INTRODUCTION

EPEE – representing the refrigeration, air-conditioning and heat pump industry – would like to provide comments as a follow-up to the first stakeholder meeting of the Working Group 2 ‘Testing’, which took place on 2 April 2020.

1. Assessing the energy performance of Heat Pumps
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EPEE welcomes the opportunity to participate in the Stakeholder Consultation on the various topics identified in Task 6 of the review studies related to Lots 1 and 2 Space and Water Heaters – and clustered in 4 Working Groups (WGs). Following the first meeting of the WG 2 ‘Testing’, which took place on 2 April 2020, EPEE would like to provide some comments.

1. Assessing the energy performance of Heat Pumps

Keep the medium temperature regime testing at the rated water leaving temperature of 55°C, which corresponds to the medium temperature application specified in the existing standard EN14825.

EPEE recommends keeping the Medium Temperature regime testing at rated T (supply) 55°C, which corresponds to the medium temperature application specified in the existing standard EN 14825.

Increasing the testing temperature would contradict the goal of Article 8 of EU 2018/844 (EPBD) regulation to optimise the energy use in technical building systems. In addition, national efforts to promote building renovation and to decrease building heating demand would be hindered. This is particularly important in the context of the “Renovation Wave” as specified under the European Green Deal. Indeed, the Medium Temperature Category is needed for renovated homes with lower heating demand and more optimised heat emitters. Deleting such category would deny consumers the ability to choose efficient heat generators adapted to their real needs.
Further explanations:

- **Bin method**: EPEE considers that the sector needs to have clear test conditions that enable a fair comparison between the products and are as close as possible to the reality. However, the use of average temperatures as outlined in the VHK table would be a step back in accuracy, compared to today’s bin method.

- **Testing temperature**: Recent studies by the Fraunhofer Institute ISE and the Danish Technology Institute DTI clearly demonstrate that the maximum temperatures in existing buildings is already well covered by the heat pump medium temperature application at 55°C. A mandatory test at 65°C as proposed by the consultant would therefore not correspond to current realities. High temperature heat pumps able to supply 65°C water temperature can be found on the market, however, these products are dedicated to a niche market and do not represent the vast majority of systems and applications.

- **The scope of Regulation 813/2013** covers heat pumps up to 400kW heating capacity, meaning that it goes beyond residential applications. Many commercially used heat pumps are set to produce water leaving temperatures of around 45°C. The proposed 65°C regime can therefore not be reached by many of these products without the use of electric supplementary heaters and could effectively ban efficient products.

2. Dynamic testing of Heat Pumps

- The dynamic and compensation test methods are not mature enough to be considered as a suitable alternative to the existing method according to EN 14825

- The dynamic and compensation test methods should therefore not be introduced in the current revision of Ecodesign Lot 1 or be applied as transitional method

EPEE welcomes the initiative from BAM and related stakeholders to improve test methods for heat pumps and other products in terms of cost, practicability and accuracy and supports BAM’s efforts to organise a Round Robin Test (RRT). In this context, it is important to note that the responsible CEN standardization committee TC113, workgroups 7 and 8, is already working on that matter with the objective to validate the robustness of the method, including the BAM RRT as a first step.

However, for the time being, the RRT only includes air and geothermal heat pumps with inverter-driven compressors (up to 15kW heat output) and reversible air conditioning systems and applies the compensation method according to EN14825. In order to maintain a level playing field, the entire range covered by ENER Lot 1 up to 400kW would need to be included in the tests as a next step.

Consequently, it would be premature to consider the method as being finalized, introducing it as part of the ongoing review or as a transition method. Indeed, reproducibility, repeatability and reliability while maintaining reasonable testing costs and effort for all stakeholders have not been demonstrated yet.
Examples to illustrate the complexity of testing and the differences:

- Indoor and outdoor conditions as well as product operating hours: these are constant parameters specified in the standard, but in real life, the number of operating hours at certain outside temperatures will always deviate considerably from these specified parameters, due to different locations and climatic conditions. Moreover, the indoor temperature settings and the selected airflow can also deviate from the standard specifications due to individual comfort requirements.
- Installation conditions and product sizing differ from the standard conditions which often leads to reduced capacities and efficiencies.
- The state of the product maintenance, as for example dirty heat exchanger surfaces, can be responsible for a drop in efficiency.

3. Heat Pump Settings

**Common heat pump settings do not reflect reality and lead to distortions**

EPEE considers that establishing and defining common heat pump settings would not reflect reality and could lead to distortions.

Currently, heat pump manufacturers test according to EN 14825, meaning that no particular mode is tested but rather, temperature and part load test points. This is, to date, the most reliable way to achieve comparability since each manufacturer determines and uses different settings which are not necessarily comparable with each other. Indeed, the settings of heating products are much more complex than for other consumer products. They are mainly designed for professionals to maintain, commission and adjust the product to the installation at consumer level. The integration of connectivity, intelligent and component controls leads to even greater differences between products and applications, adding yet another layer of difficulty.

4. Display $\eta$s on Energy Labels

**The efficiency values should be added on the label in order to help consumers distinguish between products in the same efficiency class and compare different technologies**

EPEE strongly recommends to add the efficiency values on the label to help consumers distinguish between products in the same efficiency class for more transparency and allow comparison between products providing space heating functionality from different lots such as lot 10 or Lot 21.

In terms of including energy saving values in the information sheet as proposed by the VHK, it is not possible to quantify the energy saving effect of a reduction in system temperature with acceptable accuracy under unknown building conditions. Therefore, EPEE cannot support such specific advice in the product information sheet.
5. Verification tolerances

➔ Tolerances and uncertainties for electric and gas engine heat pumps should be kept at their current level

EPEE recommends keeping the tolerances and uncertainties for electric heat pumps at their current level. As highlighted by the Ecotest project, the existing uncertainties in the laboratories found by the round robin test do not allow a reduction of tolerance levels for heat pumps.

EPEE also recommends to keep the tolerances for gas engine heat pumps (similar to electric heat pumps) unchanged. It should be noted that the ECOTEST project only covered absorption heat pumps and its results should not be generalised to other gas heat pump technologies.

6. Third Party Conformity Assessment

➔ A well-functioning and rigorous market surveillance in every Member State is crucial

EPEE is not in favour of specific conformity assessment method but rather, highlights the priorities to be considered in order to ensure product compliance and to avoid free riders. Whichever conformity method will be specified, well-functioning market surveillance will always be a key part of the puzzle. It emphasizes that without vigorous market surveillance in every Member State, neither self-declared nor third party assessed conformity will be duly verified. The new market surveillance regulation is a true opportunity in that sense and will help to improve the situation. For a more detailed explanation on EPEE’s position please consult our position paper.

7. Scope extension to 1MW

➔ The scope should not be extended

EPEE would like to underline that in case of extension of the scope to greater than 400 kW rated heat output, there would a risk of overlap with products that are already in the scope of regulation 2281/2016 (lot 21).

8. New ErP group: emitters and controls

➔ Emitters are not a topic for eco-design

Generally speaking, the topic of emitters is rather related to EPBD regulations than to the Ecodesign framework. Furthermore, details about calculating, sizing and optimising emitters are laid out in
standard VDI 4645 ‘Design and dimensioning of heating plants with heat pumps in single and multi-family houses’ which is openly available. The next step will now be to train installers and designers to explain how heating systems and emitters can be optimised. All the necessary knowledge about the emitters is available and a new eco-design measure is not necessary.

Moreover, EPEE considers that emitters are already covered to a certain extent by ENER Lot 38 – Building Automation and Control Systems. Creating a new, dedicated lot, would lead to an overlap and could potentially create confusion.

9. Measurement conditions for Sound Power for HP

Member States lay down individual requirements for sound power and/or sound pressure levels, taking into account local installation conditions (climate, neighbourhood regulations, local noise regulations). They sometimes also distinguish between noise emissions from the products themselves and noise emissions on site.

Defining generic test conditions under the Ecodesign framework to determine the maximum sound power level would therefore not be appropriate, since these test conditions are related to specific settings and local measurement and declaration conditions for each individual device. Indeed, Ecodesign requirements should allow comparability for all products, under average test conditions.

However, EPEE understands that the current sound test conditions should be addressed, as the current test point of +7°C may not be acceptable overall.

EPEE therefore recommends further analysis of the relevant standards.

10. Temperature Control factors in Regulation

EPEE recommends to address controls “vertically”, within the relevant produce standards, for the following main reasons:

- Tailor-made controls are important for the heat generators themselves to optimise heating operation and efficiency and to maintain operational reliability.
- Ensure benefits for both consumers and industry to encourage the development of advanced control functions for heating products
• Encourage consumers to invest in controls for their heating system to ensure a product with the best performance.
• To allow different levels of service provision through the use of specific controls (product, system, building, network ...)
• Prevention of very complicated rules which are difficult for consumers and industry to understand and apply.
• Avoid loopholes or duplication/unnecessary requirements and make sure that specific functionalities are not lost if the controls are considered horizontally.
ABOUT EPEE:

The European Partnership for Energy and the Environment (EPEE) represents the refrigeration, air-conditioning and heat pump industry in Europe. Founded in the year 2000, EPEE’s membership is composed of over 50 member companies, national and international associations from three continents (Europe, North America, Asia).

EPEE member companies realize a turnover of over 30 billion Euros, employ more than 200,000 people in Europe and also create indirect employment through a vast network of small and medium-sized enterprises such as contractors who install, service and maintain equipment.

EPEE member companies have manufacturing sites and research and development facilities across the EU, which innovate for the global market.

As an expert association, EPEE is supporting safe, environmentally and economically viable technologies with the objective of promoting a better understanding of the sector in the EU and contributing to the development of effective European policies.

As part of the activities EPEE and its members are undertaking to raise awareness on sustainable cooling, EPEE will launch a broader #CountOnCooling campaign. The EPEE White Paper “Count on Cooling: A five-step approach to deliver sustainable cooling” examines the crucial role of cooling in the 21st century.

For more information please see our websites www.epeeglobal.org and www.countoncooling.eu