TEST REPORT

Report reference No:	JAT26060302446ER-1
Product Name:	AC Home EV Charger
Model Number:	WL55PA-332, WL55PA-3-16, WL55PA-1-32
Prepared For :	Mustafa Yılmaz

Dongguan Junan Testing & Certification Co., Ltd.

Address: Room 303, Building 1, No.316, Renzhou Road, Shatian Town, Dongguan City, Guangdong Province, China

Phone number: 0769-81710286

Website: www.junantest.com

TEST REPORT

Applicant:	Mustafa Yılmaz
Address:	ilkadım Sanayi Sitesi, istiklal Mah. 55. Sk. No:24 Tekkekoy, Samsun, Turkiye
Manufacturer:	Mustafa Yılmaz
Address:	ilkadım Sanayi Sitesi, istiklal Mah. 55. Sk. No:24 Tekkekoy, Samsun, Turkiye
Product Name:	AC Home EV Charger
Trade Mark:	wallboxia
Model Number:	WL55PA-332, WL55PA-3-16, WL55PA-1-32
Date of Receipt:	May. 14, 2026
Test Date:	May. 14, 2026 - May. 28, 2026
Date of Report:	May. 28, 2026
Prepared By:	Dongguan Junan Testing & Certification Co., Ltd.
Address:	Room 303, Building 1, No.316, Renzhou Road, Shatian Town, Dongguan City, Guangdong Province, China
Applicable Standards:	EN 61851-21-2:2021 EN IEC 61000-3-2:2019+A1:2021+A2:2024, EN 61000-3-3:2013+A1:2019+A2:2021 EN 61000-4-2:2009, EN IEC 61000-4-3:2020, EN 61000-4-4:2012, EN 61000-4-5:2014+A1:2017, EN IEC 61000-4-6:2023, EN 61000-4-8:2010, EN IEC 61000-4-11:2020+AC:2022
Test Result:	Pass

Prepared (Engineer):	Tanac
Reviewer (Supervisor):	Roger Zheng
Approved (Manager):	Tim You

Dongguan Junan Testing & Certification Co., Ltd. APPROVED

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 Dongguan Junan Testing & Certification Co., Ltd.

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1. VERSION

Version No.	Date	Description
00	May. 28, 2026	Original

2. TEST SUMMARY

EMC Emission				
Standard	Test Item	Limit	Result	Remark
EN 61851-21-2:2021	Conducted Emission at power ports	Class B	PASS	
	Conducted Emission at LAN port	Class B	N/A	
	Radiated Emission below 1GHz	Class B	PASS	
	Radiated Emission above 1GHz	Class B	N/A	
EN IEC 61000-3-2:2019+ A1:2021+A2:2024	Harmonic Current Emission	Class A or D	PASS	
EN 61000-3-3:2013+ A1:2019+A2:2021	Voltage Fluctuations & Flicker	------	PASS	
EMC Immunity				
Section EN 61851-21-2:2021	Test Item	Performance Criteria	Result	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN IEC 61000-4-3:2020	RF electromagnetic field	A	PASS	
EN 61000-4-4:2012	Fast transients	B	PASS	
EN 61000-4-5:2014 +A1:2017	Surges	B	PASS	
EN IEC 61000-4-6:2023	Injected Current	A	PASS	
EN 61000-4-8:2010	Power Frequency Magnetic Field	A	PASS	
EN IEC 61000-4-11:2020 +AC:2022	Volt. Interruptions Volt. Dips	B / C / CC NOTE (3)	PASS	

NOTE:

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

(2) The power consumption of EUT is less than 75W and no Limits apply.

(3) Voltage dip: 70% reduction – Performance Criteria C

Voltage Interruptions: 30% reduction – Performance Criteria C

(4) Test Facility: Dongguan Junan Testing & Certification Co., Ltd.
Address: Room 303, Building 1, No.316, Renzhou Road, Shatian Town, Dongguan City, Guangdong Province, China

3. GENERAL INFORMATION

3.1 Description of Device (EUT)

Product Name:	AC Home EV Charger
Trade Mark:	wallboxia
Model Number:	WL55PA-332, WL55PA-3-16, WL55PA-1-32
Test Model:	WL55PA-332
Model difference:	All models are same as the samples except model name, appearance and appearance color, they have the same structure and circuit.
Power Supply:	Input: 415V~ 50/60Hz 32A 22kW Output: 415V~ 32A 22kW
Work Frequency:	Below 108MHz

NOTE:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

(2) The EUT's all information provided by client.

3.2 Tested System Details

None.

3.3 Block Diagram of Test Set-up



3.4 Test Mode Description

Mode1. On Mode

3.5 Test Auxiliary Equipment

None.

3.6 Test Uncertainty

Conducted Emission Uncertainty : ±2.56dB

Radiated Emission Uncertainty : ±3.24dB

4. TEST INSTRUMENT USED

For Conducted Emission Test (843 Shielded Room)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
843 Shielded Room	YIHENG	843 Room	843	Apr. 11, 2026	Apr. 10, 2029
EMI Receiver	R&S	ESR	101421	Apr. 11, 2026	Apr. 10, 2027
LISN	R&S	ENV216	102417	Apr. 11, 2026	Apr. 10, 2027
Clamp	COM-POWER	CLA-050	431072	Apr. 11, 2026	Apr. 10, 2027
3-Loop Antenna	DAZE	ZN30401	13021	Apr. 11, 2026	Apr. 10, 2027
ISN T8	Schwarzbeck	NTFM 8158	101135	Apr. 11, 2026	Apr. 10, 2027
ISN T5	Schwarzbeck	NTFM 8158	101136	Apr. 11, 2026	Apr. 10, 2027
843 Cable 1#	ChengYu	CE Cable	001	Apr. 11, 2026	Apr. 10, 2027

For Radiated Emission Test (966 chamber)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
966 chamber	YIHENG	966 Room	966	Apr. 11, 2026	Apr. 10, 2029
Spectrum Analyzer	Agilent	E4408B	MY50140780	Apr. 11, 2026	Apr. 10, 2027
EMI Receiver	R&S	ESRP7	101393	Apr. 11, 2026	Apr. 10, 2027
Amplifier	Schwarzbeck	BBV9743B	00153	Apr. 11, 2026	Apr. 10, 2027
Amplifier	EMEC	EM01G8GA	00270	Apr. 11, 2026	Apr. 10, 2027
Broadband Trilog Antenna	Schwarzbeck	VULB9162	00306	Apr. 11, 2026	Apr. 10, 2027
Horn Antenna	Schwarzbeck	BBHA9120D	02139	Apr. 11, 2026	Apr. 10, 2027
966 Cable 1#	ChengYu	966	004	Apr. 11, 2026	Apr. 10, 2027
966 Cable 2#	ChengYu	966	003	Apr. 11, 2026	Apr. 10, 2027

For Harmonic & Flicker Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Harmonics, Flicker & power Analyser	LAPLACE INSTRUMENTS	AC2000A	311370	Apr. 11, 2026	Apr. 10, 2027
AC Power Supply	MToni	HPF5010	633659	Apr. 11, 2026	Apr. 10, 2027

For Electrostatic Discharge Immunity Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
ESD Tester	SCHLODER	SESD 230	17352	Apr. 11, 2026	Apr. 10, 2027

For RF Field Strength Susceptibility Test (SMQ --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Signal Generator	HP	SMB100A	1406600K02	Apr. 11, 2026	Apr. 10, 2027
Amplifier	BONN ELEKTRONIK	BLWAO810-250/100D	066454	Apr. 11, 2026	Apr. 10, 2027
Amplifier	BONN ELEKTRONIK	BLWA0840-5030 D	066453	Apr. 11, 2026	Apr. 10, 2027
RS Test Antenna	SKET	STLP 9129 Plus	202301/428	Apr. 11, 2026	Apr. 10, 2027
audio analyzer	R&S	UPL	16755	Apr. 11, 2026	Apr. 10, 2027
Antenna	EMCO	3108	9507-2534	Apr. 11, 2026	Apr. 10, 2027
Log-periodic Antenna	A&R	AT1080	16812	Apr. 11, 2026	Apr. 10, 2027
Power Sensor	R&S	Z11	116655	Apr. 11, 2026	Apr. 10, 2027
Power Sensor	R&S	Z11	121896	Apr. 11, 2026	Apr. 10, 2027
Horn Antenna	AINFO	JXTXLB-10180-SF	J2031090903006	Apr. 11, 2026	Apr. 10, 2027

For EFT /B, Surge, Voltage Dips Interruptions Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Transient Comprehensive Immunity Test System	Graphtec	HVIP16T+HCOMPACT 5	192501+192202	Apr. 11, 2026	Apr. 10, 2027
Coupling Clamp	HTEC	001	0001	Apr. 11, 2026	Apr. 10, 2027

For Injected Currents Susceptibility Test (EMS --- site)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
C/S Test System	LIONCEL	RIS-6091-85	0191101	Apr. 11, 2026	Apr. 10, 2027
CDN	LIONCEL	CDN-M2-16	0191001	Apr. 11, 2026	Apr. 10, 2027
CDN	LIONCEL	CDN-M3-16	0191002	Apr. 11, 2026	Apr. 10, 2027
Injection Clamp	Frankonia	EMCL-20	18101728-0108	Apr. 11, 2026	Apr. 10, 2027
Attenuator	LIONCEL	100W 6dB DC-3GHz	0191003	Apr. 11, 2026	Apr. 10, 2027

For Magnetic Field Immunity Test (EMS --- site)

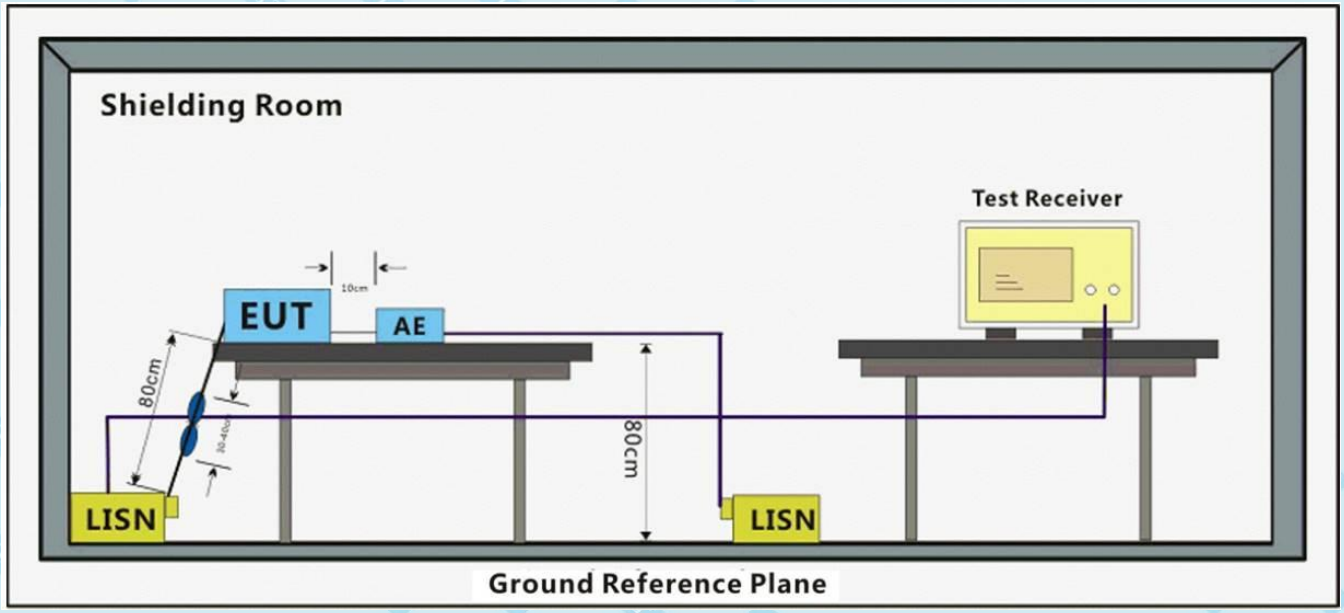
Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
Magnetic field Test System	LIONCEL	PMF-801C-C/ PMF-801C-T	190401	Apr. 11, 2026	Apr. 10, 2027

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	FALA	EZ_EMC	EMC-CON 3A1.1
2	EMC radiation test system	FALA	EZ_EMC	FA-03A2

5. CONDUCTED EMISSION AT THE MAINS TERMINALS TEST

5.1 Block Diagram of Test Setup



5.2 Test Standard and Limit

EN 61851-21-2

Table 7 – Disturbance voltage limits for class A equipment for AC power input port

Frequency range MHz	Rated power of ≤ 20 kVA		Rated power of > 20 kVA [a]		High power electronic systems and equipment, rated power of > 75 kVA [b]	
	Quasi-peak dB(μV)	Average dB(μV)	Quasi-peak dB(μV)	Average dB(μV)	Quasi-peak dB(μV)	Average dB(μV)
0,15 to 0,50	79	66	100	90	130	120
0,50 to 5	73	60	86	76	125	115
			90	80		
5 to 30	73	60	decreasing linearly with logarithm of frequency to		115	105
			73	60		

At the transition frequency, the more stringent limit shall apply.

a) These limits apply to equipment with a rated power > 20 kVA and intended to be connected to a dedicated power transformer or generator, and which is not connected to low voltage (LV) overhead power lines. For equipment not intended to be connected to a user specific power transformer, the limits for ≤ 20 kVA apply. The manufacturer, and/or supplier shall provide information on installation measures that can be used to reduce emissions from the installed equipment. In particular, it shall be indicated that this equipment is intended to be connected to a dedicated power transformer or generator and not to LV overhead power lines.

b) These limits apply only to high power electronic systems and equipment with a rated power > 75 kVA when intended to be installed as follows:

- installation is supplied from a dedicated power transformer or generator, and which is not connected to low voltage (LV) overhead power lines;
- installation is physically separated from residential environments by distance greater than 30 m or by a structure which acts as a barrier to radiated phenomena;
- the manufacturer and/or supplier shall indicate that this equipment meets the disturbance voltage limits for high power electronic systems and equipment of rated input power > 75 kVA and provide information on installation measures to be applied by the installer. In particular, it shall be indicated that this equipment is intended to be used in an installation which is powered by a dedicated power transformer or generator and not by LV overhead power lines.

Table 8 – Disturbance voltage limits for class B equipment for AC power input port

Frequency range MHz	Quasi-peak dB(μV)	Average dB(μV)
0,15 to 0,50	66 decreasing linearly with logarithm of frequency to 56	56 decreasing linearly with logarithm of frequency to 46
0,50 to 5	56	46
5 to 30	60	50

Table 9 – Disturbance voltage limits for DC power input port

Frequency range MHz	Rated power of ≤ 75 kVA		Rated power of > 75 kVA	
	Quasi-peak dB(μV)	Average dB(μV)	Quasi-peak dB(μV)	Average dB(μV)
0,15 to 0,50	79	66	100	90
0,50 to 5	73	60	86	76
			90	80
5 to 30	73	60	decreasing linearly with logarithm of frequency to	
			73	60

Table 10 – Disturbance voltage limits for class A equipment for AC CPT port

Frequency range MHz	Quasi-peak dB(μV)	Average dB(μV)
0,15 to 0,50	79	66
0.50 to 30	73	60

Table 11 – Disturbance voltage limits for class B equipment for AC CPT port

Frequency range MHz	Quasi-peak dB(μV)	Average dB(μV)
0,15 to 0,50	66 decreasing linearly with logarithm of frequency to 56	56 decreasing linearly with logarithm of frequency to 46
0,50 to 5	56	46
5 to 30	60	50

Table 12 – Disturbance voltage limits for DC CPT port

Frequency range MHz	Rated power of ≤ 75 kVA		Rated power of > 75 kVA	
	Quasi-peak dB(μV)	Average dB(μV)	Quasi-peak dB(μV)	Average dB(μV)
0,15 to 0,50	79	66	100	90
0,50 to 5	73	60	86	76
			90	80
5 to 30	73	60	decreasing linearly with logarithm of frequency to	
			73	60

Table 13 – Requirements for asymmetric mode conducted emissions from Class A equipment

Table clause	Frequency range MHz	Coupling device	Detector type/ bandwidth	Class A voltage limits dB(μV)	Class A current limits dB(μA)
13.1	0,15 to 0,5	AAN	Quasi peak/9 kHz	97 to 87	n/a
	0,5 to 30			87	
	0,15 to 0,5	AAN	Average/9 kHz	84 to 74	
	0,5 to 30			74	
13.2	0,15 to 0,5	CVP and current probe	Quasi peak/9 kHz	97 to 87	53 to 43
	0,5 to 30			87	43
	0,15 0,5	CVP and current probe	Average/9 kHz	84 to 74	40 to 30
	0,5 to 30			74	30
13.3	0,15 to 0,5	Current probe	Quasi peak/9 kHz	n/a	53 to 43
	0,5 to 30				43
	0,15 to 0,5	Current probe	Average/9 kHz		40 to 30
	0,5 to 30				30

The choice of coupling device and measurement is defined in Annex C of CISPR 32:2015.

AC mains ports that also have the function of a wired network port shall meet the limits given in Table 7.

The application of the voltage and/or current limits is dependent on the measurement procedure used. Refer to Table C.1 of CISPR 32:2015 for applicability.

Testing is required at only one EUT supply voltage and frequency.

Applicable to ports listed above and intended to connect to cables longer than 3 m.

Table 14 – Requirements for asymmetric mode conducted emissions from Class B equipment

Table clause	Frequency range MHz	Coupling device	Detector type/ bandwidth	Class B voltage limits dB(μV)	Class B current limits dB(μA)
14.1	0,15 to 0,5	AAN	Quasi peak/9 kHz	84 to 74	n/a
	0,5 to 30			74	
	0,15 to 0,5	AAN	Average/9 kHz	74 to 64	
	0,5 to 30			64	
14.2	0,15 to 0,5	CVP and current probe	Quasi peak/9 kHz	84 to 74	40 to 30
	0,5 to 30			74	30
	0,15 0,5	CVP and current probe	Average/9 kHz	74 to 64	30 to 20
	0,5 to 30			64	20
14.3	0,15 to 0,5	Current probe	Quasi peak/9 kHz	n/a	40 to 30
	0,5 to 30				30
	0,15 to 0,5	Current probe	Average/9 kHz		30 to 20
	0,5 to 30				20
The choice of coupling device and measurement is defined in Annex C of CISPR 32:2015.					
Screened ports are tested with a common-mode impedance of 150 Ω. This is typically accomplished with the screen terminated by 150 Ω to earth.					
AC mains ports that also have the function of a wired network port shall meet the limits given in Table 8.					
The application of the voltage and/or current limits is dependent on the measurement procedure used. Refer to Table C.1 of CISPR 32:2015 for applicability					
Testing is required at only one EUT supply voltage and frequency.					
Applicable to ports listed above and intended to connect to cables longer than 3 m.					

5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet EN 61851-21-2 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 **EN 61851-21-2** regulations during conducted emission test.

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

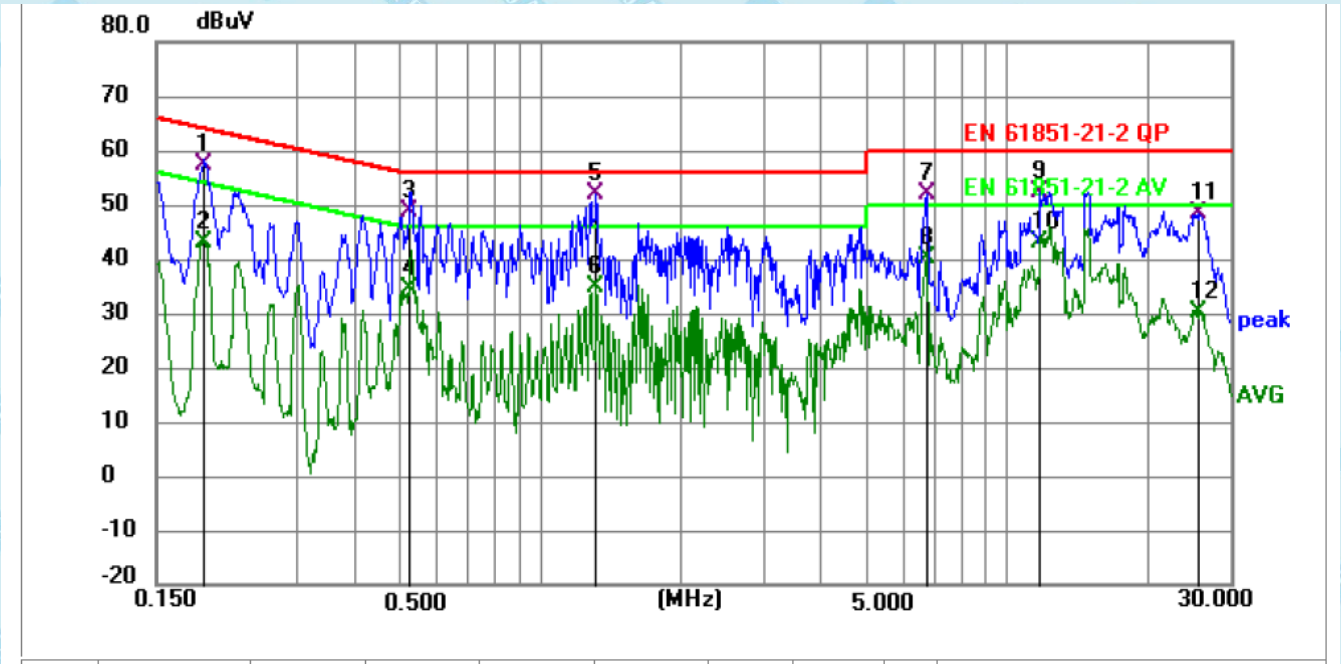
The frequency ranges from 150kHz to 30MHz is investigated.

5.6 Test Result

PASS

Please refer to the following page.

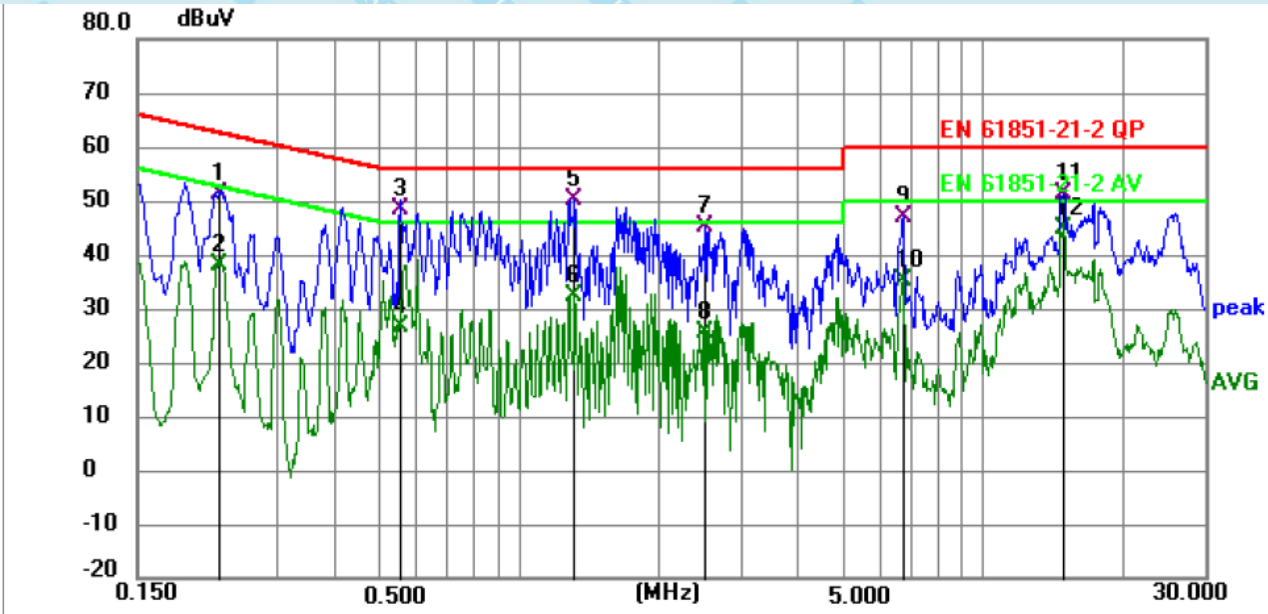
Conducted Emission Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Line
Test Voltage:	AC 415V/50Hz	Test Mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1901	47.47	9.79	57.26	64.03	-6.77	QP	P	
2	0.1901	33.34	9.79	43.13	54.03	-10.90	AVG	P	
3	0.5231	39.06	9.85	48.91	56.00	-7.09	QP	P	
4	0.5231	24.46	9.85	34.31	46.00	-11.69	AVG	P	
5 *	1.3150	42.13	9.98	52.11	56.00	-3.89	QP	P	
6	1.3150	24.94	9.98	34.92	46.00	-11.08	AVG	P	
7	6.7200	41.84	10.01	51.85	60.00	-8.15	QP	P	
8	6.7200	30.07	10.01	40.08	50.00	-9.92	AVG	P	
9	11.7461	42.51	9.91	52.42	60.00	-7.58	QP	P	
10	11.7461	33.13	9.91	43.04	50.00	-6.96	AVG	P	
11	25.6380	38.03	10.23	48.26	60.00	-11.74	QP	P	
12	25.6380	20.00	10.23	30.23	50.00	-19.77	AVG	P	

Remark:Correct Factor = Cable lose + LISN insertion loss;
Level = Reading + Correct factor;Margin = Level – Limit;

Conducted Emission Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Neutral
Test Voltage:	AC 415V/50Hz	Test Mode:	Mode 1



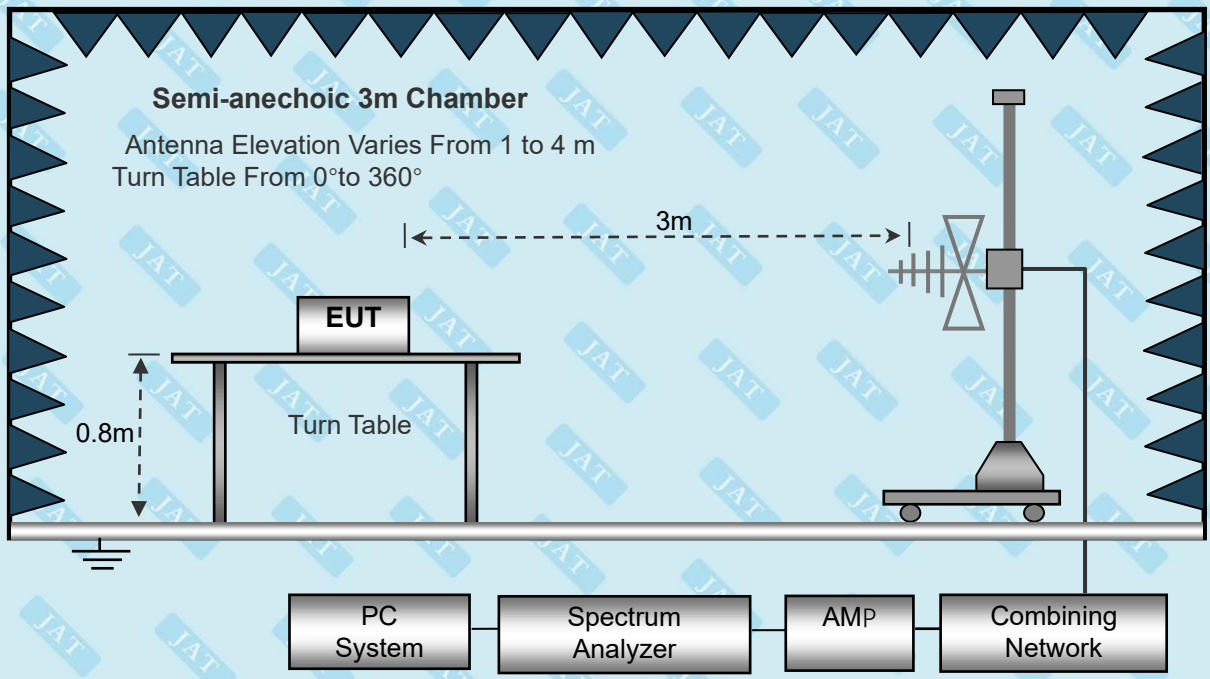
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.2265	41.27	9.94	51.21	62.58	-11.37	QP	P	
2	0.2265	28.24	9.94	38.18	52.58	-14.40	AVG	P	
3	0.5550	38.77	9.80	48.57	56.00	-7.43	QP	P	
4	0.5550	16.82	9.80	26.62	46.00	-19.38	AVG	P	
5	1.3150	40.13	9.98	50.11	56.00	-5.89	QP	P	
6	1.3150	22.44	9.98	32.42	46.00	-13.58	AVG	P	
7	2.5260	35.07	9.97	45.04	56.00	-10.96	QP	P	
8	2.5260	15.51	9.97	25.48	46.00	-20.52	AVG	P	
9	6.7200	36.84	10.01	46.85	60.00	-13.15	QP	P	
10	6.7200	25.07	10.01	35.08	50.00	-14.92	AVG	P	
11	14.8695	41.29	9.96	51.25	60.00	-8.75	QP	P	
12 *	14.8695	34.74	9.96	44.70	50.00	-5.30	AVG	P	

Remark:Correct Factor = Cable lose + LISN insertion loss;
Level = Reading + Correct factor;Margin = Level – Limit;

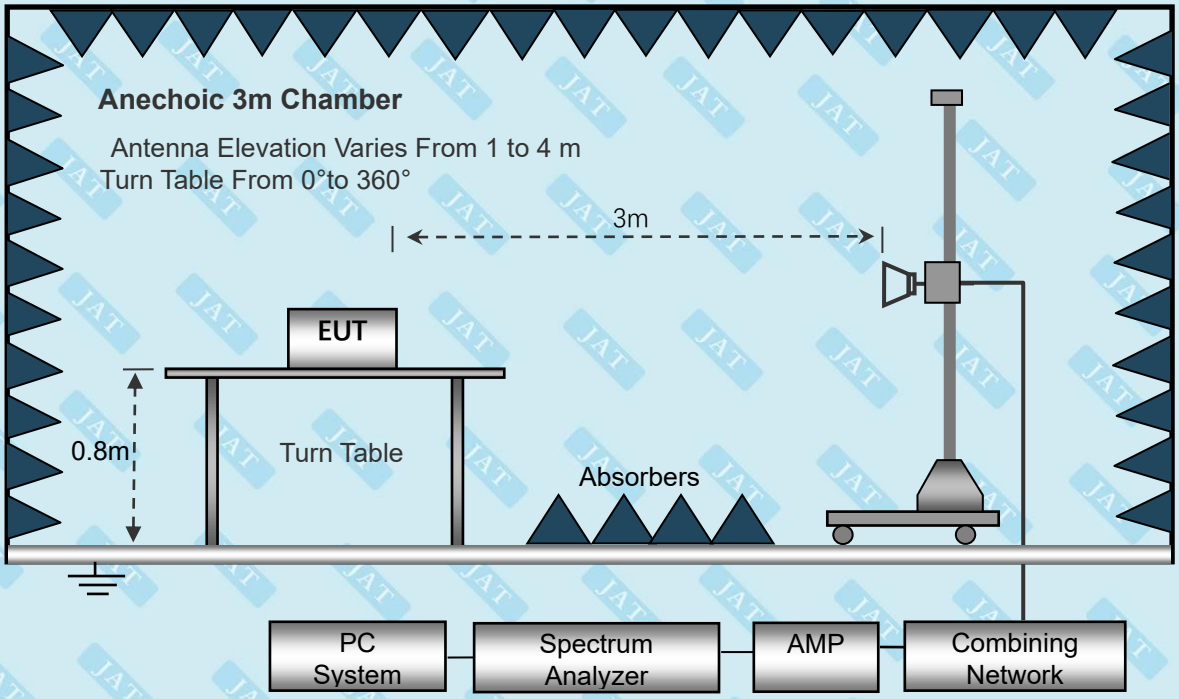
6. RADIATION EMISSION TEST

6.1 Block Diagram of Test Setup

Below 1GHz



Above 1GHz



6.2 Test Standard and Limit

EN 61851-21-2

Table 16 – Requirements for radiated emissions at frequencies up to 1 GHz for Class A equipment

Table clause	Frequency range MHz	Measurement		Class A limits dB(μV/m)
		Distance m	Detector/ bandwidth	Test site: OATS or SAC acc. to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012
16.1	30 to 230	10	quasi peak/ 120 kHz	40
	230 to 1 000			47
16.2	30 to 230	3		50
	230 to 1 000			57
Apply only 16.1 or 16.2 across entire frequency range. Other measurement distances may be used. The corresponding limits have to be calculated according to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012.				

Table 17 – Requirements for radiated emissions at frequencies above 1 GHz for Class A equipment

Table clause	Frequency range MHz	Measurement		Class A limits dB(μV/m)
		Distance m	Detector/ bandwidth	Test site: FSOATS acc. to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012
17.1	1 000 to 3 000	3	Average/ 1 MHz	56
	3 000 to 6 000			60
17.2	1 000 to 3 000		Peak/ 1 MHz	76
	3 000 to 6 000			80
17.1	1 000 to 3 000	10	Average/ 1 MHz	46
	3 000 to 6 000			50
17.2	1 000 to 3 000		Peak/ 1 MHz	66
	3 000 to 6 000			70
Apply 17.1 and 17.2 at the same distance across the frequency range from 1 000 MHz to the highest required frequency of measurement derived from Table 15. Other measurement distances may be used. The corresponding limits have to be calculated according to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012.				

Table 18 – Requirements for radiated emissions at frequencies up to 1 GHz for Class B equipment

Table clause	Frequency range MHz	Measurement		Class B limits dB(μV/m)
		Distance m	Detector/ bandwidth	Test site: OATS or SAC acc. to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012
18.1	30 to 230	10	Quasi peak/ 120 kHz	30
	230 to 1 000			37
18.2	30 to 230	3		40
	230 to 1 000			47
Apply only 18.1 or 18.2 across entire frequency range. Other measurement distances may be used. The corresponding limits have to be calculated according to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012.				

Table 19 – Requirements for radiated emissions at frequencies above 1 GHz for Class B equipment

Table clause	Frequency range MHz	Measurement		Class B limits dB(μV/m)
		Distance m	Detector/ bandwidth	Test site: FSOATS acc. to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012
19.1	1 000 to 3 000	3	Average/ 1 MHz	50
	3 000 to 6 000			54
19.2	1 000 to 3 000		Peak/ 1 MHz	70
	3 000 to 6 000			74
19.1	1 000 to 3 000	10	Average/ 1 MHz	40
	3 000 to 6 000			44
19.2	1 000 to 3 000		Peak/ 1 MHz	60
	3 000 to 6 000			64
Apply 19.1 and 19.2 at the same distance across the frequency range from 1000 MHz to the highest required frequency of measurement derived from Table 15. Other measurement distances may be used. The corresponding limits have to be calculated according to CISPR 16-1-4:2010 and CISPR 16-1-4:2010/AMD1:2012.				

6.3 EUT Configuration on Test

The EN 61851-21-2 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.

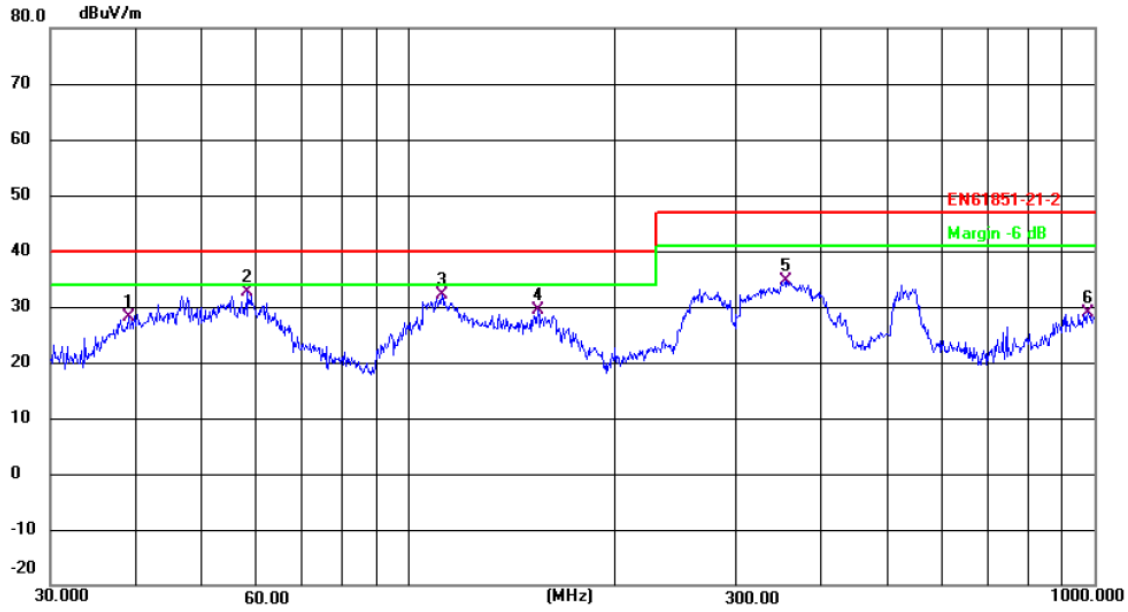
6) The frequency range from 30MHz to 1000MHz is checked.

6.6 Test Result

PASS

Please refer to the following page.

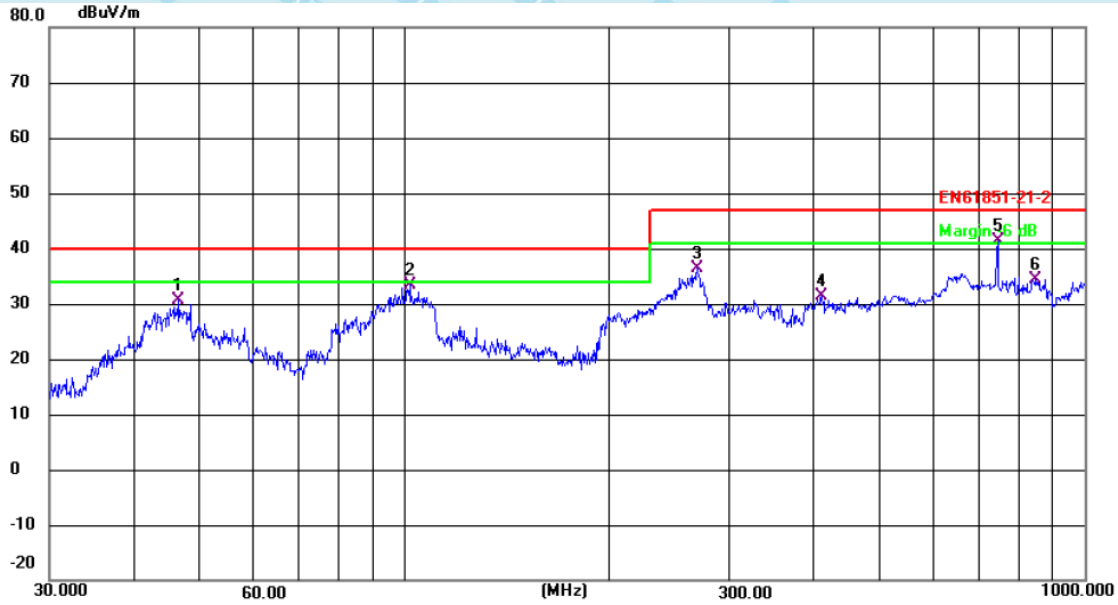
Radiation Emission Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	AC 415V/50Hz	Test Mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		39.0245	36.46	-8.24	28.22	40.00	-11.78	QP	
2	*	58.2030	40.06	-7.55	32.51	40.00	-7.49	QP	
3		111.7380	41.21	-9.11	32.10	40.00	-7.90	QP	
4		154.2786	41.81	-12.55	29.26	40.00	-10.74	QP	
5		354.1831	39.68	-4.95	34.73	47.00	-12.27	QP	
6		979.1804	22.70	6.23	28.93	47.00	-18.07	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℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	AC 415V/50Hz	Test Mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		46.5030	37.03	-6.49	30.54	40.00	-9.46	QP	
2		101.6443	42.16	-8.90	33.26	40.00	-6.74	QP	
3		269.4284	42.99	-6.52	36.47	47.00	-10.53	QP	
4		410.3825	35.08	-3.74	31.34	47.00	-15.66	QP	
5	*	744.8661	38.55	2.75	41.30	47.00	-5.70	QP	
6		848.0563	30.07	4.39	34.46	47.00	-12.54	QP	

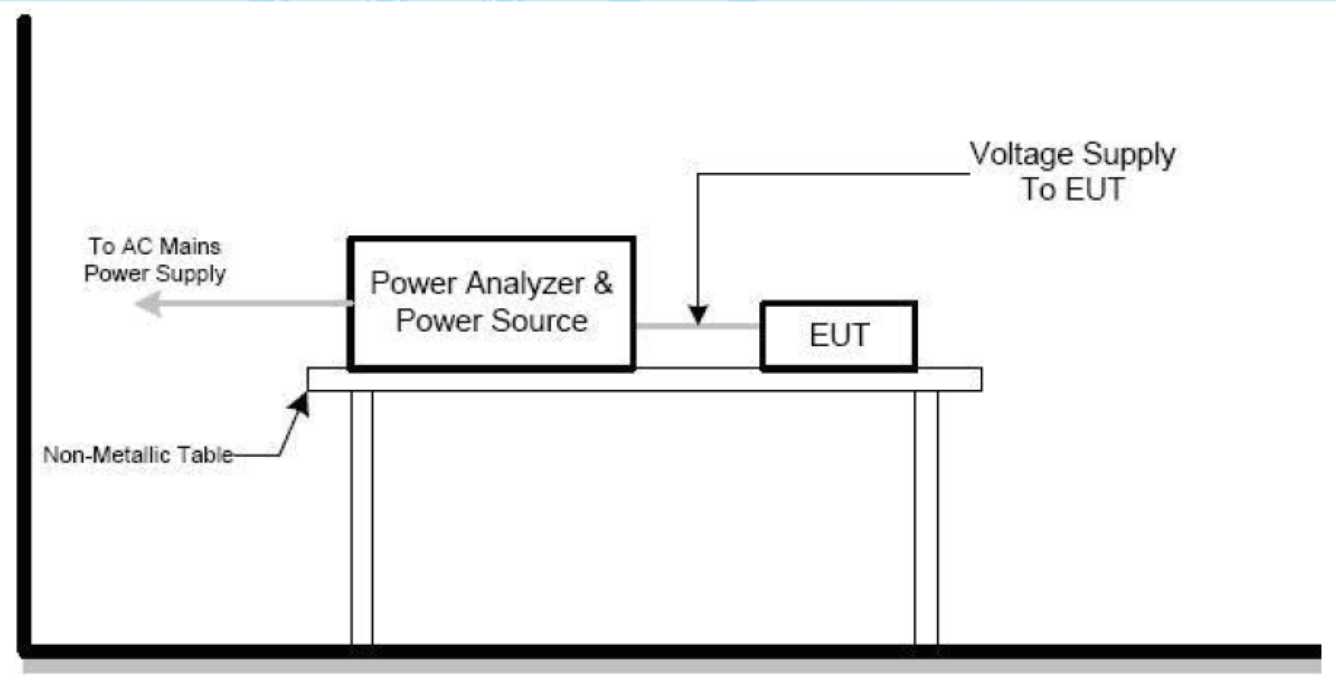
Remark:

Correct Factor=Cable loss+Antenna factor-Preamplifier

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

7. HARMONIC CURRENT EMISSION TEST

7.1 Block Diagram of Test Setup



7.2 Test Standard

EN IEC 61000-3-2

7.3 Operating Condition of EUT

Setup the EUT as shown in Section 7.1.

Turn on the power of all equipment.

Let the EUT work in test mode and test it.

7.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

7.5 Test Results

PASS

8. VOLTAGE FLUCTUATIONS & FLICKER TEST

8.1 Block Diagram of Test Setup

Same as Section 7.1.

8.2 Test Standard

EN 61000-3-3

8.3 Operating Condition of EUT

Same as Section 8.3. The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

Flicker Test Limit

Test items	Limits
Pst	1.0
dc	3.3%
Tmax	4.0%
dt	Not exceed 3.3% for 500ms

8.4 Test Procedure

The power cord of the EUT is connected to the output of the test system. Turn on the power of the EUT and use the test system to test the harmonic current level.

8.5 Test Results

Flicker Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Test Voltage:	AC 415V/50Hz	Test Mode:	Mode 1

Voltage Fluctuation	Limit	Value
Relative Voltage Change Characteristic Tmax （dc＞3%）	500 ms	0 ms
Maximum Relative Voltage Change dmax	4%	0.00
	6%	/
	7%	/
Relative Steady-state Voltage Change dc	3.3%	0.00

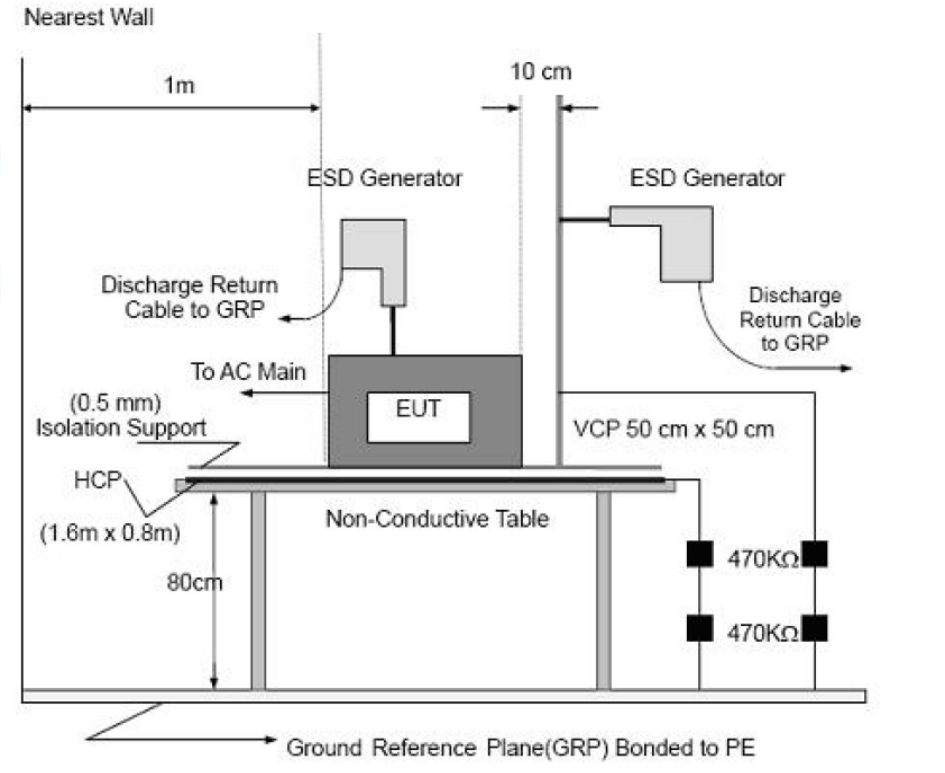
Flicker	Limit	Value
Short-term Flicker Indicator Pst	1.0	0.063
Long-term Flicker Indicator Plt	0.65	/

9. IMMUNITY TEST OF GENERAL THE PERFORMANCE CRITERIA

Product Standard	EN 61851-21-2
CRITERION A	The EUT shall continue to operate as intended within the tolerances defined by the EUT manufacturer during and after the application of the appropriate tests. It shall not change the state in which it is operating (i.e. charging shall continue if in charge mode and shall remain idle if in waiting mode). NOTE A change of state includes the control/communication lines of the CPT port and any change in charging current for DC charging (beyond the tolerance defined by the manufacturer).
CRITERION B	The EUT shall continue to operate as intended within the tolerances defined by the EUT manufacturer at the completion of the applicable tests. Additionally, during the application of the appropriate tests the primary functions of the charger shall be maintained (within the tolerances defined by the EUT manufacturer). Secondary functions (for example displays, etc.) may degrade in performance during the test but shall resume to the original condition subsequent to testing. Subsequent to the application of the applicable test, the EUT shall not have changed the state in which it is operating (i.e. charging shall continue if in charge mode and shall remain idle if in waiting mode). NOTE A change of state includes the control/communication lines of the CPT port and any change in charging current for DC charging (beyond the tolerance defined by the charging equipment manufacturer).
CRITERION C	During and after completion of the appropriate tests, the EUT can change to a failsafe condition. This state requires user intervention to restart the charge cycle or the automatic resumption of charging if the safety conditions have been fulfilled as defined in IEC 61 851 -1 :201 7 (simplified mode 3).

10. ELECTROSTATIC DISCHARGE IMMUNITY TEST

10.1 Block Diagram of Test Setup



10.2 Test Standard

EN 61851-21-2, EN 61000-4-2

10.3 Severity Levels and Performance Criterion

Severity Level: 3 / Air Discharge: ±8KV

Level: 2 / Contact Discharge: ±4KV

Performance criterion: B

10.4 Test Procedure

a. Electrostatic discharges were applied only to those points and surfaces of the Product that are accessible to users during normal operation.

b. The test was performed with at least ten single discharges on the pre-selected points in the most sensitive polarity.

c. The time interval between two successive single discharges was at least 1 second.

d. The ESD generator was held perpendicularly to the surface to which the discharge was applied and the return cable was at least 0.2 meters from the Product.

e. Contact discharges were applied to the non-insulating coating, with the pointed tip of the generator penetrating the coating and contacting the conducting substrate.

f. Air discharges were applied with the round discharge tip of the discharge electrode approaching the Product as fast as possible (without causing mechanical damage) to touch the Product. After each discharge, the ESD generator was removed from the Product and re-triggered for a new single discharge. The test was repeated until all discharges were complete.

g. At least ten single discharges (in the most sensitive polarity) were applied to the Horizontal Coupling Plane at points on each side of the Product. The ESD generator was positioned vertically at a distance of 0.1 meters from the Product with the discharge electrode touching the HCP.

h. At least ten single discharges (in the most sensitive polarity) were applied to the center of one vertical edge of the Vertical Coupling Plane in sufficiently different positions that the four faces of the Product were completely illuminated. The VCP (dimensions 0.5m x 0.5m) was placed vertically to and 0.1 meters from the Product.

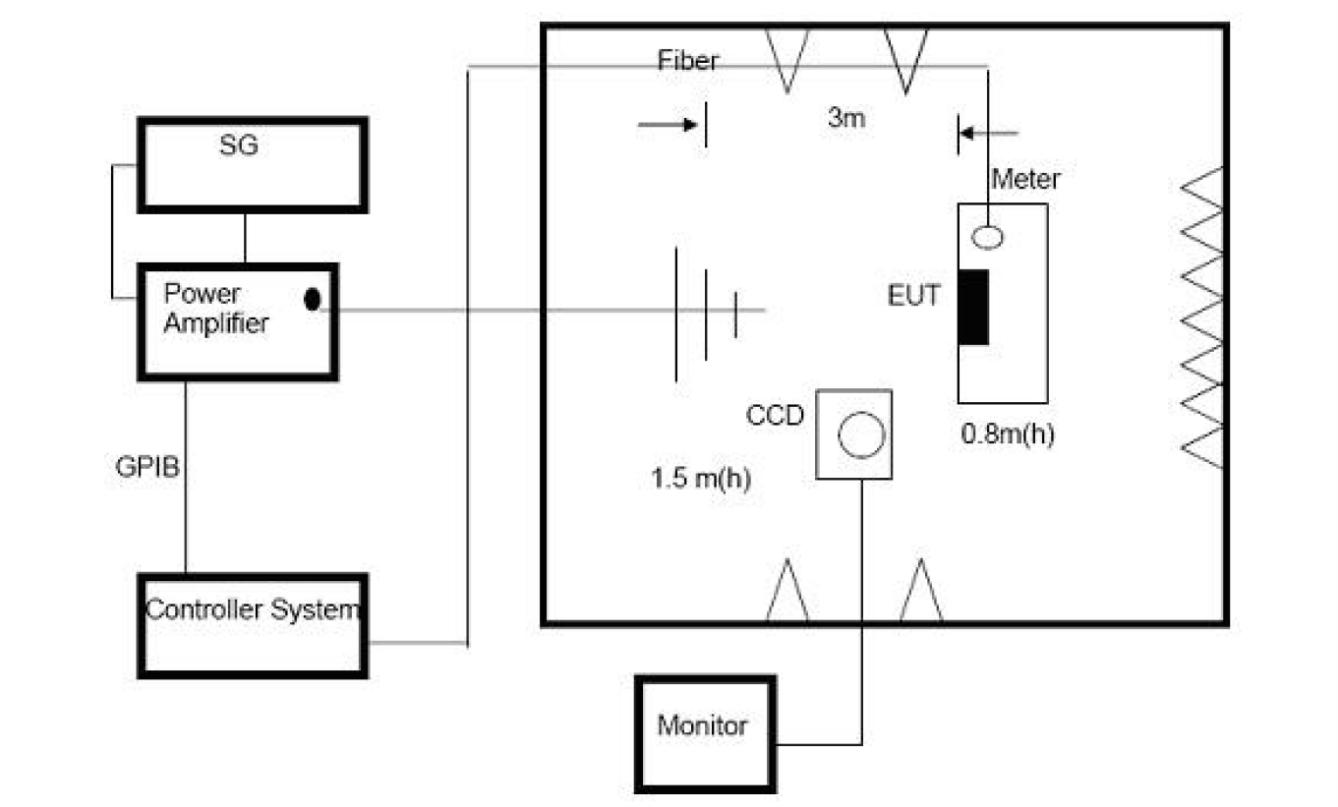
10.5 Test Results

PASS

Electrostatic Discharge Test Data					
Temperature:	25.1℃		Humidity:	55%	
Power Supply:	AC 415V/50Hz		Test Mode:	Mode 1	
Discharge Method	Discharge Position	Voltage (±kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Result
Contact Discharge	Conductive Surfaces	4	25	B	Pass
	Indirect Discharge HCP	4	25	B	Pass
	Indirect Discharge VCP	4	25	B	Pass
Air Discharge	Slots, Apertures, and Insulating Surfaces	8	10	B	Pass
Note: N/A					

11. RF FIELD STRENGTH SUSCEPTIBILITY TEST

11.1 Block Diagram of Test Setup



11.2 Test Standard

EN 61851-21-2, EN IEC 61000-4-3

11.3 Severity Levels and Performance Criterion

Severity Level 3, 10V / m

Performance criterion: A

11.4 Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually.

All the scanning conditions are as follows:

Condition of Test	Remarks
Fielded Strength	10 V/m (Severity Level 3)
Radiated Signal	Modulated
Scanning Frequency	80 – 1000 MHz
Dwell time of radiated	0.0015 decade/s
Waiting Time	1 Sec.

11.5 Test Results

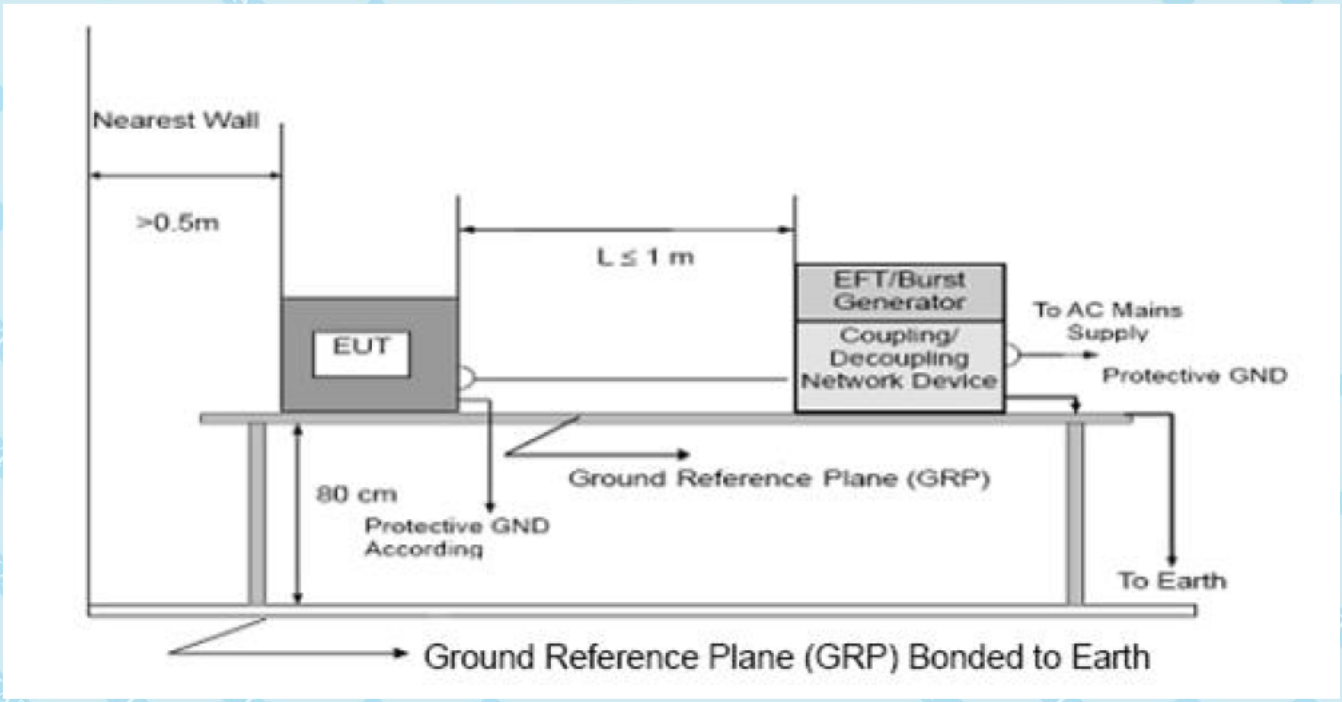
PASS

R/S Test Data				
Temperature:	25.1℃	Humidity:	55%	
Power Supply:	AC 415V/50Hz	Test Mode:	Mode 1	
Criterion:	A	Steps	1 %	
Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Result
80 – 1000	Front, Right, Back, Left	10	A	Pass
1400 2000	Front, Right, Back, Left	3	A	
2000 2700	Front, Right, Back, Left	3	A	
Note: N/A				

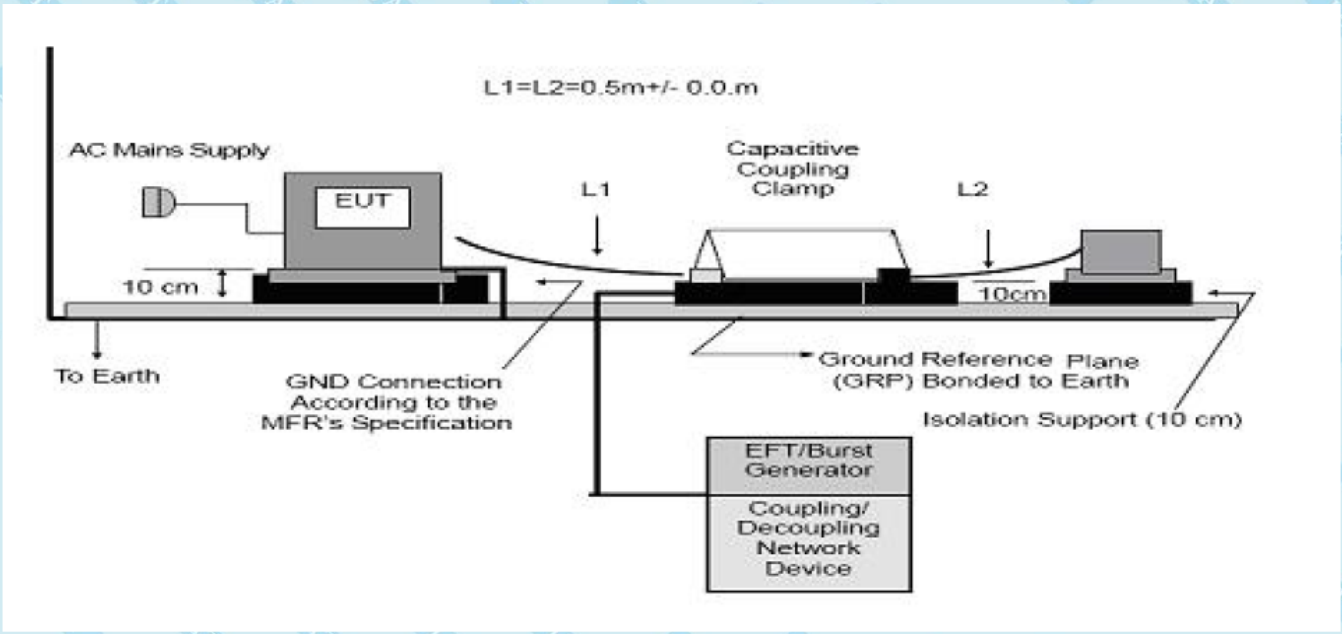
12.ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST

12.1 Block Diagram of EUT Test Setup

For input a.c. / d.c. power port:



For signal lines and control lines:



12.2 Test Standard

EN 61851-21-2, EN 61000-4-4

12.3 Severity Levels and Performance Criterion

Severity Level 2 at 4KV, Pulse Rise time & Duration: 5 nS / 50 nS

Performance criterion: B

12.4 Test Procedure

EUT shall be placed 0.8m high above the ground reference plane which is a min.1m*1m metallic sheet with 0.65mm minimum thickness. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m

For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.

12.5 Test Results

PASS

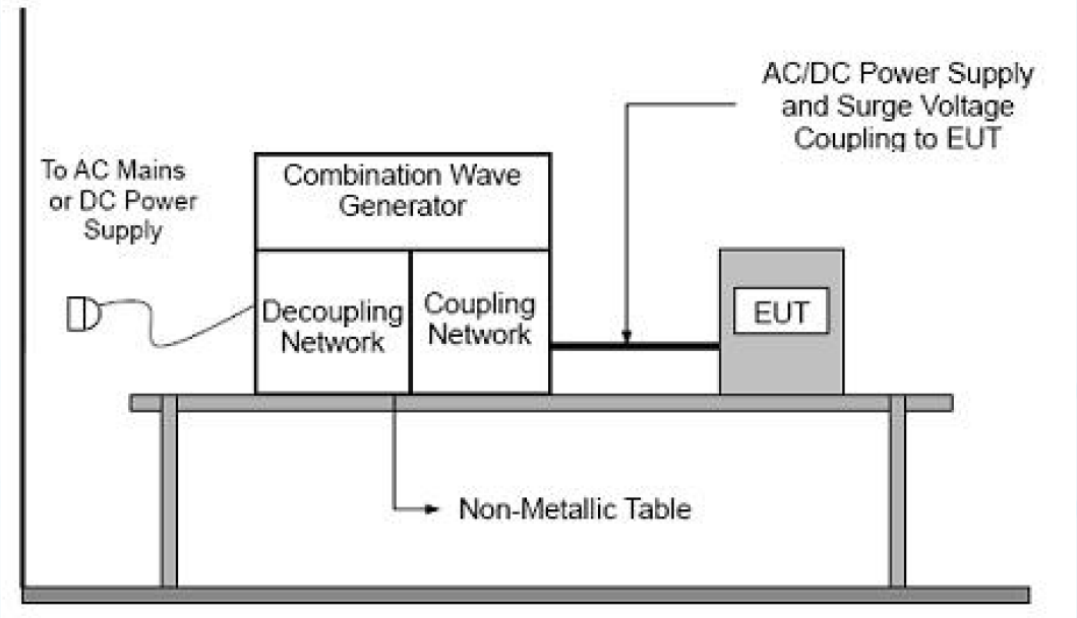
EFT Test Data			
Temperature:	24.5℃	Humidity:	53%
Power Supply:	AC 415V/50Hz	Test Mode:	Mode 1

Coupling Line	Test Voltage (kV)	Performance Criterion	Result
L	±1, 2, 3, 4	B	PASS
N	±1, 2, 3, 4	B	PASS
L-N	±1, 2, 3, 4	B	PASS

Note: N/A

13.SURGE TEST

13.1 Block Diagram of EUT Test Setup



13.2 Test Standard

EN 61851-21-2, EN 61000-4-5

13.3 Severity Levels and Performance Criterion

Severity Level: Line to Line, Level 2 at 2KV;

Severity Level: Line to Earth, Level 3 at 4KV.

Performance criterion: B

13.4 Test Procedure

1) Set up the EUT and test generator as shown on section 11.1

2) For line-to-line coupling mode, provide a 1KV 1.2/50us voltage surge (at open-circuit condition) and 8/20us current surge to EUT selected points.

3) At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.

4) Different phase angles are done individually.

5) Repeat procedure 2) to 4) except the open-circuit test voltage change from 1KV to 2KV for line to earth coupling mode test.

6) Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

13.5 Test Result

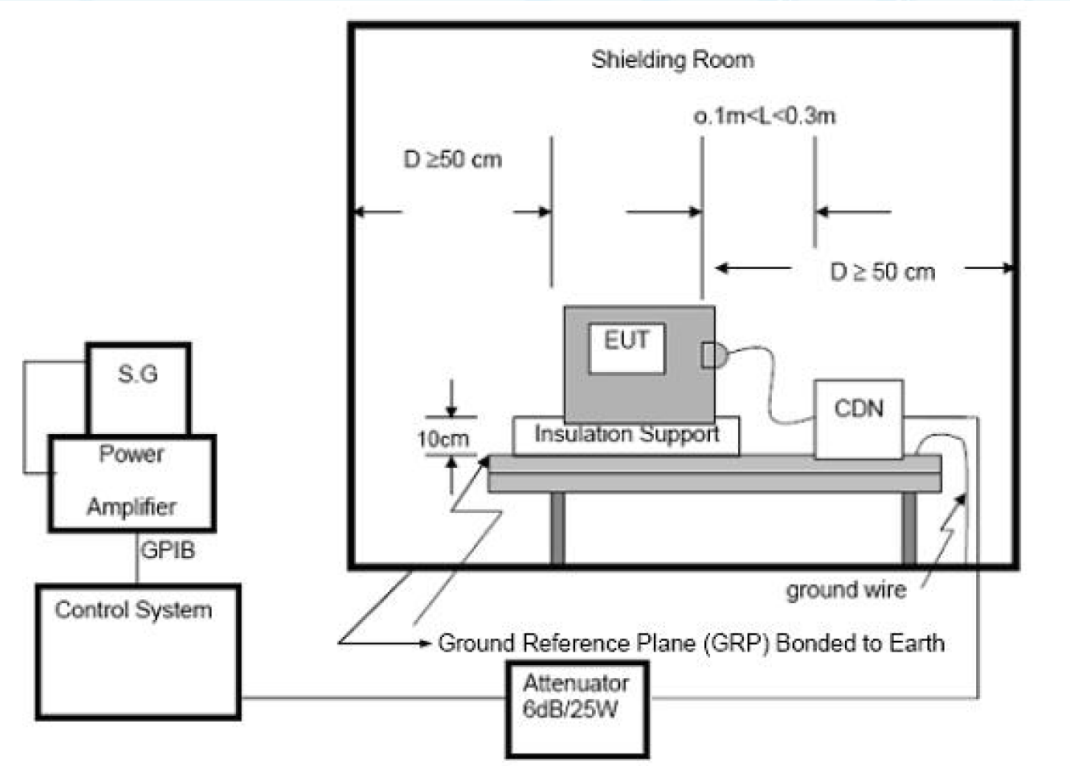
PASS

Surge Test Data						
Temperature:	24.5℃		Humidity:	53%		
Power Supply:	AC 415V/50Hz		Test Mode:	Mode 1		
Location	Polarity	Phase Angle	No of Pulse	Pulse Voltage (KV)	Performance Criterion	Result
L-N	±	0, 90, 180, 270	5	1,2	B	Pass
Note: N/A						

14.INJECTED CURRENTS SUSCEPTIBILITY TEST

14.1 Block Diagram of EUT Test Setup

For input a.c. / d.c. power port:



14.2 Test Standard

EN 61851-21-2, EN IEC 61000-4-6

14.3 Severity Levels and Performance Criterion

Severity Level 2: 10V(rms), 150KHz ～ 80MHz

Performance criterion: A

14.4 Test Procedure

1) Set up the EUT, CDN and test generator as shown on section 12.1

2) Let EUT work in test mode and measure.

3) The EUT and supporting equipments are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane at above 0.1-0.3m 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).

4) The disturbance signal described below is injected to EUT through CDN.

5) The EUT operates within its operational mode(s) under intended climatic conditions after power on.

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

7) 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.

8) Recording the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

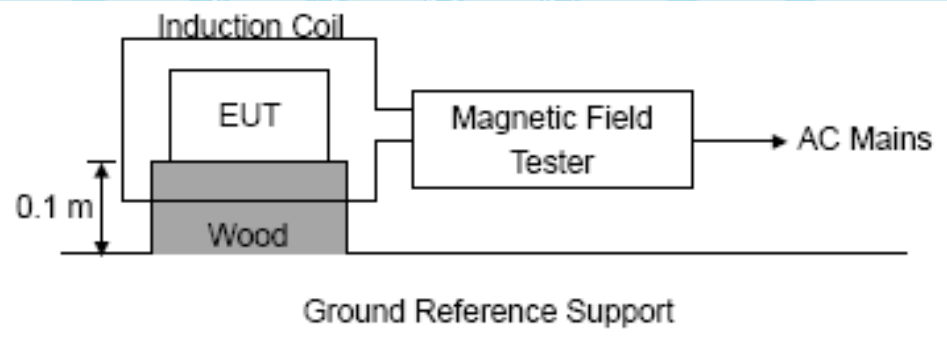
14.5 Test Result

PASS

CS Test Data						
Temperature:		24.5℃		Humidity:		53%
Power Supply:		AC 415V/50Hz		Test Mode:		Mode 1
Frequency Range (MHz)	Injected Position	Strength	Modulation Signal	Freq. Step	Performance Criterion	Result
0.15 ~ 80	AC Line	10V(rms), Unmodulated	AM 80%, 1kHz sine wave	1%	A	Pass
150KHz ~ 80MHz	DC Line, Signal Line	3V(rms), Unmodulated	AM 80%, 1kHz sine wave	1%	/	/
Note: N/A						

15.MAGNETIC FIELD IMMUNITY TEST

15.1 Block Diagram of EUT Test Setup



15.2 Test Standard

EN 61851-21-2, EN 61000-4-8

15.3 Severity Levels and Performance Criterion

Severity Level 4: 10A/m

Performance criterion: B

15.4 Test Procedure

The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 13.1. The induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations.

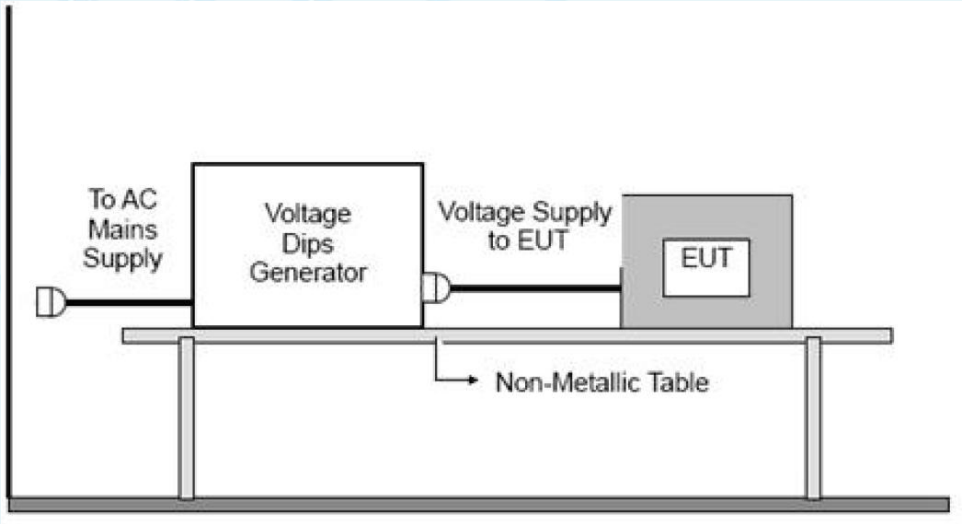
15.5 Test Result

PASS

MS Test Data					
Temperature:	24.5℃		Humidity:	53%	
Power Supply:	AC 415V/50Hz		Test Mode:	Mode 1	
Environmental Phenomena	Test specification	Units	Coil Orientation	Performance Criterion	Result
Magnetic Field	30	A/m	X	A	PASS
			Y	A	PASS
			Z	A	PASS
Note: N/A					

16.VOLTAGE DIPS AND INTERRUPTIONS TEST

16.1 Block Diagram of EUT Test Setup



16.2 Test Standard

EN 61851-21-2, EN IEC 61000-4-11

16.3 Severity Levels and Performance Criterion

Input and Output AC Power Ports.

☑ Voltage Dips.

☑ Voltage Interruptions.

Environmental Phenomena	Test Specification	Units	Performance Criterion
Voltage Dips	100 0.5	% Reduction period	C
	60 10	% Reduction period	C
	30 25	% Reduction period	C

16.4 Test Procedure

1) Set up the EUT and test generator as shown on section 14.1

2) The interruption is introduced at selected phase angles with specified duration. There is a 3mins minimum interval between each test event.

3) After each test a full functional check is performed before the next test.

4) Repeat procedures 2 & 3 for voltage dips, only the level and duration is changed.

5) Record any degradation of performance.

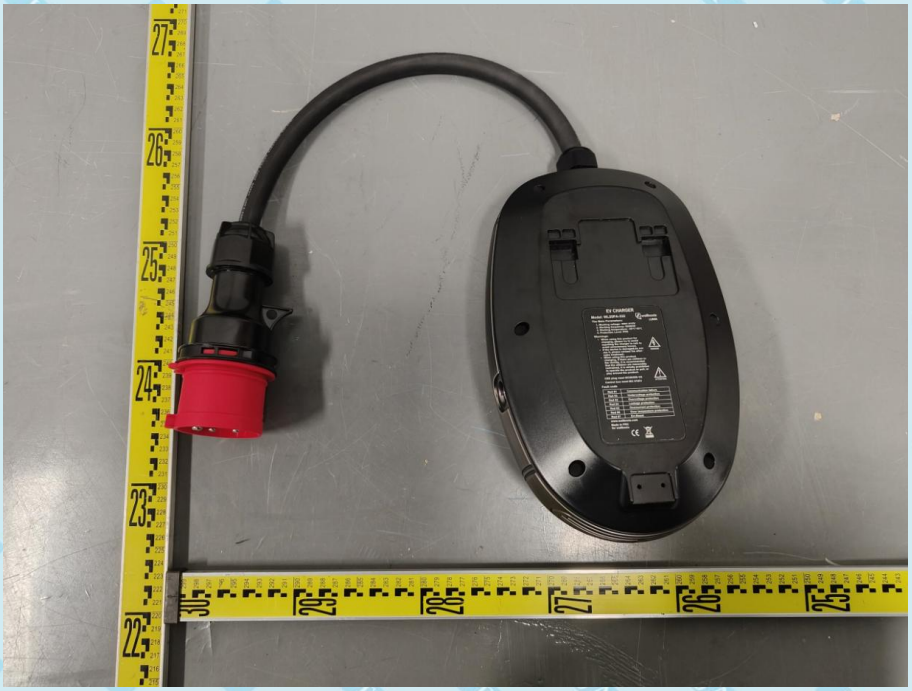
16.5 Test Result

PASS

DIPS Test Data				
Temperature:	24.5℃	Humidity:	53%	
Power Supply:	AC 415V/50Hz	Test Mode:	Mode 1	
Environmental Phenomena	Test Specification	Units	Performance Criterion	Result
Voltage Dips	40 0.5	% Reduction period	B	Pass
	70 25	% Reduction period	B	Pass
	0 1	% Reduction period	B	Pass
Voltage Interruptions	100 250	% Reduction period	C	Pass
Note: N/A				

17. EUT PHOTOGRAPHS



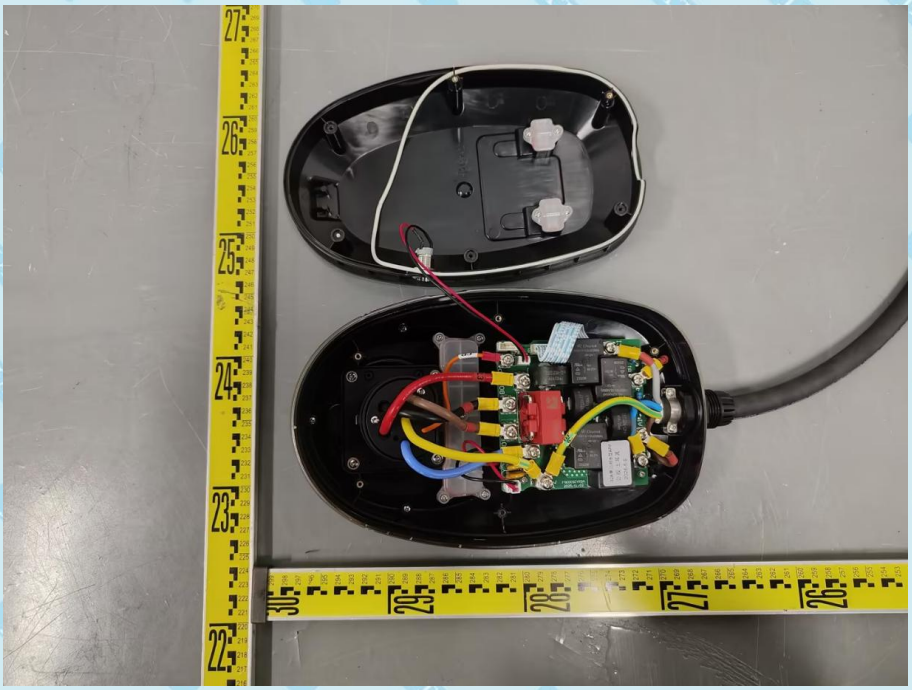


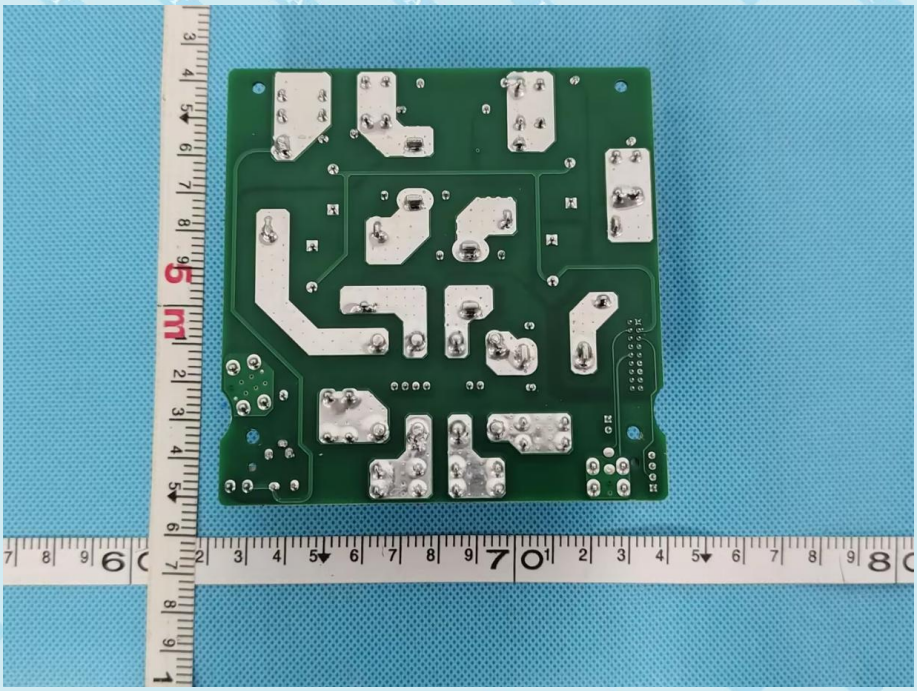

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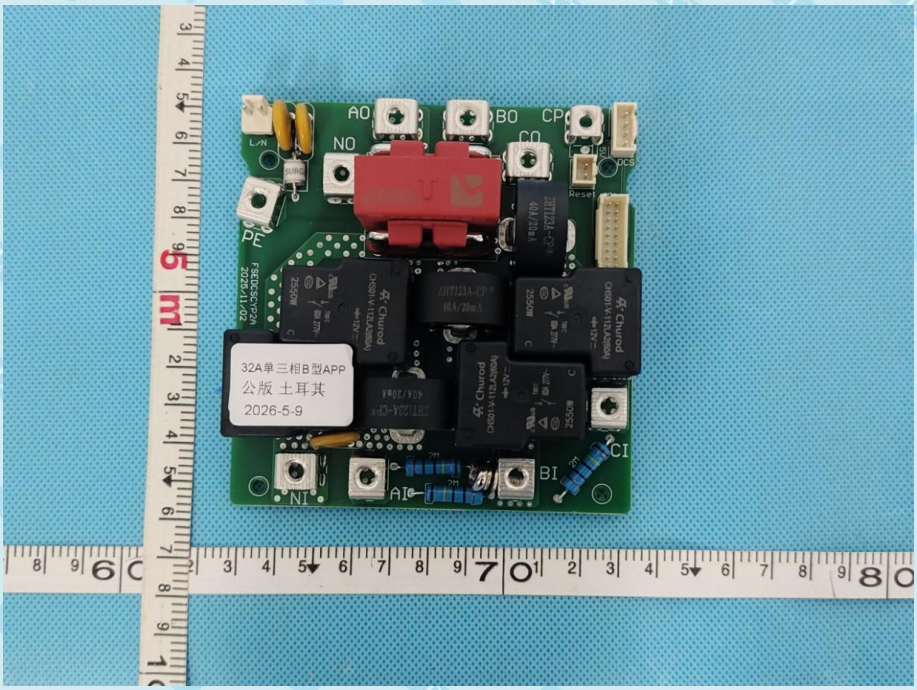

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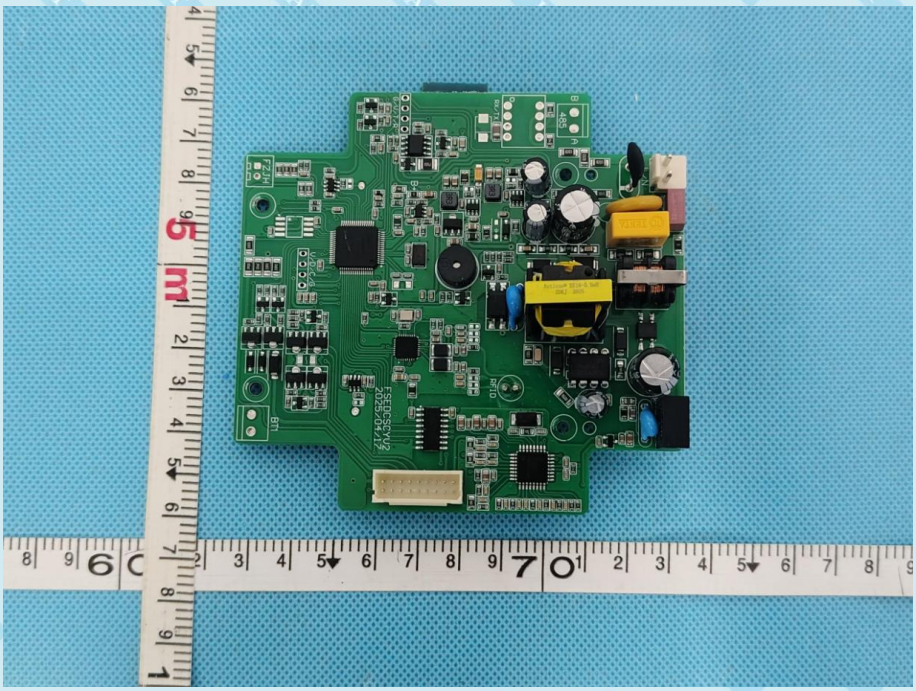

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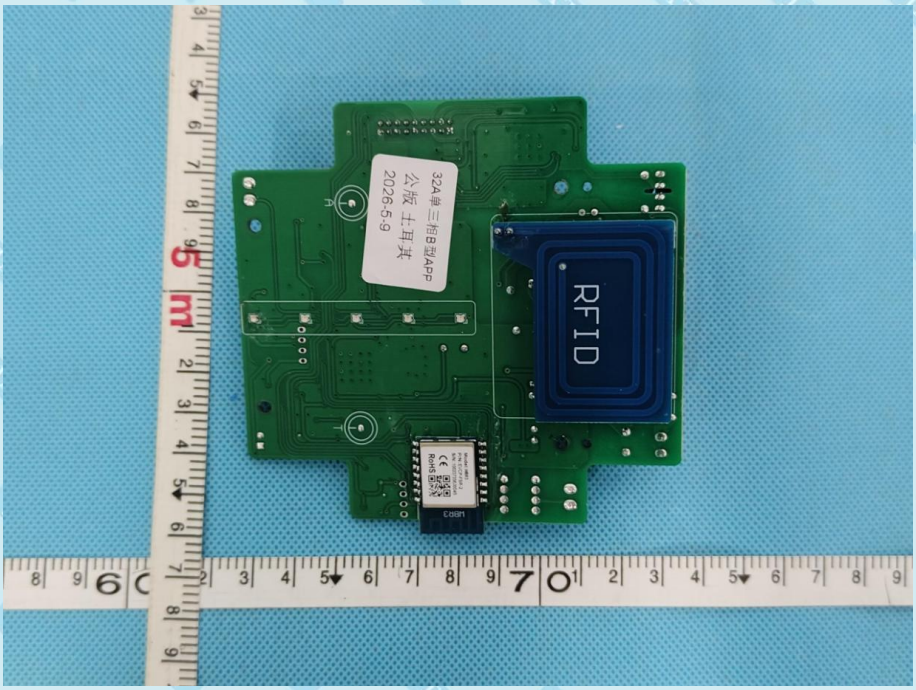


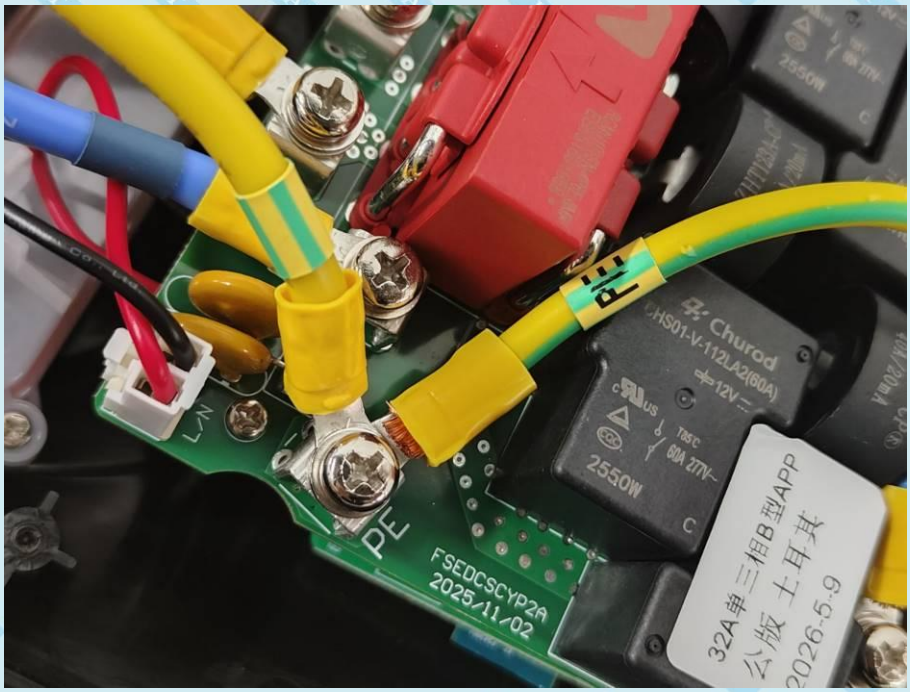





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