REPORT No.: SZ21070266E01

TEST REPORT

APPLICANT	:	BLU Products, Inc.
PRODUCT NAME	:	Smart Phone
MODEL NAME	:	G91S
BRAND NAME	:	BLU
FCC ID	:	YHLBLUG91S
STANDARD(S)	:	47 CFR Part 15 Subpart B
RECEIPT DATE	:	2021-08-05
TEST DATE	:	2021-08-09
ISSUE DATE	:	2021-09-27

Edited by: He sinuo

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MORLAB

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DIRECTORY

Change History		
Issue	**Date**	**Reason for change**
1.0	2021-09-27	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	BLU Products, Inc.
Applicant Address:	10814 NW 33rd St # 100 Doral, FL 33172,USA
Manufacturer:	BLU Products, Inc.
Manufacturer Address:	10814 NW 33rd St # 100 Doral, FL 33172,USA

1.2. Equipment Under Test (EUT) Description

ProductName:	Smart Phone
EUT No.:	4#
Hardware Version:	KK9Q_01
Software Version:	BLU_G0550WW_V11.0.03.00_GENERIC_20210903_2205
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 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 13: 777 MHz ~ 787 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 38: 2570 MHz ~ 2620 MHz Bluetooth: 2402 MHz ~ 2480 MHz 802.11b/g/n: 2412 MHz ~ 2472 MHz
Rx Frequency:	GSM850: 869 MHz ~ 894 MHz GSM1900: 1930 MHz ~ 1990 MHz WCDMA Band II: 1930 MHz ~ 1990 MHz WCDMA Band IV: 2110 MHz ~ 2155 MHz WCDMA Band V: 869 MHz ~ 894 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 13: 746 MHz ~ 756 MHz LTE Band 17: 734 MHz ~ 746 MHz LTE Band 38: 2570 MHz ~ 2620 MHz Bluetooth: 2402 MHz ~ 2480 MHz 802.11b/g/n: 2412 MHz ~ 2472 MHz	
Ancillary Equipment:	**Battery**	
	Brand Name:	BLU
	Model No.:	C996749600P
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	5900mAh
	Rated Voltage:	3.85V
	Charge Limit:	4.4V
	Manufacturer:	Zhongshan Tianmao Battery Co., Ltd.
	AC Adapter	
	Brand Name:	BLU
	Model No.:	US-WT-2000
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~50/60Hz, 0.35A
	Rated Output:	5.0V⎓2.0A
	Manufacturer:	Shenzhen Tianyin Electronics 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	2021.08.09	Su Zhan	PASS	No deviation
2	15.109	Radiated Emission	2021.08.09	Yin Xiaogang	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.

Note 3: When the test result is a critical value,we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

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 + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 2 :	GSM1900 Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode3 :	WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 4 :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 5 :	WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 6 :	WCDMA Band V Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 7 :	LTE Band 2 Idle+ Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 8 :	**LTE Band 5 Idle+ Bluetooth Idle + WLAN Idle + Camera + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card**
Mode 9 :	LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + MP4 + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter + SIM Card
Mode 10 :	**LTE Band 12 Idle + Bluetooth Idle + WLAN Idle + PC(data transfer) + Battery + SIM Card + PC Adapter + Earphone**
Mode 12 :	LTE Band 13 Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter
Mode 13 :	LTE Band 17 Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter
Mode 14 :	LTE Band 38Idle + Bluetooth Idle + WLAN Idle + Battery + USB Cable(Charging from Adapter) + Earphone + Adapter
Remark: The above test mode in boldface (Mode 8) was the worst case of conducted emission test, only the test data of these modes were reported. The above test mode in boldface (Mode 10) 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:

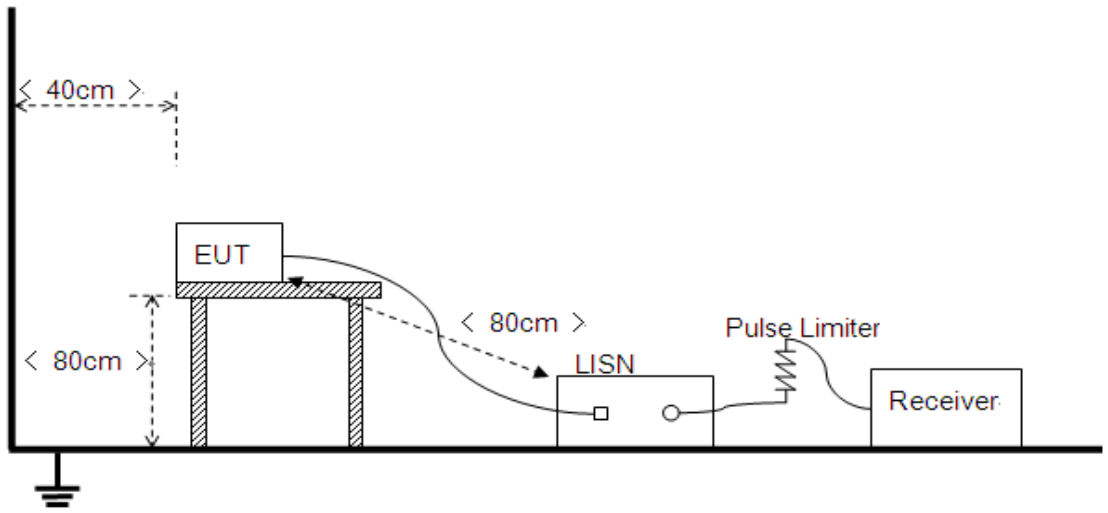
a) The limit subjects to the Class B digital device.

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.



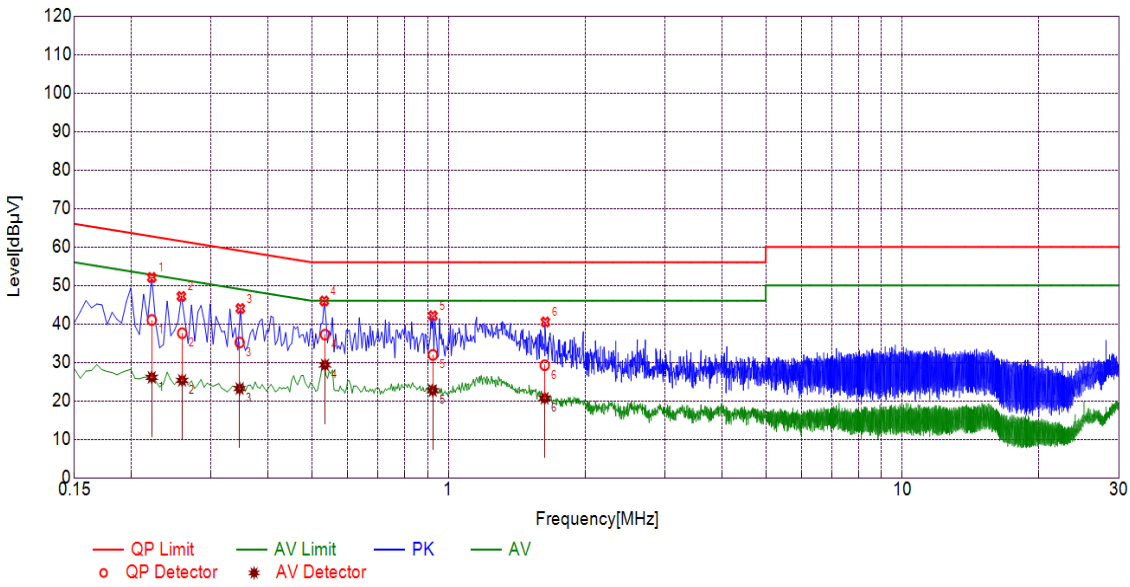
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. A Pulse Limiter is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

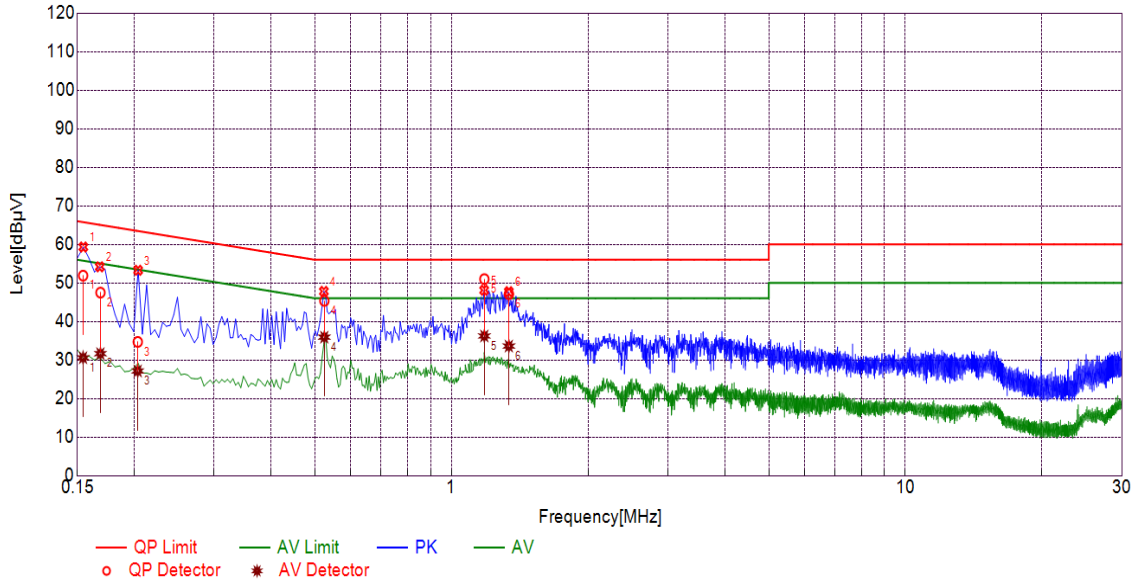
RBW=9 kHz, VBW=30 kHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L 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	0.2220	41.03	26.11	62.75	52.75	Line	PASS
2	0.2590	37.60	25.33	61.46	51.46		PASS
3	0.3466	35.18	23.21	59.04	49.04		PASS
4	0.5345	37.21	29.34	56.00	46.00		PASS
5	0.9237	31.94	22.67	56.00	46.00		PASS
6	1.6293	29.27	20.69	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	0.1543	51.89	30.59	65.76	55.76	Neutral	PASS
2	0.1685	47.49	31.65	65.04	55.04		PASS
3	0.2036	34.70	27.16	63.46	53.46		PASS
4	0.5246	45.33	35.92	56.00	46.00		PASS
5	1.1813	51.00	36.23	56.00	46.00		PASS
6	1.3379	47.08	33.61	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).

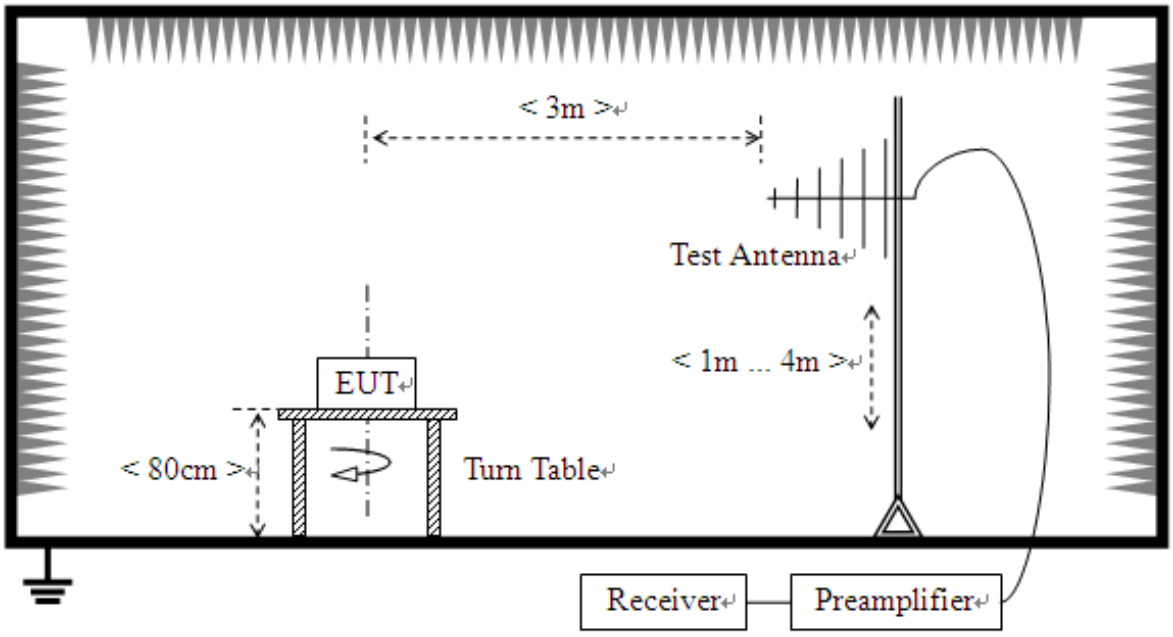
3.2.2. Frequency range of measurement

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

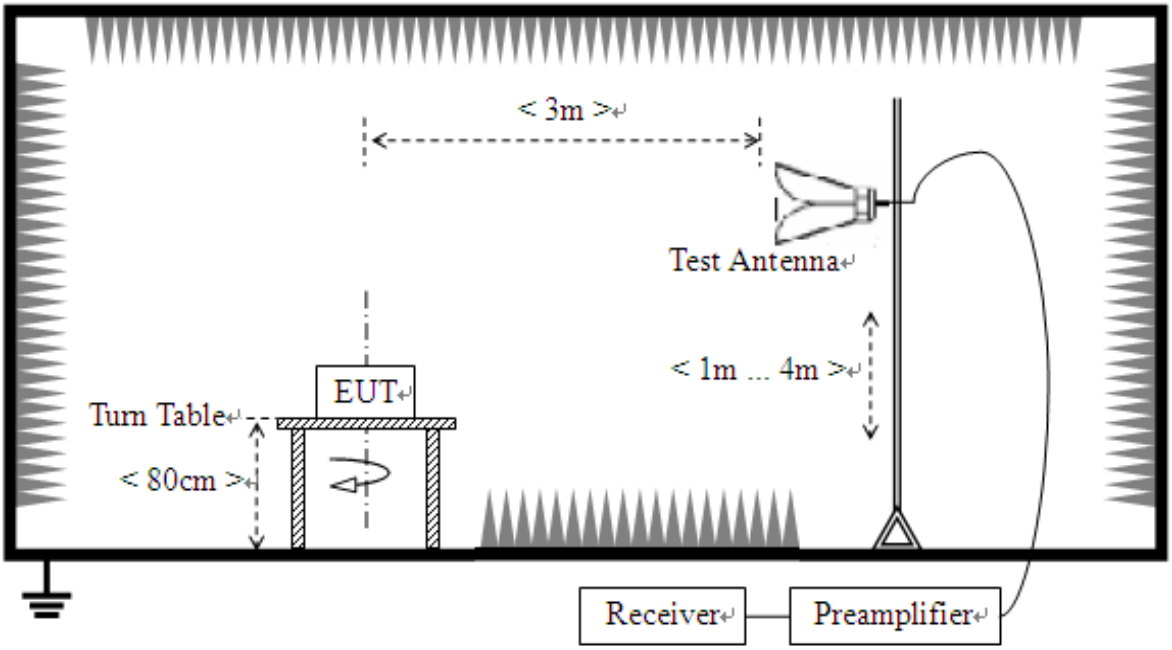
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705–108	1000.
108–500	2000.
500–1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

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

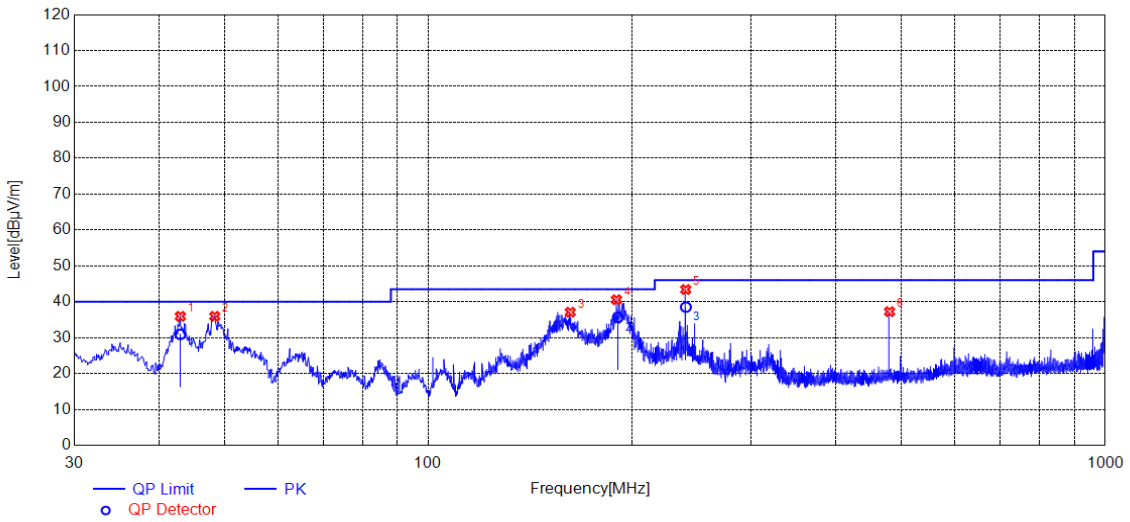
For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video bandwidth is set to 3MHz for peak measurements and as applicable for average measurements.

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.

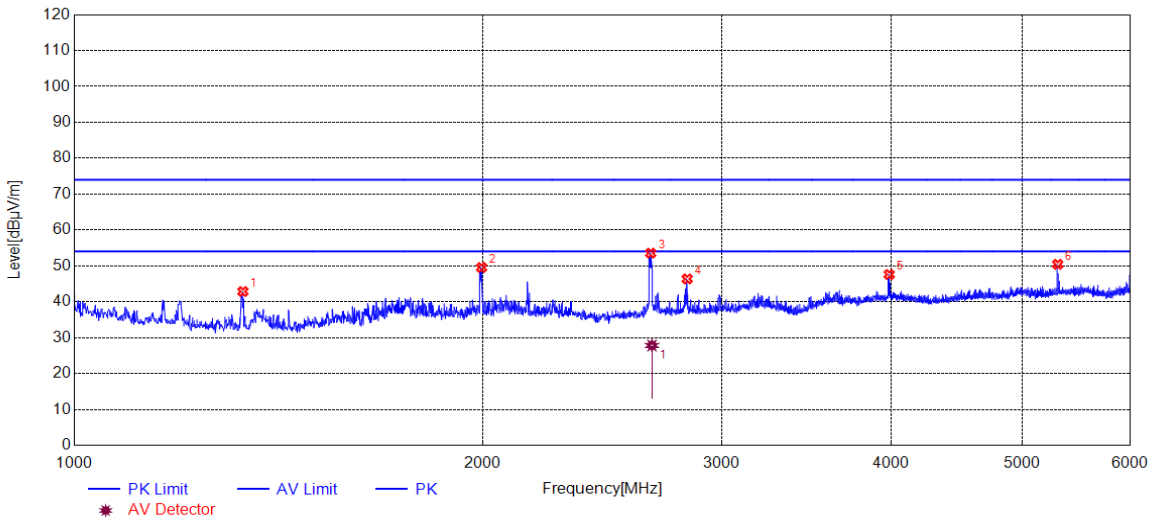
The amplitude of emissions (6GHz-13.5GHz)which are attenuated more than 20 dB below the permissible value need not be reported.

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.



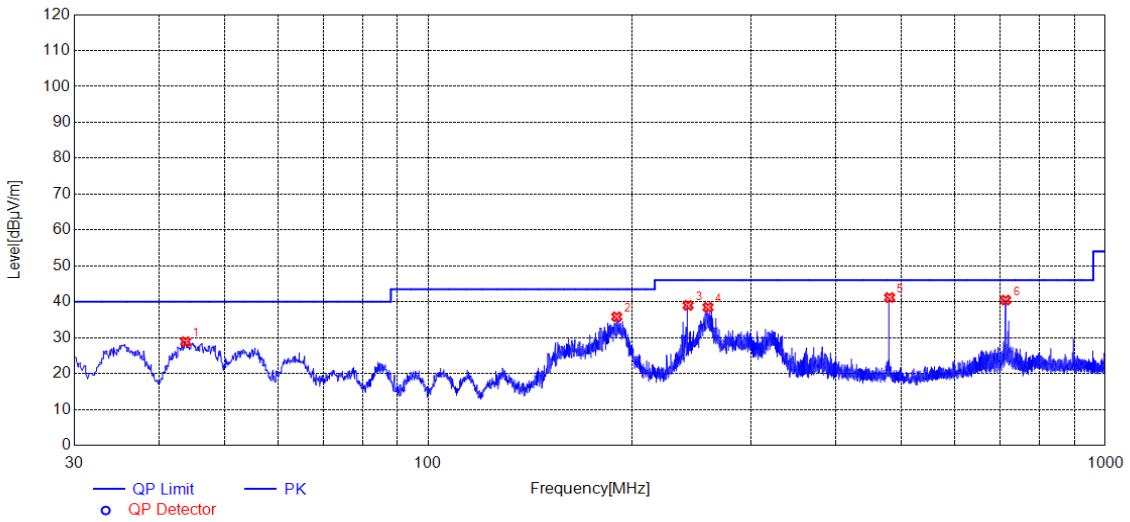
(Plot A: ANT-Vertical,30MHz - 1GHz)

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	42.9993	35.94	30.93	N.A	N.A	40.00	N.A	V	PASS
2	48.3348	35.95	N.A	N.A	N.A	40.00	N.A	V	PASS
3	162.0302	37.10	N.A	N.A	N.A	43.50	N.A	V	PASS
4	189.5810	40.57	35.65	N.A	N.A	43.50	N.A	V	PASS
5	239.9290	43.41	38.51	N.A	N.A	46.00	N.A	V	PASS
6	480.0280	37.24	N.A	N.A	N.A	46.00	N.A	V	PASS



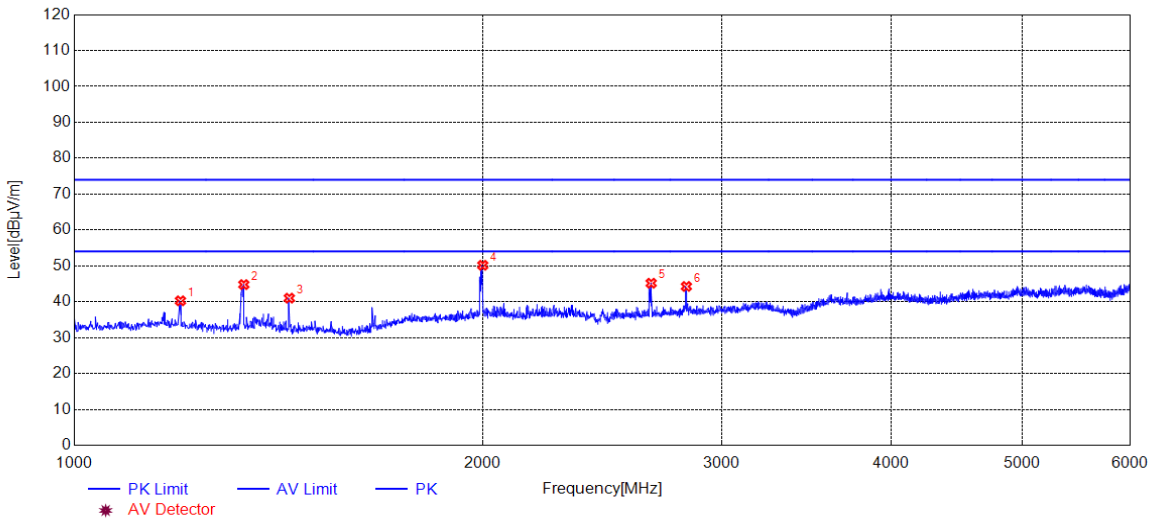
(Plot B: ANT-Vertical,1GHz - 6GHz)

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	1331.0662	42.86	N.A	N.A	74.00	N.A	54.00	V	PASS
2	1996.1992	49.55	N.A	N.A	74.00	N.A	54.00	V	PASS
3	2660.3321	53.55	N.A	27.82	74.00	N.A	54.00	V	PASS
4	2830.3661	46.37	N.A	N.A	74.00	N.A	54.00	V	PASS
5	3988.5977	47.60	N.A	N.A	74.00	N.A	54.00	V	PASS
6	5309.8620	50.44	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	43.7754	28.87	N.A	N.A	N.A	40.00	N.A	H	PASS
2	189.7750	35.81	N.A	N.A	N.A	43.50	N.A	H	PASS
3	241.8692	39.00	N.A	N.A	N.A	46.00	N.A	H	PASS
4	258.8459	38.46	N.A	N.A	N.A	46.00	N.A	H	PASS
5	480.0280	41.18	N.A	N.A	N.A	46.00	N.A	H	PASS
6	712.3662	40.47	N.A	N.A	N.A	46.00	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	1197.0394	40.27	N.A	N.A	74.00	N.A	54.00	H	PASS
2	1333.0666	44.79	N.A	N.A	74.00	N.A	54.00	H	PASS
3	1440.0880	41.01	N.A	N.A	74.00	N.A	54.00	H	PASS
4	2000.2000	50.16	N.A	N.A	74.00	N.A	54.00	H	PASS
5	2662.3325	45.17	N.A	N.A	74.00	N.A	54.00	H	PASS
6	2826.3653	44.27	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.
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.
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	Model	Serial No.	Manufacturer	Cal. Date	Due. Date
Bi-Log Antenna	VULB 9163	9163-519	SCHWARZBECK	2019/5/24	2022/5/23
Receiver	N9038A	MY56400093	KEYSIGHT	2021/3/9	2022/3/8
Horn Antenna	BBHA 9120D	9120D-963	SCHWARZBECK	2019/5/24	2022/5/23
6db Attenuator	BW-N6W5+	E191001	Mini-circuits	2020/10/20	2021/10/19
Preamplifier	S020180L3203	61171/61172	LUCIX CORP.	2021/7/15	2022/7/14
Preamplifier	S10M100L3802	46732	LUCIX CORP.	2021/7/15	2022/7/14
Receiver	ESPI	101052	R&S	2021/7/16	2022/7/15
LISN	NSLK 8127	8127449	Schwarzbeck	2021/3/9	2022/3/8
10dB Pulse Limiter	VTSD 9561-F	VTSD 9561 F-B #206	SCHWARZBECK	2021/7/21	2022/7/20

6. Ancillary Equipment Utilized

Description	Manufacturer	Model	Serial No.
PC	DELL	Vstro 5370	2017AP6215

END OF REPORT