Position Paper

Position on real-life data monitoring under ENER Lot 1 (space heaters)

29 August 2022

EXECUTIVE SUMMARY AND RECOMMENDATIONS

EPEE, the voice of the air conditioning, heat pump, and refrigeration industry in Europe, welcomes the opportunity to provide comments to the data monitoring proposals by VHK. The VHK developed the proposals for a potential implementation in the draft Ecodesign requirements for ENER Lot 1 (space heaters). EPEE highly appreciate the activities carried out by VHK for the investigation of the data monitoring requirements.

We believe that many essential aspects need to be further developed and resolved before any regulatory consideration. Please see our recommendations with further explanation below.

1. The costs assessment needs to consider the whole component list
2. Instate comprehensive tolerance levels
3. Limit the scope to < 35 kW for residential appliances
4. Ensure flexibility for performance data display and storage

EPEE, the voice of the air conditioning, heat pump, and refrigeration industry in Europe, welcomes the opportunity to provide comments on the data monitoring proposals under the Ecodesign draft requirements for ENER Lot 1 (space heaters), which are currently under development by VHK. EPEE highly appreciate the activities carried out by VHK for the investigation of real-life data monitoring. Nonetheless, we believe that certain aspects still need to be further investigated and resolved and that the method is not ready yet for implementation. Please see our recommendations with further explanation below.

1. The costs assessment needs to consider the whole component list

When it comes to cost estimations, EPEE believes that it is not enough to only consider residential products that will be brought on the market in the future. In fact, important cost elements are the sensor requirements for existing and sold products or for products that are currently being brought on the market.

The table below illustrates the gaps in the current discussions concerning costs. We believe that VHK should include all the elements in its cost assessments.

	Residential < 35kW
Existing products that are sold	to be discussed
Products under development	to be discussed
Future products	currently under discussion

2. Instate comprehensive tolerance levels

In the absence of previous experience and measurement standards, defining test conditions and accuracy determination is difficult. Furthermore, as previously expressed, EPEE believes that the main benefit of real-life data monitoring for the consumer is to be able to follow his consumption trend and to potentially change his or her behaviour or settings to reduce energy consumption. As such, we recommend not to set a specific accuracy requirement at this stage.

In addition, we would like to emphasise that these tolerances should only be used to compare market surveillance laboratory test result with on-board monitoring in the defined testing conditions. Also, please consider that there is a wide variety of systems with fixed flow, variable flow, and even without a water pump, all of which require different ways of monitoring, combining measurement, and calculation, each having a different measurement uncertainty. We need to be sure that all methods are possible and that the appropriate tolerances can be achieved.

Input power

With the introduction of monitoring requirements and in the absence of a standard, a tolerance level of ±15 % is already a major challenge and will require re-testing and even replacement of components for some products.

However, the latest indications by the Commission specify that the tolerances will only apply for specific test points defined in EN 14825 and in lab conditions in such a way to avoid unsteady state operation and electricity grid variation (the input voltage must be stable and correspond to the voltage indicated on the unit's rating plate). In these circumstances, EPEE could accept at this stage a minimum tolerance level of ±15 % on the energy input, which is the most important value relevant for the consumer.

Energy output

For the energy output, given the state-of-the-art of current temperature sensors and flow meter incorporated in the products or estimation method, EPEE believes tolerance on this parameter should be set at ±25 %.

A tolerance of ±25 % for the heat output data can only be achieved under the condition that the verification test is carried out at standard rating conditions from EN 14511 for medium temperature applications with W 55 (47) on the indoor heat exchanger and for low and medium temperature heat pumps with W 35 (30) (medium temperature applications would

need to test under one of these two methods). These tests would lead to a sufficient waterflow and temperature difference to achieve this tolerance level. As such, a minimum tolerance of 25 % is needed considering all types of technologies and monitoring methods.

We believe it makes more sense to test at high capacity (full load). A higher capacity leads to a higher energy consumption, which makes it a more relevant test condition, since the potential energy savings through change in user behaviour would be more significant.

Although it is understandable that attention is mainly focussed on tolerances, we would also like to highlight the importance of sensor accuracy levels. The tolerance determines the accuracy of the sensor. The higher the accuracy of the sensor, the higher the cost of the sensor, consequently impacting the cost of the heat pump.

Parameters

EPEE recommends monitoring the following parameters.

- Energy input:
  - Electricity only, no further split to compressors, pumps, or auxiliaries, as larger units have separate heaters and water pumps that may not all be included in the calculation/measurement;
  - Monitoring the energy consumption of the pump and other auxiliary energies is not required, as end-users should not change the pump settings;
  - Only monitoring of the heating mode;
  - Gas / oil for hybrids;
- Energy output.

3. Limit the scope to < 35 kW

EPEE strongly urges to limit the scope to residential appliances, i.e., with design capacity < 35 kW. The reason for this is that the requirement as defined will yield the most benefits for residential single house usage, which represent the majority of the market. For larger appliances, which are mainly (and increasingly when larger) used for professional considerations, and multi-family housing the use cases and interaction with the equipment is totally different. As such, the extension of the defined requirement will not be adapted. For the higher capacity segment, more adapted solutions tailored for the needs of the users of this equipment are already provided by the equipment manufacturer and by third parties. Imposing the monitoring requirement on a heat pump as defined here will be of no use or significant benefits for larger capacity systems where the building performance as a whole is the relevant aspect to consider in this case.

4. Ensure flexibility for performance data display and storage

EPEE appreciates the fact that consumers can, if they wish so, opt out from the data collection. As already flagged, the future requirements should not legislate on the formatting and display, storage formats, but on the objectives. Data formatting and display should be left to the manufacturers.

Furthermore, EPEE strongly urges the consideration of cybersecurity concerns, since the data monitoring can provide information on the private lives of consumers. Flexibility of the display and storage of the data should be ensured. Different solutions are possible to accommodate users and installation needs. We cannot mandate a specific solution. Both embarked display and storage on the equipment/room thermostat or cloud-based storage with display on smartphone, tablet or laptop should be allowed.

For **data collection and storage**, we can accept the following:
- daily information within the last 24 hours with a resolution per hour;
- weekly information within the last 7 days with a resolution per day;
- monthly information within the last 31 days with a resolution per day; and
- yearly information within the last 12 months with a resolution per month and information for the last two years with a resolution per year.

ABOUT EPEE

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 as well as national and international associations from three continents (Europe, North America, Asia). With manufacturing sites and research and development facilities across the EU, which innovate for the global market, 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. Please see our website (https://www.epeeglobal.org/) for further information.