EMC TEST REPORT

Applicant	:	Guangzhou Felicity Solar Technology Co., Ltd.
Address	:	(Airport Baiyun)No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P. R. China
Manufacturer	:	Guangzhou Felicity Solar Technology Co., Ltd.
Address	:	(Airport Baiyun)No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P. R. China
Factory	:	Guangzhou Felicity Solar Technology Co., Ltd.
Address	:	(Airport Baiyun)No.2, 4, 6, 8, 10 and 12 Donghua Huaye Road, Renhe Town, Baiyun District, Guangzhou, Guangdong, P. R. China
Product Name	:	Hybrid Inverter
Brand Name	:	Felicitysolar®
Model No.	:	IVGM8KLP2G1-SA, IVGM8KLP2G1, IVGM8KLP1G1, IVGM7K6LP2G1-SA, IVGM7K6LP2G1, IVGM7K6LP1G1, IVGM6KLP2G1-SA, IVGM6KLP2G1, IVGM6KLP1G1, IVGM5KLP2G1-SA, IVGM5KLP2G1, IVGM5KLP1G1
Standard	:	EN 61000-3-12:2011+A1:2024 / IEC 61000-3-12:2011+A1:2021 EN IEC 61000-3-11:2019 / IEC 61000-3-11:2017
Date of Receiving Samples	:	June 27, 2025
Date of Test	:	July 21, 2025
Date of Report	:	May 11, 2026

This Test Report is Issued Under the Authority of :

Prepared by

Jason Liu

Jason Liu / Engineer

Approved & Authorized Signer

Han Song / Authorized Signatory

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Shenzhen Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.

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Shenzhen, Guangdong, 518057, China

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Revision History of This Test Report

Report Number	Description	Issued Date
SZNTC2605030EV00	Initial Issue	2026-05-11
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1.SUMMARY OF TEST RESULTS

The E.U.T. has been tested according to the following specifications:

EMISSION			
Standard	**Test Type**	**Result**	**Remarks**
EN 61000-3-12:2011+ A1:2024	Harmonic Current Emission Measurement	PASS	This data is sourced from the report SZNTC2512074EV00.
EN IEC 61000-3-11: 2019	Voltage Fluctuations & Flicker Measurement	PASS	This data is sourced from the report SZNTC2512074EV00.

2.GENERAL INFORMATION

2.1.Product Information

Product Name:	Hybrid Inverter
Main Model No.:	IVGM8KLP1G1
Additional Model Name:	IVGM8KLP2G1-SA, IVGM8KLP2G1, IVGM7K6LP2G1-SA, IVGM7K6LP2G1, IVGM7K6LP1G1, IVGM6KLP2G1-SA, IVGM6KLP2G1, IVGM6KLP1G1, IVGM5KLP2G1-SA, IVGM5KLP2G1, IVGM5KLP1G1
Description of model difference:	1. The same type productions have the same circuitry, PCB layout and physical construction, the difference is the model name and the power. 2. IVGM8KLP2G1-SA, IVGM8KLP2G1, IVGM7K6LP2G1-SA, IVGM7K6LP2G1, IVGM6KLP2G1-SA, IVGM6KLP2G1, IVGM5KLP2G1-SA, IVGM5KLP2G1. Those models are powered by a split-phase system. The EN IEC 61000-3-11 and EN 61000-3-12 regulations do not apply. 3. According to the model differences. We tested all items at IVGM8KLP1G1.
Typical arrangement:	Tabletop or Wall-Mounted
Highest Internal Frequency:	Below 108MHz(Except WIFI) (Highest internal frequency below 108MHz, radiation test frequency range 30MHz-1000MHz)
Rating:	**IVGM8KLP1G1** Product Type: Hybrid Inverter Overvoltage-category: DCII; ACIII Ambient Temperture: -25℃~60℃>45℃ Derating **Battery** Battery Voltage Range: 40Vd.c.-60Vd.c. Max. Charging and Discharging Current: 190Ad.c/190Ad.c. Max. Charging and Discharging Power: 8000W **PV** PV Input Voltage: 380Vd.c.(90Vd.c. ~500Vd.c.) MPPT Input Range: 120Vd.c. ~425Vd.c. Max. Input Current: 26Ad.c./26Ad.c. Max. Shorted Current: 44Ad.c./44Ad.c. Max. PV Input Power: 12000W **On-Grid Mode** AC Output Voltage: 230Va.c. AC Output Frequency: 50/60Hz AC Output Rated Current: 34.8Aa.c. Max. Continuous AC Passthrough: 50Aa.c. AC Output Rated Active Power: 8000W Max. Apparent Output Power: 8800VA AC Output Power Factor: 0.8 Leading To 0.8Lagging

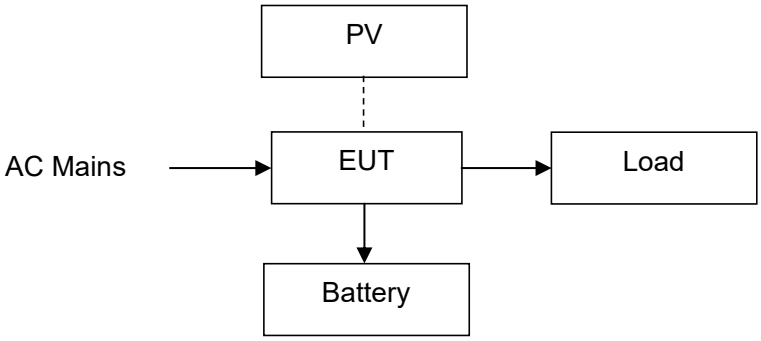
	Off-Grid Mode AC Output Voltage: 230Va.c. AC Output Frequency: 50/60Hz AC Output Rated Current: 34.8Aa.c. Max. AC Output Current: 40Aa.c. AC Output Rated Active Power: 8000W Max. Apparent Output Power: 8800VA Non-isolated topology, IP65,Class I protective class
Sample No.:	SZNTC2506127EV00-001(IVGM8KLP1G1)
Remark:	All the information above is provided by the manufacturer. For more detailed features of the EUT, please refer to the user manual.

2.2.Description of Support Device

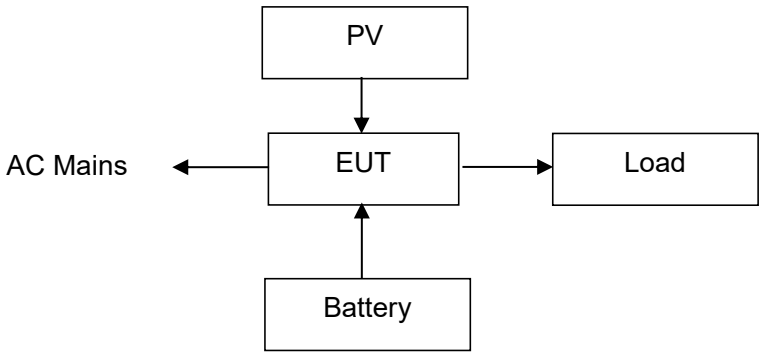
No.	Equipment	Manufacturer	M/N	Description	Remark
1.	Incandescent lamp load	NTC	---	---	Provided by the lab.
2.	Photovoltaic simulator source	ITECH	IT 6018C-1500-40	---	Provided by the lab.
3.	Lead acid Battery	Felicitysolar	G12V 200AH	---	Provided by the lab.
4.	Lead acid battery	VISION GROUP	G12V 200AH	---	Provided by the lab.
5.	AC input cable	---	---	The test uses a 1P/N/PE power cable of 1.0m length without magnetic ring and unshield.	Provided by the lab.
6.	AC output cable	---	---	The test uses a 1P/N/PE power cable of 1.0m length without magnetic ring and unshield.	Provided by the lab.
7.	Battery cable	---	---	The test uses a power cable of 1.0m length without magnetic ring and unshield.	Provided by the lab.

2.3.Block Diagram of Test Setup

Mode 1: AC Charger Mode(AC Input + Battery+ Load）



Mode 2: Grid Mode(Grid+ PV+ Battery+ Load)



2.4.Test Mode

No.	Test Mode	Remark
1.	AC Charger Mode(AC Input + Battery+ Load）	The mains input charges the battery, and the AC output connects to an analog load.
2.	Grid Mode (Grid+ PV+ Battery+ Load)	PV and the battery are fed into the AC grid, and the AC output is connected to the analog load.

2.5.Test Conditions

No.	Test Item	Test Mode	Test Voltage	Tested by	Remarks
1.	Harmonic Current Emission	1-2	AC 230V 50Hz	Chenrongbin	See note 1&3
2.	Voltage Fluctuations & Flicker	1-2	AC 230V 50Hz	Chenrongbin	See note 1&3

Note:
1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35°C, 30~70%, 86~106kPa.
2. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35°C, 30~60%, 86~106kPa.
3. Only the worst data were recorded on the report.
4. Only the most stringent limits were recorded on the report.

2.6.Test Facility

Test Site:	Shenzhen Nore Testing Center Co., Ltd.
Accreditations and Authorizations:	The Laboratory is accredited by CNAS (ILAC Member) according to ISO/IEC 17025:2017 with registration number L11038 and valid until May 17, 2030.
Test Site Location:	South, No. 1, Building 10, Maqueling Industrial Zone, Nanshan Shenzhen, Guangdong, 518057, China

2.7.Abnormalities from Standard Conditions

None.

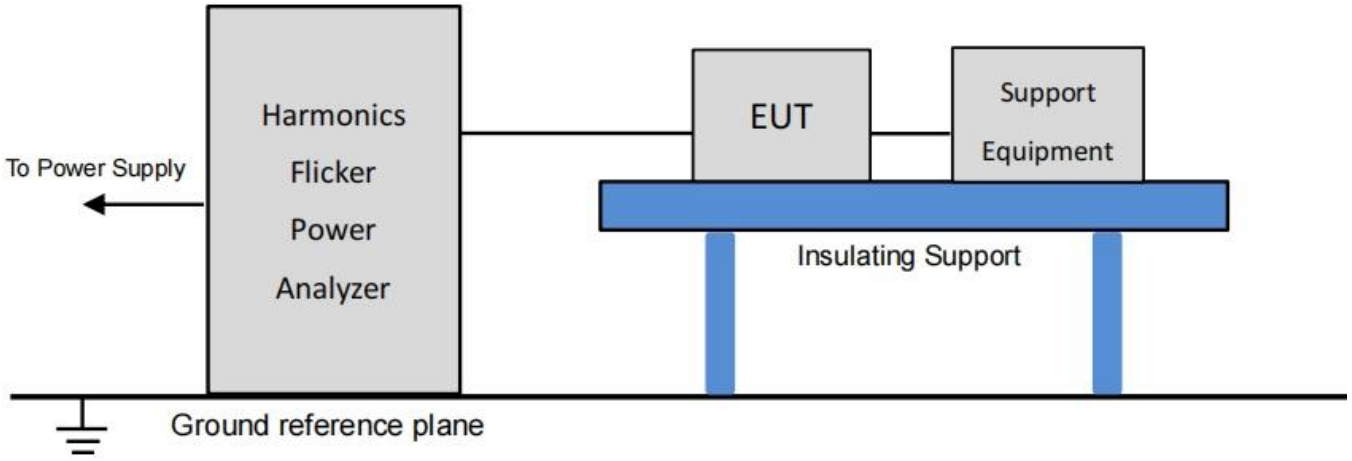
3.MEASURING DEVICES AND TEST EQUIPMENT

3.1.For Harmonic Current/ Flicker Measurement

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☒	Power Analyzer	ZLG	PA600H	N/A	May 18, 2025	1 Year
☒	Current probe	ZLG	ZCS200	N/A	May 18, 2025	1 Year
☒	Flicker Impedance	YANBIXIN	YX91L1-75A-T RD2110008F	N/A	Mar. 22, 2025	1 Year

4.HARMONIC CURRENT EMISSION MEASUREMENT

4.1.Block Diagram of Test Setup



4.2.Test Limits

☒ Limits for equipment other than balanced three-phase equipment

Minimal R_{sce}	Admissible individual harmonic current I_h/I_{ref} [a] %						Admissible harmonic parameters %	
	I_3	I_5	I_7	I_9	I_{11}	I_{13}	THC/ I_{ref}	PWHC / I_{ref}
33	21,6	10,7	7,2	3,8	3,1	2	23	23
66	24	13	8	5	4	3	26	26
120	27	15	10	6	5	4	30	30
250	35	20	13	9	8	6	40	40
≥ 350	41	24	15	12	10	8	47	47
Note: I_{ref} = reference current; I_h = harmonic current component.								

☐ Limits for balanced three-phase equipment

Minimal R_{sce}	Admissible individual harmonic current I_h/I_{ref} [a] %				Admissible harmonic parameters %	
	I_5	I_7	I_{11}	I_{13}	THC/I_{ref}	PWHC/I_{ref}
33	10,7	7,2	3,1	2	13	22
66	14	9	5	3	16	25
120	19	12	7	4	22	28
250	31	20	12	7	37	38
≥ 350	40	25	15	10	48	46
Note: I_{ref} = reference current; I_h = harmonic current component.						

☐ Limits for Class A equipment(≤16A)

Harmonics Order h	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15 ≤ h ≤ 39	0.15×15/h
Even harmonics	
2	1.08
4	0.43
6	0.30
8 ≤ h ≤ 40	0.23×8/h

☐ For Class B equipment:

The harmonics of the input current shall not exceed the values given in Class A equipment multiplied by a factor of 1,5.

☐ Limits for Class C equipment

Harmonics Order h	Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency %
Odd harmonics	
2	2
3	27 [b]
5	10
7	7
9	5
11 ≤ h ≤ 39 (odd harmonics only)	3
a For some Class C products, other emission limits apply (see 7.4). b The limit is determined based on the assumption of modern lighting technologies having power factors of 0,90 or higher.	

☐ Limits for Class D equipment

Harmonics Order h	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15 ≤ h ≤ 39 (Odd harmonics only)	3.85/h	0.15×15/h

For the following categories of equipment limits are not specified in this edition of the standard.

Note: Equipment with a rated power of 75W or less, other than lighting equipment.

The E.U.T. is classified as follows:

Class A:

Balanced three-phase equipment, Household appliances excluding equipment as Class D, Tools excluding portable tools, Dimmers for incandescent lamps, audio equipment ,equipment not specified in one of the three other classes.

Class B:

Portable tools; Arc welding equipment which is not professional equipment.

Class C:

Lighting equipment.

Class D:

Equipment having a specified power less than or equal to 600W of the following types: Personal computers and personal computer monitors and television receivers.

4.3.Test Procedure

a. The EUT was placed on a Insulating support.
b. Configure the EUT and support devices as per section 4.1.
c. Turn on the EUT and all support devices, and make it run stably.
d. Set the EUT to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
e. Set correspondent test program and measurement time of the test system to measure the current harmonics emanated from EUT, and then record the test data.

4.4.Test Results

PASS.

Please refer to the following pages of the worst case.

IVGM8KLP1G1

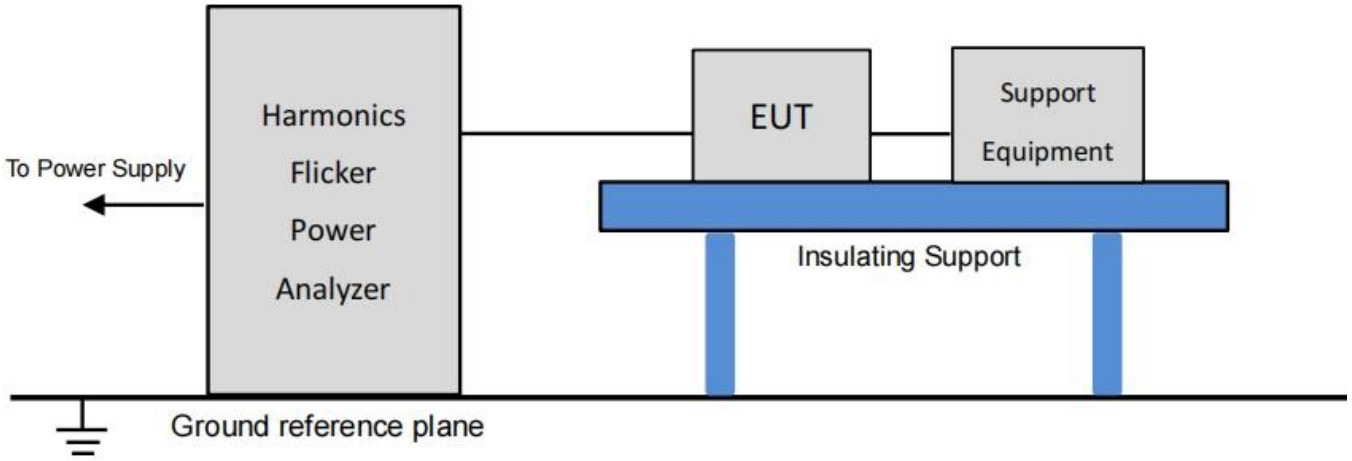
Test Data

Test duration (sec):150			Test Date:		2025-07-21
THC/Iref (%):	2.161	Limit (%): 23.0	PWHC/Iref (%):	0.585	PWHC Limit (%): 23.0
I - THD(%):		2.172	Test mode:		Grid Mode
V_RMS(Volts):		229.41	Frequency(Hz):		50
I_RMS(A):		39.06	Power Factor:		0.999
Power(Watts):		8951.79	Minimum Rsce:		33

Harm#	Harms(filtered)(A)	Limit (A)	Ih/Iref%	Limit(Ih/Iref) %	Status
1	38.8740				
2	0.0223	3.1248	0.0571	8.0000	Pass
3	0.8222	8.4370	2.1049	21.6000	Pass
4	0.0111	1.5624	0.0284	4.0000	Pass
5	0.0749	4.1794	0.1919	10.7000	Pass
6	0.0103	1.0156	0.0264	2.6000	Pass
7	0.1358	2.8123	0.3476	7.2000	Pass
8	0.0064	0.7812	0.0165	2.0000	Pass
9	0.0129	1.4843	0.0329	3.8000	Pass
10	0.0067	0.6250	0.0172	1.6000	Pass
11	0.0824	1.2109	0.2111	3.1000	Pass
12	0.0064	0.5078	0.0164	1.3000	Pass
13	0.0511	0.7812	0.1309	2.0000	Pass
14	0.0056	N/A		N/A	N/A
15	0.0134	N/A		N/A	N/A
16	0.0054	N/A		N/A	N/A
17	0.0100	N/A		N/A	N/A
18	0.0050	N/A		N/A	N/A
19	0.0178	N/A		N/A	N/A
20	0.0068	N/A		N/A	N/A
21	0.0229	N/A		N/A	N/A
22	0.0058	N/A		N/A	N/A
23	0.0146	N/A		N/A	N/A
24	0.0058	N/A		N/A	N/A
25	0.0069	N/A		N/A	N/A
26	0.0058	N/A		N/A	N/A
27	0.0082	N/A		N/A	N/A
28	0.0055	N/A		N/A	N/A
29	0.0090	N/A		N/A	N/A
30	0.0049	N/A		N/A	N/A
31	0.0076	N/A		N/A	N/A
32	0.0051	N/A		N/A	N/A
33	0.0103	N/A		N/A	N/A
34	0.0050	N/A		N/A	N/A
35	0.0061	N/A		N/A	N/A
36	0.0046	N/A		N/A	N/A
37	0.0070	N/A		N/A	N/A
38	0.0046	N/A		N/A	N/A
39	0.0054	N/A		N/A	N/A
40	0.0062	N/A		N/A	N/A

5.VOLTAGE FLUCTUATIONS & FLICKER MEASUREMENT

5.1.Block Diagram of Test Setup



5.2.Test Limits

Test Item	Limit
P_{st} (Short-term flicker indicator.)	1.0
P_{lt} (Long-term flicker indicator.)	0.65
T-max(ms) (Maximum time that d(t) exceeds 3.3%)	500
d_{max}(%) (Maximum relative voltage change.)	4
d_c(%) (Relative steady-state voltage change)	3.3

5.3.Test Procedure

a. The EUT was placed on a Insulating support.
b. Configure the EUT and support devices as per section 5.1.
c. Turn on the EUT and all support devices, and make it run stably.
d. Set the EUT to produce the most unfavorable sequence of voltage changes under normal operating conditions.
e. Set correspondent test program and measurement time of the test system to measure the most unfavorable sequence of voltage changes from EUT, and then record the test data.

5.4.Test Results

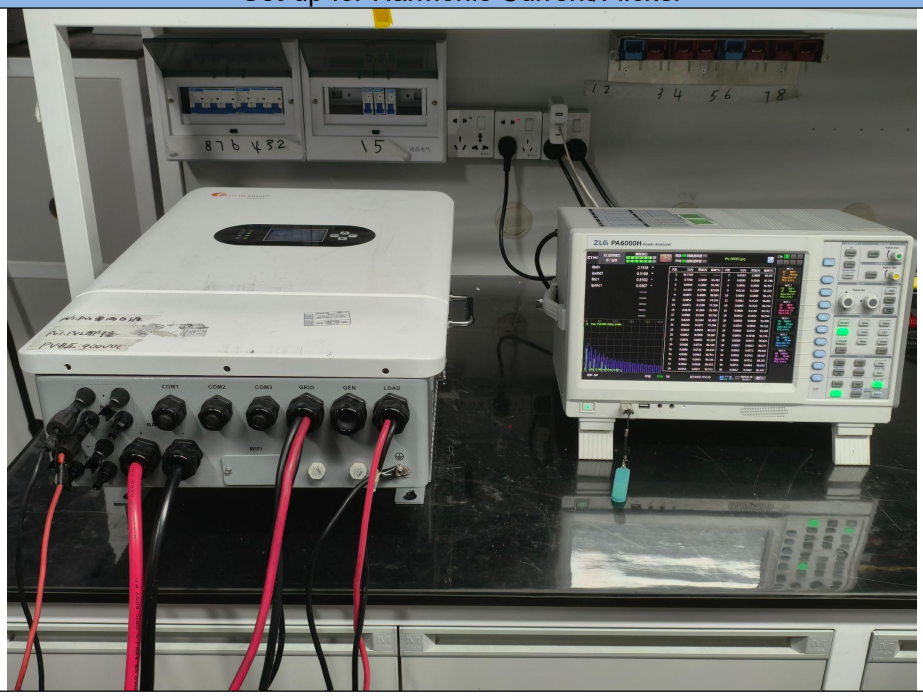
PASS.

Please refer to the following pages of the worst case.

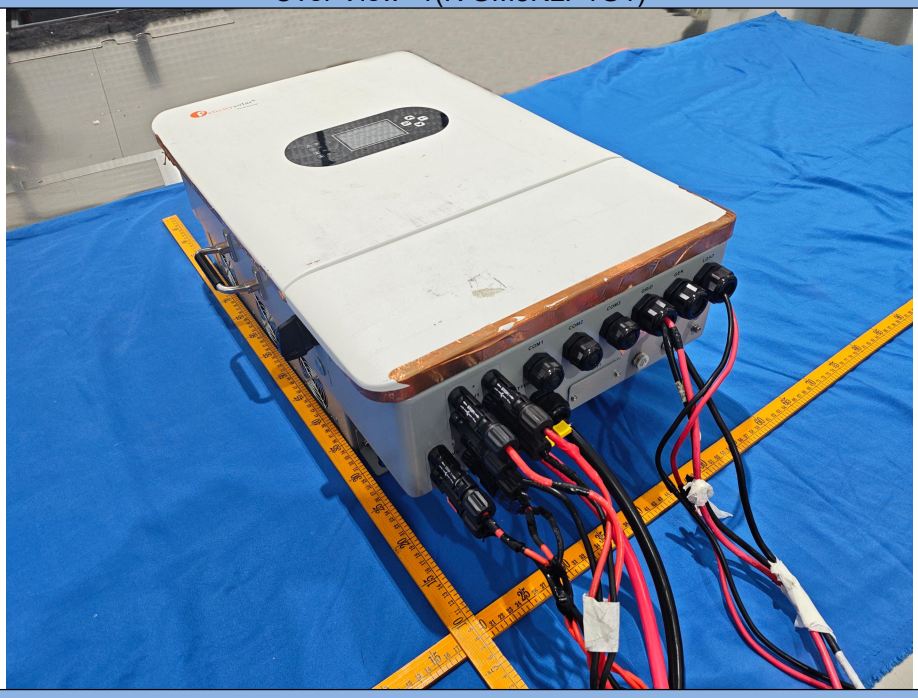
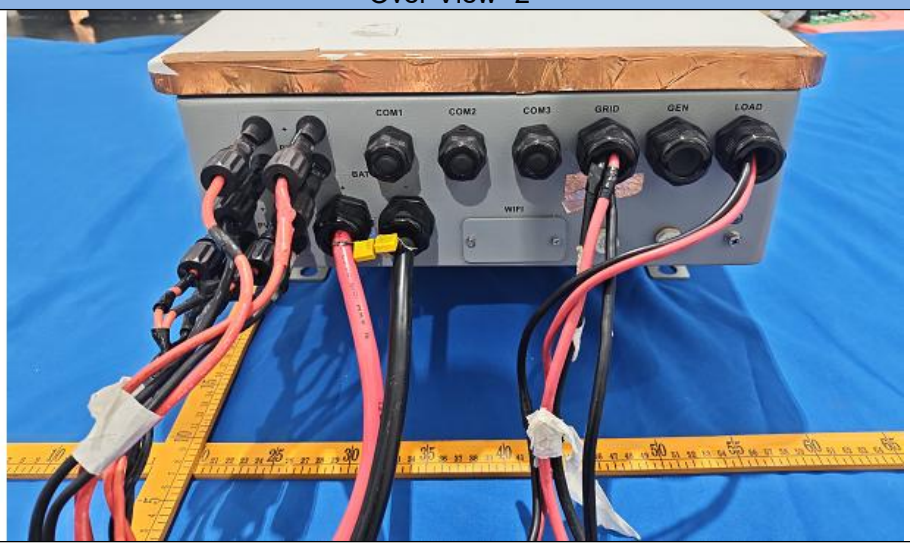
IVGM8KLP1G1

Test Data				
Test duration (sec): 600			Test mode: Grid Mode	
Test date: 2025-07-21				
V_RMS(Volts):	229.20	Frequency(Hz)：	50	
I_RMS(A):	39.26	Power Factor:	0.999	
Power(Watts):	8989.39			
Result:	Measured value		Test Limit	Status
T-Max:	0.000		500.000	Pass
Highest dc (%):	0.124		3.300	Pass
Highest dmax (%):	0.519		4.000	Pass
Highest Pst (10 min. period):	0.050		1.000	Pass
Highest Plt (2 hr. period):	0.026		0.650	Pass

APPENDIX I - PHOTOS OF TEST SET-UP

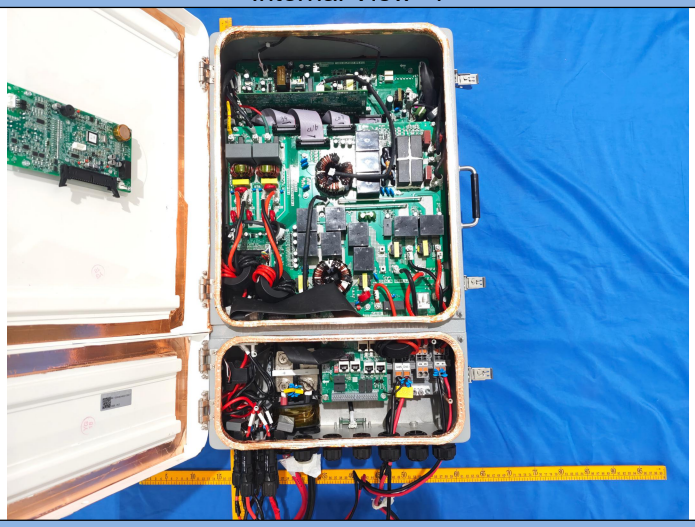
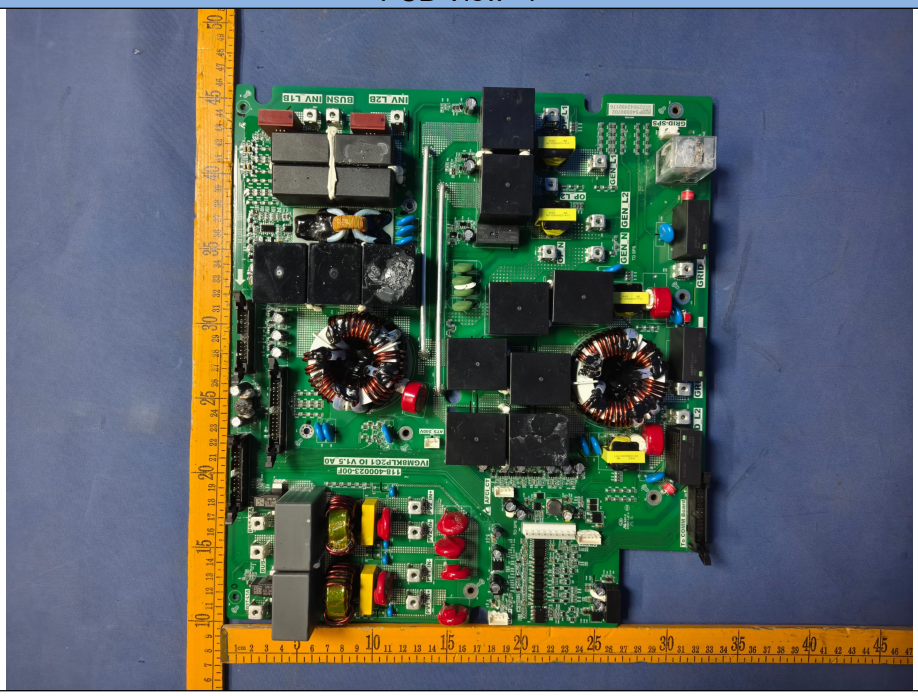
Set-up for Harmonic Current/Flicker


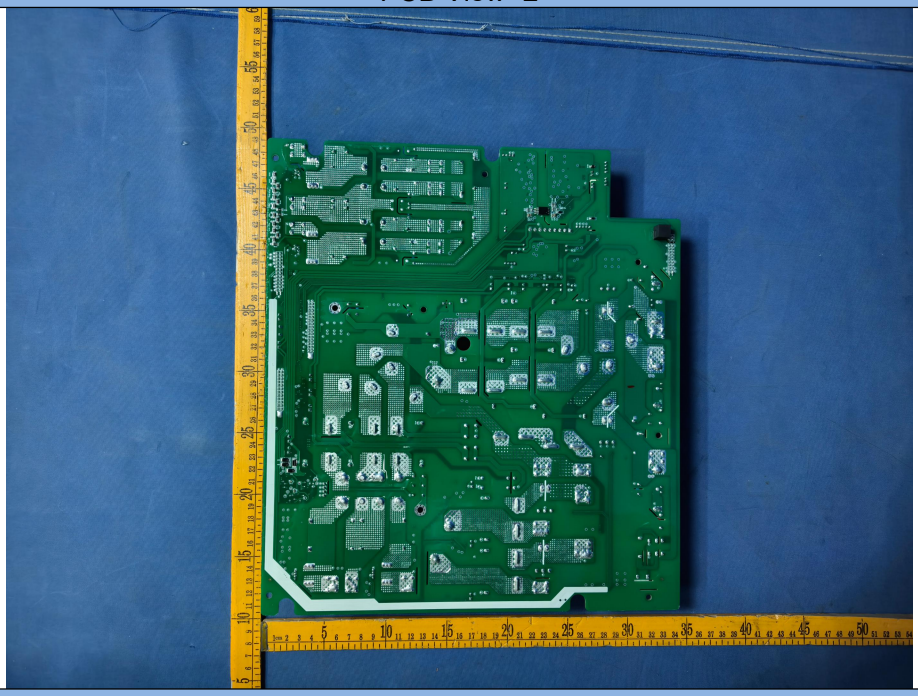
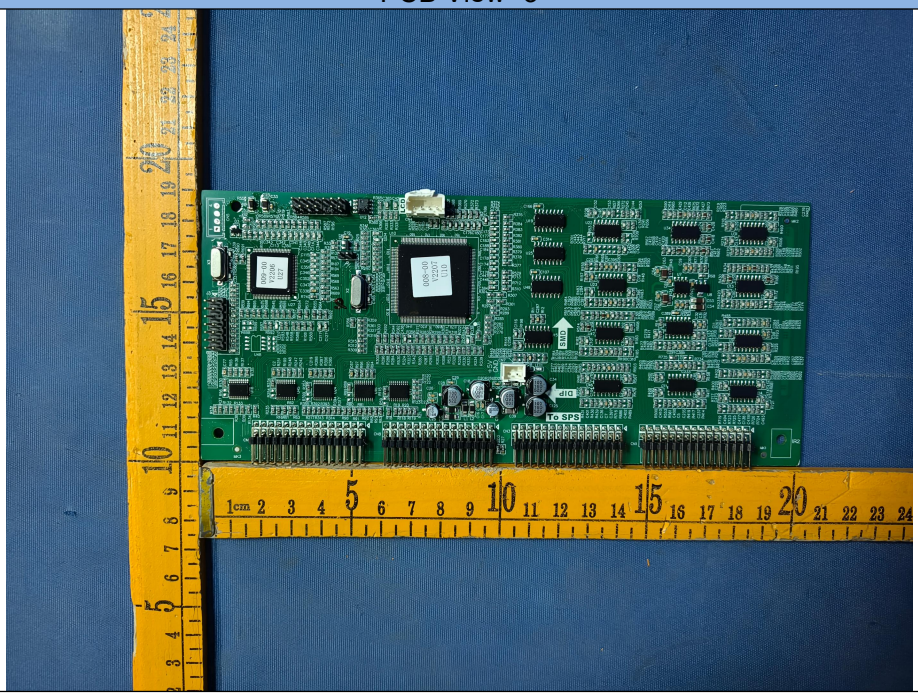
APPENDIX II - PHOTOS OF E.U.T

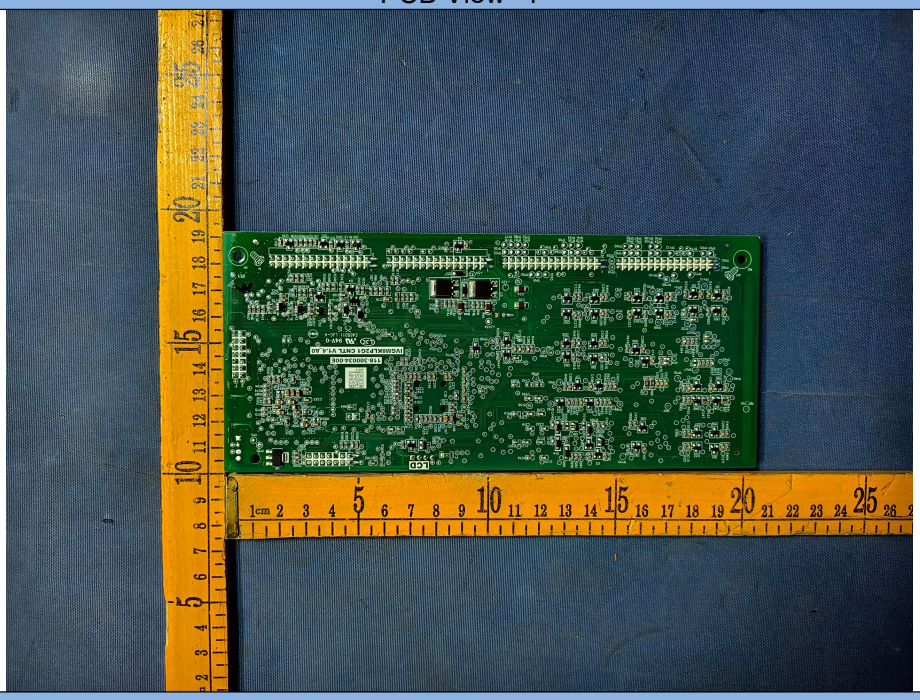
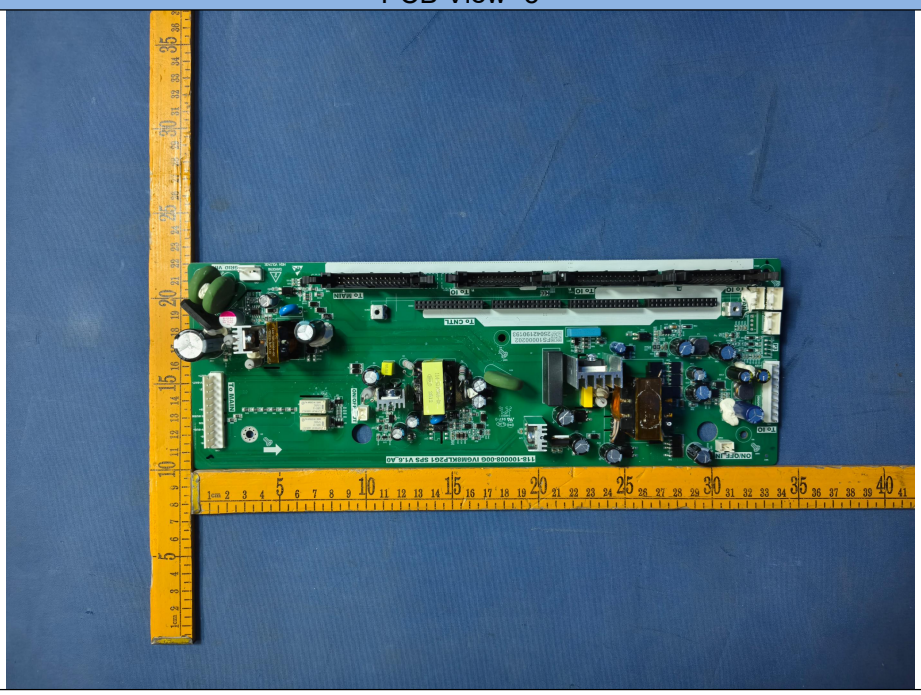
Over View -1(IVGM8KLP1G1)

Over View -2


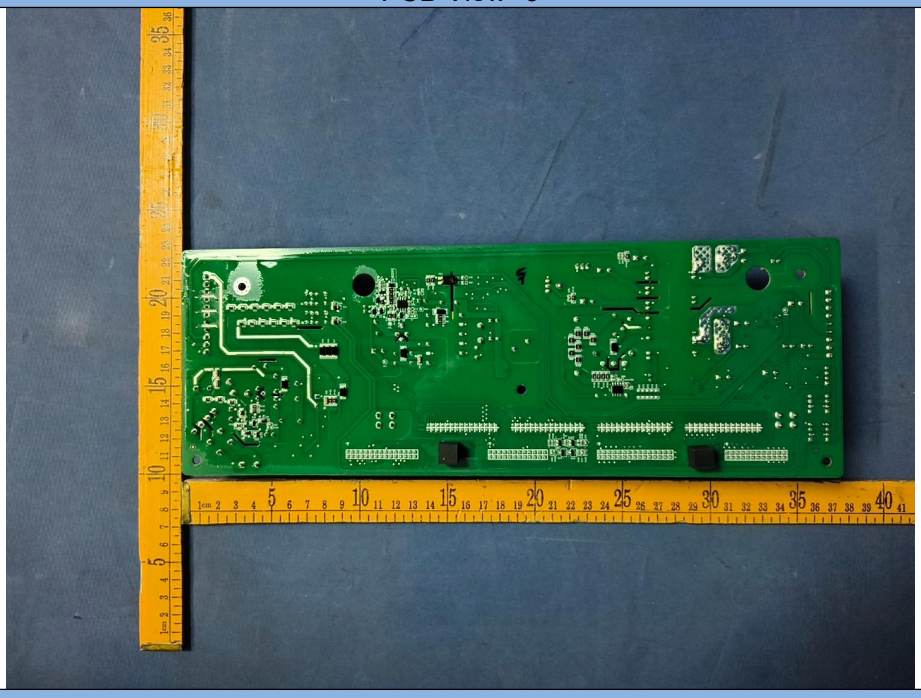
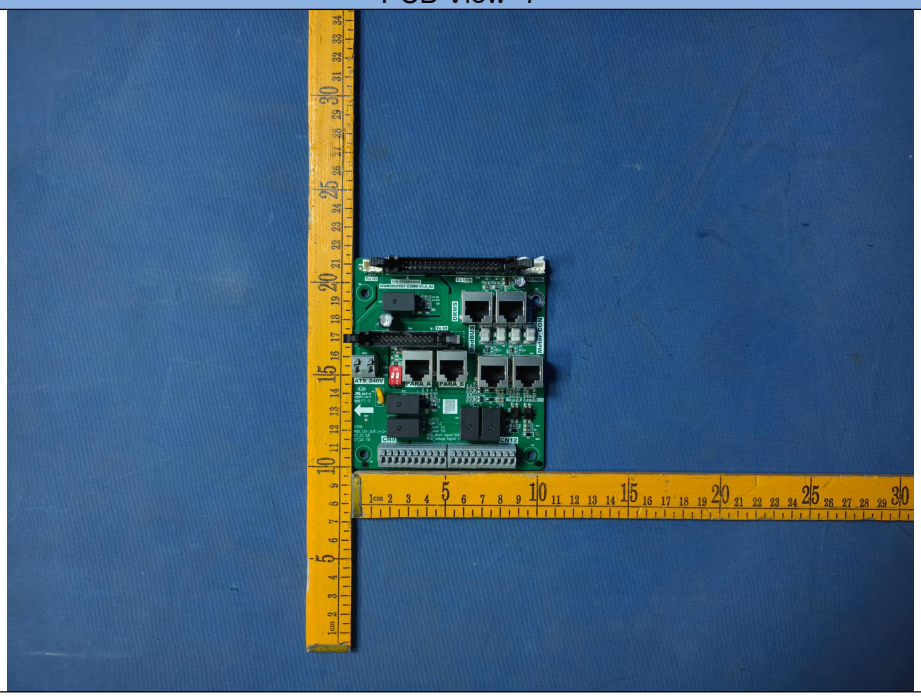
Over View -3

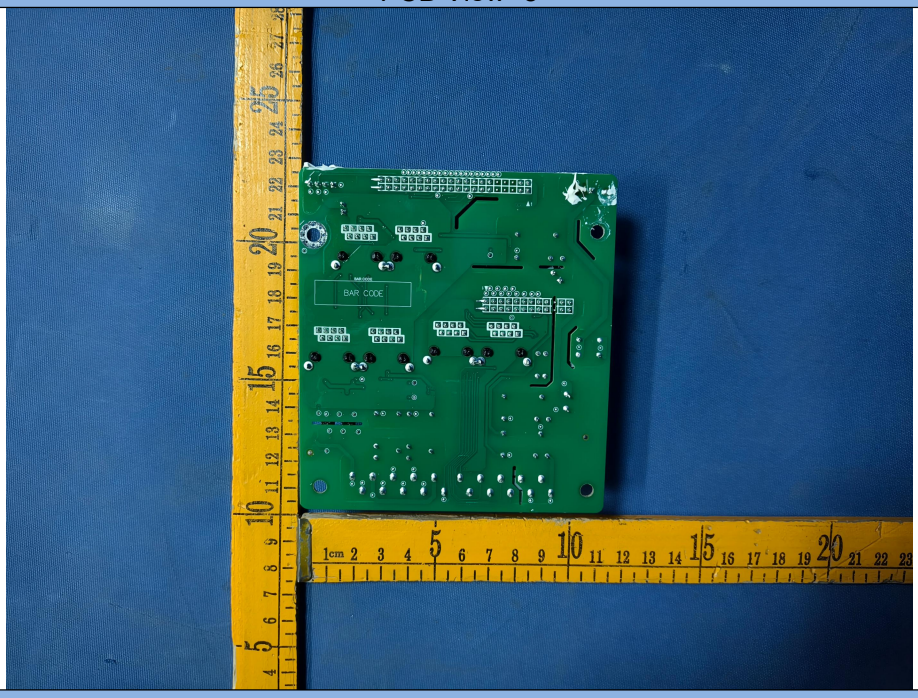
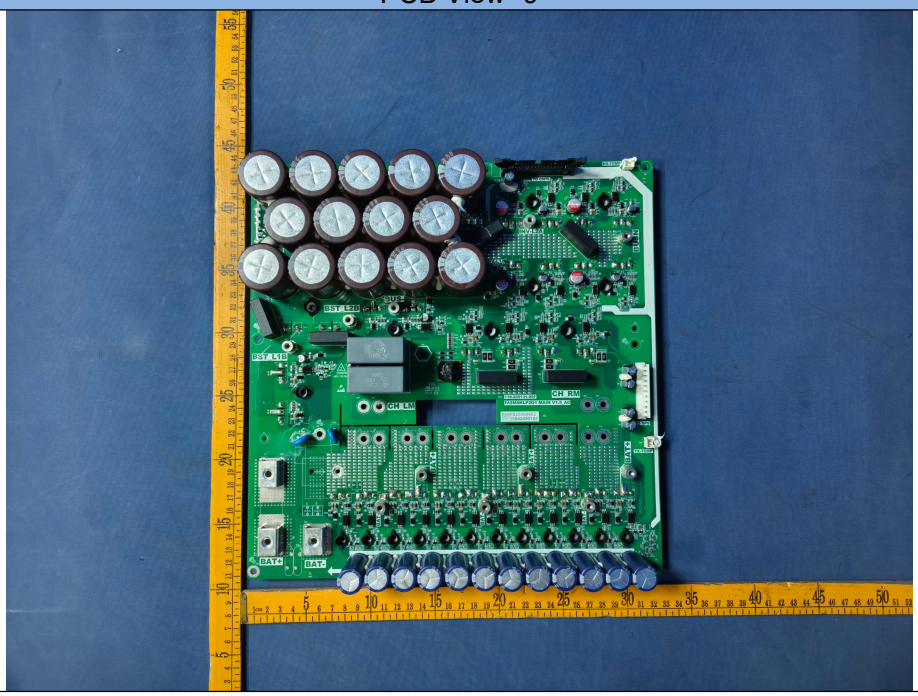
Over View -4

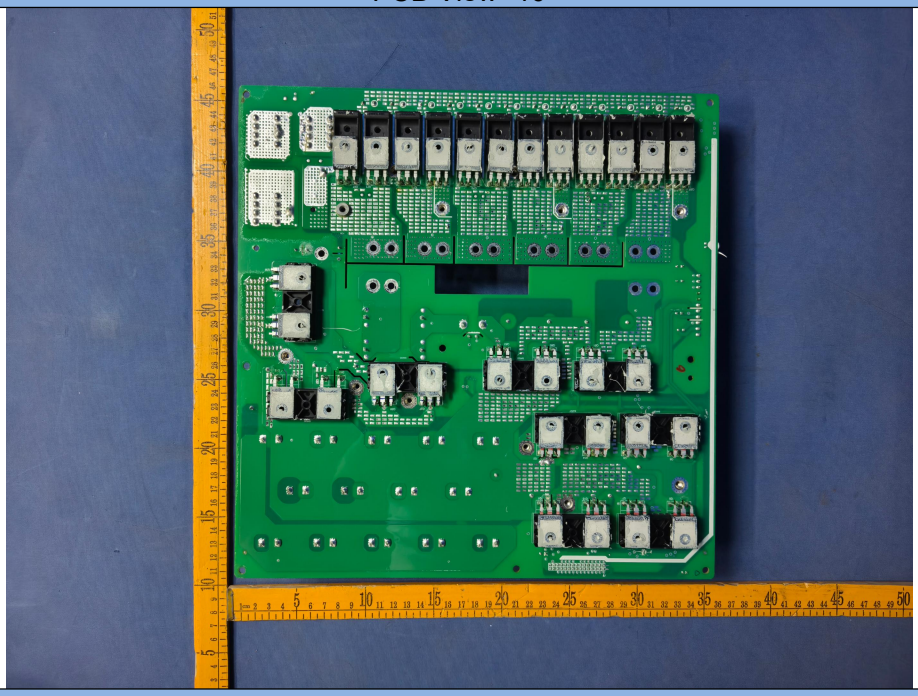

Internal View -1

PCB View -1


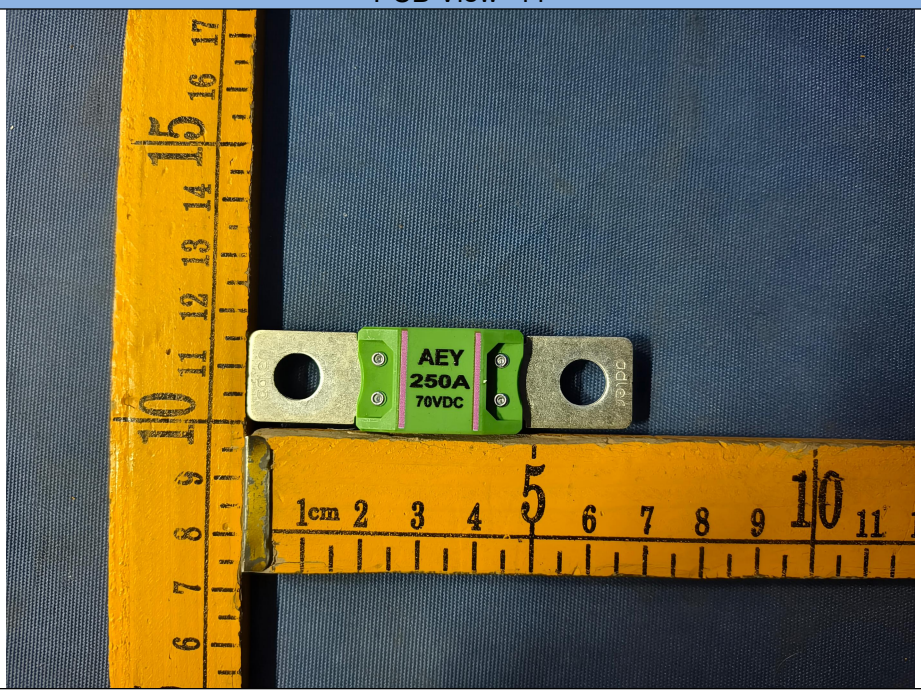
PCB View -2

PCB View -3


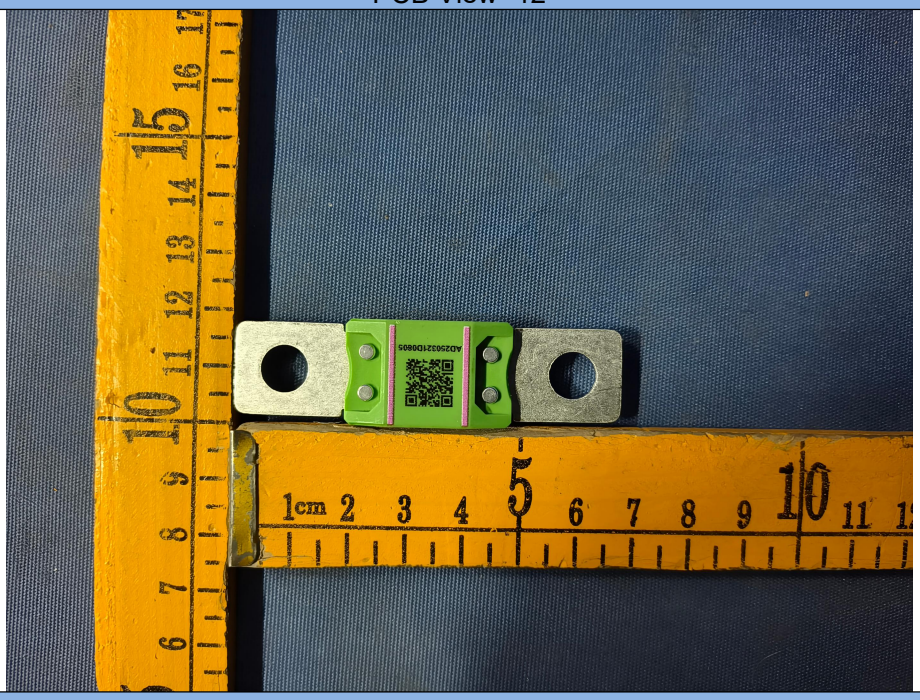
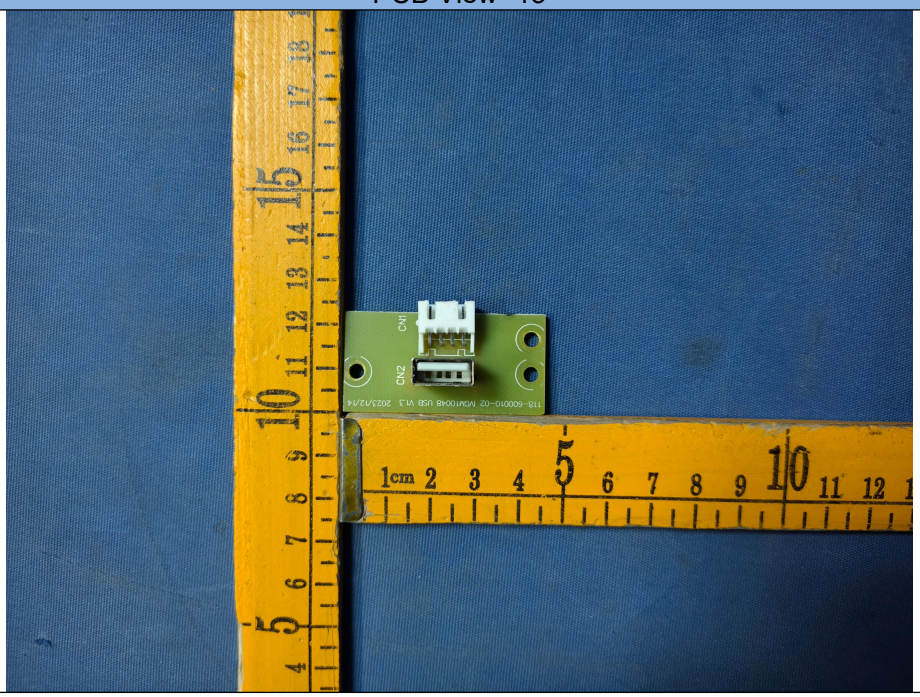
PCB View -4

PCB View -5


PCB View -6

PCB View -7


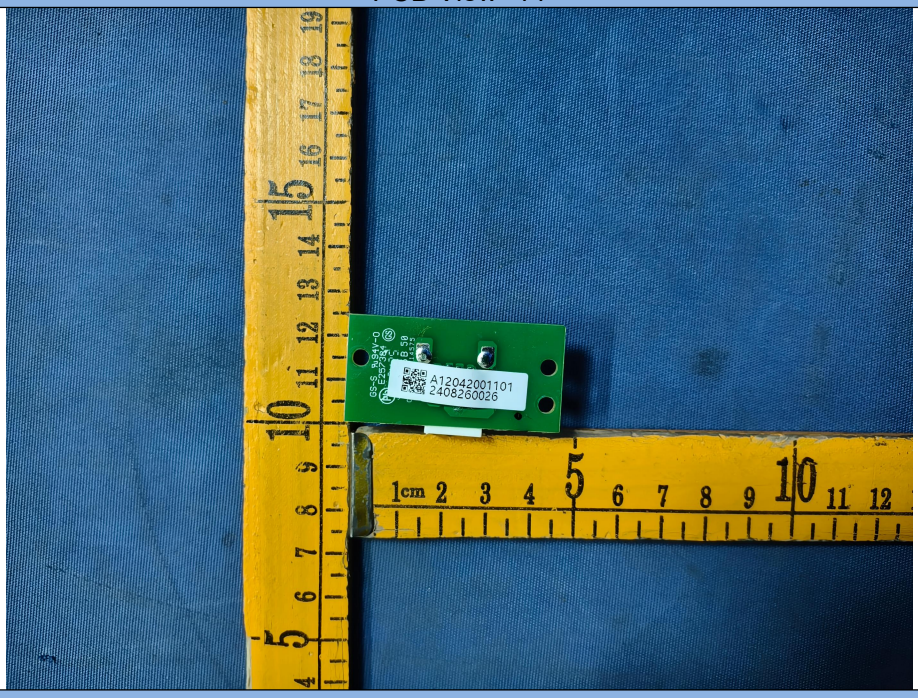
PCB View -8

PCB View -9


PCB View -10


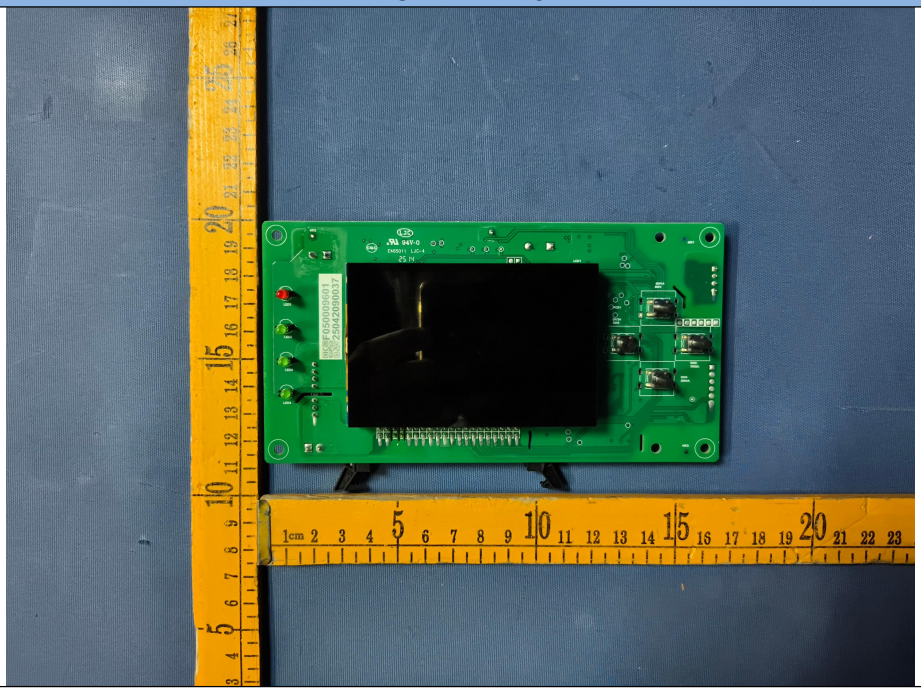
PCB View -11


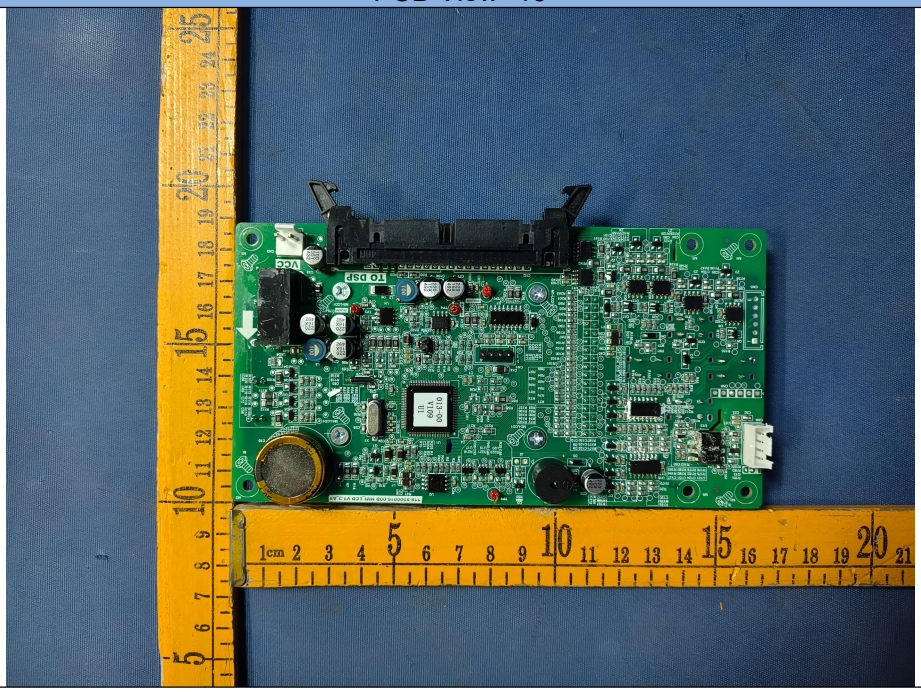
PCB View -12

PCB View -13


PCB View -14



PCB View -15



PCB View -16


--- End of the report ---