

## EHPA's position on the Compensation method

Eighteen EHPA members<sup>1</sup> participated to the round robin tests of BAM to assess the feasibility of introducing the compensation method in the Ecodesign Regulation for air-to-water heat pumps and water-to-water heat pumps<sup>2</sup>. While BAM's results are not yet final nor public, EHPA collected some general and technical comments based on a part of these members' experience of testing according to the compensation method. Several concerns were highlighted to point out that the compensation method is not yet mature to be integrated into a standard:

- The compensation method requires a much longer testing time than the current method, which impacts the development and time to market of products as well as available manpower at the manufacturer's side.
  - On/Off cycles under C conditions of nearly 5 hours were observed. The requirements of the BAM method called for data to be recorded over 4 consecutive cycles. The duration of the On /Off cycles can be conditioned by the design characteristics of the laboratory test facilities.
  - On the water-to-water heat pump, the duration of a test point of 8 hours was observed against 2 hours by the standard method.
  - On the air-to-water heat pump, a doubling of the duration of test time was observed.
  - It has been observed that some discontinuous tests could last up to 20 hours. The laboratory must therefore be able to manage tests continuously 24 hours a day, if a test lasts more than 8 hours. A risk of inadvertent failure of power supply or any other problem, even minor, can lead to extremely long test times.
- While the aim of the compensation method is to allow market surveillance authorities to carry out laboratory tests on any product without the need for intervention or assistance from the manufacturer, it currently seems difficult to conduct the tests without the manufacturer's or installer's support. A significant level of technical knowledge is required to be able to start and run the unit. Out of the box settings are not fit for this method and, necessary adaptations to the settings during the test are required. In addition, the out of the box settings might be different from one unit to the other one of the same model/type depending on where the unit is marketed, that may lead to different performance results.
- For each test condition, it is essential to adjust the heat curve of the heat pump in order to adjust the set point water temperature of the heat pump to the temperature measured by the laboratory. The adjustment of this water temperature is very often done by steps of 1K which makes the adjustment within the admissible deviations sometimes limited. Some EHPA members reported that the test conditions were impossible to achieve for the discontinuous test (On /Off cycling).
- Compliance with operating conditions, or even deviations, has also proved difficult to achieve. On the water-to-water heat pump, the water flow on the cold source side was controlled by the unit, making it difficult to maintain the  $\Delta T$  of 3K (Tinlet = 10 ° C / Toutlet = 7 ° C). As for an air-to-water heat pump, it could be considered to adjust only the water inlet temperature on the cold source side for a variable water flow heat pump.
- An additional drawback to take into consideration, is that for some laboratories it might be difficult to adapt to the new testing method. The constraints are specifically linked to the capacity ranges to be tested under the compensation method.

To conclude, we can support the intermediate conclusion from BAM that more guidance is needed and a parameter study needs to be conducted to clarify certain aspects such as impact of testing with or without intermediate circuit, on-off operation, the tank size to compensate the load. While BAM RRT and other test results are part of the knowledge necessary to address the compensation method, the shared knowledge is lacking to assess the feasibility of the method. For this reason, we ask that above concerns are carefully considered and that no decisions are taken as to the feasibility of introducing the compensation method ahead of having the final results ready.

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<sup>1</sup> As indicated on the list of participants for air-to-water heat pumps and water-to-water heat pumps dating from July 2020.

<sup>2</sup> A RRT on an air-to-air conditioner was also conducted in view of introducing the compensation method in the revision of regulation 206/2012

## ABOUT EHPA:

The European Heat Pump Association (EHPA) is a Brussels based industry association which aims at promoting awareness and proper deployment of heat pump technology in the European marketplace for residential, commercial and industrial applications.

EHPA provides technical and economic input to European, national and local authorities in legislative, regulatory and energy efficiency matters. All activities are aimed at overcoming market barriers and dissemination of information in order to speed up market development of heat pumps for heating, cooling and hot water production.

EHPA coordinates quality initiatives: including the HP KEYMARK, a Quality label for heat pumps and Certification standards for heat pump installers. The association compiles the annual heat pump statistics and organizes a number of events, among them an annual heat pump conference.