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TEST REPORT

Application No.:	SHEM2201000080HS
Applicant:	NANJING TICA CLIMATE SOLUTIONS CO., LTD.
Address of Applicant:	No.6 HengYe Road,Economic Technological Development Zone. Nanjing,China
Manufacturer:	NANJING TICA CLIMATE SOLUTIONS CO., LTD.
Address of Manufacturer:	No.6 HengYe Road,Economic Technological Development Zone. Nanjing,China
Factory:	NANJING TICA CLIMATE SOLUTIONS CO., LTD.
Address of Factory:	No.6 HengYe Road,Economic Technological Development Zone. Nanjing,China
Equipment Under Test (EUT):
EUT Name:	FAN COIL UNIT
Model No.:	Refer to Page 2*
¤	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) :	EN 61000-3-3: 2013+A1: 2019
	EN IEC 55014-1: 2021
	EN IEC 61000-3-2: 2019+A1:2021
	EN IEC 55014-2: 2021
Date of Receipt:	2022-01-20
Date of Test:	2022-01-13 to 2022-01-13
Date of Issue:	2022-01-24
Test Result:	Pass*

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

parlan shan

Parlam Zhan Laboratory Manager



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Model No.: TCR1400JL5SNNNTN, TCR **** J*******

TCR *** I *******

<u>ICK J</u>			
	L-Left water inlet	R-Right water inlet	
	S- Low static pressure	3- 30 Pa static pressure	5- 50 Pa static pressure
	S-Standard drain pan	A-Extended to 150mm	
	N-No air return plenum	D-Bottom return air plenum	B-Back return air plenum
Feature code	N-No filter	A-Nylon filter	F-Metal filter
	N-No electric heater		
	T-FCU with 3 rows of coils	W-(4 pipes) FCU with hot water coil	
	C-FCU with 3 rows of coils(large temperature difference)	W-(4 pipes) FCU with hot water coil(large temperature difference)
	Design S/N : A, B, C		
		200,1400	
	Ceiling concealed FCU		



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Revision Record					
Version Description Date Remark					
00	Original	2022-01-24			

Authorized for issue by:			
	Andy Yang		
	Andy Yang/Project Engineer	_	
	Brace Tang		
	Bruce Tang/Reviewer	-	



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2 Test Summary

Emission Part						
ltem	Standard	Method	Requirement	Result		
Voltage Fluctuations and Flicker	EN 61000-3-3: 2013+A1: 2019	EN 61000-3-3: 2013+A1: 2019	Clause 5	Pass		
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	EN IEC 55014-1:	CISPR 16-2-1	Table 5	Pass		
Disturbance Power		CISPR 16-2-2	Table 7 & 8	Pass		
Harmonic Current Emission	EN IEC 61000-3-2: 2019+A1:2021	EN IEC 61000-3-2: 2019+A1:2021	Class A	Pass		

mmunity Part						
Item	Standard	Standard Method Requirement		Result		
Electrostatic Discharge		EN 61000-4-2:2009	±4kV Contact Discharge, ±8kV Air Discharge	Pass		
Electrical Fast Transients Burst at AC Mains Power Port		EN 61000-4-4:2012	1kV, 5/50ns Tr/Td, 5kHz Repetition Frequency	Pass		
Surge at AC Mains Power Port	EN IEC 55014-2:	EN 61000-4- 5:2014+A1:2017	1.2/50µs Tr/Td, 1kV Line to Line, 2kV Line to Ground	Pass		
Conducted Immunity at AC Mains Power Port (150kHz- 230MHz)	2021	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass		
Voltage Dips and Interruptions		EN IEC 61000-4- 11:2020	0 % UT for 0.5cycle, 40 % UT for 10cycles, 70 % UT for 25cycles, UT is Supply Voltage	Pass		

Note: 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 model TCR1400JL5SNNNTN was tested since their differences were the unit size.



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4 General Information

4.1 Details of E.U.T.

Power supply:	AC 220-240V 50Hz	
	Test Voltage: AC 230V 50Hz	
Cable(s):	AC cable 1.3m by SGS	
Maximum clock frequency:	<15MHz	

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

No.	Item	Measurement Uncertainty
4	Conducted Emission	2.6dB (9kHz to 150kHz)
I	at mains port using AMN	2.4dB (150kHz to 30MHz)
2	Conducted Emission	
2	at mains port using VP	1.8dB (9kHz to 30MHz)
3	Conducted Emission	
3	at telecommunication port using AAN	4.2dB (150kHz to 30MHz)
4	Radiated Power	3.2dB
		4.5dB (30MHz-1GHz)
5	Radiated emission	5.1dB (1GHz-6GHz)
		5.4dB (6GHz-18GHz)
6	Radiated disturbance (disturbance current in a LLAS)	2.4dB (9kHz to 30MHz)

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





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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 17025:2017 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.

• A2LA (Certificate No. 6332.01)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

• FCC (Designation Number: CN1301)

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

• ISED (CAB Identifier: CN0020)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 8617A

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. None

4.6 Abnormalities from Standard Conditions None

4.7 EMS Monitor

Visual: Working status of EUT.



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5 Equipment List

Voltage Fluctuations and Flicker					
Equipment Manufacturer Model No Inventory No					Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2021/5/27	2022/5/26
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2021/5/27	2022/5/26
Test Software	AMETEK	CTS4	Version: 4.24.0	N/A	N/A
Harmonic&Flicker analyzer	EM TEST	DPA500	SHEM024-1	2021/8/13	2022/8/12
AC Power Source 6KVA	EM TEST	ACS500	SHEM025-1	2021/8/13	2022/8/12
Test Software	EM TEST	DPA	Version: 5.4.8.0	N/A	N/A

Conducted Emissions at AC Mains Power Port (150kHz-30MHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2021/12/20	2022/12/19	
Line impedance stabilization network	SCHWARZBECK	SCHWARZBECK NSLK8127		2021/12/20	2022/12/19	
Line impedance stabilization network	EMCO	3816_2	SHEM019-1	2021/12/20	2022/12/19	
Pulse limiter	Rohde & Schwarz	ESH3-Z2	SHEM029-1	2021/12/20	2022/12/19	
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2020/12/20	2023/12/19	
CE test Cable	/	/	SHEM172-1	2022/1/7	2023/1/6	
Test Software	st Software ESE		Version: 6.111221a	N/A	N/A	

Disturbance Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI test receiver	Rohde & Schwarz	ESR7	SHEM162-1	2021/12/20	2022/12/19
Absorbing clamp	LUTHI	MDS21	SHEM014-1	2021/12/20	2022/12/19
DE coupling clamp	LUTHI	FTC101	SHEM027-2	N/A	N/A
Attenuator	HUAXIANG	TS2-6dB-2G-B	SHEM208-1	2021/12/20	2022/12/19
Shielding Room	ZHONGYU	8*4*3M	SHEM079-2	2021/12/20	2023/12/19
DP test Cable	/	/	SHEM179-1	2022/1/7	2023/1/6
Test Software	ESE	e3	Version: 6.111221a	N/A	N/A



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Harmonic Current Emission					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Harmonic&Flicker analyzer	AMETEK	PACS-1	SHEM024-2	2021/5/27	2022/5/26
AC Power Source 5KVA	AMETEK	5001iX	SHEM025-2	2021/5/27	2022/5/26
Test Software	AMETEK	CTS4	Version: 4.24.0	N/A	N/A
Harmonic&Flicker analyzer	EM TEST	DPA500	SHEM024-1	2021/8/13	2022/8/12
AC Power Source 6KVA	EM TEST	ACS500	SHEM025-1	2021/8/13	2022/8/12
Test Software	EM TEST	DPA	Version: 5.4.8.0	N/A	N/A

Electrostatic Discharge						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Electrostatic Discharge Simulator	TESEQ	NSG 437	SHEM041-2	2021/8/13	2022/8/12	
Electrostatic Discharge Simulator	3CTEST	EDS20H	SHEM199-1	2021/9/29	2022/9/28	

Electrical Fast Transients Burst at AC Mains Power Port						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Immunity Test System	EMC PARTNER	TRA3000 F-S- D-V	SHEM163-1	2021/12/20	2022/12/19	
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A	
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2021/4/15	2022/4/14	
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2021/4/15	2022/4/14	
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2021/8/13	2022/8/12	
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2021/8/13	2022/8/12	

Surge at AC Mains Power Port						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Immunity Test System	EMC PARTNER	TRA3000 F-S- D-V	SHEM163-1	2021/12/20	2022/12/19	
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A	
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2021/4/15	2022/4/14	
Coupling / Decoupling Network (CDN)	TESEQ	CDN 3061	SHEM224-3	2021/4/15	2022/4/14	
EFT & Surge Generator	PRIMA	PRM61045TB	SHEM200-1	2021/8/13	2022/8/12	
CDN for EFT & Surge	PRIMA	PRM-CDN	SHEM200-2	2021/8/13	2022/8/12	



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Conducted Immunity at AC Mains Power Port (150kHz-230MHz)						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Signal generator	Rohde & Schwarz	SMB100A	SHEM194-1	2021/12/20	2022/12/19	
Power Amplifier	HAEFFLY	PAMP250	SHEM023-1	2021/12/20	2022/12/19	
6dB Attenuator	HUAXIANG	DTS50-6dB- 1G-A	SHEM123-2	2021/12/20	2022/12/19	
Power Meter	Rohde & Schwarz	NRP	SHEM057-1	2021/4/15	2022/4/14	
Power meter sensor	Rohde & Schwarz	NRP-Z91	SHEM057-2	2021/4/15	2022/4/14	
Coupling and Decoupling Network (CDN)	LUTHI	L-801 M1	SHEM023-5	2021/12/20	2022/12/19	
Coupling and Decoupling Network (CDN)	LUTHI	L-801 M2/M3	SHEM023-6	2021/12/20	2022/12/19	
Shielding Room	ZHONGYU	5*3*3M	SHEM079-6	2021/12/20	2022/12/19	
Coupling and Decoupling Network	Teseq	CDN M016	SHEM168-1	2021/8/13	2022/8/12	
RF Generator	SCHAFFNER	NSG 2070	SHEM221-1	2021/5/27	2022/5/26	
Test Software	Rohde & Schwarz	EMC32	Version: 10.20.01	N/A	N/A	

Voltage Dips and Interruptions						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Immunity Test System	EMC PARTNER	TRA3000 F-S- D-V	SHEM163-1	2021/12/20	2022/12/19	
Test Software	EMC-PARTNER	GENECS	Version: 3.29	N/A	N/A	
Immunity Test System	TESEQ	NSG 3060	SHEM224-1	2021/4/15	2022/4/14	
Coupling / Decoupling Network (CDN) TESEQ		CDN 3061	SHEM224-3	2021/4/15	2022/4/14	
Manual step transformer	TESEQ	INA 6501	SHEM224-4	2021/4/15	2022/4/14	

General used equipment						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2021-09-14	2022-09-13	
Humidity/ Temperature Indicator	Anymetre	TH101B	SEM002-09	2021-09-14	2022-09-13	
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2021-03-30	2022-03-29	



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hown in this test report refer o	nly to the sample(s) tested	and such sample	(s) are retained for 3	30 days only.	
	of testing /inspection re	port & certificate	, please contact us	s at telephone: (86-755) 8	307 1443,
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6 Emission Test Results

6.1 Voltage Fluctuations and Flicker

Test Requirement:	EN 61000-3-3: 2013+A1: 2019
Test Method:	EN 61000-3-3: 2013+A1: 2019
6.1.1 E.U.T. Operation	

Operating Environment:

· •			
Temperature:	22 °C	Humidity: 50 % RH	Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

Parameter values recorded during the test: Vrms at the end of test (Volt): 229.70

Highest dt (%):		Test limit (%):		
T-max (mS):	0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.24	Test limit (%):	3.30	Pass
Highest dmax (%):	0.26	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.213	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.093	Test limit:	0.650	Pass



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

Test Requirement:	EN IEC 55014-1: 2021
Test Method:	CISPR 16-2-1

Limit:

0.15M-0.5MHz	66dB(μ V)-56dB(μ V) quasi-peak, 59dB(μ V)-46dB(μ V) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.2.1 E.U.T. Operation

Operating Environment:

Temperature:	22 °C	Humidity: 50 %	6 RH Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

Frequency Range: 150kHz to 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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EUT/Project No : 00080HS Test Mode : 00

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.16	-11.29	0.20	9.90	-1.19	58.20	-59.39	Average
2	0.16	1.57	0.20	9.90	11.67	65.38	-53.71	QP
3	0.41	-15.13	0.20	9.93	-5.00	48.24	-53.24	Average
4	0.41	-3.36	0.20	9.93	6.77	57.73	-50.96	QP
5	0.71	-16.79	0.20	9.91	-6.68	46.00	-52.68	Average
6	0.71	-4.14	0.20	9.91	5.97	56.00	-50.03	QP
7	1.55	-17.14	0.20	9.92	-7.02	46.00	-53.02	Average
8	1.55	-4.89	0.20	9.92	5.23	56.00	-50.77	QP -
9	13.41	3.23	0.44	10.11	13.78	50.00	-36.22	Average
10	13.41	12.29	0.44	10.11	22.84	60.00	-37.16	QP
11	27.13	-13.82	1.04	10.18	-2.60	50.00	-52.60	Average
12	27.13	4.55	1.04	10.18	15.77	60.00	-44.23	QP
No	tes: Em:	ission Le	vel = Re	ad Leve	l +LISN Fa	actor +	Cable los	 S



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Test Mode : 00

	Freq (MHz)	Read level (dBuV)	LISN Factor (dB)	Cable Loss (dB)	Emission Level (dBuV)	Limit (dBuV)	Over Limit (dB)	Remark
1	0.16	-11.59	0.20	9.89	-1.50	58.37	-59.87	Average
2	0.16	2.16	0.20	9.89	12.25	65.52	-53.27	QP
3	0.24	-15.31	0.20	9.93	-5.18	53.85	-59.03	Average
4	0.24	-3.37	0.20	9.93	6.76	62.04	-55.28	QP
5	0.54	-17.35	0.20	9.92	-7.23	46.00	-53.23	Average
6	0.54	-6.59	0.20	9.92	3.53	56.00	-52.47	QP -
7	2.99	-15.87	0.20	9.98	-5.69	46.00	-51.69	Average
8	2.99	-4.40	0.20	9.98	5.78	56.00	-50.22	QP
9	4.18	-15.24	0.20	10.00	-5.04	46.00	-51.04	Average
10	4.18	-4.09	0.20	10.00	6.11	56.00	-49.89	QP -
11	13.34	4.18	0.44	10.11	14.73	50.00	-35.27	Average
12	13.34	17.99	0.44	10.11	28.54	60.00	-31.46	QP
No	tes: Emi	ission Le	vel = Re	ead Level	1 +LISN F	actor + (Cable los	5



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6.3 Disturbance Power

Test Requirement:	EN IEC 55014-1: 2021
Test Method:	CISPR 16-2-2

Limit:

30MHz- 300MHz:	45dB(pW)-55dB(pW) quasi-peak, 35dB(pW)-45dB(pW) average
200MHz- 300MHz:	0dB(pW)-10dB(pW) quasi-peak (reduction limit)
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30MHz to 300MHz

6.3.1 E.U.T. Operation

Operating Enviro	nmen	t:						
Temperature:	22	°C	Humidity:	50	% RH	Atmospheric Pressure:	1010	mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

6.3.3 Test Setup Diagram



6.3.4 Measurement Procedure and Data

Frequency Range: 30MHz to 300MHz

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 + Clamp Factor



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EUT/Project No : 00080HS Test Mode : 00

	Freq (MHz)	Read level (dBpW)	Aux Factor (dB)	Cable Loss (dB)	Emission Level (dBpW)	n Limit (dBpW)	Over Limit (dB)	Remark
1	30.54	-5.51	20.15	6.61	21.25	35.03	-13.78	Average
2	30.54	-0.34	20.15	6.61	26.42	45.03	-18.61	QP
-	37.29	-12.31	19.76	6.74	14.19	35.28	-21.09	Average
4	37.29	-7.87	19.76	6.74	18.63	45.28	-26.65	QP
- 5	47.01	-12.56	16.75	6.84	11.03	35.64	-24.61	Average
6	47.01	-6.35	16.75	6.84	17.24	45.64	-28.40	QP
7	93.45	-7.56	18.04	7.34	17.82	37.36	-19.54	Average
8	93.45	-3.68	18.04	7.34	21.70	47.36	-25.66	QP
9	102.63	-9.64	18.05	7.42	15.83	37.70	-21.87	Average
10	102.63	-6.33	18.05	7.42	19.14	47.70	-28.56	QP
11	107.76	-12.04	17.94	7.46	13.36	37.89	-24.53	Average
12	107.76	-6.98	17.94	7.46	18.42	47.89	-29.47	QP
I	lotes: E	mission	Level = F	Read Lev	el +Aux H	Factor +	Cable los	ss



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6.4 Harmonic Current Emission

Test Requirement:	EN IEC 61000-3-2: 2019+A1:2021
Test Method:	EN IEC 61000-3-2: 2019+A1:2021

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

6.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

Frequency Range: 100Hz to 2kHz



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-	parameter valu V_RMS (Volts) I_Peak (Amps) I_Fund (Amps) Power (Watts):	: 230.21 : 1.920	t:	Frequency(Hz): I_RMS (Amps): Crest Factor: Power Factor:	50.00 1.331 1.455 0.994		
Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
$\begin{array}{c} 2\\ 3\\ 4\\ 5\\ 6\\ 7\\ 8\\ 9\\ 10\\ 11\\ 12\\ 13\\ 14\\ 15\\ 16\\ 17\\ 18\\ 19\\ 20\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\ 29\\ 30\\ 31\\ 32\\ 33\\ 34\\ 35\\ 36\\ 37\end{array}$	$\begin{array}{c} 0.001\\ 0.004\\ 0.001\\ 0.001\\ 0.000\\ 0.$	0.027 0.359 0.000 0.133 0.000 0.093 0.000 0.040 0.000 0.040 0.040 0.000 0.040 0.040 0.000 0.000 0	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	$\begin{array}{c} 0.001\\ 0.005\\ 0.001\\ 0.001\\ 0.001\\ 0.001\\ 0.001\\ 0.001\\ 0.001\\ 0.001\\ 0.001\\ 0.000\\ 0.$	0.040 0.538 0.000 0.199 0.000 0.140 0.000 0.000 0.000 0.060 0.000 0.000 0.060 0.000 0.000 0.060 0.000 0.000 0.060 0.000 0.000 0.000 0.060 0.000 0.000 0.000 0.060 0.000 0	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	Pass Pass Pass Pass Pass Pass Pass Pass
38 39 40	0.000 0.000 0.000	0.000 0.040 0.000	N/A N/A N/A	0.000 0.000 0.000	0.000 0.060 0.000	N/A N/A N/A	Pass Pass Pass

N/A: Harmonic currents less than 0.6% of the input current measured under the test conditions, or less than 5mA, whichever is greater, are disregarded



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Harm# Harmonics V-rms Limit V-rms % of Limit Status OK 2 0.055 0.460 11.85 3 21.10 OK 0.437 2.071 9.17 OK 4 5 6 7 0.042 0.460 0.050 0.921 5.39 OK 3.22 OK 0.015 0.460 0.031 4.42 OK 0.691 8 0.011 0.460 2.48 OK 9 0.029 OK 0.460 6.40 10 0.015 0.460 3.30 OK 0.009 11 0.230 3.82 OK 12 0.014 0.230 6.24 OK 13 OK 0.007 0.230 3.23 14 0.005 0.230 2.39 OK 15 OK 0.011 0.230 4.92 0.230 3.38 OK 16 0.008 17 0.006 0.230 2.60 OK 18 0.006 0.230 2.68 OK 19 0.006 0.230 2.42 OK 0.230 20 0.011 4.64 OK 21 0.006 0.230 2.57 OK 22 0.004 0.230 1.85 OK 0.008 23 0.230 3.56 OK 0.005 24 0.230 2.00 OK 25 0.008 OK 0.230 3.39 26 0.004 OK 0.230 1.60 27 0.008 0.230 3.52 OK 28 0.004 0.230 1.56 OK 29 0.230 OK 0.008 3.48 30 0.004 0.230 1.80 OK 31 0.006 0.230 2.42 OK 0.004 1.56 32 0.230 OK 33 OK 0.005 0.230 2.15 34 0.004 0.230 1.66 OK 35 0.005 2.22 OK 0.230 0.004 36 0.230 1.64 OK 37 0.005 0.230 2.03 OK 38 0.004 0.230 1.56 OK 39 0.005 0.230 2.01 OK 40 0.006 0.230 2.75 OK



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7 Immunity Test Results

Performance Criteria Description

- **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 to persist after the test. 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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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:	22	°C	Humidity:	50	% RH	Atmospheric Pressure: 1010	mbar	

7.1.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

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						
Air Discharge	8	-	1						
Contact Discharge	4	+	2						
Contact Discharge	4	-	2						
Horizontal Coupling	4	+	3						
Horizontal Coupling	4	-	3						
Vertical Coupling	4	+	3						
Vertical Coupling	4	-	3						
A: No degradation in	A: No degradation in the performance of the EUT was observed								



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7.2 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement:	EN IEC 55014-2: 2021
Test Method:	EN 61000-4-4:2012

7.2.1 Test Setup Diagram



7.2.2 E.U.T. Operation

Operating Environment:								
Temperature:	22	°C	Humidity:	50	% RH	Atmospheric Pressure:	1010	mbar

7.2.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

7.2.4 Test Condition and Results:

Performance Criterion: B Repetition Frequency: 5kHz Burst Period: 300ms Test Duration: 2 minute per level & polarity Test Level: 1.0kV Polarity: Positive & Negative

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

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A: No degradation in the performance of the EUT was observed

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7.3 Surge at AC Mains Power Port

Test Requirement: EN IEC 55014-2: 2021 Test Method: EN 61000-4-5:2014+A1:2017

7.3.1 Test Setup Diagram



7.3.2 E.U.T. Operation

Operating Environment: Temperature: 22 °C % RH Atmospheric Pressure: 1010 mbar Humidity: 50

7.3.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

7.3.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Generator source impedance: 2Ω

CDN coupling impedance(Line-to-ground):10Ω

Trigger Mode: Internal

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

Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	90°	
L-N	1	-	270°	
L-PE	2	+	90°	
L-PE	2	-	270°	
N-PE	2	+	90°	
N-PE	2	-	270°	

A: No degradation in the performance of the EUT was observed



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7.4 Conducted Immunity at AC Mains Power Port (150kHz-230MHz)

Test Requirement:	EN IEC 55014-2: 2021
Test Method:	EN 61000-4-6:2014

7.4.1 Test Setup Diagram



7.4.2 E.U.T. Operation

Operating Environment:							
Temperature:	22	°C	Humidity:	50	% RH	Atmospheric Pressure: 1010	mbar

7.4.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

7.4.4 Test Condition and Results:

Performance Criterion: A Step Size: 1% Frequency Range: 0.15MHz to 230MHz Modulation: 80%, 1kHz Amplitude Modulation

Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations				
AC power port	3	2s	А					
A: No degradation in the performance of the EUT was observed								



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7.5 Voltage Dips and Interruptions

Test Requirement:	EN IEC 55014-2: 2021
Test Method:	EN IEC 61000-4-11:2020

7.5.1 Test Setup Diagram



7.5.2 E.U.T. Operation

Operating Environment:								
Temperature:	22	°C	Humidity:	50	% RH	Atmospheric Pressure:	1010	mbar

7.5.3 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Running mode: Keep EUT running continuously.

7.5.4 Test Condition and Results:

Performance Criterion:

- For 50Hz: 0% of UT (Rated Voltage) for 0.5 Cycle: C; 40% of UT for 10 Cycles: C; 70% of UT for 25 Cycles: C.
- For 60Hz: 0% of UT (Rated Voltage) for 0.5 Cycle: C; 40% of UT for 12 Cycles: C; 70% of UT for 30 Cycles: C.

No. of Dips / Interruptions: 3 per Level

Time between dropout: 10s

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Cycles	3	
0	180°	0.5 Cycles	3	





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40	0°	10 Cycles	3			
40	180°	10 Cycles	3			
70	0°	25 Cycles	3			
70	180°	25 Cycles	3			
A: No degradation in the performance of the EUT was observed						



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8 Test Setup Photo

Voltage Fluctuations and Flicker



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





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Disturbance Power





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Harmonic Current Emission





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Electrostatic Discharge



Electrical Fast Transients Burst at AC Mains Power Port





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Surge at AC Mains Power Port



Conducted Immunity at AC Mains Power Port (150kHz-230MHz)





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Voltage Dips and Interruptions





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9 EUT Constructional Details (EUT Photos)





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- End of the Report -



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SGS-CSTC Standards Technical Services Co., Ltd.

VERIFICATION OF EMC COMPLIANCE

Verification No.:	SHEM220100008001HSC				
Applicant:	NANJING TICA CLIMATE SOLUTIONS CO., LTD.				
Address of Applicant:	No.6 HengYe Road,Economic Technological Development Zone. Nanjing,China				
Product Description:	FAN COIL UNIT				
Model No.:	Refer to Page 2				
Sufficient samples of the product have been tested and found to be in conformity with					
Test Standards:	EN 61000-3-3: 2013+A1: 2019				
	EN IEC 55014-1: 2021				
	EN IEC 55014-2: 2021				
	EN IEC 61000-3-2: 2019+A1:2021				
As shown in the					
Test Report Number(s):	SHEM220100008001				

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SGS-CSTC Standards Technical Services Co., Ltd.

VERIFICATION OF COMPLIANCE Attachment to Verification No.: SHEM220100008001HSC

Model No.: TCR1400JL5SNNNTN, TCR **** J********

<u>TCR</u> *** J *******					
	L-Left water inlet	R-Right water inlet			
	S- Low static pressure	3- 30 Pa static pressure	5- 50 Pa static pressure		
	S-Standard drain pan	A-Extended to 150mm			
	N-No air return plenum	D-Bottom return air plenum	B-Back return air plenum		
Feature code	N-No filter	A-Nylon filter	F-Metal filter		
	N-No electric heater				
	T-FCU with 3 rows of coils	W-(4 pipes) FCU with hot water coil			
	C-FCU with 3 rows of coils(large temperature differen	nce) W-(4 pipes) FCU with hot water coil(large temperature difference)		
	N-Capacitor motor				
	———— Design S/N : A, B, C		~		
Specification code 200, 300, 400,500,600,700,800,1000,1200,1400					
	Ceiling concealed FCU				

This verification of EMC Compliance has been granted to the applicant based on the results of the tests, performed by laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on the sample of the above-mentioned product in accordance with the provisions of the relevant specific standards under Directive 2014/30/EU. The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EU Declaration of Conformity and compliance with all relevant EU Directives.

2han Da

Parlam Zhan Laboratory Manager





Date: 2022-01-24

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