Main outcomes of the "WORKSHOP Standards for the ECOdesign LOT 1 and 2: Where are we?" organized by LABTQ (www.labtq.eu) and MARCOGAZ (www.marcogaz.org)

Proposal for co-normative work in support of the ECO design LOT1 and LOT2

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Final version. Modified with comments received from Mindert L.D. van Rij – Kiwa& Daniel Hec - Marcogaz

Introduction

The implementation of the ECOdesign Directive for all products under its scope (and so including LOT 1 and 2) will be supported by the mandate M 495 given to CEN. In the mandate a number of products and issues are mentioned and will need to be covered by the CEN work in the very near future.

For a number of aspects the relevant CEN standards will be updated directly with the requirements of the Directive implementing regulations, but **for a number of other points, supporting co-normative work would be needed to ensure that the needed procedure to determine the ECOdesign parameters are correctly written and validated**.

This was confirmed by a recent workshop (WORKSHOP Standards for the ECOdesign LOT 1 and 2: Where are we?) organised on 3 May 2012 by LABTQ & MARCOGAZ with the participation of CEN TCs, manufacturers' association, EU Commission, consumer organisations.

Two main issues were identified:

1) **Readiness and applicability of test procedures**: The fact is that for a number of products, such as gas heat pumps or micro CHP, the technology is new and so are the standards currently prepared. Moreover, the technologies are much more sophisticated compared to traditional central heating boilers and the testing procedures that apply to boilers cannot be simply transposed to these new technologies. As these appliances are new, laboratories have less experience with testing, and no figures for inter-laboratory reproducibility are available (whereas these figures are known by LABTQ for CH boilers).

2) **Equivalence of test procedures for different appliances:** The ECOdesign LOT1 & 2 ambition is to ***compare various technologies using different energies*** but with the same function. However, the standards for the testing have been developed by different industries and the very important question of the equivalence of these standards, including their accuracy,was raised. It is of the utmost importance to be sure that the standards issued do not introduce discrepancies in the comparison of the appliances/technologies due to the design of the testing method, but only to physics.

Workshop conclusions

Standardisation situation

From the presentation (Part 2 Overview of the mandated work to be done. Are standards ready?) the following points were raised:

- What needs to be measured? *Reading the documents issued in February [3] will bring the answer, but TC would prefer to have a list of parameters clearly defined. Also the fact that documents may still be subject to changes is a current problem for TC's. Furthermore, for some TCs it is not clear if standards should only describe the parameters to be measured or also the annual efficiency calculation method (for this last point most workshop participants believe that the standard should NOT deal with annual efficiency calculation, but only with test procedures of input parameters). Also some TCs pointed out some possible conflicts with EPBD in relation to annual efficiency.*
- What accuracy is needed? *The test procedures will depend on the accuracy targeted. This will have an impact on the reliability of testing and on testing cost as well. The existing standards are focused on what needs to be measured, and what are the acceptable tolerances in the test conditions for a valid test. The standards do not focus on what a test laboratory has to do to ensure comparable inter-laboratory results. Nor do they set requirements for the test laboratory as to what proof must be given of inter-laboratory repeatability in order to be able to perform acceptable tests. Nor do they give guidance on how to correct the end result for the*

variations in the test conditions if the variations are within the acceptable limits for the test conditions.

- Third-party testing as unique option or not? *Also according to some TCs this point may have an influence on the test procedures to be developed and on the parties that will be active to harmonise test procedures. If the procedure is going to be manufacturer self-testing, there will be limited interest from the professional test laboratories that used to play an active role in the development of testing standards and procedures.*
- Lack of testing experience. *For a number of appliances such as new technologies (gas heat pumps, micro-CHP) or appliances for which test procedures are quite recent, there is an obvious lack of testing experience. As a result, the reproducibility between the labs is not known. New parameters, such as noise, may also bring issues as this is not part of typical CE type testing for CH boilers. In one case a TC is preparing inter-comparison between a few labs (GAHP) so as to test new standards. LABTQ is also preparing an inter-comparison for hot water production appliances. However, despite these efforts, there are many other appliances for which these exercises would be needed.*
- Different degrees of progress for the implementation of ECOdesign in standards: *Some TCs have already progressed well, whereas for others a lot or work is still to be done.*
- Is there a need for more horizontal test standards? *For NO_x emission the CR 1404 is a common reference for many standards (even though it shall be revised). Items such as noise, electricity measurement, standby losses, uncertainty calculation etc. could also be shared between TCs and will contribute to a better equivalence between the technologies under the scope of LOT1 & 2.*

Testing experience

From the presentation (Part 3 LABTQ /LABNET. Technical experience with testing ECOdesign parameters) the following points were raised:

There is a need for gaining experience and possibly for improving standards for

- New technology appliances (mainly GHP & mCHP; non-exhaustive list as not all technologies under LOT1 & 2 scope were represented)
- Appliances for which existing standards have not yet been used (hot water production)
- Horizontal issues for which the requirements of the directive make existing standards inappropriate (e.g. lowNO_x emission level)

The need for the above was illustrated with practical examples and data gathered from laboratories' own experience and common work in LABTQ.

Several inter-comparisons within LABTQ were organised in the past and have led to GLP (Good Laboratory Practice) documents. Parts of these are implemented in present standards.

LABTQ experience with Inter-comparisons

- 1990 – 2012 several RRT tests on gas boilers
- 2002 -1012 & fuel oil boilers
- 2004 gas burner
- 2011 gas cooker

Laboratories suggested that their experience should be used in order to help TCs to solve the actual issues identified.

Information from the Commission &CEN

- The inter-service consultation is now almost finalised. The regulatory committee that should meet after summer will most probably fine tune the measures adopted.
- There is presently a working group in the EU that is dealing with the legal formulation of tolerances. The industry should ask for participation in the work.
- The only route for support of co-normative work would be through Intelligent Energy Europe programme, but it is not sure at this stage that the items that need to be treated can be added to the next call. However, LABTQ should send ASAP a short description of the work that would be needed.
- The representative of CEN mentioned that an ECOdesign coordination group had been set up to manage the execution of Mandate M/495. The industry should be present and possibly ask for the creation of a sub group mainly dedicated to Lots 1 and 2.
- The industry should be prepared for the next steps and have already CO, CxHy, particulates etc. on the list of items that would need standards. These are already mentioned as potential parameters for the revision of the directive. Moreover, 2013 will be the air quality year with much focus on these emissions.
- The industry must consider to make harmonised & clear definitions for the parameters needed for the application of LOT 1 & 2, but also to look at other relevant LOTs, such as 15 & 21.
- Despite the fact that market surveillance is under the responsibility of member states, there is a budget line in DG Enterprise for a collaboration within member states for market surveillance.

Third-party testing

Despite the fact that third-party testing was not fully in the scope of the workshop, the issue was discussed as it has a lot of interaction with the themes discussed (uncertainty of measurement, reproducibility, etc.). Until now, third-party testing was reserved to appliances that could present a safety risk for the users. To demand third-party testing for non-safety issues, a strong case must bebuilt.

It must be noted that no other LOT has adopted third-party testing.

Considering:

- that the current BED does require third-party testing
- the major impact of the performance of space heating and hot water heating on the total EU energy use and CO_2 emission

it could be relevant to demand – as an exception – third-party testing in case of LOT 1 and 2.

However, it will be necessary to explain in detail what are the added values of third-party certification (benefit on security of supply, climate change, internal market, consumer protection) and the support of member states will be very important.

Considering the dynamics of the regulation process it is very important to discuss this issue ASAP with the relevant persons in the member states.

OVERALL CONCLUSIONS OF THE WORKSHOP

1) **There is common opinion and agreement about the need to prepare a pain-free implementation of LOT1 & 2 measures.**

2) **A simple way to organise this would be to set up a number of exercises aiming at testing and validating the actual standards or standards in development. This is to be done by laboratories in close collaboration with the relevant CEN TCs.**

3) **There is a need for harmonised views or guidelines in order to guarantee the consistency between the different standards to be used for the application of LOT1 & 2. This could be the role of a sub-group of the enlarged *CEN Ecodesign coordination group*.**

4) **Third-party testing/certification seems to be the best option for an uncontroversial and effective directive implementation, and the industry seems to be unanimously supporting this.**

Annex 1

WORKSHOP Standards for the ECOdesign LOT 1 and 2: Where are we?

Organized by: LABTQ & MARCOGAZ

Objective:

1) Laboratories will give information on the most recent test and projects carried out to evaluate standards in regard of ECO design LOT 1 and 2 (RRT, investigations results etc.)
2) Clarify the situation for the standardization of the products which are in the scope of the LOT 1 and LOT2.
3) Make decision on complementary actions by laboratories in coordination with the relevant CEN TCs

DATE 03 May 2011 9.30 15.00
Place: Marcogaz office, Avenue Palmerston 4 B - 1000 Brussels

FINAL PROGRAMME

Welcome Introduction DGC - J. Schweitzer /Marcogaz -Daniel Hec
LABTQ short presentation ARGB - Kris De Wit

Part 1 Eco design requirements *9.40 to 10.00*

1) List of input / Measurements tolerance & limits between efficiency classes (DGC - J. Schweitzer)
2) Third-party testing? (ARGB- Kris De Wit)

Part 2 Overview of the mandated work to be done. Are standard ready? (by TC chairs) *10.00 to 11.30*

1) Mandated work M 495 (Ms CinziaMissiroli - CEN-CENELEC)
2) Gas Boilers (TC109 - Mindert L.D. van Rij - Kiwa)
3) Fuel oil boilers (TC 57- WilfriedLinke - EHI)
4) Water heaters (TC 109 - Mindert L.D. van Rij - Kiwa)
5) mCHPs (CEN/CENELEC/JWG/FCGA JoergEndish – DVGW-EBI)
6) GHPs (Marcello Aprile - Politecnico di Milano & Jonas Wintermayr, Panasonic)
7) Horizontal issues (CR1404 - Jacques Dubost - Gdfsuez)
8) Other

Break (10 minutes)

Part 3 LABTQ /LABNET. Technical experience with testing ECO design parameters *11.40 to 13.00*

1) 20 years of Round Robin test on boilers. Measurement state of the art (DGC - J. Schweitzer)
2) Investigation on NOx. State of the art (CETIAT -NourreddineMOSTEFAOUI)
3) Hot water production, what accuracy to expect? (DGC - J. Schweitzer)

4a) Mchps: UK experience in EU perspective: what to expect if we do nothing? (GASTEC UK – Paul Balmer)
4b) Mchps- Importance of Experimental Evaluation and Inter-comparison Tests (DVGW-EBI – AnkeKaltenmaier)
5) GHPs

13 – 13-30 SHORT LUNCH

Part 4 What now? *13.40 15.00*
1) LABTQ proposal (DGC - J. Schweitzer)
2) Discussion
3) Conclusion

Annex 2 PARTICIPANTS list

1. *Mindert L.D. van Rij - Kiwa Nederland*
2. *Manuela Musella – EU*
3. *Wilhelmus de Wilt - EU*
4. *Jean Schweitzer – DGC*
5. *Kris De Wit - ARGB*
6. *Joerg Endisch – DVG-EBI (CEN/CENELEC/JWG/FCGA)*
7. *Anke Kaltenmaier - DVGW-EBI*
8. *Nourreddine MOSTEFAOUI – CETIAT*
9. *Elisa Grasso –IMQ*
10. *Elisa Costa - CATIM*
11. *Daniel Hec - Marcogaz*
12. *Stamatis Sivitos - European Environmental Citizens' Organisation for Standardisation (asbl)*
13. *Gunnar Olesen - INFORSE – Europe*
14. *Marcello Aprile - Politecnico di Milano (dep of Energy) member TC299 / EN12309*
15. *Ignacio Leiva - Repsol*
16. *Fernando Nuño - Repsol*
17. *Jonas Wintermayr, Panasonic (WG3 TC299)*
18. *Dirk Wellkamp - Vaillant GmbH*
19. *Wilfried Linke – EHI (TC57)*
20. *Paul Overman - member of FCGA Working Group*
21. *Jacques Dubost - Gdfsuez*
22. *CinziaMissiroli “Sustainability and Services” Unit at the CEN-CENELEC*
23. *Paul Balmer GASTEC UK*

Annex 3 LABTQ PRELIMINARY PROPOSAL FOR ACTION

What does LABTQ propose?

We simply propose to test “ECOdesign” procedures in appliances standards with the goal to identify laboratory test issues and communicate with the relevant TCs in order to improve the procedures that may bring problems so that the standards are ready for use when the directives enter into force.

What do we propose in practice? (presented at the workshop)

Part 1: Product standards: Small inter-comparison tests in support of standardization work

ECOdesign small inter-comparison tests will be carried out on one appliance of the following technologies:

- mCHPstirling engine
- mCHP fuel cell
- mCHP engine driven
- Gas heat pump air/water absorption
- Gas heat pump air /water engine driven
- Electrical heat pump water-water
- Electrical heat pump air-water
- Solar panel
- Instantaneous water heater
- Combi-boiler with a water tank integrated
- Water tank as stand alone

The list above is not exhaustive, can also be considered:

- PFHRD

For each appliance the following work will be performed:

- 2 or 3 laboratories having a recognised expertise in testing the given technology will be selected to execute ECOdesign testing on the given appliance. In practice only one appliance will be needed.
- The first laboratory will test the appliance according to the existing standard. Any missing point in the testing procedure will be noted and discussed by telephone/email with a small

group of experts (“follow up group”) that will comprise test laboratories, manufacturers and members of the CEN TC.

- The existing standard will be amended/corrected by the first laboratory based on the discussion above mentioned.
- The first laboratory will continue the test, or perform the test again with the amended procedure when needed.
- At the end of the test by the first laboratory a report will be issued (including test results + explanation of the changes in the standard) and a new experimental and complete standard will be issued and will be delivered to the second laboratory
- The second laboratory will perform the test according to the new experimental protocol.
- Possibly a third one, but this is an option to be discussed at the moment.
- Once tests are executed, the results are to be sent to the follow up group and conclusions are to be made. Possibly, the group can make new amendments to the “experimental standard”, which is then sent formally to the given TC.

Part 2 Horizontal issues. Guidelines for testing parameters that are common to all technologies in the scope of LOT 1 & 2.

Horizontal issues

Horizontal issues are common issue shared by several TCs. We have identified several horizontal issues that are:

- NO_x
- Standby loss
- Noise

Possibly other issue shall be considered in view of the future revision of ECOdesign

- CO (is already in the mandate)
- CxHy (unburned hydrocarbons)
- Particulates

Present situation

Today we only have one document on a horizontal issue: the CEN technical document CR 1404 dealing with NO_x and CO. The actual method of the CR 1404 is not adapted to the low level of emission proposed in the directive as the tolerance given for the market surveillance (20%) is very severe. So the CR1404 will need to be updated and improved so that the document can be used as reference for all product TCs concerned with the NO_x requirements.

For the other measurements of the list above there are no common documents or standards and they will need to be developed.

Work to be done

Similar to appliances inter-comparison tests have to be organised to check that the actual reproducibility is acceptable and/or to propose amendments so it becomes acceptable.

TC to be involved & standard concerned

(see document [1])

Main to involve stakeholders: from [1]

EHI, Eurovent, EHCA, AEGPL, ESTIF, Europump, Eurofuel, Marcogaz, EHPA, COGEN, OPENTHERM, EPEE, ASBL, INFORSE

Annex 4 References

[1] TC109 Annex REV 2012-03-14

[2] CR 1404

[3] COMMISSION REGULATION (EU) No …/.. of XXX
implementing Directive 2009/125/EC of the European Parliament and of the Council
with regard to ecodesign requirements for space heaters and combination heaters *+ the 7 other documents sent on February 2012*