

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT FCC ID: 2BG44-MERA2

Product: QIDI Vida

Trade Mark: QIDI

Model No.: MER-A2

Family Model: N/A

Report No.: S24042304906004

Issue Date: Jun 28, 2024

Prepared for

Qidi Technology (Shanghai) Co., Ltd
Building C, No. 888, Huanhu West 2nd Road, Lingang New Area,
Shanghai ,China

Prepared by

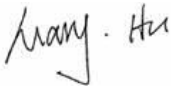
Shenzhen NTEK Testing Technology Co., Ltd.
1&5/F, Building C, 1&2/F, Building E, Fenda Science Park, Sanwei
Community,Xixiang Street Bao'an District,
Shenzhen 518126 P.R. China
Tel. 400-800-6106, 0755-2320 0050, 0755-2320 0090
Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name: Qidi Technology (Shanghai) Co., Ltd
Address: Building C, No. 888, Huanhu West 2nd Road, Lingang New Area, Shanghai ,China
Manufacturer's Name: Qidi Technology (Shanghai) Co., Ltd
Address: Building C, No. 888, Huanhu West 2nd Road, Lingang New Area, Shanghai ,China
Product name.....: QIDI Vida
Model and/or type reference ...: MER-A2
Trade Mark.....: QIDI
Family Model.....: N/A
Test Sample Number.....: S240423049003
Date of Test: Apr 25, 2024 ~ Jun 28, 2024
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.

Prepared : 
 By : _____
 Mary Hu
 (Project Engineer)

Reviewed : 
 By : _____
 Aaron Cheng
 (Supervisor)

Approved : 
 By : _____
 Alex Li
 (Manager)

TABLE OF CONTENTS

1. GENERAL INFORMATION	5
1. GENERAL INFORMATION	5
1.1 PRODUCT DESCRIPTION	5
1.3 TEST METHODOLOGY	5
1.4 TEST FACILITY	6
MEASUREMENT UNCERTAINTY	7
1.5 SPECIAL ACCESSORIES	7
1.6 WORST-CASE CONFIGURATION AND MODE	7
2. SYSTEM TEST CONFIGURATION	8
2.1 EUT CONFIGURATION	8
2.2 EUT EXERCISE	8
2.3 CONFIGURATION OF EUT SYSTEM	8
2.4 TEST SETUP	9
3. TEST AND MEASUREMENT EQUIPMENT	10
4. OUTPUT POWER	12
4.1 OUTPUT POWER MEASUREMENT	12
6. BANDEDGE AND EMISSION MASK	15
7.1 MEASUREMENT METHOD	17
8. RADIATED MEASUREMENT	18
8.1. RADIATED POWER (ERP & EIRP)	18
8.2 LTE BAND 2	19
8.3 LTE BAND 4	22
8.4 LTE BAND 5	25
8.5 LTE BAND 7	27

8.6 LTE BAND 41	29
8.7 LTE BAND 66	31
9. SPURIOUS RADIATION EMISSION	34
9.1 LTE BAND 2	36
9.2 LTE BAND 4	38
9.3 LTE BAND 5	40
9.4 LTE BAND 7	42
9.5 LTE BAND 41	44
9.6 LTE BAND 66	46
10. FREQUENCY STABILITY	48
10.1 LTE BAND 2	49
10.2 LTE BAND 4	51
10.3 LTE BAND 5	53
10.4 LTE BAND 7	55
10.5 LTE BAND 41	57
10.6 LTE BAND 66	59
11. PEAK-TO-AVERAGE RATIO	61
11.1 Description of the PAR Measurement	61
11.2 Measuring Instruments	61
11.3 Test Procedures	61
11.4 Test Setup	62

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	QIDI Vida
Trade Mark	QIDI
Model Name	MER-A2
Family Model	N/A
Model Difference	N/A
FCC ID:	2BG44-MERA2
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,7,66 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 TDD Band 41 Uplink& Downlink: 2496MHz-2690MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	FPC Antenna
Antenna gain:	1 dBi
Adapter	N/A
Battery	DC 3.89V, 500mAh,2.03Wh
Power supply	DC 3.89V from battery or DC 5V from Type-Cport.
Extreme Vol. Limits:	DC 3.6V to DC 4.2V (Nominal DC 3.89V) (Note 1)
HW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 4.2V and Low Voltage 3.6V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2BG44-MERA2** 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.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen
518126 P.R.China.

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

FCC Registration No.:463705

IC Registration No.:9270A,

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 2/4/5/7/41/66

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

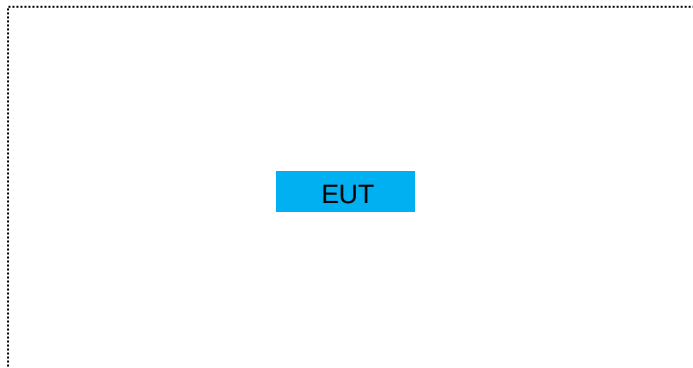
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	QIDI Vida	MER-A2	FCC ID: 2BG44-MERA2	EUT

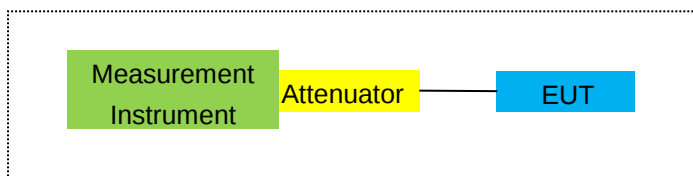
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

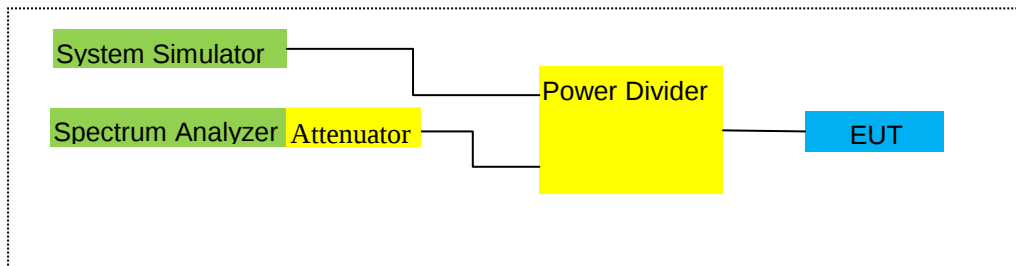
For Radiated Test Cases



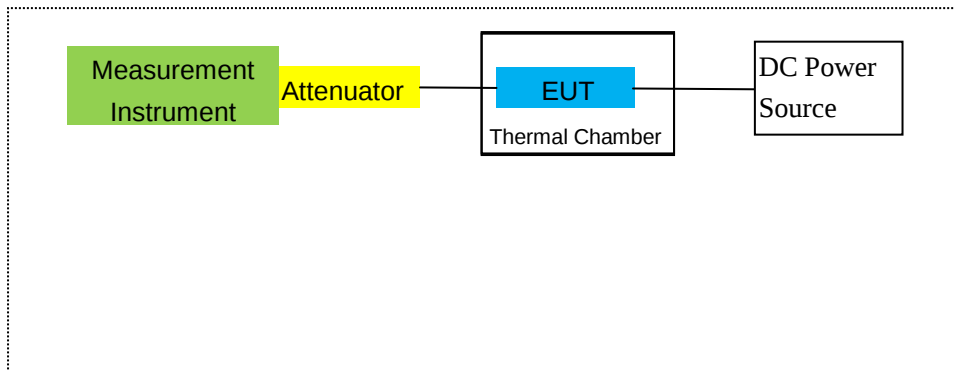
For Conducted Output Power



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	2024.03.12	2025.03.11	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.03.11	2025.03.10	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
5	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2023.01.12	2026.01.11	3 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2023.01.12	2026.01.11	3 year
7	Amplifier	EMC	EMC051835 SE	980246	2024.01.23	2025.01.22	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2023.11.03	2026.11.02	3 year
9	Power Meter	R&S	NRVS	100696	2024.04.25	2025.04.24	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.25	2025.04.24	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	2024.03.12	2025.03.11	1 year
15	LISN	R&S	ENV216	101313	2024.03.12	2025.03.11	1 year
16	LISN	EMCO	3816/2	00042990	2024.03.12	2025.03.11	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2023.05.06	2026.05.05	3 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
23	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
24	Communication Tester	R&S	CMU200	A0304247	2024.04.25	2025.04.24	1 year

25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year
26	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
27	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2023.11.03	2024.11.02	1 year
29	Communication Tester	R&S	CMW500	148500	2024.04.25	2025.04.24	1 year
30	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2023.12.29	2024.12.28	1 year
31	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2023.12.29	2024.12.28	1 year
32	Attenuator	Weinschel	33-10-33	AR4010	2023.03.27 2024.03.26	2024.03.26 2024.03.25	3 year
33	Attenuator	Weinschel	24-20-34	BP4485	2023.03.27 2024.03.26	2024.03.26 2024.03.25	3 year
34	Attenuator	Agilent	8495B	MY42147029	2023.03.27 2024.03.26	2024.03.26 2024.03.25	3 year

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
64 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".

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 2/4/5/7/41/66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

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 2/4/5/7/41/66

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

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 2/4/5/7/41/66

7.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

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 2/4/5/7/41/66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	17.01	3.76	8.90	22.15	164.059	Horizontal	Pass
		1880	15.02	3.91	8.90	20.01	100.231	Horizontal	Pass
		1909.3	15.45	3.93	8.90	20.42	110.154	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	15.01	3.77	8.90	20.14	103.276	Horizontal	Pass
		1880	15.56	3.91	8.90	20.55	113.501	Horizontal	Pass
		1908.5	16.89	3.94	8.90	21.85	153.109	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	16.45	3.77	8.90	21.58	143.880	Horizontal	Pass
		1880	17.68	3.91	8.90	22.67	184.927	Horizontal	Pass
		1907.5	17.05	3.94	8.90	22.01	158.855	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	17.39	3.79	8.90	22.5	177.828	Horizontal	Pass
		1880	18.34	3.95	8.90	23.29	213.304	Horizontal	Pass
		1905	16.49	3.97	8.90	21.42	138.676	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	16.41	3.79	8.90	21.52	141.906	Horizontal	Pass
		1880	17.53	3.95	8.90	22.48	177.011	Horizontal	Pass
		1902.5	16.14	3.97	8.90	21.07	127.938	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	17.02	3.81	8.90	22.11	162.555	Horizontal	Pass
		1880	15.40	3.96	8.90	20.34	108.143	Horizontal	Pass
		1900	17.18	4.00	8.90	22.08	161.436	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	16.41	3.76	8.90	21.55	142.889	Vertical	Pass
		1880	15.58	3.91	8.90	20.57	114.025	Vertical	Pass
		1909.3	16.19	3.93	8.90	21.16	130.617	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	16.69	3.77	8.90	21.82	152.055	Vertical	Pass
		1880	17.25	3.91	8.90	22.24	167.494	Vertical	Pass
		1908.5	15.60	3.94	8.90	20.56	113.763	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	16.28	3.77	8.90	21.41	138.357	Vertical	Pass
		1880	15.64	3.91	8.90	20.63	115.611	Vertical	Pass
		1907.5	17.65	3.94	8.90	22.61	182.390	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	15.58	3.79	8.90	20.69	117.220	Vertical	Pass
		1880	14.21	3.95	8.90	19.16	82.414	Vertical	Pass
		1905	15.11	3.97	8.90	20.04	100.925	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	15.77	3.79	8.90	20.88	122.462	Vertical	Pass
		1880	16.30	3.95	8.90	21.25	133.352	Vertical	Pass
		1902.5	17.48	3.97	8.90	22.41	174.181	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	18.46	3.81	8.90	23.55	226.464	Vertical	Pass
		1880	16.64	3.96	8.90	21.58	143.880	Vertical	Pass
		1900	16.63	4.00	8.90	21.53	142.233	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	14.60	3.76	8.90	22.5	177.828	Horizontal	Pass
		1880	15.75	3.91	8.90	21.54	142.561	Horizontal	Pass
		1909.3	15.45	3.93	8.90	22.33	171.002	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	15.29	3.77	8.90	21	125.893	Horizontal	Pass
		1880	14.95	3.91	8.90	22.02	159.221	Horizontal	Pass
		1908.5	14.55	3.94	8.90	21.12	129.420	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	15.14	3.77	8.90	22.82	191.426	Horizontal	Pass
		1880	15.50	3.91	8.90	21.22	132.434	Horizontal	Pass
		1907.5	14.00	3.94	8.90	20.36	108.643	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	15.35	3.79	8.90	22.55	179.887	Horizontal	Pass
		1880	14.05	3.95	8.90	21.68	147.231	Horizontal	Pass
		1905	15.36	3.97	8.90	22.81	190.985	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	13.68	3.79	8.90	22.25	167.880	Horizontal	Pass
		1880	15.77	3.95	8.90	21.3	134.896	Horizontal	Pass
		1902.5	15.65	3.97	8.90	23	199.526	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	13.84	3.81	8.90	20.73	118.304	Horizontal	Pass
		1880	16.17	3.96	8.90	21.66	146.555	Horizontal	Pass
		1900	14.55	4.00	8.90	20.3	107.152	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	14.61	3.76	8.90	22.53	179.061	Vertical	Pass
		1880	15.84	3.91	8.90	21.05	127.350	Vertical	Pass
		1909.3	15.13	3.93	8.90	21.78	150.661	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	13.77	3.77	8.90	20.83	121.060	Vertical	Pass
		1880	14.83	3.91	8.90	22.33	171.002	Vertical	Pass
		1908.5	14.56	3.94	8.90	21.43	138.995	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	13.76	3.77	8.90	23.23	210.378	Vertical	Pass

Band 16 QAM		1880	15.05	3.91	8.90	23.1	204.174	Vertical	Pass
		1907.5	15.69	3.94	8.90	21.84	152.757	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	13.98	3.79	8.90	22.53	179.061	Vertical	Pass
		1880	15.57	3.95	8.90	21.76	149.968	Vertical	Pass
		1905	15.12	3.97	8.90	21.68	147.231	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	13.85	3.79	8.90	21.34	136.144	Vertical	Pass
		1880	14.87	3.95	8.90	23.37	217.270	Vertical	Pass
		1902.5	13.66	3.97	8.90	22.17	164.816	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	14.29	3.81	8.90	23.08	203.236	Vertical	Pass
		1880	14.90	3.96	8.90	23.81	240.436	Vertical	Pass
		1900	13.78	4.00	8.90	21.71	148.252	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average (dBm)	Average (mW)	Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	14.23	3.12	8.90	20.01	100.231	Horizontal	Pass
		1732.5	13.58	3.27	8.90	19.21	83.368	Horizontal	Pass
		1754.3	15.99	3.29	8.90	21.6	144.544	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	14.05	3.13	8.90	19.82	95.940	Horizontal	Pass
		1732.5	14.85	3.27	8.90	20.48	111.686	Horizontal	Pass
		1753.5	14.77	3.30	8.90	20.37	108.893	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	15.83	3.13	8.90	21.6	144.544	Horizontal	Pass
		1732.5	15.89	3.27	8.90	21.52	141.906	Horizontal	Pass
		1752.5	14.74	3.30	8.90	20.34	108.143	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	14.97	3.15	8.90	20.72	118.032	Horizontal	Pass
		1732.5	15.00	3.31	8.90	20.59	114.551	Horizontal	Pass
		1750	15.80	3.33	8.90	21.37	137.088	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	15.15	3.15	8.90	20.9	123.027	Horizontal	Pass
		1732.5	15.38	3.31	8.90	20.97	125.026	Horizontal	Pass
		1747.5	16.36	3.33	8.90	21.93	155.955	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	13.78	3.17	8.90	19.51	89.331	Horizontal	Pass
		1732.5	14.48	3.32	8.90	20.06	101.391	Horizontal	Pass
		1745	14.70	3.36	8.90	20.24	105.682	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	14.88	3.12	8.90	20.66	116.413	Vertical	Pass
		1732.5	15.29	3.27	8.90	20.92	123.595	Vertical	Pass
		1754.3	15.35	3.29	8.90	20.96	124.738	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	15.12	3.13	8.90	20.89	122.744	Vertical	Pass
		1732.5	16.08	3.27	8.90	21.71	148.252	Vertical	Pass
		1753.5	15.83	3.30	8.90	21.43	138.995	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	14.83	3.13	8.90	20.6	114.815	Vertical	Pass
		1732.5	15.46	3.27	8.90	21.09	128.529	Vertical	Pass
		1752.5	14.10	3.30	8.90	19.7	93.325	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	12.54	3.15	8.90	18.29	67.453	Vertical	Pass
		1732.5	15.72	3.31	8.90	21.31	135.207	Vertical	Pass
		1750	14.71	3.33	8.90	20.28	106.660	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	15.84	3.15	8.90	21.59	144.212	Vertical	Pass
		1732.5	15.66	3.31	8.90	21.25	133.352	Vertical	Pass
		1747.5	14.76	3.33	8.90	20.33	107.895	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	16.59	3.17	8.90	22.32	170.608	Vertical	Pass
		1732.5	16.87	3.32	8.90	22.45	175.792	Vertical	Pass
		1745	14.07	3.36	8.90	19.61	91.411	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	15.37	3.12	8.90	21.15	130.317	Horizontal	Pass
		1732.5	16.62	3.27	8.90	22.25	167.880	Horizontal	Pass
		1754.3	16.03	3.29	8.90	21.64	145.881	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	14.71	3.13	8.90	20.48	111.686	Horizontal	Pass
		1732.5	15.81	3.27	8.90	21.44	139.316	Horizontal	Pass
		1753.5	16.17	3.30	8.90	21.77	150.314	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	14.42	3.13	8.90	20.19	104.472	Horizontal	Pass
		1732.5	13.48	3.27	8.90	19.11	81.470	Horizontal	Pass
		1752.5	15.50	3.30	8.90	21.1	128.825	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	16.32	3.15	8.90	22.07	161.065	Horizontal	Pass
		1732.5	14.40	3.31	8.90	19.99	99.770	Horizontal	Pass
		1750	14.26	3.33	8.90	19.83	96.161	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	15.28	3.15	8.90	21.03	126.765	Horizontal	Pass
		1732.5	16.24	3.31	8.90	21.83	152.405	Horizontal	Pass
		1747.5	15.32	3.33	8.90	20.89	122.744	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	15.03	3.17	8.90	20.76	119.124	Horizontal	Pass
		1732.5	15.85	3.32	8.90	21.43	138.995	Horizontal	Pass
		1745	16.32	3.36	8.90	21.86	153.462	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	16.15	3.12	8.90	21.93	155.955	Vertical	Pass
		1732.5	15.53	3.27	8.90	21.16	130.617	Vertical	Pass
		1754.3	15.99	3.29	8.90	21.6	144.544	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	15.35	3.13	8.90	21.12	129.420	Vertical	Pass
		1732.5	15.61	3.27	8.90	21.24	133.045	Vertical	Pass
		1753.5	15.37	3.30	8.90	20.97	125.026	Vertical	Pass
5.0MHz	1/#Mid	1712.5	16.88	3.13	8.90	22.65	184.077	Vertical	Pass

Band 16 QAM		15.84	15.84	3.27	8.90	21.47	140.281	Vertical	Pass
		14.27	14.27	3.30	8.90	19.87	97.051	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	14.98	14.98	3.15	8.90	20.73	118.304	Vertical	Pass
		16.01	16.01	3.31	8.90	21.6	144.544	Vertical	Pass
		16.67	16.67	3.33	8.90	22.24	167.494	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	14.55	14.55	3.15	8.90	20.3	107.152	Vertical	Pass
		15.03	15.03	3.31	8.90	20.62	115.345	Vertical	Pass
		16.68	16.68	3.33	8.90	22.25	167.880	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	15.63	15.63	3.17	8.90	21.36	136.773	Vertical	Pass
		17.20	17.20	3.32	8.90	22.78	189.671	Vertical	Pass
		16.25	16.25	3.36	8.90	21.79	151.008	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)		Max.	Max.	Polarization Of Max. ERP	
			(dBm)			Correction	EIRP	EIRP		
						(dB)	Average	Average		
1.4MHz Band QPSK	3/#Mid	824.7	19.22	2.01	5.30	2.15	20.36	108.643	Horizontal	Pass
		836.5	19.02	2.01	5.30	2.15	20.16	103.753	Horizontal	Pass
		848.3	19.77	2.02	5.70	2.15	21.30	135.017	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	19.02	2.01	5.30	2.15	20.16	103.753	Horizontal	Pass
		836.5	19.19	2.01	5.30	2.15	20.33	107.895	Horizontal	Pass
		847.5	18.77	2.02	5.70	2.15	20.30	107.152	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	20.06	2.01	5.30	2.15	21.20	131.697	Horizontal	Pass
		836.5	18.99	2.01	5.30	2.15	20.13	103.039	Horizontal	Pass
		846.5	18.62	2.02	5.70	2.15	20.15	103.514	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	19.78	2.01	5.30	2.15	20.92	123.630	Horizontal	Pass
		836.5	18.99	2.01	5.30	2.15	20.13	103.039	Horizontal	Pass
		844	19.35	2.02	5.70	2.15	20.88	122.600	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	18.99	2.01	5.30	2.15	20.13	103.039	Vertical	Pass
		836.5	18.99	2.01	5.30	2.15	20.13	103.039	Vertical	Pass
		848.3	18.80	2.02	5.70	2.15	20.33	107.895	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	19.18	2.01	5.30	2.15	20.32	107.647	Vertical	Pass
		836.5	18.97	2.01	5.30	2.15	20.11	102.565	Vertical	Pass
		847.5	19.01	2.02	5.70	2.15	20.54	113.226	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	19.20	2.01	5.30	2.15	20.34	108.131	Vertical	Pass
		836.5	19.02	2.01	5.30	2.15	20.16	103.753	Vertical	Pass
		846.5	19.44	2.02	5.70	2.15	20.97	124.942	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	18.41	2.01	5.30	2.15	19.55	90.173	Vertical	Pass
		836.5	20.18	2.01	5.30	2.15	21.32	135.519	Vertical	Pass
		844	19.73	2.02	5.70	2.15	21.26	133.718	Vertical	Pass

Radiated Power (ERP) for Band 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna		Max.	Max.	Polarization	
			Level	Loss	Factor	Correction	EIRP	EIRP	Of Max.	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	3/#Mid	824.7	19.82	2.01	5.30	2.15	20.96	124.806	Horizontal	Pass
		836.5	20.34	2.01	5.30	2.15	21.48	140.509	Horizontal	Pass
		848.3	18.89	2.02	5.70	2.15	20.42	110.151	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	20.87	2.01	5.30	2.15	22.01	158.783	Horizontal	Pass
		836.5	19.17	2.01	5.30	2.15	20.31	107.399	Horizontal	Pass
		847.5	20.13	2.02	5.70	2.15	21.66	146.688	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	19.62	2.01	5.30	2.15	20.76	119.024	Horizontal	Pass
		836.5	19.16	2.01	5.30	2.15	20.30	107.152	Horizontal	Pass
		846.5	20.17	2.02	5.70	2.15	21.70	148.030	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	20.64	2.01	5.30	2.15	21.78	150.664	Horizontal	Pass
		836.5	20.22	2.01	5.30	2.15	21.36	136.773	Horizontal	Pass
		844	19.97	2.02	5.70	2.15	21.50	141.230	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	20.22	2.01	5.30	2.15	21.36	136.773	Vertical	Pass
		836.5	20.21	2.01	5.30	2.15	21.35	136.458	Vertical	Pass
		848.3	20.42	2.02	5.70	2.15	21.95	156.726	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	20.39	2.01	5.30	2.15	21.53	142.160	Vertical	Pass
		836.5	20.84	2.01	5.30	2.15	21.98	157.640	Vertical	Pass
		847.5	18.44	2.02	5.70	2.15	19.97	99.397	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	18.56	2.01	5.30	2.15	19.70	93.267	Vertical	Pass
		836.5	20.22	2.01	5.30	2.15	21.36	136.773	Vertical	Pass
		846.5	19.32	2.02	5.70	2.15	20.85	121.488	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	19.18	2.01	5.30	2.15	20.32	107.634	Vertical	Pass
		836.5	20.99	2.01	5.30	2.15	22.13	163.305	Vertical	Pass
		844	19.98	2.02	5.70	2.15	21.51	141.558	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Antenna	Max.	Max.	Polarization	
			Level	Loss	Factor	EIRP	EIRP	Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2502.5	16.68	4.54	9.00	21.14	130.017	Horizontal	Pass
		2535	16.44	4.69	9.00	20.75	118.850	Horizontal	Pass
		2567.5	14.16	4.71	9.00	18.45	69.984	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	13.84	4.55	9.00	18.29	67.453	Horizontal	Pass
		2535	15.97	4.69	9.00	20.28	106.660	Horizontal	Pass
		2565	16.70	4.72	9.00	20.98	125.314	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	17.19	4.55	9.00	21.64	145.881	Horizontal	Pass
		2535	15.55	4.69	9.00	19.86	96.828	Horizontal	Pass
		2562.5	15.39	4.72	9.00	19.67	92.683	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	15.03	4.57	9.00	19.46	88.308	Horizontal	Pass
		2535	17.21	4.73	9.00	21.48	140.605	Horizontal	Pass
		2560	15.38	4.75	9.00	19.63	91.833	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	15.42	4.54	9.00	19.88	97.275	Vertical	Pass
		2535	17.57	4.69	9.00	21.88	154.170	Vertical	Pass
		2567.5	17.10	4.71	9.00	21.39	137.721	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	14.86	4.55	9.00	19.31	85.310	Vertical	Pass
		2535	16.65	4.69	9.00	20.96	124.738	Vertical	Pass
		2565	17.02	4.72	9.00	21.3	134.896	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	16.16	4.55	9.00	20.61	115.080	Vertical	Pass
		2535	17.12	4.69	9.00	21.43	138.995	Vertical	Pass
		2562.5	15.62	4.72	9.00	19.9	97.724	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	17.77	4.57	9.00	22.2	165.959	Vertical	Pass
		2535	17.37	4.73	9.00	21.64	145.881	Vertical	Pass
		2560	18.17	4.75	9.00	22.42	174.582	Vertical	Pass

Radiated Power (EIRP) for Band 7												
Mode	RB/RB SIZE	Frequency	Result						Conclusion			
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization Of Max. ERP				
						(dBm)	(dBm)			(dB)	Average	Average
											(dBm)	(mW)
5.0MHz Band 16 QAM	1/#Mid	2502.5	15.01	4.54	9.00	19.47	88.512	Horizontal	Pass			
		2535	15.37	4.69	9.00	19.68	92.897	Horizontal	Pass			
		2567.5	15.41	4.71	9.00	19.7	93.325	Horizontal	Pass			
10.0MHz Band 16 QAM	1/#Mid	2505	16.18	4.55	9.00	20.63	115.611	Horizontal	Pass			
		2535	16.17	4.69	9.00	20.48	111.686	Horizontal	Pass			
		2565	16.80	4.72	9.00	21.08	128.233	Horizontal	Pass			
15.0MHz Band 16 QAM	1/#Mid	2507.5	16.36	4.55	9.00	20.81	120.504	Horizontal	Pass			
		2535	17.14	4.69	9.00	21.45	139.637	Horizontal	Pass			
		2562.5	15.20	4.72	9.00	19.48	88.716	Horizontal	Pass			
20.0MHz Band 16 QAM	1/#Mid	2510	15.39	4.57	9.00	19.82	95.940	Horizontal	Pass			
		2535	14.08	4.73	9.00	18.35	68.391	Horizontal	Pass			
		2560	15.77	4.75	9.00	20.02	100.462	Horizontal	Pass			
5.0MHz Band 16 QAM	1/#Mid	2502.5	16.23	4.54	9.00	20.69	117.220	Vertical	Pass			
		2535	16.70	4.69	9.00	21.01	126.183	Vertical	Pass			
		2567.5	16.47	4.71	9.00	20.76	119.124	Vertical	Pass			
10.0MHz Band 16 QAM	1/#Mid	2505	15.85	4.55	9.00	20.3	107.152	Vertical	Pass			
		2535	17.02	4.69	9.00	21.33	135.831	Vertical	Pass			
		2565	15.50	4.72	9.00	19.78	95.060	Vertical	Pass			
15.0MHz Band 16 QAM	1/#Mid	2507.5	15.75	4.55	9.00	20.2	104.713	Vertical	Pass			
		2535	15.52	4.69	9.00	19.83	96.161	Vertical	Pass			
		2562.5	14.72	4.72	9.00	19	79.433	Vertical	Pass			
20.0MHz Band 16 QAM	1/#Mid	2510	17.09	4.57	9.00	21.52	141.906	Vertical	Pass			
		2535	16.14	4.73	9.00	20.41	109.901	Vertical	Pass			
		2560	17.04	4.75	9.00	21.29	134.586	Vertical	Pass			

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 41

Radiated Power (EIRP) for Band 41									
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	
5.0MHz Band QPSK	1/#Mid	2498.5	17.26	4.54	9.00	21.72	148.594	Horizontal	Pass
		2593	15.51	4.69	9.00	19.82	95.940	Horizontal	Pass
		2687.5	14.95	4.71	9.00	19.24	83.946	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2501	16.81	4.55	9.00	21.26	133.660	Horizontal	Pass
		2593	16.63	4.69	9.00	20.94	124.165	Horizontal	Pass
		2685	14.70	4.72	9.00	18.98	79.068	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	13.21	4.55	9.00	17.66	58.345	Horizontal	Pass
		2593	15.43	4.69	9.00	19.74	94.189	Horizontal	Pass
		2682.5	16.50	4.72	9.00	20.78	119.674	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2506	15.48	4.57	9.00	19.91	97.949	Horizontal	Pass
		2593	15.01	4.73	9.00	19.28	84.723	Horizontal	Pass
		2680	15.48	4.75	9.00	19.73	93.972	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2498.5	16.19	4.54	9.00	20.65	116.145	Vertical	Pass
		2593	14.15	4.69	9.00	18.46	70.146	Vertical	Pass
		2687.5	15.67	4.71	9.00	19.96	99.083	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2501	13.50	4.55	9.00	17.95	62.373	Vertical	Pass
		2593	15.49	4.69	9.00	19.8	95.499	Vertical	Pass
		2685	15.91	4.72	9.00	20.19	104.472	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	14.81	4.55	9.00	19.26	84.333	Vertical	Pass
		2593	15.55	4.69	9.00	19.86	96.828	Vertical	Pass
		2682.5	15.19	4.72	9.00	19.47	88.512	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2506	17.30	4.57	9.00	21.73	148.936	Vertical	Pass
		2593	13.18	4.73	9.00	17.45	55.590	Vertical	Pass
		2680	15.65	4.75	9.00	19.9	97.724	Vertical	Pass

Radiated Power (EIRP) for Band 41									
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	
5.0MHz Band 16 QAM	1/#Mid	2498.5	14.14	4.54	9.00	18.6	72.444	Horizontal	Pass
		2593	15.35	4.69	9.00	19.66	92.470	Horizontal	Pass
		2687.5	16.84	4.71	9.00	21.13	129.718	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	15.82	4.55	9.00	20.27	106.414	Horizontal	Pass
		2593	16.32	4.69	9.00	20.63	115.611	Horizontal	Pass
		2685	16.81	4.72	9.00	21.09	128.529	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	16.15	4.55	9.00	20.6	114.815	Horizontal	Pass
		2593	16.56	4.69	9.00	20.87	122.180	Horizontal	Pass
		2682.5	17.34	4.72	9.00	21.62	145.211	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	15.93	4.57	9.00	20.36	108.643	Horizontal	Pass
		2593	16.42	4.73	9.00	20.69	117.220	Horizontal	Pass
		2680	16.32	4.75	9.00	20.57	114.025	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2498.5	16.19	4.54	9.00	20.65	116.145	Vertical	Pass
		2593	16.46	4.69	9.00	20.77	119.399	Vertical	Pass
		2687.5	16.73	4.71	9.00	21.02	126.474	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	16.20	4.55	9.00	20.65	116.145	Vertical	Pass
		2593	15.66	4.69	9.00	19.97	99.312	Vertical	Pass
		2685	15.02	4.72	9.00	19.3	85.114	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	16.18	4.55	9.00	20.63	115.611	Vertical	Pass
		2593	16.58	4.69	9.00	20.89	122.744	Vertical	Pass
		2682.5	16.95	4.72	9.00	21.23	132.739	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	16.18	4.57	9.00	20.61	115.080	Vertical	Pass
		2593	16.83	4.73	9.00	21.1	128.825	Vertical	Pass
		2680	17.44	4.75	9.00	21.69	147.571	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)

8.7 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 Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	15.09	3.12	8.90	19.11	81.470	Horizontal	Pass
		1745	13.86	3.27	8.90	17.92	61.944	Horizontal	Pass
		1779.3	16.28	3.29	8.90	21.49	140.929	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	14.20	3.13	8.90	18.64	73.114	Horizontal	Pass
		1745	14.87	3.27	8.90	19.13	81.846	Horizontal	Pass
		1778.5	15.56	3.30	8.90	18.69	73.961	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	16.05	3.13	8.90	20.56	113.763	Horizontal	Pass
		1745	16.21	3.27	8.90	20.3	107.152	Horizontal	Pass
		1777.5	14.87	3.30	8.90	18.49	70.632	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	15.19	3.15	8.90	19.98	99.541	Horizontal	Pass
		1745	15.29	3.31	8.90	19.76	94.624	Horizontal	Pass
		1775	16.10	3.33	8.90	20.07	101.625	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	15.36	3.15	8.90	20.17	103.992	Horizontal	Pass
		1745	15.89	3.31	8.90	20.43	110.408	Horizontal	Pass
		1772.5	16.64	3.33	8.90	21.22	132.434	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	13.97	3.17	8.90	18.74	74.817	Horizontal	Pass
		1745	15.42	3.32	8.90	20.36	108.643	Horizontal	Pass
		1770	15.22	3.36	8.90	20.06	101.391	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	15.71	3.12	8.90	19.75	94.406	Vertical	Pass
		1745	16.21	3.27	8.90	21.1	128.825	Vertical	Pass
		1779.3	15.56	3.29	8.90	19.96	99.083	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	16.08	3.13	8.90	19.96	99.083	Vertical	Pass
		1745	16.14	3.27	8.90	20.48	111.686	Vertical	Pass
		1778.5	16.41	3.30	8.90	20.2	104.713	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	15.17	3.13	8.90	19.69	93.111	Vertical	Pass
		1745	15.65	3.27	8.90	19.18	82.794	Vertical	Pass
		1777.5	14.24	3.30	8.90	19.01	79.616	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	12.72	3.15	8.90	17.68	58.614	Vertical	Pass
		1745	16.63	3.31	8.90	20.56	113.763	Vertical	Pass
		1775	15.66	3.33	8.90	18.69	73.961	Vertical	Pass
15.0MHz	1/#Mid	1717.5	16.69	3.15	8.90	20.72	118.032	Vertical	Pass

Band QPSK		1745	16.08	3.31	8.90	20.02	100.462	Vertical	Pass
		1772.5	15.30	3.33	8.90	20.35	108.393	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	17.39	3.17	8.90	21.73	148.936	Vertical	Pass
		1745	17.54	3.32	8.90	20.67	116.681	Vertical	Pass
		1770	14.41	3.36	8.90	18.4	69.183	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 Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	14.65	3.12	8.9	20.43	110.408	Horizontal	Pass
		1745	14.94	3.27	8.9	20.57	114.025	Horizontal	Pass
		1779.3	15.18	3.29	8.9	20.79	119.950	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	15.12	3.13	8.9	20.89	122.744	Horizontal	Pass
		1745	14.07	3.27	8.9	19.7	93.325	Horizontal	Pass
		1778.5	14.89	3.3	8.9	20.49	111.944	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	13.72	3.13	8.9	19.49	88.920	Horizontal	Pass
		1745	13.33	3.27	8.9	18.96	78.705	Horizontal	Pass
		1777.5	14.00	3.3	8.9	19.6	91.201	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	15.58	3.15	8.9	21.33	135.831	Horizontal	Pass
		1745	13.03	3.31	8.9	18.62	72.778	Horizontal	Pass
		1775	12.81	3.33	8.9	18.38	68.865	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	13.03	3.15	8.9	18.78	75.509	Horizontal	Pass
		1745	14.50	3.31	8.9	20.09	102.094	Horizontal	Pass
		1772.5	14.96	3.33	8.9	20.53	112.980	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	14.20	3.17	8.9	19.93	98.401	Horizontal	Pass
		1745	14.83	3.32	8.9	20.41	109.901	Horizontal	Pass
		1770	15.16	3.36	8.9	20.7	117.490	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	14.76	3.12	8.9	20.54	113.240	Vertical	Pass
		1745	14.73	3.27	8.9	20.36	108.643	Vertical	Pass
		1779.3	13.81	3.29	8.9	19.42	87.498	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	13.52	3.13	8.9	19.29	84.918	Vertical	Pass
		1745	13.35	3.27	8.9	18.98	79.068	Vertical	Pass
		1778.5	14.63	3.3	8.9	20.23	105.439	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	15.52	3.13	8.9	21.29	134.586	Vertical	Pass
		1745	14.46	3.27	8.9	20.09	102.094	Vertical	Pass
		1777.5	13.24	3.3	8.9	18.84	76.560	Vertical	Pass

10.0MHz Band 16 QAM	1/#Mid	1715	13.49	3.15	8.9	19.24	83.946	Vertical	Pass
		1745	15.36	3.31	8.9	20.95	124.451	Vertical	Pass
		1775	16.03	3.33	8.9	21.6	144.544	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	14.41	3.15	8.9	20.16	103.753	Vertical	Pass
		1745	14.68	3.31	8.9	20.27	106.414	Vertical	Pass
		1772.5	14.38	3.33	8.9	19.95	98.855	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	14.78	3.17	8.9	20.51	112.460	Vertical	Pass
		1745	14.87	3.32	8.9	20.45	110.917	Vertical	Pass
		1770	16.24	3.36	8.9	21.78	150.661	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

LTE Band 2/4/5/7/41/66

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-49.10	4.04	33.51	-19.63	-13	-6.63	Horizontal
3701.4	-49.17	4.04	33.51	-19.70	-13	-6.70	Vertical
5552.1	-53.51	5.24	35.84	-22.91	-13	-9.91	Vertical
5552.1	-64.08	5.24	35.84	-33.48	-13	-20.48	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-49.31	4.04	33.56	-19.79	-13	-6.79	Horizontal
3760	-50.53	4.04	33.56	-21.01	-13	-8.01	Vertical
5640	-50.39	5.24	35.91	-19.72	-13	-6.72	Vertical
5640	-52.98	5.24	35.91	-22.31	-13	-9.31	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-50.30	4.04	34.00	-20.34	-13	-7.34	Horizontal
3818.6	-53.90	4.04	34.00	-23.94	-13	-10.94	Vertical
5727.9	-55.63	5.24	36.04	-24.83	-13	-11.83	Vertical
5727.9	-54.63	5.24	36.04	-23.83	-13	-10.83	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720	-53.15	4.07	33.54	-23.68	-13	-10.68	Horizontal
3720	-48.21	4.07	33.54	-18.74	-13	-5.74	Vertical
5580	-53.30	5.28	35.86	-22.72	-13	-9.72	Vertical
5580	-56.27	5.28	35.86	-25.69	-13	-12.69	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-51.91	4.04	33.56	-22.39	-13	-9.39	Horizontal
3760	-48.33	4.04	33.56	-18.81	-13	-5.81	Vertical
5640	-52.03	5.24	35.91	-21.36	-13	-8.36	Vertical
5640	-53.27	5.24	35.91	-22.60	-13	-9.60	Horizontal
Test Results for High Channel 1900MHz							
3800	-50.13	4.04	34.00	-20.17	-13	-7.17	Horizontal
3800	-51.38	4.04	34.00	-21.42	-13	-8.42	Vertical
5700	-53.64	5.24	36.04	-22.84	-13	-9.84	Vertical
5700	-54.20	5.24	36.04	-23.40	-13	-10.40	Horizontal

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

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

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

9.2 LTE BAND 4

QPSK EIRP POWER FOR LTE BAND 4 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-52.80	4.02	29.80	-27.02	-13	-14.02	Horizontal
3421.4	-51.76	4.02	29.80	-25.98	-13	-12.98	Vertical
5132.1	-55.92	5.24	35.84	-25.32	-13	-12.32	Vertical
5132.1	-57.31	5.24	35.84	-26.71	-13	-13.71	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-51.91	4.03	30.00	-25.94	-13	-12.94	Vertical
5197.5	-52.43	5.25	35.86	-21.82	-13	-8.82	Vertical
5197.5	-52.76	5.25	35.86	-22.15	-13	-9.15	Horizontal
3465	-51.91	4.03	30.00	-25.94	-13	-12.94	Vertical
Test Results for High Channel 1754.3MHz							
3508.6	-46.71	4.05	30.01	-20.75	-13	-7.75	Horizontal
3508.6	-55.35	4.05	30.01	-29.39	-13	-16.39	Vertical
5262.9	-52.31	5.26	35.86	-21.71	-13	-8.71	Vertical
5262.9	-51.33	5.26	35.86	-20.73	-13	-7.73	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440	-49.91	4.02	29.80	-24.13	-13	-11.13	Horizontal
3440	-52.49	4.02	29.80	-26.71	-13	-13.71	Vertical
5160	-54.60	5.24	35.84	-24.00	-13	-11.00	Vertical
5160	-57.63	5.24	35.84	-27.03	-13	-14.03	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-45.18	4.03	30.00	-19.21	-13	-6.21	Horizontal
3465	-47.56	4.03	30.00	-21.59	-13	-8.59	Vertical
5197.5	-54.95	5.25	35.86	-24.34	-13	-11.34	Vertical
5197.5	-53.54	5.25	35.86	-22.93	-13	-9.93	Horizontal
Test Results for High Channel 1745MHz							
2490	-48.76	2.91	27.68	-23.99	-13	-10.99	Horizontal
3490	-51.21	2.91	27.68	-26.44	-13	-13.44	Vertical
5235	-54.54	5.26	35.86	-23.94	-13	-10.94	Vertical
5235	-53.90	5.26	35.86	-23.30	-13	-10.30	Horizontal

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

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

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

9.3 LTE BAND 5

QPSK EIRP POWER FOR LTE BAND 5 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-45.49	2.78	27.50	-20.77	-13	-7.77	Horizontal
1649.4	-53.31	2.78	27.50	-28.59	-13	-15.59	Vertical
2474.1	-48.84	2.90	27.80	-23.94	-13	-10.94	Vertical
2474.1	-50.09	2.90	27.80	-25.19	-13	-12.19	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-46.82	2.78	27.48	-22.12	-13	-9.12	Horizontal
1673	-46.40	2.78	27.48	-21.70	-13	-8.70	Vertical
2509.5	-47.66	2.91	27.70	-22.87	-13	-9.87	Vertical
2509.5	-45.61	2.91	27.70	-20.82	-13	-7.82	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.03	2.78	27.43	-23.38	-13	-10.38	Horizontal
1696.6	-49.40	2.78	27.43	-24.75	-13	-11.75	Vertical
2544.9	-46.82	2.92	27.74	-22.00	-13	-9.00	Vertical
2544.9	-47.67	2.92	27.74	-22.85	-13	-9.85	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658	-48.18	2.78	27.50	-23.46	-13	-10.46	Horizontal
1658	-46.28	2.78	27.50	-21.56	-13	-8.56	Vertical
2487	-49.20	2.90	27.80	-24.30	-13	-11.30	Vertical
2487	-49.95	2.90	27.80	-25.05	-13	-12.05	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-47.76	2.78	27.48	-23.06	-13	-10.06	Horizontal
1673	-48.94	2.78	27.48	-24.24	-13	-11.24	Vertical
2509.5	-53.05	2.91	27.70	-28.26	-13	-15.26	Vertical
2509.5	-47.87	2.91	27.70	-23.08	-13	-10.08	Horizontal
Test Results for High Channel 844MHz							
1688	-49.17	2.78	27.43	-24.52	-13	-11.52	Horizontal
1688	-45.11	2.78	27.43	-20.46	-13	-7.46	Vertical
2532	-47.79	2.92	27.74	-22.97	-13	-9.97	Vertical
2532	-45.53	2.92	27.74	-20.71	-13	-7.71	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	-64.13	5.23	35.81	-33.55	-25	-8.55	Horizontal
5005	-62.95	5.23	35.81	-32.37	-25	-7.37	Vertical
7507.5	-68.10	5.67	36.85	-36.92	-25	-11.92	Vertical
7507.5	-63.63	5.67	36.85	-32.45	-25	-7.45	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-61.87	5.23	35.82	-31.28	-25	-6.28	Horizontal
5070	-64.12	5.23	35.82	-33.53	-25	-8.53	Vertical
7605	-64.80	5.67	36.85	-33.62	-25	-8.62	Vertical
7605	-65.54	5.67	36.85	-34.36	-25	-9.36	Horizontal
Test Results for High Channel 2567.5MHz							
5135	-66.38	5.24	35.83	-35.79	-25	-10.79	Horizontal
5135	-63.07	5.24	35.83	-32.48	-25	-7.48	Vertical
7702.5	-65.27	5.68	36.87	-34.08	-25	-9.08	Vertical
7702.5	-67.05	5.68	36.87	-35.86	-25	-10.86	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	-64.02	5.23	35.82	-33.43	-25	-8.43	Horizontal
5020	-61.03	5.23	35.82	-30.44	-25	-5.44	Vertical
7530	-65.17	5.67	36.86	-33.98	-25	-8.98	Vertical
7530	-59.98	5.67	36.86	-28.79	-25	-3.79	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-62.44	5.23	35.82	-31.85	-25	-6.85	Horizontal
5070	-62.39	5.23	35.82	-31.80	-25	-6.80	Vertical
7605	-63.93	5.67	36.85	-32.75	-25	-7.75	Vertical
7605	-65.64	5.67	36.85	-34.46	-25	-9.46	Horizontal
Test Results for High Channel 2560MHz							
5120	-60.90	5.24	35.83	-30.31	-25	-5.31	Horizontal
5120	-65.24	5.24	35.83	-34.65	-25	-9.65	Vertical
7680	-64.59	5.70	36.88	-33.41	-25	-8.41	Vertical
7680	-65.64	5.70	36.88	-34.46	-25	-9.46	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.5 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5125	-59.11	2.63	27.26	-34.48	-25	-9.48	Horizontal
5125	-58.41	2.63	27.26	-33.78	-25	-8.78	Vertical
7687.5	-61.84	2.67	27.58	-36.93	-25	-11.93	Vertical
7687.5	-64.25	2.67	27.58	-39.34	-25	-14.34	Horizontal
Test Results for Mid Channel 2593MHz							
5205	-55.43	2.62	27.28	-30.77	-25	-5.77	Horizontal
5205	-55.68	2.62	27.28	-31.02	-25	-6.02	Vertical
7807.5	-58.08	2.85	27.62	-33.31	-25	-8.31	Vertical
7807.5	-57.16	2.85	27.62	-32.39	-25	-7.39	Horizontal
Test Results for High Channel 2687.5MHz							
5285	-54.66	2.64	27.28	-30.02	-25	-5.02	Horizontal
5285	-57.52	2.64	27.28	-32.88	-25	-7.88	Vertical
7927.5	-57.46	2.85	27.70	-32.61	-25	-7.61	Vertical
7927.5	-55.05	2.85	27.70	-30.20	-25	-5.20	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5140	-58.13	2.63	27.30	-33.46	-25	-8.46	Horizontal
5140	-55.88	2.63	27.30	-31.21	-25	-6.21	Vertical
7710	-59.23	2.67	27.62	-34.28	-25	-9.28	Vertical
7710	-62.76	2.67	27.62	-37.81	-25	-12.81	Horizontal
Test Results for Mid Channel 2593MHz							
5205	-58.34	2.62	27.33	-33.63	-25	-8.63	Horizontal
5205	-54.51	2.62	27.33	-29.80	-25	-4.80	Vertical
7807.5	-60.16	2.85	27.67	-35.34	-25	-10.34	Vertical
7807.5	-58.88	2.85	27.67	-34.06	-25	-9.06	Horizontal
Test Results for High Channel 2680MHz							
5270	-55.33	2.64	27.33	-30.64	-25	-5.64	Horizontal
5270	-58.43	2.64	27.33	-33.74	-25	-8.74	Vertical
7905	-60.02	2.85	27.67	-35.20	-25	-10.20	Vertical
7905	-56.21	2.85	27.67	-31.39	-25	-6.39	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.

9.6 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	-54.50	2.61	27.28	-29.83	-13	-16.83	Horizontal
3421.4	-58.69	2.61	27.28	-34.02	-13	-21.02	Vertical
5132.1	-60.96	2.87	27.59	-36.24	-13	-23.24	Vertical
5132.1	-48.84	2.87	27.59	-24.12	-13	-11.12	Horizontal
Test Results for Mid Channel 1745MHz							
3490	-52.54	2.62	27.3	-27.86	-13	-14.86	Horizontal
3490	-61.87	2.62	27.3	-37.19	-13	-24.19	Vertical
5337.9	-59.37	2.87	27.62	-34.62	-13	-21.62	Vertical
5337.9	-57.56	2.87	27.62	-32.81	-13	-19.81	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-59.17	2.66	27.28	-34.55	-13	-21.55	Horizontal
3558.6	-53.70	2.66	27.28	-29.08	-13	-16.08	Vertical
5337.9	-54.80	2.88	27.6	-30.08	-13	-17.08	Vertical
5337.9	-59.26	2.88	27.6	-34.54	-13	-21.54	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	-51.14	2.62	27.3	-26.46	-13	-13.46	Horizontal
3440	-56.57	2.62	27.3	-31.89	-13	-18.89	Vertical
5160	-58.85	2.87	27.62	-34.10	-13	-21.10	Vertical
5160	-55.83	2.87	27.62	-31.08	-13	-18.08	Horizontal
Test Results for Mid Channel 1745MHz							
3490	-56.42	2.62	27.3	-31.74	-13	-18.74	Horizontal
3490	-54.02	2.62	27.3	-29.34	-13	-16.34	Vertical
5337.9	-59.14	2.87	27.62	-34.39	-13	-21.39	Vertical
5337.9	-56.98	2.87	27.62	-32.23	-13	-19.23	Horizontal
Test Results for High Channel 1770MHz							
3540	-56.54	2.62	27.3	-31.86	-13	-18.86	Horizontal
3540	-54.41	2.62	27.3	-29.73	-13	-16.73	Vertical
5310	-54.32	2.87	27.62	-29.57	-13	-16.57	Vertical
5310	-50.92	2.87	27.62	-26.17	-13	-13.17	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 3.6V, Normal, DC 3.89V and High voltage, DC 4.2V.

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 2/4/5/7/41/66

RESULTS

See the following pages.

10.1 LTE BAND 2

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1880	5	0.002660	2.5
3.89	1880	3	0.001596	2.5
4.2	1880	4	0.002128	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	1	0.000532	2.5
Extreme (50C)	1880	2	0.001064	2.5
Extreme (40C)	1880	4	0.002128	2.5
Extreme (30C)	1880	7	0.003723	2.5
Extreme (10C)	1880	17	0.009043	2.5
Extreme (0C)	1880	3	0.001596	2.5
Extreme (-10C)	1880	15	0.007979	2.5
Extreme (-20C)	1880	13	0.006915	2.5
Extreme (-30C)	1880	5	0.002660	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]
3.6	1880	5	0.002660	2.5
3.89	1880	12	0.006383	2.5
4.2	1880	9	0.004787	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	1	0.000532	2.5
Extreme (50C)	1880	12	0.006383	2.5
Extreme (40C)	1880	11	0.005851	2.5
Extreme (30C)	1880	14	0.007447	2.5
Extreme (10C)	1880	2	0.001064	2.5
Extreme (0C)	1880	5	0.002660	2.5
Extreme (-10C)	1880	16	0.008511	2.5
Extreme (-20C)	1880	13	0.006915	2.5
Extreme (-30C)	1880	3	0.001596	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]
3.6	1732.5	12	0.006926	2.5
3.89	1732.5	13	0.007504	2.5
4.2	1732.5	4	0.002309	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	14	0.008081	2.5
Extreme (50C)	1732.5	13	0.007504	2.5
Extreme (40C)	1732.5	12	0.006926	2.5
Extreme (30C)	1732.5	1	0.000577	2.5
Extreme (10C)	1732.5	5	0.002886	2.5
Extreme (0C)	1732.5	3	0.001732	2.5
Extreme (-10C)	1732.5	13	0.007504	2.5
Extreme (-20C)	1732.5	10	0.005772	2.5
Extreme (-30C)	1732.5	11	0.006349	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]
3.6	1732.5	11	0.006349	2.5
3.89	1732.5	13	0.007504	2.5
4.2	1732.5	0	0.000000	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	3	0.001732	2.5
Extreme (50C)	1732.5	10	0.005772	2.5
Extreme (40C)	1732.5	13	0.007504	2.5
Extreme (30C)	1732.5	15	0.008658	2.5
Extreme (10C)	1732.5	14	0.008081	2.5
Extreme (0C)	1732.5	13	0.007504	2.5
Extreme (-10C)	1732.5	4	0.002309	2.5
Extreme (-20C)	1732.5	11	0.006349	2.5
Extreme (-30C)	1732.5	12	0.006926	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]
3.6	836.5	10	0.011955	2.5
3.89	836.5	11	0.013150	2.5
4.2	836.5	5	0.005977	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	11	0.013150	2.5
Extreme (50C)	836.5	2	0.002391	2.5
Extreme (40C)	836.5	17	0.020323	2.5
Extreme (30C)	836.5	13	0.015541	2.5
Extreme (10C)	836.5	11	0.013150	2.5
Extreme (0C)	836.5	13	0.015541	2.5
Extreme (-10C)	836.5	14	0.016736	2.5
Extreme (-20C)	836.5	12	0.014345	2.5
Extreme (-30C)	836.5	13	0.015541	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]
3.6	836.5	14	0.016736	2.5
3.89	836.5	8	0.009564	2.5
4.2	836.5	13	0.015541	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	8	0.009564	2.5
Extreme (50C)	836.5	6	0.007173	2.5
Extreme (40C)	836.5	14	0.016736	2.5
Extreme (30C)	836.5	12	0.014345	2.5
Extreme (10C)	836.5	13	0.015541	2.5
Extreme (0C)	836.5	13	0.015541	2.5
Extreme (-10C)	836.5	6	0.007173	2.5
Extreme (-20C)	836.5	12	0.014345	2.5
Extreme (-30C)	836.5	6	0.007173	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]
3.6	2535	12	0.004734	2.5
3.89	2535	13	0.005128	2.5
4.2	2535	14	0.005523	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	12	0.004734	2.5
Extreme (50C)	2535	6	0.002367	2.5
Extreme (40C)	2535	11	0.004339	2.5
Extreme (30C)	2535	13	0.005128	2.5
Extreme (10C)	2535	2	0.000789	2.5
Extreme (0C)	2535	17	0.006706	2.5
Extreme (-10C)	2535	10	0.003945	2.5
Extreme (-20C)	2535	13	0.005128	2.5
Extreme (-30C)	2535	15	0.005917	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]
3.6	2535	13	0.005128	2.5
3.89	2535	14	0.005523	2.5
4.2	2535	11	0.004339	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	11	0.004339	2.5
Extreme (50C)	2535	12	0.004734	2.5
Extreme (40C)	2535	13	0.005128	2.5
Extreme (30C)	2535	14	0.005523	2.5
Extreme (10C)	2535	12	0.004734	2.5
Extreme (0C)	2535	8	0.003156	2.5
Extreme (-10C)	2535	15	0.005917	2.5
Extreme (-20C)	2535	11	0.004339	2.5
Extreme (-30C)	2535	13	0.005128	2.5

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

10.5 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]
3.6	2595	12	0.004624	2.5
3.89	2595	13	0.005010	2.5
4.2	2595	14	0.005395	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	3	0.001156	2.5
Extreme (50C)	2595	14	0.005395	2.5
Extreme (40C)	2595	15	0.005780	2.5
Extreme (30C)	2595	20	0.007707	2.5
Extreme (10C)	2595	13	0.005010	2.5
Extreme (0C)	2595	14	0.005395	2.5
Extreme (-10C)	2595	10	0.003854	2.5
Extreme (-20C)	2595	12	0.004624	2.5
Extreme (-30C)	2595	11	0.004239	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]
3.6	2595	12	0.004624	2.5
3.89	2595	13	0.005010	2.5
4.2	2595	9	0.003468	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	17	0.006551	2.5
Extreme (50C)	2595	15	0.005780	2.5
Extreme (40C)	2595	0	0.000000	2.5
Extreme (30C)	2595	4	0.001541	2.5
Extreme (10C)	2595	11	0.004239	2.5
Extreme (0C)	2595	14	0.005395	2.5
Extreme (-10C)	2595	16	0.006166	2.5
Extreme (-20C)	2595	4	0.001541	2.5
Extreme (-30C)	2595	5	0.001927	2.5

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

10.6 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.6	1745	4	0.002292	2.5
3.89	1745	18	0.010315	2.5
4.2	1745	13	0.007450	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	6	0.003438	2.5
Extreme (50C)	1745	1	0.000573	2.5
Extreme (40C)	1745	15	0.008596	2.5
Extreme (30C)	1745	18	0.010315	2.5
Extreme (10C)	1745	6	0.003438	2.5
Extreme (0C)	1745	12	0.006877	2.5
Extreme (-10C)	1745	1	0.000573	2.5
Extreme (-20C)	1745	4	0.002292	2.5
Extreme (-30C)	1745	16	0.009169	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.6	1745	16	0.009169	2.5
3.89	1745	6	0.003438	2.5
4.2	1745	14	0.008023	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	6	0.003438	2.5
Extreme (50C)	1745	5	0.002865	2.5
Extreme (40C)	1745	19	0.010888	2.5
Extreme (30C)	1745	12	0.006877	2.5
Extreme (10C)	1745	6	0.003438	2.5
Extreme (0C)	1745	13	0.007450	2.5
Extreme (-10C)	1745	6	0.003438	2.5
Extreme (-20C)	1745	3	0.001719	2.5
Extreme (-30C)	1745	9	0.005158	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.

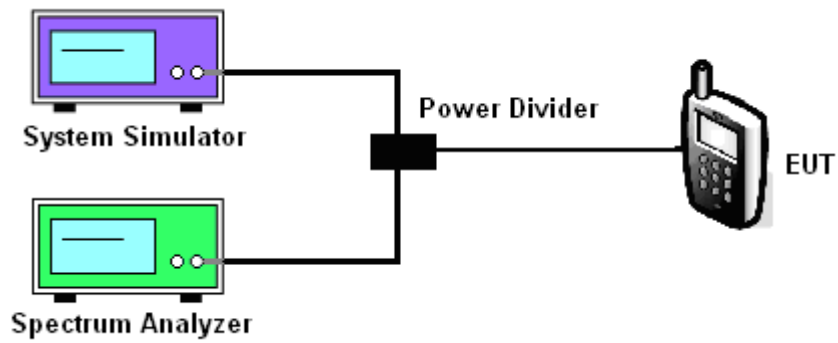
11.2 Measuring Instruments

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 2/4/5/7/41/66

Test data reference attachment.

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