

ANNEX II

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 [^{F1}designated standards], or other reliable, accurate and reproducible method, which takes into account the generally recognised state of the art methods, and whose results are deemed to be of low uncertainty. They shall fulfil all of the following technical parameters.

Textual Amendments

F1 Words in [Annex 2 para. 1](#) substituted (31.12.2020) by [The Ecodesign for Energy-Related Products and Energy Information \(Amendment\) \(EU Exit\) Regulations 2019 \(S.I. 2019/539\)](#), [reg. 1\(3\)](#), [Sch. 2 para. 13\(8\)](#); 2020 c. 1, [Sch. 5 para. 1\(1\)](#)

2. The determination of the seasonal energy consumption and efficiency for seasonal energy efficiency ratio (SEER) and seasonal coefficient of performance (SCOP) shall take into account:
 - (a) European cooling and heating season(s), as defined in Table 1 below;
 - (b) reference design conditions, as defined in Table 3 below;
 - (c) electric energy consumption for all relevant modes of operation, using time periods as defined in Table 4 below;
 - (d) effects of the degradation of the energy efficiency caused by on/off cycling (if applicable) depending on the type of control of the cooling and/or heating capacity;
 - (e) corrections on the seasonal coefficients of performance in conditions where the heating load can not be met by the heating capacity;
 - (f) the contribution of a back-up heater (if applicable) in the calculation of the seasonal efficiency of a unit in heating mode.
3. Where the information relating to a specific model, being a combination of indoor and outdoor unit(s), has been obtained by calculation on the basis of design, and/or extrapolation from other combinations, the documentation should include details of such calculations and/or extrapolations, and of tests undertaken to verify the accuracy of the calculations undertaken (including details of the mathematical model for calculating performance of such combinations, and of measurements taken to verify this model).
4. The rated energy efficiency ratio (EER_{rated}) and, when applicable, rated coefficient of performance (COP_{rated}) for single and double duct air conditioners shall be established at the standard rating conditions as defined in Table 2 below.
5. The calculation of seasonal electricity consumption for cooling (and/or heating) shall take into account electric energy consumption of all relevant modes of operation, as defined in Table 3 below, using operational hours, as defined in Table 4 below.
6. The comfort fan efficiency shall be determined on the basis of the nominal air flow rate of the unit divided by the nominal electric power input of the unit.

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) No 206/2012, ANNEX II. (See end of Document for details)

30	-1	173	0	385
31	0	240	0	490
32	1	280	0	533
33	2	320	3	380
34	3	357	22	228
35	4	356	63	261
36	5	303	63	279
37	6	330	175	229
38	7	326	162	269
39	8	348	259	233
40	9	335	360	230
41	10	315	428	243
42	11	215	430	191
43	12	169	503	146
44	13	151	444	150
45	14	105	384	97
46	15	74	294	61
Total h.		4 910	3 590	6 446

TABLE 2

Standard rating conditions, temperatures in ‘dry bulb’ air temperature(‘wet bulb’ indicated in brackets)

Appliance	Function	Indoor air temperature(°C)	Outdoor air temperature(°C)
air conditioners, excluding single duct air conditioners	cooling	27 (19)	35 (24)
	heating	20 (max. 15)	7(6)
single duct air conditioner	cooling	35 (24)	35 (24) ^a
	heating	20 (12)	20 (12) ^a

a In case of single duct air conditioners the condenser (evaporator) when cooling (heating) is not supplied with outdoor air, but indoor air.

TABLE 3

Reference design conditions, temperatures in ‘dry bulb’ air temperature(‘wet bulb’ indicated in brackets)

Function/season	Indoor air temperature(°C)	Outdoor air temperature(°C)	Bivalent temperature(°C)	Operating limit temperature(°C)
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	T_{in}	T_{designc}/ T_{designh}	T_{biv}	T_{ol}
cooling	27 (19)	T _{designc} = 35 (24)	n.a.	n.a.
heating/Average	20 (15)	T _{designh} = - 10 (- 11)	max. 2	max. - 7
heating/Warmer		T _{designh} = 2 (1)	max. 7	max. 2
heating/Colder		T _{designh} = - 22 (- 23)	max. - 7	max. - 15

TABLE 4

Operational hours per type of appliance per functional mode to be used for calculation of electricity consumption

Type of appliance/ functionality(if applicable)	Unit	Heating season	On mode	Thermost off mode	Standby mode	Off mode	Crankcase heater mode	
			cooling: H _{CE} heating: H _{HE}	H _{TO}	H _{SB}	H _{OFF}	H _{CK}	
Air conditioners, except single and double duct air conditioner								
Cooling mode, if appliance offers cooling only	h/annum		350	221	2 142	5 088	7 760	
Cooling and heating modes, if appliance offers both modes	Cooling mode	h/annum	350	221	2 142	0	2 672	
	Heating mode	h/annum	Average	1 400	179	0	0	179
			Warmer	1 400	755	0	0	755
			Colder	2 100	131	0	0	131
Heating mode, if appliance offers heating only	h/annum	Average	1 400	179	0	3 672	3 851	
		Warmer	1 400	755	0	4 345	4 476	
		Colder	2 100	131	0	2 189	2 944	
Double duct air conditioner								
Cooling mode, if appliance offers cooling only	h/60 min		1	n/a	n/a	n/a	n/a	
Cooling and heating modes, if	Cooling mode	h/60 min	1	n/a	n/a	n/a	n/a	
	Heating mode	h/60 min	1	n/a	n/a	n/a	n/a	

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appliance offers both modes							
Heating mode, if appliance offers heating only	h/60 min		1	n/a	n/a	n/a	n/a
Single duct air conditioner							
Cooling mode	h/60 min		1	n/a	n/a	n/a	n/a
Heating mode	h/60 min		1	n/a	n/a	n/a	n/a

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