



## TEST REPORT

No. I19D00119-SRD06

*For*

**Client:** Insego Corp.

**Production:** Industrial Cellular Gateway with Ethernet,WiFi,  
Bluetooth,GPS/GLNSS and USB Connectivity

**Model Name:** SKG1EM7455

**Brand Name:** SKYUS 160NE

**FCC ID :** PKRISGSKG1EM7455

**IC ID :** 3229A-SKG1EM7455

**Hardware Version:** P2

**Software Version:** 2.110.1.2

**Issued date:** 2019-11-09

## NOTE

1. The test results in this test report relate only to the devices specified in this report.
2. This report shall not be reproduced except in full without the written approval of East China Institute of Telecommunications.
3. KDB 971168 D01 has not been accredited by A2LA.
4. For the test results, the uncertainty of measurement is not taken into account when judging the compliance with specification, and the results of measurement or the average value of measurement results are taken as the criterion of the compliance with specification directly.

**Test Laboratory:**

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**Revision Version**

<b>Report Number</b>	<b>Revision</b>	<b>Date</b>	<b>Memo</b>
I19D00119-SRD06	00	2019-08-30	Initial creation of test report
I19D00119-SRD06	01	2019-11-09	Second creation of test report

## CONTENTS

1.	TEST LABORATORY.....	6
1.1.	TESTING LOCATION.....	6
1.2.	TESTING ENVIRONMENT.....	6
1.3.	PROJECT DATA .....	6
1.4.	SIGNATURE.....	6
2.	CLIENT INFORMATION.....	7
2.1.	APPLICANT INFORMATION .....	7
2.2.	MANUFACTURER INFORMATION .....	7
3.	EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE) .....	8
3.1.	ABOUT EUT.....	8
3.2.	INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST .....	8
3.3.	INTERNAL IDENTIFICATION OF AE USED DURING THE TEST .....	8
4.	REFERENCE DOCUMENTS .....	9
4.1.	REFERENCE DOCUMENTS FOR TESTING .....	9
5.	TEST RESULTS.....	10
5.1.	SUMMARY OF TEST RESULTS.....	10
5.2.	STATEMENTS.....	12
6.	TEST EQUIPMENT UTILIZED.....	13
7.	TEST ENVIRONMENT.....	15
8.	MEASUREMENT UNCERTAINTY .....	16
ANNEX A.	MEASUREMENT RESULTS.....	17
ANNEX A.1.	OUTPUT POWER .....	17
ANNEX A.2.	EMISSION LIMIT .....	31
ANNEX C.1.	MAIN TERMS.....	42

<b>ANNEX C.2. TERMS USED IN CONDITION COLUMN .....</b>	<b>42</b>
<b>ANNEX C.3. TERMS USED IN VERDICT COLUMN.....</b>	<b>42</b>
<b>ANNEX C.4. TERMS USED IN NOTE COLUMN.....</b>	<b>42</b>
<b>ANNEX B. ACCREDITATION CERTIFICATE.....</b>	<b>43</b>

## 1. Test Laboratory

### 1.1. Testing Location

Company Name	ECIT Shanghai, East China Institute of Telecommunications
Address	7-8/F., Area G, No.668, Beijing East Road, Shanghai, China
Postal Code	200001
Telephone	(+86)-021-63843300
Fax	(+86)-021-63843301
FCC registration No	CN1177
IC registration No	10766A-1

### 1.2. Testing Environment

Normal Temperature	15°C-35°C
Relative Humidity	25%-75%

### 1.3. Project data

Project Leader	Chen Minfei
Testing Start Date	2019-07-21
Testing End Date	2019-07-24

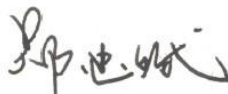
### 1.4. Signature



\_\_\_\_\_  
**Wang Liang**  
(Prepared this test report)



\_\_\_\_\_  
**Fan Songyan**  
(Reviewed this test report)



\_\_\_\_\_  
**Zheng Zhongbin**  
(Approved this test report)

## 2. Client Information

### 2.1. Applicant Information

Company Name	Inseego Corp.
Address	9605 Scranton Road, Suite 300, San Diego, CA 92121, USA
Telephone	+1 858-812-0606
Postcode	/

### 2.2. Manufacturer Information

Company Name	Sierra Wireless Inc.
Address	13811, Wireless Way, Richmond, British Columbia Canada
Telephone	+1 604 232 1440
Postcode	/

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

#### 3.1. About EUT

Production	Industrial Cellular Gateway with Ethernet,WiFi, Bluetooth,GPS/GLNSS and USB Connectivity
Model name	SKG1EM7455
UMTS Frequency Band	Band I/II/III/IV/V/VIII
LTE Frequency Band	Band 1/2/3/4/5/7/12/13/20/25/26/29/30/41
Extreme Temperature	-30/+60℃
Nominal Voltage	12V
Extreme High Voltage	32V
Extreme Low Voltage	9V

Note:

- a. Photographs of EUT are shown in ANNEX A of this test report.
- b. The value of the antenna gain is provided by the customer. For specific antenna information, please check the antenna specifications of the customer.

#### 3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
N04	/	2.110.1.2	P2	2019-07-20
N16	/	2.110.1.2	P2	2019-07-20

\*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	---

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



## 4. Reference Documents

### 4.1. Reference Documents for testing

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

Reference	Title	Version
FCC Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS	2018-10-01
FCC Part 22	PUBLIC MOBILE SERVICES	2018-10-01
FCC Part 24	PERSONAL COMMUNICATIONS SERVICES	2018-10-01
FCC Part 27	MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES	2018-10-01
ANSI/TIA-603-E	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2016
ANSI C63.26	American National Standard of Procedures for Compliance Testing of Licensed Transmitters Used in Licensed Radio	2015
KDB 971168 D01	Measurement Guidance for Certification of Licensed Digital Transmitters	v03r01
RSS 133	2 GHz Personal Communications Services	2018-01
RSS 139	Advanced Wireless Services Equipment Operating in the Bands 1710-1780 MHz and 2110-2180 MHz	2015-06
RSS 132	Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz	2013-10
RSS 199	Broadband Radio Service (BRS) Equipment Operating in the Band 2500–2690 MHz	2016-12
RSS 130	Mobile Broadband Services (MBS) Equipment Operating in the Frequency Bands 698-756 MHz and 777-787 MHz	2019-02
RSS GEN	General Requirements for Compliance of Radio Apparatus	2019-03

## 5. Test Results

### 5.1. Summary of Test Results

#### LTE Band 2

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-133	Section in this report	Verdict
1	Output Power	24.232(c)	6.4	A.1	P
2	Emission Limit	24.238(a), 2.1051	6.5	A.2	P

#### LTE Band 4

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-139	Section in this report	Verdict
1	Output Power	27.50(d)(4)	6.5	A.1	P
2	Emission Limit	27.53(h), 2.1051	6.6	A.2	P

#### LTE Band 5

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-132	Section in this report	Verdict
1	Output Power	§2.1046(a), 22.913(a)	5.4	A.1	P
2	Emission Limit	22.917, 2.1051	6.6	A.2	P

#### LTE Band 7

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-199	Section in this report	Verdict
1	Output Power	27.50(h)(2)	6.5	A.1	P
2	Emission Limit	27.53(m), 2.1051	6.6	A.2	P

#### LTE Band 12

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-130	Section in this report	Verdict
1	Output Power	27.50(c)(10)	4.4	A.1	P
2	Emission Limit	27.53(g), 2.1051	4.6	A.2	P

**LTE Band 13**

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-130	Section in this report	Verdict
1	Output Power	27.50(b)(10)	4.4	A.1	P
2	Emission Limit	27.53(c), 2.1051	4.6	A.2	P

**LTE Band 25**

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-130	Section in this report	Verdict
1	Output Power	27.50(c)(10)	4.4	A.1	P
2	Emission Limit	27.53(g), 2.1051	4.6	A.2	P

**LTE Band 26**

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-130	Section in this report	Verdict
1	Equivalent Isotropically Radiated Power	2.1046/90.1321	4.4	A.1	P
2	Peak EIRP Power Density	2.1046/90.1321	4.6	A.2	P

**LTE Band 30**

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-130	Section in this report	Verdict
1	Output Power	27.50(a)	4.4	A.1	P
2	Emission Limit	27.53(a), 2.1051	4.6	A.2	P

**LTE Band 41**

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS-130	Section in this report	Verdict
1	Output Power	27.50(h)(2)	4.4	A.1	P
2	Emission Limit	27.53(m), 2.1051	4.6	A.2	P

Note: please refer to Annex C in this test report for the detailed test results.

The following terms are used in the above table.

P	Pass,the EUT complies with the essential requirements in the standard.
NM	Not measure, the test was not measured by ECIT.
NA	Not applicable, the test was not applicable.
F	Fail, the EUT does not comply with the essential requirements in the standard.

## 5.2. Statements

The SKG1EM7455 is a new product for testing.

In this report, we only retest and report the radiation test data. And the conduct test results please refer to report No:B15W50341-FCC-RF-REV1, which was prepared by China Telecommunication Technology Labs.

ECIT only performed test cases which identified with Pass/Fail/N/A/Inc/Decl/BR results in Annex C.

ECIT has verified that the compliance of the tested device specified in section 3 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 4 of this test report.

## 6. Test Equipment Utilized

### Climate chamber

No.	Equipment	Model	SN	Manufacturer	Cal.date	Cal.interval
1	Climate chamber	SH-641	92012011	ESPEC	2017-12-25	2 years

### Radiated emission test system

The test equipment and ancillaries used are as follows.

No.	Equipment	Model	SN	Manufacturer	Cal.date	Cal.interval
1	Universal Radio Communication Tester	CMW500	104178	R&S	2019-05-10	1 year
2	Test Receiver	ESU40	100307	R&S	2019-05-10	1 year
3	TRILOG Broadband Antenna	VULB9163	VULB9163-515	Schwarzbeck	2017-02-25	3 years
4	Double Ridged Guide Antenna	ETS-3117	135890	ETS	2017-01-11	3 years
5	2-Line V-Network	ENV216	101380	R&S	2019-05-10	1 year
6	Substitution Antenna	ETS-3117	00135890	ETS	2017-01-11	3 years
7	RF Signal Generator	SMF100A	102314	R&S	2019-05-10	1 year
8	Substitution Antenna	VUBA9117	9117-266	Schwarzbeck	2017-11-18	3 years
9	Amplifier	SCU08	10146	R&S	2019-05-10	1 year

**Conducted test system**

No.	Equipment	Model	SN	Manufacturer	Cal.date	Cal.interval
1	Vector Signal Analyser	FSQ40	200063	R&S	2019-05-10	1 year
2	Wireless communication comprehensive tester	CMW500	148904	R&S	2019-05-10	1 year
3	DC Power Supply	ZUP60-1 4	LOC-220Z 006 -0007	TDL-Lambda	2019-05-10	1 year

**Software**

Name	Version
Eagle FCC LTE auto test system	V3.0
EMC32	V9.15

## 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 °C, Max. = 35 °C
Relative humidity	Min. = 20%, Max. = 75 %
Shielding effectiveness	> 100 dB
Ground system resistance	< 0.5 Ω

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

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =25 %, Max. =75 %
Shielding effectiveness	> 100 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 °C, Max. = 35 °C
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

## 8. Measurement Uncertainty

Measurement uncertainty for all the testing in this report are within the limit specified in ECIT documents. The detailed measurement uncertainty to see the column, k=2

Measurement Items	Range	Confidence Level	Calculated Uncertainty
Maximum Peak Output Power	30MHz-3600MHz	95%	$\pm 0.544\text{dB}$
EBW and VBW	30MHz-3600MHz	95%	$\pm 62.04\text{Hz}$
Transmitter Spurious Emission-Conducted	30MHz-2GHz	95%	$\pm 0.90\text{dB}$
Transmitter Spurious Emission-Conducted	2GHz-3.6GHz	95%	$\pm 0.88\text{dB}$
Transmitter Spurious Emission-Conducted	3.6GHz-8GHz	95%	$\pm 0.96\text{dB}$
Transmitter Spurious Emission-Conducted	8GHz-20GHz	95%	$\pm 0.94\text{dB}$
Transmitter Spurious Emission-Radiated	9KHz-30MHz	95%	$\pm 5.66\text{dB}$
Transmitter Spurious Emission-Radiated	30MHz-1000MHz	95%	$\pm 4.98\text{dB}$
Transmitter Spurious Emission-Radiated	1000MHz -18000MHz	95%	$\pm 5.06\text{dB}$
Transmitter Spurious Emission-Radiated	18000MHz -40000MHz	95%	$\pm 5.20\text{dB}$
Frequency stability	1MHz-16GHz	95%	$\pm 62.04\text{Hz}$



## ANNEX A. MEASUREMENT RESULTS

### ANNEX A.1. OUTPUT POWER

#### A.1.1. Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation.

In all cases, output power is within the specified limits.

CMW500 setting:

- 1: CMW500 is connected to the DUT
- 2; Set RX Expected PEP to 30 dbm

#### A.1.2 Radiated

##### A.1.2.1 Description

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

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Rule Part 27.50(d) specifies "Fixed, mobile, and portable (handheld) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP".

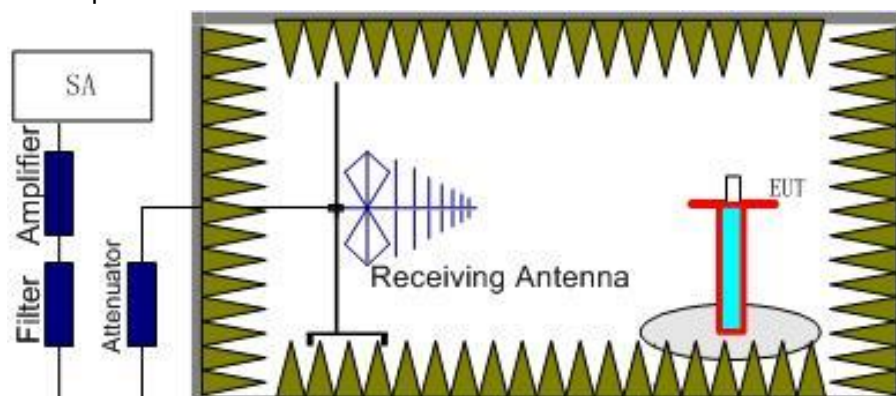
Rule Part 27.50(h)(2) specifies "Mobile stations are limited to 2.0 watts EIRP".

Rule Part 27.50(c) specifies "Portable stations (hand-held de-vices) are limited to 3 watts ERP".

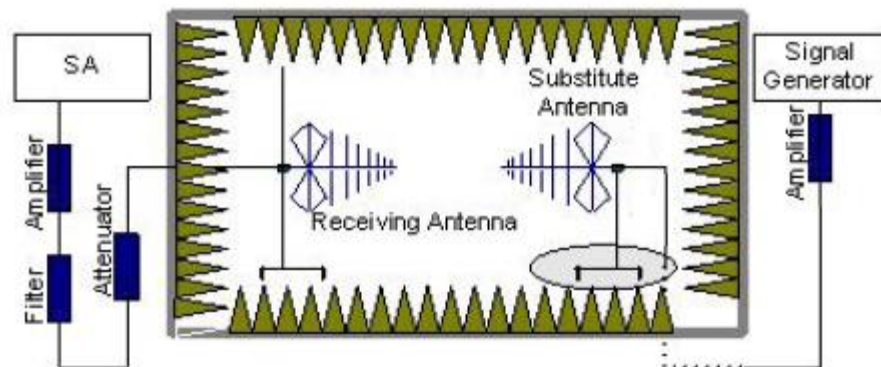
##### A.1.2.2 Method of Measurement

The measurements procedures in TIA-603E-2016 are used.

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 transmit frequencies in three channels (High, Middle, Low) 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 ( $P_r$ ).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a 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. An amplifier should be connected to the Signal Source output port. And the cable should be connected 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:

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

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (unit dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole,  $ERP = EIRP - 2.15$ .

### A.1.2.3 Measurement result

#### LTE Band 2- EIRP 24. 232(b)

Limits:  $\leq 33\text{dBm}$  (2W)

#### LTE Band 2\_1.4MHz\_QPSK\_RB Size 1, RB Offset 0

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1850.7	23.09	33.00	H
1880	22.13	33.00	H
1909.3	21.58	33.00	H

#### LTE Band 2\_3MHz\_QPSK\_RB Size 1, RB Offset 0

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1851.5	23.36	33.00	H
1880	22.04	33.00	H
1908.5	22.2	33.00	H

#### LTE Band 2\_5MHz\_QPSK\_RB Size 1, RB Offset 0

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1852.5	23.17	33.00	H
1880	22.21	33.00	H
1907.5	21.94	33.00	H

#### LTE Band 2\_10MHz\_QPSK\_RB Size 1, RB Offset 0

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1855	23.09	33.00	H
1880	22.23	33.00	H
1905	22.25	33.00	H

#### LTE Band 2\_15MHz\_QPSK\_RB Size 1, RB Offset 0

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1857.5	23.12	33.00	H
1880	22.19	33.00	H
1902.5	22	33.00	H

#### LTE Band 2\_20 MHz\_QPSK\_RB Size 1, RB Offset 0

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1860	23.02	33.00	H
1880	22.53	33.00	H
1900	22.18	33.00	H

**LTE Band 2\_1.4MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1850.7	23.12	33.00	H
1880	22.36	33.00	H
1909.3	22	33.00	H

**LTE Band 2\_3MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1851.5	23.06	33.00	H
1880	22.33	33.00	H
1908.5	21.7	33.00	H

**LTE Band 2\_5MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1852.5	23.05	33.00	H
1880	22.75	33.00	H
1907.5	21.78	33.00	H

**LTE Band 2\_10MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1855	23.29	33.00	H
1880	22.71	33.00	H
1905	21.95	33.00	H

**LTE Band 2\_15MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1857.5	23.24	33.00	H
1880	22.49	33.00	H
1902.5	22.36	33.00	H

**LTE Band 2\_20 MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1860	23.2	33.00	H
1880	22.21	33.00	H
1900	22	33.00	H

**LTE Band 4- EIRP 27.50(d)**
**Limits:** ≤30dBm (1W)

**LTE Band 4\_1.4MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	Limit(dBm)	Limit(dBm)	Polarization
1710.7	30.00	30.00	H
1732.5	30.00	30.00	H
1754.3	30.00	30.00	H

**LTE Band 4\_3MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1711.5	24.04	30.00	H
1732.5	23.33	30.00	H
1753.5	23.27	30.00	H

**LTE Band 4\_5MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1712.5	23.89	30.00	H
1732.5	23.5	30.00	H
1752.5	23.35	30.00	H

**LTE Band 4\_10MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1715	23.91	30.00	H
1732.5	23.16	30.00	H
1750	23.49	30.00	H

**LTE Band 4\_15MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1717.5	23.77	30.00	H
1732.5	23.21	30.00	H
1747.5	23.33	30.00	H

**LTE Band 4\_20MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1720	23.71	30.00	H
1732.5	23.23	30.00	H
1745	23.42	30.00	H

**LTE Band 4\_1.4MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1710.7	23.24	30.00	H
1732.5	23.24	30.00	H
1754.3	23.24	30.00	H

**LTE Band 4\_3MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1711.5	24.42	30.00	H
1732.5	23.56	30.00	H
1753.5	23.54	30.00	H

**LTE Band 4\_5MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1712.5	24.09	30.00	H
1732.5	23.65	30.00	H
1752.5	23.58	30.00	H

**LTE Band 4\_10MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1715	24	30.00	H
1732.5	23.37	30.00	H
1750.5	23.52	30.00	H

**LTE Band 4\_15MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1717.5	23.83	30.00	H
1732.5	23.78	30.00	H
1747.5	23.53	30.00	H

**LTE Band 4\_20MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1720	23.97	30.00	H
1732.5	23.19	30.00	H
1745	23.46	30.00	H

**LTE Band 5- EIRP 22.913(a)**

 Limits:  $\leq 38.45\text{dBm}$  (7W)

**LTE Band 5\_1.4MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
824.7	22.13	33.00	H
836.5	20.61	33.00	H
848.3	20.67	33.00	H

**LTE Band 5\_3MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
825.5	21.27	33.00	H

836.5	20.19	33.00	H
847.5	20.61	33.00	H

**LTE Band 5\_5MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
826.5	21.22	33.00	H
836.5	20.62	33.00	H
846.5	20.6	33.00	H

**LTE Band 5\_10MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
829	21.15	33.00	H
836.5	20.65	33.00	H
844	20.56	33.00	H

**LTE Band 5\_1.4MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
824.7	21.23	33.00	H
836.5	20.55	33.00	H
848.3	20.86	33.00	H

**LTE Band 5\_3MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
825.5	21.06	33.00	H
836.5	20.44	33.00	H
847.5	20.7	33.00	H

**LTE Band 5\_5MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
826.5	21.16	33.00	H
836.5	20.57	33.00	H
846.5	20.62	33.00	H

**LTE Band 5\_10MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
829	20.91	33.00	H
836.5	20.87	33.00	H
844	20.42	33.00	H

**LTE Band 7- EIRP 27.50(h)(2)**

Limits: ≤33 dBm (2W)

**LTE Band 7\_5MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2502.5	23.93	33.00	H
2535	23.45	33.00	H
2567.5	23.86	33.00	H

**LTE Band 7\_10MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
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2505	23.79	33.00	H
2535	23.71	33.00	H
2565	23.01	33.00	H

**LTE Band 7\_15MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2507.5	24.36	33.00	H
2535	23.56	33.00	H
2562.5	23.93	33.00	H

**LTE Band 7\_20MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2510	24.48	33.00	H
2535	23.59	33.00	H
2560	24.02	33.00	H

**LTE Band 7\_5MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2502.5	24.06	33.00	H
2535	23.62	33.00	H
2567.5	24.27	33.00	H

**LTE Band 7\_10MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2505	24.13	33.00	H
2535	23.52	33.00	H
2565	23.15	33.00	H

**LTE Band 7\_15MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2507.5	24.75	33.00	H
2535	24.01	33.00	H
2562.5	24.44	33.00	H

**LTE Band 7\_20MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2510	24.82	33.00	H
2535	23.71	33.00	H
2560	23.99	33.00	H

**LTE Band 12- EIRP 27.50(c)(10)**

Limits:  $\leq 34.77$ dBm (3W)

**LTE Band 12\_1.4MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
699.7	24.71	33.00	H
707.5	23.85	33.00	H
715.3	23.84	33.00	H



**LTE Band 12\_3MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
700.5	24.7	33.00	H
707.5	24.01	33.00	H
714.5	23.64	33.00	H

**LTE Band 12\_5MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
701.5	24.49	33.00	H
707.5	24.36	33.00	H
713.5	23.69	33.00	H

**LTE Band 12\_10MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
704	24.62	33.00	H
707.5	24.06	33.00	H
711	23.64	33.00	H

**LTE Band 12\_1.4MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
699.7	24.76	33.00	H
707.5	24.25	33.00	H
715.3	23.51	33.00	H

**LTE Band 12\_3MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
700.5	24.75	33.00	H
707.5	23.84	33.00	H
714.5	23.5	33.00	H

**LTE Band 12\_5MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
701.5	24.73	33.00	H
707.5	23.89	33.00	H
713.5	23.66	33.00	H

**LTE Band 12\_10MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
704	24.33	33.00	H
707.5	24.01	33.00	H
711	23.39	33.00	H

**LTE Band 13- EIRP 27.50(c)(10)**
**Limits:** ≤34.77dBm (3W)

**LTE Band 13\_5MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
779.5	21.36	33.00	H
782	21.28	33.00	H
784.5	21.43	33.00	H

**LTE Band 13\_10MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
782	21.55	33.00	H

**LTE Band 13\_5MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
779.5	21.07	33.00	H
782	21.3	33.00	H
784.5	20.94	33.00	H

**LTE Band 13\_10MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
782	21.26	33.00	H

**LTE Band 25- EIRP 27.50(c)(10)**
**Limits:** ≤34.77dBm (3W)

**LTE Band 25\_1.4MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1710.7	23.08	30.00	H
1732.5	22.28	30.00	H
1754.3	21.94	30.00	H

**LTE Band 25\_3MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1851.5	23.24	30.00	H
1882.5	22.18	30.00	H
1913.5	22.07	30.00	H

**LTE Band 25\_5MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1852.5	23.1	30.00	H
1882.5	22.17	30.00	H
1912.5	21.86	30.00	H

**LTE Band 25\_10MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1855	23.38	30.00	H
1882.5	22.26	30.00	H
1910	21.9	30.00	H

**LTE Band 25\_15MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1857.5	23.06	30.00	H
1882.5	22.2	30.00	H
1907.5	21.74	30.00	H

**LTE Band 25\_20MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1860	22.88	30.00	H
1882.5	22.14	30.00	H
1905	21.86	30.00	H

**LTE Band 25\_1.4MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1850.7	23.29	30.00	H
1882.5	22.19	30.00	H
1914.3	21.79	30.00	H

**LTE Band 25\_3MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1851.5	23.23	30.00	H
1882.5	22.3	30.00	H
1913.5	21.89	30.00	H

**LTE Band 25\_5MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1852.5	23.15	30.00	H
1882.5	22.32	30.00	H
1912.5	22.15	30.00	H

**LTE Band 25\_10MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1855	23.17	30.00	H
1882.5	22.36	30.00	H
1910	21.94	30.00	H

**LTE Band 25\_15MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1857.5	23.07	30.00	H
1882.5	22.31	30.00	H
1907.5	21.91	30.00	H

**LTE Band 25\_20MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
1860	23.23	30.00	H
1882.5	22.04	30.00	H
1905	21.7	30.00	H

**LTE Band 26- EIRP 27.50(h)(2)**
**Limits:** ≤33 dBm (2W)

**LTE Band 26\_1.4MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
814.7	23.08	30.00	H
831.5	22.28	30.00	H
848.3	21.94	30.00	H

**LTE Band 26\_3MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
815.5	23.24	30.00	H
831.5	22.18	30.00	H
847.5	22.07	30.00	H

**LTE Band 26\_5MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
816.5	23.93	33.00	H
831.5	23.45	33.00	H
846.5	23.86	33.00	H

**LTE Band 26\_10MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
819	23.79	33.00	H
831.5	23.71	33.00	H
844	23.01	33.00	H

**LTE Band 26\_15MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
821.5	24.36	33.00	H
831.5	23.56	33.00	H
841.5	23.93	33.00	H

**LTE Band 26\_1.4MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
814.7	21.96	30.00	H
831.5	20.27	30.00	H
848.3	20.5	30.00	H

**LTE Band 26\_3MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
815.5	21.99	30.00	H
831.5	20.52	30.00	H
847.5	20.76	30.00	H

**LTE Band 26\_5MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
816.5	22	33.00	H
831.5	20.3	33.00	H

846.5	20.67	33.00	H
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**LTE Band 26\_10MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
819	21.96	33.00	H
831.5	20.49	33.00	H
844	20.6	33.00	H

**LTE Band 26\_15MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
821.5	22.07	33.00	H
831.5	20.64	33.00	H
841.5	20.54	33.00	H

**LTE Band 30- EIRP 27.50(h)(2)**

Limits: ≤33 dBm (2W)

**LTE Band 30\_5MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2313.5	21.15	33.00	H
2316	21.53	33.00	H
2318.5	21.42	33.00	H

**LTE Band 30\_10MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2316	21.23	33.00	H

**LTE Band 30\_5MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2313.5	20.8	33.00	H
2316	21.03	33.00	H
2318.5	21.64	33.00	H

**LTE Band 30\_10MHz\_16QAM\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2316	20.94	33.00	H

**LTE Band 41- EIRP 27.50(h)(2)**

Limits: ≤33 dBm (2W)

**LTE Band 41\_5MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2498.5	23.7	33.00	H
2593	24.91	33.00	H
2687.5	23.7	33.00	H

**LTE Band 41\_10MHz\_QPSK\_RB Size 1, RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2501	24.14	33.00	H
2593	25.21	33.00	H
2685	23.81	33.00	H

**LTE Band 41\_15MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2503.5	23.99	33.00	H
2593	25.02	33.00	H
2682.5	23.67	33.00	H

**LTE Band 41\_20MHz\_QPSK\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2506	23.98	33.00	H
2593	25.17	33.00	H
2680	24.09	33.00	H

**LTE Band 41\_5MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2498.5	24	33.00	H
2593	25.07	33.00	H
2687.5	23.65	33.00	H

**LTE Band 41\_10MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2501	24.12	33.00	H
2593	25.34	33.00	H
2685	23.64	33.00	H

**LTE Band 41\_15MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2503.5	24.37	33.00	H
2593	25.21	33.00	H
2682.5	23.9	33.00	H

**LTE Band 41\_20MHz\_16QAM\_RB Size 1,RB Offset 0**

Frequency(MHz)	EIRP(dBm)	Limit(dBm)	Polarization
2506	24.24	33.00	H
2593	25.42	33.00	H
2680	23.57	33.00	H

## ANNEX A.2. EMISSION LIMIT

### Reference

FCC: CFR 2.1051, 22.917,24.238(a), 27.53(g), 27.53(h) , 27.53(m).

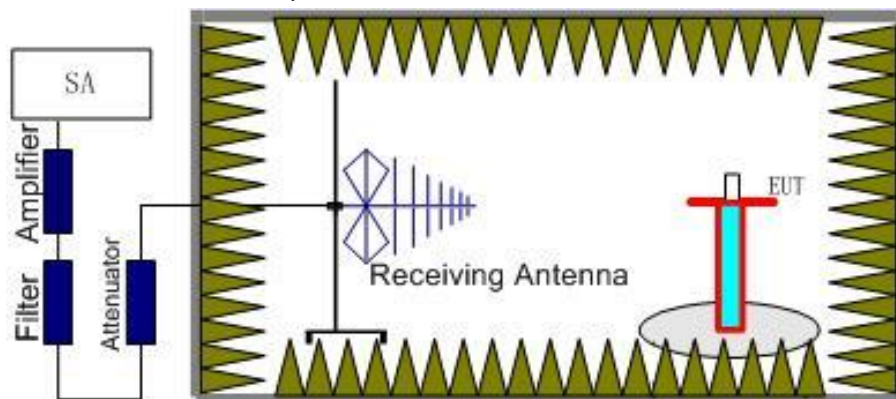
### A.2.1 Measurement Method

The measurements procedures in TIA-603E-2016 are used. This measurement is carried out in fully-anechoic chamber FAC-3.

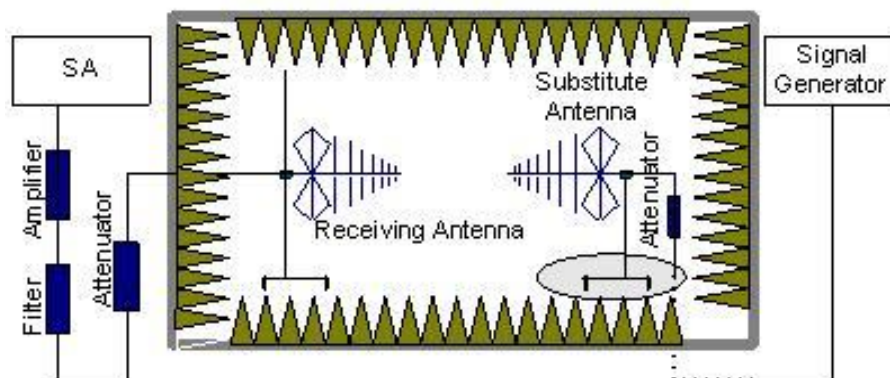
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier. The resolution bandwidth is set 1MHz as outlined in Part 22.917,Part 24.238(a), Part 27.53(g), Part 27.53(h), Part 27.53(m). The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Band 12.

### 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, a 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:

$$\text{Power (EIRP)} = P_{Mea} - P_{pl} + G_a$$

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,  $ERP = EIRP - 2.15\text{dB}$ .

### A.2.2 Measurement Limit

Part 22.917, Part 24.238(a), Part 27.53(g), Part 27.53(h), Part 27.53(m) 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

7. Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Bands 12. 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 Band 12 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. The evaluated frequency range is from 30MHz to 26GHz.



**LTE Band 2, 1.4MHz, QPSK, Channel 18607**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3856.0	-54.18	6.7	7.7	-53.18	-13	H
5778.8	-53.8	8.4	10.5	-51.7	-13	V
7712.0	-54.43	9.8	15.3	-48.93	-13	H
9670.0	-53.17	10.9	18.3	-45.77	-13	V
11565.6	-49.47	12.2	18.1	-43.57	-13	H
13536.8	-50.24	13.7	23.4	-40.54	-13	V

**LTE Band 2, 1.4MHz, QPSK, Channel 18900**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3932.0	-53.52	6.8	7.7	-52.62	-13	V
5888.4	-52.75	8.5	10.4	-50.85	-13	V
7858.0	-53.61	9.9	15.3	-48.21	-13	V
9804.8	-53.97	11.0	18.3	-46.67	-13	V
11782.6	-49.2	12.5	17.6	-44.1	-13	V
13758.0	-51.09	13.9	24.8	-40.19	-13	V

**LTE Band 2, 1.4MHz, QPSK, Channel 19193**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3818.0	-49	6.7	7.7	-48	-13	H
5739.6	-54.21	8.5	10.5	-52.21	-13	V
7633.6	-54.96	9.7	15.3	-49.36	-13	H
9580.0	-54.06	10.8	18.6	-46.26	-13	V
11463.4	-49.79	12.3	18.1	-43.99	-13	V
13471.0	-50.28	13.7	23.4	-40.58	-13	V

**LTE Band 4, 1.4MHz QPSK, Channel 20175**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3421.2	-48.76	6.3	4.7	-50.36	-13	V
5131.2	-53.32	7.9	8.7	-52.52	-13	H
6853.6	-53.63	9.2	12.3	-50.53	-13	V

8544.4	-56.56	10.3	18.1	-48.76	-13	H
10264.8	-49.93	11.4	17.4	-43.93	-13	H
11987.0	-46.62	12.6	17.1	-42.12	-13	H

**LTE Band 4, 1.4MHz, QPSK, Channel 20393**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3462.4	-44.35	6.4	4.7	-46.05	-13	V
5190.8	-53.6	8.0	8.7	-52.9	-13	V
6947.2	-53.2	9.3	12.9	-49.6	-13	V
8629.6	-55.93	10.3	18.5	-47.73	-13	H
10310.0	-51.34	11.5	17.4	-45.44	-13	V
12103.2	-45.98	12.6	17.1	-41.48	-13	H

**LTE Band 5, 1.4MHz, QPSK, Channel 20407**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3508.4	-40.51	6.4	4.7	-42.21	-13	V
5296.0	-52.79	8.0	8.7	-52.09	-13	V
7058.4	-52.93	9.4	12.9	-49.43	-13	H
8722.4	-56.11	10.4	18.5	-48.01	-13	V
10589.6	-50.22	11.6	17.1	-44.72	-13	V
12223.6	-47.38	12.6	17.5	-42.48	-13	H

**LTE Band 5, 1.4MHz QPSK, Channel 20525**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1647.3	-47.32	4.3	2.9	-48.72	-13	H
2481.9	-39.34	5.3	3.7	-40.94	-13	V
3283.2	-52.69	6.2	4.7	-54.19	-13	V
4142.8	-54.31	7.0	7.7	-53.61	-13	H
4949.2	-54.87	7.7	9.0	-53.57	-13	H
5770.4	-52.87	8.5	10.5	-50.87	-13	H

**LTE Band 5, 1.4MHz, QPSK, Channel 20525**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
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1673.9	-47.21	4.3	2.9	-48.61	-13	H
2510.4	-40.07	5.4	3.7	-41.77	-13	V
3360.4	-51.87	6.2	4.7	-53.37	-13	H
4174.4	-54.37	7.0	7.7	-53.67	-13	V
5044.8	-55.79	7.8	9.0	-54.59	-13	H
5857.6	-53.6	8.4	10.5	-51.5	-13	V

**LTE Band 5, 1.4MHz, QPSK, Channel 20643**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1696.1	-46.32	4.4	2.9	-47.82	-13	V
2536.5	-38.56	5.4	3.7	-40.26	-13	V
3393.2	-51.24	6.3	4.7	-52.84	-13	H
4252.4	-54.01	7.1	7.7	-53.41	-13	V
5099.6	-54.45	7.9	9.0	-53.35	-13	H
5948.4	-52.14	8.5	10.4	-50.24	-13	H

**LTE Band 7, 5 MHz, QPSK, Channel 20775**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3702.8	-53.71	6.6	7.7	-52.61	-13	H
5006.0	-54.34	7.8	9.0	-53.14	-13	H
7504.4	-52.55	9.7	14.6	-47.65	-13	H
10009.6	-51.51	11.2	17.6	-45.11	-13	H
12517.6	-47.56	12.7	18.7	-41.56	-13	H
15068.4	-48.71	14.4	24.4	-38.71	-13	H

**LTE Band 7, 5 MHz, QPSK, Channel 21100**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3809.2	-54.08	6.7	7.7	-53.08	-13	H
5074.0	-54.41	7.8	9.0	-53.21	-13	H
7606.4	-53.17	9.7	14.6	-48.27	-13	H
10150.8	-50.92	11.3	17.4	-44.82	-13	V
12652.0	-47.56	12.7	19.2	-41.06	-13	H

15296.6	-49.07	14.4	25.1	-38.37	-13	H
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**LTE Band 7, 5 MHz, QPSK, Channel 21425**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3757.2	-54.23	6.6	7.7	-53.13	-13	H
5135.2	-52.09	7.9	8.7	-51.29	-13	H
7703.6	-54.47	9.8	15.3	-48.97	-13	H
10257.6	-50.91	11.4	17.4	-44.91	-13	H
12838.2	-47.92	12.5	19.2	-41.22	-13	H
15460.4	-48.4	14.5	24.2	-38.7	-13	H

**LTE Band 12, 10 MHz, QPSK, Channel 23017**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1393.5	-50.14	4.0	3.4	-50.74	-13	H
2095.0	-42.33	4.9	2.8	-44.43	-13	V
2796.9	-37.53	5.7	4.1	-39.13	-13	V
3490.8	-51.95	6.4	4.7	-53.65	-13	H
4190.8	-53.94	7.0	7.7	-53.24	-13	H
4895.2	-54.02	7.7	9.0	-52.72	-13	V

**LTE Band 12, 10 MHz, QPSK, Channel 23095**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1417.1	-50.48	4.0	3.4	-51.08	-13	H
2123.5	-42.64	4.9	2.8	-44.74	-13	V
2835.8	-36.76	5.8	4.1	-38.46	-13	H
3549.6	-51.38	6.4	4.7	-53.08	-13	V
4243.6	-53.81	7.1	7.7	-53.21	-13	H
4936.4	-54.99	7.7	9.0	-53.69	-13	H

**LTE Band 12, 5 MHz, QPSK, Channel 23173**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1851.2	-41.01	4.6	2.9	-42.71	-13	H
2630.0	-38.42	5.5	4.1	-39.82	-13	H

3584.0	-50.36	6.5	4.7	-52.16	-13	H
4545.2	-50.97	7.4	7.3	-51.07	-13	V
5552.0	-52.55	8.2	9.5	-51.25	-13	V
7346.2	-53.58	9.6	13.7	-49.48	-13	V

**LTE Band 13, 1.4MHz QPSK, Channel 23205**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1846.3	-40.87	4.6	2.9	-42.57	-13	V
2718.1	-37.72	5.6	4.1	-39.22	-13	V
3571.2	-50.5	6.4	4.7	-52.2	-13	H
4264.8	-52.63	7.1	7.7	-52.03	-13	V
5192.8	-53.05	8.0	8.7	-52.35	-13	H
6422.4	-52.86	8.9	11.5	-50.26	-13	V

**LTE Band 13, 1.4MHz, QPSK, Channel 20175**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1842.2	-41.48	4.6	2.9	-43.18	-13	H
2704.6	-37.32	5.6	4.1	-38.82	-13	V
3564.0	-50.55	6.4	4.7	-52.25	-13	H
4558.0	-51.15	7.4	7.3	-51.25	-13	H
5471.2	-52.41	8.1	9.5	-51.01	-13	V
6988.0	-53.21	9.3	12.9	-49.61	-13	V

**LTE Band 13, 1.4MHz, QPSK, Channel 20393**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1822.8	-40.62	4.6	2.9	-42.32	-13	H
2749.2	-36.71	5.7	4.1	-38.31	-13	V
3589.6	-49.95	6.5	4.7	-51.75	-13	V
4532.0	-51.14	7.4	7.3	-51.24	-13	H
5460.0	-51.74	8.1	9.5	-50.34	-13	V
6502.4	-51.05	9.0	11.5	-48.55	-13	V

**LTE Band 25, 1.4MHz QPSK, Channel 19957**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4553.2	-50.98	7.4	7.3	-51.08	-13	H
5844.8	-53.35	8.4	10.5	-51.25	-13	H
7445.6	-54.02	9.7	14.6	-49.12	-13	H
9130.8	-53.72	10.5	18.5	-45.72	-13	H
10758.8	-48.36	11.7	17.3	-42.76	-13	V
12876.0	-46.98	13.0	20.2	-39.78	-13	V

**LTE Band 25, 1.4MHz, QPSK, Channel 20175**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4707.6	-52.82	7.5	7.9	-52.42	-13	H
7350.0	-53.15	9.6	13.7	-49.05	-13	V
9172.4	-53.74	10.5	18.5	-45.74	-13	H
10820.0	-49.15	11.7	17.3	-43.55	-13	V
12957.2	-46.84	13.2	20.2	-39.84	-13	V
15975.6	-41.07	15.0	20.4	-35.67	-13	V

**LTE Band 25, 1.4MHz, QPSK, Channel 20393**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3824.4	-52.2	6.7	7.7	-51.2	-13	H
4772.4	-52.84	7.5	7.9	-52.44	-13	H
6150.8	-52.51	8.7	10.8	-50.41	-13	H
7637.6	-54.76	9.7	15.3	-49.16	-13	V
9230.0	-53.94	10.6	18.5	-46.04	-13	V
12925.0	-46.89	13.0	20.2	-39.69	-13	H

**LTE Band 26, 1.4MHz QPSK, Channel 19957**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1823.8	-40.42	4.6	2.9	-42.12	-13	H
2649.6	-37.76	5.5	4.1	-39.16	-13	V
3581.2	-49.78	6.5	4.7	-51.58	-13	H

4554.8	-51.5	7.4	7.3	-51.6	-13	V
5785.2	-53.32	8.4	10.5	-51.22	-13	H
6957.2	-52.65	9.3	12.9	-49.05	-13	V

**LTE Band 26, 1.4MHz, QPSK, Channel 20175**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1857.7	-41.01	4.6	2.9	-42.71	-13	H
2632.3	-38.21	5.5	4.1	-39.61	-13	H
3577.6	-50.27	6.5	4.7	-52.07	-13	H
4543.6	-51.11	7.4	7.3	-51.21	-13	H
5552.0	-52.53	8.2	9.5	-51.23	-13	H
6611.2	-52.34	9.1	11.5	-49.94	-13	H

**LTE Band 26, 1.4MHz, QPSK, Channel 20393**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
1851.2	-40.2	4.6	2.9	-41.9	-13	H
2682.3	-38.34	5.6	4.1	-39.84	-13	H
3949.2	-53.48	6.8	7.7	-52.58	-13	H
5330.0	-51.22	8.1	8.7	-50.62	-13	V
6358.4	-51.74	8.8	10.8	-49.74	-13	H
7550.8	-53.16	9.7	14.6	-48.26	-13	H

**LTE Band 30, 1.4MHz QPSK, Channel 19957**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4610.4	-45.71	7.4	7.3	-45.81	-13	V
6629.6	-47.62	9.1	12.3	-44.42	-13	V
9157.2	-48.25	10.5	18.5	-40.25	-13	H
13336.2	-39.44	13.6	21.8	-31.24	-13	V
14307.5	-40.09	13.6	23.5	-30.19	-13	H
16834.5	-29.66	15.8	20.0	-25.46	-13	H

**LTE Band 30, 1.4MHz, QPSK, Channel 20175**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4595.6	-47.33	7.4	7.3	-47.43	-13	V
6914.0	-48.13	9.3	12.9	-44.53	-13	V
9244.8	-48.64	10.6	18.5	-40.74	-13	H
11539.0	-43.58	12.3	18.1	-37.78	-13	V
12506.8	-39.69	12.7	18.7	-33.69	-13	H
13805.2	-42.63	13.8	24.8	-31.63	-13	V

**LTE Band 30, 1.4MHz, QPSK, Channel 20393**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4620.8	-45.65	7.4	7.3	-45.75	-13	H
5947.6	-48.82	8.5	10.4	-46.92	-13	V
6933.2	-48.62	9.3	12.9	-45.02	-13	V
9244.4	-48.59	10.6	18.5	-40.69	-13	H
11582.8	-42.63	12.2	18.1	-36.73	-13	V
13780.8	-42.62	13.8	24.8	-31.62	-13	H

**LTE Band 41, 1.4MHz QPSK, Channel 19957**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
3958.0	-48.79	6.8	7.7	-47.89	-13	H
5320.4	-47.04	8.0	8.7	-46.34	-13	V
6801.6	-48.37	9.2	12.3	-45.27	-13	V
8410.4	-50.72	10.2	18.1	-42.82	-13	H
10788.8	-42.46	11.7	17.3	-36.86	-13	V
14293.5	-39.7	13.6	23.5	-29.8	-13	H

**LTE Band 41, 1.4MHz, QPSK, Channel 20175**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4540.8	-46.12	7.4	7.3	-46.22	-13	V
6315.6	-47.75	8.8	10.8	-45.75	-13	H
8441.6	-50.53	10.2	18.1	-42.63	-13	H



10348.8	-44.7	11.5	17.4	-38.8	-13	H
13327.5	-40.03	13.6	21.8	-31.83	-13	H
17550.2	-30.57	15.5	20.1	-25.97	-13	V

**LTE Band 41, 1.4MHz, QPSK, Channel 20393**

Frequency (MHz)	PMea (dBm)	Pcl (dBm)	Ga (dBd)	Peak ERP (dBm)	Limit (dBm)	Polarization
4513.6	-47.29	7.3	7.3	-47.29	-13	H
5372.4	-45.74	8.1	8.7	-45.14	-13	V
6427.6	-47.45	8.9	11.5	-44.85	-13	V
8050.0	-48.95	9.9	16.6	-42.25	-13	H
11113.8	-43.35	12.1	18.1	-37.35	-13	H
14312.8	-39.3	13.6	23.5	-29.4	-13	H

**ANNEX C.1. Main Terms**

Verdict	Verdict of each test cases.
Test cases	Test cases identification number and description in FCC Part 2 22 24 27 90 test specification.

**ANNEX C.2. Terms used in Condition column**

Tnom	Normal temperature
Tmin	Low temperature
Tmax	High temperature
Vnom	Normal voltage

**ANNEX C.3. Terms used in Verdict column**

P	Pass,the EUT complies with the essential requirements in the standard.
NM	Not measure, the test was not measured by ECIT.
NA	Not applicable, the test was not applicable.
F	Fail, the EUT does not comply with the essential requirements in the standard.

**ANNEX C.4. Terms used in Note column**

EUT ID	EUT ID (e.g N01, N02.....) is used to identify the EUT tested used for each test cases as specified in section 3 of this test report.
Lab Code	Lab code is used to identify the subcontracted lab if this test cases is performed in the subcontracted lab.

Subcontracted test lab code: N/A

**ANNEX B. Accreditation Certificate**

\*\*\*\*\*END OF REPORT\*\*\*\*\*