Position paper

Second Consultation Forum on air-to-air air conditioners and heat pumps, comfort fans, and local space heaters

Brussels, September 2021

Highlights

- Revised regulations for air-to-air air conditioners, heat pumps, comfort fans and local space heaters were already discussed at the Consultation Forum two years ago. In July 2021, the Consultation Forum only discussed addendum reports bringing new information for the revision of the regulations. Such delays in the review process for key products is not acceptable and the revised regulations should be adopted without further delays.
- Minimum energy performance requirements and an energy label for comfort fans should be introduced without further delays.
- If the option of a common label for fixed and portable air conditioners is disregarded, comparison should at least be possible between fixed double duct air conditioners and split units by putting these technologies on the same scale. A seasonal efficiency metric (SEER) should be used.
- The test methods for air conditioners and heat pumps can be improved, but this should not further delay the revision of the regulations.
- The labelling scales for air heating products and air conditioners should be merged. The loss of granularity can be mitigated if information on the energy efficiency of the appliance is added to the label.

Introduction

July 2021 is officially the hottest month ever recorded on Earth[1]. Heatwaves are becoming both more frequent and more intense as a result of the global climate crisis, creating a rising demand for comfort fans and air conditioners[2]. The impact from their electricity consumption, and from the refrigerants that air conditioners contain, further contributes to global warming, creating a vicious circle. Ambitious requirements are needed to tackle the impact of these products as soon as possible. For comfort fans in particular, it is upsetting to observe that there are no requirements for the efficiency in the EU, even though the savings could be substantial and such requirements are in effect in other parts of the world, most notably China.

The Consultation Forum for the revision of the regulations on air conditioners and local space heaters took place in September 2019 and the regulations have been stalled since then, rendering the conclusions of the preparatory study obsolete. We believe that commissioning additional reports and surveys two years after the presentation of draft revised regulation cannot become a usual practice from the Commission. The revision process for these products must be concluded without further delays.

While the delays in decision making is our main and overarching concern, we also ask the Commission to consider our comments on the content of the addendum reports that are provided in the following sections.

Comfort fans

Comfort fans are an important product group to regulate as sales are rising drastically and the saving potential remains significant. We call on the Commission to introduce minimum energy performance requirements (MEPS) and an Energy Label for comfort fans in line with the approach already proposed back in 2019.

Non-compliance with information requirements

In the review study, the lack of data resulting from wide-spread non-compliance with the information requirements was pointed out as a contraindicator for MEPS. A product survey conducted in 2018 by Topten shows just how wide-spread the problem of non-compliance is. The survey showed that 89% of comfort fans did not provide the information requested by the information requirements, see table 1.

Table 1: Assessment of comfort fans for a Topten product list (data gathered by Topten, 2018)

Number of models evaluated	158
Number of models that fulfill the product information requirements of Commission Regulation (EU) No 206/2012	8
Number of models for which data was received after contacting the manufacturer	67
Total number of models with complete product information, complemented by own research	75

[1] https://www.noaa.gov/news/its-official-july-2021-was-earths-hottest-month-on-record

2 https://ecostandard.org/news_events/this-summer-heatwave-goodbye-to-portable-air-conditioners/

To date, these information requirements have been in force for 8 years, and market surveillance has not sufficiently tackled the issue of non-compliance. There is therefore little reason to believe that information requirements only will be a viable solution going forward. Regrettably, if the lack of data due to non-compliance is again used as a reason to postpone MEPS, it is effectively opening a loophole: manufacturers may continue not reporting the required information to further delay the introduction of MEPS. We call on the Commission to adopt the introduction of MEPS for comfort fans with no delay.

Minimum energy requirements for comfort fans

Introducing and harmonizing European MEPS with the Chinese MEPS as a minimum, or enforcing more stringent requirements to enable further savings in the EU, can be done relatively easily. The argument that a large part of the fans would be banned from the market if MEPS are introduced is not valid. It would only be a risk if the EU had been the only region enforcing extremely high MEPS. However, since MEPS already exist in the world for these products, the EU is just "catching up" with its peers. Manufacturers will have time before the entry into force of the regulation to reorganize their supply chains and acquire more efficient products. There are plenty of compliant comfort fans available in China.

MEPS are needed to avoid environmental dumping of inefficient products on the European market. Even though most comfort fans on the European market are produced in China, a large number of them do not even comply with the Chinese MEPS, but are purely manufactured to be sold on the European market where requirements are still less strict. The market assessment performed by Topten in 2018 showed that out of the 75 models with complete product data, 32 models did not comply with the Chinese MEPS, see figures 1 and 2 below. It can be expected that the performance of the remaining models with no product declaration is also low as there is often a reporting bias where good performers tend to report more frequently than bad performers. The share of models from the market assessment that did not fulfil the Chinese MEPS in 2018 (42%) shows the extent of the potential environmental dumping in the European market.

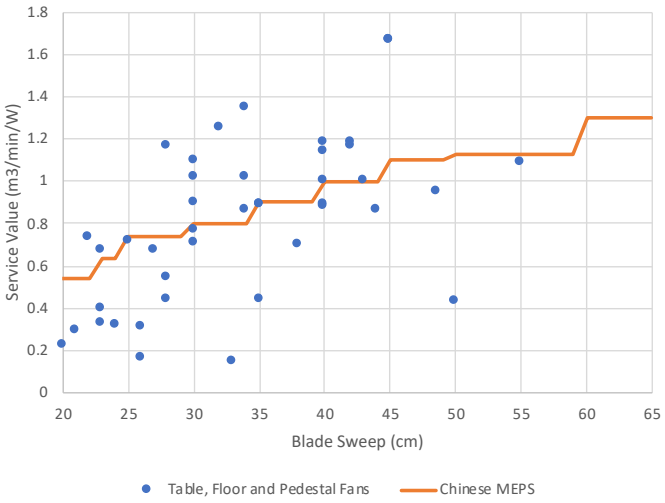

Figure 1: Comparison of table, floor, and pedestal comfort fans with the Chinese MEPS (data gathered by Topten, 2018).

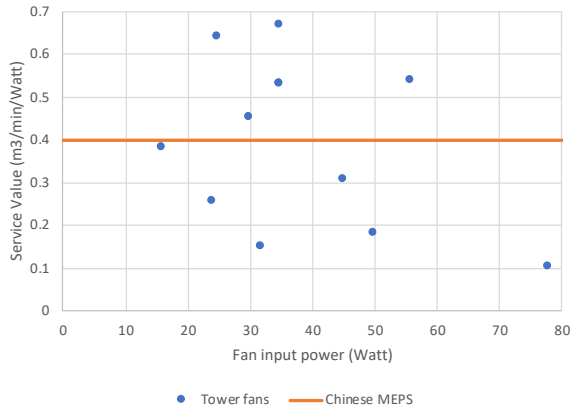

Figure 2: Comparison tower comfort fans with the Chinese MEPS (data gathered by Topten, 2018).

Energy label with correction for diameter

We support the proposal for Energy Labelling classes that corrects for diameter, that was presented in the addendum report. This will avoid that the top classes are exclusively populated by ceiling fans and minimizes the adverse effect.

Energy Efficiency Classes with a strong dependency on diameter creates clusters of fan technologies, as shown in figure 3 below. It may also have adverse effects with regards to the purpose of energy labelling if they are pulling consumers towards products that exceed their needs. Even though larger fans are more energy efficient in terms of service value, they may still consume more energy in absolute terms and thus ultimately lead to more emissions and higher energy bills. Countering this effect by setting Energy Labelling classes that correct for diameter is a positive step towards not just energy efficiency but also sufficiency.

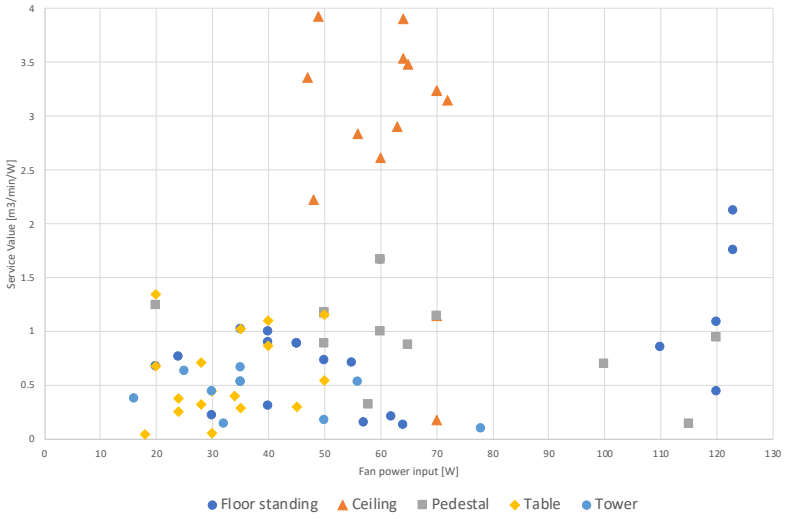

Figure 3: Distribution of fans (considering construction types) according to the Service Value. The data shows that there are clusters of products according to the construction type. (data gathered by Topten, 2018).

Fixed double duct air conditioners

ECOS preferred option with regards to energy labelling for fixed versus portable air conditioners is to use a common scale for both types of units, as this would clarify the relative efficiency of fixed units over portable ones and help consumers choose the most efficient option. The study too concludes that separate scales will not lead to the highest gains in energy efficiency (p. 38).

Comparison with other fixed units

Fixed double duct air conditioners are best compared with split units as both technologies are relatively large and both are installed. Fixed double duct air conditioners are good solutions in situations where an air conditioner is to be installed in a building where the outside unit cannot be placed on the façade close by, for example on a historical building, or where there are other permit issues. If the outside unit is placed too far from the inside units, the energy efficiency of the installation decreases. In these cases, the fixed double duct air conditioner could be more efficient than the split unit. Therefore, fixed double duct units should be on the same scale as the split devices if it is decided to use different scales to maintain the advantage for mobile units.

Promotion of inverter compressors

Inverter compressors perform well in terms of efficiency when working at part load, as is often the case. Hence, there are energy savings to gain by ensuring inverter compressors become a more widespread choice of technology. The policy should therefore be designed in a way that promotes the penetration of inverter compressors. Now, units with inverters cannot make use of the label to show their better efficiency level. Once this difference becomes evident on the label with the use of the SEER, it will also justify the price premium for units with inverter compressors. Also, when inverter compressors become the standard, the availability and affordability of these compressors will improve.

Integration of refrigerant aspects from the F-Gas Regulation

The study considers R410A as the refrigerant of choice for the product design. The study should take the F-Gas regulation and the Kigali Amendment into account and use R290. Another option is R32 which is also more efficient than R410A but the recent IPCC report indicates its GWP is actually 771. This would make it an unlikely solution for single split units past 2025, given the >750 GWP ban included in Reg 510/2014

Alternative testing methods

Not further delay in the regulation

Irrespective of the status of the test standards, the revision of the regulations should not be delayed any further. In the absence of an appropriate testing method, an acceptable solution would be to use the current testing method (EN 14825:2018) to calculate the SEER/SCOP values, and foresee an early revision (i.e., 3 years after the entry into force as recommended in the addendum report).

Thermal comfort

We support the inclusion of thermal comfort in the assessment of energy efficiency. It is likely that users will set the air conditioner to maximise comfort (i.e., warmer hot air and stronger dehumidification during cooling) therefore, the energy consumption is most likely underestimated.

Thus, we agree to set minimum supply temperatures that are higher when the heating demand is higher (i.e., with lower outdoor temperatures). We also support the proposal to regulate this parameter by setting a maximum air flow rate relative to the heating power.

We however do not want to support supply temperature that would be too high, which causes issues both for comfort and for energy efficiency. The parameters for Scenario B in Table 2 seem reasonably justified, with a supply temperature of 30°C at an outdoor temperature of -7°C but we would be open to revisiting this if it appeared from stakeholder inputs that thermal comfort can be achieved with a lower minimum supply temperature.

Regarding the condensation issues with air conditioners working in outdoor temperatures above 30°C, we support the proposal to set a humidity limit in the air flow rate. The humidity level should be kept at a level that guarantees sufficient comfort, but we do not see the need to limit the air flow more than that. The example with a limit to the airflow of 312 m^3/h/kW and a humidity of 53.5% seems reasonable in this regard, but we are open to revisiting this based on stakeholder inputs.

No exemption for process units

There should be no exemption to the air flow requirement for air-conditioners made for server rooms and other technical purposes as this would create a dangerous loophole. The requirement for maximum air flow during testing conditions will not significantly increase the costs for manufacturers, while some mainstream air conditioners are also used to cool down server rooms. Anyway, thermal comfort requirements should not impact these units as these requirements are also desired (dehumidification of server rooms) and the units will also not be used in heating mode. To improve comfort, we support the inclusion of additional information requirement guiding the users to set the best air flow levels for heating and cooling to ensure thermal comfort while maximising the energy efficiency. This should not however further delay the adoption of the revised regulation, and the maximum air flow levels should be based on the stakeholder inputs received to date.

Bivalent point

We agree to set the bivalent point for heat pumps to be at an outdoor temperature at -7°C or lower.

These requirements (maximum air flow, maximum bivalent temperature) should be included in the Annexes of the regulation instead of amending the standards, as this would delay the amendment process even further.

Compensation method

We are concerned that the current test method with locked compressor speed is not sufficiently representative of real-life use and does not allow truly independent tests for verification. We express once again our support for a test method with unlocked compressor speed, more representative of operation in real life and which can be done independently of manufacturers. The development of a new test method should however not delay the review process of the regulations for air conditioners and heat pumps. Therefore, we propose to require the use of the compensation

method in a Tier 2 in the amended regulation, including the necessary adjustment of MEPS and eventually of labels. We insist that the switch to the compensation method is acted in this review cycle of the regulation, considering the length of the process. In parallel, the finalisation of the compensation method should be advanced as fast as possible. An efficiency reduction factor could be introduced for air-to-air heat pumps when the efficiency is evaluated with the current standards. The reduction factor would then be removed with the introduction of the compensation method. This would avoid the need for a revision of the labelling scale when the compensation method is introduced.

Until the compensation method is finalised, we support that additional information is provided by manufacturers to allow market surveillance authorities to perform the current test method with locked compressor speed at different loads. This information should be available on a protected part of the EPREL database. We do not find it useful however to develop an interim method, such as the proposed control verification procedure that will take some time to adjust to the European market.

We urge the European Commission to issue a standardisation request mandating the necessary standards to underpin the revised regulations. The European Standardisation Organisations should with no delay revise the current test standards to assess the energy efficiency based on the compensation method taking into account the comfort requirements and develop the product-specific standards to allow for the assessment of the material efficiency requirements.

Consumer survey on merging air heating products labelling scales and air conditioner labelling scales

In our opinion, and based on the consumer survey, combined label scales are the best choice for consumer information. According to the study, a large part of consumers considers other heating technologies than the one they have chosen and half of the consumers expect to be able to compare the efficiency of heaters with different technologies by looking at the information on the energy label. These are strong indications that a combined local heating label will give the best information for consumers to select the best heating technology. This is also the case for the combined label for the different heat pump technologies.

We strongly support the inclusion of electric heaters on the energy label. The survey shows that consumers consider electric heaters when buying other heaters, in particular heat pumps and the opposite is true as well. The lower granularity of the combined label scale can be mitigated with a visible indication of the energy efficiency. While we do not dispute the conclusions of the consumer study, an indication of the energy efficiency with at least as large a font size as the energy consumption indication will highlight the energy efficiency better than it was on the tested labels. Besides that, in real life consumers might not make their decision purely based on the information found on the energy label. Heating and cooling products are more complex than the plug and play solutions (i.e. household appliances). They are systems that need to be adjusted to the needs of the user. Size and capacity must be correctly assessed and adjusted to not have a higher energy consumption than what is needed. The consumer study showed that the comprehension of the label can only get the consumer so far (questions on the difference in between energy consumption and energy efficiency). It will help the consumer make basic decisions on what type of technology for example, but they will have to still rely on the installer to make the rest of the

decisions. It is therefore important that on the label, there is information that also helps the installers to easily identify the most efficient models.

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