



FCC TEST REPORT

Applicant: SHENZHEN NITO POWER SOURCE TECHNOLOGY CO., LTD.

Address: 201, No.8 Building, Jinfanghua Electricity Industrial park, Bantian St., Longgang Dist., Shenzhen, China

Manufacturer: Dongguan JOYROOM Electronic Technology Co., Ltd

Address: 4-6Floor, No.2 Assembly building, Long Bu road, Longbeiling, Tangxia, Dongguan

EUT: Digital Display Car Charger

Trade Mark: JOYROOM

Model Number: JR-CCD02
JR-CCD01

Date of Receipt: Feb. 03, 2023

Test Date: Feb. 03, 2023 - Feb. 07, 2023

Date of Report: Feb. 07, 2023

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

Applicable Standards: FCC Part 15 Subpart B
ANSI C63.4:2014

Test Result: Pass

Report Number: DL-20230207009E

Prepared (Test Engineer): Randy Xie

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.



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**1. VERSION**

Version No.	Date	Description
00	Feb. 07, 2023	Original

2. TEST SUMMARY

EMC Emission				
Standard	Test Item	Limit	Result	Remark
FCC PART 15 B	Conducted Emission at power ports	Class B	N/A	
	Radiated Emission below 1GHz	Class B	PASS	
	Radiated Emission above 1GHz	Class B	N/A	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

(2) Test Facility: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China



3. GENERAL INFORMATION

3.1 Description of Device (EUT)

EUT: Digital Display Car Charger

Trade Mark: JOYROOM

Model Number: JR-CCD02
JR-CCD01

Test Model: JR-CCD02

Model difference: The product's different for model number and appearance color

Input: 12-24V \approx 7A

Power Supply: PD-1 Output: 5V \approx 3A, 9V \approx 3A, 12V \approx 2.92A, 15V \approx 2.33A, 20V \approx 1.75A
PD-2 Output: 5V \approx 3A, 9V \approx 3A, 12V \approx 2.92A, 15V \approx 2.33A, 20V \approx 1.75A
PPS: 3.3-11V \approx 3A(Max)
Total Output: 70W(Max)

Working Frequency: Below 108MHz

3.2 Tested System Details

None.

3.3 Block Diagram of Test Set-up



3.4 Test Mode Description

Mode1.	On Mode(PD-1 5V)	Mode2.	On Mode(PD-1 9V)
Mode3.	On Mode(PD-1 12V)	Mode4.	On Mode(PD-1 15V)
Mode5.	On Mode(PD-1 20V)	Mode6.	On Mode(PD-1+PD-2)

3.5 Test Auxiliary Equipment

None.

3.6 Test Uncertainty

Conducted Emission Uncertainty : ± 2.56 dB

Radiated Emission Uncertainty : ± 3.65 dB



4. TEST INSTRUMENT USED

For Conducted Emission Test (843 Shielded Room)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
843 Shielded Room	ChengYu	843 Room	843	Sep. 20, 2022	Sep. 19, 2025
EMI Receiver	R&S	ESR	101421	Nov. 05, 2022	Nov. 04, 2023
LISN	R&S	ENV216	102417	Nov. 05, 2022	Nov. 04, 2023
Clamp	COM-POWER	CLA-050	431071	Nov. 05, 2022	Nov. 04, 2023
3-Loop Antenna	DAZE	ZN30401	13021	Nov. 05, 2022	Nov. 04, 2023
ISN T8	Schwarzbeck	NTFM 8158	101135	Nov. 05, 2022	Nov. 04, 2023
ISN T5	Schwarzbeck	NTFM 8158	101136	Nov. 05, 2022	Nov. 04, 2023
843 Cable 1#	ChengYu	CE Cable	001	Nov. 05, 2022	Nov. 04, 2023
843 Cable 1#	ChengYu	CE Cable	002	Nov. 05, 2022	Nov. 04, 2023

For Radiated Emission Test (966 chamber)

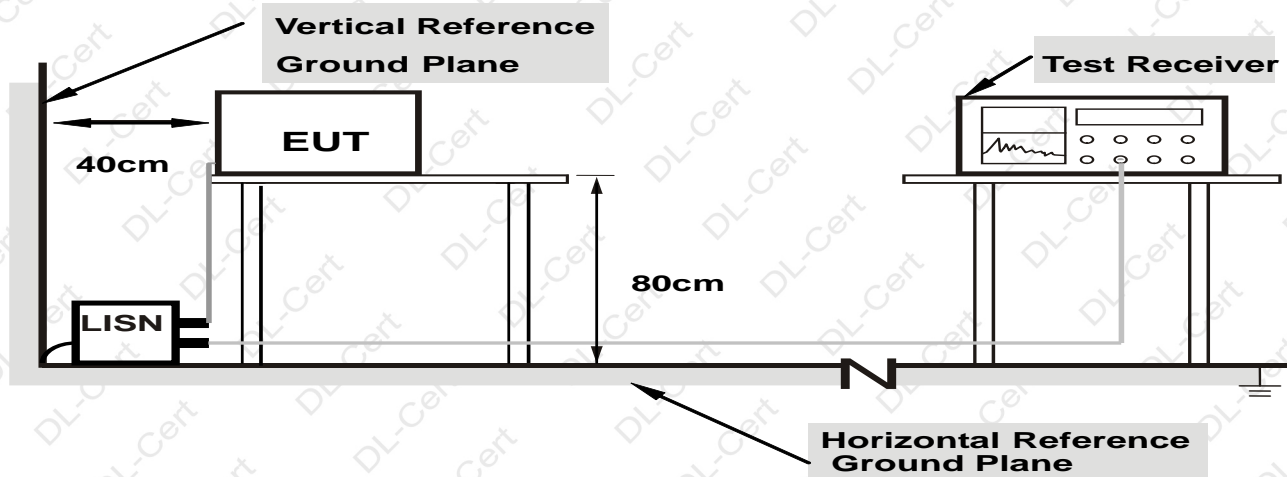
Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
966 Chamber	ChengYu	966 Room	966	Sep. 20, 2022	Sep. 19, 2025
Spectrum Analyzer	Agilent	E4408B	MY50140780	Nov. 05, 2022	Nov. 04, 2023
EMI Receiver	R&S	ESRP7	101393	Nov. 05, 2022	Nov. 04, 2023
Amplifier	Schwarzbeck	BBV9743B	00153	Nov. 05, 2022	Nov. 04, 2023
Amplifier	EMEC	EM01G8GA	00270	Nov. 05, 2022	Nov. 04, 2023
Broadband Trilog Antenna	Schwarzbeck	VULB9162	00306	Nov. 05, 2022	Nov. 04, 2023
Horn Antenna	Schwarzbeck	BBHA9120D	02139	Nov. 05, 2022	Nov. 04, 2023
966 Cable 1#	ChengYu	966	004	Nov. 05, 2022	Nov. 04, 2023
966 Cable 2#	ChengYu	966	003	Nov. 05, 2022	Nov. 04, 2023

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMCC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMCC	FA-03A2
3	RF test system	MAIWEI	MTS8310	2.0.0.0
4	RF communication test system	MAIWEI	MTS8200	2.0.0.0

5. CONDUCTED EMISSION TEST

5.1 Block Diagram of Test Setup

For Mains Terminals Test



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

5.2 Test Standard and Limit

FCC PART 15 B

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15~0.50	66 ~ 56*	55 ~ 46*
0.50~5.00	56	46
5.00~30.00	60	50

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

5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet FCC PART 15 B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

5.4 Operating Condition of EUT

- 5.4.1 Setup the EUT and simulators as shown in Section 5.1.
- 5.4.2 Turn on the power of all equipments.
- 5.4.3 Let the EUT work in test modes and test it.



5.5 Test Procedure

The EUT is put on the table and connected to the AC mains through a Artificial Mains Network (AMN) or ISN. This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **ANSI C63.4** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESR) is set at 10KHz.

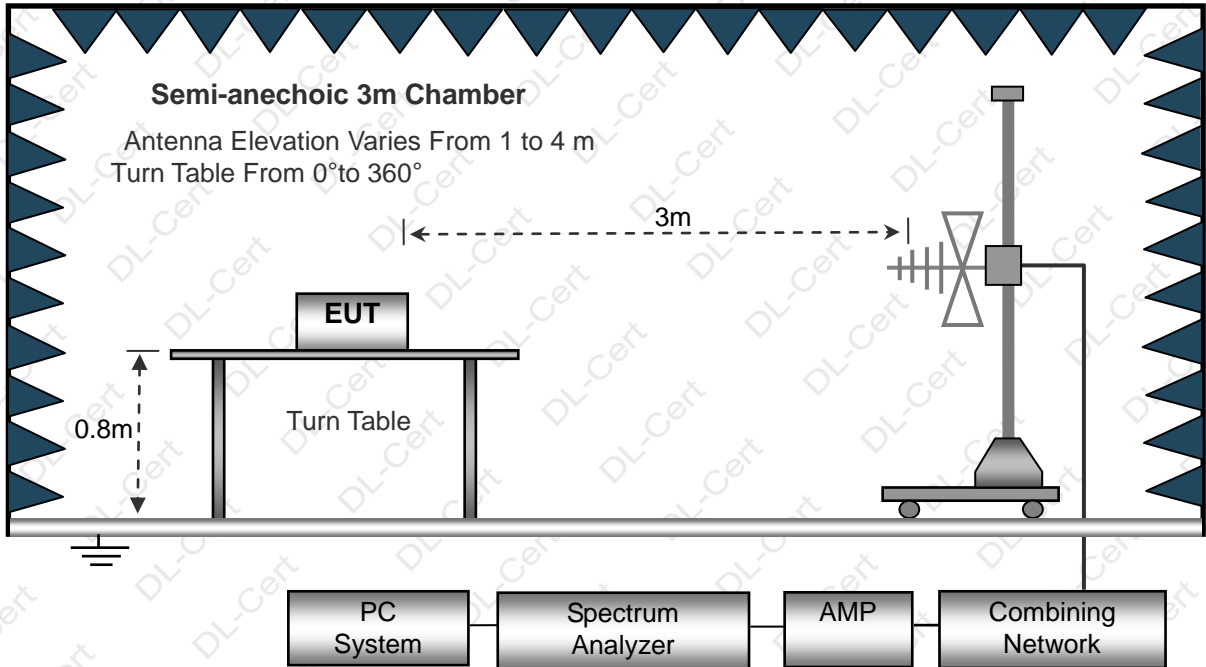
The frequency range from 150 KHz to 30 MHz is investigated.

5.6 Test Result

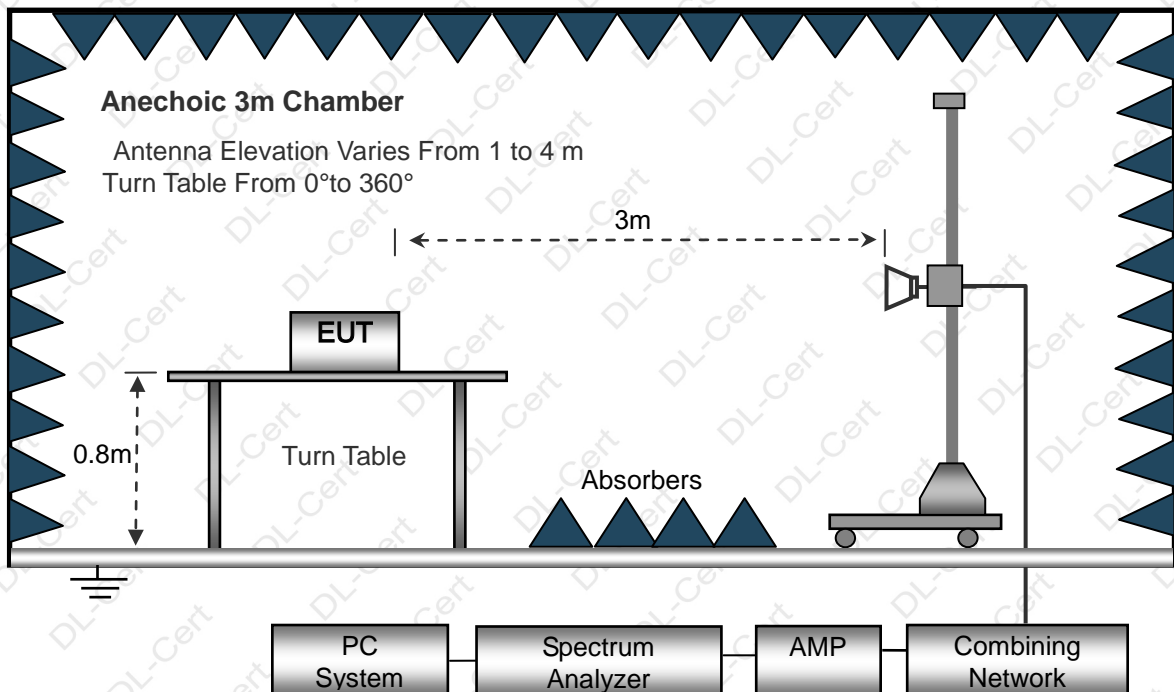
The EUT is powered by DC, no requirements for this item.

6. RADIATION EMISSION TEST

6.1 Block Diagram of Test Setup
Below 1GHz



Above 1GHz



6.2 Test Standard and Limit
FCC PART 15 B



Below 1GHz

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB μ V/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

Above 1GHz

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μ V)/m	Detector
1000~6000	3	74.0	PEAK
1000~6000	3	54.0	AVERAGE

Remark:

- (1) The smaller limit shall apply at the cross point between two frequency bands.
- (2) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.

6.3 EUT Configuration on Test

The FCC PART 15 B regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 5.3.

6.4 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.4 except the test set up replaced as Section 6.2.

6.5 Test Procedure

- 1) The radiated emissions test was conducted in a semi-anechoic chamber.
- 2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 3) Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
- 4) The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.
- 5) The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz.
- 6) The frequency range from 30MHz to 1000MHz is checked.

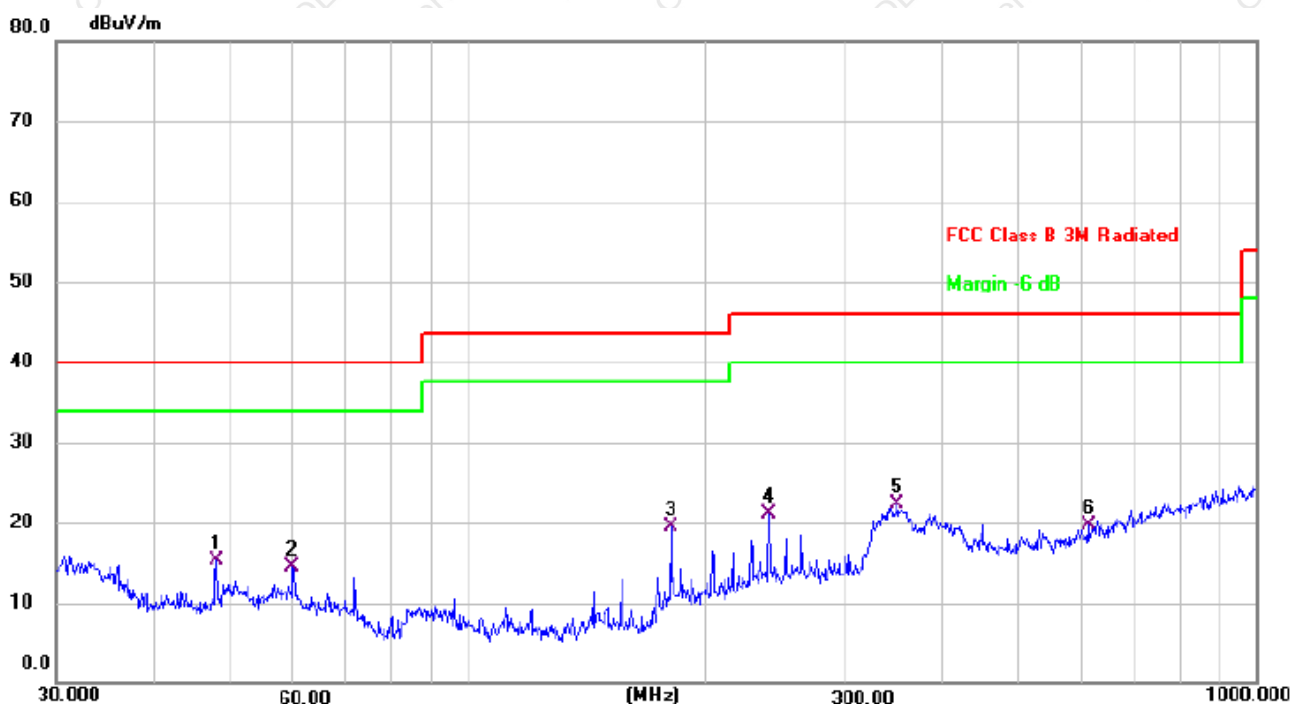
6.6 Test Result

PASS

Please refer to the following page.



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 24V	Test Mode:	Mode 1



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1		47.9940	26.99	-11.62	15.37	40.00	-24.63	QP
2		59.8588	25.66	-11.16	14.50	40.00	-25.50	QP
3		180.6488	34.03	-14.52	19.51	43.50	-23.99	QP
4		240.8304	33.14	-12.04	21.10	46.00	-24.90	QP
5	*	350.4768	32.33	-9.99	22.34	46.00	-23.66	QP
6		612.0642	25.20	-5.48	19.72	46.00	-26.28	QP

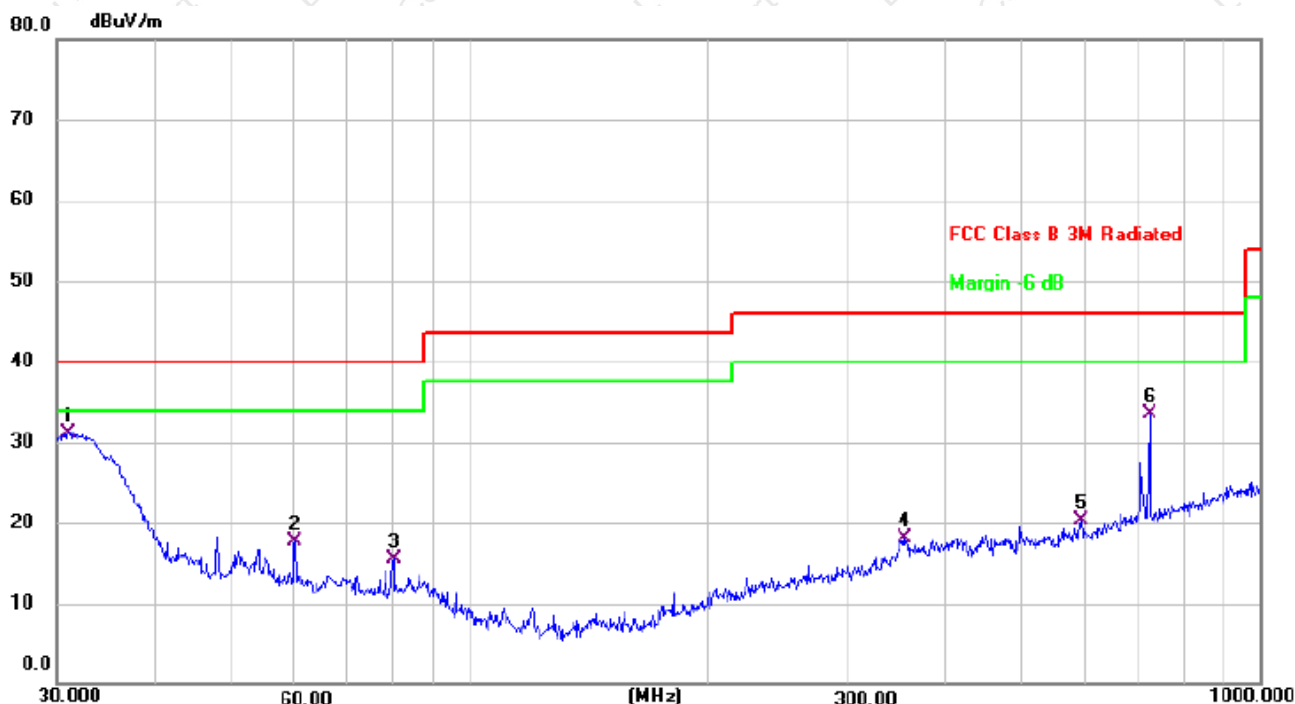
Remark:

Correct Factor = Cable loss + Antenna factor – Pre-amplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 24V	Test Mode:	Mode 1



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1	*	31.0706	45.68	-14.57	31.11	40.00	-8.89	QP
2		60.0691	29.62	-11.98	17.64	40.00	-22.36	QP
3		80.0806	32.61	-17.16	15.45	40.00	-24.55	QP
4		354.1831	27.06	-8.90	18.16	46.00	-27.84	QP
5		593.0497	25.11	-4.78	20.33	46.00	-25.67	QP
6		724.2611	35.74	-2.28	33.46	46.00	-12.54	QP

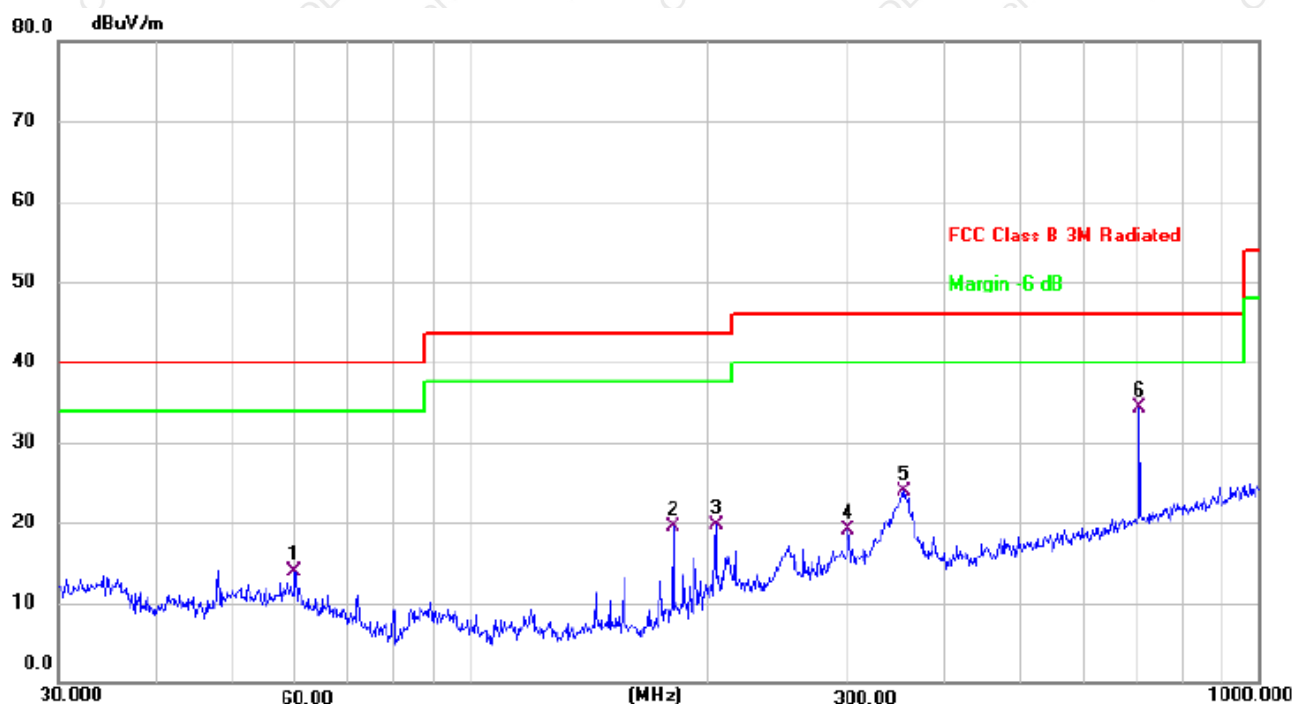
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 24V	Test Mode:	Mode 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1		59.8588	25.01	-11.16	13.85	40.00	-26.15	QP
2		180.6488	33.99	-14.52	19.47	43.50	-24.03	QP
3		204.9551	32.89	-13.14	19.75	43.50	-23.75	QP
4		301.4224	29.80	-10.68	19.12	46.00	-26.88	QP
5		355.4273	33.75	-9.92	23.83	46.00	-22.17	QP
6	*	706.6999	38.04	-3.70	34.34	46.00	-11.66	QP

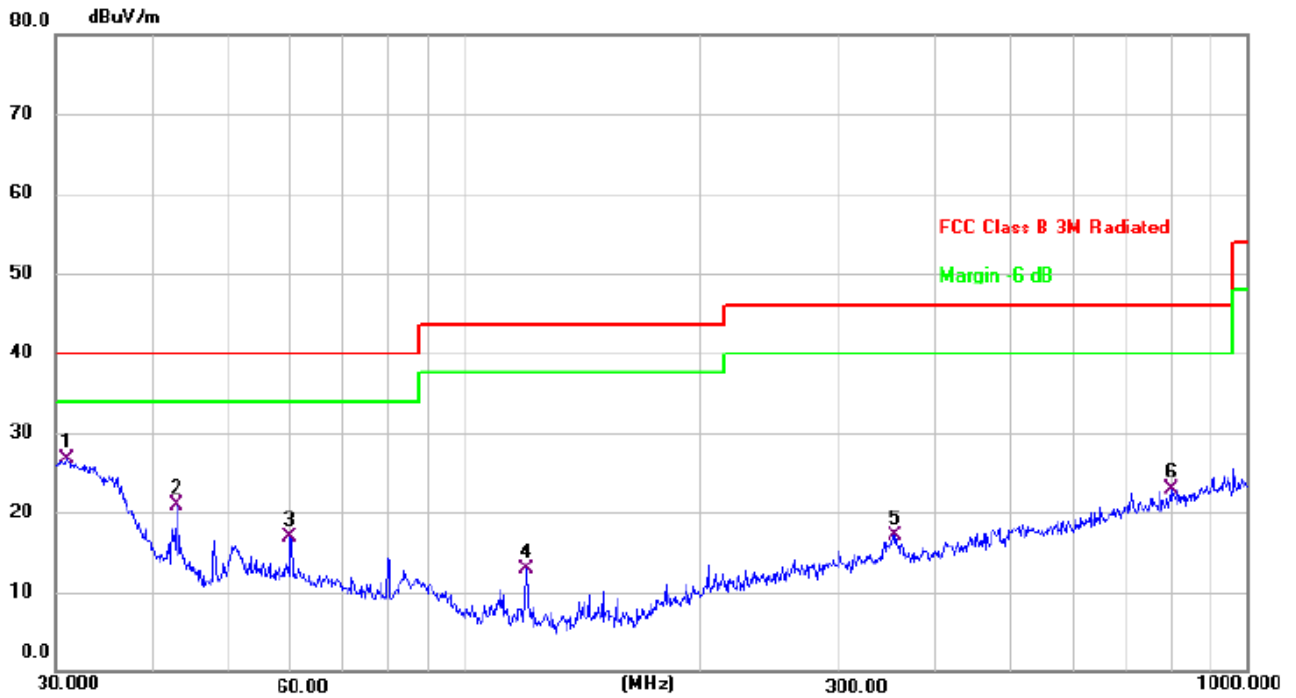
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 24V	Test Mode:	Mode 2



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1	*	31.0706	41.20	-14.57	26.63	40.00	-13.37	QP
2		42.8998	33.06	-12.16	20.90	40.00	-19.10	QP
3		59.8588	28.83	-11.95	16.88	40.00	-23.12	QP
4		119.8556	28.35	-15.54	12.81	43.50	-30.69	QP
5		355.4273	26.04	-8.88	17.16	46.00	-28.84	QP
6		801.7863	24.21	-1.28	22.93	46.00	-23.07	QP

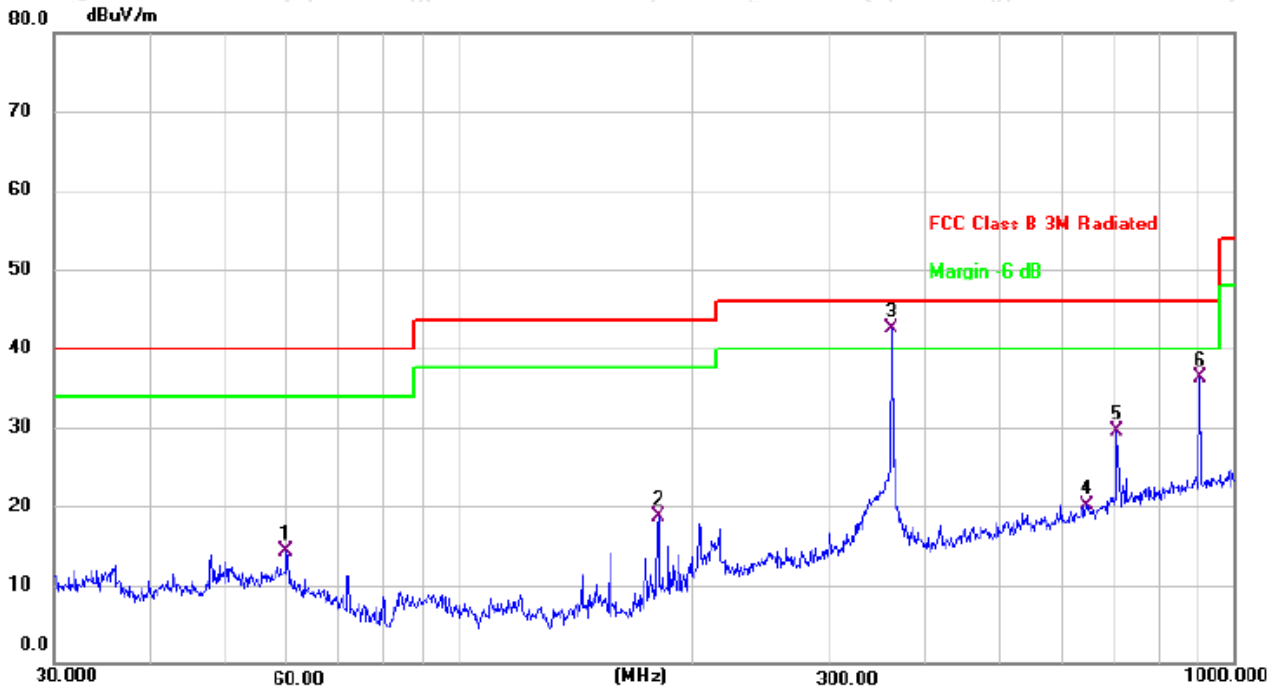
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 24V	Test Mode:	Mode 3



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1		59.8588	25.47	-11.16	14.31	40.00	-25.69	QP
2		180.6488	33.22	-14.52	18.70	43.50	-24.80	QP
3	*	361.7139	52.37	-9.84	42.53	46.00	-3.47	QP
4		645.1195	25.04	-4.84	20.20	46.00	-25.80	QP
5		706.6999	33.20	-3.70	29.50	46.00	-16.50	QP
6		903.3094	37.34	-1.10	36.24	46.00	-9.76	QP

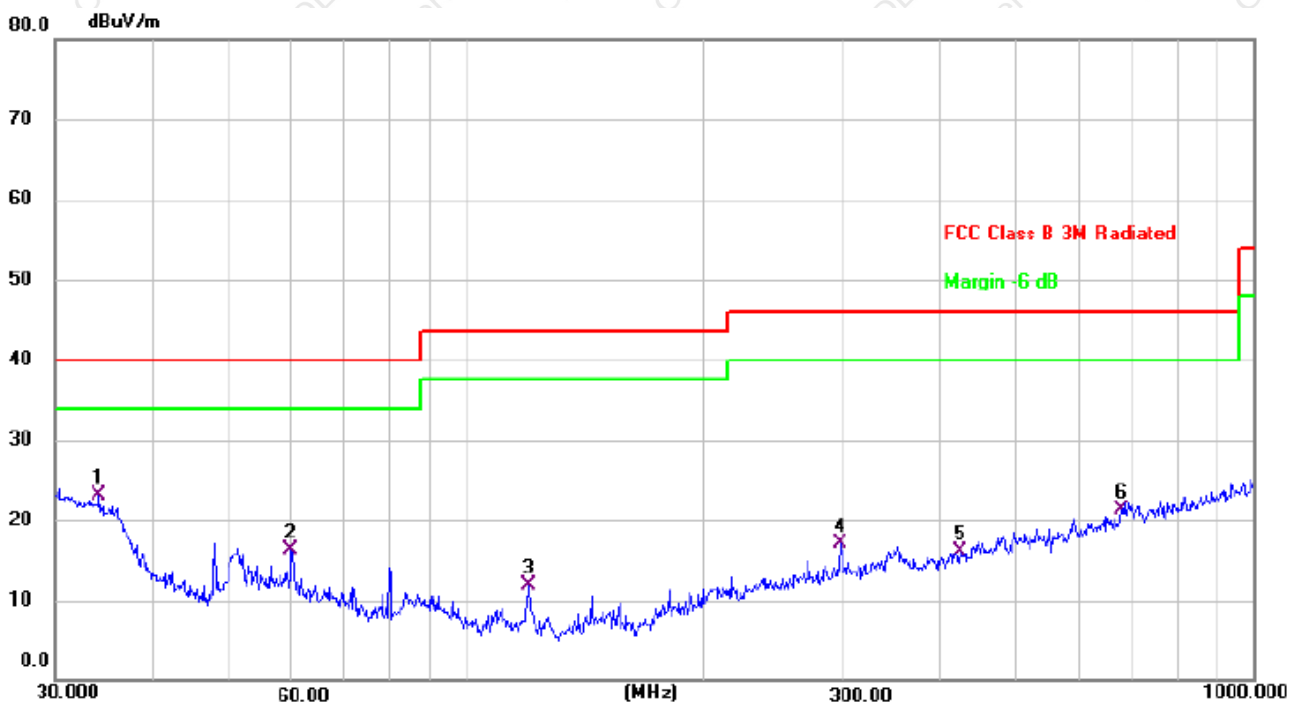
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 24V	Test Mode:	Mode 3



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1	*	34.1561	36.98	-13.89	23.09	40.00	-16.91	QP
2		59.8588	28.31	-11.95	16.36	40.00	-23.64	QP
3		119.8556	27.43	-15.54	11.89	43.50	-31.61	QP
4		298.2681	26.69	-9.64	17.05	46.00	-28.95	QP
5		423.5403	23.82	-7.72	16.10	46.00	-29.90	QP
6		679.9600	24.27	-3.02	21.25	46.00	-24.75	QP

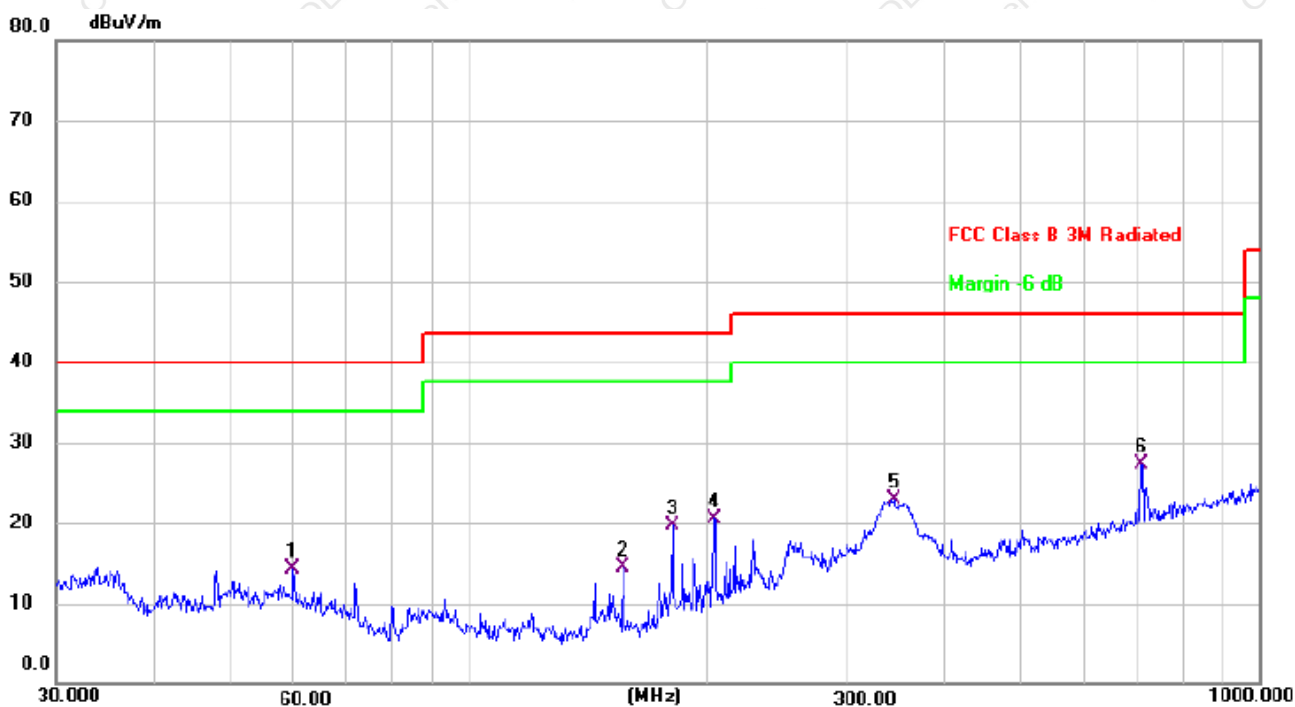
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 24V	Test Mode:	Mode 4



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1		59.8588	25.38	-11.16	14.22	40.00	-25.78	QP
2		156.4578	30.45	-15.93	14.52	43.50	-28.98	QP
3		180.6488	34.25	-14.52	19.73	43.50	-23.77	QP
4		204.2377	33.77	-13.17	20.60	43.50	-22.90	QP
5		344.3855	33.06	-10.08	22.98	46.00	-23.02	QP
6	*	709.1823	30.89	-3.65	27.24	46.00	-18.76	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 24V	Test Mode:	Mode 4



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1	*	31.1798	42.94	-14.55	28.39	40.00	-11.61	QP
2		42.6000	33.54	-12.21	21.33	40.00	-18.67	QP
3		59.8588	29.46	-11.95	17.51	40.00	-22.49	QP
4		79.8003	32.55	-17.14	15.41	40.00	-24.59	QP
5		338.4001	26.95	-9.10	17.85	46.00	-28.15	QP
6		903.3094	30.28	0.18	30.46	46.00	-15.54	QP

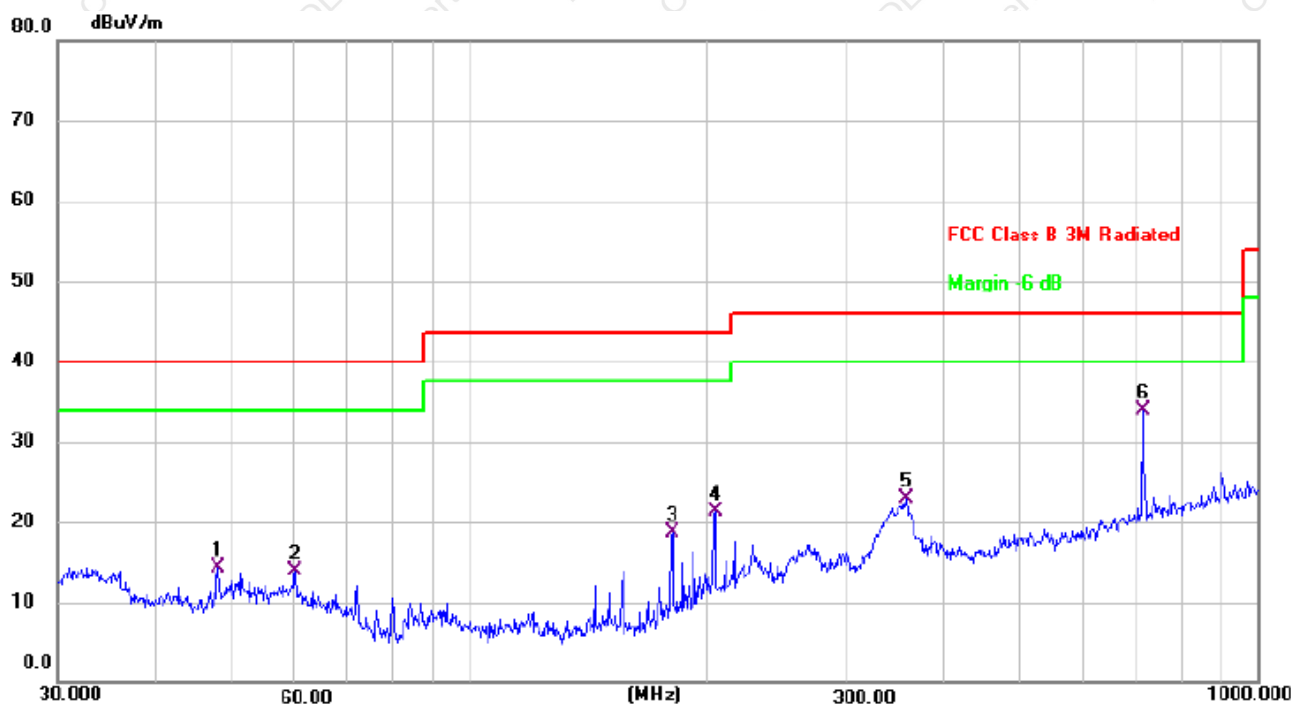
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 24V	Test Mode:	Mode 5



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dB/m	Margin dB	Detector
1		47.9940	25.97	-11.62	14.35	40.00	-25.65	QP
2		60.0691	25.11	-11.18	13.93	40.00	-26.07	QP
3		180.6488	33.26	-14.52	18.74	43.50	-24.76	QP
4		204.9551	34.47	-13.14	21.33	43.50	-22.17	QP
5		357.9287	32.80	-9.89	22.91	46.00	-23.09	QP
6	*	714.1734	37.53	-3.57	33.96	46.00	-12.04	QP

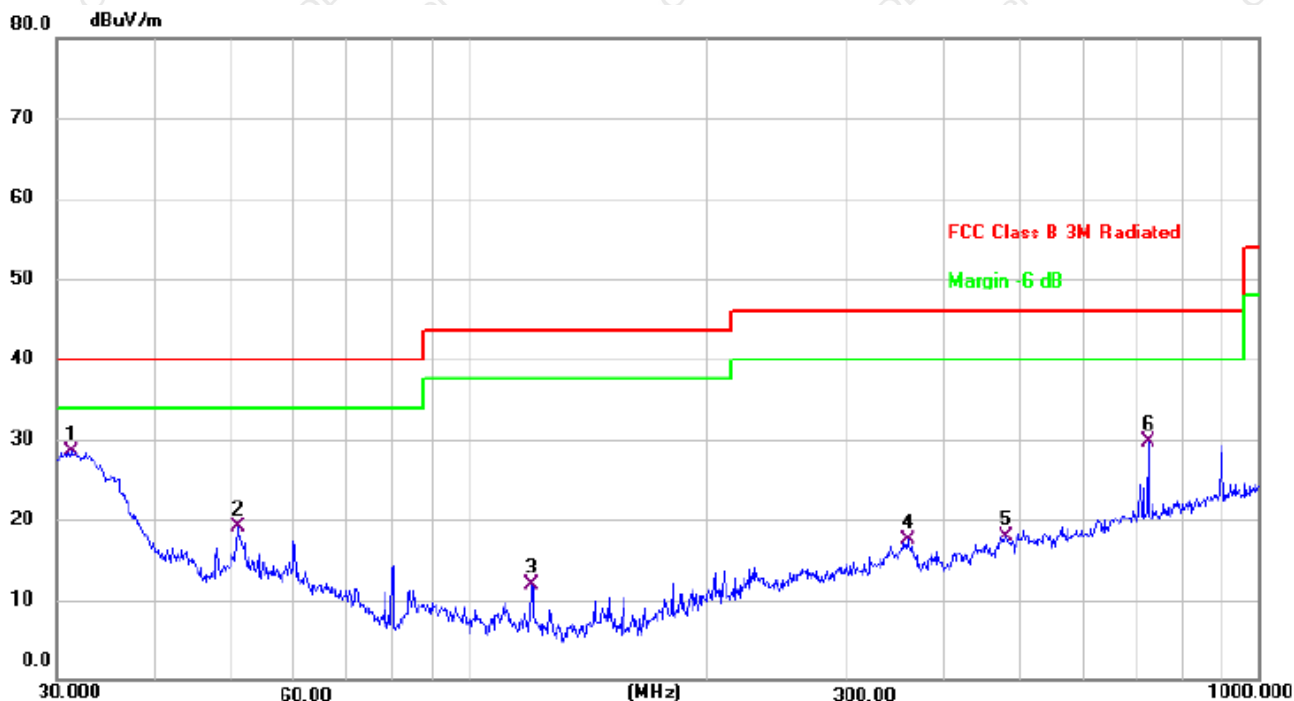
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 24V	Test Mode:	Mode 5



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1	*	31.2893	42.93	-14.52	28.41	40.00	-11.59	QP
2		50.9420	30.19	-11.18	19.01	40.00	-20.99	QP
3		119.8556	27.49	-15.54	11.95	43.50	-31.55	QP
4		359.1860	26.24	-8.83	17.41	46.00	-28.59	QP
5		478.8456	24.34	-6.37	17.97	46.00	-28.03	QP
6		724.2611	31.97	-2.28	29.69	46.00	-16.31	QP

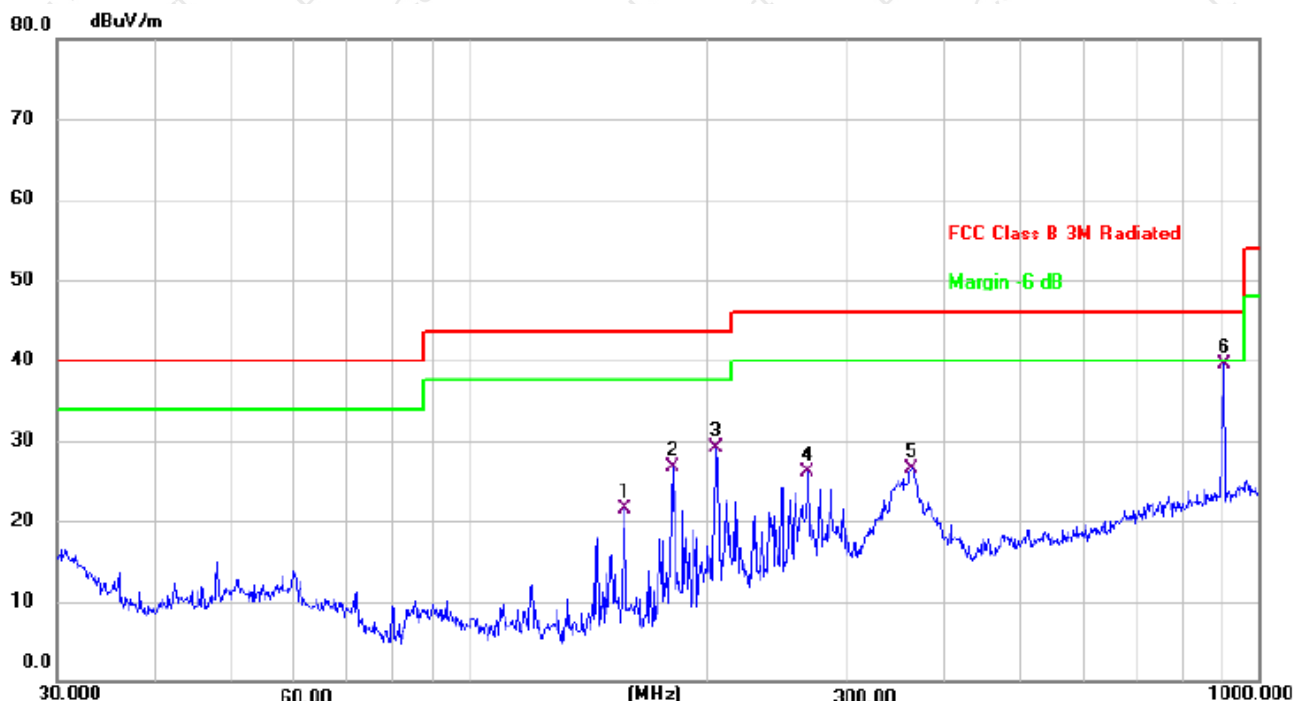
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 24V	Test Mode:	Mode 6



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1		157.5588	37.37	-15.86	21.51	43.50	-21.99	QP
2		180.6488	41.24	-14.52	26.72	43.50	-16.78	QP
3		205.6751	42.18	-13.12	29.06	43.50	-14.44	QP
4		268.4853	37.46	-11.36	26.10	46.00	-19.90	QP
5		362.9844	36.31	-9.82	26.49	46.00	-19.51	QP
6	*	903.3094	40.59	-1.10	39.49	46.00	-6.51	QP

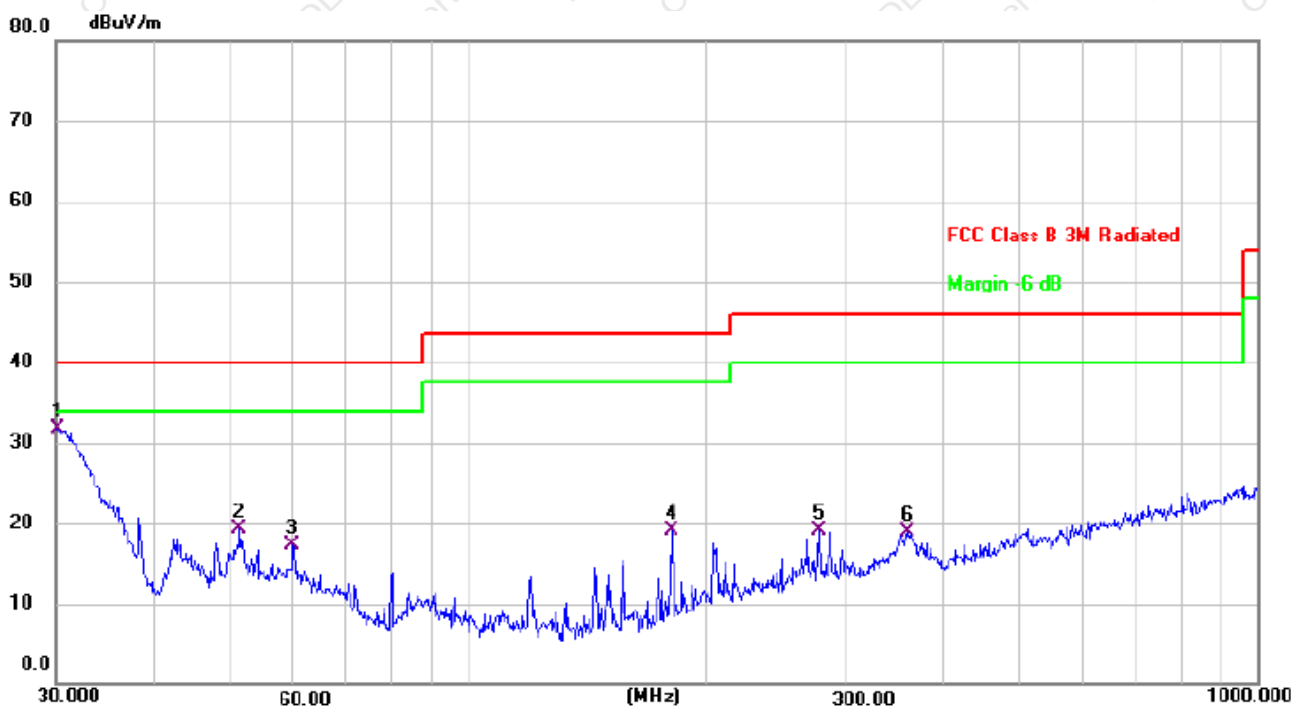
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;



Radiation Emission Test Data			
Temperature:	24.5°C	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 24V	Test Mode:	Mode 6



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Margin dB	Detector
1	*	30.2111	46.52	-14.76	31.76	40.00	-8.24	QP
2		51.3005	30.58	-11.21	19.37	40.00	-20.63	QP
3		59.8588	29.26	-11.95	17.31	40.00	-22.69	QP
4		180.6488	33.55	-14.42	19.13	43.50	-24.37	QP
5		278.0668	29.28	-10.19	19.09	46.00	-26.91	QP
6		359.1860	27.65	-8.83	18.82	46.00	-27.18	QP

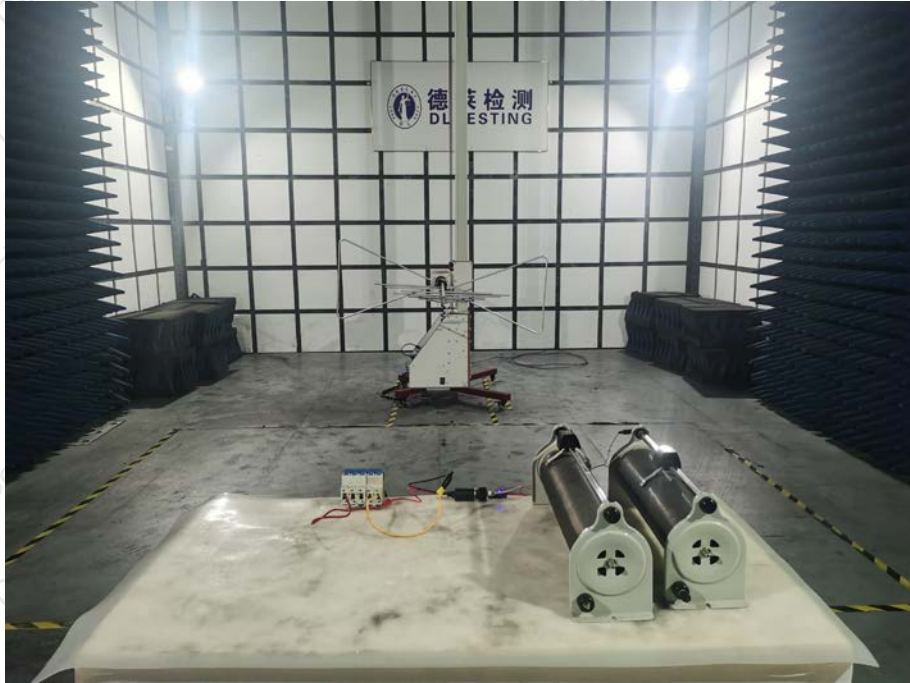
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Measurement Level = Reading Level + Correct Factor; Margin = Measurement Level- Limit ;

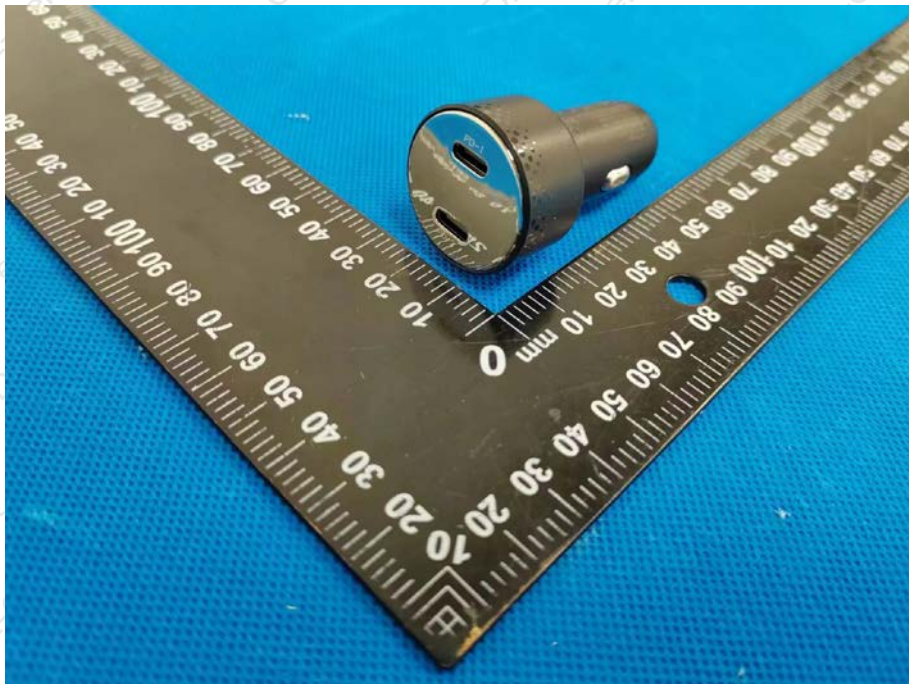


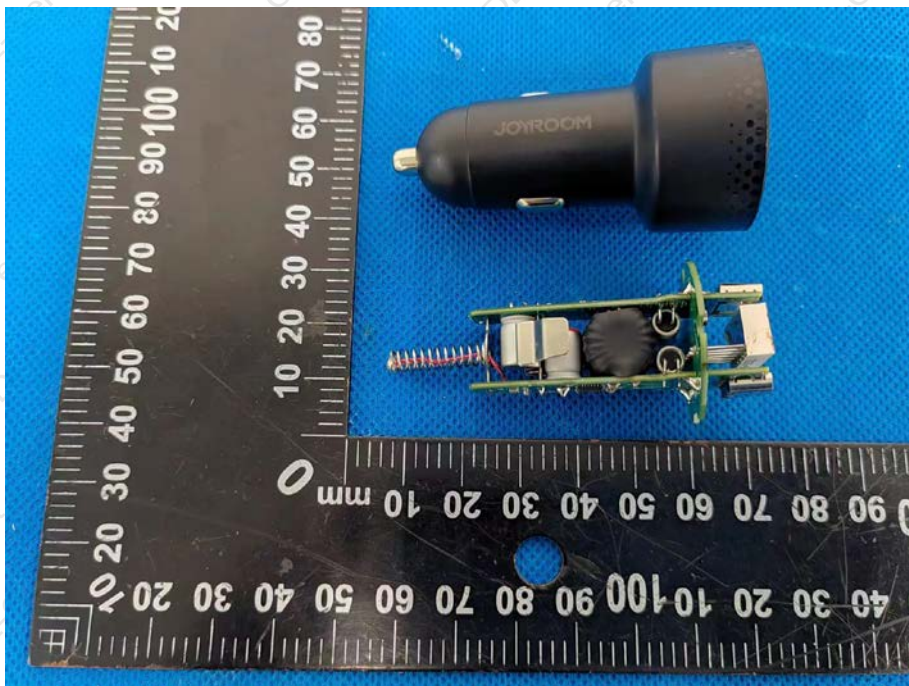
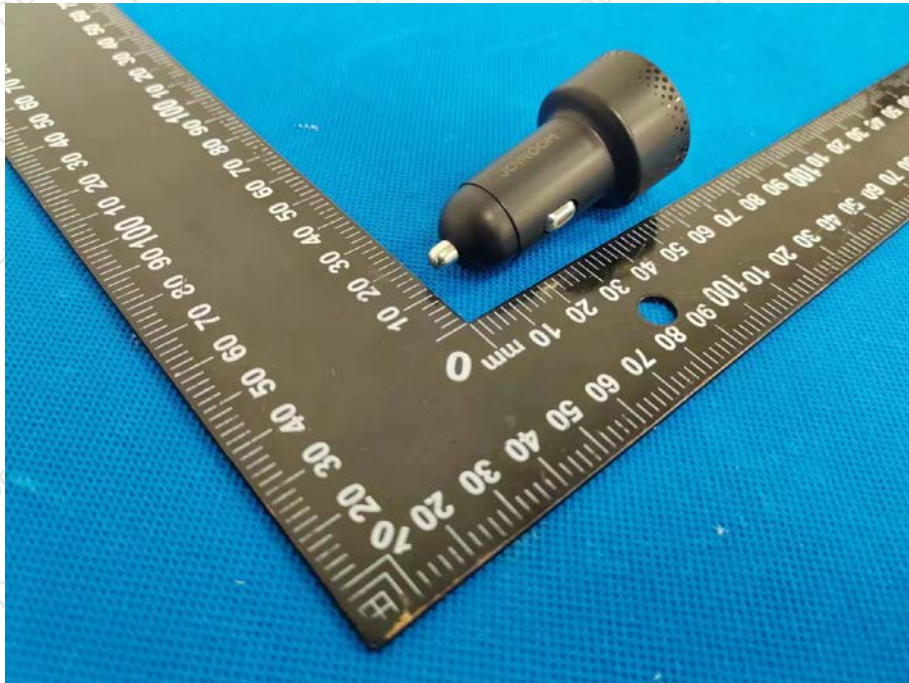
7. SETUP PHOTOGRAPHS

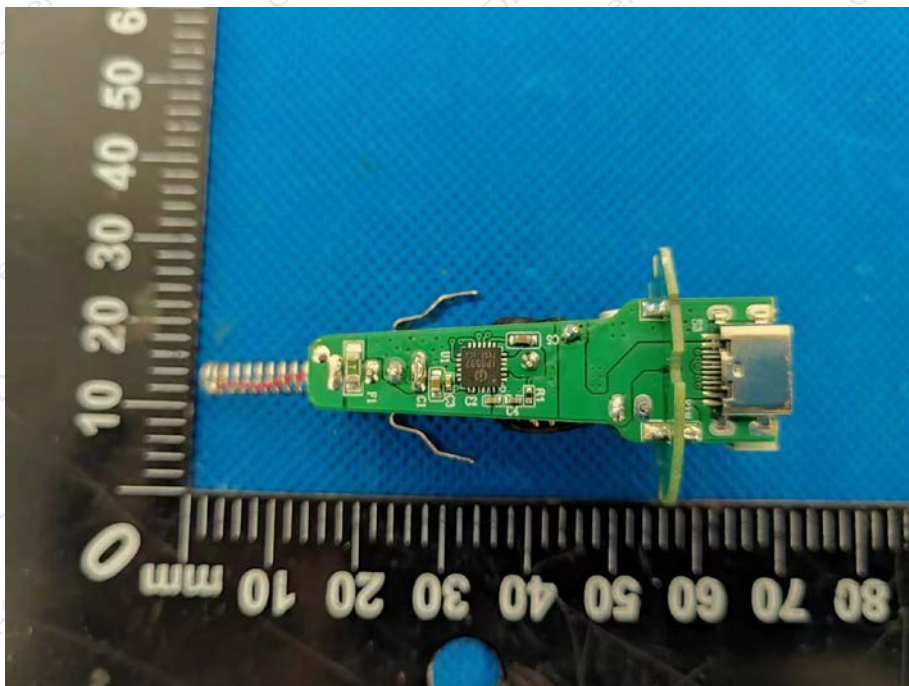
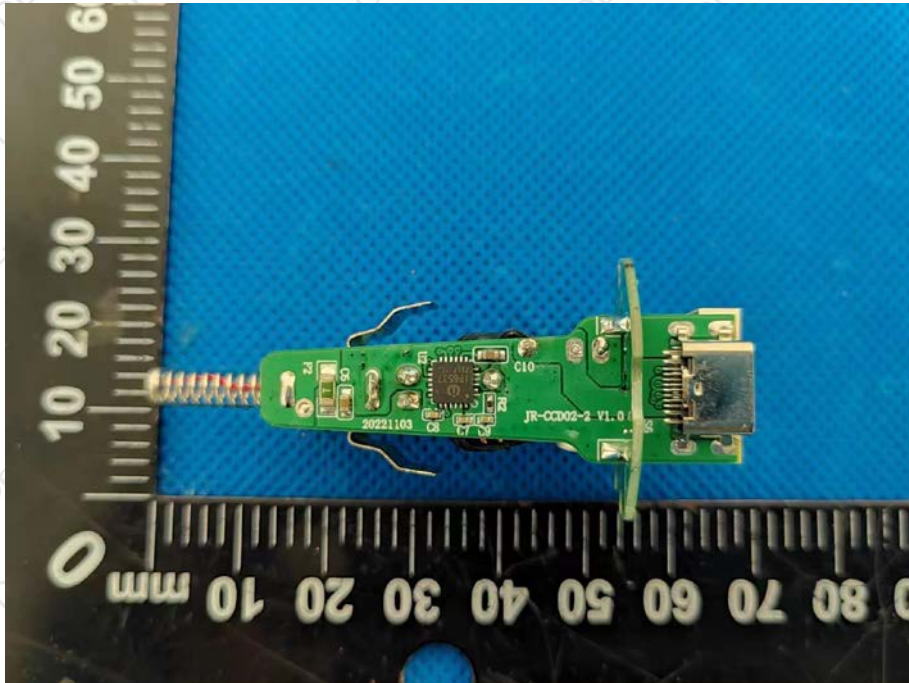


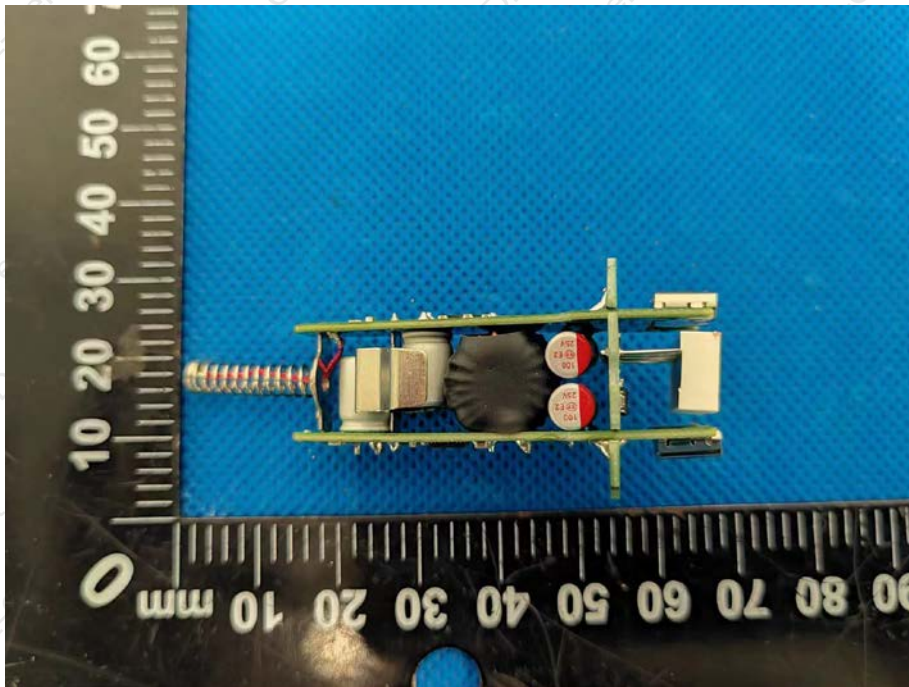
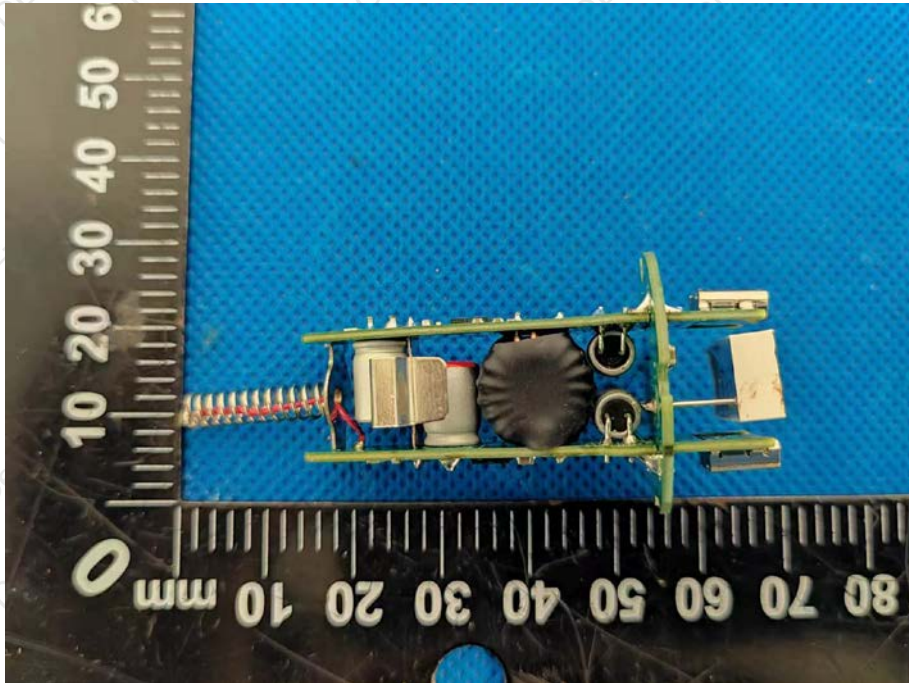


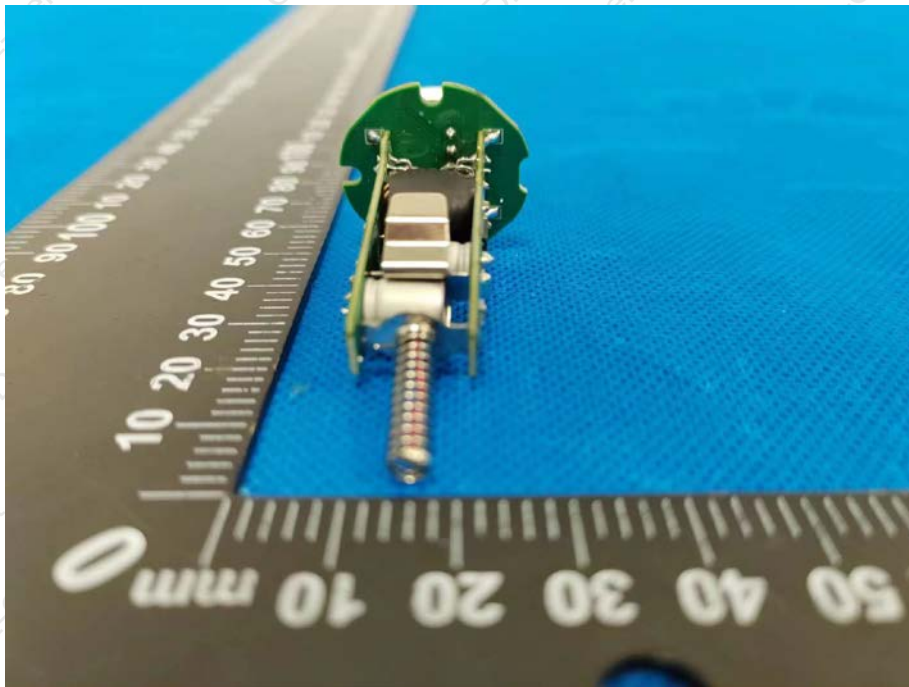
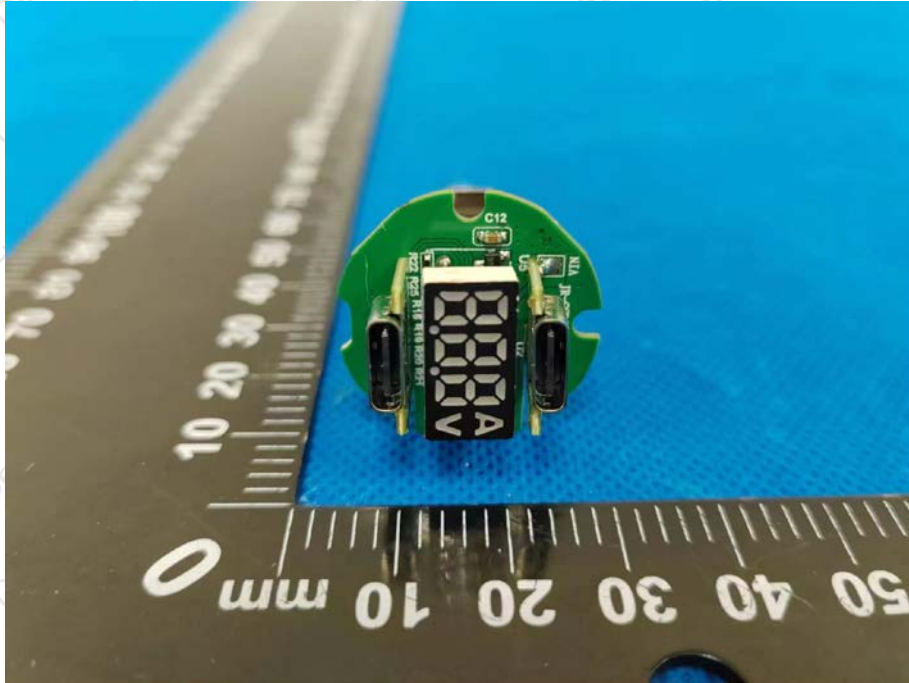
8. EUT PHOTOGRAPHS

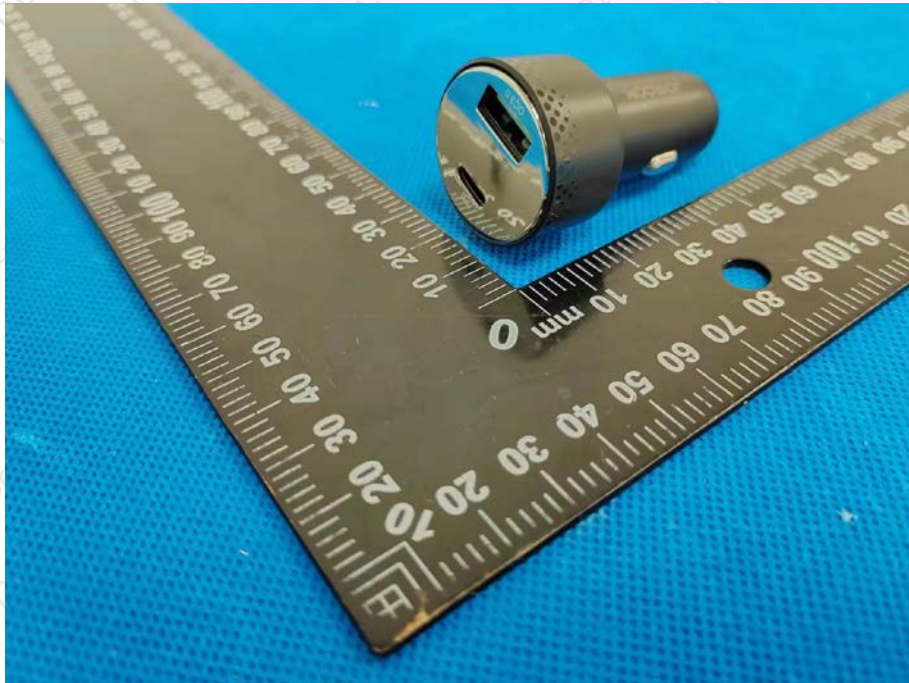












***** END OF REPORT *****