

EHPA Position Paper

Merging of the Energy Labels of Lot 10 and Lot 20

EHPA would like to thank the European Commission for the work already carried out and welcomes the opportunity given to share its feedback on the European Commission proposal on the merging of the energy labels for air-to-air conditioners, air-to-air heat pumps and comfort fans (Lot 10) and local space heaters (Lot 20).

General Statement - EHPA strongly supports the merger approach of energy labels (In heating and cooling)

EHPA welcomes the merging of the local space heating products labelling scales and reversible air conditioners/air-to-air heat pumps labelling scales in heating and the adoption of a single scale in cooling mode between fixed and non-fixed air conditioners. The conclusion of the study shows that the consumers can benefit more from a combined label.

We believe that the display information should be easily understood by the consumers. Although the energy class remains the first indicator, the display of efficiency value helped improve granularity and facilitated comparability between different technologies having the same primary function (heating or cooling a room). Furthermore, we agree that only heating and/or cooling design capacity shall be shown and not consumption, to avoid misunderstandings from the customers.

The merger of labels between all relevant technologies in heating and cooling will drive consumer choices towards the most efficient and renewable technologies and is in line with the energy efficiency first principle.

Air-to-air heat pumps (lot 10) are more and more used as a heating system to replace electric (Joule-effect) space heaters in a number of countries. Similarly, portable and double duct air conditioners are often considered and marketed as an equivalent solution to split air-conditioner. For these reasons, the consumers should be made fully aware of the significant efficiency gap between these technologies.

SCOPE OF THE ENERGY LABEL

EHPA is in favour of merged energy labels, we should keep the scope of the regulations as they are today. Extending the scope would create loopholes by excluding some products from the energy labelling regulation or lead to overlapping scopes between regulations (e.g., Lot 21). Consequently, EHPA recommends maintaining the current scope of the Delegated Regulation 626/2011 (Lot 10 energy labelling) as it is, meaning up to 12kW.

During the Consultation Forum, it was questioned whether data center cooling (close control units) should be integrated within the scope of Energy Labelling for Lot 10 or whether those units would be better moved to another Lot. Given the future changes in test requirements related to comfort, and the fact that these products are working continuously to provide cooling for data centers (regardless of comfort matters), there is a need to further investigate these products. Furthermore to determine the efficiency of such units different bins, number of operating hours and load curve has to be considered. Currently, no standardized

testing method exists for such units – close control unit testing is not within the scope of EN 14825. We therefore believe data center cooling units should be exempted from both Ecodesign and Energy Labelling Lot 10 and considered separately.

THE APPROACH TO USE CONTROL FEATURES TO DETERMINE PERFORMANCE

The five control features for fixed air-conditioners and air-to-air heat pumps included in the calculation of the seasonal energy efficiency of a system need to be clarified in terms of selection, accumulation (weight factors), verification and assessment. We understood during the consultation forum, that those factors have been initially inspired from Lot 20 products and rapid market online research. However, we have some doubts on this selection and the weighted factors applied for each option. We think it is necessary to understand if the proposed features are commonly used and if the weight values suggested are realistic and not misleading the consumer. For instance, open window detection factor with automatic shut off of the AC is not common in residential usages. It is also unclear for some options whether it is sufficient that the RAC/HP equipment offers the possibility to enable such feature (dry contact: to offer the possibility to control the unit via external binary input signal) or if all the elements (sensor, control logic) have to be integrated.

Clarification is needed if the declared control features have to be integrated in the unit controller, can be supplied via web/app or can also be supplied separately, as accessory, with the unit or, and how this should be reflected in the energy label. We suggest to limit the declarations for the control features to one option (default one for the model) and enable digital generation of energy labels and declarations, when additional options are added. Adding control features for units that may also be used in several combinations between indoor and outdoor units is challenging in terms of generating all this data and considering the upload obligations in the EPREL database.

Finally, we strongly question how market surveillances will be able to verify such feature. Market surveillances have to be able to check whether the control features are correctly reflected in the declared seasonal efficiency and available for the consumers. It is currently not clear how this will be handled, and this approach should be clarified and included in the regulation accordingly.

ENERGY LABEL SCALES

It is not clear if the corresponding label class scales consider the integration of the control features. This needs to be further clarified in written. Our understanding is that control features would be applied as a malus.

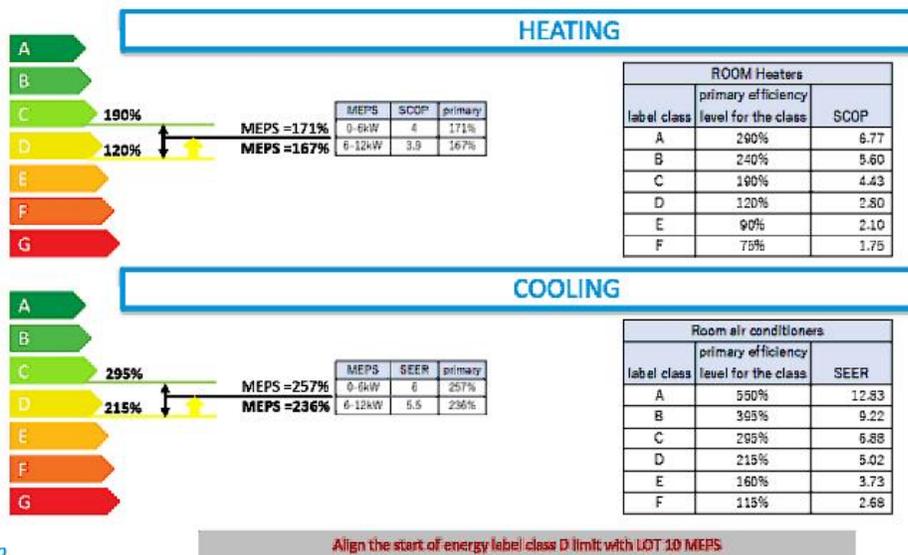
1. Working Document (May 2022) Draft elements of possibly merged labelling regulations for room heaters, room air conditioners and comfort fans

EHPA would like to raise the following elements regarding the proposal circulated back in May ahead of the Consultation Forum.

The minimum efficiency requirements (MEPS) for Ecodesign on air-conditioners and air-to-air heat pumps are set within the band for the energy label class D with the current merger proposal. This narrows down the label class significantly. Therefore, we propose that the start of energy label class D is aligned with the minimum efficiency requirements of Ecodesign for air-conditioners and air-to-air heat pumps and re-divide

the energy label classes of D, C and B, see Figure below. These three classes should be available to allow differentiation of the products.

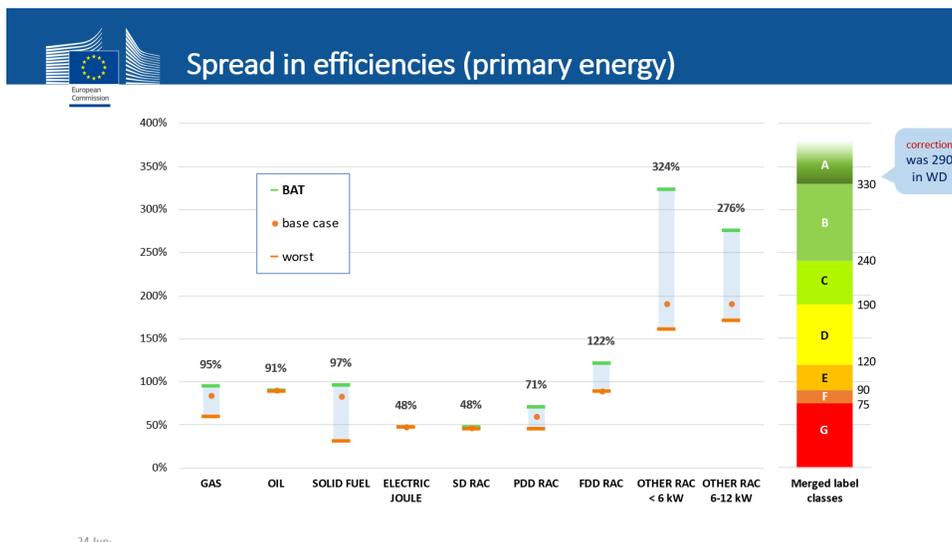
Energy label classes for room air conditioners



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2. Energy Labelling Consultation Forum 24 June 2022 V2 presentation circulated after the Consultation Forum

After the Consultation a corrected version of the presentation was circulated to stakeholders, with a number of corrections without further details. EHPA was highly surprised by this new version not discussed during the Consultation Forum.



24 Jun

As per the above, in heating scale it is proposed to correct the lower limit of class A from 290% to 330%. However, the new proposed value is not accurate and should be changed. Indeed, we assume this new value has been determined based on EPREL scrutiny (324%). It is our understanding, that this value is not the actual efficiency of a unit on the market and is actually a typo when looking at other sources of information for this BAT unit reference. For this reason, a lower eta value for class A limitation is more appropriate for the current and future market situation.

Energy efficiency classes (EPREL '21)												
HEATING			HEATING RAC				COOLING RAC					
Opt 1&2 LSH			Opt 1&2 fixed		Opt 1&2 DD & SD		Opt 3 all RAC + LSH		Opt 1, 2 & 3 fixed		Opt 1, 2 & 3 SD+DD	
eta_heat		SCOP	eta_heat	SCOP	eta_heat	SCOP	eta_heat	SEER	eta_cool	SEER	eta_cool	
A	98%	6.80	324%	3.20	152%	6.93	330%	11.60	552%	5.50	262%	
B	90%	5.75	274%	2.60	124%	5.04	240%	10.00	476%	4.30	205%	
C	74%	5.25	250%	2.20	105%	3.99	190%	8.50	405%	3.70	176%	
D	61%	4.80	229%	1.70	81%	2.52	120%	7.70	367%	3.20	152%	
E	57%	4.40	210%	1.30	62%	1.89	90%	6.90	329%	2.70	129%	
F	53%	4.05	193%	1.10	52%	1.58	75%	6.20	295%	2.35	112%	
G	0%	0.00	0%	0.00	0%	0.00	0%	0.00	0%	0.00	0%	
		count		count		count		count		count		
A		0	0%	0	0%	0	0%	0	0%	0	0%	0%
B		3	0%	46	17%	312	3%	46	0%	0	0%	0%
C		22	0%	4	1%	8046	77%	818	8%	17	2%	2%
D		424	4%	1	0%	1900	18%	535	5%	22	2%	2%
E		1510	15%	111	40%	3	0%	1348	13%	197	19%	19%
F		2101	20%	60	22%	5	0%	2784	27%	781	77%	77%
G		6197	60%	54	20%	213	2%	4726	46%	0	0%	0%
sum		10257		276		10479		10257		1017		

24 June 2022 Consultation Forum on local space heaters, air conditioners and comfort fans 20

EHPA strongly disagrees with the new energy efficiency classes proposed based on this EPREL scrutiny for option 1&2. EHPA strongly believes that the approach to merge LSH, RAC and SD&DD is the most appropriate way forward for the heating scale. Similarly, EHPA believes that merging the cooling scale for RAC and SD&DD is as well the most appropriate way forward.

Please find below detailed comments on each option

- **Heating RAC option 1&2:**

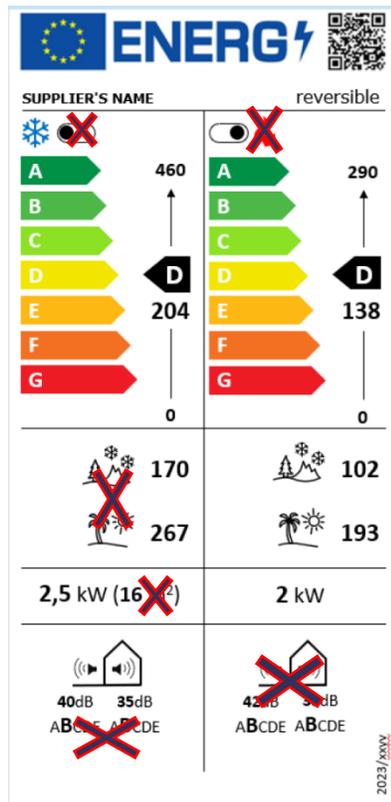
- o As indicated the limit for class A should be lower than 330% (there is on the market no unit with an SCOP of 6,8 current BAT SCOP is 6,2, it could be a typo in this declaration in EPREL)
- o We highly challenge the classes distribution provided for option 1&2 in heating. With these new classes limits, 95% of the fixed RAC market falling in classes E, F, G. It goes against the energy efficiency first principle and fair information towards consumers. For the following reasons:
 - Fixed (split) air to air heat pumps are the most efficient air heating technologies among all the heating technologies considered under lot 10 and thus should never end up in orange and red classes, this will confuse consumers highly. RAC should populate classes B, C and D.

- A2A RAC, with efficiencies several times higher, are ranking lower than SD & DD and LSH, which would mean that in consumers' eyes joule effect and SD/DD are more energy efficient than heat pumps.
- **Heating RAC Option 3 – should cover RAC, LSH and SD&DD:**
 - As indicated the limit for class A should remain 290% BAT and not 330% (there is on the market no unit at 6,8 SCOP, it could be a typo in this declaration in EPREL)
 - Class B, C and D should be able to be populated by RAC
- **Cooling option 1, 2 and 3 for fixed**
 - We highly challenge the classes distribution provided with those new classes' limits. According to the above, 86% of the fixed market would be distributed in classes E, F and G. While RAC are the most efficient cooling technology available. Therefore, RAC should populate in priority classes B, C and D. The class G should not be populated with RAC at all.
 - It is against the energy efficiency first principle and against providing fair information towards consumers. Indeed, with this proposal SD&DD will rank C or D and are even given the luxury of an empty G class, while almost half of splits (46% based on EU Commission data) of much higher energy efficiency will rank in G.
 - We strongly urge the European Commission and the Member States to revise this cooling distribution.

EHPA would look deeper and make an attempt to find a fair labelling proposal with granularity allowing consumers to make a good choice for efficient technologies.

Finally, EHPA would like to highlight that there are several mistakes in the calculation sheet for both heating and cooling not following the established methodology as per EN 14825:2022. Consequently, the energy classes of some technologies have been overestimated and thus impacting the whole energy classes.

ENERGY LABEL LAYOUT



The **indicative floor area for cooling** must be removed from the label. The calculation is not clarified, and the proposed value is based on a load that is not representative for room air conditioners (see Lot 10 preparatory study) and results in over dimensioning of the system in the room. Furthermore, each building has a different load, in a different climate, different insulation, with different usage and hence wrong conclusions may be drawn by the consumer when selecting the size of the unit for cooling the room. Additionally, Building Performance requirements are setting requirements towards zero emission buildings which will require to further reduce the load of such buildings significantly.

P_{ratedh} at heating mode for average climate shall be changed to P_{designh} at heating for average climate, as P_{designh} reflects the design load (see definition 24). This is in line with the current regulation, and also is relevant in terms of comparing and selecting units, since it reflects the capacity, the unit can reach for average climate at the outdoor temperature of -10°C (design conditions for average climate). P_{ratedh} (+7°C outdoor temperature) is a temperature point of lower relevance when selecting a heating appliance.

The use of the **heating and cooling buttons** (on the top of the label and next to the symbols) are unclear and may create confusion by consumers; Currently it is not clear what the intention is.

The “**flame symbol**” referring to heating mode of operation for the product, should be changed. It may lead to misunderstanding among consumers and can be associated with combustion products. The merged label covers not only combustion systems using fossil or biomass fuel but also products using electricity.

It should be clear in the regulatory text that **declarations for warmer and colder climate are optional as intended in the explanatory note.** Based on the Lot 10 study, the average climate seems to be the most relevant climate for the products in scope of the merged label Regulation. For cooling, there is only one set of temperature bins and hours used for the calculation of SEER and the corresponding cooling efficiency. Therefore, regardless of the climate, the declared cooling efficiency for the given unit will remain the same. In terms of comparability, indicating one climate is sufficient to allow the consumer to properly compare the products. Furthermore, having the three heating efficiencies on the label can be confusing for the consumers and has little added value in their choice of heating appliance: highly efficient unit under average climate usually will perform with high efficiency in warmer or colder climates as well. Also, for products specifically marketed for colder climates, it is a benefit to have the climates optional. It is a mean to differentiate these products from those not intended for colder climates. Therefore, we see this additional information as optional and sufficient to be made available upon request to the distributors or with the QR code. Finally, we would like to remind that for cooling, there is only one climate (See energy label 10).

It is essential that the energy efficiency values expressed in eta remains on the label to enhance granularity and comparability of labels, by providing an accurate reflection of the efficiency of a unit. Including the energy consumption of a unit on the label will lead to misunderstandings and incorrect reflections of the true consumption of a unit towards the end users. For products such as air conditioners, the energy consumption depends on where the product is installed and is affected by many factors such as location of the building, the building type, the users in the building, occupancy and so on. We therefore support the current proposal of the Commission to not include the energy consumption on the label.

SUPPLY OF THE ENERGY LABEL

Currently the requirements for suppliers prescribe to provide the energy label in the packaging with the unit. However, heat pumps and air conditioners typically are supplied in combinations between the indoor and the outdoor units.

One outdoor unit can be used with several indoor units. One indoor unit can be used with several outdoor units. In practice, for each combination an energy label has to be generated. In terms of multi-split systems, this number of energy labels increases exponentially due to the number of all possible combinations between the indoor and outdoor units, as well as the varieties in capacity ratios.

In order to avoid an overwhelming amount of energy labels in the box, the current regulation has provided some means to simplify that, on the conditions that the relevant energy labels are generated for other potential combinations as follows:

- For air conditioners and air-to air heat pumps, a printed label must be provided, at least in the packaging of the outdoor unit, for at least one combination of indoor and outdoor units at a capacity ratio equal to 1.
- For multi split appliances, the information requirements table shall be provided at capacity ratio 1:1;

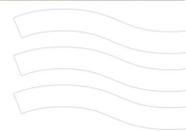
As it was clarified by the European Commission during the Consultation Forum that the current approach should be maintained, we suggested adding the following paragraph:

- *"For fixed room air conditioners and room heat pump, a printed label must be provided, at least in the packaging of the outdoor unit, for at least one combination of indoor and outdoor units at capacity ratio 1. For other combinations, the information can be alternatively provided on a free access web site;"*
- *"For fixed room air conditioners and room heat pump, a product information sheet, for at least one combination of indoor and outdoor units at capacity ratio 1 shall be made available."*

PRODUCT FICHE

SCOP values, SEER values and control features are not included in the current product fiche proposal. The SCOP and SEER values are needed to verify the seasonal energy efficiency of the product. In addition, when determining the seasonal energy efficiency, it is possible to use control features. In order to facilitate correct calculations and verification, it seems logical that the fiche indicates the control features used by the

manufacturer to determine the seasonal energy efficiency. We believe this may also help market surveillance to have this information readily available.



VERIFICATION TOLERANCES

The proposed values for room air conditioners and heat pumps with capacity above 2kW are too low. To our understanding there is no evidence that clarifies the lower tolerances compared to the 8% value in the current regulation EN 626/2011. Furthermore, the verification tolerances must take into consideration the different testing methods and testing rooms, i.e. calorimeter versus air enthalpy test rooms. The uncertainties of these methods currently included in the latest edition of EN 14825 are different than the findings from the preparatory study and should be considered in terms of setting the verification tolerances. Furthermore, it seems there is no value defined for sound power level in table 17. We recommend adding the following “The model of the air conditioner or air-to-air heat pump shall be considered to comply with the provisions set out in this Regulation, as applicable, if the sound power level does not exceed more than 2 dB(A) of the declared value.”

The wording is also wrong: “The determined value shall not be more than xx% higher than the declared value.” This should be changed from “higher” to “lower” as in the current regulation text.

Additionally, it is clear what tolerances should be applied to those values included in the tolerance table, i.e., table 17. However, for those parameters not listed in the table, but which require to be declared (as indicated in the product fiche), it should be clear that the uncertainties/tolerances as specified in the harmonised standards (EN 14825) should apply. We propose clearly to integrate these tolerances in the table based on EN 14825 or to introduce following:

“For parameters not listed in table 17; those specified in harmonised standards are applicable.”

Examples of such declaration points are the capacities and efficiencies at part load conditions A, B, C, D, etc.

SOUND POWER - MAINTAIN CURRENT APPROACH

The test point for sound in heating mode (P_{ratedh}) needs to be better clarified.

In the current regulation it is sufficient to declare the sound power in cooling. This is a realistic approach, as this condition represents higher sound power level than in heating. So, declaring only 1 sound power in cooling for reversible or cooling only systems is sufficient. For heating only applications, it is necessary to clarify the test condition. This should be in line with EN 12102.

We do not support adding label classes for sound power on the energy label and prefer to give a value, which is sufficient in terms of comparing products by consumers. The addition of a label classes on sound combined with the energy label indication will be confusing for consumers. Furthermore, the efficiency of a unit is linked to the sound power level, i.e., higher efficiency values correspond to increased sound levels. The consumer won't be able to see a very highly efficient unit with a very low sound power level. This can be confusing.



COMPENSATION METHOD

During the consultation forum, it was proposed to consider introducing the compensation method as part of the review and with a set date. The compensation method as proposed, has not yet proven to be mature and fails to fulfil its original aims related to an increased repeatability and reproducibility, allow testing without intervention from manufacturers, better reflecting real life conditions, reduce testing time and associated test costs, extend the method not only to calorimeter test room but also air enthalpy room etc.

The current results still show high deviations between labs and the encountered testing issues cannot always be identified with certainty. Due to the diversification of data and lack of details, the data does not show enough coherence to create a level of confidence. A higher testing time has been observed and it was also observed that the behaviour of units in the lab is different than how the unit functions in real life operating conditions. In order to ensure all elements to be considered and included, further investigation and analysis must be performed.

In order to avoid mistakes to be introduced in the Regulation, the knowledge of experts within standardisation must be involved and considered in this process. On standardisation level, consideration on potential testing method that would reduce the need to involve the manufacturer to set up the unit for testing have just started.

Proposing a testing method to support market surveillance authorities which is not yet fit for purpose and does not take into account standardisation expertise will result in unreliability and uncertainty on its application for all stakeholders. As such, any consideration of an optional approach or inclusion in the revision clause with a set date is too soon and not appropriate based on the current findings.

PEF

EHPA strongly recommends integrating the new PEF as early as possible in the Regulations. It should be applied without any delays for all heating appliances. This is of the outmost importance to consider this point for the final draft from the legislators, otherwise we will have to wait until the next revision of the regulations, meaning 8 to 10 years.

OTHER POINTS

Discrepancies have been observed between the proposed text and EN 14825:2022. To avoid future discrepancies and errors the proposal for the energy efficiency calculation methodology shall be remain in the harmonized standard EN: 14825:2022.

Please refer to the annex for correction suggestions.