

SZEMC-TRF-01 Rev. A/1 Report No.: SZEM240400264801

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TEST REPORT

Application No.: SZEM2404002648HS

Applicant: SHENZHEN YUNFAN POWER CO., LIMITED

Address of Applicant: No.6 huanguan south Road, Junzibu, Guanlan, Longhua district, Shenzhen,

China.

Manufacturer: SHENZHEN YUNFAN POWER CO., LIMITED

Address of Manufacturer: No.6 huanguan south Road, Junzibu, Guanlan, Longhua district, Shenzhen,

China.

Factory: SHENZHEN YUNFAN POWER CO., LIMITED

Address of Factory: No.6 huanguan south Road, Junzibu, Guanlan, Longhua district, Shenzhen,

China.

Equipment Under Test (EUT):

EUT Name: DC FAN Model No.: 12038

Trade Mark: yunfanpower

Standard(s): EN IEC 55014-1: 2021

EN IEC 55014-2: 2021

Date of Receipt: 2024-04-07

Date of Test: 2024-04-11 to 2024-04-18

Date of Issue: 2024-04-20

Test Result: Pass*

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	Version Chapter Date Modifier Remark						
01		2024-04-20		Original			

Authorized for issue by:		
	Concert Chen	
	Vincent Chen/Project Engineer	
	Exic Fu	
	Eric Fu/Reviewer	



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Test Summary 2

Emission Part							
Item	Standard	Method	Requirement	Result			
Radiated Emissions (30MHz-1GHz)	EN IEC 55014-1: 2021	CISPR 16-2- 3:2016+A1:2019	Table 9	Pass			

Immunity Part							
Item	Standard	Method	Requirement	Result			
Electrostatic Discharge	EN IEC 55014-2:	EN 61000-4-2:2009	4kV Contact Discharge, 8kV Air Discharge	Pass			
Radiated Immunity (80MHz-1GHz)	2021	EN IEC 61000-4-3: 2020	3V/m, 80%, 1kHz Amp. Mod.	Pass			



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General Information

4.1 Details of E.U.T.

Power supply:	DC 24V, 0.35A, 8.5W
rower suppry.	DC 24 V, 0.33A, 0.3 VV

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.			
The EUT has been tested as an independent unit.						

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions (30MHz-1GHz)	\pm 6.0dB for 3m; \pm 5.0dB for 10m
Electrostatic Discharge	± 6%
Radiated Immunity (80MHz-1GHz)	± 2.1dB

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 Room 105, Building A, Xinlong Technology Industrial Park, No. 50 Fengtang Road, Xintian

Community, Fuyong Street, Bao'an District, Shenzhen, China Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Deviation from Standards

Tel: +86 755 2601 2053

4.6 Abnormalities from Standard Conditions

None

EMS Monitor

Visual: Monitor the operating status of the EUT.

Audio:



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Equipment List 5

Radiated Emissions (30MHz-1GHz)						
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date	
966 Anechoic Chamber	CRT	N/A	SEM001-13	2022-10-15	2025-10-14	
EMI Test Receiver	Agilent	N9038A	SEM004-05	2023-09-14	2024-09-13	
Trilog-Broadband Antenna	Schwarzbeck	VULB9168	SEM003-26	2023-09-23	2025-09-22	
Pre-Amplifier	HP	8447D	SEM005-02	2023-09-13	2024-09-12	
Pre-Amplifier	HP	8347A	SEM005-07	2023-10-20	2024-10-19	
Coaxial Cable	SGS	N/A	SEM035-01	2023-05-15	2024-05-14	
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A	

Electrostatic Discharge					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
ESD Generator	Schaffner	NSG 438	SEM019-01	2024-04-02	2025-04-01

Radiated Immunity (80MHz-1GHz)						
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date	
764 Anechoic Chamber	CRT	N/A	SEM001-12	2022-10-15	2025-10-14	
Measurement Software	NEXIO	BAT V3.19.1.20	N/A	N/A	N/A	
Solid State Amplifier	TESEQ	CBA 1G- 1200B	SEM005-20	2023-10-20	2024-10-19	
Solid State Amplifier	TESEQ	CBA 6G-200D	SEM005-21	2024-03-28	2025-03-27	
USB Power Sensor	Keysight	U2042XA	SEM009-18	2023-10-25	2024-10-24	
USB Power Sensor	Keysight	U2042XA	SEM009-19	2023-10-25	2024-10-24	
MXG Analog Signal Generator	Agilent	N5181A	SEM006-16	2023-09-13	2024-09-12	
LogPer. Antenna	Schwarzbeck	STLP 9128 Esp-7/16	SEM003-29	N/A	N/A	
RI Cable	Huber Suhner	N/A	SEM034-02	2023-05-15	2024-05-14	
RI Cable	Huber Suhner	N/A	SEM034-03	2023-05-15	2024-05-14	



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General used equipment						
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date	
Humidity/ Temperature Indicator	deli	8838	SEM002-50	2023-07-28	2024-07-27	
Humidity/ Temperature Indicator	deli	8838	SEM002-51	2023-07-28	2024-07-27	
Humidity/ Temperature Indicator	deli	8838	SEM002-53	2023-07-28	2024-07-27	
Barometer	DUMAI	DYM3	SEM002-24	2023-09-04	2024-09-03	



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6 **Emission Test Results**

6.1 Radiated Emissions (30MHz-1GHz)

EN IEC 55014-1: 2021 Test Requirement:

Test Method: CISPR 16-2-3:2016+A1:2019

Measurement Distance: 3m

Limit:

EDECLIENCY (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					

6.1.1 E.U.T. Operation

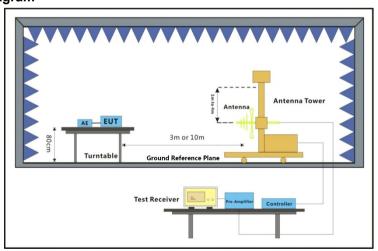
Operating Environment:

21.5 °C Temperature: Humidity: 51.3 % RH Atmospheric Pressure: 1020 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Normal working_Keep the EUT on normal working mode.

6.1.3 Test Setup Diagram





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6.1.4 Measurement Procedure and Data

Frequency Range: 30MHz to 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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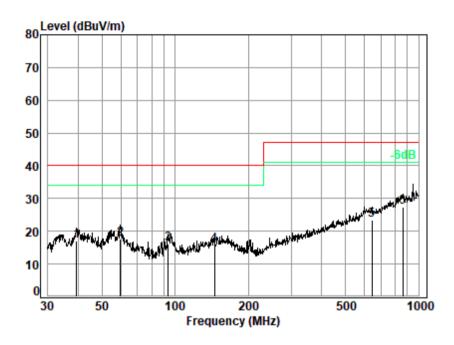


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Test Mode: 00; Polarity: Horizontal



Site : chamber

Condition: 3m HORIZONTAL

: 02648HS

Mode : 00

								_		
		Capte	Ant	Preamp	Kead		Limit	Over		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
										_
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1	39.44	0.19	17.92	25.88	24.69	16.92	40.00	-23.08	QP	
2	59.65	0.27	17.39	25.84	25.93	17.75	40.00	-22.25	QP	
3	93.44	0.71	12.10	25.81	29.10	16.10	40.00	-23.90	QP	
4	144.84	0.94	17.16	25.60	23.25	15.75	40.00	-24.25	QP	
5	642.86	2.18	24.46	26.55	23.44	23.53	47.00	-23.47	QP	
6	860.04	2.85	27.54	26.11	23.16	27.44	47.00	-19.56	QP	



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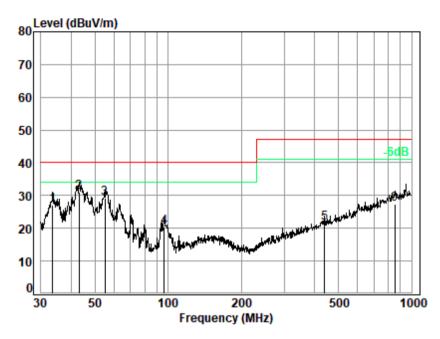


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Test Mode: 00; Polarity: Vertical



Site : chamber Condition: 3m VERTICAL : 02648HS Mode : 00

		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	
1	33.56	0.21	17.09	25.89	35.63	27.04	40.00	-12.96	QP
2	43.05	0.21	17.99	25.87	38.67	31.00	40.00	-9.00	QP
3	55.03	0.17	17.48	25.85	37.25	29.05	40.00	-10.95	QP
4	96.44	0.78	12.40	25.80	32.95	20.33	40.00	-19.67	QP
5	440.20	1.53	20.91	25.97	25.24	21.71	47.00	-25.29	QP
6	854.02	2.93	27.59	26.14	22.97	27.35	47.00	-19.65	QP



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Immunity Test Results 7

Performance Criteria Description in EN IEC 55014-2:2021

Criterion A: The apparatus shall continue to operate as intended during the test. No

> degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user

may reasonably expect from the apparatus if used as intended.

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

> of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. 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, then either of these may be derived from the product description and documentation and from what the user may reasonably

expect from the apparatus if used as intended.

Criterion C: Temporary loss of function is allowed, provided the function is self recoverable or

can be restored by the operation of the controls, or by any operation specified in

the instructions for use.



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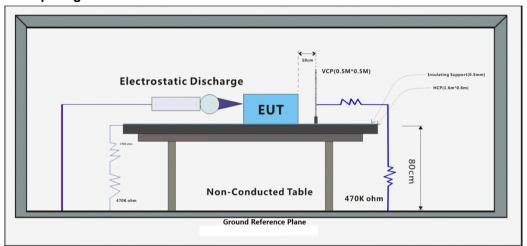
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7.1 Electrostatic Discharge

Test Requirement: EN IEC 55014-2: 2021 Test Method: EN 61000-4-2:2009

7.1.1 Test Setup Diagram



7.1.2 E.U.T. Operation

Operating Environment:

Temperature: 23.1 °C Humidity: 51.7 % RH Atmospheric Pressure: 1020 mbar

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Normal working_Keep the EUT on normal working mode.

7.1.4 Test Condition and Results:

Performance Criterion: B

Discharge Impedance: 330 Ω / 150 pF

Discharge Voltage: Air Discharge: 8 kV; Contact Discharge: 4 kV; VCP/HCP: 4 kV.

Polarity: Positive & Negative

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 & seams.

Test Point 2: All accessible metal parts of the enclosure.

Test Point 3: All sides.



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Discharge type	Level (kV)	Polarity	Test Point	Result / Observations			
Air Discharge	8	+	1	Α			
Air Discharge	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	А			
Vertical Coupling	4	-	3	Α			
A: No degradation in the performance of the EUT was observed							



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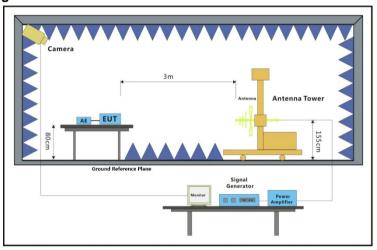
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7.2 Radiated Immunity (80MHz-1GHz)

Test Requirement: EN IEC 55014-2: 2021 Test Method: EN IEC 61000-4-3: 2020

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:

Temperature: 22.3 °C Atmospheric Pressure: 1020 mbar Humidity: 51.0 % RH

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Normal working_Keep the EUT on normal working mode.

7.2.4 Test Condition and Results:

Performance Criterion: A

Frequency Range: 80MHz to 1GHz

Antenna Polarisation: Vertical and Horizontal Modulation 1kHz, 80% Amp. Mod,1% increment



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



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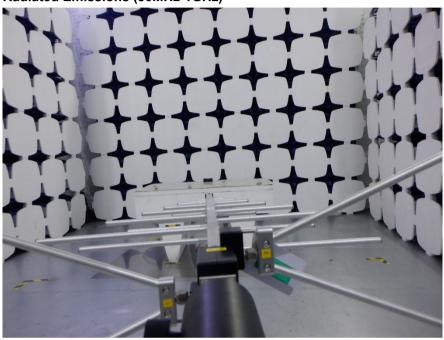


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Test Setup Photo 8

Radiated Emissions (30MHz-1GHz)



Electrostatic Discharge





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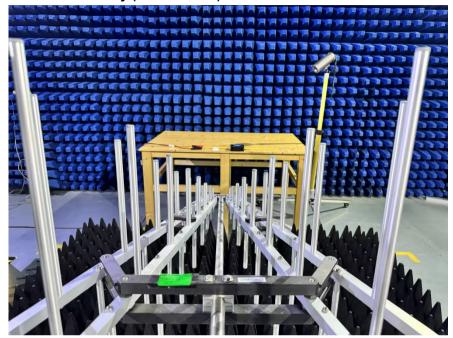
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Radiated Immunity (80MHz-1GHz)





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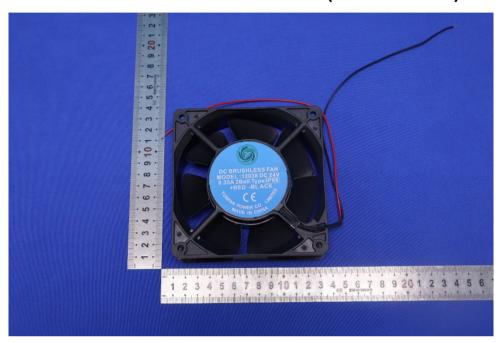
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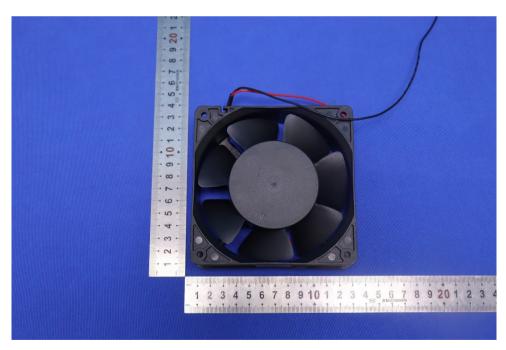


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EUT Constructional Details (EUT Photos)





- End of the Report -



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