EMC Test Report

For

Shenzhen WOTY energy Co., Ltd
Floor 4, Building C, Zhengchangda Digital Electronics Factory, Jian 'an Road, Tangwei Community, Fuhai Street, Bao 'an District, Shenzhen, China

Test Standards:	EN 55032:2015/A11:2020 EN 55035:2017/A11:2020 EN 61000-3-2:2019 EN 61000-3-3:2013+A1:20193
Product Description:	Power Supply
Trade Name:	沃泰能源 WOTY ENERGY
Tested Model:	WEC-26WEAP-15000200AA WEC-26WEAP-42000062AA
Adding Models:	WEC-26WaAP-XXXXYYYYZA; XVE024-XXXXYYY; XVE-XXXXYYY; XVE024-1680140
Report No.:	PRMS2110064ER
Tested Date:	Oct. 19, 2021 – Oct. 20, 2021
Issued Date:	Oct. 21, 2021
Prepared By:	John.zou John.zou / Engineer
Approved By:	jokywang Joky Wang / EMC Manager

ShenZhen Promise Testing Technology Co., Ltd. Approved

ShenZhen Promise Testing Technology Co., Ltd.
103, Building 1, Yibaolai Industrial City, Qiaotou Community, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Tel: 0755-23319501 Web: www.pnms-test.com

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Oct. 21, 2021	Valid	Original Report

TABLE OF CONTENTS

1. GENERAL INFORMATION

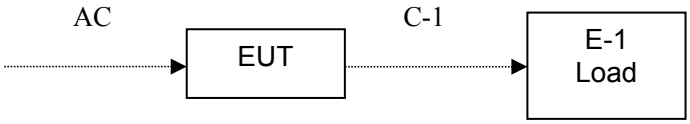
1.1 Product Description for Equipment Under Test (EUT)

Client Information	
Applicant:	Shenzhen WOTY energy Co., Ltd
Address of applicant:	Floor 4, Building C, Zhengchangda Digital Electronics Factory, Jian 'an Road, Tangwei Community, Fuhai Street, Bao 'an District, Shenzhen, China
Manufacturer:	Shenzhen WOTY energy Co., Ltd
Address of manufacturer:	Floor 4, Building C, Zhengchangda Digital Electronics Factory, Jian 'an Road, Tangwei Community, Fuhai Street, Bao 'an District, Shenzhen, China

General Description of EUT	
Product Name:	Power Supply
Model No.:	WEC-26WEAP-15000200AA; WEC-26WEAP-42000062AA
Adding Model(s):	WEC-26WaAP-XXXXYYYYZA, XVE024-XXXXYYY, XVE-XXXXYYY
Difference description	WEC-26WaAP-XXXXYYYYZA 1.WE is the company code; 2.C stands for power supply; 3.a = Different Plug.C stands for Chinese regulations. U stands for American regulations. E stands for European regulations. J stands for Japanese regulations. B stands for British regulations. A stands for Australian regulations. G stands for Argentina regulations. K stands for Korean regulations. I stands for Brazil regulations; 4.AP stands for wall-mounted; 5.XXXX=0840-4200 stands for output voltage 8.4V -42.0V, step value is 0.01V; 6.YYYY=0001 -0200 means the output current is 0.01A-2.0A, the step value is 10mA; 7.Z means A means with light. Z means B means without light; 8.A means card line Product model: XVE024-XXXXYYY 1. XVE024 is the company's illuminated card line code for internal use only and does not affect the electrical performance; 2. XXXX=0840-4200 represents the output voltage of 8.4V -42.0V with a step value of 0.01V; 3. YYY=001= 200 represents the output current 0.01A-2.0A, the step value is 10mA; Product model: XVE-XXXXYYY 1. XVE is the company’s illuminated desktop code for internal use only and does not affect the electrical performance; 2. XXXX=0840-4200 represents the output voltage of 8.4V -42.0V with a step value of 0.01V; 3. YYY=001= 200 represents the output current 0.01A-2.0A, the step value is 10mA
Tested Voltage:	AC 230 V/ 50 Hz
Product Parameters	Input: AC 100-240 V, 50 / 60 Hz,0.7 A MAX Output: DC8.4-42.0V, 0.01-2.0 A Power: 30 W
Equipment Category:	Class B

1.2 EUT Setup and Operation Mode

Block Configuration Diagram for Conducted Emissions



Test Mode List		
Test Mode	Description	Remark
1	Full Load	for all test

Special Cable List and Details	
DC Line	☐Shielded ☒Unshielded ☐Detachable ☐Un-Detachable ☐Not applicable ☐Length:
Control line	☐Shielded ☐Unshielded ☐Detachable ☐Un-Detachable ☒Not applicable ☐Length:

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

1.3 Measurement Uncertainty

Measurement uncertainty			
Parameter	Frequency	Polarity	Measurement uncertainty
Conducted Emission	150kHz~30MHz	----	2.42dB
Radiated Emission	30MHz-200MHz	Horizontal	3.70dB
Radiated Emission	30MHz-200MHz	Vertical	3.84dB
Radiated Emission	200MHz-1000MHz	Horizontal	4.05dB
Radiated Emission	200MHz-1000MHz	Vertical	5.28dB
Radiated Emission	1000MHz-6000MHz	----	4.89dB

1.4 Test Facility

Site	Shen Zhen Promise Testing Technology Co., Ltd.
Location	103, Building 1, Yibaolai Industrial City, Qiaotou Community, Fuhai Street, Baoan District, Shenzhen, Guangdong, China

1.5 Test Equipment List and Details

Conducted Emission Test (A --- site)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
843 Shielded Room	ChengYu	843 Room	843	Aug. 25, 2021	Aug. 24, 2022
EMI Receiver	R&S	ESCI	101421	Aug. 25, 2021	Aug. 24, 2022
LISN	Schwarzbeck	NSLK8127	8127739	Aug. 25, 2021	Aug. 24, 2022
Attenuator	R&S	ESH3-Z2	ZOCT021E	Aug. 25, 2021	Aug. 24, 2022
843 Cable 1#	FUJIKURA	843C1#	001	Aug. 25, 2021	Aug. 24, 2022

For Disturbance Power Test

Conducted Emission Test (A --- site)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
EMI Receiver	R&S	ESCI	101421	Aug. 25, 2021	Aug. 24, 2022
Power Clamp	LUTHI	MDS21	4293	Aug. 25, 2021	Aug. 24, 2022
Attenuator	R&S	ESH3-Z2	ZOCT021E	Aug. 25, 2021	Aug. 24, 2022
843 Cable 2#	FUJIKURA	843C1#	002	Aug. 25, 2021	Aug. 24, 2022

For Radiated Emission Test

Radiation Emission Test (966 chamber)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
966 chamber	ChengYu	966 Room	966	Aug. 25, 2021	Aug. 24, 2022
Spectrum Analyzer	Agilent	E4407B	MY45109572	Aug. 25, 2021	Aug. 24, 2022
Amplifier	Schwarzbeck	BBV9743	9743-119	Aug. 25, 2021	Aug. 24, 2022
Amplifier	Schwarzbeck	BBV9718	9718-270	Aug. 25, 2021	Aug. 24, 2022
Log-periodic Antenna	Schwarzbeck	VULB9160	VULB9160-3369	Aug. 25, 2021	Aug. 24, 2022
EMI Receiver	R&S	ESCI	101421	Aug. 25, 2021	Aug. 24, 2022
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1275	Aug. 25, 2021	Aug. 24, 2022
966 Cable 1#	CHENGYU	966	004	Aug. 25, 2021	Aug. 24, 2022
966 Cable 2#	CHENGYU	966	003	Aug. 25, 2021	Aug. 24, 2022

For Harmonic & Flicker Test

For Harmonic / Flicker Test (A --- site)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Harmonic / Flicker Analyzer	KIKUSUI	KHA1000	VA002445	Aug. 25, 2021	Aug. 24, 2022
AC Power Supply	KIKUSUI	PCR4000M	UK001879	Aug. 25, 2021	Aug. 24, 2022
Line Impedance network	KIKUSUI	LIN1020JF	UL001611	Aug. 25, 2021	Aug. 24, 2022

For Electrostatic Discharge Immunity Test

For Electrostatic Discharge Immunity Test (A --- site)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
ESD Tester	KIKISUI	KES4201A	UH002321	Aug. 25, 2021	Aug. 24, 2022

For RF Field Strength Susceptibility Test(SMQ)

For RF Field Strength Susceptibility Test (SMQ --- site)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Signal Generator	HP	8648A	3625U00573	Aug. 25, 2021	Aug. 24, 2022
Amplifier	A&R	500A100	17034	Aug. 25, 2021	Aug. 24, 2022
Amplifier	A&R	100W/1000M1	17028	Aug. 25, 2021	Aug. 24, 2022
Audio Analyzer (20Hz~1GHz)	Panasonic	2023B	202301/428	Aug. 25, 2021	Aug. 24, 2022
Isotropic Field Probe	A&R	FP2000	16755	Aug. 25, 2021	Aug. 24, 2022
Antenna	EMCO	3108	9507-2534	Aug. 25, 2021	Aug. 24, 2022
Log-periodic Antenna	A&R	AT1080	16812	Aug. 25, 2021	Aug. 24, 2022

For Electrical Fast Transient /Burst Immunity Test

For Electrical Fast Transient/Burst Immunity Test (A --- site)					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Burst Tester	Prima	EFT61004AG	PR14054467	Aug. 25, 2021	Aug. 24, 2022
Coupling Clamp	Prima	EFT61004AG	BCTC009E	Aug. 25, 2021	Aug. 24, 2022

1.6 Performance Criteria for EMS

According Clause 8 of EN55035,

• General

General performance criteria are defined in the following. These criteria shall be used during the testing of primary functions where no relevant annex is applicable.

When assessing the impact of a disturbance on a function, the assessment should take into consideration the impact of a disturbance on a function, the assessment should take into consideration the function's performance prior to the application of the disturbance and only identify as failures those changes in performance that are a result of the disturbance.

• Performance criterion A

The equipment shall continue to operate as intended without operator intervention. No degradation of performance, loss of function or change of operation state is allowed below a performance level specified by the manufacturer when the equipment is use as intended.

The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

• Performance criterion B

During the application of the disturbance, degradation of performance is allowed. However, no unintended change of actual operating state or stored data is allowed to persist after the test.

After the test, the equipment shall continue to operate as intended without operator intervention; no degradation of performance or loss of function is allowed, below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.

If the minimum performance level (or the permissible performance loss), or recovery time, is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.

• Performance criterion C

Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. A reboot or re-start operation is allowed.

Information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

2. SUMMARY OF TEST RESULTS

EN 55032:2015 Emissions		
Test Standards	**Description of Test Item**	**Result**
EN 55032:2015/A11:2020	Conducted Emissions	Compliance
EN 55032:2015/A11:2020	Radiated Emissions	Compliance

EN 55035:2017 Immunity		
Test Standards	**Description of Test Item**	**Result**
IEC 61000-4-2	Electrostatic Discharge	Compliance
IEC 61000-4-3	Continuous radiated disturbances	Compliance
IEC 61000-4-4	Electrical Fast Transients	Compliance
IEC 61000-4-5	Surges	Compliance
IEC 61000-4-6	Continuous conducted disturbances	Compliance
IEC 61000-4-8	Power Frequency Magnetic Field	N/A
IEC 61000-4-11	Voltage Dips and Interruptions	Compliance

EN 61000-3-2:2019		
Rule	**Description of Test Item**	**Result**
EN 61000-3-2	Harmonic Current Emissions	N/A

EN61000-3-3:2013+A1:2019		
Rule	**Description of Test Item**	**Result**
EN 61000-3-3	Voltage fluctuations & flicker	Compliance

*Note1: N/A means not applicable.

3. Conducted Emissions

3.1. Conducted Emission Limit

Requirements for conducted emissions from the AC mains power ports of Class A equipment

Frequency Range (MHz)	Coupling device	Detector type/bandwidth	Class B limits dB(μV)
0.15-0.5	AMN	Quasi Peak/9kHz	79
0.5-30			73
0.15-0.5	AMN	Average/9kHz	66
0.5-30			60

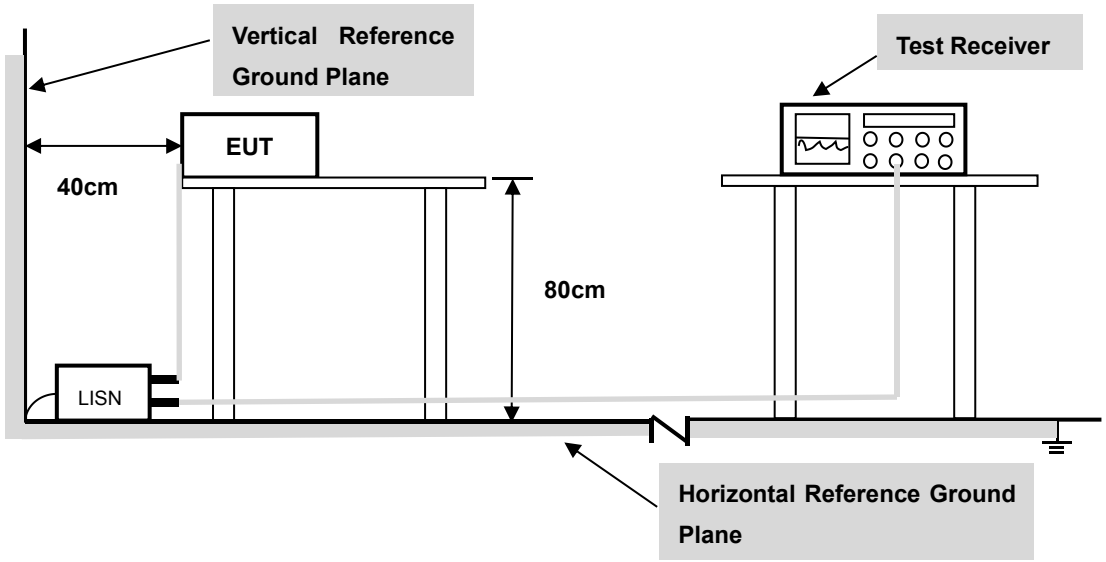
Requirements for conducted emissions from the AC mains power ports of Class B equipment

Frequency Range (MHz)	Coupling device	Detector type/bandwidth	Class B limits dB(μV)
0.15-0.5	AMN	Quasi Peak/9kHz	66-56
0.5-5			56
5-30			60
0.15-0.5	AMN	Average/9kHz	56-46
0.5-5			46
5-30			50

Note: (1) The tighte limit applies at the band edge.

(2) The limit of "*" marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

3.2 Block Diagram of Test Setup



3.3.Test Procedure

During the conducted emissions test, the adapter was connected to the main 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 to ensure EUT compliance using all installation combination.

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

3.4 Result Level & Over Limit Calculation

The Result Level is calculated by Reading Level adding the LISN Factor and the Cable Factor, The basic equation is as follows:

Result Level= Reading Level + LISN Factor + Cable Factor

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a "Over Limit" of -6dB means the emission is 6dB below the maximum limit for Class B device. The equation for "Over Limit" calculation is as follows:

Over Limit = Result Level –Limit

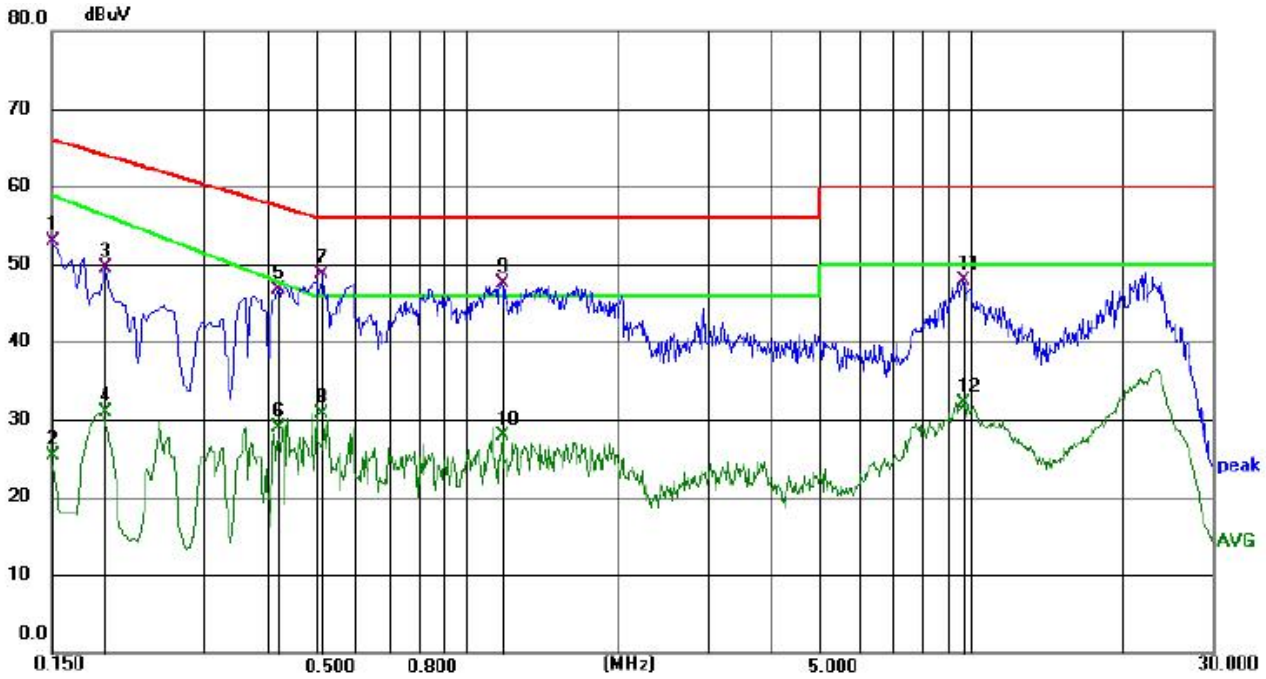
3.5 Environmental Conditions

Temperature:	25.6° C
Relative Humidity:	54%RH
Atmospheric Pressure:	101.8kPa
Tested By:	John.zou

3.6 Test Data and Result

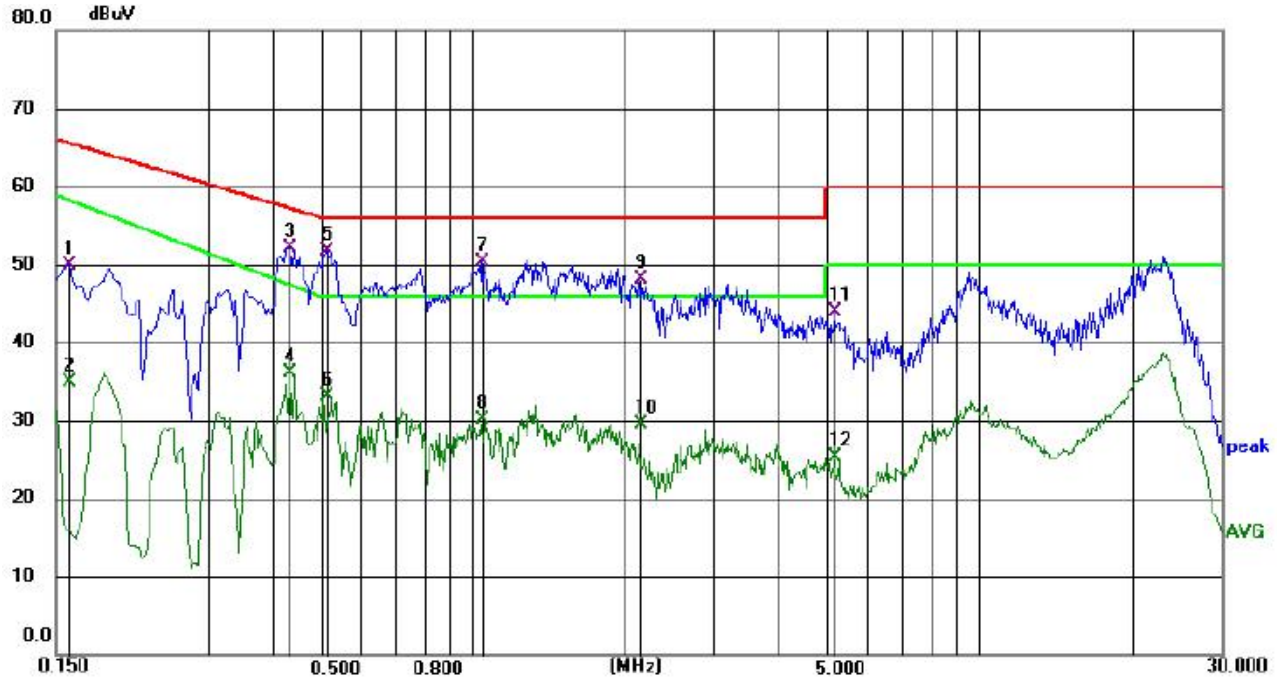
WEC-26WEAP-15000200AA

LINE



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	38.99	13.97	52.96	66.00	-13.04	QP	P	
2	0.1500	11.33	13.97	25.30	59.00	-33.70	AVG	P	
3	0.1905	35.44	13.98	49.42	64.01	-14.59	QP	P	
4	0.1905	17.00	13.98	30.98	56.42	-25.44	AVG	P	
5	0.4200	32.84	13.93	46.77	57.45	-10.68	QP	P	
6	0.4200	14.92	13.93	28.85	47.88	-19.03	AVG	P	
7 *	0.5144	34.75	13.93	48.68	56.00	-7.32	QP	P	
8	0.5144	16.69	13.93	30.62	46.00	-15.38	AVG	P	
9	1.1670	33.49	13.94	47.43	56.00	-8.57	QP	P	
10	1.1670	13.88	13.94	27.82	46.00	-18.18	AVG	P	
11	9.6495	33.33	14.57	47.90	60.00	-12.10	QP	P	
12	9.6495	17.49	14.57	32.06	50.00	-17.94	AVG	P	

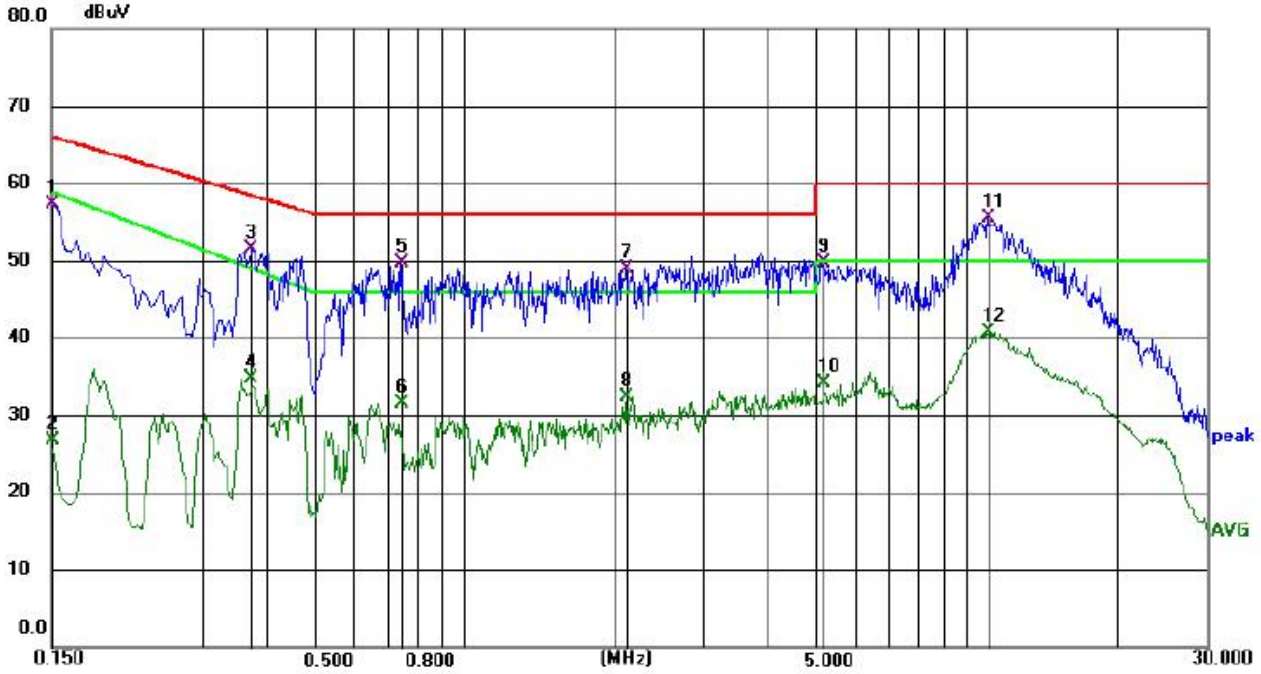
NEUTRAL



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1590	37.91	12.01	49.92	65.52	-15.60	QP	P	
2	0.1590	22.90	12.01	34.91	58.37	-23.46	AVG	P	
3	0.4290	40.17	11.93	52.10	57.27	-5.17	QP	P	
4	0.4290	24.24	11.93	36.17	47.65	-11.48	AVG	P	
5 *	0.5144	39.76	11.93	51.69	56.00	-4.31	QP	P	
6	0.5144	21.20	11.93	33.13	46.00	-12.87	AVG	P	
7	1.0410	38.38	11.93	50.31	56.00	-5.69	QP	P	
8	1.0410	18.24	11.93	30.17	46.00	-15.83	AVG	P	
9	2.1390	36.16	11.95	48.11	56.00	-7.89	QP	P	
10	2.1390	17.61	11.95	29.56	46.00	-16.44	AVG	P	
11	5.1675	31.78	12.08	43.86	60.00	-16.14	QP	P	
12	5.1675	13.21	12.08	25.29	50.00	-24.71	AVG	P	

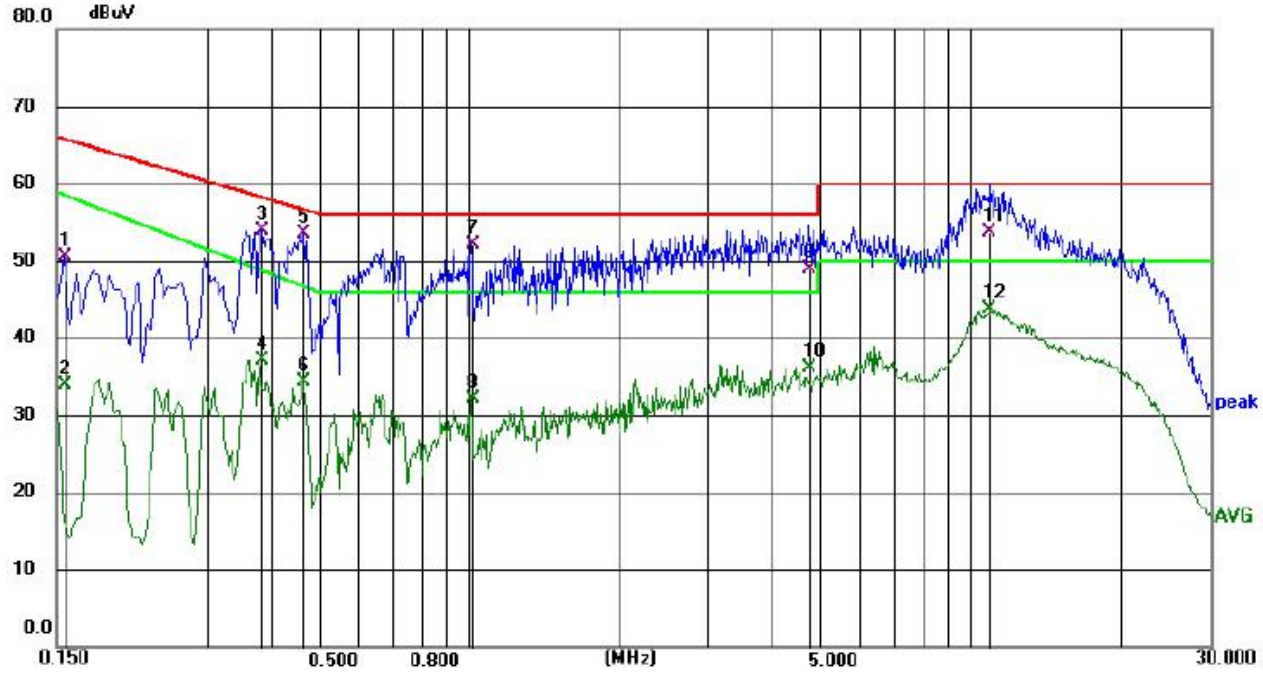
WEC-26WEAP-42000062AA

LINE



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1500	43.38	13.97	57.35	66.00	-8.65	QP	P	
2	0.1500	12.74	13.97	26.71	59.00	-32.29	AVG	P	
3	0.3750	37.48	13.94	51.42	58.39	-6.97	QP	P	
4	0.3750	20.77	13.94	34.71	49.11	-14.40	AVG	P	
5	0.7440	35.73	13.91	49.64	56.00	-6.36	QP	P	
6	0.7440	17.53	13.91	31.44	46.00	-14.56	AVG	P	
7	2.0985	34.91	13.95	48.86	56.00	-7.14	QP	P	
8	2.0985	18.38	13.95	32.33	46.00	-13.67	AVG	P	
9	5.1450	35.64	14.07	49.71	60.00	-10.29	QP	P	
10	5.1450	20.07	14.07	34.14	50.00	-15.86	AVG	P	
11 *	11.0085	40.93	14.48	55.41	60.00	-4.59	QP	P	
12	11.0085	26.30	14.48	40.78	50.00	-9.22	AVG	P	

NEUTRAL



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1545	38.57	11.99	50.56	65.75	-15.19	QP	P	
2	0.1545	21.85	11.99	33.84	58.68	-24.84	AVG	P	
3	0.3840	42.06	11.94	54.00	58.19	-4.19	QP	P	
4	0.3840	25.19	11.94	37.13	48.85	-11.72	AVG	P	
5 *	0.4650	41.50	11.93	53.43	56.60	-3.17	QP	P	
6	0.4650	22.44	11.93	34.37	46.78	-12.41	AVG	P	
7	1.0095	40.22	11.93	52.15	56.00	-3.85	QP	P	
8	1.0095	20.18	11.93	32.11	46.00	-13.89	AVG	P	
9	4.7310	36.90	12.05	48.95	56.00	-7.05	QP	P	
10	4.7310	24.02	12.05	36.07	46.00	-9.93	AVG	P	
11	10.9090	41.14	12.49	53.63	60.00	-6.37	QP	P	
12	10.9090	31.31	12.49	43.80	50.00	-6.20	AVG	P	

4. Radiated Emissions

4.1. Radiated Emission Limit

Requirements for radiated emissions at frequencies up to 1GHz for Class A equipment

Frequency range (MHz)	Measurement		Class B limits dB(μV/m)
	Distance (m)	Detector type/bandwidth	
30 ~ 230	3	Quasi Peak/120kHz	50
230 ~ 1000			57

Requirements for radiated emissions at frequencies above 1GHz for Class A equipment

Frequency range (MHz)	Measurement		Class B limits dB(μV/m)
	Distance (m)	Detector type/bandwidth	
1000 ~ 3000	3	Average/1MHz	56
3000 ~ 6000			60
1000 ~ 3000	3	Peak/1MHz	76
3000 ~ 6000			80

Requirements for radiated emissions at frequencies up to 1GHz for Class B equipment

Frequency range (MHz)	Measurement		Class B limits dB(μV/m)
	Distance (m)	Detector type/bandwidth	
30 ~ 230	3	Quasi Peak/120kHz	40
230 ~ 1000			47

Requirements for radiated emissions at frequencies above 1GHz for Class B equipment

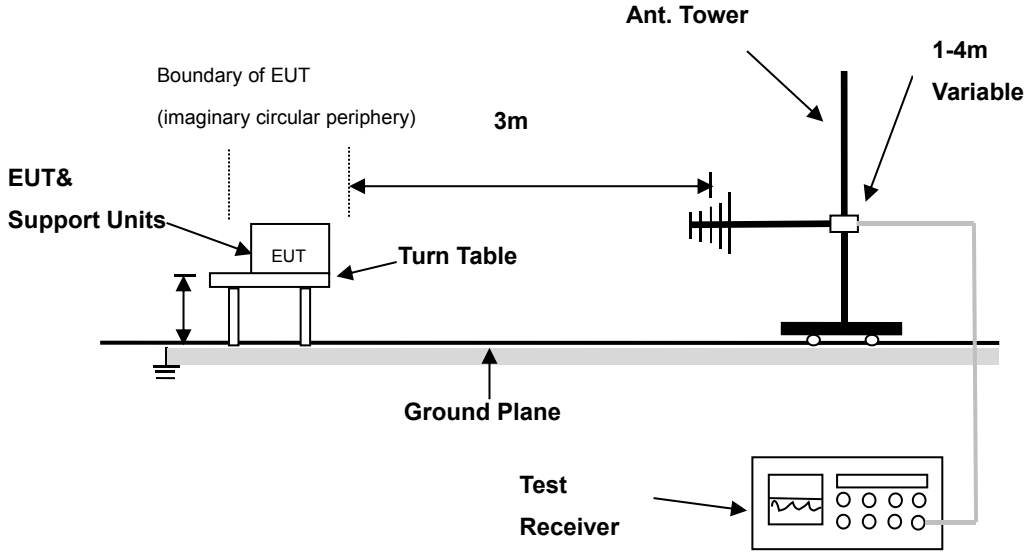
Frequency range (MHz)	Measurement		Class B limits dB(μV/m)
	Distance (m)	Detector type/bandwidth	
1000 ~ 3000	3	Average/1MHz	50
3000 ~ 6000			54
1000 ~ 3000	3	Peak/1MHz	70
3000 ~ 6000			74

Notes: (1) The tighter limit applies at the band edges.

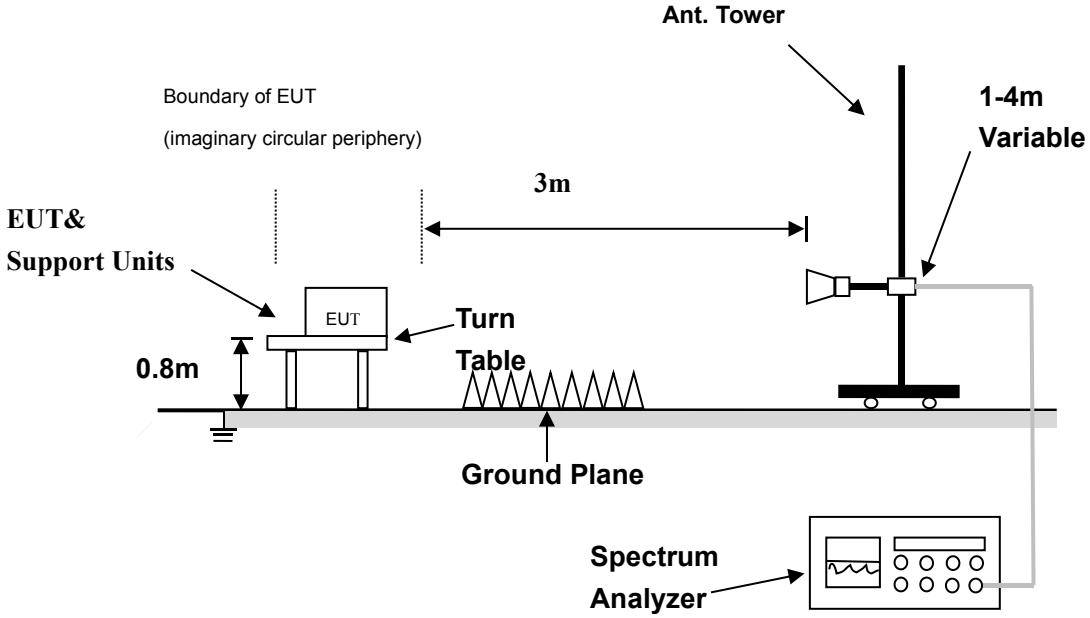
(2) Emission level (dBuV/m) =20log Emission level (uV/m).

4.2.Block Diagram of Test Setup

Radiated Emissions Frequency:30MHz to 1000MHz:



Radiated Emissions Frequency:1000MHz to 6000MHz:



4.3 Test Procedure

(1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual.

(2) Support equipment, if needed, was placed as per EN 55032.All I/O cables were positioned to simulate typical actual usage as per EN 55032

(3) The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

(4) Recorded at least the six highest emissions.

4.4 Result Level & Over Limit Calculation

The Result Level is calculated by Reading Level adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Result Level = Reading Level + Antenna Factor + Cable Factor - Amplifier Gain

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB means the emission is 6dB below the maximum limit for Class B device. The equation for margin calculation is as follows:

Over Limit = Result Level –Limit

4.5 Environmental Conditions

Temperature:	24.5° C
Relative Humidity:	40%RH
Atmospheric Pressure:	102.5kPa
Tested By:	John.zou

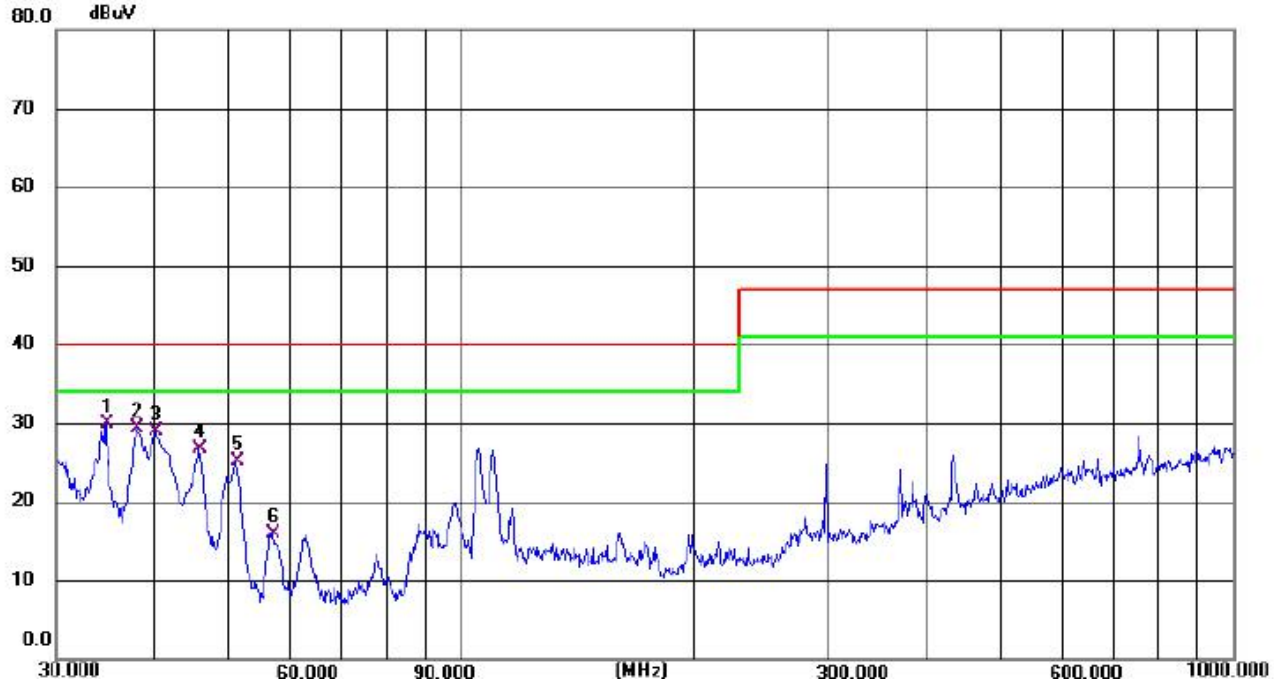
4.6 Test Data and Result

WEC-26WEAP-15000200AA
Below 1GHz：
Horizontal:

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	37.9450	36.92	-8.23	28.69	40.00	-11.31	QP	100	0	P	
2	40.4172	37.99	-10.70	27.29	40.00	-12.71	QP	100	0	P	
3	45.8553	35.40	-13.88	21.52	40.00	-18.48	QP	100	0	P	
4	48.8429	32.68	-15.42	17.26	40.00	-22.74	QP	100	0	P	
5	51.4807	31.82	-15.74	16.08	40.00	-23.92	QP	100	0	P	
6	58.6126	31.03	-16.68	14.35	40.00	-25.65	QP	100	0	P	

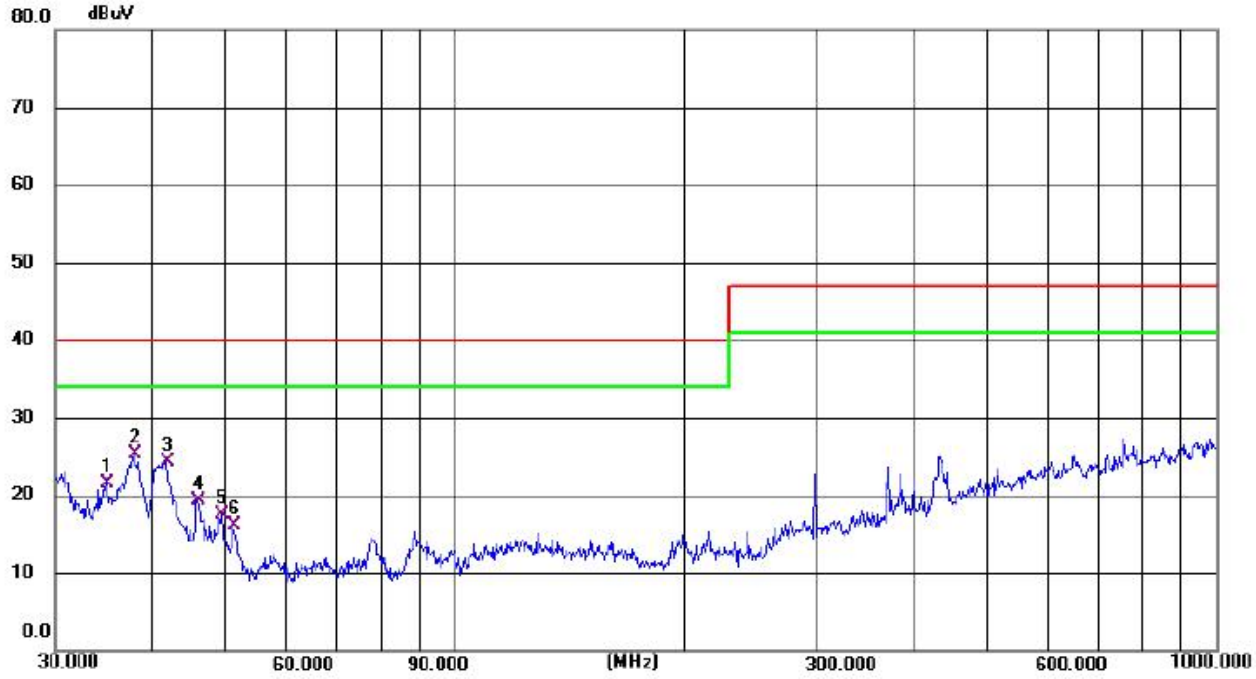
Below 1GHz：

Vertical:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	34.7602	38.48	-8.53	29.95	40.00	-10.05	QP	100	0	P	
2	38.0783	39.56	-10.32	29.24	40.00	-10.76	QP	100	0	P	
3	40.2757	41.58	-12.60	28.98	40.00	-11.02	QP	100	0	P	
4	45.8553	42.65	-15.87	26.78	40.00	-13.22	QP	100	0	P	
5	51.3005	42.82	-17.72	25.10	40.00	-14.90	QP	100	0	P	
6	56.9912	34.48	-18.59	15.89	40.00	-24.11	QP	100	0	P	

WEC-26WEAP-42000062AA
Below 1GHz：
Horizontal:



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	34.8823	29.78	-8.26	21.52	40.00	-18.48	QP	100	0	P	
2 *	37.9450	33.48	-8.23	25.25	40.00	-14.75	QP	100	0	P	
3	41.8596	35.94	-11.70	24.24	40.00	-15.76	QP	100	0	P	
4	46.0164	33.38	-13.98	19.40	40.00	-20.60	QP	100	0	P	
5	49.5328	33.05	-15.48	17.57	40.00	-22.43	QP	100	0	P	
6	51.3005	31.84	-15.72	16.12	40.00	-23.88	QP	100	0	P	

Below 1GHz：

Vertical:

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	30.2111	30.04	-4.50	25.54	40.00	-14.46	QP	100	0	P	
2	34.3964	32.92	-8.40	24.52	40.00	-15.48	QP	100	0	P	
3 *	38.2120	37.04	-10.45	26.59	40.00	-13.41	QP	100	0	P	
4	42.1542	39.49	-13.86	25.63	40.00	-14.37	QP	100	0	P	
5	45.6948	37.80	-15.76	22.04	40.00	-17.96	QP	100	0	P	
6	51.1209	43.46	-17.69	25.77	40.00	-14.23	QP	100	0	P	

5. Harmonic current emissions

According to EN 61000-3-2:2014 section 7: Equipment with a rated power of 75W or less, other than discharging lighting equipment, limits are not included in this standard.

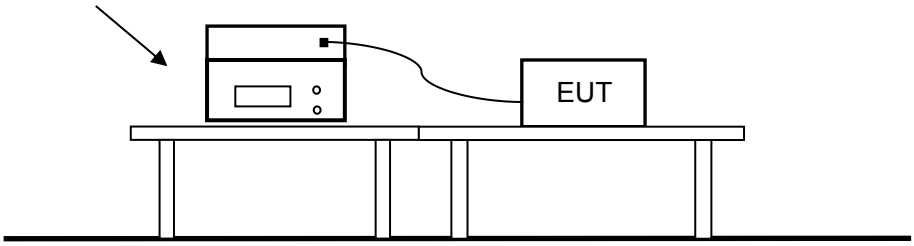
6. Voltage fluctuations and flicker

6.1. Limits

The following limits apply:
-the value of Pst shall not be greater than 1,0;
-the value of Plt shall not be greater than 0,65;
-Tmax, the accumulated time value of d(t) with a deviation exceeding 3,3% during a single voltage change at the EUT terminals, shall not exceed 500ms;
-the maximum relative steady-state voltage change, dc, shall not exceed 3,3%;
-the maximum relative voltage change dmax, shall not exceed:
a) 4% without additional conditions;
b) 6% for equipment which is:
- switched manually, or
- switched automatically more frequently than twice per day, and also has either a delayed restart(the delay being not less than a few tens of seconds), or manual restart, after a power supply interruption.
c) 7% for equipment which is:
-attended whilst in use (for example: hair dryers, vacuum cleaners, kitchen equipment such as mixers, garden equipment such as lawn mowers, portable tools such as electric drills), or
-switched on automatically, or is intended to be switched on manually, no more than twice per day, and also has either a delayed restart(the delay being not less than a few tens of seconds) or manual restart after a power supply interruption.

6.2.Block Diagram of Test Setup

Harmonic/Flicker
Analyzer



6.3 Environmental Conditions

Temperature:	26° C
Relative Humidity:	54%
Atmospheric Pressure:	101.8kPa
Tested By:	John.zou

6.4 Test Data and Result

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

Model: RP020-2401000EUGH

Test Parameter.	Measurement Value	Limit	Remark
P_{st}	0.00	1.0	Pass
P_{lt}	--	0.65	--
$T_{dt(s)}$	0.00	0.5	Pass
d_{max}(%)	0.00%	4%	Pass
d_c(%)	0.00%	3.3%	Pass

Model: RP020-5700420EUGH

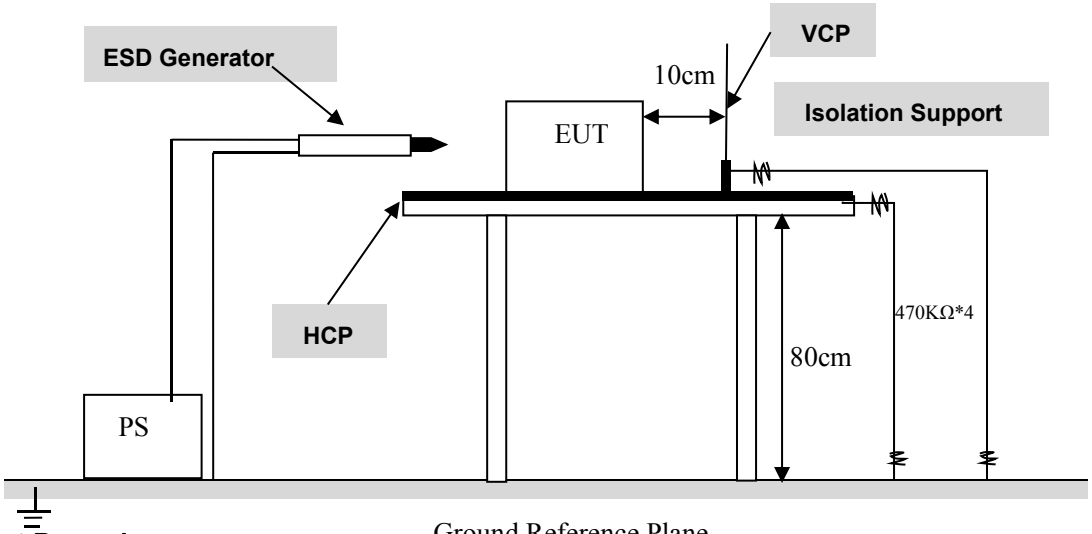
Test Parameter.	Measurement Value	Limit	Remark
P_{st}	0.00	1.0	Pass
P_{lt}	--	0.65	--
$T_{dt(s)}$	0.00	0.5	Pass
d_{max}(%)	0.00%	4%	Pass
d_c(%)	0.00%	3.3%	Pass

7. Electrostatic Discharge

7.1 ESD Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Electrostatic discharge	Enclosure port	4kV(Contact Discharge)	IEC 61000-4-2	B
		8kV(Air Discharge)	IEC 61000-4-2	B

7.2 Block Diagram of Test Setup



7.3 Test Procedure

Air Discharges:

This test is done on a non-conductive surface. The round Discharges tip of the Discharges electrode shall be approached as fast as possible to touch the EUT. After each Discharge, the Discharges electrode shall be removed from the EUT. The generator is then re-triggered for a new single Discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air Discharges completed.

Contact Discharges:

All the procedure shall be same as Section 8.3.2 of IEC 61000-4-2, except that the tip of the Discharges electrode shall touch the EUT before the Discharges switch is operated.

Indirect Discharges for HCP

At least 20 single Discharges shall be applied to the horizontal coupling plane, at points on each side of the EUT. The Discharges electrode positions vertically at a distance of 0.1 m from the EUT and with the Discharges electrode touching the coupling plane.

Indirect Discharges for VCP

At least 20 single Discharges shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated

7.4 Environmental Conditions

Temperature:	27.2° C
Relative Humidity:	58%
Atmospheric Pressure:	99.8kPa
Tested By:	John.zou

7.5 Test Data and Result

EN 61000-4-2 Test Points	Test Levels (kV)							
	-2	+2	-4	+4	-8	+8	-15	+15
Air Discharge								
Slot	A	A	A	A	A	A	/	/
Shell	A	A	A	A	A	A		

EN 61000-4-2 Test Points	Test Levels (kV)							
	-2	+2	-4	+4	-6	+6	-8	+8
Contact Discharge								
Port	A	A	A	A	/	/	/	/

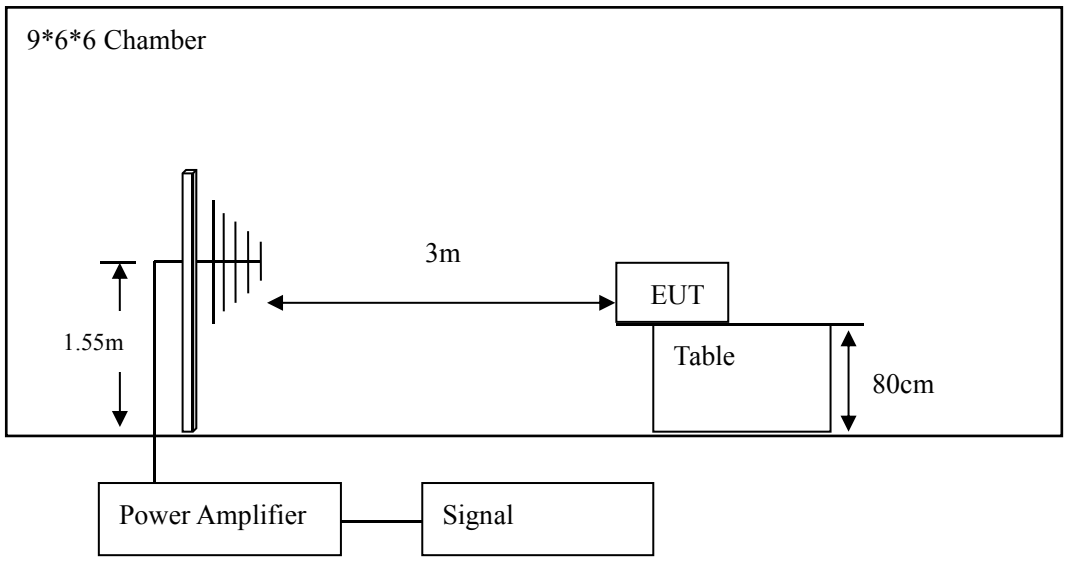
EN 61000-4-2 Test Points	Test Levels (kV)							
	Indirect Contact Discharge (HCP)				Indirect Contact Discharge (VCP)			
	-2	+2	-4	+4	-2	+2	-4	+4
Front Side	A	A	A	A	A	A	A	A
Back Side	A	A	A	A	A	A	A	A
Left Side	A	A	A	A	A	A	A	A
Right Side	A	A	A	A	A	A	A	A

8. Radio Frequency Electromagnetic Field

8.1 RS Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Radio-frequency electromagnetic field Amplitude modulated	Enclosure port	80-1000MHz,1800MHz, 2600MHz,3500MHz,5000MHz 3V/m(unmodulated, r.m.s) 80% AM(1kHz)	IEC 61000-4-3	A

8.2 Block Diagram of Test Setup



8.3 Test Procedure

Test is conducting under the description of IEC61000-4-3.

(1)The EUT was switched on and allowed to warm up to its normal operating condition.

(2)The EUT was exercised and monitored in the manner specified by the customer.

(3)All test instruments were PC controlled, via their IEEE 488.2 bus interfaces, and the test conducted in the following manner:

The testing frequencies were swept over the required frequency range, with a step frequency equal to 1% of fundamental. The sweep rate was 1.0 x 10^{-3} decades/s.For each frequency tested, the signal generator output level was adjusted automatically until the unmodulated field strength registered by the field monitor reached the desired level. This level was held constant for the specified dwell time.

(4)The EUT was continuously monitored during the test in accordance with the Pass / Fail criteria declared by the customer.

(5)The test was done in both horizontal and vertical antenna polarizations, and for all necessary sides of the EUT.

8.4 Environmental Conditions

Temperature:	26.5° C
Relative Humidity:	58%RH
Atmospheric Pressure:	99.8kPa
Tested By:	John.zou

8.5 Test Data and Result

Field Strength: 3V/m
Frequency step: 1% of fundamental
Dwell time: 1 second
Modulation: AM by 1kHz sine wave with 80% modulation depth

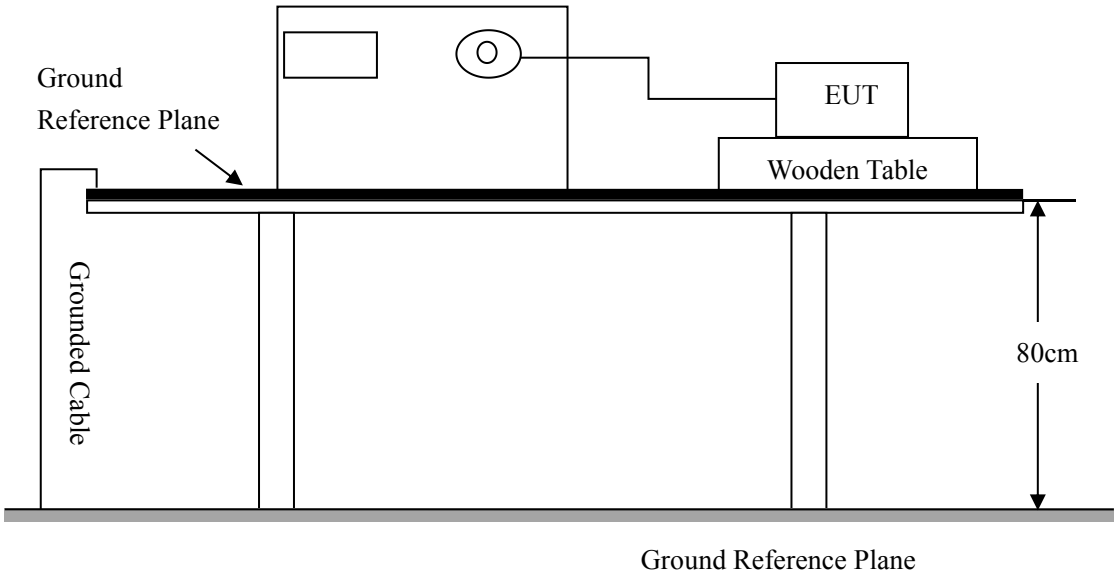
Frequency Range(MHz)	Field (V/m)	Front		Rear		Left Side		Right Side	
		VERT	HORI	VERT	HORI	VERT	HORI	VERT	HORI
80-1000	3	A	A	A	A	A	A	A	A
1800	3	A	A	A	A	A	A	A	A
2600	3	A	A	A	A	A	A	A	A
3500	3	A	A	A	A	A	A	A	A
5000	3	A	A	A	A	A	A	A	A

9. Electrical fast transients

9.1 EFT Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Electrical fast transients	Input a.c. power. ports	1kV(peak) Tr/Th:5/50ns Repetition frequency:5kHz	IEC 61000-4-4	B
	Analogue/digital data ports	0.5kV(peak) Tr/Th:5/50ns Repetition frequency:5kHz		B

9.2 Block Diagram of Test Setup



9.3 Test Procedure

(1)The EUT was switched on and allowed to warm up to its normal operating condition.

(2)D.C./A.C. Power Line Test

The EFT/B test system has a built-in coupling/decoupling network which couples the generated EFT bursts into the EUT power supply lines connected to it. The EFT bursts were coupled to the selected lines (one at a time) of the EUT.

(3)I/O Signal & Control Line Test

The interference impulses were capacitively coupled to the EUT's signal cables.

(4)The EUT was monitored during the test in accordance with the Pass /Fail criteria declared by the customer.

(5)The test was performed with EFT bursts in the positive and negative polarities and repeated on all necessary lines.

9.4 Environmental Conditions

Temperature:	26.5° C
Relative Humidity:	58%RH
Atmospheric Pressure:	99.8kPa
Tested By:	John.zou

9.5 Test Data and Result

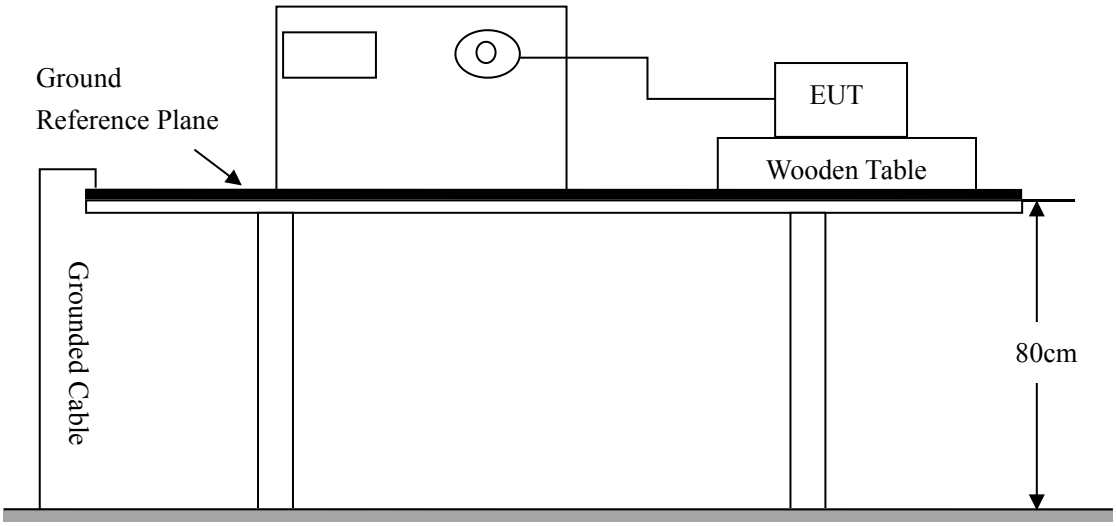
IEC61000-4-4 Test Points		Test Levels(kV)					
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0
AC mains power input port	L	A	A	A	A	/	/
	N	A	A	A	A	/	/
	L+N	A	A	A	A	/	/
	PE	/	/	/	/	/	/
	L+PE	/	/	/	/	/	/
	N+PE	/	/	/	/	/	/
	L+N+PE	/	/	/	/	/	/
Single Port	RJ45	/	/	/	/	/	/

10. Surges

10.1 Surges Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Surges	Input a.c. power ports	Tr/Th:1,2/50μs 1kV (line to line) 2kV(line to earth)	IEC 61000-4-5	B
	Analogue/digital data ports	Tr/Th:10/700μs 1kV (line to ground)	IEC 61000-4-5	C

10.2 Block Diagram of Test Setup



Ground Reference Plane

10.3 Test Procedure

(1)The power supply to EUT was switched on and allowed to warm up to its normal operating condition.

(2)The surge generator phase shifter was set to different angle.

(3)The correct open-circuit test level was set with the surge generator disconnected from the coupling network.

(4)The output of the generator was then reconnected back to the coupling network.

(5)Five discharges, generated by the voltage surge generator, were made on each relevant line, for each polarity, at each test level, with the relevant discharge interval.

(6)The EUT was observed during, and checked after the test to determine the result.

10.4 Environmental Conditions

Temperature:	27.2° C
Relative Humidity:	56.3%RH
Atmospheric Pressure:	100.2kPa
Tested By:	John.zou

10.5 Test Data and Result

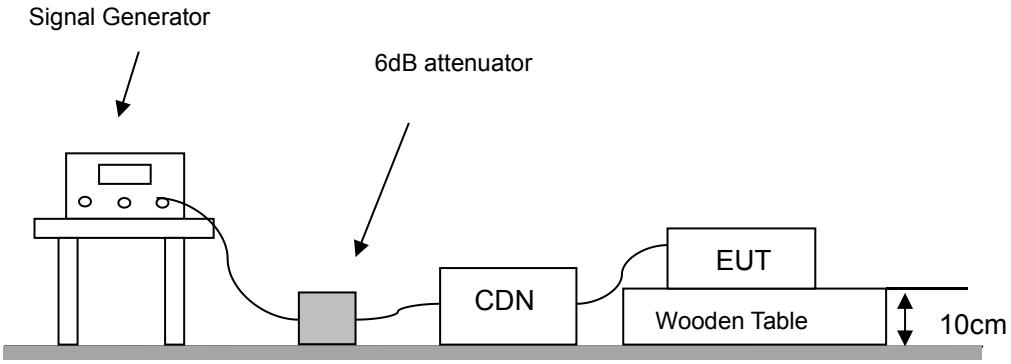
IEC61000-4-**5** Test Points		Test Levels(kV)					
		+0.5	-0.5	+1.0	-1.0	+2.0	-2.0
AC mains power input port	L-N	A	A	A	A	/	/
	L-PE	/	/	/	/	/	/
	N-PE	/	/	/	/	/	/
Signal port	RJ45	/	/	/	/	/	/

11. Radio-Frequency Continuous Conducted

11.1 CS Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Radio-frequency continuous conducted	Input a.c. power ports	0,15~10MHz,3V 10~30MHz,3~1V 30~80MHz,1V	IEC 61000-4-6	A
	Analogue/digital data ports	0,15~10MHz,3V 10~30MHz,3~1V 30~80MHz,1V	IEC 61000-4-6	A

11.2 Block Diagram of Test Setup



11.3 Test Procedure

(1)The EUT was switched on and allowed to warm up to its normal operating condition.

(2)The EUT are placed on an insulating support 0.1 m high above a ground reference plane. CDN(coupling and decoupling device) is placed on the ground plane about 0.3 m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

(3)The frequency range is swept from 150 kHz to 80 MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1 kHz sine wave.

(4)The rate of sweep shall not exceed $1.5*10^{-3}$decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

(5)The EUT was continuously monitored during the test in accordance with the PASS/FAIL criteria declared by the customer.

11.4 Environmental Conditions

Temperature:	26.5° C
Relative Humidity:	58%RH
Atmospheric Pressure:	99.8kPa
Tested By:	John.zou

11.5 Test Data and Result

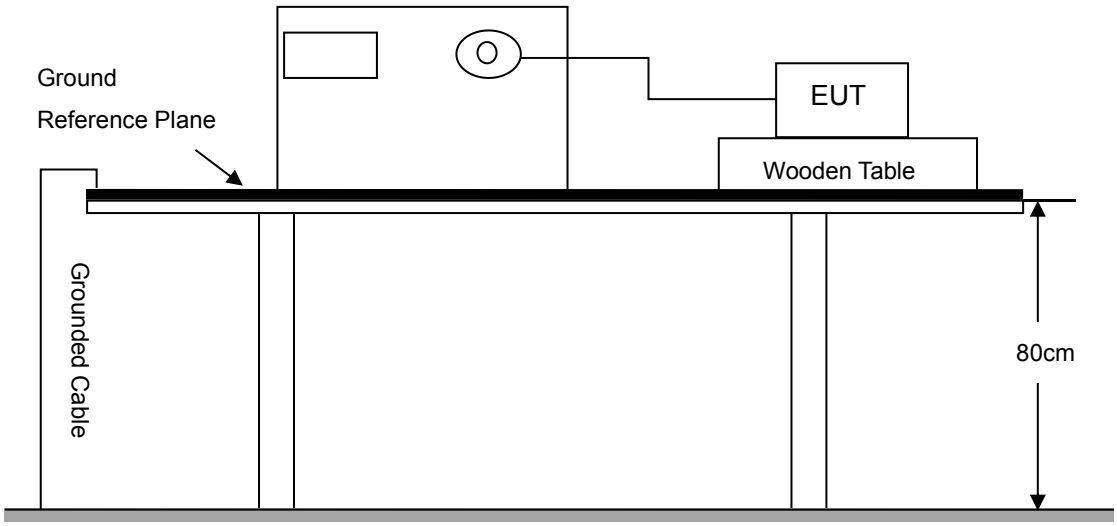
IEC 61000-4-6 Test Point	Frequency Range (MHz)	Strength (Vrms)	Result
Power Line	0.15~10	3	A
	10~30	3~1	A
	30~80	1	A

12. Voltage Dips and Interruptions Test Result

12.1 DIPS Immunity Requirements

Environmental Phenomenon	Port	Test Specification	Basic Standard	Performance criterion
Voltage Dips	Input a.c. power port	>95% reduction 0,5 period	IEC 61000-4-11	B
		30% reduction 25 period		C
Voltage interruptions		>95% reduction 250 period		C

12.2 Block Diagram of Test Setup



12.3 Test Procedure

(1)The interruption is introduced at selected phase angles with specified duration.

(2)Record any degradation of performance.

12.4 Environmental Conditions

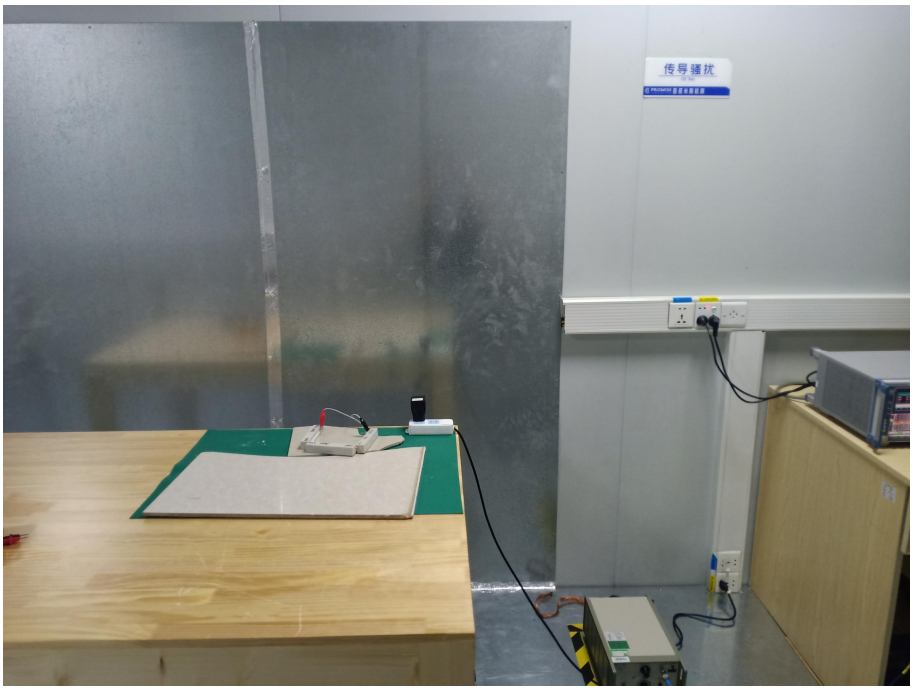
Temperature:	26.5° C
Relative Humidity:	58%RH
Atmospheric Pressure:	99.8kPa
Tested By:	John.zou

12.5 Test Data and Result

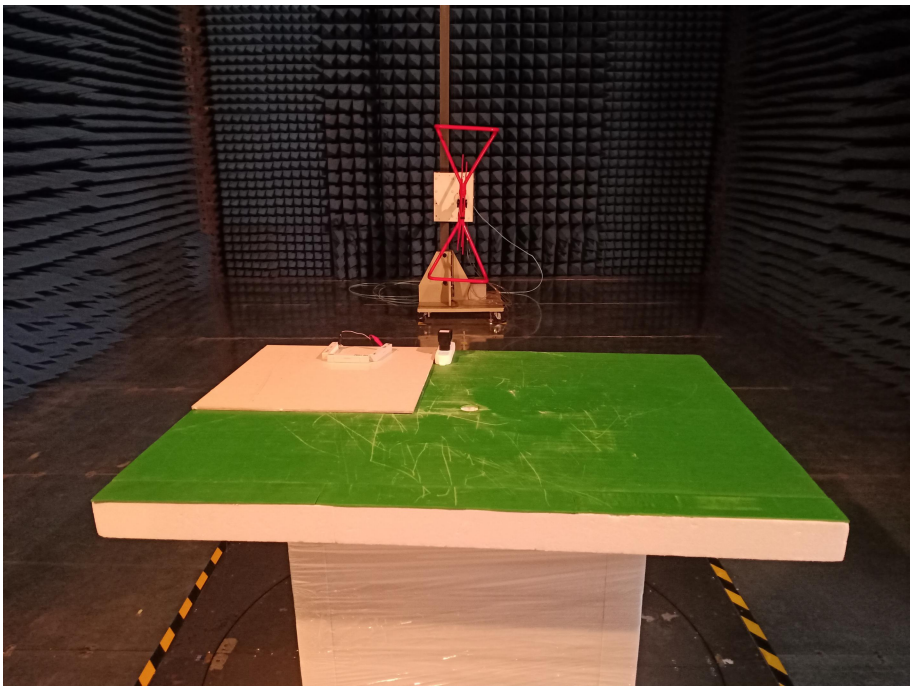
Environmental Phenomenon	Test Level %U_T	Reduction (%)	Duration (periods)	Result
Voltage Dips	<5	>95	0.5	A
	70	30	25	A
Voltage interruptions	<5	>95	250	B

EXHIBIT A – PHOTOGRAPHS OF TEST SETUP

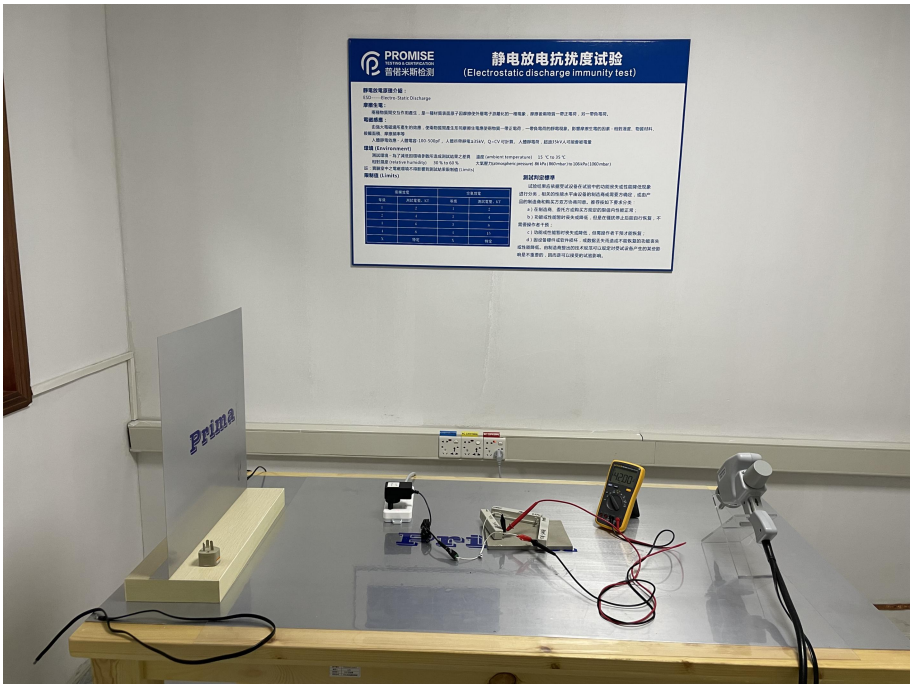
Conducted Emission



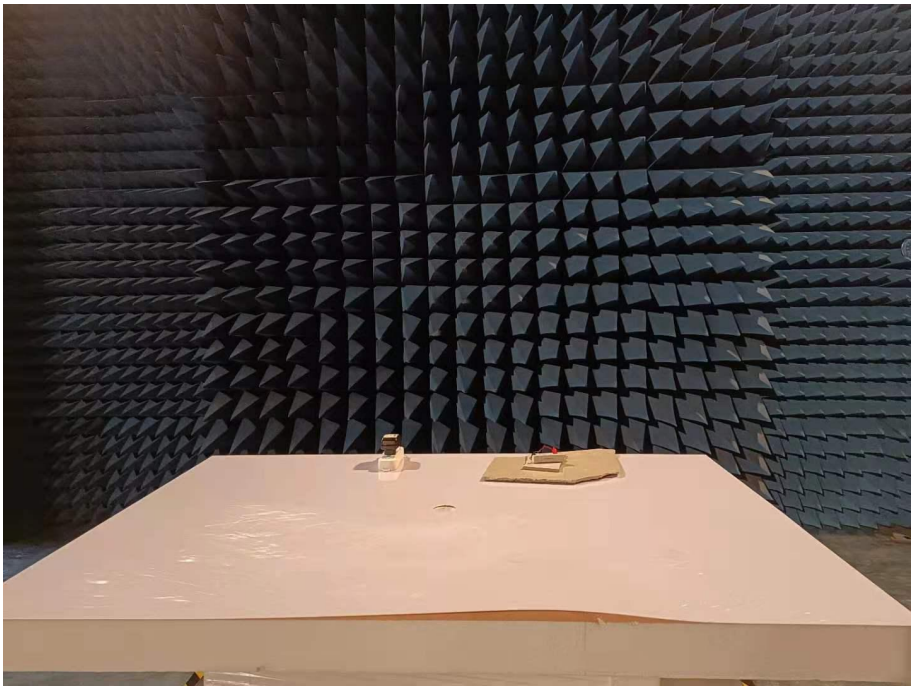
Radiated Emission



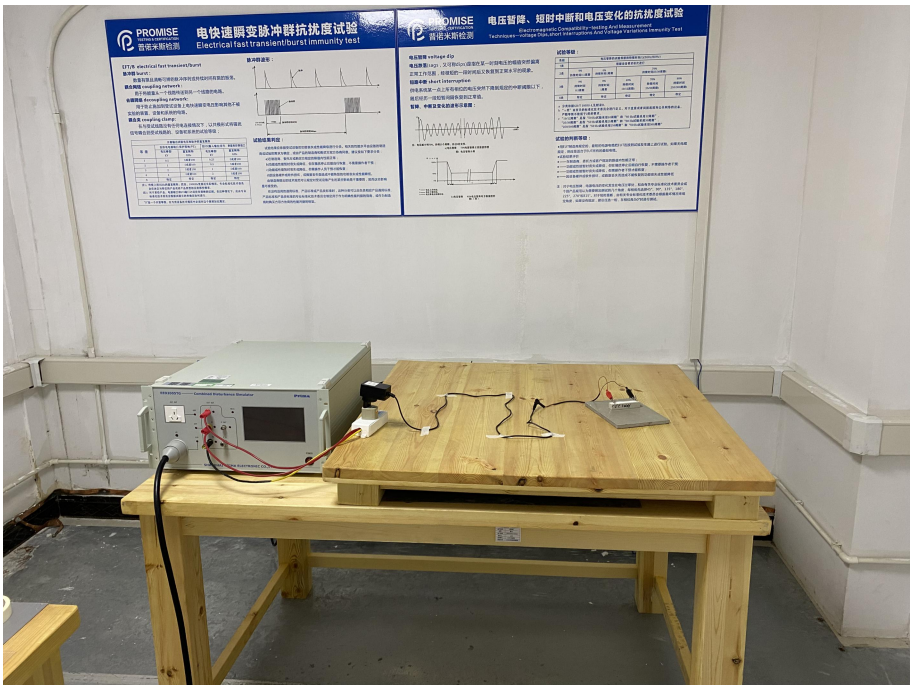
ESD Immunity Test View



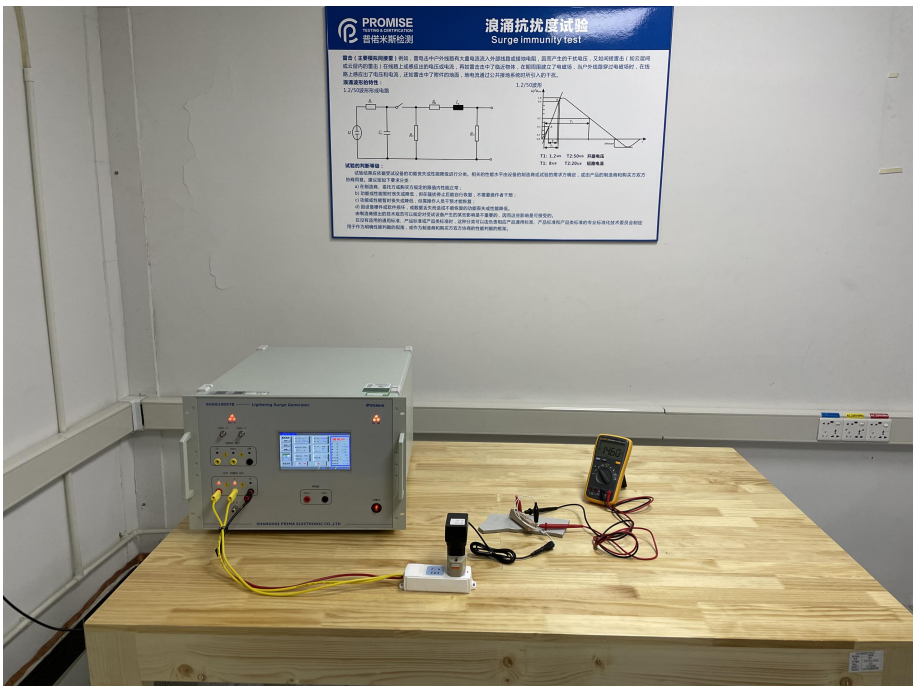
RS Immunity Test View



EFT Immunity Test View



Surge Immunity Test View



Dips Immunity Test View

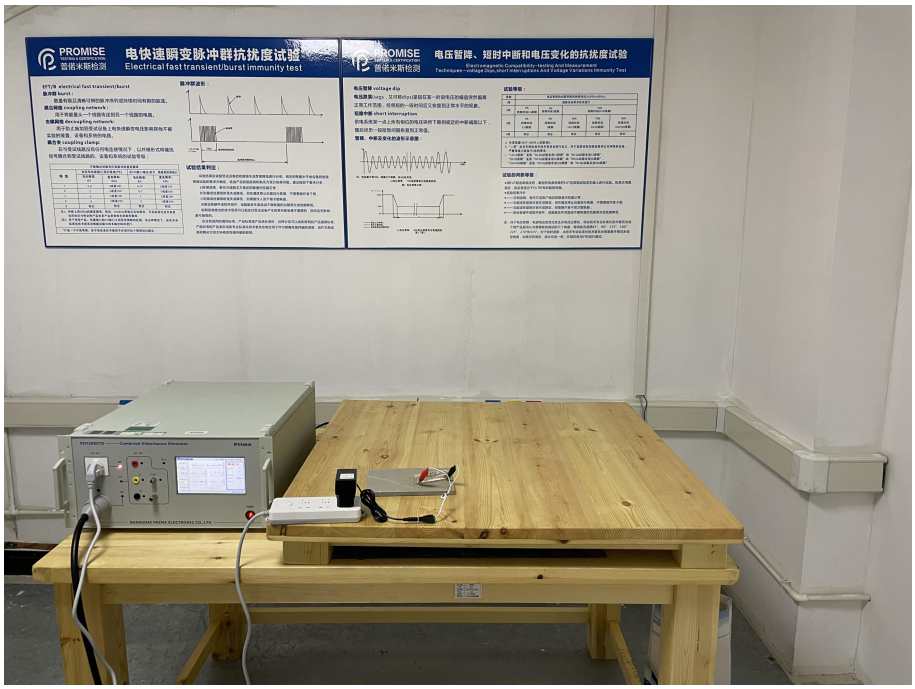


EXHIBIT B – PHOTOGRAPHS OF EUT

Photo 1

Photo 2

Photo 3

Photo 4

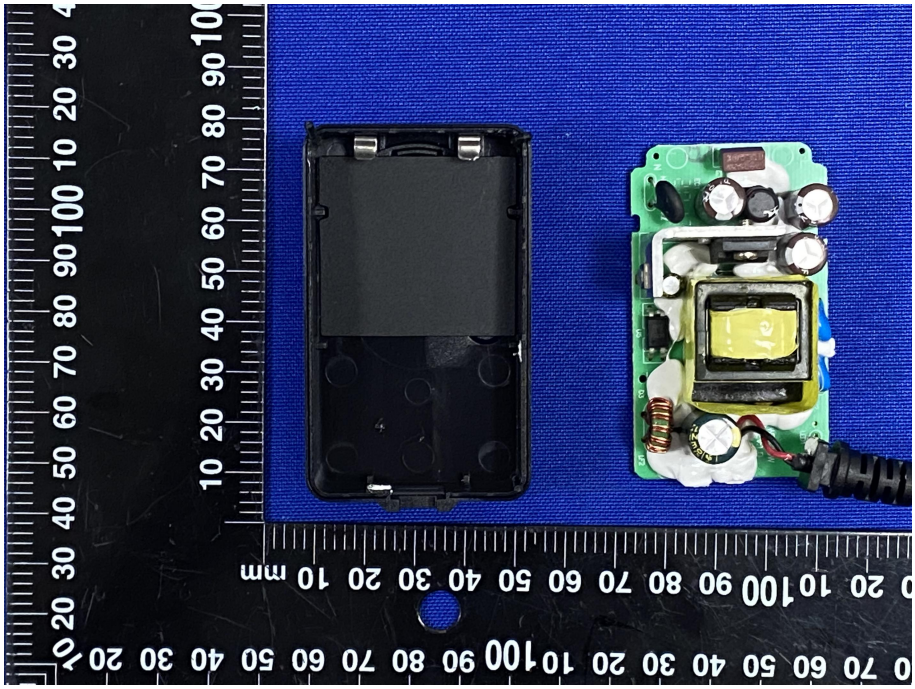


Photo 5

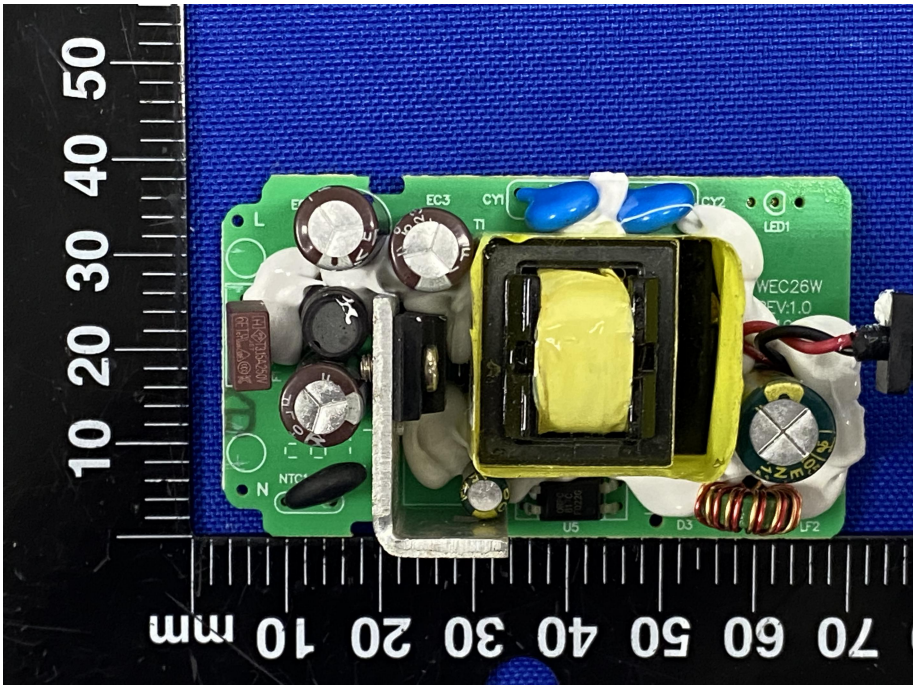


Photo 6

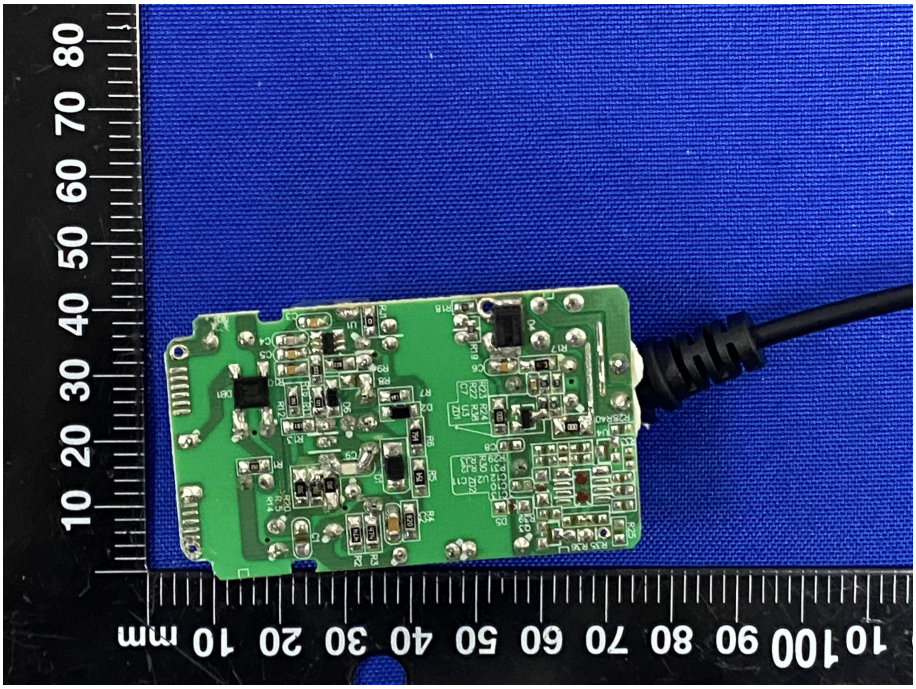


Photo 7

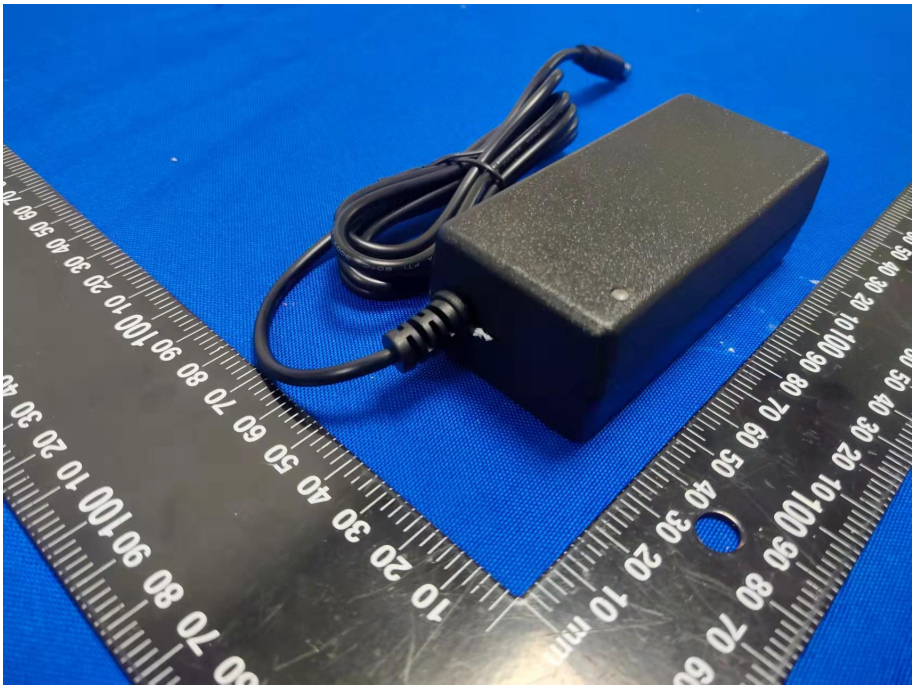


Photo 8

Photo 9

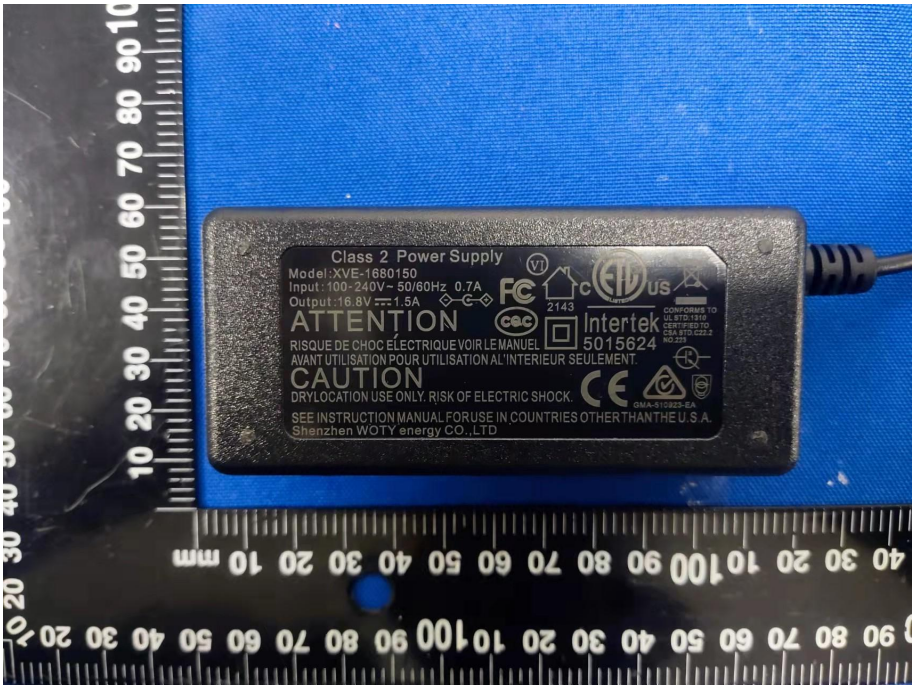


Photo 10

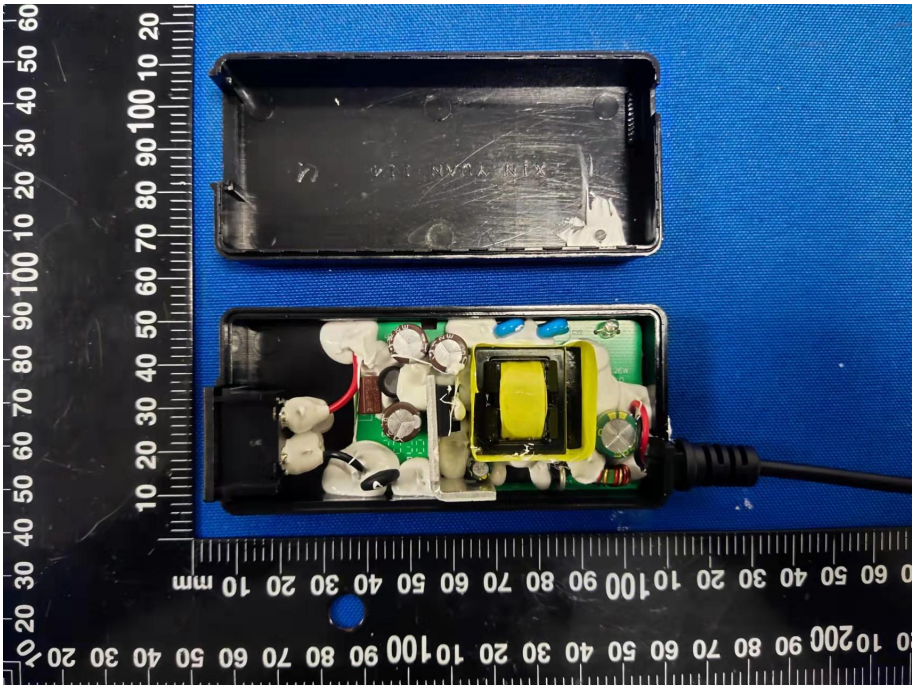


Photo 11

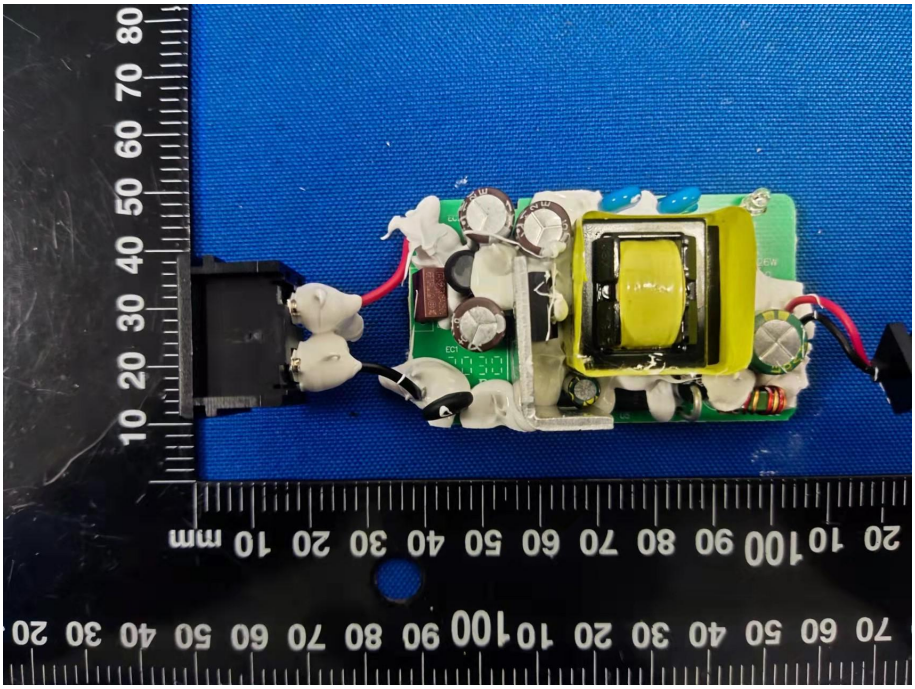


Photo 12

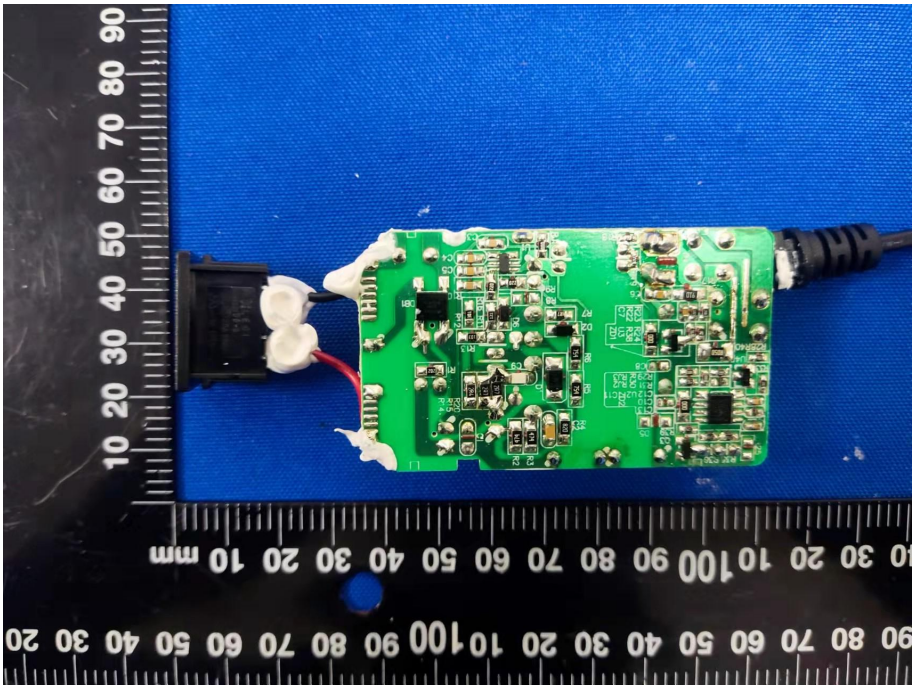
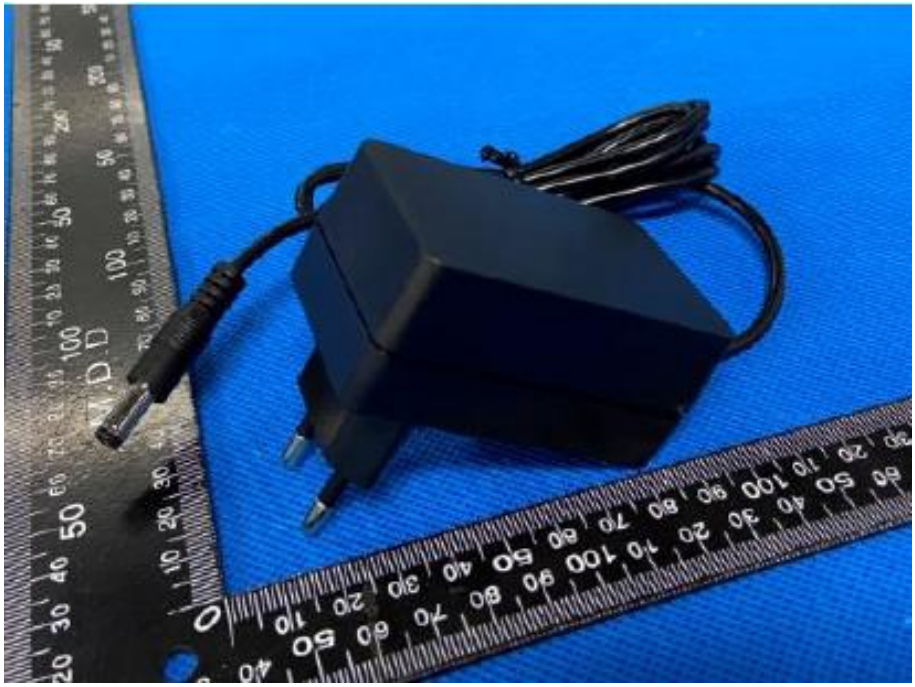


Photo 13

Photo 14



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