



(EU) 2024/1103
Eco-design requirements for local space heaters

LCIE

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Date of issue	2025-02-24	Number of pages	14
Testing Laboratory name:.....	LCIE CHINA COMPANY LIMITED		
Address:.....	Building 4, No. 518, Xin Zhuan Road, CaoHejing Songjiang High-Tech Park, Shanghai P.R.C (201612)		
Applicant's name:.....	Cixi Jiarui Electric Appliance Co., Ltd		
Address:.....	Haiwei Industrial Zone, Guanhaiwei town, Cixi City, Zhejiang Province,China		
Test item description:.....	--		
Test object:.....	Convector heater		
Model/Type reference:.....	ZCH01, ZCH01 Turbo, ZCH01 timer, ZCH01 timer/Turbo, ZCH02, ZCH02 timer, ZCH02S, ZCH02S timer, ZCH04, ZCH04 Turbo, ZCH04 timer, ZCH04 timer/Turbo, ZCH06, ZCH06 Turbo, ZCH06 timer, ZCH06 timer/Turbo, DL01S, DL01S Turbo, DL01S timer, DL01S timer/Turbo, DLSS, DLS, JR08, JR08 timer, JR08 timer/Turbo, JR08 Turbo		
Input range supply voltage / frequency:	220-240 V~, 50-60 Hz, Class I, IPX0 for all models 450-500 W for DLSS,DLS; 1800-2000 W for other models		
Manufacturer:	Cixi Jiarui Electric Appliance Co., Ltd		
Address:.....	Haiwei Industrial Zone, Guanhaiwei town, Cixi City, Zhejiang Province,China		
Test specification:			
Test procedures:	☒ COMMISSION REGULATION (EU) 2024/1103 implementing Directive 2009/125/EC of the European Parliament and of the Council as regards ecodesign requirements for local space heaters and separate related controls and repealing Commission Regulation (EU) 2015/1188 ☒ 2024/90295 Corrigendum Commission Regulation (EU) 2024/1103 of 18 April 2024implementing Directive 2009/125/EC of the European Parliament and of the Council as regards ecodesign requirements for local space heaters and separate related controls and repealing Commission Regulation (EU) 2015/1188		
Test result:	The measured data is less than the limit according 'Ecodesign requirements' of Annex II of the regulation (details see page 12-14 table 3 Requirements)		

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Testing:.....	Convector heater
Login No. of sample:.....	More than 10
Date of receipt of test item:	2025-02-10
Date of tests:	2025-02-10 to 2025-02-24

Index of contents	Page
1. Pictures of samples and rating label	3-4
2. Description of the test subject	5
3. Requirements	6-7
4. Evaluation	8-11
5. Information requirements of Table	12-14

Possible test case verdicts:	
- Test object does meet the requirement:	P (Pass)
- Test case does not apply to the test object:	N.A (Not applicable)
- Test object does not meet the requirement:	F (Fail)
- Test object does not demand	N.D (Not demanded)
General remarks:	
"(See remark #)" refers to a remark 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 also refers below regulations and standards:	
☒ EN 50564:2011 ☒ EN 60675:1995+A1:1998 +A2:2018+A11:2019 ☐ EN 60531:2000+A11:2019 ☐ EN 15500-1:2017	

Note:

1.The information requirement is not evaluated in this report.

2.According to the regulation, the product information requirements from 1 July 2025, shall be given to a instruction manuals for installers and users, and free access websites of manufacturers, their authorised representatives and importers and the product packing.

3. The information requirements of appended table with suggested value is just for reference, the value in table should be claimed by manufacturer.

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Page 2 on 14		
(EU) 2024/1103 – V 1.0		

1. Pictures of samples and rating label

Picture of samples	
DL01S series 	DLS, DLSS 
ZCH01 series 	ZCH02 series 
ZCH02S series 	ZCH04 series 

ZCH06 series 	JR08 
JR08 timer 	JR08 Turbo 
JR08 timer/Turbo 	

2. Description of the test subject

Sample information	
Name of product	Convactor heater
Wall-mounted heater.....	No
Portable heater.....	Yes
Rated voltage	220-240V~
Rated input power.....	Refer to page 1
Functions description	
Single stage heat output, no room temperature control.....	No
Two or more manual stages, no temperature control.....	No
With mechanic thermostat room temperature control.....	Yes
With electronic room temperature control.....	No
With electronic room temperature control plus day timer.....	No
With electronic room temperature control plus week timer.....	No
Other functions	
Room temperature control with presence detection.....	No
Room temperature control with open window detection.....	No
With distance control option function.....	No
With adaptive start control function.....	No
With working time limitation.....	No
With Black bulb sensor.....	No
With self-learning functionality.....	No
Control accuracy.....	No

Tested items are convactor heater. All models tested as one family, the construction and electric parts of all models are similar except the appearance are different. All models incorporate thermostat controlling room temperature.

Tested items are Convactor heater for household and indoor use only. All models are identical in working principle and electrical component.

“Turbo” means these models incorporate Fan motor, “timer” means these models incorporate Timer.

3. Requirements

3.1 Requirements for seasonal space heating energy efficiency:

3.1.1

Seasonal space heating energy efficiency (η_s) of	Measure	Requirement	Verdict
open fronted local space heaters and open to chimney local space heaters	--	$\geq 40,3\%$	NA
closed fronted open combustion local space heaters	--	$\geq 63,6\%$	NA
balanced flue local space heaters	--	$\geq 63,6\%$	NA
electric portable local space heaters	44,7%	$\geq 44,7\%$	P
electric fixed local space heaters with a nominal heat output above 250 W, except towel rails	--	$\geq 47,5\%$	NA
electric fixed local space heaters with a nominal heat output equal or below 250 W, except towel rails,	--	$\geq 43,1\%$	NA
electric storage local space heaters	--	$\geq 47,3\%$	NA
electric underfloor local space heaters	--	$\geq 47,5\%$	NA
electric visibly glowing radiant local space heaters with a nominal heat output above 1,2 kW, except electric visibly glowing radiant portable local space heaters	--	$\geq 46,8\%$	NA
electric visibly glowing radiant local space heaters with a nominal heat output equal or below 1,2 kW, except electric visibly glowing radiant portable local space heaters	--	$\geq 40,5\%$	NA
electric visibly glowing radiant portable local space heaters	--	$\geq 39,5\%$	NA
luminous local space heaters	--	$\geq 90,0\%$	NA
tube local space heaters	--	$\geq 80,0\%$	NA
towel rails with a nominal heat output above 250 W	--	$\geq 46,0\%$	NA
towel rails with a nominal heat output above 60 W and equal or below 250 W	--	$\geq 42,1\%$	NA

3.1.2:

Requirements	Remark	Verdict
Electric storage local space heaters shall be equipped with electronic heat charge control with room and/or outdoor temperature feedback and fan assisted heat output	--	NA
Towel rails with a nominal heat output equal or below 60 W shall only be operable through a working time limitation with a maximum pre-set period of time no longer than 6 hours	--	NA
Electric local space heaters placed on the market without control shall not be able to provide heat output without control	--	NA

3.2 Requirements for emissions (for liquid and gaseous fuel local space heaters):

Emissions of nitrogen oxides (NOx) by	Measure	Requirement	Verdict
Open fronted local space heaters, open to chimney local space heaters, closed fronted open combustion local space heaters, balanced flue local space heaters and flueless local space heaters	--	120 mg/kWh _{input}	NA
Luminous local space heaters and tube local space heaters	--	180 mg/kWh _{input}	NA

3.3 Requirements for low power modes:

	Measure	Requirement	Verdict
Off mode	0,3 W for models with "timer" 0 W for others	0,50 W	P
Off mode (from 2027-05-09)	--	0,30 W	NA
Standby mode With only reactivation function OR only reactivation function + mere indication of enabled reactivation function	--	0,50 W	NA
Standby mode With only information or status display OR only information or status display + reactivation function	--	1,00 W	NA
Networked standby	--	2,00 W	NA
Networked standby the communication between the heat generator and the control is wireless or through powerline carrier	--	3,00 W	NA
Idle mode	0,3 W for models with "timer" 0 W for others	1,00 W	P
Idle mode the idle mode depends on the input from a network connection to automatically provide heat to the room	--	3,00 W	NA
Supplementary information:			

Requirements	Remark	Verdict
If the standby mode includes the display of information or status, this function shall also be provided when the networked standby is provided.	--	NA

4 Evaluation

4.1 Calculation of seasonal space heating energy efficiency:

The seasonal space heating energy efficiency of local space heaters is defined as:		—
for gaseous fuel local space heaters and liquid fuel local space heaters, except commercial local space heaters	$\eta_{S,on} = \eta_{th,nom} \cdot (0,75 + F(2) + F(3)) \cdot F(4) \cdot F(5)$	N/A
for electric local space heaters	$\eta_{S,on} = \eta_{th,nom} \cdot (0,75 + F(2) + F(3)) \cdot F(4) \cdot F(5) = 85,0\%$ $\eta_{S,on} = \eta_{S,on} / CC = 44,7\%$ $F(2): 0,100$ $F(3): 0$ $F(4): 1$ $F(5): 1$ $\eta_{th,nom} = 100\%$ $CC = 1,9$	P
for commercial local space heaters	$\eta_{S,on} = \eta_{S,on} - F(1) - F(4) - F(5)$ $\eta_{S,on} (\%) = \eta_{S,th} \cdot \eta_{S,RF} / 100$ $F(1):$ $F(4):$ $F(5):$	N/A
a..For luminous local space heaters:	$\eta_{S,th} = 85,6 \%$	N/A
b..For tube local space heaters:	$\eta_{S,th} = (0,15 \cdot \eta_{th,nom} + 0,85 \cdot \eta_{th,min}) - F_{env}$	NA
thermal efficiency at nominal heat output (%)	$\eta_{th,nom}:$	NA
thermal efficiency at minimum heat output (%)	$\eta_{th,min}:$	NA
envelope losses of the heat generator (%)	$F_{env}:$ see below table	NA
c..For commercial local space heaters	$\eta_{S,RF} = \frac{(0,94 \cdot RF_S) + 0,19}{(0,46 \cdot RF_S) + 0,45} =$	NA
- For all commercial local space heaters except tube systems	$RF_S = 0,15 \cdot RF_{nom} + 0,85 \cdot RF_{min} =$	NA
radiant factor at nominal heat output (%)	$RF_{nom}:$	NA
radiant factor at minimum heat output (%)	$RF_{min}:$	NA
- For tube systems	$RF_S (\%) = \sum_{i=1}^n (0,15 \cdot RF_{nom,i} + 0,85 \cdot RF_{min,i}) \cdot \frac{P_{heater,i}}{P_{system}}$	NA
radiant factor per tube segment at nominal heat output (%)	$RF_{nom,i}:$	NA
radiant factor per tube segment at minimum heat output (%)	$RF_{min,i}:$	NA
heat output per tube segment (kW)	$P_{heater,i}:$	NA
heat output of the complete tube system (kW)	$P_{system}:$	NA
Thermal transmittance of envelope (U)		—
$U \leq 0,5$	2,2 %	NA
$0,5 < U \leq 1,0$	2,4 %	NA
$1,0 < U \leq 1,4$	3,2 %	NA
$1,4 < U \leq 2,0$	3,6 %	NA
$U > 2,0$	6,0 %	NA

4.2 Correction factor F(1)- F(5)**4.2.1: Correction factor F(1) for commercial local space heaters:**

If the heat output control type of the products is:	F(1) [%]	With the following limits	Verdict
Single stage	$F(1) = 5$		NA
Two stage	$F(1) = 5 - \left(2,5 \cdot \frac{P_{nom} - P_{min}}{0,3 \cdot P_{nom}} \right)$	$2,5\% \leq F(1) \leq 5,0\%$	NA
Modulating	$F(1) = 5 - \left(5,0 \cdot \frac{P_{nom} - P_{min}}{0,4 \cdot P_{nom}} \right)$	$0\% \leq F(1) \leq 5,0\%$	NA

4.2.2 Correction factor F(2):

If the product is equipped with (only one option may apply):	F(2)							Verdict
	for electric local space heaters						for gaseous and liquid fuel local space heaters	
	Portabl e	Fixed	Storag e	Under loor	Visibly glowing radiant	Towels rails		
Single stage heat output, no room temperature control	0	0	0	0	0	0	0	NA
Two or more manual stages, no temperature control	0,025	0	0	0	0,050	0,030	0,025	NA
With mechanic thermostat room temperature control	0,100	0,025	0,025	0,025	0,025	0,030	0,050	P
With electronic room temperature control	0,160	0,050	0,050	0,050	0,080	0,030	0,100	NA
With electronic room temperature control plus day timer	0,170	0,095	0,095	0,095	0,100	0,095	0,125	NA
With electronic room temperature control plus week timer	0,190	0,150	0,150	0,150	0,120	0,150	0,150	NA

4.2.3 Correction factor F(3):

If the product is equipped with (multiple options may apply):	F(3)							Verdict
	for electric local space heaters						for gaseous and liquid fuel local space heaters	
	Portable	Fixed	Storage	Underfloor	Visibly glowing radiant	Towels rails		
Room temperature control with presence detection	0,005	0	0	0	0,040	0	0,025	NA
Room temperature control with open window detection	0,005	0,020	0,020	0,020	0,020	0,020	0,025	NA
With distance control option	0	0,020	0,020	0,020	0	0	0,025	NA
With adaptive start control	0,005	0,020	0,020	0,020	0	0,020	0	NA
With working time limitation	0,005	0	0	0	0,020	0,020	0	NA
With black bulb sensor	0	0	0	0	0,040	0	0	NA
With self-learning functionality	0	0,020	0,020	0,020	0,010	0,020	0,0125	NA
Control accuracy with CA < 2 Kelvin and CSD < 2 Kelvin	0,020	0,020	0,020	0,020	0	0,020	0,0125	NA

4.2.4 Correction factor F(4):

Gaseous and liquid fuel local space heaters except commercial local space heaters	$F(4) = \frac{1}{1 + \left(CC \cdot \frac{0,2 \cdot el_{max} + 0,8 \cdot el_{min}}{P_{nom}} \right)}$	NA
electric power consumption at nominal heat output (kW)	$el_{max}:$	NA
electric power consumption at minimum heat output (kW)	$el_{min}:$	NA
nominal heat output (kW)	$P_{nom}:$	NA
Commercial local space heaters	$F(4) [\%] = CC \cdot \frac{0,15 \cdot el_{max} + 0,85 \cdot el_{min}}{P_{nom}} \cdot 100$	NA
electric power consumption at nominal heat output (kW)	$el_{max}:$	NA
electric power consumption at minimum heat output (kW)	$el_{min}:$	NA
nominal heat output (kW)	$P_{nom}:$	NA
Electric local space heaters	$F(4) = 1$	P

4.2.5 Correction factor F(5):

Gaseous and liquid fuel local space heaters except commercial local space heaters	$F(5) = \frac{1}{1 + \left(0,5 \cdot \frac{P_{pilot}}{P_{nom}} \right)}$	NA
pilot flame consumption (kW)	$P_{pilot}:$	NA
nominal heat output (kW)	$P_{nom}:$	NA
Commercial local space heaters	$F(5) [\%] = 4 \cdot \frac{P_{pilot}}{P_{nom}} \cdot 100$	NA
pilot flame consumption (kW)	$P_{pilot}:$	NA
nominal heat output (kW)	$P_{nom}:$	NA
In case the product has no permanent pilot light (flame) P_{pilot} is 0 (Zero)	$P_{pilot} = 0$	NA
Electric local space heaters	$F(5) = 1$	P

4.3 Correction Heat output evaluation

TABLE 1:	heat output	
No.	P measured (kW)	Note
ZCH01, ZCH01 timer, ZCH02,ZCH02 timer, ZCH02S,ZCH02S timer, ZCH04, ZCH04 timer, ZCH06, ZCH06 timer, DL01S, DL01S timer, JR08, JR08 timer, DL01S Turbo, DL01S timer/Turbo	1,9	P_{nom}
	0,8	P_{min}
	1,9	$P_{max,c}$
ZCH01 timer/Turbo, ZCH01 Turbo, ZCH04 Turbo, ZCH04 timer/Turbo, ZCH06 Turbo, ZCH06 timer/Turbo, JR08 timer/Turbo, JR08 Turbo	1,9	P_{nom}
	1,2	P_{min}
	1,9	$P_{max,c}$
DLSS,DLS	0,5	P_{nom}
	N/A	P_{min}
	0,5	$P_{max,c}$

4.4 Equipment used for measurements

Equipment name	Model	Equipment ID	Last Calibration date	Calibration due date
Power meter	WT310E	A1240117SH	2023-07-24	2024-07-23
Power Supply	AFC31020T	A7040108SH	2024-07-09	2026-07-09

5. Information requirements of Table 3

Table 3: Information requirements for electric local space heaters

Contact details :	Name and address of the manufacturer or its authorised representative.		
Model identifier(s): ZCH01, ZCH01 timer, ZCH02,ZCH02 timer, ZCH02S,ZCH02S timer, ZCH04, ZCH04 timer, ZCH06, ZCH06 timer, DL01S, DL01S timer, JR08, JR08 timer, DL01S Turbo, DL01S timer/Turbo			
Item	Symbol	Value	unit
Heat output			
Nominal heat output	P_{nom}	1,9	kW
Minimum heat output (indicative)	P_{min}	0,8	kW
Maximum continuous heat output	$P_{max,c}$	1,9	kW
Power consumption			
In off mode	P_o	0,3 W for models with "timer" 0 W for others	W
In standby mode	P_{sm}	NA	W
In idle mode	P_{idle}	0,3 W for models with "timer" 0 W for others	W
In network standby	P_{nsm}	NA	W
Standby mode with display of information or status			no
Seasonal space heating energy efficiency in active mode	$\eta_{s,on}$	85,0	%
Type of heat output/room temperature control (select one)			
single stage heat output and no room temperature control			[no]
Two or more manual stages, no room temperature control			[no]
with mechanic thermostat room temperature control			[yes]
with electronic room temperature control			[no]
electronic room temperature control plus day timer			[no]
electronic room temperature control plus week timer			[no]
Other control options (multiple selections possible)			
room temperature control, with presence detection			[no]
room temperature control, with open window detection			[no]
distance control option			[no]
adaptive start control			[no]
working time limitation			[no]
black bulb sensor			[no]
self-learning functionality			[no]
Control accuracy			[no]

Contact details :	Name and address of the manufacturer or its authorised representative.		
Model identifier(s): ZCH01 timer/Turbo, ZCH01 Turbo, ZCH04 Turbo, ZCH04 timer/Turbo, ZCH06 Turbo, ZCH06 timer/Turbo, JR08 timer/Turbo, JR08 Turbo			
Item	Symbol	Value	unit
Heat output			
Nominal heat output	P_{nom}	1,9	kW
Minimum heat output (indicative)	P_{min}	1,2	kW
Maximum continuous heat output	$P_{max,c}$	1,9	kW
Power consumption			
In off mode	P_o	0,3 W for models with "timer" 0 W for others	W
In standby mode	P_{sm}	NA	W
In idle mode	P_{idle}	0,3 W for models with "timer" 0 W for others	W
In network standby	P_{nsm}	NA	W
Standby mode with display of information or status			no
Seasonal space heating energy efficiency in active mode	$\eta_{s,on}$	85,0	%
Type of heat output/room temperature control (select one)			
single stage heat output and no room temperature control			[no]
Two or more manual stages, no room temperature control			[no]
with mechanic thermostat room temperature control			[yes]
with electronic room temperature control			[no]
electronic room temperature control plus day timer			[no]
electronic room temperature control plus week timer			[no]
Other control options (multiple selections possible)			
room temperature control, with presence detection			[no]
room temperature control, with open window detection			[no]
distance control option			[no]
adaptive start control			[no]
working time limitation			[no]
black bulb sensor			[no]
self-learning functionality			[no]
Control accuracy			[no]

Contact details :	Name and address of the manufacturer or its authorised representative.				
Model identifier(s): DLSS,DLS					
Item	Symbol	Value	unit	Item	unit
Heat output				Type of heat output/room temperature control (select one)	
Nominal heat output	P_{nom}	0,5	kW	single stage heat output and no room temperature control	[no]
Minimum heat output (indicative)	P_{min}	N/A	kW	Two or more manual stages, no room temperature control	[no]
Maximum continuous heat output	$P_{max,c}$	0,5	kW	with mechanic thermostat room temperature control	[yes]
Power consumption				with electronic room temperature control	
In off mode	P_o	0	W	electronic room temperature control plus day timer	[no]
In standby mode	P_{sm}	NA	W	electronic room temperature control plus week timer	[no]
In idle mode	P_{idle}	0	W	Other control options (multiple selections possible)	
In network standby	P_{nsm}	NA	W	room temperature control, with presence detection	[no]
Standby mode with display of information or status			no	room temperature control, with open window detection	[no]
Seasonal space heating energy efficiency in active mode	$\eta_{s,on}$	85,0	%	distance control option	[no]
				adaptive start control	[no]
				working time limitation	[no]
				black bulb sensor	[no]
				self-learning functionality	[no]
				Control accuracy	[no]