

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

FCC ID: 2AY6A-M1

Product: 4G MIFI

Trade Mark: CLOUD MOBILE

Model Number: Sky M1

Family Model: N/A

Report No.: STR210412001006E

Prepared for

Cloud Mobile Holding LLC

1149 S. HILL ST. SUITE H400, LOS ANGELES, CA 90015

Prepared by

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

Tel. 400-800-6106, 0755-2320 0050, 0755-2320

0090 Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

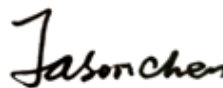
Applicant's name	Cloud Mobile Holding LLC
Address	1149 S. HILL ST. SUITE H400, LOS ANGELES, CA 90015
Manufacturer's Name	Cloud Mobile Holding LLC
Address	1149 S. HILL ST. SUITE H400, LOS ANGELES, CA 90015
Product name	4G MIFI
Model and/or type reference ..	Sky M1
Family Model:	N/A
Standards	FCC CFR 47 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.	
Date of Test	
Date (s) of performance of tests	Apr 12, 2021 ~Apr 29, 2021
Date of Issue	Apr 29, 2021
Test Result	Pass

Testing Engineer :



(Cheng Jiawen)

Technical Manager :



(Jason Chen)

Authorized Signatory :



(Alex Li)

TABLE OF CONTENTS

1. GENERAL INFORMATION.....	5
1.1 PRODUCT DESCRIPTION	5
1.2 RELATED SUBMITTAL(S) / GRANT (S)	6
1.3 TEST METHODOLOGY.....	6
1.4 TEST FACILITY.....	6
MEASUREMENT UNCERTAINTY	6
1.5 SPECIAL ACCESSORIES.....	6
1.6 WORST-CASE CONFIGURATION AND MODE.....	7
1.6 SUMMARY OF TEST RESULTS	7
2. SYSTEM TEST CONFIGURATION	9
2.1 EUT CONFIGURATION.....	9
2.2 EUT EXERCISE	9
2.3 CONFIGURATION OF EUT SYSTEM.....	9
2.4 TEST SETUP	10
3.TEST AND MEASUREMENT EQUIPMENT	11
4. OUTPUT POWER.....	13
4.1 OUTPUT POWER MEASUREMENT	13
6. BANDEDGE AND EMISSION MASK.....	16
7. OUT OF BAND EMISSIONS	17
7.1 MEASUREMENT METHOD	18
8. RADIATED MEASUREMENT	19
8.1. RADIATED POWER (ERP & EIRP).....	19
8.2 LTE BAND 2.....	20
8.3 LTE BAND 4.....	24
8.4 LTE BAND 5.....	28

8.5 LTE BAND 7.....	30
8.5 LTE BAND 12	32
8.6 LTE BAND 17	34
8.7 LTE BAND 66	36
9. SPURIOUS RADIATION EMISSION	40
9.1 LTE BAND 2.....	42
9.2 LTE BAND 4.....	44
9.3 LTE BAND 5.....	46
9.4 LTE BAND 7.....	48
9.5 LTE BAND 12	50
9.6 LTE BAND 17	52
9.7 LTE BAND 66	54
10. FREQUENCY STABILITY	56
10.1 LTE BAND 2	57
10.2 LTE BAND 4	59
10.3 LTE BAND 5	61
10.4 LTE BAND 7	63
10.5 LTE BAND 12	65
10.6 LTE BAND 17	67
10.7 LTE BAND 66	69
11. PEAK-TO-AVERAGE RATIO.....	71
11.1 Description of the PAR Measurement.....	71
11.2 Measuring Instruments	71
11.3 Test Procedures.....	71
11.4 Test Setup.....	71

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	4G MIFI
Trade Mark	CLOUD MOBILE
Model Name	Sky M1
Family Model	N/A
Model Difference	N/A
FCC ID:	2AY6A-M1
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 17, 66
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	PIFA Antenna
Antenna gain:	Band 2: 1.82dBi, Band 4: 2.14dBi, Band 5: 1.88dBi, Band 7: 2.06dBi, Band 12: 1.63dBi, Band 17: 1.66dBi, Band 66: 2.39dBi
Power Supply:	DC 3.7V/ 1800mAh from battery or DC 5V from Adapter.
Adapter:	Model:JML-0500100NZ-LW Input: AC 100-240V~50/60Hz 0.3A Output: DC 5V $\overline{\text{---}}$ 1.0A
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.7V) (Note 1)
HW Version	AL_M01_MB_V10
SW Version	Sky_M1_V1.0.0
** 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: 2AY6A-M1** 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% ($U = 2U_c(y)$)	2.5dB
2	Conducted Emission Test	$\pm 1.38\text{dB}$
3	RF power, conducted	$\pm 0.16\text{dB}$
4	Spurious emissions, conducted	$\pm 0.21\text{dB}$
5	All emissions, radiated(<1G)	$\pm 4.68\text{dB}$
6	All emissions, radiated(>1G)	$\pm 4.89\text{dB}$
7	Temperature	$\pm 0.5^\circ\text{C}$
8	Humidity	$\pm 2\%$
9	Frequency error, conducted	$\pm 0.19\text{ ppm}$

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, Band 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.

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(c), (g), (h) KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913(a)(2) 27.50(b)(10), (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(c)(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(c)(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

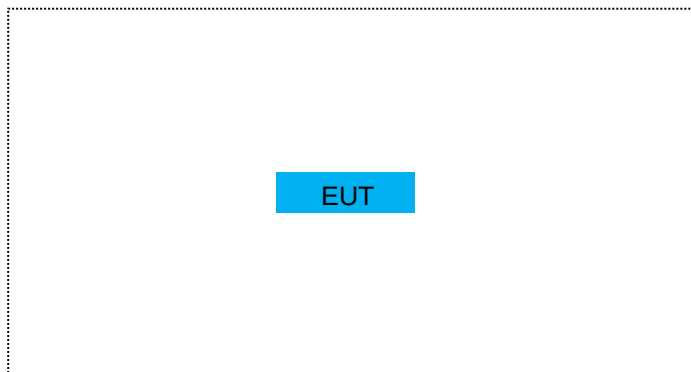
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	4G MIFI	Sky M1	FCC ID: 2AY6A-M1	EUT

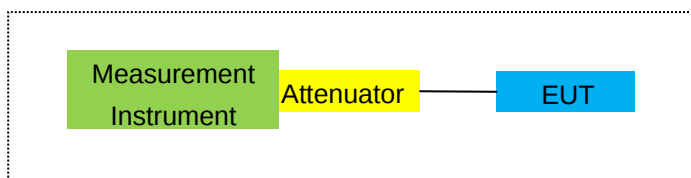
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

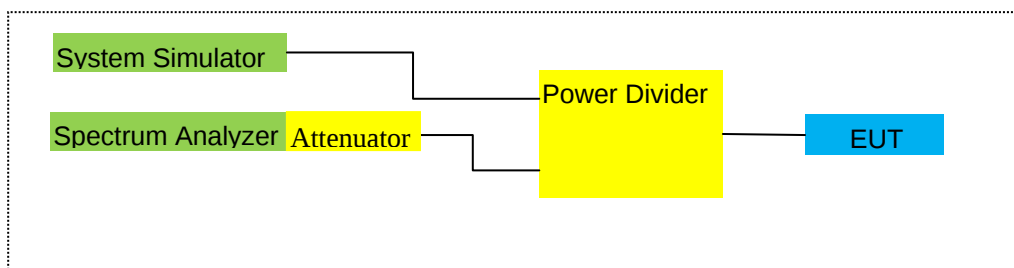
For Radiated Test Cases



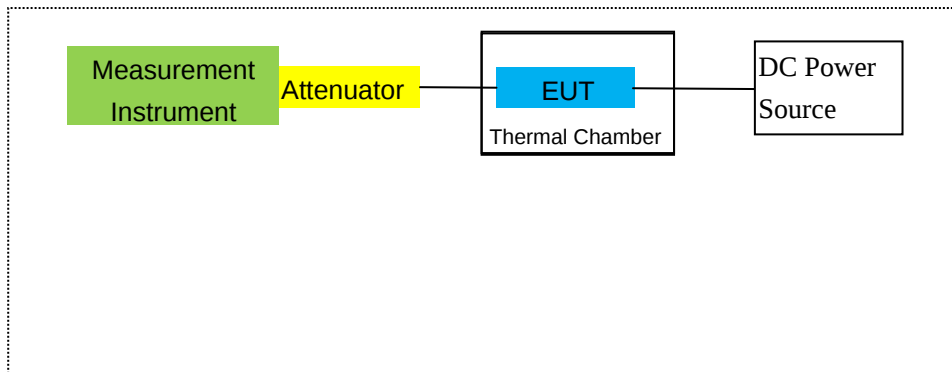
For Conducted Output Power



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	2020.07.13	2021.07.12	1 year
2	Test Receiver	R&S	ESPI	101318	2020.05.11	2021.05.10	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2020.05.11	2021.05.10	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	2020.05.11	2021.05.10	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.11.20	2021.11.19	1 year
7	Amplifier	EM	EM-30180	060538	2020.07.13	2021.07.12	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2020.05.11	2021.05.10	1 year
9	Power Meter	R&S	NRVS	100696	2020.07.13	2021.07.12	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2020.05.11	2021.05.10	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	2019.06.28	2022.06.27	3 year
14	Test Receiver	R&S	ESCI	101160	2020.05.11	2021.05.10	1 year
15	LISN	R&S	ENV216	101313	2020.05.11	2021.05.10	1 year
16	LISN	EMCO	3816/2	00042990	2020.05.11	2021.05.10	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2020.05.11	2021.05.10	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2020.05.11	2021.05.10	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	2021.05.10	1 year
22	Attenuator	MCE	24-10-34	BN9258	2020.05.11	2021.05.10	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2020.05.11	2021.05.10	1 year
24	test receiver	R&S	ESCI	a0304218	2020.05.11	2021.05.10	1 year
25	Communication Tester	R&S	CMU200	A0304247	2020.07.13	2021.07.12	1 year
26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2020.05.11	2021.05.10	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	2020.07.13	2021.07.12	1 year
29	Communication Tester	R&S	CMW500	148500	2020.05.11	2021.05.10	1 year
30	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2020.07.13	2021.07.12	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
- LTE Band 66

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(c)(g)(h)(m)

FCC: §2.1046, §22.913, §24.232

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, 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 $65 + 10\log_{10}(P) = -35\text{dBm}$ 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 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 display line

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

MODES TESTED

- ☐ LTE Band 2/4/5/7/12/17/66

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 $43 + \log_{10}(P[\text{Watts}])$, 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 $65 + 10\log_{10}(P) = -35\text{dBm}$ 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
- LTE Band 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(a)(2), §24.232(c) and §27.50 (h)(2), (b)(10), (c)(10), (d)(4)

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
- LTE Band 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 Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-1.35	3.76	28.24	23.13	205.589	Horizontal	Pass
		1880	-0.06	3.91	28.22	24.25	266.073	Horizontal	Pass
		1909.3	-1.67	3.93	28.20	22.60	181.970	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-0.04	3.77	28.23	24.42	276.694	Horizontal	Pass
		1880	-0.56	3.91	28.24	23.77	238.232	Horizontal	Pass
		1908.5	-0.83	3.94	28.25	23.48	222.844	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.21	3.77	28.31	23.33	215.278	Horizontal	Pass
		1880	-0.93	3.91	28.22	23.38	217.771	Horizontal	Pass
		1907.5	0.01	3.94	28.20	24.27	267.301	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-0.88	3.79	28.33	23.66	232.274	Horizontal	Pass
		1880	-0.82	3.95	28.22	23.45	221.309	Horizontal	Pass
		1905	-0.10	3.97	28.19	24.12	258.226	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-1.42	3.79	28.34	23.13	205.589	Horizontal	Pass
		1880	0.02	3.95	28.22	24.29	268.534	Horizontal	Pass
		1902.5	0.15	3.97	28.18	24.36	272.898	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-0.19	3.81	28.35	24.35	272.270	Horizontal	Pass
		1880	-1.07	3.96	28.22	23.19	208.449	Horizontal	Pass
		1900	-0.28	4.00	28.16	23.88	244.343	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-0.60	3.76	28.24	23.88	244.343	Vertical	Pass
		1880	-0.19	3.91	28.22	24.12	258.226	Vertical	Pass
		1909.3	-0.74	3.93	28.20	23.53	225.424	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-0.94	3.77	28.23	23.52	224.905	Vertical	Pass
		1880	-0.60	3.91	28.24	23.73	236.048	Vertical	Pass
		1908.5	0.03	3.94	28.25	24.34	271.644	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-0.46	3.77	28.31	24.08	255.859	Vertical	Pass
		1880	-0.19	3.91	28.22	24.12	258.226	Vertical	Pass
		1907.5	-0.10	3.94	28.20	24.16	260.615	Vertical	Pass
10.0MHz Band	1/#Mid	1855	-0.86	3.79	28.33	23.68	233.346	Vertical	Pass
		1880	-1.21	3.95	28.22	23.06	202.302	Vertical	Pass

QPSK		1905	-1.91	3.97	28.19	22.31	170.216	Vertical	Pass
15.0MH	1/#Mid	1857.5	-1.73	3.79	28.34	22.82	191.426	Vertical	Pass
z Band		1880	-0.88	3.95	28.22	23.39	218.273	Vertical	Pass
QPSK		1902.5	-1.17	3.97	28.18	23.04	201.372	Vertical	Pass
20.0MH	1/#Mid	1860	-1.56	3.81	28.35	22.98	198.609	Vertical	Pass
z Band		1880	-1.46	3.96	28.22	22.80	190.546	Vertical	Pass
QPSK		1900	0.29	4.00	28.16	24.45	278.612	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-1.85	3.76	28.24	22.63	183.231	Horizontal	Pass
		1880	-1.45	3.91	28.22	22.86	193.197	Horizontal	Pass
		1909.3	-1.15	3.93	28.20	23.12	205.116	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-2.28	3.77	28.23	22.18	165.196	Horizontal	Pass
		1880	-1.20	3.91	28.24	23.13	205.589	Horizontal	Pass
		1908.5	-1.64	3.94	28.25	22.67	184.927	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-1.84	3.77	28.31	22.70	186.209	Horizontal	Pass
		1880	-1.47	3.91	28.22	22.84	192.309	Horizontal	Pass
		1907.5	-1.00	3.94	28.20	23.26	211.836	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-1.86	3.79	28.33	22.68	185.353	Horizontal	Pass
		1880	-1.54	3.95	28.22	22.73	187.499	Horizontal	Pass
		1905	-1.03	3.97	28.19	23.19	208.449	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.02	3.79	28.34	22.53	179.061	Horizontal	Pass
		1880	-1.59	3.95	28.22	22.68	185.353	Horizontal	Pass
		1902.5	-1.51	3.97	28.18	22.70	186.209	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-1.58	3.81	28.35	22.96	197.697	Horizontal	Pass
		1880	-0.90	3.96	28.22	23.36	216.770	Horizontal	Pass
		1900	-1.16	4.00	28.16	23.00	199.526	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-2.22	3.76	28.24	22.26	168.267	Vertical	Pass
		1880	-1.02	3.91	28.22	23.29	213.304	Vertical	Pass
		1909.3	-1.28	3.93	28.20	22.99	199.067	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-1.85	3.77	28.23	22.61	182.390	Vertical	Pass
		1880	-1.77	3.91	28.24	22.56	180.302	Vertical	Pass
		1908.5	-1.54	3.94	28.25	22.77	189.234	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-1.31	3.77	28.31	23.23	210.378	Vertical	Pass
		1880	-1.90	3.91	28.22	22.41	174.181	Vertical	Pass
		1907.5	-0.96	3.94	28.20	23.30	213.796	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-1.38	3.79	28.33	23.16	207.014	Vertical	Pass
		1880	-1.79	3.95	28.22	22.48	177.011	Vertical	Pass
		1905	-1.70	3.97	28.19	22.52	178.649	Vertical	Pass
15.0MHz Band 16	1/#Mid	1857.5	-1.32	3.79	28.34	23.23	210.378	Vertical	Pass
		1880	-2.17	3.95	28.22	22.10	162.181	Vertical	Pass

QAM		1902.5	-1.04	3.97	28.18	23.17	207.491	Vertical	Pass
20.0MHz	1/#Mid	1860	-0.79	3.81	28.35	23.75	237.137	Vertical	Pass
Band 16		1880	-0.92	3.96	28.22	23.34	215.774	Vertical	Pass
QAM		1900	-1.09	4.00	28.16	23.07	202.768	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	0.07	3.12	27.58	24.53	283.792	Horizontal	Pass
		1732.5	-0.63	3.27	27.61	23.71	234.963	Horizontal	Pass
		1754.3	0.14	3.29	27.63	24.48	280.543	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-0.88	3.13	27.61	23.60	229.087	Horizontal	Pass
		1732.5	-1.53	3.27	27.61	22.81	190.985	Horizontal	Pass
		1753.5	-1.94	3.30	27.62	22.38	172.982	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-0.35	3.13	27.63	24.15	260.016	Horizontal	Pass
		1732.5	-1.63	3.27	27.61	22.71	186.638	Horizontal	Pass
		1752.5	-0.43	3.30	27.60	23.87	243.781	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-0.57	3.15	27.64	23.92	246.604	Horizontal	Pass
		1732.5	-0.62	3.31	27.61	23.68	233.346	Horizontal	Pass
		1750	-0.22	3.33	27.59	24.04	253.513	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-0.94	3.15	27.65	23.56	226.986	Horizontal	Pass
		1732.5	-0.57	3.31	27.61	23.73	236.048	Horizontal	Pass
		1747.5	0.29	3.33	27.57	24.53	283.792	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-1.12	3.17	27.66	23.37	217.270	Horizontal	Pass
		1732.5	0.28	3.32	27.61	24.57	286.418	Horizontal	Pass
		1745	0.03	3.36	27.56	24.23	264.850	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	0.17	3.12	27.58	24.63	290.402	Vertical	Pass
		1732.5	-1.11	3.27	27.61	23.23	210.378	Vertical	Pass
		1754.3	-1.02	3.29	27.63	23.32	214.783	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-0.76	3.13	27.61	23.72	235.505	Vertical	Pass
		1732.5	0.30	3.27	27.61	24.64	291.072	Vertical	Pass
		1753.5	0.06	3.30	27.62	24.38	274.157	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-1.38	3.13	27.63	23.12	205.116	Vertical	Pass
		1732.5	-0.01	3.27	27.61	24.33	271.019	Vertical	Pass
		1752.5	-0.98	3.30	27.60	23.32	214.783	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-0.84	3.15	27.64	23.65	231.739	Vertical	Pass
		1732.5	-1.16	3.31	27.61	23.14	206.063	Vertical	Pass

QPSK		1750	0.26	3.33	27.59	24.52	283.139	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-1.06	3.15	27.65	23.44	220.800	Vertical	Pass
		1732.5	-0.44	3.31	27.61	23.86	243.220	Vertical	Pass
		1747.5	-0.83	3.33	27.57	23.41	219.280	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-0.16	3.17	27.66	24.33	271.019	Vertical	Pass
		1732.5	0.26	3.32	27.61	24.55	285.102	Vertical	Pass
		1745	0.68	3.36	27.56	24.88	307.610	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-0.93	3.12	27.58	23.53	225.424	Horizontal	Pass
		1732.5	-1.08	3.27	27.61	23.26	211.836	Horizontal	Pass
		1754.3	-1.01	3.29	27.63	23.33	215.278	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-0.87	3.13	27.61	23.61	229.615	Horizontal	Pass
		1732.5	-1.94	3.27	27.61	22.40	173.780	Horizontal	Pass
		1753.5	-1.23	3.30	27.62	23.09	203.704	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-0.84	3.13	27.63	23.66	232.274	Horizontal	Pass
		1732.5	-1.18	3.27	27.61	23.16	207.014	Horizontal	Pass
		1752.5	-0.48	3.30	27.60	23.82	240.991	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-1.01	3.15	27.64	23.48	222.844	Horizontal	Pass
		1732.5	-1.52	3.31	27.61	22.78	189.671	Horizontal	Pass
		1750	-1.78	3.33	27.59	22.48	177.011	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-1.15	3.15	27.65	23.35	216.272	Horizontal	Pass
		1732.5	-0.87	3.31	27.61	23.43	220.293	Horizontal	Pass
		1747.5	-0.74	3.33	27.57	23.50	223.872	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-0.95	3.17	27.66	23.54	225.944	Horizontal	Pass
		1732.5	-1.23	3.32	27.61	23.06	202.302	Horizontal	Pass
		1745	-0.73	3.36	27.56	23.47	222.331	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-0.77	3.12	27.58	23.69	233.884	Vertical	Pass
		1732.5	-0.66	3.27	27.61	23.68	233.346	Vertical	Pass
		1754.3	-0.79	3.29	27.63	23.55	226.464	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-1.47	3.13	27.61	23.01	199.986	Vertical	Pass
		1732.5	-2.36	3.27	27.61	21.98	157.761	Vertical	Pass
		1753.5	-1.07	3.30	27.62	23.25	211.349	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-1.01	3.13	27.63	23.49	223.357	Vertical	Pass
		1732.5	-0.95	3.27	27.61	23.39	218.273	Vertical	Pass
		1752.5	-0.97	3.30	27.60	23.33	215.278	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-0.87	3.15	27.64	23.62	230.144	Vertical	Pass
		1732.5	-1.12	3.31	27.61	23.18	207.970	Vertical	Pass
		1750	-0.39	3.33	27.59	23.87	243.781	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-0.80	3.15	27.65	23.70	234.423	Vertical	Pass
		1732.5	-1.38	3.31	27.61	22.92	195.884	Vertical	Pass

QAM		1747.5	-0.46	3.33	27.57	23.78	238.781	Vertical	Pass
20.0MHz	1/#Mid	1720	-0.57	3.17	27.66	23.92	246.604	Vertical	Pass
Band 16		1732.5	-0.92	3.32	27.61	23.37	217.270	Vertical	Pass
QAM		1745	-0.47	3.36	27.56	23.73	236.048	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/ RB SIZE	Freque ncy	Result							Conclu sion
			SG Level (dBm)	Cable Loss (dBm)	Anten na Gain (dB)	Corre ction (dB)	Max. ERP Averag e (dBm)	Max. ERP Averag e (mW)	Polarizati on Of Max. ERP	
1.4MHz Band QPSK	1/#Mi d	824.7	8.12	2.01	19.68	2.15	23.64	231.206	Horizontal	Pass
		836.5	8.13	2.01	19.77	2.15	23.74	236.592	Horizontal	Pass
		848.3	8.24	2.02	19.82	2.15	23.89	244.906	Horizontal	Pass
3.0MHz Band QPSK	1/#Mi d	825.5	8.29	2.01	19.70	2.15	23.83	241.546	Horizontal	Pass
		836.5	7.30	2.01	19.77	2.15	22.91	195.434	Horizontal	Pass
		847.5	8.88	2.02	19.81	2.15	24.52	283.139	Horizontal	Pass
5.0MHz Band QPSK	1/#Mi d	826.5	7.88	2.01	19.71	2.15	23.43	220.293	Horizontal	Pass
		836.5	8.29	2.01	19.77	2.15	23.90	245.471	Horizontal	Pass
		846.5	7.93	2.02	19.79	2.15	23.55	226.464	Horizontal	Pass
10.0MH z Band QPSK	1/#Mi d	829	7.99	2.01	19.73	2.15	23.56	226.986	Horizontal	Pass
		836.5	9.34	2.01	19.77	2.15	24.95	312.608	Horizontal	Pass
		844	8.46	2.02	19.78	2.15	24.07	255.270	Horizontal	Pass
1.4MHz Band QPSK	1/#Mi d	824.7	9.07	2.01	19.68	2.15	24.59	287.740	Vertical	Pass
		836.5	7.73	2.01	19.77	2.15	23.34	215.774	Vertical	Pass
		848.3	8.15	2.02	19.82	2.15	23.80	239.883	Vertical	Pass
3.0MHz Band QPSK	1/#Mi d	825.5	8.29	2.01	19.70	2.15	23.83	241.546	Vertical	Pass
		836.5	7.95	2.01	19.77	2.15	23.56	226.986	Vertical	Pass
		847.5	7.67	2.02	19.81	2.15	23.31	214.289	Vertical	Pass
5.0MHz Band QPSK	1/#Mi d	826.5	8.55	2.01	19.71	2.15	24.10	257.040	Vertical	Pass
		836.5	7.56	2.01	19.77	2.15	23.17	207.491	Vertical	Pass
		846.5	8.23	2.02	19.79	2.15	23.85	242.661	Vertical	Pass
10.0MH z Band QPSK	1/#Mi d	829	8.58	2.01	19.73	2.15	24.15	260.016	Vertical	Pass
		836.5	8.73	2.01	19.77	2.15	24.34	271.644	Vertical	Pass
		844	8.12	2.02	19.78	2.15	23.73	236.048	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/ RB SIZE	Freque ncy	Result							Conclu sion
			SG Level (dBm)	Cable Loss (dBm)	Anten na Gain (dB)	Corre ction (dB)	Max. ERP Averag e (dBm)	Max. ERP Averag e (mW)	Polarizati on Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mi d	824.7	8.00	2.01	19.68	2.15	23.52	224.905	Horizontal	Pass
		836.5	7.38	2.01	19.77	2.15	22.99	199.067	Horizontal	Pass
		848.3	7.33	2.02	19.82	2.15	22.98	198.609	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mi d	825.5	7.27	2.01	19.70	2.15	22.81	190.985	Horizontal	Pass
		836.5	7.65	2.01	19.77	2.15	23.26	211.836	Horizontal	Pass
		847.5	7.94	2.02	19.81	2.15	23.58	228.034	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mi d	826.5	7.34	2.01	19.71	2.15	22.89	194.536	Horizontal	Pass
		836.5	7.64	2.01	19.77	2.15	23.25	211.349	Horizontal	Pass
		846.5	7.86	2.02	19.79	2.15	23.48	222.844	Horizontal	Pass
10.0MH z Band 16 QAM	1/#Mi d	829	7.91	2.01	19.73	2.15	23.48	222.844	Horizontal	Pass
		836.5	7.02	2.01	19.77	2.15	22.63	183.231	Horizontal	Pass
		844	7.26	2.02	19.78	2.15	22.87	193.642	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mi d	824.7	7.77	2.01	19.68	2.15	23.29	213.304	Vertical	Pass
		836.5	6.69	2.01	19.77	2.15	22.30	169.824	Vertical	Pass
		848.3	6.97	2.02	19.82	2.15	22.62	182.810	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mi d	825.5	6.35	2.01	19.70	2.15	21.89	154.525	Vertical	Pass
		836.5	7.40	2.01	19.77	2.15	23.01	199.986	Vertical	Pass
		847.5	7.60	2.02	19.81	2.15	23.24	210.863	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mi d	826.5	6.82	2.01	19.71	2.15	22.37	172.584	Vertical	Pass
		836.5	7.19	2.01	19.77	2.15	22.80	190.546	Vertical	Pass
		846.5	7.69	2.02	19.79	2.15	23.31	214.289	Vertical	Pass
10.0MH z Band 16 QAM	1/#Mi d	829	7.28	2.01	19.73	2.15	22.85	192.752	Vertical	Pass
		836.5	8.05	2.01	19.77	2.15	23.66	232.274	Vertical	Pass
		844	6.86	2.02	19.78	2.15	22.47	176.604	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	1.53	4.54	27.75	24.74	297.852	Horizontal	Pass
		2535	2.01	4.69	27.72	25.04	319.154	Horizontal	Pass
		2567.5	2.33	4.71	27.71	25.33	341.193	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	1.46	4.55	27.76	24.67	293.089	Horizontal	Pass
		2535	1.01	4.69	27.72	24.04	253.513	Horizontal	Pass
		2565	1.18	4.72	27.70	24.16	260.615	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	1.61	4.55	27.77	24.83	304.089	Horizontal	Pass
		2535	1.45	4.69	27.72	24.48	280.543	Horizontal	Pass
		2562.5	0.98	4.72	27.69	23.95	248.313	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	0.30	4.57	27.78	23.51	224.388	Horizontal	Pass
		2535	0.77	4.73	27.72	23.76	237.684	Horizontal	Pass
		2560	2.53	4.75	27.68	25.46	351.560	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	1.28	4.54	27.75	24.49	281.190	Vertical	Pass
		2535	0.50	4.69	27.72	23.53	225.424	Vertical	Pass
		2567.5	1.25	4.71	27.71	24.25	266.073	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	1.73	4.55	27.76	24.94	311.889	Vertical	Pass
		2535	2.07	4.69	27.72	25.10	323.594	Vertical	Pass
		2565	1.05	4.72	27.70	24.03	252.930	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	1.41	4.55	27.77	24.63	290.402	Vertical	Pass
		2535	0.94	4.69	27.72	23.97	249.459	Vertical	Pass
		2562.5	1.52	4.72	27.69	24.49	281.190	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	1.50	4.57	27.78	24.71	295.801	Vertical	Pass
		2535	2.04	4.73	27.72	25.03	318.420	Vertical	Pass
		2560	2.09	4.75	27.68	25.02	317.687	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-0.27	4.54	27.75	22.94	196.789	Horizontal	Pass
		2535	0.86	4.69	27.72	23.89	244.906	Horizontal	Pass
		2567.5	1.07	4.71	27.71	24.07	255.270	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	0.62	4.55	27.76	23.83	241.546	Horizontal	Pass
		2535	0.63	4.69	27.72	23.66	232.274	Horizontal	Pass
		2565	1.30	4.72	27.70	24.28	267.917	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	0.78	4.55	27.77	24.00	251.189	Horizontal	Pass
		2535	1.11	4.69	27.72	24.14	259.418	Horizontal	Pass
		2562.5	1.10	4.72	27.69	24.07	255.270	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	0.84	4.57	27.78	24.05	254.097	Horizontal	Pass
		2535	1.42	4.73	27.72	24.41	276.058	Horizontal	Pass
		2560	0.10	4.75	27.68	23.03	200.909	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	0.75	4.54	27.75	23.96	248.886	Vertical	Pass
		2535	0.31	4.69	27.72	23.34	215.774	Vertical	Pass
		2567.5	-0.13	4.71	27.71	22.87	193.642	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-0.03	4.55	27.76	23.18	207.970	Vertical	Pass
		2535	-0.71	4.69	27.72	22.32	170.608	Vertical	Pass
		2565	0.71	4.72	27.70	23.69	233.884	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	0.83	4.55	27.77	24.05	254.097	Vertical	Pass
		2535	1.32	4.69	27.72	24.35	272.270	Vertical	Pass
		2562.5	0.39	4.72	27.69	23.36	216.770	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	0.90	4.57	27.78	24.11	257.632	Vertical	Pass
		2535	0.50	4.73	27.72	23.49	223.357	Vertical	Pass
		2560	0.94	4.75	27.68	23.87	243.781	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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	Cable Loss	Antenna Gain	Correction	Max. ERP	Max. ERP	Polarization Of	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Max. ERP	
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	699.7	9.11	1.91	19.21	2.15	24.26	266.686	Vertical	Pass
		707.5	8.12	1.91	19.26	2.15	23.32	214.783	Vertical	Pass
		715.3	7.11	1.93	19.34	2.15	22.37	172.584	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	8.66	1.91	19.21	2.15	23.81	240.436	Vertical	Pass
		707.5	8.40	1.91	19.26	2.15	23.60	229.087	Vertical	Pass
		714.5	7.54	1.93	19.34	2.15	22.80	190.546	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.80	1.91	19.23	2.15	22.97	198.153	Vertical	Pass
		707.5	8.67	1.91	19.26	2.15	23.87	243.781	Vertical	Pass
		713.5	7.53	1.92	19.33	2.15	22.79	190.108	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	8.62	1.91	19.25	2.15	23.81	240.436	Vertical	Pass
		707.5	9.13	1.91	19.26	2.15	24.33	271.019	Vertical	Pass
		711	8.41	1.92	19.32	2.15	23.66	232.274	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	8.76	1.91	19.21	2.15	23.91	246.037	Horizontal	Pass
		707.5	8.35	1.91	19.26	2.15	23.55	226.464	Horizontal	Pass
		715.3	8.34	1.93	19.34	2.15	23.60	229.087	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	8.46	1.91	19.21	2.15	23.61	229.615	Horizontal	Pass
		707.5	8.61	1.91	19.26	2.15	23.81	240.436	Horizontal	Pass
		714.5	8.51	1.93	19.34	2.15	23.77	238.232	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	8.80	1.91	19.23	2.15	23.97	249.459	Horizontal	Pass
		707.5	8.83	1.91	19.26	2.15	24.03	252.930	Horizontal	Pass
		713.5	9.06	1.92	19.33	2.15	24.32	270.396	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	9.18	1.91	19.25	2.15	24.37	273.527	Horizontal	Pass
		707.5	7.85	1.91	19.26	2.15	23.05	201.837	Horizontal	Pass
		711	7.93	1.92	19.32	2.15	23.18	207.970	Horizontal	Pass

Radiated Power (EIRP) for Band 12										
Mode	RB/ RB SIZE	Freque ncy	Result							Conclu sion
			SG Level (dBm)	Cable Loss (dBm)	Anten na Gain (dB)	Corre ction (dB)	Max. ERP Averag e (dBm)	Max. ERP Averag e (mW)	Polarizati on Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mi d	699.7	7.61	1.91	19.21	2.15	22.76	188.799	Vertical	Pass
		707.5	7.37	1.91	19.26	2.15	22.57	180.717	Vertical	Pass
		715.3	6.59	1.93	19.34	2.15	21.85	153.109	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mi d	700.5	7.77	1.91	19.21	2.15	22.92	195.884	Vertical	Pass
		707.5	7.68	1.91	19.26	2.15	22.88	194.089	Vertical	Pass
		714.5	7.17	1.93	19.34	2.15	22.43	174.985	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mi d	701.5	7.56	1.91	19.23	2.15	22.73	187.499	Vertical	Pass
		707.5	7.55	1.91	19.26	2.15	22.75	188.365	Vertical	Pass
		713.5	7.63	1.92	19.33	2.15	22.89	194.536	Vertical	Pass
10.0MH z Band 16 QAM	1/#Mi d	704	7.81	1.91	19.25	2.15	23.00	199.526	Vertical	Pass
		707.5	7.66	1.91	19.26	2.15	22.86	193.197	Vertical	Pass
		711	7.99	1.92	19.32	2.15	23.24	210.863	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mi d	699.7	7.60	1.91	19.21	2.15	22.75	188.365	Horizontal	Pass
		707.5	7.82	1.91	19.26	2.15	23.02	200.447	Horizontal	Pass
		715.3	7.83	1.93	19.34	2.15	23.09	203.704	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mi d	700.5	7.94	1.91	19.21	2.15	23.09	203.704	Horizontal	Pass
		707.5	7.96	1.91	19.26	2.15	23.16	207.014	Horizontal	Pass
		714.5	7.99	1.93	19.34	2.15	23.25	211.349	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mi d	701.5	7.95	1.91	19.23	2.15	23.12	205.116	Horizontal	Pass
		707.5	7.42	1.91	19.26	2.15	22.62	182.810	Horizontal	Pass
		713.5	6.58	1.92	19.33	2.15	21.84	152.757	Horizontal	Pass
10.0MH z Band 16 QAM	1/#Mi d	704	7.44	1.91	19.25	2.15	22.63	183.231	Horizontal	Pass
		707.5	8.51	1.91	19.26	2.15	23.71	234.963	Horizontal	Pass
		711	7.77	1.92	19.32	2.15	23.02	200.447	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Midd	706.5	7.88	1.91	19.23	2.15	23.05	201.837	Vertical	Pass
		710	8.54	1.91	19.26	2.15	23.74	236.592	Vertical	Pass
		713.5	8.88	1.92	19.33	2.15	24.14	259.418	Vertical	Pass
10.0MHz Band QPSK	1/#Midd	709	6.82	1.91	19.25	2.15	22.01	158.855	Vertical	Pass
		710	8.51	1.91	19.26	2.15	23.71	234.963	Vertical	Pass
		711	9.26	1.92	19.32	2.15	24.51	282.488	Vertical	Pass
5.0MHz Band QPSK	1/#Midd	706.5	8.61	1.91	19.23	2.15	23.78	238.781	Horizontal	Pass
		710	8.90	1.91	19.26	2.15	24.10	257.040	Horizontal	Pass
		713.5	8.19	1.92	19.33	2.15	23.45	221.309	Horizontal	Pass
10.0MHz Band QPSK	1/#Midd	709	8.97	1.91	19.25	2.15	24.16	260.615	Horizontal	Pass
		710	8.99	1.91	19.26	2.15	24.19	262.422	Horizontal	Pass
		711	9.04	1.92	19.32	2.15	24.29	268.534	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/ RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Midd	706.5	7.85	1.91	19.23	2.15	23.02	200.447	Vertical	Pass
		710	8.03	1.91	19.26	2.15	23.23	210.378	Vertical	Pass
		713.5	7.85	1.92	19.33	2.15	23.11	204.644	Vertical	Pass
10.0MHz z Band 16 QAM	1/#Midd	709	7.70	1.91	19.25	2.15	22.89	194.536	Vertical	Pass
		710	6.88	1.91	19.26	2.15	22.08	161.436	Vertical	Pass
		711	7.75	1.92	19.32	2.15	23.00	199.526	Vertical	Pass
5.0MHz Band 16 QAM	1/#Midd	706.5	6.71	1.91	19.23	2.15	21.88	154.170	Horizontal	Pass
		710	7.75	1.91	19.26	2.15	22.95	197.242	Horizontal	Pass
		713.5	7.43	1.92	19.33	2.15	22.69	185.780	Horizontal	Pass
10.0MHz z Band 16 QAM	1/#Midd	709	7.20	1.91	19.25	2.15	22.39	173.380	Horizontal	Pass
		710	8.50	1.91	19.26	2.15	23.70	234.423	Horizontal	Pass
		711	8.04	1.92	19.32	2.15	23.29	213.304	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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 Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-0.22	3.12	27.58	24.24	265.461	Horizontal	Pass
		1745	0.41	3.27	27.61	24.75	298.538	Horizontal	Pass
		1779.3	0.22	3.29	27.63	24.56	285.759	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-1.10	3.13	27.61	23.38	217.771	Horizontal	Pass
		1745	-1.13	3.27	27.61	23.21	209.411	Horizontal	Pass
		1778.5	-1.73	3.30	27.62	22.59	181.552	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-0.21	3.13	27.63	24.29	268.534	Horizontal	Pass
		1745	-1.55	3.27	27.61	22.79	190.108	Horizontal	Pass
		1777.5	0.53	3.30	27.60	24.83	304.089	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-0.23	3.15	27.64	24.26	266.686	Horizontal	Pass
		1745	0.30	3.31	27.61	24.60	288.403	Horizontal	Pass
		1775	0.60	3.33	27.59	24.86	306.196	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-0.83	3.15	27.65	23.67	232.809	Horizontal	Pass
		1745	0.10	3.31	27.61	24.40	275.423	Horizontal	Pass
		1772.5	0.01	3.33	27.57	24.25	266.073	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-0.87	3.17	27.66	23.62	230.144	Horizontal	Pass
		1745	0.26	3.32	27.61	24.55	285.102	Horizontal	Pass
		1770	-0.12	3.36	27.56	24.08	255.859	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	0.27	3.12	27.58	24.73	297.167	Vertical	Pass
		1745	-0.97	3.27	27.61	23.37	217.270	Vertical	Pass
		1779.3	-1.04	3.29	27.63	23.30	213.796	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	0.03	3.13	27.61	24.51	282.488	Vertical	Pass
		1745	0.20	3.27	27.61	24.54	284.446	Vertical	Pass
		1778.5	0.43	3.30	27.62	24.75	298.538	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-0.94	3.13	27.63	23.56	226.986	Vertical	Pass
		1745	-0.43	3.27	27.61	23.91	246.037	Vertical	Pass
		1777.5	-0.86	3.30	27.60	23.44	220.800	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-0.85	3.15	27.64	23.64	231.206	Vertical	Pass
		1745	-1.31	3.31	27.61	22.99	199.067	Vertical	Pass
		1775	0.18	3.33	27.59	24.44	277.971	Vertical	Pass

15.0MH z Band QPSK	1/#Mid	1717.5	-0.92	3.15	27.65	23.58	228.034	Vertical	Pass
		1745	-0.61	3.31	27.61	23.69	233.884	Vertical	Pass
		1772.5	-0.60	3.33	27.57	23.64	231.206	Vertical	Pass
20.0MH z Band QPSK	1/#Mid	1720	-0.31	3.17	27.66	24.18	261.818	Vertical	Pass
		1745	0.59	3.32	27.61	24.88	307.610	Vertical	Pass
		1770	0.60	3.36	27.56	24.80	301.995	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-0.90	3.12	27.58	23.56	226.986	Horizontal	Pass
		1745	-0.83	3.27	27.61	23.51	224.388	Horizontal	Pass
		1779.3	-1.21	3.29	27.63	23.13	205.589	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-0.94	3.13	27.61	23.54	225.944	Horizontal	Pass
		1745	-2.17	3.27	27.61	22.17	164.816	Horizontal	Pass
		1778.5	-0.87	3.30	27.62	23.45	221.309	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-0.82	3.13	27.63	23.68	233.346	Horizontal	Pass
		1745	-1.23	3.27	27.61	23.11	204.644	Horizontal	Pass
		1777.5	-0.50	3.30	27.60	23.80	239.883	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-1.11	3.15	27.64	23.38	217.771	Horizontal	Pass
		1745	-0.73	3.31	27.61	23.57	227.510	Horizontal	Pass
		1775	-1.36	3.33	27.59	22.90	194.984	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-1.05	3.15	27.65	23.45	221.309	Horizontal	Pass
		1745	-0.79	3.31	27.61	23.51	224.388	Horizontal	Pass
		1772.5	-0.74	3.33	27.57	23.50	223.872	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-1.05	3.17	27.66	23.44	220.800	Horizontal	Pass
		1745	-0.36	3.32	27.61	23.93	247.172	Horizontal	Pass
		1770	-0.77	3.36	27.56	23.43	220.293	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-0.39	3.12	27.58	24.07	255.270	Vertical	Pass
		1745	-0.31	3.27	27.61	24.03	252.930	Vertical	Pass
		1779.3	-0.84	3.29	27.63	23.50	223.872	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-1.21	3.13	27.61	23.27	212.324	Vertical	Pass
		1745	-2.12	3.27	27.61	22.22	166.725	Vertical	Pass
		1778.5	-1.14	3.30	27.62	23.18	207.970	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-1.10	3.13	27.63	23.40	218.776	Vertical	Pass
		1745	-0.88	3.27	27.61	23.46	221.820	Vertical	Pass
		1777.5	-1.12	3.30	27.60	23.18	207.970	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-0.38	3.15	27.64	24.11	257.632	Vertical	Pass
		1745	-1.09	3.31	27.61	23.21	209.411	Vertical	Pass
		1775	-0.19	3.33	27.59	24.07	255.270	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-0.35	3.15	27.65	24.15	260.016	Vertical	Pass
		1745	-0.92	3.31	27.61	23.38	217.771	Vertical	Pass

QAM		1772.5	-0.23	3.33	27.57	24.01	251.768	Vertical	Pass
20.0MHz	1/#Mid	1720	-0.32	3.17	27.66	24.17	261.216	Vertical	Pass
Band 16		1745	-0.77	3.32	27.61	23.52	224.905	Vertical	Pass
QAM		1770	-0.04	3.36	27.56	24.16	260.615	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna Gain(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(c)(g)(h)(m)

LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10} (P \text{ [Watts]})$.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10} (P \text{ [Watts]})$, 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 $43 + 10 \log_{10}(p)$, 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
LTE Band 4
- ☐ LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17
LTE Band 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	-49.93	4.04	33.51	-20.46	-13	-7.46	Horizontal
3701.4	-56.76	4.04	33.51	-27.29	-13	-14.29	Vertical
5552.1	-56.20	5.24	35.84	-25.60	-13	-12.60	Vertical
5552.1	-56.40	5.24	35.84	-25.80	-13	-12.80	Horizontal
166.8	-42.80	1.34	15.77	-28.37	-13	-15.37	Vertical
276.1	-46.73	1.43	17.32	-30.84	-13	-17.84	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-53.11	4.04	33.56	-23.59	-13	-10.59	Horizontal
3760.0	-50.70	4.04	33.56	-21.18	-13	-8.18	Vertical
5640.0	-47.57	5.24	35.91	-16.90	-13	-3.90	Vertical
5640.0	-59.85	5.24	35.91	-29.18	-13	-16.18	Horizontal
171.2	-41.12	1.78	17.79	-25.11	-13	-12.11	Vertical
264.8	-48.90	1.40	17.59	-32.71	-13	-19.71	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-53.66	4.04	34.00	-23.70	-13	-10.70	Horizontal
3818.6	-56.05	4.04	34.00	-26.09	-13	-13.09	Vertical
5727.9	-50.13	5.24	36.04	-19.33	-13	-6.33	Vertical
5727.9	-49.95	5.24	36.04	-19.15	-13	-6.15	Horizontal
142.8	-38.37	1.58	15.97	-23.98	-13	-10.98	Vertical
241.0	-47.80	1.48	17.44	-31.84	-13	-18.84	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
3720.0	-52.28	4.07	33.54	-22.81	-13	-9.81	Horizontal
3720.0	-56.50	4.07	33.54	-27.03	-13	-14.03	Vertical
5580.0	-49.40	5.28	35.86	-18.82	-13	-5.82	Vertical
5580.0	-56.25	5.28	35.86	-25.67	-13	-12.67	Horizontal
80.0	-38.31	1.75	16.41	-23.65	-13	-10.65	Vertical
202.7	-44.17	1.61	17.76	-28.02	-13	-15.02	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-55.11	4.04	33.56	-25.59	-13	-12.59	Horizontal
3760.0	-54.29	4.04	33.56	-24.77	-13	-11.77	Vertical
5640.0	-53.19	5.24	35.91	-22.52	-13	-9.52	Vertical
5640.0	-50.93	5.24	35.91	-20.26	-13	-7.26	Horizontal
90.2	-43.92	1.67	16.77	-28.82	-13	-15.82	Vertical
244.2	-45.42	1.36	15.51	-31.27	-13	-18.27	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-54.52	4.04	34.00	-24.56	-13	-11.56	Horizontal
3800.0	-55.39	4.04	34.00	-25.43	-13	-12.43	Vertical
5700.0	-54.49	5.24	36.04	-23.69	-13	-10.69	Vertical
5700.0	-58.25	5.24	36.04	-27.45	-13	-14.45	Horizontal
229.2	-41.08	1.67	16.23	-26.52	-13	-13.52	Vertical
141.3	-42.38	1.38	16.58	-27.18	-13	-14.18	Horizontal

Note: P_{Mea}(dBm)= Power(dBm)+ ARpl (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	-52.14	4.02	29.80	-26.36	-13	-13.36	Horizontal
3421.4	-47.35	4.02	29.80	-21.57	-13	-8.57	Vertical
5132.1	-52.39	5.24	35.84	-21.79	-13	-8.79	Vertical
5132.1	-54.16	5.24	35.84	-23.56	-13	-10.56	Horizontal
101.9	-47.28	1.50	15.84	-32.94	-13	-19.94	Vertical
176.1	-45.62	1.54	16.57	-30.59	-13	-17.59	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-52.46	4.03	30.00	-26.49	-13	-13.49	Horizontal
3465.0	-51.44	4.03	30.00	-25.47	-13	-12.47	Vertical
5197.5	-54.62	5.25	35.86	-24.01	-13	-11.01	Vertical
5197.5	-52.79	5.25	35.86	-22.18	-13	-9.18	Horizontal
257.5	-44.64	1.58	16.39	-29.83	-13	-16.83	Vertical
263.6	-42.78	1.64	15.13	-29.29	-13	-16.29	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-49.39	4.05	30.01	-23.43	-13	-10.43	Horizontal
3508.6	-49.83	4.05	30.01	-23.87	-13	-10.87	Vertical
5262.9	-54.82	5.26	35.86	-24.22	-13	-11.22	Vertical
5262.9	-50.91	5.26	35.86	-20.31	-13	-7.31	Horizontal
257.9	-44.64	1.52	17.96	-28.20	-13	-15.20	Vertical
129.4	-39.50	1.57	16.45	-24.62	-13	-11.62	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
3440.0	-53.18	4.02	29.80	-27.40	-13	-14.40	Horizontal
3440.0	-48.20	4.02	29.80	-22.42	-13	-9.42	Vertical
5160.0	-48.94	5.24	35.84	-18.34	-13	-5.34	Vertical
5160.0	-49.31	5.24	35.84	-18.71	-13	-5.71	Horizontal
214.9	-47.46	1.37	17.63	-31.20	-13	-18.20	Vertical
232.8	-37.44	1.36	15.27	-23.53	-13	-10.53	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-56.28	4.03	30.00	-30.31	-13	-17.31	Horizontal
3465.0	-50.99	4.03	30.00	-25.02	-13	-12.02	Vertical
5197.5	-55.15	5.25	35.86	-24.54	-13	-11.54	Vertical
5197.5	-46.84	5.25	35.86	-16.23	-13	-3.23	Horizontal
193.6	-45.98	1.75	16.73	-31.00	-13	-18.00	Vertical
245.2	-39.48	1.73	17.73	-23.48	-13	-10.48	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-56.37	2.91	27.68	-31.60	-13	-18.60	Horizontal
3490.0	-50.54	2.91	27.68	-25.77	-13	-12.77	Vertical
5235.0	-52.14	5.26	35.86	-21.54	-13	-8.54	Vertical
5235.0	-51.10	5.26	35.86	-20.50	-13	-7.50	Horizontal
103.2	-44.15	1.66	15.87	-29.94	-13	-16.94	Vertical
241.7	-41.67	1.42	15.66	-27.43	-13	-14.43	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	-49.09	2.78	27.50	-24.37	-13	-11.37	Horizontal
1649.4	-49.49	2.78	27.50	-24.77	-13	-11.77	Vertical
2474.1	-51.53	2.90	27.80	-26.63	-13	-13.63	Vertical
2474.1	-49.79	2.90	27.80	-24.89	-13	-11.89	Horizontal
262.1	-37.96	1.46	16.28	-23.14	-13	-10.14	Vertical
261.0	-40.02	1.41	17.82	-23.61	-13	-10.61	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-47.23	2.80	27.48	-22.55	-13	-9.55	Horizontal
1673.0	-43.59	2.80	27.48	-18.91	-13	-5.91	Vertical
2509.5	-45.88	2.91	27.70	-21.09	-13	-8.09	Vertical
2509.5	-43.55	2.91	27.70	-18.76	-13	-5.76	Horizontal
268.3	-41.09	1.66	17.46	-25.29	-13	-12.29	Vertical
211.4	-37.95	1.34	15.81	-23.48	-13	-10.48	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.38	2.82	27.43	-20.77	-13	-7.77	Horizontal
1696.6	-45.26	2.82	27.43	-20.65	-13	-7.65	Vertical
2544.9	-49.11	2.92	27.74	-24.29	-13	-11.29	Vertical
2544.9	-49.18	2.92	27.74	-24.36	-13	-11.36	Horizontal
160.1	-40.25	1.65	15.81	-26.09	-13	-13.09	Vertical
258.5	-44.68	1.71	17.52	-28.87	-13	-15.87	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
1658.0	-42.56	2.78	27.50	-17.84	-13	-4.84	Horizontal
1658.0	-41.59	2.78	27.50	-16.87	-13	-3.87	Vertical
2487.0	-43.98	2.90	27.80	-19.08	-13	-6.08	Vertical
2487.0	-46.79	2.90	27.80	-21.89	-13	-8.89	Horizontal
84.8	-44.60	1.36	17.16	-28.80	-13	-15.80	Vertical
116.3	-44.04	1.31	16.84	-28.51	-13	-15.51	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-53.06	2.80	27.48	-28.38	-13	-15.38	Horizontal
1673.0	-49.42	2.80	27.48	-24.74	-13	-11.74	Vertical
2509.5	-48.22	2.91	27.70	-23.43	-13	-10.43	Vertical
2509.5	-49.61	2.91	27.70	-24.82	-13	-11.82	Horizontal
201.3	-42.15	1.53	16.53	-27.15	-13	-14.15	Vertical
187.5	-44.54	1.60	15.84	-30.30	-13	-17.30	Horizontal
Test Results for High Channel 844MHz							
1688.0	-42.21	2.82	27.43	-17.60	-13	-4.60	Horizontal
1688.0	-48.66	2.82	27.43	-24.05	-13	-11.05	Vertical
2532.0	-49.91	2.92	27.74	-25.09	-13	-12.09	Vertical
2532.0	-48.48	2.92	27.74	-23.66	-13	-10.66	Horizontal
197.8	-43.85	1.71	16.07	-29.49	-13	-16.49	Vertical
86.2	-43.91	1.53	15.55	-29.89	-13	-16.89	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-62.44	5.23	35.81	-31.86	-25	-6.86	Horizontal
5005.0	-63.52	5.23	35.81	-32.94	-25	-7.94	Vertical
7507.5	-65.81	5.67	36.85	-34.63	-25	-9.63	Vertical
7507.5	-68.40	5.67	36.85	-37.22	-25	-12.22	Horizontal
287.6	-53.36	1.34	16.35	-38.35	-25	-13.35	Vertical
499.8	-53.66	1.42	17.42	-37.66	-25	-12.66	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-65.57	5.23	35.82	-34.98	-25	-9.98	Horizontal
5070.0	-62.71	5.23	35.82	-32.12	-25	-7.12	Vertical
7605.0	-66.66	5.67	36.85	-35.48	-25	-10.48	Vertical
7605.0	-62.53	5.67	36.85	-31.35	-25	-6.35	Horizontal
152.0	-58.03	1.32	17.17	-42.18	-25	-17.18	Vertical
270.6	-51.34	1.56	17.82	-35.08	-25	-10.08	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.47	5.24	35.83	-30.88	-25	-5.88	Horizontal
5135.0	-67.25	5.24	35.83	-36.66	-25	-11.66	Vertical
7702.5	-61.18	5.68	36.87	-29.99	-25	-4.99	Vertical
7702.5	-62.98	5.68	36.87	-31.79	-25	-6.79	Horizontal
292.4	-50.45	1.56	15.82	-36.19	-25	-11.19	Vertical
468.7	-51.99	1.39	15.06	-38.32	-25	-13.32	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-66.26	5.23	35.82	-35.67	-25	-10.67	Horizontal
5020.0	-64.83	5.23	35.82	-34.24	-25	-9.24	Vertical
7530.0	-69.45	5.67	36.86	-38.26	-25	-13.26	Vertical
7530.0	-67.12	5.67	36.86	-35.93	-25	-10.93	Horizontal
224.7	-57.43	1.65	16.40	-42.68	-25	-17.68	Vertical
125.8	-58.94	1.77	17.74	-42.97	-25	-17.97	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-68.11	5.23	35.82	-37.52	-25	-12.52	Horizontal
5070.0	-66.46	5.23	35.82	-35.87	-25	-10.87	Vertical
7605.0	-66.62	5.67	36.85	-35.44	-25	-10.44	Vertical
7605.0	-64.22	5.67	36.85	-33.04	-25	-8.04	Horizontal
478.4	-54.45	1.56	17.07	-38.94	-25	-13.94	Vertical
424.6	-57.93	1.37	15.65	-43.65	-25	-18.65	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-64.87	5.24	35.83	-34.28	-25	-9.28	Horizontal
5120.0	-64.19	5.24	35.83	-33.60	-25	-8.60	Vertical
7680.0	-65.27	5.70	36.88	-34.09	-25	-9.09	Vertical
7680.0	-68.23	5.70	36.88	-37.05	-25	-12.05	Horizontal
500.3	-60.32	1.57	17.65	-44.24	-25	-19.24	Vertical
198.7	-50.98	1.38	16.00	-36.36	-25	-11.36	Horizontal

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

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

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

9.5 LTE BAND 12

QPSK EIRP POWER FOR LTE BAND 12 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-44.78	2.60	27.20	-20.18	-13	-7.18	Horizontal
1399.4	-50.48	2.60	27.20	-25.88	-13	-12.88	Vertical
2099.1	-46.44	2.85	27.54	-21.75	-13	-8.75	Vertical
2099.1	-52.54	2.85	27.54	-27.85	-13	-14.85	Horizontal
169.1	-48.48	1.50	17.43	-32.55	-13	-19.55	Vertical
227.2	-40.17	1.47	15.19	-26.45	-13	-13.45	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-47.88	2.61	27.28	-23.21	-13	-10.21	Horizontal
1415.0	-46.17	2.61	27.28	-21.50	-13	-8.50	Vertical
2122.5	-49.64	2.87	27.59	-24.92	-13	-11.92	Vertical
2122.5	-45.32	2.87	27.59	-20.60	-13	-7.60	Horizontal
238.5	-47.13	1.42	16.27	-32.28	-13	-19.28	Vertical
213.2	-44.86	1.53	16.43	-29.96	-13	-16.96	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-41.39	2.63	27.28	-16.74	-13	-3.74	Horizontal
1430.6	-44.38	2.63	27.28	-19.73	-13	-6.73	Vertical
2145.9	-49.25	2.88	27.60	-24.53	-13	-11.53	Vertical
2145.9	-49.59	2.88	27.60	-24.87	-13	-11.87	Horizontal
213.9	-46.13	1.62	17.77	-29.98	-13	-16.98	Vertical
118.9	-46.04	1.76	17.25	-30.55	-13	-17.55	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-48.54	2.61	27.26	-23.89	-13	-10.89	Horizontal
1408.0	-46.62	2.61	27.26	-21.97	-13	-8.97	Vertical
2112.0	-47.50	2.87	27.58	-22.79	-13	-9.79	Vertical
2112.0	-43.09	2.87	27.58	-18.38	-13	-5.38	Horizontal
84.5	-42.35	1.66	15.70	-28.31	-13	-15.31	Vertical
189.8	-41.25	1.70	17.74	-25.21	-13	-12.21	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-46.12	2.61	27.28	-21.45	-13	-8.45	Horizontal
1415.0	-44.00	2.61	27.28	-19.33	-13	-6.33	Vertical
2122.5	-47.45	2.87	27.59	-22.73	-13	-9.73	Vertical
2122.5	-49.76	2.87	27.59	-25.04	-13	-12.04	Horizontal
142.3	-41.37	1.59	16.68	-26.28	-13	-13.28	Vertical
118.6	-42.90	1.46	17.63	-26.73	-13	-13.73	Horizontal
Test Results for High Channel 711MHz							
1422.0	-44.32	2.62	27.28	-19.66	-13	-6.66	Horizontal
1422.0	-50.69	2.62	27.28	-26.03	-13	-13.03	Vertical
2133.0	-43.50	2.87	27.60	-18.77	-13	-5.77	Vertical
2133.0	-50.80	2.87	27.60	-26.07	-13	-13.07	Horizontal
93.8	-48.37	1.52	17.46	-32.43	-13	-19.43	Vertical
135.5	-47.10	1.59	17.63	-31.06	-13	-18.06	Horizontal

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

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

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

9.6 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)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-43.42	2.61	27.28	-18.75	-13	-5.75	Horizontal
1413.0	-44.24	2.61	27.28	-19.57	-13	-6.57	Vertical
2119.5	-52.03	2.87	27.59	-27.31	-13	-14.31	Vertical
2119.5	-47.46	2.87	27.59	-22.74	-13	-9.74	Horizontal
136.1	-40.48	1.51	16.17	-25.82	-13	-12.82	Vertical
171.2	-39.59	1.62	15.27	-25.94	-13	-12.94	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-44.87	2.62	27.30	-20.19	-13	-7.19	Horizontal
1420.0	-41.26	2.62	27.30	-16.58	-13	-3.58	Vertical
2130.0	-49.40	2.87	27.62	-24.65	-13	-11.65	Vertical
2130.0	-47.58	2.87	27.62	-22.83	-13	-9.83	Horizontal
195.9	-41.36	1.53	16.41	-26.48	-13	-13.48	Vertical
129.7	-45.57	1.43	16.97	-30.03	-13	-17.03	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-42.10	2.66	27.28	-17.48	-13	-4.48	Horizontal
1427.0	-45.95	2.66	27.28	-21.33	-13	-8.33	Vertical
2140.5	-43.90	2.88	27.60	-19.18	-13	-6.18	Vertical
2140.5	-48.80	2.88	27.60	-24.08	-13	-11.08	Horizontal
170.4	-38.59	1.70	16.03	-24.26	-13	-11.26	Vertical
146.0	-42.00	1.41	15.46	-27.95	-13	-14.95	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-49.08	2.62	27.30	-24.40	-13	-11.40	Horizontal
1418.0	-54.12	2.62	27.30	-29.44	-13	-16.44	Vertical
2127.0	-47.26	2.87	27.62	-22.51	-13	-9.51	Vertical
2127.0	-46.70	2.87	27.62	-21.95	-13	-8.95	Horizontal
236.9	-38.46	1.31	15.67	-24.10	-13	-11.10	Vertical
249.4	-41.28	1.72	16.90	-26.10	-13	-13.10	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-44.21	2.62	27.30	-19.53	-13	-6.53	Horizontal
1420.0	-46.15	2.62	27.30	-21.47	-13	-8.47	Vertical
2130.0	-47.34	2.87	27.62	-22.59	-13	-9.59	Vertical
2130.0	-51.67	2.87	27.62	-26.92	-13	-13.92	Horizontal
175.2	-42.36	1.71	15.42	-28.65	-13	-15.65	Vertical
271.6	-39.45	1.57	15.32	-25.70	-13	-12.70	Horizontal
Test Results for High Channel 711MHz							
1422.0	-45.61	2.62	27.30	-20.93	-13	-7.93	Horizontal
1422.0	-45.84	2.62	27.30	-21.16	-13	-8.16	Vertical
2133.0	-52.82	2.87	27.62	-28.07	-13	-15.07	Vertical
2133.0	-52.42	2.87	27.62	-27.67	-13	-14.67	Horizontal
107.1	-41.20	1.57	16.90	-25.87	-13	-12.87	Vertical
251.3	-39.29	1.47	16.35	-24.41	-13	-11.41	Horizontal

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

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

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

9.7 LTE BAND 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-47.00	4.02	29.80	-21.22	-13	-8.22	Horizontal
3421.4	-50.70	4.02	29.80	-24.92	-13	-11.92	Vertical
5132.1	-54.19	5.24	35.84	-23.59	-13	-10.59	Vertical
5132.1	-50.71	5.24	35.84	-20.11	-13	-7.11	Horizontal
83.5	-42.44	1.78	17.40	-26.82	-13	-13.82	Vertical
154.0	-47.85	1.60	16.89	-32.56	-13	-19.56	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-57.55	4.03	30.00	-31.58	-13	-18.58	Horizontal
3490.0	-47.79	4.03	30.00	-21.82	-13	-8.82	Vertical
5235.0	-49.85	5.25	35.86	-19.24	-13	-6.24	Vertical
5235.0	-47.97	5.25	35.86	-17.36	-13	-4.36	Horizontal
140.4	-41.92	1.52	17.56	-25.88	-13	-12.88	Vertical
106.4	-47.21	1.62	16.91	-31.92	-13	-18.92	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-51.90	4.05	30.01	-25.94	-13	-12.94	Horizontal
3558.6	-53.95	4.05	30.01	-27.99	-13	-14.99	Vertical
5337.9	-49.42	5.26	35.86	-18.82	-13	-5.82	Vertical
5337.9	-54.87	5.26	35.86	-24.27	-13	-11.27	Horizontal
152.3	-40.83	1.60	16.83	-25.60	-13	-12.60	Vertical
159.5	-46.35	1.31	15.38	-32.28	-13	-19.28	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-53.72	4.02	29.80	-27.94	-13	-14.94	Horizontal
3440.0	-46.23	4.02	29.80	-20.45	-13	-7.45	Vertical
5160.0	-55.43	5.24	35.84	-24.83	-13	-11.83	Vertical
5160.0	-50.79	5.24	35.84	-20.19	-13	-7.19	Horizontal
219.0	-45.48	1.51	17.64	-29.35	-13	-16.35	Vertical
150.0	-41.87	1.59	15.10	-28.36	-13	-15.36	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-50.79	4.03	30.00	-24.82	-13	-11.82	Horizontal
3490.0	-49.00	4.03	30.00	-23.03	-13	-10.03	Vertical
5235.0	-51.50	5.25	35.86	-20.89	-13	-7.89	Vertical
5235.0	-55.28	5.25	35.86	-24.67	-13	-11.67	Horizontal
126.9	-43.00	1.51	16.92	-27.59	-13	-14.59	Vertical
234.4	-43.16	1.52	16.68	-28.00	-13	-15.00	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-52.66	2.91	27.68	-27.89	-13	-14.89	Horizontal
3540.0	-55.10	2.91	27.68	-30.33	-13	-17.33	Vertical
5310.0	-50.88	5.26	35.86	-20.28	-13	-7.28	Vertical
5310.0	-57.57	5.26	35.86	-26.97	-13	-13.97	Horizontal
203.2	-46.88	1.61	17.49	-31.00	-13	-18.00	Vertical
96.7	-43.81	1.44	15.97	-29.28	-13	-16.28	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.

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 3.4V, Normal, DC 3.7V 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
LTE Band 4
- ☐ LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17
LTE Band 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]
3.4	1880	29.9	0.015910	2.5
3.7	1880	15.3	0.008144	2.5
4.2	1880	-1.5	-0.000782	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.6	0.007229	2.5
Extreme (50C)	1880	-13.0	-0.006899	2.5
Extreme (40C)	1880	-10.7	-0.005686	2.5
Extreme (30C)	1880	-22.4	-0.011894	2.5
Extreme (10C)	1880	27.7	0.014723	2.5
Extreme (0C)	1880	-6.4	-0.003426	2.5
Extreme (-10C)	1880	24.8	0.013170	2.5
Extreme (-20C)	1880	-17.5	-0.009309	2.5
Extreme (-30C)	1880	3.6	0.001899	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	-21.9	-0.011638	2.5
3.7	1880	7.8	0.004170	2.5
4.2	1880	-18.0	-0.009548	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	-15.5	-0.008229	2.5
Extreme (50C)	1880	2.5	0.001314	2.5
Extreme (40C)	1880	12.1	0.006420	2.5
Extreme (30C)	1880	-30.7	-0.016340	2.5
Extreme (10C)	1880	20.1	0.010670	2.5
Extreme (0C)	1880	14.6	0.007766	2.5
Extreme (-10C)	1880	-8.3	-0.004426	2.5
Extreme (-20C)	1880	-12.5	-0.006628	2.5
Extreme (-30C)	1880	-18.8	-0.009979	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	21.9	0.012646	2.5
3.7	1732.5	-8.6	-0.004975	2.5
4.2	1732.5	-25.5	-0.014724	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	-12.3	-0.007105	2.5
Extreme (50C)	1732.5	-25.5	-0.014724	2.5
Extreme (40C)	1732.5	-18.4	-0.010638	2.5
Extreme (30C)	1732.5	-10.8	-0.006257	2.5
Extreme (10C)	1732.5	-1.7	-0.000981	2.5
Extreme (0C)	1732.5	-11.7	-0.006776	2.5
Extreme (-10C)	1732.5	-16.2	-0.009374	2.5
Extreme (-20C)	1732.5	-26.0	-0.015019	2.5
Extreme (-30C)	1732.5	-0.4	-0.000242	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	4.9	0.002834	2.5
3.7	1732.5	-23.3	-0.013472	2.5
4.2	1732.5	4.5	0.002592	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	-8.7	-0.005010	2.5
Extreme (50C)	1732.5	-17.1	-0.009853	2.5
Extreme (40C)	1732.5	-19.2	-0.011053	2.5
Extreme (30C)	1732.5	28.7	0.016589	2.5
Extreme (10C)	1732.5	13.9	0.008046	2.5
Extreme (0C)	1732.5	-13.8	-0.007937	2.5
Extreme (-10C)	1732.5	-12.6	-0.007284	2.5
Extreme (-20C)	1732.5	6.3	0.003642	2.5
Extreme (-30C)	1732.5	-23.9	-0.013795	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	11.6	0.013831	2.5
3.7	836.5	8.4	0.010090	2.5
4.2	836.5	16.2	0.019331	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	-19.4	-0.023132	2.5
Extreme (50C)	836.5	-24.9	-0.029719	2.5
Extreme (40C)	836.5	-8.5	-0.010161	2.5
Extreme (30C)	836.5	2.0	0.002331	2.5
Extreme (10C)	836.5	18.1	0.021650	2.5
Extreme (0C)	836.5	-11.1	-0.013246	2.5
Extreme (-10C)	836.5	14.3	0.017059	2.5
Extreme (-20C)	836.5	18.1	0.021686	2.5
Extreme (-30C)	836.5	2.2	0.002618	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	14.2	0.017011	2.5
3.7	836.5	15.9	0.018960	2.5
4.2	836.5	24.9	0.029779	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	-20.2	-0.024100	2.5
Extreme (50C)	836.5	22.6	0.027065	2.5
Extreme (40C)	836.5	11.7	0.013999	2.5
Extreme (30C)	836.5	20.7	0.024746	2.5
Extreme (10C)	836.5	-12.3	-0.014716	2.5
Extreme (0C)	836.5	18.5	0.022104	2.5
Extreme (-10C)	836.5	33.2	0.039725	2.5
Extreme (-20C)	836.5	2.2	0.002582	2.5
Extreme (-30C)	836.5	14.6	0.017478	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	18.1	0.007120	2.5
3.7	2535	15.1	0.005968	2.5
4.2	2535	-13.5	-0.005306	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	11.6	0.004564	2.5
Extreme (50C)	2535	2.4	0.000947	2.5
Extreme (40C)	2535	-2.4	-0.000963	2.5
Extreme (30C)	2535	1.6	0.000619	2.5
Extreme (10C)	2535	-18.1	-0.007132	2.5
Extreme (0C)	2535	15.8	0.006221	2.5
Extreme (-10C)	2535	-6.3	-0.002477	2.5
Extreme (-20C)	2535	5.7	0.002252	2.5
Extreme (-30C)	2535	-21.3	-0.008410	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	-1.8	-0.000694	2.5
3.7	2535	-34.0	-0.013404	2.5
4.2	2535	6.8	0.002679	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	13.8	0.005432	2.5
Extreme (50C)	2535	-22.7	-0.008959	2.5
Extreme (40C)	2535	22.6	0.008895	2.5
Extreme (30C)	2535	22.9	0.009022	2.5
Extreme (10C)	2535	5.9	0.002316	2.5
Extreme (0C)	2535	-29.2	-0.011519	2.5
Extreme (-10C)	2535	-24.4	-0.009609	2.5
Extreme (-20C)	2535	-16.7	-0.006600	2.5
Extreme (-30C)	2535	-24.4	-0.009637	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	18.5	0.026148	2.5
3.7	707.5	10.4	0.014671	2.5
4.2	707.5	-1.6	-0.002261	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.8	0.012481	2.5
Extreme (50C)	707.5	-12.9	-0.018247	2.5
Extreme (40C)	707.5	-21.7	-0.030671	2.5
Extreme (30C)	707.5	-8.9	-0.012537	2.5
Extreme (10C)	707.5	-27.7	-0.039166	2.5
Extreme (0C)	707.5	-9.1	-0.012919	2.5
Extreme (-10C)	707.5	13.7	0.019364	2.5
Extreme (-20C)	707.5	15.0	0.021131	2.5
Extreme (-30C)	707.5	2.2	0.003138	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	9.4	0.013329	2.5
3.7	707.5	-28.6	-0.040367	2.5
4.2	707.5	11.3	0.015915	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	-8.2	-0.011534	2.5
Extreme (50C)	707.5	-8.9	-0.012608	2.5
Extreme (40C)	707.5	15.5	0.021922	2.5
Extreme (30C)	707.5	16.2	0.022954	2.5
Extreme (10C)	707.5	-11.0	-0.015477	2.5
Extreme (0C)	707.5	-9.0	-0.012707	2.5
Extreme (-10C)	707.5	11.7	0.016565	2.5
Extreme (-20C)	707.5	-16.8	-0.023731	2.5
Extreme (-30C)	707.5	5.7	0.008042	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	-18.3	-0.025746	2.5
3.7	710.0	13.7	0.019296	2.5
4.2	710.0	-8.6	-0.012042	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	-23.2	-0.032662	2.5
Extreme (50C)	710.0	-14.6	-0.020535	2.5
Extreme (40C)	710.0	-12.4	-0.017423	2.5
Extreme (30C)	710.0	12.5	0.017620	2.5
Extreme (10C)	710.0	5.7	0.007958	2.5
Extreme (0C)	710.0	4.5	0.006324	2.5
Extreme (-10C)	710.0	-8.5	-0.012000	2.5
Extreme (-20C)	710.0	-14.4	-0.020324	2.5
Extreme (-30C)	710.0	11.0	0.015535	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	-15.1	-0.021197	2.5
3.7	710.0	25.5	0.035944	2.5
4.2	710.0	24.2	0.034099	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	12.5	0.017549	2.5
Extreme (50C)	710.0	11.5	0.016141	2.5
Extreme (40C)	710.0	-3.6	-0.005127	2.5
Extreme (30C)	710.0	-21.1	-0.029676	2.5
Extreme (10C)	710.0	26.2	0.036930	2.5
Extreme (0C)	710.0	18.2	0.025690	2.5
Extreme (-10C)	710.0	-17.5	-0.024620	2.5
Extreme (-20C)	710.0	16.0	0.022465	2.5
Extreme (-30C)	710.0	-13.2	-0.018648	2.5

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

10.7 LTE BAND 66

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1745	18.0	0.010304	2.5
3.7	1745	25.9	0.014825	2.5
4.2	1745	-29.8	-0.017072	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	22.7	0.012997	2.5
Extreme (50C)	1745	-8.8	-0.005060	2.5
Extreme (40C)	1745	-29.5	-0.016905	2.5
Extreme (30C)	1745	-2.0	-0.001146	2.5
Extreme (10C)	1745	-14.2	-0.008155	2.5
Extreme (0C)	1745	11.8	0.006768	2.5
Extreme (-10C)	1745	-11.9	-0.006802	2.5
Extreme (-20C)	1745	-13.0	-0.007421	2.5
Extreme (-30C)	1745	-25.3	-0.014493	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1745	-12.3	-0.007020	2.5
3.7	1745	19.0	0.010894	2.5
4.2	1745	14.7	0.008418	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	-8.5	-0.004860	2.5
Extreme (50C)	1745	20.2	0.011593	2.5
Extreme (40C)	1745	25.2	0.014413	2.5
Extreme (30C)	1745	14.5	0.008292	2.5
Extreme (10C)	1745	-10.0	-0.005713	2.5
Extreme (0C)	1745	20.6	0.011822	2.5
Extreme (-10C)	1745	16.7	0.009559	2.5
Extreme (-20C)	1745	28.9	0.016579	2.5
Extreme (-30C)	1745	25.1	0.014361	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.

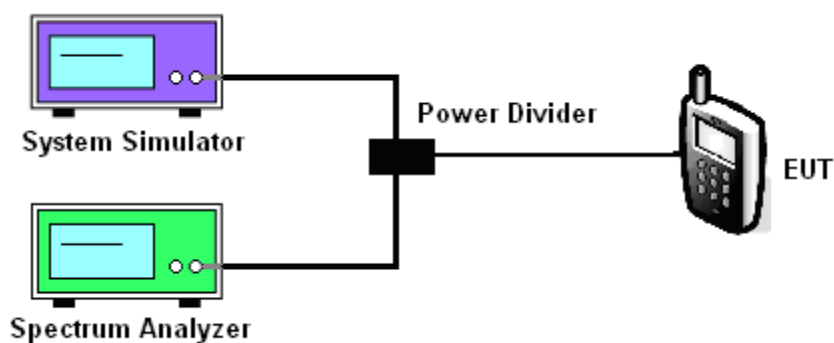
11.2 Measuring Instruments

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 2/4/5/7/12/17/66

☐

Test data reference attachment.

----END OF REPORT----