

FCC CFR47 PART 22H, 24E, 27,90S CERTIFICATION TEST REPORT FCC ID: 2A8X4-RAPTOR5G

Product: Smart Phone
Trade Mark: IIIF150
Model No.: RAPTOR 5G
Family Model: N/A
Report No.: S25012007506006
Issue Date: Mar. 13, 2025

Prepared for

HONG KONG YO YOUNG INTELLIGENT CO., LIMITED
19H MAXGRAND PLAZA NO.3 TAIYAU STREET SAN PO KONG, KOWLOON, HONG KONG

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : HONG KONG YO YOUNG INTELLIGENT CO., LIMITED
Address..... : 19H MAXGRAND PLAZA NO.3 TAIYAU STREET SAN PO
 KONG,KOWLOON, HONG KONG
Manufacturer's Name..... : HONG KONG YO YOUNG INTELLIGENT CO., LIMITED
Address..... : 19H MAXGRAND PLAZA NO.3 TAIYAU STREET SAN PO
 KONG,KOWLOON, HONG KONG
Product name..... : Smart Phone
Model and/or type reference .. : RAPTOR 5G
Trade Mark..... : IIF150
Family Model..... : N/A
Test Sample Number..... : S250120075007
Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27, Part 90S
Test procedure : ANSI C63.26:2015
 ANSI/TIA-603-E-2016

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

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Date of Test

Date (s) of performance of tests..... Jan. 20, 2025 ~ Mar. 13, 2025

Date of Issue Mar. 13, 2025

Test Result..... **Pass**

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart Phone
Trade Mark	IIIF150
Model Name	RAPTOR 5G
Family Model	N/A
Model Difference	N/A
FCC ID:	2A8X4-RAPTOR5G
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,7,12,17, 18, 19, 25, 26, 66 ☒ LTE TDD Band 41,
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 18A Uplink: 815MHz-824MHz, Downlink: 860MHz-869MHz; LTE FDD Band 18B Uplink: 824MHz-830MHz, Downlink: 869MHz-875MHz LTE FDD Band 19 Uplink: 830MHz-845MHz, Downlink: 875MHz-890MHz; 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 TDD Band 41 Uplink& Downlink: 2496MHz-2690MHz LTE FDD Band 66 Uplink: 1710MHz-1780MHz Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	PIFA Antenna
Antenna gain:	Band 2: 1.8 dBi, Band 4: 0.9 dBi, Band 5: -2.4 dBi, Band 7: -2.0 dBi, Band 12: -3.36 dBi, Band 17: -3.36 dBi, Band 18: -2.5 dBi, Band 19: -2.4 dBi , Band25: 1.8 dBi, Band 26: -2.4 dBi, Band 41: -2.0dBi , Band66: 1.0dBi;

Adapter	Model: FC462U Input: 100-240V~50/60Hz 1.5A Max Output: 5V---3A OR 9V---3A OR 12V---3A OR 15V---3A OR 20.0V---3.25A Max PPS: 3.3V-20V---3.25A Max
Battery	DC 3.89V, 10000mAh, 38.9Wh
Power supply	DC 3.89V from battery or DC 5V/9V/12V/15V/20V from adapter
Extreme Vol. Limits:	DC 3.31V to DC 4.47V (Nominal DC 3.89V) (Note 1)
HW Version	N/A
FW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 4.47V and Low Voltage 3.31V 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: 2A8X4-RAPTOR5G** 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.

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

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

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/17/18/19/25/26/41/66

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	Smart Phone	RAPTOR 5G	FCC ID: 2A8X4-RAPTOR5G	EUT

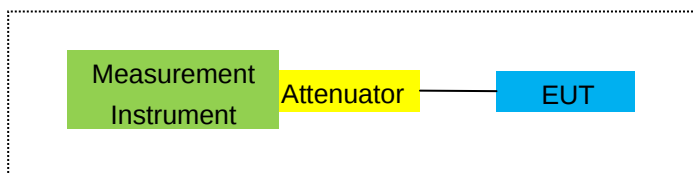
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

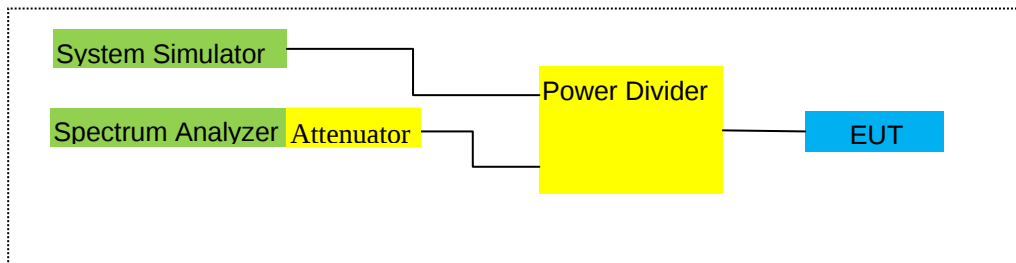
For Radiated Test Cases



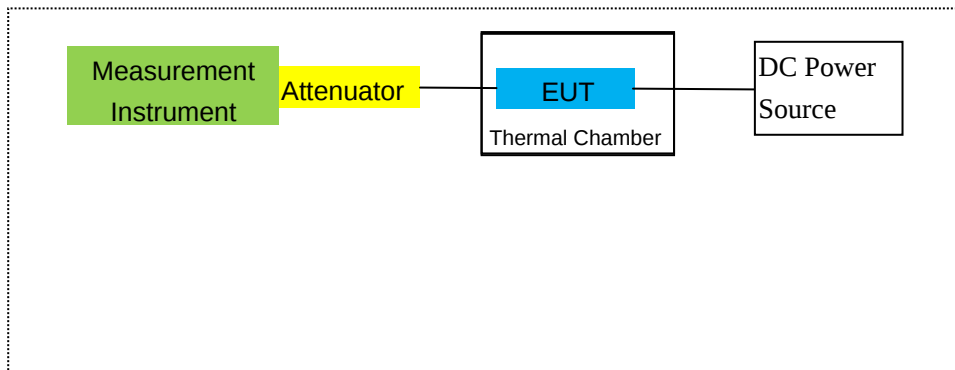
For Conducted Output Power



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



For Frequency Stability



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

3.TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	055	2024.05.17	2027.05.16	3 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
18	Field strength probe	narda	EP601	711WX81278	2024.03.20	2025.03.19	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	MY41000130	2024.04.26	2025.04.25	1 year
23	EMI Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
24	Universal Radio Communication	R&S	CMU200	105747	2024.04.26	2025.04.25	1 year

	Tester						
25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpac	5822611946 0030	2024.05.30	2027.05.29	3 year
26	DC Power Source	N/A	PS-6005D	2017040292 3	2024.04.25	2027.04.24	3 year
27	Wideband Radio Communication Tester Specifications	R&S	CMW500	148500	2024/5/30	2025/5/29	1 year

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

Measurement Software

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

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 2/4/5/7/12/17/18/19/25/26/41/66

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, and §90.691

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 2/4/5/7/12/17/18/19/25/26/41/66

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 2/4/5/7/12/17/18/19/25/26/41/66

☐

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 2/4/5/7/12/17/18/19/25/26/41/66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP	Max. EIRP Average (mW)	Polarization Of Max. ERP	
						Average (dBm)			
1.4MHz Band QPSK	6/0	1850.7	15.81	3.76	8.90	20.95	124.399	Horizontal	Pass
		1880	14.46	3.91	8.90	19.45	88.176	Horizontal	Pass
		1909.3	15.00	3.93	8.90	19.97	99.339	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	13.83	3.77	8.90	18.96	78.770	Horizontal	Pass
		1880	14.75	3.91	8.90	19.74	94.154	Horizontal	Pass
		1908.5	16.26	3.94	8.90	21.22	132.341	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	15.87	3.77	8.90	21.00	125.818	Horizontal	Pass
		1880	17.15	3.91	8.90	22.14	163.752	Horizontal	Pass
		1907.5	16.75	3.94	8.90	21.71	148.104	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	17.12	3.79	8.90	22.23	167.156	Horizontal	Pass
		1880	17.66	3.95	8.90	22.61	182.514	Horizontal	Pass
		1905	16.20	3.97	8.90	21.13	129.850	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	15.30	3.79	8.90	20.41	109.902	Horizontal	Pass
		1880	16.78	3.95	8.90	21.73	148.976	Horizontal	Pass
		1902.5	15.73	3.97	8.90	20.66	116.425	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	17.68	3.81	8.90	22.77	189.234	Horizontal	Pass
		1880	15.06	3.96	8.90	20.00	99.946	Horizontal	Pass
		1900	17.25	4.00	8.90	22.15	164.137	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	16.31	3.76	8.90	21.45	139.593	Vertical	Pass
		1880	15.12	3.91	8.90	20.11	102.602	Vertical	Pass
		1909.3	15.97	3.93	8.90	20.94	124.271	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	15.77	3.77	8.90	20.90	123.024	Vertical	Pass
		1880	16.66	3.91	8.90	21.65	146.174	Vertical	Pass
		1908.5	14.94	3.94	8.90	19.90	97.817	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	15.86	3.77	8.90	20.99	125.745	Vertical	Pass
		1880	15.30	3.91	8.90	20.29	106.907	Vertical	Pass
		1907.5	16.66	3.94	8.90	21.62	145.097	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	14.55	3.79	8.90	19.66	92.425	Vertical	Pass
		1880	13.91	3.95	8.90	18.86	76.843	Vertical	Pass
		1905	15.02	3.97	8.90	19.95	98.852	Vertical	Pass
15.0MHz	75/0	1857.5	15.73	3.79	8.90	20.84	121.346	Vertical	Pass

Band QPSK		1880	15.88	3.95	8.90	20.83	120.962	Vertical	Pass
		1902.5	16.91	3.97	8.90	21.84	152.598	Vertical	Pass
20.0MHz Band QPSK	100/0	1860	17.54	3.81	8.90	22.63	183.218	Vertical	Pass
		1880	16.44	3.96	8.90	21.38	137.345	Vertical	Pass
		1900	16.10	4.00	8.90	21.00	125.781	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1850.7	14.60	3.76	8.90	19.74	94.189	Horizontal	Pass
		1880	15.75	3.91	8.90	20.74	118.577	Horizontal	Pass
		1909.3	15.45	3.93	8.90	20.42	110.154	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	15.29	3.77	8.90	20.42	110.154	Horizontal	Pass
		1880	14.95	3.91	8.90	19.94	98.628	Horizontal	Pass
		1908.5	14.55	3.94	8.90	19.51	89.331	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	15.14	3.77	8.90	20.27	106.414	Horizontal	Pass
		1880	15.50	3.91	8.90	20.49	111.944	Horizontal	Pass
		1907.5	14.00	3.94	8.90	18.96	78.705	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	15.35	3.79	8.90	20.46	111.173	Horizontal	Pass
		1880	14.05	3.95	8.90	19	79.433	Horizontal	Pass
		1905	15.36	3.97	8.90	20.29	106.905	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.68	3.79	8.90	18.79	75.683	Horizontal	Pass
		1880	15.77	3.95	8.90	20.72	118.032	Horizontal	Pass
		1902.5	15.65	3.97	8.90	20.58	114.288	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	13.84	3.81	8.90	18.93	78.163	Horizontal	Pass
		1880	16.17	3.96	8.90	21.11	129.122	Horizontal	Pass
		1900	14.55	4.00	8.90	19.45	88.105	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	14.61	3.76	8.90	19.75	94.406	Vertical	Pass
		1880	15.84	3.91	8.90	20.83	121.060	Vertical	Pass
		1909.3	15.13	3.93	8.90	20.1	102.329	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	13.77	3.77	8.90	18.9	77.625	Vertical	Pass
		1880	14.83	3.91	8.90	19.82	95.940	Vertical	Pass
		1908.5	14.56	3.94	8.90	19.52	89.536	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	13.76	3.77	8.90	18.89	77.446	Vertical	Pass
		1880	15.05	3.91	8.90	20.04	100.925	Vertical	Pass
		1907.5	15.69	3.94	8.90	20.65	116.145	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	13.98	3.79	8.90	19.09	81.096	Vertical	Pass
		1880	15.57	3.95	8.90	20.52	112.720	Vertical	Pass
		1905	15.12	3.97	8.90	20.05	101.158	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.85	3.79	8.90	18.96	78.705	Vertical	Pass
		1880	14.87	3.95	8.90	19.82	95.940	Vertical	Pass
		1902.5	13.66	3.97	8.90	18.59	72.277	Vertical	Pass

20.0MHz	100/0	1860	14.29	3.81	8.90	19.38	86.696	Vertical	Pass
Band 16		1880	14.90	3.96	8.90	19.84	96.383	Vertical	Pass
QAM		1900	13.78	4.00	8.90	18.68	73.790	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 (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	13.91	3.12	8.90	19.69	93.200	Horizontal	Pass
		1732.5	13.37	3.27	8.90	19	79.458	Horizontal	Pass
		1754.3	15.44	3.29	8.90	21.05	127.387	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	14.42	3.13	8.90	20.19	104.388	Horizontal	Pass
		1732.5	14.71	3.27	8.90	20.34	108.210	Horizontal	Pass
		1753.5	14.83	3.30	8.90	20.43	110.493	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	16.53	3.13	8.90	22.3	169.822	Horizontal	Pass
		1732.5	15.64	3.27	8.90	21.27	133.826	Horizontal	Pass
		1752.5	14.82	3.30	8.90	20.42	110.250	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	14.51	3.15	8.90	20.26	106.181	Horizontal	Pass
		1732.5	15.06	3.31	8.90	20.65	116.136	Horizontal	Pass
		1750	16.12	3.33	8.90	21.69	147.622	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	15.19	3.15	8.90	20.94	124.170	Horizontal	Pass
		1732.5	15.76	3.31	8.90	21.35	136.340	Horizontal	Pass
		1747.5	16.87	3.33	8.90	22.44	175.244	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	13.82	3.17	8.90	19.55	90.236	Horizontal	Pass
		1732.5	14.33	3.32	8.90	19.91	97.870	Horizontal	Pass
		1745	14.68	3.36	8.90	20.22	105.198	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	14.85	3.12	8.90	20.63	115.673	Vertical	Pass
		1732.5	15.63	3.27	8.90	21.26	133.805	Vertical	Pass
		1754.3	15.37	3.29	8.90	20.98	125.258	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	15.68	3.13	8.90	21.45	139.715	Vertical	Pass
		1732.5	15.94	3.27	8.90	21.57	143.404	Vertical	Pass
		1753.5	16.48	3.30	8.90	22.08	161.531	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	14.53	3.13	8.90	20.3	107.196	Vertical	Pass
		1732.5	15.69	3.27	8.90	21.32	135.376	Vertical	Pass
		1752.5	13.80	3.30	8.90	19.4	87.123	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	12.77	3.15	8.90	18.52	71.075	Vertical	Pass
		1732.5	16.19	3.31	8.90	21.78	150.706	Vertical	Pass
		1750	14.94	3.33	8.90	20.51	112.398	Vertical	Pass

15.0MHz Band QPSK	75/0	1717.5	16.13	3.15	8.90	21.88	154.279	Vertical	Pass
		1732.5	15.77	3.31	8.90	21.36	136.783	Vertical	Pass
		1747.5	14.62	3.33	8.90	20.19	104.371	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	16.71	3.17	8.90	22.44	175.211	Vertical	Pass
		1732.5	17.29	3.32	8.90	22.87	193.663	Vertical	Pass
		1745	14.00	3.36	8.90	19.54	90.005	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1710.7	14.43	3.12	8.90	20.21	104.892	Horizontal	Pass
		1732.5	15.33	3.27	8.90	20.96	124.750	Horizontal	Pass
		1754.3	15.11	3.29	8.90	20.72	118.105	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	14.17	3.13	8.90	19.94	98.692	Horizontal	Pass
		1732.5	15.37	3.27	8.90	21	125.876	Horizontal	Pass
		1753.5	16.24	3.30	8.90	21.84	152.925	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	14.31	3.13	8.90	20.08	101.922	Horizontal	Pass
		1732.5	13.52	3.27	8.90	19.15	82.213	Horizontal	Pass
		1752.5	15.15	3.30	8.90	20.75	118.889	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	15.37	3.15	8.90	21.12	129.484	Horizontal	Pass
		1732.5	14.08	3.31	8.90	19.67	92.632	Horizontal	Pass
		1750	13.41	3.33	8.90	18.98	78.985	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	14.29	3.15	8.90	20.04	100.971	Horizontal	Pass
		1732.5	15.61	3.31	8.90	21.2	131.921	Horizontal	Pass
		1747.5	14.68	3.33	8.90	20.25	105.931	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	14.28	3.17	8.90	20.01	100.248	Horizontal	Pass
		1732.5	15.25	3.32	8.90	20.83	120.928	Horizontal	Pass
		1745	15.84	3.36	8.90	21.38	137.247	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	15.86	3.12	8.90	21.64	145.948	Vertical	Pass
		1732.5	14.66	3.27	8.90	20.29	106.970	Vertical	Pass
		1754.3	14.67	3.29	8.90	20.28	106.568	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	14.37	3.13	8.90	20.14	103.325	Vertical	Pass
		1732.5	14.89	3.27	8.90	20.52	112.750	Vertical	Pass
		1753.5	15.08	3.30	8.90	20.68	117.056	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	16.55	3.13	8.90	22.32	170.422	Vertical	Pass
		1732.5	15.35	3.27	8.90	20.98	125.316	Vertical	Pass
		1752.5	13.83	3.30	8.90	19.43	87.637	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	14.29	3.15	8.90	20.04	100.902	Vertical	Pass
		1732.5	14.44	3.31	8.90	20.03	100.663	Vertical	Pass
		1750	16.13	3.33	8.90	21.7	148.025	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1717.5	13.99	3.15	8.90	19.74	94.250	Vertical	Pass
		1732.5	14.34	3.31	8.90	19.93	98.430	Vertical	Pass
		1747.5	15.45	3.33	8.90	21.02	126.581	Vertical	Pass

20.0MHz	100/0	1720	15.82	3.17	8.90	21.55	142.789	Vertical	Pass
Band 16		1732.5	17.05	3.32	8.90	22.63	183.077	Vertical	Pass
QAM		1745	15.63	3.36	8.90	21.17	130.950	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 (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	824.7	20.65	2.01	5.30	2.15	21.79	150.869	Horizontal	Pass
		836.5	21.87	2.01	5.30	2.15	23.01	199.762	Horizontal	Pass
		848.3	20.70	2.02	5.70	2.15	22.23	167.087	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	21.76	2.01	5.30	2.15	22.9	195.103	Horizontal	Pass
		836.5	22.22	2.01	5.30	2.15	23.36	216.895	Horizontal	Pass
		847.5	20.60	2.02	5.70	2.15	22.13	163.221	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	20.45	2.01	5.30	2.15	21.59	144.065	Horizontal	Pass
		836.5	21.58	2.01	5.30	2.15	22.72	187.009	Horizontal	Pass
		846.5	21.60	2.02	5.70	2.15	23.13	205.362	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	20.40	2.01	5.30	2.15	21.54	142.690	Horizontal	Pass
		836.5	21.67	2.01	5.30	2.15	22.81	190.981	Horizontal	Pass
		844	20.38	2.02	5.70	2.15	21.91	155.247	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	22.47	2.01	5.30	2.15	23.61	229.364	Vertical	Pass
		836.5	21.93	2.01	5.30	2.15	23.07	202.776	Vertical	Pass
		848.3	20.67	2.02	5.70	2.15	22.2	166.121	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	22.36	2.01	5.30	2.15	23.5	223.747	Vertical	Pass
		836.5	21.30	2.01	5.30	2.15	22.44	175.390	Vertical	Pass
		847.5	19.44	2.02	5.70	2.15	20.97	124.921	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	19.57	2.01	5.30	2.15	20.71	117.712	Vertical	Pass
		836.5	21.78	2.01	5.30	2.15	22.92	196.066	Vertical	Pass
		846.5	20.91	2.02	5.70	2.15	22.44	175.374	Vertical	Pass
10.0MHz Band QPSK	50/0	829	20.08	2.01	5.30	2.15	21.22	132.554	Vertical	Pass
		836.5	22.90	2.01	5.30	2.15	24.04	253.386	Vertical	Pass
		844	20.42	2.02	5.70	2.15	21.95	156.568	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	824.7	20.30	2.01	5.30	2.15	21.44	139.243	Horizontal	Pass
		836.5	21.04	2.01	5.30	2.15	22.18	165.089	Horizontal	Pass
		848.3	20.33	2.02	5.70	2.15	21.86	153.519	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	21.15	2.01	5.30	2.15	22.29	169.247	Horizontal	Pass
		836.5	19.52	2.01	5.30	2.15	20.66	116.533	Horizontal	Pass
		847.5	20.64	2.02	5.70	2.15	22.17	164.733	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	20.56	2.01	5.30	2.15	21.7	147.944	Horizontal	Pass
		836.5	19.15	2.01	5.30	2.15	20.29	106.989	Horizontal	Pass
		846.5	20.28	2.02	5.70	2.15	21.81	151.728	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	19.92	2.01	5.30	2.15	21.06	127.566	Horizontal	Pass
		836.5	19.35	2.01	5.30	2.15	20.49	111.950	Horizontal	Pass
		844	19.44	2.02	5.70	2.15	20.97	124.923	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	20.95	2.01	5.30	2.15	22.09	161.843	Vertical	Pass
		836.5	20.95	2.01	5.30	2.15	22.09	161.633	Vertical	Pass
		848.3	20.77	2.02	5.70	2.15	22.3	169.702	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	19.46	2.01	5.30	2.15	20.6	114.860	Vertical	Pass
		836.5	20.78	2.01	5.30	2.15	21.92	155.733	Vertical	Pass
		847.5	19.65	2.02	5.70	2.15	21.18	131.147	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	20.41	2.01	5.30	2.15	21.55	142.956	Vertical	Pass
		836.5	17.79	2.01	5.30	2.15	18.93	78.109	Vertical	Pass
		846.5	20.06	2.02	5.70	2.15	21.59	144.373	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	19.66	2.01	5.30	2.15	20.8	120.279	Vertical	Pass
		836.5	21.65	2.01	5.30	2.15	22.79	190.263	Vertical	Pass
		844	22.00	2.02	5.70	2.15	23.53	225.636	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 Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP	Max. EIRP Average (mW)	Polarization Of Max. ERP	
						Average			
						(dBm)			
5.0MHz Band QPSK	25/0	2502.5	18.36	4.54	9.00	22.82	191.489	Horizontal	Pass
		2535	18.31	4.69	9.00	22.62	182.748	Horizontal	Pass
		2567.5	15.60	4.71	9.00	19.89	97.416	Horizontal	Pass
10.0MHz Band QPSK	50/0	2505	15.57	4.55	9.00	20.02	100.467	Horizontal	Pass
		2535	17.78	4.69	9.00	22.09	161.979	Horizontal	Pass
		2565	18.70	4.72	9.00	22.98	198.592	Horizontal	Pass
15.0MHz Band QPSK	75/0	2507.5	18.77	4.55	9.00	23.22	210.123	Horizontal	Pass
		2535	18.21	4.69	9.00	22.52	178.768	Horizontal	Pass
		2562.5	18.17	4.72	9.00	22.45	175.788	Horizontal	Pass
20.0MHz Band QPSK	100/0	2510	16.00	4.57	9.00	20.43	110.356	Horizontal	Pass
		2535	18.46	4.73	9.00	22.73	187.554	Horizontal	Pass
		2560	16.97	4.75	9.00	21.22	132.314	Horizontal	Pass
5.0MHz Band QPSK	25/0	2502.5	17.53	4.54	9.00	21.99	157.966	Vertical	Pass
		2535	19.43	4.69	9.00	23.74	236.703	Vertical	Pass
		2567.5	18.53	4.71	9.00	22.82	191.645	Vertical	Pass
10.0MHz Band QPSK	50/0	2505	17.03	4.55	9.00	21.48	140.603	Vertical	Pass
		2535	19.57	4.69	9.00	23.88	244.107	Vertical	Pass
		2565	18.54	4.72	9.00	22.82	191.382	Vertical	Pass
15.0MHz Band QPSK	75/0	2507.5	18.03	4.55	9.00	22.48	177.051	Vertical	Pass
		2535	19.71	4.69	9.00	24.02	260.034	Vertical	Pass
		2562.5	18.52	4.72	9.00	22.8	190.556	Vertical	Pass
20.0MHz Band QPSK	100/0	2510	19.73	4.57	9.00	24.16	260.615	Vertical	Pass
		2535	19.06	4.73	9.00	23.33	215.057	Vertical	Pass
		2560	19.58	4.75	9.00	23.83	241.671	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	2502.5	17.18	4.54	9.00	21.64	145.748	Horizontal	Pass
		2535	17.32	4.69	9.00	21.63	145.651	Horizontal	Pass
		2567.5	18.08	4.71	9.00	22.37	172.575	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2505	17.87	4.55	9.00	22.32	170.770	Horizontal	Pass
		2535	17.63	4.69	9.00	21.94	156.304	Horizontal	Pass
		2565	19.11	4.72	9.00	23.39	218.067	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2507.5	18.47	4.55	9.00	22.92	195.700	Horizontal	Pass
		2535	18.72	4.69	9.00	23.03	200.764	Horizontal	Pass
		2562.5	16.67	4.72	9.00	20.95	124.369	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2510	17.48	4.57	9.00	21.91	155.215	Horizontal	Pass
		2535	16.06	4.73	9.00	20.33	107.839	Horizontal	Pass
		2560	17.34	4.75	9.00	21.59	144.160	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2502.5	18.31	4.54	9.00	22.77	189.128	Vertical	Pass
		2535	18.78	4.69	9.00	23.09	203.597	Vertical	Pass
		2567.5	19.27	4.71	9.00	23.56	226.803	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2505	17.42	4.55	9.00	21.87	153.725	Vertical	Pass
		2535	19.73	4.69	9.00	24.04	253.312	Vertical	Pass
		2565	16.81	4.72	9.00	21.09	128.507	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2507.5	18.77	4.55	9.00	23.22	210.025	Vertical	Pass
		2535	17.68	4.69	9.00	21.99	158.259	Vertical	Pass
		2562.5	16.53	4.72	9.00	20.81	120.608	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2510	19.75	4.57	9.00	24.18	261.652	Vertical	Pass
		2535	17.53	4.73	9.00	21.80	151.248	Vertical	Pass
		2560	18.75	4.75	9.00	23.00	199.368	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)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	699.7	17.67	1.91	5.60	2.15	19.21	83.443	Horizontal	Pass
		707.5	20.12	1.91	5.70	2.15	21.76	149.839	Horizontal	Pass
		715.3	16.07	1.93	5.80	2.15	17.79	60.138	Horizontal	Pass
3.0MHz Band QPSK	15/0	700.5	17.08	1.91	5.60	2.15	18.62	72.753	Horizontal	Pass
		707.5	17.64	1.91	5.70	2.15	19.28	84.743	Horizontal	Pass
		714.5	18.77	1.93	5.80	2.15	20.49	111.848	Horizontal	Pass
5.0MHz Band QPSK	25/0	701.5	17.78	1.91	5.60	2.15	19.32	85.562	Horizontal	Pass
		707.5	17.96	1.91	5.70	2.15	19.6	91.173	Horizontal	Pass
		713.5	18.18	1.92	5.80	2.15	19.91	97.947	Horizontal	Pass
10.0MHz Band QPSK	50/0	704	18.04	1.91	5.60	2.15	19.58	90.818	Horizontal	Pass
		707.5	16.75	1.91	5.70	2.15	18.39	69.032	Horizontal	Pass
		711	16.20	1.92	5.80	2.15	17.93	62.049	Horizontal	Pass
1.4MHz Band QPSK	6/0	699.7	17.22	1.91	5.60	2.15	18.76	75.207	Vertical	Pass
		707.5	17.68	1.91	5.70	2.15	19.32	85.465	Vertical	Pass
		715.3	16.89	1.93	5.80	2.15	18.61	72.575	Vertical	Pass
3.0MHz Band QPSK	15/0	700.5	18.28	1.91	5.60	2.15	19.82	95.992	Vertical	Pass
		707.5	16.23	1.91	5.70	2.15	17.87	61.254	Vertical	Pass
		714.5	19.11	1.93	5.80	2.15	20.83	121.082	Vertical	Pass
5.0MHz Band QPSK	25/0	701.5	17.67	1.91	5.60	2.15	19.21	83.355	Vertical	Pass
		707.5	17.48	1.91	5.70	2.15	19.12	81.718	Vertical	Pass
		713.5	17.02	1.92	5.80	2.15	18.75	75.012	Vertical	Pass
10.0MHz Band QPSK	50/0	704	17.99	1.91	5.60	2.15	19.53	89.795	Vertical	Pass
		707.5	20.64	1.91	5.70	2.15	22.28	168.918	Vertical	Pass
		711	18.69	1.92	5.80	2.15	20.42	110.036	Vertical	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	699.7	20.65	1.91	5.60	2.15	22.19	165.718	Horizontal	Pass
		707.5	20.99	1.91	5.70	2.15	22.63	183.269	Horizontal	Pass
		715.3	20.38	1.93	5.80	2.15	22.1	162.257	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	700.5	21.42	1.91	5.60	2.15	22.96	197.507	Horizontal	Pass
		707.5	19.63	1.91	5.70	2.15	21.27	133.936	Horizontal	Pass
		714.5	19.44	1.93	5.80	2.15	21.16	130.546	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	701.5	19.86	1.91	5.60	2.15	21.4	138.057	Horizontal	Pass
		707.5	21.59	1.91	5.70	2.15	23.23	210.407	Horizontal	Pass
		713.5	21.27	1.92	5.80	2.15	23	199.544	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	704	20.86	1.91	5.60	2.15	22.4	173.953	Horizontal	Pass
		707.5	19.96	1.91	5.70	2.15	21.6	144.554	Horizontal	Pass
		711	21.48	1.92	5.80	2.15	23.21	209.345	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	699.7	18.97	1.91	5.60	2.15	20.51	112.421	Vertical	Pass
		707.5	21.35	1.91	5.70	2.15	22.99	199.068	Vertical	Pass
		715.3	21.20	1.93	5.80	2.15	22.92	195.977	Vertical	Pass
3.0MHz Band 16 QAM	15/0	700.5	21.79	1.91	5.60	2.15	23.33	215.073	Vertical	Pass
		707.5	20.96	1.91	5.70	2.15	22.6	182.034	Vertical	Pass
		714.5	21.54	1.93	5.80	2.15	23.26	229.529	Vertical	Pass
5.0MHz Band 16 QAM	25/0	701.5	21.20	1.91	5.60	2.15	22.74	187.965	Vertical	Pass
		707.5	21.16	1.91	5.70	2.15	22.8	246.696	Vertical	Pass
		713.5	20.13	1.92	5.80	2.15	21.86	153.462	Vertical	Pass
10.0MHz Band 16 QAM	50/0	704	21.42	1.91	5.60	2.15	22.96	197.589	Vertical	Pass
		707.5	22.34	1.91	5.70	2.15	23.98	250.030	Vertical	Pass
		711	21.07	1.92	5.80	2.15	22.8	190.681	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

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	706.5	16.10	1.91	5.60	2.15	17.64	58.132	Vertical	Pass
		710	18.35	1.91	5.70	2.15	19.99	99.678	Vertical	Pass
		713.5	18.54	1.92	5.80	2.15	20.27	106.301	Vertical	Pass
10.0MHz Band QPSK	50/0	709	16.08	1.91	5.60	2.15	17.62	57.760	Vertical	Pass
		710	18.04	1.91	5.70	2.15	19.68	92.840	Vertical	Pass
		711	15.42	1.92	5.80	2.15	17.15	51.848	Vertical	Pass
5.0MHz Band QPSK	25/0	706.5	16.90	1.91	5.60	2.15	18.44	69.813	Horizontal	Pass
		710	15.79	1.91	5.70	2.15	17.43	55.313	Horizontal	Pass
		713.5	17.14	1.92	5.80	2.15	18.87	77.175	Horizontal	Pass
10.0MHz Band QPSK	50/0	709	18.83	1.91	5.60	2.15	20.37	108.788	Horizontal	Pass
		710	19.50	1.91	5.70	2.15	21.14	130.030	Horizontal	Pass
		711	18.41	1.92	5.80	2.15	20.14	103.394	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	706.5	16.81	1.91	5.6	2.15	18.35	68.391	Vertical	Pass
		710	16.39	1.91	5.7	2.15	18.03	63.533	Vertical	Pass
		713.5	17.43	1.92	5.8	2.15	19.16	82.414	Vertical	Pass
10.0MHz Band 16 QAM	50/0	709	15.91	1.91	5.6	2.15	17.45	55.590	Vertical	Pass
		710	15.84	1.91	5.7	2.15	17.48	55.976	Vertical	Pass
		711	15.59	1.92	5.8	2.15	17.32	53.951	Vertical	Pass
5.0MHz Band 16 QAM	25/0	706.5	17.52	1.91	5.6	2.15	19.06	80.538	Horizontal	Pass
		710	17.46	1.91	5.7	2.15	19.10	81.283	Horizontal	Pass
		713.5	16.25	1.92	5.8	2.15	17.98	62.806	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	709	17.30	1.91	5.6	2.15	18.84	76.560	Horizontal	Pass
		710	18.57	1.91	5.7	2.15	20.21	104.954	Horizontal	Pass
		711	17.65	1.92	5.8	2.15	19.38	86.696	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 18

LTE Band 18a

Radiated Power (ERP) for Band 18(815-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz BW QPSK	25/0	817.50	22.65	3.77	5.60	2.15	22.33	171.002	Horizontal	Pass
		822.50	23.58	3.91	5.70	2.15	23.22	209.959	Horizontal	Pass
5.0MHz BW QPSK	6/0	817.50	22.17	3.79	5.60	2.15	21.83	152.405	Vertical	Pass
		822.50	23.65	3.95	5.70	2.15	23.25	211.117	Vertical	Pass

Radiated Power (ERP) for Band 18(815-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz BW 16 QAM	25/0	817.50	22.10	3.77	5.60	2.15	21.78	150.661	Horizontal	Pass
		822.50	16.65	3.91	5.70	2.15	21.66	146.394	Horizontal	Pass
5MHz BW 16 QAM	6/0	817.50	22.44	3.79	5.60	2.15	22.1	162.181	Vertical	Pass
		822.50	16.65	3.95	5.70	2.15	23.01	200.020	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

LTE Band 18b

Radiated Power (ERP) for Band 18(824-830)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz BW QPSK	25/0	827.50	23.45	3.94	5.80	2.15	23.16	207.014	Horizontal	Pass
5.0MHz BW QPSK	6/0	827.50	22.58	3.97	5.80	2.15	22.26	168.267	Vertical	Pass

Radiated Power (ERP) for Band 18(824-830)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz BW 16 QAM	25/0	827.50	23.01	3.94	5.80	2.15	22.72	187.068	Horizontal	Pass
5MHz BW 16 QAM	6/0	827.50	21.17	3.97	5.80	2.15	20.85	121.619	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.9 LTE BAND 19

Radiated Power (ERP) for Band 19(830-845)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	832.50	19.01	2.01	5.30	2.15	20.15	103.622	Horizontal	Pass
		837.50	19.62	2.01	5.30	2.15	20.76	119.207	Horizontal	Pass
		842.50	20.36	2.02	5.70	2.15	21.89	154.386	Horizontal	Pass
10.0MHz Band QPSK	50/0	835.00	19.61	2.01	5.30	2.15	20.75	118.830	Horizontal	Pass
		837.50	19.58	2.01	5.30	2.15	20.72	118.058	Horizontal	Pass
		840.00	19.21	2.02	5.70	2.15	20.74	118.655	Horizontal	Pass
15.0MHz Band QPSK	75/0	837.50	20.41	2.01	5.30	2.15	21.55	142.913	Horizontal	Pass
5.0MHz Band QPSK	25/0	832.50	20.03	2.01	5.30	2.15	21.17	130.914	Vertical	Pass
		837.50	20.97	2.01	5.30	2.15	22.11	162.428	Vertical	Pass
		842.50	20.49	2.02	5.70	2.15	22.02	159.065	Vertical	Pass
10.0MHz Band QPSK	50/0	835.00	20.68	2.01	5.30	2.15	21.82	152.173	Vertical	Pass
		837.50	22.24	2.01	5.30	2.15	23.38	217.864	Vertical	Pass
		840.00	20.98	2.02	5.70	2.15	22.51	178.416	Vertical	Pass
15.0MHz Band QPSK	75/0	837.50	22.34	2.01	5.30	2.15	23.48	222.844	Vertical	Pass

Radiated Power (ERP) for Band 19(830-845)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	832.50	20.71	2.01	5.30	2.15	21.85	153.109	Horizontal	Pass
		837.50	20.80	2.01	5.30	2.15	21.94	156.315	Horizontal	Pass
		842.50	19.50	2.02	5.70	2.15	21.03	126.765	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	835.00	19.93	2.01	5.30	2.15	21.07	127.938	Horizontal	Pass
		837.50	20.51	2.01	5.30	2.15	21.65	146.218	Horizontal	Pass
		840.00	20.47	2.02	5.70	2.15	22.00	158.489	Horizontal	Pass
15.0MHz Band QPSK	75/0	837.50	20.78	2.01	5.30	2.15	21.92	155.597	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	832.50	20.99	2.01	5.30	2.15	22.13	163.305	Vertical	Pass
		837.50	19.96	2.01	5.30	2.15	21.10	128.825	Vertical	Pass
		842.50	21.35	2.02	5.70	2.15	22.88	194.089	Vertical	Pass
10.0MHz Band 16 QAM	50/0	835.00	21.37	2.01	5.30	2.15	22.51	178.238	Vertical	Pass
		837.50	22.01	2.01	5.30	2.15	23.15	206.538	Vertical	Pass
		840.00	20.15	2.02	5.70	2.15	21.68	147.231	Vertical	Pass
15.0MHz Band QPSK	75/0	837.50	22.36	2.01	5.30	2.15	23.50	223.872	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.9 LTE BAND 25

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1850.7	16.75	3.12	8.90	22.53	179.264	Horizontal	Pass
		1882.5	16.78	3.27	8.90	22.41	174.372	Horizontal	Pass
		1914.3	15.54	3.29	8.90	21.15	130.383	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	17.09	3.13	8.90	22.86	193.210	Horizontal	Pass
		1882.5	16.73	3.27	8.90	22.36	172.263	Horizontal	Pass
		1913.5	15.65	3.30	8.90	21.25	133.383	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	15.07	3.13	8.90	20.84	121.378	Horizontal	Pass
		1882.5	15.83	3.27	8.90	21.46	139.809	Horizontal	Pass
		1912.5	15.77	3.30	8.90	21.37	136.942	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	16.34	3.15	8.90	22.09	161.854	Horizontal	Pass
		1882.5	17.39	3.31	8.90	22.98	198.503	Horizontal	Pass
		1910	15.76	3.33	8.90	21.33	135.754	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	16.75	3.15	8.90	22.5	177.914	Horizontal	Pass
		1882.5	16.77	3.31	8.90	22.36	172.383	Horizontal	Pass
		1907.5	16.63	3.33	8.90	22.2	166.125	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	14.82	3.17	8.90	20.55	113.430	Horizontal	Pass
		1882.5	17.39	3.32	8.90	22.97	198.169	Horizontal	Pass
		1905	15.66	3.36	8.90	21.2	131.844	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	16.95	3.12	8.90	22.73	187.528	Vertical	Pass
		1882.5	16.60	3.27	8.90	22.23	167.115	Vertical	Pass
		1914.3	15.59	3.29	8.90	21.2	131.875	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	17.04	3.13	8.90	22.81	191.089	Vertical	Pass
		1882.5	16.15	3.27	8.90	21.78	150.524	Vertical	Pass
		1913.5	16.67	3.30	8.90	22.27	168.760	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	17.11	3.13	8.90	22.88	194.223	Vertical	Pass
		1882.5	15.91	3.27	8.90	21.54	142.483	Vertical	Pass
		1912.5	16.86	3.30	8.90	22.46	176.045	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	15.05	3.15	8.90	20.8	120.190	Vertical	Pass
		1882.5	16.60	3.31	8.90	22.19	165.687	Vertical	Pass
		1910	16.65	3.33	8.90	22.22	166.799	Vertical	Pass

15.0MHz Band QPSK	75/0	1857.5	15.38	3.15	8.90	21.13	129.852	Vertical	Pass
		1882.5	16.19	3.31	8.90	21.78	150.552	Vertical	Pass
		1907.5	15.63	3.33	8.90	21.2	131.953	Vertical	Pass
20.0MHz Band QPSK	100/0	1860	14.65	3.17	8.90	20.38	109.063	Vertical	Pass
		1882.5	17.46	3.32	8.90	23.04	201.155	Vertical	Pass
		1905	17.95	3.36	8.90	23.49	223.589	Vertical	Pass

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1850.7	16.55	3.12	8.90	22.33	170.864	Horizontal	Pass
		1882.5	16.41	3.27	8.90	22.04	159.828	Horizontal	Pass
		1914.3	15.70	3.29	8.90	21.31	135.087	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	17.01	3.13	8.90	22.78	189.590	Horizontal	Pass
		1882.5	16.40	3.27	8.90	22.03	159.636	Horizontal	Pass
		1913.5	17.09	3.30	8.90	22.69	185.692	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	17.16	3.13	8.90	22.93	196.539	Horizontal	Pass
		1882.5	17.18	3.27	8.90	22.81	190.918	Horizontal	Pass
		1912.5	16.12	3.30	8.90	21.72	148.681	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	17.04	3.15	8.90	22.79	189.920	Horizontal	Pass
		1882.5	16.39	3.31	8.90	21.98	157.632	Horizontal	Pass
		1910	16.06	3.33	8.90	21.63	145.600	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	16.42	3.15	8.90	22.17	164.916	Horizontal	Pass
		1882.5	15.70	3.31	8.90	21.29	134.464	Horizontal	Pass
		1907.5	16.40	3.33	8.90	21.97	157.507	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	16.54	3.17	8.90	22.27	168.818	Horizontal	Pass
		1882.5	16.97	3.32	8.90	22.55	179.841	Horizontal	Pass
		1905	15.90	3.36	8.90	21.44	139.273	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	17.04	3.12	8.90	22.82	191.637	Vertical	Pass
		1882.5	17.17	3.27	8.90	22.8	190.641	Vertical	Pass
		1914.3	17.16	3.29	8.90	22.77	189.275	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	15.78	3.13	8.90	21.55	142.908	Vertical	Pass
		1882.5	16.93	3.27	8.90	22.56	180.114	Vertical	Pass
		1913.5	17.30	3.30	8.90	22.9	195.000	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	17.14	3.13	8.90	22.91	195.638	Vertical	Pass
		1882.5	16.55	3.27	8.90	22.18	165.215	Vertical	Pass
		1912.5	17.14	3.30	8.90	22.74	187.920	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	16.26	3.15	8.90	22.01	158.834	Vertical	Pass
		1882.5	17.41	3.31	8.90	23	199.483	Vertical	Pass
		1910	16.82	3.33	8.90	22.39	173.314	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1857.5	16.75	3.15	8.90	22.5	177.695	Vertical	Pass
		1882.5	17.50	3.31	8.90	23.09	203.500	Vertical	Pass
		1907.5	16.93	3.33	8.90	22.5	177.950	Vertical	Pass

20.0MHz	100/0	1860	17.70	3.17	8.90	23.43	220.200	Vertical	Pass
Band 16		1882.5	16.36	3.32	8.90	21.94	156.428	Vertical	Pass
QAM		1905	16.55	3.36	8.90	22.09	161.653	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)

8.10 LTE BAND 26 A

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz BW QPSK	6/0	814.7	22.12	3.76	5.60	2.15	21.81	151.709	Horizontal	Pass
		819	21.64	3.91	5.70	2.15	21.28	134.187	Horizontal	Pass
		823.3	21.00	3.93	5.80	2.15	20.72	118.014	Horizontal	Pass
3.0MHz BW QPSK	15/0	815.5	21.66	3.77	5.60	2.15	21.34	136.234	Horizontal	Pass
		819	22.29	3.91	5.70	2.15	21.93	155.836	Horizontal	Pass
		822.5	20.87	3.94	5.80	2.15	20.58	114.291	Horizontal	Pass
5.0MHz BW QPSK	25/0	816.5	20.87	3.77	5.60	2.15	20.55	113.611	Horizontal	Pass
		819	21.14	3.91	5.70	2.15	20.78	119.569	Horizontal	Pass
		821.5	21.87	3.94	5.80	2.15	21.58	143.845	Horizontal	Pass
10.0MHz BW QPSK	50/0	819	21.67	3.91	5.70	2.15	21.31	135.253	Horizontal	Pass
1.4MHz BW QPSK	6/0	814.7	20.58	3.79	5.60	2.15	20.24	105.742	Vertical	Pass
		819	21.96	3.95	5.70	2.15	21.56	143.188	Vertical	Pass
		823.3	20.66	3.97	5.80	2.15	20.34	108.027	Vertical	Pass
3.0MHz BW QPSK	15/0	815.5	21.24	3.77	5.60	2.15	20.92	123.659	Vertical	Pass
		819	21.77	3.91	5.70	2.15	21.41	138.204	Vertical	Pass
		822.5	20.95	3.94	5.80	2.15	20.66	116.312	Vertical	Pass
5.0MHz BW QPSK	25/0	816.5	21.30	3.77	5.60	2.15	20.98	125.387	Vertical	Pass
		819	22.45	3.91	5.70	2.15	22.09	161.980	Vertical	Pass
		821.5	21.21	3.94	5.80	2.15	20.92	123.623	Vertical	Pass
10.0MHz BW QPSK	50/0	819	22.55	3.91	5.70	2.15	22.19	165.453	Vertical	Pass

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz BW 16 QAM	6/0	814.7	23.71	3.76	5.60	2.15	23.40	219.027	Horizontal	Pass
		819	22.59	3.91	5.70	2.15	22.23	166.957	Horizontal	Pass
		823.3	23.91	3.93	5.80	2.15	23.63	230.426	Horizontal	Pass
3.0MHz BW 16 QAM	15/0	815.5	23.08	3.77	5.60	2.15	22.76	188.895	Horizontal	Pass
		819	23.01	3.91	5.70	2.15	22.65	184.097	Horizontal	Pass
		822.5	22.61	3.94	5.80	2.15	22.32	170.754	Horizontal	Pass
5.0MHz BW 16 QAM	25/0	816.5	23.01	3.77	5.60	2.15	22.69	185.707	Horizontal	Pass
		819	22.76	3.91	5.70	2.15	22.40	173.832	Horizontal	Pass
		821.5	23.83	3.94	5.80	2.15	23.54	225.990	Horizontal	Pass
10.0MHz BW 16 QAM	50/0	819	22.63	3.91	5.70	2.15	22.27	168.663	Horizontal	Pass
1.4MHz BW 16 QAM	6/0	814.7	22.91	3.79	5.60	2.15	22.57	180.540	Vertical	Pass
		819	23.97	3.95	5.70	2.15	23.57	227.696	Vertical	Pass
		823.3	22.02	3.97	5.80	2.15	21.70	147.775	Vertical	Pass
3.0MHz BW 16 QAM	15/0	815.5	23.72	3.77	5.60	2.15	23.40	218.892	Vertical	Pass
		819	22.60	3.91	5.70	2.15	22.24	167.671	Vertical	Pass
		822.5	22.73	3.94	5.80	2.15	22.44	175.198	Vertical	Pass
5.0MHz BW 16 QAM	25/0	816.5	23.48	3.77	5.60	2.15	23.16	207.175	Vertical	Pass
		819	22.24	3.91	5.70	2.15	21.88	154.228	Vertical	Pass
		821.5	22.04	3.94	5.80	2.15	21.75	149.524	Vertical	Pass
10.0MHz BW 16 QAM	50/0	819	24.62	3.91	5.70	2.15	24.26	266.807	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

8.11 LTE BAND 26 B

Radiated Power (ERP) for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	824.7	21.65	2.01	5.30	2.15	22.79	190.193	Horizontal	Pass
		836.5	20.49	2.01	5.30	2.15	21.63	145.419	Horizontal	Pass
		848.3	20.86	2.02	5.70	2.15	22.39	173.457	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	20.48	2.01	5.30	2.15	21.62	145.141	Horizontal	Pass
		836.5	21.02	2.01	5.30	2.15	22.16	164.389	Horizontal	Pass
		847.5	19.66	2.02	5.70	2.15	21.19	131.639	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	20.19	2.01	5.30	2.15	21.33	135.874	Horizontal	Pass
		836.5	19.33	2.01	5.30	2.15	20.47	111.486	Horizontal	Pass
		846.5	20.51	2.02	5.70	2.15	22.04	160.130	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	19.17	2.01	5.30	2.15	20.31	107.336	Horizontal	Pass
		836.5	19.76	2.01	5.30	2.15	20.90	123.153	Horizontal	Pass
		844	19.38	2.02	5.70	2.15	20.91	123.292	Horizontal	Pass
15.0MHz Band QPSK	75/0	831.5	21.32	2.01	5.30	2.15	22.46	176.165	Horizontal	Pass
		836.5	21.20	2.01	5.30	2.15	22.34	171.557	Horizontal	Pass
		841.5	20.30	2.02	5.70	2.15	21.83	152.473	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	21.23	2.01	5.30	2.15	22.37	172.433	Vertical	Pass
		836.5	21.35	2.01	5.30	2.15	22.49	177.355	Vertical	Pass
		848.3	21.41	2.02	5.70	2.15	22.94	196.641	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	20.06	2.01	5.30	2.15	21.20	131.766	Vertical	Pass
		836.5	21.28	2.01	5.30	2.15	22.42	174.729	Vertical	Pass
		847.5	20.18	2.02	5.70	2.15	21.71	148.207	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	20.82	2.01	5.30	2.15	21.96	157.042	Vertical	Pass
		836.5	21.84	2.01	5.30	2.15	22.98	198.627	Vertical	Pass
		846.5	20.17	2.02	5.70	2.15	21.70	148.046	Vertical	Pass
10.0MHz Band QPSK	50/0	829	21.02	2.01	5.30	2.15	22.16	164.484	Vertical	Pass
		836.5	22.81	2.01	5.30	2.15	23.95	248.439	Vertical	Pass
		844	21.83	2.02	5.70	2.15	23.36	216.739	Vertical	Pass
15.0MHz Band QPSK	75/0	831.5	20.99	2.01	5.30	2.15	22.13	163.329	Vertical	Pass
		836.5	22.88	2.01	5.30	2.15	24.02	252.348	Vertical	Pass
		841.5	20.66	2.02	5.70	2.15	22.19	165.577	Vertical	Pass

Radiated Power (ERP) for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	824.7	21.33	2.01	5.30	2.15	22.47	176.709	Horizontal	Pass
		836.5	20.01	2.01	5.30	2.15	21.15	130.185	Horizontal	Pass
		848.3	19.77	2.02	5.70	2.15	21.30	135.015	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	19.05	2.01	5.30	2.15	20.19	104.573	Horizontal	Pass
		836.5	20.69	2.01	5.30	2.15	21.83	152.366	Horizontal	Pass
		847.5	20.65	2.02	5.70	2.15	22.18	165.157	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	19.72	2.01	5.30	2.15	20.86	121.785	Horizontal	Pass
		836.5	19.37	2.01	5.30	2.15	20.51	112.406	Horizontal	Pass
		846.5	18.69	2.02	5.70	2.15	20.22	105.218	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	19.28	2.01	5.30	2.15	20.42	110.112	Horizontal	Pass
		836.5	21.39	2.01	5.30	2.15	22.53	179.256	Horizontal	Pass
		844	20.06	2.02	5.70	2.15	21.59	144.368	Horizontal	Pass
15.0MHz Band QPSK	75/0	831.5	19.67	2.01	5.30	2.15	20.81	120.577	Horizontal	Pass
		836.5	19.99	2.01	5.30	2.15	21.13	129.762	Horizontal	Pass
		841.5	20.02	2.02	5.70	2.15	21.55	142.989	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	20.35	2.01	5.30	2.15	21.49	140.974	Vertical	Pass
		836.5	21.39	2.01	5.30	2.15	22.53	179.045	Vertical	Pass
		848.3	20.38	2.02	5.70	2.15	21.91	155.116	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	18.88	2.01	5.30	2.15	20.02	100.392	Vertical	Pass
		836.5	19.42	2.01	5.30	2.15	20.56	113.879	Vertical	Pass
		847.5	19.75	2.02	5.70	2.15	21.28	134.216	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	20.58	2.01	5.30	2.15	21.72	148.712	Vertical	Pass
		836.5	19.51	2.01	5.30	2.15	20.65	116.024	Vertical	Pass
		846.5	21.78	2.02	5.70	2.15	23.31	214.070	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	21.99	2.01	5.30	2.15	23.13	205.708	Vertical	Pass
		836.5	20.85	2.01	5.30	2.15	21.99	158.233	Vertical	Pass
		844	19.55	2.02	5.70	2.15	21.08	128.141	Vertical	Pass

15.0MHz	75/0	831.5	20.93	2.01	5.30	2.15	22.07	161.237	Vertical	Pass
Band		836.5	21.07	2.01	5.30	2.15	22.21	166.338	Vertical	Pass
QPSK		841.5	22.53	2.02	5.70	2.15	24.06	252.683	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

8.12 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2498.5	18.21	4.54	9.00	22.67	184.771	Horizontal	Pass
		2593	18.74	4.69	9.00	23.05	201.854	Horizontal	Pass
		2687.5	16.84	4.71	9.00	21.13	129.803	Horizontal	Pass
10.0MHz Band QPSK	50/0	2501	18.76	4.55	9.00	23.21	209.502	Horizontal	Pass
		2593	18.66	4.69	9.00	22.97	198.285	Horizontal	Pass
		2685	17.72	4.72	9.00	22.00	158.457	Horizontal	Pass
15.0MHz Band QPSK	75/0	2503.5	16.42	4.55	9.00	20.87	122.183	Horizontal	Pass
		2593	18.61	4.69	9.00	22.92	195.698	Horizontal	Pass
		2682.5	18.18	4.72	9.00	22.46	176.349	Horizontal	Pass
20.0MHz Band QPSK	100/0	2506	17.54	4.57	9.00	21.97	157.246	Horizontal	Pass
		2593	17.77	4.73	9.00	22.04	159.930	Horizontal	Pass
		2680	19.09	4.75	9.00	23.34	215.617	Horizontal	Pass
5.0MHz Band QPSK	25/0	2498.5	18.44	4.54	9.00	22.90	195.109	Vertical	Pass
		2593	17.82	4.69	9.00	22.13	163.482	Vertical	Pass
		2687.5	17.75	4.71	9.00	22.04	159.977	Vertical	Pass
10.0MHz Band QPSK	50/0	2501	16.88	4.55	9.00	21.33	135.890	Vertical	Pass
		2593	17.25	4.69	9.00	21.56	143.320	Vertical	Pass
		2685	17.72	4.72	9.00	22.00	158.354	Vertical	Pass
15.0MHz Band QPSK	75/0	2503.5	16.47	4.55	9.00	20.92	123.645	Vertical	Pass
		2593	18.71	4.69	9.00	23.02	200.292	Vertical	Pass
		2682.5	17.61	4.72	9.00	21.89	154.689	Vertical	Pass
20.0MHz Band QPSK	100/0	2506	19.66	4.57	9.00	24.09	256.273	Vertical	Pass
		2593	17.89	4.73	9.00	22.16	164.312	Vertical	Pass
		2680	18.01	4.75	9.00	22.26	168.429	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	2498.5	16.40	4.54	9.00	20.86	121.851	Horizontal	Pass
		2593	17.16	4.69	9.00	21.47	140.398	Horizontal	Pass
		2687.5	17.80	4.71	9.00	22.09	161.814	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2501	18.36	4.55	9.00	22.81	191.037	Horizontal	Pass
		2593	18.56	4.69	9.00	22.87	193.723	Horizontal	Pass
		2685	18.71	4.72	9.00	22.99	199.044	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2503.5	18.44	4.55	9.00	22.89	194.387	Horizontal	Pass
		2593	18.65	4.69	9.00	22.96	197.840	Horizontal	Pass
		2682.5	18.43	4.72	9.00	22.71	186.703	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2506	17.66	4.57	9.00	22.09	161.885	Horizontal	Pass
		2593	17.51	4.73	9.00	21.78	150.500	Horizontal	Pass
		2680	19.31	4.75	9.00	23.56	226.764	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2498.5	18.45	4.54	9.00	22.91	195.236	Vertical	Pass
		2593	17.73	4.69	9.00	22.04	159.829	Vertical	Pass
		2687.5	18.73	4.71	9.00	23.02	200.633	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2501	19.41	4.55	9.00	23.86	242.973	Vertical	Pass
		2593	17.69	4.69	9.00	22.00	158.605	Vertical	Pass
		2685	17.10	4.72	9.00	21.38	137.289	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2503.5	17.68	4.55	9.00	22.13	163.488	Vertical	Pass
		2593	17.42	4.69	9.00	21.73	149.059	Vertical	Pass
		2682.5	18.27	4.72	9.00	22.55	179.691	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2506	18.04	4.57	9.00	22.47	176.427	Vertical	Pass
		2593	19.67	4.73	9.00	23.94	247.742	Vertical	Pass
		2680	18.01	4.75	9.00	22.26	168.303	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)

8.13 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	14.67	3.12	8.90	20.45	110.948	Horizontal	Pass
		1745	13.49	3.27	8.90	19.12	81.610	Horizontal	Pass
		1779.3	16.34	3.29	8.90	21.95	156.747	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	13.85	3.13	8.90	19.62	91.568	Horizontal	Pass
		1745	15.21	3.27	8.90	20.84	121.426	Horizontal	Pass
		1778.5	14.50	3.30	8.90	20.10	102.312	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	15.41	3.13	8.90	21.18	131.365	Horizontal	Pass
		1745	16.93	3.27	8.90	22.56	180.384	Horizontal	Pass
		1777.5	14.27	3.30	8.90	19.87	97.116	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	15.96	3.15	8.90	21.71	148.106	Horizontal	Pass
		1745	15.88	3.31	8.90	21.47	140.320	Horizontal	Pass
		1775	15.73	3.33	8.90	21.30	134.980	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	15.41	3.15	8.90	21.16	130.497	Horizontal	Pass
		1745	16.50	3.31	8.90	22.09	161.750	Horizontal	Pass
		1772.5	16.40	3.33	8.90	21.97	157.519	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	14.77	3.17	8.90	20.50	112.184	Horizontal	Pass
		1745	16.19	3.32	8.90	21.77	150.198	Horizontal	Pass
		1770	15.58	3.36	8.90	21.12	129.346	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	14.79	3.12	8.90	20.57	113.948	Vertical	Pass
		1745	16.85	3.27	8.90	22.48	177.112	Vertical	Pass
		1779.3	15.72	3.29	8.90	21.33	135.950	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	16.23	3.13	8.90	22.00	158.342	Vertical	Pass
		1745	17.09	3.27	8.90	22.72	186.973	Vertical	Pass
		1778.5	15.59	3.30	8.90	21.19	131.566	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	14.99	3.13	8.90	20.76	119.149	Vertical	Pass
		1745	15.16	3.27	8.90	20.79	119.975	Vertical	Pass
		1777.5	13.92	3.30	8.90	19.52	89.491	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	12.68	3.15	8.90	18.43	69.731	Vertical	Pass
		1745	16.24	3.31	8.90	21.83	152.408	Vertical	Pass
		1775	14.17	3.33	8.90	19.74	94.185	Vertical	Pass

15.0MHz Band QPSK	75/0	1717.5	16.98	3.15	8.90	22.73	187.678	Vertical	Pass
		1745	17.18	3.31	8.90	22.77	189.438	Vertical	Pass
		1772.5	15.82	3.33	8.90	21.39	137.857	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	17.05	3.17	8.90	22.78	189.671	Vertical	Pass
		1745	16.79	3.32	8.90	22.37	172.767	Vertical	Pass
		1770	14.18	3.36	8.90	19.72	93.836	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1710.7	16.00	3.12	8.9	21.78	150.616	Horizontal	Pass
		1745	16.77	3.27	8.9	22.40	173.724	Horizontal	Pass
		1779.3	17.10	3.29	8.9	22.71	186.711	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	16.96	3.13	8.9	22.73	187.545	Horizontal	Pass
		1745	16.59	3.27	8.9	22.22	166.911	Horizontal	Pass
		1778.5	16.90	3.3	8.9	22.50	177.662	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	16.00	3.13	8.9	21.77	150.281	Horizontal	Pass
		1745	14.17	3.27	8.9	19.80	95.446	Horizontal	Pass
		1777.5	15.78	3.3	8.9	21.38	137.450	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	16.51	3.15	8.9	22.26	168.364	Horizontal	Pass
		1745	15.19	3.31	8.9	20.78	119.543	Horizontal	Pass
		1775	15.03	3.33	8.9	20.60	114.938	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	14.63	3.15	8.9	20.38	109.104	Horizontal	Pass
		1745	15.75	3.31	8.9	21.34	136.261	Horizontal	Pass
		1772.5	16.87	3.33	8.9	22.44	175.218	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	16.61	3.17	8.9	22.34	171.335	Horizontal	Pass
		1745	16.07	3.32	8.9	21.65	146.328	Horizontal	Pass
		1770	16.28	3.36	8.9	21.82	151.931	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	15.70	3.12	8.9	21.48	140.737	Vertical	Pass
		1745	16.43	3.27	8.9	22.06	160.743	Vertical	Pass
		1779.3	16.54	3.29	8.9	22.15	164.072	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	15.06	3.13	8.9	20.83	121.036	Vertical	Pass
		1745	14.99	3.27	8.9	20.62	115.265	Vertical	Pass
		1778.5	16.14	3.3	8.9	21.74	149.250	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	17.15	3.13	8.9	22.92	195.859	Vertical	Pass
		1745	16.76	3.27	8.9	22.39	173.240	Vertical	Pass
		1777.5	15.12	3.3	8.9	20.72	117.942	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	13.94	3.15	8.9	19.69	93.190	Vertical	Pass
		1745	17.50	3.31	8.9	23.09	203.702	Vertical	Pass
		1775	17.36	3.33	8.9	22.93	196.501	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1717.5	15.71	3.15	8.9	21.46	139.854	Vertical	Pass
		1745	16.21	3.31	8.9	21.80	151.261	Vertical	Pass
		1772.5	15.99	3.33	8.9	21.56	143.279	Vertical	Pass

20.0MHz	100/0	1720	17.60	3.17	8.9	23.33	215.157	Vertical	Pass
Band 16		1745	16.96	3.32	8.9	22.54	179.494	Vertical	Pass
QAM		1770	17.30	3.36	8.9	22.84	192.437	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 2/4/5/7/12/17/18/19/25/26/41/66

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.8	-48.55	4.04	33.51	-19.08	-13	-6.08	Horizontal
3701.8	-50.89	4.04	33.51	-21.42	-13	-8.42	Vertical
5552.8	-46.36	5.24	35.84	-15.76	-13	-2.76	Vertical
5552.8	-48.94	5.24	35.84	-18.34	-13	-5.34	Horizontal
185.7	-39.85	1.43	16.02	-25.26	-13	-12.26	Vertical
454.2	-32.63	1.30	17.99	-15.93	-13	-2.93	Horizontal
Test Results for Mid Channel 1880MHz							
3760.5	-47.03	4.04	33.56	-17.51	-13	-4.51	Horizontal
3760.5	-51.41	4.04	33.56	-21.89	-13	-8.89	Vertical
5640.3	-48.15	5.24	35.91	-17.48	-13	-4.48	Vertical
5640.3	-50.44	5.24	35.91	-19.77	-13	-6.77	Horizontal
184.3	-34.73	1.62	16.97	-19.37	-13	-6.37	Vertical
289.4	-34.50	1.74	15.98	-20.27	-13	-7.27	Horizontal
Test Results for High Channel 1909.3MHz							
3818.9	-45.95	4.04	34.00	-15.99	-13	-2.99	Horizontal
3818.9	-46.36	4.04	34.00	-16.40	-13	-3.40	Vertical
5728.0	-49.90	5.24	36.04	-19.10	-13	-6.10	Vertical
5728.0	-47.42	5.24	36.04	-16.62	-13	-3.62	Horizontal
194.1	-40.24	1.42	17.29	-24.37	-13	-11.37	Vertical
342.9	-34.47	1.50	17.90	-18.06	-13	-5.06	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.5	-45.51	4.07	33.54	-16.04	-13	-3.04	Horizontal
3720.5	-48.69	4.07	33.54	-19.22	-13	-6.22	Vertical
5580.2	-46.83	5.28	35.86	-16.25	-13	-3.25	Vertical
5580.2	-49.26	5.28	35.86	-18.68	-13	-5.68	Horizontal
208.8	-37.30	1.58	16.89	-21.99	-13	-8.99	Vertical
357.3	-41.66	1.76	17.26	-26.16	-13	-13.16	Horizontal
Test Results for Mid Channel 1880MHz							
3760.6	-46.17	4.04	33.56	-16.65	-13	-3.65	Horizontal
3760.6	-46.12	4.04	33.56	-16.60	-13	-3.60	Vertical
5640.7	-50.00	5.24	35.91	-19.33	-13	-6.33	Vertical
5640.7	-50.12	5.24	35.91	-19.45	-13	-6.45	Horizontal
200.6	-43.55	1.46	16.27	-28.74	-13	-15.74	Vertical
345.2	-38.70	1.59	15.15	-25.14	-13	-12.14	Horizontal
Test Results for High Channel 1900MHz							
3800.2	-48.49	4.04	34.00	-18.53	-13	-5.53	Horizontal
3800.2	-46.55	4.04	34.00	-16.59	-13	-3.59	Vertical
5700.2	-46.94	5.24	36.04	-16.14	-13	-3.14	Vertical
5700.2	-50.53	5.24	36.04	-19.73	-13	-6.73	Horizontal
212.5	-33.73	1.36	17.39	-17.70	-13	-4.70	Vertical
313.6	-39.91	1.66	15.39	-26.19	-13	-13.19	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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-48.16	4.02	29.80	-22.38	-13	-9.38	Horizontal
3421.4	-46.61	4.02	29.80	-20.83	-13	-7.83	Vertical
5132.6	-49.68	5.24	35.84	-19.08	-13	-6.08	Vertical
5132.6	-49.93	5.24	35.84	-19.33	-13	-6.33	Horizontal
198.7	-39.95	1.68	16.04	-25.59	-13	-12.59	Vertical
454.6	-33.30	1.78	17.74	-17.34	-13	-4.34	Horizontal
Test Results for Mid Channel 1732.5MHz							
3466.0	-49.06	4.03	30.00	-23.09	-13	-10.09	Horizontal
3466.0	-42.98	4.03	30.00	-17.01	-13	-4.01	Vertical
5198.4	-46.24	5.25	35.86	-15.63	-13	-2.63	Vertical
5198.4	-48.01	5.25	35.86	-17.40	-13	-4.40	Horizontal
208.5	-40.10	1.72	17.69	-24.13	-13	-11.13	Vertical
346.4	-41.92	1.62	16.02	-27.52	-13	-14.52	Horizontal
Test Results for High Channel 1754.3MHz							
3509.4	-47.57	4.05	30.01	-21.61	-13	-8.61	Horizontal
3509.4	-45.72	4.05	30.01	-19.76	-13	-6.76	Vertical
5263.8	-47.80	5.26	35.86	-17.20	-13	-4.20	Vertical
5263.8	-49.01	5.26	35.86	-18.41	-13	-5.41	Horizontal
183.9	-31.31	1.80	16.69	-16.42	-13	-3.42	Vertical
332.8	-39.16	1.75	16.66	-24.26	-13	-11.26	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.6	-47.94	4.02	29.80	-22.16	-13	-9.16	Horizontal
3440.6	-47.60	4.02	29.80	-21.82	-13	-8.82	Vertical
5160.1	-50.63	5.24	35.84	-20.03	-13	-7.03	Vertical
5160.1	-49.50	5.24	35.84	-18.90	-13	-5.90	Horizontal
182.9	-38.53	1.57	17.26	-22.84	-13	-9.84	Vertical
310.5	-34.34	1.78	16.35	-19.77	-13	-6.77	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.6	-48.88	4.03	30.00	-22.91	-13	-9.91	Horizontal
3465.6	-49.65	4.03	30.00	-23.68	-13	-10.68	Vertical
5198.3	-47.35	5.25	35.86	-16.74	-13	-3.74	Vertical
5198.3	-47.29	5.25	35.86	-16.68	-13	-3.68	Horizontal
209.5	-39.87	1.44	17.95	-23.36	-13	-10.36	Vertical
270.1	-31.59	1.65	16.09	-17.15	-13	-4.15	Horizontal
Test Results for High Channel 1745MHz							
3490.7	-43.73	2.91	27.68	-18.96	-13	-5.96	Horizontal
3490.7	-44.39	2.91	27.68	-19.62	-13	-6.62	Vertical
5235.6	-46.67	5.26	35.86	-16.07	-13	-3.07	Vertical
5235.6	-51.25	5.26	35.86	-20.65	-13	-7.65	Horizontal
185.0	-39.89	1.61	16.85	-24.65	-13	-11.65	Vertical
291.3	-39.00	1.61	15.19	-25.42	-13	-12.42	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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1650.3	-46.29	2.78	27.50	-21.57	-13	-8.57	Horizontal
1650.3	-49.27	2.78	27.50	-24.55	-13	-11.55	Vertical
2474.4	-45.37	2.90	27.80	-20.47	-13	-7.47	Vertical
2474.4	-50.84	2.90	27.80	-25.94	-13	-12.94	Horizontal
179.1	-35.71	1.76	17.59	-19.88	-13	-6.88	Vertical
460.8	-38.92	1.63	15.87	-24.68	-13	-11.68	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.3	-46.04	2.80	27.48	-21.36	-13	-8.36	Horizontal
1673.3	-45.09	2.80	27.48	-20.41	-13	-7.41	Vertical
2510.2	-42.68	2.91	27.70	-17.89	-13	-4.89	Vertical
2510.2	-49.04	2.91	27.70	-24.25	-13	-11.25	Horizontal
213.2	-40.31	1.61	15.68	-26.24	-13	-13.24	Vertical
431.7	-35.49	1.59	17.52	-19.57	-13	-6.57	Horizontal
Test Results for High Channel 848.3MHz							
1697.6	-47.93	2.82	27.43	-23.32	-13	-10.32	Horizontal
1697.6	-49.79	2.82	27.43	-25.18	-13	-12.18	Vertical
2545.1	-42.70	2.92	27.74	-17.88	-13	-4.88	Vertical
2545.1	-50.15	2.92	27.74	-25.33	-13	-12.33	Horizontal
192.7	-33.43	1.69	16.67	-18.45	-13	-5.45	Vertical
366.7	-33.93	1.70	17.18	-18.45	-13	-5.45	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.6	-50.54	2.78	27.50	-25.82	-13	-12.82	Horizontal
1658.6	-40.67	2.78	27.50	-15.95	-13	-2.95	Vertical
2487.9	-52.46	2.90	27.80	-27.56	-13	-14.56	Vertical
2487.9	-48.02	2.90	27.80	-23.12	-13	-10.12	Horizontal
199.8	-41.88	1.71	15.57	-28.02	-13	-15.02	Vertical
364.5	-31.33	1.34	16.40	-16.27	-13	-3.27	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.4	-40.76	2.80	27.48	-16.08	-13	-3.08	Horizontal
1673.4	-42.12	2.80	27.48	-17.44	-13	-4.44	Vertical
2510.1	-50.53	2.91	27.70	-25.74	-13	-12.74	Vertical
2510.1	-46.38	2.91	27.70	-21.59	-13	-8.59	Horizontal
212.4	-32.20	1.44	17.04	-16.60	-13	-3.60	Vertical
344.0	-41.44	1.76	17.62	-25.58	-13	-12.58	Horizontal
Test Results for High Channel 844MHz							
1688.2	-45.79	2.82	27.43	-21.18	-13	-8.18	Horizontal
1688.2	-46.81	2.82	27.43	-22.20	-13	-9.20	Vertical
2532.9	-50.17	2.92	27.74	-25.35	-13	-12.35	Vertical
2532.9	-46.49	2.92	27.74	-21.67	-13	-8.67	Horizontal
205.8	-34.01	1.74	17.70	-18.05	-13	-5.05	Vertical
393.7	-34.85	1.41	17.46	-18.80	-13	-5.80	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
5005.6	-62.93	5.23	35.81	-32.35	-25	-7.35	Horizontal
5005.6	-61.87	5.23	35.81	-31.29	-25	-6.29	Vertical
7508.0	-61.91	5.67	36.85	-30.73	-25	-5.73	Vertical
7508.0	-60.84	5.67	36.85	-29.66	-25	-4.66	Horizontal
203.0	-50.21	1.73	17.97	-33.97	-25	-8.97	Vertical
451.5	-49.23	1.38	15.11	-35.49	-25	-10.49	Horizontal
Test Results for Mid Channel 2535MHz							
5070.2	-58.26	5.23	35.82	-27.67	-25	-2.67	Horizontal
5070.2	-63.11	5.23	35.82	-32.52	-25	-7.52	Vertical
7605.8	-61.37	5.67	36.85	-30.19	-25	-5.19	Vertical
7605.8	-62.20	5.67	36.85	-31.02	-25	-6.02	Horizontal
211.4	-41.92	1.77	16.17	-27.52	-25	-2.52	Vertical
233.3	-48.75	1.63	15.21	-35.17	-25	-10.17	Horizontal
Test Results for High Channel 2567.5MHz							
5135.2	-58.56	5.24	35.83	-27.97	-25	-2.97	Horizontal
5135.2	-58.40	5.24	35.83	-27.81	-25	-2.81	Vertical
7703.5	-59.75	5.68	36.87	-28.56	-25	-3.56	Vertical
7703.5	-59.83	5.68	36.87	-28.64	-25	-3.64	Horizontal
187.0	-44.34	1.58	17.56	-28.36	-25	-3.36	Vertical
264.2	-47.77	1.45	16.58	-32.64	-25	-7.64	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
5020.9	-57.93	5.23	35.82	-27.34	-25	-2.34	Horizontal
5020.9	-60.31	5.23	35.82	-29.72	-25	-4.72	Vertical
7530.5	-59.89	5.67	36.86	-28.70	-25	-3.70	Vertical
7530.5	-59.20	5.67	36.86	-28.01	-25	-3.01	Horizontal
192.9	-47.85	1.63	15.76	-33.72	-25	-8.72	Vertical
380.1	-49.77	1.71	15.44	-36.04	-25	-11.04	Horizontal
Test Results for Mid Channel 2535MHz							
5070.2	-60.41	5.23	35.82	-29.82	-25	-4.82	Horizontal
5070.2	-58.82	5.23	35.82	-28.23	-25	-3.23	Vertical
7605.2	-59.46	5.67	36.85	-28.28	-25	-3.28	Vertical
7605.2	-59.41	5.67	36.85	-28.23	-25	-3.23	Horizontal
199.6	-45.41	1.79	16.84	-30.35	-25	-5.35	Vertical
346.8	-44.49	1.71	17.64	-28.56	-25	-3.56	Horizontal
Test Results for High Channel 2560MHz							
5120.3	-59.34	5.24	35.83	-28.75	-25	-3.75	Horizontal
5120.3	-59.68	5.24	35.83	-29.09	-25	-4.09	Vertical
7680.2	-59.04	5.70	36.88	-27.86	-25	-2.86	Vertical
7680.2	-59.87	5.70	36.88	-28.69	-25	-3.69	Horizontal
193.4	-43.75	1.79	16.84	-28.69	-25	-3.69	Vertical
350.2	-44.16	1.71	17.64	-28.23	-25	-3.23	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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.6	-41.67	2.60	27.20	-17.07	-13	-4.07	Horizontal
1399.6	-43.07	2.60	27.20	-18.47	-13	-5.47	Vertical
2099.8	-48.41	2.85	27.54	-23.72	-13	-10.72	Vertical
2099.8	-47.72	2.85	27.54	-23.03	-13	-10.03	Horizontal
212.1	-36.02	1.49	17.78	-19.73	-13	-6.73	Vertical
386.8	-39.08	1.36	17.33	-23.11	-13	-10.11	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.8	-44.36	2.61	27.28	-19.69	-13	-6.69	Horizontal
1415.8	-43.77	2.61	27.28	-19.10	-13	-6.10	Vertical
2123.1	-49.97	2.87	27.59	-25.25	-13	-12.25	Vertical
2123.1	-48.23	2.87	27.59	-23.51	-13	-10.51	Horizontal
208.1	-38.88	1.73	15.74	-24.87	-13	-11.87	Vertical
385.0	-32.40	1.62	15.79	-18.24	-13	-5.24	Horizontal
Test Results for High Channel 715.3MHz							
1431.4	-50.48	2.63	27.28	-25.83	-13	-12.83	Horizontal
1431.4	-46.37	2.63	27.28	-21.72	-13	-8.72	Vertical
2146.3	-42.87	2.88	27.60	-18.15	-13	-5.15	Vertical
2146.3	-47.02	2.88	27.60	-22.30	-13	-9.30	Horizontal
186.9	-32.68	1.61	18.00	-16.29	-13	-3.29	Vertical
281.3	-35.19	1.45	15.49	-21.16	-13	-8.16	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.9	-51.85	2.61	27.26	-27.20	-13	-14.20	Horizontal
1408.9	-45.23	2.61	27.26	-20.58	-13	-7.58	Vertical
2112.7	-47.78	2.87	27.58	-23.07	-13	-10.07	Vertical
2112.7	-49.74	2.87	27.58	-25.03	-13	-12.03	Horizontal
197.4	-39.90	1.31	16.97	-24.24	-13	-11.24	Vertical
468.8	-42.13	1.65	16.70	-27.07	-13	-14.07	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.6	-44.03	2.61	27.28	-19.36	-13	-6.36	Horizontal
1415.6	-50.84	2.61	27.28	-26.17	-13	-13.17	Vertical
2123.2	-51.11	2.87	27.59	-26.39	-13	-13.39	Vertical
2123.2	-49.43	2.87	27.59	-24.71	-13	-11.71	Horizontal
176.1	-35.32	1.72	17.99	-19.04	-13	-6.04	Vertical
363.2	-39.03	1.73	17.94	-22.81	-13	-9.81	Horizontal
Test Results for High Channel 711MHz							
1422.1	-47.45	2.62	27.28	-22.79	-13	-9.79	Horizontal
1422.1	-42.03	2.62	27.28	-17.37	-13	-4.37	Vertical
2133.7	-51.44	2.87	27.60	-26.71	-13	-13.71	Vertical
2133.7	-48.70	2.87	27.60	-23.97	-13	-10.97	Horizontal
209.0	-35.59	1.58	15.93	-21.24	-13	-8.24	Vertical
361.5	-31.92	1.36	15.59	-17.69	-13	-4.69	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 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
1413.8	-48.37	2.61	27.28	-23.70	-13	-10.70	Horizontal
1413.8	-43.90	2.61	27.28	-19.23	-13	-6.23	Vertical
2120.5	-49.20	2.87	27.59	-24.48	-13	-11.48	Vertical
2120.5	-48.54	2.87	27.59	-23.82	-13	-10.82	Horizontal
210.4	-33.37	1.71	16.15	-18.93	-13	-5.93	Vertical
421.0	-42.93	1.41	17.32	-27.02	-13	-14.02	Horizontal
Test Results For Mid Channel 710MHz							
1420.1	-44.27	2.62	27.30	-19.59	-13	-6.59	Horizontal
1420.1	-45.65	2.62	27.30	-20.97	-13	-7.97	Vertical
2130.0	-42.48	2.87	27.62	-17.73	-13	-4.73	Vertical
2130.0	-49.00	2.87	27.62	-24.25	-13	-11.25	Horizontal
201.8	-36.27	1.42	15.25	-22.44	-13	-9.44	Vertical
321.7	-39.26	1.36	17.19	-23.42	-13	-10.42	Horizontal
Test Results for High Channel 713.5MHz							
1427.9	-49.82	2.66	27.28	-25.20	-13	-12.20	Horizontal
1427.9	-43.63	2.66	27.28	-19.01	-13	-6.01	Vertical
2141.2	-43.67	2.88	27.60	-18.95	-13	-5.95	Vertical
2141.2	-49.56	2.88	27.60	-24.84	-13	-11.84	Horizontal
175.7	-40.00	1.32	17.29	-24.04	-13	-11.04	Vertical
446.3	-36.84	1.72	16.89	-21.67	-13	-8.67	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
1418.5	-47.96	2.62	27.30	-23.28	-13	-10.28	Horizontal
1418.5	-50.00	2.62	27.30	-25.32	-13	-12.32	Vertical
2127.7	-46.98	2.87	27.62	-22.23	-13	-9.23	Vertical
2127.7	-47.22	2.87	27.62	-22.47	-13	-9.47	Horizontal
197.1	-33.42	1.35	16.91	-17.86	-13	-4.86	Vertical
269.9	-40.76	1.62	16.31	-26.07	-13	-13.07	Horizontal
Test Results for Mid Channel 710MHz							
1420.7	-42.76	2.62	27.30	-18.08	-13	-5.08	Horizontal
1420.7	-41.90	2.62	27.30	-17.22	-13	-4.22	Vertical
2130.9	-45.61	2.87	27.62	-20.86	-13	-7.86	Vertical
2130.9	-49.31	2.87	27.62	-24.56	-13	-11.56	Horizontal
202.8	-42.64	1.51	17.14	-27.00	-13	-14.00	Vertical
398.7	-38.34	1.77	16.88	-23.23	-13	-10.23	Horizontal
Test Results for High Channel 711MHz							
1422.5	-45.10	2.62	27.30	-20.42	-13	-7.42	Horizontal
1422.5	-50.97	2.62	27.30	-26.29	-13	-13.29	Vertical
2133.1	-43.41	2.87	27.62	-18.66	-13	-5.66	Vertical
2133.1	-42.28	2.87	27.62	-17.53	-13	-4.53	Horizontal
201.9	-36.29	1.78	15.95	-22.12	-13	-9.12	Vertical
412.6	-35.68	1.34	17.95	-19.07	-13	-6.07	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 18

QPSK EIRP POWER FOR LTE BAND 18a (5MHZ BANDWIDTH)

Test Results for Channel 817.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1635.7	-46.33	2.78	27.5	-21.61	-13	-8.61	Horizontal
1635.7	-48.65	2.78	27.5	-23.93	-13	-10.93	Vertical
2453.1	-48.61	2.9	27.8	-23.71	-13	-10.71	Vertical
2453.1	-59.92	2.9	27.8	-35.02	-13	-22.02	Horizontal
Test Results for Channel 822.5MHz							
1646.0	-47.94	2.8	27.48	-23.26	-13	-10.26	Horizontal
1646.0	-49.62	2.8	27.48	-24.94	-13	-11.94	Vertical
2468.0	-48.89	2.91	27.7	-24.10	-13	-11.10	Vertical
2468.0	-50.16	2.91	27.7	-25.37	-13	-12.37	Horizontal

QPSK EIRP POWER FOR LTE BAND 18b (5MHZ BANDWIDTH)

Test Results for Channel 827.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1645.2	-49.30	2.82	27.43	-24.69	-13	-11.69	Horizontal
1645.2	-51.20	2.82	27.43	-26.59	-13	-13.59	Vertical
2467.8	-52.91	2.91	27.74	-28.08	-13	-15.08	Vertical
2467.8	-50.47	2.91	27.74	-25.64	-13	-12.64	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 19

QPSK EIRP POWER FOR LTE BAND 19 (5MHZ BANDWIDTH)

Test Results for Low Channel 832.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1665.8	-53.02	2.78	27.28	-28.52	-13	-15.52	Horizontal
1665.8	-65.46	2.78	27.28	-40.96	-13	-27.96	Vertical
2474.9	-60.54	2.9	27.59	-35.85	-13	-22.85	Vertical
2474.9	-50.47	2.9	27.59	-25.78	-13	-12.78	Horizontal
Test Results For Mid Channel 837.5MHz							
1675.9	-51.16	2.78	27.3	-26.64	-13	-13.64	Horizontal
1675.9	-60.47	2.78	27.3	-35.95	-13	-22.95	Vertical
2512.6	-59.00	2.91	27.62	-34.29	-13	-21.29	Vertical
2512.6	-56.77	2.91	27.62	-32.06	-13	-19.06	Horizontal
Test Results for High Channel 842.5MHz							
1685.4	-57.94	2.78	27.28	-33.44	-13	-20.44	Horizontal
1685.4	-54.65	2.78	27.28	-30.15	-13	-17.15	Vertical
2573.3	-53.92	2.92	27.6	-29.24	-13	-16.24	Vertical
2573.3	-56.98	2.92	27.6	-32.30	-13	-19.30	Horizontal

QPSK EIRP POWER FOR LTE BAND 19 (15MHZ BANDWIDTH)

Test Results for Mid Channel 837.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1680.3	-54.02	2.78	27.3	-29.50	-13	-16.50	Horizontal
1680.3	-52.02	2.78	27.3	-27.50	-13	-14.50	Vertical
2520.5	-52.80	2.92	27.62	-28.10	-13	-15.10	Vertical
2520.5	-49.78	2.92	27.62	-25.08	-13	-12.08	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 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.7	-51.17	2.61	27.26	-26.52	-13	-13.52	Horizontal
3701.7	-53.18	2.61	27.26	-28.53	-13	-15.53	Vertical
5552.6	-50.14	2.87	27.58	-25.43	-13	-12.43	Vertical
5552.6	-56.30	2.87	27.58	-31.59	-13	-18.59	Horizontal
Test Results for Mid Channel 1882.5MHz							
3765.0	-52.45	2.63	27.28	-27.80	-13	-14.80	Horizontal
3765.0	-51.89	2.63	27.28	-27.24	-13	-14.24	Vertical
5647.5	-52.76	2.88	27.62	-28.02	-13	-15.02	Vertical
5647.5	-49.29	2.88	27.62	-24.55	-13	-11.55	Horizontal
Test Results for High Channel 1914.3MHz							
3829.2	-49.33	2.65	27.28	-24.70	-13	-11.70	Horizontal
3829.2	-51.72	2.65	27.28	-27.09	-13	-14.09	Vertical
5743.3	-50.43	2.88	27.70	-25.61	-13	-12.61	Vertical
5743.3	-49.96	2.88	27.70	-25.14	-13	-12.14	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.8	-50.20	2.62	27.30	-25.52	-13	-12.52	Horizontal
3720.8	-50.72	2.62	27.30	-26.04	-13	-13.04	Vertical
5580.3	-57.28	2.87	27.62	-32.53	-13	-19.53	Vertical
5580.3	-48.62	2.87	27.62	-23.87	-13	-10.87	Horizontal
Test Results for Mid Channel 1882.5MHz							
3765.1	-54.12	2.64	27.33	-29.43	-13	-16.43	Horizontal
3765.1	-54.31	2.64	27.33	-29.62	-13	-16.62	Vertical
5648.4	-55.08	2.88	27.67	-30.29	-13	-17.29	Vertical
5648.4	-55.29	2.88	27.67	-30.50	-13	-17.50	Horizontal
Test Results for High Channel 1905MHz							
3810.7	-49.33	2.64	27.33	-24.64	-13	-11.64	Horizontal
3810.7	-47.95	2.64	27.33	-23.26	-13	-10.26	Vertical
5715.5	-55.04	2.88	27.67	-30.25	-13	-17.25	Vertical
5715.5	-51.37	2.88	27.67	-26.58	-13	-13.58	Horizontal

9.10 LTE BAND 26 A

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
1629.6	-50.02	2.78	27.5	-25.30	-13	-12.30	Horizontal
1629.6	-46.89	2.78	27.5	-22.17	-13	-9.17	Vertical
2444.3	-52.71	2.9	27.8	-27.81	-13	-14.81	Vertical
2444.3	-51.73	2.9	27.8	-26.83	-13	-13.83	Horizontal
Test Results for Mid Channel 819MHz							
1638.6	-49.88	2.8	27.48	-25.20	-13	-12.20	Horizontal
1638.6	-47.15	2.8	27.48	-22.47	-13	-9.47	Vertical
2458.3	-52.76	2.91	27.7	-27.97	-13	-14.97	Vertical
2458.3	-51.26	2.91	27.7	-26.47	-13	-13.47	Horizontal
Test Results for High Channel 823.3MHz							
1647.1	-49.70	2.82	27.43	-25.09	-13	-12.09	Horizontal
1647.1	-51.48	2.82	27.43	-26.87	-13	-13.87	Vertical
2470.8	-52.27	2.92	27.74	-27.45	-13	-14.45	Vertical
2470.8	-48.80	2.92	27.74	-23.98	-13	-10.98	Horizontal

QPSK EIRP POWER FOR LTE BAND 26A(814MHz~824MHz) (10MHZ BANDWIDTH)

Test Results for Mid Channel 819MHz							
1638.1	-51.40	2.82	27.43	-26.79	-13	-13.79	Horizontal
1638.1	-53.14	2.82	27.43	-28.53	-13	-15.53	Vertical
2457.6	-53.73	2.91	27.74	-28.90	-13	-15.90	Vertical
2457.6	-49.57	2.91	27.74	-24.74	-13	-11.74	Horizontal

9.11 LTE BAND 26 B

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
1649.8	-46.94	2.78	27.28	-22.44	-13	-9.44	Horizontal
1649.8	-49.37	2.78	27.28	-24.87	-13	-11.87	Vertical
2475.0	-51.73	2.9	27.59	-27.04	-13	-14.04	Vertical
2475.0	-49.14	2.9	27.59	-24.45	-13	-11.45	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.4	-49.30	2.78	27.3	-24.78	-13	-11.78	Horizontal
1673.4	-51.63	2.78	27.3	-27.11	-13	-14.11	Vertical
2509.9	-50.47	2.91	27.62	-25.76	-13	-12.76	Vertical
2509.9	-54.12	2.91	27.62	-29.41	-13	-16.41	Horizontal
Test Results for High Channel 848.3MHz							
1697.1	-52.83	2.78	27.28	-28.33	-13	-15.33	Horizontal
1697.1	-53.00	2.78	27.28	-28.50	-13	-15.50	Vertical
2545.9	-56.17	2.92	27.6	-31.49	-13	-18.49	Vertical
2545.9	-54.60	2.92	27.6	-29.92	-13	-16.92	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
1663.2	-51.09	2.78	27.3	-26.57	-13	-13.57	Horizontal
1663.2	-46.92	2.78	27.3	-22.40	-13	-9.40	Vertical
2495.1	-51.00	2.9	27.62	-26.28	-13	-13.28	Vertical
2495.1	-52.34	2.9	27.62	-27.62	-13	-14.62	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.2	-52.78	2.78	27.3	-28.26	-13	-15.26	Horizontal
1673.2	-53.89	2.78	27.3	-29.37	-13	-16.37	Vertical
2509.9	-53.65	2.91	27.62	-28.94	-13	-15.94	Vertical
2509.9	-55.55	2.91	27.62	-30.84	-13	-17.84	Horizontal
Test Results for High Channel 841.5MHz							
1683.3	-49.14	2.78	27.3	-24.62	-13	-11.62	Horizontal
1683.3	-51.14	2.78	27.3	-26.62	-13	-13.62	Vertical
2525.3	-56.38	2.92	27.62	-31.68	-13	-18.68	Vertical
2525.3	-50.02	2.92	27.62	-25.32	-13	-12.32	Horizontal

9.12 LTE BAND 41

LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.7	-59.11	5.23	35.81	-28.53	-25	-3.53	Horizontal
5145.7	-60.20	5.23	35.81	-29.62	-25	-4.62	Vertical
7718.4	-58.98	5.67	36.85	-27.80	-25	-2.80	Vertical
7718.4	-61.41	5.67	36.85	-30.23	-25	-5.23	Horizontal
436.1	-42.18	1.38	15.98	-27.58	-25	-2.58	Vertical
466.7	-41.64	1.62	15.66	-27.60	-25	-2.60	Horizontal
Test Results for Mid Channel 2593MHz							
5190.4	-62.72	5.23	35.82	-32.13	-25	-7.13	Horizontal
5190.4	-58.56	5.23	35.82	-27.97	-25	-2.97	Vertical
7785.7	-60.29	5.67	36.85	-29.11	-25	-4.11	Vertical
7785.7	-61.31	5.67	36.85	-30.13	-25	-5.13	Horizontal
511.4	-46.02	1.62	16.17	-31.47	-25	-6.47	Vertical
563.3	-44.13	1.74	17.63	-28.24	-25	-3.24	Horizontal
Test Results for High Channel 2687.5MHz							
5236.0	-58.85	5.24	35.83	-28.26	-25	-3.26	Horizontal
5236.0	-59.66	5.24	35.83	-29.07	-25	-4.07	Vertical
7852.7	-60.84	5.68	36.87	-29.65	-25	-4.65	Vertical
7852.7	-59.16	5.68	36.87	-27.97	-25	-2.97	Horizontal
198.3	-42.75	1.55	15.84	-28.46	-25	-3.46	Vertical
353.3	-45.66	1.51	17.06	-30.11	-25	-5.11	Horizontal

LTE BAND 41 (20MHZ BANDWIDTH)

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160.2	-60.67	5.23	35.82	-30.08	-25	-5.08	Horizontal
5160.2	-58.28	5.23	35.82	-27.69	-25	-2.69	Vertical
7740.3	-61.08	5.67	36.86	-29.89	-25	-4.89	Vertical
7740.3	-60.65	5.67	36.86	-29.46	-25	-4.46	Horizontal
128.9	-42.10	1.43	15.51	-28.02	-25	-3.02	Vertical
345.3	-44.03	1.40	16.97	-28.46	-25	-3.46	Horizontal
Test Results for Mid Channel 2593MHz							
5190.1	-59.86	5.23	35.82	-29.27	-25	-4.27	Horizontal
5190.1	-59.20	5.23	35.82	-28.61	-25	-3.61	Vertical
7785.2	-59.38	5.67	36.85	-28.20	-25	-3.20	Vertical
7785.2	-59.21	5.67	36.85	-28.03	-25	-3.03	Horizontal
101.7	-48.10	1.77	16.72	-33.15	-25	-8.15	Vertical
264.1	-47.10	1.31	16.99	-31.42	-25	-6.42	Horizontal
Test Results for High Channel 2680MHz							
5221.0	-61.70	5.24	35.83	-31.11	-25	-6.11	Horizontal
5221.0	-60.52	5.24	35.83	-29.93	-25	-4.93	Vertical
7830.2	-58.95	5.70	36.88	-27.77	-25	-2.77	Vertical
7830.2	-60.15	5.70	36.88	-28.97	-25	-3.97	Horizontal
350.0	-45.77	1.70	15.73	-31.74	-25	-6.74	Vertical
110.8	-44.19	1.75	17.33	-28.61	-25	-3.61	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.

9.13 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3422.1	-57.24	3.84	35.81	-25.27	-13	-12.27	Horizontal
3422.1	-59.99	3.84	35.81	-28.02	-13	-15.02	Vertical
5132.2	-61.57	5.18	36.85	-29.90	-13	-16.90	Vertical
5132.2	-59.87	5.18	36.85	-28.20	-13	-15.20	Horizontal
204.1	-47.82	1.56	17.97	-31.41	-13	-18.41	Vertical
306.2	-51.56	1.33	15.11	-37.78	-13	-24.78	Horizontal
Test Results for Mid Channel 1745MHz							
3490.4	-60.87	3.85	35.82	-28.90	-13	-15.90	Horizontal
3490.4	-60.09	3.85	35.82	-28.12	-13	-15.12	Vertical
5235.5	-58.99	5.21	36.85	-27.35	-13	-14.35	Vertical
5235.5	-61.14	5.21	36.85	-29.50	-13	-16.50	Horizontal
188.2	-47.21	1.77	16.17	-32.81	-13	-19.81	Vertical
390.5	-47.06	1.63	15.21	-33.48	-13	-20.48	Horizontal
Test Results for High Channel 1779.3MHz							
3559.2	-58.54	3.86	35.83	-26.57	-13	-13.57	Horizontal
3559.2	-57.70	3.86	35.83	-25.73	-13	-12.73	Vertical
5338.0	-57.08	5.24	36.87	-25.45	-13	-12.45	Vertical
5338.0	-59.78	5.24	36.87	-28.15	-13	-15.15	Horizontal
198.5	-45.10	1.58	17.56	-29.11	-13	-16.11	Vertical
269.3	-48.90	1.45	16.58	-33.77	-13	-20.77	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
3441.0	-61.06	3.84	35.82	-29.08	-13	-16.08	Horizontal
3441.0	-62.18	3.84	35.82	-30.20	-13	-17.20	Vertical
5161.0	-59.25	5.18	36.86	-27.57	-13	-14.57	Vertical
5161.0	-62.44	5.18	36.86	-30.76	-13	-17.76	Horizontal
181.1	-50.55	1.56	15.76	-36.35	-13	-23.35	Vertical
324.2	-46.07	1.33	15.44	-31.96	-13	-18.96	Horizontal
Test Results for Mid Channel 1745MHz							
3490.3	-57.78	3.85	35.82	-25.81	-13	-12.81	Horizontal
3490.3	-60.79	3.85	35.82	-28.82	-13	-15.82	Vertical
5235.0	-62.16	5.21	36.85	-30.52	-13	-17.52	Vertical
5235.0	-56.60	5.21	36.85	-24.96	-13	-11.96	Horizontal
183.5	-44.99	1.77	16.84	-29.91	-13	-16.91	Vertical
251.7	-51.48	1.63	17.64	-35.47	-13	-22.47	Horizontal
Test Results for High Channel 1770MHz							
3540.6	-57.40	3.86	35.83	-25.43	-13	-12.43	Horizontal
3540.6	-60.45	3.86	35.83	-28.48	-13	-15.48	Vertical
5310.0	-59.16	5.24	36.88	-27.52	-13	-14.52	Vertical
5310.0	-57.48	5.24	36.88	-25.84	-13	-12.84	Horizontal
182.7	-46.05	1.58	16.84	-30.79	-13	-17.79	Vertical
310.5	-47.89	1.45	17.64	-31.71	-13	-18.71	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 3.31V, Normal, DC 3.89V and High voltage, DC 4.47V.

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 2/4/5/7/12/17/18/19/25/26/41/66

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]
3.31	1880	7.3	0.003873	2.5
3.89	1880	8.0	0.004274	2.5
4.47	1880	3.8	0.002003	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	14.4	0.007662	2.5
Extreme (50C)	1880	4.3	0.002309	2.5
Extreme (40C)	1880	7.6	0.004065	2.5
Extreme (30C)	1880	11.6	0.006196	2.5
Extreme (10C)	1880	15.9	0.008483	2.5
Extreme (0C)	1880	14.4	0.007673	2.5
Extreme (-10C)	1880	7.9	0.004185	2.5
Extreme (-20C)	1880	14.4	0.007679	2.5
Extreme (-30C)	1880	4.4	0.002362	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	3.7	0.001966	2.5
3.87	1880	7.2	0.003838	2.5
4.45	1880	15.1	0.008016	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	11.6	0.006157	2.5
Extreme (50C)	1880	12.7	0.006738	2.5
Extreme (40C)	1880	14.1	0.007501	2.5
Extreme (30C)	1880	5.9	0.003148	2.5
Extreme (10C)	1880	12.5	0.006673	2.5
Extreme (0C)	1880	11.0	0.005829	2.5
Extreme (-10C)	1880	13.8	0.007328	2.5
Extreme (-20C)	1880	9.3	0.004957	2.5
Extreme (-30C)	1880	9.3	0.004966	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]
3.31	1732.5	4.7	0.002694	2.5
3.89	1732.5	10.7	0.006196	2.5
4.47	1732.5	14.3	0.008281	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	15.9	0.009199	2.5
Extreme (50C)	1732.5	14.8	0.008546	2.5
Extreme (40C)	1732.5	11.8	0.006796	2.5
Extreme (30C)	1732.5	11.3	0.006548	2.5
Extreme (10C)	1732.5	11.2	0.006493	2.5
Extreme (0C)	1732.5	9.0	0.005175	2.5
Extreme (-10C)	1732.5	13.5	0.007798	2.5
Extreme (-20C)	1732.5	11.8	0.006801	2.5
Extreme (-30C)	1732.5	5.2	0.002980	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]
3.31	1732.5	8.2	0.004704	2.5
3.89	1732.5	10.4	0.005974	2.5
4.47	1732.5	15.4	0.008909	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	14.0	0.008061	2.5
Extreme (50C)	1732.5	4.3	0.002508	2.5
Extreme (40C)	1732.5	5.1	0.002973	2.5
Extreme (30C)	1732.5	9.3	0.005345	2.5
Extreme (10C)	1732.5	3.2	0.001862	2.5
Extreme (0C)	1732.5	11.9	0.006869	2.5
Extreme (-10C)	1732.5	9.3	0.005382	2.5
Extreme (-20C)	1732.5	13.0	0.007496	2.5
Extreme (-30C)	1732.5	3.9	0.002224	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]
3.31	836.5	14.0	0.016796	2.5
3.89	836.5	13.5	0.016145	2.5
4.47	836.5	4.6	0.005465	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	8.5	0.010113	2.5
Extreme (50C)	836.5	15.0	0.017976	2.5
Extreme (40C)	836.5	14.1	0.016872	2.5
Extreme (30C)	836.5	5.4	0.006400	2.5
Extreme (10C)	836.5	13.9	0.016655	2.5
Extreme (0C)	836.5	3.6	0.004343	2.5
Extreme (-10C)	836.5	12.5	0.014913	2.5
Extreme (-20C)	836.5	13.3	0.015929	2.5
Extreme (-30C)	836.5	5.8	0.006946	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	15.6	0.018626	2.5
3.87	836.5	10.1	0.012035	2.5
4.45	836.5	9.0	0.010785	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	13.3	0.015941	2.5
Extreme (50C)	836.5	10.2	0.012191	2.5
Extreme (40C)	836.5	6.9	0.008193	2.5
Extreme (30C)	836.5	6.6	0.007833	2.5
Extreme (10C)	836.5	12.7	0.015123	2.5
Extreme (0C)	836.5	5.4	0.006463	2.5
Extreme (-10C)	836.5	9.6	0.011486	2.5
Extreme (-20C)	836.5	13.9	0.016640	2.5
Extreme (-30C)	836.5	9.2	0.010947	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]
3.31	2535	4.1	0.001624	2.5
3.89	2535	14.7	0.005807	2.5
4.47	2535	4.1	0.001625	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	10.0	0.003944	2.5
Extreme (50C)	2535	5.7	0.002242	2.5
Extreme (40C)	2535	15.6	0.006167	2.5
Extreme (30C)	2535	8.3	0.003270	2.5
Extreme (10C)	2535	13.9	0.005471	2.5
Extreme (0C)	2535	6.7	0.002653	2.5
Extreme (-10C)	2535	9.2	0.003615	2.5
Extreme (-20C)	2535	3.7	0.001444	2.5
Extreme (-30C)	2535	9.6	0.003782	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]
3.31	2535	7.3	0.002897	2.5
3.89	2535	11.6	0.004592	2.5
4.47	2535	5.2	0.002071	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	12.9	0.005082	2.5
Extreme (50C)	2535	9.2	0.003646	2.5
Extreme (40C)	2535	5.7	0.002241	2.5
Extreme (30C)	2535	12.6	0.004974	2.5
Extreme (10C)	2535	4.1	0.001610	2.5
Extreme (0C)	2535	3.7	0.001461	2.5
Extreme (-10C)	2535	12.9	0.005079	2.5
Extreme (-20C)	2535	4.9	0.001916	2.5
Extreme (-30C)	2535	11.2	0.004413	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]
3.31	707.5	7.3	0.010334	2.5
3.89	707.5	6.3	0.008941	2.5
4.47	707.5	6.2	0.008809	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.6	0.013622	2.5
Extreme (50C)	707.5	8.3	0.011694	2.5
Extreme (40C)	707.5	15.6	0.022061	2.5
Extreme (30C)	707.5	14.7	0.020720	2.5
Extreme (10C)	707.5	14.7	0.020797	2.5
Extreme (0C)	707.5	7.4	0.010452	2.5
Extreme (-10C)	707.5	12.0	0.017015	2.5
Extreme (-20C)	707.5	6.0	0.008434	2.5
Extreme (-30C)	707.5	13.2	0.018658	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]
3.31	707.5	13.8	0.019462	2.5
3.89	707.5	3.1	0.004442	2.5
4.47	707.5	8.7	0.012331	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	6.6	0.009369	2.5
Extreme (50C)	707.5	10.8	0.015275	2.5
Extreme (40C)	707.5	11.9	0.016796	2.5
Extreme (30C)	707.5	6.2	0.008701	2.5
Extreme (10C)	707.5	6.9	0.009776	2.5
Extreme (0C)	707.5	4.9	0.006861	2.5
Extreme (-10C)	707.5	7.7	0.010871	2.5
Extreme (-20C)	707.5	11.6	0.016381	2.5
Extreme (-30C)	707.5	7.7	0.010878	2.5

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

10.6 LTE BAND 17

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]
3.31	710	14.2	0.020055	2.5
3.89	710	7.7	0.010824	2.5
4.47	710	11.4	0.016067	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	10.6	0.014982	2.5
Extreme (50C)	710	13.6	0.019210	2.5
Extreme (40C)	710	14.1	0.019851	2.5
Extreme (30C)	710	10.8	0.015191	2.5
Extreme (10C)	710	15.8	0.022317	2.5
Extreme (0C)	710	10.7	0.015133	2.5
Extreme (-10C)	710	11.7	0.016547	2.5
Extreme (-20C)	710	10.1	0.014216	2.5
Extreme (-30C)	710	3.5	0.004938	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]
3.31	710	3.5	0.004864	2.5
3.89	710	3.9	0.005524	2.5
4.47	710	9.8	0.013758	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	15.1	0.021318	2.5
Extreme (50C)	710	11.9	0.016695	2.5
Extreme (40C)	710	10.2	0.014375	2.5
Extreme (30C)	710	4.1	0.005815	2.5
Extreme (10C)	710	5.2	0.007376	2.5
Extreme (0C)	710	11.5	0.016169	2.5
Extreme (-10C)	710	5.9	0.008250	2.5
Extreme (-20C)	710	6.9	0.009653	2.5
Extreme (-30C)	710	5.1	0.007156	2.5

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

10.7 LTE BAND 18

Band 18A QPSK, (5MHz BANDWIDTH RB size 25 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 18a QPSK, (CH 23875 RB size 25 RB Offset 0 10MHz BANDWIDTH)				
3.31	817.5	7.0	0.008519	2.5
3.89	817.5	9.4	0.011550	2.5
4.47	817.5	14.5	0.017788	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	817.5	14.4	0.017668	2.5
Extreme (50C)	817.5	5.3	0.006426	2.5
Extreme (40C)	817.5	13.6	0.016631	2.5
Extreme (30C)	817.5	7.5	0.009141	2.5
Extreme (10C)	817.5	6.0	0.007288	2.5
Extreme (0C)	817.5	9.2	0.011256	2.5
Extreme (-10C)	817.5	10.4	0.012732	2.5
Extreme (-20C)	817.5	13.1	0.016018	2.5
Extreme (-30C)	817.5	11.0	0.013445	2.5

Band 18A 16QAM, (5MHz BANDWIDTH RB size 25 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 18 16QAM, (CH 23875 RB size 25 RB Offset 0 5MHz BANDWIDTH)				
3.31	817.5	5.2	0.006382	2.5
3.89	817.5	12.8	0.015677	2.5
4.47	817.5	15.5	0.018950	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	817.5	4.1	0.005052	2.5
Extreme (50C)	817.5	14.1	0.017281	2.5
Extreme (40C)	817.5	10.8	0.013173	2.5
Extreme (30C)	817.5	4.8	0.005893	2.5
Extreme (10C)	817.5	3.7	0.004517	2.5
Extreme (0C)	817.5	14.8	0.018108	2.5
Extreme (-10C)	817.5	5.4	0.006657	2.5
Extreme (-20C)	817.5	6.3	0.007693	2.5
Extreme (-30C)	817.5	8.7	0.010623	2.5

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

Band 18B QPSK, (5MHz BANDWIDTH RB size 25 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 18b QPSK, (CH 23875 RB size 25 RB Offset 0 5MHz BANDWIDTH)				
3.31	827.5	7.1	0.008623	2.5
3.89	827.5	7.9	0.009606	2.5
4.47	827.5	8.2	0.009939	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	827.5	14.8	0.017910	2.5
Extreme (50C)	827.5	6.4	0.007734	2.5
Extreme (40C)	827.5	6.9	0.008335	2.5
Extreme (30C)	827.5	9.1	0.011006	2.5
Extreme (10C)	827.5	10.9	0.013163	2.5
Extreme (0C)	827.5	12.1	0.014678	2.5
Extreme (-10C)	827.5	11.6	0.014029	2.5
Extreme (-20C)	827.5	12.0	0.014503	2.5
Extreme (-30C)	827.5	11.3	0.013666	2.5

Band 18B 16QAM, (5MHz BANDWIDTH RB size 25 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 18 16QAM, (CH 23875 RB size 25 RB Offset 0 5MHz BANDWIDTH)				
3.31	827.5	9.1	0.011036	2.5
3.89	827.5	13.5	0.016265	2.5
4.47	827.5	7.1	0.008609	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	827.5	3.0	0.003653	2.5
Extreme (50C)	827.5	5.1	0.006171	2.5
Extreme (40C)	827.5	5.6	0.006787	2.5
Extreme (30C)	827.5	8.4	0.010152	2.5
Extreme (10C)	827.5	9.7	0.011722	2.5
Extreme (0C)	827.5	10.3	0.012446	2.5
Extreme (-10C)	827.5	5.5	0.006606	2.5
Extreme (-20C)	827.5	4.1	0.004955	2.5
Extreme (-30C)	827.5	5.8	0.007001	2.5

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

10.8 LTE BAND 19

Band 19 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]
3.31	837.5	15.1	0.017985	2.5
3.89	837.5	11.2	0.013360	2.5
4.47	837.5	14.9	0.017771	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	837.5	10.1	0.012109	2.5
Extreme (50C)	837.5	8.0	0.009606	2.5
Extreme (40C)	837.5	9.5	0.011398	2.5
Extreme (30C)	837.5	9.9	0.011763	2.5
Extreme (10C)	837.5	4.2	0.005049	2.5
Extreme (0C)	837.5	8.4	0.010044	2.5
Extreme (-10C)	837.5	4.9	0.005878	2.5
Extreme (-20C)	837.5	14.7	0.017542	2.5
Extreme (-30C)	837.5	15.3	0.018280	2.5

Band 19 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]
3.31	837.5	14.8	0.017662	2.5
3.89	837.5	10.2	0.012204	2.5
4.47	837.5	11.7	0.013992	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	837.5	4.4	0.005260	2.5
Extreme (50C)	837.5	3.6	0.004277	2.5
Extreme (40C)	837.5	15.0	0.017862	2.5
Extreme (30C)	837.5	7.4	0.008814	2.5
Extreme (10C)	837.5	7.6	0.009106	2.5
Extreme (0C)	837.5	15.2	0.018208	2.5
Extreme (-10C)	837.5	7.0	0.008411	2.5
Extreme (-20C)	837.5	3.5	0.004204	2.5
Extreme (-30C)	837.5	5.6	0.006725	2.5

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

10.9 LTE BAND 25

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.31	1882.5	4.8	0.002572	2.5
3.89	1882.5	6.0	0.003172	2.5
4.47	1882.5	10.1	0.005354	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	14.4	0.007659	2.5
Extreme (50C)	1882.5	3.8	0.002007	2.5
Extreme (40C)	1882.5	13.2	0.007020	2.5
Extreme (30C)	1882.5	5.6	0.002983	2.5
Extreme (10C)	1882.5	13.0	0.006892	2.5
Extreme (0C)	1882.5	7.1	0.003797	2.5
Extreme (-10C)	1882.5	10.7	0.005665	2.5
Extreme (-20C)	1882.5	15.3	0.008135	2.5
Extreme (-30C)	1882.5	3.8	0.002025	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.31	1882.5	12.7	0.006757	2.5
3.89	1882.5	5.1	0.002735	2.5
4.47	1882.5	11.9	0.006320	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	15.0	0.007975	2.5
Extreme (50C)	1882.5	5.7	0.003052	2.5
Extreme (40C)	1882.5	13.1	0.006982	2.5
Extreme (30C)	1882.5	3.8	0.001996	2.5
Extreme (10C)	1882.5	7.2	0.003836	2.5
Extreme (0C)	1882.5	10.0	0.005294	2.5
Extreme (-10C)	1882.5	5.3	0.002800	2.5
Extreme (-20C)	1882.5	14.3	0.007591	2.5
Extreme (-30C)	1882.5	3.0	0.001598	2.5

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

10.10 LTE BAND 26 A

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]
BAND 26 QPSK, (CH 26915 RB size 75 RB Offset 0 10MHz)				
3.31	819	15.0	0.018309	2.5
3.89	819	15.7	0.019144	2.5
4.47	819	6.7	0.008204	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26 QPSK, (CH 26915 RB size 75 RB Offset 0 10MHz)				
Normal (25C)	819	7.8	0.009526	2.5
Extreme (50C)	819	13.0	0.015891	2.5
Extreme (40C)	819	8.0	0.009718	2.5
Extreme (30C)	819	12.2	0.014925	2.5
Extreme (10C)	819	7.4	0.009075	2.5
Extreme (0C)	819	8.6	0.010446	2.5
Extreme (-10C)	819	10.7	0.013089	2.5
Extreme (-20C)	819	4.4	0.005336	2.5
Extreme (-30C)	819	7.9	0.009643	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]
BAND 26 16QAM, (CH 26915 RB size 75 RB Offset 0 10MHz)				
3.31	819	5.4	0.006577	2.5
3.89	819	4.1	0.004951	2.5
4.47	819	8.0	0.009748	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26 16QAM, (CH 26915 RB size 75 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	819	7.9	0.009678	2.5
Extreme (50C)	819	15.1	0.018414	2.5
Extreme (40C)	819	10.4	0.012650	2.5
Extreme (30C)	819	12.6	0.015390	2.5
Extreme (10C)	819	7.9	0.009588	2.5
Extreme (0C)	819	11.3	0.013836	2.5
Extreme (-10C)	819	4.3	0.005242	2.5
Extreme (-20C)	819	14.9	0.018202	2.5
Extreme (-30C)	819	6.8	0.008348	2.5

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

10.11 LTE BAND 26 B

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]
BAND 26 QPSK, (CH 26740 RB size 75 RB Offset 0 10MHz)				
3.29	836.5	15.9	0.019003	2.5
3.87	836.5	7.6	0.009113	2.5
4.45	836.5	12.9	0.015436	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26 QPSK, (CH 26740 RB size 75 RB Offset 0 10MHz)				
Normal (25C)	836.5	13.3	0.015933	2.5
Extreme (50C)	836.5	13.3	0.015859	2.5
Extreme (40C)	836.5	9.4	0.011210	2.5
Extreme (30C)	836.5	3.3	0.003971	2.5
Extreme (10C)	836.5	12.9	0.015415	2.5
Extreme (0C)	836.5	11.7	0.013981	2.5
Extreme (-10C)	836.5	15.0	0.017947	2.5
Extreme (-20C)	836.5	11.7	0.013965	2.5
Extreme (-30C)	836.5	3.6	0.004276	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]
BAND 26 16QAM, (CH 26740 RB size 75 RB Offset 0 10MHz)				
3.31	836.5	13.2	0.015776	2.5
3.89	836.5	11.9	0.014175	2.5
4.47	836.5	8.2	0.009818	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26 16QAM, (CH 26740 RB size 75 RB Offset 0 10MHz)				
Normal (25C)	836.5	8.8	0.010537	2.5
Extreme (50C)	836.5	6.5	0.007780	2.5
Extreme (40C)	836.5	7.1	0.008491	2.5
Extreme (30C)	836.5	7.8	0.009327	2.5
Extreme (10C)	836.5	10.0	0.011933	2.5
Extreme (0C)	836.5	12.3	0.014673	2.5
Extreme (-10C)	836.5	4.6	0.005552	2.5
Extreme (-20C)	836.5	12.7	0.015224	2.5
Extreme (-30C)	836.5	12.7	0.015239	2.5

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

10.12 LTE BAND 41

Band 41 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]
3.31	2593	10.6	0.004099	2.5
3.89	2593	8.1	0.003132	2.5
4.47	2593	9.2	0.003551	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	4.3	0.001674	2.5
Extreme (50C)	2593	6.1	0.002346	2.5
Extreme (40C)	2593	8.1	0.003126	2.5
Extreme (30C)	2593	8.9	0.003426	2.5
Extreme (10C)	2593	10.8	0.004164	2.5
Extreme (0C)	2593	3.9	0.001498	2.5
Extreme (-10C)	2593	6.9	0.002670	2.5
Extreme (-20C)	2593	12.8	0.004944	2.5
Extreme (-30C)	2593	5.1	0.001985	2.5

Band 41 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]
3.31	2593	6.2	0.002401	2.5
3.89	2593	6.2	0.002388	2.5
4.47	2593	13.2	0.005102	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	6.6	0.002540	2.5
Extreme (50C)	2593	12.1	0.004674	2.5
Extreme (40C)	2593	4.8	0.001850	2.5
Extreme (30C)	2593	8.6	0.003307	2.5
Extreme (10C)	2593	5.4	0.002068	2.5
Extreme (0C)	2593	13.9	0.005363	2.5
Extreme (-10C)	2593	6.8	0.002612	2.5
Extreme (-20C)	2593	15.6	0.005999	2.5
Extreme (-30C)	2593	13.2	0.005073	2.5

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

10.13 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.31	1745	12.6	0.007221	2.5
3.89	1745	9.0	0.005172	2.5
4.47	1745	4.8	0.002750	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	13.5	0.007753	2.5
Extreme (50C)	1745	3.9	0.002228	2.5
Extreme (40C)	1745	8.8	0.005054	2.5
Extreme (30C)	1745	9.8	0.005624	2.5
Extreme (10C)	1745	11.9	0.006830	2.5
Extreme (0C)	1745	14.4	0.008245	2.5
Extreme (-10C)	1745	12.0	0.006904	2.5
Extreme (-20C)	1745	14.2	0.008148	2.5
Extreme (-30C)	1745	6.3	0.003628	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.31	1745	14.2	0.008126	2.5
3.89	1745	13.4	0.007701	2.5
4.47	1745	6.6	0.003759	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	3.5	0.002011	2.5
Extreme (50C)	1745	6.8	0.003875	2.5
Extreme (40C)	1745	12.4	0.007111	2.5
Extreme (30C)	1745	9.3	0.005356	2.5
Extreme (10C)	1745	6.2	0.003577	2.5
Extreme (0C)	1745	10.7	0.006159	2.5
Extreme (-10C)	1745	8.6	0.004949	2.5
Extreme (-20C)	1745	5.0	0.002858	2.5
Extreme (-30C)	1745	6.9	0.003954	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.

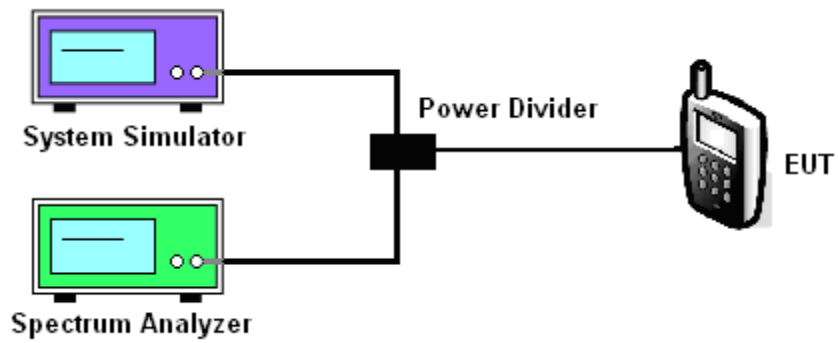
11.2 Measuring Instruments

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 2/4/5/7/12/17/18/19/25/26/41/66

Test data reference attachment.

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