



SZEMC-TRF-01 Rev. A/1 Report No.: SZCR240900343901

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TEST REPORT

SZCR2409003439AT **Application No.:**

Applicant: Anker Innovations Limited

Address of Applicant: Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road, Hong

Kong, China

Manufacturer: Anker Innovations Limited

Address of Manufacturer: Unit 56, 8th Floor, Tower 2, Admiralty Centre, 18 Harcourt Road, Hong

Kong, China

Factory: Ten Pao Electronics (Huizhou) Co., Ltd.

Dongjiang Industrial Area, Shuikou Town, Huizhou City, Guangdong Address of Factory:

Province, P.R.China

Equipment Under Test (EUT):

EUT Name: Anker SOLIX Solarbank 2 E1600 AC

Model No.: A17C2, A17C6

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

EN IEC 61000-6-3: 2021 Standard(s):

EN IEC 61000-6-1: 2019

Date of Receipt: 2024-09-05

2024-09-10 to 2024-09-26 **Date of Test:**

Date of Issue: 2024-09-29

Pass* Test Result:

Keny Xu **EMC Laboratory Manager**

Ceny. Ku

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



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	Revision Record					
Version Chapter Date Modifier Remark						
01		2024-09-29		Original		

Authorized for issue by:		
	Charle Don	
	Charlie Dai/Project Engineer	_
	Exic Fu	
	Eric Fu/Reviewer	_



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Test Summary

Emission Part						
Item	Standard	Method	Requirement	Result		
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)		CISPR 16-2-1: 2014+A1:2017	Table 4.3	Pass		
Radiated Emissions (30MHz-1GHz)		CISPR 16-2-3: 2016	Table 3.1	Pass		
Radiated Emissions (Above 1GHz)	EN IEC 61000-6-3:	CISPR 16-2-3: 2016	Table 3.4	Pass		
Harmonic Current Emission		EN IEC 61000-3-2: 2019+A1:2021	Class A	N/A		
Voltage Fluctuations and Flicker		EN 61000-3- 3:2013+A1:2019 +A2:2021	Clause 5	N/A		

Immunity Part					
Item	Standard	Method	Requirement	Result	
Electrostatic Discharge		EN 61000-4-2:2009	±4kV Contact Discharge, ±8kV Air Discharge	Pass	
Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)		EN IEC 61000-4-3: 2020	3V/m, 80%, 1kHz Amp. Mod.	Pass	
Electrical Fast Transients Burst at AC Mains Power Port		EN 61000-4-4:2012	1kV 5/50ns Tr/Td 5kHz or 100kHz Repetition Frequency	Pass	
Surge at AC Mains Power Port		EN 61000-4- 5:2014+A1:2017	1.2/50µs Tr/Td 1kV Line to Line	Pass	
Surge at DC Port	EN IEC 61000-6-1: 2019	EN 61000-4- 5:2014+A1:2017	1.2/50µs Tr/Td 0.5kV Line to Line 1kV Line to Ground	Pass	
Conducted Immunity at AC Mains Power Port (150kHz-80MHz)		EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass	
Power Frequency Magnetic Field		EN 61000-4-8:2010	50Hz 3A/m	Pass	
Voltage Dips and Interruptions		EN IEC 61000-4- 11:2020	0 % UT for 0.5cycle 0 % UT for 1cycle 70 % UT for 25cycles 0 % UT for 250cycles UT is Supply Voltage	N/A	

Remark:

1. N/A means not applicable.



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2. The EUT does not support taking power from the power grid.

Internal Source	Upper Frequency
Below 108MHz	1GHz
108MHz to 500MHz	2GHz
500MHz to 1GHz	5GHz
Above 1GHz	5 times the highest frequency or 6 GHz, whichever is less

Declaration of EUT Family Grouping:

Model No.: A17C2, A17C6

Only the model A17C2 was tested, since according to the declaration from the applicant, the electrical circuit design, PCB layout, components used, internal wiring and functions were identical for all the above models, with only difference on output power of the AC output grid-connected port.



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7.4.1		
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General Information

Details of E.U.T. 4.1

PV terminal:			
Max. PV input voltage: 60Vd.c., Max. PV input current: 16Ad.c.(per channel)			
Max. Isc. PV: 20Ad.c., Max. PV input power: 1200W			
Operation voltage range: 16-60Vdc			
Rechargable Li-ion Battery: 16Vdc 75Adc 800W 100Ah			
AC input:			
Max. AC input power: 2000W			
Max. AC input: 10Aac, 230Vac			
AC output (On-grid terminal):			
AC output power: 800W, AC rated output: 220/230/240Va.c. 50/60Hz			
Max. AC output current: 3.5Aa.c. 230Va.c.			
Off-grid terminal:			
Max. AC output power: 2000W, AC rated output: 220/230/240Va.c. 50/60Hz			
Max. AC output: 10Aa.c. 230Va.c.			
Battery terminal:			
Battery rated voltage: 16Vd.c., Max. charge current: 75Ad.c.			
Max. discharge current: 75Ad.c., Rated power: 800W, Rated capacity:100Ah			
PV cable 299cm *4			
Grid AC cable 498cm *1			
Greater than 108MHz			

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Bi-directional power supply	ITECH	IT6018C-800-75	N/A
DC power supply	ZHAOXIN	KXN-6020D	REF. No.SEA27B00
DC power supply	Chroma	62012P-80-60	REF. No.SEA27C00
DC power supply	XANTREX	XFR 100-12	REF. No.SEA27A00
Micro-inverter	ANKER	N/A	N/A



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4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	± 3.1dB
Radiated Emissions (30MHz-1GHz)	± 6.0dB for 3m; ± 5.0dB for 10m
Radiated Emissions (Above 1GHz)	± 4.6dB
Electrostatic Discharge	± 6%
Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)	± 2.1dB
Electrical Fast Transients Burst at AC Mains Power Port	± 5.5%
Surge at AC Mains Power Port	± 5.5%
Surge at DC Port	± 5.5%
Conducted Immunity at AC Mains Power Port (150kHz-80MHz)	± 1.5dB
Power Frequency Magnetic Field	± 7%

Remark:

The U_{lab} (lab Uncertainty) is less than U_{cispr/ETSI} (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.



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4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC -Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

Innovation, Science and Economic Development Canada

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

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

4.8 EMS Monitor

Visual: Monitor the output of the EUT.

Audio: N/A



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Equipment List 5

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)						
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date	
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2022-05-14	2025-05-13	
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2024-03-14	2025-03-13	
Measurement Software	AUDIX	e3 V8.2014-6- 27a	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM024-01	2024-07-06	2025-07-05	
LISN	Rohde&Schwarz	ENV216	SEM007-01	2024-08-15	2025-08-14	
LISN	ETS-LINDGREN	3816/2	SEM007-02	2024-03-14	2025-03-13	

Radiated Emissions (30MHz-1GHz)						
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date	
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2023-06-19	2026-06-18	
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2024-08-14	2025-08-13	
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2023-09-16	2025-09-15	
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2024-03-14	2025-03-13	
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM025-01	2024-07-06	2025-07-05	

Radiated Emissions (Above 1GHz)									
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date				
3m Fully-Anechoic Chamber	AUDIX	N/A	SEM001-02	2024-05-11	2027-05-10				
Signal Analyzer	Rohde & Schwarz	FSV40	FSV40 SEM008-04 20		2025-03-14				
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2023-07-23	2025-07-22				
Microwave system amplifier	Agilent	83017A	83017A SEM005-25 203		2025-09-13				
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A				
Coaxial Cable	SGS	N/A	SEM026-01	2024-07-06	2025-07-05				

Electrostatic Discharge									
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date				
ESD Generator	TESEQ AG	NSG 437	SEM019-02	2024-03-19	2025-03-18				



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Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)										
Equipment	Manufacturer Model No.		Inventory No.	Cal Date	Cal Due Date					
Fully-Anechoic Chamber 2	Chang Zhou Zhong Shuo	854	SEM001-05	2023-06-19	2026-06-18					
Power Sensor	Rohde & Schwarz	NRP-Z91	SEM009-09	2024-03-15	2025-03-14					
Stacked LogPer Broadband Antenna	Schwarzbeck	STLP 9129 SEM003-25		N/A	N/A					
Signal Generator	Rohde & Schwarz	SMB100A SEM006-11 2		2024-03-15	2025-03-14					
Broadband Amplifier	Rohde & Schwarz	BBA150- BC250	SEM005-12	2024-08-15	2025-08-14					
Broadband Amplifier	Rohde & Schwarz	BBA150-D110	SEM005-13	2024-03-15	2025-03-14					
Broadband Amplifier	Rohde & Schwarz	BBA150-E60	SEM005-16	2024-03-15	2025-03-14					
Measurement Software	Rohde & Schwarz	EMC32 V9.25.00	N/A	N/A	N/A					

Electrical Fast Transients Burst at AC Mains Power Port								
Equipment Manufacturer Model No. Inventory No. Cal Date Cal D								
Ultra Compact Simulator	EM Test	UCS 500N7	SEM018-02	2024-03-15	2025-03-14			

Surge at AC Mains Power Port								
Equipment Manufacturer Model No. Inventory No. Cal Date Cal Du								
Ultra Compact Simulator	EM Test	UCS 500N7	SEM018-02	2024-03-15	2025-03-14			

Surge at DC Port										
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date					
Ultra Compact Simulator	EM Test	UCS 500N7	SEM018-02	2024-03-15	2025-03-14					
High Speed Coupling/Decoupling Network	EM Test	CNI 508N2	SEM018-05	2024-03-29	2025-03-28					
Lightning Surge Generator	Prima Electronics Co., Ltd.	TVS8/20TC	SEM018-12	2024-08-15	2025-08-14					
Coupling network EM TEST		CNV 504N1	SEM018-10	2024-03-29	2025-03-28					
Coupling network	EM TEST	CNV 508T5	SEM018-11	2024-03-29	2025-03-28					

Conducted Immunity at AC Mains Power Port (150kHz-80MHz)										
Equipment	Cal Date	Cal Due Date								
Shielding Room	TST PASS	N/A	SEM001-17	2024-09-11	2027-09-10					
RF-Generator	SCHAFFNER	NSG 2070	SEM006-01	2024-08-16	2025-08-15					
Coupling/Decoupling Network	SCHAFFNER	CDN M016	SEM007-03	2024-03-27	2025-03-26					



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Power Frequency Magnetic Field									
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date				
Ultra Compact Simulator	EM Test	UCS 500N7	SEM018-02	2024-03-15	2025-03-14				
Magnetic Field Test Antenna	EM Test	MS100N	SEM018-04	2024-03-15	2025-03-14				

Voltage Dips and Interruptions								
Equipment Manufacturer Model No. Inventory No. Cal Date Cal Du								
Ultra Compact Simulator	EM Test	UCS 500N7	SEM018-02	2024-03-15	2025-03-14			

General used equipment									
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date				
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2024-07-24	2025-07-23				
Humidity/ Temperature Indicator	· I OEII		SEM002-33	2024-07-24	2025-07-23				
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2024-03-18	2025-03-17				



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Emission Test Results 6

6.1 Conducted Emissions at AC Mains Power Port (150kHz-30MHz)

Test Requirement: EN IEC 61000-6-3: 2021 Test Method: CISPR 16-2-1: 2014+A1:2017

Measurement Distance: 3m

Limit:

 $66dB(\mu V)$ - $56dB(\mu V)$ quasi-peak, $56dB(\mu V)$ - $46dB(\mu V)$ average 0.15M-0.5MHz

56dB(μV) quasi-peak, 46dB(μV) average 0.5M-5MHz 5M-30MHz 60dB(µV) quasi-peak, 50dB(µV) average

Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz Detector:

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.2 °C Humidity: 45.8 % RH Atmospheric Pressure: 1020 mbar

6.1.2 Test Mode Description

0.11.2 1000	Mode Besch	7.001
Pre-scan / Final test	Mode Code	Description
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.
Pre-scan	11	Main package + sub-package + grid-connected port output 1200W.
Pre-scan	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.
Pre-scan	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.
Pre-scan	20	PV IN 400W + main package + sub-package + micro-inverter output 800W + grid-connected port input 0W.
Pre-scan	21	PV input 1200W + sub-package + off-grid with load 1200W.
Pre-scan	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.



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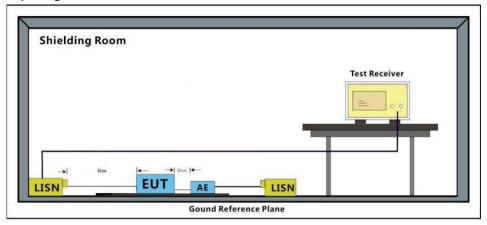
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6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

Frequency range: 150KHz-30MHz

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

The red line show in graphic is the limit in standard used in this section.

Measured Level = Read level + Cable Loss + LISN Factor



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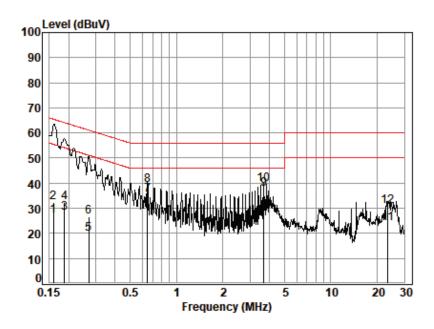


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Test Mode: 09: Line: Live line



: chamber Condition: Line Job No. : 03439AT

Test mode: 09

	Freq	LISN Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	10.06	0.03	16.72	26.81	55.52	-28.71	Average
2	0.16	10.06	0.03	22.33	32.42	65.52	-33.10	QP
3	0.19	10.05	0.03	17.92	28.00	54.11	-26.11	Average
4	0.19	10.05	0.03	22.25	32.33	64.11	-31.78	QP
5	0.27	10.05	0.04	9.83	19.92	51.12	-31.20	Average
6	0.27	10.05	0.04	16.36	26.45	61.12	-34.67	QP
7	0.65	10.07	0.05	25.16	35.28	46.00	-10.72	Average
8	0.65	10.07	0.05	29.16	39.28	56.00	-16.72	QP
9	3.67	10.05	0.08	27.36	37.49	46.00	-8.51	Average
10 q	3.67	10.05	0.08	29.23	39.36	56.00	-16.64	QP
11	23.51	10.58	0.30	12.94	23.82	50.00	-26.18	Average
12	23.51	10.58	0.30	19.94	30.82	60.00	-29.18	QP



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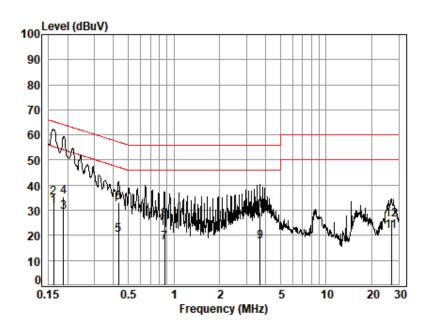


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Test Mode: 09: Line: Neutral Line



: chamber Condition: Neutral Job No. : 03439AT

Test mode: 09

	Freq	LISN Factor	Cable Loss	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	9.56	0.03	21.80	31.39	55.38	-23.99	Average
2	0.16	9.56	0.03	25.43	35.02	65.38	-30.36	QP
3	0.19	9.55	0.03	19.79	29.37	54.11	-24.74	Average
4	0.19	9.55	0.03	25.79	35.37	64.11	-28.74	QP
5	0.43	9.58	0.05	10.63	20.26	47.20	-26.94	Average
6 q	0.43	9.58	0.05	23.63	33.26	57.20	-23.94	QP
7	0.87	9.55	0.06	7.67	17.28	46.00	-28.72	Average
8	0.87	9.55	0.06	16.67	26.28	56.00	-29.72	QP
9	3.67	9.55	0.08	7.70	17.33	46.00	-28.67	Average
10	3.67	9.55	0.08	19.71	29.34	56.00	-26.66	QP
11	26.84	10.22	0.32	10.99	21.53	50.00	-28.47	Average
12	26.84	10.22	0.32	15.64	26.18	60.00	-33.82	QP



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6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: EN IEC 61000-6-3: 2021 Test Method: CISPR 16-2-3: 2016

Measurement Distance: 3m

Limit:

EDEOLIENCY (MU-)	dBuV/m (At 10m)	dBuV/m (At 3m)		
FREQUENCY (MHz)	Class B	Class B		
30 ~ 230	30	40		
230 ~ 1000	37	47		
Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz				

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.2 °C Humidity: 45.8 % RH Atmospheric Pressure: 1020 mbar

6.2.2 Test Mode Description

0.2.2 Test mode Description					
Pre-scan / Final test	Mode Code	Description			
Pre-scan	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.			
Pre-scan	11	Main package + sub-package + grid-connected port output 1200W.			
Pre-scan	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.			
Pre-scan	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.			
Pre-scan	20	PV IN 400W + main package + sub-package + micro-inverter output 800W			
Pre-scan	21	PV input 1200W + sub-package + off-grid with load 1200W.			
Final test	22	Main package + sub-package + off-grid with load 1200W.			
Pre-scan	23	PV IN 1200W + main package + sub-package.			
Pre-scan	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.			



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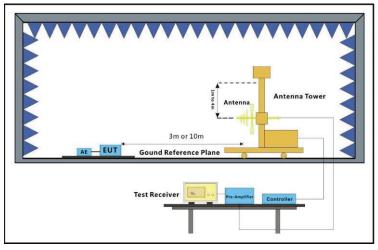


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6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

Frequency range: 30MHz-1GHz

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. The red line show in graphic is the limit in standard used in this section.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor



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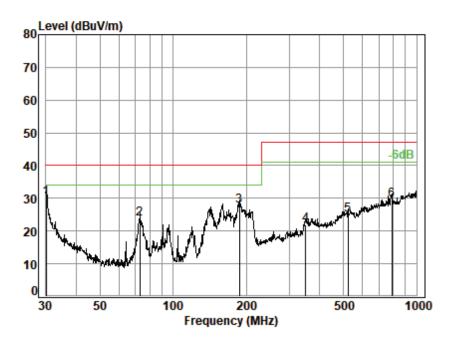


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Test Mode: 22; Polarity: Horizontal



Site : chamber

Condition: 3m HORIZONTAL

Job No. : 03439AT

Test Mode: 22

		Ant	Cable	Preamp	Read		Limit	0ver	
	Freq	Factor	Loss	Factor	Level	Level	Line	Limit	Remark
_	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1 q	30.11	21.15	0.67	27.79	36.15	30.18	40.00	-9.82	QP
2	73.10	10.43	1.04	27.67	39.79	23.59	40.00	-16.41	QP
3	187.10	14.30	1.71	27.22	38.75	27.54	40.00	-12.46	QP
4	350.48	19.94	2.41	26.96	26.39	21.78	47.00	-25.22	QP
5	522.72	23.28	3.00	27.66	26.18	24.80	47.00	-22.20	QP
6	790.62	27.15	3.83	27.50	25.95	29.43	47.00	-17.57	OP



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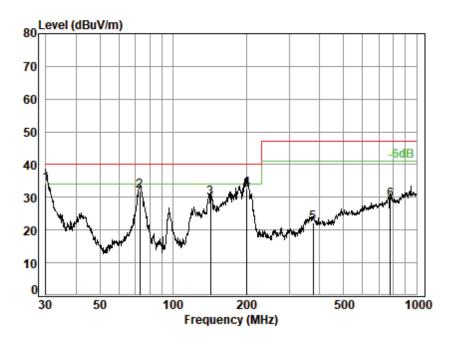


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Test Mode: 22; Polarity: Vertical



Site : chamber

Condition: 3m VERTICAL

Job No. : 03439AT

Test Mode: 22

		Ant	Cable	Preamp	Read		Limit	0ver	
	Freq	Factor	Loss	Factor	Level	Level	Line	Limit	Remark
_									
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
	20.00		0.67	07.70	30.00	22.00			0.0
1 q	30.00	21.20	0.6/	2/./9	39.90	33.98	40.00	-6.02	QР
2	72.85	10.44	1.04	27.67	48.09	31.90	40.00	-8.10	QP
3	142.32	12.07	1.49	27.41	43.51	29.66	40.00	-10.34	QP
4	200.69	14.16	1.76	27.17	43.70	32.45	40.00	-7.55	QP
5	375.94	20.74	2.50	27.06	26.15	22.33	47.00	-24.67	QP
6	779.61	27.03	3.80	27.53	25.93	29.23	47.00	-17.77	QP



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6.3 Radiated Emissions (Above 1GHz)

Test Requirement: EN IEC 61000-6-3: 2021 Test Method: CISPR 16-2-3: 2016

Measurement Distance: 3m

Limit:

Fraguenov rango (MHz)	Radiated emissions limit(dBµV/m)				
Frequency range (MHz)	Peak	Average			
1000-3000	70	50			
3000-6000	74	54			
Detector: Peak for pre-scan (1MHz resolution bandwidth) 1GHz to 6GHz					

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 21.4 °C Humidity: 57.9 % RH Atmospheric Pressure: 1020 mbar

6.3.2 Test Mode Description

0.0.2 Test mode besoription					
Pre-scan / Final test	Mode Code	Description			
Pre-scan	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.			
Pre-scan	11	Main package + sub-package + grid-connected port output 1200W.			
Pre-scan	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.			
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.			
Pre-scan	20	PV IN 400W + main package + sub-package + micro-inverter output 800W			
Pre-scan	21	PV input 1200W + sub-package + off-grid with load 1200W.			
Pre-scan	22	Main package + sub-package + off-grid with load 1200W.			
Pre-scan	23	PV IN 1200W + main package + sub-package.			
Pre-scan	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.			



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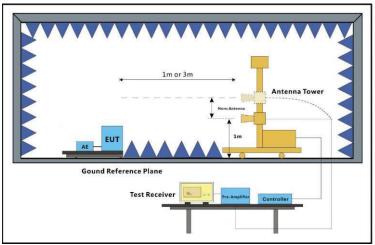
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6.3.3 Test Setup Diagram



6.3.4 Measurement Procedure and Data

Frequency range: Above 1GHz

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The red line show in graphic is the limit in standard used in this section.

The EUT was measured by Horn antenna with 2 orthogonal polarities.

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor



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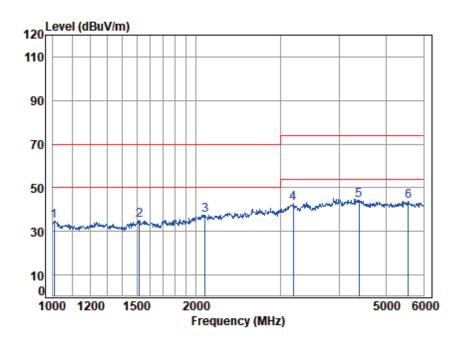


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Test Mode: 18; Polarity: Horizontal



Site : chamber

Condition: 3m HORIZONTAL

Job No : 03439AT

Mode : 18

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1005.390	4.55	26.13	61.47	65.57	34.78	70.00	-35.22	peak
2	1518.131	4.61	26.87	61.66	65.22	35.04	70.00	-34.96	peak
3	2088.431	5.73	28.85	61.75	64.59	37.42	70.00	-32.58	peak
4	3199.044	6.78	32.89	61.36	64.55	42.86	74.00	-31.14	peak
5	p 4392.917	8.00	34.74	61.54	63.20	44.40	74.00	-29.60	peak
6	5575.028	9.33	34.70	62.46	62.04	43.61	74.00	-30.39	peak



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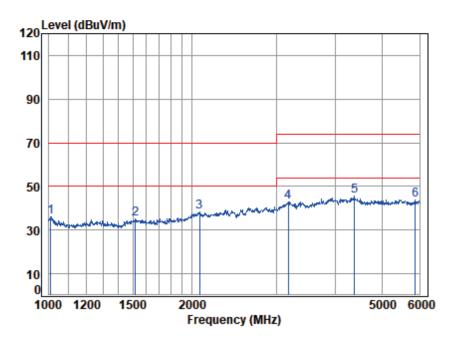


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Test Mode: 18; Polarity: Vertical



Site : chamber

Condition: 3m VERTICAL Job No : 03439AT

Mode : 18

		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
	4000 000		05.04			26.02	70.00	22.07	
1	1008.999	4.55	26.01	61.4/	66.94	36.03	/0.00	-33.9/	peak
2	1518.131	4.61	26.87	61.66	65.43	35.25	70.00	-34.75	peak
3	2069.805	5.69	28.92	61.76	65.34	38.19	70.00	-31.81	peak
4	3181.894	6.77	32.76	61.37	64.58	42.74	74.00	-31.26	peak
5 p	4377.203	8.02	34.62	61.52	64.67	45.79	74.00	-28.21	peak
6	5882 982	9 47	3/1 53	62 67	62 44	/13 77	7/ 00	30 23	nook



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Immunity Test Results 7

Performance Criteria Description in EN IEC 61000-6-1:2019

Criterion A The EUT shall continue to operate as intended during and after the test. No

> degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. If the performance level is not specified by the manufacturer, this may be derived from the product description and documentation and what

the user may reasonably expect from the equipment if used as intended.

The EUT shall continue to operate as intended after the test. No degradation Criterion B

> of performance or loss of function is allowed below a performance level specified by the manufacturer, when the EUT is used as intended. The performance level may be replaced by a permissible loss of performance. However, during the test degradation of performance is allowed but no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description

> and documentation and what the user may reasonably expect from the equipment if used as intended.

Criterion C Temporary loss of function is allowed during the test, provided the function is

self-recoverable or can be restored by the operation of the controls.



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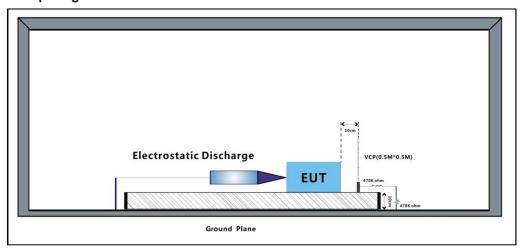
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7.1 Electrostatic Discharge

Test Requirement: EN IEC 61000-6-1: 2019 Test Method: EN 61000-4-2:2009

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 24.7 °C Humidity: 53.5 % RH Atmospheric Pressure: 1020 mbar

7 1 3 Test Mode Description

1.1.5 16311	7.1.3 Test wide Description					
Pre-scan / Final test	Mode Code	Description				
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.				
Final test	11	Main package + sub-package + grid-connected port output 1200W.				
Final test	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.				
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.				
Final test	20	PV IN 400W + main package + sub-package + micro-inverter output 800W				
Final test	21	PV input 1200W + sub-package + off-grid with load 1200W.				
Final test	22	Main package + sub-package + off-grid with load 1200W.				
Final test	23	PV IN 1200W + main package + sub-package.				
Final test	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.				



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7.1.4 Test Condition and Results:

Performance Criterion:

Discharge Impedance: $330\Omega/150pF$

Number of Discharge: Minimum 10 times at each test point

Discharge Mode: Single Discharge Discharge Period: 1 second minimum

Test Point: 1. All insulated enclosure and seams.

2. All accessible metal parts of the enclosure.

3. All side

Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	2,4,8	+	1	Α
Air Discharge	2,4,8	-	1	Α
Contact Discharge	4	+	2	Α
Contact Discharge	4	-	2	Α
Horizontal Coupling	4	+	3	А
Horizontal Coupling	4	-	3	А
Vertical Coupling	4	+	3	Α
Vertical Coupling	4	-	3	Α



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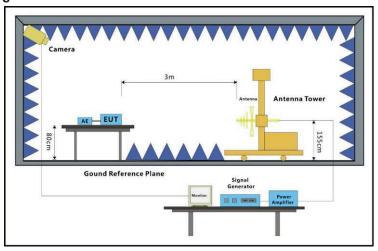
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7.2 Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)

Test Requirement: EN IEC 61000-6-1: 2019 Test Method: EN IEC 61000-4-3: 2020

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C 48.9 % RH Atmospheric Pressure: 1020 mbar Humidity:

7 2 3 Tost Mode Description

7.2.3 Test wode Description					
Pre-scan / Final test	Mode Code	Description			
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.			
Final test	11	Main package + sub-package + grid-connected port output 1200W.			
Final test	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.			
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.			
Final test	20	PV IN 400W + main package + sub-package + micro-inverter output 800W			
Final test	21	PV input 1200W + sub-package + off-grid with load 1200W.			
Final test	22	Main package + sub-package + off-grid with load 1200W.			
Final test	23	PV IN 1200W + main package + sub-package.			
Final test	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.			



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7.2.4 Test Condition and Results:

Performance Criterion:A Antenna Polarisation: Vertical and Horizontal Modulation:1kHz,80% Amp. Mod,1% increment Frequency Range:80MHz to 1GHz, 1.4GHz to 6GHz

Frequency	Level (V/m)	EUT Face	Dwell time	Result / Observations	
80MHz-1GHz	3	Front	2s	A	
80MHz-1GHz	3	Back	2s	Α	
80MHz-1GHz	3	Left	2s	Α	
80MHz-1GHz	3	Right	2s	Α	
80MHz-1GHz	3	Тор	2s	Α	
80MHz-1GHz	3	Underside	2s	A	
1.4GHz-6GHz	3	Front	2s	A	
1.4GHz-6GHz	3	Back	2s	Α	
1.4GHz-6GHz	3	Left	2s	A	
1.4GHz-6GHz	3	Right	2s	A	
1.4GHz-6GHz	3	Тор	2s	A	
1.4GHz-6GHz	3	Underside	2s	А	
A: No degradation in the performance of the EUT was observed					



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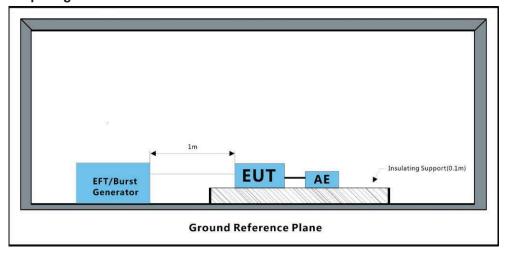
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7.3 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement: EN IEC 61000-6-1: 2019 Test Method: EN 61000-4-4:2012

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C Humidity: 51.5 % RH Atmospheric Pressure: 1020 mbar

7.3.3 Test Mode Description

7.0.0 10311	loue Descripti		
Pre-scan / Final test	Mode Code	Description	
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.	
Final test	11	Main package + sub-package + grid-connected port output 1200W.	
Final test	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	20	PV IN 400W + main package + sub-package + micro-inverter output 800W	
Final test	21	PV input 1200W + sub-package + off-grid with load 1200W.	
Final test	st 22 Main package + sub-package + off-grid with load 1200W.		
Final test	23	PV IN 1200W + main package + sub-package.	
Final test	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.	



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7.3.4 Test Condition and Results:

Performance Criterion:

Repetition Frequency: 5kHz or 100kHz

Burst Period: 300ms

Test Duration: 2 minute per level & polarity

Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	1	+	CDN	Α
AC power port	1	-	CDN	A
A: No degradation in the performance of the EUT was observed				



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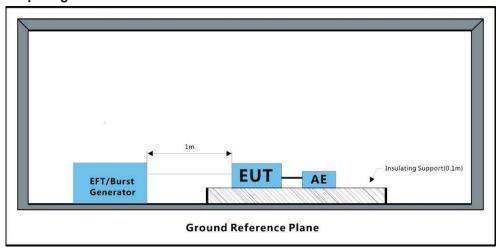
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7.4 Surge at AC Mains Power Port

Test Requirement: EN IEC 61000-6-1: 2019 Test Method: EN 61000-4-5:2014+A1:2017

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C Humidity: 51.5 % RH Atmospheric Pressure: 1020 mbar

7.4.3 Test Mode Description

7.4.5 16311	loue Descripti		
Pre-scan / Final test	Mode Code	Description	
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.	
Final test	11	Main package + sub-package + grid-connected port output 1200W.	
Final test	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	20	PV IN 400W + main package + sub-package + micro-inverter output 800W	
Final test	21	PV input 1200W + sub-package + off-grid with load 1200W.	
Final test	22	Main package + sub-package + off-grid with load 1200W.	
Final test	23	PV IN 1200W + main package + sub-package.	
Final test	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.	



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7.4.4 Test Condition and Results:

Performance Criterion: В Interval: 60s between each surge

5 positive, 5 negative at 0°, 90°, 180°, 270°. No. of surges:

Test Line	Level(kV)	Polarity	Phase(deg)	Result/Observatio	
L-N	1	<u>±</u>	0°	A	
L-N	1	<u>±</u>	90°	А	
L-N	1	<u>±</u>	180°	A	
L-N	1	<u>±</u>	270°	А	
A: No degradation in the performance of the EUT was observed					



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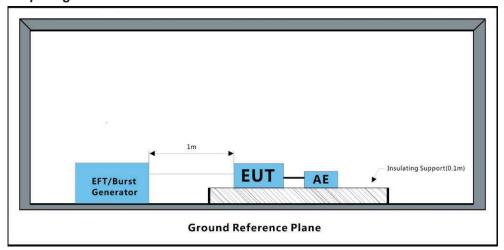
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7.5 Surge at DC Port

Test Requirement: EN IEC 61000-6-1: 2019 Test Method: EN 61000-4-5:2014+A1:2017

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C Humidity: 51.5 % RH Atmospheric Pressure: 1020 mbar

7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description	
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected por output 1200W.	
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	20	PV IN 400W + main package + sub-package + micro-inverter output 800W	
Final test 21 PV input 1200W + sub-package + off-grid with load 1200W.		PV input 1200W + sub-package + off-grid with load 1200W.	
Final test	inal test 23 PV IN 1200W + main package + sub-package.		
Final test	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.	



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7.5.4 Test Condition and Results:

Performance Criterion: В Interval: 60s between each surge

No. of surges: 5 positive, 5 negative

Test Line	Level (kV)	Polarity	Result / Observations	
P-N	0.5	+	A	
P-N	0.5	-	A	
P-G	0.5	+	A	
P-G	0.5	-	A	
N-G	0.5	+	A	
N-G	0.5	-	А	
A: No degradation in the performance of the EUT was observed				



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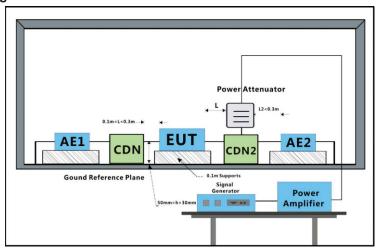
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7.6 Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

Test Requirement: EN IEC 61000-6-1: 2019 Test Method: EN 61000-4-6:2014

7.6.1 Test Setup Diagram



7.6.2 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C Humidity: 51.5 % RH Atmospheric Pressure: 1020 mbar

7.6.3 Test Mode Description

7.0.0 10311	loue Descripti		
Pre-scan / Final test	Mode Code	Description	
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.	
Final test	11	Main package + sub-package + grid-connected port output 1200W.	
Final test	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	20	PV IN 400W + main package + sub-package + micro-inverter output 800W	
Final test	21	PV input 1200W + sub-package + off-grid with load 1200W.	
Final test	22 Main package + sub-package + off-grid with load 1200W.		
Final test	23	PV IN 1200W + main package + sub-package.	
Final test	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.	



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7.6.4 Test Condition and Results:

Performance Criterion:

0.15MHz to 80MHz Frequency Range:

80%, 1kHz Amplitude Modulation Modulation:

Step Size

Cable port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations	
AC power port	3(0.15MHz- 80MHz)	CDN	3s	А	
A: No degradation in the performance of the EUT was observed					



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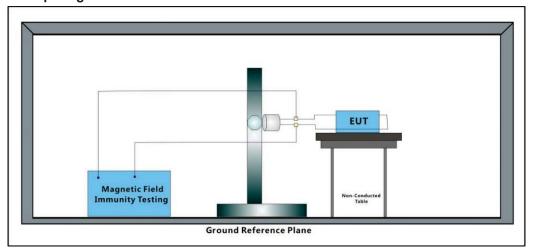
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7.7 Power Frequency Magnetic Field

Test Requirement: EN IEC 61000-6-1: 2019 Test Method: EN 61000-4-8:2010

7.7.1 Test Setup Diagram



7.7.2 E.U.T. Operation

Operating Environment:

Temperature: 26.8 °C Humidity: 51.5 % RH Atmospheric Pressure: 1020 mbar

7.7.3 Test Mode Description

7.7.3 Test wode Description			
Pre-scan / Final test	Mode Code	Description	
Final test	09	Main package + PV in input 1200W + sub-package + grid-connected port output 1200W.	
Final test	11	Main package + sub-package + grid-connected port output 1200W.	
Final test	17	Main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	18	PV IN 1200W main package + sub-package + micro-inverter output 800W + grid-connected port output 2000W.	
Final test	20	PV IN 400W + main package + sub-package + micro-inverter output 800W	
Final test	21	PV input 1200W + sub-package + off-grid with load 1200W.	
Final test	22	Main package + sub-package + off-grid with load 1200W.	
Final test	23	PV IN 1200W + main package + sub-package.	
Final test	25	PV IN 1200W + main package + sub-package + micro-inverter output 800W + grid-connected port output.	



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7.7.4 Test Condition and Results:

Performance Criterion:

Frequency	Level (A/m)	Axial	Magnetic Field Type	Result / Observations	
50 Hz	3	X	Continue	А	
50 Hz	3	Υ	Continue	Α	
50 Hz	3	Z	Continue	А	
A: No degradation in the performance of the EUT was observed					



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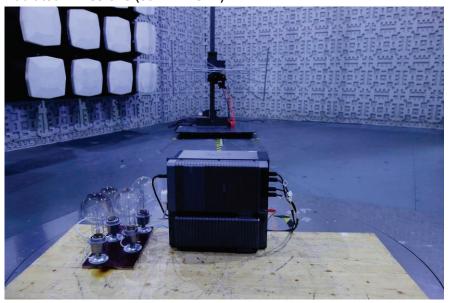
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Test Setup Photo 8

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)



Radiated Emissions (30MHz-1GHz)





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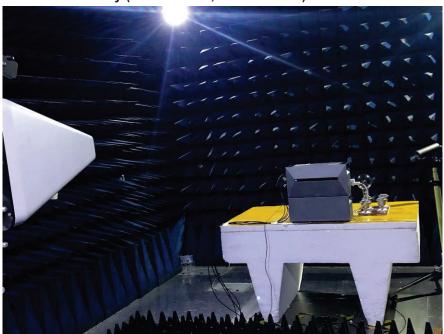
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Electrostatic Discharge



Radiated Immunity (80MHz-1GHz, 1.4GHz-6GHz)





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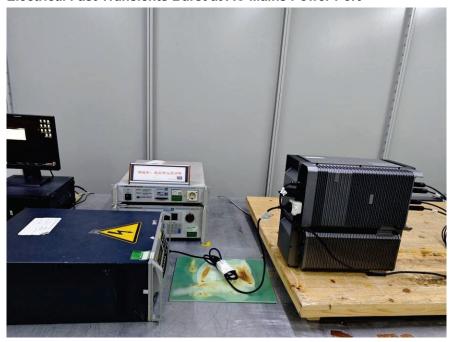


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Electrical Fast Transients Burst at AC Mains Power Port



Surge at AC Mains Power Port





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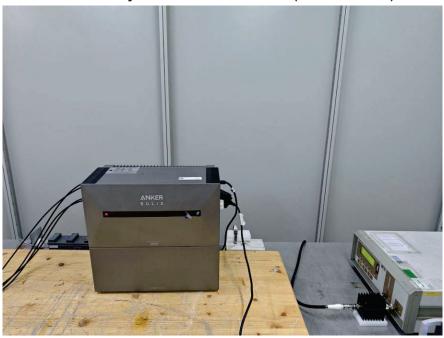


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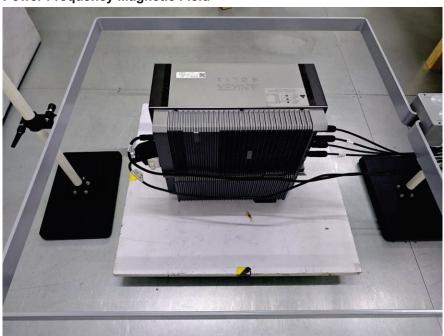
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Conducted Immunity at AC Mains Power Port (150kHz-80MHz)



Power Frequency Magnetic Field





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EUT Constructional Details (EUT Photos) 9

Refer to Appendix - Photographs of EUT Constructional Details for SZCR2409003439AT

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