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Space heaters ErP Test Report

Report Number	191022034GZU-001
Test Laboratory Name / Address	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China
Applicant Name / Address	GREE Electric Appliances,Inc. of Zhuhai West Jinji Rd, Qianshan, Zhuhai, Guangdong, China 519070
Manufacturing Name / Address	Same as applicant
Product	Low-temperature heat pump
Brand Name	GREE
Description	The product covered by this report is a low-temperature heat pump.
Model(s) (if applicable)	LSQWRF35VM/NhA-M
Model Similarity	NA
Rated voltage/frequency (V/Hz)	380-415V 3N~ 50Hz
Rated cooling power (kW)	11.7
Rated heating power (kW)	10.6
Rated cooling capacity (kW)	32
Rated heating capacity (kW)	35
Date of receipt of sample(s)	September 5, 2019
Date of test	September 5, 2019 ~ November 05, 2019
Test standard(s) or criteria(s)	EN 14511:2018+ EN 14825:2018 EN 12102-1: 2017 COMMISSION REGULATION (EU) No 813/2013+2016/2282 COMMISSION REGULATION (EU) No 811/2013+2017/254
Conclusion	The submitted sample complied with the requirements of the COMMISSION REGULATION (EU) No.813/2013
Date of issue	November 7, 2019

Prepared by:

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Project Engineer

Approved by:

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The test report only allows to be revised within three years from its original issued date unless further standard or the requirement was noticed.

Product Information

Model number of unit under tested	LSQWRF35VM/NhA-M
Water tank model number under tested	NA
Type of System	Heat pump space heater
Type of water flow control	Fixed rate
Outlet temperatures	Variable outlet
Power Supply	Three Phases
Refrigerant	R32
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

Critical Components

Name	Manufacturer/trademark	Type/model	Technical data
Compressor	ZHUHAI LANDA COMPRESSOR CO. LTD.	QXFS-H80zN345H	260-350V;15-90HZ;7790W;0.56 Ω±7%Ω;Class B
Outdoor fan motor	Jiangsu Shangqi Group Co.; Ltd	SWZ750D	DC310 3.15A / 1000r/min 750W B 10.2±7%Ω(25°C)
Alternative	Panasonic Appliances Motor (Hangzhou) Co.; Ltd.	SWZ750D	DC560V;750W E
Alternative	Zhuhai Kaibang Motor Manufacturing CO.;LTD.	SWZ750D	DC200~375V;750W;;Class E
Alternative	Zhuhai Kaibang Motor Manufacturing CO.;LTD.(Hefei Kaibang Motor Co; Ltd;)	SWZ750D(ZWS750-C)	DC200~375;750W;CLASS E

Test and verification results

Clause	COMMISSION REGULATION (EU) No 813/2013 - GENERIC ECODESIGN REQUIREMENTS	Result - Remark	Verdict
1	REQUIREMENTS FOR SEASONAL SPACE HEATING ENERGY EFFICIENCY		
a)	From 26 September 2015 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values:		Pass
	Fuel boiler space heaters with rated heat output ⩽ 70 kW and fuel boiler combination heaters with rated heat output ⩽ 70 kW, with the exception of type B1 boilers with rated heat output ⩽ 10 kW and type B1 combination boilers with rated heat output ⩽ 30 kW: The seasonal space heating energy efficiency shall not fall below 86 %.		NA
	Type B1 boilers with rated heat output ⩽ 10 kW and type B1 combination boilers with rated heat output ⩽ 30 kW: The seasonal space heating energy efficiency shall not fall below 75 %.		NA
	Fuel boiler space heaters with rated heat output > 70 kW and ⩽ 400 kW and fuel boiler combination heaters with rated heat output > 70 kW and ⩽ 400 kW: The useful efficiency at 100 % of the rated heat output shall not fall below 86 %, and the useful efficiency at 30 % of the rated heat output shall not fall below 94 %.		NA
	Electric boiler space heaters and electric boiler combination heaters: The seasonal space heating energy efficiency shall not fall below 30 %.		NA
	Cogeneration space heaters: The seasonal space heating energy efficiency shall not fall below 86 %.		NA
	Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 100 %.		NA
	Low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 115 %.	Tested: 155.6%	Pass
b)	From 26 September 2017: the seasonal space heating energy efficiency of electric boiler space heaters, electric boiler combination heaters, cogeneration space heaters, heat pump space heaters and heat pump combination heaters shall not fall below the following values:		Pass
	Electric boiler space heaters and electric boiler combination heaters: The seasonal space heating energy efficiency shall not fall below 36 %.		NA
	Cogeneration space heaters: The seasonal space heating energy efficiency shall not fall below 100 %.		NA

Test and verification results

Clause	COMMISSION REGULATION (EU) No 813/2013 - GENERIC ECODESIGN REQUIREMENTS	Result - Remark	Verdict
	Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 110 %.		NA
	Low-temperature heat pumps: The seasonal space heating energy efficiency shall not fall below 125 %.	Tested: 155.6%	Pass
2	REQUIREMENTS FOR WATER HEATING ENERGY EFFICIENCY		
a)	From 26 September 2015 the water heating energy efficiency of combination heaters shall not fall below the following values: Declared load profile: XL Water heating energy efficiency: 30 %		NA
b)	From 26 September 2017 the water heating energy efficiency of combination heaters shall not fall below the following values: Declared load profile: XL Water heating energy efficiency: 38 %		NA
3	REQUIREMENTS FOR SOUND POWER LEVEL		
	From 26 September 2015 the sound power level of heat pump space heaters and heat pump combination heaters shall not exceed the following values: Rated heat output: >12 kW and <= 30 kW Sound power level (L_{WA}), indoors: 70 dB Sound power level (L_{WA}), outdoors: 78 dB	Outdoor: 78.0dB	Pass
4	REQUIREMENTS FOR EMISSIONS OF NITROGEN OXIDES		
a)	From 26 September 2018 emissions of nitrogen oxides, expressed in nitrogen dioxide, of heaters shall not exceed the following values:		NA
	fuel boiler space heaters and fuel boiler combination heaters using gaseous fuels: 56 mg/kWh fuel input in terms of GCV		NA
	fuel boiler space heaters and fuel boiler combination heaters using liquid fuels: 120 mg/kWh fuel input in terms of GCV		NA
	cogeneration space heaters equipped with external combustion using gaseous fuels: 70 mg/kWh fuel input in terms of GCV		NA
	cogeneration space heaters equipped with external combustion using liquid fuels: 120 mg/kWh fuel input in terms of GCV		NA
	cogeneration space heaters equipped with an internal combustion engine using gaseous fuels: 240 mg/kWh fuel input in terms of GCV		NA
	cogeneration space heaters equipped with an internal combustion engine using liquid fuels: 420 mg/kWh fuel input in terms of GCV		NA

Test and verification results

Clause	COMMISSION REGULATION (EU) No 813/2013 - GENERIC ECODESIGN REQUIREMENTS	Result - Remark	Verdict
	heat pump space heaters and heat pump combination heaters equipped with external combustion using gaseous fuels: 70 mg/kWh fuel input in terms of GCV		NA
	heat pump space heaters and heat pump combination heaters equipped with external combustion using liquid fuels: 120 mg/kWh fuel input in terms of GCV		NA
	heat pump space heaters and heat pump combination heaters equipped with an internal combustion engine using gaseous fuels: 240 mg/kWh fuel input in terms of GCV		NA
	heat pump space heaters and heat pump combination heaters equipped with an internal combustion engine using liquid fuels: 420 mg/kWh fuel input in terms of GCV		NA
4	REQUIREMENTS FOR PRODUCT INFORMATION		
	From 26 September 2015 the following product information on heaters shall be provided:		Not Check
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:		Not Check
	for boiler space heaters, boiler combination heaters and cogeneration space heaters, the technical parameters set out in Table 1, measured and calculated in accordance with Annex III		NA
	for heat pump space heaters and heat pump combination heaters, the technical parameters set out in Table 2, measured and calculated in accordance with Annex III		Not Check
	any specific precautions that shall be taken when the heater is assembled, installed or maintained		Not Check
	for type B1 boilers and type B1 combination boilers, their characteristics and the following standard text: 'This natural draught boiler is intended to be connected only to a flue shared between multiple dwellings in existing buildings that evacuates the residues of combustion to the outside of the room containing the boiler. It draws the combustion air directly from the room and incorporates a draught diverter. Due to lower efficiency, any other use of this boiler shall be avoided and would result in higher energy consumption and higher operating costs.		NA
	for heat generators designed for heaters, and heater housings to be equipped with such heat generators, their characteristics, the requirements for assembly, to ensure compliance with the ecodesign requirements for heaters and, where appropriate, the list of combinations recommended by the manufacturer		NA
	information relevant for disassembly, recycling and/or disposal at end-of-life		Not Check

Test and verification results

Clause	COMMISSION REGULATION (EU) No 813/2013 - GENERIC ECODESIGN REQUIREMENTS	Result - Remark	Verdict
b)	the technical documentation for the purposes of conformity assessment pursuant to Article 4 shall contain the following elements:		Not Check
	the elements specified in point (a)		Not Check
	for heat pump space heaters and heat pump combination heaters where the information relating to a specific model comprising a combination of indoor and outdoor units has been obtained by calculation on the basis of design and/or extrapolation from other combinations, the details of such calculations and/or extrapolations, and of any tests undertaken to verify the accuracy of the calculations, including details of the mathematical model for calculating the performance of such combinations and details of the measurements taken to verify this model		NA
c)	the following information shall be durably marked on the heater:		NA
	if applicable, 'type B1 boiler' or 'type B1 combination boiler		NA
	for cogeneration space heaters, the electrical capacity		NA

Clause	COMMISSION DELEGATED REGULATION (EU) No 811/2013 - Energy Labelling	Result - Remark	Verdict
1	SEASONAL SPACE HEATING ENERGY EFFICIENCY CLASSES		
Table 1	Seasonal space heating energy efficiency classes of heaters, with the exception of low-temperature heat pumps and heat pump space heaters for low-temperature application		NA
Table 2	Seasonal space heating energy efficiency classes of low-temperature heat pumps and heat pump space heaters for low-temperature application	**A++**	Pass
2	WATER HEATING ENERGY EFFICIENCY CLASSES		
Table 3	Water heating energy efficiency classes of combination heaters, categorised by declared load profiles, η_{wh} in %		NA
3	ENERGY EFFICIENCY CLASSES OF SOLAR HOT WATER STORAGE TANKS, IF (PART OF) A SOLAR DEVICE		
Table 4	Energy efficiency classes of solar hot water storage tanks, if (part of) a solar device		NA

Information requirements for heat pump space heaters and heat pump combination heaters

Air-to-water heat pump	Y	Low-temperature heat pump	Y
Water-to-water heat pump	N	Equipped with a supplementary heater	N
Brine-to-water heat pump	N	Heat pump combination heater	N
Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low- temperature heat pumps, parameters shall be declared for low-temperature application.		Parameters shall be declared for average, colder and warmer climate conditions.	
Medium-temperature application	N	Average (mandatory)	Y
Low-temperature application	Y	Warmer (if designated)	Y
		Colder (if designated)	Y

Average climate condition (Low-temperature application)

Item	symbol	value	unit
Rated heat output	P_{rated}	24	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	P_{dh}	21.679	kW
Degradation coefficient	C_{dh}	0.99	—
Tj = 2 °C	P_{dh}	13.124	kW
Degradation coefficient	C_{dh}	0.98	—
Tj = 7 °C	P_{dh}	12.009	kW
Degradation coefficient	C_{dh}	0.97	—
Tj = 12 °C	P_{dh}	14.223	kW
Degradation coefficient	C_{dh}	0.97	—
Tj = bivalent temperature	P_{dh}	21.679	kW
Tj = operating limit	P_{dh}	23.427	kW
T j = – 15 °C	P_{dh}	NA	kW
Bivalent temperature	T_{biv}	-7	°C
Cycling interval capacity for heating	P_{cych}	NA	kW
Power consumption in modes other than active mode			
off mode	P_{OFF}	0.060	kW
standby mode	P_{SB}	0.060	kW
thermostat-off mode	P_{TO}	0.060	kW
crankcase heater mode	P_{CK}	0.000	kW
Other items			
Capacity control		Variable	
Sound power level, indoors/outdoors	L_{WA}	78.0	dB
Annual energy consumption	Q_{HE}	12504	kWh

Item	symbol	value	unit
Seasonal space heating energy efficiency	η_s	155.6	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	COPd	2.60	—
Tj = 2 °C	COPd	3.62	—
Tj = 7 °C	COPd	5.58	—
Tj = 12 °C	COPd	7.51	—
Tj = bivalent temperature	COP_d	2.60	—
Tj = operating limit	COPd	2.52	—
T j = – 15 °C (if TOL<-20°C)	COP_d	NA	—
Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COP_{cyc}	NA	—
Heating water operating limit temperature	WTOL	50	°C
Supplementary heater			
Rated heat output	P_{sup}	0.6	kW
Type of energy input		Electric	
For air-to-water heat pumps: Rated air flow rate, outdoors	—	12600	m^3/h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	NA	m^3/h

For heat pump combination heater:

Declared load profile		NA	
Daily electricity consumption	Q_{elec}	NA	kWh
Annual electricity consumption	AEC	NA	kWh
Water heating energy efficiency	η_{wh}	NA	%

Colder climate condition (Low-temperature application)

Item	symbol	value	unit
Rated heat output	P_{rated}	26	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	P_{dh}	16.620	kW
Degradation coefficient	C_{dh}	0.99	—
Tj = 2 °C	P_{dh}	9.974	kW
Degradation coefficient	C_{dh}	0.97	—
Tj = 7 °C	P_{dh}	12.035	kW
Degradation coefficient	C_{dh}	0.97	—
Tj = 12 °C	P_{dh}	13.758	kW
Degradation coefficient	C_{dh}	0.97	—
Tj = bivalent temperature	P_{dh}	21.770	kW
Tj = operating limit	P_{dh}	18.367	kW
T j = – 15 °C	P_{dh}	NA	kW
Bivalent temperature	T_{biv}	-15	°C
Cycling interval capacity for heating	P_{cych}	NA	kW
Power consumption in modes other than active mode			
off mode	P_{OFF}	0.060	kW
standby mode	P_{SB}	0.060	kW
thermostat-off mode	P_{TO}	0.060	kW
crankcase heater mode	P_{CK}	0.000	kW
Other items			
Capacity control		Variable	
Sound power level, indoors/outdoors	L_{WA}	78.0	dB
Annual energy consumption	Q_{HE}	18068	kWh
For heat pump combination heater:			
Declared load profile		NA	
Daily electricity consumption	Q_{elec}	NA	kWh
Annual electricity consumption	AEC	NA	kWh

Item	symbol	value	unit
Seasonal space heating energy efficiency	η_s	138.9	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	COP_d	2.41	—
Tj = 2 °C	COP_d	4.87	—
Tj = 7 °C	COP_d	6.13	—
Tj = 12 °C	COP_d	7.56	—
Tj = bivalent temperature	COP_d	2.19	—
Tj = operating limit	COP_d	2.02	—
T j = – 15 °C (if TOL<-20°C)	COP_d	NA	—
Operation limit temperature	TOL	-20	°C
Cycling interval efficiency	COP_{cyc}	NA	—
Heating water operating limit temperature	WTOL	50	°C
Supplementary heater			
Rated heat output	P_{sup}	26.0	kW
Type of energy input		Electric	
For air-to-water heat pumps: Rated air flow rate, outdoors	—	12600	m^3/h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	NA	m^3/h
Water heating energy efficiency	η_{wh}	NA	%

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Warmer climate condition (Low-temperature application)

Item	symbol	value	unit
Rated heat output	P_{rated}	20	kW
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	P_{dh}	NA	kW
Degradation coefficient	C_{dh}	NA	—
Tj = 2 °C	P_{dh}	19.859	kW
Degradation coefficient	C_{dh}	0.99	—
Tj = 7 °C	P_{dh}	13.745	kW
Degradation coefficient	C_{dh}	0.98	—
Tj = 12 °C	P_{dh}	13.235	kW
Degradation coefficient	C_{dh}	0.97	—
Tj = bivalent temperature	P_{dh}	19.859	kW
Tj = operating limit	P_{dh}	19.859	kW
T j = – 15 °C	P_{dh}	NA	kW
Bivalent temperature	T_{biv}	2	°C
Cycling interval capacity for heating	P_{cych}	NA	kW
Power consumption in modes other than active mode			
off mode	P_{OFF}	0.060	kW
standby mode	P_{SB}	0.060	kW
thermostat-off mode	P_{TO}	0.060	kW
crankcase heater mode	P_{CK}	0.000	kW
Other items			
Capacity control		Variable	
Sound power level, indoors/outdoors	L_{WA}	78.0	dB
Annual energy consumption	Q_{HE}	4834	kWh
For heat pump combination heater:			
Declared load profile		NA	
Daily electricity consumption	Q_{elec}	NA	kWh
Annual electricity consumption	AEC	NA	kWh

Item	symbol	value	unit
Seasonal space heating energy efficiency	η_s	218.1	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = – 7 °C	COP_d	NA	—
Tj = 2 °C	COP_d	2.33	—
Tj = 7 °C	COP_d	5.24	—
Tj = 12 °C	COP_d	6.99	—
Tj = bivalent temperature	COP_d	2.33	—
Tj = operating limit	COP_d	2.33	—
T j = – 15 °C (if TOL<-20°C)	COP_d	NA	—
Operation limit temperature	TOL	2	°C
Cycling interval efficiency	COP_{cyc}	NA	—
Heating water operating limit temperature	WTOL	50	°C
Supplementary heater			
Rated heat output	P_{sup}	0.0	kW
Type of energy input		Electric	
For air-to-water heat pumps: Rated air flow rate, outdoors	—	12600	m^3/h
For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	—	NA	m^3/h
Water heating energy efficiency	η_{wh}	NA	%

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Photos:

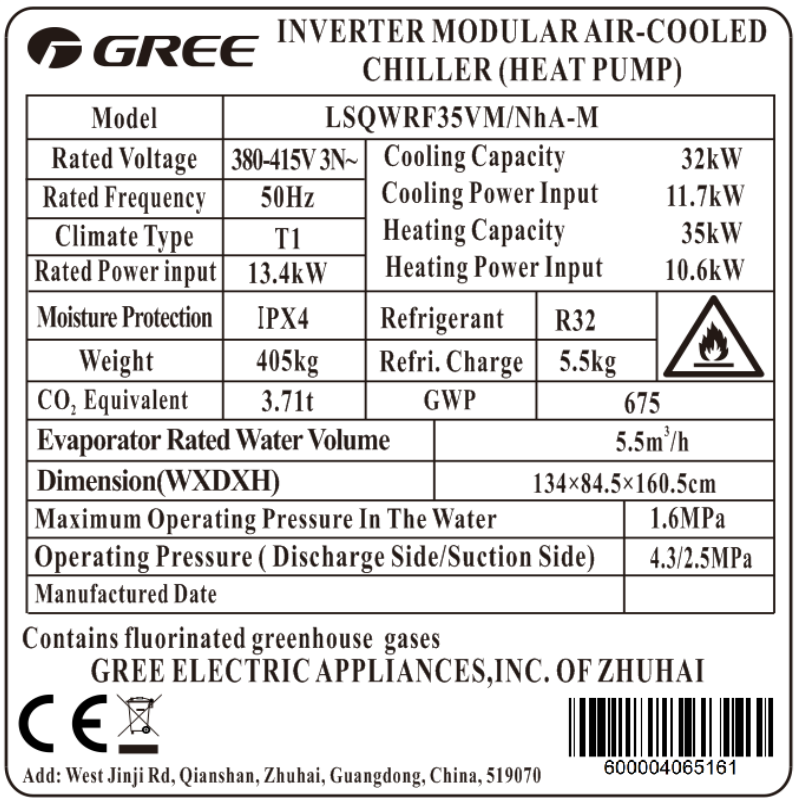
Photo 1 - Front view of unit

Photo 2 - Side view of unit

Photo 3 - Rear view of unit

Photo 4 - View of compressor

Photo 5 - Nameplate



GREE INVERTER MODULAR AIR-COOLED CHILLER (HEAT PUMP)

Model	LSQWRF35VM/NhA-M			
Rated Voltage	380-415V 3N~	Cooling Capacity		32kW
Rated Frequency	50Hz	Cooling Power Input		11.7kW
Climate Type	T1	Heating Capacity		35kW
Rated Power input	13.4kW	Heating Power Input		10.6kW
Moisture Protection	IPX4	Refrigerant	R32	
Weight	405kg	Refri. Charge	5.5kg	
CO_2 Equivalent	3.71t	GWP	675	
Evaporator Rated Water Volume		5.5m³/h		
Dimension(WXDXH)		134×84.5×160.5cm		
Maximum Operating Pressure In The Water		1.6MPa		
Operating Pressure (Discharge Side/Suction Side)		4.3/2.5MPa		
Manufactured Date				

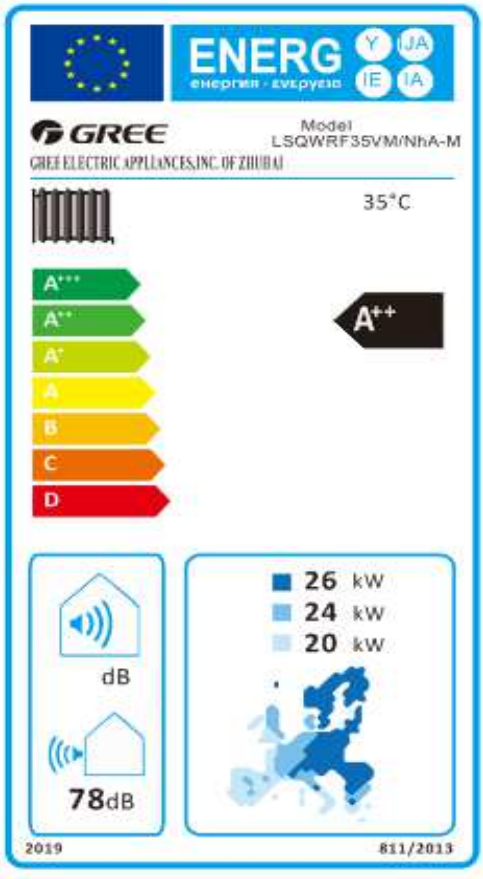
Contains fluorinated greenhouse gases

GREE ELECTRIC APPLIANCES,INC. OF ZHUHAI

Add: West Jinji Rd, Qianshan, Zhuhai, Guangdong, China, 519070

600004065161

Photo 6 - Energy label



Revision Summary

Date/ Proj # Site ID	Project Handler/ Reviewer	Item	Description of Change
25-Feb-2021	Taylor Cai	Page 8	Correct the Psup of Average climate condition from 0.0 to 0.6.
201228117GZU	Oscar Lin		

--The End--