



Test Report No.: W7L-P23030003RF04



# FCC TEST REPORT (PART 22)

Applicant:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

Manufacturer or Supplier:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Product:	Mobile Phone
Brand Name:	Redmi
Model Name:	23053RN02L
FCC ID:	2AFZZRN02L
Date of tests:	Mar. 06, 2023 ~ Mar. 29, 2023

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

- FCC PART 22, Subpart H
- ANSI/TIA/EIA-603-D
- ANSI/TIA/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: Mar. 29, 2023	Date: Mar. 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.



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**BUREAU**  
**VERITAS**

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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P23030003RF04	Original release	Mar. 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>	<b>TEST LAB*</b>
§2.1046	Conducted Output Power	Compliance	A
§22.913 (a)(5)	Effective Radiated Power	Compliance	A
§2.1055 §22.355	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§22.913 (d)	Peak to average ratio*	Compliance	A
§22.917(a)	Band Edge Measurements	Compliance	A
§2.1051 §22.917(a)	Conducted Spurious Emissions	Compliance	A
§2.1053 §22.917(a)	Radiated Spurious Emissions	Compliance	B

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

### \*Test Lab Information Reference

#### Lab A:

BV 7Layers Communications Technology (Shenzhen) Co., Ltd

#### Lab Address:

No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China

**Accredited Test Lab Cert 3939.01**

**The FCC Site Registration No. : 525120; Designation No. : CN1171;**

#### Lab B:

Huarui 7Layers High Technology (Suzhou) Co., Ltd.

#### Lab Address:

Tower N, Innovation Center, 88 Zhuyi Road, High-tech District, Suzhou City, Anhui Province

**Accredited Test Lab Cert 6613.01**

**The FCC Site Registration No. is 434559; The Designation No. is CN1325.**



### 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
Frequency Stability	±76.97Hz
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
Conducted emissions	±4.01dB
Occupied Channel Bandwidth	±43.58KHz
Band Edge Measurements	±4.70dB
Peak to average ratio	±0.76dB

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	Feb. 17,23	Feb. 16,24
EXA Signal Analyzer	KEYSIGHT	N9010A-544	MY54510355	May.14,22	May.13,23
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.03,22	Sep.02,23
Bilog Antenna	ETS-LINDGREN	3143B	00161965	Mar. 05,23	Mar. 04,24
Horn Antenna	ETS-LINDGREN	3117	00168692	Mar. 05,23	Mar. 04,24
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40- K-SG/QMS-003 61	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.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	May.12,22	May.11,23
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Feb. 17,23	Feb.16,24
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn- CT0001143-121 6	May. 19,20	May. 18,23
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	N/A	May. 12,22	May. 11,23
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. 12,22	May. 11,23
MXG Analog Microwave Signal Generator	KEYSIGHT	N5183A	MY50143024	Feb. 14,23	Feb. 13,24
Base station R&S CMW500	Rohde&Schwarz	CMW500	153085	May.12,22	May.11,23
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.



Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Pre-Amplifier	R&S	SCU18F1	100815	Aug.30,22	Aug.29,24
Pre-Amplifier	R&S	SCU08F1	101028	Sep.16,22	Sep.15,24
Vector Signal Generator	R&S	SMBV100B	102176	Feb.16,22	Feb.15,24
Signal Generator	R&S	SMB100A	182185	Feb.16,22	Feb.15,24
3m Fully-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-01Chamber	Nov.25,22	Nov.24,25
3m Semi-anechoic Chamber	TDK	9m*6m*6m	HRSW-SZ-EMC-02Chamber	Nov.25,22	Nov.24,25
EMI TEST Receiver	R&S	ESR26	101734	Feb.25,22	Feb.24,24
EMI TEST Receiver	R&S	ESW44	101973	Feb.25,22	Feb.24,24
Bilog Antenna	SCHWARZBECK	VULB 9163	1264	Feb.28,22	Feb.27,24
Horn Antenna	ETS-LINDGREN	3117	227836	Aug.22,22	Aug.21,24
Horn Antenna (18GHz-40GHz)	Steatite Q-par Antennas	QMS 00880	23486	Feb.23,22	Feb.22,24
Horn Antenna	Steatite Q-par Antennas	QMS 00208	23485	Aug.22,22	Aug.21,24
Loop Antenna	SCHWARZ	HFH2-Z2/Z2E	100976	Feb.23,22	Feb.22,24
WIDEBANDRADIO COMMUNICATION TESTER	R&S	CMW500	169399	Jun.27,22	Jun.26,24
Test Software	EMC32	EMC32	N/A	N/A	N/A
Test Software	ELEKTRA	ELEKTRA4.32	N/A	N/A	N/A
Open Switch and Control Unit	R&S	OSP220	101964	Oct.01,22	Sep.30,24
DC Source	HYELEC	HY3010B	551016	Aug.31,22	Aug.30,24
Hygrothermograph	DELI	20210528	SZ014	Sep.06,22	Sep.05,24
PC	LENOVO	E14	HRSW0024	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-7.00M	N/A	N/A	N/A
TMC-AMI18843A(CABLE)	R&S	HF290-NMNM-4.00M	N/A	N/A	N/A
CABLE	R&S	W13.02	N/A	Oct.31,22	Apr.29,23
CABLE	R&S	W12.14	N/A	Oct.31,22	Apr.29,23
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Oct.31,22	Apr.29,23
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Oct.31,22	Apr.29,23
Temperature Chamber	votsch	VT4002	58566078100050	May.31,22	May.30,24

- 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 434559; The Designation No. is CN1325.





## 2 GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

<b>PRODUCT</b>	Mobile Phone	
<b>BRAND NAME</b>	Redmi	
<b>MODEL NAME</b>	23053RN02L	
<b>NOMINAL VOLTAGE</b>	5V/9V/10V/12Vdc(adapter or host equipment) 3.8Vdc (Li-ion, battery)	
<b>MODULATION TYPE</b>	<b>GSM/EDGE</b>	GMSK, 8PSK
	<b>WCDMA</b>	BPSK, QPSK
	<b>LTE</b>	QPSK, 16QAM, 64QAM
<b>FREQUENCY RANGE</b>	<b>GSM/EDGE</b>	824.2MHz ~ 848.8MHz
	<b>WCDMA</b>	826.4MHz ~ 846.6MHz
	<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>MAX. ERP POWER</b>	<b>GSM</b>	338.84mW
	<b>EDGE</b>	94.41mW
	<b>WCDMA</b>	52.48mW
	<b>LTE Band 5 (Channel Bandwidth: 1.4MHz)</b>	51.76mW
	<b>LTE Band 5 (Channel Bandwidth: 3MHz)</b>	51.76mW
	<b>LTE Band 5 (Channel Bandwidth: 5MHz)</b>	52.24mW



	<b>LTE Band 5 (Channel Bandwidth: 10MHz)</b>	52.36mW	
<b>MAX. ERP POWER</b>	<b>LTE Band 26 (Channel Bandwidth: 1.4MHz)</b>	52.97mW	
	<b>LTE Band 26 (Channel Bandwidth: 3MHz)</b>	53.09mW	
	<b>LTE Band 26 (Channel Bandwidth: 5MHz)</b>	52.72mW	
	<b>LTE Band 26 (Channel Bandwidth: 10MHz)</b>	52.84mW	
	<b>LTE Band 26 (Channel Bandwidth: 15MHz)</b>	53.58mW	
	<b>EMISSION DESIGNATOR GOGN</b>	<b>GSM</b>	247KGXW
<b>EDGE</b>		247KG7W	
<b>WCDMA</b>		4M19F9W	
<b>LTE Band 26 (Channel Bandwidth: 1.4MHz)</b>		QPSK: 1M09G7D	
		16QAM: 1M09W7D	
		64QAM: 1M09W7D	
<b>LTE Band 26 (Channel Bandwidth: 3MHz)</b>		QPSK: 2M69G7D	
		16QAM: 2M69W7D	
		64QAM: 2M70W7D	
<b>LTE Band 26 (Channel Bandwidth: 5MHz)</b>		QPSK: 4M50G7D	
		16QAM: 4M51W7D	
		64QAM: 4M50W7D	
<b>LTE Band 26 (Channel Bandwidth: 10MHz)</b>		QPSK: 9M00G7D	
		16QAM: 8M99W7D	
		64QAM: 8M99W7D	
<b>LTE Band 26 (Channel Bandwidth: 15MHz)</b>		QPSK: 13M5G7D	
		16QAM: 13M5W7D	
		64QAM: 13M5W7D	
<b>ANTENNA TYPE</b>		ANT 0: IFA Antenna with -4.77dBi gain for GSM850/WCDMA V/LTE B5/LTE B26	
		ANT 4: IFA Antenna with -5.5dBi gain for GSM850/WCDMA V/LTE B5/LTE B26	
<b>HW VERSION</b>		P1.1	
<b>SW VERSION</b>	MIUI14		
<b>IMEI</b>	867866060030240		
	867866060047483		
	867866060047491		



<b>I/O PORTS</b>	Refer to user's manual
<b>CABLE SUPPLIED</b>	USB cable1: non-shielded cable, with w/o ferrite core, 1.0 meter USB cable2: non-shielded cable, with w/o ferrite core, 1.0 meter
<b>EXTREME TEMPERATURE</b>	0-40 °C
<b>EXTREME VOLTAGE</b>	3.5V - 4.2V

**NOTE:**

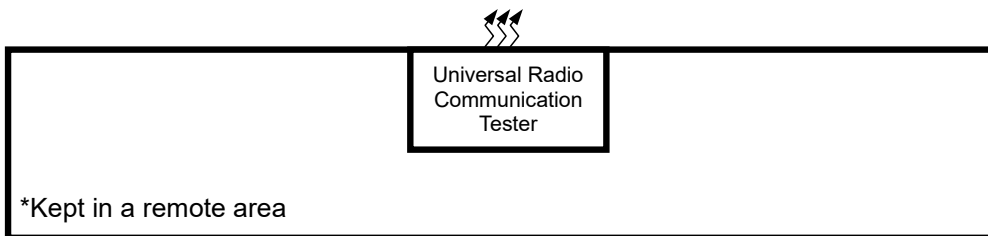
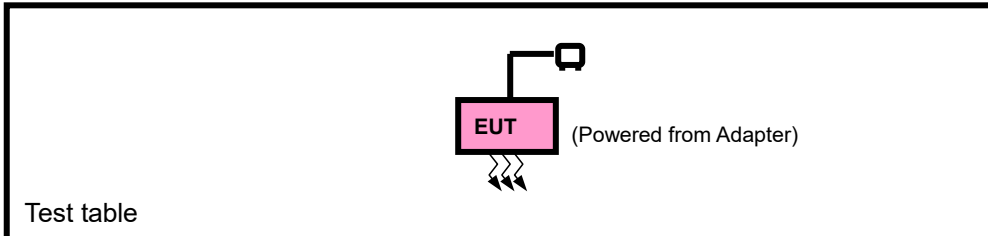
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. The EUT incorporates a SISO function. Physically, the EUT provides two completed transmitter and two receiver.

<b>MODULATION MODE</b>	<b>TX FUNCTION</b>
<b>GSM/GPRS/EDGE</b>	2TX/2RX
<b>WCDMA</b>	2TX/2RX
<b>LTE</b>	2TX/2RX

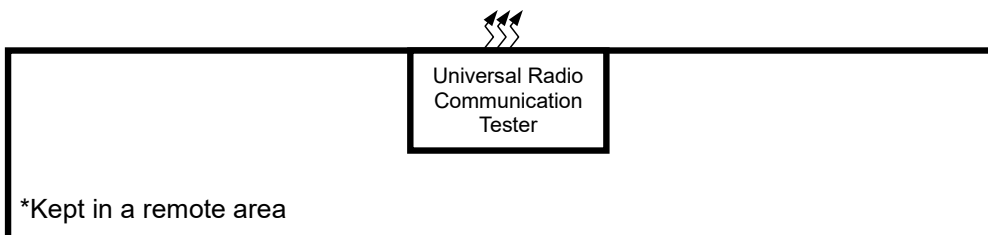
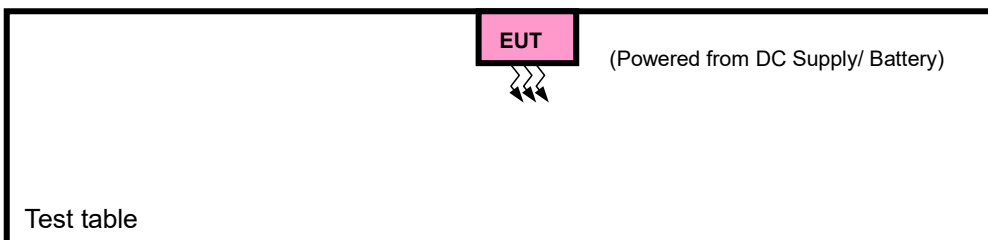
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.



## 2.2 CONFIGURATION OF SYSTEM UNDER TEST FOR RADIATION EMISSION



## FOR CONDUCTED TEST





### 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	DC source	Kikusui/JP	PMX18-5A	0000001	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.0m

### 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 GSM /EDGE /LTE. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
A	EUT + Adapter with GSM or WCDMA or LTE link
B	EUT + DC source with GSM or WCDMA or LTE link



**GSM MODE**

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	ERP	128 to 251	128, 189, 251	GSM,EDGE
B	FREQUENCY STABILITY	128 to 251	128, 189, 251	GSM,EDGE
A	OCCUPIED BANDWIDTH	128 to 251	128, 189, 251	GSM,EDGE
A	BAND EDGE	128 to 251	128, 251	GSM,EDGE
A	CONDCUDETED EMISSION	128 to 251	128, 189, 251	GSM,EDGE
A	RADIATED EMISSION	128 to 251	128, 189, 251	GSM,EDGE
A	PEAK TO AVERAGE RATIO	128 to 251	128, 189, 251	GSM,EDGE

**WCDMA MODE**

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	ERP	4132 to 4233	4132, 4182, 4233	WCDMA
B	FREQUENCY STABILITY	4132 to 4233	4132, 4182, 4233	WCDMA
A	OCCUPIED BANDWIDTH	4132 to 4233	4132, 4182, 4233	WCDMA
A	BAND EDGE	4132 to 4233	4132, 4233	WCDMA
A	CONDCUDETED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
A	RADIATED EMISSION	4132 to 4233	4132, 4182, 4233	WCDMA
A	PEAK TO AVERAGE RATIO	4132 to 4233	4132, 4182, 4233	WCDMA



**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,64QAM	1 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10MHz	QPSK,16QAM,64QAM	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 with the same output power and supported bandwidths, So the 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,64QAM	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	26865 to 26965	26865, 26915, 26965	15MHz	QPSK	75 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK,16QAM,64QAM	6 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK,16QAM,64QAM	15 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM,64QAM	75 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	26865 to 26965	26865, 26915, 26965	15MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
A	BAND EDGE	26797 to 27033	26797	1.4 MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset 6 RB / 0 RB Offset
			27033	1.4 MHz	QPSK,16QAM,64QAM	1 RB / 5 RB Offset 6 RB / 0 RB Offset
		26805 to 27025	26805	3 MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset



						15 RB / 0 RB Offset
		26805 to 27025	27025	3 MHz	QPSK, 16QAM, 64QAM	1 RB / 14 RB Offset
						15 RB / 0 RB Offset
		26815 to 27015	26815	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						25 RB / 0 RB Offset
		26815 to 27015	27015	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset
						25 RB / 0 RB Offset
		26840 to 26990	26840	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						50 RB / 0 RB Offset
		26840 to 26990	26990	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset
						50 RB / 0 RB Offset
		26865 to 26965	26865	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
						75 RB / 0 RB Offset
		26865 to 26965	26965	15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset
						75 RB / 0 RB Offset
A	CONDCUDED EMISSION	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK	1 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5MHz	QPSK	1 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	26797 to 27033	26797, 26915, 27033	1.4MHz	QPSK	1 RB / 0 RB Offset
		26805 to 27025	26915	3MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26915	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.





**TEST CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	Jace Hu
FREQUENCY STABILITY	23deg. C, 70%RH	DC 3.5/3.8/4.2V By DC Source	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu
BAND EDGE	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu
CONDCUDED EMISSION	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5V/9V/10V/12V By Adapter	James Fu

**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-P23030003RF04

## 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:**

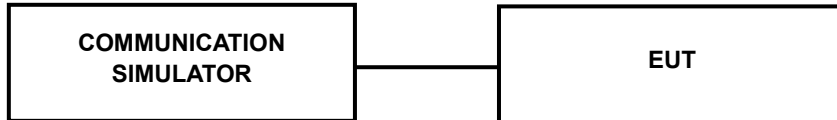
The EUT was set up for the maximum power with WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



### 3.1.3 TEST SETUP

**EIRP / ERP Measurement:**

**CONDUCTED POWER MEASUREMENT:**



### 3.1.4 TEST RESULTS

**CONDUCTED OUTPUT POWER (dBm)**

**Ant 0**

Band	GSM850		
Channel	128	189	251
Frequency	824.2	836.4	848.8
<b>GSM</b>	<b>32.22</b>	32.15	32.07
GPRS (GMSK, 1Tx-slot)	32.20	32.13	32.06
GPRS (GMSK, 2Tx-slot)	31.46	31.40	31.31
GPRS (GMSK, 3Tx-slot)	29.75	29.70	29.57
GPRS (GMSK, 4Tx-slot)	28.67	28.66	28.70
EDGE (8PSK, 1Tx-slot)	26.49	26.67	26.64
EDGE (8PSK, 2Tx-slot)	25.40	25.49	25.67
EDGE (8PSK, 3Tx-slot)	23.31	23.38	23.48
EDGE (8PSK, 4Tx-slot)	22.04	22.01	22.15

Band	WCDMA V		
Channel	4132	4182	4233
Frequency	826.4	836.4	846.6
<b>RMC 12.2K</b>	24.04	24.07	<b>24.12</b>
HSDPA Subtest-1	23.18	23.16	23.23
HSDPA Subtest-2	23.21	23.22	23.33
HSDPA Subtest-3	22.28	22.23	22.27
HSDPA Subtest-4	22.25	22.21	22.26
DC-HSDPA Subtest-1	23.19	23.17	23.26
DC-HSDPA Subtest-2	23.18	23.15	23.27
DC-HSDPA Subtest-3	22.21	22.20	22.25
DC-HSDPA Subtest-4	22.18	22.18	22.28
HSUPA Subtest-1	21.22	21.27	21.18
HSUPA Subtest-2	21.25	21.25	21.34
HSUPA Subtest-3	22.41	22.39	22.46
HSUPA Subtest-4	20.81	20.77	20.83
HSUPA Subtest-5	22.34	22.41	22.43



**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	23.96	23.93	23.95
		1	2	23.96	24.04	24.00
		1	5	23.93	23.89	23.97
		3	0	24.00	24.04	24.06
		3	1	23.93	23.97	23.98
		3	3	23.80	23.96	23.87
		6	0	22.99	22.95	23.03
	16QAM	1	0	22.92	23.01	22.94
		1	2	23.04	23.13	23.10
		1	5	22.92	23.03	23.01
		3	0	23.02	22.98	23.04
		3	1	22.90	22.97	22.96
		3	3	22.85	22.98	22.88
		6	0	21.91	21.98	22.02
	64QAM	1	0	22.10	22.11	22.06
		1	2	22.14	22.30	22.24
		1	5	22.09	22.05	22.06
		3	0	22.05	22.14	22.09
		3	1	20.99	21.13	21.06
		3	3	21.94	21.93	21.95
		6	0	21.02	21.08	21.05



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	23.91	23.92	23.92
		1	7	23.94	24.06	24.03
		1	14	23.87	23.95	23.93
		8	0	22.97	23.11	23.05
		8	3	22.93	22.97	22.95
		8	7	22.80	22.96	22.90
		15	0	22.98	22.95	23.00
	16QAM	1	0	22.96	22.95	22.98
		1	7	23.03	23.14	23.07
		1	14	22.97	22.99	23.04
		8	0	22.02	21.99	22.01
		8	3	21.92	21.95	22.02
		8	7	21.90	21.98	21.86
		15	0	21.91	21.98	21.97
	64QAM	1	0	22.13	22.10	22.09
		1	7	22.17	22.30	22.22
		1	14	22.09	22.05	22.07
		8	0	21.05	21.16	21.12
		8	3	20.03	20.07	20.11
		8	7	20.91	20.97	20.91
		15	0	21.04	21.05	21.09



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	23.93	23.94	23.92
		1	12	23.93	24.10	24.00
		1	24	23.91	23.92	23.98
		12	0	22.99	23.10	23.02
		12	6	22.90	22.97	23.01
		12	13	22.80	22.95	22.87
		25	0	23.01	22.92	23.02
	16QAM	1	0	22.90	22.97	22.91
		1	12	23.05	23.16	23.06
		1	24	22.93	23.00	23.04
		12	0	21.98	21.99	22.01
		12	6	21.91	21.98	22.02
		12	13	21.83	21.98	21.88
		25	0	21.88	22.05	22.01
	64QAM	1	0	22.10	22.11	22.03
		1	12	22.14	22.31	22.27
		1	24	22.07	22.08	22.00
		12	0	21.07	21.18	21.14
		12	6	19.97	20.14	20.10
		12	13	20.95	20.96	20.88
		25	0	21.00	21.11	21.07



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	23.97	23.99	23.97
		1	24	24.01	<b>24.11</b>	24.05
		1	49	23.95	23.97	23.99
		25	0	23.05	23.12	23.07
		25	12	22.97	23.02	23.03
		25	25	22.88	22.97	22.92
		50	0	23.03	23.00	23.04
	16QAM	1	0	22.98	23.03	22.99
		1	24	23.11	23.18	23.12
		1	49	23.00	23.05	23.06
		25	0	22.04	22.06	22.06
		25	12	21.98	22.03	22.04
		25	25	21.91	22.00	21.94
		50	0	21.96	22.06	22.03
	64QAM	1	0	22.14	22.16	22.11
		1	24	22.22	22.32	22.29
		1	49	22.11	22.13	22.08
		25	0	21.13	21.20	21.17
		25	12	20.05	20.15	20.12
		25	25	20.99	21.01	20.96
		50	0	21.06	21.13	21.10





**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	23.91	23.98	24.00
		1	2	24.16	24.16	24.11
		1	5	23.87	23.88	23.95
		3	0	24.10	24.10	24.07
		3	1	24.01	24.04	24.07
		3	3	24.06	24.03	24.12
		6	0	23.07	23.05	23.13
	16QAM	1	0	23.00	23.03	23.08
		1	2	23.16	23.23	23.25
		1	5	22.97	23.06	23.08
		3	0	23.01	23.05	23.08
		3	1	22.96	23.08	23.09
		3	3	22.98	23.07	23.07
		6	0	22.06	22.01	22.08
	64QAM	1	0	22.07	22.13	22.16
		1	2	22.17	22.26	22.15
		1	5	22.10	22.10	22.18
		3	0	22.15	22.15	22.18
		3	1	22.12	22.21	22.10
		3	3	22.10	22.09	22.19
		6	0	21.10	21.10	21.13



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	23.93	24.00	23.99
		1	7	24.10	24.13	24.17
		1	14	23.86	23.89	23.96
		8	0	23.04	23.11	23.07
		8	3	22.98	23.09	23.06
		8	7	23.00	23.10	23.12
		15	0	23.08	23.08	23.06
	16QAM	1	0	22.96	23.07	23.11
		1	7	23.19	23.19	23.26
		1	14	22.99	23.03	23.08
		8	0	21.99	22.03	22.08
		8	3	22.00	22.07	22.09
		8	7	22.04	22.02	22.07
		15	0	22.02	22.01	22.08
	64QAM	1	0	22.14	22.17	22.16
		1	7	22.18	22.20	22.15
		1	14	22.14	22.12	22.17
		8	0	21.14	21.18	21.16
		8	3	21.16	21.15	21.15
		8	7	21.06	21.10	21.15
		15	0	21.12	21.07	21.17



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	23.94	23.94	24.04
		1	12	24.13	24.13	24.14
		1	24	23.84	23.95	23.96
		12	0	23.07	23.11	23.08
		12	6	23.00	23.09	23.07
		12	13	23.01	23.06	23.12
		25	0	23.04	23.11	23.09
	16QAM	1	0	23.02	23.00	23.11
		1	12	23.16	23.18	23.22
		1	24	22.95	23.09	23.03
		12	0	22.00	22.02	22.11
		12	6	21.97	22.06	22.06
		12	13	21.99	22.04	22.10
		25	0	22.00	22.07	22.04
	64QAM	1	0	22.07	22.18	22.22
		1	12	22.19	22.23	22.13
		1	24	22.07	22.17	22.17
		12	0	21.15	21.15	21.15
		12	6	21.12	21.21	21.13
		12	13	21.07	21.09	21.18
		25	0	21.06	21.13	21.12



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	23.96	23.96	24.03
		1	24	24.15	24.11	24.14
		1	49	23.86	23.88	23.99
		25	0	23.10	23.14	23.01
		25	12	22.99	23.03	23.06
		25	25	23.05	23.05	23.12
		50	0	23.10	23.06	23.09
	16QAM	1	0	22.98	23.00	23.11
		1	24	23.22	23.16	23.29
		1	49	22.93	23.07	23.04
		25	0	22.05	21.99	22.12
		25	12	21.95	22.09	22.06
		25	25	22.03	22.03	22.10
		50	0	22.06	22.02	22.05
	64QAM	1	0	22.09	22.11	22.22
		1	24	22.22	22.26	22.13
		1	49	22.10	22.10	22.13
		25	0	21.18	21.14	21.21
		25	12	21.17	21.21	21.08
		25	25	21.12	21.06	21.19
		50	0	21.13	21.09	21.16



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	24.05	23.99	24.05
		1	37	<b>24.21</b>	24.17	24.19
		1	74	23.99	23.92	24.01
		36	0	23.19	23.11	23.09
		36	19	23.14	23.06	23.12
		36	39	23.14	23.08	23.14
		75	0	23.16	23.12	23.14
	16QAM	1	0	23.11	23.04	23.13
		1	37	23.27	23.24	23.30
		1	74	23.14	23.01	23.09
		36	0	22.10	22.07	22.13
		36	19	22.16	22.03	22.11
		36	39	22.12	22.06	22.12
		75	0	22.12	22.08	22.10
	64QAM	1	0	22.22	22.15	22.24
		1	37	22.31	22.23	22.21
		1	74	22.21	22.15	22.19
		36	0	21.23	21.19	21.23
		36	19	21.26	21.18	21.16
		36	39	21.17	21.14	21.20
		75	0	21.18	21.14	21.18



**Ant 4**

Band	GSM850		
Channel	128	189	251
Frequency	824.2	836.4	848.8
<b>GSM</b>	32.22	32.24	<b>32.27</b>
GPRS (GMSK, 1Tx-slot)	32.22	32.25	32.26
GPRS (GMSK, 2Tx-slot)	31.23	31.21	31.27
GPRS (GMSK, 3Tx-slot)	29.48	29.53	29.61
GPRS (GMSK, 4Tx-slot)	28.40	28.50	28.52
EDGE (8PSK, 1Tx-slot)	26.76	26.75	26.79
EDGE (8PSK, 2Tx-slot)	25.60	25.55	25.60
EDGE (8PSK, 3Tx-slot)	23.51	23.48	23.49
EDGE (8PSK, 4Tx-slot)	22.23	22.34	22.16

Band	WCDMA V		
Channel	4132	4182	4233
Frequency	826.4	836.4	846.6
<b>RMC 12.2K</b>	24.05	24.08	<b>24.10</b>
HSDPA Subtest-1	23.05	22.96	23.10
HSDPA Subtest-2	23.01	22.97	22.95
HSDPA Subtest-3	22.13	22.17	22.10
HSDPA Subtest-4	22.10	22.14	22.08
DC-HSDPA Subtest-1	23.05	22.98	23.02
DC-HSDPA Subtest-2	22.96	22.93	22.97
DC-HSDPA Subtest-3	22.11	22.15	22.10
DC-HSDPA Subtest-4	22.10	22.13	22.07
HSUPA Subtest-1	21.15	21.20	21.22
HSUPA Subtest-2	21.07	21.19	21.10
HSUPA Subtest-3	22.23	22.09	22.25
HSUPA Subtest-4	20.91	20.85	20.84
HSUPA Subtest-5	22.09	22.15	22.13



**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	23.83	23.77	23.89
		1	2	23.82	23.90	23.97
		1	5	23.78	23.78	23.90
		3	0	23.91	24.00	24.09
		3	1	23.91	23.92	23.98
		3	3	23.71	23.92	23.90
		6	0	22.91	22.85	23.02
	16QAM	1	0	23.08	23.09	23.17
		1	2	23.09	23.20	23.24
		1	5	23.00	23.06	23.16
		3	0	23.02	22.91	23.07
		3	1	22.86	22.89	23.02
		3	3	22.81	22.91	22.83
		6	0	21.87	21.89	22.03
	64QAM	1	0	22.05	21.99	22.06
		1	2	22.02	22.19	22.16
		1	5	22.01	21.89	22.05
		3	0	21.96	22.07	22.09
		3	1	21.98	22.04	22.12
		3	3	21.83	21.84	21.93
		6	0	20.98	20.96	21.08



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	23.77	23.76	23.84
		1	7	23.80	23.90	23.95
		1	14	23.73	23.79	23.85
		8	0	22.89	23.01	23.03
		8	3	22.88	22.90	22.96
		8	7	22.72	22.86	22.88
		15	0	22.88	22.83	22.96
	16QAM	1	0	23.07	23.04	23.15
		1	7	23.09	23.18	23.19
		1	14	23.01	23.01	23.14
		8	0	21.97	21.92	22.02
		8	3	21.87	21.88	22.03
		8	7	21.80	21.86	21.82
		15	0	21.85	21.90	21.97
	64QAM	1	0	22.02	21.97	22.04
		1	7	22.03	22.14	22.14
		1	14	21.96	21.90	22.00
		8	0	20.97	21.06	21.10
		8	3	20.97	20.99	21.11
		8	7	20.81	20.85	20.87
		15	0	20.95	20.94	21.06





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	23.80	23.79	23.85
		1	12	23.80	23.95	23.93
		1	24	23.78	23.77	23.91
		12	0	22.92	23.01	23.01
		12	6	22.86	22.91	23.03
		12	13	22.73	22.86	22.86
		25	0	22.92	22.81	22.99
	16QAM	1	0	23.02	23.07	23.09
		1	12	23.12	23.21	23.19
		1	24	22.98	23.03	23.15
		12	0	21.94	21.93	22.03
		12	6	21.87	21.92	22.04
		12	13	21.74	21.87	21.85
		25	0	21.83	21.98	22.02
	64QAM	1	0	22.00	21.99	21.99
		1	12	22.01	22.16	22.20
		1	24	21.95	21.94	21.94
		12	0	21.00	21.09	21.13
		12	6	20.92	21.07	21.11
		12	13	20.86	20.85	20.85
		25	0	20.92	21.01	21.05



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	23.90	23.90	23.96
		1	24	23.94	24.02	<b>24.04</b>
		1	49	23.88	23.88	23.98
		25	0	23.04	23.09	23.12
		25	12	22.99	23.02	23.11
		25	25	22.87	22.94	22.97
		50	0	23.00	22.95	23.07
	16QAM	1	0	23.16	23.19	23.23
		1	24	23.24	23.29	23.31
		1	49	23.11	23.14	23.23
		25	0	22.06	22.06	22.14
		25	12	22.00	22.03	22.12
		25	25	21.88	21.95	21.97
		50	0	21.97	22.05	22.10
	64QAM	1	0	22.10	22.10	22.13
		1	24	22.15	22.23	22.28
		1	49	22.05	22.05	22.08
		25	0	21.12	21.17	21.22
		25	12	21.06	21.14	21.19
		25	25	20.96	20.96	20.99
		50	0	21.04	21.09	21.14



**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	23.71	23.83	23.85
		1	2	23.95	24.00	23.95
		1	5	23.71	23.77	23.84
		3	0	23.86	23.91	23.97
		3	1	23.81	23.89	23.92
		3	3	23.83	23.85	23.94
		6	0	22.83	22.86	22.94
	16QAM	1	0	22.85	22.93	22.98
		1	2	22.90	23.02	23.04
		1	5	22.77	22.91	22.93
		3	0	22.78	22.87	22.90
		3	1	22.76	22.93	22.94
		3	3	22.76	22.90	22.90
		6	0	21.82	21.82	21.89
	64QAM	1	0	21.86	21.97	22.00
		1	2	22.11	22.25	22.14
		1	5	21.92	21.97	22.05
		3	0	21.90	21.95	21.98
		3	1	21.90	22.04	21.93
		3	3	21.88	21.92	22.02
		6	0	20.89	20.94	20.97



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	23.71	23.83	23.82
		1	7	23.87	23.95	23.99
		1	14	23.68	23.76	23.83
		8	0	22.78	22.90	22.95
		8	3	22.76	22.92	22.89
		8	7	22.75	22.90	22.92
		15	0	22.82	22.87	22.85
	16QAM	1	0	22.79	22.95	22.99
		1	7	22.91	22.96	23.03
		1	14	22.77	22.86	22.91
		8	0	21.74	21.83	21.88
		8	3	21.78	21.90	21.92
		8	7	21.80	21.83	21.88
		15	0	21.76	21.80	21.87
	64QAM	1	0	21.91	21.99	21.98
		1	7	22.10	22.17	22.12
		1	14	21.94	21.97	22.02
		8	0	20.87	20.96	20.94
		8	3	20.92	20.96	20.96
		8	7	20.82	20.91	20.96
		15	0	20.89	20.89	20.99



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	23.71	23.76	23.86
		1	12	23.89	23.94	23.95
		1	24	23.65	23.81	23.82
		12	0	22.80	22.89	22.95
		12	6	22.77	22.91	22.89
		12	13	22.75	22.85	22.91
		25	0	22.77	22.89	22.87
	16QAM	1	0	22.84	22.87	22.98
		1	12	22.87	22.94	22.98
		1	24	22.72	22.91	22.85
		12	0	21.74	21.81	21.90
		12	6	21.74	21.88	21.88
		12	13	21.74	21.84	21.90
		25	0	21.73	21.85	21.82
	64QAM	1	0	21.83	21.99	22.03
		1	12	22.10	22.19	22.09
		1	24	21.86	22.01	22.01
		12	0	20.87	20.92	20.92
		12	6	20.87	21.01	20.93
		12	13	20.82	20.89	20.98
		25	0	20.82	20.94	20.93



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	23.77	23.82	23.89
		1	24	23.95	23.96	23.99
		1	49	23.71	23.78	23.89
		25	0	22.87	22.96	22.92
		25	12	22.80	22.89	22.92
		25	25	22.83	22.88	22.95
		50	0	22.87	22.88	22.91
	16QAM	1	0	22.84	22.91	23.02
		1	24	22.97	22.96	23.09
		1	49	22.74	22.93	22.90
		25	0	21.83	21.82	21.95
		25	12	21.76	21.95	21.92
		25	25	21.82	21.87	21.94
		50	0	21.83	21.84	21.87
	64QAM	1	0	21.89	21.96	22.07
		1	24	22.17	22.26	22.13
		1	49	21.93	21.98	22.01
		25	0	20.94	20.95	21.02
		25	12	20.96	21.05	20.92
		25	25	20.91	20.90	21.03
		50	0	20.93	20.94	21.01



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	23.93	23.82	23.93
		1	37	<b>24.08</b>	23.99	24.06
		1	74	23.91	23.79	23.93
		36	0	23.03	22.90	23.02
		36	19	23.02	22.89	23.00
		36	39	22.99	22.88	22.99
		75	0	23.00	22.91	22.98
	16QAM	1	0	23.04	22.92	23.06
		1	37	23.09	23.01	23.12
		1	74	23.02	22.84	22.97
		36	0	21.95	21.87	21.98
		36	19	22.04	21.86	21.99
		36	39	21.98	21.87	21.98
		75	0	21.96	21.87	21.94
	64QAM	1	0	22.09	21.97	22.11
		1	37	22.33	22.20	22.23
		1	74	22.11	22.00	22.09
		36	0	21.06	20.97	21.06
		36	19	21.12	20.99	21.02
		36	39	21.03	20.95	21.06
		75	0	21.05	20.96	21.05



**ERP POWER (dBm)**

**Ant 0**

**GSM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	32.22	-4.77	25.3	338.84	7
189	836.4	32.15	-4.77	25.23	333.43	7
251	848.8	32.07	-4.77	25.15	327.34	7

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

**EDGE**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	26.49	-4.77	19.57	90.57	7
189	836.4	26.67	-4.77	19.75	94.41	7
251	848.8	26.64	-4.77	19.72	93.76	7

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

**WCDMA**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
4132	826.4	24.04	-4.77	17.12	51.52	7
4182	836.4	24.07	-4.77	17.15	51.88	7
4233	846.6	24.12	-4.77	17.2	52.48	7

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





**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	24	-4.77	17.08	51.05	7
20525	836.5	24.04	-4.77	17.12	51.52	7
20643	848.3	24.06	-4.77	17.14	51.76	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	23.04	-4.77	16.12	40.93	7
20525	836.5	23.13	-4.77	16.21	41.78	7
20643	848.3	23.1	-4.77	16.18	41.5	7

**CHANNEL BANDWIDTH: 1.4MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.14	-4.77	15.22	33.27	7
20525	836.5	22.3	-4.77	15.38	34.51	7
20643	848.3	22.24	-4.77	15.32	34.04	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	23.94	-4.77	17.02	50.35	7
20525	836.5	24.06	-4.77	17.14	51.76	7
20635	847.5	24.03	-4.77	17.11	51.4	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	23.03	-4.77	16.11	40.83	7
20525	836.5	23.14	-4.77	16.22	41.88	7
20635	847.5	23.07	-4.77	16.15	41.21	7



**CHANNEL BANDWIDTH: 3MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20415	825.5	22.17	-4.77	15.25	33.5	7
20525	836.5	22.3	-4.77	15.38	34.51	7
20635	847.5	22.22	-4.77	15.3	33.88	7

**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	23.93	-4.77	17.01	50.23	7
20525	836.5	24.1	-4.77	17.18	52.24	7
20625	846.5	24	-4.77	17.08	51.05	7

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	23.05	-4.77	16.13	41.02	7
20525	836.5	23.16	-4.77	16.24	42.07	7
20625	846.5	23.06	-4.77	16.14	41.11	7

**CHANNEL BANDWIDTH: 5MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20425	826.5	22.14	-4.77	15.22	33.27	7
20525	836.5	22.31	-4.77	15.39	34.59	7
20625	846.5	22.27	-4.77	15.35	34.28	7



**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	24.01	-4.77	17.09	51.17	7
20525	836.5	24.11	-4.77	17.19	52.36	7
20600	844.0	24.05	-4.77	17.13	51.64	7

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	23.11	-4.77	16.19	41.59	7
20525	836.5	23.18	-4.77	16.26	42.27	7
20600	844.0	23.12	-4.77	16.2	41.69	7

**CHANNEL BANDWIDTH: 10MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20450	829.0	22.22	-4.77	15.3	33.88	7
20525	836.5	22.32	-4.77	15.4	34.67	7
20600	844.0	22.29	-4.77	15.37	34.43	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	24.16	-4.77	17.24	52.97	7
26915	836.5	24.16	-4.77	17.24	52.97	7
27033	848.3	24.12	-4.77	17.2	52.48	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	23.16	-4.77	16.24	42.07	7
26915	836.5	23.23	-4.77	16.31	42.76	7
27033	848.3	23.25	-4.77	16.33	42.95	7

**CHANNEL BANDWIDTH: 1.4MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26797	824.7	22.17	-4.77	15.25	33.5	7
26915	836.5	22.26	-4.77	15.34	34.2	7
27033	848.3	22.19	-4.77	15.27	33.65	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	24.1	-4.77	17.18	52.24	7
26915	836.5	24.13	-4.77	17.21	52.6	7
27025	847.5	24.17	-4.77	17.25	53.09	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	23.19	-4.77	16.27	42.36	7
26915	836.5	23.19	-4.77	16.27	42.36	7
27025	847.5	23.26	-4.77	16.34	43.05	7

**CHANNEL BANDWIDTH: 3MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>C</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26805	825.5	22.18	-4.77	15.26	33.57	7
26915	836.5	22.2	-4.77	15.28	33.73	7
27025	847.5	22.17	-4.77	15.25	33.5	7



**CHANNEL BANDWIDTH: 5MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	24.13	-4.77	17.21	52.6	7
26915	836.5	24.13	-4.77	17.21	52.6	7
27015	846.5	24.14	-4.77	17.22	52.72	7

**CHANNEL BANDWIDTH: 5MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	23.16	-4.77	16.24	42.07	7
26915	836.5	23.18	-4.77	16.26	42.27	7
27015	846.5	23.22	-4.77	16.3	42.66	7

**CHANNEL BANDWIDTH: 5MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26815	826.5	22.19	-4.77	15.27	33.65	7
26915	836.5	22.23	-4.77	15.31	33.96	7
27015	846.5	22.22	-4.77	15.3	33.88	7



**CHANNEL BANDWIDTH: 10MHz QPSK**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	24.15	-4.77	17.23	52.84	7
26915	836.5	24.11	-4.77	17.19	52.36	7
26990	844	24.14	-4.77	17.22	52.72	7

**CHANNEL BANDWIDTH: 10MHz 16QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	23.22	-4.77	16.3	42.66	7
26915	836.5	23.16	-4.77	16.24	42.07	7
26990	844	23.29	-4.77	16.37	43.35	7

**CHANNEL BANDWIDTH: 10MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26840	829	22.22	-4.77	15.3	33.88	7
26915	836.5	22.26	-4.77	15.34	34.2	7
26990	844	22.22	-4.77	15.3	33.88	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	24.21	-4.77	17.29	53.58	7
26915	836.5	24.17	-4.77	17.25	53.09	7
26965	841.5	24.19	-4.77	17.27	53.33	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	23.27	-4.77	16.35	43.15	7
26915	836.5	23.24	-4.77	16.32	42.85	7
26965	841.5	23.3	-4.77	16.38	43.45	7

**CHANNEL BANDWIDTH: 15MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T-Lc</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
26865	831.5	22.31	-4.77	15.39	34.59	7
26915	836.5	22.23	-4.77	15.31	33.96	7
26965	841.5	22.24	-4.77	15.32	34.04	7

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





**Ant 4**

**GSM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	32.22	-5.5	24.57	286.42	7
189	836.4	32.25	-5.5	24.6	288.4	7
251	848.8	32.27	-5.5	24.62	289.73	7

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

**EDGE**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
128	824.2	26.76	-5.5	19.11	81.47	7
189	836.4	26.75	-5.5	19.1	81.28	7
251	848.8	26.79	-5.5	19.14	82.04	7

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

**WCDMA**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
4132	826.4	24.05	-5.5	16.4	43.65	7
4182	836.4	24.08	-5.5	16.43	43.95	7
4233	846.6	24.1	-5.5	16.45	44.16	7

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



**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	23.91	-5.5	16.26	42.27	7
20525	836.5	24	-5.5	16.35	43.15	7
20643	848.3	24.09	-5.5	16.44	44.06	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	23.09	-5.5	15.44	34.99	7
20525	836.5	23.2	-5.5	15.55	35.89	7
20643	848.3	23.24	-5.5	15.59	36.22	7

**CHANNEL BANDWIDTH: 1.4MHz 64QAM**

Channel	Frequency (MHz)	Conducted Power (dBm)	G <sub>T</sub> -L <sub>c</sub> (dB)	ERP (dBm)	ERP (mW)	Limit (W)
20407	824.7	22.05	-5.5	14.4	27.54	7
20525	836.5	22.19	-5.5	14.54	28.44	7
20643	848.3	22.16	-5.5	14.51	28.25	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	23.8	-5.5	16.15	41.21	7
20525	836.5	23.9	-5.5	16.25	42.17	7
20635	847.5	23.95	-5.5	16.3	42.66	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	23.09	-5.5	15.44	34.99	7
20525	836.5	23.18	-5.5	15.53	35.73	7
20635	847.5	23.19	-5.5	15.54	35.81	7