

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

## **FCC ID: ZSW-30-131**

**Product:** Mobile Phone

**Trade Mark:** Bmobile

**Model Number:** BM65 PLUS

**Family Model:** N/A

**Report No.:** S23081002401005

### **Prepared for**

b mobile HK Limited

Flat 18; 14/F Block 1; Golden Industrial Building; 16-26 Kwai Tak Street;  
Kwai Chung; New Territories; Hong Kong, China

### **Prepared by**

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TEST RESULT CERTIFICATION

Applicant's name..... : b mobile HK Limited
Address ..... : Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong, China
Manufacturer's Name..... : b mobile HK Limited
Address ..... : Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung; New Territories; Hong Kong, China
Product name ..... : Mobile Phone
Model and/or type reference ..... : BM65 PLUS
Family Model: N/A
Test sample number S230810024001
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 ..... 10 Aug. 2023 ~ 23 Aug. 2023
Date of Issue ..... 23 Aug. 2023
Test Result..... Pass

Testing Engineer : [Signature]
(Allen Liu)

Authorized Signatory : [Signature]
(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:	Mobile Phone
Trade Mark	Bmobile
Model Name	BM65 PLUS
Family Model	N/A
Model Difference	N/A
FCC ID:	ZSW-30-131
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2, 4, 5, 7, 12, 38, 66
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; TDD Band 38: Uplink & Downlink: 2570 MHz to 2620 MHz LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	PIFA Antenna
Antenna gain:	B2: -1 dBi,B4: -0.7 dBi,B5: -2.7 dBi,B7: 0.8 dBi, B12:-3.3 dBi, B38:0.8 dBi,B66:-0.7 dBi,
Power Supply:	DC 3.85V/5000mAh from battery or DC 5V from Adapter.
Adapter:	INPUT: AC 100-240V~50-60Hz 0.3A OUTPUT: DC 5.0V---2A
Extreme Vol. Limits:	DC 3.4V to DC 4.4V (Nominal DC 3.85V) (Note 1)
HW Version	Bmobile_BM65Plus_HW_V001
SW Version	Bmobile_BM65Plus_TIGO_LATAM_V001
** Note1: The High Voltage 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: ZSW-30-131** 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 C63.46:2015.

### 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 C63.46:2015& 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 38, Band 66.

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

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

**1.6 SUMMARY OF TEST RESULTS**

<b>FCC Part22, Subpart H/ FCC Part24, Subpart E, FCC Part27, Subpart L, KDB 971168 D01 Power Meas License Digital Systems v03</b>			
<b>FCC Rule</b>	<b>Test Item</b>	<b>Verdict</b>	<b>Remark</b>
2.1046	Conducted Output Power	PASS	
22.913(d) 24.232(d) 27.50(d)(5) KDB 971168 D01 Clause 5.7	Peak-to-Average Ratio	PASS	
2.1049 22.917(b) 24.238(b) KDB 971168 D01 Clause 4.2	Occupied Bandwidth	PASS	
2.1051 22.917(a) 24.238(a) 27.53(c), (g), (h) KDB 971168 D01 Clause 6	Band Edge	PASS	
22.913(a)(2) 27.50(b)(10), (c)(10) KDB 971168 D01 Clause 5.6	Effective Radiated Power	PASS	
24.232(c) 27.50(h)(2), (d)(4) KDB 971168 D01 Clause 5.6	Equivalent Isotropic Radiated Power	PASS	
2.1053 22.917(a) 24.238(a) 27.53(c)(g)(h)(m) KDB 971168 D01 Clause 7	Field Strength of Spurious Radiation	PASS	
2.1055 22.355 24.235 27.54 KDB 971168 D01 Clause 9	Frequency Stability for Temperature & Voltage	PASS	

2.1051 22.917(a) 24.238(a) 27.53(c)(g)(h)(m) KDB 971168 D01 Clause 6	Conducted Emission	PASS	
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Remark:

1. "N/A" denotes test is not applicable in this Test Report.
2. All test items were verified and recorded according to the standards and without any deviation during the test.
3. No modifications are made to the EUT during all test items.



## 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	Mobile Phone	BM65 PLUS	FCC ID: ZSW-30-131	EUT

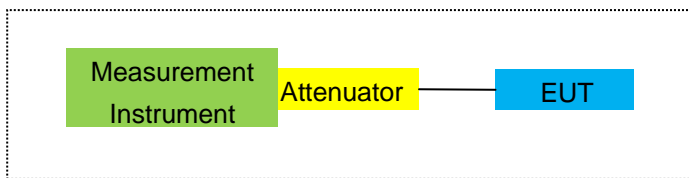
*Note: All the accessories have been used during the test.  
the following "EUT" in setup diagram means EUT system.*

## 2.4 TEST SETUP

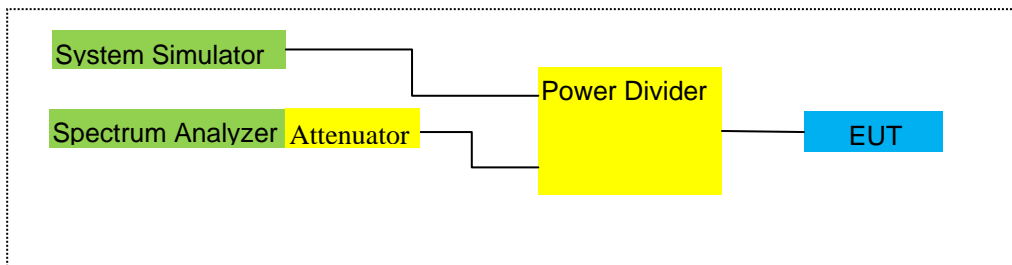
For Radiated Test Cases



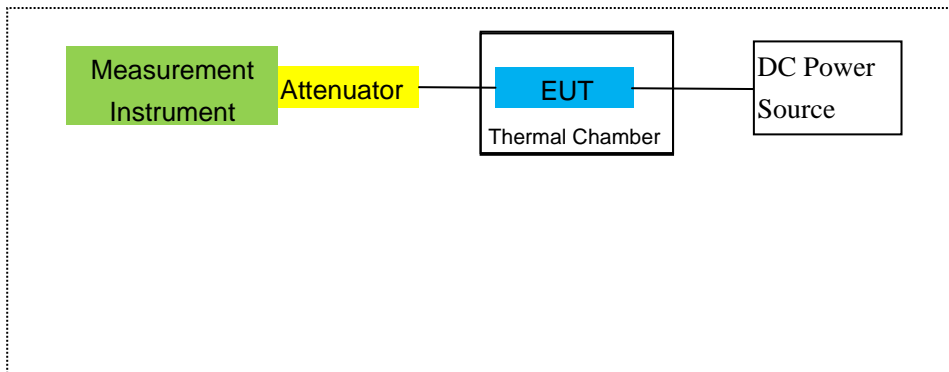
For Conducted Output Power



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	2023.05.29	2024.05.28	1 year
2	Test Receiver	R&S	ESPI	101318	2023.03.27	2024.03.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2023.03.27	2024.03.26	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2023.05.06	2026.05.05	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2023.03.27	2024.03.26	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2023.05.29	2024.05.28	1 year
7	Amplifier	EM	EM-30180	060538	2023.05.29	2024.05.28	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2023.03.27	2024.03.26	1 year
9	Power Meter	R&S	NRVS	100696	2023.05.29	2024.05.28	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2023.03.27	2024.03.26	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2023.03.27	2024.03.26	1 year
15	LISN	R&S	ENV216	101313	2023.03.27	2024.03.26	1 year
16	LISN	EMCO	3816/2	00042990	2023.03.27	2024.03.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2023.03.27	2024.03.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2023.03.27	2024.03.26	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Attenuator	MCE	24-10-34	BN9258	2023.03.27	2024.03.26	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2023.03.27	2024.03.26	1 year
24	test receiver	R&S	ESCI	a0304218	2023.03.27	2024.03.26	1 year
25	Communication Tester	R&S	CMU200	A0304247	2023.05.29	2024.05.28	1 year

26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2023.03.27	2024.03.26	1 year
27	DC Power Source	N/A	PS-6005D	2017040292 3	2023.05.06	2026.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2023.05.29	2024.05.28	1 year
29	Communication Tester	R&S	CMW500	148500	2023.05.29	2024.05.28	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	$\leq 1$
			5	>6	$\leq 1$
			10	>6	$\leq 1$
			15	>8	$\leq 1$
			20	>10	$\leq 1$
NS_04	6.6.2.2.2	41	5	>6	$\leq 1$
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10, 15, 20	$\geq 50$	$\leq 1$
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	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	$\leq 3$
NS_09	6.6.3.3.4	21	10, 15	> 40	$\leq 1$
				> 55	$\leq 2$
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 <sup>1</sup>	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 Band2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 38
- LTE Band 66

### RESULTS

**PASS**

Test data reference attachment.

## 6. BANDEDGE AND EMISSION MASK

### RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

FCC: §2.1046, §22.913, §24.232

### LIMITS

The minimum permissible attenuation level of any spurious emission is  $43 + \log_{10}(P[\text{Watts}])$ , where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is  $65 + 10\log_{10}(P) = -35\text{dBm}$  in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, 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.

### 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

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

Set display line

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

### MODES TESTED

- LTE Band 2/4/5/7/12/38/66

### RESULTS

Test data reference attachment.

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



## 7. OUT OF BAND EMISSIONS

### RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

### LIMITS

The minimum permissible attenuation level of any spurious emission is  $43 + \log_{10}(P[\text{Watts}])$ , where P is the transmitter power in Watts.

The minimum permissible attenuation level for Band 7 is as following.

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is  $65 + 10\log_{10}(P) = -35\text{dBm}$  in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, 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.

### 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
- 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 38
- LTE Band 66

## 7.1 MEASUREMENT METHOD

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

Test data reference attachment.

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

## 8. RADIATED MEASUREMENT

### 8.1. RADIATED POWER (ERP & EIRP)

#### RULE PART(S)

FCC: §2.1046, §22.913(a)(2), §24.232(c) and §27.50 (h)(2), (b)(10), (c)(10), (d)(4)

#### LIMITS:

22.913(a) (2)- The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.  
24.232 (c) Mobile and portable stations are limited to 2 watts EIRP.  
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 in the 2500–2570 MHz and 2620–2690 MHz bands. 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
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 38
- LTE Band 66

#### RESULTS

Pass

### 8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-3.08	3.76	28.24	21.40	138.038	Horizontal	Pass
		1880	-2.89	3.91	28.22	21.42	138.676	Horizontal	Pass
		1909.3	-2.80	3.93	28.20	21.47	140.281	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.14	3.77	28.23	21.32	135.519	Horizontal	Pass
		1880	-2.99	3.91	28.24	21.34	136.144	Horizontal	Pass
		1908.5	-2.86	3.94	28.25	21.45	139.637	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.03	3.77	28.31	21.51	141.579	Horizontal	Pass
		1880	-2.65	3.91	28.22	21.66	146.555	Horizontal	Pass
		1907.5	-2.58	3.94	28.20	21.68	147.231	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-2.89	3.79	28.33	21.65	146.218	Horizontal	Pass
		1880	-2.59	3.95	28.22	21.68	147.231	Horizontal	Pass
		1905	-2.48	3.97	28.19	21.74	149.279	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-2.85	3.79	28.34	21.70	147.911	Horizontal	Pass
		1880	-2.64	3.95	28.22	21.63	145.546	Horizontal	Pass
		1902.5	-2.50	3.97	28.18	21.71	148.252	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.84	3.81	28.35	21.70	147.911	Horizontal	Pass
		1880	-2.51	3.96	28.22	<b>21.75</b>	149.624	Horizontal	Pass
		1900	-2.45	4.00	28.16	21.71	148.252	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.65	3.76	28.24	20.83	121.060	Vertical	Pass
		1880	-3.80	3.91	28.22	20.51	112.460	Vertical	Pass
		1909.3	-4.04	3.93	28.20	20.23	105.439	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.27	3.77	28.23	20.19	104.472	Vertical	Pass
		1880	-3.80	3.91	28.24	20.53	112.980	Vertical	Pass
		1908.5	-3.55	3.94	28.25	20.76	119.124	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.05	3.77	28.31	20.49	111.944	Vertical	Pass
		1880	-4.00	3.91	28.22	20.31	107.399	Vertical	Pass
		1907.5	-3.50	3.94	28.20	20.76	119.124	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.95	3.79	28.33	20.59	114.551	Vertical	Pass
		1880	-3.19	3.95	28.22	21.08	128.233	Vertical	Pass
		1905	-4.06	3.97	28.19	20.16	103.753	Vertical	Pass

15.0MHz		1857.5	-3.97	3.79	28.34	20.58	114.288	Vertical	Pass
Band	1/#Mid	1880	-3.60	3.95	28.22	20.67	116.681	Vertical	Pass
QPSK		1902.5	-3.64	3.97	28.18	20.57	114.025	Vertical	Pass
20.0MHz		1860	-3.83	3.81	28.35	20.71	117.761	Vertical	Pass
Band	1/#Mid	1880	-3.62	3.96	28.22	20.64	115.878	Vertical	Pass
QPSK		1900	-3.62	4.00	28.16	20.54	113.240	Vertical	Pass

**Note:**

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor 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 Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.20	3.76	28.24	20.28	106.660	Horizontal	Pass
		1880	-3.67	3.91	28.22	20.64	115.878	Horizontal	Pass
		1909.3	-3.60	3.93	28.20	20.67	116.681	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.70	3.77	28.23	20.76	119.124	Horizontal	Pass
		1880	-3.78	3.91	28.24	20.55	113.501	Horizontal	Pass
		1908.5	-3.99	3.94	28.25	20.32	107.647	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.64	3.77	28.31	20.90	123.027	Horizontal	Pass
		1880	-3.55	3.91	28.22	20.76	119.124	Horizontal	Pass
		1907.5	-3.23	3.94	28.20	21.03	126.765	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.69	3.79	28.33	20.85	121.619	Horizontal	Pass
		1880	-3.68	3.95	28.22	20.59	114.551	Horizontal	Pass
		1905	-3.15	3.97	28.19	21.07	127.938	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.67	3.79	28.34	20.88	122.462	Horizontal	Pass
		1880	-3.46	3.95	28.22	20.81	120.504	Horizontal	Pass
		1902.5	-3.42	3.97	28.18	20.79	119.950	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.56	3.81	28.35	20.98	125.314	Horizontal	Pass
		1880	-3.26	3.96	28.22	21.00	125.893	Horizontal	Pass
		1900	-3.08	4.00	28.16	<b>21.08</b>	128.233	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.29	3.76	28.24	19.19	82.985	Vertical	Pass
		1880	-4.53	3.91	28.22	19.78	95.060	Vertical	Pass
		1909.3	-4.44	3.93	28.20	19.83	96.161	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.17	3.77	28.23	19.29	84.918	Vertical	Pass
		1880	-4.51	3.91	28.24	19.82	95.940	Vertical	Pass
		1908.5	-4.96	3.94	28.25	19.35	86.099	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.60	3.77	28.31	19.94	98.628	Vertical	Pass
		1880	-4.47	3.91	28.22	19.84	96.383	Vertical	Pass
		1907.5	-4.63	3.94	28.20	19.63	91.833	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.69	3.79	28.33	19.85	96.605	Vertical	Pass
		1880	-4.91	3.95	28.22	19.36	86.298	Vertical	Pass
		1905	-4.43	3.97	28.19	19.79	95.280	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-5.29	3.79	28.34	19.26	84.333	Vertical	Pass
		1880	-4.63	3.95	28.22	19.64	92.045	Vertical	Pass
		1902.5	-4.48	3.97	28.18	19.73	93.972	Vertical	Pass

20.0MHz		1860	-4.96	3.81	28.35	19.58	90.782	Vertical	Pass
Band 16	1/#Mid	1880	-4.23	3.96	28.22	20.03	100.693	Vertical	Pass
QAM		1900	-4.99	4.00	28.16	19.17	82.604	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor 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						Polarization Of Max. ERP	Conclusion	
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Average			Average
			(dBm)			(dBm)	(mW)				
						(dBm)	(mW)				
1.4MHz Band QPSK	1/#Mid	1710.7	-2.99	3.12	27.58	21.47	140.281	Horizontal	Pass		
		1732.5	-2.98	3.27	27.61	21.36	136.773	Horizontal	Pass		
		1754.3	-2.96	3.29	27.63	21.38	137.404	Horizontal	Pass		
3.0MHz Band QPSK	1/#Mid	1711.5	-3.16	3.13	27.61	21.32	135.519	Horizontal	Pass		
		1732.5	-3.08	3.27	27.61	21.26	133.660	Horizontal	Pass		
		1753.5	-3.00	3.30	27.62	21.32	135.519	Horizontal	Pass		
5.0MHz Band QPSK	1/#Mid	1712.5	-2.93	3.13	27.63	21.57	143.549	Horizontal	Pass		
		1732.5	-2.83	3.27	27.61	21.51	141.579	Horizontal	Pass		
		1752.5	-2.71	3.30	27.60	21.59	144.212	Horizontal	Pass		
10.0MHz Band QPSK	1/#Mid	1715	-2.87	3.15	27.64	21.62	145.211	Horizontal	Pass		
		1732.5	-2.64	3.31	27.61	21.66	146.555	Horizontal	Pass		
		1750	-2.66	3.33	27.59	21.60	144.544	Horizontal	Pass		
15.0MHz Band QPSK	1/#Mid	1717.5	-2.88	3.15	27.65	21.62	145.211	Horizontal	Pass		
		1732.5	-2.72	3.31	27.61	21.58	143.880	Horizontal	Pass		
		1747.5	-2.66	3.33	27.57	21.58	143.880	Horizontal	Pass		
20.0MHz Band QPSK	1/#Mid	1720	-2.82	3.17	27.66	<b>21.67</b>	146.893	Horizontal	Pass		
		1732.5	-2.65	3.32	27.61	21.64	145.881	Horizontal	Pass		
		1745	-2.59	3.36	27.56	21.61	144.877	Horizontal	Pass		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.88	3.12	27.58	20.58	114.288	Vertical	Pass		
		1732.5	-3.81	3.27	27.61	20.53	112.980	Vertical	Pass		
		1754.3	-3.87	3.29	27.63	20.47	111.429	Vertical	Pass		
3.0MHz Band QPSK	1/#Mid	1711.5	-3.89	3.13	27.61	20.59	114.551	Vertical	Pass		
		1732.5	-3.94	3.27	27.61	20.40	109.648	Vertical	Pass		
		1753.5	-3.26	3.30	27.62	21.06	127.644	Vertical	Pass		
5.0MHz Band QPSK	1/#Mid	1712.5	-3.50	3.13	27.63	21.00	125.893	Vertical	Pass		
		1732.5	-4.15	3.27	27.61	20.19	104.472	Vertical	Pass		
		1752.5	-3.31	3.30	27.60	20.99	125.603	Vertical	Pass		
10.0MHz Band QPSK	1/#Mid	1715	-4.32	3.15	27.64	20.17	103.992	Vertical	Pass		
		1732.5	-3.97	3.31	27.61	20.33	107.895	Vertical	Pass		
		1750	-3.49	3.33	27.59	20.77	119.399	Vertical	Pass		
15.0MHz	1/#Mid	1717.5	-3.78	3.15	27.65	20.72	118.032	Vertical	Pass		



Band		1732.5	-3.69	3.31	27.61	20.61	115.080	Vertical	Pass
QPSK		1747.5	-3.32	3.33	27.57	20.92	123.595	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.63	3.17	27.66	20.86	121.899	Vertical	Pass
Band		1732.5	-3.22	3.32	27.61	21.07	127.938	Vertical	Pass
QPSK		1745	-3.39	3.36	27.56	20.81	120.504	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.80	3.12	27.58	20.66	116.413	Horizontal	Pass
		1732.5	-3.65	3.27	27.61	20.69	117.220	Horizontal	Pass
		1754.3	-3.65	3.29	27.63	20.69	117.220	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.74	3.13	27.61	20.74	118.577	Horizontal	Pass
		1732.5	-3.87	3.27	27.61	20.47	111.429	Horizontal	Pass
		1753.5	-4.09	3.30	27.62	20.23	105.439	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.57	3.13	27.63	20.93	123.880	Horizontal	Pass
		1732.5	-3.53	3.27	27.61	20.81	120.504	Horizontal	Pass
		1752.5	-3.22	3.30	27.60	21.08	128.233	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.64	3.15	27.64	20.85	121.619	Horizontal	Pass
		1732.5	-3.83	3.31	27.61	20.47	111.429	Horizontal	Pass
		1750	-3.21	3.33	27.59	21.05	127.350	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.44	3.15	27.65	21.06	127.644	Horizontal	Pass
		1732.5	-3.50	3.31	27.61	20.80	120.226	Horizontal	Pass
		1747.5	-3.52	3.33	27.57	20.72	118.032	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.39	3.17	27.66	<b>21.10</b>	128.825	Horizontal	Pass
		1732.5	-3.40	3.32	27.61	20.89	122.744	Horizontal	Pass
		1745	-3.21	3.36	27.56	20.99	125.603	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.19	3.12	27.58	19.27	84.528	Vertical	Pass
		1732.5	-4.72	3.27	27.61	19.62	91.622	Vertical	Pass
		1754.3	-4.61	3.29	27.63	19.73	93.972	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.35	3.13	27.61	19.13	81.846	Vertical	Pass
		1732.5	-5.08	3.27	27.61	19.26	84.333	Vertical	Pass
		1753.5	-5.05	3.30	27.62	19.27	84.528	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.75	3.13	27.63	19.75	94.406	Vertical	Pass
		1732.5	-5.17	3.27	27.61	19.17	82.604	Vertical	Pass
		1752.5	-4.69	3.30	27.60	19.61	91.411	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.14	3.15	27.64	19.35	86.099	Vertical	Pass
		1732.5	-5.01	3.31	27.61	19.29	84.918	Vertical	Pass
		1750	-4.23	3.33	27.59	20.03	100.693	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.55	3.15	27.65	19.95	98.855	Vertical	Pass
		1732.5	-4.78	3.31	27.61	19.52	89.536	Vertical	Pass
		1747.5	-4.99	3.33	27.57	19.25	84.140	Vertical	Pass

20.0MHz		1720	-4.48	3.17	27.66	20.01	100.231	Vertical	Pass
Band 16	1/#Mid	1732.5	-4.71	3.32	27.61	19.58	90.782	Vertical	Pass
QAM		1745	-4.46	3.36	27.56	19.74	94.189	Vertical	Pass

Note:

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor 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							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP			
			(dBm)	(dBm)	(dB)	(dB)	Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	3/#Mid	824.7	6.31	2.01	19.68	2.15	21.83	152.405	Horizontal	Pass	
		836.5	6.19	2.01	19.77	2.15	21.80	151.356	Horizontal	Pass	
		848.3	5.99	2.02	19.82	2.15	21.64	145.881	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	6.08	2.01	19.70	2.15	21.62	145.211	Horizontal	Pass	
		836.5	5.98	2.01	19.77	2.15	21.59	144.212	Horizontal	Pass	
		847.5	5.85	2.02	19.81	2.15	21.49	140.929	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	6.36	2.01	19.71	2.15	21.91	155.239	Horizontal	Pass	
		836.5	6.24	2.01	19.77	2.15	21.85	153.109	Horizontal	Pass	
		846.5	6.08	2.02	19.79	2.15	21.70	147.911	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	6.38	2.01	19.73	2.15	<b>21.95</b>	156.675	Horizontal	Pass	
		836.5	6.33	2.01	19.77	2.15	21.94	156.315	Horizontal	Pass	
		844	6.23	2.02	19.78	2.15	21.84	152.757	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	5.01	2.01	19.68	2.15	20.53	112.980	Vertical	Pass	
		836.5	5.44	2.01	19.77	2.15	21.05	127.350	Vertical	Pass	
		848.3	5.43	2.02	19.82	2.15	21.08	128.233	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	5.06	2.01	19.70	2.15	20.60	114.815	Vertical	Pass	
		836.5	4.86	2.01	19.77	2.15	20.47	111.429	Vertical	Pass	
		847.5	4.89	2.02	19.81	2.15	20.53	112.980	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	5.06	2.01	19.71	2.15	20.61	115.080	Vertical	Pass	
		836.5	4.91	2.01	19.77	2.15	20.52	112.720	Vertical	Pass	
		846.5	4.53	2.02	19.79	2.15	20.15	103.514	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	4.90	2.01	19.73	2.15	20.47	111.429	Vertical	Pass	
		836.5	4.96	2.01	19.77	2.15	20.57	114.025	Vertical	Pass	
		844	4.92	2.02	19.78	2.15	20.53	112.980	Vertical	Pass	

**Radiated Power (ERP) for Band 5**

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	3/#Mid	824.7	5.46	2.01	19.68	2.15	20.98	125.314	Horizontal	Pass
		836.5	5.39	2.01	19.77	2.15	21.00	125.893	Horizontal	Pass
		848.3	5.23	2.02	19.82	2.15	20.88	122.462	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.54	2.01	19.70	2.15	21.08	128.233	Horizontal	Pass
		836.5	5.25	2.01	19.77	2.15	20.86	121.899	Horizontal	Pass
		847.5	4.73	2.02	19.81	2.15	20.37	108.893	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.86	2.01	19.71	2.15	21.41	138.357	Horizontal	Pass
		836.5	5.63	2.01	19.77	2.15	21.24	133.045	Horizontal	Pass
		846.5	5.38	2.02	19.79	2.15	21.00	125.893	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.86	2.01	19.73	2.15	<b>21.43</b>	138.995	Horizontal	Pass
		836.5	5.58	2.01	19.77	2.15	21.19	131.522	Horizontal	Pass
		844	5.12	2.02	19.78	2.15	20.73	118.304	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	5.59	2.01	19.68	2.15	21.11	129.122	Vertical	Pass
		836.5	3.63	2.01	19.77	2.15	19.24	83.946	Vertical	Pass
		848.3	3.63	2.02	19.82	2.15	19.28	84.723	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.87	2.01	19.70	2.15	19.41	87.297	Vertical	Pass
		836.5	4.24	2.01	19.77	2.15	19.85	96.605	Vertical	Pass
		847.5	3.91	2.02	19.81	2.15	19.55	90.157	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	5.20	2.01	19.71	2.15	20.75	118.850	Vertical	Pass
		836.5	3.94	2.01	19.77	2.15	19.55	90.157	Vertical	Pass
		846.5	3.64	2.02	19.79	2.15	19.26	84.333	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.84	2.01	19.73	2.15	19.41	87.297	Vertical	Pass
		836.5	4.75	2.01	19.77	2.15	20.36	108.643	Vertical	Pass
		844	5.32	2.02	19.78	2.15	20.93	123.880	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

Max. EIRP Average (dBm)= Factor 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 Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	2502.5	-1.27	4.54	27.75	21.94	156.315	Horizontal	Pass
		2535	-1.10	4.69	27.72	21.93	155.955	Horizontal	Pass
		2567.5	-1.03	4.71	27.71	21.97	157.398	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-1.20	4.55	27.76	22.01	158.855	Horizontal	Pass
		2535	-1.01	4.69	27.72	22.02	159.221	Horizontal	Pass
		2565	-0.93	4.72	27.70	22.05	160.325	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-1.21	4.55	27.77	22.01	158.855	Horizontal	Pass
		2535	-1.07	4.69	27.72	21.96	157.036	Horizontal	Pass
		2562.5	-0.97	4.72	27.69	22.00	158.489	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.15	4.57	27.78	<b>22.06</b>	160.694	Horizontal	Pass
		2535	-0.97	4.73	27.72	22.02	159.221	Horizontal	Pass
		2560	-0.93	4.75	27.68	22.00	158.489	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-2.15	4.54	27.75	21.06	127.644	Vertical	Pass
		2535	-2.16	4.69	27.72	20.87	122.180	Vertical	Pass
		2567.5	-2.43	4.71	27.71	20.57	114.025	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.40	4.55	27.76	20.81	120.504	Vertical	Pass
		2535	-2.35	4.69	27.72	20.68	116.950	Vertical	Pass
		2565	-2.51	4.72	27.70	20.47	111.429	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.67	4.55	27.77	20.55	113.501	Vertical	Pass
		2535	-2.72	4.69	27.72	20.31	107.399	Vertical	Pass
		2562.5	-2.79	4.72	27.69	20.18	104.232	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.63	4.57	27.78	20.58	114.288	Vertical	Pass
		2535	-2.42	4.73	27.72	20.57	114.025	Vertical	Pass
		2560	-2.17	4.75	27.68	20.76	119.124	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
				(dB)	(dBm)	(mW)			
5.0MHz Band 16 QAM	1/#Mid	2502.5	-1.96	4.54	27.75	21.25	133.352	Horizontal	Pass
		2535	-1.65	4.69	27.72	21.38	137.404	Horizontal	Pass
		2567.5	-1.73	4.71	27.71	21.27	133.968	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-1.85	4.55	27.76	21.36	136.773	Horizontal	Pass
		2535	-1.86	4.69	27.72	21.17	130.918	Horizontal	Pass
		2565	-2.13	4.72	27.70	20.85	121.619	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.03	4.55	27.77	21.19	131.522	Horizontal	Pass
		2535	-2.00	4.69	27.72	21.03	126.765	Horizontal	Pass
		2562.5	-1.61	4.72	27.69	21.36	136.773	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-1.91	4.57	27.78	21.30	134.896	Horizontal	Pass
		2535	-1.58	4.73	27.72	21.41	138.357	Horizontal	Pass
		2560	-1.68	4.75	27.68	21.25	133.352	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.25	4.54	27.75	19.96	99.083	Vertical	Pass
		2535	-2.47	4.69	27.72	20.56	113.763	Vertical	Pass
		2567.5	-2.52	4.71	27.71	20.48	111.686	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.25	4.55	27.76	20.96	124.738	Vertical	Pass
		2535	-3.68	4.69	27.72	19.35	86.099	Vertical	Pass
		2565	-3.48	4.72	27.70	19.50	89.125	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.87	4.55	27.77	19.35	86.099	Vertical	Pass
		2535	-2.69	4.69	27.72	20.34	108.143	Vertical	Pass
		2562.5	-3.35	4.72	27.69	19.62	91.622	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.52	4.57	27.78	20.69	117.220	Vertical	Pass
		2535	-2.97	4.73	27.72	20.02	100.462	Vertical	Pass
		2560	-2.07	4.75	27.68	20.86	121.899	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

### 8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	699.7	6.68	1.91	19.21	2.15	21.83	152.405	Vertical	Pass
		707.5	6.60	1.91	19.26	2.15	21.80	151.356	Vertical	Pass
		715.3	6.38	1.93	19.34	2.15	21.64	145.881	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.47	1.91	19.21	2.15	21.62	145.211	Vertical	Pass
		707.5	6.39	1.91	19.26	2.15	21.59	144.212	Vertical	Pass
		714.5	6.23	1.93	19.34	2.15	21.49	140.929	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.74	1.91	19.23	2.15	21.91	155.239	Vertical	Pass
		707.5	6.65	1.91	19.26	2.15	21.85	153.109	Vertical	Pass
		713.5	6.44	1.92	19.33	2.15	21.70	147.911	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	6.76	1.91	19.25	2.15	<b>21.95</b>	156.675	Vertical	Pass
		707.5	6.74	1.91	19.26	2.15	21.94	156.315	Vertical	Pass
		711	6.59	1.92	19.32	2.15	21.84	152.757	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	5.93	1.91	19.21	2.15	21.08	128.233	Horizontal	Pass
		707.5	5.25	1.91	19.26	2.15	20.45	110.917	Horizontal	Pass
		715.3	5.56	1.93	19.34	2.15	20.82	120.781	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	5.18	1.91	19.21	2.15	20.33	107.895	Horizontal	Pass
		707.5	5.01	1.91	19.26	2.15	20.21	104.954	Horizontal	Pass
		714.5	5.02	1.93	19.34	2.15	20.28	106.660	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	5.69	1.91	19.23	2.15	20.86	121.899	Horizontal	Pass
		707.5	5.36	1.91	19.26	2.15	20.56	113.763	Horizontal	Pass
		713.5	5.67	1.92	19.33	2.15	20.93	123.880	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	5.37	1.91	19.25	2.15	20.56	113.763	Horizontal	Pass
		707.5	4.99	1.91	19.26	2.15	20.19	104.472	Horizontal	Pass
		711	5.32	1.92	19.32	2.15	20.57	114.025	Horizontal	Pass



Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	6.63	1.91	19.21	2.15	21.78	150.661	Vertical	Pass
		707.5	6.55	1.91	19.26	2.15	21.75	149.624	Vertical	Pass
		715.3	6.33	1.93	19.34	2.15	21.59	144.212	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.42	1.91	19.21	2.15	21.57	143.549	Vertical	Pass
		707.5	6.34	1.91	19.26	2.15	21.54	142.561	Vertical	Pass
		714.5	6.18	1.93	19.34	2.15	21.44	139.316	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.69	1.91	19.23	2.15	21.86	153.462	Vertical	Pass
		707.5	6.60	1.91	19.26	2.15	21.80	151.356	Vertical	Pass
		713.5	6.39	1.92	19.33	2.15	21.65	146.218	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	6.71	1.91	19.25	2.15	<b>21.90</b>	154.882	Vertical	Pass
		707.5	6.69	1.91	19.26	2.15	21.89	154.525	Vertical	Pass
		711	6.54	1.92	19.32	2.15	21.79	151.008	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	5.59	1.91	19.21	2.15	20.74	118.577	Horizontal	Pass
		707.5	4.94	1.91	19.26	2.15	20.14	103.276	Horizontal	Pass
		715.3	4.84	1.93	19.34	2.15	20.10	102.329	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.67	1.91	19.21	2.15	20.82	120.781	Horizontal	Pass
		707.5	5.57	1.91	19.26	2.15	20.77	119.399	Horizontal	Pass
		714.5	5.68	1.93	19.34	2.15	20.94	124.165	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	5.08	1.91	19.23	2.15	20.25	105.925	Horizontal	Pass
		707.5	5.05	1.91	19.26	2.15	20.25	105.925	Horizontal	Pass
		713.5	4.87	1.92	19.33	2.15	20.13	103.039	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.76	1.91	19.25	2.15	20.95	124.451	Horizontal	Pass
		707.5	5.69	1.91	19.26	2.15	20.89	122.744	Horizontal	Pass
		711	5.57	1.92	19.32	2.15	20.82	120.781	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

### 8.7 LTE BAND 38

Radiated Power (EIRP) for Band 38									
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)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.09	102.094	Vertical	Pass
		2595	-2.64	4.88	27.71	20.77	119.399	Vertical	Pass
		2617.5	-2.58	4.93	27.95	21.07	127.938	Vertical	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	20.31	107.399	Vertical	Pass
		2595	-2.47	4.95	27.81	20.15	103.514	Vertical	Pass
		2617.5	-2.59	5.03	27.69	20.67	116.681	Vertical	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	20.84	121.339	Vertical	Pass
		2595	-2.6	5	27.65	20.57	114.025	Vertical	Pass
		2615	-2.67	4.87	27.89	20.74	118.577	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	20.21	104.954	Vertical	Pass
		2595	-2.38	4.87	27.87	20.11	102.565	Vertical	Pass
		2615	-2.56	4.94	27.77	20.27	106.414	Vertical	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.19	104.472	Vertical	Pass
		2595	-2.32	4.87	27.84	21.06	127.644	Vertical	Pass
		2612.5	-2.52	4.92	27.93	20.89	122.744	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.40	109.648	Vertical	Pass
		2595	-2.53	4.98	27.82	20.82	120.781	Vertical	Pass
		2612.5	-2.6	4.95	27.83	20.61	115.080	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.62	115.345	Vertical	Pass
		2595	-2.37	4.79	27.83	<b>21.67</b>	146.893	Vertical	Pass
		2610	-2.68	4.89	27.87	20.92	123.595	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	20.32	107.647	Vertical	Pass
		2595	-2.88	4.91	27.71	20.66	116.413	Vertical	Pass
		2610	-2.81	4.96	27.92	20.26	106.170	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP		
			(dBm)	(dBm)	(dB)	Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	20.43	110.408	Horizontal	Pass
		2595	-2.64	4.88	27.71	19.99	99.770	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	20.47	111.429	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2572.5	-2.37	4.81	27.73	20.54	113.240	Horizontal	Pass
		2595	-2.47	4.95	27.81	20.78	119.674	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	20.03	100.693	Horizontal	Pass
10.0MHz Band QPSK	50/0	2575	-2.98	5.01	27.86	20.30	107.152	Horizontal	Pass
		2595	-2.6	5	27.65	20.82	120.781	Horizontal	Pass
		2615	-2.67	4.87	27.89	20.07	101.625	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2575	-2.71	4.77	27.78	20.52	112.720	Horizontal	Pass
		2595	-2.38	4.87	27.87	20.32	107.647	Horizontal	Pass
		2615	-2.56	4.94	27.77	20.03	100.693	Horizontal	Pass
15.0MHz Band QPSK	75/0	2577.5	-2.9	4.89	27.88	20.62	115.345	Horizontal	Pass
		2595	-2.32	4.87	27.84	20.82	120.781	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	20.33	107.895	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2577.5	-2.53	4.75	27.78	20.54	113.240	Horizontal	Pass
		2595	-2.53	4.98	27.82	20.93	123.880	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	20.45	110.917	Horizontal	Pass
20.0MHz Band QPSK	100/0	2580	-2.53	4.86	27.8	20.15	103.514	Horizontal	Pass
		2595	-2.37	4.79	27.83	20.88	122.462	Horizontal	Pass
		2610	-2.68	4.89	27.87	20.71	117.761	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	<b>21.58</b>	143.880	Horizontal	Pass
		2595	-2.88	4.91	27.71	20.61	115.080	Horizontal	Pass
		2610	-2.81	4.96	27.92	20.33	107.895	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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

### 8.8 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
1.4MHz Band QPSK	1/#Mid	1710.7	-2.89	3.76	28.24	21.59	144.212	Horizontal	Pass
		1745	-2.75	3.91	28.22	21.56	143.219	Horizontal	Pass
		1779.3	-2.62	3.93	28.2	21.65	146.218	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.95	3.77	28.23	21.51	141.579	Horizontal	Pass
		1745	-2.86	3.91	28.24	21.47	140.281	Horizontal	Pass
		1778.5	-2.88	3.94	28.25	21.43	138.995	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.85	3.77	28.31	21.69	147.571	Horizontal	Pass
		1745	-2.53	3.91	28.22	21.78	150.661	Horizontal	Pass
		1777.5	-2.59	3.94	28.2	21.67	146.893	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.74	3.79	28.33	21.80	151.356	Horizontal	Pass
		1745	-2.47	3.95	28.22	21.80	151.356	Horizontal	Pass
		1775	-2.48	3.97	28.19	21.74	149.279	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.76	3.79	28.34	21.79	151.008	Horizontal	Pass
		1745	-2.57	3.95	28.22	21.70	147.911	Horizontal	Pass
		1772.5	-2.52	3.97	28.18	21.69	147.571	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.73	3.81	28.35	<b>21.81</b>	151.705	Horizontal	Pass
		1745	-2.47	3.96	28.22	21.79	151.008	Horizontal	Pass
		1770	-2.49	4	28.16	21.67	146.893	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.74	3.76	28.24	20.74	118.577	Vertical	Pass
		1745	-3.90	3.91	28.22	20.41	109.901	Vertical	Pass
		1779.3	-3.66	3.93	28.2	20.61	115.080	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.32	3.77	28.23	20.14	103.276	Vertical	Pass
		1745	-3.51	3.91	28.24	20.82	120.781	Vertical	Pass
		1778.5	-3.80	3.94	28.25	20.51	112.460	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.94	3.77	28.31	20.60	114.815	Vertical	Pass
		1745	-3.32	3.91	28.22	20.99	125.603	Vertical	Pass
		1777.5	-3.77	3.94	28.2	20.49	111.944	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.61	3.79	28.34	20.94	124.165	Vertical	Pass
		1745	-3.30	3.95	28.22	20.97	125.026	Vertical	Pass
		1775	-3.86	3.97	28.18	20.35	108.393	Vertical	Pass

15.0MHz		1717.5	-3.75	3.81	28.35	20.79	119.950	Vertical	Pass
Band	1/#Mid	1745	-4.03	3.96	28.22	20.23	105.439	Vertical	Pass
QPSK		1772.5	-3.46	4	28.16	20.70	117.490	Vertical	Pass
20.0MHz		1720	-3.70	3.79	28.34	20.85	121.619	Vertical	Pass
Band	1/#Mid	1745	-3.96	3.95	28.22	20.31	107.399	Vertical	Pass
QPSK		1770	-3.26	3.97	28.18	20.95	124.451	Vertical	Pass

Radiated Power (EIRP) for Band 66										
Mode	RB/RB SIZE	Frequency	Result						Conclusion	
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP		
						Average (dBm)	Average			Average
							(mW)			
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.72	3.76	28.24	20.76	119.124	Horizontal	Pass	
		1745	-3.33	3.91	28.22	20.98	125.314	Horizontal	Pass	
		1779.3	-3.51	3.93	28.2	20.76	119.124	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.11	3.77	28.23	20.35	108.393	Horizontal	Pass	
		1745	-3.36	3.91	28.24	20.97	125.026	Horizontal	Pass	
		1778.5	-3.65	3.94	28.25	20.66	116.413	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.53	3.77	28.31	21.01	126.183	Horizontal	Pass	
		1745	-3.59	3.91	28.22	20.72	118.032	Horizontal	Pass	
		1777.5	-3.26	3.94	28.2	21.00	125.893	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	1715	-3.58	3.79	28.33	20.96	124.738	Horizontal	Pass	
		1745	-3.24	3.95	28.22	21.03	126.765	Horizontal	Pass	
		1775	-3.56	3.97	28.19	20.66	116.413	Horizontal	Pass	
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.57	3.79	28.34	20.98	125.314	Horizontal	Pass	
		1745	-3.39	3.95	28.22	20.88	122.462	Horizontal	Pass	
		1772.5	-3.18	3.97	28.18	21.03	126.765	Horizontal	Pass	
20.0MHz Band 16 QAM	1/#Mid	1720	-3.40	3.81	28.35	21.14	130.017	Horizontal	Pass	
		1745	-3.18	3.96	28.22	21.08	128.233	Horizontal	Pass	
		1770	-3.12	4	28.16	21.04	127.057	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.36	3.76	28.24	20.12	102.802	Vertical	Pass	
		1745	-3.65	3.91	28.22	20.66	116.413	Vertical	Pass	
		1779.3	-3.95	3.93	28.2	20.32	107.647	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.79	3.77	28.23	19.67	92.683	Vertical	Pass	
		1745	-5.10	3.91	28.24	19.23	83.753	Vertical	Pass	
		1778.5	-3.45	3.94	28.25	20.86	121.899	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.20	3.77	28.31	19.34	85.901	Vertical	Pass	
		1745	-4.89	3.91	28.22	19.42	87.498	Vertical	Pass	
		1777.5	-4.95	3.94	28.2	19.31	85.310	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	1715	-4.37	3.79	28.34	20.18	104.232	Vertical	Pass	
		1745	-3.25	3.95	28.22	21.02	126.474	Vertical	Pass	
		1775	-3.69	3.97	28.18	20.52	112.720	Vertical	Pass	
15.0MHz Band 16	1/#Mid	1717.5	-3.52	3.81	28.35	21.02	126.474	Vertical	Pass	
		1745	-4.86	3.96	28.22	19.40	87.096	Vertical	Pass	

QAM		1772.5	-3.81	4	28.16	20.35	108.393	Vertical	Pass
20.0MHz		1720	-4.06	3.79	28.34	20.49	111.944	Vertical	Pass
Band 16	1#Mid	1745	-4.52	3.95	28.22	19.75	94.406	Vertical	Pass
QAM		1770	-4.68	3.97	28.18	19.53	89.743	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: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m)

### LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is  $55 + \log_{10}(P)$  [Watts].

The minimum permissible attenuation level of any spurious emission is  $43 + \log_{10}(P)$  [Watts], where P is the transmitter power in Watts.

### 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  $43 + 10 \text{ Log}_{10}(p)$ , dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than  $43 + 10 \text{ Log}_{10}(p)$ , dB at the channel edges and  $55 + 10 \text{ Log}_{10}(p)$  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 38
- LTE Band 66

**RESULTS**

PASS

### 9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-49.31	4.04	33.51	-19.84	-13	-6.84	Horizontal
3701.4	-52.47	4.04	33.51	-23.00	-13	-10.00	Vertical
5552.1	-48.09	5.24	35.84	-17.49	-13	-4.49	Vertical
5552.1	-49.28	5.24	35.84	-18.68	-13	-5.68	Horizontal
206.9	-37.73	1.43	16.02	-23.14	-13	-10.14	Vertical
266.7	-41.01	1.30	17.99	-24.32	-13	-11.32	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-51.35	4.04	33.56	-21.83	-13	-8.83	Horizontal
3760.0	-52.77	4.04	33.56	-23.25	-13	-10.25	Vertical
5640.0	-47.10	5.24	35.91	-16.43	-13	-3.43	Vertical
5640.0	-51.52	5.24	35.91	-20.85	-13	-7.85	Horizontal
208.8	-42.16	1.62	16.97	-26.81	-13	-13.81	Vertical
278.1	-43.27	1.74	15.98	-29.04	-13	-16.04	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-49.53	4.04	34.00	-19.57	-13	-6.57	Horizontal
3818.6	-53.04	4.04	34.00	-23.08	-13	-10.08	Vertical
5727.9	-51.48	5.24	36.04	-20.68	-13	-7.68	Vertical
5727.9	-51.89	5.24	36.04	-21.09	-13	-8.09	Horizontal
181.5	-35.63	1.42	17.29	-19.76	-13	-6.76	Vertical
353.6	-38.19	1.50	17.90	-21.78	-13	-8.78	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-50.06	4.07	33.54	-20.59	-13	-7.59	Horizontal
3720.0	-47.45	4.07	33.54	-17.98	-13	-4.98	Vertical
5580.0	-47.93	5.28	35.86	-17.35	-13	-4.35	Vertical
5580.0	-51.05	5.28	35.86	-20.47	-13	-7.47	Horizontal
180.9	-34.10	1.58	16.89	-18.78	-13	-5.78	Vertical
247.4	-44.44	1.76	17.26	-28.94	-13	-15.94	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.02	4.04	33.56	-18.50	-13	-5.50	Horizontal
3760.0	-50.33	4.04	33.56	-20.81	-13	-7.81	Vertical
5640.0	-52.33	5.24	35.91	-21.66	-13	-8.66	Vertical
5640.0	-52.00	5.24	35.91	-21.33	-13	-8.33	Horizontal
187.2	-38.16	1.46	16.27	-23.35	-13	-10.35	Vertical
407.9	-38.95	1.59	15.15	-25.39	-13	-12.39	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-50.25	4.04	34.00	-20.29	-13	-7.29	Horizontal
3800.0	-51.02	4.04	34.00	-21.06	-13	-8.06	Vertical
5700.0	-50.33	5.24	36.04	-19.53	-13	-6.53	Vertical
5700.0	-51.96	5.24	36.04	-21.16	-13	-8.16	Horizontal
212.4	-35.49	1.36	17.39	-19.45	-13	-6.45	Vertical
334.0	-43.63	1.66	15.39	-29.90	-13	-16.90	Horizontal

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-45.72	4.02	29.80	-19.94	-13	-6.94	Horizontal
3421.4	-49.99	4.02	29.80	-24.21	-13	-11.21	Vertical
5132.1	-51.02	5.24	35.84	-20.42	-13	-7.42	Vertical
5132.1	-53.80	5.24	35.84	-23.20	-13	-10.20	Horizontal
194.7	-36.02	1.68	16.04	-21.66	-13	-8.66	Vertical
324.9	-38.26	1.78	17.74	-22.30	-13	-9.30	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.35	4.03	30.00	-20.38	-13	-7.38	Horizontal
3465.0	-49.71	4.03	30.00	-23.74	-13	-10.74	Vertical
5197.5	-52.11	5.25	35.86	-21.50	-13	-8.50	Vertical
5197.5	-51.00	5.25	35.86	-20.39	-13	-7.39	Horizontal
200.6	-34.80	1.72	17.69	-18.83	-13	-5.83	Vertical
278.1	-35.96	1.62	16.02	-21.55	-13	-8.55	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-50.14	4.05	30.01	-24.18	-13	-11.18	Horizontal
3508.6	-47.14	4.05	30.01	-21.18	-13	-8.18	Vertical
5262.9	-49.32	5.26	35.86	-18.72	-13	-5.72	Vertical
5262.9	-49.38	5.26	35.86	-18.78	-13	-5.78	Horizontal
206.6	-38.26	1.80	16.69	-23.37	-13	-10.37	Vertical
344.8	-41.86	1.75	16.66	-26.96	-13	-13.96	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-44.98	4.02	29.80	-19.20	-13	-6.20	Horizontal
3440.0	-45.96	4.02	29.80	-20.18	-13	-7.18	Vertical
5160.0	-49.33	5.24	35.84	-18.73	-13	-5.73	Vertical
5160.0	-49.57	5.24	35.84	-18.97	-13	-5.97	Horizontal
212.8	-36.76	1.57	17.26	-21.07	-13	-8.07	Vertical
438.2	-42.76	1.78	16.35	-28.19	-13	-15.19	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.60	4.03	30.00	-22.63	-13	-9.63	Horizontal
3465.0	-50.67	4.03	30.00	-24.70	-13	-11.70	Vertical
5197.5	-49.24	5.25	35.86	-18.63	-13	-5.63	Vertical
5197.5	-51.17	5.25	35.86	-20.56	-13	-7.56	Horizontal
199.5	-36.11	1.44	17.95	-19.60	-13	-6.60	Vertical
419.0	-40.30	1.65	16.09	-25.86	-13	-12.86	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-45.85	2.91	27.68	-21.08	-13	-8.08	Horizontal
3490.0	-46.54	2.91	27.68	-21.77	-13	-8.77	Vertical
5235.0	-50.33	5.26	35.86	-19.73	-13	-6.73	Vertical
5235.0	-51.52	5.26	35.86	-20.92	-13	-7.92	Horizontal
183.8	-40.60	1.61	16.85	-25.36	-13	-12.36	Vertical
444.1	-42.32	1.61	15.19	-28.74	-13	-15.74	Horizontal

### 9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-51.04	2.78	27.50	-26.32	-13	-13.32	Horizontal
1649.4	-50.99	2.78	27.50	-26.27	-13	-13.27	Vertical
2474.1	-46.67	2.90	27.80	-21.77	-13	-8.77	Vertical
2474.1	-50.17	2.90	27.80	-25.27	-13	-12.27	Horizontal
201.0	-44.97	1.76	17.59	-29.14	-13	-16.14	Vertical
366.7	-40.98	1.63	15.87	-26.74	-13	-13.74	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-46.28	2.80	27.48	-21.60	-13	-8.60	Horizontal
1673.0	-46.72	2.80	27.48	-22.04	-13	-9.04	Vertical
2509.5	-44.31	2.91	27.70	-19.52	-13	-6.52	Vertical
2509.5	-50.61	2.91	27.70	-25.82	-13	-12.82	Horizontal
208.5	-34.38	1.61	15.68	-20.31	-13	-7.31	Vertical
314.4	-34.22	1.59	17.52	-18.30	-13	-5.30	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.76	2.82	27.43	-21.15	-13	-8.15	Horizontal
1696.6	-53.29	2.82	27.43	-28.68	-13	-15.68	Vertical
2544.9	-48.03	2.92	27.74	-23.21	-13	-10.21	Vertical
2544.9	-50.02	2.92	27.74	-25.20	-13	-12.20	Horizontal
179.3	-41.10	1.69	16.67	-26.11	-13	-13.11	Vertical
411.0	-40.25	1.70	17.18	-24.77	-13	-11.77	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-53.55	2.78	27.50	-28.83	-13	-15.83	Horizontal
1658.0	-45.63	2.78	27.50	-20.91	-13	-7.91	Vertical
2487.0	-47.28	2.90	27.80	-22.38	-13	-9.38	Vertical
2487.0	-51.18	2.90	27.80	-26.28	-13	-13.28	Horizontal
185.5	-41.81	1.71	15.57	-27.95	-13	-14.95	Vertical
256.6	-37.06	1.34	16.40	-22.00	-13	-9.00	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-53.23	2.80	27.48	-28.55	-13	-15.55	Horizontal
1673.0	-51.16	2.80	27.48	-26.48	-13	-13.48	Vertical
2509.5	-46.41	2.91	27.70	-21.62	-13	-8.62	Vertical
2509.5	-52.59	2.91	27.70	-27.80	-13	-14.80	Horizontal
202.1	-41.83	1.44	17.04	-26.23	-13	-13.23	Vertical
294.5	-36.52	1.76	17.62	-20.66	-13	-7.66	Horizontal
Test Results for High Channel 844MHz							
1688.0	-52.31	2.82	27.43	-27.70	-13	-14.70	Horizontal
1688.0	-52.86	2.82	27.43	-28.25	-13	-15.25	Vertical
2532.0	-52.14	2.92	27.74	-27.32	-13	-14.32	Vertical
2532.0	-50.65	2.92	27.74	-25.83	-13	-12.83	Horizontal
181.7	-43.38	1.74	17.70	-27.42	-13	-14.42	Vertical
414.0	-39.75	1.41	17.46	-23.69	-13	-10.69	Horizontal

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-63.91	5.23	35.81	-33.33	-25	-8.33	Horizontal
5005.0	-60.21	5.23	35.81	-29.63	-25	-4.63	Vertical
7507.5	-64.01	5.67	36.85	-32.83	-25	-7.83	Vertical
7507.5	-61.56	5.67	36.85	-30.38	-25	-5.38	Horizontal
198.7	-46.49	1.73	17.97	-30.25	-25	-5.25	Vertical
268.7	-50.52	1.38	15.11	-36.79	-25	-11.79	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.68	5.23	35.82	-32.09	-25	-7.09	Horizontal
5070.0	-63.54	5.23	35.82	-32.95	-25	-7.95	Vertical
7605.0	-63.57	5.67	36.85	-32.39	-25	-7.39	Vertical
7605.0	-64.28	5.67	36.85	-33.10	-25	-8.10	Horizontal
186.6	-51.52	1.77	16.17	-37.11	-25	-12.11	Vertical
254.5	-51.62	1.63	15.21	-38.04	-25	-13.04	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-59.75	5.24	35.83	-29.16	-25	-4.16	Horizontal
5135.0	-60.34	5.24	35.83	-29.75	-25	-4.75	Vertical
7702.5	-64.51	5.68	36.87	-33.32	-25	-8.32	Vertical
7702.5	-62.61	5.68	36.87	-31.42	-25	-6.42	Horizontal
187.9	-50.02	1.58	17.56	-34.04	-25	-9.04	Vertical
257.7	-54.29	1.45	16.58	-39.16	-25	-14.16	Horizontal



**QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ BANDWIDTH)**

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-64.45	5.23	35.82	-33.86	-25	-8.86	Horizontal
5020.0	-59.92	5.23	35.82	-29.33	-25	-4.33	Vertical
7530.0	-62.85	5.67	36.86	-31.66	-25	-6.66	Vertical
7530.0	-61.30	5.67	36.86	-30.11	-25	-5.11	Horizontal
186.8	-44.58	1.63	15.76	-30.45	-25	-5.45	Vertical
288.6	-49.63	1.71	15.44	-35.90	-25	-10.90	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.20	5.23	35.82	-29.61	-25	-4.61	Horizontal
5070.0	-64.48	5.23	35.82	-33.89	-25	-8.89	Vertical
7605.0	-62.13	5.67	36.85	-30.95	-25	-5.95	Vertical
7605.0	-63.46	5.67	36.85	-32.28	-25	-7.28	Horizontal
184.6	-47.95	1.79	16.84	-32.89	-25	-7.89	Vertical
319.1	-49.55	1.71	17.64	-33.62	-25	-8.62	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-60.15	5.24	35.83	-29.56	-25	-4.56	Horizontal
5120.0	-64.84	5.24	35.83	-34.25	-25	-9.25	Vertical
7680.0	-60.29	5.70	36.88	-29.11	-25	-4.11	Vertical
7680.0	-60.08	5.70	36.88	-28.90	-25	-3.90	Horizontal
175.6	-47.20	1.79	16.84	-32.14	-25	-7.14	Vertical
357.0	-47.68	1.71	17.64	-31.75	-25	-6.75	Horizontal

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-44.73	2.60	27.20	-20.13	-13	-7.13	Horizontal
1399.4	-49.80	2.60	27.20	-25.20	-13	-12.20	Vertical
2099.1	-45.47	2.85	27.54	-20.78	-13	-7.78	Vertical
2099.1	-53.58	2.85	27.54	-28.89	-13	-15.89	Horizontal
188.1	-36.74	1.49	17.78	-20.45	-13	-7.45	Vertical
239.9	-37.84	1.36	17.33	-21.87	-13	-8.87	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-49.28	2.61	27.28	-24.61	-13	-11.61	Horizontal
1415.0	-51.87	2.61	27.28	-27.20	-13	-14.20	Vertical
2122.5	-48.79	2.87	27.59	-24.07	-13	-11.07	Vertical
2122.5	-49.36	2.87	27.59	-24.64	-13	-11.64	Horizontal
209.4	-41.11	1.73	15.74	-27.10	-13	-14.10	Vertical
409.6	-37.54	1.62	15.79	-23.37	-13	-10.37	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-46.33	2.63	27.28	-21.68	-13	-8.68	Horizontal
1430.6	-47.86	2.63	27.28	-23.21	-13	-10.21	Vertical
2145.9	-47.80	2.88	27.60	-23.08	-13	-10.08	Vertical
2145.9	-53.07	2.88	27.60	-28.35	-13	-15.35	Horizontal
181.0	-34.93	1.61	18.00	-18.54	-13	-5.54	Vertical
448.2	-42.39	1.45	15.49	-28.36	-13	-15.36	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-46.82	2.61	27.26	-22.17	-13	-9.17	Horizontal
1408.0	-45.56	2.61	27.26	-20.91	-13	-7.91	Vertical
2112.0	-50.32	2.87	27.58	-25.61	-13	-12.61	Vertical
2112.0	-49.79	2.87	27.58	-25.08	-13	-12.08	Horizontal
207.6	-45.00	1.31	16.97	-29.34	-13	-16.34	Vertical
399.0	-36.92	1.65	16.70	-21.87	-13	-8.87	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-48.67	2.61	27.28	-24.00	-13	-11.00	Horizontal
1415.0	-44.94	2.61	27.28	-20.27	-13	-7.27	Vertical
2122.5	-50.15	2.87	27.59	-25.43	-13	-12.43	Vertical
2122.5	-51.49	2.87	27.59	-26.77	-13	-13.77	Horizontal
186.6	-44.42	1.72	17.99	-28.15	-13	-15.15	Vertical
376.2	-44.88	1.73	17.94	-28.67	-13	-15.67	Horizontal
Test Results for High Channel 711MHz							
1422.0	-44.29	2.62	27.28	-19.63	-13	-6.63	Horizontal
1422.0	-45.25	2.62	27.28	-20.59	-13	-7.59	Vertical
2133.0	-44.26	2.87	27.60	-19.53	-13	-6.53	Vertical
2133.0	-50.55	2.87	27.60	-25.82	-13	-12.82	Horizontal
205.8	-36.13	1.58	15.93	-21.78	-13	-8.78	Vertical
352.4	-42.72	1.36	15.59	-28.49	-13	-15.49	Horizontal

Note: Spurious Emission Level = Spectrum Analyzer Read Value + Cable Loss+ Antenna Factor + 11.74  
 . Margin = Spurious Emission Level - Limit  
 . Both QPSK and 16QAM has been tested, the worst case is QPSK mode, the report just reported the worst case

9.6 LTE BAND 38

**QPSK EIRP POWER FOR LTE BAND 38 (5MHZ BANDWIDTH)**

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145	-58.50	4.01	27.5	-35.01	-25	-10.01	Horizontal
5145	-58.60	4.01	27.5	-35.11	-25	-10.11	Vertical
7717.5	-63.07	5.09	27.8	-40.36	-25	-15.36	Vertical
7717.5	-60.67	5.09	27.8	-37.96	-25	-12.96	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-61.16	4.1	27.48	-37.78	-25	-12.78	Horizontal
5190	-64.42	4.1	27.48	-41.04	-25	-16.04	Vertical
7785	-63.02	5.42	27.7	-40.74	-25	-15.74	Vertical
7785	-62.36	5.42	27.7	-40.08	-25	-15.08	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-59.01	4.11	27.43	-35.69	-25	-10.69	Horizontal
5234	-63.43	4.11	27.43	-40.11	-25	-15.11	Vertical
7851	-59.58	5.31	27.74	-37.15	-25	-12.15	Vertical
7851	-64.33	5.31	27.74	-41.90	-25	-16.90	Horizontal

**QPSK EIRP POWER FOR LTE BAND 38 (20MHZ BANDWIDTH)**

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-63.74	3.89	27.5	-40.13	-25	-15.13	Horizontal
5160	-60.24	3.89	27.5	-36.63	-25	-11.63	Vertical
7740	-62.99	5.33	27.8	-40.52	-25	-15.52	Vertical
7740	-60.46	5.33	27.8	-37.99	-25	-12.99	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-58.51	4.1	27.48	-35.13	-25	-10.13	Horizontal
5190	-58.69	4.1	27.48	-35.31	-25	-10.31	Vertical
7785	-62.39	5.42	27.7	-40.11	-25	-15.11	Vertical
7785	-59.37	5.42	27.7	-37.09	-25	-12.09	Horizontal
Test Results for High Channel 2610MHz							
5220	-59.86	4.01	27.43	-36.44	-25	-11.44	Horizontal
5220	-63.31	4.01	27.43	-39.89	-25	-14.89	Vertical
7830	-62.56	5.34	27.74	-40.16	-25	-15.16	Vertical
7830	-62.04	5.34	27.74	-39.64	-25	-14.64	Horizontal

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

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.

9.7 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-53.49	4.02	29.80	-27.71	-13	-14.71	Horizontal
3421.4	-52.90	4.02	29.80	-27.12	-13	-14.12	Vertical
5132.1	-53.32	5.24	35.84	-22.72	-13	-9.72	Vertical
5132.1	-49.67	5.24	35.84	-19.07	-13	-6.07	Horizontal
112.6	-51.65	1.52	15.57	-37.60	-13	-24.60	Vertical
220.5	-51.36	1.33	17.14	-35.55	-13	-22.55	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-48.68	4.03	30.00	-22.71	-13	-9.71	Horizontal
3490.0	-51.06	4.03	30.00	-25.09	-13	-12.09	Vertical
5235.0	-50.56	5.25	35.86	-19.95	-13	-6.95	Vertical
5235.0	-49.94	5.25	35.86	-19.33	-13	-6.33	Horizontal
157.3	-45.27	1.53	17.13	-29.67	-13	-16.67	Vertical
213.1	-52.31	1.41	15.95	-37.77	-13	-24.77	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-49.11	4.05	30.01	-23.15	-13	-10.15	Horizontal
3558.6	-45.57	4.05	30.01	-19.61	-13	-6.61	Vertical
5337.9	-49.64	5.26	35.86	-19.04	-13	-6.04	Vertical
5337.9	-52.52	5.26	35.86	-21.92	-13	-8.92	Horizontal
170.6	-47.89	1.44	15.51	-33.82	-13	-20.82	Vertical
169.0	-51.72	1.78	15.76	-37.74	-13	-24.74	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-54.24	4.02	29.80	-28.46	-13	-15.46	Horizontal
3440.0	-48.03	4.02	29.80	-22.25	-13	-9.25	Vertical
5160.0	-49.67	5.24	35.84	-19.07	-13	-6.07	Vertical
5160.0	-48.16	5.24	35.84	-17.56	-13	-4.56	Horizontal
268.8	-49.58	1.62	17.02	-34.18	-13	-21.18	Vertical
161.4	-45.41	1.32	17.31	-29.42	-13	-16.42	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-49.68	4.03	30.00	-23.71	-13	-10.71	Horizontal
3490.0	-48.46	4.03	30.00	-22.49	-13	-9.49	Vertical
5235.0	-53.02	5.25	35.86	-22.41	-13	-9.41	Vertical
5235.0	-52.55	5.25	35.86	-21.94	-13	-8.94	Horizontal
159.9	-53.60	1.45	15.17	-39.88	-13	-26.88	Vertical
172.1	-51.43	1.48	17.82	-35.09	-13	-22.09	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-44.13	2.91	27.68	-19.36	-13	-6.36	Horizontal
3540.0	-47.95	2.91	27.68	-23.18	-13	-10.18	Vertical
5310.0	-52.77	5.26	35.86	-22.17	-13	-9.17	Vertical
5310.0	-53.30	5.26	35.86	-22.70	-13	-9.70	Horizontal
197.3	-53.15	1.76	16.38	-38.53	-13	-25.53	Vertical
158.5	-54.56	1.43	17.13	-38.86	-13	-25.86	Horizontal

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

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  $\pm 2.5$  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. =  $-30^{\circ}$  to  $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 3.4V, Normal, DC 3.85V and High voltage, DC 4.4V.

### Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to  $-30^{\circ}\text{C}$  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 38
- LTE Band 66

### RESULTS

See the following pages.



### 10.1 LTE BAND 2

QPSK, (20MHz BANDWIDTH)

#### Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	1880	13.0	0.006925	2.5
3.85	1880	13.6	0.007251	2.5
4.4	1880	13.6	0.007245	2.5

#### Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	1880	12.4	0.006608	2.5
Extreme (50C)	1880	11.5	0.006129	2.5
Extreme (40C)	1880	13.5	0.007202	2.5
Extreme (30C)	1880	13.5	0.007179	2.5
Extreme (10C)	1880	13.6	0.007246	2.5
Extreme (0C)	1880	12.1	0.006451	2.5
Extreme (-10C)	1880	13.3	0.007090	2.5
Extreme (-20C)	1880	14.5	0.007711	2.5
Extreme (-30C)	1880	14.6	0.007766	2.5

**16QAM, (20MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	1880	9.6	0.005091	2.5
3.85	1880	8.4	0.004484	2.5
4.4	1880	8.5	0.004498	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	1880	9.2	0.004906	2.5
Extreme (50C)	1880	9.3	0.004972	2.5
Extreme (40C)	1880	7.9	0.004184	2.5
Extreme (30C)	1880	9.1	0.004832	2.5
Extreme (10C)	1880	8.5	0.004543	2.5
Extreme (0C)	1880	8.4	0.004458	2.5
Extreme (-10C)	1880	9.3	0.004921	2.5
Extreme (-20C)	1880	8.5	0.004521	2.5
Extreme (-30C)	1880	8.4	0.004480	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]
<b>BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	1732.5	8.3	0.004809	2.5
3.85	1732.5	9.3	0.005386	2.5
4.4	1732.5	8.3	0.004814	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	1732.5	8.3	0.004784	2.5
Extreme (50C)	1732.5	8.4	0.004866	2.5
Extreme (40C)	1732.5	7.7	0.004460	2.5
Extreme (30C)	1732.5	5.8	0.003344	2.5
Extreme (10C)	1732.5	7.0	0.004048	2.5
Extreme (0C)	1732.5	9.3	0.005389	2.5
Extreme (-10C)	1732.5	8.0	0.004625	2.5
Extreme (-20C)	1732.5	6.8	0.003927	2.5
Extreme (-30C)	1732.5	8.6	0.004958	2.5

**16QAM, (20MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	1732.5	9.8	0.005637	2.5
3.85	1732.5	8.5	0.004917	2.5
4.4	1732.5	7.9	0.004580	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	1732.5	9.5	0.005488	2.5
Extreme (50C)	1732.5	8.8	0.005075	2.5
Extreme (40C)	1732.5	7.8	0.004481	2.5
Extreme (30C)	1732.5	9.3	0.005381	2.5
Extreme (10C)	1732.5	8.9	0.005108	2.5
Extreme (0C)	1732.5	7.8	0.004481	2.5
Extreme (-10C)	1732.5	9.1	0.005253	2.5
Extreme (-20C)	1732.5	8.6	0.004973	2.5
Extreme (-30C)	1732.5	7.8	0.004475	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]
<b>BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
3.4	836.5	5.4	0.006470	2.5
3.85	836.5	6.7	0.007998	2.5
4.4	836.5	4.3	0.005146	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
Normal (25C)	836.5	6.1	0.007286	2.5
Extreme (50C)	836.5	6.3	0.007566	2.5
Extreme (40C)	836.5	6.4	0.007634	2.5
Extreme (30C)	836.5	6.2	0.007413	2.5
Extreme (10C)	836.5	5.6	0.006740	2.5
Extreme (0C)	836.5	5.7	0.006863	2.5
Extreme (-10C)	836.5	5.3	0.006349	2.5
Extreme (-20C)	836.5	6.3	0.007491	2.5
Extreme (-30C)	836.5	6.6	0.007851	2.5

**16QAM, (10MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
3.4	836.5	5.8	0.006929	2.5
3.85	836.5	6.7	0.007982	2.5
4.4	836.5	4.6	0.005520	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
Normal (25C)	836.5	6.2	0.007467	2.5
Extreme (50C)	836.5	6.2	0.007381	2.5
Extreme (40C)	836.5	6.2	0.007432	2.5
Extreme (30C)	836.5	6.8	0.008083	2.5
Extreme (10C)	836.5	5.3	0.006287	2.5
Extreme (0C)	836.5	5.7	0.006873	2.5
Extreme (-10C)	836.5	6.0	0.007187	2.5
Extreme (-20C)	836.5	6.1	0.007266	2.5
Extreme (-30C)	836.5	6.5	0.007811	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]
<b>BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	2535	9.6	0.003770	2.5
3.85	2535	9.2	0.003617	2.5
4.4	2535	8.9	0.003495	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	2535	9.4	0.003709	2.5
Extreme (50C)	2535	8.5	0.003357	2.5
Extreme (40C)	2535	8.3	0.003282	2.5
Extreme (30C)	2535	9.1	0.003589	2.5
Extreme (10C)	2535	8.2	0.003216	2.5
Extreme (0C)	2535	8.9	0.003508	2.5
Extreme (-10C)	2535	9.5	0.003742	2.5
Extreme (-20C)	2535	8.9	0.003511	2.5
Extreme (-30C)	2535	8.5	0.003366	2.5

**16QAM, (20MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	2535	6.7	0.002627	2.5
3.85	2535	6.0	0.002385	2.5
4.4	2535	5.3	0.002089	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	2535	7.1	0.002819	2.5
Extreme (50C)	2535	5.8	0.002299	2.5
Extreme (40C)	2535	5.3	0.002095	2.5
Extreme (30C)	2535	6.6	0.002587	2.5
Extreme (10C)	2535	5.8	0.002276	2.5
Extreme (0C)	2535	5.3	0.002099	2.5
Extreme (-10C)	2535	5.2	0.002067	2.5
Extreme (-20C)	2535	5.5	0.002166	2.5
Extreme (-30C)	2535	5.7	0.002242	2.5

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



10.5 LTE BAND 12

**Band 12 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	8.8	0.012442	2.5
3.85	707.5	10.2	0.014487	2.5
4.4	707.5	8.8	0.012458	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.5	0.012004	2.5
Extreme (50C)	707.5	7.3	0.010351	2.5
Extreme (40C)	707.5	7.1	0.010025	2.5
Extreme (30C)	707.5	8.2	0.011654	2.5
Extreme (10C)	707.5	7.3	0.010292	2.5
Extreme (0C)	707.5	9.1	0.012924	2.5
Extreme (-10C)	707.5	8.1	0.011503	2.5
Extreme (-20C)	707.5	9.1	0.012881	2.5
Extreme (-30C)	707.5	8.2	0.011540	2.5

**Band 12 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	707.5	7.6	0.010705	2.5
3.85	707.5	8.1	0.011394	2.5
4.4	707.5	7.7	0.010934	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
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 38

QPSK, (20MHz BANDWIDTH)

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 38 QPSK, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	2595	8.5	0.003266	2.5
3.85	2595	6.4	0.002463	2.5
4.4	2595	7.7	0.002961	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 38 QPSK, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	2595	7.9	0.003047	2.5
Extreme (50C)	2595	5.0	0.001944	2.5
Extreme (40C)	2595	5.6	0.002155	2.5
Extreme (30C)	2595	4.9	0.001875	2.5
Extreme (10C)	2595	6.2	0.002377	2.5
Extreme (0C)	2595	5.1	0.001963	2.5
Extreme (-10C)	2595	9.1	0.003515	2.5
Extreme (-20C)	2595	11.0	0.004255	2.5
Extreme (-30C)	2595	6.3	0.002424	2.5

**16QAM, (20MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 38 16QAM, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	2595	8.8	0.003408	2.5
3.85	2595	6.7	0.002569	2.5
4.4	2595	6.2	0.002382	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 38 16QAM, (CH 37850 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	2595	7.7	0.002977	2.5
Extreme (50C)	2595	4.7	0.001830	2.5
Extreme (40C)	2595	5.5	0.002125	2.5
Extreme (30C)	2595	4.3	0.001657	2.5
Extreme (10C)	2595	6.7	0.002596	2.5
Extreme (0C)	2595	4.6	0.001764	2.5
Extreme (-10C)	2595	9.6	0.003712	2.5
Extreme (-20C)	2595	10.9	0.004213	2.5
Extreme (-30C)	2595	6.4	0.002484	2.5

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

10.7 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	1745	12.3	0.007040	2.5
3.85	1745	13.8	0.007912	2.5
4.4	1745	13.7	0.007837	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	1745	7.1	0.004082	2.5
Extreme (50C)	1745	4.4	0.002518	2.5
Extreme (40C)	1745	5.3	0.003063	2.5
Extreme (30C)	1745	4.5	0.002579	2.5
Extreme (10C)	1745	6.5	0.003707	2.5
Extreme (0C)	1745	4.5	0.002572	2.5
Extreme (-10C)	1745	9.6	0.005484	2.5
Extreme (-20C)	1745	10.7	0.006153	2.5
Extreme (-30C)	1745	5.7	0.003254	2.5

**16QAM, (20MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
3.4	1745	12.3	0.007027	2.5
3.85	1745	13.4	0.007696	2.5
4.4	1745	13.4	0.007676	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)</b>				
Normal (25C)	1745	7.3	0.004176	2.5
Extreme (50C)	1745	4.6	0.002611	2.5
Extreme (40C)	1745	5.2	0.002958	2.5
Extreme (30C)	1745	4.6	0.002641	2.5
Extreme (10C)	1745	6.5	0.003698	2.5
Extreme (0C)	1745	4.6	0.002612	2.5
Extreme (-10C)	1745	9.8	0.005626	2.5
Extreme (-20C)	1745	11.3	0.006468	2.5
Extreme (-30C)	1745	5.8	0.003326	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.

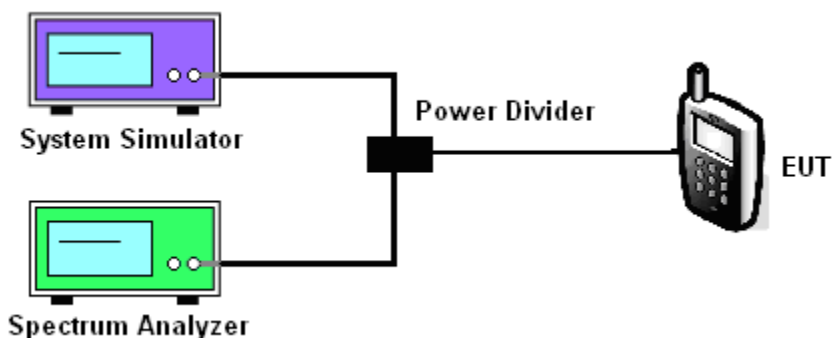
### 11.2 Measuring Instruments

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 2/4/5/7/12/38/66
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Test data reference attachment.

----END OF REPORT----