

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

FCC ID: 2AY6A-C5ELITE

Product: SMART PHONE
Trade Mark: CLOUD MOBILE
Model Number: Stratus C5 Elite
Family Model: N/A
Report No.: STR210824001006E

Prepared for

Cloud Mobile Holding LLC

1149 S. HILL ST. SUITE H400, LOS ANGELES, CA 90015.

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : Cloud Mobile Holding LLC
Address..... : 1149 S. HILL ST. SUITE H400, LOS ANGELES, CA 90015.
Manufacturer's Name..... : Cloud Mobile Holding LLC
Address..... : 1149 S. HILL ST. SUITE H400, LOS ANGELES, CA 90015.
Product name..... : SMART PHONE
Model and/or type reference .. : Stratus C5 Elite
Family Model: N/A
Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27
Test procedure : ANSI C63.26:2015
 ANSI/TIA-603-E-2016

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

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Date of Test

Date (s) of performance of tests..... Aug 24, 2021 ~Sep 15, 2021

Date of Issue Sep 16, 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	CLOUD MOBILE
Model Name	Stratus C5 Elite
Family Model	N/A
Model Difference	N/A
FCC ID:	2AY6A-C5ELITE
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2,4,5,7,12,17,41,66,71
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 41 Uplink: 2496MHz-2690MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz; LTE FDD Band 71 Uplink: 663MHz-698MHz, Downlink: 617MHz-652MHz;
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:	Band 2: 2.68dBi; Band 4: 2.36dBi ; Band 5: 1.63dBi ; Band 7: 1.41dBi ; Band 12: 2.07dBi ; Band 17: 2.01dBi; Band 41: 1.53dBi; Band 66: 2.63dBi; Band 71: 1.05dBi;
Power Supply:	DC 3.8V, 2200mAh from battery or DC 5V from Adapter.
Adapter:	Model: JML-0500100NZ-LW Input: 100V-240V 50/60Hz 0.3A Output: 5V---1.0A
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.8V) (Note 1)

HW Version	AL_A16S_MB_V21
SW Version	A16s_Stratus_C5_Elite_v1.0
** 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: 2AY6A-C5ELITE** filing to comply with the FCC Part 22H&24E&27

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2, Band 4, Band 5, Band 7, Band 12, Band 17, Band 41, Band 66, Band 71.

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	Stratus C5 Elite	FCC ID: 2AY6A-C5ELITE	EUT

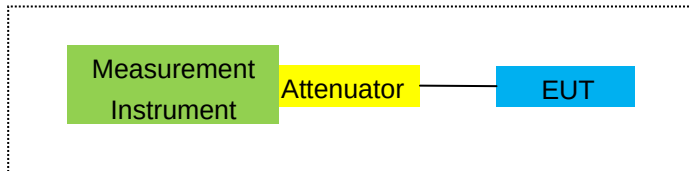
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

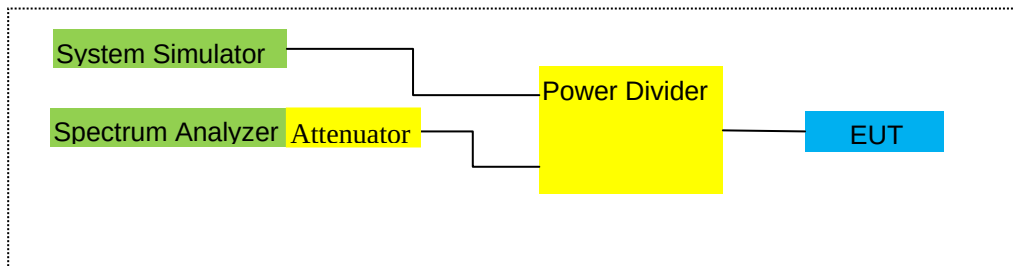
For Radiated Test Cases



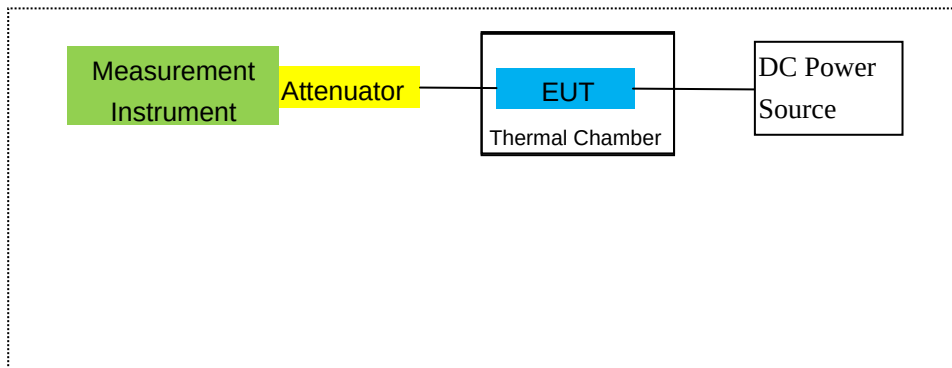
For Conducted Output Power



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	2020.11.19	2021.11.18	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
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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

TEST PROCEDURE

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

- ☐ LTE Band 2/4/5/7/12/17/41/66/71
- ☐

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

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

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

☐ LTE Band 2/4/5/7/12/17/41/66/71

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.	Polarization Of Max. ERP	
							EIRP		
							Average		
						(mW)			
1.4MHz	Band QPSK	1850.7	-3.22	3.76	28.24	21.26	133.660	Horizontal	Pass
		1880	-3.03	3.91	28.22	21.28	134.276	Horizontal	Pass
		1909.3	-2.94	3.93	28.20	21.33	135.831	Horizontal	Pass
3.0MHz	Band QPSK	1851.5	-3.28	3.77	28.23	21.18	131.220	Horizontal	Pass
		1880	-3.13	3.91	28.24	21.20	131.826	Horizontal	Pass
		1908.5	-3.00	3.94	28.25	21.31	135.207	Horizontal	Pass
5.0MHz	Band QPSK	1852.5	-3.17	3.77	28.31	21.37	137.088	Horizontal	Pass
		1880	-2.79	3.91	28.22	21.52	141.906	Horizontal	Pass
		1907.5	-2.72	3.94	28.20	21.54	142.561	Horizontal	Pass
10.0MHz	Band QPSK	1855	-3.03	3.79	28.33	21.51	141.579	Horizontal	Pass
		1880	-2.73	3.95	28.22	21.54	142.561	Horizontal	Pass
		1905	-2.62	3.97	28.19	21.60	144.544	Horizontal	Pass
15.0MHz	Band QPSK	1857.5	-2.99	3.79	28.34	21.56	143.219	Horizontal	Pass
		1880	-2.78	3.95	28.22	21.49	140.929	Horizontal	Pass
		1902.5	-2.64	3.97	28.18	21.57	143.549	Horizontal	Pass
20.0MHz	Band QPSK	1860	-2.98	3.81	28.35	21.56	143.219	Horizontal	Pass
		1880	-2.65	3.96	28.22	21.61	144.877	Horizontal	Pass
		1900	-2.59	4.00	28.16	21.57	143.549	Horizontal	Pass
1.4MHz	Band QPSK	1850.7	-3.85	3.76	28.24	20.63	115.611	Vertical	Pass
		1880	-3.39	3.91	28.22	20.92	123.595	Vertical	Pass
		1909.3	-3.74	3.93	28.20	20.53	112.980	Vertical	Pass
3.0MHz	Band QPSK	1851.5	-4.26	3.77	28.23	20.20	104.713	Vertical	Pass
		1880	-3.93	3.91	28.24	20.40	109.648	Vertical	Pass
		1908.5	-4.21	3.94	28.25	20.10	102.329	Vertical	Pass
5.0MHz	Band QPSK	1852.5	-4.50	3.77	28.31	20.04	100.925	Vertical	Pass
		1880	-3.96	3.91	28.22	20.35	108.393	Vertical	Pass
		1907.5	-3.76	3.94	28.20	20.50	112.202	Vertical	Pass
10.0MHz	Band QPSK	1855	-3.87	3.79	28.33	20.67	116.681	Vertical	Pass
		1880	-3.96	3.95	28.22	20.31	107.399	Vertical	Pass
		1905	-3.26	3.97	28.19	20.96	124.738	Vertical	Pass

15.0MHz	Band QPSK	1/#Mid	1857.5	-4.04	3.79	28.34	20.51	112.460	Vertical	Pass
			1880	-3.33	3.95	28.22	20.94	124.165	Vertical	Pass
			1902.5	-3.75	3.97	28.18	20.46	111.173	Vertical	Pass
20.0MHz	Band QPSK	1/#Mid	1860	-4.51	3.81	28.35	20.03	100.693	Vertical	Pass
			1880	-3.67	3.96	28.22	20.59	114.551	Vertical	Pass
			1900	-3.73	4.00	28.16	20.43	110.408	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						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 16 QAM	1/##Mid	1850.7	-4.34	3.76	28.24	20.14	103.276	Horizontal	Pass
		1880	-3.81	3.91	28.22	20.50	112.202	Horizontal	Pass
		1909.3	-3.74	3.93	28.20	20.53	112.980	Horizontal	Pass
3.0MHz Band 16 QAM	1/##Mid	1851.5	-3.84	3.77	28.23	20.62	115.345	Horizontal	Pass
		1880	-3.92	3.91	28.24	20.41	109.901	Horizontal	Pass
		1908.5	-4.13	3.94	28.25	20.18	104.232	Horizontal	Pass
5.0MHz Band 16 QAM	1/##Mid	1852.5	-3.78	3.77	28.31	20.76	119.124	Horizontal	Pass
		1880	-3.69	3.91	28.22	20.62	115.345	Horizontal	Pass
		1907.5	-3.37	3.94	28.20	20.89	122.744	Horizontal	Pass
10.0MHz Band 16 QAM	1/##Mid	1855	-3.83	3.79	28.33	20.71	117.761	Horizontal	Pass
		1880	-3.82	3.95	28.22	20.45	110.917	Horizontal	Pass
		1905	-3.29	3.97	28.19	20.93	123.880	Horizontal	Pass
15.0MHz Band 16 QAM	1/##Mid	1857.5	-3.81	3.79	28.34	20.74	118.577	Horizontal	Pass
		1880	-3.60	3.95	28.22	20.67	116.681	Horizontal	Pass
		1902.5	-3.56	3.97	28.18	20.65	116.145	Horizontal	Pass
20.0MHz Band 16 QAM	1/##Mid	1860	-3.70	3.81	28.35	20.84	121.339	Horizontal	Pass
		1880	-3.40	3.96	28.22	20.86	121.899	Horizontal	Pass
		1900	-3.22	4.00	28.16	20.94	124.165	Horizontal	Pass
1.4MHz Band 16 QAM	1/##Mid	1850.7	-5.34	3.76	28.24	19.14	82.035	Vertical	Pass
		1880	-5.00	3.91	28.22	19.31	85.310	Vertical	Pass
		1909.3	-5.16	3.93	28.20	19.11	81.470	Vertical	Pass
3.0MHz Band 16 QAM	1/##Mid	1851.5	-4.92	3.77	28.23	19.54	89.950	Vertical	Pass
		1880	-4.36	3.91	28.24	19.97	99.312	Vertical	Pass
		1908.5	-5.28	3.94	28.25	19.03	79.983	Vertical	Pass
5.0MHz Band 16 QAM	1/##Mid	1852.5	-5.25	3.77	28.31	19.29	84.918	Vertical	Pass
		1880	-4.34	3.91	28.22	19.97	99.312	Vertical	Pass
		1907.5	-5.25	3.94	28.20	19.01	79.616	Vertical	Pass
10.0MHz Band 16 QAM	1/##Mid	1855	-4.98	3.79	28.33	19.56	90.365	Vertical	Pass
		1880	-5.11	3.95	28.22	19.16	82.414	Vertical	Pass
		1905	-4.51	3.97	28.19	19.71	93.541	Vertical	Pass
15.0MHz Band 16	1/##Mid	1857.5	-4.89	3.79	28.34	19.66	92.470	Vertical	Pass
		1880	-4.59	3.95	28.22	19.68	92.897	Vertical	Pass

QAM		1902.5	-4.78	3.97	28.18	19.43	87.700	Vertical	Pass
20.0MHz	1/#Mid	1860	-5.21	3.81	28.35	19.33	85.704	Vertical	Pass
Band 16		1880	-4.66	3.96	28.22	19.60	91.201	Vertical	Pass
QAM		1900	-5.15	4.00	28.16	19.01	79.616	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	1/#Mid	1710.7	-2.11	3.12	27.58	22.35	171.791	Horizontal	Pass
Band		1732.5	-2.10	3.27	27.61	22.24	167.494	Horizontal	Pass
QPSK		1754.3	-2.08	3.29	27.63	22.26	168.267	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-2.28	3.13	27.61	22.20	165.959	Horizontal	Pass
Band		1732.5	-2.20	3.27	27.61	22.14	163.682	Horizontal	Pass
QPSK		1753.5	-2.12	3.30	27.62	22.20	165.959	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-2.05	3.13	27.63	22.45	175.792	Horizontal	Pass
Band		1732.5	-1.95	3.27	27.61	22.39	173.380	Horizontal	Pass
QPSK		1752.5	-1.83	3.30	27.60	22.47	176.604	Horizontal	Pass
10.0MHz	1/#Mid	1715	-1.99	3.15	27.64	22.50	177.828	Horizontal	Pass
Band		1732.5	-1.76	3.31	27.61	22.54	179.473	Horizontal	Pass
QPSK		1750	-1.78	3.33	27.59	22.48	177.011	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-2.00	3.15	27.65	22.50	177.828	Horizontal	Pass
Band		1732.5	-1.84	3.31	27.61	22.46	176.198	Horizontal	Pass
QPSK		1747.5	-1.78	3.33	27.57	22.46	176.198	Horizontal	Pass
20.0MHz	1/#Mid	1720	-1.94	3.17	27.66	22.55	179.887	Horizontal	Pass
Band		1732.5	-1.77	3.32	27.61	22.52	178.649	Horizontal	Pass
QPSK		1745	-1.71	3.36	27.56	22.49	177.419	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-3.44	3.12	27.58	21.02	126.474	Vertical	Pass
Band		1732.5	-2.65	3.27	27.61	21.69	147.571	Vertical	Pass
QPSK		1754.3	-3.19	3.29	27.63	21.15	130.317	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-3.10	3.13	27.61	21.38	137.404	Vertical	Pass
Band		1732.5	-2.87	3.27	27.61	21.47	140.281	Vertical	Pass
QPSK		1753.5	-2.40	3.30	27.62	21.92	155.597	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-2.78	3.13	27.63	21.72	148.594	Vertical	Pass
Band		1732.5	-2.95	3.27	27.61	21.39	137.721	Vertical	Pass
QPSK		1752.5	-2.35	3.30	27.60	21.95	156.675	Vertical	Pass
10.0MHz	1/#Mid	1715	-3.12	3.15	27.64	21.37	137.088	Vertical	Pass
Band		1732.5	-2.81	3.31	27.61	21.49	140.929	Vertical	Pass
QPSK		1750	-2.74	3.33	27.59	21.52	141.906	Vertical	Pass

15.0MHz	Band QPSK	1/#Mid	1717.5	-2.80	3.15	27.65	21.70	147.911	Vertical	Pass
			1732.5	-2.66	3.31	27.61	21.64	145.881	Vertical	Pass
			1747.5	-2.86	3.33	27.57	21.38	137.404	Vertical	Pass
20.0MHz	Band QPSK	1/#Mid	1720	-3.13	3.17	27.66	21.36	136.773	Vertical	Pass
			1732.5	-3.00	3.32	27.61	21.29	134.586	Vertical	Pass
			1745	-2.22	3.36	27.56	21.98	157.761	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-2.92	3.12	27.58	21.54	142.561	Horizontal	Pass
		1732.5	-2.77	3.27	27.61	21.57	143.549	Horizontal	Pass
		1754.3	-2.77	3.29	27.63	21.57	143.549	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.86	3.13	27.61	21.62	145.211	Horizontal	Pass
		1732.5	-2.99	3.27	27.61	21.35	136.458	Horizontal	Pass
		1753.5	-3.21	3.30	27.62	21.11	129.122	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.69	3.13	27.63	21.81	151.705	Horizontal	Pass
		1732.5	-2.65	3.27	27.61	21.69	147.571	Horizontal	Pass
		1752.5	-2.34	3.30	27.60	21.96	157.036	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.76	3.15	27.64	21.73	148.936	Horizontal	Pass
		1732.5	-2.95	3.31	27.61	21.35	136.458	Horizontal	Pass
		1750	-2.33	3.33	27.59	21.93	155.955	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.56	3.15	27.65	21.94	156.315	Horizontal	Pass
		1732.5	-2.62	3.31	27.61	21.68	147.231	Horizontal	Pass
		1747.5	-2.64	3.33	27.57	21.60	144.544	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.51	3.17	27.66	21.98	157.761	Horizontal	Pass
		1732.5	-2.52	3.32	27.61	21.77	150.314	Horizontal	Pass
		1745	-2.33	3.36	27.56	21.87	153.815	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	-3.40	3.27	27.61	20.94	124.165	Vertical	Pass
		1754.3	-3.88	3.29	27.63	20.46	111.173	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.67	3.13	27.61	20.81	120.504	Vertical	Pass
		1732.5	-3.77	3.27	27.61	20.57	114.025	Vertical	Pass
		1753.5	-4.05	3.30	27.62	20.27	106.414	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.26	3.13	27.63	20.24	105.682	Vertical	Pass
		1732.5	-3.69	3.27	27.61	20.65	116.145	Vertical	Pass
		1752.5	-3.78	3.30	27.60	20.52	112.720	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.92	3.15	27.64	20.57	114.025	Vertical	Pass
		1732.5	-3.60	3.31	27.61	20.70	117.490	Vertical	Pass
		1750	-3.58	3.33	27.59	20.68	116.950	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-4.00	3.15	27.65	20.50	112.202	Vertical	Pass
		1732.5	-4.02	3.31	27.61	20.28	106.660	Vertical	Pass

QAM		1747.5	-4.17	3.33	27.57	20.07	101.625	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.50	3.17	27.66	20.99	125.603	Vertical	Pass
Band 16		1732.5	-4.07	3.32	27.61	20.22	105.196	Vertical	Pass
QAM		1745	-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)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(dBm)		
1.4MHz Band QPSK	3/#Mid	824.7	6.99	2.01	19.68	2.15	22.51	178.238	Horizontal	Pass
		836.5	6.87	2.01	19.77	2.15	22.48	177.011	Horizontal	Pass
		848.3	6.67	2.02	19.82	2.15	22.32	170.608	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.76	2.01	19.70	2.15	22.30	169.824	Horizontal	Pass
		836.5	6.66	2.01	19.77	2.15	22.27	168.655	Horizontal	Pass
		847.5	6.53	2.02	19.81	2.15	22.17	164.816	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	7.04	2.01	19.71	2.15	22.59	181.552	Horizontal	Pass
		836.5	6.92	2.01	19.77	2.15	22.53	179.061	Horizontal	Pass
		846.5	6.76	2.02	19.79	2.15	22.38	172.982	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	7.06	2.01	19.73	2.15	22.63	183.231	Horizontal	Pass
		836.5	7.01	2.01	19.77	2.15	22.62	182.810	Horizontal	Pass
		844	6.91	2.02	19.78	2.15	22.52	178.649	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	5.92	2.01	19.68	2.15	21.44	139.316	Vertical	Pass
		836.5	5.64	2.01	19.77	2.15	21.25	133.352	Vertical	Pass
		848.3	5.75	2.02	19.82	2.15	21.40	138.038	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.16	2.01	19.70	2.15	21.70	147.911	Vertical	Pass
		836.5	5.97	2.01	19.77	2.15	21.58	143.880	Vertical	Pass
		847.5	5.69	2.02	19.81	2.15	21.33	135.831	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.70	2.01	19.71	2.15	21.25	133.352	Vertical	Pass
		836.5	6.09	2.01	19.77	2.15	21.70	147.911	Vertical	Pass
		846.5	5.82	2.02	19.79	2.15	21.44	139.316	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.32	2.01	19.73	2.15	20.89	122.744	Vertical	Pass
		836.5	5.20	2.01	19.77	2.15	20.81	120.504	Vertical	Pass
		844	6.08	2.02	19.78	2.15	21.69	147.571	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)		Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	3/#Mid	824.7	6.14	2.01	19.68	2.15	21.66	146.555	Horizontal	Pass
		836.5	6.07	2.01	19.77	2.15	21.68	147.231	Horizontal	Pass
		848.3	5.91	2.02	19.82	2.15	21.56	143.219	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	6.22	2.01	19.70	2.15	21.76	149.968	Horizontal	Pass
		836.5	5.93	2.01	19.77	2.15	21.54	142.561	Horizontal	Pass
		847.5	5.41	2.02	19.81	2.15	21.05	127.350	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.54	2.01	19.71	2.15	22.09	161.808	Horizontal	Pass
		836.5	6.31	2.01	19.77	2.15	21.92	155.597	Horizontal	Pass
		846.5	6.06	2.02	19.79	2.15	21.68	147.231	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.54	2.01	19.73	2.15	22.11	162.555	Horizontal	Pass
		836.5	6.26	2.01	19.77	2.15	21.87	153.815	Horizontal	Pass
		844	5.80	2.02	19.78	2.15	21.41	138.357	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	4.76	2.01	19.68	2.15	20.28	106.660	Vertical	Pass
		836.5	5.68	2.01	19.77	2.15	21.29	134.586	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	5.41	2.01	19.70	2.15	20.95	124.451	Vertical	Pass
		836.5	4.92	2.01	19.77	2.15	20.53	112.980	Vertical	Pass
		847.5	5.24	2.02	19.81	2.15	20.88	122.462	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.77	2.01	19.71	2.15	21.32	135.519	Vertical	Pass
		836.5	4.33	2.01	19.77	2.15	19.94	98.628	Vertical	Pass
		846.5	4.84	2.02	19.79	2.15	20.46	111.173	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.03	2.01	19.73	2.15	20.60	114.815	Vertical	Pass
		836.5	5.63	2.01	19.77	2.15	21.24	133.045	Vertical	Pass
		844	5.57	2.02	19.78	2.15	21.18	131.220	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	Antenna Gain	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
5.0MHz	1/#Mid	2502.5	-2.39	4.54	27.75	20.82	120.781	Horizontal	Pass
Band		2535	-2.22	4.69	27.72	20.81	120.504	Horizontal	Pass
QPSK		2567.5	-2.15	4.71	27.71	20.85	121.619	Horizontal	Pass
10.0MHz	1/#Mid	2505	-2.32	4.55	27.76	20.89	122.744	Horizontal	Pass
Band		2535	-2.13	4.69	27.72	20.90	123.027	Horizontal	Pass
QPSK		2565	-2.05	4.72	27.70	20.93	123.880	Horizontal	Pass
15.0MHz	1/#Mid	2507.5	-2.33	4.55	27.77	20.89	122.744	Horizontal	Pass
Band		2535	-2.19	4.69	27.72	20.84	121.339	Horizontal	Pass
QPSK		2562.5	-2.09	4.72	27.69	20.88	122.462	Horizontal	Pass
20.0MHz	1/#Mid	2510	-2.27	4.57	27.78	20.94	124.165	Horizontal	Pass
Band		2535	-2.09	4.73	27.72	20.90	123.027	Horizontal	Pass
QPSK		2560	-2.05	4.75	27.68	20.88	122.462	Horizontal	Pass
5.0MHz	1/#Mid	2502.5	-3.61	4.54	27.75	19.60	91.201	Vertical	Pass
Band		2535	-3.77	4.69	27.72	19.26	84.333	Vertical	Pass
QPSK		2567.5	-3.06	4.71	27.71	19.94	98.628	Vertical	Pass
10.0MHz	1/#Mid	2505	-4.14	4.55	27.76	19.07	80.724	Vertical	Pass
Band		2535	-3.23	4.69	27.72	19.80	95.499	Vertical	Pass
QPSK		2565	-3.50	4.72	27.70	19.48	88.716	Vertical	Pass
15.0MHz	1/#Mid	2507.5	-3.89	4.55	27.77	19.33	85.704	Vertical	Pass
Band		2535	-3.82	4.69	27.72	19.21	83.368	Vertical	Pass
QPSK		2562.5	-3.02	4.72	27.69	19.95	98.855	Vertical	Pass
20.0MHz	1/#Mid	2510	-3.55	4.57	27.78	19.66	92.470	Vertical	Pass
Band		2535	-3.71	4.73	27.72	19.28	84.723	Vertical	Pass
QPSK		2560	-3.86	4.75	27.68	19.07	80.724	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	Antenna Gain	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.08	4.54	27.75	20.13	103.039	Horizontal	Pass
		2535	-2.77	4.69	27.72	20.26	106.170	Horizontal	Pass
		2567.5	-2.85	4.71	27.71	20.15	103.514	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.97	4.55	27.76	20.24	105.682	Horizontal	Pass
		2535	-2.98	4.69	27.72	20.05	101.158	Horizontal	Pass
		2565	-3.25	4.72	27.70	19.73	93.972	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.15	4.55	27.77	20.07	101.625	Horizontal	Pass
		2535	-3.12	4.69	27.72	19.91	97.949	Horizontal	Pass
		2562.5	-2.73	4.72	27.69	20.24	105.682	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.03	4.57	27.78	20.18	104.232	Horizontal	Pass
		2535	-2.70	4.73	27.72	20.29	106.905	Horizontal	Pass
		2560	-2.80	4.75	27.68	20.13	103.039	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.87	4.54	27.75	19.34	85.901	Vertical	Pass
		2535	-4.47	4.69	27.72	18.56	71.779	Vertical	Pass
		2567.5	-4.50	4.71	27.71	18.50	70.795	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-4.04	4.55	27.76	19.17	82.604	Vertical	Pass
		2535	-4.97	4.69	27.72	18.06	63.973	Vertical	Pass
		2565	-3.19	4.72	27.70	19.79	95.280	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-4.51	4.55	27.77	18.71	74.302	Vertical	Pass
		2535	-4.52	4.69	27.72	18.51	70.958	Vertical	Pass
		2562.5	-4.36	4.72	27.69	18.61	72.611	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.41	4.57	27.78	19.80	95.499	Vertical	Pass
		2535	-4.56	4.73	27.72	18.43	69.663	Vertical	Pass
		2560	-3.34	4.75	27.68	19.59	90.991	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 (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	699.7	7.78	1.91	19.21	2.15	22.93	196.336	Vertical	Pass
		707.5	7.70	1.91	19.26	2.15	22.90	194.984	Vertical	Pass
		715.3	7.48	1.93	19.34	2.15	22.74	187.932	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	7.57	1.91	19.21	2.15	22.72	187.068	Vertical	Pass
		707.5	7.49	1.91	19.26	2.15	22.69	185.780	Vertical	Pass
		714.5	7.33	1.93	19.34	2.15	22.59	181.552	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.84	1.91	19.23	2.15	23.01	199.986	Vertical	Pass
		707.5	7.75	1.91	19.26	2.15	22.95	197.242	Vertical	Pass
		713.5	7.54	1.92	19.33	2.15	22.80	190.546	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	7.86	1.91	19.25	2.15	23.05	201.837	Vertical	Pass
		707.5	7.84	1.91	19.26	2.15	23.04	201.372	Vertical	Pass
		711	7.69	1.92	19.32	2.15	22.94	196.789	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	6.37	1.91	19.21	2.15	21.52	141.906	Horizontal	Pass
		707.5	6.80	1.91	19.26	2.15	22.00	158.489	Horizontal	Pass
		715.3	6.30	1.93	19.34	2.15	21.56	143.219	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.44	1.91	19.21	2.15	21.59	144.212	Horizontal	Pass
		707.5	6.84	1.91	19.26	2.15	22.04	159.956	Horizontal	Pass
		714.5	6.24	1.93	19.34	2.15	21.50	141.254	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.74	1.91	19.23	2.15	21.91	155.239	Horizontal	Pass
		707.5	6.63	1.91	19.26	2.15	21.83	152.405	Horizontal	Pass
		713.5	6.60	1.92	19.33	2.15	21.86	153.462	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	6.06	1.91	19.25	2.15	21.25	133.352	Horizontal	Pass
		707.5	6.39	1.91	19.26	2.15	21.59	144.212	Horizontal	Pass
		711	6.51	1.92	19.32	2.15	21.76	149.968	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 Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	7.78	1.91	19.21	2.15	23.46	221.820	Vertical	Pass
		707.5	7.70	1.91	19.26	2.15	23.43	220.293	Vertical	Pass
		715.3	7.48	1.93	19.34	2.15	23.27	212.324	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	7.57	1.91	19.21	2.15	23.25	211.349	Vertical	Pass
		707.5	7.49	1.91	19.26	2.15	23.22	209.894	Vertical	Pass
		714.5	7.33	1.93	19.34	2.15	23.12	205.116	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.84	1.91	19.23	2.15	23.54	225.944	Vertical	Pass
		707.5	7.75	1.91	19.26	2.15	23.48	222.844	Vertical	Pass
		713.5	7.54	1.92	19.33	2.15	23.33	215.278	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.86	1.91	19.25	2.15	23.58	228.034	Vertical	Pass
		707.5	7.84	1.91	19.26	2.15	23.57	227.510	Vertical	Pass
		711	7.69	1.92	19.32	2.15	23.47	222.331	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	6.79	1.91	19.21	2.15	22.15	164.059	Horizontal	Pass
		707.5	6.06	1.91	19.26	2.15	22.40	173.780	Horizontal	Pass
		715.3	6.23	1.93	19.34	2.15	22.22	166.725	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.79	1.91	19.21	2.15	22.39	173.380	Horizontal	Pass
		707.5	6.40	1.91	19.26	2.15	22.24	167.494	Horizontal	Pass
		714.5	6.48	1.93	19.34	2.15	22.51	178.238	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.87	1.91	19.23	2.15	21.99	158.125	Horizontal	Pass
		707.5	6.92	1.91	19.26	2.15	21.77	150.314	Horizontal	Pass
		713.5	6.46	1.92	19.33	2.15	22.71	186.638	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	6.49	1.91	19.25	2.15	22.08	161.436	Horizontal	Pass
		707.5	6.75	1.91	19.26	2.15	22.46	176.198	Horizontal	Pass
		711	6.25	1.92	19.32	2.15	22.30	169.824	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG	Cable	Antenna	Correction	Max.	Max.	Polarization	
			Level	Loss	Gain		EIRP	EIRP	Of Max.	
			(dBm)	(dBm)	(dB)		Average	Average	ERP	
						(dB)	(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	706.5	7.00	1.91	19.23	2.15	22.17	164.816	Vertical	Pass
		710	6.86	1.91	19.26	2.15	22.06	160.694	Vertical	Pass
		713.5	6.76	1.92	19.33	2.15	22.02	159.221	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	7.01	1.91	19.25	2.15	22.20	165.959	Vertical	Pass
		710	6.96	1.91	19.26	2.15	22.16	164.437	Vertical	Pass
		711	6.92	1.92	19.32	2.15	22.17	164.816	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	5.86	1.91	19.23	2.15	21.03	126.765	Horizontal	Pass
		710	6.27	1.91	19.26	2.15	21.47	140.281	Horizontal	Pass
		713.5	6.01	1.92	19.33	2.15	21.27	133.968	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	5.76	1.91	19.25	2.15	20.95	124.451	Horizontal	Pass
		710	6.15	1.91	19.26	2.15	21.35	136.458	Horizontal	Pass
		711	5.69	1.92	19.32	2.15	20.94	124.165	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
							Average	Average		
							(dBm)	(mW)		
5.0MHz Band 16 QAM	1/##Mid	706.5	6.35	1.91	19.23	2.15	21.52	141.906	Vertical	Pass
		710	6.26	1.91	19.26	2.15	21.46	139.959	Vertical	Pass
		713.5	6.06	1.92	19.33	2.15	21.32	135.519	Vertical	Pass
10.0MHz Band 16 QAM	1/##Mid	709	5.89	1.91	19.25	2.15	21.08	128.233	Vertical	Pass
		710	6.42	1.91	19.26	2.15	21.62	145.211	Vertical	Pass
		711	6.15	1.92	19.32	2.15	21.40	138.038	Vertical	Pass
5.0MHz Band 16 QAM	1/##Mid	706.5	5.63	1.91	19.23	2.15	20.80	120.226	Horizontal	Pass
		710	5.10	1.91	19.26	2.15	20.30	107.152	Horizontal	Pass
		713.5	5.40	1.92	19.33	2.15	20.66	116.413	Horizontal	Pass
10.0MHz Band 16 QAM	1/##Mid	709	5.13	1.91	19.25	2.15	20.32	107.647	Horizontal	Pass
		710	4.79	1.91	19.26	2.15	19.99	99.770	Horizontal	Pass
		711	5.22	1.92	19.32	2.15	20.47	111.429	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 41

Radiated Power (EIRP) for Band 41									
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	2498.5	-0.58	4.54	27.75	22.63	183.231	Horizontal	Pass
		2593	-0.43	4.69	27.72	22.60	181.970	Horizontal	Pass
		2687.5	-0.31	4.71	27.71	22.69	185.780	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2501	-0.66	4.55	27.76	22.55	179.887	Horizontal	Pass
		2593	-0.52	4.69	27.72	22.51	178.238	Horizontal	Pass
		2685	-0.51	4.72	27.70	22.47	176.604	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	-0.49	4.55	27.77	22.73	187.499	Horizontal	Pass
		2593	-0.21	4.69	27.72	22.82	191.426	Horizontal	Pass
		2682.5	-0.26	4.72	27.69	22.71	186.638	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2506	-0.37	4.57	27.78	22.84	192.309	Horizontal	Pass
		2593	-0.15	4.73	27.72	22.84	192.309	Horizontal	Pass
		2680	-0.15	4.75	27.68	22.78	189.671	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2498.5	-0.38	4.54	27.75	22.83	191.867	Vertical	Pass
		2593	-0.29	4.69	27.72	22.74	187.932	Vertical	Pass
		2687.5	-0.27	4.71	27.71	22.73	187.499	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2501	-0.36	4.55	27.76	21.92	155.597	Vertical	Pass
		2593	-0.20	4.69	27.72	22.83	191.867	Vertical	Pass
		2685	-0.27	4.72	27.70	22.71	186.638	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2503.5	-1.99	4.55	27.77	21.23	132.739	Vertical	Pass
		2593	-1.90	4.69	27.72	21.13	129.718	Vertical	Pass
		2682.5	-1.52	4.72	27.69	21.45	139.637	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2506	-1.72	4.57	27.78	21.49	140.929	Vertical	Pass
		2593	-1.35	4.73	27.72	21.64	145.881	Vertical	Pass
		2680	-1.01	4.75	27.68	22.85	192.752	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP		
						Average (dBm)	Average (mW)		
5.0MHz Band 16 QAM	1/#Mid	2498.5	-0.58	4.54	27.75	22.94	196.789	Horizontal	Pass
		2593	-0.43	4.69	27.72	22.91	195.434	Horizontal	Pass
		2687.5	-0.31	4.71	27.71	23.00	199.526	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	-0.66	4.55	27.76	22.86	193.197	Horizontal	Pass
		2593	-0.52	4.69	27.72	22.82	191.426	Horizontal	Pass
		2685	-0.51	4.72	27.70	22.78	189.671	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	-0.49	4.55	27.77	23.04	201.372	Horizontal	Pass
		2593	-0.21	4.69	27.72	23.13	205.589	Horizontal	Pass
		2682.5	-0.26	4.72	27.69	23.02	200.447	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	-0.37	4.57	27.78	23.15	206.538	Horizontal	Pass
		2593	-0.15	4.73	27.72	23.15	206.538	Horizontal	Pass
		2680	-0.15	4.75	27.68	23.09	203.704	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2498.5	-0.38	4.54	27.75	23.14	206.063	Vertical	Pass
		2593	-0.29	4.69	27.72	23.05	201.837	Vertical	Pass
		2687.5	-0.27	4.71	27.71	23.04	201.372	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2501	-0.36	4.55	27.76	23.16	207.014	Vertical	Pass
		2593	-0.20	4.69	27.72	23.50	223.872	Vertical	Pass
		2685	-0.27	4.72	27.70	23.02	200.447	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2503.5	-1.12	4.55	27.77	21.54	142.561	Vertical	Pass
		2593	-0.92	4.69	27.72	21.84	152.757	Vertical	Pass
		2682.5	-1.22	4.72	27.69	21.50	141.254	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2506	-1.40	4.57	27.78	22.23	167.109	Vertical	Pass
		2593	-1.74	4.73	27.72	22.07	161.065	Vertical	Pass
		2680	-0.87	4.75	27.68	23.84	242.103	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.9 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average		
							(mW)		
1.4MHz	1/#Mid	1710.7	-2.01	3.76	28.24	22.47	176.604	Horizontal	Pass
Band		1745	-1.87	3.91	28.22	22.44	175.388	Horizontal	Pass
QPSK		1779.3	-1.74	3.93	28.2	22.53	179.061	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-2.07	3.77	28.23	22.39	173.380	Horizontal	Pass
Band		1745	-1.98	3.91	28.24	22.35	171.791	Horizontal	Pass
QPSK		1778.5	-2.00	3.94	28.25	22.31	170.216	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-1.97	3.77	28.31	22.57	180.717	Horizontal	Pass
Band		1745	-1.65	3.91	28.22	22.66	184.502	Horizontal	Pass
QPSK		1777.5	-1.71	3.94	28.2	22.55	179.887	Horizontal	Pass
10.0MHz	1/#Mid	1715	-1.86	3.79	28.33	22.68	185.353	Horizontal	Pass
Band		1745	-1.59	3.95	28.22	22.68	185.353	Horizontal	Pass
QPSK		1775	-1.60	3.97	28.19	22.62	182.810	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-1.88	3.79	28.34	22.67	184.927	Horizontal	Pass
Band		1745	-1.69	3.95	28.22	22.58	181.134	Horizontal	Pass
QPSK		1772.5	-1.64	3.97	28.18	22.57	180.717	Horizontal	Pass
20.0MHz	1/#Mid	1720	-1.85	3.81	28.35	22.69	185.780	Horizontal	Pass
Band		1745	-1.59	3.96	28.22	22.67	184.927	Horizontal	Pass
QPSK		1770	-1.61	4	28.16	22.55	179.887	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-3.12	3.76	28.24	21.36	136.773	Vertical	Pass
Band		1745	-3.19	3.91	28.22	21.12	129.420	Vertical	Pass
QPSK		1779.3	-2.97	3.93	28.2	21.30	134.896	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-2.98	3.77	28.23	21.48	140.605	Vertical	Pass
Band		1745	-3.35	3.91	28.24	20.98	125.314	Vertical	Pass
QPSK		1778.5	-2.88	3.94	28.25	21.43	138.995	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-2.83	3.77	28.31	21.71	148.252	Vertical	Pass
Band		1745	-2.41	3.91	28.22	21.90	154.882	Vertical	Pass
QPSK		1777.5	-2.57	3.94	28.2	21.69	147.571	Vertical	Pass
10.0MHz	1/#Mid	1715	-2.64	3.79	28.34	21.91	155.239	Vertical	Pass
Band		1745	-2.90	3.95	28.22	21.37	137.088	Vertical	Pass

QPSK		1775	-2.93	3.97	28.18	21.28	134.276	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.56	3.81	28.35	20.98	125.314	Vertical	Pass
Band		1745	-3.24	3.96	28.22	21.02	126.474	Vertical	Pass
QPSK		1772.5	-2.82	4	28.16	21.34	136.144	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.54	3.79	28.34	21.01	126.183	Vertical	Pass
Band		1745	-2.58	3.95	28.22	21.69	147.571	Vertical	Pass
QPSK		1770	-2.26	3.97	28.18	21.95	156.675	Vertical	Pass

Radiated Power (EIRP) for Band 66									
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 16 QAM	1/#Mid	1710.7	-2.84	3.76	28.24	21.64	145.881	Horizontal	Pass
		1745	-2.45	3.91	28.22	21.86	153.462	Horizontal	Pass
		1779.3	-2.63	3.93	28.2	21.64	145.881	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.23	3.77	28.23	21.23	132.739	Horizontal	Pass
		1745	-2.48	3.91	28.24	21.85	153.109	Horizontal	Pass
		1778.5	-2.77	3.94	28.25	21.54	142.561	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.65	3.77	28.31	21.89	154.525	Horizontal	Pass
		1745	-2.71	3.91	28.22	21.60	144.544	Horizontal	Pass
		1777.5	-2.38	3.94	28.2	21.88	154.170	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.70	3.79	28.33	21.84	152.757	Horizontal	Pass
		1745	-2.36	3.95	28.22	21.91	155.239	Horizontal	Pass
		1775	-2.68	3.97	28.19	21.54	142.561	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.69	3.79	28.34	21.86	153.462	Horizontal	Pass
		1745	-2.51	3.95	28.22	21.76	149.968	Horizontal	Pass
		1772.5	-2.30	3.97	28.18	21.91	155.239	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.52	3.81	28.35	22.02	159.221	Horizontal	Pass
		1745	-2.30	3.96	28.22	21.96	157.036	Horizontal	Pass
		1770	-2.24	4	28.16	21.92	155.597	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.66	3.76	28.24	20.82	120.781	Vertical	Pass
		1745	-3.05	3.91	28.22	21.26	133.660	Vertical	Pass
		1779.3	-3.77	3.93	28.2	20.50	112.202	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.81	3.77	28.23	21.65	146.218	Vertical	Pass
		1745	-4.00	3.91	28.24	20.33	107.895	Vertical	Pass
		1778.5	-4.32	3.94	28.25	19.99	99.770	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.09	3.77	28.31	21.45	139.637	Vertical	Pass
		1745	-3.96	3.91	28.22	20.35	108.393	Vertical	Pass
		1777.5	-3.20	3.94	28.2	21.06	127.644	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.76	3.79	28.34	21.79	151.008	Vertical	Pass
		1745	-3.28	3.95	28.22	20.99	125.603	Vertical	Pass
		1775	-3.71	3.97	28.18	20.50	112.202	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-3.84	3.81	28.35	20.70	117.490	Vertical	Pass
		1745	-2.36	3.96	28.22	21.90	154.882	Vertical	Pass

QAM		1772.5	-3.24	4	28.16	20.92	123.595	Vertical	Pass
20.0MHz	1/#Mid	1720	-2.66	3.79	28.34	21.89	154.525	Vertical	Pass
Band 16		1745	-3.82	3.95	28.22	20.45	110.917	Vertical	Pass
QAM		1770	-2.53	3.97	28.18	21.68	147.231	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 71

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)		Average	Average	Of Max. ERP	
							(dBm)	(mW)		
5.0MHz Band QPSK	25/0	665.5	7.54	2.01	19.68	2.15	23.06	202.30	Horizontal	Pass
		680.5	7.42	2.01	19.77	2.15	23.03	200.91	Horizontal	Pass
		695.5	7.22	2.02	19.82	2.15	22.87	193.64	Horizontal	Pass
10.0MHz Band QPSK	50/0	668	7.31	2.01	19.70	2.15	22.85	192.75	Horizontal	Pass
		680.5	7.21	2.01	19.77	2.15	22.82	191.43	Horizontal	Pass
		693	7.08	2.02	19.81	2.15	22.72	187.07	Horizontal	Pass
15.0MHz Band QPSK	75/0	670.5	7.59	2.01	19.71	2.15	23.14	206.06	Horizontal	Pass
		680.5	7.47	2.01	19.77	2.15	23.08	203.24	Horizontal	Pass
		690.5	7.31	2.02	19.79	2.15	22.93	196.34	Horizontal	Pass
20.0MHz Band QPSK	100/0	673	7.61	2.01	19.73	2.15	23.18	207.97	Horizontal	Pass
		683	7.56	2.01	19.77	2.15	23.17	207.49	Horizontal	Pass
		688	7.46	2.02	19.78	2.15	23.07	202.77	Horizontal	Pass
5.0MHz Band QPSK	25/0	665.5	6.40	2.01	19.68	2.15	21.92	155.60	Vertical	Pass
		680.5	5.85	2.01	19.77	2.15	21.46	139.96	Vertical	Pass
		695.5	6.03	2.02	19.82	2.15	21.68	147.23	Vertical	Pass
15.0MHz Band QPSK	50/0	668	6.41	2.01	19.70	2.15	21.95	156.68	Vertical	Pass
		680.5	6.08	2.01	19.77	2.15	21.69	147.57	Vertical	Pass
		693	6.34	2.02	19.81	2.15	21.98	157.76	Vertical	Pass
15.0MHz Band QPSK	75/0	670.5	6.50	2.01	19.71	2.15	22.05	160.32	Vertical	Pass
		680.5	6.55	2.01	19.77	2.15	22.16	164.44	Vertical	Pass
		690.5	6.16	2.02	19.79	2.15	21.78	150.66	Vertical	Pass
20MHz Band QPSK	100/0	673	6.63	2.01	19.73	2.15	22.20	165.96	Vertical	Pass
		683	6.27	2.01	19.77	2.15	21.88	154.17	Vertical	Pass
		688	5.93	2.02	19.78	2.15	21.54	142.56	Vertical	Pass

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
5.0MHz Band 16 QAM	25/0	665.5	7.54	2.01	19.68	2.15	23.49	223.36	Horizontal	Pass
		680.5	7.42	2.01	19.77	2.15	23.46	221.82	Horizontal	Pass
		695.5	7.22	2.02	19.82	2.15	23.30	213.80	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	668	7.31	2.01	19.70	2.15	23.28	212.81	Horizontal	Pass
		680.5	7.21	2.01	19.77	2.15	23.25	211.35	Horizontal	Pass
		693	7.08	2.02	19.81	2.15	23.15	206.54	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	670.5	7.59	2.01	19.71	2.15	23.57	227.51	Horizontal	Pass
		680.5	7.47	2.01	19.77	2.15	23.51	224.39	Horizontal	Pass
		690.5	7.31	2.02	19.79	2.15	23.36	216.77	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	673	7.61	2.01	19.73	2.15	23.61	229.61	Horizontal	Pass
		683	7.56	2.01	19.77	2.15	23.60	229.09	Horizontal	Pass
		688	7.46	2.02	19.78	2.15	23.50	223.87	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	665.5	6.09	2.01	19.68	2.15	21.82	152.05	Vertical	Pass
		680.5	6.15	2.01	19.77	2.15	21.89	154.53	Vertical	Pass
		695.5	6.35	2.02	19.82	2.15	22.32	170.61	Vertical	Pass
10.0MHz Band 16 QAM	50/0	668	6.37	2.01	19.70	2.15	22.19	165.58	Vertical	Pass
		680.5	6.03	2.01	19.77	2.15	21.78	150.66	Vertical	Pass
		693	6.00	2.02	19.81	2.15	22.44	175.39	Vertical	Pass
15.0MHz Band 16 QAM	75/0	670.5	6.65	2.01	19.71	2.15	21.88	154.17	Vertical	Pass
		680.5	5.87	2.01	19.77	2.15	22.12	162.93	Vertical	Pass
		690.5	6.54	2.02	19.79	2.15	22.76	188.80	Vertical	Pass
20.0MHz Band 16 QAM	100/0	673	6.21	2.01	19.73	2.15	22.31	170.22	Vertical	Pass
		683	6.71	2.01	19.77	2.15	22.44	175.39	Vertical	Pass
		688	5.78	2.02	19.78	2.15	22.56	180.30	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

- ☐ LTE Band 2
- ☐ LTE Band 4
- ☐ LTE Band 5
- ☐ LTE Band 7
- ☐ LTE Band 12
- ☐ LTE Band 17
- ☐ LTE Band 41
- ☐ LTE Band 66
- ☐ LTE Band 71

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	-46.45	4.04	33.51	-16.98	-13	-3.98	Horizontal
3701.4	-49.28	4.04	33.51	-19.81	-13	-6.81	Vertical
5552.1	-52.78	5.24	35.84	-22.18	-13	-9.18	Vertical
5552.1	-53.83	5.24	35.84	-23.23	-13	-10.23	Horizontal
178.7	-35.53	1.43	16.02	-20.94	-13	-7.94	Vertical
276.9	-39.35	1.30	17.99	-22.66	-13	-9.66	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-53.40	4.04	33.56	-23.88	-13	-10.88	Horizontal
3760.0	-45.68	4.04	33.56	-16.16	-13	-3.16	Vertical
5640.0	-50.59	5.24	35.91	-19.92	-13	-6.92	Vertical
5640.0	-50.62	5.24	35.91	-19.95	-13	-6.95	Horizontal
205.6	-40.63	1.62	16.97	-25.28	-13	-12.28	Vertical
388.4	-42.79	1.74	15.98	-28.56	-13	-15.56	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-45.78	4.04	34.00	-15.82	-13	-2.82	Horizontal
3818.6	-46.43	4.04	34.00	-16.47	-13	-3.47	Vertical
5727.9	-53.30	5.24	36.04	-22.50	-13	-9.50	Vertical
5727.9	-52.64	5.24	36.04	-21.84	-13	-8.84	Horizontal
192.5	-43.88	1.42	17.29	-28.01	-13	-15.01	Vertical
265.4	-41.63	1.50	17.90	-25.22	-13	-12.22	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	-52.38	4.07	33.54	-22.91	-13	-9.91	Horizontal
3720.0	-53.11	4.07	33.54	-23.64	-13	-10.64	Vertical
5580.0	-53.68	5.28	35.86	-23.10	-13	-10.10	Vertical
5580.0	-52.03	5.28	35.86	-21.45	-13	-8.45	Horizontal
189.3	-35.52	1.58	16.89	-20.20	-13	-7.20	Vertical
447.4	-42.76	1.76	17.26	-27.26	-13	-14.26	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.35	4.04	33.56	-19.83	-13	-6.83	Horizontal
3760.0	-46.67	4.04	33.56	-17.15	-13	-4.15	Vertical
5640.0	-45.93	5.24	35.91	-15.26	-13	-2.26	Vertical
5640.0	-49.76	5.24	35.91	-19.09	-13	-6.09	Horizontal
187.2	-34.12	1.46	16.27	-19.31	-13	-6.31	Vertical
309.9	-36.37	1.59	15.15	-22.81	-13	-9.81	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-46.60	4.04	34.00	-16.64	-13	-3.64	Horizontal
3800.0	-48.61	4.04	34.00	-18.65	-13	-5.65	Vertical
5700.0	-51.42	5.24	36.04	-20.62	-13	-7.62	Vertical
5700.0	-52.39	5.24	36.04	-21.59	-13	-8.59	Horizontal
209.5	-38.95	1.36	17.39	-22.91	-13	-9.91	Vertical
383.2	-41.79	1.66	15.39	-28.06	-13	-15.06	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	-50.92	4.02	29.80	-25.14	-13	-12.14	Horizontal
3421.4	-46.57	4.02	29.80	-20.79	-13	-7.79	Vertical
5132.1	-53.24	5.24	35.84	-22.64	-13	-9.64	Vertical
5132.1	-49.33	5.24	35.84	-18.73	-13	-5.73	Horizontal
196.6	-34.28	1.68	16.04	-19.92	-13	-6.92	Vertical
312.8	-42.13	1.78	17.74	-26.17	-13	-13.17	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-53.23	4.03	30.00	-27.26	-13	-14.26	Horizontal
3465.0	-53.56	4.03	30.00	-27.59	-13	-14.59	Vertical
5197.5	-46.85	5.25	35.86	-16.24	-13	-3.24	Vertical
5197.5	-49.47	5.25	35.86	-18.86	-13	-5.86	Horizontal
198.0	-34.79	1.72	17.69	-18.82	-13	-5.82	Vertical
305.0	-38.62	1.62	16.02	-24.21	-13	-11.21	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-52.72	4.05	30.01	-26.76	-13	-13.76	Horizontal
3508.6	-46.32	4.05	30.01	-20.36	-13	-7.36	Vertical
5262.9	-52.68	5.26	35.86	-22.08	-13	-9.08	Vertical
5262.9	-51.08	5.26	35.86	-20.48	-13	-7.48	Horizontal
181.5	-37.17	1.80	16.69	-22.28	-13	-9.28	Vertical
290.6	-34.96	1.75	16.66	-20.06	-13	-7.06	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	-52.40	4.02	29.80	-26.62	-13	-13.62	Horizontal
3440.0	-52.71	4.02	29.80	-26.93	-13	-13.93	Vertical
5160.0	-47.19	5.24	35.84	-16.59	-13	-3.59	Vertical
5160.0	-50.86	5.24	35.84	-20.26	-13	-7.26	Horizontal
187.4	-44.29	1.57	17.26	-28.60	-13	-15.60	Vertical
237.4	-39.76	1.78	16.35	-25.19	-13	-12.19	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-49.27	4.03	30.00	-23.30	-13	-10.30	Horizontal
3465.0	-48.15	4.03	30.00	-22.18	-13	-9.18	Vertical
5197.5	-52.12	5.25	35.86	-21.51	-13	-8.51	Vertical
5197.5	-52.39	5.25	35.86	-21.78	-13	-8.78	Horizontal
179.4	-37.55	1.44	17.95	-21.04	-13	-8.04	Vertical
354.7	-34.33	1.65	16.09	-19.89	-13	-6.89	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-53.84	2.91	27.68	-29.07	-13	-16.07	Horizontal
3490.0	-52.86	2.91	27.68	-28.09	-13	-15.09	Vertical
5235.0	-48.05	5.26	35.86	-17.45	-13	-4.45	Vertical
5235.0	-50.83	5.26	35.86	-20.23	-13	-7.23	Horizontal
207.0	-37.51	1.61	16.85	-22.27	-13	-9.27	Vertical
260.7	-42.74	1.61	15.19	-29.16	-13	-16.16	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	-44.95	2.78	27.50	-20.23	-13	-7.23	Horizontal
1649.4	-44.42	2.78	27.50	-19.70	-13	-6.70	Vertical
2474.1	-47.85	2.90	27.80	-22.95	-13	-9.95	Vertical
2474.1	-50.34	2.90	27.80	-25.44	-13	-12.44	Horizontal
181.9	-41.66	1.76	17.59	-25.83	-13	-12.83	Vertical
435.5	-40.30	1.63	15.87	-26.06	-13	-13.06	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-50.01	2.80	27.48	-25.33	-13	-12.33	Horizontal
1673.0	-45.17	2.80	27.48	-20.49	-13	-7.49	Vertical
2509.5	-51.05	2.91	27.70	-26.26	-13	-13.26	Vertical
2509.5	-53.56	2.91	27.70	-28.77	-13	-15.77	Horizontal
175.9	-34.01	1.61	15.68	-19.94	-13	-6.94	Vertical
292.3	-35.09	1.59	17.52	-19.17	-13	-6.17	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.09	2.82	27.43	-23.48	-13	-10.48	Horizontal
1696.6	-49.77	2.82	27.43	-25.16	-13	-12.16	Vertical
2544.9	-47.88	2.92	27.74	-23.06	-13	-10.06	Vertical
2544.9	-50.09	2.92	27.74	-25.27	-13	-12.27	Horizontal
207.1	-42.75	1.69	16.67	-27.76	-13	-14.76	Vertical
450.2	-42.55	1.70	17.18	-27.07	-13	-14.07	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	-45.40	2.78	27.50	-20.68	-13	-7.68	Horizontal
1658.0	-47.88	2.78	27.50	-23.16	-13	-10.16	Vertical
2487.0	-50.95	2.90	27.80	-26.05	-13	-13.05	Vertical
2487.0	-53.62	2.90	27.80	-28.72	-13	-15.72	Horizontal
177.0	-35.15	1.71	15.57	-21.29	-13	-8.29	Vertical
442.3	-34.02	1.34	16.40	-18.96	-13	-5.96	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-47.65	2.80	27.48	-22.97	-13	-9.97	Horizontal
1673.0	-46.52	2.80	27.48	-21.84	-13	-8.84	Vertical
2509.5	-49.22	2.91	27.70	-24.43	-13	-11.43	Vertical
2509.5	-51.59	2.91	27.70	-26.80	-13	-13.80	Horizontal
194.0	-43.04	1.44	17.04	-27.44	-13	-14.44	Vertical
467.5	-42.57	1.76	17.62	-26.71	-13	-13.71	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.29	2.82	27.43	-19.68	-13	-6.68	Horizontal
1688.0	-46.58	2.82	27.43	-21.97	-13	-8.97	Vertical
2532.0	-46.63	2.92	27.74	-21.81	-13	-8.81	Vertical
2532.0	-50.91	2.92	27.74	-26.09	-13	-13.09	Horizontal
175.5	-37.06	1.74	17.70	-21.10	-13	-8.10	Vertical
322.5	-39.11	1.41	17.46	-23.05	-13	-10.05	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	-63.37	5.23	35.81	-32.79	-25	-7.79	Horizontal
5005.0	-59.55	5.23	35.81	-28.97	-25	-3.97	Vertical
7507.5	-59.36	5.67	36.85	-28.18	-25	-3.18	Vertical
7507.5	-63.90	5.67	36.85	-32.72	-25	-7.72	Horizontal
194.5	-51.27	1.73	17.97	-35.03	-25	-10.03	Vertical
445.8	-44.67	1.38	15.11	-30.94	-25	-5.94	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.48	5.23	35.82	-32.89	-25	-7.89	Horizontal
5070.0	-64.16	5.23	35.82	-33.57	-25	-8.57	Vertical
7605.0	-64.32	5.67	36.85	-33.14	-25	-8.14	Vertical
7605.0	-62.90	5.67	36.85	-31.72	-25	-6.72	Horizontal
212.9	-46.46	1.77	16.17	-32.05	-25	-7.05	Vertical
334.1	-48.58	1.63	15.21	-35.00	-25	-10.00	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-59.73	5.24	35.83	-29.14	-25	-4.14	Horizontal
5135.0	-59.47	5.24	35.83	-28.88	-25	-3.88	Vertical
7702.5	-63.48	5.68	36.87	-32.29	-25	-7.29	Vertical
7702.5	-64.66	5.68	36.87	-33.47	-25	-8.47	Horizontal
203.8	-51.25	1.58	17.56	-35.27	-25	-10.27	Vertical
248.7	-46.14	1.45	16.58	-31.01	-25	-6.01	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	-60.82	5.23	35.82	-30.23	-25	-5.23	Horizontal
5020.0	-59.87	5.23	35.82	-29.28	-25	-4.28	Vertical
7530.0	-59.78	5.67	36.86	-28.59	-25	-3.59	Vertical
7530.0	-61.24	5.67	36.86	-30.05	-25	-5.05	Horizontal
202.3	-51.72	1.63	15.76	-37.59	-25	-12.59	Vertical
257.0	-45.64	1.71	15.44	-31.91	-25	-6.91	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.43	5.23	35.82	-31.84	-25	-6.84	Horizontal
5070.0	-60.70	5.23	35.82	-30.11	-25	-5.11	Vertical
7605.0	-59.58	5.67	36.85	-28.40	-25	-3.40	Vertical
7605.0	-60.97	5.67	36.85	-29.79	-25	-4.79	Horizontal
175.6	-46.71	1.79	16.84	-31.65	-25	-6.65	Vertical
369.1	-49.28	1.71	17.64	-33.35	-25	-8.35	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.83	5.24	35.83	-30.24	-25	-5.24	Horizontal
5120.0	-61.14	5.24	35.83	-30.55	-25	-5.55	Vertical
7680.0	-59.04	5.70	36.88	-27.86	-25	-2.86	Vertical
7680.0	-60.30	5.70	36.88	-29.12	-25	-4.12	Horizontal
190.8	-48.79	1.79	16.84	-33.73	-25	-8.73	Vertical
279.1	-49.16	1.71	17.64	-33.23	-25	-8.23	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	-49.85	2.60	27.20	-25.25	-13	-12.25	Horizontal
1399.4	-44.27	2.60	27.20	-19.67	-13	-6.67	Vertical
2099.1	-53.18	2.85	27.54	-28.49	-13	-15.49	Vertical
2099.1	-52.79	2.85	27.54	-28.10	-13	-15.10	Horizontal
212.4	-44.97	1.49	17.78	-28.68	-13	-15.68	Vertical
299.8	-44.10	1.36	17.33	-28.13	-13	-15.13	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-44.53	2.61	27.28	-19.86	-13	-6.86	Horizontal
1415.0	-53.46	2.61	27.28	-28.79	-13	-15.79	Vertical
2122.5	-47.58	2.87	27.59	-22.86	-13	-9.86	Vertical
2122.5	-53.74	2.87	27.59	-29.02	-13	-16.02	Horizontal
181.0	-34.68	1.73	15.74	-20.67	-13	-7.67	Vertical
259.0	-39.29	1.62	15.79	-25.12	-13	-12.12	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-50.62	2.63	27.28	-25.97	-13	-12.97	Horizontal
1430.6	-45.53	2.63	27.28	-20.88	-13	-7.88	Vertical
2145.9	-50.52	2.88	27.60	-25.80	-13	-12.80	Vertical
2145.9	-53.28	2.88	27.60	-28.56	-13	-15.56	Horizontal
209.6	-39.24	1.61	18.00	-22.85	-13	-9.85	Vertical
318.5	-43.26	1.45	15.49	-29.23	-13	-16.23	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	-44.41	2.61	27.26	-19.76	-13	-6.76	Horizontal
1408.0	-44.50	2.61	27.26	-19.85	-13	-6.85	Vertical
2112.0	-53.11	2.87	27.58	-28.40	-13	-15.40	Vertical
2112.0	-52.03	2.87	27.58	-27.32	-13	-14.32	Horizontal
212.6	-39.73	1.31	16.97	-24.07	-13	-11.07	Vertical
254.0	-37.31	1.65	16.70	-22.26	-13	-9.26	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-47.71	2.61	27.28	-23.04	-13	-10.04	Horizontal
1415.0	-46.28	2.61	27.28	-21.61	-13	-8.61	Vertical
2122.5	-50.09	2.87	27.59	-25.37	-13	-12.37	Vertical
2122.5	-53.67	2.87	27.59	-28.95	-13	-15.95	Horizontal
194.1	-35.13	1.72	17.99	-18.86	-13	-5.86	Vertical
445.0	-42.42	1.73	17.94	-26.21	-13	-13.21	Horizontal
Test Results for High Channel 711MHz							
1422.0	-53.79	2.62	27.28	-29.13	-13	-16.13	Horizontal
1422.0	-45.13	2.62	27.28	-20.47	-13	-7.47	Vertical
2133.0	-45.08	2.87	27.60	-20.35	-13	-7.35	Vertical
2133.0	-52.95	2.87	27.60	-28.22	-13	-15.22	Horizontal
206.3	-34.21	1.58	15.93	-19.86	-13	-6.86	Vertical
440.8	-43.61	1.36	15.59	-29.38	-13	-16.38	Horizontal

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

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

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

9.6 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-47.76	2.61	27.28	-23.09	-13	-10.09	Horizontal
1413.0	-49.44	2.61	27.28	-24.77	-13	-11.77	Vertical
2119.5	-45.25	2.87	27.59	-20.53	-13	-7.53	Vertical
2119.5	-51.03	2.87	27.59	-26.31	-13	-13.31	Horizontal
183.0	-43.86	1.71	16.15	-29.42	-13	-16.42	Vertical
381.9	-42.33	1.41	17.32	-26.42	-13	-13.42	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-51.54	2.62	27.30	-26.86	-13	-13.86	Horizontal
1420.0	-53.10	2.62	27.30	-28.42	-13	-15.42	Vertical
2130.0	-51.36	2.87	27.62	-26.61	-13	-13.61	Vertical
2130.0	-51.73	2.87	27.62	-26.98	-13	-13.98	Horizontal
200.2	-44.96	1.42	15.25	-31.14	-13	-18.14	Vertical
411.4	-37.33	1.36	17.19	-21.50	-13	-8.50	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-49.12	2.66	27.28	-24.50	-13	-11.50	Horizontal
1427.0	-44.44	2.66	27.28	-19.82	-13	-6.82	Vertical
2140.5	-44.49	2.88	27.60	-19.77	-13	-6.77	Vertical
2140.5	-52.83	2.88	27.60	-28.11	-13	-15.11	Horizontal
210.7	-36.77	1.32	17.29	-20.80	-13	-7.80	Vertical
236.7	-40.11	1.72	16.89	-24.94	-13	-11.94	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	-51.57	2.62	27.30	-26.89	-13	-13.89	Horizontal
1418.0	-53.28	2.62	27.30	-28.60	-13	-15.60	Vertical
2127.0	-49.53	2.87	27.62	-24.78	-13	-11.78	Vertical
2127.0	-52.52	2.87	27.62	-27.77	-13	-14.77	Horizontal
194.3	-40.73	1.35	16.91	-25.17	-13	-12.17	Vertical
237.5	-41.84	1.62	16.31	-27.15	-13	-14.15	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-53.16	2.62	27.30	-28.48	-13	-15.48	Horizontal
1420.0	-46.41	2.62	27.30	-21.73	-13	-8.73	Vertical
2130.0	-53.75	2.87	27.62	-29.00	-13	-16.00	Vertical
2130.0	-50.79	2.87	27.62	-26.04	-13	-13.04	Horizontal
212.7	-42.06	1.51	17.14	-26.43	-13	-13.43	Vertical
386.6	-42.82	1.77	16.88	-27.71	-13	-14.71	Horizontal
Test Results for High Channel 711MHz							
1422.0	-49.24	2.62	27.30	-24.56	-13	-11.56	Horizontal
1422.0	-48.82	2.62	27.30	-24.14	-13	-11.14	Vertical
2133.0	-44.59	2.87	27.62	-19.84	-13	-6.84	Vertical
2133.0	-53.51	2.87	27.62	-28.76	-13	-15.76	Horizontal
212.1	-39.63	1.78	15.95	-25.46	-13	-12.46	Vertical
349.6	-42.24	1.34	17.95	-25.64	-13	-12.64	Horizontal

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

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

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

9.7 LTE BAND 41

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

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4997.0	-64.95	5.23	35.81	-34.37	-25	-9.37	Horizontal
4997.0	-63.75	5.23	35.81	-33.17	-25	-8.17	Vertical
7495.5	-61.05	5.67	36.85	-29.87	-25	-4.87	Vertical
7495.5	-61.71	5.67	36.85	-30.53	-25	-5.53	Horizontal
435.3	-45.99	1.38	15.98	-31.39	-25	-6.39	Vertical
465.8	-47.93	1.62	15.66	-33.89	-25	-8.89	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-62.80	5.23	35.82	-32.21	-25	-7.21	Horizontal
5186.0	-62.81	5.23	35.82	-32.22	-25	-7.22	Vertical
7779.0	-62.19	5.67	36.85	-31.01	-25	-6.01	Vertical
7779.0	-64.74	5.67	36.85	-33.56	-25	-8.56	Horizontal
510.4	-44.92	1.62	16.17	-30.37	-25	-5.37	Vertical
562.9	-45.57	1.74	17.63	-29.68	-25	-4.68	Horizontal
Test Results for High Channel 2687.5MHz							
5375.0	-61.25	5.24	35.83	-30.66	-25	-5.66	Horizontal
5375.0	-62.51	5.24	35.83	-31.92	-25	-6.92	Vertical
8062.5	-60.67	5.68	36.87	-29.48	-25	-4.48	Vertical
8062.5	-59.05	5.68	36.87	-27.86	-25	-2.86	Horizontal
197.6	-45.97	1.55	15.84	-31.68	-25	-6.68	Vertical
353.1	-47.92	1.51	17.06	-32.37	-25	-7.37	Horizontal

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

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5012.0	-64.29	5.23	35.82	-33.70	-25	-8.70	Horizontal
5012.0	-63.92	5.23	35.82	-33.33	-25	-8.33	Vertical
7518.0	-59.47	5.67	36.86	-28.28	-25	-3.28	Vertical
7518.0	-59.91	5.67	36.86	-28.72	-25	-3.72	Horizontal
128.9	-46.99	1.43	15.51	-32.91	-25	-7.91	Vertical
344.8	-45.83	1.40	16.97	-30.26	-25	-5.26	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-63.65	5.23	35.82	-33.06	-25	-8.06	Horizontal
5186.0	-59.52	5.23	35.82	-28.93	-25	-3.93	Vertical
7779.0	-59.65	5.67	36.85	-28.47	-25	-3.47	Vertical
7779.0	-61.23	5.67	36.85	-30.05	-25	-5.05	Horizontal
100.8	-44.78	1.77	16.72	-29.83	-25	-4.83	Vertical
263.5	-44.01	1.31	16.99	-28.33	-25	-3.33	Horizontal
Test Results for High Channel 2680MHz							
5360.0	-61.64	5.24	35.83	-31.05	-25	-6.05	Horizontal
5360.0	-59.17	5.24	35.83	-28.58	-25	-3.58	Vertical
8040.0	-64.82	5.70	36.88	-33.64	-25	-8.64	Vertical
8040.0	-63.52	5.70	36.88	-32.34	-25	-7.34	Horizontal
349.9	-44.47	1.70	15.73	-30.44	-25	-5.44	Vertical
110.3	-44.77	1.75	17.33	-29.19	-25	-4.19	Horizontal

9.8 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-44.91	4.02	29.80	-19.13	-13	-6.13	Horizontal
3421.4	-51.22	4.02	29.80	-25.44	-13	-12.44	Vertical
5132.1	-51.91	5.24	35.84	-21.31	-13	-8.31	Vertical
5132.1	-51.02	5.24	35.84	-20.42	-13	-7.42	Horizontal
112.6	-46.13	1.52	15.57	-32.08	-13	-19.08	Vertical
220.5	-49.14	1.33	17.14	-33.33	-13	-20.33	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-52.75	4.03	30.00	-26.78	-13	-13.78	Horizontal
3490.0	-45.25	4.03	30.00	-19.28	-13	-6.28	Vertical
5235.0	-49.31	5.25	35.86	-18.70	-13	-5.70	Vertical
5235.0	-49.87	5.25	35.86	-19.26	-13	-6.26	Horizontal
157.3	-50.75	1.53	17.13	-35.15	-13	-22.15	Vertical
213.1	-52.14	1.41	15.95	-37.60	-13	-24.60	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-49.32	4.05	30.01	-23.36	-13	-10.36	Horizontal
3558.6	-51.28	4.05	30.01	-25.32	-13	-12.32	Vertical
5337.9	-52.06	5.26	35.86	-21.46	-13	-8.46	Vertical
5337.9	-49.26	5.26	35.86	-18.66	-13	-5.66	Horizontal
170.6	-46.72	1.44	15.51	-32.65	-13	-19.65	Vertical
169.0	-47.60	1.78	15.76	-33.62	-13	-20.62	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	-51.02	4.02	29.80	-25.24	-13	-12.24	Horizontal
3440.0	-53.92	4.02	29.80	-28.14	-13	-15.14	Vertical
5160.0	-50.82	5.24	35.84	-20.22	-13	-7.22	Vertical
5160.0	-52.34	5.24	35.84	-21.74	-13	-8.74	Horizontal
268.8	-51.41	1.62	17.02	-36.01	-13	-23.01	Vertical
161.4	-52.19	1.32	17.31	-36.20	-13	-23.20	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-54.58	4.03	30.00	-28.61	-13	-15.61	Horizontal
3490.0	-51.64	4.03	30.00	-25.67	-13	-12.67	Vertical
5235.0	-49.04	5.25	35.86	-18.43	-13	-5.43	Vertical
5235.0	-48.44	5.25	35.86	-17.83	-13	-4.83	Horizontal
159.9	-54.72	1.45	15.17	-41.00	-13	-28.00	Vertical
172.1	-51.12	1.48	17.82	-34.78	-13	-21.78	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-54.18	2.91	27.68	-29.41	-13	-16.41	Horizontal
3540.0	-50.77	2.91	27.68	-26.00	-13	-13.00	Vertical
5310.0	-53.34	5.26	35.86	-22.74	-13	-9.74	Vertical
5310.0	-47.53	5.26	35.86	-16.93	-13	-3.93	Horizontal
197.3	-50.33	1.76	16.38	-35.71	-13	-22.71	Vertical
158.5	-44.56	1.43	17.13	-28.86	-13	-15.86	Horizontal

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

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

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

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

9.9 LTE BAND 71

QPSK EIRP POWER FOR LTE BAND 71 (5MHZ BANDWIDTH)

Test Results for Low Channel 665.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1331	-46.71	2.61	27.28	-22.04	-13	-9.04	Horizontal
1331	-50.95	2.61	27.28	-26.28	-13	-13.28	Vertical
1996.5	-44.79	2.87	27.59	-20.07	-13	-7.07	Vertical
1996.5	-52.45	2.87	27.59	-27.73	-13	-14.73	Horizontal
Test Results For Mid Channel 680.5MHz							
1361	-50.19	2.62	27.30	-25.51	-13	-12.51	Horizontal
1361	-45.62	2.62	27.30	-20.94	-13	-7.94	Vertical
2041.5	-50.67	2.87	27.62	-25.92	-13	-12.92	Vertical
2041.5	-53.26	2.87	27.62	-28.51	-13	-15.51	Horizontal
Test Results for High Channel 695.5MHz							
1391	-46.04	2.66	27.28	-21.42	-13	-8.42	Horizontal
1391	-54.81	2.66	27.28	-30.19	-13	-17.19	Vertical
2086.5	-44.72	2.88	27.60	-20.00	-13	-7.00	Vertical
2086.5	-45.84	2.88	27.60	-21.12	-13	-8.12	Horizontal

QPSK EIRP POWER FOR LTE BAND 71 (20MHZ BANDWIDTH)

Test Results for Low Channel 673MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1346	-46.34	2.62	27.30	-21.66	-13	-8.66	Horizontal
1346	-45.31	2.62	27.30	-20.63	-13	-7.63	Vertical
2019	-50.24	2.87	27.62	-25.49	-13	-12.49	Vertical
2019	-46.57	2.87	27.62	-21.82	-13	-8.82	Horizontal
Test Results for Mid Channel 683MHz							
1366	-46.69	2.62	27.30	-22.01	-13	-9.01	Horizontal
1366	-49.41	2.62	27.30	-24.73	-13	-11.73	Vertical
2049	-46.10	2.87	27.62	-21.35	-13	-8.35	Vertical
2049	-51.33	2.87	27.62	-26.58	-13	-13.58	Horizontal
Test Results for High Channel 688MHz							
1376	-53.04	2.62	27.30	-28.36	-13	-15.36	Horizontal
1376	-51.47	2.62	27.30	-26.79	-13	-13.79	Vertical
2064	-53.66	2.87	27.62	-28.91	-13	-15.91	Vertical
2064	-52.12	2.87	27.62	-27.37	-13	-14.37	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.4V, Normal, DC 3.8V 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 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

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	13.1	0.006951	2.5
3.8	1880	14.0	0.007434	2.5
4.2	1880	13.7	0.007284	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	13.0	0.006940	2.5
Extreme (50C)	1880	11.5	0.006096	2.5
Extreme (40C)	1880	13.8	0.007349	2.5
Extreme (30C)	1880	13.4	0.007135	2.5
Extreme (10C)	1880	14.3	0.007610	2.5
Extreme (0C)	1880	11.9	0.006308	2.5
Extreme (-10C)	1880	13.5	0.007158	2.5
Extreme (-20C)	1880	14.3	0.007605	2.5
Extreme (-30C)	1880	14.6	0.007765	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	9.8	0.005201	2.5
3.8	1880	8.6	0.004583	2.5
4.2	1880	8.5	0.004498	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	9.2	0.004874	2.5
Extreme (50C)	1880	9.1	0.004822	2.5
Extreme (40C)	1880	7.9	0.004223	2.5
Extreme (30C)	1880	8.7	0.004651	2.5
Extreme (10C)	1880	9.1	0.004821	2.5
Extreme (0C)	1880	7.9	0.004193	2.5
Extreme (-10C)	1880	8.8	0.004656	2.5
Extreme (-20C)	1880	9.4	0.004985	2.5
Extreme (-30C)	1880	8.3	0.004397	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	8.8	0.005085	2.5
3.8	1732.5	8.8	0.005051	2.5
4.2	1732.5	8.1	0.004698	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	8.0	0.004634	2.5
Extreme (50C)	1732.5	9.4	0.005413	2.5
Extreme (40C)	1732.5	7.4	0.004247	2.5
Extreme (30C)	1732.5	5.6	0.003234	2.5
Extreme (10C)	1732.5	6.6	0.003822	2.5
Extreme (0C)	1732.5	9.3	0.005377	2.5
Extreme (-10C)	1732.5	8.0	0.004607	2.5
Extreme (-20C)	1732.5	6.6	0.003790	2.5
Extreme (-30C)	1732.5	8.2	0.004724	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	10.2	0.005864	2.5
3.8	1732.5	8.5	0.004907	2.5
4.2	1732.5	7.8	0.004493	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	10.1	0.005825	2.5
Extreme (50C)	1732.5	9.2	0.005322	2.5
Extreme (40C)	1732.5	8.0	0.004614	2.5
Extreme (30C)	1732.5	8.7	0.005018	2.5
Extreme (10C)	1732.5	9.3	0.005379	2.5
Extreme (0C)	1732.5	7.8	0.004510	2.5
Extreme (-10C)	1732.5	9.0	0.005194	2.5
Extreme (-20C)	1732.5	8.6	0.004970	2.5
Extreme (-30C)	1732.5	8.0	0.004629	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	6.2	0.007360	2.5
3.8	836.5	6.2	0.007428	2.5
4.2	836.5	5.3	0.006281	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	6.3	0.007528	2.5
Extreme (50C)	836.5	5.4	0.006479	2.5
Extreme (40C)	836.5	5.8	0.006912	2.5
Extreme (30C)	836.5	6.6	0.007941	2.5
Extreme (10C)	836.5	5.4	0.006416	2.5
Extreme (0C)	836.5	5.4	0.006484	2.5
Extreme (-10C)	836.5	5.3	0.006364	2.5
Extreme (-20C)	836.5	6.3	0.007535	2.5
Extreme (-30C)	836.5	6.1	0.007322	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	5.4	0.006468	2.5
3.8	836.5	6.5	0.007825	2.5
4.2	836.5	5.2	0.006162	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	6.0	0.007183	2.5
Extreme (50C)	836.5	6.0	0.007157	2.5
Extreme (40C)	836.5	6.4	0.007634	2.5
Extreme (30C)	836.5	6.0	0.007148	2.5
Extreme (10C)	836.5	5.6	0.006747	2.5
Extreme (0C)	836.5	5.0	0.005958	2.5
Extreme (-10C)	836.5	6.0	0.007134	2.5
Extreme (-20C)	836.5	5.9	0.007113	2.5
Extreme (-30C)	836.5	6.7	0.008035	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	9.6	0.003800	2.5
3.8	2535	8.5	0.003363	2.5
4.2	2535	8.6	0.003388	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	9.8	0.003858	2.5
Extreme (50C)	2535	9.0	0.003542	2.5
Extreme (40C)	2535	8.2	0.003246	2.5
Extreme (30C)	2535	9.3	0.003677	2.5
Extreme (10C)	2535	8.1	0.003215	2.5
Extreme (0C)	2535	8.1	0.003191	2.5
Extreme (-10C)	2535	9.3	0.003667	2.5
Extreme (-20C)	2535	8.9	0.003503	2.5
Extreme (-30C)	2535	8.5	0.003349	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	6.9	0.002722	2.5
3.8	2535	6.1	0.002415	2.5
4.2	2535	6.0	0.002377	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	6.9	0.002722	2.5
Extreme (50C)	2535	5.7	0.002239	2.5
Extreme (40C)	2535	5.9	0.002323	2.5
Extreme (30C)	2535	7.2	0.002836	2.5
Extreme (10C)	2535	5.7	0.002250	2.5
Extreme (0C)	2535	5.0	0.001966	2.5
Extreme (-10C)	2535	5.7	0.002230	2.5
Extreme (-20C)	2535	6.2	0.002452	2.5
Extreme (-30C)	2535	5.9	0.002315	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	9.2	0.012938	2.5
3.8	707.5	10.1	0.014299	2.5
4.2	707.5	8.5	0.012008	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	8.5	0.012025	2.5
Extreme (50C)	707.5	7.8	0.010983	2.5
Extreme (40C)	707.5	6.9	0.009785	2.5
Extreme (30C)	707.5	8.4	0.011898	2.5
Extreme (10C)	707.5	7.4	0.010491	2.5
Extreme (0C)	707.5	8.9	0.012524	2.5
Extreme (-10C)	707.5	8.6	0.012148	2.5
Extreme (-20C)	707.5	8.7	0.012357	2.5
Extreme (-30C)	707.5	8.1	0.011443	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	7.2	0.010176	2.5
3.8	707.5	8.5	0.012029	2.5
4.2	707.5	7.7	0.010946	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	6.5	0.009175	2.5
Extreme (50C)	707.5	5.5	0.007765	2.5
Extreme (40C)	707.5	6.4	0.009110	2.5
Extreme (30C)	707.5	-7.7	-0.010912	2.5
Extreme (10C)	707.5	-8.2	-0.011590	2.5
Extreme (0C)	707.5	2.9	0.004100	2.5
Extreme (-10C)	707.5	-5.2	-0.007292	2.5
Extreme (-20C)	707.5	-8.7	-0.012302	2.5
Extreme (-30C)	707.5	-10.2	-0.014350	2.5

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

10.6 LTE BAND 17

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	9.3	0.013148	2.5
3.8	710.0	8.6	0.012133	2.5
4.2	710.0	8.0	0.011331	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	9.6	0.013492	2.5
Extreme (50C)	710.0	8.5	0.012019	2.5
Extreme (40C)	710.0	8.3	0.011757	2.5
Extreme (30C)	710.0	8.7	0.012232	2.5
Extreme (10C)	710.0	8.8	0.012456	2.5
Extreme (0C)	710.0	8.2	0.011521	2.5
Extreme (-10C)	710.0	8.7	0.012322	2.5
Extreme (-20C)	710.0	9.2	0.012928	2.5
Extreme (-30C)	710.0	7.8	0.011042	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	9.8	0.013841	2.5
3.8	710.0	8.9	0.012603	2.5
4.2	710.0	8.5	0.011978	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	9.6	0.013529	2.5
Extreme (50C)	710.0	8.4	0.011893	2.5
Extreme (40C)	710.0	8.7	0.012303	2.5
Extreme (30C)	710.0	8.4	0.011861	2.5
Extreme (10C)	710.0	8.3	0.011675	2.5
Extreme (0C)	710.0	8.1	0.011426	2.5
Extreme (-10C)	710.0	9.8	0.013826	2.5
Extreme (-20C)	710.0	8.4	0.011857	2.5
Extreme (-30C)	710.0	8.1	0.011353	2.5

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

10.7 LTE BAND 41

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2595	6.3	0.002428	2.5
3.8	2595	6.6	0.002559	2.5
4.2	2595	7.1	0.002726	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	5.4	0.002064	2.5
Extreme (50C)	2595	7.3	0.002812	2.5
Extreme (40C)	2595	6.9	0.002672	2.5
Extreme (30C)	2595	7.2	0.002778	2.5
Extreme (10C)	2595	7.6	0.002934	2.5
Extreme (0C)	2595	6.2	0.002392	2.5
Extreme (-10C)	2595	6.0	0.002303	2.5
Extreme (-20C)	2595	6.4	0.002460	2.5
Extreme (-30C)	2595	5.4	0.002077	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2595	9.0	0.003456	2.5
3.8	2595	7.9	0.003027	2.5
4.2	2595	10.0	0.003840	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2595	8.5	0.003268	2.5
Extreme (50C)	2595	7.7	0.002949	2.5
Extreme (40C)	2595	8.8	0.003373	2.5
Extreme (30C)	2595	8.0	0.003078	2.5
Extreme (10C)	2595	8.9	0.003418	2.5
Extreme (0C)	2595	6.4	0.002455	2.5
Extreme (-10C)	2595	8.0	0.003091	2.5
Extreme (-20C)	2595	8.7	0.003336	2.5
Extreme (-30C)	2595	5.5	0.002131	2.5

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

10.8 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	7.0	0.003915	2.5
3.8	1745	6.7	0.003812	2.5
4.2	1745	7.7	0.004172	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	5.7	0.002985	2.5
Extreme (50C)	1745	7.5	0.004317	2.5
Extreme (40C)	1745	6.4	0.003454	2.5
Extreme (30C)	1745	7.1	0.003974	2.5
Extreme (10C)	1745	8.4	0.004509	2.5
Extreme (0C)	1745	6.7	0.003463	2.5
Extreme (-10C)	1745	6.6	0.003313	2.5
Extreme (-20C)	1745	7.7	0.003852	2.5
Extreme (-30C)	1745	6.6	0.003423	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	8.6	0.00462	2.5
3.8	1745	8.1	0.004436	2.5
4.2	1745	9.9	0.005194	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	8.9	0.005061	2.5
Extreme (50C)	1745	8.3	0.004447	2.5
Extreme (40C)	1745	8.5	0.004757	2.5
Extreme (30C)	1745	8.5	0.004539	2.5
Extreme (10C)	1745	9.0	0.004636	2.5
Extreme (0C)	1745	7.7	0.003824	2.5
Extreme (-10C)	1745	9.1	0.004745	2.5
Extreme (-20C)	1745	9.3	0.004918	2.5
Extreme (-30C)	1745	5.4	0.003037	2.5

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

10.9 LTE BAND 71

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 QPSK, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	683	12.9	0.018830	2.5
3.8	683	13.9	0.020330	2.5
4.2	683	13.3	0.019470	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 QPSK, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	683	2.5	0.003589	2.5
Extreme (50C)	683	3.7	0.005378	2.5
Extreme (40C)	683	5.0	0.007346	2.5
Extreme (30C)	683	4.7	0.006838	2.5
Extreme (10C)	683	6.7	0.009788	2.5
Extreme (0C)	683	4.7	0.006882	2.5
Extreme (-10C)	683	9.2	0.013476	2.5
Extreme (-20C)	683	11.2	0.016404	2.5
Extreme (-30C)	683	6.3	0.009177	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 16QAM, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	683	12.9	0.018916	2.5
3.8	683	14.3	0.020917	2.5
4.2	683	13.1	0.019247	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 16QAM, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	683	8.0	0.011658	2.5
Extreme (50C)	683	5.2	0.007647	2.5
Extreme (40C)	683	5.7	0.008417	2.5
Extreme (30C)	683	5.1	0.007430	2.5
Extreme (10C)	683	6.4	0.009356	2.5
Extreme (0C)	683	5.2	0.007605	2.5
Extreme (-10C)	683	9.2	0.013504	2.5
Extreme (-20C)	683	10.9	0.015999	2.5
Extreme (-30C)	683	6.5	0.009574	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.

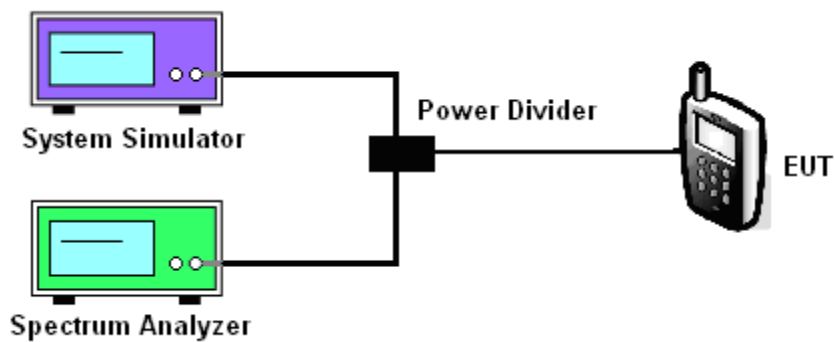
11.2 Measuring Instruments

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 Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

Test data reference attachment.

----END OF REPORT----