

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

FCC ID: 2ANMU-WP13

Product: Smart Phone
Trade Mark: OUKITEL
Model Number: WP13
Family Model: N/A
Report No.: S21060402406006

Prepared for

SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
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TEST RESULT CERTIFICATION

Applicant's name : SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address..... : A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU
INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN, 518XXX
China
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 .. : WP13
Family Model: N/A
Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27, Part 90S
Test procedure : ANSI C63.26:2015
ANSI/TIA-603-E-2016

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

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Date of Test

Date (s) of performance of tests..... 04 Jun. 2021 ~21 Jul, 2021

Date of Issue 22 Jul, 2021

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

Testing Engineer :



(Allen Liu)

Authorized Signatory :



(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart Phone
Trade Mark	OUKITEL
Model Name	WP13
Family Model	N/A
Model Difference	N/A
FCC ID:	2ANMU-WP13
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,7,12, 17,25,26, 66
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 25 Uplink: 1850MHz-1915MHz, Downlink: 1930MHz-1995MHz; LTE FDD Band 26 Uplink: 814MHz-849MHz, Downlink: 859MHz-894MHz; LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
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: 0.77dBi; Band 4: 0.62dBi ; Band 5: 0.35dBi ; Band 7: 1.11dBi ; Band 12: 0.25dBi ; Band 17: 0.25dBi; Band 25: 0.62dBi; Band 26: 0.35dBi; Band 66: 0.75dBi;
Power Supply:	DC 3.87V/5280mAh from battery or DC 5V from Adapter.

Adapter:	Model: HJ-FC017K7-US Input: 100-240V~50/60Hz 0.6A Output: 5.0V---2.0A OR 7.0V---2.0A OR 9.0V---2.0A OR 12.0V---1.5A 18.0W
Extreme Vol. Limits:	DC 3.4V to DC 4.4V (Nominal DC 3.87V) (Note 1)
HW Version	V318MUB-V3.0
SW Version	OUKITEL_WP13_EEA_V01
** Note1: The High Voltage DC 4.4V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2ANMU-WP13** filing to comply with the FCC Part 22H&24E&27&90S.

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	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, Band 4, Band 5, Band 7, Band 12, Band 17, Band 25, Band 26, Band 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	WP13	FCC ID: 2ANMU-WP13	EUT

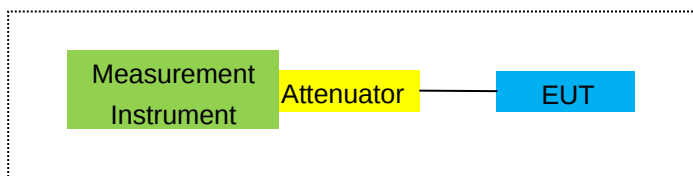
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

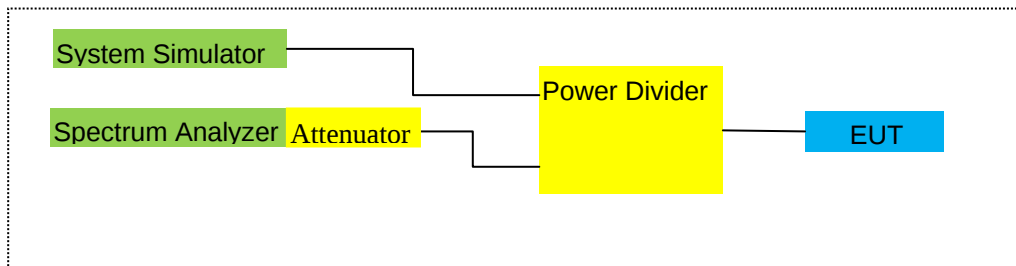
For Radiated Test Cases



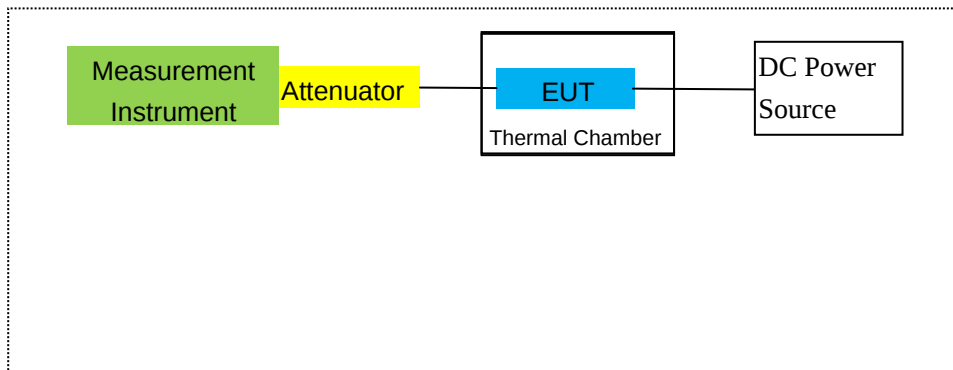
For Conducted Output Power



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	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
2	Test Receiver	R&S	ESPI	101318	2021.04.27	2022.04.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.29	2022.03.28	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-1018 0	2011071402	2021.03.29	2022.03.28	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
7	Amplifier	EM	EM-30180	060538	2020.07.13	2021.07.12	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2021.04.27	2022.04.26	1 year
9	Power Meter	R&S	NRVS	100696	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.0 5	2021.04.27	2022.04.26	1 year
11	Test Cable	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
12	Test Cable	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
14	Test Receiver	R&S	ESCI	101160	2021.04.27	2022.04.26	1 year
15	LISN	R&S	ENV216	101313	2021.04.27	2022.04.26	1 year
16	LISN	EMCO	3816/2	00042990	2021.04.27	2022.04.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2021.04.27	2022.04.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2021.04.27	2022.04.26	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2021.04.27	2022.04.26	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2021.04.27	2022.04.26	1 year
24	test receiver	R&S	ESCI	a0304218	2021.04.27	2022.04.26	1 year
25	Communication Tester	R&S	CMU200	A0304247	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2021.04.27	2022.04.26	1 year
27	DC Power Source	N/A	PS-6005D	20170402923	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2020.07.13 2021.07.01	2021.07.12 2022.06.30	1 year
29	Communication Tester	R&S	CMW500	148500	2020.08.07	2021.08.06	1 year

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 25,
- LTE Band 26,
- LTE Band 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, and §90.691

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

(m)(4) For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less 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

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 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 and §90.691

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

- ☐ LTE Band 2/4/5/7/12/17/25/26/66
- ☐

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 and §90.635

LIMITS:

- 22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
- 27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
- 27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
- 27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
- 27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.
- 90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

- ☐ LTE Band 2/4/5/7/12/17/25/26/66

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)	Factor Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-5.53	3.76	28.24	18.95	78.524	Horizontal	Pass
		1880	-4.10	3.91	28.22	20.21	104.954	Horizontal	Pass
		1909.3	-5.75	3.93	28.20	18.52	71.121	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.35	3.77	28.23	20.11	102.565	Horizontal	Pass
		1880	-4.65	3.91	28.24	19.68	92.897	Horizontal	Pass
		1908.5	-5.11	3.94	28.25	19.20	83.176	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.48	3.77	28.31	19.06	80.538	Horizontal	Pass
		1880	-4.89	3.91	28.22	19.42	87.498	Horizontal	Pass
		1907.5	-3.91	3.94	28.20	20.35	108.393	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.75	3.79	28.33	19.79	95.280	Horizontal	Pass
		1880	-4.70	3.95	28.22	19.57	90.573	Horizontal	Pass
		1905	-4.04	3.97	28.19	20.18	104.232	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-5.41	3.79	28.34	19.14	82.035	Horizontal	Pass
		1880	-3.86	3.95	28.22	20.41	109.901	Horizontal	Pass
		1902.5	-3.74	3.97	28.18	20.47	111.429	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.21	3.81	28.35	20.33	107.895	Horizontal	Pass
		1880	-5.23	3.96	28.22	19.03	79.983	Horizontal	Pass
		1900	-4.36	4.00	28.16	19.80	95.499	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-4.81	3.76	28.24	19.67	92.683	Vertical	Pass
		1880	-3.94	3.91	28.22	20.37	108.893	Vertical	Pass
		1909.3	-4.71	3.93	28.20	19.56	90.365	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.18	3.77	28.23	19.28	84.723	Vertical	Pass
		1880	-4.54	3.91	28.24	19.79	95.280	Vertical	Pass
		1908.5	-3.73	3.94	28.25	20.58	114.288	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.50	3.77	28.31	20.04	100.925	Vertical	Pass
		1880	-3.88	3.91	28.22	20.43	110.408	Vertical	Pass
		1907.5	-3.70	3.94	28.20	20.56	113.763	Vertical	Pass

10.0MH z Band QPSK	1/#Mid	1855	-4.81	3.79	28.33	19.73	93.972	Vertical	Pass
		1880	-5.48	3.95	28.22	18.79	75.683	Vertical	Pass
		1905	-5.74	3.97	28.19	18.48	70.469	Vertical	Pass
15.0MH z Band QPSK	1/#Mid	1857.5	-5.69	3.79	28.34	18.86	76.913	Vertical	Pass
		1880	-4.83	3.95	28.22	19.44	87.902	Vertical	Pass
		1902.5	-5.18	3.97	28.18	19.03	79.983	Vertical	Pass
20.0MH z Band QPSK	1/#Mid	1860	-5.61	3.81	28.35	18.93	78.163	Vertical	Pass
		1880	-5.62	3.96	28.22	18.64	73.114	Vertical	Pass
		1900	-3.45	4.00	28.16	20.71	117.761	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)

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.08	3.76	28.24	18.40	69.183	Horizontal	Pass
		1880	-5.49	3.91	28.22	18.82	76.208	Horizontal	Pass
		1909.3	-5.27	3.93	28.20	19.00	79.433	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-6.01	3.77	28.23	18.45	69.984	Horizontal	Pass
		1880	-5.46	3.91	28.24	18.87	77.090	Horizontal	Pass
		1908.5	-5.42	3.94	28.25	18.89	77.446	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.86	3.77	28.31	18.68	73.790	Horizontal	Pass
		1880	-5.60	3.91	28.22	18.71	74.302	Horizontal	Pass
		1907.5	-5.21	3.94	28.20	19.05	80.353	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.91	3.79	28.33	18.63	72.946	Horizontal	Pass
		1880	-5.51	3.95	28.22	18.76	75.162	Horizontal	Pass
		1905	-5.05	3.97	28.19	19.17	82.604	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.76	3.79	28.34	18.79	75.683	Horizontal	Pass
		1880	-5.56	3.95	28.22	18.71	74.302	Horizontal	Pass
		1902.5	-5.50	3.97	28.18	18.71	74.302	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-5.65	3.81	28.35	18.89	77.446	Horizontal	Pass
		1880	-5.01	3.96	28.22	19.25	84.140	Horizontal	Pass
		1900	-5.19	4.00	28.16	18.97	78.886	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.02	3.76	28.24	18.46	70.146	Vertical	Pass
		1880	-5.24	3.91	28.22	19.07	80.724	Vertical	Pass
		1909.3	-5.13	3.93	28.20	19.14	82.035	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.77	3.77	28.23	18.69	73.961	Vertical	Pass
		1880	-5.63	3.91	28.24	18.70	74.131	Vertical	Pass
		1908.5	-5.24	3.94	28.25	19.07	80.724	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.52	3.77	28.31	19.02	79.799	Vertical	Pass
		1880	-5.83	3.91	28.22	18.48	70.469	Vertical	Pass
		1907.5	-5.06	3.94	28.20	19.20	83.176	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.38	3.79	28.33	19.16	82.414	Vertical	Pass
		1880	-5.69	3.95	28.22	18.58	72.111	Vertical	Pass
		1905	-5.74	3.97	28.19	18.48	70.469	Vertical	Pass
15.0MHz Band	1/#Mid	1857.5	-5.43	3.79	28.34	19.12	81.658	Vertical	Pass
		1880	-6.31	3.95	28.22	17.96	62.517	Vertical	Pass

16 QAM		1902.5	-5.07	3.97	28.18	19.14	82.035	Vertical	Pass
20.0MH	1/#Mid	1860	-4.99	3.81	28.35	19.55	90.157	Vertical	Pass
z Band		1880	-5.05	3.96	28.22	19.21	83.368	Vertical	Pass
16 QAM		1900	-5.13	4.00	28.16	19.03	79.983	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/R B SIZE	Frequenc y	Result						Conclusio n
			SG Level	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
			(dBm)			Averag e	Averag e		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.98	3.12	27.58	20.48	111.686	Horizontal	Pass
		1732.5	-3.69	3.27	27.61	20.65	116.145	Horizontal	Pass
		1754.3	-4.14	3.29	27.63	20.20	104.713	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.37	3.13	27.61	19.11	81.470	Horizontal	Pass
		1732.5	-5.58	3.27	27.61	18.76	75.162	Horizontal	Pass
		1753.5	-5.87	3.30	27.62	18.45	69.984	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.55	3.13	27.63	19.95	98.855	Horizontal	Pass
		1732.5	-5.93	3.27	27.61	18.41	69.343	Horizontal	Pass
		1752.5	-3.60	3.30	27.60	20.70	117.490	Horizontal	Pass
10.0MH z Band QPSK	1/#Mid	1715	-4.48	3.15	27.64	20.01	100.231	Horizontal	Pass
		1732.5	-3.77	3.31	27.61	20.53	112.980	Horizontal	Pass
		1750	-3.73	3.33	27.59	20.53	112.980	Horizontal	Pass
15.0MH z Band QPSK	1/#Mid	1717.5	-5.32	3.15	27.65	19.18	82.794	Horizontal	Pass
		1732.5	-3.64	3.31	27.61	20.66	116.413	Horizontal	Pass
		1747.5	-4.04	3.33	27.57	20.20	104.713	Horizontal	Pass
20.0MH z Band QPSK	1/#Mid	1720	-5.43	3.17	27.66	19.06	80.538	Horizontal	Pass
		1732.5	-3.75	3.32	27.61	20.54	113.240	Horizontal	Pass
		1745	-4.08	3.36	27.56	20.12	102.802	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.79	3.12	27.58	20.67	116.681	Vertical	Pass
		1732.5	-5.00	3.27	27.61	19.34	85.901	Vertical	Pass
		1754.3	-5.40	3.29	27.63	18.94	78.343	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.74	3.13	27.61	20.74	118.577	Vertical	Pass
		1732.5	-4.08	3.27	27.61	20.26	106.170	Vertical	Pass
		1753.5	-3.94	3.30	27.62	20.38	109.144	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.34	3.13	27.63	19.16	82.414	Vertical	Pass
		1732.5	-4.46	3.27	27.61	19.88	97.275	Vertical	Pass
		1752.5	-5.37	3.30	27.60	18.93	78.163	Vertical	Pass
10.0MH z Band	1/#Mid	1715	-5.17	3.15	27.64	19.32	85.507	Vertical	Pass
		1732.5	-5.29	3.31	27.61	19.01	79.616	Vertical	Pass

QPSK		1750	-3.97	3.33	27.59	20.29	106.905	Vertical	Pass
15.0MHz z Band QPSK	1/#Mid	1717.5	-5.23	3.15	27.65	19.27	84.528	Vertical	Pass
		1732.5	-4.66	3.31	27.61	19.64	92.045	Vertical	Pass
		1747.5	-5.00	3.33	27.57	19.24	83.946	Vertical	Pass
20.0MHz z Band QPSK	1/#Mid	1720	-4.22	3.17	27.66	20.27	106.414	Vertical	Pass
		1732.5	-3.97	3.32	27.61	20.32	107.647	Vertical	Pass
		1745	-3.41	3.36	27.56	20.79	119.950	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)

Radiated Power (EIRP) for Band 4									
Mode	RB/R B SIZE	Frequenc y	Result						Conclusio n
			SG Level	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
			(dBm)			Averag e	Averag e		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.77	3.12	27.58	18.69	73.961	Horizontal	Pass
		1732.5	-6.04	3.27	27.61	18.30	67.608	Horizontal	Pass
		1754.3	-5.89	3.29	27.63	18.45	69.984	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.81	3.13	27.61	18.67	73.621	Horizontal	Pass
		1732.5	-7.23	3.27	27.61	17.11	51.404	Horizontal	Pass
		1753.5	-5.96	3.30	27.62	18.36	68.549	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.11	3.13	27.63	18.39	69.024	Horizontal	Pass
		1732.5	-6.16	3.27	27.61	18.18	65.766	Horizontal	Pass
		1752.5	-5.27	3.30	27.60	19.03	79.983	Horizontal	Pass
10.0MH z Band 16 QAM	1/#Mid	1715	-5.74	3.15	27.64	18.75	74.989	Horizontal	Pass
		1732.5	-6.26	3.31	27.61	18.04	63.680	Horizontal	Pass
		1750	-6.43	3.33	27.59	17.83	60.674	Horizontal	Pass
15.0MH z Band 16 QAM	1/#Mid	1717.5	-6.16	3.15	27.65	18.34	68.234	Horizontal	Pass
		1732.5	-5.76	3.31	27.61	18.54	71.450	Horizontal	Pass
		1747.5	-5.56	3.33	27.57	18.68	73.790	Horizontal	Pass
20.0MH z Band 16 QAM	1/#Mid	1720	-6.08	3.17	27.66	18.41	69.343	Horizontal	Pass
		1732.5	-5.04	3.32	27.61	19.25	84.140	Horizontal	Pass
		1745	-5.94	3.36	27.56	18.26	66.988	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.50	3.12	27.58	18.96	78.705	Vertical	Pass
		1732.5	-5.20	3.27	27.61	19.14	82.035	Vertical	Pass
		1754.3	-5.73	3.29	27.63	18.61	72.611	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.32	3.13	27.61	18.16	65.464	Vertical	Pass
		1732.5	-6.85	3.27	27.61	17.49	56.105	Vertical	Pass
		1753.5	-6.09	3.30	27.62	18.23	66.527	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.15	3.13	27.63	18.35	68.391	Vertical	Pass
		1732.5	-6.00	3.27	27.61	18.34	68.234	Vertical	Pass
		1752.5	-6.17	3.30	27.60	18.13	65.013	Vertical	Pass
10.0MH z Band 16 QAM	1/#Mid	1715	-5.63	3.15	27.64	18.86	76.913	Vertical	Pass
		1732.5	-5.81	3.31	27.61	18.49	70.632	Vertical	Pass
		1750	-5.10	3.33	27.59	19.16	82.414	Vertical	Pass
15.0MH z Band	1/#Mid	1717.5	-5.47	3.15	27.65	19.03	79.983	Vertical	Pass
		1732.5	-6.02	3.31	27.61	18.28	67.298	Vertical	Pass

16 QAM		1747.5	-4.99	3.33	27.57	19.25	84.140	Vertical	Pass
20.0MH	1/#Mid	1720	-5.07	3.17	27.66	19.42	87.498	Vertical	Pass
z Band		1732.5	-5.69	3.32	27.61	18.60	72.444	Vertical	Pass
16 QAM		1745	-5.14	3.36	27.56	19.06	80.538	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	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						(dB)	Average	Average		
							(dBm)	(dBm)		
1.4MHz Band QPSK	1/#Midd	824.7	3.29	2.01	19.68	2.15	18.81	76.033	Horizontal	Pass
		836.5	2.74	2.01	19.77	2.15	18.35	68.391	Horizontal	Pass
		848.3	3.14	2.02	19.82	2.15	18.79	75.683	Horizontal	Pass
3.0MHz Band QPSK	1/#Midd	825.5	2.89	2.01	19.70	2.15	18.43	69.663	Horizontal	Pass
		836.5	2.87	2.01	19.77	2.15	18.48	70.469	Horizontal	Pass
		847.5	3.21	2.02	19.81	2.15	18.85	76.736	Horizontal	Pass
5.0MHz Band QPSK	1/#Midd	826.5	2.70	2.01	19.71	2.15	18.25	66.834	Horizontal	Pass
		836.5	3.21	2.01	19.77	2.15	18.82	76.208	Horizontal	Pass
		846.5	2.55	2.02	19.79	2.15	18.17	65.615	Horizontal	Pass
10.0Hz Band QPSK	1/#Midd	829	2.87	2.01	19.73	2.15	18.44	69.823	Horizontal	Pass
		836.5	3.15	2.01	19.77	2.15	18.76	75.162	Horizontal	Pass
		844	3.16	2.02	19.78	2.15	18.77	75.336	Horizontal	Pass
1.4MHz Band QPSK	1/#Midd	824.7	3.58	2.01	19.68	2.15	19.10	81.283	Vertical	Pass
		836.5	2.56	2.01	19.77	2.15	18.17	65.615	Vertical	Pass
		848.3	2.89	2.02	19.82	2.15	18.54	71.450	Vertical	Pass
3.0MHz Band QPSK	1/#Midd	825.5	2.93	2.01	19.70	2.15	18.47	70.307	Vertical	Pass
		836.5	2.84	2.01	19.77	2.15	18.45	69.984	Vertical	Pass
		847.5	2.61	2.02	19.81	2.15	18.25	66.834	Vertical	Pass
5.0MHz Band QPSK	1/#Midd	826.5	3.38	2.01	19.71	2.15	18.93	78.163	Vertical	Pass
		836.5	2.50	2.01	19.77	2.15	18.11	64.714	Vertical	Pass
		846.5	3.48	2.02	19.79	2.15	19.10	81.283	Vertical	Pass
10.0M Hz Band QPSK	1/#Midd	829	3.20	2.01	19.73	2.15	18.77	75.336	Vertical	Pass
		836.5	3.51	2.01	19.77	2.15	19.12	81.658	Vertical	Pass
		844	2.86	2.02	19.78	2.15	18.47	70.307	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)

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization Of	
			(dBm)	(dBm)	(dB)	(dB)	Average (dBm)	Average (mW)	Max. ERP	
1.4MHz Band 16QAM	1/#Midd	824.7	3.00	2.01	19.68	2.15	18.52	71.121	Horizontal	Pass
		836.5	2.48	2.01	19.77	2.15	18.09	64.417	Horizontal	Pass
		848.3	2.29	2.02	19.82	2.15	17.94	62.230	Horizontal	Pass
3.0MHz Band 16QAM	1/#Midd	825.5	2.14	2.01	19.70	2.15	17.68	58.614	Horizontal	Pass
		836.5	2.71	2.01	19.77	2.15	18.32	67.920	Horizontal	Pass
		847.5	2.75	2.02	19.81	2.15	18.39	69.024	Horizontal	Pass
5.0MHz Band 16QAM	1/#Midd	826.5	2.31	2.01	19.71	2.15	17.86	61.094	Horizontal	Pass
		836.5	2.43	2.01	19.77	2.15	18.04	63.680	Horizontal	Pass
		846.5	2.65	2.02	19.79	2.15	18.27	67.143	Horizontal	Pass
10.0Hz Band 16QAM	1/#Midd	829	2.57	2.01	19.73	2.15	18.14	65.163	Horizontal	Pass
		836.5	2.20	2.01	19.77	2.15	17.81	60.395	Horizontal	Pass
		844	1.93	2.02	19.78	2.15	17.54	56.754	Horizontal	Pass
1.4MHz Band 16QAM	1/#Midd	824.7	2.54	2.01	19.68	2.15	18.06	63.973	Vertical	Pass
		836.5	1.47	2.01	19.77	2.15	17.08	51.050	Vertical	Pass
		848.3	1.96	2.02	19.82	2.15	17.61	57.677	Vertical	Pass
3.0MHz Band 16QAM	1/#Midd	825.5	1.68	2.01	19.70	2.15	17.22	52.723	Vertical	Pass
		836.5	2.28	2.01	19.77	2.15	17.89	61.518	Vertical	Pass
		847.5	2.07	2.02	19.81	2.15	17.71	59.020	Vertical	Pass
5.0MHz Band 16QAM	1/#Midd	826.5	1.71	2.01	19.71	2.15	17.26	53.211	Vertical	Pass
		836.5	2.33	2.01	19.77	2.15	17.94	62.230	Vertical	Pass
		846.5	2.30	2.02	19.79	2.15	17.92	61.944	Vertical	Pass
10.0Hz Band 16QAM	1/#Midd	829	2.10	2.01	19.73	2.15	17.67	58.479	Vertical	Pass
		836.5	3.07	2.01	19.77	2.15	18.68	73.790	Vertical	Pass
		844	1.83	2.02	19.78	2.15	17.44	55.463	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/R B SIZE	Frequenc y	Result						Conclusio n
			SG Level	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
			(dBm)			Averag e	Averag e		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2502.5	3.86	4.54	27.75	20.27	106.414	Horizontal	Pass
		2535	4.44	4.69	27.72	20.67	116.681	Horizontal	Pass
		2567.5	4.46	4.71	27.71	20.66	116.413	Horizontal	Pass
10.0MH z Band QPSK	1/#Mid	2505	3.83	4.55	27.76	20.24	105.682	Horizontal	Pass
		2535	3.17	4.69	27.72	19.40	87.096	Horizontal	Pass
		2565	3.22	4.72	27.70	19.40	87.096	Horizontal	Pass
15.0MH z Band QPSK	1/#Mid	2507.5	4.19	4.55	27.77	20.61	115.080	Horizontal	Pass
		2535	4.17	4.69	27.72	20.40	109.648	Horizontal	Pass
		2562.5	3.67	4.72	27.69	19.84	96.383	Horizontal	Pass
20.0MH z Band QPSK	1/#Mid	2510	2.91	4.57	27.78	19.32	85.507	Horizontal	Pass
		2535	3.12	4.73	27.72	19.31	85.310	Horizontal	Pass
		2560	4.32	4.75	27.68	20.45	110.917	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	3.70	4.54	27.75	20.11	102.565	Vertical	Pass
		2535	3.17	4.69	27.72	19.40	87.096	Vertical	Pass
		2567.5	3.22	4.71	27.71	19.42	87.498	Vertical	Pass
10.0MH z Band QPSK	1/#Mid	2505	3.98	4.55	27.76	20.39	109.396	Vertical	Pass
		2535	3.67	4.69	27.72	19.90	97.724	Vertical	Pass
		2565	2.96	4.72	27.70	19.14	82.035	Vertical	Pass
15.0MH z Band QPSK	1/#Mid	2507.5	3.45	4.55	27.77	19.87	97.051	Vertical	Pass
		2535	3.26	4.69	27.72	19.49	88.920	Vertical	Pass
		2562.5	3.43	4.72	27.69	19.60	91.201	Vertical	Pass
20.0MH z Band QPSK	1/#Mid	2510	3.77	4.57	27.78	20.18	104.232	Vertical	Pass
		2535	4.47	4.73	27.72	20.66	116.413	Vertical	Pass
		2560	4.67	4.75	27.68	20.80	120.226	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)

Radiated Power (EIRP) for Band 7									
Mode	RB/R B SIZE	Frequenc y	Result						Conclusio n
			SG Level	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
			(dBm)			Averag e	Averag e		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	2.40	4.54	27.75	20.31	107.399	Horizontal	Pass
		2535	2.71	4.69	27.72	20.44	110.662	Horizontal	Pass
		2567.5	3.33	4.71	27.71	21.03	126.765	Horizontal	Pass
10.0MH z Band 16 QAM	1/#Mid	2505	2.81	4.55	27.76	20.72	118.032	Horizontal	Pass
		2535	3.17	4.69	27.72	20.90	123.027	Horizontal	Pass
		2565	3.21	4.72	27.70	20.89	122.744	Horizontal	Pass
15.0MH z Band 16 QAM	1/#Mid	2507.5	2.88	4.55	27.77	20.80	120.226	Horizontal	Pass
		2535	2.90	4.69	27.72	20.63	115.611	Horizontal	Pass
		2562.5	3.14	4.72	27.69	20.81	120.504	Horizontal	Pass
20.0MH z Band 16 QAM	1/#Mid	2510	3.39	4.57	27.78	21.30	134.896	Horizontal	Pass
		2535	3.03	4.73	27.72	20.72	118.032	Horizontal	Pass
		2560	2.49	4.75	27.68	20.12	102.802	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	2.35	4.54	27.75	20.26	106.170	Vertical	Pass
		2535	2.93	4.69	27.72	20.66	116.413	Vertical	Pass
		2567.5	2.52	4.71	27.71	20.22	105.196	Vertical	Pass
10.0MH z Band 16 QAM	1/#Mid	2505	2.12	4.55	27.76	20.03	100.693	Vertical	Pass
		2535	1.66	4.69	27.72	19.39	86.896	Vertical	Pass
		2565	3.38	4.72	27.70	21.06	127.644	Vertical	Pass
15.0MH z Band 16 QAM	1/#Mid	2507.5	2.93	4.55	27.77	20.85	121.619	Vertical	Pass
		2535	3.43	4.69	27.72	21.16	130.617	Vertical	Pass
		2562.5	2.79	4.72	27.69	20.46	111.173	Vertical	Pass
20.0MH z Band 16 QAM	1/#Mid	2510	3.45	4.57	27.78	21.36	136.773	Vertical	Pass
		2535	3.74	4.73	27.72	21.43	138.995	Vertical	Pass
		2560	3.02	4.75	27.68	20.65	116.145	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)

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization Of	
			(dBm)	(dBm)	(dB)	(dB)	Average (dBm)	Average (mW)	Max. ERP	
1.4MHz Band QPSK	1/#Midd	699.7	3.23	1.91	19.21	2.15	18.38	68.865	Vertical	Pass
		707.5	2.19	1.91	19.26	2.15	17.39	54.828	Vertical	Pass
		715.3	1.26	1.93	19.34	2.15	16.52	44.875	Vertical	Pass
3.0MHz Band QPSK	1/#Midd	700.5	2.74	1.91	19.21	2.15	17.89	61.518	Vertical	Pass
		707.5	2.15	1.91	19.26	2.15	17.35	54.325	Vertical	Pass
		714.5	1.64	1.93	19.34	2.15	16.90	48.978	Vertical	Pass
5.0MHz Band QPSK	1/#Midd	701.5	1.90	1.91	19.23	2.15	17.07	50.933	Vertical	Pass
		707.5	3.00	1.91	19.26	2.15	18.20	66.069	Vertical	Pass
		713.5	1.64	1.92	19.33	2.15	16.90	48.978	Vertical	Pass
10.0Hz Band QPSK	1/#Midd	704	2.50	1.91	19.25	2.15	17.69	58.749	Vertical	Pass
		707.5	2.89	1.91	19.26	2.15	18.09	64.417	Vertical	Pass
		711	2.72	1.92	19.32	2.15	17.97	62.661	Vertical	Pass
1.4MHz Band QPSK	1/#Midd	699.7	2.60	1.91	19.21	2.15	17.75	59.566	Horizontal	Pass
		707.5	2.08	1.91	19.26	2.15	17.28	53.456	Horizontal	Pass
		715.3	2.23	1.93	19.34	2.15	17.49	56.105	Horizontal	Pass
3.0MHz Band QPSK	1/#Midd	700.5	2.56	1.91	19.21	2.15	17.71	59.020	Horizontal	Pass
		707.5	2.60	1.91	19.26	2.15	17.80	60.256	Horizontal	Pass
		714.5	2.21	1.93	19.34	2.15	17.47	55.847	Horizontal	Pass
5.0MHz Band QPSK	1/#Midd	701.5	2.67	1.91	19.23	2.15	17.84	60.814	Horizontal	Pass
		707.5	2.69	1.91	19.26	2.15	17.89	61.518	Horizontal	Pass
		713.5	2.96	1.92	19.33	2.15	18.22	66.374	Horizontal	Pass
10.0Hz Band QPSK	1/#Midd	704	3.33	1.91	19.25	2.15	18.52	71.121	Horizontal	Pass
		707.5	1.58	1.91	19.26	2.15	16.78	47.643	Horizontal	Pass
		711	1.72	1.92	19.32	2.15	16.97	49.774	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Freque ncy	Result							Conclu sion
			SG Leve l (dB m)	Cabl e Loss (dB m)	Anten na Gain (dB)	Correctio n	Max. EIRP	Max. EIRP	Polarizati on Of Max. ERP	
						(dB)	Avera ge	Averag e		
								(dBm)		
1.4MHz Band 16QAM	1/#Mid	699.7	1.30	1.91	19.21	2.15	16.45	44.157	Vertical	Pass
		707.5	1.17	1.91	19.26	2.15	16.37	43.351	Vertical	Pass
		715.3	0.35	1.93	19.34	2.15	15.61	36.392	Vertical	Pass
3.0MHz Band 16QAM	1/#Mid	700.5	1.74	1.91	19.21	2.15	16.89	48.865	Vertical	Pass
		707.5	1.56	1.91	19.26	2.15	16.76	47.424	Vertical	Pass
		714.5	0.87	1.93	19.34	2.15	16.13	41.020	Vertical	Pass
5.0MHz Band 16QAM	1/#Mid	701.5	1.40	1.91	19.23	2.15	16.57	45.394	Vertical	Pass
		707.5	1.59	1.91	19.26	2.15	16.79	47.753	Vertical	Pass
		713.5	1.68	1.92	19.33	2.15	16.94	49.431	Vertical	Pass
10.0MHz Band 16QAM	1/#Mid	704	1.91	1.91	19.25	2.15	17.10	51.286	Vertical	Pass
		707.5	1.65	1.91	19.26	2.15	16.85	48.417	Vertical	Pass
		711	2.13	1.92	19.32	2.15	17.38	54.702	Vertical	Pass
1.4MHz Band 16QAM	1/#Mid	699.7	1.52	1.91	19.21	2.15	16.67	46.452	Horizontal	Pass
		707.5	1.91	1.91	19.26	2.15	17.11	51.404	Horizontal	Pass
		715.3	1.51	1.93	19.34	2.15	16.77	47.534	Horizontal	Pass
3.0MHz Band 16QAM	1/#Mid	700.5	1.99	1.91	19.21	2.15	17.14	51.761	Horizontal	Pass
		707.5	1.95	1.91	19.26	2.15	17.15	51.880	Horizontal	Pass
		714.5	1.91	1.93	19.34	2.15	17.17	52.119	Horizontal	Pass
5.0MHz Band 16QAM	1/#Mid	701.5	1.60	1.91	19.23	2.15	16.77	47.534	Horizontal	Pass
		707.5	1.73	1.91	19.26	2.15	16.93	49.317	Horizontal	Pass
		713.5	0.45	1.92	19.33	2.15	15.71	37.239	Horizontal	Pass
10.0Hz Band 16QAM	1/#Mid	704	1.20	1.91	19.25	2.15	16.39	43.551	Horizontal	Pass
		707.5	2.26	1.91	19.26	2.15	17.46	55.719	Horizontal	Pass
		711	1.80	1.92	19.32	2.15	17.05	50.699	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/ RB SIZE	Freque ncy	Result							Conclu sion
			SG Level	Cable Loss	Factor Gain	Corr ectio n	Max. ERP	Max. ERP	Polarizati on Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Averag e	Averag e		
5.0MHz Band QPSK	25/0	706.5	3.75	1.91	19.23	2.15	18.92	77.983	Vertical	Pass
		710	4.08	1.91	19.26	2.15	19.28	84.723	Vertical	Pass
		713.5	4.43	1.92	19.33	2.15	19.69	93.111	Vertical	Pass
10.0MH z Band QPSK	50/0	709	2.66	1.91	19.25	2.15	17.85	60.954	Vertical	Pass
		710	4.12	1.91	19.26	2.15	19.32	85.507	Vertical	Pass
		711	5.17	1.92	19.32	2.15	20.42	110.154	Vertical	Pass
5.0MHz Band QPSK	25/0	706.5	4.39	1.91	19.23	2.15	19.56	90.365	Horizontal	Pass
		710	4.92	1.91	19.26	2.15	20.12	102.802	Horizontal	Pass
		713.5	4.04	1.92	19.33	2.15	19.30	85.114	Horizontal	Pass
10.0MH z Band QPSK	50/0	709	4.47	1.91	19.25	2.15	19.66	92.470	Horizontal	Pass
		710	4.56	1.91	19.26	2.15	19.76	94.624	Horizontal	Pass
		711	4.76	1.92	19.32	2.15	20.01	100.231	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/ RB SIZE	Freque ncy	Result							Conclu sion
			SG Level	Cable Loss (dBm)	Factor Gain (dB)	Corr ectio n (dB)	Max. ERP	Max. ERP	Polarizati on Of Max. ERP	
			(dBm)				Averag e	Averag e		
							(dBm)	(mW)		
5.0MHz Band 16 QAM	25/0	706.5	3.54	1.91	19.23	2.15	18.71	74.302	Vertical	Pass
		710	3.80	1.91	19.26	2.15	19.00	79.433	Vertical	Pass
		713.5	3.28	1.92	19.33	2.15	18.54	71.450	Vertical	Pass
10.0MH z Band 16 QAM	50/0	709	3.11	1.91	19.25	2.15	18.30	67.608	Vertical	Pass
		710	2.53	1.91	19.26	2.15	17.73	59.293	Vertical	Pass
		711	3.26	1.92	19.32	2.15	18.51	70.958	Vertical	Pass
5.0MHz Band 16 QAM	25/0	706.5	2.49	1.91	19.23	2.15	17.66	58.345	Horizontal	Pass
		710	3.32	1.91	19.26	2.15	18.52	71.121	Horizontal	Pass
		713.5	3.11	1.92	19.33	2.15	18.37	68.707	Horizontal	Pass
10.0MH z Band 16 QAM	50/0	709	2.86	1.91	19.25	2.15	18.05	63.826	Horizontal	Pass
		710	4.01	1.91	19.26	2.15	19.21	83.368	Horizontal	Pass
		711	3.94	1.92	19.32	2.15	19.19	82.985	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)

8.8 LTE BAND 25

Radiated Power (EIRP) for Band 25									
Mode	RB/R B SIZE	Frequenc y	Result						Conclusio n
			SG Level	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
			(dBm)			Averag e	Averag e		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-4.68	3.12	27.58	19.78	95.060	Horizontal	Pass
		1882,5	-4.40	3.27	27.61	19.94	98.628	Horizontal	Pass
		1914.3	-4.48	3.29	27.63	19.86	96.828	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-5.77	3.13	27.61	18.71	74.302	Horizontal	Pass
		1882,5	-6.29	3.27	27.61	18.05	63.826	Horizontal	Pass
		1913.5	-6.29	3.30	27.62	18.03	63.533	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.24	3.13	27.63	19.26	84.333	Horizontal	Pass
		1882,5	-6.61	3.27	27.61	17.73	59.293	Horizontal	Pass
		1912.5	-4.49	3.30	27.60	19.81	95.719	Horizontal	Pass
10.0MH z Band QPSK	1/#Mid	1855	-5.22	3.15	27.64	19.27	84.528	Horizontal	Pass
		1882,5	-4.56	3.31	27.61	19.74	94.189	Horizontal	Pass
		1910	-4.27	3.33	27.59	19.99	99.770	Horizontal	Pass
15.0MH z Band QPSK	1/#Mid	1857.5	-5.58	3.15	27.65	18.92	77.983	Horizontal	Pass
		1882,5	-4.46	3.31	27.61	19.84	96.383	Horizontal	Pass
		1907.5	-4.67	3.33	27.57	19.57	90.573	Horizontal	Pass
20.0MH z Band QPSK	1/#Mid	1860	-5.97	3.17	27.66	18.52	71.121	Horizontal	Pass
		1882,5	-4.30	3.32	27.61	19.99	99.770	Horizontal	Pass
		1905	-4.66	3.36	27.56	19.54	89.950	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-4.30	3.12	27.58	20.16	103.753	Vertical	Pass
		1882,5	-5.54	3.27	27.61	18.80	75.858	Vertical	Pass
		1914.3	-5.75	3.29	27.63	18.59	72.277	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.69	3.13	27.61	19.79	95.280	Vertical	Pass
		1882,5	-4.61	3.27	27.61	19.73	93.972	Vertical	Pass
		1913.5	-4.60	3.30	27.62	19.72	93.756	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-6.07	3.13	27.63	18.43	69.663	Vertical	Pass
		1882,5	-4.90	3.27	27.61	19.44	87.902	Vertical	Pass
		1912.5	-5.73	3.30	27.60	18.57	71.945	Vertical	Pass
10.0MH z Band	1/#Mid	1855	-5.83	3.15	27.64	18.66	73.451	Vertical	Pass
		1882,5	-6.22	3.31	27.61	18.08	64.269	Vertical	Pass

QPSK		1910	-4.56	3.33	27.59	19.70	93.325	Vertical	Pass
15.0MH	1/#Mid	1857.5	-5.57	3.15	27.65	18.93	78.163	Vertical	Pass
z Band		1882,5	-5.28	3.31	27.61	19.02	79.799	Vertical	Pass
QPSK		1907.5	-5.31	3.33	27.57	18.93	78.163	Vertical	Pass
20.0MH	1/#Mid	1860	-5.06	3.17	27.66	19.43	87.700	Vertical	Pass
z Band		1882,5	-4.02	3.32	27.61	20.27	106.414	Vertical	Pass
QPSK		1905	-4.07	3.36	27.56	20.13	103.039	Vertical	Pass

Radiated Power (EIRP) for Band 25									
Mode	RB/R B SIZE	Frequency	Result						Conclusio n
			SG Level (dBm)	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
						Averag e	Averag e		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mi d	1850.7	-5.80	3.12	27.58	18.66	73.451	Horizontal	Pass
		1882,5	-6.12	3.27	27.61	18.22	66.374	Horizontal	Pass
		1914.3	-5.79	3.29	27.63	18.55	71.614	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mi d	1851.5	-6.08	3.13	27.61	18.40	69.183	Horizontal	Pass
		1882,5	-7.03	3.27	27.61	17.31	53.827	Horizontal	Pass
		1913.5	-6.09	3.30	27.62	18.23	66.527	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mi d	1852.5	-6.07	3.13	27.63	18.43	69.663	Horizontal	Pass
		1882,5	-6.48	3.27	27.61	17.86	61.094	Horizontal	Pass
		1912.5	-5.39	3.30	27.60	18.91	77.804	Horizontal	Pass
10.0MH z Band 16 QAM	1/#Mi d	1855	-5.93	3.15	27.64	18.56	71.779	Horizontal	Pass
		1882,5	-6.02	3.31	27.61	18.28	67.298	Horizontal	Pass
		1910	-6.29	3.33	27.59	17.97	62.661	Horizontal	Pass
15.0MH z Band 16 QAM	1/#Mi d	1857.5	-5.93	3.15	27.65	18.57	71.945	Horizontal	Pass
		1882,5	-5.85	3.31	27.61	18.45	69.984	Horizontal	Pass
		1907.5	-5.65	3.33	27.57	18.59	72.277	Horizontal	Pass
20.0MH z Band 16 QAM	1/#Mi d	1860	-5.94	3.17	27.66	18.55	71.614	Horizontal	Pass
		1882,5	-5.02	3.32	27.61	19.27	84.528	Horizontal	Pass
		1905	-5.85	3.36	27.56	18.35	68.391	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mi d	1850.7	-5.79	3.12	27.58	18.67	73.621	Vertical	Pass
		1882,5	-5.18	3.27	27.61	19.16	82.414	Vertical	Pass
		1914.3	-6.01	3.29	27.63	18.33	68.077	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mi d	1851.5	-6.16	3.13	27.61	18.32	67.920	Vertical	Pass
		1882,5	-7.08	3.27	27.61	17.26	53.211	Vertical	Pass
		1913.5	-6.06	3.30	27.62	18.26	66.988	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mi d	1852.5	-6.06	3.13	27.63	18.44	69.823	Vertical	Pass
		1882,5	-6.05	3.27	27.61	18.29	67.453	Vertical	Pass
		1912.5	-6.28	3.30	27.60	18.02	63.387	Vertical	Pass
10.0MH z Band 16 QAM	1/#Mi d	1855	-5.59	3.15	27.64	18.90	77.625	Vertical	Pass
		1882,5	-6.04	3.31	27.61	18.26	66.988	Vertical	Pass
		1910	-5.40	3.33	27.59	18.86	76.913	Vertical	Pass
15.0MH z Band	1/#Mi d	1857.5	-5.54	3.15	27.65	18.96	78.705	Vertical	Pass
		1882,5	-6.02	3.31	27.61	18.28	67.298	Vertical	Pass

16 QAM		1907.5	-5.23	3.33	27.57	19.01	79.616	Vertical	Pass
20.0MHz Band	1/#Midd	1860	-4.92	3.17	27.66	19.57	90.573	Vertical	Pass
z Band		1882,5	-5.69	3.32	27.61	18.60	72.444	Vertical	Pass
16 QAM		1905	-5.16	3.36	27.56	19.04	80.168	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 26 A

Radiated Power (ERP) for Band 26(814MHz~824MHz)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	814.7	4.37	2.01	19.68	2.15	19.89	97.499	Vertical	Pass
		819	3.44	2.01	19.77	2.15	19.05	80.353	Vertical	Pass
		823.3	2.43	2.02	19.82	2.15	18.08	64.269	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	815.5	3.97	2.01	19.70	2.15	19.51	89.331	Vertical	Pass
		819	3.68	2.01	19.77	2.15	19.29	84.918	Vertical	Pass
		822.5	2.65	2.02	19.81	2.15	18.29	67.453	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	816.5	3.20	2.01	19.71	2.15	18.75	74.989	Vertical	Pass
		819	4.04	2.01	19.77	2.15	19.65	92.257	Vertical	Pass
		821.5	2.94	2.02	19.79	2.15	18.56	71.779	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	819	4.15	2.01	19.73	2.15	19.72	93.756	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	814.7	4.05	2.01	19.68	2.15	19.57	90.573	Horizontal	Pass
		819	3.49	2.01	19.77	2.15	19.10	81.283	Horizontal	Pass
		823.3	3.31	2.02	19.82	2.15	18.96	78.705	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	815.5	3.62	2.01	19.70	2.15	19.16	82.414	Horizontal	Pass
		819	3.96	2.01	19.77	2.15	19.57	90.573	Horizontal	Pass
		822.5	3.61	2.02	19.81	2.15	19.25	84.140	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	816.5	3.91	2.01	19.71	2.15	19.46	88.308	Horizontal	Pass
		819	4.20	2.01	19.77	2.15	19.81	95.719	Horizontal	Pass
		821.5	4.22	2.02	19.79	2.15	19.84	96.383	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	819	4.59	2.01	19.73	2.15	20.16	103.753	Horizontal	Pass

Radiated Power (ERP) for Band 26(814MHz~824MHz)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	814.7	3.29	2.01	19.68	2.15	18.81	76.033	Vertical	Pass
		819	2.90	2.01	19.77	2.15	18.51	70.958	Vertical	Pass
		823.3	2.00	2.02	19.82	2.15	17.65	58.210	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	815.5	3.35	2.01	19.70	2.15	18.89	77.446	Vertical	Pass
		819	3.45	2.01	19.77	2.15	19.06	80.538	Vertical	Pass
		822.5	2.77	2.02	19.81	2.15	18.41	69.343	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	816.5	3.13	2.01	19.71	2.15	18.68	73.790	Vertical	Pass
		819	3.26	2.01	19.77	2.15	18.87	77.090	Vertical	Pass
		821.5	3.46	2.02	19.79	2.15	19.08	80.910	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	819	3.57	2.01	19.73	2.15	19.14	82.035	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	814.7	3.39	2.01	19.68	2.15	18.91	77.804	Horizontal	Pass
		819	3.69	2.01	19.77	2.15	19.30	85.114	Horizontal	Pass
		823.3	3.65	2.02	19.82	2.15	19.30	85.114	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	815.5	3.81	2.01	19.70	2.15	19.35	86.099	Horizontal	Pass
		819	3.50	2.01	19.77	2.15	19.11	81.470	Horizontal	Pass
		822.5	3.55	2.02	19.81	2.15	19.19	82.985	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	816.5	3.52	2.01	19.71	2.15	19.07	80.724	Horizontal	Pass
		819	3.38	2.01	19.77	2.15	18.99	79.250	Horizontal	Pass
		821.5	2.40	2.02	19.79	2.15	18.02	63.387	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	819	3.92	2.01	19.73	2.15	19.49	88.920	Horizontal	Pass

8.10 LTE BAND 26B

Radiated Power (ERP) for Band 26(824MHz~849MHz)										
Mode	RB/R B SIZE	Frequen cy	Result							Conclu sion
			SG Leve l	Cabl e Loss (dB m)	Anten na Gain (dB)	Correcti on	Max. EIRP	Max. EIRP	Polarizati on Of Max. ERP	
						(dB)	Avera ge	Average		
							(dBm)	(dBm)		
1.4MH z Band QPSK	1/#Mi d	824.7	6.51	2.01	19.68	2.15	22.03	159.588	Vertical	Pass
		836.5	5.36	2.01	19.77	2.15	20.97	125.026	Vertical	Pass
		848.3	4.37	2.02	19.82	2.15	20.02	100.462	Vertical	Pass
3.0MH z Band QPSK	1/#Mi d	825.5	6.09	2.01	19.70	2.15	21.63	145.546	Vertical	Pass
		836.5	5.45	2.01	19.77	2.15	21.06	127.644	Vertical	Pass
		847.5	4.94	2.02	19.81	2.15	20.58	114.288	Vertical	Pass
5.0MH z Band QPSK	1/#Mi d	826.5	5.23	2.01	19.71	2.15	20.78	119.674	Vertical	Pass
		836.5	6.09	2.01	19.77	2.15	21.70	147.911	Vertical	Pass
		846.5	4.80	2.02	19.79	2.15	20.42	110.154	Vertical	Pass
10.0M Hz Band QPSK	1/#Mi d	829	5.84	2.01	19.73	2.15	21.41	138.357	Vertical	Pass
		836.5	6.12	2.01	19.77	2.15	21.73	148.936	Vertical	Pass
		844	5.64	2.02	19.78	2.15	21.25	133.352	Vertical	Pass
15.0M Hz Band QPSK	1/#Mi d	831.5	6.02	2.01	19.73	2.15	21.59	144.212	Vertical	Pass
		836.5	6.12	2.01	19.77	2.15	21.73	148.936	Vertical	Pass
		841.5	5.95	2.02	19.78	2.15	21.56	143.219	Vertical	Pass
1.4MH z Band QPSK	1/#Mi d	824.7	5.97	2.01	19.68	2.15	21.49	140.929	Horizontal	Pass
		836.5	5.21	2.01	19.77	2.15	20.82	120.781	Horizontal	Pass
		848.3	5.33	2.02	19.82	2.15	20.98	125.314	Horizontal	Pass
3.0MH z Band QPSK	1/#Mi d	825.5	5.74	2.01	19.70	2.15	21.28	134.276	Horizontal	Pass
		836.5	5.67	2.01	19.77	2.15	21.28	134.276	Horizontal	Pass
		847.5	5.59	2.02	19.81	2.15	21.23	132.739	Horizontal	Pass
5.0MH z Band QPSK	1/#Mi d	826.5	5.91	2.01	19.71	2.15	21.46	139.959	Horizontal	Pass
		836.5	6.11	2.01	19.77	2.15	21.72	148.594	Horizontal	Pass
		846.5	6.32	2.02	19.79	2.15	21.94	156.315	Horizontal	Pass
10.0M Hz Band	1/#Mi d	829	6.73	2.01	19.73	2.15	22.30	169.824	Horizontal	Pass
		836.5	5.05	2.01	19.77	2.15	20.66	116.413	Horizontal	Pass
		844	5.29	2.02	19.78	2.15	20.90	123.027	Horizontal	Pass

QPSK										
15.0M Hz Band QPSK	1/#Mi d	831.5	6.45	2.01	19.73	2.15	22.02	159.221	Horizontal	Pass
		836.5	6.83	2.01	19.77	2.15	22.44	175.388	Horizontal	Pass
		841.5	6.39	2.02	19.78	2.15	22.00	158.489	Horizontal	Pass

Radiated Power (ERP) for Band 26(824MHz~849MHz)										
Mode	RB/RB SIZE	Frequen cy	Result							Conclu sion
			SG Leve l	Cabl e Loss (dB m)	Anten na Gain (dB)	Correcti on	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
			(dB m)			(dB)	Avera ge	Averag e		
							(dBm)	(mW)		
1.4MH z Band 16QAM	1/#Mi d	824.7	5.25	2.01	19.68	2.15	20.77	119.399	Vertical	Pass
		836.5	4.82	2.01	19.77	2.15	20.43	110.408	Vertical	Pass
		848.3	4.30	2.02	19.82	2.15	19.95	98.855	Vertical	Pass
3.0MH z Band 16QAM	1/#Mi d	825.5	5.37	2.01	19.70	2.15	20.91	123.310	Vertical	Pass
		836.5	5.46	2.01	19.77	2.15	21.07	127.938	Vertical	Pass
		847.5	5.04	2.02	19.81	2.15	20.68	116.950	Vertical	Pass
5.0MH z Band 16QAM	1/#Mi d	826.5	5.23	2.01	19.71	2.15	20.78	119.674	Vertical	Pass
		836.5	5.25	2.01	19.77	2.15	20.86	121.899	Vertical	Pass
		846.5	5.37	2.02	19.79	2.15	20.99	125.603	Vertical	Pass
10.0m Hz Band 16QAM	1/#Mi d	829	5.77	2.01	19.73	2.15	21.34	136.144	Vertical	Pass
		836.5	5.17	2.01	19.77	2.15	20.78	119.674	Vertical	Pass
		844	5.84	2.02	19.78	2.15	21.45	139.637	Vertical	Pass
15.0M Hz Band 16QAM	1/#Mi d	831.5	5.51	2.01	19.73	2.15	21.08	128.233	Vertical	Pass
		836.5	5.14	2.01	19.77	2.15	20.75	118.850	Vertical	Pass
		841.5	5.98	2.02	19.78	2.15	21.59	144.212	Vertical	Pass
1.4MH z Band 16QAM	1/#Mi d	824.7	5.47	2.01	19.68	2.15	20.99	125.603	Horizontal	Pass
		836.5	5.46	2.01	19.77	2.15	21.07	127.938	Horizontal	Pass
		848.3	5.36	2.02	19.82	2.15	21.01	126.183	Horizontal	Pass
3.0MH z Band 16QAM	1/#Mi d	825.5	5.56	2.01	19.70	2.15	21.10	128.825	Horizontal	Pass
		836.5	5.49	2.01	19.77	2.15	21.10	128.825	Horizontal	Pass
		847.5	5.42	2.02	19.81	2.15	21.06	127.644	Horizontal	Pass
5.0MH z Band 16 QAM	1/#Mi d	826.5	5.40	2.01	19.71	2.15	20.95	124.451	Horizontal	Pass
		836.5	5.30	2.01	19.77	2.15	20.91	123.310	Horizontal	Pass
		846.5	4.63	2.02	19.79	2.15	20.25	105.925	Horizontal	Pass
10.0M Hz Band	1/#Mi d	829	5.05	2.01	19.73	2.15	20.62	115.345	Horizontal	Pass
		836.5	5.76	2.01	19.77	2.15	21.37	137.088	Horizontal	Pass
		844	5.56	2.02	19.78	2.15	21.17	130.918	Horizontal	Pass

16QAM										
15.0M Hz Band 16QAM	1/#Mi d	831.5	6.17	2.01	19.73	2.15	21.74	149.279	Horizontal	Pass
		836.5	6.07	2.01	19.77	2.15	21.68	147.231	Horizontal	Pass
		841.5	5.57	2.02	19.78	2.15	21.18	131.220	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)

8.11 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/R B SIZE	Frequenc y	Result						Conclusio n
			SG Level (dBm)	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
						Averag e	Averag e		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.90	3.12	27.58	20.56	113.763	Horizontal	Pass
		1745	-3.69	3.27	27.61	20.65	116.145	Horizontal	Pass
		1779.3	-4.06	3.29	27.63	20.28	106.660	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.02	3.13	27.61	19.46	88.308	Horizontal	Pass
		1745	-5.28	3.27	27.61	19.06	80.538	Horizontal	Pass
		1778.5	-5.54	3.30	27.62	18.78	75.509	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.30	3.13	27.63	20.20	104.713	Horizontal	Pass
		1745	-5.66	3.27	27.61	18.68	73.790	Horizontal	Pass
		1777.5	-3.68	3.30	27.60	20.62	115.345	Horizontal	Pass
10.0MH z Band QPSK	1/#Mid	1715	-4.56	3.15	27.64	19.93	98.401	Horizontal	Pass
		1745	-3.75	3.31	27.61	20.55	113.501	Horizontal	Pass
		1775	-3.35	3.33	27.59	20.91	123.310	Horizontal	Pass
15.0MH z Band QPSK	1/#Mid	1717.5	-4.91	3.15	27.65	19.59	90.991	Horizontal	Pass
		1745	-3.91	3.31	27.61	20.39	109.396	Horizontal	Pass
		1772.5	-3.91	3.33	27.57	20.33	107.895	Horizontal	Pass
20.0MH z Band QPSK	1/#Mid	1720	-5.12	3.17	27.66	19.37	86.497	Horizontal	Pass
		1745	-3.88	3.32	27.61	20.41	109.901	Horizontal	Pass
		1770	-4.25	3.36	27.56	19.95	98.855	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.49	3.12	27.58	20.97	125.026	Vertical	Pass
		1745	-4.98	3.27	27.61	19.36	86.298	Vertical	Pass
		1779.3	-5.24	3.29	27.63	19.10	81.283	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.64	3.13	27.61	20.84	121.339	Vertical	Pass
		1745	-3.59	3.27	27.61	20.75	118.850	Vertical	Pass
		1778.5	-3.68	3.30	27.62	20.64	115.878	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.00	3.13	27.63	19.50	89.125	Vertical	Pass
		1745	-4.44	3.27	27.61	19.90	97.724	Vertical	Pass
		1777.5	-5.16	3.30	27.60	19.14	82.035	Vertical	Pass
10.0MH	1/#Mid	1715	-5.03	3.15	27.64	19.46	88.308	Vertical	Pass

z Band QPSK		1745	-5.27	3.31	27.61	19.03	79.983	Vertical	Pass
		1775	-3.85	3.33	27.59	20.41	109.901	Vertical	Pass
15.0MH z Band QPSK	1/#Mid	1717.5	-4.65	3.15	27.65	19.85	96.605	Vertical	Pass
		1745	-4.43	3.31	27.61	19.87	97.051	Vertical	Pass
		1772.5	-4.84	3.33	27.57	19.40	87.096	Vertical	Pass
20.0MH z Band QPSK	1/#Mid	1720	-4.06	3.17	27.66	20.43	110.408	Vertical	Pass
		1745	-3.26	3.32	27.61	21.03	126.765	Vertical	Pass
		1770	-3.75	3.36	27.56	20.45	110.917	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/R B SIZE	Frequenc y	Result						Conclusio n
			SG Level	Cable Loss (dBm)	Antenn a Gain (dB)	Max. EIRP	Max. EIRP	Polarizatio n Of Max. ERP	
			(dBm)			Averag e	Averag e		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.82	3.12	27.58	19.64	92.045	Horizontal	Pass
		1745	-5.10	3.27	27.61	19.24	83.946	Horizontal	Pass
		1779.3	-5.07	3.29	27.63	19.27	84.528	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.94	3.13	27.61	19.54	89.950	Horizontal	Pass
		1745	-6.18	3.27	27.61	18.16	65.464	Horizontal	Pass
		1778.5	-4.76	3.30	27.62	19.56	90.365	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.10	3.13	27.63	19.40	87.096	Horizontal	Pass
		1745	-5.08	3.27	27.61	19.26	84.333	Horizontal	Pass
		1777.5	-4.45	3.30	27.60	19.85	96.605	Horizontal	Pass
10.0MH z Band 16 QAM	1/#Mid	1715	-5.15	3.15	27.64	19.34	85.901	Horizontal	Pass
		1745	-4.76	3.31	27.61	19.54	89.950	Horizontal	Pass
		1775	-5.10	3.33	27.59	19.16	82.414	Horizontal	Pass
15.0MH z Band 16 QAM	1/#Mid	1717.5	-5.22	3.15	27.65	19.28	84.723	Horizontal	Pass
		1745	-5.11	3.31	27.61	19.19	82.985	Horizontal	Pass
		1772.5	-4.74	3.33	27.57	19.50	89.125	Horizontal	Pass
20.0MH z Band 16 QAM	1/#Mid	1720	-4.91	3.17	27.66	19.58	90.782	Horizontal	Pass
		1745	-4.34	3.32	27.61	19.95	98.855	Horizontal	Pass
		1770	-4.99	3.36	27.56	19.21	83.368	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.44	3.12	27.58	20.02	100.462	Vertical	Pass
		1745	-4.32	3.27	27.61	20.02	100.462	Vertical	Pass
		1779.3	-4.93	3.29	27.63	19.41	87.297	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.07	3.13	27.61	19.41	87.297	Vertical	Pass
		1745	-5.95	3.27	27.61	18.39	69.024	Vertical	Pass
		1778.5	-4.92	3.30	27.62	19.40	87.096	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.04	3.13	27.63	19.46	88.308	Vertical	Pass
		1745	-4.91	3.27	27.61	19.43	87.700	Vertical	Pass
		1777.5	-5.15	3.30	27.60	19.15	82.224	Vertical	Pass
10.0MH z Band 16 QAM	1/#Mid	1715	-4.65	3.15	27.64	19.84	96.383	Vertical	Pass
		1745	-5.02	3.31	27.61	19.28	84.723	Vertical	Pass
		1775	-4.48	3.33	27.59	19.78	95.060	Vertical	Pass
15.0MH z Band	1/#Mid	1717.5	-4.49	3.15	27.65	20.01	100.231	Vertical	Pass
		1745	-4.87	3.31	27.61	19.43	87.700	Vertical	Pass

16 QAM		1772.5	-4.31	3.33	27.57	19.93	98.401	Vertical	Pass
20.0MH	1/#Mid	1720	-4.54	3.17	27.66	19.95	98.855	Vertical	Pass
z Band		1745	-4.75	3.32	27.61	19.54	89.950	Vertical	Pass
16 QAM		1770	-4.17	3.36	27.56	20.03	100.693	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
LTE Band 4
- ☐ LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17
LTE Band 25
LTE Band 26
LTE Band 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-52.34	4.04	33.51	-22.87	-13	-9.87	Horizontal
3701.4	-52.37	4.04	33.51	-22.90	-13	-9.90	Vertical
5552.1	-47.95	5.24	35.84	-17.35	-13	-4.35	Vertical
5552.1	-49.89	5.24	35.84	-19.29	-13	-6.29	Horizontal
174.1	-44.97	1.30	16.40	-29.87	-13	-16.87	Vertical
121.1	-46.27	1.70	17.49	-30.48	-13	-17.48	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-54.67	4.04	33.56	-25.15	-13	-12.15	Horizontal
3760.0	-50.82	4.04	33.56	-21.30	-13	-8.30	Vertical
5640.0	-48.20	5.24	35.91	-17.53	-13	-4.53	Vertical
5640.0	-51.79	5.24	35.91	-21.12	-13	-8.12	Horizontal
239.3	-40.11	1.43	17.64	-23.90	-13	-10.90	Vertical
137.5	-40.35	1.56	17.30	-24.61	-13	-11.61	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-50.01	4.04	34.00	-20.05	-13	-7.05	Horizontal
3818.6	-54.01	4.04	34.00	-24.05	-13	-11.05	Vertical
5727.9	-55.16	5.24	36.04	-24.36	-13	-11.36	Vertical
5727.9	-58.14	5.24	36.04	-27.34	-13	-14.34	Horizontal
114.9	-45.84	1.79	15.50	-32.13	-13	-19.13	Vertical
166.7	-40.68	1.70	15.32	-27.06	-13	-14.06	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	-50.88	4.07	33.54	-21.41	-13	-8.41	Horizontal
3720.0	-56.20	4.07	33.54	-26.73	-13	-13.73	Vertical
5580.0	-53.20	5.28	35.86	-22.62	-13	-9.62	Vertical
5580.0	-49.55	5.28	35.86	-18.97	-13	-5.97	Horizontal
234.3	-37.99	1.54	16.45	-23.08	-13	-10.08	Vertical
112.7	-43.24	1.56	16.31	-28.49	-13	-15.49	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.48	4.04	33.56	-17.96	-13	-4.96	Horizontal
3760.0	-48.10	4.04	33.56	-18.58	-13	-5.58	Vertical
5640.0	-50.69	5.24	35.91	-20.02	-13	-7.02	Vertical
5640.0	-50.50	5.24	35.91	-19.83	-13	-6.83	Horizontal
227.6	-43.63	1.49	15.65	-29.47	-13	-16.47	Vertical
125.0	-45.89	1.61	16.88	-30.62	-13	-17.62	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-57.03	4.04	34.00	-27.07	-13	-14.07	Horizontal
3800.0	-55.35	4.04	34.00	-25.39	-13	-12.39	Vertical
5700.0	-48.26	5.24	36.04	-17.46	-13	-4.46	Vertical
5700.0	-56.82	5.24	36.04	-26.02	-13	-13.02	Horizontal
102.4	-47.26	1.63	17.28	-31.61	-13	-18.61	Vertical
185.8	-41.26	1.32	16.43	-26.15	-13	-13.15	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	-53.02	4.02	29.80	-27.24	-13	-14.24	Horizontal
3421.4	-48.47	4.02	29.80	-22.69	-13	-9.69	Vertical
5132.1	-53.98	5.24	35.84	-23.38	-13	-10.38	Vertical
5132.1	-54.52	5.24	35.84	-23.92	-13	-10.92	Horizontal
235.5	-39.03	1.35	16.01	-24.37	-13	-11.37	Vertical
83.4	-47.62	1.40	17.99	-31.03	-13	-18.03	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-55.58	4.03	30.00	-29.61	-13	-16.61	Horizontal
3465.0	-46.75	4.03	30.00	-20.78	-13	-7.78	Vertical
5197.5	-47.55	5.25	35.86	-16.94	-13	-3.94	Vertical
5197.5	-51.93	5.25	35.86	-21.32	-13	-8.32	Horizontal
148.9	-45.45	1.37	15.87	-30.95	-13	-17.95	Vertical
104.3	-44.19	1.78	17.02	-28.95	-13	-15.95	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-54.64	4.05	30.01	-28.68	-13	-15.68	Horizontal
3508.6	-54.31	4.05	30.01	-28.35	-13	-15.35	Vertical
5262.9	-56.80	5.26	35.86	-26.20	-13	-13.20	Vertical
5262.9	-51.97	5.26	35.86	-21.37	-13	-8.37	Horizontal
149.2	-38.34	1.32	15.83	-23.83	-13	-10.83	Vertical
140.8	-46.47	1.63	16.82	-31.28	-13	-18.28	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	-51.25	4.02	29.80	-25.47	-13	-12.47	Horizontal
3440.0	-50.34	4.02	29.80	-24.56	-13	-11.56	Vertical
5160.0	-53.76	5.24	35.84	-23.16	-13	-10.16	Vertical
5160.0	-49.52	5.24	35.84	-18.92	-13	-5.92	Horizontal
257.4	-45.42	1.72	17.15	-29.99	-13	-16.99	Vertical
278.2	-38.56	1.71	16.55	-23.72	-13	-10.72	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-54.55	4.03	30.00	-28.58	-13	-15.58	Horizontal
3465.0	-46.75	4.03	30.00	-20.78	-13	-7.78	Vertical
5197.5	-50.49	5.25	35.86	-19.88	-13	-6.88	Vertical
5197.5	-52.15	5.25	35.86	-21.54	-13	-8.54	Horizontal
250.4	-40.70	1.36	17.85	-24.21	-13	-11.21	Vertical
184.3	-40.39	1.52	15.20	-26.71	-13	-13.71	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-50.65	2.91	27.68	-25.88	-13	-12.88	Horizontal
3490.0	-48.57	2.91	27.68	-23.80	-13	-10.80	Vertical
5235.0	-52.24	5.26	35.86	-21.64	-13	-8.64	Vertical
5235.0	-55.42	5.26	35.86	-24.82	-13	-11.82	Horizontal
170.3	-46.56	1.60	16.08	-32.08	-13	-19.08	Vertical
276.7	-40.30	1.33	15.35	-26.28	-13	-13.28	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	-55.67	2.78	27.50	-30.95	-13	-17.95	Horizontal
1649.4	-53.03	2.78	27.50	-28.31	-13	-15.31	Vertical
2474.1	-45.31	2.90	27.80	-20.41	-13	-7.41	Vertical
2474.1	-45.18	2.90	27.80	-20.28	-13	-7.28	Horizontal
220.7	-46.40	1.48	15.59	-32.29	-13	-19.29	Vertical
138.5	-42.52	1.80	17.66	-26.66	-13	-13.66	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-42.06	2.80	27.48	-17.38	-13	-4.38	Horizontal
1673.0	-46.08	2.80	27.48	-21.40	-13	-8.40	Vertical
2509.5	-51.43	2.91	27.70	-26.64	-13	-13.64	Vertical
2509.5	-50.05	2.91	27.70	-25.26	-13	-12.26	Horizontal
125.1	-44.69	1.41	17.18	-28.92	-13	-15.92	Vertical
154.9	-40.95	1.50	15.05	-27.40	-13	-14.40	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.07	2.82	27.43	-20.46	-13	-7.46	Horizontal
1696.6	-45.35	2.82	27.43	-20.74	-13	-7.74	Vertical
2544.9	-49.14	2.92	27.74	-24.32	-13	-11.32	Vertical
2544.9	-43.13	2.92	27.74	-18.31	-13	-5.31	Horizontal
176.4	-39.96	1.76	16.98	-24.74	-13	-11.74	Vertical
278.1	-39.01	1.73	16.91	-23.83	-13	-10.83	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	-41.47	2.78	27.50	-16.75	-13	-3.75	Horizontal
1658.0	-44.26	2.78	27.50	-19.54	-13	-6.54	Vertical
2487.0	-48.41	2.90	27.80	-23.51	-13	-10.51	Vertical
2487.0	-43.75	2.90	27.80	-18.85	-13	-5.85	Horizontal
260.5	-45.33	1.78	15.02	-32.09	-13	-19.09	Vertical
99.1	-46.74	1.71	16.39	-32.06	-13	-19.06	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-48.96	2.80	27.48	-24.28	-13	-11.28	Horizontal
1673.0	-51.98	2.80	27.48	-27.30	-13	-14.30	Vertical
2509.5	-48.85	2.91	27.70	-24.06	-13	-11.06	Vertical
2509.5	-44.00	2.91	27.70	-19.21	-13	-6.21	Horizontal
249.3	-47.80	1.77	17.58	-31.99	-13	-18.99	Vertical
94.8	-44.59	1.56	16.31	-29.84	-13	-16.84	Horizontal
Test Results for High Channel 844MHz							
1688.0	-43.01	2.82	27.43	-18.40	-13	-5.40	Horizontal
1688.0	-41.02	2.82	27.43	-16.41	-13	-3.41	Vertical
2532.0	-44.13	2.92	27.74	-19.31	-13	-6.31	Vertical
2532.0	-45.73	2.92	27.74	-20.91	-13	-7.91	Horizontal
82.8	-39.48	1.46	17.66	-23.28	-13	-10.28	Vertical
170.1	-42.09	1.47	15.42	-28.14	-13	-15.14	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.

9.4 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-60.44	5.23	35.81	-29.86	-25	-4.86	Horizontal
5005.0	-68.02	5.23	35.81	-37.44	-25	-12.44	Vertical
7507.5	-67.63	5.67	36.85	-36.45	-25	-11.45	Vertical
7507.5	-65.91	5.67	36.85	-34.73	-25	-9.73	Horizontal
293.5	-55.54	1.61	15.37	-41.78	-25	-16.78	Vertical
517.6	-59.48	1.52	16.70	-44.30	-25	-19.30	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.05	5.23	35.82	-31.46	-25	-6.46	Horizontal
5070.0	-65.61	5.23	35.82	-35.02	-25	-10.02	Vertical
7605.0	-64.61	5.67	36.85	-33.43	-25	-8.43	Vertical
7605.0	-65.46	5.67	36.85	-34.28	-25	-9.28	Horizontal
272.1	-58.74	1.74	17.56	-42.92	-25	-17.92	Vertical
555.7	-50.92	1.64	17.29	-35.27	-25	-10.27	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-63.20	5.24	35.83	-32.61	-25	-7.61	Horizontal
5135.0	-66.39	5.24	35.83	-35.80	-25	-10.80	Vertical
7702.5	-65.08	5.68	36.87	-33.89	-25	-8.89	Vertical
7702.5	-62.38	5.68	36.87	-31.19	-25	-6.19	Horizontal
534.5	-57.02	1.62	16.13	-42.51	-25	-17.51	Vertical
416.7	-53.15	1.74	15.03	-39.86	-25	-14.86	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-69.30	5.23	35.82	-38.71	-25	-13.71	Horizontal
5020.0	-70.01	5.23	35.82	-39.42	-25	-14.42	Vertical
7530.0	-65.26	5.67	36.86	-34.07	-25	-9.07	Vertical
7530.0	-68.49	5.67	36.86	-37.30	-25	-12.30	Horizontal
250.5	-57.42	1.50	16.32	-42.60	-25	-17.60	Vertical
343.2	-59.50	1.40	16.64	-44.26	-25	-19.26	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.02	5.23	35.82	-32.43	-25	-7.43	Horizontal
5070.0	-66.88	5.23	35.82	-36.29	-25	-11.29	Vertical
7605.0	-65.37	5.67	36.85	-34.19	-25	-9.19	Vertical
7605.0	-64.96	5.67	36.85	-33.78	-25	-8.78	Horizontal
525.1	-58.35	1.59	15.43	-44.51	-25	-19.51	Vertical
573.5	-56.39	1.74	16.80	-41.33	-25	-16.33	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.43	5.24	35.83	-30.84	-25	-5.84	Horizontal
5120.0	-64.83	5.24	35.83	-34.24	-25	-9.24	Vertical
7680.0	-73.52	5.70	36.88	-42.34	-25	-17.34	Vertical
7680.0	-70.19	5.70	36.88	-39.01	-25	-14.01	Horizontal
221.3	-50.76	1.74	17.23	-35.27	-25	-10.27	Vertical
563.8	-55.79	1.76	15.81	-41.74	-25	-16.74	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.

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-45.46	2.60	27.20	-20.86	-13	-7.86	Horizontal
1399.4	-51.66	2.60	27.20	-27.06	-13	-14.06	Vertical
2099.1	-48.75	2.85	27.54	-24.06	-13	-11.06	Vertical
2099.1	-46.23	2.85	27.54	-21.54	-13	-8.54	Horizontal
243.9	-47.73	1.71	17.84	-31.60	-13	-18.60	Vertical
187.1	-43.37	1.46	15.07	-29.76	-13	-16.76	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-51.89	2.61	27.28	-27.22	-13	-14.22	Horizontal
1415.0	-45.26	2.61	27.28	-20.59	-13	-7.59	Vertical
2122.5	-47.86	2.87	27.59	-23.14	-13	-10.14	Vertical
2122.5	-47.28	2.87	27.59	-22.56	-13	-9.56	Horizontal
252.5	-44.78	1.56	15.61	-30.73	-13	-17.73	Vertical
96.4	-42.87	1.71	17.71	-26.87	-13	-13.87	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-47.70	2.63	27.28	-23.05	-13	-10.05	Horizontal
1430.6	-49.58	2.63	27.28	-24.93	-13	-11.93	Vertical
2145.9	-47.11	2.88	27.60	-22.39	-13	-9.39	Vertical
2145.9	-45.19	2.88	27.60	-20.47	-13	-7.47	Horizontal
204.8	-37.37	1.75	16.05	-23.07	-13	-10.07	Vertical
163.0	-38.49	1.46	15.52	-24.43	-13	-11.43	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-44.48	2.61	27.26	-19.83	-13	-6.83	Horizontal
1408.0	-44.20	2.61	27.26	-19.55	-13	-6.55	Vertical
2112.0	-53.55	2.87	27.58	-28.84	-13	-15.84	Vertical
2112.0	-47.93	2.87	27.58	-23.22	-13	-10.22	Horizontal
169.0	-45.45	1.38	15.09	-31.74	-13	-18.74	Vertical
227.1	-47.13	1.67	17.55	-31.25	-13	-18.25	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-50.45	2.61	27.28	-25.78	-13	-12.78	Horizontal
1415.0	-48.14	2.61	27.28	-23.47	-13	-10.47	Vertical
2122.5	-43.54	2.87	27.59	-18.82	-13	-5.82	Vertical
2122.5	-47.75	2.87	27.59	-23.03	-13	-10.03	Horizontal
223.4	-44.78	1.39	16.27	-29.90	-13	-16.90	Vertical
153.3	-47.52	1.37	15.99	-32.90	-13	-19.90	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.87	2.62	27.28	-24.21	-13	-11.21	Horizontal
1422.0	-50.26	2.62	27.28	-25.60	-13	-12.60	Vertical
2133.0	-49.24	2.87	27.60	-24.51	-13	-11.51	Vertical
2133.0	-48.07	2.87	27.60	-23.34	-13	-10.34	Horizontal
197.8	-47.29	1.57	16.89	-31.97	-13	-18.97	Vertical
144.7	-45.46	1.55	15.82	-31.19	-13	-18.19	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-42.77	2.61	27.28	-18.10	-13	-5.10	Horizontal
1413.0	-49.48	2.61	27.28	-24.81	-13	-11.81	Vertical
2119.5	-45.46	2.87	27.59	-20.74	-13	-7.74	Vertical
2119.5	-44.25	2.87	27.59	-19.53	-13	-6.53	Horizontal
196.4	-45.96	1.36	16.11	-31.21	-13	-18.21	Vertical
147.1	-42.38	1.48	17.14	-26.72	-13	-13.72	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-49.31	2.62	27.30	-24.63	-13	-11.63	Horizontal
1420.0	-47.73	2.62	27.30	-23.05	-13	-10.05	Vertical
2130.0	-48.54	2.87	27.62	-23.79	-13	-10.79	Vertical
2130.0	-43.05	2.87	27.62	-18.30	-13	-5.30	Horizontal
168.3	-44.31	1.46	15.68	-30.09	-13	-17.09	Vertical
155.1	-40.13	1.56	15.66	-26.03	-13	-13.03	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-43.90	2.66	27.28	-19.28	-13	-6.28	Horizontal
1427.0	-47.11	2.66	27.28	-22.49	-13	-9.49	Vertical
2140.5	-50.07	2.88	27.60	-25.35	-13	-12.35	Vertical
2140.5	-45.26	2.88	27.60	-20.54	-13	-7.54	Horizontal
251.9	-37.98	1.57	15.34	-24.21	-13	-11.21	Vertical
201.7	-40.74	1.35	16.23	-25.86	-13	-12.86	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-49.94	2.62	27.30	-25.26	-13	-12.26	Horizontal
1418.0	-53.97	2.62	27.30	-29.29	-13	-16.29	Vertical
2127.0	-47.62	2.87	27.62	-22.87	-13	-9.87	Vertical
2127.0	-50.32	2.87	27.62	-25.57	-13	-12.57	Horizontal
178.5	-44.22	1.75	15.40	-30.57	-13	-17.57	Vertical
276.1	-43.58	1.30	16.22	-28.66	-13	-15.66	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-50.04	2.62	27.30	-25.36	-13	-12.36	Horizontal
1420.0	-51.88	2.62	27.30	-27.20	-13	-14.20	Vertical
2130.0	-48.32	2.87	27.62	-23.57	-13	-10.57	Vertical
2130.0	-47.14	2.87	27.62	-22.39	-13	-9.39	Horizontal
163.7	-39.95	1.80	15.91	-25.84	-13	-12.84	Vertical
278.1	-43.73	1.43	15.04	-30.12	-13	-17.12	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.68	2.62	27.30	-25.00	-13	-12.00	Horizontal
1422.0	-43.94	2.62	27.30	-19.26	-13	-6.26	Vertical
2133.0	-53.84	2.87	27.62	-29.09	-13	-16.09	Vertical
2133.0	-49.85	2.87	27.62	-25.10	-13	-12.10	Horizontal
154.2	-39.13	1.53	16.49	-24.17	-13	-11.17	Vertical
196.0	-43.41	1.64	16.73	-28.32	-13	-15.32	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.

9.7 LTE BAND 25

QPSK EIRP POWER FOR LTE BAND 25 (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
3701.4	-46.39	4.02	29.80	-20.61	-13	-7.61	Horizontal
3701.4	-54.33	4.02	29.80	-28.55	-13	-15.55	Vertical
5552.1	-55.30	5.24	35.84	-24.70	-13	-11.70	Vertical
5552.1	-53.54	5.24	35.84	-22.94	-13	-9.94	Horizontal
93.9	-36.62	1.59	15.11	-23.10	-13	-10.10	Vertical
119.7	-36.92	1.80	15.61	-23.11	-13	-10.11	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-51.50	4.03	30.00	-25.53	-13	-12.53	Horizontal
3765.0	-49.87	4.03	30.00	-23.90	-13	-10.90	Vertical
5647.5	-52.10	5.25	35.86	-21.49	-13	-8.49	Vertical
5647.5	-51.67	5.25	35.86	-21.06	-13	-8.06	Horizontal
166.1	-42.43	1.37	15.62	-28.18	-13	-15.18	Vertical
274.4	-44.75	1.55	17.51	-28.79	-13	-15.79	Horizontal
Test Results for High Channel 1754.3MHz							
3828.6	-54.16	4.05	30.01	-28.20	-13	-15.20	Horizontal
3828.6	-53.28	4.05	30.01	-27.32	-13	-14.32	Vertical
5742.9	-50.15	5.26	35.86	-19.55	-13	-6.55	Vertical
5742.9	-50.11	5.26	35.86	-19.51	-13	-6.51	Horizontal
108.6	-41.53	1.66	17.19	-26.00	-13	-13.00	Vertical
138.7	-44.84	1.35	17.94	-28.25	-13	-15.25	Horizontal

QPSK EIRP POWER FOR LTE BAND 25 (20MHZ 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
3720.0	-50.14	4.02	29.80	-24.36	-13	-11.36	Horizontal
3720.0	-47.31	4.02	29.80	-21.53	-13	-8.53	Vertical
5580.0	-47.26	5.24	35.84	-16.66	-13	-3.66	Vertical
5580.0	-52.63	5.24	35.84	-22.03	-13	-9.03	Horizontal
146.2	-42.79	1.70	15.24	-29.25	-13	-16.25	Vertical
215.4	-45.44	1.42	16.58	-30.28	-13	-17.28	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-52.39	4.03	30.00	-26.42	-13	-13.42	Horizontal
3765.0	-52.63	4.03	30.00	-26.66	-13	-13.66	Vertical
5647.5	-54.59	5.25	35.86	-23.98	-13	-10.98	Vertical
5647.5	-55.38	5.25	35.86	-24.77	-13	-11.77	Horizontal
132.2	-47.33	1.64	16.16	-32.81	-13	-19.81	Vertical
133.3	-43.01	1.62	17.37	-27.26	-13	-14.26	Horizontal
Test Results for High Channel 1745MHz							
3810.0	-50.98	2.91	27.68	-26.21	-13	-13.21	Horizontal
3810.0	-50.63	2.91	27.68	-25.86	-13	-12.86	Vertical
5715.0	-55.51	5.26	35.86	-24.91	-13	-11.91	Vertical
5715.0	-49.75	5.26	35.86	-19.15	-13	-6.15	Horizontal
212.6	-38.86	1.49	15.29	-25.06	-13	-12.06	Vertical
275.8	-42.42	1.79	16.42	-27.79	-13	-14.79	Horizontal

9.8 LTE BAND 26

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

Test Results for Low Channel 814.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1629.4	-48.39	2.78	27.50	-23.67	-13	-10.67	Horizontal
1629.4	-50.55	2.78	27.50	-25.83	-13	-12.83	Vertical
2444.1	-44.35	2.90	27.80	-19.45	-13	-6.45	Vertical
2444.1	-51.24	2.90	27.80	-26.34	-13	-13.34	Horizontal
229.6	-43.17	1.54	16.98	-27.73	-13	-14.73	Vertical
83.3	-41.99	1.47	15.82	-27.64	-13	-14.64	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-43.02	2.80	27.48	-18.34	-13	-5.34	Horizontal
1638.0	-48.41	2.80	27.48	-23.73	-13	-10.73	Vertical
2457.0	-48.63	2.91	27.70	-23.84	-13	-10.84	Vertical
2457.0	-42.56	2.91	27.70	-17.77	-13	-4.77	Horizontal
168.2	-40.30	1.74	16.19	-25.85	-13	-12.85	Vertical
92.9	-43.72	1.46	15.43	-29.75	-13	-16.75	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-48.71	2.82	27.43	-24.10	-13	-11.10	Horizontal
1646.6	-47.68	2.82	27.43	-23.07	-13	-10.07	Vertical
2469.9	-48.43	2.92	27.74	-23.61	-13	-10.61	Vertical
2469.9	-44.17	2.92	27.74	-19.35	-13	-6.35	Horizontal
213.1	-47.31	1.67	17.05	-31.93	-13	-18.93	Vertical
121.7	-41.02	1.42	16.12	-26.32	-13	-13.32	Horizontal

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

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1638.0	-44.42	2.78	27.50	-19.70	-13	-6.70	Horizontal
1638.0	-44.23	2.78	27.50	-19.51	-13	-6.51	Vertical
2457.0	-46.54	2.90	27.80	-21.64	-13	-8.64	Vertical
2457.0	-44.08	2.90	27.80	-19.18	-13	-6.18	Horizontal
253.7	-39.89	1.43	17.34	-23.98	-13	-10.98	Vertical
256.8	-42.67	1.56	15.71	-28.52	-13	-15.52	Horizontal

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-51.04	2.78	27.50	-26.32	-13	-13.32	Horizontal
1649.4	-49.50	2.78	27.50	-24.78	-13	-11.78	Vertical
2474.1	-49.31	2.90	27.80	-24.41	-13	-11.41	Vertical
2474.1	-53.68	2.90	27.80	-28.78	-13	-15.78	Horizontal
237.0	-45.09	1.33	17.34	-29.08	-13	-16.08	Vertical
180.5	-46.07	1.47	16.80	-30.74	-13	-17.74	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-44.01	2.80	27.48	-19.33	-13	-6.33	Horizontal
1673.0	-47.85	2.80	27.48	-23.17	-13	-10.17	Vertical
2509.5	-50.46	2.91	27.70	-25.67	-13	-12.67	Vertical
2509.5	-47.20	2.91	27.70	-22.41	-13	-9.41	Horizontal
140.8	-38.59	1.75	15.46	-24.88	-13	-11.88	Vertical
90.6	-40.20	1.52	16.14	-25.58	-13	-12.58	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.12	2.82	27.43	-20.51	-13	-7.51	Horizontal
1696.6	-46.74	2.82	27.43	-22.13	-13	-9.13	Vertical
2544.9	-48.06	2.92	27.74	-23.24	-13	-10.24	Vertical
2544.9	-45.71	2.92	27.74	-20.89	-13	-7.89	Horizontal
171.4	-41.81	1.67	16.09	-27.39	-13	-14.39	Vertical
247.2	-38.91	1.80	17.55	-23.16	-13	-10.16	Horizontal

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

Test Results for Low Channel 831.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1663.0	-44.31	2.78	27.50	-19.59	-13	-6.59	Horizontal
1663.0	-44.76	2.78	27.50	-20.04	-13	-7.04	Vertical
2494.5	-46.89	2.90	27.80	-21.99	-13	-8.99	Vertical
2494.5	-45.06	2.90	27.80	-20.16	-13	-7.16	Horizontal
255.4	-43.09	1.52	15.72	-28.89	-13	-15.89	Vertical
163.1	-41.19	1.40	17.03	-25.56	-13	-12.56	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-48.98	2.80	27.48	-24.30	-13	-11.30	Horizontal
1673.0	-50.31	2.80	27.48	-25.63	-13	-12.63	Vertical
2509.5	-49.41	2.91	27.70	-24.62	-13	-11.62	Vertical
2509.5	-50.12	2.91	27.70	-25.33	-13	-12.33	Horizontal
227.1	-44.92	1.74	16.38	-30.28	-13	-17.28	Vertical
101.3	-41.45	1.79	15.20	-28.04	-13	-15.04	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-42.93	2.82	27.43	-18.32	-13	-5.32	Horizontal
1683.0	-47.27	2.82	27.43	-22.66	-13	-9.66	Vertical
2524.5	-48.97	2.92	27.74	-24.15	-13	-11.15	Vertical
2524.5	-46.64	2.92	27.74	-21.82	-13	-8.82	Horizontal
261.1	-40.95	1.78	17.44	-25.29	-13	-12.29	Vertical
120.1	-42.45	1.70	15.93	-28.22	-13	-15.22	Horizontal

9.9 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-46.34	4.02	29.80	-20.56	-13	-7.56	Horizontal
3421.4	-54.01	4.02	29.80	-28.23	-13	-15.23	Vertical
5132.1	-50.08	5.24	35.84	-19.48	-13	-6.48	Vertical
5132.1	-47.84	5.24	35.84	-17.24	-13	-4.24	Horizontal
112.6	-42.00	1.52	15.57	-27.95	-13	-14.95	Vertical
220.5	-45.53	1.33	17.14	-29.72	-13	-16.72	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-50.04	4.03	30.00	-24.07	-13	-11.07	Horizontal
3490.0	-50.85	4.03	30.00	-24.88	-13	-11.88	Vertical
5235.0	-48.97	5.25	35.86	-18.36	-13	-5.36	Vertical
5235.0	-50.79	5.25	35.86	-20.18	-13	-7.18	Horizontal
157.3	-48.03	1.53	17.13	-32.43	-13	-19.43	Vertical
213.1	-37.93	1.41	15.95	-23.39	-13	-10.39	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-55.69	4.05	30.01	-29.73	-13	-16.73	Horizontal
3558.6	-53.97	4.05	30.01	-28.01	-13	-15.01	Vertical
5337.9	-53.08	5.26	35.86	-22.48	-13	-9.48	Vertical
5337.9	-57.85	5.26	35.86	-27.25	-13	-14.25	Horizontal
170.6	-46.58	1.44	15.51	-32.51	-13	-19.51	Vertical
169.0	-38.43	1.78	15.76	-24.45	-13	-11.45	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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-46.02	4.02	29.80	-20.24	-13	-7.24	Horizontal
3440.0	-52.92	4.02	29.80	-27.14	-13	-14.14	Vertical
5160.0	-47.85	5.24	35.84	-17.25	-13	-4.25	Vertical
5160.0	-51.84	5.24	35.84	-21.24	-13	-8.24	Horizontal
268.8	-41.06	1.62	17.02	-25.66	-13	-12.66	Vertical
161.4	-40.71	1.32	17.31	-24.72	-13	-11.72	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-57.82	4.03	30.00	-31.85	-13	-18.85	Horizontal
3490.0	-48.14	4.03	30.00	-22.17	-13	-9.17	Vertical
5235.0	-53.03	5.25	35.86	-22.42	-13	-9.42	Vertical
5235.0	-51.33	5.25	35.86	-20.72	-13	-7.72	Horizontal
159.9	-43.43	1.45	15.17	-29.71	-13	-16.71	Vertical
172.1	-45.24	1.48	17.82	-28.90	-13	-15.90	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-53.64	2.91	27.68	-28.87	-13	-15.87	Horizontal
3540.0	-48.78	2.91	27.68	-24.01	-13	-11.01	Vertical
5310.0	-54.74	5.26	35.86	-24.14	-13	-11.14	Vertical
5310.0	-51.11	5.26	35.86	-20.51	-13	-7.51	Horizontal
197.3	-47.19	1.76	16.38	-32.57	-13	-19.57	Vertical
158.5	-48.06	1.43	17.13	-32.36	-13	-19.36	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 3.4V, Normal, DC 3.87V and High voltage, DC 4.4V.

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
LTE Band 4
- ☐ LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17
LTE Band 25
LTE Band 26
LTE Band 66

RESULTS

See the following pages.

10.1 LTE BAND 2

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	29.4	0.015649	2.5
3.87	1880	-21.5	-0.011410	2.5
4.4	1880	-23.5	-0.012521	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	-34.2	-0.018197	2.5
Extreme (50C)	1880	18.7	0.009963	2.5
Extreme (40C)	1880	-15.4	-0.008170	2.5
Extreme (30C)	1880	0.5	0.000282	2.5
Extreme (10C)	1880	27.1	0.014399	2.5
Extreme (0C)	1880	32.9	0.017511	2.5
Extreme (-10C)	1880	-32.2	-0.017128	2.5
Extreme (-20C)	1880	28.0	0.014867	2.5
Extreme (-30C)	1880	-14.6	-0.007745	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	12.8	0.006793	2.5
3.87	1880	17.4	0.009277	2.5
4.4	1880	-9.9	-0.005245	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	10.8	0.005766	2.5
Extreme (50C)	1880	-24.5	-0.013021	2.5
Extreme (40C)	1880	23.7	0.012606	2.5
Extreme (30C)	1880	18.2	0.009665	2.5
Extreme (10C)	1880	15.5	0.008266	2.5
Extreme (0C)	1880	-10.3	-0.005463	2.5
Extreme (-10C)	1880	-11.4	-0.006080	2.5
Extreme (-20C)	1880	25.9	0.013787	2.5
Extreme (-30C)	1880	4.4	0.002362	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	-2.1	-0.001235	2.5
3.87	1732.5	-18.8	-0.010869	2.5
4.4	1732.5	-3.4	-0.001957	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	-16.8	-0.009668	2.5
Extreme (50C)	1732.5	-2.8	-0.001616	2.5
Extreme (40C)	1732.5	-14.3	-0.008248	2.5
Extreme (30C)	1732.5	11.2	0.006436	2.5
Extreme (10C)	1732.5	-5.2	-0.003013	2.5
Extreme (0C)	1732.5	18.3	0.010586	2.5
Extreme (-10C)	1732.5	16.9	0.009778	2.5
Extreme (-20C)	1732.5	-1.1	-0.000635	2.5
Extreme (-30C)	1732.5	1.7	0.000981	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	6.2	0.003602	2.5
3.87	1732.5	-11.0	-0.006343	2.5
4.4	1732.5	-22.1	-0.012756	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	17.0	0.009801	2.5
Extreme (50C)	1732.5	18.5	0.010701	2.5
Extreme (40C)	1732.5	26.9	0.015550	2.5
Extreme (30C)	1732.5	-5.9	-0.003377	2.5
Extreme (10C)	1732.5	21.6	0.012462	2.5
Extreme (0C)	1732.5	-15.3	-0.008837	2.5
Extreme (-10C)	1732.5	-16.9	-0.009749	2.5
Extreme (-20C)	1732.5	-2.1	-0.001183	2.5
Extreme (-30C)	1732.5	-14.0	-0.008092	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	15.5	0.018553	2.5
3.87	836.5	-11.8	-0.014142	2.5
4.4	836.5	-16.5	-0.019773	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	-9.3	-0.011142	2.5
Extreme (50C)	836.5	6.8	0.008165	2.5
Extreme (40C)	836.5	-1.3	-0.001506	2.5
Extreme (30C)	836.5	26.0	0.031034	2.5
Extreme (10C)	836.5	-0.5	-0.000562	2.5
Extreme (0C)	836.5	14.2	0.016952	2.5
Extreme (-10C)	836.5	28.7	0.034334	2.5
Extreme (-20C)	836.5	-19.2	-0.022917	2.5
Extreme (-30C)	836.5	22.0	0.026300	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	-11.2	-0.013341	2.5
3.87	836.5	-1.9	-0.002247	2.5
4.4	836.5	8.9	0.010640	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	15.4	0.018446	2.5
Extreme (50C)	836.5	20.8	0.024889	2.5
Extreme (40C)	836.5	-15.4	-0.018446	2.5
Extreme (30C)	836.5	-15.7	-0.018757	2.5
Extreme (10C)	836.5	15.8	0.018852	2.5
Extreme (0C)	836.5	-11.9	-0.014214	2.5
Extreme (-10C)	836.5	-8.7	-0.010353	2.5
Extreme (-20C)	836.5	-5.5	-0.006587	2.5
Extreme (-30C)	836.5	8.9	0.010580	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

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	-12.2	-0.004813	2.5
3.87	2535	8.3	0.003282	2.5
4.4	2535	-2.1	-0.000817	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	-32.3	-0.012738	2.5
Extreme (50C)	2535	20.0	0.007901	2.5
Extreme (40C)	2535	-22.2	-0.008769	2.5
Extreme (30C)	2535	7.2	0.002856	2.5
Extreme (10C)	2535	25.7	0.010142	2.5
Extreme (0C)	2535	11.4	0.004493	2.5
Extreme (-10C)	2535	16.4	0.006477	2.5
Extreme (-20C)	2535	-19.4	-0.007633	2.5
Extreme (-30C)	2535	-9.4	-0.003716	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	18.0	0.007105	2.5
3.87	2535	-20.6	-0.008134	2.5
4.4	2535	25.3	0.009961	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	-23.1	-0.009112	2.5
Extreme (50C)	2535	-27.0	-0.010643	2.5
Extreme (40C)	2535	31.1	0.012256	2.5
Extreme (30C)	2535	17.6	0.006943	2.5
Extreme (10C)	2535	8.2	0.003239	2.5
Extreme (0C)	2535	-20.5	-0.008083	2.5
Extreme (-10C)	2535	5.4	0.002146	2.5
Extreme (-20C)	2535	28.6	0.011262	2.5
Extreme (-30C)	2535	-20.1	-0.007925	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	707.5	25.1	0.035406	2.5
3.87	707.5	-18.1	-0.025640	2.5
4.4	707.5	13.6	0.019237	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	707.5	15.1	0.021314	2.5
Extreme (50C)	707.5	-24.8	-0.035081	2.5
Extreme (40C)	707.5	-23.4	-0.033004	2.5
Extreme (30C)	707.5	-1.5	-0.002049	2.5
Extreme (10C)	707.5	-10.0	-0.014092	2.5
Extreme (0C)	707.5	-22.4	-0.031689	2.5
Extreme (-10C)	707.5	27.5	0.038841	2.5
Extreme (-20C)	707.5	15.7	0.022247	2.5
Extreme (-30C)	707.5	13.9	0.019576	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 16QAM, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	707.5	-12.4	-0.017512	2.5
3.87	707.5	15.4	0.021795	2.5
4.4	707.5	10.9	0.015406	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	707.5	16.9	0.023859	2.5
Extreme (50C)	707.5	21.1	0.029866	2.5
Extreme (40C)	707.5	-1.9	-0.002686	2.5
Extreme (30C)	707.5	3.9	0.005442	2.5
Extreme (10C)	707.5	11.5	0.016198	2.5
Extreme (0C)	707.5	-11.2	-0.015802	2.5
Extreme (-10C)	707.5	-1.1	-0.001498	2.5
Extreme (-20C)	707.5	5.6	0.007972	2.5
Extreme (-30C)	707.5	-20.5	-0.028905	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	710.0	23.7	0.033310	2.5
3.87	710.0	-6.5	-0.009141	2.5
4.4	710.0	12.8	0.018014	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	710.0	18.9	0.026676	2.5
Extreme (50C)	710.0	18.6	0.026155	2.5
Extreme (40C)	710.0	13.0	0.018310	2.5
Extreme (30C)	710.0	15.9	0.022380	2.5
Extreme (10C)	710.0	20.6	0.029070	2.5
Extreme (0C)	710.0	14.4	0.020324	2.5
Extreme (-10C)	710.0	11.3	0.015972	2.5
Extreme (-20C)	710.0	-7.3	-0.010225	2.5
Extreme (-30C)	710.0	-23.8	-0.033465	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 16QAM, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	710.0	9.1	0.012746	2.5
3.87	710.0	-28.5	-0.040085	2.5
4.4	710.0	-8.0	-0.011211	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	710.0	9.2	0.012944	2.5
Extreme (50C)	710.0	-17.8	-0.025085	2.5
Extreme (40C)	710.0	16.0	0.022479	2.5
Extreme (30C)	710.0	15.0	0.021183	2.5
Extreme (10C)	710.0	20.1	0.028338	2.5
Extreme (0C)	710.0	2.8	0.003930	2.5
Extreme (-10C)	710.0	14.1	0.019901	2.5
Extreme (-20C)	710.0	-16.0	-0.022549	2.5
Extreme (-30C)	710.0	-27.1	-0.038155	2.5

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

10.7 LTE BAND 25

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 QPSK, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1882.5	-2.7	-0.001440	2.5
3.87	1882.5	-13.9	-0.007394	2.5
4.4	1882.5	26.9	0.014284	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 QPSK, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1882.5	0.1	0.000042	2.5
Extreme (50C)	1882.5	20.0	0.010629	2.5
Extreme (40C)	1882.5	-7.3	-0.003894	2.5
Extreme (30C)	1882.5	7.8	0.004159	2.5
Extreme (10C)	1882.5	19.5	0.010369	2.5
Extreme (0C)	1882.5	-17.4	-0.009243	2.5
Extreme (-10C)	1882.5	25.6	0.013572	2.5
Extreme (-20C)	1882.5	-10.5	-0.005599	2.5
Extreme (-30C)	1882.5	-18.7	-0.009928	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 16QAM, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1882.5	8.0	0.004250	2.5
3.87	1882.5	-2.8	-0.001498	2.5
4.4	1882.5	-17.9	-0.009487	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 25 16QAM, (CH 26365 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1882.5	-21.7	-0.011538	2.5
Extreme (50C)	1882.5	4.8	0.002560	2.5
Extreme (40C)	1882.5	10.1	0.005365	2.5
Extreme (30C)	1882.5	-11.7	-0.006210	2.5
Extreme (10C)	1882.5	-12.6	-0.006667	2.5
Extreme (0C)	1882.5	-9.7	-0.005153	2.5
Extreme (-10C)	1882.5	-15.2	-0.008064	2.5
Extreme (-20C)	1882.5	-15.3	-0.008106	2.5
Extreme (-30C)	1882.5	14.3	0.007612	2.5

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

10.8 LTE BAND 26

Band 26 A (814MHz~824MHz) QPSK,10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A QPSK, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	819	-23.9	-0.029206	2.5
3.87	819	18.4	0.022405	2.5
4.4	819	17.0	0.020781	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A QPSK, (CH 26740RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	819	13.8	0.016838	2.5
Extreme (50C)	819	14.6	0.017814	2.5
Extreme (40C)	819	3.3	0.003968	2.5
Extreme (30C)	819	34.0	0.041477	2.5
Extreme (10C)	819	-25.3	-0.030867	2.5
Extreme (0C)	819	5.2	0.006337	2.5
Extreme (-10C)	819	10.4	0.012747	2.5
Extreme (-20C)	819	-0.1	-0.000110	2.5
Extreme (-30C)	819	-5.1	-0.006190	2.5

Band 26A (814MHz~824MHz) 16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A 16QAM, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	819	-18.3	-0.022308	2.5
3.87	819	-6.0	-0.007338	2.5
4.4	819	32.3	0.039451	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26A 16QAM, (CH 26740 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	819	-10.2	-0.012454	2.5
Extreme (50C)	819	19.4	0.023687	2.5
Extreme (40C)	819	12.6	0.015324	2.5
Extreme (30C)	819	10.9	0.013297	2.5
Extreme (10C)	819	9.6	0.011697	2.5
Extreme (0C)	819	-12.1	-0.014750	2.5
Extreme (-10C)	819	4.7	0.005702	2.5
Extreme (-20C)	819	16.3	0.019853	2.5
Extreme (-30C)	819	9.5	0.011551	2.5

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

Band 26B ((824MHz~849MHz) QPSK,15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B QPSK, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
3.4	836.5	17.7	0.021112	2.5
3.87	836.5	16.8	0.020036	2.5
4.4	836.5	8.4	0.010066	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B QPSK, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
Normal (25C)	836.5	-24.2	-0.028954	2.5
Extreme (50C)	836.5	11.6	0.013819	2.5
Extreme (40C)	836.5	-21.8	-0.026037	2.5
Extreme (30C)	836.5	26.7	0.031931	2.5
Extreme (10C)	836.5	-18.1	-0.021650	2.5
Extreme (0C)	836.5	27.2	0.032504	2.5
Extreme (-10C)	836.5	14.7	0.017549	2.5
Extreme (-20C)	836.5	0.8	0.000897	2.5
Extreme (-30C)	836.5	21.9	0.026216	2.5

Band 26B (824MHz~849MHz) 16QAM, (15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B 16QAM, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
3.4	836.5	27.4	0.032696	2.5
3.87	836.5	28.6	0.034166	2.5
4.4	836.5	-2.6	-0.003156	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 26B 16QAM, (CH 26915 RB size 75 RB Offset 0 15MHz BANDWIDTH)				
Normal (25C)	836.5	25.9	0.030986	2.5
Extreme (50C)	836.5	11.4	0.013664	2.5
Extreme (40C)	836.5	18.4	0.021937	2.5
Extreme (30C)	836.5	14.6	0.017454	2.5
Extreme (10C)	836.5	-12.5	-0.014967	2.5
Extreme (0C)	836.5	-13.5	-0.016127	2.5
Extreme (-10C)	836.5	-19.7	-0.023503	2.5
Extreme (-20C)	836.5	-13.7	-0.016402	2.5
Extreme (-30C)	836.5	18.9	0.022570	2.5

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

10.9 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	-27.3	-0.015656	2.5
3.87	1745	-16.3	-0.009358	2.5
4.4	1745	12.7	0.007301	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	-8.7	-0.005003	2.5
Extreme (50C)	1745	2.7	0.001564	2.5
Extreme (40C)	1745	-13.4	-0.007673	2.5
Extreme (30C)	1745	-5.6	-0.003232	2.5
Extreme (10C)	1745	17.8	0.010189	2.5
Extreme (0C)	1745	-13.5	-0.007731	2.5
Extreme (-10C)	1745	-20.5	-0.011759	2.5
Extreme (-20C)	1745	-13.4	-0.007662	2.5
Extreme (-30C)	1745	-14.2	-0.008138	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	0.8	0.000447	2.5
3.87	1745	-17.5	-0.010011	2.5
4.4	1745	-4.0	-0.002298	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	-15.0	-0.008602	2.5
Extreme (50C)	1745	-19.0	-0.010905	2.5
Extreme (40C)	1745	17.1	0.009788	2.5
Extreme (30C)	1745	11.9	0.006808	2.5
Extreme (10C)	1745	-24.3	-0.013920	2.5
Extreme (0C)	1745	20.2	0.011570	2.5
Extreme (-10C)	1745	31.0	0.017788	2.5
Extreme (-20C)	1745	-8.5	-0.004860	2.5
Extreme (-30C)	1745	-19.2	-0.010986	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.

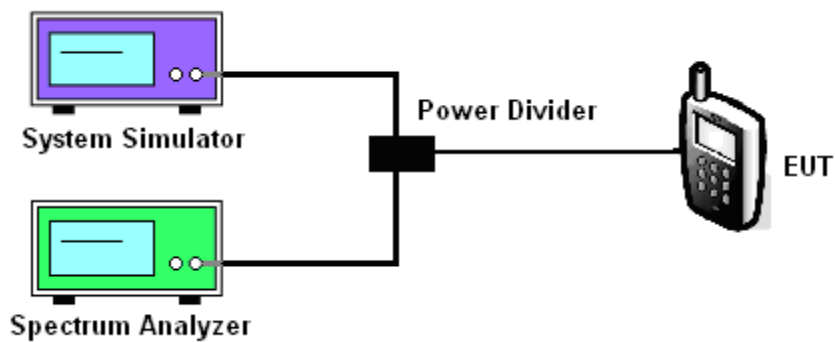
11.2 Measuring Instruments

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
- LTE Band 4
- ☐ LTE Band5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 25
- LTE Band 26
- LTE Band 66

Test data reference attachment.

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