Test Report No.:	*NTRFRZ00022772-2*		*Page 1 of 17*
Applicant Name:	**Gree Electric Appliances Inc. of Zhuhai** Jinji West Road, Qianshan, Zhuhai, Guangdong 519070, P.R.China		
Test item:	Split Heat Pump Air Conditioner		
Identification:	GUD160W1/NhA-X GUD160PH1/A-S	*Serial No.:*	Engineering sample
Receipt No.:	RZ00022772	*Date of receipt:*	2022.07.06
Testing location:	**Gree Electric Appliances Inc. of Zhuhai** Jinji West Road, Qianshan, Zhuhai, Guangdong 519070, P.R.China		
Test specification:	COMMISSION REGULATION (EU) 2016/2281 EN 14825:2018 EN 14511-2,3:2018 EN 12102-1:2017		
Test Result:	*The test items passed the test specification(s).*		
Testing Laboratory:	Testing Center of Gree Electric Appliances Inc. of Zhuhai		

tested by:				*reviewed by:*			
	2022.07.21	Fan Huayun			2022.08.1	Shang mingyan	
	Date	*Name/Position*	*Signature*		*Date*	*Name/Position*	*Signature*

Other Aspects:

Abbreviations:
P(ass) = passed
F(ail) = failed
N/A = not applicable
N/T =not tested

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict

Summary of testing

1. The appliance was tested according to EN 14511.
2. The SEER、η s,c and SCOP、 η s,h were calculated according to EN14825.
3. All the tests were performed on the outdoor model GUD160W1/NhA-X and the indoor model GUD160PH1/A-S.
4. The samples are engineering samples without serial numbers.

Test item particulars.....:	
Class of temperature	T1
Type .....:	Split Heat Pump Air Conditioner
Degree of protection	Indoor unit:IPX0 Outdoor unit:IPX4
Supply Connection .....:	Type Y attachment
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..... :	2022.07.10
Date (s) of performance of tests..... :	2022.07.10-2022.07.19

General remarks

- This appliance is heat pump type air conditioner, which consist of one outdoor unit and one indoor units.
- The indoor unit is ducted type air conditioners,which are usually not accessible (only for maintenance purpose).
- Cooling and heating modes are applied by reverse cycle method. In the heating mode, defrost operation may be applied.
- The indoor unit is equipped with an infrared wireless battery powered remote control unit.

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict

Critical components:

Compressor model	Indoor fan motor	Outdoor fan motor
QXFS-D388zX050A	B-FG350A-ZL	B-SWZ150E

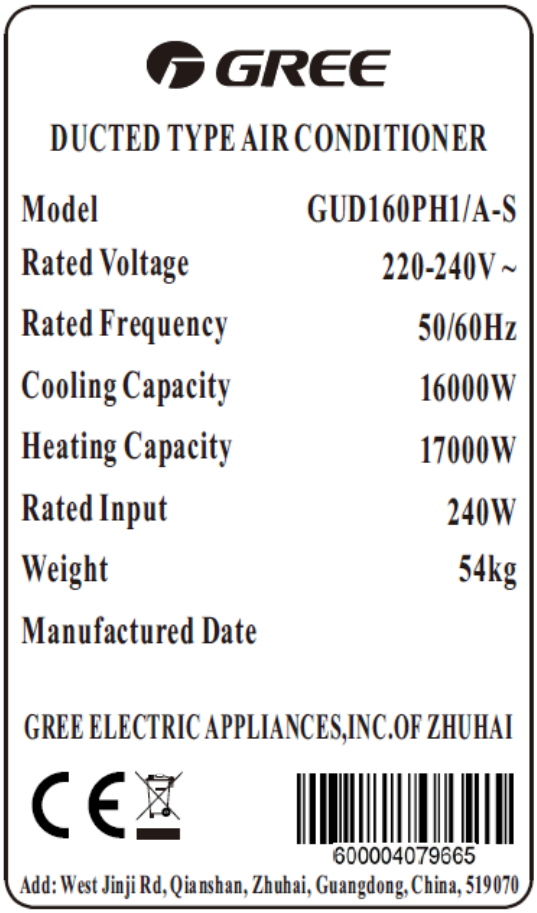
(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict

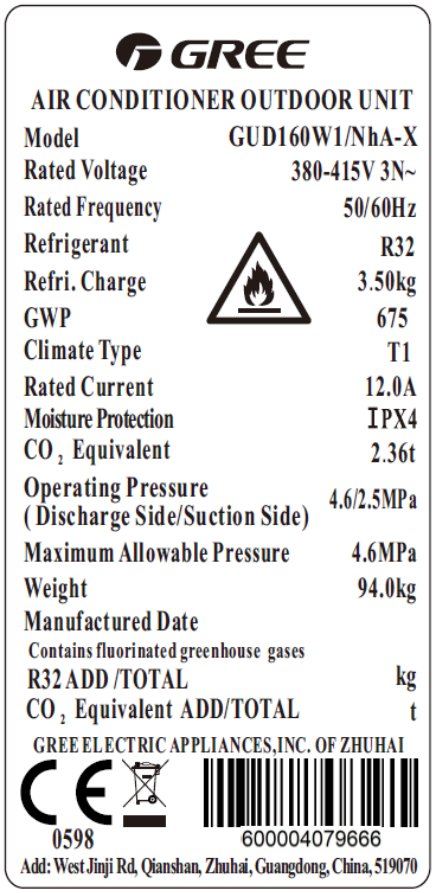
Rating labels and marking:

Match table:

Indoor unit	**Outdoor unit**
GUD160PH1/A-S	GUD160W1/NhA-X

The artwork below may be only a draft.





(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict
1	Seasonal space heating energy efficiency of air heating products		
(a)	From 1 January 2018, the seasonal space heating energy efficiency of air heating products shall not fall below the values in Table 1	Measured $\eta_{s,h}$:151.0% Measured $\eta_{s,h}$≥133%	P
	For multi-split heat pumps, the manufacturer shall establish conformity with this regulation based on measurements and calculations according to Annex III.		N/A
	For each model of outdoor side unit, a list of recommended combinations with compatible indoor side units shall be included in the technical documentation.		N/A
	The declaration of conformity shall then apply to all combinations mentioned in this list.		N/A
	The list of recommended combinations shall be made available prior to the purchase/lease/hire of an outdoor side unit.		N/A
(b)	From 1 January 2021, the seasonal space heating energy efficiency of air heating products shall not fall below the values in Table 2	Measured $\eta_{s,h}$:151.0% Measured $\eta_{s,h}$≥137%	P
	For multi-split heat pumps the manufacturer shall establish conformity with this regulation based on measurements and calculations according to Annex III.		N/A
	For each model of outdoor side unit, a list of recommended combinations with compatible indoor side units shall be included in the technical documentation.		N/A
	The declaration of conformity shall then apply to all combinations mentioned in this list.		N/A
	The list of recommended combinations shall be made available prior to the purchase/lease/hire of an outdoor side unit.		N/A
2	Seasonal space cooling energy efficiency of cooling products		
(a)	From 1 January 2018, the seasonal space cooling energy efficiency of cooling products shall not fall below the values in Table 3	Measured $\eta_{s,c}$:234.4% Measured $\eta_{s,c}$≥181%	P

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict
	For multi-split air conditioners the manufacturer shall establish conformity with this regulation based on measurements and calculations according to Annex III.		N/A
	For each model of outdoor side unit, a list of recommended combinations with compatible indoor side units shall be included in the technical documentation.		N/A
	The declaration of conformity shall then apply to all combinations mentioned in this list.		N/A
	The list of recommended combinations shall be made available prior to the purchase/lease/hire of an outdoor side unit.		N/A
(b)	From 1 January 2021, the seasonal space cooling energy efficiency of cooling products shall not fall below the values in Table 4	Measured $\eta_{s,c}$:234.4% Measured $\eta_{s,c}$≥189%	P
	For multi-split air conditioners the manufacturer shall establish conformity with this regulation based on measurements and calculations according to Annex III.		N/A
	For each model of outdoor side unit, a list of recommended combinations with compatible indoor side units shall be included in the technical documentation.		N/A
	The declaration of conformity shall then apply to all combinations mentioned in this list.		N/A
	The list of recommended combinations shall be made available prior to the purchase/lease/hire of an outdoor side unit.		N/A
3	Seasonal energy performance ratio of high temperature process chillers		
(a)	From 1 January 2018, the seasonal energy performance ratio of high temperature process chillers shall not fall below the values in Table 5		N/A
(b)	From 1 January 2021, the seasonal energy performance ratio of high temperature process chillers shall not fall below the values in Table 6		N/A
4	Emissions of nitrogen oxides		

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict
(a)	From 26 September 2018, the emissions of nitrogen oxides, expressed in nitrogen dioxide, of warm air heaters, heat pumps, comfort chillers and air conditioners shall not exceed values in Table 7		N/A
(b)	From 1 January 2021, the emissions of nitrogen oxides, expressed in nitrogen dioxide, of warm air heaters shall not exceed values in Table 8		N/A
5	Product information		
(a)	From 1 January 2018, the instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall provide the following product information		P
(1)	for warm air heaters, the information set out in Table 9 of this Annex, measured and calculated in accordance with Annex III		N/A
(2)	for comfort chillers, the information set out in Table 10 of this Annex, measured and calculated in accordance with Annex III		N/A
(3)	for air-to-air air conditioners, the information set out in Table 11 of this Annex, measured and calculated in accordance with Annex III		P
(4)	for water/brine-to-air air conditioners, the information set out in Table 12 of this Annex, measured and calculated in accordance with Annex III		N/A
(5)	for fan coil units, the information set out in Table 13 of this Annex, measured and calculated in accordance with Annex III		N/A
(6)	for heat pumps, the information set out in Table 14 of this Annex, measured and calculated in accordance with Annex III		P
(7)	for high temperature process chillers, the information set out in Table 15 of this Annex, measured and calculated in accordance with Annex III		N/A
(8)	any specific precautions that must be taken when the product is assembled, installed or maintained		N/A

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict
(9)	for heat generators or cold generators designed for air heating or cooling products, and air heating or cooling product housings to be equipped with such heat or cold generators, their characteristics, the requirements for assembly, to ensure compliance with the ecodesign requirements for air heating or cooling products and, where appropriate, the list of combinations recommended by the manufacturer		P
(10)	for multi-split heat pumps and multi-split air conditioners, a list of appropriate indoor units		N/A
(11)	for B1, C2 and C4 warm air heaters the following standard text: 'This warm air heater is intended to be connected only to a flue shared between multiple dwellings in existing buildings. Due to a lower efficiency, any other use of this warm air heater shall be avoided and would result in higher energy consumption and higher operating costs'		N/A
(b)	From 1 January 2018, the instruction manuals for installers and end-users, and a part for professionals of the free-access websites of manufacturers, their authorised representatives and importers shall provide the following product information		P
(1)	information relevant for disassembly, recycling and/or disposal at end-of-life		P
(c)	The technical documentation for the purposes of conformity assessment pursuant to Article 4 shall contain the following elements		P
(1)	the elements specified in point (a)		P
(2)	where the information relating to a specific model has been obtained by calculation on the basis of design, and/or extrapolation from other combinations, the technical documentation shall include details of such calculations and/or extrapolations, and of tests undertaken to verify the accuracy of the calculations undertaken, including details of the mathematical model for calculating performance of such combinations, and of measurements taken to verify this model, and a list of any other models where the information included in the technical documentation was obtained on the same basis		P

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict

Test result of part load according to EN 14825:

Calculation of SEER、$\eta_{s,c}$in cooling mode:

Full load (Pdesignc):16000 **W** **Tdesignc: 35**℃ **Tested Voltage: 400V** **Frequency: 50Hz**						
Test item	Indoor DB/WB(℃)	Outdoor DB/WB(℃)	Tested Pc(W)	Tested *EER*	Cd	ESP(Pa)
A	27/19	35/-	16270	2.80	0,25	50
B		30/-	11510	4.41	0,25	50
C		25/-	7390	6.43	0,25	50
D		20/-	3720	11.25	0,25	50
Psb= Poff =8.0W; Pck= 0W; Pto=7.0W						
Tested SEER		5.93				
Tested $\eta_{s,c}$		234.4%				
The calculation method of SEER and η s,c acoording to the clause 6 of EN14825:2018.						

Calculation of SCOP、$\eta_{s,h}$ in heating mode:

Full load (Pdesignh):12300**W** **Tdesignh: -10**℃ **Climate:** Average **Tbivalent**: -7℃ **; TOL**: -10℃ **Tested Voltage: 400V** **Frequency: 50Hz**						
Test item	Indoor DB(℃)	Outdoor DB/WB(℃)	Tested Ph(W)	Tested *COP*	Cd	ESP(Pa)
A	20/-	-7/-8	11020	2.48	0,25	50
B		2/1	6660	3.75	0,25	50
C		7/6	4430	5.14	0,25	50
D		12/11	3040	5.48	0,25	50
E		TOL	11610	2.48	0,25	50
F		Tbivalent	11020	2.48	0.25	50
Psb= Poff=8.0W; Pck= 0W; Pto=19.0W						
Tested SCOP		3.85				
Tested $\eta_{s,h}$		151.0%				
The calculation method of SCOP and η s,h acoording to the clause 7 of EN14825:2018.						

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict

Measured result summary

Outdoor side heat exchanger of air conditioner: air								
Indoor side heat exchanger of air conditioner: air								
Indication if the heater is equipped with a supplementary heater: no								
Type: compressor driven vapour compression								
If applicable: driver of compressor: electric motor								
Parameters shall be declared for the average heating season, parameters for the warmer and colder heating seasons are optional.								
Item	Symbol	Value	Unit		Item	Symbol	Value	Unit
Rated cooling capacity,outdoor	$P_{rated,c}$	16	kW		Seasonal space cooling energy efficiency,outdoor	$\eta_{s,c}$	234.4	%
cooling capacity for part load at given outdoor temperatures T_j and indoor 27°/19 °C (dry/wet bulb)					energy efficiency ratio for part load at given outdoor temperatures T_j			
T_j = + 35 °C	P_c	16.27	kW		T_j = + 35 °C	*EER*	2.80	-
T_j = + 30 °C	P_c	11.51	kW		T_j = + 30 °C	*EER*	4.41	-
T_j = + 25 °C	P_c	7.39	kW		T_j = + 25 °C	*EER*	6.43	-
T_j = + 20 °C	P_c	3.72	kW		T_j = + 20 °C	*EER*	11.25	-
Average heating season capacity for part load at indoor temperature 20 °C and outdoor temperature *T j*					Average season coefficient of performance for part load at given outdoor temperatures T_j			
Rated heating capacity	$P_{rated,h}$	17	kW		Seasonal space heating energy efficiency	$\eta_{s,h}$	151.0	%
T_j = -7 °C	P_h	11.02	kW		T_j = -7 °C	*COP*	2.48	-
T_j = +2 °C	P_h	6.66	kW		T_j = +2 °C	*COP*	3.75	-
T_j = +7 °C	P_h	4.43	kW		T_j = +7 °C	*COP*	5.14	-
T_j = +12 °C	P_h	3.04	kW		T_j = +12 °C	*COP*	5.48	-

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict

Tbiv	P_h	11.02	kW		Tbiv	*COP*	2.48	-
ToL	P_h	11.61	kW		ToL	*COP*	2.48	-
T j = – 15 °C (if T OL < – 20 °C)	*Pth*	-	kW		T j = – 15 °C (if T OL < – 20 °C)	*COP*	-	-
Bivalent temperature	*Tbiv*	-7	°C		Operation limit temperature	*ToL*	-10	°C
Degradation co-efficient for air conditioners	C_{dc}	0.25	-					
Power consumption in modes other than 'active mode'								
Off mode	P_{OFF}	0.008	kW		Crankcase heater mode	P_{CK}	0	kW
Standby mode	P_{SB}	0.008	kW		Back-up heating capacity	*elbu*	0.69	KW
Thermostat-off mode(cooling/heating)	P_{TO}	0.007/0.019	kW		Type of energy input	Electric		
Other items								
Capacity control	variable				air flow rate, outdoor measured(cooling)	5500	m^3/h	
Sound power level, indoor/outdoor measured(cooling)	L_{WA}	69.4/71.9	dB		air flow rate, outdoor measured(heating)	5500	m^3/h	
Sound power level, indoor/outdoor measured(heating)	L_{WA}	69.7/73.6	dB		GWP of the refrigerant	675	kg $CO_{2\ eq}$ (100 years)	

Contact details for obtaining more information on the setting of the unit	**Gree Electric Appliances Inc. of Zhuhai** **Jinji West Road, Qianshan, Zhuhai, Guangdong 519070, P.R.China** **Email：greerzsykt@cn.gree.com**

(*) If *Cdc* is not determined by measurement then the default degradation coefficient air conditioners shall be 0,25.

Where information relates to multi-split air conditioners, the test result and performance data may be

(EU) 2016/2281 and EN 14511 & EN 14825			
Clause	Requirement - Test	Result - Remark	Verdict

obtained on the basis of the performance of the outdoor unit, with a combination of indoor unit(s) recommended by the manufacturer or importer.

--End of report--