FCC CFR47 PART 22H, 24E, 27
CERTIFICATION TEST REPORT
FCC ID: 2AMY3-T4-729L

Product: Tablet PC

Trade Mark: Acer

Model Number: Acer One 7 T4-729L

Family Model: N/A

Report No.: S19071605507006

Prepared for

Acer India Pvt Ltd.

Embassy Heights 6thFloor.No.13 Magrath Road, (Next to Hosmat Hospital) Bangalore, 560025, India

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ..... :	Acer India Pvt Ltd.
Address ..... :	Embassy Heights 6thFloor.No.13 Magrath Road, (Next to Hosmat Hospital) Bangalore, 560025, India
Manufacturer's Name ..... :	SHENZHEN YUKO TECHNOLOGY CO.,LTD
Address ..... :	6TH FLOOR,A9 BUILDING TIANRUI INDUSTRIAL PARK,FUYUAN 1ST ROAD,BAO'AN,SHENZHEN, CHINA
Product name ..... :	Tablet PC
Model and/or type reference ... :	Acer One 7 T4-729L
Family Model:	N/A
Standards ..... :	FCC CFR 47 Part 22H, 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 ..... 18 Jul. 2019 ~ 19 Sep. 2019

Date of Issue ..... 19 Sep. 2019

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

Testing Engineer : Allen Liu

(Allen Liu)

Technical Manager : Jason Chen

(Jason Chen)

Authorized Signatory : Sam. Chen

(Sam Chen)

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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	Acer
Model Name	Acer One 7 T4-729L
Family Model	N/A
Model Difference	N/A
FCC ID:	2AMY3-T4-729L
Frequency Bands:	U.S. Bands: ☒LTE-FDD Band 5; ☒LTE-TDD Band 41
Frequency Range:	LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE TDD Band 41 Note2
Type of Modulation:	QPSK/16QAM
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:	PIFA Antenna
Antenna gain:	Band 5: 1.42 dBi; Band 41: 1.42 dBi;
Power Supply:	☒DC supply: DC 3.8V/3500mAh from Battery or DC 5V from USB Port.
Adapter:	☒Adapter supply: Model: K-T100501500U Input: 100-240V~50/60Hz 0.25A Output: 5V⎓1500mA
Extreme Vol. Limits:	DC 3.2V to DC 4.4V (Nominal DC 3.8V)（Note 1）
HW Version	12.0
Firmware version	V04
SW Version	V04

** Note1: The High Voltage DC 4.4V and Low Voltage 3.2V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.

2. Frequency Range:

Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	40265	2557.5
	10	40290	2560
	15	40315	2562.5
	20	40340	2565
Mid Range	5/10/15/20	40740	2605
High Range	5	41215	2652.5
	10	41190	2650
	15	41165	2648.5
	20	41140	2645

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AMY3-T4-729L** 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 Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.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 = 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 5, Band 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

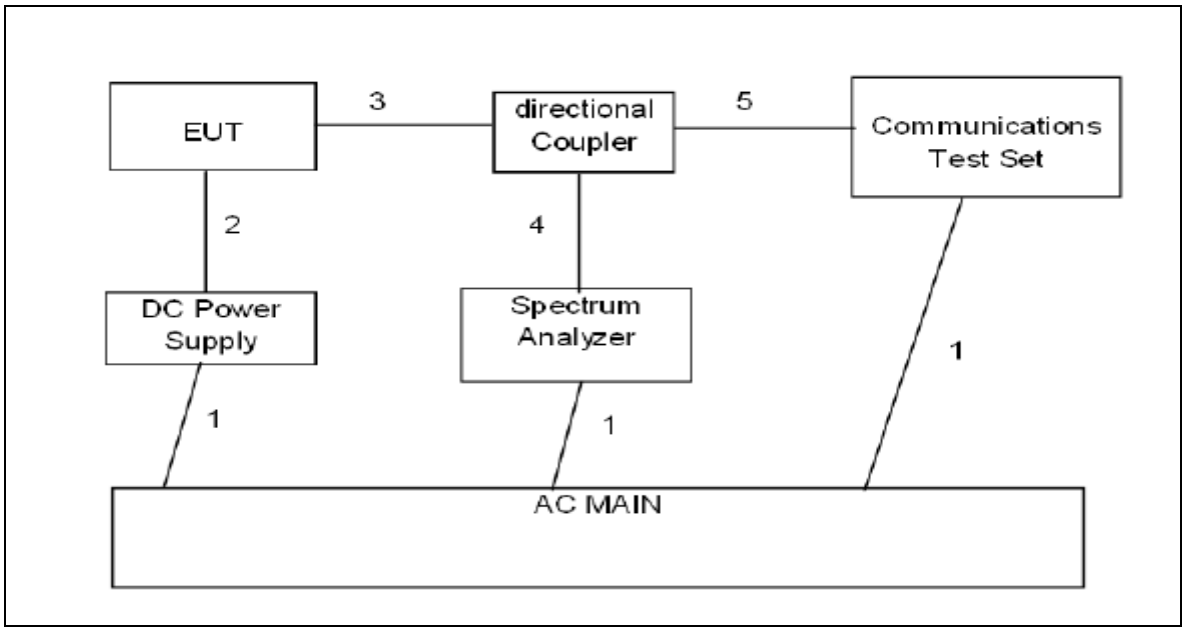
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Tablet PC	Acer One 7 T4-729L	FCC ID: 2AMY3-T4-729L	EUT

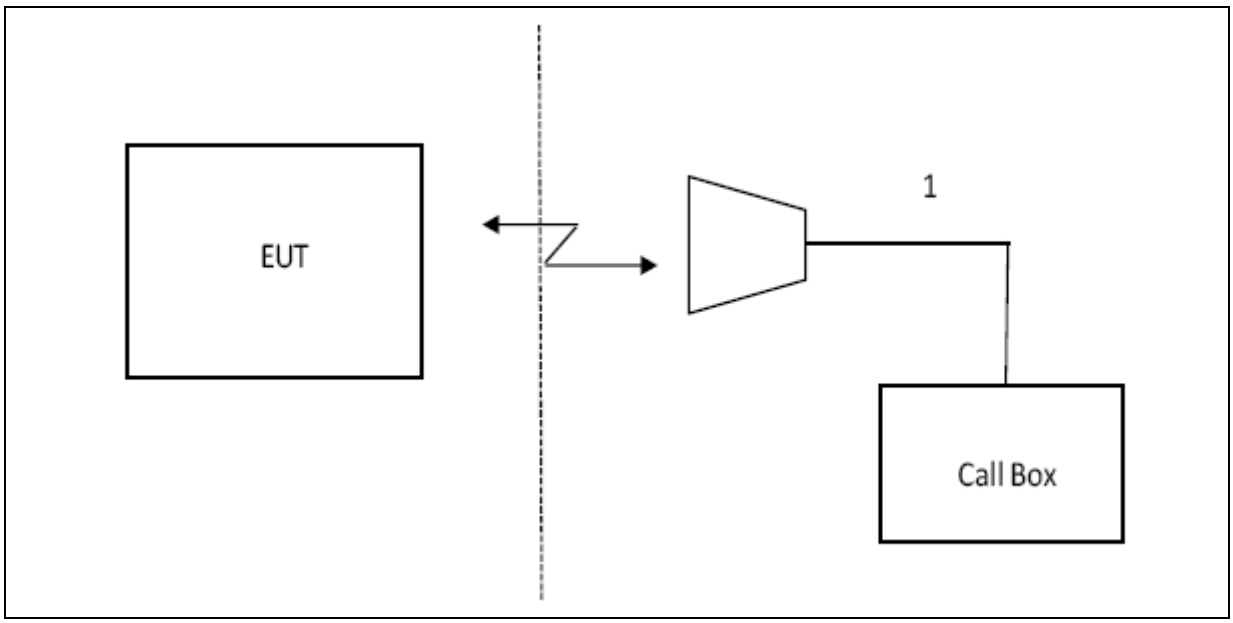
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

CONDUCTED SETUP DIAGRAM FOR TESTS



RADIATED SETUP DIAGRAM FOR TESTS



3.TEST AND MEASUREMENT EQUIPMENT

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

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	NEXT CAL. DATE
SPECTRUM ANALYZER	AGILENT	N9020A	MY49100060	2019.10.07
TEST RECEIVER	R&S	ESCI	A0304218	2020.05.12
COMMUNICATION TESTER	R&S	CMU200	117858	2020.05.12
COMMUNICATION TESTER	R&S	CMW500	148500	2020.05.12
TEST RECEIVER	R&S	ESPI	101318	2020.05.12
LISN	SCHWARZBECK	NSLK8127	A0304233	2020.05.12
CLIMATE CHAMBER	ALBATROSS	--	--	2020.05.12
Loop Antenna	ARA	PLA-1030/B	1029	2020.05.12
Bilogical Antenna	TESEQ	CBL6111D	31216	2020.05.12
Horn Antenna	EM	EM-AH-10180	2011071402	2020.05.12
DC Power Source	N/A	PS-6005D	20170402923	2020.05.12

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

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

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

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

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

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

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

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

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

Test data reference attachment.

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

LTE Band 5
LTE Band 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, and §90.691
FCC: §22.359

LIMITS

FCC: §22.359, §24.238,
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 that 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.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test 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 (704, 716, 824, 849, 1710 and 1755, 1850 and 1910MHz)
Set a marker to point the corresponding band edge frequency in each test case.
Set display line at -13 dBm
Set resolution bandwidth to at least 1% of emission bandwidth.

MODES TESTED

LTE Band 5
LTE Band 41

RESULTS

Test data reference attachment.

7. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

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.

TEST PROCEDURE

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

For each out of band emissions measurement:

Set display line at -13 dBm

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

MODES TESTED

LTE Band 5

LTE Band 41

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 and §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.

TEST PROCEDURE

ANSI/TIA-603-E Clause 2.2.17
KDB 971168 v02r01 RF power output using broadband peak and average power meter method.
KDB 971168 D01 Power Meas License Digital Systems v02r01, “Measurement Guidance for Certification of Licensed Digital Transmitters”

MODES TESTED

LTE Band 5
LTE Band 41

RESULTS

Pass

8.2 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	1/ Mid	824.7	4.55	2.01	19.68	2.15	20.07	101.655	Vertical	Pass
		836.5	4.33	2.01	19.77	2.15	19.94	98.731	Vertical	Pass
		848.3	4.49	2.02	19.82	2.15	20.14	103.358	Vertical	Pass
1.4MHz Band 16 QAM	1/ Mid	824.7	3.31	2.01	19.68	2.15	18.83	76.372	Vertical	Pass
		836.5	3.48	2.01	19.77	2.15	19.09	81.043	Vertical	Pass
		848.3	3.11	2.02	19.82	2.15	18.76	75.153	Vertical	Pass
3.0MHz Band QPSK	1/ Mid	825.5	4.06	2.01	19.70	2.15	19.60	91.241	Vertical	Pass
		836.5	4.43	2.01	19.77	2.15	20.04	100.935	Vertical	Pass
		847.5	4.14	2.02	19.81	2.15	19.78	94.977	Vertical	Pass
3.0MHz Band 16 QAM	1/ Mid	825.5	2.88	2.01	19.70	2.15	18.42	69.516	Vertical	Pass
		836.5	2.52	2.01	19.77	2.15	18.13	65.030	Vertical	Pass
		847.5	3.30	2.02	19.81	2.15	18.94	78.350	Vertical	Pass
5.0MHz Band QPSK	1/ Mid	826.5	3.67	2.01	19.71	2.15	19.22	83.559	Vertical	Pass
		836.5	4.68	2.01	19.77	2.15	20.29	106.882	Vertical	Pass
		846.5	3.85	2.02	19.79	2.15	19.47	88.485	Vertical	Pass
5.0MHz Band 16 QAM	1/ Mid	826.5	3.36	2.01	19.71	2.15	18.91	77.736	Vertical	Pass
		836.5	2.44	2.01	19.77	2.15	18.05	63.857	Vertical	Pass
		846.5	3.26	2.02	19.79	2.15	18.88	77.210	Vertical	Pass
10.0MHz Band QPSK	1/ Mid	829	5.02	2.01	19.73	2.15	20.59	114.551	Vertical	Pass
		836.5	4.40	2.01	19.77	2.15	20.01	100.210	Vertical	Pass
		844	4.02	2.02	19.78	2.15	19.63	91.732	Vertical	Pass
10.0MHz Band 16 QAM	1/ Mid	829	4.78	2.01	19.73	2.15	20.35	108.393	Vertical	Pass
		836.5	4.54	2.01	19.77	2.15	20.15	103.514	Vertical	Pass
		844	4.83	2.02	19.78	2.15	20.44	110.662	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

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	1/ Mid	824.7	4.32	2.01	19.68	2.15	19.84	96.436	Horizontal	Pass
		836.5	3.19	2.01	19.77	2.15	18.80	75.866	Horizontal	Pass
		848.3	4.19	2.02	19.82	2.15	19.84	96.299	Horizontal	Pass
1.4MHz Band 16 QAM	1/ Mid	824.7	3.35	2.01	19.68	2.15	18.87	77.109	Horizontal	Pass
		836.5	2.49	2.01	19.77	2.15	18.10	64.565	Horizontal	Pass
		848.3	2.55	2.02	19.82	2.15	18.20	66.138	Horizontal	Pass
3.0MHz Band QPSK	1/ Mid	825.5	3.65	2.01	19.70	2.15	19.19	82.987	Horizontal	Pass
		836.5	3.34	2.01	19.77	2.15	18.95	78.507	Horizontal	Pass
		847.5	4.06	2.02	19.81	2.15	19.70	93.379	Horizontal	Pass
3.0MHz Band 16 QAM	1/ Mid	825.5	2.60	2.01	19.70	2.15	18.14	65.109	Horizontal	Pass
		836.5	2.48	2.01	19.77	2.15	18.09	64.403	Horizontal	Pass
		847.5	2.66	2.02	19.81	2.15	18.30	67.538	Horizontal	Pass
5.0MHz Band QPSK	1/ Mid	826.5	3.70	2.01	19.71	2.15	19.25	84.043	Horizontal	Pass
		836.5	2.80	2.01	19.77	2.15	18.41	69.397	Horizontal	Pass
		846.5	4.03	2.02	19.79	2.15	19.65	92.335	Horizontal	Pass
5.0MHz Band 16 QAM	1/ Mid	826.5	2.36	2.01	19.71	2.15	17.91	61.785	Horizontal	Pass
		836.5	2.44	2.01	19.77	2.15	18.05	63.822	Horizontal	Pass
		846.5	2.96	2.02	19.79	2.15	18.58	72.090	Horizontal	Pass
10.0MHz Band QPSK	1/ Mid	829	4.32	2.01	19.73	2.15	19.89	97.499	Horizontal	Pass
		836.5	3.56	2.01	19.77	2.15	19.17	82.693	Horizontal	Pass
		844	3.49	2.02	19.78	2.15	19.10	81.216	Horizontal	Pass
10.0MHz Band 16 QAM	1/ Mid	829	4.34	2.01	19.73	2.15	19.91	97.949	Horizontal	Pass
		836.5	3.97	2.01	19.77	2.15	19.58	90.782	Horizontal	Pass
		844	3.83	2.02	19.78	2.15	19.44	87.902	Horizontal	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

8.3 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	1/ Mid	2557.5	-2.51	4.54	27.75	20.70	117.593	Vertical	Pass
		2602.5	-2.74	4.69	27.72	20.29	106.836	Vertical	Pass
		2647.5	-2.88	4.71	27.71	20.12	102.817	Vertical	Pass
5.0MHz Band 16 QAM	1/ Mid	2557.5	-3.74	4.54	27.75	19.47	88.415	Vertical	Pass
		2602.5	-3.58	4.69	27.72	19.45	88.196	Vertical	Pass
		2647.5	-3.97	4.71	27.71	19.03	79.907	Vertical	Pass
10.0MHz Band QPSK	1/ Mid	2560	-2.84	4.55	27.76	20.37	108.948	Vertical	Pass
		2602.5	-2.79	4.69	27.72	20.24	105.594	Vertical	Pass
		2645	-2.28	4.72	27.7	20.70	117.514	Vertical	Pass
10.0MHz Band 16 QAM	1/ Mid	2560	-3.92	4.55	27.76	19.29	84.951	Vertical	Pass
		2602.5	-3.81	4.69	27.72	19.22	83.473	Vertical	Pass
		2645	-3.63	4.72	27.7	19.35	86.014	Vertical	Pass
15.0MHz Band QPSK	1/ Mid	2562.5	-2.42	4.55	27.77	20.80	120.093	Vertical	Pass
		2602.5	-2.71	4.69	27.72	20.32	107.668	Vertical	Pass
		2642.5	-2.64	4.72	27.69	20.33	107.808	Vertical	Pass
15.0MHz Band 16 QAM	1/ Mid	2562.5	-3.51	4.55	27.77	19.71	93.574	Vertical	Pass
		2602.5	-3.30	4.69	27.72	19.73	93.966	Vertical	Pass
		2642.5	-3.48	4.72	27.69	19.49	88.871	Vertical	Pass
20.0MHz Band QPSK	1/ Mid	2565	-2.82	4.57	27.78	20.39	109.482	Vertical	Pass
		2602.5	-2.47	4.73	27.72	20.52	112.777	Vertical	Pass
		2640	-2.08	4.75	27.68	20.85	121.521	Vertical	Pass
20.0MHz Band 16 QAM	1/ Mid	2565	-2.40	4.57	27.78	20.81	120.504	Vertical	Pass
		2602.5	-2.94	4.73	27.72	20.05	101.158	Vertical	Pass
		2640	-2.74	4.75	27.68	20.19	104.472	Vertical	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

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	1/ Mid	2557.5	-2.97	4.54	27.75	20.24	105.736	Horizontal	Pass
		2602.5	-3.34	4.69	27.72	19.69	93.043	Horizontal	Pass
		2647.5	-2.72	4.71	27.71	20.28	106.726	Horizontal	Pass
5.0MHz Band 16 QAM	1/ Mid	2557.5	-4.16	4.54	27.75	19.05	80.332	Horizontal	Pass
		2602.5	-3.98	4.69	27.72	19.05	80.335	Horizontal	Pass
		2647.5	-3.79	4.71	27.71	19.21	83.299	Horizontal	Pass
10.0MHz Band QPSK	1/ Mid	2560	-3.23	4.55	27.76	19.98	99.615	Horizontal	Pass
		2602.5	-2.62	4.69	27.72	20.41	109.980	Horizontal	Pass
		2645	-2.85	4.72	27.7	20.13	103.057	Horizontal	Pass
10.0MHz Band 16 QAM	1/ Mid	2560	-4.31	4.55	27.76	18.90	77.594	Horizontal	Pass
		2602.5	-3.09	4.69	27.72	19.94	98.553	Horizontal	Pass
		2645	-3.43	4.72	27.7	19.55	90.180	Horizontal	Pass
15.0MHz Band QPSK	1/ Mid	2562.5	-2.49	4.55	27.77	20.73	118.375	Horizontal	Pass
		2602.5	-2.89	4.69	27.72	20.14	103.277	Horizontal	Pass
		2642.5	-3.10	4.72	27.69	19.87	96.949	Horizontal	Pass
15.0MHz Band 16 QAM	1/ Mid	2562.5	-4.06	4.55	27.77	19.16	82.508	Horizontal	Pass
		2602.5	-3.87	4.69	27.72	19.16	82.389	Horizontal	Pass
		2642.5	-3.24	4.72	27.69	19.73	93.995	Horizontal	Pass
20.0MHz Band QPSK	1/ Mid	2565	-2.32	4.57	27.78	20.89	122.744	Horizontal	Pass
		2602.5	-2.72	4.73	27.72	20.27	106.409	Horizontal	Pass
		2640	-2.59	4.75	27.68	20.34	108.253	Horizontal	Pass
20.0MHz Band 16 QAM	1/ Mid	2565	-2.30	4.57	27.78	20.91	123.310	Horizontal	Pass
		2602.5	-2.47	4.73	27.72	20.52	112.720	Horizontal	Pass
		2640	-2.69	4.75	27.68	20.24	105.682	Horizontal	Pass

Note:
SG Level= Signal generator output
Max. EIRP Average (dBm)= Antenna Gain(dB)+ SG Level (dBm)- Cable Loss(dBm)

9. SPURIOUS RADIATION EMISSION

RULE PART(S)

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

LIMIT

§22.917 (e) and §24.238 (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 log10(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 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (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 5
LTE Band 41

RESULTS

PASS

9.1 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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1649.4	-49.50	2.78	27.50	-24.78	-13	-11.78	Horizontal
1649.4	-54.68	2.78	27.50	-29.96	-13	-16.96	Vertical
2474.1	-53.62	2.90	27.80	-28.72	-13	-15.72	Vertical
2474.1	-52.31	2.90	27.80	-27.41	-13	-14.41	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-50.22	2.78	27.48	-25.52	-13	-12.52	Horizontal
1673	-48.59	2.78	27.48	-23.89	-13	-10.89	Vertical
2509.5	-50.75	2.91	27.70	-25.96	-13	-12.96	Vertical
2509.5	-50.78	2.91	27.70	-25.99	-13	-12.99	Horizontal
Test Results for High Channel 848.3MHz							
1696.6	-51.20	2.78	27.43	-26.55	-13	-13.55	Horizontal
1696.6	-52.70	2.78	27.43	-28.05	-13	-15.05	Vertical
2544.9	-49.21	2.92	27.74	-24.39	-13	-11.39	Vertical
2544.9	-51.13	2.92	27.74	-26.31	-13	-13.31	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 Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
1658	-52.46	2.78	27.50	-27.74	-13	-14.74	Horizontal
1658	-49.18	2.78	27.50	-24.46	-13	-11.46	Vertical
2487	-53.63	2.90	27.80	-28.73	-13	-15.73	Vertical
2487	-51.38	2.90	27.80	-26.48	-13	-13.48	Horizontal
Test Results For Mid Channel 836.5MHz							
1673	-50.43	2.78	27.48	-25.73	-13	-12.73	Horizontal
1673	-50.52	2.78	27.48	-25.82	-13	-12.82	Vertical
2509.5	-54.38	2.91	27.70	-29.59	-13	-16.59	Vertical
2509.5	-51.63	2.91	27.70	-26.84	-13	-13.84	Horizontal
Test Results for High Channel 844MHz							
1688	-53.93	2.78	27.43	-29.28	-13	-16.28	Horizontal
1688	-48.61	2.78	27.43	-23.96	-13	-10.96	Vertical
2532	-49.24	2.92	27.74	-24.42	-13	-11.42	Vertical
2532	-50.61	2.92	27.74	-25.79	-13	-12.79	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

9.2 LTE BAND 41

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

Test Results for Low Channel 2557.5MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5115	-65.35	2.63	27.26	-40.72	-25	-15.72	Horizontal
5115	-63.02	2.63	27.26	-38.39	-25	-13.39	Vertical
7672.5	-65.44	2.67	27.58	-40.53	-25	-15.53	Vertical
7672.5	-63.33	2.67	27.58	-38.42	-25	-13.42	Horizontal
Test Results for Mid Channel 2605MHz							
5205	-66.02	2.62	27.28	-41.36	-25	-16.36	Horizontal
5205	-64.12	2.62	27.28	-39.46	-25	-14.46	Vertical
7807.5	-63.35	2.85	27.62	-38.58	-25	-13.58	Vertical
7807.5	-60.25	2.85	27.62	-35.48	-25	-10.48	Horizontal
Test Results for High Channel 2647.5MHz							
5295	-64.02	2.64	27.28	-39.38	-25	-14.38	Horizontal
5295	-61.23	2.64	27.28	-36.59	-25	-11.59	Vertical
7942.5	-60.55	2.85	27.70	-35.70	-25	-10.70	Vertical
7942.5	-61.32	2.85	27.70	-36.47	-25	-11.47	Horizontal

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 2565MHz							
Frequency(MHz)	SG Level(dBm)	Cable Loss(dB)	Antenna Gain(dB)	Absolute Level(dBm)	Limit （dBm）	Margin(dBm)	Polarity
5130	-60.55	2.63	27.30	-35.88	-25	-10.88	Horizontal
5130	-62.02	2.63	27.30	-37.35	-25	-12.35	Vertical
7695	-63.45	2.67	27.62	-38.50	-25	-13.50	Vertical
7695	-64.74	2.67	27.62	-39.79	-25	-14.79	Horizontal
Test Results for Mid Channel 2605MHz							
5205	-60.25	2.62	27.33	-35.54	-25	-10.54	Horizontal
5205	-63.36	2.62	27.33	-38.65	-25	-13.65	Vertical
7807.5	-64.05	2.85	27.67	-39.23	-25	-14.23	Vertical
7807.5	-61.44	2.85	27.67	-36.62	-25	-11.62	Horizontal
Test Results for High Channel 2640MHz							
5280	-63.36	2.64	27.33	-38.67	-25	-13.67	Horizontal
5280	-64.45	2.64	27.33	-39.76	-25	-14.76	Vertical
7920	-63.25	2.85	27.67	-38.43	-25	-13.43	Vertical
7920	-64.02	2.85	27.67	-39.20	-25	-14.20	Horizontal

Note: PMea(dBm)= Power(dBm)+ ARpl (dBm)

. Over Limit= : PMea(dBm)-Limit(dBm)

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

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°C

Voltage =low voltage, DC 3.2V, Normal, DC 3.8V and High voltage, DC 4.4V.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to -30ºC 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 +50ºC is reached.

Frequency Stability vs Voltage:

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

MODES TESTED

LTE Band 5

LTE Band 41

RESULTS

See the following pages.

10.1 LTE BAND 5

QPSK, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.2	836.5	-1.9	-0.002212	2.5
3.8	836.5	-5.3	-0.006311	2.5
4.4	836.5	4.3	0.005128	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 QPSK, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	-2.4	-0.002841	2.5
Extreme (50C)	836.5	-5.4	-0.006438	2.5
Extreme (40C)	836.5	-4.4	-0.005245	2.5
Extreme (30C)	836.5	-3.4	-0.004058	2.5
Extreme (10C)	836.5	1.1	0.001330	2.5
Extreme (0C)	836.5	2.2	0.002660	2.5
Extreme (-10C)	836.5	4.6	0.005443	2.5
Extreme (-20C)	836.5	-4.6	-0.005509	2.5
Extreme (-30C)	836.5	-7.1	-0.008438	2.5

16QAM, (10MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
3.2	836.5	-2.6	-0.003087	2.5
3.8	836.5	-5.4	-0.006437	2.5
4.4	836.5	-6.8	-0.008076	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 5 16QAM, (CH 20525 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25C)	836.5	-3.8	-0.004537	2.5
Extreme (50C)	836.5	-6.2	-0.007370	2.5
Extreme (40C)	836.5	-4.3	-0.005167	2.5
Extreme (30C)	836.5	7.1	0.008444	2.5
Extreme (10C)	836.5	4.0	0.004763	2.5
Extreme (0C)	836.5	3.2	0.003802	2.5
Extreme (-10C)	836.5	-4.3	-0.005183	2.5
Extreme (-20C)	836.5	-4.9	-0.005873	2.5
Extreme (-30C)	836.5	-4.9	-0.005854	2.5

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

10.2 LTE BAND 41

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
QPSK, (CH 40715 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.2	2602.5	2.6	0.000999	2.5
3.8	2602.5	4.5	0.001729	2.5
4.4	2602.5	-3.8	-0.001460	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
QPSK, (CH 40715 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2602.5	-6.9	-0.002651	2.5
Extreme (50C)	2602.5	-5.8	-0.002229	2.5
Extreme (40C)	2602.5	-6.0	-0.002305	2.5
Extreme (30C)	2602.5	2.0	0.000768	2.5
Extreme (10C)	2602.5	1.1	0.000437	2.5
Extreme (0C)	2602.5	-8.2	-0.003157	2.5
Extreme (-10C)	2602.5	-6.7	-0.002574	2.5
Extreme (-20C)	2602.5	-5.3	-0.002037	2.5
Extreme (-30C)	2602.5	-4.1	-0.001575	2.5

16QAM, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
16QAM, (CH 40715 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
3.2	2602.5	2.3	0.000884	2.5
3.8	2602.5	-6.1	-0.002344	2.5
4.4	2602.5	3.0	0.001153	2.5

Frequency error vs. Temperature

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
16QAM, (CH 40715 RB size 100 RB Offset 0 20MHz BANDWIDTH)				
Normal (25C)	2602.5	-7.0	-0.002690	2.5
Extreme (50C)	2602.5	-7.7	-0.002959	2.5
Extreme (40C)	2602.5	-5.2	-0.001998	2.5
Extreme (30C)	2602.5	-7.0	-0.002690	2.5
Extreme (10C)	2602.5	2.9	0.001114	2.5
Extreme (0C)	2602.5	4.1	0.001575	2.5
Extreme (-10C)	2602.5	4.6	0.001768	2.5
Extreme (-20C)	2602.5	1.8	0.000692	2.5
Extreme (-30C)	2602.5	-3.7	-0.001422	2.5

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

11. Peak-to-Average Ratio

11.1 Description of the PAR Measurement

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

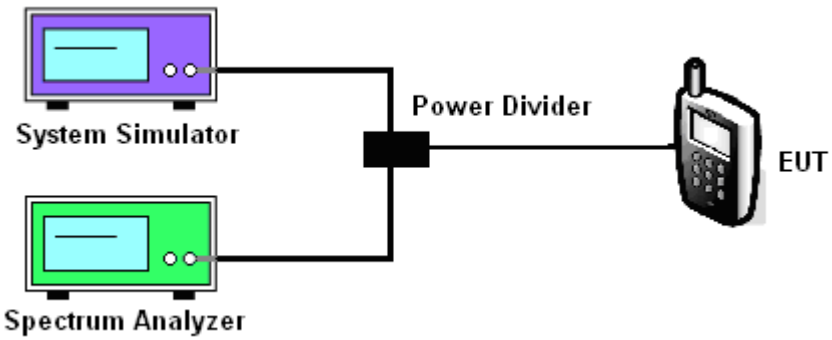
11.2 Measuring Instruments

See list of measuring instruments of this test report.

11.3 Test Procedures

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

11.4 Test Setup



MODES TESTED

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Test data reference attachment.

----END OF REPORT----