ERP TEST REPORT

EN 14825

Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling - Testing and rating at part load conditions and calculation of seasonal performance

Report Reference No. ..... :	STUESO230300014HS
Tested by (name + signature)..... :	King Dong
Approved by (+ signature) ..... :	Luck Huang
Date of issue ..... :	2023-03-17
Total number of pages	17
Applicant's name ..... :	GZ THEODOOR TECH CO., LTD.
Address ..... :	No.1-63, Phoenix 3 Heng Road, Sino-Singapore Knowledge City, Huangpu District, Guangzhou, China.
Test specification:	
Test procedure ..... :	EN 14825:2018 COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATION (EU) No 811/2013
Test result::	PASS
Test item description..... :	DC INVERTER HEAT PUMP
Trade mark..... :	THEODOOR
Model/Type reference ..... :	RS-36DV1,RS-48DV1,RS-72DV2,RS-96DV2
Ratings ..... :	380-400V 3N~, 50Hz, RS-36DV1: 14.3kW; RS-48DV1: 19.7kW; RS-72DV2: 28.6kW; RS-96DV2: 39.5kW
Manufacturing site (factory)..... :	Same as applicant

Testing results summary

The appliance meets the requirement of the implementation measure (EU) 813/2013.

According to COMMISSION DELEGATED REGULATION (EU) No 811/2013 with regard to the energy labelling of space heater, the seasonal space heating energy efficiency class of the unit is A+.

Summary of testing

1. The appliances were tested according to EN 14825:2018, COMMISSION REGULATION (EU) No 813/2013, COMMISSION DELEGATED REGULATION (EU) No 811/2013.

2. All tests were performed on the models RS-36DV1,RS-48DV1,RS-72DV2,RS-96DV2.

3. The test location is below:

GZ THEODOOR TECH CO., LTD.

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Test item particulars:

Classification of installation and use……: Fixed appliance

Type of the appliance ……: Air Source Heat Pump

Function of the appliance……: Space heating

Heating season (heating function applicable) ……: Average

Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	2023-03-14
Date (s) of performance of tests ..... :	2023-03-14 to 2023-03-17

General product information:

- The appliance is air to water heat pump which installed at outdoor.
- The appliance only provides space heating.
- The appliance does not incorporated water pump.

TECHNICAL DATA		RS-36DV1	RS-48DV1	RS-72DV2	RS-96DV2
Heating capacity (kW)(E：7/6℃; W：30/35℃)		30	39	60	78
Input power (kW)(E：7/6℃; W：30/35℃)		7,5	9,7	15	19,4
COP (W/W)(E：7/6℃; W：30/35℃)		4,0	4,0	4,0	4,0
Heating capacity (kW)(E：7/6℃; W：47/55℃)		28.5	37	57	74.5
Input power (kW)(E：7/6℃; W：47/55℃)		9,5	12,8	19	24,8
COP (W/W)(E：76℃; W：47/55℃)		3,0	2,9	3,0	3,0
Power supply	V/Ph/Hz	380-400V/3N～/50Hz			
Max. Input power	kW	14,3	19,7	28,6	39,5
Max. Current	A	25,5	35,3	51	70,5
Max. Outlet water temperature (without heater)	℃	55			
Working temperature range	℃	-20~43			
Refrigerant	Type	R407C	R410A	R407C	R410A
Compressor	Quantity	1	1	2	2
	Brand 1#	Copeland	Copeland	Copeland	Copeland
	Model	ZW125KSE-TFP-522	ZW286HSP-TFP-522	ZW125KSE-TFP-522	ZW286HSP-TFP-522
Evaporater Heat exchanger	Type	High efficiency hydrophilic fin-tube heat exchanger			
Economic Heat exchanger	Type	Stainless steel plate heat exchanger			
Water pump	Brand	/			
EEV	Type	Electronic expansion valve			
Fan motor	Brand	A6D710S-7DM-SW00	YSWF102L60P4-675W-600	A6D710S-7DM-SW00	YSWF102L60P4-675W-600
	Quantity	1	2	2	4
Heat exchanger	Type	Shell and tube heat exchanger			
Water flow	m3/h	5,5	7,2	11	14.5
Inlet/outlet pipe	inch(mm)	DN40	DN50	DN40	DN50
Net Dimensions	mm	1100*950*1865	1680*950*1865	1900*1100*1865	1680*1900*1865
Net weight	kg	380	440	760	880
Noise level	dB(A)	≤65	≤65	≤65	≤65

NOTES

Capacities and power inputs based on the following conditions:

- Heating: Water Inlet/Outlet temperature 47℃/55℃. Outdoor air dry bulb/wet bulb temperature 7℃/6℃.
- Domestic Hot Water: Water temperature in the tank 40℃. Outdoor air dry bulb/wet bulb temperature 7℃/6℃.

Rating labels and marking:

EVI Air Source Heat Pump			
Model	RS-36DV1	Rated Voltage	380-400V/3N~/50Hz
Waterproof Level	IPX4	Electric Shock Protection Level	Class I
Heating Capacity (E: 7/6℃; W: 30/35℃)	30.0kW	Heating Capacity (E: 7/6℃; W: 47/55℃)	28.5kW
Input Power (E: 7/6℃; W: 30/35℃)	7.5kW	Input Power (E: 7/6℃; W: 47/55℃)	9.5kW
COP (E: 7/6℃; W: 30/35℃)	4.00	COP (E: E: 7/6℃; W: 47/55℃)	3.0
Input Power Max.	14.3kW	Input Current Max.	25.5A
Water Resistance	60kPa	Water Flow	5.5m³/h
Piping Connection	DN40	Heat Exchanger Max. Working Pressure	3.0MPa
Refrigerant	R407C/4.2kg	Sunction/Exhaust Side Allow Working Over Pressure	1.0/3.0MPa
Noise	≤65dB(A)	High/Low Pressure Side Allow Max. Pressure	3.0/1.0MPa
Net Weight	380kg	Water Side Rated Pressure	0.7MPa

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EVI Air Source Heat Pump			
Model	RS-48DV1	Rated Voltage	380-400V/3N~/50Hz
Waterproof Level	IPX4	Electric Shock Protection Level	Class I
Heating Capacity (E: 7/6℃; W: 30/35℃)	39.0kW	Heating Capacity (E: 7/6℃; W: 47/55℃)	37.0kW
Input Power (E: 7/6℃; W: 30/35℃)	9.7kW	Input Power (E: 7/6℃; W: 47/55℃)	12.8kW
COP (E: 7/6℃; W: 30/35℃)	4.00	COP (E: E: 7/6℃; W: 47/55℃)	2.9
Input Power Max.	19.7kW	Input Current Max.	35.3A
Water Resistance	60kPa	Water Flow	7.2m³/h
Piping Connection	DN50	Heat Exchanger Max. Working Pressure	4.2MPa
Refrigerant	R410A/7.0kg	Sunction/Exhaust Side Allow Working Over Pressure	1.2/4.2MPa
Noise	≤65dB(A)	High/Low Pressure Side Allow Max. Pressure	4.2/1.2MPa
Net Weight	440kg	Water Side Rated Pressure	0.7MPa

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EVI Air Source Heat Pump

Model	RS-72DV2	Rated Voltage	380-400V/3N~/50Hz
Waterproof Level	IPX4	Electric Shock Protection Level	Class I
Heating Capacity (E: 7/6℃; W: 30/35℃)	60.0kW	Heating Capacity (E: 7/6℃; W: 47/55℃)	57.0kW
Input Power (E: 7/6℃; W: 30/35℃)	15.0kW	Input Power (E: 7/6℃; W: 47/55℃)	19.0kW
COP (E: 7/6℃; W: 30/35℃)	4.00	COP (E: E: 7/6℃; W: 47/55℃)	3.0
Input Power Max.	28.6kW	Input Current Max.	51.0A
Water Resistance	60kPa	Water Flow	11.0m^3/h
Piping Connection	DN40	Heat Exchanger Max. Working Pressure	3.0MPa
Refrigerant	R407C/4.2*2kg	Sunction/Exhaust Side Allow Working Over Pressure	1.0/3.0MPa
Noise	≤65dB(A)	High/Low Pressure Side Allow Max. Pressure	3.0/1.0MPa
Net Weight	760kg	Water Side Rated Pressure	0.7MPa

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CE

EVI Air Source Heat Pump

Model	RS-96DV2	Rated Voltage	380-400V/3N~/50Hz
Waterproof Level	IPX4	Electric Shock Protection Level	Class I
Heating Capacity (E: 7/6℃; W: 30/35℃)	78.0kW	Heating Capacity (E: 7/6℃; W: 47/55℃)	74.5kW
Input Power (E: 7/6℃; W: 30/35℃)	19.5kW	Input Power (E: 7/6℃; W: 47/55℃)	24.8kW
COP (E: 7/6℃; W: 30/35℃)	4.00	COP (E: E: 7/6℃; W: 47/55℃)	3.0
Input Power Max.	39.5kW	Input Current Max.	70.5A
Water Resistance	60kPa	Water Flow	14.4m^3/h
Piping Connection	DN50	Heat Exchanger Max. Working Pressure	4.2MPa
Refrigerant	R410A/7.0*2kg	Sunction/Exhaust Side Allow Working Over Pressure	1.2/4.2MPa
Noise	≤65dB(A)	High/Low Pressure Side Allow Max. Pressure	4.2/1.2MPa
Net Weight	880kg	Water Side Rated Pressure	0.7MPa

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CE

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict

COMMISSION REGULATION (EU) No 813/2013			
Article 1	Subject matter and scope		P
1	This Regulation establishes ecodesign requirements for the placing on the market and/or putting into service of space heaters and combination heaters with a rated heat ouput heater ≤ 400 kW including those integrated in packages of space heater, temperature contorl and solar device or packages of combination heater, temperautre control and solar device as defined in article 2 of Commission Delegated Regulation (EU) No 811/2013.		P
2	This Regulation shall not apply to: (a) heaters specifically designed for using gaseous or liquid fuels predominantly produced from biomass; (b) heaters using solid fuels; (c) heaters within the scope of Directive 2010/75/EU of the European Parliament and of the Council; (d) heaters generating heat only for the purpose of providing hot drinking or sanitary water; (e) heaters for heating and distributing gaseous heat transfer media such as vapour or air; (f) cogeneration space heaters with a maximum electrical capacity of 50 kW or above. (g) heat generators designed for heaters and heater housings to be equiped with such heat generators placed on the market before 1 January 2018 to replace identical heat generators and identical heater housings. The replacement product or its packaging shall clearly indicate the heater for which it is intended.		P
Article 3	Ecodesign requirements and timetable		P
1	The ecodesign requirements for heaters are set out in Annex II.		P
2	Each ecodesign requirement shall apply in accordance with the following timetable:		P
	(a) from 26 September 2015: (i) heates shall meet the requirements set out in Annex II, points 1(a), 3 and 5; (ii) combination heaters shall meet the requirements set out in Annex II, point 2(a);		P

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict

	(a) from 26 September 2017: (i) electric space heaters, electric combination heaters, cogeneration space heaters, heat pump space heaters and heat pump combination heaters shall meet the requirements set out in Annex II, point 1(b); (ii) combination heaters shall meet the requirements set out in Annex II, point 2(b);		P
	(a) from 26 September 2018 heaters shall meet the requirements set out in Annex II, point 4(a).		N/A
3	Compliance with ecodesign requirements shall be measured and calculated in accordance with the requirements set out in Annex III.		P
Annex II	Ecodesign requirements		P
1	Requirements for seasonal space heating energy efficiency		P
	(a) From 26 September 2015 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values:		P
	- Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: 100%		N/A
	- Low-temperature heat pumps: 115%		P
	(b) From 26 September 2017 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values:		P
	- Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: 110%		N/A
	- Low-temperature heat pumps: 125%		P
2	Requirements for water heating energy efficiency		N/A
	(a) From 26 September 2015 the water heating energy efficiency of combination heaters shall not fall below the following values:		N/A

Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL	-
Water heating energy efficiency	22%	23%	26%	26%	30%	30%	30%	32%	32%	32%	

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict

	(a) From 26 September 2017 the water heating energy efficiency of combination heaters shall not fall below the following values:		N/A

Declared load profile	3XS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	32%	32%	32%	32%	36%	37%	38%	60%	64%	64%

3	Requirements for sound power level		P
	From 26 September 2015 the sound power level of heat pump space heaters and heat pump combination heaters shall not exceed the following values:	Declared by manufacturer	P

Rated heat output ≤ 6 kW		6 kW < Rated heat output ≤ 12 kW		12 kW < Rated heat output ≤ 30 kW		30 kW < Rated heat output ≤ 70 kW	
indoor	outdoor	indoor	outdoor	indoor	outdoor	indoor	outdoor
60 dB	65 dB	65 dB	70 dB	70 dB	78 dB	80 dB	88 dB

4	Requirements for emissions nitrogen oxides		N/A
5	Requirements for product information		P
	From 26 September 2015 the following product information on heaters shall be provided:		P
	(a) the instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements:		P
	- For heat pump heaters and heat pump combination heaters, the technical parameters set out in Table 2, measured and calculated in accordance with Annex III;		P
	- Any specific precautions that shall be taken when the heater is assembled, installed or maintained;		P
	- Information relevant for disassembly, recycling and/or disposal at end-of-life;		P
Annex III	Measurements and calculations		P

COMMISSION REGULATION (EU) No 813/2013 COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Clause	Requirement - Test	Result - Remark	Verdict

COMMISSION DELEGATED REGULATION (EU) No 811/2013			
Annex II	Energy efficiency classes		P
1	Seasonal space heating energy efficiency classes		P
	The seasonal space heating energy efficiency class of a heater, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application, shall be determined on the basis of its sensonal space heating energy efficiency as set out in Table 1.		N/A
	The seasonal space heating energy efficiency class of a low-temperature heat pumps and a heat pump space heaters for low-temperature application shall be determined on the basis of its sensonal space heating energy efficiency as set out in Table 2.		P
	The seasonal space heating energy efficiency of a heater shall be calculated in accordance with point 3 and 4 of Annex VII, for heat pump space heaters, heat pump combination heaters and low-temperature heat pumps under average climate conditions.		P
2	Water heating energy efficiency classes		N/A
	The water heating energy efficiency class of a combination heater shall be determined on the basis of its water heating energy efficiency as set out in Table 3.		N/A
	The water heating energy efficiency of a combination heater shall be calculated in accordance with point 5 of Annex VII.		N/A

Measurements and calculations

Model	RS-36DV1						
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
Voltage	V	400,1	400,1	399,9	400,2	399,8	400,1
Current input of the unit	A	13,61	12,80	11,91	11,95	12,43	13,61
Power input of the unit	kW	8,93	8,40	7,81	7,84	8,15	8,93
Inlet Water temperature, DB	°C	45,00	32,70	25,23	17,50	49,08	45,00
Outlet Water temperature, DB	°C	52,02	42,05	36,1	30,08	55,32	52,02
Air inlet temperature, DB	°C	-7,01	1,98	7,03	12,12	-9,97	-7,01
Air inlet temperature, WB	°C	-7,99	1,02	5,93	10,99	-10,99	-7,99
Summary of the results							
Total heating capacity	kW	20,18	26,87	31,24	36,16	17,94	20,18
Coefficient of performance (COP)	-	2,26	3,20	4,00	4,61	2,20	2,26
Water flow	m³/h	2,47	2,47	2,47	2,47	2,47	2,47
Remark: *In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

Calculation/conclusion for SCOP(Average):			
Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	23	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	22,82	17,94	2,20	0,90	1,00	2,20
F	20,18	20,18	2,26	0,90	1,00	2,26
A	20,18	20,18	2,26	0,90	1,00	2,26
B	12,29	26,87	3,20	0,90	0,46	2,86
C	7,90	31,24	4,00	0,90	0,25	3,09
D	3,51	36,16	4,61	0,90	0,10	2,39
CR: part load divided by capacity;						

Appendix I Test results

Electric power consumptions	**Unit**	**Value**
Thermostat-off mode [P_{TO}]	kW	0
Standby mode [P_{SB}]	kW	0,012
Crankcase heater [P_{CK}]	kW	0,070
Off mode [P_{OFF}]	kW	0,012

Conclusions:	**Unit**	**Value**
SCOPon:	kWh/kWh	2,74
SCOP:	kWh/kWh	2,70

QH:	kWh/year	47141
QHE:	kWh/year	17377
$^{r)}$s,h	%	106
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	–	A+

Model	RS-48DV1						
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
Voltage	V	240,3	240,5	240,5	240,3	240,1	240,3
Current input of the unit	A	18,00	16,78	15,26	15,56	16,50	17,97
Power input of the unit	kW	11,80	11,01	10,01	10,21	10,81	11,80
Inlet Water temperature, DB	°C	44,93	32,70	25,34	17,65	48,93	44,93
Outlet Water temperature, DB	°C	52,01	42,03	36,04	30,12	55,3	52,01
Air inlet temperature, DB	°C	-7,03	1,99	7,02	12,10	-9,99	-7,03
Air inlet temperature, WB	°C	-7,98	1,01	5,95	10,97	-10,98	-7,98
Summary of the results							
Total heating capacity	kW	26,55	35,00	40,14	46,77	23,90	26,55
Coefficient of performance (COP)	-	2,25	3,18	4,01	4,58	2,21	2,25
Water flow	m³/h	3,23	3,23	3,23	3,23	3,23	3,23
Remark: *In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10		Tbiv(°C)		-7		
Pdesignh(kW)	30		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	30,01	23,90	2,21	0,90	1,00	2,21	
F	26,55	26,55	2,25	0,90	1,00	2,25	
A	26,55	26,55	2,25	0,90	1,00	2,25	
B	16,16	35,00	3,18	0,90	0,46	2,85	
C	10,39	40,14	4,01	0,90	0,26	3,12	
D	4,62	46,77	4,58	0,90	0,10	2,39	
CR: part load divided by capacity;							

Appendix I Test results

Electric power consumptions	**Unit**	**Value**
Thermostat-off mode [P_{TO}]	kW	0
Standby mode [P_{SB}]	kW	0,012
Crankcase heater [P_{CK}]	kW	0,070

Off mode [P_{OFF}]	kW	0,012

Conclusions:	**Unit**	**Value**
SCOPon:	kWh/kWh	2,74
SCOP:	kWh/kWh	2,72
QH:	kWh/year	62008
QHE:	kWh/year	22790
$^{\eta}$s,h	%	106
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	–	A+

Model	RS-72DV2						
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
Voltage	V	399,9	400,2	399,7	400,5	399,8	399,9
Current input of the unit	A	27,22	25,60	23,80	23,90	24,86	27,22
Power input of the unit	kW	17,85	16,80	15,60	15,70	16,30	17,85
Inlet Water temperature, DB	°C	44,98	32,69	25,23	17,50	49,08	44,98
Outlet Water temperature, DB	°C	52,02	42,05	36,1	30,08	55,32	52,02
Air inlet temperature, DB	°C	-7,03	1,99	7,03	12,12	-9,98	-7,00
Air inlet temperature, WB	°C	-7,97	1,05	5,98	10,99	-10,97	-7,98
Summary of the results							
Total heating capacity	kW	40,50	53,80	62,50	72,35	35,87	40,50
Coefficient of performance (COP)	-	2,27	3,20	4,01	4,61	2,20	2,27
Water flow	m³/h	4,95	4,95	4,95	4,95	4,95	4,95
Remark: *In part condition, outlet temperature data is recorded by a full average complete cycle's data.							

Calculation/conclusion for SCOP(Average):

Tdesignh(°C)	-10	Tbiv(°C)	-7
Pdesignh(kW)	46	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	45,78	35,87	2,20	0,90	1,00	2,20
F	40,50	40,50	2,27	0,90	1,00	2,27
A	40,50	40,50	2,27	0,90	1,00	2,27
B	24,65	53,80	3,20	0,90	0,46	2,86
C	15,85	62,50	4,01	0,90	0,25	3,10
D	7,04	72,35	4,61	0,90	0,10	2,39
CR: part load divided by capacity;						

Appendix I Test results

Electric power consumptions	**Unit**	**Value**
Thermostat-off mode [P_{TO}]	kW	0
Standby mode [P_{SB}]	kW	0,012
Crankcase heater [P_{CK}]	kW	0,070
Off mode [P_{OFF}]	kW	0,012

Conclusions:	**Unit**	**Value**
SCOPon:	kWh/kWh	2,75
SCOP:	kWh/kWh	2,73
QH:	kWh/year	94587
QHE:	kWh/year	34608
$^{r)}$s,h	%	106
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	–	A+

Model	RS-96DV2						
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
Voltage	V	399,9	400,1	399,7	400,3	399,9	400,1
Current input of the unit	A	36,14	33,53	30,66	31,23	33,09	36,12
Power input of the unit	kW	23,70	22,00	20,10	20,50	21,70	23,70
Inlet Water temperature, DB	°C	44,97	32,68	25,33	17,55	48,95	44,97
Outlet Water temperature, DB	°C	52,05	42,01	36,02	30,02	55,31	52,05
Air inlet temperature, DB	°C	-7,01	1,95	7,03	12,09	-9,97	-7,01
Air inlet temperature, WB	°C	-7,95	1,03	5,91	10,96	-10,93	-7,95
Summary of the results							
Total heating capacity	kW	53,10	70,00	80,20	93,50	47,70	53,10
Coefficient of performance (COP)	-	2,24	3,18	3,99	4,56	2,20	2,24
Water flow	m³/h	6,45	6,45	6,45	6,45	6,45	6,45
Remark: *In part condition, outlet temperature data is recorded by a full average complete cycle's data.							
Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10		Tbiv(°C)	-7			
Pdesignh(kW)	60		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	60,03	47,70	2,20	0,90	1,00	2,2	
F	53,10	53,10	2,24	0,90	1,00	2,24	
A	53,10	53,10	2,24	0,90	1,00	2,24	

B	32,32	70,00	3,18	0,90	0,46	2,85
C	20,78	80,20	3,99	0,90	0,26	3,10
D	9,23	93,50	4,56	0,90	0,10	2,38
CR: part load divided by capacity;						

Appendix I Test results

Electric power consumptions	**Unit**	**Value**
Thermostat-off mode [P_{TO}]	kW	0
Standby mode [P_{SB}]	kW	0,012
Crankcase heater [P_{CK}]	kW	0,070
Off mode [P_{OFF}]	kW	0,012

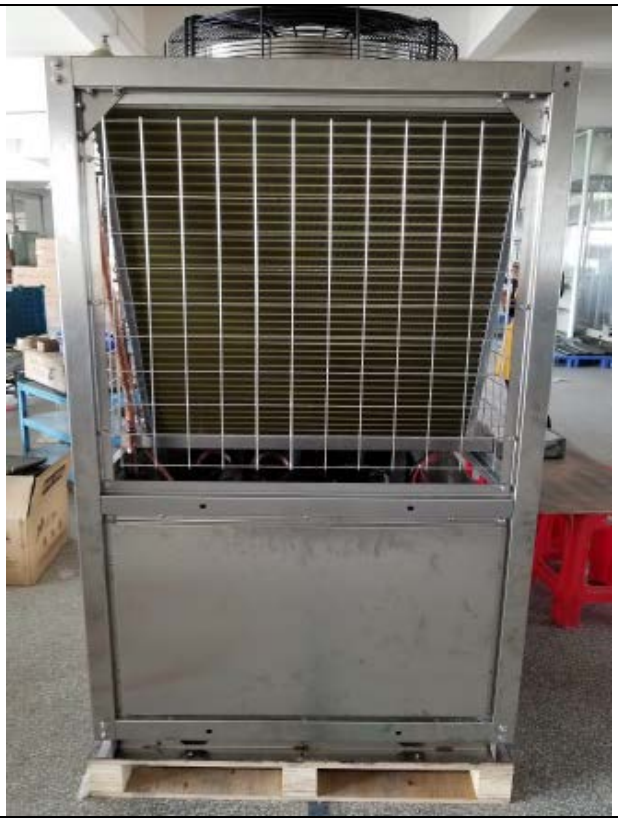
Conclusions:	**Unit**	**Value**
SCOPon:	kWh/kWh	2,73
SCOP:	kWh/kWh	2,72
QH:	kWh/year	124013
QHE:	kWh/year	45497
$^{\eta}s,h$	%	106
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	–	A+

Photos:

Details of: General view (Model: RS-36DV1)

View: [X] general [ ] front [ ] rear [ ] right [ ] left [ ] top [ ] bottom	

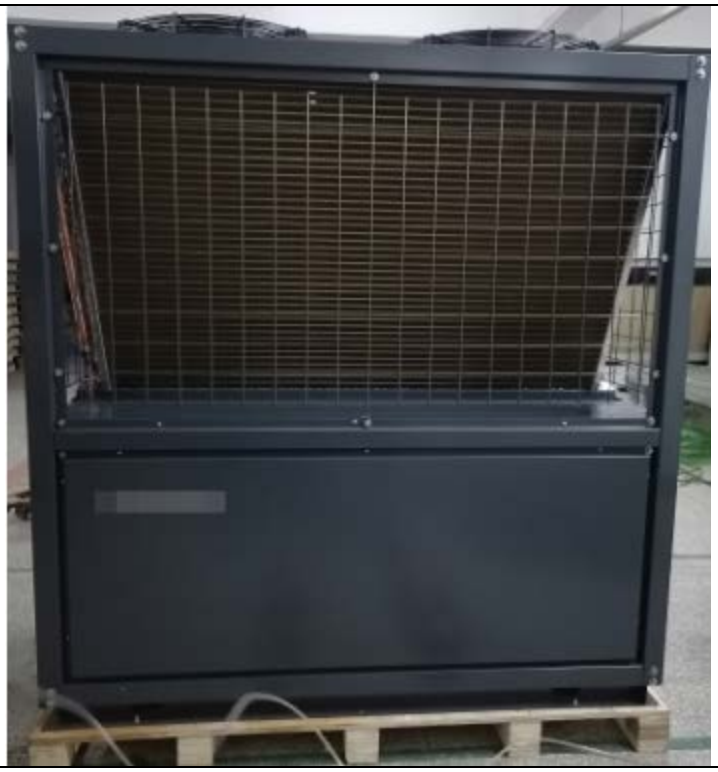
Details of: General view (Model: RS-48DV1)

View: [X] general [ ] front [ ] rear [ ] right [ ] left [ ] top [ ] bottom	

Details of: General view (Model: RS-72DV2)

View: [X] general [ ] front [ ] rear [ ] right [ ] left [ ] top [ ] bottom	

Details of: General view (Model: RS-96DV2,)

View: [X] general [ ] front [ ] rear [ ] right [ ] left [ ] top [ ] bottom	

Statement

1. This test report shall be invalid if altered, added or deleted, or if it is not signed by the tested, reviewed and approved person, or if it has no STU company stamp.
2. The sample picking, sample sending and testing procedures of our company shall be carried out in accordance with relevant national, industrial and local standards as well as our company's procedure documents and operating instructions.
3. For the sample submitted for inspection, the sample information in the test report is provided by applicant, our company is not responsible for its authenticity; the test data in the report is only responsible for the samples.
4. For on-site sampling testing, the test report only represents the measurement of items under on-site working conditions provided by the client during on-site sampling testing.
5. Any objection to this report shall be submitted to our company within 15 days after the issuance of the report, and any delay shall be deemed as recognition of this report.
6. Without the written approval of our company, the report shall not be partially copied; it shall not be used as product label, advertisement or commercial publicity.
7. "Verdict" as "P" in the report means "Pass"; "F" means "Fail"; "N/A" means that the clause "Not apply".

--- End of report ---