



中认信通

CHINA CERTIFICATION ICT CO., LTD. (DONGGUAN)



TEST REPORT

Applicant: Xiamen Four-Faith Communication Technology Co., Ltd.

Address: 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei, Xiamen, Fujian, China.

FCC ID: 2A8OE-F-SC921

Product Name: 5G/4G Built-in Battery Bullet IP Camera

Model Number: F-SC921

**Standard(s): 47 CFR Part 15 Subpart B
ANSI C63.4-2014**

The above equipment has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR221049763-00A

Date Of Issue: 2023/4/19

Reviewed By: Sun Zhong *Sun Zhong*

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR221049763-00A	Original Report	2023/4/19

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	5G/4G Built-in Battery Bullet IP Camera
EUT Model:	F-SC921
Highest Operation Frequency:	3980 MHz
Rated Input Voltage:	DC 12V-15V from adapter or DC 11.1V from battery
Serial Number:	1O1M-2
EUT Received Date:	2023/4/11
EUT Received Status:	Good

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
Adapter	SUNUN	SA18V-120150U	Input: AC 100-240V~50/60Hz 0.5A Output: 12V 1.5A

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Typical Use Mode, which was provided by the manufacturer. Test Mode : Monitoring&Charging
Equipment Modifications:	No
EUT Exercise Software:	No

1.2.2 Support Equipment List and Details

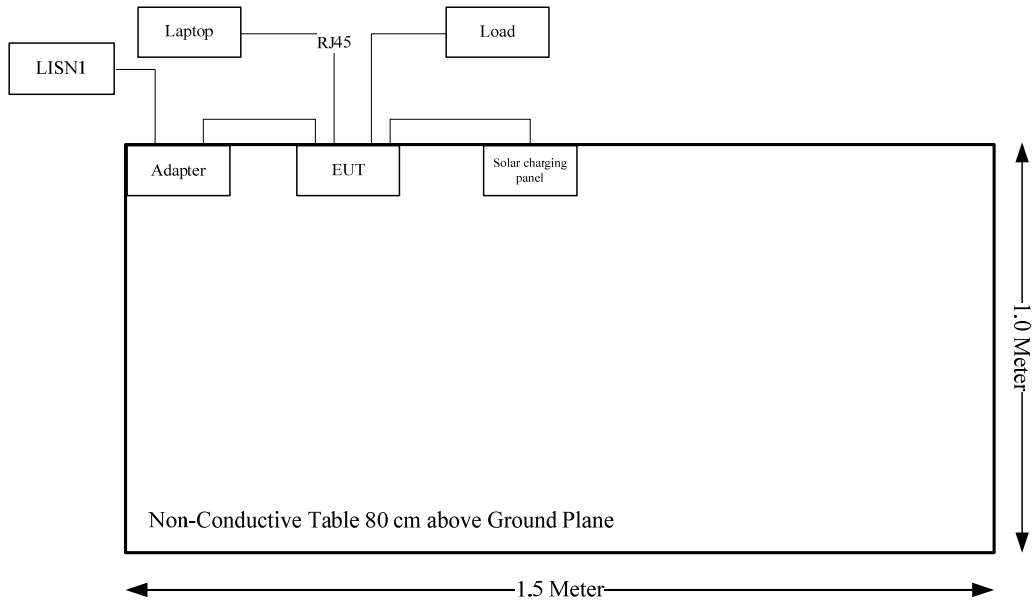
Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	E450	PF-OMRADG
Yiyou New Energy	Silicon Solar Panels	IK20M-36	IK20M18210524014
Unknown	Load	20W	L2001

1.2.3 Support Cable List and Details

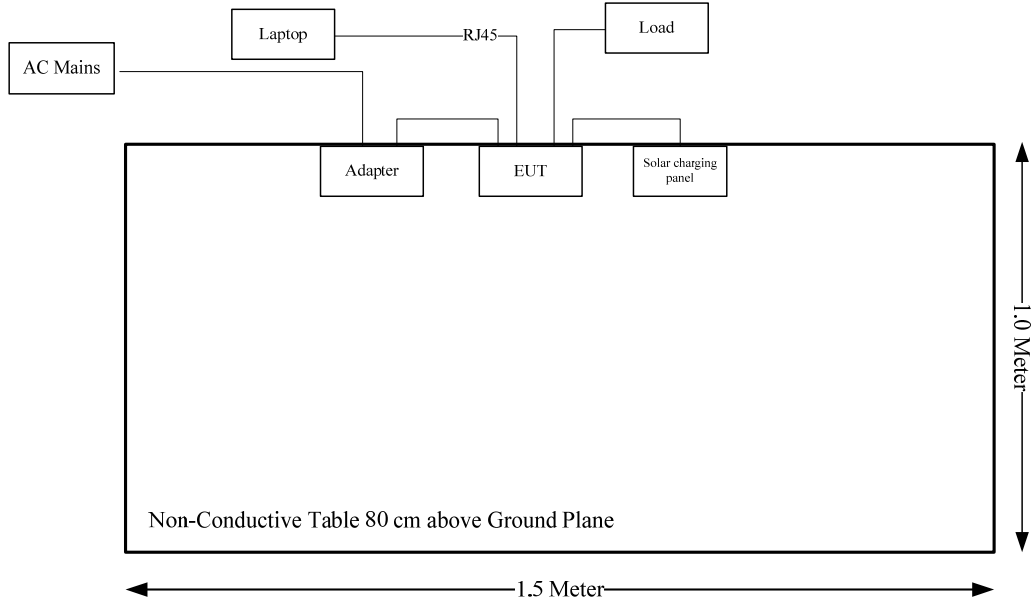
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Cable	No	No	3	EUT	Load
RJ45	No	No	3	EUT	Laptop
Power Cable	No	No	0.3	EUT	Silicon Solar Panels

1.2.4 Test Setup

Conducted emissions:



Radiated emissions:



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.15 dB, 200M~1GHz: 5.61 dB, 1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	±1 °C
Humidity	±5%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

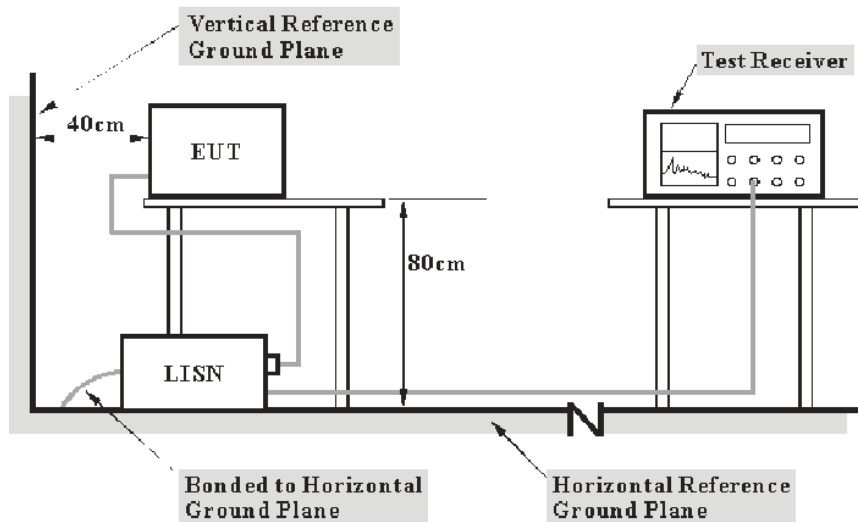
2. SUMMARY OF TEST RESULTS

Standard(s) Section	Description of Test	Result
§15.107	Conducted emissions	Compliant
§15.109	Radiated emissions	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.2 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

3.1.3 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT, the report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

All data was recorded in the Quasi-peak and average detection mode.

The report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

3.1.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = attenuation caused by cable loss + voltage division factor of AMN

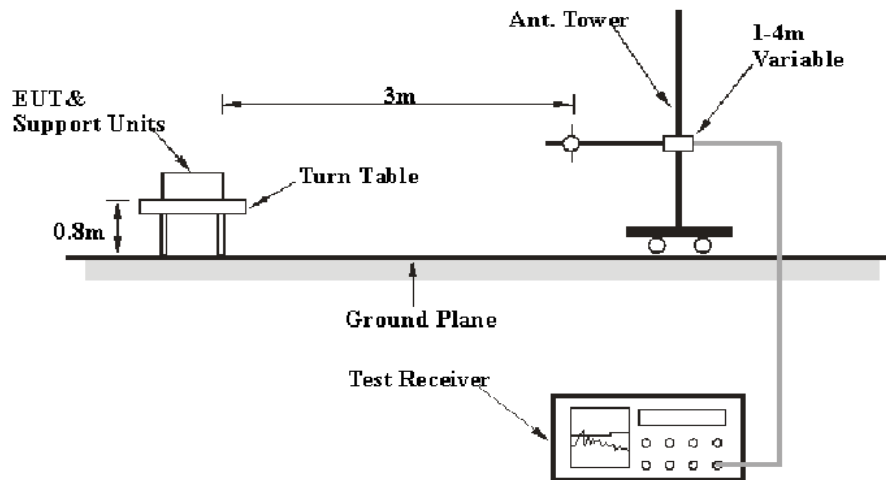
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

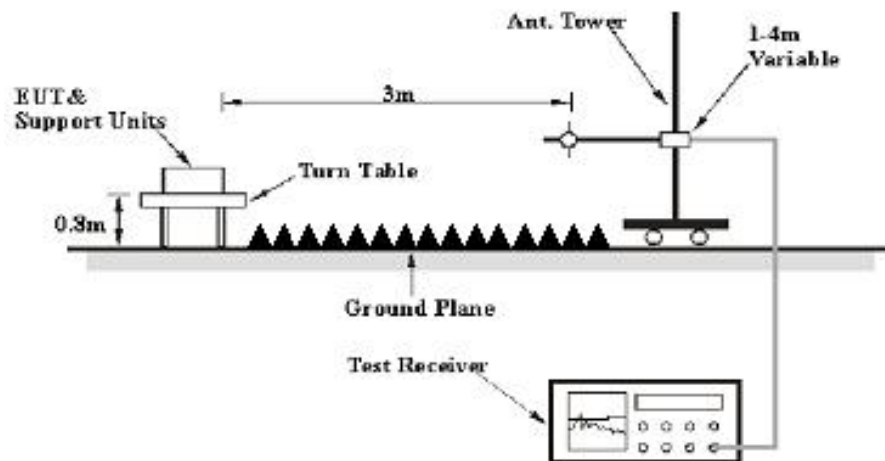
3.2 Radiation Spurious Emissions

3.2.1 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B Class B limits.

3.2.2 EMI Test Receiver Setup

The system was investigated from 30 MHz to 20 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	3 MHz	/	AVG

If the maximized peak measured value complies with under the limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.3 Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

4. TEST DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	1O1M-2	Test Date:	2023/4/12
Test Site:	CE	Test Mode:	Monitoring&Charging
Tester:	David	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24	Relative Humidity: (%)	53	ATM Pressure: (kPa)	101.4
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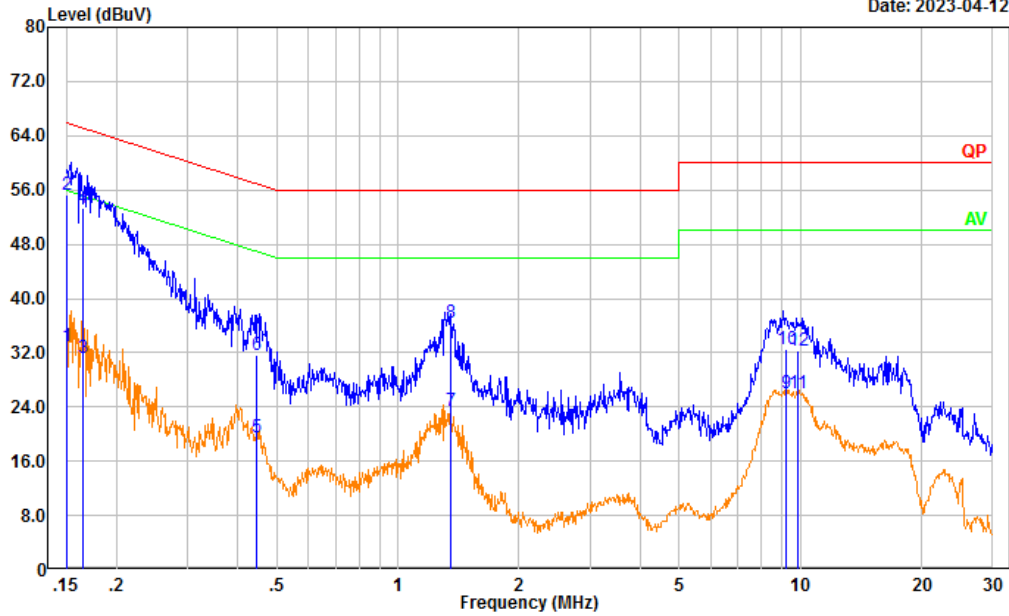
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/03/31	2024/03/30
R&S	EMI Test Receiver	ESR3	102726	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2022/08/07	2023/08/06
Audix	Test Software	E3	190306 (V9)	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Mode: Monitoring&Charging
 Port: neutral
 Note:

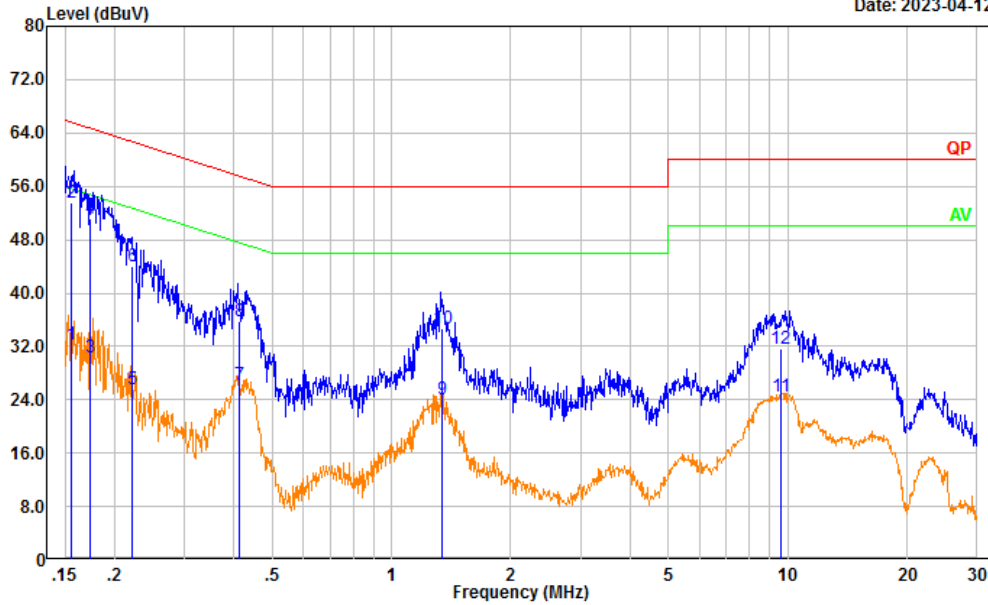
Date: 2023-04-12



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.150	23.27	9.61	32.88	55.99	23.11	Average
2	0.150	45.60	9.61	55.21	65.99	10.78	QP
3	0.166	21.51	9.61	31.12	55.18	24.06	Average
4	0.166	43.68	9.61	53.29	65.18	11.89	QP
5	0.445	9.87	9.61	19.48	46.97	27.49	Average
6	0.445	22.09	9.61	31.70	56.97	25.27	QP
7	1.348	13.88	9.62	23.50	46.00	22.50	Average
8	1.348	26.77	9.62	36.39	56.00	19.61	QP
9	9.176	16.28	9.67	25.95	50.00	24.05	Average
10	9.176	22.94	9.67	32.61	60.00	27.39	QP
11	9.850	16.28	9.67	25.95	50.00	24.05	Average
12	9.850	22.69	9.67	32.36	60.00	27.64	QP

Test Mode: Monitoring&Charging
 Port: Line
 Note:

Date: 2023-04-12



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.156	22.75	9.61	32.36	55.69	23.33	Average
2	0.156	44.02	9.61	53.63	65.69	12.06	QP
3	0.173	20.83	9.61	30.44	54.80	24.36	Average
4	0.173	41.56	9.61	51.17	64.80	13.63	QP
5	0.222	15.95	9.61	25.56	52.73	27.17	Average
6	0.222	34.45	9.61	44.06	62.73	18.67	QP
7	0.412	16.58	9.61	26.19	47.61	21.42	Average
8	0.412	26.15	9.61	35.76	57.61	21.85	QP
9	1.338	14.52	9.62	24.14	46.00	21.86	Average
10	1.338	25.01	9.62	34.63	56.00	21.37	QP
11	9.567	14.90	9.67	24.57	50.00	25.43	Average
12	9.567	21.97	9.67	31.64	60.00	28.36	QP

4.2 Radiation Spurious Emissions

Serial Number:	1O1M-2	Test Date:	2023/4/13 ~2023/4/14
Test Site:	966-2,966-1	Test Mode:	Monitoring&Charging
Tester:	Vic Du, Mack Huang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.6~26.7	Relative Humidity: (%)	50~65	ATM Pressure: (kPa)	100.5~100.7
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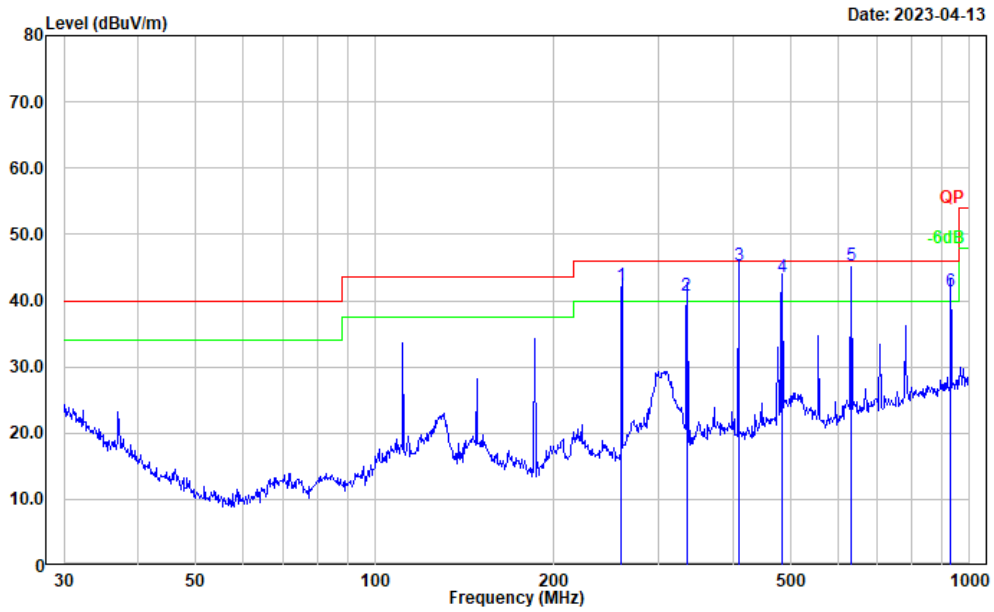
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2022/07/15	2023/07/14
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2022/07/17	2023/07/16
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2022/07/17	2023/07/16
Sonoma	Amplifier	310N	186165	2022/07/17	2023/07/16
Audix	Test Software	E3	201021 (V9)	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020/10/13	2023/10/12
PASTERNAK	Horn Antenna	PE9852/2F-20	112002	2021/02/05	2024/02/04
R&S	Spectrum Analyzer	FSV40	101591	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2022/08/07	2023/08/06
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2022/08/07	2023/08/06
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2022/08/07	2023/08/06
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/09	2023/11/08
AH	Preamplifier	PAM-1840VH	190	2022/11/09	2023/11/08

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

1) 30-1000MHz:

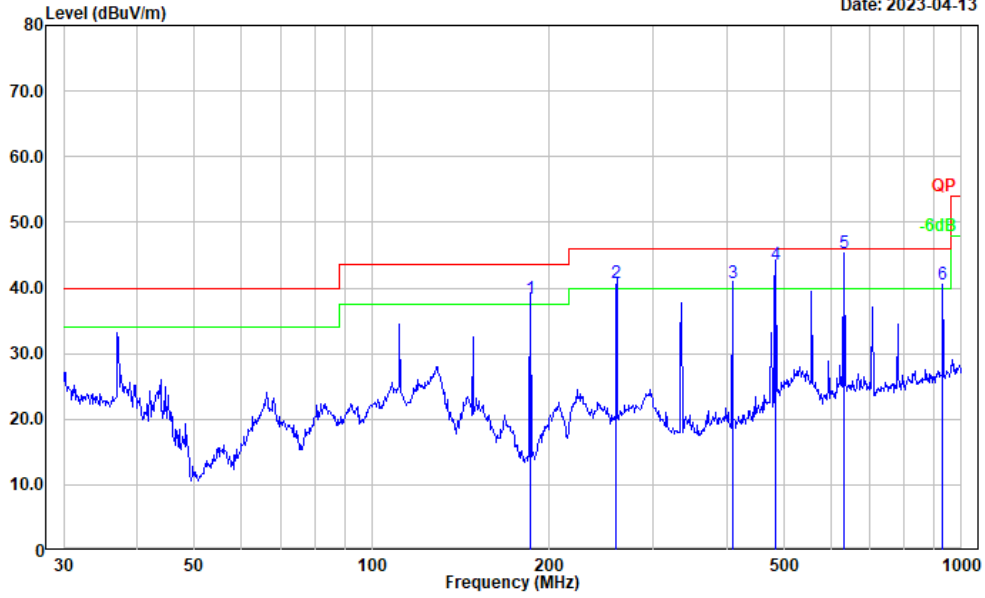
Test Mode: Monitoring&Charging
 Polarization: horizontal
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	259.864	54.66	-12.45	42.21	46.00	3.79	QP
2	334.137	50.90	-10.17	40.73	46.00	5.27	QP
3	408.374	53.72	-8.46	45.26	46.00	0.74	QP
4	482.614	49.82	-6.28	43.54	46.00	2.46	QP
5	631.133	49.88	-4.64	45.24	46.00	0.76	QP
6	928.117	42.00	-0.59	41.41	46.00	4.59	QP

Test Mode: Monitoring&Charging
 Polarization: vertical
 Note:

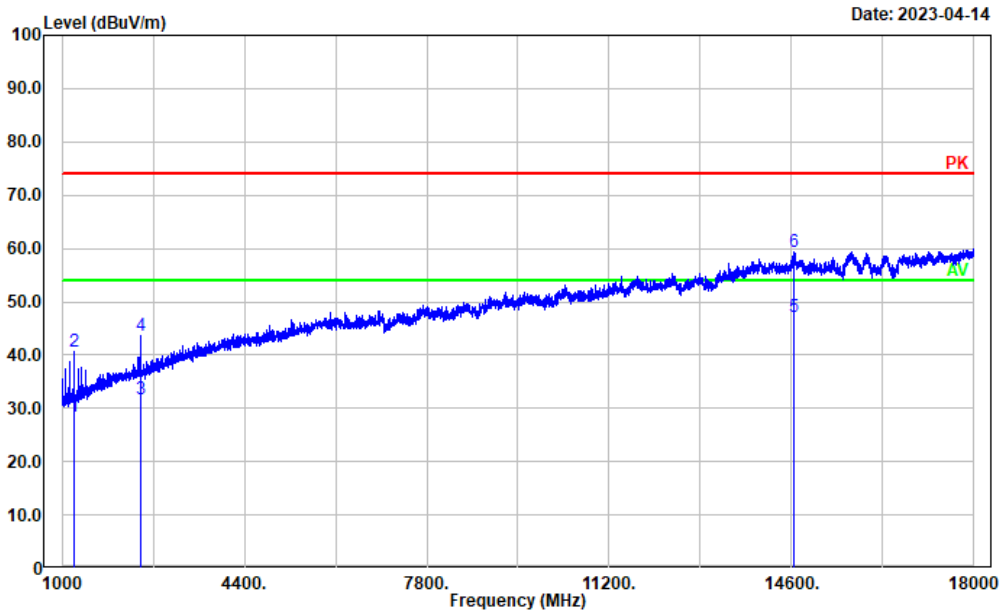
Date: 2023-04-13



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	185.625	51.96	-13.56	38.40	43.50	5.10	QP
2	259.875	53.16	-12.44	40.72	46.00	5.28	QP
3	408.390	49.18	-8.46	40.72	46.00	5.28	QP
4	482.652	49.95	-6.28	43.67	46.00	2.33	QP
5	631.133	49.95	-4.64	45.31	46.00	0.69	QP
6	928.154	41.05	-0.58	40.47	46.00	5.53	QP

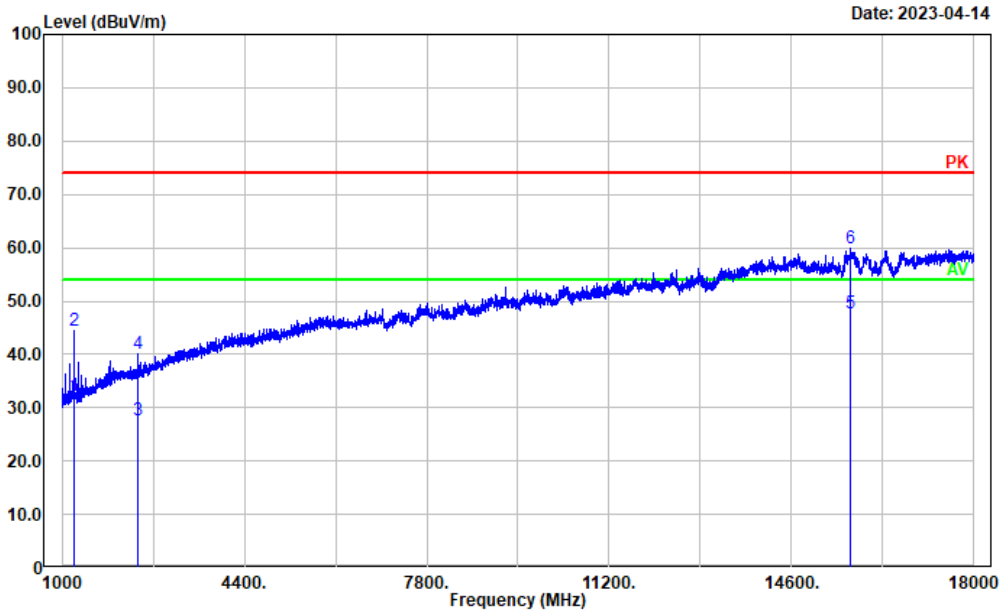
2) Above 1GHz:

Test Mode: Monitoring&Charging
 Polarization: horizontal
 Note:



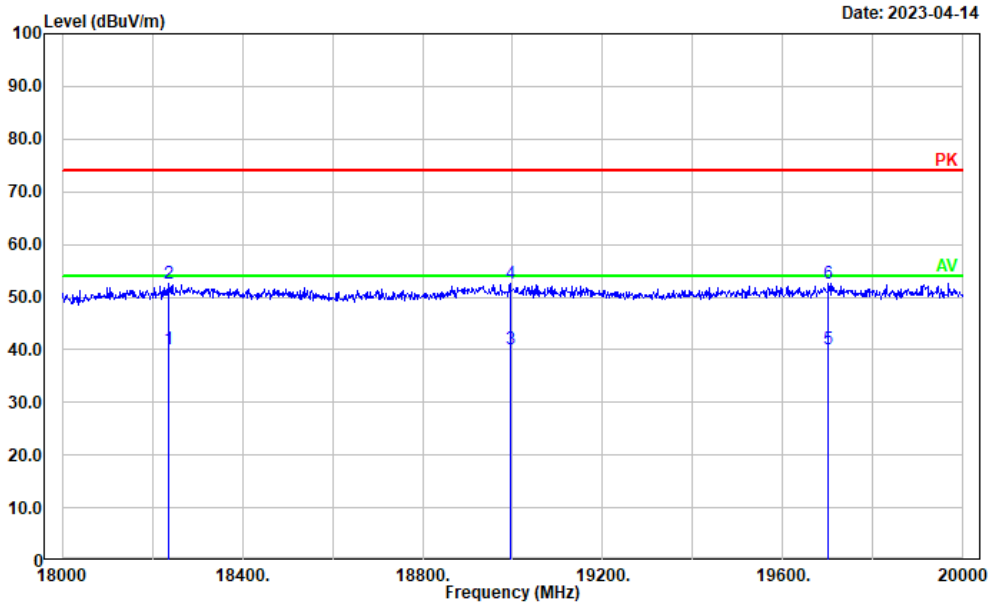
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1224.445	30.13	-1.70	28.43	54.00	25.57	Average
2	1224.445	42.25	-1.70	40.55	74.00	33.45	Peak
3	2458.892	28.03	3.63	31.66	54.00	22.34	Average
4	2458.892	40.07	3.63	43.70	74.00	30.30	Peak
5	14650.330	22.38	24.71	47.09	54.00	6.91	Average
6	14650.330	34.76	24.71	59.47	74.00	14.53	Peak

Test Mode: Monitoring&Charging
 Polarization: vertical
 Note:



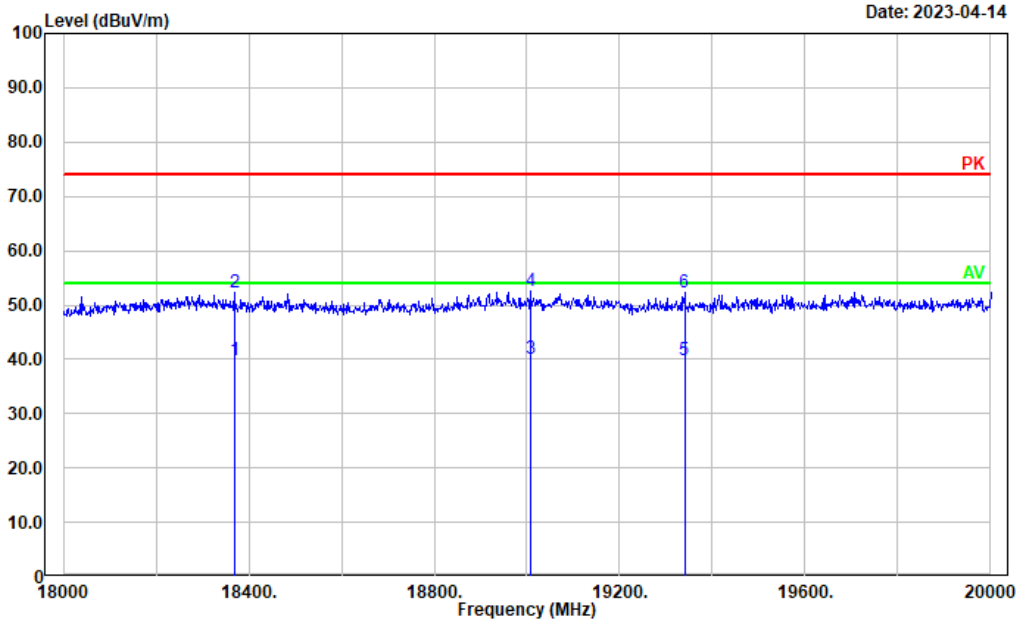
No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	1224.445	34.08	-1.70	32.38	54.00	21.62	Average
2	1224.445	46.18	-1.70	44.48	74.00	29.52	Peak
3	2411.282	24.22	3.55	27.77	54.00	26.23	Average
4	2411.282	36.43	3.55	39.98	74.00	34.02	Peak
5	15707.940	25.37	22.28	47.65	54.00	6.35	Average
6	15707.940	37.74	22.28	60.02	74.00	13.98	Peak

Test Mode: Monitoring&Charging
 Polarization: Horizontal
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	18236.350	34.44	5.66	40.10	54.00	13.90	Average
2	18236.350	46.86	5.66	52.52	74.00	21.48	Peak
3	18994.700	34.38	5.68	40.06	54.00	13.94	Average
4	18994.700	46.77	5.68	52.45	74.00	21.55	Peak
5	19700.340	34.45	5.79	40.24	54.00	13.76	Average
6	19700.340	46.88	5.79	52.67	74.00	21.33	Peak

Test Mode: Monitoring&Charging
 Polarization: vertical
 Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	18368.970	34.50	5.41	39.91	54.00	14.09	Average
2	18368.970	46.99	5.41	52.40	74.00	21.60	Peak
3	19006.600	34.41	5.68	40.09	54.00	13.91	Average
4	19006.600	46.82	5.68	52.50	74.00	21.50	Peak
5	19339.870	34.45	5.26	39.71	54.00	14.29	Average
6	19339.870	46.92	5.26	52.18	74.00	21.82	Peak

==== END OF REPORT ====