

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

FCC ID: ZSW-30-132

Product: Mobile Phone

Trade Mark: Bmobile

Model No.: BL55

Family Model: N/A

Report No.: S23091806401005

Issue Date: 12 Oct. 2023

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 .. : BL55
Trade Mark..... : Bmobile
Family Model..... : N/A
Test Sample Number..... S230918064002
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..... 21 Sep. 2023 ~ 12 Oct. 2023
Date of Issue 12 Oct. 2023
Test Result..... **Pass**

Testing Engineer : 

(Allen Liu)
Authorized Signatory : 

(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone		
Trade Mark	Bmobile		
Model Name	BL55		
Family Model	N/A		
Model Difference	N/A		
FCC ID:	ZSW-30-132		
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2,4,5,12,17, 66,71 LTE TDD 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 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 Uplink: 2535MHz-2655MHz, (see note 2) LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz; LTE FDD Band 71 Uplink: 663MHz-698MHz, Downlink: 617MHz-652MHz;		
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)		
Power Class	Class 3		
Antenna:	PIFA Antenna		
Antenna gain:	Band2:-0.34dBi; Band4:-0.33dBi; Band5:-0.51dBi; Band12:-0.61dBi; Band17:-0.67dBi;Band41:-0.24dBi; Band66:-0.34dBi; Band71:-0.65dBi;		
Adapter	INPUT: AC 100-240V~50-60Hz 0.2A OUTPUT: DC 5.0V---1A		
Battery	DC 3.8V, 2500mAh		
Power supply	DC 3.8V from battery or DC 5V from adapter		
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.8V) (Note 1)		
HW Version	BMOBILE_BL55_OM_V001		
SW Version	BMOBILE_BL55_OM_V001		
** Note1: The High Voltage DC 4.2V and Low Voltage DC 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage. Note2:channel list:			
Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	40265	2557.5
	10	40290	2560

	15	40315	2562.5	
	20	40340	2565	
Mid Range	5/10/15/20	40740	2605	
High Range	5	41215	2652.5	
	10	41190	2650	
	15	41165	2647.5	
	20	41140	2645	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: ZSW-30-132** filing to comply with the FCC Part 22H&24E&27.

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

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

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

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

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

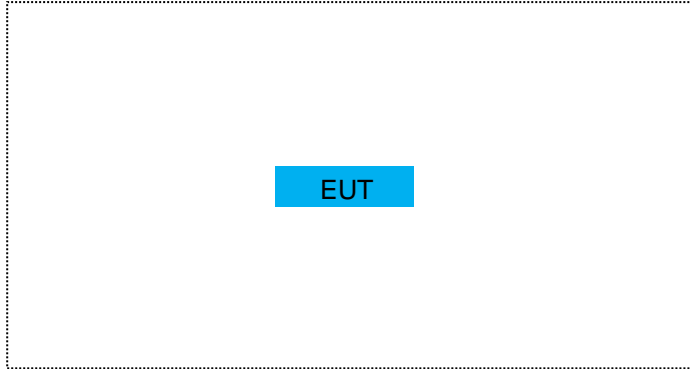
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	BL55	FCC ID: ZSW-30-132	EUT

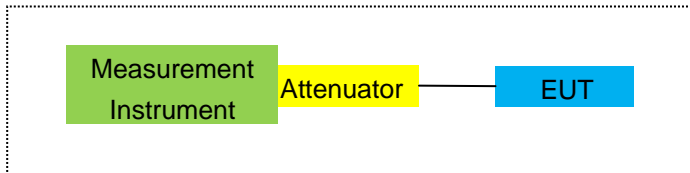
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

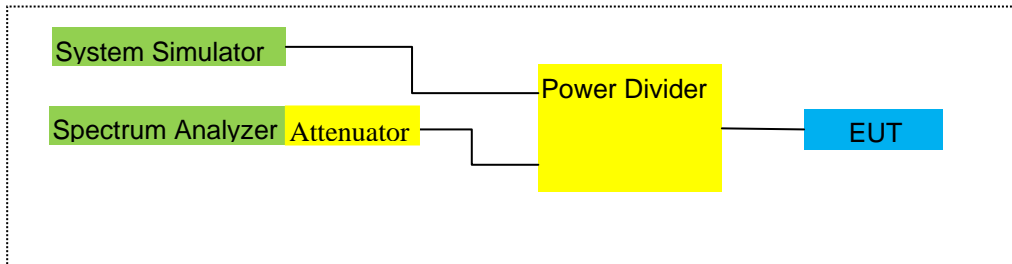
For Radiated Test Cases



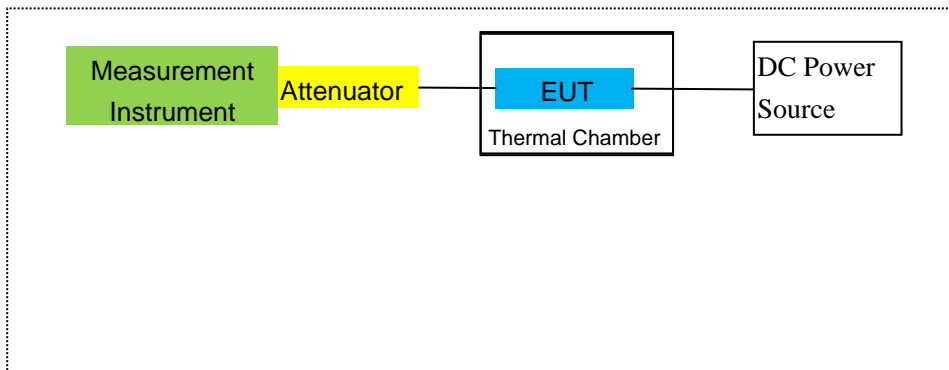
For Conducted Output Power



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	2023.03.27	2024.03.26	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	2023.03.27	2024.03.26	1 year
7	Amplifier	EM	EM-30180	060538	2023.03.27	2024.03.26	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	2023.03.27	2024.03.26	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	2023.03.27	2024.03.26	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	2023.03.27	2024.03.26	1 year
29	Communication Tester	R&S	CMW500	148500	2023.03.27	2024.03.26	1 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

Band 2/4/5/12/17/41/66/71

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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 2/4/5/12/17/41/66/71

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

- Band 2/4/5/12/17/41/66/71
-

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

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

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

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

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

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

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

- Band 2/4/5/12/17/41/66/71

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1850.7	-1.91	3.76	28.24	22.57	180.717	Horizontal	Pass
		1880	-1.72	3.91	28.22	22.59	181.552	Horizontal	Pass
		1909.3	-1.63	3.93	28.20	22.64	183.654	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-1.97	3.77	28.23	22.49	177.419	Horizontal	Pass
		1880	-1.82	3.91	28.24	22.51	178.238	Horizontal	Pass
		1908.5	-1.69	3.94	28.25	22.62	182.810	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-1.86	3.77	28.31	22.68	185.353	Horizontal	Pass
		1880	-1.48	3.91	28.22	22.83	191.867	Horizontal	Pass
		1907.5	-1.41	3.94	28.20	22.85	192.752	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.72	3.79	28.33	22.82	191.426	Horizontal	Pass
		1880	-1.42	3.95	28.22	22.85	192.752	Horizontal	Pass
		1905	-1.31	3.97	28.19	22.91	195.434	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-1.68	3.79	28.34	22.87	193.642	Horizontal	Pass
		1880	-1.47	3.95	28.22	22.80	190.546	Horizontal	Pass
		1902.5	-1.33	3.97	28.18	22.88	194.089	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-1.67	3.81	28.35	22.87	193.642	Horizontal	Pass
		1880	-1.34	3.96	28.22	22.92	195.884	Horizontal	Pass
		1900	-1.28	4.00	28.16	22.88	194.089	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.04	3.76	28.24	21.44	139.316	Vertical	Pass
		1880	-2.72	3.91	28.22	21.59	144.212	Vertical	Pass
		1909.3	-2.85	3.93	28.20	21.42	138.676	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-2.65	3.77	28.23	21.81	151.705	Vertical	Pass
		1880	-2.29	3.91	28.24	22.04	159.956	Vertical	Pass
		1908.5	-2.36	3.94	28.25	21.95	156.675	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.13	3.77	28.31	21.41	138.357	Vertical	Pass
		1880	-2.69	3.91	28.22	21.62	145.211	Vertical	Pass
		1907.5	-2.02	3.94	28.20	22.24	167.494	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.07	3.79	28.33	21.47	140.281	Vertical	Pass
		1880	-2.71	3.95	28.22	21.56	143.219	Vertical	Pass
		1905	-2.54	3.97	28.19	21.68	147.231	Vertical	Pass

15.0MHz		1857.5	-2.29	3.79	28.34	22.26	168.267	Vertical	Pass
Band	1/#Mid	1880	-2.04	3.95	28.22	22.23	167.109	Vertical	Pass
QPSK		1902.5	-2.63	3.97	28.18	21.58	143.880	Vertical	Pass
20.0MHz		1860	-2.78	3.81	28.35	21.76	149.968	Vertical	Pass
Band	1/#Mid	1880	-2.52	3.96	28.22	21.74	149.279	Vertical	Pass
QPSK		1900	-2.63	4.00	28.16	21.53	142.233	Vertical	Pass

Radiated Power (EIRP) for Band 2										
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	1850.7	-3.03	3.76	28.24	21.45	139.637	Horizontal	Pass	
		1880	-2.50	3.91	28.22	21.81	151.705	Horizontal	Pass	
		1909.3	-2.43	3.93	28.20	21.84	152.757	Horizontal	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-2.53	3.77	28.23	21.93	155.955	Horizontal	Pass	
		1880	-2.61	3.91	28.24	21.72	148.594	Horizontal	Pass	
		1908.5	-2.82	3.94	28.25	21.49	140.929	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	1852.5	-2.47	3.77	28.31	22.07	161.065	Horizontal	Pass	
		1880	-2.38	3.91	28.22	21.93	155.955	Horizontal	Pass	
		1907.5	-2.06	3.94	28.20	22.20	165.959	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	1855	-2.52	3.79	28.33	22.02	159.221	Horizontal	Pass	
		1880	-2.51	3.95	28.22	21.76	149.968	Horizontal	Pass	
		1905	-1.98	3.97	28.19	22.24	167.494	Horizontal	Pass	
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.50	3.79	28.34	22.05	160.325	Horizontal	Pass	
		1880	-2.29	3.95	28.22	21.98	157.761	Horizontal	Pass	
		1902.5	-2.25	3.97	28.18	21.96	157.036	Horizontal	Pass	
20.0MHz Band 16 QAM	1/#Mid	1860	-2.39	3.81	28.35	22.15	164.059	Horizontal	Pass	
		1880	-2.09	3.96	28.22	22.17	164.816	Horizontal	Pass	
		1900	-1.91	4.00	28.16	22.25	167.880	Horizontal	Pass	
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.61	3.76	28.24	20.87	122.180	Vertical	Pass	
		1880	-3.32	3.91	28.22	20.99	125.603	Vertical	Pass	
		1909.3	-3.00	3.93	28.20	21.27	133.968	Vertical	Pass	
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.11	3.77	28.23	20.35	108.393	Vertical	Pass	
		1880	-3.74	3.91	28.24	20.59	114.551	Vertical	Pass	
		1908.5	-3.41	3.94	28.25	20.90	123.027	Vertical	Pass	
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.71	3.77	28.31	20.83	121.060	Vertical	Pass	
		1880	-3.74	3.91	28.22	20.57	114.025	Vertical	Pass	
		1907.5	-3.56	3.94	28.20	20.70	117.490	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	1855	-3.95	3.79	28.33	20.59	114.551	Vertical	Pass	
		1880	-3.82	3.95	28.22	20.45	110.917	Vertical	Pass	
		1905	-3.60	3.97	28.19	20.62	115.345	Vertical	Pass	
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.74	3.79	28.34	20.81	120.504	Vertical	Pass	
		1880	-3.26	3.95	28.22	21.01	126.183	Vertical	Pass	
		1902.5	-3.35	3.97	28.18	20.86	121.899	Vertical	Pass	

20.0MHz		1860	-3.80	3.81	28.35	20.74	118.577	Vertical	Pass
Band 16	1/#Mid	1880	-3.87	3.96	28.22	20.39	109.396	Vertical	Pass
QAM		1900	-3.55	4.00	28.16	20.61	115.080	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	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)			(dBm)			
						(dBm)	(mW)		
1.4MHz Band QPSK	1#Mid	1710.7	-1.82	3.12	27.58	22.64	183.654	Horizontal	Pass
		1732.5	-1.81	3.27	27.61	22.53	179.061	Horizontal	Pass
		1754.3	-1.79	3.29	27.63	22.55	179.887	Horizontal	Pass
3.0MHz Band QPSK	1#Mid	1711.5	-1.99	3.13	27.61	22.49	177.419	Horizontal	Pass
		1732.5	-1.91	3.27	27.61	22.43	174.985	Horizontal	Pass
		1753.5	-1.83	3.30	27.62	22.49	177.419	Horizontal	Pass
5.0MHz Band QPSK	1#Mid	1712.5	-1.76	3.13	27.63	22.74	187.932	Horizontal	Pass
		1732.5	-1.66	3.27	27.61	22.68	185.353	Horizontal	Pass
		1752.5	-1.54	3.30	27.60	22.76	188.799	Horizontal	Pass
10.0MHz Band QPSK	1#Mid	1715	-1.70	3.15	27.64	22.79	190.108	Horizontal	Pass
		1732.5	-1.47	3.31	27.61	22.83	191.867	Horizontal	Pass
		1750	-1.49	3.33	27.59	22.77	189.234	Horizontal	Pass
15.0MHz Band QPSK	1#Mid	1717.5	-1.71	3.15	27.65	22.79	190.108	Horizontal	Pass
		1732.5	-1.55	3.31	27.61	22.75	188.365	Horizontal	Pass
		1747.5	-1.49	3.33	27.57	22.75	188.365	Horizontal	Pass
20.0MHz Band QPSK	1#Mid	1720	-1.65	3.17	27.66	22.84	192.309	Horizontal	Pass
		1732.5	-1.48	3.32	27.61	22.81	190.985	Horizontal	Pass
		1745	-1.42	3.36	27.56	22.78	189.671	Horizontal	Pass
1.4MHz Band QPSK	1#Mid	1710.7	-2.39	3.12	27.58	22.07	161.065	Vertical	Pass
		1732.5	-3.02	3.27	27.61	21.32	135.519	Vertical	Pass
		1754.3	-2.16	3.29	27.63	22.18	165.196	Vertical	Pass
3.0MHz Band QPSK	1#Mid	1711.5	-2.93	3.13	27.61	21.55	142.889	Vertical	Pass
		1732.5	-2.71	3.27	27.61	21.63	145.546	Vertical	Pass
		1753.5	-2.50	3.30	27.62	21.82	152.055	Vertical	Pass
5.0MHz Band QPSK	1#Mid	1712.5	-2.51	3.13	27.63	21.99	158.125	Vertical	Pass
		1732.5	-2.48	3.27	27.61	21.86	153.462	Vertical	Pass
		1752.5	-2.69	3.30	27.60	21.61	144.877	Vertical	Pass
10.0MHz Band QPSK	1#Mid	1715	-2.44	3.15	27.64	22.05	160.325	Vertical	Pass
		1732.5	-2.40	3.31	27.61	21.90	154.882	Vertical	Pass
		1750	-2.91	3.33	27.59	21.35	136.458	Vertical	Pass

15.0MHz		1717.5	-3.18	3.15	27.65	21.32	135.519	Vertical	Pass
Band	1/#Mid	1732.5	-2.17	3.31	27.61	22.13	163.305	Vertical	Pass
QPSK		1747.5	-2.19	3.33	27.57	22.05	160.325	Vertical	Pass
20.0MHz		1720	-2.55	3.17	27.66	21.94	156.315	Vertical	Pass
Band	1/#Mid	1732.5	-2.10	3.32	27.61	22.19	165.577	Vertical	Pass
QPSK		1745	-2.64	3.36	27.56	21.56	143.219	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable	Antenna	Max.	Max.	Polarization	
			(dBm)	Loss	Factor	EIRP	EIRP	Of Max.	
				(dBm)	(dB)	Average	Average	ERP	
			(dBm)	(mW)					
1.4MHz Band 16 QAM	1/#Mid	1710.7	-2.63	3.12	27.58	21.83	152.405	Horizontal	Pass
		1732.5	-2.48	3.27	27.61	21.86	153.462	Horizontal	Pass
		1754.3	-2.48	3.29	27.63	21.86	153.462	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-2.57	3.13	27.61	21.91	155.239	Horizontal	Pass
		1732.5	-2.70	3.27	27.61	21.64	145.881	Horizontal	Pass
		1753.5	-2.92	3.30	27.62	21.40	138.038	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-2.40	3.13	27.63	22.10	162.181	Horizontal	Pass
		1732.5	-2.36	3.27	27.61	21.98	157.761	Horizontal	Pass
		1752.5	-2.05	3.30	27.60	22.25	167.880	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-2.47	3.15	27.64	22.02	159.221	Horizontal	Pass
		1732.5	-2.66	3.31	27.61	21.64	145.881	Horizontal	Pass
		1750	-2.04	3.33	27.59	22.22	166.725	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-2.27	3.15	27.65	22.23	167.109	Horizontal	Pass
		1732.5	-2.33	3.31	27.61	21.97	157.398	Horizontal	Pass
		1747.5	-2.35	3.33	27.57	21.89	154.525	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-2.22	3.17	27.66	22.27	168.655	Horizontal	Pass
		1732.5	-2.23	3.32	27.61	22.06	160.694	Horizontal	Pass
		1745	-2.04	3.36	27.56	22.16	164.437	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.50	3.12	27.58	20.96	124.738	Vertical	Pass
		1732.5	-3.88	3.27	27.61	20.46	111.173	Vertical	Pass
		1754.3	-3.39	3.29	27.63	20.95	124.451	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.11	3.13	27.61	20.37	108.893	Vertical	Pass
		1732.5	-3.25	3.27	27.61	21.09	128.529	Vertical	Pass
		1753.5	-3.63	3.30	27.62	20.69	117.220	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.82	3.13	27.63	20.68	116.950	Vertical	Pass
		1732.5	-3.31	3.27	27.61	21.03	126.765	Vertical	Pass
		1752.5	-3.74	3.30	27.60	20.56	113.763	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.22	3.15	27.64	21.27	133.968	Vertical	Pass
		1732.5	-3.11	3.31	27.61	21.19	131.522	Vertical	Pass
		1750	-3.97	3.33	27.59	20.29	106.905	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.62	3.15	27.65	20.88	122.462	Vertical	Pass
		1732.5	-3.74	3.31	27.61	20.56	113.763	Vertical	Pass
		1747.5	-3.68	3.33	27.57	20.56	113.763	Vertical	Pass

20.0MHz		1720	-3.88	3.17	27.66	20.61	115.080	Vertical	Pass
Band 16	1/#Mid	1732.5	-3.44	3.32	27.61	20.85	121.619	Vertical	Pass
QAM		1745	-3.78	3.36	27.56	20.42	110.154	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band QPSK	3/#Mid	824.7	7.48	2.01	19.68	2.15	23.00	199.526	Horizontal	Pass
		836.5	7.36	2.01	19.77	2.15	22.97	198.153	Horizontal	Pass
		848.3	7.16	2.02	19.82	2.15	22.81	190.985	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	7.25	2.01	19.70	2.15	22.79	190.108	Horizontal	Pass
		836.5	7.15	2.01	19.77	2.15	22.76	188.799	Horizontal	Pass
		847.5	7.02	2.02	19.81	2.15	22.66	184.502	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	7.53	2.01	19.71	2.15	23.08	203.236	Horizontal	Pass
		836.5	7.41	2.01	19.77	2.15	23.02	200.447	Horizontal	Pass
		846.5	7.25	2.02	19.79	2.15	22.87	193.642	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	7.55	2.01	19.73	2.15	23.12	205.116	Horizontal	Pass
		836.5	7.50	2.01	19.77	2.15	23.11	204.644	Horizontal	Pass
		844	7.40	2.02	19.78	2.15	23.01	199.986	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	6.37	2.01	19.68	2.15	21.89	154.525	Vertical	Pass
		836.5	5.70	2.01	19.77	2.15	21.31	135.207	Vertical	Pass
		848.3	5.98	2.02	19.82	2.15	21.63	145.546	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.58	2.01	19.70	2.15	22.12	162.930	Vertical	Pass
		836.5	6.00	2.01	19.77	2.15	21.61	144.877	Vertical	Pass
		847.5	6.52	2.02	19.81	2.15	22.16	164.437	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.57	2.01	19.71	2.15	22.12	162.930	Vertical	Pass
		836.5	6.44	2.01	19.77	2.15	22.05	160.325	Vertical	Pass
		846.5	6.40	2.02	19.79	2.15	22.02	159.221	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	5.88	2.01	19.73	2.15	21.45	139.637	Vertical	Pass
		836.5	6.41	2.01	19.77	2.15	22.02	159.221	Vertical	Pass
		844	6.47	2.02	19.78	2.15	22.08	161.436	Vertical	Pass

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	3/#Mid	824.7	6.63	2.01	19.68	2.15	22.15	164.059	Horizontal	Pass	
Band 16		836.5	6.56	2.01	19.77	2.15	22.17	164.816	Horizontal	Pass	
QAM		848.3	6.40	2.02	19.82	2.15	22.05	160.325	Horizontal	Pass	
3.0MHz	1/#Mid	825.5	6.71	2.01	19.70	2.15	22.25	167.880	Horizontal	Pass	
Band 16		836.5	6.42	2.01	19.77	2.15	22.03	159.588	Horizontal	Pass	
QAM		847.5	5.90	2.02	19.81	2.15	21.54	142.561	Horizontal	Pass	
5.0MHz	1/#Mid	826.5	7.03	2.01	19.71	2.15	22.58	181.134	Horizontal	Pass	
Band 16		836.5	6.80	2.01	19.77	2.15	22.41	174.181	Horizontal	Pass	
QAM		846.5	6.55	2.02	19.79	2.15	22.17	164.816	Horizontal	Pass	
10.0MHz	1/#Mid	829	7.03	2.01	19.73	2.15	22.60	181.970	Horizontal	Pass	
Band 16		836.5	6.75	2.01	19.77	2.15	22.36	172.187	Horizontal	Pass	
QAM		844	6.29	2.02	19.78	2.15	21.90	154.882	Horizontal	Pass	
1.4MHz	1/#Mid	824.7	6.76	2.01	19.68	2.15	22.28	169.044	Vertical	Pass	
Band 16		836.5	5.62	2.01	19.77	2.15	21.23	132.739	Vertical	Pass	
QAM		848.3	4.93	2.02	19.82	2.15	20.58	114.288	Vertical	Pass	
3.0MHz	1/#Mid	825.5	5.06	2.01	19.70	2.15	20.60	114.815	Vertical	Pass	
Band 16		836.5	5.99	2.01	19.77	2.15	21.60	144.544	Vertical	Pass	
QAM		847.5	6.38	2.02	19.81	2.15	22.02	159.221	Vertical	Pass	
5.0MHz	1/#Mid	826.5	5.07	2.01	19.71	2.15	20.62	115.345	Vertical	Pass	
Band 16		836.5	4.80	2.01	19.77	2.15	20.41	109.901	Vertical	Pass	
QAM		846.5	6.49	2.02	19.79	2.15	22.11	162.555	Vertical	Pass	
10.0MHz	1/#Mid	829	6.44	2.01	19.73	2.15	22.01	158.855	Vertical	Pass	
Band 16		836.5	6.45	2.01	19.77	2.15	22.06	160.694	Vertical	Pass	
QAM		844	6.13	2.02	19.78	2.15	21.74	149.279	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 12

Radiated Power (ERP) for Band 12											
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	1/#Mid	699.7	7.85	1.91	19.21	2.15	23.00	199.526	Vertical	Pass	
		707.5	7.77	1.91	19.26	2.15	22.97	198.153	Vertical	Pass	
		715.3	7.55	1.93	19.34	2.15	22.81	190.985	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	7.64	1.91	19.21	2.15	22.79	190.108	Vertical	Pass	
		707.5	7.56	1.91	19.26	2.15	22.76	188.799	Vertical	Pass	
		714.5	7.40	1.93	19.34	2.15	22.66	184.502	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	7.91	1.91	19.23	2.15	23.08	203.236	Vertical	Pass	
		707.5	7.82	1.91	19.26	2.15	23.02	200.447	Vertical	Pass	
		713.5	7.61	1.92	19.33	2.15	22.87	193.642	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	704	7.93	1.91	19.25	2.15	23.12	205.116	Vertical	Pass	
		707.5	7.91	1.91	19.26	2.15	23.11	204.644	Vertical	Pass	
		711	7.76	1.92	19.32	2.15	23.01	199.986	Vertical	Pass	
1.4MHz Band QPSK	1/#Mid	699.7	6.70	1.91	19.21	2.15	21.85	153.109	Horizontal	Pass	
		707.5	6.83	1.91	19.26	2.15	22.03	159.588	Horizontal	Pass	
		715.3	6.76	1.93	19.34	2.15	22.02	159.221	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	6.30	1.91	19.21	2.15	21.45	139.637	Horizontal	Pass	
		707.5	6.18	1.91	19.26	2.15	21.38	137.404	Horizontal	Pass	
		714.5	6.37	1.93	19.34	2.15	21.63	145.546	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	6.92	1.91	19.23	2.15	22.09	161.808	Horizontal	Pass	
		707.5	6.37	1.91	19.26	2.15	21.57	143.549	Horizontal	Pass	
		713.5	6.34	1.92	19.33	2.15	21.60	144.544	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	704	6.29	1.91	19.25	2.15	21.48	140.605	Horizontal	Pass	
		707.5	6.26	1.91	19.26	2.15	21.46	139.959	Horizontal	Pass	
		711	6.33	1.92	19.32	2.15	21.58	143.880	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	7.63	1.91	19.21	2.15	22.78	189.671	Vertical	Pass
		707.5	7.55	1.91	19.26	2.15	22.75	188.365	Vertical	Pass
		715.3	7.33	1.93	19.34	2.15	22.59	181.552	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	7.42	1.91	19.21	2.15	22.57	180.717	Vertical	Pass
		707.5	7.34	1.91	19.26	2.15	22.54	179.473	Vertical	Pass
		714.5	7.18	1.93	19.34	2.15	22.44	175.388	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	7.69	1.91	19.23	2.15	22.86	193.197	Vertical	Pass
		707.5	7.60	1.91	19.26	2.15	22.80	190.546	Vertical	Pass
		713.5	7.39	1.92	19.33	2.15	22.65	184.077	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	7.71	1.91	19.25	2.15	22.90	194.984	Vertical	Pass
		707.5	7.69	1.91	19.26	2.15	22.89	194.536	Vertical	Pass
		711	7.54	1.92	19.32	2.15	22.79	190.108	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	6.65	1.91	19.21	2.15	21.80	151.356	Horizontal	Pass
		707.5	6.83	1.91	19.26	2.15	22.03	159.588	Horizontal	Pass
		715.3	6.57	1.93	19.34	2.15	21.83	152.405	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.32	1.91	19.21	2.15	21.47	140.281	Horizontal	Pass
		707.5	6.80	1.91	19.26	2.15	22.00	158.489	Horizontal	Pass
		714.5	5.91	1.93	19.34	2.15	21.17	130.918	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.50	1.91	19.23	2.15	21.67	146.893	Horizontal	Pass
		707.5	6.30	1.91	19.26	2.15	21.50	141.254	Horizontal	Pass
		713.5	6.31	1.92	19.33	2.15	21.57	143.549	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	5.99	1.91	19.25	2.15	21.18	131.220	Horizontal	Pass
		707.5	6.07	1.91	19.26	2.15	21.27	133.968	Horizontal	Pass
		711	6.59	1.92	19.32	2.15	21.84	152.757	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)

8.6 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)		Average	Average		
							(dB)	(dBm)		
5.0MHz Band QPSK	1/#Mid	706.5	7.44	1.91	19.23	2.15	22.61	182.390	Vertical	Pass
		710	7.30	1.91	19.26	2.15	22.50	177.828	Vertical	Pass
		713.5	7.20	1.92	19.33	2.15	22.46	176.198	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	709	7.45	1.91	19.25	2.15	22.64	183.654	Vertical	Pass
		710	7.40	1.91	19.26	2.15	22.60	181.970	Vertical	Pass
		711	7.36	1.92	19.32	2.15	22.61	182.390	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	706.5	5.28	1.91	19.23	2.15	20.45	110.917	Horizontal	Pass
		710	6.80	1.91	19.26	2.15	22.00	158.489	Horizontal	Pass
		713.5	6.88	1.92	19.33	2.15	22.14	163.682	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	709	5.69	1.91	19.25	2.15	20.88	122.462	Horizontal	Pass
		710	5.51	1.91	19.26	2.15	20.71	117.761	Horizontal	Pass
		711	6.50	1.92	19.32	2.15	21.75	149.624	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
							(dBm)	(mW)		
5.0MHz Band 16 QAM	1#Mid	706.5	6.79	1.91	19.23	2.15	21.96	157.036	Vertical	Pass
		710	6.70	1.91	19.26	2.15	21.90	154.882	Vertical	Pass
		713.5	6.50	1.92	19.33	2.15	21.76	149.968	Vertical	Pass
10.0MHz Band 16 QAM	1#Mid	709	6.33	1.91	19.25	2.15	21.52	141.906	Vertical	Pass
		710	6.86	1.91	19.26	2.15	22.06	160.694	Vertical	Pass
		711	6.59	1.92	19.32	2.15	21.84	152.757	Vertical	Pass
5.0MHz Band 16 QAM	1#Mid	706.5	5.38	1.91	19.23	2.15	20.55	113.501	Horizontal	Pass
		710	5.80	1.91	19.26	2.15	21.00	125.893	Horizontal	Pass
		713.5	6.14	1.92	19.33	2.15	21.40	138.038	Horizontal	Pass
10.0MHz Band 16 QAM	1#Mid	709	5.80	1.91	19.25	2.15	20.99	125.603	Horizontal	Pass
		710	5.26	1.91	19.26	2.15	20.46	111.173	Horizontal	Pass
		711	5.74	1.92	19.32	2.15	20.99	125.603	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 41

Radiated Power (EIRP) for Band 41									
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)		
5.0MHz Band QPSK	1/#Mid	2557.5	-1.27	4.54	27.75	21.94	156.315	Horizontal	Pass
		2605	-1.12	4.69	27.72	21.91	155.239	Horizontal	Pass
		2652.5	-1.00	4.71	27.71	22.00	158.489	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2560	-1.35	4.55	27.76	21.86	153.462	Horizontal	Pass
		2605	-1.21	4.69	27.72	21.82	152.055	Horizontal	Pass
		2650	-1.20	4.72	27.70	21.78	150.661	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2562.5	-1.18	4.55	27.77	22.04	159.956	Horizontal	Pass
		2605	-0.90	4.69	27.72	22.13	163.305	Horizontal	Pass
		2647.5	-0.95	4.72	27.69	22.02	159.221	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2565	-0.79	4.57	27.78	22.42	174.582	Horizontal	Pass
		2605	-0.84	4.73	27.72	22.15	164.059	Horizontal	Pass
		2645	-0.84	4.75	27.68	22.09	161.808	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2557.5	-1.07	4.54	27.75	22.14	163.682	Vertical	Pass
		2605	-0.98	4.69	27.72	22.05	160.325	Vertical	Pass
		2652.5	-0.96	4.71	27.71	22.04	159.956	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2560	-1.05	4.55	27.76	22.16	164.437	Vertical	Pass
		2605	-0.89	4.69	27.72	22.14	163.682	Vertical	Pass
		2650	-0.96	4.72	27.70	22.02	159.221	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2562.5	-1.97	4.55	27.77	21.25	133.352	Vertical	Pass
		2605	-2.54	4.69	27.72	20.49	111.944	Vertical	Pass
		2647.5	-1.66	4.72	27.69	21.31	135.207	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2565	-2.47	4.57	27.78	20.74	118.577	Vertical	Pass
		2605	-2.03	4.73	27.72	20.96	124.738	Vertical	Pass
		2645	-1.78	4.75	27.68	21.15	130.317	Vertical	Pass

Radiated Power (EIRP) for Band 41									
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)		
5.0MHz Band 16 QAM	1/#Mid	2557.5	-1.27	4.54	27.75	21.94	156.315	Horizontal	Pass
		2605	-1.12	4.69	27.72	21.91	155.239	Horizontal	Pass
		2652.5	-1.00	4.71	27.71	22.00	158.489	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2560	-1.35	4.55	27.76	21.86	153.462	Horizontal	Pass
		2605	-1.21	4.69	27.72	21.82	152.055	Horizontal	Pass
		2650	-1.20	4.72	27.70	21.78	150.661	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2562.5	-1.18	4.55	27.77	22.04	159.956	Horizontal	Pass
		2605	-0.90	4.69	27.72	22.13	163.305	Horizontal	Pass
		2647.5	-0.95	4.72	27.69	22.02	159.221	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2565	-0.90	4.57	27.78	22.31	170.216	Horizontal	Pass
		2605	-0.84	4.73	27.72	22.15	164.059	Horizontal	Pass
		2645	-0.84	4.75	27.68	22.09	161.808	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2557.5	-1.07	4.54	27.75	22.14	163.682	Vertical	Pass
		2605	-0.98	4.69	27.72	22.05	160.325	Vertical	Pass
		2652.5	-0.96	4.71	27.71	22.04	159.956	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2560	-1.05	4.55	27.76	22.16	164.437	Vertical	Pass
		2605	-0.89	4.69	27.72	22.14	163.682	Vertical	Pass
		2650	-0.96	4.72	27.70	22.02	159.221	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2562.5	-2.56	4.55	27.77	20.66	116.413	Vertical	Pass
		2605	-1.91	4.69	27.72	21.12	129.420	Vertical	Pass
		2647.5	-2.32	4.72	27.69	20.65	116.145	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2565	-2.43	4.57	27.78	20.78	119.674	Vertical	Pass
		2605	-2.33	4.73	27.72	20.66	116.413	Vertical	Pass
		2645	-2.17	4.75	27.68	20.76	119.124	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)

8.8 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 (dBm)	Average			Average
							(mW)			
1.4MHz Band QPSK	1/#Mid	1710.7	-2.54	3.76	28.24	21.94	156.315	Horizontal	Pass	
		1745	-2.40	3.91	28.22	21.91	155.239	Horizontal	Pass	
		1779.3	-2.27	3.93	28.2	22.00	158.489	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-2.60	3.77	28.23	21.86	153.462	Horizontal	Pass	
		1745	-2.51	3.91	28.24	21.82	152.055	Horizontal	Pass	
		1778.5	-2.53	3.94	28.25	21.78	150.661	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-2.50	3.77	28.31	22.04	159.956	Horizontal	Pass	
		1745	-2.18	3.91	28.22	22.13	163.305	Horizontal	Pass	
		1777.5	-2.24	3.94	28.2	22.02	159.221	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-2.39	3.79	28.33	22.15	164.059	Horizontal	Pass	
		1745	-2.12	3.95	28.22	22.15	164.059	Horizontal	Pass	
		1775	-2.13	3.97	28.19	22.09	161.808	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1717.5	-2.41	3.79	28.34	22.14	163.682	Horizontal	Pass	
		1745	-2.22	3.95	28.22	22.05	160.325	Horizontal	Pass	
		1772.5	-2.17	3.97	28.18	22.04	159.956	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1720	-2.38	3.81	28.35	22.16	164.437	Horizontal	Pass	
		1745	-2.12	3.96	28.22	22.14	163.682	Horizontal	Pass	
		1770	-2.14	4	28.16	22.02	159.221	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1710.7	-3.76	3.76	28.24	20.72	118.032	Vertical	Pass	
		1745	-3.20	3.91	28.22	21.11	129.122	Vertical	Pass	
		1779.3	-3.78	3.93	28.2	20.49	111.944	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1711.5	-3.41	3.77	28.23	21.05	127.350	Vertical	Pass	
		1745	-3.63	3.91	28.24	20.70	117.490	Vertical	Pass	
		1778.5	-3.46	3.94	28.25	20.85	121.619	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1712.5	-3.29	3.77	28.31	21.25	133.352	Vertical	Pass	
		1745	-3.30	3.91	28.22	21.01	126.183	Vertical	Pass	
		1777.5	-3.22	3.94	28.2	21.04	127.057	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1715	-3.84	3.79	28.34	20.71	117.761	Vertical	Pass	
		1745	-2.88	3.95	28.22	21.39	137.721	Vertical	Pass	
		1775	-3.53	3.97	28.18	20.68	116.950	Vertical	Pass	

15.0MHz		1717.5	-3.73	3.81	28.35	20.81	120.504	Vertical	Pass
Band	1/#Mid	1745	-3.24	3.96	28.22	21.02	126.474	Vertical	Pass
QPSK		1772.5	-3.61	4	28.16	20.55	113.501	Vertical	Pass
20.0MHz		1720	-3.75	3.79	28.34	20.80	120.226	Vertical	Pass
Band	1/#Mid	1745	-3.61	3.95	28.22	20.66	116.413	Vertical	Pass
QPSK		1770	-3.78	3.97	28.18	20.43	110.408	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	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.37	3.76	28.24	21.11	129.122	Horizontal	Pass
		1745	-2.98	3.91	28.22	21.33	135.831	Horizontal	Pass
		1779.3	-3.16	3.93	28.2	21.11	129.122	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.76	3.77	28.23	20.70	117.490	Horizontal	Pass
		1745	-3.01	3.91	28.24	21.32	135.519	Horizontal	Pass
		1778.5	-3.30	3.94	28.25	21.01	126.183	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.18	3.77	28.31	21.36	136.773	Horizontal	Pass
		1745	-3.24	3.91	28.22	21.07	127.938	Horizontal	Pass
		1777.5	-2.91	3.94	28.2	21.35	136.458	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.23	3.79	28.33	21.31	135.207	Horizontal	Pass
		1745	-2.89	3.95	28.22	21.38	137.404	Horizontal	Pass
		1775	-3.21	3.97	28.19	21.01	126.183	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.22	3.79	28.34	21.33	135.831	Horizontal	Pass
		1745	-3.04	3.95	28.22	21.23	132.739	Horizontal	Pass
		1772.5	-2.83	3.97	28.18	21.38	137.404	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.05	3.81	28.35	21.49	140.929	Horizontal	Pass
		1745	-2.83	3.96	28.22	21.43	138.995	Horizontal	Pass
		1770	-2.77	4	28.16	21.39	137.721	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.66	3.76	28.24	19.82	95.940	Vertical	Pass
		1745	-2.92	3.91	28.22	21.39	137.721	Vertical	Pass
		1779.3	-3.06	3.93	28.2	21.21	132.130	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.23	3.77	28.23	20.23	105.439	Vertical	Pass
		1745	-4.36	3.91	28.24	19.97	99.312	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	-4.98	3.77	28.31	19.56	90.365	Vertical	Pass
		1745	-4.88	3.91	28.22	19.43	87.700	Vertical	Pass
		1777.5	-3.22	3.94	28.2	21.04	127.057	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.15	3.79	28.34	20.40	109.648	Vertical	Pass
		1745	-3.64	3.95	28.22	20.63	115.611	Vertical	Pass
		1775	-2.86	3.97	28.18	21.35	136.458	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.92	3.81	28.35	19.62	91.622	Vertical	Pass
		1745	-2.98	3.96	28.22	21.28	134.276	Vertical	Pass
		1772.5	-2.89	4	28.16	21.27	133.968	Vertical	Pass

20.0MHz		1720	-4.91	3.79	28.34	19.64	92.045	Vertical	Pass
Band 16	1/#Mid	1745	-3.86	3.95	28.22	20.41	109.901	Vertical	Pass
QAM		1770	-3.87	3.97	28.18	20.34	108.143	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)

8.8 LTE BAND 71

Radiated Power (ERP) for Band 71											
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)			
5.0MHz Band QPSK	25/0	665.5	6.61	2.01	19.68	2.15	22.13	163.31	Horizontal	Pass	
		680.5	6.49	2.01	19.77	2.15	22.10	162.18	Horizontal	Pass	
		695.5	6.29	2.02	19.82	2.15	21.94	156.31	Horizontal	Pass	
10.0MHz Band QPSK	50/0	668	6.38	2.01	19.70	2.15	21.92	155.60	Horizontal	Pass	
		680.5	6.28	2.01	19.77	2.15	21.89	154.53	Horizontal	Pass	
		693	6.15	2.02	19.81	2.15	21.79	151.01	Horizontal	Pass	
15.0MHz Band QPSK	75/0	670.5	6.66	2.01	19.71	2.15	22.21	166.34	Horizontal	Pass	
		680.5	6.54	2.01	19.77	2.15	22.15	164.06	Horizontal	Pass	
		690.5	6.38	2.02	19.79	2.15	22.00	158.49	Horizontal	Pass	
20.0MHz Band QPSK	100/0	673	6.68	2.01	19.73	2.15	22.25	167.88	Horizontal	Pass	
		683	6.63	2.01	19.77	2.15	22.24	167.49	Horizontal	Pass	
		688	6.53	2.02	19.78	2.15	22.14	163.68	Horizontal	Pass	
5.0MHz Band QPSK	25/0	665.5	5.38	2.01	19.68	2.15	20.90	123.03	Vertical	Pass	
		680.5	4.97	2.01	19.77	2.15	20.58	114.29	Vertical	Pass	
		695.5	5.64	2.02	19.82	2.15	21.29	134.59	Vertical	Pass	
15.0MHz Band QPSK	50/0	668	4.88	2.01	19.70	2.15	20.42	110.15	Vertical	Pass	
		680.5	5.19	2.01	19.77	2.15	20.80	120.23	Vertical	Pass	
		693	5.02	2.02	19.81	2.15	20.66	116.41	Vertical	Pass	
15.0MHz Band QPSK	75/0	670.5	5.07	2.01	19.71	2.15	20.62	115.35	Vertical	Pass	
		680.5	5.17	2.01	19.77	2.15	20.78	119.67	Vertical	Pass	
		690.5	4.88	2.02	19.79	2.15	20.50	112.20	Vertical	Pass	
20MHz Band QPSK	100/0	673	5.52	2.01	19.73	2.15	21.09	128.53	Vertical	Pass	
		683	4.89	2.01	19.77	2.15	20.50	112.20	Vertical	Pass	
		688	5.08	2.02	19.78	2.15	20.69	117.22	Vertical	Pass	

Radiated Power (ERP) for Band 71											
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)			
5.0MHz Band 16 QAM	25/0	665.5	6.56	2.01	19.68	2.15	22.08	161.44	Horizontal	Pass	
		680.5	6.44	2.01	19.77	2.15	22.05	160.32	Horizontal	Pass	
		695.5	6.24	2.02	19.82	2.15	21.89	154.53	Horizontal	Pass	
10.0MHz Band 16 QAM	50/0	668	6.33	2.01	19.70	2.15	21.87	153.82	Horizontal	Pass	
		680.5	6.23	2.01	19.77	2.15	21.84	152.76	Horizontal	Pass	
		693	6.10	2.02	19.81	2.15	21.74	149.28	Horizontal	Pass	
15.0MHz Band 16 QAM	75/0	670.5	6.61	2.01	19.71	2.15	22.16	164.44	Horizontal	Pass	
		680.5	6.49	2.01	19.77	2.15	22.10	162.18	Horizontal	Pass	
		690.5	6.33	2.02	19.79	2.15	21.95	156.68	Horizontal	Pass	
20.0MHz Band 16 QAM	100/0	673	6.63	2.01	19.73	2.15	22.20	165.96	Horizontal	Pass	
		683	6.58	2.01	19.77	2.15	22.19	165.58	Horizontal	Pass	
		688	6.48	2.02	19.78	2.15	22.09	161.81	Horizontal	Pass	
5.0MHz Band 16 QAM	25/0	665.5	5.08	2.01	19.68	2.15	20.60	114.82	Vertical	Pass	
		680.5	4.77	2.01	19.77	2.15	20.38	109.14	Vertical	Pass	
		695.5	5.38	2.02	19.82	2.15	21.03	126.77	Vertical	Pass	
10.0MHz Band 16 QAM	50/0	668	4.93	2.01	19.70	2.15	20.47	111.43	Vertical	Pass	
		680.5	5.61	2.01	19.77	2.15	21.22	132.43	Vertical	Pass	
		693	5.33	2.02	19.81	2.15	20.97	125.03	Vertical	Pass	
15.0MHz Band 16 QAM	75/0	670.5	5.19	2.01	19.71	2.15	20.74	118.58	Vertical	Pass	
		680.5	5.39	2.01	19.77	2.15	21.00	125.89	Vertical	Pass	
		690.5	4.77	2.02	19.79	2.15	20.39	109.40	Vertical	Pass	
20.0MHz Band 16 QAM	100/0	673	5.24	2.01	19.73	2.15	20.81	120.50	Vertical	Pass	
		683	5.58	2.01	19.77	2.15	21.19	131.52	Vertical	Pass	
		688	5.09	2.02	19.78	2.15	20.70	117.49	Vertical	Pass	

Note:

SG Level= Signal generator output

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

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

§22.917 (e) and §24.238 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 2/4/5/12/17/41/66/71

RESULTS

PASS

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-49.89	4.04	33.51	-20.42	-13	-7.42	Horizontal
3701.4	-46.59	4.04	33.51	-17.12	-13	-4.12	Vertical
5552.1	-53.39	5.24	35.84	-22.79	-13	-9.79	Vertical
5552.1	-52.25	5.24	35.84	-21.65	-13	-8.65	Horizontal
196.2	-37.31	1.43	16.02	-22.72	-13	-9.72	Vertical
405.0	-36.35	1.30	17.99	-19.66	-13	-6.66	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-53.20	4.04	33.56	-23.68	-13	-10.68	Horizontal
3760.0	-49.90	4.04	33.56	-20.38	-13	-7.38	Vertical
5640.0	-52.85	5.24	35.91	-22.18	-13	-9.18	Vertical
5640.0	-53.10	5.24	35.91	-22.43	-13	-9.43	Horizontal
206.0	-41.94	1.62	16.97	-26.59	-13	-13.59	Vertical
291.2	-44.32	1.74	15.98	-30.09	-13	-17.09	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-51.66	4.04	34.00	-21.70	-13	-8.70	Horizontal
3818.6	-47.69	4.04	34.00	-17.73	-13	-4.73	Vertical
5727.9	-52.48	5.24	36.04	-21.68	-13	-8.68	Vertical
5727.9	-53.76	5.24	36.04	-22.96	-13	-9.96	Horizontal
206.1	-35.50	1.42	17.29	-19.63	-13	-6.63	Vertical
373.9	-43.25	1.50	17.90	-26.84	-13	-13.84	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	-50.83	4.07	33.54	-21.36	-13	-8.36	Horizontal
3720.0	-53.68	4.07	33.54	-24.21	-13	-11.21	Vertical
5580.0	-52.06	5.28	35.86	-21.48	-13	-8.48	Vertical
5580.0	-53.73	5.28	35.86	-23.15	-13	-10.15	Horizontal
187.5	-35.67	1.58	16.89	-20.35	-13	-7.35	Vertical
321.8	-44.30	1.76	17.26	-28.80	-13	-15.80	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-46.41	4.04	33.56	-16.89	-13	-3.89	Horizontal
3760.0	-50.12	4.04	33.56	-20.60	-13	-7.60	Vertical
5640.0	-51.12	5.24	35.91	-20.45	-13	-7.45	Vertical
5640.0	-49.70	5.24	35.91	-19.03	-13	-6.03	Horizontal
176.7	-41.66	1.46	16.27	-26.85	-13	-13.85	Vertical
241.9	-40.88	1.59	15.15	-27.32	-13	-14.32	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-53.61	4.04	34.00	-23.65	-13	-10.65	Horizontal
3800.0	-50.90	4.04	34.00	-20.94	-13	-7.94	Vertical
5700.0	-44.29	5.24	36.04	-13.49	-13	-0.49	Vertical
5700.0	-53.83	5.24	36.04	-23.03	-13	-10.03	Horizontal
207.3	-36.35	1.36	17.39	-20.31	-13	-7.31	Vertical
454.7	-35.16	1.66	15.39	-21.43	-13	-8.43	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-46.54	4.02	29.80	-20.76	-13	-7.76	Horizontal
3421.4	-52.16	4.02	29.80	-26.38	-13	-13.38	Vertical
5132.1	-51.17	5.24	35.84	-20.57	-13	-7.57	Vertical
5132.1	-49.37	5.24	35.84	-18.77	-13	-5.77	Horizontal
185.0	-44.30	1.68	16.04	-29.94	-13	-16.94	Vertical
410.9	-44.50	1.78	17.74	-28.54	-13	-15.54	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-52.14	4.03	30.00	-26.17	-13	-13.17	Horizontal
3465.0	-48.03	4.03	30.00	-22.06	-13	-9.06	Vertical
5197.5	-50.52	5.25	35.86	-19.91	-13	-6.91	Vertical
5197.5	-53.10	5.25	35.86	-22.49	-13	-9.49	Horizontal
192.5	-38.36	1.72	17.69	-22.39	-13	-9.39	Vertical
240.0	-39.32	1.62	16.02	-24.91	-13	-11.91	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-46.42	4.05	30.01	-20.46	-13	-7.46	Horizontal
3508.6	-49.74	4.05	30.01	-23.78	-13	-10.78	Vertical
5262.9	-48.92	5.26	35.86	-18.32	-13	-5.32	Vertical
5262.9	-49.99	5.26	35.86	-19.39	-13	-6.39	Horizontal
211.1	-43.13	1.80	16.69	-28.24	-13	-15.24	Vertical
427.5	-43.77	1.75	16.66	-28.87	-13	-15.87	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	-50.69	4.02	29.80	-24.91	-13	-11.91	Horizontal
3440.0	-50.75	4.02	29.80	-24.97	-13	-11.97	Vertical
5160.0	-52.89	5.24	35.84	-22.29	-13	-9.29	Vertical
5160.0	-49.14	5.24	35.84	-18.54	-13	-5.54	Horizontal
179.8	-36.83	1.57	17.26	-21.14	-13	-8.14	Vertical
408.7	-43.63	1.78	16.35	-29.06	-13	-16.06	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-47.70	4.03	30.00	-21.73	-13	-8.73	Horizontal
3465.0	-50.49	4.03	30.00	-24.52	-13	-11.52	Vertical
5197.5	-52.02	5.25	35.86	-21.41	-13	-8.41	Vertical
5197.5	-50.59	5.25	35.86	-19.98	-13	-6.98	Horizontal
191.9	-36.57	1.44	17.95	-20.06	-13	-7.06	Vertical
297.7	-44.50	1.65	16.09	-30.06	-13	-17.06	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-45.60	2.91	27.68	-20.83	-13	-7.83	Horizontal
3490.0	-45.79	2.91	27.68	-21.02	-13	-8.02	Vertical
5235.0	-50.52	5.26	35.86	-19.92	-13	-6.92	Vertical
5235.0	-53.36	5.26	35.86	-22.76	-13	-9.76	Horizontal
187.2	-38.22	1.61	16.85	-22.98	-13	-9.98	Vertical
426.2	-37.27	1.61	15.19	-23.69	-13	-10.69	Horizontal

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

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

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

9.3 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	-49.97	2.78	27.50	-25.25	-13	-12.25	Horizontal
1649.4	-53.07	2.78	27.50	-28.35	-13	-15.35	Vertical
2474.1	-53.17	2.90	27.80	-28.27	-13	-15.27	Vertical
2474.1	-52.52	2.90	27.80	-27.62	-13	-14.62	Horizontal
209.9	-37.01	1.76	17.59	-21.18	-13	-8.18	Vertical
346.0	-38.63	1.63	15.87	-24.39	-13	-11.39	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-49.61	2.80	27.48	-24.93	-13	-11.93	Horizontal
1673.0	-47.62	2.80	27.48	-22.94	-13	-9.94	Vertical
2509.5	-52.70	2.91	27.70	-27.91	-13	-14.91	Vertical
2509.5	-53.86	2.91	27.70	-29.07	-13	-16.07	Horizontal
185.3	-39.50	1.61	15.68	-25.43	-13	-12.43	Vertical
334.7	-37.47	1.59	17.52	-21.55	-13	-8.55	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-46.90	2.82	27.43	-22.29	-13	-9.29	Horizontal
1696.6	-51.55	2.82	27.43	-26.94	-13	-13.94	Vertical
2544.9	-46.35	2.92	27.74	-21.53	-13	-8.53	Vertical
2544.9	-51.70	2.92	27.74	-26.88	-13	-13.88	Horizontal
200.7	-39.49	1.69	16.67	-24.50	-13	-11.50	Vertical
437.3	-42.21	1.70	17.18	-26.73	-13	-13.73	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	-44.58	2.78	27.50	-19.86	-13	-6.86	Horizontal
1658.0	-53.44	2.78	27.50	-28.72	-13	-15.72	Vertical
2487.0	-50.12	2.90	27.80	-25.22	-13	-12.22	Vertical
2487.0	-53.01	2.90	27.80	-28.11	-13	-15.11	Horizontal
183.2	-35.53	1.71	15.57	-21.67	-13	-8.67	Vertical
439.0	-35.52	1.34	16.40	-20.46	-13	-7.46	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-50.46	2.80	27.48	-25.78	-13	-12.78	Horizontal
1673.0	-49.61	2.80	27.48	-24.93	-13	-11.93	Vertical
2509.5	-49.86	2.91	27.70	-25.07	-13	-12.07	Vertical
2509.5	-50.51	2.91	27.70	-25.72	-13	-12.72	Horizontal
191.1	-42.18	1.44	17.04	-26.58	-13	-13.58	Vertical
432.2	-39.37	1.76	17.62	-23.51	-13	-10.51	Horizontal
Test Results for High Channel 844MHz							
1688.0	-44.93	2.82	27.43	-20.32	-13	-7.32	Horizontal
1688.0	-53.86	2.82	27.43	-29.25	-13	-16.25	Vertical
2532.0	-53.54	2.92	27.74	-28.72	-13	-15.72	Vertical
2532.0	-50.24	2.92	27.74	-25.42	-13	-12.42	Horizontal
194.4	-40.54	1.74	17.70	-24.58	-13	-11.58	Vertical
238.0	-39.12	1.41	17.46	-23.06	-13	-10.06	Horizontal

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

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

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

9.4 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	-52.82	2.60	27.20	-28.22	-13	-15.22	Horizontal
1399.4	-52.17	2.60	27.20	-27.57	-13	-14.57	Vertical
2099.1	-51.41	2.85	27.54	-26.72	-13	-13.72	Vertical
2099.1	-54.00	2.85	27.54	-29.31	-13	-16.31	Horizontal
211.2	-38.91	1.49	17.78	-22.62	-13	-9.62	Vertical
305.2	-39.37	1.36	17.33	-23.40	-13	-10.40	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-50.56	2.61	27.28	-25.89	-13	-12.89	Horizontal
1415.0	-45.18	2.61	27.28	-20.51	-13	-7.51	Vertical
2122.5	-48.44	2.87	27.59	-23.72	-13	-10.72	Vertical
2122.5	-50.51	2.87	27.59	-25.79	-13	-12.79	Horizontal
207.5	-41.04	1.73	15.74	-27.03	-13	-14.03	Vertical
446.0	-44.76	1.62	15.79	-30.59	-13	-17.59	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-53.56	2.63	27.28	-28.91	-13	-15.91	Horizontal
1430.6	-53.15	2.63	27.28	-28.50	-13	-15.50	Vertical
2145.9	-53.68	2.88	27.60	-28.96	-13	-15.96	Vertical
2145.9	-52.79	2.88	27.60	-28.07	-13	-15.07	Horizontal
202.8	-42.08	1.61	18.00	-25.69	-13	-12.69	Vertical
305.7	-40.04	1.45	15.49	-26.01	-13	-13.01	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	-52.29	2.61	27.26	-27.64	-13	-14.64	Horizontal
1408.0	-45.20	2.61	27.26	-20.55	-13	-7.55	Vertical
2112.0	-48.16	2.87	27.58	-23.45	-13	-10.45	Vertical
2112.0	-52.99	2.87	27.58	-28.28	-13	-15.28	Horizontal
194.1	-43.00	1.31	16.97	-27.34	-13	-14.34	Vertical
366.9	-35.70	1.65	16.70	-20.65	-13	-7.65	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-46.02	2.61	27.28	-21.35	-13	-8.35	Horizontal
1415.0	-50.61	2.61	27.28	-25.94	-13	-12.94	Vertical
2122.5	-45.82	2.87	27.59	-21.10	-13	-8.10	Vertical
2122.5	-52.66	2.87	27.59	-27.94	-13	-14.94	Horizontal
210.4	-36.92	1.72	17.99	-20.65	-13	-7.65	Vertical
324.3	-35.44	1.73	17.94	-19.23	-13	-6.23	Horizontal
Test Results for High Channel 711MHz							
1422.0	-52.09	2.62	27.28	-27.43	-13	-14.43	Horizontal
1422.0	-51.15	2.62	27.28	-26.49	-13	-13.49	Vertical
2133.0	-47.02	2.87	27.60	-22.29	-13	-9.29	Vertical
2133.0	-51.03	2.87	27.60	-26.30	-13	-13.30	Horizontal
204.4	-37.26	1.58	15.93	-22.91	-13	-9.91	Vertical
409.4	-40.72	1.36	15.59	-26.49	-13	-13.49	Horizontal

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

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

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

9.5 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	-45.59	2.61	27.28	-20.92	-13	-7.92	Horizontal
1413.0	-47.17	2.61	27.28	-22.50	-13	-9.50	Vertical
2119.5	-46.19	2.87	27.59	-21.47	-13	-8.47	Vertical
2119.5	-51.16	2.87	27.59	-26.44	-13	-13.44	Horizontal
201.1	-44.13	1.71	16.15	-29.69	-13	-16.69	Vertical
415.7	-35.60	1.41	17.32	-19.69	-13	-6.69	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-47.22	2.62	27.30	-22.54	-13	-9.54	Horizontal
1420.0	-49.98	2.62	27.30	-25.30	-13	-12.30	Vertical
2130.0	-47.73	2.87	27.62	-22.98	-13	-9.98	Vertical
2130.0	-49.19	2.87	27.62	-24.44	-13	-11.44	Horizontal
198.2	-37.95	1.42	15.25	-24.13	-13	-11.13	Vertical
376.1	-41.49	1.36	17.19	-25.66	-13	-12.66	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-47.35	2.66	27.28	-22.73	-13	-9.73	Horizontal
1427.0	-48.42	2.66	27.28	-23.80	-13	-10.80	Vertical
2140.5	-50.79	2.88	27.60	-26.07	-13	-13.07	Vertical
2140.5	-53.98	2.88	27.60	-29.26	-13	-16.26	Horizontal
203.2	-41.07	1.32	17.29	-25.10	-13	-12.10	Vertical
288.9	-39.42	1.72	16.89	-24.25	-13	-11.25	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	-48.40	2.62	27.30	-23.72	-13	-10.72	Horizontal
1418.0	-53.40	2.62	27.30	-28.72	-13	-15.72	Vertical
2127.0	-52.84	2.87	27.62	-28.09	-13	-15.09	Vertical
2127.0	-51.80	2.87	27.62	-27.05	-13	-14.05	Horizontal
206.2	-43.17	1.35	16.91	-27.61	-13	-14.61	Vertical
270.5	-35.17	1.62	16.31	-20.48	-13	-7.48	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-50.30	2.62	27.30	-25.62	-13	-12.62	Horizontal
1420.0	-53.19	2.62	27.30	-28.51	-13	-15.51	Vertical
2130.0	-46.86	2.87	27.62	-22.11	-13	-9.11	Vertical
2130.0	-53.01	2.87	27.62	-28.26	-13	-15.26	Horizontal
201.7	-42.43	1.51	17.14	-26.80	-13	-13.80	Vertical
390.1	-42.63	1.77	16.88	-27.52	-13	-14.52	Horizontal
Test Results for High Channel 711MHz							
1422.0	-51.56	2.62	27.30	-26.88	-13	-13.88	Horizontal
1422.0	-51.47	2.62	27.30	-26.79	-13	-13.79	Vertical
2133.0	-47.35	2.87	27.62	-22.60	-13	-9.60	Vertical
2133.0	-52.89	2.87	27.62	-28.14	-13	-15.14	Horizontal
193.8	-36.65	1.78	15.95	-22.48	-13	-9.48	Vertical
298.4	-42.81	1.34	17.95	-26.21	-13	-13.21	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 41
QPSK EIRP POWER FOR LTE BAND 41 (5MHZ BANDWIDTH)

Test Results for Low Channel 2557.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5115.0	-62.03	5.23	35.81	-31.45	-25	-6.45	Horizontal
5115.0	-64.64	5.23	35.81	-34.06	-25	-9.06	Vertical
7672.5	-60.27	5.67	36.85	-29.09	-25	-4.09	Vertical
7672.5	-59.69	5.67	36.85	-28.51	-25	-3.51	Horizontal
435.3	-47.15	1.38	15.98	-32.55	-25	-7.55	Vertical
465.8	-45.12	1.62	15.66	-31.08	-25	-6.08	Horizontal
Test Results for Mid Channel 2605MHz							
5210.0	-62.82	5.23	35.82	-32.23	-25	-7.23	Horizontal
5210.0	-62.09	5.23	35.82	-31.50	-25	-6.50	Vertical
7815.0	-60.12	5.67	36.85	-28.94	-25	-3.94	Vertical
7815.0	-61.28	5.67	36.85	-30.10	-25	-5.10	Horizontal
510.4	-47.96	1.62	16.17	-33.41	-25	-8.41	Vertical
562.9	-44.30	1.74	17.63	-28.41	-25	-3.41	Horizontal
Test Results for High Channel 2652.5MHz							
5305.0	-60.92	5.24	35.83	-30.33	-25	-5.33	Horizontal
5305.0	-59.71	5.24	35.83	-29.12	-25	-4.12	Vertical
7957.5	-61.04	5.68	36.87	-29.85	-25	-4.85	Vertical
7957.5	-61.85	5.68	36.87	-30.66	-25	-5.66	Horizontal
197.6	-49.53	1.55	15.84	-35.24	-25	-10.24	Vertical
353.1	-48.87	1.51	17.06	-33.32	-25	-8.32	Horizontal

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

Test Results for Low Channel 2565MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5130.0	-64.51	5.23	35.82	-33.92	-25	-8.92	Horizontal
5130.0	-59.45	5.23	35.82	-28.86	-25	-3.86	Vertical
7695.0	-62.59	5.67	36.86	-31.40	-25	-6.40	Vertical
7695.0	-63.02	5.67	36.86	-31.83	-25	-6.83	Horizontal
128.9	-46.32	1.43	15.51	-32.24	-25	-7.24	Vertical
344.8	-48.19	1.40	16.97	-32.62	-25	-7.62	Horizontal
Test Results for Mid Channel 2605MHz							
5210.0	-61.82	5.23	35.82	-31.23	-25	-6.23	Horizontal
5210.0	-64.35	5.23	35.82	-33.76	-25	-8.76	Vertical
7815.0	-62.23	5.67	36.85	-31.05	-25	-6.05	Vertical
7815.0	-63.84	5.67	36.85	-32.66	-25	-7.66	Horizontal
100.8	-49.58	1.77	16.72	-34.63	-25	-9.63	Vertical
263.5	-49.52	1.31	16.99	-33.84	-25	-8.84	Horizontal
Test Results for High Channel 2645MHz							
5290.0	-64.98	5.24	35.83	-34.39	-25	-9.39	Horizontal
5290.0	-63.01	5.24	35.83	-32.42	-25	-7.42	Vertical
7935.0	-62.84	5.70	36.88	-31.66	-25	-6.66	Vertical
7935.0	-63.88	5.70	36.88	-32.70	-25	-7.70	Horizontal
349.9	-49.37	1.70	15.73	-35.34	-25	-10.34	Vertical
110.3	-48.30	1.75	17.33	-32.72	-25	-7.72	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	-44.24	4.02	29.80	-18.46	-13	-5.46	Horizontal
3421.4	-48.88	4.02	29.80	-23.10	-13	-10.10	Vertical
5132.1	-53.40	5.24	35.84	-22.80	-13	-9.80	Vertical
5132.1	-50.44	5.24	35.84	-19.84	-13	-6.84	Horizontal
112.6	-51.52	1.52	15.57	-37.47	-13	-24.47	Vertical
220.5	-48.33	1.33	17.14	-32.52	-13	-19.52	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-47.88	4.03	30.00	-21.91	-13	-8.91	Horizontal
3490.0	-51.33	4.03	30.00	-25.36	-13	-12.36	Vertical
5235.0	-50.00	5.25	35.86	-19.39	-13	-6.39	Vertical
5235.0	-52.67	5.25	35.86	-22.06	-13	-9.06	Horizontal
157.3	-49.41	1.53	17.13	-33.81	-13	-20.81	Vertical
213.1	-44.15	1.41	15.95	-29.61	-13	-16.61	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-50.41	4.05	30.01	-24.45	-13	-11.45	Horizontal
3558.6	-46.67	4.05	30.01	-20.71	-13	-7.71	Vertical
5337.9	-51.77	5.26	35.86	-21.17	-13	-8.17	Vertical
5337.9	-53.76	5.26	35.86	-23.16	-13	-10.16	Horizontal
170.6	-50.00	1.44	15.51	-35.93	-13	-22.93	Vertical
169.0	-49.99	1.78	15.76	-36.01	-13	-23.01	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	-46.05	4.02	29.80	-20.27	-13	-7.27	Horizontal
3440.0	-51.01	4.02	29.80	-25.23	-13	-12.23	Vertical
5160.0	-51.67	5.24	35.84	-21.07	-13	-8.07	Vertical
5160.0	-54.09	5.24	35.84	-23.49	-13	-10.49	Horizontal
268.8	-48.81	1.62	17.02	-33.41	-13	-20.41	Vertical
161.4	-46.71	1.32	17.31	-30.72	-13	-17.72	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-53.42	4.03	30.00	-27.45	-13	-14.45	Horizontal
3490.0	-51.44	4.03	30.00	-25.47	-13	-12.47	Vertical
5235.0	-54.40	5.25	35.86	-23.79	-13	-10.79	Vertical
5235.0	-54.99	5.25	35.86	-24.38	-13	-11.38	Horizontal
159.9	-50.75	1.45	15.17	-37.03	-13	-24.03	Vertical
172.1	-47.08	1.48	17.82	-30.74	-13	-17.74	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-51.43	2.91	27.68	-26.66	-13	-13.66	Horizontal
3540.0	-49.03	2.91	27.68	-24.26	-13	-11.26	Vertical
5310.0	-51.82	5.26	35.86	-21.22	-13	-8.22	Vertical
5310.0	-51.99	5.26	35.86	-21.39	-13	-8.39	Horizontal
197.3	-47.88	1.76	16.38	-33.26	-13	-20.26	Vertical
158.5	-45.62	1.43	17.13	-29.92	-13	-16.92	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.

9.8 LTE BAND 71

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

Test Results for Low Channel 665.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1331	-52.67	2.61	27.28	-28.00	-13	-15.00	Horizontal
1331	-50.31	2.61	27.28	-25.64	-13	-12.64	Vertical
1996.5	-50.58	2.87	27.59	-25.86	-13	-12.86	Vertical
1996.5	-52.53	2.87	27.59	-27.81	-13	-14.81	Horizontal
Test Results For Mid Channel 680.5MHz							
1361	-52.07	2.62	27.30	-27.39	-13	-14.39	Horizontal
1361	-49.75	2.62	27.30	-25.07	-13	-12.07	Vertical
2041.5	-51.76	2.87	27.62	-27.01	-13	-14.01	Vertical
2041.5	-50.57	2.87	27.62	-25.82	-13	-12.82	Horizontal
Test Results for High Channel 695.5MHz							
1391	-49.02	2.66	27.28	-24.40	-13	-11.40	Horizontal
1391	-50.54	2.66	27.28	-25.92	-13	-12.92	Vertical
2086.5	-51.22	2.88	27.60	-26.50	-13	-13.50	Vertical
2086.5	-53.69	2.88	27.60	-28.97	-13	-15.97	Horizontal

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

Test Results for Low Channel 673MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1346	-53.34	2.62	27.30	-28.66	-13	-15.66	Horizontal
1346	-50.50	2.62	27.30	-25.82	-13	-12.82	Vertical
2019	-51.86	2.87	27.62	-27.11	-13	-14.11	Vertical
2019	-53.02	2.87	27.62	-28.27	-13	-15.27	Horizontal
Test Results for Mid Channel 683MHz							
1366	-51.87	2.62	27.30	-27.19	-13	-14.19	Horizontal
1366	-49.70	2.62	27.30	-25.02	-13	-12.02	Vertical
2049	-52.59	2.87	27.62	-27.84	-13	-14.84	Vertical
2049	-51.46	2.87	27.62	-26.71	-13	-13.71	Horizontal
Test Results for High Channel 688MHz							
1376	-48.60	2.62	27.30	-23.92	-13	-10.92	Horizontal
1376	-49.29	2.62	27.30	-24.61	-13	-11.61	Vertical
2064	-52.23	2.87	27.62	-27.48	-13	-14.48	Vertical
2064	-54.05	2.87	27.62	-29.30	-13	-16.30	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 ± 2.5 ppm for mobile stations.

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 3.4V, Normal, DC 3.8V and High voltage, DC 4.2V.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to -30°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

LTE Band 2/4/5/12/17/41/66/71

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]
3.4	1880	12.9	0.006860	2.5
3.8	1880	14.1	0.007490	2.5
4.2	1880	13.4	0.007111	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.3	0.006525	2.5
Extreme (50C)	1880	11.2	0.005956	2.5
Extreme (40C)	1880	14.2	0.007540	2.5
Extreme (30C)	1880	13.1	0.006964	2.5
Extreme (10C)	1880	13.4	0.007138	2.5
Extreme (0C)	1880	12.3	0.006554	2.5
Extreme (-10C)	1880	13.2	0.007029	2.5
Extreme (-20C)	1880	14.0	0.007422	2.5
Extreme (-30C)	1880	14.6	0.007763	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]
3.4	1880	10.1	0.005353	2.5
3.8	1880	8.4	0.004485	2.5
4.2	1880	8.3	0.004406	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.4	0.004980	2.5
Extreme (50C)	1880	9.2	0.004900	2.5
Extreme (40C)	1880	8.0	0.004252	2.5
Extreme (30C)	1880	8.8	0.004694	2.5
Extreme (10C)	1880	8.6	0.004565	2.5
Extreme (0C)	1880	7.7	0.004107	2.5
Extreme (-10C)	1880	8.8	0.004692	2.5
Extreme (-20C)	1880	9.1	0.004833	2.5
Extreme (-30C)	1880	7.8	0.004141	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]
3.4	1732.5	9.0	0.005202	2.5
3.8	1732.5	8.8	0.005094	2.5
4.2	1732.5	8.4	0.004873	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.8	0.005051	2.5
Extreme (50C)	1732.5	8.5	0.004887	2.5
Extreme (40C)	1732.5	7.5	0.004308	2.5
Extreme (30C)	1732.5	5.7	0.003287	2.5
Extreme (10C)	1732.5	6.8	0.003897	2.5
Extreme (0C)	1732.5	9.3	0.005354	2.5
Extreme (-10C)	1732.5	8.6	0.004975	2.5
Extreme (-20C)	1732.5	6.6	0.003786	2.5
Extreme (-30C)	1732.5	8.9	0.005123	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]
3.4	1732.5	9.5	0.005474	2.5
3.8	1732.5	8.7	0.005034	2.5
4.2	1732.5	7.6	0.004412	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	10.0	0.005763	2.5
Extreme (50C)	1732.5	8.7	0.005042	2.5
Extreme (40C)	1732.5	8.0	0.004616	2.5
Extreme (30C)	1732.5	8.6	0.004952	2.5
Extreme (10C)	1732.5	8.5	0.004888	2.5
Extreme (0C)	1732.5	8.5	0.004922	2.5
Extreme (-10C)	1732.5	8.6	0.004990	2.5
Extreme (-20C)	1732.5	8.9	0.005117	2.5
Extreme (-30C)	1732.5	8.4	0.004877	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]
3.4	836.5	6.0	0.007183	2.5
3.8	836.5	7.0	0.008426	2.5
4.2	836.5	5.0	0.006035	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.3	0.007536	2.5
Extreme (50C)	836.5	5.4	0.006488	2.5
Extreme (40C)	836.5	5.7	0.006825	2.5
Extreme (30C)	836.5	6.3	0.007553	2.5
Extreme (10C)	836.5	5.4	0.006418	2.5
Extreme (0C)	836.5	5.4	0.006438	2.5
Extreme (-10C)	836.5	5.3	0.006307	2.5
Extreme (-20C)	836.5	6.4	0.007653	2.5
Extreme (-30C)	836.5	6.1	0.007333	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]
3.4	836.5	6.1	0.007333	2.5
3.8	836.5	6.9	0.008287	2.5
4.2	836.5	4.3	0.005161	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.0	0.007192	2.5
Extreme (50C)	836.5	5.5	0.006566	2.5
Extreme (40C)	836.5	6.4	0.007647	2.5
Extreme (30C)	836.5	6.2	0.007389	2.5
Extreme (10C)	836.5	5.7	0.006798	2.5
Extreme (0C)	836.5	5.0	0.005926	2.5
Extreme (-10C)	836.5	5.9	0.007032	2.5
Extreme (-20C)	836.5	6.3	0.007528	2.5
Extreme (-30C)	836.5	6.2	0.007377	2.5

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

10.4 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	8.5	0.012025	2.5
3.8	707.5	10.3	0.014589	2.5
4.2	707.5	8.8	0.012385	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	8.9	0.012565	2.5
Extreme (50C)	707.5	7.1	0.010088	2.5
Extreme (40C)	707.5	7.8	0.011024	2.5
Extreme (30C)	707.5	8.5	0.012005	2.5
Extreme (10C)	707.5	7.0	0.009935	2.5
Extreme (0C)	707.5	8.6	0.012217	2.5
Extreme (-10C)	707.5	8.2	0.011584	2.5
Extreme (-20C)	707.5	8.6	0.012210	2.5
Extreme (-30C)	707.5	8.3	0.011714	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	7.0	0.009832	2.5
3.8	707.5	8.0	0.011264	2.5
4.2	707.5	7.3	0.010332	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.

10.5 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]
3.4	710.0	9.9	0.013925	2.5
3.8	710.0	8.8	0.012365	2.5
4.2	710.0	8.0	0.011307	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	10.1	0.014259	2.5
Extreme (50C)	710.0	9.3	0.013088	2.5
Extreme (40C)	710.0	7.9	0.011068	2.5
Extreme (30C)	710.0	8.7	0.012228	2.5
Extreme (10C)	710.0	8.6	0.012169	2.5
Extreme (0C)	710.0	8.1	0.011466	2.5
Extreme (-10C)	710.0	9.2	0.012890	2.5
Extreme (-20C)	710.0	9.3	0.013061	2.5
Extreme (-30C)	710.0	7.8	0.011046	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]
3.4	710.0	10.4	0.014599	2.5
3.8	710.0	8.7	0.012227	2.5
4.2	710.0	8.5	0.012037	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	9.7	0.013686	2.5
Extreme (50C)	710.0	8.7	0.012200	2.5
Extreme (40C)	710.0	8.6	0.012091	2.5
Extreme (30C)	710.0	9.2	0.013001	2.5
Extreme (10C)	710.0	7.9	0.011063	2.5
Extreme (0C)	710.0	8.1	0.011439	2.5
Extreme (-10C)	710.0	9.8	0.013790	2.5
Extreme (-20C)	710.0	8.8	0.012418	2.5
Extreme (-30C)	710.0	8.3	0.011664	2.5

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

10.6 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]
3.4	2605	8.6	0.003319	2.5
3.8	2605	6.0	0.002319	2.5
4.2	2605	7.9	0.003047	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2605	7.5	0.002886	2.5
Extreme (50C)	2605	4.5	0.001718	2.5
Extreme (40C)	2605	5.3	0.002040	2.5
Extreme (30C)	2605	4.5	0.001729	2.5
Extreme (10C)	2605	6.1	0.002347	2.5
Extreme (0C)	2605	5.1	0.001952	2.5
Extreme (-10C)	2605	9.4	0.003609	2.5
Extreme (-20C)	2605	11.1	0.004242	2.5
Extreme (-30C)	2605	6.1	0.002343	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]
3.4	2605	8.9	0.003403	2.5
3.8	2605	6.4	0.002455	2.5
4.2	2605	6.9	0.002632	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2605	7.2	0.002748	2.5
Extreme (50C)	2605	4.6	0.001777	2.5
Extreme (40C)	2605	5.0	0.001905	2.5
Extreme (30C)	2605	4.5	0.001740	2.5
Extreme (10C)	2605	6.5	0.002476	2.5
Extreme (0C)	2605	4.9	0.001873	2.5
Extreme (-10C)	2605	9.7	0.003722	2.5
Extreme (-20C)	2605	10.9	0.004173	2.5
Extreme (-30C)	2605	5.7	0.002198	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]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	13.2	0.00755	2.5
3.8	1745	14.1	0.00807	2.5
4.2	1745	13.6	0.00780	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	7.3	0.004172	2.5
Extreme (50C)	1745	4.8	0.002741	2.5
Extreme (40C)	1745	5.2	0.002952	2.5
Extreme (30C)	1745	4.5	0.002596	2.5
Extreme (10C)	1745	6.2	0.003546	2.5
Extreme (0C)	1745	4.4	0.002538	2.5
Extreme (-10C)	1745	9.4	0.005406	2.5
Extreme (-20C)	1745	10.8	0.006208	2.5
Extreme (-30C)	1745	6.3	0.003592	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	12.6	0.007224	2.5
3.8	1745	13.6	0.007778	2.5
4.2	1745	12.9	0.007421	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	8.0	0.004563	2.5
Extreme (50C)	1745	5.0	0.002894	2.5
Extreme (40C)	1745	5.2	0.002987	2.5
Extreme (30C)	1745	5.2	0.003000	2.5
Extreme (10C)	1745	6.7	0.003816	2.5
Extreme (0C)	1745	5.1	0.002922	2.5
Extreme (-10C)	1745	9.9	0.005698	2.5
Extreme (-20C)	1745	11.0	0.006310	2.5
Extreme (-30C)	1745	5.8	0.003332	2.5

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

10.8 LTE BAND 71

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 QPSK, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	683	8.6	0.01259	2.5
3.8	683	13.4	0.01962	2.5
4.2	683	13	0.01903	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 QPSK, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	683	7.7	0.011274	2.5
Extreme (50C)	683	5.2	0.007613	2.5
Extreme (40C)	683	5.1	0.007467	2.5
Extreme (30C)	683	5	0.007321	2.5
Extreme (10C)	683	6.6	0.009663	2.5
Extreme (0C)	683	4.8	0.007028	2.5
Extreme (-10C)	683	9.8	0.014348	2.5
Extreme (-20C)	683	7.2	0.010542	2.5
Extreme (-30C)	683	7.3	0.010688	2.5

16QAM, (20MHz BANDWIDTH)
Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 16QAM, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	683	12.3	0.018009	2.5
3.8	683	14.2	0.020791	2.5
4.2	683	11.2	0.016398	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 71 16QAM, (CH 133322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	683	7.7	0.011274	2.5
Extreme (50C)	683	4.7	0.006881	2.5
Extreme (40C)	683	5.9	0.008638	2.5
Extreme (30C)	683	5.2	0.007613	2.5
Extreme (10C)	683	5.2	0.007613	2.5
Extreme (0C)	683	6.3	0.009224	2.5
Extreme (-10C)	683	9.4	0.013763	2.5
Extreme (-20C)	683	8.2	0.012006	2.5
Extreme (-30C)	683	8.4	0.012299	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.

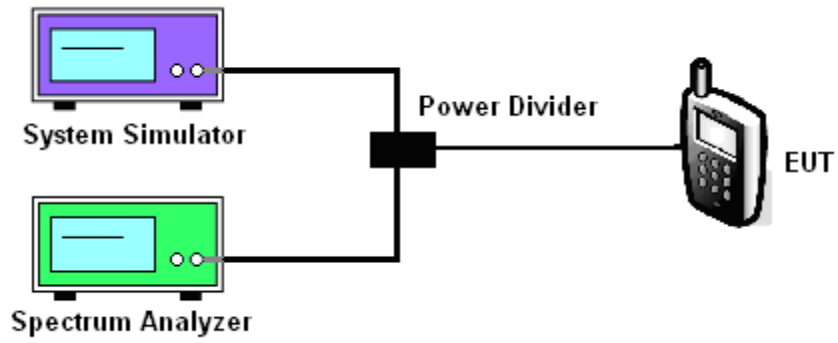
11.2 Measuring Instruments

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 2/4/5/12/17/41/66/71

Test data reference attachment.

----END OF REPORT----