

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

FCC ID: ZSW-30-138

Product: Mobile Phone

Trade Mark: Bmobile

Model Number: ULTRA S

Family Model: N/A

Report No.: S24092601403005

Prepared for

b mobile HK Limited

FLAT/RM 1202 12/F GOLDEN STAR BUILDING 20 LOCKHART ROAD
WANCHAI, HK, China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan District,
Shenzhen, Guangdong, People's Republic of China

Tel. 0755-23200050 Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name..... : b mobile HK Limited

Address : FLAT/RM 1202 12/F GOLDEN STAR BUILDING 20 LOCKHART ROAD WANCHAI, HK, China

Manufacturer's Name..... : b mobile HK Limited

Address : FLAT/RM 1202 12/F GOLDEN STAR BUILDING 20 LOCKHART ROAD WANCHAI, HK, China

Product name : Mobile Phone

Model and/or type reference : ULTRA S

Family Model: N/A

Test sample number S240926014001

Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27, Part 90S

Test procedure : ANSI C63.26:2015
ANSI/TIA-603-E-2016

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

This report shall not be reproduced except in full, without the written approval of NTEK, this document may be altered or revised by NTEK, personal only, and shall be noted in the revision of the document.

Date of Test

Date (s) of performance of tests Sept. 26, 2024 ~ Nov. 05, 2024

Date of Issue Nov. 05, 2024

Test Result **Pass**

Prepared : 
By : Allen Liu
(Project Engineer)

Reviewed : 
By : Aaron Cheng
(Supervisor)

Approved : 
By : Alex Li
(Manager)

TABLE OF CONTENTS

1. GENERAL INFORMATION.....	6
1.1 PRODUCT DESCRIPTION	6
1.2 RELATED SUBMITTAL(S) / GRANT (S)	8
1.3 TEST METHODOLOGY	8
1.4 TEST FACILITY	8
MEASUREMENT UNCERTAINTY	8
1.5 SPECIAL ACCESSORIES.....	8
1.6 WORST-CASE CONFIGURATION AND MODE.....	8
2. SYSTEM TEST CONFIGURATION	9
2.1 EUT CONFIGURATION.....	9
2.2 EUT EXERCISE	9
2.3 CONFIGURATION OF EUT SYSTEM.....	9
2.4 TEST SETUP	10
3.TEST AND MEASUREMENT EQUIPMENT	11
4. OUTPUT POWER.....	13
4.1 OUTPUT POWER MEASUREMENT	13
6. BANDEDGE AND EMISSION MASK	16
7. OUT OF BAND EMISSIONS	17
7.1 MEASUREMENT METHOD	18
8. RADIATED MEASUREMENT	19
8.1. RADIATED POWER (ERP & EIRP).....	19
8.2 LTE BAND 2.....	20
8.3 LTE BAND 4.....	24
8.4 LTE BAND 5.....	28
8.5 LTE BAND 7.....	30

8.6 LTE BAND 12	32
8.7 LTE BAND 13	34
8.8 LTE BAND 17	36
8.9 LTE BAND 26A	38
8.10 LTE BAND 26B	40
8.11 LTE BAND 38	42
8.12 LTE BAND 66	44
9. SPURIOUS RADIATION EMISSION	48
9.1 LTE BAND 2.....	50
9.2 LTE BAND 4.....	52
9.3 LTE BAND 5.....	54
9.4 LTE BAND 7.....	56
9.5 LTE BAND 12	58
9.6 LTE BAND 13	60
9.8 LTE BAND 17	62
9.9 LTE BAND 26	64
9.10 LTE BAND 38	68
9.11 LTE BAND 66	70
10. FREQUENCY STABILITY	72
10.1 LTE BAND 2	73
10.2 LTE BAND 4	75
10.3 LTE BAND 5	77
10.4 LTE BAND 7	79
10.5 LTE BAND 12	81
10.6 LTE BAND 13	83
10.7 LTE BAND 17	85
10.8 LTE BAND 26	87
10.9 LTE BAND 38	91
10.10 LTE BAND 66.....	93

11. PEAK-TO-AVERAGE RATIO.....	95
11.1 Description of the PAR Measurement.....	95
11.2 Measuring Instruments	95
11.3 Test Procedures.....	95
11.4 Test Setup.....	95

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 S
Family Model	N/A
Model Difference	N/A
FCC ID:	ZSW-30-138
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12,13, 17, 26, 66 LTE TDD Band 38
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; LTE TDD Band 38 Uplink& Downlink: 2570MHz-2620MHz LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	FPC Antenna
Antenna gain:	LTE B2:1.57dBi; B4:1.33dBi; B5:-2.63dBi; B7:0.69dBi; B12:-2.87dBi; B13:-2.72dBi; B17:-2.87dBi;B26:-2.63dBi; B38:-1.27dBi; B66:1.33dBi;
Power Supply:	DC 3.85V from Battery or DC 5V from Adapter.

Battery	DC 3.85V, 4000mAh, 15.4Wh
Adapter:	INPUT: AC 100-240V~50-60Hz 0.3A OUTPUT: DC 5.0V---2A
Extreme Vol. Limits:	DC 3.4V to DC 4.4V (Nominal DC 3.85V) (Note 1)
HW Version	Bmobile_ULTRA_S_HW_V1.0
SW Version	Bmobile_ULTRA_S_OM_LATAM_V001
** Note1: The High Voltage 4.4V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: ZSW-30-138** 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 C63.26:2015.

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

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

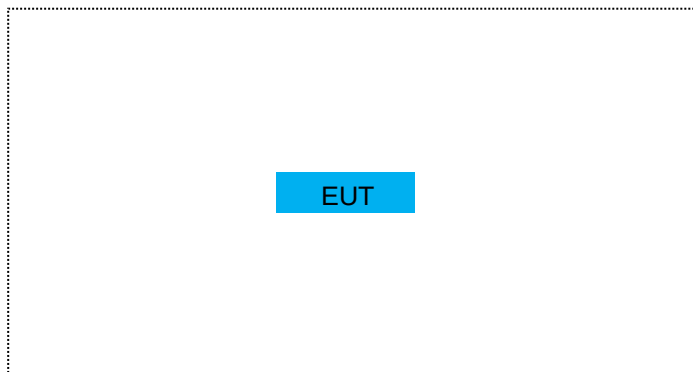
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	ULTRA S	FCC ID: ZSW-30-138	EUT

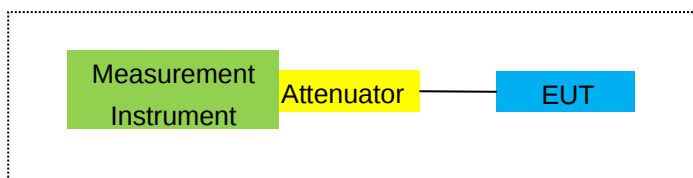
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

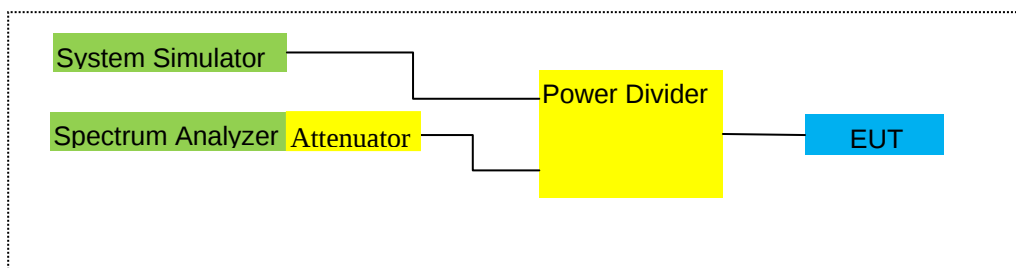
For Radiated Test Cases



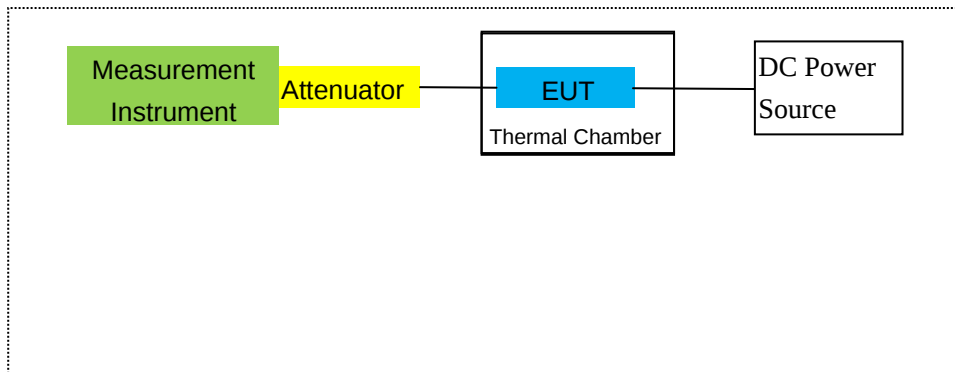
For Conducted Output Power



For Peak-to Average Ratio, Occupied Bandwidth, Conducted Band edge and Conducted Spurious Emission



For Frequency Stability



Note: EUT built-in battery-powered, the battery is fully-charged.

3.TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2024.03.12	2025.03.11	1 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2024.03.12	2025.03.11	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Attenuator	MCE	24-10-34	BN9258	2024.03.12	2025.03.11	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
24	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
25	Communication Tester	R&S	CMU200	A0304247	2024.04.26	2025.04.25	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year
27	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2024.04.25	2025.04.24	1 year
29	Communication Tester	R&S	CMW500	148500	2024.04.26	2025.04.25	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.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRTest	MTS 8200	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	raditeq	RadiMation	2023.1.3	RadiatedTest
4	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

LTE Band 2, 4, 5, 7, 12, 13, 17, 26, 38, 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 Band 2, 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, 4, 5, 7, 12, 13, 17, 26, 38, 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, 4, 5, 7, 12, 13, 17, 26, 38, 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	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-4.61	3.76	28.24	19.87	97.051	Horizontal	Pass
		1880	-4.42	3.91	28.22	19.89	97.499	Horizontal	Pass
		1909.3	-4.33	3.93	28.20	19.94	98.628	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.67	3.77	28.23	19.79	95.280	Horizontal	Pass
		1880	-4.52	3.91	28.24	19.81	95.719	Horizontal	Pass
		1908.5	-4.39	3.94	28.25	19.92	98.175	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.56	3.77	28.31	19.98	99.541	Horizontal	Pass
		1880	-4.18	3.91	28.22	20.13	103.039	Horizontal	Pass
		1907.5	-4.11	3.94	28.20	20.15	103.514	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.42	3.79	28.33	20.12	102.802	Horizontal	Pass
		1880	-4.12	3.95	28.22	20.15	103.514	Horizontal	Pass
		1905	-4.01	3.97	28.19	20.21	104.954	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.38	3.79	28.34	20.17	103.992	Horizontal	Pass
		1880	-4.17	3.95	28.22	20.10	102.329	Horizontal	Pass
		1902.5	-4.03	3.97	28.18	20.18	104.232	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.37	3.81	28.35	20.17	103.992	Horizontal	Pass
		1880	-4.04	3.96	28.22	20.22	105.196	Horizontal	Pass
		1900	-3.98	4.00	28.16	20.18	104.232	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-5.78	3.76	28.24	18.70	74.131	Vertical	Pass
		1880	-5.24	3.91	28.22	19.07	80.724	Vertical	Pass
		1909.3	-5.44	3.93	28.20	18.83	76.384	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.96	3.77	28.23	19.50	89.125	Vertical	Pass
		1880	-5.02	3.91	28.24	19.31	85.310	Vertical	Pass
		1908.5	-5.50	3.94	28.25	18.81	76.033	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.74	3.77	28.31	18.80	75.858	Vertical	Pass
		1880	-5.20	3.91	28.22	19.11	81.470	Vertical	Pass
		1907.5	-5.15	3.94	28.20	19.11	81.470	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-5.90	3.79	28.33	18.64	73.114	Vertical	Pass
		1880	-4.94	3.95	28.22	19.33	85.704	Vertical	Pass
		1905	-4.78	3.97	28.19	19.44	87.902	Vertical	Pass

15.0MHz	1/#Mid	1857.5	-5.64	3.79	28.34	18.91	77.804	Vertical	Pass
Band		1880	-5.58	3.95	28.22	18.69	73.961	Vertical	Pass
QPSK		1902.5	-5.54	3.97	28.18	18.67	73.621	Vertical	Pass
20.0MHz	1/#Mid	1860	-4.98	3.81	28.35	19.56	90.365	Vertical	Pass
Band		1880	-5.50	3.96	28.22	18.76	75.162	Vertical	Pass
QPSK		1900	-5.39	4.00	28.16	18.77	75.336	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	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.73	3.76	28.24	18.75	74.989	Horizontal	Pass
		1880	-5.20	3.91	28.22	19.11	81.470	Horizontal	Pass
		1909.3	-5.13	3.93	28.20	19.14	82.035	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.23	3.77	28.23	19.23	83.753	Horizontal	Pass
		1880	-5.31	3.91	28.24	19.02	79.799	Horizontal	Pass
		1908.5	-5.52	3.94	28.25	18.79	75.683	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.17	3.77	28.31	19.37	86.497	Horizontal	Pass
		1880	-5.08	3.91	28.22	19.23	83.753	Horizontal	Pass
		1907.5	-4.76	3.94	28.20	19.50	89.125	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.22	3.79	28.33	19.32	85.507	Horizontal	Pass
		1880	-5.21	3.95	28.22	19.06	80.538	Horizontal	Pass
		1905	-4.68	3.97	28.19	19.54	89.950	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.20	3.79	28.34	19.35	86.099	Horizontal	Pass
		1880	-4.99	3.95	28.22	19.28	84.723	Horizontal	Pass
		1902.5	-4.95	3.97	28.18	19.26	84.333	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-5.09	3.81	28.35	19.45	88.105	Horizontal	Pass
		1880	-4.79	3.96	28.22	19.47	88.512	Horizontal	Pass
		1900	-4.61	4.00	28.16	19.55	90.157	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.30	3.76	28.24	18.18	65.766	Vertical	Pass
		1880	-6.22	3.91	28.22	18.09	64.417	Vertical	Pass
		1909.3	-6.01	3.93	28.20	18.26	66.988	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-6.14	3.77	28.23	18.32	67.920	Vertical	Pass
		1880	-5.85	3.91	28.24	18.48	70.469	Vertical	Pass
		1908.5	-6.47	3.94	28.25	17.84	60.814	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-6.08	3.77	28.31	18.46	70.146	Vertical	Pass
		1880	-5.90	3.91	28.22	18.41	69.343	Vertical	Pass
		1907.5	-6.45	3.94	28.20	17.81	60.395	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-6.48	3.79	28.33	18.06	63.973	Vertical	Pass
		1880	-6.35	3.95	28.22	17.92	61.944	Vertical	Pass
		1905	-6.35	3.97	28.19	17.87	61.235	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-6.84	3.79	28.34	17.71	59.020	Vertical	Pass
		1880	-6.47	3.95	28.22	17.80	60.256	Vertical	Pass
		1902.5	-6.42	3.97	28.18	17.79	60.117	Vertical	Pass
20.0MHz	1/#Mid	1860	-6.39	3.81	28.35	18.15	65.313	Vertical	Pass

Band 16 QAM	1880	-6.34	3.96	28.22	17.92	61.944	Vertical	Pass
	1900	-6.02	4.00	28.16	18.14	65.163	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 (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-4.52	3.12	27.58	19.94	98.628	Horizontal	Pass
		1732.5	-4.51	3.27	27.61	19.83	96.161	Horizontal	Pass
		1754.3	-4.49	3.29	27.63	19.85	96.605	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.69	3.13	27.61	19.79	95.280	Horizontal	Pass
		1732.5	-4.61	3.27	27.61	19.73	93.972	Horizontal	Pass
		1753.5	-4.53	3.30	27.62	19.79	95.280	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.46	3.13	27.63	20.04	100.925	Horizontal	Pass
		1732.5	-4.36	3.27	27.61	19.98	99.541	Horizontal	Pass
		1752.5	-4.24	3.30	27.60	20.06	101.391	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.40	3.15	27.64	20.09	102.094	Horizontal	Pass
		1732.5	-4.17	3.31	27.61	20.13	103.039	Horizontal	Pass
		1750	-4.19	3.33	27.59	20.07	101.625	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.41	3.15	27.65	20.09	102.094	Horizontal	Pass
		1732.5	-4.25	3.31	27.61	20.05	101.158	Horizontal	Pass
		1747.5	-4.19	3.33	27.57	20.05	101.158	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.35	3.17	27.66	20.14	103.276	Horizontal	Pass
		1732.5	-4.18	3.32	27.61	20.11	102.565	Horizontal	Pass
		1745	-4.12	3.36	27.56	20.08	101.859	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-5.32	3.12	27.58	19.14	82.035	Vertical	Pass
		1732.5	-5.70	3.27	27.61	18.64	73.114	Vertical	Pass
		1754.3	-5.30	3.29	27.63	19.04	80.168	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.22	3.13	27.61	19.26	84.333	Vertical	Pass
		1732.5	-4.75	3.27	27.61	19.59	90.991	Vertical	Pass
		1753.5	-5.59	3.30	27.62	18.73	74.645	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.08	3.13	27.63	19.42	87.498	Vertical	Pass
		1732.5	-4.92	3.27	27.61	19.42	87.498	Vertical	Pass
		1752.5	-5.15	3.30	27.60	19.15	82.224	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.65	3.15	27.64	18.84	76.560	Vertical	Pass
		1732.5	-5.14	3.31	27.61	19.16	82.414	Vertical	Pass
		1750	-5.32	3.33	27.59	18.94	78.343	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-5.85	3.15	27.65	18.65	73.282	Vertical	Pass
		1732.5	-5.42	3.31	27.61	18.88	77.268	Vertical	Pass
		1747.5	-5.58	3.33	27.57	18.66	73.451	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-5.81	3.17	27.66	18.68	73.790	Vertical	Pass
		1732.5	-4.76	3.32	27.61	19.53	89.743	Vertical	Pass
		1745	-5.37	3.36	27.56	18.83	76.384	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 (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.33	3.12	27.58	19.13	81.846	Horizontal	Pass
		1732.5	-5.18	3.27	27.61	19.16	82.414	Horizontal	Pass
		1754.3	-5.18	3.29	27.63	19.16	82.414	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.27	3.13	27.61	19.21	83.368	Horizontal	Pass
		1732.5	-5.40	3.27	27.61	18.94	78.343	Horizontal	Pass
		1753.5	-5.62	3.30	27.62	18.70	74.131	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.10	3.13	27.63	19.40	87.096	Horizontal	Pass
		1732.5	-5.06	3.27	27.61	19.28	84.723	Horizontal	Pass
		1752.5	-4.75	3.30	27.60	19.55	90.157	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.17	3.15	27.64	19.32	85.507	Horizontal	Pass
		1732.5	-5.36	3.31	27.61	18.94	78.343	Horizontal	Pass
		1750	-4.74	3.33	27.59	19.52	89.536	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.97	3.15	27.65	19.53	89.743	Horizontal	Pass
		1732.5	-5.03	3.31	27.61	19.27	84.528	Horizontal	Pass
		1747.5	-5.05	3.33	27.57	19.19	82.985	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.92	3.17	27.66	19.57	90.573	Horizontal	Pass
		1732.5	-4.93	3.32	27.61	19.36	86.298	Horizontal	Pass
		1745	-4.74	3.36	27.56	19.46	88.308	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.97	3.12	27.58	18.49	70.632	Vertical	Pass
		1732.5	-6.23	3.27	27.61	18.11	64.714	Vertical	Pass
		1754.3	-6.47	3.29	27.63	17.87	61.235	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.16	3.13	27.61	18.32	67.920	Vertical	Pass
		1732.5	-6.06	3.27	27.61	18.28	67.298	Vertical	Pass
		1753.5	-6.10	3.30	27.62	18.22	66.374	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.72	3.13	27.63	17.78	59.979	Vertical	Pass
		1732.5	-6.43	3.27	27.61	17.91	61.802	Vertical	Pass
		1752.5	-6.04	3.30	27.60	18.26	66.988	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-6.85	3.15	27.64	17.64	58.076	Vertical	Pass
		1732.5	-6.19	3.31	27.61	18.11	64.714	Vertical	Pass
		1750	-6.32	3.33	27.59	17.94	62.230	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-6.75	3.15	27.65	17.75	59.566	Vertical	Pass
		1732.5	-6.67	3.31	27.61	17.63	57.943	Vertical	Pass
		1747.5	-6.64	3.33	27.57	17.60	57.544	Vertical	Pass
20.0MHz	1/#Mid	1720	-6.21	3.17	27.66	18.28	67.298	Vertical	Pass

Band 16 QAM		1732.5	-6.39	3.32	27.61	17.90	61.660	Vertical	Pass
		1745	-6.05	3.36	27.56	18.15	65.313	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 (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	4.78	2.01	19.68	2.15	20.30	107.152	Horizontal	Pass
		836.5	4.66	2.01	19.77	2.15	20.27	106.414	Horizontal	Pass
		848.3	4.46	2.02	19.82	2.15	20.11	102.565	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	4.55	2.01	19.70	2.15	20.09	102.094	Horizontal	Pass
		836.5	4.45	2.01	19.77	2.15	20.06	101.391	Horizontal	Pass
		847.5	4.32	2.02	19.81	2.15	19.96	99.083	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.83	2.01	19.71	2.15	20.38	109.144	Horizontal	Pass
		836.5	4.71	2.01	19.77	2.15	20.32	107.647	Horizontal	Pass
		846.5	4.55	2.02	19.79	2.15	20.17	103.992	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	4.85	2.01	19.73	2.15	20.42	110.154	Horizontal	Pass
		836.5	4.80	2.01	19.77	2.15	20.41	109.901	Horizontal	Pass
		844	4.70	2.02	19.78	2.15	20.31	107.399	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	3.37	2.01	19.68	2.15	18.89	77.446	Vertical	Pass
		836.5	3.41	2.01	19.77	2.15	19.02	79.799	Vertical	Pass
		848.3	3.74	2.02	19.82	2.15	19.39	86.896	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	4.05	2.01	19.70	2.15	19.59	90.991	Vertical	Pass
		836.5	3.54	2.01	19.77	2.15	19.15	82.224	Vertical	Pass
		847.5	3.56	2.02	19.81	2.15	19.20	83.176	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	3.29	2.01	19.71	2.15	18.84	76.560	Vertical	Pass
		836.5	3.49	2.01	19.77	2.15	19.10	81.283	Vertical	Pass
		846.5	3.56	2.02	19.79	2.15	19.18	82.794	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	3.15	2.01	19.73	2.15	18.72	74.473	Vertical	Pass
		836.5	3.73	2.01	19.77	2.15	19.34	85.901	Vertical	Pass
		844	3.96	2.02	19.78	2.15	19.57	90.573	Vertical	Pass

Radiated Power (ERP) for Band 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/##Mid	824.7	3.93	2.01	19.68	2.15	19.45	88.105	Horizontal	Pass
		836.5	3.86	2.01	19.77	2.15	19.47	88.512	Horizontal	Pass
		848.3	3.70	2.02	19.82	2.15	19.35	86.099	Horizontal	Pass
3.0MHz Band 16 QAM	1/##Mid	825.5	4.01	2.01	19.70	2.15	19.55	90.157	Horizontal	Pass
		836.5	3.72	2.01	19.77	2.15	19.33	85.704	Horizontal	Pass
		847.5	3.20	2.02	19.81	2.15	18.84	76.560	Horizontal	Pass
5.0MHz Band 16 QAM	1/##Mid	826.5	4.33	2.01	19.71	2.15	19.88	97.275	Horizontal	Pass
		836.5	4.10	2.01	19.77	2.15	19.71	93.541	Horizontal	Pass
		846.5	3.85	2.02	19.79	2.15	19.47	88.512	Horizontal	Pass
10.0MHz Band 16 QAM	1/##Mid	829	4.33	2.01	19.73	2.15	19.90	97.724	Horizontal	Pass
		836.5	4.05	2.01	19.77	2.15	19.66	92.470	Horizontal	Pass
		844	3.59	2.02	19.78	2.15	19.20	83.176	Horizontal	Pass
1.4MHz Band 16 QAM	1/##Mid	824.7	3.07	2.01	19.68	2.15	18.59	72.277	Vertical	Pass
		836.5	3.98	2.01	19.77	2.15	19.59	90.991	Vertical	Pass
		848.3	3.50	2.02	19.82	2.15	19.15	82.224	Vertical	Pass
3.0MHz Band 16 QAM	1/##Mid	825.5	3.38	2.01	19.70	2.15	18.92	77.983	Vertical	Pass
		836.5	2.32	2.01	19.77	2.15	17.93	62.087	Vertical	Pass
		847.5	2.99	2.02	19.81	2.15	18.63	72.946	Vertical	Pass
5.0MHz Band 16 QAM	1/##Mid	826.5	3.03	2.01	19.71	2.15	18.58	72.111	Vertical	Pass
		836.5	2.57	2.01	19.77	2.15	18.18	65.766	Vertical	Pass
		846.5	1.99	2.02	19.79	2.15	17.61	57.677	Vertical	Pass
10.0MHz Band 16 QAM	1/##Mid	829	2.54	2.01	19.73	2.15	18.11	64.714	Vertical	Pass
		836.5	2.41	2.01	19.77	2.15	18.02	63.387	Vertical	Pass
		844	2.81	2.02	19.78	2.15	18.42	69.502	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	-2.80	4.54	27.75	20.41	109.901	Horizontal	Pass
		2535	-2.63	4.69	27.72	20.40	109.648	Horizontal	Pass
		2567.5	-2.56	4.71	27.71	20.44	110.662	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.73	4.55	27.76	20.48	111.686	Horizontal	Pass
		2535	-2.54	4.69	27.72	20.49	111.944	Horizontal	Pass
		2565	-2.46	4.72	27.70	20.52	112.720	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.74	4.55	27.77	20.48	111.686	Horizontal	Pass
		2535	-2.60	4.69	27.72	20.43	110.408	Horizontal	Pass
		2562.5	-2.50	4.72	27.69	20.47	111.429	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.68	4.57	27.78	20.53	112.980	Horizontal	Pass
		2535	-2.50	4.73	27.72	20.49	111.944	Horizontal	Pass
		2560	-2.46	4.75	27.68	20.47	111.429	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-4.60	4.54	27.75	18.61	72.611	Vertical	Pass
		2535	-4.37	4.69	27.72	18.66	73.451	Vertical	Pass
		2567.5	-3.72	4.71	27.71	19.28	84.723	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-4.00	4.55	27.76	19.21	83.368	Vertical	Pass
		2535	-3.66	4.69	27.72	19.37	86.497	Vertical	Pass
		2565	-4.27	4.72	27.70	18.71	74.302	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.90	4.55	27.77	19.32	85.507	Vertical	Pass
		2535	-3.60	4.69	27.72	19.43	87.700	Vertical	Pass
		2562.5	-4.38	4.72	27.69	18.59	72.277	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.69	4.57	27.78	19.52	89.536	Vertical	Pass
		2535	-4.15	4.73	27.72	18.84	76.560	Vertical	Pass
		2560	-4.33	4.75	27.68	18.60	72.444	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.49	4.54	27.75	19.72	93.756	Horizontal	Pass
		2535	-3.18	4.69	27.72	19.85	96.605	Horizontal	Pass
		2567.5	-3.26	4.71	27.71	19.74	94.189	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.38	4.55	27.76	19.83	96.161	Horizontal	Pass
		2535	-3.39	4.69	27.72	19.64	92.045	Horizontal	Pass
		2565	-3.66	4.72	27.70	19.32	85.507	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.56	4.55	27.77	19.66	92.470	Horizontal	Pass
		2535	-3.53	4.69	27.72	19.50	89.125	Horizontal	Pass
		2562.5	-3.14	4.72	27.69	19.83	96.161	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.44	4.57	27.78	19.77	94.842	Horizontal	Pass
		2535	-3.11	4.73	27.72	19.88	97.275	Horizontal	Pass
		2560	-3.21	4.75	27.68	19.72	93.756	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.86	4.54	27.75	18.35	68.391	Vertical	Pass
		2535	-4.94	4.69	27.72	18.09	64.417	Vertical	Pass
		2567.5	-3.64	4.71	27.71	19.36	86.298	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.75	4.55	27.76	19.46	88.308	Vertical	Pass
		2535	-4.19	4.69	27.72	18.84	76.560	Vertical	Pass
		2565	-4.23	4.72	27.70	18.75	74.989	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.13	4.55	27.77	19.09	81.096	Vertical	Pass
		2535	-4.39	4.69	27.72	18.64	73.114	Vertical	Pass
		2562.5	-4.57	4.72	27.69	18.40	69.183	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-5.12	4.57	27.78	18.09	64.417	Vertical	Pass
		2535	-4.87	4.73	27.72	18.12	64.863	Vertical	Pass
		2560	-3.98	4.75	27.68	18.95	78.524	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 (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	5.15	1.91	19.21	2.15	20.30	107.152	Vertical	Pass
		707.5	5.07	1.91	19.26	2.15	20.27	106.414	Vertical	Pass
		715.3	4.85	1.93	19.34	2.15	20.11	102.565	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.94	1.91	19.21	2.15	20.09	102.094	Vertical	Pass
		707.5	4.86	1.91	19.26	2.15	20.06	101.391	Vertical	Pass
		714.5	4.70	1.93	19.34	2.15	19.96	99.083	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.21	1.91	19.23	2.15	20.38	109.144	Vertical	Pass
		707.5	5.12	1.91	19.26	2.15	20.32	107.647	Vertical	Pass
		713.5	4.91	1.92	19.33	2.15	20.17	103.992	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	5.23	1.91	19.25	2.15	20.42	110.154	Vertical	Pass
		707.5	5.21	1.91	19.26	2.15	20.41	109.901	Vertical	Pass
		711	5.06	1.92	19.32	2.15	20.31	107.399	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	4.07	1.91	19.21	2.15	19.22	83.560	Horizontal	Pass
		707.5	4.38	1.91	19.26	2.15	19.58	90.782	Horizontal	Pass
		715.3	4.22	1.93	19.34	2.15	19.48	88.716	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	3.45	1.91	19.21	2.15	18.60	72.444	Horizontal	Pass
		707.5	3.49	1.91	19.26	2.15	18.69	73.961	Horizontal	Pass
		714.5	3.63	1.93	19.34	2.15	18.89	77.446	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	4.00	1.91	19.23	2.15	19.17	82.604	Horizontal	Pass
		707.5	3.68	1.91	19.26	2.15	18.88	77.268	Horizontal	Pass
		713.5	4.01	1.92	19.33	2.15	19.27	84.528	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	4.23	1.91	19.25	2.15	19.42	87.498	Horizontal	Pass
		707.5	3.90	1.91	19.26	2.15	19.10	81.283	Horizontal	Pass
		711	4.09	1.92	19.32	2.15	19.34	85.901	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	5.24	1.91	19.21	2.15	20.39	109.396	Vertical	Pass
		707.5	5.16	1.91	19.26	2.15	20.36	108.643	Vertical	Pass
		715.3	4.94	1.93	19.34	2.15	20.20	104.713	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.03	1.91	19.21	2.15	20.18	104.232	Vertical	Pass
		707.5	4.95	1.91	19.26	2.15	20.15	103.514	Vertical	Pass
		714.5	4.79	1.93	19.34	2.15	20.05	101.158	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.30	1.91	19.23	2.15	20.47	111.429	Vertical	Pass
		707.5	5.21	1.91	19.26	2.15	20.41	109.901	Vertical	Pass
		713.5	5.00	1.92	19.33	2.15	20.26	106.170	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.32	1.91	19.25	2.15	20.51	112.460	Vertical	Pass
		707.5	5.30	1.91	19.26	2.15	20.50	112.202	Vertical	Pass
		711	5.15	1.92	19.32	2.15	20.40	109.648	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	3.88	1.91	19.21	2.15	19.03	79.983	Horizontal	Pass
		707.5	3.90	1.91	19.26	2.15	19.10	81.283	Horizontal	Pass
		715.3	3.95	1.93	19.34	2.15	19.21	83.368	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	3.94	1.91	19.21	2.15	19.09	81.096	Horizontal	Pass
		707.5	4.05	1.91	19.26	2.15	19.25	84.140	Horizontal	Pass
		714.5	3.78	1.93	19.34	2.15	19.04	80.168	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	4.28	1.91	19.23	2.15	19.45	88.105	Horizontal	Pass
		707.5	4.12	1.91	19.26	2.15	19.32	85.507	Horizontal	Pass
		713.5	4.28	1.92	19.33	2.15	19.54	89.950	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	3.76	1.91	19.25	2.15	18.95	78.524	Horizontal	Pass
		707.5	3.53	1.91	19.26	2.15	18.73	74.645	Horizontal	Pass
		711	3.69	1.92	19.32	2.15	18.94	78.343	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	779.5	4.94	1.91	19.23	2.15	20.11	102.57	Horizontal	Pass
		782	4.79	1.91	19.26	2.15	19.99	99.77	Horizontal	Pass
		784.5	3.62	1.92	19.33	2.15	18.88	77.27	Horizontal	Pass
10.0MHz Band QPSK	50/0	782	3.81	1.91	19.25	2.15	19.00	79.43	Horizontal	Pass
			5.09	1.91	19.26	2.15	20.29	106.91	Horizontal	Pass
			3.95	1.92	19.32	2.15	19.20	83.18	Horizontal	Pass
5.0MHz Band QPSK	25/0	779.5	3.90	1.91	19.23	2.15	19.07	80.72	Vertical	Pass
		782	3.62	1.91	19.26	2.15	18.82	76.21	Vertical	Pass
		784.5	3.98	1.92	19.33	2.15	19.24	83.95	Vertical	Pass
10.0MHz Band QPSK	50/0	782	3.77	1.91	19.25	2.15	18.96	78.70	Vertical	Pass
			3.44	1.91	19.26	2.15	18.64	73.11	Vertical	Pass
			3.55	1.92	19.32	2.15	18.80	75.86	Vertical	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	779.5	4.87	1.91	19.23	2.15	20.04	100.93	Horizontal	Pass
		782	3.38	1.91	19.26	2.15	18.58	72.11	Horizontal	Pass
		784.5	3.25	1.92	19.33	2.15	18.51	70.96	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	782	3.79	1.91	19.25	2.15	18.98	79.07	Horizontal	Pass
			4.86	1.91	19.26	2.15	20.06	101.39	Horizontal	Pass
			3.34	1.92	19.32	2.15	18.59	72.28	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	779.5	3.37	1.91	19.23	2.15	18.54	71.45	Vertical	Pass
		782	3.84	1.91	19.26	2.15	19.04	80.17	Vertical	Pass
		784.5	3.61	1.92	19.33	2.15	18.87	77.09	Vertical	Pass
10.0MHz Band 16 QAM	50/0	782	3.58	1.91	19.25	2.15	18.77	75.34	Vertical	Pass
			3.36	1.91	19.26	2.15	18.56	71.78	Vertical	Pass
			3.49	1.92	19.32	2.15	18.74	74.82	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	5.70	1.91	19.23	2.15	20.87	122.180	Vertical	Pass
		710	5.56	1.91	19.26	2.15	20.76	119.124	Vertical	Pass
		713.5	5.46	1.92	19.33	2.15	20.72	118.032	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	5.71	1.91	19.25	2.15	20.90	123.027	Vertical	Pass
		710	5.66	1.91	19.26	2.15	20.86	121.899	Vertical	Pass
		711	5.62	1.92	19.32	2.15	20.87	122.180	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	4.27	1.91	19.23	2.15	19.44	87.902	Horizontal	Pass
		710	4.09	1.91	19.26	2.15	19.29	84.918	Horizontal	Pass
		713.5	4.50	1.92	19.33	2.15	19.76	94.624	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	5.31	1.91	19.25	2.15	20.50	112.202	Horizontal	Pass
		710	4.97	1.91	19.26	2.15	20.17	103.992	Horizontal	Pass
		711	4.06	1.92	19.32	2.15	19.31	85.310	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	4.82	1.91	19.23	2.15	19.99	99.770	Vertical	Pass
		710	4.73	1.91	19.26	2.15	19.93	98.401	Vertical	Pass
		713.5	4.53	1.92	19.33	2.15	19.79	95.280	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	4.36	1.91	19.25	2.15	19.55	90.157	Vertical	Pass
		710	4.89	1.91	19.26	2.15	20.09	102.094	Vertical	Pass
		711	4.62	1.92	19.32	2.15	19.87	97.051	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	3.91	1.91	19.23	2.15	19.08	80.910	Horizontal	Pass
		710	3.77	1.91	19.26	2.15	18.97	78.886	Horizontal	Pass
		713.5	3.36	1.92	19.33	2.15	18.62	72.778	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	3.46	1.91	19.25	2.15	18.65	73.282	Horizontal	Pass
		710	3.26	1.91	19.26	2.15	18.46	70.146	Horizontal	Pass
		711	3.50	1.92	19.32	2.15	18.75	74.989	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.9 LTE BAND 26A

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz BW QPSK	6/0	814.7	-2.26	3.76	28.24	2.15	20.07	101.62	Horizontal	Pass
		819	-2.12	3.91	28.22	2.15	20.04	100.93	Horizontal	Pass
		823.3	-2.24	3.93	28.20	2.15	19.88	97.27	Horizontal	Pass
3.0MHz BW QPSK	15/0	815.5	-2.45	3.77	28.23	2.15	19.86	96.83	Horizontal	Pass
		819	-2.35	3.91	28.24	2.15	19.83	96.16	Horizontal	Pass
		822.5	-2.43	3.94	28.25	2.15	19.73	93.97	Horizontal	Pass
5.0MHz BW QPSK	25/0	816.5	-2.24	3.77	28.31	2.15	20.15	103.51	Horizontal	Pass
		819	-2.07	3.91	28.22	2.15	20.09	102.09	Horizontal	Pass
		821.5	-2.17	3.94	28.20	2.15	19.94	98.63	Horizontal	Pass
10.0MHz BW QPSK	50/0	819	-1.97	3.91	28.22	2.15	20.19	104.47	Horizontal	Pass
1.4MHz BW QPSK	6/0	814.7	-2.22	3.79	28.34	2.15	20.18	104.23	Vertical	Pass
		819	-2.04	3.95	28.22	2.15	20.08	101.86	Vertical	Pass
		823.3	-2.79	3.97	28.18	2.15	19.27	84.53	Vertical	Pass
3.0MHz BW QPSK	15/0	815.5	-3.79	3.77	28.23	2.15	18.52	71.12	Vertical	Pass
		819	-3.43	3.91	28.24	2.15	18.75	74.99	Vertical	Pass
		822.5	-3.43	3.94	28.25	2.15	18.73	74.64	Vertical	Pass
5.0MHz BW QPSK	25/0	816.5	-3.05	3.77	28.31	2.15	19.34	85.90	Vertical	Pass
		819	-3.21	3.91	28.22	2.15	18.95	78.52	Vertical	Pass
		821.5	-3.06	3.94	28.20	2.15	19.05	80.35	Vertical	Pass
10.0MHz BW QPSK	50/0	819	-3.42	3.91	28.22	2.15	18.74	74.82	Vertical	Pass

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz BW 16 QAM	6/0	814.7	-2.14	3.76	28.24	2.15	20.19	104.47	Horizontal	Pass
		819	-2.00	3.91	28.22	2.15	20.16	103.75	Horizontal	Pass
		823.3	-2.12	3.93	28.20	2.15	20.00	100.00	Horizontal	Pass
3.0MHz BW 16 QAM	15/0	815.5	-2.33	3.77	28.23	2.15	19.98	99.54	Horizontal	Pass
		819	-2.23	3.91	28.24	2.15	19.95	98.86	Horizontal	Pass
		822.5	-2.31	3.94	28.25	2.15	19.85	96.61	Horizontal	Pass
5.0MHz BW 16 QAM	25/0	816.5	-2.12	3.77	28.31	2.15	20.27	106.41	Horizontal	Pass
		819	-1.95	3.91	28.22	2.15	20.21	104.95	Horizontal	Pass
		821.5	-2.05	3.94	28.20	2.15	20.06	101.39	Horizontal	Pass
10.0MHz BW 16 QAM	50/0	819	-1.87	3.91	28.24	2.15	20.31	107.40	Horizontal	Pass
1.4MHz BW 16 QAM	6/0	814.7	-2.10	3.79	28.34	2.15	20.30	107.15	Vertical	Pass
		819	-1.92	3.95	28.22	2.15	20.20	104.71	Vertical	Pass
		823.3	-3.50	3.97	28.18	2.15	18.56	71.78	Vertical	Pass
3.0MHz BW 16 QAM	15/0	815.5	-3.61	3.77	28.23	2.15	18.70	74.13	Vertical	Pass
		819	-2.86	3.91	28.24	2.15	19.32	85.51	Vertical	Pass
		822.5	-2.88	3.94	28.25	2.15	19.28	84.72	Vertical	Pass
5.0MHz BW 16 QAM	25/0	816.5	-3.09	3.77	28.31	2.15	19.30	85.11	Vertical	Pass
		819	-2.97	3.91	28.22	2.15	19.19	82.99	Vertical	Pass
		821.5	-3.48	3.94	28.20	2.15	18.63	72.95	Vertical	Pass
10.0MHz BW 16 QAM	50/0	819	-2.89	3.91	28.24	2.15	19.29	84.92	Vertical	Pass

8.10 LTE BAND 26B

Radiated Power (ERP) for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	824.7	3.63	2.01	19.68	2.15	19.15	82.22	Horizontal	Pass
		836.5	3.57	2.01	19.77	2.15	19.18	82.79	Horizontal	Pass
		848.3	3.51	2.02	19.82	2.15	19.16	82.41	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	3.67	2.01	19.70	2.15	19.21	83.37	Horizontal	Pass
		836.5	3.30	2.01	19.77	2.15	18.91	77.80	Horizontal	Pass
		847.5	3.75	2.02	19.81	2.15	19.39	86.90	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	3.93	2.01	19.71	2.15	19.48	88.72	Horizontal	Pass
		836.5	3.75	2.01	19.77	2.15	19.36	86.30	Horizontal	Pass
		846.5	3.12	2.02	19.79	2.15	18.74	74.82	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	3.14	2.01	19.73	2.15	18.71	74.30	Horizontal	Pass
		836.5	3.26	2.01	19.77	2.15	18.87	77.09	Horizontal	Pass
		844	3.86	2.02	19.78	2.15	19.47	88.51	Horizontal	Pass
15.0MHz Band QPSK	75/0	831.5	2.95	2.01	19.73	2.15	18.52	71.12	Horizontal	Pass
		836.5	3.88	2.01	19.77	2.15	19.49	88.92	Horizontal	Pass
		841.5	3.61	2.02	19.78	2.15	19.22	83.56	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	3.21	2.01	19.68	2.15	18.73	74.64	Vertical	Pass
		836.5	3.15	2.01	19.77	2.15	18.76	75.16	Vertical	Pass
		848.3	3.41	2.02	19.82	2.15	19.06	80.54	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	3.35	2.01	19.70	2.15	18.89	77.45	Vertical	Pass
		836.5	2.97	2.01	19.77	2.15	18.58	72.11	Vertical	Pass
		847.5	3.22	2.02	19.81	2.15	18.86	76.91	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	3.37	2.01	19.71	2.15	18.92	77.98	Vertical	Pass
		836.5	3.12	2.01	19.77	2.15	18.73	74.64	Vertical	Pass
		846.5	3.24	2.02	19.79	2.15	18.86	76.91	Vertical	Pass
10.0MHz Band QPSK	50/0	829	3.01	2.01	19.73	2.15	18.58	72.11	Vertical	Pass
		836.5	3.35	2.01	19.77	2.15	18.96	78.70	Vertical	Pass
		844	3.19	2.02	19.78	2.15	18.80	75.86	Vertical	Pass
15.0MHz Band QPSK	75/0	831.5	3.02	2.01	19.73	2.15	18.59	72.28	Vertical	Pass
		836.5	3.77	2.01	19.77	2.15	19.38	86.70	Vertical	Pass
		841.5	3.37	2.02	19.78	2.15	18.98	79.07	Vertical	Pass

Radiated Power (ERP) for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	824.7	3.94	2.01	19.68	2.15	19.46	88.31	Horizontal	Pass
		836.5	3.17	2.01	19.77	2.15	18.78	75.51	Horizontal	Pass
		848.3	3.11	2.02	19.82	2.15	18.76	75.16	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	3.20	2.01	19.70	2.15	18.74	74.82	Horizontal	Pass
		836.5	3.50	2.01	19.77	2.15	19.11	81.47	Horizontal	Pass
		847.5	3.20	2.02	19.81	2.15	18.84	76.56	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	3.36	2.01	19.71	2.15	18.91	77.80	Horizontal	Pass
		836.5	3.33	2.01	19.77	2.15	18.94	78.34	Horizontal	Pass
		846.5	3.17	2.02	19.79	2.15	18.79	75.68	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	3.57	2.01	19.73	2.15	19.14	82.04	Horizontal	Pass
		836.5	3.89	2.01	19.77	2.15	19.50	89.13	Horizontal	Pass
		844	3.13	2.02	19.78	2.15	18.74	74.82	Horizontal	Pass
15.0MHz Band QAM	75/0	831.5	3.95	2.01	19.73	2.15	19.52	89.54	Horizontal	Pass
		836.5	3.13	2.01	19.77	2.15	18.74	74.82	Horizontal	Pass
		841.5	2.93	2.02	19.78	2.15	18.54	71.45	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	3.45	2.01	19.68	2.15	18.97	78.89	Vertical	Pass
		836.5	3.84	2.01	19.77	2.15	19.45	88.10	Vertical	Pass
		848.3	3.59	2.02	19.82	2.15	19.24	83.95	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	3.39	2.01	19.70	2.15	18.93	78.16	Vertical	Pass
		836.5	3.21	2.01	19.77	2.15	18.82	76.21	Vertical	Pass
		847.5	3.81	2.02	19.81	2.15	19.45	88.10	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	3.08	2.01	19.71	2.15	18.63	72.95	Vertical	Pass
		836.5	3.52	2.01	19.77	2.15	19.13	81.85	Vertical	Pass
		846.5	3.14	2.02	19.79	2.15	18.76	75.16	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	3.55	2.01	19.73	2.15	19.12	81.66	Vertical	Pass
		836.5	3.77	2.01	19.77	2.15	19.38	86.70	Vertical	Pass
		844	3.15	2.02	19.78	2.15	18.76	75.16	Vertical	Pass
15.0MHz Band QAM	75/0	831.5	3.09	2.01	19.73	2.15	18.66	73.45	Vertical	Pass
		836.5	3.02	2.01	19.77	2.15	18.63	72.95	Vertical	Pass
		841.5	3.28	2.02	19.78	2.15	18.89	77.45	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 Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	18.53	71.285	Vertical	Pass
		2595	-2.64	4.88	27.71	19.30	85.114	Vertical	Pass
		2617.5	-2.58	4.93	27.95	18.72	74.473	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	18.52	71.121	Vertical	Pass
		2595	-2.47	4.95	27.81	18.53	71.285	Vertical	Pass
		2617.5	-2.59	5.03	27.69	18.90	77.625	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	19.16	82.414	Vertical	Pass
		2595	-2.6	5	27.65	18.83	76.384	Vertical	Pass
		2615	-2.67	4.87	27.89	18.52	71.121	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	19.15	82.224	Vertical	Pass
		2595	-2.38	4.87	27.87	18.98	79.068	Vertical	Pass
		2615	-2.56	4.94	27.77	19.26	84.333	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	18.87	77.090	Vertical	Pass
		2595	-2.32	4.87	27.84	19.14	82.035	Vertical	Pass
		2612.5	-2.52	4.92	27.93	18.72	74.473	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	19.39	86.896	Vertical	Pass
		2595	-2.53	4.98	27.82	18.66	73.451	Vertical	Pass
		2612.5	-2.6	4.95	27.83	18.97	78.886	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	18.91	77.804	Vertical	Pass
		2595	-2.37	4.79	27.83	20.11	102.565	Vertical	Pass
		2610	-2.68	4.89	27.87	19.19	82.985	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	18.71	74.302	Vertical	Pass
		2595	-2.88	4.91	27.71	20.16	103.753	Vertical	Pass
		2610	-2.81	4.96	27.92	18.61	72.611	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	18.84	76.560	Horizontal	Pass
		2595	-2.64	4.88	27.71	18.66	73.451	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	18.52	71.121	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	19.06	80.538	Horizontal	Pass
		2595	-2.47	4.95	27.81	19.28	84.723	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	18.75	74.989	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	18.41	69.343	Horizontal	Pass
		2595	-2.6	5	27.65	19.29	84.918	Horizontal	Pass
		2615	-2.67	4.87	27.89	19.19	82.985	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	19.00	79.433	Horizontal	Pass
		2595	-2.38	4.87	27.87	19.30	85.114	Horizontal	Pass
		2615	-2.56	4.94	27.77	18.51	70.958	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	19.07	80.724	Horizontal	Pass
		2595	-2.32	4.87	27.84	18.73	74.645	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	18.60	72.444	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	18.52	71.121	Horizontal	Pass
		2595	-2.53	4.98	27.82	19.03	79.983	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	19.18	82.794	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	18.99	79.250	Horizontal	Pass
		2595	-2.37	4.79	27.83	19.99	99.770	Horizontal	Pass
		2610	-2.68	4.89	27.87	19.09	81.096	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	19.06	80.538	Horizontal	Pass
		2595	-2.88	4.91	27.71	19.26	84.333	Horizontal	Pass
		2610	-2.81	4.96	27.92	19.18	82.794	Horizontal	Pass

Note:

SG Level= Signal generator output

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

8.12 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-4.51	3.76	28.24	19.97	99.312	Horizontal	Pass
		1745	-4.37	3.91	28.22	19.94	98.628	Horizontal	Pass
		1779.3	-4.24	3.93	28.2	20.03	100.693	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.57	3.77	28.23	19.89	97.499	Horizontal	Pass
		1745	-4.48	3.91	28.24	19.85	96.605	Horizontal	Pass
		1778.5	-4.50	3.94	28.25	19.81	95.719	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.47	3.77	28.31	20.07	101.625	Horizontal	Pass
		1745	-4.15	3.91	28.22	20.16	103.753	Horizontal	Pass
		1777.5	-4.21	3.94	28.2	20.05	101.158	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.36	3.79	28.33	20.18	104.232	Horizontal	Pass
		1745	-4.09	3.95	28.22	20.18	104.232	Horizontal	Pass
		1775	-4.10	3.97	28.19	20.12	102.802	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.38	3.79	28.34	20.17	103.992	Horizontal	Pass
		1745	-4.19	3.95	28.22	20.08	101.859	Horizontal	Pass
		1772.5	-4.14	3.97	28.18	20.07	101.625	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.35	3.81	28.35	20.19	104.472	Horizontal	Pass
		1745	-4.09	3.96	28.22	20.17	103.992	Horizontal	Pass
		1770	-4.11	4	28.16	20.05	101.158	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-5.77	3.76	28.24	18.71	74.302	Vertical	Pass
		1745	-5.52	3.91	28.22	18.79	75.683	Vertical	Pass
		1779.3	-5.48	3.93	28.2	18.79	75.683	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.58	3.77	28.23	18.88	77.268	Vertical	Pass
		1745	-4.88	3.91	28.24	19.45	88.105	Vertical	Pass
		1778.5	-5.25	3.94	28.25	19.06	80.538	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.69	3.77	28.31	18.85	76.736	Vertical	Pass
		1745	-5.10	3.91	28.22	19.21	83.368	Vertical	Pass
		1777.5	-5.16	3.94	28.2	19.10	81.283	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.51	3.79	28.34	19.04	80.168	Vertical	Pass
		1745	-5.11	3.95	28.22	19.16	82.414	Vertical	Pass
		1775	-4.80	3.97	28.18	19.41	87.297	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-5.27	3.81	28.35	19.27	84.528	Vertical	Pass
		1745	-5.74	3.96	28.22	18.52	71.121	Vertical	Pass
		1772.5	-5.47	4	28.16	18.69	73.961	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-5.76	3.79	28.34	18.79	75.683	Vertical	Pass
		1745	-4.97	3.95	28.22	19.30	85.114	Vertical	Pass
		1770	-5.71	3.97	28.18	18.50	70.795	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	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.43	3.76	28.24	19.05	80.353	Horizontal	Pass
		1745	-5.04	3.91	28.22	19.27	84.528	Horizontal	Pass
		1779.3	-5.22	3.93	28.2	19.05	80.353	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.82	3.77	28.23	18.64	73.114	Horizontal	Pass
		1745	-5.07	3.91	28.24	19.26	84.333	Horizontal	Pass
		1778.5	-5.36	3.94	28.25	18.95	78.524	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.24	3.77	28.31	19.30	85.114	Horizontal	Pass
		1745	-5.30	3.91	28.22	19.01	79.616	Horizontal	Pass
		1777.5	-4.97	3.94	28.2	19.29	84.918	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.29	3.79	28.33	19.25	84.140	Horizontal	Pass
		1745	-4.95	3.95	28.22	19.32	85.507	Horizontal	Pass
		1775	-5.27	3.97	28.19	18.95	78.524	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-5.28	3.79	28.34	19.27	84.528	Horizontal	Pass
		1745	-5.10	3.95	28.22	19.17	82.604	Horizontal	Pass
		1772.5	-4.89	3.97	28.18	19.32	85.507	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-5.11	3.81	28.35	19.43	87.700	Horizontal	Pass
		1745	-4.89	3.96	28.22	19.37	86.497	Horizontal	Pass
		1770	-4.83	4	28.16	19.33	85.704	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.51	3.76	28.24	18.97	78.886	Vertical	Pass
		1745	-6.86	3.91	28.22	17.45	55.590	Vertical	Pass
		1779.3	-5.26	3.93	28.2	19.01	79.616	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.90	3.77	28.23	17.56	57.016	Vertical	Pass
		1745	-5.35	3.91	28.24	18.98	79.068	Vertical	Pass
		1778.5	-6.95	3.94	28.25	17.36	54.450	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.64	3.77	28.31	17.90	61.660	Vertical	Pass
		1745	-6.82	3.91	28.22	17.49	56.105	Vertical	Pass
		1777.5	-6.51	3.94	28.2	17.75	59.566	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.30	3.79	28.34	19.25	84.140	Vertical	Pass
		1745	-5.76	3.95	28.22	18.51	70.958	Vertical	Pass
		1775	-6.81	3.97	28.18	17.40	54.954	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-7.15	3.81	28.35	17.39	54.828	Vertical	Pass

Band 16 QAM		1745	-5.14	3.96	28.22	19.12	81.658	Vertical	Pass
		1772.5	-5.43	4	28.16	18.73	74.645	Vertical	Pass
20.0MHz	1/#Mid	1720	-6.84	3.79	28.34	17.71	59.020	Vertical	Pass
Band 16		1745	-6.21	3.95	28.22	18.06	63.973	Vertical	Pass
QAM		1770	-5.12	3.97	28.18	19.09	81.096	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 $55 + \log_{10}(P \text{ [Watts]})$.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P \text{ [Watts]})$, 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 $43 + 10 \log_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB at the channel edges and $55 + 10 \log_{10}(p)$ 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, 4, 5, 7, 12, 13, 17, 26, 38, 66

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-48.13	4.04	33.51	-18.66	-13	-5.66	Horizontal
3701.4	-53.18	4.04	33.51	-23.71	-13	-10.71	Vertical
5552.1	-50.89	5.24	35.84	-20.29	-13	-7.29	Vertical
5552.1	-51.70	5.24	35.84	-21.10	-13	-8.10	Horizontal
191.4	-39.88	1.43	16.02	-25.29	-13	-12.29	Vertical
420.4	-39.05	1.30	17.99	-22.36	-13	-9.36	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-45.75	4.04	33.56	-16.23	-13	-3.23	Horizontal
3760.0	-45.80	4.04	33.56	-16.28	-13	-3.28	Vertical
5640.0	-53.53	5.24	35.91	-22.86	-13	-9.86	Vertical
5640.0	-50.04	5.24	35.91	-19.37	-13	-6.37	Horizontal
207.1	-39.15	1.62	16.97	-23.80	-13	-10.80	Vertical
413.2	-41.07	1.74	15.98	-26.84	-13	-13.84	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-46.20	4.04	34.00	-16.24	-13	-3.24	Horizontal
3818.6	-52.83	4.04	34.00	-22.87	-13	-9.87	Vertical
5727.9	-49.20	5.24	36.04	-18.40	-13	-5.40	Vertical
5727.9	-51.70	5.24	36.04	-20.90	-13	-7.90	Horizontal
201.8	-41.25	1.42	17.29	-25.38	-13	-12.38	Vertical
287.9	-35.77	1.50	17.90	-19.36	-13	-6.36	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-49.82	4.07	33.54	-20.35	-13	-7.35	Horizontal
3720.0	-53.29	4.07	33.54	-23.82	-13	-10.82	Vertical
5580.0	-49.33	5.28	35.86	-18.75	-13	-5.75	Vertical
5580.0	-52.05	5.28	35.86	-21.47	-13	-8.47	Horizontal
179.9	-43.06	1.58	16.89	-27.74	-13	-14.74	Vertical
297.5	-42.76	1.76	17.26	-27.26	-13	-14.26	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.68	4.04	33.56	-19.16	-13	-6.16	Horizontal
3760.0	-51.45	4.04	33.56	-21.93	-13	-8.93	Vertical
5640.0	-52.73	5.24	35.91	-22.06	-13	-9.06	Vertical
5640.0	-53.94	5.24	35.91	-23.27	-13	-10.27	Horizontal
182.6	-36.42	1.46	16.27	-21.61	-13	-8.61	Vertical
455.8	-36.30	1.59	15.15	-22.74	-13	-9.74	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-48.82	4.04	34.00	-18.86	-13	-5.86	Horizontal
3800.0	-50.39	4.04	34.00	-20.43	-13	-7.43	Vertical
5700.0	-51.20	5.24	36.04	-20.40	-13	-7.40	Vertical
5700.0	-53.15	5.24	36.04	-22.35	-13	-9.35	Horizontal
180.6	-44.12	1.36	17.39	-28.08	-13	-15.08	Vertical
240.0	-34.16	1.66	15.39	-20.43	-13	-7.43	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	-47.78	4.02	29.80	-22.00	-13	-9.00	Horizontal
3421.4	-45.15	4.02	29.80	-19.37	-13	-6.37	Vertical
5132.1	-50.10	5.24	35.84	-19.50	-13	-6.50	Vertical
5132.1	-52.74	5.24	35.84	-22.14	-13	-9.14	Horizontal
184.7	-34.69	1.68	16.04	-20.33	-13	-7.33	Vertical
451.9	-36.68	1.78	17.74	-20.72	-13	-7.72	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-52.89	4.03	30.00	-26.92	-13	-13.92	Horizontal
3465.0	-51.25	4.03	30.00	-25.28	-13	-12.28	Vertical
5197.5	-52.81	5.25	35.86	-22.20	-13	-9.20	Vertical
5197.5	-49.17	5.25	35.86	-18.56	-13	-5.56	Horizontal
210.6	-41.81	1.72	17.69	-25.84	-13	-12.84	Vertical
444.4	-44.30	1.62	16.02	-29.89	-13	-16.89	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-44.46	4.05	30.01	-18.50	-13	-5.50	Horizontal
3508.6	-49.19	4.05	30.01	-23.23	-13	-10.23	Vertical
5262.9	-53.99	5.26	35.86	-23.39	-13	-10.39	Vertical
5262.9	-49.19	5.26	35.86	-18.59	-13	-5.59	Horizontal
179.6	-38.69	1.80	16.69	-23.80	-13	-10.80	Vertical
436.0	-39.14	1.75	16.66	-24.24	-13	-11.24	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	-47.19	4.02	29.80	-21.41	-13	-8.41	Horizontal
3440.0	-47.01	4.02	29.80	-21.23	-13	-8.23	Vertical
5160.0	-51.08	5.24	35.84	-20.48	-13	-7.48	Vertical
5160.0	-50.06	5.24	35.84	-19.46	-13	-6.46	Horizontal
196.5	-38.43	1.57	17.26	-22.74	-13	-9.74	Vertical
425.4	-42.51	1.78	16.35	-27.94	-13	-14.94	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-50.59	4.03	30.00	-24.62	-13	-11.62	Horizontal
3465.0	-48.19	4.03	30.00	-22.22	-13	-9.22	Vertical
5197.5	-50.27	5.25	35.86	-19.66	-13	-6.66	Vertical
5197.5	-50.76	5.25	35.86	-20.15	-13	-7.15	Horizontal
184.8	-39.60	1.44	17.95	-23.09	-13	-10.09	Vertical
232.4	-35.80	1.65	16.09	-21.36	-13	-8.36	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-51.84	2.91	27.68	-27.07	-13	-14.07	Horizontal
3490.0	-48.20	2.91	27.68	-23.43	-13	-10.43	Vertical
5235.0	-53.27	5.26	35.86	-22.67	-13	-9.67	Vertical
5235.0	-53.36	5.26	35.86	-22.76	-13	-9.76	Horizontal
209.7	-41.07	1.61	16.85	-25.83	-13	-12.83	Vertical
330.2	-34.04	1.61	15.19	-20.46	-13	-7.46	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	-44.64	2.78	27.50	-19.92	-13	-6.92	Horizontal
1649.4	-48.48	2.78	27.50	-23.76	-13	-10.76	Vertical
2474.1	-44.08	2.90	27.80	-19.18	-13	-6.18	Vertical
2474.1	-50.90	2.90	27.80	-26.00	-13	-13.00	Horizontal
199.2	-36.54	1.76	17.59	-20.71	-13	-7.71	Vertical
419.3	-44.76	1.63	15.87	-30.52	-13	-17.52	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-53.50	2.80	27.48	-28.82	-13	-15.82	Horizontal
1673.0	-46.15	2.80	27.48	-21.47	-13	-8.47	Vertical
2509.5	-45.46	2.91	27.70	-20.67	-13	-7.67	Vertical
2509.5	-49.92	2.91	27.70	-25.13	-13	-12.13	Horizontal
188.4	-42.71	1.61	15.68	-28.64	-13	-15.64	Vertical
423.8	-39.66	1.59	17.52	-23.74	-13	-10.74	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-49.20	2.82	27.43	-24.59	-13	-11.59	Horizontal
1696.6	-53.21	2.82	27.43	-28.60	-13	-15.60	Vertical
2544.9	-46.53	2.92	27.74	-21.71	-13	-8.71	Vertical
2544.9	-51.57	2.92	27.74	-26.75	-13	-13.75	Horizontal
190.3	-37.69	1.69	16.67	-22.70	-13	-9.70	Vertical
331.3	-41.67	1.70	17.18	-26.19	-13	-13.19	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	-48.08	2.78	27.50	-23.36	-13	-10.36	Horizontal
1658.0	-51.02	2.78	27.50	-26.30	-13	-13.30	Vertical
2487.0	-52.92	2.90	27.80	-28.02	-13	-15.02	Vertical
2487.0	-50.46	2.90	27.80	-25.56	-13	-12.56	Horizontal
178.3	-43.66	1.71	15.57	-29.80	-13	-16.80	Vertical
283.6	-36.37	1.34	16.40	-21.31	-13	-8.31	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-50.59	2.80	27.48	-25.91	-13	-12.91	Horizontal
1673.0	-45.43	2.80	27.48	-20.75	-13	-7.75	Vertical
2509.5	-50.98	2.91	27.70	-26.19	-13	-13.19	Vertical
2509.5	-53.84	2.91	27.70	-29.05	-13	-16.05	Horizontal
179.7	-44.27	1.44	17.04	-28.67	-13	-15.67	Vertical
348.5	-37.90	1.76	17.62	-22.04	-13	-9.04	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.34	2.82	27.43	-19.73	-13	-6.73	Horizontal
1688.0	-48.73	2.82	27.43	-24.12	-13	-11.12	Vertical
2532.0	-50.90	2.92	27.74	-26.08	-13	-13.08	Vertical
2532.0	-53.78	2.92	27.74	-28.96	-13	-15.96	Horizontal
198.8	-41.66	1.74	17.70	-25.70	-13	-12.70	Vertical
355.1	-42.92	1.41	17.46	-26.86	-13	-13.86	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	-62.10	5.23	35.81	-31.52	-25	-6.52	Horizontal
5005.0	-60.62	5.23	35.81	-30.04	-25	-5.04	Vertical
7507.5	-62.25	5.67	36.85	-31.07	-25	-6.07	Vertical
7507.5	-60.20	5.67	36.85	-29.02	-25	-4.02	Horizontal
205.3	-51.35	1.73	17.97	-35.11	-25	-10.11	Vertical
437.2	-54.57	1.38	15.11	-40.84	-25	-15.84	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.15	5.23	35.82	-30.56	-25	-5.56	Horizontal
5070.0	-64.28	5.23	35.82	-33.69	-25	-8.69	Vertical
7605.0	-61.90	5.67	36.85	-30.72	-25	-5.72	Vertical
7605.0	-63.05	5.67	36.85	-31.87	-25	-6.87	Horizontal
212.2	-50.54	1.77	16.17	-36.13	-25	-11.13	Vertical
338.3	-50.14	1.63	15.21	-36.56	-25	-11.56	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-60.11	5.24	35.83	-29.52	-25	-4.52	Horizontal
5135.0	-59.16	5.24	35.83	-28.57	-25	-3.57	Vertical
7702.5	-62.78	5.68	36.87	-31.59	-25	-6.59	Vertical
7702.5	-63.17	5.68	36.87	-31.98	-25	-6.98	Horizontal
188.8	-52.23	1.58	17.56	-36.25	-25	-11.25	Vertical
312.3	-45.11	1.45	16.58	-29.98	-25	-4.98	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	-61.51	5.23	35.82	-30.92	-25	-5.92	Horizontal
5020.0	-62.69	5.23	35.82	-32.10	-25	-7.10	Vertical
7530.0	-62.65	5.67	36.86	-31.46	-25	-6.46	Vertical
7530.0	-63.04	5.67	36.86	-31.85	-25	-6.85	Horizontal
181.0	-45.35	1.63	15.76	-31.22	-25	-6.22	Vertical
444.9	-46.62	1.71	15.44	-32.89	-25	-7.89	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.13	5.23	35.82	-31.54	-25	-6.54	Horizontal
5070.0	-59.55	5.23	35.82	-28.96	-25	-3.96	Vertical
7605.0	-63.55	5.67	36.85	-32.37	-25	-7.37	Vertical
7605.0	-64.00	5.67	36.85	-32.82	-25	-7.82	Horizontal
175.6	-44.90	1.79	16.84	-29.84	-25	-4.84	Vertical
320.2	-45.30	1.71	17.64	-29.37	-25	-4.37	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-62.75	5.24	35.83	-32.16	-25	-7.16	Horizontal
5120.0	-59.64	5.24	35.83	-29.05	-25	-4.05	Vertical
7680.0	-63.10	5.70	36.88	-31.92	-25	-6.92	Vertical
7680.0	-64.82	5.70	36.88	-33.64	-25	-8.64	Horizontal
207.3	-45.46	1.79	16.84	-30.40	-25	-5.40	Vertical
320.4	-48.32	1.71	17.64	-32.39	-25	-7.39	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	-45.67	2.60	27.20	-21.07	-13	-8.07	Horizontal
1399.4	-48.67	2.60	27.20	-24.07	-13	-11.07	Vertical
2099.1	-46.83	2.85	27.54	-22.14	-13	-9.14	Vertical
2099.1	-53.68	2.85	27.54	-28.99	-13	-15.99	Horizontal
186.9	-41.73	1.49	17.78	-25.44	-13	-12.44	Vertical
355.2	-44.95	1.36	17.33	-28.98	-13	-15.98	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-53.72	2.61	27.28	-29.05	-13	-16.05	Horizontal
1415.0	-46.27	2.61	27.28	-21.60	-13	-8.60	Vertical
2122.5	-45.72	2.87	27.59	-21.00	-13	-8.00	Vertical
2122.5	-50.22	2.87	27.59	-25.50	-13	-12.50	Horizontal
206.8	-36.48	1.73	15.74	-22.47	-13	-9.47	Vertical
393.2	-42.38	1.62	15.79	-28.21	-13	-15.21	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-53.22	2.63	27.28	-28.57	-13	-15.57	Horizontal
1430.6	-49.07	2.63	27.28	-24.42	-13	-11.42	Vertical
2145.9	-50.84	2.88	27.60	-26.12	-13	-13.12	Vertical
2145.9	-49.16	2.88	27.60	-24.44	-13	-11.44	Horizontal
195.9	-34.38	1.61	18.00	-17.99	-13	-4.99	Vertical
384.3	-41.39	1.45	15.49	-27.36	-13	-14.36	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	-48.35	2.61	27.26	-23.70	-13	-10.70	Horizontal
1408.0	-52.68	2.61	27.26	-28.03	-13	-15.03	Vertical
2112.0	-44.77	2.87	27.58	-20.06	-13	-7.06	Vertical
2112.0	-50.85	2.87	27.58	-26.14	-13	-13.14	Horizontal
175.1	-36.59	1.31	16.97	-20.93	-13	-7.93	Vertical
371.3	-40.17	1.65	16.70	-25.12	-13	-12.12	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-48.64	2.61	27.28	-23.97	-13	-10.97	Horizontal
1415.0	-48.19	2.61	27.28	-23.52	-13	-10.52	Vertical
2122.5	-50.60	2.87	27.59	-25.88	-13	-12.88	Vertical
2122.5	-53.03	2.87	27.59	-28.31	-13	-15.31	Horizontal
205.8	-42.69	1.72	17.99	-26.42	-13	-13.42	Vertical
377.5	-37.60	1.73	17.94	-21.39	-13	-8.39	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.12	2.62	27.28	-23.46	-13	-10.46	Horizontal
1422.0	-47.60	2.62	27.28	-22.94	-13	-9.94	Vertical
2133.0	-50.65	2.87	27.60	-25.92	-13	-12.92	Vertical
2133.0	-51.91	2.87	27.60	-27.18	-13	-14.18	Horizontal
180.6	-38.45	1.58	15.93	-24.10	-13	-11.10	Vertical
309.3	-34.99	1.36	15.59	-20.76	-13	-7.76	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.

9.6 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	-73.38	2.61	27.28	-48.71	-40	-8.71	Horizontal
1559.0	-69.82	2.61	27.28	-45.15	-40	-5.15	Vertical
2338.5	-43.30	2.87	27.59	-18.58	-13	-5.58	Vertical
2338.5	-43.30	2.87	27.59	-18.58	-13	-5.58	Horizontal
120.1	-36.02	1.54	15.61	-21.95	-13	-8.95	Vertical
197.8	-38.12	1.51	15.21	-24.42	-13	-11.42	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-74.21	2.62	27.30	-49.53	-40	-9.53	Horizontal
1564.0	-74.26	2.62	27.30	-49.58	-40	-9.58	Vertical
2346.0	-43.83	2.87	27.62	-19.08	-13	-6.08	Vertical
2346.0	-42.16	2.87	27.62	-17.41	-13	-4.41	Horizontal
131.2	-35.18	1.65	16.17	-20.66	-13	-7.66	Vertical
267.5	-34.22	1.48	16.88	-18.82	-13	-5.82	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-71.76	2.66	27.28	-47.14	-40	-7.14	Horizontal
1569.0	-73.76	2.66	27.28	-49.14	-40	-9.14	Vertical
2353.5	-44.02	2.88	27.60	-19.30	-13	-6.30	Vertical
2353.5	-42.25	2.88	27.60	-17.53	-13	-4.53	Horizontal
80.8	-34.06	1.54	16.40	-19.20	-13	-6.20	Vertical
155.6	-37.79	1.43	15.77	-23.45	-13	-10.45	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	-73.85	2.62	27.30	-49.17	-40	-9.17	Horizontal
1564.0	-71.77	2.62	27.30	-47.09	-40	-7.09	Vertical
2346.0	-42.85	2.87	27.62	-18.10	-13	-5.10	Vertical
2346.0	-45.30	2.87	27.62	-20.55	-13	-7.55	Horizontal
129.1	-35.44	1.43	17.03	-19.84	-13	-6.84	Vertical
86.9	-36.42	1.62	16.63	-21.41	-13	-8.41	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ AR_{pl} (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 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	-53.45	2.61	27.28	-28.78	-13	-15.78	Horizontal
1413.0	-52.75	2.61	27.28	-28.08	-13	-15.08	Vertical
2119.5	-52.90	2.87	27.59	-28.18	-13	-15.18	Vertical
2119.5	-52.48	2.87	27.59	-27.76	-13	-14.76	Horizontal
199.1	-39.51	1.71	16.15	-25.07	-13	-12.07	Vertical
433.6	-35.34	1.41	17.32	-19.43	-13	-6.43	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-53.86	2.62	27.30	-29.18	-13	-16.18	Horizontal
1420.0	-51.75	2.62	27.30	-27.07	-13	-14.07	Vertical
2130.0	-48.78	2.87	27.62	-24.03	-13	-11.03	Vertical
2130.0	-51.28	2.87	27.62	-26.53	-13	-13.53	Horizontal
176.8	-42.33	1.42	15.25	-28.51	-13	-15.51	Vertical
425.3	-37.69	1.36	17.19	-21.86	-13	-8.86	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-53.98	2.66	27.28	-29.36	-13	-16.36	Horizontal
1427.0	-46.01	2.66	27.28	-21.39	-13	-8.39	Vertical
2140.5	-52.97	2.88	27.60	-28.25	-13	-15.25	Vertical
2140.5	-49.36	2.88	27.60	-24.64	-13	-11.64	Horizontal
176.5	-40.03	1.32	17.29	-24.06	-13	-11.06	Vertical
270.8	-41.13	1.72	16.89	-25.96	-13	-12.96	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	-50.41	2.62	27.30	-25.73	-13	-12.73	Horizontal
1418.0	-53.61	2.62	27.30	-28.93	-13	-15.93	Vertical
2127.0	-48.27	2.87	27.62	-23.52	-13	-10.52	Vertical
2127.0	-52.15	2.87	27.62	-27.40	-13	-14.40	Horizontal
202.2	-42.83	1.35	16.91	-27.27	-13	-14.27	Vertical
285.6	-38.88	1.62	16.31	-24.19	-13	-11.19	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-46.28	2.62	27.30	-21.60	-13	-8.60	Horizontal
1420.0	-48.24	2.62	27.30	-23.56	-13	-10.56	Vertical
2130.0	-48.29	2.87	27.62	-23.54	-13	-10.54	Vertical
2130.0	-51.65	2.87	27.62	-26.90	-13	-13.90	Horizontal
178.0	-36.76	1.51	17.14	-21.13	-13	-8.13	Vertical
430.7	-35.68	1.77	16.88	-20.57	-13	-7.57	Horizontal
Test Results for High Channel 711MHz							
1422.0	-53.01	2.62	27.30	-28.33	-13	-15.33	Horizontal
1422.0	-50.65	2.62	27.30	-25.97	-13	-12.97	Vertical
2133.0	-50.89	2.87	27.62	-26.14	-13	-13.14	Vertical
2133.0	-51.15	2.87	27.62	-26.40	-13	-13.40	Horizontal
196.5	-36.16	1.78	15.95	-21.99	-13	-8.99	Vertical
314.2	-35.77	1.34	17.95	-19.17	-13	-6.17	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.

9.9 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	-46.98	2.78	27.50	-22.26	-13	-9.26	Horizontal
1629.4	-43.79	2.78	27.50	-19.07	-13	-6.07	Vertical
2444.1	-49.69	2.90	27.80	-24.79	-13	-11.79	Vertical
2444.1	-46.15	2.90	27.80	-21.25	-13	-8.25	Horizontal
229.6	-33.89	1.54	16.98	-18.45	-13	-5.45	Vertical
83.3	-34.39	1.47	15.82	-20.04	-13	-7.04	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-48.37	2.80	27.48	-23.69	-13	-10.69	Horizontal
1638.0	-41.50	2.80	27.48	-16.82	-13	-3.82	Vertical
2457.0	-46.60	2.91	27.70	-21.81	-13	-8.81	Vertical
2457.0	-46.76	2.91	27.70	-21.97	-13	-8.97	Horizontal
168.2	-34.36	1.74	16.19	-19.91	-13	-6.91	Vertical
92.9	-32.66	1.46	15.43	-18.69	-13	-5.69	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-47.69	2.82	27.43	-23.08	-13	-10.08	Horizontal
1646.6	-47.13	2.82	27.43	-22.52	-13	-9.52	Vertical
2469.9	-49.08	2.92	27.74	-24.26	-13	-11.26	Vertical
2469.9	-49.50	2.92	27.74	-24.68	-13	-11.68	Horizontal
213.1	-32.23	1.67	17.05	-16.85	-13	-3.85	Vertical
121.7	-33.01	1.42	16.12	-18.31	-13	-5.31	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	-46.37	2.78	27.50	-21.65	-13	-8.65	Horizontal
1638.0	-41.37	2.78	27.50	-16.65	-13	-3.65	Vertical
2457.0	-49.32	2.90	27.80	-24.42	-13	-11.42	Vertical
2457.0	-48.47	2.90	27.80	-23.57	-13	-10.57	Horizontal
253.7	-34.19	1.43	17.34	-18.28	-13	-5.28	Vertical
256.8	-33.08	1.56	15.71	-18.93	-13	-5.93	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	-46.39	2.78	27.50	-21.67	-13	-8.67	Horizontal
1649.4	-47.21	2.78	27.50	-22.49	-13	-9.49	Vertical
2474.1	-46.87	2.90	27.80	-21.97	-13	-8.97	Vertical
2474.1	-47.18	2.90	27.80	-22.28	-13	-9.28	Horizontal
237.0	-34.27	1.33	17.34	-18.26	-13	-5.26	Vertical
180.5	-33.73	1.47	16.80	-18.40	-13	-5.40	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-48.51	2.80	27.48	-23.83	-13	-10.83	Horizontal
1673.0	-48.23	2.80	27.48	-23.55	-13	-10.55	Vertical
2509.5	-47.35	2.91	27.70	-22.56	-13	-9.56	Vertical
2509.5	-49.31	2.91	27.70	-24.52	-13	-11.52	Horizontal
140.8	-34.72	1.75	15.46	-21.01	-13	-8.01	Vertical
90.6	-32.46	1.52	16.14	-17.84	-13	-4.84	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-47.67	2.82	27.43	-23.06	-13	-10.06	Horizontal
1696.6	-41.42	2.82	27.43	-16.81	-13	-3.81	Vertical
2544.9	-47.73	2.92	27.74	-22.91	-13	-9.91	Vertical
2544.9	-48.36	2.92	27.74	-23.54	-13	-10.54	Horizontal
171.4	-33.36	1.67	16.09	-18.94	-13	-5.94	Vertical
247.2	-33.14	1.80	17.55	-17.39	-13	-4.39	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	-46.31	2.78	27.50	-21.59	-13	-8.59	Horizontal
1663.0	-49.79	2.78	27.50	-25.07	-13	-12.07	Vertical
2494.5	-49.47	2.90	27.80	-24.57	-13	-11.57	Vertical
2494.5	-48.00	2.90	27.80	-23.10	-13	-10.10	Horizontal
255.4	-34.02	1.52	15.72	-19.82	-13	-6.82	Vertical
163.1	-33.04	1.40	17.03	-17.41	-13	-4.41	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-46.57	2.80	27.48	-21.89	-13	-8.89	Horizontal
1673.0	-48.19	2.80	27.48	-23.51	-13	-10.51	Vertical
2509.5	-48.20	2.91	27.70	-23.41	-13	-10.41	Vertical
2509.5	-46.33	2.91	27.70	-21.54	-13	-8.54	Horizontal
227.1	-32.47	1.74	16.38	-17.83	-13	-4.83	Vertical
101.3	-33.29	1.79	15.20	-19.88	-13	-6.88	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-49.49	2.82	27.43	-24.88	-13	-11.88	Horizontal
1683.0	-48.00	2.82	27.43	-23.39	-13	-10.39	Vertical
2524.5	-46.53	2.92	27.74	-21.71	-13	-8.71	Vertical
2524.5	-46.04	2.92	27.74	-21.22	-13	-8.22	Horizontal
261.1	-34.57	1.78	17.44	-18.91	-13	-5.91	Vertical
120.1	-32.52	1.70	15.93	-18.29	-13	-5.29	Horizontal

9.10 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	-55.34	4.01	27.5	-31.85	-25	-6.85	Horizontal
5145	-55.92	4.01	27.5	-32.43	-25	-7.43	Vertical
7717.5	-55.15	5.09	27.8	-32.44	-25	-7.44	Vertical
7717.5	-52.54	5.09	27.8	-29.83	-25	-4.83	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-55.90	4.1	27.48	-32.52	-25	-7.52	Horizontal
5190	-54.15	4.1	27.48	-30.77	-25	-5.77	Vertical
7785	-57.21	5.42	27.7	-34.93	-25	-9.93	Vertical
7785	-54.39	5.42	27.7	-32.11	-25	-7.11	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-57.96	4.11	27.43	-34.64	-25	-9.64	Horizontal
5234	-56.02	4.11	27.43	-32.70	-25	-7.70	Vertical
7851	-54.80	5.31	27.74	-32.37	-25	-7.37	Vertical
7851	-54.80	5.31	27.74	-32.37	-25	-7.37	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	-56.15	3.89	27.5	-32.54	-25	-7.54	Horizontal
5160	-54.01	3.89	27.5	-30.40	-25	-5.40	Vertical
7740	-56.68	5.33	27.8	-34.21	-25	-9.21	Vertical
7740	-56.51	5.33	27.8	-34.04	-25	-9.04	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-55.68	4.1	27.48	-32.30	-25	-7.30	Horizontal
5190	-52.86	4.1	27.48	-29.48	-25	-4.48	Vertical
7785	-53.56	5.42	27.7	-31.28	-25	-6.28	Vertical
7785	-56.57	5.42	27.7	-34.29	-25	-9.29	Horizontal
Test Results for High Channel 2610MHz							
5220	-53.99	4.01	27.43	-30.57	-25	-5.57	Horizontal
5220	-54.22	4.01	27.43	-30.80	-25	-5.80	Vertical
7830	-55.36	5.34	27.74	-32.96	-25	-7.96	Vertical
7830	-58.43	5.34	27.74	-36.03	-25	-11.03	Horizontal

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

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

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

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

9.11 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-54.58	4.02	29.80	-28.80	-13	-15.80	Horizontal
3421.4	-46.08	4.02	29.80	-20.30	-13	-7.30	Vertical
5132.1	-49.74	5.24	35.84	-19.14	-13	-6.14	Vertical
5132.1	-51.15	5.24	35.84	-20.55	-13	-7.55	Horizontal
112.6	-47.10	1.52	15.57	-33.05	-13	-20.05	Vertical
220.5	-54.31	1.33	17.14	-38.50	-13	-25.50	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-44.57	4.03	30.00	-18.60	-13	-5.60	Horizontal
3490.0	-52.73	4.03	30.00	-26.76	-13	-13.76	Vertical
5235.0	-54.26	5.25	35.86	-23.65	-13	-10.65	Vertical
5235.0	-51.74	5.25	35.86	-21.13	-13	-8.13	Horizontal
157.3	-48.82	1.53	17.13	-33.22	-13	-20.22	Vertical
213.1	-52.66	1.41	15.95	-38.12	-13	-25.12	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-45.63	4.05	30.01	-19.67	-13	-6.67	Horizontal
3558.6	-47.28	4.05	30.01	-21.32	-13	-8.32	Vertical
5337.9	-53.87	5.26	35.86	-23.27	-13	-10.27	Vertical
5337.9	-50.45	5.26	35.86	-19.85	-13	-6.85	Horizontal
170.6	-44.48	1.44	15.51	-30.41	-13	-17.41	Vertical
169.0	-52.01	1.78	15.76	-38.03	-13	-25.03	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	-45.89	4.02	29.80	-20.11	-13	-7.11	Horizontal
3440.0	-50.22	4.02	29.80	-24.44	-13	-11.44	Vertical
5160.0	-51.73	5.24	35.84	-21.13	-13	-8.13	Vertical
5160.0	-53.26	5.24	35.84	-22.66	-13	-9.66	Horizontal
268.8	-53.40	1.62	17.02	-38.00	-13	-25.00	Vertical
161.4	-44.38	1.32	17.31	-28.39	-13	-15.39	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-47.46	4.03	30.00	-21.49	-13	-8.49	Horizontal
3490.0	-54.08	4.03	30.00	-28.11	-13	-15.11	Vertical
5235.0	-53.90	5.25	35.86	-23.29	-13	-10.29	Vertical
5235.0	-49.58	5.25	35.86	-18.97	-13	-5.97	Horizontal
159.9	-54.61	1.45	15.17	-40.89	-13	-27.89	Vertical
172.1	-54.56	1.48	17.82	-38.22	-13	-25.22	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-46.84	2.91	27.68	-22.07	-13	-9.07	Horizontal
3540.0	-46.40	2.91	27.68	-21.63	-13	-8.63	Vertical
5310.0	-49.13	5.26	35.86	-18.53	-13	-5.53	Vertical
5310.0	-51.12	5.26	35.86	-20.52	-13	-7.52	Horizontal
197.3	-51.50	1.76	16.38	-36.88	-13	-23.88	Vertical
158.5	-48.39	1.43	17.13	-32.69	-13	-19.69	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.4V, Normal, DC 3.85V and High voltage, DC 4.4V.

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, 4, 5, 7, 12, 13, 17, 26, 38, 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]
3.4	1880	13.1	0.006942	2.5
3.85	1880	13.9	0.007383	2.5
4.4	1880	13.0	0.006918	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.1	0.006971	2.5
Extreme (50C)	1880	11.9	0.006322	2.5
Extreme (40C)	1880	14.1	0.007491	2.5
Extreme (30C)	1880	13.2	0.006998	2.5
Extreme (10C)	1880	13.6	0.007258	2.5
Extreme (0C)	1880	12.2	0.006490	2.5
Extreme (-10C)	1880	13.3	0.007066	2.5
Extreme (-20C)	1880	14.4	0.007680	2.5
Extreme (-30C)	1880	15.0	0.007968	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1880	9.8	0.005221	2.5
3.85	1880	9.0	0.004795	2.5
4.4	1880	8.5	0.004501	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.7	0.005166	2.5
Extreme (50C)	1880	8.9	0.004751	2.5
Extreme (40C)	1880	8.5	0.004528	2.5
Extreme (30C)	1880	8.9	0.004748	2.5
Extreme (10C)	1880	8.6	0.004601	2.5
Extreme (0C)	1880	8.2	0.004369	2.5
Extreme (-10C)	1880	9.0	0.004804	2.5
Extreme (-20C)	1880	8.5	0.004496	2.5
Extreme (-30C)	1880	8.1	0.004314	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]
3.4	1732.5	9.1	0.005255	2.5
3.85	1732.5	9.1	0.005238	2.5
4.4	1732.5	8.8	0.005094	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.1	0.004663	2.5
Extreme (50C)	1732.5	9.2	0.005311	2.5
Extreme (40C)	1732.5	7.1	0.004114	2.5
Extreme (30C)	1732.5	5.6	0.003230	2.5
Extreme (10C)	1732.5	7.0	0.004016	2.5
Extreme (0C)	1732.5	9.6	0.005540	2.5
Extreme (-10C)	1732.5	8.6	0.004956	2.5
Extreme (-20C)	1732.5	7.0	0.004034	2.5
Extreme (-30C)	1732.5	8.8	0.005075	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1732.5	9.9	0.005700	2.5
3.85	1732.5	9.0	0.005181	2.5
4.4	1732.5	7.6	0.004406	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	10.1	0.005855	2.5
Extreme (50C)	1732.5	9.3	0.005358	2.5
Extreme (40C)	1732.5	8.1	0.004696	2.5
Extreme (30C)	1732.5	9.3	0.005359	2.5
Extreme (10C)	1732.5	9.1	0.005227	2.5
Extreme (0C)	1732.5	8.0	0.004593	2.5
Extreme (-10C)	1732.5	9.0	0.005218	2.5
Extreme (-20C)	1732.5	9.0	0.005210	2.5
Extreme (-30C)	1732.5	8.0	0.004641	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]
3.4	836.5	5.7	0.006773	2.5
3.85	836.5	6.3	0.007587	2.5
4.4	836.5	4.9	0.005857	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007402	2.5
Extreme (50C)	836.5	5.8	0.006905	2.5
Extreme (40C)	836.5	5.7	0.006819	2.5
Extreme (30C)	836.5	6.6	0.007943	2.5
Extreme (10C)	836.5	5.8	0.006976	2.5
Extreme (0C)	836.5	5.7	0.006864	2.5
Extreme (-10C)	836.5	6.0	0.007182	2.5
Extreme (-20C)	836.5	6.0	0.007180	2.5
Extreme (-30C)	836.5	6.7	0.008026	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	836.5	6.1	0.007295	2.5
3.85	836.5	6.4	0.007603	2.5
4.4	836.5	4.8	0.005751	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.1	0.007312	2.5
Extreme (50C)	836.5	6.0	0.007156	2.5
Extreme (40C)	836.5	6.2	0.007370	2.5
Extreme (30C)	836.5	6.8	0.008163	2.5
Extreme (10C)	836.5	5.2	0.006241	2.5
Extreme (0C)	836.5	5.4	0.006410	2.5
Extreme (-10C)	836.5	5.1	0.006127	2.5
Extreme (-20C)	836.5	6.2	0.007420	2.5
Extreme (-30C)	836.5	6.5	0.007794	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]
3.4	2535	9.6	0.003782	2.5
3.85	2535	9.1	0.003586	2.5
4.4	2535	8.7	0.003449	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.5	0.003746	2.5
Extreme (50C)	2535	9.4	0.003695	2.5
Extreme (40C)	2535	8.0	0.003141	2.5
Extreme (30C)	2535	9.0	0.003559	2.5
Extreme (10C)	2535	7.9	0.003117	2.5
Extreme (0C)	2535	8.5	0.003347	2.5
Extreme (-10C)	2535	9.6	0.003776	2.5
Extreme (-20C)	2535	8.9	0.003502	2.5
Extreme (-30C)	2535	8.3	0.003278	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2535	7.0	0.002775	2.5
3.85	2535	6.7	0.002650	2.5
4.4	2535	6.0	0.002370	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.6	0.002598	2.5
Extreme (50C)	2535	5.8	0.002277	2.5
Extreme (40C)	2535	5.9	0.002310	2.5
Extreme (30C)	2535	6.4	0.002514	2.5
Extreme (10C)	2535	5.6	0.002213	2.5
Extreme (0C)	2535	4.7	0.001859	2.5
Extreme (-10C)	2535	5.7	0.002229	2.5
Extreme (-20C)	2535	5.6	0.002217	2.5
Extreme (-30C)	2535	5.7	0.002256	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	8.5	0.011959	2.5
3.85	707.5	10.2	0.014483	2.5
4.4	707.5	8.4	0.011911	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.0	0.012723	2.5
Extreme (50C)	707.5	7.6	0.010747	2.5
Extreme (40C)	707.5	7.6	0.010750	2.5
Extreme (30C)	707.5	8.1	0.011516	2.5
Extreme (10C)	707.5	7.0	0.009846	2.5
Extreme (0C)	707.5	9.1	0.012833	2.5
Extreme (-10C)	707.5	8.3	0.011762	2.5
Extreme (-20C)	707.5	8.8	0.012454	2.5
Extreme (-30C)	707.5	7.4	0.010441	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	7.9	0.011125	2.5
3.85	707.5	8.5	0.012076	2.5
4.4	707.5	7.3	0.010278	2.5

Frequency error vs. Temperature

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

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

10.6 LTE BAND 13

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782.0	12.7	0.017938	2.5
3.85	782.0	14.1	0.019819	2.5
4.4	782.0	13.5	0.018951	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782.0	14.3	0.020142	2.5
Extreme (50C)	782.0	14.0	0.019745	2.5
Extreme (40C)	782.0	14.9	0.020934	2.5
Extreme (30C)	782.0	14.2	0.019936	2.5
Extreme (10C)	782.0	14.0	0.019729	2.5
Extreme (0C)	782.0	13.7	0.019258	2.5
Extreme (-10C)	782.0	13.7	0.019282	2.5
Extreme (-20C)	782.0	14.6	0.020526	2.5
Extreme (-30C)	782.0	13.6	0.019147	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 16QAM, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782.0	12.2	0.017189	2.5
3.85	782.0	13.5	0.019043	2.5
4.4	782.0	13.6	0.019125	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782.0	12.5	0.017585	2.5
Extreme (50C)	782.0	11.3	0.015939	2.5
Extreme (40C)	782.0	13.4	0.018902	2.5
Extreme (30C)	782.0	13.2	0.018596	2.5
Extreme (10C)	782.0	14.0	0.019713	2.5
Extreme (0C)	782.0	12.2	0.017125	2.5
Extreme (-10C)	782.0	12.7	0.017941	2.5
Extreme (-20C)	782.0	13.6	0.019220	2.5
Extreme (-30C)	782.0	14.3	0.020143	2.5

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

10.7 LTE BAND 17

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	710.0	9.7	0.013709	2.5
3.85	710.0	8.8	0.012409	2.5
4.4	710.0	8.2	0.011515	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.4	0.013254	2.5
Extreme (50C)	710.0	9.2	0.013018	2.5
Extreme (40C)	710.0	8.4	0.011809	2.5
Extreme (30C)	710.0	8.7	0.012262	2.5
Extreme (10C)	710.0	8.8	0.012327	2.5
Extreme (0C)	710.0	7.7	0.010901	2.5
Extreme (-10C)	710.0	9.0	0.012633	2.5
Extreme (-20C)	710.0	8.5	0.011991	2.5
Extreme (-30C)	710.0	7.7	0.010830	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	710.0	10.0	0.014083	2.5
3.85	710.0	8.9	0.012514	2.5
4.4	710.0	8.6	0.012093	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.5	0.013310	2.5
Extreme (50C)	710.0	8.6	0.012179	2.5
Extreme (40C)	710.0	8.4	0.011840	2.5
Extreme (30C)	710.0	9.4	0.013234	2.5
Extreme (10C)	710.0	8.2	0.011489	2.5
Extreme (0C)	710.0	8.5	0.011962	2.5
Extreme (-10C)	710.0	9.5	0.013326	2.5
Extreme (-20C)	710.0	8.5	0.011965	2.5
Extreme (-30C)	710.0	8.2	0.011602	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]
3.4	819	8.7	0.010653	2.5
3.85	819	5.0	0.006139	2.5
4.4	819	6.5	0.007961	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819	8.6	0.010503	2.5
Extreme (50C)	819	1.5	0.001803	2.5
Extreme (40C)	819	2.6	0.003143	2.5
Extreme (30C)	819	6.0	0.007330	2.5
Extreme (10C)	819	5.7	0.006926	2.5
Extreme (0C)	819	6.3	0.007727	2.5
Extreme (-10C)	819	8.6	0.010528	2.5
Extreme (-20C)	819	6.2	0.007623	2.5
Extreme (-30C)	819	4.1	0.004976	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]
3.4	819	2.6	0.003221	2.5
3.85	819	6.8	0.008353	2.5
4.4	819	5.6	0.006791	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819	6.1	0.007486	2.5
Extreme (50C)	819	8.8	0.010744	2.5
Extreme (40C)	819	6.0	0.007356	2.5
Extreme (30C)	819	4.1	0.004946	2.5
Extreme (10C)	819	6.6	0.008000	2.5
Extreme (0C)	819	5.1	0.006184	2.5
Extreme (-10C)	819	8.8	0.010716	2.5
Extreme (-20C)	819	6.0	0.007327	2.5
Extreme (-30C)	819	7.2	0.008802	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]
3.4	836.5	8.7	0.010358	2.5
3.85	836.5	6.2	0.007461	2.5
4.4	836.5	8.5	0.010119	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	10.5	0.012593	2.5
Extreme (50C)	836.5	9.6	0.011437	2.5
Extreme (40C)	836.5	6.6	0.007849	2.5
Extreme (30C)	836.5	8.6	0.010237	2.5
Extreme (10C)	836.5	7.5	0.009004	2.5
Extreme (0C)	836.5	9.9	0.011866	2.5
Extreme (-10C)	836.5	1.4	0.001721	2.5
Extreme (-20C)	836.5	8.4	0.009997	2.5
Extreme (-30C)	836.5	7.7	0.009249	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]
3.4	836.5	9.0	0.010786	2.5
3.85	836.5	11.2	0.013447	2.5
4.4	836.5	10.5	0.012493	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.9	0.008198	2.5
Extreme (50C)	836.5	8.4	0.010081	2.5
Extreme (40C)	836.5	7.2	0.008558	2.5
Extreme (30C)	836.5	7.8	0.009297	2.5
Extreme (10C)	836.5	6.9	0.008196	2.5
Extreme (0C)	836.5	5.5	0.006517	2.5
Extreme (-10C)	836.5	5.9	0.007022	2.5
Extreme (-20C)	836.5	3.7	0.011237	2.5
Extreme (-30C)	836.5	8.3	0.007292	2.5

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

10.9 LTE BAND 38

Band 38 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2595	8.1	0.003141	2.5
3.85	2595	6.6	0.002525	2.5
4.4	2595	7.4	0.002858	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.2	0.002782	2.5
Extreme (50C)	2595	5.2	0.002017	2.5
Extreme (40C)	2595	5.1	0.001970	2.5
Extreme (30C)	2595	4.4	0.001694	2.5
Extreme (10C)	2595	6.0	0.002330	2.5
Extreme (0C)	2595	5.2	0.002001	2.5
Extreme (-10C)	2595	9.5	0.003663	2.5
Extreme (-20C)	2595	10.5	0.004034	2.5
Extreme (-30C)	2595	6.5	0.002512	2.5

Band 38 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	2595	8.4	0.003252	2.5
3.85	2595	6.4	0.002460	2.5
4.4	2595	6.9	0.002655	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.7	0.002961	2.5
Extreme (50C)	2595	4.5	0.001729	2.5
Extreme (40C)	2595	5.3	0.002046	2.5
Extreme (30C)	2595	4.6	0.001760	2.5
Extreme (10C)	2595	6.7	0.002565	2.5
Extreme (0C)	2595	4.4	0.001685	2.5
Extreme (-10C)	2595	9.1	0.003504	2.5
Extreme (-20C)	2595	10.8	0.004177	2.5
Extreme (-30C)	2595	6.0	0.002322	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]
3.4	1745	12.6	0.00720	2.5
3.85	1745	13.4	0.00770	2.5
4.4	1745	13.0	0.00747	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.2	0.004129	2.5
Extreme (50C)	1745	4.5	0.002565	2.5
Extreme (40C)	1745	5.7	0.003250	2.5
Extreme (30C)	1745	5.2	0.002970	2.5
Extreme (10C)	1745	6.6	0.003772	2.5
Extreme (0C)	1745	4.7	0.002674	2.5
Extreme (-10C)	1745	9.3	0.005345	2.5
Extreme (-20C)	1745	11.2	0.006429	2.5
Extreme (-30C)	1745	5.9	0.003390	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1745	12.6	0.007195	2.5
3.85	1745	13.5	0.007729	2.5
4.4	1745	13.4	0.007705	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.5	0.004273	2.5
Extreme (50C)	1745	4.4	0.002537	2.5
Extreme (40C)	1745	5.7	0.003255	2.5
Extreme (30C)	1745	4.7	0.002694	2.5
Extreme (10C)	1745	6.7	0.003837	2.5
Extreme (0C)	1745	5.1	0.002918	2.5
Extreme (-10C)	1745	9.3	0.005350	2.5
Extreme (-20C)	1745	10.8	0.006197	2.5
Extreme (-30C)	1745	6.4	0.003686	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

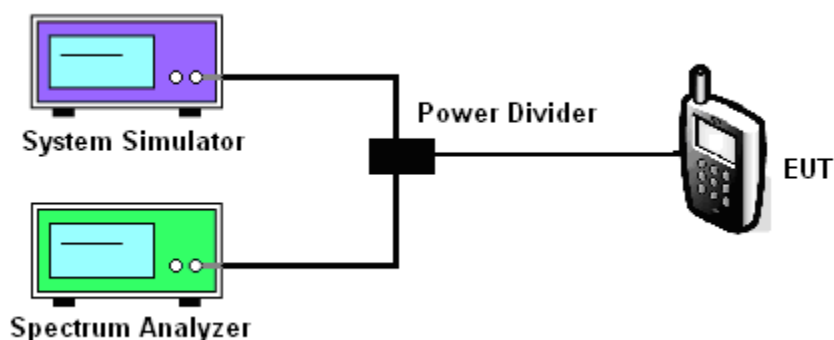
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For GSM/EGPRS operating modes:
 - a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
 - b. Set EUT in maximum power output, and triggered the burst signal.
 - c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
4. For UMTS operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



MODES TESTED

- ☐ LTE Band 2, 4, 5, 7, 12, 13, 17, 26, 38, 66
- ☐

Test data reference attachment.

-----END OF REPORT-----