



D5.3: LABORATORY INVITATION DOCUMENT.

WP5: Product competition for most efficient professional cold models on the European market

Task 5.2: Product testing for compliance verification

Christof Horvath, Austrian Energy Agency, Austria

Final version, 31 May 2016

Project Partners



This ProCold project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 649293.



The sole responsibility for the content of this report lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EASME nor the European Commission are responsible for any use that may be made of the information contained therein.

Introduction

From Grant Agreement

“Following the submission of specific models for the competition, the project team will select about 10 – 20 models (targeting the winning models, depending on the amount of submissions for the competition), which will be tested for comparing their performance claims in standardised laboratory conditions. The testing procedure will ensure that products being highlighted by the project and its dissemination tools will deserve such recognition, as it will be supported by an independent verification.

Laboratory used for testing will be selected by a project tender on a best value for money principle, guaranteeing high quality and transparency of testing, respecting full requirements of the Standards, and delivering appropriate test reports.” (p. 26 of 37)

Goal

The purpose of testing will be to:

- Validate manufacturers declarations
- To validate top-running products in the competition
- Possibly test additional models which should receive such recognition

TESTING SCOPE – TYPES OF PRODUCTS TO BE TESTED, TESTING PARAMETERS AND RELEVANT STANDARDS

1-2 models in each of the following five categories

- Vertical chilled storage cabinets
- Beverage coolers
- Small ice cream freezers
- Vertical supermarket refrigerator cabinets
- Refrigerated glass fronted vending machines (category 2 type)

shall be tested.

The criteria and standards are defined in the **ProCold Product Competition rules (ANNEX 1)**. The following table shows the requested parameters. Selected laboratories will be asked to quote the price for testing one (or more) unit(s) of each category (VAT excluded & VAT included) only if the capability to test this category exists.

Measured and calculated parameters	Baseline test conditions and references	Category
Energy consumption and Energy Efficiency Index (EEI) at defined climate class and temperature class, refrigerant type.	Energy Efficiency Index (EEI) determined at 30°C/55% RH based on measurements according to EN 16825:2016* and calculated according to Ecodesign Regulation (EU) 2015/1095 for temperature class M1 according to EN 16825:2016* (-1°C to +5°C) * Latest (draft) version as available on 1 July 2016, see https://goo.gl/Rm0uk1	Vertical chilled storage cabinets
Energy consumption and Energy Efficiency Index (EEI) at defined climate class and temperature class, refrigerant type	Energy Efficiency Index (EEI) determined at 25°C/60% RH based on measurements according to EN 16902* and calculated according to applicable (draft) European Ecodesign Regulation** for temperature class K1 according to EN 16902*	Beverage coolers

	<p>* Latest (draft) version as available on 1 July 2016, see https://goo.gl/gNwM83</p> <p>** Draft version as available on 31 August 2016 from topten.eu/pro-cold</p>	
Energy consumption and Energy Efficiency Index (EEI) at defined climate class and temperature class, refrigerant type	<p>Energy Efficiency Index (EEI) determined at 30°C/55% RH according to EN 16901* and calculated according to applicable (draft) European Ecodesign Regulation** for temperature class C1 according to EN 16901* (-18°C)</p> <p>* Latest (draft) version as available on 1 July 2016, see https://goo.gl/LNNaCd</p> <p>** Draft version as available on 31 August 2016 from topten.eu/pro-cold</p>	Small ice cream freezers
Energy consumption and Energy Efficiency Index (EEI) at defined climate class and temperature class, refrigerant type	<p>Energy Efficiency Index (EEI) determined at 25°C/60% RH according to EN ISO 23953-2:2015 and calculated according to applicable (draft) European Ecodesign Regulation** for temperature class M1 according to EN ISO 23953-2:2015 (-1°C to + 5°C), see https://goo.gl/Qn1Xdv</p> <p>** Draft version as available on 31 August 2016 from topten.eu/pro-cold</p>	Vertical supermarket refrigerator cabinets
Energy consumption	Energy Efficiency	Refrigerated glass

and Energy Efficiency Index (EEI), refrigerant type	Index (EEI) determined at 23°C/60% RH according to EN 50597:2015, see https://goo.gl/uP8x0d and calculated according to applicable (draft) European Ecodesign Regulation** for temperature class according to Category 2 machine type (12°C) ** Draft version as available on 31 August 2016 from topten.eu/pro-cold	fronted vending machines
--	---	--------------------------

Products in each category are assessed according to the defined measurement standards (English language version authoritative) and test conditions. The Energy Efficiency Index (EEI) is the core performance criterion based on which the winning product of each category will be determined by the ProCold consortium. The laboratory should calculate the EEI. The exact formula will be confirmed with the laboratory before testing starts.

Time span for testing, transportation and purchase

Laboratories will be requested to organise the testing within the following timeframe:

- 17th - 31st October 2016: Procurement of products
- 1st November - 16th December 2016: Testing of products
- 21th December 2016 - 20th January 2017: 2nd series of procurement and testing (if necessary)

SPECIFICATION OF FURTHER REQUIREMENTS

The contract will comprise the following services:

- Available capacity to test up to two products per category within a 1st test series from 1st November - 16th December 2016. Capacity to test up to two additional products per category within a 2nd test series from 21th December 2016 - 20th January 2017. The final number of products depends on the total costs for testing offered by the laboratories and the available budget. The number of products in the 1st test series will be specified before testing starts. One product of each product category will be tested in any case. The number of products tested in the 2nd test series will be decided based on results of the 1st test series.
- Data resulting from testing will have to be clearly documented and provided in easily readable digital electronic format and will be delivered with a full testing report from the laboratory. An overview test report and a table with the findings shall be provided for each model tested. EEI calculation has to be made transparent.

- Access to test standards cannot be provided by ProCold. Access to authoritative English language versions of the (draft) standards must be available to the laboratory.

Furthermore, the following general requirements must be fulfilled by testing laboratories

The laboratories will be asked to provide documentation and references showing that they are able to meet these requirements.

Management requirements:

- It is the responsibility of the laboratory to carry out its testing and calibration activities in such a way as to meet the respective requirements of the tender specifications and under the specified test conditions
- The laboratory must have managerial and technical personnel who have the authority and resources needed to carry out their duties.
- The laboratory shall provide adequate supervision of testing and calibration staff by persons familiar with methods and procedures, purpose of each test and/or calibration, and with the assessment of the test or calibration results.
- The laboratory shall establish and maintain procedures for identification, collection, indexing, access, filing, storage, maintenance and disposal of quality and technical records.
- The laboratory shall have procedures to protect and backup records stored electronically and to prevent unauthorized access to or amendment of these records.
- The laboratory shall store samples in a secure way and be able to demonstrate that there has been a continuous chain of custody.

Requirements regarding the technical skills:

- The laboratory management shall ensure the competence of all who operate specific equipment, perform test and/or calibrations, evaluate results, and sign test reports and certificates. When using staff undergoing training, appropriate supervision shall be provided. Personnel performing specific tasks shall be qualified based on appropriate education, training, experience and/or demonstrated skills, as required.
- Laboratory facilities for testing and/or calibration, including but not limited to energy sources, lighting and environmental conditions, shall be such as to facilitate correct performance of the tests and/or calibrations.
- All equipment used for tests and/or calibrations, including equipment for subsidiary measurements having a significant effect on the accuracy or validity of the result of the test, calibration or sampling, shall be calibrated before being put into service.
- The laboratory must have due experience in the field of testing of products, documented by meaningful references.
- The laboratory shall have experience in performing tests related to refrigeration equipment according to the requirements mentioned in this call for tenders and in interpreting test results and classification issues (for temperature, energy, etc.).
- The laboratory should be familiar with the applicable Ecodesign and standardisation processes.

THE CONTRACT WILL BE AWARDED BASED ON THE FOLLOWING CRITERIA

1. References of comparable tests on the same product categories that the laboratory has done in the past and documented ability to meet the above requirements
2. Price – Best value for money principle

PURPOSE OF THIS INVITATION DOCUMENT

The ProCold Consortium is looking for an international recognized laboratory, able to carry out the testing of products in the above mentioned categories. Therefore ADEME, ProCold project coordinator, will send out requests for quotes to at least 3 international recognized laboratories.