

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

FCC ID: 2AQRE-M90

Product: Smart POS Terminal

Trade Mark: N/A

Model No.: M90

Family Model: N/A

Report No.: S24110606102006

Issue Date: Feb. 22, 2025

Prepared for

Fujian Morefun Electronic Technology Co., Ltd.

4F, 15BLD, Jinshan, Gaishan Town, Cangshan Area, Fuzhou, Fujian, China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street,
Baoan District, Shenzhen, Guangdong, People's Republic of China

Tel. 0755-23200050 Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name : Fujian Morefun Electronic Technology Co., Ltd.

Address..... : 4F, 15BLD, Jinshan, Gaishan Town, Cangshan Area, Fuzhou, Fujian, China

Manufacturer's Name..... : Fujian Morefun Electronic Technology Co., Ltd.

Address..... : 4F, 15BLD, Jinshan, Gaishan Town, Cangshan Area, Fuzhou, Fujian, China

Product name..... : Smart POS Terminal

Model and/or type reference .. : M90

Trade Mark..... : N/A

Family Model..... : N/A

Test Sample Number..... : S241106061002

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..... Nov. 06, 2024 ~ Feb. 22, 2025

Date of Issue Feb. 22, 2025

Test Result **Pass**

Prepared : Joe. Yan
By : Joe Yan
(Project Engineer)

Reviewed : Aaron Cheng
By : Aaron Cheng
(Supervisor)

Approved : Alex Li
By : Alex Li
(Manager)

TABLE OF CONTENTS

1. GENERAL INFORMATION.....	5
1. GENERAL INFORMATION.....	5
1.1 PRODUCT DESCRIPTION	5
1.2 RELATED SUBMITTAL(S) / GRANT (S).....	6
1.3 TEST METHODOLOGY	6
1.4 TEST FACILITY.....	6
MEASUREMENT UNCERTAINTY	6
1.5 SPECIAL ACCESSORIES.....	6
1.6 WORST-CASE CONFIGURATION AND MODE.....	6
2. SYSTEM TEST CONFIGURATION	7
2.1 EUT CONFIGURATION.....	7
2.2 EUT EXERCISE	7
2.3 CONFIGURATION OF EUT SYSTEM.....	7
2.4 TEST SETUP	8
3.TEST AND MEASUREMENT EQUIPMENT	9
4. OUTPUT POWER.....	11
4.1 OUTPUT POWER MEASUREMENT	11
5. OCCUPIED BANDWIDTH	13
6. BANDEDGE AND EMISSION MASK	14
7. OUT OF BAND EMISSIONS	16
7.1 MEASUREMENT METHOD	16
8. RADIATED MEASUREMENT	17
8.1. RADIATED POWER (ERP & EIRP).....	17
8.2 LTE BAND 2.....	18
8.3 LTE BAND 4.....	21
8.4 LTE BAND 5.....	24

8.6 LTE BAND 12	26
8.7 LTE BAND 17	28
8.8 LTE BAND 41	30
8.9 LTE BAND 66	32
9. SPURIOUS RADIATION EMISSION	38
9.1 LTE BAND 2.....	40
9.2 LTE BAND 4.....	42
9.3 LTE BAND 5.....	44
9.5 LTE BAND 12	46
9.6 LTE BAND 17	48
9.7 LTE BAND 41	50
9.8 LTE BAND 66	52
10. FREQUENCY STABILITY	56
10.1 LTE BAND 2	57
10.2 LTE BAND 4	59
10.3 LTE BAND 5	61
10.5 LTE BAND 12	63
10.6 LTE BAND 17	65
10.7 LTE BAND 41	67
10.8 LTE BAND 66	69
10.9 LTE BAND 71	71
11. PEAK-TO-AVERAGE RATIO.....	73
11.1 Description of the PAR Measurement.....	73
11.2 Measuring Instruments	73
11.3 Test Procedures.....	73
11.4 Test Setup.....	74

1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Smart POS Terminal
Trade Mark	N/A
Model Name	M90
Family Model	N/A
Model Difference	N/A
FCC ID:	2AQRE-M90
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 12, 17, 66, 71 TDD Band 41
Frequency Range:	LTE FDD Band 2 Uplink: 1850MHz-1910MHz, Downlink: 1930MHz-1990MHz; LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE FDD Band 12 Uplink: 699MHz-716MHz, Downlink: 729MHz-746MHz; LTE FDD Band 17 Uplink: 704MHz-716MHz, Downlink: 734MHz-746MHz; LTE TDD Band 41 Uplink& Downlink: 2535MHz-2655MHz, LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz; LTE FDD Band 71 Uplink: 663MHz-698MHz, Downlink: 617MHz-652MHz;
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	FPC Antenna
Antenna gain:	Band 2: 2.8dBi, Band 4: 2.8dBi, Band 5: -1.7 dBi, Band 12: 0.7dBi, Band 17: 0.7 dBi, Band 41:1.1dBi; B66:3.0dBi;B71:0.7dBi
Adapter	Model: DGL0502000LUS Input: 100-240V~50/60Hz 0.3A Output: 5.0V---2.0A
Battery	DC 7.6V, 2500mAh
Power supply	DC 7.6V from battery or DC 5V from adapter
Extreme Vol. Limits:	DC 6.46V to DC 8.74V (Nominal DC 7.6V) (Note 1)
HW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 8.74V and Low Voltage 6.46V 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: 2AQRE-M90** 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.

No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of 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,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where expanded 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% ($U = 2U_c(y)$)	2.5dB

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

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

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 POS Terminal	M90	FCC ID: 2AQRE-M90	EUT

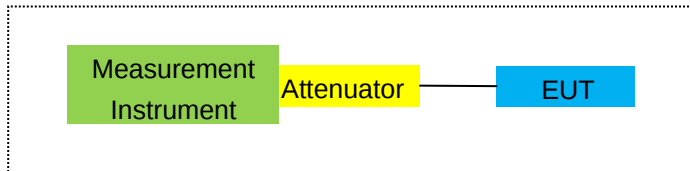
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

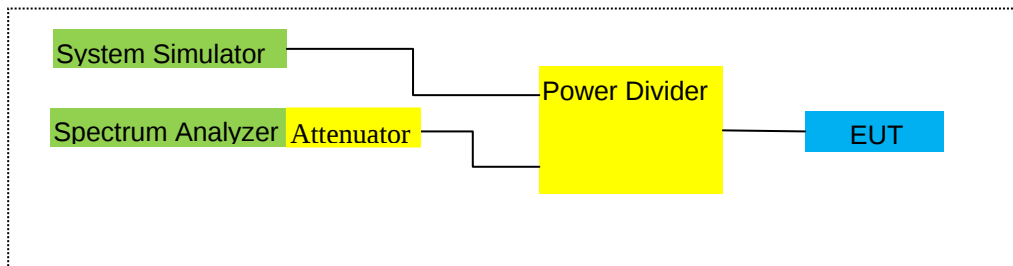
For Radiated Test Cases



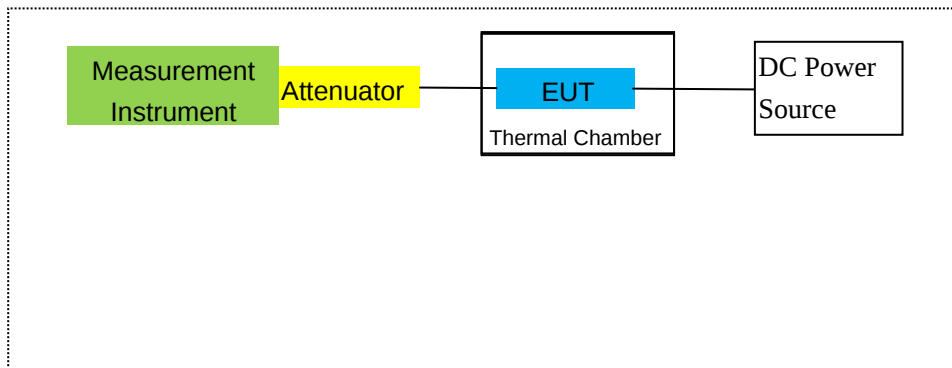
For Conducted Output Power



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	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2024.03.12	2025.03.11	1 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2024.03.12	2025.03.11	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
23	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
24	Communication Tester	R&S	CMU200	A0304247	2024.03.12	2025.03.11	1 year
25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year

26	DC Power Source	N/A	PS-6005D	2017040292 3	2024.04.25	2027.04.24	3 year
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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.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTtest	MTS 8200	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10, 15, 20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 ¹	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

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

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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

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

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

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

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

TEST PROCEDURE

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

MODES TESTED

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

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

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

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

- 22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
- 27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
- 27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
- 27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
- 27.50 (h)(2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.
- 90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

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

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 Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP		
							Average		
							(mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-2.03	3.76	28.24	22.45	175.876	Horizontal	Pass
		1880	-2.14	3.91	28.22	22.17	164.861	Horizontal	Pass
		1909.3	-3.68	3.93	28.20	20.59	114.625	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.05	3.77	28.23	21.41	138.309	Horizontal	Pass
		1880	-1.66	3.91	28.24	22.67	184.748	Horizontal	Pass
		1908.5	-2.31	3.94	28.25	22.00	158.312	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-2.11	3.77	28.31	22.43	175.073	Horizontal	Pass
		1880	-2.12	3.91	28.22	22.19	165.459	Horizontal	Pass
		1907.5	-1.76	3.94	28.20	22.50	177.981	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.55	3.79	28.33	20.99	125.459	Horizontal	Pass
		1880	-2.05	3.95	28.22	22.22	166.731	Horizontal	Pass
		1905	-1.95	3.97	28.19	22.27	168.737	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-1.72	3.79	28.34	22.83	191.948	Horizontal	Pass
		1880	-2.08	3.95	28.22	22.19	165.559	Horizontal	Pass
		1902.5	-2.33	3.97	28.18	21.88	154.194	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.92	3.81	28.35	21.62	145.172	Horizontal	Pass
		1880	-1.90	3.96	28.22	22.36	172.209	Horizontal	Pass
		1900	-0.84	4.00	28.16	23.32	214.624	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-3.10	3.76	28.24	21.38	137.324	Vertical	Pass
		1880	-2.88	3.91	28.22	21.43	138.878	Vertical	Pass
		1909.3	-3.15	3.93	28.20	21.12	129.385	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-3.56	3.77	28.23	20.90	122.978	Vertical	Pass
		1880	-3.49	3.91	28.24	20.84	121.270	Vertical	Pass
		1908.5	-3.30	3.94	28.25	21.01	126.145	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-3.31	3.77	28.31	21.23	132.778	Vertical	Pass
		1880	-1.78	3.91	28.22	22.53	179.031	Vertical	Pass
		1907.5	-3.70	3.94	28.20	20.56	113.755	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1855	-1.68	3.79	28.33	22.86	193.266	Vertical	Pass
		1880	-3.13	3.95	28.22	21.14	130.127	Vertical	Pass
		1905	-2.11	3.97	28.19	22.11	162.597	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1857.5	-2.65	3.79	28.34	21.90	154.913	Vertical	Pass
		1880	-3.17	3.95	28.22	21.10	128.712	Vertical	Pass
		1902.5	-3.23	3.97	28.18	20.98	125.199	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1860	-2.91	3.81	28.35	21.63	145.625	Vertical	Pass
		1880	-3.30	3.96	28.22	20.96	124.766	Vertical	Pass
		1900	-3.08	4.00	28.16	21.08	128.098	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP	
							Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-4.03	3.76	28.24	20.45	110.885	Horizontal	Pass
		1880	-4.63	3.91	28.22	19.68	92.957	Horizontal	Pass
		1909.3	-3.75	3.93	28.20	20.52	112.788	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-3.51	3.77	28.23	20.95	124.399	Horizontal	Pass
		1880	-3.64	3.91	28.24	20.69	117.225	Horizontal	Pass
		1908.5	-4.09	3.94	28.25	20.22	105.134	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-3.65	3.77	28.31	20.89	122.699	Horizontal	Pass
		1880	-4.32	3.91	28.22	19.99	99.798	Horizontal	Pass
		1907.5	-3.47	3.94	28.20	20.79	120.018	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-3.61	3.79	28.33	20.93	123.812	Horizontal	Pass
		1880	-3.20	3.95	28.22	21.07	127.809	Horizontal	Pass
		1905	-3.29	3.97	28.19	20.93	123.869	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-3.19	3.79	28.34	21.36	136.699	Horizontal	Pass
		1880	-4.41	3.95	28.22	19.86	96.726	Horizontal	Pass
		1902.5	-4.67	3.97	28.18	19.54	89.851	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-3.39	3.81	28.35	21.15	130.368	Horizontal	Pass
		1880	-2.28	3.96	28.22	21.98	157.705	Horizontal	Pass
		1900	-2.30	4.00	28.16	21.86	153.323	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.12	3.76	28.24	19.36	86.381	Vertical	Pass
		1880	-5.30	3.91	28.22	19.01	79.574	Vertical	Pass
		1909.3	-5.19	3.93	28.20	19.08	81.003	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.97	3.77	28.23	19.49	88.858	Vertical	Pass
		1880	-5.69	3.91	28.24	18.64	73.041	Vertical	Pass
		1908.5	-4.59	3.94	28.25	19.72	93.802	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-6.18	3.77	28.31	18.36	68.549	Vertical	Pass
		1880	-6.29	3.91	28.22	18.02	63.455	Vertical	Pass
		1907.5	-4.22	3.94	28.20	20.04	100.923	Vertical	Pass

10.0MHz Band 16 QAM	1/#Mid	1855	-5.10	3.79	28.33	19.44	87.895	Vertical	Pass
		1880	-6.17	3.95	28.22	18.10	64.547	Vertical	Pass
		1905	-4.11	3.97	28.19	20.11	102.518	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-2.95	3.79	28.34	21.60	144.381	Vertical	Pass
		1880	-3.87	3.95	28.22	20.40	109.548	Vertical	Pass
		1902.5	-4.02	3.97	28.18	20.19	104.547	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.82	3.81	28.35	19.72	93.723	Vertical	Pass
		1880	-4.16	3.96	28.22	20.10	102.291	Vertical	Pass
		1900	-3.89	4.00	28.16	20.27	106.526	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 Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-1.76	3.12	27.58	22.70	186.103	Horizontal	Pass
		1732.5	-2.70	3.27	27.61	21.64	145.838	Horizontal	Pass
		1754.3	-1.85	3.29	27.63	22.49	177.273	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-1.18	3.13	27.61	23.30	213.924	Horizontal	Pass
		1732.5	-1.51	3.27	27.61	22.83	192.043	Horizontal	Pass
		1753.5	-3.17	3.30	27.62	21.15	130.278	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.54	3.13	27.63	21.96	156.984	Horizontal	Pass
		1732.5	-1.18	3.27	27.61	23.16	206.818	Horizontal	Pass
		1752.5	-1.65	3.30	27.60	22.65	184.052	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.96	3.15	27.64	21.53	142.087	Horizontal	Pass
		1732.5	-1.86	3.31	27.61	22.44	175.439	Horizontal	Pass
		1750	-2.32	3.33	27.59	21.94	156.226	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-1.31	3.15	27.65	23.19	208.554	Horizontal	Pass
		1732.5	-2.39	3.31	27.61	21.91	155.188	Horizontal	Pass
		1747.5	-1.50	3.33	27.57	22.74	187.936	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.91	3.17	27.66	21.58	144.042	Horizontal	Pass
		1732.5	-0.46	3.32	27.61	23.83	241.376	Horizontal	Pass
		1745	-2.41	3.36	27.56	21.79	150.978	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-3.16	3.12	27.58	21.30	134.936	Vertical	Pass
		1732.5	-1.45	3.27	27.61	22.89	194.386	Vertical	Pass
		1754.3	-1.91	3.29	27.63	22.43	174.876	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.51	3.13	27.61	21.97	157.525	Vertical	Pass
		1732.5	-2.61	3.27	27.61	21.73	149.039	Vertical	Pass
		1753.5	-2.33	3.30	27.62	21.99	158.153	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-1.83	3.13	27.63	22.67	184.799	Vertical	Pass
		1732.5	-2.46	3.27	27.61	21.88	154.062	Vertical	Pass
		1752.5	-2.16	3.30	27.60	22.14	163.589	Vertical	Pass
10.0MHz Band	1/#Mid	1715	-2.05	3.15	27.64	22.44	175.326	Vertical	Pass
		1732.5	-1.95	3.31	27.61	22.35	171.612	Vertical	Pass

QPSK		1750	-1.82	3.33	27.59	22.44	175.249	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-3.27	3.15	27.65	21.23	132.891	Vertical	Pass
Band		1732.5	-2.46	3.31	27.61	21.84	152.774	Vertical	Pass
QPSK		1747.5	-1.50	3.33	27.57	22.74	187.858	Vertical	Pass
20.0MHz	1/#Mid	1720	-1.92	3.17	27.66	22.57	180.619	Vertical	Pass
Band		1732.5	-1.63	3.32	27.61	22.66	184.650	Vertical	Pass
QPSK		1745	-3.21	3.36	27.56	20.99	125.711	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz	1/#Mid	1710.7	-3.02	3.12	27.58	21.44	139.182	Horizontal	Pass
Band 16		1732.5	-3.05	3.27	27.61	21.29	134.718	Horizontal	Pass
QAM		1754.3	-2.62	3.29	27.63	21.72	148.715	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-3.67	3.13	27.61	20.81	120.532	Horizontal	Pass
Band 16		1732.5	-3.27	3.27	27.61	21.07	127.829	Horizontal	Pass
QAM		1753.5	-4.28	3.30	27.62	20.04	101.034	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-3.87	3.13	27.63	20.63	115.687	Horizontal	Pass
Band 16		1732.5	-3.25	3.27	27.61	21.09	128.556	Horizontal	Pass
QAM		1752.5	-2.90	3.30	27.60	21.40	137.998	Horizontal	Pass
10.0MHz	1/#Mid	1715	-3.79	3.15	27.64	20.70	117.431	Horizontal	Pass
Band 16		1732.5	-4.11	3.31	27.61	20.19	104.431	Horizontal	Pass
QAM		1750	-2.87	3.33	27.59	21.39	137.861	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-5.39	3.15	27.65	19.11	81.507	Horizontal	Pass
Band 16		1732.5	-3.24	3.31	27.61	21.06	127.613	Horizontal	Pass
QAM		1747.5	-4.11	3.33	27.57	20.13	103.129	Horizontal	Pass
20.0MHz	1/#Mid	1720	-3.05	3.17	27.66	21.44	139.418	Horizontal	Pass
Band 16		1732.5	-2.06	3.32	27.61	22.23	167.215	Horizontal	Pass
QAM		1745	-2.30	3.36	27.56	21.90	154.978	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-4.35	3.12	27.58	20.11	102.543	Vertical	Pass
Band 16		1732.5	-3.70	3.27	27.61	20.64	115.907	Vertical	Pass
QAM		1754.3	-3.61	3.29	27.63	20.73	118.326	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-5.15	3.13	27.61	19.33	85.755	Vertical	Pass
Band 16		1732.5	-4.33	3.27	27.61	20.01	100.330	Vertical	Pass
QAM		1753.5	-4.49	3.30	27.62	19.83	96.261	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-4.89	3.13	27.63	19.61	91.371	Vertical	Pass
Band 16		1732.5	-3.48	3.27	27.61	20.86	121.953	Vertical	Pass

QAM		1752.5	-4.60	3.30	27.60	19.70	93.380	Vertical	Pass
10.0MHz	1/#Mid	1715	-4.18	3.15	27.64	20.31	107.407	Vertical	Pass
Band 16		1732.5	-4.23	3.31	27.61	20.07	101.552	Vertical	Pass
QAM		1750	-5.58	3.33	27.59	18.68	73.777	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-5.56	3.15	27.65	18.94	78.404	Vertical	Pass
Band 16		1732.5	-5.46	3.31	27.61	18.84	76.645	Vertical	Pass
QAM		1747.5	-3.55	3.33	27.57	20.69	117.342	Vertical	Pass
20.0MHz	1/#Mid	1720	-2.23	3.17	27.66	22.26	168.361	Vertical	Pass
Band 16		1732.5	-3.40	3.32	27.61	20.89	122.836	Vertical	Pass
QAM		1745	-2.49	3.36	27.56	21.71	148.246	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	3/#Mid	824.7	7.23	2.01	19.68	2.15	22.75	188.413	Horizontal	Pass
		836.5	6.58	2.01	19.77	2.15	22.19	165.406	Horizontal	Pass
		848.3	6.93	2.02	19.82	2.15	22.58	181.309	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.26	2.01	19.70	2.15	21.80	151.378	Horizontal	Pass
		836.5	6.88	2.01	19.77	2.15	22.49	177.435	Horizontal	Pass
		847.5	6.97	2.02	19.81	2.15	22.61	182.539	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	7.18	2.01	19.71	2.15	22.73	187.398	Horizontal	Pass
		836.5	6.96	2.01	19.77	2.15	22.57	180.885	Horizontal	Pass
		846.5	5.58	2.02	19.79	2.15	21.20	131.759	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	6.59	2.01	19.73	2.15	22.16	164.503	Horizontal	Pass
		836.5	7.21	2.01	19.77	2.15	22.82	191.413	Horizontal	Pass
		844	6.81	2.02	19.78	2.15	22.42	174.680	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	5.22	2.01	19.68	2.15	20.74	118.665	Vertical	Pass
		836.5	6.15	2.01	19.77	2.15	21.76	149.845	Vertical	Pass
		848.3	5.92	2.02	19.82	2.15	21.57	143.555	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	6.43	2.01	19.70	2.15	21.97	157.403	Vertical	Pass
		836.5	5.31	2.01	19.77	2.15	20.92	123.564	Vertical	Pass
		847.5	6.02	2.02	19.81	2.15	21.66	146.474	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	6.13	2.01	19.71	2.15	21.68	147.234	Vertical	Pass
		836.5	6.23	2.01	19.77	2.15	21.84	152.928	Vertical	Pass
		846.5	6.17	2.02	19.79	2.15	21.79	151.075	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	4.93	2.01	19.73	2.15	20.50	112.179	Vertical	Pass
		836.5	5.94	2.01	19.77	2.15	21.55	142.839	Vertical	Pass
		844	6.39	2.02	19.78	2.15	22.00	158.496	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	3/#Mid	824.7	6.90	2.01	19.68	2.15	22.42	174.632	Horizontal	Pass
		836.5	5.83	2.01	19.77	2.15	21.44	139.285	Horizontal	Pass
		848.3	6.63	2.02	19.82	2.15	22.28	168.917	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	6.65	2.01	19.70	2.15	22.19	165.748	Horizontal	Pass
		836.5	5.97	2.01	19.77	2.15	21.58	143.964	Horizontal	Pass
		847.5	4.94	2.02	19.81	2.15	20.58	114.275	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.76	2.01	19.71	2.15	22.31	170.133	Horizontal	Pass
		836.5	6.89	2.01	19.77	2.15	22.50	177.891	Horizontal	Pass
		846.5	6.99	2.02	19.79	2.15	22.61	182.240	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	6.82	2.01	19.73	2.15	22.39	173.185	Horizontal	Pass
		836.5	6.08	2.01	19.77	2.15	21.69	147.683	Horizontal	Pass
		844	7.19	2.02	19.78	2.15	22.80	190.385	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	4.44	2.01	19.68	2.15	19.96	99.008	Vertical	Pass
		836.5	5.67	2.01	19.77	2.15	21.28	134.223	Vertical	Pass
		848.3	5.65	2.02	19.82	2.15	21.30	134.947	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	5.61	2.01	19.70	2.15	21.15	130.293	Vertical	Pass
		836.5	5.25	2.01	19.77	2.15	20.86	121.831	Vertical	Pass
		847.5	6.15	2.02	19.81	2.15	21.79	150.967	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	6.69	2.01	19.71	2.15	22.24	167.449	Vertical	Pass
		836.5	5.85	2.01	19.77	2.15	21.46	139.970	Vertical	Pass
		846.5	6.21	2.02	19.79	2.15	21.83	152.466	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	5.28	2.01	19.73	2.15	20.85	121.645	Vertical	Pass
		836.5	6.58	2.01	19.77	2.15	22.19	165.551	Vertical	Pass
		844	5.80	2.02	19.78	2.15	21.41	138.261	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)

ERP(dBm)=EIRP-2.15

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	699.7	7.29	1.91	19.21	2.15	22.44	175.453	Vertical	Pass
		707.5	6.93	1.91	19.26	2.15	22.13	163.478	Vertical	Pass
		715.3	6.51	1.93	19.34	2.15	21.77	150.451	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	700.5	7.20	1.91	19.21	2.15	22.35	171.905	Vertical	Pass
		707.5	7.20	1.91	19.26	2.15	22.40	173.967	Vertical	Pass
		714.5	6.54	1.93	19.34	2.15	21.80	151.410	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	701.5	7.46	1.91	19.23	2.15	22.63	183.103	Vertical	Pass
		707.5	7.19	1.91	19.26	2.15	22.39	173.316	Vertical	Pass
		713.5	6.04	1.92	19.33	2.15	21.30	135.028	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	704	6.38	1.91	19.25	2.15	21.57	143.416	Vertical	Pass
		707.5	7.75	1.91	19.26	2.15	22.95	197.061	Vertical	Pass
		711	7.45	1.92	19.32	2.15	22.70	186.095	Vertical	Pass
1.4MHz Band QPSK	1/#Mid	699.7	6.17	1.91	19.21	2.15	21.32	135.569	Horizontal	Pass
		707.5	5.75	1.91	19.26	2.15	20.95	124.580	Horizontal	Pass
		715.3	6.10	1.93	19.34	2.15	21.36	136.747	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	700.5	6.19	1.91	19.21	2.15	21.34	136.113	Horizontal	Pass
		707.5	5.83	1.91	19.26	2.15	21.03	126.647	Horizontal	Pass
		714.5	4.75	1.93	19.34	2.15	20.01	100.136	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	701.5	6.22	1.91	19.23	2.15	21.39	137.817	Horizontal	Pass
		707.5	5.53	1.91	19.26	2.15	20.73	118.389	Horizontal	Pass
		713.5	5.48	1.92	19.33	2.15	20.74	118.477	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	704	5.66	1.91	19.25	2.15	20.85	121.618	Horizontal	Pass
		707.5	5.11	1.91	19.26	2.15	20.31	107.282	Horizontal	Pass
		711	6.21	1.92	19.32	2.15	21.46	139.991	Horizontal	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	1/#Mid	699.7	6.86	1.91	19.21	2.15	22.01	158.928	Vertical	Pass
		707.5	6.46	1.91	19.26	2.15	21.66	146.703	Vertical	Pass
		715.3	5.69	1.93	19.34	2.15	20.95	124.319	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	5.60	1.91	19.21	2.15	20.75	118.746	Vertical	Pass
		707.5	6.60	1.91	19.26	2.15	21.80	151.188	Vertical	Pass
		714.5	6.14	1.93	19.34	2.15	21.40	138.131	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.78	1.91	19.23	2.15	21.95	156.731	Vertical	Pass
		707.5	7.07	1.91	19.26	2.15	22.27	168.824	Vertical	Pass
		713.5	5.92	1.92	19.33	2.15	21.18	131.145	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	704	6.89	1.91	19.25	2.15	22.08	161.315	Vertical	Pass
		707.5	8.04	1.91	19.26	2.15	23.24	210.696	Vertical	Pass
		711	6.88	1.92	19.32	2.15	22.13	163.385	Vertical	Pass
1.4MHz Band 16 QAM	1/#Mid	699.7	7.24	1.91	19.21	2.15	22.39	173.307	Horizontal	Pass
		707.5	7.02	1.91	19.26	2.15	22.22	166.586	Horizontal	Pass
		715.3	5.50	1.93	19.34	2.15	20.76	119.138	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	700.5	6.74	1.91	19.21	2.15	21.89	154.498	Horizontal	Pass
		707.5	5.13	1.91	19.26	2.15	20.33	107.940	Horizontal	Pass
		714.5	6.31	1.93	19.34	2.15	21.57	143.399	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	701.5	6.85	1.91	19.23	2.15	22.02	159.080	Horizontal	Pass
		707.5	6.40	1.91	19.26	2.15	21.60	144.416	Horizontal	Pass
		713.5	6.54	1.92	19.33	2.15	21.80	151.244	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	704	4.30	1.91	19.25	2.15	19.49	88.833	Horizontal	Pass
		707.5	7.55	1.91	19.26	2.15	22.75	188.521	Horizontal	Pass
		711	5.90	1.92	19.32	2.15	21.15	130.304	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)

ERP(dBm)=EIRP-2.15

8.7 LTE BAND 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1#Mid	706.5	7.78	1.91	19.23	2.15	22.95	197.092	Vertical	Pass
		710	7.62	1.91	19.26	2.15	22.82	191.462	Vertical	Pass
		713.5	6.47	1.92	19.33	2.15	21.73	148.776	Vertical	Pass
10.0MHz Band QPSK	1#Mid	709	8.36	1.91	19.25	2.15	23.55	226.313	Vertical	Pass
		710	7.49	1.91	19.26	2.15	22.69	185.695	Vertical	Pass
		711	6.82	1.92	19.32	2.15	22.07	161.027	Vertical	Pass
5.0MHz Band QPSK	1#Mid	706.5	7.25	1.91	19.23	2.15	22.42	174.658	Horizontal	Pass
		710	6.17	1.91	19.26	2.15	21.37	137.203	Horizontal	Pass
		713.5	6.65	1.92	19.33	2.15	21.91	155.299	Horizontal	Pass
10.0MHz Band QPSK	1#Mid	709	6.68	1.91	19.25	2.15	21.87	153.749	Horizontal	Pass
		710	5.76	1.91	19.26	2.15	20.96	124.718	Horizontal	Pass
		711	5.09	1.92	19.32	2.15	20.34	108.194	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	1/#Mid	706.5	6.90	1.91	19.23	2.15	22.07	161.000	Vertical	Pass
		710	6.40	1.91	19.26	2.15	21.60	144.420	Vertical	Pass
		713.5	6.84	1.92	19.33	2.15	22.10	162.363	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	709	6.95	1.91	19.25	2.15	22.14	163.571	Vertical	Pass
		710	6.56	1.91	19.26	2.15	21.76	150.014	Vertical	Pass
		711	5.95	1.92	19.32	2.15	21.20	131.953	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	706.5	6.50	1.91	19.23	2.15	21.67	146.819	Horizontal	Pass
		710	4.71	1.91	19.26	2.15	19.91	97.943	Horizontal	Pass
		713.5	6.16	1.92	19.33	2.15	21.42	138.652	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	709	7.26	1.91	19.25	2.15	22.45	175.667	Horizontal	Pass
		710	6.43	1.91	19.26	2.15	21.63	145.591	Horizontal	Pass
		711	6.20	1.92	19.32	2.15	21.45	139.730	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.8 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	1/##Mid	2537.5	-1.18	4.54	27.75	22.03	159.491	Horizontal	Pass
		2595	-2.13	4.69	27.72	20.90	123.076	Horizontal	Pass
		2652.5	-1.76	4.71	27.71	21.24	133.161	Horizontal	Pass
10.0MHz Band QPSK	1/##Mid	2540	-2.09	4.55	27.76	21.12	129.538	Horizontal	Pass
		2595	-1.89	4.69	27.72	21.14	130.093	Horizontal	Pass
		2650	-1.59	4.72	27.70	21.39	137.682	Horizontal	Pass
15.0MHz Band QPSK	1/##Mid	2542.5	-1.91	4.55	27.77	21.31	135.262	Horizontal	Pass
		2595	-1.78	4.69	27.72	21.25	133.274	Horizontal	Pass
		2647.5	-1.95	4.72	27.69	21.02	126.588	Horizontal	Pass
20.0MHz Band QPSK	1/##Mid	2545	-1.43	4.57	27.78	21.78	150.590	Horizontal	Pass
		2595	-1.41	4.73	27.72	21.58	143.842	Horizontal	Pass
		2645	-2.22	4.75	27.68	20.71	117.744	Horizontal	Pass
5.0MHz Band QPSK	1/##Mid	2537.5	-1.66	4.54	27.75	21.55	142.828	Vertical	Pass
		2595	-1.73	4.69	27.72	21.30	134.909	Vertical	Pass
		2652.5	-1.67	4.71	27.71	21.33	135.779	Vertical	Pass
10.0MHz Band QPSK	1/##Mid	2540	-2.02	4.55	27.76	21.19	131.387	Vertical	Pass
		2595	-1.84	4.69	27.72	21.19	131.631	Vertical	Pass
		2650	-1.47	4.72	27.70	21.51	141.578	Vertical	Pass
15.0MHz Band QPSK	1/##Mid	2542.5	-1.89	4.55	27.77	21.33	135.845	Vertical	Pass
		2595	-1.13	4.69	27.72	21.90	154.752	Vertical	Pass
		2647.5	-1.50	4.72	27.69	21.47	140.179	Vertical	Pass
20.0MHz Band QPSK	1/##Mid	2545	-2.36	4.57	27.78	20.85	121.537	Vertical	Pass
		2595	-1.81	4.73	27.72	21.18	131.083	Vertical	Pass
		2645	-0.63	4.75	27.68	22.30	169.657	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2537.5	-2.26	4.54	27.75	20.95	124.449	Horizontal	Pass
		2595	-2.53	4.69	27.72	20.50	112.178	Horizontal	Pass
		2652.5	-1.53	4.71	27.71	21.47	140.177	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-2.81	4.55	27.76	20.40	109.761	Horizontal	Pass
		2595	-1.95	4.69	27.72	21.08	128.347	Horizontal	Pass
		2650	-2.15	4.72	27.70	20.83	121.020	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-1.84	4.55	27.77	21.38	137.518	Horizontal	Pass
		2595	-1.88	4.69	27.72	21.15	130.451	Horizontal	Pass
		2647.5	-2.02	4.72	27.69	20.95	124.334	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-1.67	4.57	27.78	21.54	142.587	Horizontal	Pass
		2595	-1.81	4.73	27.72	21.18	131.086	Horizontal	Pass
		2645	-1.37	4.75	27.68	21.56	143.336	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2537.5	-2.12	4.54	27.75	21.09	128.542	Vertical	Pass
		2595	-1.83	4.69	27.72	21.20	131.955	Vertical	Pass
		2652.5	-2.94	4.71	27.71	20.06	101.343	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2540	-3.44	4.55	27.76	19.77	94.841	Vertical	Pass
		2595	-2.31	4.69	27.72	20.72	118.158	Vertical	Pass
		2650	-3.22	4.72	27.70	19.76	94.623	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2542.5	-2.17	4.55	27.77	21.05	127.353	Vertical	Pass
		2595	-3.07	4.69	27.72	19.96	99.159	Vertical	Pass
		2647.5	-2.38	4.72	27.69	20.59	114.432	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2545	-1.87	4.57	27.78	21.34	136.229	Vertical	Pass
		2595	-2.08	4.73	27.72	20.91	123.223	Vertical	Pass
		2645	-2.88	4.75	27.68	20.05	101.184	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)

8.9 LTE BAND 66

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	1/#Mid	1710.7	-2.55	3.76	28.24	21.93	155.804	Horizontal	Pass
		1745	-2.92	3.91	28.22	21.39	137.781	Horizontal	Pass
		1779.3	-2.62	3.93	28.2	21.65	146.231	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.89	3.77	28.23	21.57	143.710	Horizontal	Pass
		1745	-2.44	3.91	28.24	21.89	154.408	Horizontal	Pass
		1778.5	-2.26	3.94	28.25	22.05	160.408	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.01	3.77	28.31	22.53	179.050	Horizontal	Pass
		1745	-2.98	3.91	28.22	21.33	135.925	Horizontal	Pass
		1777.5	-2.77	3.94	28.2	21.49	140.993	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-2.58	3.79	28.33	21.96	156.882	Horizontal	Pass
		1745	-1.86	3.95	28.22	22.41	174.091	Horizontal	Pass
		1775	-2.36	3.97	28.19	21.86	153.381	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-2.61	3.79	28.34	21.94	156.491	Horizontal	Pass
		1745	-2.41	3.95	28.22	21.86	153.315	Horizontal	Pass
		1772.5	-2.53	3.97	28.18	21.68	147.112	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-1.60	3.81	28.35	22.94	196.608	Horizontal	Pass
		1745	-2.31	3.96	28.22	21.95	156.657	Horizontal	Pass
		1770	-2.65	4	28.16	21.51	141.519	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-2.98	3.76	28.24	21.50	141.214	Vertical	Pass
		1745	-3.22	3.91	28.22	21.09	128.523	Vertical	Pass
		1779.3	-2.00	3.93	28.2	22.27	168.607	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-2.04	3.77	28.23	22.42	174.382	Vertical	Pass
		1745	-2.92	3.91	28.24	21.41	138.463	Vertical	Pass
		1778.5	-2.12	3.94	28.25	22.19	165.592	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-2.11	3.77	28.31	22.43	175.015	Vertical	Pass
		1745	-2.11	3.91	28.22	22.20	165.867	Vertical	Pass
		1777.5	-1.94	3.94	28.2	22.32	170.471	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-1.92	3.79	28.34	22.63	183.188	Vertical	Pass
		1745	-1.48	3.95	28.22	22.79	190.259	Vertical	Pass
		1775	-1.52	3.97	28.18	22.69	185.962	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-2.67	3.81	28.35	21.87	153.970	Vertical	Pass
		1745	-1.92	3.96	28.22	22.34	171.558	Vertical	Pass
		1772.5	-2.48	4	28.16	21.68	147.214	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-2.29	3.79	28.34	22.26	168.192	Vertical	Pass
		1745	-2.05	3.95	28.22	22.22	166.830	Vertical	Pass
		1770	-2.62	3.97	28.18	21.59	144.235	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.54	3.76	28.24	20.94	124.062	Horizontal	Pass
		1745	-3.63	3.91	28.22	20.68	116.877	Horizontal	Pass
		1779.3	-3.69	3.93	28.2	20.58	114.241	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.09	3.77	28.23	21.37	137.197	Horizontal	Pass
		1745	-4.02	3.91	28.24	20.31	107.371	Horizontal	Pass
		1778.5	-3.87	3.94	28.25	20.44	110.648	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.33	3.77	28.31	21.21	131.995	Horizontal	Pass
		1745	-2.85	3.91	28.22	21.46	139.812	Horizontal	Pass
		1777.5	-3.49	3.94	28.2	20.77	119.309	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.54	3.79	28.33	21.00	125.985	Horizontal	Pass
		1745	-3.87	3.95	28.22	20.40	109.579	Horizontal	Pass
		1775	-3.37	3.97	28.19	20.85	121.754	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.52	3.79	28.34	21.03	126.804	Horizontal	Pass
		1745	-3.08	3.95	28.22	21.19	131.673	Horizontal	Pass
		1772.5	-3.26	3.97	28.18	20.95	124.540	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-3.52	3.81	28.35	21.02	126.439	Horizontal	Pass
		1745	-3.58	3.96	28.22	20.68	117.046	Horizontal	Pass
		1770	-3.32	4	28.16	20.84	121.257	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-3.03	3.76	28.24	21.45	139.589	Vertical	Pass
		1745	-3.41	3.91	28.22	20.90	123.074	Vertical	Pass
		1779.3	-3.62	3.93	28.2	20.65	116.237	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-3.15	3.77	28.23	21.31	135.359	Vertical	Pass
		1745	-4.03	3.91	28.24	20.30	107.185	Vertical	Pass
		1778.5	-3.19	3.94	28.25	21.12	129.451	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-3.81	3.77	28.31	20.73	118.286	Vertical	Pass
		1745	-3.67	3.91	28.22	20.64	115.865	Vertical	Pass
		1777.5	-3.64	3.94	28.2	20.62	115.387	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-3.35	3.79	28.34	21.20	131.836	Vertical	Pass
		1745	-3.16	3.95	28.22	21.11	129.089	Vertical	Pass
		1775	-2.51	3.97	28.18	21.70	147.799	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-3.03	3.81	28.35	21.51	141.495	Vertical	Pass
		1745	-3.04	3.96	28.22	21.22	132.547	Vertical	Pass
		1772.5	-2.78	4	28.16	21.38	137.336	Vertical	Pass

20.0MHz	1/#Mid	1720	-3.73	3.79	28.34	20.82	120.682	Vertical	Pass
Band 16		1745	-2.33	3.95	28.22	21.94	156.213	Vertical	Pass
QAM		1770	-3.33	3.97	28.18	20.88	122.424	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 71

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss (dBm)	Factor (dB)	Correction	Max. EPR	Max. EPR	Polarization Of Max. ERP	
			(dBm)			(dB)	Average	Average		
							(dBm)	(mW)		
5.0MHz Band QPSK	1/#Mid	665.5	5.02	1.91	19.21	2.15	20.17	103.982	Vertical	Pass
		680.5	4.99	1.91	19.26	2.15	20.19	104.472	Vertical	Pass
		695.5	5.50	1.93	19.34	2.15	20.76	119.112	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	668	4.99	1.91	19.21	2.15	20.14	103.356	Vertical	Pass
		680.5	4.79	1.91	19.26	2.15	19.99	99.779	Vertical	Pass
		693	5.35	1.93	19.34	2.15	20.61	115.154	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	670.5	5.07	1.91	19.23	2.15	20.24	105.725	Vertical	Pass
		680.5	5.20	1.91	19.26	2.15	20.40	109.644	Vertical	Pass
		690.5	4.54	1.92	19.33	2.15	19.80	95.551	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	673	4.86	1.91	19.25	2.15	20.05	101.116	Vertical	Pass
		683	4.86	1.91	19.26	2.15	20.06	101.481	Vertical	Pass
		688	5.36	1.92	19.32	2.15	20.61	115.095	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	665.5	5.45	1.91	19.21	2.15	20.60	114.833	Horizontal	Pass
		680.5	5.31	1.91	19.26	2.15	20.51	112.473	Horizontal	Pass
		695.5	4.87	1.93	19.34	2.15	20.13	103.153	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	668	5.61	1.91	19.21	2.15	20.76	119.013	Horizontal	Pass
		680.5	5.54	1.91	19.26	2.15	20.74	118.467	Horizontal	Pass
		693	4.88	1.93	19.34	2.15	20.14	103.364	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	670.5	5.12	1.91	19.23	2.15	20.29	106.958	Horizontal	Pass
		680.5	5.09	1.91	19.26	2.15	20.29	106.942	Horizontal	Pass
		690.5	5.03	1.92	19.33	2.15	20.29	107.017	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	673	5.64	1.91	19.25	2.15	20.83	121.086	Horizontal	Pass
		683	5.08	1.91	19.26	2.15	20.28	106.705	Horizontal	Pass
		688	4.96	1.92	19.32	2.15	20.21	105.011	Horizontal	Pass

Radiated Power (ERP) for Band 71										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Factor	Correction	Max. EPR	Max. EPR	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average (dBm)	Average (mW)		
5.0MHz	1/#Mid	665.5	4.73	1.91	19.21	2.15	19.88	97.271	Vertical	Pass
Band 16		680.5	3.76	1.91	19.26	2.15	18.96	78.722	Vertical	Pass
QAM		695.5	4.14	1.93	19.34	2.15	19.40	87.103	Vertical	Pass
10.0MHz	1/#Mid	668	4.25	1.91	19.21	2.15	19.40	87.172	Vertical	Pass
Band 16		680.5	3.96	1.91	19.26	2.15	19.16	82.375	Vertical	Pass
QAM		693	4.08	1.93	19.34	2.15	19.34	85.985	Vertical	Pass
15.0MHz	1/#Mid	670.5	4.26	1.91	19.23	2.15	19.43	87.708	Vertical	Pass
Band 16		680.5	3.91	1.91	19.26	2.15	19.11	81.449	Vertical	Pass
QAM		690.5	4.53	1.92	19.33	2.15	19.79	95.179	Vertical	Pass
20.0MHz	1/#Mid	673	4.37	1.91	19.25	2.15	19.56	90.367	Vertical	Pass
Band 16		683	4.55	1.91	19.26	2.15	19.75	94.421	Vertical	Pass
QAM		688	4.13	1.92	19.32	2.15	19.38	86.776	Vertical	Pass
5.0MHz	1/#Mid	665.5	3.82	1.91	19.21	2.15	18.97	78.796	Horizontal	Pass
Band 16		680.5	4.58	1.91	19.26	2.15	19.78	95.075	Horizontal	Pass
QAM		695.5	4.60	1.93	19.34	2.15	19.86	96.828	Horizontal	Pass
10.0MHz	1/#Mid	668	4.39	1.91	19.21	2.15	19.54	89.905	Horizontal	Pass
Band 16		680.5	4.02	1.91	19.26	2.15	19.22	83.568	Horizontal	Pass
QAM		693	3.82	1.93	19.34	2.15	19.08	80.971	Horizontal	Pass
15.0MHz	1/#Mid	670.5	4.05	1.91	19.23	2.15	19.22	83.582	Horizontal	Pass
Band 16		680.5	4.13	1.91	19.26	2.15	19.33	85.707	Horizontal	Pass
QAM		690.5	4.10	1.92	19.33	2.15	19.36	86.310	Horizontal	Pass
20.0MHz	1/#Mid	673	3.98	1.91	19.25	2.15	19.17	82.543	Horizontal	Pass
Band 16		683	4.76	1.91	19.26	2.15	19.96	99.118	Horizontal	Pass
QAM		688	3.94	1.92	19.32	2.15	19.19	82.960	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 and §90.691

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

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

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.8	-48.81	4.04	33.51	-19.34	-13	-6.34	Horizontal
3701.8	-50.62	4.04	33.51	-21.15	-13	-8.15	Vertical
5552.3	-46.95	5.24	35.84	-16.35	-13	-3.35	Vertical
5552.3	-48.60	5.24	35.84	-18.00	-13	-5.00	Horizontal
185.7	-39.85	1.43	16.02	-25.26	-13	-12.26	Vertical
454.6	-32.44	1.30	17.99	-15.74	-13	-2.74	Horizontal
Test Results for Mid Channel 1880MHz							
3760.7	-46.62	4.04	33.56	-17.10	-13	-4.10	Horizontal
3760.7	-51.47	4.04	33.56	-21.95	-13	-8.95	Vertical
5641.0	-48.86	5.24	35.91	-18.19	-13	-5.19	Vertical
5641.0	-50.18	5.24	35.91	-19.51	-13	-6.51	Horizontal
184.1	-34.77	1.62	16.97	-19.41	-13	-6.41	Vertical
290.2	-34.48	1.74	15.98	-20.25	-13	-7.25	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-46.34	4.04	34.00	-16.38	-13	-3.38	Horizontal
3818.6	-46.15	4.04	34.00	-16.19	-13	-3.19	Vertical
5728.7	-50.63	5.24	36.04	-19.83	-13	-6.83	Vertical
5728.7	-47.24	5.24	36.04	-16.44	-13	-3.44	Horizontal
194.7	-39.94	1.42	17.29	-24.07	-13	-11.07	Vertical
343.4	-34.12	1.50	17.90	-17.71	-13	-4.71	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.6	-45.49	4.07	33.54	-16.02	-13	-3.02	Horizontal
3720.6	-49.53	4.07	33.54	-20.06	-13	-7.06	Vertical
5580.4	-46.27	5.28	35.86	-15.69	-13	-2.69	Vertical
5580.4	-50.09	5.28	35.86	-19.51	-13	-6.51	Horizontal
208.9	-37.17	1.58	16.89	-21.85	-13	-8.85	Vertical
357.2	-40.86	1.76	17.26	-25.36	-13	-12.36	Horizontal
Test Results for Mid Channel 1880MHz							
3760.5	-45.71	4.04	33.56	-16.19	-13	-3.19	Horizontal
3760.5	-46.10	4.04	33.56	-16.58	-13	-3.58	Vertical
5640.3	-49.95	5.24	35.91	-19.28	-13	-6.28	Vertical
5640.3	-50.03	5.24	35.91	-19.36	-13	-6.36	Horizontal
201.5	-42.99	1.46	16.27	-28.18	-13	-15.18	Vertical
345.3	-38.20	1.59	15.15	-24.64	-13	-11.64	Horizontal
Test Results for High Channel 1900MHz							
3800.6	-48.04	4.04	34.00	-18.08	-13	-5.08	Horizontal
3800.6	-46.54	4.04	34.00	-16.58	-13	-3.58	Vertical
5700.9	-47.26	5.24	36.04	-16.46	-13	-3.46	Vertical
5700.9	-50.60	5.24	36.04	-19.80	-13	-6.80	Horizontal
212.5	-34.50	1.36	17.39	-18.46	-13	-5.46	Vertical
313.6	-39.97	1.66	15.39	-26.24	-13	-13.24	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3422.1	-47.99	4.02	29.80	-22.21	-13	-9.21	Horizontal
3422.1	-45.89	4.02	29.80	-20.11	-13	-7.11	Vertical
5132.1	-49.88	5.24	35.84	-19.28	-13	-6.28	Vertical
5132.1	-49.59	5.24	35.84	-18.99	-13	-5.99	Horizontal
198.7	-40.54	1.68	16.04	-26.17	-13	-13.17	Vertical
454.9	-33.61	1.78	17.74	-17.65	-13	-4.65	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.4	-48.39	4.03	30.00	-22.42	-13	-9.42	Horizontal
3465.4	-42.24	4.03	30.00	-16.27	-13	-3.27	Vertical
5198.2	-46.12	5.25	35.86	-15.51	-13	-2.51	Vertical
5198.2	-47.65	5.25	35.86	-17.04	-13	-4.04	Horizontal
208.0	-40.19	1.72	17.69	-24.22	-13	-11.22	Vertical
346.7	-41.65	1.62	16.02	-27.24	-13	-14.24	Horizontal
Test Results for High Channel 1754.3MHz							
3509.5	-47.35	4.05	30.01	-21.39	-13	-8.39	Horizontal
3509.5	-45.53	4.05	30.01	-19.57	-13	-6.57	Vertical
5263.6	-47.87	5.26	35.86	-17.27	-13	-4.27	Vertical
5263.6	-48.27	5.26	35.86	-17.67	-13	-4.67	Horizontal
183.7	-30.84	1.80	16.69	-15.95	-13	-2.95	Vertical
332.9	-39.37	1.75	16.66	-24.47	-13	-11.47	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.2	-48.15	4.02	29.80	-22.37	-13	-9.37	Horizontal
3440.2	-46.99	4.02	29.80	-21.21	-13	-8.21	Vertical
5160.8	-51.13	5.24	35.84	-20.53	-13	-7.53	Vertical
5160.8	-49.78	5.24	35.84	-19.18	-13	-6.18	Horizontal
182.7	-38.82	1.57	17.26	-23.14	-13	-10.14	Vertical
310.3	-33.68	1.78	16.35	-19.11	-13	-6.11	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.6	-48.87	4.03	30.00	-22.90	-13	-9.90	Horizontal
3465.6	-49.33	4.03	30.00	-23.36	-13	-10.36	Vertical
5198.5	-46.72	5.25	35.86	-16.11	-13	-3.11	Vertical
5198.5	-47.50	5.25	35.86	-16.89	-13	-3.89	Horizontal
208.8	-39.87	1.44	17.95	-23.36	-13	-10.36	Vertical
270.3	-31.25	1.65	16.09	-16.81	-13	-3.81	Horizontal
Test Results for High Channel 1745MHz							
3490.1	-44.47	2.91	27.68	-19.70	-13	-6.70	Horizontal
3490.1	-44.90	2.91	27.68	-20.13	-13	-7.13	Vertical
5235.6	-46.66	5.26	35.86	-16.06	-13	-3.06	Vertical
5235.6	-52.03	5.26	35.86	-21.43	-13	-8.43	Horizontal
185.7	-39.98	1.61	16.85	-24.74	-13	-11.74	Vertical
291.3	-38.91	1.61	15.19	-25.33	-13	-12.33	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 Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-45.66	2.78	27.50	-20.94	-13	-7.94	Horizontal
1649.4	-48.97	2.78	27.50	-24.25	-13	-11.25	Vertical
2474.7	-44.70	2.90	27.80	-19.80	-13	-6.80	Vertical
2474.7	-50.80	2.90	27.80	-25.90	-13	-12.90	Horizontal
179.8	-35.87	1.76	17.59	-20.04	-13	-7.04	Vertical
460.8	-39.26	1.63	15.87	-25.02	-13	-12.02	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.1	-46.10	2.80	27.48	-21.42	-13	-8.42	Horizontal
1673.1	-45.40	2.80	27.48	-20.72	-13	-7.72	Vertical
2510.2	-42.17	2.91	27.70	-17.38	-13	-4.38	Vertical
2510.2	-49.63	2.91	27.70	-24.84	-13	-11.84	Horizontal
213.1	-40.69	1.61	15.68	-26.63	-13	-13.63	Vertical
431.7	-35.68	1.59	17.52	-19.76	-13	-6.76	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-47.84	2.82	27.43	-23.23	-13	-10.23	Horizontal
1696.6	-50.62	2.82	27.43	-26.01	-13	-13.01	Vertical
2545.3	-42.23	2.92	27.74	-17.41	-13	-4.41	Vertical
2545.3	-50.39	2.92	27.74	-25.57	-13	-12.57	Horizontal
193.6	-34.07	1.69	16.67	-19.09	-13	-6.09	Vertical
366.8	-33.46	1.70	17.18	-17.98	-13	-4.98	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.9	-50.02	2.78	27.50	-25.30	-13	-12.30	Horizontal
1658.9	-40.42	2.78	27.50	-15.70	-13	-2.70	Vertical
2487.3	-51.63	2.90	27.80	-26.73	-13	-13.73	Vertical
2487.3	-48.17	2.90	27.80	-23.27	-13	-10.27	Horizontal
200.8	-41.61	1.71	15.57	-27.74	-13	-14.74	Vertical
364.1	-31.48	1.34	16.40	-16.43	-13	-3.43	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-41.17	2.80	27.48	-16.49	-13	-3.49	Horizontal
1673.0	-42.62	2.80	27.48	-17.94	-13	-4.94	Vertical
2509.6	-50.57	2.91	27.70	-25.78	-13	-12.78	Vertical
2509.6	-46.97	2.91	27.70	-22.18	-13	-9.18	Horizontal
212.4	-32.17	1.44	17.04	-16.57	-13	-3.57	Vertical
344.0	-41.58	1.76	17.62	-25.72	-13	-12.72	Horizontal
Test Results for High Channel 844MHz							
1688.0	-45.74	2.82	27.43	-21.13	-13	-8.13	Horizontal
1688.0	-46.40	2.82	27.43	-21.79	-13	-8.79	Vertical
2532.6	-50.06	2.92	27.74	-25.24	-13	-12.24	Vertical
2532.6	-46.84	2.92	27.74	-22.02	-13	-9.02	Horizontal
205.3	-34.73	1.74	17.70	-18.77	-13	-5.77	Vertical
393.2	-34.91	1.41	17.46	-18.85	-13	-5.85	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.

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1400.2	-42.10	2.60	27.20	-17.50	-13	-4.50	Horizontal
1400.2	-42.90	2.60	27.20	-18.30	-13	-5.30	Vertical
2099.9	-48.45	2.85	27.54	-23.76	-13	-10.76	Vertical
2099.9	-47.58	2.85	27.54	-22.89	-13	-9.89	Horizontal
212.6	-35.76	1.49	17.78	-19.47	-13	-6.47	Vertical
386.7	-39.70	1.36	17.33	-23.73	-13	-10.73	Horizontal
Test Results For Mid Channel 707.5MHz							
1415.4	-44.62	2.61	27.28	-19.95	-13	-6.95	Horizontal
1415.4	-43.17	2.61	27.28	-18.50	-13	-5.50	Vertical
2123.0	-50.26	2.87	27.59	-25.54	-13	-12.54	Vertical
2123.0	-48.25	2.87	27.59	-23.53	-13	-10.53	Horizontal
208.0	-38.92	1.73	15.74	-24.91	-13	-11.91	Vertical
385.0	-32.83	1.62	15.79	-18.66	-13	-5.66	Horizontal
Test Results for High Channel 715.3MHz							
1430.8	-50.60	2.63	27.28	-25.95	-13	-12.95	Horizontal
1430.8	-46.26	2.63	27.28	-21.61	-13	-8.61	Vertical
2146.2	-42.89	2.88	27.60	-18.17	-13	-5.17	Vertical
2146.2	-46.99	2.88	27.60	-22.27	-13	-9.27	Horizontal
187.0	-33.13	1.61	18.00	-16.74	-13	-3.74	Vertical
281.0	-35.08	1.45	15.49	-21.04	-13	-8.04	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408.3	-50.98	2.61	27.26	-26.33	-13	-13.33	Horizontal
1408.3	-45.37	2.61	27.26	-20.72	-13	-7.72	Vertical
2112.3	-48.07	2.87	27.58	-23.36	-13	-10.36	Vertical
2112.3	-50.20	2.87	27.58	-25.49	-13	-12.49	Horizontal
198.2	-39.74	1.31	16.97	-24.07	-13	-11.07	Vertical
469.5	-42.28	1.65	16.70	-27.23	-13	-14.23	Horizontal
Test Results for Mid Channel 707.5MHz							
1415.8	-43.87	2.61	27.28	-19.20	-13	-6.20	Horizontal
1415.8	-50.52	2.61	27.28	-25.85	-13	-12.85	Vertical
2123.3	-50.27	2.87	27.59	-25.55	-13	-12.55	Vertical
2123.3	-50.12	2.87	27.59	-25.40	-13	-12.40	Horizontal
175.7	-34.46	1.72	17.99	-18.19	-13	-5.19	Vertical
363.0	-38.93	1.73	17.94	-22.72	-13	-9.72	Horizontal
Test Results for High Channel 711MHz							
1422.4	-46.95	2.62	27.28	-22.29	-13	-9.29	Horizontal
1422.4	-41.76	2.62	27.28	-17.10	-13	-4.10	Vertical
2133.7	-51.19	2.87	27.60	-26.46	-13	-13.46	Vertical
2133.7	-48.03	2.87	27.60	-23.30	-13	-10.30	Horizontal
209.9	-35.39	1.58	15.93	-21.04	-13	-8.04	Vertical
361.9	-32.01	1.36	15.59	-17.78	-13	-4.78	Horizontal

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

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

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

9.6 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413.6	-48.87	2.61	27.28	-24.20	-13	-11.20	Horizontal
1413.6	-43.77	2.61	27.28	-19.10	-13	-6.10	Vertical
2119.5	-49.56	2.87	27.59	-24.84	-13	-11.84	Vertical
2119.5	-48.00	2.87	27.59	-23.28	-13	-10.28	Horizontal
210.3	-33.63	1.71	16.15	-19.19	-13	-6.19	Vertical
420.6	-42.83	1.41	17.32	-26.92	-13	-13.92	Horizontal
Test Results For Mid Channel 710MHz							
1420.4	-43.44	2.62	27.30	-18.76	-13	-5.76	Horizontal
1420.4	-45.84	2.62	27.30	-21.16	-13	-8.16	Vertical
2130.0	-42.05	2.87	27.62	-17.30	-13	-4.30	Vertical
2130.0	-49.00	2.87	27.62	-24.25	-13	-11.25	Horizontal
201.8	-35.55	1.42	15.25	-21.73	-13	-8.73	Vertical
321.1	-39.79	1.36	17.19	-23.96	-13	-10.96	Horizontal
Test Results for High Channel 713.5MHz							
1427.3	-49.94	2.66	27.28	-25.32	-13	-12.32	Horizontal
1427.3	-43.49	2.66	27.28	-18.87	-13	-5.87	Vertical
2141.3	-43.41	2.88	27.60	-18.69	-13	-5.69	Vertical
2141.3	-49.39	2.88	27.60	-24.67	-13	-11.67	Horizontal
176.1	-39.68	1.32	17.29	-23.71	-13	-10.71	Vertical
446.3	-37.00	1.72	16.89	-21.83	-13	-8.83	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1419.0	-47.86	2.62	27.30	-23.18	-13	-10.18	Horizontal
1419.0	-50.21	2.62	27.30	-25.53	-13	-12.53	Vertical
2128.0	-46.91	2.87	27.62	-22.16	-13	-9.16	Vertical
2128.0	-47.14	2.87	27.62	-22.39	-13	-9.39	Horizontal
197.3	-32.94	1.35	16.91	-17.38	-13	-4.38	Vertical
269.4	-40.41	1.62	16.31	-25.72	-13	-12.72	Horizontal
Test Results for Mid Channel 710MHz							
1420.6	-43.41	2.62	27.30	-18.73	-13	-5.73	Horizontal
1420.6	-41.25	2.62	27.30	-16.57	-13	-3.57	Vertical
2130.2	-45.38	2.87	27.62	-20.63	-13	-7.63	Vertical
2130.2	-48.97	2.87	27.62	-24.22	-13	-11.22	Horizontal
202.5	-42.35	1.51	17.14	-26.71	-13	-13.71	Vertical
399.2	-38.46	1.77	16.88	-23.35	-13	-10.35	Horizontal
Test Results for High Channel 711MHz							
1422.5	-44.82	2.62	27.30	-20.14	-13	-7.14	Horizontal
1422.5	-50.96	2.62	27.30	-26.28	-13	-13.28	Vertical
2133.0	-42.73	2.87	27.62	-17.98	-13	-4.98	Vertical
2133.0	-42.02	2.87	27.62	-17.27	-13	-4.27	Horizontal
202.6	-36.67	1.78	15.95	-22.51	-13	-9.51	Vertical
412.4	-35.57	1.34	17.95	-18.96	-13	-5.96	Horizontal

Note: Spurious Emission Level = Spectrum Analyzer Read Value + Cable Loss+ Antenna Factor + 11.74

. Margin = Spurious Emission Level - Limit

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

9.7 LTE BAND 41

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

Test Results for Low Channel 2542.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145.8	-58.57	5.23	35.81	-27.99	-25	-2.99	Horizontal
5145.8	-60.23	5.23	35.81	-29.65	-25	-4.65	Vertical
7718.4	-58.68	5.67	36.85	-27.50	-25	-2.50	Vertical
7718.4	-61.35	5.67	36.85	-30.17	-25	-5.17	Horizontal
435.6	-42.92	1.38	15.98	-28.32	-25	-3.32	Vertical
466.2	-41.89	1.62	15.66	-27.85	-25	-2.85	Horizontal
Test Results for Mid Channel 2595MHz							
5190.6	-62.79	5.23	35.82	-32.20	-25	-7.20	Horizontal
5190.6	-58.19	5.23	35.82	-27.60	-25	-2.60	Vertical
7785.5	-60.51	5.67	36.85	-29.33	-25	-4.33	Vertical
7785.5	-61.82	5.67	36.85	-30.64	-25	-5.64	Horizontal
510.8	-46.70	1.62	16.17	-32.15	-25	-7.15	Vertical
563.2	-43.38	1.74	17.63	-27.49	-25	-2.49	Horizontal
Test Results for High Channel 2647.5MHz							
5235.3	-58.68	5.24	35.83	-28.09	-25	-3.09	Horizontal
5235.3	-59.33	5.24	35.83	-28.74	-25	-3.74	Vertical
7852.9	-61.08	5.68	36.87	-29.89	-25	-4.89	Vertical
7852.9	-59.40	5.68	36.87	-28.21	-25	-3.21	Horizontal
198.1	-42.26	1.55	15.84	-27.97	-25	-2.97	Vertical
353.5	-45.80	1.51	17.06	-30.25	-25	-5.25	Horizontal

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

Test Results for Low Channel 2550MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160.8	-60.75	5.23	35.82	-30.16	-25	-5.16	Horizontal
5160.8	-58.72	5.23	35.82	-28.13	-25	-3.13	Vertical
7740.0	-61.66	5.67	36.86	-30.47	-25	-5.47	Vertical
7740.0	-60.15	5.67	36.86	-28.96	-25	-3.96	Horizontal
128.9	-42.67	1.43	15.51	-28.59	-25	-3.59	Vertical
345.5	-43.40	1.40	16.97	-27.83	-25	-2.83	Horizontal
Test Results for Mid Channel 2595MHz							
5190.4	-59.53	5.23	35.82	-28.94	-25	-3.94	Horizontal
5190.4	-58.75	5.23	35.82	-28.16	-25	-3.16	Vertical
7785.6	-59.27	5.67	36.85	-28.09	-25	-3.09	Vertical
7785.6	-58.96	5.67	36.85	-27.78	-25	-2.78	Horizontal
101.0	-47.60	1.77	16.72	-32.65	-25	-7.65	Vertical
264.1	-47.08	1.31	16.99	-31.40	-25	-6.40	Horizontal
Test Results for High Channel 2640MHz							
5220.2	-62.36	5.24	35.83	-31.77	-25	-6.77	Horizontal
5220.2	-60.50	5.24	35.83	-29.91	-25	-4.91	Vertical
7830.3	-59.58	5.70	36.88	-28.40	-25	-3.40	Vertical
7830.3	-59.88	5.70	36.88	-28.70	-25	-3.70	Horizontal
350.6	-46.02	1.70	15.73	-31.99	-25	-6.99	Vertical
110.4	-43.58	1.75	17.33	-28.00	-25	-3.00	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.

9.8 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.8	-58.05	3.84	35.81	-26.08	-13	-13.08	Horizontal
3421.8	-60.37	3.84	35.81	-28.40	-13	-15.40	Vertical
5133.0	-60.99	5.18	36.85	-29.32	-13	-16.32	Vertical
5133.0	-60.42	5.18	36.85	-28.75	-13	-15.75	Horizontal
204.4	-48.25	1.56	17.97	-31.84	-13	-18.84	Vertical
306.4	-50.62	1.33	15.11	-36.84	-13	-23.84	Horizontal
Test Results for Mid Channel 1745MHz							
3490.1	-61.28	3.85	35.82	-29.31	-13	-16.31	Horizontal
3490.1	-60.56	3.85	35.82	-28.59	-13	-15.59	Vertical
5235.1	-58.69	5.21	36.85	-27.05	-13	-14.05	Vertical
5235.1	-61.25	5.21	36.85	-29.61	-13	-16.61	Horizontal
188.3	-47.27	1.77	16.17	-32.86	-13	-19.86	Vertical
390.9	-47.20	1.63	15.21	-33.62	-13	-20.62	Horizontal
Test Results for High Channel 1779.3MHz							
3559.1	-57.86	3.86	35.83	-25.89	-13	-12.89	Horizontal
3559.1	-57.44	3.86	35.83	-25.47	-13	-12.47	Vertical
5338.0	-57.03	5.24	36.87	-25.40	-13	-12.40	Vertical
5338.0	-60.13	5.24	36.87	-28.50	-13	-15.50	Horizontal
198.8	-45.39	1.58	17.56	-29.41	-13	-16.41	Vertical
269.1	-48.91	1.45	16.58	-33.78	-13	-20.78	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.9	-61.38	3.84	35.82	-29.40	-13	-16.40	Horizontal
3440.9	-62.18	3.84	35.82	-30.20	-13	-17.20	Vertical
5160.5	-59.02	5.18	36.86	-27.34	-13	-14.34	Vertical
5160.5	-61.99	5.18	36.86	-30.31	-13	-17.31	Horizontal
180.6	-49.91	1.56	15.76	-35.71	-13	-22.71	Vertical
324.0	-45.17	1.33	15.44	-31.06	-13	-18.06	Horizontal
Test Results for Mid Channel 1745MHz							
3490.1	-58.21	3.85	35.82	-26.24	-13	-13.24	Horizontal
3490.1	-61.35	3.85	35.82	-29.38	-13	-16.38	Vertical
5235.6	-62.10	5.21	36.85	-30.46	-13	-17.46	Vertical
5235.6	-56.79	5.21	36.85	-25.15	-13	-12.15	Horizontal
183.2	-45.22	1.77	16.84	-30.14	-13	-17.14	Vertical
251.8	-51.95	1.63	17.64	-35.94	-13	-22.94	Horizontal
Test Results for High Channel 1770MHz							
3540.3	-57.74	3.86	35.83	-25.77	-13	-12.77	Horizontal
3540.3	-59.79	3.86	35.83	-27.82	-13	-14.82	Vertical
5310.2	-59.29	5.24	36.88	-27.65	-13	-14.65	Vertical
5310.2	-57.73	5.24	36.88	-26.09	-13	-13.09	Horizontal
182.9	-46.60	1.58	16.84	-31.33	-13	-18.33	Vertical
310.7	-47.77	1.45	17.64	-31.58	-13	-18.58	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.

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
1331.6	-63.83	2.16	35.81	-30.18	-13	-17.18	Horizontal
1331.6	-58.95	2.16	35.81	-25.30	-13	-12.30	Vertical
1996.8	-61.31	2.89	36.85	-27.35	-13	-14.35	Vertical
1996.8	-58.66	2.89	36.85	-24.70	-13	-11.70	Horizontal
199.9	-43.83	1.56	17.97	-27.42	-13	-14.42	Vertical
467.7	-43.99	1.33	15.11	-30.21	-13	-17.21	Horizontal
Test Results for Mid Channel 680.5MHz							
1361.1	-63.59	2.17	35.82	-29.94	-13	-16.94	Horizontal
1361.1	-59.10	2.17	35.82	-25.45	-13	-12.45	Vertical
2042.0	-58.92	2.90	36.85	-24.97	-13	-11.97	Vertical
2042.0	-63.71	2.90	36.85	-29.76	-13	-16.76	Horizontal
207.1	-44.21	1.77	16.17	-29.81	-13	-16.81	Vertical
338.8	-47.23	1.63	15.21	-33.65	-13	-20.65	Horizontal
Test Results for High Channel 695.5MHz							
1391.7	-62.05	2.19	35.83	-28.41	-13	-15.41	Horizontal
1391.7	-63.44	2.19	35.83	-29.80	-13	-16.80	Vertical
2087.4	-62.00	2.95	36.87	-28.08	-13	-15.08	Vertical
2087.4	-60.46	2.95	36.87	-26.54	-13	-13.54	Horizontal
179.6	-48.04	1.58	17.56	-32.05	-13	-19.05	Vertical
299.3	-44.04	1.45	16.58	-28.91	-13	-15.91	Horizontal

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
1346.2	-61.56	2.16	35.82	-27.90	-13	-14.90	Horizontal
1346.2	-57.86	2.16	35.82	-24.20	-13	-11.20	Vertical
2019.0	-57.97	2.89	36.86	-24.00	-13	-11.00	Vertical
2019.0	-59.99	2.89	36.86	-26.02	-13	-13.02	Horizontal
212.3	-44.12	1.56	15.76	-29.92	-13	-16.92	Vertical
325.0	-46.06	1.33	15.44	-31.95	-13	-18.95	Horizontal
Test Results for Mid Channel 683MHz							
1366.2	-61.80	2.17	35.82	-28.15	-13	-15.15	Horizontal
1366.2	-58.91	2.17	35.82	-25.26	-13	-12.26	Vertical
2049.9	-60.68	2.90	36.85	-26.73	-13	-13.73	Vertical
2049.9	-60.31	2.90	36.85	-26.36	-13	-13.36	Horizontal
205.0	-50.08	1.77	16.84	-35.00	-13	-22.00	Vertical
418.1	-51.00	1.63	17.64	-34.99	-13	-21.99	Horizontal
Test Results for High Channel 688MHz							
1376.5	-59.18	2.19	35.83	-25.54	-13	-12.54	Horizontal
1376.5	-62.52	2.19	35.83	-28.88	-13	-15.88	Vertical
2064.7	-60.69	2.95	36.88	-26.76	-13	-13.76	Vertical
2064.7	-61.11	2.95	36.88	-27.18	-13	-14.18	Horizontal
189.8	-46.41	1.58	16.84	-31.14	-13	-18.14	Vertical
305.8	-46.79	1.45	17.64	-30.60	-13	-17.60	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

§22.355 - The carrier frequency shall not depart from the reference frequency in excess of ± 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 3.29V, Normal, DC 3.87V and High voltage, DC 4.45V.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

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

RESULTS

See the following pages.

10.1 LTE BAND 2

Band 2 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1880	7.0	0.003746	2.5
7.6	1880	11.6	0.006156	2.5
8.74	1880	4.7	0.002510	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	6.0	0.003205	2.5
Extreme (50C)	1880	5.9	0.003162	2.5
Extreme (40C)	1880	7.0	0.003745	2.5
Extreme (30C)	1880	12.7	0.006780	2.5
Extreme (10C)	1880	7.7	0.004110	2.5
Extreme (0C)	1880	8.7	0.004613	2.5
Extreme (-10C)	1880	11.4	0.006057	2.5
Extreme (-20C)	1880	9.1	0.004830	2.5
Extreme (-30C)	1880	12.0	0.006373	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1880	10.5	0.005584	2.5
7.6	1880	10.7	0.005677	2.5
8.74	1880	13.2	0.007038	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	10.4	0.005539	2.5
Extreme (50C)	1880	3.4	0.001814	2.5
Extreme (40C)	1880	8.8	0.004677	2.5
Extreme (30C)	1880	3.1	0.001660	2.5
Extreme (10C)	1880	15.3	0.008122	2.5
Extreme (0C)	1880	12.3	0.006529	2.5
Extreme (-10C)	1880	16.0	0.008499	2.5
Extreme (-20C)	1880	13.5	0.007206	2.5
Extreme (-30C)	1880	7.7	0.004090	2.5

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

10.2 LTE BAND 4

Band 4 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1732.5	11.4	0.006570	2.5
7.6	1732.5	7.8	0.004482	2.5
8.74	1732.5	7.3	0.004197	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	3.9	0.002275	2.5
Extreme (50C)	1732.5	3.3	0.001918	2.5
Extreme (40C)	1732.5	4.1	0.002345	2.5
Extreme (30C)	1732.5	6.9	0.003994	2.5
Extreme (10C)	1732.5	14.0	0.008080	2.5
Extreme (0C)	1732.5	5.4	0.003101	2.5
Extreme (-10C)	1732.5	11.2	0.006491	2.5
Extreme (-20C)	1732.5	13.3	0.007672	2.5
Extreme (-30C)	1732.5	13.6	0.007868	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1732.5	10.3	0.005926	2.5
7.6	1732.5	7.1	0.004110	2.5
8.74	1732.5	14.6	0.008456	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.2	0.005308	2.5
Extreme (50C)	1732.5	10.2	0.005880	2.5
Extreme (40C)	1732.5	9.8	0.005673	2.5
Extreme (30C)	1732.5	10.6	0.006093	2.5
Extreme (10C)	1732.5	14.8	0.008571	2.5
Extreme (0C)	1732.5	11.4	0.006594	2.5
Extreme (-10C)	1732.5	15.5	0.008923	2.5
Extreme (-20C)	1732.5	11.5	0.006649	2.5
Extreme (-30C)	1732.5	11.6	0.006681	2.5

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

10.3 LTE BAND 5

Band 5 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	836.5	13.5	0.016095	2.5
7.6	836.5	9.5	0.011390	2.5
8.74	836.5	8.3	0.009870	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	7.3	0.008751	2.5
Extreme (50C)	836.5	8.5	0.010123	2.5
Extreme (40C)	836.5	4.0	0.004830	2.5
Extreme (30C)	836.5	4.3	0.005098	2.5
Extreme (10C)	836.5	8.2	0.009847	2.5
Extreme (0C)	836.5	4.2	0.005075	2.5
Extreme (-10C)	836.5	7.8	0.009306	2.5
Extreme (-20C)	836.5	13.3	0.015951	2.5
Extreme (-30C)	836.5	10.7	0.012849	2.5

Band 5 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	836.5	14.7	0.017578	2.5
7.6	836.5	12.4	0.014840	2.5
8.74	836.5	12.6	0.015078	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	7.6	0.009045	2.5
Extreme (50C)	836.5	11.2	0.013333	2.5
Extreme (40C)	836.5	9.6	0.011446	2.5
Extreme (30C)	836.5	5.9	0.007048	2.5
Extreme (10C)	836.5	10.9	0.013037	2.5
Extreme (0C)	836.5	16.0	0.019109	2.5
Extreme (-10C)	836.5	11.2	0.013379	2.5
Extreme (-20C)	836.5	13.3	0.015930	2.5
Extreme (-30C)	836.5	15.5	0.018533	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	707.5	7.7	0.010932	2.5
7.6	707.5	8.8	0.012481	2.5
8.74	707.5	9.7	0.013775	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	15.1	0.021407	2.5
Extreme (50C)	707.5	6.1	0.008592	2.5
Extreme (40C)	707.5	4.2	0.006004	2.5
Extreme (30C)	707.5	15.9	0.022442	2.5
Extreme (10C)	707.5	14.8	0.020970	2.5
Extreme (0C)	707.5	6.6	0.009395	2.5
Extreme (-10C)	707.5	7.7	0.010871	2.5
Extreme (-20C)	707.5	14.9	0.021079	2.5
Extreme (-30C)	707.5	15.4	0.021712	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	707.5	7.2	0.010163	2.5
7.6	707.5	13.7	0.019295	2.5
8.74	707.5	10.2	0.014431	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	6.2	0.008746	2.5
Extreme (50C)	707.5	3.8	0.005442	2.5
Extreme (40C)	707.5	15.0	0.021171	2.5
Extreme (30C)	707.5	13.5	0.019065	2.5
Extreme (10C)	707.5	3.5	0.004989	2.5
Extreme (0C)	707.5	11.2	0.015886	2.5
Extreme (-10C)	707.5	12.3	0.017447	2.5
Extreme (-20C)	707.5	13.5	0.019073	2.5
Extreme (-30C)	707.5	7.9	0.011228	2.5

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

10.6 LTE BAND 17

Band 17 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	710	8.1	0.011460	2.5
7.6	710	11.7	0.016449	2.5
8.74	710	13.8	0.019423	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	9.5	0.013429	2.5
Extreme (50C)	710	14.2	0.019935	2.5
Extreme (40C)	710	13.2	0.018588	2.5
Extreme (30C)	710	3.7	0.005279	2.5
Extreme (10C)	710	10.5	0.014825	2.5
Extreme (0C)	710	5.9	0.008364	2.5
Extreme (-10C)	710	4.2	0.005847	2.5
Extreme (-20C)	710	11.3	0.015887	2.5
Extreme (-30C)	710	11.7	0.016435	2.5

Band 17 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	710	8.1	0.011382	2.5
7.6	710	3.6	0.005068	2.5
8.74	710	11.3	0.015871	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	12.1	0.016989	2.5
Extreme (50C)	710	3.8	0.005357	2.5
Extreme (40C)	710	8.5	0.011909	2.5
Extreme (30C)	710	9.0	0.012698	2.5
Extreme (10C)	710	9.5	0.013313	2.5
Extreme (0C)	710	10.7	0.015121	2.5
Extreme (-10C)	710	15.1	0.021225	2.5
Extreme (-20C)	710	14.4	0.020302	2.5
Extreme (-30C)	710	10.9	0.015331	2.5

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

10.7 LTE BAND 41

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	2593	11.7	0.004526	2.5
7.6	2593	4.1	0.001590	2.5
8.74	2593	3.6	0.001377	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	10.4	0.003994	2.5
Extreme (50C)	2593	5.8	0.002220	2.5
Extreme (40C)	2593	7.0	0.002712	2.5
Extreme (30C)	2593	6.9	0.002667	2.5
Extreme (10C)	2593	15.4	0.005956	2.5
Extreme (0C)	2593	7.9	0.003034	2.5
Extreme (-10C)	2593	14.4	0.005540	2.5
Extreme (-20C)	2593	11.0	0.004223	2.5
Extreme (-30C)	2593	3.2	0.001246	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	2593	9.1	0.003513	2.5
7.6	2593	14.5	0.005593	2.5
8.74	2593	13.1	0.005054	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2593	5.0	0.001913	2.5
Extreme (50C)	2593	10.8	0.004165	2.5
Extreme (40C)	2593	11.9	0.004590	2.5
Extreme (30C)	2593	13.8	0.005337	2.5
Extreme (10C)	2593	11.4	0.004395	2.5
Extreme (0C)	2593	14.9	0.005756	2.5
Extreme (-10C)	2593	6.4	0.002476	2.5
Extreme (-20C)	2593	4.3	0.001658	2.5
Extreme (-30C)	2593	4.7	0.001821	2.5

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

10.8 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1745	9.1	0.005193	2.5
7.6	1745	6.2	0.003570	2.5
8.74	1745	14.7	0.008450	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	8.9	0.005077	2.5
Extreme (50C)	1745	5.8	0.003349	2.5
Extreme (40C)	1745	13.5	0.007741	2.5
Extreme (30C)	1745	6.3	0.003591	2.5
Extreme (10C)	1745	4.8	0.002752	2.5
Extreme (0C)	1745	15.5	0.008903	2.5
Extreme (-10C)	1745	13.0	0.007459	2.5
Extreme (-20C)	1745	4.3	0.002469	2.5
Extreme (-30C)	1745	13.2	0.007568	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1745	8.2	0.004673	2.5
7.6	1745	13.0	0.007422	2.5
8.74	1745	9.8	0.005596	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.7	0.004402	2.5
Extreme (50C)	1745	5.4	0.003091	2.5
Extreme (40C)	1745	11.5	0.006592	2.5
Extreme (30C)	1745	6.8	0.003900	2.5
Extreme (10C)	1745	6.2	0.003577	2.5
Extreme (0C)	1745	3.9	0.002246	2.5
Extreme (-10C)	1745	12.9	0.007406	2.5
Extreme (-20C)	1745	12.5	0.007178	2.5
Extreme (-30C)	1745	5.4	0.003088	2.5

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

10.9 LTE BAND 71

Band 71 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1745	8.0	0.004574	2.5
7.6	1745	3.5	0.002013	2.5
8.74	1745	4.4	0.002505	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	10.0	0.005755	2.5
Extreme (50C)	1745	12.0	0.006858	2.5
Extreme (40C)	1745	6.4	0.003695	2.5
Extreme (30C)	1745	7.6	0.004365	2.5
Extreme (10C)	1745	15.2	0.008709	2.5
Extreme (0C)	1745	8.5	0.004861	2.5
Extreme (-10C)	1745	5.5	0.003171	2.5
Extreme (-20C)	1745	5.2	0.003005	2.5
Extreme (-30C)	1745	8.2	0.004727	2.5

Band 71 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
6.46	1745	7.2	0.004132	2.5
7.6	1745	7.8	0.004460	2.5
8.74	1745	12.7	0.007255	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	8.3	0.004776	2.5
Extreme (50C)	1745	5.4	0.003115	2.5
Extreme (40C)	1745	11.0	0.006308	2.5
Extreme (30C)	1745	8.0	0.004591	2.5
Extreme (10C)	1745	14.2	0.008160	2.5
Extreme (0C)	1745	8.6	0.004935	2.5
Extreme (-10C)	1745	10.7	0.006130	2.5
Extreme (-20C)	1745	5.1	0.002928	2.5
Extreme (-30C)	1745	7.7	0.004387	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

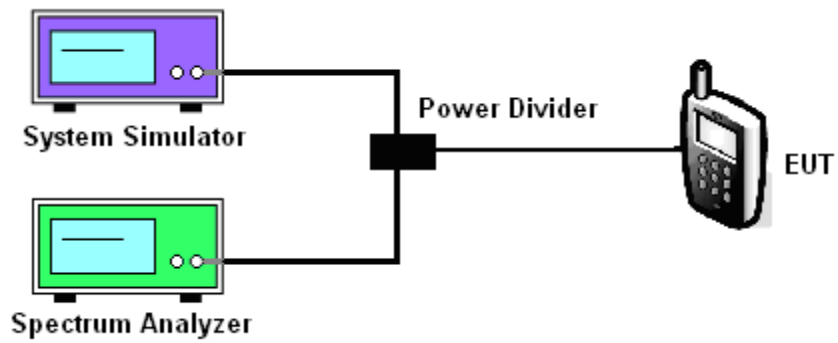
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

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

Test data reference attachment.

-----END OF REPORT-----