Portion

TEST REPORT

No. I16D00249-RFA-01

For

Client : Hisense International Co., Ltd.

Production : Smartphone

Model Name : Hisense F102

FCC ID 2ADOBF102

Hardware Version: V1.00

Software Version: L1307.6.01.05.MX06

Issued date: 2017-02-06

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of ECIT Shanghai.

Test Laboratory:

ECIT Shanghai, East China Institute of Telecommunications

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Revision Version

Report Number	Revision	Date	Memo
I16D00249-RFA-01	00	2017-01-03	Initial creation of test report
I16D00249-RFA-01	01	2017-01-17	Second creation of test report
I16D00249-RFA-01	02	2017-01-24	Third creation of test report
I16D00249-RFA-01	03	2017-02-06	Forth creation of test report

CONTENTS

1. Test Laboratory

1.1. Testing Location

Company Name:	ECIT Shanghai, East China Institute of Telecommunications
Address:	7-8F, G Area, No. 668, Beijing East Road, Huangpu District, Shanghai, P. R. China
Postal Code:	200001
Telephone:	(+86)-021-63843300
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FCC Registration NO.:	489729

1.2. Testing Environment

Normal Temperature:	15-35℃
Extreme Temperature:	-10/+55℃
Relative Humidity:	20-75%

1.3. Project data

Project Leader:	Yu Anlu
Testing Start Date:	2016-12-10
Testing End Date:	2016-12-30

1.4. Signature

Zhang Shiyu
(Prepared this test report)

Liu Jianquan
(Reviewed this test report)

Zheng Zhongbin
Director of the laboratory
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	Hisense International Co., Ltd.
Address:	Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071, China
Contact:	zhangkelin@hisense.com
Email:	266010

2.2. Manufacturer Information

Company Name:	Hisense Communications Co., Ltd.
Address:	218 Qianwangang Road, Economic & Technological Development Zone, Qingdao, Shandong Province, P.R. China
Contact:	Xuxin2@hisense.com
Email:	266510

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

EUT Description	Smartphone
Model name	Hisense F102
FCC ID	2ADOBF102
UMTS Frequency Band	Band II/Band V/Band IV
GSM Frequency Band	GSM900/GSM1800/GSM850/GSM1900
E-UTRA Frequency Band	FDD 2/4/5/7
Type of modulation	QPSK/16QAM
Power Class	GSM900:4, DCS1800:1,
GPRS Multislot Class	12
EGPRS Multislot Class	12
Extreme Temperature	-10/+55℃
Nominal Voltage	3.8V
Extreme High Voltage	4.35V
Extreme Low Voltage	3.5V

Note: Photographs of EUT are shown in ANNEX A of this test report.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
N09	861864030000217	V1.00	L1307.6.01.05.MX06	2016-12-15

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	RF cable	---
AE2	Dummy Battery	---

*AE ID: is used to identify the test sample in the lab internally.

3.5. Statements

The product name Hisense F102, supporting GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/LTE/WLAN/BT/BLE, manufactured by Hisense Communications Co., Ltd. is a new product for testing.

ECIT has verified that the compliance of the tested device specified in section 5 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 5 of this test report.

4. Reference Documents

4.5. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	2014
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	2014
FCC Part 22	PUBLIC MOBILE SERVICES	2014
ANSI-TIA-603-D	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2010
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

5. SUMMARY OF TEST RESULTS

LTE BAND 2

Item	Test items	FCC rules	result
1	Output Power	24.232(c)	Pass
2	Conducted Spurious mission	24.238, 2.1057	Pass

LTE BAND 4

Item	Test items	FCC rules	result
1	Output Power	27.50(d)(4)	Pass
2	Conducted Spurious mission	27.53(h), 2.1057	Pass

LTE BAND 5

Item	Test items	FCC rules	result
1	Output Power	§2.1046(a), 22.913(a)	Pass
2	Conducted Spurious mission	22.917, 2.1057	Pass

LTE BAND 7

Item	Test items	FCC rules	result
1	Output Power	27.50(h)(2)	Pass
2	Conducted Spurious mission	27.53(m), 2.1057	Pass

Note: Only the radiated measurement results are in this report.

6. Test Equipment Utilized

Radiated emission test system

The test equipment and ancillaries used are as follows.

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Date	Cal.interval
1	Universal Radio Communicatio n tester	CMW500	104178	R&S	2016-05-12	1
2	Test Receiver	ESU40	100307	R&S	2016-05-12	1
3	Trilog Antenna	VULB9163	VULB9163-515	Schwarzbeck	2014-11-05	3
4	Double Ridged Guide Antenna	ETS-3117	00135885	ETS	2014-05-06	3
5	2-Line V-Network	ENV216	101380	R&S	2016-05-12	1

7. Test Environment

Shielding Room1 (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. = 25 %, Max. =75 %
Shielding effectiveness	> 110 dB
Ground system resistance	< 0.5 Ω

Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber1 (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. = 25 %, Max. = 75 %
Shielding effectiveness	> 100 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
VSWR	Between 0 and 6 dB, from 1GHz to 18GHz
Site Attenuation Deviation	Between -4 and 4 dB,30MHz to 1GHz
Uniformity of field strength	Between 0 and 6 dB, from 80MHz to 3000 MHz

ANNEX A. RADIATED MEASUREMENT RESULTS

A.1. LTE EIRP

A.1.1. Description

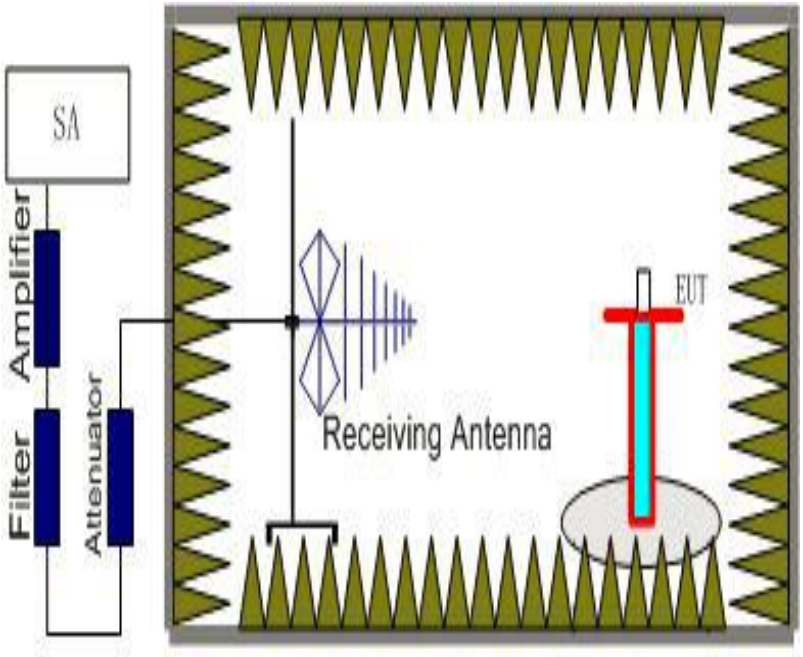
This is the test for the maximum radiated power from the EUT.

Rule Part 22.913(a) specifies, ” The ERP of mobile transmitters and auxiliary test transmitters mustnot exceed 7 Watts.”

A.1.2. Method of Measurement

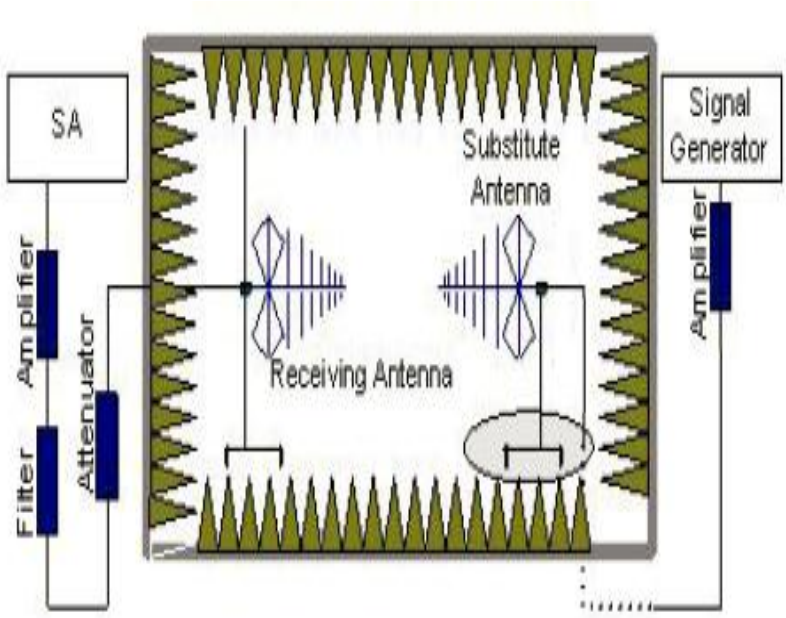
The measurements procedures in TIA-603D-2010 are used.

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from thereceive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUTfor emission measurements. The height of receiving antenna is 1.5m. The test setup refers tofigure below. Detected emissions were maximized at each frequency by rotating the EUTthrough 360° and adjusting the receiving antenna polarization. The radiated emissionmeasurements of all transmit frequencies in three channels (High, Middle, Low) weremeasured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).

3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna.

The cable loss (P_{cl}) ,the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test.

The measurement results are obtained as described below:

Power(EIRP)=P_{Mea}+ P_{Ag} -P_{cl}+ G_a

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.

6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

A.1.3 LTE Band 5- ERP 22.913(a)

A.1.3.1 Limit

	Burst Peak ERP (dBm)
LTE Band 2	≤33dBm (2W)
LTE Band 4	≤30dBm (1W)
LTE Band 5	≤38.45dBm (7W)
LTE Band 7	≤33 dBm (2W)

A.1.3.2 Measurement result

LTE Band 2_1.4MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1848.8	-14.84	4.6	37.04	4.6	22.20	H
1879.9	-13.25	4.6	37.08	4.6	23.83	H
1906.1	-14.22	4.6	36.97	4.6	22.75	V

Peak EIRP(dBm) = PMea(-14.84dBm) + Ga (4.6dBi) +PAg (37.04dB) - Pcl (4.6dB) = 22.20dBm

LTE Band 2_3MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1849.6	-14.69	4.6	37.04	4.6	22.35	H
1905.7	-13.18	4.6	37.08	4.6	23.90	H
1905.7	-13.32	4.6	36.97	4.6	23.65	V

LTE Band 2_5MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1850.3	-14.65	4.6	37.04	4.6	22.39	H
1877.7	-12.8	4.6	37.08	4.6	24.28	H
1904.1	-13.37	4.6	36.97	4.6	23.60	V

LTE Band2_10MHz_QPSK

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1849.8	-15.42	4.6	37.04	4.6	21.62	H
1876.8	-13.36	4.6	37.08	4.6	23.72	H
1901.0	-14.69	4.6	36.97	4.6	22.28	V

LTE Band2_15MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1850.4	-16.08	4.6	37.04	4.6	20.96	H
1873.4	-12.93	4.6	37.08	4.6	24.15	H
1896.2	-15.05	4.6	36.97	4.6	21.92	V

LTE Band2_20MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1850.1	-15.31	4.6	37.04	4.6	21.73	H
1872.9	-12.47	4.6	37.08	4.6	24.61	H
1888.0	-14.75	4.6	36.97	4.6	22.22	V

LTE Band 2_1.4MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1850.3	-14.52	4.6	37.04	4.6	22.52	V
1881.7	-15.11	4.6	37.08	4.6	21.97	H
1908.9	-14.4	4.6	36.97	4.6	22.57	H

LTE Band 2_3MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1849.7	-14.7	4.6	37.04	4.6	22.34	H
1878.7	-15.37	4.6	37.08	4.6	21.71	H
1905.1	-14.28	4.6	36.97	4.6	22.69	V

LTE Band 2_5MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1851.8	-15.15	4.6	37.04	4.6	21.89	V
1876.6	-14.35	4.6	37.08	4.6	22.73	H
1904.1	-14.28	4.6	36.97	4.6	22.69	V

LTE Band 2_10MHz_16QAM

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1849.5	-15.33	4.6	37.04	4.6	21.71	H
1875.3	-16.42	4.6	37.08	4.6	20.66	V
1901.8	-14.65	4.6	36.97	4.6	22.32	V

LTE Band 2_15MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1849.8	-15.22	4.6	37.04	4.6	21.82	H
1873.1	-16	4.6	37.08	4.6	21.08	V
1898.1	-14.81	4.6	36.97	4.6	22.16	V

LTE Band 2_20MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1850.1	-15.89	4.6	37.04	4.6	21.15	H
1873.2	-16.54	4.6	37.08	4.6	20.54	H
1892.1	-14.01	4.6	36.97	4.6	22.96	V

Peak EIRP(dBm) = P_{Mea}(-15.89dBm) + G_a (4.6dBd) +P_{Ag} (37.04dB) - P_{cl} (4.6dB) = 21.15dBm

LTE Band4_1.4MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1709.7	-15.37	4.5	36.25	4.7	21.08	H
1730.8	-13.89	4.5	35.99	4.7	22.30	H
1754.1	-14.96	4.5	36.42	4.7	21.66	H

LTE Band 4_3MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1710.9	-15.55	4.5	36.25	4.7	20.90	H
1731.0	-13.94	4.5	35.99	4.7	22.25	H

1752.0	-14.69	4.5	36.42	4.7	21.93	H

LTE Band 4_5MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1710.4	-15.49	4.5	36.25	4.7	20.96	H
1730.4	-13.85	4.5	35.99	4.7	22.34	H
1750.6	-14.72	4.5	36.42	4.7	21.90	H

LTE Band 4_10MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1715.6	-15.06	4.5	36.25	4.7	21.39	H
1731.3	-13.63	4.5	35.99	4.7	22.56	H
1751.9	-14.96	4.5	36.42	4.7	21.66	H

LTE Band 4_15MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1716.7	-15.2	4.5	36.25	4.7	21.25	H
1730.6	-13.93	4.5	35.99	4.7	22.26	H
1747.3	-15.03	4.5	36.42	4.7	21.59	H

LTE Band 4_20MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1720.5	-14.72	4.5	36.25	4.7	21.73	H
1732.9	-13.8	4.5	35.99	4.7	22.39	H
1744.4	-14.58	4.5	36.42	4.7	22.04	H

LTE Band 4_1.4MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1710.9	-15.33	4.5	36.25	4.7	21.12	H
1732.5	-13.84	4.5	35.99	4.7	22.35	H
1753.8	-14.78	4.5	36.42	4.7	21.84	V

LTE Band 4_3MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1710.3	-15.38	4.5	36.25	4.7	21.07	H
1733.5	-14.03	4.5	35.99	4.7	22.16	V
1753.9	-14.79	4.5	36.42	4.7	21.83	H

LTE Band 4_5MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1710.4	-15.55	4.5	36.25	4.7	20.90	H
1731.3	-13.76	4.5	35.99	4.7	22.43	H

1751.5	-14.92	4.5	36.42	4.7	21.70	H

LTE Band4_10MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1716.2	-15.27	4.5	36.25	4.7	21.18	H
1731.2	-16.18	4.5	35.99	4.7	20.01	H
1751.5	-14.89	4.5	36.42	4.7	21.73	H

LTE Band4_15MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1718.5	-14.82	4.5	36.25	4.7	21.63	H
1730.5	-13.93	4.5	35.99	4.7	22.26	H
1748.1	-14.78	4.5	36.42	4.7	21.84	H

LTE Band 4_20MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
1720.3	-15.08	4.5	36.25	4.7	21.37	H
1731.2	-13.59	4.5	35.99	4.7	22.60	H
1720.3	-15.25	4.5	36.42	4.7	21.37	H

LTE Band 5_1.4MHz_ QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
823.7	-12.57	3.1	36.92	3.11	24.36	H
834.2	-10.43	3.1	37.00	3.11	26.58	H
847.5	-8.94	3.1	36.96	3.11	28.03	H

Peak EIRP(dBm) = PMea(-12.57dBm) + Ga (3.11dBi) +PAg (36.92dB) - Pcl (3.1dB) = 24.36dBm

LTE Band 5_3MHz_ QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
823.3	-12.51	3.1	36.92	3.11	24.42	H
831.9	-10.63	3.1	37.07	3.11	26.45	H
844.4	-8.95	3.1	37.06	3.11	28.12	H

LTE Band 5_5MHz_ QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
823.8	-12.62	3.1	37.00	3.11	24.39	H
831.8	-10.22	3.1	37.07	3.11	26.86	H
844.1	-8.63	3.1	36.99	3.11	28.37	H

LTE Band 5_10MHz_ QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
827.2	-10.73	3.1	37.12	3.11	26.40	H
835.1	-10.23	3.1	36.79	3.11	26.57	H
840.6	-8.51	3.1	36.42	3.11	27.92	H

LTE Band 5_1.4MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
823.8	-12.98	3.1	37.00	3.11	24.03	H
834.5	-10.66	3.1	36.85	3.11	26.20	H
847.7	-9.02	3.1	36.96	3.11	27.95	H

LTE Band5_3MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
821.5	-12.79	3.1	37.01	3.11	24.23	H
833.7	-10.42	3.1	36.95	3.11	26.54	H
846.3	-9.13	3.1	36.93	3.11	27.81	H

LTE Band 5_5MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
823.8	-12.54	3.1	36.92	3.11	24.39	H
831.8	-10.22	3.1	37.07	3.11	26.86	H
844.1	-8.63	3.1	36.99	3.11	28.37	H

LTE Band 5_10MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBd)	PeakERP(dBm)	Polarization
827.2	-10.82	3.1	37.21	3.11	26.40	H
835.1	-10.49	3.1	37.05	3.11	26.57	H
840.6	-8.51	3.1	36.42	3.11	27.92	H

LTE Band 7_5MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2499.4	-13.43	5.5	34.73	5.6	21.40	H
2534.9	-13.58	5.5	35.00	5.6	21.52	V
2565.2	-12.96	5.5	34.80	5.6	21.94	V

Peak EIRP(dBm) = PMea(-13.43dBm) + Ga (5.6dBi) +PAg (34.73dB) - Pcl (5.5dB) = 21.40dBm

LTE Band 7_5MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2501.3	-13.23	5.5	34.73	5.6	21.60	V

2533.2	-13.78	5.5	35.00	5.6	21.32	V
2565.8	-12.95	5.5	34.80	5.6	21.95	V

LTE Band 7_10MHz_QPSK6

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2498.2	-14.2	5.5	35.16	5.6	21.06	H
2531.0	-14.12	5.5	35.00	5.6	20.98	V
2559.5	-13.28	5.5	34.80	5.6	21.62	V

LTE Band 7_10MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2499.4	-15.47	5.5	35.16	5.6	19.79	H
2531.2	-15.28	5.5	35.00	5.6	19.82	V
2560.9	-14.82	5.5	34.80	5.6	20.08	H

LTE Band 7_15MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2500.8	-13.97	5.5	35.16	5.6	21.29	H
2530.1	-13.73	5.5	35.00	5.6	21.37	H
2558.2	-14.03	5.5	34.80	5.6	20.87	H

LTE Band 7_15MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2500.8	-14.39	5.5	35.16	5.6	20.87	H
2527.8	-13.43	5.5	35.00	5.6	21.67	H
2555.6	-13.67	5.5	34.80	5.6	21.23	H

LTE Band 7_20MHz_QPSK

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2500.0	-14.34	5.5	35.16	5.6	20.92	H
2528.3	-14.05	5.5	35.00	5.6	21.05	H
2551.0	-14.52	5.5	34.80	5.6	20.38	H

LTE Band 7_20MHz_16QAM

Frequency(MHz)	PMea(dBm)	Pcl(dB)	PAg(dB)	GaAntennaGain(dBi)	PeakEIRP(dBm)	Polarization
2500.2	-14.27	5.5	35.16	5.6	20.99	H
2528.7	-13.89	5.5	35.00	5.6	21.21	H
2551.6	-13.92	5.5	34.80	5.6	20.98	H

ANALYZER SETTINGS:

RBW = VBW = 8MHz for occupied bandwdiths equal to or less than 5MHz. RBW = VBW = 20MHz for occupied bandwidths equal to or greater than 10MHz.

A.2 EMISSION LIMIT

Reference

FCC: CFR 2.1051, 22.917(a)

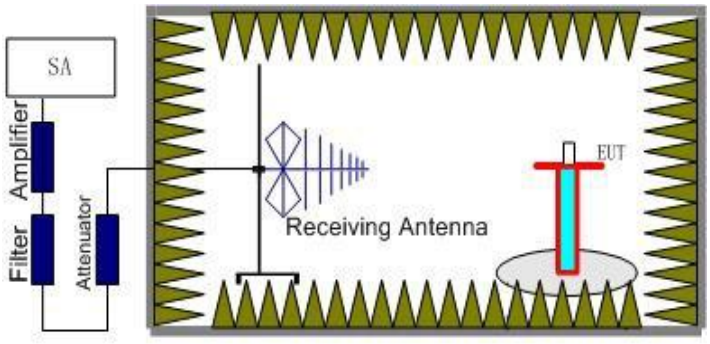
A.2.1 Measurement Method

The measurements procedures in TIA-603D-2010 are used. This measurement is carried out in fully-anechoic chamber FAC-3.

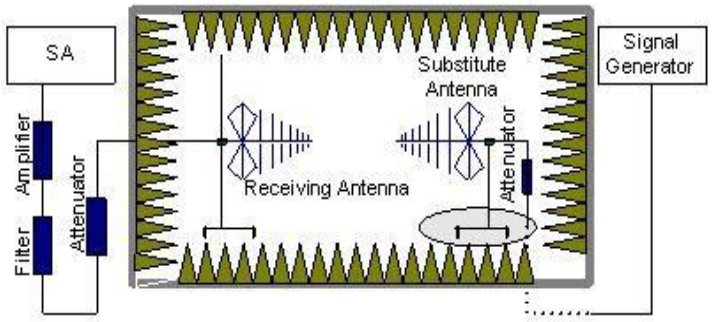
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 22.917(a). The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Bands 5.

The procedure of radiated spurious emissions is as follows:

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the

reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss (P_{pl}) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (G_a) should be recorded after test.
   An amplifier should be connected in for the test.
   The Path loss (P_{pl}) is the summation of the cable loss and the gain of the amplifier. The measurement results are obtained as described below:
   Power (EIRP)=P_{Mea}+ P_{pl} + G_a
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit: dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dB.

A.2.2. Measurement Limit

Part 22.917(a) all specify that 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. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

A.2.3. Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 5. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the LTE Bands 5 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

LTE Band 5, 5MHz, QPSK, Channel 20425

Frequency(MHz)	PMea(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit （dBm）	Margin(dB)	Polarization
1611.269231	-51.53	4.3	5	-50.83	-13	37.83	H
2472.692308	-37.12	5.3	5.6	-36.82	-13	23.82	H
3297.2	-41.85	6.2	7	-41.05	-13	28.05	H
4121.6	-51.8	7	8.7	-50.1	-13	37.1	V
6370	-50.52	8.8	10.4	-48.92	-13	35.92	V
8232.7	-49.86	10.1	12.4	-47.56	-13	34.56	H

LTE Band 7, 5MHz, QPSK, Channel 21350

Frequency(MHz)	PMea(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit （dBm）	Margin(dB)	Polarization
4098.8	-48.78	7	7.3	-48.48	-13	35.48	H
5130.4	-40.43	7.9	9.5	-38.83	-13	25.83	V
6099.6	-47.99	8.7	10.2	-46.49	-13	33.49	H
7696	-41.85	9.8	15.3	-36.35	-13	23.35	V
9038.8	-49.18	10.4	18.3	-41.28	-13	28.28	H
10886.8	-42.2	11.8	17.3	-36.7	-13	23.7	H

LTE Band 2, 20MHz, QPSK, Channel 18700

Frequency(MHz)	PMea(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit （dBm）	Margin(dB)	Polarization
3760.000000	-32.46	6.6	6.2	-47.29	-13	34.29	V
5781.600000	-17.28	8.4	10.5	-50.15	-13	37.15	H
7520.400000	-41.22	9.7	14.6	-44.67	-13	31.67	V
9400.800000	-42.39	10.7	18.6	-45.31	-13	32.31	V
13353.400000	-47.37	13.7	21.8	-38.36	-13	25.36	V
17230.000000	-39.44	16.0	19.6	-34.23	-13	21.23	V

LTE Band 4, 10MHz, QPSK, Channel 20000

Frequency(MHz)	PMea(dBm)	Path Loss	Antenna Gain	Peak EIRP(dBm)	Limit （dBm）	Margin(dB)	Polarization
3420.800000	-32.56	6.3	6	-49.61	-13	36.61	H
5131.600000	-16.08	7.9	8.8	-46.50	-13	33.50	H
6842.400000	-39.62	9.2	12.5	-43.98	-13	30.98	V
8552.800000	-42.29	10.3	18.1	-44.43	-13	31.43	V
11596.400000	-45.17	12.2	18.1	-41.55	-13	28.55	V
14712.800000	-44.74	14.4	23.3	-37.89	-13	24.89	V

ANNEX B. Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

ANNEX C. Accreditation Certificate

Accredited Laboratory

A2LA has accredited

EAST CHINA INSTITUTE OF TELECOMMUNICATIONS

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of any additional program requirements in the field of Electrical. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009*).

Presented this 10th day of December 2014.

President & CEO
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2017

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

************End The Report************