



Test Report No.: W7L-230608W001RF01



# VARIANT FCC TEST REPORT

## (PART 22)

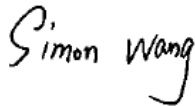

Applicant:	Borqs BeiJing Ltd.
Address:	Tower A, Building B23, Universal Business Park, No. 10 Jiuxianqiao Road, Chaoyang District Beijing, 100015 China

Manufacturer or Supplier:	Borqs BeiJing Ltd.
Address:	Tower A, Building B23, Universal Business Park, No. 10 Jiuxianqiao Road, Chaoyang District Beijing, 100015 China
Product:	Ecoport AC LTE-LP
Brand Name:	SkyCentrics
Model Name:	US08Ba
Serial Model Name:	US08B
FCC ID:	2ABDK-US08B
Date of tests:	Jun. 25, 2023 ~ Jun. 29, 2023

The tests have been carried out according to the requirements of the following standard:

- FCC PART 22, Subpart H
- ANSITIA/EIA-603-D
- ANSITIA/EIA-603-E
- FCC Part 2
- ANSI C63.26-2015

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Simon Wang Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
	
Date: Jun. 29, 2023	Date: Jun. 29, 2023

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.



## **TABLE OF CONTENTS**

<b>RELEASE CONTROL RECORD .....</b>	<b>3</b>
<b>1 SUMMARY OF TEST RESULTS.....</b>	<b>4</b>
1.1 MEASUREMENT UNCERTAINTY .....	5
1.2 TEST SITE AND INSTRUMENTS .....	6
<b>2 GENERAL INFORMATION .....</b>	<b>7</b>
2.1 GENERAL DESCRIPTION OF EUT .....	7
2.2 CONFIGURATION OF SYSTEM UNDER TEST .....	10
2.3 DESCRIPTION OF SUPPORT UNITS .....	11
2.4 TEST ITEM AND TEST CONFIGURATION.....	11
2.5 EUT OPERATING CONDITIONS.....	14
2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS .....	15
<b>3 TEST TYPES AND RESULTS.....</b>	<b>16</b>
3.1 OUTPUT POWER MEASUREMENT .....	16
3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT .....	16
3.1.2 TEST PROCEDURES .....	16
3.1.3 TEST SETUP .....	17
3.1.4 TEST RESULTS .....	17
3.2 RADIATED EMISSION MEASUREMENT .....	35
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT .....	35
3.2.2 TEST PROCEDURES .....	35
3.2.3 DEVIATION FROM TEST STANDARD .....	35
3.2.4 TEST SETUP .....	36
3.2.5 TEST RESULTS .....	38
<b>4 PHOTOGRAPHS OF THE TEST CONFIGURATION .....</b>	<b>42</b>
<b>5 INFORMATION ON THE TESTING LABORATORIES .....</b>	<b>43</b>
<b>6 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB .....</b>	<b>44</b>



## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-230313W001RF01	Original release	Apr. 03, 2023
W7L-230608W001RF01	Based on the original product change HW&SW version and the location of some components (more details please refer to the discrepancy declaration). This report only verify and show power and RSE worse data, other data please refer to the original report.	Jun. 29, 2023



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

<b>APPLIED STANDARD: FCC Part 22 &amp; Part 2</b>		
<b>STANDARD SECTION</b>	<b>TEST TYPE</b>	<b>RESULT</b>
§2.1046	Conducted Output Power	Compliance
§22.913 (a)(5)	Effective Radiated Power	Compliance
§2.1055 §22.355	Frequency Stability	See Note
§2.1049	Occupied Bandwidth	See Note
§22.913 (d)	Peak to average ratio*	See Note
§22.917(a)	Band Edge Measurements	See Note
§2.1051 §22.917(a)	Conducted Spurious Emissions	See Note
§2.1053 §22.917(a)	Radiated Spurious Emissions	Compliance

\* Refer to KDB 971168 D01 Power Meas License Digital Systems v03r01.

NOTE: please refer to the original report W7L-230313W001RF01



## 1.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	UNCERTAINTY
Maximum Peak Output Power	±2.06dB
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions (30MHz~1GHz)	±4.98dB
Radiated emissions (1GHz ~6GHz)	±4.70dB
Radiated emissions (6GHz ~18GHz)	±4.60dB
Radiated emissions (18GHz ~40GHz)	±4.12dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



## 1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 28,23	Mar. 27,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.14,23	May.13,24
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,22	Sep.02,23
Bilog Antenna	ETS-LINDGRE N	3143B	00161965	Feb. 18,23	Feb. 17,24
Horn Antenna	ETS-LINDGRE N	3117	00168692	Feb. 18,23	Feb. 17,24
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40-K- SG/QMS-00361	15433	Sep.04, 22	Sep.03, 23
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Feb. 14,23	Feb. 13,24
Signal Pre-Amplifier	EMSI	EMC 9135	980249	May. 06,23	May. 05,24
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,23	May.11,24
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,23	Feb.16,24
3m Semi-anechoic Chamber	ETS-LINDGRE N	9m*6m*6m	Euroshieldpn- CT0001143-121 6	May. 19,23	May. 18,26
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	JS1120	3.1.36	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SMA	50HF-010-SMA	May. 06,23	May. 05,24
Power Meter	Anritsu	ML2495A	1506002	Feb. 14,23	Feb. 13,24
Power Sensor	Anritsu	MA2411B	1339352	Feb. 14,23	Feb. 13,24
Temperature Chamber	ESPEC	SH-242	93000855	May. 06,23	May. 05,24
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 14,23	Feb. 13,24
Base station R&S CMW500	Rohde&Schwa rz	CMW500	153085	May.12,23	May.11,26
DC Source	Kikusui/JP	PMX18-5A	N/A	Aug. 12,22	Aug. 11,23

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
  2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
  3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
  4. The FCC Site Registration No. is 525120; The Designation No. is CN1171.



## 2 GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Ecoport AC LTE-LP		
<b>BRAND NAME</b>	SkyCentrics		
<b>MODEL NAME</b>	US08Ba		
<b>SERIAL MODEL NAME</b>	US08B		
<b>NOMINAL VOLTAGE</b>	120V(adapter or host equipment) 3.0Vdc (Li-ion, battery)		
<b>MODULATION TYPE</b>	<b>LTE CAT-M1/NB-IOT</b>	QPSK, 16QAM, BPSK	
<b>FREQUENCY RANGE</b>	<b>LTE CAT-M1</b>	<b>LTE Band 5 (Channel Bandwidth: 1.4MHz)</b>	824.7MHz ~ 848.3MHz
		<b>LTE Band 5 (Channel Bandwidth: 3MHz)</b>	825.5MHz ~ 847.5MHz
		<b>LTE Band 5 (Channel Bandwidth: 5MHz)</b>	826.5MHz ~ 846.5MHz
		<b>LTE Band 5 (Channel Bandwidth: 10MHz)</b>	829MHz ~ 844MHz
		<b>LTE Band 26 (Channel Bandwidth: 1.4MHz)</b>	824.7MHz ~ 848.3MHz
		<b>LTE Band 26 (Channel Bandwidth: 3MHz)</b>	825.5MHz ~ 847.5MHz
		<b>LTE Band 26 (Channel Bandwidth: 5MHz)</b>	826.5MHz ~ 846.5MHz
		<b>LTE Band 26 (Channel Bandwidth: 10MHz)</b>	829MHz ~ 844MHz
		<b>LTE Band 26 (Channel Bandwidth: 15MHz)</b>	831.5MHz ~ 841.5MHz
		<b>LTE NB-IOT</b>	<b>LTE Band 5 (SUB-CARRIER SPEACING: 3.75KHz)</b>
<b>LTE Band 5 (SUB-CARRIER SPEACING: 15KHz)</b>	824.2MHz ~ 848.8MHz		
<b>MAX. ERP POWER</b>	<b>LTE CAT-M1</b>	<b>LTE Band 5 (Channel Bandwidth: 1.4MHz)</b>	29.65mW
		<b>LTE Band 5 (Channel Bandwidth: 3MHz)</b>	29.58mW
		<b>LTE Band 5 (Channel Bandwidth: 5MHz)</b>	29.72mW
		<b>LTE Band 5 (Channel Bandwidth: 10MHz)</b>	30.06mW
		<b>LTE Band 26 (Channel Bandwidth: 1.4MHz)</b>	31.7mW
		<b>LTE Band 26 (Channel Bandwidth: 3MHz)</b>	31.62mW



<b>MAX. ERP POWER</b>	<b>LTE CAT-M1</b>	<b>LTE Band 26 (Channel Bandwidth: 5MHz)</b>	31.55mW
		<b>LTE Band 26 (Channel Bandwidth: 10MHz)</b>	31.77mW
		<b>LTE Band 26 (Channel Bandwidth: 15MHz)</b>	32.06mW
	<b>LTE NB-IOT</b>	<b>LTE Band 5 (SUB-CARRIER SPEACING: 3.75KHz)</b>	36.06mW
		<b>LTE Band 5 (SUB-CARRIER SPEACING: 15KHz)</b>	33.81mW
<b>EMISSION DESIGNATORGOGN</b>	<b>LTE CAT-M1</b>	<b>LTE Band 5 (Channel Bandwidth: 1.4MHz)</b>	QPSK: 1M11G7D
			16QAM: 944KW7D
			64QAM: /
		<b>LTE Band 5 (Channel Bandwidth: 3MHz)</b>	QPSK: 1M10G7D
			16QAM: 953KW7D
			64QAM: /
		<b>LTE Band 5 (Channel Bandwidth: 5MHz)</b>	QPSK: 1M11G7D
			16QAM: 953KW7D
			64QAM: /
		<b>LTE Band 5 (Channel Bandwidth: 10MHz)</b>	QPSK: 1M12G7D
			16QAM: 968KW7D
			64QAM: /
		<b>LTE Band 26 (Channel Bandwidth: 1.4MHz)</b>	QPSK: 1M10G7D
			16QAM: 939KW7D
			64QAM: /
		<b>LTE Band 26 (Channel Bandwidth: 3MHz)</b>	QPSK: 1M11G7D
			16QAM: 948KW7D
			64QAM: /
		<b>LTE Band 26 (Channel Bandwidth: 5MHz)</b>	QPSK: 1M11G7D
			16QAM: 945KW7D
			64QAM: /
		<b>LTE Band 26 (Channel Bandwidth: 10MHz)</b>	QPSK: 1M12G7D
			16QAM: 964KW7D
			64QAM: /
<b>LTE Band 26 (Channel Bandwidth: 15MHz)</b>	QPSK: 1M12G7D		
	16QAM: 957KW7D		
	64QAM: /		





<b>EMISSION DESIGNATOR</b>	<b>LTE NB-IOT</b>	<b>LTE Band 5 (SUB-CARRIER SPEACING: 3.75KHz)</b>	BPSK: 61K3G7D
			QPSK: 68K4G7D
		<b>LTE Band 5 (SUB-CARRIER SPEACING: 15KHz)</b>	BPSK: 129KG7D
			QPSK: 183KG7D
<b>ANTENNA TYPE</b>	US08Ba: Internal Antenna with -3.94dBi gain for LTE B5/ LTE B26 US08Ba: External Antenna with -2.98dBi gain for LTE B5/ LTE B26 US08B: Internal Antenna with -3.94dBi gain for LTE B5/ LTE B26		
<b>HW VERSION</b>	PVT		
<b>SW VERSION</b>	CFT_PICO_SPARROW_20230315		
<b>I/O PORTS</b>	Refer to user's manual		
<b>CABLE SUPPLIED</b>	N/A		
<b>EXTREME TEMPERATURE</b>	-20-50 °C		
<b>EXTREME VOLTAGE</b>	110V - 240V		

**NOTE:**

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
LTE	1TX/1RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. US08Ba and US08B Difference description:

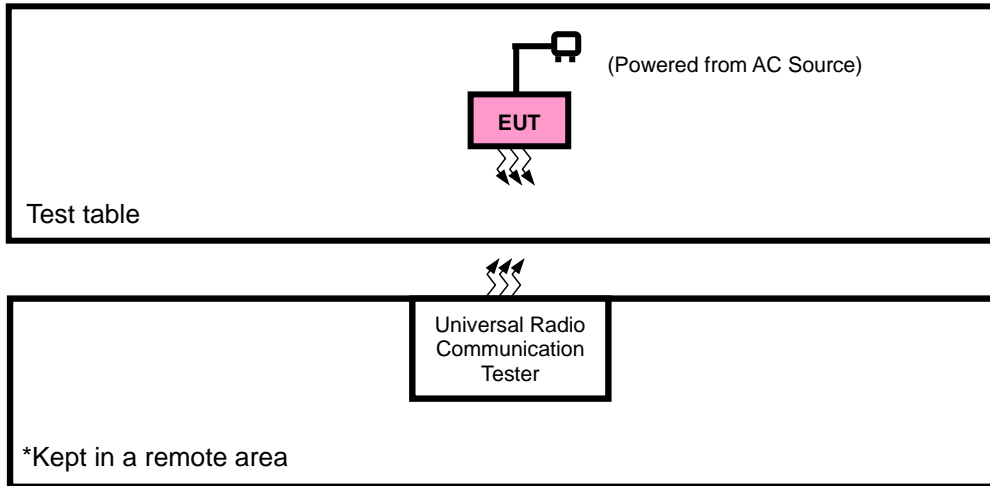
No	Model ID	Difference Description
1	US08B (Verified sample)	Only supports Internal Antenna
2	US08Ba (Mainly tested Sample)	Supports both Internal Antenna and External Antenna There is an additional Sub board which is connected with main board by RF cable for External antenna assembly.

**List of Accessory:**

ACCESSORIES	BRAND	MANUFACTURER	MODEL	SPECIFICATION
Battery	CHAOCHUANG	N/A	CR2032	Capacity: 3.0Vdc, 210mAh



## 2.2 CONFIGURATION OF SYSTEM UNDER TEST FOR RADIATION EMISSION





### 2.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1m

### 2.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case in ERP and radiated emission was found when positioned on X-plane for LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with LTE link



LTE CAT-M1

LTE BAND 5 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	20407 to 20643	20407, 20525, 20643	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM	1 RB / 0 RB Offset

Note: 1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

2. LTE Band 5 are covered by LTE Band 26, Because it is a subset of LTE Band 26, So the RSE test data please refer to LTE Band 26.

LTE BAND 26 MODE

EUT CONFIGURE MODE	TEST ITEM	Available Channel	Tested Channel	Channel bandwidth	modulation	mode
A	ERP	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK,16QAM	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM	1 RB / 0 RB Offset
A	RADIATED EMISSION	26797 to 27033	26915	1.4MHz	QPSK	1 RB / 0 RB Offset
		26805 to 27025	26915	3MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK	1 RB / 0 RB Offset
		26840 to 26990	26915	10MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26915	15MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.



LTE NB-IOT

LTE BAND 5 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	SUBCARRIER SPACING	MODULATION	MODE
A	ERP	20402 to 20648	20402, 20525, 20648	3.75KHz	BPSK,QPSK,	1 RB / 0 RB Offset
		20402 to 20648	20402, 20525, 20648	15KHz	BPSK,QPSK,	1 RB / 0 RB Offset
A	RADIATED EMISSION	20402 to 20648	20525	3.75KHz	QPSK,	1 RB / 0 RB Offset
		20402 to 20648	20402, 20525, 20648	15KHz	QPSK,	1 RB / 0 RB Offset

**Note:** This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.



**TEST CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	120Vac/60Hz	Jace Hu
RADIATED EMISSION	23deg. C, 70%RH	120Vac/60Hz	Jace Hu

**2.5 EUT OPERATING CONDITIONS**

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency



**BUREAU  
VERITAS**

**Test Report No.: W7L-230608W001RF01**

## **2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS**

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**

**FCC 47 CFR Part 22**

**KDB 971168 D01 Power Meas License Digital Systems v03r01**

**ANSI/TIA/EIA-603-D**

**ANSI/TIA/EIA-603-E**

**ANSI C63.26-2015**

**NOTE:** All test items have been performed and recorded as per the above standards.



### 3 TEST TYPES AND RESULTS

#### 3.1 OUTPUT POWER MEASUREMENT

##### 3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile / Portable station are limited to 7 watts e.r.p.

##### 3.1.2 TEST PROCEDURES

###### **EIRP / ERP MEASUREMENT:**

Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$$

Where:

ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as  $P_{\text{Meas}}$ , typically dBW or dBm);

$P_{\text{Meas}}$  = measured transmitter output power or PSD, in dBm or dBW;

$G_{\text{T}}$  = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

$L_{\text{C}}$  = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

###### **CONDUCTED POWER MEASUREMENT:**

The EUT was set up for the maximum power with LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

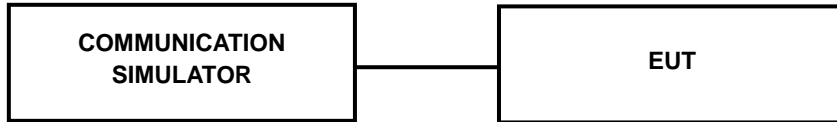




### 3.1.3 TEST SETUP

**EIRP / ERP Measurement:**

**CONDUCTED POWER MEASUREMENT:**



### 3.1.4 TEST RESULTS

**CONDUCTED OUTPUT POWER (dBm)**

**LTE CAT-M1**

**LTE Band 5**

Band/BW	Modulation	RB Size	RB Offset	Low CH 20407	Mid CH 20525	High CH 20643
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz
5/ 1.4	QPSK	1	0	19.66	19.85	19.70
		1	5	19.54	19.78	19.50
		3	0	19.65	19.63	19.67
		3	3	19.59	19.77	19.66
		6	0	19.66	19.29	19.22
	16QAM	1	0	19.49	19.70	19.51
		1	5	19.57	19.59	19.49
		3	0	19.59	19.64	19.57
		3	3	19.61	19.58	19.58
		6	0	19.62	19.54	19.57



Band/BW	Modulation	RB Size	RB Offset	Low CH 20415	Mid CH 20525	High CH 20635
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz
5/3	QPSK	1	0	19.61	19.84	19.67
		1	5	19.52	19.80	19.53
		3	0	19.63	19.66	19.61
		3	3	19.56	19.84	19.65
		6	0	19.65	19.29	19.23
	16QAM	1	0	19.55	19.63	19.55
		1	5	19.53	19.60	19.45
		3	0	19.59	19.58	19.60
		3	3	19.67	19.61	19.52
		6	0	19.62	19.54	19.52

Band/BW	Modulation	RB Size	RB Offset	Low CH 20425	Mid CH 20525	High CH 20625
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz
5/5	QPSK	1	0	19.63	19.86	19.67
		1	5	19.51	19.84	19.50
		3	0	19.60	19.66	19.67
		3	3	19.56	19.83	19.62
		6	0	19.68	19.26	19.25
	16QAM	1	0	19.49	19.65	19.48
		1	5	19.55	19.62	19.44
		3	0	19.58	19.61	19.60
		3	3	19.60	19.61	19.54
		6	0	19.59	19.61	19.56



Band/BW	Modulation	RB Size	RB Offset	Low CH 20450	Mid CH 20525	High CH 20600
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz
5/ 10	QPSK	1	0	19.67	19.91	19.72
		1	5	19.59	19.85	19.55
		3	0	19.67	19.71	19.69
		3	3	19.64	19.85	19.67
		6	0	19.70	19.34	19.27
	16QAM	1	0	19.57	19.71	19.56
		1	5	19.61	19.64	19.50
		3	0	19.65	19.66	19.62
		3	3	19.68	19.63	19.60
		6	0	19.67	19.62	19.58

**LTE BAND 26**

Band/BW	Modulation	RB Size	RB Offset	Low CH 26797	Mid CH 26915	High CH 27033
				Frequency 824.7 MHz	Frequency 836.5 MHz	Frequency 848.3 MHz
26/ 1.4	QPSK	1	0	19.77	19.98	19.97
		1	5	19.71	19.89	19.81
		3	0	19.95	20.02	20.02
		3	3	19.88	19.91	19.85
		6	0	19.86	19.86	19.80
	16QAM	1	0	19.73	19.79	19.81
		1	5	19.78	19.76	19.77
		3	0	20.07	20.14	20.00
		3	3	19.99	20.12	20.03
		6	0	19.95	19.94	19.93



Band/BW	Modulation	RB Size	RB Offset	Low CH 26805	Mid CH 26915	High CH 27025
				Frequency 825.5 MHz	Frequency 836.5 MHz	Frequency 847.5 MHz
26/ 3	QPSK	1	0	19.79	20.00	19.96
		1	5	19.65	19.86	19.87
		3	0	19.92	20.08	20.02
		3	3	19.81	19.96	19.85
		6	0	19.87	19.88	19.77
	16QAM	1	0	19.67	19.86	19.81
		1	5	19.78	19.79	19.74
		3	0	20.08	20.13	20.03
		3	3	20.05	20.06	20.03
		6	0	19.91	19.94	19.93

Band/BW	Modulation	RB Size	RB Offset	Low CH 26815	Mid CH 26915	High CH 27015
				Frequency 826.5 MHz	Frequency 836.5 MHz	Frequency 846.5 MHz
26/ 5	QPSK	1	0	19.80	19.94	20.01
		1	5	19.68	19.86	19.84
		3	0	19.94	20.08	20.03
		3	3	19.82	19.92	19.85
		6	0	19.83	19.91	19.80
	16QAM	1	0	19.73	19.79	19.81
		1	5	19.75	19.78	19.70
		3	0	20.05	20.12	20.00
		3	3	20.00	20.08	20.06
		6	0	19.89	20.00	19.89



Band/BW	Modulation	RB Size	RB Offset	Low CH 26840	Mid CH 26915	High CH 26990
				Frequency 829 MHz	Frequency 836.5 MHz	Frequency 844 MHz
26/10	QPSK	1	0	19.82	19.96	20.00
		1	5	19.70	19.84	19.84
		3	0	19.93	20.02	20.02
		3	3	19.86	19.91	19.85
		6	0	19.89	19.86	19.80
	16QAM	1	0	19.69	19.79	19.81
		1	5	19.81	19.76	19.77
		3	0	20.03	20.15	20.00
		3	3	20.04	20.07	20.06
		6	0	19.95	19.95	19.90

Band/BW	Modulation	RB Size	RB Offset	Low CH 26865	Mid CH 26915	High CH 26965
				Frequency 831.5 MHz	Frequency 836.5 MHz	Frequency 841.5 MHz
26/ 15	QPSK	1	0	19.85	20.02	20.02
		1	5	19.72	19.91	19.89
		3	0	20.00	20.10	20.08
		3	3	19.89	19.97	19.87
		6	0	19.91	19.93	19.85
	16QAM	1	0	19.75	19.87	19.83
		1	5	19.83	19.84	19.78
		3	0	20.11	20.19	20.05
		3	3	20.07	20.13	20.08
		6	0	19.97	20.02	19.95



LTE NB-IOT

LTE Band 5

Band/Su b-carrier Spacing	Modulation	RB Size	RB Offset	Low CH 20402	Mid CH 20525	High CH 20648
				Frequency 824.2 MHz	Frequency 836.5 MHz	Frequency 848.8 MHz
5/ 3.75	BPSK	1	0	20.44	20.67	20.32
		1	47	20.30	20.57	20.13
	QPSK	1	0	20.42	20.70	20.30
		1	47	20.40	20.60	20.25
Band/Su b-carrier Spacing	Modulation	RB Size	RB Offset	Low CH 20402	Mid CH 20525	High CH 20648
				Frequency 824.2 MHz	Frequency 836.5 MHz	Frequency 848.8 MHz
5/ 15	BPSK	1	0	20.09	20.37	19.94
		1	11	20.07	20.27	19.92
	QPSK	1	0	20.17	20.42	19.98
		1	11	20.07	20.30	19.95
		12	0	18.21	18.48	18.04



**ERP POWER (dBm)**

Internal Antenna:

**LTE CAT-M1**

**LTE BAND 5**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	19.66	-3.94	13.57	22.75	7
20525	836.5	19.85	-3.94	13.76	23.77	7
20643	848.3	19.7	-3.94	13.61	22.96	7

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	19.62	-3.94	13.53	22.54	7
20525	836.5	19.7	-3.94	13.61	22.96	7
20643	848.3	19.58	-3.94	13.49	22.34	7

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	19.65	-3.94	13.56	22.7	7
20525	836.5	19.84	-3.94	13.75	23.71	7
20635	847.5	19.67	-3.94	13.58	22.8	7

**CHANNEL BANDWIDTH: 3MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	19.67	-3.94	13.58	22.8	7
20525	836.5	19.63	-3.94	13.54	22.59	7
20635	847.5	19.6	-3.94	13.51	22.44	7



**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	19.68	-3.94	13.59	22.86	7
20525	836.5	19.86	-3.94	13.77	23.82	7
20625	846.5	19.67	-3.94	13.58	22.8	7

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	19.6	-3.94	13.51	22.44	7
20525	836.5	19.65	-3.94	13.56	22.7	7
20625	846.5	19.6	-3.94	13.51	22.44	7

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	19.7	-3.94	13.61	22.96	7
20525	836.5	19.91	-3.94	13.82	24.1	7
20600	844.0	19.72	-3.94	13.63	23.07	7

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	19.68	-3.94	13.59	22.86	7
20525	836.5	19.71	-3.94	13.62	23.01	7
20600	844.0	19.62	-3.94	13.53	22.54	7

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).





**LTE BAND 26**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	19.95	-3.94	13.86	24.32	7
26915	836.5	20.02	-3.94	13.93	24.72	7
27033	848.3	20.02	-3.94	13.93	24.72	7

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	20.07	-3.94	13.98	25	7
26915	836.5	20.14	-3.94	14.05	25.41	7
27033	848.3	20.03	-3.94	13.94	24.77	7

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	19.92	-3.94	13.83	24.15	7
26915	836.5	20.08	-3.94	13.99	25.06	7
27025	847.5	20.02	-3.94	13.93	24.72	7

**CHANNEL BANDWIDTH: 3MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	20.08	-3.94	13.99	25.06	7
26915	836.5	20.13	-3.94	14.04	25.35	7
27025	847.5	20.03	-3.94	13.94	24.77	7



**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	19.94	-3.94	13.85	24.27	7
26915	836.5	20.08	-3.94	13.99	25.06	7
27015	846.5	20.03	-3.94	13.94	24.77	7

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	20.05	-3.94	13.96	24.89	7
26915	836.5	20.12	-3.94	14.03	25.29	7
27015	846.5	20.06	-3.94	13.97	24.95	7

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	19.93	-3.94	13.84	24.21	7
26915	836.5	20.02	-3.94	13.93	24.72	7
26990	844	20.02	-3.94	13.93	24.72	7

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	20.04	-3.94	13.95	24.83	7
26915	836.5	20.15	-3.94	14.06	25.47	7
26990	844	20.06	-3.94	13.97	24.95	7



**CHANNEL BANDWIDTH: 15MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-LC</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	20	-3.94	13.91	24.6	7
26915	836.5	20.1	-3.94	14.01	25.18	7
26965	841.5	20.08	-3.94	13.99	25.06	7

**CHANNEL BANDWIDTH: 15MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-LC</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	20.11	-3.94	14.02	25.23	7
26915	836.5	20.19	-3.94	14.1	25.7	7
26965	841.5	20.08	-3.94	13.99	25.06	7

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



LTE NB-IOT

LTE BAND 5

SUBCARRIER SPACING: 3.75KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.44	-3.94	14.35	27.23	7
20525	836.5	20.67	-3.94	14.58	28.71	7
20648	848.8	20.32	-3.94	14.23	26.49	7

SUBCARRIER SPACING: 3.75KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.42	-3.94	14.33	27.1	7
20525	836.5	20.7	-3.94	14.61	28.91	7
20648	848.8	20.3	-3.94	14.21	26.36	7

SUBCARRIER SPACING: 15KHz BPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.09	-3.94	14	25.12	7
20525	836.5	20.37	-3.94	14.28	26.79	7
20648	848.8	19.94	-3.94	13.85	24.27	7

SUBCARRIER SPACING: 15KHz QPSK

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.17	-3.94	14.08	25.59	7
20525	836.5	20.42	-3.94	14.33	27.1	7
20648	848.8	19.98	-3.94	13.89	24.49	7

REMARKS: ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



**External Antenna:**

**LTE CAT-M1**

**LTE BAND 5**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	19.66	-2.98	14.53	28.38	7
20525	836.5	19.85	-2.98	14.72	29.65	7
20643	848.3	19.7	-2.98	14.57	28.64	7

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	19.62	-2.98	14.49	28.12	7
20525	836.5	19.7	-2.98	14.57	28.64	7
20643	848.3	19.58	-2.98	14.45	27.86	7

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	19.65	-2.98	14.52	28.31	7
20525	836.5	19.84	-2.98	14.71	29.58	7
20635	847.5	19.67	-2.98	14.54	28.44	7

**CHANNEL BANDWIDTH: 3MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	19.67	-2.98	14.54	28.44	7
20525	836.5	19.63	-2.98	14.5	28.18	7
20635	847.5	19.6	-2.98	14.47	27.99	7



**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	19.68	-2.98	14.55	28.51	7
20525	836.5	19.86	-2.98	14.73	29.72	7
20625	846.5	19.67	-2.98	14.54	28.44	7

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	19.6	-2.98	14.47	27.99	7
20525	836.5	19.65	-2.98	14.52	28.31	7
20625	846.5	19.6	-2.98	14.47	27.99	7

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	19.7	-2.98	14.57	28.64	7
20525	836.5	19.91	-2.98	14.78	30.06	7
20600	844.0	19.72	-2.98	14.59	28.77	7

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	19.68	-2.98	14.55	28.51	7
20525	836.5	19.71	-2.98	14.58	28.71	7
20600	844.0	19.62	-2.98	14.49	28.12	7

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



**LTE BAND 26**

**CHANNEL BANDWIDTH: 1.4MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	19.95	-2.98	14.82	30.34	7
26915	836.5	20.02	-2.98	14.89	30.83	7
27033	848.3	20.02	-2.98	14.89	30.83	7

**CHANNEL BANDWIDTH: 1.4MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	20.07	-2.98	14.94	31.19	7
26915	836.5	20.14	-2.98	15.01	31.7	7
27033	848.3	20.03	-2.98	14.9	30.9	7

**CHANNEL BANDWIDTH: 3MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	19.92	-2.98	14.79	30.13	7
26915	836.5	20.08	-2.98	14.95	31.26	7
27025	847.5	20.02	-2.98	14.89	30.83	7

**CHANNEL BANDWIDTH: 3MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	20.08	-2.98	14.95	31.26	7
26915	836.5	20.13	-2.98	15	31.62	7
27025	847.5	20.03	-2.98	14.9	30.9	7



**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	19.94	-2.98	14.81	30.27	7
26915	836.5	20.08	-2.98	14.95	31.26	7
27015	846.5	20.03	-2.98	14.9	30.9	7

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	20.05	-2.98	14.92	31.05	7
26915	836.5	20.12	-2.98	14.99	31.55	7
27015	846.5	20.06	-2.98	14.93	31.12	7

**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	19.93	-2.98	14.8	30.2	7
26915	836.5	20.02	-2.98	14.89	30.83	7
26990	844	20.02	-2.98	14.89	30.83	7

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	20.04	-2.98	14.91	30.97	7
26915	836.5	20.15	-2.98	15.02	31.77	7
26990	844	20.06	-2.98	14.93	31.12	7





**CHANNEL BANDWIDTH: 15MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-LC</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	20	-2.98	14.87	30.69	7
26915	836.5	20.1	-2.98	14.97	31.41	7
26965	841.5	20.08	-2.98	14.95	31.26	7

**CHANNEL BANDWIDTH: 15MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-LC</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	20.11	-2.98	14.98	31.48	7
26915	836.5	20.19	-2.98	15.06	32.06	7
26965	841.5	20.08	-2.98	14.95	31.26	7

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



**LTE NB-IOT**

**LTE BAND 5**

**SUBCARRIER SPACING: 3.75KHz BPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.44	-2.98	15.31	33.96	7
20525	836.5	20.67	-2.98	15.54	35.81	7
20648	848.8	20.32	-2.98	15.19	33.04	7

**SUBCARRIER SPACING: 3.75KHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.42	-2.98	15.29	33.81	7
20525	836.5	20.7	-2.98	15.57	36.06	7
20648	848.8	20.3	-2.98	15.17	32.89	7

**SUBCARRIER SPACING: 15KHz BPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.09	-2.98	14.96	31.33	7
20525	836.5	20.37	-2.98	15.24	33.42	7
20648	848.8	19.94	-2.98	14.81	30.27	7

**SUBCARRIER SPACING: 15KHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20402	824.2	20.17	-2.98	15.04	31.92	7
20525	836.5	20.42	-2.98	15.29	33.81	7
20648	848.8	19.98	-2.98	14.85	30.55	7

**REMARKS:** ERP Output Power (dBm) = EIRP (dBm) -2.15(dB).



## 3.2 RADIATED EMISSION MEASUREMENT

### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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 emission limit equal to  $-13\text{dBm}$ .

### 3.2.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- c.  $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$ .
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,  $\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}$ .

**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

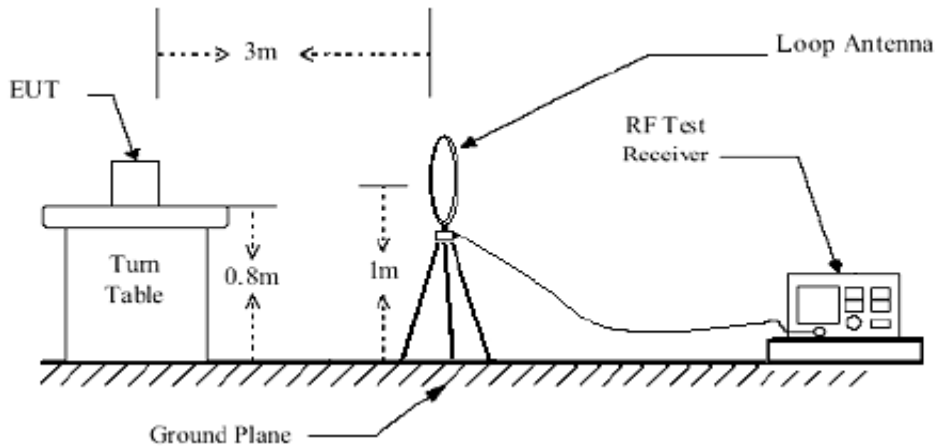
### 3.2.3 DEVIATION FROM TEST STANDARD

No deviation

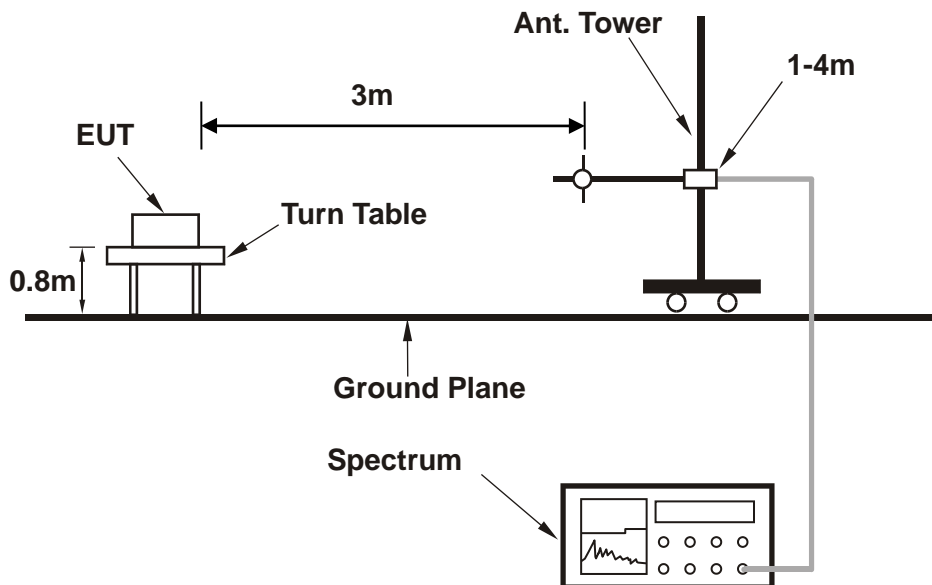


### 3.2.4 TEST SETUP

#### < Frequency Range below 30MHz >

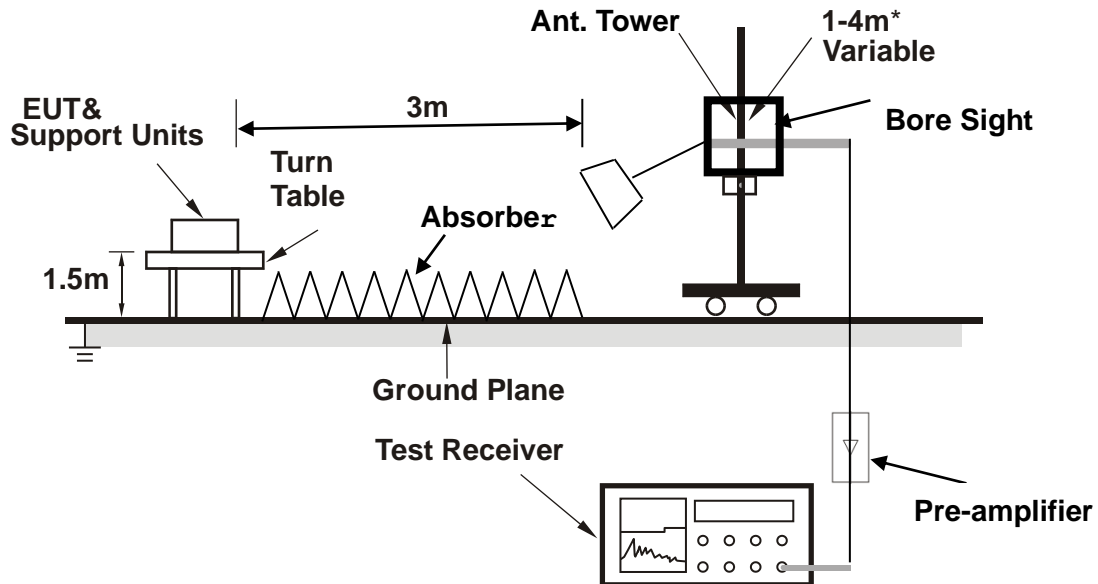


#### < Frequency Range 30MHz~1GHz >





<Frequency Range above 1GHz>



**Note:** Above 1G is a directional antenna

Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).



**3.2.5 TEST RESULTS**

NOTE : The 9K~30MHz amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

**Internal Antenna:**

**NB**

**BELOW 1GHz WORST-CASE DATA**

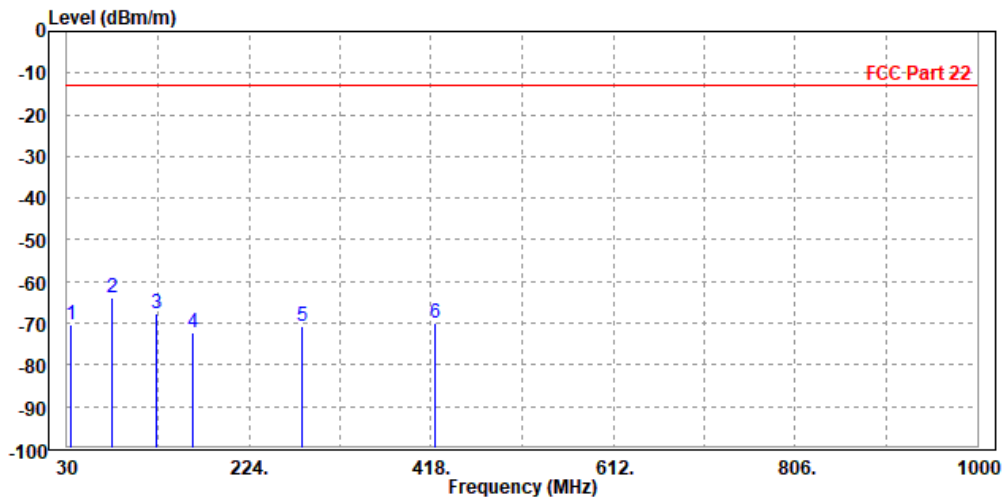
**30 MHz – 1GHz data:**

**LTE Band 5:**

**CHANNEL BANDWIDTH: 15KHz / QPSK**

<b>MODE</b>	TX channel 20648	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	AC 120V/60HZ
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	33.880	-70.32	-59.09	-13.00	-57.32	-11.23	Peak	Horizontal
2 PP	78.500	-63.80	-42.29	-13.00	-50.80	-21.51	Peak	Horizontal
3	125.060	-67.62	-46.61	-13.00	-54.62	-21.01	Peak	Horizontal
4	163.860	-72.26	-56.19	-13.00	-59.26	-16.07	Peak	Horizontal
5	281.230	-70.58	-58.50	-13.00	-57.58	-12.08	Peak	Horizontal
6	422.850	-70.10	-60.48	-13.00	-57.10	-9.62	Peak	Horizontal



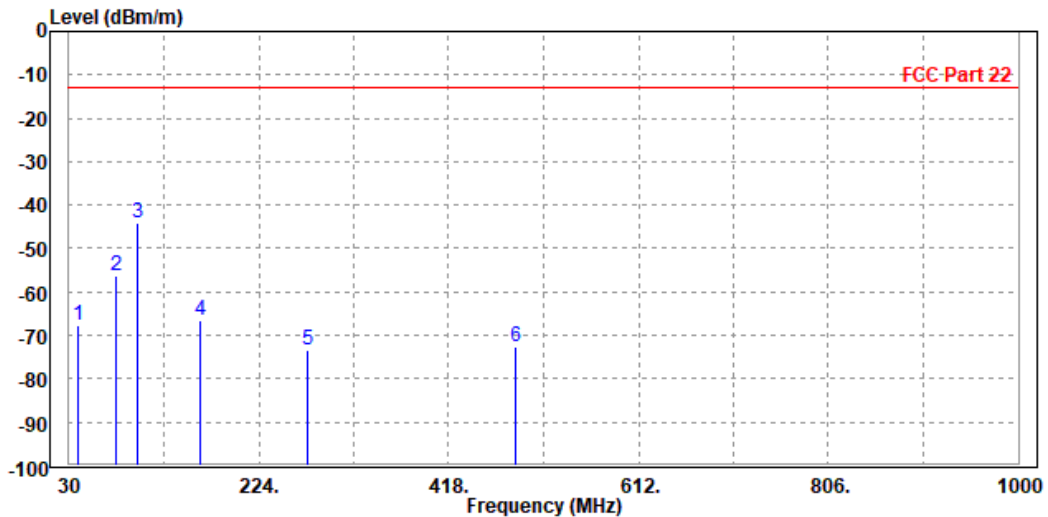


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**Test Report No.: W7L-230608W001RF01**

<b>MODE</b>	TX channel 20648	<b>FREQUENCY RANGE</b>	Below 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	AC 120V/60HZ
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	38.730	-67.66	-43.86	-13.00	-54.66	-23.80	Peak	Vertical
2	77.530	-56.31	-36.29	-13.00	-43.31	-20.02	Peak	Vertical
3 PP	99.840	-44.08	-37.57	-13.00	-31.08	-6.51	Peak	Vertical
4	164.830	-66.49	-49.28	-13.00	-53.49	-17.21	Peak	Vertical
5	273.470	-73.51	-61.22	-13.00	-60.51	-12.29	Peak	Vertical
6	486.870	-72.57	-64.37	-13.00	-59.57	-8.20	Peak	Vertical





ABOVE 1GHz DATA

Note: For higher frequency, the emission is too low to be detected.

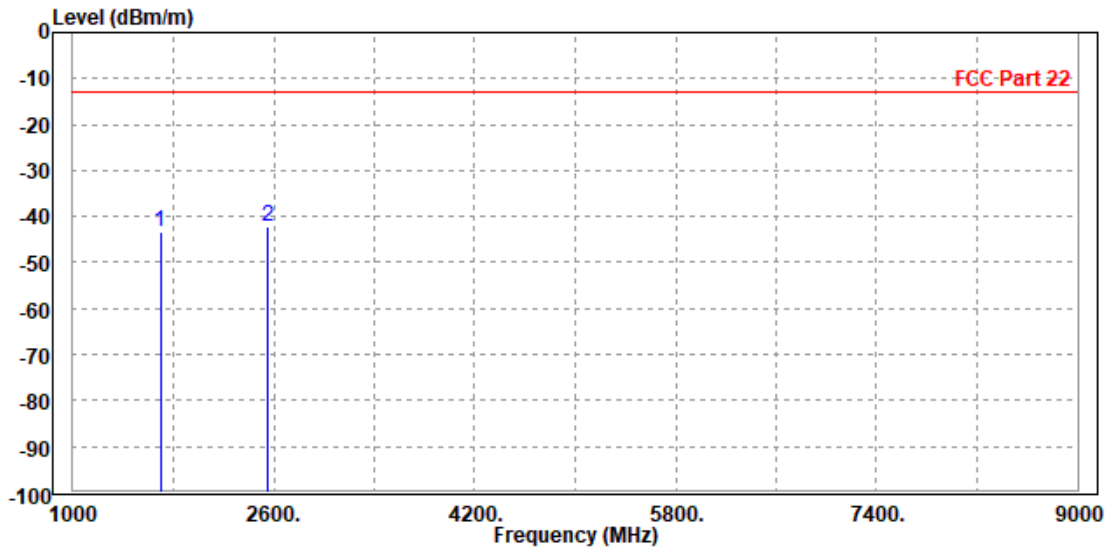
WORST-CASE DATA

LTE Band 5

CHANNEL BANDWIDTH: 15KHz / QPSK

MODE	TX channel 20648	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	AC 120V/60HZ
TESTED BY	Jace Hu		
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1	1696.000	-43.42	-44.58	-13.00	-30.42	1.16	Peak	Horizontal
2 PP	2546.400	-42.07	-47.62	-13.00	-29.07	5.55	Peak	Horizontal

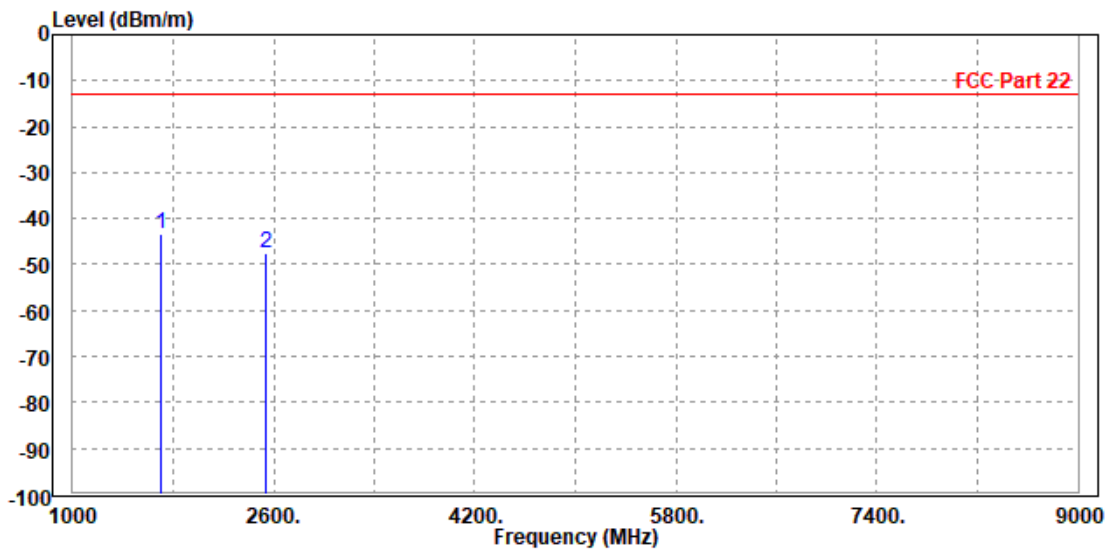






<b>MODE</b>	TX channel 20648	<b>FREQUENCY RANGE</b>	Above 1000MHz
<b>ENVIRONMENTAL CONDITIONS</b>	23deg. C, 70%RH	<b>INPUT POWER</b>	AC 120V/60HZ
<b>TESTED BY</b>	Jace Hu		
<b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>			

	Freq	Level	Read Level	Limit Line	Over Limit	Factor	Remark	Pol/Phase
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	1697.600	-43.29	-44.69	-13.00	-30.29	1.40	Peak	Vertical
2	2544.000	-47.35	-52.43	-13.00	-34.35	5.08	Peak	Vertical





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**Test Report No.: W7L-230608W001RF01**

## **4 PHOTOGRAPHS OF THE TEST CONFIGURATION**

Please refer to the attached file (Test Setup Photo).



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Test Report No.: W7L-230608W001RF01

## 5 INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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**Email:** [customerservice.sw@bureauveritas.com](mailto:customerservice.sw@bureauveritas.com)

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



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Test Report No.: W7L-230608W001RF01

## **6 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

**---END---**