FCC CFR47 PART 22H, 24E, 27, 90S CERTIFICATION TEST REPORT

FCC ID: 2AT9T-3286

Product: Tablet

Trade Mark: ulefone

Model No.: GQ3286

Family Model: Tab A8, Tab A8 Pro, Tab A8 Lite, Tab A8P, Tab A8E, Tab A8S

Report No.: STR221108003006E

Issue Date: Dec 14, 2022

Prepared for

Shenzhen Ulefone Technology Co., Ltd.

7A01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name	:	Shenzhen Ulefone Technology Co., Ltd.
Address	:	7A01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China
Manufacturer's Name	:	Shenzhen Ulefone Technology Co., Ltd.
Address	:	7A01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China
Product name	:	Tablet
Model and/or type reference	:	GQ3286
Trade Mark	:	ulefone
Family Model	:	Tab A8, Tab A8 Pro, Tab A8 Lite, Tab A8P, Tab A8E, Tab A8S
Test Sample Number		T221108002R003
Standards	:	FCC CFR 47 Part 22H, Part 24E, Part 27, Part 90S
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..... Noc 08, 2022 ~ Dec 14, 2022

Date of Issue..... Dec 14, 2022

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

Testing Engineer : Mukzi Lee

(Mukzi Lee)

Authorized Signatory : Alex

(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Tablet
Trade Mark	ulefone
Model Name	GQ3286
Family Model	Tab A8, Tab A8 Pro, Tab A8 Lite, Tab A8P, Tab A8E, Tab A8S
Model Difference	All the model are the same circuit and RF module,except the model names.
FCC ID:	2AT9T-3286
Frequency Bands:	U.S. Bands: ☒LTE FDD Band 2,4,5,7,12,17, 26,41
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 FDD Band 26A Uplink: 814MHz-824MHz, Downlink: 859MHz-869MHz; LTE FDD Band 26B Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE FDD Band 41 Uplink: 2555MHz-2655MHz,
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:	PIFA Antenna
Antenna gain:	Band 2: 1.05 dBi, Band 4: 0.98 dBi, Band 5: 0.59 dBi, Band 7: 1.15 dBi, Band 12: 0.43 dBi, Band 17: 0.42 dBi, Band 26: 0.59 dBi, Band 41: 1.17 dBi
Adapter	Model: HJ-0502000W2-US Input: 100-240V~50/60Hz 0.3A Output: 5V⎓2000mA
Battery	DC 3.8V, 6580mAh, 25Wh
Power Rating	DC 3.8V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.8V)（Note 1）
HW Version	WT_F31-Y_6762_BJJ_MB_V3.0_20220823
SW Version	Tab_A8_SH1_EEA_V01
** Note1: The High Voltage DC 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AT9T-3286** filing to comply with the FCC Part 22H&24E&27&90S.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27, Part 90S,ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.China.

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

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

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 2/4/5/7/12/17/26/41

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

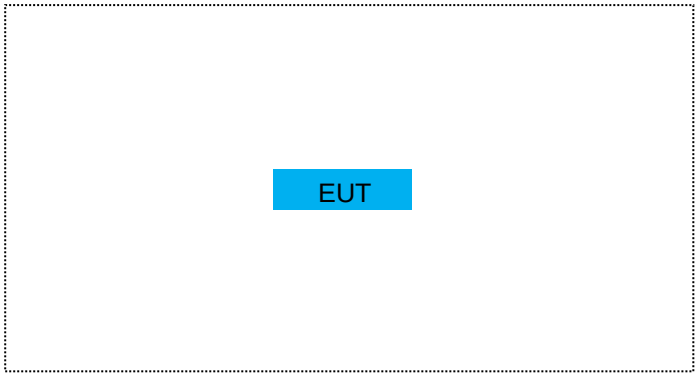
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Tablet	GQ3286	FCC ID: 2AT9T-3286	EUT

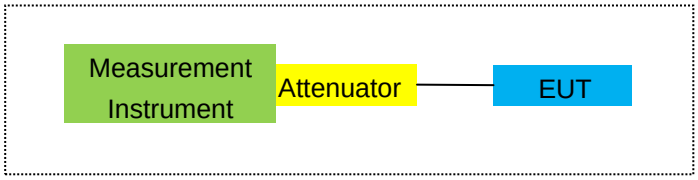
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

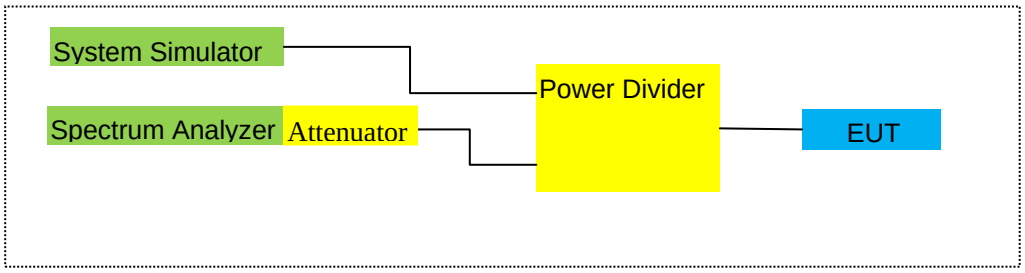
For Radiated Test Cases



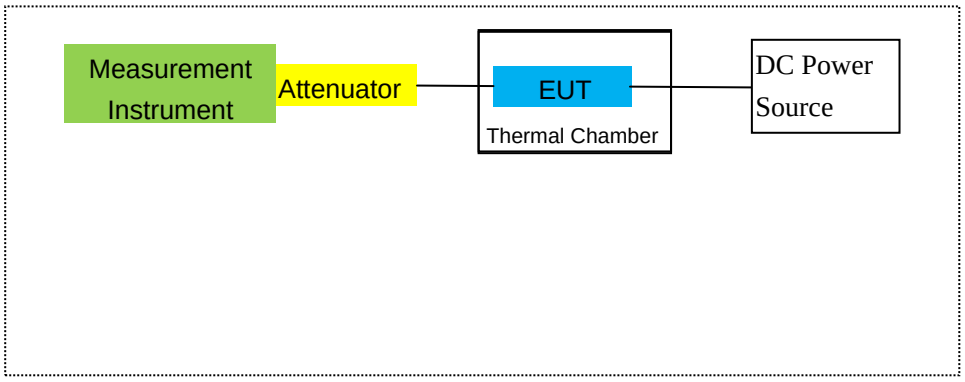
For Conducted Output Power



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



For Frequency Stability



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

3.TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2022.06.16	2023.06.17	1 year
2	Test Receiver	R&S	ESPI	101318	2022.04.06	2023.04.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2022.03.30	2023.03.29	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2022.03.31	2023.03.30	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2022.11.07	2023.11.06	1 year
7	Amplifier	EM	EM-30180	060538	2022.06.17	2023.06.16	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2022.04.06	2023.04.05	1 year
9	Power Meter	R&S	NRVS	100696	2022.06.17	2023.06.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2022.04.06	2023.04.05	1 year
11	Test Cable	N/A	R-01	N/A	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	2022.04.06	2023.04.05	1 year
15	LISN	R&S	ENV216	101313	2022.04.06	2023.04.05	1 year
16	LISN	EMCO	3816/2	00042990	2022.04.06	2023.04.05	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2022.04.06	2023.04.05	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2022.04.06	2023.04.05	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2022.04.01	2023.03.31	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2022.04.01	2023.03.31	1 year
24	test receiver	R&S	ESCI	a0304218	2022.04.06	2023.04.05	1 year
25	Communication Tester	R&S	CMU200	A0304247	2022.06.16	2023.06.15	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2022.04.06	2023.04.05	1 year
27	DC Power Source	N/A	PS-6005D	2017040292 3	2020.05.11	2023.05.10	3 year
28	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2022.06.16	2023.06.15	1 year
29	Communication Tester	R&S	CMW500	148500	2022.06.16	2023.06.15	1 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.3

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
--					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

Band 2/4/5/7/12/17/26/41

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, and §90.691
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 that 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 Log10(f/6.1) decibels or 50 + 10 Log10(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 + 10Log10(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 2/4/5/7/12/17/26/41

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53 and §90.691

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 2/4/5/7/12/17/26/41

□

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 and §90.635

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 2/4/5/7/12/17/26/41

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-1.71	3.76	28.24	22.77	189.234	Horizontal	Pass
		1880	-1.48	3.91	28.22	22.83	191.867	Horizontal	Pass
		1909.3	-1.49	3.93	28.20	22.78	189.671	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-1.77	3.77	28.23	22.69	185.780	Horizontal	Pass
		1880	-1.49	3.91	28.24	22.84	192.309	Horizontal	Pass
		1908.5	-1.51	3.94	28.25	22.80	190.546	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.82	3.77	28.31	22.72	187.068	Horizontal	Pass
		1880	-1.58	3.91	28.22	22.73	187.499	Horizontal	Pass
		1907.5	-1.55	3.94	28.20	22.71	186.638	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.71	3.79	28.33	22.83	191.867	Horizontal	Pass
		1880	-1.43	3.95	28.22	22.84	192.309	Horizontal	Pass
		1905	-1.46	3.97	28.19	22.76	188.799	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-1.72	3.79	28.34	22.83	191.867	Horizontal	Pass
		1880	-1.49	3.95	28.22	22.78	189.671	Horizontal	Pass
		1902.5	-1.52	3.97	28.18	22.69	185.780	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-1.76	3.81	28.35	22.78	189.671	Horizontal	Pass
		1880	-1.46	3.96	28.22	22.80	190.546	Horizontal	Pass
		1900	-1.34	4.00	28.16	22.82	191.426	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-1.77	3.76	28.24	22.71	186.638	Vertical	Pass
		1880	-1.50	3.91	28.22	22.81	190.985	Vertical	Pass
		1909.3	-1.51	3.93	28.20	22.76	188.799	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-1.69	3.77	28.23	22.77	189.234	Vertical	Pass
		1880	-1.52	3.91	28.24	22.81	190.985	Vertical	Pass
		1908.5	-1.50	3.94	28.25	22.81	190.985	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.83	3.77	28.31	22.71	186.638	Vertical	Pass
		1880	-1.58	3.91	28.22	22.73	187.499	Vertical	Pass
		1907.5	-1.42	3.94	28.20	22.84	192.309	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.79	3.79	28.33	22.75	188.365	Vertical	Pass
		1880	-1.48	3.95	28.22	22.79	190.108	Vertical	Pass
		1905	-1.47	3.97	28.19	22.75	188.365	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	-1.84	3.79	28.34	22.71	186.638	Vertical	Pass
		1880	-1.50	3.95	28.22	22.77	189.234	Vertical	Pass
		1902.5	-1.42	3.97	28.18	22.79	190.108	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-1.68	3.81	28.35	22.86	193.197	Vertical	Pass
		1880	-1.37	3.96	28.22	22.89	194.536	Vertical	Pass
		1900	-1.26	4.00	28.16	22.90	194.984	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-2.44	3.76	28.24	22.04	159.956	Horizontal	Pass
		1880	-2.34	3.91	28.22	21.97	157.398	Horizontal	Pass
		1909.3	-2.34	3.93	28.20	21.93	155.955	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-2.53	3.77	28.23	21.93	155.955	Horizontal	Pass
		1880	-2.30	3.91	28.24	22.03	159.588	Horizontal	Pass
		1908.5	-2.33	3.94	28.25	21.98	157.761	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-2.61	3.77	28.31	21.93	155.955	Horizontal	Pass
		1880	-2.28	3.91	28.22	22.03	159.588	Horizontal	Pass
		1907.5	-2.24	3.94	28.20	22.02	159.221	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-2.61	3.79	28.33	21.93	155.955	Horizontal	Pass
		1880	-2.30	3.95	28.22	21.97	157.398	Horizontal	Pass
		1905	-2.24	3.97	28.19	21.98	157.761	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.63	3.79	28.34	21.92	155.597	Horizontal	Pass
		1880	-2.29	3.95	28.22	21.98	157.761	Horizontal	Pass
		1902.5	-2.28	3.97	28.18	21.93	155.955	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-2.50	3.81	28.35	22.04	159.956	Horizontal	Pass
		1880	-2.30	3.96	28.22	21.96	157.036	Horizontal	Pass
		1900	-2.22	4.00	28.16	21.94	156.315	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-2.56	3.76	28.24	21.92	155.597	Vertical	Pass
		1880	-2.30	3.91	28.22	22.01	158.855	Vertical	Pass
		1909.3	-2.24	3.93	28.20	22.03	159.588	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-2.50	3.77	28.23	21.96	157.036	Vertical	Pass
		1880	-2.38	3.91	28.24	21.95	156.675	Vertical	Pass
		1908.5	-2.37	3.94	28.25	21.94	156.315	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-2.63	3.77	28.31	21.91	155.239	Vertical	Pass

Band 16 QAM		1880	-2.43	3.91	28.22	21.88	154.170	Vertical	Pass
		1907.5	-2.23	3.94	28.20	22.03	159.588	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-2.63	3.79	28.33	21.91	155.239	Vertical	Pass
		1880	-2.23	3.95	28.22	22.04	159.956	Vertical	Pass
		1905	-2.29	3.97	28.19	21.93	155.955	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.60	3.79	28.34	21.95	156.675	Vertical	Pass
		1880	-2.22	3.95	28.22	22.05	160.325	Vertical	Pass
		1902.5	-2.21	3.97	28.18	22.00	158.489	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-2.48	3.81	28.35	22.06	160.694	Vertical	Pass
		1880	-2.20	3.96	28.22	22.06	160.694	Vertical	Pass
		1900	-2.07	4.00	28.16	22.09	161.808	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					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.29	3.12	27.58	22.17	164.816	Horizontal	Pass
		1732.5	-2.11	3.27	27.61	22.23	167.109	Horizontal	Pass
		1754.3	-2.17	3.29	27.63	22.17	164.816	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.28	3.13	27.61	22.20	165.959	Horizontal	Pass
		1732.5	-2.07	3.27	27.61	22.27	168.655	Horizontal	Pass
		1753.5	-2.05	3.30	27.62	22.27	168.655	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.22	3.13	27.63	22.28	169.044	Horizontal	Pass
		1732.5	-2.10	3.27	27.61	22.24	167.494	Horizontal	Pass
		1752.5	-2.18	3.30	27.60	22.12	162.930	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.23	3.15	27.64	22.26	168.267	Horizontal	Pass
		1732.5	-2.07	3.31	27.61	22.23	167.109	Horizontal	Pass
		1750	-2.06	3.33	27.59	22.20	165.959	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.26	3.15	27.65	22.24	167.494	Horizontal	Pass
		1732.5	-2.09	3.31	27.61	22.21	166.341	Horizontal	Pass
		1747.5	-2.08	3.33	27.57	22.16	164.437	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.27	3.17	27.66	22.22	166.725	Horizontal	Pass
		1732.5	-2.06	3.32	27.61	22.23	167.109	Horizontal	Pass
		1745	-1.92	3.36	27.56	22.28	169.044	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.33	3.12	27.58	22.13	163.305	Vertical	Pass
		1732.5	-2.08	3.27	27.61	22.26	168.267	Vertical	Pass
		1754.3	-2.10	3.29	27.63	22.24	167.494	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.24	3.13	27.61	22.24	167.494	Vertical	Pass
		1732.5	-2.08	3.27	27.61	22.26	168.267	Vertical	Pass
		1753.5	-2.17	3.30	27.62	22.15	164.059	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.30	3.13	27.63	22.20	165.959	Vertical	Pass
		1732.5	-2.14	3.27	27.61	22.20	165.959	Vertical	Pass
		1752.5	-2.12	3.30	27.60	22.18	165.196	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.32	3.15	27.64	22.17	164.816	Vertical	Pass
		1732.5	-2.05	3.31	27.61	22.25	167.880	Vertical	Pass
		1750	-1.98	3.33	27.59	22.28	169.044	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-2.30	3.15	27.65	22.20	165.959	Vertical	Pass
		1732.5	-2.09	3.31	27.61	22.21	166.341	Vertical	Pass
		1747.5	-1.97	3.33	27.57	22.27	168.655	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.20	3.17	27.66	22.29	169.434	Vertical	Pass
		1732.5	-1.97	3.32	27.61	22.32	170.608	Vertical	Pass
		1745	-1.91	3.36	27.56	22.29	169.434	Vertical	Pass

Radiated Power (EIRP) for Band 4										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.46	3.12	27.58	21.00	125.893	Horizontal		Pass
		1732.5	-3.30	3.27	27.61	21.04	127.057	Horizontal		Pass
		1754.3	-3.33	3.29	27.63	21.01	126.183	Horizontal		Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.55	3.13	27.61	20.93	123.880	Horizontal		Pass
		1732.5	-3.33	3.27	27.61	21.01	126.183	Horizontal		Pass
		1753.5	-3.35	3.30	27.62	20.97	125.026	Horizontal		Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.56	3.13	27.63	20.94	124.165	Horizontal		Pass
		1732.5	-3.34	3.27	27.61	21.00	125.893	Horizontal		Pass
		1752.5	-3.32	3.30	27.60	20.98	125.314	Horizontal		Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.46	3.15	27.64	21.03	126.765	Horizontal		Pass
		1732.5	-3.32	3.31	27.61	20.98	125.314	Horizontal		Pass
		1750	-3.32	3.33	27.59	20.94	124.165	Horizontal		Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.46	3.15	27.65	21.04	127.057	Horizontal		Pass
		1732.5	-3.35	3.31	27.61	20.95	124.451	Horizontal		Pass
		1747.5	-3.21	3.33	27.57	21.03	126.765	Horizontal		Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.45	3.17	27.66	21.04	127.057	Horizontal		Pass
		1732.5	-3.25	3.32	27.61	21.04	127.057	Horizontal		Pass
		1745	-3.18	3.36	27.56	21.02	126.474	Horizontal		Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.45	3.12	27.58	21.01	126.183	Vertical		Pass
		1732.5	-3.31	3.27	27.61	21.03	126.765	Vertical		Pass
		1754.3	-3.36	3.29	27.63	20.98	125.314	Vertical		Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.51	3.13	27.61	20.97	125.026	Vertical		Pass
		1732.5	-3.37	3.27	27.61	20.97	125.026	Vertical		Pass
		1753.5	-3.30	3.30	27.62	21.02	126.474	Vertical		Pass
5.0MHz	1/#Mid	1712.5	-3.55	3.13	27.63	20.95	124.451	Vertical		Pass

Band 16 QAM		1732.5	-3.41	3.27	27.61	20.93	123.880	Vertical	Pass
		1752.5	-3.38	3.30	27.60	20.92	123.595	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.45	3.15	27.64	21.04	127.057	Vertical	Pass
		1732.5	-3.36	3.31	27.61	20.94	124.165	Vertical	Pass
		1750	-3.31	3.33	27.59	20.95	124.451	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.43	3.15	27.65	21.07	127.938	Vertical	Pass
		1732.5	-3.27	3.31	27.61	21.03	126.765	Vertical	Pass
		1747.5	-3.20	3.33	27.57	21.04	127.057	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.40	3.17	27.66	21.09	128.529	Vertical	Pass
		1732.5	-3.20	3.32	27.61	21.09	128.529	Vertical	Pass
		1745	-3.12	3.36	27.56	21.08	128.233	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)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	824.7	6.75	2.01	19.68	2.15	22.27	168.655	Horizontal	Pass
		836.5	6.70	2.01	19.77	2.15	22.31	170.216	Horizontal	Pass
		848.3	6.65	2.02	19.82	2.15	22.30	169.824	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.81	2.01	19.70	2.15	22.35	171.791	Horizontal	Pass
		836.5	6.64	2.01	19.77	2.15	22.25	167.880	Horizontal	Pass
		847.5	6.63	2.02	19.81	2.15	22.27	168.655	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.81	2.01	19.71	2.15	22.36	172.187	Horizontal	Pass
		836.5	6.69	2.01	19.77	2.15	22.30	169.824	Horizontal	Pass
		846.5	6.70	2.02	19.79	2.15	22.32	170.608	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	6.73	2.01	19.73	2.15	22.30	169.824	Horizontal	Pass
		836.5	6.77	2.01	19.77	2.15	22.38	172.982	Horizontal	Pass
		844	6.74	2.02	19.78	2.15	22.35	171.791	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	6.84	2.01	19.68	2.15	22.36	172.187	Vertical	Pass
		836.5	6.68	2.01	19.77	2.15	22.29	169.434	Vertical	Pass
		848.3	6.73	2.02	19.82	2.15	22.38	172.982	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.81	2.01	19.70	2.15	22.35	171.791	Vertical	Pass
		836.5	6.73	2.01	19.77	2.15	22.34	171.396	Vertical	Pass
		847.5	6.62	2.02	19.81	2.15	22.26	168.267	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.69	2.01	19.71	2.15	22.24	167.494	Vertical	Pass
		836.5	6.71	2.01	19.77	2.15	22.32	170.608	Vertical	Pass
		846.5	6.68	2.02	19.79	2.15	22.30	169.824	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	6.87	2.01	19.73	2.15	22.44	175.388	Vertical	Pass
		836.5	6.83	2.01	19.77	2.15	22.44	175.388	Vertical	Pass
		844	6.82	2.02	19.78	2.15	22.43	174.985	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	824.7	5.49	2.01	19.68	2.15	21.01	126.183	Horizontal	Pass
		836.5	5.35	2.01	19.77	2.15	20.96	124.738	Horizontal	Pass
		848.3	5.34	2.02	19.82	2.15	20.99	125.603	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.41	2.01	19.70	2.15	20.95	124.451	Horizontal	Pass
		836.5	5.40	2.01	19.77	2.15	21.01	126.183	Horizontal	Pass
		847.5	5.44	2.02	19.81	2.15	21.08	128.233	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.53	2.01	19.71	2.15	21.08	128.233	Horizontal	Pass
		836.5	5.41	2.01	19.77	2.15	21.02	126.474	Horizontal	Pass
		846.5	5.39	2.02	19.79	2.15	21.01	126.183	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.38	2.01	19.73	2.15	20.95	124.451	Horizontal	Pass
		836.5	5.47	2.01	19.77	2.15	21.08	128.233	Horizontal	Pass
		844	5.42	2.02	19.78	2.15	21.03	126.765	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.49	2.01	19.68	2.15	21.01	126.183	Vertical	Pass
		836.5	5.35	2.01	19.77	2.15	20.96	124.738	Vertical	Pass
		848.3	5.43	2.02	19.82	2.15	21.08	128.233	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.51	2.01	19.70	2.15	21.05	127.350	Vertical	Pass
		836.5	5.47	2.01	19.77	2.15	21.08	128.233	Vertical	Pass
		847.5	5.41	2.02	19.81	2.15	21.05	127.350	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.46	2.01	19.71	2.15	21.01	126.183	Vertical	Pass
		836.5	5.41	2.01	19.77	2.15	21.02	126.474	Vertical	Pass
		846.5	5.34	2.02	19.79	2.15	20.96	124.738	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.54	2.01	19.73	2.15	21.11	129.122	Vertical	Pass
		836.5	5.51	2.01	19.77	2.15	21.12	129.420	Vertical	Pass
		844	5.48	2.02	19.78	2.15	21.09	128.529	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)

8.5 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	-0.38	4.54	27.75	22.83	191.867	Horizontal	Pass
		2535	-0.18	4.69	27.72	22.85	192.752	Horizontal	Pass
		2567.5	-0.17	4.71	27.71	22.83	191.867	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-0.32	4.55	27.76	22.89	194.536	Horizontal	Pass
		2535	-0.17	4.69	27.72	22.86	193.197	Horizontal	Pass
		2565	-0.14	4.72	27.70	22.84	192.309	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-0.35	4.55	27.77	22.87	193.642	Horizontal	Pass
		2535	-0.18	4.69	27.72	22.85	192.752	Horizontal	Pass
		2562.5	-0.04	4.72	27.69	22.93	196.336	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-0.34	4.57	27.78	22.87	193.642	Horizontal	Pass
		2535	-0.19	4.73	27.72	22.80	190.546	Horizontal	Pass
		2560	0.00	4.75	27.68	22.93	196.336	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-0.35	4.54	27.75	22.86	193.197	Vertical	Pass
		2535	-0.12	4.69	27.72	22.91	195.434	Vertical	Pass
		2567.5	-0.08	4.71	27.71	22.92	195.884	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-0.32	4.55	27.76	22.89	194.536	Vertical	Pass
		2535	-0.18	4.69	27.72	22.85	192.752	Vertical	Pass
		2565	-0.06	4.72	27.70	22.92	195.884	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-0.41	4.55	27.77	22.81	190.985	Vertical	Pass
		2535	-0.17	4.69	27.72	22.86	193.197	Vertical	Pass
		2562.5	-0.07	4.72	27.69	22.90	194.984	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-0.22	4.57	27.78	22.99	199.067	Vertical	Pass
		2535	-0.03	4.73	27.72	22.96	197.697	Vertical	Pass
		2560	0.03	4.75	27.68	22.96	197.697	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	-0.63	4.54	27.75	22.58	181.134	Horizontal	Pass
		2535	-0.52	4.69	27.72	22.51	178.238	Horizontal	Pass
		2567.5	-0.45	4.71	27.71	22.55	179.887	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-0.68	4.55	27.76	22.53	179.061	Horizontal	Pass
		2535	-0.52	4.69	27.72	22.51	178.238	Horizontal	Pass
		2565	-0.49	4.72	27.70	22.49	177.419	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-0.61	4.55	27.77	22.61	182.390	Horizontal	Pass
		2535	-0.41	4.69	27.72	22.62	182.810	Horizontal	Pass
		2562.5	-0.48	4.72	27.69	22.49	177.419	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-0.65	4.57	27.78	22.56	180.302	Horizontal	Pass
		2535	-0.39	4.73	27.72	22.60	181.970	Horizontal	Pass
		2560	-0.29	4.75	27.68	22.64	183.654	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-0.70	4.54	27.75	22.51	178.238	Vertical	Pass
		2535	-0.48	4.69	27.72	22.55	179.887	Vertical	Pass
		2567.5	-0.46	4.71	27.71	22.54	179.473	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-0.63	4.55	27.76	22.58	181.134	Vertical	Pass
		2535	-0.46	4.69	27.72	22.57	180.717	Vertical	Pass
		2565	-0.48	4.72	27.70	22.50	177.828	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-0.58	4.55	27.77	22.64	183.654	Vertical	Pass
		2535	-0.53	4.69	27.72	22.50	177.828	Vertical	Pass
		2562.5	-0.40	4.72	27.69	22.57	180.717	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-0.51	4.57	27.78	22.70	186.209	Vertical	Pass
		2535	-0.30	4.73	27.72	22.69	185.780	Vertical	Pass
		2560	-0.24	4.75	27.68	22.69	185.780	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	6.53	1.91	19.21	2.15	21.68	147.231	Vertical	Pass
		707.5	6.41	1.91	19.26	2.15	21.61	144.877	Vertical	Pass
		715.3	6.43	1.93	19.34	2.15	21.69	147.571	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.44	1.91	19.21	2.15	21.59	144.212	Vertical	Pass
		707.5	6.40	1.91	19.26	2.15	21.60	144.544	Vertical	Pass
		714.5	6.44	1.93	19.34	2.15	21.70	147.911	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.44	1.91	19.23	2.15	21.61	144.877	Vertical	Pass
		707.5	6.49	1.91	19.26	2.15	21.69	147.571	Vertical	Pass
		713.5	6.44	1.92	19.33	2.15	21.70	147.911	Vertical	Pass
10.0Hz Band QPSK	1/#Mid	704	6.53	1.91	19.25	2.15	21.72	148.594	Vertical	Pass
		707.5	6.44	1.91	19.26	2.15	21.64	145.881	Vertical	Pass
		711	6.32	1.92	19.32	2.15	21.57	143.549	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	6.50	1.91	19.21	2.15	21.65	146.218	Horizontal	Pass
		707.5	6.47	1.91	19.26	2.15	21.67	146.893	Horizontal	Pass
		715.3	6.34	1.93	19.34	2.15	21.60	144.544	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.45	1.91	19.21	2.15	21.60	144.544	Horizontal	Pass
		707.5	6.49	1.91	19.26	2.15	21.69	147.571	Horizontal	Pass
		714.5	6.41	1.93	19.34	2.15	21.67	146.893	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.44	1.91	19.23	2.15	21.61	144.877	Horizontal	Pass
		707.5	6.51	1.91	19.26	2.15	21.71	148.252	Horizontal	Pass
		713.5	6.36	1.92	19.33	2.15	21.62	145.211	Horizontal	Pass
10.0Hz Band QPSK	1/#Mid	704	6.59	1.91	19.25	2.15	21.78	150.661	Horizontal	Pass
		707.5	6.55	1.91	19.26	2.15	21.75	149.624	Horizontal	Pass
		711	6.48	1.92	19.32	2.15	21.73	148.936	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	699.7	5.34	1.91	19.21	2.15	20.49	111.944	Vertical	Pass
		707.5	5.29	1.91	19.26	2.15	20.49	111.944	Vertical	Pass
		715.3	5.16	1.93	19.34	2.15	20.42	110.154	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.36	1.91	19.21	2.15	20.51	112.460	Vertical	Pass
		707.5	5.22	1.91	19.26	2.15	20.42	110.154	Vertical	Pass
		714.5	5.17	1.93	19.34	2.15	20.43	110.408	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.21	1.91	19.23	2.15	20.38	109.144	Vertical	Pass
		707.5	5.31	1.91	19.26	2.15	20.51	112.460	Vertical	Pass
		713.5	5.13	1.92	19.33	2.15	20.39	109.396	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.34	1.91	19.25	2.15	20.53	112.980	Vertical	Pass
		707.5	5.32	1.91	19.26	2.15	20.52	112.720	Vertical	Pass
		711	5.25	1.92	19.32	2.15	20.50	112.202	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	5.36	1.91	19.21	2.15	20.51	112.460	Horizontal	Pass
		707.5	5.22	1.91	19.26	2.15	20.42	110.154	Horizontal	Pass
		715.3	5.15	1.93	19.34	2.15	20.41	109.901	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.25	1.91	19.21	2.15	20.40	109.648	Horizontal	Pass
		707.5	5.31	1.91	19.26	2.15	20.51	112.460	Horizontal	Pass
		714.5	5.12	1.93	19.34	2.15	20.38	109.144	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.18	1.91	19.23	2.15	20.35	108.393	Horizontal	Pass
		707.5	5.26	1.91	19.26	2.15	20.46	111.173	Horizontal	Pass
		713.5	5.10	1.92	19.33	2.15	20.36	108.643	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.36	1.91	19.25	2.15	20.55	113.501	Horizontal	Pass
		707.5	5.35	1.91	19.26	2.15	20.55	113.501	Horizontal	Pass
		711	5.30	1.92	19.32	2.15	20.55	113.501	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)

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. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	7.97	1.91	19.23	2.15	23.14	206.063	Vertical	Pass
		710	7.89	1.91	19.26	2.15	23.09	203.704	Vertical	Pass
		713.5	7.89	1.92	19.33	2.15	23.15	206.538	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	7.92	1.91	19.25	2.15	23.11	204.644	Vertical	Pass
		710	7.85	1.91	19.26	2.15	23.05	201.837	Vertical	Pass
		711	7.87	1.92	19.32	2.15	23.12	205.116	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	7.95	1.91	19.23	2.15	23.12	205.116	Horizontal	Pass
		710	7.91	1.91	19.26	2.15	23.11	204.644	Horizontal	Pass
		713.5	7.85	1.92	19.33	2.15	23.11	204.644	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	8.05	1.91	19.25	2.15	23.24	210.863	Horizontal	Pass
		710	8.03	1.91	19.26	2.15	23.23	210.378	Horizontal	Pass
		711	7.99	1.92	19.32	2.15	23.24	210.863	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. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	6.73	1.91	19.23	2.15	21.90	154.882	Vertical	Pass
		710	6.72	1.91	19.26	2.15	21.92	155.597	Vertical	Pass
		713.5	6.64	1.92	19.33	2.15	21.90	154.882	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.81	1.91	19.25	2.15	22.00	158.489	Vertical	Pass
		710	6.74	1.91	19.26	2.15	21.94	156.315	Vertical	Pass
		711	6.68	1.92	19.32	2.15	21.93	155.955	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	6.71	1.91	19.23	2.15	21.88	154.170	Horizontal	Pass
		710	6.78	1.91	19.26	2.15	21.98	157.761	Horizontal	Pass
		713.5	6.66	1.92	19.33	2.15	21.92	155.597	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.85	1.91	19.25	2.15	22.04	159.956	Horizontal	Pass
		710	6.87	1.91	19.26	2.15	22.07	161.065	Horizontal	Pass
		711	6.78	1.92	19.32	2.15	22.03	159.588	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 26A

Radiated Power (ERP) for Band 26A										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR Average (dBm)	Max. EPR Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	814.7	6.90	1.91	19.21	2.15	22.05	160.325	Vertical	Pass
		819	6.84	1.91	19.26	2.15	22.04	159.956	Vertical	Pass
		823.3	6.69	1.93	19.34	2.15	21.95	156.675	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	815.5	6.90	1.91	19.21	2.15	22.05	160.325	Vertical	Pass
		819	6.78	1.91	19.26	2.15	21.98	157.761	Vertical	Pass
		822.5	6.78	1.93	19.34	2.15	22.04	159.956	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	816.5	6.78	1.91	19.23	2.15	21.95	156.675	Vertical	Pass
		819	6.84	1.91	19.26	2.15	22.04	159.956	Vertical	Pass
		821.5	6.70	1.92	19.33	2.15	21.96	157.036	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	819	6.88	1.93	19.25	2.15	22.05	160.325	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	814.7	6.81	1.91	19.21	2.15	21.96	157.036	Horizontal	Pass
		819	6.83	1.91	19.26	2.15	22.03	159.588	Horizontal	Pass
		823.3	6.78	1.93	19.34	2.15	22.04	159.956	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	815.5	6.82	1.91	19.21	2.15	21.97	157.398	Horizontal	Pass
		819	6.77	1.91	19.26	2.15	21.97	157.398	Horizontal	Pass
		822.5	6.76	1.93	19.34	2.15	22.02	159.221	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	816.5	6.85	1.91	19.23	2.15	22.02	159.221	Horizontal	Pass
		819	6.71	1.91	19.26	2.15	21.91	155.239	Horizontal	Pass
		821.5	6.72	1.92	19.33	2.15	21.98	157.761	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	819	6.92	1.93	19.25	2.15	22.09	161.808	Horizontal	Pass

Radiated Power (ERP) for Band 26A										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR Average (dBm)	Max. EPR Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	814.7	5.92	1.91	19.21	2.15	21.07	127.938	Vertical	Pass
		819	5.88	1.91	19.26	2.15	21.08	128.233	Vertical	Pass
		823.3	5.74	1.93	19.34	2.15	21.00	125.893	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	815.5	5.91	1.91	19.21	2.15	21.06	127.644	Vertical	Pass
		819	5.82	1.91	19.26	2.15	21.02	126.474	Vertical	Pass
		822.5	5.71	1.93	19.34	2.15	20.97	125.026	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	816.5	5.85	1.91	19.23	2.15	21.02	126.474	Vertical	Pass
		819	5.73	1.91	19.26	2.15	20.93	123.880	Vertical	Pass
		821.5	5.73	1.92	19.33	2.15	20.99	125.603	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	819	5.77	1.93	19.25	2.15	20.94	124.165	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	814.7	5.81	1.91	19.21	2.15	20.96	124.738	Horizontal	Pass
		819	5.75	1.91	19.26	2.15	20.95	124.451	Horizontal	Pass
		823.3	5.70	1.93	19.34	2.15	20.96	124.738	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	815.5	5.89	1.91	19.21	2.15	21.04	127.057	Horizontal	Pass
		819	5.88	1.91	19.26	2.15	21.08	128.233	Horizontal	Pass
		822.5	5.70	1.93	19.34	2.15	20.96	124.738	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	816.5	5.87	1.91	19.23	2.15	21.04	127.057	Horizontal	Pass
		819	5.83	1.91	19.26	2.15	21.03	126.765	Horizontal	Pass
		821.5	5.82	1.92	19.33	2.15	21.08	128.233	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	819	5.96	1.93	19.25	2.15	21.13	129.718	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)

8.9 LTE BAND 26B

Radiated Power (ERP) for Band 26B										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	824.7	6.62	2.02	19.72	2.15	22.17	164.816	Horizontal	Pass
		836.5	6.55	2.02	19.83	2.15	22.21	166.341	Horizontal	Pass
		848.3	6.43	2.03	19.95	2.15	22.20	165.959	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.54	2.02	19.84	2.15	22.21	166.341	Horizontal	Pass
		836.5	6.46	2.02	19.94	2.15	22.23	167.109	Horizontal	Pass
		847.5	6.36	2.03	19.98	2.15	22.16	164.437	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.58	2.02	19.75	2.15	22.16	164.437	Horizontal	Pass
		836.5	6.61	2.02	19.83	2.15	22.27	168.655	Horizontal	Pass
		846.5	6.52	2.03	19.92	2.15	22.26	168.267	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	6.59	2.02	19.84	2.15	22.26	168.267	Horizontal	Pass
		836.5	6.51	2.02	19.90	2.15	22.24	167.494	Horizontal	Pass
		844	6.50	2.03	19.96	2.15	22.28	169.044	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	831.5	7.01	2.02	19.33	2.15	22.17	164.816	Vertical	Pass
		836.5	7.04	2.02	19.37	2.15	22.24	167.494	Vertical	Pass
		841.5	6.84	2.03	19.52	2.15	22.18	165.196	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	824.7	6.58	2.02	19.76	2.15	22.17	164.816	Vertical	Pass
		836.5	6.61	2.02	19.78	2.15	22.22	166.725	Vertical	Pass
		848.3	6.49	2.03	19.94	2.15	22.25	167.880	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.61	2.02	19.83	2.15	22.27	168.655	Vertical	Pass
		836.5	6.45	2.02	19.96	2.15	22.24	167.494	Vertical	Pass
		847.5	6.54	2.03	19.87	2.15	22.23	167.109	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.47	2.02	19.86	2.15	22.16	164.437	Vertical	Pass
		836.5	6.61	2.02	19.81	2.15	22.25	167.880	Vertical	Pass
		846.5	6.63	2.03	19.83	2.15	22.28	169.044	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	6.73	2.02	19.75	2.15	22.31	170.216	Vertical	Pass
		836.5	6.65	2.02	19.85	2.15	22.33	171.002	Vertical	Pass
		844	6.68	2.03	19.80	2.15	22.30	169.824	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	831.5	7.21	2.02	19.31	2.15	22.35	171.791	Horizontal	Pass
		836.5	7.17	2.02	19.33	2.15	22.33	171.002	Horizontal	Pass
		841.5	7.10	2.03	19.38	2.15	22.30	169.824	Horizontal	Pass

Radiated Power (ERP) for Band 26B										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR Average (dBm)	Max. EPR Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	824.7	5.74	2.02	19.72	2.15	21.29	134.586	Horizontal	Pass
		836.5	5.65	2.02	19.83	2.15	21.31	135.207	Horizontal	Pass
		848.3	5.54	2.03	19.95	2.15	21.31	135.207	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.62	2.02	19.84	2.15	21.29	134.586	Horizontal	Pass
		836.5	5.47	2.02	19.94	2.15	21.24	133.045	Horizontal	Pass
		847.5	5.55	2.03	19.98	2.15	21.35	136.458	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.71	2.02	19.75	2.15	21.29	134.586	Horizontal	Pass
		836.5	5.56	2.02	19.83	2.15	21.22	132.434	Horizontal	Pass
		846.5	5.63	2.03	19.92	2.15	21.37	137.088	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.70	2.02	19.84	2.15	21.37	137.088	Horizontal	Pass
		836.5	5.52	2.02	19.90	2.15	21.25	133.352	Horizontal	Pass
		844	5.55	2.03	19.96	2.15	21.33	135.831	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	831.5	6.14	2.02	19.33	2.15	21.30	134.896	Vertical	Pass
		836.5	6.08	2.02	19.37	2.15	21.28	134.276	Vertical	Pass
		841.5	5.96	2.03	19.52	2.15	21.30	134.896	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.65	2.02	19.76	2.15	21.24	133.045	Vertical	Pass
		836.5	5.69	2.02	19.78	2.15	21.30	134.896	Vertical	Pass
		848.3	5.52	2.03	19.94	2.15	21.28	134.276	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.65	2.02	19.83	2.15	21.31	135.207	Vertical	Pass
		836.5	5.56	2.02	19.96	2.15	21.35	136.458	Vertical	Pass
		847.5	5.68	2.03	19.87	2.15	21.37	137.088	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.70	2.02	19.86	2.15	21.39	137.721	Vertical	Pass
		836.5	5.72	2.02	19.81	2.15	21.36	136.773	Vertical	Pass
		846.5	5.61	2.03	19.83	2.15	21.26	133.660	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.82	2.02	19.75	2.15	21.40	138.038	Vertical	Pass
		836.5	5.72	2.02	19.85	2.15	21.40	138.038	Vertical	Pass
		844	5.77	2.03	19.80	2.15	21.39	137.721	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	831.5	6.33	2.02	19.31	2.15	21.47	140.281	Horizontal	Pass
		836.5	6.27	2.02	19.33	2.15	21.43	138.995	Horizontal	Pass
		841.5	6.23	2.03	19.38	2.15	21.43	138.995	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)

8.10 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2557.5	-0.86	4.54	27.75	22.35	171.791	Horizontal	Pass
		2605	-0.69	4.69	27.72	22.34	171.396	Horizontal	Pass
		2652.5	-0.68	4.71	27.71	22.32	170.608	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2560	-0.85	4.55	27.76	22.36	172.187	Horizontal	Pass
		2605	-0.75	4.69	27.72	22.28	169.044	Horizontal	Pass
		2650	-0.75	4.72	27.70	22.23	167.109	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2562.5	-0.91	4.55	27.77	22.31	170.216	Horizontal	Pass
		2605	-0.69	4.69	27.72	22.34	171.396	Horizontal	Pass
		2647.5	-0.68	4.72	27.69	22.29	169.434	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2565	-0.90	4.57	27.78	22.31	170.216	Horizontal	Pass
		2605	-0.66	4.73	27.72	22.33	171.002	Horizontal	Pass
		2645	-0.63	4.75	27.68	22.30	169.824	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2557.5	-0.86	4.54	27.75	22.35	171.791	Vertical	Pass
		2605	-0.77	4.69	27.72	22.26	168.267	Vertical	Pass
		2652.5	-0.65	4.71	27.71	22.35	171.791	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2560	-0.96	4.55	27.76	22.25	167.880	Vertical	Pass
		2605	-0.73	4.69	27.72	22.30	169.824	Vertical	Pass
		2650	-0.65	4.72	27.70	22.33	171.002	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2562.5	-1.03	4.55	27.77	22.19	165.577	Vertical	Pass
		2605	-0.76	4.69	27.72	22.27	168.655	Vertical	Pass
		2647.5	-0.63	4.72	27.69	22.34	171.396	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2565	-0.81	4.57	27.78	22.40	173.780	Vertical	Pass
		2605	-0.58	4.73	27.72	22.41	174.181	Vertical	Pass
		2645	-0.51	4.75	27.68	22.42	174.582	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2557.5	-1.83	4.54	27.75	21.38	137.404	Horizontal	Pass
		2605	-1.64	4.69	27.72	21.39	137.721	Horizontal	Pass
		2652.5	-1.53	4.71	27.71	21.47	140.281	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2560	-1.74	4.55	27.76	21.47	140.281	Horizontal	Pass
		2605	-1.61	4.69	27.72	21.42	138.676	Horizontal	Pass
		2650	-1.51	4.72	27.70	21.47	140.281	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2562.5	-1.90	4.55	27.77	21.32	135.519	Horizontal	Pass
		2605	-1.61	4.69	27.72	21.42	138.676	Horizontal	Pass
		2647.5	-1.59	4.72	27.69	21.38	137.404	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2565	-1.75	4.57	27.78	21.46	139.959	Horizontal	Pass
		2605	-1.60	4.73	27.72	21.39	137.721	Horizontal	Pass
		2645	-1.58	4.75	27.68	21.35	136.458	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2557.5	-1.83	4.54	27.75	21.38	137.404	Vertical	Pass
		2605	-1.67	4.69	27.72	21.36	136.773	Vertical	Pass
		2652.5	-1.65	4.71	27.71	21.35	136.458	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2560	-1.82	4.55	27.76	21.39	137.721	Vertical	Pass
		2605	-1.63	4.69	27.72	21.40	138.038	Vertical	Pass
		2650	-1.54	4.72	27.70	21.44	139.316	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2562.5	-1.89	4.55	27.77	21.33	135.831	Vertical	Pass
		2605	-1.57	4.69	27.72	21.46	139.959	Vertical	Pass
		2647.5	-1.63	4.72	27.69	21.34	136.144	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2565	-1.73	4.57	27.78	21.48	140.605	Vertical	Pass
		2605	-1.50	4.73	27.72	21.49	140.929	Vertical	Pass
		2645	-1.44	4.75	27.68	21.49	140.929	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)

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 log10(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 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (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 2/4/5/7/12/17/26/41

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3701.4	-53.62	4.04	33.51	-24.15	-13	-11.15	Horizontal
3701.4	-51.17	4.04	33.51	-21.70	-13	-8.70	Vertical
5552.1	-51.86	5.24	35.84	-21.26	-13	-8.26	Vertical
5552.1	-50.12	5.24	35.84	-19.52	-13	-6.52	Horizontal
194.7	-39.47	1.43	16.02	-24.88	-13	-11.88	Vertical
279.2	-36.71	1.30	17.99	-20.02	-13	-7.02	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.87	4.04	33.56	-19.35	-13	-6.35	Horizontal
3760.0	-45.33	4.04	33.56	-15.81	-13	-2.81	Vertical
5640.0	-53.52	5.24	35.91	-22.85	-13	-9.85	Vertical
5640.0	-52.11	5.24	35.91	-21.44	-13	-8.44	Horizontal
203.6	-40.43	1.62	16.97	-25.08	-13	-12.08	Vertical
281.5	-42.24	1.74	15.98	-28.01	-13	-15.01	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-51.90	4.04	34.00	-21.94	-13	-8.94	Horizontal
3818.6	-46.70	4.04	34.00	-16.74	-13	-3.74	Vertical
5727.9	-45.59	5.24	36.04	-14.79	-13	-1.79	Vertical
5727.9	-53.69	5.24	36.04	-22.89	-13	-9.89	Horizontal
201.5	-35.65	1.42	17.29	-19.78	-13	-6.78	Vertical
408.5	-34.11	1.50	17.90	-17.70	-13	-4.70	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3720.0	-44.36	4.07	33.54	-14.89	-13	-1.89	Horizontal
3720.0	-49.44	4.07	33.54	-19.97	-13	-6.97	Vertical
5580.0	-53.24	5.28	35.86	-22.66	-13	-9.66	Vertical
5580.0	-49.38	5.28	35.86	-18.80	-13	-5.80	Horizontal
181.1	-39.70	1.58	16.89	-24.38	-13	-11.38	Vertical
293.1	-40.67	1.76	17.26	-25.17	-13	-12.17	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-46.29	4.04	33.56	-16.77	-13	-3.77	Horizontal
3760.0	-52.70	4.04	33.56	-23.18	-13	-10.18	Vertical
5640.0	-46.02	5.24	35.91	-15.35	-13	-2.35	Vertical
5640.0	-50.53	5.24	35.91	-19.86	-13	-6.86	Horizontal
208.1	-41.71	1.46	16.27	-26.90	-13	-13.90	Vertical
400.4	-38.28	1.59	15.15	-24.72	-13	-11.72	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-44.46	4.04	34.00	-14.50	-13	-1.50	Horizontal
3800.0	-49.60	4.04	34.00	-19.64	-13	-6.64	Vertical
5700.0	-53.04	5.24	36.04	-22.24	-13	-9.24	Vertical
5700.0	-50.14	5.24	36.04	-19.34	-13	-6.34	Horizontal
190.7	-42.67	1.36	17.39	-26.63	-13	-13.63	Vertical
376.0	-44.17	1.66	15.39	-30.44	-13	-17.44	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3421.4	-52.47	4.02	29.80	-26.69	-13	-13.69	Horizontal
3421.4	-51.52	4.02	29.80	-25.74	-13	-12.74	Vertical
5132.1	-47.80	5.24	35.84	-17.20	-13	-4.20	Vertical
5132.1	-52.88	5.24	35.84	-22.28	-13	-9.28	Horizontal
196.2	-38.10	1.68	16.04	-23.74	-13	-10.74	Vertical
378.9	-34.15	1.78	17.74	-18.19	-13	-5.19	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.58	4.03	30.00	-20.61	-13	-7.61	Horizontal
3465.0	-53.49	4.03	30.00	-27.52	-13	-14.52	Vertical
5197.5	-51.77	5.25	35.86	-21.16	-13	-8.16	Vertical
5197.5	-49.66	5.25	35.86	-19.05	-13	-6.05	Horizontal
205.8	-44.13	1.72	17.69	-28.16	-13	-15.16	Vertical
321.2	-37.50	1.62	16.02	-23.09	-13	-10.09	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-52.17	4.05	30.01	-26.21	-13	-13.21	Horizontal
3508.6	-53.36	4.05	30.01	-27.40	-13	-14.40	Vertical
5262.9	-50.92	5.26	35.86	-20.32	-13	-7.32	Vertical
5262.9	-52.54	5.26	35.86	-21.94	-13	-8.94	Horizontal
178.1	-39.96	1.80	16.69	-25.07	-13	-12.07	Vertical
462.4	-44.80	1.75	16.66	-29.90	-13	-16.90	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3440.0	-47.78	4.02	29.80	-22.00	-13	-9.00	Horizontal
3440.0	-46.53	4.02	29.80	-20.75	-13	-7.75	Vertical
5160.0	-44.14	5.24	35.84	-13.54	-13	-0.54	Vertical
5160.0	-52.71	5.24	35.84	-22.11	-13	-9.11	Horizontal
200.9	-38.63	1.57	17.26	-22.94	-13	-9.94	Vertical
251.3	-36.00	1.78	16.35	-21.43	-13	-8.43	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-50.16	4.03	30.00	-24.19	-13	-11.19	Horizontal
3465.0	-47.42	4.03	30.00	-21.45	-13	-8.45	Vertical
5197.5	-51.07	5.25	35.86	-20.46	-13	-7.46	Vertical
5197.5	-50.49	5.25	35.86	-19.88	-13	-6.88	Horizontal
184.7	-40.44	1.44	17.95	-23.93	-13	-10.93	Vertical
435.2	-34.30	1.65	16.09	-19.86	-13	-6.86	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-52.69	4.05	27.68	-29.06	-13	-16.06	Horizontal
3490.0	-51.73	4.05	27.68	-28.10	-13	-15.10	Vertical
5235.0	-51.22	5.26	35.86	-20.62	-13	-7.62	Vertical
5235.0	-53.83	5.26	35.86	-23.23	-13	-10.23	Horizontal
212.7	-35.09	1.61	16.85	-19.85	-13	-6.85	Vertical
287.4	-44.86	1.61	15.19	-31.28	-13	-18.28	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1649.4	-50.93	2.78	27.50	-26.21	-13	-13.21	Horizontal
1649.4	-47.95	2.78	27.50	-23.23	-13	-10.23	Vertical
2474.1	-45.46	2.90	27.80	-20.56	-13	-7.56	Vertical
2474.1	-52.04	2.90	27.80	-27.14	-13	-14.14	Horizontal
189.1	-34.36	1.76	17.59	-18.53	-13	-5.53	Vertical
353.3	-43.56	1.63	15.87	-29.32	-13	-16.32	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-52.19	2.80	27.48	-27.51	-13	-14.51	Horizontal
1673.0	-47.39	2.80	27.48	-22.71	-13	-9.71	Vertical
2509.5	-46.01	2.91	27.70	-21.22	-13	-8.22	Vertical
2509.5	-51.20	2.91	27.70	-26.41	-13	-13.41	Horizontal
210.1	-43.68	1.61	15.68	-29.61	-13	-16.61	Vertical
299.7	-44.36	1.59	17.52	-28.44	-13	-15.44	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.36	2.82	27.43	-20.75	-13	-7.75	Horizontal
1696.6	-48.16	2.82	27.43	-23.55	-13	-10.55	Vertical
2544.9	-46.38	2.92	27.74	-21.56	-13	-8.56	Vertical
2544.9	-52.74	2.92	27.74	-27.92	-13	-14.92	Horizontal
177.1	-38.49	1.69	16.67	-23.50	-13	-10.50	Vertical
259.5	-35.88	1.70	17.18	-20.40	-13	-7.40	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1658.0	-44.46	2.78	27.50	-19.74	-13	-6.74	Horizontal
1658.0	-49.79	2.78	27.50	-25.07	-13	-12.07	Vertical
2487.0	-46.24	2.90	27.80	-21.34	-13	-8.34	Vertical
2487.0	-51.48	2.90	27.80	-26.58	-13	-13.58	Horizontal
175.7	-36.37	1.71	15.57	-22.51	-13	-9.51	Vertical
278.7	-44.18	1.34	16.40	-29.12	-13	-16.12	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-44.98	2.80	27.48	-20.30	-13	-7.30	Horizontal
1673.0	-44.78	2.80	27.48	-20.10	-13	-7.10	Vertical
2509.5	-44.50	2.91	27.70	-19.71	-13	-6.71	Vertical
2509.5	-52.97	2.91	27.70	-28.18	-13	-15.18	Horizontal
200.2	-36.51	1.44	17.04	-20.91	-13	-7.91	Vertical
465.2	-35.17	1.76	17.62	-19.31	-13	-6.31	Horizontal
Test Results for High Channel 844MHz							
1688.0	-45.15	2.82	27.43	-20.54	-13	-7.54	Horizontal
1688.0	-46.47	2.82	27.43	-21.86	-13	-8.86	Vertical
2532.0	-44.80	2.92	27.74	-19.98	-13	-6.98	Vertical
2532.0	-50.88	2.92	27.74	-26.06	-13	-13.06	Horizontal
196.6	-40.07	1.74	17.70	-24.11	-13	-11.11	Vertical
329.6	-39.77	1.41	17.46	-23.71	-13	-10.71	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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
5005.0	-63.14	5.23	35.81	-32.56	-25	-7.56	Horizontal
5005.0	-61.78	5.23	35.81	-31.20	-25	-6.20	Vertical
7507.5	-61.79	5.67	36.85	-30.61	-25	-5.61	Vertical
7507.5	-63.49	5.67	36.85	-32.31	-25	-7.31	Horizontal
194.0	-52.75	1.73	17.97	-36.51	-25	-11.51	Vertical
328.7	-46.16	1.38	15.11	-32.43	-25	-7.43	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.68	5.23	35.82	-33.09	-25	-8.09	Horizontal
5070.0	-63.23	5.23	35.82	-32.64	-25	-7.64	Vertical
7605.0	-60.44	5.67	36.85	-29.26	-25	-4.26	Vertical
7605.0	-62.90	5.67	36.85	-31.72	-25	-6.72	Horizontal
212.1	-54.41	1.77	16.17	-40.00	-25	-15.00	Vertical
322.1	-50.92	1.63	15.21	-37.34	-25	-12.34	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-64.64	5.24	35.83	-34.05	-25	-9.05	Horizontal
5135.0	-61.76	5.24	35.83	-31.17	-25	-6.17	Vertical
7702.5	-60.90	5.68	36.87	-29.71	-25	-4.71	Vertical
7702.5	-60.82	5.68	36.87	-29.63	-25	-4.63	Horizontal
203.4	-52.73	1.58	17.56	-36.75	-25	-11.75	Vertical
457.7	-44.96	1.45	16.58	-29.83	-25	-4.83	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5020.0	-63.61	5.23	35.82	-33.02	-25	-8.02	Horizontal
5020.0	-63.61	5.23	35.82	-33.02	-25	-8.02	Vertical
7530.0	-63.05	5.67	36.86	-31.86	-25	-6.86	Vertical
7530.0	-63.76	5.67	36.86	-32.57	-25	-7.57	Horizontal
179.2	-45.69	1.63	15.76	-31.56	-25	-6.56	Vertical
416.6	-49.29	1.71	15.44	-35.56	-25	-10.56	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.28	5.23	35.82	-29.69	-25	-4.69	Horizontal
5070.0	-62.82	5.23	35.82	-32.23	-25	-7.23	Vertical
7605.0	-62.11	5.67	36.85	-30.93	-25	-5.93	Vertical
7605.0	-62.85	5.67	36.85	-31.67	-25	-6.67	Horizontal
177.0	-45.25	1.79	16.84	-30.19	-25	-5.19	Vertical
398.0	-46.49	1.71	17.64	-30.56	-25	-5.56	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-59.15	5.24	35.83	-28.56	-25	-3.56	Horizontal
5120.0	-59.07	5.24	35.83	-28.48	-25	-3.48	Vertical
7680.0	-60.99	5.70	36.88	-29.81	-25	-4.81	Vertical
7680.0	-62.41	5.70	36.88	-31.23	-25	-6.23	Horizontal
187.3	-49.38	1.79	16.84	-34.32	-25	-9.32	Vertical
364.3	-46.52	1.71	17.64	-30.59	-25	-5.59	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1399.4	-45.87	2.60	27.20	-21.27	-13	-8.27	Horizontal
1399.4	-53.93	2.60	27.20	-29.33	-13	-16.33	Vertical
2099.1	-47.28	2.85	27.54	-22.59	-13	-9.59	Vertical
2099.1	-51.14	2.85	27.54	-26.45	-13	-13.45	Horizontal
195.3	-40.36	1.49	17.78	-24.07	-13	-11.07	Vertical
465.1	-40.82	1.36	17.33	-24.85	-13	-11.85	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-45.75	2.61	27.28	-21.08	-13	-8.08	Horizontal
1415.0	-45.32	2.61	27.28	-20.65	-13	-7.65	Vertical
2122.5	-46.43	2.87	27.59	-21.71	-13	-8.71	Vertical
2122.5	-52.33	2.87	27.59	-27.61	-13	-14.61	Horizontal
178.5	-44.45	1.73	15.74	-30.44	-13	-17.44	Vertical
467.1	-42.74	1.62	15.79	-28.57	-13	-15.57	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-51.04	2.63	27.28	-26.39	-13	-13.39	Horizontal
1430.6	-44.70	2.63	27.28	-20.05	-13	-7.05	Vertical
2145.9	-46.79	2.88	27.60	-22.07	-13	-9.07	Vertical
2145.9	-52.22	2.88	27.60	-27.50	-13	-14.50	Horizontal
188.0	-37.03	1.61	18.00	-20.64	-13	-7.64	Vertical
305.9	-35.98	1.45	15.49	-21.95	-13	-8.95	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1408.0	-51.11	2.61	27.26	-26.46	-13	-13.46	Horizontal
1408.0	-44.41	2.61	27.26	-19.76	-13	-6.76	Vertical
2112.0	-48.34	2.87	27.58	-23.63	-13	-10.63	Vertical
2112.0	-49.75	2.87	27.58	-25.04	-13	-12.04	Horizontal
189.2	-35.22	1.31	16.97	-19.56	-13	-6.56	Vertical
438.4	-43.73	1.65	16.70	-28.68	-13	-15.68	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-53.68	2.61	27.28	-29.01	-13	-16.01	Horizontal
1415.0	-53.71	2.61	27.28	-29.04	-13	-16.04	Vertical
2122.5	-45.68	2.87	27.59	-20.96	-13	-7.96	Vertical
2122.5	-50.45	2.87	27.59	-25.73	-13	-12.73	Horizontal
189.2	-41.36	1.72	17.99	-25.09	-13	-12.09	Vertical
280.6	-38.01	1.73	17.94	-21.80	-13	-8.80	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.96	2.62	27.28	-25.30	-13	-12.30	Horizontal
1422.0	-49.58	2.62	27.28	-24.92	-13	-11.92	Vertical
2133.0	-46.10	2.87	27.60	-21.37	-13	-8.37	Vertical
2133.0	-50.39	2.87	27.60	-25.66	-13	-12.66	Horizontal
207.6	-44.58	1.58	15.93	-30.23	-13	-17.23	Vertical
237.8	-34.11	1.36	15.59	-19.88	-13	-6.88	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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
1413.0	-44.13	2.61	27.28	-19.46	-13	-6.46	Horizontal
1413.0	-48.66	2.61	27.28	-23.99	-13	-10.99	Vertical
2119.5	-49.81	2.87	27.59	-25.09	-13	-12.09	Vertical
2119.5	-50.61	2.87	27.59	-25.89	-13	-12.89	Horizontal
177.2	-42.27	1.71	16.15	-27.83	-13	-14.83	Vertical
415.9	-42.61	1.41	17.32	-26.70	-13	-13.70	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-52.11	2.62	27.30	-27.43	-13	-14.43	Horizontal
1420.0	-53.89	2.62	27.30	-29.21	-13	-16.21	Vertical
2130.0	-45.76	2.87	27.62	-21.01	-13	-8.01	Vertical
2130.0	-51.54	2.87	27.62	-26.79	-13	-13.79	Horizontal
196.1	-43.03	1.42	15.25	-29.21	-13	-16.21	Vertical
326.6	-36.77	1.36	17.19	-20.94	-13	-7.94	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-45.23	2.66	27.28	-20.61	-13	-7.61	Horizontal
1427.0	-48.50	2.66	27.28	-23.88	-13	-10.88	Vertical
2140.5	-50.96	2.88	27.60	-26.24	-13	-13.24	Vertical
2140.5	-49.88	2.88	27.60	-25.16	-13	-12.16	Horizontal
203.4	-39.57	1.32	17.29	-23.60	-13	-10.60	Vertical
453.2	-37.43	1.72	16.89	-22.26	-13	-9.26	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1418.0	-52.55	2.62	27.30	-27.87	-13	-14.87	Horizontal
1418.0	-52.48	2.62	27.30	-27.80	-13	-14.80	Vertical
2127.0	-50.33	2.87	27.62	-25.58	-13	-12.58	Vertical
2127.0	-49.10	2.87	27.62	-24.35	-13	-11.35	Horizontal
206.0	-44.06	1.35	16.91	-28.50	-13	-15.50	Vertical
334.1	-40.37	1.62	16.31	-25.68	-13	-12.68	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-53.91	2.62	27.30	-29.23	-13	-16.23	Horizontal
1420.0	-50.93	2.62	27.30	-26.25	-13	-13.25	Vertical
2130.0	-51.00	2.87	27.62	-26.25	-13	-13.25	Vertical
2130.0	-53.65	2.87	27.62	-28.90	-13	-15.90	Horizontal
188.5	-36.39	1.51	17.14	-20.76	-13	-7.76	Vertical
421.7	-41.16	1.77	16.88	-26.05	-13	-13.05	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.65	2.62	27.30	-24.97	-13	-11.97	Horizontal
1422.0	-48.30	2.62	27.30	-23.62	-13	-10.62	Vertical
2133.0	-53.90	2.87	27.62	-29.15	-13	-16.15	Vertical
2133.0	-51.42	2.87	27.62	-26.67	-13	-13.67	Horizontal
210.6	-37.13	1.78	15.95	-22.96	-13	-9.96	Vertical
440.0	-44.36	1.34	17.95	-27.76	-13	-14.76	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 26A

QPSK EIRP POWER FOR LTE BAND 26A(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 814.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1629.4	-48.64	4.26	29.80	-23.10	-13	-10.10	Horizontal
1629.4	-52.95	4.26	29.80	-27.41	-13	-14.41	Vertical
2444.1	-49.68	5.36	35.84	-19.20	-13	-6.20	Vertical
2444.1	-52.47	5.36	35.84	-21.99	-13	-8.99	Horizontal
211.8	-42.49	1.68	16.04	-28.13	-13	-15.13	Vertical
269.6	-37.23	1.78	17.74	-21.27	-13	-8.27	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-50.93	4.28	30.00	-25.21	-13	-12.21	Horizontal
1638.0	-49.66	4.28	30.00	-23.94	-13	-10.94	Vertical
2457.0	-44.52	5.41	35.86	-14.07	-13	-1.07	Vertical
2457.0	-53.16	5.41	35.86	-22.71	-13	-9.71	Horizontal
175.5	-35.41	1.72	17.69	-19.44	-13	-6.44	Vertical
382.2	-43.70	1.62	16.02	-29.29	-13	-16.29	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-46.82	4.31	30.01	-21.12	-13	-8.12	Horizontal
1646.6	-50.25	4.31	30.01	-24.55	-13	-11.55	Vertical
2469.9	-45.35	5.43	35.86	-14.92	-13	-1.92	Vertical
2469.9	-53.83	5.43	35.86	-23.40	-13	-10.40	Horizontal
186.1	-40.83	1.80	16.69	-25.94	-13	-12.94	Vertical
440.4	-39.79	1.75	16.66	-24.89	-13	-11.89	Horizontal

QPSK EIRP POWER FOR LTE BAND 26A(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1638.0	-46.19	4.28	30.00	-20.47	-13	-7.47	Horizontal
1638.0	-51.10	4.28	30.00	-25.38	-13	-12.38	Vertical
2457.0	-53.92	5.41	35.86	-23.47	-13	-10.47	Vertical
2457.0	-50.29	5.41	35.86	-19.84	-13	-6.84	Horizontal
185.6	-34.53	1.44	17.95	-18.02	-13	-5.02	Vertical
315.7	-44.09	1.65	16.09	-29.65	-13	-16.65	Horizontal

9.8 LTE BAND 26B

QPSK EIRP POWER FOR LTE BAND 26B(824MHz~849MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1649.4	-49.90	4.26	29.80	-24.36	-13	-11.36	Horizontal
1649.4	-52.91	4.26	29.80	-27.37	-13	-14.37	Vertical
2474.1	-51.72	5.36	35.84	-21.24	-13	-8.24	Vertical
2474.1	-49.90	5.36	35.84	-19.42	-13	-6.42	Horizontal
204.7	-39.11	1.68	16.04	-24.75	-13	-11.75	Vertical
372.8	-43.64	1.78	17.74	-27.68	-13	-14.68	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-52.52	4.28	30.00	-26.80	-13	-13.80	Horizontal
1673.0	-51.56	4.28	30.00	-25.84	-13	-12.84	Vertical
2509.5	-50.14	5.41	35.86	-19.69	-13	-6.69	Vertical
2509.5	-49.64	5.41	35.86	-19.19	-13	-6.19	Horizontal
201.1	-43.51	1.72	17.69	-27.54	-13	-14.54	Vertical
379.7	-36.06	1.62	16.02	-21.65	-13	-8.65	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-51.26	4.31	30.01	-25.56	-13	-12.56	Horizontal
1696.6	-46.94	4.31	30.01	-21.24	-13	-8.24	Vertical
2544.9	-50.31	5.43	35.86	-19.88	-13	-6.88	Vertical
2544.9	-51.93	5.43	35.86	-21.50	-13	-8.50	Horizontal
198.1	-39.06	1.80	16.69	-24.17	-13	-11.17	Vertical
367.1	-42.74	1.75	16.66	-27.84	-13	-14.84	Horizontal

QPSK EIRP POWER FOR LTE BAND 26B(824MHz~849MHz) (15MHZ BANDWIDTH)

Test Results for Low Channel 831.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1663.0	-47.26	4.29	29.80	-21.75	-13	-8.75	Horizontal
1663.0	-45.21	4.29	29.80	-19.70	-13	-6.70	Vertical
2494.5	-44.96	5.38	35.84	-14.50	-13	-1.50	Vertical
2494.5	-53.77	5.38	35.84	-23.31	-13	-10.31	Horizontal
205.1	-39.18	1.57	17.26	-23.49	-13	-10.49	Vertical
395.6	-44.69	1.78	16.35	-30.12	-13	-17.12	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-50.56	4.28	30.00	-24.84	-13	-11.84	Horizontal
1673.0	-50.94	4.28	30.00	-25.22	-13	-12.22	Vertical
2509.5	-45.07	5.41	35.86	-14.62	-13	-1.62	Vertical
2509.5	-51.60	5.41	35.86	-21.15	-13	-8.15	Horizontal
182.3	-35.11	1.44	17.95	-18.60	-13	-5.60	Vertical
440.2	-42.56	1.65	16.09	-28.12	-13	-15.12	Horizontal
Test Results for High Channel841.5MHz							
1683.0	-46.41	4.35	27.68	-23.08	-13	-10.08	Horizontal
1683.0	-51.77	4.35	27.68	-28.44	-13	-15.44	Vertical
2524.5	-53.51	5.42	35.86	-23.07	-13	-10.07	Vertical
2524.5	-53.20	5.42	35.86	-22.76	-13	-9.76	Horizontal
197.6	-36.65	1.61	16.85	-21.41	-13	-8.41	Vertical
248.4	-37.39	1.61	15.19	-23.81	-13	-10.81	Horizontal

9.9 LTE BAND 41

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

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
4997.0	-64.55	5.13	35.81	-33.87	-25	-8.87	Horizontal
4997.0	-63.55	5.13	35.81	-32.87	-25	-7.87	Vertical
7495.5	-59.61	5.42	36.85	-28.18	-25	-3.18	Vertical
7495.5	-64.98	5.42	36.85	-33.55	-25	-8.55	Horizontal
208.5	-49.69	1.56	17.97	-33.28	-25	-8.28	Vertical
269.4	-45.19	1.33	15.11	-31.41	-25	-6.41	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-59.92	5.16	35.82	-29.26	-25	-4.26	Horizontal
5186.0	-64.41	5.16	35.82	-33.75	-25	-8.75	Vertical
7779.0	-63.40	5.53	36.85	-32.08	-25	-7.08	Vertical
7779.0	-59.87	5.53	36.85	-28.55	-25	-3.55	Horizontal
182.3	-53.49	1.77	16.17	-39.08	-25	-14.08	Vertical
448.3	-49.50	1.63	15.21	-35.92	-25	-10.92	Horizontal
Test Results for High Channel 2687.5MHz							
5375.0	-63.71	5.23	35.83	-33.11	-25	-8.11	Horizontal
5375.0	-61.79	5.23	35.83	-31.19	-25	-6.19	Vertical
8062.5	-62.67	5.62	36.87	-31.42	-25	-6.42	Vertical
8062.5	-60.50	5.62	36.87	-29.25	-25	-4.25	Horizontal
195.2	-53.76	1.58	17.56	-37.78	-25	-12.78	Vertical
286.2	-49.66	1.45	16.58	-34.53	-25	-9.53	Horizontal

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

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5012.0	-59.25	5.23	35.82	-28.66	-25	-3.66	Horizontal
5012.0	-60.43	5.23	35.82	-29.84	-25	-4.84	Vertical
7518.0	-63.68	5.67	36.86	-32.49	-25	-7.49	Vertical
7518.0	-59.38	5.67	36.86	-28.19	-25	-3.19	Horizontal
177.4	-54.34	1.55	15.76	-40.13	-25	-15.13	Vertical
375.0	-54.04	1.62	15.44	-40.22	-25	-15.22	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-62.28	5.16	35.82	-31.62	-25	-6.62	Horizontal
5186.0	-60.90	5.16	35.82	-30.24	-25	-5.24	Vertical
7779.0	-64.04	5.53	36.85	-32.72	-25	-7.72	Vertical
7779.0	-60.30	5.53	36.85	-28.98	-25	-3.98	Horizontal
195.9	-49.46	1.58	16.84	-34.20	-25	-9.20	Vertical
408.9	-48.29	1.61	17.64	-32.26	-25	-7.26	Horizontal
Test Results for High Channel 2680MHz							
5360.0	-59.39	5.24	35.83	-28.80	-25	-3.80	Horizontal
5360.0	-62.22	5.24	35.83	-31.63	-25	-6.63	Vertical
8040.0	-63.52	5.70	36.88	-32.34	-25	-7.34	Vertical
8040.0	-60.54	5.70	36.88	-29.36	-25	-4.36	Horizontal
210.0	-47.24	1.48	16.84	-31.88	-25	-6.88	Vertical
437.3	-49.46	1.59	17.64	-33.41	-25	-8.41	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(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°C
- Voltage =low voltage, DC 3.4V, Normal, DC3.85V and High voltage, DC 4.2V.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to -30ºC 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 +50ºC is reached.

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 2/4/5/7/12/17/25/41

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]
3.40	1880	12.8	0.006818	2.5
3.8	1880	13.8	0.007331	2.5
4.20	1880	13.3	0.007066	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.0	0.006933	2.5
Extreme (50C)	1880	11.8	0.006251	2.5
Extreme (40C)	1880	13.4	0.007108	2.5
Extreme (30C)	1880	13.5	0.007199	2.5
Extreme (10C)	1880	14.1	0.007518	2.5
Extreme (0C)	1880	12.2	0.006511	2.5
Extreme (-10C)	1880	12.8	0.006785	2.5
Extreme (-20C)	1880	13.9	0.007400	2.5
Extreme (-30C)	1880	14.9	0.007919	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]
3.40	1880	9.6	0.005105	2.5
3.85	1880	9.1	0.004831	2.5
4.20	1880	8.4	0.004472	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	10.1	0.005361	2.5
Extreme (50C)	1880	9.1	0.004826	2.5
Extreme (40C)	1880	8.0	0.004239802	2.5
Extreme (30C)	1880	9.2	0.004874834	2.5
Extreme (10C)	1880	8.7	0.004613192	2.5
Extreme (0C)	1880	7.8	0.004163813	2.5
Extreme (-10C)	1880	9.1	0.004851999	2.5
Extreme (-20C)	1880	9.4	0.004993471	2.5
Extreme (-30C)	1880	8.2	0.004360307	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]
3.40	1732.5	8.9	0.005134	2.5
3.8	1732.5	8.5	0.004930	2.5
4.20	1732.5	8.0	0.004614	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.8	0.005078	2.5
Extreme (50C)	1732.5	8.6	0.004977	2.5
Extreme (40C)	1732.5	7.6	0.004364	2.5
Extreme (30C)	1732.5	5.8	0.003331	2.5
Extreme (10C)	1732.5	6.9	0.003987	2.5
Extreme (0C)	1732.5	9.3	0.005373	2.5
Extreme (-10C)	1732.5	8.7	0.005027	2.5
Extreme (-20C)	1732.5	7.4	0.004261	2.5
Extreme (-30C)	1732.5	8.5	0.004895	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]
3.40	1732.5	10.0	0.005784	2.5
3.8	1732.5	9.0	0.005212	2.5
4.20	1732.5	7.7	0.004420	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.5	0.005490	2.5
Extreme (50C)	1732.5	9.1	0.005225	2.5
Extreme (40C)	1732.5	8.3	0.004816	2.5
Extreme (30C)	1732.5	9.0	0.005185	2.5
Extreme (10C)	1732.5	9.4	0.005412	2.5
Extreme (0C)	1732.5	8.1	0.004702	2.5
Extreme (-10C)	1732.5	9.2	0.005303	2.5
Extreme (-20C)	1732.5	8.9	0.005132	2.5
Extreme (-30C)	1732.5	7.7	0.004425	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]
3.40	836.5	6.1	0.007317	2.5
3.8	836.5	6.9	0.008202	2.5
4.20	836.5	4.6	0.005485	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.9	0.007063	2.5
Extreme (50C)	836.5	6.3	0.007559	2.5
Extreme (40C)	836.5	5.6	0.006737	2.5
Extreme (30C)	836.5	6.2	0.007452	2.5
Extreme (10C)	836.5	5.5	0.006548	2.5
Extreme (0C)	836.5	5.1	0.006095	2.5
Extreme (-10C)	836.5	5.1	0.006111	2.5
Extreme (-20C)	836.5	6.2	0.007405	2.5
Extreme (-30C)	836.5	6.3	0.007531	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]
3.40	836.5	5.6	0.006648	2.5
3.8	836.5	6.8	0.008105	2.5
4.20	836.5	5.0	0.005977	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.7	0.006793	2.5
Extreme (50C)	836.5	5.8	0.006986	2.5
Extreme (40C)	836.5	6.2	0.007416	2.5
Extreme (30C)	836.5	6.9	0.008203	2.5
Extreme (10C)	836.5	5.2	0.006194	2.5
Extreme (0C)	836.5	5.5	0.006527	2.5
Extreme (-10C)	836.5	5.2	0.006267	2.5
Extreme (-20C)	836.5	5.9	0.007057	2.5
Extreme (-30C)	836.5	6.7	0.008049	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]
3.40	2535	9.9	0.003912	2.5
3.8	2535	8.9	0.003515	2.5
4.20	2535	8.4	0.003296	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.4	0.003722	2.5
Extreme (50C)	2535	8.6	0.003401	2.5
Extreme (40C)	2535	8.6	0.003392	2.5
Extreme (30C)	2535	8.8	0.003457	2.5
Extreme (10C)	2535	7.8	0.003095	2.5
Extreme (0C)	2535	8.0	0.003138	2.5
Extreme (-10C)	2535	9.2	0.003614	2.5
Extreme (-20C)	2535	8.4	0.003318	2.5
Extreme (-30C)	2535	8.7	0.003433	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]
3.40	2535	6.9	0.002722	2.5
3.8	2535	6.2	0.002428	2.5
4.20	2535	5.7	0.002237	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.8	0.002294	2.5
Extreme (40C)	2535	5.8	0.002288	2.5
Extreme (30C)	2535	7.1	0.002785	2.5
Extreme (10C)	2535	5.4	0.002148	2.5
Extreme (0C)	2535	4.9	0.001931	2.5
Extreme (-10C)	2535	5.0	0.001955	2.5
Extreme (-20C)	2535	5.7	0.002257	2.5
Extreme (-30C)	2535	5.8	0.002273	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]
3.40	707.5	8.3	0.011675	2.5
3.8	707.5	10.0	0.014109	2.5
4.20	707.5	9.0	0.012735	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.4	0.011938	2.5
Extreme (50C)	707.5	7.3	0.010328	2.5
Extreme (40C)	707.5	7.6	0.010695	2.5
Extreme (30C)	707.5	7.9	0.011204	2.5
Extreme (10C)	707.5	7.7	0.010887	2.5
Extreme (0C)	707.5	9.3	0.013195	2.5
Extreme (-10C)	707.5	8.2	0.011655	2.5
Extreme (-20C)	707.5	8.9	0.012514	2.5
Extreme (-30C)	707.5	7.4	0.010436	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]
3.40	707.5	7.4	0.010469	2.5
3.8	707.5	8.6	0.012109	2.5
4.20	707.5	7.4	0.010456	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.6	0.012209	2.5
Extreme (50C)	707.5	8.0	0.011331	2.5
Extreme (40C)	707.5	8.9	0.012509	2.5
Extreme (30C)	707.5	7.5	0.010664	2.5
Extreme (10C)	707.5	8.4	0.011924	2.5
Extreme (0C)	707.5	7.2	0.010132	2.5
Extreme (-10C)	707.5	7.7	0.010890	2.5
Extreme (-20C)	707.5	9.3	0.013097	2.5
Extreme (-30C)	707.5	8.1	0.011399	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]
3.40	710.0	9.8	0.013854	2.5
3.8	710.0	8.5	0.011922	2.5
4.20	710.0	7.8	0.011013	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.3	0.013093	2.5
Extreme (50C)	710.0	8.8	0.012402	2.5
Extreme (40C)	710.0	8.4	0.011830	2.5
Extreme (30C)	710.0	9.4	0.013274	2.5
Extreme (10C)	710.0	9.0	0.012630	2.5
Extreme (0C)	710.0	8.0	0.011214	2.5
Extreme (-10C)	710.0	8.5	0.011999	2.5
Extreme (-20C)	710.0	9.2	0.013026	2.5
Extreme (-30C)	710.0	7.7	0.010886	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]
3.40	710.0	10.0	0.014138	2.5
3.8	710.0	8.9	0.012474	2.5
4.20	710.0	8.6	0.012105	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.2	0.012987	2.5
Extreme (50C)	710.0	9.1	0.012757	2.5
Extreme (40C)	710.0	8.0	0.011253	2.5
Extreme (30C)	710.0	8.5	0.011903	2.5
Extreme (10C)	710.0	8.5	0.011955	2.5
Extreme (0C)	710.0	8.0	0.011236	2.5
Extreme (-10C)	710.0	9.6	0.013503	2.5
Extreme (-20C)	710.0	9.0	0.012729	2.5
Extreme (-30C)	710.0	8.8	0.012338	2.5

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

10.7 LTE BAND 26A

Band 26A 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]
3.40	819.0	10.2	0.012431	2.5
3.8	819.0	9.1	0.011124	2.5
4.20	819.0	7.7	0.009366	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819.0	10.1	0.012365	2.5
Extreme (50C)	819.0	8.6	0.010493	2.5
Extreme (40C)	819.0	7.9	0.009648	2.5
Extreme (30C)	819.0	9.3	0.011304	2.5
Extreme (10C)	819.0	9.2	0.011210	2.5
Extreme (0C)	819.0	8.0	0.009733	2.5
Extreme (-10C)	819.0	8.8	0.010688	2.5
Extreme (-20C)	819.0	8.8	0.010771	2.5
Extreme (-30C)	819.0	8.0	0.009826	2.5

Band 26A 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]
3.40	819.0	9.7	0.011869	2.5
3.8	819.0	8.7	0.010611	2.5
4.20	819.0	8.7	0.010635	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819.0	9.6	0.011671	2.5
Extreme (50C)	819.0	9.3	0.011361	2.5
Extreme (40C)	819.0	8.7	0.010610	2.5
Extreme (30C)	819.0	9.4	0.011450	2.5
Extreme (10C)	819.0	8.3	0.010132	2.5
Extreme (0C)	819.0	8.6	0.010499	2.5
Extreme (-10C)	819.0	9.3	0.011332	2.5
Extreme (-20C)	819.0	8.8	0.010736	2.5
Extreme (-30C)	819.0	7.9	0.009666	2.5

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

10.8 LTE BAND 26B

Band 26B QPSK, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.40	836.5	9.9	0.011839	2.5
3.8	836.5	9.3	0.011093	2.5
4.20	836.5	7.9	0.009451	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	9.8	0.011729	2.5
Extreme (50C)	836.5	9.4	0.011204	2.5
Extreme (40C)	836.5	7.9	0.009463	2.5
Extreme (30C)	836.5	8.6	0.010295	2.5
Extreme (10C)	836.5	9.4	0.011187	2.5
Extreme (0C)	836.5	7.6	0.009144	2.5
Extreme (-10C)	836.5	8.7	0.010380	2.5
Extreme (-20C)	836.5	9.3	0.011101	2.5
Extreme (-30C)	836.5	7.6	0.009139	2.5

Band 26B 16QAM, (15MHz BANDWIDTH RB size 75 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.40	836.5	10.1	0.012058	2.5
3.8	836.5	8.6	0.010328	2.5
4.20	836.5	8.5	0.010184	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	9.0	0.010791	2.5
Extreme (50C)	836.5	9.2	0.010993	2.5
Extreme (40C)	836.5	8.6	0.010327	2.5
Extreme (30C)	836.5	9.1	0.010894	2.5
Extreme (10C)	836.5	7.8	0.009380	2.5
Extreme (0C)	836.5	8.3	0.009977	2.5
Extreme (-10C)	836.5	9.1	0.010932	2.5
Extreme (-20C)	836.5	8.5	0.010144	2.5
Extreme (-30C)	836.5	8.2	0.009843	2.5

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

10.9 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]
3.40	2593	9.5	0.003676	2.5
3.8	2593	8.6	0.003321	2.5
4.20	2593	8.6	0.003324	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	9.0	0.003453	2.5
Extreme (50C)	2593	9.2	0.003556	2.5
Extreme (40C)	2593	8.3	0.003211	2.5
Extreme (30C)	2593	9.1	0.003522	2.5
Extreme (10C)	2593	8.2	0.003171	2.5
Extreme (0C)	2593	8.6	0.003327	2.5
Extreme (-10C)	2593	9.5	0.003679	2.5
Extreme (-20C)	2593	8.6	0.003326	2.5
Extreme (-30C)	2593	8.6	0.003333	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]
3.40	2593	6.9	0.002661	2.5
3.8	2593	6.4	0.002462	2.5
4.20	2593	5.5	0.002135	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	6.9	0.002661	2.5
Extreme (50C)	2593	5.1	0.001983	2.5
Extreme (40C)	2593	5.7	0.002194	2.5
Extreme (30C)	2593	6.4	0.002474	2.5
Extreme (10C)	2593	5.8	0.002251	2.5
Extreme (0C)	2593	5.1	0.001981	2.5
Extreme (-10C)	2593	5.1	0.001984	2.5
Extreme (-20C)	2593	6.1	0.002371	2.5
Extreme (-30C)	2593	5.5	0.002130	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.

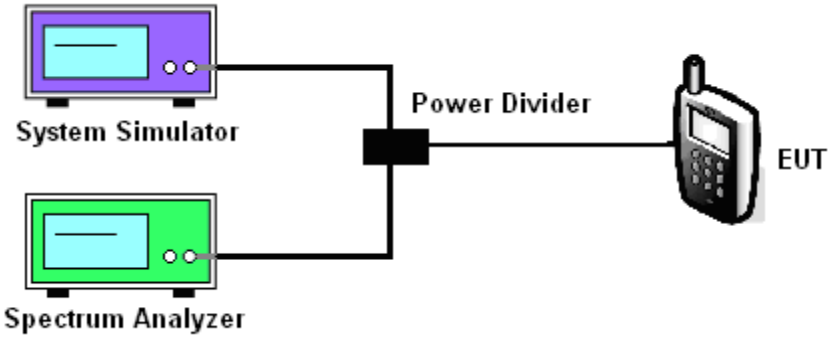
11.2 Measuring Instruments

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 2/4/5/7/12/17/26/41

Test data reference attachment.

----END OF REPORT----