TEST REPORT

APPLICANT	:	Sonim Technologies, Inc.
PRODUCT NAME	:	Mobile Hotspot
MODEL NAME	:	H500V
BRAND NAME	:	Sonim
FCC ID	:	WYPH500V
STANDARD(S)	:	47 CFR Part 15 Subpart B
RECEIPT DATE	:	2023-11-01
TEST DATE	:	2024-07-04 to 2024-07-31
ISSUE DATE	:	2024-11-25

Edited by: Chen Bilian(Rapporteur)

Approved by: Xiao Xiong(Supervisor)

MORLAB
Shenzhen Morlab Communications Technology Co., Ltd.
FL.1-3, 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

1. Technical Information 3
1.1. Applicant and Manufacturer Information 3
1.2. Equipment Under Test (EUT) Description 3
2. Test Results 6
2.1. Applied Reference Documents 6
2.2. EUT Setup and Operating Conditions 7
3. 47 CFR Part 15B Requirements 10
3.1. Conducted Emission 10
3.2. Radiated Emission 14
Annex A Test Uncertainty 21
Annex B Testing Laboratory Information 22

Change History		
Version	**Date**	**Reason for change**
1.0	2024-11-25	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Sonim Technologies, Inc.
Applicant Address:	4445 Eastgate Mall, Suite 200, San Diego, CA 92121, USA
Manufacturer:	Sonim Technologies, Inc.
Manufacturer Address:	4445 Eastgate Mall, Suite 200, San Diego, CA 92121, USA

1.2. Equipment Under Test (EUT) Description

Product Name:	Mobile Hotspot
EUT No.:	4#
Hardware Version:	V2.0
Software Version:	H50.0-01-5.4.0-15.18.00
Tx Frequency:	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 48: 3550 MHz ~ 3700 MHz LTE Band 66: 1710 MHz ~ 1780 MHz 5G NR n2: 1850 MHz ~ 1910 MHz 5G NR n5: 824 MHz ~ 849 MHz 5G NR n66: 1710 MHz ~ 1780 MHz 5G NR n77: 3300 MHz ~ 4200 MHz 5G NR n260: 37000 MHz ~ 40000 MHz 5G NR n261: 27500 MHz ~ 28350 MHz 802.11b/g/n/ax: 2412 MHz ~ 2472 MHz 802.11a/ac/n/ax: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz
Rx Frequency:	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 46: 5150 MHz ~ 5925 MHz LTE Band 48: 3550 MHz ~ 3700 MHz LTE Band 66: 2110 MHz ~ 2200 MHz 5G NR n2: 1930 MHz ~ 1990 MHz 5G NR n5: 869 MHz ~ 894 MHz 5G NR n66: 2110 MHz ~ 2200 MHz 5G NR n77: 3300 MHz ~ 4200 MHz 5G NR n260: 37000 MHz ~ 40000 MHz 5G NR n261: 27500 MHz ~ 28350 MHz 802.11b/g/n/ax: 2412 MHz ~ 2472 MHz 802.11a/ac/n/ax: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz GPS(L1): 1559MHz~ 1610MHz GPS(L5): 1164 MHz~ 1215 MHz	
CA_UL:	CA_48C, CA_66B, CA_66C, CA_2A-4A, CA_2A-5A, CA_2A-13A, CA_2A-66A, CA_4A-5A, CA_4A-13A, CA_5A-66A, CA_13A-66A	
EN_DC:	DC_5A_n2, DC_13A_n2, DC_66A_n2, DC_2A_n5, DC_48A_n5, DC_66A_n5, DC_2A_n66, DC_5A_n66, DC_13A_n66, DC_48A_n66, DC_2A_n77, DC_5A_n77, DC_13A_n77, DC_66A_n77, DC_2A_n260, DC_5A_n260, DC_13A_n260, DC_48A_n260, DC_66A_n260, DC_77n_n260, DC_2A_n261, DC_5A_n261, DC_13A_n261, DC_48A_n261, DC_66A_n261, DC_77n_n261	
Accessory:	**AC Adapter**	
	Brand Name:	N/A
	Model No.:	1-CHUSQ302-097
	Serial No.:	(N/A, marked #1 by test site)
	Rated Input:	100-240V~ 50/60Hz, 0.5A
	Rated Output:	5V⎓3A ,9V⎓2A ,12V⎓1.5A
	Manufacturer:	HUIZHOU PUAN ELEOTRONICS CO.,LTD
	Battery	
	Brand Name:	sonim

	Model No.:	BAT-06000-01S
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	6000mAh
	Rated Voltage:	3.85V
	Charge Limit:	4.4V
	Manufacturer:	Guangdong Fenghua New Energy Co.,Ltd.
	USB Cable 1	
	Model No. :	USB TYPE A TO C 3.0 CABLE (1.0M)
	Manufacturer:	HUIZHOU WASHIN ELECTRONICS CO.,LTD
	USB Cable 2	
	Model No. :	GJ-LM-2022011301
	Manufacturer:	Dongguan GuoJun Plastic Electronics Co.,Ltd

Note:

1. This test report is variant from the original report (Report No.: SZ24060210E01, Model Name: H500V) based on the similarity between before, only disable 5G NR SA functionality by software, and change the software version, the others are the same as before. We evaluated the above changes, which had no impact on the test results. The test results in this report still refer to the test results of the original test report.
2. The EUT is equipped with two kinds of USB cables, and these USB cables are tested separately, the worse case (USB cable 1) is attached to the 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	2024.07.04 to 2024.07.31	Wang Deyong	PASS Note 4	No deviation
2	15.109	Radiated Emission	2024.07.10	Yang Lian	PASS Note 4	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.

Note 4: The test results of these test items in this report refer to the test report (Report No.: SZ24060210E01).

2.2. EUT Setup and Operating Conditions

Test Item	
Mode 1 :	**EUT + WCDMA Band II Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode**
Mode 2 :	EUT + WCDMA Band II Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 3 :	EUT + WCDMA Band IV Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 4 :	EUT + WCDMA Band IV Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 5 :	EUT + WCDMA Band V Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 6 :	EUT + WCDMA Band V Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 7 :	EUT + LTE Band 2 Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 8 :	EUT + LTE Band 2 Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 9 :	EUT + LTE Band 4 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 10 :	EUT + LTE Band 4 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 11 :	EUT + LTE Band 5 Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 12 :	EUT + LTE Band 5 Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 13 :	EUT + LTE Band 7 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 14 :	EUT + LTE Band 7 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 15 :	EUT + LTE Band 12 Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 16 :	EUT + LTE Band 12 Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 17 :	EUT + LTE Band 13 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 18 :	EUT + LTE Band 13 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 19 :	EUT + LTE Band 17 Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode

Mode 20	:	EUT + LTE Band 17 Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 21	:	EUT + LTE Band 46 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 22	:	EUT + LTE Band 46 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 23	:	EUT + LTE Band 48 Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 24	:	EUT + LTE Band 48 Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 25	:	EUT + LTE Band 66 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 26	:	EUT + LTE Band 66 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 27	:	EUT + CA_48C Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 28	:	EUT + CA_48C Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 29	:	EUT + CA_66B Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 30	:	EUT + CA_66B Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 31	:	EUT + CA_66C Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 32	:	EUT + CA_66C Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 33	:	EUT + CA_2A-4A Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 34	:	EUT + CA_2A-4A Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 35	:	EUT + CA_2A-5A Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 36	:	EUT + CA_2A-5A Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 37	:	EUT + CA_2A-13A Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 38	:	EUT + CA_2A-13A Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 39	:	EUT + CA_2A-66A Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 40	:	EUT + CA_2A-66A Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode

Mode 41	:	EUT + DC_5A_n2 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 42	:	EUT + DC_5A_n2 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 43	:	EUT + DC_2A_n5 Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 44	:	EUT + DC_2A_n5 Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 45	:	EUT + DC_2A_n66 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 46	:	EUT + DC_2A_n66 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 47	:	EUT + DC_2A_n77 Link + 5G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 48	:	EUT + DC_2A_n77 Idle + 5G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 49	:	EUT + DC_2A_n260 Link + 2.4G WLAN Link + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 50	:	EUT + DC_2A_n260 Idle + 2.4G WLAN Idle + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 51	:	EUT + DC_2A_n261 Link + 5G WLAN Link + GPS(L1) Rx + Battery + AC Adapter + USB Cable + RJ45 Cable + Router + Mobile Phone + Working Mode
Mode 52	:	EUT + DC_2A_n261 Idle + 5G WLAN Idle + GPS(L5) Rx + Battery + AC Adapter + USB Cable + RJ45 Cable + Working Mode
Mode 53	**:**	**EUT + LTE Band 2 Idle + 5G WLAN Idle + Battery + USB Cable + PC + PC Adapter + Data Transfer Mode**
Remark: The above test mode in boldface (Mode 1) was the worst case of conducted emission test, only the test data of this mode was reported. The above test mode in boldface (Mode 53) was the worst case of radiated emission test, only the test data of this mode was 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:

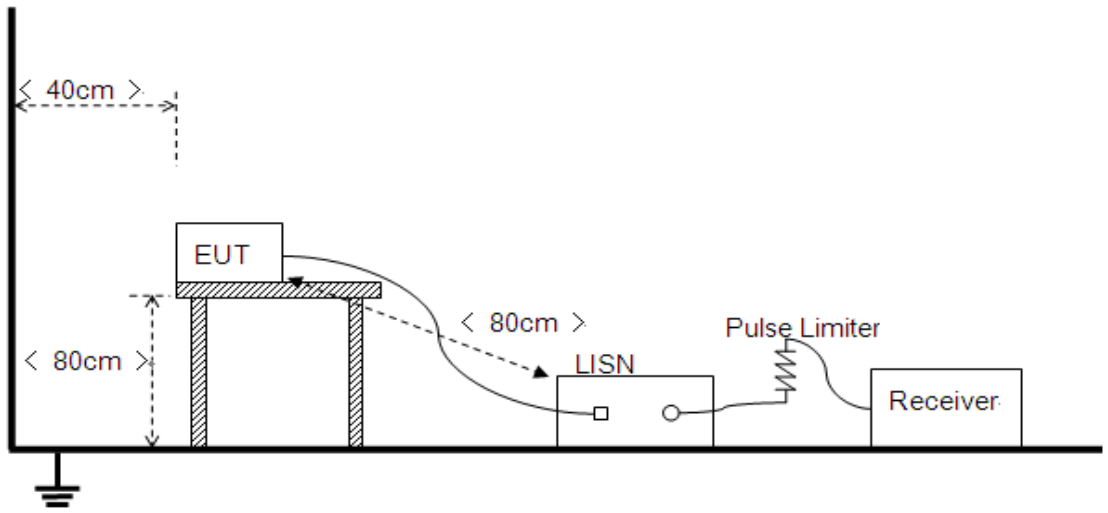
a) The limit subjects to the Class B digital device.

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.

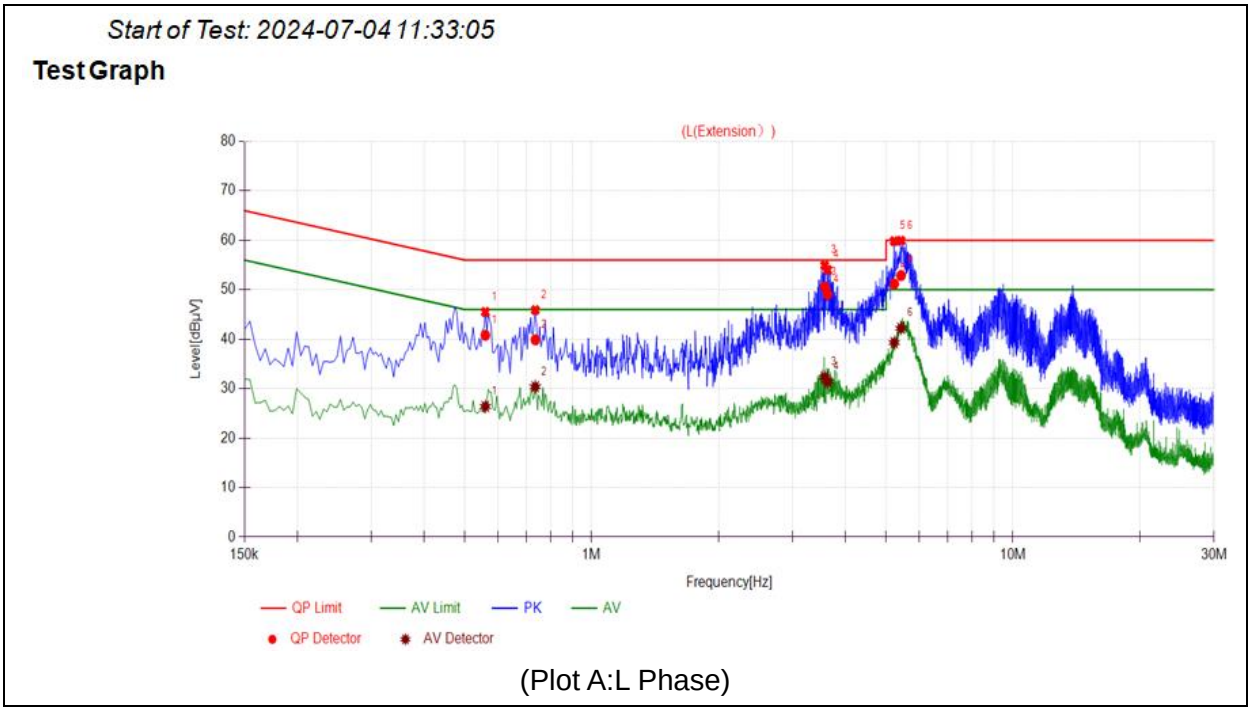
3.1.3. Test Result

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.

The measurement results are obtained as below:
$E\ [dB\mu V] = U_R[dB\mu V] + L_{Cable\ loss}\ [dB] + A_{Factor}\ [dB]$
U_R: Receiver Reading
A_{Factor}: Voltage Division Factor of LISN
$L_{Cable\ loss}$: Correction Factor Contains Pulse Limiter and Cable

During the test, the total correction Factor $L_{Cable\ loss}$ and A_{Factor} were built in test software.

A. Test Plot and Suspicious Points:

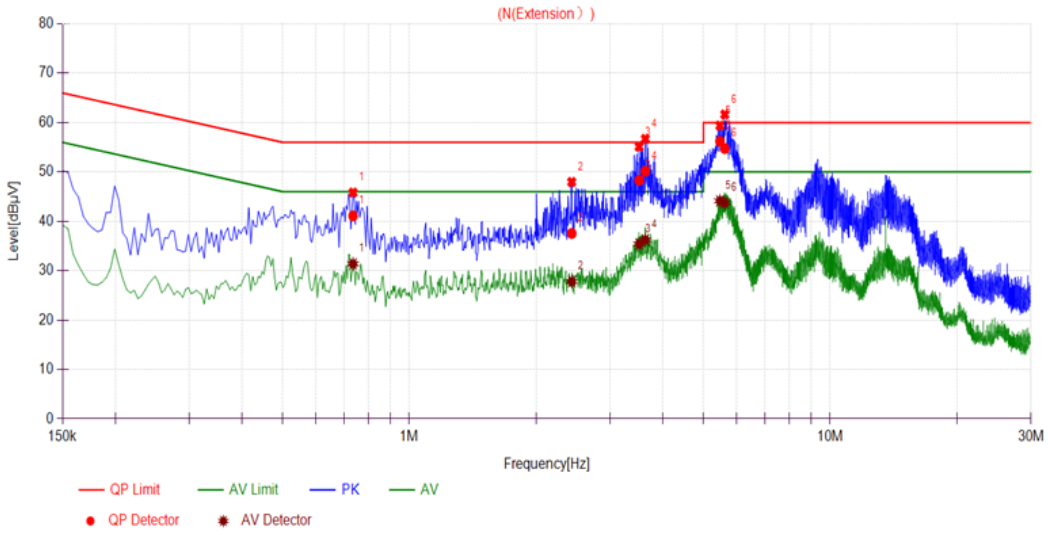


(Plot A:L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quasi-peak	Average	Quasi-peak	Average		
1	0.5595	40.79	26.39	56.00	46.00	Line	PASS
2	0.7350	39.88	30.38	56.00	46.00		PASS
3	3.5748	50.59	32.31	56.00	46.00		PASS
4	3.6330	49.08	31.40	56.00	46.00		PASS
5	5.2265	51.21	39.31	60.00	50.00		PASS
6	5.4242	52.88	42.21	60.00	50.00		PASS

Start of Test: 2024-07-04 11:28:29

Test Graph



(Plot B: N Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quasi-peak	Average	Quasi-peak	Average		
1	0.7350	41.11	31.38	56.00	46.00	Neutral	PASS
2	2.4313	37.56	27.81	56.00	46.00		PASS
3	3.5161	48.32	35.40	56.00	46.00		PASS
4	3.6378	50.16	36.24	56.00	46.00		PASS
5	5.4694	56.23	44.14	60.00	50.00		PASS
6	5.6180	54.75	43.75	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).

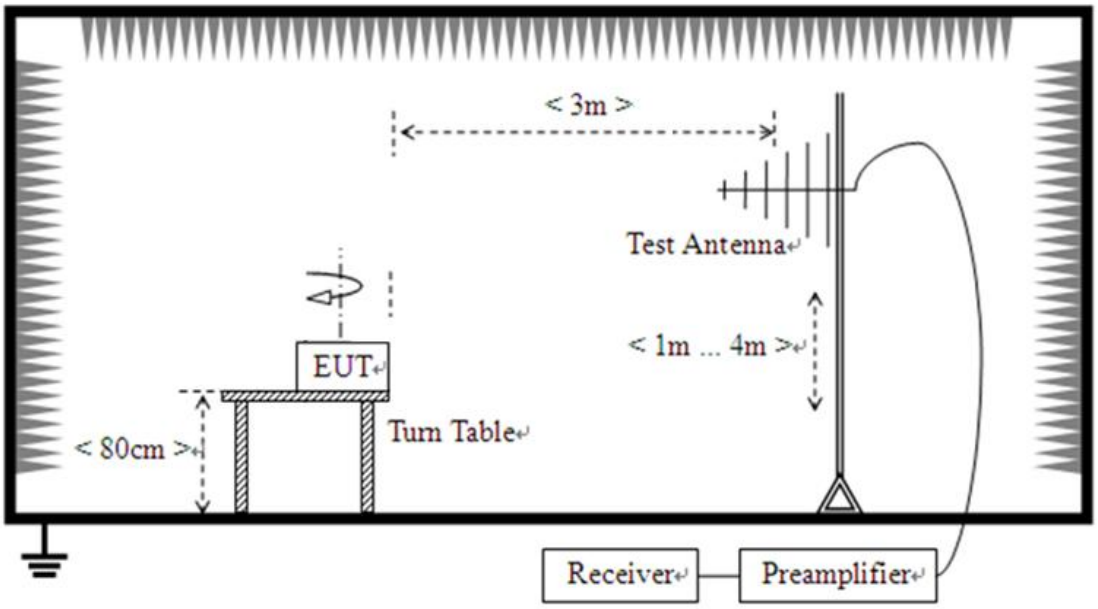
3.2.2. Frequency Range of Measurement

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

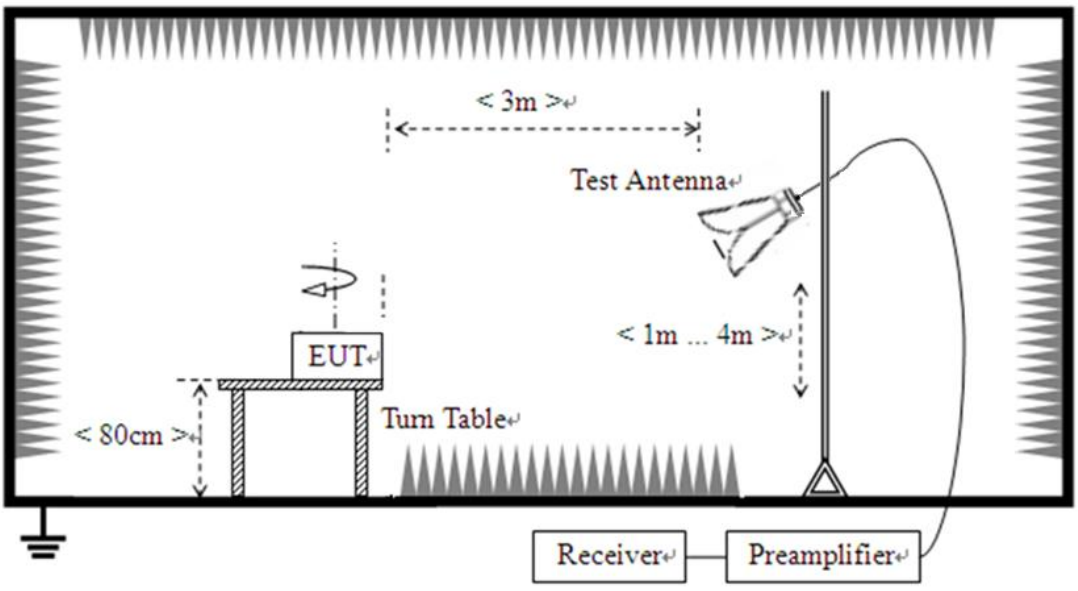
Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30.
1.705–108	1000.
108–500	2000.
500–1000	5000.
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower.

3.2.3. Test Setup

1) For radiated emissions from 30MHz to 1GHz



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 avariable-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 above 1 GHz, keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.

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

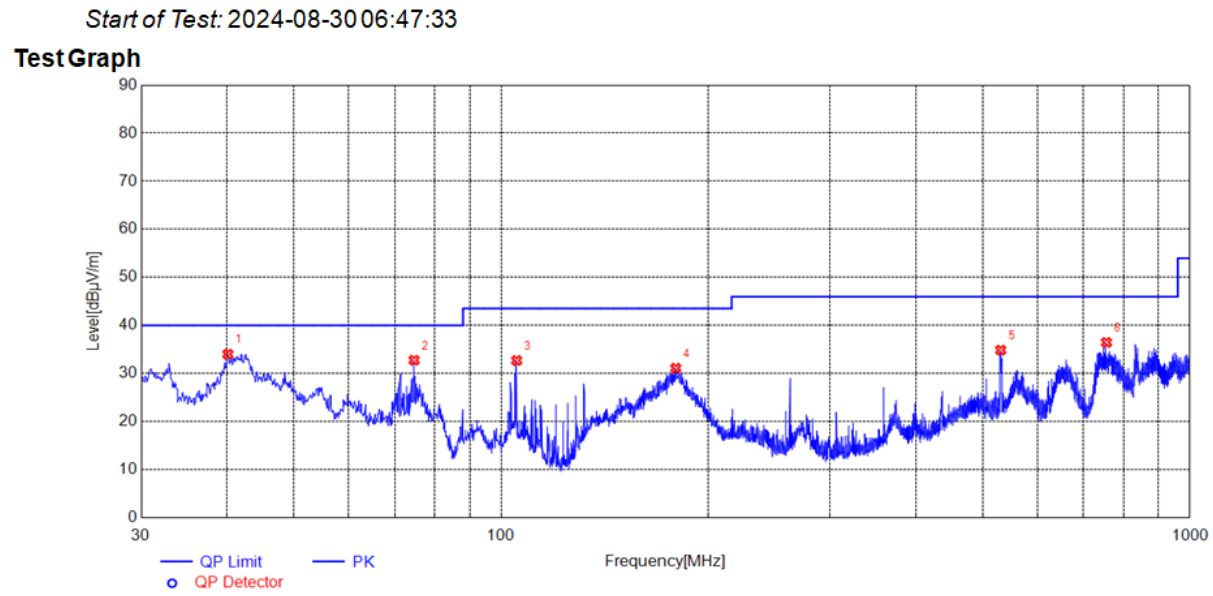
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

The amplitude of emissions (6GHz-40GHz) which are attenuated more than 20 dB below the permissible value need not be reported.

The measurement results are obtained as below:
$E\ [dB\mu V/m] = U_R\ [dB\mu V] + A_T[dB] + A_{Factor}\ [dB]$; $A_T = L_{Cable\ loss}\ [dB] - G_{preamp}\ [dB]$
A_T: Total correction Factor except Antenna
U_R: Receiver Reading
G_{preamp}: Preamplifier Gain
A_{Factor}: Antenna Factor at 3m

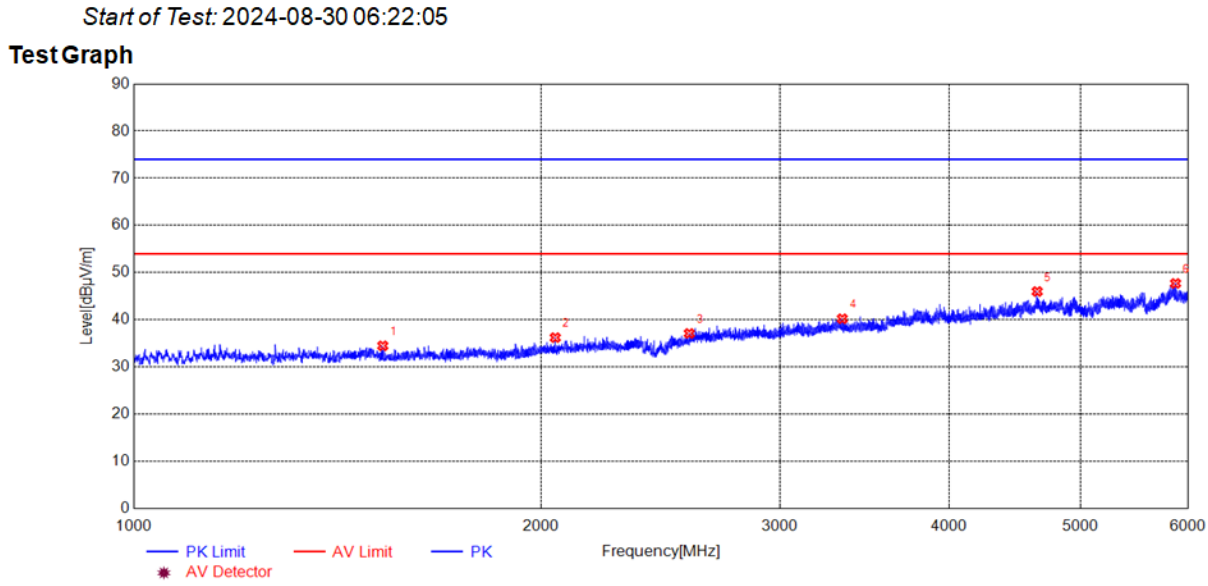
During the test, the total correction Factor A_T and A_{Factor} were built in test software.

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.



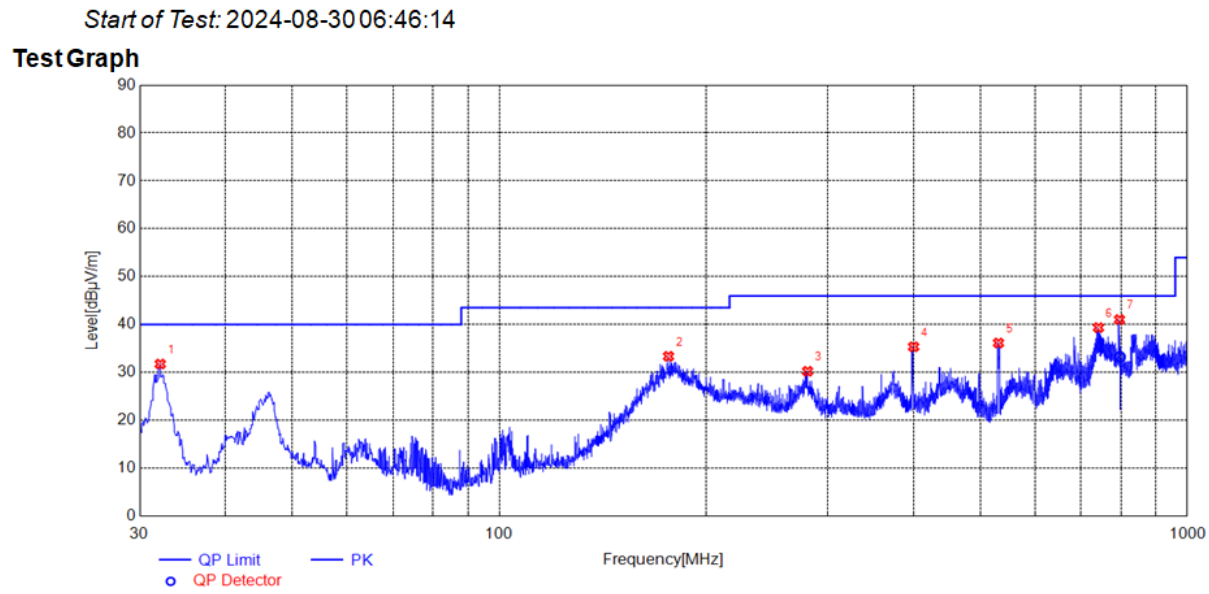
(Plot A: ANT-Vertical, 30MHz - 1GHz)

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	40.0890	34.01	N.A.	N.A.	N.A.	40.00	N.A.	V	PASS
2	74.7215	32.77	N.A.	N.A.	N.A.	40.00	N.A.	V	PASS
3	105.2795	32.71	N.A.	N.A.	N.A.	43.50	N.A.	V	PASS
4	179.2009	31.10	N.A.	N.A.	N.A.	43.50	N.A.	V	PASS
5	531.0551	34.88	N.A.	N.A.	N.A.	46.00	N.A.	V	PASS
6	756.2146	36.47	N.A.	N.A.	N.A.	46.00	N.A.	V	PASS



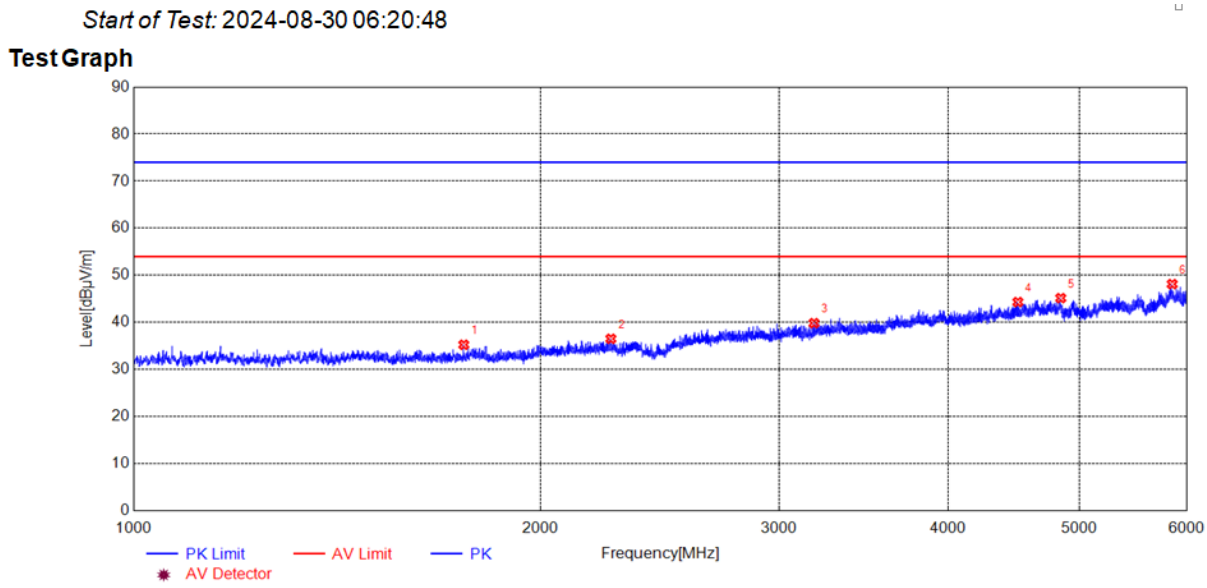
(Plot B: ANT-Vertical, 1GHz - 6GHz)

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	1527.5000	34.50	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
2	2048.0000	36.23	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
3	2572.0000	37.12	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
4	3336.0000	40.23	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
5	4646.0000	46.01	N.A.	N.A.	74.00	N.A.	54.00	V	PASS
6	5878.0000	47.72	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	32.1342	31.77	N.A.	N.A.	N.A.	40.00	N.A.	H	PASS
2	176.0966	33.37	N.A.	N.A.	N.A.	43.50	N.A.	H	PASS
3	280.4790	30.24	N.A.	N.A.	N.A.	46.00	N.A.	H	PASS
4	399.8980	35.36	N.A.	N.A.	N.A.	46.00	N.A.	H	PASS
5	531.3461	36.16	N.A.	N.A.	N.A.	46.00	N.A.	H	PASS
6	742.3422	39.36	N.A.	N.A.	N.A.	46.00	N.A.	H	PASS
7	796.4736	41.04	33.28	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	1754.5000	35.26	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
2	2253.5000	36.52	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
3	3184.0000	39.85	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
4	4504.5000	44.33	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
5	4845.5000	45.16	N.A.	N.A.	74.00	N.A.	54.00	H	PASS
6	5857.0000	48.14	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
TS+ -[JS32-RE]	Version 2.5.0.6	Tonscend
TS+ -[JS32-CE]	Version 2.5.0.0	Tonscend

5. Test Equipments Utilized

Description	Model	Serial No.	Manufacturer	Cal. Date	Due. Date
Bi-Log Antenna	VULB 9163	9163-274	SCHWARZBECK	2024/6/29	2025/6/28
Bi-Log Antenna	VULB 9163	9163-519	SCHWARZBECK	2024/6/22	2025/6/21
Horn Antenna	BBHA 9120D	9120D-963	SCHWARZBECK	2024/6/3	2025/6/2
Horn Antenna	BBHA 9120D	01774	SCHWARZBECK	2024/6/22	2025/6/21
Horn Antenna	BBHA9170	BBHA9170 #773	SCHWARZBECK	2024/6/22	2025/6/21
Receiver	N9038A	MY56400093	KEYSIGHT	2024/1/25	2025/1/24
6db Attenuator	BW-N6W5+	E191001	Mini-circuits	2023/9/19	2024/9/18

Preamplifier	S020180L3203	61171/61172	LUCIX CORP.	2024/5/30	2025/5/29
Preamplifier	S10M100L3802	46732	LUCIX CORP.	2024/5/30	2025/5/29
Preamplifier	DCLNA0118-40C-S	DS77209	Decentest	2024/5/30	2025/5/29
RF Coaxial Cable	PE330	MRE001	Pasternack	N/A	N/A
RF Coaxial Cable	CLU18	MRE002	Pasternack	N/A	N/A
RF Coaxial Cable	CLU18	MRE003	Pasternack	N/A	N/A
RF Coaxial Cable	BNC	MRE04	Qualwave	N/A	N/A
Receiver	ESPI	101052	R&S	2024/6/3	2025/6/2
LISN	NSLK 8127	8127449	Schwarzbeck	2024/2/2	2025/2/1
10dB Pulse Limiter	VTSD 9561-F	VTSD 9561 F-B #206	SCHWARZBECK	2024/5/30	2025/5/29
System Simulator	CMW500	152038	R&S	2023/9/19	2024/9/18

6. Ancillary Equipment Utilized

Description	Model	Serial No.	Manufacturer
Mobile Phone	PLK-AL10	N/A	HONOR
RJ45 Cable	N/A	N/A	N/A
Router	WS7000 V2	NNGQU22212603894	HUAWEI
PC	P144G	20210357	DELL
PC Adapter	HA65NM190	N/A	DELL

END OF REPORT