

JAPAN MIC RF TEST REPORT

Applicant	:	Xiaomi Communications Co., Ltd.
Address	:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, 100085, China
Equipment under Test	:	Robotic Vacuum Cleaner
Model No.	:	PV11GL
Trade Mark	:	Xiaomi
Manufacturer	:	Xiaomi Communications Co., Ltd.
Address	:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, 100085, China
Report No.	:	LS-R25110633-1F02
Issue Date	:	Dec. 31, 2025

LabSure Testing Services (Tianjin) Co., Ltd.



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TEST REPORT DECLARE

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Standard: MIC Article 2, Paragraph 1, Item 19.

Test method: MIC Notification 88, Appendix No. 43.

We Declare:

The equipment described above is tested and assessed by LabSure Testing Services (Tianjin) Co., Ltd. and in the configuration assessed the equipment complied with the standards specified above. The tested and assessed results are contained in this test report and LabSure Testing Services (Tianjin) Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these assessments.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above standards.

Report No.:	LS-R25110633-1F02		
Date of Receipt:	Dec. 25, 2025	Date of Test:	Dec. 25, 2025

Prepared By:

Sunny Zhang

Reviewed by:

Ethan Bao

Authorized by:

Aaron Zhang

Sunny Zhang/Engineer

Ethan Bao/Engineer

Aaron Zhang/Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of LabSure Testing Services (Tianjin) Co., Ltd.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Revision history

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Dec. 31, 2025	

1. Summary of test results

TEST PARAMETER	STANDARD	METHOD	RESULTS
Antenna Power	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
Tolerances for Antenna Power	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
Frequency Tolerance	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
Transmission Rate	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	N/A
Occupied Frequency Bandwidth	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
Spread Bandwidth	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	N/A
Spreading Factor	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	N/A
Number of Carriers	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	N/A
Dwell Time	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	N/A
Spurious Emissions	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
Carrier Sense	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
Process Gain	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	N/A
Secondary Radiated Emissions	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
Interference prevention function	MIC Article 2, Paragraph 1, Item 19	MIC Notification 88Appendix No.43	PASS
N/A is an abbreviation for Not Applicable.			

2. General test information

2.1. Description of EUT

EUT* Name	: Robotic Vacuum Cleaner
Test Model Number	: PV11GL
EUT Function Description	: Please reference user manual of this device
Power supply	: DC 14.4V by Lithium battery
Radio Technology	: IEEE 802.11b/g/n/ax
Operation Frequency	: IEEE 802.11b: 2412MHz-2472MHz IEEE 802.11g: 2412MHz-2472MHz IEEE 802.11n HT20: 2412MHz-2472MHz IEEE 802.11n HT40: 2422MHz-2462MHz IEEE 802.11ax HE20: 2412MHz-2472MHz IEEE 802.11ax HE40: 2422MHz-2462MHz
Modulation	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Transmitter Rate	: IEEE 802.11b: 1, 2, 5.5, 11 Mbps IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n: MCS0~MCS7 IEEE 802.11ax: MCS0~MCS11
Antenna Type	: PCB antenna, maximum PK gain: 4.20 dBi

Note: EUT is the ab. of equipment under test.

2.2. Accessories of EUT

Description of Accessories	Trade mark	Model number	Manufacturer	Other
N/A	N/A	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number or Type	EMC Compliance	SN:
Notebook	Lenovo Beijing Co. Ltd.	ThinkPad	FCC/CE	TP00067A

2.4. Block diagram of EUT configuration for test



The test software was used to control EUT work in Continuous Tx mode, and select test channel,

wireless mode as below table.

Test software: ADB.EXE

Tested mode, channel, and data rate information				
Mode	Channel	Data rate (Mbps)	Frequency (MHz)	Power Level
		(See Note)		ANT1
802.11b	CH1 Low	1M	2412	17
	CH7 Middle	1M	2442	16
	CH13 High	1M	2472	15
802.11g	CH1 Low	6M	2412	13
	CH7 Middle	6M	2442	13
	CH13 High	6M	2472	13
802.11n HT20	CH1 Low	MCS0	2412	13
	CH7 Middle	MCS0	2442	13
	CH13 High	MCS0	2472	13
802.11n HT40	CH3 Low	MCS0	2422	16
	CH7 Middle	MCS0	2442	16
	CH11 High	MCS0	2462	13
802.11ax HE20	CH1 Low	MCS0	2412	14
	CH7 Middle	MCS0	2442	14
	CH13 High	MCS0	2472	14
802.11ax HE40	CH3 Low	MCS0	2422	15
	CH7 Middle	MCS0	2442	16
	CH11 High	MCS0	2462	14

Note: all possible configurations have been investigation, according the operation mechanism of equipment. The worst case is shown in this table.

2.5. Test environment conditions

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

	Normal Conditions
Temperature range	20-28℃
Humidity range	45-75%
Pressure range	86-106kPa
Power supply	DC 14.4V (When the input voltage to equipment fluctuated $\pm 10\%$, the RF unit circuit voltage fluctuation under 1%, therefore all test performed on the rated voltage for equipment.)

The measurement result of the voltage fluctuation at RF circuit when DC 14.4V $\pm 10\%$.		
Input voltage		RF module voltage
+10% of rate voltage	DC 15.48V	DC 3.30 V
Rate voltage	DC 14.40V	DC 3.30 V
-10% of rate voltage	DC 12.96V	DC 3.30 V

2.6. Test laboratory

LabSure Testing Services (Tianjin) Co., Ltd.

Address: Building D-1, No. 19, Weisi Road, Microelectronics Industrial Park Development Area, Tianjin, China.

Tel: +86-22-58038033, www.lab-sure.com, E-mail: labsure@lab-sure.com

NVLAP (National Voluntary Laboratory Accreditation Program) CODE: 500036-0

CNAS (China National Accreditation Service for Conformity Assessment) CODE: L13402

FCC Designation Number: CN5004; FCC Test Firm Registration Number: 368676

ISED (Innovation, Science and Economic Development Canada) Company Number: 27768

Conformity Assessment Body Identifier: CN0125

VCCI Facility Registration Number: C-20089, T-20093, R-20125, G-20122

2.7. Deviations of test standard

No Deviation.

2.8. Measurement uncertainty

Test Item	Uncertainty
Occupied Channel Bandwidth	$\pm 0.14\%$
Uncertainty for radio frequency	1×10^{-7}
RF Output power, conducted	$\pm 0.12\text{dB}$
Power Spectral Density, Conducted	$\pm 0.12\text{dB}$
Unwanted Emissions, Conducted	$\pm 0.52\text{dB}$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 1\%$
DC and Low frequency voltage	$\pm 0.5\%$
Time	$\pm 0.46\%$
Duty Cycle	$\pm 0.46\%$

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

3. Equipment used during test

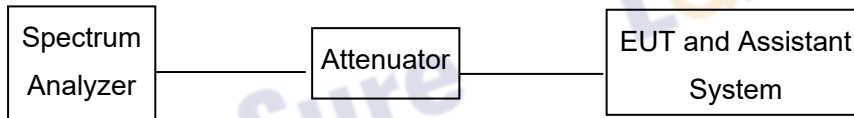
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval	Calibration body
RF Connected Test (MWRFTest Measurement System)						
PXA Signal Analyzer	Keysight	N9030B	MY56320639	2025/02/20	1 Year	GRGTEST
PXA Signal Analyzer	Keysight	N9010A	MY53281492	2025/02/20	1 Year	GRGTEST
Power Sensor	Keysight	U2021XA	MY59150007	2025/02/20	1 Year	GRGTEST
MXG Vector Signal Generator	Keysight	N5182A	MY50143288	2025/02/20	1 Year	GRGTEST
DC Power Supply	inSTEK	PSP-2010	EN122317	2025/02/03	1 Year	GRGTEST
Digital multimeters	FLUKE	15B Pro	59823530WS	2025/03/11	1 Year	GRGTEST
Test Software	MWRFTest	MTS8310	V03	N/A	N/A	N/A
Remark: Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1). GRGTEST is GRG METROLOGY & TEST GROUP CO., LTD. and compliant with the requirement in remark.						

4. Frequency Tolerance

4.1. Limit

+/- 50×10^{-6} or less (50ppm)

4.2. Block diagram of test setup



4.3. Test Procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The center frequency of the channel under test.

Resolution BW: 10 kHz.

Video BW: 10 kHz.

Span: 1MHz.

Detector: Peak.

Trace Mode: Max Hold.

(2) When the trace is complete, find the peak value of the power envelope and record the frequency.

4.4. Test result

Pass

Please find the detailed data in APPENDIXES-2.4G WiFi-MIC.

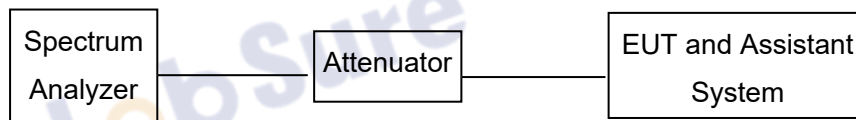
5. Occupied Frequency Bandwidth

5.1. Limit

IEEE802.11b/g/n (HT20)/ax (HE20)/be (EHT20): within 26MHz

IEEE802.11n (HT40)/ax (HE40)/be (EHT40): 26MHz-40MHz

5.2. Block diagram of test setup



5.3. Test Procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The center frequency of the channel under test.

Resolution BW: 300 kHz

Video BW: 300 kHz

Span: Wide enough to cover the complete power envelope of the signal of the EUT

Sweep data points: 1001 or greater

Sweep time: Auto

Detector: Peak.

Trace Mode: Max Hold.

- (2) When the trace is complete, measure the Occupied bandwidth (99% bandwidth) with spectrum analyzer's bandwidth measure function.

5.4. Test result

Pass

Please find the detailed data in APPENDIXES-2.4G WiFi-MIC.

6. Antenna Power and Antenna Power Tolerance

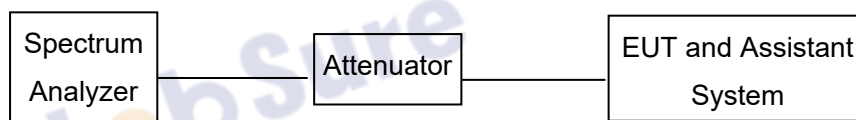
6.1. Limit

IEEE802.11b/g/n (HT20)/ax (HE20)/be (EHT20): 10mW/MHz

IEEE802.11n (HT40)/ax (HE40)/be (EHT40): 5mW/MHz

Tolerance: +20%

6.2. Block diagram of test setup



6.3. Test Procedure

(1) Search for peak power frequency

Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The center frequency of the channel under test.

Resolution BW: 1MHz

Video BW: 1MHz

Span: Wide enough to cover the complete power envelope of the signal of the EUT

Sweep time: Auto

Sweep data points: 1001 or greater

Detector: Peak

Trace Mode: Max Hold.

(2) Measurement of average antenna power

Centre Frequency: Frequency of peak power found in step (1)

Span: 0 Hz

Resolution BW: 1MHz

Video BW: 1MHz

Detector: RMS

Sweep: Minimum time required to make an accurate measurement.

For burst type (intermittent) transmission, sweep time shall be greater than one burst interval.

Sweep data points: 1001 or greater

Note: The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.

6.4. Test result

Pass

Please find the detailed data in APPENDIXES-2.4G WiFi-MIC.

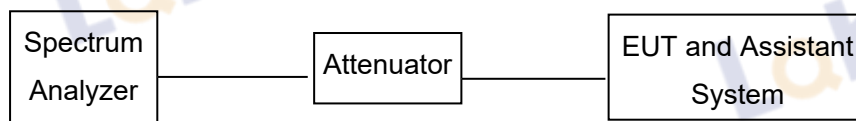
7. Transmitter Spurious Emissions

7.1. Limit

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency f other than frequency band used shall be as follows:

- a. $2,387\text{MHz} \leq f \leq 2,400\text{MHz}$ and $2,483.5\text{MHz} < f \leq 2,496.5\text{MHz}$ 25 μW (-16dBm) or less
- b. $2,387\text{MHz} > f$ and $2,496.5\text{MHz} < f$ 2.5 μW (-26dBm) or less

7.2. Block diagram of test setup



7.3. Test Procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator.
- (2) Set the spectrum analyzer as below, sweep the frequency, and search for unwanted emissions.

Resolution BW: Reference Bandwidth

Video BW: Same with Resolution BW

Detector: Peak

Trace Mode: Max. Hold

- (3) All the emissions from 30MHz to 13GHz were measured and record.
- (4) If spurious emissions are greater than [limit -3dB], the spectrum shall be set as below, the measured value shall be the result.

Centre Frequency: frequency of measured in (3).

Resolution BW: 1MHz

Video BW: 1 MHz

Span: 0Hz.

Detector: RMS.

Sweep mode: Single

- (5) If there are multiple antennas, it is measured at each antenna.

7.4. Test result

Pass

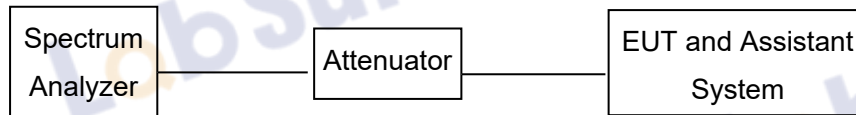
Please find the detailed data in APPENDIXES-2.4G WiFi-MIC.

8. Secondary Radiated Emissions

8.1. Limit

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW (-54dBm) or less at a frequency below 1 GHz and 20 nW (-47dBm) or less at a frequency of 1 GHz or higher as measured using the circuit.

8.2. Block diagram of test setup



8.3. Test Procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator.
- (2) Set the spectrum analyzer as below, search for the maximum amplitude of the secondary unwanted emissions.
Resolution BW: 100kHz for frequency below 1GHz and 1MHz for frequency above 1GHz.
Video BW: Same with Resolution BW
Detector: Peak
Trace Mode: Max. Hold
- (3) All the emissions from 30MHz to 13GHz were measured and record.
- (4) If the searched value is 1/10 or less of the allowable value specified in the Equipment Regulations, the searched value shall be the measured value.
- (5) If the searched value exceeds 1/10 of the allowable value specified in the equipment regulations, the frequency sweep width is gradually narrowed to about 10 times the resolution bandwidth in order to improve the setting accuracy of the center frequency of the spectrum analyzer. Then, measure the secondary emission frequency, set the spectrum analyzer as below, perform averaging, and measure the secondary emission power.
Centre Frequency: frequency of measured in (3).
Resolution BW: 1MHz
Video BW: 1 MHz
Span: 0Hz.
Detector: RMS.
Sweep mode: Single
- (6) If there are multiple antennas, it is measured at each antenna.

8.4. Test result

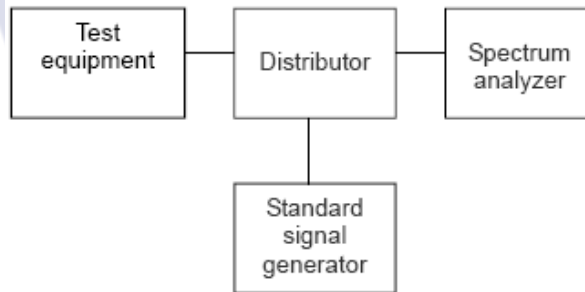
Pass

Please find the detailed data in APPENDIXES-2.4G WiFi-MIC.

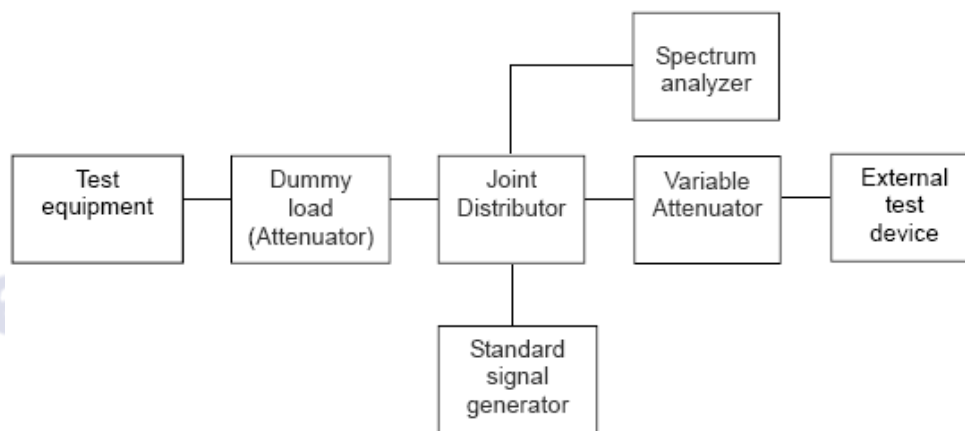
9. Carrier Sense Measurement

1) Measurement system diagram

(1) Test with test equipment only



(2) Test with external test device



2) Condition of measuring instrument

(1) Set the standard signal generator as follows:

Carrier frequency: Center frequency of receiving frequency band of test equipment

Modulation: No modulation. (note1)

Output level: regulated level on antenna input of test equipment

Note 1: The un-modulated carrier in the center frequency, when the carrier sense function of test equipment is not worked, if necessary, change the frequency or modulate it.

(2) Set the spectrum analyzer as follows:

Center frequency: Center frequency of the bandwidth used (note2)

Sweep frequency band: 50MHz (note2)

Resolution bandwidth: Approximately 1 MHz

Video bandwidth: Comparable level with resolution bandwidth

Trigger condition: Free-run

Detective mode: positive peak

Note 2: Under 26MHz of OFDM or other modulated method that with transmit function, set sweep frequency band as 0Hz, detective mode as sample, center frequency as the carrier frequency from 13MHz to 19MHz.

(3) External test device must be the one that can connect with the test equipment by line connection. However, facing device that can communicate with the test equipment can substitute it.

3) Condition of test equipment

Set the test equipment at the test frequency and the test spread code, and set it to the receiving mode in the beginning. When using external test device, connect with the test equipment by line connection.

4) Measuring operation procedure

(1) Test with test equipment only:

A) Set the spectrum analyzer according to (2) of 2).

B) Set the test equipment to the transmitting operation with the output of standard signal generator OFF, and confirm that it emits over 26MHz occupied frequency bandwidth OFDM radio wave, by using spectrum analyzer.

C) Set the test equipment to the receiving mode.

D) With the output of standard signal generator ON, set the test equipment to the transmitting operation, and confirm that it does not emit over 26MHz occupied frequency bandwidth OFDM radio wave, by using spectrum analyzer.

(2) Test with external device

A) Set the spectrum analyzer according to (2) of 2).

B) Set the output of standard signal generator OFF.

C) Connect test equipment and external test device with line connection. Confirm that it emits over 26MHz occupied frequency bandwidth OFDM radio wave, by using spectrum analyzer.

D) Set the test equipment to the receiving mode.

E) With the output of standard signal generator ON, set the test equipment to the transmitting operation, and confirm that it does not emit over 26MHz occupied frequency bandwidth OFDM radio wave, by using spectrum analyzer.

9.1. Test result

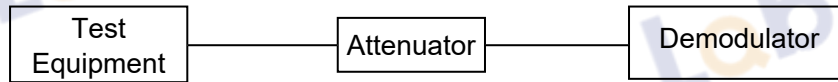
Pass

Please find the detailed data in APPENDIXES-2.4G WiFi-MIC.

10. Interference prevention function

10.1. Measurement system diagram

1) When transmitting identification code



2) Condition of measuring instrument

Demodulator must be able to demodulate the transmitting signal emitted by test equipment and to indicate the identification code.

3) Condition of test equipment the mode of normal use.

10.2. Measuring operation procedure

1) When test equipment has the function to transmit identification code automatically:

A) Transmit the predetermined identification code from test equipment.

B) Confirm the transmitted identification code by demodulator.

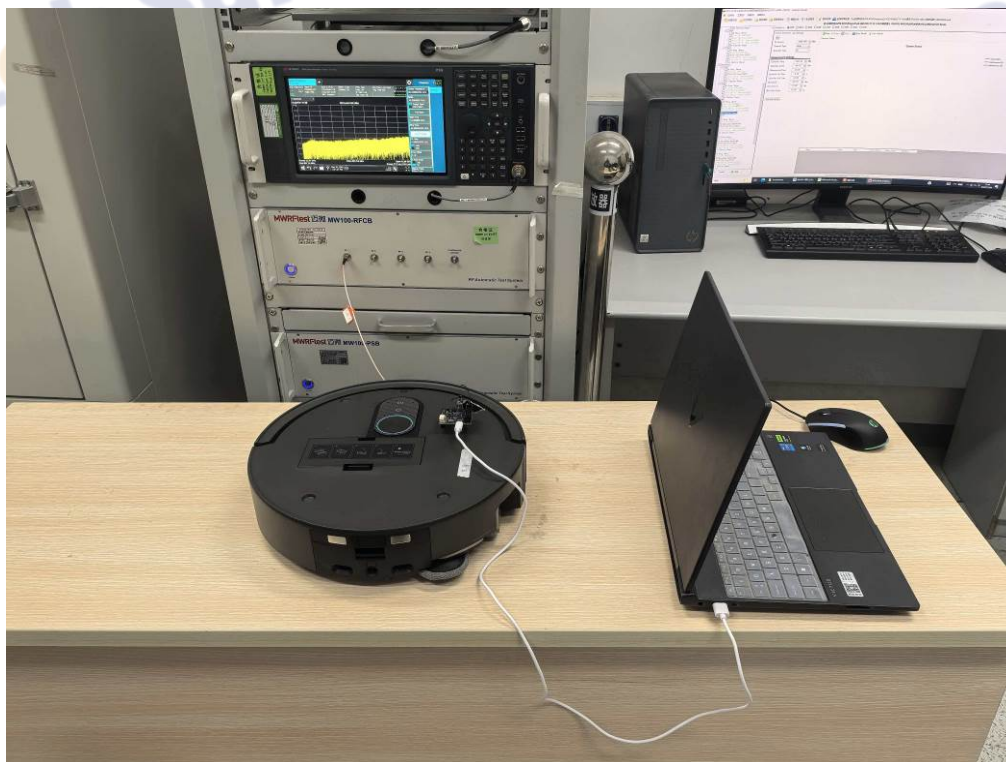
MAC address: C0:09:25:85:9A:78

10.3. Test result: The unit does meet the requirements (Good).

Test result: The unit does meet the requirements.

PASS

11. Test setup photograph



12. Photos of the EUT

Please find the photos of EUT in APPENDIXES-Photos.

END OF REPORT