

# **FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT FCC ID: 2A7DX-BV9300PRO**

**Product:** Smartphone

**Trade Mark:** Blackview

**Model No.:** BV9300 Pro

**Family Model:** BV9300

**Report No.:** S23111003001006

**Issue Date:** Dec 14, 2023

## **Prepared for**

DOKE COMMUNICATION (HK) LIMITED  
RM 1902 EASEY COMM BLDG 253-261 HENNESSY ROAD  
WANCHAI HK CHINA

## **Prepared by**

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**TEST RESULT CERTIFICATION**

**Applicant's name**..... : DOKE COMMUNICATION (HK) LIMITED  
**Address** ..... : RM 1902 EASEY COMM BLDG 253-261 HENNESSY ROAD  
 WANCHAI HK CHINA  
**Manufacturer's Name**..... : Shenzhen DOKE Electronic Co., Ltd  
**Address** ..... : 801, Building3, 7th Industrial Zone, Yulv Community, Yutang Road,  
 Guangming District, Shenzhen, China.  
**Product name** ..... : Smartphone  
**Trade Mark** ..... : Blackview  
**Model and/or type reference** ..... : BV9300 Pro  
**Family Model**..... : BV9300  
**Test Sample number** ..... : S230810029001  
**Date of Test** ..... : Nov 10, 2023 ~ Dec 14, 2023  
**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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## 1. GENERAL INFORMATION

### 1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smartphone
Trade Mark	Blackview
Model Name	BV9300 Pro
Family Model	BV9300
Model Difference	The BV9300 Pro has an additional secondary screen, and the main camera has been upgraded from 50M to 64M compared to the BV9300.
FCC ID:	2A7DX-BV9300PRO
Frequency Bands:	<input checked="" type="checkbox"/> LTE FDD Band 2,4,5,7,12,13,17 LTE FDD Band 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 Uplink& Downlink: 2535MHz-2655MHz,
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	PIFA Antenna
Antenna gain:	Band2:0.33dBi; Band4:-0.86dBi; Band5:-1.18dBi; Band7:-0.32dBi; Band12:-2.97dBi; Band13:-2.07dBi; Band17:-2.97dBi; Band41:-0.41dBi;
Adapter	Model: QZ-03002AC00 Input: 100-240V~50/60Hz 0.8A Output: (PD)5.0V---3.0A or 9.0A---3.0A or 12.0A---2.5A or 15.0V---2.0A or 20.0V---1.5A (PPS)3.3V-11.0V---3.0A(33.0W Max)
Battery	DC 3.85V, 15080mAh
Power supply	DC 3.85V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 3.27 to DC 4.43V (Nominal DC 3.85V) (Note 1)
HW Version	TE177_MB_V1.2
SW Version	BV9300 Pro_NEU_TE177_V1.0
** Note1: The High Voltage DC 4.43V and Low Voltage 3.27V 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: 2A7DX-BV9300PRO** filing to comply with the FCC Part 22H&24E&27&90S.

**1.3 TEST METHODOLOGY**

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27, 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&5/F, Building C, 1&2/F, Building E, Fenda Science Park, Sanwei Community, Hangcheng Street, Baoan District, Shenzhen ,Guangdong, 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

**1.5 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

**1.6 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.

**1.7 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 2/4/5/7/12/13/17/41

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

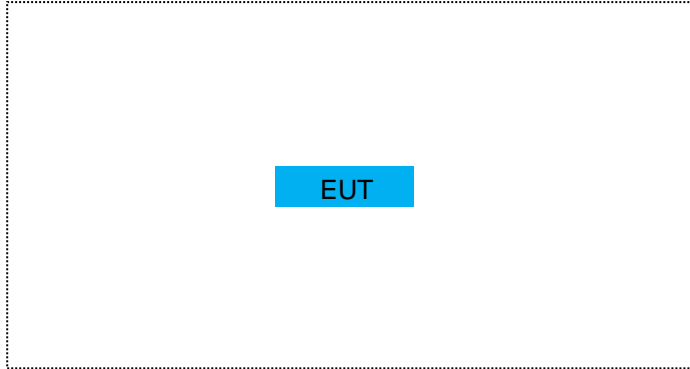
Item	Equipment	Model No.	ID or Specification	Note
1	Smartphone	BV9300 Pro	FCC ID: 2A7DX-BV9300PRO	EUT

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

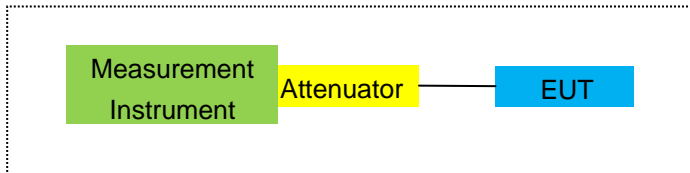


## 2.4 TEST SETUP

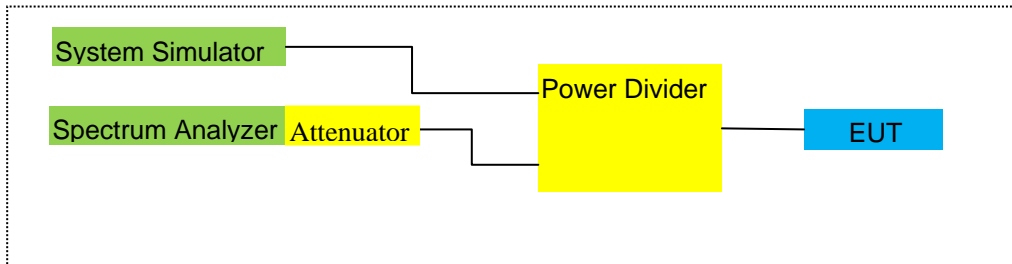
For Radiated Test Cases



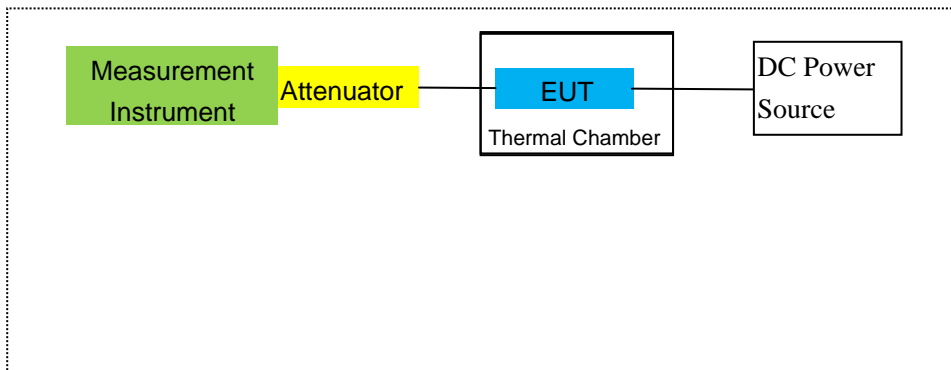
For Conducted Output Power



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	2023.03.16	2024.03.15	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	2022.03.31	2025.03.30	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2022.11.07	2025.11.06	3 year
7	Amplifier	EM	EM-30180	060538	2023.05.29	2024.05.28	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2023.11.03	2026.11.02	3 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	2023.05.29	2024.05.28	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 Receiver	R&S	ESCI	101160	2023.03.27	2024.03.26	1 year
14	LISN	R&S	ENV216	101313	2023.03.27	2024.03.26	1 year
15	LISN	EMCO	3816/2	00042990	2023.03.27	2024.03.26	1 year
16	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2023.03.27	2024.03.26	1 year
17	Passive Voltage Probe	R&S	ESH2-Z3	100196	2023.03.27	2024.03.26	1 year
18	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
19	Spectrum Analyzer	agilent	e4440a	us44300399	2023.03.27	2024.03.26	1 year
20	test receiver	R&S	ESCI	a0304218	2023.03.27	2024.03.26	1 year
21	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2023.03.27	2024.03.26	1 year
22	DC Power Source	N/A	PS-6005D	20170402923	2023.05.06	2026.05.05	3 year
23	Wireless Communications Test Set	R&S	CMW500	1100.008.02	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**

Band 2/4/5/7/12/13/17/41

### **RESULTS**

**PASS**

Test data reference attachment.

## 6. BANDEDGE AND EMISSION MASK

### RULE PART(S)

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

FCC: §22.359

### LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

**TEST PROCEDURE**

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

**MODES TESTED**

Band 2/4/5/7/12/13/17/41

**RESULTS**

Test data reference attachment.

## 7. OUT OF BAND EMISSIONS

### RULE PART(S)

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

### LIMITS

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

### TEST PROCEDURE

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

For each out of band emissions measurement:

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

### **MODES TESTED**

- Band 2/4/5/7/12/13/17/41
- 

### 7.1 MEASUREMENT METHOD

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

Test data reference attachment.



## 8. RADIATED MEASUREMENT

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

#### RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50 and §90.635

#### LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.

27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

#### TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

#### MODES TESTED

- Band 2/4/5/7/12/13/17/41

#### RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2										
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)			
1.4MHz Band QPSK	1/#Mid	1850.7	-3.40	3.76	28.24	21.08	128.233	Horizontal	Pass	
		1880	-3.31	3.91	28.22	21.00	125.893	Horizontal	Pass	
		1909.3	-3.15	3.93	28.20	21.12	129.420	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-3.34	3.77	28.23	21.12	129.420	Horizontal	Pass	
		1880	-3.22	3.91	28.24	21.11	129.122	Horizontal	Pass	
		1908.5	-3.33	3.94	28.25	20.98	125.314	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-3.41	3.77	28.31	21.13	129.718	Horizontal	Pass	
		1880	-3.22	3.91	28.22	21.09	128.529	Horizontal	Pass	
		1907.5	-3.15	3.94	28.20	21.11	129.122	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-3.55	3.79	28.33	20.99	125.603	Horizontal	Pass	
		1880	-3.27	3.95	28.22	21.00	125.893	Horizontal	Pass	
		1905	-3.09	3.97	28.19	21.13	129.718	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1857.5	-3.43	3.79	28.34	21.12	129.420	Horizontal	Pass	
		1880	-3.29	3.95	28.22	20.98	125.314	Horizontal	Pass	
		1902.5	-3.12	3.97	28.18	21.09	128.529	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1860	-3.55	3.81	28.35	20.99	125.603	Horizontal	Pass	
		1880	-3.28	3.96	28.22	20.98	125.314	Horizontal	Pass	
		1900	-3.21	4.00	28.16	20.95	124.451	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1850.7	-3.48	3.76	28.24	21.00	125.893	Vertical	Pass	
		1880	-3.25	3.91	28.22	21.06	127.644	Vertical	Pass	
		1909.3	-3.20	3.93	28.20	21.07	127.938	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-3.38	3.77	28.23	21.08	128.233	Vertical	Pass	
		1880	-3.28	3.91	28.24	21.05	127.350	Vertical	Pass	
		1908.5	-3.18	3.94	28.25	21.13	129.718	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-3.43	3.77	28.31	21.11	129.122	Vertical	Pass	
		1880	-3.34	3.91	28.22	20.97	125.026	Vertical	Pass	
		1907.5	-3.31	3.94	28.20	20.95	124.451	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-3.42	3.79	28.33	21.12	129.420	Vertical	Pass	
		1880	-3.24	3.95	28.22	21.03	126.765	Vertical	Pass	
		1905	-3.11	3.97	28.19	21.11	129.122	Vertical	Pass	

15.0MHz Band QPSK	1/#Mid	1857.5	-3.45	3.79	28.34	21.10	128.825	Vertical	Pass
		1880	-3.21	3.95	28.22	21.06	127.644	Vertical	Pass
		1902.5	-3.14	3.97	28.18	21.07	127.938	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.39	3.81	28.35	21.15	130.317	Vertical	Pass
		1880	-3.08	3.96	28.22	21.18	131.220	Vertical	Pass
		1900	-3.03	4.00	28.16	21.13	129.718	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.63	3.76	28.24	19.85	96.605	Horizontal	Pass
		1880	-4.45	3.91	28.22	19.86	96.828	Horizontal	Pass
		1909.3	-4.36	3.93	28.20	19.91	97.949	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.65	3.77	28.23	19.81	95.719	Horizontal	Pass
		1880	-4.51	3.91	28.24	19.82	95.940	Horizontal	Pass
		1908.5	-4.52	3.94	28.25	19.79	95.280	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.71	3.77	28.31	19.83	96.161	Horizontal	Pass
		1880	-4.45	3.91	28.22	19.86	96.828	Horizontal	Pass
		1907.5	-4.43	3.94	28.20	19.83	96.161	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.70	3.79	28.33	19.84	96.383	Horizontal	Pass
		1880	-4.35	3.95	28.22	19.92	98.175	Horizontal	Pass
		1905	-4.44	3.97	28.19	19.78	95.060	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.72	3.79	28.34	19.83	96.161	Horizontal	Pass
		1880	-4.40	3.95	28.22	19.87	97.051	Horizontal	Pass
		1902.5	-4.39	3.97	28.18	19.82	95.940	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.63	3.81	28.35	19.91	97.949	Horizontal	Pass
		1880	-4.41	3.96	28.22	19.85	96.605	Horizontal	Pass
		1900	-4.38	4.00	28.16	19.78	95.060	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.66	3.76	28.24	19.82	95.940	Vertical	Pass
		1880	-4.48	3.91	28.22	19.83	96.161	Vertical	Pass
		1909.3	-4.48	3.93	28.20	19.79	95.280	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.53	3.77	28.23	19.93	98.401	Vertical	Pass
		1880	-4.54	3.91	28.24	19.79	95.280	Vertical	Pass
		1908.5	-4.39	3.94	28.25	19.92	98.175	Vertical	Pass
5.0MHz	1/#Mid	1852.5	-4.66	3.77	28.31	19.88	97.275	Vertical	Pass

Band 16		1880	-4.45	3.91	28.22	19.86	96.828	Vertical	Pass
QAM		1907.5	-4.49	3.94	28.20	19.77	94.842	Vertical	Pass
10.0MHz	1/#Mid	1855	-4.63	3.79	28.33	19.91	97.949	Vertical	Pass
Band 16		1880	-4.46	3.95	28.22	19.81	95.719	Vertical	Pass
QAM		1905	-4.42	3.97	28.19	19.80	95.499	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-4.77	3.79	28.34	19.78	95.060	Vertical	Pass
Band 16		1880	-4.42	3.95	28.22	19.85	96.605	Vertical	Pass
QAM		1902.5	-4.41	3.97	28.18	19.80	95.499	Vertical	Pass
20.0MHz	1/#Mid	1860	-4.60	3.81	28.35	19.94	98.628	Vertical	Pass
Band 16		1880	-4.29	3.96	28.22	19.97	99.312	Vertical	Pass
QAM		1900	-4.23	4.00	28.16	19.93	98.401	Vertical	Pass

**Note:**

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-4.05	3.12	27.58	20.41	109.901	Horizontal	Pass
		1732.5	-3.92	3.27	27.61	20.42	110.154	Horizontal	Pass
		1754.3	-3.96	3.29	27.63	20.38	109.144	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.14	3.13	27.61	20.34	108.143	Horizontal	Pass
		1732.5	-3.96	3.27	27.61	20.38	109.144	Horizontal	Pass
		1753.5	-4.00	3.30	27.62	20.32	107.647	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.15	3.13	27.63	20.35	108.393	Horizontal	Pass
		1732.5	-3.95	3.27	27.61	20.39	109.396	Horizontal	Pass
		1752.5	-4.04	3.30	27.60	20.26	106.170	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.20	3.15	27.64	20.29	106.905	Horizontal	Pass
		1732.5	-3.96	3.31	27.61	20.34	108.143	Horizontal	Pass
		1750	-3.92	3.33	27.59	20.34	108.143	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.11	3.15	27.65	20.39	109.396	Horizontal	Pass
		1732.5	-3.94	3.31	27.61	20.36	108.643	Horizontal	Pass
		1747.5	-3.81	3.33	27.57	20.43	110.408	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.19	3.17	27.66	20.30	107.152	Horizontal	Pass
		1732.5	-3.96	3.32	27.61	20.33	107.895	Horizontal	Pass
		1745	-3.84	3.36	27.56	20.36	108.643	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-4.09	3.12	27.58	20.37	108.893	Vertical	Pass
		1732.5	-3.94	3.27	27.61	20.40	109.648	Vertical	Pass
		1754.3	-3.92	3.29	27.63	20.42	110.154	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.07	3.13	27.61	20.41	109.901	Vertical	Pass
		1732.5	-3.92	3.27	27.61	20.42	110.154	Vertical	Pass
		1753.5	-3.88	3.30	27.62	20.44	110.662	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.18	3.13	27.63	20.32	107.647	Vertical	Pass
		1732.5	-3.97	3.27	27.61	20.37	108.893	Vertical	Pass
		1752.5	-3.88	3.30	27.60	20.42	110.154	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.18	3.15	27.64	20.31	107.399	Vertical	Pass
		1732.5	-3.87	3.31	27.61	20.43	110.408	Vertical	Pass
		1750	-3.86	3.33	27.59	20.40	109.648	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-4.08	3.15	27.65	20.42	110.154	Vertical	Pass
		1732.5	-4.00	3.31	27.61	20.30	107.152	Vertical	Pass
		1747.5	-3.81	3.33	27.57	20.43	110.408	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.03	3.17	27.66	20.46	111.173	Vertical	Pass
		1732.5	-3.84	3.32	27.61	20.45	110.917	Vertical	Pass
		1745	-3.73	3.36	27.56	20.47	111.429	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.84	3.12	27.58	19.62	91.622	Horizontal	Pass
		1732.5	-4.72	3.27	27.61	19.62	91.622	Horizontal	Pass
		1754.3	-4.71	3.29	27.63	19.63	91.833	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.83	3.13	27.61	19.65	92.257	Horizontal	Pass
		1732.5	-4.70	3.27	27.61	19.64	92.045	Horizontal	Pass
		1753.5	-4.59	3.30	27.62	19.73	93.972	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.83	3.13	27.63	19.67	92.683	Horizontal	Pass
		1732.5	-4.68	3.27	27.61	19.66	92.470	Horizontal	Pass
		1752.5	-4.72	3.30	27.60	19.58	90.782	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.75	3.15	27.64	19.74	94.189	Horizontal	Pass
		1732.5	-4.69	3.31	27.61	19.61	91.411	Horizontal	Pass
		1750	-4.58	3.33	27.59	19.68	92.897	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.82	3.15	27.65	19.68	92.897	Horizontal	Pass
		1732.5	-4.67	3.31	27.61	19.63	91.833	Horizontal	Pass
		1747.5	-4.64	3.33	27.57	19.60	91.201	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.79	3.17	27.66	19.70	93.325	Horizontal	Pass
		1732.5	-4.69	3.32	27.61	19.60	91.201	Horizontal	Pass
		1745	-4.60	3.36	27.56	19.60	91.201	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.78	3.12	27.58	19.68	92.897	Vertical	Pass
		1732.5	-4.68	3.27	27.61	19.66	92.470	Vertical	Pass
		1754.3	-4.67	3.29	27.63	19.67	92.683	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.86	3.13	27.61	19.62	91.622	Vertical	Pass
		1732.5	-4.72	3.27	27.61	19.62	91.622	Vertical	Pass
		1753.5	-4.72	3.30	27.62	19.60	91.201	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.83	3.13	27.63	19.67	92.683	Vertical	Pass

Band 16		1732.5	-4.72	3.27	27.61	19.62	91.622	Vertical	Pass
QAM		1752.5	-4.63	3.30	27.60	19.67	92.683	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.89	3.15	27.64	19.60	91.201	Vertical	Pass
Band 16		1732.5	-4.65	3.31	27.61	19.65	92.257	Vertical	Pass
QAM		1750	-4.54	3.33	27.59	19.72	93.756	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-4.82	3.15	27.65	19.68	92.897	Vertical	Pass
Band 16		1732.5	-4.71	3.31	27.61	19.59	90.991	Vertical	Pass
QAM		1747.5	-4.56	3.33	27.57	19.68	92.897	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.71	3.17	27.66	19.78	95.060	Vertical	Pass
Band 16		1732.5	-4.52	3.32	27.61	19.77	94.842	Vertical	Pass
QAM		1745	-4.43	3.36	27.56	19.77	94.842	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

### 8.4 LTE BAND 5

Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP	Max. ERP			
			(dBm)				Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	1/#Mid	824.7	4.36	2.01	19.68	2.15	19.88	97.275	Horizontal	Pass	
		836.5	4.23	2.01	19.77	2.15	19.84	96.383	Horizontal	Pass	
		848.3	4.23	2.02	19.82	2.15	19.88	97.275	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	4.28	2.01	19.70	2.15	19.82	95.940	Horizontal	Pass	
		836.5	4.23	2.01	19.77	2.15	19.84	96.383	Horizontal	Pass	
		847.5	4.15	2.02	19.81	2.15	19.79	95.280	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	4.25	2.01	19.71	2.15	19.80	95.499	Horizontal	Pass	
		836.5	4.25	2.01	19.77	2.15	19.86	96.828	Horizontal	Pass	
		846.5	4.14	2.02	19.79	2.15	19.76	94.624	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	4.35	2.01	19.73	2.15	19.92	98.175	Horizontal	Pass	
		836.5	4.28	2.01	19.77	2.15	19.89	97.499	Horizontal	Pass	
		844	4.19	2.02	19.78	2.15	19.80	95.499	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	4.39	2.01	19.68	2.15	19.91	97.949	Vertical	Pass	
		836.5	4.25	2.01	19.77	2.15	19.86	96.828	Vertical	Pass	
		848.3	4.17	2.02	19.82	2.15	19.82	95.940	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	4.34	2.01	19.70	2.15	19.88	97.275	Vertical	Pass	
		836.5	4.19	2.01	19.77	2.15	19.80	95.499	Vertical	Pass	
		847.5	4.26	2.02	19.81	2.15	19.90	97.724	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	4.20	2.01	19.71	2.15	19.75	94.406	Vertical	Pass	
		836.5	4.25	2.01	19.77	2.15	19.86	96.828	Vertical	Pass	
		846.5	4.16	2.02	19.79	2.15	19.78	95.060	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	4.39	2.01	19.73	2.15	19.96	99.083	Vertical	Pass	
		836.5	4.34	2.01	19.77	2.15	19.95	98.855	Vertical	Pass	
		844	4.32	2.02	19.78	2.15	19.93	98.401	Vertical	Pass	



Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP	Max. ERP			
			(dBm)				Average	Average			
							(dBm)	(mW)			
1.4MHz Band 16 QAM	1/#Mid	824.7	3.58	2.01	19.68	2.15	19.10	81.283	Horizontal	Pass	
		836.5	3.51	2.01	19.77	2.15	19.12	81.658	Horizontal	Pass	
		848.3	3.45	2.02	19.82	2.15	19.10	81.283	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	3.63	2.01	19.70	2.15	19.17	82.604	Horizontal	Pass	
		836.5	3.47	2.01	19.77	2.15	19.08	80.910	Horizontal	Pass	
		847.5	3.51	2.02	19.81	2.15	19.15	82.224	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	3.65	2.01	19.71	2.15	19.20	83.176	Horizontal	Pass	
		836.5	3.54	2.01	19.77	2.15	19.15	82.224	Horizontal	Pass	
		846.5	3.57	2.02	19.79	2.15	19.19	82.985	Horizontal	Pass	
10.0MHz z Band 16 QAM	1/#Mid	829	3.59	2.01	19.73	2.15	19.16	82.414	Horizontal	Pass	
		836.5	3.46	2.01	19.77	2.15	19.07	80.724	Horizontal	Pass	
		844	3.47	2.02	19.78	2.15	19.08	80.910	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	824.7	3.56	2.01	19.68	2.15	19.08	80.910	Vertical	Pass	
		836.5	3.58	2.01	19.77	2.15	19.19	82.985	Vertical	Pass	
		848.3	3.45	2.02	19.82	2.15	19.10	81.283	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	825.5	3.54	2.01	19.70	2.15	19.08	80.910	Vertical	Pass	
		836.5	3.60	2.01	19.77	2.15	19.21	83.368	Vertical	Pass	
		847.5	3.46	2.02	19.81	2.15	19.10	81.283	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	826.5	3.62	2.01	19.71	2.15	19.17	82.604	Vertical	Pass	
		836.5	3.51	2.01	19.77	2.15	19.12	81.658	Vertical	Pass	
		846.5	3.46	2.02	19.79	2.15	19.08	80.910	Vertical	Pass	
10.0MHz z Band 16 QAM	1/#Mid	829	3.69	2.01	19.73	2.15	19.26	84.333	Vertical	Pass	
		836.5	3.64	2.01	19.77	2.15	19.25	84.140	Vertical	Pass	
		844	3.62	2.02	19.78	2.15	19.23	83.753	Vertical	Pass	

Note:

SG Level= Signal generator output

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

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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result					Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss	Factor (dB)	Max. EIRP	Max. EIRP		
			(dBm)	(dBm)		Average	Average		
					(dBm)	(mW)			
5.0MHz Band QPSK	1/#Mid	2502.5	-2.00	4.54	27.75	21.21	132.130	Horizontal	Pass
		2535	-1.78	4.69	27.72	21.25	133.352	Horizontal	Pass
		2567.5	-1.78	4.71	27.71	21.22	132.434	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.05	4.55	27.76	21.16	130.617	Horizontal	Pass
		2535	-1.89	4.69	27.72	21.14	130.017	Horizontal	Pass
		2565	-1.75	4.72	27.70	21.23	132.739	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.03	4.55	27.77	21.19	131.522	Horizontal	Pass
		2535	-1.78	4.69	27.72	21.25	133.352	Horizontal	Pass
		2562.5	-1.74	4.72	27.69	21.23	132.739	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.03	4.57	27.78	21.18	131.220	Horizontal	Pass
		2535	-1.78	4.73	27.72	21.21	132.130	Horizontal	Pass
		2560	-1.67	4.75	27.68	21.26	133.660	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-2.08	4.54	27.75	21.13	129.718	Vertical	Pass
		2535	-1.87	4.69	27.72	21.16	130.617	Vertical	Pass
		2567.5	-1.73	4.71	27.71	21.27	133.968	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.08	4.55	27.76	21.13	129.718	Vertical	Pass
		2535	-1.90	4.69	27.72	21.13	129.718	Vertical	Pass
		2565	-1.73	4.72	27.70	21.25	133.352	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.02	4.55	27.77	21.20	131.826	Vertical	Pass
		2535	-1.93	4.69	27.72	21.10	128.825	Vertical	Pass
		2562.5	-1.73	4.72	27.69	21.24	133.045	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-1.93	4.57	27.78	21.28	134.276	Vertical	Pass
		2535	-1.69	4.73	27.72	21.30	134.896	Vertical	Pass
		2560	-1.60	4.75	27.68	21.33	135.831	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)		Average	Average		
					(dBm)	(mW)			
5.0MHz Band 16 QAM	1/#Mid	2502.5	-2.84	4.54	27.75	20.37	108.893	Horizontal	Pass
		2535	-2.58	4.69	27.72	20.45	110.917	Horizontal	Pass
		2567.5	-2.64	4.71	27.71	20.36	108.643	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.84	4.55	27.76	20.37	108.893	Horizontal	Pass
		2535	-2.64	4.69	27.72	20.39	109.396	Horizontal	Pass
		2565	-2.59	4.72	27.70	20.39	109.396	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.92	4.55	27.77	20.30	107.152	Horizontal	Pass
		2535	-2.64	4.69	27.72	20.39	109.396	Horizontal	Pass
		2562.5	-2.63	4.72	27.69	20.34	108.143	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.77	4.57	27.78	20.44	110.662	Horizontal	Pass
		2535	-2.61	4.73	27.72	20.38	109.144	Horizontal	Pass
		2560	-2.48	4.75	27.68	20.45	110.917	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-2.84	4.54	27.75	20.37	108.893	Vertical	Pass
		2535	-2.67	4.69	27.72	20.36	108.643	Vertical	Pass
		2567.5	-2.56	4.71	27.71	20.44	110.662	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.82	4.55	27.76	20.39	109.396	Vertical	Pass
		2535	-2.68	4.69	27.72	20.35	108.393	Vertical	Pass
		2565	-2.52	4.72	27.70	20.46	111.173	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-2.85	4.55	27.77	20.37	108.893	Vertical	Pass
		2535	-2.67	4.69	27.72	20.36	108.643	Vertical	Pass
		2562.5	-2.61	4.72	27.69	20.36	108.643	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.70	4.57	27.78	20.51	112.460	Vertical	Pass
		2535	-2.47	4.73	27.72	20.52	112.720	Vertical	Pass
		2560	-2.42	4.75	27.68	20.51	112.460	Vertical	Pass

Note:

SG Level= Signal generator output

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

### 8.6 LTE BAND 12

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction	Max. ERP	Max. ERP			
			(dBm)			(dB)	Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	1/#Mid	699.7	3.18	1.91	19.21	2.15	18.33	68.077	Vertical	Pass	
		707.5	3.11	1.91	19.26	2.15	18.31	67.764	Vertical	Pass	
		715.3	3.03	1.93	19.34	2.15	18.29	67.453	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	3.10	1.91	19.21	2.15	18.25	66.834	Vertical	Pass	
		707.5	3.09	1.91	19.26	2.15	18.29	67.453	Vertical	Pass	
		714.5	2.98	1.93	19.34	2.15	18.24	66.681	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	3.01	1.91	19.23	2.15	18.18	65.766	Vertical	Pass	
		707.5	3.04	1.91	19.26	2.15	18.24	66.681	Vertical	Pass	
		713.5	2.90	1.92	19.33	2.15	18.16	65.464	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	704	3.01	1.91	19.25	2.15	18.20	66.069	Vertical	Pass	
		707.5	3.13	1.91	19.26	2.15	18.33	68.077	Vertical	Pass	
		711	3.05	1.92	19.32	2.15	18.30	67.608	Vertical	Pass	
1.4MHz Band QPSK	1/#Mid	699.7	3.05	1.91	19.21	2.15	18.20	66.069	Horizontal	Pass	
		707.5	3.07	1.91	19.26	2.15	18.27	67.143	Horizontal	Pass	
		715.3	3.05	1.93	19.34	2.15	18.31	67.764	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	3.06	1.91	19.21	2.15	18.21	66.222	Horizontal	Pass	
		707.5	3.02	1.91	19.26	2.15	18.22	66.374	Horizontal	Pass	
		714.5	3.06	1.93	19.34	2.15	18.32	67.920	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	3.15	1.91	19.23	2.15	18.32	67.920	Horizontal	Pass	
		707.5	3.08	1.91	19.26	2.15	18.28	67.298	Horizontal	Pass	
		713.5	2.92	1.92	19.33	2.15	18.18	65.766	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	704	3.17	1.91	19.25	2.15	18.36	68.549	Horizontal	Pass	
		707.5	3.15	1.91	19.26	2.15	18.35	68.391	Horizontal	Pass	
		711	3.13	1.92	19.32	2.15	18.38	68.865	Horizontal	Pass	

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction	Max. ERP	Max. ERP			
			(dBm)			(dB)	Average	Average			
							(dBm)	(mW)			
1.4MHz Band 16 QAM	1/#Mid	699.7	2.40	1.91	19.21	2.15	17.55	56.885	Vertical	Pass	
		707.5	2.32	1.91	19.26	2.15	17.52	56.494	Vertical	Pass	
		715.3	2.28	1.93	19.34	2.15	17.54	56.754	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	700.5	2.34	1.91	19.21	2.15	17.49	56.105	Vertical	Pass	
		707.5	2.30	1.91	19.26	2.15	17.50	56.234	Vertical	Pass	
		714.5	2.37	1.93	19.34	2.15	17.63	57.943	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	701.5	2.35	1.91	19.23	2.15	17.52	56.494	Vertical	Pass	
		707.5	2.26	1.91	19.26	2.15	17.46	55.719	Vertical	Pass	
		713.5	2.26	1.92	19.33	2.15	17.52	56.494	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	704	2.25	1.91	19.25	2.15	17.44	55.463	Vertical	Pass	
		707.5	2.27	1.91	19.26	2.15	17.47	55.847	Vertical	Pass	
		711	2.27	1.92	19.32	2.15	17.52	56.494	Vertical	Pass	
1.4MHz Band 16 QAM	1/#Mid	699.7	2.39	1.91	19.21	2.15	17.54	56.754	Horizontal	Pass	
		707.5	2.38	1.91	19.26	2.15	17.58	57.280	Horizontal	Pass	
		715.3	2.32	1.93	19.34	2.15	17.58	57.280	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	700.5	2.36	1.91	19.21	2.15	17.51	56.364	Horizontal	Pass	
		707.5	2.39	1.91	19.26	2.15	17.59	57.412	Horizontal	Pass	
		714.5	2.36	1.93	19.34	2.15	17.62	57.810	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	701.5	2.39	1.91	19.23	2.15	17.56	57.016	Horizontal	Pass	
		707.5	2.39	1.91	19.26	2.15	17.59	57.412	Horizontal	Pass	
		713.5	2.26	1.92	19.33	2.15	17.52	56.494	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	704	2.47	1.91	19.25	2.15	17.66	58.345	Horizontal	Pass	
		707.5	2.46	1.91	19.26	2.15	17.66	58.345	Horizontal	Pass	
		711	2.39	1.92	19.32	2.15	17.64	58.076	Horizontal	Pass	

**Note:**

SG Level= Signal generator output

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

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

8.7 LTE BAND 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	779.5	4.07	1.95	19.23	2.15	19.20	83.176	Vertical	Pass
		782	3.96	1.95	19.26	2.15	19.12	81.658	Vertical	Pass
		784.5	3.87	1.96	19.33	2.15	19.09	81.096	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	782	4.07	1.95	19.25	2.15	19.22	83.560	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	779.5	3.96	1.95	19.23	2.15	19.09	81.096	Horizontal	Pass
		782	4.02	1.95	19.26	2.15	19.18	82.794	Horizontal	Pass
		784.5	3.94	1.96	19.33	2.15	19.16	82.414	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	782	4.11	1.95	19.25	2.15	19.26	84.333	Horizontal	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. EPR	Max. EPR	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	779.5	3.26	1.95	19.23	2.15	18.39	69.024	Vertical	Pass
		782	3.25	1.95	19.26	2.15	18.41	69.343	Vertical	Pass
		784.5	3.12	1.96	19.33	2.15	18.34	68.234	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	782	3.12	1.95	19.25	2.15	18.27	67.143	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	779.5	3.17	1.95	19.23	2.15	18.30	67.608	Horizontal	Pass
		782	3.20	1.95	19.26	2.15	18.36	68.549	Horizontal	Pass
		784.5	3.20	1.96	19.33	2.15	18.42	69.502	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	782	3.33	1.95	19.25	2.15	18.48	70.469	Horizontal	Pass

**Note:**

SG Level= Signal generator output

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

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

8.8 LTE BAND 17

Radiated Power (ERP) for Band 17											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP	Max. ERP			
							Average	Average			
							(dBm)	(mW)			
5.0MHz Band QPSK	1/#Mid	706.5	3.16	1.91	19.23	2.15	18.33	68.077	Vertical	Pass	
		710	3.13	1.91	19.26	2.15	18.33	68.077	Vertical	Pass	
		713.5	3.11	1.92	19.33	2.15	18.37	68.707	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	709	3.17	1.91	19.25	2.15	18.36	68.549	Vertical	Pass	
		710	3.13	1.91	19.26	2.15	18.33	68.077	Vertical	Pass	
		711	3.15	1.92	19.32	2.15	18.40	69.183	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	706.5	3.13	1.91	19.23	2.15	18.30	67.608	Horizontal	Pass	
		710	3.21	1.91	19.26	2.15	18.41	69.343	Horizontal	Pass	
		713.5	3.07	1.92	19.33	2.15	18.33	68.077	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	709	3.29	1.91	19.25	2.15	18.48	70.469	Horizontal	Pass	
		710	3.26	1.91	19.26	2.15	18.46	70.146	Horizontal	Pass	
		711	3.21	1.92	19.32	2.15	18.46	70.146	Horizontal	Pass	



Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP (dBm)	Max. ERP (mW)	Polarization Of Max. ERP	
							Average	Average		
5.0MHz Band 16 QAM	1/#Mid	706.5	2.51	1.91	19.23	2.15	17.68	58.614	Vertical	Pass
		710	2.53	1.91	19.26	2.15	17.73	59.293	Vertical	Pass
		713.5	2.39	1.92	19.33	2.15	17.65	58.210	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	2.42	1.91	19.25	2.15	17.61	57.677	Vertical	Pass
		710	2.38	1.91	19.26	2.15	17.58	57.280	Vertical	Pass
		711	2.43	1.92	19.32	2.15	17.68	58.614	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	2.54	1.91	19.23	2.15	17.71	59.020	Horizontal	Pass
		710	2.49	1.91	19.26	2.15	17.69	58.749	Horizontal	Pass
		713.5	2.34	1.92	19.33	2.15	17.60	57.544	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	2.59	1.91	19.25	2.15	17.78	59.979	Horizontal	Pass
		710	2.57	1.91	19.26	2.15	17.77	59.841	Horizontal	Pass
		711	2.50	1.92	19.32	2.15	17.75	59.566	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)

8.9 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	2537.5	-1.04	4.54	27.75	22.17	164.816	Horizontal	Pass
		2595	-0.87	4.69	27.72	22.16	164.437	Horizontal	Pass
		2652.5	-0.92	4.71	27.71	22.08	161.436	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2540	-1.15	4.55	27.76	22.06	160.694	Horizontal	Pass
		2595	-0.85	4.69	27.72	22.18	165.196	Horizontal	Pass
		2650	-0.92	4.72	27.70	22.06	160.694	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-1.08	4.55	27.77	22.14	163.682	Horizontal	Pass
		2595	-0.84	4.69	27.72	22.19	165.577	Horizontal	Pass
		2647.5	-0.92	4.72	27.69	22.05	160.325	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2545	-1.04	4.57	27.78	22.17	164.816	Horizontal	Pass
		2595	-0.89	4.73	27.72	22.10	162.181	Horizontal	Pass
		2645	-0.78	4.75	27.68	22.15	164.059	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2537.5	-1.13	4.54	27.75	22.08	161.436	Vertical	Pass
		2595	-0.91	4.69	27.72	22.12	162.930	Vertical	Pass
		2652.5	-0.81	4.71	27.71	22.19	165.577	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2540	-1.01	4.55	27.76	22.20	165.959	Vertical	Pass
		2595	-0.97	4.69	27.72	22.06	160.694	Vertical	Pass
		2650	-0.89	4.72	27.70	22.09	161.808	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2542.5	-1.12	4.55	27.77	22.10	162.181	Vertical	Pass
		2595	-0.89	4.69	27.72	22.14	163.682	Vertical	Pass
		2647.5	-0.80	4.72	27.69	22.17	164.816	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2545	-0.95	4.57	27.78	22.26	168.267	Vertical	Pass
		2595	-0.73	4.73	27.72	22.26	168.267	Vertical	Pass
		2645	-0.72	4.75	27.68	22.21	166.341	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	2537.5	-1.81	4.54	27.75	21.40	138.038	Horizontal	Pass
		2595	-1.77	4.69	27.72	21.26	133.660	Horizontal	Pass
		2652.5	-1.64	4.71	27.71	21.36	136.773	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-1.88	4.55	27.76	21.33	135.831	Horizontal	Pass
		2595	-1.62	4.69	27.72	21.41	138.357	Horizontal	Pass
		2650	-1.66	4.72	27.70	21.32	135.519	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-1.90	4.55	27.77	21.32	135.519	Horizontal	Pass
		2595	-1.64	4.69	27.72	21.39	137.721	Horizontal	Pass
		2647.5	-1.58	4.72	27.69	21.39	137.721	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-1.80	4.57	27.78	21.41	138.357	Horizontal	Pass
		2595	-1.59	4.73	27.72	21.40	138.038	Horizontal	Pass
		2645	-1.55	4.75	27.68	21.38	137.404	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2537.5	-1.95	4.54	27.75	21.26	133.660	Vertical	Pass
		2595	-1.70	4.69	27.72	21.33	135.831	Vertical	Pass
		2652.5	-1.61	4.71	27.71	21.39	137.721	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-1.87	4.55	27.76	21.34	136.144	Vertical	Pass
		2595	-1.62	4.69	27.72	21.41	138.357	Vertical	Pass
		2650	-1.60	4.72	27.70	21.38	137.404	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-1.98	4.55	27.77	21.24	133.045	Vertical	Pass
		2595	-1.67	4.69	27.72	21.36	136.773	Vertical	Pass
		2647.5	-1.60	4.72	27.69	21.37	137.088	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-1.76	4.57	27.78	21.45	139.637	Vertical	Pass
		2595	-1.55	4.73	27.72	21.44	139.316	Vertical	Pass
		2645	-1.49	4.75	27.68	21.44	139.316	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

## 9. SPURIOUS RADIATION EMISSION

### RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691

### LIMIT

§22.917 (e) and §24.238 and §90.691 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

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

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

### TEST PROCEDURE

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

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

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

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

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than  $43 + 10 \text{ Log}_{10} (p)$ , 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 2/4/5/7/12/13/17/41

**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	-49.50	4.04	33.51	-20.03	-13	-7.03	Horizontal
3701.4	-52.79	4.04	33.51	-23.32	-13	-10.32	Vertical
5552.1	-49.81	5.24	35.84	-19.21	-13	-6.21	Vertical
5552.1	-49.85	5.24	35.84	-19.25	-13	-6.25	Horizontal
184.5	-42.59	1.43	16.02	-28.00	-13	-15.00	Vertical
324.0	-42.67	1.30	17.99	-25.98	-13	-12.98	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-44.76	4.04	33.56	-15.24	-13	-2.24	Horizontal
3760.0	-47.22	4.04	33.56	-17.70	-13	-4.70	Vertical
5640.0	-44.03	5.24	35.91	-13.36	-13	-0.36	Vertical
5640.0	-50.70	5.24	35.91	-20.03	-13	-7.03	Horizontal
210.2	-36.81	1.62	16.97	-21.46	-13	-8.46	Vertical
402.2	-42.77	1.74	15.98	-28.54	-13	-15.54	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-52.57	4.04	34.00	-22.61	-13	-9.61	Horizontal
3818.6	-46.51	4.04	34.00	-16.55	-13	-3.55	Vertical
5727.9	-47.11	5.24	36.04	-16.31	-13	-3.31	Vertical
5727.9	-52.97	5.24	36.04	-22.17	-13	-9.17	Horizontal
212.8	-40.84	1.42	17.29	-24.97	-13	-11.97	Vertical
438.7	-42.76	1.50	17.90	-26.35	-13	-13.35	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-50.20	4.07	33.54	-20.73	-13	-7.73	Horizontal
3720.0	-51.11	4.07	33.54	-21.64	-13	-8.64	Vertical
5580.0	-53.55	5.28	35.86	-22.97	-13	-9.97	Vertical
5580.0	-52.00	5.28	35.86	-21.42	-13	-8.42	Horizontal
208.1	-36.30	1.58	16.89	-20.98	-13	-7.98	Vertical
333.2	-40.46	1.76	17.26	-24.96	-13	-11.96	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-52.48	4.04	33.56	-22.96	-13	-9.96	Horizontal
3760.0	-46.09	4.04	33.56	-16.57	-13	-3.57	Vertical
5640.0	-46.99	5.24	35.91	-16.32	-13	-3.32	Vertical
5640.0	-51.81	5.24	35.91	-21.14	-13	-8.14	Horizontal
195.5	-39.83	1.46	16.27	-25.02	-13	-12.02	Vertical
465.8	-44.34	1.59	15.15	-30.78	-13	-17.78	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-44.85	4.04	34.00	-14.89	-13	-1.89	Horizontal
3800.0	-53.76	4.04	34.00	-23.80	-13	-10.80	Vertical
5700.0	-45.60	5.24	36.04	-14.80	-13	-1.80	Vertical
5700.0	-51.60	5.24	36.04	-20.80	-13	-7.80	Horizontal
181.6	-34.29	1.36	17.39	-18.25	-13	-5.25	Vertical
455.1	-38.22	1.66	15.39	-24.49	-13	-11.49	Horizontal

Note: P<sub>Mea</sub>(dBm)= Power(dBm)+ AR<sub>pl</sub> (dBm)

. Over Limit= : P<sub>Mea</sub>(dBm)-Limit(dBm)

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

**9.2 LTE BAND 4**

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-44.07	4.02	29.80	-18.29	-13	-5.29	Horizontal
3421.4	-52.24	4.02	29.80	-26.46	-13	-13.46	Vertical
5132.1	-48.92	5.24	35.84	-18.32	-13	-5.32	Vertical
5132.1	-51.64	5.24	35.84	-21.04	-13	-8.04	Horizontal
179.4	-34.49	1.68	16.04	-20.13	-13	-7.13	Vertical
469.7	-35.48	1.78	17.74	-19.52	-13	-6.52	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-53.67	4.03	30.00	-27.70	-13	-14.70	Horizontal
3465.0	-46.30	4.03	30.00	-20.33	-13	-7.33	Vertical
5197.5	-48.14	5.25	35.86	-17.53	-13	-4.53	Vertical
5197.5	-50.58	5.25	35.86	-19.97	-13	-6.97	Horizontal
209.4	-34.80	1.72	17.69	-18.83	-13	-5.83	Vertical
403.2	-38.60	1.62	16.02	-24.19	-13	-11.19	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-44.29	4.05	30.01	-18.33	-13	-5.33	Horizontal
3508.6	-53.48	4.05	30.01	-27.52	-13	-14.52	Vertical
5262.9	-44.77	5.26	35.86	-14.17	-13	-1.17	Vertical
5262.9	-50.31	5.26	35.86	-19.71	-13	-6.71	Horizontal
192.0	-42.46	1.80	16.69	-27.57	-13	-14.57	Vertical
452.8	-35.89	1.75	16.66	-20.99	-13	-7.99	Horizontal



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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-50.33	4.02	29.80	-24.55	-13	-11.55	Horizontal
3440.0	-45.51	4.02	29.80	-19.73	-13	-6.73	Vertical
5160.0	-48.73	5.24	35.84	-18.13	-13	-5.13	Vertical
5160.0	-51.86	5.24	35.84	-21.26	-13	-8.26	Horizontal
191.3	-37.83	1.57	17.26	-22.14	-13	-9.14	Vertical
321.1	-36.55	1.78	16.35	-21.98	-13	-8.98	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-46.31	4.03	30.00	-20.34	-13	-7.34	Horizontal
3465.0	-53.74	4.03	30.00	-27.77	-13	-14.77	Vertical
5197.5	-48.01	5.25	35.86	-17.40	-13	-4.40	Vertical
5197.5	-50.36	5.25	35.86	-19.75	-13	-6.75	Horizontal
183.5	-37.09	1.44	17.95	-20.58	-13	-7.58	Vertical
383.0	-35.62	1.65	16.09	-21.18	-13	-8.18	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-50.57	4.05	27.68	-26.94	-13	-13.94	Horizontal
3490.0	-49.86	4.05	27.68	-26.23	-13	-13.23	Vertical
5235.0	-49.74	5.26	35.86	-19.14	-13	-6.14	Vertical
5235.0	-50.42	5.26	35.86	-19.82	-13	-6.82	Horizontal
201.5	-36.04	1.61	16.85	-20.80	-13	-7.80	Vertical
331.8	-39.01	1.61	15.19	-25.43	-13	-12.43	Horizontal

Note: P<sub>Mea</sub>(dBm)= Power(dBm)+ AR<sub>pl</sub> (dBm)

Over Limit= : P<sub>Mea</sub>(dBm)-Limit(dBm)

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

**9.3 LTE BAND 5**

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-53.79	2.78	27.50	-29.07	-13	-16.07	Horizontal
1649.4	-45.64	2.78	27.50	-20.92	-13	-7.92	Vertical
2474.1	-46.78	2.90	27.80	-21.88	-13	-8.88	Vertical
2474.1	-51.65	2.90	27.80	-26.75	-13	-13.75	Horizontal
198.5	-43.35	1.76	17.59	-27.52	-13	-14.52	Vertical
388.8	-34.88	1.63	15.87	-20.64	-13	-7.64	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-46.15	2.80	27.48	-21.47	-13	-8.47	Horizontal
1673.0	-47.00	2.80	27.48	-22.32	-13	-9.32	Vertical
2509.5	-52.34	2.91	27.70	-27.55	-13	-14.55	Vertical
2509.5	-49.86	2.91	27.70	-25.07	-13	-12.07	Horizontal
184.1	-34.34	1.61	15.68	-20.27	-13	-7.27	Vertical
312.0	-44.48	1.59	17.52	-28.56	-13	-15.56	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-46.64	2.82	27.43	-22.03	-13	-9.03	Horizontal
1696.6	-45.48	2.82	27.43	-20.87	-13	-7.87	Vertical
2544.9	-44.68	2.92	27.74	-19.86	-13	-6.86	Vertical
2544.9	-49.81	2.92	27.74	-24.99	-13	-11.99	Horizontal
191.7	-44.99	1.69	16.67	-30.00	-13	-17.00	Vertical
410.5	-42.85	1.70	17.18	-27.37	-13	-14.37	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-47.58	2.78	27.50	-22.86	-13	-9.86	Horizontal
1658.0	-51.88	2.78	27.50	-27.16	-13	-14.16	Vertical
2487.0	-47.12	2.90	27.80	-22.22	-13	-9.22	Vertical
2487.0	-49.47	2.90	27.80	-24.57	-13	-11.57	Horizontal
196.8	-34.21	1.71	15.57	-20.35	-13	-7.35	Vertical
321.6	-40.30	1.34	16.40	-25.24	-13	-12.24	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-46.38	2.80	27.48	-21.70	-13	-8.70	Horizontal
1673.0	-52.24	2.80	27.48	-27.56	-13	-14.56	Vertical
2509.5	-49.00	2.91	27.70	-24.21	-13	-11.21	Vertical
2509.5	-51.40	2.91	27.70	-26.61	-13	-13.61	Horizontal
194.6	-41.21	1.44	17.04	-25.61	-13	-12.61	Vertical
351.2	-40.00	1.76	17.62	-24.14	-13	-11.14	Horizontal
Test Results for High Channel 844MHz							
1688.0	-52.42	2.82	27.43	-27.81	-13	-14.81	Horizontal
1688.0	-44.60	2.82	27.43	-19.99	-13	-6.99	Vertical
2532.0	-51.27	2.92	27.74	-26.45	-13	-13.45	Vertical
2532.0	-49.28	2.92	27.74	-24.46	-13	-11.46	Horizontal
207.4	-41.81	1.74	17.70	-25.85	-13	-12.85	Vertical
389.2	-37.43	1.41	17.46	-21.37	-13	-8.37	Horizontal

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

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

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

**9.4 LTE BAND 7**

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

<b>Test Results for Low Channel 2502.5MHz</b>							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-62.45	5.23	35.81	-31.87	-25	-6.87	Horizontal
5005.0	-60.36	5.23	35.81	-29.78	-25	-4.78	Vertical
7507.5	-64.54	5.67	36.85	-33.36	-25	-8.36	Vertical
7507.5	-62.81	5.67	36.85	-31.63	-25	-6.63	Horizontal
188.9	-50.07	1.73	17.97	-33.83	-25	-8.83	Vertical
368.5	-49.87	1.38	15.11	-36.14	-25	-11.14	Horizontal
<b>Test Results for Mid Channel 2535MHz</b>							
5070.0	-61.30	5.23	35.82	-30.71	-25	-5.71	Horizontal
5070.0	-59.41	5.23	35.82	-28.82	-25	-3.82	Vertical
7605.0	-63.16	5.67	36.85	-31.98	-25	-6.98	Vertical
7605.0	-60.03	5.67	36.85	-28.85	-25	-3.85	Horizontal
188.8	-49.05	1.77	16.17	-34.64	-25	-9.64	Vertical
435.0	-48.32	1.63	15.21	-34.74	-25	-9.74	Horizontal
<b>Test Results for High Channel 2567.5MHz</b>							
5135.0	-61.36	5.24	35.83	-30.77	-25	-5.77	Horizontal
5135.0	-60.04	5.24	35.83	-29.45	-25	-4.45	Vertical
7702.5	-63.35	5.68	36.87	-32.16	-25	-7.16	Vertical
7702.5	-61.59	5.68	36.87	-30.40	-25	-5.40	Horizontal
201.9	-49.44	1.58	17.56	-33.46	-25	-8.46	Vertical
299.3	-44.27	1.45	16.58	-29.14	-25	-4.14	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	-61.22	5.23	35.82	-30.63	-25	-5.63	Horizontal
5020.0	-62.64	5.23	35.82	-32.05	-25	-7.05	Vertical
7530.0	-59.48	5.67	36.86	-28.29	-25	-3.29	Vertical
7530.0	-60.92	5.67	36.86	-29.73	-25	-4.73	Horizontal
190.9	-51.63	1.63	15.76	-37.50	-25	-12.50	Vertical
249.4	-50.96	1.71	15.44	-37.23	-25	-12.23	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.56	5.23	35.82	-32.97	-25	-7.97	Horizontal
5070.0	-60.35	5.23	35.82	-29.76	-25	-4.76	Vertical
7605.0	-64.38	5.67	36.85	-33.20	-25	-8.20	Vertical
7605.0	-62.59	5.67	36.85	-31.41	-25	-6.41	Horizontal
175.6	-52.35	1.79	16.84	-37.29	-25	-12.29	Vertical
357.7	-50.93	1.71	17.64	-35.00	-25	-10.00	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.40	5.24	35.83	-30.81	-25	-5.81	Horizontal
5120.0	-62.49	5.24	35.83	-31.90	-25	-6.90	Vertical
7680.0	-59.90	5.70	36.88	-28.72	-25	-3.72	Vertical
7680.0	-62.98	5.70	36.88	-31.80	-25	-6.80	Horizontal
192.9	-44.01	1.79	16.84	-28.95	-25	-3.95	Vertical
308.5	-49.52	1.71	17.64	-33.59	-25	-8.59	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.

**9.5 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	-51.71	2.60	27.20	-27.11	-13	-14.11	Horizontal
1399.4	-49.24	2.60	27.20	-24.64	-13	-11.64	Vertical
2099.1	-49.42	2.85	27.54	-24.73	-13	-11.73	Vertical
2099.1	-52.85	2.85	27.54	-28.16	-13	-15.16	Horizontal
178.9	-37.57	1.49	17.78	-21.28	-13	-8.28	Vertical
272.2	-39.19	1.36	17.33	-23.22	-13	-10.22	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-45.98	2.61	27.28	-21.31	-13	-8.31	Horizontal
1415.0	-45.86	2.61	27.28	-21.19	-13	-8.19	Vertical
2122.5	-52.89	2.87	27.59	-28.17	-13	-15.17	Vertical
2122.5	-51.28	2.87	27.59	-26.56	-13	-13.56	Horizontal
180.5	-36.90	1.73	15.74	-22.89	-13	-9.89	Vertical
270.8	-44.50	1.62	15.79	-30.33	-13	-17.33	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-48.38	2.63	27.28	-23.73	-13	-10.73	Horizontal
1430.6	-46.72	2.63	27.28	-22.07	-13	-9.07	Vertical
2145.9	-53.59	2.88	27.60	-28.87	-13	-15.87	Vertical
2145.9	-53.62	2.88	27.60	-28.90	-13	-15.90	Horizontal
202.5	-39.63	1.61	18.00	-23.24	-13	-10.24	Vertical
258.9	-43.62	1.45	15.49	-29.59	-13	-16.59	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.0	-46.74	2.61	27.26	-22.09	-13	-9.09	Horizontal
1408.0	-48.20	2.61	27.26	-23.55	-13	-10.55	Vertical
2112.0	-52.61	2.87	27.58	-27.90	-13	-14.90	Vertical
2112.0	-53.38	2.87	27.58	-28.67	-13	-15.67	Horizontal
187.0	-36.69	1.31	16.97	-21.03	-13	-8.03	Vertical
362.7	-37.43	1.65	16.70	-22.38	-13	-9.38	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-52.15	2.61	27.28	-27.48	-13	-14.48	Horizontal
1415.0	-51.82	2.61	27.28	-27.15	-13	-14.15	Vertical
2122.5	-51.39	2.87	27.59	-26.67	-13	-13.67	Vertical
2122.5	-51.62	2.87	27.59	-26.90	-13	-13.90	Horizontal
198.1	-37.00	1.72	17.99	-20.73	-13	-7.73	Vertical
447.6	-40.50	1.73	17.94	-24.29	-13	-11.29	Horizontal
Test Results for High Channel 711MHz							
1422.0	-44.61	2.62	27.28	-19.95	-13	-6.95	Horizontal
1422.0	-44.19	2.62	27.28	-19.53	-13	-6.53	Vertical
2133.0	-50.98	2.87	27.60	-26.25	-13	-13.25	Vertical
2133.0	-50.87	2.87	27.60	-26.14	-13	-13.14	Horizontal
185.1	-42.87	1.58	15.93	-28.52	-13	-15.52	Vertical
374.1	-42.95	1.36	15.59	-28.72	-13	-15.72	Horizontal

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

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

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

**9.6 LTE BAND 13**

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

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-70.70	2.61	27.28	-46.03	-40	-6.03	Horizontal
1559.0	-77.73	2.61	27.28	-53.06	-40	-13.06	Vertical
2338.5	-73.01	2.87	27.59	-48.29	-13	-35.29	Vertical
2338.5	-72.62	2.87	27.59	-47.90	-13	-34.90	Horizontal
196.2	-73.21	1.71	16.15	-58.77	-13	-45.77	Vertical
393.7	-71.93	1.41	17.32	-56.02	-13	-43.02	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-71.10	2.62	27.30	-46.42	-40	-6.42	Horizontal
1564.0	-70.28	2.62	27.30	-45.60	-40	-5.60	Vertical
2346.0	-72.90	2.87	27.62	-48.15	-13	-35.15	Vertical
2346.0	-73.84	2.87	27.62	-49.09	-13	-36.09	Horizontal
183.3	-69.93	1.42	15.25	-56.11	-13	-43.11	Vertical
255.5	-73.98	1.36	17.19	-58.15	-13	-45.15	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-70.86	2.66	27.28	-46.24	-40	-6.24	Horizontal
1569.0	-77.15	2.66	27.28	-52.53	-40	-12.53	Vertical
2353.5	-68.63	2.88	27.60	-43.91	-13	-30.91	Vertical
2353.5	-70.15	2.88	27.60	-45.43	-13	-32.43	Horizontal
195.6	-72.46	1.32	17.29	-56.49	-13	-43.49	Vertical
367.4	-72.84	1.72	16.89	-57.67	-13	-44.67	Horizontal



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

Test Results for Low Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-75.12	2.62	27.30	-50.44	-40	-10.44	Horizontal
1564.0	-70.11	2.62	27.30	-45.43	-40	-5.43	Vertical
2346.0	-72.97	2.87	27.62	-48.22	-13	-35.22	Vertical
2346.0	-69.91	2.87	27.62	-45.16	-13	-32.16	Horizontal
203.6	-68.06	1.35	16.91	-52.50	-13	-39.50	Vertical
252.1	-68.46	1.62	16.31	-53.77	-13	-40.77	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.

**9.7 LTE BAND 17**

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-44.62	2.61	27.28	-19.95	-13	-6.95	Horizontal
1413.0	-45.98	2.61	27.28	-21.31	-13	-8.31	Vertical
2119.5	-52.98	2.87	27.59	-28.26	-13	-15.26	Vertical
2119.5	-51.27	2.87	27.59	-26.55	-13	-13.55	Horizontal
177.4	-40.97	1.71	16.15	-26.53	-13	-13.53	Vertical
368.7	-39.00	1.41	17.32	-23.09	-13	-10.09	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-50.02	2.62	27.30	-25.34	-13	-12.34	Horizontal
1420.0	-45.37	2.62	27.30	-20.69	-13	-7.69	Vertical
2130.0	-45.42	2.87	27.62	-20.67	-13	-7.67	Vertical
2130.0	-53.85	2.87	27.62	-29.10	-13	-16.10	Horizontal
207.8	-35.54	1.42	15.25	-21.72	-13	-8.72	Vertical
320.9	-43.38	1.36	17.19	-27.55	-13	-14.55	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-52.06	2.66	27.28	-27.44	-13	-14.44	Horizontal
1427.0	-52.14	2.66	27.28	-27.52	-13	-14.52	Vertical
2140.5	-44.78	2.88	27.60	-20.06	-13	-7.06	Vertical
2140.5	-50.71	2.88	27.60	-25.99	-13	-12.99	Horizontal
206.3	-37.39	1.32	17.29	-21.42	-13	-8.42	Vertical
269.7	-35.23	1.72	16.89	-20.06	-13	-7.06	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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-46.29	2.62	27.30	-21.61	-13	-8.61	Horizontal
1418.0	-44.80	2.62	27.30	-20.12	-13	-7.12	Vertical
2127.0	-47.27	2.87	27.62	-22.52	-13	-9.52	Vertical
2127.0	-52.35	2.87	27.62	-27.60	-13	-14.60	Horizontal
181.5	-36.46	1.35	16.91	-20.90	-13	-7.90	Vertical
273.5	-42.96	1.62	16.31	-28.27	-13	-15.27	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-44.94	2.62	27.30	-20.26	-13	-7.26	Horizontal
1420.0	-52.79	2.62	27.30	-28.11	-13	-15.11	Vertical
2130.0	-45.22	2.87	27.62	-20.47	-13	-7.47	Vertical
2130.0	-53.84	2.87	27.62	-29.09	-13	-16.09	Horizontal
187.8	-44.72	1.51	17.14	-29.09	-13	-16.09	Vertical
342.6	-41.31	1.77	16.88	-26.20	-13	-13.20	Horizontal
Test Results for High Channel 711MHz							
1422.0	-46.87	2.62	27.30	-22.19	-13	-9.19	Horizontal
1422.0	-44.65	2.62	27.30	-19.97	-13	-6.97	Vertical
2133.0	-50.09	2.87	27.62	-25.34	-13	-12.34	Vertical
2133.0	-52.27	2.87	27.62	-27.52	-13	-14.52	Horizontal
207.6	-43.99	1.78	15.95	-29.82	-13	-16.82	Vertical
278.8	-38.58	1.34	17.95	-21.98	-13	-8.98	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.

**9.8 LTE BAND 41**

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

<b>Test Results for Low Channel 2537.5MHz</b>							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5075.0	-59.66	5.13	35.81	-28.98	-25	-3.98	Horizontal
5075.0	-60.33	5.13	35.81	-29.65	-25	-4.65	Vertical
7612.5	-64.66	5.42	36.85	-33.23	-25	-8.23	Vertical
7612.5	-62.60	5.42	36.85	-31.17	-25	-6.17	Horizontal
212.5	-50.27	1.56	17.97	-33.86	-25	-8.86	Vertical
302.8	-45.46	1.33	15.11	-31.68	-25	-6.68	Horizontal
<b>Test Results for Mid Channel 2595MHz</b>							
5190.0	-62.67	5.16	35.82	-32.01	-25	-7.01	Horizontal
5190.0	-59.16	5.16	35.82	-28.50	-25	-3.50	Vertical
7785.0	-63.22	5.53	36.85	-31.90	-25	-6.90	Vertical
7785.0	-62.79	5.53	36.85	-31.47	-25	-6.47	Horizontal
208.8	-52.43	1.77	16.17	-38.02	-25	-13.02	Vertical
372.2	-54.38	1.63	15.21	-40.80	-25	-15.80	Horizontal
<b>Test Results for High Channel 2652.5MHz</b>							
5305.0	-59.58	5.23	35.83	-28.98	-25	-3.98	Horizontal
5305.0	-63.52	5.23	35.83	-32.92	-25	-7.92	Vertical
7957.5	-64.05	5.62	36.87	-32.80	-25	-7.80	Vertical
7957.5	-61.45	5.62	36.87	-30.20	-25	-5.20	Horizontal
194.5	-47.20	1.58	17.56	-31.22	-25	-6.22	Vertical
394.2	-49.86	1.45	16.58	-34.73	-25	-9.73	Horizontal

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

Test Results for Low Channel 2545MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5090.0	-59.17	5.23	35.82	-28.58	-25	-3.58	Horizontal
5090.0	-64.87	5.23	35.82	-34.28	-25	-9.28	Vertical
7635.0	-63.75	5.67	36.86	-32.56	-25	-7.56	Vertical
7635.0	-59.37	5.67	36.86	-28.18	-25	-3.18	Horizontal
198.0	-52.61	1.55	15.76	-38.40	-25	-13.40	Vertical
308.0	-54.73	1.62	15.44	-40.91	-25	-15.91	Horizontal
Test Results for Mid Channel 2595MHz							
5190.0	-64.74	5.16	35.82	-34.08	-25	-9.08	Horizontal
5190.0	-61.15	5.16	35.82	-30.49	-25	-5.49	Vertical
7785.0	-64.85	5.53	36.85	-33.53	-25	-8.53	Vertical
7785.0	-59.02	5.53	36.85	-27.70	-25	-2.70	Horizontal
193.2	-48.80	1.58	16.84	-33.54	-25	-8.54	Vertical
279.0	-52.03	1.61	17.64	-36.00	-25	-11.00	Horizontal
Test Results for High Channel 2645MHz							
5290.0	-59.39	5.24	35.83	-28.80	-25	-3.80	Horizontal
5290.0	-60.38	5.24	35.83	-29.79	-25	-4.79	Vertical
7935.0	-59.76	5.70	36.88	-28.58	-25	-3.58	Vertical
7935.0	-63.84	5.70	36.88	-32.66	-25	-7.66	Horizontal
203.3	-44.39	1.48	16.84	-29.03	-25	-4.03	Vertical
362.1	-48.94	1.59	17.64	-32.89	-25	-7.89	Horizontal

Note: P<sub>Mea</sub>(dBm)= Power(dBm)+ AR<sub>pl</sub> (dBm)

. Over Limit= : P<sub>Mea</sub>(dBm)-Limit(dBm)

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

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

## 10. FREQUENCY STABILITY

### RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54, §90.213

### LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  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 3.27V, Normal, DC 3.85V and High voltage, DC 4.43V.

### 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 2/4/5/7/12/13/17/41

### RESULTS

See the following pages.

## 10.1 LTE BAND 2

**Band 2 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)**
**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1880	12.3	0.006560	2.5
3.85	1880	13.8	0.007360	2.5
4.43	1880	13.2	0.007045	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.5	0.006632	2.5
Extreme (50C)	1880	11.3	0.006035	2.5
Extreme (40C)	1880	13.3	0.007060	2.5
Extreme (30C)	1880	13.7	0.007307	2.5
Extreme (10C)	1880	14.3	0.007628	2.5
Extreme (0C)	1880	12.1	0.006423	2.5
Extreme (-10C)	1880	12.9	0.006858	2.5
Extreme (-20C)	1880	14.5	0.007703	2.5
Extreme (-30C)	1880	14.8	0.007876	2.5

**Band 2 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1880	9.7	0.005186	2.5
3.85	1880	8.8	0.004666	2.5
4.43	1880	8.3	0.004423	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.5	0.005054	2.5
Extreme (50C)	1880	8.5	0.004507	2.5
Extreme (40C)	1880	8.4	0.004478445	2.5
Extreme (30C)	1880	9.3	0.004938804	2.5
Extreme (10C)	1880	9.2	0.004904023	2.5
Extreme (0C)	1880	8.4	0.004492089	2.5
Extreme (-10C)	1880	9.0	0.004773448	2.5
Extreme (-20C)	1880	8.9	0.004751412	2.5
Extreme (-30C)	1880	8.2	0.004366071	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

**Band 4 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)**
**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1732.5	9.1	0.005279	2.5
3.85	1732.5	8.6	0.004986	2.5
4.43	1732.5	8.8	0.005086	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.9	0.005117	2.5
Extreme (50C)	1732.5	9.4	0.005425	2.5
Extreme (40C)	1732.5	7.3	0.004192	2.5
Extreme (30C)	1732.5	5.8	0.003323	2.5
Extreme (10C)	1732.5	6.6	0.003811	2.5
Extreme (0C)	1732.5	9.1	0.005278	2.5
Extreme (-10C)	1732.5	8.2	0.004705	2.5
Extreme (-20C)	1732.5	6.9	0.003960	2.5
Extreme (-30C)	1732.5	8.2	0.004720	2.5

**Band 4 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	1732.5	9.5	0.005494	2.5
3.85	1732.5	9.1	0.005264	2.5
4.43	1732.5	8.5	0.004895	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.6	0.005557	2.5
Extreme (50C)	1732.5	8.7	0.005046	2.5
Extreme (40C)	1732.5	7.8	0.004515	2.5
Extreme (30C)	1732.5	8.6	0.004952	2.5
Extreme (10C)	1732.5	8.6	0.004948	2.5
Extreme (0C)	1732.5	8.5	0.004895	2.5
Extreme (-10C)	1732.5	9.0	0.005210	2.5
Extreme (-20C)	1732.5	8.6	0.004991	2.5
Extreme (-30C)	1732.5	8.2	0.004733	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

#### Band 5 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]
3.27	836.5	5.8	0.006979	2.5
3.85	836.5	6.6	0.007843	2.5
4.43	836.5	4.4	0.005245	2.5

##### Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.2	0.007397	2.5
Extreme (50C)	836.5	6.3	0.007522	2.5
Extreme (40C)	836.5	6.5	0.007733	2.5
Extreme (30C)	836.5	6.3	0.007590	2.5
Extreme (10C)	836.5	5.1	0.006136	2.5
Extreme (0C)	836.5	5.7	0.006790	2.5
Extreme (-10C)	836.5	5.4	0.006459	2.5
Extreme (-20C)	836.5	6.2	0.007391	2.5
Extreme (-30C)	836.5	6.4	0.007696	2.5

**Band 5 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]
3.27	836.5	6.1	0.007314	2.5
3.85	836.5	6.8	0.008178	2.5
4.43	836.5	4.3	0.005191	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.9	0.007009	2.5
Extreme (50C)	836.5	6.3	0.007515	2.5
Extreme (40C)	836.5	5.8	0.006890	2.5
Extreme (30C)	836.5	6.5	0.007823	2.5
Extreme (10C)	836.5	5.7	0.006768	2.5
Extreme (0C)	836.5	5.1	0.006150	2.5
Extreme (-10C)	836.5	5.8	0.006981	2.5
Extreme (-20C)	836.5	6.1	0.007344	2.5
Extreme (-30C)	836.5	5.9	0.007020	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

**Band 7 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2535	9.6	0.003803	2.5
3.85	2535	8.4	0.003327	2.5
4.43	2535	8.2	0.003218	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.8	0.003868	2.5
Extreme (50C)	2535	8.6	0.003395	2.5
Extreme (40C)	2535	8.2	0.003234	2.5
Extreme (30C)	2535	9.1	0.003606	2.5
Extreme (10C)	2535	7.9	0.003118	2.5
Extreme (0C)	2535	7.9	0.003120	2.5
Extreme (-10C)	2535	9.5	0.003764	2.5
Extreme (-20C)	2535	8.6	0.003380	2.5
Extreme (-30C)	2535	8.9	0.003492	2.5

**Band 7 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2535	6.9	0.002722	2.5
3.85	2535	6.4	0.002521	2.5
4.43	2535	6.2	0.002437	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.2	0.002049	2.5
Extreme (40C)	2535	5.8	0.002294	2.5
Extreme (30C)	2535	7.2	0.002834	2.5
Extreme (10C)	2535	5.3	0.002101	2.5
Extreme (0C)	2535	4.6	0.001830	2.5
Extreme (-10C)	2535	5.5	0.002188	2.5
Extreme (-20C)	2535	5.7	0.002261	2.5
Extreme (-30C)	2535	5.9	0.002322	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]
3.27	707.5	8.7	0.012256	2.5
3.85	707.5	10.0	0.014101	2.5
4.43	707.5	8.2	0.011555	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.5	0.012062	2.5
Extreme (50C)	707.5	7.4	0.010448	2.5
Extreme (40C)	707.5	7.6	0.010784	2.5
Extreme (30C)	707.5	8.0	0.011271	2.5
Extreme (10C)	707.5	7.9	0.011158	2.5
Extreme (0C)	707.5	9.1	0.012817	2.5
Extreme (-10C)	707.5	8.2	0.011612	2.5
Extreme (-20C)	707.5	9.2	0.012965	2.5
Extreme (-30C)	707.5	7.5	0.010650	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]
3.27	707.5	7.4	0.010405	2.5
3.85	707.5	7.8	0.011028	2.5
4.43	707.5	7.1	0.010103	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	9.1	0.012809	2.5
Extreme (50C)	707.5	8.0	0.011240	2.5
Extreme (40C)	707.5	9.2	0.013001	2.5
Extreme (30C)	707.5	7.8	0.010979	2.5
Extreme (10C)	707.5	8.7	0.012254	2.5
Extreme (0C)	707.5	7.0	0.009945	2.5
Extreme (-10C)	707.5	7.1	0.009978	2.5
Extreme (-20C)	707.5	9.3	0.013165	2.5
Extreme (-30C)	707.5	8.2	0.011523	2.5

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



10.6 LTE BAND 13

**Band 13 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]
3.27	782.0	12.4	0.015906	2.5
3.85	782.0	14.0	0.017926	2.5
4.43	782.0	13.8	0.017625	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	14.6	0.018628	2.5
Extreme (50C)	782.0	13.8	0.017634	2.5
Extreme (40C)	782.0	14.7	0.018742	2.5
Extreme (30C)	782.0	14.3	0.018317	2.5
Extreme (10C)	782.0	13.8	0.017702	2.5
Extreme (0C)	782.0	14.3	0.018322	2.5
Extreme (-10C)	782.0	13.7	0.017517	2.5
Extreme (-20C)	782.0	14.2	0.018209	2.5
Extreme (-30C)	782.0	13.4	0.017130	2.5

**Band 13 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]
3.27	782.0	12.5	0.015995	2.5
3.85	782.0	14.2	0.018097	2.5
4.43	782.0	13.5	0.017262	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	782.0	12.6	0.016055	2.5
Extreme (50C)	782.0	11.1	0.014236	2.5
Extreme (40C)	782.0	13.7	0.017460	2.5
Extreme (30C)	782.0	13.3	0.017015	2.5
Extreme (10C)	782.0	13.5	0.017312	2.5
Extreme (0C)	782.0	12.4	0.015882	2.5
Extreme (-10C)	782.0	12.7	0.016225	2.5
Extreme (-20C)	782.0	13.8	0.017678	2.5
Extreme (-30C)	782.0	14.9	0.018992	2.5

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

### 10.7 LTE BAND 17

**Band 17 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]
3.27	710.0	10.2	0.014429	2.5
3.85	710.0	8.6	0.012086	2.5
4.43	710.0	8.4	0.011879	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	10.0	0.014014	2.5
Extreme (50C)	710.0	9.3	0.013138	2.5
Extreme (40C)	710.0	8.5	0.011951	2.5
Extreme (30C)	710.0	9.5	0.013363	2.5
Extreme (10C)	710.0	9.1	0.012867	2.5
Extreme (0C)	710.0	8.1	0.011388	2.5
Extreme (-10C)	710.0	9.3	0.013101	2.5
Extreme (-20C)	710.0	8.8	0.012338	2.5
Extreme (-30C)	710.0	7.6	0.010746	2.5

**Band 17 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]
3.27	710.0	9.6	0.013469	2.5
3.85	710.0	8.9	0.012567	2.5
4.43	710.0	8.3	0.011624	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.1	0.012849	2.5
Extreme (50C)	710.0	8.9	0.012504	2.5
Extreme (40C)	710.0	8.7	0.012295	2.5
Extreme (30C)	710.0	8.7	0.012253	2.5
Extreme (10C)	710.0	8.3	0.011749	2.5
Extreme (0C)	710.0	8.0	0.011223	2.5
Extreme (-10C)	710.0	9.5	0.013359	2.5
Extreme (-20C)	710.0	9.0	0.012722	2.5
Extreme (-30C)	710.0	8.3	0.011688	2.5

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

10.8 LTE BAND 41

**Band 41 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2595	9.8	0.003789	2.5
3.85	2595	9.3	0.003591	2.5
4.43	2595	8.8	0.003406	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	9.1	0.003526	2.5
Extreme (50C)	2595	9.1	0.003493	2.5
Extreme (40C)	2595	8.8	0.003382	2.5
Extreme (30C)	2595	9.0	0.003470	2.5
Extreme (10C)	2595	7.7	0.002962	2.5
Extreme (0C)	2595	8.5	0.003262	2.5
Extreme (-10C)	2595	8.9	0.003438	2.5
Extreme (-20C)	2595	8.7	0.003356	2.5
Extreme (-30C)	2595	8.7	0.003342	2.5

**Band 41 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2595	6.9	0.002661	2.5
3.85	2595	6.1	0.002342	2.5
4.43	2595	6.0	0.002305	2.5

**Frequency error vs. Temperature**

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	6.9	0.002661	2.5
Extreme (50C)	2595	6.0	0.002302	2.5
Extreme (40C)	2595	5.3	0.002028	2.5
Extreme (30C)	2595	6.6	0.002542	2.5
Extreme (10C)	2595	5.7	0.002210	2.5
Extreme (0C)	2595	5.0	0.001918	2.5
Extreme (-10C)	2595	5.4	0.002077	2.5
Extreme (-20C)	2595	5.9	0.002266	2.5
Extreme (-30C)	2595	5.8	0.002250	2.5

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

## 11. Peak-to-Average Ratio

### 11.1 Description of the PAR Measurement

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

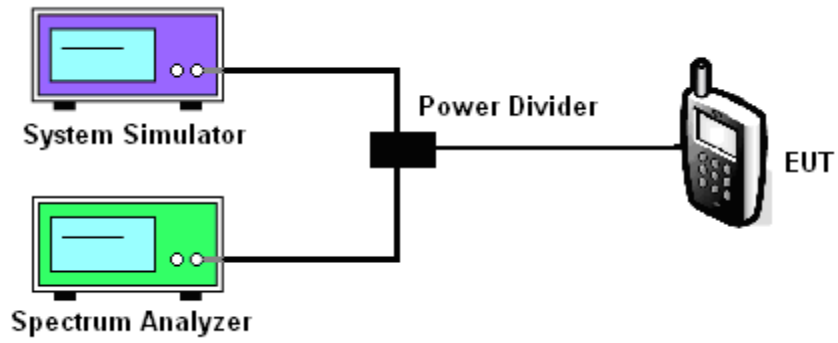
### 11.2 Measuring Instruments

See list of measuring instruments of this test report.

### 11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For LTE operating modes:
  - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
  - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

### 11.4 Test Setup



### MODES TESTED

LTE Band 2/4/5/7/12/13/17/41

Test data reference attachment.

----END OF REPORT----