ANNEX II U.K.

Ecodesign requirements

1. REQUIREMENTS FOR SEASONAL SPACE HEATING ENERGY EFFICIENCY U.K.

(a) From 26 September 2015 the seasonal space heating energy efficiency and useful efficiencies of heaters shall not fall below the following values:

Fuel boiler space heaters with rated heat output ≤ 70 kW and fuel boiler combination heaters with rated heat output ≤ 70 kW, with the exception of type B1 boilers with rated heat output ≤ 10 kW and type B1 combination boilers with rated heat output ≤ 30 kW:

The seasonal space heating energy efficiency shall not fall below 86 %.

Type B1 boilers with rated heat output ≤ 10 kW and type B1 combination boilers with rated heat output ≤ 30 kW:

The seasonal space heating energy efficiency shall not fall below 75 %.

Fuel boiler space heaters with rated heat output > 70 kW and ≤ 400 kW and fuel boiler combination heaters with rated heat output > 70 kW and ≤ 400 kW:

The useful efficiency at 100 % of the rated heat output shall not fall below 86 %, and the useful efficiency at 30 % of the rated heat output shall not fall below 94 %.

Electric boiler space heaters and electric boiler combination heaters:

The seasonal space heating energy efficiency shall not fall below 30 %.

Cogeneration space heaters:

The seasonal space heating energy efficiency shall not fall below 86 %.

Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps:

The seasonal space heating energy efficiency shall not fall below 100 %.

Low-temperature heat pumps:

The seasonal space heating energy efficiency shall not fall below 115 %.

(b) From 26 September 2017 the seasonal space heating energy efficiency of electric boiler space heaters, electric boiler combination heaters, cogeneration space heaters, heat pump space heaters and heat pump combination heaters shall not fall below the following values:

Electric boiler space heaters and electric boiler combination heaters:

The seasonal space heating energy efficiency shall not fall below 36 %.

Cogeneration space heaters:

The seasonal space heating energy efficiency shall not fall below 100 %.

Heat pump space heaters and heat pump combination heaters, with the exception of low-temperature heat pumps:

The seasonal space heating energy efficiency shall not fall below 110 %.

Low-temperature heat pumps:

The seasonal space heating energy efficiency shall not fall below 125 %.

2. REQUIREMENTS FOR WATER HEATING ENERGY EFFICIENCY U.K.

(a) From 26 September 2015 the water heating energy efficiency of combination heaters shall not fall below the following values: U.K.

Declared load profile	XXS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	22 %	23 %	26 %	26 %	30 %	30 %	30 %	32 %	32 %	32 %

(b) From 26 September 2017 the water heating energy efficiency of combination heaters shall not fall below the following values: U.K.

Declared load profile	XXS	XXS	XS	S	M	L	XL	XXL	3XL	4XL
Water heating energy efficiency	32 %	32 %	32 %	32 %	36 %	37 %	38 %	60 %	64 %	64 %

3. REQUIREMENTS FOR SOUND POWER LEVEL U.K.

From 26 September 2015 the sound power level of heat pump space heaters and heat pump combination heaters shall not exceed the following values:

Rated heat output ≤ 6 kW		**Rated heat output > 6 kW and ≤ 12 kW**		**Rated heat output > 12 kW and ≤ 30 kW**		**Rated heat output > 30 kW and ≤ 70 kW**	
Sound power level (L_{WA}), indoors	Sound power level (L_{WA}), outdoors	Sound power level (L_{WA}), indoors	Sound power level (L_{WA}), outdoors	Sound power level (L_{WA}), indoors	Sound power level (L_{WA}), outdoors	Sound power level (L_{WA}), indoors	Sound power level (L_{WA}), outdoors
60 dB	65 dB	65 dB	70 dB	70 dB	78 dB	80 dB	88 dB

4. REQUIREMENTS FOR EMISSIONS OF NITROGEN OXIDES U.K.

(a) From 26 September 2018 emissions of nitrogen oxides, expressed in nitrogen dioxide, of heaters shall not exceed the following values: U.K.

— fuel boiler space heaters and fuel boiler combination heaters using gaseous fuels: 56 mg/kWh fuel input in terms of *GCV*;

— fuel boiler space heaters and fuel boiler combination heaters using liquid fuels: 120 mg/kWh fuel input in terms of *GCV*;

- cogeneration space heaters equipped with external combustion using gaseous fuels: 70 mg/kWh fuel input in terms of *GCV*;
- cogeneration space heaters equipped with external combustion using liquid fuels: 120 mg/kWh fuel input in terms of *GCV*;
- cogeneration space heaters equipped with an internal combustion engine using gaseous fuels: 240 mg/kWh fuel input in terms of *GCV*;
- cogeneration space heaters equipped with an internal combustion engine using liquid fuels: 420 mg/kWh fuel input in terms of *GCV*;
- heat pump space heaters and heat pump combination heaters equipped with external combustion using gaseous fuels: 70 mg/kWh fuel input in terms of *GCV*;
- heat pump space heaters and heat pump combination heaters equipped with external combustion using liquid fuels: 120 mg/kWh fuel input in terms of *GCV*;
- heat pump space heaters and heat pump combination heaters equipped with an internal combustion engine using gaseous fuels: 240 mg/kWh fuel input in terms of *GCV*;
- heat pump space heaters and heat pump combination heaters equipped with an internal combustion engine using liquid fuels: 420 mg/kWh fuel input in terms of *GCV*.

5. REQUIREMENTS FOR PRODUCT INFORMATION U.K.

From 26 September 2015 the following product information on heaters shall be provided:

(a) the instruction manuals for installers and end-users, and free access websites of manufacturers, their authorised representatives and importers shall contain the following elements:
- for boiler space heaters, boiler combination heaters and cogeneration space heaters, the technical parameters set out in Table 1, measured and calculated in accordance with Annex III;
- for heat pump space heaters and heat pump combination heaters, the technical parameters set out in Table 2, measured and calculated in accordance with Annex III;
- any specific precautions that shall be taken when the heater is assembled, installed or maintained;
- for type B1 boilers and type B1 combination boilers, their characteristics and the following standard text: ‘This natural draught boiler is intended to be connected only to a flue shared between multiple dwellings in existing buildings that evacuates the residues of combustion to the outside of the room containing the boiler. It draws the combustion air directly from the room and incorporates a draught diverter. Due to lower efficiency, any other use of this boiler shall be avoided and would result in higher energy consumption and higher operating costs.’;
- for heat generators designed for heaters, and heater housings to be equipped with such heat generators, their characteristics, the requirements for assembly, to ensure compliance with the ecodesign requirements for heaters and, where appropriate, the list of combinations recommended by the manufacturer;
- information relevant for disassembly, recycling and/or disposal at end-of-life;

(b) the technical documentation for the purposes of conformity assessment pursuant to Article 4 shall contain the following elements:
- the elements specified in point (a);

— for heat pump space heaters and heat pump combination heaters where the information relating to a specific model comprising a combination of indoor and outdoor units has been obtained by calculation on the basis of design and/or extrapolation from other combinations, the details of such calculations and/or extrapolations, and of any tests undertaken to verify the accuracy of the calculations, including details of the mathematical model for calculating the performance of such combinations and details of the measurements taken to verify this model;

(c) the following information shall be durably marked on the heater:
— if applicable, 'type B1 boiler' or 'type B1 combination boiler';
— for cogeneration space heaters, the electrical capacity.

TABLE 1

Information requirements for boiler space heaters, boiler combination heaters and cogeneration space heaters

Model(s): [information identifying the model(s) to which the information relates]								
Condensing boiler: [yes/no]								
Low-temperature[b] boiler: [yes/no]								
B1 boiler: [yes/no]								
Cogeneration space heater: [yes/no]					If yes, equipped with a supplementary heater: [yes/no]			
Combination heater: [yes/no]								
Item	Symbol	Value	Unit		Item	Symbol	Value	Unit
Rated heat output	*Prated*	x	kW		**Seasonal space heating energy efficiency**	η_s	x	%
For boiler space heaters and boiler combination heaters: Useful heat output					For boiler space heaters and boiler combination heaters: Useful efficiency			
At rated heat output and high-temperature regime[a]	P_4	x,x	kW		At rated heat output and high-temperature regime[a]	η_4	x,x	%
At 30 % of rated heat output and low-	P_1	x,x	kW		At 30 % of rated heat output and low-	η_1	x,x	%

a High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.

b Low temperature means for condensing boilers 30 °C, for low-temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).

temperature regime[b]			
For cogeneration space heaters: Useful heat output			
At rated heat output of cogeneration space heater with supplementary heater disabled	$P_{CHP100 + Sup0}$	x,x	kW
At rated heat output of cogeneration space heater with supplementary heater enabled	$P_{CHP100 + Sup100}$	x,x	kW
For cogeneration space heaters: Electrical efficiency			
At rated heat output of cogeneration space heater with supplementary heater disabled	$\eta_{el,CHP100 + Sup0}$	x,x	%
At rated heat output of cogeneration space heater	$\eta_{el,CHP100 + Sup100}$	x,x	%

temperature regime[b]			
For cogeneration space heaters: Useful efficiency			
At rated heat output of cogeneration space heater with supplementary heater disabled	$\eta_{CHP100 + Sup0}$	x,x	%
At rated heat output of cogeneration space heater with supplementary heater enabled	$\eta_{CHP100 + Sup100}$	x,x	%
Supplementary heater			
Rated heat output	*Psup*	x,x	kW
Type of energy input			

a High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.

b Low temperature means for condensing boilers 30 °C, for low-temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).

with supplementary heater enabled								
Auxiliary electricity consumption					Other items			
At full load	*elmax*	x,xxx	kW		Standby heat loss	P_{stby}	x,xxx	kW
At part load	*elmin*	x,xxx	kW		Ignition burner power consumption	P_{ign}	x,xxx	kW
In standby mode	P_{SB}	x,xxx	kW		Emissions of nitrogen oxides	NO_x	x	mg/kWh
For combination heaters:								
Declared load profile					**Water heating energy efficiency**	η_{wh}	x	%
Daily electricity consumption	Q_{elec}	x,xxx	kWh		Daily fuel consumption	Q_{fuel}	x,xxx	kWh
Contact details	Name and address of the manufacturer or its authorised representative.							

a High-temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.

b Low temperature means for condensing boilers 30 °C, for low-temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).

TABLE 2

Information requirements for heat pump space heaters and heat pump combination heaters

Model(s): [information identifying the model(s) to which the information relates]
Air-to-water heat pump: [yes/no]
Water-to-water heat pump: [yes/no]
Brine-to-water heat pump: [yes/no]
Low-temperature heat pump: [yes/no]
Equipped with a supplementary heater: [yes/no]
Heat pump combination heater: [yes/no]

a For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*.

b If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.

Parameters shall be declared for average climate conditions.

Item	Symbol	Value	Unit		Item	Symbol	Value	Unit
Rated heat output[a]	*Prated*	x	kW		**Seasonal space heating energy efficiency**	η_s	x	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j					Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
T_j = – 7 °C	*Pdh*	x,x	kW		T_j = – 7 °C	*COPd or PERd*	x,xx or x,x	– or %
T_j = + 2 °C	*Pdh*	x,x	kW		T_j = + 2 °C	*COPd or PERd*	x,xx or x,x	– or %
T_j = + 7 °C	*Pdh*	x,x	kW		T_j = + 7 °C	*COPd or PERd*	x,xx or x,x	– or %
T_j = + 12 °C	*Pdh*	x,x	kW		T_j = + 12 °C	*COPd or PERd*	x,xx or x,x	– or %
T_j = bivalent temperature	*Pdh*	x,x	kW		T_j = bivalent temperature	*COPd or PERd*	x,xx or x,x	– or %
T_j = operation limit temperature	*Pdh*	x,x	kW		T_j = operation limit temperature	*COPd or PERd*	x,xx or x,x	– or %
For air-to-water heat pumps: T_j = – 15 °C (if *TOL* < – 20 °C)	*Pdh*	x,x	kW		For air-to-water heat pumps: T_j = – 15 °C (if *TOL* < – 20 °C)	*COPd or PERd*	x,xx or x,x	– or %
Bivalent temperature	T_{biv}	x	°C		For air-to-water heat pumps: Operation	*TOL*	x	°C

a For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*.

b If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

					limit temperature			
Cycling interval capacity for heating	*Pcych*	x,x	kW		Cycling interval efficiency	*COPcyc or PERcyc*	x,xx or x,x	– or %
Degradation co-efficient[b]	*Cdh*	x,x	—		Heating water operating limit temperature	*WTOL*	x	°C
Power consumption in modes other than active mode					Supplementary heater			
Off mode	P_{OFF}	x,xxx	kW		Rated heat output[a]	*Psup*	x,x	kW
Thermostat-off mode	P_{TO}	x,xxx	kW					
Standby mode	P_{SB}	x,xxx	kW		Type of energy input			
Crankcase heater mode	P_{CK}	x,xxx	kW					
Other items								
Capacity control	fixed/variable				For air-to-water heat pumps: Rated air flow rate, outdoors	—	x	m^3/h
Sound power level, indoors/ outdoors	L_{WA}	x/x	dB		For water-/ brine-to-water heat pumps: Rated brine or water	—	x	m^3/h
Emissions of nitrogen oxides	NO_x	x	mg/kWh					

a For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*.

b If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

					flow rate, outdoor heat exchanger			
For heat pump combination heater:								
Declared load profile	x				**Water heating energy efficiency**	η_{wh}	x	%
Daily electricity consumption	Q_{elec}	x,xxx	kWh		Daily fuel consumption	Q_{fuel}	x,xxx	kWh
Contact details	Name and address of the manufacturer or its authorised representative.							

a For heat pump space heaters and heat pump combination heaters, the rated heat output *Prated* is equal to the design load for heating *Pdesignh*, and the rated heat output of a supplementary heater *Psup* is equal to the supplementary capacity for heating *sup(Tj)*.

b If *Cdh* is not determined by measurement then the default degradation coefficient is *Cdh* = 0,9.

Changes to legislation:
There are currently no known outstanding effects for the Commission Regulation (EU) No 813/2013, ANNEX II.