

FCC CFR47 PART 22H, 24E, 27, 90S CERTIFICATION TEST REPORT

FCC ID: ZSW-30-140

Product: Mobile Phone

Trade Mark: Bmobile

Model Number: Venus

Family Model: N/A

Report No.: S25031804502005

Prepared for

b mobile HK Limited

FLAT/RM 1202, 12/F GOLDEN STAR BUILDING, 20 LOCKHART ROAD,
WANCHAI, HK, CHINA

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name..... : b mobile HK Limited

Address : FLAT/RM 1202, 12/F GOLDEN STAR BUILDING, 20 LOCKHART ROAD, WANCHAI, HK, CHINA

Manufacturer's Name..... : b mobile HK Limited

Address : FLAT/RM 1202, 12/F GOLDEN STAR BUILDING, 20 LOCKHART ROAD, WANCHAI, HK, CHINA

Product name : Mobile Phone

Model and/or type reference : Venus

Family Model: N/A

Test sample number S250318045002

Standards..... : FCC CFR 47 Part 22H, Part 24E, Part 27, Part 90S

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 Mar. 19, 2025 ~ Apr. 09, 2025

Date of Issue Apr. 09, 2025

Test Result **Pass**

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone
Trade Mark	Bmobile
Model Name	Venus
Family Model	N/A
Model Difference	N/A
FCC ID:	ZSW-30-140
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 26, 66 LTE TDD Band 38
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 26 Uplink: 814MHz-849MHz, Downlink: 859MHz-894MHz; LTE TDD Band 38 Uplink& Downlink: 2570MHz-2620MHz LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	FPC Antenna
Antenna gain:	LTE B2:-2.42dBi; B4:-1.8dBi; B5:-6.24dBi; B7:-3.49dBi; B26:-6.24dBi; B38:-1.18dBi; B66:-1.8dBi;
Power Supply:	DC 3.85V from Battery or DC 5V from Adapter.
Battery	Rated Capacity: DC 3.85V, 4900 mAh, 18.86Wh Typical Capacity: DC 3.85V, 5000 mAh, 19.25Wh
Adapter:	INPUT: AC 100-240V~50-60Hz 0.3A OUTPUT: DC 5.0V---2A
Extreme Vol. Limits:	DC 3.6V to DC 4.35V (Nominal DC 3.85V) (Note 1)
HW Version	Bmobile_VENUS_HW_V1.0
SW Version	Bmobile_VENUS_TIGO_LATAM_V001

** Note1: The High Voltage 4.35V and Low Voltage 3.6V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: ZSW-30-140** filing to comply with the FCC Part 22H&24E &27&90S.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 22, Part 24, Part 27, Part 90S ,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 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 26, Band 38, Band 66.

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

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

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

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

2.2 EUT EXERCISE

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

2.3 CONFIGURATION OF EUT SYSTEM

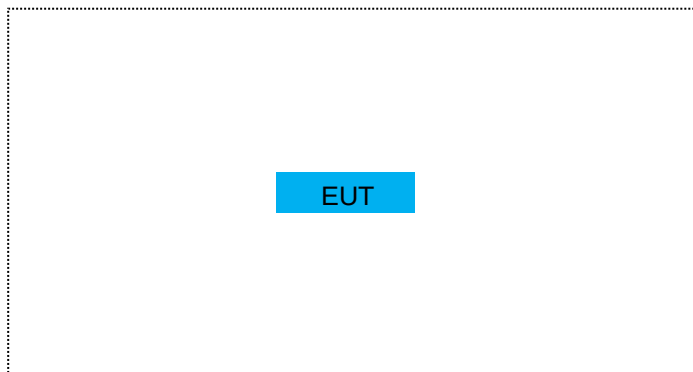
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	Venus	FCC ID: ZSW-30-140	EUT

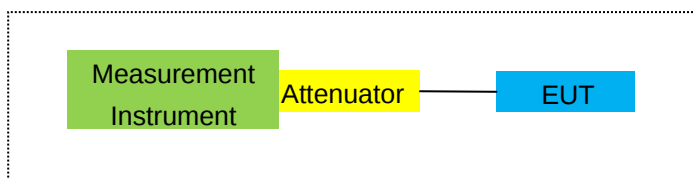
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

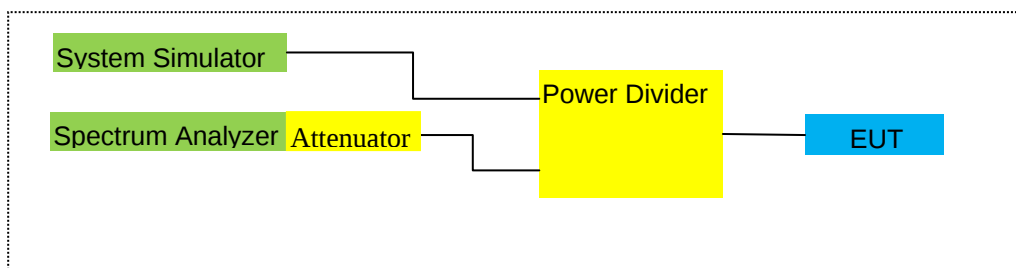
For Radiated Test Cases



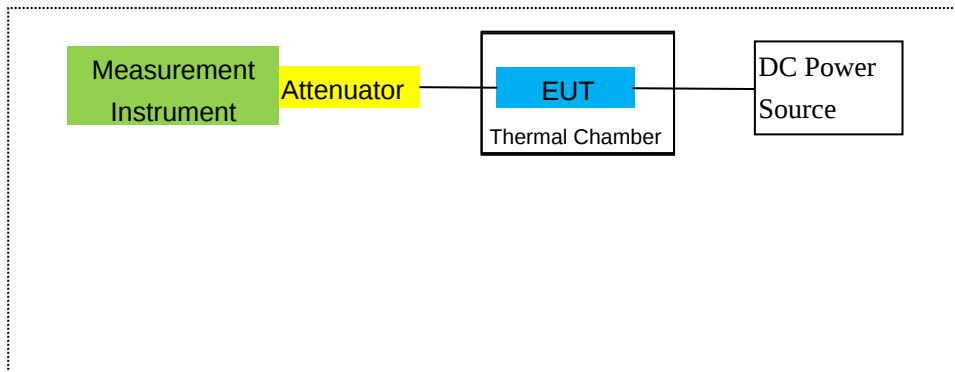
For Conducted Output Power



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	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024.5.18	2027.5.17	3 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2024.5.18	2027.5.17	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 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	6200983705	2024.04.26	2027.04.25	3 year
18	Field strength probe	narda	EP601	711WX81278	2024.03.20	2025.03.19	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	MY41000130	2024.04.26	2025.04.25	1 year
23	EMI Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
24	Universal Radio Communication Tester	R&S	CMU200	105747	2024.04.26	2025.04.25	1 year

25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpac	58226119460030	2024.05.30	2027.05.29	3 year
26	DC Power Source	N/A	PS-6005D	20170402923	2024.04.25	2027.04.24	3 year
27	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2024.5.25	2025.5.24	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2024.5.25	2025.5.24	1 year
29	Communication Tester	R&S	CMW500	148500	2024.5.30	2025.5.29	1 year
30	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2024.5.30	2025.5.29	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.

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
64 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

LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 26
LTE Band 38
LTE Band 66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m) and §90.691

FCC: §2.1046, §22.913, §24.232

LIMITS

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

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

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

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

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

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

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.

90.543 (e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the 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, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $76 + 10 \log (P)$

dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

90.543 (f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

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 display line

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

MODES TESTED

☐ LTE Band 2/4/5/7/26/38/66

RESULTS

Test data reference attachment.

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

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.917(a), §24.238(a), §27.53(c)(g)(h)(m) and §90.691

LIMITS

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

the transmitter power in Watts.

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

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

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

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

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth.

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

- ☐ LTE Band 2/4/5/7/26/38/66

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

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

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913(a)(2), §24.232(c) and §27.50 (h)(2), (b)(10), (c)(10), (d)(4) and §90.635

LIMITS:

22.913(a) (2)- The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
24.232 (c) Mobile and portable stations are limited to 2 watts EIRP.
27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
27.50 (h)(2) Mobile and other user stations in the 2500–2570 MHz and 2620–2690 MHz bands. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.
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

- ☐ LTE Band 2/4/5/7/26/38/66

RESULTS

Pass

8.2 LTE BAND 2

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max.	Max.	Polarization Of Max. ERP	
						EIRP	EIRP		
						Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1850.7	-4.13	3.76	28.24	20.35	108.393	Horizontal	Pass
		1880	-3.94	3.91	28.22	20.37	108.893	Horizontal	Pass
		1909.3	-3.85	3.93	28.20	20.42	110.154	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.19	3.77	28.23	20.27	106.414	Horizontal	Pass
		1880	-4.04	3.91	28.24	20.29	106.905	Horizontal	Pass
		1908.5	-3.91	3.94	28.25	20.40	109.648	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.08	3.77	28.31	20.46	111.173	Horizontal	Pass
		1880	-3.70	3.91	28.22	20.61	115.080	Horizontal	Pass
		1907.5	-3.63	3.94	28.20	20.63	115.611	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-3.94	3.79	28.33	20.60	114.815	Horizontal	Pass
		1880	-3.64	3.95	28.22	20.63	115.611	Horizontal	Pass
		1905	-3.53	3.97	28.19	20.69	117.220	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-3.90	3.79	28.34	20.65	116.145	Horizontal	Pass
		1880	-3.69	3.95	28.22	20.58	114.288	Horizontal	Pass
		1902.5	-3.55	3.97	28.18	20.66	116.413	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-3.89	3.81	28.35	20.65	116.145	Horizontal	Pass
		1880	-3.56	3.96	28.22	20.70	117.490	Horizontal	Pass
		1900	-3.50	4.00	28.16	20.66	116.413	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-5.30	3.76	28.24	19.18	82.794	Vertical	Pass
		1880	-4.76	3.91	28.22	19.55	90.157	Vertical	Pass
		1909.3	-4.96	3.93	28.20	19.31	85.310	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.48	3.77	28.23	19.98	99.541	Vertical	Pass
		1880	-4.54	3.91	28.24	19.79	95.280	Vertical	Pass
		1908.5	-5.02	3.94	28.25	19.29	84.918	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.26	3.77	28.31	19.28	84.723	Vertical	Pass
		1880	-4.72	3.91	28.22	19.59	90.991	Vertical	Pass
		1907.5	-4.67	3.94	28.20	19.59	90.991	Vertical	Pass
10.0MHz Band	1/#Mid	1855	-5.42	3.79	28.33	19.12	81.658	Vertical	Pass
		1880	-4.46	3.95	28.22	19.81	95.719	Vertical	Pass

QPSK		1905	-4.30	3.97	28.19	19.92	98.175	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-5.16	3.79	28.34	19.39	86.896	Vertical	Pass
Band		1880	-5.10	3.95	28.22	19.17	82.604	Vertical	Pass
QPSK		1902.5	-5.06	3.97	28.18	19.15	82.224	Vertical	Pass
20.0MHz	1/#Mid	1860	-4.50	3.81	28.35	20.04	100.925	Vertical	Pass
Band		1880	-5.02	3.96	28.22	19.24	83.946	Vertical	Pass
QPSK		1900	-4.91	4.00	28.16	19.25	84.140	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.25	3.76	28.24	19.23	83.753	Horizontal	Pass
		1880	-4.72	3.91	28.22	19.59	90.991	Horizontal	Pass
		1909.3	-4.65	3.93	28.20	19.62	91.622	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-4.75	3.77	28.23	19.71	93.541	Horizontal	Pass
		1880	-4.83	3.91	28.24	19.50	89.125	Horizontal	Pass
		1908.5	-5.04	3.94	28.25	19.27	84.528	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.69	3.77	28.31	19.85	96.605	Horizontal	Pass
		1880	-4.60	3.91	28.22	19.71	93.541	Horizontal	Pass
		1907.5	-4.28	3.94	28.20	19.98	99.541	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-4.74	3.79	28.33	19.80	95.499	Horizontal	Pass
		1880	-4.73	3.95	28.22	19.54	89.950	Horizontal	Pass
		1905	-4.20	3.97	28.19	20.02	100.462	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.72	3.79	28.34	19.83	96.161	Horizontal	Pass
		1880	-4.51	3.95	28.22	19.76	94.624	Horizontal	Pass
		1902.5	-4.47	3.97	28.18	19.74	94.189	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.61	3.81	28.35	19.93	98.401	Horizontal	Pass
		1880	-4.31	3.96	28.22	19.95	98.855	Horizontal	Pass
		1900	-4.13	4.00	28.16	20.03	100.693	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-5.82	3.76	28.24	18.66	73.451	Vertical	Pass
		1880	-5.74	3.91	28.22	18.57	71.945	Vertical	Pass
		1909.3	-5.53	3.93	28.20	18.74	74.817	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.66	3.77	28.23	18.80	75.858	Vertical	Pass
		1880	-5.37	3.91	28.24	18.96	78.705	Vertical	Pass
		1908.5	-5.99	3.94	28.25	18.32	67.920	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.60	3.77	28.31	18.94	78.343	Vertical	Pass
		1880	-5.42	3.91	28.22	18.89	77.446	Vertical	Pass
		1907.5	-5.97	3.94	28.20	18.29	67.453	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-6.00	3.79	28.33	18.54	71.450	Vertical	Pass
		1880	-5.87	3.95	28.22	18.40	69.183	Vertical	Pass
		1905	-5.87	3.97	28.19	18.35	68.391	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-6.36	3.79	28.34	18.19	65.917	Vertical	Pass
		1880	-5.99	3.95	28.22	18.28	67.298	Vertical	Pass
		1902.5	-5.94	3.97	28.18	18.27	67.143	Vertical	Pass

20.0MHz	1/#Mid	1860	-5.91	3.81	28.35	18.63	72.946	Vertical	Pass
Band 16		1880	-5.86	3.96	28.22	18.40	69.183	Vertical	Pass
QAM		1900	-5.54	4.00	28.16	18.62	72.778	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average (dBm)	Average (mW)		
1.4MHz Band QPSK	1/#Mid	1710.7	-4.04	3.12	27.58	20.42	110.154	Horizontal	Pass
		1732.5	-4.03	3.27	27.61	20.31	107.399	Horizontal	Pass
		1754.3	-4.01	3.29	27.63	20.33	107.895	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.21	3.13	27.61	20.27	106.414	Horizontal	Pass
		1732.5	-4.13	3.27	27.61	20.21	104.954	Horizontal	Pass
		1753.5	-4.05	3.30	27.62	20.27	106.414	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-3.98	3.13	27.63	20.52	112.720	Horizontal	Pass
		1732.5	-3.88	3.27	27.61	20.46	111.173	Horizontal	Pass
		1752.5	-3.76	3.30	27.60	20.54	113.240	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-3.92	3.15	27.64	20.57	114.025	Horizontal	Pass
		1732.5	-3.69	3.31	27.61	20.61	115.080	Horizontal	Pass
		1750	-3.71	3.33	27.59	20.55	113.501	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-3.93	3.15	27.65	20.57	114.025	Horizontal	Pass
		1732.5	-3.77	3.31	27.61	20.53	112.980	Horizontal	Pass
		1747.5	-3.71	3.33	27.57	20.53	112.980	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.87	3.17	27.66	20.62	115.345	Horizontal	Pass
		1732.5	-3.70	3.32	27.61	20.59	114.551	Horizontal	Pass
		1745	-3.64	3.36	27.56	20.56	113.763	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-4.84	3.12	27.58	19.62	91.622	Vertical	Pass
		1732.5	-5.22	3.27	27.61	19.12	81.658	Vertical	Pass
		1754.3	-4.82	3.29	27.63	19.52	89.536	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.74	3.13	27.61	19.74	94.189	Vertical	Pass
		1732.5	-4.27	3.27	27.61	20.07	101.625	Vertical	Pass
		1753.5	-5.11	3.30	27.62	19.21	83.368	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.60	3.13	27.63	19.90	97.724	Vertical	Pass
		1732.5	-4.44	3.27	27.61	19.90	97.724	Vertical	Pass
		1752.5	-4.67	3.30	27.60	19.63	91.833	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.17	3.15	27.64	19.32	85.507	Vertical	Pass
		1732.5	-4.66	3.31	27.61	19.64	92.045	Vertical	Pass
		1750	-4.84	3.33	27.59	19.42	87.498	Vertical	Pass

15.0MHz		1717.5	-5.37	3.15	27.65	19.13	81.846	Vertical	Pass
Band	1/#Mid	1732.5	-4.94	3.31	27.61	19.36	86.298	Vertical	Pass
QPSK		1747.5	-5.10	3.33	27.57	19.14	82.035	Vertical	Pass
20.0MHz		1720	-5.33	3.17	27.66	19.16	82.414	Vertical	Pass
Band	1/#Mid	1732.5	-4.28	3.32	27.61	20.01	100.231	Vertical	Pass
QPSK		1745	-4.89	3.36	27.56	19.31	85.310	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. EIRP	Max. EIRP	Polarization	
			(dBm)	(dBm)	(dB)	Average	Average	Of Max. ERP	
						(dBm)	(mW)		
1.4MHz	1/#Mid	1710.7	-4.85	3.12	27.58	19.61	91.411	Horizontal	Pass
Band 16		1732.5	-4.70	3.27	27.61	19.64	92.045	Horizontal	Pass
QAM		1754.3	-4.70	3.29	27.63	19.64	92.045	Horizontal	Pass
3.0MHz	1/#Mid	1711.5	-4.79	3.13	27.61	19.69	93.111	Horizontal	Pass
Band 16		1732.5	-4.92	3.27	27.61	19.42	87.498	Horizontal	Pass
QAM		1753.5	-5.14	3.30	27.62	19.18	82.794	Horizontal	Pass
5.0MHz	1/#Mid	1712.5	-4.62	3.13	27.63	19.88	97.275	Horizontal	Pass
Band 16		1732.5	-4.58	3.27	27.61	19.76	94.624	Horizontal	Pass
QAM		1752.5	-4.27	3.30	27.60	20.03	100.693	Horizontal	Pass
10.0MHz	1/#Mid	1715	-4.69	3.15	27.64	19.80	95.499	Horizontal	Pass
Band 16		1732.5	-4.88	3.31	27.61	19.42	87.498	Horizontal	Pass
QAM		1750	-4.26	3.33	27.59	20.00	100.000	Horizontal	Pass
15.0MHz	1/#Mid	1717.5	-4.49	3.15	27.65	20.01	100.231	Horizontal	Pass
Band 16		1732.5	-4.55	3.31	27.61	19.75	94.406	Horizontal	Pass
QAM		1747.5	-4.57	3.33	27.57	19.67	92.683	Horizontal	Pass
20.0MHz	1/#Mid	1720	-4.44	3.17	27.66	20.05	101.158	Horizontal	Pass
Band 16		1732.5	-4.45	3.32	27.61	19.84	96.383	Horizontal	Pass
QAM		1745	-4.26	3.36	27.56	19.94	98.628	Horizontal	Pass
1.4MHz	1/#Mid	1710.7	-5.49	3.12	27.58	18.97	78.886	Vertical	Pass
Band 16		1732.5	-5.75	3.27	27.61	18.59	72.277	Vertical	Pass
QAM		1754.3	-5.99	3.29	27.63	18.35	68.391	Vertical	Pass
3.0MHz	1/#Mid	1711.5	-5.68	3.13	27.61	18.80	75.858	Vertical	Pass
Band 16		1732.5	-5.58	3.27	27.61	18.76	75.162	Vertical	Pass
QAM		1753.5	-5.62	3.30	27.62	18.70	74.131	Vertical	Pass
5.0MHz	1/#Mid	1712.5	-6.24	3.13	27.63	18.26	66.988	Vertical	Pass
Band 16		1732.5	-5.95	3.27	27.61	18.39	69.024	Vertical	Pass
QAM		1752.5	-5.56	3.30	27.60	18.74	74.817	Vertical	Pass
10.0MHz	1/#Mid	1715	-6.37	3.15	27.64	18.12	64.863	Vertical	Pass
Band 16		1732.5	-5.71	3.31	27.61	18.59	72.277	Vertical	Pass
QAM		1750	-5.84	3.33	27.59	18.42	69.502	Vertical	Pass
15.0MHz	1/#Mid	1717.5	-6.27	3.15	27.65	18.23	66.527	Vertical	Pass
Band 16		1732.5	-6.19	3.31	27.61	18.11	64.714	Vertical	Pass
QAM		1747.5	-6.16	3.33	27.57	18.08	64.269	Vertical	Pass

20.0MHz		1720	-5.73	3.17	27.66	18.76	75.162	Vertical	Pass
Band 16	1/#Mid	1732.5	-5.91	3.32	27.61	18.38	68.865	Vertical	Pass
QAM		1745	-5.57	3.36	27.56	18.63	72.946	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band QPSK	3/#Mid	824.7	5.26	2.01	19.68	2.15	20.78	119.674	Horizontal	Pass
		836.5	5.14	2.01	19.77	2.15	20.75	118.850	Horizontal	Pass
		848.3	4.94	2.02	19.82	2.15	20.59	114.551	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	825.5	5.03	2.01	19.70	2.15	20.57	114.025	Horizontal	Pass
		836.5	4.93	2.01	19.77	2.15	20.54	113.240	Horizontal	Pass
		847.5	4.80	2.02	19.81	2.15	20.44	110.662	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	826.5	5.31	2.01	19.71	2.15	20.86	121.899	Horizontal	Pass
		836.5	5.19	2.01	19.77	2.15	20.80	120.226	Horizontal	Pass
		846.5	5.03	2.02	19.79	2.15	20.65	116.145	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	829	5.33	2.01	19.73	2.15	20.90	123.027	Horizontal	Pass
		836.5	5.28	2.01	19.77	2.15	20.89	122.744	Horizontal	Pass
		844	5.18	2.02	19.78	2.15	20.79	119.950	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	824.7	3.85	2.01	19.68	2.15	19.37	86.497	Vertical	Pass
		836.5	3.89	2.01	19.77	2.15	19.50	89.125	Vertical	Pass
		848.3	4.22	2.02	19.82	2.15	19.87	97.051	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	825.5	4.53	2.01	19.70	2.15	20.07	101.625	Vertical	Pass
		836.5	4.02	2.01	19.77	2.15	19.63	91.833	Vertical	Pass
		847.5	4.04	2.02	19.81	2.15	19.68	92.897	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	826.5	3.77	2.01	19.71	2.15	19.32	85.507	Vertical	Pass
		836.5	3.97	2.01	19.77	2.15	19.58	90.782	Vertical	Pass
		846.5	4.04	2.02	19.79	2.15	19.66	92.470	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	829	3.63	2.01	19.73	2.15	19.20	83.176	Vertical	Pass
		836.5	4.21	2.01	19.77	2.15	19.82	95.940	Vertical	Pass
		844	4.44	2.02	19.78	2.15	20.05	101.158	Vertical	Pass

Radiated Power (ERP) for Band 5

Radiated Power (ERP) for Band 5										
Mode	RB/R B SIZE	Frequenc y	Result							Conclusio n
			SG	Cable	Antenn	Correctio	Max.	Max.	Polarizatio	
			Level	Loss	a	n	ERP	ERP	n Of Max.	
			(dBm	(dBm	Factor		Averag	Averag	ERP	
			)	)	(dB)		e	e		
						(dB)	(dBm)	(mW)		
1.4MHz Band 16 QAM	3/#Mid	824.7	4.41	2.01	19.68	2.15	19.93	98.401	Horizontal	Pass
		836.5	4.34	2.01	19.77	2.15	19.95	98.855	Horizontal	Pass
		848.3	4.18	2.02	19.82	2.15	19.83	96.161	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.49	2.01	19.70	2.15	20.03	100.693	Horizontal	Pass
		836.5	4.20	2.01	19.77	2.15	19.81	95.719	Horizontal	Pass
		847.5	3.68	2.02	19.81	2.15	19.32	85.507	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.81	2.01	19.71	2.15	20.36	108.643	Horizontal	Pass
		836.5	4.58	2.01	19.77	2.15	20.19	104.472	Horizontal	Pass
		846.5	4.33	2.02	19.79	2.15	19.95	98.855	Horizontal	Pass
10.0MH z Band 16 QAM	1/#Mid	829	4.81	2.01	19.73	2.15	20.38	109.144	Horizontal	Pass
		836.5	4.53	2.01	19.77	2.15	20.14	103.276	Horizontal	Pass
		844	4.07	2.02	19.78	2.15	19.68	92.897	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	3.55	2.01	19.68	2.15	19.07	80.724	Vertical	Pass
		836.5	4.46	2.01	19.77	2.15	20.07	101.625	Vertical	Pass
		848.3	3.98	2.02	19.82	2.15	19.63	91.833	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.86	2.01	19.70	2.15	19.40	87.096	Vertical	Pass
		836.5	2.80	2.01	19.77	2.15	18.41	69.343	Vertical	Pass
		847.5	3.47	2.02	19.81	2.15	19.11	81.470	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.51	2.01	19.71	2.15	19.06	80.538	Vertical	Pass
		836.5	3.05	2.01	19.77	2.15	18.66	73.451	Vertical	Pass
		846.5	2.47	2.02	19.79	2.15	18.09	64.417	Vertical	Pass
10.0MH z Band 16 QAM	1/#Mid	829	3.02	2.01	19.73	2.15	18.59	72.277	Vertical	Pass
		836.5	2.89	2.01	19.77	2.15	18.50	70.795	Vertical	Pass
		844	3.29	2.02	19.78	2.15	18.90	77.625	Vertical	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

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

8.5 LTE BAND 7

Radiated Power (ERP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level	Cable Loss	Antenna Factor	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average (dBm)	Average (mW)		
5.0MHz Band QPSK	1/#Mid	2502.5	-2.32	4.54	27.75	20.89	122.744	Horizontal	Pass
		2535	-2.15	4.69	27.72	20.88	122.462	Horizontal	Pass
		2567.5	-2.08	4.71	27.71	20.92	123.595	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.25	4.55	27.76	20.96	124.738	Horizontal	Pass
		2535	-2.06	4.69	27.72	20.97	125.026	Horizontal	Pass
		2565	-1.98	4.72	27.70	21.00	125.893	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.26	4.55	27.77	20.96	124.738	Horizontal	Pass
		2535	-2.12	4.69	27.72	20.91	123.310	Horizontal	Pass
		2562.5	-2.02	4.72	27.69	20.95	124.451	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.20	4.57	27.78	21.01	126.183	Horizontal	Pass
		2535	-2.02	4.73	27.72	20.97	125.026	Horizontal	Pass
		2560	-1.98	4.75	27.68	20.95	124.451	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-4.12	4.54	27.75	19.09	81.096	Vertical	Pass
		2535	-3.89	4.69	27.72	19.14	82.035	Vertical	Pass
		2567.5	-3.24	4.71	27.71	19.76	94.624	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.52	4.55	27.76	19.69	93.111	Vertical	Pass
		2535	-3.18	4.69	27.72	19.85	96.605	Vertical	Pass
		2565	-3.79	4.72	27.70	19.19	82.985	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.42	4.55	27.77	19.80	95.499	Vertical	Pass
		2535	-3.12	4.69	27.72	19.91	97.949	Vertical	Pass
		2562.5	-3.90	4.72	27.69	19.07	80.724	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.21	4.57	27.78	20.00	100.000	Vertical	Pass
		2535	-3.67	4.73	27.72	19.32	85.507	Vertical	Pass
		2560	-3.85	4.75	27.68	19.08	80.910	Vertical	Pass

Radiated Power (ERP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable Loss (dBm)	Antenna Factor (dB)	Max.	Max.	Polarization Of Max. ERP	
			Level			ERP	ERP		
			(dBm)			Average	Average		
						(dBm)	(mW)		
5.0MHz Band 16 QAM	1/#Mid	2502.5	-3.01	4.54	27.75	20.20	104.713	Horizontal	Pass
		2535	-2.70	4.69	27.72	20.33	107.895	Horizontal	Pass
		2567.5	-2.78	4.71	27.71	20.22	105.196	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-2.90	4.55	27.76	20.31	107.399	Horizontal	Pass
		2535	-2.91	4.69	27.72	20.12	102.802	Horizontal	Pass
		2565	-3.18	4.72	27.70	19.80	95.499	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.08	4.55	27.77	20.14	103.276	Horizontal	Pass
		2535	-3.05	4.69	27.72	19.98	99.541	Horizontal	Pass
		2562.5	-2.66	4.72	27.69	20.31	107.399	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-2.96	4.57	27.78	20.25	105.925	Horizontal	Pass
		2535	-2.63	4.73	27.72	20.36	108.643	Horizontal	Pass
		2560	-2.73	4.75	27.68	20.20	104.713	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.38	4.54	27.75	18.83	76.384	Vertical	Pass
		2535	-4.46	4.69	27.72	18.57	71.945	Vertical	Pass
		2567.5	-3.16	4.71	27.71	19.84	96.383	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.27	4.55	27.76	19.94	98.628	Vertical	Pass
		2535	-3.71	4.69	27.72	19.32	85.507	Vertical	Pass
		2565	-3.75	4.72	27.70	19.23	83.753	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.65	4.55	27.77	19.57	90.573	Vertical	Pass
		2535	-3.91	4.69	27.72	19.12	81.658	Vertical	Pass
		2562.5	-4.09	4.72	27.69	18.88	77.268	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.64	4.57	27.78	18.57	71.945	Vertical	Pass
		2535	-4.39	4.73	27.72	18.60	72.444	Vertical	Pass
		2560	-3.50	4.75	27.68	19.43	87.700	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.6 LTE BAND 26A

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz BW QPSK	6/0	814.7	-1.86	3.76	28.24	2.15	20.47	111.43	Horizontal	Pass
		819	-1.72	3.91	28.22	2.15	20.44	110.66	Horizontal	Pass
		823.3	-1.84	3.93	28.20	2.15	20.28	106.66	Horizontal	Pass
3.0MHz BW QPSK	15/0	815.5	-2.05	3.77	28.23	2.15	20.26	106.17	Horizontal	Pass
		819	-1.95	3.91	28.24	2.15	20.23	105.44	Horizontal	Pass
		822.5	-2.03	3.94	28.25	2.15	20.13	103.04	Horizontal	Pass
5.0MHz BW QPSK	25/0	816.5	-1.84	3.77	28.31	2.15	20.55	113.50	Horizontal	Pass
		819	-1.67	3.91	28.22	2.15	20.49	111.94	Horizontal	Pass
		821.5	-1.77	3.94	28.20	2.15	20.34	108.14	Horizontal	Pass
10.0MHz BW QPSK	50/0	819	-1.57	3.91	28.22	2.15	20.59	114.55	Horizontal	Pass
1.4MHz BW QPSK	6/0	814.7	-1.82	3.79	28.34	2.15	20.58	114.29	Vertical	Pass
		819	-1.64	3.95	28.22	2.15	20.48	111.69	Vertical	Pass
		823.3	-2.39	3.97	28.18	2.15	19.67	92.68	Vertical	Pass
3.0MHz BW QPSK	15/0	815.5	-3.39	3.77	28.23	2.15	18.92	77.98	Vertical	Pass
		819	-3.03	3.91	28.24	2.15	19.15	82.22	Vertical	Pass
		822.5	-3.03	3.94	28.25	2.15	19.13	81.85	Vertical	Pass
5.0MHz BW QPSK	25/0	816.5	-2.65	3.77	28.31	2.15	19.74	94.19	Vertical	Pass
		819	-2.81	3.91	28.22	2.15	19.35	86.10	Vertical	Pass
		821.5	-2.66	3.94	28.20	2.15	19.45	88.10	Vertical	Pass
10.0MHz BW QPSK	50/0	819	-3.02	3.91	28.22	2.15	19.14	82.04	Vertical	Pass

Radiated Power (ERP) for Band 26(814-824)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
1.4MHz	6/0	814.7	-1.43	3.76	28.24	2.15	20.90	123.03	Horizontal	Pass
BW 16		819	-1.29	3.91	28.22	2.15	20.87	122.18	Horizontal	Pass
QAM		823.3	-1.41	3.93	28.20	2.15	20.71	117.76	Horizontal	Pass
3.0MHz	15/0	815.5	-1.62	3.77	28.23	2.15	20.69	117.22	Horizontal	Pass
BW 16		819	-1.52	3.91	28.24	2.15	20.66	116.41	Horizontal	Pass
QAM		822.5	-1.60	3.94	28.25	2.15	20.56	113.76	Horizontal	Pass
5.0MHz	25/0	816.5	-1.41	3.77	28.31	2.15	20.98	125.31	Horizontal	Pass
BW 16		819	-1.24	3.91	28.22	2.15	20.92	123.59	Horizontal	Pass
QAM		821.5	-1.34	3.94	28.20	2.15	20.77	119.40	Horizontal	Pass
10.0MHz	50/0	819	-1.16	3.91	28.24	2.15	21.02	126.47	Horizontal	Pass
1.4MHz	6/0	814.7	-1.39	3.79	28.34	2.15	21.01	126.18	Vertical	Pass
BW 16		819	-1.21	3.95	28.22	2.15	20.91	123.31	Vertical	Pass
QAM		823.3	-2.79	3.97	28.18	2.15	19.27	84.53	Vertical	Pass
3.0MHz	15/0	815.5	-2.90	3.77	28.23	2.15	19.41	87.30	Vertical	Pass
BW 16		819	-2.15	3.91	28.24	2.15	20.03	100.69	Vertical	Pass
QAM		822.5	-2.17	3.94	28.25	2.15	19.99	99.77	Vertical	Pass
5.0MHz	25/0	816.5	-2.38	3.77	28.31	2.15	20.01	100.23	Vertical	Pass
BW 16		819	-2.26	3.91	28.22	2.15	19.90	97.72	Vertical	Pass
QAM		821.5	-2.77	3.94	28.20	2.15	19.34	85.90	Vertical	Pass
10.0MHz	50/0	819	-2.18	3.91	28.24	2.15	20.00	100.00	Vertical	Pass

8.7 LTE BAND 26B

Radiated Power (ERP) for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. ERP	Max. ERP	Polarization	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP	
							(dBm)	(mW)		
1.4MHz Band QPSK	6/0	824.7	4.34	2.01	19.68	2.15	19.86	96.83	Horizontal	Pass
		836.5	4.28	2.01	19.77	2.15	19.89	97.50	Horizontal	Pass
		848.3	4.22	2.02	19.82	2.15	19.87	97.05	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	4.38	2.01	19.70	2.15	19.92	98.17	Horizontal	Pass
		836.5	4.01	2.01	19.77	2.15	19.62	91.62	Horizontal	Pass
		847.5	4.46	2.02	19.81	2.15	20.10	102.33	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	4.64	2.01	19.71	2.15	20.19	104.47	Horizontal	Pass
		836.5	4.46	2.01	19.77	2.15	20.07	101.62	Horizontal	Pass
		846.5	3.83	2.02	19.79	2.15	19.45	88.10	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	3.85	2.01	19.73	2.15	19.42	87.50	Horizontal	Pass
		836.5	3.97	2.01	19.77	2.15	19.58	90.78	Horizontal	Pass
		844	4.57	2.02	19.78	2.15	20.18	104.23	Horizontal	Pass
15.0MHz Band QPSK	75/0	831.5	3.66	2.01	19.73	2.15	19.23	83.75	Horizontal	Pass
		836.5	4.59	2.01	19.77	2.15	20.20	104.71	Horizontal	Pass
		841.5	4.32	2.02	19.78	2.15	19.93	98.40	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	3.92	2.01	19.68	2.15	19.44	87.90	Vertical	Pass
		836.5	3.86	2.01	19.77	2.15	19.47	88.51	Vertical	Pass
		848.3	4.12	2.02	19.82	2.15	19.77	94.84	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	4.06	2.01	19.70	2.15	19.60	91.20	Vertical	Pass
		836.5	3.68	2.01	19.77	2.15	19.29	84.92	Vertical	Pass
		847.5	3.93	2.02	19.81	2.15	19.57	90.57	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	4.08	2.01	19.71	2.15	19.63	91.83	Vertical	Pass
		836.5	3.83	2.01	19.77	2.15	19.44	87.90	Vertical	Pass
		846.5	3.95	2.02	19.79	2.15	19.57	90.57	Vertical	Pass
10.0MHz Band QPSK	50/0	829	3.72	2.01	19.73	2.15	19.29	84.92	Vertical	Pass
		836.5	4.06	2.01	19.77	2.15	19.67	92.68	Vertical	Pass
		844	3.90	2.02	19.78	2.15	19.51	89.33	Vertical	Pass
15.0MHz Band QPSK	75/0	831.5	3.73	2.01	19.73	2.15	19.30	85.11	Vertical	Pass
		836.5	4.48	2.01	19.77	2.15	20.09	102.09	Vertical	Pass
		841.5	4.08	2.02	19.78	2.15	19.69	93.11	Vertical	Pass

Radiated Power (ERP) for Band 26(824-849)										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	(dB)	(dB)	Average	Average		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	6/0	824.7	4.30	2.01	19.68	2.15	19.82	95.94	Horizontal	Pass
		836.5	3.53	2.01	19.77	2.15	19.14	82.04	Horizontal	Pass
		848.3	3.47	2.02	19.82	2.15	19.12	81.66	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	3.56	2.01	19.70	2.15	19.10	81.28	Horizontal	Pass
		836.5	3.86	2.01	19.77	2.15	19.47	88.51	Horizontal	Pass
		847.5	3.56	2.02	19.81	2.15	19.20	83.18	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	3.72	2.01	19.71	2.15	19.27	84.53	Horizontal	Pass
		836.5	3.69	2.01	19.77	2.15	19.30	85.11	Horizontal	Pass
		846.5	3.53	2.02	19.79	2.15	19.15	82.22	Horizontal	Pass
10.0MHz z Band 16 QAM	50/0	829	3.93	2.01	19.73	2.15	19.50	89.13	Horizontal	Pass
		836.5	4.25	2.01	19.77	2.15	19.86	96.83	Horizontal	Pass
		844	3.49	2.02	19.78	2.15	19.10	81.28	Horizontal	Pass
15.0MHz z Band QPSK	75/0	831.5	4.31	2.01	19.73	2.15	19.88	97.27	Horizontal	Pass
		836.5	3.49	2.01	19.77	2.15	19.10	81.28	Horizontal	Pass
		841.5	3.29	2.02	19.78	2.15	18.90	77.62	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	3.81	2.01	19.68	2.15	19.33	85.70	Vertical	Pass
		836.5	4.20	2.01	19.77	2.15	19.81	95.72	Vertical	Pass
		848.3	3.95	2.02	19.82	2.15	19.60	91.20	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	3.75	2.01	19.70	2.15	19.29	84.92	Vertical	Pass
		836.5	3.57	2.01	19.77	2.15	19.18	82.79	Vertical	Pass
		847.5	4.17	2.02	19.81	2.15	19.81	95.72	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	3.44	2.01	19.71	2.15	18.99	79.25	Vertical	Pass
		836.5	3.88	2.01	19.77	2.15	19.49	88.92	Vertical	Pass
		846.5	3.50	2.02	19.79	2.15	19.12	81.66	Vertical	Pass
10.0MHz z Band 16 QAM	50/0	829	3.31	2.01	19.73	2.15	18.88	77.27	Vertical	Pass
		836.5	3.53	2.01	19.77	2.15	19.14	82.04	Vertical	Pass
		844	2.91	2.02	19.78	2.15	18.52	71.12	Vertical	Pass

15.0MH z Band QPSK	75/0	831.5	2.85	2.01	19.73	2.15	18.42	69.50	Vertical	Pass
		836.5	2.78	2.01	19.77	2.15	18.39	69.02	Vertical	Pass
		841.5	3.04	2.02	19.78	2.15	18.65	73.28	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.8 LTE BAND 38

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Antenna	Max. EIRP	Max. EIRP	Polarization	
			Level	Loss	Gain			Of Max.	
			(dBm)	(dBm)	(dB)	Average	Average	ERP	
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2572.5	-2.12	4.95	27.79	18.89	77.446	Vertical	Pass
		2595	-2.64	4.88	27.71	19.72	93.756	Vertical	Pass
		2617.5	-2.58	4.93	27.95	19.10	81.283	Vertical	Pass
10.0MHz Band QPSK	50/0	2572.5	-2.37	4.81	27.73	19.86	96.828	Vertical	Pass
		2595	-2.47	4.95	27.81	19.64	92.045	Vertical	Pass
		2617.5	-2.59	5.03	27.69	18.93	78.163	Vertical	Pass
15.0MHz Band QPSK	75/0	2575	-2.98	5.01	27.86	18.94	78.343	Vertical	Pass
		2595	-2.6	5	27.65	19.31	85.310	Vertical	Pass
		2615	-2.67	4.87	27.89	19.42	87.498	Vertical	Pass
20.0MHz Band QPSK	100/0	2575	-2.71	4.77	27.78	19.39	86.896	Vertical	Pass
		2595	-2.38	4.87	27.87	19.54	89.950	Vertical	Pass
		2615	-2.56	4.94	27.77	19.61	91.411	Vertical	Pass
5.0MHz Band QPSK	25/0	2577.5	-2.9	4.89	27.88	19.15	82.224	Vertical	Pass
		2595	-2.32	4.87	27.84	19.46	88.308	Vertical	Pass
		2612.5	-2.52	4.92	27.93	19.77	94.842	Vertical	Pass
10.0MHz Band QPSK	50/0	2577.5	-2.53	4.75	27.78	19.57	90.573	Vertical	Pass
		2595	-2.53	4.98	27.82	18.89	77.446	Vertical	Pass
		2612.5	-2.6	4.95	27.83	18.90	77.625	Vertical	Pass
15.0MHz Band QPSK	75/0	2580	-2.53	4.86	27.8	18.88	77.268	Vertical	Pass
		2595	-2.37	4.79	27.83	19.06	80.538	Vertical	Pass
		2610	-2.68	4.89	27.87	19.39	86.896	Vertical	Pass
20.0MHz Band QPSK	100/0	2580	-2.87	4.95	27.73	19.83	96.161	Vertical	Pass
		2595	-2.88	4.91	27.71	19.87	97.051	Vertical	Pass
		2610	-2.81	4.96	27.92	20.47	111.429	Vertical	Pass

Radiated Power (EIRP) for Band 38									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG	Cable	Antenna	Max.	Max.	Polarization	
			Level	Loss	Gain	EIRP	EIRP	Of Max.	
			(dBm)	(dBm)	(dB)	Average	Average	ERP	
						(dBm)	(mW)		
5.0MHz Band 16 QAM	25/0	2572.5	-2.12	4.95	27.79	19.57	90.573	Horizontal	Pass
		2595	-2.64	4.88	27.71	19.69	93.111	Horizontal	Pass
		2617.5	-2.58	4.93	27.95	19.50	89.125	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2572.5	-2.37	4.81	27.73	19.56	90.365	Horizontal	Pass
		2595	-2.47	4.95	27.81	19.57	90.573	Horizontal	Pass
		2617.5	-2.59	5.03	27.69	19.83	96.161	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2575	-2.98	5.01	27.86	19.90	97.724	Horizontal	Pass
		2595	-2.6	5	27.65	19.20	83.176	Horizontal	Pass
		2615	-2.67	4.87	27.89	19.88	97.275	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2575	-2.71	4.77	27.78	20.06	101.391	Horizontal	Pass
		2595	-2.38	4.87	27.87	19.76	94.624	Horizontal	Pass
		2615	-2.56	4.94	27.77	19.66	92.470	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2577.5	-2.9	4.89	27.88	19.47	88.512	Horizontal	Pass
		2595	-2.32	4.87	27.84	19.38	86.696	Horizontal	Pass
		2612.5	-2.52	4.92	27.93	19.93	98.401	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2577.5	-2.53	4.75	27.78	20.07	101.625	Horizontal	Pass
		2595	-2.53	4.98	27.82	19.38	86.696	Horizontal	Pass
		2612.5	-2.6	4.95	27.83	19.23	83.753	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2580	-2.53	4.86	27.8	19.55	90.157	Horizontal	Pass
		2595	-2.37	4.79	27.83	20.72	118.032	Horizontal	Pass
		2610	-2.68	4.89	27.87	19.54	89.950	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2580	-2.87	4.95	27.73	19.67	92.683	Horizontal	Pass
		2595	-2.88	4.91	27.71	19.31	85.310	Horizontal	Pass
		2610	-2.81	4.96	27.92	20.83	121.060	Horizontal	Pass

Note:

SG Level= Signal generator output

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

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 1745 1779.3	-3.89 -3.75 -3.62	3.76 3.91 3.93	28.24 28.22 28.2	20.59 20.56 20.65	114.551 113.763 116.145	Horizontal Horizontal Horizontal	Pass Pass Pass
3.0MHz Band QPSK	1/##Mid	1711.5 1745 1778.5	-3.95 -3.86 -3.88	3.77 3.91 3.94	28.23 28.24 28.25	20.51 20.47 20.43	112.460 111.429 110.408	Horizontal Horizontal Horizontal	Pass Pass Pass
5.0MHz Band QPSK	1/##Mid	1712.5 1745 1777.5	-3.85 -3.53 -3.59	3.77 3.91 3.94	28.31 28.22 28.2	20.69 20.78 20.67	117.220 119.674 116.681	Horizontal Horizontal Horizontal	Pass Pass Pass
10.0MHz Band QPSK	1/##Mid	1715 1745 1775	-3.74 -3.47 -3.48	3.79 3.95 3.97	28.33 28.22 28.19	20.80 20.80 20.74	120.226 120.226 118.577	Horizontal Horizontal Horizontal	Pass Pass Pass
15.0MHz Band QPSK	1/##Mid	1717.5 1745 1772.5	-3.76 -3.57 -3.52	3.79 3.95 3.97	28.34 28.22 28.18	20.79 20.70 20.69	119.950 117.490 117.220	Horizontal Horizontal Horizontal	Pass Pass Pass
20.0MHz Band QPSK	1/##Mid	1720 1745 1770	-3.73 -3.47 -3.49	3.81 3.96 4	28.35 28.22 28.16	20.81 20.79 20.67	120.504 119.950 116.681	Horizontal Horizontal Horizontal	Pass Pass Pass
1.4MHz Band QPSK	1/##Mid	1710.7 1745 1779.3	-5.15 -4.90 -4.86	3.76 3.91 3.93	28.24 28.22 28.2	19.33 19.41 19.41	85.704 87.297 87.297	Vertical Vertical Vertical	Pass Pass Pass
3.0MHz Band QPSK	1/##Mid	1711.5 1745 1778.5	-4.96 -4.26 -4.63	3.77 3.91 3.94	28.23 28.24 28.25	19.50 20.07 19.68	89.125 101.625 92.897	Vertical Vertical Vertical	Pass Pass Pass
5.0MHz Band QPSK	1/##Mid	1712.5 1745 1777.5	-5.07 -4.48 -4.54	3.77 3.91 3.94	28.31 28.22 28.2	19.47 19.83 19.72	88.512 96.161 93.756	Vertical Vertical Vertical	Pass Pass Pass
10.0MHz Band QPSK	1/##Mid	1715 1745 1775	-4.89 -4.49 -4.18	3.79 3.95 3.97	28.34 28.22 28.18	19.66 19.78 20.03	92.470 95.060 100.693	Vertical Vertical Vertical	Pass Pass Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-4.65	3.81	28.35	19.89	97.499	Vertical	Pass
		1745	-5.12	3.96	28.22	19.14	82.035	Vertical	Pass
		1772.5	-4.85	4	28.16	19.31	85.310	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-5.14	3.79	28.34	19.41	87.297	Vertical	Pass
		1745	-4.35	3.95	28.22	19.92	98.175	Vertical	Pass
		1770	-5.09	3.97	28.18	19.12	81.658	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average (dBm)	Average		
							(mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.03	3.76	28.24	19.45	88.105	Horizontal	Pass
		1745	-4.64	3.91	28.22	19.67	92.683	Horizontal	Pass
		1779.3	-4.82	3.93	28.2	19.45	88.105	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.42	3.77	28.23	19.04	80.168	Horizontal	Pass
		1745	-4.67	3.91	28.24	19.66	92.470	Horizontal	Pass
		1778.5	-4.96	3.94	28.25	19.35	86.099	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.84	3.77	28.31	19.70	93.325	Horizontal	Pass
		1745	-4.90	3.91	28.22	19.41	87.297	Horizontal	Pass
		1777.5	-4.57	3.94	28.2	19.69	93.111	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.89	3.79	28.33	19.65	92.257	Horizontal	Pass
		1745	-4.55	3.95	28.22	19.72	93.756	Horizontal	Pass
		1775	-4.87	3.97	28.19	19.35	86.099	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.88	3.79	28.34	19.67	92.683	Horizontal	Pass
		1745	-4.70	3.95	28.22	19.57	90.573	Horizontal	Pass
		1772.5	-4.49	3.97	28.18	19.72	93.756	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.71	3.81	28.35	19.83	96.161	Horizontal	Pass
		1745	-4.49	3.96	28.22	19.77	94.842	Horizontal	Pass
		1770	-4.43	4	28.16	19.73	93.972	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.11	3.76	28.24	19.37	86.497	Vertical	Pass
		1745	-6.46	3.91	28.22	17.85	60.954	Vertical	Pass
		1779.3	-4.86	3.93	28.2	19.41	87.297	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.50	3.77	28.23	17.96	62.517	Vertical	Pass
		1745	-4.95	3.91	28.24	19.38	86.696	Vertical	Pass
		1778.5	-6.55	3.94	28.25	17.76	59.704	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.24	3.77	28.31	18.30	67.608	Vertical	Pass
		1745	-6.42	3.91	28.22	17.89	61.518	Vertical	Pass
		1777.5	-6.11	3.94	28.2	18.15	65.313	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.90	3.79	28.34	19.65	92.257	Vertical	Pass
		1745	-5.36	3.95	28.22	18.91	77.804	Vertical	Pass
		1775	-6.41	3.97	28.18	17.80	60.256	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-6.75	3.81	28.35	17.79	60.117	Vertical	Pass
		1745	-4.74	3.96	28.22	19.52	89.536	Vertical	Pass
		1772.5	-5.03	4	28.16	19.13	81.846	Vertical	Pass

20.0MHz		1720	-6.44	3.79	28.34	18.11	64.714	Vertical	Pass
Band 16	1/#Mid	1745	-5.81	3.95	28.22	18.46	70.146	Vertical	Pass
QAM		1770	-4.72	3.97	28.18	19.49	88.920	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

90.543 (e) For operations in the 758–768 MHz and the 788–798 MHz bands, the power of any emission outside the 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, in accordance with the following:

- (1) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than $76 + 10 \log (P)$ dB in a 6.25 kHz band segment, for base and fixed stations.
- (2) On all frequencies between 769–775 MHz and 799–805 MHz, by a factor not less than $65 + 10 \log (P)$ dB in a 6.25 kHz band segment, for mobile and portable stations.
- (3) On any frequency between 775–788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.
- (4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.
- (5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

90.543 (f) For operations in the 758–775 MHz and 788–805 MHz bands, all emissions including harmonics in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

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 2/4/5/7/26/38/66

RESULTS

PASS

9.1 LTE BAND 2

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

Test Results for Low Channel 1850.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3701.4	-46.95	4.04	33.51	-17.48	-13	-4.48	Horizontal
3701.4	-46.55	4.04	33.51	-17.08	-13	-4.08	Vertical
5552.1	-49.64	5.24	35.84	-19.04	-13	-6.04	Vertical
5552.1	-50.27	5.24	35.84	-19.67	-13	-6.67	Horizontal
192.3	-43.75	1.43	16.02	-29.16	-13	-16.16	Vertical
367.8	-34.79	1.30	17.99	-18.10	-13	-5.10	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-48.92	4.04	33.56	-19.40	-13	-6.40	Horizontal
3760.0	-49.95	4.04	33.56	-20.43	-13	-7.43	Vertical
5640.0	-52.12	5.24	35.91	-21.45	-13	-8.45	Vertical
5640.0	-52.44	5.24	35.91	-21.77	-13	-8.77	Horizontal
186.5	-38.00	1.62	16.97	-22.65	-13	-9.65	Vertical
280.5	-36.32	1.74	15.98	-22.09	-13	-9.09	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-45.80	4.04	34.00	-15.84	-13	-2.84	Horizontal
3818.6	-46.30	4.04	34.00	-16.34	-13	-3.34	Vertical
5727.9	-53.08	5.24	36.04	-22.28	-13	-9.28	Vertical
5727.9	-50.48	5.24	36.04	-19.68	-13	-6.68	Horizontal
199.0	-36.09	1.42	17.29	-20.22	-13	-7.22	Vertical
237.6	-40.26	1.50	17.90	-23.85	-13	-10.85	Horizontal

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

Test Results for Low Channel 1860MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3720.0	-47.57	4.07	33.54	-18.10	-13	-5.10	Horizontal
3720.0	-48.41	4.07	33.54	-18.94	-13	-5.94	Vertical
5580.0	-53.23	5.28	35.86	-22.65	-13	-9.65	Vertical
5580.0	-51.52	5.28	35.86	-20.94	-13	-7.94	Horizontal
175.4	-39.78	1.58	16.89	-24.46	-13	-11.46	Vertical
294.9	-36.68	1.76	17.26	-21.18	-13	-8.18	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-45.95	4.04	33.56	-16.43	-13	-3.43	Horizontal
3760.0	-48.78	4.04	33.56	-19.26	-13	-6.26	Vertical
5640.0	-44.99	5.24	35.91	-14.32	-13	-1.32	Vertical
5640.0	-53.41	5.24	35.91	-22.74	-13	-9.74	Horizontal
190.7	-41.94	1.46	16.27	-27.13	-13	-14.13	Vertical
412.2	-41.14	1.59	15.15	-27.58	-13	-14.58	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-48.45	4.04	34.00	-18.49	-13	-5.49	Horizontal
3800.0	-50.76	4.04	34.00	-20.80	-13	-7.80	Vertical
5700.0	-51.43	5.24	36.04	-20.63	-13	-7.63	Vertical
5700.0	-51.09	5.24	36.04	-20.29	-13	-7.29	Horizontal
178.3	-41.79	1.36	17.39	-25.75	-13	-12.75	Vertical
411.2	-40.83	1.66	15.39	-27.10	-13	-14.10	Horizontal

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-51.11	4.02	29.80	-25.33	-13	-12.33	Horizontal
3421.4	-53.24	4.02	29.80	-27.46	-13	-14.46	Vertical
5132.1	-50.24	5.24	35.84	-19.64	-13	-6.64	Vertical
5132.1	-52.37	5.24	35.84	-21.77	-13	-8.77	Horizontal
176.2	-40.61	1.68	16.04	-26.25	-13	-13.25	Vertical
415.4	-44.67	1.78	17.74	-28.71	-13	-15.71	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-44.02	4.03	30.00	-18.05	-13	-5.05	Horizontal
3465.0	-53.65	4.03	30.00	-27.68	-13	-14.68	Vertical
5197.5	-51.71	5.25	35.86	-21.10	-13	-8.10	Vertical
5197.5	-50.66	5.25	35.86	-20.05	-13	-7.05	Horizontal
205.0	-35.06	1.72	17.69	-19.09	-13	-6.09	Vertical
452.9	-42.76	1.62	16.02	-28.35	-13	-15.35	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-46.37	4.05	30.01	-20.41	-13	-7.41	Horizontal
3508.6	-45.05	4.05	30.01	-19.09	-13	-6.09	Vertical
5262.9	-53.25	5.26	35.86	-22.65	-13	-9.65	Vertical
5262.9	-51.27	5.26	35.86	-20.67	-13	-7.67	Horizontal
202.3	-35.59	1.80	16.69	-20.70	-13	-7.70	Vertical
309.5	-39.87	1.75	16.66	-24.97	-13	-11.97	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-46.85	4.02	29.80	-21.07	-13	-8.07	Horizontal
3440.0	-53.32	4.02	29.80	-27.54	-13	-14.54	Vertical
5160.0	-50.39	5.24	35.84	-19.79	-13	-6.79	Vertical
5160.0	-51.62	5.24	35.84	-21.02	-13	-8.02	Horizontal
183.9	-39.68	1.57	17.26	-23.99	-13	-10.99	Vertical
253.4	-44.97	1.78	16.35	-30.40	-13	-17.40	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-52.89	4.03	30.00	-26.92	-13	-13.92	Horizontal
3465.0	-46.18	4.03	30.00	-20.21	-13	-7.21	Vertical
5197.5	-44.64	5.25	35.86	-14.03	-13	-1.03	Vertical
5197.5	-53.29	5.25	35.86	-22.68	-13	-9.68	Horizontal
200.4	-42.58	1.44	17.95	-26.07	-13	-13.07	Vertical
402.7	-37.89	1.65	16.09	-23.45	-13	-10.45	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-48.67	2.91	27.68	-23.90	-13	-10.90	Horizontal
3490.0	-46.84	2.91	27.68	-22.07	-13	-9.07	Vertical
5235.0	-46.39	5.26	35.86	-15.79	-13	-2.79	Vertical
5235.0	-49.08	5.26	35.86	-18.48	-13	-5.48	Horizontal
182.3	-41.32	1.61	16.85	-26.08	-13	-13.08	Vertical
334.1	-38.71	1.61	15.19	-25.13	-13	-12.13	Horizontal

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-53.33	2.78	27.50	-28.61	-13	-15.61	Horizontal
1649.4	-44.88	2.78	27.50	-20.16	-13	-7.16	Vertical
2474.1	-53.32	2.90	27.80	-28.42	-13	-15.42	Vertical
2474.1	-49.38	2.90	27.80	-24.48	-13	-11.48	Horizontal
208.6	-36.49	1.76	17.59	-20.66	-13	-7.66	Vertical
377.2	-41.62	1.63	15.87	-27.38	-13	-14.38	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-51.67	2.80	27.48	-26.99	-13	-13.99	Horizontal
1673.0	-44.50	2.80	27.48	-19.82	-13	-6.82	Vertical
2509.5	-48.00	2.91	27.70	-23.21	-13	-10.21	Vertical
2509.5	-51.95	2.91	27.70	-27.16	-13	-14.16	Horizontal
182.0	-44.95	1.61	15.68	-30.88	-13	-17.88	Vertical
415.5	-37.39	1.59	17.52	-21.47	-13	-8.47	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-52.83	2.82	27.43	-28.22	-13	-15.22	Horizontal
1696.6	-49.45	2.82	27.43	-24.84	-13	-11.84	Vertical
2544.9	-53.20	2.92	27.74	-28.38	-13	-15.38	Vertical
2544.9	-53.46	2.92	27.74	-28.64	-13	-15.64	Horizontal
175.3	-38.72	1.69	16.67	-23.73	-13	-10.73	Vertical
360.3	-36.25	1.70	17.18	-20.77	-13	-7.77	Horizontal

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

Test Results for Low Channel 829MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1658.0	-50.74	2.78	27.50	-26.02	-13	-13.02	Horizontal
1658.0	-51.72	2.78	27.50	-27.00	-13	-14.00	Vertical
2487.0	-50.79	2.90	27.80	-25.89	-13	-12.89	Vertical
2487.0	-53.42	2.90	27.80	-28.52	-13	-15.52	Horizontal
207.3	-40.31	1.71	15.57	-26.45	-13	-13.45	Vertical
314.2	-35.55	1.34	16.40	-20.49	-13	-7.49	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-52.03	2.80	27.48	-27.35	-13	-14.35	Horizontal
1673.0	-47.77	2.80	27.48	-23.09	-13	-10.09	Vertical
2509.5	-44.70	2.91	27.70	-19.91	-13	-6.91	Vertical
2509.5	-53.06	2.91	27.70	-28.27	-13	-15.27	Horizontal
193.9	-42.39	1.44	17.04	-26.79	-13	-13.79	Vertical
372.6	-36.65	1.76	17.62	-20.79	-13	-7.79	Horizontal
Test Results for High Channel 844MHz							
1688.0	-46.82	2.82	27.43	-22.21	-13	-9.21	Horizontal
1688.0	-45.20	2.82	27.43	-20.59	-13	-7.59	Vertical
2532.0	-49.42	2.92	27.74	-24.60	-13	-11.60	Vertical
2532.0	-50.27	2.92	27.74	-25.45	-13	-12.45	Horizontal
203.1	-38.30	1.74	17.70	-22.34	-13	-9.34	Vertical
354.0	-41.98	1.41	17.46	-25.92	-13	-12.92	Horizontal

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-61.00	5.23	35.81	-30.42	-25	-5.42	Horizontal
5005.0	-59.39	5.23	35.81	-28.81	-25	-3.81	Vertical
7507.5	-63.95	5.67	36.85	-32.77	-25	-7.77	Vertical
7507.5	-64.24	5.67	36.85	-33.06	-25	-8.06	Horizontal
206.0	-53.40	1.73	17.97	-37.16	-25	-12.16	Vertical
315.4	-53.32	1.38	15.11	-39.59	-25	-14.59	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-59.56	5.23	35.82	-28.97	-25	-3.97	Horizontal
5070.0	-63.82	5.23	35.82	-33.23	-25	-8.23	Vertical
7605.0	-62.34	5.67	36.85	-31.16	-25	-6.16	Vertical
7605.0	-59.11	5.67	36.85	-27.93	-25	-2.93	Horizontal
181.1	-46.98	1.77	16.17	-32.57	-25	-7.57	Vertical
351.6	-47.45	1.63	15.21	-33.87	-25	-8.87	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.28	5.24	35.83	-30.69	-25	-5.69	Horizontal
5135.0	-60.72	5.24	35.83	-30.13	-25	-5.13	Vertical
7702.5	-62.85	5.68	36.87	-31.66	-25	-6.66	Vertical
7702.5	-62.63	5.68	36.87	-31.44	-25	-6.44	Horizontal
201.6	-46.97	1.58	17.56	-30.99	-25	-5.99	Vertical
289.4	-48.27	1.45	16.58	-33.14	-25	-8.14	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-60.16	5.23	35.82	-29.57	-25	-4.57	Horizontal
5020.0	-64.91	5.23	35.82	-34.32	-25	-9.32	Vertical
7530.0	-61.24	5.67	36.86	-30.05	-25	-5.05	Vertical
7530.0	-64.84	5.67	36.86	-33.65	-25	-8.65	Horizontal
211.7	-45.25	1.63	15.76	-31.12	-25	-6.12	Vertical
397.4	-47.45	1.71	15.44	-33.72	-25	-8.72	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-63.31	5.23	35.82	-32.72	-25	-7.72	Horizontal
5070.0	-61.47	5.23	35.82	-30.88	-25	-5.88	Vertical
7605.0	-61.90	5.67	36.85	-30.72	-25	-5.72	Vertical
7605.0	-59.98	5.67	36.85	-28.80	-25	-3.80	Horizontal
205.4	-44.52	1.79	16.84	-29.46	-25	-4.46	Vertical
318.3	-50.00	1.71	17.64	-34.07	-25	-9.07	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-63.11	5.24	35.83	-32.52	-25	-7.52	Horizontal
5120.0	-59.42	5.24	35.83	-28.83	-25	-3.83	Vertical
7680.0	-62.63	5.70	36.88	-31.45	-25	-6.45	Vertical
7680.0	-59.46	5.70	36.88	-28.28	-25	-3.28	Horizontal
199.1	-46.39	1.79	16.84	-31.33	-25	-6.33	Vertical
326.6	-48.87	1.71	17.64	-32.94	-25	-7.94	Horizontal

9.5 LTE BAND 26

QPSK EIRP POWER FOR LTE BAND 26(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Low Channel 814.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1629.4	-49.55	2.78	27.50	-24.83	-13	-11.83	Horizontal
1629.4	-49.08	2.78	27.50	-24.36	-13	-11.36	Vertical
2444.1	-46.11	2.90	27.80	-21.21	-13	-8.21	Vertical
2444.1	-46.36	2.90	27.80	-21.46	-13	-8.46	Horizontal
229.6	-34.52	1.54	16.98	-19.08	-13	-6.08	Vertical
83.3	-32.08	1.47	15.82	-17.73	-13	-4.73	Horizontal
Test Results For Mid Channel 819MHz							
1638.0	-49.47	2.80	27.48	-24.79	-13	-11.79	Horizontal
1638.0	-44.39	2.80	27.48	-19.71	-13	-6.71	Vertical
2457.0	-48.43	2.91	27.70	-23.64	-13	-10.64	Vertical
2457.0	-46.69	2.91	27.70	-21.90	-13	-8.90	Horizontal
168.2	-34.64	1.74	16.19	-20.19	-13	-7.19	Vertical
92.9	-33.86	1.46	15.43	-19.89	-13	-6.89	Horizontal
Test Results for High Channel 823.3MHz							
1646.6	-46.56	2.82	27.43	-21.95	-13	-8.95	Horizontal
1646.6	-49.43	2.82	27.43	-24.82	-13	-11.82	Vertical
2469.9	-47.51	2.92	27.74	-22.69	-13	-9.69	Vertical
2469.9	-47.32	2.92	27.74	-22.50	-13	-9.50	Horizontal
213.1	-33.28	1.67	17.05	-17.90	-13	-4.90	Vertical
121.7	-34.56	1.42	16.12	-19.86	-13	-6.86	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(814MHz~824MHz) (1.4MHZ BANDWIDTH)

Test Results for Channel 819MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1638.0	-47.90	2.78	27.50	-23.18	-13	-10.18	Horizontal
1638.0	-43.38	2.78	27.50	-18.66	-13	-5.66	Vertical
2457.0	-46.56	2.90	27.80	-21.66	-13	-8.66	Vertical
2457.0	-46.51	2.90	27.80	-21.61	-13	-8.61	Horizontal
253.7	-33.07	1.43	17.34	-17.16	-13	-4.16	Vertical
256.8	-32.54	1.56	15.71	-18.39	-13	-5.39	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(824MHz~849MHz) (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	-47.05	2.78	27.50	-22.33	-13	-9.33	Horizontal
1649.4	-45.49	2.78	27.50	-20.77	-13	-7.77	Vertical
2474.1	-48.52	2.90	27.80	-23.62	-13	-10.62	Vertical
2474.1	-48.33	2.90	27.80	-23.43	-13	-10.43	Horizontal
237.0	-34.47	1.33	17.34	-18.46	-13	-5.46	Vertical
180.5	-32.31	1.47	16.80	-16.98	-13	-3.98	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-48.74	2.80	27.48	-24.06	-13	-11.06	Horizontal
1673.0	-45.13	2.80	27.48	-20.45	-13	-7.45	Vertical
2509.5	-49.13	2.91	27.70	-24.34	-13	-11.34	Vertical
2509.5	-49.93	2.91	27.70	-25.14	-13	-12.14	Horizontal
140.8	-32.11	1.75	15.46	-18.40	-13	-5.40	Vertical
90.6	-34.97	1.52	16.14	-20.35	-13	-7.35	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-48.16	2.82	27.43	-23.55	-13	-10.55	Horizontal
1696.6	-42.74	2.82	27.43	-18.13	-13	-5.13	Vertical
2544.9	-46.29	2.92	27.74	-21.47	-13	-8.47	Vertical
2544.9	-48.39	2.92	27.74	-23.57	-13	-10.57	Horizontal
171.4	-32.02	1.67	16.09	-17.60	-13	-4.60	Vertical
247.2	-32.23	1.80	17.55	-16.48	-13	-3.48	Horizontal

QPSK EIRP POWER FOR LTE BAND 26(824MHz~849MHz) (15MHZ BANDWIDTH)

Test Results for Low Channel 831.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1663.0	-47.68	2.78	27.50	-22.96	-13	-9.96	Horizontal
1663.0	-48.98	2.78	27.50	-24.26	-13	-11.26	Vertical
2494.5	-48.34	2.90	27.80	-23.44	-13	-10.44	Vertical
2494.5	-47.87	2.90	27.80	-22.97	-13	-9.97	Horizontal
255.4	-32.98	1.52	15.72	-18.78	-13	-5.78	Vertical
163.1	-32.28	1.40	17.03	-16.65	-13	-3.65	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-49.13	2.80	27.48	-24.45	-13	-11.45	Horizontal
1673.0	-47.88	2.80	27.48	-23.20	-13	-10.20	Vertical
2509.5	-46.82	2.91	27.70	-22.03	-13	-9.03	Vertical
2509.5	-49.83	2.91	27.70	-25.04	-13	-12.04	Horizontal
227.1	-33.41	1.74	16.38	-18.77	-13	-5.77	Vertical
101.3	-32.57	1.79	15.20	-19.16	-13	-6.16	Horizontal
Test Results for High Channel 841.5MHz							
1683.0	-49.69	2.82	27.43	-25.08	-13	-12.08	Horizontal
1683.0	-49.76	2.82	27.43	-25.15	-13	-12.15	Vertical
2524.5	-48.26	2.92	27.74	-23.44	-13	-10.44	Vertical
2524.5	-46.81	2.92	27.74	-21.99	-13	-8.99	Horizontal
261.1	-34.98	1.78	17.44	-19.32	-13	-6.32	Vertical
120.1	-32.07	1.70	15.93	-17.84	-13	-4.84	Horizontal

9.6 LTE BAND 38

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

Test Results for Low Channel 2572.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5145	-55.28	4.01	27.5	-31.79	-25	-6.79	Horizontal
5145	-54.15	4.01	27.5	-30.66	-25	-5.66	Vertical
7717.5	-52.97	5.09	27.8	-30.26	-25	-5.26	Vertical
7717.5	-54.43	5.09	27.8	-31.72	-25	-6.72	Horizontal
Test Results For Mid Channel 2595MHz							
5190	-51.59	4.1	27.48	-28.21	-25	-3.21	Horizontal
5190	-51.14	4.1	27.48	-27.76	-25	-2.76	Vertical
7785	-54.88	5.42	27.7	-32.60	-25	-7.60	Vertical
7785	-56.56	5.42	27.7	-34.28	-25	-9.28	Horizontal
Test Results for High Channel 2617.5MHz							
5234	-51.34	4.11	27.43	-28.02	-25	-3.02	Horizontal
5234	-51.07	4.11	27.43	-27.75	-25	-2.75	Vertical
7851	-53.17	5.31	27.74	-30.74	-25	-5.74	Vertical
7851	-53.72	5.31	27.74	-31.29	-25	-6.29	Horizontal

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

Test Results for Low Channel 2580MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5160	-56.63	3.89	27.5	-33.02	-25	-8.02	Horizontal
5160	-51.43	3.89	27.5	-27.82	-25	-2.82	Vertical
7740	-55.05	5.33	27.8	-32.58	-25	-7.58	Vertical
7740	-56.06	5.33	27.8	-33.59	-25	-8.59	Horizontal
Test Results for Mid Channel 2595MHz							
5190	-51.13	4.1	27.48	-27.75	-25	-2.75	Horizontal
5190	-52.49	4.1	27.48	-29.11	-25	-4.11	Vertical
7785	-53.41	5.42	27.7	-31.13	-25	-6.13	Vertical
7785	-52.94	5.42	27.7	-30.66	-25	-5.66	Horizontal
Test Results for High Channel 2610MHz							
5220	-55.05	4.01	27.43	-31.63	-25	-6.63	Horizontal
5220	-56.79	4.01	27.43	-33.37	-25	-8.37	Vertical
7830	-54.20	5.34	27.74	-31.80	-25	-6.80	Vertical
7830	-54.82	5.34	27.74	-32.42	-25	-7.42	Horizontal

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

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

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

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

9.7 LTE BAND 66

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-45.93	4.02	29.80	-20.15	-13	-7.15	Horizontal
3421.4	-48.65	4.02	29.80	-22.87	-13	-9.87	Vertical
5132.1	-54.29	5.24	35.84	-23.69	-13	-10.69	Vertical
5132.1	-49.02	5.24	35.84	-18.42	-13	-5.42	Horizontal
112.6	-50.20	1.52	15.57	-36.15	-13	-23.15	Vertical
220.5	-45.02	1.33	17.14	-29.21	-13	-16.21	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-49.47	4.03	30.00	-23.50	-13	-10.50	Horizontal
3490.0	-53.92	4.03	30.00	-27.95	-13	-14.95	Vertical
5235.0	-54.61	5.25	35.86	-24.00	-13	-11.00	Vertical
5235.0	-49.12	5.25	35.86	-18.51	-13	-5.51	Horizontal
157.3	-45.42	1.53	17.13	-29.82	-13	-16.82	Vertical
213.1	-47.36	1.41	15.95	-32.82	-13	-19.82	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-48.09	4.05	30.01	-22.13	-13	-9.13	Horizontal
3558.6	-45.46	4.05	30.01	-19.50	-13	-6.50	Vertical
5337.9	-52.05	5.26	35.86	-21.45	-13	-8.45	Vertical
5337.9	-51.94	5.26	35.86	-21.34	-13	-8.34	Horizontal
170.6	-45.31	1.44	15.51	-31.24	-13	-18.24	Vertical
169.0	-49.62	1.78	15.76	-35.64	-13	-22.64	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-50.39	4.02	29.80	-24.61	-13	-11.61	Horizontal
3440.0	-53.97	4.02	29.80	-28.19	-13	-15.19	Vertical
5160.0	-54.57	5.24	35.84	-23.97	-13	-10.97	Vertical
5160.0	-47.87	5.24	35.84	-17.27	-13	-4.27	Horizontal
268.8	-44.35	1.62	17.02	-28.95	-13	-15.95	Vertical
161.4	-44.13	1.32	17.31	-28.14	-13	-15.14	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-53.60	4.03	30.00	-27.63	-13	-14.63	Horizontal
3490.0	-51.13	4.03	30.00	-25.16	-13	-12.16	Vertical
5235.0	-49.91	5.25	35.86	-19.30	-13	-6.30	Vertical
5235.0	-52.60	5.25	35.86	-21.99	-13	-8.99	Horizontal
159.9	-52.40	1.45	15.17	-38.68	-13	-25.68	Vertical
172.1	-45.59	1.48	17.82	-29.25	-13	-16.25	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-52.80	2.91	27.68	-28.03	-13	-15.03	Horizontal
3540.0	-48.83	2.91	27.68	-24.06	-13	-11.06	Vertical
5310.0	-51.32	5.26	35.86	-20.72	-13	-7.72	Vertical
5310.0	-49.09	5.26	35.86	-18.49	-13	-5.49	Horizontal
197.3	-51.79	1.76	16.38	-37.17	-13	-24.17	Vertical
158.5	-54.89	1.43	17.13	-39.19	-13	-26.19	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, §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 3.6V, Normal, DC 3.85V and High voltage, DC 4.35V.

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 2/4/5/7/26/38/66

RESULTS

See the following pages.

10.1 LTE BAND 2

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1880	12.7	0.006737	2.5
3.85	1880	14.3	0.007604	2.5
4.35	1880	13.7	0.007273	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12.6	0.006686	2.5
Extreme (50C)	1880	11.2	0.005952	2.5
Extreme (40C)	1880	13.8	0.007352	2.5
Extreme (30C)	1880	13.4	0.007135	2.5
Extreme (10C)	1880	14.4	0.007645	2.5
Extreme (0C)	1880	12.4	0.006604	2.5
Extreme (-10C)	1880	12.7	0.006769	2.5
Extreme (-20C)	1880	14.0	0.007456	2.5
Extreme (-30C)	1880	15.0	0.007993	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1880	9.4	0.004974	2.5
3.85	1880	9.0	0.004796	2.5
4.35	1880	8.3	0.004436	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.8	0.005206	2.5
Extreme (50C)	1880	8.9	0.004736	2.5
Extreme (40C)	1880	7.9	0.004227	2.5
Extreme (30C)	1880	9.1	0.004858	2.5
Extreme (10C)	1880	9.1	0.004826	2.5
Extreme (0C)	1880	7.6	0.004067	2.5
Extreme (-10C)	1880	9.0	0.004761	2.5
Extreme (-20C)	1880	8.9	0.004749	2.5
Extreme (-30C)	1880	7.6	0.004056	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]
3.6	1732.5	9.1	0.005251	2.5
3.85	1732.5	8.7	0.005022	2.5
4.35	1732.5	8.3	0.004774	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	7.9	0.004580	2.5
Extreme (50C)	1732.5	8.8	0.005094	2.5
Extreme (40C)	1732.5	7.1	0.004080	2.5
Extreme (30C)	1732.5	6.4	0.003684	2.5
Extreme (10C)	1732.5	7.3	0.004225	2.5
Extreme (0C)	1732.5	9.3	0.005373	2.5
Extreme (-10C)	1732.5	7.9	0.004587	2.5
Extreme (-20C)	1732.5	7.3	0.004220	2.5
Extreme (-30C)	1732.5	8.6	0.004953	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1732.5	10.0	0.005745	2.5
3.85	1732.5	8.5	0.004902	2.5
4.35	1732.5	7.8	0.004506	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.2	0.005314	2.5
Extreme (50C)	1732.5	8.9	0.005145	2.5
Extreme (40C)	1732.5	8.3	0.004817	2.5
Extreme (30C)	1732.5	8.7	0.005002	2.5
Extreme (10C)	1732.5	8.9	0.005144	2.5
Extreme (0C)	1732.5	8.5	0.004928	2.5
Extreme (-10C)	1732.5	8.8	0.005098	2.5
Extreme (-20C)	1732.5	8.5	0.004918	2.5
Extreme (-30C)	1732.5	7.7	0.004468	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]
3.6	836.5	6.1	0.007321	2.5
3.85	836.5	6.4	0.007611	2.5
4.35	836.5	5.1	0.006095	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.1	0.007282	2.5
Extreme (50C)	836.5	6.1	0.007300	2.5
Extreme (40C)	836.5	6.4	0.007615	2.5
Extreme (30C)	836.5	6.6	0.007836	2.5
Extreme (10C)	836.5	5.2	0.006212	2.5
Extreme (0C)	836.5	4.9	0.005883	2.5
Extreme (-10C)	836.5	5.7	0.006787	2.5
Extreme (-20C)	836.5	6.0	0.007201	2.5
Extreme (-30C)	836.5	6.5	0.007776	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	836.5	6.3	0.007516	2.5
3.85	836.5	6.4	0.007609	2.5
4.35	836.5	4.9	0.005820	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5.9	0.007029	2.5
Extreme (50C)	836.5	6.0	0.007150	2.5
Extreme (40C)	836.5	6.2	0.007442	2.5
Extreme (30C)	836.5	6.6	0.007845	2.5
Extreme (10C)	836.5	5.7	0.006873	2.5
Extreme (0C)	836.5	5.2	0.006273	2.5
Extreme (-10C)	836.5	5.9	0.007100	2.5
Extreme (-20C)	836.5	6.3	0.007576	2.5
Extreme (-30C)	836.5	6.2	0.007410	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]
3.6	2535	9.8	0.003852	2.5
3.85	2535	9.0	0.003541	2.5
4.35	2535	8.4	0.003322	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.2	0.003640	2.5
Extreme (50C)	2535	9.3	0.003658	2.5
Extreme (40C)	2535	8.0	0.003152	2.5
Extreme (30C)	2535	9.1	0.003582	2.5
Extreme (10C)	2535	8.3	0.003256	2.5
Extreme (0C)	2535	8.5	0.003359	2.5
Extreme (-10C)	2535	9.7	0.003816	2.5
Extreme (-20C)	2535	9.0	0.003558	2.5
Extreme (-30C)	2535	8.8	0.003490	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	2535	7.0	0.002780	2.5
3.85	2535	6.7	0.002638	2.5
4.35	2535	6.0	0.002382	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.2	0.002463	2.5
Extreme (50C)	2535	5.6	0.002211	2.5
Extreme (40C)	2535	5.0	0.001974	2.5
Extreme (30C)	2535	6.5	0.002558	2.5
Extreme (10C)	2535	5.7	0.002261	2.5
Extreme (0C)	2535	4.9	0.001917	2.5
Extreme (-10C)	2535	5.0	0.001968	2.5
Extreme (-20C)	2535	6.4	0.002517	2.5
Extreme (-30C)	2535	5.8	0.002286	2.5

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

10.5 LTE BAND 26

Band 26 A (814MHz~824MHz) QPSK,10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	819	8.5	0.010416	2.5
3.85	819	5.4	0.006564	2.5
4.35	819	6.8	0.008287	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819	8.7	0.010648	2.5
Extreme (50C)	819	1.8	0.002254	2.5
Extreme (40C)	819	2.2	0.002741	2.5
Extreme (30C)	819	6.9	0.008447	2.5
Extreme (10C)	819	5.8	0.007076	2.5
Extreme (0C)	819	6.5	0.007992	2.5
Extreme (-10C)	819	8.1	0.009919	2.5
Extreme (-20C)	819	6.6	0.008094	2.5
Extreme (-30C)	819	4.3	0.005216	2.5

Band 26A (814MHz~824MHz) 16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	819	2.8	0.003426	2.5
3.85	819	6.0	0.007364	2.5
4.35	819	5.7	0.006982	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	819	6.5	0.007955	2.5
Extreme (50C)	819	8.4	0.010304	2.5
Extreme (40C)	819	6.9	0.008475	2.5
Extreme (30C)	819	4.8	0.005854	2.5
Extreme (10C)	819	6.1	0.007394	2.5
Extreme (0C)	819	5.1	0.006176	2.5
Extreme (-10C)	819	8.1	0.009869	2.5
Extreme (-20C)	819	6.4	0.007830	2.5
Extreme (-30C)	819	7.6	0.009326	2.5

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

Band 26B ((824MHz~849MHz) QPSK,15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	836.5	8.8	0.010520	2.5
3.85	836.5	6.1	0.007244	2.5
4.35	836.5	8.4	0.009999	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	11.0	0.013146	2.5
Extreme (50C)	836.5	9.2	0.011020	2.5
Extreme (40C)	836.5	6.8	0.008099	2.5
Extreme (30C)	836.5	8.8	0.010569	2.5
Extreme (10C)	836.5	7.6	0.009131	2.5
Extreme (0C)	836.5	9.5	0.011379	2.5
Extreme (-10C)	836.5	2.0	0.002363	2.5
Extreme (-20C)	836.5	8.3	0.009976	2.5
Extreme (-30C)	836.5	7.8	0.009380	2.5

Band 26B (824MHz~849MHz) 16QAM, (15MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	836.5	9.8	0.011669	2.5
3.85	836.5	11.1	0.013285	2.5
4.35	836.5	10.7	0.012796	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.6	0.007886	2.5
Extreme (50C)	836.5	8.5	0.010148	2.5
Extreme (40C)	836.5	7.4	0.008893	2.5
Extreme (30C)	836.5	7.5	0.008977	2.5
Extreme (10C)	836.5	6.8	0.008103	2.5
Extreme (0C)	836.5	5.0	0.005988	2.5
Extreme (-10C)	836.5	5.1	0.006058	2.5
Extreme (-20C)	836.5	3.2	0.011237	2.5
Extreme (-30C)	836.5	8.8	0.007292	2.5

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

10.6 LTE BAND 38

Band 38 QPSK, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	2595	8.5	0.003285	2.5
3.85	2595	6.5	0.002499	2.5
4.35	2595	7.8	0.003016	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.8	0.002992	2.5
Extreme (50C)	2595	4.4	0.001688	2.5
Extreme (40C)	2595	5.6	0.002153	2.5
Extreme (30C)	2595	5.2	0.002010	2.5
Extreme (10C)	2595	6.8	0.002607	2.5
Extreme (0C)	2595	4.6	0.001767	2.5
Extreme (-10C)	2595	9.5	0.003665	2.5
Extreme (-20C)	2595	11.0	0.004239	2.5
Extreme (-30C)	2595	6.5	0.002522	2.5

Band 38 16QAM, (20MHz BANDWIDTH RB size 100 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	2595	8.1	0.003132	2.5
3.85	2595	6.7	0.002564	2.5
4.35	2595	7.0	0.002686	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7.3	0.002818	2.5
Extreme (50C)	2595	4.7	0.001826	2.5
Extreme (40C)	2595	5.7	0.002206	2.5
Extreme (30C)	2595	5.1	0.001977	2.5
Extreme (10C)	2595	6.6	0.002560	2.5
Extreme (0C)	2595	4.6	0.001777	2.5
Extreme (-10C)	2595	9.6	0.003690	2.5
Extreme (-20C)	2595	10.9	0.004194	2.5
Extreme (-30C)	2595	6.4	0.002470	2.5

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

10.7 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1745	12.3	0.00704	2.5
3.85	1745	13.6	0.00777	2.5
4.35	1745	13.7	0.00783	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.2	0.004123	2.5
Extreme (50C)	1745	5.0	0.002851	2.5
Extreme (40C)	1745	5.9	0.003356	2.5
Extreme (30C)	1745	4.8	0.002744	2.5
Extreme (10C)	1745	6.6	0.003800	2.5
Extreme (0C)	1745	5.3	0.003019	2.5
Extreme (-10C)	1745	9.8	0.005635	2.5
Extreme (-20C)	1745	10.6	0.006062	2.5
Extreme (-30C)	1745	5.8	0.003299	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.6	1745	12.5	0.007188	2.5
3.85	1745	13.4	0.007683	2.5
4.35	1745	13.6	0.007810	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.8	0.004447	2.5
Extreme (50C)	1745	5.0	0.002840	2.5
Extreme (40C)	1745	5.1	0.002935	2.5
Extreme (30C)	1745	4.8	0.002736	2.5
Extreme (10C)	1745	6.8	0.003890	2.5
Extreme (0C)	1745	5.0	0.002854	2.5
Extreme (-10C)	1745	9.4	0.005414	2.5
Extreme (-20C)	1745	10.5	0.006038	2.5
Extreme (-30C)	1745	6.1	0.003524	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

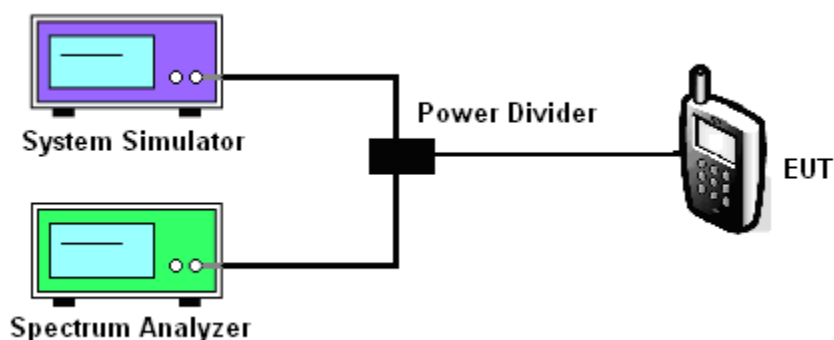
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For GSM/EGPRS operating modes:
 - a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
 - b. Set EUT in maximum power output, and triggered the burst signal.
 - c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
4. For UMTS operating modes:
 - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
 - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

11.4 Test Setup



MODES TESTED

- ☐ LTE Band 2/4/5/7/26/38/66
- ☐

Test data reference attachment.

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