

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

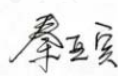
EMC TEST REPORT

PRODUCT	Smart POS system
BRAND	SUNMI
MODEL	T6900
APPLICANT	Shanghai Sunmi Technology Co.,Ltd.
FCC ID	2AH25T6900P2
IC	22621-T6900P2
ISSUE DATE	November 20, 2023
STANDARD(S)	FCC Part 15, Subpart B, ANSI C63.4-2014, ICES-003 Issue 7.

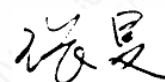
Prepared by: Li Shuanglin



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	Version
1	FCC Part 15, Subpart B	Radio frequency devices	2021/10/1
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	2014
3	ICES-003	Information Technology Equipment (Including Digital Apparatus)-Limits and Methods of Measurement	Issue 7
NOTE: According to customer requirements, test and report using the latest version of the standard.			

1.2 Summary of Test Results

No.	Item(s)	Standard(s)	Verdicts for Single Item	Detailed Results
1	Radiated Emission	15.109(a)	Pass	See section 6.1
2	AC Conducted Emission	15.107(a)	Pass	See section 6.2
NOTE: The T6900, manufactured by Shanghai Sunmi Technology Co.,Ltd. is a variant product for testing. This project is a variant project based on the original report I22I30110-EMC01-V02. According to the product change description, we used the standard edition EUT to test the additional LTE 12/19/25/26/66 band, as shown in Section 5.3. 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	October 10, 2023 to November 08, 2023

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	+86-17302160204

3.2 Manufacturer

Company	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505, No.388, Song Hu Road, Yang Pu District, Shanghai, China
Telephone	+86-17302160204

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	Smart POS system
Model	T6900
Date of Receipt	October 8, 2023
EUT ID*	S02aa
SN/IMEI	869325026812009/869325026812017
Supported Radio Technology and Bands	GSM850/GSM900/GSM1800/GSM1900 WCDMA Band I/II/IV/V/VIII LTE Band 1/2/3/4/5/7/12/17/19/25/26/28/38/41/66 BT 4.2 WLAN 802.11b,g,n WLAN 802.11a,n GPS NFC
HVIN	T6900P2-3
Hardware Version	B1691_MAIN_PCB
Software Version	SP6359A-20230925115332
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
CA01	Adapter	TPA-23A050200UU01	N/A
UA01	USB Cable	N/A	N/A
BB01	Battery	P2	Guangdong Fenghua New Energy Co.,Ltd.
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.

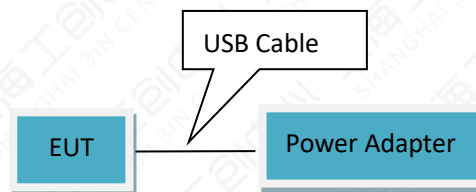
The test configuration modes are as the following:

Test Item	Test setup and operating modes
Radiated emission	30MHz-18GHz frequency range: Mode 1: Adapter charging+ LTE Band 12 receiver mode+ Back Camera+ CA01+ UA01+ BB01 Mode 2: Adapter charging+ LTE Band 19 receiver mode+ Front Camera+ CA01+ UA01+ BB01 Mode 3: Adapter charging+ LTE Band 25 receiver mode+ Front Camera+ CA01+ UA01+ BB01 Mode 4: Adapter charging+ LTE Band 26 receiver mode+ Front Camera+ CA01+ UA01+ BB01 Mode 5: Adapter charging+ LTE Band 66 receiver mode+ Front Camera+ CA01+ UA01+ BB01
AC Conducted emission	Mode 1: Adapter charging+ LTE Band 12 receiver mode+ Back Camera+ CA01+ UA01+ BB01 Mode 2: Adapter charging+ LTE Band 19 receiver mode+ Front Camera+ CA01+ UA01+ BB01 Mode 3: Adapter charging+ LTE Band 25 receiver mode+ Front Camera+ CA01+ UA01+ BB01 Mode 4: Adapter charging+ LTE Band 26 receiver mode+ Front Camera+ CA01+ UA01+ BB01 Mode 5: Adapter charging+ LTE Band 66 receiver mode+ Front Camera+ CA01+ UA01+ BB01
Note: 1. The worst case of radiated emission for 30MHz-1GHz is Mode 5 and for 1GHz -18GHz is Mode 5. 2. The worst case for conducted emission is mode 1.	

5.3 EUT System Operation

1. Connect the EUT with AE.
2. Setup the EUT according to the standard.
3. Start testing and monitoring the function.

5.4 EUT Connection Diagram of Test System



<Figure 5.4-1> Mode 1-5

5.5 Test Equipment Utilized

No.	Name	Model	S/N	SW Version	HW Version	Manuf acturer	Cal. Date	Cal. Interval
1	Test Receiver	ESCI	101235	V5.1-24-3	00	R&S	2022-12-29	1 year
2	Test Receiver	ESR7	102399	1.4	00	R&S	2023-06-23	1 year
3	Test Receiver	FSW43	101943	1.12	00	R&S	2023-08-31	1 year
4	Trilog Antenna	VULB9162	00426	N/A	N/A	Schwar zbeck	2023-07-18	1 year
5	Double Ridged Guide Antenna	ETS-3117	00135885	N/A	N/A	ETS	2023-03-23	2 years
5	2-Line V-Network	ENV216	101380	N/A	N/A	R&S	2022-12-29	1 year
6	EMI Test Software	EMC32 V10.35.02	N/A	N/A	N/A	R&S	N/A	N/A
7	EMI Test Software	EMC32 V10.60.20	N/A	N/A	N/A	R&S	N/A	N/A
8	Universal Radio Communication Tester	CMW500	104178	V3.7.20	1206.0600.00	R&S	2022-10-17	1 year
							2023-10-16	1 year

5.6 Measurement Uncertainty

Item (s)	Uncertainty
Radiated Emission 30MHz-1000MHz	4.86 dB
Radiated Emission 1000MHz-18000MHz	5.58 dB
Conducted Emission	3.30 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 degree 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

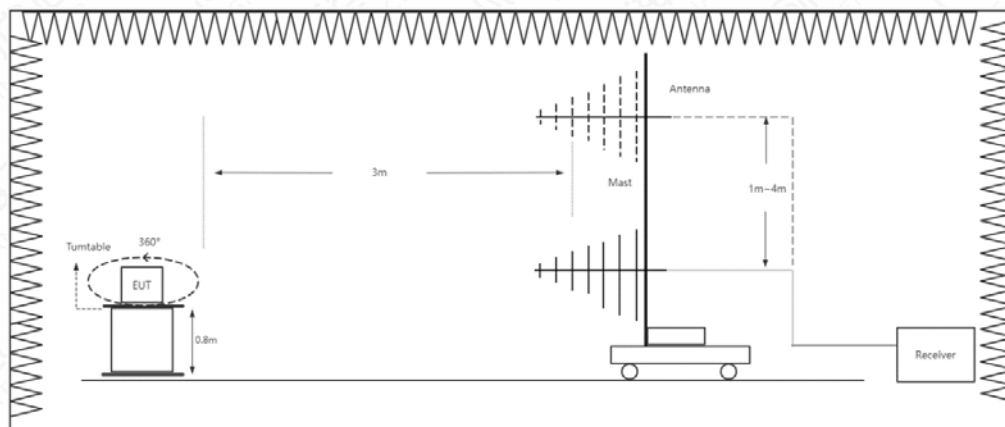


Figure 6.1.2-1 RE 30MHz-1GHz Connection Diagram

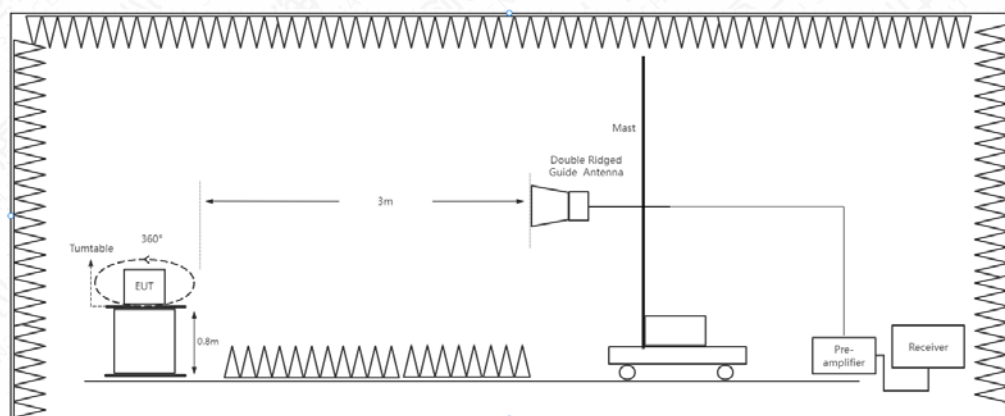


Figure 6.1.2-2 RE Above 1GHz Connection Diagram

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	21.3℃
Relative Humidity	52.6%RH
Atmospheric Pressure	100.9 kPa

6.1.6 Test Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 5: Adapter charging+ LTE Band 66 receiver mode+ Front Camera+ CA01+ UA01+ BB01	30-1000	See Annex A.1-1	Pass
Mode 5: Adapter charging+ LTE Band 66 receiver mode+ Front Camera+ CA01+ UA01+ BB01	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

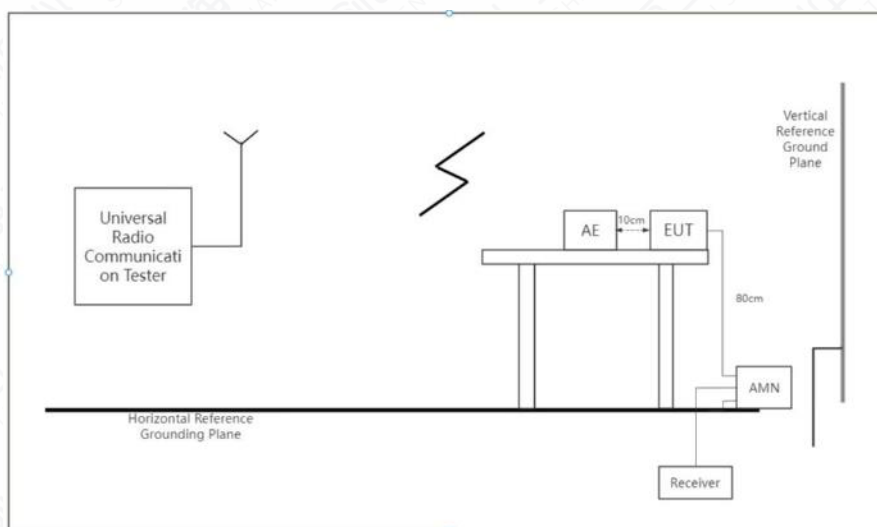


Figure 6.2.2-1 CE Connection Diagram

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	22.8℃
Relative Humidity	53.2%RH
Atmospheric Pressure	100.9kPa

6.2.6 Test Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: Adapter charging+ LTE Band 12 receiver mode+ Back Camera+ CA01+ UA01+ BB01	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

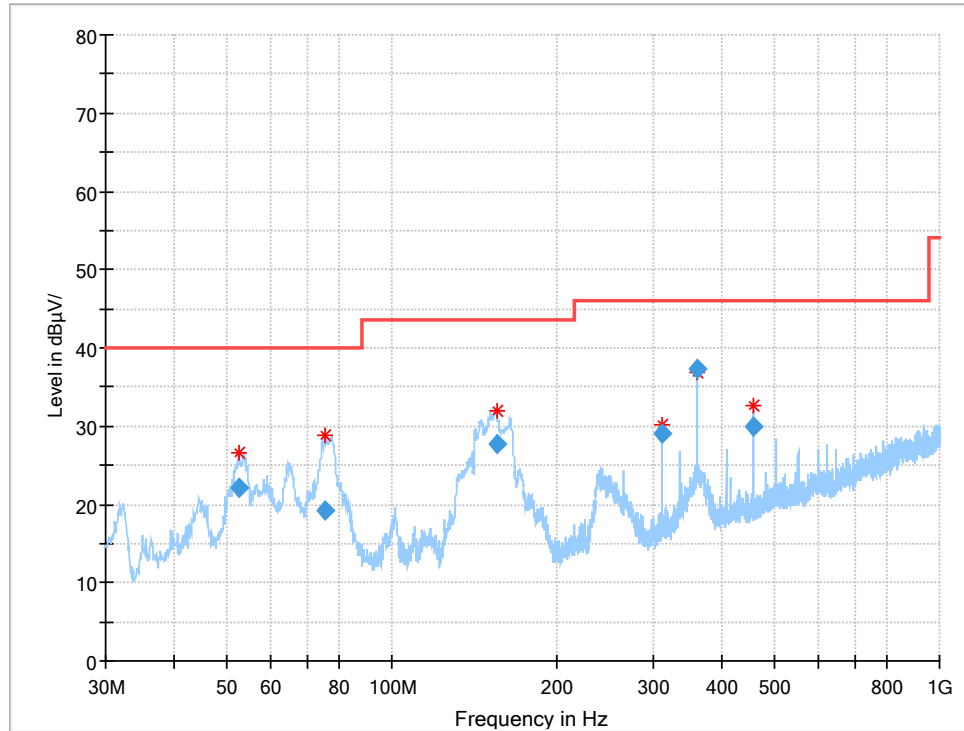


Figure A.1-1 Mode 5 (30M-1GHz)

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
52.582200	22.19	40.00	17.81	100.0	V	294.0	-11.7
75.272680	19.28	40.00	20.72	100.0	V	0.0	-17.5
155.624480	27.82	43.50	15.68	198.0	H	6.0	-15.9
311.994960	29.14	46.00	16.86	100.0	H	186.0	-9.4
360.003960	37.25	46.00	8.75	100.0	H	163.0	-8.3
455.996280	29.99	46.00	16.01	198.0	H	0.0	-6.3

Note:

- 1.Horizontal and vertical polarity is all have been tested, the result of them is synthesized in the above data diagram.
- 2.The above data also meet the limit requirements of ICES-003 issue7.

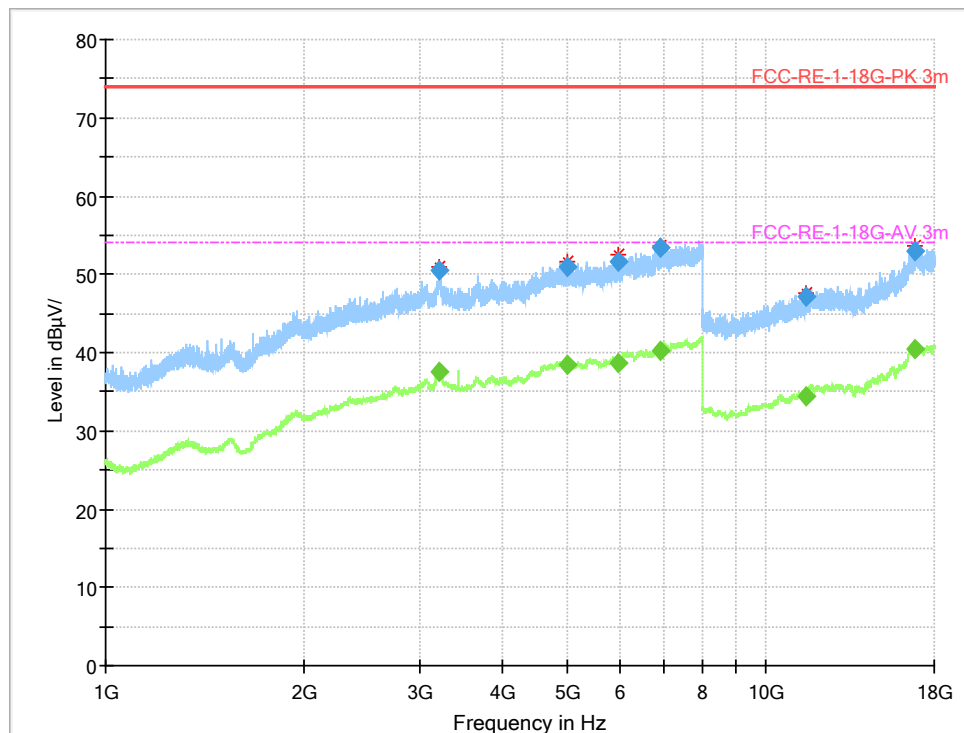


Figure A.1-2 Mode 5 (1GHz-18GHz)-H

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3207.272500	50.39	---	74.00	23.61	102.0	H	356.0	14.2
3207.272500	---	37.53	54.00	16.47	102.0	H	356.0	14.2
4990.716250	---	38.51	54.00	15.49	205.0	H	44.0	15.9
4990.716250	50.98	---	74.00	23.02	205.0	H	44.0	15.9
5994.201250	---	38.73	54.00	15.27	200.0	H	357.0	17.5
5994.201250	51.54	---	74.00	22.46	200.0	H	357.0	17.5
6919.561250	---	40.32	54.00	13.68	115.0	H	0.0	19.4
6919.561250	53.40	---	74.00	20.60	115.0	H	0.0	19.4
11525.093750	---	34.52	54.00	19.48	215.0	H	261.0	12.9
11525.093750	47.07	---	74.00	26.93	215.0	H	261.0	12.9
16875.308750	53.07	---	74.00	20.93	215.0	H	175.0	22.0
16875.308750	---	40.50	54.00	13.50	215.0	H	175.0	22.0

Note: The above data also meet the limit requirements of ICES-003 issue7.

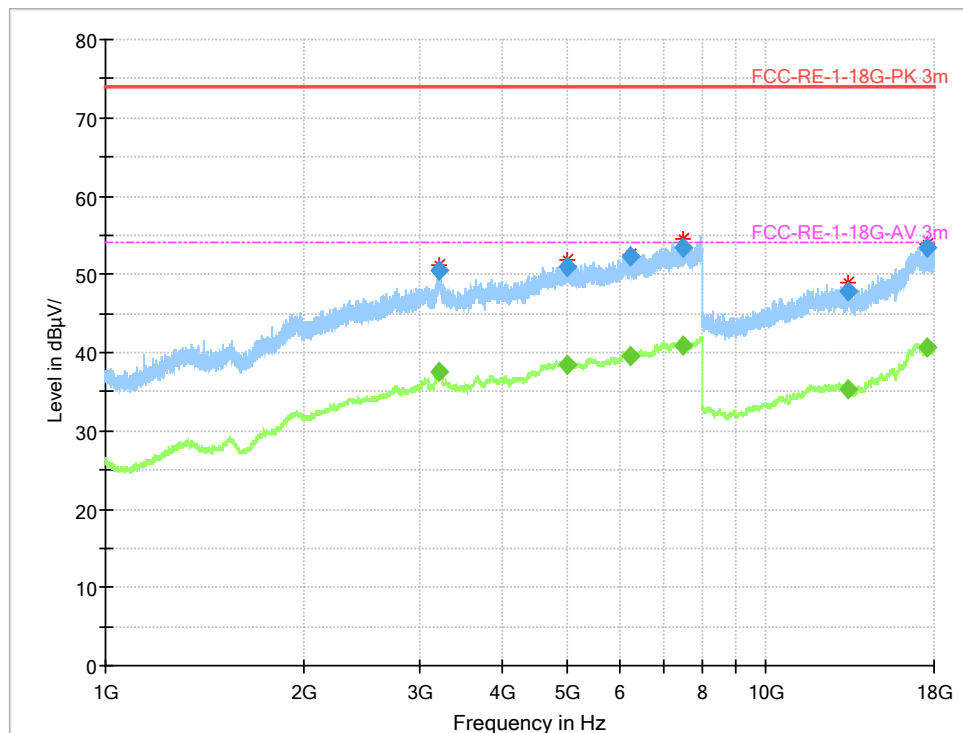


Figure A.1-3 Mode 5 (1GHz-18GHz)-V

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
3208.487500	---	37.65	54.00	16.35	215.0	V	326.0	14.1
3208.487500	50.58	---	74.00	23.42	215.0	V	326.0	14.1
4990.676250	---	38.48	54.00	15.52	215.0	V	298.0	15.9
4990.676250	51.02	---	74.00	22.98	215.0	V	298.0	15.9
6224.052500	---	39.49	54.00	14.51	111.0	V	0.0	18.1
6224.052500	52.34	---	74.00	21.66	111.0	V	0.0	18.1
7478.938750	---	40.83	54.00	13.17	102.0	V	197.0	20.5
7478.938750	53.38	---	74.00	20.62	102.0	V	197.0	20.5
13347.638750	47.77	---	74.00	26.23	215.0	V	143.0	16.0
13347.638750	---	35.38	54.00	18.62	215.0	V	143.0	16.0
17604.843750	53.46	---	74.00	20.54	103.0	V	46.0	22.0
17604.843750	---	40.63	54.00	13.37	103.0	V	46.0	22.0

Note: The above data also meet the limit requirements of ICES-003 issue7.

A.2 Conducted Emission

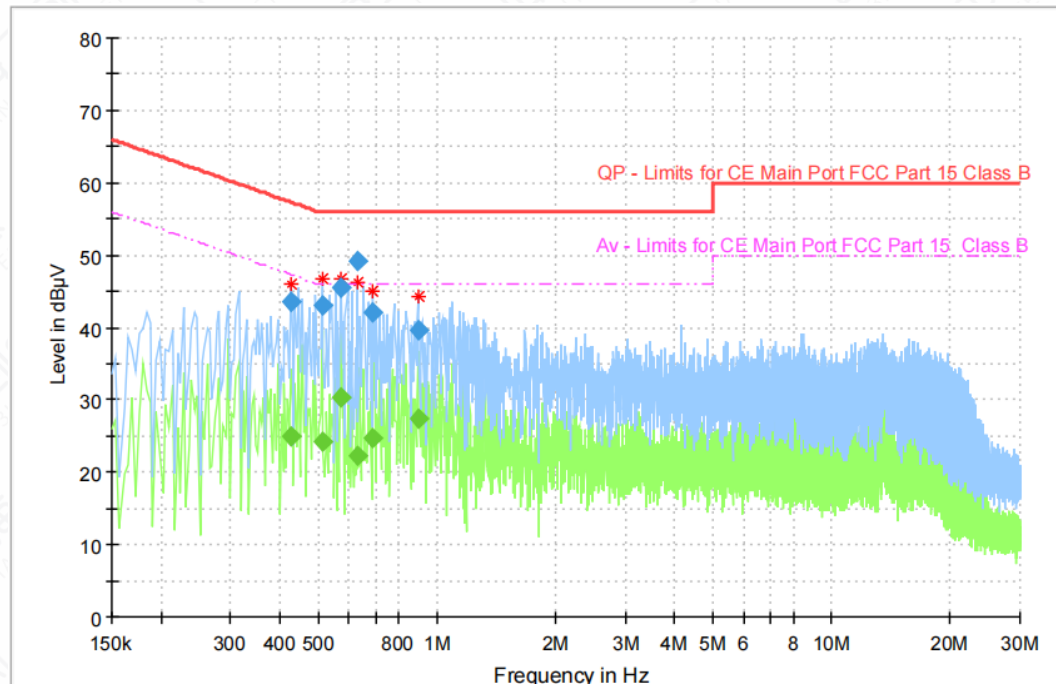


Figure A.2-1 Mode 1 (150kHz-30MHz)

Frequency (MHz)	QuasiPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.426113	43.60	---	57.33	13.73	15000	9.000	L1	ON	9.6
0.426113	---	24.91	47.33	22.42	15000	9.000	L1	ON	9.6
0.511931	43.00	---	56.00	13.00	15000	9.000	L1	ON	9.6
0.511931	---	24.32	46.00	21.68	15000	9.000	L1	ON	9.6
0.571631	45.48	---	56.00	10.52	15000	9.000	L1	ON	9.6
0.571631	---	30.27	46.00	15.73	15000	9.000	L1	ON	9.6
0.627600	49.14	---	56.00	6.86	15000	9.000	L1	ON	9.6
0.627600	---	22.26	46.00	23.74	15000	9.000	L1	ON	9.6
0.687300	---	24.81	46.00	21.19	15000	9.000	N	ON	9.6
0.687300	42.06	---	56.00	13.94	15000	9.000	N	ON	9.6
0.896250	---	27.43	46.00	18.57	15000	9.000	N	ON	9.6
0.896250	39.70	---	56.00	16.30	15000	9.000	N	ON	9.6

Note:

- 1.L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.
- 2.The above data also meet the limit requirements of ICES-003 issue7.

Annex B: Revised History

Version	Revised Content
V00	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.