

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

FCC ID: 2A954-JC21A-04

Product: 4G CPE Router

Trade Mark: FIRSTNUM, Stoneoim

Model Number: JC21A-04

Family Model: JC21

Report No.: STR230110002003E

Prepared for

Shenzhen Firstnum E-commerce Co.,Ltd
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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name	Shenzhen Firstnum E-commerce Co.,Ltd
Address	10E, Building B, XianDaiZhiChuang, 1078 HuaQiang north road, HuaQiangBei street, Futian, ShenZhen, GuangDong, China
Manufacturer's Name	Shenzhen Firstnum E-commerce Co.,Ltd
Address	10E, Building B, XianDaiZhiChuang, 1078 HuaQiang north road, HuaQiangBei street, Futian, ShenZhen, GuangDong, China
Product name	4G CPE Router
Model and/or type reference ..	JC21A-04
Family Model:	JC21
Standards	FCC CFR 47 Part 22H, Part 24E, Part 27
Test procedure	ANSI C63.26:2015 ANSI/TIA-603-E-2016
Test sample number	T230110002R003

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	Jan 11, 2023 ~ Feb 10, 2023
Date of Issue	Feb 13, 2023
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:	4G CPE Router
Trade Mark	FIRSTNUM, Stoneoim
Model Name	JC21A-04
Family Model	JC21
Model Difference	All models are the same circuit and RF module, except the model name.
FCC ID:	2A954-JC21A-04
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 13, 17,38, 40, 41,66
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 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 38 Uplink& Downlink: 2570MHz-2620MHz LTE TDD Band 40 Uplink& Downlink: 2305MHz-2320MHz, 2345MHz-2360MHz,(Number Of Channel see note 2) LTE TDD Band 41 Uplink& Downlink:2555MHz -2655MHz, (Number Of Channel see note 3) LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	PIFA Antenna
Antenna gain:	B2: 4.16dBi; B4:0.51dBi; B5: 3.01dBi; B7: 2.28dBi; B12: 3.01dBi; B13: 3.81dBi;B17: 3.18dBi; B38:2.22dBi;B40: -0.24dBi; B41: 2.1dBi; Band 66: 0.51dBi,

Adapter	Model: CT-030A Input: 100-240V~50/60Hz 0.3A Max Output: 12V---1A
Battery	N/A
Power supply	DC 12V from Adapter.
Extreme Vol. Limits:	DC 10.8V to DC 13.2V (Nominal DC 12V) (Note 1)
HW Version	CRH51C1_MB_V2.1
SW Version	1.00ME/FN
** Note1: The High Voltage 13.2V and Low Voltage 10.8V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

Note: 2

LTE Band 40 2305-2315MHz

Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	38725	2307.5
	10	38750	2310
	15	/	/
Mid Range	5/10/15	38775	2312.5
High Range	5	38825	2317.5
	10	38800	2315
	15	/	/

LTE Band 40 2345-2360MHz

Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	39125	2347.5
	10	39150	2350
	15	/	/
Mid Range	5/10/15	39175	2352.5
High Range	5	39225	2357.5
	10	39200	2355
	15	/	/

Note: 3 LTE band 41

Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	40265	2557.5
	10	40290	2560
	15	40315	2562.5
	20	40340	2565

Mid Range	5/10/15/20	40740	2605
High Range	5	41215	2652.5
	10	41190	2650
	15	41165	2647.5
	20	41140	2645

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2A954-JC21A-04** 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	$\pm 1.38\text{dB}$
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 13, Band 17, Band 38, Band 40, Band 41, 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(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	
27.50 KDB 971168 D01 Clause 6	Duty cycle	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 CPE Router	JC21A-04	FCC ID: 2A954-JC21A-04	EUT

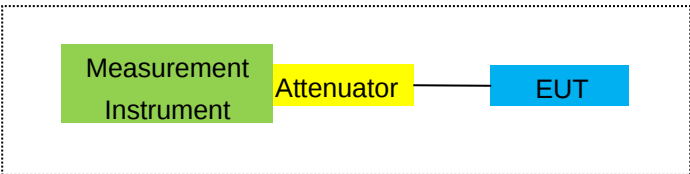
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

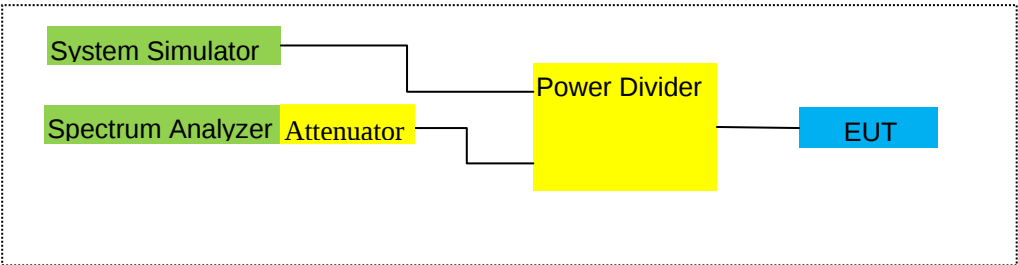
For Radiated Test Cases



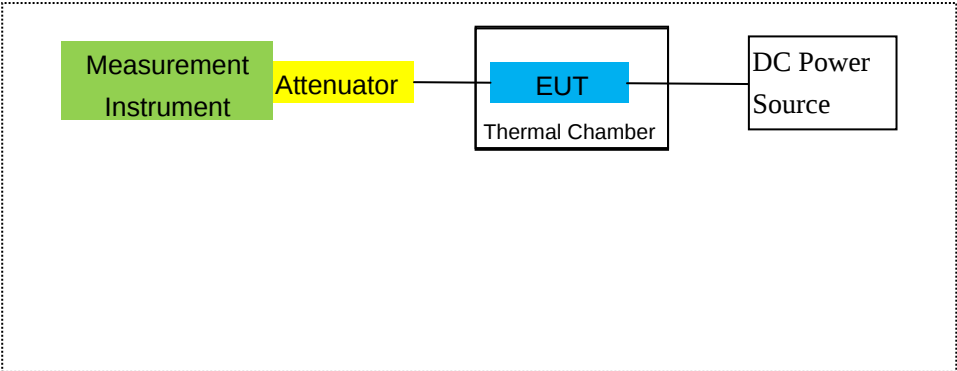
For Conducted Output Power



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



For Frequency Stability



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	2022.03.31	2023.03.30	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	2020.05.11	2023.05.10	3 year
12	Test Cable	N/A	R-02	N/A	2020.05.11	2023.05.10	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	20170402923	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 13
- LTE Band 17
- LTE Band 38
- LTE Band 40
- LTE Band 41
- 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 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 Band2/4/5/7/12/13/17/38/40/41/66

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 Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 38
- LTE Band 40
- LTE Band 41
- 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.

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported (LTE Band 2/4/7: above 10GHz).

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 Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 38
- LTE Band 40
- LTE Band 41
- 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 Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-2.79	3.76	28.24	21.69	147.571	Horizontal	Pass
1880		-2.60	3.91	28.22	21.71	148.252	Horizontal	Pass	
1909.3		-2.51	3.93	28.20	21.76	149.968	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-2.85	3.77	28.23	21.61	144.877	Horizontal	Pass
1880		-2.70	3.91	28.24	21.63	145.546	Horizontal	Pass	
1908.5		-2.57	3.94	28.25	21.74	149.279	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-2.74	3.77	28.31	21.80	151.356	Horizontal	Pass
1880		-2.36	3.91	28.22	21.95	156.675	Horizontal	Pass	
1907.5		-2.29	3.94	28.20	21.97	157.398	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-2.60	3.79	28.33	21.94	156.315	Horizontal	Pass
1880		-2.30	3.95	28.22	21.97	157.398	Horizontal	Pass	
1905		-2.19	3.97	28.19	22.03	159.588	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1857.5	-2.56	3.79	28.34	21.99	158.125	Horizontal	Pass
1880		-2.35	3.95	28.22	21.92	155.597	Horizontal	Pass	
1902.5		-2.21	3.97	28.18	22.00	158.489	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1860	-2.55	3.81	28.35	21.99	158.125	Horizontal	Pass
1880		-2.22	3.96	28.22	22.04	159.956	Horizontal	Pass	
1900		-2.16	4.00	28.16	22.00	158.489	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1850.7	-3.23	3.76	28.24	21.25	133.352	Vertical	Pass
1880		-3.23	3.91	28.22	21.08	128.233	Vertical	Pass	
1909.3		-3.49	3.93	28.20	20.78	119.674	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-3.70	3.77	28.23	20.76	119.124	Vertical	Pass
1880		-3.46	3.91	28.24	20.87	122.180	Vertical	Pass	
1908.5		-3.63	3.94	28.25	20.68	116.950	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-3.37	3.77	28.31	21.17	130.918	Vertical	Pass
1880		-3.28	3.91	28.22	21.03	126.765	Vertical	Pass	
1907.5		-3.72	3.94	28.20	20.54	113.240	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-3.30	3.79	28.33	21.24	133.045	Vertical	Pass
1880		-2.95	3.95	28.22	21.32	135.519	Vertical	Pass	
1905		-3.43	3.97	28.19	20.79	119.950	Vertical	Pass	

15.0MHz		1857.5	-3.76	3.79	28.34	20.79	119.950	Vertical	Pass
Band	1/#Mid	1880	-3.11	3.95	28.22	21.16	130.617	Vertical	Pass
QPSK		1902.5	-3.80	3.97	28.18	20.41	109.901	Vertical	Pass
20.0MHz		1860	-4.02	3.81	28.35	20.52	112.720	Vertical	Pass
Band	1/#Mid	1880	-3.30	3.96	28.22	20.96	124.738	Vertical	Pass
QPSK		1900	-2.97	4.00	28.16	21.19	131.522	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna 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)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz	1/#Mid	1850.7	-3.91	3.76	28.24	20.57	114.025	Horizontal	Pass
Band 16		1880	-3.38	3.91	28.22	20.93	123.880	Horizontal	Pass
QAM		1909.3	-3.31	3.93	28.20	20.96	124.738	Horizontal	Pass
3.0MHz	1/#Mid	1851.5	-3.41	3.77	28.23	21.05	127.350	Horizontal	Pass
Band 16		1880	-3.49	3.91	28.24	20.84	121.339	Horizontal	Pass
QAM		1908.5	-3.70	3.94	28.25	20.61	115.080	Horizontal	Pass
5.0MHz	1/#Mid	1852.5	-3.35	3.77	28.31	21.19	131.522	Horizontal	Pass
Band 16		1880	-3.26	3.91	28.22	21.05	127.350	Horizontal	Pass
QAM		1907.5	-2.94	3.94	28.20	21.32	135.519	Horizontal	Pass
10.0MHz	1/#Mid	1855	-3.40	3.79	28.33	21.14	130.017	Horizontal	Pass
Band 16		1880	-3.39	3.95	28.22	20.88	122.462	Horizontal	Pass
QAM		1905	-2.86	3.97	28.19	21.36	136.773	Horizontal	Pass
15.0MHz	1/#Mid	1857.5	-3.38	3.79	28.34	21.17	130.918	Horizontal	Pass
Band 16		1880	-3.17	3.95	28.22	21.10	128.825	Horizontal	Pass
QAM		1902.5	-3.13	3.97	28.18	21.08	128.233	Horizontal	Pass
20.0MHz	1/#Mid	1860	-3.27	3.81	28.35	21.27	133.968	Horizontal	Pass
Band 16		1880	-2.97	3.96	28.22	21.29	134.586	Horizontal	Pass
QAM		1900	-2.79	4.00	28.16	21.37	137.088	Horizontal	Pass
1.4MHz	1/#Mid	1850.7	-4.56	3.76	28.24	19.92	98.175	Vertical	Pass
Band 16		1880	-4.07	3.91	28.22	20.24	105.682	Vertical	Pass
QAM		1909.3	-4.84	3.93	28.20	19.43	87.700	Vertical	Pass
3.0MHz	1/#Mid	1851.5	-5.02	3.77	28.23	19.44	87.902	Vertical	Pass
Band 16		1880	-4.33	3.91	28.24	20.00	100.000	Vertical	Pass
QAM		1908.5	-4.21	3.94	28.25	20.10	102.329	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-4.92	3.77	28.31	19.62	91.622	Vertical	Pass
Band 16		1880	-3.97	3.91	28.22	20.34	108.143	Vertical	Pass
QAM		1907.5	-4.30	3.94	28.20	19.96	99.083	Vertical	Pass
10.0MHz	1/#Mid	1855	-4.16	3.79	28.33	20.38	109.144	Vertical	Pass
Band 16		1880	-4.28	3.95	28.22	19.99	99.770	Vertical	Pass
QAM		1905	-4.29	3.97	28.19	19.93	98.401	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-4.31	3.79	28.34	20.24	105.682	Vertical	Pass
Band 16		1880	-4.67	3.95	28.22	19.60	91.201	Vertical	Pass
QAM		1902.5	-4.37	3.97	28.18	19.84	96.383	Vertical	Pass

20.0MHz		1860	-4.16	3.81	28.35	20.38	109.144	Vertical	Pass
Band 16	1/#Mid	1880	-4.71	3.96	28.22	19.55	90.157	Vertical	Pass
QAM		1900	-4.71	4.00	28.16	19.45	88.105	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna 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	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
1.4MHz	1/#Mid	1710.7	-2.70	3.12	27.58	21.76	149.968	Horizontal	Pass
Band		1732.5	-2.69	3.27	27.61	21.65	146.218	Horizontal	Pass
QPSK		1754.3	-2.67	3.29	27.63	21.67	146.893	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-2.87	3.13	27.61	21.61	144.877	Horizontal	Pass
Band		1732.5	-2.79	3.27	27.61	21.55	142.889	Horizontal	Pass
QPSK		1753.5	-2.71	3.30	27.62	21.61	144.877	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-2.64	3.13	27.63	21.86	153.462	Horizontal	Pass
Band		1732.5	-2.54	3.27	27.61	21.80	151.356	Horizontal	Pass
QPSK		1752.5	-2.42	3.30	27.60	21.88	154.170	Horizontal	Pass
10.0MHz	1/#Mid	1715	-2.58	3.15	27.64	21.91	155.239	Horizontal	Pass
Band		1732.5	-2.35	3.31	27.61	21.95	156.675	Horizontal	Pass
QPSK		1750	-2.37	3.33	27.59	21.89	154.525	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-2.59	3.15	27.65	21.91	155.239	Horizontal	Pass
Band		1732.5	-2.43	3.31	27.61	21.87	153.815	Horizontal	Pass
QPSK		1747.5	-2.37	3.33	27.57	21.87	153.815	Horizontal	Pass
20.0MHz	1/#Mid	1720	-2.53	3.17	27.66	21.96	157.036	Horizontal	Pass
Band		1732.5	-2.36	3.32	27.61	21.93	155.955	Horizontal	Pass
QPSK		1745	-2.30	3.36	27.56	21.90	154.882	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-4.04	3.12	27.58	20.42	110.154	Vertical	Pass
Band		1732.5	-3.46	3.27	27.61	20.88	122.462	Vertical	Pass
QPSK		1754.3	-3.87	3.29	27.63	20.47	111.429	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-3.47	3.13	27.61	21.01	126.183	Vertical	Pass
Band		1732.5	-3.42	3.27	27.61	20.92	123.595	Vertical	Pass
QPSK		1753.5	-2.98	3.30	27.62	21.34	136.144	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-3.84	3.13	27.63	20.66	116.413	Vertical	Pass
Band		1732.5	-3.51	3.27	27.61	20.83	121.060	Vertical	Pass
QPSK		1752.5	-3.01	3.30	27.60	21.29	134.586	Vertical	Pass
10.0MHz	1/#Mid	1715	-3.18	3.15	27.64	21.31	135.207	Vertical	Pass
Band		1732.5	-3.67	3.31	27.61	20.63	115.611	Vertical	Pass
QPSK		1750	-3.28	3.33	27.59	20.98	125.314	Vertical	Pass

15.0MHz		1717.5	-3.37	3.15	27.65	21.13	129.718	Vertical	Pass
Band	1/#Mid	1732.5	-3.08	3.31	27.61	21.22	132.434	Vertical	Pass
QPSK		1747.5	-3.67	3.33	27.57	20.57	114.025	Vertical	Pass
20.0MHz		1720	-3.12	3.17	27.66	21.37	137.088	Vertical	Pass
Band	1/#Mid	1732.5	-3.13	3.32	27.61	21.16	130.617	Vertical	Pass
QPSK		1745	-3.39	3.36	27.56	20.81	120.504	Vertical	Pass

Note:

SG Level= Signal generator output

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

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss	Factor	Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
1.4MHz	1/#Mid	1710.7	-3.51	3.12	27.58	20.95	124.451	Horizontal	Pass
Band 16		1732.5	-3.36	3.27	27.61	20.98	125.314	Horizontal	Pass
QAM		1754.3	-3.36	3.29	27.63	20.98	125.314	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.45	3.13	27.61	21.03	126.765	Horizontal	Pass
Band 16		1732.5	-3.58	3.27	27.61	20.76	119.124	Horizontal	Pass
QAM		1753.5	-3.80	3.30	27.62	20.52	112.720	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.28	3.13	27.63	21.22	132.434	Horizontal	Pass
Band 16		1732.5	-3.24	3.27	27.61	21.10	128.825	Horizontal	Pass
QAM		1752.5	-2.93	3.30	27.60	21.37	137.088	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.35	3.15	27.64	21.14	130.017	Horizontal	Pass
Band 16		1732.5	-3.54	3.31	27.61	20.76	119.124	Horizontal	Pass
QAM		1750	-2.92	3.33	27.59	21.34	136.144	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-3.15	3.15	27.65	21.35	136.458	Horizontal	Pass
Band 16		1732.5	-3.21	3.31	27.61	21.09	128.529	Horizontal	Pass
QAM		1747.5	-3.23	3.33	27.57	21.01	126.183	Horizontal	Pass
20.0MHz	1/#Mid	1720	-3.10	3.17	27.66	21.39	137.721	Horizontal	Pass
Band 16		1732.5	-3.11	3.32	27.61	21.18	131.220	Horizontal	Pass
QAM		1745	-2.92	3.36	27.56	21.28	134.276	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-4.18	3.12	27.58	20.28	106.660	Vertical	Pass
Band 16		1732.5	-4.69	3.27	27.61	19.65	92.257	Vertical	Pass
QAM		1754.3	-4.30	3.29	27.63	20.04	100.925	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-4.12	3.13	27.61	20.36	108.643	Vertical	Pass
Band 16		1732.5	-4.01	3.27	27.61	20.33	107.895	Vertical	Pass
QAM		1753.5	-4.44	3.30	27.62	19.88	97.275	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.48	3.13	27.63	20.02	100.462	Vertical	Pass
Band 16		1732.5	-3.94	3.27	27.61	20.40	109.648	Vertical	Pass
QAM		1752.5	-4.69	3.30	27.60	19.61	91.411	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.16	3.15	27.64	20.33	107.895	Vertical	Pass
Band 16		1732.5	-4.41	3.31	27.61	19.89	97.499	Vertical	Pass
QAM		1750	-4.12	3.33	27.59	20.14	103.276	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-5.03	3.15	27.65	19.47	88.512	Vertical	Pass
Band 16		1732.5	-4.58	3.31	27.61	19.72	93.756	Vertical	Pass
QAM		1747.5	-4.25	3.33	27.57	19.99	99.770	Vertical	Pass

20.0MHz		1720	-4.40	3.17	27.66	20.09	102.094	Vertical	Pass
Band 16	1/#Mid	1732.5	-4.13	3.32	27.61	20.16	103.753	Vertical	Pass
QAM		1745	-4.21	3.36	27.56	19.99	99.770	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Antenna 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	Cable	Antenna	Correction	Max. EIRP	Max.	Polarization	
			Level	Loss	Factor		EIRP	EIRP	Of Max.	
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
1.4MHz	Band 3/#Mid QPSK	824.7	6.60	2.01	19.68	2.15	22.12	162.930	Horizontal	Pass
		836.5	6.48	2.01	19.77	2.15	22.09	161.808	Horizontal	Pass
		848.3	6.28	2.02	19.82	2.15	21.93	155.955	Horizontal	Pass
3.0MHz	Band 1/#Mid QPSK	825.5	6.37	2.01	19.70	2.15	21.91	155.239	Horizontal	Pass
		836.5	6.27	2.01	19.77	2.15	21.88	154.170	Horizontal	Pass
		847.5	6.14	2.02	19.81	2.15	21.78	150.661	Horizontal	Pass
5.0MHz	Band 1/#Mid QPSK	826.5	6.65	2.01	19.71	2.15	22.20	165.959	Horizontal	Pass
		836.5	6.53	2.01	19.77	2.15	22.14	163.682	Horizontal	Pass
		846.5	6.37	2.02	19.79	2.15	21.99	158.125	Horizontal	Pass
10.0MHz	Band 1/#Mid QPSK	829	6.67	2.01	19.73	2.15	22.24	167.494	Horizontal	Pass
		836.5	6.62	2.01	19.77	2.15	22.23	167.109	Horizontal	Pass
		844	6.52	2.02	19.78	2.15	22.13	163.305	Horizontal	Pass
1.4MHz	Band 1/#Mid QPSK	824.7	5.85	2.01	19.68	2.15	21.37	137.088	Vertical	Pass
		836.5	5.50	2.01	19.77	2.15	21.11	129.122	Vertical	Pass
		848.3	5.11	2.02	19.82	2.15	20.76	119.124	Vertical	Pass
3.0MHz	Band 1/#Mid QPSK	825.5	5.63	2.01	19.70	2.15	21.17	130.918	Vertical	Pass
		836.5	5.05	2.01	19.77	2.15	20.66	116.413	Vertical	Pass
		847.5	4.87	2.02	19.81	2.15	20.51	112.460	Vertical	Pass
5.0MHz	Band 1/#Mid QPSK	826.5	5.26	2.01	19.71	2.15	20.81	120.504	Vertical	Pass
		836.5	5.80	2.01	19.77	2.15	21.41	138.357	Vertical	Pass
		846.5	5.40	2.02	19.79	2.15	21.02	126.474	Vertical	Pass
10.0MHz	Band 1/#Mid QPSK	829	5.69	2.01	19.73	2.15	21.26	133.660	Vertical	Pass
		836.5	4.83	2.01	19.77	2.15	20.44	110.662	Vertical	Pass
		844	5.73	2.02	19.78	2.15	21.34	136.144	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization Of Max.	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	ERP	
							(dBm)	(mW)		
1.4MHz	3/#Mid	824.7	5.75	2.01	19.68	2.15	21.27	133.968	Horizontal	Pass
Band 16		836.5	5.68	2.01	19.77	2.15	21.29	134.586	Horizontal	Pass
QAM		848.3	5.52	2.02	19.82	2.15	21.17	130.918	Horizontal	Pass
3.0MHz	1/#Mid	825.5	5.83	2.01	19.70	2.15	21.37	137.088	Horizontal	Pass
Band 16		836.5	5.54	2.01	19.77	2.15	21.15	130.317	Horizontal	Pass
QAM		847.5	5.02	2.02	19.81	2.15	20.66	116.413	Horizontal	Pass
5.0MHz	1/#Mid	826.5	6.15	2.01	19.71	2.15	21.70	147.911	Horizontal	Pass
Band 16		836.5	5.92	2.01	19.77	2.15	21.53	142.233	Horizontal	Pass
QAM		846.5	5.67	2.02	19.79	2.15	21.29	134.586	Horizontal	Pass
10.0MHz	1/#Mid	829	6.15	2.01	19.73	2.15	21.72	148.594	Horizontal	Pass
Band 16		836.5	5.87	2.01	19.77	2.15	21.48	140.605	Horizontal	Pass
QAM		844	5.41	2.02	19.78	2.15	21.02	126.474	Horizontal	Pass
1.4MHz	1/#Mid	824.7	4.26	2.01	19.68	2.15	19.78	95.060	Vertical	Pass
Band 16		836.5	4.12	2.01	19.77	2.15	19.73	93.972	Vertical	Pass
QAM		848.3	5.14	2.02	19.82	2.15	20.79	119.950	Vertical	Pass
3.0MHz	1/#Mid	825.5	5.80	2.01	19.70	2.15	21.34	136.144	Vertical	Pass
Band 16		836.5	4.64	2.01	19.77	2.15	20.25	105.925	Vertical	Pass
QAM		847.5	4.45	2.02	19.81	2.15	20.09	102.094	Vertical	Pass
5.0MHz	1/#Mid	826.5	4.19	2.01	19.71	2.15	19.74	94.189	Vertical	Pass
Band 16		836.5	5.24	2.01	19.77	2.15	20.85	121.619	Vertical	Pass
QAM		846.5	5.06	2.02	19.79	2.15	20.68	116.950	Vertical	Pass
10.0MHz	1/#Mid	829	4.21	2.01	19.73	2.15	19.78	95.060	Vertical	Pass
Band 16		836.5	5.37	2.01	19.77	2.15	20.98	125.314	Vertical	Pass
QAM		844	5.68	2.02	19.78	2.15	21.29	134.586	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss	Factor	Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
5.0MHz	1/#Mid	2502.5	-0.98	4.54	27.75	22.23	167.109	Horizontal	Pass
Band		2535	-0.81	4.69	27.72	22.22	166.725	Horizontal	Pass
QPSK		2567.5	-0.74	4.71	27.71	22.26	168.267	Horizontal	Pass
10.0MHz	1/#Mid	2505	-0.91	4.55	27.76	22.30	169.824	Horizontal	Pass
Band		2535	-0.72	4.69	27.72	22.31	170.216	Horizontal	Pass
QPSK		2565	-0.64	4.72	27.70	22.34	171.396	Horizontal	Pass
15.0MHz	1/#Mid	2507.5	-0.92	4.55	27.77	22.30	169.824	Horizontal	Pass
Band		2535	-0.78	4.69	27.72	22.25	167.880	Horizontal	Pass
QPSK		2562.5	-0.68	4.72	27.69	22.29	169.434	Horizontal	Pass
20.0MHz	1/#Mid	2510	-0.86	4.57	27.78	22.35	171.791	Horizontal	Pass
Band		2535	-0.68	4.73	27.72	22.31	170.216	Horizontal	Pass
QPSK		2560	-0.64	4.75	27.68	22.29	169.434	Horizontal	Pass
5.0MHz	1/#Mid	2502.5	-2.56	4.54	27.75	20.65	116.145	Vertical	Pass
Band		2535	-1.98	4.69	27.72	21.05	127.350	Vertical	Pass
QPSK		2567.5	-1.62	4.71	27.71	21.38	137.404	Vertical	Pass
10.0MHz	1/#Mid	2505	-2.46	4.55	27.76	20.75	118.850	Vertical	Pass
Band		2535	-2.24	4.69	27.72	20.79	119.950	Vertical	Pass
QPSK		2565	-2.31	4.72	27.70	20.67	116.681	Vertical	Pass
15.0MHz	1/#Mid	2507.5	-2.44	4.55	27.77	20.78	119.674	Vertical	Pass
Band		2535	-2.29	4.69	27.72	20.74	118.577	Vertical	Pass
QPSK		2562.5	-1.93	4.72	27.69	21.04	127.057	Vertical	Pass
20.0MHz	1/#Mid	2510	-1.89	4.57	27.78	21.32	135.519	Vertical	Pass
Band		2535	-2.49	4.73	27.72	20.50	112.202	Vertical	Pass
QPSK		2560	-1.65	4.75	27.68	21.28	134.276	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss	Factor	Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
5.0MHz	1/#Mid	2502.5	-1.67	4.54	27.75	21.54	142.561	Horizontal	Pass
Band 16		2535	-1.36	4.69	27.72	21.67	146.893	Horizontal	Pass
QAM		2567.5	-1.44	4.71	27.71	21.56	143.219	Horizontal	Pass
10.0MHz	1/#Mid	2505	-1.56	4.55	27.76	21.65	146.218	Horizontal	Pass
Band 16		2535	-1.57	4.69	27.72	21.46	139.959	Horizontal	Pass
QAM		2565	-1.84	4.72	27.70	21.14	130.017	Horizontal	Pass
15.0MHz	1/#Mid	2507.5	-1.74	4.55	27.77	21.48	140.605	Horizontal	Pass
Band 16		2535	-1.71	4.69	27.72	21.32	135.519	Horizontal	Pass
QAM		2562.5	-1.32	4.72	27.69	21.65	146.218	Horizontal	Pass
20.0MHz	1/#Mid	2510	-1.62	4.57	27.78	21.59	144.212	Horizontal	Pass
Band 16		2535	-1.29	4.73	27.72	21.70	147.911	Horizontal	Pass
QAM		2560	-1.39	4.75	27.68	21.54	142.561	Horizontal	Pass
5.0MHz	1/#Mid	2502.5	-3.71	4.54	27.75	19.50	89.125	Vertical	Pass
Band 16		2535	-2.08	4.69	27.72	20.95	124.451	Vertical	Pass
QAM		2567.5	-3.07	4.71	27.71	19.93	98.401	Vertical	Pass
10.0MHz	1/#Mid	2505	-3.10	4.55	27.76	20.11	102.565	Vertical	Pass
Band 16		2535	-2.85	4.69	27.72	20.18	104.232	Vertical	Pass
QAM		2565	-2.71	4.72	27.70	20.27	106.414	Vertical	Pass
15.0MHz	1/#Mid	2507.5	-2.45	4.55	27.77	20.77	119.399	Vertical	Pass
Band 16		2535	-3.24	4.69	27.72	19.79	95.280	Vertical	Pass
QAM		2562.5	-3.29	4.72	27.69	19.68	92.897	Vertical	Pass
20.0MHz	1/#Mid	2510	-2.37	4.57	27.78	20.84	121.339	Vertical	Pass
Band 16		2535	-2.97	4.73	27.72	20.02	100.462	Vertical	Pass
QAM		2560	-1.62	4.75	27.68	21.31	135.207	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max. EIRP	Polarization	
			Level	Loss	Factor		Average	Average	Of Max. ERP	
			(dBm)	(dBm)	(dB)		(dBm)	(mW)		
1.4MHz	Band 1/#Mid QPSK	699.7	6.97	1.91	19.21	2.15	22.12	162.930	Vertical	Pass
		707.5	6.89	1.91	19.26	2.15	22.09	161.808	Vertical	Pass
		715.3	6.67	1.93	19.34	2.15	21.93	155.955	Vertical	Pass
3.0MHz	Band 1/#Mid QPSK	700.5	6.76	1.91	19.21	2.15	21.91	155.239	Vertical	Pass
		707.5	6.68	1.91	19.26	2.15	21.88	154.170	Vertical	Pass
		714.5	6.52	1.93	19.34	2.15	21.78	150.661	Vertical	Pass
5.0MHz	Band 1/#Mid QPSK	701.5	7.03	1.91	19.23	2.15	22.20	165.959	Vertical	Pass
		707.5	6.94	1.91	19.26	2.15	22.14	163.682	Vertical	Pass
		713.5	6.73	1.92	19.33	2.15	21.99	158.125	Vertical	Pass
10.0MHz	Band 1/#Mid QPSK	704	7.05	1.91	19.25	2.15	22.24	167.494	Vertical	Pass
		707.5	7.03	1.91	19.26	2.15	22.23	167.109	Vertical	Pass
		711	6.88	1.92	19.32	2.15	22.13	163.305	Vertical	Pass
1.4MHz	Band 1/#Mid QPSK	699.7	5.94	1.91	19.21	2.15	21.09	128.529	Horizontal	Pass
		707.5	5.83	1.91	19.26	2.15	21.03	126.765	Horizontal	Pass
		715.3	6.05	1.93	19.34	2.15	21.31	135.207	Horizontal	Pass
3.0MHz	Band 1/#Mid QPSK	700.5	5.96	1.91	19.21	2.15	21.11	129.122	Horizontal	Pass
		707.5	5.81	1.91	19.26	2.15	21.01	126.183	Horizontal	Pass
		714.5	5.77	1.93	19.34	2.15	21.03	126.765	Horizontal	Pass
5.0MHz	Band 1/#Mid QPSK	701.5	6.03	1.91	19.23	2.15	21.20	131.826	Horizontal	Pass
		707.5	5.61	1.91	19.26	2.15	20.81	120.504	Horizontal	Pass
		713.5	5.42	1.92	19.33	2.15	20.68	116.950	Horizontal	Pass
10.0MHz	Band 1/#Mid QPSK	704	5.24	1.91	19.25	2.15	20.43	110.408	Horizontal	Pass
		707.5	5.99	1.91	19.26	2.15	21.19	131.522	Horizontal	Pass
		711	5.18	1.92	19.32	2.15	20.43	110.408	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz	1/#Mid	699.7	7.53	1.91	19.21	2.15	22.68	185.353	Vertical	Pass
Band 16		707.5	7.45	1.91	19.26	2.15	22.65	184.077	Vertical	Pass
QAM		715.3	7.23	1.93	19.34	2.15	22.49	177.419	Vertical	Pass
3.0MHz	1/#Mid	700.5	7.32	1.91	19.21	2.15	22.47	176.604	Vertical	Pass
Band 16		707.5	7.24	1.91	19.26	2.15	22.44	175.388	Vertical	Pass
QAM		714.5	7.08	1.93	19.34	2.15	22.34	171.396	Vertical	Pass
5.0MHz	1/#Mid	701.5	7.59	1.91	19.23	2.15	22.76	188.799	Vertical	Pass
Band 16		707.5	7.50	1.91	19.26	2.15	22.70	186.209	Vertical	Pass
QAM		713.5	7.29	1.92	19.33	2.15	22.55	179.887	Vertical	Pass
10.0MHz	1/#Mid	704	7.61	1.91	19.25	2.15	22.80	190.546	Vertical	Pass
Band 16		707.5	7.59	1.91	19.26	2.15	22.79	190.108	Vertical	Pass
QAM		711	7.44	1.92	19.32	2.15	22.69	185.780	Vertical	Pass
1.4MHz	1/#Mid	699.7	5.91	1.91	19.21	2.15	21.06	127.644	Horizontal	Pass
Band 16		707.5	6.17	1.91	19.26	2.15	21.37	137.088	Horizontal	Pass
QAM		715.3	6.62	1.93	19.34	2.15	21.88	154.170	Horizontal	Pass
3.0MHz	1/#Mid	700.5	5.91	1.91	19.21	2.15	21.06	127.644	Horizontal	Pass
Band 16		707.5	6.43	1.91	19.26	2.15	21.63	145.546	Horizontal	Pass
QAM		714.5	5.73	1.93	19.34	2.15	20.99	125.603	Horizontal	Pass
5.0MHz	1/#Mid	701.5	6.29	1.91	19.23	2.15	21.46	139.959	Horizontal	Pass
Band 16		707.5	5.79	1.91	19.26	2.15	20.99	125.603	Horizontal	Pass
QAM		713.5	5.94	1.92	19.33	2.15	21.20	131.826	Horizontal	Pass
10.0MHz	1/#Mid	704	5.90	1.91	19.25	2.15	21.09	128.529	Horizontal	Pass
Band 16		707.5	5.99	1.91	19.26	2.15	21.19	131.522	Horizontal	Pass
QAM		711	6.62	1.92	19.32	2.15	21.87	153.815	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna		Max. EIRP	Max.	Polarization	
			Level	Loss	Factor			EIRP	Of Max.	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	ERP	
							(dBm)	(mW)		
5.0MHz	25/0	779.5	6.37	1.91	19.23	2.15	21.54	142.56	Horizontal	Pass
Band		782	6.22	1.91	19.26	2.15	21.42	138.68	Horizontal	Pass
QPSK		784.5	4.58	1.92	19.33	2.15	19.84	96.38	Horizontal	Pass
10.0MHz	50/0	782	4.74	1.91	19.25	2.15	19.93	98.40	Horizontal	Pass
Band			6.52	1.91	19.26	2.15	21.72	148.59	Horizontal	Pass
QPSK			5.40	1.92	19.32	2.15	20.65	116.14	Horizontal	Pass
5.0MHz	25/0	779.5	5.38	1.91	19.23	2.15	20.55	113.50	Vertical	Pass
Band		782	5.41	1.91	19.26	2.15	20.61	115.08	Vertical	Pass
QPSK		784.5	5.37	1.92	19.33	2.15	20.63	115.61	Vertical	Pass
10.0MHz	50/0	782	5.32	1.91	19.25	2.15	20.51	112.46	Vertical	Pass
Band			5.08	1.91	19.26	2.15	20.28	106.66	Vertical	Pass
QPSK			5.53	1.92	19.32	2.15	20.78	119.67	Vertical	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max.	Max.	Polarization	
			Level	Loss	Factor		EIRP	EIRP	Of Max.	
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
5.0MHz	25/0	779.5	6.44	1.91	19.23	2.15	21.61	144.88	Horizontal	Pass
Band 16		782	5.50	1.91	19.26	2.15	20.70	117.49	Horizontal	Pass
QAM		784.5	4.82	1.92	19.33	2.15	20.08	101.86	Horizontal	Pass
10.0MHz	50/0	782	5.00	1.91	19.25	2.15	20.19	104.47	Horizontal	Pass
Band 16			6.43	1.91	19.26	2.15	21.63	145.55	Horizontal	Pass
QAM			5.34	1.92	19.32	2.15	20.59	114.55	Horizontal	Pass
5.0MHz	25/0	779.5	5.04	1.91	19.23	2.15	20.21	104.95	Vertical	Pass
Band 16		782	4.95	1.91	19.26	2.15	20.15	103.51	Vertical	Pass
QAM		784.5	4.67	1.92	19.33	2.15	19.93	98.40	Vertical	Pass
10.0MHz	50/0	782	4.79	1.91	19.25	2.15	19.98	99.54	Vertical	Pass
Band 16			5.48	1.91	19.26	2.15	20.68	116.95	Vertical	Pass
QAM			5.36	1.92	19.32	2.15	20.61	115.08	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)

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max. EIRP	Polarization	
			Level	Loss	Factor			EIRP	Of Max.	
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
5.0MHz	Band QPSK	706.5	6.46	1.91	19.23	2.15	21.63	145.546	Vertical	Pass
		710	6.32	1.91	19.26	2.15	21.52	141.906	Vertical	Pass
		713.5	6.22	1.92	19.33	2.15	21.48	140.605	Vertical	Pass
10.0MHz	Band QPSK	709	6.47	1.91	19.25	2.15	21.66	146.555	Vertical	Pass
		710	6.42	1.91	19.26	2.15	21.62	145.211	Vertical	Pass
		711	6.38	1.92	19.32	2.15	21.63	145.546	Vertical	Pass
5.0MHz	Band QPSK	706.5	4.88	1.91	19.23	2.15	20.05	101.158	Horizontal	Pass
		710	6.07	1.91	19.26	2.15	21.27	133.968	Horizontal	Pass
		713.5	4.91	1.92	19.33	2.15	20.17	103.992	Horizontal	Pass
10.0MHz	Band QPSK	709	4.97	1.91	19.25	2.15	20.16	103.753	Horizontal	Pass
		710	4.57	1.91	19.26	2.15	19.77	94.842	Horizontal	Pass
		711	5.77	1.92	19.32	2.15	21.02	126.474	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max. EIRP	Max.	Polarization	
			Level	Loss	Factor		EIRP	Of Max.		
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
5.0MHz	1/#Mid	706.5	5.81	1.91	19.23	2.15	20.98	125.314	Vertical	Pass
Band 16		710	5.72	1.91	19.26	2.15	20.92	123.595	Vertical	Pass
QAM		713.5	5.52	1.92	19.33	2.15	20.78	119.674	Vertical	Pass
10.0MHz	1/#Mid	709	5.35	1.91	19.25	2.15	20.54	113.240	Vertical	Pass
Band 16		710	5.88	1.91	19.26	2.15	21.08	128.233	Vertical	Pass
QAM		711	5.61	1.92	19.32	2.15	20.86	121.899	Vertical	Pass
5.0MHz	1/#Mid	706.5	5.20	1.91	19.23	2.15	20.37	108.893	Horizontal	Pass
Band 16		710	5.20	1.91	19.26	2.15	20.40	109.648	Horizontal	Pass
QAM		713.5	4.52	1.92	19.33	2.15	19.78	95.060	Horizontal	Pass
10.0MHz	1/#Mid	709	4.75	1.91	19.25	2.15	19.94	98.628	Horizontal	Pass
Band 16		710	5.15	1.91	19.26	2.15	20.35	108.393	Horizontal	Pass
QAM		711	5.06	1.92	19.32	2.15	20.31	107.399	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.9 LTE BAND 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Antenna	Max.	Max. EIRP	Polarization	
			Level	Loss	Gain	EIRP		Of Max.	
			(dBm)	(dBm)	(dB)	Average	Average	ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	21.00	125.893	Vertical	Pass
		2595	-2.64	4.88	27.71	21.89	154.525	Vertical	Pass
		2617.5	-2.58	4.93	27.95	21.54	142.561	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	21.45	139.637	Vertical	Pass
		2595	-2.47	4.95	27.81	21.50	141.254	Vertical	Pass
		2617.5	-2.59	5.03	27.69	21.06	127.644	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	21.93	155.955	Vertical	Pass
		2595	-2.6	5	27.65	21.78	150.661	Vertical	Pass
		2615	-2.67	4.87	27.89	21.25	133.352	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	21.01	126.183	Vertical	Pass
		2595	-2.38	4.87	27.87	21.65	146.218	Vertical	Pass
		2615	-2.56	4.94	27.77	21.20	131.826	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	21.17	130.918	Vertical	Pass
		2595	-2.32	4.87	27.84	21.85	153.109	Vertical	Pass
		2612.5	-2.52	4.92	27.93	21.25	133.352	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	21.66	146.555	Vertical	Pass
		2595	-2.53	4.98	27.82	21.74	149.279	Vertical	Pass
		2612.5	-2.6	4.95	27.83	21.92	155.597	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	21.95	156.675	Vertical	Pass
		2595	-2.37	4.79	27.83	22.58	181.134	Vertical	Pass
		2610	-2.68	4.89	27.87	21.41	138.357	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	21.97	157.398	Vertical	Pass
		2595	-2.88	4.91	27.71	21.63	145.546	Vertical	Pass
		2610	-2.81	4.96	27.92	21.87	153.815	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss	Gain			Of Max. ERP	
				(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.57	114.025	Horizontal	Pass
		2595	-2.64	4.88	27.71	20.42	110.154	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	20.22	105.196	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	20.66	116.413	Horizontal	Pass
		2595	-2.47	4.95	27.81	20.75	118.850	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	20.72	118.032	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	21.08	128.233	Horizontal	Pass
		2595	-2.6	5	27.65	20.22	105.196	Horizontal	Pass
		2615	-2.67	4.87	27.89	20.90	123.027	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	20.96	124.738	Horizontal	Pass
		2595	-2.38	4.87	27.87	21.08	128.233	Horizontal	Pass
		2615	-2.56	4.94	27.77	20.84	121.339	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.95	124.451	Horizontal	Pass
		2595	-2.32	4.87	27.84	20.78	119.674	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	20.87	122.180	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.17	103.992	Horizontal	Pass
		2595	-2.53	4.98	27.82	20.26	106.170	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	20.26	106.170	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.72	118.032	Horizontal	Pass
		2595	-2.37	4.79	27.83	21.72	148.594	Horizontal	Pass
		2610	-2.68	4.89	27.87	20.56	113.763	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	20.75	118.850	Horizontal	Pass
		2595	-2.88	4.91	27.71	20.52	112.720	Horizontal	Pass
		2610	-2.81	4.96	27.92	20.73	118.304	Horizontal	Pass

Note:

SG Level= Signal generator output

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

8.10 LTE BAND 40

Radiated Power (EIRP) for Band 40 (2305-2320MHz)									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2307.5	-0.64	4.95	27.75	22.16	164.44	Horizontal	Pass
		2312.5	-0.53	5.02	27.72	22.17	164.82	Horizontal	Pass
		2317.5	-2.05	4.97	27.71	20.69	117.22	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2310	-1.67	4.95	27.75	21.13	129.72	Horizontal	Pass
		2312.5	-1.03	5.02	27.72	21.67	146.89	Horizontal	Pass
		2315	-1.02	4.97	27.71	21.72	148.59	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2312.5	-0.55	5	27.76	22.21	166.34	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2307.5	-2.74	4.95	27.75	20.06	101.39	Vertical	Pass
		2310	-1.62	5.02	27.72	21.08	128.23	Vertical	Pass
		2312.5	-2.11	4.97	27.71	20.63	115.61	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2310	-1.58	4.95	27.75	21.22	132.43	Vertical	Pass
		2312.5	-1.55	5.02	27.72	21.15	130.32	Vertical	Pass
		2315	-1.72	4.97	27.71	21.02	126.47	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2312.5	-3.02	4.75	27.76	19.99	99.77	Vertical	Pass

Radiated Power (EIRP) for Band 40 (2305-2320MHz)									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)		Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2307.5	-0.64	4.95	27.75	22.16	164.44	Horizontal	Pass
		2312.5	-1.70	5.02	27.72	21.00	125.89	Horizontal	Pass
		2317.5	-2.46	4.97	27.71	20.28	106.66	Horizontal	Pass
10.0MHz Band 16QAM	1/#Mid	2310	-1.17	4.95	27.75	21.63	145.55	Horizontal	Pass
		2312.5	-2.14	5.02	27.72	20.56	113.76	Horizontal	Pass
		2315	-0.74	4.97	27.71	22.00	158.49	Horizontal	Pass
15.0MHz Band 16QAM	1/#Mid	2312.5	-0.45	5	27.76	22.31	170.22	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2307.5	-1.28	4.95	27.75	21.52	141.91	Vertical	Pass
		2310	-1.67	5.02	27.72	21.03	126.77	Vertical	Pass
		2312.5	-2.13	4.97	27.71	20.61	115.08	Vertical	Pass
10.0MHz Band 16QAM	1/#Mid	2310	-2.17	4.95	27.75	20.63	115.61	Horizontal	Pass
		2312.5	-1.85	5.02	27.72	20.85	121.62	Horizontal	Pass
		2315	-1.35	4.97	27.71	21.39	137.72	Horizontal	Pass
15.0MHz Band 16QAM	1/#Mid	2312.5	-1.88	4.75	27.76	21.13	129.72	Vertical	Pass

Radiated Power (EIRP) for Band 40 (2345-2360MHz)									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)		Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2347.5	-0.57	4.95	27.75	22.23	167.11	Horizontal	Pass
		2352.5	-0.67	5.02	27.72	22.03	159.59	Horizontal	Pass
		2357.5	-1.11	4.97	27.71	21.63	145.55	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2350	-1.25	4.95	27.75	21.55	142.89	Horizontal	Pass
		2352.5	-0.98	5.02	27.72	21.72	148.59	Horizontal	Pass
		2355	-1.10	4.97	27.71	21.64	145.88	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2352.5	-0.47	5	27.76	22.29	169.43	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2307.5	-1.10	4.95	27.75	21.70	147.91	Vertical	Pass
		2310	-1.75	5.02	27.72	20.95	124.45	Vertical	Pass
		2312.5	-2.06	4.97	27.71	20.68	116.95	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2350	-1.35	4.95	27.75	21.45	139.64	Vertical	Pass
		2352.5	-1.54	5.02	27.72	21.16	130.62	Vertical	Pass
		2355	-2.74	4.97	27.71	20.00	100.00	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2352.5	-1.45	4.75	27.76	21.56	143.22	Vertical	Pass

Radiated Power (EIRP) for Band 40 (2345-2360MHz)									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Antenna	Max.	Max.	Polarization Of Max. ERP	
			Level	Loss	Factor	EIRP	EIRP		
			(dBm)	(dBm)		(dB)	Average		
						(dBm)	(mW)		
5.0MHz	1/#Mid	2347.5	-0.77	4.95	27.75	22.03	159.59	Horizontal	Pass
Band 16		2352.5	-1.60	5.02	27.72	21.10	128.82	Horizontal	Pass
QAM		2357.5	-1.11	4.97	27.71	21.63	145.55	Horizontal	Pass
10.0MHz	1/#Mid	2350	-1.37	4.95	27.75	21.43	139.00	Horizontal	Pass
Band		2352.5	-1.94	5.02	27.72	20.76	119.12	Horizontal	Pass
16QAM		2355	-0.87	4.97	27.71	21.87	153.82	Horizontal	Pass
15.0MHz	1/#Mid	2352.5	-0.57	5	27.76	22.19	165.58	Horizontal	Pass
5.0MHz	1/#Mid	2307.5	-1.65	4.95	27.75	21.15	130.32	Vertical	Pass
Band 16		2310	-1.30	5.02	27.72	21.40	138.04	Vertical	Pass
QAM		2312.5	-1.73	4.97	27.71	21.01	126.18	Vertical	Pass
10.0MHz	1/#Mid	2350	-2.17	4.95	27.75	20.63	115.61	Horizontal	Pass
Band		2352.5	-1.85	5.02	27.72	20.85	121.62	Horizontal	Pass
16QAM		2355	-1.35	4.97	27.71	21.39	137.72	Horizontal	Pass
15.0MHz	1/#Mid	2352.5	-1.47	4.75	27.76	21.54	142.56	Vertical	Pass
Band 16QAM									

Note:

SG Level= Signal generator output

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

8.11 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			Level			Average	Average		
			(dBm)			(dBm)	(mW)		
5.0MHz	Band 1/#Mid QPSK	2557.5	-1.38	4.54	27.75	21.83	152.405	Horizontal	Pass
2605		-1.23	4.69	27.72	21.80	151.356	Horizontal	Pass	
2652.5		-1.11	4.71	27.71	21.89	154.525	Horizontal	Pass	
10.0MHz	Band 1/#Mid QPSK	2560	-1.46	4.55	27.76	21.75	149.624	Horizontal	Pass
2605		-1.32	4.69	27.72	21.71	148.252	Horizontal	Pass	
2650		-1.31	4.72	27.70	21.67	146.893	Horizontal	Pass	
15.0MHz	Band 1/#Mid QPSK	2562.5	-1.29	4.55	27.77	21.93	155.955	Horizontal	Pass
2605		-1.01	4.69	27.72	22.02	159.221	Horizontal	Pass	
2647.5		-1.06	4.72	27.69	21.91	155.239	Horizontal	Pass	
20.0MHz	Band 1/#Mid QPSK	2565	-0.90	4.57	27.78	22.31	170.216	Horizontal	Pass
2605		-0.95	4.73	27.72	22.04	159.956	Horizontal	Pass	
2645		-0.95	4.75	27.68	21.98	157.761	Horizontal	Pass	
5.0MHz	Band 1/#Mid QPSK	2557.5	-1.18	4.54	27.75	22.03	159.588	Vertical	Pass
2605		-1.09	4.69	27.72	21.94	156.315	Vertical	Pass	
2652.5		-1.07	4.71	27.71	21.93	155.955	Vertical	Pass	
10.0MHz	Band 1/#Mid QPSK	2560	-1.16	4.55	27.76	22.05	160.325	Vertical	Pass
2605		-1.00	4.69	27.72	22.03	159.588	Vertical	Pass	
2650		-1.07	4.72	27.70	21.91	155.239	Vertical	Pass	
15.0MHz	Band 1/#Mid QPSK	2562.5	-2.59	4.55	27.77	20.63	115.611	Vertical	Pass
2605		-2.08	4.69	27.72	20.95	124.451	Vertical	Pass	
2647.5		-1.74	4.72	27.69	21.23	132.739	Vertical	Pass	
20.0MHz	Band 1/#Mid QPSK	2565	-2.68	4.57	27.78	20.53	112.980	Vertical	Pass
2605		-2.65	4.73	27.72	20.34	108.143	Vertical	Pass	
2645		-2.60	4.75	27.68	20.33	107.895	Vertical	Pass	

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max.	Max.	Polarization Of Max. ERP	
						EIRP	EIRP		
						Average	Average		
			(dBm)			(dBm)	(mW)		
5.0MHz	1/#Mid	2557.5	-1.38	4.54	27.75	21.83	152.405	Horizontal	Pass
Band 16		2605	-1.23	4.69	27.72	21.80	151.356	Horizontal	Pass
QAM		2652.5	-1.11	4.71	27.71	21.89	154.525	Horizontal	Pass
10.0MHz	1/#Mid	2560	-1.46	4.55	27.76	21.75	149.624	Horizontal	Pass
Band 16		2605	-1.32	4.69	27.72	21.71	148.252	Horizontal	Pass
QAM		2650	-1.31	4.72	27.70	21.67	146.893	Horizontal	Pass
15.0MHz	1/#Mid	2562.5	-1.29	4.55	27.77	21.93	155.955	Horizontal	Pass
Band 16		2605	-1.01	4.69	27.72	22.02	159.221	Horizontal	Pass
QAM		2647.5	-1.06	4.72	27.69	21.91	155.239	Horizontal	Pass
20.0MHz	1/#Mid	2565	-1.01	4.57	27.78	22.20	165.959	Horizontal	Pass
Band 16		2605	-0.95	4.73	27.72	22.04	159.956	Horizontal	Pass
QAM		2645	-0.95	4.75	27.68	21.98	157.761	Horizontal	Pass
5.0MHz	1/#Mid	2557.5	-1.18	4.54	27.75	22.03	159.588	Vertical	Pass
Band 16		2605	-1.09	4.69	27.72	21.94	156.315	Vertical	Pass
QAM		2652.5	-1.07	4.71	27.71	21.93	155.955	Vertical	Pass
10.0MHz	1/#Mid	2560	-1.16	4.55	27.76	22.05	160.325	Vertical	Pass
Band 16		2605	-1.00	4.69	27.72	22.03	159.588	Vertical	Pass
QAM		2650	-1.07	4.72	27.70	21.91	155.239	Vertical	Pass
15.0MHz	1/#Mid	2562.5	-1.93	4.55	27.77	21.29	134.586	Vertical	Pass
Band 16		2605	-1.84	4.69	27.72	21.19	131.522	Vertical	Pass
QAM		2647.5	-2.47	4.72	27.69	20.50	112.202	Vertical	Pass
20.0MHz	1/#Mid	2565	-2.76	4.57	27.78	20.45	110.917	Vertical	Pass
Band 16		2605	-2.68	4.73	27.72	20.31	107.399	Vertical	Pass
QAM		2645	-2.13	4.75	27.68	20.80	120.226	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.12 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
				Loss					
				(dBm)					
1.4MHz Band QPSK	1/#Mid	1710.7 1745 1779.3	-3.09 -2.95 -2.82	3.76 3.91 3.93	28.24 28.22 28.2	21.39 21.36 21.45	137.721 136.773 139.637	Horizontal Horizontal Horizontal	Pass Pass Pass
3.0MHz Band QPSK	1/#Mid	1711.5 1745 1778.5	-3.15 -3.06 -3.08	3.77 3.91 3.94	28.23 28.24 28.25	21.31 21.27 21.23	135.207 133.968 132.739	Horizontal Horizontal Horizontal	Pass Pass Pass
5.0MHz Band QPSK	1/#Mid	1712.5 1745 1777.5	-3.05 -2.73 -2.79	3.77 3.91 3.94	28.31 28.22 28.2	21.49 21.58 21.47	140.929 143.880 140.281	Horizontal Horizontal Horizontal	Pass Pass Pass
10.0MHz Band QPSK	1/#Mid	1715 1745 1775	-2.94 -2.67 -2.68	3.79 3.95 3.97	28.33 28.22 28.19	21.60 21.60 21.54	144.544 144.544 142.561	Horizontal Horizontal Horizontal	Pass Pass Pass
15.0MHz Band QPSK	1/#Mid	1717.5 1745 1772.5	-2.96 -2.77 -2.72	3.79 3.95 3.97	28.34 28.22 28.18	21.59 21.50 21.49	144.212 141.254 140.929	Horizontal Horizontal Horizontal	Pass Pass Pass
20.0MHz Band QPSK	1/#Mid	1720 1745 1770	-2.93 -2.67 -2.69	3.81 3.96 4	28.35 28.22 28.16	21.59 21.59 21.47	144.877 144.212 140.281	Horizontal Horizontal Horizontal	Pass Pass Pass
1.4MHz Band QPSK	1/#Mid	1710.7 1745 1779.3	-3.78 -3.83 -3.45	3.76 3.91 3.93	28.24 28.22 28.2	20.70 20.48 20.82	117.490 111.686 120.781	Vertical Vertical Vertical	Pass Pass Pass
3.0MHz Band QPSK	1/#Mid	1711.5 1745 1778.5	-3.69 -3.80 -3.56	3.77 3.91 3.94	28.23 28.24 28.25	20.77 20.53 20.75	119.399 112.980 118.850	Vertical Vertical Vertical	Pass Pass Pass
5.0MHz Band QPSK	1/#Mid	1712.5 1745 1777.5	-3.69 -3.49 -4.02	3.77 3.91 3.94	28.31 28.22 28.2	20.85 20.82 20.24	121.619 120.781 105.682	Vertical Vertical Vertical	Pass Pass Pass
10.0MHz Band QPSK	1/#Mid	1715 1745 1775	-4.21 -3.63 -4.08	3.79 3.95 3.97	28.34 28.22 28.18	20.34 20.64 20.13	108.143 115.878 103.039	Vertical Vertical Vertical	Pass Pass Pass

15.0MHz	1/#Mid	1717.5	-3.87	3.81	28.35	20.67	116.681	Vertical	Pass
Band		1745	-4.06	3.96	28.22	20.20	104.713	Vertical	Pass
QPSK		1772.5	-4.18	4	28.16	19.98	99.541	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.89	3.79	28.34	20.66	116.413	Vertical	Pass
Band		1745	-3.50	3.95	28.22	20.77	119.399	Vertical	Pass
QPSK		1770	-4.05	3.97	28.18	20.16	103.753	Vertical	Pass

Radiated Power (EIRP) for Band 66										
Mode	RB/RB SIZE	Frequency	Result						Conclusion	
			SG Level (dBm)	Cable Loss	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP		
										(dBm)
										(mW)
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.92	3.76	28.24	20.56	113.763	Horizontal	Pass	
1745		-3.53	3.91	28.22	20.78	119.674	Horizontal	Pass		
1779.3		-3.71	3.93	28.2	20.56	113.763	Horizontal	Pass		
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.31	3.77	28.23	20.15	103.514	Horizontal	Pass	
1745		-3.56	3.91	28.24	20.77	119.399	Horizontal	Pass		
1778.5		-3.85	3.94	28.25	20.46	111.173	Horizontal	Pass		
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.73	3.77	28.31	20.81	120.504	Horizontal	Pass	
1745		-3.79	3.91	28.22	20.52	112.720	Horizontal	Pass		
1777.5		-3.46	3.94	28.2	20.80	120.226	Horizontal	Pass		
10.0MHz Band 16 QAM	1/#Mid	1715	-3.78	3.79	28.33	20.76	119.124	Horizontal	Pass	
1745		-3.44	3.95	28.22	20.83	121.060	Horizontal	Pass		
1775		-3.76	3.97	28.19	20.46	111.173	Horizontal	Pass		
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.77	3.79	28.34	20.78	119.674	Horizontal	Pass	
1745		-3.59	3.95	28.22	20.68	116.950	Horizontal	Pass		
1772.5		-3.38	3.97	28.18	20.83	121.060	Horizontal	Pass		
20.0MHz Band 16 QAM	1/#Mid	1720	-3.60	3.81	28.35	20.94	124.165	Horizontal	Pass	
1745		-3.38	3.96	28.22	20.88	122.462	Horizontal	Pass		
1770		-3.32	4	28.16	20.84	121.339	Horizontal	Pass		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.71	3.76	28.24	19.77	94.842	Vertical	Pass	
1745		-4.73	3.91	28.22	19.58	90.782	Vertical	Pass		
1779.3		-3.41	3.93	28.2	20.86	121.899	Vertical	Pass		
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.06	3.77	28.23	19.40	87.096	Vertical	Pass	
1745		-4.77	3.91	28.24	19.56	90.365	Vertical	Pass		
1778.5		-4.94	3.94	28.25	19.37	86.497	Vertical	Pass		
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.82	3.77	28.31	20.72	118.032	Vertical	Pass	
1745		-3.75	3.91	28.22	20.56	113.763	Vertical	Pass		
1777.5		-3.82	3.94	28.2	20.44	110.662	Vertical	Pass		
10.0MHz Band 16 QAM	1/#Mid	1715	-3.69	3.79	28.34	20.86	121.899	Vertical	Pass	
1745		-4.61	3.95	28.22	19.66	92.470	Vertical	Pass		
1775		-4.01	3.97	28.18	20.20	104.713	Vertical	Pass		
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.20	3.81	28.35	20.34	108.143	Vertical	Pass	
1745		-5.21	3.96	28.22	19.05	80.353	Vertical	Pass		
1772.5		-3.82	4	28.16	20.34	108.143	Vertical	Pass		

20.0MHz	1/#Mid	1720	-4.94	3.79	28.34	19.61	91.411	Vertical	Pass
Band 16		1745	-3.94	3.95	28.22	20.33	107.895	Vertical	Pass
QAM		1770	-3.41	3.97	28.18	20.80	120.226	Vertical	Pass

Note:

SG Level= Signal generator output

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

LIMIT

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

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P)$ [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 $43 + 10 \log_{10}(p)$, 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 13
- LTE Band 17
- LTE Band 38
- LTE Band 40
- LTE Band 41
- 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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-49.49	4.04	33.51	-20.02	-13	-7.02	Horizontal
3701.4	-51.28	4.04	33.51	-21.81	-13	-8.81	Vertical
5552.1	-47.26	5.24	35.84	-16.66	-13	-3.66	Vertical
5552.1	-50.18	5.24	35.84	-19.58	-13	-6.58	Horizontal
208.9	-41.08	1.43	16.02	-26.49	-13	-13.49	Vertical
249.3	-37.66	1.30	17.99	-20.97	-13	-7.97	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.48	4.04	33.56	-19.96	-13	-6.96	Horizontal
3760.0	-53.55	4.04	33.56	-24.03	-13	-11.03	Vertical
5640.0	-46.69	5.24	35.91	-16.02	-13	-3.02	Vertical
5640.0	-52.92	5.24	35.91	-22.25	-13	-9.25	Horizontal
178.1	-39.69	1.62	16.97	-24.34	-13	-11.34	Vertical
434.4	-41.72	1.74	15.98	-27.49	-13	-14.49	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-53.26	4.04	34.00	-23.30	-13	-10.30	Horizontal
3818.6	-47.33	4.04	34.00	-17.37	-13	-4.37	Vertical
5727.9	-48.32	5.24	36.04	-17.52	-13	-4.52	Vertical
5727.9	-53.58	5.24	36.04	-22.78	-13	-9.78	Horizontal
199.6	-37.43	1.42	17.29	-21.56	-13	-8.56	Vertical
456.1	-34.17	1.50	17.90	-17.76	-13	-4.76	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-48.08	4.07	33.54	-18.61	-13	-5.61	Horizontal
3720.0	-52.55	4.07	33.54	-23.08	-13	-10.08	Vertical
5580.0	-45.85	5.28	35.86	-15.27	-13	-2.27	Vertical
5580.0	-52.99	5.28	35.86	-22.41	-13	-9.41	Horizontal
208.6	-40.88	1.58	16.89	-25.56	-13	-12.56	Vertical
241.7	-44.80	1.76	17.26	-29.30	-13	-16.30	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.21	4.04	33.56	-19.69	-13	-6.69	Horizontal
3760.0	-52.13	4.04	33.56	-22.61	-13	-9.61	Vertical
5640.0	-44.67	5.24	35.91	-14.00	-13	-1.00	Vertical
5640.0	-49.69	5.24	35.91	-19.02	-13	-6.02	Horizontal
194.2	-38.33	1.46	16.27	-23.52	-13	-10.52	Vertical
461.0	-38.07	1.59	15.15	-24.51	-13	-11.51	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-50.64	4.04	34.00	-20.68	-13	-7.68	Horizontal
3800.0	-45.98	4.04	34.00	-16.02	-13	-3.02	Vertical
5700.0	-50.79	5.24	36.04	-19.99	-13	-6.99	Vertical
5700.0	-51.69	5.24	36.04	-20.89	-13	-7.89	Horizontal
208.8	-42.20	1.36	17.39	-26.16	-13	-13.16	Vertical
442.0	-40.82	1.66	15.39	-27.09	-13	-14.09	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-50.30	4.02	29.80	-24.52	-13	-11.52	Horizontal
3421.4	-52.30	4.02	29.80	-26.52	-13	-13.52	Vertical
5132.1	-51.31	5.24	35.84	-20.71	-13	-7.71	Vertical
5132.1	-50.59	5.24	35.84	-19.99	-13	-6.99	Horizontal
205.9	-38.23	1.68	16.04	-23.87	-13	-10.87	Vertical
242.6	-41.99	1.78	17.74	-26.03	-13	-13.03	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-44.94	4.03	30.00	-18.97	-13	-5.97	Horizontal
3465.0	-46.11	4.03	30.00	-20.14	-13	-7.14	Vertical
5197.5	-47.58	5.25	35.86	-16.97	-13	-3.97	Vertical
5197.5	-49.40	5.25	35.86	-18.79	-13	-5.79	Horizontal
209.8	-41.49	1.72	17.69	-25.52	-13	-12.52	Vertical
242.6	-42.24	1.62	16.02	-27.83	-13	-14.83	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-50.48	4.05	30.01	-24.52	-13	-11.52	Horizontal
3508.6	-46.97	4.05	30.01	-21.01	-13	-8.01	Vertical
5262.9	-44.87	5.26	35.86	-14.27	-13	-1.27	Vertical
5262.9	-49.00	5.26	35.86	-18.40	-13	-5.40	Horizontal
189.7	-41.94	1.80	16.69	-27.05	-13	-14.05	Vertical
364.1	-34.70	1.75	16.66	-19.80	-13	-6.80	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-48.64	4.02	29.80	-22.86	-13	-9.86	Horizontal
3440.0	-49.82	4.02	29.80	-24.04	-13	-11.04	Vertical
5160.0	-53.04	5.24	35.84	-22.44	-13	-9.44	Vertical
5160.0	-53.19	5.24	35.84	-22.59	-13	-9.59	Horizontal
203.5	-40.81	1.57	17.26	-25.12	-13	-12.12	Vertical
364.7	-39.90	1.78	16.35	-25.33	-13	-12.33	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-49.19	4.03	30.00	-23.22	-13	-10.22	Horizontal
3465.0	-48.46	4.03	30.00	-22.49	-13	-9.49	Vertical
5197.5	-53.45	5.25	35.86	-22.84	-13	-9.84	Vertical
5197.5	-51.47	5.25	35.86	-20.86	-13	-7.86	Horizontal
188.5	-39.26	1.44	17.95	-22.75	-13	-9.75	Vertical
308.8	-40.70	1.65	16.09	-26.26	-13	-13.26	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-53.02	2.91	27.68	-28.25	-13	-15.25	Horizontal
3490.0	-45.95	2.91	27.68	-21.18	-13	-8.18	Vertical
5235.0	-44.99	5.26	35.86	-14.39	-13	-1.39	Vertical
5235.0	-52.44	5.26	35.86	-21.84	-13	-8.84	Horizontal
195.3	-39.59	1.61	16.85	-24.35	-13	-11.35	Vertical
466.2	-36.05	1.61	15.19	-22.47	-13	-9.47	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-49.71	2.78	27.50	-24.99	-13	-11.99	Horizontal
1649.4	-48.29	2.78	27.50	-23.57	-13	-10.57	Vertical
2474.1	-50.77	2.90	27.80	-25.87	-13	-12.87	Vertical
2474.1	-53.70	2.90	27.80	-28.80	-13	-15.80	Horizontal
194.1	-43.97	1.76	17.59	-28.14	-13	-15.14	Vertical
279.3	-37.99	1.63	15.87	-23.75	-13	-10.75	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-45.36	2.80	27.48	-20.68	-13	-7.68	Horizontal
1673.0	-47.37	2.80	27.48	-22.69	-13	-9.69	Vertical
2509.5	-44.83	2.91	27.70	-20.04	-13	-7.04	Vertical
2509.5	-51.96	2.91	27.70	-27.17	-13	-14.17	Horizontal
197.5	-42.45	1.61	15.68	-28.38	-13	-15.38	Vertical
454.6	-42.14	1.59	17.52	-26.22	-13	-13.22	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-44.15	2.82	27.43	-19.54	-13	-6.54	Horizontal
1696.6	-52.71	2.82	27.43	-28.10	-13	-15.10	Vertical
2544.9	-48.81	2.92	27.74	-23.99	-13	-10.99	Vertical
2544.9	-53.24	2.92	27.74	-28.42	-13	-15.42	Horizontal
187.6	-39.20	1.69	16.67	-24.21	-13	-11.21	Vertical
240.4	-36.50	1.70	17.18	-21.02	-13	-8.02	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-52.58	2.78	27.50	-27.86	-13	-14.86	Horizontal
1658.0	-45.39	2.78	27.50	-20.67	-13	-7.67	Vertical
2487.0	-45.27	2.90	27.80	-20.37	-13	-7.37	Vertical
2487.0	-53.43	2.90	27.80	-28.53	-13	-15.53	Horizontal
185.4	-35.81	1.71	15.57	-21.95	-13	-8.95	Vertical
370.6	-37.91	1.34	16.40	-22.85	-13	-9.85	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-47.86	2.80	27.48	-23.18	-13	-10.18	Horizontal
1673.0	-52.42	2.80	27.48	-27.74	-13	-14.74	Vertical
2509.5	-50.49	2.91	27.70	-25.70	-13	-12.70	Vertical
2509.5	-49.37	2.91	27.70	-24.58	-13	-11.58	Horizontal
207.0	-38.54	1.44	17.04	-22.94	-13	-9.94	Vertical
464.4	-43.06	1.76	17.62	-27.20	-13	-14.20	Horizontal
Test Results for High Channel 844MHz							
1688.0	-47.59	2.82	27.43	-22.98	-13	-9.98	Horizontal
1688.0	-50.41	2.82	27.43	-25.80	-13	-12.80	Vertical
2532.0	-51.10	2.92	27.74	-26.28	-13	-13.28	Vertical
2532.0	-53.51	2.92	27.74	-28.69	-13	-15.69	Horizontal
206.1	-43.75	1.74	17.70	-27.79	-13	-14.79	Vertical
353.0	-42.52	1.41	17.46	-26.46	-13	-13.46	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.4 LTE BAND 7

QPSK EIRP POWER FOR LTE BAND 7 (5.0MHZ BANDWIDTH)

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-59.30	5.23	35.81	-28.72	-25	-3.72	Horizontal
5005.0	-63.80	5.23	35.81	-33.22	-25	-8.22	Vertical
7507.5	-62.95	5.67	36.85	-31.77	-25	-6.77	Vertical
7507.5	-60.71	5.67	36.85	-29.53	-25	-4.53	Horizontal
186.3	-47.10	1.73	17.97	-30.86	-25	-5.86	Vertical
239.8	-48.97	1.38	15.11	-35.24	-25	-10.24	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.89	5.23	35.82	-31.30	-25	-6.30	Horizontal
5070.0	-59.25	5.23	35.82	-28.66	-25	-3.66	Vertical
7605.0	-63.96	5.67	36.85	-32.78	-25	-7.78	Vertical
7605.0	-61.91	5.67	36.85	-30.73	-25	-5.73	Horizontal
197.4	-54.05	1.77	16.17	-39.64	-25	-14.64	Vertical
354.7	-44.70	1.63	15.21	-31.12	-25	-6.12	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.89	5.24	35.83	-31.30	-25	-6.30	Horizontal
5135.0	-62.66	5.24	35.83	-32.07	-25	-7.07	Vertical
7702.5	-63.68	5.68	36.87	-32.49	-25	-7.49	Vertical
7702.5	-61.26	5.68	36.87	-30.07	-25	-5.07	Horizontal
187.6	-45.58	1.58	17.56	-29.60	-25	-4.60	Vertical
335.0	-47.98	1.45	16.58	-32.85	-25	-7.85	Horizontal

QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-59.70	5.23	35.82	-29.11	-25	-4.11	Horizontal
5020.0	-62.44	5.23	35.82	-31.85	-25	-6.85	Vertical
7530.0	-59.21	5.67	36.86	-28.02	-25	-3.02	Vertical
7530.0	-61.53	5.67	36.86	-30.34	-25	-5.34	Horizontal
183.2	-53.79	1.63	15.76	-39.66	-25	-14.66	Vertical
330.5	-54.91	1.71	15.44	-41.18	-25	-16.18	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-64.64	5.23	35.82	-34.05	-25	-9.05	Horizontal
5070.0	-62.69	5.23	35.82	-32.10	-25	-7.10	Vertical
7605.0	-62.14	5.67	36.85	-30.96	-25	-5.96	Vertical
7605.0	-63.12	5.67	36.85	-31.94	-25	-6.94	Horizontal
195.8	-49.67	1.79	16.84	-34.61	-25	-9.61	Vertical
417.5	-52.80	1.71	17.64	-36.87	-25	-11.87	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-59.91	5.24	35.83	-29.32	-25	-4.32	Horizontal
5120.0	-60.34	5.24	35.83	-29.75	-25	-4.75	Vertical
7680.0	-61.57	5.70	36.88	-30.39	-25	-5.39	Vertical
7680.0	-63.90	5.70	36.88	-32.72	-25	-7.72	Horizontal
195.5	-46.43	1.79	16.84	-31.37	-25	-6.37	Vertical
459.2	-46.50	1.71	17.64	-30.57	-25	-5.57	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-52.59	2.60	27.20	-27.99	-13	-14.99	Horizontal
1399.4	-49.86	2.60	27.20	-25.26	-13	-12.26	Vertical
2099.1	-51.23	2.85	27.54	-26.54	-13	-13.54	Vertical
2099.1	-50.11	2.85	27.54	-25.42	-13	-12.42	Horizontal
189.0	-42.23	1.49	17.78	-25.94	-13	-12.94	Vertical
446.8	-39.60	1.36	17.33	-23.63	-13	-10.63	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-47.53	2.61	27.28	-22.86	-13	-9.86	Horizontal
1415.0	-48.53	2.61	27.28	-23.86	-13	-10.86	Vertical
2122.5	-45.53	2.87	27.59	-20.81	-13	-7.81	Vertical
2122.5	-53.09	2.87	27.59	-28.37	-13	-15.37	Horizontal
183.3	-38.41	1.73	15.74	-24.40	-13	-11.40	Vertical
454.2	-37.07	1.62	15.79	-22.90	-13	-9.90	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-47.47	2.63	27.28	-22.82	-13	-9.82	Horizontal
1430.6	-44.75	2.63	27.28	-20.10	-13	-7.10	Vertical
2145.9	-44.09	2.88	27.60	-19.37	-13	-6.37	Vertical
2145.9	-49.90	2.88	27.60	-25.18	-13	-12.18	Horizontal
198.9	-44.96	1.61	18.00	-28.57	-13	-15.57	Vertical
334.8	-42.91	1.45	15.49	-28.88	-13	-15.88	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-46.94	2.61	27.26	-22.29	-13	-9.29	Horizontal
1408.0	-49.83	2.61	27.26	-25.18	-13	-12.18	Vertical
2112.0	-44.06	2.87	27.58	-19.35	-13	-6.35	Vertical
2112.0	-52.90	2.87	27.58	-28.19	-13	-15.19	Horizontal
184.2	-41.09	1.31	16.97	-25.43	-13	-12.43	Vertical
329.4	-35.90	1.65	16.70	-20.85	-13	-7.85	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-53.15	2.61	27.28	-28.48	-13	-15.48	Horizontal
1415.0	-50.51	2.61	27.28	-25.84	-13	-12.84	Vertical
2122.5	-44.23	2.87	27.59	-19.51	-13	-6.51	Vertical
2122.5	-50.45	2.87	27.59	-25.73	-13	-12.73	Horizontal
199.8	-39.94	1.72	17.99	-23.67	-13	-10.67	Vertical
381.2	-34.75	1.73	17.94	-18.54	-13	-5.54	Horizontal
Test Results for High Channel 711MHz							
1422.0	-50.06	2.62	27.28	-25.40	-13	-12.40	Horizontal
1422.0	-48.37	2.62	27.28	-23.71	-13	-10.71	Vertical
2133.0	-51.79	2.87	27.60	-27.06	-13	-14.06	Vertical
2133.0	-49.79	2.87	27.60	-25.06	-13	-12.06	Horizontal
180.3	-44.42	1.58	15.93	-30.07	-13	-17.07	Vertical
415.4	-39.67	1.36	15.59	-25.44	-13	-12.44	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.6 LTE BAND 13

QPSK EIRP POWER FOR LTE BAND 13 (5MHZ BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-71.04	2.61	27.28	-46.37	-40	-6.37	Horizontal
1559.0	-69.06	2.61	27.28	-44.39	-40	-4.39	Vertical
2338.5	-43.80	2.87	27.59	-19.08	-13	-6.08	Vertical
2338.5	-39.81	2.87	27.59	-15.09	-13	-2.09	Horizontal
120.1	-38.19	1.54	15.61	-24.12	-13	-11.12	Vertical
197.8	-38.53	1.51	15.21	-24.83	-13	-11.83	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-74.84	2.62	27.30	-50.16	-40	-10.16	Horizontal
1564.0	-69.42	2.62	27.30	-44.74	-40	-4.74	Vertical
2346.0	-40.52	2.87	27.62	-15.77	-13	-2.77	Vertical
2346.0	-41.25	2.87	27.62	-16.50	-13	-3.50	Horizontal
131.2	-35.26	1.65	16.17	-20.74	-13	-7.74	Vertical
267.5	-38.18	1.48	16.88	-22.78	-13	-9.78	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-70.87	2.66	27.28	-46.25	-40	-6.25	Horizontal
1569.0	-70.28	2.66	27.28	-45.66	-40	-5.66	Vertical
2353.5	-43.57	2.88	27.60	-18.85	-13	-5.85	Vertical
2353.5	-40.90	2.88	27.60	-16.18	-13	-3.18	Horizontal
80.8	-36.30	1.54	16.40	-21.44	-13	-8.44	Vertical
155.6	-37.29	1.43	15.77	-22.95	-13	-9.95	Horizontal

QPSK EIRP POWER FOR LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-70.56	2.62	27.30	-45.88	-40	-5.88	Horizontal
1564.0	-72.04	2.62	27.30	-47.36	-40	-7.36	Vertical
2346.0	-39.80	2.87	27.62	-15.05	-13	-2.05	Vertical
2346.0	-43.67	2.87	27.62	-18.92	-13	-5.92	Horizontal
129.1	-38.94	1.43	17.03	-23.34	-13	-10.34	Vertical
86.9	-38.67	1.62	16.63	-23.66	-13	-10.66	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.

9.7 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-50.70	2.61	27.28	-26.03	-13	-13.03	Horizontal
1413.0	-49.80	2.61	27.28	-25.13	-13	-12.13	Vertical
2119.5	-48.77	2.87	27.59	-24.05	-13	-11.05	Vertical
2119.5	-52.24	2.87	27.59	-27.52	-13	-14.52	Horizontal
183.7	-38.52	1.71	16.15	-24.08	-13	-11.08	Vertical
368.6	-40.68	1.41	17.32	-24.77	-13	-11.77	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-49.18	2.62	27.30	-24.50	-13	-11.50	Horizontal
1420.0	-44.57	2.62	27.30	-19.89	-13	-6.89	Vertical
2130.0	-48.68	2.87	27.62	-23.93	-13	-10.93	Vertical
2130.0	-53.07	2.87	27.62	-28.32	-13	-15.32	Horizontal
205.7	-37.25	1.42	15.25	-23.43	-13	-10.43	Vertical
310.5	-41.47	1.36	17.19	-25.64	-13	-12.64	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-44.24	2.66	27.28	-19.62	-13	-6.62	Horizontal
1427.0	-48.82	2.66	27.28	-24.20	-13	-11.20	Vertical
2140.5	-49.79	2.88	27.60	-25.07	-13	-12.07	Vertical
2140.5	-53.54	2.88	27.60	-28.82	-13	-15.82	Horizontal
183.2	-37.34	1.32	17.29	-21.37	-13	-8.37	Vertical
295.3	-40.14	1.72	16.89	-24.97	-13	-11.97	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-53.35	2.62	27.30	-28.67	-13	-15.67	Horizontal
1418.0	-47.33	2.62	27.30	-22.65	-13	-9.65	Vertical
2127.0	-45.87	2.87	27.62	-21.12	-13	-8.12	Vertical
2127.0	-49.73	2.87	27.62	-24.98	-13	-11.98	Horizontal
209.7	-36.14	1.35	16.91	-20.58	-13	-7.58	Vertical
271.3	-44.11	1.62	16.31	-29.42	-13	-16.42	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-49.10	2.62	27.30	-24.42	-13	-11.42	Horizontal
1420.0	-51.04	2.62	27.30	-26.36	-13	-13.36	Vertical
2130.0	-53.73	2.87	27.62	-28.98	-13	-15.98	Vertical
2130.0	-52.92	2.87	27.62	-28.17	-13	-15.17	Horizontal
183.5	-39.59	1.51	17.14	-23.96	-13	-10.96	Vertical
385.5	-37.83	1.77	16.88	-22.72	-13	-9.72	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.70	2.62	27.30	-23.02	-13	-10.02	Horizontal
1422.0	-45.14	2.62	27.30	-20.46	-13	-7.46	Vertical
2133.0	-49.96	2.87	27.62	-25.21	-13	-12.21	Vertical
2133.0	-52.84	2.87	27.62	-28.09	-13	-15.09	Horizontal
186.7	-36.79	1.78	15.95	-22.62	-13	-9.62	Vertical
309.9	-42.70	1.34	17.95	-26.10	-13	-13.10	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.8 LTE BAND 38

QPSK EIRP POWER FOR LTE BAND 38 (5MHZ BANDWIDTH)

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145	-54.89	4.01	27.5	-31.40	-13	-18.40	Horizontal
5145	-54.06	4.01	27.5	-30.57	-13	-17.57	Vertical
7717.5	-53.78	5.09	27.8	-31.07	-13	-18.07	Vertical
7717.5	-49.56	5.09	27.8	-26.85	-13	-13.85	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-53.49	4.1	27.48	-30.11	-13	-17.11	Horizontal
5190	-54.08	4.1	27.48	-30.70	-13	-17.70	Vertical
7785	-52.64	5.42	27.7	-30.36	-13	-17.36	Vertical
7785	-51.73	5.42	27.7	-29.45	-13	-16.45	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-54.50	4.11	27.43	-31.18	-13	-18.18	Horizontal
5234	-53.88	4.11	27.43	-30.56	-13	-17.56	Vertical
7851	-51.74	5.31	27.74	-29.31	-13	-16.31	Vertical
7851	-53.96	5.31	27.74	-31.53	-13	-18.53	Horizontal

QPSK EIRP POWER FOR LTE BAND 38 (20MHZ BANDWIDTH)

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-54.52	3.89	27.5	-30.91	-13	-17.91	Horizontal
5160	-51.18	3.89	27.5	-27.57	-13	-14.57	Vertical
7740	-49.11	5.33	27.8	-26.64	-13	-13.64	Vertical
7740	-54.96	5.33	27.8	-32.49	-13	-19.49	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-52.25	4.1	27.48	-28.87	-13	-15.87	Horizontal
5190	-53.40	4.1	27.48	-30.02	-13	-17.02	Vertical
7785	-50.89	5.42	27.7	-28.61	-13	-15.61	Vertical
7785	-49.90	5.42	27.7	-27.62	-13	-14.62	Horizontal
Test Results for High Channel 2610MHz							
5220	-49.74	4.01	27.43	-26.32	-13	-13.32	Horizontal
5220	-54.13	4.01	27.43	-30.71	-13	-17.71	Vertical
7830	-52.47	5.34	27.74	-30.07	-13	-17.07	Vertical
7830	-50.73	5.34	27.74	-28.33	-13	-15.33	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.9 LTE BAND 40

QPSK EIRP POWER FOR LTE BAND 40 (2305-2315MHz) (5.0MHZ BANDWIDTH)

Test Results for Low Channel 2307.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4615	-84.20	4.04	33.51	-54.73	-40	-14.73	Horizontal
4615	-84.62	4.04	33.51	-55.15	-40	-15.15	Vertical
6922.5	-82.14	5.24	35.84	-51.54	-40	-11.54	Vertical
6922.5	-84.78	5.24	35.84	-54.18	-40	-14.18	Horizontal
Test Results for Mid Channel 2312.5MHz							
4625	-82.29	4.04	33.56	-52.77	-40	-12.77	Horizontal
4625	-83.59	4.04	33.56	-54.07	-40	-14.07	Vertical
6937.5	-84.39	5.24	35.91	-53.72	-40	-13.72	Vertical
6937.5	-79.41	5.24	35.91	-48.74	-40	-8.74	Horizontal
Test Results for High Channel 2317.5MHz							
4635	-80.79	4.04	34	-50.83	-40	-10.83	Horizontal
4635	-80.79	4.04	34	-50.83	-40	-10.83	Vertical
6952.5	-80.95	5.24	36.04	-50.15	-40	-10.15	Vertical
6952.5	-82.12	5.24	36.04	-51.32	-40	-11.32	Horizontal

QPSK EIRP POWER FOR LTE BAND 40 (2305-2315MHz) (10.0MHZ BANDWIDTH)

Test Results for Low Channel 2310MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4620	-83.52	4.07	33.54	-54.05	-40	-14.05	Horizontal
4620	-83.05	4.07	33.54	-53.58	-40	-13.58	Vertical
6930	-79.41	5.28	35.86	-48.83	-40	-8.83	Vertical
6930	-82.57	5.28	35.86	-51.99	-40	-11.99	Horizontal
Test Results for Mid Channel 2312.5MHz							
4625	-81.16	4.04	33.56	-51.64	-40	-11.64	Horizontal
4625	-84.52	4.04	33.56	-55.00	-40	-15.00	Vertical
6937.5	-82.19	5.24	35.91	-51.52	-40	-11.52	Vertical
6937.5	-83.82	5.24	35.91	-53.15	-40	-13.15	Horizontal
Test Results for High Channel 2315MHz							
4630	-81.07	4.04	34	-51.11	-40	-11.11	Horizontal
4630	-83.17	4.04	34	-53.21	-40	-13.21	Vertical
6945	-79.58	5.24	36.04	-48.78	-40	-8.78	Vertical
6945	-84.39	5.24	36.04	-53.59	-40	-13.59	Horizontal

QPSK EIRP POWER FOR LTE BAND 40 (2350-2360MHz) (5.0MHZ BANDWIDTH)

Test Results for Low Channel 2347.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4695	-81.76	4.04	33.51	-52.29	-40	-12.29	Horizontal
4695	-82.71	4.04	33.51	-53.24	-40	-13.24	Vertical
7042.5	-82.93	5.24	35.84	-52.33	-40	-12.33	Vertical
7042.5	-80.89	5.24	35.84	-50.29	-40	-10.29	Horizontal
Test Results for Mid Channel 2352.5MHz							
4705	-81.42	4.04	33.56	-51.90	-40	-11.90	Horizontal
4705	-79.44	4.04	33.56	-49.92	-40	-9.92	Vertical
7057.5	-82.80	5.24	35.91	-52.13	-40	-12.13	Vertical
7057.5	-80.09	5.24	35.91	-49.42	-40	-9.42	Horizontal
Test Results for High Channel 2357.5MHz							
4715	-80.40	4.04	34	-50.44	-40	-10.44	Horizontal
4715	-82.99	4.04	34	-53.03	-40	-13.03	Vertical
7072.5	-79.49	5.24	36.04	-48.69	-40	-8.69	Vertical
7072.5	-79.44	5.24	36.04	-48.64	-40	-8.64	Horizontal

QPSK EIRP POWER FOR LTE BAND 40(2350-2360MHz) (10.0MHZ BANDWIDTH)

Test Results for Low Channel 2350MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4700	-83.56	4.07	33.54	-54.09	-40	-14.09	Horizontal
4700	-79.37	4.07	33.54	-49.90	-40	-9.90	Vertical
7050	-83.36	5.28	35.86	-52.78	-40	-12.78	Vertical
7050	-83.00	5.28	35.86	-52.42	-40	-12.42	Horizontal
Test Results for Mid Channel 2352.5MHz							
4705	-80.85	4.04	33.56	-51.33	-40	-11.33	Horizontal
4705	-79.81	4.04	33.56	-50.29	-40	-10.29	Vertical
7057.5	-84.40	5.24	35.91	-53.73	-40	-13.73	Vertical
7057.5	-84.43	5.24	35.91	-53.76	-40	-13.76	Horizontal
Test Results for High Channel 2355MHz							
4710	-79.67	4.04	34	-49.71	-40	-9.71	Horizontal
4710	-80.41	4.04	34	-50.45	-40	-10.45	Vertical
7065	-84.58	5.24	36.04	-53.78	-40	-13.78	Vertical
7065	-84.22	5.24	36.04	-53.42	-40	-13.42	Horizontal

9.10 LTE BAND 41

LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2557.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5115.0	-60.66	5.23	35.81	-30.08	-25	-5.08	Horizontal
5115.0	-61.27	5.23	35.81	-30.69	-25	-5.69	Vertical
7772.5	-59.34	5.67	36.85	-28.16	-25	-3.16	Vertical
7772.5	-61.56	5.67	36.85	-30.38	-25	-5.38	Horizontal
435.3	-48.38	1.38	15.98	-33.78	-25	-8.78	Vertical
465.8	-49.31	1.62	15.66	-35.27	-25	-10.27	Horizontal
Test Results for Mid Channel 2605MHz							
5210.0	-59.48	5.23	35.82	-28.89	-25	-3.89	Horizontal
5210.0	-60.67	5.23	35.82	-30.08	-25	-5.08	Vertical
7815.0	-64.29	5.67	36.85	-33.11	-25	-8.11	Vertical
7815.0	-60.03	5.67	36.85	-28.85	-25	-3.85	Horizontal
510.4	-49.06	1.62	16.17	-34.51	-25	-9.51	Vertical
562.9	-44.32	1.74	17.63	-28.43	-25	-3.43	Horizontal
Test Results for High Channel 2652.5MHz							
5305.0	-63.30	5.24	35.83	-32.71	-25	-7.71	Horizontal
5305.0	-64.07	5.24	35.83	-33.48	-25	-8.48	Vertical
7957.5	-62.39	5.68	36.87	-31.20	-25	-6.20	Vertical
7957.5	-60.75	5.68	36.87	-29.56	-25	-4.56	Horizontal
197.6	-44.64	1.55	15.84	-30.35	-25	-5.35	Vertical
353.1	-45.20	1.51	17.06	-29.65	-25	-4.65	Horizontal

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

Test Results for Low Channel 2565MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5130.0	-60.78	5.23	35.82	-30.19	-25	-5.19	Horizontal
5130.0	-63.97	5.23	35.82	-33.38	-25	-8.38	Vertical
7695.0	-62.69	5.67	36.86	-31.50	-25	-6.50	Vertical
7695.0	-60.60	5.67	36.86	-29.41	-25	-4.41	Horizontal
128.9	-46.94	1.43	15.51	-32.86	-25	-7.86	Vertical
344.8	-45.42	1.40	16.97	-29.85	-25	-4.85	Horizontal
Test Results for Mid Channel 2605MHz							
5210.0	-59.12	5.23	35.82	-28.53	-25	-3.53	Horizontal
5210.0	-60.01	5.23	35.82	-29.42	-25	-4.42	Vertical
7815.0	-64.97	5.67	36.85	-33.79	-25	-8.79	Vertical
7815.0	-63.97	5.67	36.85	-32.79	-25	-7.79	Horizontal
100.8	-49.02	1.77	16.72	-34.07	-25	-9.07	Vertical
263.5	-49.16	1.31	16.99	-33.48	-25	-8.48	Horizontal
Test Results for High Channel 2645MHz							
5290.0	-63.39	5.24	35.83	-32.80	-25	-7.80	Horizontal
5290.0	-61.16	5.24	35.83	-30.57	-25	-5.57	Vertical
7935.0	-60.26	5.70	36.88	-29.08	-25	-4.08	Vertical
7935.0	-61.81	5.70	36.88	-30.63	-25	-5.63	Horizontal
349.9	-45.16	1.70	15.73	-31.13	-25	-6.13	Vertical
110.3	-46.44	1.75	17.33	-30.86	-25	-5.86	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.11 LTE BAND 66

QPSK EIRP POWER FOR LTE BAND 66 (5MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-49.04	4.02	29.80	-23.26	-13	-10.26	Horizontal
3421.4	-44.09	4.02	29.80	-18.31	-13	-5.31	Vertical
5132.1	-49.19	5.24	35.84	-18.59	-13	-5.59	Vertical
5132.1	-49.67	5.24	35.84	-19.07	-13	-6.07	Horizontal
112.6	-47.98	1.52	15.57	-33.93	-13	-20.93	Vertical
220.5	-53.19	1.33	17.14	-37.38	-13	-24.38	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-47.55	4.03	30.00	-21.58	-13	-8.58	Horizontal
3490.0	-48.82	4.03	30.00	-22.85	-13	-9.85	Vertical
5235.0	-52.63	5.25	35.86	-22.02	-13	-9.02	Vertical
5235.0	-53.09	5.25	35.86	-22.48	-13	-9.48	Horizontal
157.3	-54.45	1.53	17.13	-38.85	-13	-25.85	Vertical
213.1	-49.24	1.41	15.95	-34.70	-13	-21.70	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-44.09	4.05	30.01	-18.13	-13	-5.13	Horizontal
3558.6	-51.90	4.05	30.01	-25.94	-13	-12.94	Vertical
5337.9	-52.91	5.26	35.86	-22.31	-13	-9.31	Vertical
5337.9	-53.84	5.26	35.86	-23.24	-13	-10.24	Horizontal
170.6	-50.60	1.44	15.51	-36.53	-13	-23.53	Vertical
169.0	-48.10	1.78	15.76	-34.12	-13	-21.12	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (10MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-52.67	4.02	29.80	-26.89	-13	-13.89	Horizontal
3440.0	-46.82	4.02	29.80	-21.04	-13	-8.04	Vertical
5160.0	-52.71	5.24	35.84	-22.11	-13	-9.11	Vertical
5160.0	-50.95	5.24	35.84	-20.35	-13	-7.35	Horizontal
268.8	-54.70	1.62	17.02	-39.30	-13	-26.30	Vertical
161.4	-52.86	1.32	17.31	-36.87	-13	-23.87	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-49.99	4.03	30.00	-24.02	-13	-11.02	Horizontal
3490.0	-46.01	4.03	30.00	-20.04	-13	-7.04	Vertical
5235.0	-53.71	5.25	35.86	-23.10	-13	-10.10	Vertical
5235.0	-50.56	5.25	35.86	-19.95	-13	-6.95	Horizontal
159.9	-47.56	1.45	15.17	-33.84	-13	-20.84	Vertical
172.1	-51.82	1.48	17.82	-35.48	-13	-22.48	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-48.67	2.91	27.68	-23.90	-13	-10.90	Horizontal
3540.0	-51.68	2.91	27.68	-26.91	-13	-13.91	Vertical
5310.0	-54.60	5.26	35.86	-24.00	-13	-11.00	Vertical
5310.0	-48.11	5.26	35.86	-17.51	-13	-4.51	Horizontal
197.3	-45.48	1.76	16.38	-30.86	-13	-17.86	Vertical
158.5	-54.82	1.43	17.13	-39.12	-13	-26.12	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC10.8V, Normal, DC 12V and High voltage, DC 13.2V.

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 13
- LTE Band 17
- LTE Band 38
- LTE Band 40
- LTE Band 41
- 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]
10.8	1880	12.7	0.006734	2.5
12	1880	13.5	0.007165	2.5
13.2	1880	13.6	0.007233	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.2	0.007010	2.5
Extreme (50C)	1880	11.9	0.006313	2.5
Extreme (40C)	1880	14.2	0.007550	2.5
Extreme (30C)	1880	13.8	0.007354	2.5
Extreme (10C)	1880	13.7	0.007267	2.5
Extreme (0C)	1880	11.6	0.006185	2.5
Extreme (-10C)	1880	13.5	0.007158	2.5
Extreme (-20C)	1880	13.9	0.007404	2.5
Extreme (-30C)	1880	15.0	0.007956	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]
10.8	1880	9.4	0.004981	2.5
12	1880	8.9	0.004708	2.5
13.2	1880	8.5	0.004519	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.5	0.005048	2.5
Extreme (50C)	1880	9.0	0.004809	2.5
Extreme (40C)	1880	7.7	0.004105	2.5
Extreme (30C)	1880	8.8	0.004676	2.5
Extreme (10C)	1880	8.6	0.004561	2.5
Extreme (0C)	1880	8.5	0.004517	2.5
Extreme (-10C)	1880	8.7	0.004627	2.5
Extreme (-20C)	1880	9.1	0.004829	2.5
Extreme (-30C)	1880	8.6	0.004554	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]
10.8	1732.5	8.8	0.005101	2.5
12	1732.5	9.0	0.005167	2.5
13.2	1732.5	8.7	0.005023	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.3	0.004792	2.5
Extreme (50C)	1732.5	8.5	0.004882	2.5
Extreme (40C)	1732.5	7.6	0.004403	2.5
Extreme (30C)	1732.5	6.3	0.003642	2.5
Extreme (10C)	1732.5	6.8	0.003939	2.5
Extreme (0C)	1732.5	9.9	0.005695	2.5
Extreme (-10C)	1732.5	8.1	0.004669	2.5
Extreme (-20C)	1732.5	6.9	0.003980	2.5
Extreme (-30C)	1732.5	8.0	0.004602	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]
10.8	1732.5	10.0	0.005790	2.5
12	1732.5	9.0	0.005176	2.5
13.2	1732.5	7.9	0.004565	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.3	0.005357	2.5
Extreme (50C)	1732.5	9.2	0.005318	2.5
Extreme (40C)	1732.5	8.1	0.004670	2.5
Extreme (30C)	1732.5	8.8	0.005052	2.5
Extreme (10C)	1732.5	8.6	0.004975	2.5
Extreme (0C)	1732.5	8.3	0.004790	2.5
Extreme (-10C)	1732.5	8.8	0.005055	2.5
Extreme (-20C)	1732.5	8.7	0.005045	2.5
Extreme (-30C)	1732.5	8.1	0.004684	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]
10.8	836.5	5.9	0.007103	2.5
12	836.5	6.2	0.007458	2.5
13.2	836.5	5.0	0.005977	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007389	2.5
Extreme (50C)	836.5	5.4	0.006501	2.5
Extreme (40C)	836.5	6.4	0.007655	2.5
Extreme (30C)	836.5	6.2	0.007371	2.5
Extreme (10C)	836.5	5.0	0.005980	2.5
Extreme (0C)	836.5	4.9	0.005829	2.5
Extreme (-10C)	836.5	5.8	0.006923	2.5
Extreme (-20C)	836.5	6.0	0.007135	2.5
Extreme (-30C)	836.5	6.3	0.007560	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]
10.8	836.5	5.6	0.006674	2.5
12	836.5	6.8	0.008130	2.5
13.2	836.5	4.4	0.005284	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	6.0	0.007220	2.5
Extreme (40C)	836.5	6.1	0.007275	2.5
Extreme (30C)	836.5	6.8	0.008077	2.5
Extreme (10C)	836.5	5.1	0.006104	2.5
Extreme (0C)	836.5	4.9	0.005848	2.5
Extreme (-10C)	836.5	5.6	0.006667	2.5
Extreme (-20C)	836.5	6.5	0.007762	2.5
Extreme (-30C)	836.5	6.0	0.007167	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]
10.8	2535	10.1	0.003988	2.5
12	2535	9.1	0.003583	2.5
13.2	2535	8.7	0.003438	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.6	0.003800	2.5
Extreme (50C)	2535	8.9	0.003514	2.5
Extreme (40C)	2535	8.1	0.003189	2.5
Extreme (30C)	2535	9.1	0.003573	2.5
Extreme (10C)	2535	8.5	0.003349	2.5
Extreme (0C)	2535	8.2	0.003235	2.5
Extreme (-10C)	2535	9.1	0.003585	2.5
Extreme (-20C)	2535	9.2	0.003612	2.5
Extreme (-30C)	2535	8.7	0.003435	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]
10.8	2535	6.9	0.002722	2.5
12	2535	6.0	0.002353	2.5
13.2	2535	5.8	0.002286	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	5.9	0.002334	2.5
Extreme (40C)	2535	4.9	0.001951	2.5
Extreme (30C)	2535	6.8	0.002691	2.5
Extreme (10C)	2535	5.2	0.002054	2.5
Extreme (0C)	2535	5.4	0.002128	2.5
Extreme (-10C)	2535	5.6	0.002194	2.5
Extreme (-20C)	2535	5.5	0.002151	2.5
Extreme (-30C)	2535	5.8	0.002289	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]
10.8	707.5	8.5	0.012068	2.5
12	707.5	10.4	0.014726	2.5
13.2	707.5	8.7	0.012338	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.9	0.012531	2.5
Extreme (50C)	707.5	7.7	0.010948	2.5
Extreme (40C)	707.5	7.4	0.010441	2.5
Extreme (30C)	707.5	8.2	0.011534	2.5
Extreme (10C)	707.5	7.2	0.010127	2.5
Extreme (0C)	707.5	8.7	0.012336	2.5
Extreme (-10C)	707.5	8.0	0.011269	2.5
Extreme (-20C)	707.5	9.3	0.013083	2.5
Extreme (-30C)	707.5	8.3	0.011722	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]
10.8	707.5	6.9	0.009783	2.5
12	707.5	7.9	0.011123	2.5
13.2	707.5	7.4	0.010491	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 13

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	782	13.2	0.018558	2.5
12	782	13.4	0.018858	2.5
13.2	782	13.7	0.019289	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	14.0	0.019772	2.5
Extreme (50C)	782	13.7	0.019272	2.5
Extreme (40C)	782	14.7	0.020679	2.5
Extreme (30C)	782	13.9	0.019555	2.5
Extreme (10C)	782	13.7	0.019366	2.5
Extreme (0C)	782	14.6	0.020556	2.5
Extreme (-10C)	782	13.8	0.019484	2.5
Extreme (-20C)	782	13.9	0.019604	2.5
Extreme (-30C)	782	13.8	0.019453	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 16QAM, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	782	13.1	0.018483	2.5
12	782	13.8	0.019408	2.5
13.2	782	13.0	0.018334	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	12.5	0.017543	2.5
Extreme (50C)	782	11.9	0.016720	2.5
Extreme (40C)	782	13.4	0.018891	2.5
Extreme (30C)	782	13.6	0.019167	2.5
Extreme (10C)	782	13.8	0.019468	2.5
Extreme (0C)	782	12.4	0.017464	2.5
Extreme (-10C)	782	13.3	0.018773	2.5
Extreme (-20C)	782	14.6	0.020521	2.5
Extreme (-30C)	782	14.8	0.020782	2.5

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

10.7 LTE BAND 17

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
10.8	710	9.8	0.013858	2.5
12	710	8.5	0.011903	2.5
13.2	710	8.1	0.011448	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	9.6	0.013526	2.5
Extreme (50C)	710	8.5	0.011919	2.5
Extreme (40C)	710	7.7	0.010803	2.5
Extreme (30C)	710	8.9	0.012605	2.5
Extreme (10C)	710	9.0	0.012644	2.5
Extreme (0C)	710	8.0	0.011308	2.5
Extreme (-10C)	710	8.9	0.012590	2.5
Extreme (-20C)	710	9.3	0.013094	2.5
Extreme (-30C)	710	7.9	0.011170	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]
10.8	710	10.5	0.014738	2.5
12	710	9.2	0.013024	2.5
13.2	710	8.8	0.012337	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	9.3	0.013160	2.5
Extreme (50C)	710	8.6	0.012098	2.5
Extreme (40C)	710	8.8	0.012407	2.5
Extreme (30C)	710	9.0	0.012738	2.5
Extreme (10C)	710	7.6	0.010740	2.5
Extreme (0C)	710	8.6	0.012149	2.5
Extreme (-10C)	710	9.4	0.013192	2.5
Extreme (-20C)	710	9.0	0.012710	2.5
Extreme (-30C)	710	8.3	0.011678	2.5

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

10.8 LTE BAND 38

Band 38 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]
10.8	2595	8.5	0.00326	2.5
12	2595	6.4	0.00248	2.5
13.2	2595	7.5	0.00291	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.1	0.00273	2.5
Extreme (50C)	2595	4.5	0.00172	2.5
Extreme (40C)	2595	5.6	0.00217	2.5
Extreme (30C)	2595	4.7	0.00182	2.5
Extreme (10C)	2595	6.9	0.00266	2.5
Extreme (0C)	2595	4.3	0.00167	2.5
Extreme (-10C)	2595	9.1	0.00350	2.5
Extreme (-20C)	2595	11.0	0.00423	2.5
Extreme (-30C)	2595	5.9	0.00226	2.5

Band 38 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]
10.8	2595	8.1	0.00313	2.5
12	2595	6.0	0.00233	2.5
13.2	2595	6.3	0.00244	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.2	0.00278	2.5
Extreme (50C)	2595	5.1	0.00196	2.5
Extreme (40C)	2595	5.8	0.00222	2.5
Extreme (30C)	2595	4.9	0.00188	2.5
Extreme (10C)	2595	6.2	0.00239	2.5
Extreme (0C)	2595	5.0	0.00194	2.5
Extreme (-10C)	2595	9.9	0.00380	2.5
Extreme (-20C)	2595	11.0	0.00424	2.5
Extreme (-30C)	2595	6.6	0.00256	2.5

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

10.9 LTE BAND 40

(2305-2320MHz)QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage	Frequency	Frequency*	Frequency	Limit
[Vdc]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 QPSK, (CH 38775 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	2312.5	12.8	0.00553	2.5
12	2312.5	14.0	0.00607	2.5
13.2	2312.5	12.9	0.00559	2.5

Frequency error vs. Voltage

Temperature	Frequency	Frequency*	Frequency	Limit
[°C]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 QPSK, (CH 38775 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	2312.5	7.2	0.00313	2.5
Extreme (50C)	2312.5	5.1	0.00220	2.5
Extreme (40C)	2312.5	5.0	0.00214	2.5
Extreme (30C)	2312.5	4.5	0.00195	2.5
Extreme (10C)	2312.5	6.4	0.00278	2.5
Extreme (0C)	2312.5	5.2	0.00223	2.5
Extreme (-10C)	2312.5	9.8	0.00425	2.5
Extreme (-20C)	2312.5	10.7	0.00462	2.5
Extreme (-30C)	2312.5	6.2	0.00266	2.5

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

(2305-2320MHz)16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage	Frequency	Frequency*	Frequency	Limit
[Vdc]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 16QAM, (CH 38775 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	2312.5	12.7	0.00551	2.5
12	2312.5	13.6	0.00587	2.5
13.2	2312.5	13.2	0.00570	2.5

Frequency error vs. Temperature

Temperature	Frequency	Frequency*	Frequency	Limit
[°C]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 16QAM, (CH 38775 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	2312.5	7.6	0.00328	2.5
Extreme (50C)	2312.5	5.0	0.00217	2.5
Extreme (40C)	2312.5	5.4	0.00234	2.5
Extreme (30C)	2312.5	4.6	0.00200	2.5
Extreme (10C)	2312.5	6.2	0.00270	2.5
Extreme (0C)	2312.5	4.6	0.00197	2.5
Extreme (-10C)	2312.5	9.1	0.00394	2.5
Extreme (-20C)	2312.5	11.3	0.00488	2.5
Extreme (-30C)	2312.5	5.9	0.00256	2.5

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

(2345-2360MHz)QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage	Frequency	Frequency*	Frequency	Limit
[Vdc]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 QPSK, (CH 39175 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	2352.5	12.9	0.00550	2.5
12	2352.5	14.0	0.00597	2.5
13.2	2352.5	13.7	0.00582	2.5

Frequency error vs. Temperature

Temperature	Frequency	Frequency*	Frequency	Limit
[°C]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 QPSK, (CH 39175 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	2352.5	7.9	0.00336	2.5
Extreme (50C)	2352.5	4.8	0.00202	2.5
Extreme (40C)	2352.5	4.9	0.00209	2.5
Extreme (30C)	2352.5	4.7	0.00199	2.5
Extreme (10C)	2352.5	6.2	0.00261	2.5
Extreme (0C)	2352.5	4.6	0.00196	2.5
Extreme (-10C)	2352.5	9.6	0.00408	2.5
Extreme (-20C)	2352.5	10.5	0.00447	2.5
Extreme (-30C)	2352.5	6.5	0.00276	2.5

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

(2345-2360MHz)16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage	Frequency	Frequency*	Frequency	Limit
[Vdc]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 16QAM, (CH 39175 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	2352.5	13.2	0.00559	2.5
12	2352.5	13.7	0.00580	2.5
13.2	2352.5	13.5	0.00573	2.5

Frequency error vs. Temperature

Temperature	Frequency	Frequency*	Frequency	Limit
[°C]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 16QAM, (CH 39175 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	2352.5	7.9	0.00336	2.5
Extreme (50C)	2352.5	4.5	0.00190	2.5
Extreme (40C)	2352.5	5.0	0.00213	2.5
Extreme (30C)	2352.5	4.9	0.00210	2.5
Extreme (10C)	2352.5	6.7	0.00286	2.5
Extreme (0C)	2352.5	4.8	0.00204	2.5
Extreme (-10C)	2352.5	9.4	0.00400	2.5
Extreme (-20C)	2352.5	10.8	0.00460	2.5
Extreme (-30C)	2352.5	6.7	0.00283	2.5

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

10.10 LTE BAND 41

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40740 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
10.8	2605	8.8	0.00339	2.5
12	2605	6.5	0.00251	2.5
13.2	2605	7.0	0.00272	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40740 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2605	7.5	0.00289	2.5
Extreme (50C)	2605	5.0	0.00192	2.5
Extreme (40C)	2605	5.3	0.00203	2.5
Extreme (30C)	2605	4.4	0.00170	2.5
Extreme (10C)	2605	6.1	0.00237	2.5
Extreme (0C)	2605	4.7	0.00183	2.5
Extreme (-10C)	2605	9.5	0.00366	2.5
Extreme (-20C)	2605	11.2	0.00434	2.5
Extreme (-30C)	2605	5.8	0.00225	2.5

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

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40740 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
10.8	2605	8.4	0.00325	2.5
12	2605	6.4	0.00246	2.5
13.2	2605	6.7	0.00257	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40740 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2605	7.1	0.00273	2.5
Extreme (50C)	2605	5.1	0.00199	2.5
Extreme (40C)	2605	5.9	0.00226	2.5
Extreme (30C)	2605	5.0	0.00194	2.5
Extreme (10C)	2605	6.0	0.00232	2.5
Extreme (0C)	2605	4.7	0.00181	2.5
Extreme (-10C)	2605	9.7	0.00372	2.5
Extreme (-20C)	2605	10.5	0.00405	2.5
Extreme (-30C)	2605	5.7	0.00220	2.5

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

10.11 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]
10.8	1745	12.2	0.00700	2.5
12	1745	13.8	0.00789	2.5
13.2	1745	13.1	0.00753	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.3	0.00421	2.5
Extreme (50C)	1745	4.7	0.00271	2.5
Extreme (40C)	1745	5.4	0.00308	2.5
Extreme (30C)	1745	4.4	0.00251	2.5
Extreme (10C)	1745	6.6	0.00380	2.5
Extreme (0C)	1745	5.0	0.00284	2.5
Extreme (-10C)	1745	9.7	0.00554	2.5
Extreme (-20C)	1745	10.5	0.00602	2.5
Extreme (-30C)	1745	6.4	0.00369	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]
10.8	1745	13.0	0.00745	2.5
12	1745	14.2	0.00816	2.5
13.2	1745	13.2	0.00755	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.1	0.00405	2.5
Extreme (50C)	1745	5.1	0.00290	2.5
Extreme (40C)	1745	5.6	0.00323	2.5
Extreme (30C)	1745	4.9	0.00281	2.5
Extreme (10C)	1745	6.8	0.00388	2.5
Extreme (0C)	1745	4.6	0.00264	2.5
Extreme (-10C)	1745	9.8	0.00561	2.5
Extreme (-20C)	1745	11.1	0.00637	2.5
Extreme (-30C)	1745	6.3	0.00364	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.

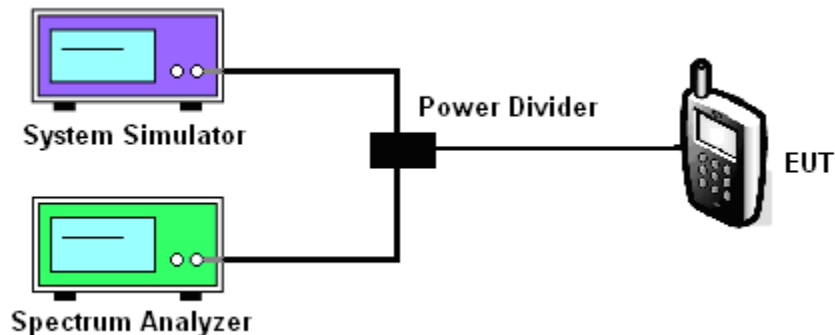
11.2 Measuring Instruments

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 2/4/5/7/12/13/17/38/40/41/66
- ☐

12. Duty Cycle

12.1 LIMITS

The duty cycle must not exceed 38 percent

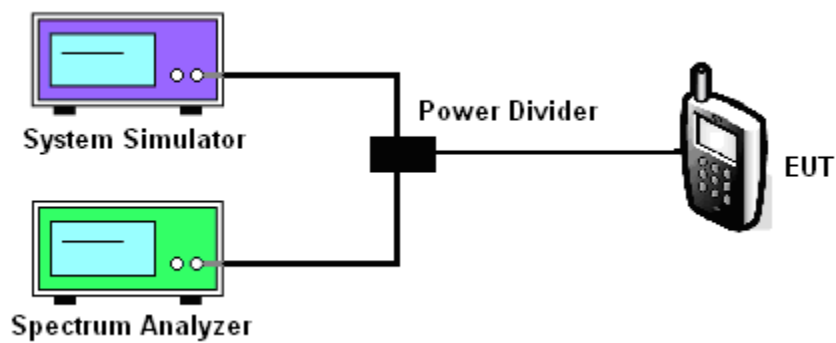
12.2 Measuring Instruments

See list of measuring instruments of this test report.

12.3 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.

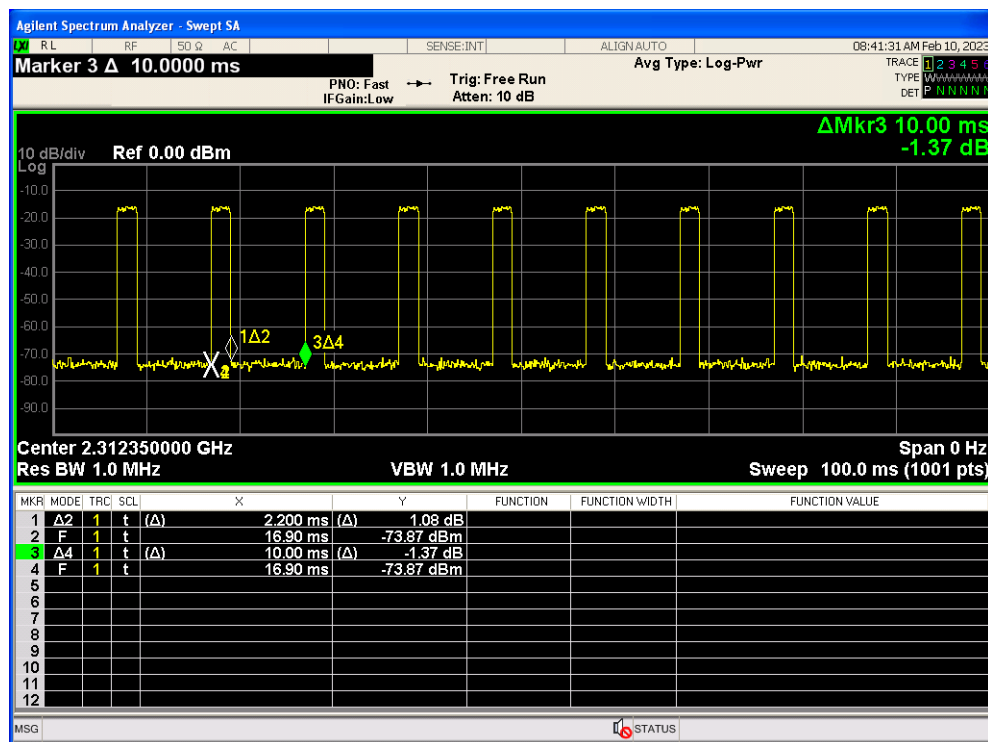
12.4 Test Setup



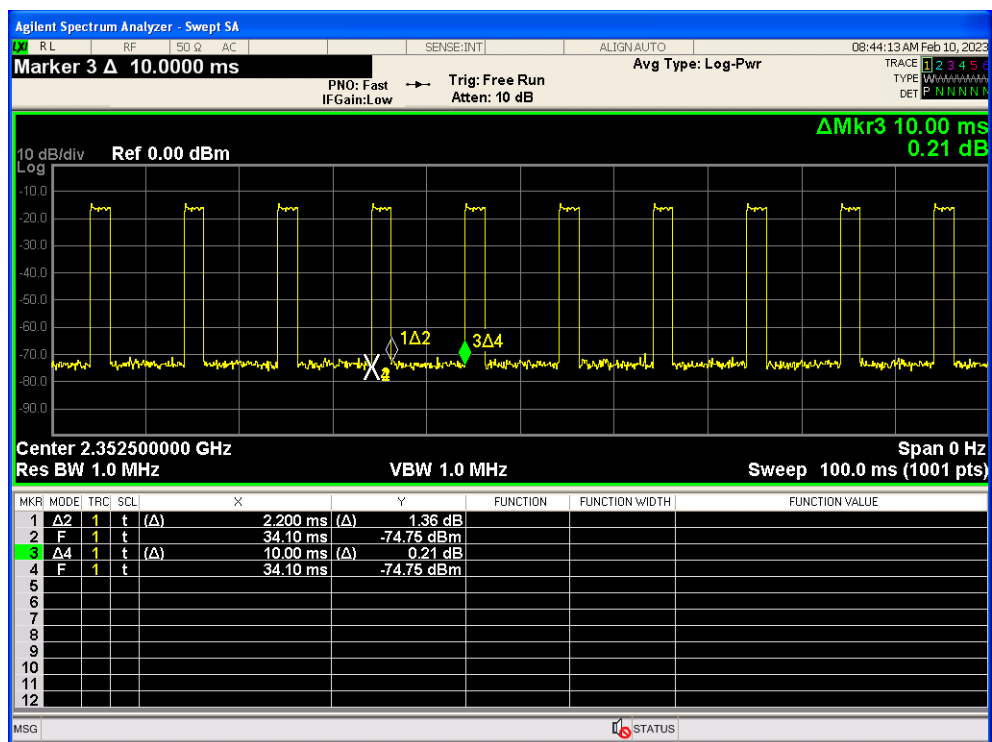
MODES TESTED

- ☐ LTE Band 40

RESULTS



$T_{on}=2.2ms$ $T_{total}=10ms$
 Duty cycle= $T_{on}/T_{total}=2.2ms/10ms=22\%$



$$T_{on} = 2.2\text{ms} \quad T_{total} = 10\text{ms}$$

$$\text{Duty cycle} = T_{on}/T_{total} = 2.2\text{ms}/10\text{ms} = 22\%$$

Test data reference attachment.

----END OF REPORT----