TEST REPORT

PPP 11095C:2018

TUV SUD Test Report for ErP – for Air conditioners

Ecodesign requirements for air conditioners and comfort fans
Implementation measure EU 206/2012

Report No.:	704012110318-00
Date of issue:	2021-11-19
Project handler:	Mr. Kaishuang LI
Testing laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
Address:	No. 151 Hengtong Road, 200070, Shanghai, P. R. China.
Testing location:	No. 1999, Duhui Road, Shanghai, 201108, P. R. China
Client:	Ningbo Fuda Intelligent Technology CO., LTD.
Client number:	02473
Address:	NO.1 Zhenhua Road, Zhennan Village, Simen Town, 315470, Yuyao, Zhejiang Province, People's Republic of China
Contact person:	Mr. Jinggeng ZHU
Standard:	This TUV SUD test report form is based on the following requirements: Commission Regulation (EU) No 206/2012 : 2012-03-06 Amended by (EU) 2016/2282: 2016-11-30 **Only the requirements for air conditioners are taken into account** Test Method: (2018/C 092/03): 2018-03-09, EN 14511-2:2013, EN 14511-3:2013, EN 14825:2016, EN 12102-1:2017
TRF number and revision:	PPP_11095C: 2018_Rev.00 / 2018-10
TRF originated by:	TUV SUD Product Service, Mr./Mrs. Gary Sun *(product specialist)*
Copyright blank test report:	This test report is based on the content of the standard (see above). The test report considered selected clauses of the a.m. standard(s) and experience gained with product testing. It was prepared by TUV SUD Product Service. TUV SUD Group takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.
General disclaimer:	This test report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.
Scheme:	☐ TUV Mark ☐ EU-Directive ☒ without certification
Non-standard test method:	☒ No ☐ Yes, see details under Summary of testing
National deviations:	N/A
Number of pages *(Report)*:	23
Number of pages *(Attachments)*:	N/A
Compiled by:	Mr. Kaishuang LI
Approved by:	Mr. Tianchen ZHANG

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Test sample: Type of test object: Trademark: Model and/or type reference:	2 pre-production samples from the factory Mobile air conditioner N/A FDPH41-3031ZR5, FDPH41-3031ZWR5, FDPH41-3031ZUR5, FDPH41-3031ZPR5, FDPH41-3031ZWUR5, FDPH41-3031ZPUR5, FDPH41-3031ZPWR5, FDPH41-3031ZPWUR5, FDPH41-3032ZR5, FDPH41-3032ZWR5, FDPH41-3032ZUR5, FDPH41-3032ZPR5, FDPH41-3032ZWUR5, FDPH41-3032ZPUR5, FDPH41-3032ZPWR5, FDPH41-3032ZPWUR5; FDP41-3031ZR5, FDP41-3031ZWR5, FDP41-3031ZUR5, FDP41-3031ZPR5, FDP41-3031ZWUR5, FDP41-3031ZPUR5, FDP41-3031ZPWR5, FDP41-3031ZPWUR5, FDP41-3032ZR5, FDP41-3032ZWR5, FDP41-3032ZUR5, FDP41-3032ZPR5, FDP41-3032ZWUR5,FDP41-3032ZPUR5, FDP41-3032ZPWR5, FDP41-3032ZPWUR5
Rating(s):	220-240V~, 50Hz Cooling capacity: 4000W Cooling input power/current: 1500W/6.9A; Cooling capacity: 4000W, Heating capacity: 3000W Cooling input power/current: 1500W/6.9A; Heating input power/current: 1250W/5.7A
Manufacturer: Manufacturer number: Address:	Ningbo Fuda Intelligent Technology CO., LTD 02473 NO.1 Zhenhua Road, Zhennan Village, Simen Town, 315470, Yuyao, Zhejiang Province, People's Republic of China
Sub-contractors/ tests (clause):	N/A
Name:	N/A
Order description:	☒ Complete test according to TRF ☐ Partial test according to manufacturer's specifications ☐ Preliminary test ☐ Spot check ☐ Others:
Date of order:	2021-10-20
Date of receipt of test item:	2021-10-20
Date(s) of performance of test:	2021-10-20 to 2021-11-19

Test item particulars:	
Product type……:	☐ Split type ☒ Single duct ☐ Double ducts
Capacity control……:	☐ Variable capacity ☒ Fixed capacity ☐ Staged capacity
Power source……:	☒ Single phase ☐ Three phase

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Heat transfer medium ……:	☒ Air/air heat pump or air cooled air conditioner ☐ Others
Product function ……:	☒ Reversible type: Model identifier with 'H' ☒ Cooling: Model identifier without 'H' ☐ Heating ☐ Electrical Heater
Split type heating season ……:	☐ Average ☐ Warmer ☐ Colder
Standard rating conditions ……:	Indoor: DB/WB(ºC) / Outdoor: DB/WB(ºC) Single duct air conditioner (SD) ☒ Cooling: 35/24 / 35/24 ☒ Heating: 20/12 / 20/12 Double duct air conditioner (DD) ☐ Cooling: 27/19 / 35/24 ☐ Heating: 20/max.15 / 7/6 Other air conditioner except SD/DD ☐ Cooling: 27/19 / 35/24 ☐ Heating: 20/max.15 / 7/6
Type of refrigerant ……:	R290
Mass of refrigerant (g) ……:	260
GWP of refrigerant ($kgCO_2$ eq.)……:	3
Sound power level (dB(A)) / (indoor /outdoor) ……:	65dB(A)
Further declared data:	See information sheet of manufacturer in attachment

Purpose of the product (Description of intended use):

Mobile air conditioners, single duct type, air to air unit, are intended for household use.

Model deviations:

1. Model identifier with "H": with cooling mode and heating mode
2. Model identifier without "H": Cooling mode only
3. Model identifier with "Z": with stepping motor for outlet louver
4. Model identifier with "W": with WIFI function
5. Model identifier with "P": with front display panel.
6. Model identifier with "U": with UV lamp.
7. Models with "3031", "3032" are the same except with different top cover.
8. All models are of the same air outlet louver, motor and compressor but different appearance and additional function.

The appliances do not incorporate with the off mode.

Standby mode: plug in, after operation, put the power button on standby position.

Compressor model: DSM240V1UDZ by Guangdong Meizhi Compressor Ltd.

Characteristic data *(not shown on the marking plate)*:

Dimensions(L ×W ×H)(mm): 440*335*710; Weight(kg): FDP41 Series: 30.5kg, FDPH41 Series: 31kg

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Attachments:

1. Test results
2. Test equipment list

General remarks:

"(see remark #)" refers to a remark appended to the report.
"(see appended table)" refers to a table appended to the report.
*Throughout this report **a comma** is used as the decimal separator.*
The test results presented in this report relate only to the object tested.
This report shall not be reproduced except in full without the written approval of the testing laboratory.

Summary of testing:

☐ deviation(s) found

☒ no deviations found

The product meets the Stage 2 requirement of the implementation measure.

Summary table:

Item	Limit	Acc. rated data	Acc. tested data
EER / SEER	≥ 2.34	2.67	2.82
COP / SCOP (Average)	≥ 1.84	2.40	2.42
Standby Mode Power (W) (As of 1 Jan. 2019 of EU 801/2013)	≤ 2.0	≤ 2.0	0.98 (with WIFI function)
Standby Mode Power (W)	≤ 0.5	≤ 0.5	0.39 (without WIFI function)
Off Mode Power (W)	≤ 0.50	-	-
Sound Power, indoor (dB(A))	≤ 65	65	64.9
Sound Power, outdoor (dB(A))	-	-	-

Remark:

	Single duct & double duct air conditioners		Other air conditioners,except Single duct & double duct	
Requirement (Annex I)	Stage 1	Stage 2	Stage 1	Stage 2
	1 January 2013	1 January 2014	1 January 2013	1 January 2014
Minimum energy efficiency	Clause 2.1.1	Clause 2.2.1	Clause 2.3.1	Clause 2.4.1
Standby & off mode	Clause 2.1.2	Clause 2.2.2	-	
Maximum sound power level	Clause 2.1.3		Clause 2.3.2	
Product Information	Clause 3		Clause 3	

The manufactuer shall draw up the technical documentation, provided information of free access websites and have laboratories information available acc. to IM 206/2012 Annex I item 3 (a) and 3 (b).

Additional information on Non-standard test method(s)

Sub clause: N/A

Page: N/A

Rational: N/A

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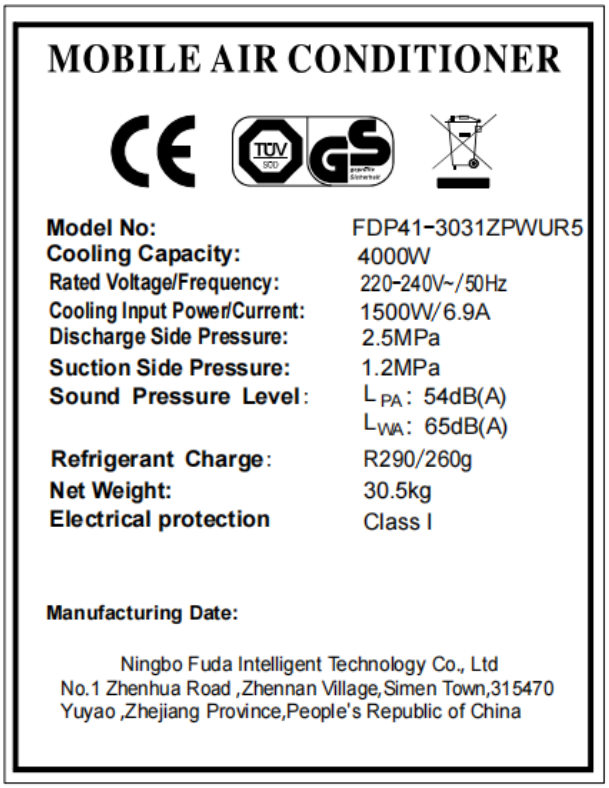
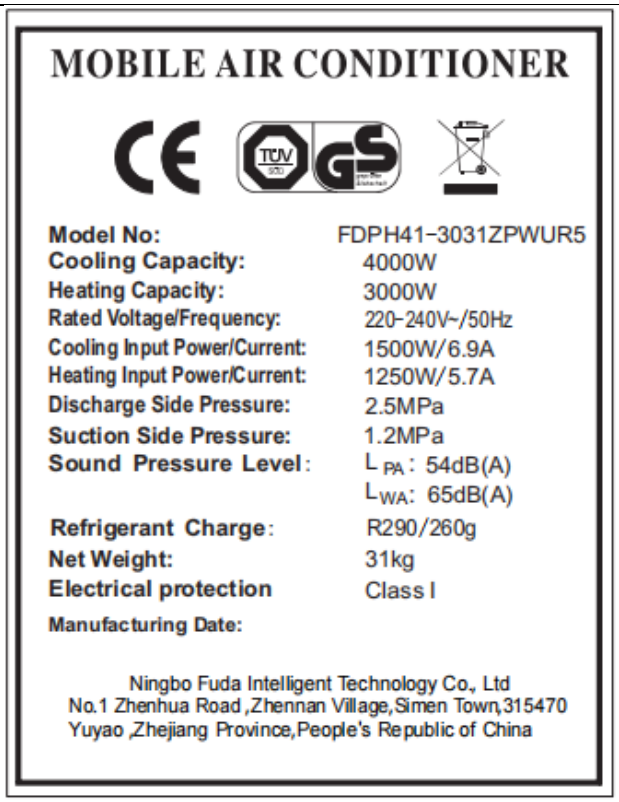
If additional information is necessary, please provide

N/A

Copy of marking plate:





Remark: the marking plate of FDP41 series are the same as FDP41-3031ZPWUR5 except model designation.
the marking plate of FDPH41 series are the same as FDPH41-3031ZPWUR5 except model designation.

Pictures of the product:

3031 Series

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3032 Series

Internal construction:

Compressor:

Name and address of factory (ies):
Ningbo Fuda Intelligent Technology CO., LTD.

NO.1 Zhenhua Road, Zhennan Village, Simen Town, 315470, Yuyao, Zhejiang Province, People's Republic of China

Possible test case verdicts:

test case does not apply to the test object:	N/A (not applicable / not included in the order)
test object does meet the requirement:	P (Pass)
test object does not meet the requirement:	F (Fail)

Possible suffixes to the verdicts:

suffix for detailed information for the client:	C (Comment)
suffix for important information for factory inspection:	M (Manufacturing)

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Clause	Requirement – Test	Measuring result – Remark	Verdict
	EC Regulation 206/2012		
Article	**Subject matter and scope**		P
1	This Regulation establishes ecodesign requirements for the placing on the market of electric mains-operated air conditioners with a rated capacity of ≤ 12 kW for cooling, or heating if the product has no cooling function.		P
2	This Regulation shall not apply to:		N/A
	(a) appliances that use non-electric energy sources;		N/A
	(b) air conditioners of which the condenser-side or evaporator- side, or both, do not use air for heat transfer medium.		N/A

Annex I	**Ecodesign requirements**		P
1	Definitions applicable for the purpose of this Annex		P
2.	REQUIREMENTS FOR MINIMUM ENERGY EFFICIENCY, MAXIMUM POWER CONSUMPTION IN OFF-MODE AND STANDBY MODE AND FOR MAXIMUM SOUND POWER LEVEL		P
2.1	From **1 January 2013**, **single duct and double duct air conditioners** shall correspond to requirements:		P
2.1.1	Requirements for minimum energy efficiency		P
	Double duct air conditioners		N/A
	<table><tr><th></th><th>EER rated min</th><th>COP rated min</th></tr><tr><td>If GWP of refrigerant > 150</td><td>2,40</td><td>2,36</td></tr><tr><td>If GWP of refrigerant ≤ 150</td><td>2,16</td><td>2,12</td></tr></table>	GWP of refrigerant: Product rating: - EER rated : - COP rated : Tested data see table 1	--
	Evalution: EER rated min ≤ EER rated		N/A
	Single duct air conditioners		P
	<table><tr><th></th><th>EER rated</th><th>COP rated</th></tr><tr><td>If GWP of refrigerant > 150</td><td>2,40</td><td>1,80</td></tr><tr><td>If GWP of refrigerant ≤ 150</td><td>2,16</td><td>1,62</td></tr></table>	GWP of refrigerant: 3 Cooling capacity: 4000W Heating capacity: 3000W Cooling power rating: 1500W Heating power rating: 1250W - EER rated : 2.67 - COP rated : 2.40 Tested data see table 1	--
	Evalution: EER rated min ≤ EER rated		P

Product Service

Clause	Requirement – Test	Measuring result – Remark	Verdict
2.1.2	Requirements for maximum power consumption in off-mode and standby mode		P
	Power consumption of equipment in any off-mode condition shall not exceed 1,00 W. (P_{OFF})	Tested data see table 1	--
	Evalution: $P_{OFF} \leq$ 1,00W		N/A
	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. (P_{SB})		--
	Evalution: $P_{SB} \leq$ 1,00W	Tested data see table 1 (without WIFI function)	P
	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. (P_{SB})		--
	Evalution: $P_{SB} \leq$ 2,00W		N/A
	Availability of standby and/or off mode		P
	Inappropriate for intended use to provide Standby and/or OFF-mode		P
	Standby-mode available		P
	Off-mode available		N/A
	another condition which does not exceed the applicable power consumption requirements for off mode and/or standby mode available		N/A
2.1.3	Requirements for maximum sound power level (L_{WA})		P
	Indoor sound power level in dB(A): ≤ 65	Measured: Indoor: Cooling: 64.9 dB(A) Heating: 64.9 dB(A)	--
	Evalution: $L_{WA} \leq$ 65dB(A)		P
2.2	From **1 January 2014, single duct and double duct air conditioners** shall correspond to requirements:		P
2.2.1	Requirements for minimum energy efficiency		P
	Double duct air conditioners		N/A
	GWP of refrigerant and rated capacity / EER rated / COP rated > 150 for < 6 kW: 2,60 / 2,60 ≤ 150 for < 6 kW: 2,34 / 2,34 > 150 for 6-12 kW: 2,60 / 2,60 ≤ 150 for 6-12 kW: 2,34 / 2,34	GWP of refrigerant: Cooling capacity: Product rating: - EER rated : - COP rated :	--

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<table>
<tr><th>Clause</th><th>Requirement – Test</th><th>Measuring result – Remark</th><th>Verdict</th></tr>
<tr><td></td><td>Evalution: EER $_{rated\ min}$ ≤ EER $_{rated}$</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Single duct air conditioners</td><td></td><td>P</td></tr>
<tr><td></td><td><table><tr><th>GWP of refrigerant and rated capacity</th><th>EER $_{rated}$</th><th>COP $_{rated}$</th></tr><tr><td>> 150 for < 6 kW</td><td>2,60</td><td>2,04</td></tr><tr><td>≤ 150 for < 6 kW</td><td>2,34</td><td>1,84</td></tr><tr><td>> 150 for 6-12 kW</td><td>2,60</td><td>2,04</td></tr><tr><td>≤ 150 for 6-12 kW</td><td>2,34</td><td>1,84</td></tr></table></td><td>GWP of refrigerant: 3
Cooling capacity: 4000W
Heating capacity: 3000W
Cooling power rating: 1500W
Heating power rating: 1250W
- EER $_{rated}$: 2.67
- COP $_{rated}$: 2.40
Tested data see table 1</td><td>--</td></tr>
<tr><td></td><td>Evalution: EER $_{rated\ min}$ ≤ EER $_{rated}$</td><td></td><td>P</td></tr>
<tr><td>2.2.2</td><td>Requirements for maximum power consumption in off-mode and standby mode</td><td></td><td>P</td></tr>
<tr><td></td><td>Power consumption of equipment in any off-mode condition shall not exceed 0,50 W. (P_{OFF})</td><td></td><td>--</td></tr>
<tr><td></td><td>Evalution: P $_{OFF}$ ≤ 0,50W</td><td></td><td>N/A</td></tr>
<tr><td></td><td>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. (P_{SB})</td><td></td><td>--</td></tr>
<tr><td></td><td>Evalution: P $_{SB}$ ≤ 0,50W</td><td>Tested data see table 1
(without WIFI function)</td><td>P</td></tr>
<tr><td></td><td>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. (P_{SB})</td><td></td><td>--</td></tr>
<tr><td></td><td>Evalution: P $_{SB}$ ≤ 1,00W</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Availability of standby and/or off mode</td><td></td><td>P</td></tr>
<tr><td></td><td>Inappropriate for intended use to provide Standby and/or OFF-mode</td><td></td><td>P</td></tr>
<tr><td></td><td>Standby-mode available</td><td></td><td>P</td></tr>
<tr><td></td><td>Off-mode available</td><td></td><td>N/A</td></tr>
<tr><td></td><td>another condition which does not exceed the applicable power consumption requirements for off mode and/or standby mode available</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Power management</td><td></td><td>P</td></tr>
<tr><td></td><td>Inappropriate for intended use to provide Power management for Standby and or off-mode</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Switch to standby mode</td><td>t: min/s</td><td>P</td></tr>
<tr><td></td><td>Switch to off mode</td><td>t: min/s</td><td>N/A</td></tr>
</table>

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<table>
<tr><th>Clause</th><th>Requirement – Test</th><th>Measuring result – Remark</th><th>Verdict</th></tr>
<tr><td></td><td>Another condition meeting to Standby or Off-mode:</td><td></td><td>N/A</td></tr>
<tr><td></td><td>- The power management function shall be activated before delivery.</td><td></td><td>N/A</td></tr>
<tr><td>2.3</td><td colspan="2">From 1 January 2013, air conditioners, except single duct and double duct air conditioners shall correspond to requirements:</td><td>N/A</td></tr>
<tr><td>2.3.1</td><td colspan="2">Requirements for minimum energy efficiency</td><td>N/A</td></tr>
<tr><td></td><td><table><tr><th>GWP of refrigerant</th><th>SEER min</th><th>SCOP min</th></tr><tr><td>> 150</td><td>3,60</td><td>3,40</td></tr><tr><td>≤ 150</td><td>3,24</td><td>3,06</td></tr></table>SCOP: Average heating season</td><td>GWP of refrigerant:
Product rating:
- SEER :
- SCOP :
Tested data see table 3&4</td><td>--</td></tr>
<tr><td></td><td>Evalution: SEER min ≤ SEER</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Evalution: SCOP min ≤ SCOP</td><td></td><td>N/A</td></tr>
<tr><td>2.3.2</td><td colspan="2">Requirements for maximum sound power level (L_{WA})</td><td>N/A</td></tr>
<tr><td></td><td><table><tr><th></th><th>L_{WAmax} Indoor (dB(A))</th><th>L_{WAmax} Outdoor (dB(A))</th></tr><tr><td>Rated capacity ≤6kW</td><td>≤ 60</td><td>≤ 65</td></tr><tr><td>6< Rated capacity ≤12kW</td><td>≤ 65</td><td>≤ 70</td></tr></table></td><td>Measured:
Indoor: dB(A)
Outdoor: dB(A)</td><td>--</td></tr>
<tr><td></td><td>Evalution - indoor: L_{WA} ≤ L_{WAmax} Indoor</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Evalution - outdoor: L_{WA} ≤ L_{WAmax} Outdoor</td><td></td><td>N/A</td></tr>
<tr><td>2.4</td><td colspan="2">From 1 January 2014, air conditioners, except single duct and double duct air conditioners shall correspond to requirements:</td><td>N/A</td></tr>
<tr><td>2.4.1</td><td colspan="2">Requirements for minimum energy efficiency</td><td>N/A</td></tr>
<tr><td></td><td><table><tr><th>GWP of refrigerant and rated capacity</th><th>SEER min</th><th>SCOP min</th></tr><tr><td>> 150 for < 6 kW</td><td>4,60</td><td>3,80</td></tr><tr><td>≤ 150 for < 6 kW</td><td>4,14</td><td>3,42</td></tr><tr><td>> 150 for 6-12 kW</td><td>4,30</td><td>3,80</td></tr><tr><td>≤ 150 for 6-12 kW</td><td>3,87</td><td>3,42</td></tr></table>SCOP: Average heating season</td><td>GWP of refrigerant:
Product rating:
- SEER :
- SCOP :
Tested data see table 3&4</td><td>--</td></tr>
<tr><td></td><td>Evalution: SEER min ≤ SEER</td><td></td><td>N/A</td></tr>
<tr><td></td><td>Evalution: SCOP min ≤ SCOP</td><td></td><td>N/A</td></tr>
<tr><td>3</td><td colspan="2">Product Information Requirements</td><td>P</td></tr>
</table>

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Clause	Requirement – Test	Measuring result – Remark	Verdict
3.1	**From 1 January 2013**, the information set out in points below and calculated in accordance with Annex II shall be provided on:		P
	(i) the technical documentation of the product;		P
	(ii) free access websites of manufacturers of air conditioners;	Declared by the manufacturer	P
3.2	The manufacturer of air conditioners shall provide laboratories performing market surveillance checks, upon request, the necessary information on the setting of the unit as applied for the establishment of declared capacities, SEER/EER, SCOP/COP values and provide contact information for obtaining such information.		P
3.3	Information **requirements for air conditioners except** single duct and double duct air conditioners as detailed in table 1 of (EU) 206/2012 Annex 1 point 3		N/A
3.4	Information requirements **for single duct and double duct air conditioners**		P
	Single duct air conditioners shall be named 'local air conditioners' in packaging, product documentation and in any advertisement material, whether electronic or in paper.		P
	Manufacturer shall provide information as detailed in table 2 of (EU) 206/2012 Annex 1 point 3		P

Annex II	**Measurements and Calculation**		
1	For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards the reference numbers of which have been published in the Official Journal of European Union, or other reliable, accurate and reproducible method, which takes into account the generally recognised state of the art methods, and whose results are deemed to be of low uncertainty. They shall fulfil all of the following technical parameters.		P
	Commission communication in the framework of the implementation of Commission Regulation (EU) No 206/2012 of 6 March 2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for air conditioners and comfort fans and of Commission Delegated Regulation (EU) No 626/2011 of 4 May 2011 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of air conditioners (2014/C 110/01)		P
2	The determination of the seasonal energy consumption and efficiency for seasonal energy efficiency ratio (SEER) and seasonal coefficient of performance (SCOP) shall take into account:		N/A
	(a) European cooling and heating season(s) as defined		N/A

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Clause	Requirement – Test	Measuring result – Remark	Verdict
	(b) reference design conditions, as defined		N/A
	Part load test conditions, as defined		N/A
	(c) electric energy consumption for all relevant modes of operation, using time periods as defined		N/A
	(d) effects of the degradation of the energy efficiency caused by on/off cycling (if applicable) depending on the type of control of the cooling and/or heating capacity;		N/A
	(e) corrections on the seasonal coefficients of performance in conditions where the heating load can not be met by the heating capacity;		N/A
	(f) the contribution of a back-up heater (if applicable) in the calculation of the seasonal efficiency of a unit in heating mode.		N/A
3	Where the information relating to a specific model, being a combination of indoor and outdoor unit(s), has been obtained by calculation on the basis of design, and/or extrapolation from other combinations, the documentation should 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).		P
4	The rated energy efficiency ratio (EER_{rated}) and, when applicable, rated coefficient of performance (COP_{rated}) shall be established at the standard rating conditions as defined.		P
5	The calculation of seasonal electricity consumption for cooling (and/or heating) shall take into account electric energy consumption of all relevant modes of operation and operational hour as defined.		P

Part A: Single ducts and Double ducts air conditioners

Table 1: Data for Single duct ands Double duct air conditioners			P
Model :	FDPH41-3031ZPWUR5		
Description		Unit	Measured value
Data			
Output power for cooling	$\mathbf{P_{rated}}$	kW	4.116
Output power for heating	$\mathbf{P_{rated}}$	kW	3.020
Power input for cooling	$\mathbf{P_{EER}}$	kW	1.460
Power input for heating	$\mathbf{P_{COP}}$	kW	1.250
Thermostat-off mode power consumption	$\mathbf{P_{TO}}$	W	-
Standby mode power consumption	$\mathbf{P_{SB}}$	W	0.98 (with WIFI function) 0.39 (without WIFI function)
OFF mode power consumption	$\mathbf{P_{OFF}}$	W	-
Crankcase heater mode power consumption	$\mathbf{P_{CK}}$	W	-
Calculated data			
Energy efficiency ratio	$\mathbf{EER_{rated}}$		2.82
Coefficient of performance	$\mathbf{COP_{rated}}$		2.42
Electricity consumption of single duct appliance	$\mathbf{Q_{SD}}$	kWh/h	1.460
Electricity consumption of double ducts appliance	$\mathbf{Q_{DD}}$	kWh/h	-
Remark: - See more detail information for the test result in the attachments.			
Sound power level (indoor)	$\mathbf{L_{WA}}$	dB(A)	Cooling: 64.9 dB(A) Heating: 64.9 dB(A)
Remark: N/A			

Part B: Air conditioners other then Single duct and Double ducts air conditioners

Table 3: SEER/SCOP – Constants & Data			N/A
Model :			
Constants			
Description		Unit	Value
Reference **cooling** design outdoor temperature **Tdesignc**		°C	
Reference **heating** design outdoor temperature **Tdesignh**		--	--
- Average		°C	
- Warmer		°C	
- Colder		°C	
Electric power input in power modes other than 'active mode'			
Description		Unit	Measured value
Off mode power	**P_{OFF}**	W	
Standby mode power	**P_{SB}**	W	
Thernostat-off mode (cooling / heating)	**P_{TO}**	W	
Crankcase heater mode power	**P_{CK}**	W	
Power consumption and efficiency of cycling			
Cooling power consumption of cycling	**Pcycc**	kW	
Heating power consumption of cycling	**Pcych**	kW	
Cooling efficiency of cycling	**EERcyc**	--	
Heating efficiency of cycling	**COPcyc**	--	
Degradation coefficient cooling	**Cdc**	--	
Degradation coefficient heating	**Cdh**	--	
Remark: - Measured data derived from report:			
Sound power level (indoor)	**L_{WA}**	dB(A)	
Sound power level (outdoor)	**L_{WA}**	dB(A)	
Remark: - Measured data derived from report:			

Product Service

Table 4: SEER / Q_C data – Cooling Mode - Based on tested data									N/A
Model :									
Indoor Air (ºC) (Dry/Wet):					**27/19**				
	Outdoor air (ºC)	Part load ratio (%)	Part load capacity (kW)	--	EER	Degradation coefficient Cd	Capacity ratio CR	EER at part load EER_{PL}	Variable frequency (Hz)
A	35	100		--					
B	30	74		--					
C	25	47		--					
D	20	21		--					
Pdesignc(full load) (kW)					Equivelent active hours for cooling (H_{CE}) (h)				
Calculated data									
Reference annual cooling demand (Qc) (kWh/a)									
Annual cooling electricity consumption (Q_{CE}) (kWh/a)									
SEERon									
SEER									

Remark:
- Measured data derived from report:
- Settings:

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Table 5: SCOP / Q_H data – Heating Mode/Average - Based on tested data									N/A
Model :									
Description					Unit	Value			
Bivalent temperature **Tbiv**					°C				
Operating limit temperature **Tol**					°C				
Indoor Air (ºC) (Dry/Wet):					**20/--**				
	Outdoor air (D/W) (ºC)	Part load ratio (%)	Part load capacity (kW)	--	COP	Degradation coefficient Cd	Capacity ratio CR	COP at part load EER_{PL}	Variable frequency (Hz)
A	-7/-8	88		--					
B	2/1	54		--					
C	7/6	35		--					
D	12/11	15		--					
TOL	-10	100		--					
$T_{bivalent}$	2 or lower			--					
Pdesignh(full load) (kW)					Equivelent active hours for heating (H_{HE}) (h)				
Calculated data									
Reference annual heating demand (Q_H) (kWh/a)									
Annual heating electricity consumption (Q_{HE}/A) (kWh/a)									
SCOPon									
SCOP									

Remark:

- Measured data derived from report:
- Settings:

Product Service

Table 6: SCOP / Q_H data – Heating Mode/Warmer - Based on tested data									N/A
Model :									
Description				Unit	Value				
Bivalent temperature **Tbiv**				°C					
Operating limit temperature **Tol**				°C					
Indoor Air (ºC) (Dry/Wet):				**20/--**					
	Outdoor air (D/W) (ºC)	Part load ratio (%)	Part load capacity (kW)	--	COP	Degradation coefficient Cd	Capacity ratio CR	COP at part load EER_{PL}	Variable frequency (Hz)
B	2/1	100		--					
C	7/6	64		--					
D	12/11	29		--					
$T_{bivalent}$	7 or lower			--					
Pdesignh(full load) (kW)					Equivelent active hours for heating (H_{HE}) (h)				
Calculated data									
Reference annual heating demand (Q_H) (kWh/a)									
Annual heating electricity consumption (Q_{HE}/A) (kWh/a)									
SCOPon									
SCOP									

Remark:

- Measured data derived from report:
- Settings:

Product Service

Table 7: SCOP / Q_H data – Heating Mode/Colder - Based on tested data									N/A
Model :									
Description				Unit	Value				
Bivalent temperature **Tbiv**				°C					
Operating limit temperature **Tol**				°C					
Indoor Air (ºC) (Dry/Wet):				**20/--**					
	Outdoor air (D/W) (ºC)	Part load ratio (%)	Part load capacity (kW)	--	COP	Degradation coefficient Cd	Capacity ratio CR	COP at part load EER_{PL}	Variable frequency (Hz)
G	-15	(82)		--					
A	-7/-8	61							
B	2/1	37		--					
C	7/6	24		--					
D	12/11	11		--					
TOL	-22 Tdesignh	100		--					
$T_{bivalent}$	-7 or lower			--					
Pdesignh(full load) (kW)					Equivelent active hours for heating (H_{HE}) (h)				
Calculated data									
Reference annual heating demand (Q_H) (kWh/a)									
Annual heating electricity consumption (Q_{HE}/A) (kWh/a)									
SCOPon									
SCOP									

Remark:

- Measured data derived from report:
- Settings:

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Attachment 1: Test results

Table 1a : Test result of cooling capacity				**P**
Model :	FDPH41-3031ZPWUR5			
Compressor built-in:			DSM240V1UDZ	
Mode			Cooling	
Test method	☐Calorimeter test method ☒Indoor air ehthalpy test method ☐Water enthalpy method			
Test condition			DB/WB indoor (°C)	35.00/24.00
			DB/WB outdoor (°C)	35.00/24.00
Measured ambient temperture			DB/WB indoor (°C)	35.03/23.97
			DB/WB outdoor (°C)	35.00/24.65
Atmospheric pressure		kPa	101.22	
Test Voltage		V	229.76	
Test frequency		Hz	50	
Total current		A	6.52	
Total power input (P_T)		W	1460	
Effective power input (P_E)		W	1460	
Air inlet evaporator temperature, DB/WB		°C	35.03/23.97	
Air outlet evaporator temperature, DB/WB		°C	20.16/16.52	
Air inlet condenser temperature, DB/WB		°C	35.00/24.65	
For duct connetion	External/internal static pressure difference	Pa	183.12	
	Volume flow rate	m^3/h	431.34	
Total cooling capacity (P_C)		W	4115.8	
Energy efficiency ratio (EER)		W/W	2.82	

Remark:

Set-up:

- Refrigarent load (g): 260
- Settings: highest speed
- Connection tube length: 245-1580mm
- Duct diameters: 154mm

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Table 1b : Test result of heating capacity				**P**
Model :	FDPH41-3031ZPWUR5			
Compressor built-in :			DSM240V1UDZ	
Mode			Heating	
Test method	☐Calorimeter test method ☒Indoor air ehthalpy test method ☐Water enthalpy method			
Test condition			DB/WB indoor (°C)	20.00/15.00
			DB/WB outdoor (°C)	20.00/15.00
Measured ambient temperture			DB/WB indoor (°C)	20.03/12.09
			DB/WB outdoor (°C)	20.10/12.27
Atmospheric pressure		kPa	101.29	
Test Voltage		V	230.0	
Test frequency		Hz	50	
Total current		A	5.51	
Total power input (P_T)		W	1250	
Effective power input (P_E)		W	1250	
Air inlet evaporator temperature, DB/WB		°C	20.03/12.09	
Air outlet evaporator temperature, DB/WB		°C	41.46/17.51	
Air inlet condenser temperature, DB/WB		°C	20.10/12.27	
For duct connetion	External/internal static pressure difference	Pa	210.87	
	Volume flow rate	m^3/h	415.86	
Total heating capacity (P_H)		W	1250	
Energy efficiency ratio (COP)		W/W	2.42	
Heat balance		-		

Remark:

- Refrigarent load (g): 260
- Settings: highest speed
- Connection tube length: 245-1580mm
- Duct diameters: 154mm

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Attachment 2: Equipment List

Equipment	ID No.	Model	Brand/Manufacturer	Calibration due date
Power meter	S1205659-YQ	WT210	YOKOGAWA	2022-05-18
Power source	S0712411-YQ	6640	EXTECH (Taiwan)	2022-05-18
Temperature/Humidity recorder	S0212120-YQ	ZJ1-2	Shanghai	2022-05-18
Air enthalpy test room	HC-01	-	-	2022-05-18

Product Service

Attachment 3: ENERGY Efficiency classification (optional)

Energy efficiency classification acc. to :
- Regulation EU 626/2011: 2011-05-04 -- Energy labelling of air conditioner
(for information only)

	Rated value		Tested value	
Item	**Data**	**Classification**	**Data**	**Classification**
EER / SEER	2.67	A	2.82	A
COP / SCOP (Average)	2.40	A	2.42	A
SCOP (Colder)	-	-	-	-
SCOP (Warmer)	-	-	-	-

Annex II Energy Efficiency Classes

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

Energy Efficiency class	SEER	SCOP
A+++	SEER ≥ 8.50	SCOP ≥ 5.10
A++	6.10 ≤ SEER < 8.50	4.60 ≤ SCOP < 5.10
A+	5.60 ≤ SEER < 6.10	4.00 ≤ SCOP < 4.60
A	5.10 ≤ SEER < 5.60	3.40 ≤ SCOP < 4.00
B	4.60 ≤ SEER < 5.10	3.10 ≤ SCOP < 3.40
C	4.10 ≤ SEER < 4.60	2.80 ≤ SCOP < 3.10
D	3.60 ≤ SEER < 4.10	2.50 ≤ SCOP < 2.80
E	3.10 ≤ SEER < 3.60	2.20 ≤ SCOP < 2.50
F	2.60 ≤ SEER < 3.10	1.90 ≤ SCOP < 2.20
G	SEER < 2.60	SCOP < 1.90

Energy efficiency classes for double ducts and single ducts air conditioners

Energy Efficiency class	Double ducts		Single ducts	
	EER_{rated}	COP_{rated}	EER_{rated}	COP_{rated}
A+++	≥ 4.10	≥ 4.60	≥ 4.10	≥ 3.60
A++	3.60 ≤ EER < 4.10	4.10 ≤ COP < 4.60	3.60 ≤ EER < 4.10	3.10 ≤ COP < 3.60
A+	3.10 ≤ EER < 3.60	3.60 ≤ COP < 4.10	3.10 ≤ EER < 3.60	2.60 ≤ COP < 3.10
A	2.60 ≤ EER < 3.10	3.10 ≤ COP < 3.60	2.60 ≤ EER < 3.10	2.30 ≤ COP < 2.60
B	2.40 ≤ EER < 2.60	2.60 ≤ COP < 3.10	2.40 ≤ EER < 2.60	2.00 ≤ COP < 2.30
C	2.10 ≤ EER < 2.40	2.40 ≤ COP < 2.60	2.10 ≤ EER < 2.40	1.80 ≤ COP < 2.00
D	1.80 ≤ EER < 2.10	2.00 ≤ COP < 2.40	1.80 ≤ EER < 2.10	1.60 ≤ COP < 1.80
E	1.60 ≤ EER < 1.80	1.80 ≤ COP < 2.00	1.60 ≤ EER < 1.80	1.40 ≤ COP < 1.60
F	1.40 ≤ EER < 1.60	1.60 ≤ COP < 1.80	1.40 ≤ EER < 1.60	1.20 ≤ COP < 1.40
G	EER < 1.40	COP < 1.60	EER < 1.40	COP < 1.20

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