Abstract ISES Solar World Congress, August 28th – September 2nd, 2011, Kassel, Germany
Theme: Solar Heating and Cooling, 1.10 Testing, Certification and Quality Assessment, Simulation and Engineering Tools

EUROPEAN ROUND ROBIN TEST ON SOLAR COLLECTORS AND SOLAR THERMAL SYSTEMS

Stephan Fischer

Institute for Thermodynamics and Thermal Engineering (ITW),
Research and Testing Centre for Thermal Solar Systems (TZS),
University Stuttgart, Pfaffenwaldring 6, 70550 Stuttgart, Germany
Phone: +49 (0)711 685 63231
Fax: +49 (0)711 685 63242
E-Mail: fischer@itw.uni-stuttgart.de

Franz Helminger, AIT Austrian Institute of Technology (AIT), Austria
Alberto García de Jalón, Centro Nacional de Energías Renovables (CENER), Spain
Dominique Caccavelli, Centre Scientifique et Technique du Bâtiment (CSTB), France
Emmanouil Mathioulakis, Solar & other Energy Systems Laboratory (NCSR "DEMOKRITOS"), Greece
Korbinian Kramer, Fraunhofer ISE, Germany
Carsten Lampe, Institut für Solarenergieforschung Hameln (ISFH), Germany
Pilar Navarro Rivero, Instituto Tecnológico de Canarias (ITC), Spain
Danjana Theis, IZES gGmbH – Institut für ZukunftsEnergieSysteme, Germany
Maria João Carvalho, LNEG - Laboratório Nacional de Energia e Geologia, Portugal
Peter Kovacs, SP Technical Research Institute of Sweden, Sweden
Ulrich Fritzsche, TÜV Rheinland Energie und Umwelt GmbH, Germany
Christian Weißmüller, Institut für Eignungsprüfung (IfEP), Germany

Within the European project QAiST (**Q**uality **A**ssurance **i**n **S**olar **T**hermal Heating and Cooling Technology) a Round Robin test on solar collectors and solar thermal systems is carried out in the years 2010 and 2011. For two different collector types, one flat plate collector and one evacuated tubular collector with CPC reflector, performance tests according to EN 12975-2 (EN12975, 2006) are carried out by 12 different test institutes throughout Europe. The two different solar thermal systems, one thermosiphon system and one system with forced circulation are subject to a performance test according to EN 12976-2 (EN12976, 2006) and are tested by 9 different test institutes.

In order to finish the Round Robin test within two years despite of the high number of participants, the following procedure was applied: Each participant received in the year 2010 samples of the two different collectors types and of the two solar thermal system types respectively. After testing the 4 samples have been sent to the next test institute to be tested within the year 2011. Thus all institutes are testing identical collector and system types taken out of the same production batch, however each unique collector or system is only tested by two institutes.

For the first time Round Robin tests on solar thermal products are evaluated by an independent institute (Institut für Eignungsprüfung) using the acknowledged procedures for the evaluation of proficiency tests.

The paper will present the midterm results of the Round Robin test in an anonymous and standardised way.

References

EN12975, 2006: EN 12975-2:2006. 2006a. Thermal Solar Systems and Components – Solar Collectors – Part 2: Test Methods.

EN12976, 2006: EN 12975-2:2006. Thermal solar systems and components - Factory made systems - Part 2: Test methods

Acknowledgement: The work described in this paper is partly funded by European Commission within the Program "Intelligent Energy Europe" under grant number IEE/08/593. The authors gratefully thank for this support and carry the full responsibility of the content of this publication.