
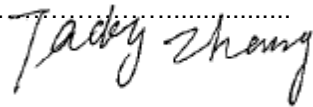


Air Conditioner ERP Test Report	
Report Number	4390415.52
Tested by (name + signature) ..	Elvis Chen 
Approved by (name + signature)	Jacky Zhang 
Date of issue	2022-09-07
Total number of pages	21 pages
Testing Laboratory	DEKRA Testing and Certification (Shanghai) Ltd., Guangzhou branch
Address	Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China
Applicant's name	TCL Air conditioner (Zhong Shan) Co.,Ltd.
Address	No.59.Nantou Road West, Nantou Town Zhongshan City, Guangdong P.R. China
Test specification:	
Standard	EN 14511-1:2018, EN 14511-2:2018, EN 14511-3:2018, EN 14511-4:2018, EN 14825:2018, EN 12102-1:2017+CRGD:2018
Test procedure	(EU) No 206/2012, (EU) No 626/2011, EU 2017/254, EU 2016/2282
Non-standard test method	N/A
Test Report Form No.	EN 14825-2018 V1.1
Test Report Form(s)	DEKRA Guangzhou
Originator	
Test item description	
Trade Mark	TCL
Manufacturer	TCL Air Conditioner (Zhong Shan) Co., Ltd.
Factory	TCL Air Conditioner (Zhong Shan) Co., Ltd.
Model/Type reference	TAC-18CHSD/*I3A (* = TP11, TP21, TP31, TPG11, TPG21, TPG31, TP41, TP51, TP61, TP71, TP72, TP81, TP91, TPA1)
Ratings	220-240 V~, 50 Hz, see rating label

Summary of testing:**Tests performed (Test items):**

Cooling capacity

Heating capacity

Standby/off, thermostat off mode power consumption

Testing location:




TCL Air conditioner (Zhong Shan) Co.,Ltd.

No.59.Nantou Road West, Nantou Town Zhongshan City, Guangdong P.R. China

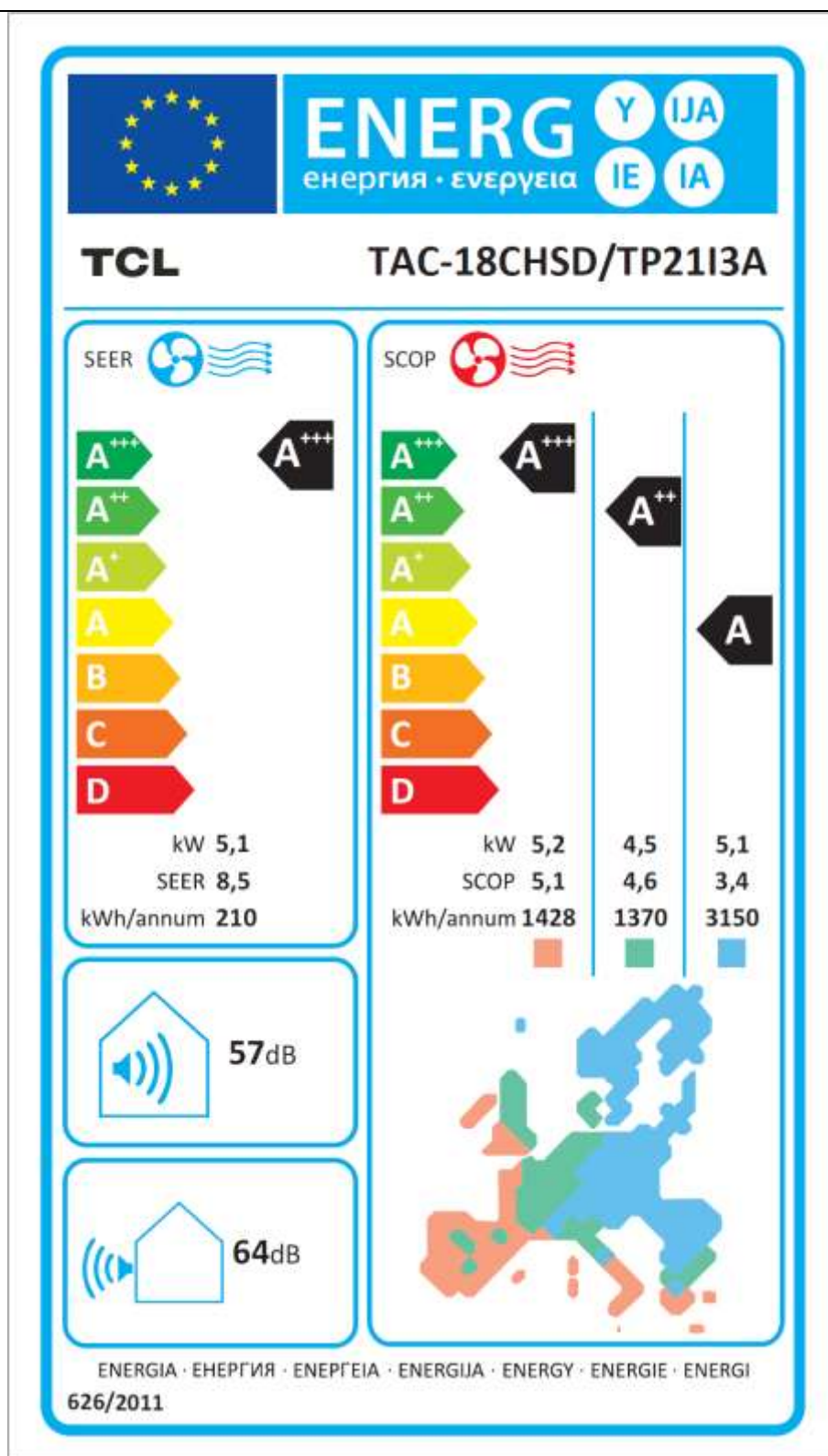
Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBS that own these marks.

Representative model

TCL SPLIT TYPE AIR CONDITIONER				
Model	TAC-18CHSD/TP21I3A			
	Indoor	TAC-18CHSD/TP21I3A		
	Outdoor	TAC-18CHSD/TP21I3A		
		Cooling	Heating	
Capacity		5100W (1250-5920)	5800W (1250-6690)	
Current		5.6A (1.7~12.0)	5.9A (1.7~13.0)	
Rated Current (IEC/EN60335)		12.0A	13.0A	
Power Input		1260W (330~2350)	1330W (340~2540)	
Rated Power Input (IEC/EN60335)		2350W	2540W	
Indoor Air Volume		1000m³/h	1000m³/h	
Maximum Allowable Pressure		3.7MPa		
Max. Pressure	Discharge	3.7MPa		
	Suction	1.2MPa		
Sound Power	Indoor	57dB(A)		
	Outdoor	64dB(A)		
Weight	Indoor	13kg		
	Outdoor	37kg		
Rated Voltage		220-240V~		
Rated Frequency		50Hz		
Refrigerant/Charge/GWP		R32/1.140kg/675		
CO ₂ equivalent		0.770 tonnes		
Contains fluorinated greenhouse gases				
Outdoor Unit Water Proof Protection		IPX4		
TCL Air conditioner (Zhong Shan) Co., Ltd No. 59, Nantou Road West, Nantou, Zhongshan, Guangdong, China				

Rating label (draft version only for indicating the ratings)



Energy label (draft version only for indicating the ratings)

Test item particulars :	
Classification of installation and use	Fixed appliance
Supply Connection..... :	Non-detachable power supply cord with plug

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..... : 2022-05-26
Date (s) of performance of tests..... : 2022-05-26 to 2022-09-02

General remarks:
<p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>"(see Enclosure #)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report, a dot is used as the decimal separator.</p> <p>The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to calculate the uncertainty associated with the measurement result.</p> <p>The test results presented in this report relate only to the object tested.</p> <p>The information provided by the customer in this report may affect the validity of the results, the test lab is not responsible for it.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>This report is not used for social proof function in China market.</p>

General product information:	
Model number of Unit Under Test	TAC-18CHSD/TP21I3A Indoor: TAC-18CHSD/TP21I3A Outdoor: TAC-18CHSD/TP21I3A
Type of System	Split type air conditioner
Air-conditioner Type	Cooling and heating
Power Supply	Single Phase
Refrigerant	R32
Unit Mounting (applicable to non ducted indoor units only)	Wall mounted
Heat Source (Heating Mode)	Air
Heat Sink (Cooling Mode)	Air-cooled
Does this air conditioner have a variable output compressor?	Yes
Type of compressor	inverter
Maximum continuous frequency for cooling (applicable to inverter driven compressor only) (Hz)	55
Maximum continuous frequency for heating (applicable to inverter driven compressor only) (Hz)	104
<p>This appliance is a split type air conditioner. Model TAC-18CHSD/*I3A * can be TP11, TP21, TP31, TPG11, TPG21, TPG31, TP41, TP51, TP61, TP71, TP72, TP81, TP91, TPA1, means different appearance and/or colour.</p> <p>After review, model TAC-18CHSD/TP21I3A was subjected to test.</p>	

Test and verification results			
Clause	Ecodesign requirements - GENERIC ECODESIGN REQUIREMENTS	Result - Remark	Verdict
2a)	From 1 January 2013: Single duct and double duct air conditioners shall correspond to requirements as indicated in Tables 1, 2 and 3		N/A
Table 1	Requirements for minimum energy efficiency		N/A
Table 2	Off mode: Power consumption of equipment in any off-mode condition shall not exceed 1,00 W		N/A
	Standby mode: The power consumption of equipment in any condition providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function, shall not exceed 1,00 W.		N/A
	Standby mode: The power consumption of equipment in any condition providing only information or status display, or providing only a combination of reactivation function and information or status display, shall not exceed 2,00 W.		N/A
	Availability of standby and/or off mode Equipment shall, except where this is inappropriate for the intended use, provide off mode and/or standby mode, and/or another condition which does not exceed the applicable power consumption requirements for off mode and/or standby mode when the equipment is connected to the mains power source.		N/A
Table 3	Indoor sound power level no more than 65 dB(A)		N/A
2b)	From 1 January 2013, air conditioners, except single and double duct air conditioners, shall correspond to minimum energy efficiency and maximum sound power level requirements as indicated in Tables 4 and 5		N/A
Table 4	Requirements for minimum energy efficiency		P
Table 5	Requirements for maximum sound power level		P
2c)	From 1 January 2014, air conditioners shall correspond to requirements as indicated in the table 6		P
2d)	From 1 January 2014, single duct and double duct air conditioners and comfort fans shall correspond to requirements as indicated in Table 7		N/A
Table 7	Off mode: Power consumption of equipment in any off-mode condition shall not exceed 0,50 W.		N/A

Clause	Ecodesign requirements - GENERIC ECODESIGN REQUIREMENTS	Result - Remark	Verdict
	Standby mode: The power consumption of equipment in any condition providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function, shall not exceed 0,50 W.		N/A
	Standby mode: The power consumption of equipment in any condition providing only information or status display, or providing only a combination of reactivation function and information or status display shall not exceed 1,00 W.		N/A
	Availability of standby and/or off modeEquipment shall, except where this is inappropriate for the intended use, provide off mode and/or standby mode, and/or another condition which does not exceed the applicable power consumption requirements for off mode and/or standby mode when the equipment is connected to the mains power source.		N/A
	Power management When equipment is not providing the main function, or when other energy- using product(s) are not dependent on its functions, equipment shall, unless inappropriate for the intended use, offer a power management function, or a similar function, that switches equipment after the shortest possible period of time appropriate for the intended use of the equipment, automatically into: — standby mode, or — off mode, or — another condition which does not exceed the applicable power consumption requirements for off mode and/or standby mode when the equipment is connected to the mains power source. The power management function shall be activated before delivery.		N/A

Information requirements for air conditioners, except double duct and single duct air conditioners							
Function (indicate if present)				If function includes heating: Indicate the heating season the information relates to. Indicated values should relate to one heating season at a time. Include at least the heating season 'Average'.			
cooling	Y			Average (mandatory)	Y		
heating	Y			Warmer (if designated)	Y		
				Colder (if designated)	Y		
Item	symbol	value	unit	Item	symbol	value	unit
Design load				Seasonal efficiency			
cooling	Pdesignc	5.1	kW	cooling	SEER	8.5	—
heating/Average	Pdesignh	4.5	kW	heating/Average	SCOP/A	4.6	—
heating/Warmer	Pdesignh	5.2	kW	heating/Warmer	SCOP/W	5.1	—
heating/Colder	Pdesignh	5.1	kW	heating/Colder	SCOP/C	3.4	—
Declared capacity (*) for cooling, at indoor temperature 27(19) °C and outdoor temperature Tj				Declared energy efficiency ratio (*), at indoor temperature 27(19) °C and outdoor temperature Tj			
Tj = 35 °C	Pdc	5.103	kW	Tj = 35 °C	EERd	4.082	—
Tj = 30 °C	Pdc	3.881	kW	Tj = 30 °C	EERd	5.836	—
Tj = 25 °C	Pdc	2.425	kW	Tj = 25 °C	EERd	10.104	—
Tj = 20 °C	Pdc	1.184	kW	Tj = 20 °C	EERd	17.672	—
Declared capacity (*) for heating/Average season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance (*)/Average season, at indoor temperature 20°C and outdoor temperature Tj			
Tj = – 7 °C	Pdh	3.982	kW	Tj = – 7 °C	COPd	2.958	—
Tj = 2 °C	Pdh	2.629	kW	Tj = 2 °C	COPd	4.771	—
Tj = 7 °C	Pdh	1.575	kW	Tj = 7 °C	COPd	5.565	—
Tj = 12 °C	Pdh	1.001	kW	Tj = 12 °C	COPd	6.673	—
Tj = bivalent temperature	Pdh	3.982	kW	Tj = bivalent temperature	COPd	2.958	—
Tj = operating limit	Pdh	4.371	kW	Tj = operating limit	COPd	2.411	—
Declared capacity (*) for heating/Warmer season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance (*)/Warmer season, at indoor temperature 20°C and outdoor temperature Tj			
Tj = 2 °C	Pdh	5.204	kW	Tj = 2 °C	COPd	2.811	—
Tj = 7 °C	Pdh	3.373	kW	Tj = 7 °C	COPd	4.968	—
Tj = 12 °C	Pdh	1.473	kW	Tj = 12 °C	COPd	6.461	—
Tj = bivalent temperature	Pdh	5.204	kW	Tj = bivalent temperature	COPd	2.811	—
Tj = operating limit	Pdh	5.204	kW	Tj = operating limit	COPd	2.811	—

Declared capacity (*) for heating/Colder season, at indoor temperature 20°C and outdoor temperature Tj				Declared coefficient of performance (*) /Colder season, at indoor temperature 20°C and outdoor temperature Tj			
Tj = - 7 °C	Pdh	3.311	kW	Tj = - 7 °C	COPd	3.344	—
Tj = 2 °C	Pdh	1.803	kW	Tj = 2 °C	COPd	4.079	—
Tj = 7 °C	Pdh	1.176	kW	Tj = 7 °C	COPd	4.612	—
Tj = 12 °C	Pdh	0.821	kW	Tj = 12 °C	COPd	5.366	—
Tj = bivalent temperature	Pdh	3.311	kW	Tj = bivalent temperature	COPd	3.344	—
Tj = operating limit	Pdh	3.211	kW	Tj = operating limit	COPd	1.929	—
Tj = - 15 °C	Pdh	4.163	kW	Tj = - 15 °C	COPd	2.309	—
Bivalent temperature				Operating limit temperature			
heating/Average	Tbiv	-7	°C	heating/Average	Tol	-15	°C
heating/Warmer	Tbiv	2	°C	heating/Warmer	Tol	2	°C
heating/Colder	Tbiv	-15	°C	heating/Colder	Tol	-25	°C
Cycling interval capacity				Cycling interval efficiency			
for cooling	Pcycc	N/A	kW	for cooling	EERcyc	N/A	—
for heating	Pcych	N/A	kW	for heating	COPcyc	N/A	—
Degradation co-efficient cooling (**)	Cdc	0.25	—	Degradation co-efficient heating (**)	Cdh	0.25	—
Electric power input in power modes other than 'active mode'				Annual electricity consumption			
off mode	POFF	—	kW	cooling	QCE	210	kWh/a
standby mode	PSB	0.002	kW	heating/Average	QHE	1370	kWh/a
thermostat-off mode	PTO	0.016	kW	heating/Warmer	QHE	1428	kWh/a
crankcase heater mode	PCK	—	kW	heating/Colder	QHE	3150	kWh/a
Capacity control (indicate one of three options)				Other items			
fixed	N			Sound power level (indoor/outdoor)	LWA	57 / 64	dB(A)
staged	N			Global warming potential	GWP	675 (R32)	kgCO2 eq.
variable	Y			Rated air flow (indoor/outdoor)	—	1000/3000	m3/h

Information requirements for single duct and double duct air conditioners.			
Information to identify the model(s) to which the information relates to [fill in as necessary]			
Description	Symbol	Value	Unit
Rated output power for cooling	P_{rated} for cooling	N/A	kW
Rated output power for heating	P_{rated} for heating	N/A	kW
Rated power input for cooling	P_{EER}	N/A	kW
Rated power input for heating	P_{COP}	N/A	kW
Rated Energy efficiency ratio	EER_{rated}	N/A	—
Rated Coefficient of performance	COP_{rated}	N/A	—
Thermostat-off mode power consumption	P_{TO}	N/A	W
Standby mode power consumption	P_{SB}	N/A	W
Off mode power consumption	P_{OFF}	N/A	W
Seasonal electricity consumption for double ducts (DD): hourly electricity consumption for single ducts (SD): hourly electricity consumption	Q	N/A	kWh/60min.
Sound power level (indoor only)	L_{WA}	N/A	dB(A)
Global warming potential of refrigerant	GWP	N/A	kgCO ₂ eq.
Contact details for obtaining more information	N/A		

Table for cooling test data

General test conditions/part load	unit	A35/A27(100%)	A30/A27(74%)	A25/A27(47%)	A20/A27(21%)
-	-	A	B	C	D
Barometric	KPa	101.37	101.47	101.59	101.53
Voltage	V	229.65	229.73	229.96	230.11
Current input	A	7.88	4.31	1.77	0.60
Power input	kW	1.250	0.665	0.240	0.067
Test conditions indoor unit					
Air inlet temperature, DB/WB	°C	27.06/18.98	27.00/18.99	26.94/18.97	26.98/19.03
Air outlet temperature, DB/WB	°C	N/A	N/A	N/A	N/A
Test conditions outdoor unit					
Air inlet temperature, DB/WB	°C	35.04/24.03	30.03/25.03	25.03/15.04	19.99/14.05
Total cooling capacity	kW	5.103	3.881	2.425	1.184
Power input	kW	1.250	0.665	0.240	0.067
Energy efficiency ratio	-	4.08	5.84	10.10	17.67
Compressor frequency	Hz	55	37	20	9

Table for heating test data (Average)

General test conditions/part load	unit	A-10/A20 (100%)	A-7/A20 (88%)	A-7/A20 (88%)	A2/A20 (54%)	A7/A20 (35%)	A12/A20 (15%)
-	-	E	F	A	B	C	D
Barometric	KPa	101.09	100.36	100.36	101.10	100.41	101.59
Voltage	V	230.34	230.24	230.24	230.08	230.30	230.76
Current input	A	8.01	5.99	5.99	3.87	2.12	1.16
Power input	kW	1.813	1.346	1.346	0.551	0.283	0.150
Test conditions indoor unit							
Air inlet temperature, DB/WB	°C	20.01/15.00	20.00/15.01	20.00/15.01	20.02/14.99	19.99/14.97	20.00/15.00
Air outlet temperature, DB/WB	°C	29.53/15.77	29.17/18.17	29.17/18.17	25.45/16.90	N/A	N/A
Test conditions outdoor unit							
Air inlet temperature, DB/WB	°C	-10.00/-11.00	-7.01/-7.99	-7.01/-7.99	2.00/1.00	7.01/6.00	12.02/10.98
Summary of the test results							
Total heating capacity	kW	4.371	3.982	3.982	2.629	1.575	1.001
Power input	kW	1.813	1.346	1.346	0.551	0.283	0.150
Co-efficiency of performance	-	2.41	2.96	2.96	4.77	5.57	6.67
Compressor frequency	Hz	104	78	78	32	18	10

Table for heating test data (Warmer)

General test conditions/part load	unit	A2/A20 (100%)	A2/A20 (100%)	--	A2/A20 (100%)	A7/A20 (64%)	A12/A20 (29%)
-	-	E	F	A	B	C	D
Barometric	KPa	100.33	100.33	--	100.33	100.80	100.56
Voltage	V	230.31	230.31	--	230.31	229.73	229.66
Current input	A	8.16	8.16	--	8.16	4.63	1.88
Power input	kW	1.851	1.851	--	1.851	0.679	0.228
Test conditions indoor unit							
Air inlet temperature, DB/WB	°C	20.01/15.00	20.01/15.00	--	20.01/15.00	20.06/14.99	20.03/14.97
Air outlet temperature, DB/WB	°C	32.39/19.11	32.39/19.11	--	32.39/19.11	N/A	N/A
Test conditions outdoor unit							
Air inlet temperature, DB/WB	°C	2.00/1.00	2.00/1.00	--	2.00/1.00	7.01/6.02	12.00/11.02
Summary of the test results	-	A2/A20 (100%)	A2/A20 (100%)	--	A2/A20 (100%)	A7/A20 (64%)	A12/A20 (29%)
Total heating capacity	kW	5.204	5.204	--	5.204	3.373	1.473
Power input	kW	1.851	1.851	--	1.851	0.679	0.228
Co-efficiency of performance	-	2.81	2.81	--	2.81	4.97	6.46
Compressor frequency	Hz	94	94	--	94	39	15

Table for heating test data (Colder)

General test conditions/part load	unit	A-22/A20 (100%)	A-15/A20 (82%)	A-15/A20 (82%)	A-7/A20 (61%)	A2/A20 (37%)	A7/A20 (24%)	A12/A20 (11%)
-	-	E	F	G	A	B	C	D
Barometric	KPa	100.18	100.38	100.38	100.06	100.77	100.34	100.43
Voltage	V	230.33	230.13	230.13	230.24	230.25	230.24	230.62
Current input	A	7.36	7.97	7.97	6.58	3.25	2.02	1.28
Power input	kW	1.665	1.803	1.803	0.990	0.442	0.255	0.153
Test conditions indoor unit								
Air inlet temperature, DB/WB	°C	20.01/ 15.00	20.00/ 15.00	20.00/ 15.00	20.00/ 15.00	19.99/ 15.00	19.99/ 15.02	20.04/ 15.03
Air outlet temperature, DB/WB	°C	27.31/ 17.69	29.67/ 18.40	29.67/ 18.40	27.86/ 17.78	24.21/ 16.55	N/A	N/A
Test conditions outdoor unit								
Air inlet temperature, DB/WB	°C	-22.02/ -22.88	-15.00/ -16.00	-15.00/ -16.00	-7.01/ -8.00	2.00/ 1.00	7.00/ 6.02	12.03/ 11.04
Summary of the test results	-	A-22/A20 (100%)	A-15/A20 (82%)	A-15/A20 (82%)	A-7/A20 (61%)	A2/A20 (37%)	A7/A20 (24%)	A12/A20 (11%)
Total heating capacity	kW	3.211	4.163	4.163	3.311	1.803	1.176	0.821
Power input	kW	1.665	1.803	1.803	0.990	0.442	0.255	0.153
Co-efficiency of performance	-	1.93	2.31	2.31	3.34	4.08	4.61	5.37
Compressor frequency	Hz	104	104	104	59	24	14	9

SEER calculation:

	Outdoor air	measured Cooling Capacity	Input Power	EER _{DC/meas}	C _d	EER _{PL}
	°C	kW	kW			
A	35	5.103	1.25	4.08	0.25	4.08
B	30	3.881	0.665	5.84	0.25	5.84
C	25	2.425	0.24	10.10	0.25	10.10
D	20	1.184	0.067	17.67	0.25	17.67

	Part load ratio	Cooling demand P _c (T _j)	Bin hours h _j	Measured Cooling capacity	Capacity ratio	Measured EER	Corrected EER _{PL}	EER(T _j) C _d =0,25	h _j x P _c (T _j)	h _j x P _c (T _j) / EERbin(T _j)
	T _j	P _c (T _j)	h _j							
	17	5.3%	0.269	205				17.26	55	3
	18	10.5%	0.537	227				17.26	122	7
	19	15.8%	0.806	225				17.26	181	11
D	20	21.1%	1.074	225	1.184	0.907	17.67	17.26	242	14
	21	26.3%	1.343	216				15.83	290	18
	22	31.6%	1.611	215				14.40	346	24
	23	36.8%	1.880	218				12.97	410	32
	24	42.1%	2.149	197				11.54	423	37
C	25	47.4%	2.417	178	2.425	0.997	10.10	10.10	430	43
	26	52.6%	2.686	158				9.25	424	46
	27	57.9%	2.954	137				8.40	405	48
	28	63.2%	3.223	109				7.54	351	47
	29	68.4%	3.492	88				6.69	307	46
B	30	73.7%	3.760	63	3.881	0.969	5.84	5.84	237	41
	31	78.9%	4.029	39				5.49	157	29
	32	84.2%	4.297	31				5.13	133	26
	33	89.5%	4.566	24				4.78	110	23
	34	94.7%	4.834	17				4.43	82	19
A	35	100.0%	5.103	13	5.103	1.000	4.08	4.08	66	16
	36	105.3%	5.372	9				4.08	48	12
	37	110.5%	5.640	4				4.08	23	6
	38	115.8%	5.909	3				4.08	18	4
	39	121.1%	6.177	1				4.08	6	2
	40	126.3%	6.446	0				4.08	0	0
									4868	551
									SEERon	8.84
									SEER	8.51

Equiv. H _{ce}	350	h				Q _c /SEER _{on}	202.05989
H _{TO}	221	h	P _{TO}	0.016	kW	HTO*PTO	3.536 kwh
H _{SB}	2142	h	P _{SB}	0.002	kW	HSB*PSB	4.284 kwh
H _{CK}	2672	h	P _{CK}	0	kW	HCK*PCK	0 kwh
H _{OFF}	0	h	P _{OFF}	0	kW	HOFF*POFF	0 kwh
						Q _{ce}	209.87989
P _{designc}	5.103	kW					
Q _c	1786.05	kWh					

SCOP calculation (Average):

	Outdoor air °C	measured Heating Capacity kW	Input Power kW	COP _{DC/meas}	Cd	COP _{PL} (COP bin (T _j))
A	-7	3.982	1.346	2.96	0.25	2.96
B	2	2.629	0.551	4.77	0.25	4.77
C	7	1.575	0.283	5.57	0.25	5.57
D	12	1.001	0.15	6.67	0.25	6.67
E	-10	4.371	1.813	2.41	0.25	2.41
F	-7	3.982	1.346	2.96	0.25	2.96

										hj		h _j *[Ph(T _j)-elbu(T _j)]/COPbin(T _j)		COP (including backup heater)		h _j *[Ph(T _j)-elbu(T _j)]/COPbin(T _j)	
		Part load	Heating demand	Bin hours	Heat load covered by the heat		Capacity		COP _{PL}	COP _{bin} (T _j)	hj x Ph(T _j)	elbu(T _j)	hj x [Ph(T _j)-elbu(T _j)]	elbu(T _j)	T _j		
	T _j	ratio	Ph(T _j)	h _j	pump	elbu(T _j)	ratio										
A	-10	100.0%	4.501	1	4.371	0.130	1.03		2.41	2.41	5	2	2.32	4	1.81		
	-9	96.2%	4.328	25	4.241	0.087	1.02			2.59	108	43	2.51	106	40.89		
	-8	92.3%	4.155	23	4.112	0.043	1.01			2.78	96	35	2.73	95	34.07		
	-7	88.5%	3.982	24	3.982	0.000	1.00		2.96	2.96	96	32	2.96	96	32.30		
	-6	84.6%	3.809	27	3.809	0.000	1.00			3.16	103	33	3.16	103	32.55		
	-5	80.8%	3.636	68	3.636	0.000	1.00			3.36	247	74	3.36	247	73.55		
	-4	76.9%	3.463	91	3.463	0.000	1.00			3.56	315	88	3.56	315	88.44		
	-3	73.1%	3.289	89	3.289	0.000	1.00			3.76	293	78	3.76	293	77.78		
	-2	69.2%	3.116	165	3.116	0.000	1.00			3.97	514	130	3.97	514	129.67		
	-1	65.4%	2.943	173	2.943	0.000	1.00			4.17	509	122	4.17	509	122.19		
B	0	61.5%	2.770	240	2.770	0.000	1.00			4.37	665	152	4.37	665	152.19		
	1	57.7%	2.597	280	2.597	0.000	1.00			4.57	727	159	4.57	727	159.12		
	2	53.8%	2.424	320	2.424	0.000	1.00		4.77	4.77	776	163	4.77	776	162.56		
	3	50.0%	2.251	357	2.251	0.000	1.00			4.93	803	163	4.93	803	162.98		
	4	46.2%	2.078	356	2.078	0.000	1.00			5.09	740	145	5.09	740	145.34		
	5	42.3%	1.904	303	1.904	0.000	1.00			5.25	577	110	5.25	577	109.96		
	6	38.5%	1.731	330	1.731	0.000	1.00			5.41	571	106	5.41	571	105.67		
	7	34.6%	1.558	326	1.558	0.000	1.00		5.57	5.57	508	91	5.57	508	91.27		
	8	30.8%	1.385	348	1.385	0.000	1.00			5.68	482	85	5.68	482	84.80		
	9	26.9%	1.212	335	1.212	0.000	1.00			5.80	406	70	5.80	406	69.96		
C	10	23.1%	1.039	315	1.039	0.000	1.00			5.92	327	55	5.92	327	55.26		
	11	19.2%	0.866	215	0.866	0.000	1.00			6.04	186	31	6.04	186	30.81		
	12	15.4%	0.693	169	0.693	0.000	1.00		6.16	6.16	117	19	6.16	117	19.00		
	13	11.5%	0.519	151	0.519	0.000	1.00			6.2780	78	12	6.28	78	12.49		
	14	7.7%	0.346	105	0.346	0.000	1.00			6.3967	36	6	6.40	36	5.68		
	15	3.8%	0.173	74	0.173	0.000	1.00			6.5155	13	2	6.52	13	1.97		
	16	0.0%		4910													
						0.261				summation	9298	2006			9295	2002	
										SCOPon	4.64			SCOPnet	4.64		
										SCOP	4.63						

H _{he}	1400	h					Q _h /SCOP _{on}	1359.3285	
H _{TO}	179	h		P _{TO}	0.016	kW	HTO*PTO	2.864	kWh
H _{SB}	0	h		P _{SB}	0.002	kW	HSB*PSB	0	kWh
H _{CK}	179	h		P _{CK}	0	kW	HCK*PCK	0	kWh
H _{OFF}	0	h		P _{OFF}	0	kW	HOFF*POFF	0	kWh
							Q _{he}	1362.1925	
P _{designh}	4.501	kW							
Q _H	6301.9478	kWh							

SCOP calculation (Warmer):

	Outdoor air °C	measure d Heating Capacity kW	Input Power kW	COP _{DC/meas}	Cd	COP _{PL} (COP bin (T _j))
B	2	5.204	1.851	2.81	0.25	2.81
C	7	3.373	0.679	4.97	0.25	4.97
D	12	1.473	0.228	6.46	0.25	6.46
E	2	5.204	1.851	2.81	0.25	2.81
F	2	5.204	1.851	2.81	0.25	2.81

										h _j		COP		h _j {Ph(T _j)-	
		Heating		Bin	Heat load		Capacity		COP _d	COP _{ph} (T _j)	“{[(Ph(T _j)-	(including	h _j {Ph(T _j)-	elbu(T _j))/C	
		Part load	demand	hours	covered by			COP _{bin} (T _j)			backup	heater			elbu(T _j)
	T _j	ratio	Ph(T _j)	h _j	pump	elbu(T _j)	ratio			h _j x Ph(T _j)	+elbu(T _j)				
B	2	100.0%	5.204	3	5.204	0.000	1.00		2.81	16	6	2.81	15.6	5.6	
	3	92.9%	4.832	22	4.838	0.000	1.00		3.24	106	33	3.24	106.3	32.8	
	4	85.7%	4.461	63	4.472	0.000	1.00		3.67	281	76	3.67	281.0	76.5	
	5	78.6%	4.089	63	4.105	0.000	1.00		4.11	258	63	4.11	257.6	62.8	
	6	71.4%	3.717	175	3.739	0.000	0.99		4.54	651	143	4.54	650.5	143.4	
C	7	64.3%	3.345	162	3.373	0.000	0.99	4.97	4.97	542	109	4.97	542.0	109.1	
	8	57.1%	2.974	259	2.993	0.000	0.99		5.27	770	146	5.27	770.2	146.3	
	9	50.0%	2.602	360	2.613	0.000	1.00		5.56	937	168	5.56	936.7	168.3	
D	10	42.9%	2.230	428	2.233	0.000	1.00		5.86	955	163	5.86	954.6	162.8	
	11	35.7%	1.859	430	1.853	0.006	1.00		6.16	799	132	6.07	796.8	129.3	
	12	28.6%	1.487	503	1.473	0.014	1.01	6.46	6.46	748	122	6.15	740.9	114.7	
	13	21.4%	1.115	444	1.093	0.022	1.02		6.76	495	82	6.07	485.3	71.8	
	14	14.3%	0.743	384	0.713	0.030	1.04		7.06	285	50	5.66	273.8	38.8	
	15	7.1%	0.372	294	0.333	0.039	1.12		7.36	109	25	4.43	97.9	13.3	
	16	0.0%	0.000	0	-0.047	0.047	0.00		7.65	0	0				
											SCOP _{on}	5.28	SCOP _{net}	5.42	
										SCOP	5.23				

Equiv. H	1400	h					Q _h /SCOP _{on}	1380.954		
H _{TO}	755	h	P _{TO}	0.016	kW	HTO*PTO	12.08	kWh		
H _{SB}	0	h	P _{SB}	0.002	kW	HSB*PSB	0	kWh		
H _{CK}	755	h	P _{CK}	0	kW	HCK*PCK	0	kWh		
H _{OFF}	0	h	P _{OFF}	0	kW	HOFF*POFF	0	kWh		
								Q _{he}	1393.034	
P _{designh}	5.204	kW								
Q _H	7285.6	kWh								

SCOP calculation (Colder):

	Outdoor air °C	measure d Heating Capacity kW	Input Power kW	COP _{DC/meas}	Cd	COP _{PL} (COP bin (T _j))
A	-7	3.311	0.99	3.34	0.25	3.34
B	2	1.803	0.442	4.08	0.25	4.08
C	7	1.176	0.255	4.61	0.25	4.61
D	12	0.821	0.153	5.37	0.25	5.37
E	-22	3.211	1.665	1.93	0.25	1.93
F	-15	4.163	1.803	2.31	0.25	2.31
G	-15	4.163	1.803	2.31	0.25	2.31

										h _j	*[[{Ph(T _j)- elbu(T _j)]/ COPbin(T _j)+elbu(T _j)]		COP (including backup heater)	h _j *[Ph(T _j)- elbu(T _j)]	h _j *[Ph(T _j)- elbu(T _j)]/C OPbin(T _j)
T _j	Part load ratio	Heating demand Ph(T _j)	Bin hours h _j	Heat load covered by the heat pump elbu(T _j)		Capacity ratio	declared COP _{PL}	COP _{bin} (T _j)	h _j x Ph(T _j)						
-22	100.0%	5.103	1	3.211	1.892		1.9285285	1.93	5	4	1.43	3	1.67		
-21	97.4%	4.969	6	3.347	1.622			1.98	30	20	1.50	20	10.13		
-20	94.7%	4.834	13	3.483	1.351			2.04	63	40	1.58	45	22.23		
-19	92.1%	4.700	17	3.619	1.081			2.09	80	48	1.67	62	29.41		
-18	89.5%	4.566	19	3.755	0.811			2.15	87	49	1.78	71	33.25		
-17	86.8%	4.432	26	3.891	0.541			2.20	115	60	1.92	101	45.98		
-16	84.2%	4.297	39	4.027	0.270			2.25	168	80	2.09	157	69.66		
-15	81.6%	4.163	41	4.163	0.000		2.3089296	2.31	171	74	2.31	171	73.92		
-14	78.9%	4.029	35	4.057	0.000			2.44	141	58	2.44	141	57.83		
-13	76.3%	3.894	52	3.950	0.000			2.57	203	79	2.57	203	78.86		
-12	73.7%	3.760	37	3.844	0.000			2.70	139	52	2.70	139	51.58		
-11	71.1%	3.626	41	3.737	0.000			2.83	149	53	2.83	149	52.59		
-10	68.4%	3.492	43	3.631	0.000	0.96		2.96	150	51	2.96	150	50.79		
-9	65.8%	3.357	54	3.524	0.000	0.95		3.09	181	59	3.09	181	58.75		
-8	63.2%	3.223	90	3.418	0.000	0.94		3.22	290	90	3.22	290	90.22		
-7	60.5%	3.089	125	3.311	0.000	0.93	3.34	3.34	386	115	3.34	386	115.44		
-6	57.9%	2.954	169	3.143	0.000	0.94		3.43	499	146	3.43	499	145.73		
-5	55.3%	2.820	195	2.976	0.000	0.95		3.51	550	157	3.51	550	156.77		
-4	52.6%	2.686	278	2.808	0.000	0.96		3.59	747	208	3.59	747	208.02		
-3	50.0%	2.552	306	2.641	0.000	0.97		3.67	781	213	3.67	781	212.68		
-2	47.4%	2.417	454	2.473	0.000	0.98		3.75	1097	292	3.75	1097	292.44		
-1	44.7%	2.283	385	2.306	0.000	0.99		3.83	879	229	3.83	879	229.23		
0	42.1%	2.149	490	2.138	0.000	1.00		3.92	1053	269	3.92	1053	268.86		
1	39.5%	2.014	533	1.971	0.000	1.02		4.00	1074	269	4.00	1074	268.58		
2	36.8%	1.880	380	1.803	0.000	1.04	4.08	4.08	714	175	4.08	714	175.14		
3	34.2%	1.746	228	1.678	0.000	1.04		4.19	398	95	4.19	398	95.09		
4	31.6%	1.611	261	1.552	0.000	1.04		4.29	421	98	4.29	421	97.99		
5	28.9%	1.477	279	1.427	0.000	1.04		4.40	412	94	4.40	412	93.69		
6	26.3%	1.343	229	1.301	0.000	1.03		4.51	308	68	4.51	308	68.26		
7	23.7%	1.209	269	1.176	0.000	1.03	4.61	4.61	325	70	4.61	325	70.50		
8	21.1%	1.074	233	1.105	0.000	0.97		4.67	250	54	4.67	250	53.60		
9	18.4%	0.940	230	1.034	0.000	0.91		4.73	216	46	4.73	216	45.73		
10	15.8%	0.806	243	0.963	0.000	0.84		4.79	196	41	4.79	196	40.91		
11	13.2%	0.671	191	0.892	0.000	0.75		4.84	128	26	4.84	128	26.47		
12	10.5%	0.537	146	0.821	0.000	0.65	4.90	4.90	78	16	4.90	78	16.00		
13	7.9%	0.403	150	0.750	0.000	0.54		4.96	60	12	4.96	60	12.18		
14	5.3%	0.269	97	0.679	0.000	0.40		5.02	26	5	5.02	26	5.19		
15	2.6%	0.134	61	0.608	0.000	0.22		5.08	8	2	5.08	8	1.61		
16	0.0%	0.000	0	0.537	0.000	0.00			0						
									12578	3515		12490	3427		
									SCOP _{on}	3.58		SCOP _{net}	3.64		
Equiv. H	2100	h					Q _h /SCOP _{on}	2048.8383							
H _{TO}	131	h	P _{TO}	0.01	kW	HTO*PTO	1.31	kWh	SCOP	3.58					
H _{SB}	0	h	P _{SB}	0.001	kW	HSB*PSB	0	kWh							
H _{CK}	131	h	P _{CK}	0	kW	HCK*PCK	0	kWh							
H _{OFF}	0	h	P _{OFF}	0.001	kW	HOFF*POFF	0	kWh							
									Q _{he}	2050.1483					
P _{designh}	3.492	kW													
Q _H	7332.251613	kWh													

Item	Measured value	Rated value	Deviation	Verdict
SEER	8.51	8.5	0.1%	P
SCOP(average)	4.63	4.6	0.7%	P
SCOP (warmer)	5.23	5.1	2.5%	P
SCOP (colder)	3.58	3.4	5.3%	P
Power consumption in thermostat off mode	16.0 W	16.0 W	0%	P
Power consumption in standby mode	2.0 W	2.0 W	0%	P
Remark: For the original qualification test, the rating values should be equal to or more unfavorable than the tested values.				

Table I

Energy efficiency classes for air conditioners, except double ducts and single ducts

Energy Efficiency Class	SEER	SCOP
A+++	SEER \geq 8,50	SCOP \geq 5,10
A++	6,10 \leq SEER < 8,50	4,60 \leq SCOP < 5,10
A+	5,60 \leq SEER < 6,10	4,00 \leq SCOP < 4,60
A	5,10 \leq SEER < 5,60	3,40 \leq SCOP < 4,00
B	4,60 \leq SEER < 5,10	3,10 \leq SCOP < 3,40
C	4,10 \leq SEER < 4,60	2,80 \leq SCOP < 3,10
D	3,60 \leq SEER < 4,10	2,50 \leq SCOP < 2,80
E	3,10 \leq SEER < 3,60	2,20 \leq SCOP < 2,50
F	2,60 \leq SEER < 3,10	1,90 \leq SCOP < 2,20
G	SEER < 2,60	SCOP < 1,90

Table for sound power

indoor										
Test voltage / frequency	230 V / 50 Hz									
Air inlet temperature, DB/WB	27.0°C /19.0 °C									
Measured surface	14.14 m ²									
Background Noise Level [dB]	18,0									
Microphone Position	1	2	3	4	5	6	7	8	9	10
L _{pi} [dB]	43.2	45.2	45.6	45.9	44.7	45.1	46.4	45.7	45.1	45.4
L _{pmc} / Averaged Sound Pressure Level [dB (A)]	45.30									
LW / Sound Power Level [dB (A)]	56.80									
Rated sound Power Level [dB (A)]	57									
Verdict	P									

outdoor					
Test voltage / frequency	230 V / 50 Hz				
Air inlet temperature, DB/WB	35.0 °C/24.0 °C				
Measured surface	25.13 m ²				
Background Noise Level [dB]	18,0				
Microphone Position	1	2	3	4	5
L _{pi} [dB]	49.3	49.1	50.6	50.1	48.1
L _{pmc} / Averaged Sound Pressure Level [dB (A)]	49.52				
LW / Sound Power Level [dB (A)]	63.53				
Rated sound Power Level [dB (A)]	64				
Verdict	P				

Photos:



Indoor



Outdoor unit

**Compressor**

End of report