

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

FCC ID: 2AXNU-R2022

Product: Smart Phone
Trade Mark: N/A
Model Number: R2022
Family Model: N/A
Report No.: S21062803205006

Prepared for

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TEST RESULT CERTIFICATION

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Manufacturer's Name..... : Shenzhen Kaicheng Technology Co., Ltd.

Address..... : Room 2005,20th Floor, Block C, Dachong Business Center, Yuehai Street,Nanshan District,Shenzhen,Guangdong,China

Product name..... : Smart Phone

Model and/or type reference .. : R2022

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..... Jul 12, 2021 ~Aug 25, 2021

Date of Issue Aug 26, 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	N/A
Model Name	R2022
Family Model	N/A
Model Difference	N/A
FCC ID:	2AXNU-R2022
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,7,12,13,17,25,26,66
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 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; 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:	PIFA Antenna
Antenna gain:	-0.2dBi
Power Supply:	DC 3.85V/8320mAh from battery or DC 5V from Adapter.
Adapter:	Model: TPA-10120150UU Input: 100-240V~50/60Hz 0.6A

	Output: 3.6-6V---3A/ 6-9V---2A / 9-12V---1.5A
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.85V) (Note 1)
HW Version	2100_MAINBOARD_P2
SW Version	R2022_2201_V2017
** Note1: The High Voltage DC 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AXNU-R2022** 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 13, 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

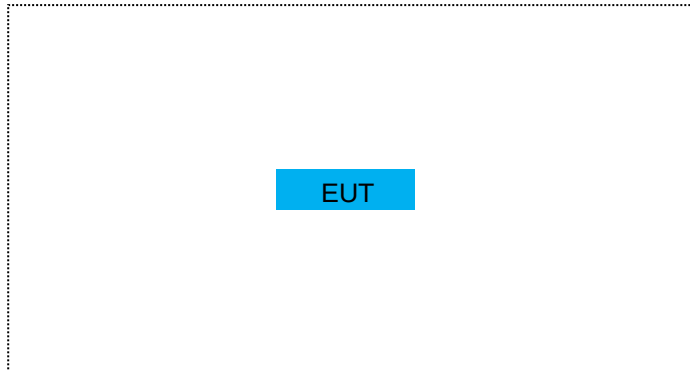
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smart Phone	R2022	FCC ID: 2AXNU-R2022	EUT

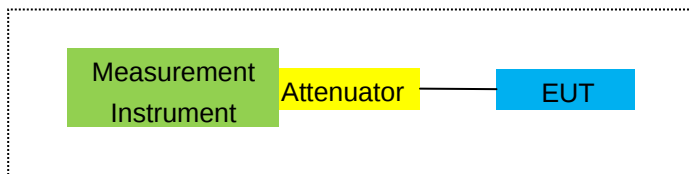
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

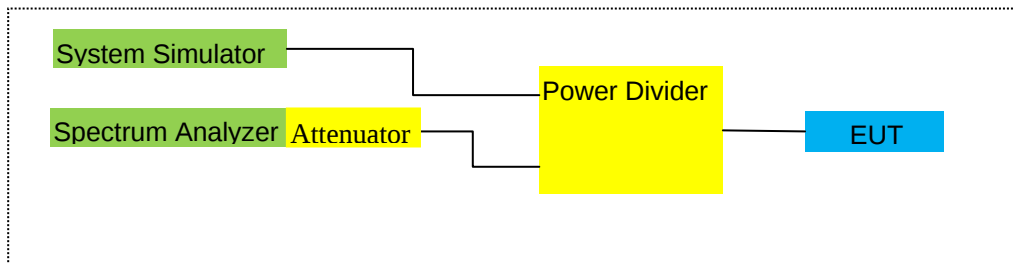
For Radiated Test Cases



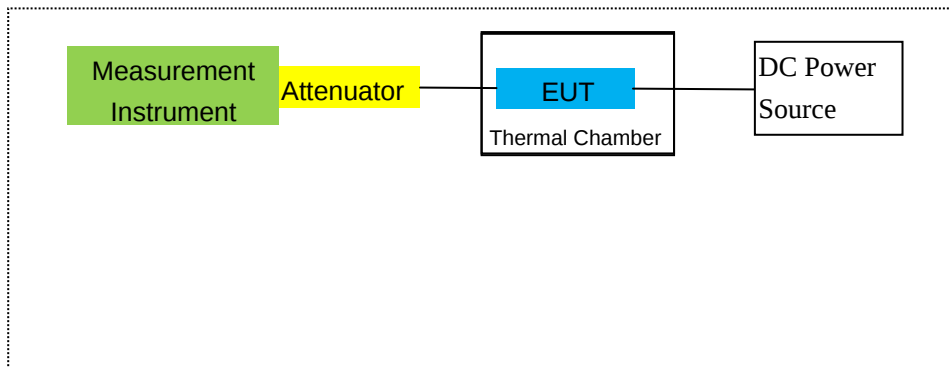
For Conducted Output Power



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	2021.07.01	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-10180	2011071402	2021.03.29	2022.03.28	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.11.20	2021.11.19	1 year
7	Amplifier	EM	EM-30180	060538	2021.07.01	2022.06.30	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	2021.07.01	2022.06.30	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	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	2021.07.01	2022.06.30	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	2021.07.01	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	2017040292 3	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2021.07.01	2022.06.30	1 year
29	Communication Tester	R&S	CMW500	148500	2021.07.01	2022.06.30	1 year
30	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2021.07.01	2022.06.30	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
64 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".

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 13
- 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 13
- 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 2/4/5/7/12/13/17/25/26/66
- ☐

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 2/4/5/7/12/13/17/25/26/66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-4.88	3.76	28.24	19.60	91.201	Horizontal	Pass
		1880	-3.45	3.91	28.22	20.86	121.899	Horizontal	Pass
		1909.3	-5.10	3.93	28.20	19.17	82.604	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.70	3.77	28.23	20.76	119.124	Horizontal	Pass
		1880	-4.00	3.91	28.24	20.33	107.895	Horizontal	Pass
		1908.5	-4.46	3.94	28.25	19.85	96.605	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.83	3.77	28.31	19.71	93.541	Horizontal	Pass
		1880	-4.24	3.91	28.22	20.07	101.625	Horizontal	Pass
		1907.5	-3.26	3.94	28.20	21.00	125.893	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.10	3.79	28.33	20.44	110.662	Horizontal	Pass
		1880	-4.05	3.95	28.22	20.22	105.196	Horizontal	Pass
		1905	-3.39	3.97	28.19	20.83	121.060	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.76	3.79	28.34	19.79	95.280	Horizontal	Pass
		1880	-3.21	3.95	28.22	21.06	127.644	Horizontal	Pass
		1902.5	-3.09	3.97	28.18	21.12	129.420	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.56	3.81	28.35	20.98	125.314	Horizontal	Pass
		1880	-4.58	3.96	28.22	19.68	92.897	Horizontal	Pass
		1900	-3.71	4.00	28.16	20.45	110.917	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-4.16	3.76	28.24	20.32	107.647	Vertical	Pass
		1880	-3.29	3.91	28.22	21.02	126.474	Vertical	Pass
		1909.3	-4.06	3.93	28.20	20.21	104.954	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.53	3.77	28.23	19.93	98.401	Vertical	Pass
		1880	-3.89	3.91	28.24	20.44	110.662	Vertical	Pass
		1908.5	-3.08	3.94	28.25	21.23	132.739	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.85	3.77	28.31	20.69	117.220	Vertical	Pass
		1880	-3.23	3.91	28.22	21.08	128.233	Vertical	Pass
		1907.5	-3.05	3.94	28.20	21.21	132.130	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.16	3.79	28.33	20.38	109.144	Vertical	Pass
		1880	-4.83	3.95	28.22	19.44	87.902	Vertical	Pass
		1905	-5.09	3.97	28.19	19.13	81.846	Vertical	Pass

15.0MHz		1857.5	-5.04	3.79	28.34	19.51	89.331	Vertical	Pass
Band	1/#Mid	1880	-4.18	3.95	28.22	20.09	102.094	Vertical	Pass
QPSK		1902.5	-4.53	3.97	28.18	19.68	92.897	Vertical	Pass
20.0MHz		1860	-4.96	3.81	28.35	19.58	90.782	Vertical	Pass
Band	1/#Mid	1880	-4.97	3.96	28.22	19.29	84.918	Vertical	Pass
QPSK		1900	-2.80	4.00	28.16	21.36	136.773	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)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.61	3.76	28.24	18.87	77.090	Horizontal	Pass
		1880	-5.02	3.91	28.22	19.29	84.918	Horizontal	Pass
		1909.3	-4.80	3.93	28.20	19.47	88.512	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.54	3.77	28.23	18.92	77.983	Horizontal	Pass
		1880	-4.99	3.91	28.24	19.34	85.901	Horizontal	Pass
		1908.5	-4.95	3.94	28.25	19.36	86.298	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.39	3.77	28.31	19.15	82.224	Horizontal	Pass
		1880	-5.13	3.91	28.22	19.18	82.794	Horizontal	Pass
		1907.5	-4.74	3.94	28.20	19.52	89.536	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.44	3.79	28.33	19.10	81.283	Horizontal	Pass
		1880	-5.04	3.95	28.22	19.23	83.753	Horizontal	Pass
		1905	-4.58	3.97	28.19	19.64	92.045	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.29	3.79	28.34	19.26	84.333	Horizontal	Pass
		1880	-5.09	3.95	28.22	19.18	82.794	Horizontal	Pass
		1902.5	-5.03	3.97	28.18	19.18	82.794	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-5.18	3.81	28.35	19.36	86.298	Horizontal	Pass
		1880	-4.54	3.96	28.22	19.72	93.756	Horizontal	Pass
		1900	-4.72	4.00	28.16	19.44	87.902	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.55	3.76	28.24	18.93	78.163	Vertical	Pass
		1880	-4.77	3.91	28.22	19.54	89.950	Vertical	Pass
		1909.3	-4.66	3.93	28.20	19.61	91.411	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.30	3.77	28.23	19.16	82.414	Vertical	Pass
		1880	-5.16	3.91	28.24	19.17	82.604	Vertical	Pass
		1908.5	-4.77	3.94	28.25	19.54	89.950	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.05	3.77	28.31	19.49	88.920	Vertical	Pass
		1880	-5.36	3.91	28.22	18.95	78.524	Vertical	Pass
		1907.5	-4.59	3.94	28.20	19.67	92.683	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.91	3.79	28.33	19.63	91.833	Vertical	Pass
		1880	-5.22	3.95	28.22	19.05	80.353	Vertical	Pass
		1905	-5.27	3.97	28.19	18.95	78.524	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.96	3.79	28.34	19.59	90.991	Vertical	Pass
		1880	-5.84	3.95	28.22	18.43	69.663	Vertical	Pass
		1902.5	-4.60	3.97	28.18	19.61	91.411	Vertical	Pass

20.0MHz	1/#Mid	1860	-4.52	3.81	28.35	20.02	100.462	Vertical	Pass
Band 16		1880	-4.58	3.96	28.22	19.68	92.897	Vertical	Pass
QAM		1900	-4.66	4.00	28.16	19.50	89.125	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.51	3.12	27.58	20.95	124.451	Horizontal	Pass
		1732.5	-3.22	3.27	27.61	21.12	129.420	Horizontal	Pass
		1754.3	-3.67	3.29	27.63	20.67	116.681	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.90	3.13	27.61	19.58	90.782	Horizontal	Pass
		1732.5	-5.11	3.27	27.61	19.23	83.753	Horizontal	Pass
		1753.5	-5.40	3.30	27.62	18.92	77.983	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.08	3.13	27.63	20.42	110.154	Horizontal	Pass
		1732.5	-5.46	3.27	27.61	18.88	77.268	Horizontal	Pass
		1752.5	-3.13	3.30	27.60	21.17	130.918	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.01	3.15	27.64	20.48	111.686	Horizontal	Pass
		1732.5	-3.30	3.31	27.61	21.00	125.893	Horizontal	Pass
		1750	-3.26	3.33	27.59	21.00	125.893	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.85	3.15	27.65	19.65	92.257	Horizontal	Pass
		1732.5	-3.17	3.31	27.61	21.13	129.718	Horizontal	Pass
		1747.5	-3.57	3.33	27.57	20.67	116.681	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.96	3.17	27.66	19.53	89.743	Horizontal	Pass
		1732.5	-3.28	3.32	27.61	21.01	126.183	Horizontal	Pass
		1745	-3.61	3.36	27.56	20.59	114.551	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.32	3.12	27.58	21.14	130.017	Vertical	Pass
		1732.5	-4.53	3.27	27.61	19.81	95.719	Vertical	Pass
		1754.3	-4.93	3.29	27.63	19.41	87.297	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.27	3.13	27.61	21.21	132.130	Vertical	Pass
		1732.5	-3.61	3.27	27.61	20.73	118.304	Vertical	Pass
		1753.5	-3.47	3.30	27.62	20.85	121.619	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.87	3.13	27.63	19.63	91.833	Vertical	Pass
		1732.5	-3.99	3.27	27.61	20.35	108.393	Vertical	Pass
		1752.5	-4.90	3.30	27.60	19.40	87.096	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.70	3.15	27.64	19.79	95.280	Vertical	Pass
		1732.5	-4.82	3.31	27.61	19.48	88.716	Vertical	Pass
		1750	-3.50	3.33	27.59	20.76	119.124	Vertical	Pass

15.0MHz		1717.5	-4.76	3.15	27.65	19.74	94.189	Vertical	Pass
Band	1/#Mid	1732.5	-4.19	3.31	27.61	20.11	102.565	Vertical	Pass
QPSK		1747.5	-4.53	3.33	27.57	19.71	93.541	Vertical	Pass
20.0MHz		1720	-3.75	3.17	27.66	20.74	118.577	Vertical	Pass
Band	1/#Mid	1732.5	-3.50	3.32	27.61	20.79	119.950	Vertical	Pass
QPSK		1745	-2.94	3.36	27.56	21.26	133.660	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.36	3.12	27.58	20.10	102.329	Horizontal	Pass
		1732.5	-4.63	3.27	27.61	19.71	93.541	Horizontal	Pass
		1754.3	-4.48	3.29	27.63	19.86	96.828	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.40	3.13	27.61	20.08	101.859	Horizontal	Pass
		1732.5	-5.82	3.27	27.61	18.52	71.121	Horizontal	Pass
		1753.5	-4.55	3.30	27.62	19.77	94.842	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.70	3.13	27.63	19.80	95.499	Horizontal	Pass
		1732.5	-4.75	3.27	27.61	19.59	90.991	Horizontal	Pass
		1752.5	-3.86	3.30	27.60	20.44	110.662	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.33	3.15	27.64	20.16	103.753	Horizontal	Pass
		1732.5	-4.85	3.31	27.61	19.45	88.105	Horizontal	Pass
		1750	-5.02	3.33	27.59	19.24	83.946	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.75	3.15	27.65	19.75	94.406	Horizontal	Pass
		1732.5	-4.35	3.31	27.61	19.95	98.855	Horizontal	Pass
		1747.5	-4.15	3.33	27.57	20.09	102.094	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.67	3.17	27.66	19.82	95.940	Horizontal	Pass
		1732.5	-3.63	3.32	27.61	20.66	116.413	Horizontal	Pass
		1745	-4.53	3.36	27.56	19.67	92.683	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.09	3.12	27.58	20.37	108.893	Vertical	Pass
		1732.5	-3.79	3.27	27.61	20.55	113.501	Vertical	Pass
		1754.3	-4.32	3.29	27.63	20.02	100.462	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.91	3.13	27.61	19.57	90.573	Vertical	Pass
		1732.5	-5.44	3.27	27.61	18.90	77.625	Vertical	Pass
		1753.5	-4.68	3.30	27.62	19.64	92.045	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.74	3.13	27.63	19.76	94.624	Vertical	Pass
		1732.5	-4.59	3.27	27.61	19.75	94.406	Vertical	Pass
		1752.5	-4.76	3.30	27.60	19.54	89.950	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.22	3.15	27.64	20.27	106.414	Vertical	Pass
		1732.5	-4.40	3.31	27.61	19.90	97.724	Vertical	Pass
		1750	-3.69	3.33	27.59	20.57	114.025	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.06	3.15	27.65	20.44	110.662	Vertical	Pass
		1732.5	-4.61	3.31	27.61	19.69	93.111	Vertical	Pass
		1747.5	-3.58	3.33	27.57	20.66	116.413	Vertical	Pass

20.0MHz	1/#Mid	1720	-3.66	3.17	27.66	20.83	121.060	Vertical	Pass
Band 16		1732.5	-4.28	3.32	27.61	20.01	100.231	Vertical	Pass
QAM		1745	-3.73	3.36	27.56	20.47	111.429	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	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz	1/#Mid	824.7	6.95	2.01	19.68	2.15	22.47	176.604	Horizontal	Pass
Band		836.5	6.40	2.01	19.77	2.15	22.01	158.855	Horizontal	Pass
QPSK		848.3	6.80	2.02	19.82	2.15	22.45	175.792	Horizontal	Pass
3.0MHz	1/#Mid	825.5	6.55	2.01	19.70	2.15	22.09	161.808	Horizontal	Pass
Band		836.5	6.53	2.01	19.77	2.15	22.14	163.682	Horizontal	Pass
QPSK		847.5	6.87	2.02	19.81	2.15	22.51	178.238	Horizontal	Pass
5.0MHz	1/#Mid	826.5	6.36	2.01	19.71	2.15	21.91	155.239	Horizontal	Pass
Band		836.5	6.87	2.01	19.77	2.15	22.48	177.011	Horizontal	Pass
QPSK		846.5	6.21	2.02	19.79	2.15	21.83	152.405	Horizontal	Pass
10.0MHz	1/#Mid	829	6.53	2.01	19.73	2.15	22.10	162.181	Horizontal	Pass
Band		836.5	6.81	2.01	19.77	2.15	22.42	174.582	Horizontal	Pass
QPSK		844	6.82	2.02	19.78	2.15	22.43	174.985	Horizontal	Pass
1.4MHz	1/#Mid	824.7	7.24	2.01	19.68	2.15	22.76	188.799	Vertical	Pass
Band		836.5	6.22	2.01	19.77	2.15	21.83	152.405	Vertical	Pass
QPSK		848.3	6.55	2.02	19.82	2.15	22.20	165.959	Vertical	Pass
3.0MHz	1/#Mid	825.5	6.59	2.01	19.70	2.15	22.13	163.305	Vertical	Pass
Band		836.5	6.50	2.01	19.77	2.15	22.11	162.555	Vertical	Pass
QPSK		847.5	6.27	2.02	19.81	2.15	21.91	155.239	Vertical	Pass
5.0MHz	1/#Mid	826.5	7.04	2.01	19.71	2.15	22.59	181.552	Vertical	Pass
Band		836.5	6.16	2.01	19.77	2.15	21.77	150.314	Vertical	Pass
QPSK		846.5	7.14	2.02	19.79	2.15	22.76	188.799	Vertical	Pass
10.0MHz	1/#Mid	829	6.86	2.01	19.73	2.15	22.43	174.985	Vertical	Pass
Band		836.5	7.17	2.01	19.77	2.15	22.78	189.671	Vertical	Pass
QPSK		844	6.52	2.02	19.78	2.15	22.13	163.305	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 (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	824.7	4.83	2.01	19.68	2.15	20.35	108.393	Horizontal	Pass
		836.5	4.31	2.01	19.77	2.15	19.92	98.175	Horizontal	Pass
		848.3	4.12	2.02	19.82	2.15	19.77	94.842	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.97	2.01	19.70	2.15	19.51	89.331	Horizontal	Pass
		836.5	4.54	2.01	19.77	2.15	20.15	103.514	Horizontal	Pass
		847.5	4.58	2.02	19.81	2.15	20.22	105.196	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.14	2.01	19.71	2.15	19.69	93.111	Horizontal	Pass
		836.5	4.26	2.01	19.77	2.15	19.87	97.051	Horizontal	Pass
		846.5	4.48	2.02	19.79	2.15	20.10	102.329	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.40	2.01	19.73	2.15	19.97	99.312	Horizontal	Pass
		836.5	4.03	2.01	19.77	2.15	19.64	92.045	Horizontal	Pass
		844	3.76	2.02	19.78	2.15	19.37	86.497	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	4.37	2.01	19.68	2.15	19.89	97.499	Vertical	Pass
		836.5	3.30	2.01	19.77	2.15	18.91	77.804	Vertical	Pass
		848.3	3.79	2.02	19.82	2.15	19.44	87.902	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.51	2.01	19.70	2.15	19.05	80.353	Vertical	Pass
		836.5	4.11	2.01	19.77	2.15	19.72	93.756	Vertical	Pass
		847.5	3.90	2.02	19.81	2.15	19.54	89.950	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.54	2.01	19.71	2.15	19.09	81.096	Vertical	Pass
		836.5	4.16	2.01	19.77	2.15	19.77	94.842	Vertical	Pass
		846.5	4.13	2.02	19.79	2.15	19.75	94.406	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.93	2.01	19.73	2.15	19.50	89.125	Vertical	Pass
		836.5	4.90	2.01	19.77	2.15	20.51	112.460	Vertical	Pass
		844	3.66	2.02	19.78	2.15	19.27	84.528	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2502.5	-1.64	4.54	27.75	21.57	143.549	Horizontal	Pass
		2535	-1.06	4.69	27.72	21.97	157.398	Horizontal	Pass
		2567.5	-1.04	4.71	27.71	21.96	157.036	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-1.67	4.55	27.76	21.54	142.561	Horizontal	Pass
		2535	-2.33	4.69	27.72	20.70	117.490	Horizontal	Pass
		2565	-2.28	4.72	27.70	20.70	117.490	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-1.31	4.55	27.77	21.91	155.239	Horizontal	Pass
		2535	-1.33	4.69	27.72	21.70	147.911	Horizontal	Pass
		2562.5	-1.83	4.72	27.69	21.14	130.017	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.59	4.57	27.78	20.62	115.345	Horizontal	Pass
		2535	-2.38	4.73	27.72	20.61	115.080	Horizontal	Pass
		2560	-1.18	4.75	27.68	21.75	149.624	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-1.80	4.54	27.75	21.41	138.357	Vertical	Pass
		2535	-2.33	4.69	27.72	20.70	117.490	Vertical	Pass
		2567.5	-2.28	4.71	27.71	20.72	118.032	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-1.52	4.55	27.76	21.69	147.571	Vertical	Pass
		2535	-1.83	4.69	27.72	21.20	131.826	Vertical	Pass
		2565	-2.54	4.72	27.70	20.44	110.662	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.05	4.55	27.77	21.17	130.918	Vertical	Pass
		2535	-2.24	4.69	27.72	20.79	119.950	Vertical	Pass
		2562.5	-2.07	4.72	27.69	20.90	123.027	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.73	4.57	27.78	21.48	140.605	Vertical	Pass
		2535	-1.03	4.73	27.72	21.96	157.036	Vertical	Pass
		2560	-0.83	4.75	27.68	22.10	162.181	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/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.60	4.54	27.75	21.61	144.877	Horizontal	Pass
		2535	-1.29	4.69	27.72	21.74	149.279	Horizontal	Pass
		2567.5	-0.67	4.71	27.71	22.33	171.002	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.19	4.55	27.76	22.02	159.221	Horizontal	Pass
		2535	-0.83	4.69	27.72	22.20	165.959	Horizontal	Pass
		2565	-0.79	4.72	27.70	22.19	165.577	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.12	4.55	27.77	22.10	162.181	Horizontal	Pass
		2535	-1.10	4.69	27.72	21.93	155.955	Horizontal	Pass
		2562.5	-0.86	4.72	27.69	22.11	162.555	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-0.61	4.57	27.78	22.60	181.970	Horizontal	Pass
		2535	-0.97	4.73	27.72	22.02	159.221	Horizontal	Pass
		2560	-1.51	4.75	27.68	21.42	138.676	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.65	4.54	27.75	21.56	143.219	Vertical	Pass
		2535	-1.07	4.69	27.72	21.96	157.036	Vertical	Pass
		2567.5	-1.48	4.71	27.71	21.52	141.906	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.88	4.55	27.76	21.33	135.831	Vertical	Pass
		2535	-2.34	4.69	27.72	20.69	117.220	Vertical	Pass
		2565	-0.62	4.72	27.70	22.36	172.187	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-1.07	4.55	27.77	22.15	164.059	Vertical	Pass
		2535	-0.57	4.69	27.72	22.46	176.198	Vertical	Pass
		2562.5	-1.21	4.72	27.69	21.76	149.968	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-0.55	4.57	27.78	22.66	184.502	Vertical	Pass
		2535	-0.26	4.73	27.72	22.73	187.499	Vertical	Pass
		2560	-0.98	4.75	27.68	21.95	156.675	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	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	699.7	6.89	1.91	19.21	2.15	22.04	159.956	Vertical	Pass
		707.5	5.85	1.91	19.26	2.15	21.05	127.350	Vertical	Pass
		715.3	4.92	1.93	19.34	2.15	20.18	104.232	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.40	1.91	19.21	2.15	21.55	142.889	Vertical	Pass
		707.5	5.81	1.91	19.26	2.15	21.01	126.183	Vertical	Pass
		714.5	5.30	1.93	19.34	2.15	20.56	113.763	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.56	1.91	19.23	2.15	20.73	118.304	Vertical	Pass
		707.5	6.66	1.91	19.26	2.15	21.86	153.462	Vertical	Pass
		713.5	5.30	1.92	19.33	2.15	20.56	113.763	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	6.16	1.91	19.25	2.15	21.35	136.458	Vertical	Pass
		707.5	6.55	1.91	19.26	2.15	21.75	149.624	Vertical	Pass
		711	6.38	1.92	19.32	2.15	21.63	145.546	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	6.26	1.91	19.21	2.15	21.41	138.357	Horizontal	Pass
		707.5	5.74	1.91	19.26	2.15	20.94	124.165	Horizontal	Pass
		715.3	5.89	1.93	19.34	2.15	21.15	130.317	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.22	1.91	19.21	2.15	21.37	137.088	Horizontal	Pass
		707.5	6.26	1.91	19.26	2.15	21.46	139.959	Horizontal	Pass
		714.5	5.87	1.93	19.34	2.15	21.13	129.718	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.33	1.91	19.23	2.15	21.50	141.254	Horizontal	Pass
		707.5	6.35	1.91	19.26	2.15	21.55	142.889	Horizontal	Pass
		713.5	6.62	1.92	19.33	2.15	21.88	154.170	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	6.99	1.91	19.25	2.15	22.18	165.196	Horizontal	Pass
		707.5	5.24	1.91	19.26	2.15	20.44	110.662	Horizontal	Pass
		711	5.38	1.92	19.32	2.15	20.63	115.611	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	4.96	1.91	19.21	2.15	20.11	102.565	Vertical	Pass
		707.5	4.83	1.91	19.26	2.15	20.03	100.693	Vertical	Pass
		715.3	4.01	1.93	19.34	2.15	19.27	84.528	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.40	1.91	19.21	2.15	20.55	113.501	Vertical	Pass
		707.5	5.22	1.91	19.26	2.15	20.42	110.154	Vertical	Pass
		714.5	4.53	1.93	19.34	2.15	19.79	95.280	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.06	1.91	19.23	2.15	20.23	105.439	Vertical	Pass
		707.5	5.25	1.91	19.26	2.15	20.45	110.917	Vertical	Pass
		713.5	5.34	1.92	19.33	2.15	20.60	114.815	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.57	1.91	19.25	2.15	20.76	119.124	Vertical	Pass
		707.5	5.31	1.91	19.26	2.15	20.51	112.460	Vertical	Pass
		711	5.79	1.92	19.32	2.15	21.04	127.057	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	5.18	1.91	19.21	2.15	20.33	107.895	Horizontal	Pass
		707.5	5.57	1.91	19.26	2.15	20.77	119.399	Horizontal	Pass
		715.3	5.17	1.93	19.34	2.15	20.43	110.408	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.65	1.91	19.21	2.15	20.80	120.226	Horizontal	Pass
		707.5	5.61	1.91	19.26	2.15	20.81	120.504	Horizontal	Pass
		714.5	5.57	1.93	19.34	2.15	20.83	121.060	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.26	1.91	19.23	2.15	20.43	110.408	Horizontal	Pass
		707.5	5.39	1.91	19.26	2.15	20.59	114.551	Horizontal	Pass
		713.5	4.11	1.92	19.33	2.15	19.37	86.497	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.86	1.91	19.25	2.15	20.05	101.158	Horizontal	Pass
		707.5	5.92	1.91	19.26	2.15	21.12	129.420	Horizontal	Pass
		711	5.46	1.92	19.32	2.15	20.71	117.761	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 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable	Antenna	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss (dBm)	Gain (dB)	(dB)	Average (dBm)	Average (mW)	Of Max. ERP	
5.0MHz	1/#Mid	779.5	5.57	1.91	19.23	2.15	20.74	118.577	Vertical	Pass
Band		782	6.02	1.91	19.26	2.15	21.22	132.434	Vertical	Pass
QPSK		784.5	6.53	1.92	19.33	2.15	21.79	151.008	Vertical	Pass
10.0MHz	1/#Mid	782	4.48	1.91	19.25	2.15	19.67	92.683	Vertical	Pass
Band		779.5	6.19	1.91	19.23	2.15	21.36	136.773	Horizontal	Pass
QPSK		782	6.65	1.91	19.26	2.15	21.85	153.109	Horizontal	Pass
5.0MHz	1/#Mid	784.5	5.88	1.92	19.33	2.15	21.14	130.017	Horizontal	Pass
Band		782	6.76	1.91	19.25	2.15	21.95	156.675	Horizontal	Pass
QPSK		779.5	6.19	1.91	19.23	2.15	21.36	136.773	Horizontal	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	779.5	6.12	1.91	19.23	2.15	21.29	134.586	Vertical	Pass
		782	6.41	1.91	19.26	2.15	21.61	144.877	Vertical	Pass
		784.5	6.06	1.92	19.33	2.15	21.32	135.519	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	782	6.45	1.91	19.25	2.15	21.64	145.881	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	779.5	4.99	1.91	19.23	2.15	20.16	103.753	Horizontal	Pass
		782	5.98	1.91	19.26	2.15	21.18	131.220	Horizontal	Pass
		784.5	5.90	1.92	19.33	2.15	21.16	130.617	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	782	5.50	1.91	19.25	2.15	20.69	117.220	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)

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable	Antenna	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	Loss (dBm)	Gain (dB)	(dB)	Average (dBm)	Average (mW)	Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	706.5	5.58	1.91	19.23	2.15	20.75	118.850	Vertical	Pass
		710	5.91	1.91	19.26	2.15	21.11	129.122	Vertical	Pass
		713.5	6.26	1.92	19.33	2.15	21.52	141.906	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	4.49	1.91	19.25	2.15	19.68	92.897	Vertical	Pass
		710	5.95	1.91	19.26	2.15	21.15	130.317	Vertical	Pass
		711	7.00	1.92	19.32	2.15	22.25	167.880	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	6.22	1.91	19.23	2.15	21.39	137.721	Horizontal	Pass
		710	6.75	1.91	19.26	2.15	21.95	156.675	Horizontal	Pass
		713.5	5.87	1.92	19.33	2.15	21.13	129.718	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	6.30	1.91	19.25	2.15	21.49	140.929	Horizontal	Pass
		710	6.39	1.91	19.26	2.15	21.59	144.212	Horizontal	Pass
		711	6.59	1.92	19.32	2.15	21.84	152.757	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
5.0MHz	1/#Mid	706.5	5.37	1.91	19.23	2.15	20.54	113.240	Vertical	Pass
Band 16		710	5.63	1.91	19.26	2.15	20.83	121.060	Vertical	Pass
QAM		713.5	5.11	1.92	19.33	2.15	20.37	108.893	Vertical	Pass
10.0MHz	1/#Mid	709	4.94	1.91	19.25	2.15	20.13	103.039	Vertical	Pass
Band 16		710	4.36	1.91	19.26	2.15	19.56	90.365	Vertical	Pass
QAM		711	5.09	1.92	19.32	2.15	20.34	108.143	Vertical	Pass
5.0MHz	1/#Mid	706.5	4.32	1.91	19.23	2.15	19.49	88.920	Horizontal	Pass
Band 16		710	5.15	1.91	19.26	2.15	20.35	108.393	Horizontal	Pass
QAM		713.5	4.94	1.92	19.33	2.15	20.20	104.713	Horizontal	Pass
10.0MHz	1/#Mid	709	4.69	1.91	19.25	2.15	19.88	97.275	Horizontal	Pass
Band 16		710	5.84	1.91	19.26	2.15	21.04	127.057	Horizontal	Pass
QAM		711	5.77	1.92	19.32	2.15	21.02	126.474	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

8.9 LTE BAND 25

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			Level			Average	Average		
			(dBm)			(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-3.18	3.12	27.58	21.28	134.276	Horizontal	Pass
		1882,5	-2.90	3.27	27.61	21.44	139.316	Horizontal	Pass
		1914.3	-2.98	3.29	27.63	21.36	136.773	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.27	3.13	27.61	20.21	104.954	Horizontal	Pass
		1882,5	-4.79	3.27	27.61	19.55	90.157	Horizontal	Pass
		1913.5	-4.79	3.30	27.62	19.53	89.743	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.74	3.13	27.63	20.76	119.124	Horizontal	Pass
		1882,5	-5.11	3.27	27.61	19.23	83.753	Horizontal	Pass
		1912.5	-2.99	3.30	27.60	21.31	135.207	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.72	3.15	27.64	20.77	119.399	Horizontal	Pass
		1882,5	-3.06	3.31	27.61	21.24	133.045	Horizontal	Pass
		1910	-2.77	3.33	27.59	21.49	140.929	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.08	3.15	27.65	20.42	110.154	Horizontal	Pass
		1882,5	-2.96	3.31	27.61	21.34	136.144	Horizontal	Pass
		1907.5	-3.17	3.33	27.57	21.07	127.938	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.47	3.17	27.66	20.02	100.462	Horizontal	Pass
		1882,5	-2.80	3.32	27.61	21.49	140.929	Horizontal	Pass
		1905	-3.16	3.36	27.56	21.04	127.057	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-2.80	3.12	27.58	21.66	146.555	Vertical	Pass
		1882,5	-4.04	3.27	27.61	20.30	107.152	Vertical	Pass
		1914.3	-4.25	3.29	27.63	20.09	102.094	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.19	3.13	27.61	21.29	134.586	Vertical	Pass
		1882,5	-3.11	3.27	27.61	21.23	132.739	Vertical	Pass
		1913.5	-3.10	3.30	27.62	21.22	132.434	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.57	3.13	27.63	19.93	98.401	Vertical	Pass
		1882,5	-3.40	3.27	27.61	20.94	124.165	Vertical	Pass
		1912.5	-4.23	3.30	27.60	20.07	101.625	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.33	3.15	27.64	20.16	103.753	Vertical	Pass
		1882,5	-4.72	3.31	27.61	19.58	90.782	Vertical	Pass
		1910	-3.06	3.33	27.59	21.20	131.826	Vertical	Pass

15.0MHz	1/#Mid	1857.5	-4.07	3.15	27.65	20.43	110.408	Vertical	Pass
Band		1882,5	-3.78	3.31	27.61	20.52	112.720	Vertical	Pass
QPSK		1907.5	-3.81	3.33	27.57	20.43	110.408	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.56	3.17	27.66	20.93	123.880	Vertical	Pass
Band		1882,5	-2.52	3.32	27.61	21.77	150.314	Vertical	Pass
QPSK		1905	-2.57	3.36	27.56	21.63	145.546	Vertical	Pass

Radiated Power (EIRP) for Band 25									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.30	3.12	27.58	20.16	103.753	Horizontal	Pass
		1882,5	-4.62	3.27	27.61	19.72	93.756	Horizontal	Pass
		1914.3	-4.29	3.29	27.63	20.05	101.158	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.58	3.13	27.61	19.90	97.724	Horizontal	Pass
		1882,5	-5.53	3.27	27.61	18.81	76.033	Horizontal	Pass
		1913.5	-4.59	3.30	27.62	19.73	93.972	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.57	3.13	27.63	19.93	98.401	Horizontal	Pass
		1882,5	-4.98	3.27	27.61	19.36	86.298	Horizontal	Pass
		1912.5	-3.89	3.30	27.60	20.41	109.901	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.43	3.15	27.64	20.06	101.391	Horizontal	Pass
		1882,5	-4.52	3.31	27.61	19.78	95.060	Horizontal	Pass
		1910	-4.79	3.33	27.59	19.47	88.512	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.43	3.15	27.65	20.07	101.625	Horizontal	Pass
		1882,5	-4.35	3.31	27.61	19.95	98.855	Horizontal	Pass
		1907.5	-4.15	3.33	27.57	20.09	102.094	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.44	3.17	27.66	20.05	101.158	Horizontal	Pass
		1882,5	-3.52	3.32	27.61	20.77	119.399	Horizontal	Pass
		1905	-4.35	3.36	27.56	19.85	96.605	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.29	3.12	27.58	20.17	103.992	Vertical	Pass
		1882,5	-3.68	3.27	27.61	20.66	116.413	Vertical	Pass
		1914.3	-4.51	3.29	27.63	19.83	96.161	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.66	3.13	27.61	19.82	95.940	Vertical	Pass
		1882,5	-5.58	3.27	27.61	18.76	75.162	Vertical	Pass
		1913.5	-4.56	3.30	27.62	19.76	94.624	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.56	3.13	27.63	19.94	98.628	Vertical	Pass
		1882,5	-4.55	3.27	27.61	19.79	95.280	Vertical	Pass
		1912.5	-4.78	3.30	27.60	19.52	89.536	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.09	3.15	27.64	20.40	109.648	Vertical	Pass
		1882,5	-4.54	3.31	27.61	19.76	94.624	Vertical	Pass
		1910	-3.90	3.33	27.59	20.36	108.643	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.04	3.15	27.65	20.46	111.173	Vertical	Pass
		1882,5	-4.52	3.31	27.61	19.78	95.060	Vertical	Pass
		1907.5	-3.73	3.33	27.57	20.51	112.460	Vertical	Pass

20.0MHz	1/#Mid	1860	-3.42	3.17	27.66	21.07	127.938	Vertical	Pass
Band 16		1882,5	-4.19	3.32	27.61	20.10	102.329	Vertical	Pass
QAM		1905	-3.66	3.36	27.56	20.54	113.240	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.10 LTE BAND 26 A

Radiated Power (ERP) for Band 26(814MHz~824MHz)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz	1/#Mid	814.7	8.03	2.01	19.68	2.15	23.55	226.464	Vertical	Pass
Band		819	7.10	2.01	19.77	2.15	22.71	186.638	Vertical	Pass
QPSK		823.3	6.09	2.02	19.82	2.15	21.74	149.279	Vertical	Pass
3.0MHz	1/#Mid	815.5	7.63	2.01	19.70	2.15	23.17	207.491	Vertical	Pass
Band		819	7.34	2.01	19.77	2.15	22.95	197.242	Vertical	Pass
QPSK		822.5	6.31	2.02	19.81	2.15	21.95	156.675	Vertical	Pass
5.0MHz	1/#Mid	816.5	6.86	2.01	19.71	2.15	22.41	174.181	Vertical	Pass
Band		819	7.70	2.01	19.77	2.15	23.31	214.289	Vertical	Pass
QPSK		821.5	6.60	2.02	19.79	2.15	22.22	166.725	Vertical	Pass
10.0MHz	1/#Mid	819	7.81	2.01	19.73	2.15	23.38	217.771	Vertical	Pass
1.4MHz	1/#Mid	814.7	7.71	2.01	19.68	2.15	23.23	210.378	Horizontal	Pass
Band		819	7.15	2.01	19.77	2.15	22.76	188.799	Horizontal	Pass
QPSK		823.3	6.97	2.02	19.82	2.15	22.62	182.810	Horizontal	Pass
3.0MHz	1/#Mid	815.5	7.28	2.01	19.70	2.15	22.82	191.426	Horizontal	Pass
Band		819	7.62	2.01	19.77	2.15	23.23	210.378	Horizontal	Pass
QPSK		822.5	7.27	2.02	19.81	2.15	22.91	195.434	Horizontal	Pass
5.0MHz	1/#Mid	816.5	7.57	2.01	19.71	2.15	23.12	205.116	Horizontal	Pass
Band		819	7.86	2.01	19.77	2.15	23.47	222.331	Horizontal	Pass
QPSK		821.5	7.88	2.02	19.79	2.15	23.50	223.872	Horizontal	Pass
10.0MHz	1/#Mid	819	8.25	2.01	19.73	2.15	23.82	240.991	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	6.95	2.01	19.68	2.15	22.47	176.604	Vertical	Pass
		819	6.56	2.01	19.77	2.15	22.17	164.816	Vertical	Pass
		823.3	5.66	2.02	19.82	2.15	21.31	135.207	Vertical	Pass
3.0MHz Band 16 QAM	1/##Mid	815.5	7.01	2.01	19.70	2.15	22.55	179.887	Vertical	Pass
		819	7.11	2.01	19.77	2.15	22.72	187.068	Vertical	Pass
		822.5	6.43	2.02	19.81	2.15	22.07	161.065	Vertical	Pass
5.0MHz Band 16 QAM	1/##Mid	816.5	6.79	2.01	19.71	2.15	22.34	171.396	Vertical	Pass
		819	6.92	2.01	19.77	2.15	22.53	179.061	Vertical	Pass
		821.5	7.12	2.02	19.79	2.15	22.74	187.932	Vertical	Pass
10.0MHz Band 16 QAM	1/##Mid	819	7.23	2.01	19.73	2.15	22.80	190.546	Vertical	Pass
1.4MHz Band 16 QAM	1/##Mid	814.7	7.05	2.01	19.68	2.15	22.57	180.717	Horizontal	Pass
		819	7.35	2.01	19.77	2.15	22.96	197.697	Horizontal	Pass
		823.3	7.31	2.02	19.82	2.15	22.96	197.697	Horizontal	Pass
3.0MHz Band 16 QAM	1/##Mid	815.5	7.47	2.01	19.70	2.15	23.01	199.986	Horizontal	Pass
		819	7.16	2.01	19.77	2.15	22.77	189.234	Horizontal	Pass
		822.5	7.21	2.02	19.81	2.15	22.85	192.752	Horizontal	Pass
5.0MHz Band 16 QAM	1/##Mid	816.5	7.18	2.01	19.71	2.15	22.73	187.499	Horizontal	Pass
		819	7.04	2.01	19.77	2.15	22.65	184.077	Horizontal	Pass
		821.5	6.06	2.02	19.79	2.15	21.68	147.231	Horizontal	Pass
10.0MHz Band 16 QAM	1/##Mid	819	7.58	2.01	19.73	2.15	23.15	206.538	Horizontal	Pass

8.11 LTE BAND 26B

Radiated Power (ERP) for Band 26(824MHz~849MHz)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	824.7	6.26	2.01	19.68	2.15	21.78	150.661	Vertical	Pass
		836.5	5.11	2.01	19.77	2.15	20.72	118.032	Vertical	Pass
		848.3	4.12	2.02	19.82	2.15	19.77	94.842	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.84	2.01	19.70	2.15	21.38	137.404	Vertical	Pass
		836.5	5.20	2.01	19.77	2.15	20.81	120.504	Vertical	Pass
		847.5	4.69	2.02	19.81	2.15	20.33	107.895	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	4.98	2.01	19.71	2.15	20.53	112.980	Vertical	Pass
		836.5	5.84	2.01	19.77	2.15	21.45	139.637	Vertical	Pass
		846.5	4.55	2.02	19.79	2.15	20.17	103.992	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.59	2.01	19.73	2.15	21.16	130.617	Vertical	Pass
		836.5	5.87	2.01	19.77	2.15	21.48	140.605	Vertical	Pass
		844	5.39	2.02	19.78	2.15	21.00	125.893	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	831.5	5.77	2.01	19.73	2.15	21.34	136.144	Vertical	Pass
		836.5	5.87	2.01	19.77	2.15	21.48	140.605	Vertical	Pass
		841.5	5.70	2.02	19.78	2.15	21.31	135.207	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	824.7	5.72	2.01	19.68	2.15	21.24	133.045	Horizontal	Pass
		836.5	4.96	2.01	19.77	2.15	20.57	114.025	Horizontal	Pass
		848.3	5.08	2.02	19.82	2.15	20.73	118.304	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.49	2.01	19.70	2.15	21.03	126.765	Horizontal	Pass
		836.5	5.42	2.01	19.77	2.15	21.03	126.765	Horizontal	Pass
		847.5	5.34	2.02	19.81	2.15	20.98	125.314	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.66	2.01	19.71	2.15	21.21	132.130	Horizontal	Pass
		836.5	5.86	2.01	19.77	2.15	21.47	140.281	Horizontal	Pass
		846.5	6.07	2.02	19.79	2.15	21.69	147.571	Horizontal	Pass

10.0MHz	1/#Mid	829	6.48	2.01	19.73	2.15	22.05	160.325	Horizontal	Pass
Band		836.5	4.80	2.01	19.77	2.15	20.41	109.901	Horizontal	Pass
QPSK		844	5.04	2.02	19.78	2.15	20.65	116.145	Horizontal	Pass
15.0MHz	1/#Mid	831.5	6.20	2.01	19.73	2.15	21.77	150.314	Horizontal	Pass
Band		836.5	6.58	2.01	19.77	2.15	22.19	165.577	Horizontal	Pass
QPSK		841.5	6.14	2.02	19.78	2.15	21.75	149.624	Horizontal	Pass

Radiated Power (ERP) for Band 26(824MHz~849MHz)										
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	824.7	5.50	2.01	19.68	2.15	21.02	126.474	Vertical	Pass
		836.5	5.07	2.01	19.77	2.15	20.68	116.950	Vertical	Pass
		848.3	4.55	2.02	19.82	2.15	20.20	104.713	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.62	2.01	19.70	2.15	21.16	130.617	Vertical	Pass
		836.5	5.71	2.01	19.77	2.15	21.32	135.519	Vertical	Pass
		847.5	5.29	2.02	19.81	2.15	20.93	123.880	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.48	2.01	19.71	2.15	21.03	126.765	Vertical	Pass
		836.5	5.50	2.01	19.77	2.15	21.11	129.122	Vertical	Pass
		846.5	5.62	2.02	19.79	2.15	21.24	133.045	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.02	2.01	19.73	2.15	21.59	144.212	Vertical	Pass
		836.5	5.42	2.01	19.77	2.15	21.03	126.765	Vertical	Pass
		844	6.09	2.02	19.78	2.15	21.70	147.911	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	831.5	5.76	2.01	19.73	2.15	21.33	135.831	Vertical	Pass
		836.5	5.39	2.01	19.77	2.15	21.00	125.893	Vertical	Pass
		841.5	6.23	2.02	19.78	2.15	21.84	152.757	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.72	2.01	19.68	2.15	21.24	133.045	Horizontal	Pass
		836.5	5.71	2.01	19.77	2.15	21.32	135.519	Horizontal	Pass
		848.3	5.61	2.02	19.82	2.15	21.26	133.660	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.81	2.01	19.70	2.15	21.35	136.458	Horizontal	Pass
		836.5	5.74	2.01	19.77	2.15	21.35	136.458	Horizontal	Pass
		847.5	5.67	2.02	19.81	2.15	21.31	135.207	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.65	2.01	19.71	2.15	21.20	131.826	Horizontal	Pass
		836.5	5.55	2.01	19.77	2.15	21.16	130.617	Horizontal	Pass
		846.5	4.88	2.02	19.79	2.15	20.50	112.202	Horizontal	Pass

10.0MHz	1/#Mid	829	5.30	2.01	19.73	2.15	20.87	122.180	Horizontal	Pass
Band 16		836.5	6.01	2.01	19.77	2.15	21.62	145.211	Horizontal	Pass
QAM		844	5.81	2.02	19.78	2.15	21.42	138.676	Horizontal	Pass
15.0MHz	1/#Mid	831.5	6.42	2.01	19.73	2.15	21.99	158.125	Horizontal	Pass
Band 16		836.5	6.32	2.01	19.77	2.15	21.93	155.955	Horizontal	Pass
QAM		841.5	5.82	2.02	19.78	2.15	21.43	138.995	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

8.12 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.31	3.12	27.58	21.15	130.317	Horizontal	Pass
		1745	-3.10	3.27	27.61	21.24	133.045	Horizontal	Pass
		1779.3	-3.47	3.29	27.63	20.87	122.180	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.43	3.13	27.61	20.05	101.158	Horizontal	Pass
		1745	-4.69	3.27	27.61	19.65	92.257	Horizontal	Pass
		1778.5	-4.95	3.30	27.62	19.37	86.497	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.71	3.13	27.63	20.79	119.950	Horizontal	Pass
		1745	-5.07	3.27	27.61	19.27	84.528	Horizontal	Pass
		1777.5	-3.09	3.30	27.60	21.21	132.130	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.97	3.15	27.64	20.52	112.720	Horizontal	Pass
		1745	-3.16	3.31	27.61	21.14	130.017	Horizontal	Pass
		1775	-2.76	3.33	27.59	21.50	141.254	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.32	3.15	27.65	20.18	104.232	Horizontal	Pass
		1745	-3.32	3.31	27.61	20.98	125.314	Horizontal	Pass
		1772.5	-3.32	3.33	27.57	20.92	123.595	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.53	3.17	27.66	19.96	99.083	Horizontal	Pass
		1745	-3.29	3.32	27.61	21.00	125.893	Horizontal	Pass
		1770	-3.66	3.36	27.56	20.54	113.240	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.90	3.12	27.58	21.56	143.219	Vertical	Pass
		1745	-4.39	3.27	27.61	19.95	98.855	Vertical	Pass
		1779.3	-4.65	3.29	27.63	19.69	93.111	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.05	3.13	27.61	21.43	138.995	Vertical	Pass
		1745	-3.00	3.27	27.61	21.34	136.144	Vertical	Pass
		1778.5	-3.09	3.30	27.62	21.23	132.739	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.41	3.13	27.63	20.09	102.094	Vertical	Pass
		1745	-3.85	3.27	27.61	20.49	111.944	Vertical	Pass
		1777.5	-4.57	3.30	27.60	19.73	93.972	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-4.44	3.15	27.64	20.05	101.158	Vertical	Pass
		1745	-4.68	3.31	27.61	19.62	91.622	Vertical	Pass

QPSK		1775	-3.26	3.33	27.59	21.00	125.893	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-4.06	3.15	27.65	20.44	110.662	Vertical	Pass
Band		1745	-3.84	3.31	27.61	20.46	111.173	Vertical	Pass
QPSK		1772.5	-4.25	3.33	27.57	19.99	99.770	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.47	3.17	27.66	21.02	126.474	Vertical	Pass
Band		1745	-2.67	3.32	27.61	21.62	145.211	Vertical	Pass
QPSK		1770	-3.16	3.36	27.56	21.04	127.057	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.23	3.12	27.58	20.23	105.439	Horizontal	Pass
		1745	-4.51	3.27	27.61	19.83	96.161	Horizontal	Pass
		1779.3	-4.48	3.29	27.63	19.86	96.828	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.35	3.13	27.61	20.13	103.039	Horizontal	Pass
		1745	-5.59	3.27	27.61	18.75	74.989	Horizontal	Pass
		1778.5	-4.17	3.30	27.62	20.15	103.514	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.51	3.13	27.63	19.99	99.770	Horizontal	Pass
		1745	-4.49	3.27	27.61	19.85	96.605	Horizontal	Pass
		1777.5	-3.86	3.30	27.60	20.44	110.662	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.56	3.15	27.64	19.93	98.401	Horizontal	Pass
		1745	-4.17	3.31	27.61	20.13	103.039	Horizontal	Pass
		1775	-4.51	3.33	27.59	19.75	94.406	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.63	3.15	27.65	19.87	97.051	Horizontal	Pass
		1745	-4.52	3.31	27.61	19.78	95.060	Horizontal	Pass
		1772.5	-4.15	3.33	27.57	20.09	102.094	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.32	3.17	27.66	20.17	103.992	Horizontal	Pass
		1745	-3.75	3.32	27.61	20.54	113.240	Horizontal	Pass
		1770	-4.40	3.36	27.56	19.80	95.499	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.85	3.12	27.58	20.61	115.080	Vertical	Pass
		1745	-3.73	3.27	27.61	20.61	115.080	Vertical	Pass
		1779.3	-4.34	3.29	27.63	20.00	100.000	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.48	3.13	27.61	20.00	100.000	Vertical	Pass
		1745	-5.36	3.27	27.61	18.98	79.068	Vertical	Pass
		1778.5	-4.33	3.30	27.62	19.99	99.770	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.45	3.13	27.63	20.05	101.158	Vertical	Pass
		1745	-4.32	3.27	27.61	20.02	100.462	Vertical	Pass
		1777.5	-4.56	3.30	27.60	19.74	94.189	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.06	3.15	27.64	20.43	110.408	Vertical	Pass
		1745	-4.43	3.31	27.61	19.87	97.051	Vertical	Pass
		1775	-3.89	3.33	27.59	20.37	108.893	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.90	3.15	27.65	20.60	114.815	Vertical	Pass
		1745	-4.28	3.31	27.61	20.02	100.462	Vertical	Pass
		1772.5	-3.72	3.33	27.57	20.52	112.720	Vertical	Pass

20.0MHz	1/#Mid	1720	-3.95	3.17	27.66	20.54	113.240	Vertical	Pass
Band 16		1745	-4.16	3.32	27.61	20.13	103.039	Vertical	Pass
QAM		1770	-3.58	3.36	27.56	20.62	115.345	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 13
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	-52.15	4.04	33.51	-22.68	-13	-9.68	Horizontal
3701.4	-52.18	4.04	33.51	-22.71	-13	-9.71	Vertical
5552.1	-47.76	5.24	35.84	-17.16	-13	-4.16	Vertical
5552.1	-49.70	5.24	35.84	-19.10	-13	-6.10	Horizontal
174.1	-44.78	1.30	16.40	-29.68	-13	-16.68	Vertical
121.1	-46.08	1.70	17.49	-30.29	-13	-17.29	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-54.48	4.04	33.56	-24.96	-13	-11.96	Horizontal
3760.0	-50.63	4.04	33.56	-21.11	-13	-8.11	Vertical
5640.0	-48.01	5.24	35.91	-17.34	-13	-4.34	Vertical
5640.0	-51.60	5.24	35.91	-20.93	-13	-7.93	Horizontal
239.3	-39.92	1.43	17.64	-23.71	-13	-10.71	Vertical
137.5	-40.16	1.56	17.30	-24.42	-13	-11.42	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-49.82	4.04	34.00	-19.86	-13	-6.86	Horizontal
3818.6	-53.82	4.04	34.00	-23.86	-13	-10.86	Vertical
5727.9	-54.97	5.24	36.04	-24.17	-13	-11.17	Vertical
5727.9	-57.95	5.24	36.04	-27.15	-13	-14.15	Horizontal
114.9	-45.65	1.79	15.50	-31.94	-13	-18.94	Vertical
166.7	-40.49	1.70	15.32	-26.87	-13	-13.87	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	-50.69	4.07	33.54	-21.22	-13	-8.22	Horizontal
3720.0	-56.01	4.07	33.54	-26.54	-13	-13.54	Vertical
5580.0	-53.01	5.28	35.86	-22.43	-13	-9.43	Vertical
5580.0	-49.36	5.28	35.86	-18.78	-13	-5.78	Horizontal
234.3	-37.80	1.54	16.45	-22.89	-13	-9.89	Vertical
112.7	-43.05	1.56	16.31	-28.30	-13	-15.30	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-47.29	4.04	33.56	-17.77	-13	-4.77	Horizontal
3760.0	-47.91	4.04	33.56	-18.39	-13	-5.39	Vertical
5640.0	-50.50	5.24	35.91	-19.83	-13	-6.83	Vertical
5640.0	-50.31	5.24	35.91	-19.64	-13	-6.64	Horizontal
227.6	-43.44	1.49	15.65	-29.28	-13	-16.28	Vertical
125.0	-45.70	1.61	16.88	-30.43	-13	-17.43	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-56.84	4.04	34.00	-26.88	-13	-13.88	Horizontal
3800.0	-55.16	4.04	34.00	-25.20	-13	-12.20	Vertical
5700.0	-48.07	5.24	36.04	-17.27	-13	-4.27	Vertical
5700.0	-56.63	5.24	36.04	-25.83	-13	-12.83	Horizontal
102.4	-47.07	1.63	17.28	-31.42	-13	-18.42	Vertical
185.8	-41.07	1.32	16.43	-25.96	-13	-12.96	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	-53.21	4.02	29.80	-27.43	-13	-14.43	Horizontal
3421.4	-48.66	4.02	29.80	-22.88	-13	-9.88	Vertical
5132.1	-54.17	5.24	35.84	-23.57	-13	-10.57	Vertical
5132.1	-54.71	5.24	35.84	-24.11	-13	-11.11	Horizontal
235.5	-39.22	1.35	16.01	-24.56	-13	-11.56	Vertical
83.4	-47.81	1.40	17.99	-31.22	-13	-18.22	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-55.39	4.03	30.00	-29.42	-13	-16.42	Horizontal
3465.0	-46.56	4.03	30.00	-20.59	-13	-7.59	Vertical
5197.5	-47.36	5.25	35.86	-16.75	-13	-3.75	Vertical
5197.5	-51.74	5.25	35.86	-21.13	-13	-8.13	Horizontal
148.9	-45.26	1.37	15.87	-30.76	-13	-17.76	Vertical
104.3	-44.00	1.78	17.02	-28.76	-13	-15.76	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-54.45	4.05	30.01	-28.49	-13	-15.49	Horizontal
3508.6	-54.12	4.05	30.01	-28.16	-13	-15.16	Vertical
5262.9	-56.61	5.26	35.86	-26.01	-13	-13.01	Vertical
5262.9	-51.78	5.26	35.86	-21.18	-13	-8.18	Horizontal
149.2	-38.15	1.32	15.83	-23.64	-13	-10.64	Vertical
140.8	-46.28	1.63	16.82	-31.09	-13	-18.09	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	-51.06	4.02	29.80	-25.28	-13	-12.28	Horizontal
3440.0	-50.15	4.02	29.80	-24.37	-13	-11.37	Vertical
5160.0	-53.57	5.24	35.84	-22.97	-13	-9.97	Vertical
5160.0	-49.33	5.24	35.84	-18.73	-13	-5.73	Horizontal
257.4	-45.23	1.72	17.15	-29.80	-13	-16.80	Vertical
278.2	-38.37	1.71	16.55	-23.53	-13	-10.53	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-54.36	4.03	30.00	-28.39	-13	-15.39	Horizontal
3465.0	-46.56	4.03	30.00	-20.59	-13	-7.59	Vertical
5197.5	-50.30	5.25	35.86	-19.69	-13	-6.69	Vertical
5197.5	-51.96	5.25	35.86	-21.35	-13	-8.35	Horizontal
250.4	-40.51	1.36	17.85	-24.02	-13	-11.02	Vertical
184.3	-40.20	1.52	15.20	-26.52	-13	-13.52	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-50.46	2.91	27.68	-25.69	-13	-12.69	Horizontal
3490.0	-48.38	2.91	27.68	-23.61	-13	-10.61	Vertical
5235.0	-52.05	5.26	35.86	-21.45	-13	-8.45	Vertical
5235.0	-55.23	5.26	35.86	-24.63	-13	-11.63	Horizontal
170.3	-46.37	1.60	16.08	-31.89	-13	-18.89	Vertical
276.7	-40.11	1.33	15.35	-26.09	-13	-13.09	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	-55.48	2.78	27.50	-30.76	-13	-17.76	Horizontal
1649.4	-52.84	2.78	27.50	-28.12	-13	-15.12	Vertical
2474.1	-45.12	2.90	27.80	-20.22	-13	-7.22	Vertical
2474.1	-44.99	2.90	27.80	-20.09	-13	-7.09	Horizontal
220.7	-46.21	1.48	15.59	-32.10	-13	-19.10	Vertical
138.5	-42.33	1.80	17.66	-26.47	-13	-13.47	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-41.87	2.80	27.48	-17.19	-13	-4.19	Horizontal
1673.0	-45.89	2.80	27.48	-21.21	-13	-8.21	Vertical
2509.5	-51.24	2.91	27.70	-26.45	-13	-13.45	Vertical
2509.5	-49.86	2.91	27.70	-25.07	-13	-12.07	Horizontal
125.1	-44.50	1.41	17.18	-28.73	-13	-15.73	Vertical
154.9	-40.76	1.50	15.05	-27.21	-13	-14.21	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-44.88	2.82	27.43	-20.27	-13	-7.27	Horizontal
1696.6	-45.16	2.82	27.43	-20.55	-13	-7.55	Vertical
2544.9	-48.95	2.92	27.74	-24.13	-13	-11.13	Vertical
2544.9	-42.94	2.92	27.74	-18.12	-13	-5.12	Horizontal
176.4	-39.77	1.76	16.98	-24.55	-13	-11.55	Vertical
278.1	-38.82	1.73	16.91	-23.64	-13	-10.64	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	-41.28	2.78	27.50	-16.56	-13	-3.56	Horizontal
1658.0	-44.07	2.78	27.50	-19.35	-13	-6.35	Vertical
2487.0	-48.22	2.90	27.80	-23.32	-13	-10.32	Vertical
2487.0	-43.56	2.90	27.80	-18.66	-13	-5.66	Horizontal
260.5	-45.14	1.78	15.02	-31.90	-13	-18.90	Vertical
99.1	-46.55	1.71	16.39	-31.87	-13	-18.87	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-48.77	2.80	27.48	-24.09	-13	-11.09	Horizontal
1673.0	-51.79	2.80	27.48	-27.11	-13	-14.11	Vertical
2509.5	-48.66	2.91	27.70	-23.87	-13	-10.87	Vertical
2509.5	-43.81	2.91	27.70	-19.02	-13	-6.02	Horizontal
249.3	-47.61	1.77	17.58	-31.80	-13	-18.80	Vertical
94.8	-44.40	1.56	16.31	-29.65	-13	-16.65	Horizontal
Test Results for High Channel 844MHz							
1688.0	-42.82	2.82	27.43	-18.21	-13	-5.21	Horizontal
1688.0	-40.83	2.82	27.43	-16.22	-13	-3.22	Vertical
2532.0	-43.94	2.92	27.74	-19.12	-13	-6.12	Vertical
2532.0	-45.54	2.92	27.74	-20.72	-13	-7.72	Horizontal
82.8	-39.29	1.46	17.66	-23.09	-13	-10.09	Vertical
170.1	-41.90	1.47	15.42	-27.95	-13	-14.95	Horizontal

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

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

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-60.25	5.23	35.81	-29.67	-25	-4.67	Horizontal
5005.0	-67.83	5.23	35.81	-37.25	-25	-12.25	Vertical
7507.5	-67.44	5.67	36.85	-36.26	-25	-11.26	Vertical
7507.5	-65.72	5.67	36.85	-34.54	-25	-9.54	Horizontal
293.5	-55.35	1.61	15.37	-41.59	-25	-16.59	Vertical
517.6	-59.29	1.52	16.70	-44.11	-25	-19.11	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.86	5.23	35.82	-31.27	-25	-6.27	Horizontal
5070.0	-65.42	5.23	35.82	-34.83	-25	-9.83	Vertical
7605.0	-64.42	5.67	36.85	-33.24	-25	-8.24	Vertical
7605.0	-65.27	5.67	36.85	-34.09	-25	-9.09	Horizontal
272.1	-58.55	1.74	17.56	-42.73	-25	-17.73	Vertical
555.7	-50.73	1.64	17.29	-35.08	-25	-10.08	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-63.01	5.24	35.83	-32.42	-25	-7.42	Horizontal
5135.0	-66.20	5.24	35.83	-35.61	-25	-10.61	Vertical
7702.5	-64.89	5.68	36.87	-33.70	-25	-8.70	Vertical
7702.5	-62.19	5.68	36.87	-31.00	-25	-6.00	Horizontal
534.5	-56.83	1.62	16.13	-42.32	-25	-17.32	Vertical
416.7	-52.96	1.74	15.03	-39.67	-25	-14.67	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	-69.11	5.23	35.82	-38.52	-25	-13.52	Horizontal
5020.0	-69.82	5.23	35.82	-39.23	-25	-14.23	Vertical
7530.0	-65.07	5.67	36.86	-33.88	-25	-8.88	Vertical
7530.0	-68.30	5.67	36.86	-37.11	-25	-12.11	Horizontal
250.5	-57.23	1.50	16.32	-42.41	-25	-17.41	Vertical
343.2	-59.31	1.40	16.64	-44.07	-25	-19.07	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.83	5.23	35.82	-32.24	-25	-7.24	Horizontal
5070.0	-66.69	5.23	35.82	-36.10	-25	-11.10	Vertical
7605.0	-65.18	5.67	36.85	-34.00	-25	-9.00	Vertical
7605.0	-64.77	5.67	36.85	-33.59	-25	-8.59	Horizontal
525.1	-58.16	1.59	15.43	-44.32	-25	-19.32	Vertical
573.5	-56.20	1.74	16.80	-41.14	-25	-16.14	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.24	5.24	35.83	-30.65	-25	-5.65	Horizontal
5120.0	-64.64	5.24	35.83	-34.05	-25	-9.05	Vertical
7680.0	-73.33	5.70	36.88	-42.15	-25	-17.15	Vertical
7680.0	-70.00	5.70	36.88	-38.82	-25	-13.82	Horizontal
221.3	-50.57	1.74	17.23	-35.08	-25	-10.08	Vertical
563.8	-55.60	1.76	15.81	-41.55	-25	-16.55	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	-45.27	2.60	27.20	-20.67	-13	-7.67	Horizontal
1399.4	-51.47	2.60	27.20	-26.87	-13	-13.87	Vertical
2099.1	-48.56	2.85	27.54	-23.87	-13	-10.87	Vertical
2099.1	-46.04	2.85	27.54	-21.35	-13	-8.35	Horizontal
243.9	-47.54	1.71	17.84	-31.41	-13	-18.41	Vertical
187.1	-43.18	1.46	15.07	-29.57	-13	-16.57	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-51.70	2.61	27.28	-27.03	-13	-14.03	Horizontal
1415.0	-45.07	2.61	27.28	-20.40	-13	-7.40	Vertical
2122.5	-47.67	2.87	27.59	-22.95	-13	-9.95	Vertical
2122.5	-47.09	2.87	27.59	-22.37	-13	-9.37	Horizontal
252.5	-44.59	1.56	15.61	-30.54	-13	-17.54	Vertical
96.4	-42.68	1.71	17.71	-26.68	-13	-13.68	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-47.51	2.63	27.28	-22.86	-13	-9.86	Horizontal
1430.6	-49.39	2.63	27.28	-24.74	-13	-11.74	Vertical
2145.9	-46.92	2.88	27.60	-22.20	-13	-9.20	Vertical
2145.9	-45.00	2.88	27.60	-20.28	-13	-7.28	Horizontal
204.8	-37.18	1.75	16.05	-22.88	-13	-9.88	Vertical
163.0	-38.30	1.46	15.52	-24.24	-13	-11.24	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	-44.29	2.61	27.26	-19.64	-13	-6.64	Horizontal
1408.0	-44.01	2.61	27.26	-19.36	-13	-6.36	Vertical
2112.0	-53.36	2.87	27.58	-28.65	-13	-15.65	Vertical
2112.0	-47.74	2.87	27.58	-23.03	-13	-10.03	Horizontal
169.0	-45.26	1.38	15.09	-31.55	-13	-18.55	Vertical
227.1	-46.94	1.67	17.55	-31.06	-13	-18.06	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-50.26	2.61	27.28	-25.59	-13	-12.59	Horizontal
1415.0	-47.95	2.61	27.28	-23.28	-13	-10.28	Vertical
2122.5	-43.35	2.87	27.59	-18.63	-13	-5.63	Vertical
2122.5	-47.56	2.87	27.59	-22.84	-13	-9.84	Horizontal
223.4	-44.59	1.39	16.27	-29.71	-13	-16.71	Vertical
153.3	-47.33	1.37	15.99	-32.71	-13	-19.71	Horizontal
Test Results for High Channel 711MHz							
1422.0	-48.68	2.62	27.28	-24.02	-13	-11.02	Horizontal
1422.0	-50.07	2.62	27.28	-25.41	-13	-12.41	Vertical
2133.0	-49.05	2.87	27.60	-24.32	-13	-11.32	Vertical
2133.0	-47.88	2.87	27.60	-23.15	-13	-10.15	Horizontal
197.8	-47.10	1.57	16.89	-31.78	-13	-18.78	Vertical
144.7	-45.27	1.55	15.82	-31.00	-13	-18.00	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 13

QPSK EIRP POWER FOR LTE BAND 13 (5MHZ BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-75.16	2.61	27.28	-50.49	-40	-10.49	Horizontal
1559.0	-71.86	2.61	27.28	-47.19	-40	-7.19	Vertical
2338.5	-48.90	2.87	27.59	-24.18	-13	-11.18	Vertical
2338.5	-41.55	2.87	27.59	-16.83	-13	-3.83	Horizontal
120.1	-37.16	1.54	15.61	-23.09	-13	-10.09	Vertical
197.8	-38.46	1.51	15.21	-24.76	-13	-11.76	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-73.39	2.62	27.30	-48.71	-40	-8.71	Horizontal
1564.0	-74.97	2.62	27.30	-50.29	-40	-10.29	Vertical
2346.0	-45.02	2.87	27.62	-20.27	-13	-7.27	Vertical
2346.0	-44.35	2.87	27.62	-19.60	-13	-6.60	Horizontal
131.2	-41.84	1.65	16.17	-27.32	-13	-14.32	Vertical
267.5	-43.08	1.48	16.88	-27.68	-13	-14.68	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-75.60	2.66	27.28	-50.98	-40	-10.98	Horizontal
1569.0	-75.12	2.66	27.28	-50.50	-40	-10.50	Vertical
2353.5	-42.32	2.88	27.60	-17.60	-13	-4.60	Vertical
2353.5	-52.15	2.88	27.60	-27.43	-13	-14.43	Horizontal
80.8	-39.97	1.54	16.40	-25.11	-13	-12.11	Vertical
155.6	-37.94	1.43	15.77	-23.60	-13	-10.60	Horizontal

QPSK EIRP POWER FOR LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-72.81	2.62	27.30	-48.13	-40	-8.13	Horizontal
1564.0	-79.42	2.62	27.30	-54.74	-40	-14.74	Vertical
2346.0	-52.47	2.87	27.62	-27.72	-13	-14.72	Vertical
2346.0	-48.70	2.87	27.62	-23.95	-13	-10.95	Horizontal
129.1	-46.40	1.43	17.03	-30.80	-13	-17.80	Vertical
86.9	-39.68	1.62	16.63	-24.67	-13	-11.67	Horizontal

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

. 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 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	-42.58	2.61	27.28	-17.91	-13	-4.91	Horizontal
1413.0	-49.29	2.61	27.28	-24.62	-13	-11.62	Vertical
2119.5	-45.27	2.87	27.59	-20.55	-13	-7.55	Vertical
2119.5	-44.06	2.87	27.59	-19.34	-13	-6.34	Horizontal
196.4	-45.77	1.36	16.11	-31.02	-13	-18.02	Vertical
147.1	-42.19	1.48	17.14	-26.53	-13	-13.53	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-49.12	2.62	27.30	-24.44	-13	-11.44	Horizontal
1420.0	-47.54	2.62	27.30	-22.86	-13	-9.86	Vertical
2130.0	-48.35	2.87	27.62	-23.60	-13	-10.60	Vertical
2130.0	-42.86	2.87	27.62	-18.11	-13	-5.11	Horizontal
168.3	-44.12	1.46	15.68	-29.90	-13	-16.90	Vertical
155.1	-39.94	1.56	15.66	-25.84	-13	-12.84	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-43.71	2.66	27.28	-19.09	-13	-6.09	Horizontal
1427.0	-46.92	2.66	27.28	-22.30	-13	-9.30	Vertical
2140.5	-49.88	2.88	27.60	-25.16	-13	-12.16	Vertical
2140.5	-45.07	2.88	27.60	-20.35	-13	-7.35	Horizontal
251.9	-37.79	1.57	15.34	-24.02	-13	-11.02	Vertical
201.7	-40.55	1.35	16.23	-25.67	-13	-12.67	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	-49.75	2.62	27.30	-25.07	-13	-12.07	Horizontal
1418.0	-53.78	2.62	27.30	-29.10	-13	-16.10	Vertical
2127.0	-47.43	2.87	27.62	-22.68	-13	-9.68	Vertical
2127.0	-50.13	2.87	27.62	-25.38	-13	-12.38	Horizontal
178.5	-44.03	1.75	15.40	-30.38	-13	-17.38	Vertical
276.1	-43.39	1.30	16.22	-28.47	-13	-15.47	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-49.85	2.62	27.30	-25.17	-13	-12.17	Horizontal
1420.0	-51.69	2.62	27.30	-27.01	-13	-14.01	Vertical
2130.0	-48.13	2.87	27.62	-23.38	-13	-10.38	Vertical
2130.0	-46.95	2.87	27.62	-22.20	-13	-9.20	Horizontal
163.7	-39.76	1.80	15.91	-25.65	-13	-12.65	Vertical
278.1	-43.54	1.43	15.04	-29.93	-13	-16.93	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.49	2.62	27.30	-24.81	-13	-11.81	Horizontal
1422.0	-43.75	2.62	27.30	-19.07	-13	-6.07	Vertical
2133.0	-53.65	2.87	27.62	-28.90	-13	-15.90	Vertical
2133.0	-49.66	2.87	27.62	-24.91	-13	-11.91	Horizontal
154.2	-38.94	1.53	16.49	-23.98	-13	-10.98	Vertical
196.0	-43.22	1.64	16.73	-28.13	-13	-15.13	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.

9.8 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	-46.03	4.02	29.80	-20.25	-13	-7.25	Horizontal
3701.4	-53.97	4.02	29.80	-28.19	-13	-15.19	Vertical
5552.1	-54.94	5.24	35.84	-24.34	-13	-11.34	Vertical
5552.1	-53.18	5.24	35.84	-22.58	-13	-9.58	Horizontal
93.9	-36.26	1.59	15.11	-22.74	-13	-9.74	Vertical
119.7	-36.56	1.80	15.61	-22.75	-13	-9.75	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-51.33	4.03	30.00	-25.36	-13	-12.36	Horizontal
3765.0	-49.70	4.03	30.00	-23.73	-13	-10.73	Vertical
5647.5	-51.93	5.25	35.86	-21.32	-13	-8.32	Vertical
5647.5	-51.50	5.25	35.86	-20.89	-13	-7.89	Horizontal
166.1	-42.26	1.37	15.62	-28.01	-13	-15.01	Vertical
274.4	-44.58	1.55	17.51	-28.62	-13	-15.62	Horizontal
Test Results for High Channel 1754.3MHz							
3828.6	-53.99	4.05	30.01	-28.03	-13	-15.03	Horizontal
3828.6	-53.11	4.05	30.01	-27.15	-13	-14.15	Vertical
5742.9	-49.98	5.26	35.86	-19.38	-13	-6.38	Vertical
5742.9	-49.94	5.26	35.86	-19.34	-13	-6.34	Horizontal
108.6	-41.36	1.66	17.19	-25.83	-13	-12.83	Vertical
138.7	-44.67	1.35	17.94	-28.08	-13	-15.08	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	-49.97	4.02	29.80	-24.19	-13	-11.19	Horizontal
3720.0	-47.14	4.02	29.80	-21.36	-13	-8.36	Vertical
5580.0	-47.09	5.24	35.84	-16.49	-13	-3.49	Vertical
5580.0	-52.46	5.24	35.84	-21.86	-13	-8.86	Horizontal
146.2	-42.62	1.70	15.24	-29.08	-13	-16.08	Vertical
215.4	-45.27	1.42	16.58	-30.11	-13	-17.11	Horizontal
Test Results for Mid Channel 1732.5MHz							
3765.0	-52.22	4.03	30.00	-26.25	-13	-13.25	Horizontal
3765.0	-52.46	4.03	30.00	-26.49	-13	-13.49	Vertical
5647.5	-54.42	5.25	35.86	-23.81	-13	-10.81	Vertical
5647.5	-55.21	5.25	35.86	-24.60	-13	-11.60	Horizontal
132.2	-47.16	1.64	16.16	-32.64	-13	-19.64	Vertical
133.3	-42.84	1.62	17.37	-27.09	-13	-14.09	Horizontal
Test Results for High Channel 1745MHz							
3810.0	-50.81	2.91	27.68	-26.04	-13	-13.04	Horizontal
3810.0	-50.46	2.91	27.68	-25.69	-13	-12.69	Vertical
5715.0	-55.34	5.26	35.86	-24.74	-13	-11.74	Vertical
5715.0	-49.58	5.26	35.86	-18.98	-13	-5.98	Horizontal
212.6	-38.69	1.49	15.29	-24.89	-13	-11.89	Vertical
275.8	-42.25	1.79	16.42	-27.62	-13	-14.62	Horizontal

9.9 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	-48.22	2.78	27.50	-23.50	-13	-10.50	Horizontal
1629.4	-50.38	2.78	27.50	-25.66	-13	-12.66	Vertical
2444.1	-44.18	2.90	27.80	-19.28	-13	-6.28	Vertical
2444.1	-51.07	2.90	27.80	-26.17	-13	-13.17	Horizontal
229.6	-43.00	1.54	16.98	-27.56	-13	-14.56	Vertical
83.3	-41.82	1.47	15.82	-27.47	-13	-14.47	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-42.85	2.80	27.48	-18.17	-13	-5.17	Horizontal
1638.0	-48.24	2.80	27.48	-23.56	-13	-10.56	Vertical
2457.0	-48.46	2.91	27.70	-23.67	-13	-10.67	Vertical
2457.0	-42.39	2.91	27.70	-17.60	-13	-4.60	Horizontal
168.2	-40.13	1.74	16.19	-25.68	-13	-12.68	Vertical
92.9	-43.55	1.46	15.43	-29.58	-13	-16.58	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-48.54	2.82	27.43	-23.93	-13	-10.93	Horizontal
1646.6	-47.51	2.82	27.43	-22.90	-13	-9.90	Vertical
2469.9	-48.26	2.92	27.74	-23.44	-13	-10.44	Vertical
2469.9	-44.00	2.92	27.74	-19.18	-13	-6.18	Horizontal
213.1	-47.14	1.67	17.05	-31.76	-13	-18.76	Vertical
121.7	-40.85	1.42	16.12	-26.15	-13	-13.15	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	-44.25	2.78	27.50	-19.53	-13	-6.53	Horizontal
1638.0	-44.06	2.78	27.50	-19.34	-13	-6.34	Vertical
2457.0	-46.37	2.90	27.80	-21.47	-13	-8.47	Vertical
2457.0	-43.91	2.90	27.80	-19.01	-13	-6.01	Horizontal
253.7	-39.72	1.43	17.34	-23.81	-13	-10.81	Vertical
256.8	-42.50	1.56	15.71	-28.35	-13	-15.35	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	-50.87	2.78	27.50	-26.15	-13	-13.15	Horizontal
1649.4	-49.33	2.78	27.50	-24.61	-13	-11.61	Vertical
2474.1	-49.14	2.90	27.80	-24.24	-13	-11.24	Vertical
2474.1	-53.51	2.90	27.80	-28.61	-13	-15.61	Horizontal
237.0	-44.92	1.33	17.34	-28.91	-13	-15.91	Vertical
180.5	-45.90	1.47	16.80	-30.57	-13	-17.57	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-43.84	2.80	27.48	-19.16	-13	-6.16	Horizontal
1673.0	-47.68	2.80	27.48	-23.00	-13	-10.00	Vertical
2509.5	-50.29	2.91	27.70	-25.50	-13	-12.50	Vertical
2509.5	-47.03	2.91	27.70	-22.24	-13	-9.24	Horizontal
140.8	-38.42	1.75	15.46	-24.71	-13	-11.71	Vertical
90.6	-40.03	1.52	16.14	-25.41	-13	-12.41	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-44.95	2.82	27.43	-20.34	-13	-7.34	Horizontal
1696.6	-46.57	2.82	27.43	-21.96	-13	-8.96	Vertical
2544.9	-47.89	2.92	27.74	-23.07	-13	-10.07	Vertical
2544.9	-45.54	2.92	27.74	-20.72	-13	-7.72	Horizontal
171.4	-41.64	1.67	16.09	-27.22	-13	-14.22	Vertical
247.2	-38.74	1.80	17.55	-22.99	-13	-9.99	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	-44.14	2.78	27.50	-19.42	-13	-6.42	Horizontal
1663.0	-44.59	2.78	27.50	-19.87	-13	-6.87	Vertical
2494.5	-46.72	2.90	27.80	-21.82	-13	-8.82	Vertical
2494.5	-44.89	2.90	27.80	-19.99	-13	-6.99	Horizontal
255.4	-42.92	1.52	15.72	-28.72	-13	-15.72	Vertical
163.1	-41.02	1.40	17.03	-25.39	-13	-12.39	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-48.81	2.80	27.48	-24.13	-13	-11.13	Horizontal
1673.0	-50.14	2.80	27.48	-25.46	-13	-12.46	Vertical
2509.5	-49.24	2.91	27.70	-24.45	-13	-11.45	Vertical
2509.5	-49.95	2.91	27.70	-25.16	-13	-12.16	Horizontal
227.1	-44.75	1.74	16.38	-30.11	-13	-17.11	Vertical
101.3	-41.28	1.79	15.20	-27.87	-13	-14.87	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-42.76	2.82	27.43	-18.15	-13	-5.15	Horizontal
1683.0	-47.10	2.82	27.43	-22.49	-13	-9.49	Vertical
2524.5	-48.80	2.92	27.74	-23.98	-13	-10.98	Vertical
2524.5	-46.47	2.92	27.74	-21.65	-13	-8.65	Horizontal
261.1	-40.78	1.78	17.44	-25.12	-13	-12.12	Vertical
120.1	-42.28	1.70	15.93	-28.05	-13	-15.05	Horizontal

9.10 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	-46.17	4.02	29.80	-20.39	-13	-7.39	Horizontal
3421.4	-53.84	4.02	29.80	-28.06	-13	-15.06	Vertical
5132.1	-49.91	5.24	35.84	-19.31	-13	-6.31	Vertical
5132.1	-47.67	5.24	35.84	-17.07	-13	-4.07	Horizontal
112.6	-41.83	1.52	15.57	-27.78	-13	-14.78	Vertical
220.5	-45.36	1.33	17.14	-29.55	-13	-16.55	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-49.87	4.03	30.00	-23.90	-13	-10.90	Horizontal
3490.0	-50.68	4.03	30.00	-24.71	-13	-11.71	Vertical
5235.0	-48.80	5.25	35.86	-18.19	-13	-5.19	Vertical
5235.0	-50.62	5.25	35.86	-20.01	-13	-7.01	Horizontal
157.3	-47.86	1.53	17.13	-32.26	-13	-19.26	Vertical
213.1	-37.76	1.41	15.95	-23.22	-13	-10.22	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-55.52	4.05	30.01	-29.56	-13	-16.56	Horizontal
3558.6	-53.80	4.05	30.01	-27.84	-13	-14.84	Vertical
5337.9	-52.91	5.26	35.86	-22.31	-13	-9.31	Vertical
5337.9	-57.68	5.26	35.86	-27.08	-13	-14.08	Horizontal
170.6	-46.41	1.44	15.51	-32.34	-13	-19.34	Vertical
169.0	-38.26	1.78	15.76	-24.28	-13	-11.28	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	-45.85	4.02	29.80	-20.07	-13	-7.07	Horizontal
3440.0	-52.75	4.02	29.80	-26.97	-13	-13.97	Vertical
5160.0	-47.68	5.24	35.84	-17.08	-13	-4.08	Vertical
5160.0	-51.67	5.24	35.84	-21.07	-13	-8.07	Horizontal
268.8	-40.89	1.62	17.02	-25.49	-13	-12.49	Vertical
161.4	-40.54	1.32	17.31	-24.55	-13	-11.55	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-57.65	4.03	30.00	-31.68	-13	-18.68	Horizontal
3490.0	-47.97	4.03	30.00	-22.00	-13	-9.00	Vertical
5235.0	-52.86	5.25	35.86	-22.25	-13	-9.25	Vertical
5235.0	-51.16	5.25	35.86	-20.55	-13	-7.55	Horizontal
159.9	-43.26	1.45	15.17	-29.54	-13	-16.54	Vertical
172.1	-45.07	1.48	17.82	-28.73	-13	-15.73	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-53.47	2.91	27.68	-28.70	-13	-15.70	Horizontal
3540.0	-48.61	2.91	27.68	-23.84	-13	-10.84	Vertical
5310.0	-54.57	5.26	35.86	-23.97	-13	-10.97	Vertical
5310.0	-50.94	5.26	35.86	-20.34	-13	-7.34	Horizontal
197.3	-47.02	1.76	16.38	-32.40	-13	-19.40	Vertical
158.5	-47.89	1.43	17.13	-32.19	-13	-19.19	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 3.85V and High voltage, DC 4.2V.

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 13
- 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	29.7	0.015782	2.5
3.85	1880	-21.2	-0.011277	2.5
4.2	1880	-23.3	-0.012388	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	-34.0	-0.018064	2.5
Extreme (50C)	1880	19.0	0.010096	2.5
Extreme (40C)	1880	-15.1	-0.008037	2.5
Extreme (30C)	1880	0.8	0.000415	2.5
Extreme (10C)	1880	27.3	0.014532	2.5
Extreme (0C)	1880	33.2	0.017644	2.5
Extreme (-10C)	1880	-32.0	-0.016995	2.5
Extreme (-20C)	1880	28.2	0.015000	2.5
Extreme (-30C)	1880	-14.3	-0.007612	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	13.0	0.006926	2.5
3.85	1880	17.7	0.009410	2.5
4.2	1880	-9.6	-0.005112	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	11.1	0.005899	2.5
Extreme (50C)	1880	-24.2	-0.012888	2.5
Extreme (40C)	1880	24.0	0.012739	2.5
Extreme (30C)	1880	18.4	0.009798	2.5
Extreme (10C)	1880	15.8	0.008399	2.5
Extreme (0C)	1880	-10.0	-0.005330	2.5
Extreme (-10C)	1880	-11.2	-0.005947	2.5
Extreme (-20C)	1880	26.2	0.013920	2.5
Extreme (-30C)	1880	4.7	0.002495	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	-1.9	-0.001091	2.5
3.85	1732.5	-18.6	-0.010724	2.5
4.2	1732.5	-3.1	-0.001812	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	-16.5	-0.009524	2.5
Extreme (50C)	1732.5	-2.6	-0.001472	2.5
Extreme (40C)	1732.5	-14.0	-0.008104	2.5
Extreme (30C)	1732.5	11.4	0.006580	2.5
Extreme (10C)	1732.5	-5.0	-0.002869	2.5
Extreme (0C)	1732.5	18.6	0.010730	2.5
Extreme (-10C)	1732.5	17.2	0.009922	2.5
Extreme (-20C)	1732.5	-0.9	-0.000491	2.5
Extreme (-30C)	1732.5	2.0	0.001126	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	6.5	0.003746	2.5
3.85	1732.5	-10.7	-0.006199	2.5
4.2	1732.5	-21.9	-0.012612	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	15.8	0.018852	2.5
3.85	836.5	-11.6	-0.013843	2.5
4.2	836.5	-16.3	-0.019474	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	-9.1	-0.010843	2.5
Extreme (50C)	836.5	7.1	0.008464	2.5
Extreme (40C)	836.5	-1.0	-0.001207	2.5
Extreme (30C)	836.5	26.2	0.031333	2.5
Extreme (10C)	836.5	-0.2	-0.000263	2.5
Extreme (0C)	836.5	14.4	0.017250	2.5
Extreme (-10C)	836.5	29.0	0.034632	2.5
Extreme (-20C)	836.5	-18.9	-0.022618	2.5
Extreme (-30C)	836.5	22.3	0.026599	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	-10.9	-0.013042	2.5
3.85	836.5	-1.6	-0.001949	2.5
4.2	836.5	9.2	0.010938	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	15.7	0.018745	2.5
Extreme (50C)	836.5	21.1	0.025188	2.5
Extreme (40C)	836.5	-15.2	-0.018147	2.5
Extreme (30C)	836.5	-15.4	-0.018458	2.5
Extreme (10C)	836.5	16.0	0.019151	2.5
Extreme (0C)	836.5	-11.6	-0.013915	2.5
Extreme (-10C)	836.5	-8.4	-0.010054	2.5
Extreme (-20C)	836.5	-5.3	-0.006288	2.5
Extreme (-30C)	836.5	9.1	0.010879	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	-12.0	-0.004714	2.5
3.85	2535	8.6	0.003381	2.5
4.2	2535	-1.8	-0.000718	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	-32.0	-0.012639	2.5
Extreme (50C)	2535	20.3	0.008000	2.5
Extreme (40C)	2535	-22.0	-0.008671	2.5
Extreme (30C)	2535	7.5	0.002955	2.5
Extreme (10C)	2535	26.0	0.010241	2.5
Extreme (0C)	2535	11.6	0.004592	2.5
Extreme (-10C)	2535	16.7	0.006576	2.5
Extreme (-20C)	2535	-19.1	-0.007535	2.5
Extreme (-30C)	2535	-9.2	-0.003617	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	18.3	0.007203	2.5
3.85	2535	-20.4	-0.008036	2.5
4.2	2535	25.5	0.010059	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	-22.9	-0.009014	2.5
Extreme (50C)	2535	-26.7	-0.010544	2.5
Extreme (40C)	2535	31.3	0.012355	2.5
Extreme (30C)	2535	17.9	0.007041	2.5
Extreme (10C)	2535	8.5	0.003337	2.5
Extreme (0C)	2535	-20.2	-0.007984	2.5
Extreme (-10C)	2535	5.7	0.002245	2.5
Extreme (-20C)	2535	28.8	0.011361	2.5
Extreme (-30C)	2535	-19.8	-0.007826	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	25.3	0.035760	2.5
3.85	707.5	-17.9	-0.025286	2.5
4.2	707.5	13.9	0.019590	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	15.3	0.021668	2.5
Extreme (50C)	707.5	-24.6	-0.034728	2.5
Extreme (40C)	707.5	-23.1	-0.032650	2.5
Extreme (30C)	707.5	-1.2	-0.001696	2.5
Extreme (10C)	707.5	-9.7	-0.013739	2.5
Extreme (0C)	707.5	-22.2	-0.031336	2.5
Extreme (-10C)	707.5	27.7	0.039194	2.5
Extreme (-20C)	707.5	16.0	0.022601	2.5
Extreme (-30C)	707.5	14.1	0.019929	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	-12.1	-0.017159	2.5
3.85	707.5	15.7	0.022148	2.5
4.2	707.5	11.2	0.015760	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 13

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782	3.1	0.003900	2.5
3.85	782	17.9	0.022928	2.5
4.2	782	-15.1	-0.019271	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	9.0	0.011547	2.5
Extreme (50C)	782	-23.5	-0.030000	2.5
Extreme (40C)	782	12.6	0.016100	2.5
Extreme (30C)	782	24.8	0.031726	2.5
Extreme (10C)	782	-20.2	-0.025780	2.5
Extreme (0C)	782	0.4	0.000537	2.5
Extreme (-10C)	782	26.5	0.033836	2.5
Extreme (-20C)	782	-6.2	-0.007877	2.5
Extreme (-30C)	782	-14.2	-0.018107	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 16QAM, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782	-8.6	-0.010985	2.5
3.85	782	9.0	0.011496	2.5
4.2	782	-14.5	-0.018542	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782	-3.4	-0.004348	2.5
Extreme (50C)	782	14.8	0.018964	2.5
Extreme (40C)	782	23.6	0.030230	2.5
Extreme (30C)	782	-30.0	-0.038299	2.5
Extreme (10C)	782	19.6	0.025115	2.5
Extreme (0C)	782	25.7	0.032839	2.5
Extreme (-10C)	782	-6.9	-0.008760	2.5
Extreme (-20C)	782	16.3	0.020831	2.5
Extreme (-30C)	782	2.5	0.003235	2.5

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

10.7 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	23.9	0.033662	2.5
3.85	710.0	-6.2	-0.008789	2.5
4.2	710.0	13.0	0.018366	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	19.2	0.027028	2.5
Extreme (50C)	710.0	18.8	0.026507	2.5
Extreme (40C)	710.0	13.3	0.018662	2.5
Extreme (30C)	710.0	16.1	0.022732	2.5
Extreme (10C)	710.0	20.9	0.029423	2.5
Extreme (0C)	710.0	14.7	0.020676	2.5
Extreme (-10C)	710.0	11.6	0.016324	2.5
Extreme (-20C)	710.0	-7.0	-0.009873	2.5
Extreme (-30C)	710.0	-23.5	-0.033113	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	9.3	0.013099	2.5
3.85	710.0	-28.2	-0.039732	2.5
4.2	710.0	-7.7	-0.010859	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	9.4	0.013296	2.5
Extreme (50C)	710.0	-17.6	-0.024732	2.5
Extreme (40C)	710.0	16.2	0.022831	2.5
Extreme (30C)	710.0	15.3	0.021535	2.5
Extreme (10C)	710.0	20.4	0.028690	2.5
Extreme (0C)	710.0	3.0	0.004282	2.5
Extreme (-10C)	710.0	14.4	0.020254	2.5
Extreme (-20C)	710.0	-15.8	-0.022197	2.5
Extreme (-30C)	710.0	-26.8	-0.037803	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	-2.5	-0.001307	2.5
3.85	1882.5	-13.7	-0.007262	2.5
4.2	1882.5	27.1	0.014417	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	0.3	0.000175	2.5
Extreme (50C)	1882.5	20.3	0.010762	2.5
Extreme (40C)	1882.5	-7.1	-0.003761	2.5
Extreme (30C)	1882.5	8.1	0.004292	2.5
Extreme (10C)	1882.5	19.8	0.010502	2.5
Extreme (0C)	1882.5	-17.2	-0.009110	2.5
Extreme (-10C)	1882.5	25.8	0.013705	2.5
Extreme (-20C)	1882.5	-10.3	-0.005466	2.5
Extreme (-30C)	1882.5	-18.4	-0.009795	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	8.3	0.004382	2.5
3.85	1882.5	-2.6	-0.001365	2.5
4.2	1882.5	-17.6	-0.009355	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	-21.5	-0.011405	2.5
Extreme (50C)	1882.5	5.1	0.002693	2.5
Extreme (40C)	1882.5	10.4	0.005498	2.5
Extreme (30C)	1882.5	-11.4	-0.006077	2.5
Extreme (10C)	1882.5	-12.3	-0.006534	2.5
Extreme (0C)	1882.5	-9.5	-0.005020	2.5
Extreme (-10C)	1882.5	-14.9	-0.007931	2.5
Extreme (-20C)	1882.5	-15.0	-0.007973	2.5
Extreme (-30C)	1882.5	14.6	0.007745	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	-23.7	-0.028901	2.5
3.85	819	18.6	0.022711	2.5
4.2	819	17.3	0.021087	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	14.0	0.017143	2.5
Extreme (50C)	819	14.8	0.018120	2.5
Extreme (40C)	819	3.5	0.004274	2.5
Extreme (30C)	819	34.2	0.041783	2.5
Extreme (10C)	819	-25.0	-0.030562	2.5
Extreme (0C)	819	5.4	0.006642	2.5
Extreme (-10C)	819	10.7	0.013053	2.5
Extreme (-20C)	819	0.2	0.000195	2.5
Extreme (-30C)	819	-4.8	-0.005885	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	-18.0	-0.022002	2.5
3.85	819	-5.8	-0.007033	2.5
4.2	819	32.6	0.039756	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	-10.5	-0.012759	2.5
Extreme (50C)	819	19.2	0.023382	2.5
Extreme (40C)	819	12.3	0.015018	2.5
Extreme (30C)	819	10.6	0.012991	2.5
Extreme (10C)	819	9.3	0.011392	2.5
Extreme (0C)	819	-12.3	-0.015055	2.5
Extreme (-10C)	819	4.4	0.005397	2.5
Extreme (-20C)	819	16.0	0.019548	2.5
Extreme (-30C)	819	9.2	0.011245	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	17.9	0.021411	2.5
3.85	836.5	17.0	0.020335	2.5
4.2	836.5	8.7	0.010365	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	-24.0	-0.028655	2.5
Extreme (50C)	836.5	11.8	0.014118	2.5
Extreme (40C)	836.5	-21.5	-0.025738	2.5
Extreme (30C)	836.5	27.0	0.032230	2.5
Extreme (10C)	836.5	-17.9	-0.021351	2.5
Extreme (0C)	836.5	27.4	0.032803	2.5
Extreme (-10C)	836.5	14.9	0.017848	2.5
Extreme (-20C)	836.5	1.0	0.001195	2.5
Extreme (-30C)	836.5	22.2	0.026515	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	27.1	0.032397	2.5
3.85	836.5	28.3	0.033867	2.5
4.2	836.5	-2.9	-0.003455	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	25.7	0.030687	2.5
Extreme (50C)	836.5	11.2	0.013365	2.5
Extreme (40C)	836.5	18.1	0.021638	2.5
Extreme (30C)	836.5	14.4	0.017155	2.5
Extreme (10C)	836.5	-12.8	-0.015266	2.5
Extreme (0C)	836.5	-13.7	-0.016426	2.5
Extreme (-10C)	836.5	-19.9	-0.023802	2.5
Extreme (-20C)	836.5	-14.0	-0.016701	2.5
Extreme (-30C)	836.5	18.6	0.022271	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	-27.1	-0.015513	2.5
3.85	1745	-16.1	-0.009215	2.5
4.2	1745	13.0	0.007444	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	-8.5	-0.004860	2.5
Extreme (50C)	1745	3.0	0.001708	2.5
Extreme (40C)	1745	-13.1	-0.007530	2.5
Extreme (30C)	1745	-5.4	-0.003089	2.5
Extreme (10C)	1745	18.0	0.010332	2.5
Extreme (0C)	1745	-13.2	-0.007587	2.5
Extreme (-10C)	1745	-20.3	-0.011616	2.5
Extreme (-20C)	1745	-13.1	-0.007519	2.5
Extreme (-30C)	1745	-14.0	-0.007994	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	1.0	0.000590	2.5
3.85	1745	-17.2	-0.009868	2.5
4.2	1745	-3.8	-0.002155	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	-14.8	-0.008458	2.5
Extreme (50C)	1745	-18.8	-0.010762	2.5
Extreme (40C)	1745	17.3	0.009931	2.5
Extreme (30C)	1745	12.1	0.006951	2.5
Extreme (10C)	1745	-24.0	-0.013777	2.5
Extreme (0C)	1745	20.4	0.011713	2.5
Extreme (-10C)	1745	31.3	0.017931	2.5
Extreme (-20C)	1745	-8.2	-0.004716	2.5
Extreme (-30C)	1745	-18.9	-0.010842	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.

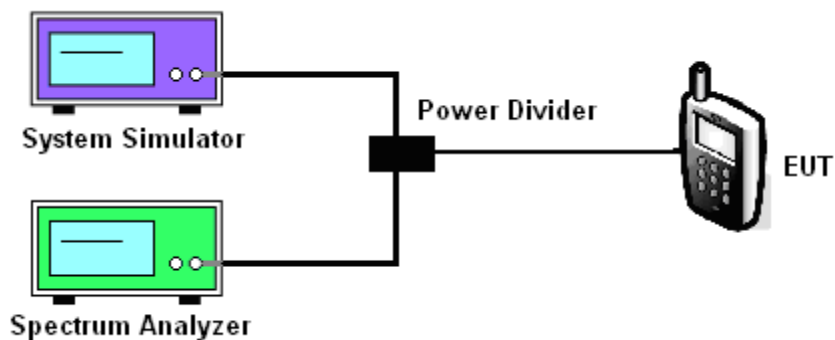
11.2 Measuring Instruments

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 13
- LTE Band 17
- LTE Band 25,
- LTE Band 26,
- LTE Band 66

Test data reference attachment.

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