

Joint CECED and EUROVENT position paper on tasks 1 and 2 of the ecodesign and energy labelling study on Air-conditioners and comfort fans

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CECED and Eurovent appreciate the work done by Viegand Maagøe and Armines and thank the consortium for the research and analysis done for tasks 1 and 2 of the ecodesign and energy labelling study on Air-conditioners and comfort fans.

Following the presentation of the draft reports made during the first stakeholder meeting held on 5 July 2017, CECED and Eurovent would like to bring the following comments to the attention of the consultant, the European Commission and the other stakeholders.

I. Scope and definitions

CECED and Eurovent would like to issue the following comments in relation to the scope of the regulation and to some of the definitions:

- The study task 1 assesses the Regulation's scope in terms of definitions, standards and legislation. The article 1 of the Commission Regulation (EU) No 206/2012 states:

"This Regulation establishes eco-design requirements for the placing on the market of electric mains-operated air conditioners with a rated capacity of ≤ 12 kW for cooling, or heating if the product has no cooling function, and comfort fans with an electric fan power input ≤ 125 W."

According to the above scope, the air conditioners not intended for space heating and/or cooling should be covered by this Regulation. We hold that the revised Regulation would benefit from a further clarification of its scope and in this respect, we would like to suggest the following amendment:

*"This Regulation establishes eco-design requirements for the placing on the market of electric mains-operated air conditioners with a rated capacity of ≤ 12 kW for **space** cooling, or **space** heating if the product has no cooling function, and comfort fans with an electric fan power input ≤ 125 W."*

- Furthermore, the article 2 of the Regulation (EU) No 206/2012 defines an 'air conditioner' as follows:

"'air conditioner' means a device capable of cooling or heating, or both, indoor air, using a vapour compression cycle driven by an electric compressor, ..., using air only."

We hold that the revised Regulation would benefit from a further clarification of the definition of 'air conditioner', and in this respect, we would like to suggest the following amendment:

*“‘air conditioner’ means a device capable of cooling or heating, or both, indoor air **for human comfort**, using a vapour compression cycle driven by an electric compressor, ..., using air only.”*

- CECED and Eurovent recommend clarifying the scope, especially on multi-function products. Where comfort fans are mentioned it needs to be very clear what is in/out of scope. If multi-function products start being included in the comfort fans category then the air conditioners themselves could end up also being in scope (as they often have a “fan only” mode) causing double labelling. We propose for the scope only including comfort fans to avoid confusion and double labelling.
- For the definition of a split unit (non-ducted fixed split-package unit), the indoor unit contains a fan but for the outdoor unit it is not specified. A fan should be included for the outdoor unit (Cf. page 12, Table 1).
- For the “Ventilation exhaust air-to-air heat pumps and air conditioners”, there is no definition in the Task 1, so it is quite difficult at this stage to have a clear position on it. We would like to have a clear definition added in the report before to comment (Cf. page 23, point 1.1.3). According to the above-proposed definition of air conditioner, if the “Ventilation exhaust air-to-air heat pumps and air conditioners” will not be defined as intended for maintaining the desired indoor temperature of an enclosed space for thermal comfort of human beings, we would like to suggest that they should not be in the scope of this regulation.

II. Comparison between different types of air conditioners (ACs)

The current differentiation between split ACs, double duct ACs and single duct ACs (each category having a specific testing method and a specific energy classification) shall be maintained. These three categories meet different consumers’ needs and consumers do not compare them to each other (See the Appendix for a list of specific features of single and double duct ACs).

Under current Regulations 206/2012 and 626/2011, the efficiency testing of the products under the scope is based on a seasonal efficiency measurement method (standard EN 14825), except for single and double duct air conditioners for which steady-state energy efficiency performance indicators continued to be applied (based on standard EN 14511). Moreover, neither in ISO nor in CEN are there standards which define how to test the seasonal efficiency of a single/double duct AC.

This approach was based on technical considerations (available technology, technical physical constraints that limits the maximum performance for single duct and double ducts), market considerations (market size and contribution to electricity consumption) and scope of the products (emergency portable product or fixed product where other type of air conditioners cannot be installed). All these considerations did not change so we believe that there are no real reasons for changing the scheme of the energy labelling.

The technical limitation to the product efficiency increase is mainly linked to the weight, dimensions and noise constraints. Portable ACs shall be light and compact while for double duct appliances the outdoor and indoor sections are merged into a single unit, whose size must be compatible with indoor installation and this creates a limitation to the size of the heat exchangers). For such reasons, single and double duct ACs have a limited improvement potential and cannot be compared directly with split ACs otherwise they would be relegated to the lower efficiency class without any possibility for the users to distinguish between better and worse models.

In addition, the simple and quick testing procedure currently used for single and double duct ACs allows surveillance authorities to carry out an extensive and deep market control, which would be impossible with a more complex seasonal testing method.

In fact, the seasonal efficiency calculation used for split ACs is based on several tests in cooling and heating, which are expensive and time consuming, so the extension to other products shall be carefully evaluated. The problem of the testing cost is not only for the manufacturers but also for the market surveillance authorities. For single and double duct ACs, the surveillance can be enforced with just one test in cooling and one test in heating. For this reason, during the last years, the market surveillance activity increased a lot for such categories and normally the ratio between tested split ACs and single/double duct is 1:2 or more (for example, in 2017 the Italian market surveillance authority tested 13 models, 9 of which were single/double duct ACs and 4 were split ACs).

We strongly support keeping specific testing method and specific energy classification for the different AC categories as in the current Regulation, by setting requirements in terms of minimum SCOP/SEER only for the product in the scope of the EN 14825 and in terms of minimum EER and COP for single and double duct ACs.

III. Dehumidifiers

CECED and Eurovent do not see the need to include the dehumidifying capacity of air conditioners in the energy label but we suggest including dehumidifiers (appliances not designed to cool the room but specifically to remove humidity) in the scope of the revised energy labelling and ecodesign regulations.

Energy efficiency of dehumidifiers is regulated in several countries (USA, Canada, China, Hong Kong, Korea) and the products on the EU market show a very big range of efficiency. Minimum efficiency requirements and energy labelling would improve the efficiency of such products also in the EU and reduce the related energy consumption.

IV. Effect of outside air being drawn into the inside room for single and double duct air conditioners (infiltration).

CECED and Eurovent do not agree with the proposal to consider this effect and include a capacity correction method.

At the moment, there is only one test method considering the effect of infiltration (the DOE test method mentioned in task 1). This test method is not used neither for energy labelling nor to check minimum efficiency requirements.

According to the DOE test method, additional parameters (duct(s) air flow rate) shall be measured, increasing the time and cost of the test and the cooling capacity uncertainty. At the moment, there are no ISO, CEN or CENELEC testing method available to consider the infiltration effect, also because it is difficult and disputable to identify a suitable and representative value for the air infiltration temperature. We therefore conclude that the burden needed to consider this effect is not justified and the revised regulations should not set any revised testing method to consider the infiltration effect.

V. Compensation method

CECED and Eurovent strongly recommend not to introduce the compensation method for the following reasons:

- Given the fact that compensation method is very complex and expensive, not all laboratories are able to perform it.
- Besides, the uncertainty of the measurement is not defined. Some differences in the measurements between laboratories make it not possible to define a reliable measurement tolerance for market surveillance.

- On the other hand, fixed frequency testing method is a reliable testing procedure, which allows to maintain a very strict tolerance for market surveillance.
- In the task 1 report, it is stated that this method is useful when the manufacturer fails to provide the necessary data for settings during the test even if the limitations are clearly explained; in our opinion, introduction this method is not useful in that regard because when manufacturers do not provide such data, then this is clearly a case of non-compliance with the regulation. In this case, market surveillance authorities can directly conclude that the unit is non-compliant.

VI. Further reduction of noise level

In technical terms, the efficiency of an air conditioner is improved by adopting high efficiency motors and components and by using the highest possible air flow on condenser and evaporator. The aim of the noise limits in the current Ecodesign Regulation was to set an upper limit to the air flow increase as efficiency improvement method. Such limit was considered as the proper consumer's comfort limit at that time.

In that regard, a further reduction of the maximum noise level, would represent a constraint for efficiency improvement, without any real advantage for end users as the current noise limit is already guaranteeing the consumer's comfort. CECED and Eurovent therefore recommend avoiding further reduction of noise level requirements.

VII. Network standby energy consumption

Concerning the network standby energy consumption, CECED and Eurovent would like to have an additional definition on network standby and a testing method. The standard (EN 14825) does not clarify this point.

VIII. Estimations on prices, costs, sales and stocks

CECED and Eurovent recommend that the consultant conduct further analysis on these aspects as manufacturers fear that some of the data provided in the report are not accurate enough:

- The **average final product prices** have been investigated for both portable and fixed air conditioners. It is our opinion that the products analysed are not coherent with each other: while the price of a 2,6 kW portable air conditioner appears to be the lowest price of an entry level product, the price of a 4,2 kW fixed wall single split air conditioner appears to be the highest price of a top level product. In this respect, we would like to suggest to further analyse the final product prices of both portable and fixed air conditioners, and to align accordingly the base cases to be investigated.
- Concerning **installation cost**, 1000 euros is suggested in this report. In the EU, countries to countries, this value presents lot of differences. We recommend including this in the sensitivity analysis of for the LLCA in order to be more accurate in the analysis.
- The **sales and stock** estimates by country have been assessed from 2010 to 2050. According to the discussions and outcomes of the first stakeholder meeting, we would like to suggest the project team to further assess sales and stocks, by considering the impact of the F-Gas Regulation (2020 ban on portable air conditioners using higher than GWP 150) as well as the influence of the Energy Performance of Building Directive. We hold that the study task 2 would benefit from an additional analysis that will consider the impact of both F-Gas and EPBD. Furthermore, we would like to point out that the sales estimated are not in line with the ones at the VHK's Ecodesign Impact Accounting report. While the VHK's report in its Appendices

page 6 estimates the Room Air conditioners (LOT 10) sales as 11.080.000 units by 2050, the study's task 2 estimates the same sales as about 20.000.00 by 2050. It is clear that the study would benefit from a further analysis/assessment of the estimates sales.

IX. Appendix

a) Portable ACs (single and double duct).

For the following reasons, portable air conditioners are a very particular category with unique features and characteristics:

- Portable air conditioners, despite the limited market share, represent a very specific market segment which meets specific consumer needs. They are a unique solution where installation of other categories air conditioners is forbidden or impracticable, for example, in rental situations. They do not have an impact on the external part of the building, because they do not need an external unit or a portion of a unit extending outdoors. This is an important feature for customers living in historical buildings where external units cannot be installed.
- Portable air conditioners do not need installation or preliminary set up. The small dimension and the design of portable air conditioners allow the user to get comfort only in the area where it is needed, and to move easily the equipment from room to room or from dwelling to dwelling. For such reasons, they are cheaper and accessible to economically disadvantaged consumers. They can provide an effective cooling just after the purchase because they are "plug and play" appliances.

b) Wall fixed Double Duct ACs.

The wall fixed Double Duct AC is a niche product, used only when other most common solutions (split units) cannot be applied because of physical constraints (i.e. no space for outdoor unit installation) or outdoor unit installation is forbidden by local regulations or split outdoor unit are aesthetically not compatible with building façade (i.e. historical buildings).

The contribution of the double ducts units to the safeguarding of the architectural heritages, ensuring the possibility to have the air conditioning, is well recognized.

ABOUT CECED

CECED represents the home appliance industry in Europe. The total annual turnover of the industry in Europe is €50bn. Total employment as a result of the presence of the sector is approximately 1 million jobs. The sector contributes €1.4bn to research and development activities in Europe. Direct Members are Arçelik, Ariston Thermo Group, BSH Hausgeräte GmbH, Candy Group, Daikin Europe, De'Longhi, Dyson, AB Electrolux, Gorenje, Indesit Company, LG Electronics Europe, Liebherr Hausgeräte, Miele & Cie. KG, Panasonic, Philips, Samsung, Groupe SEB, Vestel, Vorwerk and Whirlpool Europe. CECED's member Associations cover the following countries: Austria, Baltic countries, Belgium, Bulgaria, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland, Turkey and the United Kingdom. www.ceced.eu

ABOUT Eurovent

Eurovent is Europe's Industry Association for Indoor Climate (HVAC), Process Cooling, and Food Cold Chain Technologies. Its members from throughout Europe, the Middle East and Africa represent more than 1.000 companies, the majority small and medium-sized manufacturers. Based on objective and verifiable data, these account for a combined annual turnover of more than 30bn Euros, employing around 150.000 people within the association's geographic area. This makes Eurovent one of the largest cross-regional industry committees of its kind. The organisation's activities are based on highly valued democratic decision-making principles, ensuring a level-playing field for the entire industry independent from organisation sizes or membership fees. www.eurovent.eu