TEST REPORT

Application No.:	SHEM1907014987PV
Applicant:	BEIJING EPSOLAR TECHNOLOGY CO., LTD.
Address of Applicant:	NO. 228, BLOCK A, 2ND FLOOR, BLDG 1, NO. 3 STREET, SHANGDI XINXI CHANYE JIDI, HAIDIAN DISTRICT, BEIJING, CHINA
Manufacturer:	HUIZHOU EPEVER TECHNOLOGY CO., LTD.
Address of Manufacturer:	NO.3 BUILDING, #6 BLDG, TASHIN GROUP, NO. 103 DONGXING RD., CHENJIANG STR., ZHONGKAI HIGH-TECH ZONE, HUIZHOU CITY, GUANGDONG PROVINCE, CHINA.
Factory:	HUIZHOU EPEVER TECHNOLOGY CO., LTD.
Address of Factory:	NO.3 BUILDING, #6 BLDG, TASHIN GROUP, NO. 103 DONGXING RD., CHENJIANG STR., ZHONGKAI HIGH-TECH ZONE, HUIZHOU CITY, GUANGDONG PROVINCE, CHINA.
Equipment Under Test (EUT):	
EUT Name:	Solar Charge Controller
Model No.:	DR3210N-DDB, DR3210N-DDS, DR2210N-DDB, DR2210N-DDS, DR3206N-DDB, DR3206N-DDS, DR2206N-DDB, DR2206N-DDS, DR1206N-DDB, DR1206N-DDS, DR3106N-DDB, DR3106N-DDS, DR2106N-DDB, DR2106N-DDS, DR1106N-DDB, DR1106N-DDS¤
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade mark:	EPEVER
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2019-07-11
Date of Test:	2019-07-11 to 2019-12-23
Date of Issue:	2019-12-30
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Attention: To check the authenticity of testing /inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2019-12-30	/

Authorized for issue by:				
				
		Leo Xu / Project Engineer		
				
		Bruce Tang / Reviewer		

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass

InternalSource	UpperFrequency
Below 1.705MHz	30MHz
1.705MHz to 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5th harmonic of the highest frequency or 40GHz, whichever is lower

Note1: Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the models DR3210N-DDS, DR3210N-DDB were tested since their differences are model number and appearance.

3 Contents

Page

4 General Information

4.1 Details of E.U.T.

Power supply: 12/24VDC Charging:30A Max.PV open circuitvoltage:100V

Test voltage: DC24V20W

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DC power supply	MCH	MCH-303A	
Laptop	LENOVO	R400	/

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Conducted Emission at mains port using AMN	±2.6dB (9kHz to 150kHz)
		±2.3dB (150kHz to 30MHz)
2	Conducted Emission at mains port using VP	±1.9 dB (9kHz to 30MHz)
3	Conducted Emission at telecommunication port using AAN	±4.1 dB (150kHz to 30MHz)
4	Radiated Power	±3.0dB
5	Radiated emission	±4.4dB (30MHz-1GHz)
		±4.8dB (1GHz-6GHz)
		±5.2dB (6GHz-18GHz)

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 Test Facility

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

• CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

IC Registration No.: 8617A-1. CAB identifier: CN0020.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI test receiver	Rohde & Schwarz	ESU40	SHEM051-1	2018-12-20	2019-12-19
CONTROLLER	INNCO	CO200	SHEM047-1	N/A	N/A
ANTENNA MAST	INNCO	MA400-EP	SHEM047-2	N/A	N/A
TURN DEVICE	INNCO	DE 3600-RH	SHEM047-3	N/A	N/A
Broadband UHF-VHF ANTENNA	SCHWARZBECK	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
Low Amplifier	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2019-08-13	2020-08-12

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Digital pressure meter	YONGZHI	DYM3-01	SHEM082-1	2018-01-25	2021-01-24
Temperature&humidity recorder	ShangHai weather meter work	ZJ 1-2B	SHEM042-1~6	2019-09-16	2020-09-15
Digital Multimeter	FLUKE	17B	SHEM043-3	2019-09-02	2020-09-01
Autoformer regulator	Guangzhou bao de	TDGC2-5KVA	SHEM150-1	N/A	N/A
Multi-purpose tong tester	FLUKE	316	SHEM001-1	2018-12-20	2019-12-19

6 Emission Test Results

6.1 Radiated Emissions (30MHz-1GHz)

Test Requirement:	47 CFR Part 15, Subpart B
Test Method:	ANSI C63.4:2014
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Limit:	
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30M to1000MHz

6.1.1 E.U.T. Operation

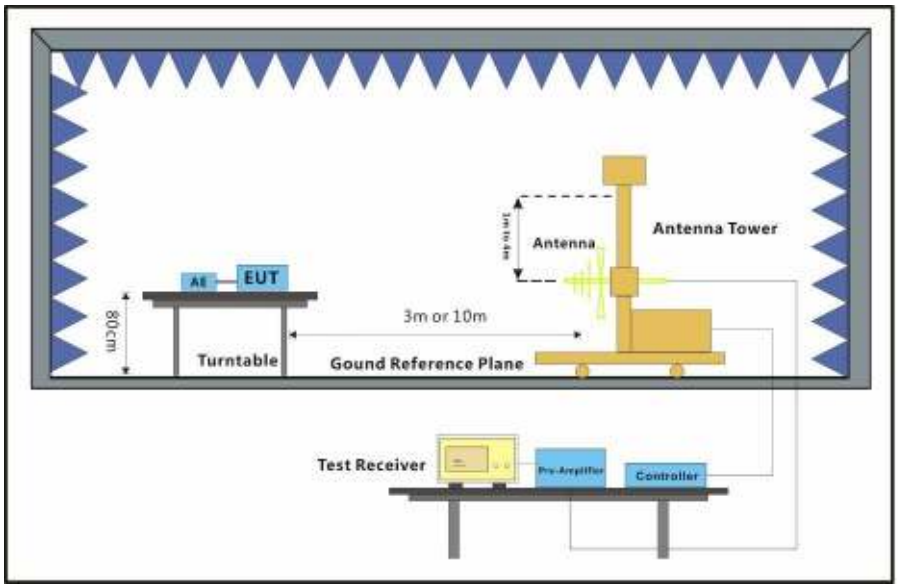
Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1020 mbar

Test mode: a: Keep model DR3210N-DDS running,

b: Keep model DR3210N-DDB running,

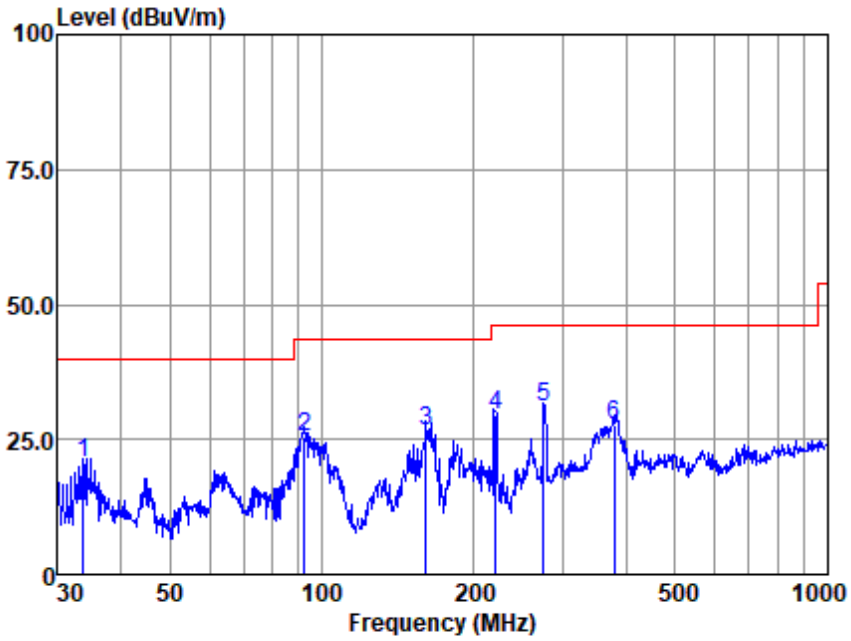
6.1.2 Test Setup Diagram



6.1.3 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

Mode:a; Polarization:Horizontal

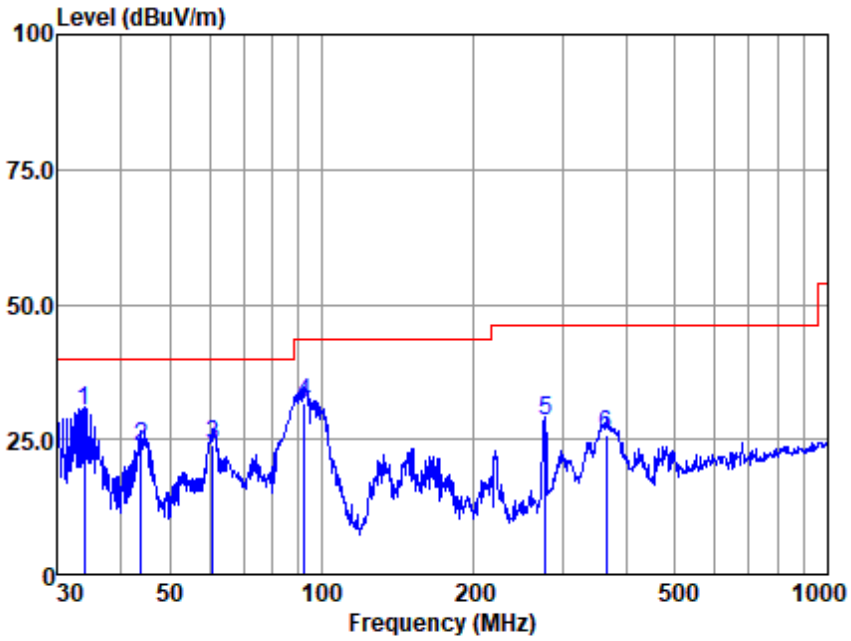


Antenna Polarity :HORIZONTAL
EUT/Project :14987PV
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	33.680	46.68	15.70	0.53	42.36	20.55	40.00	-19.45	QP
2	92.462	58.12	8.42	1.05	42.30	25.29	43.50	-18.21	QP
3	160.909	54.41	12.89	1.46	42.22	26.54	43.50	-16.96	QP
4	220.617	59.29	10.31	1.96	42.14	29.42	46.00	-16.58	QP
5	275.157	58.40	12.38	2.21	42.11	30.88	46.00	-15.12	QP
6	378.584	51.62	14.76	3.08	41.93	27.53	46.00	-18.47	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:a; Polarization:Vertical

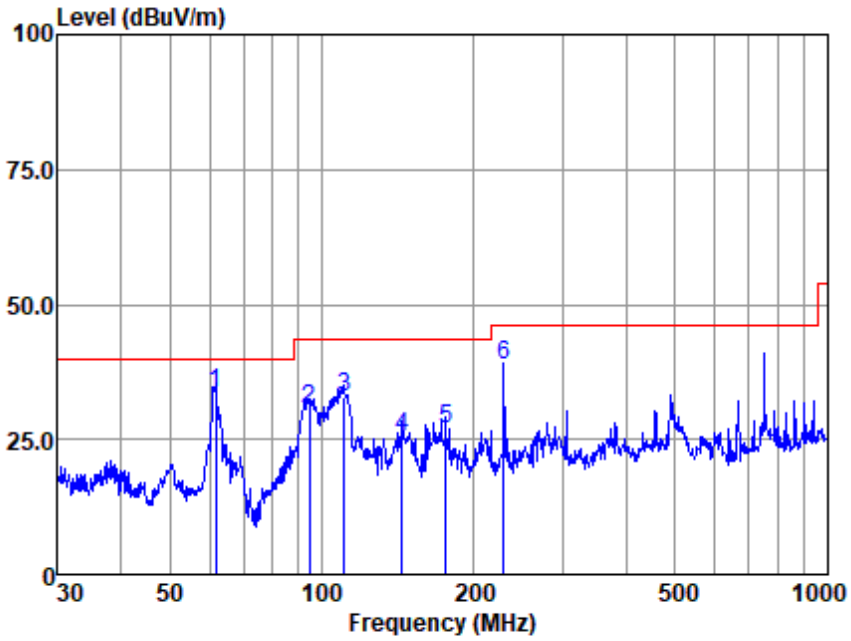


Antenna Polarity :VERTICAL
EUT/Project :14987PV
Test mode :a

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	33.799	56.27	15.72	0.53	42.36	30.16	40.00	-9.84	QP
2	43.966	51.76	13.86	0.38	42.33	23.67	40.00	-16.33	QP
3	60.704	53.32	12.53	0.59	42.32	24.12	40.00	-15.88	QP
4	92.462	64.53	8.42	1.05	42.30	31.70	43.50	-11.80	QP
5	277.094	55.71	12.47	2.21	42.11	28.28	46.00	-17.72	QP
6	365.539	50.26	14.52	3.09	41.93	25.94	46.00	-20.06	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Horizontal

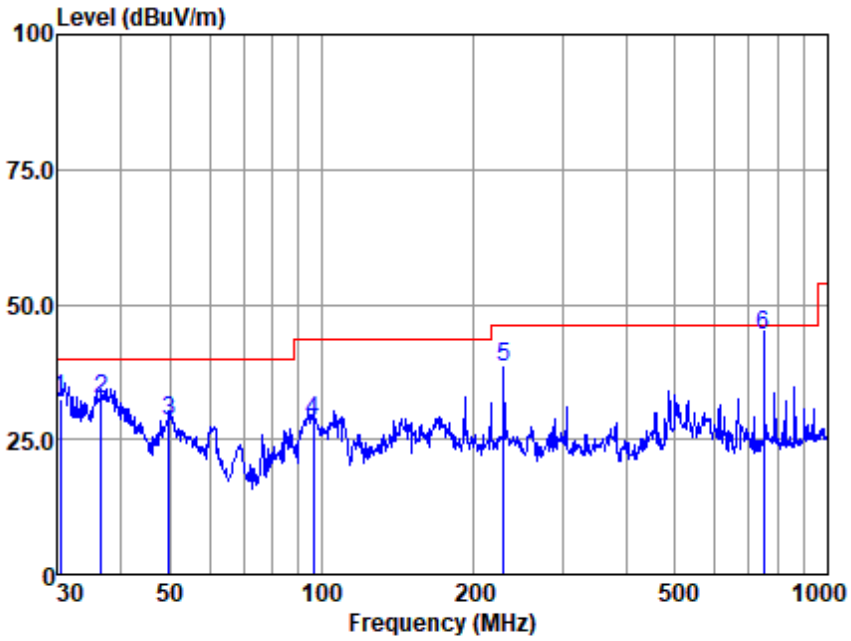


Antenna Polarity :HORIZONTAL
EUT/Project :14987PV
Test mode :b

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	61.562	62.40	12.88	0.60	42.32	33.56	40.00	-6.44	QP
2	94.428	63.60	8.17	1.06	42.30	30.53	43.50	-12.97	QP
3	110.569	63.97	10.14	1.21	42.30	33.02	43.50	-10.48	QP
4	143.830	53.58	12.66	1.37	42.24	25.37	43.50	-18.13	QP
5	175.652	55.42	12.24	1.60	42.20	27.06	43.50	-16.44	QP
6	228.490	69.10	9.88	2.04	42.13	38.89	46.00	-7.11	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

Mode:b; Polarization:Vertical



Antenna Polarity :VERTICAL
EUT/Project :14987PV
Test mode :b

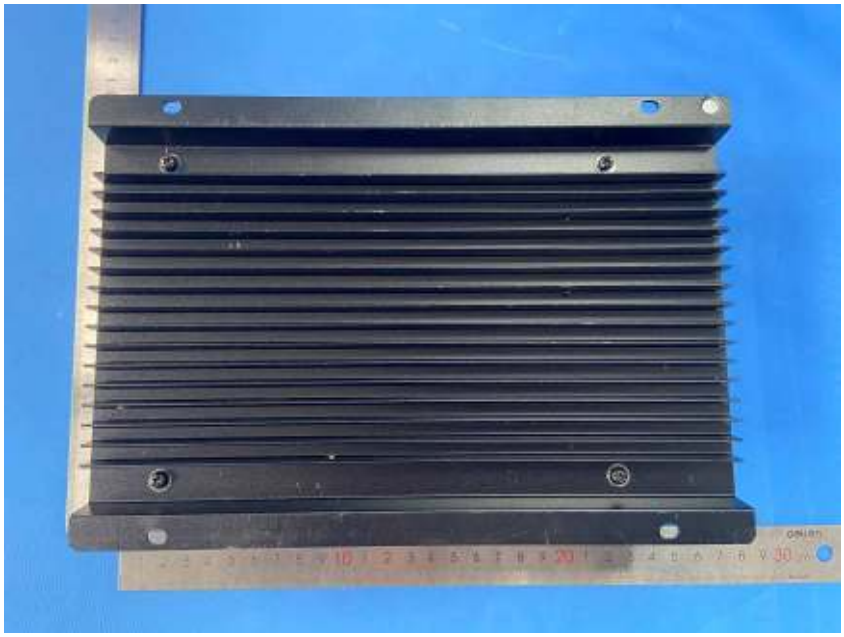
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	30.424	62.32	12.22	0.45	42.38	32.61	40.00	-7.39	QP
2	36.509	61.85	12.65	0.35	42.35	32.50	40.00	-7.50	QP
3	49.707	56.47	13.69	0.47	42.33	28.30	40.00	-11.70	QP
4	96.099	61.22	8.33	1.08	42.31	28.32	43.50	-15.18	QP
5	229.293	68.58	9.95	2.04	42.13	38.44	46.00	-7.56	QP
6	750.108	59.85	22.10	4.22	41.99	44.18	46.00	-1.82	QP

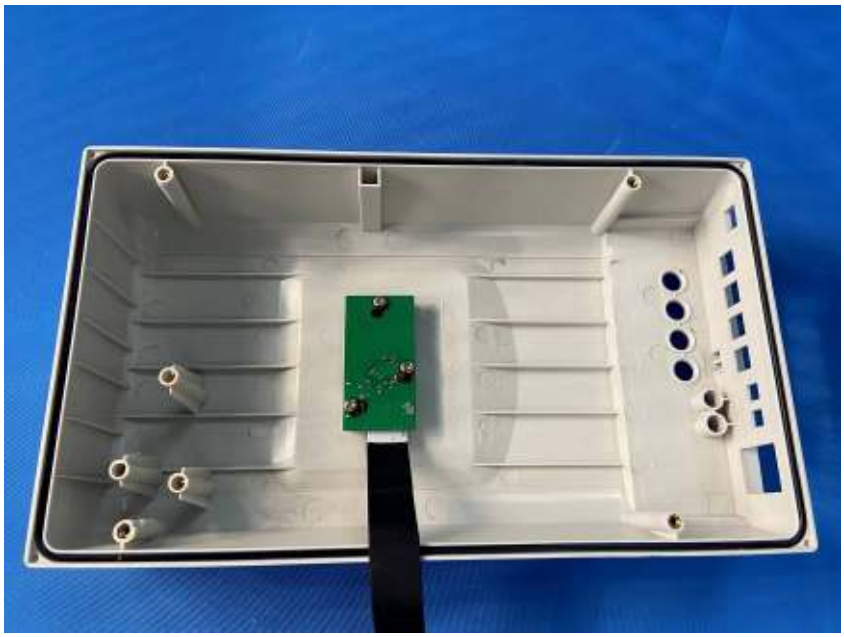
Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor

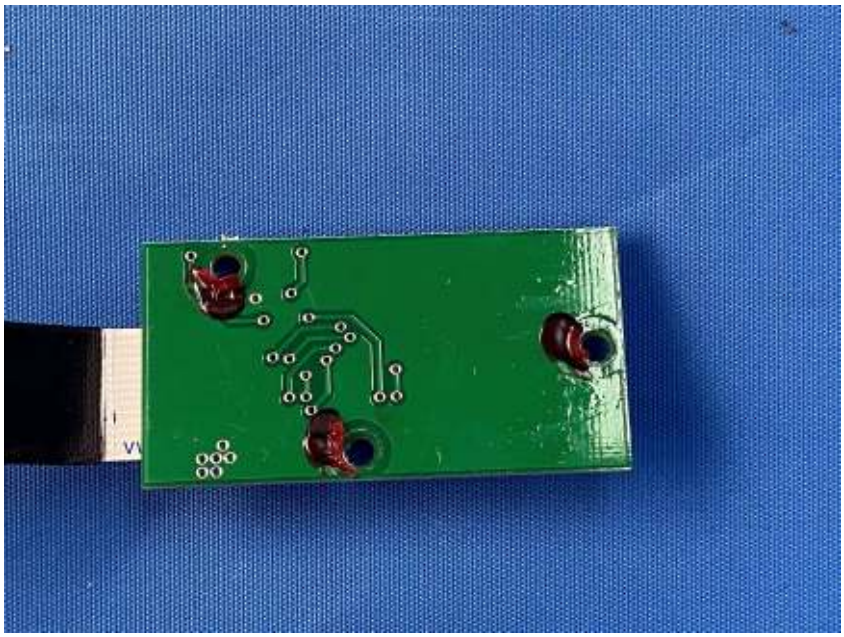
7 Photographs

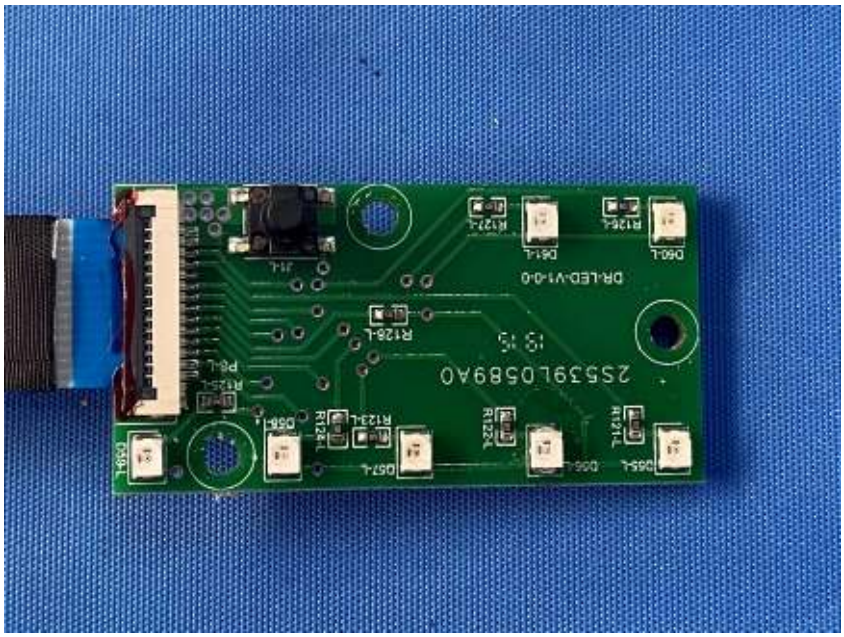
7.1 Radiated Emissions (30MHz-1GHz) Test Setup

7.2 EUT Constructional Details (EUT Photos)





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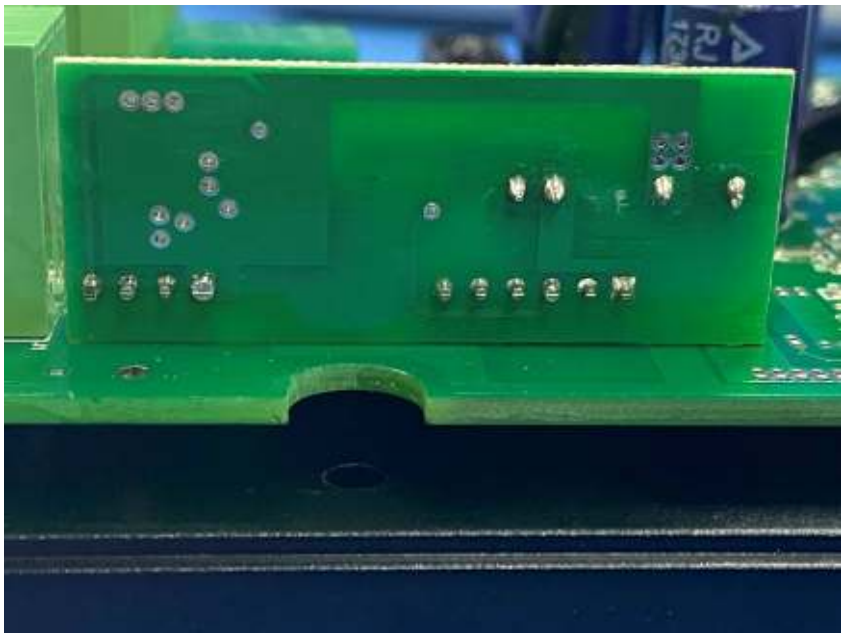

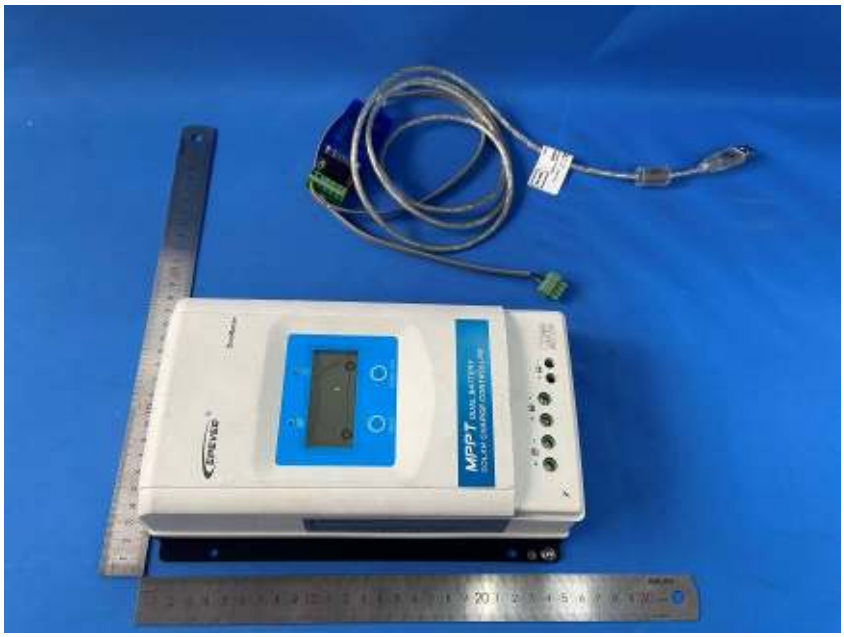
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MPPT
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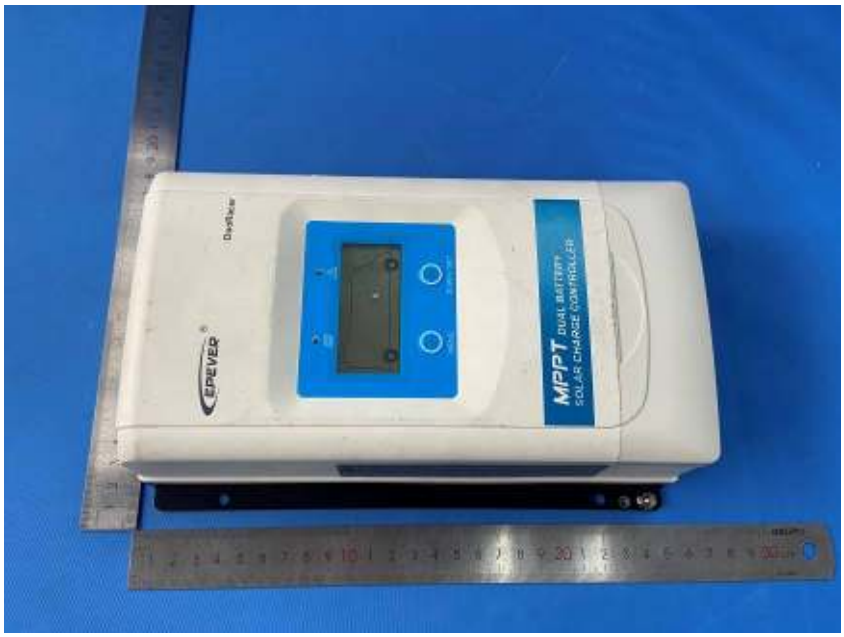
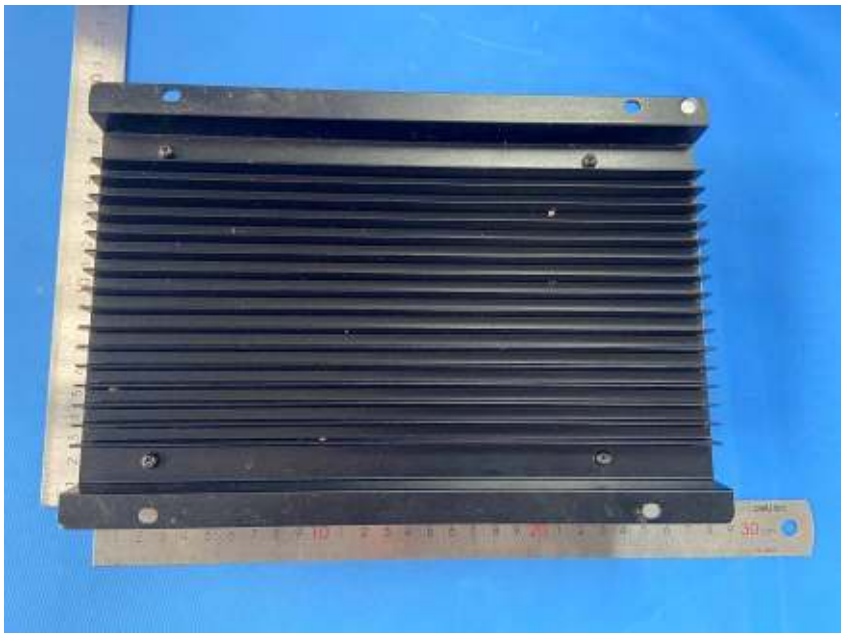
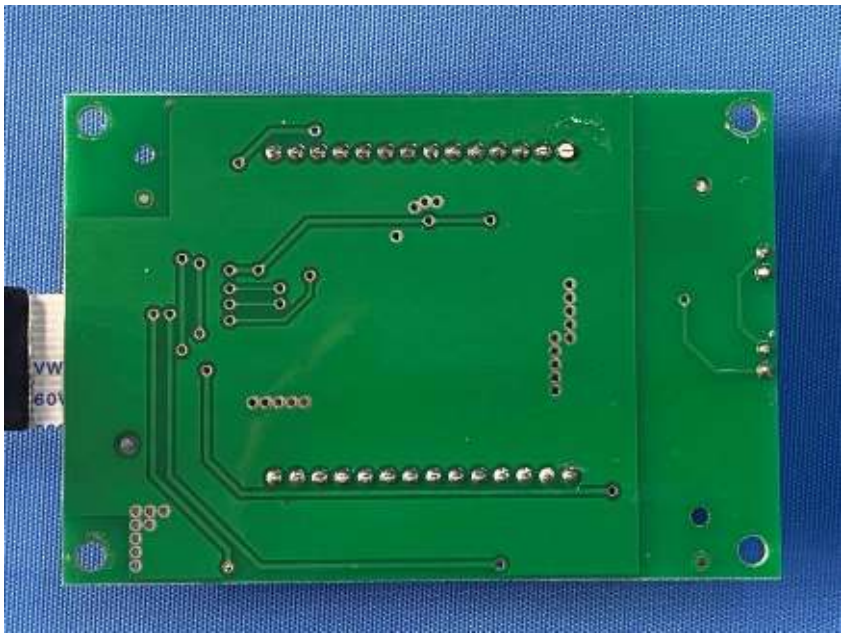
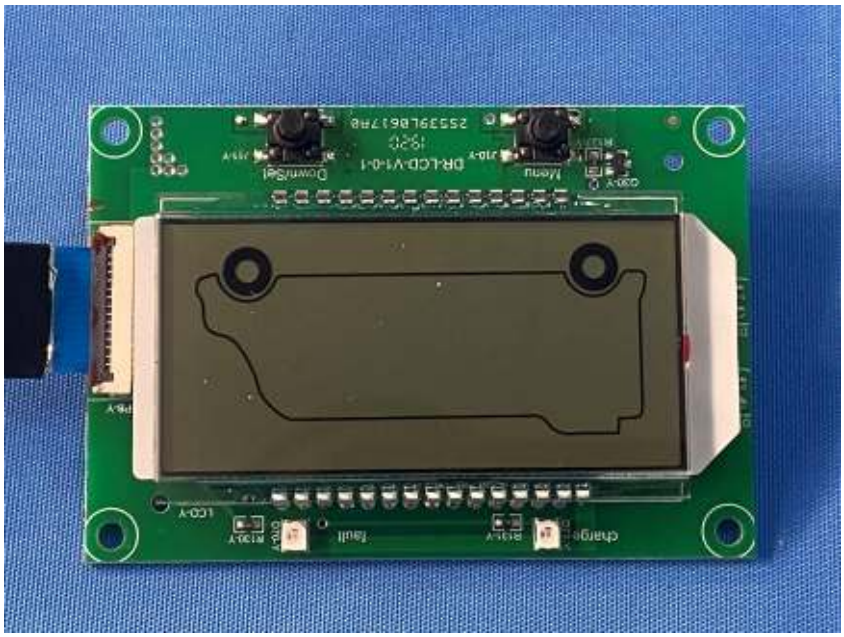

EPEVER
MPPT
SOLAR CHARGE CONTROLLER


EPEVER
MPPT DUAL BATTERY
SOLAR CHARGE CONTROLLER





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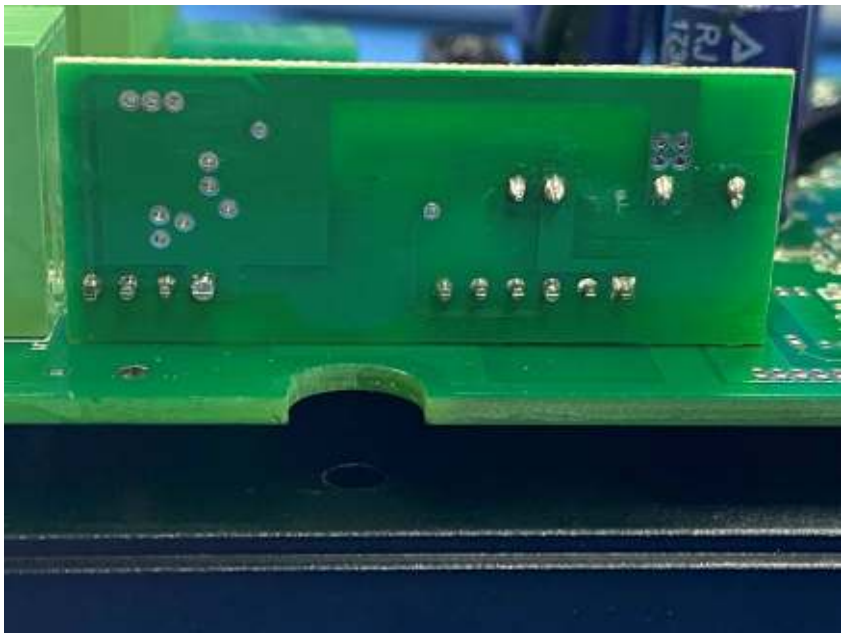

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