Product Service

Technical Report No.: 64.181.22.03448.01 Rev.00

Date: 2022-09-22

Client:	Report holder's name:	Guangzhou Sprsun New Energy Technology Development Co., Ltd
	Report holder's Address:	No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng District, Guangzhou, 511338, China
	Contact person of report holder:	YE XIN
	Manufacturer's name:	Guangzhou Sprsun New Energy Technology Development Co., Ltd
	Manufacturer's address:	No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng District, Guangzhou, 511338, China
Factory:	Factory's name:	Guangzhou Sprsun New Energy Technology Development Co., Ltd
	Factory's address:	No.15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng District, Guangzhou, 511338, China
Test object:	Product:	EVI DC Inverter Air Source Heat Pumps
	Model:	CGK025V3L-B; CGK040V3L-B; CGK060V3L-B
	Trade name:	SPRSUN
Test specification:	☑	EN 14825:2018
	☑	(EU) No 813/2013
	☑	EN 14511-3:2018
	☑	EN 14511-4:2018 Clause 4
	☑	EN 12102-1:2017
Purpose of examination:	Test according to the test specification	
	☑	EU 2016/2282:2016-11-30

Test result: The test results show that the presented product is in compliance with the above listed test specifications.

www.tuvsud.com

TÜV®

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

1 Description of the test object

1.1 Function

Manufacturer's specification for intended use:
These appliances are air to water heat pump.
Manufacturer's specification for predictive use:
According to user manual.

1.2 Consideration of the foreseeable use

☐ Not applicable
☑ Covered through the applied standard
☐ Covered by the following comment
☐ Covered by attached risk analysis

1.3 Technical Data

Model :	CGK025V3L-B; CGK040V3L-B; CGK060V3L-B
Rated Voltage (V) :	220-240V~
Rated Frequency (Hz) :	50
Rated Power (W) :	3090W for CGK025V3L-B; 5140W for CGK040V3L-B; 7090W for CGK060V3L-B
Rated Current (A) :	14.79A for CGK025V3L-B; 24.60A for CGK040V3L-B; 33.94A for CGK060V3L-B
Protection Class :	Class I
Protection Against Moisture :	IP X4
Construction :	Stationary
Supply connection :	☐ Non detachable cord ☑ Permanent connection to fixed wiring
Operation mode:	☑ Continuous operation; ☐ Intermittent operation; ☐ Short time operation;
Refrigerant/charge (g) :	R32 / 1500g for CGK025V3L-B; 2000g for CGK040V3L-B; 2800g for CGK060V3L-B
Declared parameters :	☑ Average ☐ Warmer ☐ Colder
Sound power level dB(A) :	N/A
Series No :	KRZK07A10250803577 for CGK025V3L-B; KRZK06A10400803377 for CGK040V3L-B; KRZK06A10600802377 for CGK060V3L-B

www.tuvsud.com
TÜV®
TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

2 Order

2.1 Date of Purchase Order, Customer's Reference

2022-07-01, Guangzhou Sprsun New Energy Technology Development Co., Ltd

2.2 Test Sample(s)

- Reception date(s): 2022-07-01
- Location(s) of reception:

For Energy test:

Guangzhou Lingxin Technology Co., LTD

Address: Room 101, Building 2, No.13 west Route, Kengtou Industrial Zone, Nancun Town, Panyu District, Guangzhou

For Noise tests:

CVC Testing Technology Co., Ltd.

Address: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, Guangdong, 510663, P.R.China

- Condition of test sample(s): completed and can be normal operation

2.3 Date(s) of Testing

2022-07-01 to 2022-07-31

2.4 Location(s) of Testing

Same as 2.2

2.5 Points of Non-compliance or Exceptions of the Test Procedure

N/A

3 Test Results

3.1 Positive Test Results

See Appendix I

4 Remark

N/A

4.1 The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further par-ticulars as well as of the composition and layout.

4.2 When the product is placed on the market, it must be accompanied with safety Instruc-tions written in official language of the country. The instructions shall give information re-garding safe operation, installation and maintenance.

5 Documentation

- Appendix I Test results
- Appendix II Marking plate
- Appendix III photo documentation
- Appendix IV Construction data form
- Appendix V Test equipment list

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

6 Summary

1) These appliances are Air to Water Heat Pump Unit, each one including a whole compression type refrigerant circuit to heat water in another circuit. These appliances were for cooling and heating water function, this report only for heating capacity test.
2) The main power is supplied by a 3-pole supply cord connecting to fixed wiring.
3) Water enthalpy method was adopted in this report.
4) Standby mode power, off mode power and thermostat-off mode power were tested according to clause 12 of standard EN 14825:2018.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

Tested by: William Liang, Project Handler

printed name, function & signature

Approved by: Plum Li, Designated Reviewer

printed name, function & signature

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 1.	Heating mode(Low temperature application):							P
Model	CGK025V3L-B							
Product type	Air to Water	**Heating season**	☑	Average	☐	Warmer	☐	Colder

1. Test conditions:

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	(-7-16)/(Tdesignh-16)	88	N/A	N/A	-7(-8)	a / 34
B	(+2-16)/ (Tdesignh-16)	54	N/A	N/A	2(1)	a / 30
C	(+7-16)/(Tdesignh-16)	35	N/A	N/A	7(6)	a / 27
D	(+12-16)/(Tdesignh-16)	15	N/A	N/A	12(11)	a / 24
E	(TOL-16)/ (Tdesignh-16)				TOL	a / 35.3
F	(Tbivalent-16)/(Tdesignh-16)				Tbiv	a / 34
G	(-15-16)/(Tdesignh-16)	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions, the capacity is 7934.46W, the power is 1685.64W, the COP is 4.71W/W.

2.Tested data/correction data(Average):

General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:10:00	2:10:00	2:10:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	2	0	0	0	2	2
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	231.4	231.5	232.4	229.2	229.3	231.4
Current input of the unit	A	9.81	5.04	4.01	3.29	10.03	9.81
Power input of the unit	kW	1.972	0.893	0.695	0.541	2.009	1.972
Test conditions **indoor** unit							
Inlet Water temperature, DB	°C	29.39	27.25	24.15	20.86	31.02	29.39
Outlet Water temperature, DB	°C	33.39*	29.90	26.99	24.09	34.67*	33.39*

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Test conditions **outdoor** unit							
Air **inlet** temperature, DB	°C	-6.84	2.02	7.12	12.01	-9.97	-6.84
Air **inlet** temperature, WB	°C	-8.08	1.01	6.00	11.00	-11.09	-8.08
Summary of the results							
Total heating capacity	kW	6.255	4.177	4.470	5.082	5.725	6.255
Effective power input	kW	2.010	0.931	0.733	0.579	2.047	2.010
Coefficient of performance (COP)	--	3.11	4.49	6.10	8.78	2.80	3.11
Compressor frequency	Hz	70	33	30	30	70	70
Water flow	m³/h	1.35	1.35	1.35	1.35	1.35	1.35
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

3.Calculation/conclusion for SCOP(Average):			
Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	7.071	TOL(°C)	-10

Test result A, B, C, D, E, F conditions:

Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load
E	7.071	5.725	2.80	0.00	1.00	2.80
F	6.255	6.255	3.11	0.00	1.00	3.11
A	6.255	6.255	3.11	0.00	1.00	3.11
B	3.808	4.177	4.49	0.00	0.91	4.49
C	2.448	4.470	6.10	0.99	0.55	6.05
D	1.088	5.082	8.78	0.99	0.21	8.47

CR: part load divided by capacity;

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.009
Standby mode [P_{SB}]	kW	0.009
Crankcase heater [P_{CK}]	kW	0.033
Off mode [P_{OFF}]	kW	0.009

Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.71
SCOP:	kWh/kWh	4.70
Q_H:	kWh/year	14609
Q_{HE}:	kWh/year	3108
$\eta_{s,h}$	%	185.0
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 2.	Heating mode(Medium temperature application):						P
Model	CGK025V3L-B						
Product type	Air to Water	**Heating season**	☑	Average	☐	Warmer ☐	Colder

1. Test conditions:

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	(-7-16)/(Tdesignh-16)	88	N/A	N/A	-7(-8)	a / 52
B	(+2-16)/ (Tdesignh-16)	54	N/A	N/A	2(1)	a / 42
C	(+7-16)/(Tdesignh-16)	35	N/A	N/A	7(6)	a / 36
D	(+12-16)/(Tdesignh-16)	15	N/A	N/A	12(11)	a / 30
E	(TOL-16)/ (Tdesignh-16)				TOL	a / 55.3
F	(Tbivalent-16)/(Tdesignh-16)				Tbiv	a / 52
G	(-15-16)/(Tdesignh-16)	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions, the capacity is 8076.66W, the power is 2722.50W, the COP is 2.97W/W.

2.Tested data/correction data(Average):

General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:10:00	2:10:00	2:10:00	2:10:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	No	Yes
Complete Cycles	--	1	0	0	0	0	1
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	232.3	229.3	232.5	233.8	230.8	232.3
Current input of the unit	A	13.29	6.35	5.18	4.12	14.45	13.29
Power input of the unit	kW	2.837	1.162	0.919	0.698	3.085	2.837
Test conditions **indoor** unit							
Inlet Water temperature, DB	°C	44.62	38.05	31.70	25.15	47.99	44.62
Outlet Water temperature, DB	°C	51.19	41.98	35.94	30.01	54.78*	51.19

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Test conditions **outdoor** unit							
Air **inlet** temperature, DB	°C	-7.00	2.00	7.01	12.00	-10.00	-7.00
Air **inlet** temperature, WB	°C	-8.20	1.00	6.00	11.00	-11.20	-8.20
Summary of the results							
Total heating capacity	kW	6.597	4.017	4.348	4.978	6.881	6.597
Effective power input	kW	2.884	1.209	0.966	0.745	3.132	2.884
Coefficient of performance (COP)	--	2.29	3.32	4.50	6.68	2.20	2.29
Compressor frequency	Hz	70	33	30	30	70	70
Water flow	m³/h	0.88	0.88	0.88	0.88	0.88	0.88
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

3.Calculation/conclusion for SCOP(Average):			
Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	7.458	TOL(°C)	-10

Test result A, B, C, D, E, F conditions:

Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load
E	7.458	6.881	2.20	0.00	1.00	2.20
F	6.597	6.597	2.29	0.00	1.00	2.29
A	6.597	6.597	2.29	0.00	1.00	2.29
B	4.016	4.017	3.32	0.00	1.00	3.32
C	2.581	4.348	4.50	0.99	0.59	4.47
D	1.147	4.978	6.68	0.99	0.23	6.46
CR: part load divided by capacity;						

www.tuvsud.com

TÜV®

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.009
Standby mode [P_{SB}]	kW	0.009
Crankcase heater [P_{CK}]	kW	0.033
Off mode [P_{OFF}]	kW	0.009

Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.51
SCOP:	kWh/kWh	3.51
Q_H:	kWh/year	15407
Q_{HE}:	kWh/year	4394
$\eta_{s,h}$	%	137.2
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A++

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 3.	Heating mode(Low temperature application):							P
Model	CGK040V3L-B							
Product type	Air to Water	**Heating season**	☑	Average	☐	Warmer	☐	Colder

1. Test conditions:

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	(-7-16)/(Tdesignh-16)	88	N/A	N/A	-7(-8)	a / 34
B	(+2-16)/ (Tdesignh-16)	54	N/A	N/A	2(1)	a / 30
C	(+7-16)/(Tdesignh-16)	35	N/A	N/A	7(6)	a / 27
D	(+12-16)/(Tdesignh-16)	15	N/A	N/A	12(11)	a / 24
E	(TOL-16)/ (Tdesignh-16)				TOL	a / 35.3
F	(Tbivalent-16)/(Tdesignh-16)				Tbiv	a / 34
G	(-15-16)/(Tdesignh-16)	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions, the capacity is 11922.55W, the power is 2603.08W, the COP is 4.58W/W.

2.Tested data/correction data(Average):

General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:10:00	2:10:00	2:10:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	2	0	0	0	1	2
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	235.1	234.5	230.4	232.9	230.3	235.1
Current input of the unit	A	14.10	6.19	5.45	4.46	15.20	14.10
Power input of the unit	kW	3.061	1.207	1.041	0.842	3.269	3.061
Test conditions **indoor** unit							
Inlet Water temperature, DB	°C	29.43	27.54	24.28	20.87	30.82	29.43
Outlet Water temperature, DB	°C	33.31*	30.00	27.12	24.06	34.79*	33.31*

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Test conditions **outdoor** unit							
Air **inlet** temperature, DB	°C	-6.81	2.01	7.02	12.10	-9.93	-6.81
Air **inlet** temperature, WB	°C	-8.00	1.00	6.01	11.00	-11.15	-8.00
Summary of the results							
Total heating capacity	kW	9.457	5.999	6.933	7.811	9.669	9.457
Effective power input	kW	3.127	1.272	1.107	0.907	3.335	3.127
Coefficient of performance (COP)	--	3.02	4.72	6.27	8.61	2.90	3.02
Compressor frequency	Hz	57	25	25	25	60	57
Water flow	m³/h	2.10	2.10	2.10	2.10	2.10	2.10
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

3.Calculation/conclusion for SCOP(Average):			
Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	10.691	TOL(°C)	-10

Test result A, B, C, D, E, F conditions:

Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load
E	10.691	9.669	2.90	0.00	1.00	2.90
F	9.457	9.457	3.02	0.00	1.00	3.02
A	9.457	9.457	3.02	0.00	1.00	3.02
B	5.756	5.999	4.72	0.00	0.96	4.72
C	3.701	6.933	6.27	0.99	0.53	6.21
D	1.645	7.811	8.61	0.99	0.21	8.30

CR: part load divided by capacity;

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.008
Standby mode [P_{SB}]	kW	0.008
Crankcase heater [P_{CK}]	kW	0.041
Off mode [P_{OFF}]	kW	0.008

Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.85
SCOP:	kWh/kWh	4.84
Q_H:	kWh/year	22087
Q_{HE}:	kWh/year	4562
$\eta_{s,h}$	%	190.7
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 4.	Heating mode(Medium temperature application):						P
Model	CGK040V3L-B						
Product type	Air to Water	**Heating season**	☑	Average	☐	Warmer ☐	Colder

1. Test conditions:

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	(-7-16)/(Tdesignh-16)	88	N/A	N/A	-7(-8)	a / 52
B	(+2-16)/ (Tdesignh-16)	54	N/A	N/A	2(1)	a / 42
C	(+7-16)/(Tdesignh-16)	35	N/A	N/A	7(6)	a / 36
D	(+12-16)/(Tdesignh-16)	15	N/A	N/A	12(11)	a / 30
E	(TOL-16)/ (Tdesignh-16)				TOL	a / 55.3
F	(Tbivalent-16)/(Tdesignh-16)				Tbiv	a / 52
G	(-15-16)/(Tdesignh-16)	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions, the capacity is 12130.62W, the power is 4059.44W, the COP is 2.99W/W.

2.Tested data/correction data(Average):

General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:10:00	2:10:00	2:10:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	1	0	0	0	2	1
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	229.1	231.3	232.9	229.2	229.6	229.1
Current input of the unit	A	18.66	7.67	6.54	5.47	21.17	18.66
Power input of the unit	kW	3.995	1.591	1.367	1.046	4.544	3.995
Test conditions **indoor** unit							
Inlet Water temperature, DB	°C	45.13	38.36	31.80	25.18	47.74	45.13
Outlet Water temperature, DB	°C	51.08*	42.00	36.08	30.12	53.89*	51.08*

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Test conditions **outdoor** unit							
Air **inlet** temperature, DB	°C	-6.97	2.02	7.02	12.01	-9.93	-6.97
Air **inlet** temperature, WB	°C	-8.18	1.01	6.00	11.00	-11.15	-8.18
Summary of the results							
Total heating capacity	kW	9.135	5.633	6.626	7.663	9.431	9.135
Effective power input	kW	4.074	1.670	1.447	1.126	4.623	4.074
Coefficient of performance (COP)	--	2.24	3.37	4.58	6.81	2.04	2.24
Compressor frequency	Hz	53	25	25	25	60	53
Water flow	m³/h	1.33	1.33	1.33	1.33	1.33	1.33
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

3.Calculation/conclusion for SCOP(Average):			
Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	10.326	TOL(°C)	-10

Test result A, B, C, D, E, F conditions:

Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load
E	10.326	9.431	2.04	0.00	1.00	2.04
F	9.135	9.135	2.24	0.00	1.00	2.24
A	9.135	9.135	2.24	0.00	1.00	2.24
B	5.560	5.633	3.37	0.00	0.99	3.37
C	3.575	6.626	4.58	0.99	0.54	4.54
D	1.589	7.663	6.81	0.99	0.21	6.56
CR: part load divided by capacity;						

www.tuvsud.com

TÜV®

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.008
Standby mode [P_{SB}]	kW	0.008
Crankcase heater [P_{CK}]	kW	0.041
Off mode [P_{OFF}]	kW	0.008

Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.54
SCOP:	kWh/kWh	3.53
Q_H:	kWh/year	21334
Q_{HE}:	kWh/year	6040
$\eta_{s,h}$	%	138.3
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A++

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 5.	Heating mode(Low temperature application):							P
Model	CGK060V3L-B							
Product type	Air to Water	**Heating season**	☑	Average	☐	Warmer	☐	Colder

1. Test conditions:

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	(-7-16)/(Tdesignh-16)	88	N/A	N/A	-7(-8)	a / 34
B	(+2-16)/ (Tdesignh-16)	54	N/A	N/A	2(1)	a / 30
C	(+7-16)/(Tdesignh-16)	35	N/A	N/A	7(6)	a / 27
D	(+12-16)/(Tdesignh-16)	15	N/A	N/A	12(11)	a / 24
E	(TOL-16)/ (Tdesignh-16)				TOL	a / 35.3
F	(Tbivalent-16)/(Tdesignh-16)				Tbiv	a / 34
G	(-15-16)/(Tdesignh-16)	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions, the capacity is 16334.05W, the power is 3397.72W, the COP is 4.81W/W.

2.Tested data/correction data(Average):

General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/W34 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:10:00	2:10:00	2:10:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	1	0	0	0	2	1
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	231.2	230.6	230.1	230.7	231.3	231.2
Current input of the unit	A	18.23	8.54	6.80	5.49	20.01	18.23
Power input of the unit	kW	3.875	1.624	1.244	0.998	4.310	3.875
Test conditions **indoor** unit							
Inlet Water temperature, DB	°C	29.43	27.62	24.39	21.16	30.82	29.43
Outlet Water temperature, DB	°C	33.01*	30.02	26.98	24.13	34.46*	33.01*

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Test conditions **outdoor** unit							
Air **inlet** temperature, DB	°C	-7.01	1.99	7.03	12.00	-9.98	-7.01
Air **inlet** temperature, WB	°C	-8.11	1.01	6.01	11.00	-11.11	-8.11
Summary of the results							
Total heating capacity	kW	11.796	7.933	8.582	9.806	11.929	11.796
Effective power input	kW	3.964	1.714	1.333	1.088	4.399	3.964
Coefficient of performance (COP)	--	2.98	4.63	6.44	9.02	2.71	2.98
Compressor frequency	Hz	71	33	30	30	78	71
Water flow	m³/h	2.83	2.83	2.83	2.83	2.83	2.83
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

3.Calculation/conclusion for SCOP(Average):			
Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	13.335	TOL(°C)	-10

Test result A, B, C, D, E, F conditions:

Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load
E	13.335	11.929	2.71	0.00	1.00	2.71
F	11.796	11.796	2.98	0.00	1.00	2.98
A	11.796	11.796	2.98	0.00	1.00	2.98
B	7.180	7.933	4.63	0.99	0.91	4.62
C	4.616	8.582	6.44	0.99	0.54	6.38
D	2.052	9.806	9.02	0.99	0.21	8.69

CR: part load divided by capacity;

www.tuvsud.com

TÜV®

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.009
Standby mode [P_{SB}]	kW	0.009
Crankcase heater [P_{CK}]	kW	0.035
Off mode [P_{OFF}]	kW	0.009

Conclusions:	Unit	Value
SCOPon:	kWh/kWh	4.82
SCOP:	kWh/kWh	4.82
Q_H:	kWh/year	27550
Q_{HE}:	kWh/year	5718
$\eta_{s,h}$	%	189.7
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 6.	Heating mode(Medium temperature application):							P
Model	CGK060V3L-B							
Product type	Air to Water	**Heating season**	☑	Average	☐	Warmer	☐	Colder

1. Test conditions:

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	(-7-16)/(Tdesignh-16)	88	N/A	N/A	-7(-8)	a / 52
B	(+2-16)/ (Tdesignh-16)	54	N/A	N/A	2(1)	a / 42
C	(+7-16)/(Tdesignh-16)	35	N/A	N/A	7(6)	a / 36
D	(+12-16)/(Tdesignh-16)	15	N/A	N/A	12(11)	a / 30
E	(TOL-16)/ (Tdesignh-16)				TOL	a / 55.3
F	(Tbivalent-16)/(Tdesignh-16)				Tbiv	a / 52
G	(-15-16)/(Tdesignh-16)	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions, the capacity is 16054.41W, the power is 5161.13W, the COP is 3.11W/W.

2.Tested data/correction data(Average):

General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	4:00:00	2:10:00	2:10:00	2:10:00	4:00:00	4:00:00
The heat pump defrosts	--	Yes	No	No	No	Yes	Yes
Complete Cycles	--	1	0	0	0	1	1
Barometric pressure	kPa	101.02	101.02	101.02	101.02	101.02	101.02
Voltage	V	232.5	232.2	230.1	229.5	228.8	232.5
Current input of the unit	A	23.32	10.56	8.45	6.60	25.85	23.32
Power input of the unit	kW	5.130	2.154	1.652	1.292	5.647	5.130
Test conditions **indoor** unit							
Inlet Water temperature, DB	°C	44.72	38.30	32.05	25.16	47.48	44.72
Outlet Water temperature, DB	°C	50.96*	42.07	36.09	29.91	53.44*	50.96*

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Test conditions **outdoor** unit							
Air **inlet** temperature, DB	°C	-6.83	2.02	7.00	12.01	-9.87	-6.83
Air **inlet** temperature, WB	°C	-8.03	1.00	6.00	11.01	-10.96	-8.03
Summary of the results							
Total heating capacity	kW	12.462	7.582	8.136	9.578	11.900	12.462
Effective power input	kW	5.244	2.269	1.766	1.406	5.762	5.244
Coefficient of performance (COP)	--	2.38	3.34	4.61	6.81	2.07	2.38
Compressor frequency	Hz	68	33	30	30	78	68
Water flow	m³/h	1.73	1.73	1.73	1.73	1.73	1.73
Remark: * In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

3.Calculation/conclusion for SCOP(Average):			
Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	14.087	TOL(°C)	-10

Test result A, B, C, D, E, F conditions:

Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load
E	14.087	11.900	2.07	0.00	1.00	2.07
F	12.462	12.462	2.38	0.00	1.00	2.38
A	12.462	12.462	2.38	0.00	1.00	2.38
B	7.585	7.582	3.34	0.00	1.00	3.34
C	4.876	8.136	4.61	0.99	0.60	4.58
D	2.167	9.578	6.81	0.99	0.23	6.59
CR: part load divided by capacity;						

www.tuvsud.com

TÜV®

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Electric power consumptions	Unit	Value
Thermostat-off mode [P_{TO}]	kW	0.009
Standby mode [P_{SB}]	kW	0.009
Crankcase heater [P_{CK}]	kW	0.035
Off mode [P_{OFF}]	kW	0.009

Conclusions:	Unit	Value
SCOPon:	kWh/kWh	3.56
SCOP:	kWh/kWh	3.55
Q_H:	kWh/year	29104
Q_{HE}:	kWh/year	8187
$\eta_{s,h}$	%	139.2
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A++

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 7.	Clause 4 of EN 14511-4:2018				P
Model	CGK025V3L-B				
Customer Code	Execution Date [dd-mm-yyyy]	Testing item	Standard Reference	Comment	Test Response
TEST 1	25-07-2022	STARTING TEST	EN14511-4:2018, §4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.00°C, T out water 14.56°C, Flow rate 0.85m^3/h have been set and obtained. At those conditions, the machine was switched on. It started without any problem and worked for 30 minutes without showing any warning or allarm. During the test the machine operated in automode. No damage was recorded on the machine during and after the test.	Passed
TEST 2	25-07-2022	OPERATIN G TEST	EN14511-4:2018, §4.2.1.2Table 3	From the machine "lower" starting conditions - i.e. - the machine was brought to the lower operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.02°C, T out water 56.52°C, Flow rate 0.85m^3/h. Once these conditions were obtained, the machine was let operate for over 1 hour in automode. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 3	25-07-2022	SHUTTING OFF WATER FLOW	EN14511-4:2018, § 4.5	The water flow rate was shutted off through manual and automatic valves of the test rig. The machine switched off and only the flow switch Protection appeared on the user interface of indoor unit. Perform error reset operation , once the water flow rate was restored, the machine restarted automatically and worked for 30 minutes normally. No damage was recorded on the machine during and after the test.	Passed
TEST 4	25-07-2022	SHUTTING OFF AIR FLOW	EN14511-4:2018, § 4.5	The air flow rate was shutted off through a plastic sheet and a panel. The machine never turned off. It continued to operate with continuous frosting and defrosting cycles. After more than half an hour, the air flow rate was restored and the machine started to operate normally. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 5	25-07-2022	COMPLETE POWER SUPPLY FAILURE	EN14511-4:2018, § 4.6	The power supply was cut off for about 10 seconds.The unit restarted automatically within about 3 minutes after the power supply was reactivated.	Passed

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 8.	Clause 4 of EN 14511-4:2018				P
Model	CGK040V3L-B				
Customer Code	Execution Date [dd-mm-yyyy]	Testing item	Standard Reference	Comment	Test Response
TEST 1	26-07-2022	STARTING TEST	EN14511-4:2018, §4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.03°C, T out water 14.98°C, Flow rate 1.20m^3/h have been set and obtained. At those conditions, the machine was switched on. It started without any problem and worked for 30 minutes without showing any warning or allarm. During the test the machine operated in automode. No damage was recorded on the machine during and after the test.	Passed
TEST 2	26-07-2022	OPERATIN G TEST	EN14511-4:2018, §4.2.1.2Table 3	From the machine "lower" starting conditions - i.e. - the machine was brought to the lower operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.12°C, T out water 56.45°C, Flow rate 1.20m^3/h. Once these conditions were obtained, the machine was let operate for over 1 hour in automode. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 3	26-07-2022	SHUTTING OFF WATER FLOW	EN14511-4:2018, § 4.5	The water flow rate was shutted off through manual and automatic valves of the test rig. The machine switched off and only the flow switch Protection appeared on the user interface of indoor unit. Perform error reset operation , once the water flow rate was restored, the machine restarted automatically and worked for 30 minutes normally. No damage was recorded on the machine during and after the test.	Passed
TEST 4	26-07-2022	SHUTTING OFF AIR FLOW	EN14511-4:2018, § 4.5	The air flow rate was shutted off through a plastic sheet and a panel. The machine never turned off. It continued to operate with continuous frosting and defrosting cycles. After more than half an hour, the air flow rate was restored and the machine started to operate normally. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 5	26-07-2022	COMPLETE POWER SUPPLY FAILURE	EN14511-4:2018, § 4.6	The power supply was cut off for about 10 seconds.The unit restarted automatically within about 3 minutes after the power supply was reactivated.	Passed

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 9.	Clause 4 of EN 14511-4:2018				P
Model	CGK060V3L-B				
Customer Code	Execution Date [dd-mm-yyyy]	Testing item	Standard Reference	Comment	Test Response
TEST 1	27-07-2022	STARTING TEST	EN14511-4:2018, §4.2.1.2 Table 3	The "lower" starting operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.03°C, T out water 10.29°C, Flow rate 1.56m^3/h have been set and obtained. At those conditions, the machine was switched on. It started without any problem and worked for 30 minutes without showing any warning or allarm. During the test the machine operated in automode. No damage was recorded on the machine during and after the test.	Passed
TEST 2	27-07-2022	OPERATIN G TEST	EN14511-4:2018, §4.2.1.2Table 3	From the machine "lower" starting conditions - i.e. - the machine was brought to the lower operating conditions declared by the manufacturer for the heating mode- i.e. Tair=-25.00°C, T out water 56.21°C, Flow rate 1.56m^3/h. Once these conditions were obtained, the machine was let operate for over 1 hour in automode. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 3	27-07-2022	SHUTTING OFF WATER FLOW	EN14511-4:2018, § 4.5	The water flow rate was shutted off through manual and automatic valves of the test rig. The machine switched off and only the flow switch Protection appeared on the user interface of indoor unit. Perform error reset operation , once the water flow rate was restored, the machine restarted automatically and worked for 30 minutes normally. No damage was recorded on the machine during and after the test.	Passed
TEST 4	27-07-2022	SHUTTING OFF AIR FLOW	EN14511-4:2018, § 4.5	The air flow rate was shutted off through a plastic sheet and a panel. The machine never turned off. It continued to operate with continuous frosting and defrosting cycles. After more than half an hour, the air flow rate was restored and the machine started to operate normally. During the test, no waring or alarm were showed. No damage was recorded on the machine during and after the test.	Passed
TEST 5	27-07-2022	COMPLETE POWER SUPPLY FAILURE	EN14511-4:2018, § 4.6	The power supply was cut off for about 10 seconds.The unit restarted automatically within about 3 minutes after the power supply was reactivated.	Passed

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 10a.	Sound power level measurement(Low temperature application)		P
Model	CGK025V3L-B		
	Product type :		Air to Water
	Outdoor heat exchanger, Air temperature DB/WB (°C):		7.0 /6.0
	Indoor heat exchanger, Water inlet/outlet temperature (°C):		30.0 /35.0
	Voltage (V):		230
	Frequency (Hz):		50
	Working condition class :		Class A
	Acoustical environment :		Hemi-anechoic room
	Windshield type :		Sponge
	Measured position amount :		14
	Water flow (m³/h):		1.35
Measured quantity	**$L_{WA,indoors}$ (dB(A))**	**$L_{WA,outdoors}$ (dB(A))**	**Remark**
Sound pressure level $\overline{L}_{p(ST)}$****	--	47	--
Spheres radius d *	--	1.0m	--
Sound power level L_{wA}****	--	61	--
Setting of controls: according to user manual. Duct connection:-- Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer Fan speed: 610 r/min, compressor speed: 55Hz.			

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 10b.	Sound power level measurement(Medium temperature application)		P
Model	CGK025V3L-B		
	Product type :		Air to Water
	Outdoor heat exchanger, Air temperature DB/WB (°C):		7.0 /6.0
	Indoor heat exchanger, Water inlet/outlet temperature (°C):		47.0 /55.0
	Voltage (V):		230
	Frequency (Hz):		50
	Working condition class :		Class A
	Acoustical environment :		Hemi-anechoic room
	Windshield type :		Sponge
	Measured position amount :		14
	Water flow (m³/h):		0.88
Measured quantity	**$L_{WA,indoors}$ (dB(A))**	**$L_{WA,outdoors}$ (dB(A))**	**Remark**
Sound pressure level $\overline{L}_{p(ST)}$****	--	48	--
Spheres radius d *	--	1.0m	--
Sound power level L_{wA}****	--	63	--
Setting of controls: according to user manual. Duct connection:-- Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer Fan speed: 580 r/min, compressor speed: 55Hz.			

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 11a.	Sound power level measurement(Low temperature application)		P
Model	CGK040V3L-B		
	Product type :		Air to Water
	Outdoor heat exchanger, Air temperature DB/WB (°C):		7.0 /6.0
	Indoor heat exchanger, Water inlet/outlet temperature (°C):		30.0 /35.0
	Voltage (V):		230
	Frequency (Hz):		50
	Working condition class :		Class A
	Acoustical environment :		Hemi-anechoic room
	Windshield type :		Sponge
	Measured position amount :		14
	Water flow (m^3/h):		2.10

Measured quantity	$L_{WA,indoors}$ (dB(A))	$L_{WA,outdoors}$ (dB(A))	Remark
Sound pressure level $\bar{L}_{p(ST)}$****	--	53	--
Spheres radius d *	--	1.0m	--
Sound power level L_{wA}****	--	67	--

Setting of controls: according to user manual.
Duct connection:--
Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer
Fan speed: 780 r/min, compressor speed: 45Hz.

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 11b.	Sound power level measurement(Medium temperature application)		P
Model	CGK040V3L-B		
	Product type :		Air to Water
	Outdoor heat exchanger, Air temperature DB/WB (°C):		7.0 /6.0
	Indoor heat exchanger, Water inlet/outlet temperature (°C):		47.0 /55.0
	Voltage (V):		230
	Frequency (Hz):		50
	Working condition class :		Class A
	Acoustical environment :		Hemi-anechoic room
	Windshield type :		Sponge
	Measured position amount :		14
	Water flow (m^3/h):		1.33

Measured quantity	$L_{WA,indoors}$ (dB(A))	$L_{WA,outdoors}$ (dB(A))	Remark
Sound pressure level $\overline{L}_{p(ST)}$****	--	53	--
Spheres radius d *	--	1.0m	--
Sound power level L_{wA}****	--	67	--

Setting of controls: according to user manual.
Duct connection:--
Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer
Fan speed: 730 r/min, compressor speed: 45Hz.

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 12a.	Sound power level measurement(Low temperature application)		P
Model	CGK060V3L-B		
	Product type :		Air to Water
	Outdoor heat exchanger, Air temperature DB/WB (°C):		7.0 /6.0
	Indoor heat exchanger, Water inlet/outlet temperature (°C):		30.0 /35.0
	Voltage (V):		230
	Frequency (Hz):		50
	Working condition class :		Class A
	Acoustical environment :		Hemi-anechoic room
	Windshield type :		Sponge
	Measured position amount :		14
	Water flow (m³/h):		2.83
Measured quantity	**$L_{WA,indoors}$ (dB(A))**	**$L_{WA,outdoors}$ (dB(A))**	**Remark**
Sound pressure level $\overline{L}_{p(ST)}$****	--	53	--
Spheres radius d *	--	1.0m	--
Sound power level L_{wA}****	--	68	--
Setting of controls: according to user manual. Duct connection:-- Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer Fan speed: 700 r/min, compressor speed: 58Hz.			

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix I Test results

Table 12b.	Sound power level measurement(Medium temperature application)		P
Model	CGK060V3L-B		
	Product type :		Air to Water
	Outdoor heat exchanger, Air temperature DB/WB (°C):		7.0 /6.0
	Indoor heat exchanger, Water inlet/outlet temperature (°C):		47.0 /55.0
	Voltage (V):		230
	Frequency (Hz):		50
	Working condition class :		Class A
	Acoustical environment :		Hemi-anechoic room
	Windshield type :		Sponge
	Measured position amount :		14
	Water flow (m³/h):		1.73
Measured quantity	**$L_{WA,indoors}$ (dB(A))**	**$L_{WA,outdoors}$ (dB(A))**	**Remark**
Sound pressure level $\overline{L}_{p(ST)}$****	--	56	--
Spheres radius d *	--	1.0m	--
Sound power level L_{wA}****	--	71	--
Setting of controls: according to user manual. Duct connection:-- Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer Fan speed: 670 r/min, compressor speed: 58Hz.			

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix II Marking plate

Nameplate

Model: CGK025V3L-B

SPRSUN

EVI DC Inverter Air Source Heat Pumps

Model	CGK025V3L-B
Power Supply	220-240V~/50Hz
*Heating Capacity Min./Max.	4.32/9.4kW
*Heating Input Power Min./Max.	0.76/2.06kW
*Heating COP Min./Max.	4.56/5.68W/W
Cooling Capacity Min./Max.	2.78/6.05kW
Cooling Input Power Min./Max.	0.74/2.44kW
Rated. Input Power/Current	3.09kW/14.79A
Max. Water Outlet Temperature	55℃
Water Flow	1.6m^3/h
Refrigerant/Weight	R32/1500g
Low/High side operation pressure	1.5/4.4MPa
Maximum allowable pressure	4.4MPa
Max Water Pressure	1.0MPa
Shock Proof Grade	I
WaterProof Level	IPX4
Water Pressure Drop	18kPa
Water Pipe Connection	1 inch
Net Weight	78kg
Date/NO.	See bar code

***Heating working condition:**
Dry bulb temperature 7℃, Wet bulb temperature 6℃,
Inlet water temperature 30℃, Outlet water temperature 35℃.

System CO2 equivalent charge weight: 1.01 ton

Guangzhou Sprsun New Energy Technology Development Co., Ltd

No. 15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng, Guangzhou, China

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix II Marking plate

Nameplate

Model: CGK040V3L-B

SPRSUN

EVI DC Inverter Air Source Heat Pumps

Model	CGK040V3L-B
Power Supply	220-240V~/50Hz
*Heating Capacity Min./Max.	7.27/15.8kW
*Heating Input Power Min./Max.	1.26/3.43kW
*Heating COP Min./Max.	4.60/5.77W/W
Cooling Capacity Min./Max.	4.67/10.16kW
Cooling Input Power Min./Max.	1.24/4.06kW
Rated. Input Power/Current	5.14kW/24.6A
Max. Water Outlet Temperature	55℃
Water Flow	2.7m^3/h
Refrigerant/Weight	R32/2000g
Low/High side operation pressure	1.5/4.4MPa
Maximum allowable pressure	4.4MPa
Max Water Pressure	1.0MPa
Shock Proof Grade	I
WaterProof Level	IPX4
Water Pressure Drop	21kPa
Water Pipe Connection	1 inch
Net Weight	98kg
Date/NO.	See bar code

***Heating working condition:**
Dry bulb temperature 7℃, Wet bulb temperature 6℃,
Inlet water temperature 30℃, Outlet water temperature 35℃.

System CO2 equivalent charge weight: 1.35 ton

Guangzhou Sprsun New Energy Technology Development Co., Ltd

No. 15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng, Guangzhou, China

Appendix II Marking plate

Nameplate

Model: CGK060V3L-B

SPRSUN

EVI DC Inverter Air Source Heat Pumps

Model	CGK060V3L-B
Power Supply	220-240V~/50Hz
*Heating Capacity Min./Max.	10.03/21.8kW
*Heating Input Power Min./Max.	1.74/4.73kW
*Heating COP Min./Max.	4.61/5.76W/W
Cooling Capacity Min./Max.	6.45/14.02kW
Cooling Input Power Min./Max.	1.71/6kW
Rated. Input Power/Current	7.09kW/33.94A
Max. Water Outlet Temperature	55℃
Water Flow	3.8m^3/h
Refrigerant/Weight	R32/2800g
Low/High side operation pressure	1.5/4.4MPa
Maximum allowable pressure	4.4MPa
Max Water Pressure	1.0MPa
Shock Proof Grade	I
WaterProof Level	IPX4
Water Pressure Drop	25kPa
Water Pipe Connection	1 inch
Net Weight	124kg
Date/NO.	See bar code
System CO2 equivalent charge weight: 1.89 ton	

***Heating working condition:**
Dry bulb temperature 7℃, Wet bulb temperature 6℃,
Inlet water temperature 30℃, Outlet water temperature 35℃.

Guangzhou Sprsun New Energy Technology Development Co., Ltd

No. 15 Tangxi Road, Yinsha Industrial Park, Xintang, Zengcheng, Guangzhou, China

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix III photo documentaiton

Details of:	Overall view for CGK025V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

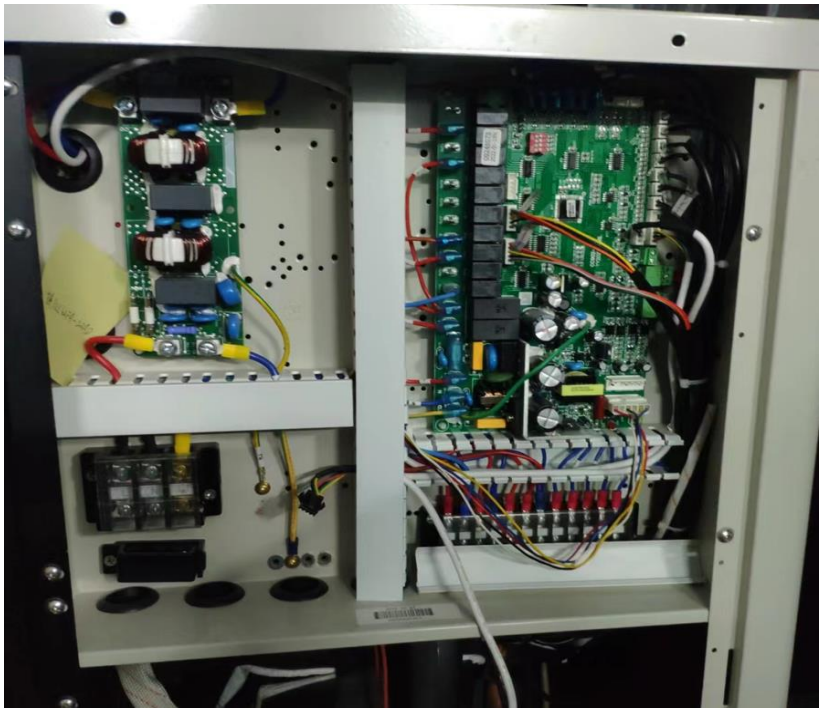
Details of:	Compressor for CGK025V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix III photo documentaiton

Details of:	Fan Motor for CGK025V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

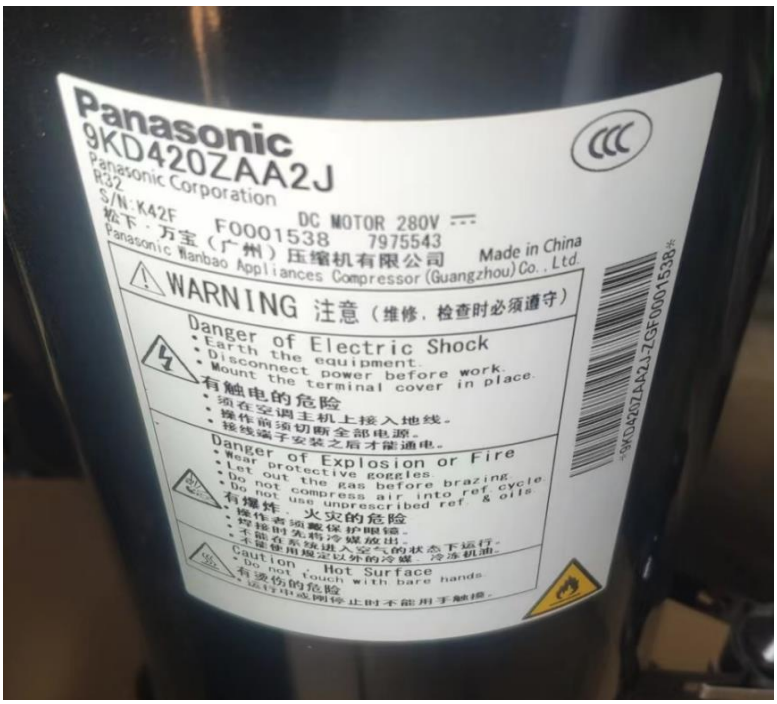
Details of:	Main Control Board for CGK025V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix III photo documentaiton

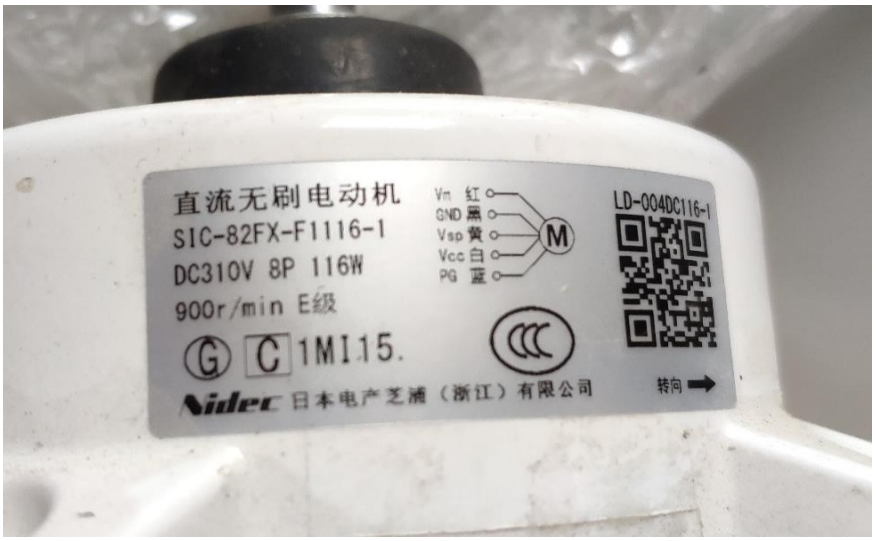
Details of:	Overall view for CGK040V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

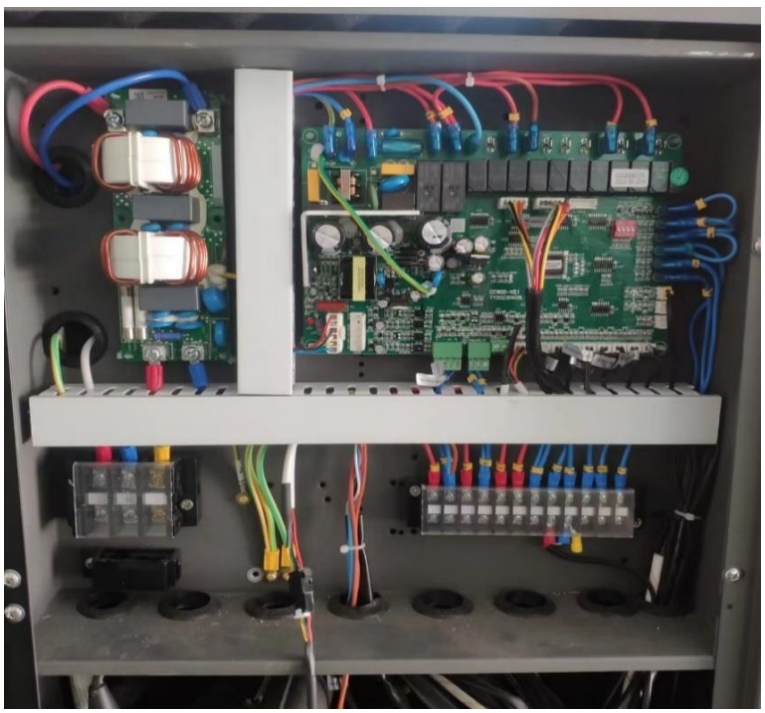
Details of:	Compressor for CGK040V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix III photo documentaiton

Details of:	Fan Motor for CGK040V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Main Control Board for CGK040V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix III photo documentaiton

Details of:	Overall view for CGK060V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

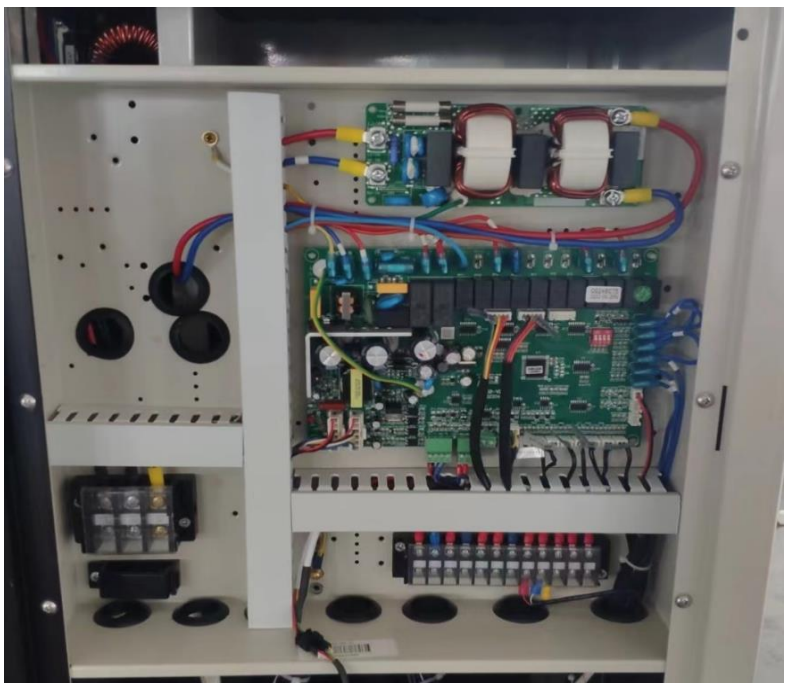
Details of:	Compressor for CGK060V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix III photo documentaiton

Details of:	Fan Motor for CGK060V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

Details of:	Main Control Board for CGK060V3L-B
View: ☐ General ☐ Front ☐ Rear ☐ Right ☐ Left ☐ Top ☐ Bottom	

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix IV Construction data form

Model: CGK025V3L-B		
Part		**Technical data**
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor (Guangzhou) Co., Ltd.
	Type:	9RD220ZAA2J
	Rated capacity:	2265W
	Serial-number:	F0002644
	Specification:	DC280V; R32
2. Condenser		
	Manufacture:	Jiangsu Yuanzhuo Equipment Manfactur Co., Ltd
	Type:	ZL62FA-22AD-CG
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	526(L)mmX119(H)mmX56(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration EquipmentCo., Ltd.
	Type:	03KA-CP-04
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX750(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Nidec Shibaura (Zhejiang) Co., Ltd.
	Type:	SIC-82FX-F1116-1
	Fan type:	3 blade
	Specification:	DC310V; 116W
5. Main control board		
	Manufacture:	CHICO
	Type:	CG248075
	Specification:	220-240V; 50Hz

Appendix IV Construction data form

Model: CGK040V3L-B		
Part		**Technical data**
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor (Guangzhou) Co., Ltd.
	Type:	9KD420ZAA2J
	Rated capacity:	4320W
	Serial-number:	F0001538
	Specification:	DC280V; R32
2. Condenser		
	Manufacture:	Jiangsu Yuanzhuo Equipment Manfactur Co., Ltd
	Type:	ZL62FA-30AD-CG
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	526(L)mmX119(H)mmX71(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration Equipment Co., Ltd.
	Type:	04KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX900(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Nidec Shibaura (Zhejiang) Co., Ltd.
	Type:	SIC-82FX-F1116-1
	Fan type:	3 blade
	Specification:	DC310V; 116W
5. Main control board		
	Manufacture:	CHICO
	Type:	CG248075
	Specification:	220-240V; 50Hz

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix IV Construction data form

Model: CGK060V3L-B		
Part		**Technical data**
1. Compressor		
	Manufacture:	Panasonic Wanbao Appliances Compressor (Guangzhou) Co., Ltd.
	Type:	9VD420ZAA2J
	Rated capacity:	4390W
	Serial-number:	F0006867
	Specification:	DC280V; R32
2. Condenser		
	Manufacture:	Jiangsu Yuanzhuo Equipment Manfactur Co., Ltd
	Type:	ZL62FA-40AD-CG
	Heat exchanger:	Plate heat exchanger
	Dimension (mm):	526(L)mmX119(H)mmX91(D)mm
3. Evaporator		
	Manufacture:	Guangzhou Aotai Refrigeration EquipmentCo., Ltd.
	Type:	05KA-CP-01
	Heat exchanger:	Finned-coil heat exchanger
	Dimension (mm):	660(L)mmX1300(H)mmX345(D)mm
4. Fan motor		
	Manufacture:	Nidec Shibaura (Zhejiang) Co., Ltd.
	Type:	SIC-82FX-F1116-1
	Fan type:	3 blade
	Specification:	DC310V; 116W
5. Main control board		
	Manufacture:	CHICO
	Type:	CG248075
	Specification:	220-240V; 50Hz

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd.
Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668

Appendix V Equipment List

No.	Type	Manufacture	Model	Equipment ID	Calibration Due Date
1	Digital power meter	YOKOGAWA	WT230	91HC39024	2023-01-04
2	Platinum resistance	CHINO	Pt100	TS-019XC0130	2023-01-04
3	Platinum resistance	CHINO	Pt100	TS3XA0248	2023-01-04
4	Temperature and humidity sensor	YOKOGAWA	HMD62	S4610294	2023-01-04
5	Water pressure gauge	YOKOGAWA	MPM489	B86832	2023-01-04
6	Water pressure gauge	YOKOGAWA	MPM489	B86833	2023-01-04
7	Flowmeter	YOKOGAWA	AXG032	S5W920561039	2023-01-04
8	Anechoic rooms (hemi-anechoic rooms)	Guangzhou Kinte	-	NC-036-2	2023-10-07
9	AC source Supply	YANGHONG	YF-3600	VGDS-0637	2022-11-07
10	6 channel data logger	—	PXI-1033	VGDY-0257	2023-05-20
11	PULSE system	B & K	3660C	VGDY-0184	2023-04-12
12	Calibrator	B & K	4231	HJ-000095	2023-06-30
13	Long steel tape	—	5m	HJ-000150	2023-01-04
14	Temperature measurement system	—	—	NC-036-1	2023-06-07
15	Atmospheric pressure meter	—	—	HJ-000165	2022-11-22
16	Constant temperature water system	B & K	—	VGDS-0448	2023-04-18
17	Windscreen	B & K	WS002-5	—	—

-- End of Report --

www.tuvsud.com

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou 510656, China
Tel: +86 20 38320668