#

FCC CFR47 PART 22H, 24E, 27
CERTIFICATION TEST REPORT
FCC ID: 2ANMU-C17PRO

Product:	Smart Phone
Trade Mark:	OUKITEL
Model Number:	C17 Pro
Family Model:	N/A
Report No.:	S19070302207005

Prepared for

SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN, 518XXX China

Prepared by

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
Tel.: +86-755-6115 6588 Fax.: +86-755-6115 6599
Website:http://www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name ..... :	SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address..... :	A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN, 518XXX China
Manufacturer's Name..... :	SHENZHEN YUNJI INTELLIGENT TECHNOLOGY CO.,LTD
Address..... :	A2 2F BUILDING ENET NEW INDUSTRIAL PARK, DAFU INDUSTRIAL ZONE, GUANLAN, LONGHUA SHENZHEN, 518XXX China
Product name..... :	Smart Phone
Model and/or type reference .. :	C17 Pro
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.

This report shall not be reproduced except in full, without the written approval of NTEK, this document may be altered or revised by NTEK, personal only, and shall be noted in the revision of the document.

Date of Test .....

Date (s) of performance of tests..... 08 Jul. 2019 ~ 27 Jul, 2019

Date of Issue..... 01 Aug, 2019

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

Testing Engineer : Allen Liu

(Allen Liu)

Technical Manager : Jason chen

(Jason Chen)

Authorized Signatory : Sam . Chen

(Sam Chen)

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart Phone
Trade Mark	OUKITEL
Model Name	C17 Pro
Family Model	N/A
Model Difference	N/A
FCC ID:	2ANMU-C17PRO
Frequency Bands:	U.S. Bands: ☒LTE FDD Band 2,4,5,7,12,17
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;
Type of Modulation:	QPSK/16QAM
SIM Card	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	FPC Antenna
Antenna gain:	0.65dBi
Power Supply:	DC 3.8V/3900mAh from Battery or DC 5V from USB Port.
Adapter:	Model: HJ-0502000W2-US Input: 100-240V~50/60Hz 0.3A Output: 5V/⎓2000mA
Extreme Vol. Limits:	DC 3.4V to DC 4.4V (Nominal DC 3.8V)（Note 1）
HW Version	E959-main-pcb
SW Version	OUKITEL_C17 Pro_V1.0
** Note1: The High Voltage DC 4.4V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2ANMU-C17PRO** 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 = 2Uc(y))	2.5dB

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

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

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

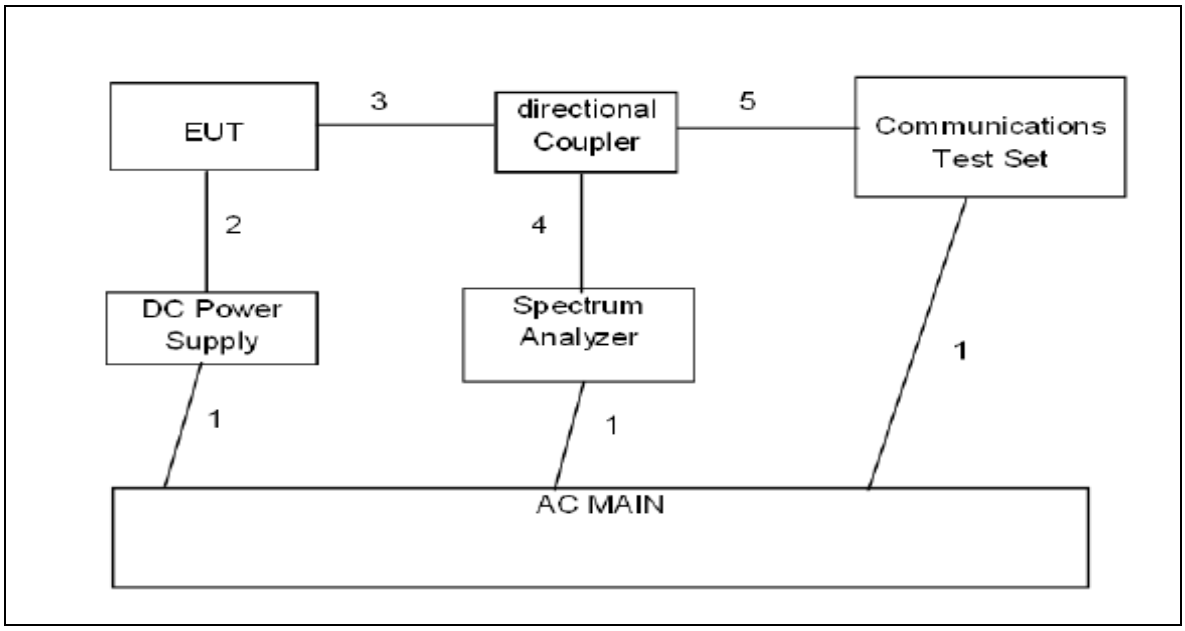
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smart Phone	C17 Pro	FCC ID: 2ANMU-C17PRO	EUT

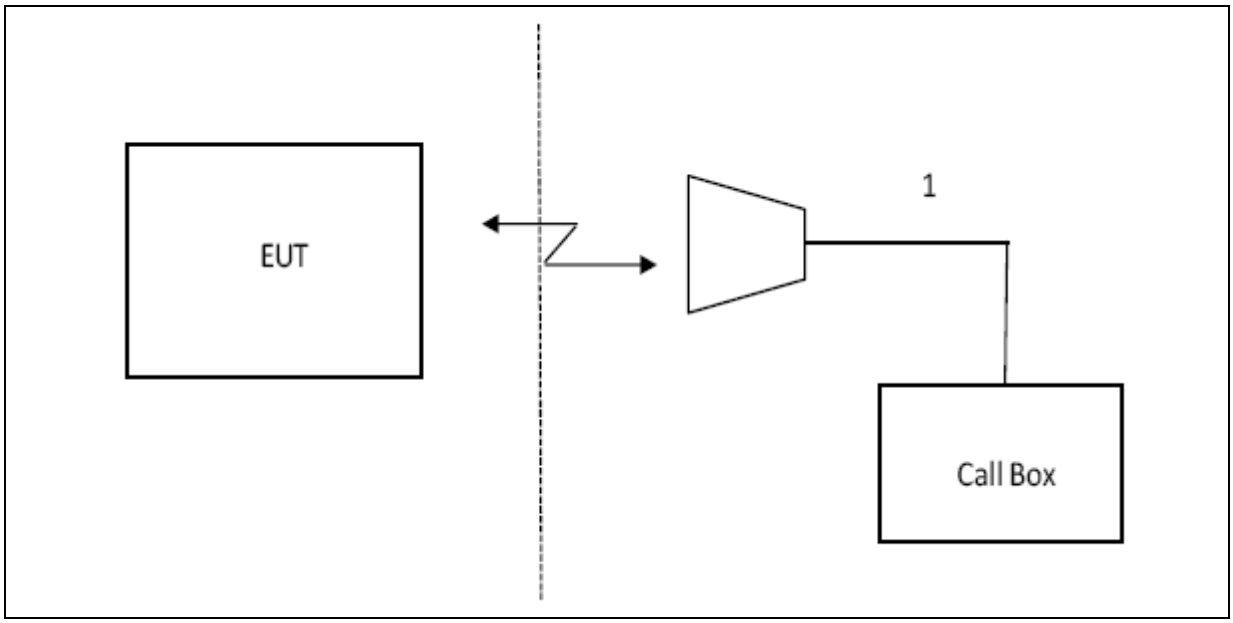
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

CONDUCTED SETUP DIAGRAM FOR TESTS



RADIATED SETUP DIAGRAM FOR TESTS



3.TEST AND MEASUREMENT EQUIPMENT

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

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	NEXT CAL. DATE
SPECTRUM ANALYZER	AGILENT	N9020A	MY49100060	2019.10.07
TEST RECEIVER	R&S	ESCI	101318	2020.05.12
COMMUNICATION TESTER	R&S	CMU200	117858	2020.05.12
COMMUNICATION TESTER	R&S	CMW500	148500	2020.05.12
TEST RECEIVER	R&S	FCKL1528	A0304230	2020.05.12
LISN	SCHWARZBECK	NSLK8127	A0304233	2020.05.12
CLIMATE CHAMBER	ALBATROSS	--	--	2020.05.12
Loop Antenna	Daze	ZN30900N	SEL0097	2020.05.12
Bilogical Antenna	A.H. Systems Inc.	SAS-521-4	N/A	2020.05.12
Horn Antenna	EM	EM-AH-10180	2011071402	2020.05.12
DC Power Source	N/A	PS-6005D	20170402923	2020.05.12

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

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53, and §90.691
FCC: §22.359

LIMITS

FCC: §22.359, §24.238,
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

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

TEST PROCEDURE

The transmitter output was connected to a CMW500Test 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 (704, 716, 824, 849, 1710 and 1755, 1850 and 1910MHz)
Set a marker to point the corresponding band edge frequency in each test case.
Set display line at -13 dBm
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

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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.

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 display line at -13 dBm

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
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17

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 and §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.

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
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 12
LTE Band 17

RESULTS

Pass

Below 1G:

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
97.69	-61.32	1.81	19.20	-43.93	-13.00	-30.93	Horizontal
216.36	-63.72	1.82	19.31	-46.23	-13.00	-33.23	Vertical
115.62	-62.36	1.82	19.22	-44.96	-13.00	-31.96	Vertical
225.31	-64.28	1.81	19.24	-46.85	-13.00	-33.85	Horizontal
Test Results for Mid Channel 1880MHz							
42.15	-62.56	1.81	18.11	-46.26	-13.00	-33.26	Horizontal
96.32	-63.75	1.91	19.20	-46.46	-13.00	-33.46	Vertical
415.06	-64.26	1.91	19.34	-46.83	-13.00	-33.83	Vertical
533.07	-65.06	1.91	19.21	-47.76	-13.00	-34.76	Horizontal
Test Results for High Channel 1909.3MHz							
95.32	-62.35	1.91	19.20	-45.06	-13.00	-32.06	Horizontal
212.43	-64.16	1.92	19.33	-46.75	-13.00	-33.75	Vertical
365.24	-62.03	1.91	19.22	-44.72	-13.00	-31.72	Vertical
562.56	-61.26	1.91	19.21	-43.96	-13.00	-30.96	Horizontal

Note:

1. Pre-test tests all modes, only the worst mode data is recorded in the report
2. All other emissions more than 20dB below the limit

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
1.4MHz Band QPSK	6/0	1850.7	-3.24	3.76	28.24	21.24	133.047	Horizontal	Pass
		1880	-2.54	3.91	28.22	21.77	150.291	Horizontal	Pass
		1909.3	-3.08	3.93	28.20	21.19	131.669	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	-3.21	3.77	28.23	21.25	133.282	Horizontal	Pass
		1880	-2.61	3.91	28.24	21.72	148.634	Horizontal	Pass
		1908.5	-3.02	3.94	28.25	21.29	134.659	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	-3.15	3.77	28.31	21.39	137.563	Horizontal	Pass
		1880	-2.84	3.91	28.22	21.47	140.230	Horizontal	Pass
		1907.5	-3.36	3.94	28.20	20.90	123.149	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	-3.52	3.79	28.33	21.02	126.338	Horizontal	Pass
		1880	-2.30	3.95	28.22	21.97	157.536	Horizontal	Pass
		1905	-2.50	3.97	28.19	21.72	148.725	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	-3.03	3.79	28.34	21.52	142.034	Horizontal	Pass
		1880	-2.18	3.95	28.22	22.09	161.643	Horizontal	Pass
		1902.5	-2.41	3.97	28.18	21.80	151.316	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	-2.93	3.81	28.35	21.61	144.861	Horizontal	Pass
		1880	-3.02	3.96	28.22	21.24	133.026	Horizontal	Pass
		1900	-2.12	4.00	28.16	22.04	159.807	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	-3.04	3.76	28.24	21.44	139.238	Vertical	Pass
		1880	-2.61	3.91	28.22	21.70	147.819	Vertical	Pass
		1909.3	-2.60	3.93	28.20	21.67	146.896	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	-2.50	3.77	28.23	21.96	157.160	Vertical	Pass
		1880	-3.18	3.91	28.24	21.15	130.313	Vertical	Pass
		1908.5	-2.47	3.94	28.25	21.84	152.818	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	-2.62	3.77	28.31	21.92	155.665	Vertical	Pass
		1880	-2.92	3.91	28.22	21.39	137.856	Vertical	Pass
		1907.5	-3.21	3.94	28.20	21.05	127.395	Vertical	Pass
10.0MHz Band	50/0	1855	-2.98	3.79	28.33	21.56	143.189	Vertical	Pass
		1880	-3.34	3.95	28.22	20.93	123.914	Vertical	Pass

QPSK		1905	-2.90	3.97	28.19	21.32	135.482	Vertical	Pass
15.0MHz Band QPSK	75/0	1857.5	-3.37	3.79	28.34	21.18	131.317	Vertical	Pass
		1880	-3.14	3.95	28.22	21.13	129.665	Vertical	Pass
		1902.5	-2.69	3.97	28.18	21.52	141.851	Vertical	Pass
20.0MHz Band QPSK	100/0	1860	-2.21	3.81	28.35	22.33	171.002	Vertical	Pass
		1880	-2.09	3.96	28.22	22.17	164.816	Vertical	Pass
		1900	-2.11	4.00	28.16	22.05	160.325	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

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 Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1850.7	-3.89	3.76	28.24	20.59	114.503	Horizontal	Pass
		1880	-3.98	3.91	28.22	20.33	108.002	Horizontal	Pass
		1909.3	-3.44	3.93	28.20	20.83	120.957	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	-3.80	3.77	28.23	20.66	116.441	Horizontal	Pass
		1880	-3.78	3.91	28.24	20.55	113.414	Horizontal	Pass
		1908.5	-4.17	3.94	28.25	20.14	103.307	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	-4.11	3.77	28.31	20.43	110.424	Horizontal	Pass
		1880	-3.47	3.91	28.22	20.84	121.298	Horizontal	Pass
		1907.5	-3.94	3.94	28.20	20.32	107.606	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	-3.88	3.79	28.33	20.66	116.348	Horizontal	Pass
		1880	-4.09	3.95	28.22	20.18	104.179	Horizontal	Pass
		1905	-3.31	3.97	28.19	20.91	123.354	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	-4.44	3.79	28.34	20.11	102.627	Horizontal	Pass
		1880	-4.18	3.95	28.22	20.09	102.204	Horizontal	Pass
		1902.5	-4.14	3.97	28.18	20.07	101.657	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	-4.36	3.81	28.35	20.18	104.200	Horizontal	Pass
		1880	-3.55	3.96	28.22	20.71	117.630	Horizontal	Pass
		1900	-3.50	4.00	28.16	20.66	116.476	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	-3.42	3.76	28.24	21.06	127.614	Vertical	Pass
		1880	-4.12	3.91	28.22	20.19	104.513	Vertical	Pass
		1909.3	-3.50	3.93	28.20	20.77	119.463	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	-3.55	3.77	28.23	20.91	123.197	Vertical	Pass
		1880	-3.77	3.91	28.24	20.56	113.867	Vertical	Pass
		1908.5	-3.91	3.94	28.25	20.40	109.598	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	-4.10	3.77	28.31	20.44	110.562	Vertical	Pass
		1880	-4.18	3.91	28.22	20.13	102.950	Vertical	Pass
		1907.5	-3.49	3.94	28.20	20.77	119.526	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	-4.35	3.79	28.33	20.19	104.353	Vertical	Pass
		1880	-4.24	3.95	28.22	20.03	100.715	Vertical	Pass
		1905	-4.39	3.97	28.19	19.83	96.102	Vertical	Pass
15.0MHz Band	75/0	1857.5	-4.43	3.79	28.34	20.12	102.723	Vertical	Pass
		1880	-3.60	3.95	28.22	20.67	116.583	Vertical	Pass

16 QAM		1902.5	-3.59	3.97	28.18	20.62	115.445	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1860	-2.58	3.81	28.35	21.96	157.036	Vertical	Pass
		1880	-3.10	3.96	28.22	21.16	130.617	Vertical	Pass
		1900	-2.43	4.00	28.16	21.73	148.936	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

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 Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	-3.17	3.12	27.58	21.29	134.673	Horizontal	Pass
		1732.5	-3.50	3.27	27.61	20.84	121.270	Horizontal	Pass
		1754.3	-2.58	3.29	27.63	21.76	149.972	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	-2.84	3.13	27.61	21.64	145.835	Horizontal	Pass
		1732.5	-3.24	3.27	27.61	21.10	128.704	Horizontal	Pass
		1753.5	-3.18	3.30	27.62	21.14	129.909	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	-3.03	3.13	27.63	21.47	140.441	Horizontal	Pass
		1732.5	-2.52	3.27	27.61	21.82	152.166	Horizontal	Pass
		1752.5	-2.33	3.30	27.60	21.97	157.571	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	-2.43	3.15	27.64	22.06	160.822	Horizontal	Pass
		1732.5	-2.42	3.31	27.61	21.88	154.205	Horizontal	Pass
		1750	-2.94	3.33	27.59	21.32	135.598	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	-3.41	3.15	27.65	21.09	128.632	Horizontal	Pass
		1732.5	-2.66	3.31	27.61	21.64	145.892	Horizontal	Pass
		1747.5	-3.01	3.33	27.57	21.23	132.854	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	-3.28	3.17	27.66	21.21	132.248	Horizontal	Pass
		1732.5	-2.41	3.32	27.61	21.88	153.993	Horizontal	Pass
		1745	-2.70	3.36	27.56	21.50	141.292	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	-2.83	3.12	27.58	21.63	145.579	Vertical	Pass
		1732.5	-2.78	3.27	27.61	21.56	143.191	Vertical	Pass
		1754.3	-3.28	3.29	27.63	21.06	127.785	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	-3.01	3.13	27.61	21.47	140.402	Vertical	Pass
		1732.5	-3.08	3.27	27.61	21.26	133.668	Vertical	Pass
		1753.5	-2.61	3.30	27.62	21.71	148.235	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	-2.18	3.13	27.63	22.32	170.644	Vertical	Pass
		1732.5	-3.04	3.27	27.61	21.30	134.897	Vertical	Pass
		1752.5	-2.17	3.30	27.60	22.13	163.278	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	-2.80	3.15	27.64	21.69	147.544	Vertical	Pass
		1732.5	-2.37	3.31	27.61	21.93	155.873	Vertical	Pass
		1750	-2.66	3.33	27.59	21.60	144.470	Vertical	Pass

15.0MHz Band QPSK	75/0	1717.5	-3.33	3.15	27.65	21.17	130.909	Vertical	Pass
		1732.5	-2.74	3.31	27.61	21.56	143.245	Vertical	Pass
		1747.5	-2.20	3.33	27.57	22.04	159.845	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	-2.35	3.17	27.66	22.14	163.682	Vertical	Pass
		1732.5	-2.21	3.32	27.61	22.08	161.436	Vertical	Pass
		1745	-2.06	3.36	27.56	22.14	163.682	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1710.7	-3.57	3.12	27.58	20.89	122.761	Horizontal	Pass
		1732.5	-3.40	3.27	27.61	20.94	124.035	Horizontal	Pass
		1754.3	-3.57	3.29	27.63	20.77	119.422	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-5.00	3.13	27.61	19.48	88.795	Horizontal	Pass
		1732.5	-4.28	3.27	27.61	20.06	101.403	Horizontal	Pass
		1753.5	-4.08	3.30	27.62	20.24	105.593	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	-5.11	3.13	27.63	19.39	86.867	Horizontal	Pass
		1732.5	-4.32	3.27	27.61	20.02	100.477	Horizontal	Pass
		1752.5	-3.50	3.30	27.60	20.80	120.289	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	-3.60	3.15	27.64	20.89	122.710	Horizontal	Pass
		1732.5	-4.16	3.31	27.61	20.14	103.220	Horizontal	Pass
		1750	-4.15	3.33	27.59	20.11	102.489	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	-3.93	3.15	27.65	20.57	114.135	Horizontal	Pass
		1732.5	-3.43	3.31	27.61	20.87	122.269	Horizontal	Pass
		1747.5	-3.37	3.33	27.57	20.87	122.110	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	-4.25	3.17	27.66	20.24	105.703	Horizontal	Pass
		1732.5	-4.34	3.32	27.61	19.95	98.759	Horizontal	Pass
		1745	-3.84	3.36	27.56	20.36	108.639	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	-4.12	3.12	27.58	20.34	108.216	Vertical	Pass
		1732.5	-3.85	3.27	27.61	20.49	111.965	Vertical	Pass
		1754.3	-3.28	3.29	27.63	21.06	127.780	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	-4.34	3.13	27.61	20.14	103.196	Vertical	Pass
		1732.5	-4.47	3.27	27.61	19.87	96.999	Vertical	Pass
		1753.5	-4.04	3.30	27.62	20.28	106.660	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	-4.37	3.13	27.63	20.13	103.151	Vertical	Pass
		1732.5	-4.29	3.27	27.61	20.05	101.092	Vertical	Pass
		1752.5	-4.97	3.30	27.60	19.33	85.785	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	-3.95	3.15	27.64	20.54	113.345	Vertical	Pass
		1732.5	-3.79	3.31	27.61	20.51	112.414	Vertical	Pass
		1750	-3.49	3.33	27.59	20.77	119.488	Vertical	Pass
15.0MHz Band	75/0	1717.5	-4.01	3.15	27.65	20.49	112.053	Vertical	Pass
		1732.5	-4.06	3.31	27.61	20.24	105.625	Vertical	Pass

16 QAM		1747.5	-3.59	3.33	27.57	20.65	116.230	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1720	-3.46	3.17	27.66	21.03	126.765	Vertical	Pass
		1732.5	-3.16	3.32	27.61	21.13	129.718	Vertical	Pass
		1745	-3.14	3.36	27.56	21.06	127.644	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/ RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	824.7	4.63	2.01	19.68	2.15	20.15	103.514	Horizontal	Pass
		836.5	4.65	2.01	19.77	2.15	20.26	106.170	Horizontal	Pass
		848.3	4.51	2.02	19.82	2.15	20.16	103.753	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	4.68	2.01	19.7	2.15	20.22	105.196	Horizontal	Pass
		836.5	4.62	2.01	19.77	2.15	20.23	105.439	Horizontal	Pass
		847.5	4.55	2.02	19.81	2.15	20.19	104.472	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	4.56	2.01	19.71	2.15	20.11	102.565	Horizontal	Pass
		836.5	4.60	2.01	19.77	2.15	20.21	104.954	Horizontal	Pass
		846.5	4.54	2.02	19.79	2.15	20.16	103.753	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	4.50	2.01	19.73	2.15	20.07	101.625	Horizontal	Pass
		836.5	4.52	2.01	19.77	2.15	20.13	103.039	Horizontal	Pass
		844	4.42	2.02	19.78	2.15	20.03	100.693	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	4.70	2.01	19.68	2.15	20.22	105.196	Vertical	Pass
		836.5	4.60	2.01	19.77	2.15	20.21	104.954	Vertical	Pass
		848.3	4.47	2.02	19.82	2.15	20.12	102.802	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	4.71	2.01	19.7	2.15	20.25	105.925	Vertical	Pass
		836.5	4.63	2.01	19.77	2.15	20.24	105.682	Vertical	Pass
		847.5	4.72	2.02	19.81	2.15	20.36	108.643	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	4.46	2.01	19.71	2.15	20.01	100.231	Vertical	Pass
		836.5	4.50	2.01	19.77	2.15	20.11	102.565	Vertical	Pass
		846.5	4.51	2.02	19.79	2.15	20.13	103.039	Vertical	Pass
10.0MHz Band QPSK	50/0	829	5.19	2.01	19.73	2.15	20.76	119.124	Vertical	Pass
		836.5	5.42	2.01	19.77	2.15	21.03	126.765	Vertical	Pass
		844	4.90	2.02	19.78	2.15	20.51	112.460	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Radiated Power (ERP) for Band 5										
Mode	RB/ RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	824.7	4.49	2.01	19.68	2.15	20.01	100.231	Horizontal	Pass
		836.5	4.54	2.01	19.77	2.15	20.15	103.514	Horizontal	Pass
		848.3	4.48	2.02	19.82	2.15	20.13	103.039	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	4.72	2.01	19.7	2.15	20.26	106.170	Horizontal	Pass
		836.5	4.63	2.01	19.77	2.15	20.24	105.682	Horizontal	Pass
		847.5	4.47	2.02	19.81	2.15	20.11	102.565	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	4.51	2.01	19.71	2.15	20.06	101.391	Horizontal	Pass
		836.5	4.74	2.01	19.77	2.15	20.35	108.393	Horizontal	Pass
		846.5	4.49	2.02	19.79	2.15	20.11	102.565	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	4.85	2.01	19.73	2.15	20.42	110.154	Horizontal	Pass
		836.5	4.52	2.01	19.77	2.15	20.13	103.039	Horizontal	Pass
		844	4.60	2.02	19.78	2.15	20.21	104.954	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	4.70	2.01	19.68	2.15	20.22	105.196	Vertical	Pass
		836.5	4.55	2.01	19.77	2.15	20.16	103.753	Vertical	Pass
		848.3	4.59	2.02	19.82	2.15	20.24	105.682	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	4.77	2.01	19.7	2.15	20.31	107.399	Vertical	Pass
		836.5	4.65	2.01	19.77	2.15	20.26	106.170	Vertical	Pass
		847.5	4.52	2.02	19.81	2.15	20.16	103.753	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	4.67	2.01	19.71	2.15	20.22	105.196	Vertical	Pass
		836.5	4.52	2.01	19.77	2.15	20.13	103.039	Vertical	Pass
		846.5	4.64	2.02	19.79	2.15	20.26	106.170	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	4.99	2.01	19.73	2.15	20.56	113.763	Vertical	Pass
		836.5	4.55	2.01	19.77	2.15	20.16	103.753	Vertical	Pass
		844	5.14	2.02	19.78	2.15	20.75	118.850	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/ RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2502.5	-2.44	4.54	27.75	20.77	119.47	Vertical	Pass
		2535	-2.22	4.69	27.72	20.81	120.46	Vertical	Pass
		2567.5	-2.07	4.71	27.71	20.93	123.91	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2502.5	-3.83	4.54	27.75	19.38	86.74	Vertical	Pass
		2535	-3.07	4.69	27.72	19.96	99.05	Vertical	Pass
		2567.5	-3.36	4.71	27.71	19.64	92.13	Vertical	Pass
10.0MHz Band QPSK	50/0	2505	-2.07	4.55	27.76	21.14	130.15	Vertical	Pass
		2535	-2.18	4.69	27.72	20.85	121.57	Vertical	Pass
		2565	-2.87	4.72	27.70	20.11	102.63	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2505	-3.75	4.55	27.76	19.46	88.32	Vertical	Pass
		2535	-3.21	4.69	27.72	19.82	95.97	Vertical	Pass
		2565	-3.03	4.72	27.70	19.95	98.91	Vertical	Pass
15.0MHz Band QPSK	75/0	2507.5	-3.08	4.55	27.77	20.14	103.32	Vertical	Pass
		2535	-2.47	4.69	27.72	20.56	113.79	Vertical	Pass
		2562.5	-2.75	4.72	27.69	20.22	105.09	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2507.5	-3.23	4.55	27.77	19.99	99.80	Vertical	Pass
		2535	-4.02	4.69	27.72	19.01	79.64	Vertical	Pass
		2562.5	-3.41	4.72	27.69	19.56	90.35	Vertical	Pass
20.0MHz Band QPSK	100/ 0	2510	-2.87	4.57	27.78	20.34	108.14	Vertical	Pass
		2535	-2.62	4.73	27.72	20.37	108.98	Vertical	Pass
		2560	-2.63	4.75	27.68	20.30	107.05	Vertical	Pass
20.0MHz Band 16 QAM	100/ 0	2510	-2.33	4.57	27.78	20.88	122.46	Vertical	Pass
		2535	-1.83	4.73	27.72	21.16	130.62	Vertical	Pass
		2560	-2.25	4.75	27.68	20.68	116.95	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

Radiated Power (EIRP) for Band 7									
Mode	RB/ RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2502.5	-2.66	4.54	27.75	20.55	113.616	Horizontal	Pass
		2535	-2.11	4.69	27.72	20.92	123.631	Horizontal	Pass
		2567.5	-2.10	4.71	27.71	20.90	123.070	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2502.5	-3.81	4.54	27.75	19.40	87.071	Horizontal	Pass
		2535	-3.03	4.69	27.72	20.00	99.905	Horizontal	Pass
		2567.5	-2.68	4.71	27.71	20.32	107.721	Horizontal	Pass
10.0MHz Band QPSK	50/0	2505	-2.48	4.55	27.76	20.73	118.182	Horizontal	Pass
		2535	-2.34	4.69	27.72	20.69	117.194	Horizontal	Pass
		2565	-1.60	4.72	27.70	21.38	137.440	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2505	-2.74	4.55	27.76	20.47	111.496	Horizontal	Pass
		2535	-2.44	4.69	27.72	20.59	114.587	Horizontal	Pass
		2565	-3.35	4.72	27.70	19.63	91.873	Horizontal	Pass
15.0MHz Band QPSK	75/0	2507.5	-2.50	4.55	27.77	20.72	117.962	Horizontal	Pass
		2535	-1.75	4.69	27.72	21.28	134.378	Horizontal	Pass
		2562.5	-2.46	4.72	27.69	20.51	112.433	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2507.5	-3.45	4.55	27.77	19.77	94.906	Horizontal	Pass
		2535	-3.19	4.69	27.72	19.84	96.412	Horizontal	Pass
		2562.5	-3.23	4.72	27.69	19.74	94.213	Horizontal	Pass
20.0MHz Band QPSK	100/ 0	2510	-2.74	4.57	27.78	20.47	111.508	Horizontal	Pass
		2535	-1.97	4.73	27.72	21.02	126.565	Horizontal	Pass
		2560	-2.05	4.75	27.68	20.88	122.464	Horizontal	Pass
20.0MHz Band 16 QAM	100/ 0	2510	-1.99	4.57	27.78	21.22	132.434	Horizontal	Pass
		2535	-1.87	4.73	27.72	21.12	129.420	Horizontal	Pass
		2560	-1.07	4.75	27.68	21.86	153.462	Horizontal	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/ RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	699.7	5.23	1.91	19.21	2.15	20.38	109.144	Vertical	Pass
		707.5	5.16	1.91	19.26	2.15	20.36	108.643	Vertical	Pass
		715.3	5.06	1.93	19.34	2.15	20.32	107.647	Vertical	Pass
3.0MHz Band QPSK	15/0	700.5	5.00	1.91	19.21	2.15	20.15	103.514	Vertical	Pass
		707.5	5.03	1.91	19.26	2.15	20.23	105.439	Vertical	Pass
		714.5	4.92	1.93	19.34	2.15	20.18	104.232	Vertical	Pass
5.0MHz Band QPSK	25/0	701.5	5.05	1.91	19.23	2.15	20.22	105.196	Vertical	Pass
		707.5	5.06	1.91	19.26	2.15	20.26	106.170	Vertical	Pass
		713.5	4.92	1.92	19.33	2.15	20.18	104.232	Vertical	Pass
10.0MHz Band QPSK	50/0	704	5.10	1.91	19.25	2.15	20.29	106.782	Vertical	Pass
		707.5	5.16	1.91	19.26	2.15	20.36	108.643	Vertical	Pass
		711	5.47	1.92	19.32	2.15	20.72	118.032	Vertical	Pass
1.4MHz Band QPSK	6/0	699.7	5.08	1.91	19.21	2.15	20.23	105.439	Horizontal	Pass
		707.5	5.22	1.91	19.26	2.15	20.42	110.154	Horizontal	Pass
		715.3	5.11	1.93	19.34	2.15	20.37	108.893	Horizontal	Pass
3.0MHz Band QPSK	15/0	700.5	5.11	1.91	19.21	2.15	20.26	106.170	Horizontal	Pass
		707.5	4.98	1.91	19.26	2.15	20.18	104.232	Horizontal	Pass
		714.5	5.06	1.93	19.34	2.15	20.32	107.647	Horizontal	Pass
5.0MHz Band QPSK	25/0	701.5	5.38	1.91	19.23	2.15	20.55	113.501	Horizontal	Pass
		707.5	5.02	1.91	19.26	2.15	20.22	105.196	Horizontal	Pass
		713.5	5.20	1.92	19.33	2.15	20.46	111.173	Horizontal	Pass
10.0MHz Band QPSK	50/0	704	5.97	1.91	19.25	2.15	21.16	130.617	Horizontal	Pass
		707.5	5.53	1.91	19.26	2.15	20.73	118.304	Horizontal	Pass
		711	5.43	1.92	19.32	2.15	20.68	116.950	Horizontal	Pass

Radiated Power (EIRP) for Band 12										
Mode	RB/ RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	699.7	5.01	1.91	19.21	2.15	20.16	103.753	Vertical	Pass
		707.5	4.78	1.91	19.26	2.15	19.98	99.541	Vertical	Pass
		715.3	4.85	1.93	19.34	2.15	20.11	102.565	Vertical	Pass
3.0MHz Band 16 QAM	15/0	700.5	5.18	1.91	19.21	2.15	20.33	107.895	Vertical	Pass
		707.5	5.14	1.91	19.26	2.15	20.34	108.143	Vertical	Pass
		714.5	5.01	1.93	19.34	2.15	20.27	106.414	Vertical	Pass
5.0MHz Band 16 QAM	25/0	701.5	5.25	1.91	19.23	2.15	20.42	110.154	Vertical	Pass
		707.5	5.24	1.91	19.26	2.15	20.44	110.662	Vertical	Pass
		713.5	5.10	1.92	19.33	2.15	20.36	108.643	Vertical	Pass
10.0MHz Band 16 QAM	50/0	704	5.32	1.91	19.25	2.15	20.51	112.460	Vertical	Pass
		707.5	5.26	1.91	19.26	2.15	20.46	111.173	Vertical	Pass
		711	5.30	1.92	19.32	2.15	20.55	113.501	Vertical	Pass
1.4MHz Band 16 QAM	6/0	699.7	5.01	1.91	19.21	2.15	20.16	103.753	Horizontal	Pass
		707.5	4.98	1.91	19.26	2.15	20.18	104.232	Horizontal	Pass
		715.3	4.96	1.93	19.34	2.15	20.22	105.196	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	700.5	5.21	1.91	19.21	2.15	20.36	108.643	Horizontal	Pass
		707.5	4.96	1.91	19.26	2.15	20.16	103.753	Horizontal	Pass
		714.5	5.16	1.93	19.34	2.15	20.42	110.154	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	701.5	5.21	1.91	19.23	2.15	20.38	109.144	Horizontal	Pass
		707.5	5.33	1.91	19.26	2.15	20.53	112.980	Horizontal	Pass
		713.5	5.18	1.92	19.33	2.15	20.44	110.662	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	704	5.59	1.91	19.25	2.15	20.78	119.674	Horizontal	Pass
		707.5	5.46	1.91	19.26	2.15	20.66	116.413	Horizontal	Pass
		711	5.30	1.92	19.32	2.15	20.55	113.501	Horizontal	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/ RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	706.5	5.19	1.91	19.23	2.15	20.36	108.643	Vertical	Pass
		710	5.12	1.91	19.26	2.15	20.32	107.647	Vertical	Pass
		713.5	5.20	1.92	19.33	2.15	20.46	111.173	Vertical	Pass
10.0MHz Band QPSK	50/0	709	5.39	1.91	19.25	2.15	20.58	114.288	Vertical	Pass
		710	5.45	1.91	19.26	2.15	20.65	116.145	Vertical	Pass
		711	5.17	1.92	19.32	2.15	20.42	110.154	Vertical	Pass
5.0MHz Band QPSK	25/0	706.5	5.41	1.91	19.23	2.15	20.58	114.288	Horizontal	Pass
		710	5.25	1.91	19.26	2.15	20.45	110.917	Horizontal	Pass
		713.5	5.30	1.92	19.33	2.15	20.56	113.763	Horizontal	Pass
10.0MHz Band QPSK	50/0	709	5.69	1.91	19.25	2.15	20.88	122.462	Horizontal	Pass
		710	5.36	1.91	19.26	2.15	20.56	113.763	Horizontal	Pass
		711	5.41	1.92	19.32	2.15	20.66	116.413	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. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	706.5	5.18	1.91	19.23	2.15	20.35	108.393	Vertical	Pass
		710	5.17	1.91	19.26	2.15	20.37	108.893	Vertical	Pass
		713.5	5.07	1.92	19.33	2.15	20.33	107.895	Vertical	Pass
10.0MHz Band 16 QAM	50/0	709	5.09	1.91	19.25	2.15	20.28	106.660	Vertical	Pass
		710	4.94	1.91	19.26	2.15	20.14	103.276	Vertical	Pass
		711	4.98	1.92	19.32	2.15	20.23	105.439	Vertical	Pass
5.0MHz Band 16 QAM	25/0	706.5	5.09	1.91	19.23	2.15	20.26	106.170	Horizontal	Pass
		710	5.14	1.91	19.26	2.15	20.34	108.143	Horizontal	Pass
		713.5	5.12	1.92	19.33	2.15	20.38	109.144	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	709	5.57	1.91	19.25	2.15	20.76	119.124	Horizontal	Pass
		710	5.33	1.91	19.26	2.15	20.53	112.980	Horizontal	Pass
		711	5.31	1.92	19.32	2.15	20.56	113.763	Horizontal	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238 and §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 log10(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 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (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

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	-57.55	4.04	33.51	-28.08	-13	-15.08	Horizontal
3701.4	-56.36	4.04	33.51	-26.89	-13	-13.89	Vertical
5552.1	-57.48	5.24	35.84	-26.88	-13	-13.88	Vertical
5552.1	-58.36	5.24	35.84	-27.76	-13	-14.76	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-58.16	4.04	33.56	-28.64	-13	-15.64	Horizontal
3760	-55.38	4.04	33.56	-25.86	-13	-12.86	Vertical
5640	-56.52	5.24	35.91	-25.85	-13	-12.85	Vertical
5640	-57.66	5.24	35.91	-26.99	-13	-13.99	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-59.18	4.04	34.00	-29.22	-13	-16.22	Horizontal
3818.6	-57.46	4.04	34.00	-27.50	-13	-14.50	Vertical
5727.9	-57.75	5.24	36.04	-26.95	-13	-13.95	Vertical
5727.9	-56.52	5.24	36.04	-25.72	-13	-12.72	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	-56.75	4.07	33.54	-27.28	-13	-14.28	Horizontal
3720	-56.36	4.07	33.54	-26.89	-13	-13.89	Vertical
5580	-56.47	5.28	35.86	-25.89	-13	-12.89	Vertical
5580	-57.45	5.28	35.86	-26.87	-13	-13.87	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-57.62	4.04	33.56	-28.10	-13	-15.10	Horizontal
3760	-57.27	4.04	33.56	-27.75	-13	-14.75	Vertical
5640	-56.38	5.24	35.91	-25.71	-13	-12.71	Vertical
5640	-56.22	5.24	35.91	-25.55	-13	-12.55	Horizontal
Test Results for High Channel 1900MHz							
3800	-56.56	4.04	34.00	-26.60	-13	-13.60	Horizontal
3800	-56.58	4.04	34.00	-26.62	-13	-13.62	Vertical
5700	-56.25	5.24	36.04	-25.45	-13	-12.45	Vertical
5700	-57.50	5.24	36.04	-26.70	-13	-13.70	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
3421.4	-53.64	4.02	29.80	-27.86	-13	-14.86	Horizontal
3421.4	-55.21	4.02	29.80	-29.43	-13	-16.43	Vertical
5132.1	-56.14	5.24	35.84	-25.54	-13	-12.54	Vertical
5132.1	-57.52	5.24	35.84	-26.92	-13	-13.92	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-54.62	4.03	30.00	-28.65	-13	-15.65	Horizontal
3465	-54.14	4.03	30.00	-28.17	-13	-15.17	Vertical
5197.5	-57.55	5.25	35.86	-26.94	-13	-13.94	Vertical
5197.5	-57.66	5.25	35.86	-27.05	-13	-14.05	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-55.47	4.05	30.01	-29.51	-13	-16.51	Horizontal
3508.6	-56.38	4.05	30.01	-30.42	-13	-17.42	Vertical
5262.9	-56.65	5.26	35.86	-26.05	-13	-13.05	Vertical
5262.9	-57.89	5.26	35.86	-27.29	-13	-14.29	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	-57.45	4.02	29.80	-31.67	-13	-18.67	Horizontal
3440	-55.21	4.02	29.80	-29.43	-13	-16.43	Vertical
5160	-56.38	5.24	35.84	-25.78	-13	-12.78	Vertical
5160	-57.65	5.24	35.84	-27.05	-13	-14.05	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-54.37	4.03	30.00	-28.40	-13	-15.40	Horizontal
3465	-55.56	4.03	30.00	-29.59	-13	-16.59	Vertical
5197.5	-57.76	5.25	35.86	-27.15	-13	-14.15	Vertical
5197.5	-57.88	5.25	35.86	-27.27	-13	-14.27	Horizontal
Test Results for High Channel 1745MHz							
3490	-54.36	2.91	27.68	-29.59	-13	-16.59	Horizontal
3490	-55.38	2.91	27.68	-30.61	-13	-17.61	Vertical
5235	-58.37	5.26	35.86	-27.77	-13	-14.77	Vertical
5235	-57.18	5.26	35.86	-26.58	-13	-13.58	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

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	-52.18	2.78	27.50	-27.46	-13	-14.46	Horizontal
1649.4	-53.53	2.78	27.50	-28.81	-13	-15.81	Vertical
2474.1	-55.18	2.90	27.80	-30.28	-13	-17.28	Vertical
2474.1	-54.00	2.90	27.80	-29.10	-13	-16.10	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-56.62	2.80	27.48	-31.94	-13	-18.94	Horizontal
1673	-53.11	2.80	27.48	-28.43	-13	-15.43	Vertical
2509.5	-57.48	2.91	27.70	-32.69	-13	-19.69	Vertical
2509.5	-55.16	2.91	27.70	-30.37	-13	-17.37	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-54.09	2.82	27.43	-29.48	-13	-16.48	Horizontal
1696.6	-53.77	2.82	27.43	-29.16	-13	-16.16	Vertical
2544.9	-54.29	2.92	27.74	-29.47	-13	-16.47	Vertical
2544.9	-53.65	2.92	27.74	-28.83	-13	-15.83	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1658	-56.98	2.78	27.50	-32.26	-13	-19.26	Horizontal
1658	-55.08	2.78	27.50	-30.36	-13	-17.36	Vertical
2487	-57.68	2.90	27.80	-32.78	-13	-19.78	Vertical
2487	-52.76	2.90	27.80	-27.86	-13	-14.86	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-56.09	2.80	27.48	-31.41	-13	-18.41	Horizontal
1673	-53.06	2.80	27.48	-28.38	-13	-15.38	Vertical
2509.5	-58.94	2.91	27.70	-34.15	-13	-21.15	Vertical
2509.5	-57.33	2.91	27.70	-32.54	-13	-19.54	Horizontal
Test Results for High Channel 844MHz							
1688	-56.20	2.82	27.43	-31.59	-13	-18.59	Horizontal
1688	-55.15	2.82	27.43	-30.54	-13	-17.54	Vertical
2532	-57.66	2.92	27.74	-32.84	-13	-19.84	Vertical
2532	-55.00	2.92	27.74	-30.18	-13	-17.18	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

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	-84.35	5.23	35.81	-53.77	-25.00	-28.77	Horizontal
5005	-85.84	5.23	35.81	-55.26	-25.00	-30.26	Vertical
7507.5	-82.67	5.67	36.85	-51.49	-25.00	-26.49	Vertical
7507.5	-84.20	5.67	36.85	-53.02	-25.00	-28.02	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-81.67	5.23	35.82	-51.08	-25.00	-26.08	Horizontal
5070	-83.42	5.23	35.82	-52.83	-25.00	-27.83	Vertical
7605	-82.66	5.67	36.85	-51.48	-25.00	-26.48	Vertical
7605	-83.68	5.67	36.85	-52.50	-25.00	-27.50	Horizontal
Test Results for High Channel 2567.5MHz							
5135	-85.77	5.24	35.83	-55.18	-25.00	-30.18	Horizontal
5135	-86.72	5.24	35.83	-56.13	-25.00	-31.13	Vertical
7702.5	-85.39	5.68	36.87	-54.20	-25.00	-29.20	Vertical
7702.5	-85.84	5.68	36.87	-54.65	-25.00	-29.65	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	-80.64	5.23	35.82	-50.05	-25.00	-25.05	Horizontal
5020	-82.41	5.23	35.82	-51.82	-25.00	-26.82	Vertical
7530	-82.67	5.67	36.86	-51.48	-25.00	-26.48	Vertical
7530	-84.51	5.67	36.86	-53.32	-25.00	-28.32	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-83.67	5.23	35.82	-53.08	-25.00	-28.08	Horizontal
5070	-82.62	5.23	35.82	-52.03	-25.00	-27.03	Vertical
7605	-84.80	5.67	36.85	-53.62	-25.00	-28.62	Vertical
7605	-82.15	5.67	36.85	-50.97	-25.00	-25.97	Horizontal
Test Results for High Channel 2560MHz							
5120	-83.66	5.24	35.83	-53.07	-25.00	-28.07	Horizontal
5120	-81.67	5.24	35.83	-51.08	-25.00	-26.08	Vertical
7680	-83.17	5.70	36.88	-51.99	-25.00	-26.99	Vertical
7680	-80.38	5.70	36.88	-49.20	-25.00	-24.20	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

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	-51.68	2.60	27.20	-27.08	-13	-14.08	Horizontal
1399.4	-53.18	2.60	27.20	-28.58	-13	-15.58	Vertical
2099.1	-52.37	2.85	27.54	-27.68	-13	-14.68	Vertical
2099.1	-53.46	2.85	27.54	-28.77	-13	-15.77	Horizontal
Test Results For Mid Channel 707.5MHz							
1415	-53.54	2.61	27.28	-28.87	-13	-15.87	Horizontal
1415	-52.27	2.61	27.28	-27.60	-13	-14.60	Vertical
2122.5	-53.49	2.87	27.59	-28.77	-13	-15.77	Vertical
2122.5	-53.77	2.87	27.59	-29.05	-13	-16.05	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-54.88	2.63	27.28	-30.23	-13	-17.23	Horizontal
1430.6	-56.26	2.63	27.28	-31.61	-13	-18.61	Vertical
2145.9	-54.16	2.88	27.60	-29.44	-13	-16.44	Vertical
2145.9	-53.44	2.88	27.60	-28.72	-13	-15.72	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	-51.88	2.61	27.26	-27.23	-13	-14.23	Horizontal
1408	-55.19	2.61	27.26	-30.54	-13	-17.54	Vertical
2112	-53.97	2.87	27.58	-29.26	-13	-16.26	Vertical
2112	-54.72	2.87	27.58	-30.01	-13	-17.01	Horizontal
Test Results for Mid Channel 707.5MHz							
1415	-53.42	2.61	27.28	-28.75	-13	-15.75	Horizontal
1415	-55.75	2.61	27.28	-31.08	-13	-18.08	Vertical
2122.5	-54.48	2.87	27.59	-29.76	-13	-16.76	Vertical
2122.5	-55.64	2.87	27.59	-30.92	-13	-17.92	Horizontal
Test Results for High Channel 711MHz							
1422	-56.48	2.62	27.28	-31.82	-13	-18.82	Horizontal
1422	-55.68	2.62	27.28	-31.02	-13	-18.02	Vertical
2133	-56.28	2.87	27.60	-31.55	-13	-18.55	Vertical
2133	-54.49	2.87	27.60	-29.76	-13	-16.76	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

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	-53.22	2.61	27.28	-28.55	-13	-15.55	Horizontal
1413	-54.33	2.61	27.28	-29.66	-13	-16.66	Vertical
2119.5	-53.76	2.87	27.59	-29.04	-13	-16.04	Vertical
2119.5	-52.35	2.87	27.59	-27.63	-13	-14.63	Horizontal
Test Results For Mid Channel 710MHz							
1420	-52.63	2.62	27.30	-27.95	-13	-14.95	Horizontal
1420	-54.58	2.62	27.30	-29.90	-13	-16.90	Vertical
2130	-55.31	2.87	27.62	-30.56	-13	-17.56	Vertical
2130	-56.68	2.87	27.62	-31.93	-13	-18.93	Horizontal
Test Results for High Channel 713.5MHz							
1427	-55.85	2.66	27.28	-31.23	-13	-18.23	Horizontal
1427	-56.37	2.66	27.28	-31.75	-13	-18.75	Vertical
2140.5	-54.34	2.88	27.60	-29.62	-13	-16.62	Vertical
2140.5	-55.72	2.88	27.60	-31.00	-13	-18.00	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	-55.48	2.62	27.30	-30.80	-13	-17.80	Horizontal
1418	-52.78	2.62	27.30	-28.10	-13	-15.10	Vertical
2127	-54.66	2.87	27.62	-29.91	-13	-16.91	Vertical
2127	-55.68	2.87	27.62	-30.93	-13	-17.93	Horizontal
Test Results for Mid Channel 710MHz							
1420	-54.20	2.62	27.30	-29.52	-13	-16.52	Horizontal
1420	-51.62	2.62	27.30	-26.94	-13	-13.94	Vertical
2130	-54.73	2.87	27.62	-29.98	-13	-16.98	Vertical
2130	-52.94	2.87	27.62	-28.19	-13	-15.19	Horizontal
Test Results for High Channel 711MHz							
1422	-51.54	2.62	27.30	-26.86	-13	-13.86	Horizontal
1422	-52.35	2.62	27.30	-27.67	-13	-14.67	Vertical
2133	-53.58	2.87	27.62	-28.83	-13	-15.83	Vertical
2133	-56.57	2.87	27.62	-31.82	-13	-18.82	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

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°C

Voltage =low voltage, DC 3.4V, Normal, DC 3.8V and High voltage, DC 4.4V.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to -30ºC 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 +50ºC 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

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	-17.23	-0.009165	2.5
3.8	1880	-17.66	-0.009392	2.5
4.4	1880	-17.05	-0.009067	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	-17.92	-0.009532	2.5
Extreme (50C)	1880	-15.30	-0.008140	2.5
Extreme (40C)	1880	-15.61	-0.008304	2.5
Extreme (30C)	1880	-18.16	-0.009660	2.5
Extreme (10C)	1880	-17.87	-0.009503	2.5
Extreme (0C)	1880	-17.87	-0.009504	2.5
Extreme (-10C)	1880	-20.30	-0.010797	2.5
Extreme (-20C)	1880	-19.49	-0.010368	2.5
Extreme (-30C)	1880	-19.54	-0.010393	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	-24.0	-0.012763	2.5
3.8	1880	-20.2	-0.010750	2.5
4.4	1880	-23.5	-0.012519	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	-23.69	-0.012602	2.5
Extreme (50C)	1880	-24.84	-0.013210	2.5
Extreme (40C)	1880	-25.00	-0.013295	2.5
Extreme (30C)	1880	-23.11	-0.012291	2.5
Extreme (10C)	1880	-24.11	-0.012825	2.5
Extreme (0C)	1880	-23.10	-0.012286	2.5
Extreme (-10C)	1880	-22.27	-0.011845	2.5
Extreme (-20C)	1880	-21.90	-0.011651	2.5
Extreme (-30C)	1880	-21.22	-0.011286	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	-16.44	-0.009490	2.5
3.8	1732.5	-16.06	-0.009268	2.5
4.4	1732.5	-16.59	-0.009577	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	-16.33	-0.009427	2.5
Extreme (50C)	1732.5	-18.50	-0.010678	2.5
Extreme (40C)	1732.5	-17.67	-0.010198	2.5
Extreme (30C)	1732.5	-17.98	-0.010381	2.5
Extreme (10C)	1732.5	-16.36	-0.009445	2.5
Extreme (0C)	1732.5	-15.16	-0.008750	2.5
Extreme (-10C)	1732.5	-15.42	-0.008900	2.5
Extreme (-20C)	1732.5	-19.63	-0.011332	2.5
Extreme (-30C)	1732.5	-17.98	-0.010379	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	-17.57	-0.010140	2.5
3.8	1732.5	-17.75	-0.010245	2.5
4.4	1732.5	-17.26	-0.009963	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	-18.11	-0.010453	2.5
Extreme (50C)	1732.5	-15.13	-0.008734	2.5
Extreme (40C)	1732.5	-15.20	-0.008774	2.5
Extreme (30C)	1732.5	-17.00	-0.009810	2.5
Extreme (10C)	1732.5	-16.71	-0.009648	2.5
Extreme (0C)	1732.5	-17.19	-0.009925	2.5
Extreme (-10C)	1732.5	-15.24	-0.008795	2.5
Extreme (-20C)	1732.5	-16.83	-0.009712	2.5
Extreme (-30C)	1732.5	-16.88	-0.009742	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	-13.93	-0.016654	2.5
3.8	836.5	-13.26	-0.015857	2.5
4.4	836.5	-14.43	-0.017255	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	-13.12	-0.015688	2.5
Extreme (50C)	836.5	-14.26	-0.017053	2.5
Extreme (40C)	836.5	-14.02	-0.016760	2.5
Extreme (30C)	836.5	-13.88	-0.016596	2.5
Extreme (10C)	836.5	-13.96	-0.016687	2.5
Extreme (0C)	836.5	-12.70	-0.015181	2.5
Extreme (-10C)	836.5	-13.84	-0.016542	2.5
Extreme (-20C)	836.5	-16.63	-0.019883	2.5
Extreme (-30C)	836.5	-18.65	-0.022294	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	-14.77	-0.017658	2.5
3.8	836.5	-14.54	-0.017388	2.5
4.4	836.5	-15.07	-0.018017	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	-14.38	-0.017192	2.5
Extreme (50C)	836.5	-15.99	-0.019121	2.5
Extreme (40C)	836.5	-15.41	-0.018417	2.5
Extreme (30C)	836.5	-14.84	-0.017739	2.5
Extreme (10C)	836.5	-14.45	-0.017277	2.5
Extreme (0C)	836.5	-12.81	-0.015312	2.5
Extreme (-10C)	836.5	-14.64	-0.017500	2.5
Extreme (-20C)	836.5	-15.04	-0.017982	2.5
Extreme (-30C)	836.5	-13.52	-0.016159	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	-14.62	-0.005766	2.5
3.8	2535	-14.29	-0.005639	2.5
4.4	2535	-14.87	-0.005865	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	-14.76	-0.005823	2.5
Extreme (50C)	2535	-16.22	-0.006397	2.5
Extreme (40C)	2535	-15.59	-0.006148	2.5
Extreme (30C)	2535	-15.50	-0.006115	2.5
Extreme (10C)	2535	-14.55	-0.005741	2.5
Extreme (0C)	2535	-13.55	-0.005347	2.5
Extreme (-10C)	2535	-15.39	-0.006071	2.5
Extreme (-20C)	2535	-14.65	-0.005778	2.5
Extreme (-30C)	2535	-13.69	-0.005400	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	-24.39	-0.009620	2.5
3.8	2535	-24.66	-0.009729	2.5
4.4	2535	-24.77	-0.009772	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	-28.43	-0.011217	2.5
Extreme (50C)	2535	-30.01	-0.011839	2.5
Extreme (40C)	2535	-30.74	-0.012126	2.5
Extreme (30C)	2535	-28.32	-0.011171	2.5
Extreme (10C)	2535	-28.01	-0.011048	2.5
Extreme (0C)	2535	-29.02	-0.011448	2.5
Extreme (-10C)	2535	-29.75	-0.011737	2.5
Extreme (-20C)	2535	-29.33	-0.011571	2.5
Extreme (-30C)	2535	-29.90	-0.011795	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	-4.22	-0.005971	2.5
3.8	707.5	-4.14	-0.005854	2.5
4.4	707.5	-4.54	-0.006412	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	-4.67	-0.006600	2.5
Extreme (50C)	707.5	-4.91	-0.006937	2.5
Extreme (40C)	707.5	-4.77	-0.006743	2.5
Extreme (30C)	707.5	-5.15	-0.007282	2.5
Extreme (10C)	707.5	-4.56	-0.006442	2.5
Extreme (0C)	707.5	-2.36	-0.003334	2.5
Extreme (-10C)	707.5	-4.55	-0.006428	2.5
Extreme (-20C)	707.5	-4.06	-0.005738	2.5
Extreme (-30C)	707.5	-4.92	-0.006960	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	-10.75	-0.015193	2.5
3.8	707.5	-9.60	-0.013563	2.5
4.4	707.5	-10.22	-0.014440	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	-9.24	-0.013063	2.5
Extreme (50C)	707.5	-10.64	-0.015043	2.5
Extreme (40C)	707.5	-9.32	-0.013175	2.5
Extreme (30C)	707.5	-9.78	-0.013816	2.5
Extreme (10C)	707.5	-10.39	-0.014682	2.5
Extreme (0C)	707.5	-9.77	-0.013811	2.5
Extreme (-10C)	707.5	-10.03	-0.014174	2.5
Extreme (-20C)	707.5	-10.09	-0.014263	2.5
Extreme (-30C)	707.5	-9.57	-0.013531	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	-12.05	-0.016969	2.5
3.8	710.0	-11.98	-0.016874	2.5
4.4	710.0	-11.04	-0.015545	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	-11.41	-0.016069	2.5
Extreme (50C)	710.0	-12.30	-0.017322	2.5
Extreme (40C)	710.0	-11.73	-0.016526	2.5
Extreme (30C)	710.0	-12.50	-0.017609	2.5
Extreme (10C)	710.0	-12.62	-0.017771	2.5
Extreme (0C)	710.0	-11.94	-0.016814	2.5
Extreme (-10C)	710.0	-11.21	-0.015792	2.5
Extreme (-20C)	710.0	-11.90	-0.016762	2.5
Extreme (-30C)	710.0	-12.04	-0.016960	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	-13.66	-0.019243	2.5
3.8	710.0	-13.90	-0.019579	2.5
4.4	710.0	-13.32	-0.018757	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	-12.89	-0.018154	2.5
Extreme (50C)	710.0	-14.74	-0.020757	2.5
Extreme (40C)	710.0	-13.49	-0.018993	2.5
Extreme (30C)	710.0	-13.63	-0.019201	2.5
Extreme (10C)	710.0	-13.29	-0.018716	2.5
Extreme (0C)	710.0	-14.11	-0.019875	2.5
Extreme (-10C)	710.0	-13.94	-0.019634	2.5
Extreme (-20C)	710.0	-13.72	-0.019324	2.5
Extreme (-30C)	710.0	-13.52	-0.019042	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.

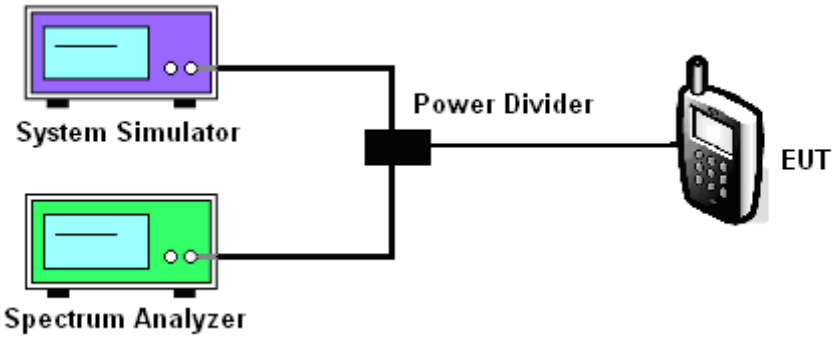
11.2 Measuring Instruments

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 GSM/EGPRS operating modes:
   a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
   b. Set EUT in maximum power output, and triggered the burst signal.
   c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
4. For UMTS 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

Test data reference attachment.

----END OF REPORT----