

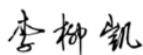


Industrial Internet Innovation Center (Shanghai) Co.,Ltd.

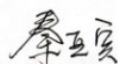
EMC TEST REPORT

PRODUCT	Function Cradle
BRAND	SUNMI
MODEL	NDZ6B
APPLICANT	Shanghai Sunmi Technology Co.,Ltd.
FCC ID	2AH25NDZ6B
ISSUE DATE	January 17, 2025
STANDARD(S)	FCC Part 15, Subpart B, ANSI C63.4-2014, ICES-003 Issue 7.

Prepared by: Li Liukai



Reviewed by: Qin Yabin



Approved by: Zhang Min

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1 Summary of Test Report

1.1 Test Standard (s)

No.	Test Standard(s)	Title
1	FCC Part 15, Subpart B	Radio frequency devices
2	ANSI C63.4	Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
3	ICES-003	Information Technology Equipment (Including Digital Apparatus)- Limits and Methods of Measurement
NOTE: According to customer requirements, test and report using the latest version of the standard.		

1.2 Summary of Test Results

No.	Item(s)	FCC Standard(s)	IC Standard(s)	Verdicts for Single Item	Detailed Results
1	Radiated Emission	15.109(a)	3.2.2	Pass	See section 6.1
2	AC Conducted Emission	15.107(a)	3.2.1	Pass	See section 6.2
NOTE: The NDZ6B, manufactured by Shanghai Sunmi Technology Co.,Ltd. is a new product for testing. Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 1.3. Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 4 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 1 of this test report.					

2 General Information of The Laboratory

2.1 Testing Laboratory

Lab Name	Industrial Internet Innovation Center (Shanghai) Co.,Ltd.
Address	Building 4, No. 766, Jingang Road, Pudong, Shanghai, China
Telephone	021-68866880
FCC Registration No.	708870
FCC Designation No.	CN1364
IC designation No.	10766A
CAB identifier	CN0067

2.2 Laboratory Environmental Requirements

Temperature	15℃~35℃
Relative Humidity	25%RH~75%RH
Atmospheric Pressure	86kPa~106kPa
Supply Voltage	120V/60Hz

2.3 Project Information

Project Manager	Gao Hongning
Test Date	December 19, 2024 to January 09, 2025

3 General Information of The Customer

3.1 Applicant

Company	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505, No.388,Song Hu Road, Yang Pu District, Shanghai, China
Telephone	18826519551

3.2 Manufacturer

Company	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505, No.388,Song Hu Road, Yang Pu District, Shanghai, China
Telephone	18826519551

3.3 Factory

Company	N/A
Address	N/A

4 General Information of The Product

4.1 Product Description for Equipment under Test (EUT)

Product	Function Cradle
Model	NDZ6B
Date of Receipt	December 18, 2023
EUT ID*	S08aa
SN/IMEI	MM01E4BT00464
Supported Radio Technology and Bands	2.4G WLAN 802.11b,g,n
Hardware Version	CE10A_MMI_V01
Software Version	2.0.0.26
Power Rating	DC 5V from adapter
NOTE1: EUT ID is the internal identification code of the laboratory. NOTE2: Photographs of EUT are shown in ANNEX A of this test report. NOTE3: Samples in the test report are provided by the customer. The test results are only applicable to the samples received by the laboratory.	

4.2 Description for Auxiliary Equipment (AE)

AE ID*	Description	Model	SN/Remark
CB02	Adapter	TPA-23A050200UU01	Input: 100~240V, 50/60Hz, 0.3 A; Output: 5V DC, 2A
UA04	Network cable	N/A	N/A
EA03	Smart POS System	T6F10	N/A
AE1	LAN Cable	N/A	N/A
AE2	Telephone	HA8000(28) P/T S	N/A
AE3	Mouse	N/A	N/A
AE4	RJ11 Cable	N/A	N/A
AE5	Notebook PC	ThinkPad T440p	N/A
NOTE: *AE ID is the internal identification code of the laboratory.			

5 Test Configuration Information

5.1 Laboratory Environmental Conditions

5.1.1 Permanent Facilities

Semi-anechoic chamber SAC3-1 (9 m*8m*6.2m) & SAC3-2 (9.8m*6.7m*6.7m)	
Shielding effectiveness	0.014MHz ~1MHz, >60dB; 1MHz~1000MHz, >90dB.
Electrical insulation	> 2MΩ
Ground system resistance	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (SVSWR)	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Shielded room	
Shielding effectiveness	0.014MHz~1MHz, >60dB; 1MHz~1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω

5.2 Decision of final test mode

The EUT was tested in conjunction with the accessories in Section 4.2. We tested all of the following test modes and selected the worst mode from the test results and recorded them in the report.

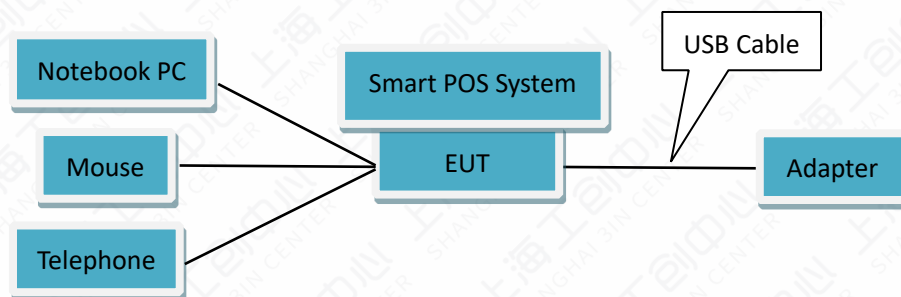
The test configuration modes are as the following:

Test Item	Test setup and operating modes
Radiated emission	30MHz-18GHz frequency range: Mode 1: Full system+ CB02+ UA04+ EA03+ AE
AC Conducted emission	Mode 1: Full system+ CB02+ UA04+ EA03+ AE

5.3 EUT System Operation

1. Connect the EUT with AE.
2. Setup the EUT according to the standard.
3. Full system: Connect the adapter, LAN Cable, RJ11 Cable, and mouse to the bottom port of the EUT, and place the Smart POS System on the EUT. At this time, the Smart POS System can be connected to the WIFI hotspot of the EUT, and the Smart POS System can also establish a network connection with the Notebook PC.

5.4 EUT Connection Diagram of Test System



<Figure 5.4-1> Mode 1

5.5 Test Equipment Utilized

No.	Name	Model	S/N	SW Version	HW Version	Manufacturer	Cal. Date	Cal. Interval
1	Test Receiver	ESCI	101235	V5.1-24-3	00	R&S	2024-12-13	1 year
2	Test Receiver	ESR7	102399	1.4	00	R&S	2024-06-07	1 year
3	Test Receiver	FSW43	101943	1.12	00	R&S	2024-08-21	1 year
4	Trilog Antenna	VULB9162	00426	N/A	N/A	Schwarzbeck	2024-08-02	1 year
5	Double Ridged Guide Antenna	ETS-3117	00135885	N/A	N/A	ETS	2024-03-26	1 year
6	2-Line V-Network	ENV216	101380	N/A	N/A	R&S	2024-12-13	1 year
7	EMI Test Software	EMC32 V10.35.02	N/A	N/A	N/A	R&S	N/A	N/A
8	EMI Test Software	EMC32 V10.60.20	N/A	N/A	N/A	R&S	N/A	N/A
9	Preamplifier	SCU08F1	8320024	N/A	N/A	R&S	2024-10-09	1 year
10	Preamplifier	SCU18	10155	N/A	N/A	R&S	2024-10-09	1 year

5.6 Measurement Uncertainty

Item (s)	Uncertainty
Radiated Emission 30MHz-1000MHz	4.92 dB
Radiated Emission 1000MHz-18000MHz	5.66 dB
Conducted Emission	3.52 dB

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

6 Test Results

6.1 Radiated Emission

6.1.1 Method of Measurement

- a. For 30MHz -1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.
- b. For 1000MHz -18000MHz, the EUT was placed on the top of a 0.8m table above the ground at a 3m fully anechoic chamber. The maximal emission value was acquired by adjusting the antenna height, The table was rotated 360 degrees to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement

6.1.2 EUT Connection Diagram of Test System

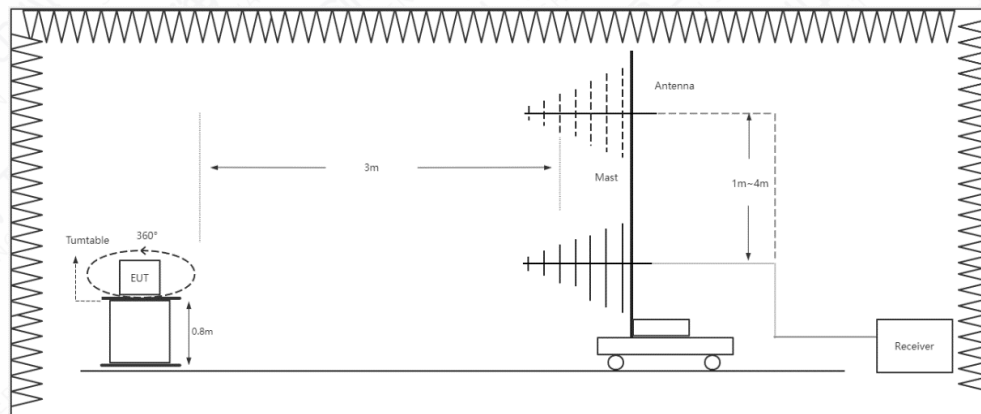


Figure 6.1.2-1 RE 30MHz-1GHz Connection Diagram

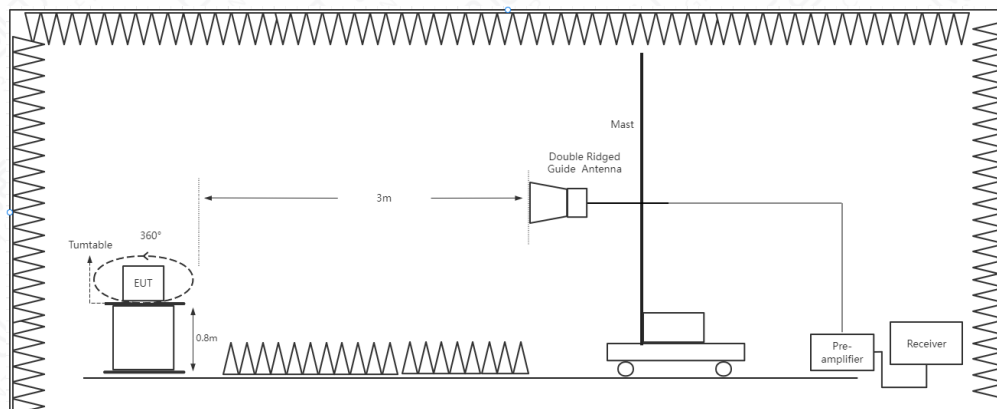


Figure 6.1.2-2 RE Above 1GHz Connection Diagram

6.1.3 Test Condition

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120kHz/300kHz	AUTO
1000-18000	1MHz/3MHz	AUTO

6.1.4 Limit/Criterion

Frequency Range (MHz)	Quasi-Peak (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)
30-88	40	N/A	N/A
88-216	43.5	N/A	N/A
216-960	46	N/A	N/A
Above 960	54	N/A	N/A
Above 1000	N/A	74	54

6.1.5 Test environmental conditions

Temperature	19.7℃
Relative Humidity	39.7%RH
Atmospheric Pressure	102.2 kPa

6.1.6 Test Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: Full system+ CB02+ UA04+ EA03+ AE	30-1000	See Annex A.1-1	Pass
Mode 1: Full system+ CB02+ UA04+ EA03+ AE	1000-18000	See Annex A.1-2 & A.1-3	Pass
NOTE Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A			

6.2 Conducted Emission

6.2.1 Method of Measurement

The EUT was placed on a 0.8m height table with EUT being connected to the power mains through a line impedance stabilization network (LISN). Both lines of the power mains connected to the EUT were checked for maximum conducted interference. The frequency range from 150 kHz to 30 MHz was searched.

6.2.2 EUT Connection Diagram of Test System

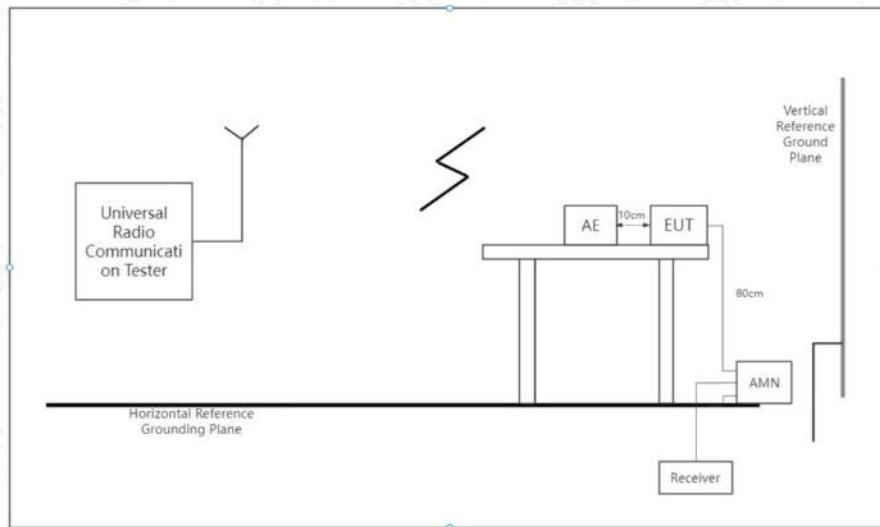


Figure 6.2.2-1 CE Connection Diagram

6.2.3 Test Condition

Test Condition in Charging Mode

Voltage (V)	Frequency (Hz)	RBW	Sweep Time (s)
120	60	9 kHz	AUTO

6.2.4 Limit

Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
*Decreases with the logarithm of the frequency		

6.2.5 Testing environmental conditions

Temperature	20.4℃
Relative Humidity	32.6%RH
Atmospheric Pressure	101.1kPa

6.2.6 Test Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: Full system+ CB02+ UA04+ EA03+ AE	0.15-30	See Annex A.2-1	Pass
NOTE Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A			

Annex A: Measurement Data

A.1 Radiated Emission

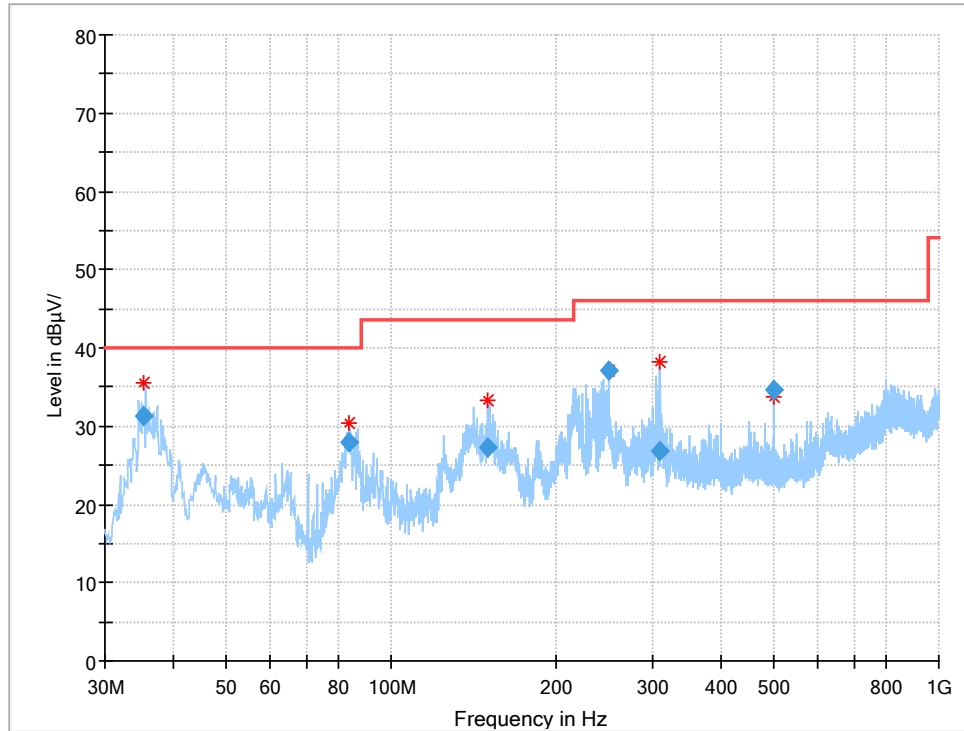


Figure A.1-1 Mode 1 (30M-1GHz)

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
35.293240	31.27	40.00	8.73	100.0	V	293.0	-14.8
84.015280	27.91	40.00	12.09	200.0	H	95.0	-16.9
150.012040	27.33	43.50	16.17	100.0	H	200.0	-16.2
249.999360	37.19	46.00	8.81	100.0	H	164.0	-10.3
310.238680	26.88	46.00	19.12	100.0	H	57.0	-9.4
499.999080	34.69	46.00	11.31	100.0	H	236.0	-5.1

Note:

1.Horizontal and vertical polarity is all have been tested, the result of them is synthesized in the above data diagram.

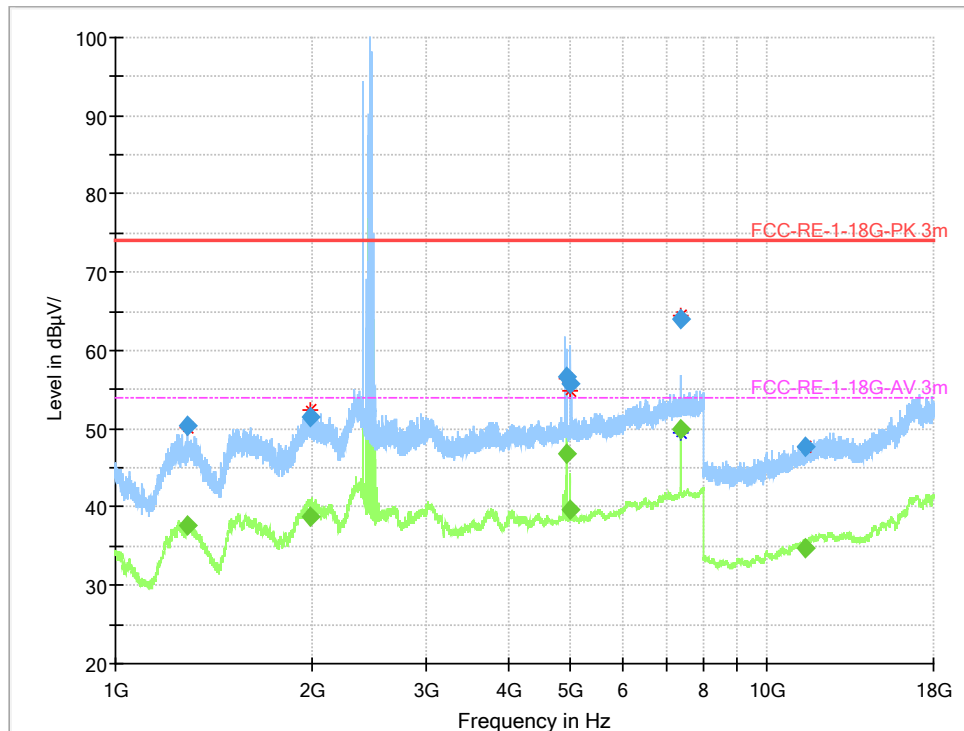


Figure A.1-2 Mode 1 (1GHz-18GHz)-H

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1289.025000	---	37.57	54.00	16.43	100.0	H	151.0	2.8
1289.025000	50.31	---	74.00	23.69	100.0	H	151.0	2.8
1985.166250	51.48	---	74.00	22.52	100.0	H	181.0	6.5
1985.166250	---	38.83	54.00	15.17	100.0	H	181.0	6.5
4911.090000	---	46.83	54.00	7.17	115.0	H	145.0	15.3
4911.090000	56.63	---	74.00	17.37	115.0	H	145.0	15.3
4989.227500	55.77	---	74.00	18.23	115.0	H	173.0	15.4
4989.227500	---	39.67	54.00	14.33	115.0	H	173.0	15.4
7370.771250	63.94	---	74.00	10.06	215.0	H	101.0	20.4
7370.771250	---	49.94	54.00	4.06	215.0	H	101.0	20.4
11424.056250	47.60	---	74.00	26.40	115.0	H	1.0	12.6
11424.056250	---	34.73	54.00	19.27	115.0	H	1.0	12.6

Note:

1. The over limit value signal is the WIFI main frequency signal sent by the EUT.

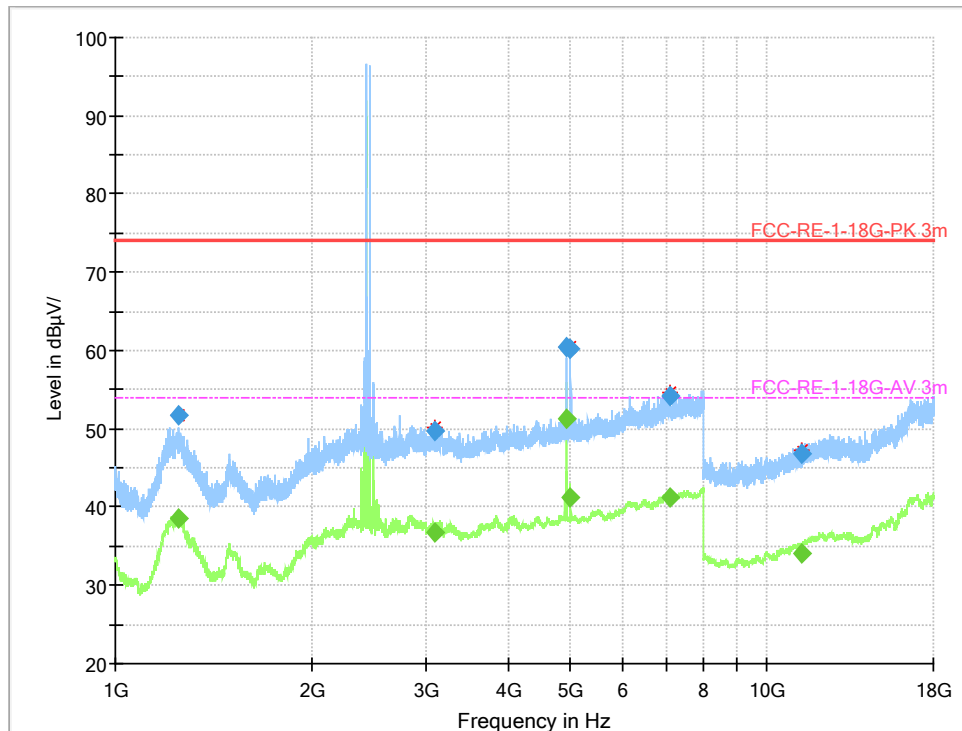


Figure A.1-3 Mode 1 (1GHz-18GHz)-V

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
1247.746250	---	38.58	54.00	15.42	102.0	V	346.0	1.9
1247.746250	51.81	---	74.00	22.19	102.0	V	346.0	1.9
3087.648750	49.62	---	74.00	24.38	115.0	V	6.0	11.8
3087.648750	---	36.86	54.00	17.14	115.0	V	6.0	11.8
4913.948750	60.36	---	74.00	13.64	215.0	V	201.0	15.3
4913.948750	---	51.34	54.00	2.66	215.0	V	201.0	15.3
4999.422500	---	41.18	54.00	12.82	115.0	V	224.0	15.4
4999.422500	60.33	---	74.00	13.67	115.0	V	224.0	15.4
7092.362500	---	41.19	54.00	12.81	215.0	V	339.0	20.0
7092.362500	54.24	---	74.00	19.76	215.0	V	339.0	20.0
11283.916250	---	34.17	54.00	19.83	215.0	V	275.0	11.9
11283.916250	46.86	---	74.00	27.14	215.0	V	275.0	11.9

Note:

1. The over limit value signal is the WIFI main frequency signal sent by the EUT.

A.2 Conducted Emission

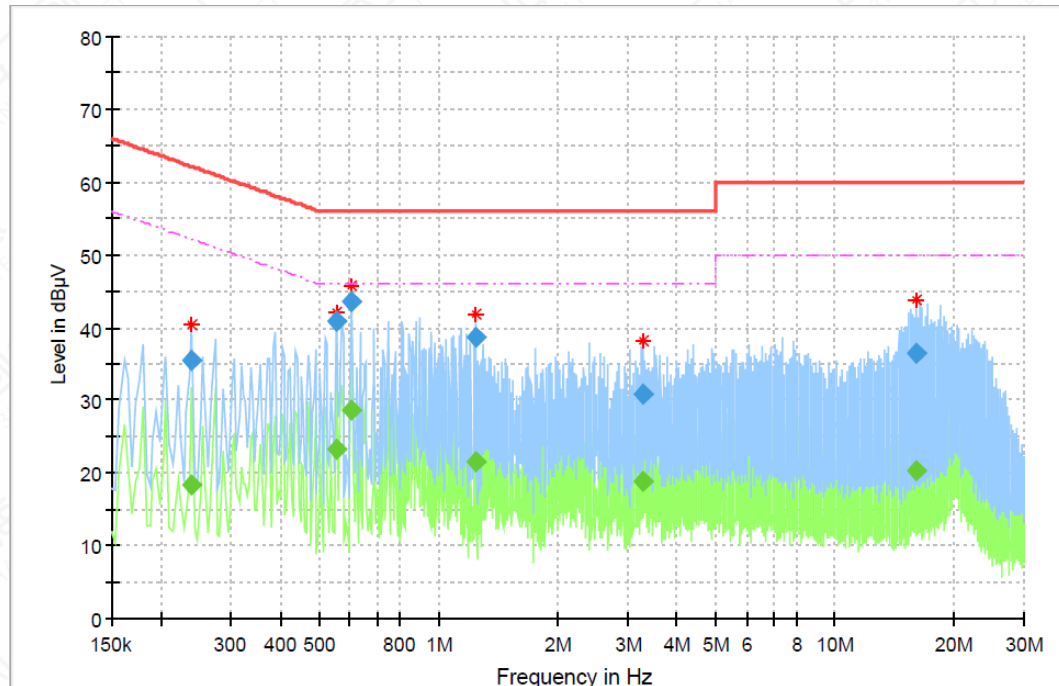


Figure A.2-1 Mode 1 (150kHz-30MHz)

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.239550	---	18.24	52.11	33.87	15000.0	9.000	N	ON	10.1
0.239550	35.37	---	62.11	26.74	15000.0	9.000	N	ON	10.1
0.552975	---	23.35	46.00	22.65	15000.0	9.000	N	ON	9.9
0.552975	40.94	---	56.00	15.06	15000.0	9.000	N	ON	9.9
0.605213	---	28.56	46.00	17.44	15000.0	9.000	N	ON	10.0
0.605213	43.63	---	56.00	12.37	15000.0	9.000	N	ON	10.0
1.243256	---	21.64	46.00	24.36	15000.0	9.000	N	ON	9.8
1.243256	38.57	---	56.00	17.43	15000.0	9.000	N	ON	9.8
3.284250	---	18.95	46.00	27.05	15000.0	9.000	N	ON	9.8
3.284250	30.77	---	56.00	25.23	15000.0	9.000	N	ON	9.8
16.060050	---	20.41	50.00	29.59	15000.0	9.000	N	ON	9.5
16.060050	36.51	---	60.00	23.49	15000.0	9.000	N	ON	9.5

Note: L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.

Annex B: Revised History

Version	Revised Content
V0	Initial

Annex C: Accreditation Certificate





Accredited Laboratory

A2LA has accredited

**INDUSTRIAL INTERNET INNOVATION CENTER
(SHANGHAI) CO., LTD.**

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 20th day of September 2023.



Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

