

FCC RADIO TEST REPORT

FCC ID:2AZYA-A70

Product: smartphone
Trade Mark: ACER
Model No.: A70
Family Model: N/A
Report No.: N26062907308E
Issue Date: Aug. 13, 2026

Prepared for

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TEST RESULT CERTIFICATION

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Mexico

Product name: smartphone

Model and/or type reference: A70

Trade Mark: ACER

Family Model: N/A

Test Sample Number: S2607030032-1#

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 Jun. 29, 2026 ~ Aug 13, 2026

Date of Issue Aug 13, 2026

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:	smartphone
Trade Mark	ACER
Model Name	A70
Family Model	N/A
Model Difference	All models have the same circuit and RF module, except for model names.
FCC ID:	2AZYA-A70
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 2, 4, 5, 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 13 Uplink: 777MHz-787MHz, Downlink: 746MHz-756MHz; LTE FDD Band 66 Uplink: 1710MHz-1780MHz, Downlink: 2110MHz-2200MHz;
Type of Modulation:	QPSK/16QAM(Uplink) QPSK/16QAM/64QAM(Downlink)
Power Class	Class 3
Antenna:	PIFA Antenna
Antenna gain:	Band 2: 0.23 dBi, Band 4: -0.15 dBi, Band 5: -1.68 dBi Band 13: -2.54 dBi, Band 66: -0.15dBi,
Adapter	Model: LD-PDS20WUL Input: 100-240V~50/60Hz 0.5A Output: 5.0V---3.0A 15.0W OR 9.0V---2.22A 19.98W OR 12.0V---1.67A 20.04W PPS: 3.3-5.9V---3.0A 17.7W, 3.3-11.0V---1.8A 19.8W
Battery	DC 3.87V, 5000mAh,19.35Wh
Power supply	DC 3.87V from battery or DC 5V/9V/12V from adapter
Extreme Vol. Limits:	DC 3.4V to DC 4.45V (Nominal DC 3.87V) (Note 1)
HW Version	N/A
SW Version	N/A
** Note1: The High Voltage DC 4.45V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID:2AZYA-A70** 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 Xinfa 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 2/4/5/7/12/13/17/38/41/66

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

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

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

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

2.2 EUT EXERCISE

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

2.3 CONFIGURATION OF EUT SYSTEM

Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	smartphone	A70	FCC ID: 2AZYA-A70	EUT

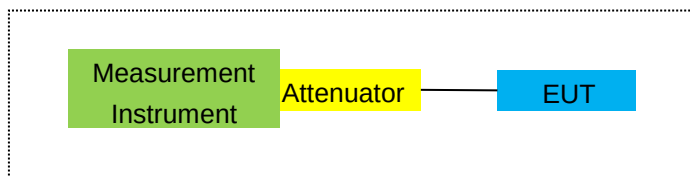
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

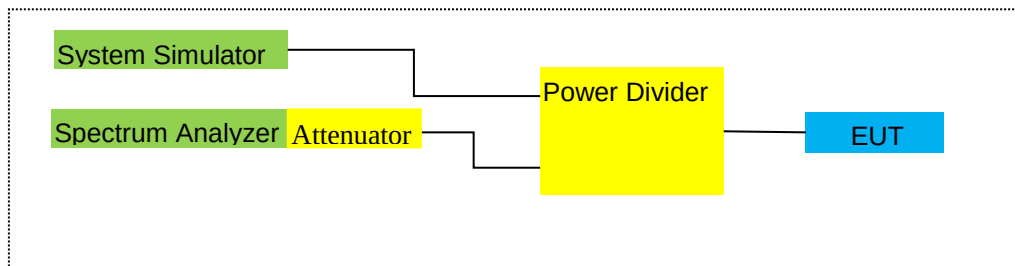
For Radiated Test Cases



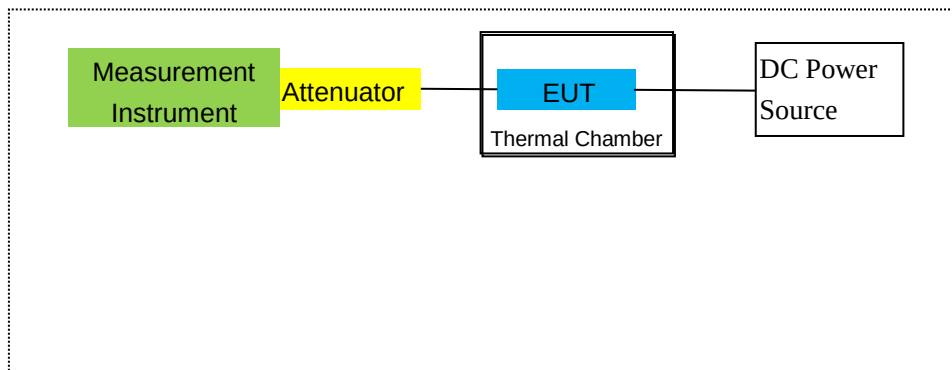
For Conducted Output Power



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	2026.04.08	2027.04.07	1 year
2	Test Receiver	R&S	ESPI3	101417	2026.06.29	2027.06.28	1 year
3	Bilog Antenna	ETS	3142E	00214344	2024/6/1	2027/5/30	3 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2026.04.08	2027.04.07	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2026.04.08	2027.04.07	1 year
9	Power Meter	R&S	NRVS	100696	2026.04.08	2027.04.07	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2026.04.08	2027.04.07	1 year
11	Test Cable	N/A	R-01	N/A	2024.06.16	2027.06.15	3 year
12	Test Cable	N/A	R-02	N/A	2024.06.16	2027.06.15	3 year
13	Test Cable	N/A	R-03	N/A	2024.06.16	2027.06.15	3 year
14	Test Receiver	R&S	ESCI	101160	2026.04.08	2027.04.07	1 year
15	LISN	R&S	ENV216	101313	2026.04.08	2027.04.07	1 year
16	LISN	EMCO	3816/2	00042990	2026.04.08	2027.04.07	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2026.04.08	2027.04.07	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2026.04.08	2027.04.07	1 year
19	Test Cable	N/A	C01	N/A	2024.05.06	2027.05.05	3 year
20	Test Cable	N/A	C02	N/A	2024.05.06	2027.05.05	3 year
21	Test Cable	N/A	C03	N/A	2024.05.06	2027.05.05	3 year
22	Attenuator	MCE	24-10-34	BN9258	2026.04.08	2027.04.07	1 year
23	Spectrum Analyzer	agilent	e4440a	us44300399	2026.04.08	2027.04.07	1 year
24	test receiver	R&S	ESCI	a0304218	2026.04.08	2027.04.07	1 year
25	Communication Tester	R&S	CMU200	A0304247	2026.04.08	2027.04.07	1 year
26	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2026.04.08	2027.04.07	1 year

27	DC Power Source	N/A	PS-6005D	20170402923	2024.05.06	2027.05.05	3 year
28	MXG Vector Signal Generator	Agilent	N5182A	MY47070317	2026.04.08	2027.04.07	1 year
29	Communication Tester	R&S	CMW500	148500	2026.04.27	2027.04.26	1 year
30	Log-Periodic Antenna	SCHWARZBECK	VULB 9168	1742	2025/11/1	2026/10/31	1 year
31	Horn Antenna	SCHWARZBECK	BBHA 9120D	2816	2024.05.18	2027.05.17	3 year
32	PSG Analog Signal Generator	Agilent	E8257D	MY51110112	2026/4/27	2027/4/26	1 year

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

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	raditeq	RadiMation	2023.1.3	RadiatedTest

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".

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

Band 2/4/5/13/66

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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

TEST PROCEDURE

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

MODES TESTED

Band 2/4/5/13/66

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

Band 2/4/5/13/66

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.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

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

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. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

Band 2/4/5/13/66

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. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP		
							Average		Limit	
							(mW)		(W)	
1.4MHz Band QPSK	1/#Mid	1850.7	17.56	3.76	8.9	22.7	186.209	Horizontal	2	Pass
		1880	18.14	3.91	8.9	23.13	205.589	Horizontal	2	Pass
		1909.3	18.19	3.93	8.9	23.16	207.014	Horizontal	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	17.65	3.77	8.9	22.78	189.671	Horizontal	2	Pass
		1880	17.63	3.91	8.9	22.62	182.81	Horizontal	2	Pass
		1908.5	17.33	3.94	8.9	22.29	169.434	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	17.54	3.77	8.9	22.67	184.927	Horizontal	2	Pass
		1880	17.82	3.91	8.9	22.81	190.985	Horizontal	2	Pass
		1907.5	17.48	3.94	8.9	22.44	175.388	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	1855	17.2	3.79	8.9	22.31	170.216	Horizontal	2	Pass
		1880	17.52	3.95	8.9	22.47	176.604	Horizontal	2	Pass
		1905	17.92	3.97	8.9	22.85	192.752	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	1857.5	17.13	3.79	8.9	22.24	167.494	Horizontal	2	Pass
		1880	18.06	3.95	8.9	23.01	199.986	Horizontal	2	Pass
		1902.5	17.79	3.97	8.9	22.72	187.068	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	1860	17.32	3.81	8.9	22.41	174.181	Horizontal	2	Pass
		1880	17.68	3.96	8.9	22.62	182.81	Horizontal	2	Pass
		1900	17.69	4	8.9	22.59	181.552	Horizontal	2	Pass
1.4MHz Band QPSK	1/#Mid	1850.7	16.41	3.76	8.9	21.55	142.889	Vertical	2	Pass
		1880	17.07	3.91	8.9	22.06	160.694	Vertical	2	Pass
		1909.3	16.86	3.93	8.9	21.83	152.405	Vertical	2	Pass
3.0MHz Band QPSK	1/#Mid	1851.5	16.15	3.77	8.9	21.28	134.276	Vertical	2	Pass
		1880	16.52	3.91	8.9	21.51	141.579	Vertical	2	Pass
		1908.5	15.77	3.94	8.9	20.73	118.304	Vertical	2	Pass
5.0MHz Band QPSK	1/#Mid	1852.5	15.77	3.77	8.9	20.9	123.027	Vertical	2	Pass
		1880	16.79	3.91	8.9	21.78	150.661	Vertical	2	Pass
		1907.5	16.22	3.94	8.9	21.18	131.22	Vertical	2	Pass
10.0MHz Band QPSK	1/#Mid	1855	15.57	3.79	8.9	20.68	116.95	Vertical	2	Pass
		1880	16.46	3.95	8.9	21.41	138.357	Vertical	2	Pass
		1905	16.28	3.97	8.9	21.21	132.13	Vertical	2	Pass
15.0MHz	1/#Mid	1857.5	16.12	3.79	8.9	21.23	132.739	Vertical	2	Pass

Band QPSK		1880	16.29	3.95	8.9	21.24	133.045	Vertical	2	Pass
		1902.5	16.37	3.97	8.9	21.3	134.896	Vertical	2	Pass
20.0MHz	1/#Mid	1860	15.44	3.81	8.9	20.53	112.98	Vertical	2	Pass
Band		1880	16.61	3.96	8.9	21.55	142.889	Vertical	2	Pass
QPSK		1900	16.08	4	8.9	20.98	125.314	Vertical	2	Pass

		Radiated Power (EIRP) for Band 2								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP	Polarization Of Max. ERP		
							Average		Limit	
							(mW)		(W)	
1.4MHz Band 16 QAM	1/#Mid	1850.7	14.6	3.76	8.9	21.78	150.661	Horizontal	2	Pass
		1880	15.75	3.91	8.9	21.92	155.597	Horizontal	2	Pass
		1909.3	15.45	3.93	8.9	21.96	157.036	Horizontal	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	15.29	3.77	8.9	21.89	154.525	Horizontal	2	Pass
		1880	14.95	3.91	8.9	21.51	141.579	Horizontal	2	Pass
		1908.5	14.55	3.94	8.9	21.36	136.773	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	15.14	3.77	8.9	21.3	134.896	Horizontal	2	Pass
		1880	15.5	3.91	8.9	21.98	157.761	Horizontal	2	Pass
		1907.5	14	3.94	8.9	21.98	157.761	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	15.35	3.79	8.9	21.64	145.881	Horizontal	2	Pass
		1880	14.05	3.95	8.9	21.89	154.525	Horizontal	2	Pass
		1905	15.36	3.97	8.9	21.45	139.637	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	13.68	3.79	8.9	21.4	138.038	Horizontal	2	Pass
		1880	15.77	3.95	8.9	21.33	135.831	Horizontal	2	Pass
		1902.5	15.65	3.97	8.9	21.81	151.705	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	1860	13.84	3.81	8.9	22.16	164.437	Horizontal	2	Pass
		1880	16.17	3.96	8.9	21.93	155.955	Horizontal	2	Pass
		1900	14.55	4	8.9	21.74	149.279	Horizontal	2	Pass
1.4MHz Band 16 QAM	1/#Mid	1850.7	14.61	3.76	8.9	20.6	114.815	Vertical	2	Pass
		1880	15.84	3.91	8.9	20.09	102.094	Vertical	2	Pass
		1909.3	15.13	3.93	8.9	20.44	110.662	Vertical	2	Pass
3.0MHz Band 16 QAM	1/#Mid	1851.5	13.77	3.77	8.9	20.1	102.329	Vertical	2	Pass
		1880	14.83	3.91	8.9	20.5	112.202	Vertical	2	Pass
		1908.5	14.56	3.94	8.9	19.72	93.756	Vertical	2	Pass
5.0MHz Band 16 QAM	1/#Mid	1852.5	13.76	3.77	8.9	20.19	104.472	Vertical	2	Pass
		1880	15.05	3.91	8.9	20.71	117.761	Vertical	2	Pass
		1907.5	15.69	3.94	8.9	20.14	103.276	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	1855	13.98	3.79	8.9	19.87	97.051	Vertical	2	Pass
		1880	15.57	3.95	8.9	20.65	116.145	Vertical	2	Pass
		1905	15.12	3.97	8.9	19.92	98.175	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	1857.5	13.85	3.79	8.9	19.52	89.536	Vertical	2	Pass
		1880	14.87	3.95	8.9	20.07	101.625	Vertical	2	Pass
		1902.5	13.66	3.97	8.9	20.49	111.944	Vertical	2	Pass

20.0MHz		1860	14.29	3.81	8.9	20.79	119.95	Vertical	2	Pass
Band 16	1/#Mid	1880	14.9	3.96	8.9	20.2	104.713	Vertical	2	Pass
QAM		1900	13.78	4	8.9	20.53	112.98	Vertical	2	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

	Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
1.4MHz Band QPSK	1/#Mid	1710.7	16.29	3.12	8.9	22.07	161.065	Horizontal	1	Pass
		1732.5	16.28	3.27	8.9	21.91	155.239	Horizontal	1	Pass
		1754.3	16.62	3.29	8.9	22.23	167.109	Horizontal	1	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	16.26	3.13	8.9	22.03	159.588	Horizontal	1	Pass
		1732.5	16.6	3.27	8.9	22.23	167.109	Horizontal	1	Pass
		1753.5	16.35	3.3	8.9	21.95	156.675	Horizontal	1	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	16.39	3.13	8.9	22.16	164.437	Horizontal	1	Pass
		1732.5	16.59	3.27	8.9	22.22	166.725	Horizontal	1	Pass
		1752.5	16.58	3.3	8.9	22.18	165.196	Horizontal	1	Pass
10.0MHz Band QPSK	1/#Mid	1715	16.4	3.15	8.9	22.15	164.059	Horizontal	1	Pass
		1732.5	17.08	3.31	8.9	22.67	184.927	Horizontal	1	Pass
		1750	16.78	3.33	8.9	22.35	171.791	Horizontal	1	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	17.08	3.15	8.9	22.83	191.867	Horizontal	1	Pass
		1732.5	16.3	3.31	8.9	21.89	154.525	Horizontal	1	Pass
		1747.5	17.24	3.33	8.9	22.81	190.985	Horizontal	1	Pass
20.0MHz Band QPSK	1/#Mid	1720	17.03	3.17	8.9	22.76	188.799	Horizontal	1	Pass
		1732.5	16.86	3.32	8.9	22.44	175.388	Horizontal	1	Pass
		1745	16.41	3.36	8.9	21.95	156.675	Horizontal	1	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	14.74	3.12	8.9	20.52	112.72	Vertical	1	Pass
		1732.5	15.24	3.27	8.9	20.87	122.18	Vertical	1	Pass
		1754.3	15.04	3.29	8.9	20.65	116.145	Vertical	1	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	14.92	3.13	8.9	20.69	117.22	Vertical	1	Pass
		1732.5	14.67	3.27	8.9	20.3	107.152	Vertical	1	Pass
		1753.5	14.8	3.3	8.9	20.4	109.648	Vertical	1	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	15.1	3.13	8.9	20.87	122.18	Vertical	1	Pass
		1732.5	15.5	3.27	8.9	21.13	129.718	Vertical	1	Pass
		1752.5	14.91	3.3	8.9	20.51	112.46	Vertical	1	Pass
10.0MHz Band QPSK	1/#Mid	1715	14.89	3.15	8.9	20.64	115.878	Vertical	1	Pass
		1732.5	15.54	3.31	8.9	21.13	129.718	Vertical	1	Pass
		1750	15.61	3.33	8.9	21.18	131.22	Vertical	1	Pass

15.0MHz	1/#Mid	1717.5	16	3.15	8.9	21.75	149.624	Vertical	1	Pass
Band		1732.5	15.22	3.31	8.9	20.81	120.504	Vertical	1	Pass
QPSK		1747.5	16.21	3.33	8.9	21.78	150.661	Vertical	1	Pass
20.0MHz	1/#Mid	1720	15.52	3.17	8.9	21.25	133.352	Vertical	1	Pass
Band		1732.5	14.88	3.32	8.9	20.46	111.173	Vertical	1	Pass
QPSK		1745	14.75	3.36	8.9	20.29	106.905	Vertical	1	Pass

		Radiated Power (EIRP) for Band 4								
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
									Limit	
1.4MHz Band 16 QAM	1/#Mid	1710.7	15.17	3.12	8.9	20.95	124.451	Horizontal	1	Pass
		1732.5	15.47	3.27	8.9	21.1	128.825	Horizontal	1	Pass
		1754.3	15.89	3.29	8.9	21.5	141.254	Horizontal	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	15.43	3.13	8.9	21.2	131.826	Horizontal	1	Pass
		1732.5	15.94	3.27	8.9	21.57	143.549	Horizontal	1	Pass
		1753.5	15.79	3.3	8.9	21.39	137.721	Horizontal	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	15.66	3.13	8.9	21.43	138.995	Horizontal	1	Pass
		1732.5	15.54	3.27	8.9	21.17	130.918	Horizontal	1	Pass
		1752.5	16.21	3.3	8.9	21.81	151.705	Horizontal	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	15.7	3.15	8.9	21.45	139.637	Horizontal	1	Pass
		1732.5	16.11	3.31	8.9	21.7	147.911	Horizontal	1	Pass
		1750	15.87	3.33	8.9	21.44	139.316	Horizontal	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	15.57	3.15	8.9	21.32	135.519	Horizontal	1	Pass
		1732.5	15.45	3.31	8.9	21.04	127.057	Horizontal	1	Pass
		1747.5	16.05	3.33	8.9	21.62	145.211	Horizontal	1	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	15.52	3.17	8.9	21.25	133.352	Horizontal	1	Pass
		1732.5	16.17	3.32	8.9	21.75	149.624	Horizontal	1	Pass
		1745	15.78	3.36	8.9	21.32	135.519	Horizontal	1	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	13.39	3.12	8.9	19.17	82.604	Vertical	1	Pass
		1732.5	13.99	3.27	8.9	19.62	91.622	Vertical	1	Pass
		1754.3	14.51	3.29	8.9	20.12	102.802	Vertical	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	14.04	3.13	8.9	19.81	95.719	Vertical	1	Pass
		1732.5	14.27	3.27	8.9	19.9	97.724	Vertical	1	Pass
		1753.5	14.74	3.3	8.9	20.34	108.143	Vertical	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	14.52	3.13	8.9	20.29	106.905	Vertical	1	Pass
		1732.5	13.65	3.27	8.9	19.28	84.723	Vertical	1	Pass
		1752.5	14.61	3.3	8.9	20.21	104.954	Vertical	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	13.97	3.15	8.9	19.72	93.756	Vertical	1	Pass
		1732.5	15.06	3.31	8.9	20.65	116.145	Vertical	1	Pass
		1750	14.64	3.33	8.9	20.21	104.954	Vertical	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	14.24	3.15	8.9	19.99	99.77	Vertical	1	Pass
		1732.5	14.01	3.31	8.9	19.6	91.201	Vertical	1	Pass
		1747.5	14.44	3.33	8.9	20.01	100.231	Vertical	1	Pass

20.0MHz		1720	14.39	3.17	8.9	20.12	102.802	Vertical	1	Pass
Band 16	1/#Mid	1732.5	14.53	3.32	8.9	20.11	102.565	Vertical	1	Pass
QAM		1745	14.07	3.36	8.9	19.61	91.411	Vertical	1	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
										(W)	
1.4MHz Band QPSK	3/#Mid	824.7	17.38	2.01	5.3	2.15	18.52	71.121	Horizontal	7	Pass
		836.5	17.75	2.01	5.3	2.15	18.89	77.446	Horizontal	7	Pass
		848.3	16.78	2.02	5.7	2.15	18.31	67.764	Horizontal	7	Pass
3.0MHz Band QPSK	1/#Mid	825.5	17.29	2.01	5.3	2.15	18.43	69.663	Horizontal	7	Pass
		836.5	17.88	2.01	5.3	2.15	19.02	79.799	Horizontal	7	Pass
		847.5	17.67	2.02	5.7	2.15	19.2	83.176	Horizontal	7	Pass
5.0MHz Band QPSK	1/#Mid	826.5	17.81	2.01	5.3	2.15	18.95	78.524	Horizontal	7	Pass
		836.5	17.64	2.01	5.3	2.15	18.78	75.509	Horizontal	7	Pass
		846.5	17.36	2.02	5.7	2.15	18.89	77.446	Horizontal	7	Pass
10.0MHz Band QPSK	1/#Mid	829	17.34	2.01	5.3	2.15	18.48	70.469	Horizontal	7	Pass
		836.5	17.45	2.01	5.3	2.15	18.59	72.277	Horizontal	7	Pass
		844	17.2	2.02	5.7	2.15	18.73	74.645	Horizontal	7	Pass
1.4MHz Band QPSK	1/#Mid	824.7	15.79	2.01	5.3	2.15	16.93	49.317	Vertical	7	Pass
		836.5	16.63	2.01	5.3	2.15	17.77	59.841	Vertical	7	Pass
		848.3	15.26	2.02	5.7	2.15	16.79	47.753	Vertical	7	Pass
3.0MHz Band QPSK	1/#Mid	825.5	15.86	2.01	5.3	2.15	17	50.119	Vertical	7	Pass
		836.5	15.93	2.01	5.3	2.15	17.07	50.933	Vertical	7	Pass
		847.5	16.27	2.02	5.7	2.15	17.8	60.256	Vertical	7	Pass
5.0MHz Band QPSK	1/#Mid	826.5	16.04	2.01	5.3	2.15	17.18	52.24	Vertical	7	Pass
		836.5	16.14	2.01	5.3	2.15	17.28	53.456	Vertical	7	Pass
		846.5	16.27	2.02	5.7	2.15	17.8	60.256	Vertical	7	Pass
10.0MHz Band QPSK	1/#Mid	829	15.77	2.01	5.3	2.15	16.91	49.091	Vertical	7	Pass
		836.5	16.18	2.01	5.3	2.15	17.32	53.951	Vertical	7	Pass
		844	15.65	2.02	5.7	2.15	17.18	52.24	Vertical	7	Pass

		Radiated Power (ERP) for Band 5									
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Factor (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP		
										Limit	
1.4MHz Band 16 QAM	3/#Mid	824.7	16.28	2.01	5.3	2.15	17.42	55.208	Horizontal	7	Pass
		836.5	16.78	2.01	5.3	2.15	17.92	61.944	Horizontal	7	Pass
		848.3	15.9	2.02	5.7	2.15	17.43	55.335	Horizontal	7	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	16.34	2.01	5.3	2.15	17.48	55.976	Horizontal	7	Pass
		836.5	16.83	2.01	5.3	2.15	17.97	62.661	Horizontal	7	Pass
		847.5	15.89	2.02	5.7	2.15	17.42	55.208	Horizontal	7	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	16.66	2.01	5.3	2.15	17.8	60.256	Horizontal	7	Pass
		836.5	16.54	2.01	5.3	2.15	17.68	58.614	Horizontal	7	Pass
		846.5	16.47	2.02	5.7	2.15	18	63.096	Horizontal	7	Pass
10.0MHz Band 16 QAM	1/#Mid	829	16.21	2.01	5.3	2.15	17.35	54.325	Horizontal	7	Pass
		836.5	17.1	2.01	5.3	2.15	18.24	66.681	Horizontal	7	Pass
		844	15.8	2.02	5.7	2.15	17.33	54.075	Horizontal	7	Pass
1.4MHz Band 16 QAM	1/#Mid	824.7	15.14	2.01	5.3	2.15	16.28	42.462	Vertical	7	Pass
		836.5	15.68	2.01	5.3	2.15	16.82	48.084	Vertical	7	Pass
		848.3	14.19	2.02	5.7	2.15	15.72	37.325	Vertical	7	Pass
3.0MHz Band 16 QAM	1/#Mid	825.5	14.68	2.01	5.3	2.15	15.82	38.194	Vertical	7	Pass
		836.5	15.42	2.01	5.3	2.15	16.56	45.29	Vertical	7	Pass
		847.5	14.13	2.02	5.7	2.15	15.66	36.813	Vertical	7	Pass
5.0MHz Band 16 QAM	1/#Mid	826.5	14.88	2.01	5.3	2.15	16.02	39.994	Vertical	7	Pass
		836.5	15.17	2.01	5.3	2.15	16.31	42.756	Vertical	7	Pass
		846.5	15.02	2.02	5.7	2.15	16.55	45.186	Vertical	7	Pass
10.0MHz Band 16 QAM	1/#Mid	829	14.86	2.01	5.3	2.15	16	39.811	Vertical	7	Pass
		836.5	15.66	2.01	5.3	2.15	16.8	47.863	Vertical	7	Pass
		844	14.44	2.02	5.7	2.15	15.97	39.537	Vertical	7	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

8.5 LTE BAND 13

Radiated Power (ERP) for Band 13											
Mode	RB/RB SIZE	Frequency	Result								Conclusion
			SG Level	Cable Loss (dBm)	Antenna Factor (dB)	Correction	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	Limit	
			(dBm)			(dB)	Average	Average			
							(dBm)	(mW)			
5.0MHz Band QPSK	25/0	779.5	15.59	1.91	5.8	2.15	17.33	54.075	Horizontal	3	Pass
		782	16.28	1.91	5.6	2.15	17.82	60.534	Horizontal	3	Pass
		784.5	16.32	1.92	5.7	2.15	17.95	62.373	Horizontal	3	Pass
10.0MHz Band QPSK	50/0	782	15.94	1.91	5.8	2.15	17.68	58.614	Horizontal	3	Pass
5.0MHz Band QPSK	25/0	779.5	13.82	1.91	5.8	2.15	15.56	35.975	Vertical	3	Pass
		782	15	1.91	5.6	2.15	16.54	45.082	Vertical	3	Pass
		784.5	14.66	1.92	5.7	2.15	16.29	42.56	Vertical	3	Pass
10.0MHz Band QPSK	50/0	782	14	1.91	5.8	2.15	15.74	37.497	Vertical	3	Pass

Radiated Power (ERP) for Band 13											
Mode	RB/RB SIZE	Frequency	Result							Limit	Conclusion
			SG Level	Cable Loss	Antenna Factor	Correction	Max. EIRP	Max. EIRP	Polarization		
			(dBm)	(dBm)	(dB)	(dB)	Average	Average	Of Max. ERP		
							(dBm)	(mW)			
5.0MHz Band QPSK	25/0	779.5	15.36	1.91	5.8	2.15	17.1	51.286	Horizontal	3	Pass
		782	15.19	1.91	5.6	2.15	16.73	47.098	Horizontal	3	Pass
		784.5	15.51	1.92	5.7	2.15	17.14	51.761	Horizontal	3	Pass
10.0MHz Band QPSK	50/0	782	15.15	1.91	5.8	2.15	16.89	48.865	Horizontal	3	Pass
5.0MHz Band QPSK	25/0	779.5	13.4	1.91	5.8	2.15	15.14	32.659	Vertical	3	Pass
		782	13.4	1.91	5.6	2.15	14.94	31.189	Vertical	3	Pass
		784.5	13.55	1.92	5.7	2.15	15.18	32.961	Vertical	3	Pass
10.0MHz Band QPSK	50/0	782	13.51	1.91	5.8	2.15	15.25	33.497	Vertical	3	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.6 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	Polarization Of Max. ERP		
							Average		Limit	
							(mW)		(W)	
1.4MHz Band QPSK	1/#Mid	1710.7	15.09	3.12	8.9	22.17	164.816	Horizontal	1	Pass
		1745	13.86	3.27	8.9	22.74	187.932	Horizontal	1	Pass
		1779.3	16.28	3.29	8.9	22.22	166.725	Horizontal	1	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	14.2	3.13	8.9	22.38	172.982	Horizontal	1	Pass
		1745	14.87	3.27	8.9	22.13	163.305	Horizontal	1	Pass
		1778.5	15.56	3.3	8.9	21.85	153.109	Horizontal	1	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	16.05	3.13	8.9	22.37	172.584	Horizontal	1	Pass
		1745	16.21	3.27	8.9	22.31	170.216	Horizontal	1	Pass
		1777.5	14.87	3.3	8.9	22.42	174.582	Horizontal	1	Pass
10.0MHz Band QPSK	1/#Mid	1715	15.19	3.15	8.9	22.6	181.97	Horizontal	1	Pass
		1745	15.29	3.31	8.9	22.65	184.077	Horizontal	1	Pass
		1775	16.1	3.33	8.9	22.71	186.638	Horizontal	1	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	15.36	3.15	8.9	22.79	190.108	Horizontal	1	Pass
		1745	15.89	3.31	8.9	22.12	162.93	Horizontal	1	Pass
		1772.5	16.64	3.33	8.9	22.84	192.309	Horizontal	1	Pass
20.0MHz Band QPSK	1/#Mid	1720	13.97	3.17	8.9	22.54	179.473	Horizontal	1	Pass
		1745	15.42	3.32	8.9	22.05	160.325	Horizontal	1	Pass
		1770	15.22	3.36	8.9	22.66	184.502	Horizontal	1	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	15.71	3.12	8.9	20.19	104.472	Vertical	1	Pass
		1745	16.21	3.27	8.9	21.61	144.877	Vertical	1	Pass
		1779.3	15.56	3.29	8.9	21.01	126.183	Vertical	1	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	16.08	3.13	8.9	21.2	131.826	Vertical	1	Pass
		1745	16.14	3.27	8.9	20.48	111.686	Vertical	1	Pass
		1778.5	16.41	3.3	8.9	20.33	107.895	Vertical	1	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	15.17	3.13	8.9	21.21	132.13	Vertical	1	Pass
		1745	15.65	3.27	8.9	21.18	131.22	Vertical	1	Pass
		1777.5	14.24	3.3	8.9	20.65	116.145	Vertical	1	Pass
10.0MHz	1/#Mid	1715	12.72	3.15	8.9	20.77	119.399	Vertical	1	Pass

Band		1745	16.63	3.31	8.9	21.59	144.212	Vertical	1	Pass
QPSK		1775	15.66	3.33	8.9	21.65	146.218	Vertical	1	Pass
15.0MHz	1/#Mid	1717.5	16.69	3.15	8.9	21.68	147.231	Vertical	1	Pass
Band		1745	16.08	3.31	8.9	20.89	122.744	Vertical	1	Pass
QPSK		1772.5	15.3	3.33	8.9	20.9	123.027	Vertical	1	Pass
20.0MHz	1/#Mid	1720	17.39	3.17	8.9	20.61	115.08	Vertical	1	Pass
Band		1745	17.54	3.32	8.9	20.95	124.451	Vertical	1	Pass
QPSK		1770	14.41	3.36	8.9	21.33	135.831	Vertical	1	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	Polarization Of Max. ERP		
							Average		Limit	
							(mW)		(W)	
1.4MHz Band 16 QAM	1/#Mid	1710.7	15.7	3.12	8.9	21.48	140.605	Horizontal	1	Pass
		1745	16.1	3.27	8.9	21.73	148.936	Horizontal	1	Pass
		1779.3	15.74	3.29	8.9	21.35	136.458	Horizontal	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	15.61	3.13	8.9	21.38	137.404	Horizontal	1	Pass
		1745	15.88	3.27	8.9	21.51	141.579	Horizontal	1	Pass
		1778.5	16.1	3.3	8.9	21.7	147.911	Horizontal	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	15.75	3.13	8.9	21.52	141.906	Horizontal	1	Pass
		1745	15.42	3.27	8.9	21.05	127.35	Horizontal	1	Pass
		1777.5	15.8	3.3	8.9	21.4	138.038	Horizontal	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	15.27	3.15	8.9	21.02	126.474	Horizontal	1	Pass
		1745	15.93	3.31	8.9	21.52	141.906	Horizontal	1	Pass
		1775	15.87	3.33	8.9	21.44	139.316	Horizontal	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	15.53	3.15	8.9	21.28	134.276	Horizontal	1	Pass
		1745	15.29	3.31	8.9	20.88	122.462	Horizontal	1	Pass
		1772.5	16.16	3.33	8.9	21.73	148.936	Horizontal	1	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	15.17	3.17	8.9	20.9	123.027	Horizontal	1	Pass
		1745	15.68	3.32	8.9	21.26	133.66	Horizontal	1	Pass
		1770	15.51	3.36	8.9	21.05	127.35	Horizontal	1	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	14.55	3.12	8.9	20.33	107.895	Vertical	1	Pass
		1745	15.1	3.27	8.9	20.73	118.304	Vertical	1	Pass
		1779.3	13.81	3.29	8.9	19.42	87.498	Vertical	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	14.44	3.13	8.9	20.21	104.954	Vertical	1	Pass
		1745	14.29	3.27	8.9	19.92	98.175	Vertical	1	Pass
		1778.5	14.6	3.3	8.9	20.2	104.713	Vertical	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	14.64	3.13	8.9	20.41	109.901	Vertical	1	Pass
		1745	14.06	3.27	8.9	19.69	93.111	Vertical	1	Pass
		1777.5	14.62	3.3	8.9	20.22	105.196	Vertical	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	13.57	3.15	8.9	19.32	85.507	Vertical	1	Pass
		1745	14.85	3.31	8.9	20.44	110.662	Vertical	1	Pass
		1775	14.42	3.33	8.9	19.99	99.77	Vertical	1	Pass
15.0MHz	1/#Mid	1717.5	13.63	3.15	8.9	19.38	86.696	Vertical	1	Pass

Band 16		1745	13.62	3.31	8.9	19.21	83.368	Vertical	1	Pass
QAM		1772.5	14.28	3.33	8.9	19.85	96.605	Vertical	1	Pass
20.0MHz	1/#Mid	1720	13.36	3.17	8.9	19.09	81.096	Vertical	1	Pass
Band 16		1745	13.74	3.32	8.9	19.32	85.507	Vertical	1	Pass
QAM		1770	14.34	3.36	8.9	19.88	97.275	Vertical	1	Pass

Note:

SG Level= Signal generator output

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

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

- a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than $43 + 10 \log_{10}(p)$, 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 2/4/5/13/66

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	-73.61	4.04	33.51	-44.14	-13	-31.14	Horizontal
3701.4	-73.76	4.04	33.51	-44.29	-13	-31.29	Vertical
5552.1	-64.43	5.24	35.84	-33.83	-13	-20.83	Vertical
5552.1	-63.47	5.24	35.84	-32.87	-13	-19.87	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-72.84	4.04	33.56	-43.32	-13	-30.32	Horizontal
3760	-73.06	4.04	33.56	-43.54	-13	-30.54	Vertical
5640	-62.22	5.24	35.91	-31.55	-13	-18.55	Vertical
5640	-61.58	5.24	35.91	-30.91	-13	-17.91	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-71.08	4.04	34.00	-41.12	-13	-28.12	Horizontal
3818.6	-74.49	4.04	34.00	-44.53	-13	-31.53	Vertical
5727.9	-62.63	5.24	36.04	-31.83	-13	-18.83	Vertical
5727.9	-62.74	5.24	36.04	-31.94	-13	-18.94	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	-71.85	4.07	33.54	-42.38	-13	-29.38	Horizontal
3720	-73.30	4.07	33.54	-43.83	-13	-30.83	Vertical
5580	-62.85	5.28	35.86	-32.27	-13	-19.27	Vertical
5580	-62.08	5.28	35.86	-31.50	-13	-18.50	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-72.93	4.04	33.56	-43.41	-13	-30.41	Horizontal
3760	-71.48	4.04	33.56	-41.96	-13	-28.96	Vertical
5640	-61.65	5.24	35.91	-30.98	-13	-17.98	Vertical
5640	-62.40	5.24	35.91	-31.73	-13	-18.73	Horizontal
Test Results for High Channel 1890MHz							
3780	-71.36	4.04	34.00	-41.40	-13	-28.40	Horizontal
3780	-71.34	4.04	34.00	-41.38	-13	-28.38	Vertical
5670	-61.51	5.24	36.04	-30.71	-13	-17.71	Vertical
5670	-63.34	5.24	36.04	-32.54	-13	-19.54	Horizontal

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

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

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

9.2 LTE BAND 4

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

Test Results for Low Channel 1710.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3421.4	-72.53	4.02	29.80	-46.75	-13	-33.75	Horizontal
3421.4	-73.47	4.02	29.80	-47.69	-13	-34.69	Vertical
5132.1	-64.33	5.24	35.84	-33.73	-13	-20.73	Vertical
5132.1	-61.40	5.24	35.84	-30.80	-13	-17.80	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-72.08	4.03	30.00	-46.11	-13	-33.11	Horizontal
3465	-73.23	4.03	30.00	-47.26	-13	-34.26	Vertical
5197.5	-63.54	5.25	35.86	-32.93	-13	-19.93	Vertical
5197.5	-62.39	5.25	35.86	-31.78	-13	-18.78	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-72.80	4.05	30.01	-46.84	-13	-33.84	Horizontal
3508.6	-71.83	4.05	30.01	-45.87	-13	-32.87	Vertical
5262.9	-61.57	5.26	35.86	-30.97	-13	-17.97	Vertical
5262.9	-61.08	5.26	35.86	-30.48	-13	-17.48	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	-71.39	4.02	29.80	-45.61	-13	-32.61	Horizontal
3440	-71.94	4.02	29.80	-46.16	-13	-33.16	Vertical
5160	-64.75	5.24	35.84	-34.15	-13	-21.15	Vertical
5160	-64.43	5.24	35.84	-33.83	-13	-20.83	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-74.75	4.03	30.00	-48.78	-13	-35.78	Horizontal
3465	-73.15	4.03	30.00	-47.18	-13	-34.18	Vertical
5197.5	-61.17	5.25	35.86	-30.56	-13	-17.56	Vertical
5197.5	-61.92	5.25	35.86	-31.31	-13	-18.31	Horizontal
Test Results for High Channel 1745MHz							
2490	-72.23	2.91	27.68	-47.46	-13	-34.46	Horizontal
3490	-72.64	2.91	27.68	-47.87	-13	-34.87	Vertical
5235	-62.70	5.26	35.86	-32.10	-13	-19.10	Vertical
5235	-64.23	5.26	35.86	-33.63	-13	-20.63	Horizontal

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

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

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

9.3 LTE BAND 5

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

Test Results for Low Channel 824.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1649.4	-76.09	2.78	27.50	-51.37	-13	-38.37	Horizontal
1649.4	-79.84	2.78	27.50	-55.12	-13	-42.12	Vertical
2474.1	-73.13	2.90	27.80	-48.23	-13	-35.23	Vertical
2474.1	-73.79	2.90	27.80	-48.89	-13	-35.89	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-77.17	2.78	27.48	-52.47	-13	-39.47	Horizontal
1673	-79.22	2.78	27.48	-54.52	-13	-41.52	Vertical
2509.5	-72.08	2.91	27.70	-47.29	-13	-34.29	Vertical
2509.5	-74.81	2.91	27.70	-50.02	-13	-37.02	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-77.98	2.78	27.43	-53.33	-13	-40.33	Horizontal
1696.6	-79.70	2.78	27.43	-55.05	-13	-42.05	Vertical
2544.9	-74.64	2.92	27.74	-49.82	-13	-36.82	Vertical
2544.9	-72.85	2.92	27.74	-48.03	-13	-35.03	Horizontal

QPSK EIRP POWER FOR LTE BAND 5 (10MHZ 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	-75.24	2.78	27.50	-50.52	-13	-37.52	Horizontal
1649.4	-76.53	2.78	27.50	-51.81	-13	-38.81	Vertical
2474.1	-72.80	2.90	27.80	-47.90	-13	-34.90	Vertical
2474.1	-74.54	2.90	27.80	-49.64	-13	-36.64	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-78.71	2.78	27.48	-54.01	-13	-41.01	Horizontal
1673	-75.44	2.78	27.48	-50.74	-13	-37.74	Vertical
2509.5	-73.37	2.91	27.70	-48.58	-13	-35.58	Vertical
2509.5	-74.31	2.91	27.70	-49.52	-13	-36.52	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-76.35	2.78	27.43	-51.70	-13	-38.70	Horizontal
1696.6	-75.04	2.78	27.43	-50.39	-13	-37.39	Vertical
2544.9	-72.00	2.92	27.74	-47.18	-13	-34.18	Vertical
2544.9	-73.75	2.92	27.74	-48.93	-13	-35.93	Horizontal

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

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

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

9.4 LTE BAND 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	-76.09	2.61	27.28	-51.42	-13	-38.42	Horizontal
1559	-78.60	2.61	27.28	-53.93	-13	-40.93	Vertical
2338.5	-74.29	2.87	27.59	-49.57	-13	-36.57	Vertical
2338.5	-73.90	2.87	27.59	-49.18	-13	-36.18	Horizontal
Test Results For Mid Channel 782MHz							
1564	-79.77	2.62	27.30	-55.09	-13	-42.09	Horizontal
1564	-76.91	2.62	27.30	-52.23	-13	-39.23	Vertical
2346	-73.68	2.87	27.62	-48.93	-13	-35.93	Vertical
2346	-74.10	2.87	27.62	-49.35	-13	-36.35	Horizontal
Test Results for High Channel 784.5MHz							
1569	-78.20	2.66	27.28	-53.58	-13	-40.58	Horizontal
1569	-79.35	2.66	27.28	-54.73	-13	-41.73	Vertical
2353.5	-74.21	2.88	27.60	-49.49	-13	-36.49	Vertical
2353.5	-72.97	2.88	27.60	-48.25	-13	-35.25	Horizontal

LTE BAND 13 (10MHZ BANDWIDTH)

Test Results for Low Channel 782MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1564	-79.06	2.62	27.30	-54.38	-13	-41.38	Horizontal
1564	-76.96	2.62	27.30	-52.28	-13	-39.28	Vertical
2346	-74.73	2.87	27.62	-49.98	-13	-36.98	Vertical
2346	-73.28	2.87	27.62	-48.53	-13	-35.53	Horizontal

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

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

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

9.5 LTE BAND 66

QPSK EIRP POWER FOR LTE BAND 66 (5MHZ 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	-71.78	2.61	27.28	-47.11	-13	-34.11	Horizontal
3421.4	-71.23	2.61	27.28	-46.56	-13	-33.56	Vertical
5132.1	-64.01	2.87	27.59	-39.29	-13	-26.29	Vertical
5132.1	-61.91	2.87	27.59	-37.19	-13	-24.19	Horizontal
Test Results for Mid Channel 1745MHz							
3490	-73.33	2.62	27.3	-48.65	-13	-35.65	Horizontal
3490	-72.53	2.62	27.3	-47.85	-13	-34.85	Vertical
5337.9	-64.14	2.87	27.62	-39.39	-13	-26.39	Vertical
5337.9	-63.69	2.87	27.62	-38.94	-13	-25.94	Horizontal
Test Results for High Channel 1779.3MHz							
3558.6	-72.15	2.66	27.28	-47.53	-13	-34.53	Horizontal
3558.6	-72.34	2.66	27.28	-47.72	-13	-34.72	Vertical
5337.9	-62.46	2.88	27.6	-37.74	-13	-24.74	Vertical
5337.9	-63.76	2.88	27.6	-39.04	-13	-26.04	Horizontal

QPSK EIRP POWER FOR LTE BAND 66 (10MHZ 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	-71.94	2.62	27.3	-47.26	-13	-34.26	Horizontal
3440	-74.12	2.62	27.3	-49.44	-13	-36.44	Vertical
5160	-62.98	2.87	27.62	-38.23	-13	-25.23	Vertical
5160	-62.68	2.87	27.62	-37.93	-13	-24.93	Horizontal
Test Results for Mid Channel 1745MHz							
3490	-72.54	2.62	27.3	-47.86	-13	-34.86	Horizontal
3490	-72.55	2.62	27.3	-47.87	-13	-34.87	Vertical
5337.9	-64.07	2.87	27.62	-39.32	-13	-26.32	Vertical
5337.9	-63.45	2.87	27.62	-38.70	-13	-25.70	Horizontal
Test Results for High Channel 1770MHz							
3540	-74.73	2.62	27.3	-50.05	-13	-37.05	Horizontal
3540	-74.85	2.62	27.3	-50.17	-13	-37.17	Vertical
5310	-62.90	2.87	27.62	-38.15	-13	-25.15	Vertical
5310	-61.31	2.87	27.62	-36.56	-13	-23.56	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 3.31V, Normal, DC 3.89V and High voltage, DC 4.47V.

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 2/4/5/13/66

RESULTS

See the following pages.

10.1 LTE BAND 2

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1880	4	0.002128	2.5
3.87	1880	2	0.001064	2.5
4.45	1880	24	0.012766	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	1	0.000532	2.5
Extreme (50C)	1880	2	0.001064	2.5
Extreme (40C)	1880	10	0.005319	2.5
Extreme (30C)	1880	13	0.006915	2.5
Extreme (10C)	1880	18	0.009574	2.5
Extreme (0C)	1880	4	0.002128	2.5
Extreme (-10C)	1880	3	0.001596	2.5
Extreme (-20C)	1880	2	0.001064	2.5
Extreme (-30C)	1880	25	0.013298	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1880	2	0.001064	2.5
3.87	1880	23	0.012234	2.5
4.45	1880	16	0.008511	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	12	0.006383	2.5
Extreme (50C)	1880	8	0.004255	2.5
Extreme (40C)	1880	5	0.002660	2.5
Extreme (30C)	1880	10	0.005319	2.5
Extreme (10C)	1880	10	0.005319	2.5
Extreme (0C)	1880	10	0.005319	2.5
Extreme (-10C)	1880	1	0.000532	2.5
Extreme (-20C)	1880	22	0.011702	2.5
Extreme (-30C)	1880	20	0.010638	2.5

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

10.2 LTE BAND 4

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1732.5	10	0.005772	2.5
3.87	1732.5	6	0.003463	2.5
4.45	1732.5	11	0.006349	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	20	0.011544	2.5
Extreme (50C)	1732.5	21	0.012121	2.5
Extreme (40C)	1732.5	12	0.006926	2.5
Extreme (30C)	1732.5	6	0.003463	2.5
Extreme (10C)	1732.5	17	0.009812	2.5
Extreme (0C)	1732.5	17	0.009812	2.5
Extreme (-10C)	1732.5	24	0.013853	2.5
Extreme (-20C)	1732.5	5	0.002886	2.5
Extreme (-30C)	1732.5	10	0.005772	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	1732.5	2	0.001154	2.5
3.87	1732.5	15	0.008658	2.5
4.45	1732.5	20	0.011544	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	26	0.015007	2.5
Extreme (50C)	1732.5	3	0.001732	2.5
Extreme (40C)	1732.5	6	0.003463	2.5
Extreme (30C)	1732.5	13	0.007504	2.5
Extreme (10C)	1732.5	2	0.001154	2.5
Extreme (0C)	1732.5	17	0.009812	2.5
Extreme (-10C)	1732.5	8	0.004618	2.5
Extreme (-20C)	1732.5	21	0.012121	2.5
Extreme (-30C)	1732.5	17	0.009812	2.5

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

10.3 LTE BAND 5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	836.5	12	0.014345	2.5
3.87	836.5	6	0.007173	2.5
4.45	836.5	19	0.022714	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	17	0.020323	2.5
Extreme (50C)	836.5	26	0.031082	2.5
Extreme (40C)	836.5	15	0.017932	2.5
Extreme (30C)	836.5	12	0.014345	2.5
Extreme (10C)	836.5	2	0.002391	2.5
Extreme (0C)	836.5	3	0.003586	2.5
Extreme (-10C)	836.5	8	0.009564	2.5
Extreme (-20C)	836.5	25	0.029886	2.5
Extreme (-30C)	836.5	23	0.027496	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.4	836.5	7	0.008368	2.5
3.87	836.5	21	0.025105	2.5
4.45	836.5	12	0.014345	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	11	0.013150	2.5
Extreme (50C)	836.5	2	0.002391	2.5
Extreme (40C)	836.5	24	0.028691	2.5
Extreme (30C)	836.5	12	0.014345	2.5
Extreme (10C)	836.5	6	0.007173	2.5
Extreme (0C)	836.5	26	0.031082	2.5
Extreme (-10C)	836.5	5	0.005977	2.5
Extreme (-20C)	836.5	8	0.009564	2.5
Extreme (-30C)	836.5	17	0.020323	2.5

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

10.4 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]
3.4	710.0	7	0.00895	2.5
3.87	710.0	12	0.01535	2.5
4.45	710.0	4	0.00512	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	21	0.02685	2.5
Extreme (50C)	710.0	11	0.01407	2.5
Extreme (40C)	710.0	26	0.03325	2.5
Extreme (30C)	710.0	21	0.02685	2.5
Extreme (10C)	710.0	25	0.03197	2.5
Extreme (0C)	710.0	11	0.01407	2.5
Extreme (-10C)	710.0	22	0.02813	2.5
Extreme (-20C)	710.0	19	0.02430	2.5
Extreme (-30C)	710.0	18	0.02302	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]
3.4	710.0	18	0.02302	2.5
3.87	710.0	9	0.01151	2.5
4.45	710.0	8	0.01023	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710.0	23	0.02941	2.5
Extreme (50C)	710.0	26	0.03325	2.5
Extreme (40C)	710.0	12	0.01535	2.5
Extreme (30C)	710.0	9	0.01151	2.5
Extreme (10C)	710.0	18	0.02302	2.5
Extreme (0C)	710.0	16	0.02046	2.5
Extreme (-10C)	710.0	16	0.02046	2.5
Extreme (-20C)	710.0	11	0.01407	2.5
Extreme (-30C)	710.0	15	0.01918	2.5

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

10.5 LTE BAND 66
QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	24	0.013754	2.5
3.87	1745	14	0.008023	2.5
4.45	1745	19	0.010888	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 QPSK, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	19	0.010888	2.5
Extreme (50C)	1745	18	0.010315	2.5
Extreme (40C)	1745	15	0.008596	2.5
Extreme (30C)	1745	20	0.011461	2.5
Extreme (10C)	1745	3	0.001719	2.5
Extreme (0C)	1745	11	0.006304	2.5
Extreme (-10C)	1745	24	0.013754	2.5
Extreme (-20C)	1745	25	0.014327	2.5
Extreme (-30C)	1745	20	0.011461	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.4	1745	9	0.005158	2.5
3.87	1745	9	0.005158	2.5
4.45	1745	4	0.002292	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 66 16QAM, (CH 132322 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	1745	18	0.010315	2.5
Extreme (50C)	1745	13	0.007450	2.5
Extreme (40C)	1745	12	0.006877	2.5
Extreme (30C)	1745	5	0.002865	2.5
Extreme (10C)	1745	19	0.010888	2.5
Extreme (0C)	1745	4	0.002292	2.5
Extreme (-10C)	1745	2	0.001146	2.5
Extreme (-20C)	1745	7	0.004011	2.5
Extreme (-30C)	1745	1	0.000573	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

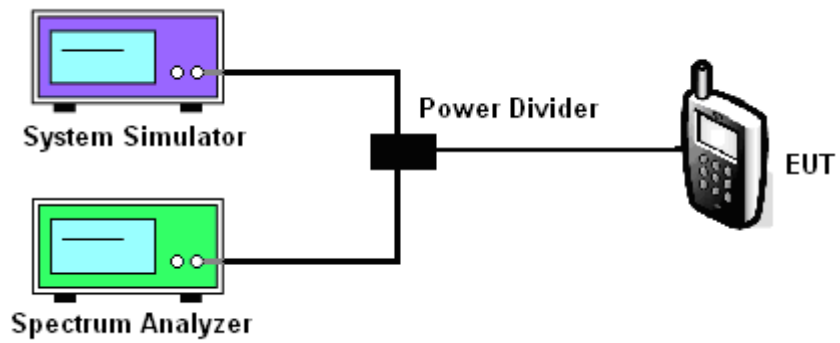
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

LTE Band 2/4/5/13/66

Test data reference attachment.

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