Annexes

To the

Commission Regulation (EU)

implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for solid fuel local space heaters

Version of 12 of February 2024

ANNEX I

Definitions for the purpose of Annexes II to V

For the purpose of Annexes II to VII the following definitions shall apply:

(1) 'seasonal space heating energy efficiency' (η_s) means the ratio between the space heating demand, supplied by a solid fuel local space heater and the annual energy consumption required to meet this demand, expressed in %;

(2) 'particulate matter emissions' means the emissions of particulate matter expressed in mg/m^3 dry flue gas calculated to 273 K and 1 013 mbar at 13% O_2, dry matter;

(3) 'partial heat output' (P_{part}) means the heat output of a solid fuel local space heater comprising both direct heat output and, where applicable, indirect heat output, when operating at a setting lower than the nominal heat output, expressed in kW;

(4) 'carbon monoxide emissions' means the emissions of carbon monoxide expressed in mg/m^3 flue gas calculated to 273 K and 1 013 mbar at 13% O_2;

(5) 'organic gaseous compounds emissions' means the emissions of organic gaseous compounds expressed in mgC/m^3 flue gas calculated to 273 K and 1 013 mbar at 13% O_2;

(6) 'nitrogen oxides emissions' means the emissions of nitrogen oxides expressed in mg/m^3 flue gas expressed as NO_2 calculated to 273 K and 1 013 mbar at 13% O_2;

(7) 'automatic combustion control' means a system that modulates the optimal amount of air into the firebed according to the excess air that is needed to burn the remaining fuel load;

(8) 'off mode' means a mode in which the product is connected to a power source and is not providing any function, or it is in a condition providing only:

(a) an indication of off-mode condition;

(b) functionalities intended to ensure electromagnetic compatibility pursuant to Directive 2014/30/EU of the European Parliament and of the Council[1];

(9) 'standby mode' means a condition where the product is connected to a power source and provides only one or more of the following functions, which may persist for an indefinite time:

(c) reactivation function, or reactivation function and indication of enabled reactivation function;

(d) reactivation function through a connection to a network ('networked standby');

(e) information or status display;

(10) 'reactivation function' means a function that via a remote switch, a remote control, an internal sensor or timer provides a switch from standby mode to another mode, including active mode, providing additional functions;

(11) 'active mode' means a condition in which the product is connected to the power source and at least one of the main functions providing the intended service of the equipment has been activated;

(12) 'idle mode' means a condition in which the product is connected to the power source and is able to automatically provide heat to the room according to the setpoint temperature;

(13) 'network' means a communication infrastructure with a topology of links, an architecture, including the physical components, organisational principles, communication procedures and formats (protocols);

(14) 'flueless solid fuel local space heater' means a solid fuel local space heater emitting the products of combustion into the space where the product is situated;

(15) 'model identifier' means the code, usually alphanumeric, which distinguishes a specific solid fuel local space heater model from other models with the same trade mark or manufacturer's name;

(16) 'woody biomass' means biomass originating from trees, bushes and shrubs, including log wood, chipped wood, compressed wood in the form of pellets, compressed wood in the form of briquettes, and sawdust;

(17) 'other woody biomass' means woody biomass other than log wood with a moisture content of 25% or lower, briquetted fuel with a moisture content below 14% or compressed wood with a moisture content below 12%;

(18) 'non-woody biomass' means biomass other than woody biomass, including *inter alia* straw, miscanthus, reeds, kernels, grains, olive stones, olive cakes and nut shells;

(19) 'other fossil fuel' means fossil fuel other than anthracite and dry steam coal, hard coke, low temperature coke, bituminous coal, lignite, peat or blended fossil fuel briquettes;

(20) 'electric power requirement at nominal heat output' (el_{max}) means the electric power consumption of the solid fuel local space heater while providing the nominal heat output. The electric power consumption shall be established without consideration of the power consumption of a circulator in case the product offers indirect heating functionality and a circulator is incorporated, expressed in kW;

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[1] Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (OJ L 96, 29.3.2014, p. 79).

(21) ‘electric power requirement at partial heat output’ (el_{part}) means the electric power consumption of the solid fuel local space heater while operating at partial heat output. The electric power consumption shall be established without consideration of the power consumption of a circulator in case the product offers indirect heating functionality and a circulator is incorporated, expressed in kW;

(22) ‘permanent pilot flame power requirement’ (P_{pilot}) means the fuel consumption of solid fuel of the product for the provision of a flame to serve as an ignition source for the more powerful combustion process needed for nominal or part load heat output, when lit for more than 5 minutes before the main burner is on, expressed in kW;

(23) ‘useful efficiency, at either nominal or minimum heat output’, ($\eta_{th,nom}$ or $\eta_{th,min}$ respectively) means the ratio of the useful heat output and the total energy input expressed in terms of NCV of a solid fuel local space heater, expressed in %;

(24) ‘net calorific value’ (NCV) means the total amount of heat released by a unit quantity of fuel containing the appropriate moisture of the fuel, when it is burned completely with oxygen, and when the products of combustion are not returned to ambient temperature;

(25) ‘single stage heat output, no room temperature control’ means the product is not capable of varying its heat output automatically and that no feedback of room temperature is present to adapt the heat output automatically;

(26) ‘two or more manual stages, no room temperature control’ means the product is capable of varying its heat output manually by two or more levels of heat output and is not equipped with a device that automatically regulates the heat output in relation to a desired indoor temperature;

(27) ‘mechanic thermostat room temperature control’ means the product is equipped with a non-electronic device that allows the product to automatically vary its heat output over a certain time period, in relation to a certain required level of indoor heating comfort;

(28) ‘electronic room temperature control’ means the product is equipped with an electronic device, either integrated or external, that allows the product to automatically vary its heat output over a certain time period, in relation to a certain required level of indoor heating comfort;

(29) ‘electronic room temperature control plus day timer’ means the product is equipped with an electronic device, either integrated or external, that allows the product to automatically vary its heat output over a certain time period, in relation to a certain required level of indoor heating comfort, and allows the setting of timing and temperature level for a 24-hours timer interval;

(30) ‘electronic room temperature control plus week timer’ means the product is equipped with an electronic device, either integrated or external, that allows the product to automatically vary its heat output over a certain time period, in relation to a certain required level of indoor heating comfort, and allows the setting of timing and temperature levels for a full week. During the 7-day period the settings must allow a variation on a day-to-day basis;

(31) ‘presence detection’ means the product is equipped with an electronic device, either integrated or external, that automatically reduces the set-point for the room temperature when no person is detected in the room;

(32) ‘open window detection’ means the product is equipped with an electronic device, either integrated or external, that reduces the heat output when a window or door has been opened. Whenever a sensor is used to detect the opening of a window or door, it

can be installed with the product, externally to the product, built into the building structure or as a combination of those options;

(33) ‘distance control option’ means the function that allows remote interaction from outside the building in which the product is installed with the control of the product;

(34) ‘preferred fuel’ means the single fuel for which is to be preferably used for the solid fuel local space heater according to the manufacturer’s instructions;

(35) ‘other suitable fuel’ means a fuel, other than the preferred fuel, which can be used in the solid fuel local space heater according to the manufacturer’s instructions and includes any fuel that is mentioned in the instruction manual for installers and users, on free access websites of manufacturers and suppliers, in technical or promotional material and in advertisements;

(36) ‘conversion coefficient’ (CC) means the primary energy factor for electricity conversion coefficient of 1.9 set under Directive (EU) 2023/1791[5] “

(37) ‘moisture content’ means the mass of water in the fuel in relation to the total mass of the fuel as used in the solid fuel local space heater;

ANNEX II

Ecodesign requirements referred to in Article 3

1. REQUIREMENTS FOR SEASONAL SPACE HEATING ENERGY EFFICIENCY

Solid fuel local space heaters shall meet the following requirements, for the preferred fuel and for other suitable fuels:

(1) seasonal space heating energy efficiency of solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets shall not be less than 60% at both nominal and partial heat output;

(2) seasonal space heating energy efficiency of solid fuel local space heaters using compressed wood in the form of pellets shall not be less than 70% at both nominal and partial heat output;

2. REQUIREMENTS FOR EMISSIONS

(1) Emissions of particulate matter (PM) from solid fuel local space heaters shall not exceed the following values, for the preferred fuel and for other suitable fuels:

(a) emissions of PM by solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets shall not exceed 28 mg/m^3 at 13% O_2;

(b) emissions of PM by solid fuel local space heaters using compressed wood in form of pellets shall not exceed 10 mg/m^3 at nominal heat output and 25 mg/m^3 at partial heat output, at 13% O_2;

(2) emissions of organic gaseous compounds (OGC) from solid fuel local space heaters shall not exceed the following values, for the preferred fuel and for other suitable fuels:

(a) emissions of OGC by solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets shall not exceed 70 mg/m^3 at 13% O_2;

(b) emissions of OGC by solid fuel local space heaters using compressed wood in form of pellets shall not exceed 11 mg/m^3 at nominal heat output and 20 mg/m^3 at partial heat output, at 13% O_2;

(3) emissions of carbon monoxide (CO) from solid fuel local space heaters shall not exceed the following values, for the preferred fuel and for other suitable fuels:

(a) emissions of CO by solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets shall not exceed 500 mg/m^3 at 13% O_2;

(b) emissions of CO by solid fuel local space heaters using compressed wood in form of pellets shall not exceed 240 mg/m^3 at nominal heat output and 475 mg/m^3 at partial heat output, at 13% O_2;

(4) emissions of nitrogen oxides (NO_x) from solid fuel local space heaters shall not exceed the following values, for the preferred fuel and for other suitable fuels:

(a) emissions of NOx by solid fuel local space heaters using biomass other than compressed wood in the form of pellets shall not exceed 200 mg/m^3 expressed as NO_2 at 13% O_2;

(b) emissions of NOx by solid fuel local space heaters using compressed wood in the form of pellets shall not exceed 200 mg/m^3 at nominal heat output and 200 mg/m^3 at partial heat output, expressed as NO_2 at 13% O_2;

(c) emissions of NO_x by solid fuel local space heaters using fossil solid fuel shall not exceed 300 mg/m^3 expressed as NO_2 at 13% O_2.

3. TECHNICAL REQUIREMENTS

Solid fuel local space heaters shall meet the following requirements:

(1) the firebed and the combustion gases shall be sealed from the space in which the product is located and, except flueless solid fuel local space heaters, shall be sealed to a flue duct for the evacuation of the flue gases;

(2) they shall feature an automatic combustion control, with the following characteristics:

  (a) it shall be able to regulate the airflow to the firebed by means of continuously variable servomotors adapting the air inlet to the fuel load;

  (b) it shall include sensors measuring the relevant parameters in the flue gas and send information to the servomotors;

  (c) it shall allow the connection of the solid fuel local space heater to electronic room temperature controls;

(3) they shall have an off-mode or a standby mode or both. The power consumption in off-mode (P_o) shall not exceed 0,30 W and the power consumption in standby mode (P_{sm}) shall not exceed 0,50 W;

(4) if the standby mode includes the display of information or status, the power consumption of that mode shall not exceed 1,00 W;

(5) if the standby mode provides for a connection to a network and provides networked standby as defined in Article 2, point (10) of Regulation (EU) 2023/826, the power consumption of this mode (P_{nsm}) shall not exceed 2,00 W; if the communication between the heat generator and the control is wireless or through powerline carrier the power consumption of this mode shall not exceed 3,00 W;

(6) if they provide for an idle mode, the power consumption of the idle mode (P_{idle}) shall not exceed 1,00 W as average over 1 hour, except if the idle mode depends on the input from a network connection to automatically provide heat to the room, in which case the power consumption shall not exceed 3,00 W as average over 1 hour.

4. PRODUCT INFORMATION REQUIREMENTS

(1) the instruction manuals for installers and users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements:

  (a) the technical information included in Table 1, including flueless solid fuel local space heaters, with the technical parameters measured and calculated in accordance with Annex III and, if applicable, Annex IIIa, and showing the significant figures indicated in that table;

  (b) any specific precautions that shall be taken when the solid fuel local space heater is assembled, installed or maintained;

  (c) information relevant to disassembly, recycling and/or disposal at end-of-life.

  (d) for separate related controls, Table 2 as displayed in this Annex and without any modification, and the information in Table 3;

(2) for flueless solid fuel local space heaters, the instruction manual for installers and users, free access websites of manufacturers, their authorised representatives and importers, and the product packaging shall incorporate the following information in such a way to ensure clear visibility and legibility and in a language easily

understood by the users of the Member State where the product is marketed: 'This product is not suitable for primary heating purposes'.

(a) for the instruction manual for users this sentence shall be on the cover page of the manual;

(b) for free-access websites of manufacturers this sentence shall be displayed together with the other characteristics of the product;

(c) for the product packaging the sentence shall be placed in a prominent position on the packaging;

(3) For separate related controls the instruction manuals for installers and users free access websites of manufacturers, their authorised representatives and importers, and the product packaging shall incorporate the following product information in such a way to ensure clear visibility and legibility and in a language easily understood by the users of the Member State where the product is marketed:

'This control has the following control functions':

[list of control function codes in accordance with the format according to Table 3. The format of the code is TC (f1/ f2/f3/f4/f5/f6/f7/f8), where TC is the code for the F(2) function and f1 to f8 are the codes of the respective F(3) function if this function is present, or otherwise a '0'].

(4) Manufacturers, importers or authorised representatives of solid fuel local space heaters shall provide a quick user guide on how to operate the solid fuel local space heater in order to maximise energy efficiency and minimise pollutant emissions, including the following information:

(a) recommended fuels;

(b) recommended layering of the fuel in the firebox;

(c) type and position of the firelighter;

(d) procedure for stoking the fire;

(e) recommended amount of fuel for ignition;

(f) recommended time of refuelling and recommended amount of fuel for each refuelling;

(g) procedure for ending the operation of the solid fuel local space heater;

(h) an explanation on how failure to follow the indications in the quick user guide may result in lower energy efficiency and higher pollutant emissions, for instance, in case of fuel loading above the recommended quantities;

(i) instructions in the event of faults during operation;

(j) any indication related to the safe operation of the solid fuel local space heater.

5. RESOURCE EFFICIENCY REQUIREMENTS

(1) Availability of spare parts:

(a) For all models, for which units are placed on the market as from 1 July 2027, manufacturers, importers or authorised representatives of solid fuel local space heaters shall make available to professional repairers at least the following spare parts:

– control;

– printed circuit boards;

– buttons and switches;

– display or status indicators;

– impellers;

– sensors;

– remote control sensors;

– servomotors;

– catalysts;

(b) availability of spare parts referred to in point (a), shall be ensured for a minimum period starting at the latest on 1 July 2027 or two years after the placing on the market of the first unit of the model, whichever is the latest, and ending at least, 10 years after placing the last unit of the concerned model on the market. For this purpose, the list of spare parts and the procedure for ordering them shall be publicly available on the free access website of the manufacturer, importer or authorised representative, at least during the minimum period indicated above;

(c) for all models, for which units are placed on the market as from 1 July 2027, manufacturers, importers or authorised representatives of solid fuel local space heaters shall make available to professional repairers and users at least the following spare parts:

– remote control;

(d) availability of spare parts, under point (c), shall be ensured for a minimum period starting at the moment of placing that unit on the market and ending at least 10 years after placing the last unit of the concerned model on the market. For this purpose, the list of spare parts, the procedure for ordering them and the repair and maintenance information shall be publicly available on the free access website of the manufacturer, importer or authorised representative, at least during the minimum period indicated above;

(e) manufacturers, importers or authorised representatives of solid fuel local space heaters shall ensure that the spare parts mentioned in points (a) and (c) can be replaced with the use of commonly available tools and without permanent damage to the solid fuel local space heater;

(f) during the periods referred to in points (b) and (d), manufacturers, importers or authorised representatives shall provide indicative pre-tax prices at least in euro for spare parts listed in points (a) and (c), including the indicative pre-tax price of fasteners and tools, if supplied with the spare part on the free access website of the manufacturer, importer or authorised representative;

(g) manufacturers, importers or authorised representatives of solid fuel local space heaters using software shall make available software and firmware updates for a minimum of 10 years after placing the product on the market, and these updates shall be provided free of charge.

(2) Maximum delivery time of spare parts:

During the period of availability of spare parts, the manufacturer, importer or authorised representative shall ensure the delivery of the spare parts within 10 working days after having received the order.

(3) Access to repair and maintenance information:

During the period mentioned under point 1(b) the manufacturer, importer or authorised representative shall provide access to the appliance repair and maintenance information to professional repairers in the following conditions:

(a) the manufacturer's, importer's or authorised representative's website shall indicate the process for professional repairers to request access to information; in order to accept such a request, the manufacturers, importers or authorised representatives may only require the professional repairer to demonstrate that:

  (i) the professional repairer has the technical competence to repair solid fuel local space heaters and complies with the applicable regulations for repairers of solid fuel local space heaters in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof of compliance with this point;

  (ii) the professional repairer is covered by insurance covering liabilities resulting from its activity regardless of whether this is required by the Member State;

(b) manufacturers, importers or authorised representatives shall accept or refuse the registration within 5 working days from the date of request;

(c) manufacturers, importers or authorised representatives may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates. A fee is reasonable if it does not discourage access by failing to take into account the extent to which the professional repairer uses the information;

(d) once registered, a professional repairer shall have access, within one working day after requesting it, to the requested repair and maintenance information. The information may be provided for an equivalent solid fuel local space heater model or solid fuel local space heater model of the same family, if relevant;

(e) the repair and maintenance information shall include:

  (i) the unequivocal solid fuel local space heater identification;

  (ii) a disassembly map or exploded view;

  (iii) technical manual of instructions for repair;

  (iv) list of necessary repair and test equipment;

  (v) component and diagnosis information (such as minimum and maximum theoretical values for measurements);

  (vi) wiring and connection diagrams;

  (vii) diagnostic fault and error codes (including manufacturer-specific codes, where applicable);

  (viii) instructions for installation of relevant software and firmware including reset software;

  (ix) information on how to access data records of reported failure incidents stored on the solid fuel local space heater (where applicable); and

  (x) electronic board diagrams.

(f) without prejudice to intellectual property rights, third parties shall be allowed to use and publish unaltered repair and maintenance information initially

published by the manufacturer, importer or authorised representative and covered by point (e) once the manufacturer, importer or authorised representative terminates access to that information after the end of the period of access to repair and maintenance information.

(4) Requirements for dismantling for material recovery and recycling while avoiding pollution:

(a) manufacturers, importers or authorised representatives shall ensure that solid fuel local space heaters are designed in such a way that the materials and components referred to in Annex VII to Directive 2012/19/EU of the European Parliament and of the Council[2] can be removed from the appliance with the use of commonly available tools;

(b) manufacturers, importers or authorised representatives shall fulfil the obligations laid down in Article 15(1) of Directive 2012/19/EU.

6. TECHNICAL DOCUMENTATION

(1) The technical documentation for solid fuel local space heaters for the purposes of conformity assessment pursuant to Article 4 and of the verification procedure set out in Annex IV shall contain the following elements:

(a) the declared values of all parameters in Table 1; for this purpose, the same layout of Table 1 may be used;

(b) a list of all equivalent models, if applicable;

(c) all other elements indicated in Article 4, where applicable.

(2) The technical documentation for separate related controls for the purposes of conformity assessment pursuant to Article 4 and of the verification procedure set out in Annex V shall contain the following elements:

(a) The declared values of all parameters specified in Table 2; for this purpose, the same layout of Table 2 may be used;

(b) a list of all equivalent models, if applicable;

(c) all other elements indicated in Article 4, where applicable.

[2] Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) (OJ L 197, 24.7.2012, p. 38).

Table 1: Information requirements for solid fuel local space heaters

Contact details	Name and address of the manufacturer or its authorised representative
Model identifier(s):	
Indirect heating functionality:[yes/no]	
Direct heat output: ...(kW)	
Indirect heat output: ...(kW)	

Fuel	**Preferred fuel (only one):**	**Other suitable fuel(s):**	η_s **at nominal heat output** [x%]**:**	η_s **at partial heat output** [x%]**:**	Space heating emissions ([1])*				Space heating emissions at partial heat output ([2])			
					PM	OGC	CO	NO_x	PM	OGC	CO	NO_x
					[x] mg/Nm^3 (13% O_2)				**[x] mg/Nm^3 (13% O_2)**			
Wood logs with moisture content ≤ 25%	[yes/no]	[yes/no]										
Compressed wood with moisture content <12%	[yes/no]	[yes/no]										
Briquetted wood with a moisture content < 14%	[yes/no]	[yes/no]										
Other woody biomass	[yes/no]	[yes/no]										
Non-woody biomass	[yes/no]	[yes/no]										
Anthracite and dry steam coal	[yes/no]	[yes/no]										
Hard coke	[yes/no]	[yes/no]										
Low temperature coke	[yes/no]	[yes/no]										
Bituminous coal	[yes/no]	[yes/no]										
Lignite briquettes	[yes/no]	[yes/no]										
Peat briquettes	[yes/no]	[yes/no]										
Blended fossil fuel briquettes	[yes/no]	[yes/no]										
Other fossil fuel	[yes/no]	[yes/no]										
Blended biomass and fossil fuel briquettes	[yes/no]	[yes/no]										
Other blend of biomass and solid fuel	[yes/no]	[yes/no]										

Characteristics when operating with the preferred fuel only

Item	**Symbol**	**Value**	**Unit**
Heat output			
Nominal heat output	P_{nom}	x,x	kW
Partial heat output	P_{part}	[x,x]	kW
Auxiliary electricity consumption			
At nominal heat output	el_{max}	x,xxx	kW

Item	**Symbol**	**Value**	**Unit**
Useful efficiency (NCV as received)			
Useful efficiency at nominal heat output	$\eta_{th,nom}$	[x,x]	%
Useful efficiency at partial heat output	$\eta_{th,min}$	[x,x]	%
Type of heat output / room temperature control (select one)			
single stage heat output, no room temperature		[yes/no]	

						control	
At partial heat output	el_{min}	x,xxx	kW			two or more manual stages, no room temperature control	[yes/no]
						mechanic thermostat room temperature control	[yes/no]
Permanent pilot flame power requirement						electronic room temperature control	[yes/no]
Pilot flame power requirement (if applicable)	P_{pilot}	[x,xxx / N.A.]	kW			electronic room temperature control plus day timer	[yes/no]
						electronic room temperature control plus week timer	[yes/no]
						Other control options additional to the room temperature control (multiple selections possible)	
						presence detection	[yes/no]
						open window detection	[yes/no]
						distance control option	[yes/no]
						adaptive start control	[yes/no]
						working time limitation	[yes/no]
						black bulb sensor	[yes/no]
						self-learning functionality	[yes/no]
						control accuracy	[yes/no]
	(1) For solid fuel local space heaters using compressed wood in the form of pellets, this will be the space heating emissions at nominal heat output (2)Only for solid fuel local space heaters using compressed wood in the form of pellets						

Table 2: Information requirements for separate related controls

Contact details	Name and address of the manufacturer or its authorised representative.			
Model identifier(s):				
Item	**Symbol**	**Value**	**Unit**	**Item**
Power consumption				**Type (select one)**
In off mode	P_o	x,xx	W	single stage heat output, no room temperature control [yes/no]
In standby mode	P_{sm}	x,xx	W	two or more manual stages, no room temperature control [yes/no]
In idle mode	P_{idle}	x,xx	W	mechanic thermostat room temperature control [yes/no]
In networked standby	P_{nsm}	x,xx	W	electronic room temperature control [yes/no]
Standby mode with display of information or status		*[yes/no]*		electronic room temperature control plus day timer [yes/no]
				electronic room temperature control plus week timer [yes/no]
				Other control options additional to the room temperature control (multiple selections possible)
				presence detection [yes/no]
				open window detection [yes/no]
				distance control option [yes/no]
				adaptive start control [yes/no]
				working time limitation [yes/no]
				black bulb sensor [yes/no]
				self-learning functionality [yes/no]
				control accuracy [yes/no]

Table 3: Control function codes

		Code of temperature control (TC)	Control functions							
			f1	f2	f3	f4	f5	f6	f7	f8
Type of temperature control	Single stage, no temperature control	NC								
	Two or more manual stages, no temperature control	TX								
	Mechanic thermostat room temperature control	TM								
	Electronic room temperature control	TE								
	Electronic room temperature control plus day timer	TD								
	Electronic room temperature control plus week timer	TW								
Control functions	Presence detection		1							
	Open window detection			2						
	Distance control option				3					
	Adaptative start control					4				
	Working time limitation						5			
	Black bulb sensor							6		
	Self-learning functionality								7	
	Control accuracy with CA < 2 Kelvin and CSD < 2 Kelvin									8

ANNEX III

Measurements methods and calculations referred to in Article 3

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 for this purpose in the *Official Journal of the European Union*, or using other reliable, accurate and reproducible methods that take into account the generally recognised state-of-the-art methods.

In the absence of existing relevant standards and until the publication of the references of the relevant harmonised standards in the Official Journal, the transitional testing methods set out in Annex IIIa shall be used for solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets.

1. GENERAL CONDITIONS FOR MEASUREMENTS AND CALCULATIONS

(1) Solid fuel local space heaters shall be tested for the preferred fuel and for any other suitable fuels indicated in Table 1 of Annex II.

(2) Declared values for nominal heat output, partial heat output and seasonal space heating energy efficiency shall be rounded to the nearest one decimal place.

(3) Declared values for pollutant emissions shall be rounded to the nearest integer.

2. GENERAL CONDITIONS FOR SEASONAL SPACE HEATING ENERGY EFFICIENCY

(1) The seasonal space heating energy efficiency (η_S) shall be calculated at nominal and partial heat outputs, as the seasonal space heating energy efficiency in active mode ($\eta_{S,on}$), corrected by contributions of controls, auxiliary electricity consumption and permanent pilot flame energy consumption.

(2) The consumption of electricity shall be multiplied by a conversion coefficient (*CC*) of 1,9.

3. GENERAL CONDITIONS FOR POLLUTANT EMISSIONS

(1) Measurements shall include emissions of PM, OGC, CO, NO_x and particle number (PN), measured simultaneously with each other and with space heating energy efficiency.

(a) PM measurement shall be based on sampling a partial dry flue gas sample over a heated filter.

(b) OGC measurement as measured in the combustion products of the appliance shall be extractive and continuous and be based on the use of a flame ionisation detector. The result obtained is expressed in milligrams of carbon.

(c) CO measurement as measured in the combustion products of the appliance shall be extractive and continuous and be based on the use of an infrared detector.

(d) NO_x measurement as measured in the combustion products of the appliance shall be extractive and continuous and be based on chemiluminescent detection. Emissions of nitrogen oxides shall be measured as the sum of nitrogen monoxide and nitrogen dioxide and expressed in nitrogen dioxide.

(e) PN measurements as measured in the combustion products of the appliance shall be extractive and continuous and based on the use of a condensation particle counter from a particle size of 23 nm and upwards.

(2) Declared values for nominal and partial heat outputs, seasonal space heating energy efficiency for nominal and partial heat outputs and emissions shall be rounded to the nearest integer.

4. SPECIFIC CONDITIONS FOR SEASONAL SPACE HEATING ENERGY EFFICIENCY

(1) The seasonal space heating energy efficiency of solid fuel local space heaters is defined as:

$$\eta_{S,on} = \eta_{th,nom} \times (0{,}75 + F(2) + F(3)) \times F(4) \times F(5)$$

where:

- $\eta_{S,on}$ is the seasonal space heating energy efficiency in active mode, expressed in %;
- $F(2)$ is a correction factor accounting for a positive contribution to the seasonal space heating energy efficiency due to adjusted contributions of controls of indoor heating comfort, the values of which are mutually exclusive, cannot be added to each other;
- $F(3)$ is a correction factor accounting for a positive contribution to the seasonal space heating energy efficiency due to adjusted contributions of controls for indoor heating comfort the values of which can be added to each other;
- $F(4)$ is a correction factor accounting for a negative contribution to the seasonal space heating energy efficiency by auxiliary electricity consumption;
- $F(5)$ is a correction factor accounting for a negative contribution to the seasonal space heating energy efficiency by energy consumption of a permanent pilot flame.

(2) The seasonal space heating energy efficiency in active mode shall be calculated separately for nominal and partial heat output as:

$$\eta_{S,on} = \eta_{th,nom}$$

where $\eta_{th,nom}$ is the useful efficiency at either nominal or partial heat output, based on NCV.

(3) $F(2)$ shall be equal to one of the factors according to Table 4, depending on which control characteristic applies. Only one value can be selected. The functions mentioned in Table 4 shall be activated and functional when the equipment is placed on the market or put into service and activated with its initial setup after the equipment is reset to its factory default settings.

Table 4: Correction factor $F(2)$

If the product is equipped with (only one option may apply):	**F(2)**
single stage heat output, no room temperature control	0,00
two or more manual stages, no temperature control	0,00
mechanic thermostat room temperature control	0,00
electronic room temperature control	0,03
electronic room temperature control plus day timer	0,05
electronic room temperature control plus week timer	0,06

(4) $F(3)$ shall be calculated as the summation of the values according to Table 5, depending on which control function(s) applies. the functions mentioned in Table 5 shall be activated and functional when the equipment is placed on the market or put

into service and activated with its initial setup after the equipment is reset to its factory default settings.

Table 5: Correction factor *F*(3)

If the product is equipped with (multiple options may apply):	**F(3)**
presence detection	0,003
open window detection	0,003
distance control option	0,003
adaptive start control	0,003
working time limitation	0,003
black bulb sensor	0,003
self-learning functionality	0,003
control accuracy	0,003
presence detection	0,003

(5) The auxiliary electricity use correction factor *F*(4) shall be calculated as follows:

$$F(4) = \frac{1}{1 + \left(CC \times \frac{0{,}2 \times el_{max} + 0{,}8 \times el_{min}}{P_{nom}}\right)}$$

where:

– el_{max} is the electric power consumption at nominal heat output, expressed in kW;

– el_{min} is the electric power consumption at minimum heat output, expressed in kW. In case the product does not offer a minimum heat output the value for the electric power consumption at nominal heat output shall be used;

– P_{nom} is the nominal heat output of the product, expressed in kW.

(6) The correction factor *F*(5) shall be calculated as follows:

$$F(5) = \frac{1}{1 + \left(0{,}5 \times \frac{P_{pilot}}{P_{nom}}\right)}$$

Where:

– P_{pilot} is the pilot flame consumption, expressed in kW;

– P_{nom} is the nominal heat output of the product, expressed in kW.

ANNEX IV

Transitional methods referred to in Article 3

The general method for measuring and calculating energy efficiency and pollutant emissions from solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets shall be the method laid down in standard EN 16510-2-1:2022, with the following adaptations:

(1) The test shall consist of the following phases:

(a) one ignition phase, consisting of two burn cycles, an ignition combustion process and a nominal heat output combustion process, where the ignition combustion process starts when the first flames are visible, and the nominal heat output combustion process starts when fire is stoked for the first time;

(b) a nominal heat output phase, consisting of three burn cycles;

(c) a partial heat output phase, consisting of two burn cycles.

(2) The nominal heat output shall be declared by the manufacturer. The partial heat output shall be calculated as a function of the nominal heat output, according to the following expressions:

(a) for solid fuel local space heaters which nominal heat output is 5 kW or more:

$$P_{part} \leq 0{,}5 \times P_{nom}$$

(b) for solid fuel local space heaters which nominal heat output is less than 5 kW:

$$P_{part} \leq 0{,}5 \times P_{nom} + 1\ kW$$

(3) The burn cycles shall be carried out immediately after each other.

(4) Each combustion process shall end either when the CO_2 concentration has fallen below 4% by volume, with a tolerance of +/- 0,5% by volume, or when the mass of the firebed plus the ash of the fuel burned differ in less than 10 g from the mass of the firebed plus the ash of the fuel burned in the previous combustion process.

(5) The ignition phase shall be carried out with natural draught, the nominal phase shall be carried out with 12 Pa and a tolerance of +/- 2 Pa, and the partial heat output phase with 8 Pa and a tolerance of +/- 1 Pa.

(6) Pollutants shall be measured as follows:

(a) a total of six measurements shall be carried out, one for the ignition phase laid down in point (1) and one for each of the subsequent burn cycles during the nominal and partial heat output phases;

(b) PN, OGCs, CO and NOx shall be continuously measured over the full duration of the test. PM shall be collected and weighted towards the end of the ignition phase and towards the end of each of the subsequent burn cycles, with enough time for the filter to be replaced before the next burn cycle starts;

(c) during the ignition phase, measurement shall start immediately after igniting the fire, this is when the first flames are visible and shall finish after reaching the point to stoke the fire for beginning the nominal heat output phase;

(d) during the nominal heat output phase, measurements shall be carried out separately for each of the three burn cycles, starting when the fire is stoked at the beginning of each combustion process, until either the CO2 or the weight criteria laid down in paragraph (4) are reached;

(e) during the partial heat output phase, measurements shall be carried out separately for each of the two burn cycles, starting when the fire is stoked at the beginning of each combustion process, until either the CO2 or the weight criteria laid down in paragraph (4) are reached.

(7) Calculation of pollutants shall be carried out by summing the results of all measurements and dividing by six.

(8) The air supply shall not be manually adjusted during the test;

(9) Seasonal energy efficiency shall be measured and calculated during one of the burn cycles in the nominal heat output phase and one of the combustion process in the partial heat output phase.

(10) PN measurement shall be carried out in accordance with the following requirements:

(a) samples shall be taken at least 350 mm and a maximum of 1350 mm after the last measurement point of the measurement section set up for pollutant measurements in accordance with EN 16510-1:2022;

(b) the sampling equipment and sampling lines up to the dilution stage shall be designed to prevent the condensation of water and volatile substances. This can be achieved by heating the sampling line or heating the dilution air. The sampling lines must be anti-static;

(c) an impactor or cyclone shall be used to separate large particles before dilution. This equipment must have a cut-off of 50% at an aerodynamic particle diameter of 0,7 to 1,5 µm;

(d) the sampled flue gas shall be diluted in one or multiple dilution stages so that the particle count concentration can be measured within the calibrated range. This is generally achieved using a dilution of 1:500 or 1:1000. The measuring instrument shall be designed for a lower response threshold of 10.000 particles/cm^3 and for a maximum particle concentration that is ten times the limit value;

(e) volatile components (components capable of adsorption) shall be removed from the sampled gas flow before the measurement. A volatile particle remover such as thermodenuder or catalytic stripper shall be used for this purpose. The temperature should be selected so that no elemental carbon forms from the hydrocarbons. This criterion is fulfilled if a separation efficiency of at least 90% is achieved for tetracontane aerosols;

(f) the measurement instrument shall comply with the following specifications:

(i) maximum absolute error: 25.000 particle/cm^3;

(ii) maximum relative error: ±25% of the calculated value;

(iii) efficiency between 0.2 and 0.6 for particle size of 23±5%;

(iv) efficiency between 0.6 and 1.3 for particle size of 50±5%;

(v) efficiency between 0.7 and 1.3 for particle size of 80±5%;

(g) all particle count measurement values shall be recorded with a sampling rate of at least 0.1 Hz, averaged over the entire test cycle and then converted for an oxygen content of 13% by volume;

(h) the measurement report shall include the curve for the measured particle count over the entire test cycle without oxygen reference. In addition, the report shall

state the mean value for the particle count concentration over the entire testing cycle in cm^{-3}.

ANNEX V

Conformity assessment referred to in Article 4

The conformity assessment procedure shall consist of the following steps:

(1) A notified body shall decide on the issuing of an EC-type examination certificate to a model of solid fuel local space heater, according to Module B in Annex II to Decision No 768/2008/EC[3], on the basis of the measurement and calculation methods laid down in Annex III and, if applicable, in Annex IIIa.

(2) The notified body shall carry out periodic audits according to Module C2 in Annex II to Decision No 768/2008/EC, at random time intervals decided by the notified body, which shall consist of testing, in accordance with Annex III and Annex IIIa, random samples of a model of solid boiler taken at the manufacturing plant or at the manufacturer's storage facilities. The number of models to be tested shall be at least 10 every year.

(3) The notified body may decide to suspend or withdraw the EC-type examination certificate of a model of solid fuel local space heater, following the periodic audits referred to in paragraph (2).

[3] Decision No 768/2008/EC of the European Parliament and of the Council or 9 JULY 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC (OJ L 218, 13.8.2008, p.82).

ANNEX VI

Verification procedure for the purpose of market surveillance referred to in Article 5

(1) The verification tolerances defined in this Annex relate only to the verification of the declared parameters by Member State authorities and shall not be used by the manufacturer, importer or authorised representatives as an allowed tolerance to establish the values in the technical documentation or in interpreting these values with a view to achieving compliance or to communicate better performance by any means.

(2) Where a model is not in conformity with the requirements laid down in Article 6, the model and all equivalent models shall be considered not compliant.

(3) As part of verifying the compliance of a solid fuel local space heater model or a separate related control model with the requirements laid down in this Regulation pursuant to Article 3(2) of Directive 2009/125/EC, the authorities of the Member States shall apply the following procedure:

(a) the Member State authorities shall verify one single unit per model;

(b) the model and all equivalent models shall be considered to comply with the requirements set out in this Regulation if all the following conditions are fulfilled:

(i) the declared values given in the technical documentation pursuant to point 2 of Annex IV to Directive 2009/125/EC, and, where applicable, the values used to calculate these values, are not more favourable for the manufacturer, importer or authorised representative than the results of the corresponding measurements carried out pursuant to point 2(g) of that Annex;

(ii) the declared values meet any requirements laid down in this Regulation, and any required product information published by the manufacturer, importer or authorised representative does not contain values that are more favourable for the manufacturer, importer or authorised representative than the declared values;

(iii) when the Member State authorities check the unit of the model, any software update system that may have been set up by the manufacturer, importer or authorised representative complies with the requirements in Article 7;

(iv) when the Member State authorities check the unit of the model, it complies with the product information requirements in point 4 and resource efficiency requirements in point 5 of Annex II;

(v) when the Member State authorities test the unit of the model, the determined values (the values of the relevant parameters as measured in testing and the values calculated from these measurements) comply with the respective verification tolerances in Table 6.

(4) Where the results referred to in points (3)(b), (i), (ii) (iii) or (iv) are not achieved, the model and all equivalent models shall be considered not to comply with this Regulation.

(5) Where the result referred to in point (3)(b)(v) is not achieved, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more equivalent models.

(6) Where the result referred to in point (3)(b)(v) is not achieved, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more equivalent models.

(7) The model shall be considered to comply with the applicable requirements if, for the three units referred to in point (5), the arithmetical mean of the determined values complies with the respective verification tolerances set out in Table 6.

(8) Where the result referred to in point (6) is not achieved, the model and all equivalent models shall be considered not in compliance with this Regulation.

(9) The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission without delay after a decision being taken on the non-compliance of the model in accordance with points (2), (4) or (7).

(10) The Member State authorities shall use the measurement and calculation methods set out in Annex III and, if applicable, the transitional methods laid down in Annex IIIa.

(11) The Member State authorities shall only apply the verification tolerances that are set out in Table 6 and shall use only the procedure described in points (3) to (7) for the requirements referred to in this Annex. For the parameters in Table 6 no other verification tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

Table 2: verification tolerances

Parameters	Verification tolerances
η_S	The determined* value shall not be lower than the declared value by more than 5 %.
P_{nom}	The determined value* of P_{nom} is not more than 10% lower than the declared value of P_{nom}.
P_{part}	The determined value* of P_{nom} is not more than 10% lower than the declared value of P_{nom}.
P_{sm}, P_{idle}, P_{nsm}	The determined value* shall not exceed the declared value by more than 10% if the declared value of P_{sm}, P_{idle} or P_{nsm} is higher than 1,00 W, or by more than 0,10 W if the declared value is lower than or equal to 1,00 W.
PM emissions	The determined value* shall not exceed the declared value by more than 50% mg/m3 at 13 % O_2.
OGC emissions	The determined value* shall not exceed the declared value by more than 20% mgC/m3 at 13 % O2.

CO emissions	The determined value* shall not exceed the declared value by more than 20% at 13 % O2.
NOx emissions	The determined value* shall not exceed the declared value by more than 10% expressed as NO2 at 13 % O2.
PN emissions	The determined value* shall not exceed the declared value by more than 25% expressed as NO2 at 13 % O2.

(*) Where three additional units are tested in accordance with point (5), the determined value means the arithmetical mean of the values determined for those three additional units.

ANNEX VII

Indicative benchmarks referred to in Article 6

At the time of entry into force of this Regulation, the best available technology on the market for solid fuel local space heaters in terms of seasonal space heating energy efficiency and emissions of PM, CO, OGC and NOx was identified as follows.

(1) Specific benchmarks for seasonal space heating energy efficiency of solid fuel local space heaters.

(a) benchmark for seasonal space heating energy efficiency of solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets: 72%;

(b) benchmark for seasonal space heating energy efficiency of solid fuel local space heaters using compressed wood in the form of pellets: 85%;

(2) Specific benchmarks for PM emissions:

(c) for solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets and cookers: 15 mg/m^3;

(d) for PM emissions by solid fuel local space heaters using compressed wood in the form of pellets: 7 mg/m^3 at nominal heat output and 7 mg/m^3 at partial heat output, at 13% O_2 .

(3) Specific benchmarks for OGC emissions :

(e) for solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets: 30 mg/m^3 at 13% O_2;

(f) for solid fuel local space heaters using compressed wood in the form of pellets: 4 mg/m^3 at nominal heat output and 4 mg/m^3 at partial heat output, at 13% O_2.

(4) Specific benchmarks for CO emissions :

(g) for solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets and cookers: 500 mg/m^3 at 13% O_2;

(h) for solid fuel local space heaters using solid fuel other than compressed wood in the form of pellets: 160 mg/m^3 at nominal heat output and 160 mg/m^3 at partial heat output, at 13% O_2.

(5) The benchmark for NO_x emissions is 50 mg/m^3 at 13% O_2.