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Eurovent comments on the November 2014 CLASP analysis of specific issues regarding EU policy proposals for DG ENER lot 12 Commercial Refrigeration

Background

Eurovent has contributed to the development of the study by the European Commission DG Energy and JRC that resulted in the working documents on possible Ecodesign and Energy Labelling requirements for refrigerated commercial display cabinets that were discussed during the stakeholder meeting on 2 July 2014.

The CLASP report includes an assessment an assessment of the EPEE/Eurovent proposal of 1 September 2014. CLASP provided the draft of this analysis to EPEE/Eurovent just before midnight on Wednesday 27 November 2014 with request for industry comments by Friday, 29 November 2014.

General comments

The main intention of Eurovent during the preparatory study phase was to provide reliable data of 2.500 display cabinets that would support the development of a fair and correct base line for the energy efficiency level of existing cabinet categories.

Only if the baseline is set correctly, realistic MEPS thresholds can be defined and a reliable calculation of resulting energy savings can be carried out. The forecast annual energy consumption and potential energy savings in the study are substantially overestimated. This has been confirmed in the CLASP report.

We note that, in the CLASP report, MEPS and energy labelling are not properly separated in some paragraphs. In addition, there is no clear reference to standards, for example where data according to ISO EN 23953 is compared to data under shop conditions. The data referred to in the CLASP report is based on data available under the British Enhanced Capital Allowance (ECA) scheme, where over a six year period 40 cabinets were tested, however not fully conforming to ISO EN 23953.

Data conversion

The conversion factors for data comparison from different standards and test protocols (e.g. ASHRAE into ISO/EN) cannot be generated by a theoretical approach only. These would need to be validated with a reliable round robin test program.

One has to observe that cabinets are usually designed and optimised for a specific standard (e.g. to ASHRAE, or ISO/EN). Experience is showing that cabinets can have very different energy efficiency and temperature performance characteristic when tested according to different standards (e.g. an ASHRAE +5°C cabinet might only reach +7°C under ISO/EN conditions and vice versa).

Comparison of minimum energy performance standards is difficult because of the different segmentation that exist for cabinets.

Australia defines 20 categories for remote cabinets and 56 for integral cabinets (28 cabinet types in 2 temperature classes). The US DOE defines 48 categories.

The CLASP report is limited to one category, and applies and uses the Australian closed remote multideck as reference for all vertical. The arguments developed render all other vertical cabinets obsolete. This argument supports the Eurovent proposal that more segmentation amongst the cabinet types is necessary.

Differentiation Remote vs. Integral

Obviously, all major certification schemes assume that energy efficiency of an Integral cabinet is worse compared to a reference Remote cabinet with the same technology. The CLASP study confirms this and thus argues in favour of differentiation between Remote and Integral cabinets.

A minimum difference of 10% in TEC can be derived from basic physics, excluding the additional difference of the compressor COP which is not visible with the EN ISO 23953 REC calculation method. The extensive explanation was already provided in an earlier Eurovent position paper.

In this explanation the assumption is made, that the typical condensing temperature of an Integral cabinet, operated in a test room at 25°C and 60% relative humidity, is approximately +40°C. This assumption can be proven with RD&T data (see CLASP report, page. 49, paragraph "Eurovent argument that integrals are less efficient than remotes"), which give +39 °C as condensation temperature obtained in a test

One needs to stress that the energy consumption of Integral cabinets is measured and that the energy consumption of remote cabinets are calculated. It is therefore not appropriate to compare both.

The ASHRAE and EN ISO standards are two different, non-comparable standards. They are conventions to evaluate the energy consumption, not to make comparisons between both. In general, the view is held that the EN ISO standard overestimates and the ASHRAE standard underestimates the energy consumption.

The CLASP based on RT&D reports that seem to indicate that there is no difference between remote and integral cabinets. The Eurovent data shows a difference of 23% energy consumption between similar (VC2), and at the same temperature level (M2), remote and integral cabinets.

The CLASP report is stating that roll-in cabinets can be realised with glass doors and thus meet the intended MEPS threshold. The evidence for this assumption is missing and reference applications should be listed. It has to be pointed out that this view is not necessarily shared by retailers and may possibly apply to a specific country.

Eurovent believes that for special applications of roll-in cabinets, equipped with air ducts for trolleys, the integration of glass doors might be feasible. For the overall main application of roll-in cabinets with a lift-able front, designed for an easy roll in of pallets with products, the integration of glass doors would not seem possible.

Semi-Vertical

As a result of the MEPS thresholds that are recommended by the CLASP report for vertical cabinets, the open semi-vertical cabinets would be phased out.

According to the CLASP report, there should be no segmentation between open and closed (glass door) vertical cabinets. CLASP recommends that the EEI should be set to a limit that is can only be met by the most advanced open multideck cabinets. Accepting the fact, that - given by physics - the energy

efficiency of a semi-vertical is significantly lower than comparable multideck cabinets, the open semi-verticals would have to be phased out as a consequence.

The phasing out of open semi-verticals would require a discussion with retailers because these cabinets form an integral part of shop design.

Eurovent recommends that a separate category for semi-verticals is introduced.

Multidecks

For the assessment of the impact of the Eurovent proposed baselines, data from the Eurovent Certification database was taken. CLASP states that hardly any model would have to be removed from the market. This argument shows again the difficulty that arises when defining cabinet models and categories. The Eurovent Certification database shows energy performance values for cabinets that are already the most efficient cabinets regarding shelving, light electric components, etc. This is so because manufacturers wish to acknowledge through a party the performance of products and this invariably lead them to select the best performing products.

This database is not representative for the multitude of variants that exists for each single model because it focusses on the best possible models. A 'representative model' similar to the definition used for UK ECA scheme as proposed would most likely have to be very different from the models declared at Eurovent Certification and would have a significant higher energy consumption. The proposed baseline by Eurovent considers the variety with each model range and the impact on the energy consumption, removing the worst variants from the market.

Testing

The CLASP report states that sufficient test capacities to support a MEPS/Labelling system as proposed in the ENER Lot 12 draft regulation would be available.

Eurovent holds that the assumption for the required investment into test labs and equipment is significantly underestimated and should be analysed in more detail.

In addition to the initial investment into the test equipment, significant expenses for operating and maintaining the test lab is required (regular calibration, test packages, sensors and other expendable materials, test engineers and technicians).

An analysis of the existing number of test facilities and related cost of 3rd party testing for small companies that do not have own test laboratory should be done.

According to Eurovent knowledge, the cost of a standard performance test is approximately 5.000 EUR (reference offer from Nov 2013). In addition to the 3rd party testing fee, the considerable costs for the test cabinet itself, the shipping to the test lab and the onsite test support have to be considered.

The CLASP study did not focus on laboratories themselves, the cross-checking performance of laboratories, and the need for accreditation including the certification test rooms. Nor does the report refer to the need for round robin testing that is required to ensure coherence and reliability of tests, which should be a mandatory requirement.

For simplification of testing the CLASP report is proposing to standardise testing for all chiller cabinets at temperature class M2 and for all freezer cabinets at temperature class L1. Would this mean, that all cabinets that cannot meet this temperature performance (e.g. a 3H cabinet) are excluded from the Scope of ENER Lot 12 regulation)?

Furthermore this simplification will result in a performance penalty for cabinets, that are designed for a higher temperature performance; e.g. a 3M1 cabinet is normally equipped with more fan motors than a 3M2 cabinet and will therefore have a relatively higher energy consumption when tested @3M2.

It is not really possible to make reference to a single temperature class, because customers would want to know the efficiency for the specified temperature class. This would also apply to labelling.

In table 5, several details of the current IEN SO 23953 test standard are listed, which still give flexibility for interpretation, resulting in a deviation of test results. The existing data that are used in the preparatory study are based on this standard and if the standard would change in some details, the resulting data might change as a consequence.

Some of the comments in table 5 are valid, some seem to be a misunderstanding of the standard. In the end, this is further proofing that testing is complex and not a simple procedure, requiring an advanced level of expertise and experience.

It has to be noted that corner cabinets are only mentioned as a definition in part 1 of EN ISO 23 953 and not in part 2 that deals with testing because the air flow cannot be made to fit test room cabinets. One also has to note the difference between the ASHRAE and EN ISO approach, with Europe referring to the EN ISO standard. Corner cabinets are not designed as standalone cabinets, they are designed to fit into a row of cabinets and hence stand-alone testing is not appropriate.

It would appear that there is a lack of understanding of the industry where in general cabinets are produced on customer demand and not kept in stock. This renders a random selection of cabinets from stock or out of production would not easily be feasible.

A major conclusion is that round robin tests between Australia, United States and Europe are absolutely necessary to verify the conclusions derived from literature study.

Within CEN TC 44 meetings it has already been indicated several times that a comparison based on literature review has not been substantiated by verification until now. Hence the need to be extremely careful when interpreting data and results from different sources.

Enclosures

- CLASP November 2014 report including Eurovent comments,
- CEN TC 44 WG1 N64 with item on the merge of EN ISO 23953-1 & EN ISO 23953-2 with ASHRAE and Australian standards.

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About Eurovent

Eurovent, the European Committee of HVAC&R Manufacturers, is the representative of Europe's major national associations in the industry of heating, ventilation, air conditioning and refrigeration. Based on objective and verifiable data, its 24 members from 18 European states represent more than 1000 companies, the majority small and medium-sized. In 2013, these accounted for a combined annual turnover of around 25bn euros and employed more than 120.000 people – making Eurovent one of the largest industry committees of its kind.

Eurovent's roots date back to 1958. Over the years, the Brussels-based umbrella association has become a well-respected and known stakeholder that builds bridges between companies it represents, legislators and standardisation bodies on a EU and international level. The association favours a level-playing field for the entire industry and strongly supports energy-efficient and environmental-friendly solutions. Eurovent holds in-depth relations with partner associations around the globe. It is a founding member of the ICARHMA network, supporter of REHVA and contributor to the EU's BUILD UP initiative.

Eurovent possesses two subunits. With Eurovent Certita Certification (ECC), it majority owns an independent certification company, which holds the ISO 45011 (17065) accreditation – fulfilling highest independency, reliability and integrity standards. Open to any company, it is known for its globally-recognised brand 'Eurovent Certified Performance'. Activities are complemented by Eurovent Market Intelligence (EMI), the association's second independent unit. Its Europe-wide data sets are frequently being used to support the development of EU regulation.

Members of Eurovent

Europe's major, national HVAC&R associations and their more than 1000 manufacturers

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Corresponding Members

Manufacturers in European countries with no national HVAC&R association representing them

Independent Subunits

Organisations with own structures that guarantee a full independency from the Eurovent association

Enclosed:

Files linked within this documents can be found within the 'Attachment' section of Adobe Acrobat.

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