

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

FCC ID: 2ATH4-ROLLCALL

Product: Smart Phone
Trade Mark: ROLLCALL
Model Number: DT D1
Family Model: DT
Report No.: STR211029002006E

Prepared for

Alliance International group, Inc
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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : Alliance International group, Inc
Address..... : 43337 Isle Royal Street Fremont CA 94538 USA
Manufacturer's Name..... : Alliance International group, Inc
Address..... : 43337 Isle Royal Street Fremont CA 94538 USA
Product name..... : Smart Phone
Model and/or type reference .. : DT D1
Family Model: DT
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..... Oct 29 . 2021 ~ Dec 07. 2021
Date of Issue Dec 07. 2021
Test Result..... Pass

Testing Engineer : Mukzi Lee
(Mukzi Lee)
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(Alex Li)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart Phone
Trade Mark	ROLLCALL
Model Name	DT D1
Family Model	DT
Model Difference	All the model are the same circuit and RF module,except the Model names.
FCC ID:	2ATH4-ROLLCALL
Frequency Bands:	U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 2,4,5,7,12,13,17,41,66,71
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE FDD Band 41 Uplink: 2560MHz-2660MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz; LTE FDD Band 71 Uplink: 663MHz-698MHz, Downlink: 617MHz-652MHz;
Type of Modulation:	QPSK/16QAM
SIM Card	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	PIFA Antenna
Antenna gain:	Band 2: 0.56dBi; Band 4: 0.57dBi ; Band 5: -1.17dBi ; Band 7: 0.87dBi ; Band 12: -1.55dBi ; Band 12: 1.53dBi ; Band 17: 2.01dBi; Band 41: 1.53dBi; Band 66: 0.54dBi; Band 71: -1.61dBi;

Adapter	Model: FX18U-090200J1 Input: AC 100-240V~50/60Hz 0.5A Output: DC 9V---2A
Battery	DC 3.85V, 4500mAh, 17.325Wh
Power supply	DC 3.85V from battery or DC 9V from Adapter.
Extreme Vol. Limits:	DC 3.4V to DC 4.2V (Nominal DC 3.85V) (Note 1)
HW Version	G1970U-PT-V2.1
SW Version	G1970UPTV2_HF_Z6128_P_K_C01_FAC_OJ_R
** Note1: The High Voltage DC 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AY6A-C5ELITE** filing to comply with the FCC Part 22H&24E&27

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2, Band 4, Band 5, Band 7, Band 12, Band 13, Band 17, Band 41, Band 66, Band 71.

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

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations

the worst case was determined to be at X orientation for all LTE bands.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

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

2.2 EUT EXERCISE

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

2.3 CONFIGURATION OF EUT SYSTEM

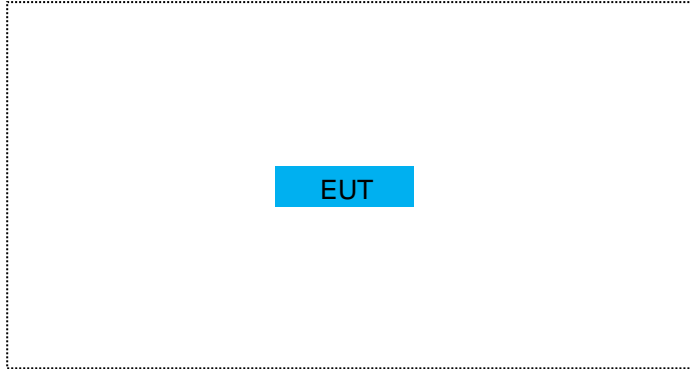
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Smart Phone	DT D1	FCC ID: 2ATH4-ROLLCALL	EUT

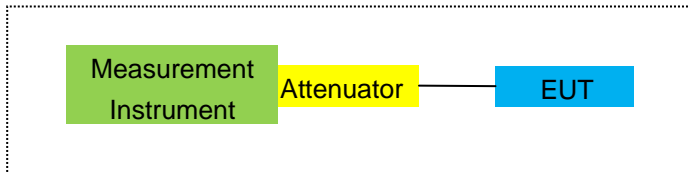
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

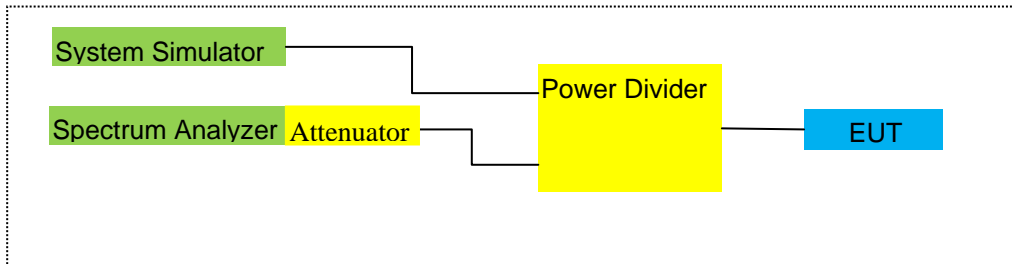
For Radiated Test Cases



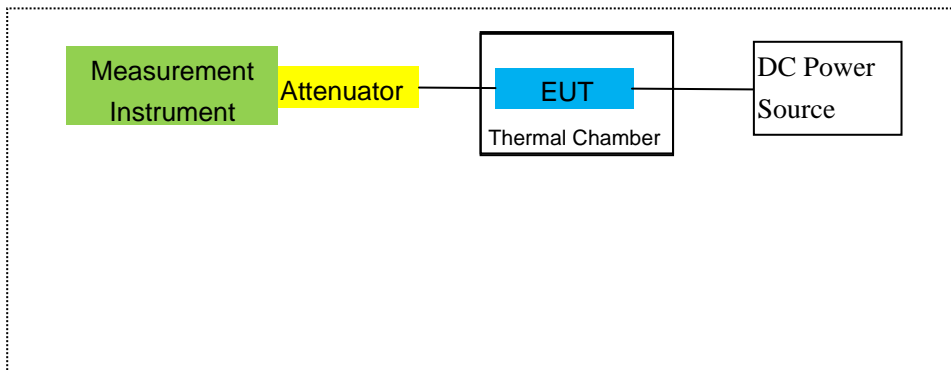
For Conducted Output Power



For Peak-to Average Ratio, Occupied Bandwidth, Conducted Band edge and Conducted Spurious Emission



For Frequency Stability



Note: EUT built-in battery-powered, the battery is fully-charged.

3. TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2021.07.01	2022.06.30	1 year
2	Test Receiver	R&S	ESPI	101318	2021.04.27	2022.04.26	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.29	2022.03.28	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2021.03.29	2022.03.28	1 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2020.11.19 2021.11.07	2021.11.18 2022.11.06	1 year
7	Amplifier	EM	EM-30180	060538	2021.07.01	2022.06.30	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2021.04.27	2022.04.26	1 year
9	Power Meter	R&S	NRVS	100696	2021.07.01	2022.06.30	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2021.04.27	2022.04.26	1 year
11	Test Cable	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
12	Test Cable	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
14	Test Receiver	R&S	ESCI	101160	2021.04.27	2022.04.26	1 year
15	LISN	R&S	ENV216	101313	2021.04.27	2022.04.26	1 year
16	LISN	EMCO	3816/2	00042990	2021.04.27	2022.04.26	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2021.04.27	2022.04.26	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2021.04.27	2022.04.26	1 year
19	Test Cable	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
20	Test Cable	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
21	Test Cable	N/A	C03	N/A	2020.05.11	2023.05.10	3 year
22	Attenuator	MCE	24-10-34	BN9258	2021.07.01	2022.06.30	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2021.04.27	2022.04.26	1 year
24	test receiver	R&S	ESCI	a0304218	2021.04.27	2022.04.26	1 year
25	Communication Tester	R&S	CMU200	A0304247	2021.07.01	2022.06.30	1 year
26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2021.04.27	2022.04.26	1 year

27	DC Power Source	N/A	PS-6005D	2017040292 3	2020.05.11	2023.05.10	3 year
28	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2021.07.01	2022.06.30	1 year
29	Communication Tester	R&S	CMW500	148500	2021.07.01	2022.06.30	1 year
30	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2021.07.01	2022.06.30	1 year

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

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

- LTE Band 2/4/5/7/12/13/17/41/66/71
-

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.

NOTE: The 10GHz-40GHz amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

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

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

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

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

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

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

- LTE Band 2/4/5/7/12/13/17/41/66/71

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)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)			
1.4MHz Band QPSK	1/#Mid	1850.7	-2.61	3.76	28.24	21.87	153.815	Horizontal	Pass	
		1880	-2.38	3.91	28.22	21.93	155.955	Horizontal	Pass	
		1909.3	-2.37	3.93	28.20	21.90	154.882	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-2.55	3.77	28.23	21.91	155.239	Horizontal	Pass	
		1880	-2.38	3.91	28.24	21.95	156.675	Horizontal	Pass	
		1908.5	-2.38	3.94	28.25	21.93	155.955	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-2.62	3.77	28.31	21.92	155.597	Horizontal	Pass	
		1880	-2.46	3.91	28.22	21.85	153.109	Horizontal	Pass	
		1907.5	-2.30	3.94	28.20	21.96	157.036	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-2.64	3.79	28.33	21.90	154.882	Horizontal	Pass	
		1880	-2.44	3.95	28.22	21.83	152.405	Horizontal	Pass	
		1905	-2.27	3.97	28.19	21.95	156.675	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	1857.5	-2.63	3.79	28.34	21.92	155.597	Horizontal	Pass	
		1880	-2.35	3.95	28.22	21.92	155.597	Horizontal	Pass	
		1902.5	-2.40	3.97	28.18	21.81	151.705	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	1860	-2.71	3.81	28.35	21.83	152.405	Horizontal	Pass	
		1880	-2.43	3.96	28.22	21.83	152.405	Horizontal	Pass	
		1900	-2.32	4.00	28.16	21.84	152.757	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	1850.7	-2.54	3.76	28.24	21.94	156.315	Vertical	Pass	
		1880	-2.41	3.91	28.22	21.90	154.882	Vertical	Pass	
		1909.3	-2.32	3.93	28.20	21.95	156.675	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	1851.5	-2.66	3.77	28.23	21.80	151.356	Vertical	Pass	
		1880	-2.40	3.91	28.24	21.93	155.955	Vertical	Pass	
		1908.5	-2.41	3.94	28.25	21.90	154.882	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	1852.5	-2.64	3.77	28.31	21.90	154.882	Vertical	Pass	
		1880	-2.48	3.91	28.22	21.83	152.405	Vertical	Pass	
		1907.5	-2.44	3.94	28.20	21.82	152.055	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	1855	-2.65	3.79	28.33	21.89	154.525	Vertical	Pass	
		1880	-2.34	3.95	28.22	21.93	155.955	Vertical	Pass	
		1905	-2.40	3.97	28.19	21.82	152.055	Vertical	Pass	

15.0MHz		1857.5	-2.72	3.79	28.34	21.83	152.405	Vertical	Pass
Band	1/#Mid	1880	-2.46	3.95	28.22	21.81	151.705	Vertical	Pass
QPSK		1902.5	-2.33	3.97	28.18	21.88	154.170	Vertical	Pass
20.0MHz		1860	-2.54	3.81	28.35	22.00	158.489	Vertical	Pass
Band	1/#Mid	1880	-2.27	3.96	28.22	21.99	158.125	Vertical	Pass
QPSK		1900	-2.16	4.00	28.16	22.00	158.489	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.23	3.76	28.24	21.25	133.352	Horizontal	Pass
		1880	-3.01	3.91	28.22	21.30	134.896	Horizontal	Pass
		1909.3	-2.95	3.93	28.20	21.32	135.519	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.24	3.77	28.23	21.22	132.434	Horizontal	Pass
		1880	-3.09	3.91	28.24	21.24	133.045	Horizontal	Pass
		1908.5	-3.07	3.94	28.25	21.24	133.045	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.31	3.77	28.31	21.23	132.739	Horizontal	Pass
		1880	-3.05	3.91	28.22	21.26	133.660	Horizontal	Pass
		1907.5	-3.07	3.94	28.20	21.19	131.522	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.30	3.79	28.33	21.24	133.045	Horizontal	Pass
		1880	-2.92	3.95	28.22	21.35	136.458	Horizontal	Pass
		1905	-2.95	3.97	28.19	21.27	133.968	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.26	3.79	28.34	21.29	134.586	Horizontal	Pass
		1880	-3.02	3.95	28.22	21.25	133.352	Horizontal	Pass
		1902.5	-2.88	3.97	28.18	21.33	135.831	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.30	3.81	28.35	21.24	133.045	Horizontal	Pass
		1880	-2.93	3.96	28.22	21.33	135.831	Horizontal	Pass
		1900	-2.93	4.00	28.16	21.23	132.739	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-3.15	3.76	28.24	21.33	135.831	Vertical	Pass
		1880	-2.96	3.91	28.22	21.35	136.458	Vertical	Pass
		1909.3	-3.05	3.93	28.20	21.22	132.434	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.20	3.77	28.23	21.26	133.660	Vertical	Pass
		1880	-3.02	3.91	28.24	21.31	135.207	Vertical	Pass
		1908.5	-2.96	3.94	28.25	21.35	136.458	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.25	3.77	28.31	21.29	134.586	Vertical	Pass
		1880	-3.11	3.91	28.22	21.20	131.826	Vertical	Pass
		1907.5	-3.07	3.94	28.20	21.19	131.522	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.31	3.79	28.33	21.23	132.739	Vertical	Pass
		1880	-2.99	3.95	28.22	21.28	134.276	Vertical	Pass
		1905	-2.93	3.97	28.19	21.29	134.586	Vertical	Pass
15.0MHz Band 16	1/#Mid	1857.5	-3.26	3.79	28.34	21.29	134.586	Vertical	Pass
		1880	-3.04	3.95	28.22	21.23	132.739	Vertical	Pass

QAM		1902.5	-2.94	3.97	28.18	21.27	133.968	Vertical	Pass
20.0MHz	1/#Mid	1860	-3.14	3.81	28.35	21.40	138.038	Vertical	Pass
Band 16		1880	-2.90	3.96	28.22	21.36	136.773	Vertical	Pass
QAM		1900	-2.77	4.00	28.16	21.39	137.721	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.49	3.12	27.58	20.97	125.026	Horizontal	Pass
		1732.5	-3.35	3.27	27.61	20.99	125.603	Horizontal	Pass
		1754.3	-3.42	3.29	27.63	20.92	123.595	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.48	3.13	27.61	21.00	125.893	Horizontal	Pass
		1732.5	-3.31	3.27	27.61	21.03	126.765	Horizontal	Pass
		1753.5	-3.27	3.30	27.62	21.05	127.350	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.56	3.13	27.63	20.94	124.165	Horizontal	Pass
		1732.5	-3.44	3.27	27.61	20.90	123.027	Horizontal	Pass
		1752.5	-3.35	3.30	27.60	20.95	124.451	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.43	3.15	27.64	21.06	127.644	Horizontal	Pass
		1732.5	-3.34	3.31	27.61	20.96	124.738	Horizontal	Pass
		1750	-3.28	3.33	27.59	20.98	125.314	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-3.59	3.15	27.65	20.91	123.310	Horizontal	Pass
		1732.5	-3.27	3.31	27.61	21.03	126.765	Horizontal	Pass
		1747.5	-3.27	3.33	27.57	20.97	125.026	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.60	3.17	27.66	20.89	122.744	Horizontal	Pass
		1732.5	-3.23	3.32	27.61	21.06	127.644	Horizontal	Pass
		1745	-3.21	3.36	27.56	20.99	125.603	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.54	3.12	27.58	20.92	123.595	Vertical	Pass
		1732.5	-3.39	3.27	27.61	20.95	124.451	Vertical	Pass
		1754.3	-3.31	3.29	27.63	21.03	126.765	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.53	3.13	27.61	20.95	124.451	Vertical	Pass
		1732.5	-3.28	3.27	27.61	21.06	127.644	Vertical	Pass
		1753.5	-3.36	3.30	27.62	20.96	124.738	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.47	3.13	27.63	21.03	126.765	Vertical	Pass
		1732.5	-3.29	3.27	27.61	21.05	127.350	Vertical	Pass
		1752.5	-3.37	3.30	27.60	20.93	123.880	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.49	3.15	27.64	21.00	125.893	Vertical	Pass
		1732.5	-3.24	3.31	27.61	21.06	127.644	Vertical	Pass
		1750	-3.28	3.33	27.59	20.98	125.314	Vertical	Pass

15.0MHz		1717.5	-3.51	3.15	27.65	20.99	125.603	Vertical	Pass
Band	1/#Mid	1732.5	-3.37	3.31	27.61	20.93	123.880	Vertical	Pass
QPSK		1747.5	-3.31	3.33	27.57	20.93	123.880	Vertical	Pass
20.0MHz		1720	-3.37	3.17	27.66	21.12	129.420	Vertical	Pass
Band	1/#Mid	1732.5	-3.18	3.32	27.61	21.11	129.122	Vertical	Pass
QPSK		1745	-3.12	3.36	27.56	21.08	128.233	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.53	3.12	27.58	19.93	98.401	Horizontal	Pass
		1732.5	-4.36	3.27	27.61	19.98	99.541	Horizontal	Pass
		1754.3	-4.30	3.29	27.63	20.04	100.925	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.49	3.13	27.61	19.99	99.770	Horizontal	Pass
		1732.5	-4.40	3.27	27.61	19.94	98.628	Horizontal	Pass
		1753.5	-4.39	3.30	27.62	19.93	98.401	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.60	3.13	27.63	19.90	97.724	Horizontal	Pass
		1732.5	-4.34	3.27	27.61	20.00	100.000	Horizontal	Pass
		1752.5	-4.31	3.30	27.60	19.99	99.770	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.50	3.15	27.64	19.99	99.770	Horizontal	Pass
		1732.5	-4.30	3.31	27.61	20.00	100.000	Horizontal	Pass
		1750	-4.21	3.33	27.59	20.05	101.158	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.48	3.15	27.65	20.02	100.462	Horizontal	Pass
		1732.5	-4.29	3.31	27.61	20.01	100.231	Horizontal	Pass
		1747.5	-4.28	3.33	27.57	19.96	99.083	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.59	3.17	27.66	19.90	97.724	Horizontal	Pass
		1732.5	-4.23	3.32	27.61	20.06	101.391	Horizontal	Pass
		1745	-4.22	3.36	27.56	19.98	99.541	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.49	3.12	27.58	19.97	99.312	Vertical	Pass
		1732.5	-4.32	3.27	27.61	20.02	100.462	Vertical	Pass
		1754.3	-4.36	3.29	27.63	19.98	99.541	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.52	3.13	27.61	19.96	99.083	Vertical	Pass
		1732.5	-4.33	3.27	27.61	20.01	100.231	Vertical	Pass
		1753.5	-4.38	3.30	27.62	19.94	98.628	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.56	3.13	27.63	19.94	98.628	Vertical	Pass
		1732.5	-4.38	3.27	27.61	19.96	99.083	Vertical	Pass
		1752.5	-4.36	3.30	27.60	19.94	98.628	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.42	3.15	27.64	20.07	101.625	Vertical	Pass
		1732.5	-4.28	3.31	27.61	20.02	100.462	Vertical	Pass
		1750	-4.22	3.33	27.59	20.04	100.925	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-4.49	3.15	27.65	20.01	100.231	Vertical	Pass
		1732.5	-4.37	3.31	27.61	19.93	98.401	Vertical	Pass

QAM		1747.5	-4.32	3.33	27.57	19.92	98.175	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.39	3.17	27.66	20.10	102.329	Vertical	Pass
Band 16		1732.5	-4.20	3.32	27.61	20.09	102.094	Vertical	Pass
QAM		1745	-4.08	3.36	27.56	20.12	102.802	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	Antenna Gain	Correction	Max. EIRP	Max. EIRP			
			(dBm)	(dBm)	(dB)		Average	Average			
					(dB)	(dBm)	(mW)				
1.4MHz Band QPSK	3/#Mid	824.7	3.88	2.01	19.68	2.15	19.40	87.096	Horizontal	Pass	
		836.5	3.89	2.01	19.77	2.15	19.50	89.125	Horizontal	Pass	
		848.3	3.83	2.02	19.82	2.15	19.48	88.716	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	3.94	2.01	19.70	2.15	19.48	88.716	Horizontal	Pass	
		836.5	3.82	2.01	19.77	2.15	19.43	87.700	Horizontal	Pass	
		847.5	3.71	2.02	19.81	2.15	19.35	86.099	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	3.90	2.01	19.71	2.15	19.45	88.105	Horizontal	Pass	
		836.5	3.86	2.01	19.77	2.15	19.47	88.512	Horizontal	Pass	
		846.5	3.74	2.02	19.79	2.15	19.36	86.298	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	829	3.86	2.01	19.73	2.15	19.43	87.700	Horizontal	Pass	
		836.5	3.84	2.01	19.77	2.15	19.45	88.105	Horizontal	Pass	
		844	3.74	2.02	19.78	2.15	19.35	86.099	Horizontal	Pass	
1.4MHz Band QPSK	1/#Mid	824.7	3.88	2.01	19.68	2.15	19.40	87.096	Vertical	Pass	
		836.5	3.89	2.01	19.77	2.15	19.50	89.125	Vertical	Pass	
		848.3	3.76	2.02	19.82	2.15	19.41	87.297	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	825.5	3.84	2.01	19.70	2.15	19.38	86.696	Vertical	Pass	
		836.5	3.80	2.01	19.77	2.15	19.41	87.297	Vertical	Pass	
		847.5	3.78	2.02	19.81	2.15	19.42	87.498	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	826.5	3.83	2.01	19.71	2.15	19.38	86.696	Vertical	Pass	
		836.5	3.77	2.01	19.77	2.15	19.38	86.696	Vertical	Pass	
		846.5	3.73	2.02	19.79	2.15	19.35	86.099	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	829	3.96	2.01	19.73	2.15	19.53	89.743	Vertical	Pass	
		836.5	3.90	2.01	19.77	2.15	19.51	89.331	Vertical	Pass	
		844	3.94	2.02	19.78	2.15	19.55	90.157	Vertical	Pass	

Note:

SG Level= Signal generator output

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

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

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)				Average	Average		
				(dBm)	(mW)					
1.4MHz Band 16 QAM	3/#Mid	824.7	3.50	2.01	19.68	2.15	19.02	79.799	Horizontal	Pass
		836.5	3.29	2.01	19.77	2.15	18.90	77.625	Horizontal	Pass
		848.3	3.30	2.02	19.82	2.15	18.95	78.524	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.45	2.01	19.70	2.15	18.99	79.250	Horizontal	Pass
		836.5	3.36	2.01	19.77	2.15	18.97	78.886	Horizontal	Pass
		847.5	3.32	2.02	19.81	2.15	18.96	78.705	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.44	2.01	19.71	2.15	18.99	79.250	Horizontal	Pass
		836.5	3.25	2.01	19.77	2.15	18.86	76.913	Horizontal	Pass
		846.5	3.34	2.02	19.79	2.15	18.96	78.705	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.38	2.01	19.73	2.15	18.95	78.524	Horizontal	Pass
		836.5	3.25	2.01	19.77	2.15	18.86	76.913	Horizontal	Pass
		844	3.32	2.02	19.78	2.15	18.93	78.163	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	3.38	2.01	19.68	2.15	18.90	77.625	Vertical	Pass
		836.5	3.28	2.01	19.77	2.15	18.89	77.446	Vertical	Pass
		848.3	3.36	2.02	19.82	2.15	19.01	79.616	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.40	2.01	19.70	2.15	18.94	78.343	Vertical	Pass
		836.5	3.38	2.01	19.77	2.15	18.99	79.250	Vertical	Pass
		847.5	3.33	2.02	19.81	2.15	18.97	78.886	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.42	2.01	19.71	2.15	18.97	78.886	Vertical	Pass
		836.5	3.30	2.01	19.77	2.15	18.91	77.804	Vertical	Pass
		846.5	3.37	2.02	19.79	2.15	18.99	79.250	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	3.52	2.01	19.73	2.15	19.09	81.096	Vertical	Pass
		836.5	3.47	2.01	19.77	2.15	19.08	80.910	Vertical	Pass
		844	3.43	2.02	19.78	2.15	19.04	80.168	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	Antenna Gain	Max. EIRP	Max. EIRP			
			(dBm)			Average	Average			
				(dBm)	(dB)	(dBm)	(mW)			
5.0MHz Band QPSK	1/#Mid	2502.5	1.36	4.54	27.75	24.57	286.418	Horizontal	Pass	
		2535	1.39	4.69	27.72	24.42	276.694	Horizontal	Pass	
		2567.5	1.50	4.71	27.71	24.50	281.838	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	2505	1.21	4.55	27.76	24.42	276.694	Horizontal	Pass	
		2535	1.54	4.69	27.72	24.57	286.418	Horizontal	Pass	
		2565	1.43	4.72	27.70	24.41	276.058	Horizontal	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	1.28	4.55	27.77	24.50	281.838	Horizontal	Pass	
		2535	1.44	4.69	27.72	24.47	279.898	Horizontal	Pass	
		2562.5	1.44	4.72	27.69	24.41	276.058	Horizontal	Pass	
20.0MHz Band QPSK	1/#Mid	2510	1.36	4.57	27.78	24.57	286.418	Horizontal	Pass	
		2535	1.49	4.73	27.72	24.48	280.543	Horizontal	Pass	
		2560	1.63	4.75	27.68	24.56	285.759	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	2502.5	1.33	4.54	27.75	24.54	284.446	Vertical	Pass	
		2535	1.48	4.69	27.72	24.51	282.488	Vertical	Pass	
		2567.5	1.51	4.71	27.71	24.51	282.488	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	2505	1.26	4.55	27.76	24.47	279.898	Vertical	Pass	
		2535	1.47	4.69	27.72	24.50	281.838	Vertical	Pass	
		2565	1.56	4.72	27.70	24.54	284.446	Vertical	Pass	
15.0MHz Band QPSK	1/#Mid	2507.5	1.19	4.55	27.77	24.41	276.058	Vertical	Pass	
		2535	1.36	4.69	27.72	24.39	274.789	Vertical	Pass	
		2562.5	1.56	4.72	27.69	24.53	283.792	Vertical	Pass	
20.0MHz Band QPSK	1/#Mid	2510	1.38	4.57	27.78	24.59	287.740	Vertical	Pass	
		2535	1.59	4.73	27.72	24.58	287.078	Vertical	Pass	
		2560	1.67	4.75	27.68	24.60	288.403	Vertical	Pass	

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Gain	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	1.00	4.54	27.75	24.21	263.633	Horizontal	Pass
		2535	1.12	4.69	27.72	24.15	260.016	Horizontal	Pass
		2567.5	1.17	4.71	27.71	24.17	261.216	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	0.99	4.55	27.76	24.20	263.027	Horizontal	Pass
		2535	1.19	4.69	27.72	24.22	264.241	Horizontal	Pass
		2565	1.18	4.72	27.70	24.16	260.615	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	1.01	4.55	27.77	24.23	264.850	Horizontal	Pass
		2535	1.13	4.69	27.72	24.16	260.615	Horizontal	Pass
		2562.5	1.29	4.72	27.69	24.26	266.686	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	0.95	4.57	27.78	24.16	260.615	Horizontal	Pass
		2535	1.25	4.73	27.72	24.24	265.461	Horizontal	Pass
		2560	1.22	4.75	27.68	24.15	260.016	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	0.95	4.54	27.75	24.16	260.615	Vertical	Pass
		2535	1.15	4.69	27.72	24.18	261.818	Vertical	Pass
		2567.5	1.21	4.71	27.71	24.21	263.633	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	0.97	4.55	27.76	24.18	261.818	Vertical	Pass
		2535	1.16	4.69	27.72	24.19	262.422	Vertical	Pass
		2565	1.28	4.72	27.70	24.26	266.686	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	1.02	4.55	27.77	24.24	265.461	Vertical	Pass
		2535	1.07	4.69	27.72	24.10	257.040	Vertical	Pass
		2562.5	1.19	4.72	27.69	24.16	260.615	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	1.10	4.57	27.78	24.31	269.774	Vertical	Pass
		2535	1.31	4.73	27.72	24.30	269.153	Vertical	Pass
		2560	1.34	4.75	27.68	24.27	267.301	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP			
			(dBm)				Average	Average			
							(dBm)	(mW)			
1.4MHz Band QPSK	1/#Mid	699.7	4.73	1.91	19.21	2.15	19.88	97.275	Vertical	Pass	
		707.5	4.66	1.91	19.26	2.15	19.86	96.828	Vertical	Pass	
		715.3	4.63	1.93	19.34	2.15	19.89	97.499	Vertical	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	4.70	1.91	19.21	2.15	19.85	96.605	Vertical	Pass	
		707.5	4.70	1.91	19.26	2.15	19.90	97.724	Vertical	Pass	
		714.5	4.67	1.93	19.34	2.15	19.93	98.401	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	4.78	1.91	19.23	2.15	19.95	98.855	Vertical	Pass	
		707.5	4.58	1.91	19.26	2.15	19.78	95.060	Vertical	Pass	
		713.5	4.60	1.92	19.33	2.15	19.86	96.828	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	704	4.58	1.91	19.25	2.15	19.77	94.842	Vertical	Pass	
		707.5	4.57	1.91	19.26	2.15	19.77	94.842	Vertical	Pass	
		711	4.61	1.92	19.32	2.15	19.86	96.828	Vertical	Pass	
1.4MHz Band QPSK	1/#Mid	699.7	4.73	1.91	19.21	2.15	19.88	97.275	Horizontal	Pass	
		707.5	4.62	1.91	19.26	2.15	19.82	95.940	Horizontal	Pass	
		715.3	4.64	1.93	19.34	2.15	19.90	97.724	Horizontal	Pass	
3.0MHz Band QPSK	1/#Mid	700.5	4.74	1.91	19.21	2.15	19.89	97.499	Horizontal	Pass	
		707.5	4.68	1.91	19.26	2.15	19.88	97.275	Horizontal	Pass	
		714.5	4.65	1.93	19.34	2.15	19.91	97.949	Horizontal	Pass	
5.0MHz Band QPSK	1/#Mid	701.5	4.65	1.91	19.23	2.15	19.82	95.940	Horizontal	Pass	
		707.5	4.59	1.91	19.26	2.15	19.79	95.280	Horizontal	Pass	
		713.5	4.61	1.92	19.33	2.15	19.87	97.051	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	704	4.80	1.91	19.25	2.15	19.99	99.770	Horizontal	Pass	
		707.5	4.77	1.91	19.26	2.15	19.97	99.312	Horizontal	Pass	
		711	4.71	1.92	19.32	2.15	19.96	99.083	Horizontal	Pass	

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)		Average	Average		
						(dB)	(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	4.03	1.91	19.21	2.15	19.18	82.794	Vertical	Pass
		707.5	3.91	1.91	19.26	2.15	19.11	81.470	Vertical	Pass
		715.3	3.84	1.93	19.34	2.15	19.10	81.283	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	3.96	1.91	19.21	2.15	19.11	81.470	Vertical	Pass
		707.5	3.99	1.91	19.26	2.15	19.19	82.985	Vertical	Pass
		714.5	3.89	1.93	19.34	2.15	19.15	82.224	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	3.90	1.91	19.23	2.15	19.07	80.724	Vertical	Pass
		707.5	3.92	1.91	19.26	2.15	19.12	81.658	Vertical	Pass
		713.5	3.91	1.92	19.33	2.15	19.17	82.604	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	3.97	1.91	19.25	2.15	19.16	82.414	Vertical	Pass
		707.5	3.85	1.91	19.26	2.15	19.05	80.353	Vertical	Pass
		711	3.83	1.92	19.32	2.15	19.08	80.910	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	4.03	1.91	19.21	2.15	19.18	82.794	Horizontal	Pass
		707.5	3.93	1.91	19.26	2.15	19.13	81.846	Horizontal	Pass
		715.3	3.94	1.93	19.34	2.15	19.20	83.176	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	3.96	1.91	19.21	2.15	19.11	81.470	Horizontal	Pass
		707.5	4.01	1.91	19.26	2.15	19.21	83.368	Horizontal	Pass
		714.5	3.96	1.93	19.34	2.15	19.22	83.560	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	3.92	1.91	19.23	2.15	19.09	81.096	Horizontal	Pass
		707.5	3.95	1.91	19.26	2.15	19.15	82.224	Horizontal	Pass
		713.5	3.91	1.92	19.33	2.15	19.17	82.604	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.07	1.91	19.25	2.15	19.26	84.333	Horizontal	Pass
		707.5	4.08	1.91	19.26	2.15	19.28	84.723	Horizontal	Pass
		711	4.04	1.92	19.32	2.15	19.29	84.918	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							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP			
			(dBm)				Average	Average			
					(dB)	(dBm)	(mW)				
5.0MHz Band QPSK	1/#Mid	779.5	7.74	1.95	19.23	2.15	22.87	193.642	Vertical	Pass	
		782	7.73	1.95	19.26	2.15	22.89	194.536	Vertical	Pass	
		784.5	7.68	1.96	19.33	2.15	22.90	194.984	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	782	7.76	1.95	19.25	2.15	22.91	195.434	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	779.5	7.76	1.95	19.23	2.15	22.89	194.536	Horizontal	Pass	
		782	7.67	1.95	19.26	2.15	22.83	191.867	Horizontal	Pass	
		784.5	7.65	1.96	19.33	2.15	22.87	193.642	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	782	7.83	1.95	19.25	2.15	22.98	198.609	Horizontal	Pass	

Radiated Power (ERP) for Band 13											
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction	Max. EIRP	Max. EIRP			
			(dBm)				Average	Average			
						(dB)	(dBm)	(mW)			
5.0MHz Band QPSK	1/#Mid	779.5	7.18	1.95	19.23	2.15	22.31	170.216	Vertical	Pass	
		782	7.04	1.95	19.26	2.15	22.20	165.959	Vertical	Pass	
		784.5	7.01	1.96	19.33	2.15	22.23	167.109	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	782	7.11	1.95	19.25	2.15	22.26	168.267	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	779.5	7.09	1.95	19.23	2.15	22.22	166.725	Horizontal	Pass	
		782	7.04	1.95	19.26	2.15	22.20	165.959	Horizontal	Pass	
		784.5	7.07	1.96	19.33	2.15	22.29	169.434	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	782	7.22	1.95	19.25	2.15	22.37	172.584	Horizontal	Pass	

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)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)			
5.0MHz Band QPSK	1/#Mid	706.5	8.01	1.91	19.23	2.15	23.18	207.970	Vertical	Pass	
		710	8.07	1.91	19.26	2.15	23.27	212.324	Vertical	Pass	
		713.5	7.99	1.92	19.33	2.15	23.25	211.349	Vertical	Pass	
10.0MHz Band QPSK	1/#Mid	709	8.07	1.91	19.25	2.15	23.26	211.836	Vertical	Pass	
		710	7.97	1.91	19.26	2.15	23.17	207.491	Vertical	Pass	
		711	7.91	1.92	19.32	2.15	23.16	207.014	Vertical	Pass	
5.0MHz Band QPSK	1/#Mid	706.5	8.13	1.91	19.23	2.15	23.30	213.796	Horizontal	Pass	
		710	8.06	1.91	19.26	2.15	23.26	211.836	Horizontal	Pass	
		713.5	7.97	1.92	19.33	2.15	23.23	210.378	Horizontal	Pass	
10.0MHz Band QPSK	1/#Mid	709	8.15	1.91	19.25	2.15	23.34	215.774	Horizontal	Pass	
		710	8.15	1.91	19.26	2.15	23.35	216.272	Horizontal	Pass	
		711	8.09	1.92	19.32	2.15	23.34	215.774	Horizontal	Pass	

Radiated Power (ERP) for Band 17												
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion	
			SG Level	Cable Loss	Antenna Gain	Correction	Max. EIRP	Max. EIRP	Average			Average
			(dBm)				(dBm)	(dB)				
							(dB)					
5.0MHz Band 16 QAM	1/#Mid	706.5	7.63	1.91	19.23	2.15	22.80	190.546	Vertical	Pass		
		710	7.52	1.91	19.26	2.15	22.72	187.068	Vertical	Pass		
		713.5	7.46	1.92	19.33	2.15	22.72	187.068	Vertical	Pass		
10.0MHz Band 16 QAM	1/#Mid	709	7.60	1.91	19.25	2.15	22.79	190.108	Vertical	Pass		
		710	7.53	1.91	19.26	2.15	22.73	187.499	Vertical	Pass		
		711	7.44	1.92	19.32	2.15	22.69	185.780	Vertical	Pass		
5.0MHz Band 16 QAM	1/#Mid	706.5	7.57	1.91	19.23	2.15	22.74	187.932	Horizontal	Pass		
		710	7.50	1.91	19.26	2.15	22.70	186.209	Horizontal	Pass		
		713.5	7.45	1.92	19.33	2.15	22.71	186.638	Horizontal	Pass		
10.0MHz Band 16 QAM	1/#Mid	709	7.66	1.91	19.25	2.15	22.85	192.752	Horizontal	Pass		
		710	7.64	1.91	19.26	2.15	22.84	192.309	Horizontal	Pass		
		711	7.61	1.92	19.32	2.15	22.86	193.197	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)

8.9 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average (mW)		
5.0MHz Band QPSK	1/#Mid	2562.5	1.04	4.54	27.75	24.25	266.073	Horizontal	Pass
		2610	1.19	4.69	27.72	24.22	264.241	Horizontal	Pass
		2657.5	1.20	4.71	27.71	24.20	263.027	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2565	1.08	4.55	27.76	24.29	268.534	Horizontal	Pass
		2610	1.18	4.69	27.72	24.21	263.633	Horizontal	Pass
		2655	1.22	4.72	27.70	24.20	263.027	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2567.5	1.09	4.55	27.77	24.31	269.774	Horizontal	Pass
		2610	1.29	4.69	27.72	24.32	270.396	Horizontal	Pass
		2652.5	1.35	4.72	27.69	24.32	270.396	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2570	1.10	4.57	27.78	24.31	269.774	Horizontal	Pass
		2610	1.31	4.73	27.72	24.30	269.153	Horizontal	Pass
		2650	1.30	4.75	27.68	24.23	264.850	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2562.5	1.01	4.54	27.75	24.22	264.241	Vertical	Pass
		2610	1.18	4.69	27.72	24.21	263.633	Vertical	Pass
		2657.5	1.24	4.71	27.71	24.24	265.461	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2565	1.00	4.55	27.76	24.21	263.633	Vertical	Pass
		2610	1.23	4.69	27.72	24.26	266.686	Vertical	Pass
		2655	1.28	4.72	27.70	24.26	266.686	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2567.5	1.08	4.55	27.77	24.30	269.153	Vertical	Pass
		2610	1.23	4.69	27.72	24.26	266.686	Vertical	Pass
		2652.5	1.23	4.72	27.69	24.20	263.027	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2570	1.14	4.57	27.78	24.35	272.270	Vertical	Pass
		2610	1.34	4.73	27.72	24.33	271.019	Vertical	Pass
		2650	1.44	4.75	27.68	24.37	273.527	Vertical	Pass

Radiated Power (EIRP) for Band 41										
Mode	RB/RB SIZE	Frequency	Result						Polarization Of Max. ERP	Conclusion
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP			
			(dBm)			Average (dBm)	Average (mW)			
5.0MHz Band 16 QAM	1/#Mid	2562.5	2498.5	4.54	27.75	23.61	229.615	Horizontal	Pass	
		2610	2593	4.69	27.72	23.70	234.423	Horizontal	Pass	
		2657.5	2687.5	4.71	27.71	23.73	236.048	Horizontal	Pass	
10.0MHz Band 16 QAM	1/#Mid	2565	2501	4.55	27.76	23.58	228.034	Horizontal	Pass	
		2610	2593	4.69	27.72	23.64	231.206	Horizontal	Pass	
		2655	2685	4.72	27.70	23.62	230.144	Horizontal	Pass	
15.0MHz Band 16 QAM	1/#Mid	2567.5	2503.5	4.55	27.77	23.66	232.274	Horizontal	Pass	
		2610	2593	4.69	27.72	23.68	233.346	Horizontal	Pass	
		2652.5	2682.5	4.72	27.69	23.57	227.510	Horizontal	Pass	
20.0MHz Band 16 QAM	1/#Mid	2570	2506	4.57	27.78	23.63	230.675	Horizontal	Pass	
		2610	2593	4.73	27.72	23.69	233.884	Horizontal	Pass	
		2650	2680	4.75	27.68	23.60	229.087	Horizontal	Pass	
5.0MHz Band 16 QAM	1/#Mid	2562.5	2498.5	4.54	27.75	23.65	231.739	Vertical	Pass	
		2610	2593	4.69	27.72	23.60	229.087	Vertical	Pass	
		2657.5	2687.5	4.71	27.71	23.63	230.675	Vertical	Pass	
10.0MHz Band 16 QAM	1/#Mid	2565	2501	4.55	27.76	23.59	228.560	Vertical	Pass	
		2610	2593	4.69	27.72	23.58	228.034	Vertical	Pass	
		2655	2685	4.72	27.70	23.59	228.560	Vertical	Pass	
15.0MHz Band 16 QAM	1/#Mid	2567.5	2503.5	4.55	27.77	23.66	232.274	Vertical	Pass	
		2610	2593	4.69	27.72	23.63	230.675	Vertical	Pass	
		2652.5	2682.5	4.72	27.69	23.66	232.274	Vertical	Pass	
20.0MHz Band 16 QAM	1/#Mid	2570	2506	4.57	27.78	23.74	236.592	Vertical	Pass	
		2610	2593	4.73	27.72	23.76	237.684	Vertical	Pass	
		2650	2680	4.75	27.68	23.77	238.232	Vertical	Pass	

Note:

SG Level= Signal generator output

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

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

8.10 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average		
1.4MHz Band QPSK	1/#Mid	1710.7	-3.56	3.76	28.24	20.92	123.595	Horizontal	Pass
		1745	-3.42	3.91	28.22	20.89	122.744	Horizontal	Pass
		1779.3	-3.38	3.93	28.2	20.89	122.744	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.59	3.77	28.23	20.87	122.180	Horizontal	Pass
		1745	-3.40	3.91	28.24	20.93	123.880	Horizontal	Pass
		1778.5	-3.51	3.94	28.25	20.80	120.226	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.71	3.77	28.31	20.83	121.060	Horizontal	Pass
		1745	-3.43	3.91	28.22	20.88	122.462	Horizontal	Pass
		1777.5	-3.34	3.94	28.2	20.92	123.595	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.69	3.79	28.33	20.85	121.619	Horizontal	Pass
		1745	-3.35	3.95	28.22	20.92	123.595	Horizontal	Pass
		1775	-3.41	3.97	28.19	20.81	120.504	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-3.66	3.79	28.34	20.89	122.744	Horizontal	Pass
		1745	-3.38	3.95	28.22	20.89	122.744	Horizontal	Pass
		1772.5	-3.31	3.97	28.18	20.90	123.027	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.66	3.81	28.35	20.88	122.462	Horizontal	Pass
		1745	-3.48	3.96	28.22	20.78	119.674	Horizontal	Pass
		1770	-3.34	4	28.16	20.82	120.781	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.64	3.76	28.24	20.84	121.339	Vertical	Pass
		1745	-3.40	3.91	28.22	20.91	123.310	Vertical	Pass
		1779.3	-3.38	3.93	28.2	20.89	122.744	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-3.58	3.77	28.23	20.88	122.462	Vertical	Pass
		1745	-3.44	3.91	28.24	20.89	122.744	Vertical	Pass
		1778.5	-3.44	3.94	28.25	20.87	122.180	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.74	3.77	28.31	20.80	120.226	Vertical	Pass
		1745	-3.45	3.91	28.22	20.86	121.899	Vertical	Pass
		1777.5	-3.46	3.94	28.2	20.80	120.226	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-3.74	3.79	28.34	20.81	120.504	Vertical	Pass
		1745	-3.44	3.95	28.22	20.83	121.060	Vertical	Pass

QPSK		1775	-3.37	3.97	28.18	20.84	121.339	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.72	3.81	28.35	20.82	120.781	Vertical	Pass
Band		1745	-3.34	3.96	28.22	20.92	123.595	Vertical	Pass
QPSK		1772.5	-3.33	4	28.16	20.83	121.060	Vertical	Pass
20.0MHz	1/#Mid	1720	-3.59	3.79	28.34	20.96	124.738	Vertical	Pass
Band		1745	-3.30	3.95	28.22	20.97	125.026	Vertical	Pass
QPSK		1770	-3.25	3.97	28.18	20.96	124.738	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.49	3.76	28.24	19.99	99.770	Horizontal	Pass
		1745	-4.40	3.91	28.22	19.91	97.949	Horizontal	Pass
		1779.3	-4.30	3.93	28.2	19.97	99.312	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.47	3.77	28.23	19.99	99.770	Horizontal	Pass
		1745	-4.36	3.91	28.24	19.97	99.312	Horizontal	Pass
		1778.5	-4.40	3.94	28.25	19.91	97.949	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.61	3.77	28.31	19.93	98.401	Horizontal	Pass
		1745	-4.45	3.91	28.22	19.86	96.828	Horizontal	Pass
		1777.5	-4.35	3.94	28.2	19.91	97.949	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.53	3.79	28.33	20.01	100.231	Horizontal	Pass
		1745	-4.34	3.95	28.22	19.93	98.401	Horizontal	Pass
		1775	-4.28	3.97	28.19	19.94	98.628	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.60	3.79	28.34	19.95	98.855	Horizontal	Pass
		1745	-4.36	3.95	28.22	19.91	97.949	Horizontal	Pass
		1772.5	-4.27	3.97	28.18	19.94	98.628	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.62	3.81	28.35	19.92	98.175	Horizontal	Pass
		1745	-4.26	3.96	28.22	20.00	100.000	Horizontal	Pass
		1770	-4.18	4	28.16	19.98	99.541	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-4.54	3.76	28.24	19.94	98.628	Vertical	Pass
		1745	-4.30	3.91	28.22	20.01	100.231	Vertical	Pass
		1779.3	-4.27	3.93	28.2	20.00	100.000	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-4.50	3.77	28.23	19.96	99.083	Vertical	Pass
		1745	-4.45	3.91	28.24	19.88	97.275	Vertical	Pass
		1778.5	-4.27	3.94	28.25	20.04	100.925	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.64	3.77	28.31	19.90	97.724	Vertical	Pass
		1745	-4.30	3.91	28.22	20.01	100.231	Vertical	Pass
		1777.5	-4.30	3.94	28.2	19.96	99.083	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.62	3.79	28.34	19.93	98.401	Vertical	Pass
		1745	-4.30	3.95	28.22	19.97	99.312	Vertical	Pass
		1775	-4.25	3.97	28.18	19.96	99.083	Vertical	Pass
15.0MHz Band 16	1/#Mid	1717.5	-4.62	3.81	28.35	19.92	98.175	Vertical	Pass
		1745	-4.34	3.96	28.22	19.92	98.175	Vertical	Pass

QAM		1772.5	-4.19	4	28.16	19.97	99.312	Vertical	Pass
20.0MHz	1/#Mid	1720	-4.50	3.79	28.34	20.05	101.158	Vertical	Pass
Band 16		1745	-4.19	3.95	28.22	20.08	101.859	Vertical	Pass
QAM		1770	-4.17	3.97	28.18	20.04	100.925	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)

8.11 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 Gain	Correction	Max. EIRP	Max. EIRP			
			(dBm)	(dBm)	(dB)		Average	Average			
							(dBm)	(mW)			
5.0MHz Band QPSK	25/0	665.5	5.55	1.91	19.21	2.15	20.70	117.490	Vertical	Pass	
		680.5	5.54	1.91	19.26	2.15	20.74	118.577	Vertical	Pass	
		695.5	5.43	1.93	19.34	2.15	20.69	117.220	Vertical	Pass	
10.0MHz Band QPSK	50/0	668	5.61	1.91	19.21	2.15	20.76	119.124	Vertical	Pass	
		680.5	5.52	1.91	19.26	2.15	20.72	118.032	Vertical	Pass	
		693	5.49	1.93	19.34	2.15	20.75	118.850	Vertical	Pass	
15.0MHz Band QPSK	75/0	670.5	5.44	1.91	19.23	2.15	20.61	115.080	Vertical	Pass	
		680.5	5.52	1.91	19.26	2.15	20.72	118.032	Vertical	Pass	
		690.5	5.36	1.92	19.33	2.15	20.62	115.345	Vertical	Pass	
20.0MHz Band QPSK	100/0	673	5.58	1.91	19.25	2.15	20.77	119.399	Vertical	Pass	
		683	5.45	1.91	19.26	2.15	20.65	116.145	Vertical	Pass	
		688	5.48	1.92	19.32	2.15	20.73	118.304	Vertical	Pass	
5.0MHz Band QPSK	25/0	665.5	5.62	1.91	19.21	2.15	20.77	119.399	Horizontal	Pass	
		680.5	5.58	1.91	19.26	2.15	20.78	119.674	Horizontal	Pass	
		695.5	5.42	1.93	19.34	2.15	20.68	116.950	Horizontal	Pass	
15.0MHz Band QPSK	50/0	668	5.53	1.91	19.21	2.15	20.68	116.950	Horizontal	Pass	
		680.5	5.46	1.91	19.26	2.15	20.66	116.413	Horizontal	Pass	
		693	5.52	1.93	19.34	2.15	20.78	119.674	Horizontal	Pass	
15.0MHz Band QPSK	75/0	670.5	5.49	1.91	19.23	2.15	20.66	116.413	Horizontal	Pass	
		680.5	5.48	1.91	19.26	2.15	20.68	116.950	Horizontal	Pass	
		690.5	5.36	1.92	19.33	2.15	20.62	115.345	Horizontal	Pass	
20MHz Band QPSK	100/0	673	5.64	1.91	19.25	2.15	20.83	121.060	Horizontal	Pass	
		683	5.61	1.91	19.26	2.15	20.81	120.504	Horizontal	Pass	
		688	5.56	1.92	19.32	2.15	20.81	120.504	Horizontal	Pass	

Radiated Power (ERP) for Band 71												
Mode	RB/RB SIZE	Frequency	Result							Polarization Of Max. ERP	Conclusion	
			SG Level	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP	Max. EIRP	Average			Average
			(dBm)				(dBm)	(mW)				
							(dBm)	(mW)				
5.0MHz Band 16 QAM	25/0	665.5	4.60	1.91	19.21	2.15	19.75	94.406	Vertical	Pass		
		680.5	4.55	1.91	19.26	2.15	19.75	94.406	Vertical	Pass		
		695.5	4.48	1.93	19.34	2.15	19.74	94.189	Vertical	Pass		
10.0MHz Band 16 QAM	50/0	668	4.51	1.91	19.21	2.15	19.66	92.470	Vertical	Pass		
		680.5	4.58	1.91	19.26	2.15	19.78	95.060	Vertical	Pass		
		693	4.39	1.93	19.34	2.15	19.65	92.257	Vertical	Pass		
15.0MHz Band 16 QAM	75/0	670.5	4.55	1.91	19.23	2.15	19.72	93.756	Vertical	Pass		
		680.5	4.53	1.91	19.26	2.15	19.73	93.972	Vertical	Pass		
		690.5	4.51	1.92	19.33	2.15	19.77	94.842	Vertical	Pass		
20.0MHz Band 16 QAM	100/0	673	4.60	1.91	19.25	2.15	19.79	95.280	Vertical	Pass		
		683	4.57	1.91	19.26	2.15	19.77	94.842	Vertical	Pass		
		688	4.48	1.92	19.32	2.15	19.73	93.972	Vertical	Pass		
5.0MHz Band 16 QAM	25/0	665.5	4.61	1.91	19.21	2.15	19.76	94.624	Horizontal	Pass		
		680.5	4.54	1.91	19.26	2.15	19.74	94.189	Horizontal	Pass		
		695.5	4.48	1.93	19.34	2.15	19.74	94.189	Horizontal	Pass		
10.0MHz Band 16 QAM	50/0	668	4.55	1.91	19.21	2.15	19.70	93.325	Horizontal	Pass		
		680.5	4.47	1.91	19.26	2.15	19.67	92.683	Horizontal	Pass		
		693	4.44	1.93	19.34	2.15	19.70	93.325	Horizontal	Pass		
15.0MHz Band 16 QAM	75/0	670.5	4.53	1.91	19.23	2.15	19.70	93.325	Horizontal	Pass		
		680.5	4.53	1.91	19.26	2.15	19.73	93.972	Horizontal	Pass		
		690.5	4.50	1.92	19.33	2.15	19.76	94.624	Horizontal	Pass		
20.0MHz Band 16 QAM	100/0	673	4.65	1.91	19.25	2.15	19.84	96.383	Horizontal	Pass		
		683	4.60	1.91	19.26	2.15	19.80	95.499	Horizontal	Pass		
		688	4.57	1.92	19.32	2.15	19.82	95.940	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)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

- ☐ LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-53.38	4.04	33.51	-23.91	-13	-10.91	Horizontal
3701.4	-45.81	4.04	33.51	-16.34	-13	-3.34	Vertical
5552.1	-46.26	5.24	35.84	-15.66	-13	-2.66	Vertical
5552.1	-50.78	5.24	35.84	-20.18	-13	-7.18	Horizontal
193.5	-43.31	1.43	16.02	-28.72	-13	-15.72	Vertical
309.7	-42.61	1.30	17.99	-25.92	-13	-12.92	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-44.46	4.04	33.56	-14.94	-13	-1.94	Horizontal
3760.0	-48.93	4.04	33.56	-19.41	-13	-6.41	Vertical
5640.0	-44.60	5.24	35.91	-13.93	-13	-0.93	Vertical
5640.0	-49.51	5.24	35.91	-18.84	-13	-5.84	Horizontal
184.1	-41.15	1.62	16.97	-25.80	-13	-12.80	Vertical
360.6	-43.08	1.74	15.98	-28.85	-13	-15.85	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-48.17	4.04	34.00	-18.21	-13	-5.21	Horizontal
3818.6	-52.94	4.04	34.00	-22.98	-13	-9.98	Vertical
5727.9	-45.86	5.24	36.04	-15.06	-13	-2.06	Vertical
5727.9	-53.97	5.24	36.04	-23.17	-13	-10.17	Horizontal
197.5	-43.44	1.42	17.29	-27.57	-13	-14.57	Vertical
444.9	-43.38	1.50	17.90	-26.97	-13	-13.97	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	-51.50	4.07	33.54	-22.03	-13	-9.03	Horizontal
3720.0	-45.68	4.07	33.54	-16.21	-13	-3.21	Vertical
5580.0	-46.15	5.28	35.86	-15.57	-13	-2.57	Vertical
5580.0	-52.06	5.28	35.86	-21.48	-13	-8.48	Horizontal
189.2	-41.10	1.58	16.89	-25.78	-13	-12.78	Vertical
279.8	-34.22	1.76	17.26	-18.72	-13	-5.72	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.03	4.04	33.56	-18.51	-13	-5.51	Horizontal
3760.0	-51.00	4.04	33.56	-21.48	-13	-8.48	Vertical
5640.0	-51.86	5.24	35.91	-21.19	-13	-8.19	Vertical
5640.0	-51.74	5.24	35.91	-21.07	-13	-8.07	Horizontal
191.6	-35.25	1.46	16.27	-20.44	-13	-7.44	Vertical
240.0	-41.36	1.59	15.15	-27.80	-13	-14.80	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-51.69	4.04	34.00	-21.73	-13	-8.73	Horizontal
3800.0	-49.12	4.04	34.00	-19.16	-13	-6.16	Vertical
5700.0	-47.25	5.24	36.04	-16.45	-13	-3.45	Vertical
5700.0	-52.57	5.24	36.04	-21.77	-13	-8.77	Horizontal
195.5	-44.35	1.36	17.39	-28.31	-13	-15.31	Vertical
255.3	-43.72	1.66	15.39	-29.99	-13	-16.99	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-52.35	4.02	29.80	-26.57	-13	-13.57	Horizontal
3421.4	-50.85	4.02	29.80	-25.07	-13	-12.07	Vertical
5132.1	-48.94	5.24	35.84	-18.34	-13	-5.34	Vertical
5132.1	-49.73	5.24	35.84	-19.13	-13	-6.13	Horizontal
179.1	-41.58	1.68	16.04	-27.22	-13	-14.22	Vertical
278.4	-38.96	1.78	17.74	-23.00	-13	-10.00	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-45.37	4.03	30.00	-19.40	-13	-6.40	Horizontal
3465.0	-44.47	4.03	30.00	-18.50	-13	-5.50	Vertical
5197.5	-45.61	5.25	35.86	-15.00	-13	-2.00	Vertical
5197.5	-52.22	5.25	35.86	-21.61	-13	-8.61	Horizontal
208.6	-38.45	1.72	17.69	-22.48	-13	-9.48	Vertical
300.3	-35.42	1.62	16.02	-21.01	-13	-8.01	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-47.82	4.05	30.01	-21.86	-13	-8.86	Horizontal
3508.6	-52.51	4.05	30.01	-26.55	-13	-13.55	Vertical
5262.9	-53.83	5.26	35.86	-23.23	-13	-10.23	Vertical
5262.9	-52.44	5.26	35.86	-21.84	-13	-8.84	Horizontal
177.1	-38.69	1.80	16.69	-23.80	-13	-10.80	Vertical
315.7	-43.62	1.75	16.66	-28.72	-13	-15.72	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	-50.66	4.02	29.80	-24.88	-13	-11.88	Horizontal
3440.0	-44.15	4.02	29.80	-18.37	-13	-5.37	Vertical
5160.0	-47.17	5.24	35.84	-16.57	-13	-3.57	Vertical
5160.0	-49.24	5.24	35.84	-18.64	-13	-5.64	Horizontal
187.6	-40.35	1.57	17.26	-24.66	-13	-11.66	Vertical
373.7	-42.10	1.78	16.35	-27.53	-13	-14.53	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-47.27	4.03	30.00	-21.30	-13	-8.30	Horizontal
3465.0	-46.14	4.03	30.00	-20.17	-13	-7.17	Vertical
5197.5	-47.63	5.25	35.86	-17.02	-13	-4.02	Vertical
5197.5	-51.19	5.25	35.86	-20.58	-13	-7.58	Horizontal
177.0	-36.25	1.44	17.95	-19.74	-13	-6.74	Vertical
353.2	-37.69	1.65	16.09	-23.25	-13	-10.25	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-51.25	2.91	27.68	-26.48	-13	-13.48	Horizontal
3490.0	-52.45	2.91	27.68	-27.68	-13	-14.68	Vertical
5235.0	-44.29	5.26	35.86	-13.69	-13	-0.69	Vertical
5235.0	-53.41	5.26	35.86	-22.81	-13	-9.81	Horizontal
177.6	-41.23	1.61	16.85	-25.99	-13	-12.99	Vertical
450.9	-42.74	1.61	15.19	-29.16	-13	-16.16	Horizontal

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

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

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-51.80	2.78	27.50	-27.08	-13	-14.08	Horizontal
1649.4	-44.76	2.78	27.50	-20.04	-13	-7.04	Vertical
2474.1	-49.03	2.90	27.80	-24.13	-13	-11.13	Vertical
2474.1	-52.62	2.90	27.80	-27.72	-13	-14.72	Horizontal
197.5	-38.85	1.76	17.59	-23.02	-13	-10.02	Vertical
274.3	-42.91	1.63	15.87	-28.67	-13	-15.67	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-46.30	2.80	27.48	-21.62	-13	-8.62	Horizontal
1673.0	-44.14	2.80	27.48	-19.46	-13	-6.46	Vertical
2509.5	-52.84	2.91	27.70	-28.05	-13	-15.05	Vertical
2509.5	-52.12	2.91	27.70	-27.33	-13	-14.33	Horizontal
187.7	-40.83	1.61	15.68	-26.76	-13	-13.76	Vertical
342.0	-39.26	1.59	17.52	-23.34	-13	-10.34	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-45.93	2.82	27.43	-21.32	-13	-8.32	Horizontal
1696.6	-47.31	2.82	27.43	-22.70	-13	-9.70	Vertical
2544.9	-49.58	2.92	27.74	-24.76	-13	-11.76	Vertical
2544.9	-51.25	2.92	27.74	-26.43	-13	-13.43	Horizontal
191.5	-35.62	1.69	16.67	-20.63	-13	-7.63	Vertical
447.3	-44.29	1.70	17.18	-28.81	-13	-15.81	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	-52.46	2.78	27.50	-27.74	-13	-14.74	Horizontal
1658.0	-46.39	2.78	27.50	-21.67	-13	-8.67	Vertical
2487.0	-44.75	2.90	27.80	-19.85	-13	-6.85	Vertical
2487.0	-50.43	2.90	27.80	-25.53	-13	-12.53	Horizontal
209.3	-41.96	1.71	15.57	-28.10	-13	-15.10	Vertical
436.9	-42.67	1.34	16.40	-27.61	-13	-14.61	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-47.56	2.80	27.48	-22.88	-13	-9.88	Horizontal
1673.0	-53.05	2.80	27.48	-28.37	-13	-15.37	Vertical
2509.5	-47.25	2.91	27.70	-22.46	-13	-9.46	Vertical
2509.5	-49.04	2.91	27.70	-24.25	-13	-11.25	Horizontal
201.0	-37.03	1.44	17.04	-21.43	-13	-8.43	Vertical
239.1	-34.27	1.76	17.62	-18.41	-13	-5.41	Horizontal
Test Results for High Channel 844MHz							
1688.0	-53.43	2.82	27.43	-28.82	-13	-15.82	Horizontal
1688.0	-44.35	2.82	27.43	-19.74	-13	-6.74	Vertical
2532.0	-51.63	2.92	27.74	-26.81	-13	-13.81	Vertical
2532.0	-50.22	2.92	27.74	-25.40	-13	-12.40	Horizontal
198.7	-40.48	1.74	17.70	-24.52	-13	-11.52	Vertical
332.8	-43.77	1.41	17.46	-27.71	-13	-14.71	Horizontal

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

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

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-61.47	5.23	35.81	-30.89	-25	-5.89	Horizontal
5005.0	-62.20	5.23	35.81	-31.62	-25	-6.62	Vertical
7507.5	-59.69	5.67	36.85	-28.51	-25	-3.51	Vertical
7507.5	-63.31	5.67	36.85	-32.13	-25	-7.13	Horizontal
183.7	-48.34	1.73	17.97	-32.10	-25	-7.10	Vertical
377.6	-47.03	1.38	15.11	-33.30	-25	-8.30	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-60.29	5.23	35.82	-29.70	-25	-4.70	Horizontal
5070.0	-64.26	5.23	35.82	-33.67	-25	-8.67	Vertical
7605.0	-62.12	5.67	36.85	-30.94	-25	-5.94	Vertical
7605.0	-61.17	5.67	36.85	-29.99	-25	-4.99	Horizontal
194.1	-47.12	1.77	16.17	-32.71	-25	-7.71	Vertical
278.3	-51.11	1.63	15.21	-37.53	-25	-12.53	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.64	5.24	35.83	-31.05	-25	-6.05	Horizontal
5135.0	-64.24	5.24	35.83	-33.65	-25	-8.65	Vertical
7702.5	-61.16	5.68	36.87	-29.97	-25	-4.97	Vertical
7702.5	-60.24	5.68	36.87	-29.05	-25	-4.05	Horizontal
184.1	-45.91	1.58	17.56	-29.93	-25	-4.93	Vertical
296.5	-54.50	1.45	16.58	-39.37	-25	-14.37	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-59.30	5.23	35.82	-28.71	-25	-3.71	Horizontal
5020.0	-64.12	5.23	35.82	-33.53	-25	-8.53	Vertical
7530.0	-63.06	5.67	36.86	-31.87	-25	-6.87	Vertical
7530.0	-61.72	5.67	36.86	-30.53	-25	-5.53	Horizontal
193.0	-49.66	1.63	15.76	-35.53	-25	-10.53	Vertical
308.3	-53.94	1.71	15.44	-40.21	-25	-15.21	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.32	5.23	35.82	-30.73	-25	-5.73	Horizontal
5070.0	-62.90	5.23	35.82	-32.31	-25	-7.31	Vertical
7605.0	-62.80	5.67	36.85	-31.62	-25	-6.62	Vertical
7605.0	-60.84	5.67	36.85	-29.66	-25	-4.66	Horizontal
177.9	-52.87	1.79	16.84	-37.81	-25	-12.81	Vertical
374.6	-49.12	1.71	17.64	-33.19	-25	-8.19	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-61.73	5.24	35.83	-31.14	-25	-6.14	Horizontal
5120.0	-63.87	5.24	35.83	-33.28	-25	-8.28	Vertical
7680.0	-61.94	5.70	36.88	-30.76	-25	-5.76	Vertical
7680.0	-61.38	5.70	36.88	-30.20	-25	-5.20	Horizontal
177.2	-44.31	1.79	16.84	-29.25	-25	-4.25	Vertical
461.0	-45.78	1.71	17.64	-29.85	-25	-4.85	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 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	-50.78	2.60	27.20	-26.18	-13	-13.18	Horizontal
1399.4	-49.67	2.60	27.20	-25.07	-13	-12.07	Vertical
2099.1	-48.43	2.85	27.54	-23.74	-13	-10.74	Vertical
2099.1	-51.74	2.85	27.54	-27.05	-13	-14.05	Horizontal
209.5	-38.15	1.49	17.78	-21.86	-13	-8.86	Vertical
249.2	-40.25	1.36	17.33	-24.28	-13	-11.28	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.0	-49.30	2.61	27.28	-24.63	-13	-11.63	Horizontal
1415.0	-53.91	2.61	27.28	-29.24	-13	-16.24	Vertical
2122.5	-48.98	2.87	27.59	-24.26	-13	-11.26	Vertical
2122.5	-49.36	2.87	27.59	-24.64	-13	-11.64	Horizontal
212.2	-38.61	1.73	15.74	-24.60	-13	-11.60	Vertical
284.9	-34.79	1.62	15.79	-20.62	-13	-7.62	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-53.76	2.63	27.28	-29.11	-13	-16.11	Horizontal
1430.6	-50.59	2.63	27.28	-25.94	-13	-12.94	Vertical
2145.9	-45.48	2.88	27.60	-20.76	-13	-7.76	Vertical
2145.9	-53.16	2.88	27.60	-28.44	-13	-15.44	Horizontal
179.0	-35.68	1.61	18.00	-19.29	-13	-6.29	Vertical
461.7	-35.40	1.45	15.49	-21.37	-13	-8.37	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	-50.27	2.61	27.26	-25.62	-13	-12.62	Horizontal
1408.0	-44.08	2.61	27.26	-19.43	-13	-6.43	Vertical
2112.0	-49.94	2.87	27.58	-25.23	-13	-12.23	Vertical
2112.0	-53.78	2.87	27.58	-29.07	-13	-16.07	Horizontal
202.6	-37.92	1.31	16.97	-22.26	-13	-9.26	Vertical
293.6	-38.68	1.65	16.70	-23.63	-13	-10.63	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.0	-52.26	2.61	27.28	-27.59	-13	-14.59	Horizontal
1415.0	-46.02	2.61	27.28	-21.35	-13	-8.35	Vertical
2122.5	-53.56	2.87	27.59	-28.84	-13	-15.84	Vertical
2122.5	-53.45	2.87	27.59	-28.73	-13	-15.73	Horizontal
185.1	-35.89	1.72	17.99	-19.62	-13	-6.62	Vertical
461.9	-39.56	1.73	17.94	-23.35	-13	-10.35	Horizontal
Test Results for High Channel 711MHz							
1422.0	-47.58	2.62	27.28	-22.92	-13	-9.92	Horizontal
1422.0	-53.19	2.62	27.28	-28.53	-13	-15.53	Vertical
2133.0	-48.98	2.87	27.60	-24.25	-13	-11.25	Vertical
2133.0	-51.54	2.87	27.60	-26.81	-13	-13.81	Horizontal
202.6	-39.77	1.58	15.93	-25.42	-13	-12.42	Vertical
279.5	-41.18	1.36	15.59	-26.95	-13	-13.95	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.

9.6 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-52.74	2.61	27.28	-28.07	-13	-15.07	Horizontal
1559.0	-47.82	2.61	27.28	-23.15	-13	-10.15	Vertical
2338.5	-49.52	2.87	27.59	-24.80	-13	-11.80	Vertical
2338.5	-49.02	2.87	27.59	-24.30	-13	-11.30	Horizontal
193.2	-38.28	1.71	16.15	-23.84	-13	-10.84	Vertical
346.3	-34.66	1.41	17.32	-18.75	-13	-5.75	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-47.11	2.62	27.30	-22.43	-13	-9.43	Horizontal
1564.0	-48.08	2.62	27.30	-23.40	-13	-10.40	Vertical
2346.0	-46.98	2.87	27.62	-22.23	-13	-9.23	Vertical
2346.0	-51.44	2.87	27.62	-26.69	-13	-13.69	Horizontal
209.8	-38.83	1.42	15.25	-25.01	-13	-12.01	Vertical
289.8	-37.05	1.36	17.19	-21.22	-13	-8.22	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-47.42	2.66	27.28	-22.80	-13	-9.80	Horizontal
1569.0	-46.73	2.66	27.28	-22.11	-13	-9.11	Vertical
2353.5	-46.38	2.88	27.60	-21.66	-13	-8.66	Vertical
2353.5	-50.64	2.88	27.60	-25.92	-13	-12.92	Horizontal
191.0	-37.29	1.32	17.29	-21.32	-13	-8.32	Vertical
279.9	-40.05	1.72	16.89	-24.88	-13	-11.88	Horizontal

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

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-45.55	2.62	27.30	-20.87	-13	-7.87	Horizontal
1564.0	-48.18	2.62	27.30	-23.50	-13	-10.50	Vertical
2346.0	-52.62	2.87	27.62	-27.87	-13	-14.87	Vertical
2346.0	-49.76	2.87	27.62	-25.01	-13	-12.01	Horizontal
198.7	-42.43	1.35	16.91	-26.87	-13	-13.87	Vertical
340.0	-42.27	1.62	16.31	-27.58	-13	-14.58	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.

9.7 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 Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.0	-48.60	2.61	27.28	-23.93	-13	-10.93	Horizontal
1413.0	-47.66	2.61	27.28	-22.99	-13	-9.99	Vertical
2119.5	-52.50	2.87	27.59	-27.78	-13	-14.78	Vertical
2119.5	-49.16	2.87	27.59	-24.44	-13	-11.44	Horizontal
198.1	-35.24	1.71	16.15	-20.80	-13	-7.80	Vertical
254.7	-40.34	1.41	17.32	-24.43	-13	-11.43	Horizontal
Test Results For Mid Channel 710MHz							
1420.0	-51.55	2.62	27.30	-26.87	-13	-13.87	Horizontal
1420.0	-45.01	2.62	27.30	-20.33	-13	-7.33	Vertical
2130.0	-45.91	2.87	27.62	-21.16	-13	-8.16	Vertical
2130.0	-49.78	2.87	27.62	-25.03	-13	-12.03	Horizontal
199.0	-43.74	1.42	15.25	-29.92	-13	-16.92	Vertical
319.3	-42.83	1.36	17.19	-27.00	-13	-14.00	Horizontal
Test Results for High Channel 713.5MHz							
1427.0	-49.72	2.66	27.28	-25.10	-13	-12.10	Horizontal
1427.0	-47.05	2.66	27.28	-22.43	-13	-9.43	Vertical
2140.5	-49.24	2.88	27.60	-24.52	-13	-11.52	Vertical
2140.5	-50.33	2.88	27.60	-25.61	-13	-12.61	Horizontal
177.3	-39.33	1.32	17.29	-23.36	-13	-10.36	Vertical
362.1	-35.07	1.72	16.89	-19.90	-13	-6.90	Horizontal

QPSK EIRP POWER FOR LTE BAND 17 (10MHZ BANDWIDTH)

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418.0	-50.96	2.62	27.30	-26.28	-13	-13.28	Horizontal
1418.0	-52.15	2.62	27.30	-27.47	-13	-14.47	Vertical
2127.0	-49.18	2.87	27.62	-24.43	-13	-11.43	Vertical
2127.0	-52.48	2.87	27.62	-27.73	-13	-14.73	Horizontal
181.7	-36.68	1.35	16.91	-21.12	-13	-8.12	Vertical
393.8	-41.35	1.62	16.31	-26.66	-13	-13.66	Horizontal
Test Results for Mid Channel 710MHz							
1420.0	-50.81	2.62	27.30	-26.13	-13	-13.13	Horizontal
1420.0	-47.72	2.62	27.30	-23.04	-13	-10.04	Vertical
2130.0	-47.64	2.87	27.62	-22.89	-13	-9.89	Vertical
2130.0	-52.39	2.87	27.62	-27.64	-13	-14.64	Horizontal
205.4	-34.73	1.51	17.14	-19.10	-13	-6.10	Vertical
303.1	-39.64	1.77	16.88	-24.53	-13	-11.53	Horizontal
Test Results for High Channel 711MHz							
1422.0	-45.16	2.62	27.30	-20.48	-13	-7.48	Horizontal
1422.0	-51.58	2.62	27.30	-26.90	-13	-13.90	Vertical
2133.0	-50.26	2.87	27.62	-25.51	-13	-12.51	Vertical
2133.0	-49.86	2.87	27.62	-25.11	-13	-12.11	Horizontal
186.8	-42.06	1.78	15.95	-27.89	-13	-14.89	Vertical
372.1	-43.17	1.34	17.95	-26.57	-13	-13.57	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.

9.8 LTE BAND 41

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

Test Results for Low Channel 2498.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
4997.0	-61.51	5.13	35.81	-30.83	-25	-5.83	Horizontal
4997.0	-63.50	5.13	35.81	-32.82	-25	-7.82	Vertical
7495.5	-59.82	5.42	36.85	-28.39	-25	-3.39	Vertical
7495.5	-62.71	5.42	36.85	-31.28	-25	-6.28	Horizontal
202.3	-51.09	1.56	17.97	-34.68	-25	-9.68	Vertical
318.6	-48.50	1.33	15.11	-34.72	-25	-9.72	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-59.23	5.16	35.82	-28.57	-25	-3.57	Horizontal
5186.0	-61.95	5.16	35.82	-31.29	-25	-6.29	Vertical
7779.0	-64.61	5.53	36.85	-33.29	-25	-8.29	Vertical
7779.0	-64.40	5.53	36.85	-33.08	-25	-8.08	Horizontal
183.7	-46.81	1.77	16.17	-32.40	-25	-7.40	Vertical
389.3	-47.47	1.63	15.21	-33.89	-25	-8.89	Horizontal
Test Results for High Channel 2687.5MHz							
5375.0	-64.33	5.23	35.83	-33.73	-25	-8.73	Horizontal
5375.0	-64.26	5.23	35.83	-33.66	-25	-8.66	Vertical
8062.5	-61.72	5.62	36.87	-30.47	-25	-5.47	Vertical
8062.5	-62.59	5.62	36.87	-31.34	-25	-6.34	Horizontal
205.6	-53.80	1.58	17.56	-37.82	-25	-12.82	Vertical
407.6	-51.63	1.45	16.58	-36.50	-25	-11.50	Horizontal

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

Test Results for Low Channel 2506MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5012.0	-63.26	5.23	35.82	-32.67	-25	-7.67	Horizontal
5012.0	-64.97	5.23	35.82	-34.38	-25	-9.38	Vertical
7518.0	-61.25	5.67	36.86	-30.06	-25	-5.06	Vertical
7518.0	-59.07	5.67	36.86	-27.88	-25	-2.88	Horizontal
182.0	-53.49	1.55	15.76	-39.28	-25	-14.28	Vertical
376.9	-50.37	1.62	15.44	-36.55	-25	-11.55	Horizontal
Test Results for Mid Channel 2593MHz							
5186.0	-60.28	5.16	35.82	-29.62	-25	-4.62	Horizontal
5186.0	-60.36	5.16	35.82	-29.70	-25	-4.70	Vertical
7779.0	-60.44	5.53	36.85	-29.12	-25	-4.12	Vertical
7779.0	-59.98	5.53	36.85	-28.66	-25	-3.66	Horizontal
197.6	-53.94	1.58	16.84	-38.68	-25	-13.68	Vertical
420.2	-48.77	1.61	17.64	-32.74	-25	-7.74	Horizontal
Test Results for High Channel 2680MHz							
5360.0	-63.13	5.24	35.83	-32.54	-25	-7.54	Horizontal
5360.0	-60.83	5.24	35.83	-30.24	-25	-5.24	Vertical
8040.0	-62.68	5.70	36.88	-31.50	-25	-6.50	Vertical
8040.0	-64.31	5.70	36.88	-33.13	-25	-8.13	Horizontal
187.5	-47.78	1.48	16.84	-32.42	-25	-7.42	Vertical
366.3	-45.31	1.59	17.64	-29.26	-25	-4.26	Horizontal

9.9 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-64.29	3.84	35.81	-32.32	-25	-7.32	Horizontal
3421.4	-62.66	3.84	35.81	-30.69	-25	-5.69	Vertical
5132.1	-59.82	5.18	36.85	-28.15	-25	-3.15	Vertical
5132.1	-60.96	5.18	36.85	-29.29	-25	-4.29	Horizontal
199.1	-49.28	1.56	17.97	-32.87	-25	-7.87	Vertical
435.2	-54.36	1.33	15.11	-40.58	-25	-15.58	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-59.06	3.85	35.82	-27.09	-25	-2.09	Horizontal
3490.0	-61.55	3.85	35.82	-29.58	-25	-4.58	Vertical
5235.0	-60.08	5.21	36.85	-28.44	-25	-3.44	Vertical
5235.0	-61.36	5.21	36.85	-29.72	-25	-4.72	Horizontal
192.8	-53.86	1.77	16.17	-39.45	-25	-14.45	Vertical
443.4	-50.18	1.63	15.21	-36.60	-25	-11.60	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-61.49	3.86	35.83	-29.52	-25	-4.52	Horizontal
3558.6	-60.21	3.86	35.83	-28.24	-25	-3.24	Vertical
5337.9	-64.14	5.24	36.87	-32.51	-25	-7.51	Vertical
5337.9	-63.72	5.24	36.87	-32.09	-25	-7.09	Horizontal
180.8	-52.16	1.58	17.56	-36.18	-25	-11.18	Vertical
311.3	-53.81	1.45	16.58	-38.68	-25	-13.68	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-64.90	3.84	35.82	-32.92	-25	-7.92	Horizontal
3440.0	-62.00	3.84	35.82	-30.02	-25	-5.02	Vertical
5160.0	-64.40	5.18	36.86	-32.72	-25	-7.72	Vertical
5160.0	-61.64	5.18	36.86	-29.96	-25	-4.96	Horizontal
199.9	-54.16	1.56	15.76	-39.96	-25	-14.96	Vertical
383.5	-45.81	1.33	15.44	-31.70	-25	-6.70	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-62.83	3.85	35.82	-30.86	-25	-5.86	Horizontal
3490.0	-61.01	3.85	35.82	-29.04	-25	-4.04	Vertical
5235.0	-60.68	5.21	36.85	-29.04	-25	-4.04	Vertical
5235.0	-64.68	5.21	36.85	-33.04	-25	-8.04	Horizontal
201.5	-53.16	1.77	16.84	-38.08	-25	-13.08	Vertical
460.8	-49.89	1.63	17.64	-33.88	-25	-8.88	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-61.96	3.86	35.83	-29.99	-25	-4.99	Horizontal
3540.0	-61.24	3.86	35.83	-29.27	-25	-4.27	Vertical
5310.0	-63.39	5.24	36.88	-31.75	-25	-6.75	Vertical
5310.0	-61.24	5.24	36.88	-29.60	-25	-4.60	Horizontal
183.9	-44.23	1.58	16.84	-28.96	-25	-3.96	Vertical
428.0	-47.64	1.45	17.64	-31.45	-25	-6.45	Horizontal

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

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

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

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

9.10 LTE BAND 71

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

Test Results for Low Channel 665.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1331.0	-62.97	2.16	35.81	-29.32	-25	-4.32	Horizontal
1331.0	-63.33	2.16	35.81	-29.68	-25	-4.68	Vertical
1996.5	-60.79	2.89	36.85	-26.83	-25	-1.83	Vertical
1996.5	-60.99	2.89	36.85	-27.03	-25	-2.03	Horizontal
212.2	-45.44	1.56	17.97	-29.03	-25	-4.03	Vertical
233.4	-47.83	1.33	15.11	-34.05	-25	-9.05	Horizontal
Test Results For Mid Channel 680.5MHz							
1361.0	-59.94	2.17	35.82	-26.29	-25	-1.29	Horizontal
1361.0	-62.59	2.17	35.82	-28.94	-25	-3.94	Vertical
2041.5	-63.29	2.90	36.85	-29.34	-25	-4.34	Vertical
2041.5	-64.12	2.90	36.85	-30.17	-25	-5.17	Horizontal
204.4	-52.31	1.77	16.17	-37.90	-25	-12.90	Vertical
373.0	-44.41	1.63	15.21	-30.83	-25	-5.83	Horizontal
Test Results for High Channel 695.5MHz							
1391.0	-61.84	2.19	35.83	-28.20	-25	-3.20	Horizontal
1391.0	-64.04	2.19	35.83	-30.40	-25	-5.40	Vertical
2086.5	-59.58	2.95	36.87	-25.66	-25	-0.66	Vertical
2086.5	-60.26	2.95	36.87	-26.34	-25	-1.34	Horizontal
212.8	-45.62	1.58	17.56	-29.64	-25	-4.64	Vertical
400.6	-44.73	1.45	16.58	-29.60	-25	-4.60	Horizontal

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

Test Results for Low Channel 673MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1346.0	-64.10	2.16	35.82	-30.44	-25	-5.44	Horizontal
1346.0	-62.04	2.16	35.82	-28.38	-25	-3.38	Vertical
2019.0	-63.29	2.89	36.86	-29.32	-25	-4.32	Vertical
2019.0	-60.42	2.89	36.86	-26.45	-25	-1.45	Horizontal
178.2	-53.45	1.56	15.76	-39.25	-25	-14.25	Vertical
301.8	-46.63	1.33	15.44	-32.52	-25	-7.52	Horizontal
Test Results for Mid Channel 683MHz							
1366.0	-62.93	2.17	35.82	-29.28	-25	-4.28	Horizontal
1366.0	-63.83	2.17	35.82	-30.18	-25	-5.18	Vertical
2049.0	-59.85	2.90	36.85	-25.90	-25	-0.90	Vertical
2049.0	-64.89	2.90	36.85	-30.94	-25	-5.94	Horizontal
209.8	-45.79	1.77	16.84	-30.71	-25	-5.71	Vertical
371.1	-44.29	1.63	17.64	-28.28	-25	-3.28	Horizontal
Test Results for High Channel 688MHz							
1376.0	-59.91	2.19	35.83	-26.27	-25	-1.27	Horizontal
1376.0	-60.75	2.19	35.83	-27.11	-25	-2.11	Vertical
2064.0	-63.45	2.95	36.88	-29.52	-25	-4.52	Vertical
2064.0	-61.84	2.95	36.88	-27.91	-25	-2.91	Horizontal
196.9	-47.30	1.58	16.84	-32.03	-25	-7.03	Vertical
450.5	-44.80	1.45	17.64	-28.61	-25	-3.61	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30° to $+50^{\circ}\text{C}$
- Voltage = low voltage, DC 3.4V, Normal, DC 3.85V and High voltage, DC 4.2V.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

RESULTS

See the following pages.

10.1 LTE BAND 2

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	13.0	0.006933	2.5
3.85	1880	13.8	0.007336	2.5
4.2	1880	13.7	0.007297	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 QPSK, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	12.5	0.006667	2.5
Extreme (50C)	1880	11.4	0.006077	2.5
Extreme (40C)	1880	13.5	0.007157	2.5
Extreme (30C)	1880	13.8	0.007335	2.5
Extreme (10C)	1880	14.1	0.007523	2.5
Extreme (0C)	1880	12.1	0.006461	2.5
Extreme (-10C)	1880	12.6	0.006687	2.5
Extreme (-20C)	1880	13.7	0.007275	2.5
Extreme (-30C)	1880	15.2	0.008065	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1880	9.8	0.005208	2.5
3.85	1880	9.1	0.004841	2.5
4.2	1880	7.6	0.004051	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 2 16QAM, (CH 18900 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1880	9.3	0.004957	2.5
Extreme (50C)	1880	8.9	0.004721	2.5
Extreme (40C)	1880	7.6	0.004051605	2.5
Extreme (30C)	1880	8.5	0.004543387	2.5
Extreme (10C)	1880	9.0	0.004807455	2.5
Extreme (0C)	1880	7.9	0.004207164	2.5
Extreme (-10C)	1880	9.1	0.004826984	2.5
Extreme (-20C)	1880	8.5	0.004528229	2.5
Extreme (-30C)	1880	7.7	0.004089155	2.5

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

10.2 LTE BAND 4

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	8.4	0.004848	2.5
3.85	1732.5	9.2	0.005316	2.5
4.2	1732.5	8.1	0.004687	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 QPSK, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	8.7	0.005000	2.5
Extreme (50C)	1732.5	8.7	0.005048	2.5
Extreme (40C)	1732.5	7.1	0.004083	2.5
Extreme (30C)	1732.5	6.3	0.003609	2.5
Extreme (10C)	1732.5	6.8	0.003930	2.5
Extreme (0C)	1732.5	9.7	0.005585	2.5
Extreme (-10C)	1732.5	8.8	0.005106	2.5
Extreme (-20C)	1732.5	6.7	0.003852	2.5
Extreme (-30C)	1732.5	8.7	0.005002	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1732.5	10.3	0.005934	2.5
3.85	1732.5	9.0	0.005215	2.5
4.2	1732.5	8.1	0.004701	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 4 16QAM, (CH 20175 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1732.5	9.7	0.005603	2.5
Extreme (50C)	1732.5	8.4	0.004869	2.5
Extreme (40C)	1732.5	7.9	0.004550	2.5
Extreme (30C)	1732.5	9.1	0.005229	2.5
Extreme (10C)	1732.5	8.5	0.004891	2.5
Extreme (0C)	1732.5	8.0	0.004616	2.5
Extreme (-10C)	1732.5	9.1	0.005269	2.5
Extreme (-20C)	1732.5	8.8	0.005095	2.5
Extreme (-30C)	1732.5	7.9	0.004544	2.5

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

10.3 LTE BAND 5

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	6.2	0.007435	2.5
3.85	836.5	6.6	0.007859	2.5
4.2	836.5	4.9	0.005904	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	6.1	0.007276	2.5
Extreme (50C)	836.5	5.9	0.007051	2.5
Extreme (40C)	836.5	6.5	0.007789	2.5
Extreme (30C)	836.5	6.5	0.007791	2.5
Extreme (10C)	836.5	5.3	0.006289	2.5
Extreme (0C)	836.5	5.2	0.006256	2.5
Extreme (-10C)	836.5	5.1	0.006109	2.5
Extreme (-20C)	836.5	6.1	0.007334	2.5
Extreme (-30C)	836.5	6.5	0.007766	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	836.5	5.8	0.006919	2.5
3.85	836.5	6.7	0.007991	2.5
4.2	836.5	5.2	0.006239	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	6.2	0.007430	2.5
Extreme (50C)	836.5	6.1	0.007297	2.5
Extreme (40C)	836.5	6.4	0.007630	2.5
Extreme (30C)	836.5	5.9	0.007068	2.5
Extreme (10C)	836.5	5.3	0.006338	2.5
Extreme (0C)	836.5	4.8	0.005775	2.5
Extreme (-10C)	836.5	5.6	0.006706	2.5
Extreme (-20C)	836.5	6.5	0.007799	2.5
Extreme (-30C)	836.5	6.6	0.007927	2.5

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

10.4 LTE BAND 7

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	9.6	0.003769	2.5
3.85	2535	8.8	0.003463	2.5
4.2	2535	8.4	0.003301	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 QPSK, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	9.9	0.003897	2.5
Extreme (50C)	2535	9.3	0.003668	2.5
Extreme (40C)	2535	8.2	0.003234	2.5
Extreme (30C)	2535	9.2	0.003625	2.5
Extreme (10C)	2535	7.8	0.003087	2.5
Extreme (0C)	2535	7.9	0.003129	2.5
Extreme (-10C)	2535	9.1	0.003591	2.5
Extreme (-20C)	2535	9.4	0.003700	2.5
Extreme (-30C)	2535	8.1	0.003188	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2535	6.9	0.002722	2.5
3.85	2535	6.1	0.002415	2.5
4.2	2535	5.7	0.002231	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 7 16QAM, (CH 21100 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2535	6.9	0.002722	2.5
Extreme (50C)	2535	5.4	0.002123	2.5
Extreme (40C)	2535	5.2	0.002055	2.5
Extreme (30C)	2535	6.9	0.002717	2.5
Extreme (10C)	2535	5.2	0.002063	2.5
Extreme (0C)	2535	5.1	0.002014	2.5
Extreme (-10C)	2535	4.8	0.001912	2.5
Extreme (-20C)	2535	6.2	0.002464	2.5
Extreme (-30C)	2535	5.2	0.002057	2.5

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

10.5 LTE BAND 12

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	707.5	8.6	0.012202	2.5
3.85	707.5	9.7	0.013674	2.5
4.2	707.5	8.7	0.012334	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	707.5	9.0	0.012780	2.5
Extreme (50C)	707.5	7.7	0.010894	2.5
Extreme (40C)	707.5	7.2	0.010225	2.5
Extreme (30C)	707.5	8.4	0.011875	2.5
Extreme (10C)	707.5	7.0	0.009840	2.5
Extreme (0C)	707.5	9.1	0.012917	2.5
Extreme (-10C)	707.5	8.3	0.011799	2.5
Extreme (-20C)	707.5	8.5	0.012068	2.5
Extreme (-30C)	707.5	7.5	0.010651	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 16QAM, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	707.5	7.8	0.011039	2.5
3.85	707.5	7.9	0.011231	2.5
4.2	707.5	7.7	0.010823	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 12 QPSK, (CH 23095 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	707.5	9.0	0.012761	2.5
Extreme (50C)	707.5	8.5	0.012046	2.5
Extreme (40C)	707.5	8.9	0.012567	2.5
Extreme (30C)	707.5	7.9	0.011181	2.5
Extreme (10C)	707.5	9.1	0.012858	2.5
Extreme (0C)	707.5	7.4	0.010521	2.5
Extreme (-10C)	707.5	7.6	0.010810	2.5
Extreme (-20C)	707.5	9.4	0.013299	2.5
Extreme (-30C)	707.5	8.3	0.011757	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782.0	12.4	0.015916	2.5
3.85	782.0	13.9	0.017801	2.5
4.2	782.0	13.5	0.017253	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782.0	14.5	0.018568	2.5
Extreme (50C)	782.0	13.5	0.017249	2.5
Extreme (40C)	782.0	15.5	0.019800	2.5
Extreme (30C)	782.0	14.1	0.018011	2.5
Extreme (10C)	782.0	14.0	0.017923	2.5
Extreme (0C)	782.0	14.4	0.018364	2.5
Extreme (-10C)	782.0	13.6	0.017427	2.5
Extreme (-20C)	782.0	14.0	0.017940	2.5
Extreme (-30C)	782.0	14.2	0.018125	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 16QAM, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	782.0	12.4	0.015853	2.5
3.85	782.0	13.6	0.017428	2.5
4.2	782.0	13.2	0.016875	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 13 QPSK, (CH 23230 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	782.0	12.8	0.016332	2.5
Extreme (50C)	782.0	11.7	0.014968	2.5
Extreme (40C)	782.0	13.8	0.017675	2.5
Extreme (30C)	782.0	13.5	0.017279	2.5
Extreme (10C)	782.0	13.5	0.017249	2.5
Extreme (0C)	782.0	11.9	0.015247	2.5
Extreme (-10C)	782.0	13.3	0.017045	2.5
Extreme (-20C)	782.0	13.9	0.017715	2.5
Extreme (-30C)	782.0	14.8	0.018934	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

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	710.0	9.4	0.013169	2.5
3.85	710.0	9.3	0.013084	2.5
4.2	710.0	8.3	0.011760	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	710.0	10.0	0.014140	2.5
Extreme (50C)	710.0	9.2	0.012923	2.5
Extreme (40C)	710.0	8.0	0.011284	2.5
Extreme (30C)	710.0	9.4	0.013202	2.5
Extreme (10C)	710.0	9.2	0.013015	2.5
Extreme (0C)	710.0	8.4	0.011897	2.5
Extreme (-10C)	710.0	8.9	0.012591	2.5
Extreme (-20C)	710.0	9.2	0.012998	2.5
Extreme (-30C)	710.0	7.9	0.011167	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 16QAM, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.4	710.0	10.5	0.014776	2.5
3.85	710.0	8.7	0.012306	2.5
4.2	710.0	8.3	0.011650	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 17 QPSK, (CH 23790 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	710.0	9.6	0.013482	2.5
Extreme (50C)	710.0	8.7	0.012207	2.5
Extreme (40C)	710.0	8.5	0.012042	2.5
Extreme (30C)	710.0	9.3	0.013094	2.5
Extreme (10C)	710.0	8.5	0.012025	2.5
Extreme (0C)	710.0	8.8	0.012414	2.5
Extreme (-10C)	710.0	9.2	0.013025	2.5
Extreme (-20C)	710.0	9.3	0.013118	2.5
Extreme (-30C)	710.0	8.8	0.012443	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

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2593	10.2	0.003941	2.5
3.85	2593	8.6	0.003321	2.5
4.2	2593	8.3	0.003209	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2593	8.9	0.003446	2.5
Extreme (50C)	2593	8.9	0.003428	2.5
Extreme (40C)	2593	8.1	0.003128	2.5
Extreme (30C)	2593	9.0	0.003467	2.5
Extreme (10C)	2593	7.9	0.003062	2.5
Extreme (0C)	2593	8.2	0.003147	2.5
Extreme (-10C)	2593	9.0	0.003453	2.5
Extreme (-20C)	2593	8.4	0.003252	2.5
Extreme (-30C)	2593	8.6	0.003301	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	2593	6.9	0.002661	2.5
3.85	2593	6.3	0.002447	2.5
4.2	2593	5.9	0.002267	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 16QAM, (CH 40640 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2593	6.9	0.002661	2.5
Extreme (50C)	2593	5.2	0.001987	2.5
Extreme (40C)	2593	5.2	0.002024	2.5
Extreme (30C)	2593	6.8	0.002631	2.5
Extreme (10C)	2593	5.5	0.002105	2.5
Extreme (0C)	2593	5.3	0.002061	2.5
Extreme (-10C)	2593	5.7	0.002181	2.5
Extreme (-20C)	2593	5.5	0.002121	2.5
Extreme (-30C)	2593	5.7	0.002213	2.5

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

10.9 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	6.8	0.003888	2.5
3.85	1745	7.1	0.004084	2.5
4.2	1745	7.4	0.004219	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	5.6	0.003228	2.5
Extreme (50C)	1745	7.6	0.004354	2.5
Extreme (40C)	1745	6.8	0.003915	2.5
Extreme (30C)	1745	7.2	0.004140	2.5
Extreme (10C)	1745	7.4	0.004223	2.5
Extreme (0C)	1745	7.0	0.003983	2.5
Extreme (-10C)	1745	5.1	0.002919	2.5
Extreme (-20C)	1745	6.2	0.003551	2.5
Extreme (-30C)	1745	5.9	0.003358	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	8.7	0.004995	2.5
3.85	1745	7.6	0.004347	2.5
4.2	1745	9.7	0.005548	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	9.2	0.005257	2.5
Extreme (50C)	1745	8.2	0.004713	2.5
Extreme (40C)	1745	8.8	0.005042	2.5
Extreme (30C)	1745	8.4	0.004801	2.5
Extreme (10C)	1745	8.9	0.005091	2.5
Extreme (0C)	1745	6.8	0.003916	2.5
Extreme (-10C)	1745	8.0	0.004608	2.5
Extreme (-20C)	1745	9.0	0.005137	2.5
Extreme (-30C)	1745	5.8	0.003324	2.5

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

10.10 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	1745	6.4	0.003676	2.5
3.85	1745	6.9	0.003971	2.5
4.2	1745	7.2	0.004108	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)	1745	5.2	0.003001	2.5
Extreme (50C)	1745	7.1	0.004062	2.5
Extreme (40C)	1745	6.8	0.003886	2.5
Extreme (30C)	1745	7.1	0.004095	2.5
Extreme (10C)	1745	7.5	0.004304	2.5
Extreme (0C)	1745	6.3	0.003615	2.5
Extreme (-10C)	1745	5.3	0.003047	2.5
Extreme (-20C)	1745	6.6	0.003791	2.5
Extreme (-30C)	1745	5.7	0.003248	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	1745	8.4	0.004809	2.5
3.85	1745	7.0	0.004027	2.5
4.2	1745	9.9	0.005648	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)	1745	8.9	0.005087	2.5
Extreme (50C)	1745	8.4	0.004790	2.5
Extreme (40C)	1745	8.4	0.004812	2.5
Extreme (30C)	1745	7.7	0.004428	2.5
Extreme (10C)	1745	8.1	0.004652	2.5
Extreme (0C)	1745	6.0	0.003450	2.5
Extreme (-10C)	1745	8.1	0.004639	2.5
Extreme (-20C)	1745	9.0	0.005148	2.5
Extreme (-30C)	1745	5.2	0.002999	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

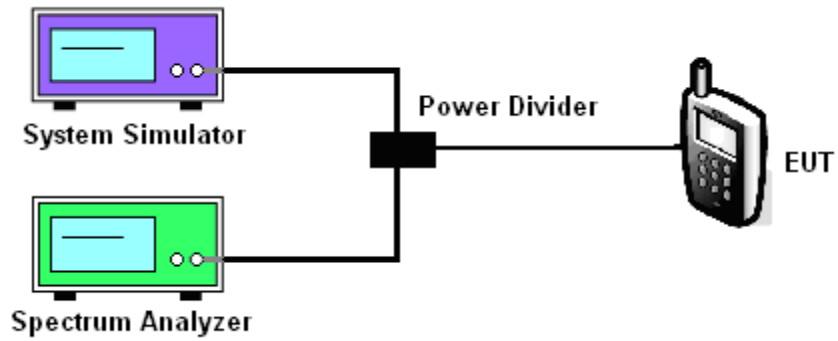
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

- LTE Band 2
- LTE Band 4
- LTE Band 5
- LTE Band 7
- LTE Band 12
- LTE Band 13
- LTE Band 17
- LTE Band 41
- LTE Band 66
- LTE Band 71

Test data reference attachment.

----END OF REPORT----