



**Technical Report No.: 64.181.23.01415.01 Rev.00**

**Date: 2023-08-21**

Client: Report holder's name: Guangdong JNOD New Energy Technology Co,Ltd

Report holder's Address: 5th Building WISDOM CREATE WEALTH Industrial Park, Xingtan, Shunde, Foshan,Guangdong, PRC.

Contact person of report holder: Mr. Huang Weiping

Manufacturer: Manufacturer's name: Guangdong JNOD New Energy Technology Co,Ltd

Manufacturer's address: 5th Building WISDOM CREATE WEALTH Industrial Park, Xingtan, Shunde, Foshan,Guangdong, PRC.

Factory: Factory's name: Guangdong JNOD New Energy Technology Co,Ltd

Factory's address: 5th Building WISDOM CREATE WEALTH Industrial Park, Xingtan, Shunde, Foshan,Guangdong, PRC.

Test object: Product: DC INVERTER AIR SOURCE HEAT PUMP

Model: JME220HC3N

Trade mark: --

Test specification:  EN 14825:2022  
 EN 12102-1:2022

Purpose of examination: Test according to the test specification  
 (EU) No 813/2013  
 EU 2016/2282:2016-11-30

Test result: The test results show that the presented product is in compliance with the above listed test specifications.

Any use for advertising purposes must be granted in writing. This technical report may only be quoted in full. This report is the result of a single examination of the object in question. It does not imply a general statement regarding the quality of products from regular production. For further details please see testing and certification regulation, chapter A-3.4.

Doc No.: ITC-TTW0902.02E – Rev.12



**1 Description of the test object**

**1.1 Function**

Manufacturer's specification for intended use:  
 The appliance is air to water heat pump.  
 Manufacturer's specification for predictive use:  
 According to user manual

**1.2 Consideration of the foreseeable use**

- Not applicable
- Covered through the applied standard
- Covered by the following comment
- Covered by attached risk analysis

**1.3 Technical Data**

Model :	JME220HC3N
Rated Voltage (V) :	380-415V, 3N~
Rated Frequency (Hz) :	50
Rated Power (W) :	7300
Rated Current (A) :	N/A
Protection Class :	Class I
Protection Against Moisture :	IP X4
Construction :	Stationary
Supply connection :	<input type="checkbox"/> Non detachable cord <input checked="" type="checkbox"/> Permanent connection to fixed wiring
Operation mode:	<input checked="" type="checkbox"/> Continuous operation; <input type="checkbox"/> Intermittent operation; <input type="checkbox"/> Short time operation;
Refrigerant/charge (kg) :	R290 / 1.5kg
Declared parameters :	<input checked="" type="checkbox"/> Average <input type="checkbox"/> Warmer <input type="checkbox"/> Colder
Sound power level dB(A) :	N/A
Series No :	N/A

## 2 Order

### 2.1 Date of Purchase Order, Customer's Reference

Date of Purchase Order: 2022-02-24

Customer's Reference: Guangdong JNOD New Energy Technology Co.,Ltd

### 2.2 Test Sample(s)

• Reception date(s): 2023-07-03

• Location(s) of reception:

For Energy test:

Jianke Huanneng Technology Co., Ltd.

Address: No. 63, Area C, Leping Industrial Park, Leping Town, Sanshui District, Foshan City, Guangdong Province

For Noise tests:

China Quality Certification Center South China Laboratory

Address: 11 Shenghui South Road, Nantou Town, Zhongshan City, Guangdong Province

• Condition of test sample(s): completed and can be normal operation

### 2.3 Date(s) of Testing

2023-08-05 to 2023-08-18

### 2.4 Location(s) of Testing

Same as 2.2

### 2.5 Points of Non-compliance or Exceptions of the Test Procedure

N/A

## 3 Test Results

Decision rule according to ILAC-G8:09/2019 clause 4.2.1 Binary statement for simple acceptance rule or IEC Guide 115:2021, clause 4.4.3, 4.5.1 Accuracy method was applied.

Decision rule according to customer's requirements was applied. It is:

Decision rule according to ILAC-G8:09/2019 clause 4.2.2 Binary statement with guard band - guard band length = 95 % extended measurement uncertainty, was applied.

Decision rule (based on ILAC-G8:09/2019 clause 4.2.3 Non-binary statement with guard band, guard band length = 95 % extended measurement uncertainty) for an upper specification limit (A lower limit or specification with an up-per and a lower limit is treated similarly.):

• Compliance with the requirement: If a specification limit is not breached by a measurement result plus the expanded uncertainty with a 95% coverage probability, then compliance with the specification will be stated (e. g. Pass).

• Non-compliance with the requirement: If a specification limit is exceeded by the measurement result minus the expanded uncertainty with a 95% coverage probability, then non-compliance with the specification will be stated (e. g. Fail).

• Inconclusive result: If a measurement result plus/minus the expanded uncertainty with a 95 % coverage probability overlaps the limit it will be stated that it is not possible to state compliance or non-compliance.

### 3.1 Positive Test Results

See Appendix I



**4 Remarks**

**4.1 General**

The user manual has been examined according to the minimum requirements described in the product standard. The manufacturer is responsible for the accuracy of further par-ticulars as well as of the composition and layout.

**4.2** When the product is placed on the market, it must be accompanied with safety Instructions written in official language of the country. The instructions shall give information re-garding safe operation, installation and maintenance.

**5 Documentation**

- Appendix I: Test results
- Appendix II: Marking plate
- Appendix III: photo documentation
- Appendix IV: Construction data form
- Appendix V: Test equipment list

**6 Test History**

- 1) The appliance is Air to Water Heat Pump Unit, including a whole compression type refrigerant circuit to heat water in another circuit. The appliance was for cooling and heating water function, this report only for heating capacity test.
- 2) The main power is supplied by a 5-pole supply cord connecting to fixed wiring.
- 3) Water enthalpy method was adopted in this report.
- 4) Standby mode power, off mode power and thermostat-off mode power were tested according to clause 12 of standard EN 14825:2022.

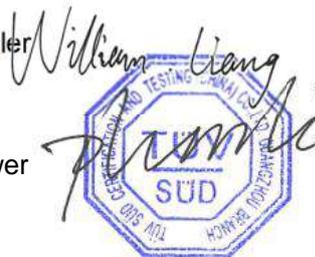
**TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch  
TÜV SÜD Group**

Tested by: William Liang, Project Handler

*printed name, function & signature*

Approved by: Plum Li, Designated Reviewer

*printed name, function & signature*



Doc No.: ITC-TTW0902.02E – Rev.12

**Appendix I Test results**

<b>Table 1.</b>	<b>Heating mode(Low temperature application):</b>						<b>P</b>	
<b>Model</b>	JME220HC3N							
<b>Product type</b>	Air to Water	<b>Heating season</b>	<input checked="" type="checkbox"/>	Average	<input type="checkbox"/>	Warmer	<input type="checkbox"/>	Colder

**1. Test conditions:**

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	$(-7-16)/(T_{designh-16})$	88	N/A	N/A	-7(-8)	a / 34
B	$(+2-16)/(T_{designh-16})$	54	N/A	N/A	2(1)	a / 30
C	$(+7-16)/(T_{designh-16})$	35	N/A	N/A	7(6)	a / 27
D	$(+12-16)/(T_{designh-16})$	15	N/A	N/A	12(11)	a / 24
E	$(TOL-16)/(T_{designh-16})$				TOL	a / 35.3
F	$(T_{bivalent-16})/(T_{designh-16})$				T <sub>biv</sub>	a / 34
G	$(-15-16)/(T_{designh-16})$	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 30/35 conditions, the capacity is 20.269kW, the power is 4.613kW, the COP is 4.39kW/kW.

**2. Tested data/correction data(Average):**

General test conditions/ Part-Load	Unit	A(-7)/W34 (88%)	A2/W30 (54%)	A7/W27 (35%)	A12/W24 (15%)	A(-10)/W35.3 (100%)	A(-7)/ W34 (88%)
	--	A	B	C	D	E	F
Data collection period	hh: min:sec	1:10:00	1:10:00	1:10:00	1:10:00	1:10:00	1:10:00
The heat pump defrosts	--	No	No	No	No	No	No
Complete Cycles	--	0	0	0	0	0	0
Barometric pressure	kPa	100.05	100.24	100.51	100.26	100.05	100.05
Voltage	V	401.5	400.6	401.1	401.1	401.3	401.5
Current input of the unit	A	8.51	4.24	1.71	1.39	10.11	8.51
Power input of the unit	kW	4.366	1.825	0.802	0.664	5.433	4.366
<b>Test conditions indoor unit</b>							
<b>Inlet Water temperature, DB</b>	°C	30.63	27.99	25.66**	23.41**	31.57,	30.63
<b>Outlet Water temperature, DB</b>	°C	33.99	29.97	26.97**	24.94**	35.26	33.99

Doc No.: ITC-TTW0902.02E – Rev.12



**Appendix I Test results**

Test conditions outdoor unit							
Air inlet temperature, DB	°C	-6.99	2.11	7.11	12.00	-9.99	-6.99
Air inlet temperature, WB	°C	-8.11	1.04	5.93	11.04	-11.01	-8.11
Summary of the results							
Total heating capacity	kW	13.545	7.975	5.206	6.103	14.847	13.545
Effective power input	kW	4.259	1.719	0.696	0.558	5.327	4.259
Coefficient of performance (COP)	--	3.18	4.64	7.48	10.94	2.79	3.18
Compressor frequency	Hz	75	36	20	22	90	75
Water flow	m³/h	3.48	3.48	3.48	3.48	3.48	3.48
Remark: **The inlet and outlet temperatures are been determined according to Cl.11.5.1 of EN 14825:2022.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	15.312	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	15.312	14.847	2.79	0.90	1.00	2.79	
F	13.545	13.545	3.18	0.90	1.00	3.18	
A	13.545	13.545	3.18	0.90	1.00	3.18	
B	8.245	7.975	4.64	0.90	1.00	4.64	
C	5.300	5.206	7.48	0.90	1.00	7.48	
D	2.356	6.103	10.94	0.90	0.39	9.44	
CR: part load divided by capacity;							

Doc No.: ITC-TTW0902.02E – Rev.12



**Appendix I Test results**

Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.022
Standby mode [P <sub>SB</sub> ]	kW	0.022
Crankcase heater [P <sub>CK</sub> ]	kW	0.107
Off mode [P <sub>OFF</sub> ]	kW	0.022

Conclusions:	Unit	Value
SCOP <sub>on</sub> :	kWh/kWh	4.77
SCOP:	kWh/kWh	4.75
Q <sub>H</sub> :	kWh/year	31635
Q <sub>HE</sub> :	kWh/year	6661
η <sub>s,h</sub>	%	187.0
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 2)	--	A+++

**Appendix I Test results**

<b>Table 2.</b>	<b>Heating mode(Medium temperature application):</b>				<b>P</b>		
<b>Model</b>	JME220HC3N						
<b>Product type</b>	Air to Water	<b>Heating season</b>	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Warmer	<input type="checkbox"/> Colder		

**1. Test conditions:**

Condition	Part Load Ratio in %				Outdoor heat exchanger	Indoor heat exchanger
	Formula	A	W	C	Inlet dry (wet) bulb temperature °C	Inlet/outlet water temperatures (°C)
A	$(-7-16)/(T_{designh-16})$	88	N/A	N/A	-7(-8)	a / 52
B	$(+2-16)/(T_{designh-16})$	54	N/A	N/A	2(1)	a / 42
C	$(+7-16)/(T_{designh-16})$	35	N/A	N/A	7(6)	a / 36
D	$(+12-16)/(T_{designh-16})$	15	N/A	N/A	12(11)	a / 30
E	$(TOL-16)/(T_{designh-16})$				TOL	a / 55.3
F	$(T_{bivalent-16})/(T_{designh-16})$				T <sub>biv</sub>	a / 52
G	$(-15-16)/(T_{designh-16})$	N/A	N/A	N/A	-15	N/A

Remark: a) With the water flow rate as determined at the standard rating conditions given in EN14511-2 at 47/55 conditions, the capacity is 20.091kW, the power is 6.51kW, the COP is 3.09kW/kW.

**2. Tested data/correction data(Average):**

General test conditions/ Part-Load	Unit	A(-7)/W52 (88%)	A2/W42 (54%)	A7/W36 (35%)	A12/W30 (15%)	A(-10)/W55.3 (100%)	A(-7)/W52 (88%)
--	--	A	B	C	D	E	F
Data collection period	hh: min:sec	1:10:00	1:10:00	1:10:00	1:10:00	1:10:00	1:10:00
The heat pump defrosts	--	No	No	No	No	No	No
Complete Cycles	--	0	0	0	0	0	0
Barometric pressure	kPa	99.83	100.07	99.85	100.04	99.75	99.83
Voltage	V	401.2	400.4	401.0	401.0	400.7	401.2
Current input of the unit	A	10.51	4.60	1.96	1.68	13.04	10.51
Power input of the unit	kW	5.223	2.196	0.974	0.822	7.412	5.223
<b>Test conditions indoor unit</b>							
<b>Inlet Water temperature, DB</b>	°C	46.70	38.89	33.97**	29.00**	49.11	46.70
<b>Outlet Water temperature, DB</b>	°C	51.95	42.04	35.95**	31.37**	55.26	51.95

Doc No.: ITC-TTW0902.02E – Rev.12



**Appendix I Test results**

Test conditions <b>outdoor</b> unit							
Air inlet temperature, DB	°C	-6.97	2.15	7.07	12.00	-9.99	-6.97
Air inlet temperature, WB	°C	-8.09	1.10	5.95	11.04	-11.11	-8.09
Summary of the results							
Total heating capacity	kW	12.586	7.885	4.964	5.934	15.433	12.586
Effective power input	kW	5.193	2.166	0.944	0.792	7.382	5.193
Coefficient of performance (COP)	--	2.42	3.64	5.26	7.49	2.09	2.42
Compressor frequency	Hz	75	35	20	20	90	75
Water flow	m³/h	2.16	2.16	2.16	2.16	2.16	2.16
Remark: **The inlet and outlet temperatures are been determined according to Cl.11.5.1 of EN 14825:2022.							
3.Calculation/conclusion for SCOP(Average):							
Tdesignh(°C)	-10	Tbiv(°C)		-7			
Pdesignh(kW)	14.228	TOL(°C)		-10			
Test result A, B, C, D, E, F conditions:							
Condition	Part load	Measured capacity	COP at measured capacity	Cdh	CR	COP at part load	
E	14.228	15.433	2.09	0.90	0.92	2.09	
F	12.586	12.586	2.42	0.90	1.00	2.42	
A	12.586	12.586	2.42	0.90	1.00	2.42	
B	7.661	7.885	3.64	0.90	0.97	3.64	
C	4.925	4.964	5.26	0.90	0.99	5.26	
D	2.189	5.934	7.49	0.90	0.37	6.40	
CR: part load divided by capacity;							

Doc No.: ITC-TT0902.02E – Rev.12



**Appendix I Test results**

Electric power consumptions	Unit	Value
Thermostat-off mode [P <sub>TO</sub> ]	kW	0.022
Standby mode [P <sub>SB</sub> ]	kW	0.022
Crankcase heater [P <sub>CK</sub> ]	kW	0.107
Off mode [P <sub>OFF</sub> ]	kW	0.022

Conclusions:	Unit	Value
SCOP <sub>on</sub> :	kWh/kWh	3.86
SCOP:	kWh/kWh	3.85
Q <sub>H</sub> :	kWh/year	29395
Q <sub>HE</sub> :	kWh/year	7640
η <sub>s,h</sub>	%	150.9
Seasonal space heating energy efficiency classes: (According (EU) No 811/2013 Table 1)	--	A+++



**Appendix I Test results**

<b>Table 3.</b>	<b>Sound power level measurement(Medium temperature application)</b>		<b>P</b>
<b>Model</b>	JME220HC3N		
	Product type :	Air to Water	
	Outdoor heat exchanger, Air temperature DB/WB (°C):	7.0 / 6.0	
	Indoor heat exchanger, Water inlet/outlet temperature (°C):	47.0 / 55.0	
	Voltage (V):	400	
	Frequency (Hz):	50	
	Working condition class :	Class A	
	Acoustical environment :	Hemi-anechoic room	
	Windshield type :	Sponge	
	Measured position amount :	14	
	Water flow (m³/h):	2.16	
	<b>Measured quantity</b>	<b>L<sub>WA,indoors</sub> (dB(A))</b>	<b>L<sub>WA,outdoors</sub> (dB(A))</b>
	Sound pressure level ` L <sub>p(ST)</sub> ****	--	54
	Measurement distance d *	--	1.0m
	Sound power level L <sub>WA</sub> ****	--	70
Setting of controls: according to user manual. Duct connection:-- Rounding to: *) 1 decimal places; **) 2 decimal places; ***) 3 decimal places; ****) nearest integer Fan speed: 700r/min, compressor frequency: 78Hz.			

Appendix II Marking plate

Nameplate

<b>DC INVERTER AIR SOURCE HEAT PUMP</b>	
MODEL	JME220HC3N
POWER SUPPLY	380-415V/3N~/50Hz
RUNNING TEMP RANGE(°C)	-25 ~ 43
HEATING CAPACITY MIN/MAX(kW)	10.1 ~ 21.1
HEATING INPUT POWER MIN/MAX(kW)	1.75 ~ 4.9
COOLING CAPACITY MIN/MAX ( kW)	7.3 ~ 11.2
COOLING INPUT POWER MIN/MAX(kW)	1.9 ~ 4.9
RATED.INPUT POWER(kW)	7.3
RETED WATER FLOW(m3/h)	3.78
MAX.HIGH/LOW PRESSURE(MPa)	3.0/0.8
MAX.ALLOWABLE PRESSURE(MPa)	3.0
MAX.WATER PRESSURE(MPa)	1.0
WATER PROOF CLASS	IPX4
ELECTRICITY SHOCK PROOF	I
WATER PRESSURE DROP(kPa)	26
WATER PIPE CONNECTION(inch)	1
NET WEITHT(kg)	140
REFRIGERANT/QUANTITY(kg)	R290/1.5
DATE/NO	See bar code
5th Building WISDOM CREATE WEALTH Industrial Park, Xingtan, Shunde, Foshan,Guangdong, PRC. Guangdong JNOD New Energy Technology Co,Ltd	
  	

Doc No.: ITC-TTW0902.02E – Rev.12

**Appendix III photo documentaiton**

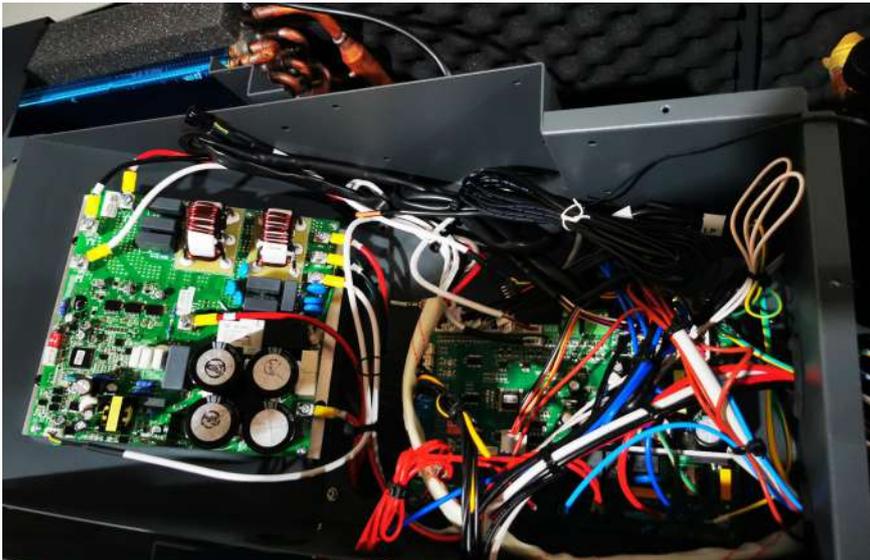
Details of:	Overall view
<p><b>View:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> General</li> <li><input type="checkbox"/> Front</li> <li><input type="checkbox"/> Rear</li> <li><input type="checkbox"/> Right</li> <li><input type="checkbox"/> Left</li> <li><input type="checkbox"/> Top</li> <li><input type="checkbox"/> Bottom</li> </ul>	

Details of:	Compressor
<p><b>View:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> General</li> <li><input type="checkbox"/> Front</li> <li><input type="checkbox"/> Rear</li> <li><input type="checkbox"/> Right</li> <li><input type="checkbox"/> Left</li> <li><input type="checkbox"/> Top</li> <li><input type="checkbox"/> Bottom</li> </ul>	

Doc No.: ITC-TTW0902.02E – Rev.12

**Appendix III photo documentaiton**

Details of:	Fan Motor
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Details of:	Main Control Board
View:	
<input type="checkbox"/> General	
<input type="checkbox"/> Front	
<input type="checkbox"/> Rear	
<input type="checkbox"/> Right	
<input type="checkbox"/> Left	
<input type="checkbox"/> Top	
<input type="checkbox"/> Bottom	

Doc No.: ITC-TTW0902.02E – Rev.12

**Appendix III photo documentaiton**

Details of:	Water Pump
<p><b>View:</b></p> <p><input type="checkbox"/> General</p> <p><input type="checkbox"/> Front</p> <p><input type="checkbox"/> Rear</p> <p><input type="checkbox"/> Right</p> <p><input type="checkbox"/> Left</p> <p><input type="checkbox"/> Top</p> <p><input type="checkbox"/> Bottom</p>	

**Appendix IV Construction data form**

Part	Technical data	
1. Compressor		
	Manufacture:	Shanghai Highly Electrical Appliances Co., Ltd.
	Type:	WHP32900VSKTQ9JK
	Serial-number:	W82N1E02WF3K
	Specification:	DC221V; at 180Hz; R290; 18160W
2. Condenser		
	Manufacture:	Jiangmen City East-Alliance Thermal Equipment Co., Ltd
	Type:	EATB61-D (40-2M-2L)
	Heat exchanger:	Plate heat exchanger
	Dimension(mm):	542mm×126mm×108mm
3. Evaporator		
	Manufacture:	Foshan RuiChuang Heat Exchange Equipment Co., Ltd.
	Type:	22KW
	Heat exchanger:	Fin heat exchanger
	Dimension(mm):	660mm×340mm×1300mm
4. Fan motor		
	Manufacture:	Jiangmen LT Motor Co.,Ltd.
	Type:	RD120HE2
	Fan type:	4 blade
	Specification:	DC310V; 120W; 800r/min
5. Main control board		
	Manufacture:	Guangdong Chico Electronic INC
	Type:	CC902-V2.1
	Specification:	220V; 50Hz
6. Water pump		
	Manufacture:	Hefei Xinhua Canned Motor Pump Co.,Ltd.
	Type:	GPA25-11H
	Specification:	AC230V; 50Hz; 6.6-140W



**Appendix V Equipment List**

No.	Type	Manufacture	Model	Equipment ID	Calibration Due Date
1	Air conditioning and refrigeration equipment inspection equipment	Guangzhou Zhiyuan measurement and control technology development Co., LTD	--	--	2024-02-20
2	temperature and humidity transmitter	HMD60Y	VAISALA	H5120014	2024-02-20
3	Three-phase electrical parameter tester	EGI	SHARK 100	T-KZ-F-0011	2024-02-20
4	Temperature and humidity sensor	YOKOGAWA	HMD62	S4610294	2024-01-04
5	Water pressure gauge	YOKOGAWA	MPM489	B86832	2024-01-04
6	Water pressure gauge	YOKOGAWA	MPM489	B86833	2024-01-04
7	Flowmeter	YOKOGAWA	AXG032	S5W920561039	2024-01-04
8	Anechoic rooms (hemi-anechoic rooms)	Beijing Zhongjia Zhirui Technology Co., LTD	ZR-02	CQCSC-BE-0026	2023-11-24
9	environmental control system	Beijing Zhongjia Zhirui Technology Co., LTD	ZR-02	CQCSC-BE-0026	2023-11-23
10	20 Channels noise and vibration test system	RION	SA-02M	CQCSC-BE-0026	2024-01-12

-- End of Report --