

FCC CFR47 PART 27 CERTIFICATION TEST REPORT FCC ID: 2BLU9-QT12AVHEM

Product: Tablet PC
Trade Mark: Compaq
Model No.: M17T12-T616
Family Model: QT12AVHE6128M, QT12AVHE6128MS,
QT12AVHE6128MG
Report No.: N25081403111E
Issue Date: Oct. 20, 2025

Prepared for

M&M Electronics, S.A.

Cocosolito, Colon Free Zone, Main Entrance Warehouse10D and 11D, Panama. Zip
Code: 03050.

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name: M&M Electronics, S.A.
Address: Cocosolito, Colon Free Zone, Main Entrance Warehouse10D and 11D, PanamA. Zip Code: 03050.
Manufacturer's Name: Hena Digital Technology (Shenzhen) Co., Ltd.
Address: 13F, Block B, Tairan Building Tairan 8th Road, Futian District, Shenzhen, China
Product name.....: Tablet PC
Model and/or type reference ...: M17T12-T616
Trade Mark.....: Compaq
Family Model.....: QT12AVHE6128M, QT12AVHE6128MS, QT12AVHE6128MG
Test Sample Number..... S2508150125-1#
Standards.....: FCC CFR 47 Part 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 Apr. 15, 2025 ~ Oct. 17, 2025

Date of Issue Oct. 20, 2025

Test Result..... **Pass**

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Tablet PC
Trade Mark	Compaq
Model Name	M17T12-T616
Family Model	QT12AVHE6128M, QT12AVHE6128MS, QT12AVHE6128MG
Model Difference	All models have the same circuit and RF module, except for model names.
FCC ID:	2BLU9-QT12AVHEM
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 4, 7
Frequency Range:	LTE FDD Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz; LTE-FDD Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz;
Type of Modulation:	QPSK/16QAM/64QAM(Only Downlink)
Power Class	Class 3
SIM Card:	SIM 1 and SIM 2 is a chipset unit and tested as a single chipset. The SIM 1 is chosen for test.
Antenna:	FPC Antenna
Antenna gain:	Band 4: -2.0 dBi, Band 7: -2.0 dBi,
Adapter	MODEL: TEKA-SCC20US INPUT: 100-240V~50/60Hz 0.5A OUTPUT: DC 5.0V---3.0A 15.0W OR DC 9.0V---2.22A 19.98W OR DC 12.0V---1.67A 20.04W
Battery	DC 3.8V, 8000mAh, 30.4Wh
Power supply	DC 3.8V from Battery or DC 5V/9V/12V from Adapter.
Extreme Vol. Limits:	DC 3.23V to DC 4.37V (Nominal DC 3.8V) (Note 1)
HW Version	T30-T616-V2.0-240513-QU
SW Version	Android 15
** Note1: The High Voltage DC 4.37V and Low Voltage 3.23V 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: 2BLU9-QT12AVHEM** filing to comply with the FCC Part 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 27, ANSI C63.26:2015.

1.4 TEST FACILITY

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

ShenZhen NTEK Testing Technology Co., Ltd.

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

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

FCC Registration No.:463705

IC Registration No.:9270A,

CNAS Registration No.:L5516

MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	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 4/7

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	M17T12-T616	FCC ID: 2BLU9-QT12AVHEM	EUT

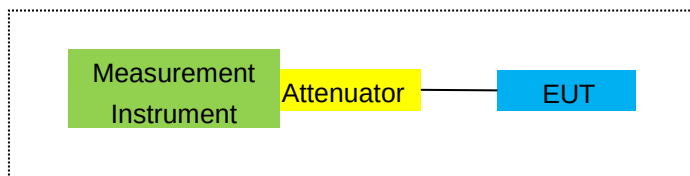
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

2.4 TEST SETUP

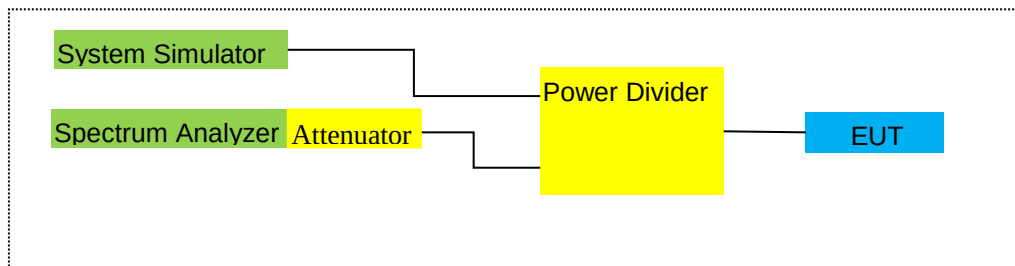
For Radiated Test Cases



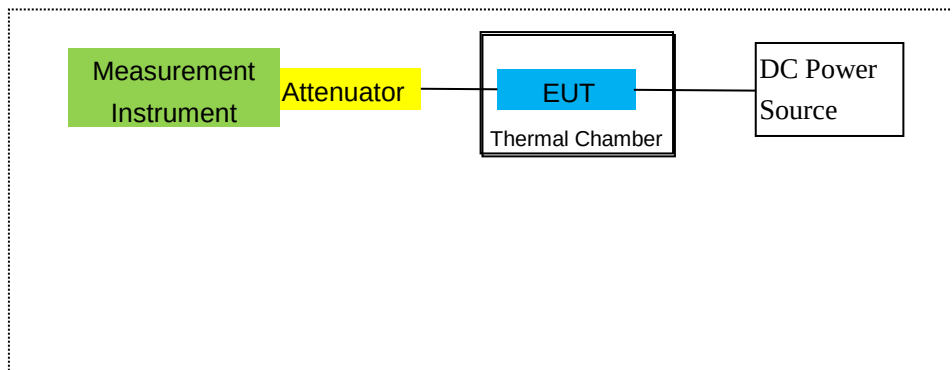
For Conducted Output Power



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	2025.04.17	2026.04.16	1 year
2	Test Receiver	R&S	ESPI	101318	2025.04.17	2026.04.16	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2025.04.17	2026.04.16	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2816	2024.5.18	2027.5.17	3 year
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120 D	2817	2024.5.18	2027.5.17	3 year
7	Amplifier	EM	EM-30180	060538	2025.04.17	2026.04.16	1 year
8	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2024.05.17	2027.05.16	3 year
9	Power Meter	R&S	NRVS	100696	2025.04.17	2026.04.16	1 year
10	Power Sensor	R&S	URV5-Z4	0395.1619.05	2025.04.17	2026.04.16	1 year
11	Test Cable	N/A	R-01	N/A	2023.06.17	2026.06.16	3 year
12	Test Cable	N/A	R-02	N/A	2023.06.17	2026.06.16	3 year
13	Test Cable	N/A	R-03	N/A	2023.06.17	2026.06.16	3 year
14	Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
15	LISN	R&S	ENV216	101313	2025.04.17	2026.04.16	1 year
16	LISN	EMCO	3816/2	00042990	2025.04.17	2026.04.16	1 year
17	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2024.04.26	2027.04.25	3 year
18	Field strength probe	narda	EP601	711WX81278	2025.04.17	2026.04.16	1 year
19	Test Cable	N/A	C01	N/A	2023.05.06	2026.05.05	3 year
20	Test Cable	N/A	C02	N/A	2023.05.06	2026.05.05	3 year
21	Test Cable	N/A	C03	N/A	2023.05.06	2026.05.05	3 year
22	Spectrum Analyzer	Agilent	E4440A	MY41000130	2025.04.17	2026.04.16	1 year

23	EMI Test Receiver	R&S	ESCI	101160	2025.04.17	2026.04.16	1 year
24	Universal Radio Communication Tester	R&S	CMU200	105747	2025.04.17	2026.04.16	1 year
25	High and Low Temperature Box	WEISS	WT 20/40 EMC Simpact	58226119460030	2024.05.30	2027.05.29	3 year
26	DC Power Source	N/A	PS-6005D	20170402923	2024.04.25	2027.04.24	3 year
27	MXG Vector Signal Generator	Agilent	N5183B	MY57280984	2025.04.17	2026.04.16	1 year
28	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	584	2025.04.17	2026.04.16	1 year
29	Log-Periodic Antenna	SCHWARZBECK	VULB 9162	586	2025.04.17	2026.04.16	1 year
30	Communication Tester	R&S	CMW500	148500	2025.05.06	2026.05.05	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	MWRFTest	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
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 4/7

RESULTS

PASS

Test data reference attachment.

6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §27.53(c)(g)(h)(m)

LIMITS

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

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

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

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

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

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

TEST PROCEDURE

The 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 4/7

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §27.53(c)(g)(h)(m)

LIMITS

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

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

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

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

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

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

TEST PROCEDURE

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

For each out of band emissions measurement:

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

MODES TESTED

Band 4/7

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, §27.50 (h)(2), (b)(10), (c)(10), (d)(4)

LIMITS:

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

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

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

27.50 (h)(2) Mobile and other user stations in the 2500–2570 MHz and 2620–2690 MHz bands. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17

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

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

MODES TESTED

Band 4/7

RESULTS

Pass

8.2 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	-7.55	3.12	27.58	16.91	49.091	Horizontal	1	Pass
		1732.5	-7.54	3.27	27.61	16.80	47.863	Horizontal	1	Pass
		1754.3	-7.52	3.29	27.63	16.82	48.084	Horizontal	1	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-7.72	3.13	27.61	16.76	47.424	Horizontal	1	Pass
		1732.5	-7.64	3.27	27.61	16.70	46.774	Horizontal	1	Pass
		1753.5	-7.56	3.30	27.62	16.76	47.424	Horizontal	1	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-7.49	3.13	27.63	17.01	50.234	Horizontal	1	Pass
		1732.5	-7.39	3.27	27.61	16.95	49.545	Horizontal	1	Pass
		1752.5	-7.27	3.30	27.60	17.03	50.466	Horizontal	1	Pass
10.0MHz Band QPSK	1/#Mid	1715	-7.43	3.15	27.64	17.06	50.816	Horizontal	1	Pass
		1732.5	-7.20	3.31	27.61	17.10	51.286	Horizontal	1	Pass
		1750	-7.22	3.33	27.59	17.04	50.582	Horizontal	1	Pass
15.0MHz Band QPSK	1/#Mid	1717.5	-7.44	3.15	27.65	17.06	50.816	Horizontal	1	Pass
		1732.5	-7.28	3.31	27.61	17.02	50.350	Horizontal	1	Pass
		1747.5	-7.22	3.33	27.57	17.02	50.350	Horizontal	1	Pass
20.0MHz Band QPSK	1/#Mid	1720	-7.38	3.17	27.66	17.11	51.404	Horizontal	1	Pass
		1732.5	-7.21	3.32	27.61	17.08	51.050	Horizontal	1	Pass
		1745	-7.15	3.36	27.56	17.05	50.699	Horizontal	1	Pass
1.4MHz Band QPSK	1/#Mid	1710.7	-8.35	3.12	27.58	16.11	40.832	Vertical	1	Pass
		1732.5	-8.73	3.27	27.61	15.61	36.392	Vertical	1	Pass
		1754.3	-8.33	3.29	27.63	16.01	39.902	Vertical	1	Pass
3.0MHz Band QPSK	1/#Mid	1711.5	-8.25	3.13	27.61	16.23	41.976	Vertical	1	Pass
		1732.5	-7.78	3.27	27.61	16.56	45.290	Vertical	1	Pass
		1753.5	-8.62	3.30	27.62	15.70	37.154	Vertical	1	Pass
5.0MHz Band QPSK	1/#Mid	1712.5	-8.11	3.13	27.63	16.39	43.551	Vertical	1	Pass
		1732.5	-7.95	3.27	27.61	16.39	43.551	Vertical	1	Pass
		1752.5	-8.18	3.30	27.60	16.12	40.926	Vertical	1	Pass
10.0MHz Band QPSK	1/#Mid	1715	-8.68	3.15	27.64	15.81	38.107	Vertical	1	Pass
		1732.5	-8.17	3.31	27.61	16.13	41.020	Vertical	1	Pass
		1750	-8.35	3.33	27.59	15.91	38.994	Vertical	1	Pass

15.0MHz	1/#Mid	1717.5	-8.88	3.15	27.65	15.62	36.475	Vertical	1	Pass
Band		1732.5	-8.45	3.31	27.61	15.85	38.459	Vertical	1	Pass
QPSK		1747.5	-8.61	3.33	27.57	15.63	36.559	Vertical	1	Pass
20.0MHz	1/#Mid	1720	-8.84	3.17	27.66	15.65	36.728	Vertical	1	Pass
Band		1732.5	-7.79	3.32	27.61	16.50	44.668	Vertical	1	Pass
QPSK		1745	-8.40	3.36	27.56	15.80	38.019	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	-8.36	3.12	27.58	16.10	40.738	Horizontal	1	Pass
		1732.5	-8.21	3.27	27.61	16.13	41.020	Horizontal	1	Pass
		1754.3	-8.21	3.29	27.63	16.13	41.020	Horizontal	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-8.30	3.13	27.61	16.18	41.495	Horizontal	1	Pass
		1732.5	-8.43	3.27	27.61	15.91	38.994	Horizontal	1	Pass
		1753.5	-8.65	3.30	27.62	15.67	36.898	Horizontal	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-8.13	3.13	27.63	16.37	43.351	Horizontal	1	Pass
		1732.5	-8.09	3.27	27.61	16.25	42.170	Horizontal	1	Pass
		1752.5	-7.78	3.30	27.60	16.52	44.875	Horizontal	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-8.20	3.15	27.64	16.29	42.560	Horizontal	1	Pass
		1732.5	-8.39	3.31	27.61	15.91	38.994	Horizontal	1	Pass
		1750	-7.77	3.33	27.59	16.49	44.566	Horizontal	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-8.00	3.15	27.65	16.50	44.668	Horizontal	1	Pass
		1732.5	-8.06	3.31	27.61	16.24	42.073	Horizontal	1	Pass
		1747.5	-8.08	3.33	27.57	16.16	41.305	Horizontal	1	Pass
20.0MHz Band 16 QAM	1/#Mid	1720	-7.95	3.17	27.66	16.54	45.082	Horizontal	1	Pass
		1732.5	-7.96	3.32	27.61	16.33	42.954	Horizontal	1	Pass
		1745	-7.77	3.36	27.56	16.43	43.954	Horizontal	1	Pass
1.4MHz Band 16 QAM	1/#Mid	1710.7	-9.00	3.12	27.58	15.46	35.156	Vertical	1	Pass
		1732.5	-9.26	3.27	27.61	15.08	32.211	Vertical	1	Pass
		1754.3	-9.50	3.29	27.63	14.84	30.479	Vertical	1	Pass
3.0MHz Band 16 QAM	1/#Mid	1711.5	-9.19	3.13	27.61	15.29	33.806	Vertical	1	Pass
		1732.5	-9.09	3.27	27.61	15.25	33.497	Vertical	1	Pass
		1753.5	-9.13	3.30	27.62	15.19	33.037	Vertical	1	Pass
5.0MHz Band 16 QAM	1/#Mid	1712.5	-9.75	3.13	27.63	14.75	29.854	Vertical	1	Pass
		1732.5	-9.46	3.27	27.61	14.88	30.761	Vertical	1	Pass
		1752.5	-9.07	3.30	27.60	15.23	33.343	Vertical	1	Pass
10.0MHz Band 16 QAM	1/#Mid	1715	-9.88	3.15	27.64	14.61	28.907	Vertical	1	Pass
		1732.5	-9.22	3.31	27.61	15.08	32.211	Vertical	1	Pass
		1750	-9.35	3.33	27.59	14.91	30.974	Vertical	1	Pass
15.0MHz Band 16 QAM	1/#Mid	1717.5	-9.78	3.15	27.65	14.72	29.648	Vertical	1	Pass
		1732.5	-9.70	3.31	27.61	14.60	28.840	Vertical	1	Pass
		1747.5	-9.67	3.33	27.57	14.57	28.642	Vertical	1	Pass

20.0MHz		1720	-9.24	3.17	27.66	15.25	33.497	Vertical	1	Pass
Band 16	1/#Mid	1732.5	-9.42	3.32	27.61	14.87	30.690	Vertical	1	Pass
QAM		1745	-9.08	3.36	27.56	15.12	32.509	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)

8.3 LTE BAND 7

		Radiated Power (EIRP) for Band 7								
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	
5.0MHz Band QPSK	1/#Mid	2502.5	-6.69	4.54	27.75	16.52	44.875	Horizontal	2	Pass
		2535	-6.52	4.69	27.72	16.51	44.771	Horizontal	2	Pass
		2567.5	-6.45	4.71	27.71	16.55	45.186	Horizontal	2	Pass
10.0MHz Band QPSK	1/#Mid	2505	-6.62	4.55	27.76	16.59	45.604	Horizontal	2	Pass
		2535	-6.43	4.69	27.72	16.60	45.709	Horizontal	2	Pass
		2565	-6.35	4.72	27.70	16.63	46.026	Horizontal	2	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-6.63	4.55	27.77	16.59	45.604	Horizontal	2	Pass
		2535	-6.49	4.69	27.72	16.54	45.082	Horizontal	2	Pass
		2562.5	-6.39	4.72	27.69	16.58	45.499	Horizontal	2	Pass
20.0MHz Band QPSK	1/#Mid	2510	-6.57	4.57	27.78	16.64	46.132	Horizontal	2	Pass
		2535	-6.39	4.73	27.72	16.60	45.709	Horizontal	2	Pass
		2560	-6.35	4.75	27.68	16.58	45.499	Horizontal	2	Pass
5.0MHz Band QPSK	1/#Mid	2502.5	-8.49	4.54	27.75	14.72	29.648	Vertical	2	Pass
		2535	-8.26	4.69	27.72	14.77	29.992	Vertical	2	Pass
		2567.5	-7.61	4.71	27.71	15.39	34.594	Vertical	2	Pass
10.0MHz Band QPSK	1/#Mid	2505	-7.89	4.55	27.76	15.32	34.041	Vertical	2	Pass
		2535	-7.55	4.69	27.72	15.48	35.318	Vertical	2	Pass
		2565	-8.16	4.72	27.70	14.82	30.339	Vertical	2	Pass
15.0MHz Band QPSK	1/#Mid	2507.5	-7.79	4.55	27.77	15.43	34.914	Vertical	2	Pass
		2535	-7.49	4.69	27.72	15.54	35.810	Vertical	2	Pass
		2562.5	-8.27	4.72	27.69	14.70	29.512	Vertical	2	Pass
20.0MHz Band QPSK	1/#Mid	2510	-7.58	4.57	27.78	15.63	36.559	Vertical	2	Pass
		2535	-8.04	4.73	27.72	14.95	31.261	Vertical	2	Pass
		2560	-8.22	4.75	27.68	14.71	29.580	Vertical	2	Pass

		Radiated Power (EIRP) for Band 7								
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	
5.0MHz Band 16 QAM	1/#Mid	2502.5	-7.38	4.54	27.75	15.83	38.282	Horizontal	2	Pass
		2535	-7.07	4.69	27.72	15.96	39.446	Horizontal	2	Pass
		2567.5	-7.15	4.71	27.71	15.85	38.459	Horizontal	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-7.27	4.55	27.76	15.94	39.264	Horizontal	2	Pass
		2535	-7.28	4.69	27.72	15.75	37.584	Horizontal	2	Pass
		2565	-7.55	4.72	27.70	15.43	34.914	Horizontal	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-7.45	4.55	27.77	15.77	37.757	Horizontal	2	Pass
		2535	-7.42	4.69	27.72	15.61	36.392	Horizontal	2	Pass
		2562.5	-7.03	4.72	27.69	15.94	39.264	Horizontal	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-7.33	4.57	27.78	15.88	38.726	Horizontal	2	Pass
		2535	-7.00	4.73	27.72	15.99	39.719	Horizontal	2	Pass
		2560	-7.10	4.75	27.68	15.83	38.282	Horizontal	2	Pass
5.0MHz Band 16 QAM	1/#Mid	2502.5	-8.75	4.54	27.75	14.46	27.925	Vertical	2	Pass
		2535	-8.83	4.69	27.72	14.20	26.303	Vertical	2	Pass
		2567.5	-7.53	4.71	27.71	15.47	35.237	Vertical	2	Pass
10.0MHz Band 16 QAM	1/#Mid	2505	-7.64	4.55	27.76	15.57	36.058	Vertical	2	Pass
		2535	-8.08	4.69	27.72	14.95	31.261	Vertical	2	Pass
		2565	-8.12	4.72	27.70	14.86	30.620	Vertical	2	Pass
15.0MHz Band 16 QAM	1/#Mid	2507.5	-8.02	4.55	27.77	15.20	33.113	Vertical	2	Pass
		2535	-8.28	4.69	27.72	14.75	29.854	Vertical	2	Pass
		2562.5	-8.46	4.72	27.69	14.51	28.249	Vertical	2	Pass
20.0MHz Band 16 QAM	1/#Mid	2510	-9.01	4.57	27.78	14.20	26.303	Vertical	2	Pass
		2535	-8.76	4.73	27.72	14.23	26.485	Vertical	2	Pass
		2560	-7.87	4.75	27.68	15.06	32.063	Vertical	2	Pass

Note:

SG Level= Signal generator output

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

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

FCC: §2.1053, §27.53(c)(g)(h)(m)

LIMIT

§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 4/7

RESULTS

PASS

9.1 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	-47.69	4.02	29.80	-21.91	-13	-8.91	Horizontal
3421.4	-45.38	4.02	29.80	-19.60	-13	-6.60	Vertical
5132.1	-48.20	5.24	35.84	-17.60	-13	-4.60	Vertical
5132.1	-49.76	5.24	35.84	-19.16	-13	-6.16	Horizontal
194.2	-42.56	1.68	16.04	-28.20	-13	-15.20	Vertical
262.2	-39.32	1.78	17.74	-23.36	-13	-10.36	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-47.97	4.03	30.00	-22.00	-13	-9.00	Horizontal
3465.0	-50.51	4.03	30.00	-24.54	-13	-11.54	Vertical
5197.5	-51.49	5.25	35.86	-20.88	-13	-7.88	Vertical
5197.5	-49.07	5.25	35.86	-18.46	-13	-5.46	Horizontal
192.2	-38.62	1.72	17.69	-22.65	-13	-9.65	Vertical
390.3	-40.05	1.62	16.02	-25.64	-13	-12.64	Horizontal
Test Results for High Channel 1754.3MHz							
3508.6	-47.50	4.05	30.01	-21.54	-13	-8.54	Horizontal
3508.6	-46.90	4.05	30.01	-20.94	-13	-7.94	Vertical
5262.9	-52.11	5.26	35.86	-21.51	-13	-8.51	Vertical
5262.9	-49.37	5.26	35.86	-18.77	-13	-5.77	Horizontal
193.1	-41.28	1.80	16.69	-26.39	-13	-13.39	Vertical
233.7	-34.50	1.75	16.66	-19.60	-13	-6.60	Horizontal

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

Test Results for Low Channel 1720MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
3440.0	-50.49	4.02	29.80	-24.71	-13	-11.71	Horizontal
3440.0	-46.86	4.02	29.80	-21.08	-13	-8.08	Vertical
5160.0	-52.60	5.24	35.84	-22.00	-13	-9.00	Vertical
5160.0	-50.34	5.24	35.84	-19.74	-13	-6.74	Horizontal
191.1	-39.49	1.57	17.26	-23.80	-13	-10.80	Vertical
340.9	-44.21	1.78	16.35	-29.64	-13	-16.64	Horizontal
Test Results for Mid Channel 1732.5MHz							
3465.0	-45.54	4.03	30.00	-19.57	-13	-6.57	Horizontal
3465.0	-47.47	4.03	30.00	-21.50	-13	-8.50	Vertical
5197.5	-45.36	5.25	35.86	-14.75	-13	-1.75	Vertical
5197.5	-51.37	5.25	35.86	-20.76	-13	-7.76	Horizontal
191.0	-44.00	1.44	17.95	-27.49	-13	-14.49	Vertical
439.4	-34.93	1.65	16.09	-20.49	-13	-7.49	Horizontal
Test Results for High Channel 1745MHz							
3490.0	-48.75	2.91	27.68	-23.98	-13	-10.98	Horizontal
3490.0	-47.16	2.91	27.68	-22.39	-13	-9.39	Vertical
5235.0	-52.04	5.26	35.86	-21.44	-13	-8.44	Vertical
5235.0	-52.52	5.26	35.86	-21.92	-13	-8.92	Horizontal
210.5	-43.58	1.61	16.85	-28.34	-13	-15.34	Vertical
435.3	-36.18	1.61	15.19	-22.60	-13	-9.60	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 7

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

Test Results for Low Channel 2502.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5005.0	-63.87	5.23	35.81	-33.29	-25	-8.29	Horizontal
5005.0	-62.66	5.23	35.81	-32.08	-25	-7.08	Vertical
7507.5	-61.51	5.67	36.85	-30.33	-25	-5.33	Vertical
7507.5	-59.78	5.67	36.85	-28.60	-25	-3.60	Horizontal
177.7	-51.97	1.73	17.97	-35.73	-25	-10.73	Vertical
357.9	-50.78	1.38	15.11	-37.05	-25	-12.05	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-62.51	5.23	35.82	-31.92	-25	-6.92	Horizontal
5070.0	-63.28	5.23	35.82	-32.69	-25	-7.69	Vertical
7605.0	-64.44	5.67	36.85	-33.26	-25	-8.26	Vertical
7605.0	-59.01	5.67	36.85	-27.83	-25	-2.83	Horizontal
202.9	-50.37	1.77	16.17	-35.96	-25	-10.96	Vertical
373.9	-54.97	1.63	15.21	-41.39	-25	-16.39	Horizontal
Test Results for High Channel 2567.5MHz							
5135.0	-61.86	5.24	35.83	-31.27	-25	-6.27	Horizontal
5135.0	-63.85	5.24	35.83	-33.26	-25	-8.26	Vertical
7702.5	-60.62	5.68	36.87	-29.43	-25	-4.43	Vertical
7702.5	-60.28	5.68	36.87	-29.09	-25	-4.09	Horizontal
200.1	-49.86	1.58	17.56	-33.88	-25	-8.88	Vertical
396.1	-53.62	1.45	16.58	-38.49	-25	-13.49	Horizontal

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

Test Results for Low Channel 2510MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Factor(dB)	Absolute Level(dBm)	Limit (dBm)	Margin(dBm)	Polarity
5020.0	-64.73	5.23	35.82	-34.14	-25	-9.14	Horizontal
5020.0	-62.62	5.23	35.82	-32.03	-25	-7.03	Vertical
7530.0	-60.38	5.67	36.86	-29.19	-25	-4.19	Vertical
7530.0	-62.91	5.67	36.86	-31.72	-25	-6.72	Horizontal
209.0	-46.84	1.63	15.76	-32.71	-25	-7.71	Vertical
270.4	-46.28	1.71	15.44	-32.55	-25	-7.55	Horizontal
Test Results for Mid Channel 2535MHz							
5070.0	-64.74	5.23	35.82	-34.15	-25	-9.15	Horizontal
5070.0	-64.54	5.23	35.82	-33.95	-25	-8.95	Vertical
7605.0	-61.41	5.67	36.85	-30.23	-25	-5.23	Vertical
7605.0	-63.93	5.67	36.85	-32.75	-25	-7.75	Horizontal
189.5	-52.91	1.79	16.84	-37.85	-25	-12.85	Vertical
378.3	-53.73	1.71	17.64	-37.80	-25	-12.80	Horizontal
Test Results for High Channel 2560MHz							
5120.0	-63.59	5.24	35.83	-33.00	-25	-8.00	Horizontal
5120.0	-60.18	5.24	35.83	-29.59	-25	-4.59	Vertical
7680.0	-62.14	5.70	36.88	-30.96	-25	-5.96	Vertical
7680.0	-62.89	5.70	36.88	-31.71	-25	-6.71	Horizontal
202.3	-48.37	1.79	16.84	-33.31	-25	-8.31	Vertical
421.4	-44.29	1.71	17.64	-28.36	-25	-3.36	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.

10. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §27.54

LIMITS

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- ☐ Temp. = -30° to +50°C
- ☐ Voltage = low voltage, DC 3.23V, Normal, DC 3.8V and High voltage, DC 4.37V.

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°C is reached.

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 4/7

RESULTS

See the following pages.

10.1 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]
3.23	1732.5	9.3	0.005346	2.5
3.8	1732.5	9.3	0.005392	2.5
4.37	1732.5	8.4	0.004848	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	8.6	0.004962	2.5
Extreme (50C)	1732.5	9.2	0.005331	2.5
Extreme (40C)	1732.5	7.4	0.004296	2.5
Extreme (30C)	1732.5	5.9	0.003424	2.5
Extreme (10C)	1732.5	7.4	0.004245	2.5
Extreme (0C)	1732.5	9.3	0.005395	2.5
Extreme (-10C)	1732.5	8.8	0.005093	2.5
Extreme (-20C)	1732.5	7.0	0.004055	2.5
Extreme (-30C)	1732.5	8.2	0.004750	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]
3.23	1732.5	9.8	0.005664	2.5
3.8	1732.5	9.1	0.005255	2.5
4.37	1732.5	8.4	0.004837	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	1732.5	9.8	0.005669	2.5
Extreme (50C)	1732.5	9.3	0.005385	2.5
Extreme (40C)	1732.5	8.1	0.004672	2.5
Extreme (30C)	1732.5	8.7	0.005029	2.5
Extreme (10C)	1732.5	9.2	0.005332	2.5
Extreme (0C)	1732.5	8.1	0.004686	2.5
Extreme (-10C)	1732.5	9.0	0.005188	2.5
Extreme (-20C)	1732.5	9.0	0.005190	2.5
Extreme (-30C)	1732.5	8.2	0.004721	2.5

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

10.3 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]
3.23	2535	10.3	0.004064	2.5
3.8	2535	8.6	0.003379	2.5
4.37	2535	8.3	0.003265	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	9.6	0.003779	2.5
Extreme (50C)	2535	9.2	0.003621	2.5
Extreme (40C)	2535	8.5	0.003340	2.5
Extreme (30C)	2535	8.6	0.003384	2.5
Extreme (10C)	2535	7.8	0.003083	2.5
Extreme (0C)	2535	7.9	0.003121	2.5
Extreme (-10C)	2535	9.0	0.003549	2.5
Extreme (-20C)	2535	8.5	0.003364	2.5
Extreme (-30C)	2535	8.5	0.003352	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]
3.23	2535	7.1	0.002803	2.5
3.8	2535	6.3	0.002473	2.5
4.37	2535	5.3	0.002099	2.5

Frequency error vs. Temperature

Temperature [°C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
Normal (25C)	2535	7.1	0.002783	2.5
Extreme (50C)	2535	6.0	0.002382	2.5
Extreme (40C)	2535	5.0	0.001985	2.5
Extreme (30C)	2535	6.3	0.002472	2.5
Extreme (10C)	2535	5.5	0.002169	2.5
Extreme (0C)	2535	4.8	0.001881	2.5
Extreme (-10C)	2535	5.2	0.002066	2.5
Extreme (-20C)	2535	6.3	0.002483	2.5
Extreme (-30C)	2535	5.8	0.002271	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.

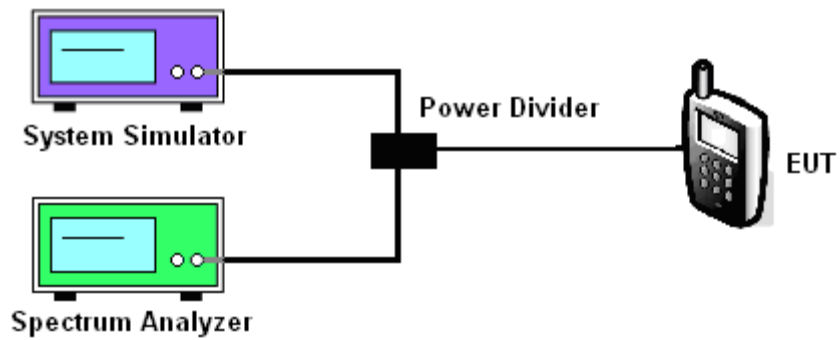
11.2 Measuring Instruments

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 4/7

Test data reference attachment.

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