

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT FCC ID: 2A7DX-TAB60PRO

Product: Tablet PC

Trade Mark: Blackview

Model No.: Tab 60 Pro

Family Model: N/A

Report No.: S24090504302006

Issue Date: Nov. 18, 2024

Prepared for

DOKE COMMUNICATION (HK) LIMITED

19H MAXGRAND PLAZA NO 3 TAI YAU STREET SAN PO KONG KL

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name DOKE COMMUNICATION (HK) LIMITED

Address 19H MAXGRAND PLAZA NO 3 TAI YAU STREET SAN PO KONG KL

Manufacturer's Name Shenzhen DOKE Electronic Co., Ltd

Address 801, Building3, 7th Industrial Zone, Yulv Community, Yutang Road,
Guangming District, Shenzhen, China.

Product name Tablet PC

Model and/or type reference Tab 60 Pro

Trade Mark Blackview

Family Model N/A

Test Sample Number S240905043003

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.

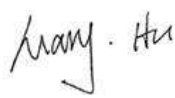
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Date of Test

Date (s) of performance of tests Sept. 05, 2024 ~ Nov. 18, 2024

Date of Issue Nov. 18, 2024

Test Result **Pass**

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1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2A7DX-TAB60PRO** filing to comply with the FCC Part 22H&24E&27.

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District, Shenzhen, Guangdong, China

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

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

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

1.5 SPECIAL ACCESSORIES

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

1.6 WORST-CASE CONFIGURATION AND MODE

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

The device has LTE Bands of: Band 2/4/5/7/12/17/41

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	Tablet PC	Tab 60 Pro	FCC ID: 2A7DX-TAB60PRO	EUT

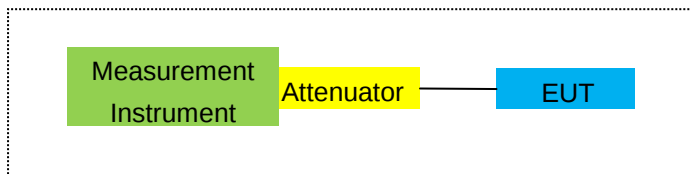
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

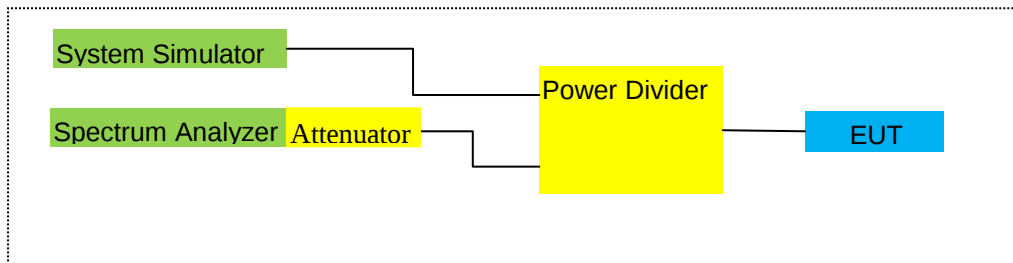
For Radiated Test Cases



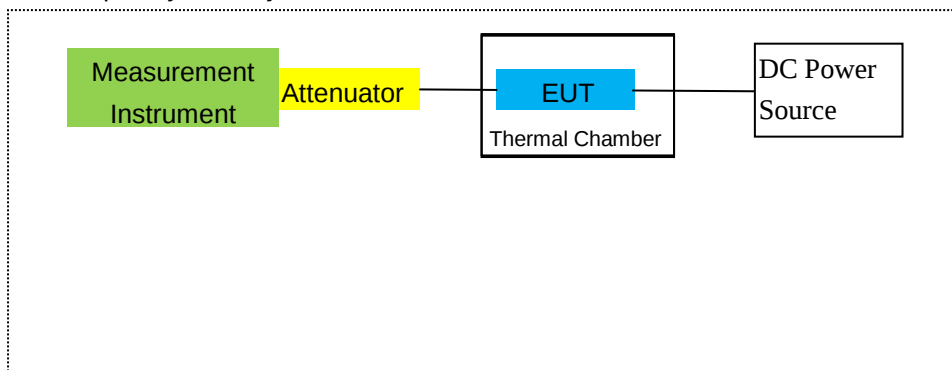
For Conducted Output Power



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



For Frequency Stability



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

3.TEST AND MEASUREMENT EQUIPMENT

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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
2	Test Receiver	R&S	ESPI	101318	2024.04.26	2025.04.25	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2024.05.12	2025.05.11	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Horn Antenna	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2024.05.12	2027.05.11	3 year
7	Amplifier	EM	EM-30180	060538	2024.04.26	2025.04.25	1 year
8	Loop Antenna	ARA	PLA-1030/B	1029	2024.03.12	2025.03.11	1 year
9	Power Meter	R&S	NRVS	100696	2024.04.26	2025.04.25	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2024.04.26	2025.04.25	1 year
11	Test Cable	N/A	R-01	N/A	2022.06.17	2025.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2022.06.17	2025.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2022.06.17	2025.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2024.04.26	2025.04.25	1 year
15	LISN	R&S	ENV216	101313	2024.04.25	2025.04.24	1 year
16	LISN	EMCO	3816/2	00042990	2024.04.25	2025.04.24	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2024.03.12	2025.03.11	1 year
18	Passive Voltage Probe	R&S	ESH2-Z3	100196	2024.03.12	2025.03.11	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	agilent	e4440a	us44300399	2024.03.12	2025.03.11	1 year
23	test receiver	R&S	ESCI	a0304218	2024.03.12	2025.03.11	1 year
24	Communication Tester	R&S	CMU200	A0304247	2024.03.12	2025.03.11	1 year
25	Thermal Chamber	Ten Billion	TTC-B3C	TBN-960502	2024.03.12	2025.03.11	1 year

26	DC Power Source	N/A	PS-6005D	2017040292 3	2024.04.25	2027.04.24	3 year
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Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& DC Power Source which is scheduled for calibration every 3 years.

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTest	MTS 8200	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	RadiatedTest
3	raditeq	RadiMation	2023.1.3	RadiatedTest
4	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

☐

Band 2/4/5/7/12/17/41

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

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

FCC: §22.359

LIMITS

FCC: §22.917, §24.238, §27.53

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

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

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

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

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

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

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

TEST PROCEDURE

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency

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

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

MODES TESTED

Band 2/4/5/7/12/17/41

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 2/4/5/7/12/17/41
- ☐

7.1 MEASUREMENT METHOD

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

Test data reference attachment.

8. RADIATED MEASUREMENT

8.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

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

LIMITS:

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

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

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

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

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

90.635(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

☐ Band 2/4/5/7/12/17/41

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 Gain (dBi)	Max. EIRP	Max. EIRP Average (mW)	Polarization Of Max. ERP	
						Average			
						(dBm)			
1.4MHz Band QPSK	6/0	1850.7	7.51	3.76	8.90	12.65	18.408	Horizontal	Pass
		1880	6.65	3.91	8.90	11.64	14.588	Horizontal	Pass
		1909.3	6.46	3.93	8.90	11.43	13.900	Horizontal	Pass
3.0MHz Band QPSK	15/0	1851.5	5.19	3.77	8.90	10.32	10.765	Horizontal	Pass
		1880	6.42	3.91	8.90	11.41	13.836	Horizontal	Pass
		1908.5	6.83	3.94	8.90	11.79	15.101	Horizontal	Pass
5.0MHz Band QPSK	25/0	1852.5	6.50	3.77	8.90	11.63	14.555	Horizontal	Pass
		1880	7.83	3.91	8.90	12.82	19.143	Horizontal	Pass
		1907.5	7.79	3.94	8.90	12.75	18.836	Horizontal	Pass
10.0MHz Band QPSK	50/0	1855	8.45	3.79	8.90	13.56	22.699	Horizontal	Pass
		1880	8.97	3.95	8.90	13.92	24.660	Horizontal	Pass
		1905	7.10	3.97	8.90	12.03	15.959	Horizontal	Pass
15.0MHz Band QPSK	75/0	1857.5	7.60	3.79	8.90	12.71	18.664	Horizontal	Pass
		1880	8.31	3.95	8.90	13.26	21.184	Horizontal	Pass
		1902.5	6.31	3.97	8.90	11.24	13.305	Horizontal	Pass
20.0MHz Band QPSK	100/0	1860	6.95	3.81	8.90	12.04	15.996	Horizontal	Pass
		1880	5.58	3.96	8.90	10.52	11.272	Horizontal	Pass
		1900	8.81	4.00	8.90	13.71	23.496	Horizontal	Pass
1.4MHz Band QPSK	6/0	1850.7	6.50	3.76	8.90	11.64	14.588	Vertical	Pass
		1880	7.04	3.91	8.90	12.03	15.959	Vertical	Pass
		1909.3	7.44	3.93	8.90	12.41	17.418	Vertical	Pass
3.0MHz Band QPSK	15/0	1851.5	7.81	3.77	8.90	12.94	19.679	Vertical	Pass
		1880	8.04	3.91	8.90	13.03	20.091	Vertical	Pass
		1908.5	5.86	3.94	8.90	10.82	12.078	Vertical	Pass
5.0MHz Band QPSK	25/0	1852.5	5.59	3.77	8.90	10.72	11.803	Vertical	Pass
		1880	7.81	3.91	8.90	12.8	19.055	Vertical	Pass
		1907.5	7.64	3.94	8.90	12.6	18.197	Vertical	Pass
10.0MHz Band QPSK	50/0	1855	6.36	3.79	8.90	11.47	14.028	Vertical	Pass
		1880	3.62	3.95	8.90	8.57	7.194	Vertical	Pass
		1905	4.88	3.97	8.90	9.81	9.572	Vertical	Pass
15.0MHz Band QPSK	75/0	1857.5	6.06	3.79	8.90	11.17	13.092	Vertical	Pass
		1880	7.69	3.95	8.90	12.64	18.365	Vertical	Pass
		1902.5	7.66	3.97	8.90	12.59	18.155	Vertical	Pass
20.0MHz Band QPSK	100/0	1860	9.25	3.81	8.90	14.34	27.164	Vertical	Pass
		1880	7.64	3.96	8.90	12.58	18.113	Vertical	Pass
		1900	7.58	4.00	8.90	12.48	17.701	Vertical	Pass

Radiated Power (EIRP) for Band 2									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1850.7	14.60	3.76	8.90	11.89	15.453	Horizontal	Pass
		1880	15.75	3.91	8.90	12.54	17.947	Horizontal	Pass
		1909.3	15.45	3.93	8.90	12.79	19.011	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	15.29	3.77	8.90	12.19	16.558	Horizontal	Pass
		1880	14.95	3.91	8.90	12.1	16.218	Horizontal	Pass
		1908.5	14.55	3.94	8.90	10.94	12.417	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1852.5	15.14	3.77	8.90	13.09	20.370	Horizontal	Pass
		1880	15.50	3.91	8.90	11.83	15.241	Horizontal	Pass
		1907.5	14.00	3.94	8.90	9.86	9.683	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855	15.35	3.79	8.90	13.11	20.464	Horizontal	Pass
		1880	14.05	3.95	8.90	11.99	15.812	Horizontal	Pass
		1905	15.36	3.97	8.90	12.96	19.770	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.68	3.79	8.90	12.43	17.498	Horizontal	Pass
		1880	15.77	3.95	8.90	11.28	13.428	Horizontal	Pass
		1902.5	15.65	3.97	8.90	12.77	18.923	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860	13.84	3.81	8.90	10.6	11.482	Horizontal	Pass
		1880	16.17	3.96	8.90	11.71	14.825	Horizontal	Pass
		1900	14.55	4.00	8.90	11.93	15.596	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	14.61	3.76	8.90	11.77	15.031	Vertical	Pass
		1880	15.84	3.91	8.90	9.96	9.908	Vertical	Pass
		1909.3	15.13	3.93	8.90	11.8	15.136	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1851.5	13.77	3.77	8.90	11.91	15.524	Vertical	Pass
		1880	14.83	3.91	8.90	12.89	19.454	Vertical	Pass
		1908.5	14.56	3.94	8.90	11.78	15.066	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1852.5	13.76	3.77	8.90	11.43	13.900	Vertical	Pass
		1880	15.05	3.91	8.90	13.25	21.135	Vertical	Pass
		1907.5	15.69	3.94	8.90	11.83	15.241	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1855	13.98	3.79	8.90	12.2	16.596	Vertical	Pass
		1880	15.57	3.95	8.90	11.67	14.689	Vertical	Pass
		1905	15.12	3.97	8.90	11.59	14.421	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1857.5	13.85	3.79	8.90	11.75	14.962	Vertical	Pass
		1880	14.87	3.95	8.90	13.25	21.135	Vertical	Pass
		1902.5	13.66	3.97	8.90	11.31	13.521	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1860	14.29	3.81	8.90	13.38	21.777	Vertical	Pass
		1880	14.90	3.96	8.90	13.34	21.577	Vertical	Pass
		1900	13.78	4.00	8.90	11.3	13.490	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.3 LTE BAND 4

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1710.7	5.78	3.12	8.90	11.56	14.322	Horizontal	Pass
		1732.5	7.43	3.27	8.90	13.06	20.230	Horizontal	Pass
		1754.3	7.59	3.29	8.90	13.2	20.893	Horizontal	Pass
3.0MHz Band QPSK	15/0	1711.5	6.34	3.13	8.90	12.11	16.255	Horizontal	Pass
		1732.5	6.97	3.27	8.90	12.6	18.197	Horizontal	Pass
		1753.5	7.28	3.30	8.90	12.88	19.409	Horizontal	Pass
5.0MHz Band QPSK	25/0	1712.5	7.87	3.13	8.90	13.64	23.121	Horizontal	Pass
		1732.5	7.68	3.27	8.90	13.31	21.429	Horizontal	Pass
		1752.5	6.63	3.30	8.90	12.23	16.711	Horizontal	Pass
10.0MHz Band QPSK	50/0	1715	8.77	3.15	8.90	14.52	28.314	Horizontal	Pass
		1732.5	7.26	3.31	8.90	12.85	19.275	Horizontal	Pass
		1750	8.47	3.33	8.90	14.04	25.351	Horizontal	Pass
15.0MHz Band QPSK	75/0	1717.5	7.12	3.15	8.90	12.87	19.364	Horizontal	Pass
		1732.5	7.37	3.31	8.90	12.96	19.770	Horizontal	Pass
		1747.5	8.18	3.33	8.90	13.75	23.714	Horizontal	Pass
20.0MHz Band QPSK	100/0	1720	6.20	3.17	8.90	11.93	15.596	Horizontal	Pass
		1732.5	5.91	3.32	8.90	11.49	14.093	Horizontal	Pass
		1745	7.85	3.36	8.90	13.39	21.827	Horizontal	Pass
1.4MHz Band QPSK	6/0	1710.7	7.12	3.12	8.90	12.9	19.498	Vertical	Pass
		1732.5	7.94	3.27	8.90	13.57	22.751	Vertical	Pass
		1754.3	6.99	3.29	8.90	12.6	18.197	Vertical	Pass
3.0MHz Band QPSK	15/0	1711.5	7.37	3.13	8.90	13.14	20.606	Vertical	Pass
		1732.5	8.26	3.27	8.90	13.89	24.491	Vertical	Pass
		1753.5	7.49	3.30	8.90	13.09	20.370	Vertical	Pass
5.0MHz Band QPSK	25/0	1712.5	6.52	3.13	8.90	12.29	16.943	Vertical	Pass
		1732.5	9.12	3.27	8.90	14.75	29.854	Vertical	Pass
		1752.5	6.24	3.30	8.90	11.84	15.276	Vertical	Pass
10.0MHz Band QPSK	50/0	1715	5.07	3.15	8.90	10.82	12.078	Vertical	Pass
		1732.5	7.46	3.31	8.90	13.05	20.184	Vertical	Pass
		1750	6.61	3.33	8.90	12.18	16.520	Vertical	Pass
15.0MHz Band QPSK	75/0	1717.5	7.92	3.15	8.90	13.67	23.281	Vertical	Pass
		1732.5	7.91	3.31	8.90	13.5	22.387	Vertical	Pass
		1747.5	7.23	3.33	8.90	12.8	19.055	Vertical	Pass
20.0MHz Band QPSK	100/0	1720	9.12	3.17	8.90	14.85	30.549	Vertical	Pass
		1732.5	9.08	3.32	8.90	14.66	29.242	Vertical	Pass
		1745	6.56	3.36	8.90	12.1	16.218	Vertical	Pass

Radiated Power (EIRP) for Band 4									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	1710.7	6.64	3.12	8.90	12.42	17.458	Horizontal	Pass
		1732.5	6.94	3.27	8.90	12.57	18.072	Horizontal	Pass
		1754.3	8.22	3.29	8.90	13.83	24.155	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1711.5	7.30	3.13	8.90	13.07	20.277	Horizontal	Pass
		1732.5	8.03	3.27	8.90	13.66	23.227	Horizontal	Pass
		1753.5	8.69	3.30	8.90	14.29	26.853	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1712.5	6.69	3.13	8.90	12.46	17.620	Horizontal	Pass
		1732.5	6.07	3.27	8.90	11.7	14.791	Horizontal	Pass
		1752.5	7.08	3.30	8.90	12.68	18.535	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1715	6.38	3.15	8.90	12.13	16.331	Horizontal	Pass
		1732.5	6.01	3.31	8.90	11.6	14.454	Horizontal	Pass
		1750	6.15	3.33	8.90	11.72	14.859	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1717.5	7.81	3.15	8.90	13.56	22.699	Horizontal	Pass
		1732.5	8.58	3.31	8.90	14.17	26.122	Horizontal	Pass
		1747.5	7.08	3.33	8.90	12.65	18.408	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1720	7.23	3.17	8.90	12.96	19.770	Horizontal	Pass
		1732.5	7.14	3.32	8.90	12.72	18.707	Horizontal	Pass
		1745	8.58	3.36	8.90	14.12	25.823	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1710.7	8.45	3.12	8.90	14.23	26.485	Vertical	Pass
		1732.5	8.37	3.27	8.90	14	25.119	Vertical	Pass
		1754.3	7.86	3.29	8.90	13.47	22.233	Vertical	Pass
3.0MHz Band 16 QAM	15/0	1711.5	7.64	3.13	8.90	13.41	21.928	Vertical	Pass
		1732.5	7.57	3.27	8.90	13.2	20.893	Vertical	Pass
		1753.5	7.93	3.30	8.90	13.53	22.542	Vertical	Pass
5.0MHz Band 16 QAM	25/0	1712.5	8.86	3.13	8.90	14.63	29.040	Vertical	Pass
		1732.5	9.33	3.27	8.90	14.96	31.333	Vertical	Pass
		1752.5	6.45	3.30	8.90	12.05	16.032	Vertical	Pass
10.0MHz Band 16 QAM	50/0	1715	7.70	3.15	8.90	13.45	22.131	Vertical	Pass
		1732.5	8.15	3.31	8.90	13.74	23.659	Vertical	Pass
		1750	8.99	3.33	8.90	14.56	28.576	Vertical	Pass
15.0MHz Band 16 QAM	75/0	1717.5	6.45	3.15	8.90	12.2	16.596	Vertical	Pass
		1732.5	6.72	3.31	8.90	12.31	17.022	Vertical	Pass
		1747.5	8.42	3.33	8.90	13.99	25.061	Vertical	Pass
20.0MHz Band 16 QAM	100/0	1720	7.56	3.17	8.90	13.29	21.330	Vertical	Pass
		1732.5	9.63	3.32	8.90	15.21	33.189	Vertical	Pass
		1745	8.68	3.36	8.90	14.22	26.424	Vertical	Pass

Note:

SG Level= Signal generator output

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

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

8.4 LTE BAND 5

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	824.7	9.23	2.01	5.30	2.15	10.37	10.889	Horizontal	Pass
		836.5	12.08	2.01	5.30	2.15	13.22	20.989	Horizontal	Pass
		848.3	10.90	2.02	5.70	2.15	12.43	17.498	Horizontal	Pass
3.0MHz Band QPSK	15/0	825.5	11.77	2.01	5.30	2.15	12.91	19.543	Horizontal	Pass
		836.5	10.24	2.01	5.30	2.15	11.38	13.740	Horizontal	Pass
		847.5	10.66	2.02	5.70	2.15	12.19	16.558	Horizontal	Pass
5.0MHz Band QPSK	25/0	826.5	11.31	2.01	5.30	2.15	12.45	17.579	Horizontal	Pass
		836.5	11.39	2.01	5.30	2.15	12.53	17.906	Horizontal	Pass
		846.5	9.88	2.02	5.70	2.15	11.41	13.836	Horizontal	Pass
10.0MHz Band QPSK	50/0	829	12.34	2.01	5.30	2.15	13.48	22.284	Horizontal	Pass
		836.5	9.54	2.01	5.30	2.15	10.68	11.695	Horizontal	Pass
		844	10.14	2.02	5.70	2.15	11.67	14.689	Horizontal	Pass
1.4MHz Band QPSK	6/0	824.7	10.73	2.01	5.30	2.15	11.87	15.382	Vertical	Pass
		836.5	9.74	2.01	5.30	2.15	10.88	12.246	Vertical	Pass
		848.3	11.10	2.02	5.70	2.15	12.63	18.323	Vertical	Pass
3.0MHz Band QPSK	15/0	825.5	9.75	2.01	5.30	2.15	10.89	12.274	Vertical	Pass
		836.5	9.50	2.01	5.30	2.15	10.64	11.588	Vertical	Pass
		847.5	11.35	2.02	5.70	2.15	12.88	19.409	Vertical	Pass
5.0MHz Band QPSK	25/0	826.5	11.05	2.01	5.30	2.15	12.19	16.558	Vertical	Pass
		836.5	11.93	2.01	5.30	2.15	13.07	20.277	Vertical	Pass
		846.5	11.41	2.02	5.70	2.15	12.94	19.679	Vertical	Pass
10.0MHz Band QPSK	50/0	829	9.92	2.01	5.30	2.15	11.06	12.764	Vertical	Pass
		836.5	12.55	2.01	5.30	2.15	13.69	23.388	Vertical	Pass
		844	10.48	2.02	5.70	2.15	12.01	15.885	Vertical	Pass

Radiated Power (ERP) for Band 5										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	824.7	7.96	2.01	5.30	2.15	9.1	8.128	Horizontal	Pass
		836.5	10.78	2.01	5.30	2.15	11.92	15.560	Horizontal	Pass
		848.3	9.91	2.02	5.70	2.15	11.44	13.932	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	825.5	10.02	2.01	5.30	2.15	11.16	13.062	Horizontal	Pass
		836.5	9.16	2.01	5.30	2.15	10.3	10.715	Horizontal	Pass
		847.5	9.43	2.02	5.70	2.15	10.96	12.474	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	826.5	10.18	2.01	5.30	2.15	11.32	13.552	Horizontal	Pass
		836.5	10.24	2.01	5.30	2.15	11.38	13.740	Horizontal	Pass
		846.5	8.82	2.02	5.70	2.15	10.35	10.839	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	829	11.79	2.01	5.30	2.15	12.93	19.634	Horizontal	Pass
		836.5	8.96	2.01	5.30	2.15	10.1	10.233	Horizontal	Pass
		844	8.52	2.02	5.70	2.15	10.05	10.116	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	824.7	9.98	2.01	5.30	2.15	11.12	12.942	Vertical	Pass
		836.5	8.66	2.01	5.30	2.15	9.8	9.550	Vertical	Pass
		848.3	10.01	2.02	5.70	2.15	11.54	14.256	Vertical	Pass
3.0MHz Band 16 QAM	15/0	825.5	8.26	2.01	5.30	2.15	9.4	8.710	Vertical	Pass
		836.5	9.11	2.01	5.30	2.15	10.25	10.593	Vertical	Pass
		847.5	10.96	2.02	5.70	2.15	12.49	17.742	Vertical	Pass
5.0MHz Band 16 QAM	25/0	826.5	9.53	2.01	5.30	2.15	10.67	11.668	Vertical	Pass
		836.5	11.01	2.01	5.30	2.15	12.15	16.406	Vertical	Pass
		846.5	10.72	2.02	5.70	2.15	12.25	16.788	Vertical	Pass
10.0MHz Band 16 QAM	50/0	829	8.26	2.01	5.30	2.15	9.4	8.710	Vertical	Pass
		836.5	11.82	2.01	5.30	2.15	12.96	19.770	Vertical	Pass
		844	9.54	2.02	5.70	2.15	11.07	12.794	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

8.5 LTE BAND 7

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP	Max. EIRP	Polarization Of Max. ERP	
						Average	Average		
						(dBm)	(mW)		
5.0MHz Band QPSK	25/0	2502.5	8.47	4.54	9.00	12.93	19.634	Horizontal	Pass
		2535	9.99	4.69	9.00	14.3	26.915	Horizontal	Pass
		2567.5	5.58	4.71	9.00	9.87	9.705	Horizontal	Pass
10.0MHz Band QPSK	50/0	2505	5.91	4.55	9.00	10.36	10.864	Horizontal	Pass
		2535	7.82	4.69	9.00	12.13	16.331	Horizontal	Pass
		2565	8.38	4.72	9.00	12.66	18.450	Horizontal	Pass
15.0MHz Band QPSK	75/0	2507.5	9.39	4.55	9.00	13.84	24.210	Horizontal	Pass
		2535	7.83	4.69	9.00	12.14	16.368	Horizontal	Pass
		2562.5	7.53	4.72	9.00	11.81	15.171	Horizontal	Pass
20.0MHz Band QPSK	100/0	2510	8.05	4.57	9.00	12.48	17.701	Horizontal	Pass
		2535	9.00	4.73	9.00	13.27	21.232	Horizontal	Pass
		2560	7.99	4.75	9.00	12.24	16.749	Horizontal	Pass
5.0MHz Band QPSK	25/0	2502.5	7.61	4.54	9.00	12.07	16.106	Vertical	Pass
		2535	9.19	4.69	9.00	13.5	22.387	Vertical	Pass
		2567.5	9.33	4.71	9.00	13.62	23.014	Vertical	Pass
10.0MHz Band QPSK	50/0	2505	7.49	4.55	9.00	11.94	15.631	Vertical	Pass
		2535	9.23	4.69	9.00	13.54	22.594	Vertical	Pass
		2565	10.39	4.72	9.00	14.67	29.309	Vertical	Pass
15.0MHz Band QPSK	75/0	2507.5	7.75	4.55	9.00	12.2	16.596	Vertical	Pass
		2535	10.54	4.69	9.00	14.85	30.549	Vertical	Pass
		2562.5	7.54	4.72	9.00	11.82	15.205	Vertical	Pass
20.0MHz Band QPSK	100/0	2510	10.27	4.57	9.00	14.7	29.512	Vertical	Pass
		2535	9.46	4.73	9.00	13.73	23.605	Vertical	Pass
		2560	10.68	4.75	9.00	14.93	31.117	Vertical	Pass

Radiated Power (EIRP) for Band 7									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	2502.5	6.33	4.54	9.00	10.79	11.995	Horizontal	Pass
		2535	8.84	4.69	9.00	13.15	20.654	Horizontal	Pass
		2567.5	6.63	4.71	9.00	10.92	12.359	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2505	7.69	4.55	9.00	12.14	16.368	Horizontal	Pass
		2535	8.31	4.69	9.00	12.62	18.281	Horizontal	Pass
		2565	7.84	4.72	9.00	12.12	16.293	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2507.5	8.51	4.55	9.00	12.96	19.770	Horizontal	Pass
		2535	8.91	4.69	9.00	13.22	20.989	Horizontal	Pass
		2562.5	6.91	4.72	9.00	11.19	13.152	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2510	9.08	4.57	9.00	13.51	22.439	Horizontal	Pass
		2535	6.52	4.73	9.00	10.79	11.995	Horizontal	Pass
		2560	8.82	4.75	9.00	13.07	20.277	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2502.5	7.84	4.54	9.00	12.3	16.982	Vertical	Pass
		2535	8.38	4.69	9.00	12.69	18.578	Vertical	Pass
		2567.5	9.35	4.71	9.00	13.64	23.121	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2505	8.07	4.55	9.00	12.52	17.865	Vertical	Pass
		2535	9.40	4.69	9.00	13.71	23.496	Vertical	Pass
		2565	9.31	4.72	9.00	13.59	22.856	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2507.5	8.24	4.55	9.00	12.69	18.578	Vertical	Pass
		2535	8.70	4.69	9.00	13.01	19.999	Vertical	Pass
		2562.5	6.14	4.72	9.00	10.42	11.015	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2510	9.41	4.57	9.00	13.84	24.210	Vertical	Pass
		2535	8.50	4.73	9.00	12.77	18.923	Vertical	Pass
		2560	8.78	4.75	9.00	13.03	20.091	Vertical	Pass

Note:

SG Level= Signal generator output

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

8.6 LTE BAND 12

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	699.7	9.23	1.91	5.60	2.15	10.77	11.940	Horizontal	Pass
		707.5	12.05	1.91	5.70	2.15	13.69	23.388	Horizontal	Pass
		715.3	10.46	1.93	5.80	2.15	12.18	16.520	Horizontal	Pass
3.0MHz Band QPSK	15/0	700.5	10.49	1.91	5.60	2.15	12.03	15.959	Horizontal	Pass
		707.5	9.41	1.91	5.70	2.15	11.05	12.735	Horizontal	Pass
		714.5	10.06	1.93	5.80	2.15	11.78	15.066	Horizontal	Pass
5.0MHz Band QPSK	25/0	701.5	9.60	1.91	5.60	2.15	11.14	13.002	Horizontal	Pass
		707.5	10.60	1.91	5.70	2.15	12.24	16.749	Horizontal	Pass
		713.5	9.85	1.92	5.80	2.15	11.58	14.388	Horizontal	Pass
10.0MHz Band QPSK	50/0	704	11.77	1.91	5.60	2.15	13.31	21.429	Horizontal	Pass
		707.5	8.41	1.91	5.70	2.15	10.05	10.116	Horizontal	Pass
		711	9.98	1.92	5.80	2.15	11.71	14.825	Horizontal	Pass
1.4MHz Band QPSK	6/0	699.7	9.15	1.91	5.60	2.15	10.69	11.722	Vertical	Pass
		707.5	8.94	1.91	5.70	2.15	10.58	11.429	Vertical	Pass
		715.3	9.39	1.93	5.80	2.15	11.11	12.912	Vertical	Pass
3.0MHz Band QPSK	15/0	700.5	8.95	1.91	5.60	2.15	10.49	11.194	Vertical	Pass
		707.5	7.85	1.91	5.70	2.15	9.49	8.892	Vertical	Pass
		714.5	11.33	1.93	5.80	2.15	13.05	20.184	Vertical	Pass
5.0MHz Band QPSK	25/0	701.5	9.37	1.91	5.60	2.15	10.91	12.331	Vertical	Pass
		707.5	10.40	1.91	5.70	2.15	12.04	15.996	Vertical	Pass
		713.5	9.71	1.92	5.80	2.15	11.44	13.932	Vertical	Pass
10.0MHz Band QPSK	50/0	704	9.57	1.91	5.60	2.15	11.11	12.912	Vertical	Pass
		707.5	12.32	1.91	5.70	2.15	13.96	24.889	Vertical	Pass
		711	9.26	1.92	5.80	2.15	10.99	12.560	Vertical	Pass

Radiated Power (ERP) for Band 12										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band 16 QAM	6/0	699.7	7.78	1.91	5.60	2.15	9.32	8.551	Horizontal	Pass
		707.5	9.38	1.91	5.70	2.15	11.02	12.647	Horizontal	Pass
		715.3	8.78	1.93	5.80	2.15	10.5	11.220	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	700.5	8.49	1.91	5.60	2.15	10.03	10.069	Horizontal	Pass
		707.5	7.54	1.91	5.70	2.15	9.18	8.279	Horizontal	Pass
		714.5	7.26	1.93	5.80	2.15	8.98	7.907	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	701.5	8.07	1.91	5.60	2.15	9.61	9.141	Horizontal	Pass
		707.5	8.83	1.91	5.70	2.15	10.47	11.143	Horizontal	Pass
		713.5	7.39	1.92	5.80	2.15	9.12	8.166	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	704	10.56	1.91	5.60	2.15	12.1	16.218	Horizontal	Pass
		707.5	6.82	1.91	5.70	2.15	8.46	7.015	Horizontal	Pass
		711	7.69	1.92	5.80	2.15	9.42	8.750	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	699.7	8.72	1.91	5.60	2.15	10.26	10.617	Vertical	Pass
		707.5	7.09	1.91	5.70	2.15	8.73	7.464	Vertical	Pass
		715.3	8.68	1.93	5.80	2.15	10.4	10.965	Vertical	Pass
3.0MHz Band 16 QAM	15/0	700.5	6.35	1.91	5.60	2.15	7.89	6.152	Vertical	Pass
		707.5	8.11	1.91	5.70	2.15	9.75	9.441	Vertical	Pass
		714.5	8.92	1.93	5.80	2.15	10.64	11.588	Vertical	Pass
5.0MHz Band 16 QAM	25/0	701.5	8.42	1.91	5.60	2.15	9.96	9.908	Vertical	Pass
		707.5	9.26	1.91	5.70	2.15	10.9	12.303	Vertical	Pass
		713.5	8.97	1.92	5.80	2.15	10.7	11.749	Vertical	Pass
10.0MHz Band 16 QAM	50/0	704	7.99	1.91	5.60	2.15	9.53	8.974	Vertical	Pass
		707.5	11.56	1.91	5.70	2.15	13.2	20.893	Vertical	Pass
		711	9.25	1.92	5.80	2.15	10.98	12.531	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 17

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	706.5	9.80	1.91	5.60	2.15	11.34	13.614	Vertical	Pass
		710	12.00	1.91	5.70	2.15	13.64	23.121	Vertical	Pass
		713.5	10.73	1.92	5.80	2.15	12.46	17.620	Vertical	Pass
10.0MHz Band QPSK	50/0	709	9.92	1.91	5.60	2.15	11.46	13.996	Vertical	Pass
		710	11.46	1.91	5.70	2.15	13.1	20.417	Vertical	Pass
		711	8.78	1.92	5.80	2.15	10.51	11.246	Vertical	Pass
5.0MHz Band QPSK	25/0	706.5	9.63	1.91	5.60	2.15	11.17	13.092	Horizontal	Pass
		710	10.08	1.91	5.70	2.15	11.72	14.859	Horizontal	Pass
		713.5	10.57	1.92	5.80	2.15	12.3	16.982	Horizontal	Pass
10.0MHz Band QPSK	50/0	709	13.13	1.91	5.60	2.15	14.67	29.309	Horizontal	Pass
		710	11.02	1.91	5.70	2.15	12.66	18.450	Horizontal	Pass
		711	11.36	1.92	5.80	2.15	13.09	20.370	Horizontal	Pass

Radiated Power (ERP) for Band 17										
Mode	RB/RB SIZE	Frequency	Result							Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dBi)	Correction (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	706.5	16.81	1.91	5.6	2.15	10.84	12.134	Vertical	Pass
		710	16.39	1.91	5.7	2.15	12.21	16.634	Vertical	Pass
		713.5	17.43	1.92	5.8	2.15	10.12	10.280	Vertical	Pass
10.0MHz Band 16 QAM	50/0	709	15.91	1.91	5.6	2.15	11.56	14.322	Vertical	Pass
		710	15.84	1.91	5.7	2.15	11.03	12.677	Vertical	Pass
		711	15.59	1.92	5.8	2.15	11.35	13.646	Vertical	Pass
5.0MHz Band 16 QAM	25/0	706.5	17.52	1.91	5.6	2.15	10.96	12.474	Horizontal	Pass
		710	17.46	1.91	5.7	2.15	10.41	10.990	Horizontal	Pass
		713.5	16.25	1.92	5.8	2.15	9.85	9.661	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	709	17.30	1.91	5.6	2.15	12.86	19.320	Horizontal	Pass
		710	17.57	1.91	5.7	2.15	11.19	13.152	Horizontal	Pass
		711	16.65	1.92	5.8	2.15	10.96	12.474	Horizontal	Pass

Note:

ERP=EIRP-2.15

SG Level= Signal generator output

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

8.8 LTE BAND 41

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	2542.5	8.13	4.54	9.00	12.59	18.155	Horizontal	Pass
		2595	8.81	4.69	9.00	13.12	20.512	Horizontal	Pass
		2647.5	6.23	4.71	9.00	10.52	11.272	Horizontal	Pass
10.0MHz Band QPSK	50/0	2545	9.49	4.55	9.00	13.94	24.774	Horizontal	Pass
		2595	7.90	4.69	9.00	12.21	16.634	Horizontal	Pass
		2645	6.70	4.72	9.00	10.98	12.531	Horizontal	Pass
15.0MHz Band QPSK	75/0	2547.5	6.26	4.55	9.00	10.71	11.776	Horizontal	Pass
		2595	8.39	4.69	9.00	12.7	18.621	Horizontal	Pass
		2642.5	7.93	4.72	9.00	12.21	16.634	Horizontal	Pass
20.0MHz Band QPSK	100/0	2550	9.14	4.57	9.00	13.57	22.751	Horizontal	Pass
		2595	7.20	4.73	9.00	11.47	14.028	Horizontal	Pass
		2640	9.72	4.75	9.00	13.97	24.946	Horizontal	Pass
5.0MHz Band QPSK	25/0	2542.5	8.25	4.54	9.00	12.71	18.664	Vertical	Pass
		2595	7.40	4.69	9.00	11.71	14.825	Vertical	Pass
		2647.5	7.11	4.71	9.00	11.4	13.804	Vertical	Pass
10.0MHz Band QPSK	50/0	2545	6.87	4.55	9.00	11.32	13.552	Vertical	Pass
		2595	6.95	4.69	9.00	11.26	13.366	Vertical	Pass
		2645	9.32	4.72	9.00	13.6	22.909	Vertical	Pass
15.0MHz Band QPSK	75/0	2547.5	6.84	4.55	9.00	11.29	13.459	Vertical	Pass
		2595	9.04	4.69	9.00	13.35	21.627	Vertical	Pass
		2642.5	8.29	4.72	9.00	12.57	18.072	Vertical	Pass
20.0MHz Band QPSK	100/0	2550	9.56	4.57	9.00	13.99	25.061	Vertical	Pass
		2595	7.69	4.73	9.00	11.96	15.704	Vertical	Pass
		2640	7.94	4.75	9.00	12.19	16.558	Vertical	Pass

Radiated Power (EIRP) for Band 41									
Mode	RB/RB SIZE	Frequency	Result						Conclusion
			SG Level (dBm)	Cable Loss (dBm)	Antenna Gain (dB)	Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band 16 QAM	25/0	2542.5	6.00	4.54	9.00	10.46	11.117	Horizontal	Pass
		2595	8.04	4.69	9.00	12.35	17.179	Horizontal	Pass
		2647.5	5.30	4.71	9.00	9.59	9.099	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	2545	7.38	4.55	9.00	11.83	15.241	Horizontal	Pass
		2595	6.88	4.69	9.00	11.19	13.152	Horizontal	Pass
		2645	6.80	4.72	9.00	11.08	12.823	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	2547.5	7.92	4.55	9.00	12.37	17.258	Horizontal	Pass
		2595	6.41	4.69	9.00	10.72	11.803	Horizontal	Pass
		2642.5	7.49	4.72	9.00	11.77	15.031	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	2550	7.76	4.57	9.00	12.19	16.558	Horizontal	Pass
		2595	6.25	4.73	9.00	10.52	11.272	Horizontal	Pass
		2640	7.63	4.75	9.00	11.88	15.417	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	2542.5	6.48	4.54	9.00	10.94	12.417	Vertical	Pass
		2595	7.29	4.69	9.00	11.6	14.454	Vertical	Pass
		2647.5	7.08	4.71	9.00	11.37	13.709	Vertical	Pass
10.0MHz Band 16 QAM	50/0	2545	7.28	4.55	9.00	11.73	14.894	Vertical	Pass
		2595	6.67	4.69	9.00	10.98	12.531	Vertical	Pass
		2645	8.29	4.72	9.00	12.57	18.072	Vertical	Pass
15.0MHz Band 16 QAM	75/0	2547.5	6.74	4.55	9.00	11.19	13.152	Vertical	Pass
		2595	7.21	4.69	9.00	11.52	14.191	Vertical	Pass
		2642.5	7.03	4.72	9.00	11.31	13.521	Vertical	Pass
20.0MHz Band 16 QAM	100/0	2550	8.09	4.57	9.00	12.52	17.865	Vertical	Pass
		2595	8.44	4.73	9.00	12.71	18.664	Vertical	Pass
		2640	7.56	4.75	9.00	11.81	15.171	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: §2.1053, §22.917, §24.238, §27.53 and §90.691

LIMIT

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

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

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

TEST PROCEDURE

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

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

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

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

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

MODES TESTED

LTE Band 2/4/5/7/12/17/41

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	-51.67	4.04	33.51	-22.20	-13	-9.20	Horizontal
3701.4	-56.69	4.04	33.51	-27.22	-13	-14.22	Vertical
5552.1	-60.31	5.24	35.84	-29.71	-13	-16.71	Vertical
5552.1	-56.97	5.24	35.84	-26.37	-13	-13.37	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-52.87	4.04	33.56	-23.35	-13	-10.35	Horizontal
3760	-51.38	4.04	33.56	-21.86	-13	-8.86	Vertical
5640	-55.05	5.24	35.91	-24.38	-13	-11.38	Vertical
5640	-55.26	5.24	35.91	-24.59	-13	-11.59	Horizontal
Test Results for High Channel 1909.3MHz							
3818.6	-55.58	4.04	34.00	-25.62	-13	-12.62	Horizontal
3818.6	-51.12	4.04	34.00	-21.16	-13	-8.16	Vertical
5727.9	-55.18	5.24	36.04	-24.38	-13	-11.38	Vertical
5727.9	-58.14	5.24	36.04	-27.34	-13	-14.34	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	-51.46	4.07	33.54	-21.99	-13	-8.99	Horizontal
3720	-53.78	4.07	33.54	-24.31	-13	-11.31	Vertical
5580	-58.56	5.28	35.86	-27.98	-13	-14.98	Vertical
5580	-56.88	5.28	35.86	-26.30	-13	-13.30	Horizontal
Test Results for Mid Channel 1880MHz							
3760	-50.80	4.04	33.56	-21.28	-13	-8.28	Horizontal
3760	-53.22	4.04	33.56	-23.70	-13	-10.70	Vertical
5640	-52.66	5.24	35.91	-21.99	-13	-8.99	Vertical
5640	-56.29	5.24	35.91	-25.62	-13	-12.62	Horizontal
Test Results for High Channel 1900MHz							
3800	-53.31	4.04	34.00	-23.35	-13	-10.35	Horizontal
3800	-54.22	4.04	34.00	-24.26	-13	-11.26	Vertical
5700	-59.02	5.24	36.04	-28.22	-13	-15.22	Vertical
5700	-55.56	5.24	36.04	-24.76	-13	-11.76	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	-51.37	4.02	29.80	-25.59	-13	-12.59	Horizontal
3421.4	-50.27	4.02	29.80	-24.49	-13	-11.49	Vertical
5132.1	-52.71	5.24	35.84	-22.11	-13	-9.11	Vertical
5132.1	-58.06	5.24	35.84	-27.46	-13	-14.46	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-57.48	4.03	30.00	-31.51	-13	-18.51	Horizontal
3465	-56.50	4.03	30.00	-30.53	-13	-17.53	Vertical
5197.5	-57.00	5.25	35.86	-26.39	-13	-13.39	Vertical
5197.5	-57.81	5.25	35.86	-27.20	-13	-14.20	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-54.43	4.05	30.01	-28.47	-13	-15.47	Horizontal
3508.6	-56.62	4.05	30.01	-30.66	-13	-17.66	Vertical
5262.9	-55.51	5.26	35.86	-24.91	-13	-11.91	Vertical
5262.9	-59.97	5.26	35.86	-29.37	-13	-16.37	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	-54.72	4.02	29.80	-28.94	-13	-15.94	Horizontal
3440	-54.84	4.02	29.80	-29.06	-13	-16.06	Vertical
5160	-54.10	5.24	35.84	-23.50	-13	-10.50	Vertical
5160	-53.70	5.24	35.84	-23.10	-13	-10.10	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465	-51.57	4.03	30.00	-25.60	-13	-12.60	Horizontal
3465	-53.51	4.03	30.00	-27.54	-13	-14.54	Vertical
5197.5	-59.00	5.25	35.86	-28.39	-13	-15.39	Vertical
5197.5	-56.07	5.25	35.86	-25.46	-13	-12.46	Horizontal
Test Results for High Channel 1745MHz							
2490	-55.56	2.91	27.68	-30.79	-13	-17.79	Horizontal
3490	-56.97	2.91	27.68	-32.20	-13	-19.20	Vertical
5235	-52.71	5.26	35.86	-22.11	-13	-9.11	Vertical
5235	-57.39	5.26	35.86	-26.79	-13	-13.79	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	-55.55	2.78	27.50	-30.83	-13	-17.83	Horizontal
1649.4	-52.23	2.78	27.50	-27.51	-13	-14.51	Vertical
2474.1	-55.95	2.90	27.80	-31.05	-13	-18.05	Vertical
2474.1	-53.48	2.90	27.80	-28.58	-13	-15.58	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-56.15	2.78	27.48	-31.45	-13	-18.45	Horizontal
1673	-55.40	2.78	27.48	-30.70	-13	-17.70	Vertical
2509.5	-53.10	2.91	27.70	-28.31	-13	-15.31	Vertical
2509.5	-56.13	2.91	27.70	-31.34	-13	-18.34	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-56.14	2.78	27.43	-31.49	-13	-18.49	Horizontal
1696.6	-52.79	2.78	27.43	-28.14	-13	-15.14	Vertical
2544.9	-52.28	2.92	27.74	-27.46	-13	-14.46	Vertical
2544.9	-59.44	2.92	27.74	-34.62	-13	-21.62	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	-55.95	2.78	27.50	-31.23	-13	-18.23	Horizontal
1658	-52.81	2.78	27.50	-28.09	-13	-15.09	Vertical
2487	-51.93	2.90	27.80	-27.03	-13	-14.03	Vertical
2487	-53.41	2.90	27.80	-28.51	-13	-15.51	Horizontal
Test Results for Mid Channel 836.5MHz							
1673	-57.37	2.78	27.48	-32.67	-13	-19.67	Horizontal
1673	-52.66	2.78	27.48	-27.96	-13	-14.96	Vertical
2509.5	-57.43	2.91	27.70	-32.64	-13	-19.64	Vertical
2509.5	-58.61	2.91	27.70	-33.82	-13	-20.82	Horizontal
Test Results for High Channel 844MHz							
1688	-56.70	2.78	27.43	-32.05	-13	-19.05	Horizontal
1688	-54.48	2.78	27.43	-29.83	-13	-16.83	Vertical
2532	-55.85	2.92	27.74	-31.03	-13	-18.03	Vertical
2532	-51.92	2.92	27.74	-27.10	-13	-14.10	Horizontal

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

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

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

9.4 LTE BAND 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005	-64.12	5.23	35.81	-33.54	-25	-8.54	Horizontal
5005	-64.47	5.23	35.81	-33.89	-25	-8.89	Vertical
7507.5	-63.76	5.67	36.85	-32.58	-25	-7.58	Vertical
7507.5	-61.62	5.67	36.85	-30.44	-25	-5.44	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-61.60	5.23	35.82	-31.01	-25	-6.01	Horizontal
5070	-60.48	5.23	35.82	-29.89	-25	-4.89	Vertical
7605	-62.99	5.67	36.85	-31.81	-25	-6.81	Vertical
7605	-67.22	5.67	36.85	-36.04	-25	-11.04	Horizontal
Test Results for High Channel 2567.5MHz							
5135	-60.92	5.24	35.83	-30.33	-25	-5.33	Horizontal
5135	-62.99	5.24	35.83	-32.40	-25	-7.40	Vertical
7702.5	-67.25	5.68	36.87	-36.06	-25	-11.06	Vertical
7702.5	-62.66	5.68	36.87	-31.47	-25	-6.47	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	-62.80	5.23	35.82	-32.21	-25	-7.21	Horizontal
5020	-63.53	5.23	35.82	-32.94	-25	-7.94	Vertical
7530	-66.53	5.67	36.86	-35.34	-25	-10.34	Vertical
7530	-66.32	5.67	36.86	-35.13	-25	-10.13	Horizontal
Test Results for Mid Channel 2535MHz							
5070	-61.24	5.23	35.82	-30.65	-25	-5.65	Horizontal
5070	-63.26	5.23	35.82	-32.67	-25	-7.67	Vertical
7605	-62.23	5.67	36.85	-31.05	-25	-6.05	Vertical
7605	-65.49	5.67	36.85	-34.31	-25	-9.31	Horizontal
Test Results for High Channel 2560MHz							
5120	-59.90	5.24	35.83	-29.31	-25	-4.31	Horizontal
5120	-63.41	5.24	35.83	-32.82	-25	-7.82	Vertical
7680	-65.57	5.70	36.88	-34.39	-25	-9.39	Vertical
7680	-61.97	5.70	36.88	-30.79	-25	-5.79	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.5 LTE BAND 12

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

Test Results for Low Channel 699.7MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1399.4	-53.07	2.60	27.2	-28.47	-13	-15.47	Horizontal
1399.4	-55.88	2.60	27.2	-31.28	-13	-18.28	Vertical
2099.1	-54.09	2.85	27.54	-29.40	-13	-16.40	Vertical
2099.1	-57.98	2.85	27.54	-33.29	-13	-20.29	Horizontal
Test Results For Mid Channel 707.5MHz							
1415	-55.53	2.61	27.28	-30.86	-13	-17.86	Horizontal
1415	-50.59	2.61	27.28	-25.92	-13	-12.92	Vertical
2122.5	-52.22	2.87	27.59	-27.50	-13	-14.50	Vertical
2122.5	-59.14	2.87	27.59	-34.42	-13	-21.42	Horizontal
Test Results for High Channel 715.3MHz							
1430.6	-57.21	2.63	27.28	-32.56	-13	-19.56	Horizontal
1430.6	-54.95	2.63	27.28	-30.30	-13	-17.30	Vertical
2145.9	-60.16	2.88	27.60	-35.44	-13	-22.44	Vertical
2145.9	-54.65	2.88	27.60	-29.93	-13	-16.93	Horizontal

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

Test Results for Low Channel 704MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1408	-54.02	2.61	27.26	-29.37	-13	-16.37	Horizontal
1408	-53.55	2.61	27.26	-28.90	-13	-15.90	Vertical
2112	-54.84	2.87	27.58	-30.13	-13	-17.13	Vertical
2112	-54.99	2.87	27.58	-30.28	-13	-17.28	Horizontal
Test Results for Mid Channel 707.5MHz							
1415	-57.03	2.61	27.28	-32.36	-13	-19.36	Horizontal
1415	-53.43	2.61	27.28	-28.76	-13	-15.76	Vertical
2122.5	-52.53	2.87	27.59	-27.81	-13	-14.81	Vertical
2122.5	-55.03	2.87	27.59	-30.31	-13	-17.31	Horizontal
Test Results for High Channel 711MHz							
1422	-49.88	2.62	27.28	-25.22	-13	-12.22	Horizontal
1422	-49.71	2.62	27.28	-25.05	-13	-12.05	Vertical
2133	-59.03	2.87	27.60	-34.30	-13	-21.30	Vertical
2133	-53.74	2.87	27.60	-29.01	-13	-16.01	Horizontal

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

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

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

9.6 LTE BAND 17

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

Test Results for Low Channel 706.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1413	-52.36	2.61	27.28	-27.69	-13	-14.69	Horizontal
1413	-56.48	2.61	27.28	-31.81	-13	-18.81	Vertical
2119.5	-57.91	2.87	27.59	-33.19	-13	-20.19	Vertical
2119.5	-51.76	2.87	27.59	-27.04	-13	-14.04	Horizontal
Test Results For Mid Channel 710MHz							
1420	-51.25	2.62	27.30	-26.57	-13	-13.57	Horizontal
1420	-57.55	2.62	27.30	-32.87	-13	-19.87	Vertical
2130	-55.18	2.87	27.62	-30.43	-13	-17.43	Vertical
2130	-56.40	2.87	27.62	-31.65	-13	-18.65	Horizontal
Test Results for High Channel 713.5MHz							
1427	-57.56	2.66	27.28	-32.94	-13	-19.94	Horizontal
1427	-50.59	2.66	27.28	-25.97	-13	-12.97	Vertical
2140.5	-57.22	2.88	27.60	-32.50	-13	-19.50	Vertical
2140.5	-59.56	2.88	27.60	-34.84	-13	-21.84	Horizontal

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

Test Results for Low Channel 709MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
1418	-50.75	2.62	27.30	-26.07	-13	-13.07	Horizontal
1418	-55.60	2.62	27.30	-30.92	-13	-17.92	Vertical
2127	-55.38	2.87	27.62	-30.63	-13	-17.63	Vertical
2127	-56.49	2.87	27.62	-31.74	-13	-18.74	Horizontal
Test Results for Mid Channel 710MHz							
1420	-55.99	2.62	27.30	-31.31	-13	-18.31	Horizontal
1420	-50.42	2.62	27.30	-25.74	-13	-12.74	Vertical
2130	-60.40	2.87	27.62	-35.65	-13	-22.65	Vertical
2130	-51.79	2.87	27.62	-27.04	-13	-14.04	Horizontal
Test Results for High Channel 711MHz							
1422	-56.34	2.62	27.30	-31.66	-13	-18.66	Horizontal
1422	-59.87	2.62	27.30	-35.19	-13	-22.19	Vertical
2133	-59.28	2.87	27.62	-34.53	-13	-21.53	Vertical
2133	-57.23	2.87	27.62	-32.48	-13	-19.48	Horizontal

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

. Margin = Spurious Emission Level - Limit

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

9.7 LTE BAND 41

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

Test Results for Low Channel 2542.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit(dBm)	Margin(dBm)	Polarity
5125	-57.73	2.63	27.26	-33.10	-25	-8.10	Horizontal
5125	-57.43	2.63	27.26	-32.80	-25	-7.80	Vertical
7687.5	-61.73	2.67	27.58	-36.82	-25	-11.82	Vertical
7687.5	-58.55	2.67	27.58	-33.64	-25	-8.64	Horizontal
Test Results for Mid Channel 2595MHz							
5205	-59.82	2.62	27.28	-35.16	-25	-10.16	Horizontal
5205	-56.93	2.62	27.28	-32.27	-25	-7.27	Vertical
7807.5	-56.57	2.85	27.62	-31.80	-25	-6.80	Vertical
7807.5	-57.16	2.85	27.62	-32.39	-25	-7.39	Horizontal
Test Results for High Channel 2647.5MHz							
5285	-56.03	2.64	27.28	-31.39	-25	-6.39	Horizontal
5285	-57.29	2.64	27.28	-32.65	-25	-7.65	Vertical
7927.5	-62.76	2.85	27.70	-37.91	-25	-12.91	Vertical
7927.5	-59.18	2.85	27.70	-34.33	-25	-9.33	Horizontal

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

Test Results for Low Channel 2550MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit(dBm)	Margin(dBm)	Polarity
5140	-55.84	2.63	27.30	-31.17	-25	-6.17	Horizontal
5140	-57.65	2.63	27.30	-32.98	-25	-7.98	Vertical
7710	-59.63	2.67	27.62	-34.68	-25	-9.68	Vertical
7710	-59.97	2.67	27.62	-35.02	-25	-10.02	Horizontal
Test Results for Mid Channel 2595MHz							
5205	-59.68	2.62	27.33	-34.97	-25	-9.97	Horizontal
5205	-57.26	2.62	27.33	-32.55	-25	-7.55	Vertical
7807.5	-57.13	2.85	27.67	-32.31	-25	-7.31	Vertical
7807.5	-63.04	2.85	27.67	-38.22	-25	-13.22	Horizontal
Test Results for High Channel 2640MHz							
5270	-56.59	2.64	27.33	-31.90	-25	-6.90	Horizontal
5270	-59.81	2.64	27.33	-35.12	-25	-10.12	Vertical
7905	-63.17	2.85	27.67	-38.35	-25	-13.35	Vertical
7905	-57.06	2.85	27.67	-32.24	-25	-7.24	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 3.27V, Normal, DC 3.85V and High voltage, DC 4.43V.

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 2/4/5/7/12/17/41

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]
3.27	1880	4	0.00213	2.5
3.85	1880	5	0.00266	2.5
4.43	1880	15	0.00798	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	17	0.00904	2.5
Extreme (50C)	1880	19	0.01011	2.5
Extreme (40C)	1880	9	0.00479	2.5
Extreme (30C)	1880	13	0.00691	2.5
Extreme (10C)	1880	19	0.01011	2.5
Extreme (0C)	1880	5	0.00266	2.5
Extreme (-10C)	1880	5	0.00266	2.5
Extreme (-20C)	1880	0	0.00000	2.5
Extreme (-30C)	1880	15	0.00798	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]
3.27	1880	15	0.00798	2.5
3.85	1880	16	0.00851	2.5
4.43	1880	14	0.00745	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1880	7	0.00372	2.5
Extreme (50C)	1880	14	0.00745	2.5
Extreme (40C)	1880	1	0.00053	2.5
Extreme (30C)	1880	7	0.00372	2.5
Extreme (10C)	1880	9	0.00479	2.5
Extreme (0C)	1880	16	0.00851	2.5
Extreme (-10C)	1880	4	0.00213	2.5
Extreme (-20C)	1880	8	0.00426	2.5
Extreme (-30C)	1880	6	0.00319	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]
3.27	1732.5	15	0.00866	2.5
3.85	1732.5	1	0.00058	2.5
4.43	1732.5	18	0.01039	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	12	0.00693	2.5
Extreme (50C)	1732.5	13	0.00750	2.5
Extreme (40C)	1732.5	4	0.00231	2.5
Extreme (30C)	1732.5	5	0.00289	2.5
Extreme (10C)	1732.5	5	0.00289	2.5
Extreme (0C)	1732.5	15	0.00866	2.5
Extreme (-10C)	1732.5	8	0.00462	2.5
Extreme (-20C)	1732.5	14	0.00808	2.5
Extreme (-30C)	1732.5	10	0.00577	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]
3.27	1732.5	16	0.00924	2.5
3.85	1732.5	13	0.00750	2.5
4.43	1732.5	15	0.00866	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	14	0.00808	2.5
Extreme (50C)	1732.5	17	0.00981	2.5
Extreme (40C)	1732.5	13	0.00750	2.5
Extreme (30C)	1732.5	10	0.00577	2.5
Extreme (10C)	1732.5	15	0.00866	2.5
Extreme (0C)	1732.5	14	0.00808	2.5
Extreme (-10C)	1732.5	13	0.00750	2.5
Extreme (-20C)	1732.5	17	0.00981	2.5
Extreme (-30C)	1732.5	10	0.00577	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]
3.27	836.5	14	0.01674	2.5
3.85	836.5	16	0.01913	2.5
4.43	836.5	13	0.01554	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	5	0.00598	2.5
Extreme (50C)	836.5	14	0.01674	2.5
Extreme (40C)	836.5	10	0.01195	2.5
Extreme (30C)	836.5	12	0.01435	2.5
Extreme (10C)	836.5	9	0.01076	2.5
Extreme (0C)	836.5	6	0.00717	2.5
Extreme (-10C)	836.5	4	0.00478	2.5
Extreme (-20C)	836.5	17	0.02032	2.5
Extreme (-30C)	836.5	1	0.00120	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]
3.27	836.5	13	0.01554	2.5
3.85	836.5	14	0.01674	2.5
4.43	836.5	11	0.01315	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	836.5	14	0.01674	2.5
Extreme (50C)	836.5	11	0.01315	2.5
Extreme (40C)	836.5	13	0.01554	2.5
Extreme (30C)	836.5	15	0.01793	2.5
Extreme (10C)	836.5	14	0.01674	2.5
Extreme (0C)	836.5	9	0.01076	2.5
Extreme (-10C)	836.5	5	0.00598	2.5
Extreme (-20C)	836.5	4	0.00478	2.5
Extreme (-30C)	836.5	15	0.01793	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

Band 7 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]
3.27	2535	13	0.00513	2.5
3.85	2535	4	0.00158	2.5
4.43	2535	8	0.00316	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	13	0.00513	2.5
Extreme (50C)	2535	23	0.00907	2.5
Extreme (40C)	2535	12	0.00473	2.5
Extreme (30C)	2535	15	0.00592	2.5
Extreme (10C)	2535	14	0.00552	2.5
Extreme (0C)	2535	11	0.00434	2.5
Extreme (-10C)	2535	16	0.00631	2.5
Extreme (-20C)	2535	0	0.00000	2.5
Extreme (-30C)	2535	4	0.00158	2.5

Band 7 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]
3.27	2535	13	0.00513	2.5
3.85	2535	17	0.00671	2.5
4.43	2535	6	0.00237	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	14	0.00552	2.5
Extreme (50C)	2535	2	0.00079	2.5
Extreme (40C)	2535	9	0.00355	2.5
Extreme (30C)	2535	13	0.00513	2.5
Extreme (10C)	2535	7	0.00276	2.5
Extreme (0C)	2535	2	0.00079	2.5
Extreme (-10C)	2535	14	0.00552	2.5
Extreme (-20C)	2535	16	0.00631	2.5
Extreme (-30C)	2535	13	0.00513	2.5

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

10.5 LTE BAND 12

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	707.5	14	0.01979	2.5
3.85	707.5	8	0.01131	2.5
4.43	707.5	4	0.00565	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	0	0.00000	2.5
Extreme (50C)	707.5	2	0.00283	2.5
Extreme (40C)	707.5	9	0.01272	2.5
Extreme (30C)	707.5	5	0.00707	2.5
Extreme (10C)	707.5	12	0.01696	2.5
Extreme (0C)	707.5	14	0.01979	2.5
Extreme (-10C)	707.5	19	0.02686	2.5
Extreme (-20C)	707.5	6	0.00848	2.5
Extreme (-30C)	707.5	0	0.00000	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	707.5	14	0.01979	2.5
3.85	707.5	6	0.00848	2.5
4.43	707.5	18	0.02544	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	707.5	3	0.00424	2.5
Extreme (50C)	707.5	9	0.01272	2.5
Extreme (40C)	707.5	16	0.02261	2.5
Extreme (30C)	707.5	14	0.01979	2.5
Extreme (10C)	707.5	4	0.00565	2.5
Extreme (0C)	707.5	11	0.01555	2.5
Extreme (-10C)	707.5	2	0.00283	2.5
Extreme (-20C)	707.5	13	0.01837	2.5
Extreme (-30C)	707.5	16	0.02261	2.5

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

10.6 LTE BAND 17

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	710	4	0.00563	2.5
3.85	710	2	0.00282	2.5
4.43	710	14	0.01972	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	6	0.00845	2.5
Extreme (50C)	710	13	0.01831	2.5
Extreme (40C)	710	15	0.02113	2.5
Extreme (30C)	710	14	0.01972	2.5
Extreme (10C)	710	13	0.01831	2.5
Extreme (0C)	710	15	0.02113	2.5
Extreme (-10C)	710	14	0.01972	2.5
Extreme (-20C)	710	19	0.02676	2.5
Extreme (-30C)	710	13	0.01831	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	710	15	0.02113	2.5
3.85	710	13	0.01831	2.5
4.43	710	17	0.02394	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	710	7	0.00986	2.5
Extreme (50C)	710	13	0.01831	2.5
Extreme (40C)	710	6	0.00845	2.5
Extreme (30C)	710	4	0.00563	2.5
Extreme (10C)	710	14	0.01972	2.5
Extreme (0C)	710	11	0.01549	2.5
Extreme (-10C)	710	1	0.00141	2.5
Extreme (-20C)	710	7	0.00986	2.5
Extreme (-30C)	710	3	0.00423	2.5

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

10.7 LTE BAND 41

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2595	15	0.00578	2.5
3.85	2595	11	0.00424	2.5
4.43	2595	9	0.00347	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	7	0.00270	2.5
Extreme (50C)	2595	13	0.00501	2.5
Extreme (40C)	2595	14	0.00539	2.5
Extreme (30C)	2595	3	0.00116	2.5
Extreme (10C)	2595	15	0.00578	2.5
Extreme (0C)	2595	3	0.00116	2.5
Extreme (-10C)	2595	13	0.00501	2.5
Extreme (-20C)	2595	2	0.00077	2.5
Extreme (-30C)	2595	5	0.00193	2.5

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

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
3.27	2595	9	0.00347	2.5
3.85	2595	12	0.00462	2.5
4.43	2595	13	0.00501	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2595	16	0.00617	2.5
Extreme (50C)	2595	19	0.00732	2.5
Extreme (40C)	2595	17	0.00655	2.5
Extreme (30C)	2595	14	0.00539	2.5
Extreme (10C)	2595	19	0.00732	2.5
Extreme (0C)	2595	13	0.00501	2.5
Extreme (-10C)	2595	14	0.00539	2.5
Extreme (-20C)	2595	18	0.00694	2.5
Extreme (-30C)	2595	11	0.00424	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.

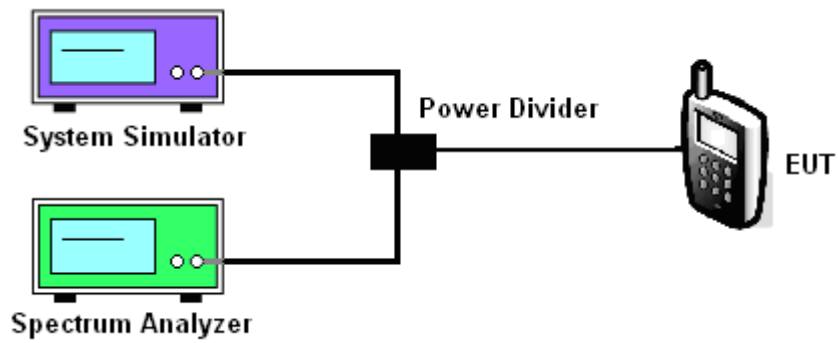
11.2 Measuring Instruments

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 2/4/5/7/12/17/41

Test data reference attachment.

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