REPORT No.: SZ21010296E01

TEST REPORT

APPLICANT	:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
PRODUCT NAME	:	Mobile Phone
MODEL NAME	:	RMX3201
BRAND NAME	:	realme
STANDARD(S)	:	47 CFR Part 15 Subpart B
FCC ID	:	2AUYFRMX3201
RECEIPT DATE	:	2021-02-02
TEST DATE	:	2021-02-12 to 2021-02-15
ISSUE DATE	:	2021-03-15

Edited by: He sinuo

He Sinuo(Rapporteur)

Approved by: Xiao Xiong

Xiao Xiong(Supervisor)

MORLAB

SHENZHEN MORLAB COMMUNICATIONS TECHNOLOGY Co., Ltd.
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen ,GuangDong Province, P. R. China

Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

DIRECTORY

Change History		
Version	**Date**	**Reason for Change**
1.0	2021-03-15	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Applicant Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,China
Manufacturer:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Manufacturer Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing,China

1.2. Equipment Under Test (EUT) Description

Product Name:	Mobile Phone
Serial No.:	(N/A, marked #1 by test site)
Hardware Version:	11
Software Version:	realme UI V1.0
Tx Frequency:	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 40: 2300 MHz ~2400 MHz LTE Band 41: 2535 MHz ~ 2655 MHz Bluetooth 5.0: 2402 MHz ~ 2480 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz NFC:13.56MHz
Rx Frequency:	GSM850: 869 MHz ~ 894 MHz GSM1900: 1930 MHz ~ 1990 MHz WCDMA Band V: 869 MHz ~ 894 MHz LTE Band 5: 869 MHz ~ 894 MHz LTE Band 7: 2620 MHz ~ 2690 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 40: 2300 MHz ~ 2400 MHz LTE Band 41: 2535 MHz ~ 2655 MHz Bluetooth 5.0: 2402 MHz ~ 2480 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz

	NFC:13.56MHz GPS/Galileo/GLONASS/BeiDou/SBAS:1559 MHz ~ 1610 MHz	
Ancillary Equipment:	**AC Adapter 1**	
	Brand Name:	realme
	Model No.:	OP52CAEH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	Dongguan YOHOO Electronic Technology Co., Limited
	AC Adapter 2	
	Brand Name:	realme
	Model No.:	OP52KAEH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	ShenZhenKunXing Technology Co., Ltd
	AC Adapter 3	
	Brand Name:	realme
	Model No.:	OP52JAEH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	Ten Pao Electronics (Huizhou) Co., Ltd.
	AC Adapter 4	
	Brand Name:	realme
	Model No.:	OP52JAYH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	Ten Pao Industrial Co., Ltd.
	AC Adapter 5	
	Brand Name:	realme
	Model No.:	OP52KAYH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A

	Manufacturer:	ShenZhenKunXing Technology Co., Ltd
	AC Adapter 6	
	Brand Name:	realme
	Model No.:	OP52KAUH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	ShenZhenKunXing Technology Co., Ltd
	AC Adapter 7	
	Brand Name:	realme
	Model No.:	OP52JAUH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	Ten Pao Industrial Co., Ltd.
	AC Adapter 8	
	Brand Name:	realme
	Model No.:	OP52YAUH
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz 0.4A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	Jiangsu Chenyang Electron CO.,Ltd.
	Battery 1	
	Brand Name:	realme
	Model No.:	BLP729
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	4880mAh
	Rated Voltage:	3.87V
	Charge Limit:	4.45V
	Manufacturer:	Sunwoda Electronic Co., Ltd.
	Battery 2	
	Brand Name:	realme
	Model No.:	BLP729
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	4880mAh
	Rated Voltage:	3.87V

	Charge Limit:	4.45V
	Manufacturer:	Huizhou Desay Battery Co.,Ltd
	USB Cable	
	Model No.:	DL122

Note:

1. There are two kinds of batteries. For the RE and CE, only the worst case (Battery2) is recorded in this report.
2. There are eight kinds of adapters. For the RE and CE, only the worst case (Adapter 3) is recorded in this report.
3. For a more detailed description, please refer to specification or user's manual supplied by the applicant and/or manufacturer

2. Test Results

2.1. Applied Reference Documents

T he objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result	Method Determination Remark
1	15.107	Conducted Emission	2021.02.12	Huang Zhiye	PASS	No deviation
2	15.109	Radiated Emission	2021.02.15	Gao Jianrou	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in ANSI C63.4-2014.

Note 2: Additions to, deviation, or exclusions from the method shall be judged in the “method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note3: When the test result is a critical value,we will use the measurement uncertainty give the judgment result based on the 95% risk level.

2.2. EUT Setup and Operating Conditions

Note: All of the following test modes are tested in all the test items.

Test Modes	
Mode 1 :	GSM850 Idle + Bluetooth Idle + WLAN Idle + Battery+ GPS Rx + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 2 :	WCDMA Band V Idle + Bluetooth Idle + WLAN Idle + GLONASS Rx + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 3 :	GSM1900 Idle + Bluetooth Idle + WLAN Idle + Galileo Rx + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 4 :	**LTE Band 5 Idle + Bluetooth Idle + WLAN Idle + Camera + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card**
Mode 5 :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + SBAS Rx + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 6 :	LTE Band 38 Idle + Bluetooth Idle + WLAN Idle + PC + Battery + Earphone + USB Cable + SIM Card + PC Adapter
Mode 7 :	LTE Band 40 Idle + Bluetooth Idle + WLAN Idle + Battery + Beidou Rx+ USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 8 :	LTE Band 41 Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 9 :	LTE Band 41 Idle + Bluetooth Idle + WLAN Idle + Battery + NFC Idle + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Remark: The above test mode in boldface (Mode 4) was the worst case of conducted emission and radiated emission test, only the test data of these modes were reported.	

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 - 60
Atmospheric Pressure (kPa):	86 - 106

3. 47 CFR Part 15B Requirements

3.1. Conducted Emission

3.1.1. Requirement

According to FCC section 15.107, the radio frequency voltage that is conducted back onto the ACpower line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

Note:

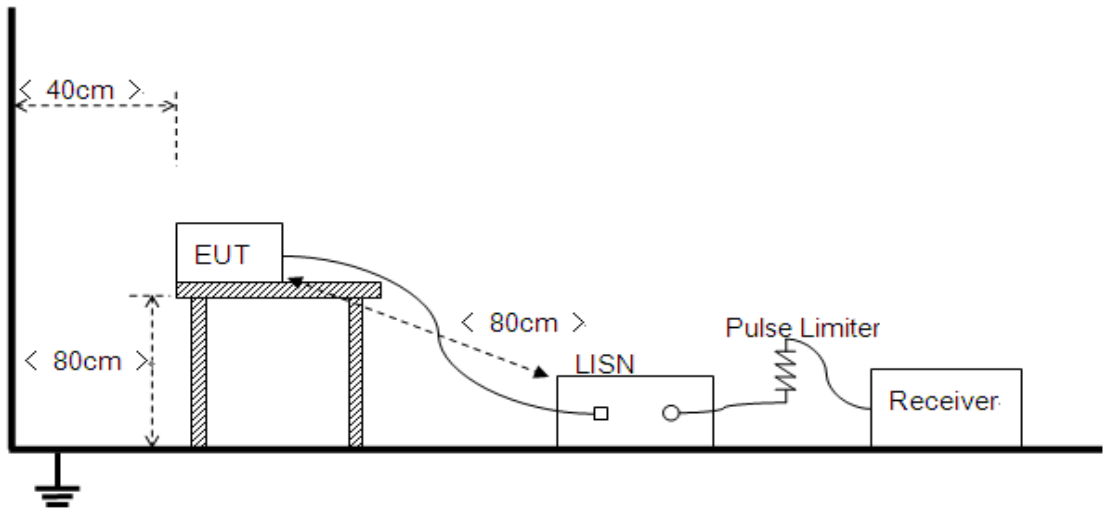
a) The limit subjects to the Class B digital device.

b) The lower limit shall apply at the band edges.

c) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

3.1.2. Test Setup

Please refer to Annex A for the photographs of the Test Configuration.



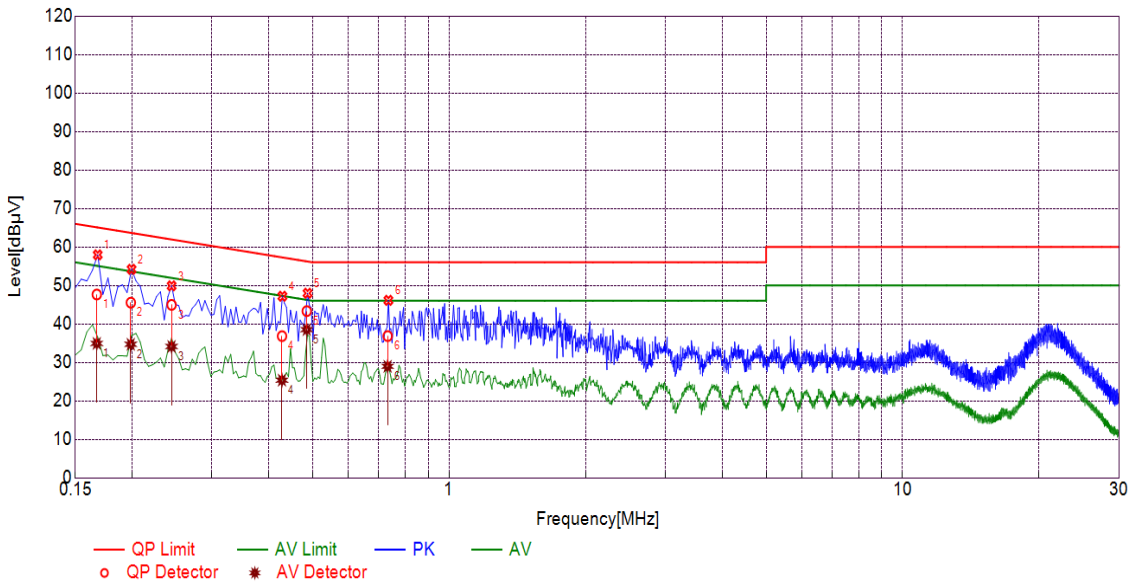
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

The power strip or extension cord has been investigated to make sure that the LISN integrity inma intained with respect to the impedance characteristics as prescribed in ANSI C63.4-2014 at Clause 4.3.

3.1.3. Test Result

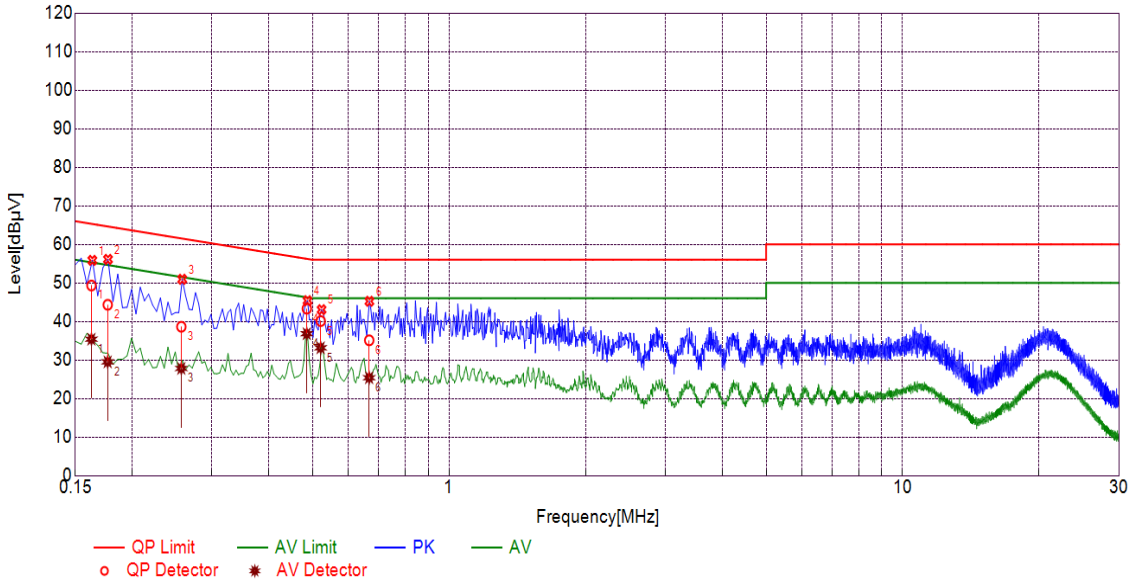
Set RBW=9 kHz, VBW=30 kHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors.Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

A. Test Plot and Suspicious Points:



(Plot A:L Phase)

NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1672	47.65	34.93	65.10	55.10	Line	PASS
2	0.1987	45.53	34.70	63.67	53.67		PASS
3	0.2444	44.95	34.13	61.95	51.95		PASS
4	0.4281	36.83	25.38	57.29	47.29		PASS
5	0.4855	43.33	38.52	56.25	46.25		PASS
6	0.7320	36.84	28.98	56.00	46.00		PASS



(Plot B: N Phase)

NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1627	49.33	35.40	65.33	55.33	Neutral	PASS
2	0.1767	44.33	29.52	64.64	54.64		PASS
3	0.2568	38.62	27.81	61.53	51.53		PASS
4	0.4856	43.32	36.82	56.24	46.24		PASS
5	0.5210	40.09	33.16	56.00	46.00		PASS
6	0.6665	35.11	25.40	56.00	46.00		PASS

3.2. Radiated Emission

3.2.1. Requirement

According to FCC section 15.109 (a), the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency Range (MHz)	Field Strength Limitation at 3m Measurement Dist	
	(μV/m)	(dBμV/m)
30.0 - 88.0	100	20log 100
88.0 - 216.0	150	20log 150
216.0 - 960.0	200	20log 200
Above 960.0	500	20log 500

As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

Note:

1) The tighter limit shall apply at the boundary between two frequency range.
2) Limitation expressed indBμV/m is calculated by 20log Emission Level(μV/m).

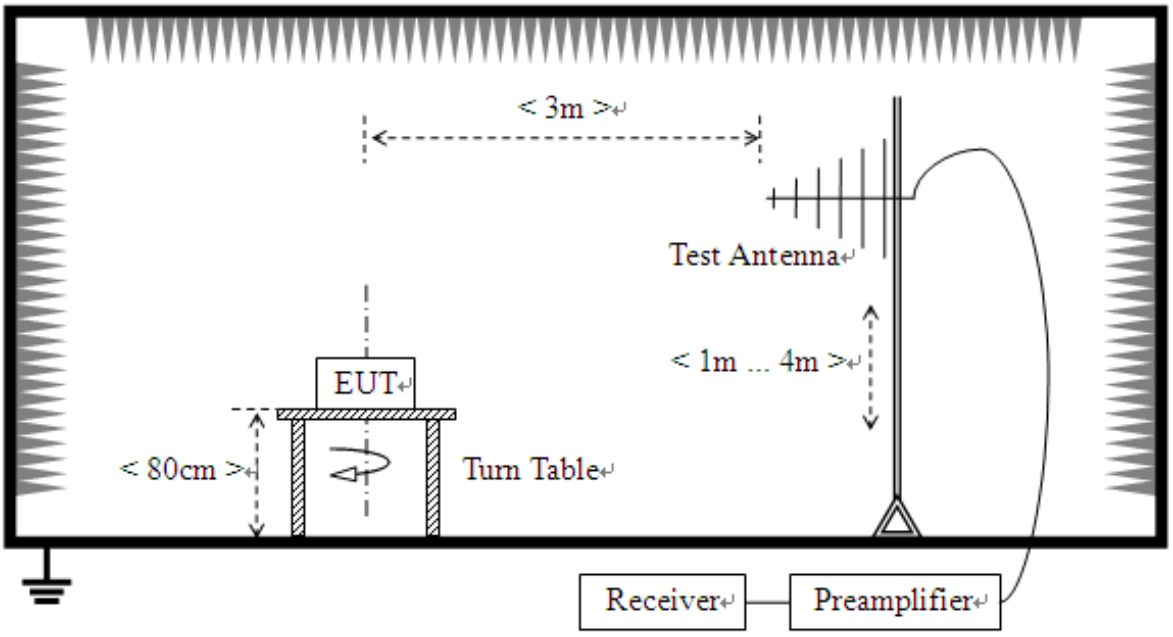
3.2.2. Frequency Range of Measurement

According to 15.33(b)(1), the frequency range of radiated measurement for the EUT is listed in the following table:

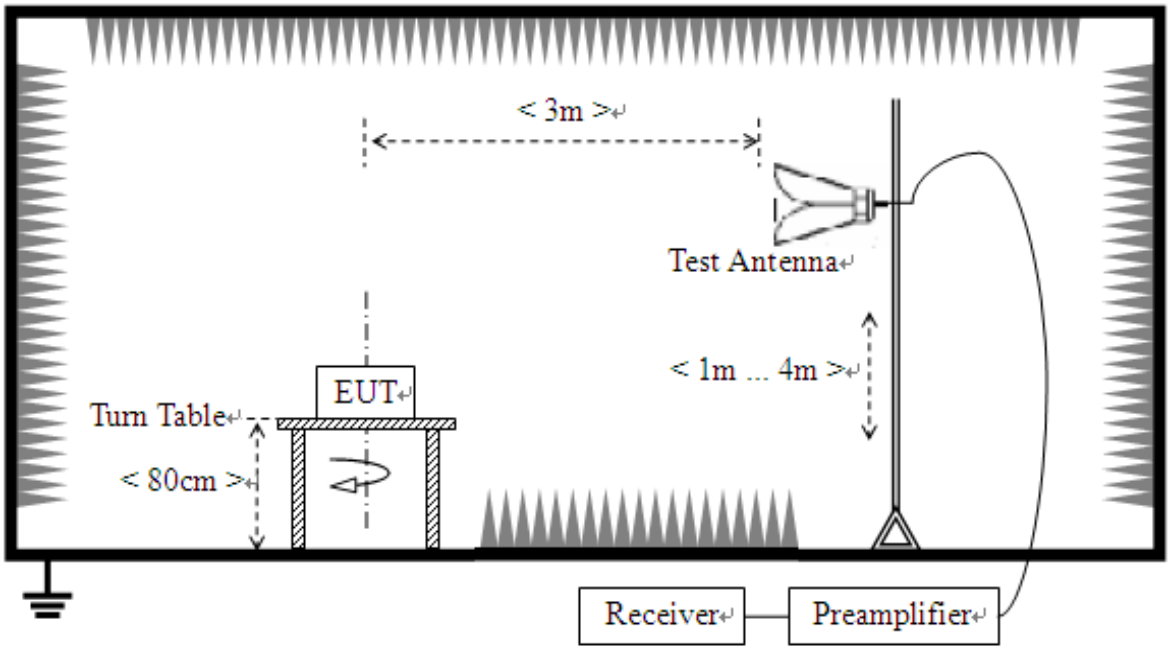
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705–108	1000.
108–500	2000.
500–1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

3.2.3. Test Setup

1) For radiated emissions from 30MHz to1GHz



2) For radiated emissions above 1GHz



The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower.

For the test Antenna:

In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz)are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

For measurements below 1GHz the resolution bandwidth is set to 120 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

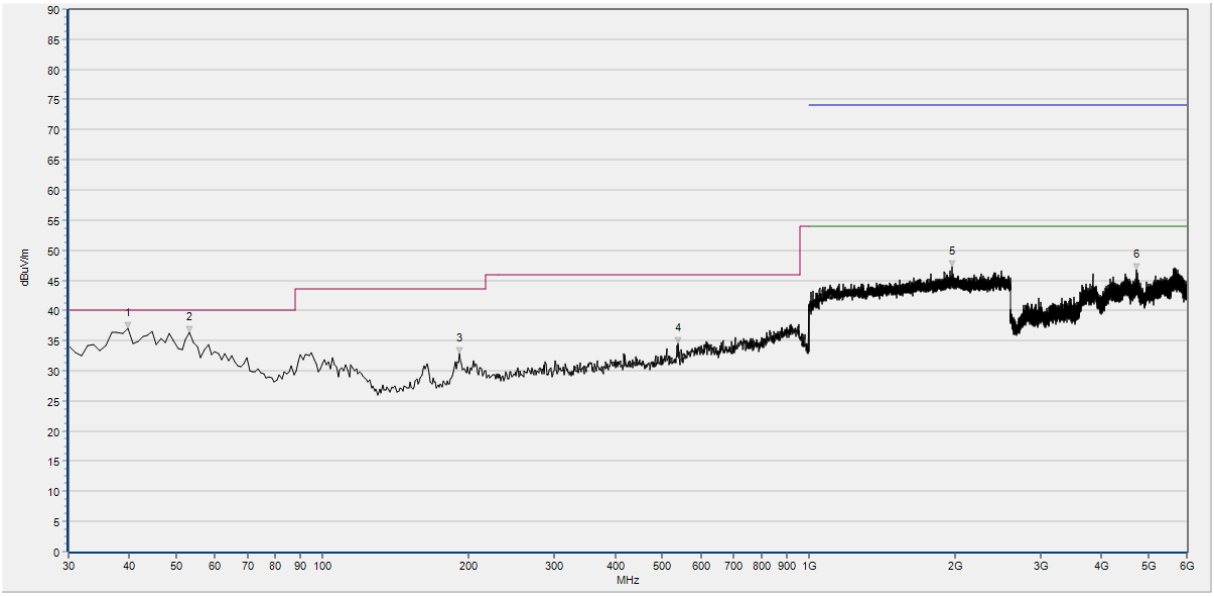
For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements and as applicable for average measurements.

3.2.4. Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

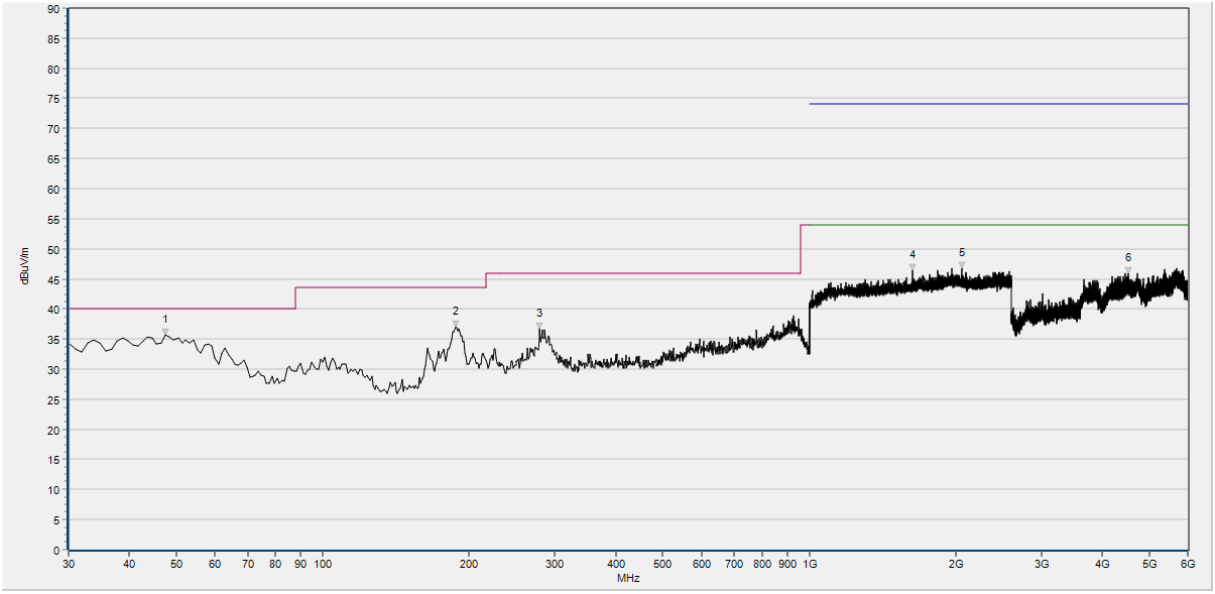
The amplitude of emissions (6GHz-14GHz)which are attenuated more than 20 dB below the permissible value need not be reported.

Note: All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.



(Plot A: ANT-Vertical,30MHz - 6GHz)

No.	Fre. MHz	PK dBµV/m	QP dBµV/m	AV dBµV/m	Limit-PK dBµV/m	Limit-QP dBµV/m	Limit-AV dBµV/m	ANT	Verdict
1	39.700	37.03	N.A	N.A	N.A	40.00	N.A	V	PASS
2	53.280	36.36	N.A	N.A	N.A	40.00	N.A	V	PASS
3	191.020	32.89	N.A	N.A	N.A	43.50	N.A	V	PASS
4	539.250	34.47	N.A	N.A	N.A	46.00	N.A	V	PASS
5	1976.000	47.23	N.A	N.A	74.00	N.A	54.00	V	PASS
6	4730.440	46.77	N.A	N.A	74.00	N.A	54.00	V	PASS



(Plot B:ANT- Horizontal, 30MHz - 6GHz)

No.	Fre. MHz	PK dBµV/m	QP dBµV/m	AV dBµV/m	Limit-PK dBµV/m	Limit-QP dBµV/m	Limit-AV dBµV/m	ANT	Verdict
1	47.460	35.64	N.A	N.A	N.A	40.00	N.A	H	PASS
2	187.140	37.03	N.A	N.A	N.A	43.50	N.A	H	PASS
3	279.290	36.69	N.A	N.A	N.A	46.00	N.A	H	PASS
4	1632.533	46.47	N.A	N.A	74.00	N.A	54.00	H	PASS
5	2054.933	46.74	N.A	N.A	74.00	N.A	54.00	H	PASS
6	4522.360	45.85	N.A	N.A	74.00	N.A	54.00	H	PASS

Annex A Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission Measurement

Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y))	9kHz-150kHz	±3.3dB
	150kHz-30MHz	±2.8dB

Uncertainty of Radiated Emission Measurement

Measuring Uncertainty for a Level of Confidence of 95%(U=2Uc(y))	30MHz-200MHz	±5.06dB
	200MHz-1000MHz	±5.04dB
	1GHz-6GHz	±5.18dB
	6GHz-18GHz	±5.48dB

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Accreditation Certificate

Accredited Testing Laboratory:	The FCC designation number is CN1192. Test firm registration number is 226174. (Shenzhen Morlab Communications Technology Co., Ltd.)

4. Test Software Utilized

Model	Version Number	Producer
MORLAB EMCR	Version 1.2	MORLAB
TS+ -[JS32-CE]	Version2.5.0.0	Tonscend

5. Test Equipments Utilized

Description	Manufacturer	Model	Serial No.	Cal. Date	Due. Date
MXE EMI Receiver	Agilent	N9038A	MY54130016	2020.07.21	2021.07.20
Test Receiver	R&S	ESPI	101052	2020.07.21	2021.07.20
LISN	Schwarzbeck	NSLK 8127	8127449	2020.03.26	2021.03.25
Pulse Limiter (10dB)	Schwarzbeck	VTSD 9561-F	VTSD 9561 F-B #206	2020.07.24	2021.07.23
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	VULB 9163-519	2019.05.24	2022.05.23
Test Antenna - Horn	Schwarzbeck	BBHA 9120D	9120D-963	2019.05.24	2022.05.23
Radiated Disturbance Preamplifier	rflight	S020180L3203	61171/61172	2020.07.21	2021.07.20
Radiated Disturbance Preamplifier	rflight	S10M100L3802	46732	2020.07.21	2021.07.20
Semi-Anechoic Chamber	CRT	9m*6m*6m	N/A	2020.01.06	2023.01.05

6. Ancillary Equipment Utilized

Description	Manufacturer	Model	Serial No.
PC	DF2DR A01 DPC	VOSTRO 5370	DELL
Earphone	EMC-003	N/A	N/A
Adapter	OKXTTW	LA45NM140	DELL
PC	N/A	A1370	APPLE
Adapter	N/A	A1374	APPLE

END OF REPORT