



TEST REPORT

APPLICANT : Nubia Technology Co., Ltd.
PRODUCT NAME : 5G Mobile Phone
MODEL NAME : NX666J
BRAND NAME : REDMAGIC
FCC ID : 2AHJO-NX666J
STANDARD(S) : 47 CFR Part 15 Subpart B
RECEIPT DATE : 2021-03-11
TEST DATE : 2021-03-18 to 2021-03-19
ISSUE DATE : 2021-05-07

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Change History		
Version	Date	Reason for Change
1.0	2021-05-07	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:	NX666J_EUHW1.0
Software Version:	NX666J_ENCommon_V2.06
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 5G NR n41: 2515 MHz ~ 2675 MHz



	Bluetooth 5.2: 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; 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 5G NR n41:2515 MHz ~ 2675 MHz Bluetooth 5.2: 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; 5745MHz ~ 5825MHz GPS/GLONASS/BDS/Galileo:1559 MHz ~ 1610MHz; NFC: 13.56 MHz	
Ancillary Equipment:	AC Adapter	
	Brand Name:	NUBIA
	Model No.:	STC-A5101230A-Z
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz, 0.7A
	Rated Output:	5V=3A, 10V=3A, 12V=2.5A, 20V=2A
	Manufacturer:	Shenzhen Ruijing Industrial Co., Ltd.
	Battery	
	Brand Name:	nubia
Model No.:	Li3941T44PGh836548	



	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	4100mAh
	Rated Voltage:	3.87V
	Charge Limit:	4.45V
	Manufacturer:	Dongguan Amperex Technology Limited
	USB Cable 1	
	Model:	USB-TC20-R-100-M-L-HSF
	Manufacturer:	King Power Electronics Co., Ltd
	USB Cable 2	
	Model:	USB-TC20-R-100-M-L-HSF
	Manufacturer:	Luxshare-ICT Co., Ltd

Note:

1. There are two kinds of USB Cables, both USB Cables have been tested, For the CE, RE, only the worst case (USB Cable2) is recorded in this report.
2. The EUT has two memory configurations, the EUT (12G+256G) has been tested for RE, only the results for the EUT (8G+128G) were 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

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	2021.03.18	Wu Runfeng	PASS	No deviation
2	15.109	Radiated Emission	2021.03.19	Lin Jiayong	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 IV Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 7	: WCDMA Band V 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 + GLONASS Rx
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 40 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + Camera



Mode 18 :	LTE Band 38 Idle + Bluetooth Idle + 5G WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card + MP4
Mode 19 :	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 17) was the worst case of conducted emission test, only the test data of these modes were reported. The above test mode in boldface (Mode 19) 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 50 μ H/50 Ω line impedance stabilization network (LISN).

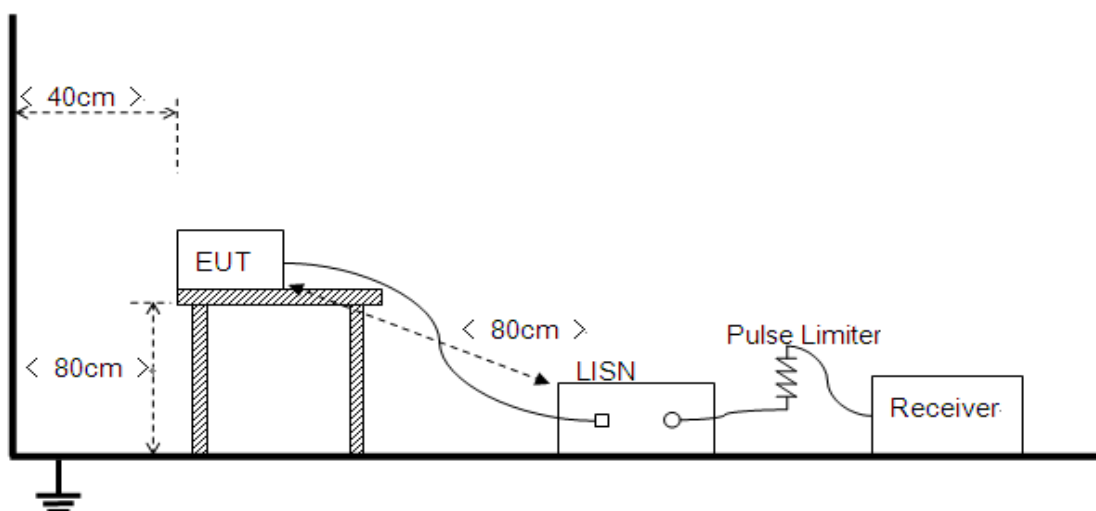
Frequency Range (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- The limit subjects to the Class B digital device.
- The lower limit shall apply at the band edges.
- 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.





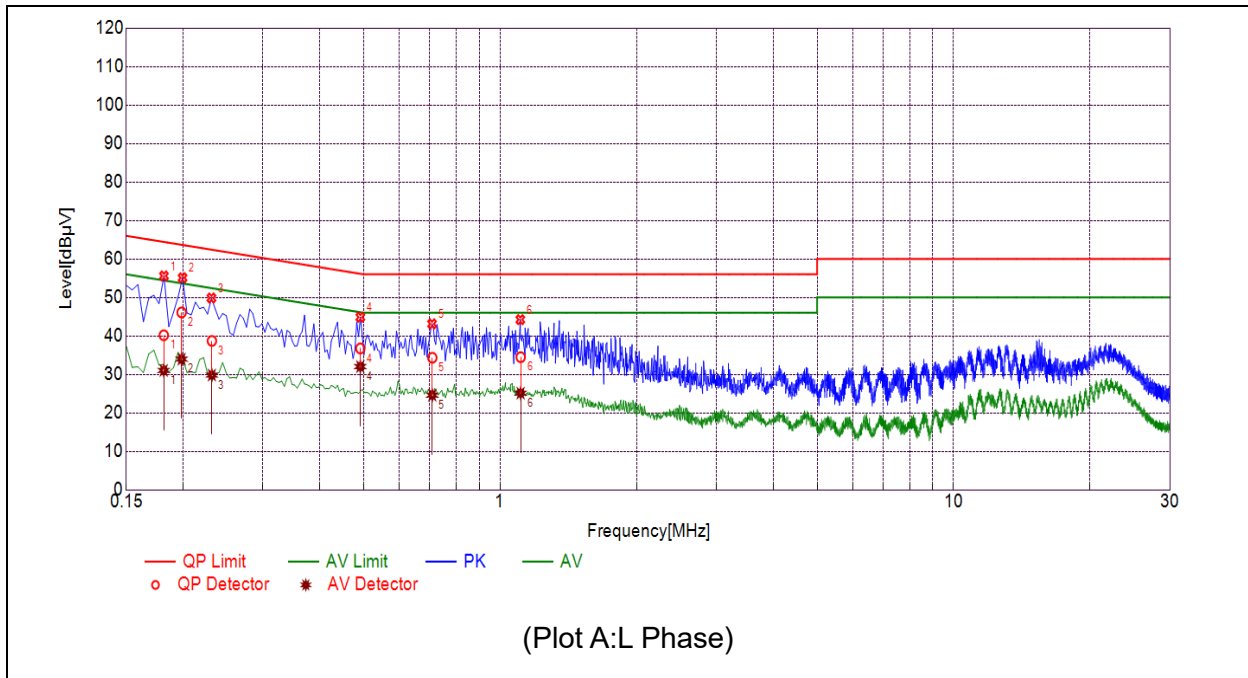
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument. A 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 is maintained with respect to the impedance characteristics as prescribed in ANSI C63.4-2014 at Clause 4.3.

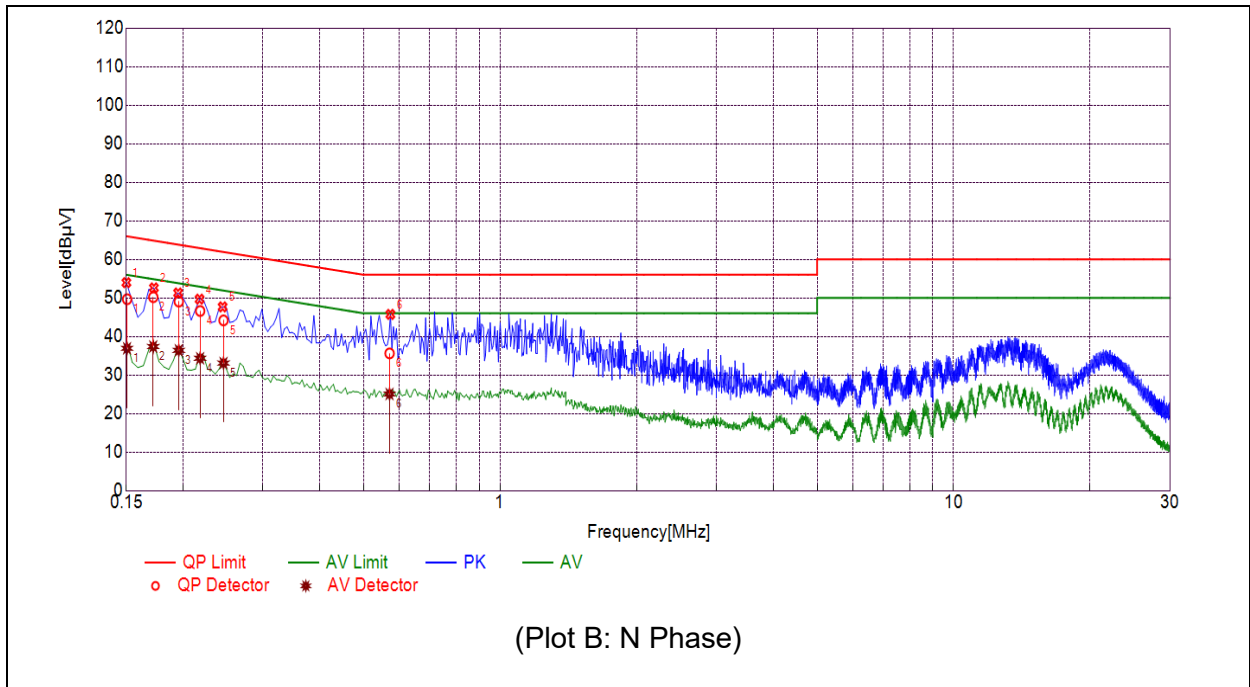
3.1.3. Test Result

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:



NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1813	40.18	31.02	64.43	54.43	Line	PASS
2	0.1985	46.10	33.96	63.67	53.67		PASS
3	0.2315	38.70	29.81	62.40	52.40		PASS
4	0.4918	36.75	32.02	56.14	46.14		PASS
5	0.7087	34.32	24.60	56.00	46.00		PASS
6	1.1100	34.47	25.12	56.00	46.00		PASS



NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1505	49.66	36.92	65.97	55.97	Neutral	PASS
2	0.1719	50.20	37.38	64.87	54.87		PASS
3	0.1957	49.06	36.40	63.79	53.79		PASS
4	0.2181	46.61	34.34	62.89	52.89		PASS
5	0.2456	44.17	33.09	61.91	51.91		PASS
6	0.5705	35.61	25.07	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	
	($\mu\text{V/m}$)	($\text{dB}\mu\text{V/m}$)
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 in $\text{dB}\mu\text{V/m}$ is calculated by $20\log$ Emission Level($\mu\text{V/m}$).

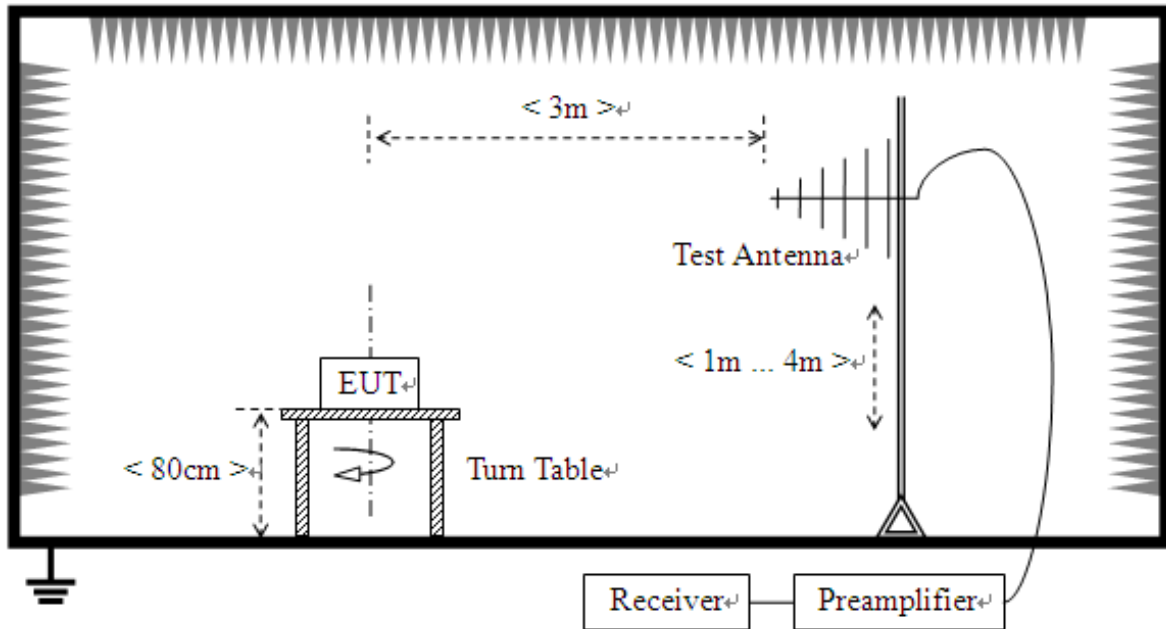
3.2.2. Frequency Range of Measurement

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

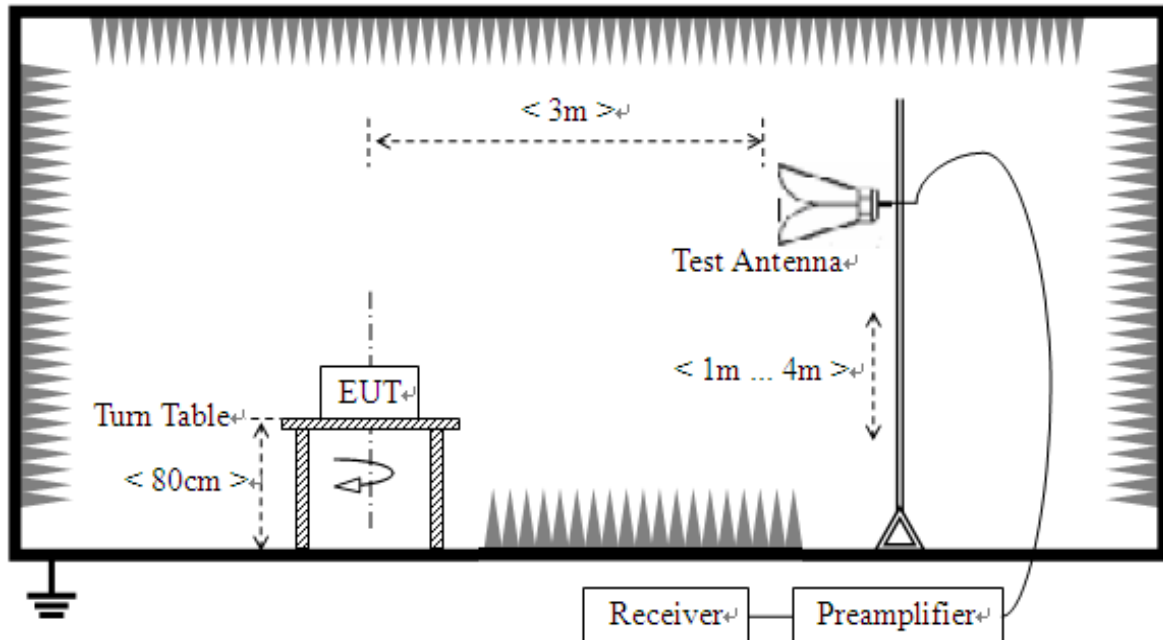
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705-108	1000.
108-500	2000.
500-1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

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 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

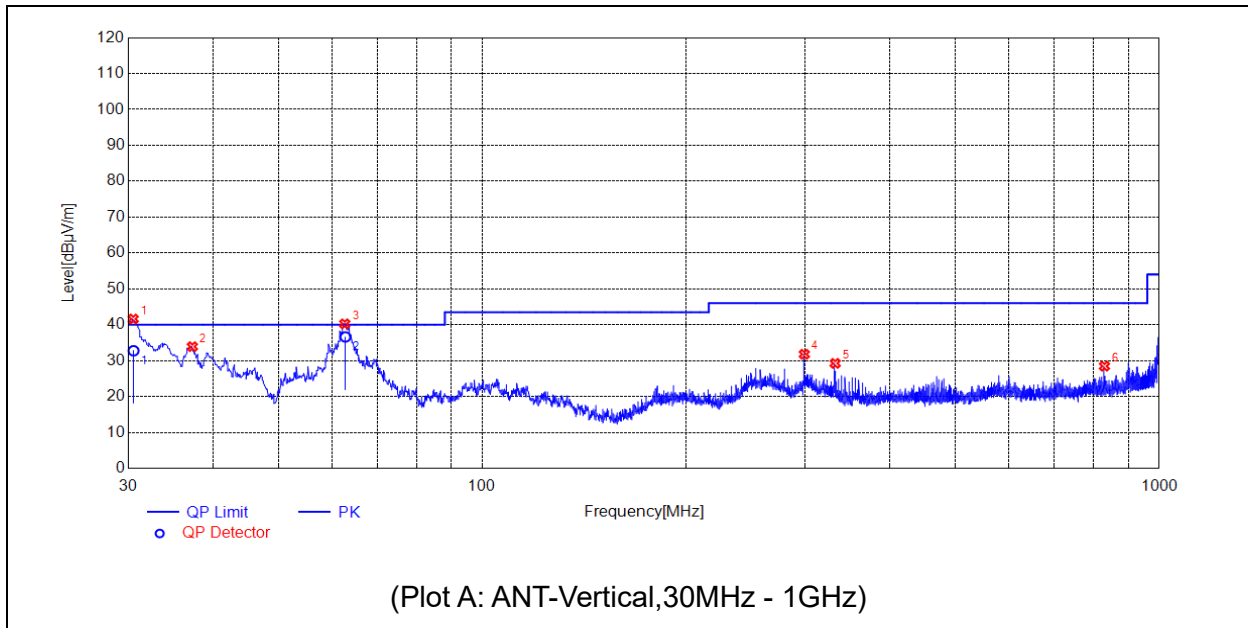
For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video bandwidth is set to 3MHz for peak measurements and as applicable for average measurements.

3.2.4. Test Result

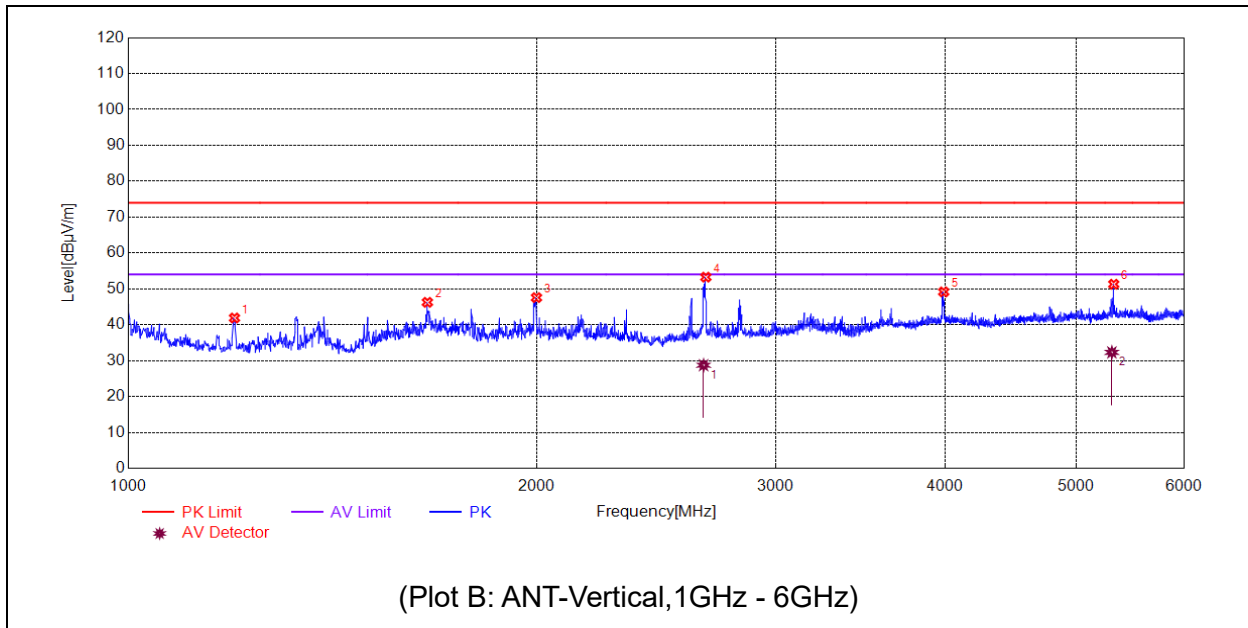
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

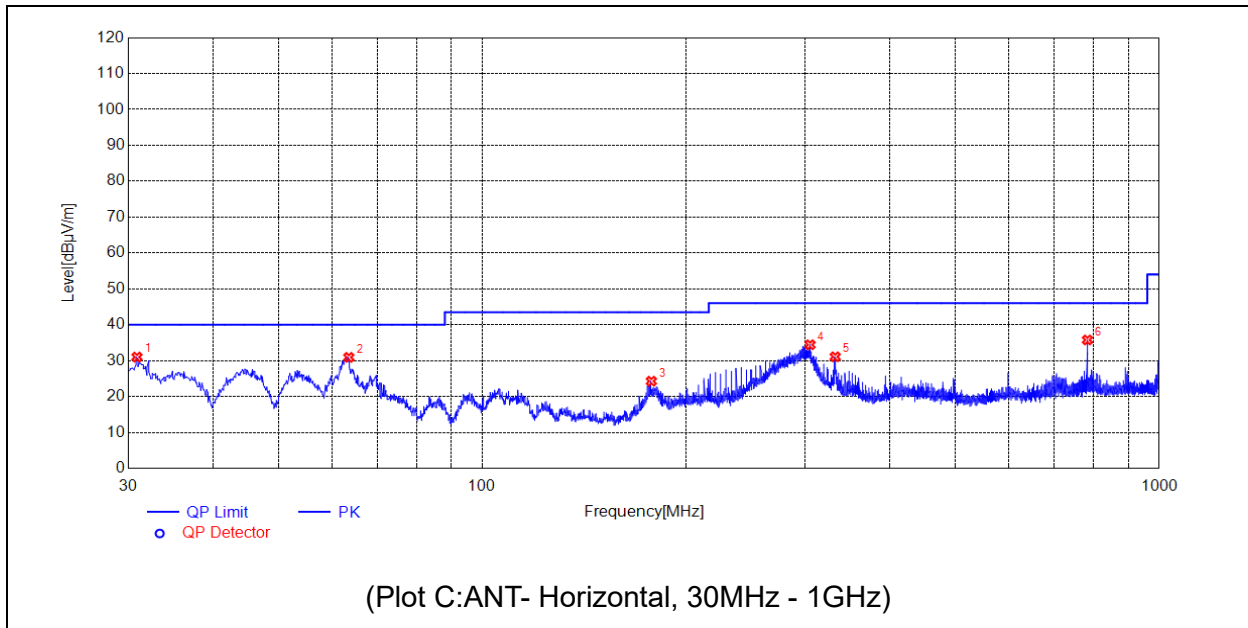
Note: All radiated emission tests were performed in X, Y, Z axis direction, and only the worst axis test condition was recorded in this test report.



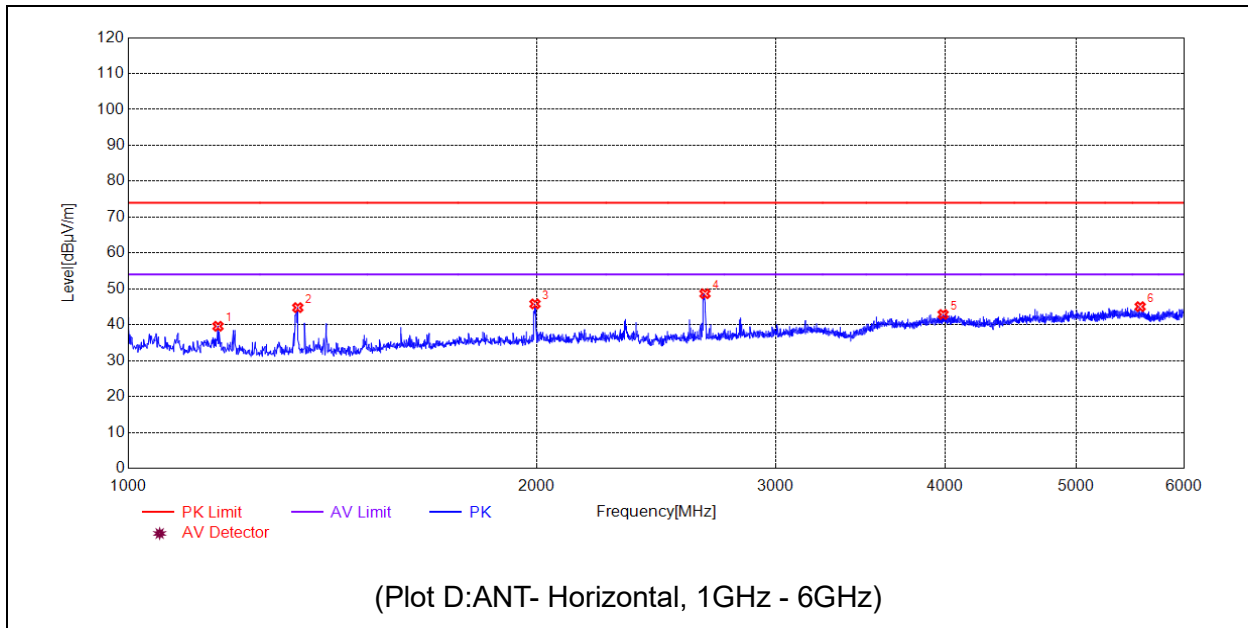
No.	Fre. MHz	PK dBµV/m	QP dBµV/m	AV dBµV/m	Limit-PK dBµV/m	Limit-QP dBµV/m	Limit-AV dBµV/m	ANT	Verdict
1	30.4850	41.61	32.76	N.A	N.A	40.00	N.A	V	PASS
2	37.2757	33.90	N.A	N.A	N.A	40.00	N.A	V	PASS
3	62.5953	40.26	36.62	N.A	N.A	40.00	N.A	V	PASS
4	298.9109	31.79	N.A	N.A	N.A	46.00	N.A	V	PASS
5	331.9912	29.25	N.A	N.A	N.A	46.00	N.A	V	PASS
6	829.7480	28.46	N.A	N.A	N.A	46.00	N.A	V	PASS



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	1197.0394	41.89	N.A	N.A	74.00	N.A	54.00	V	PASS
2	1661.1322	46.25	N.A	N.A	74.00	N.A	54.00	V	PASS
3	1999.1998	47.56	N.A	N.A	74.00	N.A	54.00	V	PASS
4	2665.3331	53.26	N.A	28.73	74.00	N.A	54.00	V	PASS
5	3991.5983	49.16	N.A	N.A	74.00	N.A	54.00	V	PASS
6	5327.8656	51.30	N.A	32.31	74.00	N.A	54.00	V	PASS



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	30.8731	31.00	N.A	N.A	N.A	40.00	N.A	H	PASS
2	63.4683	30.92	N.A	N.A	N.A	40.00	N.A	H	PASS
3	177.6488	24.28	N.A	N.A	N.A	43.50	N.A	H	PASS
4	304.8285	34.42	N.A	N.A	N.A	46.00	N.A	H	PASS
5	331.9912	31.08	N.A	N.A	N.A	46.00	N.A	H	PASS
6	782.9893	35.77	N.A	N.A	N.A	46.00	N.A	H	PASS



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	1164.0328	39.58	N.A	N.A	74.00	N.A	54.00	H	PASS
2	1333.0666	44.77	N.A	N.A	74.00	N.A	54.00	H	PASS
3	1994.1988	45.80	N.A	N.A	74.00	N.A	54.00	H	PASS
4	2661.3323	48.65	N.A	N.A	74.00	N.A	54.00	H	PASS
5	3987.5975	42.87	N.A	N.A	74.00	N.A	54.00	H	PASS
6	5572.9146	45.04	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:	Morlab Laboratory of Shenzhen Morlab Communications Technology Co., Ltd.
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:	Morlab Laboratory of Shenzhen Morlab Communications Technology Co., Ltd.
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.)
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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	Model	Serial No.	Manufacturer	Cal. Date	Due. Date
Bi-Log Antenna	VULB 9163	9163-274	SCHWARZBECK	2019/11/23	2022/11/22
Horn Antenna	BBHA 9120D	9120D-963	SCHWARZBECK	2019/5/24	2022/5/23
Receiver	ESPI	101052	R&S	2020/7/21	2021/7/20
LISN	NSLK 8127	8127449	Schwarzbeck	2021/3/9	2022/3/8
10dB Pulse Limiter	VTSD 9561-F	VTSD 9561 F-B #206	SCHWARZBECK	2020/7/24	2021/7/23

5. Ancillary Equipment Utilized

Description	Manufacturer	Model	Serial No.
PC	DELL	VOSTRO 5370	DF2DR A01 DPC
PC Adapter	DELL	LA45NM140	OKXTTW

_____ END OF REPORT _____