

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

FCC ID: 2AT9T-1002

Product: Tablet

Trade Mark: ulefone

Model No.: UF1002

Family Model: Tab A10 Pro, Tab A10, Tab A10 Ultra, Tab A10
Lite, Tab A10P, Tab A10E, Tab A10S

Report No.: S24110607306006

Issue Date: Jan. 27, 2025

Prepared for

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : Shenzhen Ulefone Technology Co., Ltd.

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Manufacturer's Name..... : Shenzhen Gotron Electronic CO.,LTD.

Address..... : 7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China

Product name..... : Tablet

Model and/or type reference .. : UF1002

Trade Mark..... : ulefone

Family Model..... : Tab A10 Pro, Tab A10, Tab A10 Ultra, Tab A10 Lite, Tab A10P, Tab A10E, Tab A10S

Test Sample Number..... : S241106073001

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..... Nov. 06, 2024 ~ Jan. 27, 2025

Date of Issue Jan. 27, 2025

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

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Tablet
Trade Mark	ulefone
Model Name	UF1002
Family Model	Tab A10 Pro, Tab A10, Tab A10 Ultra, Tab A10 Lite, Tab A10P, Tab A10E, Tab A10S
Model Difference	All models are the same circuit and RF module, except for model names.
FCC ID:	2AT9T-1002
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 17, 66, 71 TDD Band 41
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 TDD Band 41 Uplink& Downlink: 2496MHz-2690MHz, 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:	Main: Built-in Antenna, DIV: FPC Antenna
Antenna gain:	Band 2: 2.62 dBi, Band 4: 0.36dBi, Band 5: -3.16 dBi, Band 7: 2.2dBi, Band 12: -2.61dBi, Band 17: -2.61 dBi, Band 41: 2.34dBi; B66: 0.41dBi; B71: -2.61 dBi
Adapter	Model: QZ-0180AA2H Input: 100-240V~50/60Hz 0.5A Output: 5.0V---3.0A 15.0W or 9.0V---2.22A 20.0W or 12.0V---1.67A 20.0W
Battery	DC 3.8V, 6600mAh, 25.08Wh
Power supply	DC 3.8V from battery or DC 5V/9V/12V from Adapter.
Extreme Vol. Limits:	DC 3.23V to DC 4.37V (Nominal DC 3.8V) (Note 1)
HW Version	N/A
SW Version	N/A
** 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: 2AT9T-1002** 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.

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

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

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 2/4/5/7/12/17/41/66

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

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

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	Tablet	UF1002	FCC ID: 2AT9T-1002	EUT

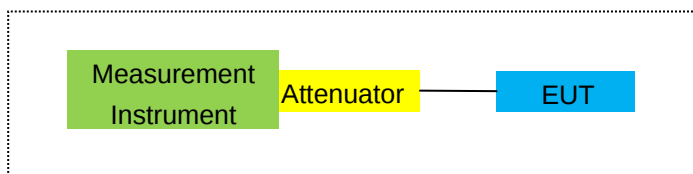
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

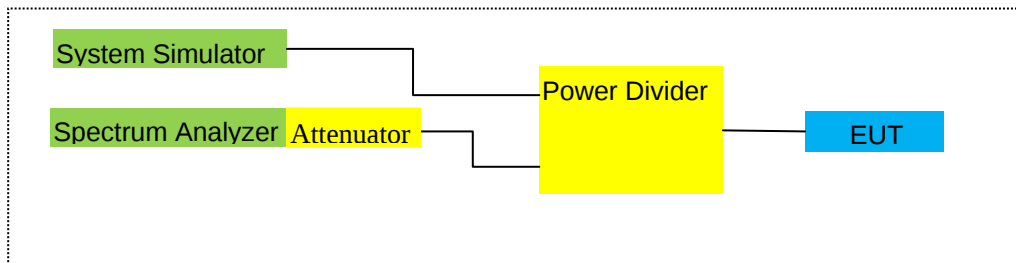
For Radiated Test Cases



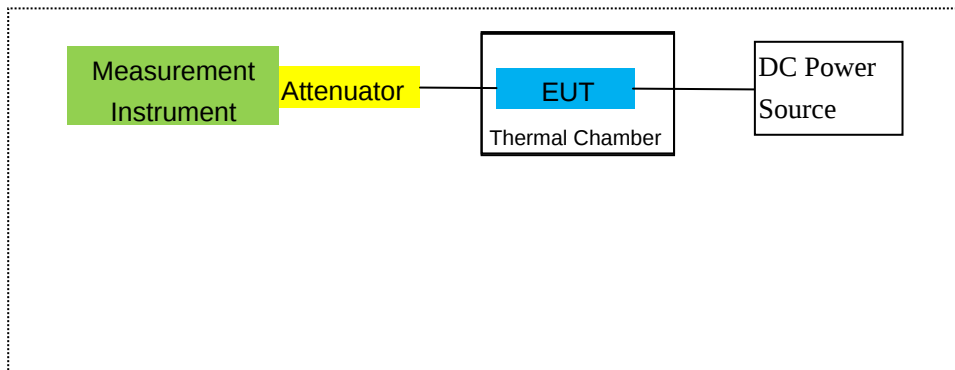
For Conducted Output Power



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	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2024.03.12	2025.03.11	1 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	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	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2024.03.12	2025.03.11	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	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	us44300399	2024.03.12	2025.03.11	1 year
23	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
24	Communication Tester	R&S	CMU200	A0304247	2024.03.12	2025.03.11	1 year
25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year

26	DC Power Source	N/A	PS-6005D	2017040292 3	2024.04.25	2027.04.24	3 year
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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	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

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 2/4/5/7/12/17/41/66/71

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;

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

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 2/4/5/7/12/17/41/66/71

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 2/4/5/7/12/17/41/66/71

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.

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.

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

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 2/4/5/7/12/17/41/66/71

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-2.37	3.76	28.24	22.11	162.438	Horizontal	Pass
		1880	-2.40	3.91	28.22	21.91	155.144	Horizontal	Pass
		1909.3	-3.05	3.93	28.20	21.22	132.398	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.21	3.77	28.23	22.25	167.799	Horizontal	Pass
		1880	-1.62	3.91	28.24	22.71	186.549	Horizontal	Pass
		1908.5	-2.62	3.94	28.25	21.69	147.426	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.45	3.77	28.31	23.09	203.686	Horizontal	Pass
		1880	-1.93	3.91	28.22	22.38	172.911	Horizontal	Pass
		1907.5	-1.43	3.94	28.20	22.83	191.953	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.76	3.79	28.33	21.78	150.718	Horizontal	Pass
		1880	-2.11	3.95	28.22	22.16	164.287	Horizontal	Pass
		1905	-2.05	3.97	28.19	22.17	164.941	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.24	3.79	28.34	22.31	170.021	Horizontal	Pass
		1880	-0.32	3.95	28.22	23.95	248.227	Horizontal	Pass
		1902.5	-1.82	3.97	28.18	22.39	173.217	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.12	3.81	28.35	21.42	138.557	Horizontal	Pass
		1880	-2.17	3.96	28.22	22.09	161.889	Horizontal	Pass
		1900	-1.56	4.00	28.16	22.60	182.049	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.43	3.76	28.24	21.05	127.306	Vertical	Pass
		1880	-3.28	3.91	28.22	21.03	126.810	Vertical	Pass
		1909.3	-3.58	3.93	28.20	20.69	117.087	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.68	3.77	28.23	20.78	119.720	Vertical	Pass
		1880	-2.57	3.91	28.24	21.76	150.062	Vertical	Pass
		1908.5	-3.38	3.94	28.25	20.93	123.836	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.07	3.77	28.31	21.47	140.322	Vertical	Pass
		1880	-2.16	3.91	28.22	22.15	164.139	Vertical	Pass
		1907.5	-3.99	3.94	28.20	20.27	106.367	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.18	3.79	28.33	23.36	216.975	Vertical	Pass
		1880	-3.20	3.95	28.22	21.07	127.999	Vertical	Pass
		1905	-2.66	3.97	28.19	21.56	143.368	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	-2.01	3.79	28.34	22.54	179.388	Vertical	Pass
		1880	-2.94	3.95	28.22	21.33	135.715	Vertical	Pass
		1902.5	-3.28	3.97	28.18	20.93	123.897	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.73	3.81	28.35	21.81	151.671	Vertical	Pass
		1880	-2.75	3.96	28.22	21.51	141.553	Vertical	Pass
		1900	-2.86	4.00	28.16	21.30	135.039	Vertical	Pass

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 16 QAM	1/#Mid	1850.7	-3.60	3.76	28.24	20.88	122.535	Horizontal	Pass
		1880	-4.54	3.91	28.22	19.77	94.772	Horizontal	Pass
		1909.3	-3.08	3.93	28.20	21.19	131.646	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.42	3.77	28.23	21.04	127.155	Horizontal	Pass
		1880	-3.18	3.91	28.24	21.15	130.167	Horizontal	Pass
		1908.5	-3.65	3.94	28.25	20.66	116.500	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-2.84	3.77	28.31	21.70	147.784	Horizontal	Pass
		1880	-4.58	3.91	28.22	19.73	93.946	Horizontal	Pass
		1907.5	-3.39	3.94	28.20	20.87	122.275	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.62	3.79	28.33	20.92	123.478	Horizontal	Pass
		1880	-3.73	3.95	28.22	20.54	113.129	Horizontal	Pass
		1905	-3.75	3.97	28.19	20.47	111.479	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.20	3.79	28.34	21.35	136.470	Horizontal	Pass
		1880	-3.60	3.95	28.22	20.67	116.792	Horizontal	Pass
		1902.5	-4.26	3.97	28.18	19.95	98.801	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.81	3.81	28.35	20.73	118.253	Horizontal	Pass
		1880	-3.00	3.96	28.22	21.26	133.594	Horizontal	Pass
		1900	-2.34	4.00	28.16	21.82	152.051	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.11	3.76	28.24	19.37	86.519	Vertical	Pass
		1880	-5.56	3.91	28.22	18.75	75.067	Vertical	Pass
		1909.3	-4.77	3.93	28.20	19.50	89.099	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.23	3.77	28.23	20.23	105.559	Vertical	Pass
		1880	-5.60	3.91	28.24	18.73	74.682	Vertical	Pass
		1908.5	-4.71	3.94	28.25	19.60	91.156	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.56	3.77	28.31	18.98	79.135	Vertical	Pass
		1880	-6.33	3.91	28.22	17.98	62.750	Vertical	Pass
		1907.5	-3.97	3.94	28.20	20.29	106.788	Vertical	Pass

10.0MHz Band 16 QAM	1/#Mid	1855	-5.39	3.79	28.33	19.15	82.231	Vertical	Pass
		1880	-6.23	3.95	28.22	18.04	63.655	Vertical	Pass
		1905	-4.22	3.97	28.19	20.00	99.913	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.07	3.79	28.34	21.48	140.455	Vertical	Pass
		1880	-3.86	3.95	28.22	20.41	109.778	Vertical	Pass
		1902.5	-3.77	3.97	28.18	20.44	110.577	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.25	3.81	28.35	20.29	106.906	Vertical	Pass
		1880	-3.72	3.96	28.22	20.54	113.328	Vertical	Pass
		1900	-4.35	4.00	28.16	19.81	95.650	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 Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-1.42	3.12	27.58	23.04	201.469	Horizontal	Pass
		1732.5	-2.39	3.27	27.61	21.95	156.524	Horizontal	Pass
		1754.3	-2.06	3.29	27.63	22.28	169.013	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-1.34	3.13	27.61	23.14	206.144	Horizontal	Pass
		1732.5	-1.85	3.27	27.61	22.49	177.223	Horizontal	Pass
		1753.5	-3.73	3.30	27.62	20.59	114.507	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.00	3.13	27.63	22.50	177.795	Horizontal	Pass
		1732.5	-1.23	3.27	27.61	23.11	204.554	Horizontal	Pass
		1752.5	-1.68	3.30	27.60	22.62	182.906	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.81	3.15	27.64	20.68	117.052	Horizontal	Pass
		1732.5	-1.69	3.31	27.61	22.61	182.469	Horizontal	Pass
		1750	-2.36	3.33	27.59	21.90	155.020	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-1.47	3.15	27.65	23.03	201.035	Horizontal	Pass
		1732.5	-2.12	3.31	27.61	22.18	165.228	Horizontal	Pass
		1747.5	-1.69	3.33	27.57	22.55	179.800	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.61	3.17	27.66	21.88	154.244	Horizontal	Pass
		1732.5	-1.02	3.32	27.61	23.27	212.231	Horizontal	Pass
		1745	-2.32	3.36	27.56	21.88	154.141	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.87	3.12	27.58	21.59	144.275	Vertical	Pass
		1732.5	-1.43	3.27	27.61	22.91	195.506	Vertical	Pass
		1754.3	-1.86	3.29	27.63	22.48	177.093	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.48	3.13	27.61	22.00	158.405	Vertical	Pass
		1732.5	-2.65	3.27	27.61	21.69	147.486	Vertical	Pass
		1753.5	-1.95	3.30	27.62	22.37	172.572	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.61	3.13	27.63	21.89	154.523	Vertical	Pass
		1732.5	-1.97	3.27	27.61	22.37	172.490	Vertical	Pass
		1752.5	-1.68	3.30	27.60	22.62	182.767	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-2.20	3.15	27.64	22.29	169.465	Vertical	Pass
		1732.5	-2.49	3.31	27.61	21.81	151.620	Vertical	Pass

QPSK		1750	-1.38	3.33	27.59	22.88	194.030	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-2.81	3.15	27.65	21.69	147.718	Vertical	Pass
Band		1732.5	-2.69	3.31	27.61	21.61	144.846	Vertical	Pass
QPSK		1747.5	-1.84	3.33	27.57	22.40	173.908	Vertical	Pass
20.0MHz	1/#Mid	1720	-1.73	3.17	27.66	22.76	188.801	Vertical	Pass
Band		1732.5	-3.35	3.32	27.61	20.94	124.209	Vertical	Pass
QPSK		1745	-3.33	3.36	27.56	20.87	122.110	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz	1/#Mid	1710.7	-3.20	3.12	27.58	21.26	133.746	Horizontal	Pass
Band 16		1732.5	-3.69	3.27	27.61	20.65	116.152	Horizontal	Pass
QAM		1754.3	-2.58	3.29	27.63	21.76	150.122	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.02	3.13	27.61	21.46	139.834	Horizontal	Pass
Band 16		1732.5	-2.96	3.27	27.61	21.38	137.434	Horizontal	Pass
QAM		1753.5	-3.82	3.30	27.62	20.50	112.143	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.83	3.13	27.63	20.67	116.726	Horizontal	Pass
Band 16		1732.5	-3.89	3.27	27.61	20.45	110.960	Horizontal	Pass
QAM		1752.5	-3.15	3.30	27.60	21.15	130.379	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.54	3.15	27.64	20.95	124.477	Horizontal	Pass
Band 16		1732.5	-4.02	3.31	27.61	20.28	106.601	Horizontal	Pass
QAM		1750	-2.94	3.33	27.59	21.32	135.384	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-5.74	3.15	27.65	18.76	75.086	Horizontal	Pass
Band 16		1732.5	-2.68	3.31	27.61	21.62	145.334	Horizontal	Pass
QAM		1747.5	-4.08	3.33	27.57	20.16	103.672	Horizontal	Pass
20.0MHz	1/#Mid	1720	-2.26	3.17	27.66	22.23	167.023	Horizontal	Pass
Band 16		1732.5	-2.92	3.32	27.61	21.37	137.077	Horizontal	Pass
QAM		1745	-2.61	3.36	27.56	21.59	144.087	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-4.81	3.12	27.58	19.65	92.159	Vertical	Pass
Band 16		1732.5	-4.10	3.27	27.61	20.24	105.745	Vertical	Pass
QAM		1754.3	-3.82	3.29	27.63	20.52	112.819	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-4.79	3.13	27.61	19.69	93.061	Vertical	Pass
Band 16		1732.5	-4.57	3.27	27.61	19.77	94.914	Vertical	Pass
QAM		1753.5	-4.94	3.30	27.62	19.38	86.771	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.31	3.13	27.63	20.19	104.531	Vertical	Pass
Band 16		1732.5	-3.35	3.27	27.61	20.99	125.620	Vertical	Pass

QAM		1752.5	-4.86	3.30	27.60	19.44	87.911	Vertical	Pass
10.0MHz	1/#Mid	1715	-3.53	3.15	27.64	20.96	124.696	Vertical	Pass
Band 16		1732.5	-3.56	3.31	27.61	20.74	118.554	Vertical	Pass
QAM		1750	-5.30	3.33	27.59	18.96	78.790	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-5.21	3.15	27.65	19.29	84.857	Vertical	Pass
Band 16		1732.5	-4.69	3.31	27.61	19.61	91.321	Vertical	Pass
QAM		1747.5	-4.15	3.33	27.57	20.09	102.193	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.01	3.17	27.66	20.48	111.801	Vertical	Pass
Band 16		1732.5	-4.28	3.32	27.61	20.01	100.167	Vertical	Pass
QAM		1745	-3.57	3.36	27.56	20.63	115.544	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 Factor (dB)	Correction (dB)	Max. IRP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	7.46	2.01	19.68	2.15	22.98	198.420	Horizontal	Pass
		836.5	6.51	2.01	19.77	2.15	22.12	163.110	Horizontal	Pass
		848.3	7.13	2.02	19.82	2.15	22.78	189.623	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.66	2.01	19.70	2.15	22.20	165.888	Horizontal	Pass
		836.5	7.64	2.01	19.77	2.15	23.25	211.549	Horizontal	Pass
		847.5	7.12	2.02	19.81	2.15	22.76	188.776	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.89	2.01	19.71	2.15	22.44	175.295	Horizontal	Pass
		836.5	7.40	2.01	19.77	2.15	23.01	200.216	Horizontal	Pass
		846.5	6.17	2.02	19.79	2.15	21.79	150.933	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	6.26	2.01	19.73	2.15	21.83	152.502	Horizontal	Pass
		836.5	7.20	2.01	19.77	2.15	22.81	191.119	Horizontal	Pass
		844	7.16	2.02	19.78	2.15	22.77	189.416	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	5.34	2.01	19.68	2.15	20.86	121.929	Vertical	Pass
		836.5	5.88	2.01	19.77	2.15	21.49	140.921	Vertical	Pass
		848.3	5.84	2.02	19.82	2.15	21.49	141.057	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.42	2.01	19.70	2.15	21.96	156.994	Vertical	Pass
		836.5	5.37	2.01	19.77	2.15	20.98	125.441	Vertical	Pass
		847.5	5.05	2.02	19.81	2.15	20.69	117.236	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.00	2.01	19.71	2.15	21.55	142.800	Vertical	Pass
		836.5	6.73	2.01	19.77	2.15	22.34	171.411	Vertical	Pass
		846.5	6.46	2.02	19.79	2.15	22.08	161.454	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.01	2.01	19.73	2.15	20.58	114.211	Vertical	Pass
		836.5	6.04	2.01	19.77	2.15	21.65	146.307	Vertical	Pass
		844	6.01	2.02	19.78	2.15	21.62	145.127	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/#Mid	824.7	6.16	2.01	19.68	2.15	21.68	147.276	Horizontal	Pass
		836.5	5.67	2.01	19.77	2.15	21.28	134.399	Horizontal	Pass
		848.3	5.69	2.02	19.82	2.15	21.34	136.204	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	7.11	2.01	19.70	2.15	22.65	184.202	Horizontal	Pass
		836.5	5.72	2.01	19.77	2.15	21.33	135.790	Horizontal	Pass
		847.5	5.03	2.02	19.81	2.15	20.67	116.789	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.61	2.01	19.71	2.15	22.16	164.452	Horizontal	Pass
		836.5	6.24	2.01	19.77	2.15	21.85	153.264	Horizontal	Pass
		846.5	6.31	2.02	19.79	2.15	21.93	155.871	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.21	2.01	19.73	2.15	21.78	150.540	Horizontal	Pass
		836.5	6.19	2.01	19.77	2.15	21.80	151.423	Horizontal	Pass
		844	6.93	2.02	19.78	2.15	22.54	179.283	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.09	2.01	19.68	2.15	20.61	115.141	Vertical	Pass
		836.5	6.46	2.01	19.77	2.15	22.07	161.130	Vertical	Pass
		848.3	5.47	2.02	19.82	2.15	21.12	129.272	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.11	2.01	19.70	2.15	20.65	116.095	Vertical	Pass
		836.5	5.01	2.01	19.77	2.15	20.62	115.414	Vertical	Pass
		847.5	6.15	2.02	19.81	2.15	21.79	151.126	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.75	2.01	19.71	2.15	22.30	169.787	Vertical	Pass
		836.5	5.88	2.01	19.77	2.15	21.49	141.082	Vertical	Pass
		846.5	5.57	2.02	19.79	2.15	21.19	131.590	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.75	2.01	19.73	2.15	19.32	85.504	Vertical	Pass
		836.5	4.88	2.01	19.77	2.15	20.49	111.860	Vertical	Pass
		844	6.26	2.02	19.78	2.15	21.87	153.960	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)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	-1.89	4.54	27.75	21.32	135.663	Horizontal	Pass
		2535	-1.45	4.69	27.72	21.58	143.889	Horizontal	Pass
		2567.5	-0.87	4.71	27.71	22.13	163.343	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-0.64	4.55	27.76	22.57	180.807	Horizontal	Pass
		2535	-0.97	4.69	27.72	22.06	160.557	Horizontal	Pass
		2565	-2.18	4.72	27.70	20.80	120.333	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-0.64	4.55	27.77	22.58	181.191	Horizontal	Pass
		2535	-1.58	4.69	27.72	21.45	139.543	Horizontal	Pass
		2562.5	-0.76	4.72	27.69	22.21	166.334	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.09	4.57	27.78	22.12	162.905	Horizontal	Pass
		2535	-0.57	4.73	27.72	22.42	174.575	Horizontal	Pass
		2560	-2.10	4.75	27.68	20.83	121.148	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-2.13	4.54	27.75	21.08	128.300	Vertical	Pass
		2535	-2.53	4.69	27.72	20.50	112.109	Vertical	Pass
		2567.5	-2.77	4.71	27.71	20.23	105.546	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.56	4.55	27.76	19.65	92.259	Vertical	Pass
		2535	-3.04	4.69	27.72	19.99	99.825	Vertical	Pass
		2565	-2.63	4.72	27.70	20.35	108.457	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.23	4.55	27.77	20.99	125.461	Vertical	Pass
		2535	-2.74	4.69	27.72	20.29	106.798	Vertical	Pass
		2562.5	-1.80	4.72	27.69	21.17	130.872	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.20	4.57	27.78	21.01	126.160	Vertical	Pass
		2535	-1.84	4.73	27.72	21.15	130.232	Vertical	Pass
		2560	-2.71	4.75	27.68	20.22	105.253	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)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.04	4.54	27.75	20.17	104.037	Horizontal	Pass
		2535	-2.70	4.69	27.72	20.33	107.971	Horizontal	Pass
		2567.5	-2.11	4.71	27.71	20.89	122.861	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.08	4.55	27.76	21.13	129.845	Horizontal	Pass
		2535	-1.91	4.69	27.72	21.12	129.437	Horizontal	Pass
		2565	-1.72	4.72	27.70	21.26	133.643	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.31	4.55	27.77	19.91	97.895	Horizontal	Pass
		2535	-2.95	4.69	27.72	20.08	101.778	Horizontal	Pass
		2562.5	-3.08	4.72	27.69	19.89	97.576	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.95	4.57	27.78	20.26	106.064	Horizontal	Pass
		2535	-1.71	4.73	27.72	21.28	134.348	Horizontal	Pass
		2560	-2.02	4.75	27.68	20.91	123.365	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.21	4.54	27.75	20.00	99.892	Vertical	Pass
		2535	-3.58	4.69	27.72	19.45	88.170	Vertical	Pass
		2567.5	-3.25	4.71	27.71	19.75	94.475	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.25	4.55	27.76	19.96	99.027	Vertical	Pass
		2535	-2.07	4.69	27.72	20.96	124.624	Vertical	Pass
		2565	-2.37	4.72	27.70	20.61	115.131	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.07	4.55	27.77	21.15	130.301	Vertical	Pass
		2535	-3.19	4.69	27.72	19.84	96.336	Vertical	Pass
		2562.5	-4.03	4.72	27.69	18.94	78.400	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.49	4.57	27.78	18.72	74.440	Vertical	Pass
		2535	-2.80	4.73	27.72	20.19	104.449	Vertical	Pass
		2560	-2.33	4.75	27.68	20.60	114.778	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 Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	7.30	1.91	19.21	2.15	22.45	175.783	Vertical	Pass
		707.5	7.47	1.91	19.26	2.15	22.67	184.992	Vertical	Pass
		715.3	6.63	1.93	19.34	2.15	21.89	154.685	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	7.41	1.91	19.21	2.15	22.56	180.123	Vertical	Pass
		707.5	7.66	1.91	19.26	2.15	22.86	193.180	Vertical	Pass
		714.5	6.56	1.93	19.34	2.15	21.82	152.198	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.57	1.91	19.23	2.15	22.74	187.934	Vertical	Pass
		707.5	7.45	1.91	19.26	2.15	22.65	183.870	Vertical	Pass
		713.5	6.49	1.92	19.33	2.15	21.75	149.642	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	6.63	1.91	19.25	2.15	21.82	152.174	Vertical	Pass
		707.5	7.28	1.91	19.26	2.15	22.48	177.098	Vertical	Pass
		711	7.38	1.92	19.32	2.15	22.63	183.332	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	5.75	1.91	19.21	2.15	20.90	123.080	Horizontal	Pass
		707.5	5.58	1.91	19.26	2.15	20.78	119.562	Horizontal	Pass
		715.3	5.61	1.93	19.34	2.15	20.87	122.307	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	5.82	1.91	19.21	2.15	20.97	124.948	Horizontal	Pass
		707.5	6.12	1.91	19.26	2.15	21.32	135.408	Horizontal	Pass
		714.5	5.12	1.93	19.34	2.15	20.38	109.227	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.71	1.91	19.23	2.15	21.88	154.209	Horizontal	Pass
		707.5	5.32	1.91	19.26	2.15	20.52	112.709	Horizontal	Pass
		713.5	5.92	1.92	19.33	2.15	21.18	131.281	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	5.21	1.91	19.25	2.15	20.40	109.615	Horizontal	Pass
		707.5	5.16	1.91	19.26	2.15	20.36	108.701	Horizontal	Pass
		711	5.77	1.92	19.32	2.15	21.02	126.555	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	699.7	7.67	1.91	19.21	2.15	22.82	191.484	Vertical	Pass
		707.5	6.39	1.91	19.26	2.15	21.59	144.174	Vertical	Pass
		715.3	5.67	1.93	19.34	2.15	20.93	123.874	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.70	1.91	19.21	2.15	20.85	121.575	Vertical	Pass
		707.5	6.90	1.91	19.26	2.15	22.10	162.096	Vertical	Pass
		714.5	6.46	1.93	19.34	2.15	21.72	148.655	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.64	1.91	19.23	2.15	21.81	151.627	Vertical	Pass
		707.5	7.44	1.91	19.26	2.15	22.64	183.446	Vertical	Pass
		713.5	6.43	1.92	19.33	2.15	21.69	147.583	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.40	1.91	19.25	2.15	22.59	181.481	Vertical	Pass
		707.5	7.71	1.91	19.26	2.15	22.91	195.404	Vertical	Pass
		711	6.95	1.92	19.32	2.15	22.20	165.795	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	6.78	1.91	19.21	2.15	21.93	155.917	Horizontal	Pass
		707.5	6.93	1.91	19.26	2.15	22.13	163.475	Horizontal	Pass
		715.3	5.13	1.93	19.34	2.15	20.39	109.283	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	7.42	1.91	19.21	2.15	22.57	180.603	Horizontal	Pass
		707.5	6.04	1.91	19.26	2.15	21.24	133.167	Horizontal	Pass
		714.5	6.57	1.93	19.34	2.15	21.83	152.518	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.02	1.91	19.23	2.15	22.19	165.519	Horizontal	Pass
		707.5	6.70	1.91	19.26	2.15	21.90	154.948	Horizontal	Pass
		713.5	5.98	1.92	19.33	2.15	21.24	132.944	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.07	1.91	19.25	2.15	20.26	106.172	Horizontal	Pass
		707.5	6.95	1.91	19.26	2.15	22.15	164.068	Horizontal	Pass
		711	5.47	1.92	19.32	2.15	20.72	118.085	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)

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 Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	8.03	1.91	19.23	2.15	23.20	208.950	Vertical	Pass
		710	8.31	1.91	19.26	2.15	23.51	224.357	Vertical	Pass
		713.5	6.85	1.92	19.33	2.15	22.11	162.694	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	8.59	1.91	19.25	2.15	23.78	238.968	Vertical	Pass
		710	6.63	1.91	19.26	2.15	21.83	152.493	Vertical	Pass
		711	7.25	1.92	19.32	2.15	22.50	177.782	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	7.19	1.91	19.23	2.15	22.36	172.041	Horizontal	Pass
		710	6.23	1.91	19.26	2.15	21.43	138.859	Horizontal	Pass
		713.5	6.57	1.92	19.33	2.15	21.83	152.233	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	6.64	1.91	19.25	2.15	21.83	152.467	Horizontal	Pass
		710	6.38	1.91	19.26	2.15	21.58	143.959	Horizontal	Pass
		711	5.51	1.92	19.32	2.15	20.76	119.105	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	7.07	1.91	19.23	2.15	22.24	167.499	Vertical	Pass
		710	6.98	1.91	19.26	2.15	22.18	165.327	Vertical	Pass
		713.5	7.34	1.92	19.33	2.15	22.60	181.790	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	7.66	1.91	19.25	2.15	22.85	192.848	Vertical	Pass
		710	7.44	1.91	19.26	2.15	22.64	183.663	Vertical	Pass
		711	5.69	1.92	19.32	2.15	20.94	124.038	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	6.30	1.91	19.23	2.15	21.47	140.299	Horizontal	Pass
		710	4.87	1.91	19.26	2.15	20.07	101.537	Horizontal	Pass
		713.5	6.26	1.92	19.33	2.15	21.52	141.915	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.26	1.91	19.25	2.15	21.45	139.651	Horizontal	Pass
		710	6.65	1.91	19.26	2.15	21.85	153.022	Horizontal	Pass
		711	6.18	1.92	19.32	2.15	21.43	139.134	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 41

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 Band QPSK	1/##Mid	2537.5	-1.40	4.54	27.75	21.81	151.794	Horizontal	Pass
		2595	-1.28	4.69	27.72	21.75	149.784	Horizontal	Pass
		2652.5	-0.90	4.71	27.71	22.10	162.017	Horizontal	Pass
10.0MHz Band QPSK	1/##Mid	2540	-0.96	4.55	27.76	22.25	168.023	Horizontal	Pass
		2595	-1.44	4.69	27.72	21.59	144.180	Horizontal	Pass
		2650	-0.54	4.72	27.70	22.44	175.335	Horizontal	Pass
15.0MHz Band QPSK	1/##Mid	2542.5	-0.62	4.55	27.77	22.60	181.937	Horizontal	Pass
		2595	-0.25	4.69	27.72	22.78	189.510	Horizontal	Pass
		2647.5	-1.33	4.72	27.69	21.64	146.048	Horizontal	Pass
20.0MHz Band QPSK	1/##Mid	2545	-1.23	4.57	27.78	21.98	157.683	Horizontal	Pass
		2595	-1.72	4.73	27.72	21.27	133.850	Horizontal	Pass
		2645	-1.55	4.75	27.68	21.38	137.501	Horizontal	Pass
5.0MHz Band QPSK	1/##Mid	2537.5	-1.06	4.54	27.75	22.15	164.042	Vertical	Pass
		2595	-2.02	4.69	27.72	21.01	126.316	Vertical	Pass
		2652.5	-2.23	4.71	27.71	20.77	119.474	Vertical	Pass
10.0MHz Band QPSK	1/##Mid	2540	-0.62	4.55	27.76	22.59	181.757	Vertical	Pass
		2595	-1.15	4.69	27.72	21.88	154.168	Vertical	Pass
		2650	-1.59	4.72	27.70	21.39	137.624	Vertical	Pass
15.0MHz Band QPSK	1/##Mid	2542.5	-1.59	4.55	27.77	21.63	145.443	Vertical	Pass
		2595	-1.76	4.69	27.72	21.27	133.979	Vertical	Pass
		2647.5	-2.03	4.72	27.69	20.94	124.102	Vertical	Pass
20.0MHz Band QPSK	1/##Mid	2545	-2.34	4.57	27.78	20.87	122.185	Vertical	Pass
		2595	-1.85	4.73	27.72	21.14	129.952	Vertical	Pass
		2645	-0.44	4.75	27.68	22.49	177.391	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 Band 16 QAM	1/#Mid	2537.5	-1.56	4.54	27.75	21.65	146.069	Horizontal	Pass
		2595	-3.05	4.69	27.72	19.98	99.620	Horizontal	Pass
		2652.5	-1.43	4.71	27.71	21.57	143.606	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-3.04	4.55	27.76	20.17	104.046	Horizontal	Pass
		2595	-2.03	4.69	27.72	21.00	125.795	Horizontal	Pass
		2650	-1.56	4.72	27.70	21.42	138.728	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-1.55	4.55	27.77	21.67	146.814	Horizontal	Pass
		2595	-2.35	4.69	27.72	20.68	117.021	Horizontal	Pass
		2647.5	-1.93	4.72	27.69	21.04	126.983	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-2.76	4.57	27.78	20.45	111.029	Horizontal	Pass
		2595	-2.29	4.73	27.72	20.70	117.551	Horizontal	Pass
		2645	-1.46	4.75	27.68	21.47	140.300	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2537.5	-2.18	4.54	27.75	21.03	126.684	Vertical	Pass
		2595	-1.79	4.69	27.72	21.24	132.893	Vertical	Pass
		2652.5	-3.22	4.71	27.71	19.78	94.976	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-2.95	4.55	27.76	20.26	106.207	Vertical	Pass
		2595	-2.38	4.69	27.72	20.65	116.203	Vertical	Pass
		2650	-3.06	4.72	27.70	19.92	98.237	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-2.25	4.55	27.77	20.97	124.951	Vertical	Pass
		2595	-2.74	4.69	27.72	20.29	106.887	Vertical	Pass
		2647.5	-2.55	4.72	27.69	20.42	110.269	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-2.37	4.57	27.78	20.84	121.220	Vertical	Pass
		2595	-2.15	4.73	27.72	20.84	121.333	Vertical	Pass
		2645	-3.02	4.75	27.68	19.91	97.965	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 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)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-2.42	3.76	28.24	22.06	160.614	Horizontal	Pass
		1745	-3.05	3.91	28.22	21.26	133.807	Horizontal	Pass
		1779.3	-3.11	3.93	28.2	21.16	130.485	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.96	3.77	28.23	21.50	141.270	Horizontal	Pass
		1745	-1.77	3.91	28.24	22.56	180.271	Horizontal	Pass
		1778.5	-2.18	3.94	28.25	22.13	163.242	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.30	3.77	28.31	22.24	167.647	Horizontal	Pass
		1745	-2.66	3.91	28.22	21.65	146.305	Horizontal	Pass
		1777.5	-2.37	3.94	28.2	21.89	154.530	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.78	3.79	28.33	21.76	149.926	Horizontal	Pass
		1745	-2.55	3.95	28.22	21.72	148.675	Horizontal	Pass
		1775	-1.60	3.97	28.19	22.62	182.870	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.29	3.79	28.34	22.26	168.332	Horizontal	Pass
		1745	-1.91	3.95	28.22	22.36	172.327	Horizontal	Pass
		1772.5	-2.36	3.97	28.18	21.85	153.210	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.25	3.81	28.35	21.29	134.708	Horizontal	Pass
		1745	-2.58	3.96	28.22	21.68	147.344	Horizontal	Pass
		1770	-2.45	4	28.16	21.71	148.104	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.88	3.76	28.24	21.60	144.686	Vertical	Pass
		1745	-2.32	3.91	28.22	21.99	158.095	Vertical	Pass
		1779.3	-2.46	3.93	28.2	21.81	151.810	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.33	3.77	28.23	22.13	163.482	Vertical	Pass
		1745	-3.19	3.91	28.24	21.14	130.100	Vertical	Pass
		1778.5	-1.55	3.94	28.25	22.76	189.004	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.25	3.77	28.31	22.29	169.395	Vertical	Pass
		1745	-2.03	3.91	28.22	22.28	169.158	Vertical	Pass
		1777.5	-1.96	3.94	28.2	22.30	169.670	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.25	3.79	28.34	22.30	169.630	Vertical	Pass
		1745	-2.06	3.95	28.22	22.21	166.295	Vertical	Pass
		1775	-1.44	3.97	28.18	22.77	189.316	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-2.98	3.81	28.35	21.56	143.324	Vertical	Pass
		1745	-2.27	3.96	28.22	21.99	158.283	Vertical	Pass
		1772.5	-2.03	4	28.16	22.13	163.443	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.01	3.79	28.34	21.54	142.533	Vertical	Pass
		1745	-1.81	3.95	28.22	22.46	176.244	Vertical	Pass
		1770	-2.82	3.97	28.18	21.39	137.625	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)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.34	3.76	28.24	21.14	130.021	Horizontal	Pass
		1745	-3.44	3.91	28.22	20.87	122.155	Horizontal	Pass
		1779.3	-3.53	3.93	28.2	20.74	118.674	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.65	3.77	28.23	20.81	120.480	Horizontal	Pass
		1745	-3.45	3.91	28.24	20.88	122.497	Horizontal	Pass
		1778.5	-3.96	3.94	28.25	20.35	108.484	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.60	3.77	28.31	20.94	124.140	Horizontal	Pass
		1745	-2.62	3.91	28.22	21.69	147.719	Horizontal	Pass
		1777.5	-3.86	3.94	28.2	20.40	109.586	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.79	3.79	28.33	20.75	118.820	Horizontal	Pass
		1745	-3.84	3.95	28.22	20.43	110.303	Horizontal	Pass
		1775	-3.64	3.97	28.19	20.58	114.229	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.31	3.79	28.34	21.24	133.049	Horizontal	Pass
		1745	-2.83	3.95	28.22	21.44	139.178	Horizontal	Pass
		1772.5	-3.35	3.97	28.18	20.86	121.989	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.88	3.81	28.35	21.66	146.523	Horizontal	Pass
		1745	-3.03	3.96	28.22	21.23	132.740	Horizontal	Pass
		1770	-3.30	4	28.16	20.86	121.976	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.65	3.76	28.24	20.83	120.983	Vertical	Pass
		1745	-2.93	3.91	28.22	21.38	137.322	Vertical	Pass
		1779.3	-3.12	3.93	28.2	21.15	130.443	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.03	3.77	28.23	21.43	138.984	Vertical	Pass
		1745	-3.13	3.91	28.24	21.20	131.967	Vertical	Pass
		1778.5	-3.62	3.94	28.25	20.69	117.293	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.14	3.77	28.31	21.40	138.070	Vertical	Pass
		1745	-3.30	3.91	28.22	21.01	126.158	Vertical	Pass
		1777.5	-3.00	3.94	28.2	21.26	133.682	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.42	3.79	28.34	21.13	129.834	Vertical	Pass
		1745	-3.36	3.95	28.22	20.91	123.406	Vertical	Pass
		1775	-3.32	3.97	28.18	20.89	122.711	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.81	3.81	28.35	20.73	118.336	Vertical	Pass
		1745	-3.57	3.96	28.22	20.69	117.141	Vertical	Pass
		1772.5	-2.96	4	28.16	21.20	131.860	Vertical	Pass

20.0MHz	1/#Mid	1720	-3.74	3.79	28.34	20.81	120.495	Vertical	Pass
Band 16		1745	-2.71	3.95	28.22	21.56	143.366	Vertical	Pass
QAM		1770	-3.13	3.97	28.18	21.08	128.332	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)

8.10 LTE BAND 71

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction	Max. EPR	Max. EPR	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	665.5	5.20	1.91	19.21	2.15	20.35	108.282	Vertical	Pass
		680.5	4.65	1.91	19.26	2.15	19.85	96.497	Vertical	Pass
		695.5	5.23	1.93	19.34	2.15	20.49	112.029	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	668	5.34	1.91	19.21	2.15	20.49	111.861	Vertical	Pass
		680.5	4.52	1.91	19.26	2.15	19.72	93.835	Vertical	Pass
		693	4.57	1.93	19.34	2.15	19.83	96.129	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	670.5	4.65	1.91	19.23	2.15	19.82	95.873	Vertical	Pass
		680.5	5.11	1.91	19.26	2.15	20.31	107.368	Vertical	Pass
		690.5	5.28	1.92	19.33	2.15	20.54	113.341	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	673	4.74	1.91	19.25	2.15	19.93	98.439	Vertical	Pass
		683	4.93	1.91	19.26	2.15	20.13	103.056	Vertical	Pass
		688	5.29	1.92	19.32	2.15	20.54	113.227	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	665.5	5.29	1.91	19.21	2.15	20.44	110.727	Horizontal	Pass
		680.5	5.14	1.91	19.26	2.15	20.34	108.163	Horizontal	Pass
		695.5	5.10	1.93	19.34	2.15	20.36	108.625	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	668	5.43	1.91	19.21	2.15	20.58	114.317	Horizontal	Pass
		680.5	5.30	1.91	19.26	2.15	20.50	112.246	Horizontal	Pass
		693	5.36	1.93	19.34	2.15	20.62	115.242	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	670.5	5.36	1.91	19.23	2.15	20.53	113.003	Horizontal	Pass
		680.5	4.81	1.91	19.26	2.15	20.01	100.276	Horizontal	Pass
		690.5	4.66	1.92	19.33	2.15	19.92	98.085	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	673	5.44	1.91	19.25	2.15	20.63	115.483	Horizontal	Pass
		683	5.63	1.91	19.26	2.15	20.83	121.158	Horizontal	Pass
		688	5.04	1.92	19.32	2.15	20.29	106.967	Horizontal	Pass

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Factor	Correction	Max. EPR	Max. EPR	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	665.5	4.20	1.91	19.21	2.15	19.35	86.188	Vertical	Pass
		680.5	3.85	1.91	19.26	2.15	19.05	80.346	Vertical	Pass
		695.5	3.80	1.93	19.34	2.15	19.06	80.615	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	668	4.73	1.91	19.21	2.15	19.88	97.325	Vertical	Pass
		680.5	4.60	1.91	19.26	2.15	19.80	95.602	Vertical	Pass
		693	4.21	1.93	19.34	2.15	19.47	88.449	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	670.5	3.94	1.91	19.23	2.15	19.11	81.397	Vertical	Pass
		680.5	4.20	1.91	19.26	2.15	19.40	87.039	Vertical	Pass
		690.5	4.16	1.92	19.33	2.15	19.42	87.428	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	673	4.13	1.91	19.25	2.15	19.32	85.429	Vertical	Pass
		683	3.93	1.91	19.26	2.15	19.13	81.774	Vertical	Pass
		688	3.95	1.92	19.32	2.15	19.20	83.230	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	665.5	4.45	1.91	19.21	2.15	19.60	91.205	Horizontal	Pass
		680.5	3.97	1.91	19.26	2.15	19.17	82.573	Horizontal	Pass
		695.5	4.11	1.93	19.34	2.15	19.37	86.559	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	668	4.30	1.91	19.21	2.15	19.45	88.155	Horizontal	Pass
		680.5	4.37	1.91	19.26	2.15	19.57	90.627	Horizontal	Pass
		693	4.53	1.93	19.34	2.15	19.79	95.347	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	670.5	4.68	1.91	19.23	2.15	19.85	96.557	Horizontal	Pass
		680.5	4.27	1.91	19.26	2.15	19.47	88.432	Horizontal	Pass
		690.5	4.05	1.92	19.33	2.15	19.31	85.241	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	673	4.38	1.91	19.25	2.15	19.57	90.564	Horizontal	Pass
		683	4.16	1.91	19.26	2.15	19.36	86.258	Horizontal	Pass
		688	4.60	1.92	19.32	2.15	19.85	96.548	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 and §90.691

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 2/4/5/7/12/17/41/66/71

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
3702.0	-48.41	4.04	33.51	-18.94	-13	-5.94	Horizontal
3702.0	-51.08	4.04	33.51	-21.61	-13	-8.61	Vertical
5552.4	-46.79	5.24	35.84	-16.19	-13	-3.19	Vertical
5552.4	-49.15	5.24	35.84	-18.55	-13	-5.55	Horizontal
185.2	-39.50	1.43	16.02	-24.91	-13	-11.91	Vertical
454.2	-32.40	1.30	17.99	-15.71	-13	-2.71	Horizontal
Test Results for Mid Channel 1880MHz							
3760.5	-46.73	4.04	33.56	-17.21	-13	-4.21	Horizontal
3760.5	-51.67	4.04	33.56	-22.15	-13	-9.15	Vertical
5640.9	-48.40	5.24	35.91	-17.73	-13	-4.73	Vertical
5640.9	-50.43	5.24	35.91	-19.76	-13	-6.76	Horizontal
184.3	-34.65	1.62	16.97	-19.29	-13	-6.29	Vertical
290.0	-34.42	1.74	15.98	-20.19	-13	-7.19	Horizontal
Test Results for High Channel 1909.3MHz							
3819.1	-46.52	4.04	34.00	-16.56	-13	-3.56	Horizontal
3819.1	-45.55	4.04	34.00	-15.59	-13	-2.59	Vertical
5728.5	-50.15	5.24	36.04	-19.35	-13	-6.35	Vertical
5728.5	-47.83	5.24	36.04	-17.03	-13	-4.03	Horizontal
193.9	-40.08	1.42	17.29	-24.20	-13	-11.20	Vertical
342.7	-33.70	1.50	17.90	-17.29	-13	-4.29	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
3720.9	-45.90	4.07	33.54	-16.43	-13	-3.43	Horizontal
3720.9	-49.15	4.07	33.54	-19.68	-13	-6.68	Vertical
5580.5	-46.33	5.28	35.86	-15.75	-13	-2.75	Vertical
5580.5	-49.42	5.28	35.86	-18.84	-13	-5.84	Horizontal
208.6	-37.24	1.58	16.89	-21.93	-13	-8.93	Vertical
357.1	-41.07	1.76	17.26	-25.57	-13	-12.57	Horizontal
Test Results for Mid Channel 1880MHz							
3760.6	-46.06	4.04	33.56	-16.54	-13	-3.54	Horizontal
3760.6	-46.28	4.04	33.56	-16.76	-13	-3.76	Vertical
5640.0	-50.28	5.24	35.91	-19.61	-13	-6.61	Vertical
5640.0	-50.43	5.24	35.91	-19.76	-13	-6.76	Horizontal
200.9	-43.30	1.46	16.27	-28.49	-13	-15.49	Vertical
344.7	-38.18	1.59	15.15	-24.62	-13	-11.62	Horizontal
Test Results for High Channel 1900MHz							
3800.2	-48.83	4.04	34.00	-18.87	-13	-5.87	Horizontal
3800.2	-46.35	4.04	34.00	-16.39	-13	-3.39	Vertical
5701.0	-46.98	5.24	36.04	-16.18	-13	-3.18	Vertical
5701.0	-49.67	5.24	36.04	-18.87	-13	-5.87	Horizontal
212.5	-33.68	1.36	17.39	-17.64	-13	-4.64	Vertical
313.6	-40.71	1.66	15.39	-26.99	-13	-13.99	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
3421.9	-48.26	4.02	29.80	-22.48	-13	-9.48	Horizontal
3421.9	-46.76	4.02	29.80	-20.98	-13	-7.98	Vertical
5132.2	-49.62	5.24	35.84	-19.02	-13	-6.02	Vertical
5132.2	-50.29	5.24	35.84	-19.69	-13	-6.69	Horizontal
198.4	-40.09	1.68	16.04	-25.73	-13	-12.73	Vertical
454.8	-33.56	1.78	17.74	-17.59	-13	-4.59	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.8	-48.16	4.03	30.00	-22.19	-13	-9.19	Horizontal
3465.8	-42.33	4.03	30.00	-16.36	-13	-3.36	Vertical
5198.3	-46.90	5.25	35.86	-16.29	-13	-3.29	Vertical
5198.3	-47.50	5.25	35.86	-16.89	-13	-3.89	Horizontal
208.0	-40.16	1.72	17.69	-24.19	-13	-11.19	Vertical
346.7	-41.76	1.62	16.02	-27.35	-13	-14.35	Horizontal
Test Results for High Channel 1754.3MHz							
3509.2	-47.35	4.05	30.01	-21.39	-13	-8.39	Horizontal
3509.2	-45.12	4.05	30.01	-19.16	-13	-6.16	Vertical
5263.7	-47.86	5.26	35.86	-17.26	-13	-4.26	Vertical
5263.7	-48.65	5.26	35.86	-18.05	-13	-5.05	Horizontal
183.1	-31.55	1.80	16.69	-16.66	-13	-3.66	Vertical
332.5	-39.26	1.75	16.66	-24.35	-13	-11.35	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
3440.6	-47.59	4.02	29.80	-21.81	-13	-8.81	Horizontal
3440.6	-47.74	4.02	29.80	-21.96	-13	-8.96	Vertical
5160.5	-51.37	5.24	35.84	-20.77	-13	-7.77	Vertical
5160.5	-49.24	5.24	35.84	-18.64	-13	-5.64	Horizontal
183.4	-38.88	1.57	17.26	-23.20	-13	-10.20	Vertical
310.6	-34.51	1.78	16.35	-19.94	-13	-6.94	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.2	-49.05	4.03	30.00	-23.08	-13	-10.08	Horizontal
3465.2	-49.33	4.03	30.00	-23.36	-13	-10.36	Vertical
5197.9	-47.22	5.25	35.86	-16.61	-13	-3.61	Vertical
5197.9	-47.68	5.25	35.86	-17.07	-13	-4.07	Horizontal
209.1	-39.29	1.44	17.95	-22.78	-13	-9.78	Vertical
269.8	-31.19	1.65	16.09	-16.75	-13	-3.75	Horizontal
Test Results for High Channel 1745MHz							
3490.8	-43.71	2.91	27.68	-18.94	-13	-5.94	Horizontal
3490.8	-44.01	2.91	27.68	-19.24	-13	-6.24	Vertical
5235.3	-46.52	5.26	35.86	-15.92	-13	-2.92	Vertical
5235.3	-51.50	5.26	35.86	-20.90	-13	-7.90	Horizontal
185.5	-39.56	1.61	16.85	-24.31	-13	-11.31	Vertical
291.8	-39.63	1.61	15.19	-26.05	-13	-13.05	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
1649.6	-46.10	2.78	27.50	-21.38	-13	-8.38	Horizontal
1649.6	-49.22	2.78	27.50	-24.50	-13	-11.50	Vertical
2474.3	-45.08	2.90	27.80	-20.18	-13	-7.18	Vertical
2474.3	-51.16	2.90	27.80	-26.26	-13	-13.26	Horizontal
180.0	-35.80	1.76	17.59	-19.97	-13	-6.97	Vertical
460.8	-39.58	1.63	15.87	-25.34	-13	-12.34	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.6	-46.05	2.80	27.48	-21.37	-13	-8.37	Horizontal
1673.6	-44.57	2.80	27.48	-19.89	-13	-6.89	Vertical
2510.0	-42.19	2.91	27.70	-17.40	-13	-4.40	Vertical
2510.0	-48.97	2.91	27.70	-24.18	-13	-11.18	Horizontal
213.7	-39.94	1.61	15.68	-25.87	-13	-12.87	Vertical
432.5	-35.36	1.59	17.52	-19.44	-13	-6.44	Horizontal
Test Results for High Channel 848.3MHz							
1697.2	-47.88	2.82	27.43	-23.27	-13	-10.27	Horizontal
1697.2	-50.64	2.82	27.43	-26.03	-13	-13.03	Vertical
2545.5	-42.31	2.92	27.74	-17.49	-13	-4.49	Vertical
2545.5	-50.47	2.92	27.74	-25.65	-13	-12.65	Horizontal
193.1	-34.32	1.69	16.67	-19.33	-13	-6.33	Vertical
367.5	-34.03	1.70	17.18	-18.55	-13	-5.55	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	-50.64	2.78	27.50	-25.92	-13	-12.92	Horizontal
1658.0	-40.71	2.78	27.50	-15.99	-13	-2.99	Vertical
2487.1	-51.77	2.90	27.80	-26.87	-13	-13.87	Vertical
2487.1	-47.64	2.90	27.80	-22.74	-13	-9.74	Horizontal
200.1	-41.88	1.71	15.57	-28.02	-13	-15.02	Vertical
364.2	-31.76	1.34	16.40	-16.70	-13	-3.70	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.4	-41.63	2.80	27.48	-16.95	-13	-3.95	Horizontal
1673.4	-42.40	2.80	27.48	-17.72	-13	-4.72	Vertical
2509.5	-49.69	2.91	27.70	-24.90	-13	-11.90	Vertical
2509.5	-46.37	2.91	27.70	-21.58	-13	-8.58	Horizontal
212.6	-32.08	1.44	17.04	-16.48	-13	-3.48	Vertical
343.8	-41.36	1.76	17.62	-25.50	-13	-12.50	Horizontal
Test Results for High Channel 844MHz							
1688.8	-45.82	2.82	27.43	-21.21	-13	-8.21	Horizontal
1688.8	-46.94	2.82	27.43	-22.33	-13	-9.33	Vertical
2532.8	-49.50	2.92	27.74	-24.68	-13	-11.68	Vertical
2532.8	-46.63	2.92	27.74	-21.81	-13	-8.81	Horizontal
205.6	-34.59	1.74	17.70	-18.63	-13	-5.63	Vertical
393.5	-34.12	1.41	17.46	-18.06	-13	-5.06	Horizontal

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

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

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

9.4 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
5005.5	-63.45	5.23	35.81	-32.87	-25	-7.87	Horizontal
5005.5	-61.89	5.23	35.81	-31.31	-25	-6.31	Vertical
7508.1	-61.99	5.67	36.85	-30.81	-25	-5.81	Vertical
7508.1	-61.50	5.67	36.85	-30.32	-25	-5.32	Horizontal
203.3	-50.33	1.73	17.97	-34.09	-25	-9.09	Vertical
450.9	-48.63	1.38	15.11	-34.90	-25	-9.90	Horizontal
Test Results for Mid Channel 2535MHz							
5071.0	-58.19	5.23	35.82	-27.60	-25	-2.60	Horizontal
5071.0	-62.91	5.23	35.82	-32.32	-25	-7.32	Vertical
7605.3	-60.62	5.67	36.85	-29.44	-25	-4.44	Vertical
7605.3	-61.87	5.67	36.85	-30.69	-25	-5.69	Horizontal
211.3	-41.96	1.77	16.17	-27.56	-25	-2.56	Vertical
232.8	-49.24	1.63	15.21	-35.66	-25	-10.66	Horizontal
Test Results for High Channel 2567.5MHz							
5135.2	-59.14	5.24	35.83	-28.55	-25	-3.55	Horizontal
5135.2	-58.68	5.24	35.83	-28.09	-25	-3.09	Vertical
7703.4	-60.57	5.68	36.87	-29.38	-25	-4.38	Vertical
7703.4	-59.32	5.68	36.87	-28.13	-25	-3.13	Horizontal
187.2	-44.38	1.58	17.56	-28.39	-25	-3.39	Vertical
264.1	-47.60	1.45	16.58	-32.47	-25	-7.47	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
5020.1	-58.59	5.23	35.82	-28.00	-25	-3.00	Horizontal
5020.1	-60.39	5.23	35.82	-29.80	-25	-4.80	Vertical
7530.4	-60.17	5.67	36.86	-28.98	-25	-3.98	Vertical
7530.4	-58.63	5.67	36.86	-27.44	-25	-2.44	Horizontal
193.0	-47.35	1.63	15.76	-33.23	-25	-8.23	Vertical
379.5	-50.09	1.71	15.44	-36.37	-25	-11.37	Horizontal
Test Results for Mid Channel 2535MHz							
5070.8	-59.98	5.23	35.82	-29.39	-25	-4.39	Horizontal
5070.8	-59.00	5.23	35.82	-28.41	-25	-3.41	Vertical
7605.0	-58.86	5.67	36.85	-27.68	-25	-2.68	Vertical
7605.0	-59.36	5.67	36.85	-28.18	-25	-3.18	Horizontal
199.6	-44.75	1.79	16.84	-29.70	-25	-4.70	Vertical
346.4	-44.37	1.71	17.64	-28.43	-25	-3.43	Horizontal
Test Results for High Channel 2560MHz							
5120.7	-59.29	5.24	35.83	-28.70	-25	-3.70	Horizontal
5120.7	-59.27	5.24	35.83	-28.68	-25	-3.68	Vertical
7680.9	-59.71	5.70	36.88	-28.53	-25	-3.53	Vertical
7680.9	-60.46	5.70	36.88	-29.28	-25	-4.28	Horizontal
193.8	-44.06	1.79	16.84	-29.00	-25	-4.00	Vertical
349.4	-44.25	1.71	17.64	-28.32	-25	-3.32	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
1399.5	-41.84	2.60	27.20	-17.24	-13	-4.24	Horizontal
1399.5	-42.37	2.60	27.20	-17.77	-13	-4.77	Vertical
2099.1	-48.22	2.85	27.54	-23.53	-13	-10.53	Vertical
2099.1	-47.28	2.85	27.54	-22.59	-13	-9.59	Horizontal
212.6	-35.26	1.49	17.78	-18.97	-13	-5.97	Vertical
386.8	-39.54	1.36	17.33	-23.57	-13	-10.57	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.2	-44.47	2.61	27.28	-19.80	-13	-6.80	Horizontal
1415.2	-43.47	2.61	27.28	-18.80	-13	-5.80	Vertical
2122.8	-49.79	2.87	27.59	-25.07	-13	-12.07	Vertical
2122.8	-48.83	2.87	27.59	-24.11	-13	-11.11	Horizontal
208.1	-38.22	1.73	15.74	-24.20	-13	-11.20	Vertical
384.8	-32.77	1.62	15.79	-18.60	-13	-5.60	Horizontal
Test Results for High Channel 715.3MHz							
1430.7	-50.05	2.63	27.28	-25.40	-13	-12.40	Horizontal
1430.7	-45.95	2.63	27.28	-21.30	-13	-8.30	Vertical
2146.0	-43.42	2.88	27.60	-18.70	-13	-5.70	Vertical
2146.0	-47.30	2.88	27.60	-22.58	-13	-9.58	Horizontal
187.2	-33.04	1.61	18.00	-16.65	-13	-3.65	Vertical
281.0	-34.96	1.45	15.49	-20.92	-13	-7.92	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
1408.1	-51.81	2.61	27.26	-27.16	-13	-14.16	Horizontal
1408.1	-45.75	2.61	27.26	-21.10	-13	-8.10	Vertical
2112.9	-47.61	2.87	27.58	-22.90	-13	-9.90	Vertical
2112.9	-49.88	2.87	27.58	-25.17	-13	-12.17	Horizontal
198.0	-40.27	1.31	16.97	-24.60	-13	-11.60	Vertical
469.2	-41.68	1.65	16.70	-26.62	-13	-13.62	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.1	-44.22	2.61	27.28	-19.55	-13	-6.55	Horizontal
1415.1	-50.92	2.61	27.28	-26.25	-13	-13.25	Vertical
2123.1	-50.52	2.87	27.59	-25.80	-13	-12.80	Vertical
2123.1	-49.92	2.87	27.59	-25.20	-13	-12.20	Horizontal
176.2	-35.32	1.72	17.99	-19.05	-13	-6.05	Vertical
363.6	-38.98	1.73	17.94	-22.76	-13	-9.76	Horizontal
Test Results for High Channel 711MHz							
1422.1	-46.80	2.62	27.28	-22.14	-13	-9.14	Horizontal
1422.1	-41.57	2.62	27.28	-16.91	-13	-3.91	Vertical
2133.7	-51.58	2.87	27.60	-26.85	-13	-13.85	Vertical
2133.7	-48.76	2.87	27.60	-24.03	-13	-11.03	Horizontal
209.7	-35.88	1.58	15.93	-21.53	-13	-8.53	Vertical
361.1	-32.29	1.36	15.59	-18.06	-13	-5.06	Horizontal

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

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

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

9.6 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.3	-48.25	2.61	27.28	-23.58	-13	-10.58	Horizontal
1413.3	-44.06	2.61	27.28	-19.39	-13	-6.39	Vertical
2119.5	-49.29	2.87	27.59	-24.57	-13	-11.57	Vertical
2119.5	-48.43	2.87	27.59	-23.71	-13	-10.71	Horizontal
209.8	-33.90	1.71	16.15	-19.46	-13	-6.46	Vertical
420.7	-43.11	1.41	17.32	-27.20	-13	-14.20	Horizontal
Test Results For Mid Channel 710MHz							
1420.4	-43.46	2.62	27.30	-18.78	-13	-5.78	Horizontal
1420.4	-46.50	2.62	27.30	-21.82	-13	-8.82	Vertical
2130.2	-42.77	2.87	27.62	-18.02	-13	-5.02	Vertical
2130.2	-49.12	2.87	27.62	-24.37	-13	-11.37	Horizontal
201.3	-35.71	1.42	15.25	-21.89	-13	-8.89	Vertical
321.5	-39.30	1.36	17.19	-23.47	-13	-10.47	Horizontal
Test Results for High Channel 713.5MHz							
1427.3	-49.48	2.66	27.28	-24.86	-13	-11.86	Horizontal
1427.3	-43.55	2.66	27.28	-18.93	-13	-5.93	Vertical
2140.8	-43.69	2.88	27.60	-18.97	-13	-5.97	Vertical
2140.8	-49.84	2.88	27.60	-25.12	-13	-12.12	Horizontal
176.2	-39.45	1.32	17.29	-23.48	-13	-10.48	Vertical
446.2	-36.97	1.72	16.89	-21.80	-13	-8.80	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
1418.4	-47.29	2.62	27.30	-22.61	-13	-9.61	Horizontal
1418.4	-50.57	2.62	27.30	-25.89	-13	-12.89	Vertical
2127.4	-46.37	2.87	27.62	-21.62	-13	-8.62	Vertical
2127.4	-47.96	2.87	27.62	-23.21	-13	-10.21	Horizontal
196.7	-32.82	1.35	16.91	-17.26	-13	-4.26	Vertical
269.9	-41.06	1.62	16.31	-26.37	-13	-13.37	Horizontal
Test Results for Mid Channel 710MHz							
1420.9	-43.01	2.62	27.30	-18.33	-13	-5.33	Horizontal
1420.9	-41.48	2.62	27.30	-16.80	-13	-3.80	Vertical
2130.3	-45.78	2.87	27.62	-21.03	-13	-8.03	Vertical
2130.3	-49.13	2.87	27.62	-24.38	-13	-11.38	Horizontal
202.9	-42.53	1.51	17.14	-26.90	-13	-13.90	Vertical
398.3	-38.32	1.77	16.88	-23.21	-13	-10.21	Horizontal
Test Results for High Channel 711MHz							
1422.7	-44.77	2.62	27.30	-20.09	-13	-7.09	Horizontal
1422.7	-51.54	2.62	27.30	-26.86	-13	-13.86	Vertical
2133.1	-42.71	2.87	27.62	-17.96	-13	-4.96	Vertical
2133.1	-42.34	2.87	27.62	-17.59	-13	-4.59	Horizontal
202.3	-35.99	1.78	15.95	-21.82	-13	-8.82	Vertical
412.7	-35.13	1.34	17.95	-18.53	-13	-5.53	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 41

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

Test Results for Low Channel 2542.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.9	-58.32	5.23	35.81	-27.74	-25	-2.74	Horizontal
5145.9	-60.08	5.23	35.81	-29.50	-25	-4.50	Vertical
7717.9	-59.10	5.67	36.85	-27.92	-25	-2.92	Vertical
7717.9	-62.25	5.67	36.85	-31.07	-25	-6.07	Horizontal
435.8	-42.64	1.38	15.98	-28.04	-25	-3.04	Vertical
466.1	-41.36	1.62	15.66	-27.32	-25	-2.32	Horizontal
Test Results for Mid Channel 2595MHz							
5190.1	-62.71	5.23	35.82	-32.12	-25	-7.12	Horizontal
5190.1	-58.83	5.23	35.82	-28.24	-25	-3.24	Vertical
7785.4	-60.17	5.67	36.85	-28.99	-25	-3.99	Vertical
7785.4	-61.73	5.67	36.85	-30.55	-25	-5.55	Horizontal
511.0	-46.29	1.62	16.17	-31.74	-25	-6.74	Vertical
563.4	-43.77	1.74	17.63	-27.88	-25	-2.88	Horizontal
Test Results for High Channel 2647.5MHz							
5235.7	-58.89	5.24	35.83	-28.30	-25	-3.30	Horizontal
5235.7	-59.58	5.24	35.83	-28.99	-25	-3.99	Vertical
7852.8	-60.95	5.68	36.87	-29.76	-25	-4.76	Vertical
7852.8	-59.75	5.68	36.87	-28.56	-25	-3.56	Horizontal
197.8	-42.44	1.55	15.84	-28.15	-25	-3.15	Vertical
353.3	-45.15	1.51	17.06	-29.60	-25	-4.60	Horizontal

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

Test Results for Low Channel 2550MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160.0	-60.31	5.23	35.82	-29.72	-25	-4.72	Horizontal
5160.0	-58.47	5.23	35.82	-27.88	-25	-2.88	Vertical
7740.2	-61.22	5.67	36.86	-30.03	-25	-5.03	Vertical
7740.2	-60.33	5.67	36.86	-29.14	-25	-4.14	Horizontal
129.1	-42.40	1.43	15.51	-28.32	-25	-3.32	Vertical
345.6	-43.71	1.40	16.97	-28.14	-25	-3.14	Horizontal
Test Results for Mid Channel 2595MHz							
5190.7	-59.34	5.23	35.82	-28.75	-25	-3.75	Horizontal
5190.7	-59.11	5.23	35.82	-28.52	-25	-3.52	Vertical
7785.7	-59.60	5.67	36.85	-28.42	-25	-3.42	Vertical
7785.7	-59.13	5.67	36.85	-27.95	-25	-2.95	Horizontal
101.0	-47.98	1.77	16.72	-33.03	-25	-8.03	Vertical
264.2	-47.63	1.31	16.99	-31.95	-25	-6.95	Horizontal
Test Results for High Channel 2640MHz							
5220.4	-62.01	5.24	35.83	-31.42	-25	-6.42	Horizontal
5220.4	-60.82	5.24	35.83	-30.23	-25	-5.23	Vertical
7830.5	-59.68	5.70	36.88	-28.50	-25	-3.50	Vertical
7830.5	-59.67	5.70	36.88	-28.49	-25	-3.49	Horizontal
350.6	-46.16	1.70	15.73	-32.13	-25	-7.13	Vertical
111.1	-43.47	1.75	17.33	-27.89	-25	-2.89	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 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
3421.5	-57.33	3.84	35.81	-25.36	-13	-12.36	Horizontal
3421.5	-60.17	3.84	35.81	-28.20	-13	-15.20	Vertical
5132.7	-61.74	5.18	36.85	-30.07	-13	-17.07	Vertical
5132.7	-59.86	5.18	36.85	-28.19	-13	-15.19	Horizontal
204.8	-47.37	1.56	17.97	-30.96	-13	-17.96	Vertical
306.2	-51.11	1.33	15.11	-37.32	-13	-24.32	Horizontal
Test Results for Mid Channel 1745MHz							
3490.5	-60.97	3.85	35.82	-29.00	-13	-16.00	Horizontal
3490.5	-60.44	3.85	35.82	-28.47	-13	-15.47	Vertical
5235.0	-59.14	5.21	36.85	-27.50	-13	-14.50	Vertical
5235.0	-60.99	5.21	36.85	-29.35	-13	-16.35	Horizontal
187.4	-46.82	1.77	16.17	-32.41	-13	-19.41	Vertical
390.5	-47.66	1.63	15.21	-34.07	-13	-21.07	Horizontal
Test Results for High Channel 1779.3MHz							
3559.6	-57.99	3.86	35.83	-26.02	-13	-13.02	Horizontal
3559.6	-57.11	3.86	35.83	-25.14	-13	-12.14	Vertical
5338.1	-56.93	5.24	36.87	-25.30	-13	-12.30	Vertical
5338.1	-59.29	5.24	36.87	-27.66	-13	-14.66	Horizontal
198.2	-45.68	1.58	17.56	-29.70	-13	-16.70	Vertical
269.1	-49.14	1.45	16.58	-34.01	-13	-21.01	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
3440.8	-61.28	3.84	35.82	-29.30	-13	-16.30	Horizontal
3440.8	-61.71	3.84	35.82	-29.73	-13	-16.73	Vertical
5160.4	-58.96	5.18	36.86	-27.28	-13	-14.28	Vertical
5160.4	-62.24	5.18	36.86	-30.56	-13	-17.56	Horizontal
181.4	-49.70	1.56	15.76	-35.51	-13	-22.51	Vertical
323.7	-45.62	1.33	15.44	-31.50	-13	-18.50	Horizontal
Test Results for Mid Channel 1745MHz							
3490.4	-58.53	3.85	35.82	-26.56	-13	-13.56	Horizontal
3490.4	-61.51	3.85	35.82	-29.54	-13	-16.54	Vertical
5235.1	-62.51	5.21	36.85	-30.87	-13	-17.87	Vertical
5235.1	-56.06	5.21	36.85	-24.42	-13	-11.42	Horizontal
183.1	-45.15	1.77	16.84	-30.07	-13	-17.07	Vertical
251.8	-51.27	1.63	17.64	-35.26	-13	-22.26	Horizontal
Test Results for High Channel 1770MHz							
3540.3	-57.19	3.86	35.83	-25.22	-13	-12.22	Horizontal
3540.3	-59.67	3.86	35.83	-27.70	-13	-14.70	Vertical
5310.7	-58.68	5.24	36.88	-27.04	-13	-14.04	Vertical
5310.7	-57.71	5.24	36.88	-26.07	-13	-13.07	Horizontal
183.1	-46.23	1.58	16.84	-30.96	-13	-17.96	Vertical
310.4	-47.30	1.45	17.64	-31.11	-13	-18.11	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.

9.9 LTE BAND 71

LTE BAND 71 (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
1331.7	-63.57	2.16	35.81	-29.92	-13	-16.92	Horizontal
1331.7	-59.11	2.16	35.81	-25.46	-13	-12.46	Vertical
1997.2	-62.13	2.89	36.85	-28.17	-13	-15.17	Vertical
1997.2	-58.51	2.89	36.85	-24.55	-13	-11.55	Horizontal
199.0	-43.57	1.56	17.97	-27.17	-13	-14.17	Vertical
468.2	-43.88	1.33	15.11	-30.09	-13	-17.09	Horizontal
Test Results for Mid Channel 680.5MHz							
1361.5	-64.27	2.17	35.82	-30.62	-13	-17.62	Horizontal
1361.5	-59.88	2.17	35.82	-26.23	-13	-13.23	Vertical
2042.3	-58.85	2.90	36.85	-24.90	-13	-11.90	Vertical
2042.3	-63.82	2.90	36.85	-29.87	-13	-16.87	Horizontal
207.0	-44.64	1.77	16.17	-30.23	-13	-17.23	Vertical
338.5	-47.77	1.63	15.21	-34.19	-13	-21.19	Horizontal
Test Results for High Channel 695.5MHz							
1391.2	-61.08	2.19	35.83	-27.44	-13	-14.44	Horizontal
1391.2	-62.81	2.19	35.83	-29.17	-13	-16.17	Vertical
2087.1	-62.06	2.95	36.87	-28.14	-13	-15.14	Vertical
2087.1	-60.26	2.95	36.87	-26.34	-13	-13.34	Horizontal
180.0	-48.46	1.58	17.56	-32.47	-13	-19.47	Vertical
299.0	-43.99	1.45	16.58	-28.86	-13	-15.86	Horizontal

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
1346.2	-61.18	2.16	35.82	-27.52	-13	-14.52	Horizontal
1346.2	-58.08	2.16	35.82	-24.42	-13	-11.42	Vertical
2019.5	-58.17	2.89	36.86	-24.20	-13	-11.20	Vertical
2019.5	-59.73	2.89	36.86	-25.76	-13	-12.76	Horizontal
212.0	-43.86	1.56	15.76	-29.66	-13	-16.66	Vertical
324.2	-46.66	1.33	15.44	-32.55	-13	-19.55	Horizontal
Test Results for Mid Channel 683MHz							
1366.3	-61.15	2.17	35.82	-27.50	-13	-14.50	Horizontal
1366.3	-58.93	2.17	35.82	-25.28	-13	-12.28	Vertical
2049.1	-60.76	2.90	36.85	-26.81	-13	-13.81	Vertical
2049.1	-60.64	2.90	36.85	-26.69	-13	-13.69	Horizontal
204.6	-49.23	1.77	16.84	-34.15	-13	-21.15	Vertical
418.2	-51.18	1.63	17.64	-35.17	-13	-22.17	Horizontal
Test Results for High Channel 688MHz							
1376.4	-58.88	2.19	35.83	-25.24	-13	-12.24	Horizontal
1376.4	-62.39	2.19	35.83	-28.75	-13	-15.75	Vertical
2064.7	-60.85	2.95	36.88	-26.92	-13	-13.92	Vertical
2064.7	-60.98	2.95	36.88	-27.05	-13	-14.05	Horizontal
190.0	-46.52	1.58	16.84	-31.25	-13	-18.25	Vertical
305.7	-46.28	1.45	17.64	-30.09	-13	-17.09	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, §90.213

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 3.27V, Normal, DC 3.85V and High voltage, DC 4.43V.

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 2/4/5/7/12/17/41/66/71

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	13.0	0.006918	2.5
3.8	1880	9.5	0.005077	2.5
4.37	1880	13.0	0.006915	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	6.3	0.003339	2.5
Extreme (50C)	1880	14.6	0.007792	2.5
Extreme (40C)	1880	12.4	0.006603	2.5
Extreme (30C)	1880	4.8	0.002538	2.5
Extreme (10C)	1880	13.7	0.007312	2.5
Extreme (0C)	1880	8.5	0.004510	2.5
Extreme (-10C)	1880	7.3	0.003898	2.5
Extreme (-20C)	1880	11.9	0.006334	2.5
Extreme (-30C)	1880	8.4	0.004493	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	8.9	0.004713	2.5
3.8	1880	10.5	0.005562	2.5
4.37	1880	7.7	0.004075	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.7	0.006734	2.5
Extreme (50C)	1880	10.9	0.005822	2.5
Extreme (40C)	1880	9.1	0.004829	2.5
Extreme (30C)	1880	6.3	0.003331	2.5
Extreme (10C)	1880	15.2	0.008085	2.5
Extreme (0C)	1880	15.2	0.008085	2.5
Extreme (-10C)	1880	13.2	0.007020	2.5
Extreme (-20C)	1880	11.7	0.006219	2.5
Extreme (-30C)	1880	3.6	0.001896	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	9.0	0.005204	2.5
3.8	1732.5	14.8	0.008529	2.5
4.37	1732.5	9.7	0.005590	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.4	0.005409	2.5
Extreme (50C)	1732.5	5.9	0.003403	2.5
Extreme (40C)	1732.5	7.9	0.004552	2.5
Extreme (30C)	1732.5	12.7	0.007327	2.5
Extreme (10C)	1732.5	12.5	0.007232	2.5
Extreme (0C)	1732.5	3.1	0.001790	2.5
Extreme (-10C)	1732.5	8.3	0.004797	2.5
Extreme (-20C)	1732.5	11.0	0.006346	2.5
Extreme (-30C)	1732.5	5.9	0.003415	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	7.6	0.004412	2.5
3.8	1732.5	6.7	0.003891	2.5
4.37	1732.5	6.1	0.003495	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	12.4	0.007178	2.5
Extreme (50C)	1732.5	10.7	0.006185	2.5
Extreme (40C)	1732.5	13.8	0.007952	2.5
Extreme (30C)	1732.5	13.2	0.007610	2.5
Extreme (10C)	1732.5	14.7	0.008493	2.5
Extreme (0C)	1732.5	13.6	0.007831	2.5
Extreme (-10C)	1732.5	13.0	0.007529	2.5
Extreme (-20C)	1732.5	7.8	0.004528	2.5
Extreme (-30C)	1732.5	10.2	0.005910	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	9.2	0.010975	2.5
3.8	836.5	12.6	0.015051	2.5
4.37	836.5	9.2	0.011010	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.2	0.006263	2.5
Extreme (50C)	836.5	11.0	0.013180	2.5
Extreme (40C)	836.5	3.2	0.003814	2.5
Extreme (30C)	836.5	3.3	0.003963	2.5
Extreme (10C)	836.5	4.4	0.005221	2.5
Extreme (0C)	836.5	5.8	0.006948	2.5
Extreme (-10C)	836.5	5.9	0.007105	2.5
Extreme (-20C)	836.5	7.3	0.008738	2.5
Extreme (-30C)	836.5	7.8	0.009370	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	7.8	0.009320	2.5
3.8	836.5	4.8	0.005756	2.5
4.37	836.5	14.9	0.017773	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	7.5	0.008918	2.5
Extreme (50C)	836.5	11.8	0.014098	2.5
Extreme (40C)	836.5	8.9	0.010677	2.5
Extreme (30C)	836.5	5.0	0.005946	2.5
Extreme (10C)	836.5	4.6	0.005451	2.5
Extreme (0C)	836.5	3.0	0.003587	2.5
Extreme (-10C)	836.5	13.7	0.016400	2.5
Extreme (-20C)	836.5	7.9	0.009469	2.5
Extreme (-30C)	836.5	10.5	0.012547	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	3.6	0.001428	2.5
3.8	2535	9.8	0.003864	2.5
4.37	2535	12.0	0.004738	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	4.8	0.001909	2.5
Extreme (50C)	2535	5.3	0.002083	2.5
Extreme (40C)	2535	3.6	0.001422	2.5
Extreme (30C)	2535	15.2	0.005990	2.5
Extreme (10C)	2535	7.7	0.003053	2.5
Extreme (0C)	2535	4.6	0.001828	2.5
Extreme (-10C)	2535	4.1	0.001603	2.5
Extreme (-20C)	2535	3.0	0.001203	2.5
Extreme (-30C)	2535	8.8	0.003477	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	6.3	0.002496	2.5
3.8	2535	6.9	0.002732	2.5
4.37	2535	3.9	0.001529	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	4.1	0.001624	2.5
Extreme (50C)	2535	5.4	0.002121	2.5
Extreme (40C)	2535	7.4	0.002936	2.5
Extreme (30C)	2535	10.6	0.004186	2.5
Extreme (10C)	2535	4.8	0.001879	2.5
Extreme (0C)	2535	9.8	0.003883	2.5
Extreme (-10C)	2535	6.4	0.002506	2.5
Extreme (-20C)	2535	8.5	0.003359	2.5
Extreme (-30C)	2535	14.1	0.005569	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	6.4	0.009070	2.5
3.8	707.5	7.2	0.010108	2.5
4.37	707.5	4.7	0.006685	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	11.8	0.016661	2.5
Extreme (50C)	707.5	10.0	0.014070	2.5
Extreme (40C)	707.5	9.1	0.012830	2.5
Extreme (30C)	707.5	13.3	0.018851	2.5
Extreme (10C)	707.5	4.8	0.006815	2.5
Extreme (0C)	707.5	11.6	0.016342	2.5
Extreme (-10C)	707.5	4.5	0.006320	2.5
Extreme (-20C)	707.5	5.3	0.007454	2.5
Extreme (-30C)	707.5	10.6	0.014926	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	7.9	0.011144	2.5
3.8	707.5	5.9	0.008396	2.5
4.37	707.5	3.9	0.005481	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	3.1	0.004409	2.5
Extreme (50C)	707.5	10.0	0.014115	2.5
Extreme (40C)	707.5	10.6	0.014965	2.5
Extreme (30C)	707.5	15.1	0.021288	2.5
Extreme (10C)	707.5	14.2	0.020107	2.5
Extreme (0C)	707.5	14.0	0.019809	2.5
Extreme (-10C)	707.5	5.2	0.007311	2.5
Extreme (-20C)	707.5	13.5	0.019145	2.5
Extreme (-30C)	707.5	6.4	0.009004	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	3.5	0.004958	2.5
3.8	710	13.7	0.019262	2.5
4.37	710	6.9	0.009775	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	14.4	0.020262	2.5
Extreme (50C)	710	15.4	0.021754	2.5
Extreme (40C)	710	4.3	0.005991	2.5
Extreme (30C)	710	10.5	0.014725	2.5
Extreme (10C)	710	7.6	0.010671	2.5
Extreme (0C)	710	10.3	0.014444	2.5
Extreme (-10C)	710	11.1	0.015675	2.5
Extreme (-20C)	710	13.8	0.019403	2.5
Extreme (-30C)	710	9.9	0.013881	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	4.5	0.006359	2.5
3.8	710	7.3	0.010227	2.5
4.37	710	12.5	0.017672	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	7.9	0.011097	2.5
Extreme (50C)	710	7.5	0.010537	2.5
Extreme (40C)	710	7.9	0.011082	2.5
Extreme (30C)	710	11.4	0.016065	2.5
Extreme (10C)	710	3.6	0.005106	2.5
Extreme (0C)	710	7.3	0.010323	2.5
Extreme (-10C)	710	8.6	0.012085	2.5
Extreme (-20C)	710	9.5	0.013370	2.5
Extreme (-30C)	710	14.1	0.019927	2.5

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

10.7 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]
3.23	2593	3.8	0.001451	2.5
3.8	2593	5.6	0.002148	2.5
4.37	2593	9.2	0.003541	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	4.9	0.001883	2.5
Extreme (50C)	2593	7.3	0.002802	2.5
Extreme (40C)	2593	6.7	0.002585	2.5
Extreme (30C)	2593	8.2	0.003173	2.5
Extreme (10C)	2593	8.2	0.003161	2.5
Extreme (0C)	2593	7.3	0.002825	2.5
Extreme (-10C)	2593	6.6	0.002553	2.5
Extreme (-20C)	2593	10.6	0.004106	2.5
Extreme (-30C)	2593	15.0	0.005801	2.5

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]
3.23	2593	12.5	0.004804	2.5
3.8	2593	11.1	0.004286	2.5
4.37	2593	9.6	0.003684	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	14.6	0.005635	2.5
Extreme (50C)	2593	5.7	0.002193	2.5
Extreme (40C)	2593	4.1	0.001581	2.5
Extreme (30C)	2593	11.1	0.004274	2.5
Extreme (10C)	2593	8.3	0.003189	2.5
Extreme (0C)	2593	11.6	0.004458	2.5
Extreme (-10C)	2593	14.9	0.005758	2.5
Extreme (-20C)	2593	9.3	0.003572	2.5
Extreme (-30C)	2593	13.1	0.005035	2.5

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

10.8 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	1745	8.6	0.004950	2.5
3.8	1745	4.6	0.002658	2.5
4.37	1745	14.7	0.008439	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	8.7	0.004967	2.5
Extreme (50C)	1745	6.1	0.003473	2.5
Extreme (40C)	1745	12.8	0.007361	2.5
Extreme (30C)	1745	6.7	0.003839	2.5
Extreme (10C)	1745	14.3	0.008202	2.5
Extreme (0C)	1745	6.7	0.003837	2.5
Extreme (-10C)	1745	9.3	0.005317	2.5
Extreme (-20C)	1745	9.7	0.005561	2.5
Extreme (-30C)	1745	5.3	0.003016	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.23	1745	16.0	0.009144	2.5
3.8	1745	12.2	0.007002	2.5
4.37	1745	4.2	0.002410	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	11.6	0.006651	2.5
Extreme (50C)	1745	5.5	0.003153	2.5
Extreme (40C)	1745	13.5	0.007757	2.5
Extreme (30C)	1745	6.1	0.003504	2.5
Extreme (10C)	1745	14.2	0.008118	2.5
Extreme (0C)	1745	10.2	0.005847	2.5
Extreme (-10C)	1745	14.6	0.008377	2.5
Extreme (-20C)	1745	4.8	0.002778	2.5
Extreme (-30C)	1745	12.7	0.007295	2.5

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

10.9 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	1745	9.2	0.005283	2.5
3.8	1745	4.3	0.002483	2.5
4.37	1745	6.2	0.003528	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	13.4	0.007656	2.5
Extreme (50C)	1745	12.5	0.007141	2.5
Extreme (40C)	1745	3.7	0.002119	2.5
Extreme (30C)	1745	7.5	0.004311	2.5
Extreme (10C)	1745	3.9	0.002237	2.5
Extreme (0C)	1745	7.7	0.004404	2.5
Extreme (-10C)	1745	6.8	0.003907	2.5
Extreme (-20C)	1745	7.9	0.004535	2.5
Extreme (-30C)	1745	3.6	0.002078	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	1745	5.2	0.003007	2.5
3.8	1745	9.7	0.005549	2.5
4.37	1745	3.1	0.001788	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	6.1	0.003492	2.5
Extreme (50C)	1745	5.1	0.002935	2.5
Extreme (40C)	1745	5.3	0.003059	2.5
Extreme (30C)	1745	14.7	0.008406	2.5
Extreme (10C)	1745	15.0	0.008607	2.5
Extreme (0C)	1745	5.4	0.003104	2.5
Extreme (-10C)	1745	13.5	0.007754	2.5
Extreme (-20C)	1745	11.5	0.006612	2.5
Extreme (-30C)	1745	11.2	0.006405	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.

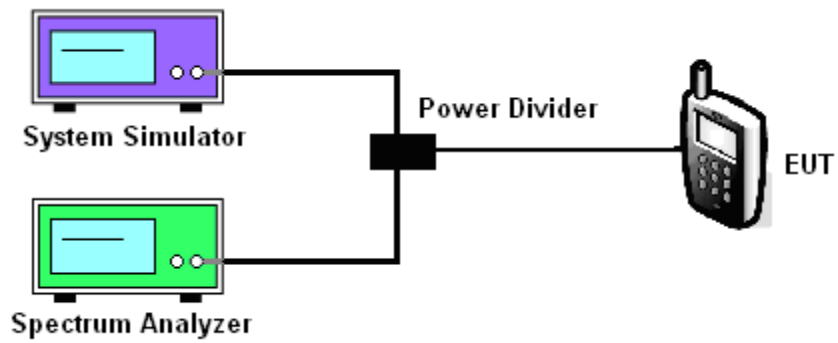
11.2 Measuring Instruments

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 2/4/5/7/12/17/41/66/71

Test data reference attachment.

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