

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

FCC ID: 2A954-C600C

Product: 4G LTE Broadband Router

Trade Mark: FIRSTNUM, Stoneoim

Model Number: C600C

Family Model: JC25, C600, FIRSTNUM C2,
FIRSTNUM C6, FIRSTNUM C8,
FIRSTNUM C800, FIRSTNUM C1000,
FIRSTNUM C1200, FIRSTNUM C1800,
FIRSTNUM C2400, FIRSTNUM C3000,
FIRSTNUM C6000, FIRSTNUM C6600

Report No.: STR230103001004E

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 LTE Broadband Router
Model and/or type reference ..	C600C
Family Model:	JC25, C600, FIRSTNUM C2, FIRSTNUM C6,FIRSTNUM C8, FIRSTNUM C800, FIRSTNUM C1000,FIRSTNUM C1200,FIRSTNUM C1800, FIRSTNUM C2400,FIRSTNUM C3000,FIRSTNUM C6000,FIRSTNUM C6600
Standards	FCC CFR 47 Part 22H, Part 24E, Part 27
Test procedure	ANSI C63.26:2015 ANSI/TIA-603-E-2016
Test sample number	T230103001R003

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 03, 2023 ~ Feb 09, 2023
Date of Issue	Feb 10, 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 LTE Broadband Router
Trade Mark	FIRSTNUM, Stoneoim
Model Name	C600C
Family Model	JC25, C600, FIRSTNUM C2, FIRSTNUM C6, FIRSTNUM C8, FIRSTNUM C800, FIRSTNUM C1000, FIRSTNUM C1200, FIRSTNUM C1800, FIRSTNUM C2400, FIRSTNUM C3000, FIRSTNUM C6000, FIRSTNUM C6600
Model Difference	All models are the same circuit and RF module, except the model name.
FCC ID:	2A954-C600C
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 13, 17, 38, 40, 41, 66, 71
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: 2535MHz -2654.8MHz, (Number Of Channel see note 3) LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz; LTE FDD Band 71 Uplink: 663MHz-698MHz, Downlink: 617MHz-652MHz;
Type of Modulation:	QPSK/16QAM
Power Class	Class 3
Antenna:	PIFA Antenna

Antenna gain:	B2: 0.74dBi; B4:0.45dBi; B5: -1.01dBi; B7: 3.15dBi; B12: -1.2dBi; B13: -0.72dBi;B17: -1.2dBi; B38:3.36dBi;B40: 3.51dBi; B41: 3.34dBi; Band 66: 0.71dBi, Band 71: -1.2dBi
Adapter	Model: HJ-1201000 Input: 100-240V~50/60Hz 0.6A Output: 12.0V---1.0A 12.0W
Battery	DC 7.4V, 2000mAh
Power supply	DC 12V from Adapter or DC 7.4V from battery.
Extreme Vol. Limits:	DC 10.8V to DC 13.2V (Nominal DC 12V) (Note 1)
HW Version	OTX72_MB_V3.0
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 2305-2320MHz

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	40065	2537.5
	10	40090	2540
	15	40115	2542.5

	20	40140	2545
Mid Range	5/10/15/20	40640	2595
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-C600C** 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, Band 71.

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

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

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

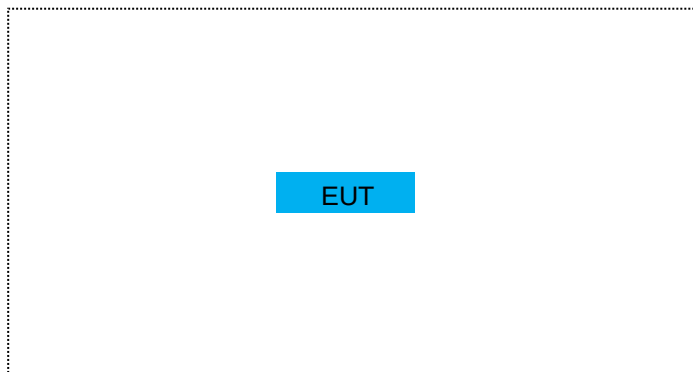
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	4G LTE Broadband Router	C600C	FCC ID: 2A954-C600C	EUT

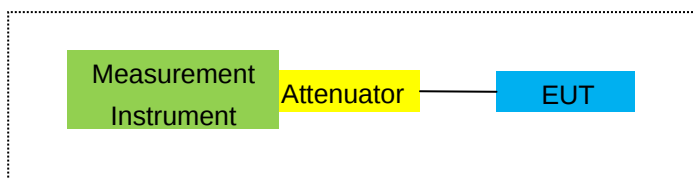
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

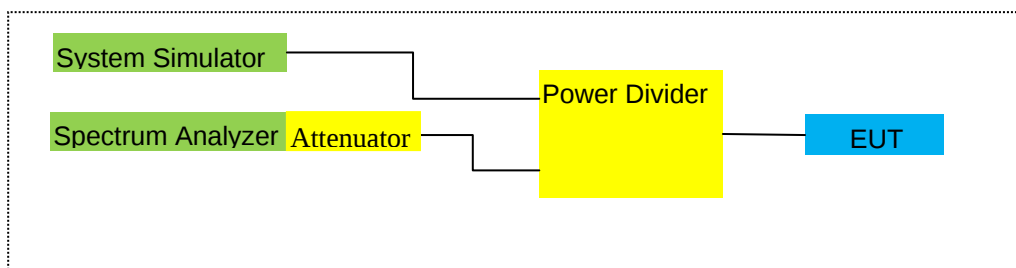
For Radiated Test Cases



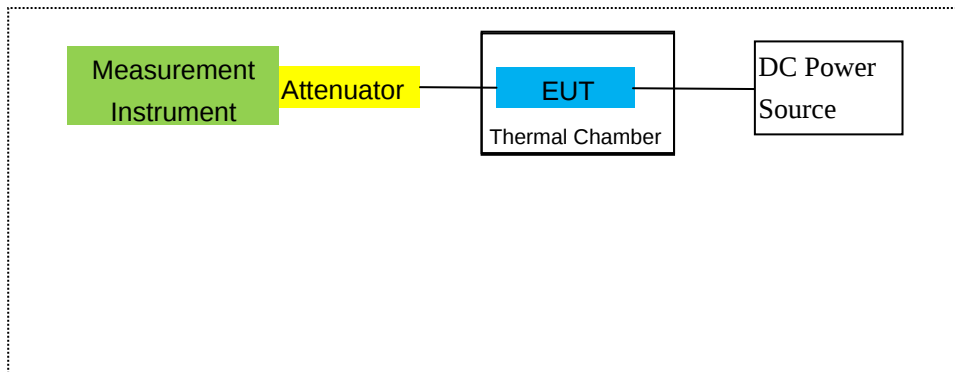
For Conducted Output Power



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



For Frequency Stability



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

3.TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2022.04.06	2023.04.05	1 year
2	Test Receiver	R&S	ESPI	101318	2022.04.06	2023.04.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2023.03.30	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	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
- LTE Band 71

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §2.1046, §22.913, §24.232

LIMITS

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P[\text{Watts}])$, where P is the transmitter power in Watts.

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

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

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

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

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

Set a marker to point the corresponding band edge frequency in each test case.

Set display line

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

MODES TESTED

- ☐ LTE Band2/4/5/7/12/13/17/38/40/41/66/71

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
- LTE Band 71

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

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
- LTE Band 71

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-2.58	3.76	28.24	21.90	154.882	Horizontal	Pass
		1880	-2.39	3.91	28.22	21.92	155.597	Horizontal	Pass
		1909.3	-2.30	3.93	28.20	21.97	157.398	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.64	3.77	28.23	21.82	152.055	Horizontal	Pass
		1880	-2.49	3.91	28.24	21.84	152.757	Horizontal	Pass
		1908.5	-2.36	3.94	28.25	21.95	156.675	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.53	3.77	28.31	22.01	158.855	Horizontal	Pass
		1880	-2.15	3.91	28.22	22.16	164.437	Horizontal	Pass
		1907.5	-2.08	3.94	28.20	22.18	165.196	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.39	3.79	28.33	22.15	164.059	Horizontal	Pass
		1880	-2.09	3.95	28.22	22.18	165.196	Horizontal	Pass
		1905	-1.98	3.97	28.19	22.24	167.494	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.35	3.79	28.34	22.20	165.959	Horizontal	Pass
		1880	-2.14	3.95	28.22	22.13	163.305	Horizontal	Pass
		1902.5	-2.00	3.97	28.18	22.21	166.341	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.34	3.81	28.35	22.20	165.959	Horizontal	Pass
		1880	-2.01	3.96	28.22	22.25	167.880	Horizontal	Pass
		1900	-1.95	4.00	28.16	22.21	166.341	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.76	3.76	28.24	20.72	118.032	Vertical	Pass
		1880	-2.96	3.91	28.22	21.35	136.458	Vertical	Pass
		1909.3	-3.15	3.93	28.20	21.12	129.420	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.94	3.77	28.23	21.52	141.906	Vertical	Pass
		1880	-3.53	3.91	28.24	20.80	120.226	Vertical	Pass
		1908.5	-3.57	3.94	28.25	20.74	118.577	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.04	3.77	28.31	21.50	141.254	Vertical	Pass
		1880	-3.09	3.91	28.22	21.22	132.434	Vertical	Pass
		1907.5	-3.09	3.94	28.20	21.17	130.918	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.67	3.79	28.33	20.87	122.180	Vertical	Pass
		1880	-3.30	3.95	28.22	20.97	125.026	Vertical	Pass
		1905	-3.05	3.97	28.19	21.17	130.918	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-3.70	3.79	28.34	20.85	121.619	Vertical	Pass

Band		1880	-2.67	3.95	28.22	21.60	144.544	Vertical	Pass
QPSK		1902.5	-3.58	3.97	28.18	20.63	115.611	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.60	3.81	28.35	20.94	124.165	Vertical	Pass
Band		1880	-3.49	3.96	28.22	20.77	119.399	Vertical	Pass
QPSK		1900	-3.13	4.00	28.16	21.03	126.765	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	
1.4MHz	1/#Mid	1850.7	-3.70	3.76	28.24	20.78	119.674	Horizontal	Pass
Band 16		1880	-3.17	3.91	28.22	21.14	130.017	Horizontal	Pass
QAM		1909.3	-3.10	3.93	28.20	21.17	130.918	Horizontal	Pass
3.0MHz	1/#Mid	1851.5	-3.20	3.77	28.23	21.26	133.660	Horizontal	Pass
Band 16		1880	-3.28	3.91	28.24	21.05	127.350	Horizontal	Pass
QAM		1908.5	-3.49	3.94	28.25	20.82	120.781	Horizontal	Pass
5.0MHz	1/#Mid	1852.5	-3.14	3.77	28.31	21.40	138.038	Horizontal	Pass
Band 16		1880	-3.05	3.91	28.22	21.26	133.660	Horizontal	Pass
QAM		1907.5	-2.73	3.94	28.20	21.53	142.233	Horizontal	Pass
10.0MHz	1/#Mid	1855	-3.19	3.79	28.33	21.35	136.458	Horizontal	Pass
Band 16		1880	-3.18	3.95	28.22	21.09	128.529	Horizontal	Pass
QAM		1905	-2.65	3.97	28.19	21.57	143.549	Horizontal	Pass
15.0MHz	1/#Mid	1857.5	-3.17	3.79	28.34	21.38	137.404	Horizontal	Pass
Band 16		1880	-2.96	3.95	28.22	21.31	135.207	Horizontal	Pass
QAM		1902.5	-2.92	3.97	28.18	21.29	134.586	Horizontal	Pass
20.0MHz	1/#Mid	1860	-3.06	3.81	28.35	21.48	140.605	Horizontal	Pass
Band 16		1880	-2.76	3.96	28.22	21.50	141.254	Horizontal	Pass
QAM		1900	-2.58	4.00	28.16	21.58	143.880	Horizontal	Pass
1.4MHz	1/#Mid	1850.7	-4.02	3.76	28.24	20.46	111.173	Vertical	Pass
Band 16		1880	-4.57	3.91	28.22	19.74	94.189	Vertical	Pass
QAM		1909.3	-4.11	3.93	28.20	20.16	103.753	Vertical	Pass
3.0MHz	1/#Mid	1851.5	-4.38	3.77	28.23	20.08	101.859	Vertical	Pass
Band 16		1880	-4.60	3.91	28.24	19.73	93.972	Vertical	Pass
QAM		1908.5	-3.84	3.94	28.25	20.47	111.429	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-4.92	3.77	28.31	19.62	91.622	Vertical	Pass
Band 16		1880	-4.30	3.91	28.22	20.01	100.231	Vertical	Pass
QAM		1907.5	-3.67	3.94	28.20	20.59	114.551	Vertical	Pass
10.0MHz	1/#Mid	1855	-4.19	3.79	28.33	20.35	108.393	Vertical	Pass
Band 16		1880	-4.24	3.95	28.22	20.03	100.693	Vertical	Pass
QAM		1905	-3.98	3.97	28.19	20.24	105.682	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-4.55	3.79	28.34	20.00	100.000	Vertical	Pass
Band 16		1880	-3.75	3.95	28.22	20.52	112.720	Vertical	Pass
QAM		1902.5	-3.91	3.97	28.18	20.30	107.152	Vertical	Pass

20.0MHz		1860	-4.42	3.81	28.35	20.12	102.802	Vertical	Pass
Band 16	1/#Mid	1880	-4.10	3.96	28.22	20.16	103.753	Vertical	Pass
QAM		1900	-4.24	4.00	28.16	19.92	98.175	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	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	Factor	Average	Average	Of Max. ERP	
					(dB)	(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.49	3.12	27.58	21.97	157.398	Horizontal	Pass
		1732.5	-2.48	3.27	27.61	21.86	153.462	Horizontal	Pass
		1754.3	-2.46	3.29	27.63	21.88	154.170	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.66	3.13	27.61	21.82	152.055	Horizontal	Pass
		1732.5	-2.58	3.27	27.61	21.76	149.968	Horizontal	Pass
		1753.5	-2.50	3.30	27.62	21.82	152.055	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.43	3.13	27.63	22.07	161.065	Horizontal	Pass
		1732.5	-2.33	3.27	27.61	22.01	158.855	Horizontal	Pass
		1752.5	-2.21	3.30	27.60	22.09	161.808	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.37	3.15	27.64	22.12	162.930	Horizontal	Pass
		1732.5	-2.14	3.31	27.61	22.16	164.437	Horizontal	Pass
		1750	-2.16	3.33	27.59	22.10	162.181	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.38	3.15	27.65	22.12	162.930	Horizontal	Pass
		1732.5	-2.22	3.31	27.61	22.08	161.436	Horizontal	Pass
		1747.5	-2.16	3.33	27.57	22.08	161.436	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.32	3.17	27.66	22.17	164.816	Horizontal	Pass
		1732.5	-2.15	3.32	27.61	22.14	163.682	Horizontal	Pass
		1745	-2.09	3.36	27.56	22.11	162.555	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.79	3.12	27.58	20.67	116.681	Vertical	Pass
		1732.5	-2.98	3.27	27.61	21.36	136.773	Vertical	Pass
		1754.3	-3.20	3.29	27.63	21.14	130.017	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.33	3.13	27.61	21.15	130.317	Vertical	Pass
		1732.5	-3.17	3.27	27.61	21.17	130.918	Vertical	Pass
		1753.5	-2.90	3.30	27.62	21.42	138.676	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.63	3.13	27.63	20.87	122.180	Vertical	Pass
		1732.5	-2.82	3.27	27.61	21.52	141.906	Vertical	Pass
		1752.5	-3.68	3.30	27.60	20.62	115.345	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.33	3.15	27.64	21.16	130.617	Vertical	Pass
		1732.5	-2.84	3.31	27.61	21.46	139.959	Vertical	Pass
		1750	-3.12	3.33	27.59	21.14	130.017	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.35	3.15	27.65	21.15	130.317	Vertical	Pass

Band		1732.5	-2.90	3.31	27.61	21.40	138.038	Vertical	Pass
QPSK		1747.5	-2.68	3.33	27.57	21.56	143.219	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.73	3.17	27.66	20.76	119.124	Vertical	Pass
Band		1732.5	-3.59	3.32	27.61	20.70	117.490	Vertical	Pass
QPSK		1745	-3.38	3.36	27.56	20.82	120.781	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 Loss	Antenna	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	Factor	Average	Average	Of Max. ERP	
					(dB)	(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.30	3.12	27.58	21.16	130.617	Horizontal	Pass
		1732.5	-3.15	3.27	27.61	21.19	131.522	Horizontal	Pass
		1754.3	-3.15	3.29	27.63	21.19	131.522	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.24	3.13	27.61	21.24	133.045	Horizontal	Pass
		1732.5	-3.37	3.27	27.61	20.97	125.026	Horizontal	Pass
		1753.5	-3.59	3.30	27.62	20.73	118.304	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.07	3.13	27.63	21.43	138.995	Horizontal	Pass
		1732.5	-3.03	3.27	27.61	21.31	135.207	Horizontal	Pass
		1752.5	-2.72	3.30	27.60	21.58	143.880	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.14	3.15	27.64	21.35	136.458	Horizontal	Pass
		1732.5	-3.33	3.31	27.61	20.97	125.026	Horizontal	Pass
		1750	-2.71	3.33	27.59	21.55	142.889	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.94	3.15	27.65	21.56	143.219	Horizontal	Pass
		1732.5	-3.00	3.31	27.61	21.30	134.896	Horizontal	Pass
		1747.5	-3.02	3.33	27.57	21.22	132.434	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.89	3.17	27.66	21.60	144.544	Horizontal	Pass
		1732.5	-2.90	3.32	27.61	21.39	137.721	Horizontal	Pass
		1745	-2.71	3.36	27.56	21.49	140.929	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.85	3.12	27.58	20.61	115.080	Vertical	Pass
		1732.5	-4.07	3.27	27.61	20.27	106.414	Vertical	Pass
		1754.3	-3.83	3.29	27.63	20.51	112.460	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.32	3.13	27.61	20.16	103.753	Vertical	Pass
		1732.5	-4.42	3.27	27.61	19.92	98.175	Vertical	Pass
		1753.5	-4.50	3.30	27.62	19.82	95.940	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.75	3.13	27.63	19.75	94.406	Vertical	Pass
		1732.5	-4.42	3.27	27.61	19.92	98.175	Vertical	Pass
		1752.5	-4.17	3.30	27.60	20.13	103.039	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.98	3.15	27.64	20.51	112.460	Vertical	Pass
		1732.5	-3.90	3.31	27.61	20.40	109.648	Vertical	Pass
		1750	-4.58	3.33	27.59	19.68	92.897	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.91	3.15	27.65	20.59	114.551	Vertical	Pass
		1732.5	-3.87	3.31	27.61	20.43	110.408	Vertical	Pass
		1747.5	-4.19	3.33	27.57	20.05	101.158	Vertical	Pass

20.0MHz	1/#Mid	1720	-3.89	3.17	27.66	20.60	114.815	Vertical	Pass
Band 16		1732.5	-4.34	3.32	27.61	19.95	98.855	Vertical	Pass
QAM		1745	-4.17	3.36	27.56	20.03	100.693	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 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	824.7	6.81	2.01	19.68	2.15	22.33	171.002	Horizontal	Pass
Band		836.5	6.69	2.01	19.77	2.15	22.30	169.824	Horizontal	Pass
QPSK		848.3	6.49	2.02	19.82	2.15	22.14	163.682	Horizontal	Pass
3.0MHz	1/#Mid	825.5	6.58	2.01	19.70	2.15	22.12	162.930	Horizontal	Pass
Band		836.5	6.48	2.01	19.77	2.15	22.09	161.808	Horizontal	Pass
QPSK		847.5	6.35	2.02	19.81	2.15	21.99	158.125	Horizontal	Pass
5.0MHz	1/#Mid	826.5	6.86	2.01	19.71	2.15	22.41	174.181	Horizontal	Pass
Band		836.5	6.74	2.01	19.77	2.15	22.35	171.791	Horizontal	Pass
QPSK		846.5	6.58	2.02	19.79	2.15	22.20	165.959	Horizontal	Pass
10.0MHz	1/#Mid	829	6.88	2.01	19.73	2.15	22.45	175.792	Horizontal	Pass
Band		836.5	6.83	2.01	19.77	2.15	22.44	175.388	Horizontal	Pass
QPSK		844	6.73	2.02	19.78	2.15	22.34	171.396	Horizontal	Pass
1.4MHz	1/#Mid	824.7	5.42	2.01	19.68	2.15	20.94	124.165	Vertical	Pass
Band		836.5	5.25	2.01	19.77	2.15	20.86	121.899	Vertical	Pass
QPSK		848.3	5.01	2.02	19.82	2.15	20.66	116.413	Vertical	Pass
3.0MHz	1/#Mid	825.5	5.14	2.01	19.70	2.15	20.68	116.950	Vertical	Pass
Band		836.5	5.30	2.01	19.77	2.15	20.91	123.310	Vertical	Pass
QPSK		847.5	5.38	2.02	19.81	2.15	21.02	126.474	Vertical	Pass
5.0MHz	1/#Mid	826.5	5.37	2.01	19.71	2.15	20.92	123.595	Vertical	Pass
Band		836.5	5.30	2.01	19.77	2.15	20.91	123.310	Vertical	Pass
QPSK		846.5	5.57	2.02	19.79	2.15	21.19	131.522	Vertical	Pass
10.0MHz	1/#Mid	829	5.95	2.01	19.73	2.15	21.52	141.906	Vertical	Pass
Band		836.5	5.43	2.01	19.77	2.15	21.04	127.057	Vertical	Pass
QPSK		844	5.36	2.02	19.78	2.15	20.97	125.026	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	Factor	(dB)	Average	Average	Of Max. ERP	
					(dB)		(dBm)	(mW)		
1.4MHz	1/#Mid	824.7	5.96	2.01	19.68	2.15	21.48	140.605	Horizontal	Pass
Band 16		836.5	5.89	2.01	19.77	2.15	21.50	141.254	Horizontal	Pass
QAM		848.3	5.73	2.02	19.82	2.15	21.38	137.404	Horizontal	Pass
3.0MHz	1/#Mid	825.5	6.04	2.01	19.70	2.15	21.58	143.880	Horizontal	Pass
Band 16		836.5	5.75	2.01	19.77	2.15	21.36	136.773	Horizontal	Pass
QAM		847.5	5.23	2.02	19.81	2.15	20.87	122.180	Horizontal	Pass
5.0MHz	1/#Mid	826.5	6.36	2.01	19.71	2.15	21.91	155.239	Horizontal	Pass
Band 16		836.5	6.13	2.01	19.77	2.15	21.74	149.279	Horizontal	Pass
QAM		846.5	5.88	2.02	19.79	2.15	21.50	141.254	Horizontal	Pass
10.0MHz	1/#Mid	829	6.36	2.01	19.73	2.15	21.93	155.955	Horizontal	Pass
Band 16		836.5	6.08	2.01	19.77	2.15	21.69	147.571	Horizontal	Pass
QAM		844	5.62	2.02	19.78	2.15	21.23	132.739	Horizontal	Pass
1.4MHz	1/#Mid	824.7	5.34	2.01	19.68	2.15	20.86	121.899	Vertical	Pass
Band 16		836.5	5.49	2.01	19.77	2.15	21.10	128.825	Vertical	Pass
QAM		848.3	5.30	2.02	19.82	2.15	20.95	124.451	Vertical	Pass
3.0MHz	1/#Mid	825.5	4.88	2.01	19.70	2.15	20.42	110.154	Vertical	Pass
Band 16		836.5	4.64	2.01	19.77	2.15	20.25	105.925	Vertical	Pass
QAM		847.5	5.28	2.02	19.81	2.15	20.92	123.595	Vertical	Pass
5.0MHz	1/#Mid	826.5	5.59	2.01	19.71	2.15	21.14	130.017	Vertical	Pass
Band 16		836.5	5.73	2.01	19.77	2.15	21.34	136.144	Vertical	Pass
QAM		846.5	5.74	2.02	19.79	2.15	21.36	136.773	Vertical	Pass
10.0MHz	1/#Mid	829	4.17	2.01	19.73	2.15	19.74	94.189	Vertical	Pass
Band 16		836.5	5.23	2.01	19.77	2.15	20.84	121.339	Vertical	Pass
QAM		844	5.34	2.02	19.78	2.15	20.95	124.451	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 Band QPSK	1/#Mid	2502.5	-0.77	4.54	27.75	22.44	175.388	Horizontal	Pass
		2535	-0.60	4.69	27.72	22.43	174.985	Horizontal	Pass
		2567.5	-0.53	4.71	27.71	22.47	176.604	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-0.70	4.55	27.76	22.51	178.238	Horizontal	Pass
		2535	-0.51	4.69	27.72	22.52	178.649	Horizontal	Pass
		2565	-0.43	4.72	27.70	22.55	179.887	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-0.71	4.55	27.77	22.51	178.238	Horizontal	Pass
		2535	-0.57	4.69	27.72	22.46	176.198	Horizontal	Pass
		2562.5	-0.47	4.72	27.69	22.50	177.828	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-0.65	4.57	27.78	22.56	180.302	Horizontal	Pass
		2535	-0.47	4.73	27.72	22.52	178.649	Horizontal	Pass
		2560	-0.43	4.75	27.68	22.50	177.828	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-2.42	4.54	27.75	20.79	119.950	Vertical	Pass
		2535	-2.17	4.69	27.72	20.86	121.899	Vertical	Pass
		2567.5	-2.08	4.71	27.71	20.92	123.595	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-1.64	4.55	27.76	21.57	143.549	Vertical	Pass
		2535	-2.37	4.69	27.72	20.66	116.413	Vertical	Pass
		2565	-1.89	4.72	27.70	21.09	128.529	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.31	4.55	27.77	20.91	123.310	Vertical	Pass
		2535	-2.24	4.69	27.72	20.79	119.950	Vertical	Pass
		2562.5	-1.69	4.72	27.69	21.28	134.276	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.60	4.57	27.78	21.61	144.877	Vertical	Pass
		2535	-1.93	4.73	27.72	21.06	127.644	Vertical	Pass
		2560	-1.44	4.75	27.68	21.49	140.929	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz	1/#Mid	2502.5	-1.46	4.54	27.75	21.75	149.624	Horizontal	Pass
Band 16		2535	-1.15	4.69	27.72	21.88	154.170	Horizontal	Pass
QAM		2567.5	-1.23	4.71	27.71	21.77	150.314	Horizontal	Pass
10.0MHz	1/#Mid	2505	-1.35	4.55	27.76	21.86	153.462	Horizontal	Pass
Band 16		2535	-1.36	4.69	27.72	21.67	146.893	Horizontal	Pass
QAM		2565	-1.63	4.72	27.70	21.35	136.458	Horizontal	Pass
15.0MHz	1/#Mid	2507.5	-1.53	4.55	27.77	21.69	147.571	Horizontal	Pass
Band 16		2535	-1.50	4.69	27.72	21.53	142.233	Horizontal	Pass
QAM		2562.5	-1.11	4.72	27.69	21.86	153.462	Horizontal	Pass
20.0MHz	1/#Mid	2510	-1.41	4.57	27.78	21.80	151.356	Horizontal	Pass
Band 16		2535	-1.08	4.73	27.72	21.91	155.239	Horizontal	Pass
QAM		2560	-1.18	4.75	27.68	21.75	149.624	Horizontal	Pass
5.0MHz	1/#Mid	2502.5	-2.93	4.54	27.75	20.28	106.660	Vertical	Pass
Band 16		2535	-1.43	4.69	27.72	21.60	144.544	Vertical	Pass
QAM		2567.5	-2.22	4.71	27.71	20.78	119.674	Vertical	Pass
10.0MHz	1/#Mid	2505	-3.47	4.55	27.76	19.74	94.189	Vertical	Pass
Band 16		2535	-1.99	4.69	27.72	21.04	127.057	Vertical	Pass
QAM		2565	-2.94	4.72	27.70	20.04	100.925	Vertical	Pass
15.0MHz	1/#Mid	2507.5	-2.91	4.55	27.77	20.31	107.399	Vertical	Pass
Band 16		2535	-2.67	4.69	27.72	20.36	108.643	Vertical	Pass
QAM		2562.5	-3.14	4.72	27.69	19.83	96.161	Vertical	Pass
20.0MHz	1/#Mid	2510	-3.21	4.57	27.78	20.00	100.000	Vertical	Pass
Band 16		2535	-2.08	4.73	27.72	20.91	123.310	Vertical	Pass
QAM		2560	-1.34	4.75	27.68	21.59	144.212	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.	Polarization	
			Level	Loss	Factor		EIRP	Of Max.		
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
1.4MHz	1/#Mid	699.7	6.78	1.91	19.21	2.15	21.93	155.955	Vertical	Pass
Band		707.5	6.70	1.91	19.26	2.15	21.90	154.882	Vertical	Pass
QPSK		715.3	6.48	1.93	19.34	2.15	21.74	149.279	Vertical	Pass
3.0MHz	1/#Mid	700.5	6.57	1.91	19.21	2.15	21.72	148.594	Vertical	Pass
Band		707.5	6.49	1.91	19.26	2.15	21.69	147.571	Vertical	Pass
QPSK		714.5	6.33	1.93	19.34	2.15	21.59	144.212	Vertical	Pass
5.0MHz	1/#Mid	701.5	6.84	1.91	19.23	2.15	22.01	158.855	Vertical	Pass
Band		707.5	6.75	1.91	19.26	2.15	21.95	156.675	Vertical	Pass
QPSK		713.5	6.54	1.92	19.33	2.15	21.80	151.356	Vertical	Pass
10.0MHz	1/#Mid	704	6.86	1.91	19.25	2.15	22.05	160.325	Vertical	Pass
Band		707.5	6.84	1.91	19.26	2.15	22.04	159.956	Vertical	Pass
QPSK		711	6.69	1.92	19.32	2.15	21.94	156.315	Vertical	Pass
1.4MHz	1/#Mid	699.7	5.44	1.91	19.21	2.15	20.59	114.551	Horizontal	Pass
Band		707.5	5.15	1.91	19.26	2.15	20.35	108.393	Horizontal	Pass
QPSK		715.3	5.01	1.93	19.34	2.15	20.27	106.414	Horizontal	Pass
3.0MHz	1/#Mid	700.5	5.52	1.91	19.21	2.15	20.67	116.681	Horizontal	Pass
Band		707.5	5.40	1.91	19.26	2.15	20.60	114.815	Horizontal	Pass
QPSK		714.5	5.28	1.93	19.34	2.15	20.54	113.240	Horizontal	Pass
5.0MHz	1/#Mid	701.5	5.75	1.91	19.23	2.15	20.92	123.595	Horizontal	Pass
Band		707.5	5.65	1.91	19.26	2.15	20.85	121.619	Horizontal	Pass
QPSK		713.5	5.58	1.92	19.33	2.15	20.84	121.339	Horizontal	Pass
10.0MHz	1/#Mid	704	5.49	1.91	19.25	2.15	20.68	116.950	Horizontal	Pass
Band		707.5	5.58	1.91	19.26	2.15	20.78	119.674	Horizontal	Pass
QPSK		711	5.51	1.92	19.32	2.15	20.76	119.124	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable Loss (dBm)	Antenna Factor (dB)		Max. EIRP	Max.	Polarization Of Max. ERP	
			Level			Correction	EIRP	Average		
			(dBm)			(dB)	Average			
						(dBm)	(mW)			
1.4MHz	1#Mid	699.7	6.71	1.91	19.21	2.15	21.86	153.462	Vertical	Pass
Band 16		707.5	6.63	1.91	19.26	2.15	21.83	152.405	Vertical	Pass
QAM		715.3	6.41	1.93	19.34	2.15	21.67	146.893	Vertical	Pass
3.0MHz	1#Mid	700.5	6.50	1.91	19.21	2.15	21.65	146.218	Vertical	Pass
Band 16		707.5	6.42	1.91	19.26	2.15	21.62	145.211	Vertical	Pass
QAM		714.5	6.26	1.93	19.34	2.15	21.52	141.906	Vertical	Pass
5.0MHz	1#Mid	701.5	6.77	1.91	19.23	2.15	21.94	156.315	Vertical	Pass
Band 16		707.5	6.68	1.91	19.26	2.15	21.88	154.170	Vertical	Pass
QAM		713.5	6.47	1.92	19.33	2.15	21.73	148.936	Vertical	Pass
10.0MHz	1#Mid	704	6.79	1.91	19.25	2.15	21.98	157.761	Vertical	Pass
Band 16		707.5	6.77	1.91	19.26	2.15	21.97	157.398	Vertical	Pass
QAM		711	6.62	1.92	19.32	2.15	21.87	153.815	Vertical	Pass
1.4MHz	1#Mid	699.7	5.37	1.91	19.21	2.15	20.52	112.720	Horizontal	Pass
Band 16		707.5	5.75	1.91	19.26	2.15	20.95	124.451	Horizontal	Pass
QAM		715.3	5.58	1.93	19.34	2.15	20.84	121.339	Horizontal	Pass
3.0MHz	1#Mid	700.5	5.80	1.91	19.21	2.15	20.95	124.451	Horizontal	Pass
Band 16		707.5	5.78	1.91	19.26	2.15	20.98	125.314	Horizontal	Pass
QAM		714.5	5.79	1.93	19.34	2.15	21.05	127.350	Horizontal	Pass
5.0MHz	1#Mid	701.5	5.40	1.91	19.23	2.15	20.57	114.025	Horizontal	Pass
Band 16		707.5	5.28	1.91	19.26	2.15	20.48	111.686	Horizontal	Pass
QAM		713.5	5.51	1.92	19.33	2.15	20.77	119.399	Horizontal	Pass
10.0MHz	1#Mid	704	5.05	1.91	19.25	2.15	20.24	105.682	Horizontal	Pass
Band 16		707.5	5.39	1.91	19.26	2.15	20.59	114.551	Horizontal	Pass
QAM		711	5.34	1.92	19.32	2.15	20.59	114.551	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	1/#Mid	779.5	6.70	1.91	19.23	2.15	21.87	153.82	Horizontal	Pass
Band		782	6.55	1.91	19.26	2.15	21.75	149.62	Horizontal	Pass
QPSK		784.5	5.58	1.92	19.33	2.15	20.84	121.34	Horizontal	Pass
10.0MHz	1/#Mid	782	5.94	1.91	19.25	2.15	21.13	129.72	Horizontal	Pass
Band			6.85	1.91	19.26	2.15	22.05	160.32	Horizontal	Pass
QPSK			5.75	1.92	19.32	2.15	21.00	125.89	Horizontal	Pass
5.0MHz	1/#Mid	779.5	5.26	1.91	19.23	2.15	20.43	110.41	Vertical	Pass
Band		782	4.95	1.91	19.26	2.15	20.15	103.51	Vertical	Pass
QPSK		784.5	5.07	1.92	19.33	2.15	20.33	107.89	Vertical	Pass
10.0MHz	1/#Mid	782	5.38	1.91	19.25	2.15	20.57	114.02	Vertical	Pass
Band			5.17	1.91	19.26	2.15	20.37	108.89	Vertical	Pass
QPSK			5.26	1.92	19.32	2.15	20.51	112.46	Vertical	Pass

Radiated Power (ERP) for Band 13										
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)		
5.0MHz	1/#Mid	779.5	6.70	1.91	19.23	2.15	21.87	153.82	Horizontal	Pass
Band 16		782	5.28	1.91	19.26	2.15	20.48	111.69	Horizontal	Pass
QAM		784.5	5.74	1.92	19.33	2.15	21.00	125.89	Horizontal	Pass
10.0MHz	1/#Mid	782	5.00	1.91	19.25	2.15	20.19	104.47	Horizontal	Pass
Band 16			6.69	1.91	19.26	2.15	21.89	154.53	Horizontal	Pass
QAM			5.46	1.92	19.32	2.15	20.71	117.76	Horizontal	Pass
5.0MHz	1/#Mid	779.5	5.38	1.91	19.23	2.15	20.55	113.50	Vertical	Pass
Band 16		782	5.77	1.91	19.26	2.15	20.97	125.03	Vertical	Pass
QAM		784.5	5.02	1.92	19.33	2.15	20.28	106.66	Vertical	Pass
10.0MHz	1/#Mid	782	5.71	1.91	19.25	2.15	20.90	123.03	Vertical	Pass
Band 16			5.75	1.91	19.26	2.15	20.95	124.45	Vertical	Pass
QAM			5.76	1.92	19.32	2.15	21.01	126.18	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 Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)		Average	Average	Of Max. ERP	
							(dBm)	(mW)		
5.0MHz	Band QPSK	706.5	7.17	1.91	19.23	2.15	22.34	171.396	Vertical	Pass
		710	7.03	1.91	19.26	2.15	22.23	167.109	Vertical	Pass
		713.5	6.93	1.92	19.33	2.15	22.19	165.577	Vertical	Pass
10.0MHz	Band QPSK	709	7.18	1.91	19.25	2.15	22.37	172.584	Vertical	Pass
		710	7.13	1.91	19.26	2.15	22.33	171.002	Vertical	Pass
		711	7.09	1.92	19.32	2.15	22.34	171.396	Vertical	Pass
5.0MHz	Band QPSK	706.5	5.91	1.91	19.23	2.15	21.08	128.233	Horizontal	Pass
		710	6.06	1.91	19.26	2.15	21.26	133.660	Horizontal	Pass
		713.5	5.76	1.92	19.33	2.15	21.02	126.474	Horizontal	Pass
10.0MHz	Band QPSK	709	5.60	1.91	19.25	2.15	20.79	119.950	Horizontal	Pass
		710	5.55	1.91	19.26	2.15	20.75	118.850	Horizontal	Pass
		711	6.55	1.92	19.32	2.15	21.80	151.356	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)		Average	Average	Of Max. ERP	
							(dBm)	(mW)		
5.0MHz	1/#Mid	706.5	6.52	1.91	19.23	2.15	21.69	147.571	Vertical	Pass
Band 16		710	6.43	1.91	19.26	2.15	21.63	145.546	Vertical	Pass
QAM		713.5	6.23	1.92	19.33	2.15	21.49	140.929	Vertical	Pass
10.0MHz	1/#Mid	709	6.06	1.91	19.25	2.15	21.25	133.352	Vertical	Pass
Band 16		710	6.59	1.91	19.26	2.15	21.79	151.008	Vertical	Pass
QAM		711	6.32	1.92	19.32	2.15	21.57	143.549	Vertical	Pass
5.0MHz	1/#Mid	706.5	5.62	1.91	19.23	2.15	20.79	119.950	Horizontal	Pass
Band 16		710	5.43	1.91	19.26	2.15	20.63	115.611	Horizontal	Pass
QAM		713.5	5.52	1.92	19.33	2.15	20.78	119.674	Horizontal	Pass
10.0MHz	1/#Mid	709	5.55	1.91	19.25	2.15	20.74	118.577	Horizontal	Pass
Band 16		710	5.06	1.91	19.26	2.15	20.26	106.170	Horizontal	Pass
QAM		711	5.57	1.92	19.32	2.15	20.82	120.781	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 Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	19.61	91.411	Vertical	Pass
		2595	-2.64	4.88	27.71	20.25	105.925	Vertical	Pass
		2617.5	-2.58	4.93	27.95	20.42	110.154	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	20.47	111.429	Vertical	Pass
		2595	-2.47	4.95	27.81	19.73	93.972	Vertical	Pass
		2617.5	-2.59	5.03	27.69	19.87	97.051	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	20.54	113.240	Vertical	Pass
		2595	-2.6	5	27.65	20.45	110.917	Vertical	Pass
		2615	-2.67	4.87	27.89	19.93	98.401	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	20.56	113.763	Vertical	Pass
		2595	-2.38	4.87	27.87	20.04	100.925	Vertical	Pass
		2615	-2.56	4.94	27.77	20.05	101.158	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	19.67	92.683	Vertical	Pass
		2595	-2.32	4.87	27.84	20.17	103.992	Vertical	Pass
		2612.5	-2.52	4.92	27.93	19.61	91.411	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.53	112.980	Vertical	Pass
		2595	-2.53	4.98	27.82	20.10	102.329	Vertical	Pass
		2612.5	-2.6	4.95	27.83	20.55	113.501	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.15	103.514	Vertical	Pass
		2595	-2.37	4.79	27.83	21.19	131.522	Vertical	Pass
		2610	-2.68	4.89	27.87	20.47	111.429	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	20.01	100.231	Vertical	Pass
		2595	-2.88	4.91	27.71	19.82	95.940	Vertical	Pass
		2610	-2.81	4.96	27.92	19.94	98.628	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	25/0	2572.5	-2.12	4.95	27.79	20.04	100.925	Horizontal	Pass
Band		2595	-2.64	4.88	27.71	19.73	93.972	Horizontal	Pass
QPSK		2617.5	-2.58	4.93	27.95	20.07	101.625	Horizontal	Pass
5.0MHz	25/0	2572.5	-2.37	4.81	27.73	20.03	100.693	Horizontal	Pass
Band 16		2595	-2.47	4.95	27.81	19.67	92.683	Horizontal	Pass
QAM		2617.5	-2.59	5.03	27.69	19.71	93.541	Horizontal	Pass
10.0MHz	50/0	2575	-2.98	5.01	27.86	19.98	99.541	Horizontal	Pass
Band		2595	-2.6	5	27.65	19.68	92.897	Horizontal	Pass
QPSK		2615	-2.67	4.87	27.89	19.85	96.605	Horizontal	Pass
10.0MHz	50/0	2575	-2.71	4.77	27.78	20.57	114.025	Horizontal	Pass
Band 16		2595	-2.38	4.87	27.87	19.60	91.201	Horizontal	Pass
QAM		2615	-2.56	4.94	27.77	19.60	91.201	Horizontal	Pass
15.0MHz	75/0	2577.5	-2.9	4.89	27.88	20.27	106.414	Horizontal	Pass
Band		2595	-2.32	4.87	27.84	19.90	97.724	Horizontal	Pass
QPSK		2612.5	-2.52	4.92	27.93	20.52	112.720	Horizontal	Pass
15.0MHz	75/0	2577.5	-2.53	4.75	27.78	19.77	94.842	Horizontal	Pass
Band 16		2595	-2.53	4.98	27.82	19.82	95.940	Horizontal	Pass
QAM		2612.5	-2.6	4.95	27.83	20.35	108.393	Horizontal	Pass
20.0MHz	100/0	2580	-2.53	4.86	27.8	20.48	111.686	Horizontal	Pass
Band		2595	-2.37	4.79	27.83	21.19	131.522	Horizontal	Pass
QPSK		2610	-2.68	4.89	27.87	19.83	96.161	Horizontal	Pass
20.0MHz	100/0	2580	-2.87	4.95	27.73	19.98	99.541	Horizontal	Pass
Band 16		2595	-2.88	4.91	27.71	20.17	103.992	Horizontal	Pass
QAM		2610	-2.81	4.96	27.92	20.56	113.763	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	-0.47	4.95	27.75	22.33	171.00	Horizontal	Pass
		2312.5	-0.36	5.02	27.72	22.34	171.40	Horizontal	Pass
		2317.5	-1.56	4.97	27.71	21.18	131.22	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2310	-1.50	4.95	27.75	21.30	134.90	Horizontal	Pass
		2312.5	-0.86	5.02	27.72	21.84	152.76	Horizontal	Pass
		2315	-0.85	4.97	27.71	21.89	154.53	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2312.5	-0.38	5	27.76	22.38	172.98	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2307.5	-0.92	4.95	27.75	21.88	154.17	Vertical	Pass
		2310	-1.85	5.02	27.72	20.85	121.62	Vertical	Pass
		2312.5	-1.67	4.97	27.71	21.07	127.94	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2310	-0.79	4.95	27.75	22.01	158.85	Vertical	Pass
		2312.5	-1.29	5.02	27.72	21.41	138.36	Vertical	Pass
		2315	-0.74	4.97	27.71	22.00	158.49	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2312.5	-1.29	4.75	27.76	21.72	148.59	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	1/#Mid	2307.5	-0.47	4.95	27.75	22.33	171.00	Horizontal	Pass
Band 16		2312.5	-1.53	5.02	27.72	21.17	130.92	Horizontal	Pass
QAM		2317.5	-1.65	4.97	27.71	21.09	128.53	Horizontal	Pass
10.0MHz	1/#Mid	2310	-1.00	4.95	27.75	21.80	151.36	Horizontal	Pass
Band		2312.5	-1.97	5.02	27.72	20.73	118.30	Horizontal	Pass
16QAM		2315	-0.57	4.97	27.71	22.17	164.82	Horizontal	Pass
15.0MHz	1/#Mid	2312.5	-0.28	5	27.76	22.48	177.01	Horizontal	Pass
5.0MHz	1/#Mid	2307.5	-1.27	4.95	27.75	21.53	142.23	Vertical	Pass
Band 16		2310	-0.66	5.02	27.72	22.04	159.96	Vertical	Pass
QAM		2312.5	-1.09	4.97	27.71	21.65	146.22	Vertical	Pass
10.0MHz	1/#Mid	2310	-2.00	4.95	27.75	20.80	120.23	Horizontal	Pass
Band		2312.5	-1.68	5.02	27.72	21.02	126.47	Horizontal	Pass
16QAM		2315	-1.18	4.97	27.71	21.56	143.22	Horizontal	Pass
15.0MHz	1/#Mid	2312.5	-2.85	4.75	27.76	20.16	103.75	Vertical	Pass
Band 16QAM									

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	-0.96	4.95	27.75	21.84	152.76	Horizontal	Pass
		2352.5	-1.06	5.02	27.72	21.64	145.88	Horizontal	Pass
		2357.5	-1.50	4.97	27.71	21.24	133.05	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2350	-1.64	4.95	27.75	21.16	130.62	Horizontal	Pass
		2352.5	-1.37	5.02	27.72	21.33	135.83	Horizontal	Pass
		2355	-1.49	4.97	27.71	21.25	133.35	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2352.5	-0.86	5	27.76	21.90	154.88	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2307.5	-2.51	4.95	27.75	20.29	106.91	Vertical	Pass
		2310	-2.16	5.02	27.72	20.54	113.24	Vertical	Pass
		2312.5	-1.43	4.97	27.71	21.31	135.21	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2350	-1.56	4.95	27.75	21.24	133.05	Vertical	Pass
		2352.5	-3.04	5.02	27.72	19.66	92.47	Vertical	Pass
		2355	-1.69	4.97	27.71	21.05	127.35	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2352.5	-1.61	4.75	27.76	21.40	138.04	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 16 QAM	1/#Mid	2347.5	-1.16	4.95	27.75	21.64	145.88	Horizontal	Pass
		2352.5	-1.99	5.02	27.72	20.71	117.76	Horizontal	Pass
		2357.5	-1.50	4.97	27.71	21.24	133.05	Horizontal	Pass
10.0MHz Band 16QAM	1/#Mid	2350	-1.76	4.95	27.75	21.04	127.06	Horizontal	Pass
		2352.5	-2.33	5.02	27.72	20.37	108.89	Horizontal	Pass
		2355	-1.26	4.97	27.71	21.48	140.60	Horizontal	Pass
15.0MHz Band 16QAM	1/#Mid	2352.5	-0.96	5	27.76	21.80	151.36	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2307.5	-1.54	4.95	27.75	21.26	133.66	Vertical	Pass
		2310	-2.72	5.02	27.72	19.98	99.54	Vertical	Pass
		2312.5	-2.50	4.97	27.71	20.24	105.68	Vertical	Pass
10.0MHz Band 16QAM	1/#Mid	2350	-2.56	4.95	27.75	20.24	105.68	Horizontal	Pass
		2352.5	-2.24	5.02	27.72	20.46	111.17	Horizontal	Pass
		2355	-1.74	4.97	27.71	21.00	125.89	Horizontal	Pass
15.0MHz Band 16QAM	1/#Mid	2352.5	-1.83	4.75	27.76	21.18	131.22	Vertical	Pass

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	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz	1/#Mid	2537.5	-2.10	4.54	27.75	21.11	129.122	Horizontal	Pass
Band		2595	-1.95	4.69	27.72	21.08	128.233	Horizontal	Pass
QPSK		2652.5	-1.83	4.71	27.71	21.17	130.918	Horizontal	Pass
10.0MHz	1/#Mid	2540	-2.18	4.55	27.76	21.03	126.765	Horizontal	Pass
Band		2595	-2.04	4.69	27.72	20.99	125.603	Horizontal	Pass
QPSK		2650	-2.03	4.72	27.70	20.95	124.451	Horizontal	Pass
15.0MHz	1/#Mid	2542.5	-2.01	4.55	27.77	21.21	132.130	Horizontal	Pass
Band		2595	-1.73	4.69	27.72	21.30	134.896	Horizontal	Pass
QPSK		2647.5	-1.78	4.72	27.69	21.19	131.522	Horizontal	Pass
20.0MHz	1/#Mid	2545	-1.62	4.57	27.78	21.59	144.212	Horizontal	Pass
Band		2595	-1.67	4.73	27.72	21.32	135.519	Horizontal	Pass
QPSK		2645	-1.67	4.75	27.68	21.26	133.660	Horizontal	Pass
5.0MHz	1/#Mid	2537.5	-1.90	4.54	27.75	21.31	135.207	Vertical	Pass
Band		2595	-1.81	4.69	27.72	21.22	132.434	Vertical	Pass
QPSK		2652.5	-1.79	4.71	27.71	21.21	132.130	Vertical	Pass
10.0MHz	1/#Mid	2540	-1.88	4.55	27.76	21.33	135.831	Vertical	Pass
Band		2595	-1.72	4.69	27.72	21.31	135.207	Vertical	Pass
QPSK		2650	-1.79	4.72	27.70	21.19	131.522	Vertical	Pass
15.0MHz	1/#Mid	2542.5	-2.78	4.55	27.77	20.44	110.662	Vertical	Pass
Band		2595	-3.19	4.69	27.72	19.84	96.383	Vertical	Pass
QPSK		2647.5	-2.78	4.72	27.69	20.19	104.472	Vertical	Pass
20.0MHz	1/#Mid	2545	-3.09	4.57	27.78	20.12	102.802	Vertical	Pass
Band		2595	-2.50	4.73	27.72	20.49	111.944	Vertical	Pass
QPSK		2645	-2.79	4.75	27.68	20.14	103.276	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz	1/#Mid	2537.5	-2.10	4.54	27.75	21.11	129.122	Horizontal	Pass
Band 16		2595	-1.95	4.69	27.72	21.08	128.233	Horizontal	Pass
QAM		2652.5	-1.83	4.71	27.71	21.17	130.918	Horizontal	Pass
10.0MHz	1/#Mid	2540	-2.18	4.55	27.76	21.03	126.765	Horizontal	Pass
Band 16		2595	-2.04	4.69	27.72	20.99	125.603	Horizontal	Pass
QAM		2650	-2.03	4.72	27.70	20.95	124.451	Horizontal	Pass
15.0MHz	1/#Mid	2542.5	-2.01	4.55	27.77	21.21	132.130	Horizontal	Pass
Band 16		2595	-1.73	4.69	27.72	21.30	134.896	Horizontal	Pass
QAM		2647.5	-1.78	4.72	27.69	21.19	131.522	Horizontal	Pass
20.0MHz	1/#Mid	2545	-1.73	4.57	27.78	21.48	140.605	Horizontal	Pass
Band 16		2595	-1.67	4.73	27.72	21.32	135.519	Horizontal	Pass
QAM		2645	-1.67	4.75	27.68	21.26	133.660	Horizontal	Pass
5.0MHz	1/#Mid	2537.5	-1.90	4.54	27.75	21.31	135.207	Vertical	Pass
Band 16		2595	-1.81	4.69	27.72	21.22	132.434	Vertical	Pass
QAM		2652.5	-1.79	4.71	27.71	21.21	132.130	Vertical	Pass
10.0MHz	1/#Mid	2540	-1.88	4.55	27.76	21.33	135.831	Vertical	Pass
Band 16		2595	-1.72	4.69	27.72	21.31	135.207	Vertical	Pass
QAM		2650	-1.79	4.72	27.70	21.19	131.522	Vertical	Pass
15.0MHz	1/#Mid	2542.5	-3.48	4.55	27.77	19.74	94.189	Vertical	Pass
Band 16		2595	-3.31	4.69	27.72	19.72	93.756	Vertical	Pass
QAM		2647.5	-2.72	4.72	27.69	20.25	105.925	Vertical	Pass
20.0MHz	1/#Mid	2545	-2.92	4.57	27.78	20.29	106.905	Vertical	Pass
Band 16		2595	-2.69	4.73	27.72	20.30	107.152	Vertical	Pass
QAM		2645	-2.52	4.75	27.68	20.41	109.901	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	1/#Mid	1710.7	-3.37	3.76	28.24	21.11	129.122	Horizontal	Pass
Band		1745	-3.23	3.91	28.22	21.08	128.233	Horizontal	Pass
QPSK		1779.3	-3.10	3.93	28.2	21.17	130.918	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.43	3.77	28.23	21.03	126.765	Horizontal	Pass
Band		1745	-3.34	3.91	28.24	20.99	125.603	Horizontal	Pass
QPSK		1778.5	-3.36	3.94	28.25	20.95	124.451	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.33	3.77	28.31	21.21	132.130	Horizontal	Pass
Band		1745	-3.01	3.91	28.22	21.30	134.896	Horizontal	Pass
QPSK		1777.5	-3.07	3.94	28.2	21.19	131.522	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.22	3.79	28.33	21.32	135.519	Horizontal	Pass
Band		1745	-2.95	3.95	28.22	21.32	135.519	Horizontal	Pass
QPSK		1775	-2.96	3.97	28.19	21.26	133.660	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-3.24	3.79	28.34	21.31	135.207	Horizontal	Pass
Band		1745	-3.05	3.95	28.22	21.22	132.434	Horizontal	Pass
QPSK		1772.5	-3.00	3.97	28.18	21.21	132.130	Horizontal	Pass
20.0MHz	1/#Mid	1720	-3.21	3.81	28.35	21.33	135.831	Horizontal	Pass
Band		1745	-2.95	3.96	28.22	21.31	135.207	Horizontal	Pass
QPSK		1770	-2.97	4	28.16	21.19	131.522	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-4.17	3.76	28.24	20.31	107.399	Vertical	Pass
Band		1745	-4.43	3.91	28.22	19.88	97.275	Vertical	Pass
QPSK		1779.3	-4.16	3.93	28.2	20.11	102.565	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-3.97	3.77	28.23	20.49	111.944	Vertical	Pass
Band		1745	-4.30	3.91	28.24	20.03	100.693	Vertical	Pass
QPSK		1778.5	-4.16	3.94	28.25	20.15	103.514	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.01	3.77	28.31	20.53	112.980	Vertical	Pass
Band		1745	-4.41	3.91	28.22	19.90	97.724	Vertical	Pass
QPSK		1777.5	-4.43	3.94	28.2	19.83	96.161	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.43	3.79	28.34	20.12	102.802	Vertical	Pass
Band		1745	-4.17	3.95	28.22	20.10	102.329	Vertical	Pass
QPSK		1775	-4.53	3.97	28.18	19.68	92.897	Vertical	Pass

15.0MHz	1/#Mid	1717.5	-4.61	3.81	28.35	19.93	98.401	Vertical	Pass
Band		1745	-4.30	3.96	28.22	19.96	99.083	Vertical	Pass
QPSK		1772.5	-4.18	4	28.16	19.98	99.541	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.09	3.79	28.34	20.46	111.173	Vertical	Pass
Band		1745	-4.34	3.95	28.22	19.93	98.401	Vertical	Pass
QPSK		1770	-3.63	3.97	28.18	20.58	114.288	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	-4.20	3.76	28.24	20.28	106.660	Horizontal	Pass	
1745		-3.81	3.91	28.22	20.50	112.202	Horizontal	Pass		
1779.3		-3.99	3.93	28.2	20.28	106.660	Horizontal	Pass		
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.59	3.77	28.23	19.87	97.051	Horizontal	Pass	
1745		-3.84	3.91	28.24	20.49	111.944	Horizontal	Pass		
1778.5		-4.13	3.94	28.25	20.18	104.232	Horizontal	Pass		
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.01	3.77	28.31	20.53	112.980	Horizontal	Pass	
1745		-4.07	3.91	28.22	20.24	105.682	Horizontal	Pass		
1777.5		-3.74	3.94	28.2	20.52	112.720	Horizontal	Pass		
10.0MHz Band 16 QAM	1/#Mid	1715	-4.06	3.79	28.33	20.48	111.686	Horizontal	Pass	
1745		-3.72	3.95	28.22	20.55	113.501	Horizontal	Pass		
1775		-4.04	3.97	28.19	20.18	104.232	Horizontal	Pass		
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.05	3.79	28.34	20.50	112.202	Horizontal	Pass	
1745		-3.87	3.95	28.22	20.40	109.648	Horizontal	Pass		
1772.5		-3.66	3.97	28.18	20.55	113.501	Horizontal	Pass		
20.0MHz Band 16 QAM	1/#Mid	1720	-3.88	3.81	28.35	20.66	116.413	Horizontal	Pass	
1745		-3.66	3.96	28.22	20.60	114.815	Horizontal	Pass		
1770		-3.60	4	28.16	20.56	113.763	Horizontal	Pass		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.65	3.76	28.24	18.83	76.384	Vertical	Pass	
1745		-5.28	3.91	28.22	19.03	79.983	Vertical	Pass		
1779.3		-5.08	3.93	28.2	19.19	82.985	Vertical	Pass		
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.61	3.77	28.23	18.85	76.736	Vertical	Pass	
1745		-4.65	3.91	28.24	19.68	92.897	Vertical	Pass		
1778.5		-4.10	3.94	28.25	20.21	104.954	Vertical	Pass		
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.69	3.77	28.31	18.85	76.736	Vertical	Pass	
1745		-4.76	3.91	28.22	19.55	90.157	Vertical	Pass		
1777.5		-4.82	3.94	28.2	19.44	87.902	Vertical	Pass		
10.0MHz Band 16 QAM	1/#Mid	1715	-5.55	3.79	28.34	19.00	79.433	Vertical	Pass	
1745		-4.70	3.95	28.22	19.57	90.573	Vertical	Pass		
1775		-4.87	3.97	28.18	19.34	85.901	Vertical	Pass		
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.91	3.81	28.35	19.63	91.833	Vertical	Pass	
1745		-3.85	3.96	28.22	20.41	109.901	Vertical	Pass		
1772.5		-4.94	4	28.16	19.22	83.560	Vertical	Pass		

20.0MHz	1/#Mid	1720	-4.02	3.79	28.34	20.53	112.980	Vertical	Pass
Band 16		1745	-3.82	3.95	28.22	20.45	110.917	Vertical	Pass
QAM		1770	-5.52	3.97	28.18	18.69	73.961	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.13 LTE BAND 71

Radiated Power (ERP) for Band 71										
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)		
5.0MHz	25/0	665.5	5.86	2.01	19.68	2.15	21.38	137.40	Horizontal	Pass
Band		680.5	5.74	2.01	19.77	2.15	21.35	136.46	Horizontal	Pass
QPSK		695.5	5.54	2.02	19.82	2.15	21.19	131.52	Horizontal	Pass
10.0MHz	50/0	668	5.63	2.01	19.70	2.15	21.17	130.92	Horizontal	Pass
Band		680.5	5.53	2.01	19.77	2.15	21.14	130.02	Horizontal	Pass
QPSK		693	5.40	2.02	19.81	2.15	21.04	127.06	Horizontal	Pass
15.0MHz	75/0	670.5	5.91	2.01	19.71	2.15	21.46	139.96	Horizontal	Pass
Band		680.5	5.79	2.01	19.77	2.15	21.40	138.04	Horizontal	Pass
QPSK		690.5	5.63	2.02	19.79	2.15	21.25	133.35	Horizontal	Pass
20.0MHz	100/0	673	5.93	2.01	19.73	2.15	21.50	141.25	Horizontal	Pass
Band		683	5.88	2.01	19.77	2.15	21.49	140.93	Horizontal	Pass
QPSK		688	5.78	2.02	19.78	2.15	21.39	137.72	Horizontal	Pass
5.0MHz	25/0	665.5	4.49	2.01	19.68	2.15	20.01	100.23	Vertical	Pass
Band		680.5	4.07	2.01	19.77	2.15	19.68	92.90	Vertical	Pass
QPSK		695.5	4.47	2.02	19.82	2.15	20.12	102.80	Vertical	Pass
15.0MHz	50/0	668	4.33	2.01	19.70	2.15	19.87	97.05	Vertical	Pass
Band		680.5	4.18	2.01	19.77	2.15	19.79	95.28	Vertical	Pass
QPSK		693	4.74	2.02	19.81	2.15	20.38	109.14	Vertical	Pass
15.0MHz	75/0	670.5	4.90	2.01	19.71	2.15	20.45	110.92	Vertical	Pass
Band		680.5	4.49	2.01	19.77	2.15	20.10	102.33	Vertical	Pass
QPSK		690.5	5.01	2.02	19.79	2.15	20.63	115.61	Vertical	Pass
20MHz	100/0	673	4.29	2.01	19.73	2.15	19.86	96.83	Vertical	Pass
Band		683	4.31	2.01	19.77	2.15	19.92	98.17	Vertical	Pass
QPSK		688	4.36	2.02	19.78	2.15	19.97	99.31	Vertical	Pass

Radiated Power (ERP) for Band 71										
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)		
5.0MHz	25/0	665.5	5.78	2.01	19.68	2.15	21.30	134.90	Horizontal	Pass
Band 16		680.5	5.66	2.01	19.77	2.15	21.27	133.97	Horizontal	Pass
QAM		695.5	5.46	2.02	19.82	2.15	21.11	129.12	Horizontal	Pass
10.0MHz	50/0	668	5.55	2.01	19.70	2.15	21.09	128.53	Horizontal	Pass
Band 16		680.5	5.45	2.01	19.77	2.15	21.06	127.64	Horizontal	Pass
QAM		693	5.32	2.02	19.81	2.15	20.96	124.74	Horizontal	Pass
15.0MHz	75/0	670.5	5.83	2.01	19.71	2.15	21.38	137.40	Horizontal	Pass
Band 16		680.5	5.71	2.01	19.77	2.15	21.32	135.52	Horizontal	Pass
QAM		690.5	5.55	2.02	19.79	2.15	21.17	130.92	Horizontal	Pass
20.0MHz	100/0	673	5.85	2.01	19.73	2.15	21.42	138.68	Horizontal	Pass
Band 16		683	5.80	2.01	19.77	2.15	21.41	138.36	Horizontal	Pass
QAM		688	5.70	2.02	19.78	2.15	21.31	135.21	Horizontal	Pass
5.0MHz	25/0	665.5	5.05	2.01	19.68	2.15	20.57	114.02	Vertical	Pass
Band 16		680.5	4.14	2.01	19.77	2.15	19.75	94.41	Vertical	Pass
QAM		695.5	4.03	2.02	19.82	2.15	19.68	92.90	Vertical	Pass
10.0MHz	50/0	668	4.68	2.01	19.70	2.15	20.22	105.20	Vertical	Pass
Band 16		680.5	4.60	2.01	19.77	2.15	20.21	104.95	Vertical	Pass
QAM		693	4.87	2.02	19.81	2.15	20.51	112.46	Vertical	Pass
15.0MHz	75/0	670.5	4.93	2.01	19.71	2.15	20.48	111.69	Vertical	Pass
Band 16		680.5	4.54	2.01	19.77	2.15	20.15	103.51	Vertical	Pass
QAM		690.5	4.14	2.02	19.79	2.15	19.76	94.62	Vertical	Pass
20.0MHz	100/0	673	4.50	2.01	19.73	2.15	20.07	101.62	Vertical	Pass
Band 16		683	4.02	2.01	19.77	2.15	19.63	91.83	Vertical	Pass
QAM		688	4.10	2.02	19.78	2.15	19.71	93.54	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
- LTE Band 71

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-50.68	4.04	33.51	-21.21	-13	-8.21	Horizontal
3701.4	-52.45	4.04	33.51	-22.98	-13	-9.98	Vertical
5552.1	-52.19	5.24	35.84	-21.59	-13	-8.59	Vertical
5552.1	-50.45	5.24	35.84	-19.85	-13	-6.85	Horizontal
177.4	-41.36	1.43	16.02	-26.77	-13	-13.77	Vertical
351.8	-40.38	1.30	17.99	-23.69	-13	-10.69	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-50.83	4.04	33.56	-21.31	-13	-8.31	Horizontal
3760.0	-44.55	4.04	33.56	-15.03	-13	-2.03	Vertical
5640.0	-48.40	5.24	35.91	-17.73	-13	-4.73	Vertical
5640.0	-53.11	5.24	35.91	-22.44	-13	-9.44	Horizontal
203.4	-44.32	1.62	16.97	-28.97	-13	-15.97	Vertical
381.5	-38.41	1.74	15.98	-24.18	-13	-11.18	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-46.86	4.04	34.00	-16.90	-13	-3.90	Horizontal
3818.6	-46.00	4.04	34.00	-16.04	-13	-3.04	Vertical
5727.9	-44.33	5.24	36.04	-13.53	-13	-0.53	Vertical
5727.9	-52.66	5.24	36.04	-21.86	-13	-8.86	Horizontal
177.1	-37.78	1.42	17.29	-21.91	-13	-8.91	Vertical
329.4	-38.17	1.50	17.90	-21.76	-13	-8.76	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	-45.32	4.07	33.54	-15.85	-13	-2.85	Horizontal
3720.0	-48.79	4.07	33.54	-19.32	-13	-6.32	Vertical
5580.0	-47.63	5.28	35.86	-17.05	-13	-4.05	Vertical
5580.0	-52.91	5.28	35.86	-22.33	-13	-9.33	Horizontal
188.6	-44.11	1.58	16.89	-28.79	-13	-15.79	Vertical
332.4	-36.67	1.76	17.26	-21.17	-13	-8.17	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-50.64	4.04	33.56	-21.12	-13	-8.12	Horizontal
3760.0	-48.87	4.04	33.56	-19.35	-13	-6.35	Vertical
5640.0	-49.04	5.24	35.91	-18.37	-13	-5.37	Vertical
5640.0	-51.81	5.24	35.91	-21.14	-13	-8.14	Horizontal
188.7	-38.08	1.46	16.27	-23.27	-13	-10.27	Vertical
393.9	-34.93	1.59	15.15	-21.37	-13	-8.37	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-46.01	4.04	34.00	-16.05	-13	-3.05	Horizontal
3800.0	-44.06	4.04	34.00	-14.10	-13	-1.10	Vertical
5700.0	-50.58	5.24	36.04	-19.78	-13	-6.78	Vertical
5700.0	-53.60	5.24	36.04	-22.80	-13	-9.80	Horizontal
195.8	-39.45	1.36	17.39	-23.41	-13	-10.41	Vertical
344.6	-38.40	1.66	15.39	-24.67	-13	-11.67	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	-47.49	4.02	29.80	-21.71	-13	-8.71	Horizontal
3421.4	-47.15	4.02	29.80	-21.37	-13	-8.37	Vertical
5132.1	-44.93	5.24	35.84	-14.33	-13	-1.33	Vertical
5132.1	-49.34	5.24	35.84	-18.74	-13	-5.74	Horizontal
209.8	-36.26	1.68	16.04	-21.90	-13	-8.90	Vertical
398.8	-35.73	1.78	17.74	-19.77	-13	-6.77	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.39	4.03	30.00	-20.42	-13	-7.42	Horizontal
3465.0	-53.43	4.03	30.00	-27.46	-13	-14.46	Vertical
5197.5	-52.41	5.25	35.86	-21.80	-13	-8.80	Vertical
5197.5	-50.47	5.25	35.86	-19.86	-13	-6.86	Horizontal
186.5	-38.31	1.72	17.69	-22.34	-13	-9.34	Vertical
252.7	-43.53	1.62	16.02	-29.12	-13	-16.12	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-53.76	4.05	30.01	-27.80	-13	-14.80	Horizontal
3508.6	-50.07	4.05	30.01	-24.11	-13	-11.11	Vertical
5262.9	-44.94	5.26	35.86	-14.34	-13	-1.34	Vertical
5262.9	-52.26	5.26	35.86	-21.66	-13	-8.66	Horizontal
201.6	-41.87	1.80	16.69	-26.98	-13	-13.98	Vertical
248.4	-44.50	1.75	16.66	-29.60	-13	-16.60	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	-50.57	4.02	29.80	-24.79	-13	-11.79	Horizontal
3440.0	-44.02	4.02	29.80	-18.24	-13	-5.24	Vertical
5160.0	-50.28	5.24	35.84	-19.68	-13	-6.68	Vertical
5160.0	-52.45	5.24	35.84	-21.85	-13	-8.85	Horizontal
212.0	-35.76	1.57	17.26	-20.07	-13	-7.07	Vertical
322.8	-36.27	1.78	16.35	-21.70	-13	-8.70	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.63	4.03	30.00	-22.66	-13	-9.66	Horizontal
3465.0	-52.34	4.03	30.00	-26.37	-13	-13.37	Vertical
5197.5	-51.91	5.25	35.86	-21.30	-13	-8.30	Vertical
5197.5	-52.60	5.25	35.86	-21.99	-13	-8.99	Horizontal
200.6	-36.81	1.44	17.95	-20.30	-13	-7.30	Vertical
430.8	-39.59	1.65	16.09	-25.15	-13	-12.15	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-46.02	2.91	27.68	-21.25	-13	-8.25	Horizontal
3490.0	-47.52	2.91	27.68	-22.75	-13	-9.75	Vertical
5235.0	-50.20	5.26	35.86	-19.60	-13	-6.60	Vertical
5235.0	-53.69	5.26	35.86	-23.09	-13	-10.09	Horizontal
196.3	-44.21	1.61	16.85	-28.97	-13	-15.97	Vertical
276.5	-43.00	1.61	15.19	-29.42	-13	-16.42	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	-47.82	2.78	27.50	-23.10	-13	-10.10	Horizontal
1649.4	-52.13	2.78	27.50	-27.41	-13	-14.41	Vertical
2474.1	-51.58	2.90	27.80	-26.68	-13	-13.68	Vertical
2474.1	-49.46	2.90	27.80	-24.56	-13	-11.56	Horizontal
177.5	-34.64	1.76	17.59	-18.81	-13	-5.81	Vertical
324.2	-38.45	1.63	15.87	-24.21	-13	-11.21	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-49.75	2.80	27.48	-25.07	-13	-12.07	Horizontal
1673.0	-52.88	2.80	27.48	-28.20	-13	-15.20	Vertical
2509.5	-51.06	2.91	27.70	-26.27	-13	-13.27	Vertical
2509.5	-51.92	2.91	27.70	-27.13	-13	-14.13	Horizontal
211.1	-43.96	1.61	15.68	-29.89	-13	-16.89	Vertical
377.1	-39.79	1.59	17.52	-23.87	-13	-10.87	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.76	2.82	27.43	-24.15	-13	-11.15	Horizontal
1696.6	-49.41	2.82	27.43	-24.80	-13	-11.80	Vertical
2544.9	-47.67	2.92	27.74	-22.85	-13	-9.85	Vertical
2544.9	-51.60	2.92	27.74	-26.78	-13	-13.78	Horizontal
200.8	-37.06	1.69	16.67	-22.07	-13	-9.07	Vertical
403.0	-40.25	1.70	17.18	-24.77	-13	-11.77	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	-53.89	2.78	27.50	-29.17	-13	-16.17	Horizontal
1658.0	-51.09	2.78	27.50	-26.37	-13	-13.37	Vertical
2487.0	-46.16	2.90	27.80	-21.26	-13	-8.26	Vertical
2487.0	-49.79	2.90	27.80	-24.89	-13	-11.89	Horizontal
212.1	-41.53	1.71	15.57	-27.67	-13	-14.67	Vertical
289.0	-35.24	1.34	16.40	-20.18	-13	-7.18	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-44.24	2.80	27.48	-19.56	-13	-6.56	Horizontal
1673.0	-49.29	2.80	27.48	-24.61	-13	-11.61	Vertical
2509.5	-53.42	2.91	27.70	-28.63	-13	-15.63	Vertical
2509.5	-50.62	2.91	27.70	-25.83	-13	-12.83	Horizontal
187.2	-40.93	1.44	17.04	-25.33	-13	-12.33	Vertical
435.9	-44.20	1.76	17.62	-28.34	-13	-15.34	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.55	2.82	27.43	-19.94	-13	-6.94	Horizontal
1688.0	-49.96	2.82	27.43	-25.35	-13	-12.35	Vertical
2532.0	-53.14	2.92	27.74	-28.32	-13	-15.32	Vertical
2532.0	-51.24	2.92	27.74	-26.42	-13	-13.42	Horizontal
199.5	-34.34	1.74	17.70	-18.38	-13	-5.38	Vertical
378.1	-38.25	1.41	17.46	-22.19	-13	-9.19	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	-64.58	5.23	35.81	-34.00	-25	-9.00	Horizontal
5005.0	-60.25	5.23	35.81	-29.67	-25	-4.67	Vertical
7507.5	-64.48	5.67	36.85	-33.30	-25	-8.30	Vertical
7507.5	-61.61	5.67	36.85	-30.43	-25	-5.43	Horizontal
198.7	-50.50	1.73	17.97	-34.26	-25	-9.26	Vertical
433.1	-44.14	1.38	15.11	-30.41	-25	-5.41	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-64.59	5.23	35.82	-34.00	-25	-9.00	Horizontal
5070.0	-61.09	5.23	35.82	-30.50	-25	-5.50	Vertical
7605.0	-63.09	5.67	36.85	-31.91	-25	-6.91	Vertical
7605.0	-62.30	5.67	36.85	-31.12	-25	-6.12	Horizontal
186.0	-48.98	1.77	16.17	-34.57	-25	-9.57	Vertical
232.1	-49.42	1.63	15.21	-35.84	-25	-10.84	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.87	5.24	35.83	-31.28	-25	-6.28	Horizontal
5135.0	-60.43	5.24	35.83	-29.84	-25	-4.84	Vertical
7702.5	-62.17	5.68	36.87	-30.98	-25	-5.98	Vertical
7702.5	-59.39	5.68	36.87	-28.20	-25	-3.20	Horizontal
201.0	-51.23	1.58	17.56	-35.25	-25	-10.25	Vertical
442.4	-47.93	1.45	16.58	-32.80	-25	-7.80	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	-59.29	5.23	35.82	-28.70	-25	-3.70	Horizontal
5020.0	-60.45	5.23	35.82	-29.86	-25	-4.86	Vertical
7530.0	-60.64	5.67	36.86	-29.45	-25	-4.45	Vertical
7530.0	-62.49	5.67	36.86	-31.30	-25	-6.30	Horizontal
196.9	-47.63	1.63	15.76	-33.50	-25	-8.50	Vertical
388.5	-47.88	1.71	15.44	-34.15	-25	-9.15	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-64.74	5.23	35.82	-34.15	-25	-9.15	Horizontal
5070.0	-63.03	5.23	35.82	-32.44	-25	-7.44	Vertical
7605.0	-64.50	5.67	36.85	-33.32	-25	-8.32	Vertical
7605.0	-63.50	5.67	36.85	-32.32	-25	-7.32	Horizontal
208.9	-47.29	1.79	16.84	-32.23	-25	-7.23	Vertical
285.1	-44.29	1.71	17.64	-28.36	-25	-3.36	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-63.77	5.24	35.83	-33.18	-25	-8.18	Horizontal
5120.0	-62.37	5.24	35.83	-31.78	-25	-6.78	Vertical
7680.0	-61.94	5.70	36.88	-30.76	-25	-5.76	Vertical
7680.0	-59.57	5.70	36.88	-28.39	-25	-3.39	Horizontal
196.3	-44.63	1.79	16.84	-29.57	-25	-4.57	Vertical
294.6	-45.02	1.71	17.64	-29.09	-25	-4.09	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.

9.5 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	-52.14	2.60	27.20	-27.54	-13	-14.54	Horizontal
1399.4	-48.32	2.60	27.20	-23.72	-13	-10.72	Vertical
2099.1	-50.77	2.85	27.54	-26.08	-13	-13.08	Vertical
2099.1	-52.52	2.85	27.54	-27.83	-13	-14.83	Horizontal
175.4	-34.16	1.49	17.78	-17.87	-13	-4.87	Vertical
256.4	-39.01	1.36	17.33	-23.04	-13	-10.04	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-47.76	2.61	27.28	-23.09	-13	-10.09	Horizontal
1415.0	-53.75	2.61	27.28	-29.08	-13	-16.08	Vertical
2122.5	-50.73	2.87	27.59	-26.01	-13	-13.01	Vertical
2122.5	-53.03	2.87	27.59	-28.31	-13	-15.31	Horizontal
210.5	-39.53	1.73	15.74	-25.52	-13	-12.52	Vertical
360.4	-41.80	1.62	15.79	-27.63	-13	-14.63	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-53.24	2.63	27.28	-28.59	-13	-15.59	Horizontal
1430.6	-49.95	2.63	27.28	-25.30	-13	-12.30	Vertical
2145.9	-49.34	2.88	27.60	-24.62	-13	-11.62	Vertical
2145.9	-51.16	2.88	27.60	-26.44	-13	-13.44	Horizontal
197.3	-41.39	1.61	18.00	-25.00	-13	-12.00	Vertical
239.3	-41.97	1.45	15.49	-27.94	-13	-14.94	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-44.70	2.61	27.26	-20.05	-13	-7.05	Horizontal
1408.0	-44.98	2.61	27.26	-20.33	-13	-7.33	Vertical
2112.0	-45.23	2.87	27.58	-20.52	-13	-7.52	Vertical
2112.0	-53.83	2.87	27.58	-29.12	-13	-16.12	Horizontal
207.5	-35.62	1.31	16.97	-19.96	-13	-6.96	Vertical
450.9	-43.98	1.65	16.70	-28.93	-13	-15.93	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-48.94	2.61	27.28	-24.27	-13	-11.27	Horizontal
1415.0	-52.84	2.61	27.28	-28.17	-13	-15.17	Vertical
2122.5	-44.04	2.87	27.59	-19.32	-13	-6.32	Vertical
2122.5	-49.61	2.87	27.59	-24.89	-13	-11.89	Horizontal
181.2	-36.83	1.72	17.99	-20.56	-13	-7.56	Vertical
306.7	-36.85	1.73	17.94	-20.64	-13	-7.64	Horizontal
Test Results for High Channel 711MHz							
1422.0	-45.29	2.62	27.28	-20.63	-13	-7.63	Horizontal
1422.0	-50.32	2.62	27.28	-25.66	-13	-12.66	Vertical
2133.0	-51.64	2.87	27.60	-26.91	-13	-13.91	Vertical
2133.0	-50.67	2.87	27.60	-25.94	-13	-12.94	Horizontal
176.4	-39.17	1.58	15.93	-24.82	-13	-11.82	Vertical
266.5	-39.64	1.36	15.59	-25.41	-13	-12.41	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	-69.24	2.61	27.28	-44.57	-40	-4.57	Horizontal
1559.0	-73.86	2.61	27.28	-49.19	-40	-9.19	Vertical
2338.5	-42.30	2.87	27.59	-17.58	-13	-4.58	Vertical
2338.5	-39.36	2.87	27.59	-14.64	-13	-1.64	Horizontal
120.1	-35.90	1.54	15.61	-21.83	-13	-8.83	Vertical
197.8	-35.70	1.51	15.21	-22.00	-13	-9.00	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-70.45	2.62	27.30	-45.77	-40	-5.77	Horizontal
1564.0	-71.76	2.62	27.30	-47.08	-40	-7.08	Vertical
2346.0	-41.26	2.87	27.62	-16.51	-13	-3.51	Vertical
2346.0	-40.26	2.87	27.62	-15.51	-13	-2.51	Horizontal
131.2	-36.18	1.65	16.17	-21.66	-13	-8.66	Vertical
267.5	-37.02	1.48	16.88	-21.62	-13	-8.62	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-74.93	2.66	27.28	-50.31	-40	-10.31	Horizontal
1569.0	-72.87	2.66	27.28	-48.25	-40	-8.25	Vertical
2353.5	-44.65	2.88	27.60	-19.93	-13	-6.93	Vertical
2353.5	-41.03	2.88	27.60	-16.31	-13	-3.31	Horizontal
80.8	-38.01	1.54	16.40	-23.15	-13	-10.15	Vertical
155.6	-36.17	1.43	15.77	-21.83	-13	-8.83	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	-69.78	2.62	27.30	-45.10	-40	-5.10	Horizontal
1564.0	-69.72	2.62	27.30	-45.04	-40	-5.04	Vertical
2346.0	-42.06	2.87	27.62	-17.31	-13	-4.31	Vertical
2346.0	-43.69	2.87	27.62	-18.94	-13	-5.94	Horizontal
129.1	-37.92	1.43	17.03	-22.32	-13	-9.32	Vertical
86.9	-36.20	1.62	16.63	-21.19	-13	-8.19	Horizontal

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

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

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

9.7 LTE BAND 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	-49.03	2.61	27.28	-24.36	-13	-11.36	Horizontal
1413.0	-45.45	2.61	27.28	-20.78	-13	-7.78	Vertical
2119.5	-45.66	2.87	27.59	-20.94	-13	-7.94	Vertical
2119.5	-49.98	2.87	27.59	-25.26	-13	-12.26	Horizontal
181.9	-42.33	1.71	16.15	-27.89	-13	-14.89	Vertical
323.4	-41.83	1.41	17.32	-25.92	-13	-12.92	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-52.70	2.62	27.30	-28.02	-13	-15.02	Horizontal
1420.0	-51.74	2.62	27.30	-27.06	-13	-14.06	Vertical
2130.0	-47.86	2.87	27.62	-23.11	-13	-10.11	Vertical
2130.0	-53.81	2.87	27.62	-29.06	-13	-16.06	Horizontal
197.8	-36.19	1.42	15.25	-22.37	-13	-9.37	Vertical
232.0	-41.09	1.36	17.19	-25.26	-13	-12.26	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-47.71	2.66	27.28	-23.09	-13	-10.09	Horizontal
1427.0	-51.01	2.66	27.28	-26.39	-13	-13.39	Vertical
2140.5	-49.03	2.88	27.60	-24.31	-13	-11.31	Vertical
2140.5	-51.31	2.88	27.60	-26.59	-13	-13.59	Horizontal
186.2	-35.55	1.32	17.29	-19.58	-13	-6.58	Vertical
343.1	-42.63	1.72	16.89	-27.46	-13	-14.46	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-48.93	2.62	27.30	-24.25	-13	-11.25	Horizontal
1418.0	-45.59	2.62	27.30	-20.91	-13	-7.91	Vertical
2127.0	-51.40	2.87	27.62	-26.65	-13	-13.65	Vertical
2127.0	-50.38	2.87	27.62	-25.63	-13	-12.63	Horizontal
184.7	-38.54	1.35	16.91	-22.98	-13	-9.98	Vertical
443.9	-43.28	1.62	16.31	-28.59	-13	-15.59	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-45.32	2.62	27.30	-20.64	-13	-7.64	Horizontal
1420.0	-52.79	2.62	27.30	-28.11	-13	-15.11	Vertical
2130.0	-49.93	2.87	27.62	-25.18	-13	-12.18	Vertical
2130.0	-51.40	2.87	27.62	-26.65	-13	-13.65	Horizontal
201.0	-34.24	1.51	17.14	-18.61	-13	-5.61	Vertical
281.6	-36.50	1.77	16.88	-21.39	-13	-8.39	Horizontal
Test Results for High Channel 711MHz							
1422.0	-51.28	2.62	27.30	-26.60	-13	-13.60	Horizontal
1422.0	-47.35	2.62	27.30	-22.67	-13	-9.67	Vertical
2133.0	-44.21	2.87	27.62	-19.46	-13	-6.46	Vertical
2133.0	-53.38	2.87	27.62	-28.63	-13	-15.63	Horizontal
181.5	-39.66	1.78	15.95	-25.49	-13	-12.49	Vertical
466.2	-37.00	1.34	17.95	-20.40	-13	-7.40	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	-49.80	4.01	27.5	-26.31	-13	-13.31	Horizontal
5145	-53.22	4.01	27.5	-29.73	-13	-16.73	Vertical
7717.5	-53.00	5.09	27.8	-30.29	-13	-17.29	Vertical
7717.5	-49.70	5.09	27.8	-26.99	-13	-13.99	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-53.43	4.1	27.48	-30.05	-13	-17.05	Horizontal
5190	-54.09	4.1	27.48	-30.71	-13	-17.71	Vertical
7785	-52.82	5.42	27.7	-30.54	-13	-17.54	Vertical
7785	-52.97	5.42	27.7	-30.69	-13	-17.69	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-50.80	4.11	27.43	-27.48	-13	-14.48	Horizontal
5234	-54.21	4.11	27.43	-30.89	-13	-17.89	Vertical
7851	-53.95	5.31	27.74	-31.52	-13	-18.52	Vertical
7851	-52.03	5.31	27.74	-29.60	-13	-16.60	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	-52.85	3.89	27.5	-29.24	-13	-16.24	Horizontal
5160	-52.08	3.89	27.5	-28.47	-13	-15.47	Vertical
7740	-49.84	5.33	27.8	-27.37	-13	-14.37	Vertical
7740	-53.07	5.33	27.8	-30.60	-13	-17.60	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-53.42	4.1	27.48	-30.04	-13	-17.04	Horizontal
5190	-50.27	4.1	27.48	-26.89	-13	-13.89	Vertical
7785	-53.06	5.42	27.7	-30.78	-13	-17.78	Vertical
7785	-51.42	5.42	27.7	-29.14	-13	-16.14	Horizontal
Test Results for High Channel 2610MHz							
5220	-52.55	4.01	27.43	-29.13	-13	-16.13	Horizontal
5220	-52.28	4.01	27.43	-28.86	-13	-15.86	Vertical
7830	-49.51	5.34	27.74	-27.11	-13	-14.11	Vertical
7830	-51.13	5.34	27.74	-28.73	-13	-15.73	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 (2305-2320MHz) (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	-81.44	4.04	33.51	-51.97	-40	-11.97	Horizontal
4615	-83.66	4.04	33.51	-54.19	-40	-14.19	Vertical
6922.5	-81.17	5.24	35.84	-50.57	-40	-10.57	Vertical
6922.5	-82.26	5.24	35.84	-51.66	-40	-11.66	Horizontal
Test Results for Mid Channel 2312.5MHz							
4625	-80.61	4.04	33.56	-51.09	-40	-11.09	Horizontal
4625	-79.77	4.04	33.56	-50.25	-40	-10.25	Vertical
6937.5	-84.55	5.24	35.91	-53.88	-40	-13.88	Vertical
6937.5	-80.70	5.24	35.91	-50.03	-40	-10.03	Horizontal
Test Results for High Channel 2317.5MHz							
4635	-84.46	4.04	34	-54.50	-40	-14.50	Horizontal
4635	-81.35	4.04	34	-51.39	-40	-11.39	Vertical
6952.5	-82.32	5.24	36.04	-51.52	-40	-11.52	Vertical
6952.5	-81.06	5.24	36.04	-50.26	-40	-10.26	Horizontal

QPSK EIRP POWER FOR LTE BAND 40 (2305-2320MHz) (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	-79.89	4.07	33.54	-50.42	-40	-10.42	Horizontal
4620	-80.88	4.07	33.54	-51.41	-40	-11.41	Vertical
6930	-81.49	5.28	35.86	-50.91	-40	-10.91	Vertical
6930	-81.60	5.28	35.86	-51.02	-40	-11.02	Horizontal
Test Results for Mid Channel 2312.5MHz							
4625	-83.11	4.04	33.56	-53.59	-40	-13.59	Horizontal
4625	-80.30	4.04	33.56	-50.78	-40	-10.78	Vertical
6937.5	-79.47	5.24	35.91	-48.80	-40	-8.80	Vertical
6937.5	-81.59	5.24	35.91	-50.92	-40	-10.92	Horizontal
Test Results for High Channel 2315MHz							
4630	-83.33	4.04	34	-53.37	-40	-13.37	Horizontal
4630	-84.38	4.04	34	-54.42	-40	-14.42	Vertical
6945	-82.74	5.24	36.04	-51.94	-40	-11.94	Vertical
6945	-81.20	5.24	36.04	-50.40	-40	-10.40	Horizontal

QPSK EIRP POWER FOR LTE BAND 40 (2345-2360MHz) (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	-82.18	4.04	33.51	-52.71	-40	-12.71	Horizontal
4695	-83.52	4.04	33.51	-54.05	-40	-14.05	Vertical
7042.5	-79.31	5.24	35.84	-48.71	-40	-8.71	Vertical
7042.5	-83.52	5.24	35.84	-52.92	-40	-12.92	Horizontal
Test Results for Mid Channel 2352.5MHz							
4705	-83.08	4.04	33.56	-53.56	-40	-13.56	Horizontal
4705	-83.46	4.04	33.56	-53.94	-40	-13.94	Vertical
7057.5	-80.52	5.24	35.91	-49.85	-40	-9.85	Vertical
7057.5	-84.31	5.24	35.91	-53.64	-40	-13.64	Horizontal
Test Results for High Channel 2357.5MHz							
4715	-83.36	4.04	34	-53.40	-40	-13.40	Horizontal
4715	-82.93	4.04	34	-52.97	-40	-12.97	Vertical
7072.5	-83.81	5.24	36.04	-53.01	-40	-13.01	Vertical
7072.5	-82.88	5.24	36.04	-52.08	-40	-12.08	Horizontal

QPSK EIRP POWER FOR LTE BAND 40(2345-2360MHz) (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	-79.59	4.07	33.54	-50.12	-40	-10.12	Horizontal
4700	-80.01	4.07	33.54	-50.54	-40	-10.54	Vertical
7050	-82.53	5.28	35.86	-51.95	-40	-11.95	Vertical
7050	-80.95	5.28	35.86	-50.37	-40	-10.37	Horizontal
Test Results for Mid Channel 2352.5MHz							
4705	-80.55	4.04	33.56	-51.03	-40	-11.03	Horizontal
4705	-80.29	4.04	33.56	-50.77	-40	-10.77	Vertical
7057.5	-82.48	5.24	35.91	-51.81	-40	-11.81	Vertical
7057.5	-81.70	5.24	35.91	-51.03	-40	-11.03	Horizontal
Test Results for High Channel 2355MHz							
4710	-83.02	4.04	34	-53.06	-40	-13.06	Horizontal
4710	-82.10	4.04	34	-52.14	-40	-12.14	Vertical
7065	-81.06	5.24	36.04	-50.26	-40	-10.26	Vertical
7065	-84.66	5.24	36.04	-53.86	-40	-13.86	Horizontal

9.10 LTE BAND 41

LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2537.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5075.0	-61.51	5.23	35.81	-30.93	-25	-5.93	Horizontal
5075.0	-62.65	5.23	35.81	-32.07	-25	-7.07	Vertical
7612.5	-64.99	5.67	36.85	-33.81	-25	-8.81	Vertical
7612.5	-64.29	5.67	36.85	-33.11	-25	-8.11	Horizontal
435.3	-49.35	1.38	15.98	-34.75	-25	-9.75	Vertical
465.8	-44.02	1.62	15.66	-29.98	-25	-4.98	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-64.30	5.23	35.82	-33.71	-25	-8.71	Horizontal
5190.0	-60.48	5.23	35.82	-29.89	-25	-4.89	Vertical
7785.0	-59.82	5.67	36.85	-28.64	-25	-3.64	Vertical
7785.0	-61.76	5.67	36.85	-30.58	-25	-5.58	Horizontal
510.4	-45.09	1.62	16.17	-30.54	-25	-5.54	Vertical
562.9	-49.31	1.74	17.63	-33.42	-25	-8.42	Horizontal
Test Results for High Channel 2652.5MHz							
5305.0	-60.92	5.24	35.83	-30.33	-25	-5.33	Horizontal
5305.0	-61.99	5.24	35.83	-31.40	-25	-6.40	Vertical
7957.5	-60.62	5.68	36.87	-29.43	-25	-4.43	Vertical
7957.5	-61.16	5.68	36.87	-29.97	-25	-4.97	Horizontal
197.6	-48.97	1.55	15.84	-34.68	-25	-9.68	Vertical
353.1	-49.76	1.51	17.06	-34.21	-25	-9.21	Horizontal

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

Test Results for Low Channel 2545MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5090.0	-64.82	5.23	35.82	-34.23	-25	-9.23	Horizontal
5090.0	-62.15	5.23	35.82	-31.56	-25	-6.56	Vertical
7635.0	-64.70	5.67	36.86	-33.51	-25	-8.51	Vertical
7635.0	-64.40	5.67	36.86	-33.21	-25	-8.21	Horizontal
128.9	-44.49	1.43	15.51	-30.41	-25	-5.41	Vertical
344.8	-46.62	1.40	16.97	-31.05	-25	-6.05	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-64.76	5.23	35.82	-34.17	-25	-9.17	Horizontal
5190.0	-60.39	5.23	35.82	-29.80	-25	-4.80	Vertical
7785.0	-59.91	5.67	36.85	-28.73	-25	-3.73	Vertical
7785.0	-63.41	5.67	36.85	-32.23	-25	-7.23	Horizontal
100.8	-44.84	1.77	16.72	-29.89	-25	-4.89	Vertical
263.5	-44.60	1.31	16.99	-28.92	-25	-3.92	Horizontal
Test Results for High Channel 2645MHz							
5290.0	-64.71	5.24	35.83	-34.12	-25	-9.12	Horizontal
5290.0	-59.44	5.24	35.83	-28.85	-25	-3.85	Vertical
7935.0	-61.56	5.70	36.88	-30.38	-25	-5.38	Vertical
7935.0	-62.17	5.70	36.88	-30.99	-25	-5.99	Horizontal
349.9	-45.79	1.70	15.73	-31.76	-25	-6.76	Vertical
110.3	-45.31	1.75	17.33	-29.73	-25	-4.73	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	-44.60	4.02	29.80	-18.82	-13	-5.82	Horizontal
3421.4	-53.26	4.02	29.80	-27.48	-13	-14.48	Vertical
5132.1	-52.90	5.24	35.84	-22.30	-13	-9.30	Vertical
5132.1	-49.37	5.24	35.84	-18.77	-13	-5.77	Horizontal
112.6	-51.58	1.52	15.57	-37.53	-13	-24.53	Vertical
220.5	-53.14	1.33	17.14	-37.33	-13	-24.33	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-46.60	4.03	30.00	-20.63	-13	-7.63	Horizontal
3490.0	-51.05	4.03	30.00	-25.08	-13	-12.08	Vertical
5235.0	-54.92	5.25	35.86	-24.31	-13	-11.31	Vertical
5235.0	-49.15	5.25	35.86	-18.54	-13	-5.54	Horizontal
157.3	-46.86	1.53	17.13	-31.26	-13	-18.26	Vertical
213.1	-48.10	1.41	15.95	-33.56	-13	-20.56	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-54.27	4.05	30.01	-28.31	-13	-15.31	Horizontal
3558.6	-52.79	4.05	30.01	-26.83	-13	-13.83	Vertical
5337.9	-51.02	5.26	35.86	-20.42	-13	-7.42	Vertical
5337.9	-52.55	5.26	35.86	-21.95	-13	-8.95	Horizontal
170.6	-53.91	1.44	15.51	-39.84	-13	-26.84	Vertical
169.0	-45.13	1.78	15.76	-31.15	-13	-18.15	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	-55.00	4.02	29.80	-29.22	-13	-16.22	Horizontal
3440.0	-47.12	4.02	29.80	-21.34	-13	-8.34	Vertical
5160.0	-52.28	5.24	35.84	-21.68	-13	-8.68	Vertical
5160.0	-54.96	5.24	35.84	-24.36	-13	-11.36	Horizontal
268.8	-49.88	1.62	17.02	-34.48	-13	-21.48	Vertical
161.4	-54.04	1.32	17.31	-38.05	-13	-25.05	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-44.72	4.03	30.00	-18.75	-13	-5.75	Horizontal
3490.0	-54.92	4.03	30.00	-28.95	-13	-15.95	Vertical
5235.0	-51.20	5.25	35.86	-20.59	-13	-7.59	Vertical
5235.0	-47.29	5.25	35.86	-16.68	-13	-3.68	Horizontal
159.9	-44.67	1.45	15.17	-30.95	-13	-17.95	Vertical
172.1	-49.65	1.48	17.82	-33.31	-13	-20.31	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-48.12	2.91	27.68	-23.35	-13	-10.35	Horizontal
3540.0	-44.30	2.91	27.68	-19.53	-13	-6.53	Vertical
5310.0	-50.01	5.26	35.86	-19.41	-13	-6.41	Vertical
5310.0	-48.90	5.26	35.86	-18.30	-13	-5.30	Horizontal
197.3	-53.57	1.76	16.38	-38.95	-13	-25.95	Vertical
158.5	-49.41	1.43	17.13	-33.71	-13	-20.71	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.

9.12 LTE BAND 71

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

Test Results for Low Channel 665.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1331	-50.14	2.61	27.28	-25.47	-13	-12.47	Horizontal
1331	-51.65	2.61	27.28	-26.98	-13	-13.98	Vertical
1996.5	-52.24	2.87	27.59	-27.52	-13	-14.52	Vertical
1996.5	-51.67	2.87	27.59	-26.95	-13	-13.95	Horizontal
Test Results For Mid Channel 680.5MHz							
1361	-50.24	2.62	27.30	-25.56	-13	-12.56	Horizontal
1361	-54.16	2.62	27.30	-29.48	-13	-16.48	Vertical
2041.5	-50.68	2.87	27.62	-25.93	-13	-12.93	Vertical
2041.5	-50.34	2.87	27.62	-25.59	-13	-12.59	Horizontal
Test Results for High Channel 695.5MHz							
1391	-54.88	2.66	27.28	-30.26	-13	-17.26	Horizontal
1391	-53.01	2.66	27.28	-28.39	-13	-15.39	Vertical
2086.5	-54.04	2.88	27.60	-29.32	-13	-16.32	Vertical
2086.5	-53.16	2.88	27.60	-28.44	-13	-15.44	Horizontal

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

Test Results for Low Channel 673MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1346	-49.99	2.62	27.30	-25.31	-13	-12.31	Horizontal
1346	-50.03	2.62	27.30	-25.35	-13	-12.35	Vertical
2019	-53.40	2.87	27.62	-28.65	-13	-15.65	Vertical
2019	-49.33	2.87	27.62	-24.58	-13	-11.58	Horizontal
Test Results for Mid Channel 683MHz							
1366	-51.11	2.62	27.30	-26.43	-13	-13.43	Horizontal
1366	-54.28	2.62	27.30	-29.60	-13	-16.60	Vertical
2049	-49.91	2.87	27.62	-25.16	-13	-12.16	Vertical
2049	-52.15	2.87	27.62	-27.40	-13	-14.40	Horizontal
Test Results for High Channel 688MHz							
1376	-53.18	2.62	27.30	-28.50	-13	-15.50	Horizontal
1376	-53.01	2.62	27.30	-28.33	-13	-15.33	Vertical
2064	-51.90	2.87	27.62	-27.15	-13	-14.15	Vertical
2064	-54.67	2.87	27.62	-29.92	-13	-16.92	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
- LTE Band 71

RESULTS

See the following pages.

10.1 LTE BAND 2

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
10.8	1880	12.2	0.006515	2.5
12	1880	13.8	0.007360	2.5
13.2	1880	13.3	0.007070	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.9	0.006837	2.5
Extreme (50C)	1880	11.4	0.006088	2.5
Extreme (40C)	1880	13.9	0.007374	2.5
Extreme (30C)	1880	13.1	0.006957	2.5
Extreme (10C)	1880	14.2	0.007552	2.5
Extreme (0C)	1880	12.1	0.006452	2.5
Extreme (-10C)	1880	13.4	0.007124	2.5
Extreme (-20C)	1880	14.6	0.007754	2.5
Extreme (-30C)	1880	14.8	0.007895	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	10.1	0.005351	2.5
12	1880	9.0	0.004764	2.5
13.2	1880	7.8	0.004126	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.7	0.005155	2.5
Extreme (50C)	1880	9.3	0.004941	2.5
Extreme (40C)	1880	7.8	0.004125	2.5
Extreme (30C)	1880	9.5	0.005047	2.5
Extreme (10C)	1880	8.7	0.004624	2.5
Extreme (0C)	1880	7.9	0.004213	2.5
Extreme (-10C)	1880	8.8	0.004707	2.5
Extreme (-20C)	1880	9.3	0.004943	2.5
Extreme (-30C)	1880	8.5	0.004537	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	9.2	0.005287	2.5
12	1732.5	9.0	0.005202	2.5
13.2	1732.5	8.7	0.005039	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.6	0.004984	2.5
Extreme (50C)	1732.5	8.9	0.005147	2.5
Extreme (40C)	1732.5	7.0	0.004052	2.5
Extreme (30C)	1732.5	5.8	0.003369	2.5
Extreme (10C)	1732.5	7.3	0.004223	2.5
Extreme (0C)	1732.5	9.1	0.005257	2.5
Extreme (-10C)	1732.5	8.1	0.004689	2.5
Extreme (-20C)	1732.5	7.4	0.004268	2.5
Extreme (-30C)	1732.5	8.0	0.004637	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	9.4	0.005452	2.5
12	1732.5	8.9	0.005109	2.5
13.2	1732.5	8.5	0.004892	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.9	0.005714	2.5
Extreme (50C)	1732.5	8.7	0.005027	2.5
Extreme (40C)	1732.5	7.6	0.004404	2.5
Extreme (30C)	1732.5	9.1	0.005232	2.5
Extreme (10C)	1732.5	9.3	0.005360	2.5
Extreme (0C)	1732.5	7.8	0.004498	2.5
Extreme (-10C)	1732.5	9.1	0.005262	2.5
Extreme (-20C)	1732.5	9.0	0.005190	2.5
Extreme (-30C)	1732.5	8.6	0.004938	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	5.8	0.006920	2.5
12	836.5	6.7	0.008049	2.5
13.2	836.5	4.3	0.005190	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007464	2.5
Extreme (50C)	836.5	6.0	0.007212	2.5
Extreme (40C)	836.5	6.3	0.007579	2.5
Extreme (30C)	836.5	6.8	0.008124	2.5
Extreme (10C)	836.5	5.8	0.006982	2.5
Extreme (0C)	836.5	5.4	0.006423	2.5
Extreme (-10C)	836.5	6.1	0.007279	2.5
Extreme (-20C)	836.5	5.8	0.006988	2.5
Extreme (-30C)	836.5	6.0	0.007149	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	5.7	0.006795	2.5
12	836.5	6.4	0.007648	2.5
13.2	836.5	4.3	0.005199	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.8	0.006891	2.5
Extreme (50C)	836.5	6.4	0.007641	2.5
Extreme (40C)	836.5	6.0	0.007122	2.5
Extreme (30C)	836.5	6.9	0.008217	2.5
Extreme (10C)	836.5	5.5	0.006610	2.5
Extreme (0C)	836.5	5.5	0.006532	2.5
Extreme (-10C)	836.5	6.0	0.007225	2.5
Extreme (-20C)	836.5	6.3	0.007520	2.5
Extreme (-30C)	836.5	6.3	0.007520	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	9.8	0.003878	2.5
12	2535	8.9	0.003502	2.5
13.2	2535	8.1	0.003177	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	8.9	0.003520	2.5
Extreme (50C)	2535	9.3	0.003674	2.5
Extreme (40C)	2535	8.6	0.003397	2.5
Extreme (30C)	2535	8.8	0.003491	2.5
Extreme (10C)	2535	7.8	0.003091	2.5
Extreme (0C)	2535	8.1	0.003198	2.5
Extreme (-10C)	2535	9.5	0.003756	2.5
Extreme (-20C)	2535	8.4	0.003325	2.5
Extreme (-30C)	2535	8.6	0.003409	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	6.6	0.002593	2.5
13.2	2535	6.0	0.002371	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	5.7	0.002263	2.5
Extreme (40C)	2535	4.9	0.001939	2.5
Extreme (30C)	2535	6.5	0.002580	2.5
Extreme (10C)	2535	5.7	0.002256	2.5
Extreme (0C)	2535	5.6	0.002198	2.5
Extreme (-10C)	2535	5.0	0.001954	2.5
Extreme (-20C)	2535	6.2	0.002461	2.5
Extreme (-30C)	2535	5.4	0.002117	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	9.0	0.012704	2.5
12	707.5	10.1	0.014338	2.5
13.2	707.5	8.7	0.012249	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.4	0.011943	2.5
Extreme (50C)	707.5	7.4	0.010390	2.5
Extreme (40C)	707.5	7.3	0.010309	2.5
Extreme (30C)	707.5	8.8	0.012408	2.5
Extreme (10C)	707.5	7.8	0.011066	2.5
Extreme (0C)	707.5	9.1	0.012831	2.5
Extreme (-10C)	707.5	8.0	0.011266	2.5
Extreme (-20C)	707.5	8.9	0.012639	2.5
Extreme (-30C)	707.5	7.6	0.010715	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	7.2	0.010143	2.5
12	707.5	8.3	0.011722	2.5
13.2	707.5	7.0	0.009907	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	12.5	0.017558	2.5
12	782	13.6	0.019126	2.5
13.2	782	13.4	0.018803	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	14.6	0.020546	2.5
Extreme (50C)	782	13.3	0.018742	2.5
Extreme (40C)	782	15.4	0.021647	2.5
Extreme (30C)	782	14.5	0.020481	2.5
Extreme (10C)	782	14.3	0.020140	2.5
Extreme (0C)	782	14.5	0.020429	2.5
Extreme (-10C)	782	14.0	0.019662	2.5
Extreme (-20C)	782	14.2	0.020038	2.5
Extreme (-30C)	782	13.4	0.018862	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	12.4	0.017425	2.5
12	782	14.2	0.019967	2.5
13.2	782	13.2	0.018643	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	13.0	0.018350	2.5
Extreme (50C)	782	11.2	0.015823	2.5
Extreme (40C)	782	13.4	0.018816	2.5
Extreme (30C)	782	13.4	0.018917	2.5
Extreme (10C)	782	13.7	0.019289	2.5
Extreme (0C)	782	12.0	0.016964	2.5
Extreme (-10C)	782	13.3	0.018700	2.5
Extreme (-20C)	782	14.5	0.020438	2.5
Extreme (-30C)	782	14.3	0.020204	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	10.1	0.014202	2.5
12	710	8.6	0.012161	2.5
13.2	710	8.1	0.011381	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	9.7	0.013665	2.5
Extreme (50C)	710	9.2	0.012941	2.5
Extreme (40C)	710	8.5	0.012042	2.5
Extreme (30C)	710	8.9	0.012598	2.5
Extreme (10C)	710	9.0	0.012672	2.5
Extreme (0C)	710	8.6	0.012077	2.5
Extreme (-10C)	710	8.6	0.012115	2.5
Extreme (-20C)	710	8.9	0.012485	2.5
Extreme (-30C)	710	8.3	0.011738	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	10.2	0.014306	2.5
12	710	8.5	0.012028	2.5
13.2	710	8.1	0.011350	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	9.1	0.012826	2.5
Extreme (50C)	710	9.0	0.012690	2.5
Extreme (40C)	710	8.1	0.011416	2.5
Extreme (30C)	710	8.8	0.012433	2.5
Extreme (10C)	710	8.1	0.011461	2.5
Extreme (0C)	710	8.3	0.011754	2.5
Extreme (-10C)	710	9.2	0.012901	2.5
Extreme (-20C)	710	8.5	0.011965	2.5
Extreme (-30C)	710	8.8	0.012421	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	8.7	0.00336	2.5
12	2595	6.0	0.00233	2.5
13.2	2595	7.6	0.00292	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.1	0.00272	2.5
Extreme (50C)	2595	5.3	0.00203	2.5
Extreme (40C)	2595	5.6	0.00215	2.5
Extreme (30C)	2595	4.9	0.00190	2.5
Extreme (10C)	2595	6.8	0.00263	2.5
Extreme (0C)	2595	5.2	0.00200	2.5
Extreme (-10C)	2595	9.5	0.00365	2.5
Extreme (-20C)	2595	10.8	0.00416	2.5
Extreme (-30C)	2595	6.3	0.00245	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	8.3	0.00320	2.5
12	2595	6.4	0.00247	2.5
13.2	2595	6.2	0.00237	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.3	0.00282	2.5
Extreme (50C)	2595	5.0	0.00193	2.5
Extreme (40C)	2595	5.2	0.00199	2.5
Extreme (30C)	2595	4.6	0.00175	2.5
Extreme (10C)	2595	6.0	0.00231	2.5
Extreme (0C)	2595	5.3	0.00202	2.5
Extreme (-10C)	2595	9.5	0.00365	2.5
Extreme (-20C)	2595	11.1	0.00428	2.5
Extreme (-30C)	2595	6.4	0.00245	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 38750 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	2312.5	12.2	0.00528	2.5
12	2312.5	13.9	0.00603	2.5
13.2	2312.5	13.4	0.00579	2.5

Frequency error vs. Voltage

Temperature	Frequency	Frequency*	Frequency	Limit
[°C]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 QPSK, (CH 38750 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	2312.5	7.1	0.00305	2.5
Extreme (50C)	2312.5	4.4	0.00190	2.5
Extreme (40C)	2312.5	5.3	0.00229	2.5
Extreme (30C)	2312.5	4.5	0.00194	2.5
Extreme (10C)	2312.5	6.0	0.00258	2.5
Extreme (0C)	2312.5	4.7	0.00203	2.5
Extreme (-10C)	2312.5	9.1	0.00392	2.5
Extreme (-20C)	2312.5	11.2	0.00483	2.5
Extreme (-30C)	2312.5	5.9	0.00254	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	12.5	0.00539	2.5
12	2312.5	14.2	0.00613	2.5
13.2	2312.5	13.7	0.00592	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	7.5	0.00326	2.5
Extreme (50C)	2312.5	4.3	0.00187	2.5
Extreme (40C)	2312.5	5.7	0.00245	2.5
Extreme (30C)	2312.5	4.4	0.00192	2.5
Extreme (10C)	2312.5	6.1	0.00264	2.5
Extreme (0C)	2312.5	5.2	0.00226	2.5
Extreme (-10C)	2312.5	9.1	0.00392	2.5
Extreme (-20C)	2312.5	10.8	0.00468	2.5
Extreme (-30C)	2312.5	6.3	0.00271	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 39200 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	2352.5	12.8	0.00545	2.5
12	2352.5	14.3	0.00606	2.5
13.2	2352.5	13.0	0.00552	2.5

Frequency error vs. Temperature

Temperature	Frequency	Frequency*	Frequency	Limit
[°C]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 QPSK, (CH 39200 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	2352.5	7.6	0.00322	2.5
Extreme (50C)	2352.5	5.2	0.00221	2.5
Extreme (40C)	2352.5	5.5	0.00232	2.5
Extreme (30C)	2352.5	5.0	0.00211	2.5
Extreme (10C)	2352.5	6.3	0.00270	2.5
Extreme (0C)	2352.5	4.7	0.00202	2.5
Extreme (-10C)	2352.5	9.2	0.00391	2.5
Extreme (-20C)	2352.5	10.8	0.00459	2.5
Extreme (-30C)	2352.5	5.8	0.00246	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 39200 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
10.8	2352.5	13.1	0.00555	2.5
12	2352.5	13.7	0.00584	2.5
13.2	2352.5	13.6	0.00579	2.5

Frequency error vs. Temperature

Temperature	Frequency	Frequency*	Frequency	Limit
[°C]	[MHz]	Error[Hz]	Error[ppm]	[ppm]
BAND 40 16QAM, (CH 39200 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	2352.5	7.7	0.00325	2.5
Extreme (50C)	2352.5	5.2	0.00222	2.5
Extreme (40C)	2352.5	5.6	0.00240	2.5
Extreme (30C)	2352.5	4.4	0.00187	2.5
Extreme (10C)	2352.5	6.5	0.00276	2.5
Extreme (0C)	2352.5	5.3	0.00226	2.5
Extreme (-10C)	2352.5	9.8	0.00416	2.5
Extreme (-20C)	2352.5	10.6	0.00449	2.5
Extreme (-30C)	2352.5	5.9	0.00252	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 40639 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
10.8	2595	8.3	0.00319	2.5
12	2595	6.2	0.00240	2.5
13.2	2595	7.5	0.00288	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40639 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	7.6	0.00294	2.5
Extreme (50C)	2595	4.7	0.00182	2.5
Extreme (40C)	2595	5.1	0.00197	2.5
Extreme (30C)	2595	4.7	0.00182	2.5
Extreme (10C)	2595	6.1	0.00234	2.5
Extreme (0C)	2595	4.9	0.00188	2.5
Extreme (-10C)	2595	10.0	0.00385	2.5
Extreme (-20C)	2595	10.7	0.00414	2.5
Extreme (-30C)	2595	5.7	0.00219	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 40639 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
10.8	2595	8.6	0.00332	2.5
12	2595	6.2	0.00238	2.5
13.2	2595	6.1	0.00236	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40639 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	7.4	0.00285	2.5
Extreme (50C)	2595	4.8	0.00186	2.5
Extreme (40C)	2595	5.8	0.00222	2.5
Extreme (30C)	2595	5.1	0.00197	2.5
Extreme (10C)	2595	6.1	0.00234	2.5
Extreme (0C)	2595	5.2	0.00202	2.5
Extreme (-10C)	2595	9.3	0.00360	2.5
Extreme (-20C)	2595	10.7	0.00412	2.5
Extreme (-30C)	2595	5.8	0.00222	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	12.3	0.00702	2.5
12	1745	13.8	0.00792	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	7.4	0.00425	2.5
Extreme (50C)	1745	4.5	0.00256	2.5
Extreme (40C)	1745	5.2	0.00297	2.5
Extreme (30C)	1745	4.8	0.00273	2.5
Extreme (10C)	1745	6.7	0.00384	2.5
Extreme (0C)	1745	5.2	0.00297	2.5
Extreme (-10C)	1745	9.3	0.00536	2.5
Extreme (-20C)	1745	11.2	0.00644	2.5
Extreme (-30C)	1745	6.1	0.00348	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	13.2	0.00754	2.5
12	1745	13.3	0.00762	2.5
13.2	1745	13.6	0.00782	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.0	0.00401	2.5
Extreme (50C)	1745	5.1	0.00291	2.5
Extreme (40C)	1745	5.3	0.00305	2.5
Extreme (30C)	1745	5.2	0.00298	2.5
Extreme (10C)	1745	6.9	0.00393	2.5
Extreme (0C)	1745	5.2	0.00298	2.5
Extreme (-10C)	1745	9.2	0.00525	2.5
Extreme (-20C)	1745	10.5	0.00605	2.5
Extreme (-30C)	1745	5.8	0.00331	2.5

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

10.12 LTE BAND 71

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
10.8	683	8.6	0.01259	2.5
12	683	13.4	0.01962	2.5
13.2	683	13	0.01903	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	683	7.9	0.01154	2.5
Extreme (50C)	683	4.6	0.00674	2.5
Extreme (40C)	683	5.9	0.00861	2.5
Extreme (30C)	683	5.1	0.00752	2.5
Extreme (10C)	683	6.0	0.00875	2.5
Extreme (0C)	683	5.0	0.00737	2.5
Extreme (-10C)	683	9.1	0.01339	2.5
Extreme (-20C)	683	10.5	0.01543	2.5
Extreme (-30C)	683	6.5	0.00958	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
10.8	683	12.3	0.01801	2.5
12	683	14.2	0.02079	2.5
13.2	683	11.2	0.01640	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	683	7.7	0.01127	2.5
Extreme (50C)	683	4.7	0.00688	2.5
Extreme (40C)	683	5.9	0.00864	2.5
Extreme (30C)	683	5.2	0.00761	2.5
Extreme (10C)	683	5.2	0.00761	2.5
Extreme (0C)	683	6.3	0.00922	2.5
Extreme (-10C)	683	9.4	0.01376	2.5
Extreme (-20C)	683	8.2	0.01201	2.5
Extreme (-30C)	683	8.4	0.01230	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.

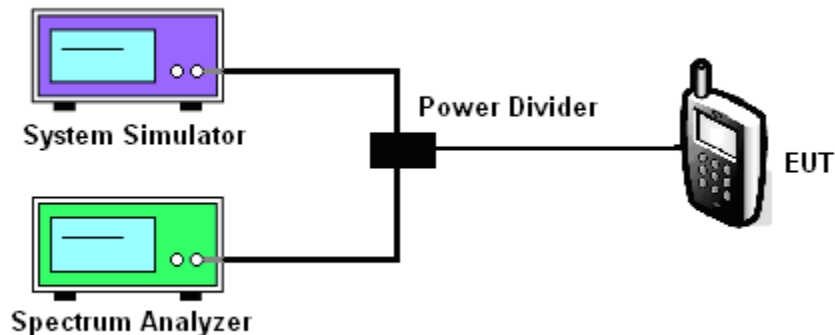
11.2 Measuring Instruments

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 2/4/5/7/12/13/17/38/40/41/66/71
- ☐

12. Duty Cycle

12.1 LIMITS

The duty cycle must not exceed 38 percent

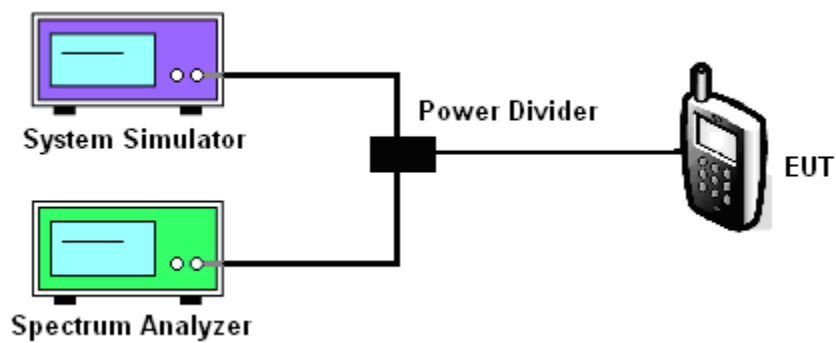
12.2 Measuring Instruments

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.

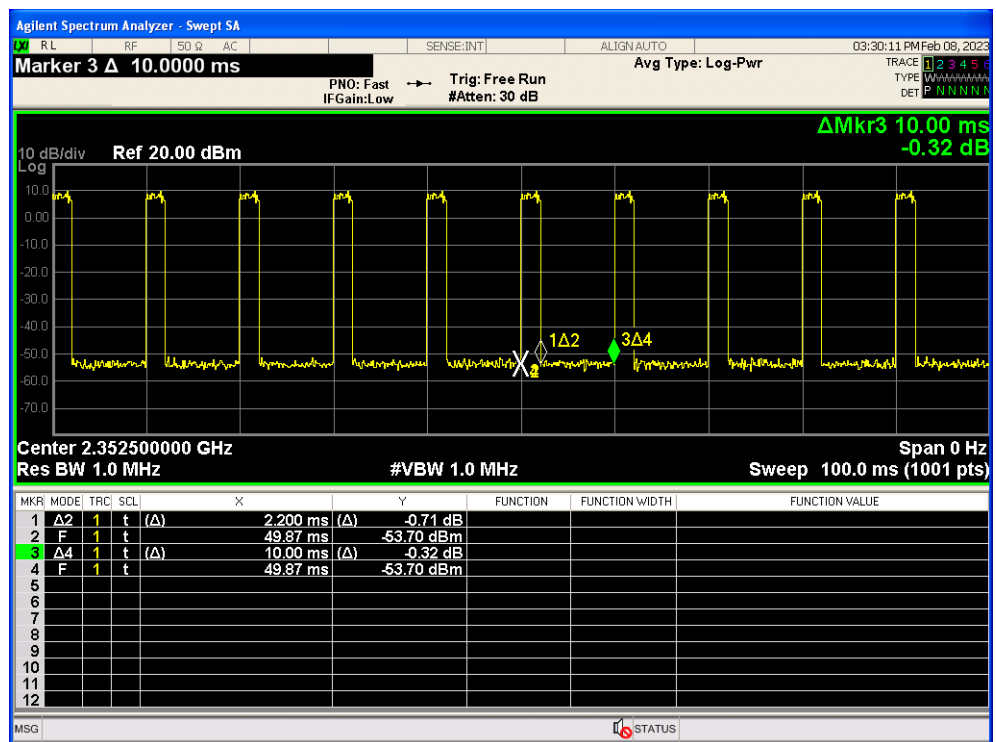
12.4 Test Setup



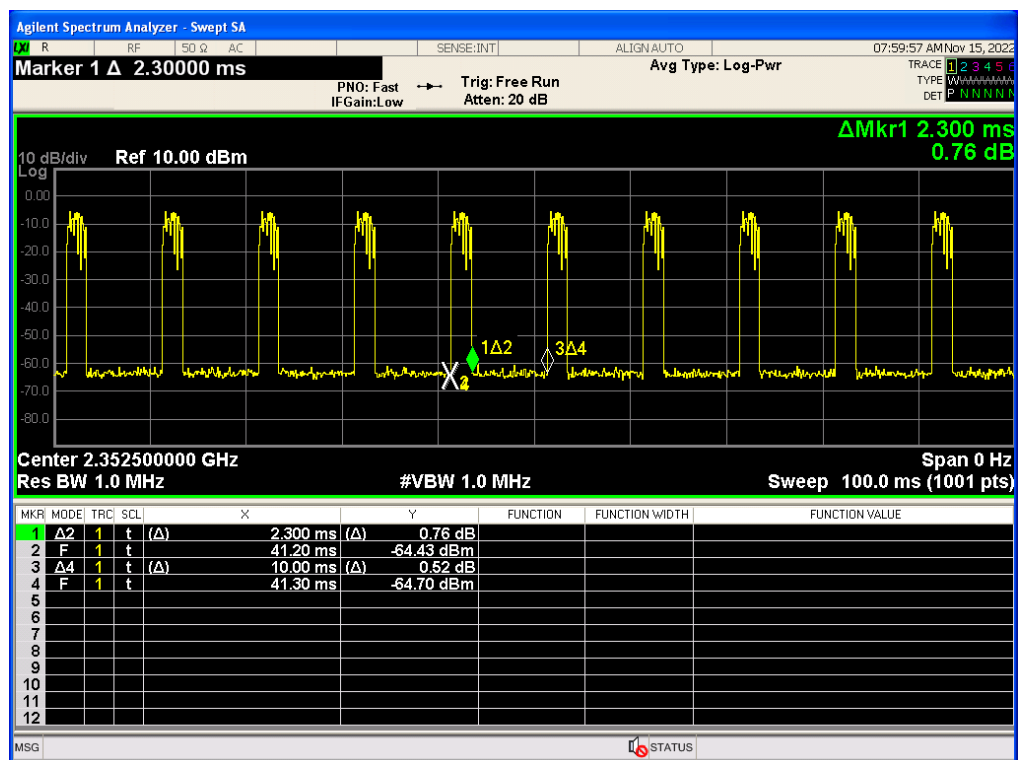
MODES TESTED

- ☐ LTE Band 40

RESULTS



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



$T_{on}=2.3ms$ $T_{total}=10ms$
 $Duty\ cycle=T_{on}/T_{total}=2.3ms/10ms=23\%$

Test data reference attachment.

----END OF REPORT----