TEST REPORT

Report No.:	TW2209043E
File Reference No.:	2022-09-16
Applicant:	Ningbo Allstar O&E Technology Co.,Ltd
Product:	Wireless charger
Model No.:	AST-WR193
Trademark:	N/A
Test Standards:	FCC Part 15 Subpart C
Test Result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart C, for the evaluation of electromagnetic compatibility

Approved By:

Terry Tang

Terry Tang

Manager

Dated: September 16, 2022

Results appearing herein relate only to the sample tested
The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China

Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com

Special Statement：

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) —Registration No.:5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

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Test Report Conclusion

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1.0 General Details

1.1 Test Lab Details

Name: SHENZHEN TIMEWAY TESTING LABORATORIES.
Address: Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China
Telephone: +86 755 83448688
Fax: +86 755 83442996
Site on File with the Federal Communications Commission – United Sates
Registration Number: 744189
For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: Ningbo Allstar O&E Technology Co.,Ltd
Address: No. 19 Huijin Road, Luotuo Street, Zhenhai, Ningbo, China
Telephone: 86307000
Fax: --

1.3 Description of EUT

Product: Wireless charger
Manufacturer: Ningbo Allstar O&E Technology Co.,Ltd
Address: No. 19 Huijin Road, Luotuo Street, Zhenhai, Ningbo, China
Trademark: N/A
Model Number: AST-WR193
Additional Model Name N/A
Additional Trade Name N/A
Rating: Input: DC5V/1.5A; Wireless Output: DC5V/ 1A.(5W),
Hardware Version: AST-WR193
Software Version: RHX9620S
Serial No.: M000029791
Operation Frequency: See below table

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	0.1115	06	0.140	11	0.165	16	0.190
02	0.120	07	0.145	12	0.170	17	0.195
03	0.125	08	0.150	13	0.175	18	0.200

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04	0.130	09	0.155	14	0.180	19	0.205
05	0.135	10	0.160	15	0.185		

Test channel	Frequency (MHz)
CH13	0.175 MHz

Modulation Type: MSK
Antenna Designation Inductive Loop Antenna with gain 0dBi Max

1.4 Submitted Sample
2 Samples

1.5 Test Duration
2022-09-05 to 2022-09-16

1.6 Test Uncertainty
Conducted Emissions Uncertainty =3.6dB
Radiated Emissions below 9kHz-30MHz Uncertainty =4.3dB
Radiated Emissions below 30MHz-1GHz Uncertainty =4.7dB
Radiated Emissions above 1GHz Uncertainty =6.0dB
Conducted Power Uncertainty =6.0dB
Occupied Channel Bandwidth Uncertainty =5%
Note: 1. The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.
2. The measurement uncertainty is not applied to the test results

1.7 Test Engineer

The sample tested by Andy Xing

Print Name: Andy Xing

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17
LISN	R&S	EZH3-Z5	100253	2022-07-18	2023-07-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-07-18	2023-07-17
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2022-07-15	2023-07-14
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2024-07-17
Power meter	Anritsu	ML2487A	6K00003613	2022-07-18	2023-07-17
Power sensor	Anritsu	MA2491A	32263	2022-07-18	2023-07-17
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic	--	--	N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2022-07-15	2023-07-14
EMI Test Receiver	RS	ESCS 30	834115/006	2022-07-15	2023-07-14
Spectrum	HP/Agilent	E4407B	MY50441392	2022-07-15	2023-07-14
Spectrum	RS	FSP	1164.4391.38	2022-07-15	2023-07-14
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	--	2022-07-15	2023-07-14
RF Cable	Zhengdi	7m	--	2022-07-15	2023-07-14
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-07-15	2023-07-14
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-07-15	2023-07-14
LISN	SCHAFFNER	NNB42	00012	2022-08-18	2023-07-17

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna requirements	**Pass**	Compliant
FCC Part 15, Paragraph 15.207	Conducted Emission Test	**Pass**	Compliant
FCC Part 15, Paragraph 15.209 (a) (f)	General Requirement	**Pass**	Compliant
FCC Part 15, Paragraph 15.215	20dB Bandwidth Testing	**Pass**	Compliant

3.2 Test Standards

FCC Part 15 Subpart C , ANSI C63.4 :2014 and ANSI C63.10 :2013

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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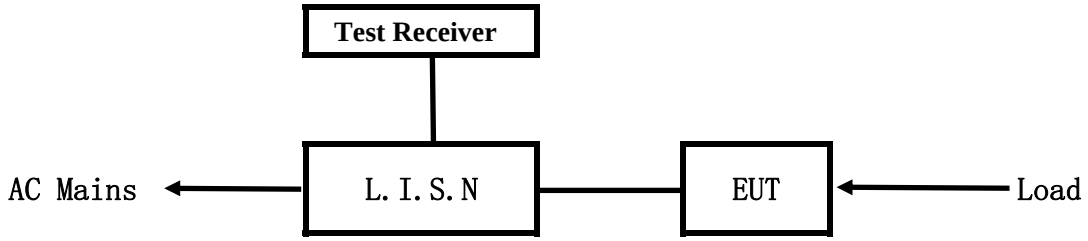
5. Power Line Conducted Emission Test

5.1 Schematics of the test

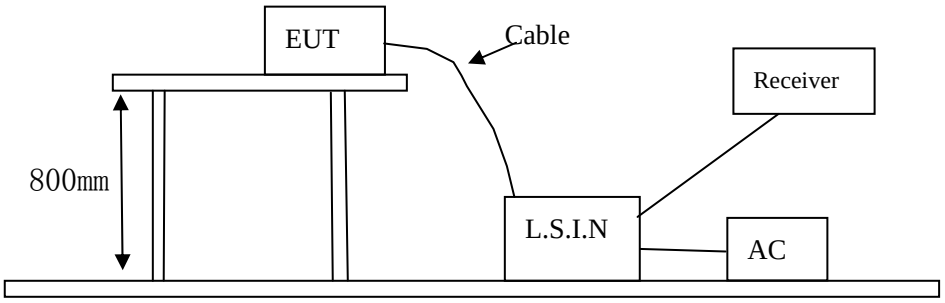


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013.

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2014. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Wireless charger	Ningbo Allstar O&E Technology Co.,Ltd	AST-WR193	2AQJK-AST-WR193

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	Chenyang	UP0920	Input: 100-240V~, 50-60Hz, 0.5A; Output: DC5V/3A or DC9V, 2A

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10 -2013.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency (MHz)	Limits (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ～ 0.50	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	56.0	46.0
5.00 ～ 30.00	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz. (The average detector is necessary when the Quasi-peak emission level beyond the average Limit.)

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A: Conducted Emission on Live Terminal (150kHz to 30MHz)

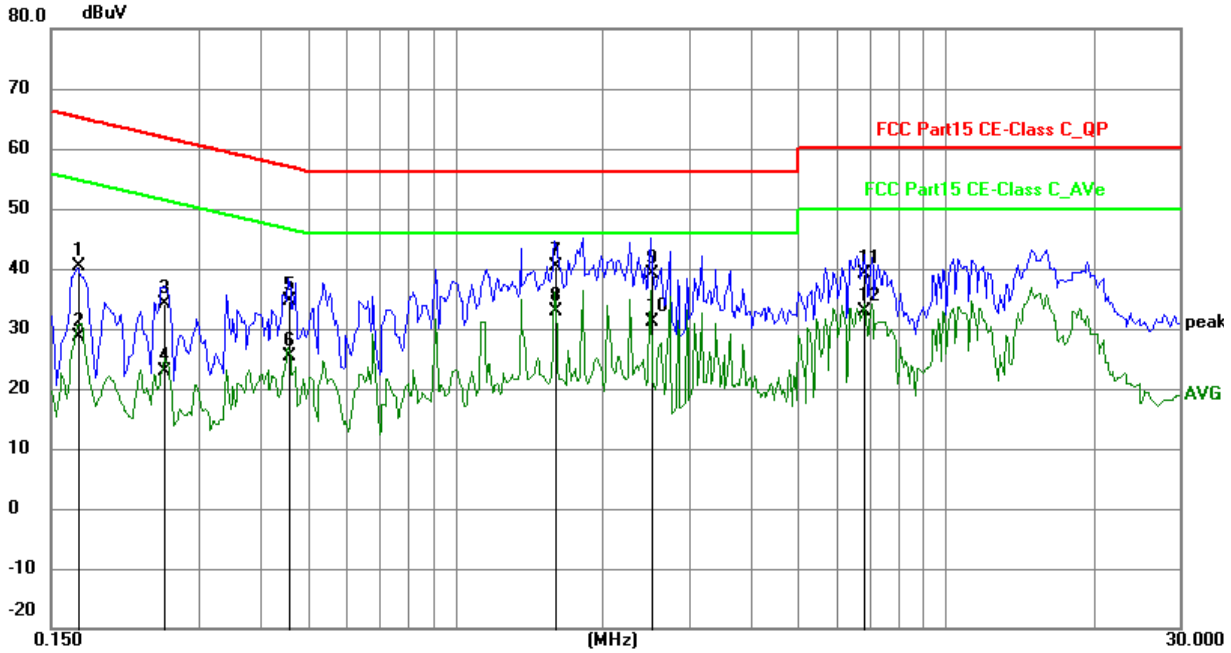
EUT Operating Environment

Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1695	30.70	9.77	40.47	64.98	-24.51	QP	P
2	0.1695	18.85	9.77	28.62	54.98	-26.36	AVG	P
3	0.2553	24.38	9.75	34.13	61.58	-27.45	QP	P
4	0.2553	13.04	9.75	22.79	51.58	-28.79	AVG	P
5	0.4581	24.77	9.77	34.54	56.73	-22.19	QP	P
6	0.4581	15.49	9.77	25.26	46.73	-21.47	AVG	P
7	1.5969	30.54	9.80	40.34	56.00	-15.66	QP	P
8	1.5969	23.20	9.80	33.00	46.00	-13.00	AVG	P
9	2.5095	29.43	9.82	39.25	56.00	-16.75	QP	P
10	2.5095	21.29	9.82	31.11	46.00	-14.89	AVG	P
11	6.8337	29.17	10.00	39.17	60.00	-20.83	QP	P
12	6.8337	22.96	10.00	32.96	50.00	-17.04	AVG	P

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

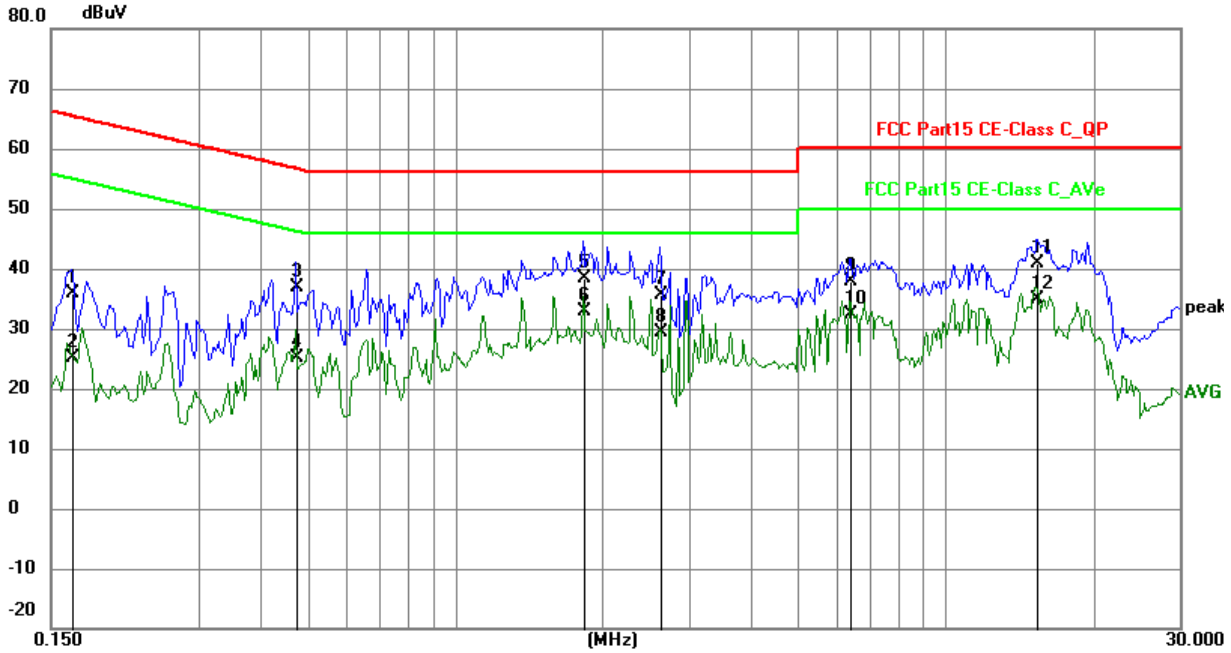
EUT Operating Environment

Temperature: 25℃ Humidity:75%RH Atmospheric Pressure: 101 kPa

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1655	26.07	9.77	35.84	65.18	-29.34	QP	P
2	0.1655	15.47	9.77	25.24	55.18	-29.94	AVG	P
3	0.4737	27.23	9.77	37.00	56.45	-19.45	QP	P
4	0.4737	15.48	9.77	25.25	46.45	-21.20	AVG	P
5	1.8192	28.63	9.80	38.43	56.00	-17.57	QP	P
6	1.8192	23.13	9.80	32.93	46.00	-13.07	AVG	P
7	2.6187	25.69	9.83	35.52	56.00	-20.48	QP	P
8	2.6187	19.58	9.83	29.41	46.00	-16.59	AVG	P
9	6.3773	27.98	9.98	37.96	60.00	-22.04	QP	P
10	6.3773	22.46	9.98	32.44	50.00	-17.56	AVG	P
11	15.3786	30.59	10.40	40.99	60.00	-19.01	QP	P
12	15.3786	24.49	10.40	34.89	50.00	-15.11	AVG	P

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6 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at TIMEWAY EMC Laboratory. This site is on file with the FCC laboratory division, Registration No.744189

(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.

(3) The frequency spectrum from 9 kHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with RBW=120 kHz/VBW=300 kHz; All readings from 9 kHz to 30 MHz are quasi-peak values with RBW=10 kHz/VBW=30 kHz. For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission test in these three bands are based on measurements employing an average detector. Measurements were made at 3 meters.

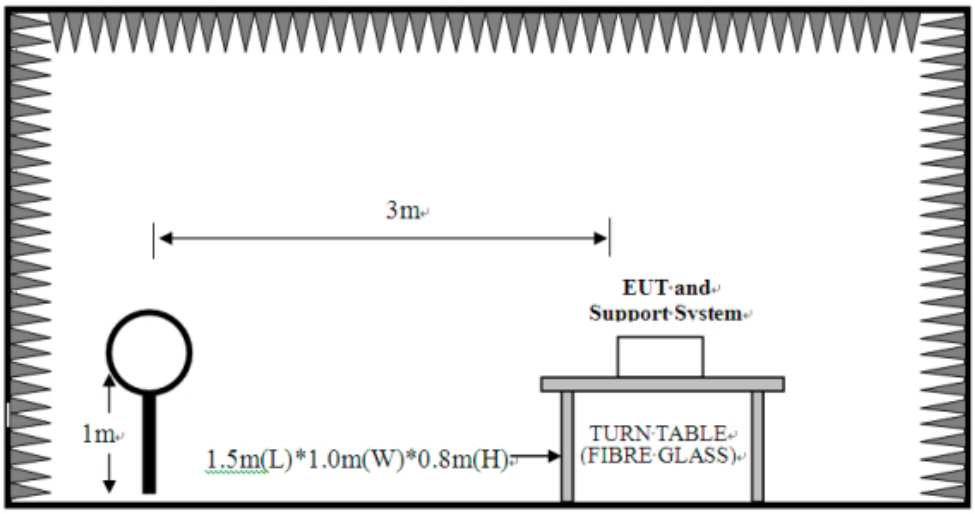
(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

(6) The antenna polarization: Vertical polarization and Horizontal polarization.

Block diagram of Test setup

9kHz-30MHz



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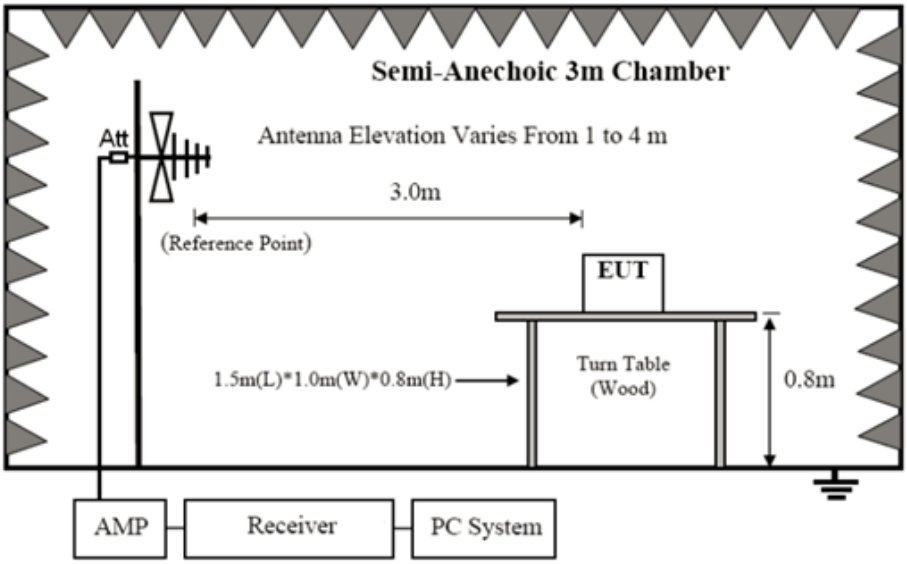
30MHz-1000MHz



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

B. Frequencies in restricted band are compiled to limit on Paragraph 15.209.

Limits for frequency below 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (V/m)
0.009-0.490	300	2400/F(kHz)
0.490-1.705	30	24000/F(kHz)
1.705-30	30	30

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Limits for frequency above 30MHz

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6.5 Test result

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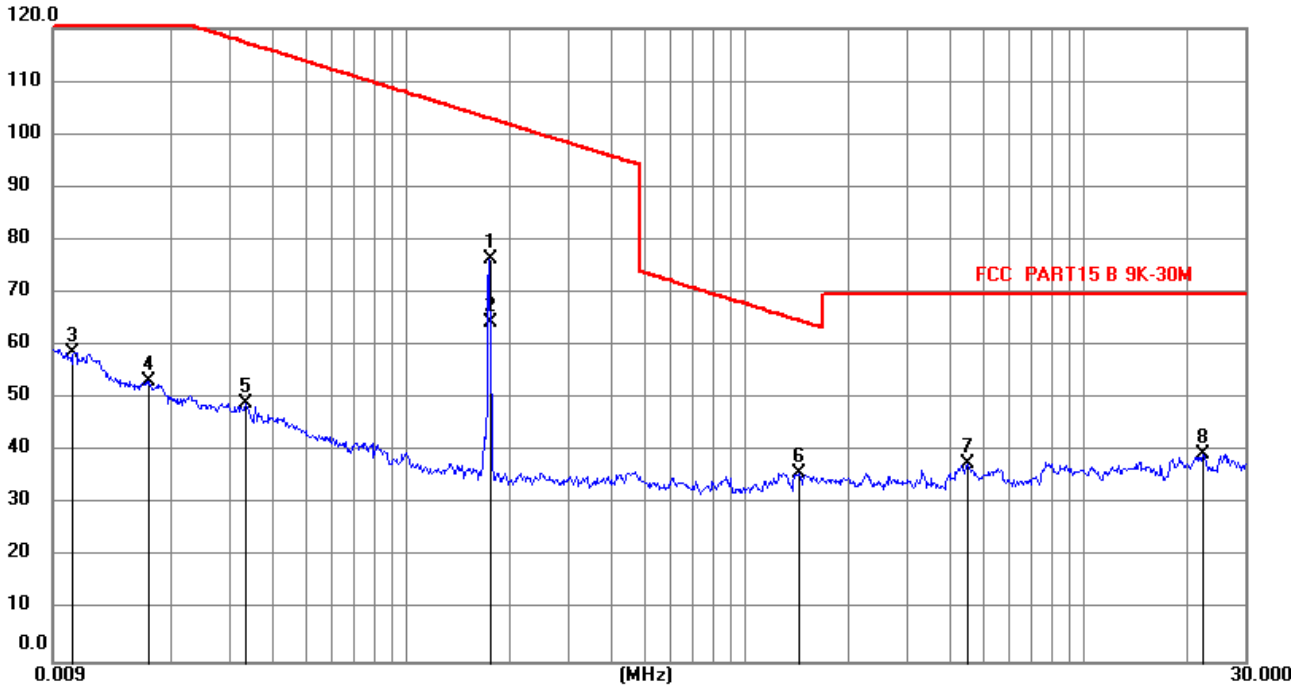
Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz



No.	Frequency (MHz)	Reading ()	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	0.1753	66.56	9.77	76.33	102.68	-26.35	peak
2	0.1753	54.72	9.77	64.49	102.68	-38.19	AVG
3	0.0103	48.69	10.00	58.69	127.16	-68.47	peak
4	0.0171	42.87	10.25	53.12	122.78	-69.66	peak
5	0.0333	38.97	10.11	49.08	117.03	-67.95	peak
6	1.4334	26.20	9.79	35.99	64.50	-28.51	peak
7	4.5274	27.67	9.91	37.58	69.53	-31.95	peak
8	22.3125	28.61	10.82	39.43	69.59	-30.16	peak

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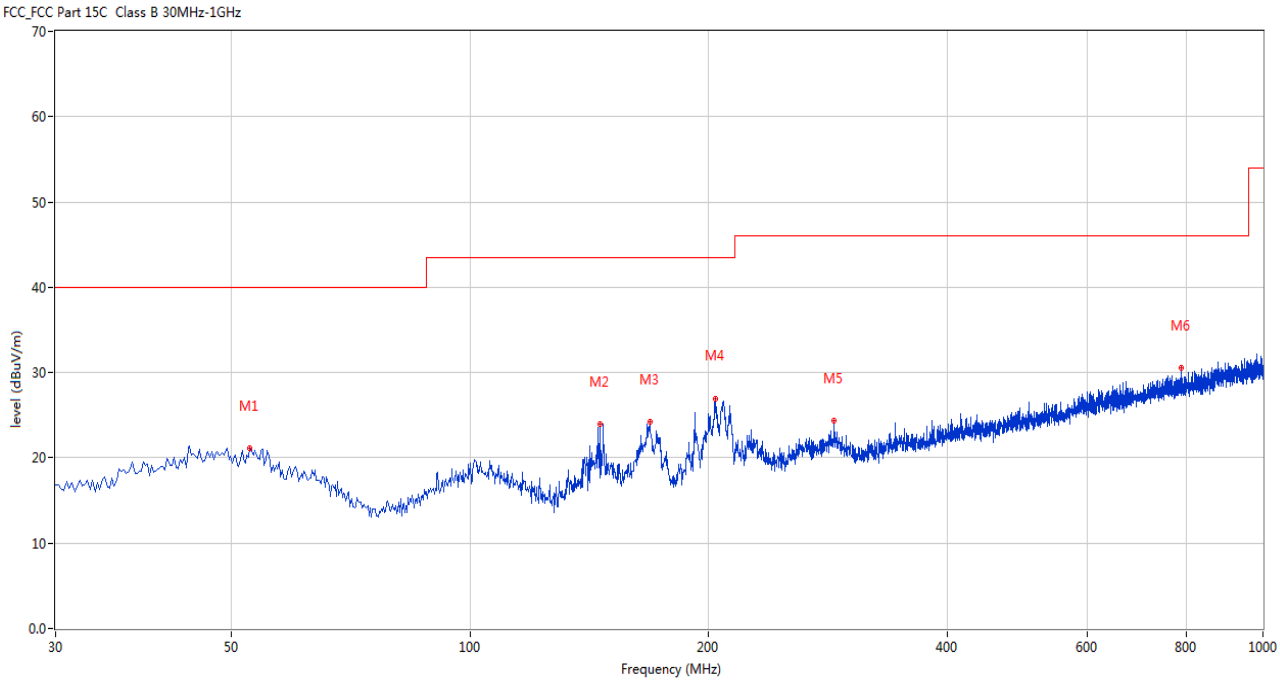
A. General Radiated Emission Data

Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	52.789	21.17	-11.48	40.0	-18.83	Peak	221.00	100	Horizontal	Pass
2	145.886	23.91	-17.30	43.5	-19.59	Peak	179.00	200	Horizontal	Pass
3	168.433	24.27	-16.13	43.5	-19.23	Peak	0.00	200	Horizontal	Pass
4	204.071	26.97	-13.51	43.5	-16.53	Peak	209.00	100	Horizontal	Pass
5	287.956	24.41	-11.27	46.0	-21.59	Peak	351.00	100	Horizontal	Pass
6	788.108	30.52	-3.06	46.0	-15.48	Peak	0.00	200	Horizontal	Pass

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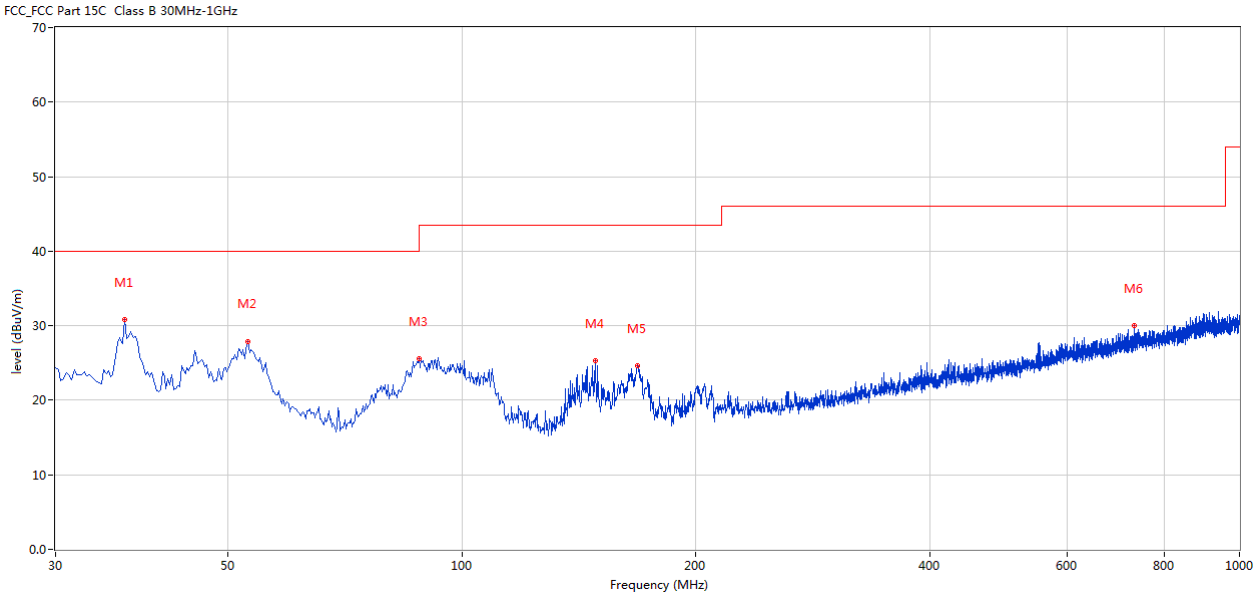
B. General Radiated Emission Data

Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	36.788	30.81	-13.31	40.0	-9.19	Peak	226.00	100	Vertical	Pass
2	53.032	27.93	-11.50	40.0	-12.07	Peak	270.00	100	Vertical	Pass
3	88.185	25.62	-15.59	43.5	-17.88	Peak	112.00	100	Vertical	Pass
4	148.310	25.24	-17.16	43.5	-18.26	Peak	119.00	100	Vertical	Pass
5	168.190	24.68	-16.14	43.5	-18.82	Peak	62.00	100	Vertical	Pass
6	731.862	30.01	-3.67	46.0	-15.99	Peak	0.00	200	Vertical	Pass

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7.0 20dB Bandwidth Testing

7.1 Test Procedure

With the EUT's antenna attached, the EUT's 20dB Bandwidth was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

7.3 Test Data

Frequency (MHz)	20dB Bandwidth Emission (kHz)	Limit (kHz)	Result
0.175	3.382	--	Pass

Refer to attached plots:

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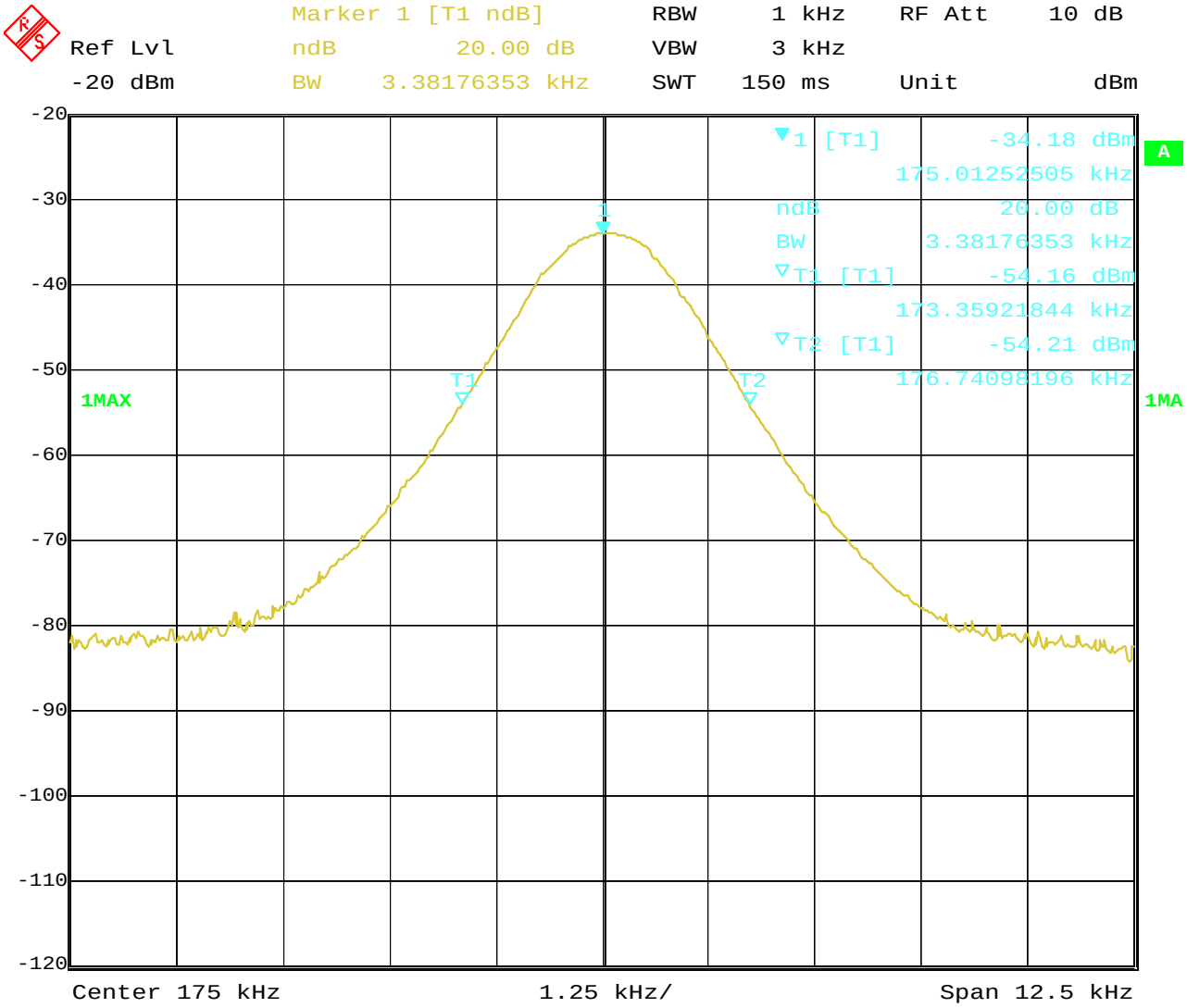
20dB Bandwidth



Date: 16.SEP.2022 10:38:42

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8.0 **Antenna Requirement**

8.1 Standard Applicable

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

8.2 Antenna Connected constructions

The antenna is Inductive Loop Antenna. The antenna gain is 0dBi. So it meets the requirement of 15.203

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9.0 FCC ID Label

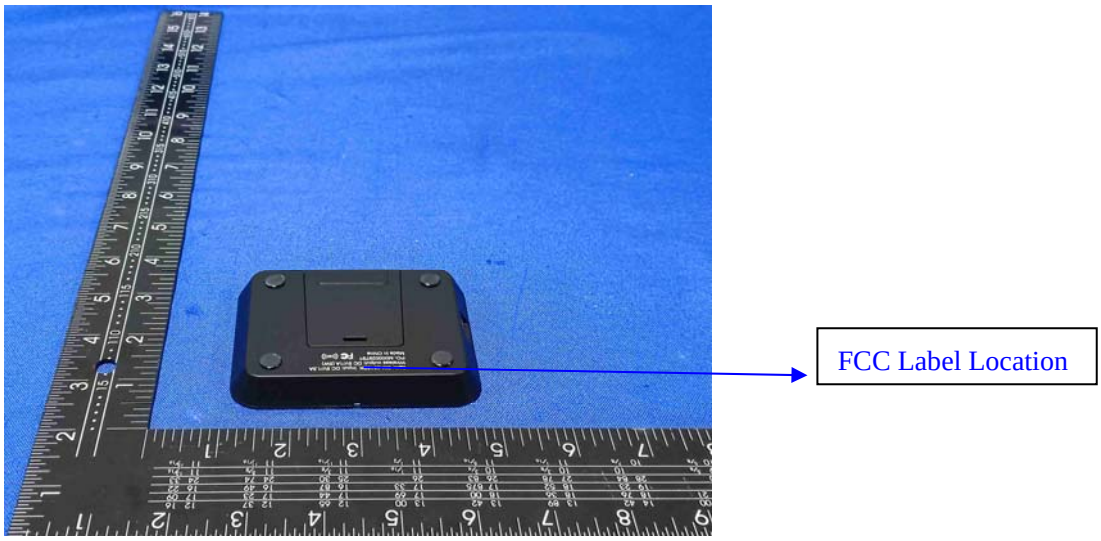
FCC ID: 2AQJK-AST-WR193

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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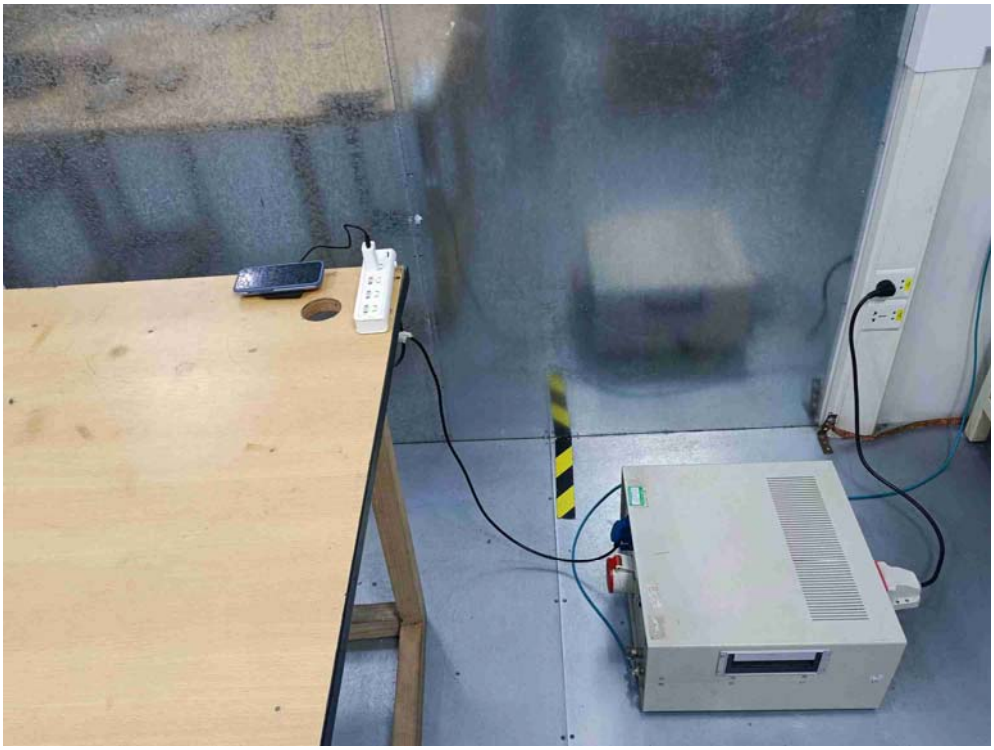
10.0. Photo of testing

10.1 Conducted test View



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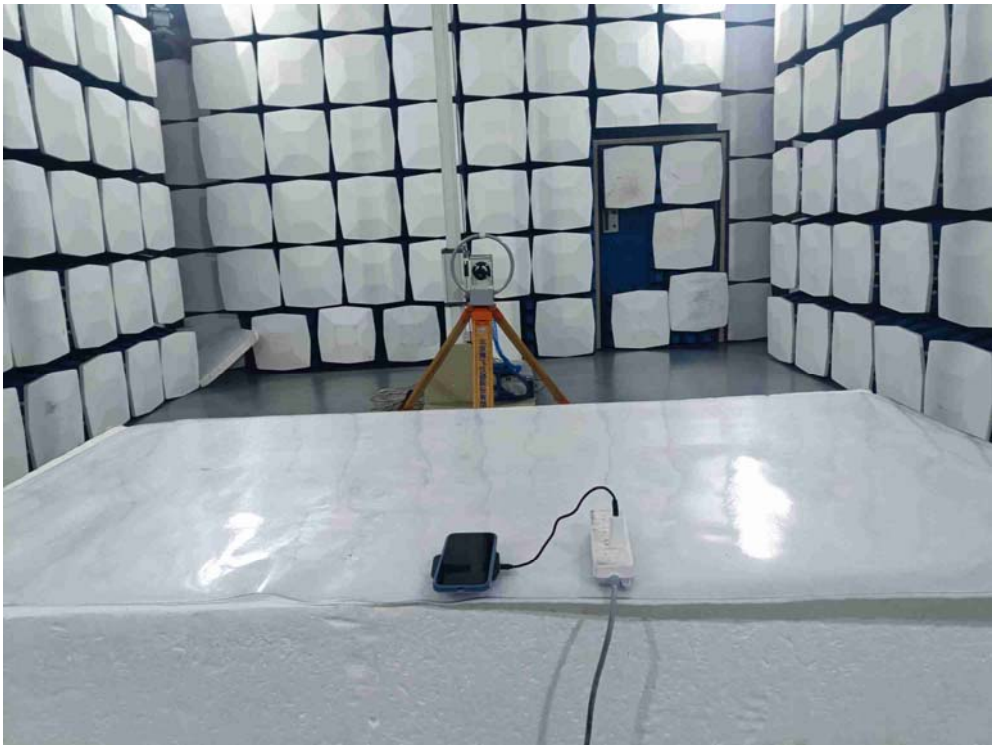
10.2 Radiated emission test view



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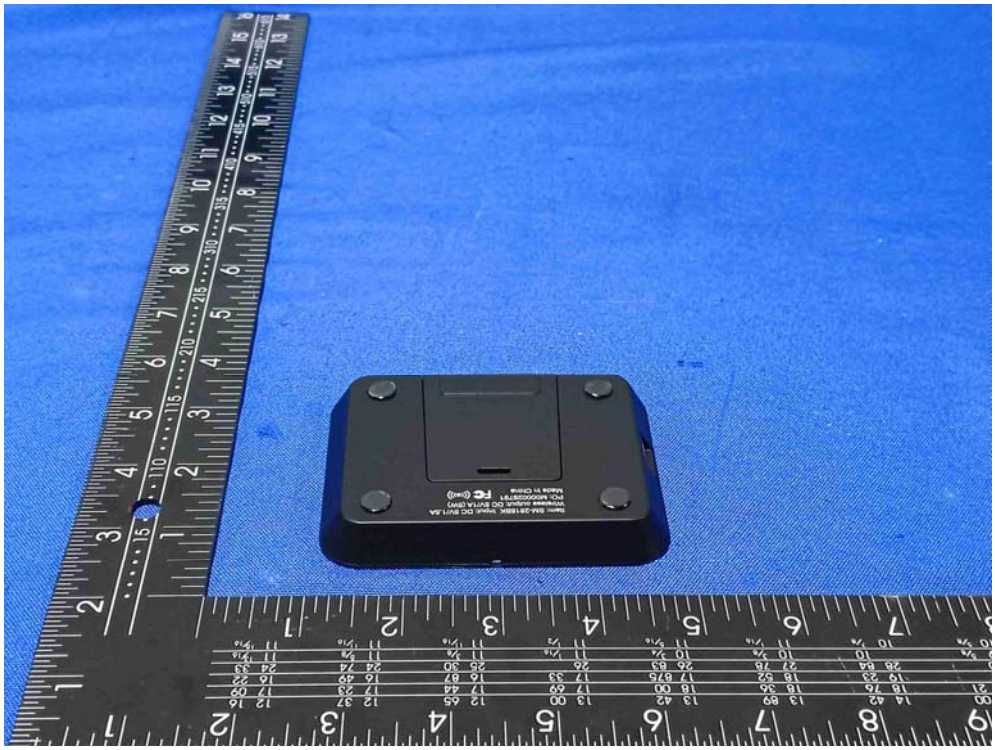
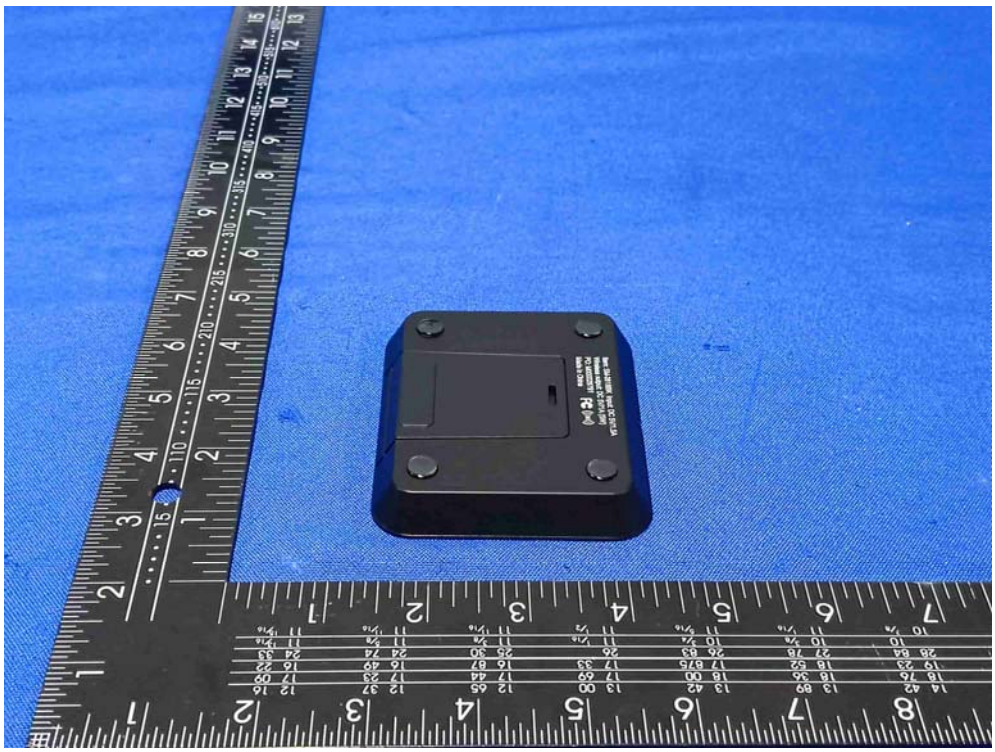
Photographs – EUT

Outside View





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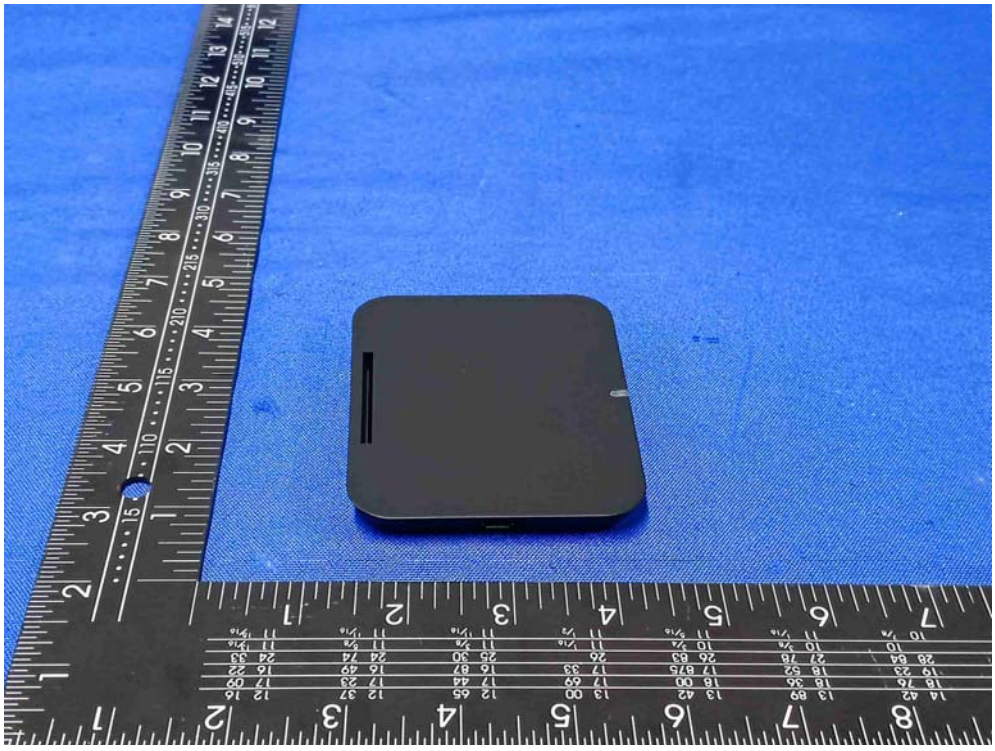

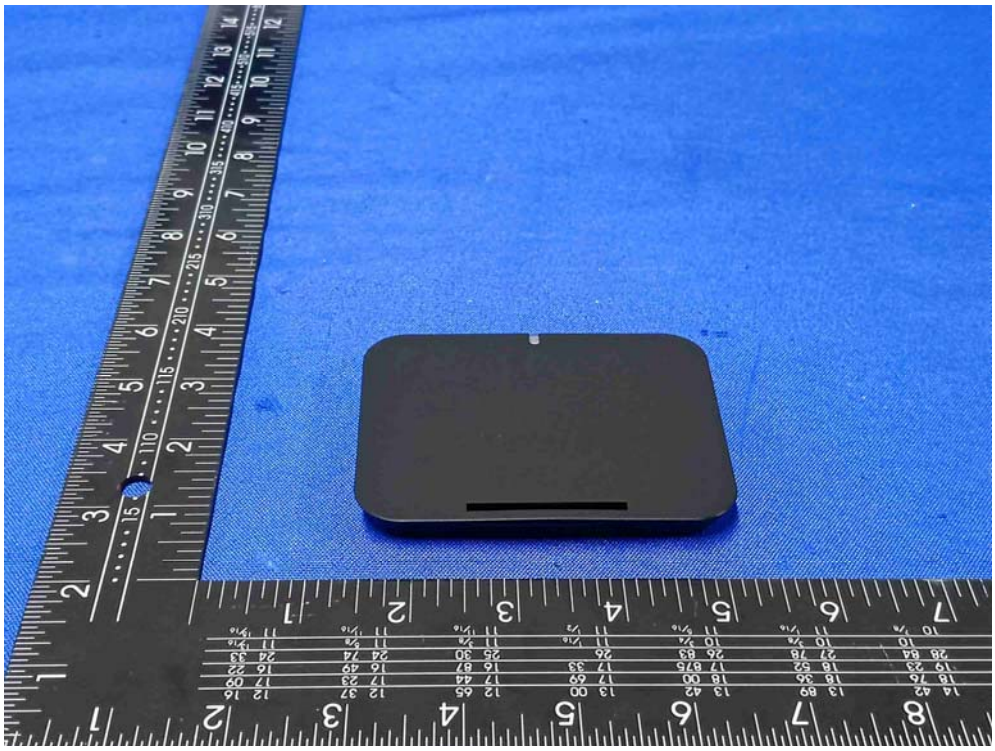

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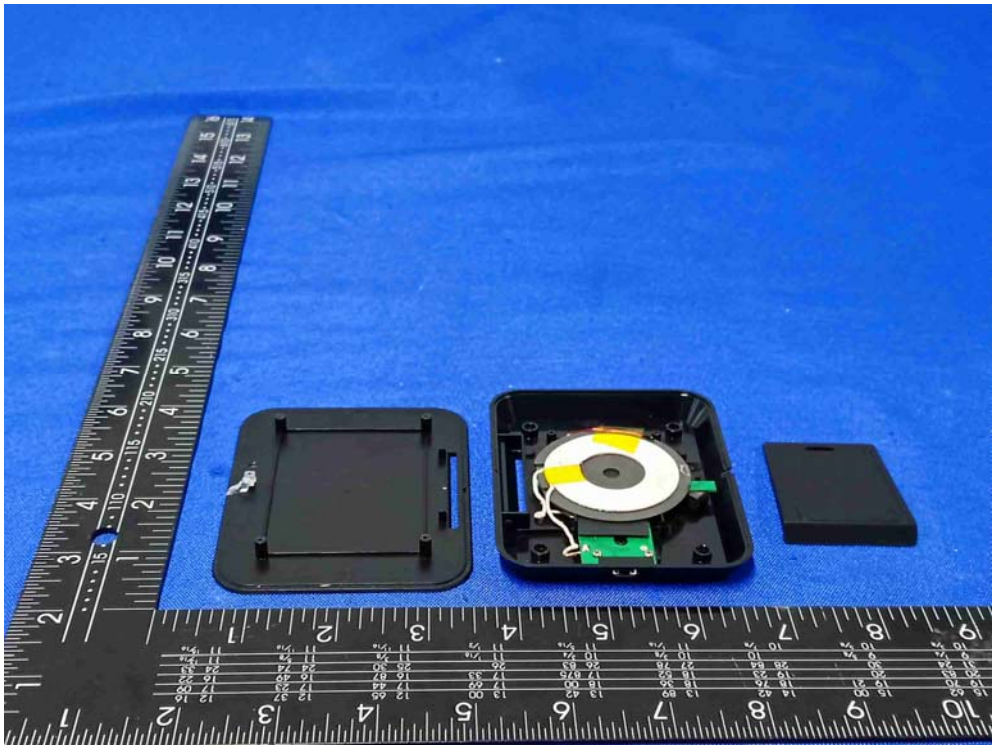
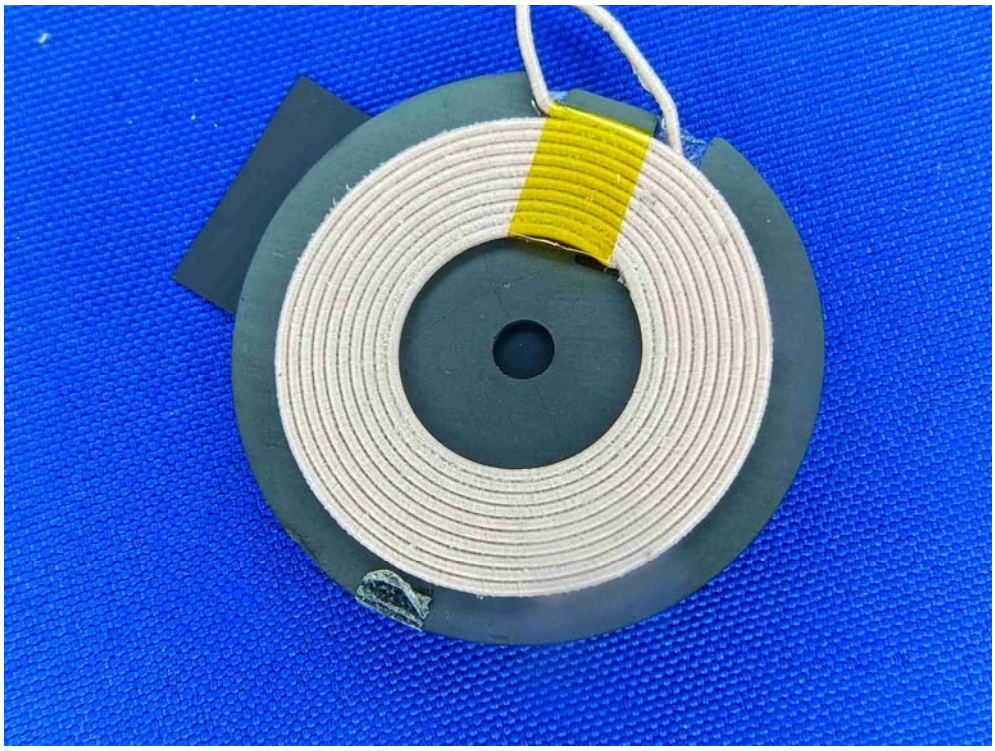
Inside View





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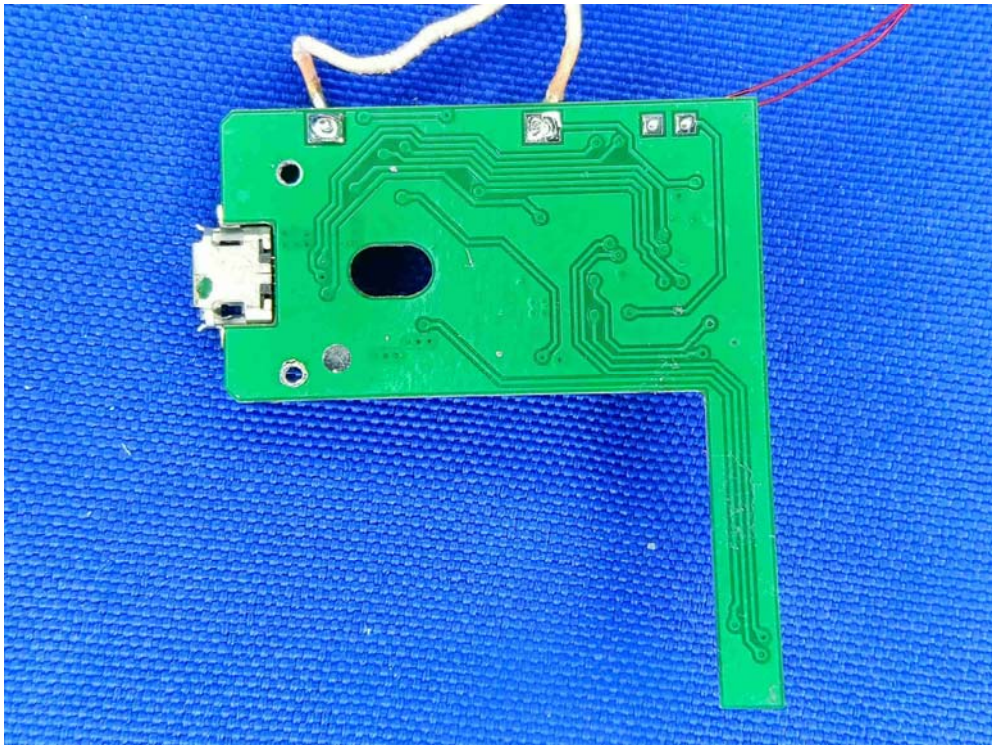

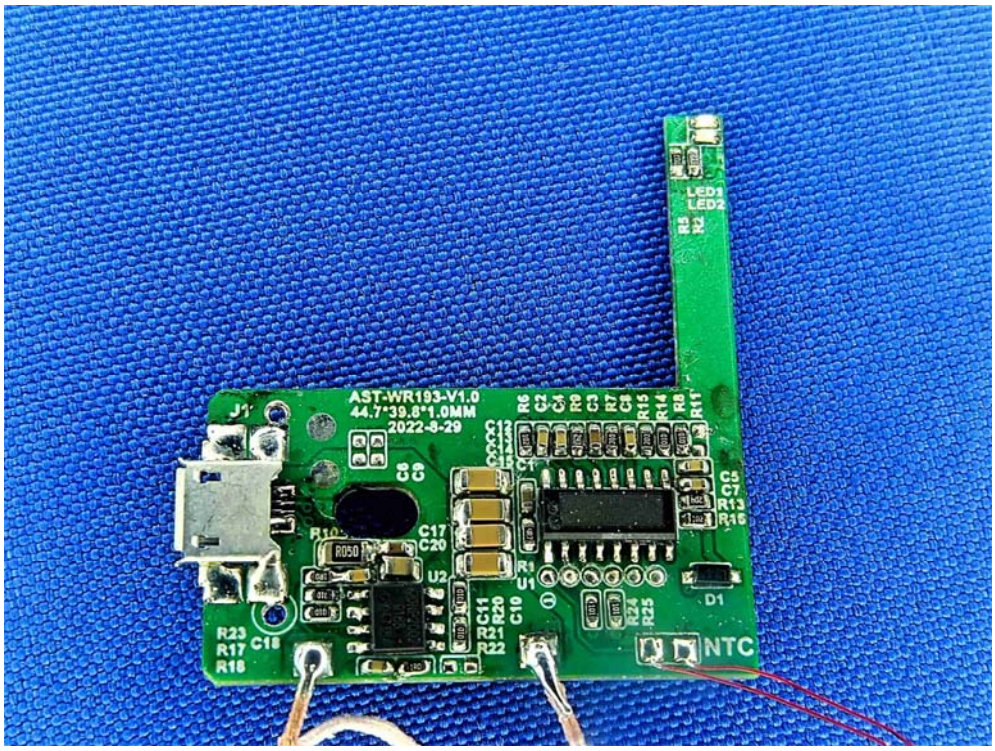

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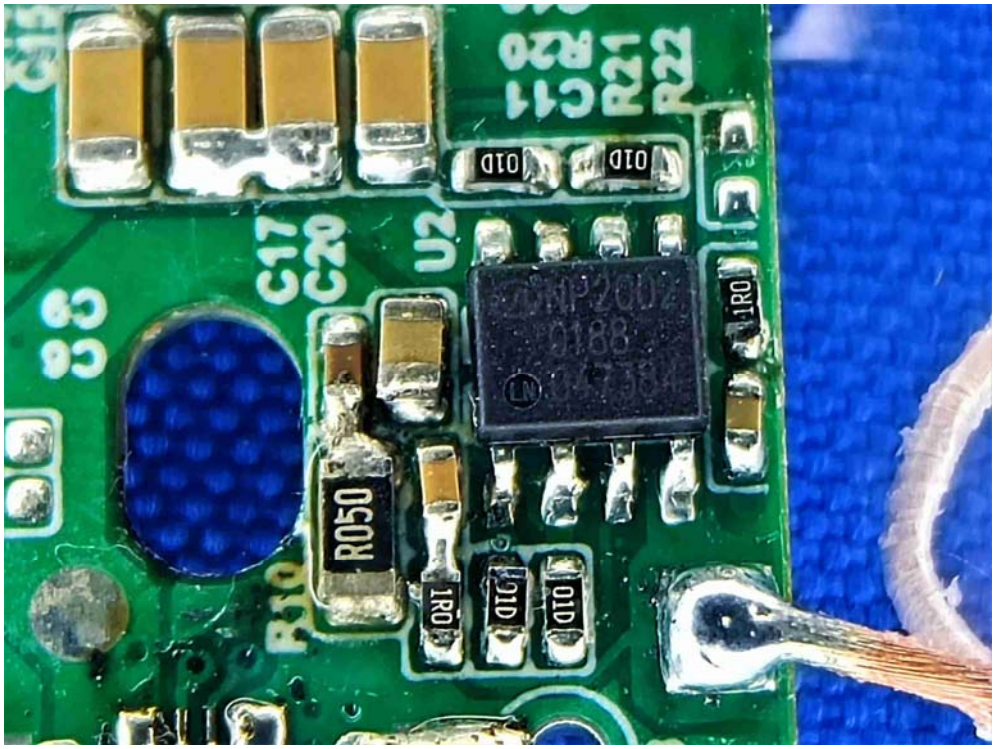

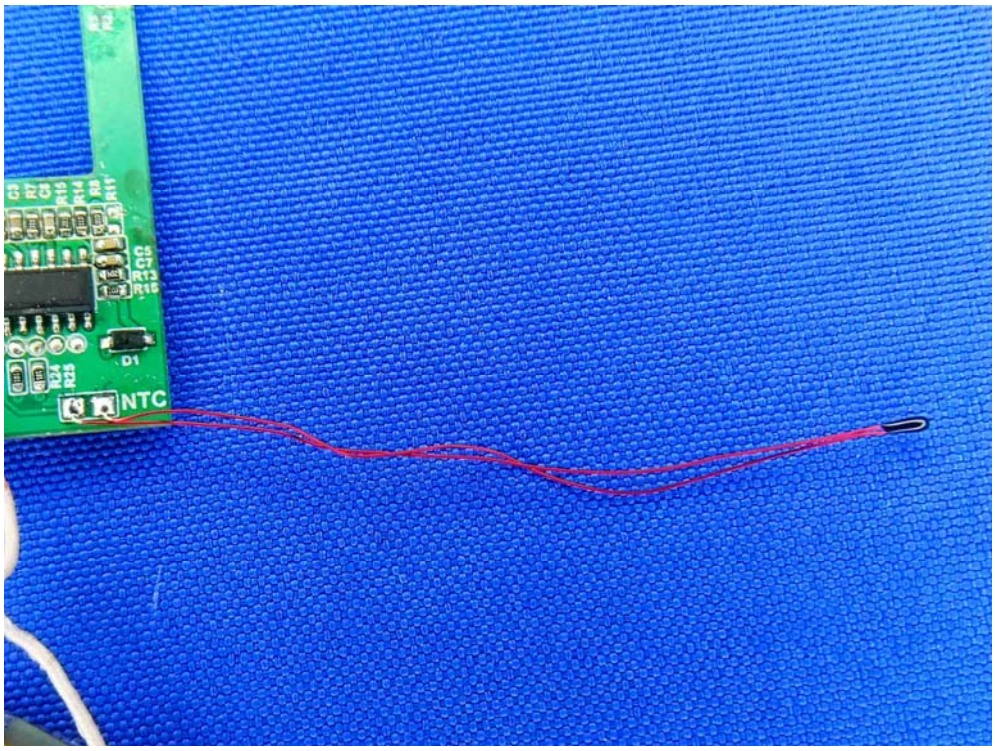

-End of the report-

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