

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

FCC ID: 2AOKUW11

Product: Smartphone

Trade Mark: HOTWAV

Model No.: W11

Family Model: W11 Max, W11 Ultra, W11 Pro, W12, W12 Max, W12 Ultra, W12 Pro, W13, W13 Max, W13 Ultra, W13 Pro, W15, W15 Max, W15 Ultra, W15 Pro, W16, W16 Pro, W16 Max, W16 Ultra, W17, W17 Pro, W17 Max, W17 Ultra, W18, W18 Pro, W18 Max, W18 Ultra, W19, W19 Pro, W19 Max, W19 Ultra, W20, W20 Pro, W20 Max, W20 Ultra

Report No.: S24022303406006

Issue Date: Mar 21, 2024

Prepared for

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TEST RESULT CERTIFICATION

Applicant's name : SHENZHEN TUGAO INTELLIGENT CO.,LTD

Address..... : 8th Floor, Bldg A, Jinggang Science&Technology Park, Fuyong,
Bao'an District, Shenzhen, China

Manufacturer's Name..... : SHENZHEN TUGAO INTELLIGENT CO.,LTD

Address..... : 8th Floor, Bldg A, Jinggang Science&Technology Park, Fuyong,
Bao'an District, Shenzhen, China

Product name..... : Smartphone

Model and/or type reference .. : W11

Trade Mark..... : HOTWAV

Family Model..... : W11 Max, W11 Ultra, W11 Pro, W12, W12 Max, W12 Ultra,
W12 Pro, W13, W13 Max, W13 Ultra, W13 Pro, W15, W15 Max,
W15 Ultra, W15 Pro, W16, W16 Pro, W16 Max, W16 Ultra, W17,
W17 Pro, W17 Max, W17 Ultra, W18, W18 Pro, W18 Max,
W18 Ultra, W19, W19 Pro, W19 Max, W19 Ultra, W20, W20 Pro,
W20 Max, W20 Ultra

Test Sample Number..... : S240223034006

Date of Test : Feb 23, 2024 ~ Mar 21, 2024

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

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smartphone
Trade Mark	HOTWAV
Model Name	W11
Family Model	W11 Max, W11 Ultra, W11 Pro, W12, W12 Max, W12 Ultra, W12 Pro, W13, W13 Max, W13 Ultra, W13 Pro, W15, W15 Max, W15 Ultra, W15 Pro, W16, W16 Pro, W16 Max, W16 Ultra, W17, W17 Pro, W17 Max, W17 Ultra, W18, W18 Pro, W18 Max, W18 Ultra, W19, W19 Pro, W19 Max, W19 Ultra, W20, W20 Pro, W20 Max, W20 Ultra
Model Difference	All the model are the same circuit and RF module, except the model names.
FCC ID:	2AOKUW11
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 13, 17, 25, 26, 66
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 25 Uplink: 1850MHz-1915MHz, Downlink: 1930MHz-1995MHz; LTE FDD Band 26A Uplink: 814MHz-824MHz, Downlink: 859MHz-869MHz; LTE FDD Band 26B Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
Antenna:	PIFA Antenna
Antenna gain:	Band 2: 1.15dBi, Band 4: 1.47dBi, Band 5: -0.06dBi, Band 7: 1.55dBi, Band 12: -2.15dBi, Band 13: -2.19dBi, Band 17: -2.15dBi, Band 25: 1.15dBi, Band 26A: -1.10dBi, Band 26B: -0.06dBi, Band 66: 1.47dBi

Adapter	Model: HJ-C6-33-US Input:100-240V~50/60Hz 0.8A Output:(PD) 5.0V--- 3.0A 15.0W or 9.0V---3.0A 27.0W or 12.0V---2.5A 30.0W or 15.0V--- 2.0A 30.0W or 20.0V---1.5A 30.0W (PPS)3.3V-11.0V---3.0A(33.0W MAX)
Battery	DC 3.87V, 20800mAh, 80.5Wh
Power supply	DC 3.87V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V) (Note 1)
HW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 4.45V and Low Voltage 3.29V 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: 2AOKUW11** 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-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/13/17/25/26/66

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	Smartphone	W11	FCC ID: 2AOKUW11	EUT

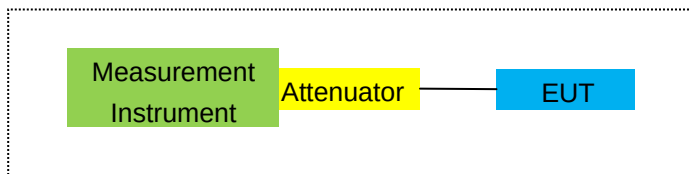
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

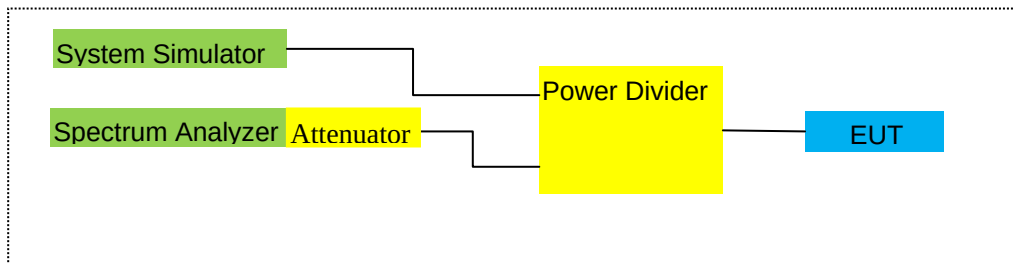
For Radiated Test Cases



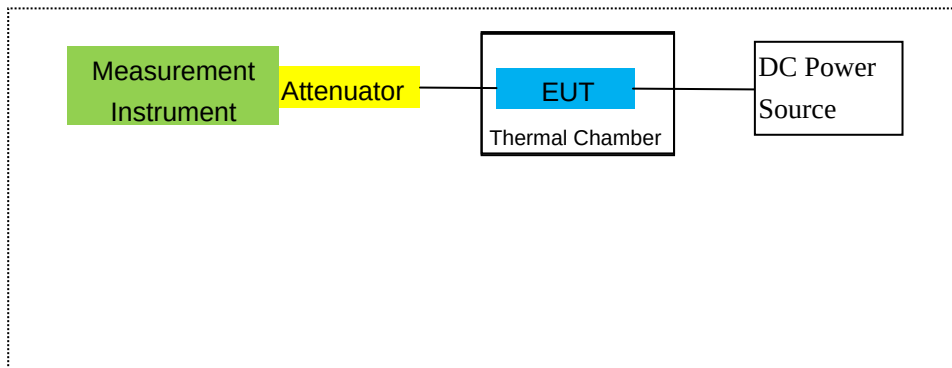
For Conducted Output Power



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



For Frequency Stability



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

3.TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2023.05.29	2024.05.28	1 year
2	Test Receiver	R&S	ESPI	101318	2023.03.27	2024.03.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2023.03.16 2024.03.11	2024.03.15 2025.03.10	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2025.03.30	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2022.11.07	2025.11.06	3 year
7	Amplifier	EM	EM-30180	060538	2023.05.29	2024.05.28	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2023.11.03	2026.11.02	3 year
9	Power Meter	R&S	NRVS	100696	2023.05.29	2024.05.28	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2023.05.29	2024.05.28	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2023.03.27	2024.03.26	1 year
15	LISN	R&S	ENV216	101313	2023.03.27	2024.03.26	1 year
16	LISN	EMCO	3816/2	00042990	2023.03.27	2024.03.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2023.03.27	2024.03.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2023.03.27	2024.03.26	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	agilent	e4440a	us44300399	2023.03.27	2024.03.26	1 year
23	test receiver	R&S	ESCI	a0304218	2023.03.27	2024.03.26	1 year
24	Communication Tester	R&S	CMU200	A0304247	2023.05.29	2024.05.28	1 year

25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2023.03.27	2024.03.26	1 year
26	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

☐

Band 2/4/5/7/12/13/17/25/26/66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53,
FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

(m)(4) For mobile digital stations, 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 as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Show citation box.

(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

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 resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

Band 2/4/5/7/12/13/17/25/26/66

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

LIMITS

1. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.
2. The Band 7/41 emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log (P)$ dB.

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

MODES TESTED

- ☐ Band 2/4/5/7/12/13/17/25/26/66

☐

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.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635

LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

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. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

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

☐ Band 2/4/5/7/12/13/17/25/26/66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band QPSK	6/0	1850.7	-2.06	3.76	28.24	22.42	174.582	Horizontal	Pass
		1880	-1.91	3.91	28.22	22.40	173.780	Horizontal	Pass
		1909.3	-1.95	3.93	28.20	22.32	170.608	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	-2.09	3.77	28.23	22.37	172.584	Horizontal	Pass
		1880	-1.99	3.91	28.24	22.34	171.396	Horizontal	Pass
		1908.5	-1.92	3.94	28.25	22.39	173.380	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	-2.18	3.77	28.31	22.36	172.187	Horizontal	Pass
		1880	-1.90	3.91	28.22	22.41	174.181	Horizontal	Pass
		1907.5	-1.95	3.94	28.20	22.31	170.216	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	-2.10	3.79	28.33	22.44	175.388	Horizontal	Pass
		1880	-1.84	3.95	28.22	22.43	174.985	Horizontal	Pass
		1905	-1.83	3.97	28.19	22.39	173.380	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	-2.20	3.79	28.34	22.35	171.791	Horizontal	Pass
		1880	-1.88	3.95	28.22	22.39	173.380	Horizontal	Pass
		1902.5	-1.88	3.97	28.18	22.33	171.002	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	-2.15	3.81	28.35	22.39	173.380	Horizontal	Pass
		1880	-1.99	3.96	28.22	22.27	168.655	Horizontal	Pass
		1900	-1.77	4.00	28.16	22.39	173.380	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	-2.16	3.76	28.24	22.32	170.608	Vertical	Pass
		1880	-1.92	3.91	28.22	22.39	173.380	Vertical	Pass
		1909.3	-1.85	3.93	28.20	22.42	174.582	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	-2.01	3.77	28.23	22.45	175.792	Vertical	Pass
		1880	-1.91	3.91	28.24	22.42	174.582	Vertical	Pass
		1908.5	-1.94	3.94	28.25	22.37	172.584	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	-2.19	3.77	28.31	22.35	171.791	Vertical	Pass
		1880	-1.89	3.91	28.22	22.42	174.582	Vertical	Pass
		1907.5	-1.86	3.94	28.20	22.40	173.780	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	-2.14	3.79	28.33	22.40	173.780	Vertical	Pass
		1880	-1.86	3.95	28.22	22.41	174.181	Vertical	Pass
		1905	-1.81	3.97	28.19	22.41	174.181	Vertical	Pass

15.0MHz	75/0	1857.5	-2.21	3.79	28.34	22.34	171.396	Vertical	Pass
Band		1880	-1.97	3.95	28.22	22.30	169.824	Vertical	Pass
QPSK		1902.5	-1.82	3.97	28.18	22.39	173.380	Vertical	Pass
20.0MHz	100/0	1860	-2.08	3.81	28.35	22.46	176.198	Vertical	Pass
Band		1880	-1.80	3.96	28.22	22.46	176.198	Vertical	Pass
QPSK		1900	-1.67	4.00	28.16	22.49	177.419	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							(mW)		
1.4MHz Band 16 QAM	6/0	1850.7	-3.15	3.76	28.24	21.33	135.831	Horizontal	Pass
		1880	-2.97	3.91	28.22	21.34	136.144	Horizontal	Pass
		1909.3	-3.02	3.93	28.20	21.25	133.352	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	-3.14	3.77	28.23	21.32	135.519	Horizontal	Pass
		1880	-3.06	3.91	28.24	21.27	133.968	Horizontal	Pass
		1908.5	-3.04	3.94	28.25	21.27	133.968	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	-3.31	3.77	28.31	21.23	132.739	Horizontal	Pass
		1880	-2.98	3.91	28.22	21.33	135.831	Horizontal	Pass
		1907.5	-3.08	3.94	28.20	21.18	131.220	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	-3.26	3.79	28.33	21.28	134.276	Horizontal	Pass
		1880	-2.93	3.95	28.22	21.34	136.144	Horizontal	Pass
		1905	-2.94	3.97	28.19	21.28	134.276	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	-3.31	3.79	28.34	21.24	133.045	Horizontal	Pass
		1880	-2.94	3.95	28.22	21.33	135.831	Horizontal	Pass
		1902.5	-3.00	3.97	28.18	21.21	132.130	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	-3.21	3.81	28.35	21.33	135.831	Horizontal	Pass
		1880	-2.99	3.96	28.22	21.27	133.968	Horizontal	Pass
		1900	-2.92	4.00	28.16	21.24	133.045	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	-3.16	3.76	28.24	21.32	135.519	Vertical	Pass
		1880	-2.96	3.91	28.22	21.35	136.458	Vertical	Pass
		1909.3	-3.04	3.93	28.20	21.23	132.739	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	-3.18	3.77	28.23	21.28	134.276	Vertical	Pass
		1880	-3.10	3.91	28.24	21.23	132.739	Vertical	Pass
		1908.5	-3.03	3.94	28.25	21.28	134.276	Vertical	Pass
5.0MHz	25/0	1852.5	-3.24	3.77	28.31	21.30	134.896	Vertical	Pass

Band 16 QAM		1880	-3.03	3.91	28.22	21.28	134.276	Vertical	Pass
		1907.5	-3.00	3.94	28.20	21.26	133.660	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	-3.20	3.79	28.33	21.34	136.144	Vertical	Pass
		1880	-2.98	3.95	28.22	21.29	134.586	Vertical	Pass
		1905	-2.94	3.97	28.19	21.28	134.276	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1857.5	-3.31	3.79	28.34	21.24	133.045	Vertical	Pass
		1880	-3.06	3.95	28.22	21.21	132.130	Vertical	Pass
		1902.5	-2.99	3.97	28.18	21.22	132.434	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1860	-3.15	3.81	28.35	21.39	137.721	Vertical	Pass
		1880	-2.89	3.96	28.22	21.37	137.088	Vertical	Pass
		1900	-2.78	4.00	28.16	21.38	137.404	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)

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dBi)	Average (dBm)	Average (mW)	Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	-2.40	3.12	27.58	22.06	160.694	Horizontal	Pass
		1732.5	-2.39	3.27	27.61	21.95	156.675	Horizontal	Pass
		1754.3	-2.42	3.29	27.63	21.92	155.597	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	-2.49	3.13	27.61	21.99	158.125	Horizontal	Pass
		1732.5	-2.41	3.27	27.61	21.93	155.955	Horizontal	Pass
		1753.5	-2.39	3.30	27.62	21.93	155.955	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	-2.58	3.13	27.63	21.92	155.597	Horizontal	Pass
		1732.5	-2.40	3.27	27.61	21.94	156.315	Horizontal	Pass
		1752.5	-2.33	3.30	27.60	21.97	157.398	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	-2.55	3.15	27.64	21.94	156.315	Horizontal	Pass
		1732.5	-2.31	3.31	27.61	21.99	158.125	Horizontal	Pass
		1750	-2.33	3.33	27.59	21.93	155.955	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	-2.53	3.15	27.65	21.97	157.398	Horizontal	Pass
		1732.5	-2.29	3.31	27.61	22.01	158.855	Horizontal	Pass
		1747.5	-2.19	3.33	27.57	22.05	160.325	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	-2.49	3.17	27.66	22.00	158.489	Horizontal	Pass
		1732.5	-2.23	3.32	27.61	22.06	160.694	Horizontal	Pass
		1745	-2.20	3.36	27.56	22.00	158.489	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	-2.51	3.12	27.58	21.95	156.675	Vertical	Pass
		1732.5	-2.37	3.27	27.61	21.97	157.398	Vertical	Pass
		1754.3	-2.30	3.29	27.63	22.04	159.956	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	-2.45	3.13	27.61	22.03	159.588	Vertical	Pass
		1732.5	-2.40	3.27	27.61	21.94	156.315	Vertical	Pass
		1753.5	-2.31	3.30	27.62	22.01	158.855	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	-2.50	3.13	27.63	22.00	158.489	Vertical	Pass
		1732.5	-2.39	3.27	27.61	21.95	156.675	Vertical	Pass
		1752.5	-2.31	3.30	27.60	21.99	158.125	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	-2.46	3.15	27.64	22.03	159.588	Vertical	Pass
		1732.5	-2.26	3.31	27.61	22.04	159.956	Vertical	Pass
		1750	-2.26	3.33	27.59	22.00	158.489	Vertical	Pass

15.0MHz	75/0	1717.5	-2.58	3.15	27.65	21.92	155.597	Vertical	Pass
Band		1732.5	-2.38	3.31	27.61	21.92	155.597	Vertical	Pass
QPSK		1747.5	-2.20	3.33	27.57	22.04	159.956	Vertical	Pass
20.0MHz	100/0	1720	-2.40	3.17	27.66	22.09	161.808	Vertical	Pass
Band		1732.5	-2.17	3.32	27.61	22.12	162.930	Vertical	Pass
QPSK		1745	-2.11	3.36	27.56	22.09	161.808	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dBi)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	6/0	1710.7	-3.26	3.12	27.58	21.20	131.826	Horizontal	Pass
		1732.5	-3.08	3.27	27.61	21.26	133.660	Horizontal	Pass
		1754.3	-3.09	3.29	27.63	21.25	133.352	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-3.25	3.13	27.61	21.23	132.739	Horizontal	Pass
		1732.5	-3.19	3.27	27.61	21.15	130.317	Horizontal	Pass
		1753.5	-3.19	3.30	27.62	21.13	129.718	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	-3.29	3.13	27.63	21.21	132.130	Horizontal	Pass
		1732.5	-3.20	3.27	27.61	21.14	130.017	Horizontal	Pass
		1752.5	-3.20	3.30	27.60	21.10	128.825	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	-3.26	3.15	27.64	21.23	132.739	Horizontal	Pass
		1732.5	-3.15	3.31	27.61	21.15	130.317	Horizontal	Pass
		1750	-3.05	3.33	27.59	21.21	132.130	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	-3.25	3.15	27.65	21.25	133.352	Horizontal	Pass
		1732.5	-3.08	3.31	27.61	21.22	132.434	Horizontal	Pass
		1747.5	-2.98	3.33	27.57	21.26	133.660	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	-3.31	3.17	27.66	21.18	131.220	Horizontal	Pass
		1732.5	-3.19	3.32	27.61	21.10	128.825	Horizontal	Pass
		1745	-3.10	3.36	27.56	21.10	128.825	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	-3.30	3.12	27.58	21.16	130.617	Vertical	Pass
		1732.5	-3.17	3.27	27.61	21.17	130.918	Vertical	Pass
		1754.3	-3.07	3.29	27.63	21.27	133.968	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-3.35	3.13	27.61	21.13	129.718	Vertical	Pass
		1732.5	-3.07	3.27	27.61	21.27	133.968	Vertical	Pass
		1753.5	-3.06	3.30	27.62	21.26	133.660	Vertical	Pass
5.0MHz	25/0	1712.5	-3.25	3.13	27.63	21.25	133.352	Vertical	Pass

Band 16 QAM		1732.5	-3.09	3.27	27.61	21.25	133.352	Vertical	Pass
		1752.5	-3.20	3.30	27.60	21.10	128.825	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	-3.31	3.15	27.64	21.18	131.220	Vertical	Pass
		1732.5	-3.12	3.31	27.61	21.18	131.220	Vertical	Pass
		1750	-3.11	3.33	27.59	21.15	130.317	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1717.5	-3.27	3.15	27.65	21.23	132.739	Vertical	Pass
		1732.5	-3.13	3.31	27.61	21.17	130.918	Vertical	Pass
		1747.5	-3.12	3.33	27.57	21.12	129.420	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1720	-3.19	3.17	27.66	21.30	134.896	Vertical	Pass
		1732.5	-2.99	3.32	27.61	21.30	134.896	Vertical	Pass
		1745	-2.91	3.36	27.56	21.29	134.586	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)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	6/0	824.7	5.00	2.01	19.68	2.15	20.52	112.720	Horizontal	Pass
		836.5	4.89	2.01	19.77	2.15	20.50	112.202	Horizontal	Pass
		848.3	4.89	2.02	19.82	2.15	20.54	113.240	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	4.97	2.01	19.70	2.15	20.51	112.460	Horizontal	Pass
		836.5	5.02	2.01	19.77	2.15	20.63	115.611	Horizontal	Pass
		847.5	4.97	2.02	19.81	2.15	20.61	115.080	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	4.92	2.01	19.71	2.15	20.47	111.429	Horizontal	Pass
		836.5	4.87	2.01	19.77	2.15	20.48	111.686	Horizontal	Pass
		846.5	4.85	2.02	19.79	2.15	20.47	111.429	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	4.88	2.01	19.73	2.15	20.45	110.917	Horizontal	Pass
		836.5	4.87	2.01	19.77	2.15	20.48	111.686	Horizontal	Pass
		844	5.01	2.02	19.78	2.15	20.62	115.345	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	5.03	2.01	19.68	2.15	20.55	113.501	Vertical	Pass
		836.5	5.03	2.01	19.77	2.15	20.64	115.878	Vertical	Pass
		848.3	4.87	2.02	19.82	2.15	20.52	112.720	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	5.08	2.01	19.70	2.15	20.62	115.345	Vertical	Pass
		836.5	4.88	2.01	19.77	2.15	20.49	111.944	Vertical	Pass
		847.5	4.86	2.02	19.81	2.15	20.50	112.202	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	4.98	2.01	19.71	2.15	20.53	112.980	Vertical	Pass
		836.5	5.00	2.01	19.77	2.15	20.61	115.080	Vertical	Pass
		846.5	4.97	2.02	19.79	2.15	20.59	114.551	Vertical	Pass
10.0MHz Band QPSK	50/0	829	5.11	2.01	19.73	2.15	20.68	116.950	Vertical	Pass
		836.5	5.06	2.01	19.77	2.15	20.67	116.681	Vertical	Pass
		844	5.06	2.02	19.78	2.15	20.67	116.681	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Factor	Correction	Max. ERP	Max. ERP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	6/0	824.7	4.08	2.01	19.68	2.15	19.60	91.201	Horizontal	Pass
		836.5	4.11	2.01	19.77	2.15	19.72	93.756	Horizontal	Pass
		848.3	3.96	2.02	19.82	2.15	19.61	91.411	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	4.18	2.01	19.70	2.15	19.72	93.756	Horizontal	Pass
		836.5	4.13	2.01	19.77	2.15	19.74	94.189	Horizontal	Pass
		847.5	4.06	2.02	19.81	2.15	19.70	93.325	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	4.07	2.01	19.71	2.15	19.62	91.622	Horizontal	Pass
		836.5	4.10	2.01	19.77	2.15	19.71	93.541	Horizontal	Pass
		846.5	4.11	2.02	19.79	2.15	19.73	93.972	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	4.00	2.01	19.73	2.15	19.57	90.573	Horizontal	Pass
		836.5	3.99	2.01	19.77	2.15	19.60	91.201	Horizontal	Pass
		844	4.01	2.02	19.78	2.15	19.62	91.622	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	4.17	2.01	19.68	2.15	19.69	93.111	Vertical	Pass
		836.5	4.12	2.01	19.77	2.15	19.73	93.972	Vertical	Pass
		848.3	4.01	2.02	19.82	2.15	19.66	92.470	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	4.10	2.01	19.70	2.15	19.64	92.045	Vertical	Pass
		836.5	4.05	2.01	19.77	2.15	19.66	92.470	Vertical	Pass
		847.5	4.05	2.02	19.81	2.15	19.69	93.111	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	4.11	2.01	19.71	2.15	19.66	92.470	Vertical	Pass
		836.5	3.97	2.01	19.77	2.15	19.58	90.782	Vertical	Pass
		846.5	4.07	2.02	19.79	2.15	19.69	93.111	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	4.18	2.01	19.73	2.15	19.75	94.406	Vertical	Pass
		836.5	4.16	2.01	19.77	2.15	19.77	94.842	Vertical	Pass
		844	4.17	2.02	19.78	2.15	19.78	95.060	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)

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Factor	Max.	Max.	Polarization	
			Level	Loss	(dBi)	EIRP	EIRP	Of Max. ERP	
			(dBm)	(dBm)		Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2502.5	-0.89	4.54	27.75	22.32	170.608	Horizontal	Pass
		2535	-0.73	4.69	27.72	22.30	169.824	Horizontal	Pass
		2567.5	-0.74	4.71	27.71	22.26	168.267	Horizontal	Pass
10.0MHz Band QPSK	50/0	2505	-0.93	4.55	27.76	22.28	169.044	Horizontal	Pass
		2535	-0.69	4.69	27.72	22.34	171.396	Horizontal	Pass
		2565	-0.72	4.72	27.70	22.26	168.267	Horizontal	Pass
15.0MHz Band QPSK	75/0	2507.5	-1.02	4.55	27.77	22.20	165.959	Horizontal	Pass
		2535	-0.84	4.69	27.72	22.19	165.577	Horizontal	Pass
		2562.5	-0.67	4.72	27.69	22.30	169.824	Horizontal	Pass
20.0MHz Band QPSK	100/0	2510	-0.99	4.57	27.78	22.22	166.725	Horizontal	Pass
		2535	-0.77	4.73	27.72	22.22	166.725	Horizontal	Pass
		2560	-0.72	4.75	27.68	22.21	166.341	Horizontal	Pass
5.0MHz Band QPSK	25/0	2502.5	-0.93	4.54	27.75	22.28	169.044	Vertical	Pass
		2535	-0.81	4.69	27.72	22.22	166.725	Vertical	Pass
		2567.5	-0.67	4.71	27.71	22.33	171.002	Vertical	Pass
10.0MHz Band QPSK	50/0	2505	-0.93	4.55	27.76	22.28	169.044	Vertical	Pass
		2535	-0.83	4.69	27.72	22.20	165.959	Vertical	Pass
		2565	-0.64	4.72	27.70	22.34	171.396	Vertical	Pass
15.0MHz Band QPSK	75/0	2507.5	-0.94	4.55	27.77	22.28	169.044	Vertical	Pass
		2535	-0.71	4.69	27.72	22.32	170.608	Vertical	Pass
		2562.5	-0.63	4.72	27.69	22.34	171.396	Vertical	Pass
20.0MHz Band QPSK	100/0	2510	-0.82	4.57	27.78	22.39	173.380	Vertical	Pass
		2535	-0.62	4.73	27.72	22.37	172.584	Vertical	Pass
		2560	-0.57	4.75	27.68	22.36	172.187	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Factor (dBi)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	25/0	2502.5	14.63	4.54	9.00	19.09	81.10	Horizontal	Pass
		2535	14.25	4.69	9.00	18.56	71.78	Horizontal	Pass
		2502.5	-1.75	4.54	27.75	21.46	139.959	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2535	-1.61	4.69	27.72	21.42	138.676	Horizontal	Pass
		2567.5	-1.46	4.71	27.71	21.54	142.561	Horizontal	Pass
		2505	-1.78	4.55	27.76	21.43	138.995	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2535	-1.64	4.69	27.72	21.39	137.721	Horizontal	Pass
		2565	-1.45	4.72	27.70	21.53	142.233	Horizontal	Pass
		2507.5	-1.74	4.55	27.77	21.48	140.605	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2535	-1.55	4.69	27.72	21.48	140.605	Horizontal	Pass
		2562.5	-1.58	4.72	27.69	21.39	137.721	Horizontal	Pass
		2510	-1.75	4.57	27.78	21.46	139.959	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2535	-1.54	4.73	27.72	21.45	139.637	Horizontal	Pass
		2560	-1.42	4.75	27.68	21.51	141.579	Horizontal	Pass
		2502.5	-1.68	4.54	27.75	21.53	142.233	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2535	-1.58	4.69	27.72	21.45	139.637	Vertical	Pass
		2567.5	-1.53	4.71	27.71	21.47	140.281	Vertical	Pass
		2505	-1.77	4.55	27.76	21.44	139.316	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2535	-1.63	4.69	27.72	21.40	138.038	Vertical	Pass
		2565	-1.46	4.72	27.70	21.52	141.906	Vertical	Pass
		2507.5	-1.77	4.55	27.77	21.45	139.637	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2535	-1.54	4.69	27.72	21.49	140.929	Vertical	Pass
		2562.5	-1.46	4.72	27.69	21.51	141.579	Vertical	Pass
		2510	-1.62	4.57	27.78	21.59	144.212	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	699.7	2.96	1.91	19.21	2.15	18.11	64.714	Vertical	Pass
		707.5	2.92	1.91	19.26	2.15	18.12	64.863	Vertical	Pass
		715.3	2.93	1.93	19.34	2.15	18.19	65.917	Vertical	Pass
3.0MHz Band QPSK	15/0	700.5	2.99	1.91	19.21	2.15	18.14	65.163	Vertical	Pass
		707.5	2.92	1.91	19.26	2.15	18.12	64.863	Vertical	Pass
		714.5	2.86	1.93	19.34	2.15	18.12	64.863	Vertical	Pass
5.0MHz Band QPSK	25/0	701.5	2.97	1.91	19.23	2.15	18.14	65.163	Vertical	Pass
		707.5	3.04	1.91	19.26	2.15	18.24	66.681	Vertical	Pass
		713.5	2.85	1.92	19.33	2.15	18.11	64.714	Vertical	Pass
10.0Hz Band QPSK	50/0	704	2.93	1.91	19.25	2.15	18.12	64.863	Vertical	Pass
		707.5	3.00	1.91	19.26	2.15	18.20	66.069	Vertical	Pass
		711	2.84	1.92	19.32	2.15	18.09	64.417	Vertical	Pass
1.4MHz Band QPSK	6/0	699.7	3.07	1.91	19.21	2.15	18.22	66.374	Horizontal	Pass
		707.5	2.93	1.91	19.26	2.15	18.13	65.013	Horizontal	Pass
		715.3	2.97	1.93	19.34	2.15	18.23	66.527	Horizontal	Pass
3.0MHz Band QPSK	15/0	700.5	3.07	1.91	19.21	2.15	18.22	66.374	Horizontal	Pass
		707.5	2.92	1.91	19.26	2.15	18.12	64.863	Horizontal	Pass
		714.5	2.95	1.93	19.34	2.15	18.21	66.222	Horizontal	Pass
5.0MHz Band QPSK	25/0	701.5	2.94	1.91	19.23	2.15	18.11	64.714	Horizontal	Pass
		707.5	2.90	1.91	19.26	2.15	18.10	64.565	Horizontal	Pass
		713.5	2.85	1.92	19.33	2.15	18.11	64.714	Horizontal	Pass
10.0Hz Band QPSK	50/0	704	3.07	1.91	19.25	2.15	18.26	66.988	Horizontal	Pass
		707.5	3.08	1.91	19.26	2.15	18.28	67.298	Horizontal	Pass
		711	3.04	1.92	19.32	2.15	18.29	67.453	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	699.7	2.32	1.91	19.21	2.15	17.47	55.847	Vertical	Pass
		707.5	2.29	1.91	19.26	2.15	17.49	56.105	Vertical	Pass
		715.3	2.14	1.93	19.34	2.15	17.40	54.954	Vertical	Pass
3.0MHz Band 16 QAM	15/0	700.5	2.25	1.91	19.21	2.15	17.40	54.954	Vertical	Pass
		707.5	2.26	1.91	19.26	2.15	17.46	55.719	Vertical	Pass
		714.5	2.27	1.93	19.34	2.15	17.53	56.624	Vertical	Pass
5.0MHz Band 16 QAM	25/0	701.5	2.37	1.91	19.23	2.15	17.54	56.754	Vertical	Pass
		707.5	2.23	1.91	19.26	2.15	17.43	55.335	Vertical	Pass
		713.5	2.13	1.92	19.33	2.15	17.39	54.828	Vertical	Pass
10.0MHz Band 16 QAM	50/0	704	2.21	1.91	19.25	2.15	17.40	54.954	Vertical	Pass
		707.5	2.20	1.91	19.26	2.15	17.40	54.954	Vertical	Pass
		711	2.14	1.92	19.32	2.15	17.39	54.828	Vertical	Pass
1.4MHz Band 16 QAM	6/0	699.7	2.36	1.91	19.21	2.15	17.51	56.364	Horizontal	Pass
		707.5	2.23	1.91	19.26	2.15	17.43	55.335	Horizontal	Pass
		715.3	2.23	1.93	19.34	2.15	17.49	56.105	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	700.5	2.33	1.91	19.21	2.15	17.48	55.976	Horizontal	Pass
		707.5	2.29	1.91	19.26	2.15	17.49	56.105	Horizontal	Pass
		714.5	2.23	1.93	19.34	2.15	17.49	56.105	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	701.5	2.23	1.91	19.23	2.15	17.40	54.954	Horizontal	Pass
		707.5	2.30	1.91	19.26	2.15	17.50	56.234	Horizontal	Pass
		713.5	2.28	1.92	19.33	2.15	17.54	56.754	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	704	2.37	1.91	19.25	2.15	17.56	57.016	Horizontal	Pass
		707.5	2.36	1.91	19.26	2.15	17.56	57.016	Horizontal	Pass
		711	2.33	1.92	19.32	2.15	17.58	57.280	Horizontal	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)

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	779.5	3.18	1.95	19.23	2.15	18.31	67.764	Vertical	Pass
		782	3.11	1.95	19.26	2.15	18.27	67.143	Vertical	Pass
		784.5	3.09	1.96	19.33	2.15	18.31	67.764	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	782	3.01	1.95	19.25	2.15	18.16	65.464	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	779.5	3.06	1.95	19.23	2.15	18.19	65.917	Horizontal	Pass
		782	3.10	1.95	19.26	2.15	18.26	66.988	Horizontal	Pass
		784.5	2.98	1.96	19.33	2.15	18.20	66.069	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	782	3.16	1.95	19.25	2.15	18.31	67.764	Horizontal	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR	Max. EPR	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	779.5	2.25	1.95	19.23	2.15	17.38	54.702	Vertical	Pass
		782	2.34	1.95	19.26	2.15	17.50	56.234	Vertical	Pass
		784.5	2.27	1.96	19.33	2.15	17.49	56.105	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	782	2.25	1.95	19.25	2.15	17.4	54.954	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	779.5	2.36	1.95	19.23	2.15	17.49	56.105	Horizontal	Pass
		782	2.29	1.95	19.26	2.15	17.45	55.590	Horizontal	Pass
		784.5	2.20	1.96	19.33	2.15	17.42	55.208	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	782	2.36	1.95	19.25	2.15	17.51	56.364	Horizontal	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)

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	706.5	2.98	1.91	19.23	2.15	18.15	65.313	Vertical	Pass
		710	2.92	1.91	19.26	2.15	18.12	64.863	Vertical	Pass
		713.5	2.85	1.92	19.33	2.15	18.11	64.714	Vertical	Pass
10.0MHz Band QPSK	50/0	709	2.89	1.91	19.25	2.15	18.08	64.269	Vertical	Pass
		710	2.97	1.91	19.26	2.15	18.17	65.615	Vertical	Pass
		711	2.85	1.92	19.32	2.15	18.10	64.565	Vertical	Pass
5.0MHz Band QPSK	25/0	706.5	3.06	1.91	19.23	2.15	18.23	66.527	Horizontal	Pass
		710	2.98	1.91	19.26	2.15	18.18	65.766	Horizontal	Pass
		713.5	2.86	1.92	19.33	2.15	18.12	64.863	Horizontal	Pass
10.0MHz Band QPSK	50/0	709	3.07	1.91	19.25	2.15	18.26	66.988	Horizontal	Pass
		710	3.05	1.91	19.26	2.15	18.25	66.834	Horizontal	Pass
		711	3.02	1.92	19.32	2.15	18.27	67.143	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	706.5	2.36	1.91	19.23	2.15	17.53	56.624	Vertical	Pass
		710	2.28	1.91	19.26	2.15	17.48	55.976	Vertical	Pass
		713.5	2.15	1.92	19.33	2.15	17.41	55.081	Vertical	Pass
10.0MHz Band 16 QAM	50/0	709	2.29	1.91	19.25	2.15	17.48	55.976	Vertical	Pass
		710	2.22	1.91	19.26	2.15	17.42	55.208	Vertical	Pass
		711	2.17	1.92	19.32	2.15	17.42	55.208	Vertical	Pass
5.0MHz Band 16 QAM	25/0	706.5	2.29	1.91	19.23	2.15	17.46	55.719	Horizontal	Pass
		710	2.30	1.91	19.26	2.15	17.50	56.234	Horizontal	Pass
		713.5	2.18	1.92	19.33	2.15	17.44	55.463	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	709	2.37	1.91	19.25	2.15	17.56	57.016	Horizontal	Pass
		710	2.36	1.91	19.26	2.15	17.56	57.016	Horizontal	Pass
		711	2.33	1.92	19.32	2.15	17.58	57.280	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)

8.8 LTE BAND 25

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1850.7	-3.02	3.12	27.58	21.44	139.316	Horizontal	Pass
		1882.5	-2.90	3.27	27.61	21.44	139.316	Horizontal	Pass
		1914.3	-2.86	3.29	27.63	21.48	140.605	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	-2.99	3.13	27.61	21.49	140.929	Horizontal	Pass
		1882.5	-2.89	3.27	27.61	21.45	139.637	Horizontal	Pass
		1753.5	-2.92	3.30	27.62	21.40	138.038	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	-2.98	3.13	27.63	21.52	141.906	Horizontal	Pass
		1882.5	-2.96	3.27	27.61	21.38	137.404	Horizontal	Pass
		1912.5	-2.86	3.30	27.60	21.44	139.316	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	-3.06	3.15	27.64	21.43	138.995	Horizontal	Pass
		1882.5	-2.79	3.31	27.61	21.51	141.579	Horizontal	Pass
		1910	-2.85	3.33	27.59	21.41	138.357	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	-3.07	3.15	27.65	21.43	138.995	Horizontal	Pass
		1882.5	-2.80	3.31	27.61	21.50	141.254	Horizontal	Pass
		1907.5	-2.75	3.33	27.57	21.49	140.929	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	-2.95	3.17	27.66	21.54	142.561	Horizontal	Pass
		1882.5	-2.81	3.32	27.61	21.48	140.605	Horizontal	Pass
		1905	-2.82	3.36	27.56	21.38	137.404	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	-2.95	3.12	27.58	21.51	141.579	Vertical	Pass
		1882.5	-2.89	3.27	27.61	21.45	139.637	Vertical	Pass
		1914.3	-2.90	3.29	27.63	21.44	139.316	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	-3.03	3.13	27.61	21.45	139.637	Vertical	Pass
		1882.5	-2.82	3.27	27.61	21.52	141.906	Vertical	Pass
		1753.5	-2.81	3.30	27.62	21.51	141.579	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	-3.00	3.13	27.63	21.50	141.254	Vertical	Pass
		1882.5	-2.96	3.27	27.61	21.38	137.404	Vertical	Pass
		1912.5	-2.84	3.30	27.60	21.46	139.959	Vertical	Pass
10.0MHz Band	50/0	1855	-3.00	3.15	27.64	21.49	140.929	Vertical	Pass
		1882.5	-2.87	3.31	27.61	21.43	138.995	Vertical	Pass

QPSK		1910	-2.72	3.33	27.59	21.54	142.561	Vertical	Pass
15.0MHz	75/0	1857.5	-3.01	3.15	27.65	21.49	140.929	Vertical	Pass
Band		1882.5	-2.91	3.31	27.61	21.39	137.721	Vertical	Pass
QPSK		1907.5	-2.84	3.33	27.57	21.40	138.038	Vertical	Pass
20.0MHz	100/0	1860	-2.94	3.17	27.66	21.55	142.889	Vertical	Pass
Band		1882.5	-2.71	3.32	27.61	21.58	143.880	Vertical	Pass
QPSK		1905	-2.65	3.36	27.56	21.55	142.889	Vertical	Pass

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz	6/0	1850.7	-3.58	3.12	27.58	20.88	122.462	Horizontal	Pass
Band 16		1882.5	-3.45	3.27	27.61	20.89	122.744	Horizontal	Pass
QAM		1914.3	-3.45	3.29	27.63	20.89	122.744	Horizontal	Pass
3.0MHz	15/0	1851.5	-3.65	3.13	27.61	20.83	121.060	Horizontal	Pass
Band 16		1882.5	-3.53	3.27	27.61	20.81	120.504	Horizontal	Pass
QAM		1753.5	-3.52	3.30	27.62	20.80	120.226	Horizontal	Pass
5.0MHz	25/0	1852.5	-3.70	3.13	27.63	20.80	120.226	Horizontal	Pass
Band 16		1882.5	-3.47	3.27	27.61	20.87	122.180	Horizontal	Pass
QAM		1912.5	-3.53	3.30	27.60	20.77	119.399	Horizontal	Pass
10.0MHz	50/0	1855	-3.61	3.15	27.64	20.88	122.462	Horizontal	Pass
Band 16		1882.5	-3.49	3.31	27.61	20.81	120.504	Horizontal	Pass
QAM		1910	-3.44	3.33	27.59	20.82	120.781	Horizontal	Pass
15.0MHz	75/0	1857.5	-3.63	3.15	27.65	20.87	122.180	Horizontal	Pass
Band 16		1882.5	-3.36	3.31	27.61	20.94	124.165	Horizontal	Pass
QAM		1907.5	-3.41	3.33	27.57	20.83	121.060	Horizontal	Pass
20.0MHz	100/0	1860	-3.71	3.17	27.66	20.78	119.674	Horizontal	Pass
Band 16		1882.5	-3.52	3.32	27.61	20.77	119.399	Horizontal	Pass
QAM		1905	-3.34	3.36	27.56	20.86	121.899	Horizontal	Pass
1.4MHz	6/0	1850.7	-3.52	3.12	27.58	20.94	124.165	Vertical	Pass
Band 16		1882.5	-3.43	3.27	27.61	20.91	123.310	Vertical	Pass
QAM		1914.3	-3.46	3.29	27.63	20.88	122.462	Vertical	Pass
3.0MHz	15/0	1851.5	-3.60	3.13	27.61	20.88	122.462	Vertical	Pass
Band 16		1882.5	-3.52	3.27	27.61	20.82	120.781	Vertical	Pass
QAM		1753.5	-3.50	3.30	27.62	20.82	120.781	Vertical	Pass

5.0MHz	25/0	1852.5	-3.61	3.13	27.63	20.89	122.744	Vertical	Pass
Band 16		1882.5	-3.51	3.27	27.61	20.83	121.060	Vertical	Pass
QAM		1912.5	-3.36	3.30	27.60	20.94	124.165	Vertical	Pass
10.0MHz	50/0	1855	-3.58	3.15	27.64	20.91	123.310	Vertical	Pass
Band 16		1882.5	-3.40	3.31	27.61	20.90	123.027	Vertical	Pass
QAM		1910	-3.33	3.33	27.59	20.93	123.880	Vertical	Pass
15.0MHz	75/0	1857.5	-3.63	3.15	27.65	20.87	122.180	Vertical	Pass
Band 16		1882.5	-3.47	3.31	27.61	20.83	121.060	Vertical	Pass
QAM		1907.5	-3.38	3.33	27.57	20.86	121.899	Vertical	Pass
20.0MHz	100/0	1860	-3.49	3.17	27.66	21.00	125.893	Vertical	Pass
Band 16		1882.5	-3.31	3.32	27.61	20.98	125.314	Vertical	Pass
QAM		1905	-3.22	3.36	27.56	20.98	125.314	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)

8.9 LTE BAND 26 A

Radiated Power (ERP) for Band 26A										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR Average (dBm)	Max. EPR Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	814.7	4.31	1.91	19.21	2.15	19.46	88.308	Vertical	Pass
		819	4.36	1.91	19.26	2.15	19.56	90.365	Vertical	Pass
		823.3	4.31	1.93	19.34	2.15	19.57	90.573	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	815.5	4.37	1.91	19.21	2.15	19.52	89.536	Vertical	Pass
		819	4.29	1.91	19.26	2.15	19.49	88.920	Vertical	Pass
		822.5	4.33	1.93	19.34	2.15	19.59	90.991	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	816.5	4.28	1.91	19.23	2.15	19.45	88.105	Vertical	Pass
		819	4.29	1.91	19.26	2.15	19.49	88.920	Vertical	Pass
		821.5	4.24	1.92	19.33	2.15	19.50	89.125	Vertical	Pass
10.0MHz z Band QPSK	1/#Mid	819	4.24	1.93	19.25	2.15	19.41	87.297	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	814.7	4.34	1.91	19.21	2.15	19.49	88.920	Horizontal	Pass
		819	4.38	1.91	19.26	2.15	19.58	90.782	Horizontal	Pass
		823.3	4.20	1.93	19.34	2.15	19.46	88.308	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	815.5	4.43	1.91	19.21	2.15	19.58	90.782	Horizontal	Pass
		819	4.37	1.91	19.26	2.15	19.57	90.573	Horizontal	Pass
		822.5	4.30	1.93	19.34	2.15	19.56	90.365	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	816.5	4.37	1.91	19.23	2.15	19.54	89.950	Horizontal	Pass
		819	4.40	1.91	19.26	2.15	19.60	91.201	Horizontal	Pass
		821.5	4.25	1.92	19.33	2.15	19.51	89.331	Horizontal	Pass
10.0MHz z Band QPSK	1/#Mid	819	4.43	1.93	19.25	2.15	19.6	91.201	Horizontal	Pass

Radiated Power (ERP) for Band 26A										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR Average (dBm)	Max. EPR Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	814.7	3.65	1.91	19.21	2.15	18.80	75.858	Vertical	Pass
		819	3.65	1.91	19.26	2.15	18.85	76.736	Vertical	Pass
		823.3	3.56	1.93	19.34	2.15	18.82	76.208	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	815.5	3.65	1.91	19.21	2.15	18.80	75.858	Vertical	Pass
		819	3.58	1.91	19.26	2.15	18.78	75.509	Vertical	Pass
		822.5	3.55	1.93	19.34	2.15	18.81	76.033	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	816.5	3.59	1.91	19.23	2.15	18.76	75.162	Vertical	Pass
		819	3.67	1.91	19.26	2.15	18.87	77.090	Vertical	Pass
		821.5	3.48	1.92	19.33	2.15	18.74	74.817	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	819	3.72	1.93	19.25	2.15	18.89	77.446	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	814.7	3.69	1.91	19.21	2.15	18.84	76.560	Horizontal	Pass
		819	3.64	1.91	19.26	2.15	18.84	76.560	Horizontal	Pass
		823.3	3.64	1.93	19.34	2.15	18.90	77.625	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	815.5	3.68	1.91	19.21	2.15	18.83	76.384	Horizontal	Pass
		819	3.56	1.91	19.26	2.15	18.76	75.162	Horizontal	Pass
		822.5	3.58	1.93	19.34	2.15	18.84	76.560	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	816.5	3.72	1.91	19.23	2.15	18.89	77.446	Horizontal	Pass
		819	3.69	1.91	19.26	2.15	18.89	77.446	Horizontal	Pass
		821.5	3.54	1.92	19.33	2.15	18.80	75.858	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	819	3.77	1.93	19.25	2.15	18.94	78.343	Horizontal	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)

ERP(dBm)=EIRP-2.15

8.10 LTE BAND 26B

Radiated Power (ERP) for Band 26B										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	824.7	5.14	2.02	19.72	2.15	20.69	117.220	Horizontal	Pass
		836.5	5.01	2.02	19.83	2.15	20.67	116.681	Horizontal	Pass
		848.3	4.86	2.03	19.95	2.15	20.63	115.611	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.07	2.02	19.84	2.15	20.74	118.577	Horizontal	Pass
		836.5	4.86	2.02	19.94	2.15	20.63	115.611	Horizontal	Pass
		847.5	4.80	2.03	19.98	2.15	20.60	114.815	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.11	2.02	19.75	2.15	20.69	117.220	Horizontal	Pass
		836.5	4.90	2.02	19.83	2.15	20.56	113.763	Horizontal	Pass
		846.5	4.92	2.03	19.92	2.15	20.66	116.413	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	4.99	2.02	19.84	2.15	20.66	116.413	Horizontal	Pass
		836.5	4.86	2.02	19.90	2.15	20.59	114.551	Horizontal	Pass
		844	4.87	2.03	19.96	2.15	20.65	116.145	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	831.5	5.39	2.02	19.33	2.15	20.55	113.501	Vertical	Pass
		836.5	5.36	2.02	19.37	2.15	20.56	113.763	Vertical	Pass
		841.5	5.37	2.03	19.52	2.15	20.71	117.761	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	824.7	5.10	2.02	19.76	2.15	20.69	117.220	Vertical	Pass
		836.5	5.01	2.02	19.78	2.15	20.62	115.345	Vertical	Pass
		848.3	4.87	2.03	19.94	2.15	20.63	115.611	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.01	2.02	19.83	2.15	20.67	116.681	Vertical	Pass
		836.5	4.89	2.02	19.96	2.15	20.68	116.950	Vertical	Pass
		847.5	5.04	2.03	19.87	2.15	20.73	118.304	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.93	2.02	19.86	2.15	20.62	115.345	Vertical	Pass
		836.5	4.99	2.02	19.81	2.15	20.63	115.611	Vertical	Pass
		846.5	5.08	2.03	19.83	2.15	20.73	118.304	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.18	2.02	19.75	2.15	20.76	119.124	Vertical	Pass
		836.5	5.07	2.02	19.85	2.15	20.75	118.850	Vertical	Pass
		844	5.15	2.03	19.80	2.15	20.77	119.399	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	831.5	5.61	2.02	19.31	2.15	20.75	118.850	Horizontal	Pass
		836.5	5.63	2.02	19.33	2.15	20.79	119.950	Horizontal	Pass
		841.5	5.57	2.03	19.38	2.15	20.77	119.399	Horizontal	Pass

Radiated Power (ERP) for Band 26B										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR Average (dBm)	Max. EPR Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	824.7	4.29	2.02	19.72	2.15	19.84	96.383	Horizontal	Pass
		836.5	4.22	2.02	19.83	2.15	19.88	97.275	Horizontal	Pass
		848.3	4.09	2.03	19.95	2.15	19.86	96.828	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.26	2.02	19.84	2.15	19.93	98.401	Horizontal	Pass
		836.5	4.16	2.02	19.94	2.15	19.93	98.401	Horizontal	Pass
		847.5	4.02	2.03	19.98	2.15	19.82	95.940	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.19	2.02	19.75	2.15	19.77	94.842	Horizontal	Pass
		836.5	4.15	2.02	19.83	2.15	19.81	95.719	Horizontal	Pass
		846.5	4.14	2.03	19.92	2.15	19.88	97.275	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.13	2.02	19.84	2.15	19.80	95.499	Horizontal	Pass
		836.5	4.11	2.02	19.90	2.15	19.84	96.383	Horizontal	Pass
		844	4.16	2.03	19.96	2.15	19.94	98.628	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	831.5	4.75	2.02	19.33	2.15	19.91	97.949	Vertical	Pass
		836.5	4.62	2.02	19.37	2.15	19.82	95.940	Vertical	Pass
		841.5	4.46	2.03	19.52	2.15	19.80	95.499	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	4.32	2.02	19.76	2.15	19.91	97.949	Vertical	Pass
		836.5	4.27	2.02	19.78	2.15	19.88	97.275	Vertical	Pass
		848.3	4.15	2.03	19.94	2.15	19.91	97.949	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.27	2.02	19.83	2.15	19.93	98.401	Vertical	Pass
		836.5	4.03	2.02	19.96	2.15	19.82	95.940	Vertical	Pass
		847.5	4.10	2.03	19.87	2.15	19.79	95.280	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.22	2.02	19.86	2.15	19.91	97.949	Vertical	Pass
		836.5	4.23	2.02	19.81	2.15	19.87	97.051	Vertical	Pass
		846.5	4.12	2.03	19.83	2.15	19.77	94.842	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.39	2.02	19.75	2.15	19.97	99.312	Vertical	Pass
		836.5	4.30	2.02	19.85	2.15	19.98	99.541	Vertical	Pass
		844	4.33	2.03	19.80	2.15	19.95	98.855	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	831.5	4.84	2.02	19.31	2.15	19.98	99.541	Horizontal	Pass
		836.5	4.85	2.02	19.33	2.15	20.01	100.231	Horizontal	Pass
		841.5	4.78	2.03	19.38	2.15	19.98	99.541	Horizontal	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)

ERP(dBm)=EIRP-2.15

8.11 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	-1.71	3.76	28.24	22.77	189.234	Horizontal	Pass
		1745	-1.49	3.91	28.22	22.82	191.426	Horizontal	Pass
		1779.3	-1.45	3.93	28.2	22.82	191.426	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	-1.68	3.77	28.23	22.78	189.671	Horizontal	Pass
		1745	-1.50	3.91	28.24	22.83	191.867	Horizontal	Pass
		1778.5	-1.57	3.94	28.25	22.74	187.932	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	-1.84	3.77	28.31	22.70	186.209	Horizontal	Pass
		1745	-1.52	3.91	28.22	22.79	190.108	Horizontal	Pass
		1777.5	-1.44	3.94	28.2	22.82	191.426	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	-1.76	3.79	28.33	22.78	189.671	Horizontal	Pass
		1745	-1.41	3.95	28.22	22.86	193.197	Horizontal	Pass
		1775	-1.44	3.97	28.19	22.78	189.671	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	-1.73	3.79	28.34	22.82	191.426	Horizontal	Pass
		1745	-1.56	3.95	28.22	22.71	186.638	Horizontal	Pass
		1772.5	-1.50	3.97	28.18	22.71	186.638	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	-1.68	3.81	28.35	22.86	193.197	Horizontal	Pass
		1745	-1.43	3.96	28.22	22.83	191.867	Horizontal	Pass
		1770	-1.36	4	28.16	22.80	190.546	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	-1.71	3.76	28.24	22.77	189.234	Vertical	Pass
		1745	-1.48	3.91	28.22	22.83	191.867	Vertical	Pass
		1779.3	-1.47	3.93	28.2	22.80	190.546	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	-1.59	3.77	28.23	22.87	193.642	Vertical	Pass
		1745	-1.55	3.91	28.24	22.78	189.671	Vertical	Pass
		1778.5	-1.59	3.94	28.25	22.72	187.068	Vertical	Pass
5.0MHz	25/0	1712.5	-1.85	3.77	28.31	22.69	185.780	Vertical	Pass

Band QPSK		1745	-1.56	3.91	28.22	22.75	188.365	Vertical	Pass
		1777.5	-1.45	3.94	28.2	22.81	190.985	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	-1.74	3.79	28.34	22.81	190.985	Vertical	Pass
		1745	-1.51	3.95	28.22	22.76	188.799	Vertical	Pass
		1775	-1.45	3.97	28.18	22.76	188.799	Vertical	Pass
15.0MHz Band QPSK	75/0	1717.5	-1.70	3.81	28.35	22.84	192.309	Vertical	Pass
		1745	-1.39	3.96	28.22	22.87	193.642	Vertical	Pass
		1772.5	-1.38	4	28.16	22.78	189.671	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	-1.64	3.79	28.34	22.91	195.434	Vertical	Pass
		1745	-1.38	3.95	28.22	22.89	194.536	Vertical	Pass
		1770	-1.33	3.97	28.18	22.88	194.089	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1710.7	-2.42	3.76	28.24	22.06	160.694	Horizontal	Pass
		1745	-2.33	3.91	28.22	21.98	157.761	Horizontal	Pass
		1779.3	-2.25	3.93	28.2	22.02	159.221	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-2.40	3.77	28.23	22.06	160.694	Horizontal	Pass
		1745	-2.39	3.91	28.24	21.94	156.315	Horizontal	Pass
		1778.5	-2.28	3.94	28.25	22.03	159.588	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	-2.59	3.77	28.31	21.95	156.675	Horizontal	Pass
		1745	-2.29	3.91	28.22	22.02	159.221	Horizontal	Pass
		1777.5	-2.22	3.94	28.2	22.04	159.956	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	-2.57	3.79	28.33	21.97	157.398	Horizontal	Pass
		1745	-2.35	3.95	28.22	21.92	155.597	Horizontal	Pass
		1775	-2.15	3.97	28.19	22.07	161.065	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	-2.50	3.79	28.34	22.05	160.325	Horizontal	Pass
		1745	-2.29	3.95	28.22	21.98	157.761	Horizontal	Pass
		1772.5	-2.27	3.97	28.18	21.94	156.315	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	-2.51	3.81	28.35	22.03	159.588	Horizontal	Pass
		1745	-2.21	3.96	28.22	22.05	160.325	Horizontal	Pass
		1770	-2.16	4	28.16	22.00	158.489	Horizontal	Pass
1.4MHz Band 16	6/0	1710.7	-2.54	3.76	28.24	21.94	156.315	Vertical	Pass
		1745	-2.35	3.91	28.22	21.96	157.036	Vertical	Pass

QAM		1779.3	-2.29	3.93	28.2	21.98	157.761	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-2.51	3.77	28.23	21.95	156.675	Vertical	Pass
		1745	-2.31	3.91	28.24	22.02	159.221	Vertical	Pass
		1778.5	-2.28	3.94	28.25	22.03	159.588	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	-2.55	3.77	28.31	21.99	158.125	Vertical	Pass
		1745	-2.28	3.91	28.22	22.03	159.588	Vertical	Pass
		1777.5	-2.28	3.94	28.2	21.98	157.761	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	-2.50	3.79	28.34	22.05	160.325	Vertical	Pass
		1745	-2.25	3.95	28.22	22.02	159.221	Vertical	Pass
		1775	-2.15	3.97	28.18	22.06	160.694	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1717.5	-2.58	3.81	28.35	21.96	157.036	Vertical	Pass
		1745	-2.28	3.96	28.22	21.98	157.761	Vertical	Pass
		1772.5	-2.20	4	28.16	21.96	157.036	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1720	-2.44	3.79	28.34	22.11	162.555	Vertical	Pass
		1745	-2.19	3.95	28.22	22.08	161.436	Vertical	Pass
		1770	-2.12	3.97	28.18	22.09	161.808	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: §2.1053, §22.917, §24.238, §27.53 and §90.691

LIMIT

§22.917 (e) and §24.238 and §90.691 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

§27.53 (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

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 2/4/5/7/12/13/17/25/26/66

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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-52.25	4.04	33.51	-22.78	-13	-9.78	Horizontal
3701.4	-53.26	4.04	33.51	-23.79	-13	-10.79	Vertical
5552.1	-46.64	5.24	35.84	-16.04	-13	-3.04	Vertical
5552.1	-49.07	5.24	35.84	-18.47	-13	-5.47	Horizontal
197.2	-42.88	1.43	16.02	-28.29	-13	-15.29	Vertical
455.1	-34.17	1.30	17.99	-17.48	-13	-4.48	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.21	4.04	33.56	-17.69	-13	-4.69	Horizontal
3760.0	-53.09	4.04	33.56	-23.57	-13	-10.57	Vertical
5640.0	-52.52	5.24	35.91	-21.85	-13	-8.85	Vertical
5640.0	-52.77	5.24	35.91	-22.10	-13	-9.10	Horizontal
191.7	-34.58	1.62	16.97	-19.23	-13	-6.23	Vertical
452.1	-42.35	1.74	15.98	-28.12	-13	-15.12	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-48.55	4.04	34.00	-18.59	-13	-5.59	Horizontal
3818.6	-46.42	4.04	34.00	-16.46	-13	-3.46	Vertical
5727.9	-47.47	5.24	36.04	-16.67	-13	-3.67	Vertical
5727.9	-50.38	5.24	36.04	-19.58	-13	-6.58	Horizontal
200.1	-35.12	1.42	17.29	-19.25	-13	-6.25	Vertical
299.6	-42.35	1.50	17.90	-25.94	-13	-12.94	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-46.97	4.07	33.54	-17.50	-13	-4.50	Horizontal
3720.0	-45.78	4.07	33.54	-16.31	-13	-3.31	Vertical
5580.0	-51.15	5.28	35.86	-20.57	-13	-7.57	Vertical
5580.0	-51.96	5.28	35.86	-21.38	-13	-8.38	Horizontal
198.1	-34.99	1.58	16.89	-19.67	-13	-6.67	Vertical
299.0	-41.59	1.76	17.26	-26.09	-13	-13.09	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.46	4.04	33.56	-19.94	-13	-6.94	Horizontal
3760.0	-49.02	4.04	33.56	-19.50	-13	-6.50	Vertical
5640.0	-49.86	5.24	35.91	-19.19	-13	-6.19	Vertical
5640.0	-49.26	5.24	35.91	-18.59	-13	-5.59	Horizontal
176.3	-42.31	1.46	16.27	-27.50	-13	-14.50	Vertical
401.9	-41.09	1.59	15.15	-27.53	-13	-14.53	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-49.61	4.04	34.00	-19.65	-13	-6.65	Horizontal
3800.0	-47.22	4.04	34.00	-17.26	-13	-4.26	Vertical
5700.0	-48.00	5.24	36.04	-17.20	-13	-4.20	Vertical
5700.0	-51.31	5.24	36.04	-20.51	-13	-7.51	Horizontal
177.0	-37.11	1.36	17.39	-21.07	-13	-8.07	Vertical
248.6	-35.83	1.66	15.39	-22.10	-13	-9.10	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.

9.2 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-47.87	4.02	29.80	-22.09	-13	-9.09	Horizontal
3421.4	-52.08	4.02	29.80	-26.30	-13	-13.30	Vertical
5132.1	-50.41	5.24	35.84	-19.81	-13	-6.81	Vertical
5132.1	-52.61	5.24	35.84	-22.01	-13	-9.01	Horizontal
201.3	-34.95	1.68	16.04	-20.59	-13	-7.59	Vertical
466.2	-35.12	1.78	17.74	-19.16	-13	-6.16	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-44.49	4.03	30.00	-18.52	-13	-5.52	Horizontal
3465.0	-46.22	4.03	30.00	-20.25	-13	-7.25	Vertical
5197.5	-50.05	5.25	35.86	-19.44	-13	-6.44	Vertical
5197.5	-50.08	5.25	35.86	-19.47	-13	-6.47	Horizontal
197.1	-43.25	1.72	17.69	-27.28	-13	-14.28	Vertical
455.7	-36.53	1.62	16.02	-22.12	-13	-9.12	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-53.14	4.05	30.01	-27.18	-13	-14.18	Horizontal
3508.6	-49.49	4.05	30.01	-23.53	-13	-10.53	Vertical
5262.9	-48.65	5.26	35.86	-18.05	-13	-5.05	Vertical
5262.9	-51.05	5.26	35.86	-20.45	-13	-7.45	Horizontal
181.8	-34.21	1.80	16.69	-19.32	-13	-6.32	Vertical
421.0	-35.40	1.75	16.66	-20.50	-13	-7.50	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-51.99	4.02	29.80	-26.21	-13	-13.21	Horizontal
3440.0	-47.41	4.02	29.80	-21.63	-13	-8.63	Vertical
5160.0	-49.07	5.24	35.84	-18.47	-13	-5.47	Vertical
5160.0	-49.29	5.24	35.84	-18.69	-13	-5.69	Horizontal
206.3	-36.29	1.57	17.26	-20.60	-13	-7.60	Vertical
294.6	-37.25	1.78	16.35	-22.68	-13	-9.68	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-52.63	4.03	30.00	-26.66	-13	-13.66	Horizontal
3465.0	-47.35	4.03	30.00	-21.38	-13	-8.38	Vertical
5197.5	-51.92	5.25	35.86	-21.31	-13	-8.31	Vertical
5197.5	-50.87	5.25	35.86	-20.26	-13	-7.26	Horizontal
175.8	-43.83	1.44	17.95	-27.32	-13	-14.32	Vertical
307.2	-44.79	1.65	16.09	-30.35	-13	-17.35	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-51.29	4.05	27.68	-27.66	-13	-14.66	Horizontal
3490.0	-48.88	4.05	27.68	-25.25	-13	-12.25	Vertical
5235.0	-51.99	5.26	35.86	-21.39	-13	-8.39	Vertical
5235.0	-49.34	5.26	35.86	-18.74	-13	-5.74	Horizontal
175.9	-41.15	1.61	16.85	-25.91	-13	-12.91	Vertical
377.1	-36.20	1.61	15.19	-22.62	-13	-9.62	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.

9.3 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-45.36	2.78	27.50	-20.64	-13	-7.64	Horizontal
1649.4	-49.33	2.78	27.50	-24.61	-13	-11.61	Vertical
2474.1	-52.81	2.90	27.80	-27.91	-13	-14.91	Vertical
2474.1	-51.04	2.90	27.80	-26.14	-13	-13.14	Horizontal
203.6	-42.10	1.76	17.59	-26.27	-13	-13.27	Vertical
248.2	-39.10	1.63	15.87	-24.86	-13	-11.86	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-45.27	2.80	27.48	-20.59	-13	-7.59	Horizontal
1673.0	-51.39	2.80	27.48	-26.71	-13	-13.71	Vertical
2509.5	-53.85	2.91	27.70	-29.06	-13	-16.06	Vertical
2509.5	-50.25	2.91	27.70	-25.46	-13	-12.46	Horizontal
185.6	-34.97	1.61	15.68	-20.90	-13	-7.90	Vertical
372.9	-41.91	1.59	17.52	-25.99	-13	-12.99	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-49.17	2.82	27.43	-24.56	-13	-11.56	Horizontal
1696.6	-53.99	2.82	27.43	-29.38	-13	-16.38	Vertical
2544.9	-51.73	2.92	27.74	-26.91	-13	-13.91	Vertical
2544.9	-50.28	2.92	27.74	-25.46	-13	-12.46	Horizontal
186.3	-35.54	1.69	16.67	-20.55	-13	-7.55	Vertical
288.4	-34.42	1.70	17.18	-18.94	-13	-5.94	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-47.61	2.78	27.50	-22.89	-13	-9.89	Horizontal
1658.0	-49.21	2.78	27.50	-24.49	-13	-11.49	Vertical
2487.0	-45.49	2.90	27.80	-20.59	-13	-7.59	Vertical
2487.0	-51.52	2.90	27.80	-26.62	-13	-13.62	Horizontal
202.9	-36.81	1.71	15.57	-22.95	-13	-9.95	Vertical
463.2	-39.61	1.34	16.40	-24.55	-13	-11.55	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-49.68	2.80	27.48	-25.00	-13	-12.00	Horizontal
1673.0	-51.79	2.80	27.48	-27.11	-13	-14.11	Vertical
2509.5	-51.84	2.91	27.70	-27.05	-13	-14.05	Vertical
2509.5	-50.25	2.91	27.70	-25.46	-13	-12.46	Horizontal
175.6	-44.02	1.44	17.04	-28.42	-13	-15.42	Vertical
411.9	-37.75	1.76	17.62	-21.89	-13	-8.89	Horizontal
Test Results for High Channel 844MHz							
1688.0	-50.40	2.82	27.43	-25.79	-13	-12.79	Horizontal
1688.0	-48.15	2.82	27.43	-23.54	-13	-10.54	Vertical
2532.0	-51.97	2.92	27.74	-27.15	-13	-14.15	Vertical
2532.0	-51.87	2.92	27.74	-27.05	-13	-14.05	Horizontal
207.1	-38.41	1.74	17.70	-22.45	-13	-9.45	Vertical
401.7	-41.76	1.41	17.46	-25.70	-13	-12.70	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.

9.4 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	-64.60	5.23	35.81	-34.02	-25	-9.02	Horizontal
5005.0	-59.44	5.23	35.81	-28.86	-25	-3.86	Vertical
7507.5	-64.86	5.67	36.85	-33.68	-25	-8.68	Vertical
7507.5	-60.13	5.67	36.85	-28.95	-25	-3.95	Horizontal
200.0	-51.61	1.73	17.97	-35.37	-25	-10.37	Vertical
310.0	-50.83	1.38	15.11	-37.10	-25	-12.10	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.03	5.23	35.82	-29.44	-25	-4.44	Horizontal
5070.0	-61.19	5.23	35.82	-30.60	-25	-5.60	Vertical
7605.0	-60.05	5.67	36.85	-28.87	-25	-3.87	Vertical
7605.0	-61.18	5.67	36.85	-30.00	-25	-5.00	Horizontal
202.6	-51.23	1.77	16.17	-36.82	-25	-11.82	Vertical
446.8	-44.67	1.63	15.21	-31.09	-25	-6.09	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-62.16	5.24	35.83	-31.57	-25	-6.57	Horizontal
5135.0	-63.94	5.24	35.83	-33.35	-25	-8.35	Vertical
7702.5	-60.60	5.68	36.87	-29.41	-25	-4.41	Vertical
7702.5	-59.84	5.68	36.87	-28.65	-25	-3.65	Horizontal
212.3	-50.51	1.58	17.56	-34.53	-25	-9.53	Vertical
357.0	-50.91	1.45	16.58	-35.78	-25	-10.78	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	-64.97	5.23	35.82	-34.38	-25	-9.38	Horizontal
5020.0	-61.81	5.23	35.82	-31.22	-25	-6.22	Vertical
7530.0	-62.82	5.67	36.86	-31.63	-25	-6.63	Vertical
7530.0	-63.02	5.67	36.86	-31.83	-25	-6.83	Horizontal
180.7	-51.11	1.63	15.76	-36.98	-25	-11.98	Vertical
378.6	-47.97	1.71	15.44	-34.24	-25	-9.24	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.66	5.23	35.82	-30.07	-25	-5.07	Horizontal
5070.0	-63.59	5.23	35.82	-33.00	-25	-8.00	Vertical
7605.0	-62.11	5.67	36.85	-30.93	-25	-5.93	Vertical
7605.0	-63.22	5.67	36.85	-32.04	-25	-7.04	Horizontal
177.5	-50.78	1.79	16.84	-35.72	-25	-10.72	Vertical
237.7	-47.22	1.71	17.64	-31.29	-25	-6.29	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.70	5.24	35.83	-30.11	-25	-5.11	Horizontal
5120.0	-62.41	5.24	35.83	-31.82	-25	-6.82	Vertical
7680.0	-64.65	5.70	36.88	-33.47	-25	-8.47	Vertical
7680.0	-61.47	5.70	36.88	-30.29	-25	-5.29	Horizontal
186.4	-49.13	1.79	16.84	-34.07	-25	-9.07	Vertical
378.4	-45.32	1.71	17.64	-29.39	-25	-4.39	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-49.12	2.60	27.20	-24.52	-13	-11.52	Horizontal
1399.4	-46.86	2.60	27.20	-22.26	-13	-9.26	Vertical
2099.1	-45.82	2.85	27.54	-21.13	-13	-8.13	Vertical
2099.1	-51.46	2.85	27.54	-26.77	-13	-13.77	Horizontal
198.5	-41.56	1.49	17.78	-25.27	-13	-12.27	Vertical
346.6	-39.03	1.36	17.33	-23.06	-13	-10.06	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-50.40	2.61	27.28	-25.73	-13	-12.73	Horizontal
1415.0	-50.03	2.61	27.28	-25.36	-13	-12.36	Vertical
2122.5	-49.12	2.87	27.59	-24.40	-13	-11.40	Vertical
2122.5	-53.99	2.87	27.59	-29.27	-13	-16.27	Horizontal
207.0	-38.18	1.73	15.74	-24.17	-13	-11.17	Vertical
332.1	-41.74	1.62	15.79	-27.57	-13	-14.57	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-48.29	2.63	27.28	-23.64	-13	-10.64	Horizontal
1430.6	-44.89	2.63	27.28	-20.24	-13	-7.24	Vertical
2145.9	-46.98	2.88	27.60	-22.26	-13	-9.26	Vertical
2145.9	-49.16	2.88	27.60	-24.44	-13	-11.44	Horizontal
200.5	-39.80	1.61	18.00	-23.41	-13	-10.41	Vertical
351.2	-40.02	1.45	15.49	-25.99	-13	-12.99	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-44.13	2.61	27.26	-19.48	-13	-6.48	Horizontal
1408.0	-44.40	2.61	27.26	-19.75	-13	-6.75	Vertical
2112.0	-53.06	2.87	27.58	-28.35	-13	-15.35	Vertical
2112.0	-53.24	2.87	27.58	-28.53	-13	-15.53	Horizontal
196.6	-44.25	1.31	16.97	-28.59	-13	-15.59	Vertical
243.1	-40.93	1.65	16.70	-25.88	-13	-12.88	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-51.41	2.61	27.28	-26.74	-13	-13.74	Horizontal
1415.0	-47.65	2.61	27.28	-22.98	-13	-9.98	Vertical
2122.5	-53.83	2.87	27.59	-29.11	-13	-16.11	Vertical
2122.5	-50.92	2.87	27.59	-26.20	-13	-13.20	Horizontal
196.0	-34.07	1.72	17.99	-17.80	-13	-4.80	Vertical
414.1	-37.20	1.73	17.94	-20.99	-13	-7.99	Horizontal
Test Results for High Channel 711MHz							
1422.0	-50.05	2.62	27.28	-25.39	-13	-12.39	Horizontal
1422.0	-46.57	2.62	27.28	-21.91	-13	-8.91	Vertical
2133.0	-52.21	2.87	27.60	-27.48	-13	-14.48	Vertical
2133.0	-53.00	2.87	27.60	-28.27	-13	-15.27	Horizontal
180.6	-40.64	1.58	15.93	-26.29	-13	-13.29	Vertical
404.8	-42.95	1.36	15.59	-28.72	-13	-15.72	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.

9.6 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	-69.64	2.61	27.28	-44.97	-40	-4.97	Horizontal
1559.0	-73.86	2.61	27.28	-49.19	-40	-9.19	Vertical
2338.5	-69.56	2.87	27.59	-44.84	-13	-31.84	Vertical
2338.5	-71.58	2.87	27.59	-46.86	-13	-33.86	Horizontal
182.9	-74.21	1.71	16.15	-59.77	-13	-46.77	Vertical
401.8	-72.51	1.41	17.32	-56.60	-13	-43.60	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-77.20	2.62	27.30	-52.52	-40	-12.52	Horizontal
1564.0	-68.86	2.62	27.30	-44.18	-40	-4.18	Vertical
2346.0	-68.30	2.87	27.62	-43.55	-13	-30.55	Vertical
2346.0	-73.33	2.87	27.62	-48.58	-13	-35.58	Horizontal
196.8	-71.38	1.42	15.25	-57.56	-13	-44.56	Vertical
247.7	-73.99	1.36	17.19	-58.16	-13	-45.16	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-76.50	2.66	27.28	-51.88	-40	-11.88	Horizontal
1569.0	-75.08	2.66	27.28	-50.46	-40	-10.46	Vertical
2353.5	-73.06	2.88	27.60	-48.34	-13	-35.34	Vertical
2353.5	-68.57	2.88	27.60	-43.85	-13	-30.85	Horizontal
205.3	-71.92	1.32	17.29	-55.95	-13	-42.95	Vertical
270.1	-68.00	1.72	16.89	-52.83	-13	-39.83	Horizontal

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

Test Results for Low Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-71.01	2.62	27.30	-46.33	-40	-6.33	Horizontal
1564.0	-76.09	2.62	27.30	-51.41	-40	-11.41	Vertical
2346.0	-73.89	2.87	27.62	-49.14	-13	-36.14	Vertical
2346.0	-74.46	2.87	27.62	-49.71	-13	-36.71	Horizontal
206.6	-71.00	1.35	16.91	-55.44	-13	-42.44	Vertical
293.4	-68.81	1.62	16.31	-54.12	-13	-41.12	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.

9.7 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-51.30	2.61	27.28	-26.63	-13	-13.63	Horizontal
1413.0	-49.80	2.61	27.28	-25.13	-13	-12.13	Vertical
2119.5	-52.45	2.87	27.59	-27.73	-13	-14.73	Vertical
2119.5	-52.12	2.87	27.59	-27.40	-13	-14.40	Horizontal
206.9	-35.33	1.71	16.15	-20.89	-13	-7.89	Vertical
457.5	-38.16	1.41	17.32	-22.25	-13	-9.25	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-48.93	2.62	27.30	-24.25	-13	-11.25	Horizontal
1420.0	-51.55	2.62	27.30	-26.87	-13	-13.87	Vertical
2130.0	-47.12	2.87	27.62	-22.37	-13	-9.37	Vertical
2130.0	-51.03	2.87	27.62	-26.28	-13	-13.28	Horizontal
209.8	-43.45	1.42	15.25	-29.63	-13	-16.63	Vertical
382.6	-42.24	1.36	17.19	-26.41	-13	-13.41	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-47.71	2.66	27.28	-23.09	-13	-10.09	Horizontal
1427.0	-49.72	2.66	27.28	-25.10	-13	-12.10	Vertical
2140.5	-52.75	2.88	27.60	-28.03	-13	-15.03	Vertical
2140.5	-53.82	2.88	27.60	-29.10	-13	-16.10	Horizontal
177.8	-40.09	1.32	17.29	-24.12	-13	-11.12	Vertical
438.8	-36.53	1.72	16.89	-21.36	-13	-8.36	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	-47.49	2.62	27.30	-22.81	-13	-9.81	Horizontal
1418.0	-48.70	2.62	27.30	-24.02	-13	-11.02	Vertical
2127.0	-49.74	2.87	27.62	-24.99	-13	-11.99	Vertical
2127.0	-50.24	2.87	27.62	-25.49	-13	-12.49	Horizontal
205.8	-40.79	1.35	16.91	-25.23	-13	-12.23	Vertical
425.2	-34.59	1.62	16.31	-19.90	-13	-6.90	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-52.93	2.62	27.30	-28.25	-13	-15.25	Horizontal
1420.0	-51.25	2.62	27.30	-26.57	-13	-13.57	Vertical
2130.0	-45.59	2.87	27.62	-20.84	-13	-7.84	Vertical
2130.0	-53.60	2.87	27.62	-28.85	-13	-15.85	Horizontal
183.3	-36.04	1.51	17.14	-20.41	-13	-7.41	Vertical
399.1	-37.55	1.77	16.88	-22.44	-13	-9.44	Horizontal
Test Results for High Channel 711MHz							
1422.0	-46.13	2.62	27.30	-21.45	-13	-8.45	Horizontal
1422.0	-49.95	2.62	27.30	-25.27	-13	-12.27	Vertical
2133.0	-46.41	2.87	27.62	-21.66	-13	-8.66	Vertical
2133.0	-53.32	2.87	27.62	-28.57	-13	-15.57	Horizontal
184.0	-34.98	1.78	15.95	-20.81	-13	-7.81	Vertical
432.5	-42.06	1.34	17.95	-25.46	-13	-12.46	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.8 LTE BAND 25

QPSK EIRP POWER FOR LTE BAND 25 (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	-49.91	4.26	29.80	-24.37	-13	-11.37	Horizontal
3701.4	-48.38	4.26	29.80	-22.84	-13	-9.84	Vertical
5552.1	-46.46	5.36	35.84	-15.98	-13	-2.98	Vertical
5552.1	-49.03	5.36	35.84	-18.55	-13	-5.55	Horizontal
209.0	-42.32	1.68	16.04	-27.96	-13	-14.96	Vertical
331.4	-42.23	1.78	17.74	-26.27	-13	-13.27	Horizontal
Test Results For Mid Channel 1882.5MHz							
3765.0	-44.56	4.28	30.00	-18.84	-13	-5.84	Horizontal
3765.0	-48.41	4.28	30.00	-22.69	-13	-9.69	Vertical
5647.5	-44.75	5.41	35.86	-14.30	-13	-1.30	Vertical
5647.5	-51.81	5.41	35.86	-21.36	-13	-8.36	Horizontal
211.4	-40.31	1.72	17.69	-24.34	-13	-11.34	Vertical
261.1	-40.70	1.62	16.02	-26.29	-13	-13.29	Horizontal
Test Results for High Channel 1914.3MHz							
3828.6	-53.79	4.31	30.01	-28.09	-13	-15.09	Horizontal
3828.6	-52.32	4.31	30.01	-26.62	-13	-13.62	Vertical
5742.9	-44.07	5.43	35.86	-13.64	-13	-0.64	Vertical
5742.9	-52.29	5.43	35.86	-21.86	-13	-8.86	Horizontal
177.8	-36.44	1.80	16.69	-21.55	-13	-8.55	Vertical
381.4	-42.00	1.75	16.66	-27.10	-13	-14.10	Horizontal

QPSK EIRP POWER FOR LTE BAND 25 (20MHZ BANDWIDTH)

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-47.51	4.29	29.80	-22.00	-13	-9.00	Horizontal
3720.0	-44.11	4.29	29.80	-18.60	-13	-5.60	Vertical
5580.0	-45.92	5.38	35.84	-15.46	-13	-2.46	Vertical
5580.0	-52.37	5.38	35.84	-21.91	-13	-8.91	Horizontal
184.3	-35.70	1.57	17.26	-20.01	-13	-7.01	Vertical
407.0	-41.87	1.78	16.35	-27.30	-13	-14.30	Horizontal
Test Results for Mid Channel 1882.5MHz							
3765.0	-49.74	4.28	30.00	-24.02	-13	-11.02	Horizontal
3765.0	-51.63	4.28	30.00	-25.91	-13	-12.91	Vertical
5647.5	-44.36	5.41	35.86	-13.91	-13	-0.91	Vertical
5647.5	-49.78	5.41	35.86	-19.33	-13	-6.33	Horizontal
204.1	-43.71	1.44	17.95	-27.20	-13	-14.20	Vertical
344.0	-41.73	1.65	16.09	-27.29	-13	-14.29	Horizontal
Test Results for High Channel 1905MHz							
3810.0	-52.46	4.35	27.68	-29.13	-13	-16.13	Horizontal
3810.0	-48.66	4.35	27.68	-25.33	-13	-12.33	Vertical
5715.0	-53.60	5.42	35.86	-23.16	-13	-10.16	Vertical
5715.0	-50.39	5.42	35.86	-19.95	-13	-6.95	Horizontal
176.5	-38.72	1.61	16.85	-23.48	-13	-10.48	Vertical
270.7	-34.37	1.61	15.19	-20.79	-13	-7.79	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 26A

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

Test Results for Low Channel 814.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1629.4	-44.64	4.26	29.80	-19.10	-13	-6.10	Horizontal
1629.4	-45.08	4.26	29.80	-19.54	-13	-6.54	Vertical
2444.1	-45.36	5.36	35.84	-14.88	-13	-1.88	Vertical
2444.1	-51.20	5.36	35.84	-20.72	-13	-7.72	Horizontal
184.3	-42.16	1.68	16.04	-27.80	-13	-14.80	Vertical
338.6	-37.78	1.78	17.74	-21.82	-13	-8.82	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-50.80	4.28	30.00	-25.08	-13	-12.08	Horizontal
1638.0	-52.10	4.28	30.00	-26.38	-13	-13.38	Vertical
2457.0	-50.71	5.41	35.86	-20.26	-13	-7.26	Vertical
2457.0	-51.55	5.41	35.86	-21.10	-13	-8.10	Horizontal
190.0	-41.08	1.72	17.69	-25.11	-13	-12.11	Vertical
272.1	-37.88	1.62	16.02	-23.47	-13	-10.47	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-45.08	4.31	30.01	-19.38	-13	-6.38	Horizontal
1646.6	-51.40	4.31	30.01	-25.70	-13	-12.70	Vertical
2469.9	-50.91	5.43	35.86	-20.48	-13	-7.48	Vertical
2469.9	-50.24	5.43	35.86	-19.81	-13	-6.81	Horizontal
204.6	-36.88	1.80	16.69	-21.99	-13	-8.99	Vertical
467.8	-39.78	1.75	16.66	-24.88	-13	-11.88	Horizontal

QPSK EIRP POWER FOR LTE BAND 26A(814MHz~824MHz) (15MHZ BANDWIDTH)

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1638.0	-47.47	4.28	30.00	-21.75	-13	-8.75	Horizontal
1638.0	-47.61	4.28	30.00	-21.89	-13	-8.89	Vertical
2457.0	-50.31	5.41	35.86	-19.86	-13	-6.86	Vertical
2457.0	-51.54	5.41	35.86	-21.09	-13	-8.09	Horizontal
197.1	-38.19	1.44	17.95	-21.68	-13	-8.68	Vertical
233.7	-37.10	1.65	16.09	-22.66	-13	-9.66	Horizontal

9.10 LTE BAND 26B

QPSK EIRP POWER FOR LTE BAND 26B(824MHz~849MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-51.28	4.26	29.80	-25.74	-13	-12.74	Horizontal
1649.4	-51.91	4.26	29.80	-26.37	-13	-13.37	Vertical
2474.1	-51.89	5.36	35.84	-21.41	-13	-8.41	Vertical
2474.1	-52.05	5.36	35.84	-21.57	-13	-8.57	Horizontal
211.5	-43.54	1.68	16.04	-29.18	-13	-16.18	Vertical
396.2	-34.22	1.78	17.74	-18.26	-13	-5.26	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-47.17	4.28	30.00	-21.45	-13	-8.45	Horizontal
1673.0	-45.61	4.28	30.00	-19.89	-13	-6.89	Vertical
2509.5	-50.29	5.41	35.86	-19.84	-13	-6.84	Vertical
2509.5	-50.95	5.41	35.86	-20.50	-13	-7.50	Horizontal
180.9	-42.75	1.72	17.69	-26.78	-13	-13.78	Vertical
249.0	-39.20	1.62	16.02	-24.79	-13	-11.79	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-53.60	4.31	30.01	-27.90	-13	-14.90	Horizontal
1696.6	-45.80	4.31	30.01	-20.10	-13	-7.10	Vertical
2544.9	-53.91	5.43	35.86	-23.48	-13	-10.48	Vertical
2544.9	-51.97	5.43	35.86	-21.54	-13	-8.54	Horizontal
180.0	-35.30	1.80	16.69	-20.41	-13	-7.41	Vertical
465.6	-36.95	1.75	16.66	-22.05	-13	-9.05	Horizontal

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

Test Results for Low Channel 831.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1663.0	-44.28	4.29	29.80	-18.77	-13	-5.77	Horizontal
1663.0	-53.29	4.29	29.80	-27.78	-13	-14.78	Vertical
2494.5	-50.80	5.38	35.84	-20.34	-13	-7.34	Vertical
2494.5	-50.37	5.38	35.84	-19.91	-13	-6.91	Horizontal
201.3	-43.06	1.57	17.26	-27.37	-13	-14.37	Vertical
467.8	-39.01	1.78	16.35	-24.44	-13	-11.44	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-50.83	4.28	30.00	-25.11	-13	-12.11	Horizontal
1673.0	-53.51	4.28	30.00	-27.79	-13	-14.79	Vertical
2509.5	-51.47	5.41	35.86	-21.02	-13	-8.02	Vertical
2509.5	-52.65	5.41	35.86	-22.20	-13	-9.20	Horizontal
182.9	-43.33	1.44	17.95	-26.82	-13	-13.82	Vertical
253.6	-38.96	1.65	16.09	-24.52	-13	-11.52	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-49.88	4.35	27.68	-26.55	-13	-13.55	Horizontal
1683.0	-48.08	4.35	27.68	-24.75	-13	-11.75	Vertical
2524.5	-53.21	5.42	35.86	-22.77	-13	-9.77	Vertical
2524.5	-52.40	5.42	35.86	-21.96	-13	-8.96	Horizontal
192.4	-41.57	1.61	16.85	-26.33	-13	-13.33	Vertical
241.8	-43.42	1.61	15.19	-29.84	-13	-16.84	Horizontal

9.11 LTE BAND 66

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

Test Results for Low Channel 1710.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-61.10	3.84	35.81	-29.13	-13	-16.13	Horizontal
3421.4	-62.26	3.84	35.81	-30.29	-13	-17.29	Vertical
5132.1	-62.10	5.18	36.85	-30.43	-13	-17.43	Vertical
5132.1	-60.71	5.18	36.85	-29.04	-13	-16.04	Horizontal
208.7	-51.60	1.56	17.97	-35.19	-13	-22.19	Vertical
343.8	-53.73	1.33	15.11	-39.95	-13	-26.95	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-64.47	3.85	35.82	-32.50	-13	-19.50	Horizontal
3490.0	-62.58	3.85	35.82	-30.61	-13	-17.61	Vertical
5235.0	-61.56	5.21	36.85	-29.92	-13	-16.92	Vertical
5235.0	-59.18	5.21	36.85	-27.54	-13	-14.54	Horizontal
199.4	-51.60	1.77	16.17	-37.19	-13	-24.19	Vertical
416.7	-46.13	1.63	15.21	-32.55	-13	-19.55	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-64.62	3.86	35.83	-32.65	-13	-19.65	Horizontal
3558.6	-63.79	3.86	35.83	-31.82	-13	-18.82	Vertical
5337.9	-64.81	5.24	36.87	-33.18	-13	-20.18	Vertical
5337.9	-61.60	5.24	36.87	-29.97	-13	-16.97	Horizontal
193.1	-46.14	1.58	17.56	-30.16	-13	-17.16	Vertical
451.6	-45.37	1.45	16.58	-30.24	-13	-17.24	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-59.57	3.84	35.82	-27.59	-13	-14.59	Horizontal
3440.0	-64.89	3.84	35.82	-32.91	-13	-19.91	Vertical
5160.0	-63.46	5.18	36.86	-31.78	-13	-18.78	Vertical
5160.0	-64.26	5.18	36.86	-32.58	-13	-19.58	Horizontal
180.6	-52.33	1.56	15.76	-38.13	-13	-25.13	Vertical
260.8	-49.58	1.33	15.44	-35.47	-13	-22.47	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-59.34	3.85	35.82	-27.37	-13	-14.37	Horizontal
3490.0	-61.77	3.85	35.82	-29.80	-13	-16.80	Vertical
5235.0	-61.19	5.21	36.85	-29.55	-13	-16.55	Vertical
5235.0	-63.47	5.21	36.85	-31.83	-13	-18.83	Horizontal
200.0	-51.21	1.77	16.84	-36.13	-13	-23.13	Vertical
260.5	-52.99	1.63	17.64	-36.98	-13	-23.98	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-62.43	3.86	35.83	-30.46	-13	-17.46	Horizontal
3540.0	-60.87	3.86	35.83	-28.90	-13	-15.90	Vertical
5310.0	-62.12	5.24	36.88	-30.48	-13	-17.48	Vertical
5310.0	-60.69	5.24	36.88	-29.05	-13	-16.05	Horizontal
189.2	-44.25	1.58	16.84	-28.98	-13	-15.98	Vertical
388.8	-49.77	1.45	17.64	-33.58	-13	-20.58	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 3.29V, Normal, DC 3.87V and High voltage, DC 4.45V.

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 2/4/5/7/12/13/17/25/26/66

RESULTS

See the following pages.

10.1 LTE BAND 2

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1880	12.9	0.006846	2.5
3.87	1880	14.0	0.007433	2.5
4.45	1880	13.7	0.007282	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.7	0.006755	2.5
Extreme (50C)	1880	12.1	0.006424	2.5
Extreme (40C)	1880	13.8	0.007320	2.5
Extreme (30C)	1880	13.5	0.007183	2.5
Extreme (10C)	1880	14.0	0.007429	2.5
Extreme (0C)	1880	11.8	0.006294	2.5
Extreme (-10C)	1880	12.8	0.006786	2.5
Extreme (-20C)	1880	14.6	0.007749	2.5
Extreme (-30C)	1880	14.7	0.007812	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1880	9.9	0.005242	2.5
3.87	1880	8.7	0.004639	2.5
4.45	1880	8.0	0.004237	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	10.1	0.005347	2.5
Extreme (50C)	1880	8.5	0.004498	2.5
Extreme (40C)	1880	7.6	0.004059548	2.5
Extreme (30C)	1880	8.7	0.004636106	2.5
Extreme (10C)	1880	9.2	0.004869352	2.5
Extreme (0C)	1880	8.5	0.004495296	2.5
Extreme (-10C)	1880	8.8	0.004672728	2.5
Extreme (-20C)	1880	9.4	0.004987794	2.5
Extreme (-30C)	1880	8.4	0.004443418	2.5

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

10.2 LTE BAND 4

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1732.5	9.2	0.005290	2.5
3.87	1732.5	8.5	0.004889	2.5
4.45	1732.5	8.4	0.004873	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.3	0.004795	2.5
Extreme (50C)	1732.5	8.5	0.004920	2.5
Extreme (40C)	1732.5	7.1	0.004105	2.5
Extreme (30C)	1732.5	5.4	0.003140	2.5
Extreme (10C)	1732.5	6.6	0.003830	2.5
Extreme (0C)	1732.5	9.4	0.005417	2.5
Extreme (-10C)	1732.5	8.5	0.004910	2.5
Extreme (-20C)	1732.5	7.4	0.004247	2.5
Extreme (-30C)	1732.5	8.0	0.004632	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1732.5	9.6	0.005563	2.5
3.87	1732.5	9.4	0.005422	2.5
4.45	1732.5	7.7	0.004446	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.6	0.005529	2.5
Extreme (50C)	1732.5	8.8	0.005089	2.5
Extreme (40C)	1732.5	8.5	0.004921	2.5
Extreme (30C)	1732.5	9.3	0.005363	2.5
Extreme (10C)	1732.5	8.9	0.005116	2.5
Extreme (0C)	1732.5	8.6	0.004953	2.5
Extreme (-10C)	1732.5	9.3	0.005362	2.5
Extreme (-20C)	1732.5	8.9	0.005161	2.5
Extreme (-30C)	1732.5	8.1	0.004651	2.5

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

10.3 LTE BAND 5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	6.1	0.007243	2.5
3.87	836.5	6.3	0.007577	2.5
4.45	836.5	4.5	0.005398	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007413	2.5
Extreme (50C)	836.5	6.1	0.007269	2.5
Extreme (40C)	836.5	5.9	0.007074	2.5
Extreme (30C)	836.5	6.3	0.007568	2.5
Extreme (10C)	836.5	4.9	0.005869	2.5
Extreme (0C)	836.5	5.5	0.006628	2.5
Extreme (-10C)	836.5	5.1	0.006155	2.5
Extreme (-20C)	836.5	6.4	0.007635	2.5
Extreme (-30C)	836.5	6.8	0.008122	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	6.1	0.007294	2.5
3.87	836.5	7.2	0.008555	2.5
4.45	836.5	4.7	0.005676	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.7	0.006760	2.5
Extreme (50C)	836.5	6.2	0.007411	2.5
Extreme (40C)	836.5	5.6	0.006707	2.5
Extreme (30C)	836.5	6.2	0.007391	2.5
Extreme (10C)	836.5	5.4	0.006494	2.5
Extreme (0C)	836.5	5.7	0.006765	2.5
Extreme (-10C)	836.5	5.3	0.006319	2.5
Extreme (-20C)	836.5	6.5	0.007780	2.5
Extreme (-30C)	836.5	5.8	0.006987	2.5

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

10.4 LTE BAND 7

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2535	10.3	0.004049	2.5
3.87	2535	9.4	0.003696	2.5
4.45	2535	8.5	0.003362	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.8	0.003849	2.5
Extreme (50C)	2535	8.9	0.003523	2.5
Extreme (40C)	2535	8.4	0.003322	2.5
Extreme (30C)	2535	8.6	0.003401	2.5
Extreme (10C)	2535	7.6	0.003008	2.5
Extreme (0C)	2535	8.1	0.003194	2.5
Extreme (-10C)	2535	9.3	0.003662	2.5
Extreme (-20C)	2535	9.2	0.003644	2.5
Extreme (-30C)	2535	8.3	0.003269	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2535	6.9	0.002722	2.5
3.87	2535	6.7	0.002627	2.5
4.45	2535	6.0	0.002372	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.9	0.002339	2.5
Extreme (40C)	2535	5.7	0.002256	2.5
Extreme (30C)	2535	7.0	0.002759	2.5
Extreme (10C)	2535	5.3	0.002103	2.5
Extreme (0C)	2535	4.8	0.001878	2.5
Extreme (-10C)	2535	4.7	0.001855	2.5
Extreme (-20C)	2535	6.1	0.002392	2.5
Extreme (-30C)	2535	5.6	0.002226	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]
3.29	707.5	9.0	0.012788	2.5
3.87	707.5	10.2	0.014454	2.5
4.45	707.5	8.4	0.011900	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.6	0.012187	2.5
Extreme (50C)	707.5	7.0	0.009929	2.5
Extreme (40C)	707.5	7.0	0.009934	2.5
Extreme (30C)	707.5	8.0	0.011271	2.5
Extreme (10C)	707.5	7.4	0.010474	2.5
Extreme (0C)	707.5	8.9	0.012649	2.5
Extreme (-10C)	707.5	8.2	0.011596	2.5
Extreme (-20C)	707.5	9.1	0.012839	2.5
Extreme (-30C)	707.5	8.1	0.011463	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]
3.29	707.5	7.1	0.009967	2.5
3.87	707.5	7.9	0.011134	2.5
4.45	707.5	7.0	0.009908	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.8	0.012398	2.5
Extreme (50C)	707.5	8.8	0.012485	2.5
Extreme (40C)	707.5	8.5	0.012076	2.5
Extreme (30C)	707.5	7.4	0.010416	2.5
Extreme (10C)	707.5	9.1	0.012928	2.5
Extreme (0C)	707.5	7.6	0.010808	2.5
Extreme (-10C)	707.5	7.8	0.010979	2.5
Extreme (-20C)	707.5	8.9	0.012564	2.5
Extreme (-30C)	707.5	8.1	0.011418	2.5

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

10.6 LTE BAND 13

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	782.0	13.2	0.016852	2.5
3.87	782.0	13.4	0.017167	2.5
4.45	782.0	13.8	0.017607	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	14.5	0.018545	2.5
Extreme (50C)	782.0	13.9	0.017778	2.5
Extreme (40C)	782.0	15.0	0.019197	2.5
Extreme (30C)	782.0	13.6	0.017409	2.5
Extreme (10C)	782.0	14.0	0.017843	2.5
Extreme (0C)	782.0	14.4	0.018442	2.5
Extreme (-10C)	782.0	13.7	0.017459	2.5
Extreme (-20C)	782.0	14.1	0.017978	2.5
Extreme (-30C)	782.0	13.5	0.017291	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	782.0	13.1	0.016742	2.5
3.87	782.0	13.6	0.017421	2.5
4.45	782.0	12.9	0.016444	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	13.0	0.016637	2.5
Extreme (50C)	782.0	11.3	0.014389	2.5
Extreme (40C)	782.0	13.3	0.017068	2.5
Extreme (30C)	782.0	13.3	0.017009	2.5
Extreme (10C)	782.0	14.2	0.018178	2.5
Extreme (0C)	782.0	11.9	0.015243	2.5
Extreme (-10C)	782.0	12.5	0.016019	2.5
Extreme (-20C)	782.0	13.6	0.017431	2.5
Extreme (-30C)	782.0	14.7	0.018761	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]
3.29	710.0	9.8	0.013742	2.5
3.87	710.0	9.3	0.013097	2.5
4.45	710.0	8.2	0.011543	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.7	0.013629	2.5
Extreme (50C)	710.0	8.5	0.011973	2.5
Extreme (40C)	710.0	8.3	0.011662	2.5
Extreme (30C)	710.0	8.5	0.011990	2.5
Extreme (10C)	710.0	8.7	0.012292	2.5
Extreme (0C)	710.0	8.5	0.011904	2.5
Extreme (-10C)	710.0	8.9	0.012597	2.5
Extreme (-20C)	710.0	9.0	0.012633	2.5
Extreme (-30C)	710.0	7.8	0.011013	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]
3.29	710.0	10.2	0.014401	2.5
3.87	710.0	8.8	0.012447	2.5
4.45	710.0	8.2	0.011553	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.9	0.013939	2.5
Extreme (50C)	710.0	9.0	0.012711	2.5
Extreme (40C)	710.0	8.6	0.012121	2.5
Extreme (30C)	710.0	9.4	0.013203	2.5
Extreme (10C)	710.0	8.0	0.011223	2.5
Extreme (0C)	710.0	8.6	0.012062	2.5
Extreme (-10C)	710.0	9.8	0.013736	2.5
Extreme (-20C)	710.0	8.6	0.012128	2.5
Extreme (-30C)	710.0	8.3	0.011632	2.5

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

10.8 LTE BAND 25

Band 25 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]
3.29	1882.5	9.5	0.005073	2.5
3.87	1882.5	9.3	0.004938	2.5
4.45	1882.5	8.4	0.004437	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	10.1	0.005388	2.5
Extreme (50C)	1882.5	8.9	0.004705	2.5
Extreme (40C)	1882.5	8.4	0.004454	2.5
Extreme (30C)	1882.5	9.1	0.004826	2.5
Extreme (10C)	1882.5	9.1	0.004839	2.5
Extreme (0C)	1882.5	8.1	0.004302	2.5
Extreme (-10C)	1882.5	9.2	0.004906	2.5
Extreme (-20C)	1882.5	8.4	0.004473	2.5
Extreme (-30C)	1882.5	8.4	0.004479	2.5

Band 25 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]
3.29	1882.5	10.4	0.005503	2.5
3.87	1882.5	8.7	0.004602	2.5
4.45	1882.5	8.2	0.004378	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	9.8	0.005224	2.5
Extreme (50C)	1882.5	8.6	0.004589	2.5
Extreme (40C)	1882.5	8.3	0.004393	2.5
Extreme (30C)	1882.5	8.9	0.004747	2.5
Extreme (10C)	1882.5	8.2	0.004362	2.5
Extreme (0C)	1882.5	8.0	0.004240	2.5
Extreme (-10C)	1882.5	9.5	0.005045	2.5
Extreme (-20C)	1882.5	9.0	0.004763	2.5
Extreme (-30C)	1882.5	8.9	0.004715	2.5

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

10.9 LTE BAND 26A

Band 26A 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]
3.29	819.0	9.6	0.011747	2.5
3.87	819.0	9.0	0.011000	2.5
4.45	819.0	8.1	0.009943	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819.0	9.5	0.011647	2.5
Extreme (50C)	819.0	9.0	0.011040	2.5
Extreme (40C)	819.0	7.7	0.009424	2.5
Extreme (30C)	819.0	8.8	0.010788	2.5
Extreme (10C)	819.0	8.9	0.010856	2.5
Extreme (0C)	819.0	8.4	0.010287	2.5
Extreme (-10C)	819.0	9.2	0.011272	2.5
Extreme (-20C)	819.0	8.8	0.010790	2.5
Extreme (-30C)	819.0	7.9	0.009597	2.5

Band 26A 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]
3.29	819.0	10.3	0.012528	2.5
3.87	819.0	9.0	0.010954	2.5
4.45	819.0	8.0	0.009727	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819.0	9.2	0.011199	2.5
Extreme (50C)	819.0	9.4	0.011444	2.5
Extreme (40C)	819.0	8.8	0.010779	2.5
Extreme (30C)	819.0	9.2	0.011233	2.5
Extreme (10C)	819.0	7.8	0.009541	2.5
Extreme (0C)	819.0	8.8	0.010700	2.5
Extreme (-10C)	819.0	9.2	0.011289	2.5
Extreme (-20C)	819.0	9.3	0.011301	2.5
Extreme (-30C)	819.0	8.2	0.010010	2.5

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

10.10 LTE BAND 26B

Band 26B QPSK, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	9.5	0.011337	2.5
3.87	836.5	9.2	0.011015	2.5
4.45	836.5	8.3	0.009916	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	9.3	0.011063	2.5
Extreme (50C)	836.5	8.9	0.010587	2.5
Extreme (40C)	836.5	8.3	0.009912	2.5
Extreme (30C)	836.5	9.2	0.011031	2.5
Extreme (10C)	836.5	8.7	0.010364	2.5
Extreme (0C)	836.5	7.8	0.009321	2.5
Extreme (-10C)	836.5	8.9	0.010661	2.5
Extreme (-20C)	836.5	9.3	0.011122	2.5
Extreme (-30C)	836.5	8.3	0.009962	2.5

Band 26B 16QAM, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	10.4	0.012472	2.5
3.87	836.5	9.3	0.011107	2.5
4.45	836.5	8.2	0.009793	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	9.1	0.010831	2.5
Extreme (50C)	836.5	9.0	0.010710	2.5
Extreme (40C)	836.5	8.4	0.010058	2.5
Extreme (30C)	836.5	8.9	0.010600	2.5
Extreme (10C)	836.5	8.3	0.009873	2.5
Extreme (0C)	836.5	8.3	0.009915	2.5
Extreme (-10C)	836.5	9.5	0.011322	2.5
Extreme (-20C)	836.5	8.6	0.010275	2.5
Extreme (-30C)	836.5	8.7	0.010432	2.5

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

10.11 LTE BAND 66

Band 66 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1745	6.4	0.003688	2.5
3.87	1745	6.9	0.003976	2.5
4.45	1745	7.0	0.004038	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	5.8	0.003351	2.5
Extreme (50C)	1745	7.6	0.004336	2.5
Extreme (40C)	1745	6.8	0.003901	2.5
Extreme (30C)	1745	6.6	0.003769	2.5
Extreme (10C)	1745	7.5	0.004298	2.5
Extreme (0C)	1745	6.6	0.003776	2.5
Extreme (-10C)	1745	5.8	0.003324	2.5
Extreme (-20C)	1745	6.9	0.003969	2.5
Extreme (-30C)	1745	5.7	0.003250	2.5

Band 66 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1745	8.5	0.004862	2.5
3.87	1745	7.0	0.004026	2.5
4.45	1745	9.4	0.005362	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	8.7	0.005005	2.5
Extreme (50C)	1745	7.8	0.004463	2.5
Extreme (40C)	1745	8.2	0.004683	2.5
Extreme (30C)	1745	8.0	0.004605	2.5
Extreme (10C)	1745	9.0	0.005143	2.5
Extreme (0C)	1745	6.3	0.003637	2.5
Extreme (-10C)	1745	8.4	0.004824	2.5
Extreme (-20C)	1745	8.6	0.004951	2.5
Extreme (-30C)	1745	5.4	0.003075	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

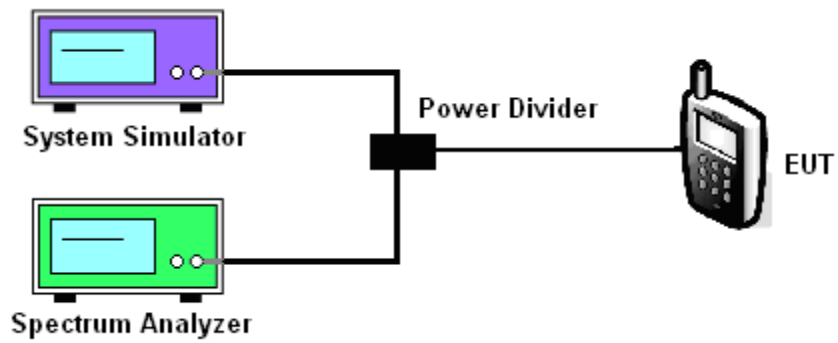
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For LTE operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



MODES TESTED

LTE Band 2/4/5/7/12/13/17/25/26/66

Test data reference attachment.

----END OF REPORT----