
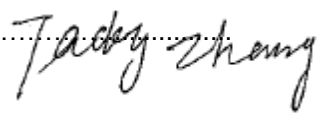


Air Conditioner ERP Test Report	
Report Number.....	4390415.51
Tested by (name + signature):	Elvis Chen 
Approved by (name + signature):	Jacky Zhang 
Date of issue.....	2022-08-30
Total number of pages.....	21 pages
Testing Laboratory .....	DEKRA Testing and Certification (Shanghai) Ltd., Guangzhou branch
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
<b>Test specification:</b>	
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) Originator .....	DEKRA Guangzhou
<b>Test item description</b> .....	
Trade Mark.....	TCL
Manufacturer.....	TCL Air Conditioner (Zhong Shan) Co., Ltd.
Factory .....	TCL Air Conditioner (Zhong Shan) Co., Ltd.
Model/Type reference.....	TAC-12CHSD/*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

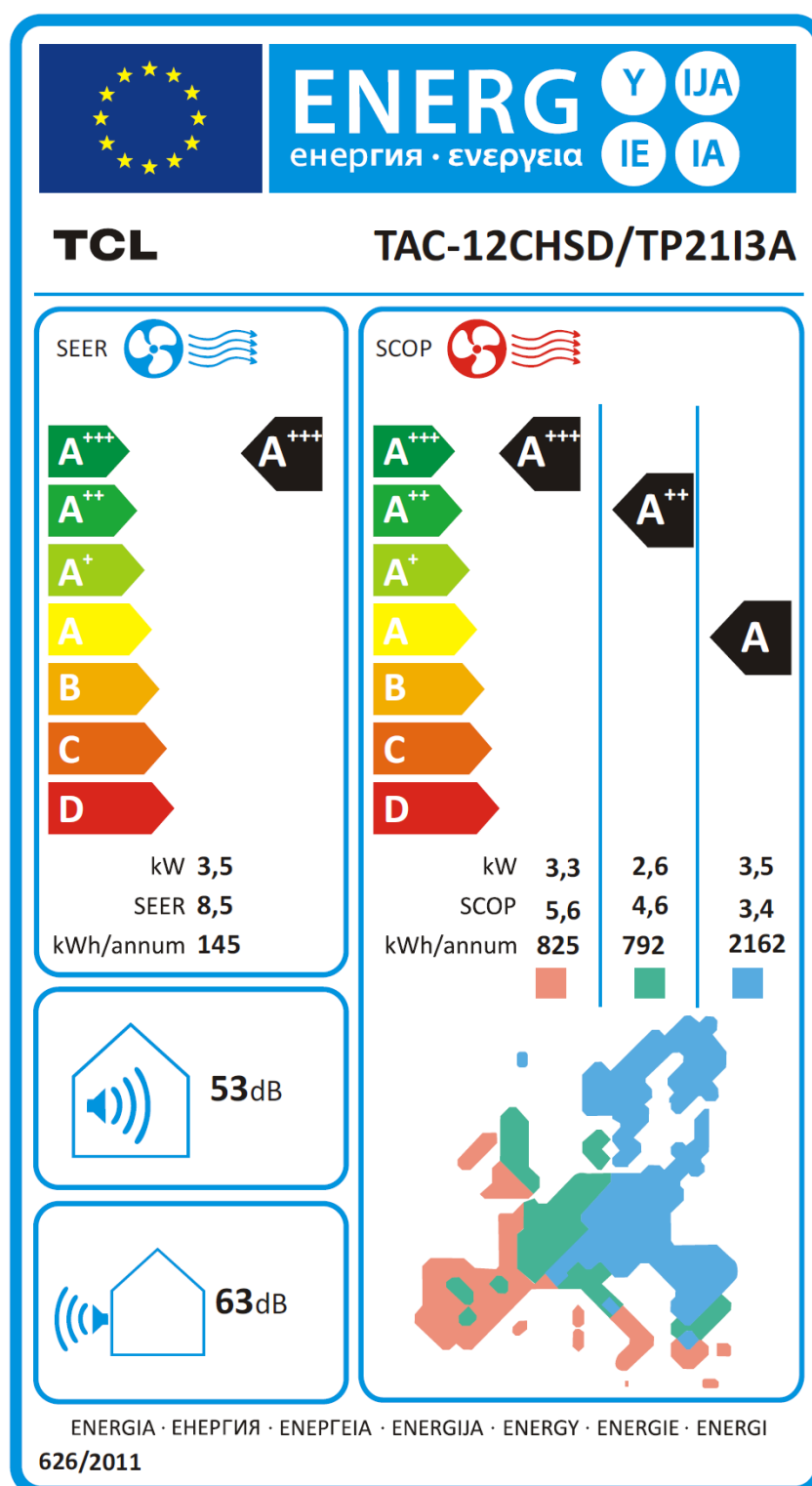
**Copy of marking plate:**

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**

<b>TCL</b>				
SPLIT TYPE AIR CONDITIONER				
Model	TAC-12CHSD/TP21I3A			
	Indoor	TAC-12CHSD/TP21I3A		
	Outdoor	TAC-12CHSD/TP21I3A		
		Cooling	Heating	
Capacity		3510W (1000~4600)	3800W (1000~4900)	
Current		4.6A (1.5~9.2)	4.4A (1.5~10.0)	
Rated Current (IEC/EN60335)		9.2A	10.0A	
Power Input		1000W (290~1510)	970W (290~1720)	
Rated Power Input (IEC/EN60335)		1510W	1720W	
Indoor Air Volume		670m³/h	670m³/h	
Maximum Allowable Pressure			3.7MPa	
Max. Pressure	Discharge		3.7MPa	
	Suction		1.2MPa	
Sound Power	Indoor		53dB(A)	
	Outdoor		63dB(A)	
Weight	Indoor		9.5kg	
	Outdoor		25kg	
Rated Voltage		220-240V~		
Rated Frequency		50Hz		
Refrigerant/Charge/GWP		R32/0.630kg/675		
CO <sub>2</sub> equivalent		0.426 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)

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

<b>Possible test case verdicts:</b>
- 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)
<b>Testing</b> ..... :
Date of receipt of test item..... : 2022-05-26
Date (s) of performance of tests..... : 2022-05-26 to 2022-08-08

<b>General remarks:</b>
<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>

<b>General product information:</b>	
Model number of Unit Under Test	TAC-12CHSD/TP21I3A Indoor: TAC-12CHSD/TP21I3A Outdoor: TAC-12CHSD/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)	54
Maximum continuous frequency for heating (applicable to inverter driven compressor only) (Hz)	98
<p>This appliance is a split type air conditioner.  Model TAC-12CHSD/*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-12CHSD/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 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
	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	3.5	kW	cooling	SEER	8.5	—
heating/Average	Pdesignh	2.6	kW	heating/Average	SCOP/A	4.6	—
heating/Warmer	Pdesignh	3.3	kW	heating/Warmer	SCOP/W	5.6	—
heating/Colder	Pdesignh	3.5	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	3.503	kW	Tj = 35 °C	EERd	3.936	—
Tj = 30 °C	Pdc	2.325	kW	Tj = 30 °C	EERd	6.070	—
Tj = 25 °C	Pdc	1,513	kW	Tj = 25 °C	EERd	10,220	—
Tj = 20 °C	Pdc	0.846	kW	Tj = 20 °C	EERd	18.391	—
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	2.301	kW	Tj = – 7 °C	COPd	3.088	—
Tj = 2 °C	Pdh	1.490	kW	Tj = 2 °C	COPd	4.656	—
Tj = 7 °C	Pdh	1.122	kW	Tj = 7 °C	COPd	6.032	—
Tj = 12 °C	Pdh	1.204	kW	Tj = 12 °C	COPd	7.525	—
Tj = bivalent temperature	Pdh	2.301	kW	Tj = bivalent temperature	COPd	3.088	—
Tj = operating limit	Pdh	2.458	kW	Tj = operating limit	COPd	2.451	—
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	3.302	kW	Tj = 2 °C	COPd	3.840	—
Tj = 7 °C	Pdh	2.112	kW	Tj = 7 °C	COPd	5.215	—
Tj = 12 °C	Pdh	1.162	kW	Tj = 12 °C	COPd	6.917	—
Tj = bivalent temperature	Pdh	3.302	kW	Tj = bivalent temperature	COPd	3.840	—
Tj = operating limit	Pdh	3.302	kW	Tj = operating limit	COPd	3.840	—



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	2.273	kW	Tj = - 7 °C	COPd	2.937	—
Tj = 2 °C	Pdh	1.405	kW	Tj = 2 °C	COPd	4.108	—
Tj = 7 °C	Pdh	1.065	kW	Tj = 7 °C	COPd	5.170	—
Tj = 12 °C	Pdh	1.134	kW	Tj = 12 °C	COPd	6.632	—
Tj = bivalent temperature	Pdh	2.857	kW	Tj = bivalent temperature	COPd	2.206	—
Tj = operating limit	Pdh	2.040	kW	Tj = operating limit	COPd	1.802	—
Tj = - 15 °C	Pdh	2.857	kW	Tj = - 15 °C	COPd	2.206	—
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	145	kWh/a
standby mode	PSB	0.002	kW	heating/Average	QHE	792	kWh/a
thermostat-off mode	PTO	0.016	kW	heating/Warmer	QHE	825	kWh/a
crankcase heater mode	PCK	—	kW	heating/Colder	QHE	2162	kWh/a
Capacity control (indicate one of three options)				Other items			
fixed	N			Sound power level (indoor/outdoor)	LWA	53 / 63	dB(A)
staged	N			Global warming potential	GWP	675 (R32)	kgCO2 eq.
variable	Y			Rated air flow (indoor/outdoor)	—	670/2200	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 <sub>2</sub> 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	101.18	101.73	101.59	101.60
Voltage	V	229.65	229.73	229.96	230.11
Current input	A	4.03	2.82	1.21	0.45
Power input	kW	0.890	0.383	0.148	0.046
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	3.503	2.325	1.513	0.846
Power input	kW	0.890	0.383	0.148	0.046
Energy efficiency ratio	-	3.94	6.07	10.22	18.39
Compressor frequency	Hz	54	31	17	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	101.68	101.49	101.49	101.77	101.69	101.37
Voltage	V	230.30	230.37	230.37	230.17	230.05	229.98
Current input	A	4.49	3.45	3.45	2.33	1.55	1.31
Power input	kW	1.003	0.765	0.765	0.320	0.186	0.160
Test conditions indoor unit							
Air inlet temperature, DB/WB	°C	20.01/14.99	20.01/15.00	20.01/15.00	20.00/15.01	20.05/15.00	19.99/15.02
Air outlet temperature, DB/WB	°C	30.87/17.68	29.18/18.30	29.18/18.30	25.38/16.97	N/A	N/A
Test conditions outdoor unit							
Air inlet temperature, DB/WB	°C	-10.00/-11.00	-7.00/-7.99	-7.00/-7.99	2.00/1.00	7.00/6.02	12.04/11.00
Summary of the test results							
Total heating capacity	kW	2.458	2.301	2.301	1.490	1.122	1.204
Power input	kW	1.003	0.765	0.765	0.320	0.186	0.160
Co-efficiency of performance	-	2.45	3.01	3.01	4.66	6.03	7.53
Compressor frequency	Hz	77	60	60	29	19	17

Table for heating test data (Warmer)

General test conditions/part load	unit	--	--	--	A2/A20 (100%)	A7/A20 (64%)	A12/A20 (29%)
-	-	E	F	A	B	C	D
Barometric	KPa	101.35	101.35	--	101.35	101.07	101.46
Voltage	V	230.13	230.13	--	230.13	229.85	229.82
Current input	A	5.80	5.80	--	5.80	2.89	1.38
Power input	kW	0.860	0.860	--	0.860	0.405	0.168
Test conditions indoor unit							
Air inlet temperature, DB/WB	°C	20.00/15.01	20.00/15.01	--	20.00/15.01	20.04/14.98	19.99/15.04
Air outlet temperature, DB/WB	°C	33.02/19.51	33.02/19.51	--	33.02/19.51	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	7.00/6.01	11.98/11.02
Summary of the test results	-	A2/A20 (100%)	A2/A20 (100%)	--	A2/A20 (100%)	A7/A20 (64%)	A12/A20 (29%)
Total heating capacity	kW	3.302	3.302	--	3.302	2.112	1.162
Power input	kW	0.860	0.860	--	0.860	0.405	0.168
Co-efficiency of performance	-	3.84	3.84	--	3.84	5.21	6.92
Compressor frequency	Hz	66	66	--	66	36	17

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	100.77	100.60	100.60	101.13	101.78	101.57	101.40
Voltage	V	230.10	230.11	230.11	130.44	230.31	229.34	229.34
Current input	A	5.13	5.83	5.83	3.49	2.48	1.72	1.40
Power input	kW	1.132	1.295	1.295	0.774	0.342	0.206	0.171
Test conditions indoor unit								
Air inlet temperature, DB/WB	°C	19.99/ 15.00	20.01/ 15.00	20.01/ 15.00	19.99/ 15.00	19.99/ 15.00	19.98/ 15.02	20.01/ 14.98
Air outlet temperature, DB/WB	°C	27.05/ 17.46	29.92/ 18.40	29.92/ 18.40	29.57/ 17.16	25.39/ 16.96	N/A	N/A
Test conditions outdoor unit								
Air inlet temperature, DB/WB	°C	-22.00/ -22.79	-15.00/ -16.19	-15.00/ -16.19	-7.00/ -8.00	2.00/ 1.00	6.99/ 6.00	11.98/ 11.00
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	2.040	2.857	2.857	2.273	1.405	1.065	1.134
Power input	kW	1.132	1.295	1.295	0.774	0.342	0.206	0.171
Co-efficiency of performance	-	1.80	2.21	2.21	2.94	4.11	5.17	6.63
Compressor frequency	Hz	98	98	98	60	29	19	17

SEER calculation:

	Outdoor air	measured Cooling Capacity	Input Power	EER <sub>DC/meas</sub>	Cd	EER <sub>PL</sub>
	°C	kW	kW			
A	35	3.503	0.89	3.94	0.25	3.94
B	30	2.325	0.383	6.07	0.25	6.07
C	25	1.513	0.148	10.22	0.25	10.22
D	20	0.846	0.046	18.39	0.25	18.39

	Part load ratio	Cooling demand Pc(Tj)	Bin hours hj	Measured Cooling capacity	Capacity ratio	Measured EER	Corrected EER <sub>PL</sub>	EER(Tj) Cd=0,25	hj x Pc(Tj)	hj x Pc(Tj) / EERbin(Tj)
	Tj									
	17	5.3%	0.184					17.80	38	2
	18	10.5%	0.369					17.80	84	5
	19	15.8%	0.553					17.80	124	7
D	20	21.1%	0.737	0.846	0.872	18.39	17.80	17.80	166	9
	21	26.3%	0.922					16.29	199	12
	22	31.6%	1.106					14.77	238	16
	23	36.8%	1.291					13.25	281	21
	24	42.1%	1.475					11.74	291	25
C	25	47.4%	1.659	1.513	1.097	10.22	10.22	10.22	295	29
	26	52.6%	1.844					9.39	291	31
	27	57.9%	2.028					8.56	278	32
	28	63.2%	2.212					7.73	241	31
	29	68.4%	2.397					6.90	211	31
B	30	73.7%	2.581	2.325	1.110	6.07	6.07	6.07	163	27
	31	78.9%	2.766					5.64	108	19
	32	84.2%	2.950					5.22	91	18
	33	89.5%	3.134					4.79	75	16
	34	94.7%	3.319					4.36	56	13
A	35	100.0%	3.503	3.503	1.000	3.94	3.94	3.94	46	12
	36	105.3%	3.687					3.94	33	8
	37	110.5%	3.872					3.94	15	4
	38	115.8%	4.056					3.94	12	3
	39	121.1%	4.240					3.94	4	1
	40	126.3%	4.425					3.94	0	0
									3341	372
									SEERon	8.99
									SEER	8.50

Equiv. Hce	350	h				Q <sub>c</sub> /SEER <sub>on</sub>	136.3927	
H <sub>TO</sub>	221	h	P <sub>TO</sub>	0.016	kW	HTO*PTO	3.536	kwh
H <sub>SB</sub>	2142	h	P <sub>SB</sub>	0.002	kW	HSB*PSB	4.284	kwh
H <sub>CK</sub>	2672	h	P <sub>CK</sub>	0	kW	HCK*PCK	0	kwh
H <sub>OFF</sub>	0	h	P <sub>OFF</sub>	0	kW	HOFF*POFF	0	kwh
						Q <sub>ce</sub>	144.2127	
P <sub>designc</sub>	3.503	kW						
Q <sub>c</sub>	1226.05	kWh						

	Outdoor air  °C	measure d Heating Capacity  kW	Input Power  kW	COP <sub>DC/meas</sub>	Cd	COP <sub>PL</sub> (COP bin (T <sub>j</sub> ))
A	-7	2.301	0.765	3.01	0.25	3.01
B	2	1.49	0.32	4.66	0.25	4.66
C	7	1.122	0.186	6.03	0.25	6.03
D	12	1.204	0.16	7.53	0.25	7.53
E	-10	2.458	1.003	2.45	0.25	2.45
F	-7	2.301	0.765	3.01	0.25	3.01

		Part load ratio	Heating demand Ph(T)	Bin hours h	Heat load covered by the heat pump elbu(T)	Capacity ratio	COP <sub>PL</sub>	COP <sub>WT</sub> (T)	h) x Ph(T) elbu(T)	h) * ([Ph(T)] - elbu(T)) / COPbin(T) backup heater	COP (including h) * ([Ph(T)] - elbu(T)) / COPbin(T)	h) * ([Ph(T)] - elbu(T)) / COPbin(T)	
A)	-10	100.0%	2.601	1	2.458	0.143	1.06	2.45	3	1	2.27	2	1.00
	-9	96.2%	2.501	25	2.406	0.095	1.04	2.64	63	25	2.48	60	22.81
	-8	92.3%	2.401	23	2.353	0.048	1.02	2.82	55	20	2.72	54	19.18
	-7	88.5%	2.301	24	2.301	0.000	1.00	3.01	55	18	3.01	55	18.36
	-6	84.6%	2.201	27	2.201	0.000	1.00	3.19	59	19	3.19	59	18.62
	-5	80.8%	2.101	68	2.101	0.000	1.00	3.37	143	42	3.37	143	42.34
	-4	76.9%	2.001	91	2.001	0.000	1.00	3.56	182	51	3.56	182	51.18
	-3	73.1%	1.901	89	1.901	0.000	1.00	3.74	169	45	3.74	169	45.23
	-2	69.2%	1.801	165	1.801	0.000	1.00	3.92	297	76	3.92	297	75.73
	-1	65.4%	1.701	173	1.701	0.000	1.00	4.11	294	72	4.11	294	71.64
B	0	61.5%	1.601	240	1.601	0.000	1.00	4.29	384	90	4.29	384	89.55
	1	57.7%	1.501	280	1.501	0.000	1.00	4.47	420	94	4.47	420	93.94
	2	53.8%	1.401	320	1.401	0.000	1.00	4.66	448	96	4.66	448	96.26
	3	50.0%	1.301	357	1.301	0.000	1.00	4.87	464	95	4.87	464	95.30
	4	46.2%	1.201	356	1.201	0.000	1.00	5.09	427	84	5.09	427	84.01
	5	42.3%	1.100	303	1.100	0.000	1.00	5.30	333	63	5.30	333	62.88
	6	38.5%	1.000	330	1.000	0.000	1.00	5.52	330	60	5.52	330	59.82
	7	34.6%	0.900	326	0.900	0.000	1.00	5.73	294	51	5.73	294	51.19
	8	30.8%	0.800	348	0.800	0.000	1.00	5.84	279	48	5.84	279	47.68
	9	26.9%	0.700	335	0.700	0.000	1.00	5.95	235	39	5.95	235	39.44
D	10	23.1%	0.600	315	0.600	0.000	1.00	6.06	189	31	6.06	189	31.23
	11	19.2%	0.500	215	0.500	0.000	1.00	6.16	108	17	6.16	108	17.45
	12	15.4%	0.400	169	0.400	0.000	1.00	6.27	68	11	6.27	68	10.79
	13	11.5%	0.300	151	0.300	0.000	1.00	6.3759	45	7	6.38	45	7.11
	14	7.7%	0.200	105	0.200	0.000	1.00	6.4829	21	3	6.48	21	3.24
	15	3.8%	0.100	74	0.100	0.000	1.00	6.5898	7	1	6.59	7	1.12
	16	0.0%		4910									
					0.286		summation	5373	1161		5369	1157	
									SCOP <sub>an</sub>	4.63	SCOP <sub>net</sub>		4.64
									SCOP	4.61			

H <sub>he</sub>	1400	h				Q <sub>h</sub> /SCOP <sub>on</sub>	786.69983	
H <sub>TO</sub>	179	h	P <sub>TO</sub>	0.016	kW	HTO*PTO	2.864	kwh
H <sub>SB</sub>	0	h	P <sub>SB</sub>	0.002	kW	HSB*PSB	0	kwh
H <sub>CK</sub>	179	h	P <sub>CK</sub>	0	kW	HCK*PCK	0	kwh
H <sub>OFF</sub>	0	h	P <sub>OFF</sub>	0	kW	HOFF*POFF	0	kwh
						Q <sub>no</sub>	789.56383	
P <sub>designh</sub>	2.601	kW						
Q <sub>h</sub>	3641.5826	kWh						

SCOP calculation (Warmer):

	Outdoor air  °C	measured Heating Capacity  kW	Input Power  kW	COP <sub>DC/meas</sub>	Cd	COP <sub>PL</sub> (COP bin (T <sub>j</sub> ))
B	2	3.302	0.86	3.84	0.25	3.84
C	7	2.112	0.405	5.21	0.25	5.21
D	12	1.162	0.168	6.92	0.25	6.92
E	2	3.302	0.86	3.84	0.25	3.84
F	2	3.302	0.86	3.84	0.25	3.84

										hj		COP		hj*[Ph(Tj)-	
										*([Ph(Tj)-		(including		elbu(Tj)]/C	
										COPbin(Tj)		backup		hj*[Ph(Tj)-	
										+elbu(Tj)]		heater)		elbu(Tj)]	
										hj x Ph(Tj)				OPbin(Tj)]	
										COPd		COPbin(Tj)			

Equiv. H	1400	h					Q <sub>th</sub> /SCOP <sub>on</sub>	809.53746
H <sub>TO</sub>	755	h	P <sub>TO</sub>	0.016	kW	HTO*PTO	12.08	kwh
H <sub>SB</sub>	0	h	P <sub>SB</sub>	0.002	kW	HSB*PSB	0	kwh
H <sub>CK</sub>	755	h	P <sub>CK</sub>	0	kW	HCK*PCK	0	kwh
H <sub>OFF</sub>	0	h	P <sub>OFF</sub>	0	kW	HOFF*POFF	0	kwh
							Q <sub>tho</sub>	821.61746
P <sub>designh</sub>	3.302	kW						
Q <sub>th</sub>	4622.8	kWh						



## SCOP calculation (Colder):

	Outdoor air  °C	measured Heating Capacity  kW	Input Power  kW	COP <sub>DC/meas</sub>	Cd	COP <sub>PL</sub> (COP bin (Tj))
A	-7	2.273	0.774	2.94	0.25	2.94
B	2	1.405	0.342	4.11	0.25	4.11
C	7	1.065	0.206	5.17	0.25	5.17
D	12	1.134	0.171	6.63	0.25	6.63
E	-22	2.04	1.132	1.80	0.25	1.80
F	-15	2.857	1.295	2.21	0.25	2.21
G	-15	2.857	1.295	2.21	0.25	2.21

										hj		COP		hj*[Ph(Tj)-		
Part load		Heating demand	Bin hours	Heat load covered by the heat		Capacity	declared			hj x Ph(Tj)	*[(Ph(Tj)- elbu(Tj))/ COPbin(Tj)] +elbu(Tj)]	(including backup heater)	hj*[Ph(Tj)- elbu(Tj)]	OPbin(Tj)	h)*[Ph(Tj)- elbu(Tj)]/C	
Tj	ratio	Ph(Tj)	h	pump	elbu(Tj)	ratio	COPPL	COP <sub>bin</sub> (Tj)								
-22	100.0%	3.502	1	2.040	1.462		1.8021201	1.80	4	3	1.35	2	1.13			
-21	97.4%	3.410	6	2.157	1.253			1.86	20	14	1.41	13	6.96			
-20	94.7%	3.318	13	2.273	1.044			1.92	43	29	1.49	30	15.41			
-19	92.1%	3.226	17	2.390	0.836			1.98	55	35	1.58	41	20.57			
-18	89.5%	3.133	19	2.507	0.627			2.03	60	35	1.68	48	23.43			
-17	86.8%	3.041	26	2.624	0.418			2.09	79	43	1.82	68	32.63			
-16	84.2%	2.949	39	2.740	0.209			2.15	115	58	1.99	107	49.74			
G -15	81.6%	2.857	41	2.857	0.000		2.2061776	2.21	117	53	2.21	117	53.10			
-14	78.9%	2.765	35	2.784	0.000			2.30	97	42	2.30	97	42.12			
-13	76.3%	2.673	52	2.711	0.000			2.39	139	58	2.39	139	58.18			
-12	73.7%	2.581	37	2.638	0.000			2.48	95	38	2.48	95	38.50			
-11	71.1%	2.488	41	2.565	0.000			2.57	102	40	2.57	102	39.68			
-10	68.4%	2.396	43	2.492	0.000	0.96		2.66	103	39	2.66	103	38.70			
-9	65.8%	2.304	54	2.419	0.000	0.95		2.75	124	45	2.75	124	45.18			
-8	63.2%	2.212	90	2.346	0.000	0.94		2.85	199	70	2.85	199	69.96			
A -7	60.5%	2.120	125	2.273	0.000	0.93	2.94	2.94	265	90	2.94	265	90.23			
-6	57.9%	2.028	169	2.177	0.000	0.93		3.07	343	112	3.07	343	111.73			
-5	55.3%	1.935	195	2.080	0.000	0.93		3.20	377	118	3.20	377	118.05			
-4	52.6%	1.843	278	1.984	0.000	0.93		3.33	512	154	3.33	512	154.01			
-3	50.0%	1.751	306	1.887	0.000	0.93		3.46	536	155	3.46	536	154.98			
-2	47.4%	1.659	454	1.791	0.000	0.93		3.59	753	210	3.59	753	209.93			
-1	44.7%	1.567	385	1.694	0.000	0.92		3.72	603	162	3.72	603	162.25			
0	42.1%	1.475	490	1.598	0.000	0.92		3.85	723	188	3.85	723	187.78			
B 1	39.5%	1.382	533	1.501	0.000	0.92		3.98	737	185	3.98	737	185.23			
2	36.8%	1.290	380	1.405	0.000	0.92	4.11	4.11	490	119	4.11	490	119.35			
3	34.2%	1.198	228	1.337	0.000	0.90		4.26	273	64	4.26	273	64.07			
4	31.6%	1.106	261	1.269	0.000	0.87		4.42	289	65	4.42	289	65.33			
5	28.9%	1.014	279	1.201	0.000	0.84		4.57	283	62	4.57	283	61.84			
C 6	26.3%	0.922	229	1.133	0.000	0.81		4.73	211	45	4.73	211	44.63			
7	23.7%	0.829	269	1.065	0.000	0.78	4.88	4.88	223	46	4.88	223	45.68			
8	21.1%	0.737	233	1.079	0.000	0.68		5.01	172	34	5.01	172	34.29			
9	18.4%	0.645	230	1.093	0.000	0.59		5.14	148	29	5.14	148	28.89			
10	15.8%	0.553	243	1.106	0.000	0.50		5.26	134	26	5.26	134	25.54			
11	13.2%	0.461	191	1.120	0.000	0.41		5.39	88	16	5.39	88	16.34			
D 12	10.5%	0.369	146	1.134	0.000	0.33	5.51	5.51	54	10	5.51	54	9.76			
13	7.9%	0.276	150	1.148	0.000	0.24		5.64	41	7	5.64	41	7.36			
14	5.3%	0.184	97	1.162	0.000	0.16		5.76	18	3	5.76	18	3.10			
15	2.6%	0.092	61	1.175	0.000	0.08		5.89	6	1	5.89	6	0.95			
16	0.0%	0.000	0	1.189	0.000	0.00			0							
										8632	2504		8564	2437		
										SCOP <sub>on</sub>	3.45		SCOP <sub>net</sub>	3.51		
Equiv. H										2100	h					
H <sub>TO</sub>				131	h	P <sub>TO</sub>	0.01	kW	Q <sub>h</sub> /SCOP <sub>on</sub>	1459.8698						
H <sub>SB</sub>				0	h	P <sub>SB</sub>	0.001	kW	HTO*PTO	1.31	kWh	SCOP	3.44			
H <sub>CK</sub>				131	h	P <sub>CK</sub>	0	kW	HSB*PSB	0	kWh					
H <sub>OFF</sub>				0	h	P <sub>OFF</sub>	0.001	kW	HCK*PCK	0	kWh					
									HOFF*POFF	0	kWh					
										Q <sub>he</sub>	1461.1798					
P <sub>designh</sub>		2.396	kW													
Q <sub>H</sub>		5032.006452	kWh													

Item	Measured value	Rated value	Deviation	Verdict
SEER	8.50	8.5	0%	P
SCOP(average)	4.61	4.6	0.2%	P
SCOP (warmer)	5.63	5.6	0.5%	P
SCOP (colder)	3.44	3.4	1.2%	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 1

**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++	$6,10 \leq \text{SEER} < 8,50$	$4,60 \leq \text{SCOP} < 5,10$
A+	$5,60 \leq \text{SEER} < 6,10$	$4,00 \leq \text{SCOP} < 4,60$
A	$5,10 \leq \text{SEER} < 5,60$	$3,40 \leq \text{SCOP} < 4,00$
B	$4,60 \leq \text{SEER} < 5,10$	$3,10 \leq \text{SCOP} < 3,40$
C	$4,10 \leq \text{SEER} < 4,60$	$2,80 \leq \text{SCOP} < 3,10$
D	$3,60 \leq \text{SEER} < 4,10$	$2,50 \leq \text{SCOP} < 2,80$
E	$3,10 \leq \text{SEER} < 3,60$	$2,20 \leq \text{SCOP} < 2,50$
F	$2,60 \leq \text{SEER} < 3,10$	$1,90 \leq \text{SCOP} < 2,20$
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	9.05 m <sup>2</sup>									
Background Noise Level [dB]	18,0									
Microphone Position	1	2	3	4	5	6	7	8	9	10
L <sub>pi</sub> [dB]	41.2	43.2	43.6	44.0	42.7	43.0	44.4	43.6	43.0	43.3
L <sub>pmc</sub> / Averaged Sound Pressure Level [dB (A)]	43.27									
LW / Sound Power Level [dB (A)]	52.84									
Rated sound Power Level [dB (A)]	53									
Verdict	P									

outdoor					
Test voltage / frequency	230 V / 50 Hz				
Air inlet temperature, DB/WB	35.0 °C/24.0 °C				
Measured surface	14.14 m <sup>2</sup>				
Background Noise Level [dB]	18,0				
Microphone Position	1	2	3	4	5
L <sub>pi</sub> [dB]	51.0	51.4	52.1	52.1	49.7
L <sub>pmc</sub> / Averaged Sound Pressure Level [dB (A)]	51.35				
LW / Sound Power Level [dB (A)]	62.85				
Rated sound Power Level [dB (A)]	63				
Verdict	P				

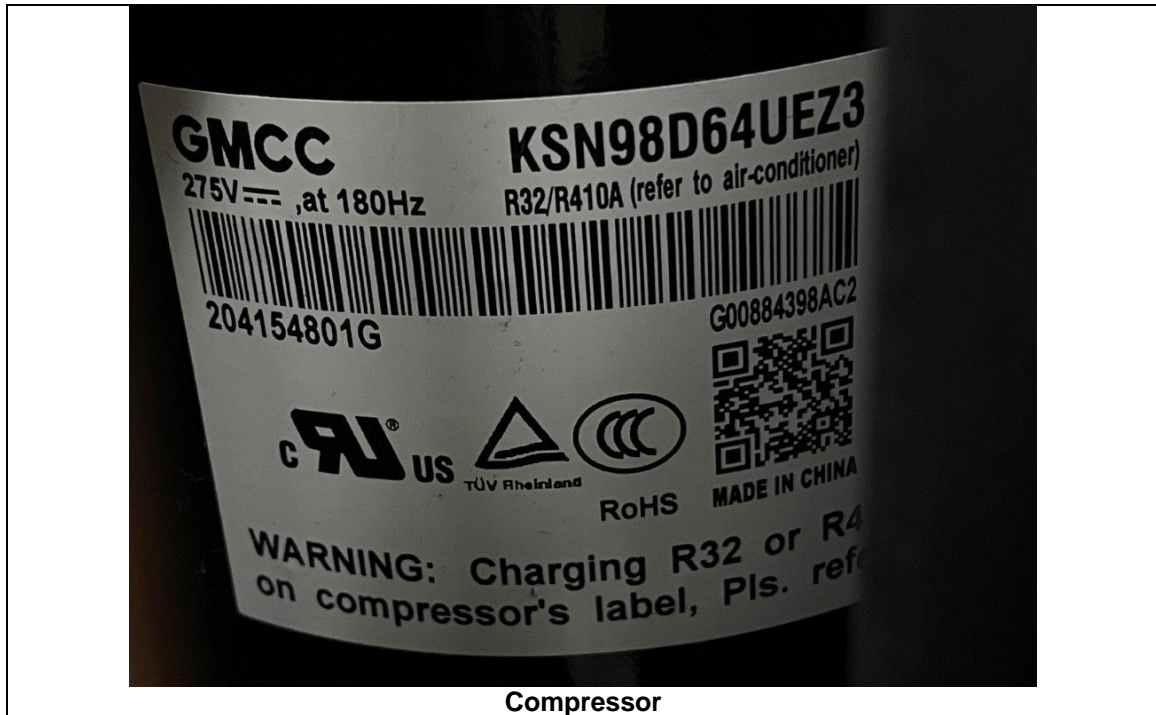
**Photos:**



**Indoor**



**Outdoor unit**



Compressor

End of report