

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

FCC ID: 2A6XG-S21

Product: Mobile Phone
Trade Mark: Signal
Model No.: S21
Family Model: N/A
Report No.: S25052206501006
Issue Date: Jul. 23, 2025

Prepared for

SMARTKOSHER

Nahal yarkon 7 Kiryat Gat Israel

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : SMARTKOSHER

Address..... : Nahal yarkon 7 Kiryat Gat Israel

Manufacturer's Name..... : Shenzhen Qimei Electronic Technology Co., Ltd.

Address..... : Room 201, Building 7, Xiannan Third Industrial Zone, Shangcun
Community, Gongming Sub-district, Guangming District, Shenzhen
City

Product name..... : Mobile Phone

Model and/or type reference .. : S21

Trade Mark..... : Signal

Family Model..... : N/A

Test Sample Number..... : S25052206501001

Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27

Test procedure : ANSI C63.26:2015
ANSI/TIA-603-E-2016

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

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Date of Test

Date (s) of performance of tests..... May. 24, 2025 ~Jul. 23, 2025

Date of Issue Jul. 23, 2025

Test Result..... **Pass**

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TABLE OF CONTENTS

1. GENERAL INFORMATION.....	5
1.1 PRODUCT DESCRIPTION	5
1.2 RELATED SUBMITTAL(S) / GRANT (S).....	7
1.3 TEST METHODOLOGY	7
1.4 TEST FACILITY	7
MEASUREMENT UNCERTAINTY	7
1.5 SPECIAL ACCESSORIES.....	7
1.6 WORST-CASE CONFIGURATION AND MODE.....	7
2. SYSTEM TEST CONFIGURATION	8
2.1 EUT CONFIGURATION.....	8
2.2 EUT EXERCISE	8
2.3 CONFIGURATION OF EUT SYSTEM.....	8
2.4 TEST SETUP	9
3.TEST AND MEASUREMENT EQUIPMENT	10
4. OUTPUT POWER.....	12
4.1 OUTPUT POWER MEASUREMENT	12
5. OCCUPIED BANDWIDTH	14
6. BANDEDGE AND EMISSION MASK.....	15
7. OUT OF BAND EMISSIONS	17
7.1 MEASUREMENT METHOD	17
8. RADIATED MEASUREMENT	18
8.1. RADIATED POWER (ERP & EIRP).....	18
8.2 LTE BAND 2.....	19
8.3 LTE BAND 4.....	23
8.4 LTE BAND 5.....	27
8.5 LTE BAND 7.....	29

8.6 LTE BAND 12	31
8.7 LTE BAND 17	33
8.8 LTE BAND 66	35
8.9 LTE BAND 71	39
9. SPURIOUS RADIATION EMISSION	41
9.1 LTE BAND 2.....	43
9.2 LTE BAND 4.....	45
9.3 LTE BAND 5.....	47
9.4 LTE BAND 7.....	49
9.5 LTE BAND 12	51
9.6 LTE BAND 17	53
9.7 LTE BAND 66	54
9.8 LTE BAND 71	56
10. FREQUENCY STABILITY	58
10.1 LTE BAND 2	59
10.2 LTE BAND 4	61
10.3 LTE BAND 5	63
10.4 LTE BAND 7	65
10.5 LTE BAND 12	67
10.6 LTE BAND 17	69
10.7 LTE BAND 66	71
10.8 LTE BAND 71	73
11. PEAK-TO-AVERAGE RATIO.....	75
11.1 Description of the PAR Measurement	75
11.2 Measuring Instruments	75
11.3 Test Procedures.....	75
11.4 Test Setup.....	76

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone
Trade Mark	Signal
Model Name	S21
Family Model	N/A
Model Difference	N/A
FCC ID:	2A6XG-S21
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 17, 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 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; 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/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	FPC Antenna
Antenna gain:	Band 2: -0.96 dBi, Band 4: -1.09 dBi, Band 5: -2.01 dBi, Band 7: -0.04 dBi, Band 12: -4.18 dBi, Band 17: -4.18 dBi, Band66: -1.09 dBi, Band 71: -4.18dBi,

Adapter	N/A
Battery	DC 3.8V, 1800mAh, 6.84Wh
Power supply	DC 3.8V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 3.23V to DC 4.37V (Nominal DC 3.8V) (Note 1)
HW Version	A590-MB-V3.1
FW Version	N/A
SW Version	A590_31B_S21_M_V01_08-07-2025
** Note1: The High Voltage DC 4.37V and Low Voltage 3.23V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2A6XG-S21** filing to comply with the FCC Part 22H&24E&27&90S

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.

No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of China.

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

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: Band 2/4/5/7/12/17/66/71

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.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

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

2.2 EUT EXERCISE

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

2.3 CONFIGURATION OF EUT SYSTEM

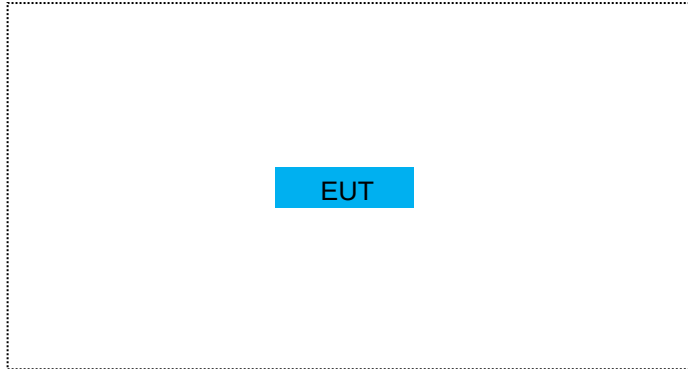
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	S21	FCC ID: 2A6XG-S21	EUT

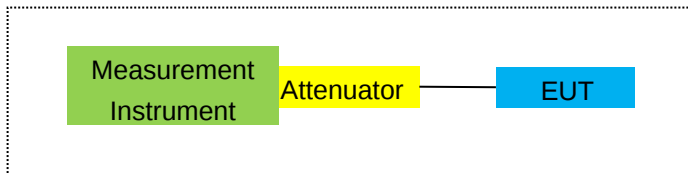
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

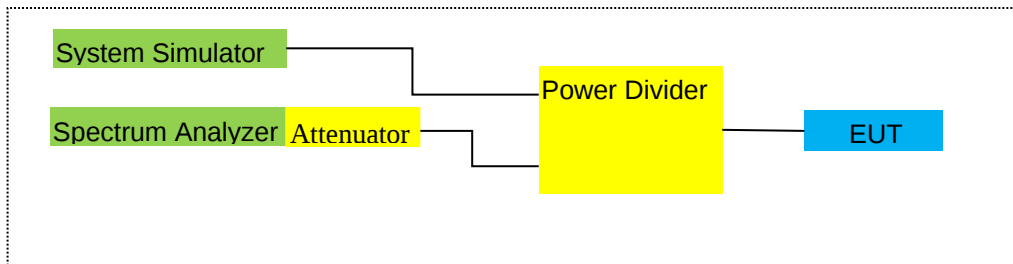
For Radiated Test Cases



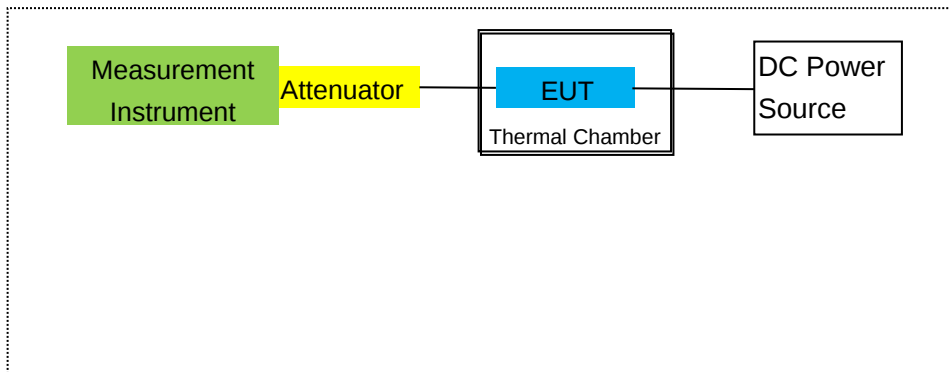
For Conducted Output Power



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	2025.04.17	2026.04.16	1 year
2	Test Receiver	R&S	ESPI	101318	2025.04.17	2026.04.16	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2025.05.11	2026.05.10	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024.05.18	2027.05.17	3 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2024.05.18	2027.05.17	3 year
7	Amplifier	EM	EM-30180	060538	2025.04.17	2026.04.16	1 year
8	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 year
9	Power Meter	R&S	NRVS	100696	2025.04.17	2026.04.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2025.04.17	2026.04.16	1 year
11	Test Cable	N/A	R-01	N/A	2023.06.17	2026.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2023.06.17	2026.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2023.06.17	2026.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
15	LISN	R&S	ENV216	101313	2025.04.17	2026.04.16	1 year
16	LISN	EMCO	3816/2	00042990	2025.04.17	2026.04.16	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
18	Field strength probe	narda	EP601	711WX81278	2025.04.17	2026.04.16	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	Agilent	E4440A	MY41000130	2025.04.17	2026.04.16	1 year
23	EMI Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
24	Universal Radio Communication Tester	R&S	CMU200	105747	2025.04.17	2026.04.16	1 year

25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpac	58226119460030	2024.05.30	2027.05.29	3 year
26	DC Power Source	N/A	PS-6005D	20170402923	2024.04.25	2027.04.24	3 year
27	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2025.04.17	2026.04.16	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2025.04.17	2026.04.16	1 year
29	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2025.04.17	2026.04.16	1 year
30	LTE Wireless Communications Test Set	R&S	CMW500	1100.008.02	2025.04.25	2026.04.24	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

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTtest	MTS 8200	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	raditeq	RadiMation	2023.1.3	RadiatedTest

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

Band 2/4/5/7/12/17/66/71

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees. Show citation box.

(c)(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

TEST PROCEDURE

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

MODES TESTED

Band 2/4/5/7/12/17/66/71

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

1. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.
2. The Band 7/41 emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $55 + 10 \log (P)$ dB.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

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

MODES TESTED

Band 2/4/5/7/12/17/66/71

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.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

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. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

KDB 971168 v02r01 RF power output using broadband peak and average power meter method.

KDB 971168 D01 Power Meas License Digital Systems v02r01, "Measurement Guidance for Certification of Licensed Digital Transmitters"

MODES TESTED

Band 2/4/5/7/12/17/66/71

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 Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1850.7	16.57	3.76	8.90	21.71	148.362	2	Horizontal	Pass
		1880	14.95	3.91	8.90	19.94	98.555	2	Horizontal	Pass
		1909.3	15.56	3.93	8.90	20.53	112.873	2	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	13.76	3.77	8.90	18.89	77.360	2	Horizontal	Pass
		1880	14.17	3.91	8.90	19.16	82.490	2	Horizontal	Pass
		1908.5	16.32	3.94	8.90	21.28	134.326	2	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	15.96	3.77	8.90	21.09	128.646	2	Horizontal	Pass
		1880	17.09	3.91	8.90	22.08	161.562	2	Horizontal	Pass
		1907.5	16.77	3.94	8.90	21.73	148.839	2	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	17.15	3.79	8.90	22.26	168.140	2	Horizontal	Pass
		1880	17.75	3.95	8.90	22.70	186.045	2	Horizontal	Pass
		1905	15.66	3.97	8.90	20.59	114.444	2	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	15.62	3.79	8.90	20.73	118.326	2	Horizontal	Pass
		1880	16.27	3.95	8.90	21.22	132.302	2	Horizontal	Pass
		1902.5	15.83	3.97	8.90	20.76	119.232	2	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	16.46	3.81	8.90	21.55	142.846	2	Horizontal	Pass
		1880	15.24	3.96	8.90	20.18	104.288	2	Horizontal	Pass
		1900	16.79	4.00	8.90	21.69	147.616	2	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	16.43	3.76	8.90	21.57	143.385	2	Vertical	Pass
		1880	15.02	3.91	8.90	20.01	100.251	2	Vertical	Pass
		1909.3	15.93	3.93	8.90	20.90	122.892	2	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	15.54	3.77	8.90	20.67	116.562	2	Vertical	Pass
		1880	16.73	3.91	8.90	21.72	148.598	2	Vertical	Pass
		1908.5	15.52	3.94	8.90	20.48	111.783	2	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	15.41	3.77	8.90	20.54	113.154	2	Vertical	Pass
		1880	14.96	3.91	8.90	19.95	98.961	2	Vertical	Pass
		1907.5	16.83	3.94	8.90	21.79	151.072	2	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	15.07	3.79	8.90	20.18	104.279	2	Vertical	Pass
		1880	14.27	3.95	8.90	19.22	83.606	2	Vertical	Pass
		1905	14.55	3.97	8.90	19.48	88.655	2	Vertical	Pass

15.0MHz	75/0	1857.5	15.60	3.79	8.90	20.71	117.655	2	Vertical	Pass
Band		1880	15.54	3.95	8.90	20.49	111.870	2	Vertical	Pass
QPSK		1902.5	17.04	3.97	8.90	21.97	157.411	2	Vertical	Pass
20.0MHz	100/0	1860	18.41	3.81	8.90	23.50	223.682	2	Vertical	Pass
Band		1880	16.15	3.96	8.90	21.09	128.607	2	Vertical	Pass
QPSK		1900	15.89	4.00	8.90	20.79	120.000	2	Vertical	Pass

Radiated Power (EIRP) for Band 2										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1850.7	14.60	3.76	8.90	20.78	119.607	2	Horizontal	Pass
		1880	15.75	3.91	8.90	19.77	94.734	2	Horizontal	Pass
		1909.3	15.45	3.93	8.90	20.66	116.480	2	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	15.29	3.77	8.90	18.37	68.763	2	Horizontal	Pass
		1880	14.95	3.91	8.90	20.36	108.610	2	Horizontal	Pass
		1908.5	14.55	3.94	8.90	19.22	83.638	2	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	15.14	3.77	8.90	21.57	143.407	2	Horizontal	Pass
		1880	15.50	3.91	8.90	19.55	90.183	2	Horizontal	Pass
		1907.5	14.00	3.94	8.90	18.88	77.308	2	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	15.35	3.79	8.90	21.07	127.937	2	Horizontal	Pass
		1880	14.05	3.95	8.90	19.89	97.580	2	Horizontal	Pass
		1905	15.36	3.97	8.90	20.32	107.654	2	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.68	3.79	8.90	20.04	100.863	2	Horizontal	Pass
		1880	15.77	3.95	8.90	18.92	78.022	2	Horizontal	Pass
		1902.5	15.65	3.97	8.90	21.65	146.105	2	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	13.84	3.81	8.90	18.50	70.720	2	Horizontal	Pass
		1880	16.17	3.96	8.90	19.61	91.309	2	Horizontal	Pass
		1900	14.55	4.00	8.90	18.96	78.774	2	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	14.61	3.76	8.90	21.07	127.826	2	Vertical	Pass
		1880	15.84	3.91	8.90	19.43	87.622	2	Vertical	Pass
		1909.3	15.13	3.93	8.90	19.44	87.955	2	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	13.77	3.77	8.90	19.33	85.737	2	Vertical	Pass
		1880	14.83	3.91	8.90	20.82	120.783	2	Vertical	Pass
		1908.5	14.56	3.94	8.90	18.90	77.633	2	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	13.76	3.77	8.90	21.31	135.192	2	Vertical	Pass
		1880	15.05	3.91	8.90	21.53	142.335	2	Vertical	Pass
		1907.5	15.69	3.94	8.90	20.26	106.175	2	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	13.98	3.79	8.90	21.06	127.686	2	Vertical	Pass
		1880	15.57	3.95	8.90	20.57	114.040	2	Vertical	Pass
		1905	15.12	3.97	8.90	19.90	97.802	2	Vertical	Pass
15.0MHz Band 16	75/0	1857.5	13.85	3.79	8.90	20.32	107.634	2	Vertical	Pass
		1880	14.87	3.95	8.90	21.16	130.502	2	Vertical	Pass

QAM		1902.5	13.66	3.97	8.90	20.39	109.522	2	Vertical	Pass
20.0MHz	100/0	1860	14.29	3.81	8.90	21.55	142.838	2	Vertical	Pass
Band 16		1880	14.90	3.96	8.90	22.14	163.683	2	Vertical	Pass
QAM		1900	13.78	4.00	8.90	19.87	97.114	2	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	14.25	3.12	8.90	20.03	100.807	1	Horizontal	Pass
		1732.5	13.30	3.27	8.90	18.93	78.078	1	Horizontal	Pass
		1754.3	15.36	3.29	8.90	20.97	125.111	1	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	14.42	3.13	8.90	20.19	104.591	1	Horizontal	Pass
		1732.5	14.65	3.27	8.90	20.28	106.768	1	Horizontal	Pass
		1753.5	15.41	3.30	8.90	21.01	126.108	1	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	16.17	3.13	8.90	21.94	156.174	1	Horizontal	Pass
		1732.5	16.00	3.27	8.90	21.63	145.521	1	Horizontal	Pass
		1752.5	15.16	3.30	8.90	20.76	119.023	1	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	15.32	3.15	8.90	21.07	127.971	1	Horizontal	Pass
		1732.5	15.16	3.31	8.90	20.75	118.829	1	Horizontal	Pass
		1750	16.08	3.33	8.90	21.65	146.255	1	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	15.51	3.15	8.90	21.26	133.708	1	Horizontal	Pass
		1732.5	15.00	3.31	8.90	20.59	114.661	1	Horizontal	Pass
		1747.5	16.84	3.33	8.90	22.41	174.004	1	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	13.49	3.17	8.90	19.22	83.544	1	Horizontal	Pass
		1732.5	15.18	3.32	8.90	20.76	119.125	1	Horizontal	Pass
		1745	15.44	3.36	8.90	20.98	125.191	1	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	15.03	3.12	8.90	20.81	120.601	1	Vertical	Pass
		1732.5	15.75	3.27	8.90	21.38	137.353	1	Vertical	Pass
		1754.3	15.41	3.29	8.90	21.02	126.566	1	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	15.74	3.13	8.90	21.51	141.691	1	Vertical	Pass
		1732.5	16.02	3.27	8.90	21.65	146.335	1	Vertical	Pass
		1753.5	16.56	3.30	8.90	22.16	164.383	1	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	14.79	3.13	8.90	20.56	113.846	1	Vertical	Pass
		1732.5	15.00	3.27	8.90	20.63	115.678	1	Vertical	Pass
		1752.5	14.01	3.30	8.90	19.61	91.441	1	Vertical	Pass
10.0MHz	50/0	1715	12.34	3.15	8.90	18.09	64.427	1	Vertical	Pass

Band QPSK		1732.5	15.71	3.31	8.90	21.30	134.999	1	Vertical	Pass
		1750	14.97	3.33	8.90	20.54	113.124	1	Vertical	Pass
15.0MHz Band QPSK	75/0	1717.5	16.34	3.15	8.90	22.09	161.723	1	Vertical	Pass
		1732.5	15.85	3.31	8.90	21.44	139.364	1	Vertical	Pass
		1747.5	14.13	3.33	8.90	19.70	93.425	1	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	16.89	3.17	8.90	22.62	182.760	1	Vertical	Pass
		1732.5	16.53	3.32	8.90	22.11	162.470	1	Vertical	Pass
		1745	14.74	3.36	8.90	20.28	106.741	1	Vertical	Pass

Radiated Power (EIRP) for Band 4										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1710.7	14.66	3.12	8.90	20.44	110.729	1	Horizontal	Pass
		1732.5	15.76	3.27	8.90	21.39	137.608	1	Horizontal	Pass
		1754.3	15.13	3.29	8.90	20.74	118.467	1	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	14.04	3.13	8.90	19.81	95.690	1	Horizontal	Pass
		1732.5	15.42	3.27	8.90	21.05	127.334	1	Horizontal	Pass
		1753.5	15.81	3.30	8.90	21.41	138.373	1	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	14.35	3.13	8.90	20.12	102.693	1	Horizontal	Pass
		1732.5	13.45	3.27	8.90	19.08	80.938	1	Horizontal	Pass
		1752.5	14.40	3.30	8.90	20.00	100.062	1	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	15.90	3.15	8.90	21.65	146.164	1	Horizontal	Pass
		1732.5	14.18	3.31	8.90	19.77	94.885	1	Horizontal	Pass
		1750	12.73	3.33	8.90	18.30	67.636	1	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	14.06	3.15	8.90	19.81	95.702	1	Horizontal	Pass
		1732.5	15.36	3.31	8.90	20.95	124.347	1	Horizontal	Pass
		1747.5	14.84	3.33	8.90	20.41	109.982	1	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	13.74	3.17	8.90	19.47	88.461	1	Horizontal	Pass
		1732.5	15.56	3.32	8.90	21.14	130.042	1	Horizontal	Pass
		1745	16.32	3.36	8.90	21.86	153.345	1	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	16.65	3.12	8.90	22.43	174.856	1	Vertical	Pass
		1732.5	14.71	3.27	8.90	20.34	108.159	1	Vertical	Pass
		1754.3	14.72	3.29	8.90	20.33	107.872	1	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	15.14	3.13	8.90	20.91	123.220	1	Vertical	Pass
		1732.5	14.55	3.27	8.90	20.18	104.253	1	Vertical	Pass
		1753.5	15.25	3.30	8.90	20.85	121.577	1	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	16.21	3.13	8.90	21.98	157.716	1	Vertical	Pass
		1732.5	15.75	3.27	8.90	21.38	137.545	1	Vertical	Pass
		1752.5	13.85	3.30	8.90	19.45	88.051	1	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	14.19	3.15	8.90	19.94	98.585	1	Vertical	Pass
		1732.5	14.80	3.31	8.90	20.39	109.299	1	Vertical	Pass
		1750	16.13	3.33	8.90	21.70	148.041	1	Vertical	Pass

15.0MHz	75/0	1717.5	14.45	3.15	8.90	20.20	104.769	1	Vertical	Pass
Band 16		1732.5	14.15	3.31	8.90	19.74	94.169	1	Vertical	Pass
QAM		1747.5	14.92	3.33	8.90	20.49	111.968	1	Vertical	Pass
20.0MHz	100/0	1720	15.33	3.17	8.90	21.06	127.628	1	Vertical	Pass
Band 16		1732.5	17.14	3.32	8.90	22.72	186.970	1	Vertical	Pass
QAM		1745	15.00	3.36	8.90	20.54	113.247	1	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	824.7	20.34	2.01	5.30	2.15	21.48	140.633	7	Horizontal	Pass
		836.5	21.79	2.01	5.30	2.15	22.93	196.562	7	Horizontal	Pass
		848.3	20.60	2.02	5.70	2.15	22.13	163.366	7	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	22.20	2.01	5.30	2.15	23.34	215.690	7	Horizontal	Pass
		836.5	21.53	2.01	5.30	2.15	22.67	184.832	7	Horizontal	Pass
		847.5	21.04	2.02	5.70	2.15	22.57	180.698	7	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	20.95	2.01	5.30	2.15	22.09	161.631	7	Horizontal	Pass
		836.5	21.94	2.01	5.30	2.15	23.08	203.173	7	Horizontal	Pass
		846.5	21.75	2.02	5.70	2.15	23.28	212.872	7	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	20.50	2.01	5.30	2.15	21.64	145.797	7	Horizontal	Pass
		836.5	21.92	2.01	5.30	2.15	23.06	202.069	7	Horizontal	Pass
		844	20.20	2.02	5.70	2.15	21.73	148.802	7	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	22.52	2.01	5.30	2.15	23.66	232.528	7	Vertical	Pass
		836.5	22.76	2.01	5.30	2.15	23.90	245.659	7	Vertical	Pass
		848.3	21.07	2.02	5.70	2.15	22.60	182.093	7	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	22.26	2.01	5.30	2.15	23.40	218.660	7	Vertical	Pass
		836.5	21.80	2.01	5.30	2.15	22.94	196.644	7	Vertical	Pass
		847.5	19.79	2.02	5.70	2.15	21.32	135.613	7	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	19.40	2.01	5.30	2.15	20.54	113.244	7	Vertical	Pass
		836.5	21.71	2.01	5.30	2.15	22.85	192.599	7	Vertical	Pass
		846.5	20.61	2.02	5.70	2.15	22.14	163.533	7	Vertical	Pass
10.0MHz Band QPSK	50/0	829	19.57	2.01	5.30	2.15	20.71	117.698	7	Vertical	Pass
		836.5	22.88	2.01	5.30	2.15	24.02	252.369	7	Vertical	Pass
		844	20.00	2.02	5.70	2.15	21.53	142.200	7	Vertical	Pass

Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	824.7	20.73	2.01	5.30	2.15	21.87	153.936	7	Horizontal	Pass
		836.5	21.12	2.01	5.30	2.15	22.26	168.234	7	Horizontal	Pass
		848.3	20.63	2.02	5.70	2.15	22.16	164.614	7	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	20.20	2.01	5.30	2.15	21.34	136.010	7	Horizontal	Pass
		836.5	19.27	2.01	5.30	2.15	20.41	109.887	7	Horizontal	Pass
		847.5	20.16	2.02	5.70	2.15	21.69	147.621	7	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	20.39	2.01	5.30	2.15	21.53	142.255	7	Horizontal	Pass
		836.5	20.07	2.01	5.30	2.15	21.21	132.174	7	Horizontal	Pass
		846.5	20.63	2.02	5.70	2.15	22.16	164.440	7	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	20.16	2.01	5.30	2.15	21.30	134.852	7	Horizontal	Pass
		836.5	19.30	2.01	5.30	2.15	20.44	110.615	7	Horizontal	Pass
		844	19.59	2.02	5.70	2.15	21.12	129.332	7	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	21.65	2.01	5.30	2.15	22.79	190.213	7	Vertical	Pass
		836.5	20.85	2.01	5.30	2.15	21.99	158.184	7	Vertical	Pass
		848.3	20.52	2.02	5.70	2.15	22.05	160.419	7	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	18.83	2.01	5.30	2.15	19.97	99.226	7	Vertical	Pass
		836.5	20.19	2.01	5.30	2.15	21.33	135.693	7	Vertical	Pass
		847.5	19.41	2.02	5.70	2.15	20.94	124.033	7	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	20.13	2.01	5.30	2.15	21.27	134.038	7	Vertical	Pass
		836.5	18.35	2.01	5.30	2.15	19.49	88.839	7	Vertical	Pass
		846.5	19.80	2.02	5.70	2.15	21.33	135.923	7	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	19.88	2.01	5.30	2.15	21.02	126.538	7	Vertical	Pass
		836.5	21.68	2.01	5.30	2.15	22.82	191.575	7	Vertical	Pass
		844	21.90	2.02	5.70	2.15	23.43	220.328	7	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)

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	17.78	4.54	9.00	22.24	167.562	2	Horizontal	Pass
		2535	18.41	4.69	9.00	22.72	187.110	2	Horizontal	Pass
		2567.5	15.73	4.71	9.00	20.02	100.351	2	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	15.89	4.55	9.00	20.34	108.051	2	Horizontal	Pass
		2535	17.96	4.69	9.00	22.27	168.818	2	Horizontal	Pass
		2565	18.46	4.72	9.00	22.74	188.083	2	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	19.43	4.55	9.00	23.88	244.209	2	Horizontal	Pass
		2535	18.21	4.69	9.00	22.52	178.828	2	Horizontal	Pass
		2562.5	17.87	4.72	9.00	22.15	164.180	2	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	15.63	4.57	9.00	20.06	101.302	2	Horizontal	Pass
		2535	18.21	4.73	9.00	22.48	176.874	2	Horizontal	Pass
		2560	17.73	4.75	9.00	21.98	157.716	2	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	17.14	4.54	9.00	21.60	144.505	2	Vertical	Pass
		2535	19.33	4.69	9.00	23.64	231.450	2	Vertical	Pass
		2567.5	19.27	4.71	9.00	23.56	226.824	2	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	16.41	4.55	9.00	20.86	121.771	2	Vertical	Pass
		2535	19.30	4.69	9.00	23.61	229.530	2	Vertical	Pass
		2565	18.38	4.72	9.00	22.66	184.607	2	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	17.78	4.55	9.00	22.23	167.173	2	Vertical	Pass
		2535	19.77	4.69	9.00	24.08	255.917	2	Vertical	Pass
		2562.5	18.07	4.72	9.00	22.35	171.630	2	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	19.77	4.57	9.00	24.20	263.077	2	Vertical	Pass
		2535	19.76	4.73	9.00	24.03	253.053	2	Vertical	Pass
		2560	19.69	4.75	9.00	23.94	247.667	2	Vertical	Pass

Radiated Power (EIRP) for Band 7										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	16.79	4.54	9.00	21.25	133.381	2	Horizontal	Pass
		2535	17.80	4.69	9.00	22.11	162.571	2	Horizontal	Pass
		2567.5	17.41	4.71	9.00	21.70	147.820	2	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	18.02	4.55	9.00	22.47	176.774	2	Horizontal	Pass
		2535	17.73	4.69	9.00	22.04	159.855	2	Horizontal	Pass
		2565	18.70	4.72	9.00	22.98	198.518	2	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	17.97	4.55	9.00	22.42	174.507	2	Horizontal	Pass
		2535	19.17	4.69	9.00	23.48	222.848	2	Horizontal	Pass
		2562.5	17.03	4.72	9.00	21.31	135.053	2	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	18.03	4.57	9.00	22.46	176.288	2	Horizontal	Pass
		2535	16.79	4.73	9.00	21.06	127.614	2	Horizontal	Pass
		2560	18.22	4.75	9.00	22.47	176.590	2	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	18.67	4.54	9.00	23.13	205.545	2	Vertical	Pass
		2535	18.69	4.69	9.00	23.00	199.616	2	Vertical	Pass
		2567.5	18.89	4.71	9.00	23.18	207.781	2	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	17.15	4.55	9.00	21.60	144.685	2	Vertical	Pass
		2535	19.15	4.69	9.00	23.46	221.973	2	Vertical	Pass
		2565	17.60	4.72	9.00	21.88	154.223	2	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	18.87	4.55	9.00	23.32	214.731	2	Vertical	Pass
		2535	17.38	4.69	9.00	21.69	147.536	2	Vertical	Pass
		2562.5	16.86	4.72	9.00	21.14	130.089	2	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	19.97	4.57	9.00	24.40	275.426	2	Vertical	Pass
		2535	17.61	4.73	9.00	21.88	154.128	2	Vertical	Pass
		2560	18.92	4.75	9.00	23.17	207.661	2	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 Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	699.7	17.68	1.91	5.60	2.15	19.22	83.543	3	Horizontal	Pass
		707.5	19.91	1.91	5.70	2.15	21.55	143.047	3	Horizontal	Pass
		715.3	16.43	1.93	5.80	2.15	18.15	65.354	3	Horizontal	Pass
3.0MHz Band QPSK	15/0	700.5	17.52	1.91	5.60	2.15	19.06	80.503	3	Horizontal	Pass
		707.5	18.01	1.91	5.70	2.15	19.65	92.187	3	Horizontal	Pass
		714.5	18.67	1.93	5.80	2.15	20.39	109.398	3	Horizontal	Pass
5.0MHz Band QPSK	25/0	701.5	18.03	1.91	5.60	2.15	19.57	90.513	3	Horizontal	Pass
		707.5	17.90	1.91	5.70	2.15	19.54	90.052	3	Horizontal	Pass
		713.5	17.80	1.92	5.80	2.15	19.53	89.699	3	Horizontal	Pass
10.0MHz Band QPSK	50/0	704	17.79	1.91	5.60	2.15	19.33	85.678	3	Horizontal	Pass
		707.5	16.68	1.91	5.70	2.15	18.32	67.864	3	Horizontal	Pass
		711	15.82	1.92	5.80	2.15	17.55	56.841	3	Horizontal	Pass
1.4MHz Band QPSK	6/0	699.7	17.83	1.91	5.60	2.15	19.37	86.563	3	Vertical	Pass
		707.5	17.71	1.91	5.70	2.15	19.35	86.116	3	Vertical	Pass
		715.3	17.28	1.93	5.80	2.15	19.00	79.509	3	Vertical	Pass
3.0MHz Band QPSK	15/0	700.5	18.70	1.91	5.60	2.15	20.24	105.644	3	Vertical	Pass
		707.5	16.91	1.91	5.70	2.15	18.55	71.574	3	Vertical	Pass
		714.5	19.35	1.93	5.80	2.15	21.07	127.850	3	Vertical	Pass
5.0MHz Band QPSK	25/0	701.5	17.11	1.91	5.60	2.15	18.65	73.355	3	Vertical	Pass
		707.5	17.06	1.91	5.70	2.15	18.70	74.155	3	Vertical	Pass
		713.5	17.73	1.92	5.80	2.15	19.46	88.235	3	Vertical	Pass
10.0MHz Band QPSK	50/0	704	18.19	1.91	5.60	2.15	19.73	94.010	3	Vertical	Pass
		707.5	20.44	1.91	5.70	2.15	22.08	161.409	3	Vertical	Pass
		711	18.70	1.92	5.80	2.15	20.43	110.358	3	Vertical	Pass

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	699.7	21.06	1.91	5.60	2.15	22.60	181.986	3	Horizontal	Pass
		707.5	21.20	1.91	5.70	2.15	22.84	192.131	3	Horizontal	Pass
		715.3	20.75	1.93	5.80	2.15	22.47	176.758	3	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	700.5	22.12	1.91	5.60	2.15	23.66	232.430	3	Horizontal	Pass
		707.5	19.37	1.91	5.70	2.15	21.01	126.275	3	Horizontal	Pass
		714.5	19.65	1.93	5.80	2.15	21.37	137.245	3	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	701.5	19.37	1.91	5.60	2.15	20.91	123.209	3	Horizontal	Pass
		707.5	22.21	1.91	5.70	2.15	23.85	242.421	3	Horizontal	Pass
		713.5	21.30	1.92	5.80	2.15	23.03	200.789	3	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	704	20.85	1.91	5.60	2.15	22.39	173.274	3	Horizontal	Pass
		707.5	19.41	1.91	5.70	2.15	21.05	127.204	3	Horizontal	Pass
		711	21.67	1.92	5.80	2.15	23.40	218.984	3	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	699.7	19.33	1.91	5.60	2.15	20.87	122.135	3	Vertical	Pass
		707.5	21.41	1.91	5.70	2.15	23.05	201.877	3	Vertical	Pass
		715.3	21.03	1.93	5.80	2.15	22.75	188.341	3	Vertical	Pass
3.0MHz Band 16 QAM	15/0	700.5	21.78	1.91	5.60	2.15	23.32	214.678	3	Vertical	Pass
		707.5	20.82	1.91	5.70	2.15	22.46	176.100	3	Vertical	Pass
		714.5	22.51	1.93	5.80	2.15	24.23	264.570	3	Vertical	Pass
5.0MHz Band 16 QAM	25/0	701.5	20.48	1.91	5.60	2.15	22.02	159.126	3	Vertical	Pass
		707.5	21.82	1.91	5.70	2.15	23.46	221.673	3	Vertical	Pass
		713.5	19.46	1.92	5.80	2.15	21.19	131.496	3	Vertical	Pass
10.0MHz Band 16 QAM	50/0	704	21.39	1.91	5.60	2.15	22.93	196.234	3	Vertical	Pass
		707.5	22.70	1.91	5.70	2.15	24.34	271.399	3	Vertical	Pass
		711	21.03	1.92	5.80	2.15	22.76	188.735	3	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)

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	706.5	16.04	1.91	5.60	2.15	17.58	57.293	3	Vertical	Pass
		710	18.22	1.91	5.70	2.15	19.86	96.933	3	Vertical	Pass
		713.5	18.69	1.92	5.80	2.15	20.42	110.044	3	Vertical	Pass
10.0MHz Band QPSK	50/0	709	15.74	1.91	5.60	2.15	17.28	53.436	3	Vertical	Pass
		710	17.69	1.91	5.70	2.15	19.33	85.653	3	Vertical	Pass
		711	15.30	1.92	5.80	2.15	17.03	50.475	3	Vertical	Pass
5.0MHz Band QPSK	25/0	706.5	16.18	1.91	5.60	2.15	17.72	59.146	3	Horizontal	Pass
		710	15.72	1.91	5.70	2.15	17.36	54.450	3	Horizontal	Pass
		713.5	17.26	1.92	5.80	2.15	18.99	79.296	3	Horizontal	Pass
10.0MHz Band QPSK	50/0	709	18.25	1.91	5.60	2.15	19.79	95.229	3	Horizontal	Pass
		710	18.87	1.91	5.70	2.15	20.51	112.374	3	Horizontal	Pass
		711	17.88	1.92	5.80	2.15	19.61	91.373	3	Horizontal	Pass

Radiated Power (ERP) for Band 17											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (W)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	706.5	20.12	1.91	5.6	2.15	21.66	146.723	3	Vertical	Pass
		710	19.01	1.91	5.7	2.15	20.65	116.211	3	Vertical	Pass
		713.5	20.19	1.92	5.8	2.15	21.92	155.617	3	Vertical	Pass
10.0MHz Band 16 QAM	50/0	709	19.96	1.91	5.6	2.15	21.50	141.193	3	Vertical	Pass
		710	20.65	1.91	5.7	2.15	22.29	169.469	3	Vertical	Pass
		711	20.66	1.92	5.8	2.15	22.39	173.299	3	Vertical	Pass
5.0MHz Band 16 QAM	25/0	706.5	19.84	1.91	5.6	2.15	21.38	137.553	3	Horizontal	Pass
		710	20.04	1.91	5.7	2.15	21.68	147.281	3	Horizontal	Pass
		713.5	20.07	1.92	5.8	2.15	21.80	151.299	3	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	709	20.55	1.91	5.6	2.15	22.09	161.665	3	Horizontal	Pass
		710	20.73	1.91	5.7	2.15	22.37	172.617	3	Horizontal	Pass
		711	21.08	1.92	5.8	2.15	22.81	191.089	3	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)

8.8 LTE BAND 66

Radiated Power (EIRP) for Band 66										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	15.39	3.12	8.90	21.17	130.984	1	Horizontal	Pass
		1745	13.70	3.27	8.90	19.33	85.611	1	Horizontal	Pass
		1779.3	16.63	3.29	8.90	22.24	167.489	1	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	14.08	3.13	8.90	19.85	96.689	1	Horizontal	Pass
		1745	15.16	3.27	8.90	20.79	119.967	1	Horizontal	Pass
		1778.5	14.00	3.30	8.90	19.60	91.112	1	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	15.76	3.13	8.90	21.53	142.297	1	Horizontal	Pass
		1745	16.79	3.27	8.90	22.42	174.646	1	Horizontal	Pass
		1777.5	14.42	3.30	8.90	20.02	100.384	1	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	15.23	3.15	8.90	20.98	125.343	1	Horizontal	Pass
		1745	15.93	3.31	8.90	21.52	141.822	1	Horizontal	Pass
		1775	15.73	3.33	8.90	21.30	135.034	1	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	15.92	3.15	8.90	21.67	146.945	1	Horizontal	Pass
		1745	15.91	3.31	8.90	21.50	141.307	1	Horizontal	Pass
		1772.5	16.63	3.33	8.90	22.20	165.817	1	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	14.85	3.17	8.90	20.58	114.285	1	Horizontal	Pass
		1745	16.36	3.32	8.90	21.94	156.296	1	Horizontal	Pass
		1770	16.32	3.36	8.90	21.86	153.437	1	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	15.12	3.12	8.90	20.90	123.133	1	Vertical	Pass
		1745	16.79	3.27	8.90	22.42	174.562	1	Vertical	Pass
		1779.3	15.69	3.29	8.90	21.30	134.756	1	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	16.39	3.13	8.90	22.16	164.347	1	Vertical	Pass
		1745	16.63	3.27	8.90	22.26	168.261	1	Vertical	Pass
		1778.5	15.32	3.30	8.90	20.92	123.699	1	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	14.97	3.13	8.90	20.74	118.492	1	Vertical	Pass
		1745	14.78	3.27	8.90	20.41	110.000	1	Vertical	Pass
		1777.5	14.42	3.30	8.90	20.02	100.478	1	Vertical	Pass
10.0MHz Band	1/#Mid	1715	12.93	3.15	8.90	18.68	73.752	1	Vertical	Pass
		1745	16.05	3.31	8.90	21.64	146.035	1	Vertical	Pass

QPSK		1775	14.94	3.33	8.90	20.51	112.502	1	Vertical	Pass
15.0MHz	1/#Mid	1717.5	16.74	3.15	8.90	22.49	177.614	1	Vertical	Pass
Band		1745	16.91	3.31	8.90	22.50	177.755	1	Vertical	Pass
QPSK		1772.5	15.61	3.33	8.90	21.18	131.195	1	Vertical	Pass
20.0MHz	1/#Mid	1720	17.31	3.17	8.90	23.04	201.241	1	Vertical	Pass
Band		1745	16.57	3.32	8.90	22.15	163.957	1	Vertical	Pass
QPSK		1770	14.12	3.36	8.90	19.66	92.563	1	Vertical	Pass

Radiated Power (EIRP) for Band 66										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Limit (W)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	16.19	3.12	8.9	21.97	157.263	1	Horizontal	Pass
		1745	17.43	3.27	8.9	23.06	202.444	1	Horizontal	Pass
		1779.3	16.69	3.29	8.9	22.30	169.790	1	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	17.04	3.13	8.9	22.81	190.890	1	Horizontal	Pass
		1745	16.61	3.27	8.9	22.24	167.577	1	Horizontal	Pass
		1778.5	16.58	3.3	8.9	22.18	165.354	1	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	15.76	3.13	8.9	21.53	142.256	1	Horizontal	Pass
		1745	13.81	3.27	8.9	19.44	87.884	1	Horizontal	Pass
		1777.5	15.61	3.3	8.9	21.21	132.088	1	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	16.84	3.15	8.9	22.59	181.743	1	Horizontal	Pass
		1745	14.89	3.31	8.9	20.48	111.607	1	Horizontal	Pass
		1775	14.80	3.33	8.9	20.37	108.951	1	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	14.90	3.15	8.9	20.65	116.013	1	Horizontal	Pass
		1745	15.93	3.31	8.9	21.52	141.811	1	Horizontal	Pass
		1772.5	17.00	3.33	8.9	22.57	180.902	1	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	16.47	3.17	8.9	22.20	166.037	1	Horizontal	Pass
		1745	16.10	3.32	8.9	21.68	147.327	1	Horizontal	Pass
		1770	16.36	3.36	8.9	21.90	154.777	1	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	15.72	3.12	8.9	21.50	141.410	1	Vertical	Pass
		1745	16.69	3.27	8.9	22.32	170.428	1	Vertical	Pass
		1779.3	16.03	3.29	8.9	21.64	145.730	1	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	15.16	3.13	8.9	20.93	123.977	1	Vertical	Pass
		1745	15.04	3.27	8.9	20.67	116.638	1	Vertical	Pass
		1778.5	16.04	3.3	8.9	21.64	145.838	1	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	17.14	3.13	8.9	22.91	195.630	1	Vertical	Pass
		1745	16.67	3.27	8.9	22.30	169.819	1	Vertical	Pass
		1777.5	14.50	3.3	8.9	20.10	102.261	1	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	14.73	3.15	8.9	20.48	111.679	1	Vertical	Pass
		1745	16.99	3.31	8.9	22.58	181.166	1	Vertical	Pass
		1775	17.28	3.33	8.9	22.85	192.735	1	Vertical	Pass
15.0MHz	1/#Mid	1717.5	15.10	3.15	8.9	20.85	121.668	1	Vertical	Pass

Band 16		1745	16.97	3.31	8.9	22.56	180.461	1	Vertical	Pass
QAM		1772.5	15.97	3.33	8.9	21.54	142.691	1	Vertical	Pass
20.0MHz		1720	17.38	3.17	8.9	23.11	204.446	1	Vertical	Pass
Band 16	1/#Mid	1745	16.67	3.32	8.9	22.25	168.008	1	Vertical	Pass
QAM		1770	17.20	3.36	8.9	22.74	187.816	1	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)

8.9 LTE BAND 71

Radiated Power (ERP) for Band 71											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	665.5	5.59	1.91	19.21	2.15	20.74	118.577	3	Vertical	Pass
		680.5	4.61	1.91	19.26	2.15	19.81	95.719	3	Vertical	Pass
		695.5	4.60	1.93	19.34	2.15	19.86	96.828	3	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	668	5.36	1.91	19.21	2.15	20.51	112.460	3	Vertical	Pass
		680.5	5.24	1.91	19.26	2.15	20.44	110.662	3	Vertical	Pass
		693	5.15	1.93	19.34	2.15	20.41	109.901	3	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	670.5	5.41	1.91	19.23	2.15	20.58	114.288	3	Vertical	Pass
		680.5	5.12	1.91	19.26	2.15	20.32	107.647	3	Vertical	Pass
		690.5	4.73	1.92	19.33	2.15	19.99	99.770	3	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	673	5.00	1.91	19.25	2.15	20.19	104.472	3	Vertical	Pass
		683	5.05	1.91	19.26	2.15	20.81	120.504	3	Vertical	Pass
		688	4.57	1.92	19.32	2.15	19.82	95.940	3	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	665.5	4.65	1.91	19.21	2.15	19.80	95.499	3	Horizontal	Pass
		680.5	4.62	1.91	19.26	2.15	19.82	95.940	3	Horizontal	Pass
		695.5	4.68	1.93	19.34	2.15	19.94	98.628	3	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	668	4.75	1.91	19.21	2.15	19.90	97.724	3	Horizontal	Pass
		680.5	5.12	1.91	19.26	2.15	20.32	107.647	3	Horizontal	Pass
		693	4.49	1.93	19.34	2.15	19.75	94.406	3	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	670.5	5.15	1.91	19.23	2.15	20.32	107.647	3	Horizontal	Pass
		680.5	5.14	1.91	19.26	2.15	20.34	108.143	3	Horizontal	Pass
		690.5	4.73	1.92	19.33	2.15	19.99	99.770	3	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	673	4.86	1.91	19.25	2.15	20.05	101.158	3	Horizontal	Pass
		683	5.30	1.91	19.26	2.15	20.50	112.202	3	Horizontal	Pass
		688	4.72	1.92	19.32	2.15	19.97	99.312	3	Horizontal	Pass

Radiated Power (ERP) for Band 71											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Limit (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	665.5	4.75	1.91	19.21	2.15	19.90	97.724	3	Vertical	Pass
		680.5	3.90	1.91	19.26	2.15	19.10	81.283	3	Vertical	Pass
		695.5	4.11	1.93	19.34	2.15	19.37	86.497	3	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	668	4.64	1.91	19.21	2.15	19.79	95.280	3	Vertical	Pass
		680.5	4.15	1.91	19.26	2.15	19.35	86.099	3	Vertical	Pass
		693	4.18	1.93	19.34	2.15	19.44	87.902	3	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	670.5	3.87	1.91	19.23	2.15	19.04	80.168	3	Vertical	Pass
		680.5	4.28	1.91	19.26	2.15	19.48	88.716	3	Vertical	Pass
		690.5	4.07	1.92	19.33	2.15	19.33	85.704	3	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	673	4.20	1.91	19.25	2.15	19.39	86.896	3	Vertical	Pass
		683	4.24	1.91	19.26	2.15	19.44	87.902	3	Vertical	Pass
		688	3.71	1.92	19.32	2.15	18.96	78.705	3	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	665.5	4.10	1.91	19.21	2.15	19.25	84.140	3	Horizontal	Pass
		680.5	4.13	1.91	19.26	2.15	19.33	85.704	3	Horizontal	Pass
		695.5	4.37	1.93	19.34	2.15	19.63	91.833	3	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	668	4.53	1.91	19.21	2.15	19.68	92.897	3	Horizontal	Pass
		680.5	4.29	1.91	19.26	2.15	19.49	88.920	3	Horizontal	Pass
		693	3.88	1.93	19.34	2.15	19.14	82.035	3	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	670.5	4.05	1.91	19.23	2.15	19.22	83.560	3	Horizontal	Pass
		680.5	4.58	1.91	19.26	2.15	19.78	95.060	3	Horizontal	Pass
		690.5	4.73	1.92	19.33	2.15	19.81	95.719	3	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	673	4.25	1.91	19.25	2.15	19.44	87.902	3	Horizontal	Pass
		683	4.32	1.91	19.26	2.15	19.52	89.536	3	Horizontal	Pass
		688	4.49	1.92	19.32	2.15	19.92	98.175	3	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

LTE Band 2/4/5/7/12/17/66/71

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
3701.6	-48.09	4.04	33.51	-18.62	-13	-5.62	Horizontal
3701.6	-51.11	4.04	33.51	-21.64	-13	-8.64	Vertical
5552.8	-46.70	5.24	35.84	-16.10	-13	-3.10	Vertical
5552.8	-49.26	5.24	35.84	-18.66	-13	-5.66	Horizontal
185.9	-39.71	1.43	16.02	-25.12	-13	-12.12	Vertical
454.5	-33.18	1.30	17.99	-16.49	-13	-3.49	Horizontal
Test Results for Mid Channel 1880MHz							
3760.2	-46.38	4.04	33.56	-16.86	-13	-3.86	Horizontal
3760.2	-50.72	4.04	33.56	-21.20	-13	-8.20	Vertical
5640.9	-48.22	5.24	35.91	-17.55	-13	-4.55	Vertical
5640.9	-49.54	5.24	35.91	-18.87	-13	-5.87	Horizontal
183.7	-34.93	1.62	16.97	-19.58	-13	-6.58	Vertical
290.1	-34.16	1.74	15.98	-19.93	-13	-6.93	Horizontal
Test Results for High Channel 1909.3MHz							
3819.1	-45.83	4.04	34.00	-15.87	-13	-2.87	Horizontal
3819.1	-46.15	4.04	34.00	-16.19	-13	-3.19	Vertical
5728.0	-49.81	5.24	36.04	-19.01	-13	-6.01	Vertical
5728.0	-47.28	5.24	36.04	-16.48	-13	-3.48	Horizontal
194.2	-40.31	1.42	17.29	-24.44	-13	-11.44	Vertical
343.2	-34.07	1.50	17.90	-17.67	-13	-4.67	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
3720.3	-45.31	4.07	33.54	-15.84	-13	-2.84	Horizontal
3720.3	-49.42	4.07	33.54	-19.95	-13	-6.95	Vertical
5580.5	-46.25	5.28	35.86	-15.67	-13	-2.67	Vertical
5580.5	-49.77	5.28	35.86	-19.19	-13	-6.19	Horizontal
209.3	-37.37	1.58	16.89	-22.06	-13	-9.06	Vertical
357.3	-40.87	1.76	17.26	-25.37	-13	-12.37	Horizontal
Test Results for Mid Channel 1880MHz							
3760.9	-45.71	4.04	33.56	-16.19	-13	-3.19	Horizontal
3760.9	-46.43	4.04	33.56	-16.91	-13	-3.91	Vertical
5640.4	-49.77	5.24	35.91	-19.10	-13	-6.10	Vertical
5640.4	-50.48	5.24	35.91	-19.81	-13	-6.81	Horizontal
201.0	-43.72	1.46	16.27	-28.91	-13	-15.91	Vertical
344.8	-38.49	1.59	15.15	-24.93	-13	-11.93	Horizontal
Test Results for High Channel 1900MHz							
3800.2	-49.00	4.04	34.00	-19.04	-13	-6.04	Horizontal
3800.2	-46.64	4.04	34.00	-16.68	-13	-3.68	Vertical
5700.6	-47.29	5.24	36.04	-16.49	-13	-3.49	Vertical
5700.6	-49.75	5.24	36.04	-18.95	-13	-5.95	Horizontal
212.4	-34.49	1.36	17.39	-18.45	-13	-5.45	Vertical
313.6	-40.33	1.66	15.39	-26.61	-13	-13.61	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3422.0	-48.94	4.02	29.80	-23.16	-13	-10.16	Horizontal
3422.0	-46.36	4.02	29.80	-20.58	-13	-7.58	Vertical
5132.8	-49.52	5.24	35.84	-18.92	-13	-5.92	Vertical
5132.8	-49.96	5.24	35.84	-19.36	-13	-6.36	Horizontal
198.2	-40.10	1.68	16.04	-25.73	-13	-12.73	Vertical
455.0	-33.61	1.78	17.74	-17.65	-13	-4.65	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.1	-48.38	4.03	30.00	-22.41	-13	-9.41	Horizontal
3465.1	-42.50	4.03	30.00	-16.53	-13	-3.53	Vertical
5197.7	-45.97	5.25	35.86	-15.36	-13	-2.36	Vertical
5197.7	-48.22	5.25	35.86	-17.61	-13	-4.61	Horizontal
208.1	-40.51	1.72	17.69	-24.54	-13	-11.54	Vertical
346.5	-41.42	1.62	16.02	-27.01	-13	-14.01	Horizontal
Test Results for High Channel 1754.3MHz							
3509.6	-47.99	4.05	30.01	-22.03	-13	-9.03	Horizontal
3509.6	-45.13	4.05	30.01	-19.17	-13	-6.17	Vertical
5263.6	-47.79	5.26	35.86	-17.19	-13	-4.19	Vertical
5263.6	-48.28	5.26	35.86	-17.68	-13	-4.68	Horizontal
183.2	-31.28	1.80	16.69	-16.39	-13	-3.39	Vertical
332.5	-39.09	1.75	16.66	-24.19	-13	-11.19	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
3440.8	-47.84	4.02	29.80	-22.06	-13	-9.06	Horizontal
3440.8	-47.20	4.02	29.80	-21.42	-13	-8.42	Vertical
5160.8	-51.41	5.24	35.84	-20.81	-13	-7.81	Vertical
5160.8	-49.26	5.24	35.84	-18.66	-13	-5.66	Horizontal
183.1	-38.52	1.57	17.26	-22.83	-13	-9.83	Vertical
310.8	-34.50	1.78	16.35	-19.93	-13	-6.93	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.8	-48.95	4.03	30.00	-22.98	-13	-9.98	Horizontal
3465.8	-49.29	4.03	30.00	-23.32	-13	-10.32	Vertical
5198.1	-47.13	5.25	35.86	-16.52	-13	-3.52	Vertical
5198.1	-47.32	5.25	35.86	-16.71	-13	-3.71	Horizontal
209.0	-39.56	1.44	17.95	-23.05	-13	-10.05	Vertical
269.5	-31.96	1.65	16.09	-17.52	-13	-4.52	Horizontal
Test Results for High Channel 1745MHz							
3490.3	-44.44	2.91	27.68	-19.67	-13	-6.67	Horizontal
3490.3	-44.72	2.91	27.68	-19.95	-13	-6.95	Vertical
5235.7	-46.66	5.26	35.86	-16.06	-13	-3.06	Vertical
5235.7	-51.66	5.26	35.86	-21.06	-13	-8.06	Horizontal
185.4	-39.24	1.61	16.85	-23.99	-13	-10.99	Vertical
291.6	-38.84	1.61	15.19	-25.26	-13	-12.26	Horizontal

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

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

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1650.1	-45.77	2.78	27.50	-21.05	-13	-8.05	Horizontal
1650.1	-48.92	2.78	27.50	-24.20	-13	-11.20	Vertical
2474.2	-45.31	2.90	27.80	-20.41	-13	-7.41	Vertical
2474.2	-50.54	2.90	27.80	-25.64	-13	-12.64	Horizontal
179.1	-35.61	1.76	17.59	-19.78	-13	-6.78	Vertical
460.6	-39.09	1.63	15.87	-24.85	-13	-11.85	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.6	-45.78	2.80	27.48	-21.10	-13	-8.10	Horizontal
1673.6	-44.57	2.80	27.48	-19.89	-13	-6.89	Vertical
2510.1	-42.61	2.91	27.70	-17.82	-13	-4.82	Vertical
2510.1	-48.93	2.91	27.70	-24.14	-13	-11.14	Horizontal
213.5	-40.64	1.61	15.68	-26.57	-13	-13.57	Vertical
431.9	-35.04	1.59	17.52	-19.12	-13	-6.12	Horizontal
Test Results for High Channel 848.3MHz							
1697.0	-48.20	2.82	27.43	-23.59	-13	-10.59	Horizontal
1697.0	-50.09	2.82	27.43	-25.48	-13	-12.48	Vertical
2545.7	-42.21	2.92	27.74	-17.39	-13	-4.39	Vertical
2545.7	-50.20	2.92	27.74	-25.38	-13	-12.38	Horizontal
193.1	-34.07	1.69	16.67	-19.08	-13	-6.08	Vertical
366.9	-33.72	1.70	17.18	-18.24	-13	-5.24	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
1658.9	-50.36	2.78	27.50	-25.64	-13	-12.64	Horizontal
1658.9	-41.11	2.78	27.50	-16.39	-13	-3.39	Vertical
2487.8	-51.95	2.90	27.80	-27.05	-13	-14.05	Vertical
2487.8	-47.19	2.90	27.80	-22.29	-13	-9.29	Horizontal
200.3	-41.81	1.71	15.57	-27.95	-13	-14.95	Vertical
364.2	-31.76	1.34	16.40	-16.71	-13	-3.71	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.6	-40.99	2.80	27.48	-16.31	-13	-3.31	Horizontal
1673.6	-42.56	2.80	27.48	-17.88	-13	-4.88	Vertical
2509.9	-50.42	2.91	27.70	-25.63	-13	-12.63	Vertical
2509.9	-46.26	2.91	27.70	-21.47	-13	-8.47	Horizontal
212.4	-32.25	1.44	17.04	-16.65	-13	-3.65	Vertical
344.3	-41.86	1.76	17.62	-26.00	-13	-13.00	Horizontal
Test Results for High Channel 844MHz							
1688.6	-45.89	2.82	27.43	-21.28	-13	-8.28	Horizontal
1688.6	-46.19	2.82	27.43	-21.58	-13	-8.58	Vertical
2532.8	-49.48	2.92	27.74	-24.66	-13	-11.66	Vertical
2532.8	-46.80	2.92	27.74	-21.98	-13	-8.98	Horizontal
206.2	-34.05	1.74	17.70	-18.09	-13	-5.09	Vertical
393.3	-34.50	1.41	17.46	-18.44	-13	-5.44	Horizontal

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

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

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.1	-62.52	5.23	35.81	-31.94	-25	-6.94	Horizontal
5005.1	-61.91	5.23	35.81	-31.33	-25	-6.33	Vertical
7507.6	-62.69	5.67	36.85	-31.51	-25	-6.51	Vertical
7507.6	-61.50	5.67	36.85	-30.32	-25	-5.32	Horizontal
203.7	-49.88	1.73	17.97	-33.64	-25	-8.64	Vertical
451.2	-48.76	1.38	15.11	-35.02	-25	-10.02	Horizontal
Test Results for Mid Channel 2535MHz							
5070.3	-58.03	5.23	35.82	-27.44	-25	-2.44	Horizontal
5070.3	-63.28	5.23	35.82	-32.69	-25	-7.69	Vertical
7605.8	-61.07	5.67	36.85	-29.89	-25	-4.89	Vertical
7605.8	-62.26	5.67	36.85	-31.08	-25	-6.08	Horizontal
211.8	-41.75	1.77	16.17	-27.34	-25	-2.34	Vertical
233.2	-48.76	1.63	15.21	-35.18	-25	-10.18	Horizontal
Test Results for High Channel 2567.5MHz							
5135.9	-58.68	5.24	35.83	-28.09	-25	-3.09	Horizontal
5135.9	-58.73	5.24	35.83	-28.14	-25	-3.14	Vertical
7703.4	-59.95	5.68	36.87	-28.76	-25	-3.76	Vertical
7703.4	-59.64	5.68	36.87	-28.45	-25	-3.45	Horizontal
187.2	-43.66	1.58	17.56	-27.67	-25	-2.67	Vertical
263.7	-47.59	1.45	16.58	-32.46	-25	-7.46	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
5020.2	-58.13	5.23	35.82	-27.54	-25	-2.54	Horizontal
5020.2	-60.43	5.23	35.82	-29.84	-25	-4.84	Vertical
7530.6	-59.97	5.67	36.86	-28.78	-25	-3.78	Vertical
7530.6	-59.24	5.67	36.86	-28.05	-25	-3.05	Horizontal
192.6	-47.85	1.63	15.76	-33.73	-25	-8.73	Vertical
379.8	-49.25	1.71	15.44	-35.53	-25	-10.53	Horizontal
Test Results for Mid Channel 2535MHz							
5070.7	-60.50	5.23	35.82	-29.91	-25	-4.91	Horizontal
5070.7	-58.59	5.23	35.82	-28.00	-25	-3.00	Vertical
7605.3	-59.58	5.67	36.85	-28.40	-25	-3.40	Vertical
7605.3	-59.39	5.67	36.85	-28.21	-25	-3.21	Horizontal
198.9	-45.69	1.79	16.84	-30.63	-25	-5.63	Vertical
346.9	-44.06	1.71	17.64	-28.12	-25	-3.12	Horizontal
Test Results for High Channel 2560MHz							
5120.8	-59.66	5.24	35.83	-29.07	-25	-4.07	Horizontal
5120.8	-59.46	5.24	35.83	-28.87	-25	-3.87	Vertical
7680.5	-59.00	5.70	36.88	-27.82	-25	-2.82	Vertical
7680.5	-60.45	5.70	36.88	-29.27	-25	-4.27	Horizontal
193.7	-44.10	1.79	16.84	-29.05	-25	-4.05	Vertical
350.3	-43.80	1.71	17.64	-27.87	-25	-2.87	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
1399.8	-41.70	2.60	27.20	-17.10	-13	-4.10	Horizontal
1399.8	-42.76	2.60	27.20	-18.16	-13	-5.16	Vertical
2100.0	-48.62	2.85	27.54	-23.93	-13	-10.93	Vertical
2100.0	-47.36	2.85	27.54	-22.67	-13	-9.67	Horizontal
212.5	-35.50	1.49	17.78	-19.21	-13	-6.21	Vertical
387.4	-39.08	1.36	17.33	-23.11	-13	-10.11	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.6	-44.70	2.61	27.28	-20.03	-13	-7.03	Horizontal
1415.6	-43.62	2.61	27.28	-18.95	-13	-5.95	Vertical
2123.4	-49.65	2.87	27.59	-24.93	-13	-11.93	Vertical
2123.4	-48.57	2.87	27.59	-23.85	-13	-10.85	Horizontal
208.1	-38.14	1.73	15.74	-24.12	-13	-11.12	Vertical
385.0	-32.09	1.62	15.79	-17.93	-13	-4.93	Horizontal
Test Results for High Channel 715.3MHz							
1431.4	-50.26	2.63	27.28	-25.61	-13	-12.61	Horizontal
1431.4	-46.43	2.63	27.28	-21.78	-13	-8.78	Vertical
2146.0	-43.35	2.88	27.60	-18.63	-13	-5.63	Vertical
2146.0	-46.98	2.88	27.60	-22.26	-13	-9.26	Horizontal
187.2	-32.96	1.61	18.00	-16.57	-13	-3.57	Vertical
280.8	-35.21	1.45	15.49	-21.18	-13	-8.18	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
1408.6	-51.00	2.61	27.26	-26.35	-13	-13.35	Horizontal
1408.6	-45.19	2.61	27.26	-20.54	-13	-7.54	Vertical
2113.0	-48.22	2.87	27.58	-23.51	-13	-10.51	Vertical
2113.0	-50.32	2.87	27.58	-25.61	-13	-12.61	Horizontal
198.2	-39.85	1.31	16.97	-24.19	-13	-11.19	Vertical
469.5	-41.63	1.65	16.70	-26.58	-13	-13.58	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.7	-44.01	2.61	27.28	-19.34	-13	-6.34	Horizontal
1415.7	-50.84	2.61	27.28	-26.17	-13	-13.17	Vertical
2122.6	-50.36	2.87	27.59	-25.64	-13	-12.64	Vertical
2122.6	-49.85	2.87	27.59	-25.13	-13	-12.13	Horizontal
175.7	-35.05	1.72	17.99	-18.78	-13	-5.78	Vertical
363.3	-39.20	1.73	17.94	-22.99	-13	-9.99	Horizontal
Test Results for High Channel 711MHz							
1422.9	-46.79	2.62	27.28	-22.13	-13	-9.13	Horizontal
1422.9	-42.06	2.62	27.28	-17.40	-13	-4.40	Vertical
2133.8	-51.13	2.87	27.60	-26.40	-13	-13.40	Vertical
2133.8	-48.51	2.87	27.60	-23.78	-13	-10.78	Horizontal
209.3	-35.62	1.58	15.93	-21.27	-13	-8.27	Vertical
361.6	-31.62	1.36	15.59	-17.39	-13	-4.39	Horizontal

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

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

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

9.6 LTE BAND 17

QPSK EIRP POWER FOR LTE BAND 17 (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
1418.4	-48.02	2.62	27.30	-23.34	-13	-10.34	Horizontal
1418.4	-50.40	2.62	27.30	-25.72	-13	-12.72	Vertical
2127.3	-47.00	2.87	27.62	-22.25	-13	-9.25	Vertical
2127.3	-47.40	2.87	27.62	-22.65	-13	-9.65	Horizontal
197.1	-32.83	1.35	16.91	-17.27	-13	-4.27	Vertical
269.0	-40.37	1.62	16.31	-25.68	-13	-12.68	Horizontal
Test Results for Mid Channel 710MHz							
1420.7	-42.57	2.62	27.30	-17.89	-13	-4.89	Horizontal
1420.7	-42.08	2.62	27.30	-17.40	-13	-4.40	Vertical
2131.0	-45.32	2.87	27.62	-20.57	-13	-7.57	Vertical
2131.0	-49.43	2.87	27.62	-24.68	-13	-11.68	Horizontal
202.1	-42.49	1.51	17.14	-26.86	-13	-13.86	Vertical
398.4	-37.99	1.77	16.88	-22.88	-13	-9.88	Horizontal
Test Results for High Channel 711MHz							
1422.1	-44.70	2.62	27.30	-20.02	-13	-7.02	Horizontal
1422.1	-51.76	2.62	27.30	-27.08	-13	-14.08	Vertical
2133.8	-43.15	2.87	27.62	-18.40	-13	-5.40	Vertical
2133.8	-42.05	2.87	27.62	-17.30	-13	-4.30	Horizontal
202.2	-36.46	1.78	15.95	-22.30	-13	-9.30	Vertical
412.1	-35.60	1.34	17.95	-19.00	-13	-6.00	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.

9.7 LTE BAND 66

QPSK EIRP POWER FOR LTE BAND 66 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3422.3	-57.54	3.84	35.81	-25.57	-13	-12.57	Horizontal
3422.3	-60.64	3.84	35.81	-28.67	-13	-15.67	Vertical
5132.6	-61.07	5.18	36.85	-29.40	-13	-16.40	Vertical
5132.6	-59.96	5.18	36.85	-28.29	-13	-15.29	Horizontal
204.5	-47.41	1.56	17.97	-31.00	-13	-18.00	Vertical
306.5	-51.41	1.33	15.11	-37.63	-13	-24.63	Horizontal
Test Results for Mid Channel 1745MHz							
3490.6	-61.27	3.85	35.82	-29.30	-13	-16.30	Horizontal
3490.6	-60.73	3.85	35.82	-28.76	-13	-15.76	Vertical
5235.2	-58.97	5.21	36.85	-27.33	-13	-14.33	Vertical
5235.2	-60.87	5.21	36.85	-29.23	-13	-16.23	Horizontal
187.8	-47.36	1.77	16.17	-32.96	-13	-19.96	Vertical
391.0	-47.09	1.63	15.21	-33.51	-13	-20.51	Horizontal
Test Results for High Channel 1779.3MHz							
3559.5	-57.75	3.86	35.83	-25.78	-13	-12.78	Horizontal
3559.5	-57.11	3.86	35.83	-25.14	-13	-12.14	Vertical
5338.1	-56.83	5.24	36.87	-25.20	-13	-12.20	Vertical
5338.1	-59.33	5.24	36.87	-27.70	-13	-14.70	Horizontal
199.1	-45.66	1.58	17.56	-29.68	-13	-16.68	Vertical
268.4	-49.00	1.45	16.58	-33.87	-13	-20.87	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (20MHZ BANDWIDTH)

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.7	-61.47	3.84	35.82	-29.49	-13	-16.49	Horizontal
3440.7	-61.44	3.84	35.82	-29.46	-13	-16.46	Vertical
5160.3	-58.89	5.18	36.86	-27.21	-13	-14.21	Vertical
5160.3	-62.77	5.18	36.86	-31.09	-13	-18.09	Horizontal
180.5	-50.52	1.56	15.76	-36.33	-13	-23.33	Vertical
324.4	-45.35	1.33	15.44	-31.24	-13	-18.24	Horizontal
Test Results for Mid Channel 1745MHz							
3490.7	-58.36	3.85	35.82	-26.39	-13	-13.39	Horizontal
3490.7	-61.17	3.85	35.82	-29.20	-13	-16.20	Vertical
5235.5	-61.88	5.21	36.85	-30.24	-13	-17.24	Vertical
5235.5	-56.56	5.21	36.85	-24.92	-13	-11.92	Horizontal
183.1	-44.89	1.77	16.84	-29.81	-13	-16.81	Vertical
252.5	-51.45	1.63	17.64	-35.44	-13	-22.44	Horizontal
Test Results for High Channel 1770MHz							
3540.1	-57.42	3.86	35.83	-25.45	-13	-12.45	Horizontal
3540.1	-60.11	3.86	35.83	-28.14	-13	-15.14	Vertical
5310.1	-59.25	5.24	36.88	-27.61	-13	-14.61	Vertical
5310.1	-58.29	5.24	36.88	-26.65	-13	-13.65	Horizontal
183.0	-46.48	1.58	16.84	-31.22	-13	-18.22	Vertical
310.6	-47.57	1.45	17.64	-31.39	-13	-18.39	Horizontal

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

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

. We test both H direction and V direction, recorded worst case direction.

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

9.8 LTE BAND 71

QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 665.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1331.8	-64.21	2.16	35.81	-30.56	-13	-17.56	Horizontal
1331.8	-59.27	2.16	35.81	-25.62	-13	-12.62	Vertical
1997.2	-61.19	2.89	36.85	-27.23	-13	-14.23	Vertical
1997.2	-58.91	2.89	36.85	-24.95	-13	-11.95	Horizontal
199.8	-44.37	1.56	17.97	-27.96	-13	-14.96	Vertical
467.6	-43.68	1.33	15.11	-29.90	-13	-16.90	Horizontal
Test Results for Mid Channel 680.5MHz							
1361.1	-64.43	2.17	35.82	-30.78	-13	-17.78	Horizontal
1361.1	-59.81	2.17	35.82	-26.16	-13	-13.16	Vertical
2042.0	-58.99	2.90	36.85	-25.04	-13	-12.04	Vertical
2042.0	-63.75	2.90	36.85	-29.80	-13	-16.80	Horizontal
206.9	-44.72	1.77	16.17	-30.31	-13	-17.31	Vertical
338.5	-47.25	1.63	15.21	-33.67	-13	-20.67	Horizontal
Test Results for High Channel 695.5MHz							
1391.3	-62.02	2.19	35.83	-28.38	-13	-15.38	Horizontal
1391.3	-63.18	2.19	35.83	-29.54	-13	-16.54	Vertical
2087.1	-62.77	2.95	36.87	-28.85	-13	-15.85	Vertical
2087.1	-60.03	2.95	36.87	-26.11	-13	-13.11	Horizontal
179.3	-48.61	1.58	17.56	-32.63	-13	-19.63	Vertical
299.7	-44.23	1.45	16.58	-29.10	-13	-16.10	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1347.0	-61.09	2.16	35.82	-27.43	-13	-14.43	Horizontal
1347.0	-58.18	2.16	35.82	-24.52	-13	-11.52	Vertical
2019.6	-58.58	2.89	36.86	-24.61	-13	-11.61	Vertical
2019.6	-59.65	2.89	36.86	-25.68	-13	-12.68	Horizontal
212.7	-43.93	1.56	15.76	-29.73	-13	-16.73	Vertical
324.4	-45.89	1.33	15.44	-31.78	-13	-18.78	Horizontal
Test Results for Mid Channel 683MHz							
1366.1	-61.04	2.17	35.82	-27.39	-13	-14.39	Horizontal
1366.1	-58.84	2.17	35.82	-25.19	-13	-12.19	Vertical
2049.9	-61.57	2.90	36.85	-27.62	-13	-14.62	Vertical
2049.9	-60.27	2.90	36.85	-26.32	-13	-13.32	Horizontal
205.1	-50.07	1.77	16.84	-34.99	-13	-21.99	Vertical
418.2	-51.00	1.63	17.64	-34.99	-13	-21.99	Horizontal
Test Results for High Channel 688MHz							
1376.5	-58.70	2.19	35.83	-25.06	-13	-12.06	Horizontal
1376.5	-62.00	2.19	35.83	-28.36	-13	-15.36	Vertical
2065.0	-60.81	2.95	36.88	-26.88	-13	-13.88	Vertical
2065.0	-61.15	2.95	36.88	-27.22	-13	-14.22	Horizontal
189.3	-46.37	1.58	16.84	-31.10	-13	-18.10	Vertical
305.5	-45.95	1.45	17.64	-29.77	-13	-16.77	Horizontal

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

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

We test both H direction and V direction, recorded worst case direction.

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

Temp. = -30° to $+50^{\circ}\text{C}$

Voltage = low voltage, DC 3.23V, Normal, DC 3.8V and High voltage, DC 4.37V.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to -30°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 2/4/5/7/12/17/66/71

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]
3.23	1880	11.2	0.005954	2.5
3.80	1880	13.7	0.007262	2.5
4.37	1880	10.2	0.005443	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	3.8	0.001999	2.5
Extreme (50C)	1880	12.6	0.006692	2.5
Extreme (40C)	1880	13.2	0.007046	2.5
Extreme (30C)	1880	5.9	0.003153	2.5
Extreme (10C)	1880	5.3	0.002798	2.5
Extreme (0C)	1880	11.9	0.006320	2.5
Extreme (-10C)	1880	15.3	0.008155	2.5
Extreme (-20C)	1880	4.7	0.002510	2.5
Extreme (-30C)	1880	15.0	0.007961	2.5

Band 2 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	1880	13.7	0.007297	2.5
3.80	1880	13.5	0.007203	2.5
4.37	1880	8.9	0.004751	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	10.1	0.005370	2.5
Extreme (50C)	1880	11.7	0.006229	2.5
Extreme (40C)	1880	5.9	0.003119	2.5
Extreme (30C)	1880	5.0	0.002645	2.5
Extreme (10C)	1880	5.3	0.002806	2.5
Extreme (0C)	1880	6.7	0.003573	2.5
Extreme (-10C)	1880	4.6	0.002421	2.5
Extreme (-20C)	1880	5.9	0.003112	2.5
Extreme (-30C)	1880	4.1	0.002172	2.5

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

10.2 LTE BAND 4

Band 4 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	1732.5	3.7	0.002130	2.5
3.80	1732.5	9.1	0.005255	2.5
4.37	1732.5	3.2	0.001841	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	11.8	0.006832	2.5
Extreme (50C)	1732.5	13.0	0.007512	2.5
Extreme (40C)	1732.5	3.9	0.002246	2.5
Extreme (30C)	1732.5	11.7	0.006775	2.5
Extreme (10C)	1732.5	13.2	0.007617	2.5
Extreme (0C)	1732.5	6.1	0.003499	2.5
Extreme (-10C)	1732.5	15.4	0.008882	2.5
Extreme (-20C)	1732.5	8.1	0.004660	2.5
Extreme (-30C)	1732.5	7.2	0.004149	2.5

Band 4 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	1732.5	3.3	0.001905	2.5
3.80	1732.5	7.2	0.004169	2.5
4.37	1732.5	12.4	0.007152	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	3.4	0.001973	2.5
Extreme (50C)	1732.5	4.1	0.002373	2.5
Extreme (40C)	1732.5	14.3	0.008278	2.5
Extreme (30C)	1732.5	6.5	0.003749	2.5
Extreme (10C)	1732.5	14.2	0.008206	2.5
Extreme (0C)	1732.5	3.3	0.001884	2.5
Extreme (-10C)	1732.5	8.1	0.004672	2.5
Extreme (-20C)	1732.5	6.4	0.003720	2.5
Extreme (-30C)	1732.5	8.6	0.004955	2.5

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

10.3 LTE BAND 5

Band 5 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	836.5	12.0	0.014306	2.5
3.80	836.5	5.6	0.006719	2.5
4.37	836.5	3.9	0.004689	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	12.1	0.014423	2.5
Extreme (50C)	836.5	3.0	0.003645	2.5
Extreme (40C)	836.5	6.8	0.008169	2.5
Extreme (30C)	836.5	15.5	0.018502	2.5
Extreme (10C)	836.5	15.7	0.018778	2.5
Extreme (0C)	836.5	4.4	0.005309	2.5
Extreme (-10C)	836.5	14.7	0.017599	2.5
Extreme (-20C)	836.5	15.8	0.018856	2.5
Extreme (-30C)	836.5	8.8	0.010542	2.5

Band 5 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	836.5	8.2	0.009821	2.5
3.80	836.5	13.5	0.016184	2.5
4.37	836.5	11.3	0.013461	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	8.4	0.009988	2.5
Extreme (50C)	836.5	6.2	0.007364	2.5
Extreme (40C)	836.5	13.2	0.015752	2.5
Extreme (30C)	836.5	7.5	0.008977	2.5
Extreme (10C)	836.5	11.3	0.013540	2.5
Extreme (0C)	836.5	4.4	0.005257	2.5
Extreme (-10C)	836.5	14.3	0.017093	2.5
Extreme (-20C)	836.5	8.7	0.010441	2.5
Extreme (-30C)	836.5	14.6	0.017511	2.5

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

10.4 LTE BAND 7

Band 7 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	2535	9.7	0.003825	2.5
3.80	2535	9.4	0.003692	2.5
4.37	2535	3.0	0.001188	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	3.9	0.001544	2.5
Extreme (50C)	2535	6.0	0.002362	2.5
Extreme (40C)	2535	8.6	0.003399	2.5
Extreme (30C)	2535	4.3	0.001684	2.5
Extreme (10C)	2535	10.4	0.004087	2.5
Extreme (0C)	2535	12.9	0.005098	2.5
Extreme (-10C)	2535	14.7	0.005784	2.5
Extreme (-20C)	2535	6.8	0.002678	2.5
Extreme (-30C)	2535	12.6	0.004990	2.5

Band 7 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	2535	15.2	0.005986	2.5
3.80	2535	5.7	0.002266	2.5
4.37	2535	15.8	0.006237	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.0	0.003567	2.5
Extreme (50C)	2535	4.7	0.001839	2.5
Extreme (40C)	2535	8.0	0.003137	2.5
Extreme (30C)	2535	11.0	0.004351	2.5
Extreme (10C)	2535	6.1	0.002394	2.5
Extreme (0C)	2535	7.2	0.002835	2.5
Extreme (-10C)	2535	9.0	0.003535	2.5
Extreme (-20C)	2535	8.3	0.003257	2.5
Extreme (-30C)	2535	15.8	0.006230	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	707.5	12.4	0.017481	2.5
3.80	707.5	5.6	0.007866	2.5
4.37	707.5	12.7	0.017924	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	11.2	0.015886	2.5
Extreme (50C)	707.5	11.7	0.016524	2.5
Extreme (40C)	707.5	8.5	0.012072	2.5
Extreme (30C)	707.5	15.7	0.022250	2.5
Extreme (10C)	707.5	14.5	0.020468	2.5
Extreme (0C)	707.5	15.1	0.021337	2.5
Extreme (-10C)	707.5	11.4	0.016070	2.5
Extreme (-20C)	707.5	9.8	0.013805	2.5
Extreme (-30C)	707.5	8.4	0.011839	2.5

Band 12 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	707.5	5.0	0.007136	2.5
3.80	707.5	4.1	0.005807	2.5
4.37	707.5	15.8	0.022276	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	4.0	0.005633	2.5
Extreme (50C)	707.5	12.5	0.017717	2.5
Extreme (40C)	707.5	5.8	0.008150	2.5
Extreme (30C)	707.5	3.5	0.004985	2.5
Extreme (10C)	707.5	6.6	0.009279	2.5
Extreme (0C)	707.5	7.7	0.010860	2.5
Extreme (-10C)	707.5	5.1	0.007207	2.5
Extreme (-20C)	707.5	15.6	0.021980	2.5
Extreme (-30C)	707.5	7.3	0.010356	2.5

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

10.6 LTE BAND 17

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	710	4.8	0.006825	2.5
3.80	710	14.9	0.020950	2.5
4.37	710	11.2	0.015831	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	12.4	0.017479	2.5
Extreme (50C)	710	3.5	0.004978	2.5
Extreme (40C)	710	10.3	0.014491	2.5
Extreme (30C)	710	11.6	0.016341	2.5
Extreme (10C)	710	7.0	0.009861	2.5
Extreme (0C)	710	14.1	0.019848	2.5
Extreme (-10C)	710	4.2	0.005962	2.5
Extreme (-20C)	710	10.4	0.014693	2.5
Extreme (-30C)	710	6.5	0.009116	2.5

Band 17 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	710	4.0	0.005653	2.5
3.80	710	9.0	0.012616	2.5
4.37	710	6.6	0.009268	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	8.7	0.012264	2.5
Extreme (50C)	710	14.0	0.019725	2.5
Extreme (40C)	710	11.2	0.015776	2.5
Extreme (30C)	710	8.0	0.011242	2.5
Extreme (10C)	710	3.4	0.004824	2.5
Extreme (0C)	710	8.2	0.011605	2.5
Extreme (-10C)	710	10.8	0.015196	2.5
Extreme (-20C)	710	7.1	0.010065	2.5
Extreme (-30C)	710	5.1	0.007233	2.5

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

10.7 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.23	1745	8.6	0.004907	2.5
3.80	1745	5.2	0.002976	2.5
4.37	1745	3.7	0.002110	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	13.0	0.007424	2.5
Extreme (50C)	1745	10.9	0.006222	2.5
Extreme (40C)	1745	13.4	0.007683	2.5
Extreme (30C)	1745	12.3	0.007034	2.5
Extreme (10C)	1745	9.0	0.005173	2.5
Extreme (0C)	1745	12.7	0.007257	2.5
Extreme (-10C)	1745	7.4	0.004248	2.5
Extreme (-20C)	1745	3.4	0.001932	2.5
Extreme (-30C)	1745	5.6	0.003189	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.23	1745	13.8	0.007934	2.5
3.80	1745	10.3	0.005912	2.5
4.37	1745	9.2	0.005245	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	5.6	0.003213	2.5
Extreme (50C)	1745	5.8	0.003328	2.5
Extreme (40C)	1745	8.1	0.004632	2.5
Extreme (30C)	1745	13.2	0.007581	2.5
Extreme (10C)	1745	16.0	0.009151	2.5
Extreme (0C)	1745	8.2	0.004687	2.5
Extreme (-10C)	1745	3.8	0.002205	2.5
Extreme (-20C)	1745	10.1	0.005785	2.5
Extreme (-30C)	1745	7.2	0.004109	2.5

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

10.8 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]
3.23	680.5	9.9	0.005685	2.5
3.80	680.5	7.7	0.004387	2.5
4.37	680.5	7.8	0.004464	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	680.5	4.3	0.002449	2.5
Extreme (50C)	680.5	8.6	0.004925	2.5
Extreme (40C)	680.5	10.7	0.006148	2.5
Extreme (30C)	680.5	11.5	0.006593	2.5
Extreme (10C)	680.5	14.3	0.008191	2.5
Extreme (0C)	680.5	3.3	0.001908	2.5
Extreme (-10C)	680.5	6.1	0.003495	2.5
Extreme (-20C)	680.5	8.4	0.004836	2.5
Extreme (-30C)	680.5	5.2	0.003005	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]
3.23	680.5	3.3	0.001894	2.5
3.80	680.5	14.8	0.008455	2.5
4.37	680.5	10.2	0.005827	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	680.5	6.7	0.003813	2.5
Extreme (50C)	680.5	8.6	0.004937	2.5
Extreme (40C)	680.5	3.4	0.001925	2.5
Extreme (30C)	680.5	9.0	0.005155	2.5
Extreme (10C)	680.5	6.1	0.003468	2.5
Extreme (0C)	680.5	8.3	0.004749	2.5
Extreme (-10C)	680.5	11.5	0.006570	2.5
Extreme (-20C)	680.5	9.3	0.005313	2.5
Extreme (-30C)	680.5	6.6	0.003804	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

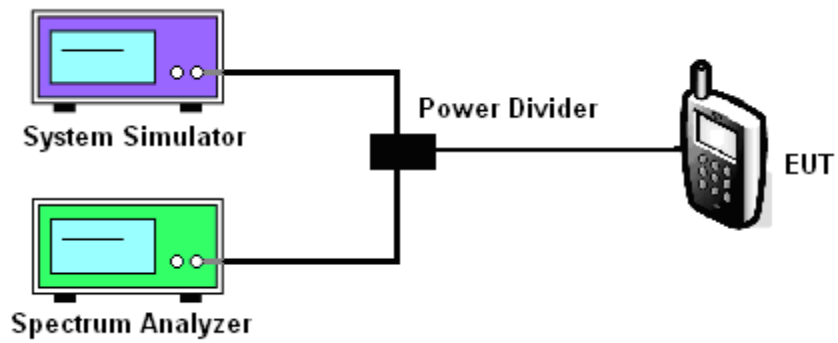
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

LTE Band 2/4/5/7/12/17/66/71

Test data reference attachment.

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