FCC CFR47 PART 22H, 24E, 27
CERTIFICATION TEST REPORT
FCC ID: 2ATZ4-G1C1F

Product： mobile phone

Trade Mark： UMIDIGI

Model Number： C1

Family Model： G1

Report No.： STR220617013006E

Prepared for

Shenzhen Youmi Intelligent Technology Co., Ltd.

406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ..... :	Shenzhen Youmi Intelligent Technology Co., Ltd.
Address..... :	406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen, China
Manufacturer's Name..... :	Shenzhen Youmi Intelligent Technology Co., Ltd.
Address..... :	406-407 Jinqi Zhigu Building, 4/F, 1 Tangling Road, Nanshan District, Shenzhen, China
Product name..... :	mobile phone
Model and/or type reference .. :	C1
Family Model:	G1
Standards..... :	FCC CFR 47 Part 22H, Part 24E, Part 27
Test procedure ..... :	ANSI C63.26:2015 ANSI/TIA-603-E-2016

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

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Date of Test	
Date (s) of performance of tests.....	Jun 17. 2022 ~ Jul 06, 2022
Date of Issue.....	Jul 07, 2022
Test Result.....	**Pass**

Testing Engineer : 

(Allen Liu)

Authorized Signatory : 

(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	mobile phone
Trade Mark	UMIDIGI
Model Name	C1
Family Model	G1
Model Difference	All models are the same circuit, RF module, motherboard and antenna, only color and model name are different
FCC ID:	2ATZ4-G1C1F
Frequency Bands:	U.S. Bands: ☒LTE FDD Band 2, 4, 5, 7, 12, 17
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz;
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	PIFA Antenna
Antenna gain:	Band 2: 0.6dBi, Band 4: 0.6dBi, Band 5: 0.3dBi, Band 7: 0.5dBi, Band 12: 0.2dBi, Band 17: 0.2dBi
Power Supply:	DC 3.85V/5150mAh from battery or DC 5V from Adapter.
Adapter:	Model: HJ-0502000W2-US Input: 100-240V~50/60Hz 0.3A Output: 5V⎓2A
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.85V)（Note 1）
HW Version	G2239F-MH-V
SW Version	UMIDIGI_C1_V1-0
sample number	T220617006R004
** Note1: The High Voltage 4.2V and Low Voltage 3.4V 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: 2ATZ4-G1C1F** 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-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.5dB
2	Conducted Emission Test	±1.38dB
3	RF power, conducted	±0.16dB
4	Spurious emissions, conducted	±0.21dB
5	All emissions, radiated(<1G)	±4.68dB
6	All emissions, radiated(>1G)	±4.89dB
7	Temperature	±0.5°C
8	Humidity	±2%
9	Frequency error, conducted	±0.19 ppm

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, Band 4, Band 5, Band 7, Band 12, Band 17

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.

1.6 SUMMARY OF TEST RESULTS

FCC Part22, Subpart H/ FCC Part24, Subpart E, FCC Part27, Subpart L, KDB 971168 D01 Power Meas License Digital Systems v03			
FCC Rule	**Test Item**	**Verdict**	**Remark**
2.1046	Conducted Output Power	PASS	
22.913(d) 24.232(d) 27.50(d)(5) KDB 971168 D01 Clause 5.7	Peak-to-Average Ratio	PASS	
2.1049 22.917(b) 24.238(b) KDB 971168 D01 Clause 4.2	Occupied Bandwidth	PASS	
2.1051 22.917(a) 24.238(a) 27.53(m), (g), (h) KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913(a)(2) 27.50 (c)(10) KDB 971168 D01 Clause 5.6	Effective Radiated Power	PASS	
24.232(c) 27.50(h)(2), (d)(4) KDB 971168 D01 Clause 5.6	Equivalent Isotropic Radiated Power	PASS	

2.1053 22.917(a) 24.238(a) 27.53 (g)(h)(m) KDB 971168 D01 Clause 7	Field Strength of Spurious Radiation	PASS	
2.1055 22.355 24.235 27.54 KDB 971168 D01 Clause 9	Frequency Stability for Temperature & Voltage	PASS	
2.1051 22.917(a) 24.238(a) 27.53 (g)(h)(m) KDB 971168 D01 Clause 6	Conducted Emission	PASS	

Remark:

1. “N/A” denotes test is not applicable in this Test Report.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. No modifications are made to the EUT during all test items.

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

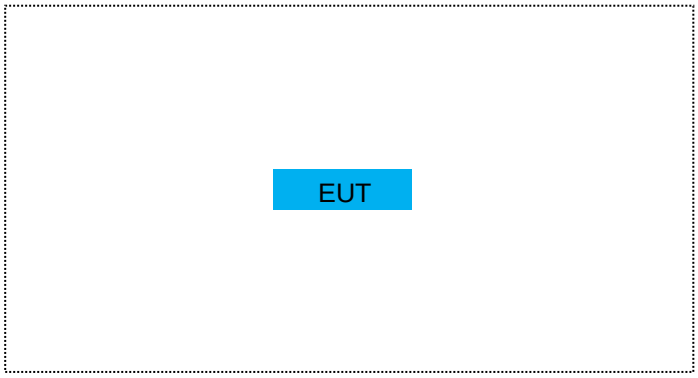
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	mobile phone	C1	FCC ID: 2ATZ4-G1C1F	EUT

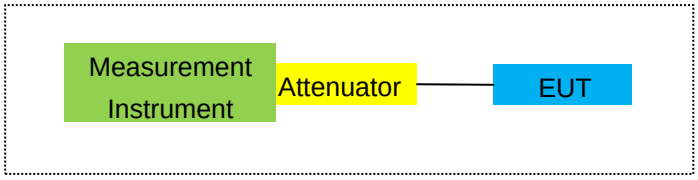
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

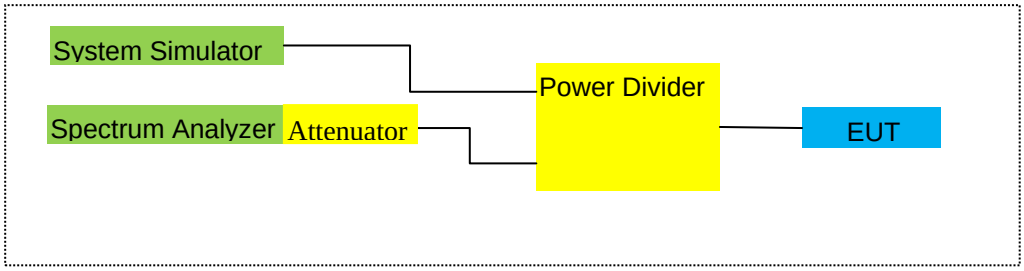
For Radiated Test Cases



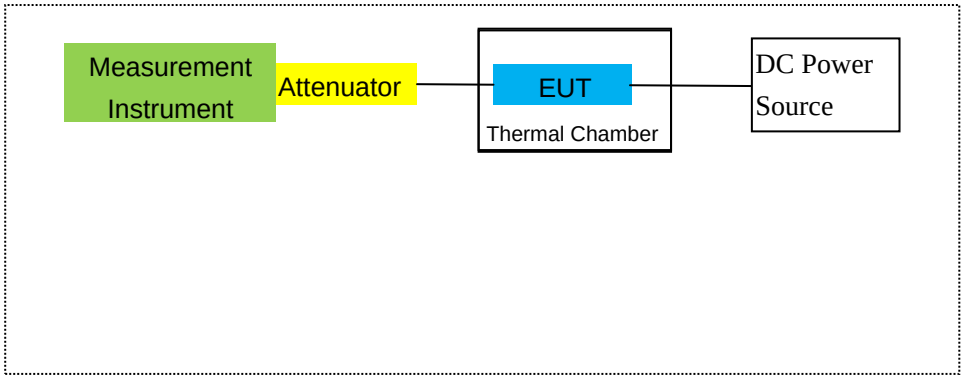
For Conducted Output Power



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	2022.04.06	2023.04.05	1 year
2	Test Receiver	R&S	ESPI	101318	2022.04.06	2023.04.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2023.03.30	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2021.11.07	2022.11.06	1 year
7	Amplifier	EM	EM-30180	060538	2022.06.17	2023.06.16	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2022.04.06	2023.04.05	1 year
9	Power Meter	R&S	NRVS	100696	2022.06.17	2023.06.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2022.04.06	2023.04.05	1 year
11	Test Cable	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
12	Test Cable	N/A	R-02	N/A	2019.08.06	2022.08.05	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	2022.04.06	2023.04.05	1 year
15	LISN	R&S	ENV216	101313	2022.04.06	2023.04.05	1 year
16	LISN	EMCO	3816/2	00042990	2022.04.06	2023.04.05	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2022.04.06	2023.04.05	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2022.04.06	2023.04.05	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2022.06.17	2023.06.16	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2022.04.06	2023.04.05	1 year
24	test receiver	R&S	ESCI	a0304218	2022.04.06	2023.04.05	1 year
25	Communication Tester	R&S	CMU200	A0304247	2022.06.17	2023.06.16	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2022.04.06	2023.04.05	1 year
27	DC Power Source	N/A	PS-6005D	2017040292 3	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2022.06.16	2023.06.15	1 year
29	Communication Tester	R&S	CMW500	148500	2022.06.16	2023.06.15	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.

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

- □ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051,§22.917(a), §24.238(a), §27.53(m) (g)(h)

FCC: §2.1046, §22.913, §24.232

LIMITS

The minimum permissible attenuation level of any spurious emission is 43 + log10(P[Watts]), where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is 65 + 10log10(P) = -35dBm in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, 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.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test 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 display line

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

MODES TESTED

□ LTE Band 2/4/5/7/12/17

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051,§22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

LIMITS

The minimum permissible attenuation level of any spurious emission is 43 + log10(P[Watts]), where P is the transmitter power in Watts.
The minimum permissible attenuation level for Band 7 is as following.
Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is 65 + 10log10(P) = -35dBm in a 6.25kHz bandwidth.
Per 27.53(m) for operations in the BRS/EBS bands, 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.

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

MODES TESTED

- LTE Band2

LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17

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(a)(2), §24.232(c) and §27.50 (c)(10)

LIMITS:

22.913(a) (2)- The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
24.232 (c) Mobile and portable stations are limited to 2 watts EIRP.
27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
27.50 (h)(2)Mobile and other user stations in the 2500–2570 MHz and 2620–2690 MHz bands. 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

- LTE Band2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17

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)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-4.20	3.76	28.24	20.28	106.660	Horizontal	Pass
		1880	-4.01	3.91	28.22	20.30	107.152	Horizontal	Pass
		1909.3	-3.92	3.93	28.20	20.35	108.393	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.26	3.77	28.23	20.20	104.713	Horizontal	Pass
		1880	-4.11	3.91	28.24	20.22	105.196	Horizontal	Pass
		1908.5	-3.98	3.94	28.25	20.33	107.895	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.15	3.77	28.31	20.39	109.396	Horizontal	Pass
		1880	-3.77	3.91	28.22	20.54	113.240	Horizontal	Pass
		1907.5	-3.70	3.94	28.20	20.56	113.763	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.01	3.79	28.33	20.53	112.980	Horizontal	Pass
		1880	-3.71	3.95	28.22	20.56	113.763	Horizontal	Pass
		1905	-3.60	3.97	28.19	20.62	115.345	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-3.97	3.79	28.34	20.58	114.288	Horizontal	Pass
		1880	-3.76	3.95	28.22	20.51	112.460	Horizontal	Pass
		1902.5	-3.62	3.97	28.18	20.59	114.551	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.96	3.81	28.35	20.58	114.288	Horizontal	Pass
		1880	-3.63	3.96	28.22	**20.63**	115.611	Horizontal	Pass
		1900	-3.57	4.00	28.16	20.59	114.551	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-4.71	3.76	28.24	19.77	94.842	Vertical	Pass
		1880	-5.16	3.91	28.22	19.15	82.224	Vertical	Pass
		1909.3	-4.45	3.93	28.20	19.82	95.940	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.20	3.77	28.23	19.26	84.333	Vertical	Pass
		1880	-4.74	3.91	28.24	19.59	90.991	Vertical	Pass
		1908.5	-4.32	3.94	28.25	19.99	99.770	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.94	3.77	28.31	19.60	91.201	Vertical	Pass
		1880	-4.80	3.91	28.22	19.51	89.331	Vertical	Pass
		1907.5	-4.32	3.94	28.20	19.94	98.628	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.93	3.79	28.33	19.61	91.411	Vertical	Pass
		1880	-4.97	3.95	28.22	19.30	85.114	Vertical	Pass
		1905	-4.29	3.97	28.19	19.93	98.401	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-5.13	3.79	28.34	19.42	87.498	Vertical	Pass
		1880	-5.26	3.95	28.22	19.01	79.616	Vertical	Pass

		1902.5	-4.71	3.97	28.18	19.50	89.125	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-5.27	3.81	28.35	19.27	84.528	Vertical	Pass
		1880	-4.29	3.96	28.22	19.97	99.312	Vertical	Pass
		1900	-4.95	4.00	28.16	19.21	83.368	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Factor(dB)+ SG Level (dBm)- Cable Loss(dBm)

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz	1/#Mid	1850.7	-5.32	3.76	28.24	19.16	82.414	Horizontal	Pass
Band 16		1880	-4.79	3.91	28.22	19.52	89.536	Horizontal	Pass
QAM		1909.3	-4.72	3.93	28.20	19.55	90.157	Horizontal	Pass
3.0MHz	1/#Mid	1851.5	-4.82	3.77	28.23	19.64	92.045	Horizontal	Pass
Band 16		1880	-4.90	3.91	28.24	19.43	87.700	Horizontal	Pass
QAM		1908.5	-5.11	3.94	28.25	19.20	83.176	Horizontal	Pass
5.0MHz	1/#Mid	1852.5	-4.76	3.77	28.31	19.78	95.060	Horizontal	Pass
Band 16		1880	-4.67	3.91	28.22	19.64	92.045	Horizontal	Pass
QAM		1907.5	-4.35	3.94	28.20	19.91	97.949	Horizontal	Pass
10.0MHz	1/#Mid	1855	-4.81	3.79	28.33	19.73	93.972	Horizontal	Pass
Band 16		1880	-4.80	3.95	28.22	19.47	88.512	Horizontal	Pass
QAM		1905	-4.27	3.97	28.19	19.95	98.855	Horizontal	Pass
15.0MHz	1/#Mid	1857.5	-4.79	3.79	28.34	19.76	94.624	Horizontal	Pass
Band 16		1880	-4.58	3.95	28.22	19.69	93.111	Horizontal	Pass
QAM		1902.5	-4.54	3.97	28.18	19.67	92.683	Horizontal	Pass
20.0MHz	1/#Mid	1860	-4.68	3.81	28.35	19.86	96.828	Horizontal	Pass
Band 16		1880	-4.38	3.96	28.22	19.88	97.275	Horizontal	Pass
QAM		1900	-4.20	4.00	28.16	**19.96**	99.083	Horizontal	Pass
1.4MHz	1/#Mid	1850.7	-5.88	3.76	28.24	18.60	72.444	Vertical	Pass
Band 16		1880	-6.24	3.91	28.22	18.07	64.121	Vertical	Pass
QAM		1909.3	-5.84	3.93	28.20	18.43	69.663	Vertical	Pass
3.0MHz	1/#Mid	1851.5	-5.92	3.77	28.23	18.54	71.450	Vertical	Pass
Band 16		1880	-5.67	3.91	28.24	18.66	73.451	Vertical	Pass
QAM		1908.5	-6.01	3.94	28.25	18.30	67.608	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-6.13	3.77	28.31	18.41	69.343	Vertical	Pass
Band 16		1880	-5.77	3.91	28.22	18.54	71.450	Vertical	Pass
QAM		1907.5	-6.19	3.94	28.20	18.07	64.121	Vertical	Pass
10.0MHz	1/#Mid	1855	-5.90	3.79	28.33	18.64	73.114	Vertical	Pass
Band 16		1880	-5.99	3.95	28.22	18.28	67.298	Vertical	Pass
QAM		1905	-5.50	3.97	28.19	18.72	74.473	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-6.05	3.79	28.34	18.50	70.795	Vertical	Pass
Band 16		1880	-6.24	3.95	28.22	18.03	63.533	Vertical	Pass
QAM		1902.5	-6.18	3.97	28.18	18.03	63.533	Vertical	Pass

20.0MHz	1/#Mid	1860	-6.24	3.81	28.35	18.30	67.608	Vertical	Pass
Band 16		1880	-5.26	3.96	28.22	19.00	79.433	Vertical	Pass
QAM		1900	-5.71	4.00	28.16	18.45	69.984	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Factor(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-4.11	3.12	27.58	20.35	108.393	Horizontal	Pass
		1732.5	-4.10	3.27	27.61	20.24	105.682	Horizontal	Pass
		1754.3	-4.08	3.29	27.63	20.26	106.170	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.28	3.13	27.61	20.20	104.713	Horizontal	Pass
		1732.5	-4.20	3.27	27.61	20.14	103.276	Horizontal	Pass
		1753.5	-4.12	3.30	27.62	20.20	104.713	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.05	3.13	27.63	20.45	110.917	Horizontal	Pass
		1732.5	-3.95	3.27	27.61	20.39	109.396	Horizontal	Pass
		1752.5	-3.83	3.30	27.60	20.47	111.429	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.99	3.15	27.64	20.50	112.202	Horizontal	Pass
		1732.5	-3.76	3.31	27.61	20.54	113.240	Horizontal	Pass
		1750	-3.78	3.33	27.59	20.48	111.686	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.00	3.15	27.65	20.50	112.202	Horizontal	Pass
		1732.5	-3.84	3.31	27.61	20.46	111.173	Horizontal	Pass
		1747.5	-3.78	3.33	27.57	20.46	111.173	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.94	3.17	27.66	**20.55**	113.501	Horizontal	Pass
		1732.5	-3.77	3.32	27.61	20.52	112.720	Horizontal	Pass
		1745	-3.71	3.36	27.56	20.49	111.944	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-5.25	3.12	27.58	19.21	83.368	Vertical	Pass
		1732.5	-4.75	3.27	27.61	19.59	90.991	Vertical	Pass
		1754.3	-4.65	3.29	27.63	19.69	93.111	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.99	3.13	27.61	19.49	88.920	Vertical	Pass
		1732.5	-4.39	3.27	27.61	19.95	98.855	Vertical	Pass
		1753.5	-4.33	3.30	27.62	19.99	99.770	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.20	3.13	27.63	19.30	85.114	Vertical	Pass
		1732.5	-5.13	3.27	27.61	19.21	83.368	Vertical	Pass
		1752.5	-5.24	3.30	27.60	19.06	80.538	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.67	3.15	27.64	19.82	95.940	Vertical	Pass
		1732.5	-4.86	3.31	27.61	19.44	87.902	Vertical	Pass
		1750	-5.11	3.33	27.59	19.15	82.224	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-5.34	3.15	27.65	19.16	82.414	Vertical	Pass
		1732.5	-4.40	3.31	27.61	19.90	97.724	Vertical	Pass
		1747.5	-4.40	3.33	27.57	19.84	96.383	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.81	3.17	27.66	19.68	92.897	Vertical	Pass
		1732.5	-4.61	3.32	27.61	19.68	92.897	Vertical	Pass
		1745	-4.84	3.36	27.56	19.36	86.298	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Factor(dB)+ SG Level (dBm)- Cable Loss(dBm)

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.92	3.12	27.58	19.54	89.950	Horizontal	Pass
		1732.5	-4.77	3.27	27.61	19.57	90.573	Horizontal	Pass
		1754.3	-4.77	3.29	27.63	19.57	90.573	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.86	3.13	27.61	19.62	91.622	Horizontal	Pass
		1732.5	-4.99	3.27	27.61	19.35	86.099	Horizontal	Pass
		1753.5	-5.21	3.30	27.62	19.11	81.470	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.69	3.13	27.63	19.81	95.719	Horizontal	Pass
		1732.5	-4.65	3.27	27.61	19.69	93.111	Horizontal	Pass
		1752.5	-4.34	3.30	27.60	19.96	99.083	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.76	3.15	27.64	19.73	93.972	Horizontal	Pass
		1732.5	-4.95	3.31	27.61	19.35	86.099	Horizontal	Pass
		1750	-4.33	3.33	27.59	19.93	98.401	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.56	3.15	27.65	19.94	98.628	Horizontal	Pass
		1732.5	-4.62	3.31	27.61	19.68	92.897	Horizontal	Pass
		1747.5	-4.64	3.33	27.57	19.60	91.201	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.51	3.17	27.66	**19.98**	99.541	Horizontal	Pass
		1732.5	-4.52	3.32	27.61	19.77	94.842	Horizontal	Pass
		1745	-4.33	3.36	27.56	19.87	97.051	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-6.30	3.12	27.58	18.16	65.464	Vertical	Pass
		1732.5	-5.85	3.27	27.61	18.49	70.632	Vertical	Pass
		1754.3	-6.32	3.29	27.63	18.02	63.387	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.76	3.13	27.61	18.72	74.473	Vertical	Pass
		1732.5	-5.64	3.27	27.61	18.70	74.131	Vertical	Pass
		1753.5	-5.34	3.30	27.62	18.98	79.068	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.50	3.13	27.63	18.00	63.096	Vertical	Pass
		1732.5	-5.75	3.27	27.61	18.59	72.277	Vertical	Pass
		1752.5	-5.61	3.30	27.60	18.69	73.961	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.63	3.15	27.64	18.86	76.913	Vertical	Pass
		1732.5	-5.60	3.31	27.61	18.70	74.131	Vertical	Pass
		1750	-6.26	3.33	27.59	18.00	63.096	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-6.21	3.15	27.65	18.29	67.453	Vertical	Pass
		1732.5	-5.87	3.31	27.61	18.43	69.663	Vertical	Pass
		1747.5	-6.01	3.33	27.57	18.23	66.527	Vertical	Pass

20.0MHz	1/#Mid	1720	-6.09	3.17	27.66	18.40	69.183	Vertical	Pass
Band 16		1732.5	-5.53	3.32	27.61	18.76	75.162	Vertical	Pass
QAM		1745	-5.39	3.36	27.56	18.81	76.033	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Factor(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	5.39	2.01	19.68	2.15	20.91	123.310	Horizontal	Pass
		836.5	5.27	2.01	19.77	2.15	20.88	122.462	Horizontal	Pass
		848.3	5.07	2.02	19.82	2.15	20.72	118.032	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.16	2.01	19.70	2.15	20.70	117.490	Horizontal	Pass
		836.5	5.06	2.01	19.77	2.15	20.67	116.681	Horizontal	Pass
		847.5	4.93	2.02	19.81	2.15	20.57	114.025	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.44	2.01	19.71	2.15	20.99	125.603	Horizontal	Pass
		836.5	5.32	2.01	19.77	2.15	20.93	123.880	Horizontal	Pass
		846.5	5.16	2.02	19.79	2.15	20.78	119.674	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	5.46	2.01	19.73	2.15	**21.03**	126.765	Horizontal	Pass
		836.5	5.41	2.01	19.77	2.15	21.02	126.474	Horizontal	Pass
		844	5.31	2.02	19.78	2.15	20.92	123.595	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	3.72	2.01	19.68	2.15	19.24	83.946	Vertical	Pass
		836.5	4.10	2.01	19.77	2.15	19.71	93.541	Vertical	Pass
		848.3	3.98	2.02	19.82	2.15	19.63	91.833	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	4.42	2.01	19.70	2.15	19.96	99.083	Vertical	Pass
		836.5	3.77	2.01	19.77	2.15	19.38	86.696	Vertical	Pass
		847.5	4.50	2.02	19.81	2.15	20.14	103.276	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.45	2.01	19.71	2.15	20.00	100.000	Vertical	Pass
		836.5	3.74	2.01	19.77	2.15	19.35	86.099	Vertical	Pass
		846.5	3.68	2.02	19.79	2.15	19.30	85.114	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	4.16	2.01	19.73	2.15	19.73	93.972	Vertical	Pass
		836.5	3.90	2.01	19.77	2.15	19.51	89.331	Vertical	Pass
		844	4.50	2.02	19.78	2.15	20.11	102.565	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/#Mid	824.7	4.54	2.01	19.68	2.15	20.06	101.391	Horizontal	Pass
		836.5	4.47	2.01	19.77	2.15	20.08	101.859	Horizontal	Pass
		848.3	4.31	2.02	19.82	2.15	19.96	99.083	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.62	2.01	19.70	2.15	20.16	103.753	Horizontal	Pass
		836.5	4.33	2.01	19.77	2.15	19.94	98.628	Horizontal	Pass
		847.5	3.81	2.02	19.81	2.15	19.45	88.105	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.94	2.01	19.71	2.15	20.49	111.944	Horizontal	Pass
		836.5	4.71	2.01	19.77	2.15	20.32	107.647	Horizontal	Pass
		846.5	4.46	2.02	19.79	2.15	20.08	101.859	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.94	2.01	19.73	2.15	**20.51**	112.460	Horizontal	Pass
		836.5	4.66	2.01	19.77	2.15	20.27	106.414	Horizontal	Pass
		844	4.20	2.02	19.78	2.15	19.81	95.719	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	4.15	2.01	19.68	2.15	19.67	92.683	Vertical	Pass
		836.5	3.55	2.01	19.77	2.15	19.16	82.414	Vertical	Pass
		848.3	2.89	2.02	19.82	2.15	18.54	71.450	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.13	2.01	19.70	2.15	18.67	73.621	Vertical	Pass
		836.5	3.80	2.01	19.77	2.15	19.41	87.297	Vertical	Pass
		847.5	4.31	2.02	19.81	2.15	19.95	98.855	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.98	2.01	19.71	2.15	19.53	89.743	Vertical	Pass
		836.5	2.92	2.01	19.77	2.15	18.53	71.285	Vertical	Pass
		846.5	4.56	2.02	19.79	2.15	20.18	104.232	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.13	2.01	19.73	2.15	19.70	93.325	Vertical	Pass
		836.5	4.32	2.01	19.77	2.15	19.93	98.401	Vertical	Pass
		844	3.25	2.02	19.78	2.15	18.86	76.913	Vertical	Pass

Note:
ERP=EIRP-2.15
SG Level= Signal generator output
Max. EIRP Average (dBm)= Factor(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	-2.19	4.54	27.75	21.02	126.474	Horizontal	Pass
		2535	-2.02	4.69	27.72	21.01	126.183	Horizontal	Pass
		2567.5	-1.95	4.71	27.71	21.05	127.350	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.12	4.55	27.76	21.09	128.529	Horizontal	Pass
		2535	-1.93	4.69	27.72	21.10	128.825	Horizontal	Pass
		2565	-1.85	4.72	27.70	21.13	129.718	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.13	4.55	27.77	21.09	128.529	Horizontal	Pass
		2535	-1.99	4.69	27.72	21.04	127.057	Horizontal	Pass
		2562.5	-1.89	4.72	27.69	21.08	128.233	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.07	4.57	27.78	**21.14**	130.017	Horizontal	Pass
		2535	-1.89	4.73	27.72	21.10	128.825	Horizontal	Pass
		2560	-1.85	4.75	27.68	21.08	128.233	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-3.05	4.54	27.75	20.16	103.753	Vertical	Pass
		2535	-3.05	4.69	27.72	19.98	99.541	Vertical	Pass
		2567.5	-3.03	4.71	27.71	19.97	99.312	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.53	4.55	27.76	19.68	92.897	Vertical	Pass
		2535	-3.36	4.69	27.72	19.67	92.683	Vertical	Pass
		2565	-3.77	4.72	27.70	19.21	83.368	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.10	4.55	27.77	20.12	102.802	Vertical	Pass
		2535	-3.58	4.69	27.72	19.45	88.105	Vertical	Pass
		2562.5	-2.80	4.72	27.69	20.17	103.992	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.15	4.57	27.78	20.06	101.391	Vertical	Pass
		2535	-3.03	4.73	27.72	19.96	99.083	Vertical	Pass
		2560	-3.31	4.75	27.68	19.62	91.622	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-2.88	4.54	27.75	20.33	107.895	Horizontal	Pass
		2535	-2.57	4.69	27.72	20.46	111.173	Horizontal	Pass
		2567.5	-2.65	4.71	27.71	20.35	108.393	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.77	4.55	27.76	20.44	110.662	Horizontal	Pass
		2535	-2.78	4.69	27.72	20.25	105.925	Horizontal	Pass
		2565	-3.05	4.72	27.70	19.93	98.401	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.95	4.55	27.77	20.27	106.414	Horizontal	Pass
		2535	-2.92	4.69	27.72	20.11	102.565	Horizontal	Pass
		2562.5	-2.53	4.72	27.69	20.44	110.662	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.83	4.57	27.78	20.38	109.144	Horizontal	Pass
		2535	-2.50	4.73	27.72	**20.49**	111.944	Horizontal	Pass
		2560	-2.60	4.75	27.68	20.33	107.895	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.16	4.54	27.75	20.05	101.158	Vertical	Pass
		2535	-4.51	4.69	27.72	18.52	71.121	Vertical	Pass
		2567.5	-4.24	4.71	27.71	18.76	75.162	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-4.96	4.55	27.76	18.25	66.834	Vertical	Pass
		2535	-4.12	4.69	27.72	18.91	77.804	Vertical	Pass
		2565	-3.67	4.72	27.70	19.31	85.310	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.62	4.55	27.77	18.60	72.444	Vertical	Pass
		2535	-4.82	4.69	27.72	18.21	66.222	Vertical	Pass
		2562.5	-3.69	4.72	27.69	19.28	84.723	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.09	4.57	27.78	19.12	81.658	Vertical	Pass
		2535	-3.57	4.73	27.72	19.42	87.498	Vertical	Pass
		2560	-3.98	4.75	27.68	18.95	78.524	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Factor(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.5 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	5.76	1.91	19.21	2.15	20.91	123.310	Vertical	Pass
		707.5	5.68	1.91	19.26	2.15	20.88	122.462	Vertical	Pass
		715.3	5.46	1.93	19.34	2.15	20.72	118.032	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	5.55	1.91	19.21	2.15	20.70	117.490	Vertical	Pass
		707.5	5.47	1.91	19.26	2.15	20.67	116.681	Vertical	Pass
		714.5	5.31	1.93	19.34	2.15	20.57	114.025	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.82	1.91	19.23	2.15	20.99	125.603	Vertical	Pass
		707.5	5.73	1.91	19.26	2.15	20.93	123.880	Vertical	Pass
		713.5	5.52	1.92	19.33	2.15	20.78	119.674	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	5.84	1.91	19.25	2.15	**21.03**	126.765	Vertical	Pass
		707.5	5.82	1.91	19.26	2.15	21.02	126.474	Vertical	Pass
		711	5.67	1.92	19.32	2.15	20.92	123.595	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	4.32	1.91	19.21	2.15	19.47	88.512	Horizontal	Pass
		707.5	4.27	1.91	19.26	2.15	19.47	88.512	Horizontal	Pass
		715.3	4.29	1.93	19.34	2.15	19.55	90.157	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	4.87	1.91	19.21	2.15	20.02	100.462	Horizontal	Pass
		707.5	4.04	1.91	19.26	2.15	19.24	83.946	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	4.81	1.91	19.23	2.15	19.98	99.541	Horizontal	Pass
		707.5	4.81	1.91	19.26	2.15	20.01	100.231	Horizontal	Pass
		713.5	4.21	1.92	19.33	2.15	19.47	88.512	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	4.40	1.91	19.25	2.15	19.59	90.991	Horizontal	Pass
		707.5	4.18	1.91	19.26	2.15	19.38	86.696	Horizontal	Pass
		711	4.07	1.92	19.32	2.15	19.32	85.507	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	699.7	5.96	1.91	19.21	2.15	21.11	129.122	Vertical	Pass
		707.5	5.88	1.91	19.26	2.15	21.08	128.233	Vertical	Pass
		715.3	5.66	1.93	19.34	2.15	20.92	123.595	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.75	1.91	19.21	2.15	20.90	123.027	Vertical	Pass
		707.5	5.67	1.91	19.26	2.15	20.87	122.180	Vertical	Pass
		714.5	5.51	1.93	19.34	2.15	20.77	119.399	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.02	1.91	19.23	2.15	21.19	131.522	Vertical	Pass
		707.5	5.93	1.91	19.26	2.15	21.13	129.718	Vertical	Pass
		713.5	5.72	1.92	19.33	2.15	20.98	125.314	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	6.04	1.91	19.25	2.15	**21.23**	132.739	Vertical	Pass
		707.5	6.02	1.91	19.26	2.15	21.22	132.434	Vertical	Pass
		711	5.87	1.92	19.32	2.15	21.12	129.420	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	5.01	1.91	19.21	2.15	20.16	103.753	Horizontal	Pass
		707.5	4.73	1.91	19.26	2.15	19.93	98.401	Horizontal	Pass
		715.3	4.24	1.93	19.34	2.15	19.50	89.125	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	4.72	1.91	19.21	2.15	19.87	97.051	Horizontal	Pass
		707.5	4.50	1.91	19.26	2.15	19.70	93.325	Horizontal	Pass
		714.5	4.20	1.93	19.34	2.15	19.46	88.308	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.19	1.91	19.23	2.15	20.36	108.643	Horizontal	Pass
		707.5	4.64	1.91	19.26	2.15	19.84	96.383	Horizontal	Pass
		713.5	4.92	1.92	19.33	2.15	20.18	104.232	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.88	1.91	19.25	2.15	20.07	101.625	Horizontal	Pass
		707.5	4.89	1.91	19.26	2.15	20.09	102.094	Horizontal	Pass
		711	4.68	1.92	19.32	2.15	19.93	98.401	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.6 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	6.42	1.91	19.23	2.15	21.59	144.212	Vertical	Pass
		710	6.28	1.91	19.26	2.15	21.48	140.605	Vertical	Pass
		713.5	6.18	1.92	19.33	2.15	21.44	139.316	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	6.43	1.91	19.25	2.15	**21.62**	145.211	Vertical	Pass
		710	6.38	1.91	19.26	2.15	21.58	143.880	Vertical	Pass
		711	6.34	1.92	19.32	2.15	21.59	144.212	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	5.38	1.91	19.23	2.15	20.55	113.501	Horizontal	Pass
		710	5.66	1.91	19.26	2.15	20.86	121.899	Horizontal	Pass
		713.5	4.63	1.92	19.33	2.15	19.89	97.499	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	4.26	1.91	19.25	2.15	19.45	88.105	Horizontal	Pass
		710	4.94	1.91	19.26	2.15	20.14	103.276	Horizontal	Pass
		711	4.37	1.92	19.32	2.15	19.62	91.622	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	5.77	1.91	19.23	2.15	20.94	124.165	Vertical	Pass
		710	5.68	1.91	19.26	2.15	20.88	122.462	Vertical	Pass
		713.5	5.48	1.92	19.33	2.15	20.74	118.577	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	5.31	1.91	19.25	2.15	20.50	112.202	Vertical	Pass
		710	5.84	1.91	19.26	2.15	**21.04**	127.057	Vertical	Pass
		711	5.57	1.92	19.32	2.15	20.82	120.781	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	4.68	1.91	19.23	2.15	19.85	96.605	Horizontal	Pass
		710	4.25	1.91	19.26	2.15	19.45	88.105	Horizontal	Pass
		713.5	4.91	1.92	19.33	2.15	20.17	103.992	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	5.11	1.91	19.25	2.15	20.30	107.152	Horizontal	Pass
		710	4.45	1.91	19.26	2.15	19.65	92.257	Horizontal	Pass
		711	4.84	1.92	19.32	2.15	20.09	102.094	Horizontal	Pass

Note:
ERP=EIRP-2.15
SG Level= Signal generator output
Max. EIRP Average (dBm)= Factor(dB)+ SG Level (dBm)- Cable Loss(dBm)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1051,§22.917(a), §24.238(a), §27.53 (g)(h)(m)

LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is 55 + log10 (P [Watts]).

The minimum permissible attenuation level of any spurious emission is 43 + log10 (P [Watts]), where P is the transmitter power in Watts.

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 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (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
- ☐ LTE Band 4
- ☒ LTE Band 5
- ☐ LTE Band 7
- ☐ LTE Band 12
- ☐ LTE Band 17

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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3701.4	-51.61	4.04	33.51	-22.14	-13	-9.14	Horizontal
3701.4	-48.69	4.04	33.51	-19.22	-13	-6.22	Vertical
5552.1	-48.18	5.24	35.84	-17.58	-13	-4.58	Vertical
5552.1	-53.96	5.24	35.84	-23.36	-13	-10.36	Horizontal
186.9	-40.76	1.43	16.02	-26.17	-13	-13.17	Vertical
234.8	-44.39	1.30	17.99	-27.70	-13	-14.70	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-46.06	4.04	33.56	-16.54	-13	-3.54	Horizontal
3760.0	-51.83	4.04	33.56	-22.31	-13	-9.31	Vertical
5640.0	-45.79	5.24	35.91	-15.12	-13	-2.12	Vertical
5640.0	-53.66	5.24	35.91	-22.99	-13	-9.99	Horizontal
196.9	-43.60	1.62	16.97	-28.25	-13	-15.25	Vertical
412.6	-38.15	1.74	15.98	-23.92	-13	-10.92	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-44.33	4.04	34.00	-14.37	-13	-1.37	Horizontal
3818.6	-50.41	4.04	34.00	-20.45	-13	-7.45	Vertical
5727.9	-52.42	5.24	36.04	-21.62	-13	-8.62	Vertical
5727.9	-51.10	5.24	36.04	-20.30	-13	-7.30	Horizontal
175.2	-35.25	1.42	17.29	-19.38	-13	-6.38	Vertical
374.5	-35.19	1.50	17.90	-18.78	-13	-5.78	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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3720.0	-50.52	4.07	33.54	-21.05	-13	-8.05	Horizontal
3720.0	-44.98	4.07	33.54	-15.51	-13	-2.51	Vertical
5580.0	-48.17	5.28	35.86	-17.59	-13	-4.59	Vertical
5580.0	-52.89	5.28	35.86	-22.31	-13	-9.31	Horizontal
212.0	-34.81	1.58	16.89	-19.49	-13	-6.49	Vertical
338.2	-36.98	1.76	17.26	-21.48	-13	-8.48	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-52.15	4.04	33.56	-22.63	-13	-9.63	Horizontal
3760.0	-44.75	4.04	33.56	-15.23	-13	-2.23	Vertical
5640.0	-48.09	5.24	35.91	-17.42	-13	-4.42	Vertical
5640.0	-51.57	5.24	35.91	-20.90	-13	-7.90	Horizontal
209.9	-36.91	1.46	16.27	-22.10	-13	-9.10	Vertical
296.9	-44.85	1.59	15.15	-31.29	-13	-18.29	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-45.67	4.04	34.00	-15.71	-13	-2.71	Horizontal
3800.0	-46.78	4.04	34.00	-16.82	-13	-3.82	Vertical
5700.0	-47.73	5.24	36.04	-16.93	-13	-3.93	Vertical
5700.0	-49.98	5.24	36.04	-19.18	-13	-6.18	Horizontal
209.0	-36.15	1.36	17.39	-20.11	-13	-7.11	Vertical
425.4	-41.94	1.66	15.39	-28.21	-13	-15.21	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3421.4	-46.29	4.02	29.80	-20.51	-13	-7.51	Horizontal
3421.4	-52.83	4.02	29.80	-27.05	-13	-14.05	Vertical
5132.1	-50.79	5.24	35.84	-20.19	-13	-7.19	Vertical
5132.1	-50.78	5.24	35.84	-20.18	-13	-7.18	Horizontal
183.2	-37.94	1.68	16.04	-23.58	-13	-10.58	Vertical
366.9	-36.17	1.78	17.74	-20.21	-13	-7.21	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-45.01	4.03	30.00	-19.04	-13	-6.04	Horizontal
3465.0	-46.22	4.03	30.00	-20.25	-13	-7.25	Vertical
5197.5	-52.41	5.25	35.86	-21.80	-13	-8.80	Vertical
5197.5	-51.61	5.25	35.86	-21.00	-13	-8.00	Horizontal
197.3	-42.95	1.72	17.69	-26.98	-13	-13.98	Vertical
452.2	-42.01	1.62	16.02	-27.60	-13	-14.60	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-52.79	4.05	30.01	-26.83	-13	-13.83	Horizontal
3508.6	-48.10	4.05	30.01	-22.14	-13	-9.14	Vertical
5262.9	-45.86	5.26	35.86	-15.26	-13	-2.26	Vertical
5262.9	-49.62	5.26	35.86	-19.02	-13	-6.02	Horizontal
211.2	-38.23	1.80	16.69	-23.34	-13	-10.34	Vertical
456.1	-34.79	1.75	16.66	-19.89	-13	-6.89	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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3440.0	-48.09	4.02	29.80	-22.31	-13	-9.31	Horizontal
3440.0	-47.23	4.02	29.80	-21.45	-13	-8.45	Vertical
5160.0	-50.84	5.24	35.84	-20.24	-13	-7.24	Vertical
5160.0	-52.63	5.24	35.84	-22.03	-13	-9.03	Horizontal
193.0	-34.24	1.57	17.26	-18.55	-13	-5.55	Vertical
313.8	-44.00	1.78	16.35	-29.43	-13	-16.43	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-45.03	4.03	30.00	-19.06	-13	-6.06	Horizontal
3465.0	-47.27	4.03	30.00	-21.30	-13	-8.30	Vertical
5197.5	-48.12	5.25	35.86	-17.51	-13	-4.51	Vertical
5197.5	-53.68	5.25	35.86	-23.07	-13	-10.07	Horizontal
180.4	-39.96	1.44	17.95	-23.45	-13	-10.45	Vertical
465.7	-35.77	1.65	16.09	-21.33	-13	-8.33	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-52.48	2.91	27.68	-27.71	-13	-14.71	Horizontal
3490.0	-51.20	2.91	27.68	-26.43	-13	-13.43	Vertical
5235.0	-44.08	5.26	35.86	-13.48	-13	-0.48	Vertical
5235.0	-50.16	5.26	35.86	-19.56	-13	-6.56	Horizontal
202.2	-40.87	1.61	16.85	-25.63	-13	-12.63	Vertical
268.5	-35.23	1.61	15.19	-21.65	-13	-8.65	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1649.4	-53.76	2.78	27.50	-29.04	-13	-16.04	Horizontal
1649.4	-53.50	2.78	27.50	-28.78	-13	-15.78	Vertical
2474.1	-52.40	2.90	27.80	-27.50	-13	-14.50	Vertical
2474.1	-51.40	2.90	27.80	-26.50	-13	-13.50	Horizontal
178.3	-42.59	1.76	17.59	-26.76	-13	-13.76	Vertical
365.0	-34.29	1.63	15.87	-20.05	-13	-7.05	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-50.64	2.80	27.48	-25.96	-13	-12.96	Horizontal
1673.0	-53.62	2.80	27.48	-28.94	-13	-15.94	Vertical
2509.5	-49.90	2.91	27.70	-25.11	-13	-12.11	Vertical
2509.5	-51.35	2.91	27.70	-26.56	-13	-13.56	Horizontal
200.9	-42.52	1.61	15.68	-28.45	-13	-15.45	Vertical
431.5	-43.15	1.59	17.52	-27.23	-13	-14.23	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-53.30	2.82	27.43	-28.69	-13	-15.69	Horizontal
1696.6	-45.25	2.82	27.43	-20.64	-13	-7.64	Vertical
2544.9	-46.28	2.92	27.74	-21.46	-13	-8.46	Vertical
2544.9	-53.11	2.92	27.74	-28.29	-13	-15.29	Horizontal
212.9	-36.06	1.69	16.67	-21.07	-13	-8.07	Vertical
383.3	-41.31	1.70	17.18	-25.83	-13	-12.83	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1658.0	-47.94	2.78	27.50	-23.22	-13	-10.22	Horizontal
1658.0	-53.47	2.78	27.50	-28.75	-13	-15.75	Vertical
2487.0	-51.05	2.90	27.80	-26.15	-13	-13.15	Vertical
2487.0	-50.14	2.90	27.80	-25.24	-13	-12.24	Horizontal
194.9	-40.00	1.71	15.57	-26.14	-13	-13.14	Vertical
306.4	-35.92	1.34	16.40	-20.86	-13	-7.86	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-49.07	2.80	27.48	-24.39	-13	-11.39	Horizontal
1673.0	-44.39	2.80	27.48	-19.71	-13	-6.71	Vertical
2509.5	-53.84	2.91	27.70	-29.05	-13	-16.05	Vertical
2509.5	-49.95	2.91	27.70	-25.16	-13	-12.16	Horizontal
187.4	-38.54	1.44	17.04	-22.94	-13	-9.94	Vertical
346.5	-44.34	1.76	17.62	-28.48	-13	-15.48	Horizontal
Test Results for High Channel 844MHz							
1688.0	-52.11	2.82	27.43	-27.50	-13	-14.50	Horizontal
1688.0	-46.54	2.82	27.43	-21.93	-13	-8.93	Vertical
2532.0	-53.31	2.92	27.74	-28.49	-13	-15.49	Vertical
2532.0	-52.77	2.92	27.74	-27.95	-13	-14.95	Horizontal
201.9	-36.13	1.74	17.70	-20.17	-13	-7.17	Vertical
315.2	-40.02	1.41	17.46	-23.96	-13	-10.96	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5005.0	-59.42	5.23	35.81	-28.84	-25	-3.84	Horizontal
5005.0	-62.20	5.23	35.81	-31.62	-25	-6.62	Vertical
7507.5	-59.75	5.67	36.85	-28.57	-25	-3.57	Vertical
7507.5	-59.67	5.67	36.85	-28.49	-25	-3.49	Horizontal
202.8	-48.47	1.73	17.97	-32.23	-25	-7.23	Vertical
323.7	-44.96	1.38	15.11	-31.23	-25	-6.23	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.66	5.23	35.82	-31.07	-25	-6.07	Horizontal
5070.0	-60.40	5.23	35.82	-29.81	-25	-4.81	Vertical
7605.0	-60.78	5.67	36.85	-29.60	-25	-4.60	Vertical
7605.0	-60.51	5.67	36.85	-29.33	-25	-4.33	Horizontal
212.2	-47.41	1.77	16.17	-33.00	-25	-8.00	Vertical
441.1	-54.33	1.63	15.21	-40.75	-25	-15.75	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-60.13	5.24	35.83	-29.54	-25	-4.54	Horizontal
5135.0	-60.86	5.24	35.83	-30.27	-25	-5.27	Vertical
7702.5	-60.20	5.68	36.87	-29.01	-25	-4.01	Vertical
7702.5	-60.60	5.68	36.87	-29.41	-25	-4.41	Horizontal
193.6	-51.55	1.58	17.56	-35.57	-25	-10.57	Vertical
397.1	-50.02	1.45	16.58	-34.89	-25	-9.89	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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5020.0	-62.85	5.23	35.82	-32.26	-25	-7.26	Horizontal
5020.0	-62.19	5.23	35.82	-31.60	-25	-6.60	Vertical
7530.0	-63.36	5.67	36.86	-32.17	-25	-7.17	Vertical
7530.0	-59.67	5.67	36.86	-28.48	-25	-3.48	Horizontal
211.6	-51.99	1.63	15.76	-37.86	-25	-12.86	Vertical
343.3	-51.99	1.71	15.44	-38.26	-25	-13.26	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-59.99	5.23	35.82	-29.40	-25	-4.40	Horizontal
5070.0	-59.93	5.23	35.82	-29.34	-25	-4.34	Vertical
7605.0	-64.27	5.67	36.85	-33.09	-25	-8.09	Vertical
7605.0	-61.87	5.67	36.85	-30.69	-25	-5.69	Horizontal
192.4	-46.04	1.79	16.84	-30.98	-25	-5.98	Vertical
375.6	-49.61	1.71	17.64	-33.68	-25	-8.68	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-63.24	5.24	35.83	-32.65	-25	-7.65	Horizontal
5120.0	-59.42	5.24	35.83	-28.83	-25	-3.83	Vertical
7680.0	-61.40	5.70	36.88	-30.22	-25	-5.22	Vertical
7680.0	-64.03	5.70	36.88	-32.85	-25	-7.85	Horizontal
199.7	-45.13	1.79	16.84	-30.07	-25	-5.07	Vertical
232.8	-49.03	1.71	17.64	-33.10	-25	-8.10	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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 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)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1399.4	-46.17	2.60	27.20	-21.57	-13	-8.57	Horizontal
1399.4	-51.97	2.60	27.20	-27.37	-13	-14.37	Vertical
2099.1	-46.78	2.85	27.54	-22.09	-13	-9.09	Vertical
2099.1	-50.10	2.85	27.54	-25.41	-13	-12.41	Horizontal
207.1	-39.01	1.49	17.78	-22.72	-13	-9.72	Vertical
327.2	-35.26	1.36	17.33	-19.29	-13	-6.29	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-44.23	2.61	27.28	-19.56	-13	-6.56	Horizontal
1415.0	-46.04	2.61	27.28	-21.37	-13	-8.37	Vertical
2122.5	-49.81	2.87	27.59	-25.09	-13	-12.09	Vertical
2122.5	-51.96	2.87	27.59	-27.24	-13	-14.24	Horizontal
186.5	-38.67	1.73	15.74	-24.66	-13	-11.66	Vertical
286.5	-34.32	1.62	15.79	-20.15	-13	-7.15	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-48.02	2.63	27.28	-23.37	-13	-10.37	Horizontal
1430.6	-52.11	2.63	27.28	-27.46	-13	-14.46	Vertical
2145.9	-45.26	2.88	27.60	-20.54	-13	-7.54	Vertical
2145.9	-51.88	2.88	27.60	-27.16	-13	-14.16	Horizontal
202.9	-39.17	1.61	18.00	-22.78	-13	-9.78	Vertical
283.2	-37.45	1.45	15.49	-23.42	-13	-10.42	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1408.0	-48.73	2.61	27.26	-24.08	-13	-11.08	Horizontal
1408.0	-47.15	2.61	27.26	-22.50	-13	-9.50	Vertical
2112.0	-52.18	2.87	27.58	-27.47	-13	-14.47	Vertical
2112.0	-51.11	2.87	27.58	-26.40	-13	-13.40	Horizontal
205.7	-38.96	1.31	16.97	-23.30	-13	-10.30	Vertical
320.1	-35.24	1.65	16.70	-20.19	-13	-7.19	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-46.68	2.61	27.28	-22.01	-13	-9.01	Horizontal
1415.0	-53.48	2.61	27.28	-28.81	-13	-15.81	Vertical
2122.5	-44.56	2.87	27.59	-19.84	-13	-6.84	Vertical
2122.5	-50.13	2.87	27.59	-25.41	-13	-12.41	Horizontal
212.5	-44.17	1.72	17.99	-27.90	-13	-14.90	Vertical
269.9	-43.52	1.73	17.94	-27.31	-13	-14.31	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.72	2.62	27.28	-24.06	-13	-11.06	Horizontal
1422.0	-47.88	2.62	27.28	-23.22	-13	-10.22	Vertical
2133.0	-47.97	2.87	27.60	-23.24	-13	-10.24	Vertical
2133.0	-49.82	2.87	27.60	-25.09	-13	-12.09	Horizontal
197.7	-35.30	1.58	15.93	-20.95	-13	-7.95	Vertical
238.7	-37.62	1.36	15.59	-23.39	-13	-10.39	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.6 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1413.0	-46.06	2.61	27.28	-21.39	-13	-8.39	Horizontal
1413.0	-53.60	2.61	27.28	-28.93	-13	-15.93	Vertical
2119.5	-53.53	2.87	27.59	-28.81	-13	-15.81	Vertical
2119.5	-49.54	2.87	27.59	-24.82	-13	-11.82	Horizontal
201.5	-42.13	1.71	16.15	-27.69	-13	-14.69	Vertical
252.2	-37.99	1.41	17.32	-22.08	-13	-9.08	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-51.73	2.62	27.30	-27.05	-13	-14.05	Horizontal
1420.0	-46.52	2.62	27.30	-21.84	-13	-8.84	Vertical
2130.0	-47.96	2.87	27.62	-23.21	-13	-10.21	Vertical
2130.0	-49.19	2.87	27.62	-24.44	-13	-11.44	Horizontal
203.8	-39.28	1.42	15.25	-25.46	-13	-12.46	Vertical
351.2	-41.67	1.36	17.19	-25.84	-13	-12.84	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-48.34	2.66	27.28	-23.72	-13	-10.72	Horizontal
1427.0	-51.20	2.66	27.28	-26.58	-13	-13.58	Vertical
2140.5	-50.80	2.88	27.60	-26.08	-13	-13.08	Vertical
2140.5	-52.09	2.88	27.60	-27.37	-13	-14.37	Horizontal
208.9	-40.79	1.32	17.29	-24.82	-13	-11.82	Vertical
258.3	-36.37	1.72	16.89	-21.20	-13	-8.20	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Factor (dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1418.0	-50.98	2.62	27.30	-26.30	-13	-13.30	Horizontal
1418.0	-52.27	2.62	27.30	-27.59	-13	-14.59	Vertical
2127.0	-52.61	2.87	27.62	-27.86	-13	-14.86	Vertical
2127.0	-50.39	2.87	27.62	-25.64	-13	-12.64	Horizontal
193.8	-36.33	1.35	16.91	-20.77	-13	-7.77	Vertical
237.4	-44.68	1.62	16.31	-29.99	-13	-16.99	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-49.90	2.62	27.30	-25.22	-13	-12.22	Horizontal
1420.0	-46.66	2.62	27.30	-21.98	-13	-8.98	Vertical
2130.0	-47.40	2.87	27.62	-22.65	-13	-9.65	Vertical
2130.0	-50.25	2.87	27.62	-25.50	-13	-12.50	Horizontal
193.0	-40.19	1.51	17.14	-24.56	-13	-11.56	Vertical
341.0	-43.30	1.77	16.88	-28.19	-13	-15.19	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.60	2.62	27.30	-24.92	-13	-11.92	Horizontal
1422.0	-47.96	2.62	27.30	-23.28	-13	-10.28	Vertical
2133.0	-46.63	2.87	27.62	-21.88	-13	-8.88	Vertical
2133.0	-51.96	2.87	27.62	-27.21	-13	-14.21	Horizontal
180.0	-40.40	1.78	15.95	-26.23	-13	-13.23	Vertical
278.1	-42.83	1.34	17.95	-26.23	-13	-13.23	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

. 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°C
- Voltage =low voltage,DC 3.66V, Normal, DC 3.85V and High voltage, DC 4.43V.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to -30ºC 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 +50ºC is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

- LTE Band 2

LTE Band 4

- LTE Band5

LTE Band 7

LTE Band 12

LTE Band 17

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]
3.4	1880	12.3	0.006569	2.5
3.85	1880	13.7	0.007306	2.5
4.2	1880	13.7	0.007298	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.0	0.006927	2.5
Extreme (50C)	1880	11.5	0.006109	2.5
Extreme (40C)	1880	14.1	0.007502	2.5
Extreme (30C)	1880	13.3	0.007085	2.5
Extreme (10C)	1880	14.2	0.007564	2.5
Extreme (0C)	1880	12.5	0.006657	2.5
Extreme (-10C)	1880	13.1	0.006976	2.5
Extreme (-20C)	1880	14.2	0.007575	2.5
Extreme (-30C)	1880	14.8	0.007897	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]
3.4	1880	10.2	0.005419	2.5
3.85	1880	9.2	0.004874	2.5
4.2	1880	8.5	0.004498	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.9	0.005251	2.5
Extreme (50C)	1880	9.2	0.004907	2.5
Extreme (40C)	1880	8.0	0.004269516	2.5
Extreme (30C)	1880	8.5	0.00454485	2.5
Extreme (10C)	1880	9.3	0.004959153	2.5
Extreme (0C)	1880	8.6	0.004558798	2.5
Extreme (-10C)	1880	8.5	0.004531371	2.5
Extreme (-20C)	1880	8.5	0.004516054	2.5
Extreme (-30C)	1880	8.2	0.004361808	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]
3.4	1732.5	9.3	0.005368	2.5
3.85	1732.5	8.9	0.005131	2.5
4.2	1732.5	8.6	0.004990	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.4	0.004846	2.5
Extreme (50C)	1732.5	8.7	0.004999	2.5
Extreme (40C)	1732.5	7.8	0.004487	2.5
Extreme (30C)	1732.5	6.3	0.003632	2.5
Extreme (10C)	1732.5	6.6	0.003821	2.5
Extreme (0C)	1732.5	9.7	0.005596	2.5
Extreme (-10C)	1732.5	8.7	0.005005	2.5
Extreme (-20C)	1732.5	7.0	0.004017	2.5
Extreme (-30C)	1732.5	8.7	0.005022	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]
3.4	1732.5	9.7	0.005589	2.5
3.85	1732.5	9.1	0.005268	2.5
4.2	1732.5	8.2	0.004733	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.7	0.005577	2.5
Extreme (50C)	1732.5	8.6	0.004982	2.5
Extreme (40C)	1732.5	7.7	0.004457	2.5
Extreme (30C)	1732.5	9.0	0.005180	2.5
Extreme (10C)	1732.5	9.2	0.005291	2.5
Extreme (0C)	1732.5	8.5	0.004886	2.5
Extreme (-10C)	1732.5	9.0	0.005172	2.5
Extreme (-20C)	1732.5	9.3	0.005386	2.5
Extreme (-30C)	1732.5	7.6	0.004403	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]
3.4	836.5	5.6	0.006699	2.5
3.85	836.5	6.6	0.007884	2.5
4.2	836.5	5.1	0.006092	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.3	0.007523	2.5
Extreme (50C)	836.5	5.8	0.006924	2.5
Extreme (40C)	836.5	6.2	0.007417	2.5
Extreme (30C)	836.5	5.9	0.007111	2.5
Extreme (10C)	836.5	5.5	0.006628	2.5
Extreme (0C)	836.5	5.2	0.006265	2.5
Extreme (-10C)	836.5	5.9	0.007002	2.5
Extreme (-20C)	836.5	6.5	0.007717	2.5
Extreme (-30C)	836.5	5.8	0.006938	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]
3.4	836.5	5.7	0.006791	2.5
3.85	836.5	6.7	0.007977	2.5
4.2	836.5	5.2	0.006203	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.7	0.006856	2.5
Extreme (50C)	836.5	5.8	0.006921	2.5
Extreme (40C)	836.5	6.5	0.007799	2.5
Extreme (30C)	836.5	6.5	0.007810	2.5
Extreme (10C)	836.5	5.8	0.006990	2.5
Extreme (0C)	836.5	4.9	0.005832	2.5
Extreme (-10C)	836.5	5.3	0.006297	2.5
Extreme (-20C)	836.5	5.7	0.006841	2.5
Extreme (-30C)	836.5	6.2	0.007470	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]
3.4	2535	9.6	0.003781	2.5
3.85	2535	8.7	0.003448	2.5
4.2	2535	8.2	0.003224	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.5	0.003767	2.5
Extreme (50C)	2535	9.4	0.003691	2.5
Extreme (40C)	2535	8.5	0.003365	2.5
Extreme (30C)	2535	8.5	0.003372	2.5
Extreme (10C)	2535	7.7	0.003038	2.5
Extreme (0C)	2535	8.3	0.003287	2.5
Extreme (-10C)	2535	8.9	0.003529	2.5
Extreme (-20C)	2535	8.5	0.003353	2.5
Extreme (-30C)	2535	8.5	0.003334	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]
3.4	2535	6.9	0.002722	2.5
3.85	2535	6.3	0.002473	2.5
4.2	2535	5.4	0.002126	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.4	0.002120	2.5
Extreme (40C)	2535	5.0	0.001981	2.5
Extreme (30C)	2535	6.2	0.002461	2.5
Extreme (10C)	2535	6.1	0.002387	2.5
Extreme (0C)	2535	5.1	0.001995	2.5
Extreme (-10C)	2535	5.1	0.002027	2.5
Extreme (-20C)	2535	5.9	0.002332	2.5
Extreme (-30C)	2535	5.9	0.002339	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	8.9	0.012533	2.5
3.85	707.5	9.7	0.013736	2.5
4.2	707.5	8.7	0.012266	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.1	0.012843	2.5
Extreme (50C)	707.5	7.2	0.010121	2.5
Extreme (40C)	707.5	7.5	0.010660	2.5
Extreme (30C)	707.5	8.5	0.012046	2.5
Extreme (10C)	707.5	7.3	0.010291	2.5
Extreme (0C)	707.5	9.1	0.012865	2.5
Extreme (-10C)	707.5	8.3	0.011775	2.5
Extreme (-20C)	707.5	9.4	0.013259	2.5
Extreme (-30C)	707.5	8.2	0.011566	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]
3.4	707.5	7.9	0.011101	2.5
3.85	707.5	8.8	0.012428	2.5
4.2	707.5	7.5	0.010643	2.5

Frequency error vs. Temperature

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

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

10.6 LTE BAND 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]
3.4	710.0	9.5	0.013386	2.5
3.85	710.0	9.0	0.012661	2.5
4.2	710.0	8.4	0.011844	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.3	0.013154	2.5
Extreme (50C)	710.0	9.1	0.012748	2.5
Extreme (40C)	710.0	8.3	0.011646	2.5
Extreme (30C)	710.0	8.7	0.012196	2.5
Extreme (10C)	710.0	9.2	0.012908	2.5
Extreme (0C)	710.0	8.1	0.011447	2.5
Extreme (-10C)	710.0	8.5	0.011986	2.5
Extreme (-20C)	710.0	8.6	0.012096	2.5
Extreme (-30C)	710.0	8.4	0.011871	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]
3.4	710.0	9.6	0.013515	2.5
3.85	710.0	9.1	0.012780	2.5
4.2	710.0	8.6	0.012103	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.6	0.013581	2.5
Extreme (50C)	710.0	9.0	0.012621	2.5
Extreme (40C)	710.0	8.3	0.011738	2.5
Extreme (30C)	710.0	8.9	0.012518	2.5
Extreme (10C)	710.0	8.4	0.011809	2.5
Extreme (0C)	710.0	8.6	0.012143	2.5
Extreme (-10C)	710.0	9.4	0.013196	2.5
Extreme (-20C)	710.0	8.9	0.012606	2.5
Extreme (-30C)	710.0	8.1	0.011380	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

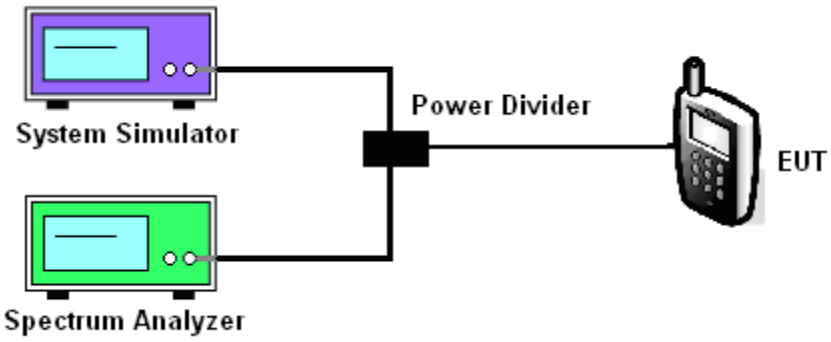
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

- LTE Band 2/4/5/7/12/17
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Test data reference attachment.

----END OF REPORT----