

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

FCC ID: 2ANMU-WP50

Product: Smart Phone

Trade Mark: OUKITEL

Model No.: WP50

Family Model: WP50 S, WP50 Pro, WP50 Ultra,
WP50 TITAN

Report No.: S24040307006006

Issue Date: Aug 26, 2023

Prepared for

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TEST RESULT CERTIFICATION

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Manufacturer's Name..... : SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address..... : A2 2F BUILDING ENET NEW INDUSTRIAL PARK,DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN, 518XXX China
Product name..... : Smart Phone
Model and/or type reference .. : WP50
Trade Mark..... : OUKITEL
Family Model..... : WP50 S, WP50 Pro, WP50 Ultra, WP50 TITAN
Test Sample Number..... S240403070007
Date of Test..... : Apr 03, 2024 ~ May 14, 2024
Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27
Test procedure : ANSI C63.26:2015
ANSI/TIA-603-E-2016

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

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TABLE OF CONTENTS

1. GENERAL INFORMATION.....	5
1. GENERAL INFORMATION.....	5
1.1 PRODUCT DESCRIPTION	5
1.3 TEST METHODOLOGY	6
1.4 TEST FACILITY.....	6
MEASUREMENT UNCERTAINTY	7
1.5 SPECIAL ACCESSORIES.....	7
1.6 WORST-CASE CONFIGURATION AND MODE.....	7
2. SYSTEM TEST CONFIGURATION	8
2.1 EUT CONFIGURATION.....	8
2.2 EUT EXERCISE	8
2.3 CONFIGURATION OF EUT SYSTEM.....	8
2.4 TEST SETUP	9
3.TEST AND MEASUREMENT EQUIPMENT	10
4. OUTPUT POWER.....	12
4.1 OUTPUT POWER MEASUREMENT	12
6. BANDEDGE AND EMISSION MASK.....	15
7.1 MEASUREMENT METHOD	17
8. RADIATED MEASUREMENT	18
8.1. RADIATED POWER (ERP & EIRP).....	18
8.2 LTE BAND 2.....	19
8.3 LTE BAND 4.....	22
8.4 LTE BAND 5.....	25
8.5 LTE BAND 7.....	27

8.6 LTE BAND 12	29
8.7 LTE BAND 17	31
8.8 LTE BAND 38	33
8.9 LTE BAND 41	35
9. SPURIOUS RADIATION EMISSION	37
9.1 LTE BAND 2	39
9.2 LTE BAND 4	41
9.3 LTE BAND 5	43
9.4 LTE BAND 7	45
9.5 LTE BAND 12	47
9.6 LTE BAND 17	49
9.7 LTE BAND 38	51
9.8 LTE BAND 41	53
10. FREQUENCY STABILITY	55
10.1 LTE BAND 2	56
10.2 LTE BAND 4	58
10.3 LTE BAND 5	60
10.4 LTE BAND 7	62
10.5 LTE BAND 12	64
10.6 LTE BAND 17	66
10.7 LTE BAND 38	68
10.8 LTE BAND 41	70
11. PEAK-TO-AVERAGE RATIO	72
11.1 Description of the PAR Measurement	72
11.2 Measuring Instruments	72
11.3 Test Procedures	72
11.4 Test Setup	73

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart Phone
Trade Mark	OUKITEL
Model Name	WP50
Family Model	LFi TWO, LFi THREE, LFi FOUR, LFi FIVE, LFi SIX, LFi SEVEN
Model Difference	All the model are the same circuit and RF module, except the model names.
FCC ID:	2ANMU-WP50
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2,4,5,7,12 ,17 TDD Band 38, 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 38: Uplink & Downlink: 2570 MHz to 2620 MHz LTE TDD Band 41 Uplink& Downlink: 2496MHz-2690MHz,
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	FPC Antenna
Antenna gain:	Band 2: -0.94dBi; Band 4: -0.99dBi; Band 5: -1.97dBi; Band 7: 0.57dBi; Band 12: -2.53dBi; Band 17: -2.53dBi, Band 38: 0.57dBi, Band 41:0.57dBi
Adapter	Model: HJ-FC001K7-US Input: 100-240V~50/60Hz 0.6A Output: 5.0V---3.0A 15.0W OR 9.0V---2.0A 18.0W OR 12.0V---1.5A 18.0W MAX
Battery	DC 3.87V, 6500mAh, 25.15Wh
Power supply	DC 3.87V from battery or DC 5V from Adapter.
Extreme Vol. Limits:	DC 3.29V to DC 4.45V (Nominal DC 3.87V) (Note 1)
HW Version	HCT-V511MB-B1
SW Version	OUKITEL_WP50_EEA_V03
** Note1: The High Voltage DC 4.45V and Low Voltage 3.29V 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: 2ANMU-WP50** filing to comply with the FCC Part 22H&24E&27

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/17/38/41

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

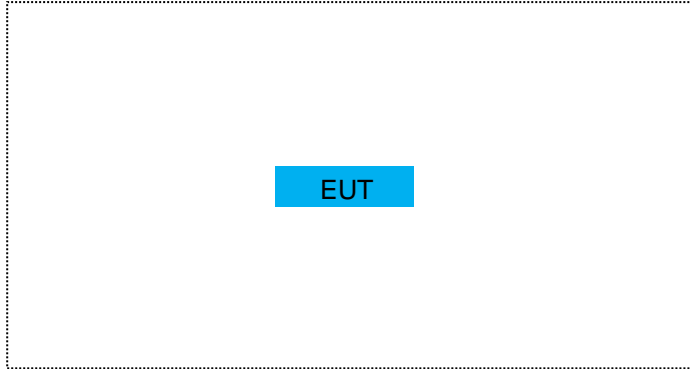
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smart Phone	WP50	FCC ID: 2ANMU-WP50	EUT

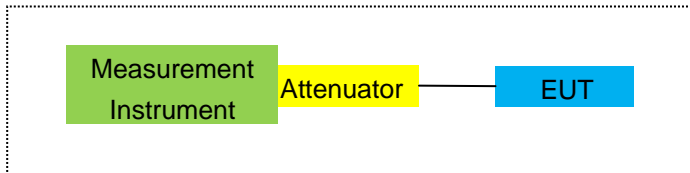
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

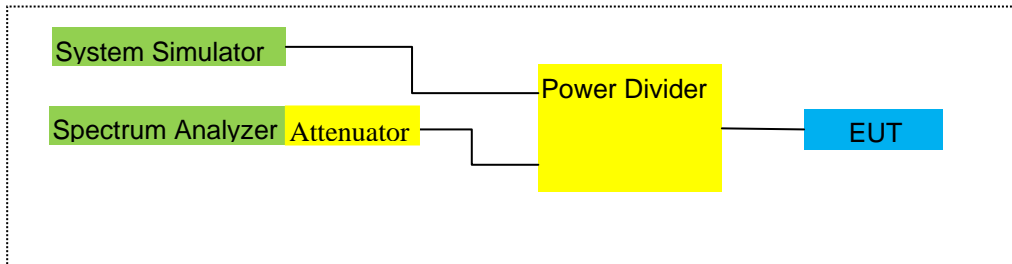
For Radiated Test Cases



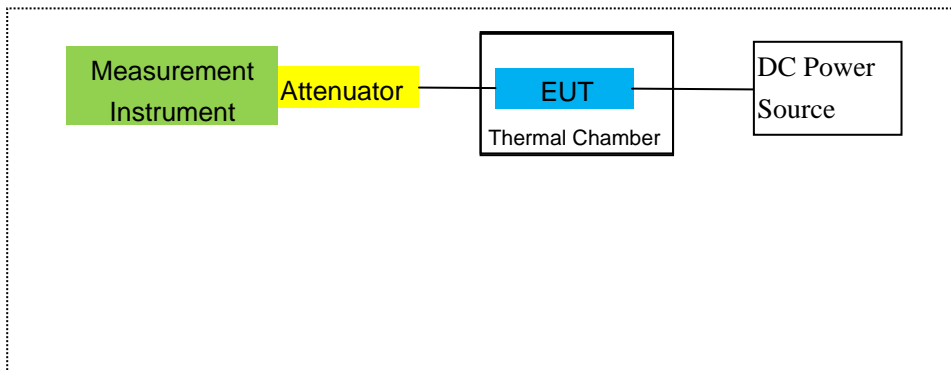
For Conducted Output Power



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	2023.05.29	2024.05.28	1 year
2	Test Receiver	R&S	ESPI	101318	2024.03.12	2025.03.11	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.03.11	2025.03.10	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
5	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2023.01.12	2026.01.11	3 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2023.01.12	2026.01.11	3 year
7	Amplifier	EM	EM-30180	060538	2023.05.29	2024.05.28	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2023.11.03	2026.11.02	3 year
9	Power Meter	R&S	NRVS	100696	2023.05.29	2024.05.28	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2023.05.29	2024.05.28	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.03.12	2025.03.11	1 year
15	LISN	R&S	ENV216	101313	2024.03.12	2025.03.11	1 year
16	LISN	EMCO	3816/2	00042990	2024.03.12	2025.03.11	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2023.05.06	2026.05.05	3 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
23	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
24	Communication Tester	R&S	CMU200	A0304247	2023.05.29	2024.05.28	1 year

25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year
26	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
27	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2023.11.03	2024.11.02	1 year
29	Communication Tester	R&S	CMW500	148500	2023.05.29	2024.05.28	1 year
30	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2023.12.29	2024.12.28	1 year
31	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2023.12.29	2024.12.28	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	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
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 2/4/5/7/12/17/38/41

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,
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;

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 2/4/5/7/12/17/38/41

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

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 2/4/5/7/12/17/38/41

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

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.

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 2/4/5/7/12/17/38/41

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2										
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP			
							Average (mW)			
1.4MHz Band QPSK	1/#Mid	1850.7	-2.67	3.76	28.24	21.81	151.705	Horizontal	Pass	
		1880	-2.48	3.91	28.22	21.83	152.405	Horizontal	Pass	
		1909.3	-2.39	3.93	28.20	21.88	154.170	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-2.73	3.77	28.23	21.73	148.936	Horizontal	Pass	
		1880	-2.58	3.91	28.24	21.75	149.624	Horizontal	Pass	
		1908.5	-2.45	3.94	28.25	21.86	153.462	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-2.62	3.77	28.31	21.92	155.597	Horizontal	Pass	
		1880	-2.24	3.91	28.22	22.07	161.065	Horizontal	Pass	
		1907.5	-2.17	3.94	28.20	22.09	161.808	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-2.48	3.79	28.33	22.06	160.694	Horizontal	Pass	
		1880	-2.18	3.95	28.22	22.09	161.808	Horizontal	Pass	
		1905	-2.07	3.97	28.19	22.15	164.059	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1857.5	-2.44	3.79	28.34	22.11	162.555	Horizontal	Pass	
		1880	-2.23	3.95	28.22	22.04	159.956	Horizontal	Pass	
		1902.5	-2.09	3.97	28.18	22.12	162.930	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1860	-2.43	3.81	28.35	22.11	162.555	Horizontal	Pass	
		1880	-2.10	3.96	28.22	22.16	164.437	Horizontal	Pass	
		1900	-2.04	4.00	28.16	22.12	162.930	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1850.7	-2.99	3.76	28.24	21.49	140.929	Vertical	Pass	
		1880	-3.02	3.91	28.22	21.29	134.586	Vertical	Pass	
		1909.3	-3.62	3.93	28.20	20.65	116.145	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-3.63	3.77	28.23	20.83	121.060	Vertical	Pass	
		1880	-3.48	3.91	28.24	20.85	121.619	Vertical	Pass	
		1908.5	-3.20	3.94	28.25	21.11	129.122	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-4.00	3.77	28.31	20.54	113.240	Vertical	Pass	
		1880	-3.56	3.91	28.22	20.75	118.850	Vertical	Pass	
		1907.5	-3.26	3.94	28.20	21.00	125.893	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-3.87	3.79	28.33	20.67	116.681	Vertical	Pass	
		1880	-2.78	3.95	28.22	21.49	140.929	Vertical	Pass	
		1905	-2.97	3.97	28.19	21.25	133.352	Vertical	Pass	

15.0MHz Band QPSK	1/#Mid	1857.5	-3.40	3.79	28.34	21.15	130.317	Vertical	Pass
		1880	-3.60	3.95	28.22	20.67	116.681	Vertical	Pass
		1902.5	-3.50	3.97	28.18	20.71	117.761	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.09	3.81	28.35	21.45	139.637	Vertical	Pass
		1880	-2.82	3.96	28.22	21.44	139.316	Vertical	Pass
		1900	-3.61	4.00	28.16	20.55	113.501	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.79	3.76	28.24	20.69	117.220	Horizontal	Pass
		1880	-3.26	3.91	28.22	21.05	127.350	Horizontal	Pass
		1909.3	-3.19	3.93	28.20	21.08	128.233	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.29	3.77	28.23	21.17	130.918	Horizontal	Pass
		1880	-3.37	3.91	28.24	20.96	124.738	Horizontal	Pass
		1908.5	-3.58	3.94	28.25	20.73	118.304	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.23	3.77	28.31	21.31	135.207	Horizontal	Pass
		1880	-3.14	3.91	28.22	21.17	130.918	Horizontal	Pass
		1907.5	-2.82	3.94	28.20	21.44	139.316	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.28	3.79	28.33	21.26	133.660	Horizontal	Pass
		1880	-3.27	3.95	28.22	21.00	125.893	Horizontal	Pass
		1905	-2.74	3.97	28.19	21.48	140.605	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.26	3.79	28.34	21.29	134.586	Horizontal	Pass
		1880	-3.05	3.95	28.22	21.22	132.434	Horizontal	Pass
		1902.5	-3.01	3.97	28.18	21.20	131.826	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.15	3.81	28.35	21.39	137.721	Horizontal	Pass
		1880	-2.85	3.96	28.22	21.41	138.357	Horizontal	Pass
		1900	-2.67	4.00	28.16	21.49	140.929	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.86	3.76	28.24	19.62	91.622	Vertical	Pass
		1880	-4.78	3.91	28.22	19.53	89.743	Vertical	Pass
		1909.3	-4.73	3.93	28.20	19.54	89.950	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.24	3.77	28.23	20.22	105.196	Vertical	Pass
		1880	-4.61	3.91	28.24	19.72	93.756	Vertical	Pass
		1908.5	-4.24	3.94	28.25	20.07	101.625	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-4.78	3.77	28.31	19.76	94.624	Vertical	Pass

Band 16 QAM		1880	-4.52	3.91	28.22	19.79	95.280	Vertical	Pass
		1907.5	-4.29	3.94	28.20	19.97	99.312	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.06	3.79	28.33	20.48	111.686	Vertical	Pass
		1880	-4.19	3.95	28.22	20.08	101.859	Vertical	Pass
		1905	-4.54	3.97	28.19	19.68	92.897	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.27	3.79	28.34	20.28	106.660	Vertical	Pass
		1880	-4.47	3.95	28.22	19.80	95.499	Vertical	Pass
		1902.5	-4.09	3.97	28.18	20.12	102.802	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.02	3.81	28.35	20.52	112.720	Vertical	Pass
		1880	-3.88	3.96	28.22	20.38	109.144	Vertical	Pass
		1900	-4.14	4.00	28.16	20.02	100.462	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.58	3.12	27.58	21.88	154.170	Horizontal	Pass
		1732.5	-2.57	3.27	27.61	21.77	150.314	Horizontal	Pass
		1754.3	-2.55	3.29	27.63	21.79	151.008	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.75	3.13	27.61	21.73	148.936	Horizontal	Pass
		1732.5	-2.67	3.27	27.61	21.67	146.893	Horizontal	Pass
		1753.5	-2.59	3.30	27.62	21.73	148.936	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.52	3.13	27.63	21.98	157.761	Horizontal	Pass
		1732.5	-2.42	3.27	27.61	21.92	155.597	Horizontal	Pass
		1752.5	-2.30	3.30	27.60	22.00	158.489	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.46	3.15	27.64	22.03	159.588	Horizontal	Pass
		1732.5	-2.23	3.31	27.61	22.07	161.065	Horizontal	Pass
		1750	-2.25	3.33	27.59	22.01	158.855	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.47	3.15	27.65	22.03	159.588	Horizontal	Pass
		1732.5	-2.31	3.31	27.61	21.99	158.125	Horizontal	Pass
		1747.5	-2.25	3.33	27.57	21.99	158.125	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.41	3.17	27.66	22.08	161.436	Horizontal	Pass
		1732.5	-2.24	3.32	27.61	22.05	160.325	Horizontal	Pass
		1745	-2.18	3.36	27.56	22.02	159.221	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.92	3.12	27.58	20.54	113.240	Vertical	Pass
		1732.5	-3.62	3.27	27.61	20.72	118.032	Vertical	Pass
		1754.3	-2.81	3.29	27.63	21.53	142.233	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.96	3.13	27.61	21.52	141.906	Vertical	Pass
		1732.5	-3.01	3.27	27.61	21.33	135.831	Vertical	Pass
		1753.5	-2.99	3.30	27.62	21.33	135.831	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.38	3.13	27.63	21.12	129.420	Vertical	Pass
		1732.5	-3.26	3.27	27.61	21.08	128.233	Vertical	Pass
		1752.5	-2.98	3.30	27.60	21.32	135.519	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.19	3.15	27.64	21.30	134.896	Vertical	Pass
		1732.5	-3.11	3.31	27.61	21.19	131.522	Vertical	Pass
		1750	-3.57	3.33	27.59	20.69	117.220	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-3.06	3.15	27.65	21.44	139.316	Vertical	Pass
		1732.5	-3.59	3.31	27.61	20.71	117.761	Vertical	Pass
		1747.5	-3.67	3.33	27.57	20.57	114.025	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.45	3.17	27.66	21.04	127.057	Vertical	Pass
		1732.5	-3.09	3.32	27.61	21.20	131.826	Vertical	Pass
		1745	-3.64	3.36	27.56	20.56	113.763	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP		
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.39	3.12	27.58	21.07	127.938	Horizontal	Pass
		1732.5	-3.24	3.27	27.61	21.10	128.825	Horizontal	Pass
		1754.3	-3.24	3.29	27.63	21.10	128.825	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.33	3.13	27.61	21.15	130.317	Horizontal	Pass
		1732.5	-3.46	3.27	27.61	20.88	122.462	Horizontal	Pass
		1753.5	-3.68	3.30	27.62	20.64	115.878	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.16	3.13	27.63	21.34	136.144	Horizontal	Pass
		1732.5	-3.12	3.27	27.61	21.22	132.434	Horizontal	Pass
		1752.5	-2.81	3.30	27.60	21.49	140.929	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.23	3.15	27.64	21.26	133.660	Horizontal	Pass
		1732.5	-3.42	3.31	27.61	20.88	122.462	Horizontal	Pass
		1750	-2.80	3.33	27.59	21.46	139.959	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.03	3.15	27.65	21.47	140.281	Horizontal	Pass
		1732.5	-3.09	3.31	27.61	21.21	132.130	Horizontal	Pass
		1747.5	-3.11	3.33	27.57	21.13	129.718	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.98	3.17	27.66	21.51	141.579	Horizontal	Pass
		1732.5	-2.99	3.32	27.61	21.30	134.896	Horizontal	Pass
		1745	-2.80	3.36	27.56	21.40	138.038	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.67	3.12	27.58	19.79	95.280	Vertical	Pass
		1732.5	-3.87	3.27	27.61	20.47	111.429	Vertical	Pass
		1754.3	-3.87	3.29	27.63	20.47	111.429	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.54	3.13	27.61	19.94	98.628	Vertical	Pass
		1732.5	-4.24	3.27	27.61	20.10	102.329	Vertical	Pass
		1753.5	-4.30	3.30	27.62	20.02	100.462	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.68	3.13	27.63	19.82	95.940	Vertical	Pass

Band 16		1732.5	-4.81	3.27	27.61	19.53	89.743	Vertical	Pass
QAM		1752.5	-4.34	3.30	27.60	19.96	99.083	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.09	3.15	27.64	20.40	109.648	Vertical	Pass
Band 16		1732.5	-4.09	3.31	27.61	20.21	104.954	Vertical	Pass
QAM		1750	-4.67	3.33	27.59	19.59	90.991	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-4.93	3.15	27.65	19.57	90.573	Vertical	Pass
Band 16		1732.5	-4.36	3.31	27.61	19.94	98.628	Vertical	Pass
QAM		1747.5	-3.92	3.33	27.57	20.32	107.647	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.30	3.17	27.66	20.19	104.472	Vertical	Pass
Band 16		1732.5	-3.89	3.32	27.61	20.40	109.648	Vertical	Pass
QAM		1745	-3.83	3.36	27.56	20.37	108.893	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							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. ERP	Max. ERP			
			(dBm)			(dB)	Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	3/#Mid	824.7	6.72	2.01	19.68	2.15	22.24	167.494	Horizontal	Pass	
		836.5	6.60	2.01	19.77	2.15	22.21	166.341	Horizontal	Pass	
		848.3	6.40	2.02	19.82	2.15	22.05	160.325	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	6.49	2.01	19.70	2.15	22.03	159.588	Horizontal	Pass	
		836.5	6.39	2.01	19.77	2.15	22.00	158.489	Horizontal	Pass	
		847.5	6.26	2.02	19.81	2.15	21.90	154.882	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	6.77	2.01	19.71	2.15	22.32	170.608	Horizontal	Pass	
		836.5	6.65	2.01	19.77	2.15	22.26	168.267	Horizontal	Pass	
		846.5	6.49	2.02	19.79	2.15	22.11	162.555	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	6.79	2.01	19.73	2.15	22.36	172.187	Horizontal	Pass	
		836.5	6.74	2.01	19.77	2.15	22.35	171.791	Horizontal	Pass	
		844	6.64	2.02	19.78	2.15	22.25	167.880	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	5.99	2.01	19.68	2.15	21.51	141.579	Vertical	Pass	
		836.5	5.13	2.01	19.77	2.15	20.74	118.577	Vertical	Pass	
		848.3	5.19	2.02	19.82	2.15	20.84	121.339	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	5.92	2.01	19.70	2.15	21.46	139.959	Vertical	Pass	
		836.5	4.95	2.01	19.77	2.15	20.56	113.763	Vertical	Pass	
		847.5	5.39	2.02	19.81	2.15	21.03	126.765	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	5.52	2.01	19.71	2.15	21.07	127.938	Vertical	Pass	
		836.5	5.89	2.01	19.77	2.15	21.50	141.254	Vertical	Pass	
		846.5	5.49	2.02	19.79	2.15	21.11	129.122	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	5.02	2.01	19.73	2.15	20.59	114.551	Vertical	Pass	
		836.5	4.99	2.01	19.77	2.15	20.60	114.815	Vertical	Pass	
		844	5.32	2.02	19.78	2.15	20.93	123.880	Vertical	Pass	

Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP	Max. ERP			
			(dBm)				Average	Average			
							(dBm)	(mW)			
1.4MHz Band 16 QAM	3/#Mid	824.7	5.87	2.01	19.68	2.15	21.39	137.721	Horizontal	Pass	
		836.5	5.80	2.01	19.77	2.15	21.41	138.357	Horizontal	Pass	
		848.3	5.64	2.02	19.82	2.15	21.29	134.586	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	5.95	2.01	19.70	2.15	21.49	140.929	Horizontal	Pass	
		836.5	5.66	2.01	19.77	2.15	21.27	133.968	Horizontal	Pass	
		847.5	5.14	2.02	19.81	2.15	20.78	119.674	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	6.27	2.01	19.71	2.15	21.82	152.055	Horizontal	Pass	
		836.5	6.04	2.01	19.77	2.15	21.65	146.218	Horizontal	Pass	
		846.5	5.79	2.02	19.79	2.15	21.41	138.357	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	829	6.27	2.01	19.73	2.15	21.84	152.757	Horizontal	Pass	
		836.5	5.99	2.01	19.77	2.15	21.60	144.544	Horizontal	Pass	
		844	5.53	2.02	19.78	2.15	21.14	130.017	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	824.7	4.58	2.01	19.68	2.15	20.10	102.329	Vertical	Pass	
		836.5	5.12	2.01	19.77	2.15	20.73	118.304	Vertical	Pass	
		848.3	4.72	2.02	19.82	2.15	20.37	108.893	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	5.44	2.01	19.70	2.15	20.98	125.314	Vertical	Pass	
		836.5	4.85	2.01	19.77	2.15	20.46	111.173	Vertical	Pass	
		847.5	5.84	2.02	19.81	2.15	21.48	140.605	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	5.28	2.01	19.71	2.15	20.83	121.060	Vertical	Pass	
		836.5	4.59	2.01	19.77	2.15	20.20	104.713	Vertical	Pass	
		846.5	5.28	2.02	19.79	2.15	20.90	123.027	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	829	4.31	2.01	19.73	2.15	19.88	97.275	Vertical	Pass	
		836.5	4.78	2.01	19.77	2.15	20.39	109.396	Vertical	Pass	
		844	5.63	2.02	19.78	2.15	21.24	133.045	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						Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP			
			(dBm)	(dBm)	(dB)	Average	Average			
						(dBm)	(mW)			
5.0MHz Band QPSK	1/#Mid	2502.5	-0.86	4.54	27.75	22.35	171.791	Horizontal	Pass	
		2535	-0.69	4.69	27.72	22.34	171.396	Horizontal	Pass	
		2567.5	-0.62	4.71	27.71	22.38	172.982	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	2505	-0.79	4.55	27.76	22.42	174.582	Horizontal	Pass	
		2535	-0.60	4.69	27.72	22.43	174.985	Horizontal	Pass	
		2565	-0.52	4.72	27.70	22.46	176.198	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	-0.80	4.55	27.77	22.42	174.582	Horizontal	Pass	
		2535	-0.66	4.69	27.72	22.37	172.584	Horizontal	Pass	
		2562.5	-0.56	4.72	27.69	22.41	174.181	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	2510	-0.74	4.57	27.78	22.47	176.604	Horizontal	Pass	
		2535	-0.56	4.73	27.72	22.43	174.985	Horizontal	Pass	
		2560	-0.52	4.75	27.68	22.41	174.181	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	2502.5	-2.31	4.54	27.75	20.90	123.027	Vertical	Pass	
		2535	-2.02	4.69	27.72	21.01	126.183	Vertical	Pass	
		2567.5	-1.71	4.71	27.71	21.29	134.586	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	2505	-2.61	4.55	27.76	20.60	114.815	Vertical	Pass	
		2535	-1.94	4.69	27.72	21.09	128.529	Vertical	Pass	
		2565	-1.93	4.72	27.70	21.05	127.350	Vertical	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	-1.76	4.55	27.77	21.46	139.959	Vertical	Pass	
		2535	-2.17	4.69	27.72	20.86	121.899	Vertical	Pass	
		2562.5	-2.03	4.72	27.69	20.94	124.165	Vertical	Pass	
20.0MHz Band QPSK	1/#Mid	2510	-2.13	4.57	27.78	21.08	128.233	Vertical	Pass	
		2535	-1.81	4.73	27.72	21.18	131.220	Vertical	Pass	
		2560	-1.80	4.75	27.68	21.13	129.718	Vertical	Pass	

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
				(dB)	(dBm)	(dBm)			
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.55	4.54	27.75	21.66	146.555	Horizontal	Pass
		2535	-1.24	4.69	27.72	21.79	151.008	Horizontal	Pass
		2567.5	-1.32	4.71	27.71	21.68	147.231	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.44	4.55	27.76	21.77	150.314	Horizontal	Pass
		2535	-1.45	4.69	27.72	21.58	143.880	Horizontal	Pass
		2565	-1.72	4.72	27.70	21.26	133.660	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.62	4.55	27.77	21.60	144.544	Horizontal	Pass
		2535	-1.59	4.69	27.72	21.44	139.316	Horizontal	Pass
		2562.5	-1.20	4.72	27.69	21.77	150.314	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-1.50	4.57	27.78	21.71	148.252	Horizontal	Pass
		2535	-1.17	4.73	27.72	21.82	152.055	Horizontal	Pass
		2560	-1.27	4.75	27.68	21.66	146.555	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-2.08	4.54	27.75	21.13	129.718	Vertical	Pass
		2535	-3.42	4.69	27.72	19.61	91.411	Vertical	Pass
		2567.5	-2.74	4.71	27.71	20.26	106.170	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.76	4.55	27.76	20.45	110.917	Vertical	Pass
		2535	-2.16	4.69	27.72	20.87	122.180	Vertical	Pass
		2565	-2.11	4.72	27.70	20.87	122.180	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.06	4.55	27.77	21.16	130.617	Vertical	Pass
		2535	-3.12	4.69	27.72	19.91	97.949	Vertical	Pass
		2562.5	-2.08	4.72	27.69	20.89	122.744	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.41	4.57	27.78	19.80	95.499	Vertical	Pass
		2535	-2.41	4.73	27.72	20.58	114.288	Vertical	Pass
		2560	-2.21	4.75	27.68	20.72	118.032	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							Conclusi on
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	7.09	1.91	19.21	2.15	22.24	167.494	Vertical	Pass
		707.5	7.01	1.91	19.26	2.15	22.21	166.341	Vertical	Pass
		715.3	6.79	1.93	19.34	2.15	22.05	160.325	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.88	1.91	19.21	2.15	22.03	159.588	Vertical	Pass
		707.5	6.80	1.91	19.26	2.15	22.00	158.489	Vertical	Pass
		714.5	6.64	1.93	19.34	2.15	21.90	154.882	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.15	1.91	19.23	2.15	22.32	170.608	Vertical	Pass
		707.5	7.06	1.91	19.26	2.15	22.26	168.267	Vertical	Pass
		713.5	6.85	1.92	19.33	2.15	22.11	162.555	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	7.17	1.91	19.25	2.15	22.36	172.187	Vertical	Pass
		707.5	7.15	1.91	19.26	2.15	22.35	171.791	Vertical	Pass
		711	7.00	1.92	19.32	2.15	22.25	167.880	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	5.42	1.91	19.21	2.15	20.57	114.025	Horizontal	Pass
		707.5	5.96	1.91	19.26	2.15	21.16	130.617	Horizontal	Pass
		715.3	5.33	1.93	19.34	2.15	20.59	114.551	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.17	1.91	19.21	2.15	21.32	135.519	Horizontal	Pass
		707.5	5.34	1.91	19.26	2.15	20.54	113.240	Horizontal	Pass
		714.5	5.31	1.93	19.34	2.15	20.57	114.025	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.32	1.91	19.23	2.15	21.49	140.929	Horizontal	Pass
		707.5	6.01	1.91	19.26	2.15	21.21	132.130	Horizontal	Pass
		713.5	6.01	1.92	19.33	2.15	21.27	133.968	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	5.36	1.91	19.25	2.15	20.55	113.501	Horizontal	Pass
		707.5	5.74	1.91	19.26	2.15	20.94	124.165	Horizontal	Pass
		711	5.38	1.92	19.32	2.15	20.63	115.611	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	699.7	7.04	1.91	19.21	2.15	22.19	165.577	Vertical	Pass
		707.5	6.96	1.91	19.26	2.15	22.16	164.437	Vertical	Pass
		715.3	6.74	1.93	19.34	2.15	22.00	158.489	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.83	1.91	19.21	2.15	21.98	157.761	Vertical	Pass
		707.5	6.75	1.91	19.26	2.15	21.95	156.675	Vertical	Pass
		714.5	6.59	1.93	19.34	2.15	21.85	153.109	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.10	1.91	19.23	2.15	22.27	168.655	Vertical	Pass
		707.5	7.01	1.91	19.26	2.15	22.21	166.341	Vertical	Pass
		713.5	6.80	1.92	19.33	2.15	22.06	160.694	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.12	1.91	19.25	2.15	22.31	170.216	Vertical	Pass
		707.5	7.10	1.91	19.26	2.15	22.30	169.824	Vertical	Pass
		711	6.95	1.92	19.32	2.15	22.20	165.959	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	5.67	1.91	19.21	2.15	20.82	120.781	Horizontal	Pass
		707.5	6.15	1.91	19.26	2.15	21.35	136.458	Horizontal	Pass
		715.3	6.10	1.93	19.34	2.15	21.36	136.773	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.06	1.91	19.21	2.15	21.21	132.130	Horizontal	Pass
		707.5	5.99	1.91	19.26	2.15	21.19	131.522	Horizontal	Pass
		714.5	5.79	1.93	19.34	2.15	21.05	127.350	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.28	1.91	19.23	2.15	21.45	139.637	Horizontal	Pass
		707.5	6.12	1.91	19.26	2.15	21.32	135.519	Horizontal	Pass
		713.5	6.22	1.92	19.33	2.15	21.48	140.605	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.31	1.91	19.25	2.15	20.50	112.202	Horizontal	Pass
		707.5	6.09	1.91	19.26	2.15	21.29	134.586	Horizontal	Pass
		711	5.31	1.92	19.32	2.15	20.56	113.763	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	7.50	1.91	19.23	2.15	22.67	184.927	Vertical	Pass
		710	7.36	1.91	19.26	2.15	22.56	180.302	Vertical	Pass
		713.5	7.26	1.92	19.33	2.15	22.52	178.649	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	7.51	1.91	19.25	2.15	22.70	186.209	Vertical	Pass
		710	7.46	1.91	19.26	2.15	22.66	184.502	Vertical	Pass
		711	7.42	1.92	19.32	2.15	22.67	184.927	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	6.72	1.91	19.23	2.15	21.89	154.525	Horizontal	Pass
		710	5.55	1.91	19.26	2.15	20.75	118.850	Horizontal	Pass
		713.5	6.51	1.92	19.33	2.15	21.77	150.314	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	6.46	1.91	19.25	2.15	21.65	146.218	Horizontal	Pass
		710	5.32	1.91	19.26	2.15	20.52	112.720	Horizontal	Pass
		711	5.78	1.92	19.32	2.15	21.03	126.765	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	6.71	1.91	19.23	2.15	21.88	154.170	Vertical	Pass
		710	6.62	1.91	19.26	2.15	21.82	152.055	Vertical	Pass
		713.5	6.42	1.92	19.33	2.15	21.68	147.231	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.25	1.91	19.25	2.15	21.44	139.316	Vertical	Pass
		710	6.78	1.91	19.26	2.15	21.98	157.761	Vertical	Pass
		711	6.51	1.92	19.32	2.15	21.76	149.968	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	5.52	1.91	19.23	2.15	20.69	117.220	Horizontal	Pass
		710	5.22	1.91	19.26	2.15	20.42	110.154	Horizontal	Pass
		713.5	5.72	1.92	19.33	2.15	20.98	125.314	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.14	1.91	19.25	2.15	21.33	135.831	Horizontal	Pass
		710	5.68	1.91	19.26	2.15	20.88	122.462	Horizontal	Pass
		711	5.70	1.92	19.32	2.15	20.95	124.451	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 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.21	104.954	Vertical	Pass
		2595	-2.64	4.88	27.71	20.96	124.738	Vertical	Pass
		2617.5	-2.58	4.93	27.95	20.62	115.345	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	20.47	111.429	Vertical	Pass
		2595	-2.47	4.95	27.81	20.79	119.950	Vertical	Pass
		2617.5	-2.59	5.03	27.69	20.95	124.451	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	20.93	123.880	Vertical	Pass
		2595	-2.6	5	27.65	20.34	108.143	Vertical	Pass
		2615	-2.67	4.87	27.89	20.42	110.154	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	20.27	106.414	Vertical	Pass
		2595	-2.38	4.87	27.87	20.24	105.682	Vertical	Pass
		2615	-2.56	4.94	27.77	20.87	122.180	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	21.11	129.122	Vertical	Pass
		2595	-2.32	4.87	27.84	20.47	111.429	Vertical	Pass
		2612.5	-2.52	4.92	27.93	20.46	111.173	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.49	111.944	Vertical	Pass
		2595	-2.53	4.98	27.82	20.56	113.763	Vertical	Pass
		2612.5	-2.6	4.95	27.83	20.40	109.648	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.83	121.060	Vertical	Pass
		2595	-2.37	4.79	27.83	21.79	151.008	Vertical	Pass
		2610	-2.68	4.89	27.87	20.38	109.144	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	21.17	130.918	Vertical	Pass
		2595	-2.88	4.91	27.71	20.50	112.202	Vertical	Pass
		2610	-2.81	4.96	27.92	20.39	109.396	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.72	118.032	Horizontal	Pass
		2595	-2.64	4.88	27.71	21.17	130.918	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	20.41	109.901	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	21.22	132.434	Horizontal	Pass
		2595	-2.47	4.95	27.81	21.02	126.474	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	21.07	127.938	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	21.03	126.765	Horizontal	Pass
		2595	-2.6	5	27.65	20.52	112.720	Horizontal	Pass
		2615	-2.67	4.87	27.89	20.69	117.220	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	21.01	126.183	Horizontal	Pass
		2595	-2.38	4.87	27.87	21.05	127.350	Horizontal	Pass
		2615	-2.56	4.94	27.77	20.61	115.080	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.37	108.893	Horizontal	Pass
		2595	-2.32	4.87	27.84	20.56	113.763	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	20.81	120.504	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.59	114.551	Horizontal	Pass
		2595	-2.53	4.98	27.82	20.60	114.815	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	21.06	127.644	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.71	117.761	Horizontal	Pass
		2595	-2.37	4.79	27.83	21.87	153.815	Horizontal	Pass
		2610	-2.68	4.89	27.87	20.54	113.240	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	21.97	157.398	Horizontal	Pass
		2595	-2.88	4.91	27.71	20.36	108.643	Horizontal	Pass
		2610	-2.81	4.96	27.92	20.27	106.414	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 41

Radiated Power (EIRP) for Band 41									
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	2498.5	-1.35	4.54	27.75	21.86	153.462	Horizontal	Pass
		2593	-1.20	4.69	27.72	21.83	152.405	Horizontal	Pass
		2687.5	-1.08	4.71	27.71	21.92	155.597	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2501	-1.43	4.55	27.76	21.78	150.661	Horizontal	Pass
		2593	-1.29	4.69	27.72	21.74	149.279	Horizontal	Pass
		2685	-1.28	4.72	27.70	21.70	147.911	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	-1.26	4.55	27.77	21.96	157.036	Horizontal	Pass
		2593	-0.98	4.69	27.72	22.05	160.325	Horizontal	Pass
		2682.5	-1.03	4.72	27.69	21.94	156.315	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2506	-0.87	4.57	27.78	22.34	171.396	Horizontal	Pass
		2593	-0.92	4.73	27.72	22.07	161.065	Horizontal	Pass
		2680	-0.92	4.75	27.68	22.01	158.855	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2498.5	-1.15	4.54	27.75	22.06	160.694	Vertical	Pass
		2593	-1.06	4.69	27.72	21.97	157.398	Vertical	Pass
		2687.5	-1.04	4.71	27.71	21.96	157.036	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2501	-1.13	4.55	27.76	22.08	161.436	Vertical	Pass
		2593	-0.97	4.69	27.72	22.06	160.694	Vertical	Pass
		2685	-1.04	4.72	27.70	21.94	156.315	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	-2.63	4.55	27.77	20.59	114.551	Vertical	Pass
		2593	-1.92	4.69	27.72	21.11	129.122	Vertical	Pass
		2682.5	-2.56	4.72	27.69	20.41	109.901	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2506	-2.61	4.57	27.78	20.60	114.815	Vertical	Pass
		2593	-2.14	4.73	27.72	20.85	121.619	Vertical	Pass
		2680	-2.13	4.75	27.68	20.80	120.226	Vertical	Pass

Radiated Power (EIRP) for Band 41									
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	2498.5	-1.50	4.54	27.75	21.71	148.252	Horizontal	Pass
		2593	-1.35	4.69	27.72	21.68	147.231	Horizontal	Pass
		2687.5	-1.23	4.71	27.71	21.77	150.314	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	-1.58	4.55	27.76	21.63	145.546	Horizontal	Pass
		2593	-1.44	4.69	27.72	21.59	144.212	Horizontal	Pass
		2685	-1.43	4.72	27.70	21.55	142.889	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	-1.41	4.55	27.77	21.81	151.705	Horizontal	Pass
		2593	-1.13	4.69	27.72	21.90	154.882	Horizontal	Pass
		2682.5	-1.18	4.72	27.69	21.79	151.008	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	-1.13	4.57	27.78	22.08	161.436	Horizontal	Pass
		2593	-1.07	4.73	27.72	21.92	155.597	Horizontal	Pass
		2680	-1.07	4.75	27.68	21.86	153.462	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2498.5	-1.30	4.54	27.75	21.91	155.239	Vertical	Pass
		2593	-1.21	4.69	27.72	21.82	152.055	Vertical	Pass
		2687.5	-1.19	4.71	27.71	21.81	151.705	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	-1.28	4.55	27.76	21.93	155.955	Vertical	Pass
		2593	-1.12	4.69	27.72	21.91	155.239	Vertical	Pass
		2685	-1.19	4.72	27.70	21.79	151.008	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	-2.27	4.55	27.77	20.95	124.451	Vertical	Pass
		2593	-2.16	4.69	27.72	20.87	122.180	Vertical	Pass
		2682.5	-1.82	4.72	27.69	21.15	130.317	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	-2.20	4.57	27.78	21.01	126.183	Vertical	Pass
		2593	-2.30	4.73	27.72	20.69	117.220	Vertical	Pass
		2680	-2.71	4.75	27.68	20.22	105.196	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

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

LTE Band 2/4/5/7/12/17/38/41

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	-50.20	4.04	33.51	-20.73	-13	-7.73	Horizontal
3701.4	-53.11	4.04	33.51	-23.64	-13	-10.64	Vertical
5552.1	-47.64	5.24	35.84	-17.04	-13	-4.04	Vertical
5552.1	-52.06	5.24	35.84	-21.46	-13	-8.46	Horizontal
185.1	-41.81	1.43	16.02	-27.22	-13	-14.22	Vertical
453.7	-35.38	1.30	17.99	-18.69	-13	-5.69	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.31	4.04	33.56	-18.79	-13	-5.79	Horizontal
3760.0	-53.51	4.04	33.56	-23.99	-13	-10.99	Vertical
5640.0	-50.99	5.24	35.91	-20.32	-13	-7.32	Vertical
5640.0	-51.62	5.24	35.91	-20.95	-13	-7.95	Horizontal
183.5	-37.67	1.62	16.97	-22.32	-13	-9.32	Vertical
289.4	-37.61	1.74	15.98	-23.38	-13	-10.38	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-47.49	4.04	34.00	-17.53	-13	-4.53	Horizontal
3818.6	-48.43	4.04	34.00	-18.47	-13	-5.47	Vertical
5727.9	-52.70	5.24	36.04	-21.90	-13	-8.90	Vertical
5727.9	-50.27	5.24	36.04	-19.47	-13	-6.47	Horizontal
193.8	-42.43	1.42	17.29	-26.56	-13	-13.56	Vertical
342.6	-36.56	1.50	17.90	-20.15	-13	-7.15	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	-44.14	4.07	33.54	-14.67	-13	-1.67	Horizontal
3720.0	-51.10	4.07	33.54	-21.63	-13	-8.63	Vertical
5580.0	-48.32	5.28	35.86	-17.74	-13	-4.74	Vertical
5580.0	-52.10	5.28	35.86	-21.52	-13	-8.52	Horizontal
208.5	-40.08	1.58	16.89	-24.76	-13	-11.76	Vertical
357.0	-43.92	1.76	17.26	-28.42	-13	-15.42	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.40	4.04	33.56	-18.88	-13	-5.88	Horizontal
3760.0	-49.15	4.04	33.56	-19.63	-13	-6.63	Vertical
5640.0	-51.92	5.24	35.91	-21.25	-13	-8.25	Vertical
5640.0	-52.37	5.24	35.91	-21.70	-13	-8.70	Horizontal
200.6	-44.89	1.46	16.27	-30.08	-13	-17.08	Vertical
344.7	-41.56	1.59	15.15	-28.00	-13	-15.00	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-51.16	4.04	34.00	-21.20	-13	-8.20	Horizontal
3800.0	-48.72	4.04	34.00	-18.76	-13	-5.76	Vertical
5700.0	-47.63	5.24	36.04	-16.83	-13	-3.83	Vertical
5700.0	-53.58	5.24	36.04	-22.78	-13	-9.78	Horizontal
212.0	-37.57	1.36	17.39	-21.53	-13	-8.53	Vertical
312.7	-43.26	1.66	15.39	-29.53	-13	-16.53	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-51.58	4.02	29.80	-25.80	-13	-12.80	Horizontal
3421.4	-49.00	4.02	29.80	-23.22	-13	-10.22	Vertical
5132.1	-52.05	5.24	35.84	-21.45	-13	-8.45	Vertical
5132.1	-52.31	5.24	35.84	-21.71	-13	-8.71	Horizontal
197.8	-42.86	1.68	16.04	-28.50	-13	-15.50	Vertical
454.4	-36.93	1.78	17.74	-20.97	-13	-7.97	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-51.10	4.03	30.00	-25.13	-13	-12.13	Horizontal
3465.0	-44.91	4.03	30.00	-18.94	-13	-5.94	Vertical
5197.5	-47.30	5.25	35.86	-16.69	-13	-3.69	Vertical
5197.5	-49.94	5.25	35.86	-19.33	-13	-6.33	Horizontal
207.5	-44.08	1.72	17.69	-28.11	-13	-15.11	Vertical
345.7	-44.90	1.62	16.02	-30.49	-13	-17.49	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-51.15	4.05	30.01	-25.19	-13	-12.19	Horizontal
3508.6	-47.88	4.05	30.01	-21.92	-13	-8.92	Vertical
5262.9	-50.85	5.26	35.86	-20.25	-13	-7.25	Vertical
5262.9	-51.16	5.26	35.86	-20.56	-13	-7.56	Horizontal
182.9	-34.05	1.80	16.69	-19.16	-13	-6.16	Vertical
332.1	-41.32	1.75	16.66	-26.42	-13	-13.42	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	-50.51	4.02	29.80	-24.73	-13	-11.73	Horizontal
3440.0	-48.71	4.02	29.80	-22.93	-13	-9.93	Vertical
5160.0	-53.45	5.24	35.84	-22.85	-13	-9.85	Vertical
5160.0	-51.77	5.24	35.84	-21.17	-13	-8.17	Horizontal
182.5	-40.45	1.57	17.26	-24.76	-13	-11.76	Vertical
310.2	-37.74	1.78	16.35	-23.17	-13	-10.17	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-51.66	4.03	30.00	-25.69	-13	-12.69	Horizontal
3465.0	-51.89	4.03	30.00	-25.92	-13	-12.92	Vertical
5197.5	-49.39	5.25	35.86	-18.78	-13	-5.78	Vertical
5197.5	-50.16	5.25	35.86	-19.55	-13	-6.55	Horizontal
208.7	-42.45	1.44	17.95	-25.94	-13	-12.94	Vertical
269.5	-34.00	1.65	16.09	-19.56	-13	-6.56	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-45.85	2.91	27.68	-21.08	-13	-8.08	Horizontal
3490.0	-47.35	2.91	27.68	-22.58	-13	-9.58	Vertical
5235.0	-47.67	5.26	35.86	-17.07	-13	-4.07	Vertical
5235.0	-53.57	5.26	35.86	-22.97	-13	-9.97	Horizontal
184.8	-41.25	1.61	16.85	-26.01	-13	-13.01	Vertical
290.8	-42.43	1.61	15.19	-28.85	-13	-15.85	Horizontal

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

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

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-48.24	2.78	27.50	-23.52	-13	-10.52	Horizontal
1649.4	-52.39	2.78	27.50	-27.67	-13	-14.67	Vertical
2474.1	-47.57	2.90	27.80	-22.67	-13	-9.67	Vertical
2474.1	-52.64	2.90	27.80	-27.74	-13	-14.74	Horizontal
179.0	-37.89	1.76	17.59	-22.06	-13	-9.06	Vertical
460.3	-41.44	1.63	15.87	-27.20	-13	-14.20	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-48.65	2.80	27.48	-23.97	-13	-10.97	Horizontal
1673.0	-47.57	2.80	27.48	-22.89	-13	-9.89	Vertical
2509.5	-45.36	2.91	27.70	-20.57	-13	-7.57	Vertical
2509.5	-52.30	2.91	27.70	-27.51	-13	-14.51	Horizontal
212.9	-42.46	1.61	15.68	-28.39	-13	-15.39	Vertical
431.5	-38.02	1.59	17.52	-22.10	-13	-9.10	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-52.04	2.82	27.43	-27.43	-13	-14.43	Horizontal
1696.6	-53.09	2.82	27.43	-28.48	-13	-15.48	Vertical
2544.9	-45.36	2.92	27.74	-20.54	-13	-7.54	Vertical
2544.9	-53.28	2.92	27.74	-28.46	-13	-15.46	Horizontal
192.7	-36.36	1.69	16.67	-21.37	-13	-8.37	Vertical
366.5	-35.95	1.70	17.18	-20.47	-13	-7.47	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	-53.68	2.78	27.50	-28.96	-13	-15.96	Horizontal
1658.0	-44.60	2.78	27.50	-19.88	-13	-6.88	Vertical
2487.0	-53.57	2.90	27.80	-28.67	-13	-15.67	Vertical
2487.0	-49.98	2.90	27.80	-25.08	-13	-12.08	Horizontal
199.8	-43.75	1.71	15.57	-29.89	-13	-16.89	Vertical
363.9	-35.27	1.34	16.40	-20.21	-13	-7.21	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-44.26	2.80	27.48	-19.58	-13	-6.58	Horizontal
1673.0	-44.72	2.80	27.48	-20.04	-13	-7.04	Vertical
2509.5	-52.82	2.91	27.70	-28.03	-13	-15.03	Vertical
2509.5	-49.39	2.91	27.70	-24.60	-13	-11.60	Horizontal
212.0	-34.39	1.44	17.04	-18.79	-13	-5.79	Vertical
343.3	-43.44	1.76	17.62	-27.58	-13	-14.58	Horizontal
Test Results for High Channel 844MHz							
1688.0	-48.15	2.82	27.43	-23.54	-13	-10.54	Horizontal
1688.0	-48.56	2.82	27.43	-23.95	-13	-10.95	Vertical
2532.0	-52.56	2.92	27.74	-27.74	-13	-14.74	Vertical
2532.0	-49.47	2.92	27.74	-24.65	-13	-11.65	Horizontal
205.3	-36.53	1.74	17.70	-20.57	-13	-7.57	Vertical
393.0	-35.81	1.41	17.46	-19.75	-13	-6.75	Horizontal

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

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

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-64.37	5.23	35.81	-33.79	-25	-8.79	Horizontal
5005.0	-63.64	5.23	35.81	-33.06	-25	-8.06	Vertical
7507.5	-64.81	5.67	36.85	-33.63	-25	-8.63	Vertical
7507.5	-63.46	5.67	36.85	-32.28	-25	-7.28	Horizontal
202.7	-52.70	1.73	17.97	-36.46	-25	-11.46	Vertical
450.7	-50.71	1.38	15.11	-36.98	-25	-11.98	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.17	5.23	35.82	-29.58	-25	-4.58	Horizontal
5070.0	-64.53	5.23	35.82	-33.94	-25	-8.94	Vertical
7605.0	-64.59	5.67	36.85	-33.41	-25	-8.41	Vertical
7605.0	-64.32	5.67	36.85	-33.14	-25	-8.14	Horizontal
210.9	-44.94	1.77	16.17	-30.53	-25	-5.53	Vertical
232.7	-50.74	1.63	15.21	-37.16	-25	-12.16	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-60.25	5.24	35.83	-29.66	-25	-4.66	Horizontal
5135.0	-59.32	5.24	35.83	-28.73	-25	-3.73	Vertical
7702.5	-62.17	5.68	36.87	-30.98	-25	-5.98	Vertical
7702.5	-60.39	5.68	36.87	-29.20	-25	-4.20	Horizontal
186.4	-44.98	1.58	17.56	-29.00	-25	-4.00	Vertical
263.7	-49.07	1.45	16.58	-33.94	-25	-8.94	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	-61.11	5.23	35.82	-30.52	-25	-5.52	Horizontal
5020.0	-63.25	5.23	35.82	-32.66	-25	-7.66	Vertical
7530.0	-62.37	5.67	36.86	-31.18	-25	-6.18	Vertical
7530.0	-60.47	5.67	36.86	-29.28	-25	-4.28	Horizontal
192.6	-49.80	1.63	15.76	-35.67	-25	-10.67	Vertical
379.3	-51.75	1.71	15.44	-38.02	-25	-13.02	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.10	5.23	35.82	-32.51	-25	-7.51	Horizontal
5070.0	-59.46	5.23	35.82	-28.87	-25	-3.87	Vertical
7605.0	-61.33	5.67	36.85	-30.15	-25	-5.15	Vertical
7605.0	-61.69	5.67	36.85	-30.51	-25	-5.51	Horizontal
198.7	-47.49	1.79	16.84	-32.43	-25	-7.43	Vertical
346.1	-46.40	1.71	17.64	-30.47	-25	-5.47	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.20	5.24	35.83	-30.61	-25	-5.61	Horizontal
5120.0	-62.05	5.24	35.83	-31.46	-25	-6.46	Vertical
7680.0	-60.90	5.70	36.88	-29.72	-25	-4.72	Vertical
7680.0	-61.68	5.70	36.88	-30.50	-25	-5.50	Horizontal
193.4	-46.72	1.79	16.84	-31.66	-25	-6.66	Vertical
349.4	-45.16	1.71	17.64	-29.23	-25	-4.23	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	-44.93	2.60	27.20	-20.33	-13	-7.33	Horizontal
1399.4	-44.45	2.60	27.20	-19.85	-13	-6.85	Vertical
2099.1	-51.17	2.85	27.54	-26.48	-13	-13.48	Vertical
2099.1	-49.99	2.85	27.54	-25.30	-13	-12.30	Horizontal
211.7	-38.26	1.49	17.78	-21.97	-13	-8.97	Vertical
386.4	-42.14	1.36	17.33	-26.17	-13	-13.17	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-47.11	2.61	27.28	-22.44	-13	-9.44	Horizontal
1415.0	-46.04	2.61	27.28	-21.37	-13	-8.37	Vertical
2122.5	-52.57	2.87	27.59	-27.85	-13	-14.85	Vertical
2122.5	-50.93	2.87	27.59	-26.21	-13	-13.21	Horizontal
207.5	-39.87	1.73	15.74	-25.86	-13	-12.86	Vertical
384.6	-34.96	1.62	15.79	-20.79	-13	-7.79	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-53.32	2.63	27.28	-28.67	-13	-15.67	Horizontal
1430.6	-48.64	2.63	27.28	-23.99	-13	-10.99	Vertical
2145.9	-45.14	2.88	27.60	-20.42	-13	-7.42	Vertical
2145.9	-49.63	2.88	27.60	-24.91	-13	-11.91	Horizontal
186.4	-35.53	1.61	18.00	-19.14	-13	-6.14	Vertical
280.4	-36.64	1.45	15.49	-22.61	-13	-9.61	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	-53.43	2.61	27.26	-28.78	-13	-15.78	Horizontal
1408.0	-47.61	2.61	27.26	-22.96	-13	-9.96	Vertical
2112.0	-49.74	2.87	27.58	-25.03	-13	-12.03	Vertical
2112.0	-52.01	2.87	27.58	-27.30	-13	-14.30	Horizontal
197.3	-41.21	1.31	16.97	-25.55	-13	-12.55	Vertical
468.6	-44.74	1.65	16.70	-29.69	-13	-16.69	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-46.05	2.61	27.28	-21.38	-13	-8.38	Horizontal
1415.0	-52.81	2.61	27.28	-28.14	-13	-15.14	Vertical
2122.5	-52.84	2.87	27.59	-28.12	-13	-15.12	Vertical
2122.5	-52.15	2.87	27.59	-27.43	-13	-14.43	Horizontal
175.4	-37.02	1.72	17.99	-20.75	-13	-7.75	Vertical
362.7	-40.99	1.73	17.94	-24.78	-13	-11.78	Horizontal
Test Results for High Channel 711MHz							
1422.0	-50.13	2.62	27.28	-25.47	-13	-12.47	Horizontal
1422.0	-45.07	2.62	27.28	-20.41	-13	-7.41	Vertical
2133.0	-53.50	2.87	27.60	-28.77	-13	-15.77	Vertical
2133.0	-51.21	2.87	27.60	-26.48	-13	-13.48	Horizontal
209.0	-38.34	1.58	15.93	-23.99	-13	-10.99	Vertical
360.9	-34.60	1.36	15.59	-20.37	-13	-7.37	Horizontal

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

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

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

9.6 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-50.44	2.61	27.28	-25.77	-13	-12.77	Horizontal
1413.0	-47.08	2.61	27.28	-22.41	-13	-9.41	Vertical
2119.5	-52.07	2.87	27.59	-27.35	-13	-14.35	Vertical
2119.5	-51.41	2.87	27.59	-26.69	-13	-13.69	Horizontal
209.6	-36.00	1.71	16.15	-21.56	-13	-8.56	Vertical
420.5	-44.91	1.41	17.32	-29.00	-13	-16.00	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-46.56	2.62	27.30	-21.88	-13	-8.88	Horizontal
1420.0	-48.78	2.62	27.30	-24.10	-13	-11.10	Vertical
2130.0	-44.59	2.87	27.62	-19.84	-13	-6.84	Vertical
2130.0	-51.59	2.87	27.62	-26.84	-13	-13.84	Horizontal
201.1	-37.88	1.42	15.25	-24.06	-13	-11.06	Vertical
320.8	-42.52	1.36	17.19	-26.69	-13	-13.69	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-52.10	2.66	27.28	-27.48	-13	-14.48	Horizontal
1427.0	-47.28	2.66	27.28	-22.66	-13	-9.66	Vertical
2140.5	-46.68	2.88	27.60	-21.96	-13	-8.96	Vertical
2140.5	-52.73	2.88	27.60	-28.01	-13	-15.01	Horizontal
175.6	-41.90	1.32	17.29	-25.93	-13	-12.93	Vertical
445.7	-38.51	1.72	16.89	-23.34	-13	-10.34	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	-49.51	2.62	27.30	-24.83	-13	-11.83	Horizontal
1418.0	-53.38	2.62	27.30	-28.70	-13	-15.70	Vertical
2127.0	-48.93	2.87	27.62	-24.18	-13	-11.18	Vertical
2127.0	-49.23	2.87	27.62	-24.48	-13	-11.48	Horizontal
196.4	-35.58	1.35	16.91	-20.02	-13	-7.02	Vertical
269.0	-42.91	1.62	16.31	-28.22	-13	-15.22	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-44.89	2.62	27.30	-20.21	-13	-7.21	Horizontal
1420.0	-44.66	2.62	27.30	-19.98	-13	-6.98	Vertical
2130.0	-48.75	2.87	27.62	-24.00	-13	-11.00	Vertical
2130.0	-51.83	2.87	27.62	-27.08	-13	-14.08	Horizontal
202.1	-44.86	1.51	17.14	-29.23	-13	-16.23	Vertical
398.2	-40.52	1.77	16.88	-25.41	-13	-12.41	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.17	2.62	27.30	-22.49	-13	-9.49	Horizontal
1422.0	-52.98	2.62	27.30	-28.30	-13	-15.30	Vertical
2133.0	-44.51	2.87	27.62	-19.76	-13	-6.76	Vertical
2133.0	-53.19	2.87	27.62	-28.44	-13	-15.44	Horizontal
201.8	-39.31	1.78	15.95	-25.14	-13	-12.14	Vertical
411.8	-38.62	1.34	17.95	-22.02	-13	-9.02	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 38

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

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.0	-60.31	5.23	35.81	-29.73	-25	-4.73	Horizontal
7717.5	-64.20	5.67	36.85	-33.02	-25	-8.02	Horizontal
435.3	-44.26	1.38	15.98	-29.66	-25	-4.66	Vertical
465.8	-44.52	1.62	15.66	-30.48	-25	-5.48	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-51.89	4.1	27.48	-28.51	-25	-3.51	Horizontal
5190	-55.20	4.1	27.48	-31.82	-25	-6.82	Vertical
7785	-54.12	5.42	27.7	-31.84	-25	-6.84	Vertical
7785	-52.63	5.42	27.7	-30.35	-25	-5.35	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-54.89	4.11	27.43	-31.57	-25	-6.57	Horizontal
5234	-52.77	4.11	27.43	-29.45	-25	-4.45	Vertical
7851	-53.05	5.31	27.74	-30.62	-25	-5.62	Vertical
7851	-60.25	5.31	27.74	-37.82	-25	-12.82	Horizontal

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

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-57.29	3.89	27.5	-33.68	-25	-8.68	Horizontal
5160	-57.11	3.89	27.5	-33.50	-25	-8.50	Vertical
7740	-61.41	5.33	27.8	-38.94	-25	-13.94	Vertical
7740	-57.61	5.33	27.8	-35.14	-25	-10.14	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-60.13	4.1	27.48	-36.75	-25	-11.75	Horizontal
5190	-58.52	4.1	27.48	-35.14	-25	-10.14	Vertical
7785	-61.23	5.42	27.7	-38.95	-25	-13.95	Vertical
7785	-62.19	5.42	27.7	-39.91	-25	-14.91	Horizontal
Test Results for High Channel 2610MHz							
5220	-62.96	4.01	27.43	-39.54	-25	-14.54	Horizontal
5220	-62.68	4.01	27.43	-39.26	-25	-14.26	Vertical
7830	-60.68	5.34	27.74	-38.28	-25	-13.28	Vertical
7830	-58.83	5.34	27.74	-36.43	-25	-11.43	Horizontal

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

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

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

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

9.8 LTE BAND 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	-60.31	5.23	35.81	-29.73	-25	-4.73	Horizontal
4997.0	-61.10	5.23	35.81	-30.52	-25	-5.52	Vertical
7495.5	-59.84	5.67	36.85	-28.66	-25	-3.66	Vertical
7495.5	-64.20	5.67	36.85	-33.02	-25	-8.02	Horizontal
435.3	-44.26	1.38	15.98	-29.66	-25	-4.66	Vertical
465.8	-44.52	1.62	15.66	-30.48	-25	-5.48	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-64.16	5.23	35.82	-33.57	-25	-8.57	Horizontal
5186.0	-59.09	5.23	35.82	-28.50	-25	-3.50	Vertical
7779.0	-63.14	5.67	36.85	-31.96	-25	-6.96	Vertical
7779.0	-63.47	5.67	36.85	-32.29	-25	-7.29	Horizontal
510.4	-48.55	1.62	16.17	-34.00	-25	-9.00	Vertical
562.9	-44.65	1.74	17.63	-28.76	-25	-3.76	Horizontal
Test Results for High Channel 2687.5MHz							
5375.0	-59.82	5.24	35.83	-29.23	-25	-4.23	Horizontal
5375.0	-61.46	5.24	35.83	-30.87	-25	-5.87	Vertical
8062.5	-62.03	5.68	36.87	-30.84	-25	-5.84	Vertical
8062.5	-61.08	5.68	36.87	-29.89	-25	-4.89	Horizontal
197.6	-44.34	1.55	15.84	-30.05	-25	-5.05	Vertical
353.1	-46.95	1.51	17.06	-31.40	-25	-6.40	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	-63.78	5.23	35.82	-33.19	-25	-8.19	Horizontal
5012.0	-61.75	5.23	35.82	-31.16	-25	-6.16	Vertical
7518.0	-63.60	5.67	36.86	-32.41	-25	-7.41	Vertical
7518.0	-62.27	5.67	36.86	-31.08	-25	-6.08	Horizontal
128.9	-46.30	1.43	15.51	-32.22	-25	-7.22	Vertical
344.8	-44.16	1.40	16.97	-28.59	-25	-3.59	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-61.87	5.23	35.82	-31.28	-25	-6.28	Horizontal
5186.0	-60.74	5.23	35.82	-30.15	-25	-5.15	Vertical
7779.0	-60.36	5.67	36.85	-29.18	-25	-4.18	Vertical
7779.0	-63.12	5.67	36.85	-31.94	-25	-6.94	Horizontal
100.8	-49.56	1.77	16.72	-34.61	-25	-9.61	Vertical
263.5	-48.90	1.31	16.99	-33.22	-25	-8.22	Horizontal
Test Results for High Channel 2680MHz							
5360.0	-64.16	5.24	35.83	-33.57	-25	-8.57	Horizontal
5360.0	-63.82	5.24	35.83	-33.23	-25	-8.23	Vertical
8040.0	-60.43	5.70	36.88	-29.25	-25	-4.25	Vertical
8040.0	-62.81	5.70	36.88	-31.63	-25	-6.63	Horizontal
349.9	-48.85	1.70	15.73	-34.82	-25	-9.82	Vertical
110.3	-44.82	1.75	17.33	-29.24	-25	-4.24	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 3.29V, Normal, DC 3.87V and High voltage, DC 4.45V.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 2/4/5/7/12/17/38/41

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]
3.29	1880	12.3	0.006538	2.5
3.87	1880	13.9	0.007376	2.5
4.45	1880	13.5	0.007167	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.8	0.006786	2.5
Extreme (50C)	1880	11.8	0.006282	2.5
Extreme (40C)	1880	13.3	0.007091	2.5
Extreme (30C)	1880	13.3	0.007064	2.5
Extreme (10C)	1880	14.2	0.007532	2.5
Extreme (0C)	1880	11.9	0.006323	2.5
Extreme (-10C)	1880	12.7	0.006765	2.5
Extreme (-20C)	1880	14.2	0.007540	2.5
Extreme (-30C)	1880	14.2	0.007568	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]
3.29	1880	9.8	0.005195	2.5
3.87	1880	9.0	0.004785	2.5
4.45	1880	8.3	0.004427	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	10.1	0.005369	2.5
Extreme (50C)	1880	8.7	0.004629	2.5
Extreme (40C)	1880	7.6	0.004060	2.5
Extreme (30C)	1880	9.4	0.005009	2.5
Extreme (10C)	1880	9.0	0.004793	2.5
Extreme (0C)	1880	7.9	0.004205	2.5
Extreme (-10C)	1880	9.3	0.004935	2.5
Extreme (-20C)	1880	9.3	0.004942	2.5
Extreme (-30C)	1880	8.2	0.004347	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]
3.29	1732.5	9.3	0.005365	2.5
3.87	1732.5	8.4	0.004850	2.5
4.45	1732.5	8.9	0.005120	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.8	0.005077	2.5
Extreme (50C)	1732.5	8.6	0.004958	2.5
Extreme (40C)	1732.5	7.6	0.004371	2.5
Extreme (30C)	1732.5	6.4	0.003672	2.5
Extreme (10C)	1732.5	6.8	0.003912	2.5
Extreme (0C)	1732.5	9.6	0.005529	2.5
Extreme (-10C)	1732.5	8.5	0.004911	2.5
Extreme (-20C)	1732.5	6.9	0.003958	2.5
Extreme (-30C)	1732.5	8.2	0.004724	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]
3.29	1732.5	10.3	0.005939	2.5
3.87	1732.5	9.2	0.005289	2.5
4.45	1732.5	8.2	0.004756	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.9	0.005687	2.5
Extreme (50C)	1732.5	8.8	0.005057	2.5
Extreme (40C)	1732.5	7.9	0.004555	2.5
Extreme (30C)	1732.5	8.6	0.004982	2.5
Extreme (10C)	1732.5	9.1	0.005226	2.5
Extreme (0C)	1732.5	8.1	0.004699	2.5
Extreme (-10C)	1732.5	9.0	0.005217	2.5
Extreme (-20C)	1732.5	9.1	0.005278	2.5
Extreme (-30C)	1732.5	7.9	0.004573	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]
3.29	836.5	6.0	0.007162	2.5
3.87	836.5	6.4	0.007679	2.5
4.45	836.5	5.2	0.006222	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.4	0.007598	2.5
Extreme (50C)	836.5	6.2	0.007389	2.5
Extreme (40C)	836.5	5.7	0.006761	2.5
Extreme (30C)	836.5	6.9	0.008214	2.5
Extreme (10C)	836.5	5.1	0.006042	2.5
Extreme (0C)	836.5	4.8	0.005756	2.5
Extreme (-10C)	836.5	6.0	0.007164	2.5
Extreme (-20C)	836.5	6.3	0.007487	2.5
Extreme (-30C)	836.5	6.1	0.007308	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]
3.29	836.5	5.9	0.007094	2.5
3.87	836.5	6.4	0.007693	2.5
4.45	836.5	4.9	0.005798	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.1	0.007239	2.5
Extreme (50C)	836.5	6.4	0.007595	2.5
Extreme (40C)	836.5	6.5	0.007769	2.5
Extreme (30C)	836.5	6.4	0.007702	2.5
Extreme (10C)	836.5	5.3	0.006365	2.5
Extreme (0C)	836.5	4.9	0.005806	2.5
Extreme (-10C)	836.5	5.9	0.007068	2.5
Extreme (-20C)	836.5	5.9	0.007021	2.5
Extreme (-30C)	836.5	6.5	0.007749	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]
3.29	2535	9.9	0.003898	2.5
3.87	2535	9.4	0.003690	2.5
4.45	2535	8.7	0.003448	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.6	0.003773	2.5
Extreme (50C)	2535	8.4	0.003324	2.5
Extreme (40C)	2535	8.1	0.003184	2.5
Extreme (30C)	2535	8.7	0.003445	2.5
Extreme (10C)	2535	7.7	0.003050	2.5
Extreme (0C)	2535	8.4	0.003295	2.5
Extreme (-10C)	2535	9.0	0.003544	2.5
Extreme (-20C)	2535	9.1	0.003592	2.5
Extreme (-30C)	2535	8.3	0.003270	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]
3.29	2535	6.4	0.002519	2.5
3.87	2535	6.7	0.002642	2.5
4.45	2535	6.0	0.002385	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.6	0.002619	2.5
Extreme (50C)	2535	5.8	0.002285	2.5
Extreme (40C)	2535	5.3	0.002088	2.5
Extreme (30C)	2535	6.7	0.002657	2.5
Extreme (10C)	2535	5.6	0.002197	2.5
Extreme (0C)	2535	5.5	0.002167	2.5
Extreme (-10C)	2535	5.0	0.001960	2.5
Extreme (-20C)	2535	6.3	0.002499	2.5
Extreme (-30C)	2535	6.0	0.002376	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]
3.29	707.5	9.1	0.012841	2.5
3.87	707.5	9.9	0.013996	2.5
4.45	707.5	8.1	0.011501	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.4	0.011879	2.5
Extreme (50C)	707.5	7.1	0.009978	2.5
Extreme (40C)	707.5	7.3	0.010283	2.5
Extreme (30C)	707.5	7.8	0.011076	2.5
Extreme (10C)	707.5	7.0	0.009853	2.5
Extreme (0C)	707.5	9.1	0.012851	2.5
Extreme (-10C)	707.5	8.4	0.011811	2.5
Extreme (-20C)	707.5	8.6	0.012162	2.5
Extreme (-30C)	707.5	8.2	0.011531	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]
3.29	707.5	7.9	0.011151	2.5
3.87	707.5	8.2	0.011654	2.5
4.45	707.5	7.7	0.010833	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	6.5	0.009175	2.5
Extreme (50C)	707.5	5.5	0.007765	2.5
Extreme (40C)	707.5	6.4	0.009110	2.5
Extreme (30C)	707.5	-7.7	-0.010912	2.5
Extreme (10C)	707.5	-8.2	-0.011590	2.5
Extreme (0C)	707.5	2.9	0.004100	2.5
Extreme (-10C)	707.5	-5.2	-0.007292	2.5
Extreme (-20C)	707.5	-8.7	-0.012302	2.5
Extreme (-30C)	707.5	-10.2	-0.014350	2.5

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

10.6 LTE BAND 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]
3.29	710.0	9.4	0.013220	2.5
3.87	710.0	8.5	0.011919	2.5
4.45	710.0	7.6	0.010705	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.6	0.013553	2.5
Extreme (50C)	710.0	9.0	0.012635	2.5
Extreme (40C)	710.0	8.1	0.011424	2.5
Extreme (30C)	710.0	8.7	0.012309	2.5
Extreme (10C)	710.0	8.5	0.011921	2.5
Extreme (0C)	710.0	8.1	0.011357	2.5
Extreme (-10C)	710.0	9.0	0.012733	2.5
Extreme (-20C)	710.0	8.7	0.012286	2.5
Extreme (-30C)	710.0	8.0	0.011247	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]
3.29	710.0	9.6	0.013565	2.5
3.87	710.0	8.8	0.012353	2.5
4.45	710.0	8.2	0.011573	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.4	0.013281	2.5
Extreme (50C)	710.0	8.6	0.012086	2.5
Extreme (40C)	710.0	8.8	0.012394	2.5
Extreme (30C)	710.0	8.8	0.012419	2.5
Extreme (10C)	710.0	7.9	0.011058	2.5
Extreme (0C)	710.0	8.2	0.011570	2.5
Extreme (-10C)	710.0	9.0	0.012646	2.5
Extreme (-20C)	710.0	9.2	0.012901	2.5
Extreme (-30C)	710.0	8.1	0.011370	2.5

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

10.7 LTE BAND 38

Band 38 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2595	8.2	0.003160	2.5
3.87	2595	6.9	0.002656	2.5
4.45	2595	8.0	0.003083	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.6	0.002912	2.5
Extreme (50C)	2595	4.4	0.001687	2.5
Extreme (40C)	2595	5.0	0.001922	2.5
Extreme (30C)	2595	5.2	0.001988	2.5
Extreme (10C)	2595	6.5	0.002492	2.5
Extreme (0C)	2595	4.5	0.001730	2.5
Extreme (-10C)	2595	9.8	0.003778	2.5
Extreme (-20C)	2595	10.7	0.004131	2.5
Extreme (-30C)	2595	6.1	0.002341	2.5

Band 38 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.29	2595	8.7	0.003344	2.5
3.87	2595	6.6	0.002553	2.5
4.45	2595	7.0	0.002688	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.3	0.002819	2.5
Extreme (50C)	2595	5.1	0.001953	2.5
Extreme (40C)	2595	5.0	0.001932	2.5
Extreme (30C)	2595	5.1	0.001977	2.5
Extreme (10C)	2595	6.8	0.002610	2.5
Extreme (0C)	2595	4.5	0.001747	2.5
Extreme (-10C)	2595	9.2	0.003526	2.5
Extreme (-20C)	2595	10.3	0.003976	2.5
Extreme (-30C)	2595	6.4	0.002465	2.5

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

10.8 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]
3.29	2593	8.8	0.003397	2.5
3.87	2593	6.4	0.002466	2.5
4.45	2593	7.1	0.002730	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	7.2	0.002771	2.5
Extreme (50C)	2593	5.3	0.002042	2.5
Extreme (40C)	2593	5.8	0.002222	2.5
Extreme (30C)	2593	4.7	0.001802	2.5
Extreme (10C)	2593	6.7	0.002599	2.5
Extreme (0C)	2593	4.8	0.001859	2.5
Extreme (-10C)	2593	9.7	0.003746	2.5
Extreme (-20C)	2593	11.2	0.004326	2.5
Extreme (-30C)	2593	6.4	0.002487	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]
3.29	2593	8.7	0.003358	2.5
3.87	2593	6.2	0.002374	2.5
4.45	2593	6.3	0.002421	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	7.6	0.002942	2.5
Extreme (50C)	2593	5.2	0.001988	2.5
Extreme (40C)	2593	5.7	0.002208	2.5
Extreme (30C)	2593	5.0	0.001932	2.5
Extreme (10C)	2593	6.1	0.002355	2.5
Extreme (0C)	2593	4.3	0.001671	2.5
Extreme (-10C)	2593	9.1	0.003507	2.5
Extreme (-20C)	2593	11.2	0.004319	2.5
Extreme (-30C)	2593	5.7	0.002194	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.

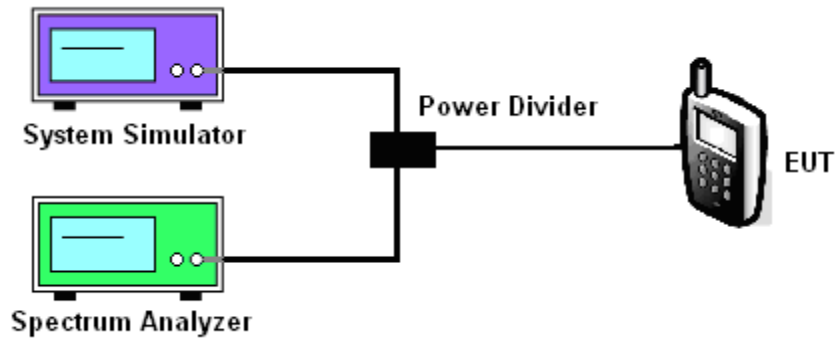
11.2 Measuring Instruments

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 2/4/5/7/12/17/38/41

Test data reference attachment.

----END OF REPORT----