

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

Product: Panel

Trade Mark: **ROOTPILOT**

Model No.: RP-eFlat-10.1-SGAZ

Family Model: N/A

Report No.: S25042802208006

Issue Date: Jul. 07, 2025

Prepared for

IROOTECH TECHNOLOGY CO.,LTD

Shugen building, Sanyi South China, Pazhou Street, Haizhu District, Guangzhou
City, Guangdong Province, China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

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

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

TEST RESULT CERTIFICATION

Applicant's name : IROOTECH TECHNOLOGY CO.,LTD

Address..... : Shugen building, Sanyi South China, Pazhou Street, Haizhu District, Guangzhou City, Guangdong Province, China

Manufacturer's Name..... : Shanghai Smart Control Co., Ltd.

Address..... : Tower A, No.470, Jiujing Rd. Shanghai, China

Product name..... : Panel

Model and/or type reference .. : RP-eFlat-10.1-SGAZ

Trade Mark..... : **ROOTPILOT**

Family Model..... : N/A

Test Sample Number..... : S250428022009

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..... Apr. 28, 2025 ~ Jul. 07, 2025

Date of Issue Jul. 07, 2025

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

Prepared : 
By : _____
Allen Liu
(Project Engineer)

Reviewed : 
By : _____
Aaron Cheng
(Supervisor)

Approved : 
By : _____
Alex Li
(Manager)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Panel
Trade Mark	ROOTPILOT
Model Name	RP-eFlat-10.1-SGAZ
Family Model	N/A
Model Difference	N/A
FCC ID:	2BQKJROOTPILOTPANEL
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 13, 25, 26
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 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;
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:	FPC Antenna
Antenna gain:	Band 2: 1.77dBi, Band 4: 2.23 dBi, Band 5:3.04 dBi, Band 7: 2.45 dBi, Band 12: -0.98 dBi, Band 13: 0.36 dBi, Band25:1.77 dBi, Band 26:3.04 dBi,
Adapter	N/A
Battery	N/A
Power supply	DC 24V
Extreme Vol. Limits:	DC 21.6V to DC 26.4V (Nominal DC 24V) (Note 1)

HW Version	N/A
FW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 26.4V and Low Voltage 21.6V 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: 2BQKJROOTPILOTPANEL** 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% ($U = 2U_c(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

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

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	Panel	RP-eFlat-10.1-SGA Z	FCC ID: 2BQKJROOTPILOTPANEL	EUT

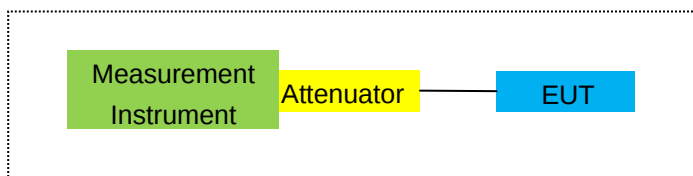
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

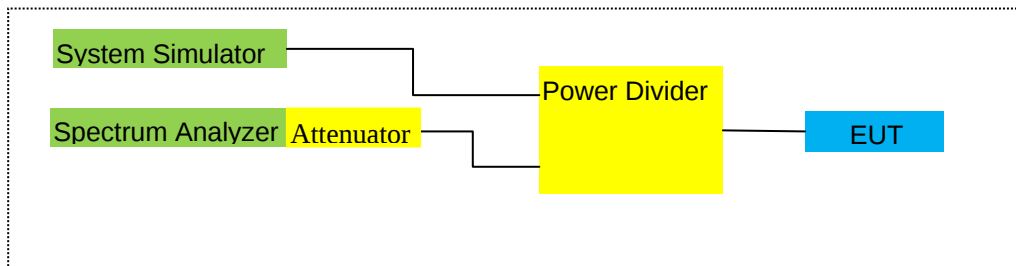
For Radiated Test Cases



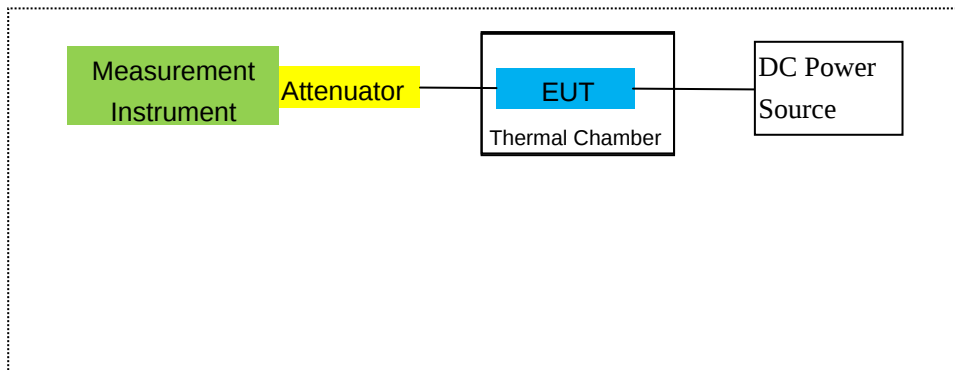
For Conducted Output Power



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	2025.04.17	2026.04.16	1 year
2	Test Receiver	R&S	ESPI	101318	2025.04.17	2026.04.16	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2025.04.17	2026.04.16	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024.5.18	2027.5.17	3 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2024.5.18	2027.5.17	3 year
7	Amplifier	EM	EM-30180	060538	2025.04.17	2026.04.16	1 year
8	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 year
9	Power Meter	R&S	NRVS	100696	2025.04.17	2026.04.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2025.04.17	2026.04.16	1 year
11	Test Cable	N/A	R-01	N/A	2023.06.17	2026.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2023.06.17	2026.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2023.06.17	2026.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
15	LISN	R&S	ENV216	101313	2025.04.17	2026.04.16	1 year
16	LISN	EMCO	3816/2	00042990	2025.04.17	2026.04.16	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
18	Field strength probe	narda	EP601	711WX81278	2025.04.17	2026.04.16	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	2025.04.17	2026.04.16	1 year
23	EMI Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
24	Universal Radio Communication Tester	R&S	CMU200	105747	2025.04.17	2026.04.16	1 year

25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpac	58226119460030	2024.05.30	2027.05.29	3 year
26	DC Power Source	N/A	PS-6005D	20170402923	2024.04.25	2027.04.24	3 year
27	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2025.04.17	2026.04.16	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2025.04.17	2026.04.16	1 year
29	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2025.04.17	2026.04.16	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 2/4/5/7/12/13/25/26

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

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

☐

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

MODES TESTED

- ☐ Band 2/4/5/7/12/13/25/26

☐

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.

24.232 (c) Mobile and portable stations are limited to 2 watts EIRP.

27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.

27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

KDB 971168 D01 Power Meas License Digital Systems v02r01, "Measurement Guidance for Certification of Licensed Digital Transmitters"

MODES TESTED

☐ Band 2/4/5/7/12/13/25/26

RESULTS

Pass

8.2 LTE BAND 2

		Radiated Power (EIRP) for Band 2								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
1.4MHz Band QPSK	1/#Mid	1850.7	-5.42	3.76	28.24	19.06	80.538	Horizontal	2	Pass
		1880	-5.23	3.91	28.22	19.08	80.910	Horizontal	2	Pass
		1909.3	-5.14	3.93	28.20	19.13	81.846	Horizontal	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.48	3.77	28.23	18.98	79.068	Horizontal	2	Pass
		1880	-5.33	3.91	28.24	19.00	79.433	Horizontal	2	Pass
		1908.5	-5.20	3.94	28.25	19.11	81.470	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.37	3.77	28.31	19.17	82.604	Horizontal	2	Pass
		1880	-4.99	3.91	28.22	19.32	85.507	Horizontal	2	Pass
		1907.5	-4.92	3.94	28.20	19.34	85.901	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	1855	-5.23	3.79	28.33	19.31	85.310	Horizontal	2	Pass
		1880	-4.93	3.95	28.22	19.34	85.901	Horizontal	2	Pass
		1905	-4.82	3.97	28.19	19.40	87.096	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-5.19	3.79	28.34	19.36	86.298	Horizontal	2	Pass
		1880	-4.98	3.95	28.22	19.29	84.918	Horizontal	2	Pass
		1902.5	-4.84	3.97	28.18	19.37	86.497	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	1860	-5.18	3.81	28.35	19.36	86.298	Horizontal	2	Pass
		1880	-4.85	3.96	28.22	19.41	87.297	Horizontal	2	Pass
		1900	-4.79	4.00	28.16	19.37	86.497	Horizontal	2	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-6.59	3.76	28.24	17.89	61.518	Vertical	2	Pass
		1880	-6.05	3.91	28.22	18.26	66.988	Vertical	2	Pass
		1909.3	-6.25	3.93	28.20	18.02	63.387	Vertical	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.77	3.77	28.23	18.69	73.961	Vertical	2	Pass
		1880	-5.83	3.91	28.24	18.50	70.795	Vertical	2	Pass
		1908.5	-6.31	3.94	28.25	18.00	63.096	Vertical	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-6.55	3.77	28.31	17.99	62.951	Vertical	2	Pass
		1880	-6.01	3.91	28.22	18.30	67.608	Vertical	2	Pass
		1907.5	-5.96	3.94	28.20	18.30	67.608	Vertical	2	Pass
10.0MHz Band QPSK	1/#Mid	1855	-6.71	3.79	28.33	17.83	60.674	Vertical	2	Pass
		1880	-5.75	3.95	28.22	18.52	71.121	Vertical	2	Pass
		1905	-5.59	3.97	28.19	18.63	72.946	Vertical	2	Pass
15.0MHz	1/#Mid	1857.5	-6.45	3.79	28.34	18.10	64.565	Vertical	2	Pass

Band		1880	-6.39	3.95	28.22	17.88	61.376	Vertical	2	Pass
QPSK		1902.5	-6.35	3.97	28.18	17.86	61.094	Vertical	2	Pass
20.0MHz	1/#Mid	1860	-5.79	3.81	28.35	18.75	74.989	Vertical	2	Pass
Band		1880	-6.31	3.96	28.22	17.95	62.373	Vertical	2	Pass
QPSK		1900	-6.20	4.00	28.16	17.96	62.517	Vertical	2	Pass

	Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.54	3.76	28.24	17.94	62.230	Horizontal	2	Pass
		1880	-6.01	3.91	28.22	18.30	67.608	Horizontal	2	Pass
		1909.3	-5.94	3.93	28.20	18.33	68.077	Horizontal	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-6.04	3.77	28.23	18.42	69.502	Horizontal	2	Pass
		1880	-6.12	3.91	28.24	18.21	66.222	Horizontal	2	Pass
		1908.5	-6.33	3.94	28.25	17.98	62.806	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.98	3.77	28.31	18.56	71.779	Horizontal	2	Pass
		1880	-5.89	3.91	28.22	18.42	69.502	Horizontal	2	Pass
		1907.5	-5.57	3.94	28.20	18.69	73.961	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-6.03	3.79	28.33	18.51	70.958	Horizontal	2	Pass
		1880	-6.02	3.95	28.22	18.25	66.834	Horizontal	2	Pass
		1905	-5.49	3.97	28.19	18.73	74.645	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-6.01	3.79	28.34	18.54	71.450	Horizontal	2	Pass
		1880	-5.80	3.95	28.22	18.47	70.307	Horizontal	2	Pass
		1902.5	-5.76	3.97	28.18	18.45	69.984	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-5.90	3.81	28.35	18.64	73.114	Horizontal	2	Pass
		1880	-5.60	3.96	28.22	18.66	73.451	Horizontal	2	Pass
		1900	-5.42	4.00	28.16	18.74	74.817	Horizontal	2	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-7.11	3.76	28.24	17.37	54.576	Vertical	2	Pass
		1880	-7.03	3.91	28.22	17.28	53.456	Vertical	2	Pass
		1909.3	-6.82	3.93	28.20	17.45	55.590	Vertical	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-6.95	3.77	28.23	17.51	56.364	Vertical	2	Pass
		1880	-6.66	3.91	28.24	17.67	58.479	Vertical	2	Pass
		1908.5	-7.28	3.94	28.25	17.03	50.466	Vertical	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-6.89	3.77	28.31	17.65	58.210	Vertical	2	Pass
		1880	-6.71	3.91	28.22	17.60	57.544	Vertical	2	Pass
		1907.5	-7.26	3.94	28.20	17.00	50.119	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-7.29	3.79	28.33	17.25	53.088	Vertical	2	Pass
		1880	-7.16	3.95	28.22	17.11	51.404	Vertical	2	Pass
		1905	-7.16	3.97	28.19	17.06	50.816	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-7.65	3.79	28.34	16.90	48.978	Vertical	2	Pass
		1880	-7.28	3.95	28.22	16.99	50.003	Vertical	2	Pass
		1902.5	-7.23	3.97	28.18	16.98	49.888	Vertical	2	Pass

20.0MHz		1860	-7.20	3.81	28.35	17.34	54.200	Vertical	2	Pass
Band 16	1/#Mid	1880	-7.15	3.96	28.22	17.11	51.404	Vertical	2	Pass
QAM		1900	-6.83	4.00	28.16	17.33	54.075	Vertical	2	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 Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP			
									Limit		
										(W)	
1.4MHz	1/#Mid	1710.7	-5.33	3.12	27.58	19.13	81.846	Horizontal	1	Pass	
Band		1732.5	-5.32	3.27	27.61	19.02	79.799	Horizontal	1	Pass	
QPSK		1754.3	-5.30	3.29	27.63	19.04	80.168	Horizontal	1	Pass	
3.0MHz	1/#Mid	1711.5	-5.50	3.13	27.61	18.98	79.068	Horizontal	1	Pass	
Band		1732.5	-5.42	3.27	27.61	18.92	77.983	Horizontal	1	Pass	
QPSK		1753.5	-5.34	3.30	27.62	18.98	79.068	Horizontal	1	Pass	
5.0MHz	1/#Mid	1712.5	-5.27	3.13	27.63	19.23	83.753	Horizontal	1	Pass	
Band		1732.5	-5.17	3.27	27.61	19.17	82.604	Horizontal	1	Pass	
QPSK		1752.5	-5.05	3.30	27.60	19.25	84.140	Horizontal	1	Pass	
10.0MHz	1/#Mid	1715	-5.21	3.15	27.64	19.28	84.723	Horizontal	1	Pass	
Band		1732.5	-4.98	3.31	27.61	19.32	85.507	Horizontal	1	Pass	
QPSK		1750	-5.00	3.33	27.59	19.26	84.333	Horizontal	1	Pass	
15.0MHz	1/#Mid	1717.5	-5.22	3.15	27.65	19.28	84.723	Horizontal	1	Pass	
Band		1732.5	-5.06	3.31	27.61	19.24	83.946	Horizontal	1	Pass	
QPSK		1747.5	-5.00	3.33	27.57	19.24	83.946	Horizontal	1	Pass	
20.0MHz	1/#Mid	1720	-5.16	3.17	27.66	19.33	85.704	Horizontal	1	Pass	
Band		1732.5	-4.99	3.32	27.61	19.30	85.114	Horizontal	1	Pass	
QPSK		1745	-4.93	3.36	27.56	19.27	84.528	Horizontal	1	Pass	
1.4MHz	1/#Mid	1710.7	-6.13	3.12	27.58	18.33	68.077	Vertical	1	Pass	
Band		1732.5	-6.51	3.27	27.61	17.83	60.674	Vertical	1	Pass	
QPSK		1754.3	-6.11	3.29	27.63	18.23	66.527	Vertical	1	Pass	
3.0MHz	1/#Mid	1711.5	-6.03	3.13	27.61	18.45	69.984	Vertical	1	Pass	
Band		1732.5	-5.56	3.27	27.61	18.78	75.509	Vertical	1	Pass	
QPSK		1753.5	-6.40	3.30	27.62	17.92	61.944	Vertical	1	Pass	
5.0MHz	1/#Mid	1712.5	-5.89	3.13	27.63	18.61	72.611	Vertical	1	Pass	
Band		1732.5	-5.73	3.27	27.61	18.61	72.611	Vertical	1	Pass	
QPSK		1752.5	-5.96	3.30	27.60	18.34	68.234	Vertical	1	Pass	
10.0MHz	1/#Mid	1715	-6.46	3.15	27.64	18.03	63.533	Vertical	1	Pass	
Band		1732.5	-5.95	3.31	27.61	18.35	68.391	Vertical	1	Pass	
QPSK		1750	-6.13	3.33	27.59	18.13	65.013	Vertical	1	Pass	

15.0MHz	1/#Mid	1717.5	-6.66	3.15	27.65	17.84	60.814	Vertical	1	Pass
Band		1732.5	-6.23	3.31	27.61	18.07	64.121	Vertical	1	Pass
QPSK		1747.5	-6.39	3.33	27.57	17.85	60.954	Vertical	1	Pass
20.0MHz	1/#Mid	1720	-6.62	3.17	27.66	17.87	61.235	Vertical	1	Pass
Band		1732.5	-5.57	3.32	27.61	18.72	74.473	Vertical	1	Pass
QPSK		1745	-6.18	3.36	27.56	18.02	63.387	Vertical	1	Pass

		Radiated Power (EIRP) for Band 4								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-6.14	3.12	27.58	18.32	67.920	Horizontal	1	Pass
		1732.5	-5.99	3.27	27.61	18.35	68.391	Horizontal	1	Pass
		1754.3	-5.99	3.29	27.63	18.35	68.391	Horizontal	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.08	3.13	27.61	18.40	69.183	Horizontal	1	Pass
		1732.5	-6.21	3.27	27.61	18.13	65.013	Horizontal	1	Pass
		1753.5	-6.43	3.30	27.62	17.89	61.518	Horizontal	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.91	3.13	27.63	18.59	72.277	Horizontal	1	Pass
		1732.5	-5.87	3.27	27.61	18.47	70.307	Horizontal	1	Pass
		1752.5	-5.56	3.30	27.60	18.74	74.817	Horizontal	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.98	3.15	27.64	18.51	70.958	Horizontal	1	Pass
		1732.5	-6.17	3.31	27.61	18.13	65.013	Horizontal	1	Pass
		1750	-5.55	3.33	27.59	18.71	74.302	Horizontal	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-5.78	3.15	27.65	18.72	74.473	Horizontal	1	Pass
		1732.5	-5.84	3.31	27.61	18.46	70.146	Horizontal	1	Pass
		1747.5	-5.86	3.33	27.57	18.38	68.865	Horizontal	1	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-5.73	3.17	27.66	18.76	75.162	Horizontal	1	Pass
		1732.5	-5.74	3.32	27.61	18.55	71.614	Horizontal	1	Pass
		1745	-5.55	3.36	27.56	18.65	73.282	Horizontal	1	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-6.78	3.12	27.58	17.68	58.614	Vertical	1	Pass
		1732.5	-7.04	3.27	27.61	17.30	53.703	Vertical	1	Pass
		1754.3	-7.28	3.29	27.63	17.06	50.816	Vertical	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.97	3.13	27.61	17.51	56.364	Vertical	1	Pass
		1732.5	-6.87	3.27	27.61	17.47	55.847	Vertical	1	Pass
		1753.5	-6.91	3.30	27.62	17.41	55.081	Vertical	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-7.53	3.13	27.63	16.97	49.774	Vertical	1	Pass
		1732.5	-7.24	3.27	27.61	17.10	51.286	Vertical	1	Pass
		1752.5	-6.85	3.30	27.60	17.45	55.590	Vertical	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-7.66	3.15	27.64	16.83	48.195	Vertical	1	Pass
		1732.5	-7.00	3.31	27.61	17.30	53.703	Vertical	1	Pass
		1750	-7.13	3.33	27.59	17.13	51.642	Vertical	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-7.56	3.15	27.65	16.94	49.431	Vertical	1	Pass
		1732.5	-7.48	3.31	27.61	16.82	48.084	Vertical	1	Pass
		1747.5	-7.45	3.33	27.57	16.79	47.753	Vertical	1	Pass

20.0MHz		1720	-7.02	3.17	27.66	17.47	55.847	Vertical	1	Pass
Band 16	1/#Mid	1732.5	-7.20	3.32	27.61	17.09	51.168	Vertical	1	Pass
QAM		1745	-6.86	3.36	27.56	17.34	54.200	Vertical	1	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 Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band QPSK	3/#Mid	824.7	3.97	2.01	19.68	2.15	19.49	88.920	Horizontal	7	Pass
		836.5	3.85	2.01	19.77	2.15	19.46	88.308	Horizontal	7	Pass
		848.3	3.65	2.02	19.82	2.15	19.30	85.114	Horizontal	7	Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.74	2.01	19.70	2.15	19.28	84.723	Horizontal	7	Pass
		836.5	3.64	2.01	19.77	2.15	19.25	84.140	Horizontal	7	Pass
		847.5	3.51	2.02	19.81	2.15	19.15	82.224	Horizontal	7	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.02	2.01	19.71	2.15	19.57	90.573	Horizontal	7	Pass
		836.5	3.90	2.01	19.77	2.15	19.51	89.331	Horizontal	7	Pass
		846.5	3.74	2.02	19.79	2.15	19.36	86.298	Horizontal	7	Pass
10.0MHz Band QPSK	1/#Mid	829	4.04	2.01	19.73	2.15	19.61	91.411	Horizontal	7	Pass
		836.5	3.99	2.01	19.77	2.15	19.60	91.201	Horizontal	7	Pass
		844	3.89	2.02	19.78	2.15	19.50	89.125	Horizontal	7	Pass
1.4MHz Band QPSK	1/#Mid	824.7	2.56	2.01	19.68	2.15	18.08	64.269	Vertical	7	Pass
		836.5	2.60	2.01	19.77	2.15	18.21	66.222	Vertical	7	Pass
		848.3	2.93	2.02	19.82	2.15	18.58	72.111	Vertical	7	Pass
3.0MHz Band QPSK	1/#Mid	825.5	3.24	2.01	19.70	2.15	18.78	75.509	Vertical	7	Pass
		836.5	2.73	2.01	19.77	2.15	18.34	68.234	Vertical	7	Pass
		847.5	2.75	2.02	19.81	2.15	18.39	69.024	Vertical	7	Pass
5.0MHz Band QPSK	1/#Mid	826.5	2.48	2.01	19.71	2.15	18.03	63.533	Vertical	7	Pass
		836.5	2.68	2.01	19.77	2.15	18.29	67.453	Vertical	7	Pass
		846.5	2.75	2.02	19.79	2.15	18.37	68.707	Vertical	7	Pass
10.0MHz Band QPSK	1/#Mid	829	2.34	2.01	19.73	2.15	17.91	61.802	Vertical	7	Pass
		836.5	2.92	2.01	19.77	2.15	18.53	71.285	Vertical	7	Pass
		844	3.15	2.02	19.78	2.15	18.76	75.162	Vertical	7	Pass

		Radiated Power (ERP) for Band 5									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band 16 QAM	3/#Mid	824.7	3.12	2.01	19.68	2.15	18.64	73.114	Horizontal	7	Pass
		836.5	3.05	2.01	19.77	2.15	18.66	73.451	Horizontal	7	Pass
		848.3	2.89	2.02	19.82	2.15	18.54	71.450	Horizontal	7	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.20	2.01	19.70	2.15	18.74	74.817	Horizontal	7	Pass
		836.5	2.91	2.01	19.77	2.15	18.52	71.121	Horizontal	7	Pass
		847.5	2.39	2.02	19.81	2.15	18.03	63.533	Horizontal	7	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.52	2.01	19.71	2.15	19.07	80.724	Horizontal	7	Pass
		836.5	3.29	2.01	19.77	2.15	18.90	77.625	Horizontal	7	Pass
		846.5	3.04	2.02	19.79	2.15	18.66	73.451	Horizontal	7	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.52	2.01	19.73	2.15	19.09	81.096	Horizontal	7	Pass
		836.5	3.24	2.01	19.77	2.15	18.85	76.736	Horizontal	7	Pass
		844	2.78	2.02	19.78	2.15	18.39	69.024	Horizontal	7	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	2.26	2.01	19.68	2.15	17.78	59.979	Vertical	7	Pass
		836.5	3.17	2.01	19.77	2.15	18.78	75.509	Vertical	7	Pass
		848.3	2.69	2.02	19.82	2.15	18.34	68.234	Vertical	7	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	2.57	2.01	19.70	2.15	18.11	64.714	Vertical	7	Pass
		836.5	1.51	2.01	19.77	2.15	17.12	51.523	Vertical	7	Pass
		847.5	2.18	2.02	19.81	2.15	17.82	60.534	Vertical	7	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	2.22	2.01	19.71	2.15	17.77	59.841	Vertical	7	Pass
		836.5	1.76	2.01	19.77	2.15	17.37	54.576	Vertical	7	Pass
		846.5	1.18	2.02	19.79	2.15	16.80	47.863	Vertical	7	Pass
10.0MHz Band 16 QAM	1/#Mid	829	1.73	2.01	19.73	2.15	17.30	53.703	Vertical	7	Pass
		836.5	1.60	2.01	19.77	2.15	17.21	52.602	Vertical	7	Pass
		844	2.00	2.02	19.78	2.15	17.61	57.677	Vertical	7	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 Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
5.0MHz Band QPSK	1/#Mid	2502.5	-3.61	4.54	27.75	19.60	91.201	Horizontal	2	Pass
		2535	-3.44	4.69	27.72	19.59	90.991	Horizontal	2	Pass
		2567.5	-3.37	4.71	27.71	19.63	91.833	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.54	4.55	27.76	19.67	92.683	Horizontal	2	Pass
		2535	-3.35	4.69	27.72	19.68	92.897	Horizontal	2	Pass
		2565	-3.27	4.72	27.70	19.71	93.541	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.55	4.55	27.77	19.67	92.683	Horizontal	2	Pass
		2535	-3.41	4.69	27.72	19.62	91.622	Horizontal	2	Pass
		2562.5	-3.31	4.72	27.69	19.66	92.470	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.49	4.57	27.78	19.72	93.756	Horizontal	2	Pass
		2535	-3.31	4.73	27.72	19.68	92.897	Horizontal	2	Pass
		2560	-3.27	4.75	27.68	19.66	92.470	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-5.41	4.54	27.75	17.80	60.256	Vertical	2	Pass
		2535	-5.18	4.69	27.72	17.85	60.954	Vertical	2	Pass
		2567.5	-4.53	4.71	27.71	18.47	70.307	Vertical	2	Pass
10.0MHz Band QPSK	1/#Mid	2505	-4.81	4.55	27.76	18.40	69.183	Vertical	2	Pass
		2535	-4.47	4.69	27.72	18.56	71.779	Vertical	2	Pass
		2565	-5.08	4.72	27.70	17.90	61.660	Vertical	2	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-4.71	4.55	27.77	18.51	70.958	Vertical	2	Pass
		2535	-4.41	4.69	27.72	18.62	72.778	Vertical	2	Pass
		2562.5	-5.19	4.72	27.69	17.78	59.979	Vertical	2	Pass
20.0MHz Band QPSK	1/#Mid	2510	-4.50	4.57	27.78	18.71	74.302	Vertical	2	Pass
		2535	-4.96	4.73	27.72	18.03	63.533	Vertical	2	Pass
		2560	-5.14	4.75	27.68	17.79	60.117	Vertical	2	Pass

		Radiated Power (EIRP) for Band 7								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.30	4.54	27.75	18.91	77.804	Horizontal	2	Pass
		2535	-3.99	4.69	27.72	19.04	80.168	Horizontal	2	Pass
		2567.5	-4.07	4.71	27.71	18.93	78.163	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-4.19	4.55	27.76	19.02	79.799	Horizontal	2	Pass
		2535	-4.20	4.69	27.72	18.83	76.384	Horizontal	2	Pass
		2565	-4.47	4.72	27.70	18.51	70.958	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.37	4.55	27.77	18.85	76.736	Horizontal	2	Pass
		2535	-4.34	4.69	27.72	18.69	73.961	Horizontal	2	Pass
		2562.5	-3.95	4.72	27.69	19.02	79.799	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.25	4.57	27.78	18.96	78.705	Horizontal	2	Pass
		2535	-3.92	4.73	27.72	19.07	80.724	Horizontal	2	Pass
		2560	-4.02	4.75	27.68	18.91	77.804	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-5.67	4.54	27.75	17.54	56.754	Vertical	2	Pass
		2535	-5.75	4.69	27.72	17.28	53.456	Vertical	2	Pass
		2567.5	-4.45	4.71	27.71	18.55	71.614	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-4.56	4.55	27.76	18.65	73.282	Vertical	2	Pass
		2535	-5.00	4.69	27.72	18.03	63.533	Vertical	2	Pass
		2565	-5.04	4.72	27.70	17.94	62.230	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.94	4.55	27.77	18.28	67.298	Vertical	2	Pass
		2535	-5.20	4.69	27.72	17.83	60.674	Vertical	2	Pass
		2562.5	-5.38	4.72	27.69	17.59	57.412	Vertical	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-5.93	4.57	27.78	17.28	53.456	Vertical	2	Pass
		2535	-5.68	4.73	27.72	17.31	53.827	Vertical	2	Pass
		2560	-4.79	4.75	27.68	18.14	65.163	Vertical	2	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								Conclusio n
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz	1/#Mid	699.7	4.34	1.91	19.21	2.15	19.49	88.920	Vertical	3	Pass
Band		707.5	4.26	1.91	19.26	2.15	19.46	88.308	Vertical	3	Pass
QPSK		715.3	4.04	1.93	19.34	2.15	19.30	85.114	Vertical	3	Pass
3.0MHz	1/#Mid	700.5	4.13	1.91	19.21	2.15	19.28	84.723	Vertical	3	Pass
Band		707.5	4.05	1.91	19.26	2.15	19.25	84.140	Vertical	3	Pass
QPSK		714.5	3.89	1.93	19.34	2.15	19.15	82.224	Vertical	3	Pass
5.0MHz	1/#Mid	701.5	4.40	1.91	19.23	2.15	19.57	90.573	Vertical	3	Pass
Band		707.5	4.31	1.91	19.26	2.15	19.51	89.331	Vertical	3	Pass
QPSK		713.5	4.10	1.92	19.33	2.15	19.36	86.298	Vertical	3	Pass
10.0MHz	1/#Mid	704	4.42	1.91	19.25	2.15	19.61	91.411	Vertical	3	Pass
Band		707.5	4.40	1.91	19.26	2.15	19.60	91.201	Vertical	3	Pass
QPSK		711	4.25	1.92	19.32	2.15	19.50	89.125	Vertical	3	Pass
1.4MHz	1/#Mid	699.7	3.26	1.91	19.21	2.15	18.41	69.343	Horizontal	3	Pass
Band		707.5	3.57	1.91	19.26	2.15	18.77	75.336	Horizontal	3	Pass
QPSK		715.3	3.41	1.93	19.34	2.15	18.67	73.621	Horizontal	3	Pass
3.0MHz	1/#Mid	700.5	2.64	1.91	19.21	2.15	17.79	60.117	Horizontal	3	Pass
Band		707.5	2.68	1.91	19.26	2.15	17.88	61.376	Horizontal	3	Pass
QPSK		714.5	2.82	1.93	19.34	2.15	18.08	64.269	Horizontal	3	Pass
5.0MHz	1/#Mid	701.5	3.19	1.91	19.23	2.15	18.36	68.549	Horizontal	3	Pass
Band		707.5	2.87	1.91	19.26	2.15	18.07	64.121	Horizontal	3	Pass
QPSK		713.5	3.20	1.92	19.33	2.15	18.46	70.146	Horizontal	3	Pass
10.0MHz	1/#Mid	704	3.42	1.91	19.25	2.15	18.61	72.611	Horizontal	3	Pass
Band		707.5	3.09	1.91	19.26	2.15	18.29	67.453	Horizontal	3	Pass
QPSK		711	3.28	1.92	19.32	2.15	18.53	71.285	Horizontal	3	Pass

		Radiated Power (ERP) for Band 12									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP		
						(dB)	Average	Average		Limit	
							(dBm)	(mW)		(W)	
1.4MHz Band 16 QAM	1/#Mid	699.7	4.48	1.91	19.21	2.15	19.63	91.833	Vertical	3	Pass
		707.5	4.40	1.91	19.26	2.15	19.60	91.201	Vertical	3	Pass
		715.3	4.18	1.93	19.34	2.15	19.44	87.902	Vertical	3	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.27	1.91	19.21	2.15	19.42	87.498	Vertical	3	Pass
		707.5	4.19	1.91	19.26	2.15	19.39	86.896	Vertical	3	Pass
		714.5	4.03	1.93	19.34	2.15	19.29	84.918	Vertical	3	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	4.54	1.91	19.23	2.15	19.71	93.541	Vertical	3	Pass
		707.5	4.45	1.91	19.26	2.15	19.65	92.257	Vertical	3	Pass
		713.5	4.24	1.92	19.33	2.15	19.50	89.125	Vertical	3	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.56	1.91	19.25	2.15	19.75	94.406	Vertical	3	Pass
		707.5	4.54	1.91	19.26	2.15	19.74	94.189	Vertical	3	Pass
		711	4.39	1.92	19.32	2.15	19.64	92.045	Vertical	3	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	3.12	1.91	19.21	2.15	18.27	67.143	Horizontal	3	Pass
		707.5	3.14	1.91	19.26	2.15	18.34	68.234	Horizontal	3	Pass
		715.3	3.19	1.93	19.34	2.15	18.45	69.984	Horizontal	3	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	3.18	1.91	19.21	2.15	18.33	68.077	Horizontal	3	Pass
		707.5	3.29	1.91	19.26	2.15	18.49	70.632	Horizontal	3	Pass
		714.5	3.02	1.93	19.34	2.15	18.28	67.298	Horizontal	3	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	3.52	1.91	19.23	2.15	18.69	73.961	Horizontal	3	Pass
		707.5	3.36	1.91	19.26	2.15	18.56	71.779	Horizontal	3	Pass
		713.5	3.52	1.92	19.33	2.15	18.78	75.509	Horizontal	3	Pass
10.0MHz Band 16 QAM	1/#Mid	704	3.00	1.91	19.25	2.15	18.19	65.917	Horizontal	3	Pass
		707.5	2.77	1.91	19.26	2.15	17.97	62.661	Horizontal	3	Pass
		711	2.93	1.92	19.32	2.15	18.18	65.766	Horizontal	3	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 13

		Radiated Power (ERP) for Band 13									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
										(W)	
5.0MHz Band QPSK	25/0	779.5	3.58	1.91	19.23	2.15	18.75	75.01	Horizontal	3	Pass
		782	4.53	1.91	19.26	2.15	19.73	93.90	Horizontal	3	Pass
		784.5	4.32	1.92	19.33	2.15	19.58	90.71	Horizontal	3	Pass
10.0MHz Band QPSK	50/0	782	4.64	1.92	19.32	2.15	19.89	97.40	Horizontal	3	Pass
5.0MHz Band QPSK	25/0	779.5	4.24	1.91	19.23	2.15	19.41	87.22	Vertical	3	Pass
		782	5.33	1.91	19.26	2.15	20.53	113.09	Vertical	3	Pass
		784.5	4.74	1.92	19.33	2.15	20.00	100.08	Vertical	3	Pass
10.0MHz Band QPSK	50/0	782	5.42	1.91	19.26	2.15	20.62	115.35	Vertical	3	Pass

		Radiated Power (ERP) for Band 13									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
										(W)	
5.0MHz Band 16 QAM	25/0	779.5	5.41	1.91	19.23	2.15	20.58	114.29	Horizontal	3	Pass
		782	3.71	1.91	19.26	2.15	18.91	77.75	Horizontal	3	Pass
		784.5	4.92	1.92	19.33	2.15	20.18	104.22	Horizontal	3	Pass
10.0MHz Band 16 QAM	50/0	782	5.31	1.92	19.32	2.15	20.56	113.75	Horizontal	3	Pass
5.0MHz Band 16 QAM	25/0	779.5	4.53	1.91	19.23	2.15	19.70	93.39	Vertical	3	Pass
		782	5.15	1.91	19.26	2.15	20.35	108.51	Vertical	3	Pass
		784.5	5.32	1.92	19.33	2.15	20.58	114.29	Vertical	3	Pass
10.0MHz Band 16 QAM	50/0	782	5.60	1.91	19.25	2.15	20.79	120.06	Vertical	3	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.8 LTE BAND 25

		Radiated Power (EIRP) for Band 25								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP		
						Average	Average		Limit	
						(dBm)	(mW)		(W)	
1.4MHz Band QPSK	1/#Mid	1850.7	-4.83	3.12	27.58	19.63	91.833	Horizontal	2	Pass
		1882,5	-4.74	3.27	27.61	19.60	91.201	Horizontal	2	Pass
		1914.3	-4.90	3.29	27.63	19.44	87.902	Horizontal	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.06	3.13	27.61	19.42	87.498	Horizontal	2	Pass
		1882,5	-4.95	3.27	27.61	19.39	86.896	Horizontal	2	Pass
		1913.5	-5.03	3.30	27.62	19.29	84.918	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.79	3.13	27.63	19.71	93.541	Horizontal	2	Pass
		1882,5	-4.69	3.27	27.61	19.65	92.257	Horizontal	2	Pass
		1912.5	-4.80	3.30	27.60	19.50	89.125	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.74	3.15	27.64	19.75	94.406	Horizontal	2	Pass
		1882,5	-4.56	3.31	27.61	19.74	94.189	Horizontal	2	Pass
		1910	-4.62	3.33	27.59	19.64	92.045	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-6.11	3.15	27.65	18.39	69.024	Horizontal	2	Pass
		1882,5	-5.94	3.31	27.61	18.36	68.549	Horizontal	2	Pass
		1907.5	-6.08	3.33	27.57	18.16	65.464	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	1860	-6.29	3.17	27.66	18.20	66.069	Horizontal	2	Pass
		1882,5	-4.53	3.32	27.61	19.76	94.624	Horizontal	2	Pass
		1905	-4.34	3.36	27.56	19.86	96.828	Horizontal	2	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-5.86	3.12	27.58	18.60	72.444	Vertical	2	Pass
		1882,5	-5.60	3.27	27.61	18.74	74.817	Vertical	2	Pass
		1914.3	-5.74	3.29	27.63	18.60	72.444	Vertical	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.64	3.13	27.61	18.84	76.560	Vertical	2	Pass
		1882,5	-5.88	3.27	27.61	18.46	70.146	Vertical	2	Pass
		1913.5	-5.87	3.30	27.62	18.45	69.984	Vertical	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.65	3.13	27.63	18.85	76.736	Vertical	2	Pass
		1882,5	-6.20	3.27	27.61	18.14	65.163	Vertical	2	Pass
		1912.5	-5.51	3.30	27.60	18.79	75.683	Vertical	2	Pass
10.0MHz Band	1/#Mid	1855	-6.20	3.15	27.64	18.29	67.453	Vertical	2	Pass
		1882,5	-5.66	3.31	27.61	18.64	73.114	Vertical	2	Pass

QPSK		1910	-5.92	3.33	27.59	18.34	68.234	Vertical	2	Pass
15.0MHz	1/#Mid	1857.5	-6.43	3.15	27.65	18.07	64.121	Vertical	2	Pass
Band		1882,5	-5.74	3.31	27.61	18.56	71.779	Vertical	2	Pass
QPSK		1907.5	-5.48	3.33	27.57	18.76	75.162	Vertical	2	Pass
20.0MHz	1/#Mid	1860	-6.22	3.17	27.66	18.27	67.143	Vertical	2	Pass
Band		1882,5	-5.56	3.32	27.61	18.73	74.645	Vertical	2	Pass
QPSK		1905	-6.14	3.36	27.56	18.06	63.973	Vertical	2	Pass

		Radiated Power (EIRP) for Band 25								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP		
						Average	Average		Limit	
						(dBm)	(mW)		(W)	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.86	3.12	27.58	19.60	91.201	Horizontal	2	Pass
		1882.5	-4.77	3.27	27.61	19.57	90.573	Horizontal	2	Pass
		1914.3	-4.93	3.29	27.63	19.41	87.297	Horizontal	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.09	3.13	27.61	19.39	86.896	Horizontal	2	Pass
		1882.5	-4.98	3.27	27.61	19.36	86.298	Horizontal	2	Pass
		1913.5	-5.06	3.30	27.62	19.26	84.333	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.82	3.13	27.63	19.68	92.897	Horizontal	2	Pass
		1882.5	-4.72	3.27	27.61	19.62	91.622	Horizontal	2	Pass
		1912.5	-4.83	3.30	27.60	19.47	88.512	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.12	3.15	27.64	19.37	86.497	Horizontal	2	Pass
		1882.5	-4.82	3.31	27.61	19.48	88.716	Horizontal	2	Pass
		1910	-4.72	3.33	27.59	19.54	89.950	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.82	3.15	27.65	18.68	73.790	Horizontal	2	Pass
		1882.5	-6.06	3.31	27.61	18.24	66.681	Horizontal	2	Pass
		1907.5	-6.02	3.33	27.57	18.22	66.374	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-6.48	3.17	27.66	18.01	63.241	Horizontal	2	Pass
		1882.5	-4.53	3.32	27.61	19.76	94.624	Horizontal	2	Pass
		1905	-6.20	3.36	27.56	18.00	63.096	Horizontal	2	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.19	3.12	27.58	18.27	67.143	Vertical	2	Pass
		1882.5	-5.74	3.27	27.61	18.60	72.444	Vertical	2	Pass
		1914.3	-6.40	3.29	27.63	17.94	62.230	Vertical	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-6.21	3.13	27.61	18.27	67.143	Vertical	2	Pass
		1882.5	-6.09	3.27	27.61	18.25	66.834	Vertical	2	Pass
		1913.5	-6.05	3.30	27.62	18.27	67.143	Vertical	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-6.03	3.13	27.63	18.47	70.307	Vertical	2	Pass
		1882.5	-6.34	3.27	27.61	18.00	63.096	Vertical	2	Pass
		1912.5	-5.58	3.30	27.60	18.72	74.473	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-6.33	3.15	27.64	18.16	65.464	Vertical	2	Pass
		1882.5	-5.65	3.31	27.61	18.65	73.282	Vertical	2	Pass
		1910	-5.46	3.33	27.59	18.80	75.858	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.81	3.15	27.65	18.69	73.961	Vertical	2	Pass
		1882.5	-5.60	3.31	27.61	18.70	74.131	Vertical	2	Pass
		1907.5	-6.10	3.33	27.57	18.14	65.163	Vertical	2	Pass

20.0MHz		1860	-6.14	3.17	27.66	18.35	68.391	Vertical	2	Pass
Band 16	1/#Mid	1882,5	-5.72	3.32	27.61	18.57	71.945	Vertical	2	Pass
QAM		1905	-5.71	3.36	27.56	18.49	70.632	Vertical	2	Pass

Note:

SG Level= Signal generator output

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

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

8.9 LTE BAND 26 A

		Radiated Power (ERP) for Band 26(814-824)									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz BW QPSK	6/0	814.7	-2.07	3.76	28.24	2.15	20.26	106.17	Horizontal	100	Pass
		819	-1.93	3.91	28.22	2.15	20.23	105.44	Horizontal	100	Pass
		823.3	-2.05	3.93	28.20	2.15	20.07	101.62	Horizontal	100	Pass
3.0MHz BW QPSK	15/0	815.5	-2.26	3.77	28.23	2.15	20.05	101.16	Horizontal	100	Pass
		819	-2.16	3.91	28.24	2.15	20.02	100.46	Horizontal	100	Pass
		822.5	-2.24	3.94	28.25	2.15	19.92	98.17	Horizontal	100	Pass
5.0MHz BW QPSK	25/0	816.5	-2.05	3.77	28.31	2.15	20.34	108.14	Horizontal	100	Pass
		819	-1.88	3.91	28.22	2.15	20.28	106.66	Horizontal	100	Pass
		821.5	-1.98	3.94	28.20	2.15	20.13	103.04	Horizontal	100	Pass
10.0MHz BW QPSK	50/0	819	-1.78	3.91	28.22	2.15	20.38	109.14	Horizontal	100	Pass
1.4MHz BW QPSK	6/0	814.7	-2.03	3.79	28.34	2.15	20.37	108.89	Vertical	100	Pass
		819	-1.85	3.95	28.22	2.15	20.27	106.41	Vertical	100	Pass
		823.3	-2.60	3.97	28.18	2.15	19.46	88.31	Vertical	100	Pass
3.0MHz BW QPSK	15/0	815.5	-3.60	3.77	28.23	2.15	18.71	74.30	Vertical	100	Pass
		819	-3.24	3.91	28.24	2.15	18.94	78.34	Vertical	100	Pass
		822.5	-3.24	3.94	28.25	2.15	18.92	77.98	Vertical	100	Pass
5.0MHz BW QPSK	25/0	816.5	-2.86	3.77	28.31	2.15	19.53	89.74	Vertical	100	Pass
		819	-3.02	3.91	28.22	2.15	19.14	82.04	Vertical	100	Pass
		821.5	-2.87	3.94	28.20	2.15	19.24	83.95	Vertical	100	Pass
10.0MHz BW QPSK	50/0	819	-3.23	3.91	28.22	2.15	18.93	78.16	Vertical	100	Pass

		Radiated Power (ERP) for Band 26(814-824)									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz BW 16 QAM	6/0	814.7	-2.51	3.76	28.24	2.15	19.82	95.94	Horizontal	100	Pass
		819	-2.37	3.91	28.22	2.15	19.79	95.28	Horizontal	100	Pass
		823.3	-2.49	3.93	28.20	2.15	19.63	91.83	Horizontal	100	Pass
3.0MHz BW 16 QAM	15/0	815.5	-2.70	3.77	28.23	2.15	19.61	91.41	Horizontal	100	Pass
		819	-2.60	3.91	28.24	2.15	19.58	90.78	Horizontal	100	Pass
		822.5	-2.68	3.94	28.25	2.15	19.48	88.72	Horizontal	100	Pass
5.0MHz BW 16 QAM	25/0	816.5	-2.49	3.77	28.31	2.15	19.90	97.72	Horizontal	100	Pass
		819	-2.32	3.91	28.22	2.15	19.84	96.38	Horizontal	100	Pass
		821.5	-2.42	3.94	28.20	2.15	19.69	93.11	Horizontal	100	Pass
10.0MHz BW 16 QAM	50/0	819	-2.24	3.91	28.24	2.15	19.94	98.63	Horizontal	100	Pass
1.4MHz BW 16 QAM	6/0	814.7	-2.47	3.79	28.34	2.15	19.93	98.40	Vertical	100	Pass
		819	-2.29	3.95	28.22	2.15	19.83	96.16	Vertical	100	Pass
		823.3	-3.87	3.97	28.18	2.15	18.19	65.92	Vertical	100	Pass
3.0MHz BW 16 QAM	15/0	815.5	-3.98	3.77	28.23	2.15	18.33	68.08	Vertical	100	Pass
		819	-3.23	3.91	28.24	2.15	18.95	78.52	Vertical	100	Pass
		822.5	-3.25	3.94	28.25	2.15	18.91	77.80	Vertical	100	Pass
5.0MHz BW 16 QAM	25/0	816.5	-3.46	3.77	28.31	2.15	18.93	78.16	Vertical	100	Pass
		819	-3.34	3.91	28.22	2.15	18.82	76.21	Vertical	100	Pass
		821.5	-3.85	3.94	28.20	2.15	18.26	66.99	Vertical	100	Pass
10.0MHz BW 16 QAM	50/0	819	-3.26	3.91	28.24	2.15	18.92	77.98	Vertical	100	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.10 LTE BAND 26 B

		Radiated Power (ERP) for Band 26(824-849)									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band QPSK	6/0	824.7	3.26	2.01	19.68	2.15	18.78	75.51	Horizontal	7	Pass
		836.5	3.20	2.01	19.77	2.15	18.81	76.03	Horizontal	7	Pass
		848.3	3.14	2.02	19.82	2.15	18.79	75.68	Horizontal	7	Pass
3.0MHz Band QPSK	15/0	825.5	3.30	2.01	19.70	2.15	18.84	76.56	Horizontal	7	Pass
		836.5	2.93	2.01	19.77	2.15	18.54	71.45	Horizontal	7	Pass
		847.5	3.38	2.02	19.81	2.15	19.02	79.80	Horizontal	7	Pass
5.0MHz Band QPSK	25/0	826.5	3.56	2.01	19.71	2.15	19.11	81.47	Horizontal	7	Pass
		836.5	3.38	2.01	19.77	2.15	18.99	79.25	Horizontal	7	Pass
		846.5	2.75	2.02	19.79	2.15	18.37	68.71	Horizontal	7	Pass
10.0MHz Band QPSK	50/0	829	2.77	2.01	19.73	2.15	18.34	68.23	Horizontal	7	Pass
		836.5	2.89	2.01	19.77	2.15	18.50	70.79	Horizontal	7	Pass
		844	3.49	2.02	19.78	2.15	19.10	81.28	Horizontal	7	Pass
15.0MHz Band QPSK	75/0	831.5	2.58	2.01	19.73	2.15	18.15	65.31	Horizontal	7	Pass
		836.5	3.51	2.01	19.77	2.15	19.12	81.66	Horizontal	7	Pass
		841.5	3.24	2.02	19.78	2.15	18.85	76.74	Horizontal	7	Pass
1.4MHz Band QPSK	6/0	824.7	2.84	2.01	19.68	2.15	18.36	68.55	Vertical	7	Pass
		836.5	2.78	2.01	19.77	2.15	18.39	69.02	Vertical	7	Pass
		848.3	3.04	2.02	19.82	2.15	18.69	73.96	Vertical	7	Pass
3.0MHz Band QPSK	15/0	825.5	2.98	2.01	19.70	2.15	18.52	71.12	Vertical	7	Pass
		836.5	2.60	2.01	19.77	2.15	18.21	66.22	Vertical	7	Pass
		847.5	2.85	2.02	19.81	2.15	18.49	70.63	Vertical	7	Pass
5.0MHz Band QPSK	25/0	826.5	3.00	2.01	19.71	2.15	18.55	71.61	Vertical	7	Pass
		836.5	2.75	2.01	19.77	2.15	18.36	68.55	Vertical	7	Pass
		846.5	2.87	2.02	19.79	2.15	18.49	70.63	Vertical	7	Pass
10.0MHz Band QPSK	50/0	829	2.64	2.01	19.73	2.15	18.21	66.22	Vertical	7	Pass
		836.5	2.98	2.01	19.77	2.15	18.59	72.28	Vertical	7	Pass
		844	2.82	2.02	19.78	2.15	18.43	69.66	Vertical	7	Pass
15.0MHz Band QPSK	75/0	831.5	2.65	2.01	19.73	2.15	18.22	66.37	Vertical	7	Pass
		836.5	3.40	2.01	19.77	2.15	19.01	79.62	Vertical	7	Pass
		841.5	3.00	2.02	19.78	2.15	18.61	72.61	Vertical	7	Pass

		Radiated Power (ERP) for Band 26(824-849)									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band 16 QAM	6/0	824.7	3.46	2.01	19.68	2.15	18.98	79.07	Horizontal	7	Pass
		836.5	2.69	2.01	19.77	2.15	18.30	67.61	Horizontal	7	Pass
		848.3	2.63	2.02	19.82	2.15	18.28	67.30	Horizontal	7	Pass
3.0MHz Band 16 QAM	15/0	825.5	2.72	2.01	19.70	2.15	18.26	66.99	Horizontal	7	Pass
		836.5	3.02	2.01	19.77	2.15	18.63	72.95	Horizontal	7	Pass
		847.5	2.72	2.02	19.81	2.15	18.36	68.55	Horizontal	7	Pass
5.0MHz Band 16 QAM	25/0	826.5	2.88	2.01	19.71	2.15	18.43	69.66	Horizontal	7	Pass
		836.5	2.85	2.01	19.77	2.15	18.46	70.15	Horizontal	7	Pass
		846.5	2.69	2.02	19.79	2.15	18.31	67.76	Horizontal	7	Pass
10.0MHz Band 16 QAM	50/0	829	3.09	2.01	19.73	2.15	18.66	73.45	Horizontal	7	Pass
		836.5	3.41	2.01	19.77	2.15	19.02	79.80	Horizontal	7	Pass
		844	2.65	2.02	19.78	2.15	18.26	66.99	Horizontal	7	Pass
15.0MHz Band QPSK	75/0	831.5	3.47	2.01	19.73	2.15	19.04	80.17	Horizontal	7	Pass
		836.5	2.65	2.01	19.77	2.15	18.26	66.99	Horizontal	7	Pass
		841.5	2.45	2.02	19.78	2.15	18.06	63.97	Horizontal	7	Pass
1.4MHz Band 16 QAM	6/0	824.7	2.97	2.01	19.68	2.15	18.49	70.63	Vertical	7	Pass
		836.5	3.36	2.01	19.77	2.15	18.97	78.89	Vertical	7	Pass
		848.3	3.11	2.02	19.82	2.15	18.76	75.16	Vertical	7	Pass
3.0MHz Band 16 QAM	15/0	825.5	2.91	2.01	19.70	2.15	18.45	69.98	Vertical	7	Pass
		836.5	2.73	2.01	19.77	2.15	18.34	68.23	Vertical	7	Pass
		847.5	3.33	2.02	19.81	2.15	18.97	78.89	Vertical	7	Pass
5.0MHz Band 16 QAM	25/0	826.5	2.60	2.01	19.71	2.15	18.15	65.31	Vertical	7	Pass
		836.5	3.04	2.01	19.77	2.15	18.65	73.28	Vertical	7	Pass
		846.5	2.66	2.02	19.79	2.15	18.28	67.30	Vertical	7	Pass
10.0MHz Band 16 QAM	50/0	829	3.07	2.01	19.73	2.15	18.64	73.11	Vertical	7	Pass
		836.5	3.29	2.01	19.77	2.15	18.90	77.62	Vertical	7	Pass
		844	2.67	2.02	19.78	2.15	18.28	67.30	Vertical	7	Pass
15.0MHz Band QPSK	75/0	831.5	2.61	2.01	19.73	2.15	18.18	65.77	Vertical	7	Pass
		836.5	2.54	2.01	19.77	2.15	18.15	65.31	Vertical	7	Pass
		841.5	2.80	2.02	19.78	2.15	18.41	69.34	Vertical	7	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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691

LIMIT

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

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

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

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.

The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, dB at the channel edges and $55 + 10 \log_{10}(p)$ at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

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

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-48.55	4.04	33.51	-19.08	-13	-6.08	Horizontal
3701.4	-52.07	4.04	33.51	-22.60	-13	-9.60	Vertical
5552.1	-50.95	5.24	35.84	-20.35	-13	-7.35	Vertical
5552.1	-51.64	5.24	35.84	-21.04	-13	-8.04	Horizontal
187.3	-44.38	1.43	16.02	-29.79	-13	-16.79	Vertical
272.6	-41.70	1.30	17.99	-25.01	-13	-12.01	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-44.47	4.04	33.56	-14.95	-13	-1.95	Horizontal
3760.0	-52.45	4.04	33.56	-22.93	-13	-9.93	Vertical
5640.0	-46.04	5.24	35.91	-15.37	-13	-2.37	Vertical
5640.0	-49.47	5.24	35.91	-18.80	-13	-5.80	Horizontal
193.3	-34.96	1.62	16.97	-19.61	-13	-6.61	Vertical
283.8	-40.41	1.74	15.98	-26.18	-13	-13.18	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-44.82	4.04	34.00	-14.86	-13	-1.86	Horizontal
3818.6	-53.39	4.04	34.00	-23.43	-13	-10.43	Vertical
5727.9	-52.61	5.24	36.04	-21.81	-13	-8.81	Vertical
5727.9	-52.43	5.24	36.04	-21.63	-13	-8.63	Horizontal
179.3	-35.95	1.42	17.29	-20.08	-13	-7.08	Vertical
271.0	-34.79	1.50	17.90	-18.38	-13	-5.38	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-44.86	4.07	33.54	-15.39	-13	-2.39	Horizontal
3720.0	-50.12	4.07	33.54	-20.65	-13	-7.65	Vertical
5580.0	-47.01	5.28	35.86	-16.43	-13	-3.43	Vertical
5580.0	-53.64	5.28	35.86	-23.06	-13	-10.06	Horizontal
209.6	-39.69	1.58	16.89	-24.37	-13	-11.37	Vertical
247.9	-44.49	1.76	17.26	-28.99	-13	-15.99	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-45.10	4.04	33.56	-15.58	-13	-2.58	Horizontal
3760.0	-51.91	4.04	33.56	-22.39	-13	-9.39	Vertical
5640.0	-53.92	5.24	35.91	-23.25	-13	-10.25	Vertical
5640.0	-51.86	5.24	35.91	-21.19	-13	-8.19	Horizontal
212.0	-44.62	1.46	16.27	-29.81	-13	-16.81	Vertical
375.3	-43.88	1.59	15.15	-30.32	-13	-17.32	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-49.77	4.04	34.00	-19.81	-13	-6.81	Horizontal
3800.0	-47.60	4.04	34.00	-17.64	-13	-4.64	Vertical
5700.0	-45.18	5.24	36.04	-14.38	-13	-1.38	Vertical
5700.0	-53.53	5.24	36.04	-22.73	-13	-9.73	Horizontal
194.8	-38.50	1.36	17.39	-22.46	-13	-9.46	Vertical
348.5	-37.34	1.66	15.39	-23.61	-13	-10.61	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	-52.67	4.02	29.80	-26.89	-13	-13.89	Horizontal
3421.4	-53.02	4.02	29.80	-27.24	-13	-14.24	Vertical
5132.1	-50.32	5.24	35.84	-19.72	-13	-6.72	Vertical
5132.1	-52.77	5.24	35.84	-22.17	-13	-9.17	Horizontal
186.7	-39.26	1.68	16.04	-24.90	-13	-11.90	Vertical
285.0	-38.52	1.78	17.74	-22.56	-13	-9.56	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-50.41	4.03	30.00	-24.44	-13	-11.44	Horizontal
3465.0	-52.98	4.03	30.00	-27.01	-13	-14.01	Vertical
5197.5	-49.85	5.25	35.86	-19.24	-13	-6.24	Vertical
5197.5	-51.19	5.25	35.86	-20.58	-13	-7.58	Horizontal
208.9	-42.65	1.72	17.69	-26.68	-13	-13.68	Vertical
467.1	-37.99	1.62	16.02	-23.58	-13	-10.58	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-44.34	4.05	30.01	-18.38	-13	-5.38	Horizontal
3508.6	-46.89	4.05	30.01	-20.93	-13	-7.93	Vertical
5262.9	-49.71	5.26	35.86	-19.11	-13	-6.11	Vertical
5262.9	-53.22	5.26	35.86	-22.62	-13	-9.62	Horizontal
187.9	-37.55	1.80	16.69	-22.66	-13	-9.66	Vertical
453.8	-34.89	1.75	16.66	-19.99	-13	-6.99	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-49.50	4.02	29.80	-23.72	-13	-10.72	Horizontal
3440.0	-44.36	4.02	29.80	-18.58	-13	-5.58	Vertical
5160.0	-53.41	5.24	35.84	-22.81	-13	-9.81	Vertical
5160.0	-49.50	5.24	35.84	-18.90	-13	-5.90	Horizontal
179.8	-36.98	1.57	17.26	-21.29	-13	-8.29	Vertical
361.3	-37.01	1.78	16.35	-22.44	-13	-9.44	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-47.88	4.03	30.00	-21.91	-13	-8.91	Horizontal
3465.0	-45.44	4.03	30.00	-19.47	-13	-6.47	Vertical
5197.5	-53.62	5.25	35.86	-23.01	-13	-10.01	Vertical
5197.5	-52.08	5.25	35.86	-21.47	-13	-8.47	Horizontal
186.0	-42.25	1.44	17.95	-25.74	-13	-12.74	Vertical
289.2	-44.65	1.65	16.09	-30.21	-13	-17.21	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-52.90	2.91	27.68	-28.13	-13	-15.13	Horizontal
3490.0	-47.52	2.91	27.68	-22.75	-13	-9.75	Vertical
5235.0	-46.26	5.26	35.86	-15.66	-13	-2.66	Vertical
5235.0	-51.93	5.26	35.86	-21.33	-13	-8.33	Horizontal
210.4	-38.14	1.61	16.85	-22.90	-13	-9.90	Vertical
286.9	-39.06	1.61	15.19	-25.48	-13	-12.48	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
1649.4	-51.66	2.78	27.50	-26.94	-13	-13.94	Horizontal
1649.4	-53.03	2.78	27.50	-28.31	-13	-15.31	Vertical
2474.1	-48.75	2.90	27.80	-23.85	-13	-10.85	Vertical
2474.1	-52.24	2.90	27.80	-27.34	-13	-14.34	Horizontal
199.4	-44.02	1.76	17.59	-28.19	-13	-15.19	Vertical
438.6	-41.42	1.63	15.87	-27.18	-13	-14.18	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-51.04	2.80	27.48	-26.36	-13	-13.36	Horizontal
1673.0	-48.39	2.80	27.48	-23.71	-13	-10.71	Vertical
2509.5	-51.40	2.91	27.70	-26.61	-13	-13.61	Vertical
2509.5	-52.60	2.91	27.70	-27.81	-13	-14.81	Horizontal
175.2	-36.86	1.61	15.68	-22.79	-13	-9.79	Vertical
389.0	-41.28	1.59	17.52	-25.36	-13	-12.36	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-52.64	2.82	27.43	-28.03	-13	-15.03	Horizontal
1696.6	-51.68	2.82	27.43	-27.07	-13	-14.07	Vertical
2544.9	-52.61	2.92	27.74	-27.79	-13	-14.79	Vertical
2544.9	-49.97	2.92	27.74	-25.15	-13	-12.15	Horizontal
211.1	-34.88	1.69	16.67	-19.89	-13	-6.89	Vertical
407.7	-36.98	1.70	17.18	-21.50	-13	-8.50	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-49.25	2.78	27.50	-24.53	-13	-11.53	Horizontal
1658.0	-46.17	2.78	27.50	-21.45	-13	-8.45	Vertical
2487.0	-51.81	2.90	27.80	-26.91	-13	-13.91	Vertical
2487.0	-52.63	2.90	27.80	-27.73	-13	-14.73	Horizontal
176.0	-38.78	1.71	15.57	-24.92	-13	-11.92	Vertical
319.0	-36.50	1.34	16.40	-21.44	-13	-8.44	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-53.15	2.80	27.48	-28.47	-13	-15.47	Horizontal
1673.0	-52.01	2.80	27.48	-27.33	-13	-14.33	Vertical
2509.5	-52.08	2.91	27.70	-27.29	-13	-14.29	Vertical
2509.5	-52.27	2.91	27.70	-27.48	-13	-14.48	Horizontal
202.5	-41.06	1.44	17.04	-25.46	-13	-12.46	Vertical
247.3	-35.44	1.76	17.62	-19.58	-13	-6.58	Horizontal
Test Results for High Channel 844MHz							
1688.0	-48.68	2.82	27.43	-24.07	-13	-11.07	Horizontal
1688.0	-51.17	2.82	27.43	-26.56	-13	-13.56	Vertical
2532.0	-52.10	2.92	27.74	-27.28	-13	-14.28	Vertical
2532.0	-51.17	2.92	27.74	-26.35	-13	-13.35	Horizontal
179.9	-35.36	1.74	17.70	-19.40	-13	-6.40	Vertical
345.2	-43.12	1.41	17.46	-27.06	-13	-14.06	Horizontal

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

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

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-62.33	5.23	35.81	-31.75	-25	-6.75	Horizontal
5005.0	-62.54	5.23	35.81	-31.96	-25	-6.96	Vertical
7507.5	-60.02	5.67	36.85	-28.84	-25	-3.84	Vertical
7507.5	-59.59	5.67	36.85	-28.41	-25	-3.41	Horizontal
179.4	-50.43	1.73	17.97	-34.19	-25	-9.19	Vertical
281.8	-44.69	1.38	15.11	-30.96	-25	-5.96	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.05	5.23	35.82	-30.46	-25	-5.46	Horizontal
5070.0	-63.91	5.23	35.82	-33.32	-25	-8.32	Vertical
7605.0	-61.56	5.67	36.85	-30.38	-25	-5.38	Vertical
7605.0	-61.30	5.67	36.85	-30.12	-25	-5.12	Horizontal
195.9	-49.64	1.77	16.17	-35.23	-25	-10.23	Vertical
248.2	-51.81	1.63	15.21	-38.23	-25	-13.23	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-64.35	5.24	35.83	-33.76	-25	-8.76	Horizontal
5135.0	-62.82	5.24	35.83	-32.23	-25	-7.23	Vertical
7702.5	-62.23	5.68	36.87	-31.04	-25	-6.04	Vertical
7702.5	-62.96	5.68	36.87	-31.77	-25	-6.77	Horizontal
209.3	-53.95	1.58	17.56	-37.97	-25	-12.97	Vertical
464.9	-47.10	1.45	16.58	-31.97	-25	-6.97	Horizontal

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-64.90	5.23	35.82	-34.31	-25	-9.31	Horizontal
5020.0	-62.01	5.23	35.82	-31.42	-25	-6.42	Vertical
7530.0	-59.25	5.67	36.86	-28.06	-25	-3.06	Vertical
7530.0	-59.40	5.67	36.86	-28.21	-25	-3.21	Horizontal
202.4	-50.63	1.63	15.76	-36.50	-25	-11.50	Vertical
367.7	-47.22	1.71	15.44	-33.49	-25	-8.49	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.73	5.23	35.82	-30.14	-25	-5.14	Horizontal
5070.0	-64.10	5.23	35.82	-33.51	-25	-8.51	Vertical
7605.0	-62.54	5.67	36.85	-31.36	-25	-6.36	Vertical
7605.0	-62.08	5.67	36.85	-30.90	-25	-5.90	Horizontal
202.5	-49.56	1.79	16.84	-34.50	-25	-9.50	Vertical
278.9	-45.88	1.71	17.64	-29.95	-25	-4.95	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.64	5.24	35.83	-30.05	-25	-5.05	Horizontal
5120.0	-64.47	5.24	35.83	-33.88	-25	-8.88	Vertical
7680.0	-64.92	5.70	36.88	-33.74	-25	-8.74	Vertical
7680.0	-63.82	5.70	36.88	-32.64	-25	-7.64	Horizontal
204.2	-46.90	1.79	16.84	-31.84	-25	-6.84	Vertical
355.4	-45.20	1.71	17.64	-29.27	-25	-4.27	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
1399.4	-47.32	2.60	27.20	-22.72	-13	-9.72	Horizontal
1399.4	-52.12	2.60	27.20	-27.52	-13	-14.52	Vertical
2099.1	-45.04	2.85	27.54	-20.35	-13	-7.35	Vertical
2099.1	-51.26	2.85	27.54	-26.57	-13	-13.57	Horizontal
210.3	-44.89	1.49	17.78	-28.60	-13	-15.60	Vertical
232.8	-37.81	1.36	17.33	-21.84	-13	-8.84	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-46.94	2.61	27.28	-22.27	-13	-9.27	Horizontal
1415.0	-52.43	2.61	27.28	-27.76	-13	-14.76	Vertical
2122.5	-44.41	2.87	27.59	-19.69	-13	-6.69	Vertical
2122.5	-50.40	2.87	27.59	-25.68	-13	-12.68	Horizontal
206.7	-36.22	1.73	15.74	-22.21	-13	-9.21	Vertical
439.6	-35.25	1.62	15.79	-21.08	-13	-8.08	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-45.63	2.63	27.28	-20.98	-13	-7.98	Horizontal
1430.6	-46.97	2.63	27.28	-22.32	-13	-9.32	Vertical
2145.9	-52.81	2.88	27.60	-28.09	-13	-15.09	Vertical
2145.9	-52.04	2.88	27.60	-27.32	-13	-14.32	Horizontal
184.6	-44.77	1.61	18.00	-28.38	-13	-15.38	Vertical
236.9	-41.48	1.45	15.49	-27.45	-13	-14.45	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-51.28	2.61	27.26	-26.63	-13	-13.63	Horizontal
1408.0	-47.92	2.61	27.26	-23.27	-13	-10.27	Vertical
2112.0	-48.06	2.87	27.58	-23.35	-13	-10.35	Vertical
2112.0	-49.52	2.87	27.58	-24.81	-13	-11.81	Horizontal
209.4	-40.71	1.31	16.97	-25.05	-13	-12.05	Vertical
322.6	-37.80	1.65	16.70	-22.75	-13	-9.75	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-52.18	2.61	27.28	-27.51	-13	-14.51	Horizontal
1415.0	-53.44	2.61	27.28	-28.77	-13	-15.77	Vertical
2122.5	-50.68	2.87	27.59	-25.96	-13	-12.96	Vertical
2122.5	-52.14	2.87	27.59	-27.42	-13	-14.42	Horizontal
197.0	-38.83	1.72	17.99	-22.56	-13	-9.56	Vertical
459.2	-39.22	1.73	17.94	-23.01	-13	-10.01	Horizontal
Test Results for High Channel 711MHz							
1422.0	-53.73	2.62	27.28	-29.07	-13	-16.07	Horizontal
1422.0	-53.93	2.62	27.28	-29.27	-13	-16.27	Vertical
2133.0	-46.92	2.87	27.60	-22.19	-13	-9.19	Vertical
2133.0	-53.82	2.87	27.60	-29.09	-13	-16.09	Horizontal
207.8	-36.95	1.58	15.93	-22.60	-13	-9.60	Vertical
237.0	-40.35	1.36	15.59	-26.12	-13	-13.12	Horizontal

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

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

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

9.6 LTE BAND 13

QPSK EIRP POWER FOR LTE BAND 13 (5MHZ BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-73.54	2.61	27.28	-48.87	-40	-8.87	Horizontal
1559.0	-70.02	2.61	27.28	-45.35	-40	-5.35	Vertical
2338.5	-44.02	2.87	27.59	-19.30	-13	-6.30	Vertical
2338.5	-41.18	2.87	27.59	-16.46	-13	-3.46	Horizontal
120.1	-39.09	1.54	15.61	-25.02	-13	-12.02	Vertical
197.8	-34.80	1.51	15.21	-21.10	-13	-8.10	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-69.28	2.62	27.30	-44.60	-40	-4.60	Horizontal
1564.0	-72.42	2.62	27.30	-47.74	-40	-7.74	Vertical
2346.0	-41.18	2.87	27.62	-16.43	-13	-3.43	Vertical
2346.0	-40.43	2.87	27.62	-15.68	-13	-2.68	Horizontal
131.2	-34.48	1.65	16.17	-19.96	-13	-6.96	Vertical
267.5	-35.05	1.48	16.88	-19.65	-13	-6.65	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-69.31	2.66	27.28	-44.69	-40	-4.69	Horizontal
1569.0	-71.92	2.66	27.28	-47.30	-40	-7.30	Vertical
2353.5	-40.13	2.88	27.60	-15.41	-13	-2.41	Vertical
2353.5	-39.93	2.88	27.60	-15.21	-13	-2.21	Horizontal
80.8	-34.94	1.54	16.40	-20.08	-13	-7.08	Vertical
155.6	-36.75	1.43	15.77	-22.41	-13	-9.41	Horizontal

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

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-70.98	2.62	27.30	-46.30	-40	-6.30	Horizontal
1564.0	-69.75	2.62	27.30	-45.07	-40	-5.07	Vertical
2346.0	-40.28	2.87	27.62	-15.53	-13	-2.53	Vertical
2346.0	-41.35	2.87	27.62	-16.60	-13	-3.60	Horizontal
129.1	-39.48	1.43	17.03	-23.88	-13	-10.88	Vertical
86.9	-35.61	1.62	16.63	-20.60	-13	-7.60	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 25

QPSK EIRP POWER FOR LTE BAND 25 (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
3701.4	-48.03	4.02	29.80	-22.25	-13	-9.25	Horizontal
3701.4	-47.21	4.02	29.80	-21.43	-13	-8.43	Vertical
5552.1	-48.67	5.24	35.84	-18.07	-13	-5.07	Vertical
5552.1	-46.19	5.24	35.84	-15.59	-13	-2.59	Horizontal
93.9	-33.19	1.59	15.11	-19.67	-13	-6.67	Vertical
119.7	-33.42	1.80	15.61	-19.61	-13	-6.61	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-49.18	4.03	30.00	-23.21	-13	-10.21	Horizontal
3765.0	-46.15	4.03	30.00	-20.18	-13	-7.18	Vertical
5647.5	-47.88	5.25	35.86	-17.27	-13	-4.27	Vertical
5647.5	-48.26	5.25	35.86	-17.65	-13	-4.65	Horizontal
166.1	-33.77	1.37	15.62	-19.52	-13	-6.52	Vertical
274.4	-33.24	1.55	17.51	-17.28	-13	-4.28	Horizontal
Test Results for High Channel 1754.3MHz							
3828.6	-46.36	4.05	30.01	-20.40	-13	-7.40	Horizontal
3828.6	-49.08	4.05	30.01	-23.12	-13	-10.12	Vertical
5742.9	-49.42	5.26	35.86	-18.82	-13	-5.82	Vertical
5742.9	-46.87	5.26	35.86	-16.27	-13	-3.27	Horizontal
108.6	-34.37	1.66	17.19	-18.84	-13	-5.84	Vertical
138.7	-32.85	1.35	17.94	-16.26	-13	-3.26	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-48.51	4.02	29.80	-22.73	-13	-9.73	Horizontal
3720.0	-47.29	4.02	29.80	-21.51	-13	-8.51	Vertical
5580.0	-47.26	5.24	35.84	-16.66	-13	-3.66	Vertical
5580.0	-49.23	5.24	35.84	-18.63	-13	-5.63	Horizontal
146.2	-32.66	1.70	15.24	-19.12	-13	-6.12	Vertical
215.4	-34.26	1.42	16.58	-19.10	-13	-6.10	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-47.78	4.03	30.00	-21.81	-13	-8.81	Horizontal
3765.0	-44.56	4.03	30.00	-18.59	-13	-5.59	Vertical
5647.5	-47.91	5.25	35.86	-17.30	-13	-4.30	Vertical
5647.5	-46.71	5.25	35.86	-16.10	-13	-3.10	Horizontal
132.2	-32.92	1.64	16.16	-18.40	-13	-5.40	Vertical
133.3	-33.84	1.62	17.37	-18.09	-13	-5.09	Horizontal
Test Results for High Channel 1745MHz							
3810.0	-47.90	2.91	27.68	-23.13	-13	-10.13	Horizontal
3810.0	-46.68	2.91	27.68	-21.91	-13	-8.91	Vertical
5715.0	-49.30	5.26	35.86	-18.70	-13	-5.70	Vertical
5715.0	-46.47	5.26	35.86	-15.87	-13	-2.87	Horizontal
212.6	-32.24	1.49	15.29	-18.44	-13	-5.44	Vertical
275.8	-34.98	1.79	16.42	-20.35	-13	-7.35	Horizontal

9.8 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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1629.4	-46.97	2.78	27.50	-22.25	-13	-9.25	Horizontal
1629.4	-41.67	2.78	27.50	-16.95	-13	-3.95	Vertical
2444.1	-48.92	2.90	27.80	-24.02	-13	-11.02	Vertical
2444.1	-49.87	2.90	27.80	-24.97	-13	-11.97	Horizontal
229.6	-33.50	1.54	16.98	-18.06	-13	-5.06	Vertical
83.3	-33.93	1.47	15.82	-19.58	-13	-6.58	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-49.59	2.80	27.48	-24.91	-13	-11.91	Horizontal
1638.0	-45.01	2.80	27.48	-20.33	-13	-7.33	Vertical
2457.0	-46.56	2.91	27.70	-21.77	-13	-8.77	Vertical
2457.0	-49.48	2.91	27.70	-24.69	-13	-11.69	Horizontal
168.2	-34.92	1.74	16.19	-20.47	-13	-7.47	Vertical
92.9	-32.13	1.46	15.43	-18.16	-13	-5.16	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-48.07	2.82	27.43	-23.46	-13	-10.46	Horizontal
1646.6	-48.69	2.82	27.43	-24.08	-13	-11.08	Vertical
2469.9	-47.79	2.92	27.74	-22.97	-13	-9.97	Vertical
2469.9	-46.77	2.92	27.74	-21.95	-13	-8.95	Horizontal
213.1	-34.06	1.67	17.05	-18.68	-13	-5.68	Vertical
121.7	-32.43	1.42	16.12	-17.73	-13	-4.73	Horizontal

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

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1638.0	-48.14	2.78	27.50	-23.42	-13	-10.42	Horizontal
1638.0	-48.17	2.78	27.50	-23.45	-13	-10.45	Vertical
2457.0	-49.01	2.90	27.80	-24.11	-13	-11.11	Vertical
2457.0	-47.79	2.90	27.80	-22.89	-13	-9.89	Horizontal
253.7	-32.10	1.43	17.34	-16.19	-13	-3.19	Vertical
256.8	-32.63	1.56	15.71	-18.48	-13	-5.48	Horizontal

9.9 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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-47.32	2.78	27.50	-22.60	-13	-9.60	Horizontal
1649.4	-41.48	2.78	27.50	-16.76	-13	-3.76	Vertical
2474.1	-46.14	2.90	27.80	-21.24	-13	-8.24	Vertical
2474.1	-48.34	2.90	27.80	-23.44	-13	-10.44	Horizontal
237.0	-33.35	1.33	17.34	-17.34	-13	-4.34	Vertical
180.5	-34.78	1.47	16.80	-19.45	-13	-6.45	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-46.91	2.80	27.48	-22.23	-13	-9.23	Horizontal
1673.0	-43.39	2.80	27.48	-18.71	-13	-5.71	Vertical
2509.5	-46.25	2.91	27.70	-21.46	-13	-8.46	Vertical
2509.5	-49.36	2.91	27.70	-24.57	-13	-11.57	Horizontal
140.8	-34.67	1.75	15.46	-20.96	-13	-7.96	Vertical
90.6	-34.54	1.52	16.14	-19.92	-13	-6.92	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-47.56	2.82	27.43	-22.95	-13	-9.95	Horizontal
1696.6	-46.04	2.82	27.43	-21.43	-13	-8.43	Vertical
2544.9	-47.36	2.92	27.74	-22.54	-13	-9.54	Vertical
2544.9	-48.47	2.92	27.74	-23.65	-13	-10.65	Horizontal
171.4	-34.58	1.67	16.09	-20.16	-13	-7.16	Vertical
247.2	-33.69	1.80	17.55	-17.94	-13	-4.94	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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1663.0	-46.29	2.78	27.50	-21.57	-13	-8.57	Horizontal
1663.0	-47.97	2.78	27.50	-23.25	-13	-10.25	Vertical
2494.5	-49.40	2.90	27.80	-24.50	-13	-11.50	Vertical
2494.5	-47.08	2.90	27.80	-22.18	-13	-9.18	Horizontal
255.4	-32.67	1.52	15.72	-18.47	-13	-5.47	Vertical
163.1	-33.46	1.40	17.03	-17.83	-13	-4.83	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-47.06	2.80	27.48	-22.38	-13	-9.38	Horizontal
1673.0	-44.44	2.80	27.48	-19.76	-13	-6.76	Vertical
2509.5	-49.31	2.91	27.70	-24.52	-13	-11.52	Vertical
2509.5	-49.51	2.91	27.70	-24.72	-13	-11.72	Horizontal
227.1	-34.76	1.74	16.38	-20.12	-13	-7.12	Vertical
101.3	-34.41	1.79	15.20	-21.00	-13	-8.00	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-49.25	2.82	27.43	-24.64	-13	-11.64	Horizontal
1683.0	-48.30	2.82	27.43	-23.69	-13	-10.69	Vertical
2524.5	-49.74	2.92	27.74	-24.92	-13	-11.92	Vertical
2524.5	-46.86	2.92	27.74	-22.04	-13	-9.04	Horizontal
261.1	-33.54	1.78	17.44	-17.88	-13	-4.88	Vertical
120.1	-32.43	1.70	15.93	-18.20	-13	-5.20	Horizontal

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 3.27V, Normal, DC 3.85V and High voltage, DC 4.43V.

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 2/4/5/7/12/17/25/26/38/41/66

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]
21.6	1880	13.0	0.006920	2.5
24	1880	13.6	0.007225	2.5
26.4	1880	13.0	0.006898	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.0	0.006938	2.5
Extreme (50C)	1880	11.4	0.006083	2.5
Extreme (40C)	1880	13.6	0.007243	2.5
Extreme (30C)	1880	13.3	0.007068	2.5
Extreme (10C)	1880	14.1	0.007519	2.5
Extreme (0C)	1880	12.6	0.006693	2.5
Extreme (-10C)	1880	13.1	0.006967	2.5
Extreme (-20C)	1880	14.5	0.007738	2.5
Extreme (-30C)	1880	14.7	0.007816	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]
21.6	1880	9.9	0.005246	2.5
24	1880	8.5	0.004507	2.5
26.4	1880	8.0	0.004262	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.9	0.005272	2.5
Extreme (50C)	1880	8.6	0.004594	2.5
Extreme (40C)	1880	8.4	0.004475	2.5
Extreme (30C)	1880	8.9	0.004748	2.5
Extreme (10C)	1880	8.6	0.004556	2.5
Extreme (0C)	1880	8.2	0.004354	2.5
Extreme (-10C)	1880	8.6	0.004571	2.5
Extreme (-20C)	1880	8.8	0.004657	2.5
Extreme (-30C)	1880	7.9	0.004207	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]
21.6	1732.5	9.2	0.005330	2.5
24	1732.5	9.2	0.005283	2.5
26.4	1732.5	8.2	0.004716	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.6	0.004935	2.5
Extreme (50C)	1732.5	8.8	0.005096	2.5
Extreme (40C)	1732.5	7.4	0.004281	2.5
Extreme (30C)	1732.5	6.2	0.003593	2.5
Extreme (10C)	1732.5	7.5	0.004336	2.5
Extreme (0C)	1732.5	9.0	0.005179	2.5
Extreme (-10C)	1732.5	8.8	0.005053	2.5
Extreme (-20C)	1732.5	7.4	0.004269	2.5
Extreme (-30C)	1732.5	8.6	0.004983	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]
21.6	1732.5	9.3	0.005383	2.5
24	1732.5	8.5	0.004933	2.5
26.4	1732.5	8.2	0.004711	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.3	0.005351	2.5
Extreme (50C)	1732.5	8.9	0.005149	2.5
Extreme (40C)	1732.5	8.1	0.004662	2.5
Extreme (30C)	1732.5	9.0	0.005182	2.5
Extreme (10C)	1732.5	9.2	0.005290	2.5
Extreme (0C)	1732.5	7.6	0.004389	2.5
Extreme (-10C)	1732.5	9.1	0.005255	2.5
Extreme (-20C)	1732.5	9.3	0.005361	2.5
Extreme (-30C)	1732.5	8.3	0.004795	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]
21.6	836.5	5.9	0.007007	2.5
24	836.5	6.3	0.007548	2.5
26.4	836.5	4.9	0.005855	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007436	2.5
Extreme (50C)	836.5	5.9	0.007016	2.5
Extreme (40C)	836.5	5.8	0.006955	2.5
Extreme (30C)	836.5	6.9	0.008247	2.5
Extreme (10C)	836.5	5.2	0.006192	2.5
Extreme (0C)	836.5	5.7	0.006853	2.5
Extreme (-10C)	836.5	5.6	0.006678	2.5
Extreme (-20C)	836.5	5.9	0.007042	2.5
Extreme (-30C)	836.5	6.0	0.007150	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]
21.6	836.5	6.2	0.007423	2.5
24	836.5	6.2	0.007444	2.5
26.4	836.5	5.0	0.006009	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007384	2.5
Extreme (50C)	836.5	6.2	0.007420	2.5
Extreme (40C)	836.5	6.3	0.007535	2.5
Extreme (30C)	836.5	6.4	0.007676	2.5
Extreme (10C)	836.5	5.4	0.006426	2.5
Extreme (0C)	836.5	4.8	0.005744	2.5
Extreme (-10C)	836.5	5.2	0.006276	2.5
Extreme (-20C)	836.5	5.8	0.006892	2.5
Extreme (-30C)	836.5	5.8	0.006961	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]
21.6	2535	9.5	0.003760	2.5
24	2535	8.4	0.003327	2.5
26.4	2535	8.7	0.003416	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.6	0.003783	2.5
Extreme (50C)	2535	8.5	0.003350	2.5
Extreme (40C)	2535	8.1	0.003200	2.5
Extreme (30C)	2535	8.7	0.003420	2.5
Extreme (10C)	2535	8.0	0.003152	2.5
Extreme (0C)	2535	8.1	0.003196	2.5
Extreme (-10C)	2535	9.2	0.003633	2.5
Extreme (-20C)	2535	9.0	0.003541	2.5
Extreme (-30C)	2535	8.0	0.003145	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]
21.6	2535	6.7	0.002649	2.5
24	2535	5.9	0.002327	2.5
26.4	2535	5.5	0.002153	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.3	0.002495	2.5
Extreme (50C)	2535	6.0	0.002367	2.5
Extreme (40C)	2535	5.2	0.002065	2.5
Extreme (30C)	2535	7.0	0.002778	2.5
Extreme (10C)	2535	5.6	0.002192	2.5
Extreme (0C)	2535	4.8	0.001901	2.5
Extreme (-10C)	2535	4.8	0.001895	2.5
Extreme (-20C)	2535	6.3	0.002470	2.5
Extreme (-30C)	2535	5.5	0.002160	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]
21.6	707.5	8.2	0.011607	2.5
24	707.5	9.7	0.013702	2.5
26.4	707.5	8.3	0.011668	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.8	0.012378	2.5
Extreme (50C)	707.5	7.7	0.010939	2.5
Extreme (40C)	707.5	7.8	0.011043	2.5
Extreme (30C)	707.5	8.5	0.012048	2.5
Extreme (10C)	707.5	7.6	0.010766	2.5
Extreme (0C)	707.5	8.6	0.012099	2.5
Extreme (-10C)	707.5	8.6	0.012183	2.5
Extreme (-20C)	707.5	8.5	0.012021	2.5
Extreme (-30C)	707.5	7.4	0.010440	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]
21.6	707.5	7.5	0.010600	2.5
24	707.5	8.5	0.011962	2.5
26.4	707.5	7.4	0.010398	2.5

Frequency error vs. Temperature

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

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

10.6 LTE BAND 13

Band 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]
21.6	710.0	13.0	0.018276	2.5
24	710.0	13.9	0.019608	2.5
26.4	710.0	12.8	0.018039	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	14.0	0.019769	2.5
Extreme (50C)	710.0	13.3	0.018718	2.5
Extreme (40C)	710.0	15.4	0.021689	2.5
Extreme (30C)	710.0	13.7	0.019354	2.5
Extreme (10C)	710.0	14.4	0.020265	2.5
Extreme (0C)	710.0	14.3	0.020195	2.5
Extreme (-10C)	710.0	14.2	0.019937	2.5
Extreme (-20C)	710.0	14.4	0.020326	2.5
Extreme (-30C)	710.0	13.3	0.018678	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
21.6	710.0	12.3	0.017305	2.5
24	710.0	14.2	0.019969	2.5
26.4	710.0	13.3	0.018690	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	13.1	0.018490	2.5
Extreme (50C)	710.0	11.6	0.016384	2.5
Extreme (40C)	710.0	13.4	0.018842	2.5
Extreme (30C)	710.0	13.4	0.018943	2.5
Extreme (10C)	710.0	14.1	0.019854	2.5
Extreme (0C)	710.0	12.6	0.017706	2.5
Extreme (-10C)	710.0	13.5	0.018986	2.5
Extreme (-20C)	710.0	13.7	0.019313	2.5
Extreme (-30C)	710.0	14.5	0.020432	2.5

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

10.7 LTE BAND 25

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
21.6	1882.5	8	0.004250	2.5
24	1882.5	1	0.000531	2.5
26.4	1882.5	4	0.002125	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	4.6	0.002433	2.5
Extreme (50C)	1882.5	9.9	0.005233	2.5
Extreme (40C)	1882.5	6.2	0.003282	2.5
Extreme (30C)	1882.5	6.8	0.003617	2.5
Extreme (10C)	1882.5	5.1	0.002692	2.5
Extreme (0C)	1882.5	8.3	0.004413	2.5
Extreme (-10C)	1882.5	1.3	0.000669	2.5
Extreme (-20C)	1882.5	2.9	0.001514	2.5
Extreme (-30C)	1882.5	6.2	0.003316	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
21.6	1882.5	9.1	0.004829	2.5
24	1882.5	7.0	0.003728	2.5
26.4	1882.5	5.3	0.002797	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1882.5	7.2	0.003822	2.5
Extreme (50C)	1882.5	5.8	0.003073	2.5
Extreme (40C)	1882.5	8.7	0.004616	2.5
Extreme (30C)	1882.5	1.1	0.000599	2.5
Extreme (10C)	1882.5	2.7	0.001456	2.5
Extreme (0C)	1882.5	6.3	0.003361	2.5
Extreme (-10C)	1882.5	5.1	0.002711	2.5
Extreme (-20C)	1882.5	7.3	0.003862	2.5
Extreme (-30C)	1882.5	6.2	0.003287	2.5

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

10.8 LTE BAND 26 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 BANDWIDTH)				
21.6	819	8.9	0.010917	2.5
24	819	5.4	0.006554	2.5
26.4	819	7.0	0.008509	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 BANDWIDTH)				
Normal (25C)	819	8.6	0.010472	2.5
Extreme (50C)	819	1.5	0.001780	2.5
Extreme (40C)	819	2.3	0.002815	2.5
Extreme (30C)	819	6.1	0.007476	2.5
Extreme (10C)	819	6.0	0.007308	2.5
Extreme (0C)	819	6.2	0.007512	2.5
Extreme (-10C)	819	8.1	0.009833	2.5
Extreme (-20C)	819	6.1	0.007402	2.5
Extreme (-30C)	819	4.4	0.005402	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 BANDWIDTH)				
21.6	819	2.2	0.002645	2.5
24	819	6.7	0.008144	2.5
26.4	819	5.3	0.006469	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	6.6	0.008036	2.5
Extreme (50C)	819	8.3	0.010140	2.5
Extreme (40C)	819	6.9	0.008386	2.5
Extreme (30C)	819	4.6	0.005573	2.5
Extreme (10C)	819	6.3	0.007752	2.5
Extreme (0C)	819	5.7	0.006947	2.5
Extreme (-10C)	819	8.8	0.010688	2.5
Extreme (-20C)	819	6.5	0.007890	2.5
Extreme (-30C)	819	7.4	0.009040	2.5

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

10.9 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)				
21.6	836.5	9.0	0.010729	2.5
24	836.5	6.1	0.007246	2.5
26.4	836.5	8.1	0.009631	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	10.7	0.012789	2.5
Extreme (50C)	836.5	9.8	0.011768	2.5
Extreme (40C)	836.5	6.5	0.007763	2.5
Extreme (30C)	836.5	8.7	0.010444	2.5
Extreme (10C)	836.5	7.2	0.008660	2.5
Extreme (0C)	836.5	9.8	0.011741	2.5
Extreme (-10C)	836.5	1.7	0.001986	2.5
Extreme (-20C)	836.5	8.9	0.010626	2.5
Extreme (-30C)	836.5	7.5	0.009018	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)				
21.6	836.5	9.0	0.010770	2.5
24	836.5	11.5	0.013778	2.5
26.4	836.5	10.6	0.012675	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	6.5	0.007826	2.5
Extreme (50C)	836.5	8.3	0.009960	2.5
Extreme (40C)	836.5	7.6	0.009052	2.5
Extreme (30C)	836.5	7.3	0.008675	2.5
Extreme (10C)	836.5	6.1	0.007278	2.5
Extreme (0C)	836.5	5.5	0.006599	2.5
Extreme (-10C)	836.5	6.0	0.007138	2.5
Extreme (-20C)	836.5	3.9	0.011237	2.5
Extreme (-30C)	836.5	8.2	0.007292	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

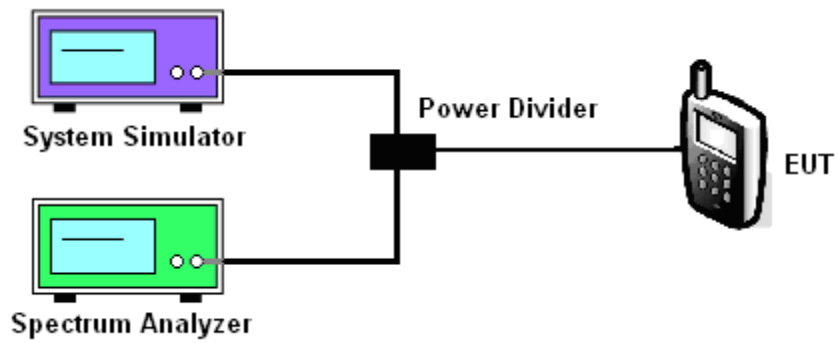
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

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

Test data reference attachment.

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