-21.76	-13	-8.76	Horizontal
1649.4	-49.82	2.78	27.50	-25.10	-13	-12.10	Vertical
2474.1	-46.38	2.90	27.80	-21.48	-13	-8.48	Vertical
2474.1	-46.88	2.90	27.80	-21.98	-13	-8.98	Horizontal
237.0	-33.12	1.33	17.34	-17.11	-13	-4.11	Vertical
180.5	-32.94	1.47	16.80	-17.61	-13	-4.61	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-49.51	2.80	27.48	-24.83	-13	-11.83	Horizontal
1673.0	-46.96	2.80	27.48	-22.28	-13	-9.28	Vertical
2509.5	-46.02	2.91	27.70	-21.23	-13	-8.23	Vertical
2509.5	-47.17	2.91	27.70	-22.38	-13	-9.38	Horizontal
140.8	-33.63	1.75	15.46	-19.92	-13	-6.92	Vertical
90.6	-32.20	1.52	16.14	-17.58	-13	-4.58	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.82	2.82	27.43	-24.21	-13	-11.21	Horizontal
1696.6	-43.69	2.82	27.43	-19.08	-13	-6.08	Vertical
2544.9	-47.72	2.92	27.74	-22.90	-13	-9.90	Vertical
2544.9	-48.63	2.92	27.74	-23.81	-13	-10.81	Horizontal
171.4	-33.34	1.67	16.09	-18.92	-13	-5.92	Vertical
247.2	-32.24	1.80	17.55	-16.49	-13	-3.49	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	-48.51	2.78	27.50	-23.79	-13	-10.79	Horizontal
1663.0	-47.34	2.78	27.50	-22.62	-13	-9.62	Vertical
2494.5	-49.70	2.90	27.80	-24.80	-13	-11.80	Vertical
2494.5	-49.08	2.90	27.80	-24.18	-13	-11.18	Horizontal
255.4	-33.64	1.52	15.72	-19.44	-13	-6.44	Vertical
163.1	-34.69	1.40	17.03	-19.06	-13	-6.06	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-46.23	2.80	27.48	-21.55	-13	-8.55	Horizontal
1673.0	-44.72	2.80	27.48	-20.04	-13	-7.04	Vertical
2509.5	-48.03	2.91	27.70	-23.24	-13	-10.24	Vertical
2509.5	-46.01	2.91	27.70	-21.22	-13	-8.22	Horizontal
227.1	-34.79	1.74	16.38	-20.15	-13	-7.15	Vertical
101.3	-34.78	1.79	15.20	-21.37	-13	-8.37	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-46.15	2.82	27.43	-21.54	-13	-8.54	Horizontal
1683.0	-42.97	2.82	27.43	-18.36	-13	-5.36	Vertical
2524.5	-46.58	2.92	27.74	-21.76	-13	-8.76	Vertical
2524.5	-49.28	2.92	27.74	-24.46	-13	-11.46	Horizontal
261.1	-32.46	1.78	17.44	-16.80	-13	-3.80	Vertical
120.1	-34.71	1.70	15.93	-20.48	-13	-7.48	Horizontal

9.9 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	-63.30	4.01	27.5	-39.81	-25	-14.81	Horizontal
5145	-60.11	4.01	27.5	-36.62	-25	-11.62	Vertical
7717.5	-60.37	5.09	27.8	-37.66	-25	-12.66	Vertical
7717.5	-61.60	5.09	27.8	-38.89	-25	-13.89	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-62.21	4.1	27.48	-38.83	-25	-13.83	Horizontal
5190	-59.52	4.1	27.48	-36.14	-25	-11.14	Vertical
7785	-60.34	5.42	27.7	-38.06	-25	-13.06	Vertical
7785	-58.11	5.42	27.7	-35.83	-25	-10.83	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-57.47	4.11	27.43	-34.15	-25	-9.15	Horizontal
5234	-59.88	4.11	27.43	-36.56	-25	-11.56	Vertical
7851	-61.14	5.31	27.74	-38.71	-25	-13.71	Vertical
7851	-62.66	5.31	27.74	-40.23	-25	-15.23	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	-57.16	3.89	27.5	-33.55	-25	-8.55	Horizontal
5160	-60.63	3.89	27.5	-37.02	-25	-12.02	Vertical
7740	-58.91	5.33	27.8	-36.44	-25	-11.44	Vertical
7740	-62.45	5.33	27.8	-39.98	-25	-14.98	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-61.94	4.1	27.48	-38.56	-25	-13.56	Horizontal
5190	-60.08	4.1	27.48	-36.70	-25	-11.70	Vertical
7785	-62.73	5.42	27.7	-40.45	-25	-15.45	Vertical
7785	-61.02	5.42	27.7	-38.74	-25	-13.74	Horizontal
Test Results for High Channel 2610MHz							
5220	-60.50	4.01	27.43	-37.08	-25	-12.08	Horizontal
5220	-59.84	4.01	27.43	-36.42	-25	-11.42	Vertical
7830	-62.55	5.34	27.74	-40.15	-25	-15.15	Vertical
7830	-62.91	5.34	27.74	-40.51	-25	-15.51	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.

9.10 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	-52.23	4.02	29.80	-26.45	-13	-13.45	Horizontal
3421.4	-44.92	4.02	29.80	-19.14	-13	-6.14	Vertical
5132.1	-49.07	5.24	35.84	-18.47	-13	-5.47	Vertical
5132.1	-53.21	5.24	35.84	-22.61	-13	-9.61	Horizontal
112.6	-47.18	1.52	15.57	-33.13	-13	-20.13	Vertical
220.5	-46.18	1.33	17.14	-30.37	-13	-17.37	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-48.12	4.03	30.00	-22.15	-13	-9.15	Horizontal
3490.0	-52.07	4.03	30.00	-26.10	-13	-13.10	Vertical
5235.0	-50.35	5.25	35.86	-19.74	-13	-6.74	Vertical
5235.0	-51.80	5.25	35.86	-21.19	-13	-8.19	Horizontal
157.3	-47.96	1.53	17.13	-32.36	-13	-19.36	Vertical
213.1	-54.32	1.41	15.95	-39.78	-13	-26.78	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-47.64	4.05	30.01	-21.68	-13	-8.68	Horizontal
3558.6	-50.33	4.05	30.01	-24.37	-13	-11.37	Vertical
5337.9	-53.60	5.26	35.86	-23.00	-13	-10.00	Vertical
5337.9	-51.85	5.26	35.86	-21.25	-13	-8.25	Horizontal
170.6	-45.57	1.44	15.51	-31.50	-13	-18.50	Vertical
169.0	-50.40	1.78	15.76	-36.42	-13	-23.42	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	-54.23	4.02	29.80	-28.45	-13	-15.45	Horizontal
3440.0	-47.15	4.02	29.80	-21.37	-13	-8.37	Vertical
5160.0	-51.96	5.24	35.84	-21.36	-13	-8.36	Vertical
5160.0	-49.63	5.24	35.84	-19.03	-13	-6.03	Horizontal
268.8	-50.20	1.62	17.02	-34.80	-13	-21.80	Vertical
161.4	-50.61	1.32	17.31	-34.62	-13	-21.62	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-45.69	4.03	30.00	-19.72	-13	-6.72	Horizontal
3490.0	-54.44	4.03	30.00	-28.47	-13	-15.47	Vertical
5235.0	-50.27	5.25	35.86	-19.66	-13	-6.66	Vertical
5235.0	-54.76	5.25	35.86	-24.15	-13	-11.15	Horizontal
159.9	-53.64	1.45	15.17	-39.92	-13	-26.92	Vertical
172.1	-54.70	1.48	17.82	-38.36	-13	-25.36	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-51.95	2.91	27.68	-27.18	-13	-14.18	Horizontal
3540.0	-45.16	2.91	27.68	-20.39	-13	-7.39	Vertical
5310.0	-52.23	5.26	35.86	-21.63	-13	-8.63	Vertical
5310.0	-50.01	5.26	35.86	-19.41	-13	-6.41	Horizontal
197.3	-46.22	1.76	16.38	-31.60	-13	-18.60	Vertical
158.5	-44.13	1.43	17.13	-28.43	-13	-15.43	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 4.0V, Normal, DC 4.45V and High voltage, DC 4.9V.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- 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)				
4.0	1880	12.3	0.006557	2.5
4.45	1880	13.9	0.007409	2.5
4.9	1880	13.6	0.007240	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	12.4	0.006591	2.5
Extreme (50C)	1880	11.5	0.006128	2.5
Extreme (40C)	1880	14.2	0.007529	2.5
Extreme (30C)	1880	13.8	0.007317	2.5
Extreme (10C)	1880	14.0	0.007437	2.5
Extreme (0C)	1880	11.7	0.006207	2.5
Extreme (-10C)	1880	13.0	0.006941	2.5
Extreme (-20C)	1880	14.3	0.007599	2.5
Extreme (-30C)	1880	15.1	0.008010	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)				
4.0	1880	10.2	0.005451	2.5
4.45	1880	8.5	0.004514	2.5
4.9	1880	7.6	0.004069	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	9.5	0.005058	2.5
Extreme (50C)	1880	8.7	0.004608	2.5
Extreme (40C)	1880	8.1	0.004297	2.5
Extreme (30C)	1880	8.9	0.004760	2.5
Extreme (10C)	1880	8.5	0.004505	2.5
Extreme (0C)	1880	7.7	0.004096	2.5
Extreme (-10C)	1880	9.1	0.004862	2.5
Extreme (-20C)	1880	9.4	0.004993	2.5
Extreme (-30C)	1880	7.7	0.004069	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)				
4.0	1732.5	9.0	0.005222	2.5
4.45	1732.5	9.3	0.005368	2.5
4.9	1732.5	8.5	0.004903	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	8.7	0.005027	2.5
Extreme (50C)	1732.5	8.6	0.004943	2.5
Extreme (40C)	1732.5	7.6	0.004379	2.5
Extreme (30C)	1732.5	6.0	0.003453	2.5
Extreme (10C)	1732.5	7.0	0.004044	2.5
Extreme (0C)	1732.5	9.5	0.005456	2.5
Extreme (-10C)	1732.5	8.1	0.004660	2.5
Extreme (-20C)	1732.5	7.2	0.004177	2.5
Extreme (-30C)	1732.5	7.9	0.004587	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)				
4.0	1732.5	9.5	0.005468	2.5
4.45	1732.5	8.6	0.004955	2.5
4.9	1732.5	7.6	0.004389	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	9.9	0.005740	2.5
Extreme (50C)	1732.5	8.4	0.004876	2.5
Extreme (40C)	1732.5	8.0	0.004621	2.5
Extreme (30C)	1732.5	9.0	0.005199	2.5
Extreme (10C)	1732.5	8.9	0.005112	2.5
Extreme (0C)	1732.5	8.6	0.004949	2.5
Extreme (-10C)	1732.5	9.4	0.005436	2.5
Extreme (-20C)	1732.5	9.3	0.005350	2.5
Extreme (-30C)	1732.5	8.1	0.004667	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)				
4.0	836.5	6.2	0.007425	2.5
4.45	836.5	7.1	0.008521	2.5
4.9	836.5	4.8	0.005690	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	5.9	0.007016	2.5
Extreme (50C)	836.5	6.2	0.007403	2.5
Extreme (40C)	836.5	6.1	0.007326	2.5
Extreme (30C)	836.5	6.6	0.007852	2.5
Extreme (10C)	836.5	5.2	0.006223	2.5
Extreme (0C)	836.5	5.4	0.006490	2.5
Extreme (-10C)	836.5	5.8	0.006969	2.5
Extreme (-20C)	836.5	6.2	0.007456	2.5
Extreme (-30C)	836.5	6.1	0.007270	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)				
4.0	836.5	6.0	0.007191	2.5
4.45	836.5	6.3	0.007568	2.5
4.9	836.5	4.8	0.005734	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	0.007779	2.5
Extreme (50C)	836.5	5.5	0.006546	2.5
Extreme (40C)	836.5	6.4	0.007658	2.5
Extreme (30C)	836.5	6.4	0.007631	2.5
Extreme (10C)	836.5	5.3	0.006367	2.5
Extreme (0C)	836.5	5.0	0.006004	2.5
Extreme (-10C)	836.5	5.4	0.006495	2.5
Extreme (-20C)	836.5	6.3	0.007513	2.5
Extreme (-30C)	836.5	6.0	0.007197	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)				
4.0	2535	10.0	0.003937	2.5
4.45	2535	9.1	0.003578	2.5
4.9	2535	8.2	0.003241	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	9.2	0.003631	2.5
Extreme (50C)	2535	8.6	0.003409	2.5
Extreme (40C)	2535	8.4	0.003331	2.5
Extreme (30C)	2535	9.2	0.003636	2.5
Extreme (10C)	2535	7.7	0.003023	2.5
Extreme (0C)	2535	8.4	0.003310	2.5
Extreme (-10C)	2535	8.9	0.003526	2.5
Extreme (-20C)	2535	9.0	0.003558	2.5
Extreme (-30C)	2535	8.5	0.003368	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)				
4.0	2535	6.4	0.002535	2.5
4.45	2535	6.1	0.002414	2.5
4.9	2535	5.9	0.002341	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	7.0	0.002764	2.5
Extreme (50C)	2535	5.9	0.002343	2.5
Extreme (40C)	2535	5.6	0.002199	2.5
Extreme (30C)	2535	6.7	0.002659	2.5
Extreme (10C)	2535	5.7	0.002249	2.5
Extreme (0C)	2535	5.0	0.001968	2.5
Extreme (-10C)	2535	5.0	0.001977	2.5
Extreme (-20C)	2535	5.5	0.002181	2.5
Extreme (-30C)	2535	5.2	0.002069	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
4.0	707.5	8.9	0.012544	2.5
4.45	707.5	9.6	0.013535	2.5
4.9	707.5	8.8	0.012495	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.9	0.012562	2.5
Extreme (50C)	707.5	7.4	0.010502	2.5
Extreme (40C)	707.5	7.6	0.010701	2.5
Extreme (30C)	707.5	8.5	0.011974	2.5
Extreme (10C)	707.5	7.0	0.009920	2.5
Extreme (0C)	707.5	8.9	0.012556	2.5
Extreme (-10C)	707.5	8.0	0.011253	2.5
Extreme (-20C)	707.5	8.6	0.012157	2.5
Extreme (-30C)	707.5	7.4	0.010470	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
4.0	707.5	7.4	0.010490	2.5
4.45	707.5	8.8	0.012394	2.5
4.9	707.5	7.0	0.009846	2.5

Frequency error vs. Temperature

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

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

10.6 LTE BAND 13

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
4.0	782.0	12.8	0.018059	2.5
4.45	782.0	13.9	0.019569	2.5
4.9	782.0	12.9	0.018142	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	14.7	0.020688	2.5
Extreme (50C)	782.0	13.9	0.019595	2.5
Extreme (40C)	782.0	15.1	0.021273	2.5
Extreme (30C)	782.0	14.1	0.019848	2.5
Extreme (10C)	782.0	13.5	0.019000	2.5
Extreme (0C)	782.0	14.1	0.019810	2.5
Extreme (-10C)	782.0	13.8	0.019398	2.5
Extreme (-20C)	782.0	14.3	0.020112	2.5
Extreme (-30C)	782.0	13.6	0.019138	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
4.0	782.0	12.8	0.018046	2.5
4.45	782.0	14.0	0.019699	2.5
4.9	782.0	12.8	0.018081	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	13.1	0.018450	2.5
Extreme (50C)	782.0	11.5	0.016133	2.5
Extreme (40C)	782.0	13.5	0.019064	2.5
Extreme (30C)	782.0	13.4	0.018914	2.5
Extreme (10C)	782.0	14.2	0.019993	2.5
Extreme (0C)	782.0	12.6	0.017691	2.5
Extreme (-10C)	782.0	13.4	0.018914	2.5
Extreme (-20C)	782.0	14.3	0.020137	2.5
Extreme (-30C)	782.0	14.4	0.020293	2.5

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

10.7 LTE BAND 17

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
4.0	710.0	9.6	0.013589	2.5
4.45	710.0	9.1	0.012860	2.5
4.9	710.0	8.0	0.011290	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.8	0.013767	2.5
Extreme (50C)	710.0	9.0	0.012674	2.5
Extreme (40C)	710.0	8.3	0.011726	2.5
Extreme (30C)	710.0	9.3	0.013038	2.5
Extreme (10C)	710.0	9.2	0.012944	2.5
Extreme (0C)	710.0	8.6	0.012081	2.5
Extreme (-10C)	710.0	8.6	0.012121	2.5
Extreme (-20C)	710.0	8.9	0.012494	2.5
Extreme (-30C)	710.0	8.1	0.011453	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
4.0	710.0	9.5	0.013405	2.5
4.45	710.0	8.9	0.012519	2.5
4.9	710.0	8.1	0.011383	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.7	0.013672	2.5
Extreme (50C)	710.0	8.7	0.012283	2.5
Extreme (40C)	710.0	8.3	0.011724	2.5
Extreme (30C)	710.0	8.8	0.012399	2.5
Extreme (10C)	710.0	8.3	0.011723	2.5
Extreme (0C)	710.0	8.2	0.011561	2.5
Extreme (-10C)	710.0	9.2	0.013009	2.5
Extreme (-20C)	710.0	8.4	0.011846	2.5
Extreme (-30C)	710.0	8.7	0.012319	2.5

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

10.8 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)				
4.0	819	12.3	0.015016	2.5
4.45	819	13.4	0.016317	2.5
4.9	819	13.3	0.016220	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	7.4	0.009017	2.5
Extreme (50C)	819	-3.5	-0.004265	2.5
Extreme (40C)	819	5.7	0.006956	2.5
Extreme (30C)	819	-3.3	-0.004043	2.5
Extreme (10C)	819	6.5	0.007947	2.5
Extreme (0C)	819	5.1	0.006210	2.5
Extreme (-10C)	819	9.3	0.011346	2.5
Extreme (-20C)	819	10.9	0.013252	2.5
Extreme (-30C)	819	6.5	0.007925	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)				
4.0	819	8.3	0.010120	2.5
4.45	819	6.8	0.008309	2.5
4.9	819	5.1	0.006251	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	7.7	0.009363	2.5
Extreme (50C)	819	4.7	0.005776	2.5
Extreme (40C)	819	5.4	0.006593	2.5
Extreme (30C)	819	4.4	0.005330	2.5
Extreme (10C)	819	6.7	0.008173	2.5
Extreme (0C)	819	5.0	0.006054	2.5
Extreme (-10C)	819	9.4	0.011532	2.5
Extreme (-20C)	819	11.2	0.013694	2.5
Extreme (-30C)	819	5.9	0.007185	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)				
4.0	836.5	12.6	0.015008	2.5
4.45	836.5	13.8	0.016464	2.5
4.9	836.5	13.4	0.016008	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	7.3	0.008745	2.5
Extreme (50C)	836.5	4.8	0.005759	2.5
Extreme (40C)	836.5	5.5	0.006550	2.5
Extreme (30C)	836.5	4.5	0.005331	2.5
Extreme (10C)	836.5	6.6	0.007890	2.5
Extreme (0C)	836.5	4.8	0.005766	2.5
Extreme (-10C)	836.5	9.6	0.011449	2.5
Extreme (-20C)	836.5	10.8	0.012949	2.5
Extreme (-30C)	836.5	6.4	0.007624	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)				
4.0	836.5	13.0	0.015581	2.5
4.45	836.5	13.3	0.015926	2.5
4.9	836.5	13.6	0.016262	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	7.9	0.009402	2.5
Extreme (50C)	836.5	5.2	0.006188	2.5
Extreme (40C)	836.5	5.6	0.006640	2.5
Extreme (30C)	836.5	4.5	0.005366	2.5
Extreme (10C)	836.5	6.5	0.007720	2.5
Extreme (0C)	836.5	5.0	0.005968	2.5
Extreme (-10C)	836.5	9.5	0.011310	2.5
Extreme (-20C)	836.5	10.6	0.012680	2.5
Extreme (-30C)	836.5	5.8	0.006934	2.5

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

10.9 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)				
4.0	2595	8.6	0.003309	2.5
4.45	2595	6.8	0.002608	2.5
4.9	2595	7.5	0.002879	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	7.5	0.002875	2.5
Extreme (50C)	2595	4.8	0.001844	2.5
Extreme (40C)	2595	4.9	0.001906	2.5
Extreme (30C)	2595	4.9	0.001887	2.5
Extreme (10C)	2595	6.0	0.002322	2.5
Extreme (0C)	2595	4.8	0.001849	2.5
Extreme (-10C)	2595	9.1	0.003495	2.5
Extreme (-20C)	2595	10.6	0.004067	2.5
Extreme (-30C)	2595	6.6	0.002560	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)				
4.0	2595	8.4	0.003248	2.5
4.45	2595	6.6	0.002527	2.5
4.9	2595	6.4	0.002460	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	7.8	0.003021	2.5
Extreme (50C)	2595	4.8	0.001863	2.5
Extreme (40C)	2595	5.0	0.001928	2.5
Extreme (30C)	2595	5.0	0.001937	2.5
Extreme (10C)	2595	6.5	0.002489	2.5
Extreme (0C)	2595	4.4	0.001708	2.5
Extreme (-10C)	2595	10.0	0.003850	2.5
Extreme (-20C)	2595	10.7	0.004117	2.5
Extreme (-30C)	2595	5.8	0.002230	2.5

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

10.10 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)				
4.0	1745	12.8	0.007325	2.5
4.45	1745	14.1	0.008054	2.5
4.9	1745	13.2	0.007576	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	7.4	0.004215	2.5
Extreme (50C)	1745	5.0	0.002855	2.5
Extreme (40C)	1745	5.1	0.002905	2.5
Extreme (30C)	1745	4.4	0.002522	2.5
Extreme (10C)	1745	6.2	0.003539	2.5
Extreme (0C)	1745	4.7	0.002665	2.5
Extreme (-10C)	1745	9.2	0.005263	2.5
Extreme (-20C)	1745	10.6	0.006065	2.5
Extreme (-30C)	1745	6.6	0.003800	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)				
4.0	1745	12.6	0.007230	2.5
4.45	1745	13.5	0.007756	2.5
4.9	1745	13.6	0.007800	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	7.8	0.004450	2.5
Extreme (50C)	1745	5.1	0.002901	2.5
Extreme (40C)	1745	5.9	0.003378	2.5
Extreme (30C)	1745	4.8	0.002748	2.5
Extreme (10C)	1745	6.6	0.003786	2.5
Extreme (0C)	1745	4.4	0.002510	2.5
Extreme (-10C)	1745	9.5	0.005467	2.5
Extreme (-20C)	1745	11.2	0.006434	2.5
Extreme (-30C)	1745	6.4	0.003642	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.

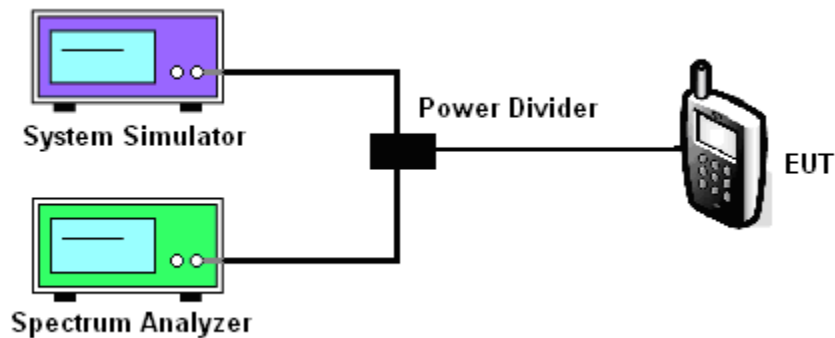
11.2 Measuring Instruments

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 Band2/4/5/7/12/13/17/26/38/66
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Test data reference attachment.

----END OF REPORT----