TEST REPORT

APPLICANT	:	Nubia Technology Co.,Ltd.
PRODUCT NAME	:	5G Mobile Phone
MODEL NAME	:	NX669J
BRAND NAME	:	REDMAGIC
FCC ID	:	2AHJO-NX669J
STANDARD(S)	:	47 CFR Part 15 Subpart B
RECEIPT DATE	:	2020-12-16
TEST DATE	:	2021-01-08 to 2021-01-10
ISSUE DATE	:	2021-03-13

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	2021-03-13	First edition

1. Technical Information

Note: Provide by applicant

1.1. Applicant and Manufacturer Information

Applicant:	Nubia Technology Co.,Ltd.
Applicant Address:	Room 1801, Building 2, Chongwen Park, Nanshan Zhiyuan, No.3370，Liuxian Rd， Nanshan District, Shenzhen City，Guangdong Province, P. R. China
Manufacturer:	Nubia Technology Co.,Ltd.
Manufacturer Address:	Room 1801, Building 2, Chongwen Park, Nanshan Zhiyuan, No.3370，Liuxian Rd， Nanshan District, Shenzhen City，Guangdong Province, P. R. China

1.2. Equipment Under Test (EUT) Description

Product Name:	5G Mobile Phone
Serial No.:	(N/A, marked #1 by test site)
Hardware Version:	NX669J_V1AMB
Software Version:	NX669J_EUCommon_V3.05
Tx Frequency:	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz CDMA2000 BC 0: 824 MHz ~ 849 MHz CDMA2000 BC 1: 1850 MHz ~ 1910 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 18: 815 MHz ~ 830 MHz LTE Band 19: 830 MHz ~ 845 MHz LTE Band 26: 814MHz ~ 849 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 40: 2300 MHz ~2400 MHz LTE Band 66: 1710 MHz ~ 1780 MHz

	5G NR n41: 2496 MHz ~ 2690 MHz Bluetooth 5.0: 2402 MHz ~ 2480 MHz 802.11b/g/n/ax: 2412 MHz ~ 2462 MHz 802.11a/ac/n/ax: 5180 MHz ~ 5240 MHz;5260 MHz ~ 5320MHz; 5500 MHz ~ 5720 MHz;5745 MHz ~ 5825 MHz NFC: 13.56 MHz	
Rx Frequency:	GSM850: 869 MHz ~ 894 MHz GSM1900: 1930 MHz ~ 1990 MHz WCDMA Band II: 1930 MHz ~ 1990 MHz WCDMA BandIV:2110 MHz ~ 2155 MHz WCDMA Band V: 869 MHz ~ 894 MHz CDMA2000 BC 0: 869 MHz ~ 894 MHz CDMA2000 BC 1: 1930 MHz ~ 1990 MHz LTE Band 2: 1930 MHz ~ 1990 MHz LTE Band 4: 2110 MHz ~ 2155 MHz LTE Band 5: 869 MHz ~ 894 MHz LTE Band 7: 2620 MHz ~ 2690 MHz LTE Band 12: 729 MHz ~ 746 MHz LTE Band 17: 734 MHz ~ 746 MHz LTE Band 18: 860 MHz ~ 875 MHz LTE Band 19: 875 MHz ~ 890 MHz LTE Band 26: 859MHz ~ 894 MHz LTE Band 38: 2570 MHz ~ 2620 MHz LTE Band 40: 2300 MHz ~2400 MHz LTE Band 66: 2110 MHz ~ 2200 MHz 5G NR n41:2496 MHz ~ 2690 MHz Bluetooth 5.0: 2402 MHz ~ 2480 MHz 802.11b/g/n/ax: 2412 MHz ~ 2462 MHz 802.11a/ac/n/ax: 5180 MHz ~ 5240 MHz;5260 MHz ~ 5320MHz; 5500 MHz ~ 5720 MHz;5745MHz ~ 5825MHz GPS:1559 MHz ~ 1610 MHz; 1164 MHz ~ 1215 MHz GLONASS/BDS/Galileo:1559 MHz ~ 1610MHz; NFC: 13.56 MHz	
Ancillary Equipment:	**AC Adapter**	
	Brand Name:	nubia
	Model No.:	NB-A930A-A, NB-A930A-USBA-1
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz, Max 0.8A
	Rated Output:	5V⎓3A, 9V⎓2A, 12V⎓2.5A, 15V2A
	Manufacturer:	ShenZhenKunXing Technology Co.,Ltd.
	Battery	

	Brand Name:	nubia
	Model No.:	Li3945T44P8h906455
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	4960mAh
	Rated Voltage:	3.87V
	Charge Limit:	4.45V
	Manufacturer:	Dongguan Amperex Technology Limited
	USB Cable	
	Model:	N52111200008C
	Manufacturer:	Shenzhen hongrunhua Technology Co., Ltd

Note:

1. 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

The 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	2021.01.10	Huang Zhiye	PASS	No deviation
2	15.109	Radiated Emission	2021.01.08	Yang Jie	PASS	No deviation

Note 1: 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.

Note 2: 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 :	GSM850Idle + Bluetooth Idle + 2.4G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 2 :	GSM1900 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 3 :	CDMA 2000 BC 0 Idle + Bluetooth Idle + 2.4 G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 4 :	CDMA 2000 BC 1Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 5 :	WCDMA Band II Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 6 :	WCDMA Band IVIdle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 7 :	WCDMA BandV Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 8 :	LTE Band 2 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 9 :	LTE Band 4 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 10 :	LTE Band 5 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 11 :	LTE Band 12Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 12 :	LTE Band 7Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 13 :	LTE Band 17Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + Galileo Rx
Mode 14 :	LTE Band 18Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + BDS Rx
Mode 15 :	LTE Band 26 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + NFC
Mode 16 :	LTE Band 19 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + GPS Rx
Mode 17 :	LTE Band 66 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + GLONASS Rx

Mode 18 ：	**LTE Band 40 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + Camera**
Mode 19 ：	LTE Band 38 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + MP4
Mode 20 ：	**NSA_2A_n41A Idle + Bluetooth Idle + 5G WLAN Idle+ PC(data transfer) + Battery + Earphone + USB Cable + SIM Card + PC Adapter**
Remark: The above test mode in boldface (Mode 18) was the worst case of conducted emission test, only the test data of these modes were reported. The above test mode in boldface (Mode 20) was the worst case of 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 AC power 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:

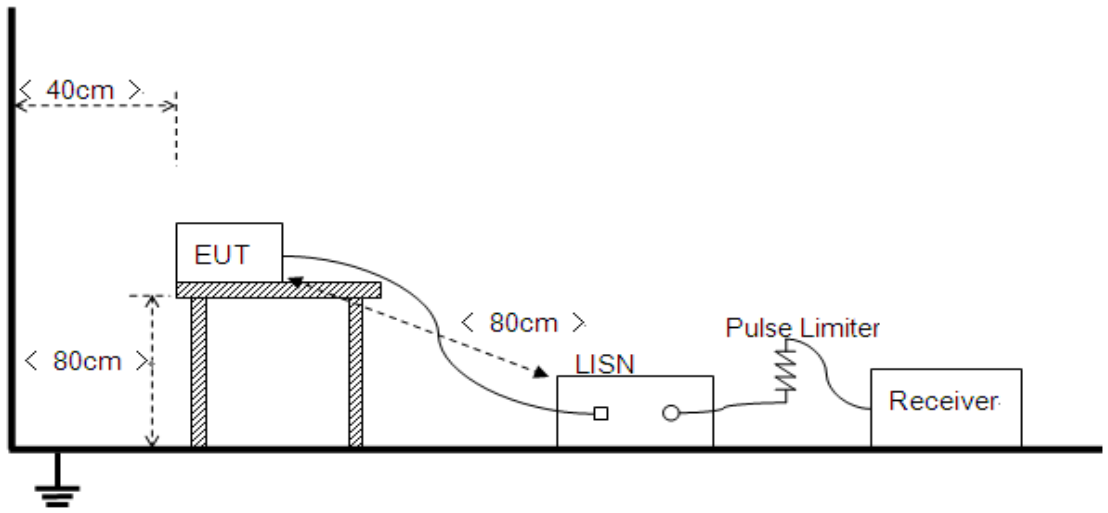
a) The limit subjects to the Class B digital device.

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.



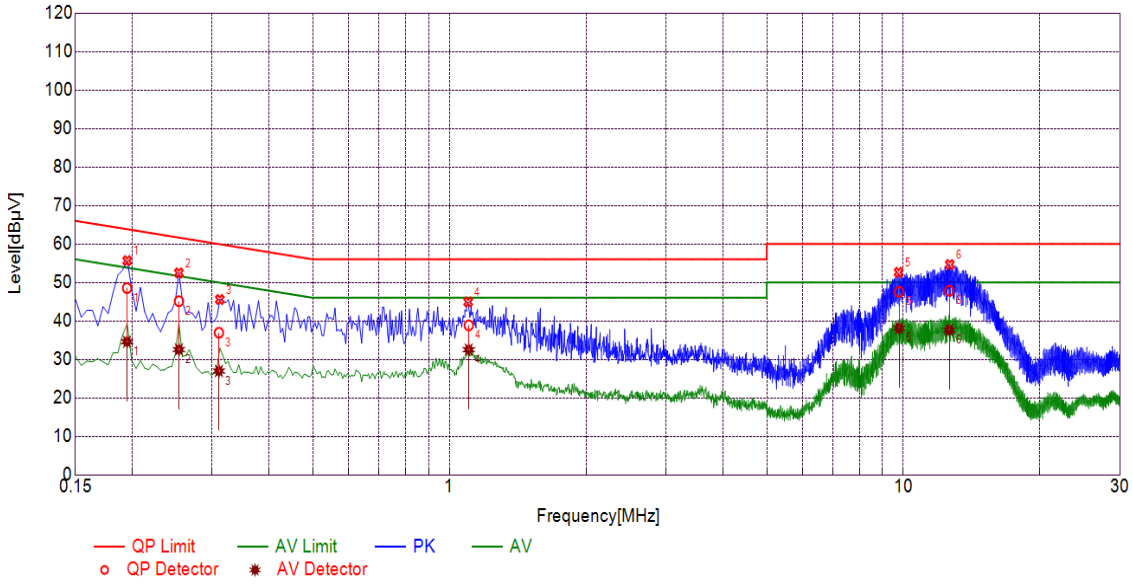
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. A Pulse Limiter is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

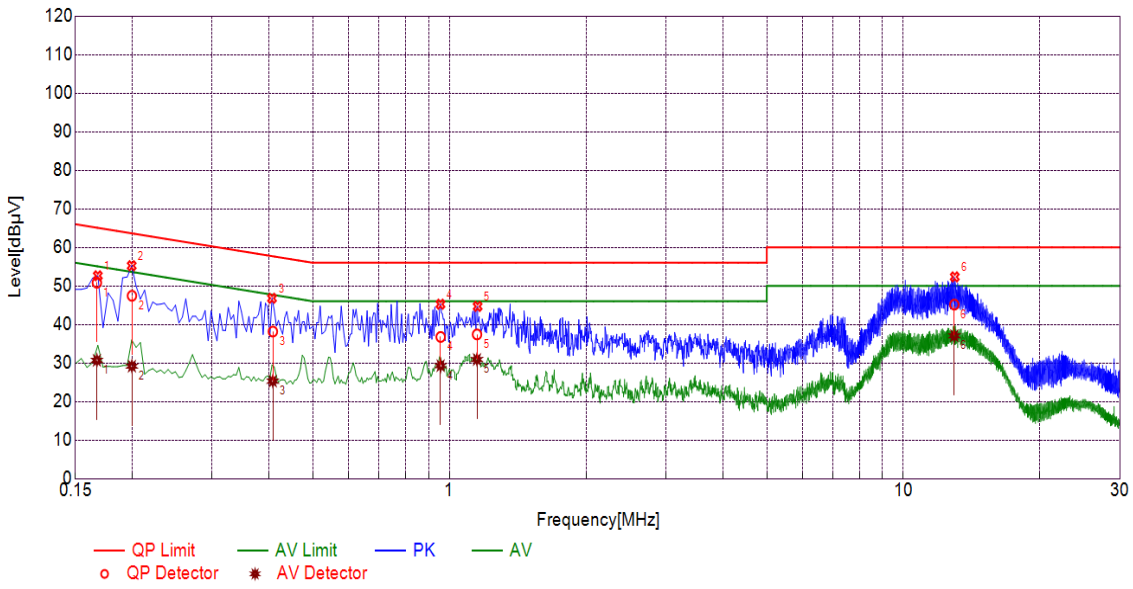
Set RBW=9 kHz, VBW=30 kHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both 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	0.1948	48.53	34.59	63.83	53.83	Line	PASS
2	0.2535	45.13	32.56	61.64	51.64		PASS
3	0.3105	36.93	26.98	59.96	49.96		PASS
4	1.1025	38.85	32.52	56.00	46.00		PASS
5	9.7839	47.56	38.15	60.00	50.00		PASS
6	12.6223	47.84	37.61	60.00	50.00		PASS



(Plot B: N Phase)

NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1672	50.83	30.68	65.10	55.10	Neutral	PASS
2	0.1997	47.44	29.18	63.62	53.62		PASS
3	0.4082	38.15	25.30	57.68	47.68		PASS
4	0.9560	36.77	29.31	56.00	46.00		PASS
5	1.1497	37.42	30.91	56.00	46.00		PASS
6	12.9465	45.15	37.05	60.00	50.00		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).

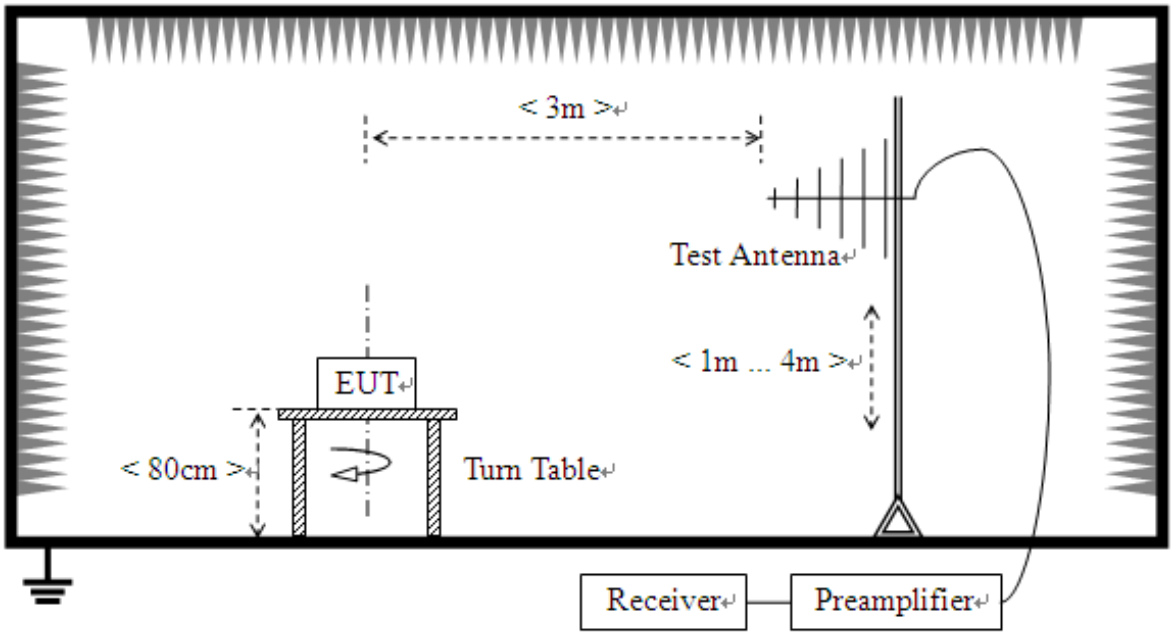
3.2.2. Frequency Range of Measurement

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

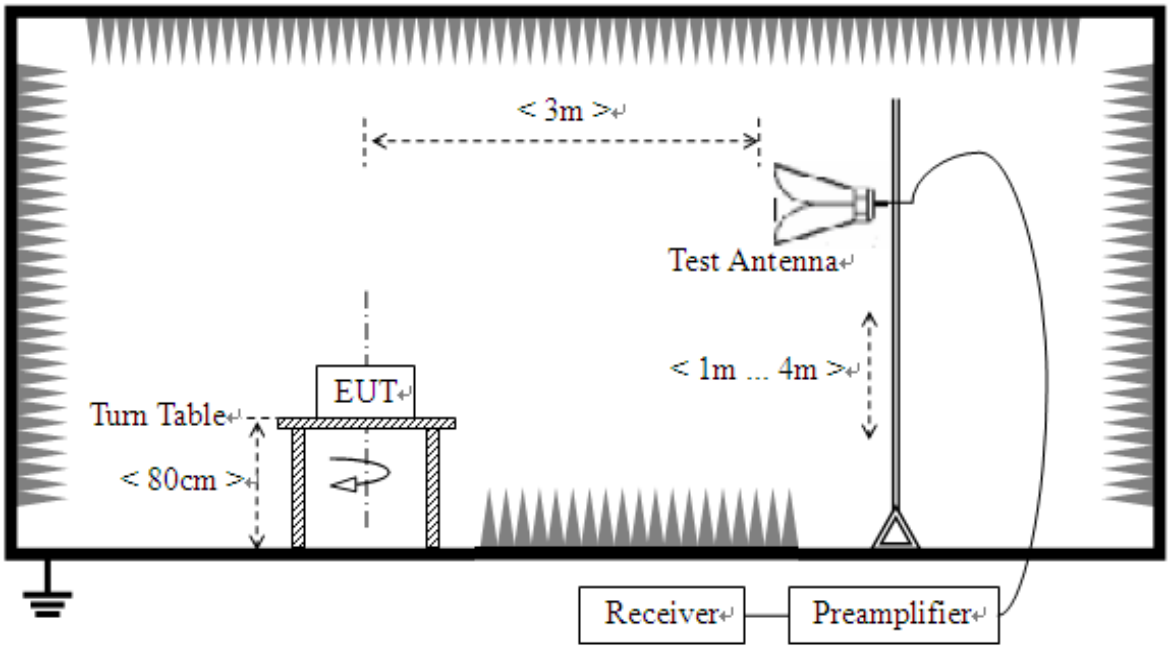
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705–108	1000.
108–500	2000.
500–1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

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 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.

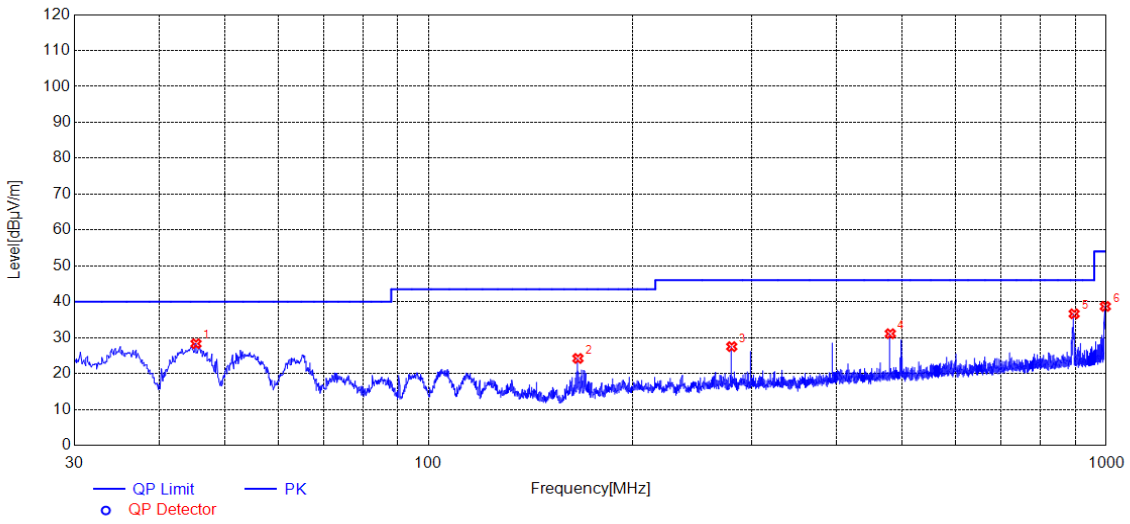
For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements and as applicable for average measurements.

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.

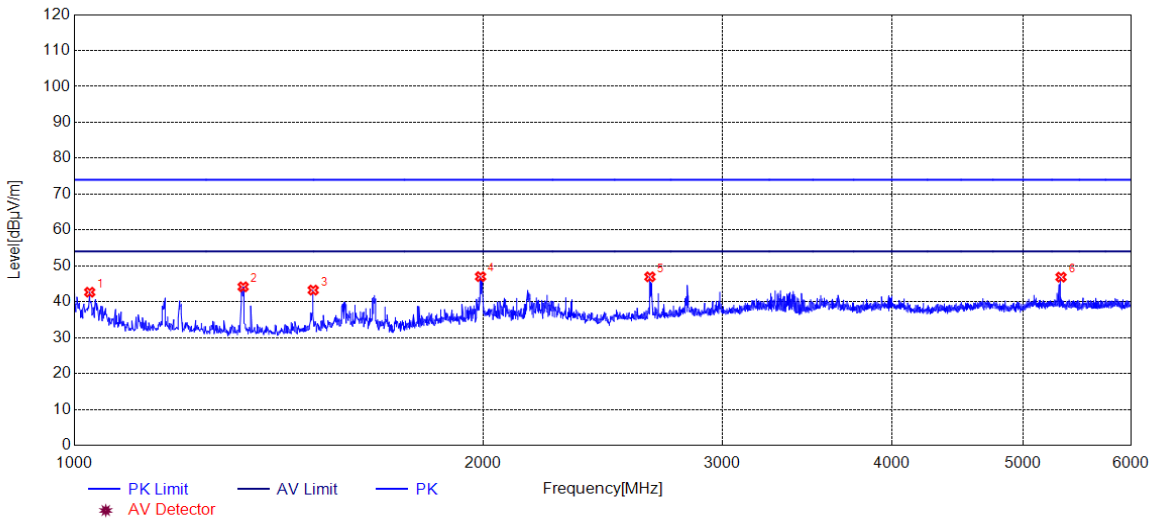
The amplitude of emissions which (6GHz-30GHz) are attenuated more than 20 dB below the permissible value need not be reported.

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.



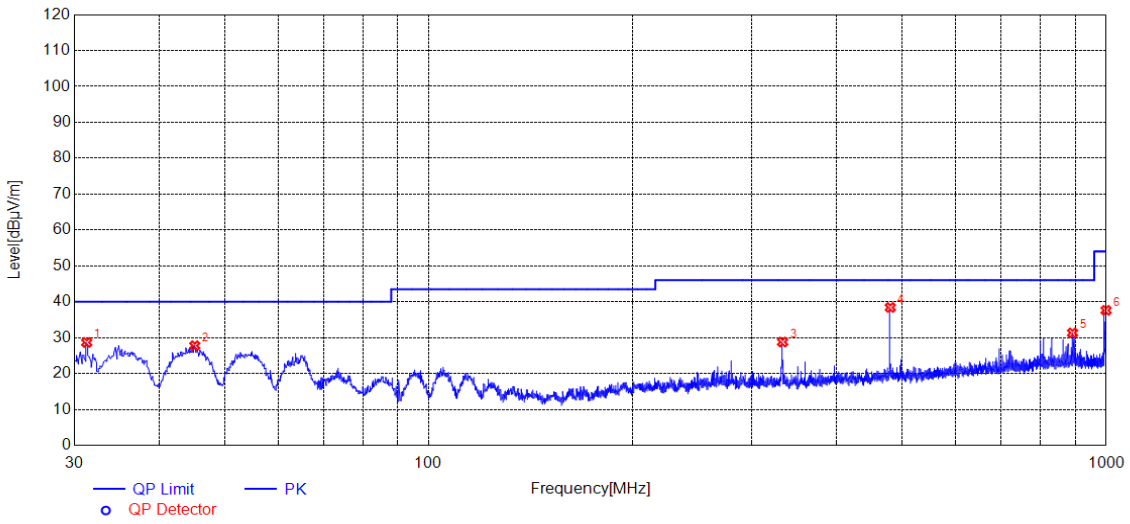
(Plot A: ANT-Vertical,30MHz - 1GHz)

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	45.3275	28.32	N.A	N.A	N.A	40.00	N.A	V	PASS
2	166.0076	24.21	N.A	N.A	N.A	43.50	N.A	V	PASS
3	279.9940	27.50	N.A	N.A	N.A	46.00	N.A	V	PASS
4	480.0280	31.10	N.A	N.A	N.A	46.00	N.A	V	PASS
5	896.7817	36.65	N.A	N.A	N.A	46.00	N.A	V	PASS
6	996.9927	38.71	N.A	N.A	N.A	54.00	N.A	V	PASS



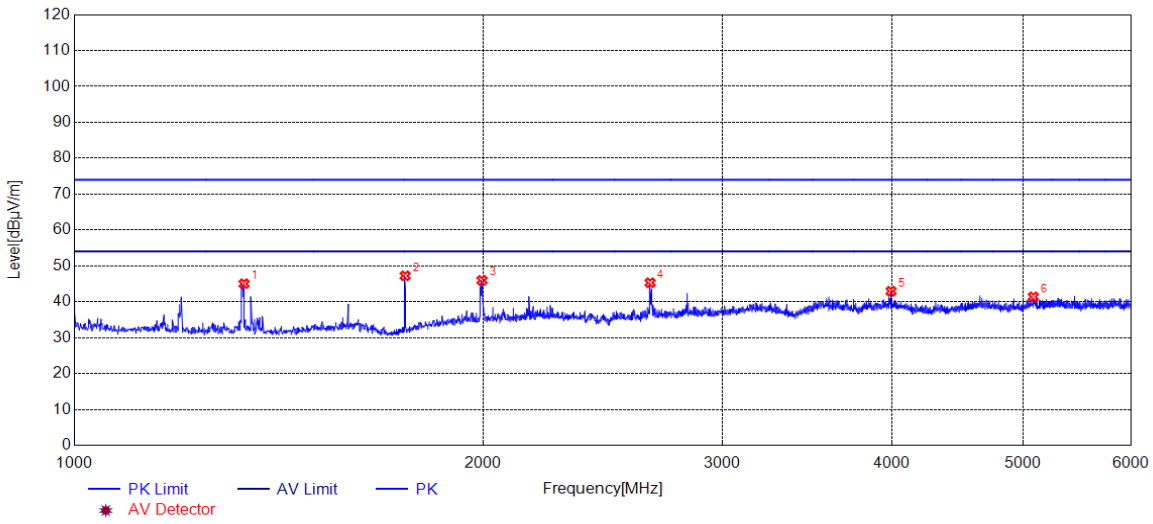
(Plot B: ANT-Vertical,1GHz - 6GHz)

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	1026.0052	42.66	N.A	N.A	74.00	N.A	54.00	V	PASS
2	1331.0662	44.16	N.A	N.A	74.00	N.A	54.00	V	PASS
3	1499.0998	43.25	N.A	N.A	74.00	N.A	54.00	V	PASS
4	1991.1982	47.00	N.A	N.A	74.00	N.A	54.00	V	PASS
5	2654.3309	46.94	N.A	N.A	74.00	N.A	54.00	V	PASS
6	5331.8664	46.86	N.A	N.A	74.00	N.A	54.00	V	PASS



(Plot C:ANT- Horizontal, 30MHz - 1GHz)

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	31.2611	28.66	N.A	N.A	N.A	40.00	N.A	H	PASS
2	45.1335	27.75	N.A	N.A	N.A	40.00	N.A	H	PASS
3	332.8643	28.78	N.A	N.A	N.A	46.00	N.A	H	PASS
4	480.0280	38.41	N.A	N.A	N.A	46.00	N.A	H	PASS
5	891.7372	31.34	N.A	N.A	N.A	46.00	N.A	H	PASS
6	999.5150	37.61	N.A	N.A	N.A	54.00	N.A	H	PASS



(Plot D:ANT- Horizontal, 1GHz - 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	1333.0666	45.03	N.A	N.A	74.00	N.A	54.00	H	PASS
2	1752.1504	47.24	N.A	N.A	74.00	N.A	54.00	H	PASS
3	1996.1992	45.95	N.A	N.A	74.00	N.A	54.00	H	PASS
4	2655.3311	45.30	N.A	N.A	74.00	N.A	54.00	H	PASS
5	3996.5993	42.94	N.A	N.A	74.00	N.A	54.00	H	PASS
6	5086.8174	41.37	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
JS32-RE	Version 2.0.2.0	Tonscend
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	2019.08.13	2022.08.12
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-519	2019.05.24	2022.05.23
Test Antenna - Horn	Schwarzbeck	BBHA 9120D	1774	2019.07.29	2022.07.28
Test Antenna - Horn	Schwarzbeck	BBHA 9170	BBHA 9170 773#	2019.07.26	2022.07.25
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

5. Ancillary Equipment Utilized

Description	Manufacturer	Model	Serial No.
PC	DELL	Vostro 5370	N/A
PC Adapter	DELL	LA45NM140	N/A
Earphone	N/A	N/A	EMC-03

END OF REPORT