

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

FCC ID: 2AOWK-5016

Product: Smart Phone

Trade Mark: ulefone

Model No.: GQ5016

Family Model: Armor 33 Pro, Armor 33 Ultra, Armor 33T Ultra,
Armor 33T Pro, Armor 33 Lite, Armor 33s,
Armor 33s Pro

Report No.: S25010500105006

Issue Date: Mar. 29, 2025

Prepared for

Shenzhen Gotron Electronic CO.,LTD.
7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City,
Guangdong Province China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan
District, Shenzhen, Guangdong, People's Republic of China
Tel. 0755-23200050 Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Gotron Electronic CO.,LTD.
Address..... : 7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District,
Shenzhen City, Guangdong Province China
Manufacturer's Name..... : Shenzhen Gotron Electronic CO.,LTD.
Address..... : 7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District,
Shenzhen City, Guangdong Province China
Product name..... : Smart Phone
Model and/or type reference .. : GQ5016
Trade Mark..... : ulefone
Family Model..... : Armor 33 Pro, Armor 33 Ultra, Armor 33T Ultra, Armor 33T Pro,
Armor 33 Lite, Armor 33s, Armor 33s Pro
Test Sample Number : S250105001005
Date of Test..... : Jan. 17, 2025 ~ Mar. 29, 2025
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.

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

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

Prepared By : 
Allen Liu
(Project Engineer)

Reviewed : 
By : Aaron Cheng
(Supervisor)

Approved : 
By : Alex Li
(Manager)

TABLE OF CONTENTS

1. GENERAL INFORMATION.....	6
1. GENERAL INFORMATION.....	6
1.1 PRODUCT DESCRIPTION	6
1.2 RELATED SUBMITTAL(S) / GRANT (S).....	8
1.3 TEST METHODOLOGY	8
1.4 TEST FACILITY.....	8
MEASUREMENT UNCERTAINTY	8
1.5 SPECIAL ACCESSORIES.....	8
1.6 WORST-CASE CONFIGURATION AND MODE.....	8
2. SYSTEM TEST CONFIGURATION	9
2.1 EUT CONFIGURATION.....	9
2.2 EUT EXERCISE	9
2.3 CONFIGURATION OF EUT SYSTEM.....	9
2.4 TEST SETUP	10
3.TEST AND MEASUREMENT EQUIPMENT	11
4. OUTPUT POWER.....	13
4.1 OUTPUT POWER MEASUREMENT	13
5. OCCUPIED BANDWIDTH	15
6. BANEDGE AND EMISSION MASK	16
7. OUT OF BAND EMISSIONS	18
7.1 MEASUREMENT METHOD	18
8. RADIATED MEASUREMENT	19
8.1. RADIATED POWER (ERP & EIRP).....	19
8.2 LTE BAND 2.....	20
8.3 LTE BAND 4.....	24

8.4 LTE BAND 5.....	28
8.5 LTE BAND 12	30
8.6 LTE BAND 17	32
8.7 LTE BAND 41	34
8.8 LTE BAND 66	36
8.9 LTE BAND 71	40
9. SPURIOUS RADIATION EMISSION	42
9.1 LTE BAND 2.....	44
9.2 LTE BAND 4.....	46
9.3 LTE BAND 5.....	48
9.4 LTE BAND 12	50
9.5 LTE BAND 17	52
9.6 LTE BAND 41	54
9.7 LTE BAND 66	56
9.8 LTE BAND 71	58
10. FREQUENCY STABILITY	60
10.1 LTE BAND 2	61
10.2 LTE BAND 4	63
10.3 LTE BAND 5	65
10.4 LTE BAND 12	67
10.5 LTE BAND 17	69
10.6 LTE BAND 41	71
10.7 LTE BAND 66	73
10.8 LTE BAND 71	75
11. PEAK-TO-AVERAGE RATIO.....	77
11.1 Description of the PAR Measurement.....	77
11.2 Measuring Instruments	77
11.3 Test Procedures.....	77

11.4 Test Setup.....	78
----------------------	----

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart Phone
Trade Mark	ulefone
Model Name	GQ5016
Family Model	Armor 33 Pro, Armor 33 Ultra, Armor 33T Ultra, Armor 33T Pro, Armor 33 Lite, Armor 33s, Armor 33s Pro
Model Difference	All models are the same circuit and RF module, except for model names.
FCC ID:	2AOWK-5016
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,12,17,66,71 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 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 Uplink: 2496MHz-2690MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz; LTE FDD Band 71 Uplink: 663MHz-698MHz, Downlink: 617MHz-652MHz;
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:	LDS Antenna
Antenna gain:	Band 2: 0.22 dBi, Band 4: -1.3 dBi, Band 5: -3.4dBi, Band 12: -4.1 dBi, Band 17: -4.2dBi, Band 41: 0.33 dBi, Band 66: -1.0dBi, Band 71: -4.0 dBi
Adapter	Model: HJ-PD66W-US Input: 100-240V~50/60Hz, 1.5A Output: 5.0V---3.0A OR 9.0V---3.0A OR 12.0V---3.0A OR 15.0V---3.0A OR 20.0V---3.25A OR 11.0V---6.0A 66W MAX
Battery	DC 3.87V, 25500mAh, 98.685Wh
Power Rating	DC 3.87V from battery or DC 5V/9V/11V/12V/15V/20V from adapter
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V) (Note 1)

HW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 4.45V and Low Voltage 3.29V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AOWK-5016** filing to comply with the FCC Part 22H&24E&27.

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, 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 expanded 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 2/4/5/12/17/41/66/71

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	Smart Phone	GQ5016	FCC ID: 2AOWK-5016	EUT

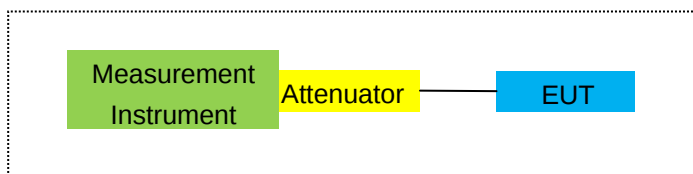
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

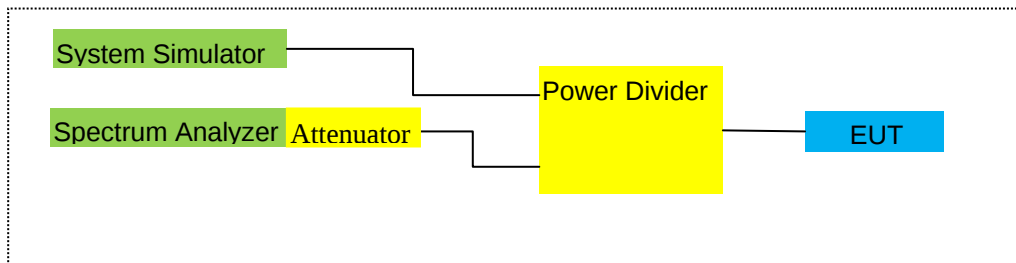
For Radiated Test Cases



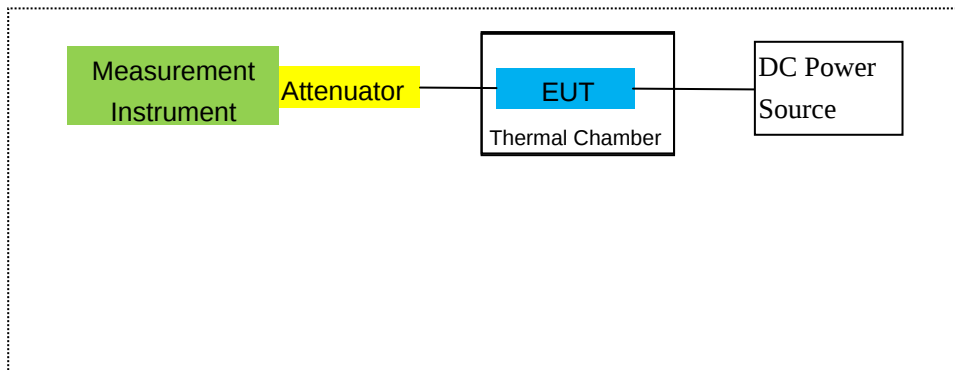
For Conducted Output Power



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



For Frequency Stability



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

3. TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	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	2024.04.26	2025.04.25	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	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
18	Field strength probe	narda	EP601	711WX81278	2024.03.20 2025.03.19	2025.03.19 2026.03.18	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	Agilent	E4440A	MY41000130	2024.04.26	2025.04.25	1 year
23	EMI Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
24	Universal Radio	R&S	CMU200	105747	2024.04.26	2025.04.25	1 year

	Communication Tester						
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	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2024.5.25	2025.5.24	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2024.5.25	2025.5.24	1 year
29	Communication Tester	R&S	CMW500	148500	2024.5.30	2025.5.29	1 year
30	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2024.5.30	2025.5.29	1 year

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

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTtest	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 2/4/5/12/17/41/66/71

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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

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 2/4/5/12/17/41/66/71

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

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 2/4/5/12/17/41/66/71

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.

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 2/4/5/12/17/41/66/71

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-3.22	3.76	28.24	21.26	133.660	Horizontal	Pass
		1880	-3.03	3.91	28.22	21.28	134.276	Horizontal	Pass
		1909.3	-2.94	3.93	28.20	21.33	135.831	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.28	3.77	28.23	21.18	131.220	Horizontal	Pass
		1880	-3.13	3.91	28.24	21.20	131.826	Horizontal	Pass
		1908.5	-3.00	3.94	28.25	21.31	135.207	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.17	3.77	28.31	21.37	137.088	Horizontal	Pass
		1880	-2.79	3.91	28.22	21.52	141.906	Horizontal	Pass
		1907.5	-2.72	3.94	28.20	21.54	142.561	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.03	3.79	28.33	21.51	141.579	Horizontal	Pass
		1880	-2.73	3.95	28.22	21.54	142.561	Horizontal	Pass
		1905	-2.62	3.97	28.19	21.60	144.544	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.99	3.79	28.34	21.56	143.219	Horizontal	Pass
		1880	-2.78	3.95	28.22	21.49	140.929	Horizontal	Pass
		1902.5	-2.64	3.97	28.18	21.57	143.549	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.98	3.81	28.35	21.56	143.219	Horizontal	Pass
		1880	-2.65	3.96	28.22	21.61	144.877	Horizontal	Pass
		1900	-2.59	4.00	28.16	21.57	143.549	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-4.39	3.76	28.24	20.09	102.094	Vertical	Pass
		1880	-3.85	3.91	28.22	20.46	111.173	Vertical	Pass
		1909.3	-4.05	3.93	28.20	20.22	105.196	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.57	3.77	28.23	20.89	122.744	Vertical	Pass
		1880	-3.63	3.91	28.24	20.70	117.490	Vertical	Pass
		1908.5	-4.11	3.94	28.25	20.20	104.713	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.35	3.77	28.31	20.19	104.472	Vertical	Pass
		1880	-3.81	3.91	28.22	20.50	112.202	Vertical	Pass
		1907.5	-3.76	3.94	28.20	20.50	112.202	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.51	3.79	28.33	20.03	100.693	Vertical	Pass
		1880	-3.55	3.95	28.22	20.72	118.032	Vertical	Pass
		1905	-3.39	3.97	28.19	20.83	121.060	Vertical	Pass

15.0MHz	1/#Mid	1857.5	-4.25	3.79	28.34	20.30	107.152	Vertical	Pass
Band		1880	-4.19	3.95	28.22	20.08	101.859	Vertical	Pass
QPSK		1902.5	-4.15	3.97	28.18	20.06	101.391	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.59	3.81	28.35	20.95	124.451	Vertical	Pass
Band		1880	-4.11	3.96	28.22	20.15	103.514	Vertical	Pass
QPSK		1900	-4.00	4.00	28.16	20.16	103.753	Vertical	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	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.34	3.76	28.24	20.14	103.276	Horizontal	Pass
		1880	-3.81	3.91	28.22	20.50	112.202	Horizontal	Pass
		1909.3	-3.74	3.93	28.20	20.53	112.980	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.84	3.77	28.23	20.62	115.345	Horizontal	Pass
		1880	-3.92	3.91	28.24	20.41	109.901	Horizontal	Pass
		1908.5	-4.13	3.94	28.25	20.18	104.232	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.78	3.77	28.31	20.76	119.124	Horizontal	Pass
		1880	-3.69	3.91	28.22	20.62	115.345	Horizontal	Pass
		1907.5	-3.37	3.94	28.20	20.89	122.744	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.83	3.79	28.33	20.71	117.761	Horizontal	Pass
		1880	-3.82	3.95	28.22	20.45	110.917	Horizontal	Pass
		1905	-3.29	3.97	28.19	20.93	123.880	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.81	3.79	28.34	20.74	118.577	Horizontal	Pass
		1880	-3.60	3.95	28.22	20.67	116.681	Horizontal	Pass
		1902.5	-3.56	3.97	28.18	20.65	116.145	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.70	3.81	28.35	20.84	121.339	Horizontal	Pass
		1880	-3.40	3.96	28.22	20.86	121.899	Horizontal	Pass
		1900	-3.22	4.00	28.16	20.94	124.165	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.91	3.76	28.24	19.57	90.573	Vertical	Pass
		1880	-4.83	3.91	28.22	19.48	88.716	Vertical	Pass
		1909.3	-4.62	3.93	28.20	19.65	92.257	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.75	3.77	28.23	19.71	93.541	Vertical	Pass
		1880	-4.46	3.91	28.24	19.87	97.051	Vertical	Pass
		1908.5	-5.08	3.94	28.25	19.23	83.753	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.69	3.77	28.31	19.85	96.605	Vertical	Pass
		1880	-4.51	3.91	28.22	19.80	95.499	Vertical	Pass
		1907.5	-5.06	3.94	28.20	19.20	83.176	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.09	3.79	28.33	19.45	88.105	Vertical	Pass
		1880	-4.96	3.95	28.22	19.31	85.310	Vertical	Pass
		1905	-4.96	3.97	28.19	19.26	84.333	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.45	3.79	28.34	19.10	81.283	Vertical	Pass
		1880	-5.08	3.95	28.22	19.19	82.985	Vertical	Pass
		1902.5	-5.03	3.97	28.18	19.18	82.794	Vertical	Pass
20.0MHz	1/#Mid	1860	-5.00	3.81	28.35	19.54	89.950	Vertical	Pass

Band 16 QAM	1880	-4.95	3.96	28.22	19.31	85.310	Vertical	Pass
	1900	-4.63	4.00	28.16	19.53	89.743	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-3.30	3.12	27.58	21.16	130.617	Horizontal	Pass
		1732.5	-3.29	3.27	27.61	21.05	127.350	Horizontal	Pass
		1754.3	-3.27	3.29	27.63	21.07	127.938	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.47	3.13	27.61	21.01	126.183	Horizontal	Pass
		1732.5	-3.39	3.27	27.61	20.95	124.451	Horizontal	Pass
		1753.5	-3.31	3.30	27.62	21.01	126.183	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.24	3.13	27.63	21.26	133.660	Horizontal	Pass
		1732.5	-3.14	3.27	27.61	21.20	131.826	Horizontal	Pass
		1752.5	-3.02	3.30	27.60	21.28	134.276	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.18	3.15	27.64	21.31	135.207	Horizontal	Pass
		1732.5	-2.95	3.31	27.61	21.35	136.458	Horizontal	Pass
		1750	-2.97	3.33	27.59	21.29	134.586	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-3.19	3.15	27.65	21.31	135.207	Horizontal	Pass
		1732.5	-3.03	3.31	27.61	21.27	133.968	Horizontal	Pass
		1747.5	-2.97	3.33	27.57	21.27	133.968	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.13	3.17	27.66	21.36	136.773	Horizontal	Pass
		1732.5	-2.96	3.32	27.61	21.33	135.831	Horizontal	Pass
		1745	-2.90	3.36	27.56	21.30	134.896	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-4.10	3.12	27.58	20.36	108.643	Vertical	Pass
		1732.5	-4.48	3.27	27.61	19.86	96.828	Vertical	Pass
		1754.3	-4.08	3.29	27.63	20.26	106.170	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.00	3.13	27.61	20.48	111.686	Vertical	Pass
		1732.5	-3.53	3.27	27.61	20.81	120.504	Vertical	Pass
		1753.5	-4.37	3.30	27.62	19.95	98.855	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.86	3.13	27.63	20.64	115.878	Vertical	Pass
		1732.5	-3.70	3.27	27.61	20.64	115.878	Vertical	Pass
		1752.5	-3.93	3.30	27.60	20.37	108.893	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.43	3.15	27.64	20.06	101.391	Vertical	Pass
		1732.5	-3.92	3.31	27.61	20.38	109.144	Vertical	Pass
		1750	-4.10	3.33	27.59	20.16	103.753	Vertical	Pass

15.0MHz	Band QPSK	1/#Mid	1717.5	-4.63	3.15	27.65	19.87	97.051	Vertical	Pass
			1732.5	-4.20	3.31	27.61	20.10	102.329	Vertical	Pass
			1747.5	-4.36	3.33	27.57	19.88	97.275	Vertical	Pass
20.0MHz	Band QPSK	1/#Mid	1720	-4.59	3.17	27.66	19.90	97.724	Vertical	Pass
			1732.5	-3.54	3.32	27.61	20.75	118.850	Vertical	Pass
			1745	-4.15	3.36	27.56	20.05	101.158	Vertical	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	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.11	3.12	27.58	20.35	108.393	Horizontal	Pass
		1732.5	-3.96	3.27	27.61	20.38	109.144	Horizontal	Pass
		1754.3	-3.96	3.29	27.63	20.38	109.144	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.05	3.13	27.61	20.43	110.408	Horizontal	Pass
		1732.5	-4.18	3.27	27.61	20.16	103.753	Horizontal	Pass
		1753.5	-4.40	3.30	27.62	19.92	98.175	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.88	3.13	27.63	20.62	115.345	Horizontal	Pass
		1732.5	-3.84	3.27	27.61	20.50	112.202	Horizontal	Pass
		1752.5	-3.53	3.30	27.60	20.77	119.399	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.95	3.15	27.64	20.54	113.240	Horizontal	Pass
		1732.5	-4.14	3.31	27.61	20.16	103.753	Horizontal	Pass
		1750	-3.52	3.33	27.59	20.74	118.577	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.75	3.15	27.65	20.75	118.850	Horizontal	Pass
		1732.5	-3.81	3.31	27.61	20.49	111.944	Horizontal	Pass
		1747.5	-3.83	3.33	27.57	20.41	109.901	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.70	3.17	27.66	20.79	119.950	Horizontal	Pass
		1732.5	-3.71	3.32	27.61	20.58	114.288	Horizontal	Pass
		1745	-3.52	3.36	27.56	20.68	116.950	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.75	3.12	27.58	19.71	93.541	Vertical	Pass
		1732.5	-5.01	3.27	27.61	19.33	85.704	Vertical	Pass
		1754.3	-5.25	3.29	27.63	19.09	81.096	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.94	3.13	27.61	19.54	89.950	Vertical	Pass
		1732.5	-4.84	3.27	27.61	19.50	89.125	Vertical	Pass
		1753.5	-4.88	3.30	27.62	19.44	87.902	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.50	3.13	27.63	19.00	79.433	Vertical	Pass
		1732.5	-5.21	3.27	27.61	19.13	81.846	Vertical	Pass
		1752.5	-4.82	3.30	27.60	19.48	88.716	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.63	3.15	27.64	18.86	76.913	Vertical	Pass
		1732.5	-4.97	3.31	27.61	19.33	85.704	Vertical	Pass
		1750	-5.10	3.33	27.59	19.16	82.414	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-5.53	3.15	27.65	18.97	78.886	Vertical	Pass
		1732.5	-5.45	3.31	27.61	18.85	76.736	Vertical	Pass
		1747.5	-5.42	3.33	27.57	18.82	76.208	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.99	3.17	27.66	19.50	89.125	Vertical	Pass

Band 16 QAM		1732.5	-5.17	3.32	27.61	19.12	81.658	Vertical	Pass
		1745	-4.83	3.36	27.56	19.37	86.497	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	6.00	2.01	19.68	2.15	21.52	141.906	Horizontal	Pass
		836.5	5.88	2.01	19.77	2.15	21.49	140.929	Horizontal	Pass
		848.3	5.68	2.02	19.82	2.15	21.33	135.831	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.77	2.01	19.70	2.15	21.31	135.207	Horizontal	Pass
		836.5	5.67	2.01	19.77	2.15	21.28	134.276	Horizontal	Pass
		847.5	5.54	2.02	19.81	2.15	21.18	131.220	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.05	2.01	19.71	2.15	21.60	144.544	Horizontal	Pass
		836.5	5.93	2.01	19.77	2.15	21.54	142.561	Horizontal	Pass
		846.5	5.77	2.02	19.79	2.15	21.39	137.721	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	6.07	2.01	19.73	2.15	21.64	145.881	Horizontal	Pass
		836.5	6.02	2.01	19.77	2.15	21.63	145.546	Horizontal	Pass
		844	5.92	2.02	19.78	2.15	21.53	142.233	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	4.59	2.01	19.68	2.15	20.11	102.565	Vertical	Pass
		836.5	4.63	2.01	19.77	2.15	20.24	105.682	Vertical	Pass
		848.3	4.96	2.02	19.82	2.15	20.61	115.080	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.27	2.01	19.70	2.15	20.81	120.504	Vertical	Pass
		836.5	4.76	2.01	19.77	2.15	20.37	108.893	Vertical	Pass
		847.5	4.78	2.02	19.81	2.15	20.42	110.154	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.51	2.01	19.71	2.15	20.06	101.391	Vertical	Pass
		836.5	4.71	2.01	19.77	2.15	20.32	107.647	Vertical	Pass
		846.5	4.78	2.02	19.79	2.15	20.40	109.648	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	4.37	2.01	19.73	2.15	19.94	98.628	Vertical	Pass
		836.5	4.95	2.01	19.77	2.15	20.56	113.763	Vertical	Pass
		844	5.18	2.02	19.78	2.15	20.79	119.950	Vertical	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. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/##Mid	824.7	5.15	2.01	19.68	2.15	20.67	116.681	Horizontal	Pass
		836.5	5.08	2.01	19.77	2.15	20.69	117.220	Horizontal	Pass
		848.3	4.92	2.02	19.82	2.15	20.57	114.025	Horizontal	Pass
3.0MHz Band 16 QAM	1/##Mid	825.5	5.23	2.01	19.70	2.15	20.77	119.399	Horizontal	Pass
		836.5	4.94	2.01	19.77	2.15	20.55	113.501	Horizontal	Pass
		847.5	4.42	2.02	19.81	2.15	20.06	101.391	Horizontal	Pass
5.0MHz Band 16 QAM	1/##Mid	826.5	5.55	2.01	19.71	2.15	21.10	128.825	Horizontal	Pass
		836.5	5.32	2.01	19.77	2.15	20.93	123.880	Horizontal	Pass
		846.5	5.07	2.02	19.79	2.15	20.69	117.220	Horizontal	Pass
10.0MHz Band 16 QAM	1/##Mid	829	5.55	2.01	19.73	2.15	21.12	129.420	Horizontal	Pass
		836.5	5.27	2.01	19.77	2.15	20.88	122.462	Horizontal	Pass
		844	4.81	2.02	19.78	2.15	20.42	110.154	Horizontal	Pass
1.4MHz Band 16 QAM	1/##Mid	824.7	4.29	2.01	19.68	2.15	19.81	95.719	Vertical	Pass
		836.5	5.20	2.01	19.77	2.15	20.81	120.504	Vertical	Pass
		848.3	4.72	2.02	19.82	2.15	20.37	108.893	Vertical	Pass
3.0MHz Band 16 QAM	1/##Mid	825.5	4.60	2.01	19.70	2.15	20.14	103.276	Vertical	Pass
		836.5	3.54	2.01	19.77	2.15	19.15	82.224	Vertical	Pass
		847.5	4.21	2.02	19.81	2.15	19.85	96.605	Vertical	Pass
5.0MHz Band 16 QAM	1/##Mid	826.5	4.25	2.01	19.71	2.15	19.80	95.499	Vertical	Pass
		836.5	3.79	2.01	19.77	2.15	19.40	87.096	Vertical	Pass
		846.5	3.21	2.02	19.79	2.15	18.83	76.384	Vertical	Pass
10.0MHz Band 16 QAM	1/##Mid	829	3.76	2.01	19.73	2.15	19.33	85.704	Vertical	Pass
		836.5	3.63	2.01	19.77	2.15	19.24	83.946	Vertical	Pass
		844	4.03	2.02	19.78	2.15	19.64	92.045	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	6.37	1.91	19.21	2.15	21.52	141.906	Vertical	Pass
		707.5	6.29	1.91	19.26	2.15	21.49	140.929	Vertical	Pass
		715.3	6.07	1.93	19.34	2.15	21.33	135.831	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.16	1.91	19.21	2.15	21.31	135.207	Vertical	Pass
		707.5	6.08	1.91	19.26	2.15	21.28	134.276	Vertical	Pass
		714.5	5.92	1.93	19.34	2.15	21.18	131.220	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.43	1.91	19.23	2.15	21.60	144.544	Vertical	Pass
		707.5	6.34	1.91	19.26	2.15	21.54	142.561	Vertical	Pass
		713.5	6.13	1.92	19.33	2.15	21.39	137.721	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	6.45	1.91	19.25	2.15	21.69	147.571	Vertical	Pass
		707.5	6.43	1.91	19.26	2.15	21.63	145.546	Vertical	Pass
		711	6.28	1.92	19.32	2.15	21.53	142.233	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	5.29	1.91	19.21	2.15	20.44	110.662	Horizontal	Pass
		707.5	5.60	1.91	19.26	2.15	20.80	120.226	Horizontal	Pass
		715.3	5.44	1.93	19.34	2.15	20.70	117.490	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.67	1.91	19.21	2.15	19.82	95.940	Horizontal	Pass
		707.5	4.71	1.91	19.26	2.15	19.91	97.949	Horizontal	Pass
		714.5	4.85	1.93	19.34	2.15	20.11	102.565	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.22	1.91	19.23	2.15	20.39	109.396	Horizontal	Pass
		707.5	4.90	1.91	19.26	2.15	20.10	102.329	Horizontal	Pass
		713.5	5.23	1.92	19.33	2.15	20.49	111.944	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	5.45	1.91	19.25	2.15	20.64	115.878	Horizontal	Pass
		707.5	5.12	1.91	19.26	2.15	20.32	107.647	Horizontal	Pass
		711	5.31	1.92	19.32	2.15	20.56	113.763	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
						(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	6.20	1.91	19.21	2.15	21.35	136.458	Vertical	Pass
		707.5	6.12	1.91	19.26	2.15	21.32	135.519	Vertical	Pass
		715.3	5.90	1.93	19.34	2.15	21.16	130.617	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.99	1.91	19.21	2.15	21.14	130.017	Vertical	Pass
		707.5	5.91	1.91	19.26	2.15	21.11	129.122	Vertical	Pass
		714.5	5.75	1.93	19.34	2.15	21.01	126.183	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.26	1.91	19.23	2.15	21.43	138.995	Vertical	Pass
		707.5	6.17	1.91	19.26	2.15	21.37	137.088	Vertical	Pass
		713.5	5.96	1.92	19.33	2.15	21.22	132.434	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	6.28	1.91	19.25	2.15	21.47	140.281	Vertical	Pass
		707.5	6.26	1.91	19.26	2.15	21.46	139.959	Vertical	Pass
		711	6.11	1.92	19.32	2.15	21.36	136.773	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	4.84	1.91	19.21	2.15	19.99	99.770	Horizontal	Pass
		707.5	4.86	1.91	19.26	2.15	20.06	101.391	Horizontal	Pass
		715.3	4.91	1.93	19.34	2.15	20.17	103.992	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.90	1.91	19.21	2.15	20.05	101.158	Horizontal	Pass
		707.5	5.01	1.91	19.26	2.15	20.21	104.954	Horizontal	Pass
		714.5	4.74	1.93	19.34	2.15	20.00	100.000	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.24	1.91	19.23	2.15	20.41	109.901	Horizontal	Pass
		707.5	5.08	1.91	19.26	2.15	20.28	106.660	Horizontal	Pass
		713.5	5.24	1.92	19.33	2.15	20.50	112.202	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.72	1.91	19.25	2.15	19.91	97.949	Horizontal	Pass
		707.5	4.49	1.91	19.26	2.15	19.69	93.111	Horizontal	Pass
		711	4.65	1.92	19.32	2.15	19.90	97.724	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.6 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	6.66	1.91	19.23	2.15	21.83	152.405	Vertical	Pass
		710	6.52	1.91	19.26	2.15	21.72	148.594	Vertical	Pass
		713.5	6.42	1.92	19.33	2.15	21.68	147.231	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	6.67	1.91	19.25	2.15	21.86	153.462	Vertical	Pass
		710	6.62	1.91	19.26	2.15	21.82	152.055	Vertical	Pass
		711	6.58	1.92	19.32	2.15	21.83	152.405	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	5.23	1.91	19.23	2.15	20.40	109.648	Horizontal	Pass
		710	5.05	1.91	19.26	2.15	20.25	105.925	Horizontal	Pass
		713.5	5.46	1.92	19.33	2.15	20.72	118.032	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	6.27	1.91	19.25	2.15	21.46	139.959	Horizontal	Pass
		710	5.93	1.91	19.26	2.15	21.13	129.718	Horizontal	Pass
		711	5.02	1.92	19.32	2.15	20.27	106.414	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	5.95	1.91	19.23	2.15	21.12	129.420	Vertical	Pass
		710	5.86	1.91	19.26	2.15	21.06	127.644	Vertical	Pass
		713.5	5.66	1.92	19.33	2.15	20.92	123.595	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	5.49	1.91	19.25	2.15	20.68	116.950	Vertical	Pass
		710	6.02	1.91	19.26	2.15	21.22	132.434	Vertical	Pass
		711	5.75	1.92	19.32	2.15	21.00	125.893	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	5.04	1.91	19.23	2.15	20.21	104.954	Horizontal	Pass
		710	4.90	1.91	19.26	2.15	20.10	102.329	Horizontal	Pass
		713.5	4.49	1.92	19.33	2.15	19.75	94.406	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	4.59	1.91	19.25	2.15	19.78	95.060	Horizontal	Pass
		710	4.39	1.91	19.26	2.15	19.59	90.991	Horizontal	Pass
		711	4.63	1.92	19.32	2.15	19.88	97.275	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

ERP=EIRP-2.15

8.7 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/##Mid	2572.5	-2.11	4.54	27.75	21.10	128.825	Horizontal	Pass
		2595	-1.96	4.69	27.72	21.07	127.938	Horizontal	Pass
		2617.5	-1.84	4.71	27.71	21.16	130.617	Horizontal	Pass
10.0MHz Band QPSK	1/##Mid	2575	-2.19	4.55	27.76	21.02	126.474	Horizontal	Pass
		2595	-2.05	4.69	27.72	20.98	125.314	Horizontal	Pass
		2615	-2.04	4.72	27.70	20.94	124.165	Horizontal	Pass
15.0MHz Band QPSK	1/##Mid	2577.5	-2.02	4.55	27.77	21.20	131.826	Horizontal	Pass
		2595	-1.74	4.69	27.72	21.29	134.586	Horizontal	Pass
		2612.5	-1.79	4.72	27.69	21.18	131.220	Horizontal	Pass
20.0MHz Band QPSK	1/##Mid	2580	-1.63	4.57	27.78	21.58	143.880	Horizontal	Pass
		2595	-1.68	4.73	27.72	21.31	135.207	Horizontal	Pass
		2610	-1.68	4.75	27.68	21.25	133.352	Horizontal	Pass
5.0MHz Band QPSK	1/##Mid	2572.5	-1.91	4.54	27.75	21.30	134.896	Vertical	Pass
		2595	-1.82	4.69	27.72	21.21	132.130	Vertical	Pass
		2617.5	-1.80	4.71	27.71	21.20	131.826	Vertical	Pass
10.0MHz Band QPSK	1/##Mid	2575	-1.89	4.55	27.76	21.32	135.519	Vertical	Pass
		2595	-1.73	4.69	27.72	21.30	134.896	Vertical	Pass
		2615	-1.80	4.72	27.70	21.18	131.220	Vertical	Pass
15.0MHz Band QPSK	1/##Mid	2577.5	-3.09	4.55	27.77	20.13	103.039	Vertical	Pass
		2595	-2.57	4.69	27.72	20.46	111.173	Vertical	Pass
		2612.5	-2.94	4.72	27.69	20.03	100.693	Vertical	Pass
20.0MHz Band QPSK	1/##Mid	2580	-3.50	4.57	27.78	19.71	93.541	Vertical	Pass
		2595	-2.86	4.73	27.72	20.13	103.039	Vertical	Pass
		2610	-2.38	4.75	27.68	20.55	113.501	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2572.5	-2.06	4.54	27.75	21.15	130.317	Horizontal	Pass
		2595	-1.91	4.69	27.72	21.12	129.420	Horizontal	Pass
		2617.5	-1.79	4.71	27.71	21.21	132.130	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2575	-2.14	4.55	27.76	21.07	127.938	Horizontal	Pass
		2595	-2.00	4.69	27.72	21.03	126.765	Horizontal	Pass
		2615	-1.99	4.72	27.70	20.99	125.603	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2577.5	-1.97	4.55	27.77	21.25	133.352	Horizontal	Pass
		2595	-1.69	4.69	27.72	21.34	136.144	Horizontal	Pass
		2612.5	-1.74	4.72	27.69	21.23	132.739	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2580	-1.69	4.57	27.78	21.52	141.906	Horizontal	Pass
		2595	-1.63	4.73	27.72	21.36	136.773	Horizontal	Pass
		2610	-1.63	4.75	27.68	21.30	134.896	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2572.5	-1.86	4.54	27.75	21.35	136.458	Vertical	Pass
		2595	-1.77	4.69	27.72	21.26	133.660	Vertical	Pass
		2617.5	-1.75	4.71	27.71	21.25	133.352	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2575	-1.84	4.55	27.76	21.37	137.088	Vertical	Pass
		2595	-1.68	4.69	27.72	21.35	136.458	Vertical	Pass
		2615	-1.75	4.72	27.70	21.23	132.739	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2577.5	-2.71	4.55	27.77	20.51	112.460	Vertical	Pass
		2595	-3.02	4.69	27.72	20.01	100.231	Vertical	Pass
		2612.5	-3.00	4.72	27.69	19.97	99.312	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2580	-3.37	4.57	27.78	19.84	96.383	Vertical	Pass
		2595	-3.08	4.73	27.72	19.91	97.949	Vertical	Pass
		2610	-2.54	4.75	27.68	20.39	109.396	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.8 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band QPSK	1/##Mid	1710.7	-3.05	3.76	28.24	21.43	138.995	Horizontal	Pass
		1745	-2.91	3.91	28.22	21.40	138.038	Horizontal	Pass
		1779.3	-2.78	3.93	28.2	21.49	140.929	Horizontal	Pass
3.0MHz Band QPSK	1/##Mid	1711.5	-3.11	3.77	28.23	21.35	136.458	Horizontal	Pass
		1745	-3.02	3.91	28.24	21.31	135.207	Horizontal	Pass
		1778.5	-3.04	3.94	28.25	21.27	133.968	Horizontal	Pass
5.0MHz Band QPSK	1/##Mid	1712.5	-3.01	3.77	28.31	21.53	142.233	Horizontal	Pass
		1745	-2.69	3.91	28.22	21.62	145.211	Horizontal	Pass
		1777.5	-2.75	3.94	28.2	21.51	141.579	Horizontal	Pass
10.0MHz Band QPSK	1/##Mid	1715	-2.90	3.79	28.33	21.64	145.881	Horizontal	Pass
		1745	-2.63	3.95	28.22	21.64	145.881	Horizontal	Pass
		1775	-2.64	3.97	28.19	21.58	143.880	Horizontal	Pass
15.0MHz Band QPSK	1/##Mid	1717.5	-2.92	3.79	28.34	21.63	145.546	Horizontal	Pass
		1745	-2.73	3.95	28.22	21.54	142.561	Horizontal	Pass
		1772.5	-2.68	3.97	28.18	21.53	142.233	Horizontal	Pass
20.0MHz Band QPSK	1/##Mid	1720	-2.89	3.81	28.35	21.65	146.218	Horizontal	Pass
		1745	-2.63	3.96	28.22	21.63	145.546	Horizontal	Pass
		1770	-2.65	4	28.16	21.51	141.579	Horizontal	Pass
1.4MHz Band QPSK	1/##Mid	1710.7	-4.31	3.76	28.24	20.17	103.992	Vertical	Pass
		1745	-4.06	3.91	28.22	20.25	105.925	Vertical	Pass
		1779.3	-4.02	3.93	28.2	20.25	105.925	Vertical	Pass
3.0MHz Band QPSK	1/##Mid	1711.5	-4.12	3.77	28.23	20.34	108.143	Vertical	Pass
		1745	-3.42	3.91	28.24	20.91	123.310	Vertical	Pass
		1778.5	-3.79	3.94	28.25	20.52	112.720	Vertical	Pass
5.0MHz Band QPSK	1/##Mid	1712.5	-4.23	3.77	28.31	20.31	107.399	Vertical	Pass
		1745	-3.64	3.91	28.22	20.67	116.681	Vertical	Pass
		1777.5	-3.70	3.94	28.2	20.56	113.763	Vertical	Pass
10.0MHz	1/##Mid	1715	-4.05	3.79	28.34	20.50	112.202	Vertical	Pass

Band QPSK		1745	-3.65	3.95	28.22	20.62	115.345	Vertical	Pass
		1775	-3.34	3.97	28.18	20.87	122.180	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-3.81	3.81	28.35	20.73	118.304	Vertical	Pass
		1745	-4.28	3.96	28.22	19.98	99.541	Vertical	Pass
		1772.5	-4.01	4	28.16	20.15	103.514	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.30	3.79	28.34	20.25	105.925	Vertical	Pass
		1745	-3.51	3.95	28.22	20.76	119.124	Vertical	Pass
		1770	-4.25	3.97	28.18	19.96	99.083	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.93	3.76	28.24	20.55	113.501	Horizontal	Pass
		1745	-3.54	3.91	28.22	20.77	119.399	Horizontal	Pass
		1779.3	-3.72	3.93	28.2	20.55	113.501	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.32	3.77	28.23	20.14	103.276	Horizontal	Pass
		1745	-3.57	3.91	28.24	20.76	119.124	Horizontal	Pass
		1778.5	-3.86	3.94	28.25	20.45	110.917	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.74	3.77	28.31	20.80	120.226	Horizontal	Pass
		1745	-3.80	3.91	28.22	20.51	112.460	Horizontal	Pass
		1777.5	-3.47	3.94	28.2	20.79	119.950	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.79	3.79	28.33	20.75	118.850	Horizontal	Pass
		1745	-3.45	3.95	28.22	20.82	120.781	Horizontal	Pass
		1775	-3.77	3.97	28.19	20.45	110.917	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.78	3.79	28.34	20.77	119.399	Horizontal	Pass
		1745	-3.60	3.95	28.22	20.67	116.681	Horizontal	Pass
		1772.5	-3.39	3.97	28.18	20.82	120.781	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.61	3.81	28.35	20.93	123.880	Horizontal	Pass
		1745	-3.39	3.96	28.22	20.87	122.180	Horizontal	Pass
		1770	-3.33	4	28.16	20.83	121.060	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.01	3.76	28.24	20.47	111.429	Vertical	Pass
		1745	-5.36	3.91	28.22	18.95	78.524	Vertical	Pass
		1779.3	-3.76	3.93	28.2	20.51	112.460	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.40	3.77	28.23	19.06	80.538	Vertical	Pass
		1745	-3.85	3.91	28.24	20.48	111.686	Vertical	Pass
		1778.5	-5.45	3.94	28.25	18.86	76.913	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.14	3.77	28.31	19.40	87.096	Vertical	Pass
		1745	-5.32	3.91	28.22	18.99	79.250	Vertical	Pass
		1777.5	-5.01	3.94	28.2	19.25	84.140	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.80	3.79	28.34	20.75	118.850	Vertical	Pass
		1745	-4.26	3.95	28.22	20.01	100.231	Vertical	Pass
		1775	-5.31	3.97	28.18	18.90	77.625	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-5.65	3.81	28.35	18.89	77.446	Vertical	Pass

Band 16 QAM		1745	-3.64	3.96	28.22	20.62	115.345	Vertical	Pass
		1772.5	-3.93	4	28.16	20.23	105.439	Vertical	Pass
20.0MHz	1/#Mid	1720	-5.34	3.79	28.34	19.21	83.368	Vertical	Pass
Band 16		1745	-4.71	3.95	28.22	19.56	90.365	Vertical	Pass
QAM		1770	-3.62	3.97	28.18	20.59	114.551	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.9 LTE BAND 71

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	665.5	5.86	2.01	19.68	2.15	21.38	137.40	Horizontal	Pass
		680.5	5.74	2.01	19.77	2.15	21.35	136.46	Horizontal	Pass
		695.5	5.54	2.02	19.82	2.15	21.19	131.52	Horizontal	Pass
10.0MHz Band QPSK	50/0	668	5.63	2.01	19.70	2.15	21.17	130.92	Horizontal	Pass
		680.5	5.53	2.01	19.77	2.15	21.14	130.02	Horizontal	Pass
		693	5.40	2.02	19.81	2.15	21.04	127.06	Horizontal	Pass
15.0MHz Band QPSK	75/0	670.5	5.91	2.01	19.71	2.15	21.46	139.96	Horizontal	Pass
		680.5	5.79	2.01	19.77	2.15	21.40	138.04	Horizontal	Pass
		690.5	5.63	2.02	19.79	2.15	21.25	133.35	Horizontal	Pass
20.0MHz Band QPSK	100/0	673	5.93	2.01	19.73	2.15	21.50	141.25	Horizontal	Pass
		683	5.88	2.01	19.77	2.15	21.49	140.93	Horizontal	Pass
		688	5.78	2.02	19.78	2.15	21.39	137.72	Horizontal	Pass
5.0MHz Band QPSK	25/0	665.5	4.79	2.01	19.68	2.15	20.31	107.40	Vertical	Pass
		680.5	4.95	2.01	19.77	2.15	20.56	113.76	Vertical	Pass
		695.5	4.45	2.02	19.82	2.15	20.10	102.33	Vertical	Pass
15.0MHz Band QPSK	50/0	668	4.20	2.01	19.70	2.15	19.74	94.19	Vertical	Pass
		680.5	4.19	2.01	19.77	2.15	19.80	95.50	Vertical	Pass
		693	4.68	2.02	19.81	2.15	20.32	107.65	Vertical	Pass
15.0MHz Band QPSK	75/0	670.5	4.48	2.01	19.71	2.15	20.03	100.69	Vertical	Pass
		680.5	4.91	2.01	19.77	2.15	20.52	112.72	Vertical	Pass
		690.5	4.22	2.02	19.79	2.15	19.84	96.38	Vertical	Pass
20MHz Band QPSK	100/0	673	4.22	2.01	19.73	2.15	19.79	95.28	Vertical	Pass
		683	4.55	2.01	19.77	2.15	20.16	103.75	Vertical	Pass
		688	4.49	2.02	19.78	2.15	20.10	102.33	Vertical	Pass

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	665.5	5.68	2.01	19.68	2.15	21.20	131.83	Horizontal	665.5
		680.5	5.56	2.01	19.77	2.15	21.17	130.92	Horizontal	680.5
		695.5	5.36	2.02	19.82	2.15	21.01	126.18	Horizontal	695.5
10.0MHz Band 16 QAM	50/0	668	5.45	2.01	19.70	2.15	20.99	125.60	Horizontal	668
		680.5	5.35	2.01	19.77	2.15	20.96	124.74	Horizontal	680.5
		693	5.22	2.02	19.81	2.15	20.86	121.90	Horizontal	693
15.0MHz Band 16 QAM	75/0	670.5	5.73	2.01	19.71	2.15	21.28	134.28	Horizontal	670.5
		680.5	5.61	2.01	19.77	2.15	21.22	132.43	Horizontal	680.5
		690.5	5.45	2.02	19.79	2.15	21.07	127.94	Horizontal	690.5
20.0MHz Band 16 QAM	100/0	673	5.75	2.01	19.73	2.15	21.32	135.52	Horizontal	673
		683	5.70	2.01	19.77	2.15	21.31	135.21	Horizontal	683
		688	5.60	2.02	19.78	2.15	21.21	132.13	Horizontal	688
5.0MHz Band 16 QAM	25/0	665.5	4.45	2.01	19.68	2.15	19.97	99.31	Vertical	665.5
		680.5	4.56	2.01	19.77	2.15	20.17	103.99	Vertical	680.5
		695.5	4.02	2.02	19.82	2.15	19.67	92.68	Vertical	695.5
10.0MHz Band 16 QAM	50/0	668	3.99	2.01	19.70	2.15	19.53	89.74	Vertical	668
		680.5	4.29	2.01	19.77	2.15	19.90	97.72	Vertical	680.5
		693	4.33	2.02	19.81	2.15	19.97	99.31	Vertical	693
15.0MHz Band 16 QAM	75/0	670.5	4.20	2.01	19.71	2.15	19.75	94.41	Vertical	670.5
		680.5	4.47	2.01	19.77	2.15	20.08	101.86	Vertical	680.5
		690.5	4.83	2.02	19.79	2.15	20.45	110.92	Vertical	690.5
20.0MHz Band 16 QAM	100/0	673	4.62	2.01	19.73	2.15	20.19	104.47	Vertical	673
		683	4.51	2.01	19.77	2.15	20.12	102.80	Vertical	683
		688	4.33	2.02	19.78	2.15	19.94	98.63	Vertical	688

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=EIRP-2.15

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

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 2/4/5/12/17/41/66/71

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	-50.77	4.04	33.51	-21.30	-13	-8.30	Horizontal
3701.4	-48.43	4.04	33.51	-18.96	-13	-5.96	Vertical
5552.1	-48.57	5.24	35.84	-17.97	-13	-4.97	Vertical
5552.1	-51.93	5.24	35.84	-21.33	-13	-8.33	Horizontal
186.7	-40.59	1.43	16.02	-26.00	-13	-13.00	Vertical
416.2	-36.79	1.30	17.99	-20.10	-13	-7.10	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.84	4.04	33.56	-19.32	-13	-6.32	Horizontal
3760.0	-49.41	4.04	33.56	-19.89	-13	-6.89	Vertical
5640.0	-48.48	5.24	35.91	-17.81	-13	-4.81	Vertical
5640.0	-53.00	5.24	35.91	-22.33	-13	-9.33	Horizontal
202.9	-43.08	1.62	16.97	-27.73	-13	-14.73	Vertical
409.7	-44.22	1.74	15.98	-29.99	-13	-16.99	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-51.60	4.04	34.00	-21.64	-13	-8.64	Horizontal
3818.6	-48.17	4.04	34.00	-18.21	-13	-5.21	Vertical
5727.9	-51.94	5.24	36.04	-21.14	-13	-8.14	Vertical
5727.9	-52.14	5.24	36.04	-21.34	-13	-8.34	Horizontal
204.8	-38.17	1.42	17.29	-22.30	-13	-9.30	Vertical
410.7	-36.32	1.50	17.90	-19.91	-13	-6.91	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
3720.0	-47.84	4.07	33.54	-18.37	-13	-5.37	Horizontal
3720.0	-45.60	4.07	33.54	-16.13	-13	-3.13	Vertical
5580.0	-48.45	5.28	35.86	-17.87	-13	-4.87	Vertical
5580.0	-49.80	5.28	35.86	-19.22	-13	-6.22	Horizontal
186.3	-36.30	1.58	16.89	-20.98	-13	-7.98	Vertical
420.3	-43.48	1.76	17.26	-27.98	-13	-14.98	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.85	4.04	33.56	-18.33	-13	-5.33	Horizontal
3760.0	-47.33	4.04	33.56	-17.81	-13	-4.81	Vertical
5640.0	-47.79	5.24	35.91	-17.12	-13	-4.12	Vertical
5640.0	-53.81	5.24	35.91	-23.14	-13	-10.14	Horizontal
185.2	-36.92	1.46	16.27	-22.11	-13	-9.11	Vertical
397.5	-34.70	1.59	15.15	-21.14	-13	-8.14	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-46.97	4.04	34.00	-17.01	-13	-4.01	Horizontal
3800.0	-50.16	4.04	34.00	-20.20	-13	-7.20	Vertical
5700.0	-46.37	5.24	36.04	-15.57	-13	-2.57	Vertical
5700.0	-53.13	5.24	36.04	-22.33	-13	-9.33	Horizontal
176.4	-39.75	1.36	17.39	-23.71	-13	-10.71	Vertical
401.9	-36.66	1.66	15.39	-22.93	-13	-9.93	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	-47.39	4.02	29.80	-21.61	-13	-8.61	Horizontal
3421.4	-47.30	4.02	29.80	-21.52	-13	-8.52	Vertical
5132.1	-45.80	5.24	35.84	-15.20	-13	-2.20	Vertical
5132.1	-53.90	5.24	35.84	-23.30	-13	-10.30	Horizontal
204.7	-42.60	1.68	16.04	-28.24	-13	-15.24	Vertical
324.9	-34.37	1.78	17.74	-18.41	-13	-5.41	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-53.92	4.03	30.00	-27.95	-13	-14.95	Horizontal
3465.0	-52.75	4.03	30.00	-26.78	-13	-13.78	Vertical
5197.5	-51.01	5.25	35.86	-20.40	-13	-7.40	Vertical
5197.5	-52.42	5.25	35.86	-21.81	-13	-8.81	Horizontal
193.2	-42.31	1.72	17.69	-26.34	-13	-13.34	Vertical
278.4	-34.26	1.62	16.02	-19.85	-13	-6.85	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-47.64	4.05	30.01	-21.68	-13	-8.68	Horizontal
3508.6	-45.93	4.05	30.01	-19.97	-13	-6.97	Vertical
5262.9	-46.28	5.26	35.86	-15.68	-13	-2.68	Vertical
5262.9	-50.51	5.26	35.86	-19.91	-13	-6.91	Horizontal
182.7	-37.73	1.80	16.69	-22.84	-13	-9.84	Vertical
461.5	-43.82	1.75	16.66	-28.92	-13	-15.92	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	-51.40	4.02	29.80	-25.62	-13	-12.62	Horizontal
3440.0	-47.05	4.02	29.80	-21.27	-13	-8.27	Vertical
5160.0	-51.42	5.24	35.84	-20.82	-13	-7.82	Vertical
5160.0	-49.39	5.24	35.84	-18.79	-13	-5.79	Horizontal
186.2	-41.38	1.57	17.26	-25.69	-13	-12.69	Vertical
422.6	-40.36	1.78	16.35	-25.79	-13	-12.79	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-51.60	4.03	30.00	-25.63	-13	-12.63	Horizontal
3465.0	-45.76	4.03	30.00	-19.79	-13	-6.79	Vertical
5197.5	-47.02	5.25	35.86	-16.41	-13	-3.41	Vertical
5197.5	-52.33	5.25	35.86	-21.72	-13	-8.72	Horizontal
211.6	-39.66	1.44	17.95	-23.15	-13	-10.15	Vertical
367.2	-42.63	1.65	16.09	-28.19	-13	-15.19	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-48.58	2.91	27.68	-23.81	-13	-10.81	Horizontal
3490.0	-49.32	2.91	27.68	-24.55	-13	-11.55	Vertical
5235.0	-46.43	5.26	35.86	-15.83	-13	-2.83	Vertical
5235.0	-53.11	5.26	35.86	-22.51	-13	-9.51	Horizontal
192.9	-43.87	1.61	16.85	-28.63	-13	-15.63	Vertical
466.4	-35.36	1.61	15.19	-21.78	-13	-8.78	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	-50.00	2.78	27.50	-25.28	-13	-12.28	Horizontal
1649.4	-44.86	2.78	27.50	-20.14	-13	-7.14	Vertical
2474.1	-44.46	2.90	27.80	-19.56	-13	-6.56	Vertical
2474.1	-51.09	2.90	27.80	-26.19	-13	-13.19	Horizontal
206.5	-44.19	1.76	17.59	-28.36	-13	-15.36	Vertical
452.1	-40.70	1.63	15.87	-26.46	-13	-13.46	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-53.07	2.80	27.48	-28.39	-13	-15.39	Horizontal
1673.0	-47.45	2.80	27.48	-22.77	-13	-9.77	Vertical
2509.5	-46.43	2.91	27.70	-21.64	-13	-8.64	Vertical
2509.5	-53.88	2.91	27.70	-29.09	-13	-16.09	Horizontal
203.3	-37.99	1.61	15.68	-23.92	-13	-10.92	Vertical
308.7	-41.37	1.59	17.52	-25.45	-13	-12.45	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-53.80	2.82	27.43	-29.19	-13	-16.19	Horizontal
1696.6	-45.57	2.82	27.43	-20.96	-13	-7.96	Vertical
2544.9	-46.89	2.92	27.74	-22.07	-13	-9.07	Vertical
2544.9	-53.51	2.92	27.74	-28.69	-13	-15.69	Horizontal
189.1	-42.49	1.69	16.67	-27.50	-13	-14.50	Vertical
306.1	-42.77	1.70	17.18	-27.29	-13	-14.29	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	-46.82	2.78	27.50	-22.10	-13	-9.10	Horizontal
1658.0	-48.48	2.78	27.50	-23.76	-13	-10.76	Vertical
2487.0	-53.94	2.90	27.80	-29.04	-13	-16.04	Vertical
2487.0	-49.37	2.90	27.80	-24.47	-13	-11.47	Horizontal
205.1	-42.24	1.71	15.57	-28.38	-13	-15.38	Vertical
411.9	-40.83	1.34	16.40	-25.77	-13	-12.77	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-46.39	2.80	27.48	-21.71	-13	-8.71	Horizontal
1673.0	-52.48	2.80	27.48	-27.80	-13	-14.80	Vertical
2509.5	-48.06	2.91	27.70	-23.27	-13	-10.27	Vertical
2509.5	-50.93	2.91	27.70	-26.14	-13	-13.14	Horizontal
177.0	-42.09	1.44	17.04	-26.49	-13	-13.49	Vertical
417.6	-35.95	1.76	17.62	-20.09	-13	-7.09	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.33	2.82	27.43	-19.72	-13	-6.72	Horizontal
1688.0	-46.02	2.82	27.43	-21.41	-13	-8.41	Vertical
2532.0	-50.22	2.92	27.74	-25.40	-13	-12.40	Vertical
2532.0	-52.80	2.92	27.74	-27.98	-13	-14.98	Horizontal
198.5	-41.18	1.74	17.70	-25.22	-13	-12.22	Vertical
435.6	-34.27	1.41	17.46	-18.21	-13	-5.21	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 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	-48.20	2.60	27.20	-23.60	-13	-10.60	Horizontal
1399.4	-46.25	2.60	27.20	-21.65	-13	-8.65	Vertical
2099.1	-49.94	2.85	27.54	-25.25	-13	-12.25	Vertical
2099.1	-51.99	2.85	27.54	-27.30	-13	-14.30	Horizontal
179.3	-39.16	1.49	17.78	-22.87	-13	-9.87	Vertical
385.0	-36.01	1.36	17.33	-20.04	-13	-7.04	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-50.37	2.61	27.28	-25.70	-13	-12.70	Horizontal
1415.0	-46.35	2.61	27.28	-21.68	-13	-8.68	Vertical
2122.5	-49.68	2.87	27.59	-24.96	-13	-11.96	Vertical
2122.5	-50.48	2.87	27.59	-25.76	-13	-12.76	Horizontal
179.5	-40.94	1.73	15.74	-26.93	-13	-13.93	Vertical
301.6	-42.98	1.62	15.79	-28.81	-13	-15.81	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-49.18	2.63	27.28	-24.53	-13	-11.53	Horizontal
1430.6	-45.67	2.63	27.28	-21.02	-13	-8.02	Vertical
2145.9	-45.18	2.88	27.60	-20.46	-13	-7.46	Vertical
2145.9	-51.89	2.88	27.60	-27.17	-13	-14.17	Horizontal
199.4	-39.94	1.61	18.00	-23.55	-13	-10.55	Vertical
323.9	-35.64	1.45	15.49	-21.61	-13	-8.61	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	-44.22	2.61	27.26	-19.57	-13	-6.57	Horizontal
1408.0	-48.68	2.61	27.26	-24.03	-13	-11.03	Vertical
2112.0	-45.48	2.87	27.58	-20.77	-13	-7.77	Vertical
2112.0	-49.09	2.87	27.58	-24.38	-13	-11.38	Horizontal
205.9	-43.68	1.31	16.97	-28.02	-13	-15.02	Vertical
377.7	-34.22	1.65	16.70	-19.17	-13	-6.17	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-44.78	2.61	27.28	-20.11	-13	-7.11	Horizontal
1415.0	-48.87	2.61	27.28	-24.20	-13	-11.20	Vertical
2122.5	-46.32	2.87	27.59	-21.60	-13	-8.60	Vertical
2122.5	-53.09	2.87	27.59	-28.37	-13	-15.37	Horizontal
190.2	-37.58	1.72	17.99	-21.31	-13	-8.31	Vertical
243.7	-34.34	1.73	17.94	-18.13	-13	-5.13	Horizontal
Test Results for High Channel 711MHz							
1422.0	-44.31	2.62	27.28	-19.65	-13	-6.65	Horizontal
1422.0	-48.62	2.62	27.28	-23.96	-13	-10.96	Vertical
2133.0	-53.97	2.87	27.60	-29.24	-13	-16.24	Vertical
2133.0	-50.90	2.87	27.60	-26.17	-13	-13.17	Horizontal
178.3	-39.97	1.58	15.93	-25.62	-13	-12.62	Vertical
461.7	-42.91	1.36	15.59	-28.68	-13	-15.68	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.

9.5 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-44.46	2.61	27.28	-19.79	-13	-6.79	Horizontal
1413.0	-49.17	2.61	27.28	-24.50	-13	-11.50	Vertical
2119.5	-51.27	2.87	27.59	-26.55	-13	-13.55	Vertical
2119.5	-52.64	2.87	27.59	-27.92	-13	-14.92	Horizontal
183.9	-44.11	1.71	16.15	-29.67	-13	-16.67	Vertical
303.0	-39.91	1.41	17.32	-24.00	-13	-11.00	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-45.45	2.62	27.30	-20.77	-13	-7.77	Horizontal
1420.0	-45.92	2.62	27.30	-21.24	-13	-8.24	Vertical
2130.0	-46.78	2.87	27.62	-22.03	-13	-9.03	Vertical
2130.0	-49.23	2.87	27.62	-24.48	-13	-11.48	Horizontal
183.0	-34.28	1.42	15.25	-20.46	-13	-7.46	Vertical
272.0	-36.55	1.36	17.19	-20.72	-13	-7.72	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-50.55	2.66	27.28	-25.93	-13	-12.93	Horizontal
1427.0	-50.79	2.66	27.28	-26.17	-13	-13.17	Vertical
2140.5	-52.16	2.88	27.60	-27.44	-13	-14.44	Vertical
2140.5	-52.31	2.88	27.60	-27.59	-13	-14.59	Horizontal
194.7	-38.11	1.32	17.29	-22.14	-13	-9.14	Vertical
373.4	-41.60	1.72	16.89	-26.43	-13	-13.43	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-48.02	2.62	27.30	-23.34	-13	-10.34	Horizontal
1418.0	-50.66	2.62	27.30	-25.98	-13	-12.98	Vertical
2127.0	-46.10	2.87	27.62	-21.35	-13	-8.35	Vertical
2127.0	-50.06	2.87	27.62	-25.31	-13	-12.31	Horizontal
188.7	-41.78	1.35	16.91	-26.22	-13	-13.22	Vertical
424.9	-44.98	1.62	16.31	-30.29	-13	-17.29	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-50.82	2.62	27.30	-26.14	-13	-13.14	Horizontal
1420.0	-47.91	2.62	27.30	-23.23	-13	-10.23	Vertical
2130.0	-47.26	2.87	27.62	-22.51	-13	-9.51	Vertical
2130.0	-51.79	2.87	27.62	-27.04	-13	-14.04	Horizontal
202.6	-40.29	1.51	17.14	-24.66	-13	-11.66	Vertical
236.6	-35.92	1.77	16.88	-20.81	-13	-7.81	Horizontal
Test Results for High Channel 711MHz							
1422.0	-52.99	2.62	27.30	-28.31	-13	-15.31	Horizontal
1422.0	-49.66	2.62	27.30	-24.98	-13	-11.98	Vertical
2133.0	-47.55	2.87	27.62	-22.80	-13	-9.80	Vertical
2133.0	-49.84	2.87	27.62	-25.09	-13	-12.09	Horizontal
212.2	-41.50	1.78	15.95	-27.33	-13	-14.33	Vertical
429.3	-40.62	1.34	17.95	-24.02	-13	-11.02	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.

9.6 LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.0	-60.08	5.23	35.81	-29.50	-25	-4.50	Horizontal
5145.0	-60.93	5.23	35.81	-30.35	-25	-5.35	Vertical
7717.5	-62.04	5.67	36.85	-30.86	-25	-5.86	Vertical
7717.5	-60.96	5.67	36.85	-29.78	-25	-4.78	Horizontal
435.3	-49.48	1.38	15.98	-34.88	-25	-9.88	Vertical
465.8	-47.11	1.62	15.66	-33.07	-25	-8.07	Horizontal
Test Results for Mid Channel 2593MHz							
5190.0	-62.24	5.23	35.82	-31.65	-25	-6.65	Horizontal
5190.0	-63.99	5.23	35.82	-33.40	-25	-8.40	Vertical
7785.0	-64.13	5.67	36.85	-32.95	-25	-7.95	Vertical
7785.0	-62.63	5.67	36.85	-31.45	-25	-6.45	Horizontal
510.4	-47.00	1.62	16.17	-32.45	-25	-7.45	Vertical
562.9	-45.52	1.74	17.63	-29.63	-25	-4.63	Horizontal
Test Results for High Channel 2617.5MHz							
5235.0	-64.20	5.24	35.83	-33.61	-25	-8.61	Horizontal
5235.0	-59.49	5.24	35.83	-28.90	-25	-3.90	Vertical
7852.5	-61.04	5.68	36.87	-29.85	-25	-4.85	Vertical
7852.5	-63.50	5.68	36.87	-32.31	-25	-7.31	Horizontal
197.6	-45.94	1.55	15.84	-31.65	-25	-6.65	Vertical
353.1	-44.66	1.51	17.06	-29.11	-25	-4.11	Horizontal

QPSK EIRP POWER FOR LTE BAND 41 (20MHZ BANDWIDTH)

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160.0	-59.77	5.23	35.82	-29.18	-25	-4.18	Horizontal
5160.0	-61.90	5.23	35.82	-31.31	-25	-6.31	Vertical
7740.0	-61.59	5.67	36.86	-30.40	-25	-5.40	Vertical
7740.0	-60.71	5.67	36.86	-29.52	-25	-4.52	Horizontal
128.9	-45.40	1.43	15.51	-31.32	-25	-6.32	Vertical
344.8	-46.21	1.40	16.97	-30.64	-25	-5.64	Horizontal
Test Results for Mid Channel 2593MHz							
5190.0	-64.92	5.23	35.82	-34.33	-25	-9.33	Horizontal
5190.0	-59.97	5.23	35.82	-29.38	-25	-4.38	Vertical
7785.0	-62.97	5.67	36.85	-31.79	-25	-6.79	Vertical
7785.0	-61.48	5.67	36.85	-30.30	-25	-5.30	Horizontal
100.8	-44.88	1.77	16.72	-29.93	-25	-4.93	Vertical
263.5	-49.74	1.31	16.99	-34.06	-25	-9.06	Horizontal
Test Results for High Channel 2680MHz							
5220.0	-64.62	5.24	35.83	-34.03	-25	-9.03	Horizontal
5220.0	-62.45	5.24	35.83	-31.86	-25	-6.86	Vertical
7830.0	-64.33	5.70	36.88	-33.15	-25	-8.15	Vertical
7830.0	-62.25	5.70	36.88	-31.07	-25	-6.07	Horizontal
349.9	-44.64	1.70	15.73	-30.61	-25	-5.61	Vertical
110.3	-45.19	1.75	17.33	-29.61	-25	-4.61	Horizontal

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

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

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

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

9.7 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-50.35	4.02	29.80	-24.57	-13	-11.57	Horizontal
3421.4	-54.95	4.02	29.80	-29.17	-13	-16.17	Vertical
5132.1	-53.61	5.24	35.84	-23.01	-13	-10.01	Vertical
5132.1	-51.83	5.24	35.84	-21.23	-13	-8.23	Horizontal
112.6	-51.05	1.52	15.57	-37.00	-13	-24.00	Vertical
220.5	-52.59	1.33	17.14	-36.78	-13	-23.78	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-50.64	4.03	30.00	-24.67	-13	-11.67	Horizontal
3490.0	-49.05	4.03	30.00	-23.08	-13	-10.08	Vertical
5235.0	-53.84	5.25	35.86	-23.23	-13	-10.23	Vertical
5235.0	-49.74	5.25	35.86	-19.13	-13	-6.13	Horizontal
157.3	-48.88	1.53	17.13	-33.28	-13	-20.28	Vertical
213.1	-48.49	1.41	15.95	-33.95	-13	-20.95	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-51.40	4.05	30.01	-25.44	-13	-12.44	Horizontal
3558.6	-52.36	4.05	30.01	-26.40	-13	-13.40	Vertical
5337.9	-53.44	5.26	35.86	-22.84	-13	-9.84	Vertical
5337.9	-53.75	5.26	35.86	-23.15	-13	-10.15	Horizontal
170.6	-49.50	1.44	15.51	-35.43	-13	-22.43	Vertical
169.0	-45.47	1.78	15.76	-31.49	-13	-18.49	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (20MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-46.22	4.02	29.80	-20.44	-13	-7.44	Horizontal
3440.0	-46.09	4.02	29.80	-20.31	-13	-7.31	Vertical
5160.0	-49.99	5.24	35.84	-19.39	-13	-6.39	Vertical
5160.0	-51.44	5.24	35.84	-20.84	-13	-7.84	Horizontal
268.8	-53.22	1.62	17.02	-37.82	-13	-24.82	Vertical
161.4	-52.48	1.32	17.31	-36.49	-13	-23.49	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-53.42	4.03	30.00	-27.45	-13	-14.45	Horizontal
3490.0	-52.34	4.03	30.00	-26.37	-13	-13.37	Vertical
5235.0	-50.63	5.25	35.86	-20.02	-13	-7.02	Vertical
5235.0	-48.76	5.25	35.86	-18.15	-13	-5.15	Horizontal
159.9	-54.85	1.45	15.17	-41.13	-13	-28.13	Vertical
172.1	-48.50	1.48	17.82	-32.16	-13	-19.16	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-52.21	2.91	27.68	-27.44	-13	-14.44	Horizontal
3540.0	-54.59	2.91	27.68	-29.82	-13	-16.82	Vertical
5310.0	-50.04	5.26	35.86	-19.44	-13	-6.44	Vertical
5310.0	-50.40	5.26	35.86	-19.80	-13	-6.80	Horizontal
197.3	-52.10	1.76	16.38	-37.48	-13	-24.48	Vertical
158.5	-47.70	1.43	17.13	-32.00	-13	-19.00	Horizontal

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

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

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

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

9.8 LTE BAND 71

QPSK EIRP POWER FOR LTE BAND 71 (5MHZ BANDWIDTH)

Test Results for Low Channel 665.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1331	-51.35	2.61	27.28	-26.68	-13	-13.68	Horizontal
1331	-54.34	2.61	27.28	-29.67	-13	-16.67	Vertical
1996.5	-49.37	2.87	27.59	-24.65	-13	-11.65	Vertical
1996.5	-49.08	2.87	27.59	-24.36	-13	-11.36	Horizontal
Test Results for Mid Channel 680.5MHz							
1361	-48.45	2.62	27.30	-23.77	-13	-10.77	Horizontal
1361	-47.18	2.62	27.30	-22.50	-13	-9.50	Vertical
2041.5	-45.93	2.87	27.62	-21.18	-13	-8.18	Vertical
2041.5	-46.01	2.87	27.62	-21.26	-13	-8.26	Horizontal
Test Results for High Channel 695.5MHz							
1391	-48.23	2.66	27.28	-23.61	-13	-10.61	Horizontal
1391	-49.57	2.66	27.28	-24.95	-13	-11.95	Vertical
2086.5	-49.66	2.88	27.60	-24.94	-13	-11.94	Vertical
2086.5	-46.96	2.88	27.60	-22.24	-13	-9.24	Horizontal

QPSK EIRP POWER FOR LTE BAND 71 (20MHZ BANDWIDTH)

Test Results for Low Channel 673MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1346	-50.52	2.62	27.30	-25.84	-13	-12.84	Horizontal
1346	-50.75	2.62	27.30	-26.07	-13	-13.07	Vertical
2019	-53.39	2.87	27.62	-28.64	-13	-15.64	Vertical
2019	-47.01	2.87	27.62	-22.26	-13	-9.26	Horizontal
Test Results for Mid Channel 683MHz							
1366	-49.05	2.62	27.30	-24.37	-13	-11.37	Horizontal
1366	-46.17	2.62	27.30	-21.49	-13	-8.49	Vertical
2049	-50.50	2.87	27.62	-25.75	-13	-12.75	Vertical
2049	-53.48	2.87	27.62	-28.73	-13	-15.73	Horizontal
Test Results for High Channel 688MHz							
1376	-48.06	2.62	27.30	-23.38	-13	-10.38	Horizontal
1376	-54.55	2.62	27.30	-29.87	-13	-16.87	Vertical
2064	-53.35	2.87	27.62	-28.60	-13	-15.60	Vertical
2064	-54.04	2.87	27.62	-29.29	-13	-16.29	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

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 6.58V, Normal, DC 3.87V and High voltage, DC 8.90V.

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 2/4/5/12/17/41/66/71

RESULTS

See the following pages.

10.1 LTE BAND 2

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1880	12.3	0.006563	2.5
3.87	1880	13.3	0.007100	2.5
4.45	1880	13.3	0.007055	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.5	0.006661	2.5
Extreme (50C)	1880	11.6	0.006178	2.5
Extreme (40C)	1880	14.2	0.007540	2.5
Extreme (30C)	1880	13.3	0.007052	2.5
Extreme (10C)	1880	13.6	0.007242	2.5
Extreme (0C)	1880	11.7	0.006200	2.5
Extreme (-10C)	1880	13.5	0.007166	2.5
Extreme (-20C)	1880	13.7	0.007296	2.5
Extreme (-30C)	1880	14.9	0.007934	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1880	10.3	0.005476	2.5
3.87	1880	8.9	0.004753	2.5
4.45	1880	8.0	0.004260	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.8	0.005222	2.5
Extreme (50C)	1880	8.9	0.004721	2.5
Extreme (40C)	1880	8.0	0.004234	2.5
Extreme (30C)	1880	8.7	0.004620	2.5
Extreme (10C)	1880	8.5	0.004540	2.5
Extreme (0C)	1880	8.0	0.004275	2.5
Extreme (-10C)	1880	8.9	0.004758	2.5
Extreme (-20C)	1880	8.7	0.004619	2.5
Extreme (-30C)	1880	8.2	0.004338	2.5

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

10.2 LTE BAND 4

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1732.5	8.5	0.004880	2.5
3.87	1732.5	9.0	0.005171	2.5
4.45	1732.5	8.0	0.004641	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.7	0.005015	2.5
Extreme (50C)	1732.5	9.0	0.005181	2.5
Extreme (40C)	1732.5	7.0	0.004050	2.5
Extreme (30C)	1732.5	6.3	0.003645	2.5
Extreme (10C)	1732.5	7.1	0.004117	2.5
Extreme (0C)	1732.5	9.7	0.005586	2.5
Extreme (-10C)	1732.5	8.6	0.004983	2.5
Extreme (-20C)	1732.5	6.6	0.003815	2.5
Extreme (-30C)	1732.5	8.1	0.004684	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1732.5	10.3	0.005937	2.5
3.87	1732.5	8.5	0.004892	2.5
4.45	1732.5	8.0	0.004639	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.3	0.005354	2.5
Extreme (50C)	1732.5	9.3	0.005386	2.5
Extreme (40C)	1732.5	7.9	0.004542	2.5
Extreme (30C)	1732.5	8.7	0.005031	2.5
Extreme (10C)	1732.5	9.2	0.005316	2.5
Extreme (0C)	1732.5	7.9	0.004588	2.5
Extreme (-10C)	1732.5	8.9	0.005138	2.5
Extreme (-20C)	1732.5	8.5	0.004928	2.5
Extreme (-30C)	1732.5	8.6	0.004960	2.5

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

10.3 LTE BAND 5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	6.3	0.007501	2.5
3.87	836.5	6.6	0.007885	2.5
4.45	836.5	4.8	0.005744	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.5	0.007820	2.5
Extreme (50C)	836.5	5.7	0.006813	2.5
Extreme (40C)	836.5	6.6	0.007861	2.5
Extreme (30C)	836.5	6.2	0.007357	2.5
Extreme (10C)	836.5	5.6	0.006663	2.5
Extreme (0C)	836.5	5.5	0.006521	2.5
Extreme (-10C)	836.5	5.5	0.006609	2.5
Extreme (-20C)	836.5	5.9	0.007016	2.5
Extreme (-30C)	836.5	6.4	0.007623	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	836.5	6.0	0.007196	2.5
3.87	836.5	7.1	0.008521	2.5
4.45	836.5	4.5	0.005396	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.3	0.007555	2.5
Extreme (50C)	836.5	5.7	0.006825	2.5
Extreme (40C)	836.5	5.9	0.007008	2.5
Extreme (30C)	836.5	6.4	0.007675	2.5
Extreme (10C)	836.5	5.3	0.006365	2.5
Extreme (0C)	836.5	5.6	0.006689	2.5
Extreme (-10C)	836.5	5.4	0.006497	2.5
Extreme (-20C)	836.5	6.1	0.007250	2.5
Extreme (-30C)	836.5	6.4	0.007682	2.5

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

10.4 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	707.5	8.5	0.012030	2.5
3.87	707.5	9.9	0.013953	2.5
4.45	707.5	8.5	0.011954	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.9	0.012600	2.5
Extreme (50C)	707.5	7.4	0.010517	2.5
Extreme (40C)	707.5	7.1	0.010023	2.5
Extreme (30C)	707.5	8.7	0.012358	2.5
Extreme (10C)	707.5	6.9	0.009763	2.5
Extreme (0C)	707.5	9.2	0.012986	2.5
Extreme (-10C)	707.5	8.7	0.012342	2.5
Extreme (-20C)	707.5	8.6	0.012172	2.5
Extreme (-30C)	707.5	7.6	0.010793	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	707.5	7.6	0.010714	2.5
3.87	707.5	8.2	0.011657	2.5
4.45	707.5	7.7	0.010911	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.

10.5 LTE BAND 17

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	710.0	10.1	0.014264	2.5
3.87	710.0	8.8	0.012366	2.5
4.45	710.0	8.1	0.011437	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.9	0.013997	2.5
Extreme (50C)	710.0	8.4	0.011837	2.5
Extreme (40C)	710.0	7.8	0.011044	2.5
Extreme (30C)	710.0	8.7	0.012280	2.5
Extreme (10C)	710.0	8.9	0.012555	2.5
Extreme (0C)	710.0	8.0	0.011266	2.5
Extreme (-10C)	710.0	9.4	0.013174	2.5
Extreme (-20C)	710.0	9.4	0.013211	2.5
Extreme (-30C)	710.0	8.4	0.011825	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	710.0	10.3	0.014470	2.5
3.87	710.0	9.0	0.012608	2.5
4.45	710.0	8.5	0.011993	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.0	0.012715	2.5
Extreme (50C)	710.0	8.8	0.012408	2.5
Extreme (40C)	710.0	8.3	0.011667	2.5
Extreme (30C)	710.0	9.3	0.013129	2.5
Extreme (10C)	710.0	7.6	0.010766	2.5
Extreme (0C)	710.0	8.7	0.012278	2.5
Extreme (-10C)	710.0	9.4	0.013184	2.5
Extreme (-20C)	710.0	9.2	0.013002	2.5
Extreme (-30C)	710.0	8.3	0.011710	2.5

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

10.6 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]
3.29	2593	8.6	0.003315	2.5
3.87	2593	6.6	0.002556	2.5
4.45	2593	7.3	0.002828	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	7.7	0.002981	2.5
Extreme (50C)	2593	4.9	0.001906	2.5
Extreme (40C)	2593	5.3	0.002037	2.5
Extreme (30C)	2593	4.8	0.001851	2.5
Extreme (10C)	2593	6.8	0.002609	2.5
Extreme (0C)	2593	4.5	0.001738	2.5
Extreme (-10C)	2593	9.3	0.003574	2.5
Extreme (-20C)	2593	10.7	0.004115	2.5
Extreme (-30C)	2593	6.1	0.002360	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]
3.29	2593	8.3	0.003189	2.5
3.87	2593	6.1	0.002352	2.5
4.45	2593	6.9	0.002666	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	7.4	0.002839	2.5
Extreme (50C)	2593	4.8	0.001837	2.5
Extreme (40C)	2593	5.0	0.001929	2.5
Extreme (30C)	2593	5.0	0.001935	2.5
Extreme (10C)	2593	6.6	0.002533	2.5
Extreme (0C)	2593	4.9	0.001886	2.5
Extreme (-10C)	2593	9.5	0.003666	2.5
Extreme (-20C)	2593	10.6	0.004104	2.5
Extreme (-30C)	2593	5.7	0.002204	2.5

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

10.7 LTE BAND 66

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1745	13.0	0.00746	2.5
3.87	1745	13.7	0.00782	2.5
4.45	1745	13.3	0.00762	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.0	0.004033	2.5
Extreme (50C)	1745	4.8	0.002776	2.5
Extreme (40C)	1745	5.6	0.003207	2.5
Extreme (30C)	1745	4.8	0.002776	2.5
Extreme (10C)	1745	6.0	0.003457	2.5
Extreme (0C)	1745	4.6	0.002638	2.5
Extreme (-10C)	1745	9.5	0.005463	2.5
Extreme (-20C)	1745	10.7	0.006131	2.5
Extreme (-30C)	1745	6.3	0.003625	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	1745	12.5	0.007140	2.5
3.87	1745	13.4	0.007686	2.5
4.45	1745	13.1	0.007524	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.5	0.004291	2.5
Extreme (50C)	1745	5.2	0.002983	2.5
Extreme (40C)	1745	5.0	0.002877	2.5
Extreme (30C)	1745	5.0	0.002845	2.5
Extreme (10C)	1745	6.5	0.003727	2.5
Extreme (0C)	1745	4.9	0.002798	2.5
Extreme (-10C)	1745	9.6	0.005508	2.5
Extreme (-20C)	1745	10.7	0.006137	2.5
Extreme (-30C)	1745	6.1	0.003497	2.5

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

10.8 LTE BAND 71

Band 71 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	683	12.5	0.01828	2.5
3.87	683	14.1	0.02063	2.5
4.45	683	13.3	0.01943	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	683	7.9	0.011504	2.5
Extreme (50C)	683	5.2	0.007619	2.5
Extreme (40C)	683	5.2	0.007673	2.5
Extreme (30C)	683	4.8	0.007060	2.5
Extreme (10C)	683	6.9	0.010041	2.5
Extreme (0C)	683	4.8	0.007032	2.5
Extreme (-10C)	683	9.4	0.013825	2.5
Extreme (-20C)	683	11.0	0.016082	2.5
Extreme (-30C)	683	6.3	0.009166	2.5

Band 71 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	683	12.7	0.018640	2.5
3.87	683	13.9	0.020363	2.5
4.45	683	13.0	0.018968	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	683	7.0	0.010251	2.5
Extreme (50C)	683	5.1	0.007397	2.5
Extreme (40C)	683	5.7	0.008298	2.5
Extreme (30C)	683	4.5	0.006600	2.5
Extreme (10C)	683	6.3	0.009262	2.5
Extreme (0C)	683	4.8	0.007041	2.5
Extreme (-10C)	683	9.2	0.013429	2.5
Extreme (-20C)	683	10.8	0.015830	2.5
Extreme (-30C)	683	5.8	0.008443	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.

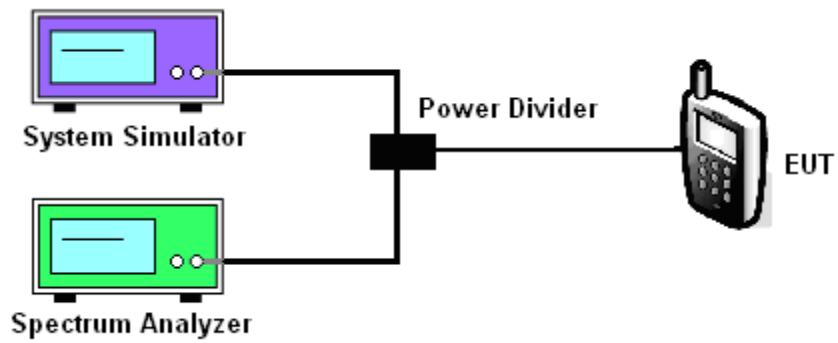
11.2 Measuring Instruments

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 2/4/5/12/17/41/66/71

Test data reference attachment.

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