

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

FCC ID: 2BW29-ARMOR40A

Product: 4G Smart Feature Phone
Trade Mark: KIWISUMI
Model No.: ARMOR 40A
Family Model: N/A
Report No.: N26021003022E
Issue Date: Jun. 30, 2026

Prepared for

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Yao Star Digital Technology Co., Ltd

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Manufacturer's Name..... : Shenzhen Yao Star Digital Technology Co., Ltd.

Address..... : Rm 5A, 5th FL, Sanhang Technology Building, Ninth Road of Hi-Tech Park Southern, Yuehai Community, Nanshan District, Shenzhen, China

Product name..... : 4G Smart Feature Phone

Model and/or type reference .. : ARMOR 40A

Trade Mark..... : KIWISUMI

Family Model..... : N/A

Test Sample Number..... : S2603020071-1#

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

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.

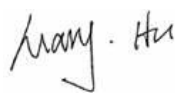
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Date of Test

Date (s) of performance of tests..... Feb. 10, 2026 ~ Jun. 30, 2026

Date of Issue Jun. 30, 2026

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

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	4G Smart Feature Phone
Trade Mark	KIWISUMI
Model Name	ARMOR 40A
Family Model	N/A
Model Difference	N/A
FCC ID:	2BW29-ARMOR40A
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 17 ☒ LTE TDD Band 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 :Uplink & Downlink: 2496MHz-2690MHz
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	PIFA Antenna
Antenna gain:	LTE B2:0.6dBi, B4:0.6dBi, B5:-0.1dBi, B7:0.5dBi, B12:-1.8dBi, B17:-1.8dBi, B41: 0.5dBi

Adapter	Model : JKX-052000A Input: 100-240V~50/60Hz 0.3A Output: DC 5.0V---2.0A, 10.0W
Battery	DC 3.85V, 5000mAh, 19.25Wh
Power supply	DC 3.85V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 3.27V to DC 4.43V (Nominal DC 3.85V) (Note 1)
HW Version	ZHT501-615_MB_V0.1
FW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 4.43V and Low Voltage 3.27V 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: 2BW29-ARMOR40A** 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 2/4/5/7/12/13/14/17/25/26/41/66/71

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

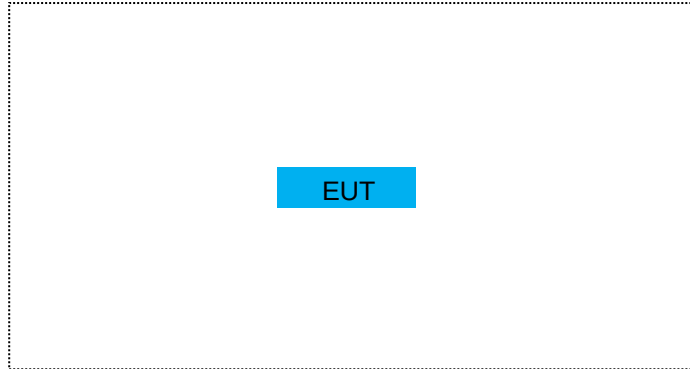
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	4G Smart Feature Phone	ARMOR 40A	FCC ID: 2BW29-ARMOR40A	EUT

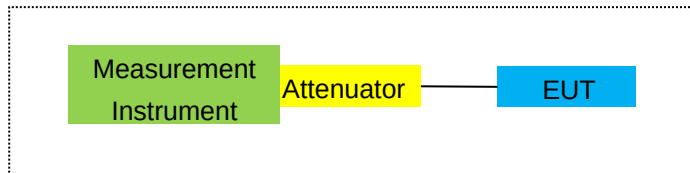
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

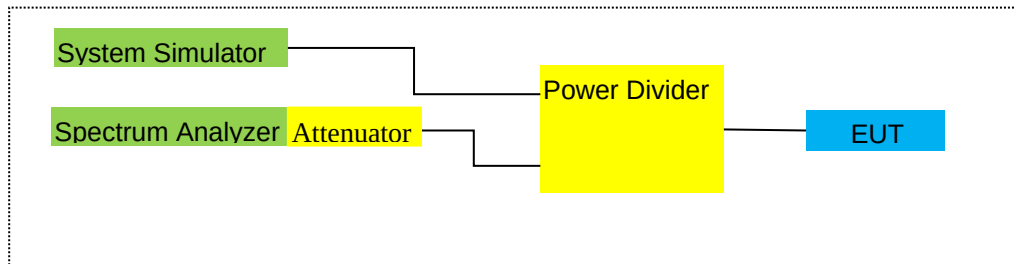
For Radiated Test Cases



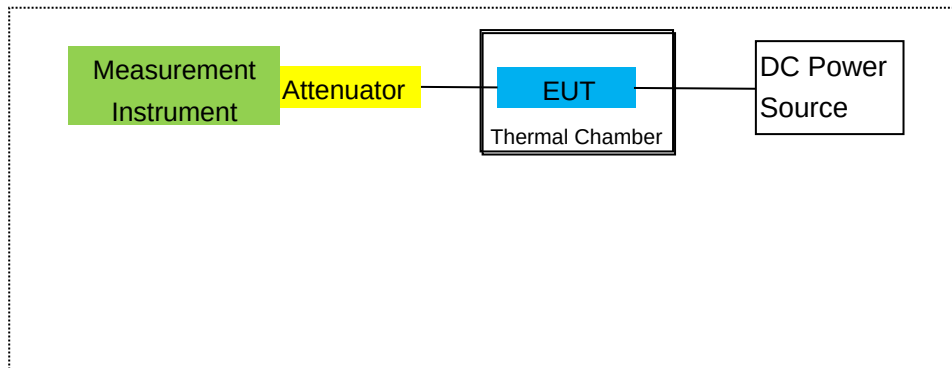
For Conducted Output Power



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 2026.04.08	2026.04.16 2027.04.07	1 year
2	Test Receiver	R&S	ESPI	101318	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	N/A	N/A	N/A
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 2026.04.08	2026.04.16 2027.04.07	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 2026.04.08	2026.04.16 2027.04.07	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
11	Test Cable	N/A	R-01	N/A	2024.06.17	2027.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2024.06.17	2027.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2024.06.17	2027.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
15	LISN	R&S	ENV216	101313	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
16	LISN	EMCO	3816/2	00042990	2025.04.17 2026.04.08	2026.04.16 2027.04.07	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 2026.04.08	2026.04.16 2027.04.07	1 year
19	Test Cable	N/A	C01	N/A	2024.05.06	2027.05.05	3 year
20	Test Cable	N/A	C02	N/A	2024.05.06	2027.05.05	3 year
21	Test Cable	N/A	C03	N/A	2024.05.06	2027.05.05	3 year

22	Spectrum Analyzer	Agilent	E4440A	MY41000130	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
23	EMI Test Receiver	R&S	ESCI	101160	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
24	Universal Radio Communication Tester	R&S	CMU200	105747	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpact	5822611946 0030	2024.05.30	2027.05.29	3 year
26	DC Power Source	N/A	PS-6005D	2017040292 3	2024.04.25	2027.04.24	3 year
27	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year
29	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2025.04.17 2026.04.08	2026.04.16 2027.04.07	1 year

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

Measurement Software

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

Band 2/4/5/7/12/17/41

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Show citation box.

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

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

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

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

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

TEST PROCEDURE

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

MODES TESTED

Band 2/4/5/7/12/17/41

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

Band 2/4/5/7/12/17/41

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

LIMITS:

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

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

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

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

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

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

Band 2/4/5/7/12/17/41

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2										
Mode	RB/RB SIZE	Frequency	Result						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
						Average (dBm)				
1.4MHz Band QPSK	6/0	1850.7	16.45	3.76	8.90	21.59	144.212	Horizontal	2	Pass
		1880	14.76	3.91	8.90	19.75	94.406	Horizontal	2	Pass
		1909.3	14.74	3.93	8.90	19.71	93.541	Horizontal	2	Pass
3.0MHz Band QPSK	15/0	1851.5	13.61	3.77	8.90	18.74	74.817	Horizontal	2	Pass
		1880	14.80	3.91	8.90	19.79	95.280	Horizontal	2	Pass
		1908.5	16.30	3.94	8.90	21.26	133.660	Horizontal	2	Pass
5.0MHz Band QPSK	25/0	1852.5	16.30	3.77	8.90	21.43	138.995	Horizontal	2	Pass
		1880	17.08	3.91	8.90	22.07	161.065	Horizontal	2	Pass
		1907.5	16.56	3.94	8.90	21.52	141.906	Horizontal	2	Pass
10.0MHz Band QPSK	50/0	1855	16.12	3.79	8.90	21.23	132.739	Horizontal	2	Pass
		1880	17.17	3.95	8.90	22.12	162.930	Horizontal	2	Pass
		1905	15.99	3.97	8.90	20.92	123.595	Horizontal	2	Pass
15.0MHz Band QPSK	75/0	1857.5	15.00	3.79	8.90	20.11	102.565	Horizontal	2	Pass
		1880	16.91	3.95	8.90	21.86	153.462	Horizontal	2	Pass
		1902.5	15.00	3.97	8.90	19.93	98.401	Horizontal	2	Pass
20.0MHz Band QPSK	100/0	1860	15.96	3.81	8.90	21.05	127.350	Horizontal	2	Pass
		1880	14.37	3.96	8.90	19.31	85.310	Horizontal	2	Pass
		1900	16.00	4.00	8.90	20.9	123.027	Horizontal	2	Pass
1.4MHz Band QPSK	6/0	1850.7	14.80	3.76	8.90	19.94	98.628	Vertical	2	Pass
		1880	14.90	3.91	8.90	19.89	97.499	Vertical	2	Pass
		1909.3	15.90	3.93	8.90	20.87	122.180	Vertical	2	Pass
3.0MHz Band QPSK	15/0	1851.5	15.60	3.77	8.90	20.73	118.304	Vertical	2	Pass
		1880	16.03	3.91	8.90	21.02	126.474	Vertical	2	Pass
		1908.5	14.39	3.94	8.90	19.35	86.099	Vertical	2	Pass
5.0MHz Band QPSK	25/0	1852.5	15.71	3.77	8.90	20.84	121.339	Vertical	2	Pass
		1880	15.21	3.91	8.90	20.2	104.713	Vertical	2	Pass
		1907.5	16.14	3.94	8.90	21.1	128.825	Vertical	2	Pass
10.0MHz Band QPSK	50/0	1855	14.41	3.79	8.90	19.52	89.536	Vertical	2	Pass
		1880	13.11	3.95	8.90	18.06	63.973	Vertical	2	Pass
		1905	13.33	3.97	8.90	18.26	66.988	Vertical	2	Pass
15.0MHz Band QPSK	75/0	1857.5	14.55	3.79	8.90	19.66	92.470	Vertical	2	Pass
		1880	15.45	3.95	8.90	20.4	109.648	Vertical	2	Pass
		1902.5	16.89	3.97	8.90	21.82	152.055	Vertical	2	Pass
20.0MHz Band QPSK	100/0	1860	17.04	3.81	8.90	22.13	163.305	Vertical	2	Pass
		1880	15.10	3.96	8.90	20.04	100.925	Vertical	2	Pass
		1900	15.69	4.00	8.90	20.59	114.551	Vertical	2	Pass

Radiated Power (EIRP) for Band 2										
Mode	RB/RB SIZE	Frequency	Result						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
1.4MHz Band 16 QAM	6/0	1850.7	14.60	3.76	8.90	20.82	120.781	Horizontal	2	Pass
		1880	15.75	3.91	8.90	20.12	102.802	Horizontal	2	Pass
		1909.3	15.45	3.93	8.90	20.32	107.647	Horizontal	2	Pass
3.0MHz Band 16 QAM	15/0	1851.5	15.29	3.77	8.90	17.94	62.230	Horizontal	2	Pass
		1880	14.95	3.91	8.90	20.4	109.648	Horizontal	2	Pass
		1908.5	14.55	3.94	8.90	19.65	92.257	Horizontal	2	Pass
5.0MHz Band 16 QAM	25/0	1852.5	15.14	3.77	8.90	20.88	122.462	Horizontal	2	Pass
		1880	15.50	3.91	8.90	19.56	90.365	Horizontal	2	Pass
		1907.5	14.00	3.94	8.90	19.2	83.176	Horizontal	2	Pass
10.0MHz Band 16 QAM	50/0	1855	15.35	3.79	8.90	20.02	100.462	Horizontal	2	Pass
		1880	14.05	3.95	8.90	18.83	76.384	Horizontal	2	Pass
		1905	15.36	3.97	8.90	20.93	123.880	Horizontal	2	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.68	3.79	8.90	19.65	92.257	Horizontal	2	Pass
		1880	15.77	3.95	8.90	19.88	97.275	Horizontal	2	Pass
		1902.5	15.65	3.97	8.90	20.69	117.220	Horizontal	2	Pass
20.0MHz Band 16 QAM	100/0	1860	13.84	3.81	8.90	18.65	73.282	Horizontal	2	Pass
		1880	16.17	3.96	8.90	20.69	117.220	Horizontal	2	Pass
		1900	14.55	4.00	8.90	18.74	74.817	Horizontal	2	Pass
1.4MHz Band 16 QAM	6/0	1850.7	14.61	3.76	8.90	20.86	121.899	Vertical	2	Pass
		1880	15.84	3.91	8.90	19	79.433	Vertical	2	Pass
		1909.3	15.13	3.93	8.90	19.98	99.541	Vertical	2	Pass
3.0MHz Band 16 QAM	15/0	1851.5	13.77	3.77	8.90	17.87	61.235	Vertical	2	Pass
		1880	14.83	3.91	8.90	20.32	107.647	Vertical	2	Pass
		1908.5	14.56	3.94	8.90	19.89	97.499	Vertical	2	Pass
5.0MHz Band 16 QAM	25/0	1852.5	13.76	3.77	8.90	21.22	132.434	Vertical	2	Pass
		1880	15.05	3.91	8.90	20.62	115.345	Vertical	2	Pass
		1907.5	15.69	3.94	8.90	20.23	105.439	Vertical	2	Pass
10.0MHz Band 16 QAM	50/0	1855	13.98	3.79	8.90	20.2	104.713	Vertical	2	Pass
		1880	15.57	3.95	8.90	19.22	83.560	Vertical	2	Pass
		1905	15.12	3.97	8.90	19.04	80.168	Vertical	2	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.85	3.79	8.90	18.54	71.450	Vertical	2	Pass
		1880	14.87	3.95	8.90	21.05	127.350	Vertical	2	Pass
		1902.5	13.66	3.97	8.90	20.49	111.944	Vertical	2	Pass
20.0MHz Band 16 QAM	100/0	1860	14.29	3.81	8.90	20.92	123.595	Vertical	2	Pass
		1880	14.90	3.96	8.90	21.67	146.893	Vertical	2	Pass
		1900	13.78	4.00	8.90	18.7	74.131	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						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
1.4MHz Band QPSK	6/0	1710.7	13.75	3.12	8.90	19.53	89.743	Horizontal	1	Pass
		1732.5	12.62	3.27	8.90	18.25	66.834	Horizontal	1	Pass
		1754.3	14.76	3.29	8.90	20.37	108.893	Horizontal	1	Pass
3.0MHz Band QPSK	15/0	1711.5	14.28	3.13	8.90	20.05	101.158	Horizontal	1	Pass
		1732.5	13.03	3.27	8.90	18.66	73.451	Horizontal	1	Pass
		1753.5	12.16	3.30	8.90	17.76	59.704	Horizontal	1	Pass
5.0MHz Band QPSK	25/0	1712.5	13.03	3.13	8.90	18.8	75.858	Horizontal	1	Pass
		1732.5	15.15	3.27	8.90	20.78	119.674	Horizontal	1	Pass
		1752.5	14.91	3.30	8.90	20.51	112.460	Horizontal	1	Pass
10.0MHz Band QPSK	50/0	1715	14.81	3.15	8.90	20.56	113.763	Horizontal	1	Pass
		1732.5	13.80	3.31	8.90	19.39	86.896	Horizontal	1	Pass
		1750	16.61	3.33	8.90	22.18	165.196	Horizontal	1	Pass
15.0MHz Band QPSK	75/0	1717.5	15.35	3.15	8.90	21.1	128.825	Horizontal	1	Pass
		1732.5	16.62	3.31	8.90	22.21	166.341	Horizontal	1	Pass
		1747.5	14.37	3.33	8.90	19.94	98.628	Horizontal	1	Pass
20.0MHz Band QPSK	100/0	1720	12.52	3.17	8.90	18.25	66.834	Horizontal	1	Pass
		1732.5	14.44	3.32	8.90	20.02	100.462	Horizontal	1	Pass
		1745	13.95	3.36	8.90	19.49	88.920	Horizontal	1	Pass
1.4MHz Band QPSK	6/0	1710.7	14.02	3.12	8.90	19.8	95.499	Vertical	1	Pass
		1732.5	13.84	3.27	8.90	19.47	88.512	Vertical	1	Pass
		1754.3	12.97	3.29	8.90	18.58	72.111	Vertical	1	Pass
3.0MHz Band QPSK	15/0	1711.5	14.85	3.13	8.90	20.62	115.345	Vertical	1	Pass
		1732.5	14.81	3.27	8.90	20.44	110.662	Vertical	1	Pass
		1753.5	14.14	3.30	8.90	19.74	94.189	Vertical	1	Pass
5.0MHz Band QPSK	25/0	1712.5	11.98	3.13	8.90	17.75	59.566	Vertical	1	Pass
		1732.5	14.60	3.27	8.90	20.23	105.439	Vertical	1	Pass
		1752.5	15.50	3.30	8.90	21.1	128.825	Vertical	1	Pass
10.0MHz Band QPSK	50/0	1715	11.62	3.15	8.90	17.37	54.576	Vertical	1	Pass
		1732.5	13.57	3.31	8.90	19.16	82.414	Vertical	1	Pass
		1750	14.46	3.33	8.90	20.03	100.693	Vertical	1	Pass
15.0MHz Band QPSK	75/0	1717.5	16.39	3.15	8.90	22.14	163.682	Vertical	1	Pass
		1732.5	14.47	3.31	8.90	20.06	101.391	Vertical	1	Pass
		1747.5	13.53	3.33	8.90	19.1	81.283	Vertical	1	Pass
20.0MHz Band QPSK	100/0	1720	16.15	3.17	8.90	21.88	154.170	Vertical	1	Pass
		1732.5	17.01	3.32	8.90	22.59	181.552	Vertical	1	Pass
		1745	14.44	3.36	8.90	19.98	99.541	Vertical	1	Pass

Radiated Power (EIRP) for Band 4										
Mode	RB/RB SIZE	Frequency	Result						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
1.4MHz Band 16 QAM	6/0	1710.7	15.81	3.12	8.90	21.59	144.212	Horizontal	1	Pass
		1732.5	15.91	3.27	8.90	21.54	142.561	Horizontal	1	Pass
		1754.3	15.28	3.29	8.90	20.89	122.744	Horizontal	1	Pass
3.0MHz Band 16 QAM	15/0	1711.5	14.20	3.13	8.90	19.97	99.312	Horizontal	1	Pass
		1732.5	15.81	3.27	8.90	21.44	139.316	Horizontal	1	Pass
		1753.5	15.63	3.30	8.90	21.23	132.739	Horizontal	1	Pass
5.0MHz Band 16 QAM	25/0	1712.5	15.09	3.13	8.90	20.86	121.899	Horizontal	1	Pass
		1732.5	13.81	3.27	8.90	19.44	87.902	Horizontal	1	Pass
		1752.5	14.46	3.30	8.90	20.06	101.391	Horizontal	1	Pass
10.0MHz Band 16 QAM	50/0	1715	15.58	3.15	8.90	21.33	135.831	Horizontal	1	Pass
		1732.5	13.43	3.31	8.90	19.02	79.799	Horizontal	1	Pass
		1750	14.40	3.33	8.90	19.97	99.312	Horizontal	1	Pass
15.0MHz Band 16 QAM	75/0	1717.5	13.26	3.15	8.90	19.01	79.616	Horizontal	1	Pass
		1732.5	16.09	3.31	8.90	21.68	147.231	Horizontal	1	Pass
		1747.5	12.93	3.33	8.90	18.5	70.795	Horizontal	1	Pass
20.0MHz Band 16 QAM	100/0	1720	12.84	3.17	8.90	18.57	71.945	Horizontal	1	Pass
		1732.5	15.24	3.32	8.90	20.82	120.781	Horizontal	1	Pass
		1745	14.10	3.36	8.90	19.64	92.045	Horizontal	1	Pass
1.4MHz Band 16 QAM	6/0	1710.7	13.75	3.12	8.90	19.53	89.743	Vertical	1	Pass
		1732.5	15.43	3.27	8.90	21.06	127.644	Vertical	1	Pass
		1754.3	16.22	3.29	8.90	21.83	152.405	Vertical	1	Pass
3.0MHz Band 16 QAM	15/0	1711.5	11.88	3.13	8.90	17.65	58.210	Vertical	1	Pass
		1732.5	15.69	3.27	8.90	21.32	135.519	Vertical	1	Pass
		1753.5	15.60	3.30	8.90	21.2	131.826	Vertical	1	Pass
5.0MHz Band 16 QAM	25/0	1712.5	15.95	3.13	8.90	21.72	148.594	Vertical	1	Pass
		1732.5	15.49	3.27	8.90	21.12	129.420	Vertical	1	Pass
		1752.5	13.41	3.30	8.90	19.01	79.616	Vertical	1	Pass
10.0MHz Band 16 QAM	50/0	1715	13.05	3.15	8.90	18.8	75.858	Vertical	1	Pass
		1732.5	14.19	3.31	8.90	19.78	95.060	Vertical	1	Pass
		1750	15.66	3.33	8.90	21.23	132.739	Vertical	1	Pass
15.0MHz Band 16 QAM	75/0	1717.5	13.32	3.15	8.90	19.07	80.724	Vertical	1	Pass
		1732.5	12.63	3.31	8.90	18.22	66.374	Vertical	1	Pass
		1747.5	14.36	3.33	8.90	19.93	98.401	Vertical	1	Pass
20.0MHz Band 16 QAM	100/0	1720	16.15	3.17	8.90	21.88	154.170	Vertical	1	Pass
		1732.5	14.71	3.32	8.90	20.29	106.905	Vertical	1	Pass
		1745	16.03	3.36	8.90	21.57	143.549	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							Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP		
1.4MHz Band QPSK	6/0	824.7	18.85	2.01	5.30	2.15	19.99	99.770	Horizontal	7	Pass
		836.5	19.90	2.01	5.30	2.15	21.04	127.057	Horizontal	7	Pass
		848.3	18.66	2.02	5.70	2.15	20.19	104.472	Horizontal	7	Pass
3.0MHz Band QPSK	15/0	825.5	19.87	2.01	5.30	2.15	21.01	126.183	Horizontal	7	Pass
		836.5	19.51	2.01	5.30	2.15	20.65	116.145	Horizontal	7	Pass
		847.5	19.26	2.02	5.70	2.15	20.79	119.950	Horizontal	7	Pass
5.0MHz Band QPSK	25/0	826.5	18.86	2.01	5.30	2.15	20	100.000	Horizontal	7	Pass
		836.5	19.93	2.01	5.30	2.15	21.07	127.938	Horizontal	7	Pass
		846.5	19.37	2.02	5.70	2.15	20.9	123.027	Horizontal	7	Pass
10.0MHz Band QPSK	50/0	829	18.81	2.01	5.30	2.15	19.95	98.855	Horizontal	7	Pass
		836.5	19.62	2.01	5.30	2.15	20.76	119.124	Horizontal	7	Pass
		844	18.59	2.02	5.70	2.15	20.12	102.802	Horizontal	7	Pass
1.4MHz Band QPSK	6/0	824.7	20.60	2.01	5.30	2.15	21.74	149.279	Vertical	7	Pass
		836.5	20.29	2.01	5.30	2.15	21.43	138.995	Vertical	7	Pass
		848.3	19.27	2.02	5.70	2.15	20.8	120.226	Vertical	7	Pass
3.0MHz Band QPSK	15/0	825.5	20.17	2.01	5.30	2.15	21.31	135.207	Vertical	7	Pass
		836.5	19.65	2.01	5.30	2.15	20.79	119.950	Vertical	7	Pass
		847.5	18.17	2.02	5.70	2.15	19.7	93.325	Vertical	7	Pass
5.0MHz Band QPSK	25/0	826.5	18.04	2.01	5.30	2.15	19.18	82.794	Vertical	7	Pass
		836.5	19.41	2.01	5.30	2.15	20.55	113.501	Vertical	7	Pass
		846.5	19.23	2.02	5.70	2.15	20.76	119.124	Vertical	7	Pass
10.0MHz Band QPSK	50/0	829	18.06	2.01	5.30	2.15	19.2	83.176	Vertical	7	Pass
		836.5	20.99	2.01	5.30	2.15	22.13	163.305	Vertical	7	Pass
		844	17.98	2.02	5.70	2.15	19.51	89.331	Vertical	7	Pass

Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result							Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP		
1.4MHz Band 16 QAM	6/0	824.7	19.67	2.01	5.30	2.15	20.81	120.504	Horizontal	7	Pass
		836.5	20.34	2.01	5.30	2.15	21.48	140.605	Horizontal	7	Pass
		848.3	19.09	2.02	5.70	2.15	20.62	115.345	Horizontal	7	Pass
3.0MHz Band 16 QAM	15/0	825.5	19.28	2.01	5.30	2.15	20.42	110.154	Horizontal	7	Pass
		836.5	18.20	2.01	5.30	2.15	19.34	85.901	Horizontal	7	Pass
		847.5	18.99	2.02	5.70	2.15	20.52	112.720	Horizontal	7	Pass
5.0MHz Band 16 QAM	25/0	826.5	19.53	2.01	5.30	2.15	20.67	116.681	Horizontal	7	Pass
		836.5	18.19	2.01	5.30	2.15	19.33	85.704	Horizontal	7	Pass
		846.5	19.39	2.02	5.70	2.15	20.92	123.595	Horizontal	7	Pass
10.0MHz Band 16 QAM	50/0	829	18.25	2.01	5.30	2.15	19.39	86.896	Horizontal	7	Pass
		836.5	18.51	2.01	5.30	2.15	19.65	92.257	Horizontal	7	Pass
		844	18.69	2.02	5.70	2.15	20.22	105.196	Horizontal	7	Pass
1.4MHz Band 16 QAM	6/0	824.7	20.86	2.01	5.30	2.15	22	158.489	Vertical	7	Pass
		836.5	19.57	2.01	5.30	2.15	20.71	117.761	Vertical	7	Pass
		848.3	19.28	2.02	5.70	2.15	20.81	120.504	Vertical	7	Pass
3.0MHz Band 16 QAM	15/0	825.5	18.00	2.01	5.30	2.15	19.14	82.035	Vertical	7	Pass
		836.5	20.03	2.01	5.30	2.15	21.17	130.918	Vertical	7	Pass
		847.5	18.82	2.02	5.70	2.15	20.35	108.393	Vertical	7	Pass
5.0MHz Band 16 QAM	25/0	826.5	19.15	2.01	5.30	2.15	20.29	106.905	Vertical	7	Pass
		836.5	17.45	2.01	5.30	2.15	18.59	72.277	Vertical	7	Pass
		846.5	18.82	2.02	5.70	2.15	20.35	108.393	Vertical	7	Pass
10.0MHz Band 16 QAM	50/0	829	18.25	2.01	5.30	2.15	19.39	86.896	Vertical	7	Pass
		836.5	21.24	2.01	5.30	2.15	22.38	172.982	Vertical	7	Pass
		844	20.96	2.02	5.70	2.15	22.49	177.419	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						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
						Average (dBm)				
5.0MHz Band QPSK	25/0	2502.5	15.81	4.54	9.00	20.27	106.414	Horizontal	2	Pass
		2535	14.91	4.69	9.00	19.22	83.560	Horizontal	2	Pass
		2567.5	12.02	4.71	9.00	16.31	42.756	Horizontal	2	Pass
10.0MHz Band QPSK	50/0	2505	12.20	4.55	9.00	16.65	46.238	Horizontal	2	Pass
		2535	13.95	4.69	9.00	18.26	66.988	Horizontal	2	Pass
		2565	13.08	4.72	9.00	17.36	54.450	Horizontal	2	Pass
15.0MHz Band QPSK	75/0	2507.5	13.42	4.55	9.00	17.87	61.235	Horizontal	2	Pass
		2535	13.35	4.69	9.00	17.66	58.345	Horizontal	2	Pass
		2562.5	14.45	4.72	9.00	18.73	74.645	Horizontal	2	Pass
20.0MHz Band QPSK	100/0	2510	12.58	4.57	9.00	17.01	50.234	Horizontal	2	Pass
		2535	13.45	4.73	9.00	17.72	59.156	Horizontal	2	Pass
		2560	15.68	4.75	9.00	19.93	98.401	Horizontal	2	Pass
5.0MHz Band QPSK	25/0	2502.5	12.01	4.54	9.00	16.47	44.361	Vertical	2	Pass
		2535	17.05	4.69	9.00	21.36	136.773	Vertical	2	Pass
		2567.5	15.90	4.71	9.00	20.19	104.472	Vertical	2	Pass
10.0MHz Band QPSK	50/0	2505	13.24	4.55	9.00	17.69	58.749	Vertical	2	Pass
		2535	14.65	4.69	9.00	18.96	78.705	Vertical	2	Pass
		2565	13.97	4.72	9.00	18.25	66.834	Vertical	2	Pass
15.0MHz Band QPSK	75/0	2507.5	13.92	4.55	9.00	18.37	68.707	Vertical	2	Pass
		2535	14.57	4.69	9.00	18.88	77.268	Vertical	2	Pass
		2562.5	12.77	4.72	9.00	17.05	50.699	Vertical	2	Pass
20.0MHz Band QPSK	100/0	2510	16.03	4.57	9.00	20.46	111.173	Vertical	2	Pass
		2535	17.24	4.73	9.00	21.51	141.579	Vertical	2	Pass
		2560	16.51	4.75	9.00	20.76	119.124	Vertical	2	Pass

Radiated Power (EIRP) for Band 7										
Mode	RB/RB SIZE	Frequency	Result						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
5.0MHz Band 16 QAM	25/0	2502.5	14.89	4.54	9.00	19.35	86.099	Horizontal	2	Pass
		2535	14.34	4.69	9.00	18.65	73.282	Horizontal	2	Pass
		2567.5	15.08	4.71	9.00	19.37	86.497	Horizontal	2	Pass
10.0MHz Band 16 QAM	50/0	2505	13.03	4.55	9.00	17.48	55.976	Horizontal	2	Pass
		2535	15.60	4.69	9.00	19.91	97.949	Horizontal	2	Pass
		2565	15.14	4.72	9.00	19.42	87.498	Horizontal	2	Pass
15.0MHz Band 16 QAM	75/0	2507.5	15.10	4.55	9.00	19.55	90.157	Horizontal	2	Pass
		2535	14.66	4.69	9.00	18.97	78.886	Horizontal	2	Pass
		2562.5	12.38	4.72	9.00	16.66	46.345	Horizontal	2	Pass
20.0MHz Band 16 QAM	100/0	2510	12.21	4.57	9.00	16.64	46.132	Horizontal	2	Pass
		2535	14.64	4.73	9.00	18.91	77.804	Horizontal	2	Pass
		2560	16.23	4.75	9.00	20.48	111.686	Horizontal	2	Pass
5.0MHz Band 16 QAM	25/0	2502.5	15.90	4.54	9.00	20.36	108.643	Vertical	2	Pass
		2535	14.74	4.69	9.00	19.05	80.353	Vertical	2	Pass
		2567.5	14.82	4.71	9.00	19.11	81.470	Vertical	2	Pass
10.0MHz Band 16 QAM	50/0	2505	14.68	4.55	9.00	19.13	81.846	Vertical	2	Pass
		2535	15.88	4.69	9.00	20.19	104.472	Vertical	2	Pass
		2565	14.34	4.72	9.00	18.62	72.778	Vertical	2	Pass
15.0MHz Band 16 QAM	75/0	2507.5	14.86	4.55	9.00	19.31	85.310	Vertical	2	Pass
		2535	13.45	4.69	9.00	17.76	59.704	Vertical	2	Pass
		2562.5	10.99	4.72	9.00	15.27	33.651	Vertical	2	Pass
20.0MHz Band 16 QAM	100/0	2510	16.45	4.57	9.00	20.88	122.462	Vertical	2	Pass
		2535	14.66	4.73	9.00	18.93	78.163	Vertical	2	Pass
		2560	13.50	4.75	9.00	17.75	59.566	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							Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP		
1.4MHz Band QPSK	6/0	699.7	19.26	1.91	5.60	2.15	20.8	120.226	Horizontal	3	Pass
		707.5	20.06	1.91	5.70	2.15	21.7	147.911	Horizontal	3	Pass
		715.3	17.37	1.93	5.80	2.15	19.09	81.096	Horizontal	3	Pass
3.0MHz Band QPSK	15/0	700.5	18.38	1.91	5.60	2.15	19.92	98.175	Horizontal	3	Pass
		707.5	18.40	1.91	5.70	2.15	20.04	100.925	Horizontal	3	Pass
		714.5	18.51	1.93	5.80	2.15	20.23	105.439	Horizontal	3	Pass
5.0MHz Band QPSK	25/0	701.5	18.49	1.91	5.60	2.15	20.03	100.693	Horizontal	3	Pass
		707.5	18.72	1.91	5.70	2.15	20.36	108.643	Horizontal	3	Pass
		713.5	19.42	1.92	5.80	2.15	21.15	130.317	Horizontal	3	Pass
10.0MHz Band QPSK	50/0	704	18.87	1.91	5.60	2.15	20.41	109.901	Horizontal	3	Pass
		707.5	20.12	1.91	5.70	2.15	21.76	149.968	Horizontal	3	Pass
		711	17.20	1.92	5.80	2.15	18.93	78.163	Horizontal	3	Pass
1.4MHz Band QPSK	6/0	699.7	17.88	1.91	5.60	2.15	19.42	87.498	Vertical	3	Pass
		707.5	18.38	1.91	5.70	2.15	20.02	100.462	Vertical	3	Pass
		715.3	17.89	1.93	5.80	2.15	19.61	91.411	Vertical	3	Pass
3.0MHz Band QPSK	15/0	700.5	18.30	1.91	5.60	2.15	19.84	96.383	Vertical	3	Pass
		707.5	17.76	1.91	5.70	2.15	19.4	87.096	Vertical	3	Pass
		714.5	19.51	1.93	5.80	2.15	21.23	132.739	Vertical	3	Pass
5.0MHz Band QPSK	25/0	701.5	17.78	1.91	5.60	2.15	19.32	85.507	Vertical	3	Pass
		707.5	19.05	1.91	5.70	2.15	20.69	117.220	Vertical	3	Pass
		713.5	18.96	1.92	5.80	2.15	20.69	117.220	Vertical	3	Pass
10.0MHz Band QPSK	50/0	704	17.73	1.91	5.60	2.15	19.27	84.528	Vertical	3	Pass
		707.5	18.67	1.91	5.70	2.15	20.31	107.399	Vertical	3	Pass
		711	19.42	1.92	5.80	2.15	21.15	130.317	Vertical	3	Pass

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP		
1.4MHz Band 16 QAM	6/0	699.7	17.45	1.91	5.60	2.15	18.99	79.250	Horizontal	3	Pass
		707.5	18.35	1.91	5.70	2.15	19.99	99.770	Horizontal	3	Pass
		715.3	17.43	1.93	5.80	2.15	19.15	82.224	Horizontal	3	Pass
3.0MHz Band 16 QAM	15/0	700.5	18.36	1.91	5.60	2.15	19.9	97.724	Horizontal	3	Pass
		707.5	17.02	1.91	5.70	2.15	18.66	73.451	Horizontal	3	Pass
		714.5	16.73	1.93	5.80	2.15	18.45	69.984	Horizontal	3	Pass
5.0MHz Band 16 QAM	25/0	701.5	17.48	1.91	5.60	2.15	19.02	79.799	Horizontal	3	Pass
		707.5	19.21	1.91	5.70	2.15	20.85	121.619	Horizontal	3	Pass
		713.5	19.33	1.92	5.80	2.15	21.06	127.644	Horizontal	3	Pass
10.0MHz Band 16 QAM	50/0	704	19.75	1.91	5.60	2.15	21.29	134.586	Horizontal	3	Pass
		707.5	16.96	1.91	5.70	2.15	18.6	72.444	Horizontal	3	Pass
		711	18.59	1.92	5.80	2.15	20.32	107.647	Horizontal	3	Pass
1.4MHz Band 16 QAM	6/0	699.7	16.62	1.91	5.60	2.15	18.16	65.464	Vertical	3	Pass
		707.5	18.65	1.91	5.70	2.15	20.29	106.905	Vertical	3	Pass
		715.3	18.75	1.93	5.80	2.15	20.47	111.429	Vertical	3	Pass
3.0MHz Band 16 QAM	15/0	700.5	18.64	1.91	5.60	2.15	20.18	104.232	Vertical	3	Pass
		707.5	17.15	1.91	5.70	2.15	18.79	75.683	Vertical	3	Pass
		714.5	19.10	1.93	5.80	2.15	20.82	120.781	Vertical	3	Pass
5.0MHz Band 16 QAM	25/0	701.5	18.59	1.91	5.60	2.15	20.13	103.039	Vertical	3	Pass
		707.5	18.97	1.91	5.70	2.15	20.61	115.080	Vertical	3	Pass
		713.5	16.98	1.92	5.80	2.15	18.71	74.302	Vertical	3	Pass
10.0MHz Band 16 QAM	50/0	704	18.28	1.91	5.60	2.15	19.82	95.940	Vertical	3	Pass
		707.5	19.42	1.91	5.70	2.15	21.06	127.644	Vertical	3	Pass
		711	17.65	1.92	5.80	2.15	19.38	86.696	Vertical	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

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17											
Mode	RB/RB SIZE	Frequency	Result							Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP		
5.0MHz Band QPSK	25/0	706.5	19.29	1.91	5.60	2.15	20.83	121.060	Vertical	3	Pass
		710	18.54	1.91	5.70	2.15	20.18	104.232	Vertical	3	Pass
		713.5	18.68	1.92	5.80	2.15	20.41	109.901	Vertical	3	Pass
10.0MHz Band QPSK	50/0	709	18.02	1.91	5.60	2.15	19.56	90.365	Vertical	3	Pass
		710	19.04	1.91	5.70	2.15	20.68	116.950	Vertical	3	Pass
		711	19.90	1.92	5.80	2.15	21.63	145.546	Vertical	3	Pass
5.0MHz Band QPSK	25/0	706.5	19.06	1.91	5.60	2.15	20.6	114.815	Horizontal	3	Pass
		710	19.20	1.91	5.70	2.15	20.84	121.339	Horizontal	3	Pass
		713.5	19.07	1.92	5.80	2.15	20.8	120.226	Horizontal	3	Pass
10.0MHz Band QPSK	50/0	709	18.94	1.91	5.60	2.15	20.48	111.686	Horizontal	3	Pass
		710	20.05	1.91	5.70	2.15	21.69	147.571	Horizontal	3	Pass
		711	19.76	1.92	5.80	2.15	21.49	140.929	Horizontal	3	Pass

Radiated Power (ERP) for Band 17											
Mode	RB/RB SIZE	Frequency	Result							Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dBi)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP		
5.0MHz Band 16 QAM	25/0	706.5	16.81	1.91	5.6	2.15	20.9	123.027	Vertical	3	Pass
		710	16.39	1.91	5.7	2.15	20.28	106.660	Vertical	3	Pass
		713.5	17.43	1.92	5.8	2.15	21.26	133.660	Vertical	3	Pass
10.0MHz Band 16 QAM	50/0	709	15.91	1.91	5.6	2.15	20.39	109.396	Vertical	3	Pass
		710	15.84	1.91	5.7	2.15	21.26	133.660	Vertical	3	Pass
		711	15.59	1.92	5.8	2.15	22.03	159.588	Vertical	3	Pass
5.0MHz Band 16 QAM	25/0	706.5	17.52	1.91	5.6	2.15	21.19	131.522	Horizontal	3	Pass
		710	17.46	1.91	5.7	2.15	20.92	123.595	Horizontal	3	Pass
		713.5	16.25	1.92	5.8	2.15	21.15	130.317	Horizontal	3	Pass
10.0MHz Band 16 QAM	50/0	709	17.30	1.91	5.6	2.15	21.36	136.773	Horizontal	3	Pass
		710	17.57	1.91	5.7	2.15	22.02	159.221	Horizontal	3	Pass
		711	16.65	1.92	5.8	2.15	22.07	161.065	Horizontal	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)

8.9 LTE BAND 41

Radiated Power (EIRP) for Band 41										
Mode	RB/RB SIZE	Frequency	Result						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
5.0MHz Band QPSK	25/0	2498.50	16.08	4.54	9.00	20.54	113.240	Horizontal	2	Pass
		2593.00	15.95	4.69	9.00	20.26	106.170	Horizontal	2	Pass
		2687.50	14.88	4.71	9.00	19.17	82.604	Horizontal	2	Pass
10.0MHz Band QPSK	50/0	2501.00	16.58	4.55	9.00	21.03	126.765	Horizontal	2	Pass
		2593.00	15.50	4.69	9.00	19.81	95.719	Horizontal	2	Pass
		2685.00	15.07	4.72	9.00	19.35	86.099	Horizontal	2	Pass
15.0MHz Band QPSK	75/0	2503.50	13.13	4.55	9.00	17.58	57.280	Horizontal	2	Pass
		2593.00	15.80	4.69	9.00	20.11	102.565	Horizontal	2	Pass
		2682.50	16.85	4.72	9.00	21.13	129.718	Horizontal	2	Pass
20.0MHz Band QPSK	100/0	2506.00	14.63	4.57	9.00	19.06	80.538	Horizontal	2	Pass
		2593.00	15.30	4.73	9.00	19.57	90.573	Horizontal	2	Pass
		2680.00	16.40	4.75	9.00	20.65	116.145	Horizontal	2	Pass
5.0MHz Band QPSK	25/0	2498.50	15.83	4.54	9.00	20.29	106.905	Vertical	2	Pass
		2593.00	14.95	4.69	9.00	19.26	84.333	Vertical	2	Pass
		2687.50	14.57	4.71	9.00	18.86	76.913	Vertical	2	Pass
10.0MHz Band QPSK	50/0	2501.00	13.46	4.55	9.00	17.91	61.802	Vertical	2	Pass
		2593.00	14.95	4.69	9.00	19.26	84.333	Vertical	2	Pass
		2685.00	15.84	4.72	9.00	20.12	102.802	Vertical	2	Pass
15.0MHz Band QPSK	75/0	2503.50	14.51	4.55	9.00	18.96	78.705	Vertical	2	Pass
		2593.00	15.89	4.69	9.00	20.2	104.713	Vertical	2	Pass
		2682.50	16.25	4.72	9.00	20.53	112.980	Vertical	2	Pass
20.0MHz Band QPSK	100/0	2506.00	16.73	4.57	9.00	21.16	130.617	Vertical	2	Pass
		2593.00	13.95	4.73	9.00	18.22	66.374	Vertical	2	Pass
		2680.00	16.28	4.75	9.00	20.53	112.980	Vertical	2	Pass

Radiated Power (EIRP) for Band 41										
Mode	RB/RB SIZE	Frequency	Result						Limit (W)	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. EIRP		
5.0MHz Band 16 QAM	25/0	2498.50	16.22	4.54	9.00	20.68	116.950	Horizontal	2	Pass
		2593.00	17.75	4.69	9.00	22.06	160.694	Horizontal	2	Pass
		2687.50	17.07	4.71	9.00	21.36	136.773	Horizontal	2	Pass
10.0MHz Band 16 QAM	50/0	2501.00	15.67	4.55	9.00	20.12	102.802	Horizontal	2	Pass
		2593.00	17.77	4.69	9.00	22.08	161.436	Horizontal	2	Pass
		2685.00	15.24	4.72	9.00	19.52	89.536	Horizontal	2	Pass
15.0MHz Band 16 QAM	75/0	2503.50	15.68	4.55	9.00	20.13	103.039	Horizontal	2	Pass
		2593.00	15.63	4.69	9.00	19.94	98.628	Horizontal	2	Pass
		2682.50	16.73	4.72	9.00	21.01	126.183	Horizontal	2	Pass
20.0MHz Band 16 QAM	100/0	2506.00	17.65	4.57	9.00	22.08	161.436	Horizontal	2	Pass
		2593.00	14.71	4.73	9.00	18.98	79.068	Horizontal	2	Pass
		2680.00	13.68	4.75	9.00	17.93	62.087	Horizontal	2	Pass
5.0MHz Band 16 QAM	25/0	2498.50	15.49	4.54	9.00	19.95	98.855	Vertical	2	Pass
		2593.00	15.44	4.69	9.00	19.75	94.406	Vertical	2	Pass
		2687.50	14.54	4.71	9.00	18.83	76.384	Vertical	2	Pass
10.0MHz Band 16 QAM	50/0	2501.00	16.09	4.55	9.00	20.54	113.240	Vertical	2	Pass
		2593.00	16.16	4.69	9.00	20.47	111.429	Vertical	2	Pass
		2685.00	16.57	4.72	9.00	20.85	121.619	Vertical	2	Pass
15.0MHz Band 16 QAM	75/0	2503.50	15.50	4.55	9.00	19.95	98.855	Vertical	2	Pass
		2593.00	15.44	4.69	9.00	19.75	94.406	Vertical	2	Pass
		2682.50	14.55	4.72	9.00	18.83	76.384	Vertical	2	Pass
20.0MHz Band 16 QAM	100/0	2506.00	16.11	4.57	9.00	20.54	113.240	Vertical	2	Pass
		2593.00	16.20	4.73	9.00	20.47	111.429	Vertical	2	Pass
		2680.00	16.60	4.75	9.00	20.85	121.619	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)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

LTE Band 2/4/5/7/12/17/41

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	-54.17	4.04	33.51	-24.70	-13	-11.70	Horizontal
3701.4	-52.40	4.04	33.51	-22.93	-13	-9.93	Vertical
5552.1	-57.03	5.24	35.84	-26.43	-13	-13.43	Vertical
5552.1	-56.53	5.24	35.84	-25.93	-13	-12.93	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-47.23	4.04	33.56	-17.71	-13	-4.71	Horizontal
3760	-53.91	4.04	33.56	-24.39	-13	-11.39	Vertical
5640	-50.38	5.24	35.91	-19.71	-13	-6.71	Vertical
5640	-53.40	5.24	35.91	-22.73	-13	-9.73	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-52.37	4.04	34.00	-22.41	-13	-9.41	Horizontal
3818.6	-53.10	4.04	34.00	-23.14	-13	-10.14	Vertical
5727.9	-53.81	5.24	36.04	-23.01	-13	-10.01	Vertical
5727.9	-49.71	5.24	36.04	-18.91	-13	-5.91	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	-50.39	4.07	33.54	-20.92	-13	-7.92	Horizontal
3720	-53.98	4.07	33.54	-24.51	-13	-11.51	Vertical
5580	-49.58	5.28	35.86	-19.00	-13	-6.00	Vertical
5580	-52.11	5.28	35.86	-21.53	-13	-8.53	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-49.21	4.04	33.56	-19.69	-13	-6.69	Horizontal
3760	-49.84	4.04	33.56	-20.32	-13	-7.32	Vertical
5640	-55.33	5.24	35.91	-24.66	-13	-11.66	Vertical
5640	-56.77	5.24	35.91	-26.10	-13	-13.10	Horizontal
Test Results for High Channel 1900MHz							
3800	-50.85	4.04	34.00	-20.89	-13	-7.89	Horizontal
3800	-51.43	4.04	34.00	-21.47	-13	-8.47	Vertical
5700	-56.59	5.24	36.04	-25.79	-13	-12.79	Vertical
5700	-57.80	5.24	36.04	-27.00	-13	-14.00	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	-47.72	4.02	29.80	-21.94	-13	-8.94	Horizontal
3421.4	-51.45	4.02	29.80	-25.67	-13	-12.67	Vertical
5132.1	-50.55	5.24	35.84	-19.95	-13	-6.95	Vertical
5132.1	-49.33	5.24	35.84	-18.73	-13	-5.73	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-50.56	4.03	30.00	-24.59	-13	-11.59	Horizontal
3465	-48.10	4.03	30.00	-22.13	-13	-9.13	Vertical
5197.5	-53.89	5.25	35.86	-23.28	-13	-10.28	Vertical
5197.5	-53.72	5.25	35.86	-23.11	-13	-10.11	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-47.84	4.05	30.01	-21.88	-13	-8.88	Horizontal
3508.6	-48.64	4.05	30.01	-22.68	-13	-9.68	Vertical
5262.9	-51.79	5.26	35.86	-21.19	-13	-8.19	Vertical
5262.9	-56.07	5.26	35.86	-25.47	-13	-12.47	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	-49.48	4.02	29.80	-23.70	-13	-10.70	Horizontal
3440	-49.47	4.02	29.80	-23.69	-13	-10.69	Vertical
5160	-53.38	5.24	35.84	-22.78	-13	-9.78	Vertical
5160	-57.47	5.24	35.84	-26.87	-13	-13.87	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-51.97	4.03	30.00	-26.00	-13	-13.00	Horizontal
3465	-53.60	4.03	30.00	-27.63	-13	-14.63	Vertical
5197.5	-56.93	5.25	35.86	-26.32	-13	-13.32	Vertical
5197.5	-53.03	5.25	35.86	-22.42	-13	-9.42	Horizontal
Test Results for High Channel 1745MHz							
2490	-53.32	2.91	27.68	-28.55	-13	-15.55	Horizontal
3490	-49.96	2.91	27.68	-25.19	-13	-12.19	Vertical
5235	-56.59	5.26	35.86	-25.99	-13	-12.99	Vertical
5235	-56.56	5.26	35.86	-25.96	-13	-12.96	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	-49.35	2.78	27.50	-24.63	-13	-11.63	Horizontal
1649.4	-52.71	2.78	27.50	-27.99	-13	-14.99	Vertical
2474.1	-53.69	2.90	27.80	-28.79	-13	-15.79	Vertical
2474.1	-51.57	2.90	27.80	-26.67	-13	-13.67	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-52.17	2.78	27.48	-27.47	-13	-14.47	Horizontal
1673	-49.65	2.78	27.48	-24.95	-13	-11.95	Vertical
2509.5	-50.31	2.91	27.70	-25.52	-13	-12.52	Vertical
2509.5	-50.95	2.91	27.70	-26.16	-13	-13.16	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-54.06	2.78	27.43	-29.41	-13	-16.41	Horizontal
1696.6	-48.20	2.78	27.43	-23.55	-13	-10.55	Vertical
2544.9	-50.83	2.92	27.74	-26.01	-13	-13.01	Vertical
2544.9	-54.70	2.92	27.74	-29.88	-13	-16.88	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	-51.50	2.78	27.50	-26.78	-13	-13.78	Horizontal
1658	-54.35	2.78	27.50	-29.63	-13	-16.63	Vertical
2487	-52.37	2.90	27.80	-27.47	-13	-14.47	Vertical
2487	-55.76	2.90	27.80	-30.86	-13	-17.86	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-50.06	2.78	27.48	-25.36	-13	-12.36	Horizontal
1673	-54.14	2.78	27.48	-29.44	-13	-16.44	Vertical
2509.5	-55.07	2.91	27.70	-30.28	-13	-17.28	Vertical
2509.5	-55.64	2.91	27.70	-30.85	-13	-17.85	Horizontal
Test Results for High Channel 844MHz							
1688	-53.47	2.78	27.43	-28.82	-13	-15.82	Horizontal
1688	-50.63	2.78	27.43	-25.98	-13	-12.98	Vertical
2532	-56.33	2.92	27.74	-31.51	-13	-18.51	Vertical
2532	-51.58	2.92	27.74	-26.76	-13	-13.76	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	-60.42	5.23	35.81	-29.84	-25	-4.84	Horizontal
5005	-57.58	5.23	35.81	-27.00	-25	-2.00	Vertical
7507.5	-62.20	5.67	36.85	-31.02	-25	-6.02	Vertical
7507.5	-62.22	5.67	36.85	-31.04	-25	-6.04	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-59.39	5.23	35.82	-28.80	-25	-3.80	Horizontal
5070	-59.59	5.23	35.82	-29.00	-25	-4.00	Vertical
7605	-64.52	5.67	36.85	-33.34	-25	-8.34	Vertical
7605	-59.43	5.67	36.85	-28.25	-25	-3.25	Horizontal
Test Results for High Channel 2567.5MHz							
5135	-57.50	5.24	35.83	-26.91	-25	-1.91	Horizontal
5135	-57.75	5.24	35.83	-27.16	-25	-2.16	Vertical
7702.5	-61.81	5.68	36.87	-30.62	-25	-5.62	Vertical
7702.5	-62.66	5.68	36.87	-31.47	-25	-6.47	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	-61.59	5.23	35.82	-31.00	-25	-6.00	Horizontal
5020	-61.60	5.23	35.82	-31.01	-25	-6.01	Vertical
7530	-63.32	5.67	36.86	-32.13	-25	-7.13	Vertical
7530	-59.80	5.67	36.86	-28.61	-25	-3.61	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-60.47	5.23	35.82	-29.88	-25	-4.88	Horizontal
5070	-58.35	5.23	35.82	-27.76	-25	-2.76	Vertical
7605	-61.61	5.67	36.85	-30.43	-25	-5.43	Vertical
7605	-63.56	5.67	36.85	-32.38	-25	-7.38	Horizontal
Test Results for High Channel 2560MHz							
5120	-57.16	5.24	35.83	-26.57	-25	-1.57	Horizontal
5120	-58.85	5.24	35.83	-28.26	-25	-3.26	Vertical
7680	-64.62	5.70	36.88	-33.44	-25	-8.44	Vertical
7680	-63.12	5.70	36.88	-31.94	-25	-6.94	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	-53.90	2.60	27.2	-29.30	-13	-16.30	Horizontal
1399.4	-54.37	2.60	27.2	-29.77	-13	-16.77	Vertical
2099.1	-57.33	2.85	27.54	-32.64	-13	-19.64	Vertical
2099.1	-51.53	2.85	27.54	-26.84	-13	-13.84	Horizontal
Test Results For Mid Channel 707.5MHz							
1415	-53.17	2.61	27.28	-28.50	-13	-15.50	Horizontal
1415	-50.53	2.61	27.28	-25.86	-13	-12.86	Vertical
2122.5	-49.70	2.87	27.59	-24.98	-13	-11.98	Vertical
2122.5	-54.70	2.87	27.59	-29.98	-13	-16.98	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-48.31	2.63	27.28	-23.66	-13	-10.66	Horizontal
1430.6	-47.42	2.63	27.28	-22.77	-13	-9.77	Vertical
2145.9	-50.27	2.88	27.60	-25.55	-13	-12.55	Vertical
2145.9	-54.97	2.88	27.60	-30.25	-13	-17.25	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	-49.97	2.61	27.26	-25.32	-13	-12.32	Horizontal
1408	-49.62	2.61	27.26	-24.97	-13	-11.97	Vertical
2112	-55.50	2.87	27.58	-30.79	-13	-17.79	Vertical
2112	-49.26	2.87	27.58	-24.55	-13	-11.55	Horizontal
Test Results for Mid Channel 707.5MHz							
1415	-51.54	2.61	27.28	-26.87	-13	-13.87	Horizontal
1415	-47.66	2.61	27.28	-22.99	-13	-9.99	Vertical
2122.5	-50.77	2.87	27.59	-26.05	-13	-13.05	Vertical
2122.5	-51.06	2.87	27.59	-26.34	-13	-13.34	Horizontal
Test Results for High Channel 711MHz							
1422	-52.11	2.62	27.28	-27.45	-13	-14.45	Horizontal
1422	-50.64	2.62	27.28	-25.98	-13	-12.98	Vertical
2133	-54.20	2.87	27.60	-29.47	-13	-16.47	Vertical
2133	-53.67	2.87	27.60	-28.94	-13	-15.94	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.

9.7 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413	-53.08	2.61	27.28	-28.41	-13	-15.41	Horizontal
1413	-47.67	2.61	27.28	-23.00	-13	-10.00	Vertical
2119.5	-56.98	2.87	27.59	-32.26	-13	-19.26	Vertical
2119.5	-55.65	2.87	27.59	-30.93	-13	-17.93	Horizontal
Test Results For Mid Channel 710MHz							
1420	-51.34	2.62	27.30	-26.66	-13	-13.66	Horizontal
1420	-53.72	2.62	27.30	-29.04	-13	-16.04	Vertical
2130	-54.22	2.87	27.62	-29.47	-13	-16.47	Vertical
2130	-57.24	2.87	27.62	-32.49	-13	-19.49	Horizontal
Test Results for High Channel 713.5MHz							
1427	-47.36	2.66	27.28	-22.74	-13	-9.74	Horizontal
1427	-47.38	2.66	27.28	-22.76	-13	-9.76	Vertical
2140.5	-52.48	2.88	27.60	-27.76	-13	-14.76	Vertical
2140.5	-51.76	2.88	27.60	-27.04	-13	-14.04	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418	-50.79	2.62	27.30	-26.11	-13	-13.11	Horizontal
1418	-48.65	2.62	27.30	-23.97	-13	-10.97	Vertical
2127	-53.06	2.87	27.62	-28.31	-13	-15.31	Vertical
2127	-49.18	2.87	27.62	-24.43	-13	-11.43	Horizontal
Test Results for Mid Channel 710MHz							
1420	-49.03	2.62	27.30	-24.35	-13	-11.35	Horizontal
1420	-52.32	2.62	27.30	-27.64	-13	-14.64	Vertical
2130	-50.23	2.87	27.62	-25.48	-13	-12.48	Vertical
2130	-52.43	2.87	27.62	-27.68	-13	-14.68	Horizontal
Test Results for High Channel 711MHz							
1422	-53.78	2.62	27.30	-29.10	-13	-16.10	Horizontal
1422	-57.31	2.62	27.30	-32.63	-13	-19.63	Vertical
2133	-56.72	2.87	27.62	-31.97	-13	-18.97	Vertical
2133	-54.67	2.87	27.62	-29.92	-13	-16.92	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.8 LTE BAND 41

LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5205	-55.76	2.63	27.26	-31.13	-25	-6.13	Horizontal
5205	-57.67	2.63	27.26	-33.04	-25	-8.04	Vertical
7807.5	-54.74	2.67	27.58	-29.83	-25	-4.83	Vertical
7807.5	-56.10	2.67	27.58	-31.19	-25	-6.19	Horizontal
Test Results for Mid Channel 2593MHz							
5210	-54.15	2.62	27.28	-29.49	-25	-4.49	Horizontal
5210	-57.59	2.62	27.28	-32.93	-25	-7.93	Vertical
7815	-54.79	2.85	27.62	-30.02	-25	-5.02	Vertical
7815	-59.41	2.85	27.62	-34.64	-25	-9.64	Horizontal
Test Results for High Channel 2687..5MHz							
5375	-57.17	2.64	27.28	-32.53	-25	-7.53	Horizontal
5375	-54.61	2.64	27.28	-29.97	-25	-4.97	Vertical
8062.5	-58.61	2.85	27.70	-33.76	-25	-8.76	Vertical
8062.5	-55.48	2.85	27.70	-30.63	-25	-5.63	Horizontal

LTE BAND 41 (20MHZ BANDWIDTH)

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5012	-57.93	2.63	27.30	-33.26	-25	-8.26	Horizontal
5012	-55.38	2.63	27.30	-30.71	-25	-5.71	Vertical
7518	-60.46	2.67	27.62	-35.51	-25	-10.51	Vertical
7518	-56.37	2.67	27.62	-31.42	-25	-6.42	Horizontal
Test Results for Mid Channel 2593MHz							
5186	-57.91	2.62	27.33	-33.20	-25	-8.20	Horizontal
5186	-55.40	2.62	27.33	-30.69	-25	-5.69	Vertical
7779	-59.21	2.85	27.67	-34.39	-25	-9.39	Vertical
7779	-61.55	2.85	27.67	-36.73	-25	-11.73	Horizontal
Test Results for High Channel 2680MHz							
5360	-55.45	2.64	27.33	-30.76	-25	-5.76	Horizontal
5360	-55.57	2.64	27.33	-30.88	-25	-5.88	Vertical
8040	-59.16	2.85	27.67	-34.34	-25	-9.34	Vertical
8040	-59.49	2.85	27.67	-34.67	-25	-9.67	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.

10. FREQUENCY STABILITY

RULE PART(S)

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

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 2/4/5/7/12/17/41

RESULTS

See the following pages.

10.1 LTE BAND 2

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1880	13	0.006915	2.5
3.85	1880	7	0.003723	2.5
4.43	1880	6	0.003191	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	7	0.003723	2.5
Extreme (50C)	1880	15	0.007979	2.5
Extreme (40C)	1880	8	0.004255	2.5
Extreme (30C)	1880	10	0.005319	2.5
Extreme (10C)	1880	7	0.003723	2.5
Extreme (0C)	1880	5	0.002660	2.5
Extreme (-10C)	1880	9	0.004787	2.5
Extreme (-20C)	1880	17	0.009043	2.5
Extreme (-30C)	1880	20	0.010638	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1880	13	0.006915	2.5
3.85	1880	8	0.004255	2.5
4.43	1880	17	0.009043	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13	0.006915	2.5
Extreme (50C)	1880	8	0.004255	2.5
Extreme (40C)	1880	17	0.009043	2.5
Extreme (30C)	1880	13	0.006915	2.5
Extreme (10C)	1880	8	0.004255	2.5
Extreme (0C)	1880	17	0.009043	2.5
Extreme (-10C)	1880	13	0.006915	2.5
Extreme (-20C)	1880	8	0.004255	2.5
Extreme (-30C)	1880	17	0.009043	2.5

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

10.2 LTE BAND 4

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1732.5	13	0.007504	2.5
3.85	1732.5	16	0.009235	2.5
4.43	1732.5	25	0.014430	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	23	0.013276	2.5
Extreme (50C)	1732.5	4	0.002309	2.5
Extreme (40C)	1732.5	23	0.013276	2.5
Extreme (30C)	1732.5	13	0.007504	2.5
Extreme (10C)	1732.5	27	0.015584	2.5
Extreme (0C)	1732.5	20	0.011544	2.5
Extreme (-10C)	1732.5	6	0.003463	2.5
Extreme (-20C)	1732.5	5	0.002886	2.5
Extreme (-30C)	1732.5	19	0.010967	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1732.5	1	0.000577	2.5
3.85	1732.5	13	0.007504	2.5
4.43	1732.5	2	0.001154	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	26	0.015007	2.5
Extreme (50C)	1732.5	21	0.012121	2.5
Extreme (40C)	1732.5	7	0.004040	2.5
Extreme (30C)	1732.5	14	0.008081	2.5
Extreme (10C)	1732.5	0	0.000000	2.5
Extreme (0C)	1732.5	25	0.014430	2.5
Extreme (-10C)	1732.5	19	0.010967	2.5
Extreme (-20C)	1732.5	10	0.005772	2.5
Extreme (-30C)	1732.5	26	0.015007	2.5

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

10.3 LTE BAND 5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	836.5	3	0.003586	2.5
3.85	836.5	9	0.010759	2.5
4.43	836.5	14	0.016736	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	7	0.008368	2.5
Extreme (50C)	836.5	5	0.005977	2.5
Extreme (40C)	836.5	9	0.010759	2.5
Extreme (30C)	836.5	4	0.004782	2.5
Extreme (10C)	836.5	22	0.026300	2.5
Extreme (0C)	836.5	15	0.017932	2.5
Extreme (-10C)	836.5	1	0.001195	2.5
Extreme (-20C)	836.5	13	0.015541	2.5
Extreme (-30C)	836.5	11	0.013150	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	836.5	14	0.016736	2.5
3.85	836.5	3	0.003586	2.5
4.43	836.5	25	0.029886	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	22	0.026300	2.5
Extreme (50C)	836.5	20	0.023909	2.5
Extreme (40C)	836.5	20	0.023909	2.5
Extreme (30C)	836.5	15	0.017932	2.5
Extreme (10C)	836.5	3	0.003586	2.5
Extreme (0C)	836.5	16	0.019127	2.5
Extreme (-10C)	836.5	16	0.019127	2.5
Extreme (-20C)	836.5	9	0.010759	2.5
Extreme (-30C)	836.5	1	0.001195	2.5

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

10.4 LTE BAND 7

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2535	26	0.010256	2.5
3.85	2535	26	0.010256	2.5
4.43	2535	15	0.005917	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	15	0.005917	2.5
Extreme (50C)	2535	21	0.008284	2.5
Extreme (40C)	2535	17	0.006706	2.5
Extreme (30C)	2535	5	0.001972	2.5
Extreme (10C)	2535	1	0.000394	2.5
Extreme (0C)	2535	7	0.002761	2.5
Extreme (-10C)	2535	12	0.004734	2.5
Extreme (-20C)	2535	23	0.009073	2.5
Extreme (-30C)	2535	7	0.002761	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2535	21	0.008284	2.5
3.85	2535	16	0.006312	2.5
4.43	2535	19	0.007495	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	17	0.006706	2.5
Extreme (50C)	2535	10	0.003945	2.5
Extreme (40C)	2535	21	0.008284	2.5
Extreme (30C)	2535	15	0.005917	2.5
Extreme (10C)	2535	18	0.007101	2.5
Extreme (0C)	2535	26	0.010256	2.5
Extreme (-10C)	2535	16	0.006312	2.5
Extreme (-20C)	2535	17	0.006706	2.5
Extreme (-30C)	2535	16	0.006312	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	707.5	7	0.009894	2.5
3.85	707.5	24	0.033922	2.5
4.43	707.5	1	0.001413	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	7	0.009894	2.5
Extreme (50C)	707.5	21	0.029682	2.5
Extreme (40C)	707.5	15	0.021201	2.5
Extreme (30C)	707.5	7	0.009894	2.5
Extreme (10C)	707.5	15	0.021201	2.5
Extreme (0C)	707.5	19	0.026855	2.5
Extreme (-10C)	707.5	11	0.015548	2.5
Extreme (-20C)	707.5	13	0.018375	2.5
Extreme (-30C)	707.5	6	0.008481	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	707.5	19	0.026855	2.5
3.85	707.5	11	0.015548	2.5
4.43	707.5	13	0.018375	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	22	0.031095	2.5
Extreme (50C)	707.5	20	0.028269	2.5
Extreme (40C)	707.5	2	0.002827	2.5
Extreme (30C)	707.5	19	0.026855	2.5
Extreme (10C)	707.5	8	0.011307	2.5
Extreme (0C)	707.5	18	0.025442	2.5
Extreme (-10C)	707.5	9	0.012721	2.5
Extreme (-20C)	707.5	6	0.008481	2.5
Extreme (-30C)	707.5	24	0.033922	2.5

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

10.7 LTE BAND 17

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	710	7	0.009859	2.5
3.85	710	13	0.018310	2.5
4.43	710	23	0.032394	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	13	0.018310	2.5
Extreme (50C)	710	20	0.028169	2.5
Extreme (40C)	710	6	0.008451	2.5
Extreme (30C)	710	8	0.011268	2.5
Extreme (10C)	710	19	0.026761	2.5
Extreme (0C)	710	11	0.015493	2.5
Extreme (-10C)	710	21	0.029577	2.5
Extreme (-20C)	710	5	0.007042	2.5
Extreme (-30C)	710	4	0.005634	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	710	4	0.005634	2.5
3.85	710	13	0.018310	2.5
4.43	710	15	0.021127	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	17	0.023944	2.5
Extreme (50C)	710	2	0.002817	2.5
Extreme (40C)	710	2	0.002817	2.5
Extreme (30C)	710	17	0.023944	2.5
Extreme (10C)	710	9	0.012676	2.5
Extreme (0C)	710	2	0.002817	2.5
Extreme (-10C)	710	20	0.028169	2.5
Extreme (-20C)	710	18	0.025352	2.5
Extreme (-30C)	710	15	0.021127	2.5

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

10.8 LTE BAND 41

Band 41 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2593	25	0.009641	2.5
3.85	2593	10	0.003857	2.5
4.43	2593	16	0.006170	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	21	0.008099	2.5
Extreme (50C)	2593	22	0.008484	2.5
Extreme (40C)	2593	12	0.004628	2.5
Extreme (30C)	2593	11	0.004242	2.5
Extreme (10C)	2593	26	0.010027	2.5
Extreme (0C)	2593	18	0.006942	2.5
Extreme (-10C)	2593	7	0.002700	2.5
Extreme (-20C)	2593	11	0.004242	2.5
Extreme (-30C)	2593	16	0.006170	2.5

Band 41 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2593	2	0.000771	2.5
3.85	2593	20	0.007713	2.5
4.43	2593	24	0.009256	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	22	0.008484	2.5
Extreme (50C)	2593	14	0.005399	2.5
Extreme (40C)	2593	6	0.002314	2.5
Extreme (30C)	2593	10	0.003857	2.5
Extreme (10C)	2593	20	0.007713	2.5
Extreme (0C)	2593	10	0.003857	2.5
Extreme (-10C)	2593	1	0.000386	2.5
Extreme (-20C)	2593	22	0.008484	2.5
Extreme (-30C)	2593	19	0.007327	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

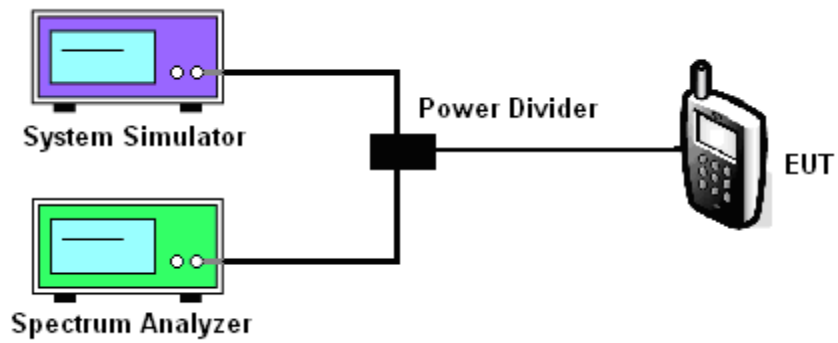
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

LTE Band 2/4/5/7/12/17/41

Test data reference attachment.

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