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**COMMISSION REGULATION (EU) No .../..**

**of **XXX****

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

(Text with EEA relevance)

# COMMISSION REGULATION (EU) No .../..

of **XXX**

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

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products<sup>1</sup> and in particular Article 15(1) thereof,

After consulting the Consultation Forum referred to in Article 18 of Directive 2009/125/EC,

Whereas:

- (1) Directive 2009/125/EC required the Commission to set ecodesign requirements for energy-related products that represent significant volumes of sales and trade, that have a significant environmental impact and that present significant potential for improvement in terms of their environmental impact without entailing excessive costs.
- (2) Article 16(2) of Directive 2009/125/EC provides that in accordance with the procedure referred to in Article 19(3) and the criteria set out in Article 15(2), and after consulting the Consultation Forum, the Commission should, as appropriate, introduce implementing measures for products offering a high potential for cost-effective reduction of greenhouse gas emissions, such as local space heaters.
- (3) The Commission has carried out two preparatory studies to analyse the technical, environmental and economic aspects of local space heaters typically used for heating purposes in residential and commercial buildings. The studies have been carried out with stakeholders and interested parties from the Union and third countries, and the results have been made publicly available.
- (4) The environmental aspects of local space heaters that have been identified as significant for the purposes of this Regulation are energy consumption and emissions of particulate matter (dust), organic gaseous compounds, carbon monoxide and nitrogen oxides in the use phase.
- (5) The preparatory studies show that further requirements regarding other ecodesign parameters referred to in Part 1 of Annex I to Directive 2009/125/EC are not necessary in the case of local space heaters.
- (6) The scope of this Regulation should include local space heaters designed to use gaseous or liquid fuels, solid fuels (biomass or fossil) and electricity. Local space heaters that have an indirect fluid heating facility are also within the scope of this

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<sup>1</sup> OJ L 285, 31.10.2009, p. 10.

Regulation. Solid fuel local space heaters using non-woody biomass have specific technical characteristics and should therefore be exempted from this Regulation.

- (7) Annual energy consumption related to local space heaters was estimated to have been 2300 PJ in the Union in 2010 corresponding to 85 Mt CO<sub>2</sub> emissions. Unless specific measures are taken, annual energy consumption related to local space heaters is expected to be 2362 PJ (56.4 Mtoe) in 2020.
- (8) The energy consumption of local space heaters can be reduced by applying existing, non-proprietary technologies without an increase in the combined costs of purchasing and operating these products.
- (9) Annual emissions of particulate matter (PM), organic gaseous compounds (OGC) and carbon monoxide (CO) have been estimated at 142 kton/year, 119 kton/year and 1658 kton/year respectively in 2010. As a result of specific measures adopted by Member States and technological development, these emissions are expected to be 122 kton/year, 87 kton/year and 1580 kton/year respectively in 2020. Annual emissions of nitrogen oxides (NO<sub>x</sub>) are expected to increase in the absence of specific measures because new local space heaters designs will rely on higher combustion temperatures.
- (10) The emissions of local space heaters could be further reduced by applying existing, non-proprietary technologies without an increase in the combined costs of purchasing and operating those products.
- (11) Together, the ecodesign requirements set out in this Regulation and the Commission Delegated Regulation (EU) **No ... of ...** supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of local space heaters, [*Number of the Regulation and OJ reference in footnote to be inserted before publication in the OJ*] are expected to result by 2020 in estimated annual energy savings of approximately 183 PJ (4.4 Mtoe), with related carbon dioxide (CO<sub>2</sub>) emission reduction of 5.8 Mt emissions.
- (12) The ecodesign requirements set out in this Regulation are expected to result by 2020 in a reduction of particulate matter emissions of 16.8 kton/year, a reduction of organic gaseous compounds emissions of 4.3 kton/year and a reduction of carbon monoxide emissions of 248.6 kton/year.
- (13) This Regulation covers products with different technical characteristics. If the same efficiency requirements were placed on them certain technologies would be banned from the market, which would result in a negative impact for consumers. For this reason ecodesign requirements relative to the potential of each technology create a level playing field in the market.
- (14) Ecodesign requirements should harmonise energy consumption, particulate matter, organic gaseous compounds, carbon monoxide and nitrogen oxides emission requirements for local space heaters throughout the Union, for the internal market operate better and in order to improve the environmental performance of those products.
- (15) The ecodesign requirements should not affect the functionality or affordability of local space heaters from the end-user's perspective and should not negatively affect health, safety or the environment.
- (16) The time frame for introducing the ecodesign requirements should be sufficient for the manufacturers to redesign their products subject to this Regulation. The timing should

take into account any cost impact for manufacturers, in particular for small and medium-sized enterprises, is taken into account, while ensuring timely achievement of the objectives of this Regulation.

- (17) Product parameters should be measured and calculated using reliable, accurate and reproducible measurement and calculation methods which take into account the recognised state-of-the-art measurement methods including, where available, harmonised standards adopted by the European standardisation organisations following a request by the Commission in accordance with the procedures laid down in Regulation (EU) 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation<sup>2</sup>.
- (18) In accordance with Article 8 of Directive 2009/125/EC, this Regulation specifies which conformity assessment procedures apply.
- (19) In order to facilitate compliance checks, manufacturers should provide the information contained in the technical documentation referred to in Annexes IV and V to Directive 2009/125/EC insofar as that information relates to the requirements laid down in this Regulation.
- (20) To further limit the environmental impact of local space heaters, manufacturers should provide information on disassembly, recycling and disposal.
- (21) In addition to the legally binding requirements laid down in this Regulation, indicative benchmarks for best available technologies should be determined to ensure that information on the life-cycle environmental performance of space heaters and combination heaters is widely available and easily accessible.
- (22) The measures provided for in this Regulation are in accordance with the opinion of the Committee established under Article 19(1) of Directive 2009/125/EC,

HAS ADOPTED THIS REGULATION:

*Article 1*  
***Subject matter and scope***

This Regulation establishes ecodesign requirements for the placing on the market and putting into service of domestic local space heaters with a nominal heat output of 50 kW or less and commercial local space heaters with a nominal heat output of the product or of a single segment of 120 kW or less;

This Regulation shall not apply to:

- (a) local space heaters using a vapour compression cycle or sorption cycle for the generation of heat driven by electric compressors or fuel;
- (b) local space heaters that are specified for the combustion of non-woody biomass only;
- (c) local space heaters specified for purposes other than indoor space heating to achieve a certain thermal comfort of human beings;
- (d) local space heaters that are specified for outdoor use only;

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<sup>2</sup> OJ L 316, 14.11.2012, p. 12.

- (e) local space heaters of which the direct heat output is less than 6% of the combined direct and indirect heat output at nominal heat output;
- (f) solid fuel local space heaters that are not factory assembled, or are not provided as prefabricated components or parts by a single manufacturer which are to be assembled on site.

*Article 2*  
**Definitions**

In addition to the definitions set out in Article 2 of Directive 2009/125/EC, the following definitions shall apply:

Definitions needed for Article 1:

1. 'local space heater' means a space heating device that emits heat by direct heat transfer or by direct heat transfer in combination with heat transfer to a fluid, in order to reach and maintain a certain level of human thermal comfort within an enclosed space in which the product is situated, possibly combined with a heat output to other spaces and is equipped with one or more heat generators that convert electricity or gaseous, liquid or solid fuels directly into heat, through use of the Joule effect or combustion of fuels respectively;
2. 'domestic local space heater' means a local space heater other than a commercial one;
3. 'solid fuel local space heater' means an open fronted local space heater, closed fronted local space heater or cooker using solid fuels;
4. 'gaseous fuel local space heater' means an open fronted local space heater, closed fronted local space heater or cooker using gaseous fuel;
5. 'liquid fuel local space heater' means an open fronted local space heater, closed fronted local space heater or cooker using liquid fuel;
6. 'electric local space heater' means a local space heater using the electric Joule effect to generate heat;
7. 'commercial local space heater' means either a luminous local space heater or tube local space heater;
8. 'open fronted local space heater' means a local space heater, using gaseous, liquid or solid fuels, of which the fuel bed and combustion gases are not sealed from the space in which the product is fitted and which is sealed to a chimney or fireplace opening or requires a flue duct for the evacuation of products of combustion;
9. 'closed fronted local space heater' means a local space heater, using gaseous, liquid or solid fuels, of which the fuel bed and combustion gases are sealed from the space in which the product is fitted and which is sealed to a chimney or fireplace or requires a flue duct for the evacuation of products of combustion;
10. 'cooker' means a local space heater, using solid fuels, that integrates in one enclosure the function of a local space heater, and a hob an oven or both to be used for preparation of food and which is sealed to a chimney or fireplace or requires a flue duct for the evacuation of products of combustion;

11. 'electric portable local space heater' means a local space heater, using electricity to generate heat and which is not an electric fixed local space heater, electric storage local space heater or electric underfloor local space heater;
12. 'electric fixed local space heater' means a local space heater, using electricity to generate heat, not intended to accumulate thermal energy and designed to be used while fastened or secured in a specific location or wall mounted and not incorporated in the building structure or building finishing;
13. 'electric storage local space heater' means a local space heater, using electricity to generate heat, designed to store heat in an accumulating isolated core and to discharge it for several hours after the accumulation phase;
14. 'electric underfloor local space heater' means a local space heater, using electricity to generate heat, designed to be used while incorporated in the building structure or building finishing;
15. 'luminous local space heater' means a local space heater, using gaseous or liquid fuel which is equipped with a burner; which is to be installed above head level, directed towards the place of use so that the heat emission of the burner, being predominantly infrared radiation, directly warms the subjects to be heated and which emits the products of combustion in the space where it is situated;
16. 'tube local space heater' means a local space heater, using gaseous or liquid fuel, which is equipped with a burner; which is to be installed above head level, near the subjects to be heated, which heats the space primarily by infrared radiation from the tube or tubes heated by the internal passage of products of combustion and of which the products of combustion are to be evacuated through a flue duct;
17. 'tube heater system' means a tube local space heater comprising more than one single burner, of which the products of one burner may feed into a next burner, and of which the product of combustion of multiple burners are to be evacuated by a single exhaust fan;
18. 'tube heater segment' means a part of a tube heater system that comprises all the element needed for standalone operation and as such can be tested independently of the other tube heating system parts;
19. 'flueless heater' means a local space heater emitting the products of combustion into the space where the product is situated, other than a luminous local space heater;
20. 'open to chimney heater' means a local space heater using gaseous, liquid or solid fuels intended to sit under a chimney or in a fireplace without sealing between the product and the opening of the chimney or fireplace, and allowing the products of combustion pass unrestricted from the fire-bed to the chimney or flue;
21. 'solid fuel' means a fuel which is solid at normal indoor room temperatures, including biomass and fossil fuel;
22. 'biomass' means the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste;
23. '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;

24. 'non-woody biomass' means biomass other than woody biomass, including straw, miscanthus, reeds, kernels and grains;
25. 'fossil solid fuel' means solid fuel other than biomass, including anthracite and dry steam coal, hard coke, low temperature coke, bituminous coal, lignite or peat;
26. 'preferred fuel' means the single fuel for which the local space heater design was optimised;
27. 'other suitable fuel' means a fuel, other than the preferred fuel, for which the local space heater is designed, but not optimised, and includes any fuel which can be used in the local space heater and is mentioned in the instruction manual for installers and end-users, on free access websites of manufacturers and suppliers, in technical or promotional material and in advertisements as a fuel that can be used in the local space heater;
28. 'direct heat output' means the heat output of the product by radiation and convection of heat, as emitted by or from the product itself to air expressed in kW, excluding the heat output of the product to a heat transfer fluid;
29. 'indirect heat output' means the heat output of the product to a heat transfer fluid by the same heat generation process that provides the direct heat output of the product, expressed in kW;
30. 'indirect heating functionality' means the product is capable of transferring part of the total heat output to a heat transfer fluid, for use as space heating or domestic hot water generation;
31. 'nominal heat output' ( $P_{nom}$ ) means the declared heat output of a local space heater comprising both direct heat output and indirect heat output (where applicable), when operating at the setting for the maximum heat output that can be maintained over an extended period, as declared by the manufacturer, expressed in kW;
32. 'minimum heat output' ( $P_{min}$ ) means the declared heat output of a local space heater comprising both direct heat output and indirect heat output (where applicable), when operating at the setting for the lowest heat output, as declared by the manufacturer, expressed in kW;
33. 'intended for outdoor use' means the product is suitable for safe operation outside enclosed spaces, including possible use in outdoor conditions.

For Annexes II to V, additional definitions are set out in Annex I.

### *Article 3*

#### *Ecodesign requirements and timetable*

1. The ecodesign requirements for local space heaters are set out in Annex II.
2. Local space heaters shall meet the requirements set out in Annex II from 1 January 2018.
3. Compliance with ecodesign requirements shall be measured and calculated in accordance with the methods set out in Annex III.

*Article 4*  
**Conformity assessment**

1. The conformity assessment procedure referred to in Article 8(2) of Directive 2009/125/EC shall be the internal design control set out in Annex IV to that Directive or the management system set out in Annex V to that Directive.
2. For the purposes of the conformity assessment pursuant to Article 8 of Directive 2009/125/EC, the technical documentation shall contain the information set out in point 3(b) of Annex II to this Regulation.

*Article 5*  
**Verification procedure for market surveillance purposes**

Member States shall apply the verification procedure set out in Annex IV to this Regulation when performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC to ensure compliance with the requirements set out in Annex II to this Regulation.

*Article 6*  
**Indicative benchmarks**

The indicative benchmarks for best-performing local space heaters available on the market at the time of entry into force of this Regulation are set out in Annex V.

*Article 7*  
**Review**

The Commission shall review this Regulation in the light of technological progress and present the result of that review to the Consultation Forum no later than 1 January 2019. In particular, the review shall assess:

- whether it is appropriate to set stricter ecodesign requirements for energy efficiency and for emissions of particulate matter (PM), organic gaseous compounds (OGC), carbon monoxide (CO) and nitrogen oxides (NO<sub>x</sub>);
- whether the verification tolerances should be modified.

*Article 8*  
**Transitional provisions**

Until 1 January 2018 Member States may allow the placing on the market and putting into service of local space heaters which at the time of entry into force of this Regulation are in conformity with the national provisions in force regarding seasonal space heating energy efficiency, emissions of particulate matter, organic gaseous compounds, carbon monoxide and nitrogen oxides.

*Article 9*  
**Entry into force**

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

*For the Commission*  
*The President*  
José Manuel BARROSO

**ANNEX I**  
**Definitions applicable for Annexes II to V**

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

1. 'seasonal space heating energy efficiency' ( $\eta_s$ ) means the ratio between the space heating demand, supplied by a local space heater and the annual energy consumption required to meet this demand, expressed in %;
2. 'conversion coefficient' (CC) means a coefficient reflecting the estimated 40 % average EU generation efficiency referred to in Directive 2012/27/EU on energy efficiency<sup>3</sup>; the value of the conversion coefficient is  $CC = 2,5$ ;
3. 'particulate matter emissions' means the emissions of particulate matter at nominal heat output, expressed in  $\text{mg}/\text{Nm}^3$  flue gas measured at 273 K and 1 013 mbar @ 13% O<sub>2</sub>;
4. 'carbon monoxide emissions' means the emissions of carbon monoxide at nominal heat output, expressed in  $\text{mg}/\text{Nm}^3$  flue gas measured at 273 K and 1 013 mbar @ 13% O<sub>2</sub>;
5. 'organic gaseous compounds emissions' means the emissions of organic gaseous compounds at nominal heat output expressed in  $\text{mg}/\text{Nm}^3$  flue gas measured at 273 K and 1 013 mbar @ 13% O<sub>2</sub>;
6. 'nitrogen oxides emissions' means the emissions of nitrogen oxides at nominal heat output, expressed in  $\text{mg}/\text{Nm}^3$  flue gas measured at 273 K and 1 013 mbar @ 13% O<sub>2</sub> for solid fuel local space heaters and expressed in  $\text{mg}/\text{kWh}_{\text{input}}$  based on GCV for gaseous or liquid fuel local space heaters and commercial local space heaters;
7. 'net calorific value' ( $\text{NCV}_{\text{ar}}$ ) means the total amount of heat released by a unit quantity of fuel containing the appropriate moisture level of the fuel as used in the local space heater, when it is burned completely with oxygen, and when water vapour originating from the moisture of the fuel or as product of combustion is not returned to ambient temperature;
8. 'gross calorific value moisture free' (GCV) means the total amount of heat released by a unit quantity of fuel dried of inherent moisture, when it is burned completely with oxygen, and when the products of combustion are returned to ambient temperature; this quantity includes the condensation heat of the water vapour formed by the combustion of any hydrogen contained in the fuel;
9. 'useful efficiency, at either nominal or minimum heat output', ( $\eta_{\text{th,nom}}$  and  $\eta_{\text{th,min}}$ ) means the ratio of the useful heat output and the total energy input of a local space heater, expressed in %, whereby:
  - (a) for domestic local space heaters the total energy input is expressed in terms of NCV and/or in terms of final energy multiplied by CC;
  - (b) for commercial local space heaters the total energy input is expressed in terms of GCV;
10. 'electric power requirement at nominal heat output' ( $e_{\text{max}}$ ) means the electric power consumption of the local space heater while providing the nominal heat output. The electric power consumption shall be established without consideration of the power

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<sup>3</sup> OJ L 315, 14.11.2012, p. 1.

consumption of a circulator in case the product offers indirect heating functionality and a circulator is incorporated, expressed in kW;

11. 'electric power requirement at minimum heat output' ( $e_{l_{min}}$ ) means the electric power consumption of the local space heater while providing the minimum 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;
12. 'electric power requirement in standby mode' ( $e_{l_{sb}}$ ) means the electric power consumption of the product while in standby mode, expressed in kW;
13. 'permanent pilot flame power requirement' ( $P_{pilot}$ ) means the fuel consumption of gaseous, liquid or 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 rated or part load heat output, when lit in case the main burner is off, expressed in kW;
14. 'manual heat charge control, with integrated thermostat' means a manually operated sensing device integrated into the unit, which measures and regulates the storage heaters core temperature to vary the accumulated amount of heat;
15. 'manual heat charge control with room and/or outdoor temperature feedback' means a manually operated sensing device which measures core temperature, and room temperature and/or outdoor temperature to vary the accumulated amount of heat;
16. 'electronic heat charge control with room and/or external temperature feedback or regulated by energy supplier' means an integrated control which measures core temperature and room temperature and/or outdoor temperature to automatically vary the accumulated amount of heat or a device whose charging regime can be regulated by the energy supplier;
17. 'fan assisted heat output' means the local space heater is equipped with an integrated and controllable fan (or fans) to vary the heat output to adjust to the heat demand;
18. '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;
19. 'two or more automatic stages, no room temperature control' means the products is capable of varying its heat output automatically 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;
20. 'with 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;
21. 'with 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;
22. 'with 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;

23. 'with 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;
24. 'room temperature control, with presence detection' means the product has a function that automatically reduces the set-point for the room temperature when no person is detected in the room;
25. 'room temperature control, with open window detection' means the product has a function that reduces the heat output if a sudden drop in room temperature has been sensed, suggesting a window or door has been opened. Whenever a sensor is used to detect the opening of a window, it can be installed with the product, externally to the product, built into the building structure or as a combination of those options;
26. 'with 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;
27. 'with adaptive start control' means the function which predicts and initiates the optimal start of heating up in order to reach the set-point temperature at the desired time;
28. 'single stage' means that the product is not capable of automatically varying its output capacity;
29. 'two stage' means the product is capable of automatically regulating its heat output in two distinct levels, in relation to the actual indoor air temperature and a desired indoor air temperature, controlled through temperature sensing devices and an interface which is not necessarily integral to the product itself;
30. 'modulating' means the product is capable of automatically regulating its heat output in three or more distinct levels, in relation to the actual indoor air temperature and a desired indoor air temperature, controlled through temperature sensing devices and an interface which is not necessarily integral to the product itself;
31. 'standby mode' means a condition where the product is connected to the mains power source, depends on energy input from the mains power source to work as intended and provides only the following functions, which may persist for an indefinite time: reactivation function, or reactivation function and only an indication of enabled reactivation function, and/or information or status display;
32. 'off mode' means a condition in which the equipment is connected to the mains power source and is not providing any function; the following shall also be considered as off mode:

(a) conditions providing only an indication of off-mode condition;

- (b) conditions providing only functionalities intended to ensure electromagnetic compatibility pursuant to Directive 2004/108/EC of the European Parliament and of the Council<sup>4</sup>;
33. ‘tube system heat output’ means the combined tube segment heat output of the configuration as it is placed on the market;
34. ‘tube segment heat output’ means the heat output of a tube heater segment which together with other tube heater segments forms part of a configuration of tube heaters, expressed in kW;
35. ‘radiant factor, at either nominal or minimum heat output’ ( $RF_{nom}$  and  $RF_{min}$ ) means the ratio of the infrared heat output of the product compared to the total energy input when providing the nominal or minimum heat output, calculated as infrared energy output divided by total energy input on the basis of the net calorific value (NCV) of the fuel when providing the nominal or minimum heat output;
36. ‘envelope insulation’ means the level of thermal insulation of the product envelope or jacket as applied to minimise heat losses if the product is allowed to be placed outdoors;
37. ‘envelope loss factor’ means the thermal losses by that part of the product that is installed outside the enclosed space to be heated and which is determined by the transmittance of the relevant envelope of that part, expressed in %;
38. ‘other fossil fuel’ means fossil fuel other than anthracite and dry steam coal, hard coke, low temperature coke, bituminous coal; lignite or peat;
39. ‘other woody biomass fuel’ 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%.

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<sup>4</sup> OJ L 390, 31.12.2004, p. 24.

**ANNEX II**  
**Ecodesign requirements**

1. Specific ecodesign requirements for seasonal space heating energy efficiency

- (c) Local space heaters shall comply with the following requirements from 1 January 2018:
- i) seasonal space heating energy efficiency of open fronted local space heaters using solid fuel shall not be less than 42%;
  - ii) seasonal space heating energy efficiency of closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets shall not be less than 70%;
  - iii) seasonal space heating energy efficiency of closed fronted local space heaters using compressed wood in the form of pellets shall not be less than 79%;
  - iv) seasonal space heating energy efficiency of cookers using solid fuel shall not be less than 70%;
  - v) seasonal space heating energy efficiency of open fronted local space heaters using gaseous or liquid fuel shall not be less than 42%;
  - vi) seasonal space heating energy efficiency of closed fronted local space heaters using gaseous or liquid fuel shall not be less than 72%;
  - vii) seasonal space heating energy efficiency of electric portable local space heaters shall not be less than 36%;
  - viii) seasonal space heating energy efficiency of electric fixed local space heaters shall not be less than 38%;
  - ix) seasonal space heating energy efficiency of electric storage local space heaters shall not be less than 38.5%;
  - x) seasonal space heating energy efficiency of electric underfloor local space heaters shall not be less than 38%;
  - xi) seasonal space heating energy efficiency of luminous local space heaters shall not be less than 88%;
  - xii) seasonal space heating energy efficiency of tube local space heaters shall not be less than 80%.

2. Specific ecodesign requirements for emissions

- (a) From 1 January 2018 emissions of particulate matter (PM) from solid fuel local space heaters shall not exceed the following values:
- i) emissions of PM by open fronted local space heaters, closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets and cookers shall not exceed  $40 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (1);
  - ii) emissions of PM by closed fronted local space heaters using compressed wood in form of pellets shall not exceed  $20 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (1);

- iii) emissions of PM by open fronted local space heaters, closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets and cookers shall not exceed  $73.6 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (2);
  - iv) emissions of PM by closed fronted local space heaters using compressed wood in form of pellets shall not exceed  $36.8 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (2).
- (b) From 1 January 2018 emissions of organic gaseous compounds (OGC) from solid fuel local space heaters shall not exceed the following values:
- i) emissions of OGC by open fronted local space heaters, closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets and cookers shall not exceed  $80 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ;
  - ii) emissions of OGC by closed fronted local space heaters using compressed wood in form of pellets shall not exceed  $40 \text{ mg/m}^3 @ 13\% \text{ O}_2$ .
- (c) From 1 January 2018 emissions of carbon monoxide (CO) from solid fuel local space heaters shall not exceed the following values:
- i) emissions of CO by open fronted local space heaters, closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets and cookers shall not exceed  $1\,500 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ;
  - ii) emissions of CO by closed fronted local space heaters using compressed wood in form of pellets shall not exceed  $250 \text{ mg/m}^3 @ 13\% \text{ O}_2$ .
- (d) From 1 January 2018 emissions of nitrogen oxides ( $\text{NO}_x$ ) from solid, liquid and gaseous fuel local space heaters shall not exceed the following values:
- i) emissions of  $\text{NO}_x$  by open fronted local space heaters, closed fronted local space heaters and cookers using solid fuel shall not exceed  $200 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ;
  - ii) emissions of  $\text{NO}_x$  by open fronted local space heaters or closed fronted local space heaters using gaseous or liquid fuels shall not exceed  $130 \text{ mg/kWh}_{\text{input}}$  based on GCV;
  - iii) emissions of  $\text{NO}_x$  by luminous local space heaters and tube local space heaters shall not exceed  $200 \text{ mg/kWh}_{\text{input}}$  based on GCV.

### 3. Requirements for product information

- (a) From 1 January 2018 the following product information on local space heaters shall be provided:
- i) the instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements:
    - (1) for solid fuel local space heaters, the technical parameters set out in Table 1, measured and calculated in accordance with Annex III;
    - (2) for gaseous or liquid fuel local space heaters, the technical parameters set out in Table 2, measured and calculated in accordance with Annex III;

- (3) for electric local space heaters, the technical parameters set out in Table 3, measured and calculated in accordance with Annex III;
  - (4) for commercial local space heaters, the technical parameters set out in Table 4, measured and calculated in accordance with Annex III;
  - (5) any specific precautions that must be taken when the local space heater is assembled, installed or maintained;
  - (6) information relevant to disassembly, recycling and/or disposal at end-of-life.
- ii) the technical documentation for the purposes of conformity assessment pursuant to Article 4 shall contain the following elements:
- (1) the elements specified in point (a);
  - (2) where the preferred fuel or any other suitable fuel is other woody biomass, non-woody biomass or other fossil fuel, a description of the fuel and the test standard applied for testing with the fuel, including the moisture content (as used in local space heaters) and the ash content, and for other fossil fuel also the volatile content to the fuel.
- (b) From 1 January 2016 the following product information on local space heaters shall be provided:
- i) For flueless local space heaters and open to chimney local space heaters only: the instruction manual for end-users, free access websites of manufacturers, the product packaging and a sticker affixed to the product shall incorporate the following sentence in such a way to ensure clear visibility and legibility: ‘This product is not suitable for primary heating purposes’.
    - (1) for the instruction manual for end-users this sentence shall be on the cover page of the manual in a font size equal to or greater than 3 times the average font size of the other text in the manual;
    - (2) for free-access websites of manufacturers this sentence shall be clearly visible and legible together with the other characteristics of the product;
    - (3) for the product packaging the sentence shall be in characters using a font size equal to or greater than 1.2 cm and shall be placed in a prominent position in the packaging when displayed to the end-user prior to purchase;
    - (4) for the sticker the sentence shall be in characters in a font size equal to or greater than 0.6 cm, the background color of the sticker shall be 0% cyan, 0% magenta, 100% yellow, 0% black according to the CMYK code. The sticker shall be placed in a prominent position in the product when displayed to the end-user prior to purchase.
  - ii) For electric local space heaters only: the instruction manual for end-users, free access websites of manufacturers, the product packaging and a sticker affixed to the product shall incorporate the following sentence in such a way to ensure clear visibility and legibility: ‘This product is not

suitable for use as your main source of heating due to its high energy consumption and costs (equivalent to energy labelling class G)!':

- (1) for the instruction manual for end-users this sentence shall be on the cover page of the manual in a font size equal to or greater than 3 times the average font size of the other text in the manual;
- (2) for free-access websites of manufacturers this sentence shall be clearly visible and legible together with the other characteristics of the product;
- (3) for the product packaging the sentence shall be in characters using a font size equal to or greater than 1.2 cm and shall be placed in a prominent position in the packaging when displayed to the end-user prior to purchase;
- (4) for the sticker the sentence shall be in characters in a font size equal to or greater than 0.6 cm, the background color of the sticker shall be 0% cyan, 0% magenta, 100% yellow, 0% black according to the CMYK code. The sticker shall be placed in a prominent position in the product when displayed to the end-user prior to purchase.

**Table 1:** Information requirements for solid fuel local space heaters

Model(s): [information identifying the model(s) to which the information relates]							
Indirect heating functionality:[yes/no]							
Direct heat output: ...(kW)							
Indirect heat output: ...(kW)							
Fuel	Preferred fuel (only one):	Other suitable fuel(s):	$\eta_s$ [%]:	Space heating emissions*			
				PM	OGC	CO	NO <sub>x</sub>
				mg/Nm <sup>3</sup> (13% O <sub>2</sub> )			
Wood logs with moisture content ≤ 25%	[yes/no]	[yes/no]					
Briquetted fuel with moisture content of <14%	[yes/no]	[yes/no]					
Compressed wood with moisture content <12%	[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]					
Other fossil fuel	[yes/no]	[yes/no]					
<b>Characteristics when operating with the preferred fuel only</b>							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
<b>Heat output</b>				<b>Useful efficiency (NCV as received)</b>			
Nominal heat output	$P_{nom}$	x,x	kW	Useful efficiency at nominal heat output	$\eta_{th,nom}$	x,x	%
Minimum heat output (if applicable)	$P_{min}$	[x,x / N.A.]	kW	Useful efficiency at minimum heat output (if applicable)	$\eta_{th,min}$	[x,x / N.A.]	%
<b>Auxiliary electricity consumption</b>				<b>Type of heat output / room temperature control (select one)</b>			
At nominal heat output load	$el_{max}$	x,xxx	kW	single stage heat output, no room temperature control		[yes/no]	
At minimum heat output	$el_{min}$	x,xxx	kW	two or more automatic stages, no room temperature control		[yes/no]	
In standby mode	$el_{SB}$	x,xxx	kW	with mechanic thermostat room temperature control		[yes/no]	
				with electronic room temperature control		[yes/no]	
				with electronic room temperature control plus day timer		[yes/no]	
				with electronic room temperature control plus week timer		[yes/no]	
<b>Permanent pilot flame power requirement</b>							
Pilot flame power requirement (if applicable)	$P_{pilot}$	[x,xxx / N.A.]	kW				
Contact details	Name and address of the manufacturer or its authorised representative.						
* PM= particulate matter, OGC= organic gaseous compounds, CO= carbon monoxide, NO <sub>x</sub> = nitrogen oxides							

**Table 2:** Information requirements for gaseous/liquid fuel local space heaters

Model(s): [information identifying the model(s) to which the information relates]							
Indirect heating functionality:[yes/no]							
Direct heat output: ...(kW)							
Indirect heat output: ...(kW)							
<b>Fuel</b>				Space heating emissions *			
				NO <sub>x</sub>			
Select fuel type				[gaseous / liquid]	[specify]	[mg/kWh <sub>input</sub> ] (GCV)	
<b>Item</b>	<b>Symbol</b>	<b>Value</b>	<b>Unit</b>	<b>Item</b>	<b>Symbol</b>	<b>Value</b>	<b>Unit</b>
<b>Heat output</b>				<b>Useful efficiency (NCV)</b>			
Nominal heat output	$P_{nom}$	x,x	kW	Useful efficiency at nominal heat output	$\eta_{th,nom}$	x,x	%
Minimum heat output (if applicable)	$P_{min}$	[x,x / N.A.]	kW	Useful efficiency at minimum heat output (if applicable)	$\eta_{th,min}$	[x,x / N.A.]	%
<b>Auxiliary electricity consumption</b>				<b>Type of heat output / room temperature control (select one)</b>			
At nominal heat output load	$el_{max}$	x,xxx	kW	single stage heat output or batch fed, no room temperature control		[yes/no]	
At minimum heat output	$el_{min}$	x,xxx	kW	two or more automatic stages, no room temperature control		[yes/no]	
In standby mode	$el_{SB}$	x,xxx	kW	with mechanic thermostat room temperature control		[yes/no]	
				with electronic room temperature control		[yes/no]	
				with electronic room temperature control plus day timer		[yes/no]	
				with electronic room temperature control plus week timer		[yes/no]	
<b>Permanent pilot flame power requirement</b>							
Pilot flame power requirement (if applicable)	$P_{pilot}$	[x,xxx / N.A.]	kW				
Contact details	Name and address of the manufacturer or its authorised representative.						

\* NO<sub>x</sub>= nitrogen oxides

**Table 3:** Information requirements for electric local space heaters

Model(s): [information identifying the model(s) to which the information relates]			
Item	Symbol	Value	Unit
<b>Heat output</b>			
Nominal heat output	$P_{nom}$	x,x	kW
Minimum heat output (if applicable)	$P_{min}$	[x,x / N.A.]	kW
<b>Auxiliary electricity consumption</b>			
At nominal heat output load	$el_{max}$	x,xxx	kW
At minimum heat output	$el_{min}$	x,xxx	kW
In standby mode	$el_{SB}$	x,xxx	kW
<b>Type of heat input, for electric storage heaters only (select one)</b>			
manual heat charge control, with integrated thermostat			[yes/no]
manual heat charge control with room and/or outdoor temperature feedback			[yes/no]
electronic heat charge control with room and/or external temperature feedback			[yes/no]
fan assisted heat output			[yes/no]
<b>Type of heat output / room temperature control (select one)</b>			
single stage heat output or batch fed and no room temperature control			[yes/no]
two or more automatic stages, no room temperature control			[yes/no]
with mechanic thermostat room temperature control			[yes/no]
with electronic room temperature. control			[yes/no]
<b>Other control options (multiple selections possible)</b>			
electronic room temperature control plus day timer			[yes/no]
electronic room temperature control plus week timer			[yes/no]
if room temperature control, with presence detection			[yes/no]
if room temperature control, with open window detection			[yes/no]
with distance control option			[yes/no]
with adaptive start control			[yes/no]
Contact details	Name and address of the manufacturer or its authorised representative.		
* NO <sub>x</sub> = nitrogen oxides			

**Table 4:** Information requirements for commercial local space heaters

Model(s): [information identifying the model(s) to which the information relates]							
Type of heating:[luminous / radiant tube]							
<b>Fuel</b>				Space heating emissions *			
Select fuel type				[gaseous / liquid]	[specify]	NO <sub>x</sub>	
						mg/kWh <sub>input</sub> (GCV)	
<b>Characteristics when operating with the preferred fuel only</b>							
<b>Item</b>	<b>Symbol</b>	<b>Value</b>	<b>Unit</b>	<b>Item</b>	<b>Symbol</b>	<b>Value</b>	<b>Unit</b>
<b>Heat output</b>				<b>Useful efficiency (NCV) – tube local space heaters only **</b>			
Nominal heat output of products	$P_{nom}$	x,x	kW	Useful efficiency at nominal heat output	$\eta_{th,nom}$	x,x	%
Minimum heat output (if applicable)	$P_{min}$	[x,x / N.A.]	kW	Useful efficiency at minimum heat output (if applicable)	$\eta_{th,min}$	[x,x / N.A.]	%
Minimum heat output (as percentage of nominal heat output)	..	[x]	%				
Nominal tube system heat output (if applicable)	$P_{system}$	x,x	kW				
Nominal tube segment heat output (if applicable)	$P_{heater,i}$	[x,x / N.A.]	kW	Useful efficiency of tube segment at minimum heat output (if applicable)	$\eta_i$	[x,x / N.A.]	%
(repeat for multiple segments, if applicable)	..	[x,x / N.A.]	kW	(repeat for multiple segments, if applicable)	..	[x,x / N.A.]	%
number of identical tube segments	$n$	[x]	[-]				
<b>Radiant factor</b>				<b>Envelope losses</b>			
radiant factor at nominal heat output	$RF_{nom}$	[x,x]	[-]	Envelope insulation class	$U$		W/(m <sup>2</sup> K)
radiant factor at minimum heat output	$RF_{min}$	[x,x]	[-]	Envelope loss factor	$F_{env}$	[x,x]	%
radiant factor of tube segment at nominal heat output	$RF_i$	[x,x]	[-]				
(repeat for multiple segments, if applicable)	..						
<b>Auxiliary electricity consumption</b>				<b>Heat output control type (select one)</b>			
At nominal heat output load	$el_{max}$	x,xxx	kW	- single stage		[yes/no]	
At minimum heat output	$el_{min}$	x,xxx	kW	- two stage		[yes/no]	
In standby mode	$el_{SB}$	x,xxx	kW	- modulating		[yes/no]	
<b>Permanent pilot flame power requirement</b>							
Pilot flame power requirement (if applicable)	$P_{pilot}$	[x,xxx / N.A.]	kW				
Contact details	Name and address of the manufacturer or its authorised representative.						
* NO <sub>x</sub> = nitrogen oxides							
** for luminous local space heaters the useful efficiency is by default 85.6%							

**ANNEX III**  
**Measurements and calculations**

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 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. They shall meet the conditions and technical parameters set out in points 2 to 5.
2. General conditions for measurements and calculations
  - (a) Solid fuel local space heaters shall be tested for the preferred fuel and any other suitable fuels.
  - (b) Declared values for rated heat output, seasonal space heating energy efficiency and emissions shall be rounded down to one decimal.
3. General conditions for seasonal space heating energy efficiency
  - (a) The seasonal space heating energy efficiency ( $\eta_S$ ) shall be calculated as the seasonal space heating energy efficiency in active mode ( $\eta_{S,on}$ ), corrected by contributions accounting for heat storage and heat output control, auxiliary electricity consumption and permanent pilot flame energy consumption.
  - (b) The consumption of electricity shall be multiplied by a conversion coefficient ( $CC$ ) of 2,5.
4. General conditions for emissions
  - (a) For solid fuel local space heaters, the measurement shall take account of emissions of particulate matter (PM), organic gaseous compounds (OGC), carbon monoxide (CO) and nitrogen oxides ( $NO_x$ ). For gaseous and liquid fuel local space heaters the measurement shall take account of emissions of nitrogen oxides ( $NO_x$ ). Emissions of nitrogen oxides shall be measured as the sum of nitrogen monoxide and nitrogen dioxide, and expressed in nitrogen dioxide.
    - i) Two methods are allowed for measuring PM emissions, each with its own requirements:
      - (1) PM measurement by sampling a partial flue gas sample over a heated filter;
      - (2) PM measurement by sampling a partial flue gas sample from a diluted flue gas using a full flow dilution tunnel and a filter at ambient temperature.
    - ii) OGC measurement as measured in the combustion products of the appliance shall be extractive and continuous and be based on use of a flame ionisation detector. The result obtained is expressed as equivalents of a reference substance, being propane. OGC measurement shall as measured in the combustion products of the appliance shall be carried out while the product is providing its nominal output.
    - iii) CO measurement as measured in the combustion products of the appliance shall be extractive and continuous and be based on use of an infrared detector. CO measurement as measured in the combustion

products of the appliance shall be carried out while the product is providing its nominal output.

- iv) NO<sub>x</sub> 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. NO<sub>x</sub> measurement as measured in the combustion products of the appliance shall be carried out while the product is providing its nominal output.
- (b) Declared values for rated heat output, seasonal space heating energy efficiency and emissions shall be rounded to the nearest integer.

#### 5. Specific conditions for seasonal space heating energy efficiency

- (a) The seasonal space heating energy efficiency of all local space heaters except commercial local space heaters is defined as:

$$\eta_S = \eta_{S,on} - 10\% + F(1) + F(2) + F(3) - F(4) - F(5)$$

The seasonal space heating energy efficiency of commercial local space heaters is defined as:

$$\eta_S = \eta_{S,on} - F(1) - F(4) - F(5)$$

Where:

- $\eta_{S,on}$  is the seasonal space heating energy efficiency in active mode, expressed as a figure between 0 and 100 equivalent to its figure expressed in percentage, calculated as set out in point 5(b);
- $F(1)$  is a correction factor accounting for a positive contribution to the seasonal space heating energy efficiency of electric storage local space heaters due to adjusted contributions for options for heat storage and output; and a negative contribution to seasonal space heating efficiency for commercial local space heaters due to adjusted contributions for options for the heat output, expressed as a figure between 0 and 100 equivalent to its figure expressed in percentage;
- $F(2)$  is a correction factor accounting for a positive contribution to the seasonal space heating energy efficiency due to adjusted contributions controls for indoor heating comfort, the values of which are mutually exclusive, cannot be added to each other, expressed as a figure between 0 and 100 equivalent to its figure expressed in percentage;
- $F(3)$  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, expressed as a figure between 0 and 100 equivalent to its figure expressed in percentage;
- $F(4)$  is the correction factor accounting for a negative contribution to the seasonal space heating energy efficiency by auxiliary electricity consumption, expressed as a figure between 0 and 100 equivalent to its figure expressed in percentage;

- $F(5)$  is the correction factor accounting for a negative contribution to the seasonal space heating energy efficiency by energy consumption of a permanent pilot flame, expressed as a figure between 0 and 100 equivalent to its figure expressed in percentage.

(b) The seasonal space heating energy efficiency in active mode is calculated as:

For all local space heaters except electric local space heaters or commercial local space heaters:

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

Where:

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

For electric local space heaters, the useful efficiency is calculated as:

$$\eta_{S,on} = \frac{1}{CC} \cdot \eta_{th,on}$$

Where:

- $CC$  is the electric to primary energy ‘conversion coefficient’.
- $\eta_{th,on}$  for electric heaters is 100%.

For commercial local space heaters the space heating energy efficiency in active mode is calculated as follows:

$$\eta_{S,on} = \eta_{S,th} \cdot \eta_{S,RF}$$

Where:

- $\eta_{S,th}$  is the weighted thermal efficiency, expressed in %;
- $\eta_{S,RF}$  is the emission efficiency, expressed in %.

For luminous local space heaters,  $\eta_{S,th}$  is 85.6%;

For tube local space heaters:

$$\eta_{S,th} = (0.15 \cdot \eta_{th,nom} + 0.85 \cdot \eta_{th,min}) - F_{env}$$

Where:

- $\eta_{th,nom}$  is the useful efficiency at nominal heat output, expressed in %, based on GCV;
- $\eta_{th,min}$  is the useful efficiency at minimum heat output, expressed in %, based on GCV.
- $F_{env}$  are the envelope losses of the heat generator, expressed in %;

If the heat generator of the tube local space heater is specified by the manufacturer or by the supplier to be installed in the indoor space to be heated, the envelope losses are 0 (zero).

If the heat generator of the tube local space heater is specified by the manufacturer or by the supplier to be installed outside the heated area, the envelope loss factor depends on the thermal transmittance of the envelope of the heat generator according to Table 5.

**Table 5:** Envelope loss factor of the heat generator

Thermal transmittance of envelope (U)	$F_{env}$
$U \leq 0.5$	2.2%
$0.5 < U \leq 1.0$	2.4%
$1.0 < U \leq 1.4$	3.2%
$1.4 < U \leq 2.0$	3.6%
$U > 2.0$	6.0%

The emission efficiency of commercial local space heaters is calculated as follows:

$$\eta_{S,RF} = \frac{(0.94 \cdot RF_S) + 0.19}{(0.46 \cdot RF_S) + 0.45}$$

Where:

- $RF_S$  is the radiant factor of the radiant heater, expressed in %.

For all commercial local space heaters except tube heater system:

$$RF_S = 0.15 \cdot RF_{nom} + 0.85 \cdot RF_{min}$$

Where:

- $RF_{nom}$ , is the radiant factor at nominal heat output, expressed in %;
- $RF_{min}$ , is the radiant factor at minimum heat output, expressed in %.

For tube heater systems:

$$RF_S = \sum_{i=1}^n RF_i \cdot \frac{P_{heater,i}}{P_{system}}$$

Where:

- $RF_i$ , is the radiant factor of the tube segment at nominal heat output, expressed in %
- $P_{heater,i}$ , is the heat output per tube heater segment, expressed in kW, based on GCV;
- $P_{system}$ , is the heat output of the complete tube local space heater system, expressed in kW, based on GCV.

The above equation only applies if the construction of the burner, tubes and reflectors of the tube heater segment as applied in the tube heater system is identical to a single tube local space heater and the settings that determine the performance of a the tube heater segment are identical to those of a single tube local space heater.

- (c) The correction factor  $F(1)$  accounting for a positive contribution to the seasonal space heating efficiency due to adjusted contributions of controls for heat input and output controls and if the heat is distributed through natural or fan assisted convection for electric storage heaters and a negative contribution for commercial local space heaters related to the capacity of the product of regulating its heat output.

For electric storage local space heaters the heat output correction factor  $F(1)$  is calculated as follows:

In case the product is equipped with one of the (mutually exclusive) options shown in table 6, the correction factor  $F(1)$  shall be increased with the corresponding value of that option.

**Table 6:** Correction factor  $F(1)$  for electric storage local space heaters

If the product is equipped with (only one option may apply):	F(1) is increased by
manual heat charge control, with integrated thermostat	0.0%
manual heat charge control with room and/or outdoor temperature feedback	2.0%
electronic heat charge control with room and/or outdoor temperature feedback	3.5%

In case the heat output of the electric storage heater is assisted by a fan, an additional 1.5% shall be added to  $F(1)$ .

For commercial local space heaters the heat output correction factor is calculated as follows:

**Table 7:** Correction factor  $F(1)$  for commercial heaters

If the heat output control type of the products is:	F(1) is calculated as:
single stage	$F(1) = 5\%$
two stage	$F(1) = 5\% - (2.5\% \cdot \frac{P_{nom} - P_{min}}{30\% \cdot P_{nom}})$ , with $F(1)$ is minimum 2.5% or higher
modulating	$F(1) = 5\% - (5.0\% \cdot \frac{P_{nom} - P_{min}}{40\% \cdot P_{nom}})$ , with $F(1)$ is minimum 0% or higher

The maximum value of the correction factor for two stage commercial heaters is 2.5%, and for modulating commercial heaters is 5%.

For local space heaters not being electric storage heaters or commercial local space heaters the correction factor  $F(1)$  shall be 0 (zero).

- (d) The correction factor  $F(2)$  accounting for a positive contribution to the seasonal space heating efficiency due to adjusted contributions of controls for indoor heating comfort, the values of which are mutually exclusive or cannot be added to each other, is calculated as follows:

For all local space heaters under the scope of this Regulation the correction factor  $F(2)$  is equal to one of the factors according to Table 8, depending on which control characteristic applies. Only one value can be selected.

**Table 8:** Correction factor  $F(2)$

If the product is equipped with (only one option may apply):	F(2)				for local space heaters using solid, gaseous or
	for electric local space heaters				
	Portable	Fixed	Storage	Underfloor	

					liquid fuels
single stage heat output, no room temperature control	0.0%	0.0%	0.0%	0.0%	0.0%
two or more automatic stages, no temperature control	1.0%	0.0%	0.0%	0.0%	2.0%
with mechanic thermostat room temperature control	6.0%	1.0%	0.5%	1.0%	2.0%
with electronic room temperature control	7.0%	3.0%	1.5%	3.0%	4.0%
with electronic room temperature control plus day timer	8.0%	5.0%	2.5%	5.0%	6.0%
with electronic room temperature control plus week timer	9.0%	7.0%	3.5%	7.0%	8.0%

The  $F(2)$  correction factor does not apply to commercial local space heaters.

- (e) The correction factor  $F(3)$  accounting for a positive contribution to the seasonal space heating efficiency due to adjusted contributions of controls for indoor heating comfort, the values of which cannot be added to each other, is calculated as follows:

For all local space heaters under the scope of this Regulation the correction factor  $F(3)$  is the summation of the values according to Table 9, depending on which control characteristic(s) applies. The values can therefore be summed.

**Table 9:** Correction factor  $F(3)$

If the product is equipped with (multiple options may apply):	F(3)				
	for electric local space heaters				for local space heaters using solid, gaseous or liquid fuels
	Portable	Fixed	Storage	Underfloor	
room temperature control with presence detection	1.0%	0.0%	0.0%	0.0%	1.0%
room temperature control with open window detection	0.0%	1.0%	0.5%	1.0%	1.0%
with distance control option	0.0%	1.0%	0.5%	1.0%	0.0%
with adaptive start control	0.0%	1.0%	0.5%	1.0%	0.0%

- (f) The auxiliary electricity use correction factor  $F(4)$  is calculated as:

This correction factor takes into account the auxiliary electricity use during on-mode and standby-mode operation.

For electric local space heaters the correction is calculated as follows:

The auxiliary electricity use correction factor  $F(4)$  is calculated as:

$$F(4) = \frac{\alpha \cdot el_{sb}}{P_{nom}} \cdot 100[\%]$$

Where:

- $el_{sb}$  is the standby electric power consumption, expressed in kW;
- $P_{nom}$  is the nominal heat output of the product, expressed in kW;

- $\alpha$  is a factor taking into account whether the product complies with Regulation 1275/2009 on implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment<sup>5</sup>;
- If the product complies with the limit values set in Regulation 1275/2008,  $\alpha$  is by default 0;
- If the product does not comply with the limit values set in Regulation 1275/2008,  $\alpha$  is by default 3.3.

For local space heaters using solid, gaseous or liquid fuels the correction is calculated as follows:

$$F(4) = CC \cdot \frac{0.2 \cdot el_{max} + 0.8 \cdot el_{min} + 1.3 \cdot el_{sb}}{P_{nom}} \cdot 100[\%]$$

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;
- $el_{sb}$  is the electric power consumption of the product while in standby mode, expressed in kW;
- $P_{nom}$  is the nominal heat output of the product, expressed in kW.

For commercial local space heaters the heat output correction factor is calculated as follows:

$$F(4) = CC \cdot \frac{0.15 \cdot el_{max} + 0.85 \cdot el_{min} + 1.3 \cdot el_{sb}}{P_{nom}} \cdot 100[\%]$$

- (g) The correction factor  $F(5)$  related to the energy consumption of a permanent pilot flame is calculated as follows:

This correction factor takes into account the permanent pilot flame power requirement.

For local space heaters using solid, gaseous or liquid fuels it is calculated as:

$$F(5) = 0.5 \cdot \frac{P_{pilot}}{P_{nom}} \cdot 100[\%]$$

Where:

- $P_{pilot}$  is the pilot flame consumption, expressed in kW;
- $P_{nom}$  is the nominal heat output of the product, expressed in kW.

For commercial local space heaters the correction factor is calculated as:

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<sup>5</sup> OJ L 339, 18.12.2008, p. 45.

$$F(5) = 4 \cdot \frac{P_{pilot}}{P_{nom}} \cdot 100[\%] F(4) = 4 \cdot \frac{P_{pilot}}{P_{nom}} \cdot 100[\%]$$

In case the product has no permanent pilot light (flame)  $P_{pilot}$  is 0 (zero).

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**  
**Verification procedure for market surveillance purposes**

When performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC, the authorities of the Member States shall apply the following verification procedure for the requirements set out in Annex II:

The Member State authorities shall test one single unit per model.

1. The heater model shall be considered to comply with the applicable requirements set out in Annex II to this Regulation if:
  - (a) the declared values comply with the requirements set out in Annex II;
  - (b) for local space heaters using solid fuels, the seasonal space heating energy efficiency  $\eta_s$  is not more than 8% lower than the declared value;
  - (c) for domestic local space heaters using liquid fuels, the seasonal space heating energy efficiency  $\eta_s$  is not more than 8% lower than the declared value;
  - (d) for domestic local space heaters using gaseous fuels, the seasonal space heating energy efficiency  $\eta_s$  is not more than 8% lower than the declared value;
  - (e) for local space heaters using electricity, the seasonal space heating energy efficiency  $\eta_s$  has to be identical to the declared value at the rated heat output of the unit;
  - (f) for local space heaters using solid fuels, the emissions of:
    - (1) particulate matter (PM) shall not exceed the declared value by more than  $7.5 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (1) and  $10 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (2);
    - (2) organic gaseous compounds (OGC) shall not exceed the declared value by more than  $6 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ;
    - (3) carbon monoxide (CO) shall not exceed the declared value by more than  $30 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ; and
    - (4) nitrogen oxides ( $\text{NO}_x$ ) shall not exceed the declared value by more than  $30 \text{ mg/m}^3 @ 13\% \text{ O}_2$ .
  - (g) for domestic local space heaters using liquid or gaseous fuels, the emissions of  $\text{NO}_x$  are not more than 10% higher than the declared value;
  - (h) for luminous local space heaters or tube local space heaters the seasonal space heating efficiency is not more than 10% higher than the declared value;
  - (i) for luminous local space heaters or tube local space heaters the emissions of  $\text{NO}_x$  are not more than 10% higher than the declared value.
2. If the result referred to in point 2 is not achieved, the Member State authorities shall randomly select three additional units of the same model for testing.
3. The heater model shall be considered to comply with the applicable requirements set out in Annex II to this Regulation if:
  - (a) the declared values comply with the requirements set out in Annex II;
  - (b) for local space heaters using solid fuels, the seasonal space heating energy efficiency  $\eta_s$  is not more than 8% lower than the declared value;

- (c) for domestic local space heaters using liquid fuels, the seasonal space heating energy efficiency  $\eta_s$  is not more than 8% lower than the declared value;
- (d) for domestic local space heaters using gaseous fuels, the seasonal space heating energy efficiency  $\eta_s$  is not more than 8% lower than the declared value;
- (e) for local space heaters using electricity, the seasonal space heating energy efficiency  $\eta_s$  has to be identical to the declared value at the rated heat output of the unit;
- (f) for local space heaters using solid fuels, the emissions of:
  - (1) particulate matter (PM) shall not exceed the declared value by more than  $7.5 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (1) and  $10 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (2),
  - (2) organic gaseous compounds (OGC) shall not exceed the declared value by more than  $6 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ;
  - (3) carbon monoxide (CO) shall not exceed the declared value by more than  $30 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ; and
  - (4) nitrogen oxides ( $\text{NO}_x$ ) shall not exceed the declared value by more than  $30 \text{ mg/m}^3 @ 13\% \text{ O}_2$ .
- (g) for domestic local space heaters using liquid or gaseous fuels, the emissions of  $\text{NO}_x$  are not more than 10% higher than the declared value;
- (h) for luminous local space heaters or tube local space heaters the seasonal space heating efficiency is not more than 10% higher than the declared value;
- (i) for luminous local space heaters or tube local space heaters the emissions of  $\text{NO}_x$  are not more than 10% higher than the declared value.

4. If the results referred to in point 4 are not achieved, the model shall be considered not to comply with this Regulation.

The Member State authorities shall provide the test results and other relevant information to the authorities of the other Member States and to the Commission within one month of the decision being taken on the non-compliance of the model.

5. Member State authorities shall use the measurement and calculation methods set out in Annex III.

The verification tolerances defined in this Annex relate only to the verification of the measured parameters by Member State authorities and shall not be used by the supplier as an allowed tolerance to establish the values in the technical documentation.

## ANNEX V

### Indicative benchmarks referred to in Article 6

At the time of entry into force of this proposed Regulation, the best available technology on the market for local space heaters in terms of seasonal space heating energy efficiency and emissions of particulate matter, carbon monoxide and organic gaseous compounds and nitrogen oxides was identified as follows:

1. Specific benchmarks for seasonal space heating energy efficiency of local space heaters
  - (a) benchmark for seasonal space heating energy efficiency of open fronted local space heaters: 47%;
  - (b) benchmark for seasonal space heating energy efficiency of closed fronted local space heaters: 80% for closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets;
  - (c) benchmark for for seasonal space heating energy efficiency of closed fronted local space heaters using compressed wood in the form of pellets: 94%;
  - (d) benchmark for seasonal space heating energy efficiency of cookers using solid fuel: 75%;
  - (e) benchmark for seasonal space heating energy efficiency of open fronted local space heaters using gaseous or liquid fuel: 65%;
  - (f) benchmark for seasonal space heating energy efficiency of closed fronted local space heaters using gaseous or liquid fuel: 88%;
  - (g) benchmark for seasonal space heating energy efficiency of electric local space heaters: more than 39%;
  - (h) benchmark for seasonal space heating energy efficiency of luminous local space heaters: 92%;
  - (i) benchmark for seasonal space heating energy efficiency of tube local space heaters: 88%;
2. Specific benchmarks for emissions of particulate matter (PM) by local space heaters
  - (a) benchmark for emissions of PM by open fronted local space heaters, closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets and cookers:  $40 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (1);
  - (b) benchmark for emissions of PM by closed fronted local space heaters using compressed wood in the form of pellets:  $20 \text{ mg/m}^3 @ 13\% \text{ O}_2$  when measured according to the method described in Annex III 4 a) i) (1).
3. Specific benchmarks for emissions of organic gaseous compounds (OGC) by local space heaters
  - (a) benchmark for emissions of OGC by open fronted local space heaters, closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets and cookers:  $80 \text{ mg/m}^3 @ 13\% \text{ O}_2$ ;
  - (b) benchmark for emissions of OGC by closed fronted local space heaters using compressed wood in the form of pellets:  $40 \text{ mg/m}^3 @ 13\% \text{ O}_2$ .
4. Specific benchmarks for emissions of carbon monoxide (CO) by local space heaters

- (a) benchmark for emissions of CO by open fronted local space heaters: 3500 mg/m<sup>3</sup> @ 13% O<sub>2</sub>;
  - (b) benchmark for emissions of CO by closed fronted local space heaters using solid fuel other than compressed wood in the form of pellets: 1250 mg/m<sup>3</sup> @ 13% O<sub>2</sub>;
  - (c) benchmark for emissions of CO by cookers: 1500 mg/m<sup>3</sup> @ 13% O<sub>2</sub>;
  - (d) benchmark for emissions of CO by closed fronted local space heaters using compressed wood in form of pellets: 250 mg/m<sup>3</sup> @ 13% O<sub>2</sub>.
5. Specific benchmarks for emissions of nitrogen oxides (NO<sub>x</sub>) by local space heaters
- (a) benchmark for emissions of NO<sub>x</sub> by open fronted local space heaters, closed fronted local space heaters and cookers: 200 mg/m<sup>3</sup> @ 13% O<sub>2</sub>;
  - (b) benchmark for emissions of NO<sub>x</sub> by local space heaters using gaseous or liquid fuel: 130 mg/kWhinput based on GCV;
  - (c) benchmark for emissions of NO<sub>x</sub> by luminous local space heaters and tube local space heaters: 200 mg/kWhinput based on GCV.