

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT FCC ID: 2A7DX-PILOT1

Product: Smart phone

Trade Mark: OSCAL

Model No.: PILOT 1

Family Model: N/A

Report No.: S24101000504006

Issue Date: Dec. 04, 2024

Prepared for

DOKE COMMUNICATION (HK) LIMITED

19H MAXGRAND PLAZA NO 3 TAI YAU STREET SAN PO KONG KL

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : DOKE COMMUNICATION (HK) LIMITED

Address..... : 19H MAXGRAND PLAZA NO 3 TAI YAU STREET SAN PO
KONG KL

Manufacturer's Name..... : Shenzhen DOKE Electronic Co., Ltd

Address..... : 801, Building3, 7th Industrial Zone, Yulv Community, Yutang Road,
Guangming District, Shenzhen, China.

Product name..... : Smart phone

Model and/or type reference .. : PILOT 1

Trade Mark..... : OSCAL

Family Model..... : N/A

Test Sample Number..... S241010005001

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

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

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

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Date of Test

Date (s) of performance of tests..... Oct. 10, 2024 ~ Dec. 04, 2024

Date of Issue Dec. 04, 2024

Test Result **Pass**

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart phone
Trade Mark	OSCAL
Model Name	PILOT 1
Family Model	N/A
Model Difference	N/A
FCC ID:	2A7DX-PILOT1
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 12, 17, 66 TDD Band 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 Uplink& Downlink: 2496MHz-2690MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
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: 0.5 dBi, Band 4: 0.9dBi, Band 5: -3.7 dBi, Band 7: -1.3dBi, Band 12: -3.2dBi, Band 17: -3.1 dBi, Band 41:-0.8dBi; B66:0.9dBi;
Adapter	Model: QZ-04501AC00 Input: 100-240V~50/60Hz 1.2A Output: 5.0V---3.0A 15.0W or 9.0V---3.0A 27.0W or 12.0V---2.5A 30.0W or 15.0V---2.0A 30.0W or 20.0V---2.25A 45.0W MAX (PPS)5.0V-11.0V---3.0A 33.0W MAX (PPS)5.0V-20.0V---2.25A 45.0W MAX
Battery	DC 3.85V, 15000mAh, 57.75Wh
Power supply	DC 3.85V from battery or DC 5V/9V/12V/15V/20V from adapter
Extreme Vol. Limits:	DC 3.27V to DC 4.43V (Nominal DC 3.85V) (Note 1)
HW Version	HCT-M515MB-A3
SW Version	PILOT_1_NEU_M515_V1.0
** Note1: The High Voltage DC 4.43V and Low Voltage 3.27V 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: 2A7DX-PILOT1** filing to comply with the FCC Part 22H&24E&27.

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/17/41/66

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

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

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

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

2.2 EUT EXERCISE

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

2.3 CONFIGURATION OF EUT SYSTEM

Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smart phone	PILOT 1	FCC ID: 2A7DX-PILOT1	EUT

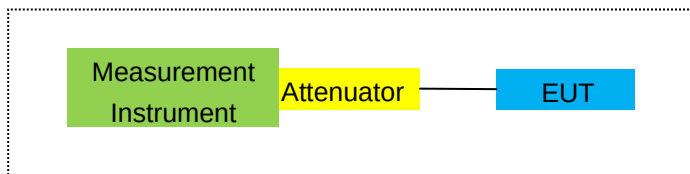
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

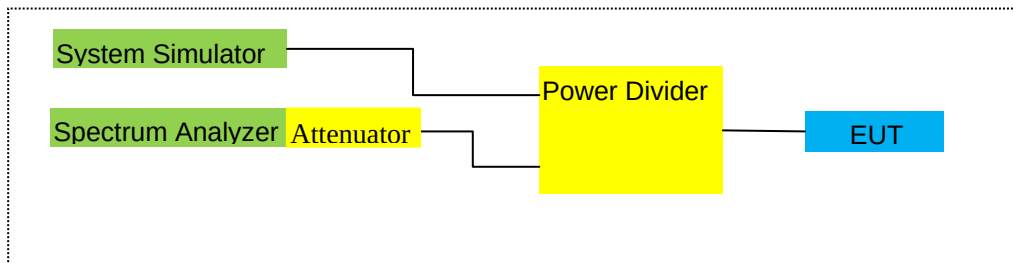
For Radiated Test Cases



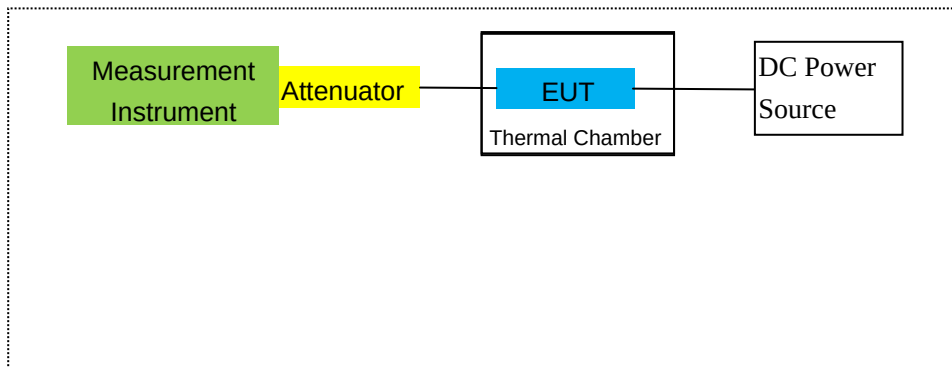
For Conducted Output Power



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



For Frequency Stability



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

3.TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2024.03.12	2025.03.11	1 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2024.03.12	2025.03.11	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
23	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
24	Communication Tester	R&S	CMU200	A0304247	2024.03.12	2025.03.11	1 year
25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year

26	DC Power Source	N/A	PS-6005D	2017040292 3	2024.04.25	2027.04.24	3 year
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Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

Measurement Software

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

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

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53,
FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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

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

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

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

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

TEST PROCEDURE

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

MODES TESTED

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

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

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

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

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

27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.

27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

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

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

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

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	-2.79	3.76	28.24	21.69	147.571	Horizontal	Pass
		1880	-2.72	3.91	28.22	21.59	144.212	Horizontal	Pass
		1909.3	-3.83	3.93	28.20	20.44	110.662	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.07	3.77	28.23	21.39	137.721	Horizontal	Pass
		1880	-2.32	3.91	28.24	22.01	158.855	Horizontal	Pass
		1908.5	-2.85	3.94	28.25	21.46	139.959	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.22	3.77	28.31	22.32	170.608	Horizontal	Pass
		1880	-2.38	3.91	28.22	21.93	155.955	Horizontal	Pass
		1907.5	-2.34	3.94	28.20	21.92	155.597	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.68	3.79	28.33	20.86	121.899	Horizontal	Pass
		1880	-2.52	3.95	28.22	21.75	149.624	Horizontal	Pass
		1905	-2.80	3.97	28.19	21.42	138.676	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.53	3.79	28.34	22.02	159.221	Horizontal	Pass
		1880	-1.19	3.95	28.22	23.08	203.236	Horizontal	Pass
		1902.5	-2.81	3.97	28.18	21.40	138.038	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.59	3.81	28.35	20.95	124.451	Horizontal	Pass
		1880	-2.55	3.96	28.22	21.71	148.252	Horizontal	Pass
		1900	-2.37	4.00	28.16	21.79	151.008	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.59	3.76	28.24	20.89	122.744	Vertical	Pass
		1880	-3.71	3.91	28.22	20.60	114.815	Vertical	Pass
		1909.3	-3.75	3.93	28.20	20.52	112.720	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.06	3.77	28.23	20.40	109.648	Vertical	Pass
		1880	-3.53	3.91	28.24	20.80	120.226	Vertical	Pass
		1908.5	-3.56	3.94	28.25	20.75	118.850	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.69	3.77	28.31	20.85	121.619	Vertical	Pass
		1880	-2.28	3.91	28.22	22.03	159.588	Vertical	Pass
		1907.5	-4.57	3.94	28.20	19.69	93.111	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.16	3.79	28.33	22.38	172.982	Vertical	Pass
		1880	-3.38	3.95	28.22	20.89	122.744	Vertical	Pass
		1905	-3.10	3.97	28.19	21.12	129.420	Vertical	Pass

15.0MHz	1/#Mid	1857.5	-2.75	3.79	28.34	21.80	151.356	Vertical	Pass
Band		1880	-3.85	3.95	28.22	20.42	110.154	Vertical	Pass
QPSK		1902.5	-3.35	3.97	28.18	20.86	121.899	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.08	3.81	28.35	21.46	139.959	Vertical	Pass
Band		1880	-3.74	3.96	28.22	20.52	112.720	Vertical	Pass
QPSK		1900	-3.15	4.00	28.16	21.01	126.183	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.42	3.76	28.24	21.06	127.644	Horizontal	Pass
		1880	-3.85	3.91	28.22	20.46	111.173	Horizontal	Pass
		1909.3	-2.97	3.93	28.20	21.30	134.896	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-2.59	3.77	28.23	21.87	153.815	Horizontal	Pass
		1880	-3.05	3.91	28.24	21.28	134.276	Horizontal	Pass
		1908.5	-3.15	3.94	28.25	21.16	130.617	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-2.81	3.77	28.31	21.73	148.936	Horizontal	Pass
		1880	-3.67	3.91	28.22	20.64	115.878	Horizontal	Pass
		1907.5	-3.17	3.94	28.20	21.09	128.529	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-2.69	3.79	28.33	21.85	153.109	Horizontal	Pass
		1880	-2.95	3.95	28.22	21.32	135.519	Horizontal	Pass
		1905	-3.19	3.97	28.19	21.03	126.765	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.51	3.79	28.34	22.04	159.956	Horizontal	Pass
		1880	-3.50	3.95	28.22	20.77	119.399	Horizontal	Pass
		1902.5	-3.79	3.97	28.18	20.42	110.154	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-2.86	3.81	28.35	21.68	147.231	Horizontal	Pass
		1880	-2.06	3.96	28.22	22.20	165.959	Horizontal	Pass
		1900	-2.20	4.00	28.16	21.96	157.036	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.46	3.76	28.24	20.02	100.462	Vertical	Pass
		1880	-4.61	3.91	28.22	19.70	93.325	Vertical	Pass
		1909.3	-4.61	3.93	28.20	19.66	92.470	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.08	3.77	28.23	20.38	109.144	Vertical	Pass
		1880	-4.78	3.91	28.24	19.55	90.157	Vertical	Pass
		1908.5	-4.49	3.94	28.25	19.82	95.940	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.47	3.77	28.31	19.07	80.724	Vertical	Pass
		1880	-5.69	3.91	28.22	18.62	72.778	Vertical	Pass
		1907.5	-3.56	3.94	28.20	20.70	117.490	Vertical	Pass

10.0MHz Band 16 QAM	1/#Mid	1855	-4.98	3.79	28.33	19.56	90.365	Vertical	Pass
		1880	-5.46	3.95	28.22	18.81	76.033	Vertical	Pass
		1905	-3.77	3.97	28.19	20.45	110.917	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.77	3.79	28.34	21.78	150.661	Vertical	Pass
		1880	-3.27	3.95	28.22	21.00	125.893	Vertical	Pass
		1902.5	-3.28	3.97	28.18	20.93	123.880	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.87	3.81	28.35	20.67	116.681	Vertical	Pass
		1880	-3.30	3.96	28.22	20.96	124.738	Vertical	Pass
		1900	-3.63	4.00	28.16	20.53	112.980	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-2.05	3.12	27.58	22.41	174.181	Horizontal	Pass
		1732.5	-2.79	3.27	27.61	21.55	142.889	Horizontal	Pass
		1754.3	-2.55	3.29	27.63	21.79	151.008	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.07	3.13	27.61	22.41	174.181	Horizontal	Pass
		1732.5	-2.11	3.27	27.61	22.23	167.109	Horizontal	Pass
		1753.5	-3.85	3.30	27.62	20.47	111.429	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.83	3.13	27.63	21.67	146.893	Horizontal	Pass
		1732.5	-2.04	3.27	27.61	22.30	169.824	Horizontal	Pass
		1752.5	-2.10	3.30	27.60	22.20	165.959	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.91	3.15	27.64	20.58	114.288	Horizontal	Pass
		1732.5	-1.89	3.31	27.61	22.41	174.181	Horizontal	Pass
		1750	-2.36	3.33	27.59	21.90	154.882	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.02	3.15	27.65	22.48	177.011	Horizontal	Pass
		1732.5	-2.71	3.31	27.61	21.59	144.212	Horizontal	Pass
		1747.5	-2.09	3.33	27.57	22.15	164.059	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.23	3.17	27.66	21.26	133.660	Horizontal	Pass
		1732.5	-1.38	3.32	27.61	22.91	195.434	Horizontal	Pass
		1745	-2.71	3.36	27.56	21.49	140.929	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.58	3.12	27.58	20.88	122.462	Vertical	Pass
		1732.5	-2.18	3.27	27.61	22.16	164.437	Vertical	Pass
		1754.3	-2.72	3.29	27.63	21.62	145.211	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.73	3.13	27.61	21.75	149.624	Vertical	Pass
		1732.5	-2.91	3.27	27.61	21.43	138.995	Vertical	Pass
		1753.5	-2.70	3.30	27.62	21.62	145.211	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.69	3.13	27.63	21.81	151.705	Vertical	Pass
		1732.5	-2.78	3.27	27.61	21.56	143.219	Vertical	Pass
		1752.5	-2.40	3.30	27.60	21.90	154.882	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-2.69	3.15	27.64	21.80	151.356	Vertical	Pass
		1732.5	-2.81	3.31	27.61	21.49	140.929	Vertical	Pass

QPSK		1750	-1.46	3.33	27.59	22.80	190.546	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.47	3.15	27.65	21.03	126.765	Vertical	Pass
Band		1732.5	-3.35	3.31	27.61	20.95	124.451	Vertical	Pass
QPSK		1747.5	-2.37	3.33	27.57	21.87	153.815	Vertical	Pass
20.0MHz	1/#Mid	1720	-2.59	3.17	27.66	21.90	154.882	Vertical	Pass
Band		1732.5	-3.95	3.32	27.61	20.34	108.143	Vertical	Pass
QPSK		1745	-3.92	3.36	27.56	20.28	106.660	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz	1/#Mid	1710.7	-2.48	3.12	27.58	21.98	157.761	Horizontal	Pass
Band 16		1732.5	-2.78	3.27	27.61	21.56	143.219	Horizontal	Pass
QAM		1754.3	-2.18	3.29	27.63	22.16	164.437	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-2.83	3.13	27.61	21.65	146.218	Horizontal	Pass
Band 16		1732.5	-2.53	3.27	27.61	21.81	151.705	Horizontal	Pass
QAM		1753.5	-3.70	3.30	27.62	20.62	115.345	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.05	3.13	27.63	21.45	139.637	Horizontal	Pass
Band 16		1732.5	-3.06	3.27	27.61	21.28	134.276	Horizontal	Pass
QAM		1752.5	-2.45	3.30	27.60	21.85	153.109	Horizontal	Pass
10.0MHz	1/#Mid	1715	-2.86	3.15	27.64	21.63	145.546	Horizontal	Pass
Band 16		1732.5	-3.27	3.31	27.61	21.03	126.765	Horizontal	Pass
QAM		1750	-2.75	3.33	27.59	21.51	141.579	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-4.97	3.15	27.65	19.53	89.743	Horizontal	Pass
Band 16		1732.5	-2.38	3.31	27.61	21.92	155.597	Horizontal	Pass
QAM		1747.5	-3.65	3.33	27.57	20.59	114.551	Horizontal	Pass
20.0MHz	1/#Mid	1720	-2.15	3.17	27.66	22.34	171.396	Horizontal	Pass
Band 16		1732.5	-2.01	3.32	27.61	22.28	169.044	Horizontal	Pass
QAM		1745	-1.84	3.36	27.56	22.36	172.187	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-3.96	3.12	27.58	20.50	112.202	Vertical	Pass
Band 16		1732.5	-3.34	3.27	27.61	21.00	125.893	Vertical	Pass
QAM		1754.3	-3.48	3.29	27.63	20.86	121.899	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-4.70	3.13	27.61	19.78	95.060	Vertical	Pass
Band 16		1732.5	-4.15	3.27	27.61	20.19	104.472	Vertical	Pass
QAM		1753.5	-4.08	3.30	27.62	20.24	105.682	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.30	3.13	27.63	20.20	104.713	Vertical	Pass
Band 16		1732.5	-3.14	3.27	27.61	21.20	131.826	Vertical	Pass

QAM		1752.5	-4.43	3.30	27.60	19.87	97.051	Vertical	Pass
10.0MHz	1/#Mid	1715	-3.34	3.15	27.64	21.15	130.317	Vertical	Pass
Band 16		1732.5	-3.54	3.31	27.61	20.76	119.124	Vertical	Pass
QAM		1750	-4.91	3.33	27.59	19.35	86.099	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-4.81	3.15	27.65	19.69	93.111	Vertical	Pass
Band 16		1732.5	-4.53	3.31	27.61	19.77	94.842	Vertical	Pass
QAM		1747.5	-3.53	3.33	27.57	20.71	117.761	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.14	3.17	27.66	21.35	136.458	Vertical	Pass
Band 16		1732.5	-3.73	3.32	27.61	20.56	113.763	Vertical	Pass
QAM		1745	-2.94	3.36	27.56	21.26	133.660	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	7.50	2.01	19.68	2.15	23.02	200.447	Horizontal	Pass
		836.5	7.17	2.01	19.77	2.15	22.78	189.671	Horizontal	Pass
		848.3	7.25	2.02	19.82	2.15	22.90	194.984	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	7.06	2.01	19.70	2.15	22.60	181.970	Horizontal	Pass
		836.5	7.86	2.01	19.77	2.15	23.47	222.331	Horizontal	Pass
		847.5	7.61	2.02	19.81	2.15	23.25	211.349	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	7.70	2.01	19.71	2.15	23.25	211.349	Horizontal	Pass
		836.5	7.43	2.01	19.77	2.15	23.04	201.372	Horizontal	Pass
		846.5	6.36	2.02	19.79	2.15	21.98	157.761	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	7.05	2.01	19.73	2.15	22.62	182.810	Horizontal	Pass
		836.5	7.47	2.01	19.77	2.15	23.08	203.236	Horizontal	Pass
		844	7.65	2.02	19.78	2.15	23.26	211.836	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	6.05	2.01	19.68	2.15	21.57	143.549	Vertical	Pass
		836.5	6.56	2.01	19.77	2.15	22.17	164.816	Vertical	Pass
		848.3	6.59	2.02	19.82	2.15	22.24	167.494	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.76	2.01	19.70	2.15	22.30	169.824	Vertical	Pass
		836.5	5.84	2.01	19.77	2.15	21.45	139.637	Vertical	Pass
		847.5	6.03	2.02	19.81	2.15	21.67	146.893	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.40	2.01	19.71	2.15	21.95	156.675	Vertical	Pass
		836.5	6.88	2.01	19.77	2.15	22.49	177.419	Vertical	Pass
		846.5	6.81	2.02	19.79	2.15	22.43	174.985	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.34	2.01	19.73	2.15	20.91	123.310	Vertical	Pass
		836.5	6.77	2.01	19.77	2.15	22.38	172.982	Vertical	Pass
		844	6.74	2.02	19.78	2.15	22.35	171.791	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/#Mid	824.7	6.94	2.01	19.68	2.15	22.46	176.198	Horizontal	Pass
		836.5	6.66	2.01	19.77	2.15	22.27	168.655	Horizontal	Pass
		848.3	6.63	2.02	19.82	2.15	22.28	169.044	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	7.50	2.01	19.70	2.15	23.04	201.372	Horizontal	Pass
		836.5	6.42	2.01	19.77	2.15	22.03	159.588	Horizontal	Pass
		847.5	5.65	2.02	19.81	2.15	21.29	134.586	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	7.17	2.01	19.71	2.15	22.72	187.068	Horizontal	Pass
		836.5	6.95	2.01	19.77	2.15	22.56	180.302	Horizontal	Pass
		846.5	7.30	2.02	19.79	2.15	22.92	195.884	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.98	2.01	19.73	2.15	22.55	179.887	Horizontal	Pass
		836.5	7.06	2.01	19.77	2.15	22.67	184.927	Horizontal	Pass
		844	7.19	2.02	19.78	2.15	22.80	190.546	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.33	2.01	19.68	2.15	20.85	121.619	Vertical	Pass
		836.5	6.54	2.01	19.77	2.15	22.15	164.059	Vertical	Pass
		848.3	5.88	2.02	19.82	2.15	21.53	142.233	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.66	2.01	19.70	2.15	21.20	131.826	Vertical	Pass
		836.5	5.65	2.01	19.77	2.15	21.26	133.660	Vertical	Pass
		847.5	6.61	2.02	19.81	2.15	22.25	167.880	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	7.57	2.01	19.71	2.15	23.12	205.116	Vertical	Pass
		836.5	6.08	2.01	19.77	2.15	21.69	147.571	Vertical	Pass
		846.5	6.56	2.02	19.79	2.15	22.18	165.196	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	5.17	2.01	19.77	2.15	20.78	119.674	Vertical	Pass
		844	6.50	2.02	19.78	2.15	22.11	162.555	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2502.5	-0.95	4.54	27.75	22.26	168.267	Horizontal	Pass
		2535	-0.48	4.69	27.72	22.55	179.887	Horizontal	Pass
		2567.5	-0.57	4.71	27.71	22.43	174.985	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-0.41	4.55	27.76	22.80	190.546	Horizontal	Pass
		2535	-0.21	4.69	27.72	22.82	191.426	Horizontal	Pass
		2565	-1.26	4.72	27.70	21.72	148.594	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-0.35	4.55	27.77	22.87	193.642	Horizontal	Pass
		2535	-1.24	4.69	27.72	21.79	151.008	Horizontal	Pass
		2562.5	-0.22	4.72	27.69	22.75	188.365	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-0.32	4.57	27.78	22.89	194.536	Horizontal	Pass
		2535	-0.12	4.73	27.72	22.87	193.642	Horizontal	Pass
		2560	-1.32	4.75	27.68	21.61	144.877	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-1.75	4.54	27.75	21.46	139.959	Vertical	Pass
		2535	-1.70	4.69	27.72	21.33	135.831	Vertical	Pass
		2567.5	-2.53	4.71	27.71	20.47	111.429	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.28	4.55	27.76	19.93	98.401	Vertical	Pass
		2535	-2.06	4.69	27.72	20.97	125.026	Vertical	Pass
		2565	-2.21	4.72	27.70	20.77	119.399	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-1.45	4.55	27.77	21.77	150.314	Vertical	Pass
		2535	-1.84	4.69	27.72	21.19	131.522	Vertical	Pass
		2562.5	-1.26	4.72	27.69	21.71	148.252	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.09	4.57	27.78	21.12	129.420	Vertical	Pass
		2535	-1.55	4.73	27.72	21.44	139.316	Vertical	Pass
		2560	-2.34	4.75	27.68	20.59	114.551	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	-2.13	4.54	27.75	21.08	128.233	Horizontal	Pass
		2535	-1.89	4.69	27.72	21.14	130.017	Horizontal	Pass
		2567.5	-1.45	4.71	27.71	21.55	142.889	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.73	4.55	27.76	21.48	140.605	Horizontal	Pass
		2535	-0.96	4.69	27.72	22.07	161.065	Horizontal	Pass
		2565	-1.28	4.72	27.70	21.70	147.911	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.89	4.55	27.77	20.33	107.895	Horizontal	Pass
		2535	-2.22	4.69	27.72	20.81	120.504	Horizontal	Pass
		2562.5	-2.45	4.72	27.69	20.52	112.720	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.49	4.57	27.78	20.72	118.032	Horizontal	Pass
		2535	-1.41	4.73	27.72	21.58	143.880	Horizontal	Pass
		2560	-1.39	4.75	27.68	21.54	142.561	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-2.56	4.54	27.75	20.65	116.145	Vertical	Pass
		2535	-3.21	4.69	27.72	19.82	95.940	Vertical	Pass
		2567.5	-2.88	4.71	27.71	20.12	102.802	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.35	4.55	27.76	20.86	121.899	Vertical	Pass
		2535	-1.45	4.69	27.72	21.58	143.880	Vertical	Pass
		2565	-1.82	4.72	27.70	21.16	130.617	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.43	4.55	27.77	21.79	151.008	Vertical	Pass
		2535	-2.31	4.69	27.72	20.72	118.032	Vertical	Pass
		2562.5	-3.12	4.72	27.69	19.85	96.605	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.72	4.57	27.78	19.49	88.920	Vertical	Pass
		2535	-2.56	4.73	27.72	20.43	110.408	Vertical	Pass
		2560	-2.09	4.75	27.68	20.84	121.339	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	7.86	1.91	19.21	2.15	23.01	199.986	Vertical	Pass
		707.5	7.69	1.91	19.26	2.15	22.89	194.536	Vertical	Pass
		715.3	7.22	1.93	19.34	2.15	22.48	177.011	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	7.81	1.91	19.21	2.15	22.96	197.697	Vertical	Pass
		707.5	7.69	1.91	19.26	2.15	22.89	194.536	Vertical	Pass
		714.5	7.41	1.93	19.34	2.15	22.67	184.927	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.65	1.91	19.23	2.15	22.82	191.426	Vertical	Pass
		707.5	7.88	1.91	19.26	2.15	23.08	203.236	Vertical	Pass
		713.5	6.61	1.92	19.33	2.15	21.87	153.815	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	7.21	1.91	19.25	2.15	22.40	173.780	Vertical	Pass
		707.5	7.85	1.91	19.26	2.15	23.05	201.837	Vertical	Pass
		711	7.64	1.92	19.32	2.15	22.89	194.536	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	6.29	1.91	19.21	2.15	21.44	139.316	Horizontal	Pass
		707.5	6.48	1.91	19.26	2.15	21.68	147.231	Horizontal	Pass
		715.3	6.26	1.93	19.34	2.15	21.52	141.906	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.68	1.91	19.21	2.15	21.83	152.405	Horizontal	Pass
		707.5	6.54	1.91	19.26	2.15	21.74	149.279	Horizontal	Pass
		714.5	5.52	1.93	19.34	2.15	20.78	119.674	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.09	1.91	19.23	2.15	22.26	168.267	Horizontal	Pass
		707.5	6.06	1.91	19.26	2.15	21.26	133.660	Horizontal	Pass
		713.5	6.21	1.92	19.33	2.15	21.47	140.281	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	5.81	1.91	19.25	2.15	21.00	125.893	Horizontal	Pass
		707.5	6.05	1.91	19.26	2.15	21.25	133.352	Horizontal	Pass
		711	6.54	1.92	19.32	2.15	21.79	151.008	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	7.68	1.91	19.21	2.15	22.83	191.867	Vertical	Pass
		707.5	6.81	1.91	19.26	2.15	22.01	158.855	Vertical	Pass
		715.3	6.54	1.93	19.34	2.15	21.80	151.356	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.49	1.91	19.21	2.15	21.64	145.881	Vertical	Pass
		707.5	7.21	1.91	19.26	2.15	22.41	174.181	Vertical	Pass
		714.5	7.05	1.93	19.34	2.15	22.31	170.216	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.44	1.91	19.23	2.15	22.61	182.390	Vertical	Pass
		707.5	7.48	1.91	19.26	2.15	22.68	185.353	Vertical	Pass
		713.5	6.52	1.92	19.33	2.15	21.78	150.661	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.46	1.91	19.25	2.15	22.65	184.077	Vertical	Pass
		707.5	8.38	1.91	19.26	2.15	23.58	228.034	Vertical	Pass
		711	7.26	1.92	19.32	2.15	22.51	178.238	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	7.25	1.91	19.21	2.15	22.40	173.780	Horizontal	Pass
		707.5	7.84	1.91	19.26	2.15	23.04	201.372	Horizontal	Pass
		715.3	6.11	1.93	19.34	2.15	21.37	137.088	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	7.71	1.91	19.21	2.15	22.86	193.197	Horizontal	Pass
		707.5	6.12	1.91	19.26	2.15	21.32	135.519	Horizontal	Pass
		714.5	6.81	1.93	19.34	2.15	22.07	161.065	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.76	1.91	19.23	2.15	22.93	196.336	Horizontal	Pass
		707.5	7.28	1.91	19.26	2.15	22.48	177.011	Horizontal	Pass
		713.5	6.92	1.92	19.33	2.15	22.18	165.196	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.26	1.91	19.25	2.15	20.45	110.917	Horizontal	Pass
		707.5	7.61	1.91	19.26	2.15	22.81	190.985	Horizontal	Pass
		711	6.29	1.92	19.32	2.15	21.54	142.561	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	8.32	1.91	19.23	2.15	23.49	223.357	Vertical	Pass
		710	8.46	1.91	19.26	2.15	23.66	232.274	Vertical	Pass
		713.5	7.41	1.92	19.33	2.15	22.67	184.927	Vertical	Pass
10.0MHz Band QPSK	1#Mid	709	8.61	1.91	19.25	2.15	23.80	239.883	Vertical	Pass
		710	7.58	1.91	19.26	2.15	22.78	189.671	Vertical	Pass
		711	7.81	1.92	19.32	2.15	23.06	202.302	Vertical	Pass
5.0MHz Band QPSK	1#Mid	706.5	7.52	1.91	19.23	2.15	22.69	185.780	Horizontal	Pass
		710	6.25	1.91	19.26	2.15	21.45	139.637	Horizontal	Pass
		713.5	7.21	1.92	19.33	2.15	22.47	176.604	Horizontal	Pass
10.0MHz Band QPSK	1#Mid	709	7.08	1.91	19.25	2.15	22.27	168.655	Horizontal	Pass
		710	6.74	1.91	19.26	2.15	21.94	156.315	Horizontal	Pass
		711	5.83	1.92	19.32	2.15	21.08	128.233	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	7.54	1.91	19.23	2.15	22.71	186.638	Vertical	Pass
		710	7.28	1.91	19.26	2.15	22.48	177.011	Vertical	Pass
		713.5	7.55	1.92	19.33	2.15	22.81	190.985	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	7.74	1.91	19.25	2.15	22.93	196.336	Vertical	Pass
		710	7.61	1.91	19.26	2.15	22.81	190.985	Vertical	Pass
		711	6.43	1.92	19.32	2.15	21.68	147.231	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	6.52	1.91	19.23	2.15	21.69	147.571	Horizontal	Pass
		710	5.18	1.91	19.26	2.15	20.38	109.144	Horizontal	Pass
		713.5	6.42	1.92	19.33	2.15	21.68	147.231	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.58	1.91	19.25	2.15	21.77	150.314	Horizontal	Pass
		710	6.83	1.91	19.26	2.15	22.03	159.588	Horizontal	Pass
		711	6.32	1.92	19.32	2.15	21.57	143.549	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.8 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/##Mid	2537.5	-1.12	4.54	27.75	22.09	161.808	Horizontal	Pass
		2595	-0.77	4.69	27.72	22.26	168.267	Horizontal	Pass
		2652.5	-0.68	4.71	27.71	22.32	170.608	Horizontal	Pass
10.0MHz Band QPSK	1/##Mid	2540	-0.75	4.55	27.76	22.46	176.198	Horizontal	Pass
		2595	-1.26	4.69	27.72	21.77	150.314	Horizontal	Pass
		2650	-0.19	4.72	27.70	22.79	190.108	Horizontal	Pass
15.0MHz Band QPSK	1/##Mid	2542.5	-0.58	4.55	27.77	22.64	183.654	Horizontal	Pass
		2595	-0.25	4.69	27.72	22.78	189.671	Horizontal	Pass
		2647.5	-0.46	4.72	27.69	22.51	178.238	Horizontal	Pass
20.0MHz Band QPSK	1/##Mid	2545	-0.89	4.57	27.78	22.32	170.608	Horizontal	Pass
		2595	-0.89	4.73	27.72	22.10	162.181	Horizontal	Pass
		2645	-1.45	4.75	27.68	21.48	140.605	Horizontal	Pass
5.0MHz Band QPSK	1/##Mid	2537.5	-0.92	4.54	27.75	22.29	169.434	Vertical	Pass
		2595	-1.12	4.69	27.72	21.91	155.239	Vertical	Pass
		2652.5	-1.56	4.71	27.71	21.44	139.316	Vertical	Pass
10.0MHz Band QPSK	1/##Mid	2540	-0.61	4.55	27.76	22.60	181.970	Vertical	Pass
		2595	-1.12	4.69	27.72	21.91	155.239	Vertical	Pass
		2650	-1.15	4.72	27.70	21.83	152.405	Vertical	Pass
15.0MHz Band QPSK	1/##Mid	2542.5	-1.58	4.55	27.77	21.64	145.881	Vertical	Pass
		2595	-0.76	4.69	27.72	22.27	168.655	Vertical	Pass
		2647.5	-1.28	4.72	27.69	21.69	147.571	Vertical	Pass
20.0MHz Band QPSK	1/##Mid	2545	-1.53	4.57	27.78	21.68	147.231	Vertical	Pass
		2595	-1.26	4.73	27.72	21.73	148.936	Vertical	Pass
		2645	-0.43	4.75	27.68	22.50	177.828	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)			Average	Average	Of Max. ERP	
				(dBm)	(dB)	(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2537.5	-1.41	4.54	27.75	21.80	151.356	Horizontal	Pass
		2595	-2.12	4.69	27.72	20.91	123.310	Horizontal	Pass
		2652.5	-1.09	4.71	27.71	21.91	155.239	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-2.06	4.55	27.76	21.15	130.317	Horizontal	Pass
		2595	-1.89	4.69	27.72	21.14	130.017	Horizontal	Pass
		2650	-1.31	4.72	27.70	21.67	146.893	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-1.42	4.55	27.77	21.80	151.356	Horizontal	Pass
		2595	-1.48	4.69	27.72	21.55	142.889	Horizontal	Pass
		2647.5	-1.68	4.72	27.69	21.29	134.586	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-2.46	4.57	27.78	20.75	118.850	Horizontal	Pass
		2595	-1.62	4.73	27.72	21.37	137.088	Horizontal	Pass
		2645	-1.35	4.75	27.68	21.58	143.880	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2537.5	-1.33	4.54	27.75	21.88	154.170	Vertical	Pass
		2595	-1.42	4.69	27.72	21.61	144.877	Vertical	Pass
		2652.5	-2.48	4.71	27.71	20.52	112.720	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-2.62	4.55	27.76	20.59	114.551	Vertical	Pass
		2595	-2.26	4.69	27.72	20.77	119.399	Vertical	Pass
		2650	-2.41	4.72	27.70	20.57	114.025	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-1.52	4.55	27.77	21.70	147.911	Vertical	Pass
		2595	-2.54	4.69	27.72	20.49	111.944	Vertical	Pass
		2647.5	-2.26	4.72	27.69	20.71	117.761	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-1.77	4.57	27.78	21.44	139.316	Vertical	Pass
		2595	-1.91	4.73	27.72	21.08	128.233	Vertical	Pass
		2645	-2.56	4.75	27.68	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)

8.9 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max.	Max.	Polarization Of Max. ERP	
						EIRP	EIRP		
						Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-1.93	3.76	28.24	22.55	179.887	Horizontal	Pass
		1745	-2.16	3.91	28.22	22.15	164.059	Horizontal	Pass
		1779.3	-2.18	3.93	28.2	22.09	161.808	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.26	3.77	28.23	22.20	165.959	Horizontal	Pass
		1745	-1.77	3.91	28.24	22.56	180.302	Horizontal	Pass
		1778.5	-1.71	3.94	28.25	22.60	181.970	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-1.96	3.77	28.31	22.58	181.134	Horizontal	Pass
		1745	-2.12	3.91	28.22	22.19	165.577	Horizontal	Pass
		1777.5	-2.26	3.94	28.2	22.00	158.489	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.51	3.79	28.33	22.03	159.588	Horizontal	Pass
		1745	-1.71	3.95	28.22	22.56	180.302	Horizontal	Pass
		1775	-1.42	3.97	28.19	22.80	190.546	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-1.69	3.79	28.34	22.86	193.197	Horizontal	Pass
		1745	-1.52	3.95	28.22	22.75	188.365	Horizontal	Pass
		1772.5	-1.83	3.97	28.18	22.38	172.982	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.41	3.81	28.35	22.13	163.305	Horizontal	Pass
		1745	-1.69	3.96	28.22	22.57	180.717	Horizontal	Pass
		1770	-1.76	4	28.16	22.40	173.780	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.35	3.76	28.24	22.13	163.305	Vertical	Pass
		1745	-2.24	3.91	28.22	22.07	161.065	Vertical	Pass
		1779.3	-1.85	3.93	28.2	22.42	174.582	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-1.62	3.77	28.23	22.84	192.309	Vertical	Pass
		1745	-2.36	3.91	28.24	21.97	157.398	Vertical	Pass
		1778.5	-1.28	3.94	28.25	23.03	200.909	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-1.83	3.77	28.31	22.71	186.638	Vertical	Pass
		1745	-1.84	3.91	28.22	22.47	176.604	Vertical	Pass
		1777.5	-1.56	3.94	28.2	22.70	186.209	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-1.67	3.79	28.34	22.88	194.089	Vertical	Pass
		1745	-1.35	3.95	28.22	22.92	195.884	Vertical	Pass
		1775	-1.32	3.97	28.18	22.89	194.536	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-2.16	3.81	28.35	22.38	172.982	Vertical	Pass
		1745	-1.43	3.96	28.22	22.83	191.867	Vertical	Pass
		1772.5	-1.74	4	28.16	22.42	174.582	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.26	3.79	28.34	22.29	169.434	Vertical	Pass
		1745	-1.76	3.95	28.22	22.51	178.238	Vertical	Pass
		1770	-1.88	3.97	28.18	22.33	171.002	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.32	3.76	28.24	21.16	130.617	Horizontal	Pass
		1745	-2.86	3.91	28.22	21.45	139.637	Horizontal	Pass
		1779.3	-3.26	3.93	28.2	21.01	126.183	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.81	3.77	28.23	21.65	146.218	Horizontal	Pass
		1745	-3.39	3.91	28.24	20.94	124.165	Horizontal	Pass
		1778.5	-3.22	3.94	28.25	21.09	128.529	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.86	3.77	28.31	21.68	147.231	Horizontal	Pass
		1745	-2.31	3.91	28.22	22.00	158.489	Horizontal	Pass
		1777.5	-3.12	3.94	28.2	21.14	130.017	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.12	3.79	28.33	21.42	138.676	Horizontal	Pass
		1745	-3.19	3.95	28.22	21.08	128.233	Horizontal	Pass
		1775	-3.18	3.97	28.19	21.04	127.057	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.86	3.79	28.34	21.69	147.571	Horizontal	Pass
		1745	-2.73	3.95	28.22	21.54	142.561	Horizontal	Pass
		1772.5	-2.91	3.97	28.18	21.30	134.896	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.54	3.81	28.35	22.00	158.489	Horizontal	Pass
		1745	-2.89	3.96	28.22	21.37	137.088	Horizontal	Pass
		1770	-2.95	4	28.16	21.21	132.130	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-2.88	3.76	28.24	21.60	144.544	Vertical	Pass
		1745	-2.86	3.91	28.22	21.45	139.637	Vertical	Pass
		1779.3	-2.91	3.93	28.2	21.36	136.773	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.85	3.77	28.23	21.61	144.877	Vertical	Pass
		1745	-3.12	3.91	28.24	21.21	132.130	Vertical	Pass
		1778.5	-3.09	3.94	28.25	21.22	132.434	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.12	3.77	28.31	21.42	138.676	Vertical	Pass
		1745	-2.89	3.91	28.22	21.42	138.676	Vertical	Pass
		1777.5	-2.71	3.94	28.2	21.55	142.889	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.31	3.79	28.34	21.24	133.045	Vertical	Pass
		1745	-2.86	3.95	28.22	21.41	138.357	Vertical	Pass
		1775	-2.35	3.97	28.18	21.86	153.462	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.84	3.81	28.35	21.70	147.911	Vertical	Pass
		1745	-2.75	3.96	28.22	21.51	141.579	Vertical	Pass
		1772.5	-2.31	4	28.16	21.85	153.109	Vertical	Pass

20.0MHz	1/#Mid	1720	-3.36	3.79	28.34	21.19	131.522	Vertical	Pass
Band 16		1745	-2.29	3.95	28.22	21.98	157.761	Vertical	Pass
QAM		1770	-3.09	3.97	28.18	21.12	129.420	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 $43 + 10 \log_{10}(P)$ dB.

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

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

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-48.93	4.04	33.51	-19.46	-13	-6.46	Horizontal
3701.4	-51.36	4.04	33.51	-21.89	-13	-8.89	Vertical
5552.1	-46.99	5.24	35.84	-16.39	-13	-3.39	Vertical
5552.1	-49.37	5.24	35.84	-18.77	-13	-5.77	Horizontal
185.1	-40.22	1.43	16.02	-25.63	-13	-12.63	Vertical
453.7	-33.31	1.30	17.99	-16.62	-13	-3.62	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.05	4.04	33.56	-17.53	-13	-4.53	Horizontal
3760.0	-51.68	4.04	33.56	-22.16	-13	-9.16	Vertical
5640.0	-49.09	5.24	35.91	-18.42	-13	-5.42	Vertical
5640.0	-50.53	5.24	35.91	-19.86	-13	-6.86	Horizontal
183.5	-35.30	1.62	16.97	-19.95	-13	-6.95	Vertical
289.4	-35.02	1.74	15.98	-20.79	-13	-7.79	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-46.53	4.04	34.00	-16.57	-13	-3.57	Horizontal
3818.6	-46.40	4.04	34.00	-16.44	-13	-3.44	Vertical
5727.9	-50.68	5.24	36.04	-19.88	-13	-6.88	Vertical
5727.9	-48.09	5.24	36.04	-17.29	-13	-4.29	Horizontal
193.8	-40.87	1.42	17.29	-25.00	-13	-12.00	Vertical
342.6	-34.57	1.50	17.90	-18.16	-13	-5.16	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-46.03	4.07	33.54	-16.56	-13	-3.56	Horizontal
3720.0	-49.59	4.07	33.54	-20.12	-13	-7.12	Vertical
5580.0	-47.16	5.28	35.86	-16.58	-13	-3.58	Vertical
5580.0	-50.15	5.28	35.86	-19.57	-13	-6.57	Horizontal
208.5	-37.67	1.58	16.89	-22.35	-13	-9.35	Vertical
357.0	-41.83	1.76	17.26	-26.33	-13	-13.33	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-46.32	4.04	33.56	-16.80	-13	-3.80	Horizontal
3760.0	-46.45	4.04	33.56	-16.93	-13	-3.93	Vertical
5640.0	-50.55	5.24	35.91	-19.88	-13	-6.88	Vertical
5640.0	-50.67	5.24	35.91	-20.00	-13	-7.00	Horizontal
200.6	-43.78	1.46	16.27	-28.97	-13	-15.97	Vertical
344.7	-38.93	1.59	15.15	-25.37	-13	-12.37	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-49.02	4.04	34.00	-19.06	-13	-6.06	Horizontal
3800.0	-46.71	4.04	34.00	-16.75	-13	-3.75	Vertical
5700.0	-47.30	5.24	36.04	-16.50	-13	-3.50	Vertical
5700.0	-50.61	5.24	36.04	-19.81	-13	-6.81	Horizontal
212.0	-34.60	1.36	17.39	-18.56	-13	-5.56	Vertical
312.7	-40.87	1.66	15.39	-27.14	-13	-14.14	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-48.96	4.02	29.80	-23.18	-13	-10.18	Horizontal
3421.4	-46.86	4.02	29.80	-21.08	-13	-8.08	Vertical
5132.1	-50.42	5.24	35.84	-19.82	-13	-6.82	Vertical
5132.1	-50.59	5.24	35.84	-19.99	-13	-6.99	Horizontal
197.8	-40.95	1.68	16.04	-26.59	-13	-13.59	Vertical
454.4	-34.14	1.78	17.74	-18.18	-13	-5.18	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-49.09	4.03	30.00	-23.12	-13	-10.12	Horizontal
3465.0	-43.05	4.03	30.00	-17.08	-13	-4.08	Vertical
5197.5	-46.97	5.25	35.86	-16.36	-13	-3.36	Vertical
5197.5	-48.26	5.25	35.86	-17.65	-13	-4.65	Horizontal
207.5	-41.04	1.72	17.69	-25.07	-13	-12.07	Vertical
345.7	-42.35	1.62	16.02	-27.94	-13	-14.94	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-48.22	4.05	30.01	-22.26	-13	-9.26	Horizontal
3508.6	-46.08	4.05	30.01	-20.12	-13	-7.12	Vertical
5262.9	-48.70	5.26	35.86	-18.10	-13	-5.10	Vertical
5262.9	-49.06	5.26	35.86	-18.46	-13	-5.46	Horizontal
182.9	-31.68	1.80	16.69	-16.79	-13	-3.79	Vertical
332.1	-39.61	1.75	16.66	-24.71	-13	-11.71	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-48.53	4.02	29.80	-22.75	-13	-9.75	Horizontal
3440.0	-47.75	4.02	29.80	-21.97	-13	-8.97	Vertical
5160.0	-51.53	5.24	35.84	-20.93	-13	-7.93	Vertical
5160.0	-49.89	5.24	35.84	-19.29	-13	-6.29	Horizontal
182.5	-39.15	1.57	17.26	-23.46	-13	-10.46	Vertical
310.2	-34.55	1.78	16.35	-19.98	-13	-6.98	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-49.18	4.03	30.00	-23.21	-13	-10.21	Horizontal
3465.0	-50.14	4.03	30.00	-24.17	-13	-11.17	Vertical
5197.5	-47.63	5.25	35.86	-17.02	-13	-4.02	Vertical
5197.5	-47.89	5.25	35.86	-17.28	-13	-4.28	Horizontal
208.7	-39.90	1.44	17.95	-23.39	-13	-10.39	Vertical
269.5	-32.04	1.65	16.09	-17.60	-13	-4.60	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-44.48	2.91	27.68	-19.71	-13	-6.71	Horizontal
3490.0	-44.94	2.91	27.68	-20.17	-13	-7.17	Vertical
5235.0	-47.49	5.26	35.86	-16.89	-13	-3.89	Vertical
5235.0	-52.20	5.26	35.86	-21.60	-13	-8.60	Horizontal
184.8	-40.14	1.61	16.85	-24.90	-13	-11.90	Vertical
290.8	-39.68	1.61	15.19	-26.10	-13	-13.10	Horizontal

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

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

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-46.54	2.78	27.50	-21.82	-13	-8.82	Horizontal
1649.4	-49.67	2.78	27.50	-24.95	-13	-11.95	Vertical
2474.1	-45.53	2.90	27.80	-20.63	-13	-7.63	Vertical
2474.1	-51.24	2.90	27.80	-26.34	-13	-13.34	Horizontal
179.0	-36.33	1.76	17.59	-20.50	-13	-7.50	Vertical
460.3	-39.60	1.63	15.87	-25.36	-13	-12.36	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-46.25	2.80	27.48	-21.57	-13	-8.57	Horizontal
1673.0	-45.54	2.80	27.48	-20.86	-13	-7.86	Vertical
2509.5	-42.94	2.91	27.70	-18.15	-13	-5.15	Vertical
2509.5	-49.65	2.91	27.70	-24.86	-13	-11.86	Horizontal
212.9	-40.89	1.61	15.68	-26.82	-13	-13.82	Vertical
431.5	-36.00	1.59	17.52	-20.08	-13	-7.08	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.28	2.82	27.43	-23.67	-13	-10.67	Horizontal
1696.6	-50.65	2.82	27.43	-26.04	-13	-13.04	Vertical
2544.9	-43.18	2.92	27.74	-18.36	-13	-5.36	Vertical
2544.9	-50.83	2.92	27.74	-26.01	-13	-13.01	Horizontal
192.7	-34.39	1.69	16.67	-19.40	-13	-6.40	Vertical
366.5	-34.14	1.70	17.18	-18.66	-13	-5.66	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-50.82	2.78	27.50	-26.10	-13	-13.10	Horizontal
1658.0	-41.28	2.78	27.50	-16.56	-13	-3.56	Vertical
2487.0	-52.53	2.90	27.80	-27.63	-13	-14.63	Vertical
2487.0	-48.18	2.90	27.80	-23.28	-13	-10.28	Horizontal
199.8	-42.33	1.71	15.57	-28.47	-13	-15.47	Vertical
363.9	-32.25	1.34	16.40	-17.19	-13	-4.19	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-41.63	2.80	27.48	-16.95	-13	-3.95	Horizontal
1673.0	-42.69	2.80	27.48	-18.01	-13	-5.01	Vertical
2509.5	-50.62	2.91	27.70	-25.83	-13	-12.83	Vertical
2509.5	-46.98	2.91	27.70	-22.19	-13	-9.19	Horizontal
212.0	-32.25	1.44	17.04	-16.65	-13	-3.65	Vertical
343.3	-42.02	1.76	17.62	-26.16	-13	-13.16	Horizontal
Test Results for High Channel 844MHz							
1688.0	-46.07	2.82	27.43	-21.46	-13	-8.46	Horizontal
1688.0	-46.95	2.82	27.43	-22.34	-13	-9.34	Vertical
2532.0	-50.23	2.92	27.74	-25.41	-13	-12.41	Vertical
2532.0	-47.23	2.92	27.74	-22.41	-13	-9.41	Horizontal
205.3	-34.74	1.74	17.70	-18.78	-13	-5.78	Vertical
393.0	-35.01	1.41	17.46	-18.95	-13	-5.95	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	-63.49	5.23	35.81	-32.91	-25	-7.91	Horizontal
5005.0	-62.43	5.23	35.81	-31.85	-25	-6.85	Vertical
7507.5	-62.80	5.67	36.85	-31.62	-25	-6.62	Vertical
7507.5	-61.72	5.67	36.85	-30.54	-25	-5.54	Horizontal
202.7	-50.80	1.73	17.97	-34.56	-25	-9.56	Vertical
450.7	-49.38	1.38	15.11	-35.65	-25	-10.65	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-58.61	5.23	35.82	-28.02	-25	-3.02	Horizontal
5070.0	-63.67	5.23	35.82	-33.08	-25	-8.08	Vertical
7605.0	-61.47	5.67	36.85	-30.29	-25	-5.29	Vertical
7605.0	-62.36	5.67	36.85	-31.18	-25	-6.18	Horizontal
210.9	-42.58	1.77	16.17	-28.17	-25	-3.17	Vertical
232.7	-49.31	1.63	15.21	-35.73	-25	-10.73	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-59.49	5.24	35.83	-28.90	-25	-3.90	Horizontal
5135.0	-59.08	5.24	35.83	-28.49	-25	-3.49	Vertical
7702.5	-60.71	5.68	36.87	-29.52	-25	-4.52	Vertical
7702.5	-60.09	5.68	36.87	-28.90	-25	-3.90	Horizontal
186.4	-44.53	1.58	17.56	-28.55	-25	-3.55	Vertical
263.7	-48.43	1.45	16.58	-33.30	-25	-8.30	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	-58.72	5.23	35.82	-28.13	-25	-3.13	Horizontal
5020.0	-61.05	5.23	35.82	-30.46	-25	-5.46	Vertical
7530.0	-60.56	5.67	36.86	-29.37	-25	-4.37	Vertical
7530.0	-59.38	5.67	36.86	-28.19	-25	-3.19	Horizontal
192.6	-48.09	1.63	15.76	-33.96	-25	-8.96	Vertical
379.3	-50.22	1.71	15.44	-36.49	-25	-11.49	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.89	5.23	35.82	-30.30	-25	-5.30	Horizontal
5070.0	-59.35	5.23	35.82	-28.76	-25	-3.76	Vertical
7605.0	-59.80	5.67	36.85	-28.62	-25	-3.62	Vertical
7605.0	-60.05	5.67	36.85	-28.87	-25	-3.87	Horizontal
198.7	-45.70	1.79	16.84	-30.64	-25	-5.64	Vertical
346.1	-44.56	1.71	17.64	-28.63	-25	-3.63	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-59.75	5.24	35.83	-29.16	-25	-4.16	Horizontal
5120.0	-60.27	5.24	35.83	-29.68	-25	-4.68	Vertical
7680.0	-59.84	5.70	36.88	-28.66	-25	-3.66	Vertical
7680.0	-60.59	5.70	36.88	-29.41	-25	-4.41	Horizontal
193.4	-44.75	1.79	16.84	-29.69	-25	-4.69	Vertical
349.4	-44.50	1.71	17.64	-28.57	-25	-3.57	Horizontal

Note: Spurious Emission Level = Spectrum Analyzer Read Value + Cable Loss+ Antenna Factor + 11.74

. Margin = Spurious Emission Level - Limit

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

9.5 LTE BAND 12

QPSK EIRP POWER FOR LTE BAND 12 (1.4MHZ BANDWIDTH)

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-42.52	2.60	27.20	-17.92	-13	-4.92	Horizontal
1399.4	-43.19	2.60	27.20	-18.59	-13	-5.59	Vertical
2099.1	-49.12	2.85	27.54	-24.43	-13	-11.43	Vertical
2099.1	-47.92	2.85	27.54	-23.23	-13	-10.23	Horizontal
211.7	-36.25	1.49	17.78	-19.96	-13	-6.96	Vertical
386.4	-40.06	1.36	17.33	-24.09	-13	-11.09	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-45.05	2.61	27.28	-20.38	-13	-7.38	Horizontal
1415.0	-44.11	2.61	27.28	-19.44	-13	-6.44	Vertical
2122.5	-50.32	2.87	27.59	-25.60	-13	-12.60	Vertical
2122.5	-49.03	2.87	27.59	-24.31	-13	-11.31	Horizontal
207.5	-39.01	1.73	15.74	-25.00	-13	-12.00	Vertical
384.6	-32.89	1.62	15.79	-18.72	-13	-5.72	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-50.73	2.63	27.28	-26.08	-13	-13.08	Horizontal
1430.6	-46.74	2.63	27.28	-22.09	-13	-9.09	Vertical
2145.9	-43.67	2.88	27.60	-18.95	-13	-5.95	Vertical
2145.9	-47.58	2.88	27.60	-22.86	-13	-9.86	Horizontal
186.4	-33.59	1.61	18.00	-17.20	-13	-4.20	Vertical
280.4	-35.46	1.45	15.49	-21.43	-13	-8.43	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-51.94	2.61	27.26	-27.29	-13	-14.29	Horizontal
1408.0	-46.05	2.61	27.26	-21.40	-13	-8.40	Vertical
2112.0	-48.22	2.87	27.58	-23.51	-13	-10.51	Vertical
2112.0	-50.41	2.87	27.58	-25.70	-13	-12.70	Horizontal
197.3	-40.51	1.31	16.97	-24.85	-13	-11.85	Vertical
468.6	-42.32	1.65	16.70	-27.27	-13	-14.27	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-44.48	2.61	27.28	-19.81	-13	-6.81	Horizontal
1415.0	-50.92	2.61	27.28	-26.25	-13	-13.25	Vertical
2122.5	-51.14	2.87	27.59	-26.42	-13	-13.42	Vertical
2122.5	-50.24	2.87	27.59	-25.52	-13	-12.52	Horizontal
175.4	-35.46	1.72	17.99	-19.19	-13	-6.19	Vertical
362.7	-39.72	1.73	17.94	-23.51	-13	-10.51	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.66	2.62	27.28	-23.00	-13	-10.00	Horizontal
1422.0	-42.49	2.62	27.28	-17.83	-13	-4.83	Vertical
2133.0	-51.90	2.87	27.60	-27.17	-13	-14.17	Vertical
2133.0	-48.87	2.87	27.60	-24.14	-13	-11.14	Horizontal
209.0	-36.05	1.58	15.93	-21.70	-13	-8.70	Vertical
360.9	-32.52	1.36	15.59	-18.29	-13	-5.29	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	-48.88	2.61	27.28	-24.21	-13	-11.21	Horizontal
1413.0	-44.75	2.61	27.28	-20.08	-13	-7.08	Vertical
2119.5	-49.97	2.87	27.59	-25.25	-13	-12.25	Vertical
2119.5	-48.82	2.87	27.59	-24.10	-13	-11.10	Horizontal
209.6	-34.18	1.71	16.15	-19.74	-13	-6.74	Vertical
420.5	-43.77	1.41	17.32	-27.86	-13	-14.86	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-44.41	2.62	27.30	-19.73	-13	-6.73	Horizontal
1420.0	-46.56	2.62	27.30	-21.88	-13	-8.88	Vertical
2130.0	-42.84	2.87	27.62	-18.09	-13	-5.09	Vertical
2130.0	-49.33	2.87	27.62	-24.58	-13	-11.58	Horizontal
201.1	-36.43	1.42	15.25	-22.61	-13	-9.61	Vertical
320.8	-39.87	1.36	17.19	-24.04	-13	-11.04	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-50.10	2.66	27.28	-25.48	-13	-12.48	Horizontal
1427.0	-44.21	2.66	27.28	-19.59	-13	-6.59	Vertical
2140.5	-44.39	2.88	27.60	-19.67	-13	-6.67	Vertical
2140.5	-50.31	2.88	27.60	-25.59	-13	-12.59	Horizontal
175.6	-40.11	1.32	17.29	-24.14	-13	-11.14	Vertical
445.7	-37.31	1.72	16.89	-22.14	-13	-9.14	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-48.13	2.62	27.30	-23.45	-13	-10.45	Horizontal
1418.0	-50.99	2.62	27.30	-26.31	-13	-13.31	Vertical
2127.0	-47.32	2.87	27.62	-22.57	-13	-9.57	Vertical
2127.0	-48.13	2.87	27.62	-23.38	-13	-10.38	Horizontal
196.4	-33.63	1.35	16.91	-18.07	-13	-5.07	Vertical
269.0	-41.34	1.62	16.31	-26.65	-13	-13.65	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-43.47	2.62	27.30	-18.79	-13	-5.79	Horizontal
1420.0	-42.09	2.62	27.30	-17.41	-13	-4.41	Vertical
2130.0	-46.19	2.87	27.62	-21.44	-13	-8.44	Vertical
2130.0	-49.49	2.87	27.62	-24.74	-13	-11.74	Horizontal
202.1	-43.06	1.51	17.14	-27.43	-13	-14.43	Vertical
398.2	-38.66	1.77	16.88	-23.55	-13	-10.55	Horizontal
Test Results for High Channel 711MHz							
1422.0	-45.43	2.62	27.30	-20.75	-13	-7.75	Horizontal
1422.0	-51.84	2.62	27.30	-27.16	-13	-14.16	Vertical
2133.0	-43.42	2.87	27.62	-18.67	-13	-5.67	Vertical
2133.0	-42.90	2.87	27.62	-18.15	-13	-5.15	Horizontal
201.8	-36.78	1.78	15.95	-22.61	-13	-9.61	Vertical
411.8	-36.02	1.34	17.95	-19.42	-13	-6.42	Horizontal

Note: Spurious Emission Level = Spectrum Analyzer Read Value + Cable Loss+ Antenna Factor + 11.74

. Margin = Spurious Emission Level - Limit

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

9.7 LTE BAND 41

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

Test Results for Low Channel 2542.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.0	-59.29	5.23	35.81	-28.71	-25	-3.71	Horizontal
5145.0	-60.38	5.23	35.81	-29.80	-25	-4.80	Vertical
7717.5	-59.26	5.67	36.85	-28.08	-25	-3.08	Vertical
7717.5	-62.27	5.67	36.85	-31.09	-25	-6.09	Horizontal
435.3	-43.08	1.38	15.98	-28.48	-25	-3.48	Vertical
465.8	-42.12	1.62	15.66	-28.08	-25	-3.08	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-63.51	5.23	35.82	-32.92	-25	-7.92	Horizontal
5190.0	-59.12	5.23	35.82	-28.53	-25	-3.53	Vertical
7785.0	-60.74	5.67	36.85	-29.56	-25	-4.56	Vertical
7785.0	-61.92	5.67	36.85	-30.74	-25	-5.74	Horizontal
510.4	-46.77	1.62	16.17	-32.22	-25	-7.22	Vertical
562.9	-44.14	1.74	17.63	-28.25	-25	-3.25	Horizontal
Test Results for High Channel 2647.5MHz							
5235.0	-59.16	5.24	35.83	-28.57	-25	-3.57	Horizontal
5235.0	-60.26	5.24	35.83	-29.67	-25	-4.67	Vertical
7852.5	-61.25	5.68	36.87	-30.06	-25	-5.06	Vertical
7852.5	-59.79	5.68	36.87	-28.60	-25	-3.60	Horizontal
197.6	-42.99	1.55	15.84	-28.70	-25	-3.70	Vertical
353.1	-45.95	1.51	17.06	-30.40	-25	-5.40	Horizontal

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

Test Results for Low Channel 2550MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160.0	-61.30	5.23	35.82	-30.71	-25	-5.71	Horizontal
5160.0	-59.25	5.23	35.82	-28.66	-25	-3.66	Vertical
7740.0	-61.78	5.67	36.86	-30.59	-25	-5.59	Vertical
7740.0	-60.92	5.67	36.86	-29.73	-25	-4.73	Horizontal
128.9	-43.10	1.43	15.51	-29.02	-25	-4.02	Vertical
344.8	-44.23	1.40	16.97	-28.66	-25	-3.66	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-60.23	5.23	35.82	-29.64	-25	-4.64	Horizontal
5190.0	-59.32	5.23	35.82	-28.73	-25	-3.73	Vertical
7785.0	-59.94	5.67	36.85	-28.76	-25	-3.76	Vertical
7785.0	-59.74	5.67	36.85	-28.56	-25	-3.56	Horizontal
100.8	-48.18	1.77	16.72	-33.23	-25	-8.23	Vertical
263.5	-47.85	1.31	16.99	-32.17	-25	-7.17	Horizontal
Test Results for High Channel 2640MHz							
5220.0	-62.64	5.24	35.83	-32.05	-25	-7.05	Horizontal
5220.0	-61.43	5.24	35.83	-30.84	-25	-5.84	Vertical
7830.0	-59.75	5.70	36.88	-28.57	-25	-3.57	Vertical
7830.0	-60.63	5.70	36.88	-29.45	-25	-4.45	Horizontal
349.9	-46.52	1.70	15.73	-32.49	-25	-7.49	Vertical
110.3	-44.19	1.75	17.33	-28.61	-25	-3.61	Horizontal

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

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

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

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

9.8 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-58.06	3.84	35.81	-26.09	-13	-13.09	Horizontal
3421.4	-60.89	3.84	35.81	-28.92	-13	-15.92	Vertical
5132.1	-61.90	5.18	36.85	-30.23	-13	-17.23	Vertical
5132.1	-60.70	5.18	36.85	-29.03	-13	-16.03	Horizontal
203.9	-48.27	1.56	17.97	-31.86	-13	-18.86	Vertical
305.7	-51.58	1.33	15.11	-37.80	-13	-24.80	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-61.55	3.85	35.82	-29.58	-13	-16.58	Horizontal
3490.0	-60.73	3.85	35.82	-28.76	-13	-15.76	Vertical
5235.0	-59.37	5.21	36.85	-27.73	-13	-14.73	Vertical
5235.0	-61.27	5.21	36.85	-29.63	-13	-16.63	Horizontal
187.3	-47.72	1.77	16.17	-33.31	-13	-20.31	Vertical
390.0	-47.92	1.63	15.21	-34.34	-13	-21.34	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-58.55	3.86	35.83	-26.58	-13	-13.58	Horizontal
3558.6	-58.04	3.86	35.83	-26.07	-13	-13.07	Vertical
5337.9	-57.45	5.24	36.87	-25.82	-13	-12.82	Vertical
5337.9	-60.22	5.24	36.87	-28.59	-13	-15.59	Horizontal
198.1	-45.93	1.58	17.56	-29.95	-13	-16.95	Vertical
268.4	-49.85	1.45	16.58	-34.72	-13	-21.72	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-61.99	3.84	35.82	-30.01	-13	-17.01	Horizontal
3440.0	-62.33	3.84	35.82	-30.35	-13	-17.35	Vertical
5160.0	-59.47	5.18	36.86	-27.79	-13	-14.79	Vertical
5160.0	-62.97	5.18	36.86	-31.29	-13	-18.29	Horizontal
180.4	-50.64	1.56	15.76	-36.44	-13	-23.44	Vertical
323.5	-46.15	1.33	15.44	-32.04	-13	-19.04	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-58.64	3.85	35.82	-26.67	-13	-13.67	Horizontal
3490.0	-61.76	3.85	35.82	-29.79	-13	-16.79	Vertical
5235.0	-62.56	5.21	36.85	-30.92	-13	-17.92	Vertical
5235.0	-56.99	5.21	36.85	-25.35	-13	-12.35	Horizontal
182.6	-45.51	1.77	16.84	-30.43	-13	-17.43	Vertical
251.6	-52.15	1.63	17.64	-36.14	-13	-23.14	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-57.92	3.86	35.83	-25.95	-13	-12.95	Horizontal
3540.0	-60.60	3.86	35.83	-28.63	-13	-15.63	Vertical
5310.0	-59.32	5.24	36.88	-27.68	-13	-14.68	Vertical
5310.0	-58.44	5.24	36.88	-26.80	-13	-13.80	Horizontal
182.3	-46.88	1.58	16.84	-31.61	-13	-18.61	Vertical
310.2	-47.93	1.45	17.64	-31.74	-13	-18.74	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54, §90.213

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

Temp. = -30° to $+50^{\circ}\text{C}$

Voltage = low voltage, DC 3.27V, Normal, DC 3.85V and High voltage, DC 4.43V.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

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

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]
3.27	1880	7.8	0.004149	2.5
3.85	1880	9.9	0.005266	2.5
4.43	1880	8.7	0.004628	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	14.6	0.007766	2.5
Extreme (50C)	1880	13.5	0.007181	2.5
Extreme (40C)	1880	13.3	0.007074	2.5
Extreme (30C)	1880	10.3	0.005479	2.5
Extreme (10C)	1880	3.6	0.001915	2.5
Extreme (0C)	1880	9.6	0.005106	2.5
Extreme (-10C)	1880	12.5	0.006649	2.5
Extreme (-20C)	1880	13.9	0.007394	2.5
Extreme (-30C)	1880	14.6	0.007766	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]
3.27	1880	12.6	0.006702	2.5
3.85	1880	9.7	0.005160	2.5
4.43	1880	16.6	0.008830	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.7	0.006755	2.5
Extreme (50C)	1880	12.5	0.006649	2.5
Extreme (40C)	1880	15.5	0.008245	2.5
Extreme (30C)	1880	10.6	0.005638	2.5
Extreme (10C)	1880	16.2	0.008617	2.5
Extreme (0C)	1880	11.7	0.006223	2.5
Extreme (-10C)	1880	16.6	0.008830	2.5
Extreme (-20C)	1880	15.5	0.008245	2.5
Extreme (-30C)	1880	10.9	0.005798	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]
3.27	1732.5	15.8	0.009120	2.5
3.85	1732.5	11.7	0.006753	2.5
4.43	1732.5	11.8	0.006811	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	14.2	0.008196	2.5
Extreme (50C)	1732.5	8.8	0.005079	2.5
Extreme (40C)	1732.5	15.2	0.008773	2.5
Extreme (30C)	1732.5	13.3	0.007677	2.5
Extreme (10C)	1732.5	10.2	0.005887	2.5
Extreme (0C)	1732.5	13.8	0.007965	2.5
Extreme (-10C)	1732.5	14.9	0.008600	2.5
Extreme (-20C)	1732.5	8.8	0.005079	2.5
Extreme (-30C)	1732.5	15.6	0.009004	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]
3.27	1732.5	10.3	0.005945	2.5
3.85	1732.5	15.3	0.008831	2.5
4.43	1732.5	13.6	0.007850	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	13.2	0.007619	2.5
Extreme (50C)	1732.5	14.6	0.008427	2.5
Extreme (40C)	1732.5	6.8	0.003925	2.5
Extreme (30C)	1732.5	12.8	0.007388	2.5
Extreme (10C)	1732.5	14.4	0.008312	2.5
Extreme (0C)	1732.5	9.4	0.005426	2.5
Extreme (-10C)	1732.5	11.7	0.006753	2.5
Extreme (-20C)	1732.5	14.3	0.008254	2.5
Extreme (-30C)	1732.5	13.6	0.007850	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]
3.27	836.5	15.9	0.019008	2.5
3.85	836.5	8.5	0.010161	2.5
4.43	836.5	12.2	0.014585	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	11.2	0.013389	2.5
Extreme (50C)	836.5	12.6	0.015063	2.5
Extreme (40C)	836.5	5.7	0.006814	2.5
Extreme (30C)	836.5	14.5	0.017334	2.5
Extreme (10C)	836.5	6.6	0.007890	2.5
Extreme (0C)	836.5	11.3	0.013509	2.5
Extreme (-10C)	836.5	13.8	0.016497	2.5
Extreme (-20C)	836.5	15.2	0.018171	2.5
Extreme (-30C)	836.5	14.3	0.017095	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]
3.27	836.5	11.1	0.013270	2.5
3.85	836.5	14.6	0.017454	2.5
4.43	836.5	13.2	0.015780	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	14.8	0.017693	2.5
Extreme (50C)	836.5	12.6	0.015063	2.5
Extreme (40C)	836.5	12.2	0.014585	2.5
Extreme (30C)	836.5	13.6	0.016258	2.5
Extreme (10C)	836.5	14.9	0.017812	2.5
Extreme (0C)	836.5	14.2	0.016975	2.5
Extreme (-10C)	836.5	15.3	0.018290	2.5
Extreme (-20C)	836.5	12.6	0.015063	2.5
Extreme (-30C)	836.5	11.9	0.014226	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]
3.27	2535	14.5	0.005720	2.5
3.85	2535	15.7	0.006193	2.5
4.43	2535	5.2	0.002051	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	13.7	0.005404	2.5
Extreme (50C)	2535	15.6	0.006154	2.5
Extreme (40C)	2535	13.2	0.005207	2.5
Extreme (30C)	2535	14.2	0.005602	2.5
Extreme (10C)	2535	10.7	0.004221	2.5
Extreme (0C)	2535	14.2	0.005602	2.5
Extreme (-10C)	2535	8.9	0.003511	2.5
Extreme (-20C)	2535	15.6	0.006154	2.5
Extreme (-30C)	2535	11.7	0.004615	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]
3.27	2535	6.8	0.002682	2.5
3.85	2535	14.2	0.005602	2.5
4.43	2535	11.4	0.004497	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	14.3	0.005641	2.5
Extreme (50C)	2535	14.9	0.005878	2.5
Extreme (40C)	2535	13.7	0.005404	2.5
Extreme (30C)	2535	15.5	0.006114	2.5
Extreme (10C)	2535	6.6	0.002604	2.5
Extreme (0C)	2535	15.8	0.006233	2.5
Extreme (-10C)	2535	13.2	0.005207	2.5
Extreme (-20C)	2535	14.9	0.005878	2.5
Extreme (-30C)	2535	15.7	0.006193	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]
3.27	707.5	10.6	0.014982	2.5
3.85	707.5	12.6	0.017809	2.5
4.43	707.5	14.2	0.020071	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	10.1	0.014276	2.5
Extreme (50C)	707.5	11.6	0.016396	2.5
Extreme (40C)	707.5	13.2	0.018657	2.5
Extreme (30C)	707.5	11.7	0.016537	2.5
Extreme (10C)	707.5	14.5	0.020495	2.5
Extreme (0C)	707.5	13.6	0.019223	2.5
Extreme (-10C)	707.5	12.7	0.017951	2.5
Extreme (-20C)	707.5	10.8	0.015265	2.5
Extreme (-30C)	707.5	14.3	0.020212	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]
3.27	707.5	12.2	0.017244	2.5
3.85	707.5	15.9	0.022473	2.5
4.43	707.5	14.3	0.020212	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	14.2	0.020071	2.5
Extreme (50C)	707.5	11.6	0.016396	2.5
Extreme (40C)	707.5	14.7	0.020777	2.5
Extreme (30C)	707.5	11.9	0.016820	2.5
Extreme (10C)	707.5	14.1	0.019929	2.5
Extreme (0C)	707.5	8.9	0.012580	2.5
Extreme (-10C)	707.5	16.2	0.022898	2.5
Extreme (-20C)	707.5	15.2	0.021484	2.5
Extreme (-30C)	707.5	5.3	0.007491	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]
3.27	710	14.8	0.020845	2.5
3.85	710	13.1	0.018451	2.5
4.43	710	14.5	0.020423	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	6.6	0.009296	2.5
Extreme (50C)	710	13.8	0.019437	2.5
Extreme (40C)	710	14.6	0.020563	2.5
Extreme (30C)	710	7.8	0.010986	2.5
Extreme (10C)	710	15.7	0.022113	2.5
Extreme (0C)	710	12.2	0.017183	2.5
Extreme (-10C)	710	12.6	0.017746	2.5
Extreme (-20C)	710	13.9	0.019577	2.5
Extreme (-30C)	710	14.8	0.020845	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]
3.27	710	8.8	0.012394	2.5
3.85	710	11.3	0.015915	2.5
4.43	710	13.2	0.018592	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	11.2	0.015775	2.5
Extreme (50C)	710	11.9	0.016761	2.5
Extreme (40C)	710	8.7	0.012254	2.5
Extreme (30C)	710	10.9	0.015352	2.5
Extreme (10C)	710	12.7	0.017887	2.5
Extreme (0C)	710	8.6	0.012113	2.5
Extreme (-10C)	710	8.2	0.011549	2.5
Extreme (-20C)	710	10.3	0.014507	2.5
Extreme (-30C)	710	10.1	0.014225	2.5

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

10.7 LTE BAND 41

Band 41 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2595	13.7	0.005283	2.5
3.85	2595	12.2	0.004705	2.5
4.43	2595	13.9	0.005361	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	10.6	0.004088	2.5
Extreme (50C)	2595	13.3	0.005129	2.5
Extreme (40C)	2595	13.5	0.005206	2.5
Extreme (30C)	2595	13.7	0.005283	2.5
Extreme (10C)	2595	10.2	0.003934	2.5
Extreme (0C)	2595	12.5	0.004821	2.5
Extreme (-10C)	2595	11.2	0.004319	2.5
Extreme (-20C)	2595	11.9	0.004589	2.5
Extreme (-30C)	2595	12.6	0.004859	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]
3.27	2595	12.2	0.004705	2.5
3.85	2595	13.5	0.005206	2.5
4.43	2595	7.7	0.002970	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	15.8	0.006093	2.5
Extreme (50C)	2595	10.7	0.004126	2.5
Extreme (40C)	2595	13.5	0.005206	2.5
Extreme (30C)	2595	5.9	0.002275	2.5
Extreme (10C)	2595	15.3	0.005901	2.5
Extreme (0C)	2595	4.6	0.001774	2.5
Extreme (-10C)	2595	10.5	0.004049	2.5
Extreme (-20C)	2595	14.9	0.005746	2.5
Extreme (-30C)	2595	13.2	0.005091	2.5

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

10.8 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1745	6.5	0.003725	2.5
3.85	1745	7.8	0.004470	2.5
4.35	1745	5.2	0.002980	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	5.5	0.003152	2.5
Extreme (50C)	1745	8.9	0.005100	2.5
Extreme (40C)	1745	6.2	0.003553	2.5
Extreme (30C)	1745	5.9	0.003381	2.5
Extreme (10C)	1745	6.4	0.003668	2.5
Extreme (0C)	1745	4.8	0.002751	2.5
Extreme (-10C)	1745	12.6	0.007221	2.5
Extreme (-20C)	1745	8.3	0.004756	2.5
Extreme (-30C)	1745	9.5	0.005444	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1745	7.4	0.004241	2.5
3.85	1745	6.2	0.003553	2.5
4.35	1745	8.9	0.005100	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	8.5	0.004871	2.5
Extreme (50C)	1745	7.2	0.004126	2.5
Extreme (40C)	1745	8.3	0.004756	2.5
Extreme (30C)	1745	9.1	0.005215	2.5
Extreme (10C)	1745	8.4	0.004814	2.5
Extreme (0C)	1745	6.6	0.003782	2.5
Extreme (-10C)	1745	7.4	0.004241	2.5
Extreme (-20C)	1745	8.1	0.004642	2.5
Extreme (-30C)	1745	4.9	0.002808	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

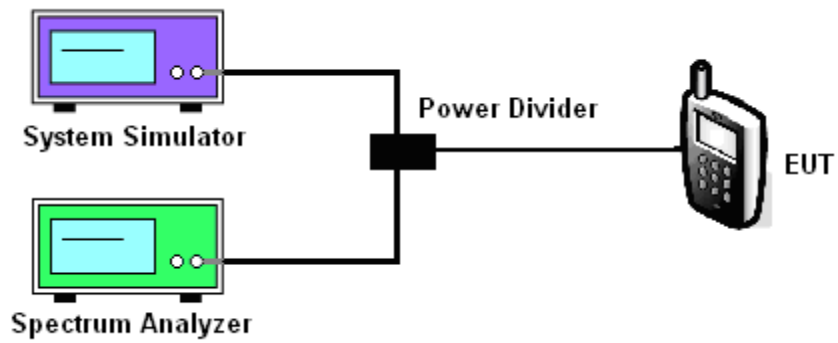
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

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

Test data reference attachment.

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