

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

FCC ID: QRP-FP-016

Product: Mobile Phone

Trade Mark: AZUMI

Model Number: SA4

Family Model: N/A

Report No.: S25031902002003

Prepared for

Azumi S.A

Avenida Aquilino de la Guardia con Calle 47, PH Ocean Plaza, Piso 16 of
16-01, Marbella, Ciudad de Panama, Panama

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

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

Tel. 0755-2320 0050 Website: <http://www.ntek.org.cn>

TEST RESULT CERTIFICATION

Applicant's name..... : Azumi S.A

Address : Avenida Aquilino de la Guardia con Calle 47, PH Ocean Plaza, Piso 16 of. 16-01, Marbella, Ciudad de Panama, Panama

Manufacturer's Name..... : AZUMI HK LTD

Address : FLAT/RM 1202, 12/FGOLDEN STAR BUILDING, 20 LOCKHART ROAD, WANCHAI, HK, China

Product name : Mobile Phone

Model and/or type reference : SA4

Family Model: : N/A

Test sample number : S250319020003

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

Test procedure : ANSI C63.26:2015
ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date (s) of performance of tests Mar. 19, 2025 ~ Apr. 21, 2025

Date of Issue Apr. 21, 2025

Test Result **Pass**

Prepared : 
By : Allen Liu
(Project Engineer)

Reviewed : 
By : Aaron Cheng
(Supervisor)

Approved : 
By : Alex Li
(Manager)

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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	AZUMI
Model Name	SA4
Family Model	N/A
Model Difference	N/A
FCC ID:	QRP-FP-016
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 7, 13, 66
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 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM
Antenna:	FPC Antenna
Antenna gain:	LTE B2:1.0dBi; B4:1.0dBi; B5:-1.2dBi; B7:1.2dBi; B13:-2.0dBi; B66:1.1dBi;
Power Supply:	DC 3.7V from Battery or DC 5V from Adapter.
Battery	DC 3.7V, 1400 mAh, 5.18Wh
Adapter:	INPUT: AC 100-240V~50-60Hz 0.15A OUTPUT: DC 5.0V---550mA
Extreme Vol. Limits:	DC 3.2 V to DC 4.2V (Nominal DC 3.7V) (Note 1)
HW Version	AZUMI_ SA4_ HW_ V001
SW Version	AZUMI_ SA4_ CLARO_ V001
** Note1: The High Voltage 4.2V and Low Voltage 3.2V 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: QRP-FP-016** filing to comply with the FCC Part 22H&24E &27.

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement, where 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 13, 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

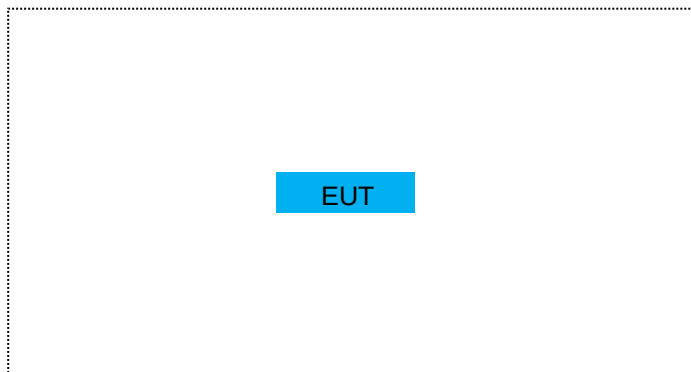
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Mobile Phone	SA4	FCC ID: QRP-FP-016	EUT

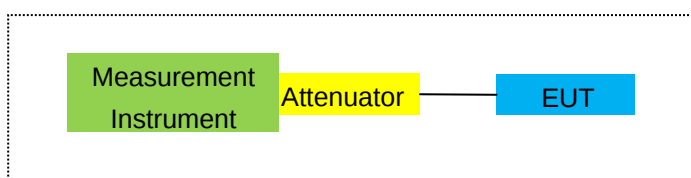
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

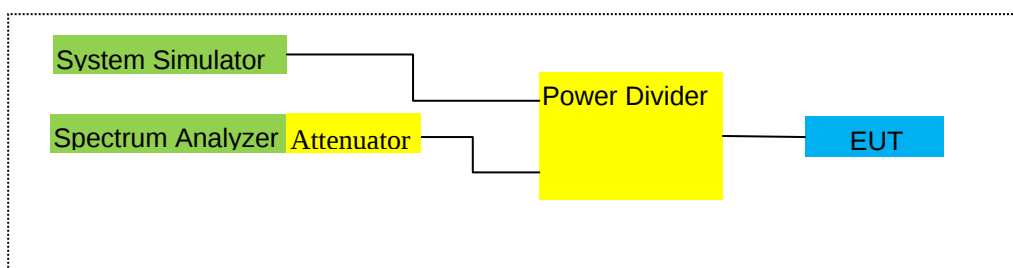
For Radiated Test Cases



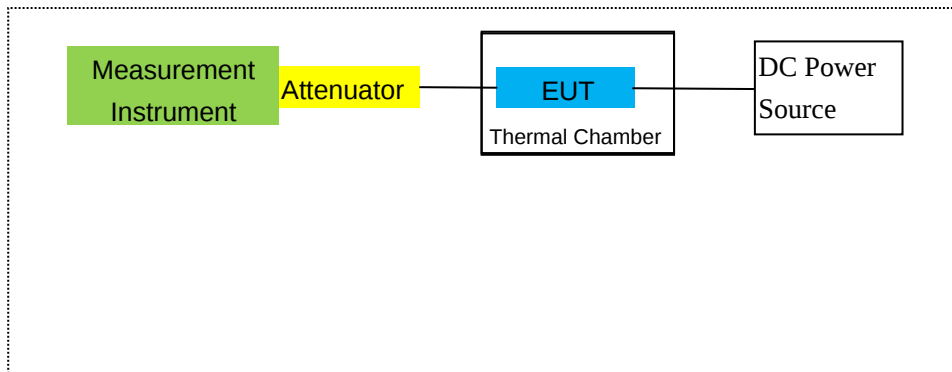
For Conducted Output Power



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	2025.03.19 2026.03.18	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
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

LTE Band 2
LTE Band 4
LTE Band 5
LTE Band 7
LTE Band 13
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)

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.

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 2/4/5/7/13/66

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)

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 2/4/5/7/13/66

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)

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.

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 2/4/5/7/13/66

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	-4.39	3.76	28.24	20.09	102.094	Horizontal	Pass
		1880	-4.20	3.91	28.22	20.11	102.565	Horizontal	Pass
		1909.3	-4.11	3.93	28.20	20.16	103.753	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.45	3.77	28.23	20.01	100.231	Horizontal	Pass
		1880	-4.30	3.91	28.24	20.03	100.693	Horizontal	Pass
		1908.5	-4.17	3.94	28.25	20.14	103.276	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-4.34	3.77	28.31	20.20	104.713	Horizontal	Pass
		1880	-3.96	3.91	28.22	20.35	108.393	Horizontal	Pass
		1907.5	-3.89	3.94	28.20	20.37	108.893	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1855	-4.20	3.79	28.33	20.34	108.143	Horizontal	Pass
		1880	-3.90	3.95	28.22	20.37	108.893	Horizontal	Pass
		1905	-3.79	3.97	28.19	20.43	110.408	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	-4.16	3.79	28.34	20.39	109.396	Horizontal	Pass
		1880	-3.95	3.95	28.22	20.32	107.647	Horizontal	Pass
		1902.5	-3.81	3.97	28.18	20.40	109.648	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1860	-4.15	3.81	28.35	20.39	109.396	Horizontal	Pass
		1880	-3.82	3.96	28.22	20.44	110.662	Horizontal	Pass
		1900	-3.76	4.00	28.16	20.40	109.648	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	-5.56	3.76	28.24	18.92	77.983	Vertical	Pass
		1880	-5.02	3.91	28.22	19.29	84.918	Vertical	Pass
		1909.3	-5.22	3.93	28.20	19.05	80.353	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	-4.74	3.77	28.23	19.72	93.756	Vertical	Pass
		1880	-4.80	3.91	28.24	19.53	89.743	Vertical	Pass
		1908.5	-5.28	3.94	28.25	19.03	79.983	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	-5.52	3.77	28.31	19.02	79.799	Vertical	Pass
		1880	-4.98	3.91	28.22	19.33	85.704	Vertical	Pass
		1907.5	-4.93	3.94	28.20	19.33	85.704	Vertical	Pass
10.0MHz Band	1/#Mid	1855	-5.68	3.79	28.33	18.86	76.913	Vertical	Pass
		1880	-4.72	3.95	28.22	19.55	90.157	Vertical	Pass

QPSK		1905	-4.56	3.97	28.19	19.66	92.470	Vertical	Pass
15.0MHz	1/#Mid	1857.5	-5.42	3.79	28.34	19.13	81.846	Vertical	Pass
Band		1880	-5.36	3.95	28.22	18.91	77.804	Vertical	Pass
QPSK		1902.5	-5.32	3.97	28.18	18.89	77.446	Vertical	Pass
20.0MHz	1/#Mid	1860	-4.76	3.81	28.35	19.78	95.060	Vertical	Pass
Band		1880	-5.28	3.96	28.22	18.98	79.068	Vertical	Pass
QPSK		1900	-5.17	4.00	28.16	18.99	79.250	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	-5.51	3.76	28.24	18.97	78.886	Horizontal	Pass
		1880	-4.98	3.91	28.22	19.33	85.704	Horizontal	Pass
		1909.3	-4.91	3.93	28.20	19.36	86.298	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.01	3.77	28.23	19.45	88.105	Horizontal	Pass
		1880	-5.09	3.91	28.24	19.24	83.946	Horizontal	Pass
		1908.5	-5.30	3.94	28.25	19.01	79.616	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-4.95	3.77	28.31	19.59	90.991	Horizontal	Pass
		1880	-4.86	3.91	28.22	19.45	88.105	Horizontal	Pass
		1907.5	-4.54	3.94	28.20	19.72	93.756	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-5.00	3.79	28.33	19.54	89.950	Horizontal	Pass
		1880	-4.99	3.95	28.22	19.28	84.723	Horizontal	Pass
		1905	-4.46	3.97	28.19	19.76	94.624	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-4.98	3.79	28.34	19.57	90.573	Horizontal	Pass
		1880	-4.77	3.95	28.22	19.50	89.125	Horizontal	Pass
		1902.5	-4.73	3.97	28.18	19.48	88.716	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	-4.87	3.81	28.35	19.67	92.683	Horizontal	Pass
		1880	-4.57	3.96	28.22	19.69	93.111	Horizontal	Pass
		1900	-4.39	4.00	28.16	19.77	94.842	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	-6.08	3.76	28.24	18.40	69.183	Vertical	Pass
		1880	-6.00	3.91	28.22	18.31	67.764	Vertical	Pass
		1909.3	-5.79	3.93	28.20	18.48	70.469	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	-5.92	3.77	28.23	18.54	71.450	Vertical	Pass
		1880	-5.63	3.91	28.24	18.70	74.131	Vertical	Pass
		1908.5	-6.25	3.94	28.25	18.06	63.973	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	-5.86	3.77	28.31	18.68	73.790	Vertical	Pass
		1880	-5.68	3.91	28.22	18.63	72.946	Vertical	Pass
		1907.5	-6.23	3.94	28.20	18.03	63.533	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	-6.26	3.79	28.33	18.28	67.298	Vertical	Pass
		1880	-6.13	3.95	28.22	18.14	65.163	Vertical	Pass
		1905	-6.13	3.97	28.19	18.09	64.417	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	-6.62	3.79	28.34	17.93	62.087	Vertical	Pass
		1880	-6.25	3.95	28.22	18.02	63.387	Vertical	Pass
		1902.5	-6.20	3.97	28.18	18.01	63.241	Vertical	Pass

20.0MHz	1/#Mid	1860	-6.17	3.81	28.35	18.37	68.707	Vertical	Pass
Band 16		1880	-6.12	3.96	28.22	18.14	65.163	Vertical	Pass
QAM		1900	-5.80	4.00	28.16	18.36	68.549	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	-4.30	3.12	27.58	20.16	103.753	Horizontal	Pass
		1732.5	-4.29	3.27	27.61	20.05	101.158	Horizontal	Pass
		1754.3	-4.27	3.29	27.63	20.07	101.625	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.47	3.13	27.61	20.01	100.231	Horizontal	Pass
		1732.5	-4.39	3.27	27.61	19.95	98.855	Horizontal	Pass
		1753.5	-4.31	3.30	27.62	20.01	100.231	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.24	3.13	27.63	20.26	106.170	Horizontal	Pass
		1732.5	-4.14	3.27	27.61	20.20	104.713	Horizontal	Pass
		1752.5	-4.02	3.30	27.60	20.28	106.660	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.18	3.15	27.64	20.31	107.399	Horizontal	Pass
		1732.5	-3.95	3.31	27.61	20.35	108.393	Horizontal	Pass
		1750	-3.97	3.33	27.59	20.29	106.905	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.19	3.15	27.65	20.31	107.399	Horizontal	Pass
		1732.5	-4.03	3.31	27.61	20.27	106.414	Horizontal	Pass
		1747.5	-3.97	3.33	27.57	20.27	106.414	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-4.13	3.17	27.66	20.36	108.643	Horizontal	Pass
		1732.5	-3.96	3.32	27.61	20.33	107.895	Horizontal	Pass
		1745	-3.90	3.36	27.56	20.30	107.152	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-5.10	3.12	27.58	19.36	86.298	Vertical	Pass
		1732.5	-5.48	3.27	27.61	18.86	76.913	Vertical	Pass
		1754.3	-5.08	3.29	27.63	19.26	84.333	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.00	3.13	27.61	19.48	88.716	Vertical	Pass
		1732.5	-4.53	3.27	27.61	19.81	95.719	Vertical	Pass
		1753.5	-5.37	3.30	27.62	18.95	78.524	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.86	3.13	27.63	19.64	92.045	Vertical	Pass
		1732.5	-4.70	3.27	27.61	19.64	92.045	Vertical	Pass
		1752.5	-4.93	3.30	27.60	19.37	86.497	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.43	3.15	27.64	19.06	80.538	Vertical	Pass
		1732.5	-4.92	3.31	27.61	19.38	86.696	Vertical	Pass
		1750	-5.10	3.33	27.59	19.16	82.414	Vertical	Pass

15.0MHz		1717.5	-5.63	3.15	27.65	18.87	77.090	Vertical	Pass
Band	1/#Mid	1732.5	-5.20	3.31	27.61	19.10	81.283	Vertical	Pass
QPSK		1747.5	-5.36	3.33	27.57	18.88	77.268	Vertical	Pass
20.0MHz		1720	-5.59	3.17	27.66	18.90	77.625	Vertical	Pass
Band	1/#Mid	1732.5	-4.54	3.32	27.61	19.75	94.406	Vertical	Pass
QPSK		1745	-5.15	3.36	27.56	19.05	80.353	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 Of Max. ERP	
			(dBm)	(dBm)	(dB)	Average (dBm)	Average (mW)		
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.11	3.12	27.58	19.35	86.099	Horizontal	Pass
		1732.5	-4.96	3.27	27.61	19.38	86.696	Horizontal	Pass
		1754.3	-4.96	3.29	27.63	19.38	86.696	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.05	3.13	27.61	19.43	87.700	Horizontal	Pass
		1732.5	-5.18	3.27	27.61	19.16	82.414	Horizontal	Pass
		1753.5	-5.40	3.30	27.62	18.92	77.983	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-4.88	3.13	27.63	19.62	91.622	Horizontal	Pass
		1732.5	-4.84	3.27	27.61	19.50	89.125	Horizontal	Pass
		1752.5	-4.53	3.30	27.60	19.77	94.842	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-4.95	3.15	27.64	19.54	89.950	Horizontal	Pass
		1732.5	-5.14	3.31	27.61	19.16	82.414	Horizontal	Pass
		1750	-4.52	3.33	27.59	19.74	94.189	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-4.75	3.15	27.65	19.75	94.406	Horizontal	Pass
		1732.5	-4.81	3.31	27.61	19.49	88.920	Horizontal	Pass
		1747.5	-4.83	3.33	27.57	19.41	87.297	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.70	3.17	27.66	19.79	95.280	Horizontal	Pass
		1732.5	-4.71	3.32	27.61	19.58	90.782	Horizontal	Pass
		1745	-4.52	3.36	27.56	19.68	92.897	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.75	3.12	27.58	18.71	74.302	Vertical	Pass
		1732.5	-6.01	3.27	27.61	18.33	68.077	Vertical	Pass
		1754.3	-6.25	3.29	27.63	18.09	64.417	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.94	3.13	27.61	18.54	71.450	Vertical	Pass
		1732.5	-5.84	3.27	27.61	18.50	70.795	Vertical	Pass
		1753.5	-5.88	3.30	27.62	18.44	69.823	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.50	3.13	27.63	18.00	63.096	Vertical	Pass
		1732.5	-6.21	3.27	27.61	18.13	65.013	Vertical	Pass
		1752.5	-5.82	3.30	27.60	18.48	70.469	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-6.63	3.15	27.64	17.86	61.094	Vertical	Pass
		1732.5	-5.97	3.31	27.61	18.33	68.077	Vertical	Pass
		1750	-6.10	3.33	27.59	18.16	65.464	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-6.53	3.15	27.65	17.97	62.661	Vertical	Pass
		1732.5	-6.45	3.31	27.61	17.85	60.954	Vertical	Pass
		1747.5	-6.42	3.33	27.57	17.82	60.534	Vertical	Pass

20.0MHz		1720	-5.99	3.17	27.66	18.50	70.795	Vertical	Pass
Band 16	1/#Mid	1732.5	-6.17	3.32	27.61	18.12	64.863	Vertical	Pass
QAM		1745	-5.83	3.36	27.56	18.37	68.707	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/#Midd	824.7	5.00	2.01	19.68	2.15	20.52	112.720	Horizontal	Pass
		836.5	4.88	2.01	19.77	2.15	20.49	111.944	Horizontal	Pass
		848.3	4.68	2.02	19.82	2.15	20.33	107.895	Horizontal	Pass
3.0MHz Band QPSK	1/#Midd	825.5	4.77	2.01	19.70	2.15	20.31	107.399	Horizontal	Pass
		836.5	4.67	2.01	19.77	2.15	20.28	106.660	Horizontal	Pass
		847.5	4.54	2.02	19.81	2.15	20.18	104.232	Horizontal	Pass
5.0MHz Band QPSK	1/#Midd	826.5	5.05	2.01	19.71	2.15	20.60	114.815	Horizontal	Pass
		836.5	4.93	2.01	19.77	2.15	20.54	113.240	Horizontal	Pass
		846.5	4.77	2.02	19.79	2.15	20.39	109.396	Horizontal	Pass
10.0MHz Band QPSK	1/#Midd	829	5.07	2.01	19.73	2.15	20.64	115.878	Horizontal	Pass
		836.5	5.02	2.01	19.77	2.15	20.63	115.611	Horizontal	Pass
		844	4.92	2.02	19.78	2.15	20.53	112.980	Horizontal	Pass
1.4MHz Band QPSK	1/#Midd	824.7	3.59	2.01	19.68	2.15	19.11	81.470	Vertical	Pass
		836.5	3.63	2.01	19.77	2.15	19.24	83.946	Vertical	Pass
		848.3	3.96	2.02	19.82	2.15	19.61	91.411	Vertical	Pass
3.0MHz Band QPSK	1/#Midd	825.5	4.27	2.01	19.70	2.15	19.81	95.719	Vertical	Pass
		836.5	3.76	2.01	19.77	2.15	19.37	86.497	Vertical	Pass
		847.5	3.78	2.02	19.81	2.15	19.42	87.498	Vertical	Pass
5.0MHz Band QPSK	1/#Midd	826.5	3.51	2.01	19.71	2.15	19.06	80.538	Vertical	Pass
		836.5	3.71	2.01	19.77	2.15	19.32	85.507	Vertical	Pass
		846.5	3.78	2.02	19.79	2.15	19.40	87.096	Vertical	Pass
10.0MHz Band QPSK	1/#Midd	829	3.37	2.01	19.73	2.15	18.94	78.343	Vertical	Pass
		836.5	3.95	2.01	19.77	2.15	19.56	90.365	Vertical	Pass
		844	4.18	2.02	19.78	2.15	19.79	95.280	Vertical	Pass

Radiated Power (ERP) for Band 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level	Cable Loss	Antenna	Correction	Max. ERP	Max. ERP	Polarization Of Max. ERP	
			(dBm)	(dBm)	Factor (dB)		Average	Average		
						(dB)	e	e		
							(dBm)	(mW)		
1.4MHz Band 16 QAM	3/#Mid	824.7	4.15	2.01	19.68	2.15	19.67	92.683	Horizontal	Pass
		836.5	4.08	2.01	19.77	2.15	19.69	93.111	Horizontal	Pass
		848.3	3.92	2.02	19.82	2.15	19.57	90.573	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	4.23	2.01	19.70	2.15	19.77	94.842	Horizontal	Pass
		836.5	3.94	2.01	19.77	2.15	19.55	90.157	Horizontal	Pass
		847.5	3.42	2.02	19.81	2.15	19.06	80.538	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	4.55	2.01	19.71	2.15	20.10	102.329	Horizontal	Pass
		836.5	4.32	2.01	19.77	2.15	19.93	98.401	Horizontal	Pass
		846.5	4.07	2.02	19.79	2.15	19.69	93.111	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	829	4.55	2.01	19.73	2.15	20.12	102.802	Horizontal	Pass
		836.5	4.27	2.01	19.77	2.15	19.88	97.275	Horizontal	Pass
		844	3.81	2.02	19.78	2.15	19.42	87.498	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	3.29	2.01	19.68	2.15	18.81	76.033	Vertical	Pass
		836.5	4.20	2.01	19.77	2.15	19.81	95.719	Vertical	Pass
		848.3	3.72	2.02	19.82	2.15	19.37	86.497	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	3.60	2.01	19.70	2.15	19.14	82.035	Vertical	Pass
		836.5	2.54	2.01	19.77	2.15	18.15	65.313	Vertical	Pass
		847.5	3.21	2.02	19.81	2.15	18.85	76.736	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	3.25	2.01	19.71	2.15	18.80	75.858	Vertical	Pass
		836.5	2.79	2.01	19.77	2.15	18.40	69.183	Vertical	Pass
		846.5	2.21	2.02	19.79	2.15	17.83	60.674	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	829	2.76	2.01	19.73	2.15	18.33	68.077	Vertical	Pass
		836.5	2.63	2.01	19.77	2.15	18.24	66.681	Vertical	Pass
		844	3.03	2.02	19.78	2.15	18.64	73.114	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	-2.58	4.54	27.75	20.63	115.611	Horizontal	Pass
		2535	-2.41	4.69	27.72	20.62	115.345	Horizontal	Pass
		2567.5	-2.34	4.71	27.71	20.66	116.413	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	2505	-2.51	4.55	27.76	20.70	117.490	Horizontal	Pass
		2535	-2.32	4.69	27.72	20.71	117.761	Horizontal	Pass
		2565	-2.24	4.72	27.70	20.74	118.577	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-2.52	4.55	27.77	20.70	117.490	Horizontal	Pass
		2535	-2.38	4.69	27.72	20.65	116.145	Horizontal	Pass
		2562.5	-2.28	4.72	27.69	20.69	117.220	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	2510	-2.46	4.57	27.78	20.75	118.850	Horizontal	Pass
		2535	-2.28	4.73	27.72	20.71	117.761	Horizontal	Pass
		2560	-2.24	4.75	27.68	20.69	117.220	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-4.38	4.54	27.75	18.83	76.384	Vertical	Pass
		2535	-4.15	4.69	27.72	18.88	77.268	Vertical	Pass
		2567.5	-3.50	4.71	27.71	19.50	89.125	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	2505	-3.78	4.55	27.76	19.43	87.700	Vertical	Pass
		2535	-3.44	4.69	27.72	19.59	90.991	Vertical	Pass
		2565	-4.05	4.72	27.70	18.93	78.163	Vertical	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-3.68	4.55	27.77	19.54	89.950	Vertical	Pass
		2535	-3.38	4.69	27.72	19.65	92.257	Vertical	Pass
		2562.5	-4.16	4.72	27.69	18.81	76.033	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	2510	-3.47	4.57	27.78	19.74	94.189	Vertical	Pass
		2535	-3.93	4.73	27.72	19.06	80.538	Vertical	Pass
		2560	-4.11	4.75	27.68	18.82	76.208	Vertical	Pass

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 16 QAM	1/#Mid	2502.5	-3.27	4.54	27.75	19.94	98.628	Horizontal	Pass
		2535	-2.96	4.69	27.72	20.07	101.625	Horizontal	Pass
		2567.5	-3.04	4.71	27.71	19.96	99.083	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.16	4.55	27.76	20.05	101.158	Horizontal	Pass
		2535	-3.17	4.69	27.72	19.86	96.828	Horizontal	Pass
		2565	-3.44	4.72	27.70	19.54	89.950	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.34	4.55	27.77	19.88	97.275	Horizontal	Pass
		2535	-3.31	4.69	27.72	19.72	93.756	Horizontal	Pass
		2562.5	-2.92	4.72	27.69	20.05	101.158	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-3.22	4.57	27.78	19.99	99.770	Horizontal	Pass
		2535	-2.89	4.73	27.72	20.10	102.329	Horizontal	Pass
		2560	-2.99	4.75	27.68	19.94	98.628	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-4.64	4.54	27.75	18.57	71.945	Vertical	Pass
		2535	-4.72	4.69	27.72	18.31	67.764	Vertical	Pass
		2567.5	-3.42	4.71	27.71	19.58	90.782	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-3.53	4.55	27.76	19.68	92.897	Vertical	Pass
		2535	-3.97	4.69	27.72	19.06	80.538	Vertical	Pass
		2565	-4.01	4.72	27.70	18.97	78.886	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-3.91	4.55	27.77	19.31	85.310	Vertical	Pass
		2535	-4.17	4.69	27.72	18.86	76.913	Vertical	Pass
		2562.5	-4.35	4.72	27.69	18.62	72.778	Vertical	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-4.90	4.57	27.78	18.31	67.764	Vertical	Pass
		2535	-4.65	4.73	27.72	18.34	68.234	Vertical	Pass
		2560	-3.76	4.75	27.68	19.17	82.604	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 13

Radiated Power (ERP) for Band 13										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Factor (dB)	Correction (dB)	Max. ERP Average (dBm)	Max. ERP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/#Mid	779.5	5.11	1.91	19.23	2.15	20.28	106.66	Horizontal	Pass
		782	4.96	1.91	19.26	2.15	20.16	103.75	Horizontal	Pass
		784.5	3.91	1.92	19.33	2.15	19.17	82.60	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	782	5.26	1.91	19.26	2.15	20.46	111.17	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	779.5	4.18	1.91	19.23	2.15	19.35	86.10	Vertical	Pass
		782	4.36	1.91	19.26	2.15	19.56	90.36	Vertical	Pass
		784.5	4.27	1.92	19.33	2.15	19.53	89.74	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	782	4.27	1.91	19.25	2.15	19.46	88.31	Vertical	Pass

Radiated Power (ERP) for Band 13										
Mode	RB/ RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarizati on Of Max. ERP	
5.0MHz Band 16 QAM	25/0	779.5	5.26	1.91	19.23	2.15	20.43	110.41	Horizontal	Pass
		782	4.17	1.91	19.26	2.15	19.37	86.50	Horizontal	Pass
		784.5	3.65	1.92	19.33	2.15	18.91	77.80	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	782	5.25	1.91	19.26	2.15	20.45	110.92	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	779.5	3.62	1.91	19.23	2.15	18.79	75.68	Vertical	Pass
		782	4.03	1.91	19.26	2.15	19.23	83.75	Vertical	Pass
		784.5	3.45	1.92	19.33	2.15	18.71	74.30	Vertical	Pass
10.0MHz Band 16 QAM	50/0	782	4.06	1.92	19.32	2.15	19.31	85.31	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

ERP(dBm)=EIRP-2.15

8.7 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	-4.15	3.76	28.24	20.33	107.895	Horizontal	Pass
		1745	-4.01	3.91	28.22	20.30	107.152	Horizontal	Pass
		1779.3	-3.88	3.93	28.2	20.39	109.396	Horizontal	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-4.21	3.77	28.23	20.25	105.925	Horizontal	Pass
		1745	-4.12	3.91	28.24	20.21	104.954	Horizontal	Pass
		1778.5	-4.14	3.94	28.25	20.17	103.992	Horizontal	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-4.11	3.77	28.31	20.43	110.408	Horizontal	Pass
		1745	-3.79	3.91	28.22	20.52	112.720	Horizontal	Pass
		1777.5	-3.85	3.94	28.2	20.41	109.901	Horizontal	Pass
10.0MHz Band QPSK	1/#Mid	1715	-4.00	3.79	28.33	20.54	113.240	Horizontal	Pass
		1745	-3.73	3.95	28.22	20.54	113.240	Horizontal	Pass
		1775	-3.74	3.97	28.19	20.48	111.686	Horizontal	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-4.02	3.79	28.34	20.53	112.980	Horizontal	Pass
		1745	-3.83	3.95	28.22	20.44	110.662	Horizontal	Pass
		1772.5	-3.78	3.97	28.18	20.43	110.408	Horizontal	Pass
20.0MHz Band QPSK	1/#Mid	1720	-3.99	3.81	28.35	20.55	113.501	Horizontal	Pass
		1745	-3.73	3.96	28.22	20.53	112.980	Horizontal	Pass
		1770	-3.75	4	28.16	20.41	109.901	Horizontal	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-5.41	3.76	28.24	19.07	80.724	Vertical	Pass
		1745	-5.16	3.91	28.22	19.15	82.224	Vertical	Pass
		1779.3	-5.12	3.93	28.2	19.15	82.224	Vertical	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-5.22	3.77	28.23	19.24	83.946	Vertical	Pass
		1745	-4.52	3.91	28.24	19.81	95.719	Vertical	Pass
		1778.5	-4.89	3.94	28.25	19.42	87.498	Vertical	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-5.33	3.77	28.31	19.21	83.368	Vertical	Pass
		1745	-4.74	3.91	28.22	19.57	90.573	Vertical	Pass
		1777.5	-4.80	3.94	28.2	19.46	88.308	Vertical	Pass
10.0MHz Band QPSK	1/#Mid	1715	-5.15	3.79	28.34	19.40	87.096	Vertical	Pass
		1745	-4.75	3.95	28.22	19.52	89.536	Vertical	Pass
		1775	-4.44	3.97	28.18	19.77	94.842	Vertical	Pass

15.0MHz Band QPSK	1/#Mid	1717.5	-4.91	3.81	28.35	19.63	91.833	Vertical	Pass
		1745	-5.38	3.96	28.22	18.88	77.268	Vertical	Pass
		1772.5	-5.11	4	28.16	19.05	80.353	Vertical	Pass
20.0MHz Band QPSK	1/#Mid	1720	-5.40	3.79	28.34	19.15	82.224	Vertical	Pass
		1745	-4.61	3.95	28.22	19.66	92.470	Vertical	Pass
		1770	-5.35	3.97	28.18	18.86	76.913	Vertical	Pass

Radiated Power (EIRP) for Band 66									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.23	3.76	28.24	19.25	84.140	Horizontal	Pass
		1745	-4.84	3.91	28.22	19.47	88.512	Horizontal	Pass
		1779.3	-5.02	3.93	28.2	19.25	84.140	Horizontal	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-5.62	3.77	28.23	18.84	76.560	Horizontal	Pass
		1745	-4.87	3.91	28.24	19.46	88.308	Horizontal	Pass
		1778.5	-5.16	3.94	28.25	19.15	82.224	Horizontal	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-5.04	3.77	28.31	19.50	89.125	Horizontal	Pass
		1745	-5.10	3.91	28.22	19.21	83.368	Horizontal	Pass
		1777.5	-4.77	3.94	28.2	19.49	88.920	Horizontal	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.09	3.79	28.33	19.45	88.105	Horizontal	Pass
		1745	-4.75	3.95	28.22	19.52	89.536	Horizontal	Pass
		1775	-5.07	3.97	28.19	19.15	82.224	Horizontal	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-5.08	3.79	28.34	19.47	88.512	Horizontal	Pass
		1745	-4.90	3.95	28.22	19.37	86.497	Horizontal	Pass
		1772.5	-4.69	3.97	28.18	19.52	89.536	Horizontal	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-4.91	3.81	28.35	19.63	91.833	Horizontal	Pass
		1745	-4.69	3.96	28.22	19.57	90.573	Horizontal	Pass
		1770	-4.63	4	28.16	19.53	89.743	Horizontal	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-5.31	3.76	28.24	19.17	82.604	Vertical	Pass
		1745	-6.66	3.91	28.22	17.65	58.210	Vertical	Pass
		1779.3	-5.06	3.93	28.2	19.21	83.368	Vertical	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-6.70	3.77	28.23	17.76	59.704	Vertical	Pass
		1745	-5.15	3.91	28.24	19.18	82.794	Vertical	Pass
		1778.5	-6.75	3.94	28.25	17.56	57.016	Vertical	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-6.44	3.77	28.31	18.10	64.565	Vertical	Pass
		1745	-6.62	3.91	28.22	17.69	58.749	Vertical	Pass
		1777.5	-6.31	3.94	28.2	17.95	62.373	Vertical	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-5.10	3.79	28.34	19.45	88.105	Vertical	Pass
		1745	-5.56	3.95	28.22	18.71	74.302	Vertical	Pass
		1775	-6.61	3.97	28.18	17.60	57.544	Vertical	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-6.95	3.81	28.35	17.59	57.412	Vertical	Pass
		1745	-4.94	3.96	28.22	19.32	85.507	Vertical	Pass
		1772.5	-5.23	4	28.16	18.93	78.163	Vertical	Pass

20.0MHz		1720	-6.64	3.79	28.34	17.91	61.802	Vertical	Pass
Band 16	1/#Mid	1745	-6.01	3.95	28.22	18.26	66.988	Vertical	Pass
QAM		1770	-4.92	3.97	28.18	19.29	84.918	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)

LIMIT

For Band 7, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10}(P)$ [Watts].

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

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 2/4/5/7/13/66

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	-53.76	4.04	33.51	-24.29	-13	-11.29	Horizontal
3701.4	-49.20	4.04	33.51	-19.73	-13	-6.73	Vertical
5552.1	-53.56	5.24	35.84	-22.96	-13	-9.96	Vertical
5552.1	-52.45	5.24	35.84	-21.85	-13	-8.85	Horizontal
210.4	-42.52	1.43	16.02	-27.93	-13	-14.93	Vertical
319.0	-41.13	1.30	17.99	-24.44	-13	-11.44	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-49.82	4.04	33.56	-20.30	-13	-7.30	Horizontal
3760.0	-52.13	4.04	33.56	-22.61	-13	-9.61	Vertical
5640.0	-45.85	5.24	35.91	-15.18	-13	-2.18	Vertical
5640.0	-51.99	5.24	35.91	-21.32	-13	-8.32	Horizontal
187.4	-39.90	1.62	16.97	-24.55	-13	-11.55	Vertical
280.5	-43.48	1.74	15.98	-29.25	-13	-16.25	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-48.41	4.04	34.00	-18.45	-13	-5.45	Horizontal
3818.6	-51.62	4.04	34.00	-21.66	-13	-8.66	Vertical
5727.9	-46.22	5.24	36.04	-15.42	-13	-2.42	Vertical
5727.9	-51.63	5.24	36.04	-20.83	-13	-7.83	Horizontal
207.8	-36.36	1.42	17.29	-20.49	-13	-7.49	Vertical
349.1	-44.13	1.50	17.90	-27.72	-13	-14.72	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	-49.20	4.07	33.54	-19.73	-13	-6.73	Horizontal
3720.0	-52.15	4.07	33.54	-22.68	-13	-9.68	Vertical
5580.0	-48.44	5.28	35.86	-17.86	-13	-4.86	Vertical
5580.0	-53.80	5.28	35.86	-23.22	-13	-10.22	Horizontal
202.5	-40.99	1.58	16.89	-25.67	-13	-12.67	Vertical
242.1	-37.87	1.76	17.26	-22.37	-13	-9.37	Horizontal
Test Results for Mid Channel 1880MHz							
3760.0	-52.02	4.04	33.56	-22.50	-13	-9.50	Horizontal
3760.0	-53.11	4.04	33.56	-23.59	-13	-10.59	Vertical
5640.0	-51.36	5.24	35.91	-20.69	-13	-7.69	Vertical
5640.0	-53.74	5.24	35.91	-23.07	-13	-10.07	Horizontal
193.2	-37.01	1.46	16.27	-22.20	-13	-9.20	Vertical
360.2	-34.04	1.59	15.15	-20.48	-13	-7.48	Horizontal
Test Results for High Channel 1900MHz							
3800.0	-49.24	4.04	34.00	-19.28	-13	-6.28	Horizontal
3800.0	-49.40	4.04	34.00	-19.44	-13	-6.44	Vertical
5700.0	-48.09	5.24	36.04	-17.29	-13	-4.29	Vertical
5700.0	-50.98	5.24	36.04	-20.18	-13	-7.18	Horizontal
207.4	-44.28	1.36	17.39	-28.24	-13	-15.24	Vertical
343.4	-42.60	1.66	15.39	-28.87	-13	-15.87	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	-44.91	4.02	29.80	-19.13	-13	-6.13	Horizontal
3421.4	-49.15	4.02	29.80	-23.37	-13	-10.37	Vertical
5132.1	-47.03	5.24	35.84	-16.43	-13	-3.43	Vertical
5132.1	-53.36	5.24	35.84	-22.76	-13	-9.76	Horizontal
196.0	-43.55	1.68	16.04	-29.19	-13	-16.19	Vertical
355.4	-35.06	1.78	17.74	-19.10	-13	-6.10	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-50.42	4.03	30.00	-24.45	-13	-11.45	Horizontal
3465.0	-52.73	4.03	30.00	-26.76	-13	-13.76	Vertical
5197.5	-48.74	5.25	35.86	-18.13	-13	-5.13	Vertical
5197.5	-52.87	5.25	35.86	-22.26	-13	-9.26	Horizontal
203.7	-44.34	1.72	17.69	-28.37	-13	-15.37	Vertical
336.7	-35.68	1.62	16.02	-21.27	-13	-8.27	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-51.66	4.05	30.01	-25.70	-13	-12.70	Horizontal
3508.6	-47.11	4.05	30.01	-21.15	-13	-8.15	Vertical
5262.9	-51.98	5.26	35.86	-21.38	-13	-8.38	Vertical
5262.9	-52.85	5.26	35.86	-22.25	-13	-9.25	Horizontal
184.6	-44.75	1.80	16.69	-29.86	-13	-16.86	Vertical
406.4	-40.93	1.75	16.66	-26.03	-13	-13.03	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	-52.63	4.02	29.80	-26.85	-13	-13.85	Horizontal
3440.0	-47.39	4.02	29.80	-21.61	-13	-8.61	Vertical
5160.0	-48.07	5.24	35.84	-17.47	-13	-4.47	Vertical
5160.0	-51.84	5.24	35.84	-21.24	-13	-8.24	Horizontal
192.6	-44.60	1.57	17.26	-28.91	-13	-15.91	Vertical
388.9	-41.56	1.78	16.35	-26.99	-13	-13.99	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-48.18	4.03	30.00	-22.21	-13	-9.21	Horizontal
3465.0	-46.54	4.03	30.00	-20.57	-13	-7.57	Vertical
5197.5	-53.07	5.25	35.86	-22.46	-13	-9.46	Vertical
5197.5	-49.56	5.25	35.86	-18.95	-13	-5.95	Horizontal
210.9	-40.27	1.44	17.95	-23.76	-13	-10.76	Vertical
318.6	-37.55	1.65	16.09	-23.11	-13	-10.11	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-44.81	2.91	27.68	-20.04	-13	-7.04	Horizontal
3490.0	-47.29	2.91	27.68	-22.52	-13	-9.52	Vertical
5235.0	-46.35	5.26	35.86	-15.75	-13	-2.75	Vertical
5235.0	-51.28	5.26	35.86	-20.68	-13	-7.68	Horizontal
186.8	-39.89	1.61	16.85	-24.65	-13	-11.65	Vertical
269.7	-39.91	1.61	15.19	-26.33	-13	-13.33	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	-50.84	2.78	27.50	-26.12	-13	-13.12	Horizontal
1649.4	-44.78	2.78	27.50	-20.06	-13	-7.06	Vertical
2474.1	-51.21	2.90	27.80	-26.31	-13	-13.31	Vertical
2474.1	-53.94	2.90	27.80	-29.04	-13	-16.04	Horizontal
192.3	-39.82	1.76	17.59	-23.99	-13	-10.99	Vertical
375.6	-36.06	1.63	15.87	-21.82	-13	-8.82	Horizontal
Test Results For Mid Channel 836.5MHz							
1673.0	-47.70	2.80	27.48	-23.02	-13	-10.02	Horizontal
1673.0	-51.27	2.80	27.48	-26.59	-13	-13.59	Vertical
2509.5	-52.69	2.91	27.70	-27.90	-13	-14.90	Vertical
2509.5	-50.57	2.91	27.70	-25.78	-13	-12.78	Horizontal
197.6	-42.33	1.61	15.68	-28.26	-13	-15.26	Vertical
297.2	-40.36	1.59	17.52	-24.44	-13	-11.44	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-49.13	2.82	27.43	-24.52	-13	-11.52	Horizontal
1696.6	-52.22	2.82	27.43	-27.61	-13	-14.61	Vertical
2544.9	-53.35	2.92	27.74	-28.53	-13	-15.53	Vertical
2544.9	-50.64	2.92	27.74	-25.82	-13	-12.82	Horizontal
204.9	-34.57	1.69	16.67	-19.58	-13	-6.58	Vertical
463.3	-39.40	1.70	17.18	-23.92	-13	-10.92	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	-50.48	2.78	27.50	-25.76	-13	-12.76	Horizontal
1658.0	-47.97	2.78	27.50	-23.25	-13	-10.25	Vertical
2487.0	-51.77	2.90	27.80	-26.87	-13	-13.87	Vertical
2487.0	-49.69	2.90	27.80	-24.79	-13	-11.79	Horizontal
177.2	-39.29	1.71	15.57	-25.43	-13	-12.43	Vertical
263.2	-35.24	1.34	16.40	-20.18	-13	-7.18	Horizontal
Test Results for Mid Channel 836.5MHz							
1673.0	-47.47	2.80	27.48	-22.79	-13	-9.79	Horizontal
1673.0	-48.83	2.80	27.48	-24.15	-13	-11.15	Vertical
2509.5	-53.77	2.91	27.70	-28.98	-13	-15.98	Vertical
2509.5	-52.96	2.91	27.70	-28.17	-13	-15.17	Horizontal
211.3	-42.69	1.44	17.04	-27.09	-13	-14.09	Vertical
449.7	-41.12	1.76	17.62	-25.26	-13	-12.26	Horizontal
Test Results for High Channel 844MHz							
1688.0	-52.95	2.82	27.43	-28.34	-13	-15.34	Horizontal
1688.0	-49.36	2.82	27.43	-24.75	-13	-11.75	Vertical
2532.0	-44.45	2.92	27.74	-19.63	-13	-6.63	Vertical
2532.0	-52.35	2.92	27.74	-27.53	-13	-14.53	Horizontal
186.1	-41.51	1.74	17.70	-25.55	-13	-12.55	Vertical
456.0	-35.07	1.41	17.46	-19.01	-13	-6.01	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	-60.01	5.23	35.81	-29.43	-25	-4.43	Horizontal
5005.0	-64.92	5.23	35.81	-34.34	-25	-9.34	Vertical
7507.5	-64.79	5.67	36.85	-33.61	-25	-8.61	Vertical
7507.5	-59.22	5.67	36.85	-28.04	-25	-3.04	Horizontal
175.3	-48.33	1.73	17.97	-32.09	-25	-7.09	Vertical
334.9	-51.00	1.38	15.11	-37.27	-25	-12.27	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-61.78	5.23	35.82	-31.19	-25	-6.19	Horizontal
5070.0	-61.31	5.23	35.82	-30.72	-25	-5.72	Vertical
7605.0	-60.56	5.67	36.85	-29.38	-25	-4.38	Vertical
7605.0	-64.76	5.67	36.85	-33.58	-25	-8.58	Horizontal
195.2	-52.80	1.77	16.17	-38.39	-25	-13.39	Vertical
342.3	-52.55	1.63	15.21	-38.97	-25	-13.97	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.74	5.24	35.83	-31.15	-25	-6.15	Horizontal
5135.0	-60.72	5.24	35.83	-30.13	-25	-5.13	Vertical
7702.5	-60.30	5.68	36.87	-29.11	-25	-4.11	Vertical
7702.5	-60.05	5.68	36.87	-28.86	-25	-3.86	Horizontal
191.7	-44.29	1.58	17.56	-28.31	-25	-3.31	Vertical
275.3	-51.94	1.45	16.58	-36.81	-25	-11.81	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-61.39	5.23	35.82	-30.80	-25	-5.80	Horizontal
5020.0	-63.74	5.23	35.82	-33.15	-25	-8.15	Vertical
7530.0	-59.89	5.67	36.86	-28.70	-25	-3.70	Vertical
7530.0	-62.02	5.67	36.86	-30.83	-25	-5.83	Horizontal
206.9	-51.49	1.63	15.76	-37.36	-25	-12.36	Vertical
404.8	-50.25	1.71	15.44	-36.52	-25	-11.52	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-64.86	5.23	35.82	-34.27	-25	-9.27	Horizontal
5070.0	-64.90	5.23	35.82	-34.31	-25	-9.31	Vertical
7605.0	-62.34	5.67	36.85	-31.16	-25	-6.16	Vertical
7605.0	-62.87	5.67	36.85	-31.69	-25	-6.69	Horizontal
197.4	-54.05	1.79	16.84	-38.99	-25	-13.99	Vertical
291.7	-46.58	1.71	17.64	-30.65	-25	-5.65	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-59.92	5.24	35.83	-29.33	-25	-4.33	Horizontal
5120.0	-62.55	5.24	35.83	-31.96	-25	-6.96	Vertical
7680.0	-59.84	5.70	36.88	-28.66	-25	-3.66	Vertical
7680.0	-64.44	5.70	36.88	-33.26	-25	-8.26	Horizontal
210.6	-44.81	1.79	16.84	-29.75	-25	-4.75	Vertical
398.8	-47.46	1.71	17.64	-31.53	-25	-6.53	Horizontal

9.5 LTE BAND 13
LTE BAND 13 (5MHZ BANDWIDTH)

Test Results for Low Channel 779.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1559.0	-69.37	2.61	27.28	-44.70	-40	-4.70	Horizontal
1559.0	-70.20	2.61	27.28	-45.53	-40	-5.53	Vertical
2338.5	-39.10	2.87	27.59	-14.38	-13	-1.38	Vertical
2338.5	-44.72	2.87	27.59	-20.00	-13	-7.00	Horizontal
120.1	-37.10	1.54	15.61	-23.03	-13	-10.03	Vertical
197.8	-39.70	1.51	15.21	-26.00	-13	-13.00	Horizontal
Test Results For Mid Channel 782MHz							
1564.0	-70.04	2.62	27.30	-45.36	-40	-5.36	Horizontal
1564.0	-73.08	2.62	27.30	-48.40	-40	-8.40	Vertical
2346.0	-41.74	2.87	27.62	-16.99	-13	-3.99	Vertical
2346.0	-39.75	2.87	27.62	-15.00	-13	-2.00	Horizontal
131.2	-38.82	1.65	16.17	-24.30	-13	-11.30	Vertical
267.5	-37.27	1.48	16.88	-21.87	-13	-8.87	Horizontal
Test Results for High Channel 784.5MHz							
1569.0	-73.75	2.66	27.28	-49.13	-40	-9.13	Horizontal
1569.0	-70.02	2.66	27.28	-45.40	-40	-5.40	Vertical
2353.5	-44.03	2.88	27.60	-19.31	-13	-6.31	Vertical
2353.5	-40.83	2.88	27.60	-16.11	-13	-3.11	Horizontal
80.8	-39.54	1.54	16.40	-24.68	-13	-11.68	Vertical
155.6	-34.56	1.43	15.77	-20.22	-13	-7.22	Horizontal

LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564.0	-72.57	2.62	27.30	-47.89	-40	-7.89	Horizontal
1564.0	-74.66	2.62	27.30	-49.98	-40	-9.98	Vertical
2346.0	-40.87	2.87	27.62	-16.12	-13	-3.12	Vertical
2346.0	-42.44	2.87	27.62	-17.69	-13	-4.69	Horizontal
129.1	-37.79	1.43	17.03	-22.19	-13	-9.19	Vertical
86.9	-34.51	1.62	16.63	-19.50	-13	-6.50	Horizontal

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

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

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

9.6 LTE BAND 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	-51.03	4.02	29.80	-25.25	-13	-12.25	Horizontal
3421.4	-44.91	4.02	29.80	-19.13	-13	-6.13	Vertical
5132.1	-49.08	5.24	35.84	-18.48	-13	-5.48	Vertical
5132.1	-49.89	5.24	35.84	-19.29	-13	-6.29	Horizontal
112.6	-49.46	1.52	15.57	-35.41	-13	-22.41	Vertical
220.5	-48.05	1.33	17.14	-32.24	-13	-19.24	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-51.60	4.03	30.00	-25.63	-13	-12.63	Horizontal
3490.0	-51.58	4.03	30.00	-25.61	-13	-12.61	Vertical
5235.0	-53.17	5.25	35.86	-22.56	-13	-9.56	Vertical
5235.0	-53.82	5.25	35.86	-23.21	-13	-10.21	Horizontal
157.3	-51.74	1.53	17.13	-36.14	-13	-23.14	Vertical
213.1	-45.05	1.41	15.95	-30.51	-13	-17.51	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-52.82	4.05	30.01	-26.86	-13	-13.86	Horizontal
3558.6	-48.51	4.05	30.01	-22.55	-13	-9.55	Vertical
5337.9	-54.18	5.26	35.86	-23.58	-13	-10.58	Vertical
5337.9	-48.71	5.26	35.86	-18.11	-13	-5.11	Horizontal
170.6	-48.92	1.44	15.51	-34.85	-13	-21.85	Vertical
169.0	-45.87	1.78	15.76	-31.89	-13	-18.89	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	-45.71	4.02	29.80	-19.93	-13	-6.93	Horizontal
3440.0	-47.66	4.02	29.80	-21.88	-13	-8.88	Vertical
5160.0	-52.58	5.24	35.84	-21.98	-13	-8.98	Vertical
5160.0	-47.84	5.24	35.84	-17.24	-13	-4.24	Horizontal
268.8	-45.60	1.62	17.02	-30.20	-13	-17.20	Vertical
161.4	-50.92	1.32	17.31	-34.93	-13	-21.93	Horizontal
Test Results for Mid Channel 1745MHz							
3490.0	-51.37	4.03	30.00	-25.40	-13	-12.40	Horizontal
3490.0	-47.55	4.03	30.00	-21.58	-13	-8.58	Vertical
5235.0	-54.45	5.25	35.86	-23.84	-13	-10.84	Vertical
5235.0	-54.82	5.25	35.86	-24.21	-13	-11.21	Horizontal
159.9	-47.41	1.45	15.17	-33.69	-13	-20.69	Vertical
172.1	-47.23	1.48	17.82	-30.89	-13	-17.89	Horizontal
Test Results for High Channel 1770MHz							
3540.0	-54.77	2.91	27.68	-30.00	-13	-17.00	Horizontal
3540.0	-49.94	2.91	27.68	-25.17	-13	-12.17	Vertical
5310.0	-49.13	5.26	35.86	-18.53	-13	-5.53	Vertical
5310.0	-51.00	5.26	35.86	-20.40	-13	-7.40	Horizontal
197.3	-50.34	1.76	16.38	-35.72	-13	-22.72	Vertical
158.5	-46.42	1.43	17.13	-30.72	-13	-17.72	Horizontal

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

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

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

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

10. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to $+50^{\circ}\text{C}$
- ☐ Voltage = low voltage, DC 3.2V, Normal, DC 3.7V and High voltage, DC 4.2V.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

MODES TESTED

- ☐ LTE Band 2/4/5/7/13/66

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]
3.2	1880	12.3	0.006556	2.5
3.7	1880	14.0	0.007455	2.5
4.2	1880	13.3	0.007055	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	13.0	0.006914	2.5
Extreme (50C)	1880	11.8	0.006260	2.5
Extreme (40C)	1880	13.7	0.007263	2.5
Extreme (30C)	1880	13.1	0.006949	2.5
Extreme (10C)	1880	14.0	0.007473	2.5
Extreme (0C)	1880	12.2	0.006510	2.5
Extreme (-10C)	1880	13.4	0.007115	2.5
Extreme (-20C)	1880	13.7	0.007309	2.5
Extreme (-30C)	1880	14.7	0.007830	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	1880	10.3	0.005458	2.5
3.7	1880	8.4	0.004482	2.5
4.2	1880	7.9	0.004227	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	9.8	0.005204	2.5
Extreme (50C)	1880	9.0	0.004799	2.5
Extreme (40C)	1880	7.7	0.004104	2.5
Extreme (30C)	1880	8.5	0.004523	2.5
Extreme (10C)	1880	9.1	0.004863	2.5
Extreme (0C)	1880	8.4	0.004470	2.5
Extreme (-10C)	1880	9.0	0.004781	2.5
Extreme (-20C)	1880	9.4	0.004974	2.5
Extreme (-30C)	1880	8.0	0.004244	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]
3.2	1732.5	8.8	0.005086	2.5
3.7	1732.5	8.7	0.005005	2.5
4.2	1732.5	8.4	0.004833	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.8	0.005086	2.5
Extreme (50C)	1732.5	8.5	0.004901	2.5
Extreme (40C)	1732.5	7.1	0.004074	2.5
Extreme (30C)	1732.5	6.2	0.003601	2.5
Extreme (10C)	1732.5	7.0	0.004054	2.5
Extreme (0C)	1732.5	9.9	0.005702	2.5
Extreme (-10C)	1732.5	8.0	0.004633	2.5
Extreme (-20C)	1732.5	6.9	0.003984	2.5
Extreme (-30C)	1732.5	7.9	0.004571	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	1732.5	9.5	0.005484	2.5
3.7	1732.5	8.5	0.004905	2.5
4.2	1732.5	8.6	0.004938	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.6	0.005559	2.5
Extreme (50C)	1732.5	8.8	0.005078	2.5
Extreme (40C)	1732.5	8.3	0.004793	2.5
Extreme (30C)	1732.5	8.9	0.005156	2.5
Extreme (10C)	1732.5	8.4	0.004854	2.5
Extreme (0C)	1732.5	8.2	0.004736	2.5
Extreme (-10C)	1732.5	9.5	0.005457	2.5
Extreme (-20C)	1732.5	9.3	0.005381	2.5
Extreme (-30C)	1732.5	8.0	0.004631	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]
3.2	836.5	5.9	0.007105	2.5
3.7	836.5	6.6	0.007905	2.5
4.2	836.5	5.0	0.005962	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.1	0.007246	2.5
Extreme (50C)	836.5	6.0	0.007188	2.5
Extreme (40C)	836.5	6.1	0.007285	2.5
Extreme (30C)	836.5	6.8	0.008123	2.5
Extreme (10C)	836.5	5.5	0.006614	2.5
Extreme (0C)	836.5	5.3	0.006371	2.5
Extreme (-10C)	836.5	5.2	0.006262	2.5
Extreme (-20C)	836.5	5.7	0.006830	2.5
Extreme (-30C)	836.5	6.0	0.007162	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	836.5	5.6	0.006657	2.5
3.7	836.5	6.7	0.007982	2.5
4.2	836.5	5.2	0.006158	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	6.6	0.007856	2.5
Extreme (50C)	836.5	6.0	0.007215	2.5
Extreme (40C)	836.5	6.2	0.007397	2.5
Extreme (30C)	836.5	6.3	0.007478	2.5
Extreme (10C)	836.5	5.1	0.006110	2.5
Extreme (0C)	836.5	5.0	0.006012	2.5
Extreme (-10C)	836.5	5.3	0.006300	2.5
Extreme (-20C)	836.5	5.7	0.006774	2.5
Extreme (-30C)	836.5	6.6	0.007946	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]
3.2	2535	10.5	0.004136	2.5
3.7	2535	9.2	0.003616	2.5
4.2	2535	8.5	0.003343	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.3	0.003686	2.5
Extreme (50C)	2535	8.9	0.003500	2.5
Extreme (40C)	2535	8.5	0.003359	2.5
Extreme (30C)	2535	8.7	0.003444	2.5
Extreme (10C)	2535	7.9	0.003104	2.5
Extreme (0C)	2535	8.5	0.003368	2.5
Extreme (-10C)	2535	9.0	0.003553	2.5
Extreme (-20C)	2535	8.8	0.003489	2.5
Extreme (-30C)	2535	8.0	0.003141	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	2535	6.8	0.002669	2.5
3.7	2535	6.6	0.002586	2.5
4.2	2535	5.4	0.002128	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	6.6	0.002593	2.5
Extreme (50C)	2535	5.3	0.002102	2.5
Extreme (40C)	2535	5.4	0.002119	2.5
Extreme (30C)	2535	7.1	0.002782	2.5
Extreme (10C)	2535	6.1	0.002401	2.5
Extreme (0C)	2535	4.9	0.001918	2.5
Extreme (-10C)	2535	5.2	0.002059	2.5
Extreme (-20C)	2535	6.2	0.002461	2.5
Extreme (-30C)	2535	5.8	0.002285	2.5

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

10.5 LTE BAND 13

Band 13 QPSK, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	710.0	13.0	0.018350	2.5
3.7	710.0	13.6	0.019225	2.5
4.2	710.0	13.4	0.018838	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	14.6	0.020531	2.5
Extreme (50C)	710.0	13.7	0.019304	2.5
Extreme (40C)	710.0	15.3	0.021604	2.5
Extreme (30C)	710.0	14.5	0.020381	2.5
Extreme (10C)	710.0	13.5	0.018966	2.5
Extreme (0C)	710.0	14.5	0.020388	2.5
Extreme (-10C)	710.0	13.8	0.019449	2.5
Extreme (-20C)	710	13.8	0.019500	2.5
Extreme (-30C)	710	14.2	0.019968	2.5

Band 13 16QAM, (10MHz BANDWIDTH RB size 50 RB Offset 0)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	710.0	12.6	0.017742	2.5
3.7	710.0	13.5	0.019070	2.5
4.2	710.0	12.9	0.018232	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	12.5	0.017586	2.5
Extreme (50C)	710.0	12.0	0.016902	2.5
Extreme (40C)	710.0	13.2	0.018636	2.5
Extreme (30C)	710.0	13.9	0.019533	2.5
Extreme (10C)	710.0	14.1	0.019836	2.5
Extreme (0C)	710.0	12.0	0.016912	2.5
Extreme (-10C)	710.0	12.5	0.017643	2.5
Extreme (-20C)	710.0	14.5	0.020369	2.5
Extreme (-30C)	710.0	14.4	0.020295	2.5

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

10.6 LTE BAND 66

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	1745	12.9	0.00739	2.5
3.7	1745	13.5	0.00775	2.5
4.2	1745	13.7	0.00786	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.4	0.004259	2.5
Extreme (50C)	1745	4.6	0.002631	2.5
Extreme (40C)	1745	5.0	0.002846	2.5
Extreme (30C)	1745	4.6	0.002610	2.5
Extreme (10C)	1745	6.5	0.003748	2.5
Extreme (0C)	1745	4.9	0.002830	2.5
Extreme (-10C)	1745	9.6	0.005488	2.5
Extreme (-20C)	1745	10.5	0.005995	2.5
Extreme (-30C)	1745	6.5	0.003717	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.2	1745	13.0	0.007462	2.5
3.7	1745	13.4	0.007666	2.5
4.2	1745	13.2	0.007567	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1745	7.3	0.004155	2.5
Extreme (50C)	1745	4.4	0.002530	2.5
Extreme (40C)	1745	5.8	0.003330	2.5
Extreme (30C)	1745	4.5	0.002572	2.5
Extreme (10C)	1745	6.8	0.003914	2.5
Extreme (0C)	1745	4.5	0.002602	2.5
Extreme (-10C)	1745	9.2	0.005297	2.5
Extreme (-20C)	1745	10.5	0.006017	2.5
Extreme (-30C)	1745	6.0	0.003431	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.

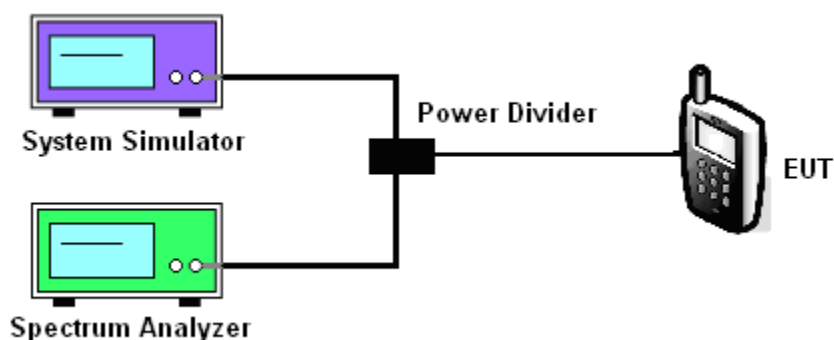
11.2 Measuring Instruments

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 2/4/5/7/13/66
- ☐

Test data reference attachment.

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