

FCC TEST REPORT

(PART 27)

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:	2312CRNCCL
FCC ID:	2AFZZNCCL
Date of tests:	Oct. 16, 2023 ~ Nov. 22, 2023

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

- ☒ **FCC Part 27** ☒ **ANSI/TIA/EIA-603-D**
☒ **FCC Part 2** ☒ **ANSI/TIA/EIA-603-E** ☒ **ANSI C63.26-2015**

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

Prepared by Chao Wu Engineer / Mobile Department	Approved by Peibo Sun Manager / Mobile Department
 Date: Nov. 22, 2023	 Date: Nov. 22, 2023

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TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1 SUMMARY OF TEST RESULTS	5
1.1 MEASUREMENT UNCERTAINTY	7
1.2 TEST SITE AND INSTRUMENTS	8
2 GENERAL INFORMATION	11
2.1 GENERAL DESCRIPTION OF EUT	11
2.2 CONFIGURATION OF SYSTEM UNDER TEST	14
2.3 DESCRIPTION OF SUPPORT UNITS	15
2.4 TEST ITEM AND TEST CONFIGURATION	15
2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	19
3 TEST TYPES AND RESULTS	20
3.1 OUTPUT POWER MEASUREMENT	20
3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	20
3.1.2 TEST PROCEDURES	20
3.1.3 TEST SETUP	21
3.1.4 TEST RESULTS	22
3.2 FREQUENCY STABILITY MEASUREMENT	48
3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	48
3.2.2 TEST PROCEDURE	48
3.2.3 TEST SETUP	48
3.2.4 TEST RESULTS	49
3.3 OCCUPIED BANDWIDTH MEASUREMENT	50
3.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT	50
3.3.2 TEST SETUP	50
3.3.3 TEST PROCEDURES	50
3.3.4 TEST RESULTS	51
3.4 BAND EDGE MEASUREMENT	52
3.4.1 LIMITS OF BAND EDGE MEASUREMENT	52
3.4.2 TEST SETUP	53
3.4.3 TEST PROCEDURES	54
3.4.4 TEST RESULTS	55
3.5 CONDUCTED SPURIOUS EMISSIONS	56
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	56
3.5.2 TEST PROCEDURE	56
3.5.3 TEST SETUP	56
3.5.4 TEST RESULTS	57
3.6 RADIATED EMISSION MEASUREMENT	58
3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT	58
3.6.2 TEST PROCEDURES	58
3.6.3 DEVIATION FROM TEST STANDARD	59
3.6.4 TEST SETUP	60
3.6.5 TEST RESULTS	62
3.7 PEAK TO AVERAGE RATIO	90
3.7.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT	90
3.7.2 TEST SETUP	90
3.7.3 TEST PROCEDURES	90
3.7.4 TEST RESULTS	91
4 PHOTOGRAPHS OF THE TEST CONFIGURATION	92
5 INFORMATION ON THE TESTING LABORATORIES	93



Test Report No.: W7L-P23100008RF06

6 MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB...	94
7 APPENDIX	95
WCDMA-B4	95
LTE-B7	104
LTE-B13	130



Test Report No.: W7L-P23100008RF06

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
W7L-P23100008RF06	Original release	Nov. 22, 2023

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 27 & PART 2			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	LAB
§2.1046	Conducted Output Power	Compliance	A
§27.50(b)(10)	Effective Radiated Power (Band 13)	Compliance	A
§27.50(d)(4) §27.50(h)(2)	Equivalent Isotropically Radiated Power (WCMDA Band 4) (Band 7)	Compliance	A
§2.1055 §27.54	Frequency Stability	Compliance	A
§2.1049	Occupied Bandwidth	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(h) §27.53(m)(4)(6)	Conducted Band Edge Measurements (WCMDA Band 4) (Band 7) (Band 13)	Compliance	A
§2.1051 §27.53(c)(2)(4) §27.53(h) §27.53(m)(4)(6)	Conducted Spurious Emissions (WCMDA Band 4)(Band 7) (Band 13)	Compliance	A
§2.1053 §27.53(c)(2) §27.53(f) §27.53(h) §27.53(m)(4)	Radiated Spurious Emissions (WCMDA Band 4)(Band 7) (Band 13)	Compliance	A
NA	Peak to average ratio	Compliance	A



Test Report No.: W7L-P23100008RF06

Test Lab Information Reference:

Lab A:

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
Frequency Stability	±76.97Hz
Radiated emissions (9KHz~30MHz)	±2.68dB
Radiated emissions & Radiated Power (30MHz~1GHz)	±4.98dB
Radiated emissions & Radiated Power (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
Conducted Output power	±2.06dB
Band Edge Measurements	±4.70dB

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.10,23	May.09,24
Loop Antenna	Schwarzbeck	FMZB 1519B	00173	Sep.02,23	Sep.01,24
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.03, 23	Sep.02, 24
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.10,23	May.09,24
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. 22, 23	May. 21,26
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.10,23	May.09,24
DC Source	Kikusui/JP	PMX18-5A	N/A	Aug. 11,23	Aug. 10,24

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
6DB attenuator	Tonscend Technology Co., Ltd	N/A	23062787	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	Apr.28,23	Oct.27,23
CABLE	R&S	W13.02	N/A	Oct.27,23	Apr.26,24
CABLE	R&S	W12.14	N/A	Apr.28,23	Oct.27,23
CABLE	R&S	W12.14	N/A	Oct.27,23	Apr.26,24
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Apr.28,23	Oct.27,23
CABLE	R&S	J12J103539-00-1	SEP-03-20-069	Oct.27,23	Apr.26,24
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Apr.28,23	Oct.27,23
CABLE	R&S	J12J103539-00-1	SEP-03-20-070	Oct.27,23	Apr.26,24



Test Report No.: W7L-P23100008RF06

		1	070		
Temperature Chamber	votsch	VT4002	585660781 00050	May.31,22	May.30,24

- NOTE:** 1. The calibration interval of the above test instruments is 6 months or 12 months or 24 months or 36 months, and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The FCC Site Registration No. is 434559; The Designation No. is CN1325.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Mobile Phone	
BRAND NAME	Redmi	
MODEL NAME	2312CRNCCL	
NOMINAL VOLTAGE	5Vdc (adapter or host equipment) 3.82Vdc (Li-ion, battery)	
MODULATION TECHNOLOGY	WCDMA IV	BPSK, QPSK
	LTE	QPSK, 16QAM, 64QAM
FREQUENCY RANGE	WCDMA IV	1712.4MHz ~ 1752.6MHz
	LTE Band 7 Channel Bandwidth: 5MHz	2502.5MHz ~ 2567.5MHz
	LTE Band 7 Channel Bandwidth: 10MHz	2505MHz ~ 2565MHz
	LTE Band 7 Channel Bandwidth: 15MHz	2507.5MHz ~ 2562.5MHz
	LTE Band 7 Channel Bandwidth: 20MHz	2510MHz ~ 2560MHz
	LTE Band 13 Channel Bandwidth: 5MHz	779.5MHz ~ 784.5MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
	LTE Band 13 Channel Bandwidth: 10MHz	782MHz
MAX. EIRP POWER	WCDMA IV	324.34mW
	LTE Band 7 Channel Bandwidth: 5MHz	306.2mW
	LTE Band 7 Channel Bandwidth: 10MHz	313.33mW
	LTE Band 7 Channel Bandwidth: 15MHz	309.74mW
	LTE Band 7 Channel Bandwidth: 20MHz	315.5mW
	LTE Band 13 Channel Bandwidth: 5MHz	45.29mW
	LTE Band 13 Channel Bandwidth: 10MHz	46.03mW
	LTE Band 13 Channel Bandwidth: 10MHz	46.03mW
EMISSION DESIGNATOR	WCDMA IV	4M17F9W
	LTE Band 7 Channel Bandwidth: 5MHz	QPSK: 4M51G7D
		16QAM: 4M49W7D
		64QAM: 4M50W7D



**BUREAU
VERITAS**

Test Report No.: W7L-P23100008RF06

EMISSION DESIGNATOR	LTE Band 7 Channel Bandwidth: 10MHz	QPSK:8M99G7D
		16QAM: 8M99W7D
		64QAM: 8M99W7D
	LTE Band 7 Channel Bandwidth: 15MHz	QPSK: 13M5G7D
		16QAM: 13M5W7D
		64QAM: 13M5W7D
	LTE Band 7 Channel Bandwidth: 20MHz	QPSK: 18M0G7D
		16QAM: 18M0W7D
		64QAM: 18M0W7D
	LTE Band 13 Channel Bandwidth: 5MHz	QPSK: 4M53G7D
		16QAM: 4M53W7D
		64QAM: 4M52W7D
	LTE Band 13 Channel Bandwidth: 10MHz	QPSK: 9M01G7D
		16QAM: 8M99W7D
		64QAM: 9M00W7D
ANTENNA TYPE	ANT 0(DOWN): PIFA Antenna with 0.56dBi gain for WCDMA IV PIFA Antenna with 1.07dBi gain for LTE7 PIFA Antenna with -5.33dBi gain for LTE13 ANT 1(UP): PIFA Antenna with 0.84dBi gain for WCDMA IV PIFA Antenna with -0.51dBi gain for LTE7 PIFA Antenna with -5.22dBi gain for LTE13	
HW VERSION	13510C3Y	
SW VERSION	Android 14	
IMEI	864532070015786/94 864532070015406/14 864532070023426/34 864532070023566/74 864532070033300/18	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB cable: non-shielded cable, with w/o ferrite core, 1.0 meter	
EXTREME TEMPERATURE	0-40 °C	
EXTREME VOLTAGE	3.6V - 4.25V	

NOTE:

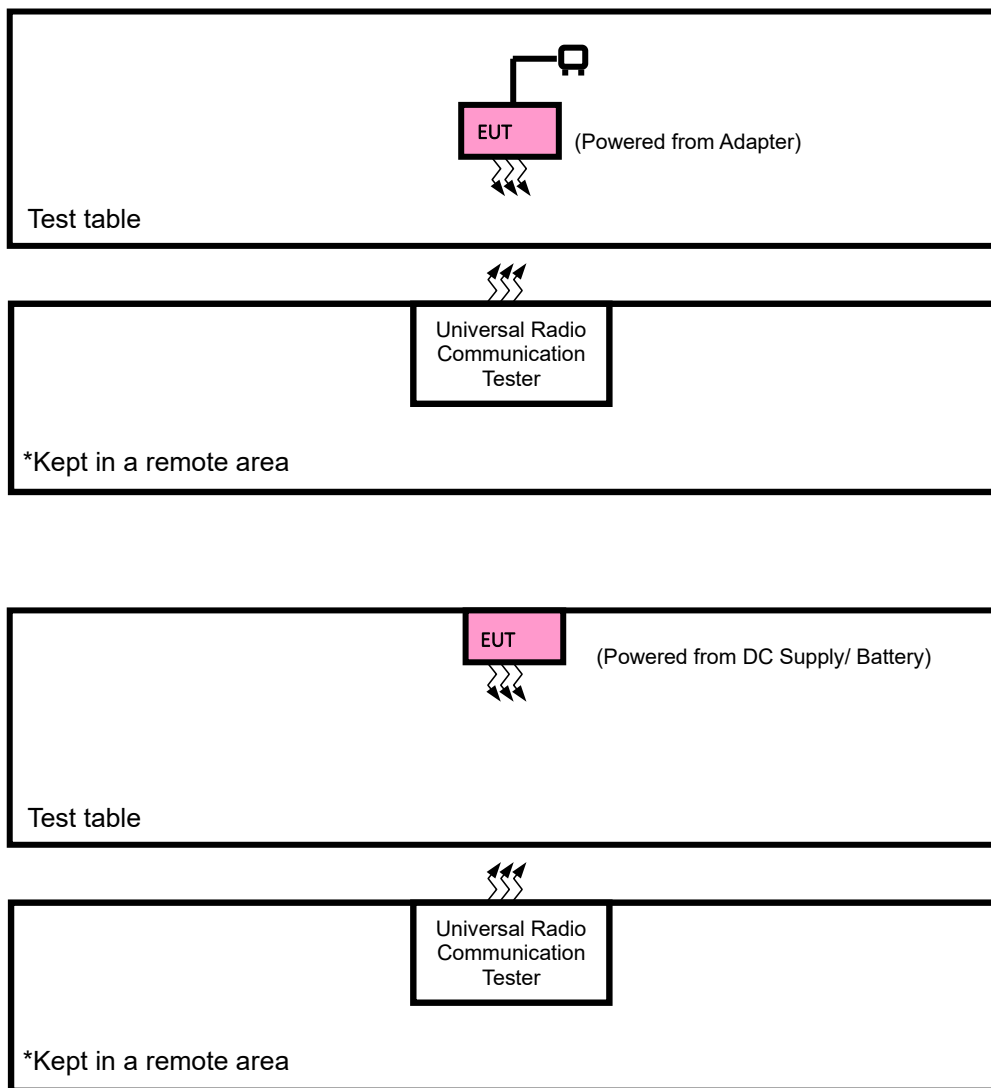
1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
WCDMA	2TX/2RX
LTE	2TX/2RX

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in the test report.
4. Antenna gain and EUT conducted cable loss are provided by the customer, and the laboratory will record the results based on these items that involve these two parameters.

2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION 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	LONG WEI	PS-6403D	010934269	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	DC Line: Unshielded, Detachable 1.8m

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 was found when positioned on Y-plane for EIRP and X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

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

WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
A	EIRP	1312 to 1513	1312, 1413, 1513	WCDMA
B	FREQUENCY STABILITY	1312 to 1513	1312, 1413, 1513	WCDMA
A	OCCUPIED BANDWIDTH	1312 to 1513	1312, 1413, 1513	WCDMA
A	BAND EDGE	1312 to 1513	1312, 1513	WCDMA
A	PEAK TO AVERAGE RATIO	1312 to 1513	1312, 1413, 1513	WCDMA
A	CONDUCTED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA
A	RADIATED EMISSION	1312 to 1513	1312, 1413, 1513	WCDMA

LTE BAND 7 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDT H	MODULATION	MODE
A	EIRP	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	20850 to 21350	20850, 21100, 21350	10MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	20775 to 21425	20775, 21100, 21425	5MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	20850 to 21350	20850, 21100, 21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
A	BAND EDGE	20775 to 21425	20775	5MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			21425	5MHz	QPSK, 16QAM, 64QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		20800 to 21400	20800	10MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
			21400	10MHz	QPSK, 16QAM, 64QAM	1 RB / 49 RB Offset 50 RB / 0 RB Offset
		20825 to 21375	20825	15MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 75 RB / 0 RB Offset
			21375	15MHz	QPSK, 16QAM, 64QAM	1 RB / 74 RB Offset 75 RB / 0 RB Offset
		20850 to 21350	20850	20MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset 100 RB / 0 RB Offset
			21350	20MHz	QPSK, 16QAM, 64QAM	1 RB / 99 RB Offset 100 RB / 0 RB Offset
A	CONDCUDE TED EMISSION	20775 to 21425	20775, 21100, 21425	5MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10MHz	QPSK	1 RB / 0RB Offset
		20825 to 21375	20825, 21100, 21375	15MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	20775 to 21425	21100	5MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	21100	10MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	21100	15MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100, 21350	20MHz	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 BAND 13 MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	CHANNEL BANDWIDTH	MODULATION	MODE
A	ERP	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset
B	FREQUENCY STABILITY	23230	23230	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
A	OCCUPIED BANDWIDTH	23205 to 23255	23205, 23230, 23255	5MHz	QPSK,16QAM,64QAM	25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM,64QAM	50 RB / 0 RB Offset
A	PEAK TO AVERAGE RATIO	23230	23230	10MHz	QPSK,16QAM,64QAM	1 RB / 0 RB Offset 50 RB / 0 RB Offset
A	BAND EDGE	23205 to 23255	23205	5MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 25 RB / 0 RB Offset
			23255	5MHz	QPSK,16QAM, 64QAM	1 RB / 24 RB Offset 25 RB / 0 RB Offset
		23230	23230	10MHz	QPSK,16QAM, 64QAM	1 RB / 0 RB Offset 1 RB / 49 RB Offset 50 RB / 0 RB Offset
A	CONDCUDED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10MHz	QPSK	1 RB / 0 RB Offset
A	RADIATED EMISSION	23205 to 23255	23205, 23230, 23255	5MHz	QPSK	1 RB / 0 RB Offset
		23230	23230	10MHz	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 Report No.: W7L-P23100008RF06

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP&EIRP	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
FREQUENCY STABILITY	See Note	DC 3.6/3.82/4.25 By DC Source	James Fu
OCCUPIED BANDWIDTH	23deg. C, 70%RH	DC 5V By Adapter	James Fu
BAND EDGE	23deg. C, 70%RH	DC 5V By Adapter	James Fu
CONDCUDED EMISSION	23deg. C, 70%RH	DC 5V By Adapter	James Fu
RADIATED EMISSION	23deg. C, 70%RH	DC 5V By Adapter	Jace Hu
PEAK TO AVERAGE RATIO	23deg. C, 70%RH	DC 5V By Adapter	James Fu

Note: LV = Low voltage (3.6V); NV = Normal voltage (3.82V); HV= High voltage (4.25V).
NT = Normal temperature (25°C)



Test Report No.: W7L-P23100008RF06

2.5 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 27

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

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1-watt EIRP

According to the specific rule Part 27.50(b)(10) Fixed, mobile, and Portable stations (hand-held devices) transmitting in the 776-788 MHz bands are limited to 3 watts ERP.

3.1.2 TEST PROCEDURES

EIRP 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_{Meas} , typically dBW or dBm).

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW.

G_{T} = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP).

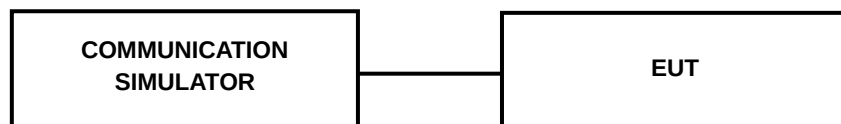
L_{C} = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

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

CONDUCTED POWER MEASUREMENT:



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

3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

ANT0(DOWN):

Band	WCDMA IV		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	24.55	24.50	24.49
HSDPA Subtest-1	23.71	23.61	23.60
HSDPA Subtest-2	23.74	23.60	23.68
HSDPA Subtest-3	23.25	23.13	23.18
HSDPA Subtest-4	23.16	23.12	23.15
DC-HSDPA Subtest-1	23.66	23.67	23.58
DC-HSDPA Subtest-2	23.65	23.64	23.63
DC-HSDPA Subtest-3	23.15	23.12	23.17
DC-HSDPA Subtest-4	23.19	23.15	23.09
HSUPA Subtest-1	21.91	21.80	21.86
HSUPA Subtest-2	21.63	21.56	21.52
HSUPA Subtest-3	22.48	22.43	22.45
HSUPA Subtest-4	21.22	21.14	21.16
HSUPA Subtest-5	22.48	22.48	22.39
HSPA+ Subtest-1	21.84	21.71	21.69

LTE Band 7

Band/BW	Modulation	RB Size	RB Offset	Low CH 20775	Mid CH 21100	High CH 21425
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz
7/ 5	QPSK	1	0	23.13	23.12	23.30
		1	12	23.61	23.45	23.79
		1	24	23.41	23.60	23.42
		12	0	22.62	22.62	22.81
		12	6	22.67	22.76	22.85
		12	13	22.79	22.83	23.02
		25	0	22.72	22.81	22.98
	16QAM	1	0	22.25	22.29	22.26
		1	12	22.64	22.75	22.64
		1	24	22.40	22.44	22.37
		12	0	21.44	21.48	21.52
		12	6	21.67	21.81	21.81
		12	13	21.71	21.79	21.78
		25	0	21.65	21.61	21.76
	64QAM	1	0	21.21	21.38	21.32
		1	12	21.74	21.64	21.78
		1	24	21.50	21.44	21.51
		12	0	20.56	20.62	20.72
		12	6	20.60	20.82	20.83
		12	13	20.70	20.88	20.97
		25	0	20.71	20.72	20.70

Band/BW	Modulation	RB Size	RB Offset	Low CH 20800	Mid CH 21100	High CH 21400
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz
7/ 10	QPSK	1	0	23.04	23.21	23.31
		1	24	23.55	23.46	23.89
		1	49	23.45	23.55	23.49
		25	0	22.52	22.61	22.68
		25	12	22.66	22.80	22.83
		25	25	22.76	22.78	22.95
		50	0	22.75	22.85	22.88
	16QAM	1	0	22.24	22.19	22.28
		1	24	22.62	22.84	22.68
		1	49	22.34	22.37	22.39
		25	0	21.43	21.58	21.60
		25	12	21.55	21.73	21.86
		25	25	21.70	21.87	21.91
		50	0	21.64	21.59	21.80
	64QAM	1	0	21.28	21.26	21.42
		1	24	21.70	21.62	21.75
		1	49	21.40	21.56	21.54
		25	0	20.50	20.51	20.70
		25	12	20.63	20.86	20.85
		25	25	20.79	20.78	20.86
		50	0	20.70	20.75	20.76

Band/BW	Modulation	RB Size	RB Offset	Low CH 20825	Mid CH 21100	High CH 21375
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz
7/ 15	QPSK	1	0	23.07	23.11	23.31
		1	37	23.64	23.47	23.84
		1	74	23.47	23.52	23.53
		36	0	22.48	22.64	22.75
		36	19	22.67	22.85	22.84
		36	39	22.70	22.82	22.97
		75	0	22.76	22.82	22.90
	16QAM	1	0	22.15	22.25	22.37
		1	37	22.55	22.87	22.65
		1	74	22.35	22.33	22.44
		36	0	21.44	21.58	21.53
		36	19	21.61	21.71	21.86
		36	39	21.75	21.86	21.86
		75	0	21.65	21.67	21.80
	64QAM	1	0	21.21	21.38	21.30
		1	37	21.70	21.73	21.73
		1	74	21.46	21.44	21.50
		36	0	20.57	20.52	20.66
		36	19	20.73	20.79	20.84
		36	39	20.78	20.84	20.92
		75	0	20.71	20.69	20.72

Band/BW	Modulation	RB Size	RB Offset	Low CH 20850	Mid CH 21100	High CH 21350
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz
7/ 20	QPSK	1	0	23.19	23.26	23.41
		1	50	23.68	23.60	23.92
		1	99	23.53	23.63	23.55
		50	0	22.63	22.73	22.83
		50	25	22.76	22.86	22.89
		50	50	22.84	22.93	23.07
		100	0	22.80	22.93	23.01
	16QAM	1	0	22.28	22.31	22.38
		1	50	22.66	22.90	22.71
		1	99	22.43	22.45	22.47
		50	0	21.56	21.63	21.65
		50	25	21.68	21.86	21.90
		50	50	21.77	21.91	21.93
		100	0	21.72	21.71	21.90
	64QAM	1	0	21.29	21.41	21.44
		1	50	21.81	21.74	21.87
		1	99	21.52	21.58	21.57
		50	0	20.58	20.64	20.79
		50	25	20.74	20.94	20.88
		50	50	20.80	20.93	21.00
		100	0	20.84	20.82	20.82



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VERITAS**

Test Report No.: W7L-P23100008RF06

LTE Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH 23205	Mid CH 23230	High CH 23255
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5 MHz
13/ 5	QPSK	1	0	23.99	23.95	23.99
		1	12	24.03	24.04	23.99
		1	24	23.81	23.71	23.80
		12	0	23.08	22.99	23.02
		12	6	22.90	22.84	22.95
		12	13	22.92	22.97	23.03
		25	0	23.05	23.07	23.12
	16QAM	1	0	22.96	23.01	23.06
		1	12	23.23	23.24	23.26
		1	24	22.90	22.91	22.91
		12	0	22.13	22.03	22.09
		12	6	21.98	21.99	21.99
		12	13	22.00	22.00	22.13
		25	0	22.13	22.11	22.10
	64QAM	1	0	22.02	22.00	22.12
		1	12	22.22	22.20	22.15
		1	24	21.99	22.12	22.07
		12	0	21.02	21.05	20.97
		12	6	20.96	20.91	21.03
		12	13	20.94	20.92	21.06
		25	0	21.08	20.99	21.04

Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 23230	/
				/	Frequency 782.0 MHz	/
13/ 10	QPSK	1	0	/	24.00	/
		1	24	/	24.11	/
		1	49	/	23.85	/
		25	0	/	23.09	/
		25	12	/	22.98	/
		25	25	/	23.04	/
		50	0	/	23.15	/
	16QAM	1	0	/	23.07	/
		1	24	/	23.28	/
		1	49	/	23.05	/
		25	0	/	22.18	/
		25	12	/	22.11	/
		25	25	/	22.14	/
		50	0	/	22.20	/
	64QAM	1	0	/	22.15	/
		1	24	/	22.26	/
		1	49	/	22.13	/
		25	0	/	21.10	/
		25	12	/	21.04	/
		25	25	/	21.07	/
		50	0	/	21.11	/

ANT1(UP):

Band	WCDMA IV		
Channel	1312	1413	1513
Frequency (MHz)	1712.4	1732.6	1752.6
RMC 12.2K	24.56	24.54	24.55
HSDPA Subtest-1	23.73	23.71	23.75
HSDPA Subtest-2	23.69	23.69	23.66
HSDPA Subtest-3	23.19	23.18	23.15
HSDPA Subtest-4	23.24	23.24	23.21
DC-HSDPA Subtest-1	23.75	23.70	23.65
DC-HSDPA Subtest-2	23.65	23.69	23.67
DC-HSDPA Subtest-3	23.18	23.17	23.23
DC-HSDPA Subtest-4	23.22	23.23	23.22
HSUPA Subtest-1	21.91	21.89	21.93
HSUPA Subtest-2	21.57	21.54	21.60
HSUPA Subtest-3	22.46	22.49	22.48
HSUPA Subtest-4	21.18	21.24	21.20
HSUPA Subtest-5	22.50	22.44	22.55
HSPA+ Subtest-1	21.78	21.76	21.84

LTE Band 7

Band/BW	Modulation	RB Size	RB Offset	Low CH 20775	Mid CH 21100	High CH 21425
				Frequency 2502.5 MHz	Frequency 2535 MHz	Frequency 2567.5 MHz
7/5	QPSK	1	0	22.32	22.54	22.44
		1	12	22.86	22.82	22.87
		1	24	22.24	22.42	22.53
		12	0	22.35	22.21	22.31
		12	6	22.60	22.65	22.66
		12	13	22.53	22.61	22.50
		25	0	22.50	22.47	22.47
	16QAM	1	0	22.27	22.31	22.31
		1	12	22.49	22.55	22.69
		1	24	22.11	22.17	22.14
		12	0	21.76	21.76	21.94
		12	6	21.88	22.16	22.05
		12	13	22.14	22.03	22.11
		25	0	22.01	22.10	21.93
	64QAM	1	0	21.70	21.74	21.87
		1	12	22.10	22.22	22.34
		1	24	21.95	21.94	21.83
		12	0	21.01	20.94	20.75
		12	6	21.08	21.04	21.19
		12	13	21.06	21.12	21.06
		25	0	20.96	20.97	20.90

Band/BW	Modulation	RB Size	RB Offset	Low CH 20800	Mid CH 21100	High CH 21400
				Frequency 2505 MHz	Frequency 2535 MHz	Frequency 2565 MHz
7/ 10	QPSK	1	0	22.40	22.54	22.43
		1	24	22.85	22.84	22.87
		1	49	22.24	22.45	22.40
		25	0	22.28	22.34	22.34
		25	12	22.57	22.54	22.76
		25	25	22.63	22.55	22.57
		50	0	22.47	22.39	22.52
	16QAM	1	0	22.38	22.41	22.34
		1	24	22.46	22.52	22.69
		1	49	22.13	22.12	22.10
		25	0	21.70	21.78	21.89
		25	12	21.95	22.25	22.06
		25	25	22.09	22.02	22.04
		50	0	22.11	22.05	21.95
	64QAM	1	0	21.69	21.84	21.81
		1	24	22.18	22.16	22.41
		1	49	21.94	21.91	21.81
		25	0	20.92	20.95	20.82
		25	12	21.14	21.00	21.15
		25	25	20.95	21.20	21.06
		50	0	20.83	21.02	20.91

Band/BW	Modulation	RB Size	RB Offset	Low CH 20825	Mid CH 21100	High CH 21375
				Frequency 2507.5 MHz	Frequency 2535 MHz	Frequency 2562.5 MHz
7/ 15	QPSK	1	0	22.38	22.41	22.37
		1	37	22.88	22.89	22.97
		1	74	22.29	22.38	22.40
		36	0	22.27	22.30	22.39
		36	19	22.59	22.65	22.66
		36	39	22.54	22.64	22.60
		75	0	22.51	22.45	22.48
	16QAM	1	0	22.36	22.42	22.34
		1	37	22.44	22.62	22.70
		1	74	22.22	22.22	22.13
		36	0	21.78	21.81	21.89
		36	19	21.84	22.25	22.00
		36	39	22.16	21.96	22.01
		75	0	22.13	22.02	21.99
	64QAM	1	0	21.72	21.77	21.90
		1	37	22.16	22.08	22.33
		1	74	21.93	21.90	21.82
		36	0	20.89	20.92	20.77
		36	19	21.02	20.99	21.16
		36	39	20.96	21.19	21.01
		75	0	20.89	21.05	20.88

Band/BW	Modulation	RB Size	RB Offset	Low CH 20850	Mid CH 21100	High CH 21350
				Frequency 2510 MHz	Frequency 2535 MHz	Frequency 2560 MHz
7/ 20	QPSK	1	0	22.47	22.55	22.49
		1	50	22.89	22.94	23.01
		1	99	22.38	22.49	22.54
		50	0	22.42	22.35	22.40
		50	25	22.67	22.67	22.78
		50	50	22.68	22.70	22.61
		100	0	22.52	22.52	22.62
	16QAM	1	0	22.42	22.44	22.39
		1	50	22.59	22.65	22.71
		1	99	22.26	22.25	22.18
		50	0	21.81	21.85	21.95
		50	25	21.96	22.27	22.15
		50	50	22.19	22.10	22.13
		100	0	22.14	22.14	22.08
	64QAM	1	0	21.82	21.89	21.92
		1	50	22.21	22.23	22.43
		1	99	21.96	21.99	21.88
		50	0	21.02	20.96	20.88
		50	25	21.16	21.05	21.24
		50	50	21.09	21.26	21.13
		100	0	20.97	21.10	20.99



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Test Report No.: W7L-P23100008RF06

LTE Band 13

Band/BW	Modulation	RB Size	RB Offset	Low CH 23205	Mid CH 23230	High CH 23255
				Frequency 779.5 MHz	Frequency 782.0 MHz	Frequency 784.5 MHz
13/ 5	QPSK	1	0	23.87	23.90	23.81
		1	12	24.22	24.17	24.13
		1	24	23.80	23.70	23.69
		12	0	23.07	23.06	23.15
		12	6	23.05	22.96	22.91
		12	13	23.02	23.03	22.93
		25	0	23.06	23.02	23.10
	16QAM	1	0	22.91	22.91	22.91
		1	12	23.15	23.05	23.17
		1	24	23.13	23.07	23.11
		12	0	22.05	22.14	22.09
		12	6	22.16	22.11	22.07
		12	13	22.02	22.07	22.09
		25	0	22.17	22.18	22.23
	64QAM	1	0	22.20	22.27	22.19
		1	12	22.41	22.55	22.52
		1	24	22.33	22.26	22.24
		12	0	21.19	21.24	21.16
		12	6	21.05	21.11	21.01
		12	13	20.95	21.06	21.01
		25	0	21.19	21.08	21.22

Band/BW	Modulation	RB Size	RB Offset	/	Mid CH 23230	/
				/	Frequency 782.0 MHz	/
13/ 10	QPSK	1	0	/	23.96	/
		1	24	/	24.23	/
		1	49	/	23.81	/
		25	0	/	23.44	/
		25	12	/	23.31	/
		25	25	/	23.30	/
		50	0	/	23.40	/
		50	0	/	23.40	/
	16QAM	1	0	/	22.94	/
		1	24	/	23.20	/
		1	49	/	23.14	/
		25	0	/	22.18	/
		25	12	/	22.17	/
		25	25	/	22.13	/
		50	0	/	22.24	/
		50	0	/	22.24	/
	64QAM	1	0	/	22.32	/
		1	24	/	22.56	/
		1	49	/	22.35	/
		25	0	/	21.29	/
		25	12	/	21.15	/
		25	25	/	21.09	/
		50	0	/	21.23	/
		50	0	/	21.23	/