



Task 57

Solar Standards and Certification

ANNEX

December 2015

This Annex text was prepared by Jan Erik Nielsen, SolarKey Int., Denmark

Annex 57

Solar Standards and Certification

1. Scope

The scope of the task is test procedures, standardization and certification at international level of solar thermal systems and components.

2. Purpose and Objectives

The purpose and objectives of the task are to develop, improve and promote ISO standards on test procedures and requirements for solar thermal products - and to harmonize at international level certification schemes in order to increase in general the level of quality and at the same avoid the need for re-testing and re-inspection.

The Task will build on the good results and the network established in Task 43.

In Task 43 roadmaps for the need of new test procedures and improvement of test procedures for solar thermal products were made and a new improved ISO standard for collector testing did materialize based on this work. However, there is still a need for improvements in this standard – some climate parameters need adjustment e.g. to make the standard useable also in “extreme” climates – and e.g. new ideas on e.g. accelerated lifetime testing looks very promising and relevant to include. The standard has just been opened for revision to deal with these and other issues. This task will support this work – as well as developing/improving other relevant ISO standards for solar thermal products.

From questionnaires made in Task 43 we learned that in a number of countries, national standards (slightly or very) different from the ISO standards are used. It is the goal that with new improvements of the standards more countries will adapt the ISO standards directly. In this task efforts will be made to try to convince more countries to join the “ISO boat”.

The Global Solar Certification Network (GSCN) has been established in Task 43. Originally the aim was to make ONE globally harmonized certification scheme. But after some discussions it was agreed then – as a first step – to aim at mutual recognition of test and inspection reports. So the existing national and regional certification schemes stay – but the manufacturers can use test and inspection reports made under one certification scheme when he/she applies for certification in other schemes. So the Global Solar Certification Network (GSCN) will now be the framework for this “mutual recognition” concept, the requirements and procedures

are in places – and operation is about to start. This task will support the kick-off of the operation of the Global Solar Certification Network.

The draft for the global certification scheme rules will be further elaborated to work as model for new national/regional certification schemes and as inspiration for improvements/harmonization of existing schemes. It will be considered if an ISO Technical Report for solar certification schemes should be proposed and elaborated.

3. Activities

3.1 The main activities in the Task 57 are grouped in the following subtasks:

- Subtask A: Kick-off of operation of Global Solar Certification Network (GSCN)
- Subtask B: Improvement of test procedures – support and input to ISO
- Subtask C: Promotion and capacity building with respect to ISO standards and state-of-the-art certification schemes

Subtask A: Kick-off operation of the Global Solar Certification Network (GSCN)

Subtask A will support the operation of the Global Solar Certification Network:

- A1. Management; incl. organising plenary and board meetings (physical & web meetings) – and managing the operation of the GSCN working groups: QAC; CBs; TLs
- A2. Further improvement of the GSCN working rules and annexes
- A3. Acquisition and assessment of new GSCN members (e.g. check if the agreed requirements for participation are fulfilled)
- A4. Give assistance to manufacturers with respect to the mutual recognition of test reports and inspection reports
- A5. Maintain GSCN website and provide input/assistance for subtask C with regard to promotion of GSCN.

Subtask B: Improvement of test procedures – support and input to ISO

Teams will be formed with the aim of coming up with specific proposals for new and improved test procedures — and with the aim of starting already within the task

period several new "ISO work items" for revisions of existing standards and for completely new standards.

- B1. Accelerated ageing test of flat plate collectors and evacuated tubular collectors – and collector components and materials
- B2. Mechanical load testing of collectors and supporting structures
- B3. Building envelope integrated collectors and systems
- B4. Other issues, e.g. test procedures for system reliability and safety, test procedures for systems for other applications: desalination, drying, disinfection
- B5. Defining/discussing extreme conditions¹

Subtask C: Promotion and capacity building with respect to ISO standards and state-of-the-art certification schemes

The ISO standards for solar thermal products are becoming increasingly popular throughout the globe; but still some countries stick to old national standards or even make new national standards. This subtask will work to convince stakeholders in such countries that the ISO standards are very well proven and useful – and give guidance for implementation:

- C1. Guidelines how to understand and use the ISO 9806 standard (update QAI-ST ISO 9806 guide)
- C2. Participating in national and international conferences promoting ISO standards (new ISO 9806 will be presented in relevant conferences and industry associations will present at national events and through other channels)²
- C3. Elaborate at least two model certification schemes, one corresponding to the level required for participation in the Global Solar Certification Network (GSCN) – and one with a lower level of requirements fitted for countries/regions without a very sophisticated certification and testing infrastructure

3.2 Workshops and seminars

To involve the solar thermal industry and other stakeholders within the field and promote the ISO standards and the concept of Global Solar Certification, national

¹ Note: "IEC 82, IEA PV" group on "extreme conditions" IEC 82, IEA PV"

² Note: General guide on quality assurance (see UNEP report (being now updated by ESTIF))

workshops will be organised in connection with the expert meetings around the world.

4. Expected Results/Deliverables

The deliverables, allocated to the three Subtasks, will be:

Subtask A

D-A1. Agendas and meeting reports from GSCN plenary meetings (twice a year) and board meetings (4 times per year)

D-A2. Improved GSCN working rules

D-A3. Accessed and approved members of the GSCN

D-A4. Test and/or inspection reports re-used by other certification bodies

D-A5. GSCN website, input to GSCN leaflets / brochures / presentations

Subtask B

D-B1. Draft proposal for test procedures for accelerated ageing test of flat plate collectors and evacuated tubular collectors

D-B2. Draft proposal for test procedures for structural testing of collector and supporting supporting structures

D-B3. Recommendations related to test procedures for building envelope integrated collectors and systems

D-B4. Recommendations related to test procedures for e.g. system reliability and safety; new systems types / other applications

D-B5. Draft definitions for environmental extreme conditions

Subtask C

D-C1. Guidelines on ISO 9806

D-C2. Papers and presentations at national and international conferences and workshops.

D-C3. Update of Task 43 questionnaire/analysis with indication of interest in use of international standards.

D-C4. Model certification schemes – “high level” and “medium level”

5. Rights and Obligations of Participants

In addition to the obligations enumerated in Article 4 of the Implementing Agreement:

(a) A Participant must undertake and complete all agreed activities and contributions to the Task outlined in Section 3 and 4 of this Annex in a timely manner.

(b) Each Participant must actively participate in working meetings and other activities such as seminars and workshops.

(c) Attendance at Experts meetings of the Task will be mandatory. Task meetings will be carried out at intervals of approximately six months. Experts

meetings may be accompanied by national workshops dedicated to target audiences of the Task, mainly from the national industry of the host country of the Experts meeting.

(d) Each Participant shall provide timely, detailed reports on the results of their work carried out to the Subtask Leader and Operating Agent.

(e) Every six months, before each Expert meeting, each Participant shall provide a brief status report of their work including a list of publications and organized seminars/workshops.

(f) Each Participant must contribute to one or more Task deliverables and shall participate in the editing and reviewing of draft reports and other outputs of the Task and Subtasks.

(g) Individual Financial Obligations

Each country will bear the costs of its own participation in the Task, including reporting and necessary travel costs. Task meetings will be held twice annually and hosted in turn by Participants. The cost of organizing meetings will be paid by each Participant to the host, by a meeting fee.

(h) Task-Sharing Requirements:

The Participants agree on the following funding commitment:

- 1) Each Participant (country) will contribute to this Task a minimum of 1 person months per year of the Task. During the duration of 3 years, this sums up to 3 person months.
- 2) Participation in the Task requires participation in at least one of the Subtasks.
- 3) Subtask Leaders will contribute with a minimum of 2 person months per year for the duration of the Subtask. During the duration of 3 years, this sums up to 6 person months.
- 4) The Operating Agent will contribute with a minimum of 3 person months per year to the Task. During the duration of 3 years, this sums up to 9 person months.
- 5) Participation may partly involve funding already allocated to a national (or international) activity, which is substantially in agreement with the scope of work outlined in this Annex. In this case it could be e.g. participation in international standardization work.
- 6) Aside from providing the resources required for performing the work of the Subtasks in which they are participating, all Participants are required to commit the resources necessary for activities which are specifically collaborative in nature and which would not be part of activities funded by national or international sources. Examples include the preparation for and participation in Task meetings, coordination with Subtask Participants, contribution to the documentation and dissemination work and Task related R&D work which exceeds the R&D work carried out in the framework of the national (or international) activity.

- 7) The level of effort to be contributed by each country will be specified in a "Letter of National Participation" which is signed by the Operating Agent and the Executive Committee representative.

6. Management

6.1 Operating Agent

Denmark, acting through Jan Erik Nielsen, Solar Key Int., will be Operating Agent.

In addition to the rights, obligations and responsibilities enumerated in the main body of the Implementing Agreement and the organisation of the work under this Annex enumerated in Section 5, the Operating Agent shall:

- 1) Be responsible for the overall management of the Task, including overall coordination and communications with the Executive Committee.
- 2) Prepare the detailed Programme of Work for the Task in consultation with the Subtask Leaders and the Participants and submit the Programme of Work for approval to the Executive Committee.
- 3) Provide semi-annually, periodic reports to the Executive Committee on the progress and the results of the work
- 4) Manage the preparation and distribution of the results described in Section 4 in this Annex.
- 5) At the request of the Executive Committee organise workshops, seminars, conferences and other meetings.
- 6) Provide to the Executive Committee, within six months after completion of all work under the Task, a final report for its approval and transmittal to the Agency.
- 7) In co-ordination with the Participants, use its best efforts to avoid duplication with activities of other related programmes and projects implemented by or under the auspices of the Agency or by other competent bodies.
- 8) Provide the Participants with the necessary guidelines for the work they carry out and report with minimum duplication.
- 9) Perform such additional services and actions as may be decided by the Executive Committee, acting by unanimity.

6.2 Subtask Leaders

A Subtask Leader shall be a Participant that provides to the Subtask a high level of expertise and undertakes substantial research related to the Subtask.

The Subtask Leaders shall be proposed by the Operating Agent and designated by the Executive Committee, acting by unanimity of the Participants. Changes in the Subtask Leaders may be agreed to by the SHC Executive Committee, acting by unanimity of the Participants.

In addition to the obligations enumerated in Section 5 of this Annex, the Subtask Leader for each of the Subtasks shall:

- 1) Assist the Operating Agent in preparing the detailed Programme of Work.

- 2) Co-ordinate the work performed under that Subtask.
- 3) Actively participate in the dissemination activities.
- 4) Subtask leaders may arrange, direct and provide summaries of Subtask meetings and workshops in between or in association with Task meeting.
- 5) Provide the Operating Agent with timely written summaries of Subtask work, action items and results after each Task meeting.
- 6) Edit technical reports resulting from the Subtask and organize their publication.
- 7) Collaborate with the Operating Agent and other Subtasks and contribute to the preparation, production and distribution of the results described in Section 4 in this Annex within the framework of the Task dissemination plan.

6.3 Meetings

There will be Experts meetings of the Task at intervals of approximately six months. Subtask Leaders may arrange meetings in between or in association with Experts meetings of the Task. Attendance at the Experts Meetings of the Task will be mandatory.

7. Admissions, Participation and Withdrawal of Participants

In addition to the specific obligations, the Operating Agent will produce, promote and distribute the results of the Task. The Participants will support these activities by contributing respective papers and by dissemination activities financed by the individual Participants.

8. Information and Intellectual Property

For purpose of this Annex, in case of conflict with the provisions of the Implementing Agreement, the following provisions shall prevail:

- (a) For arising information regarding inventions the following rules shall apply:
 - 1) Arising information regarding inventions shall be owned in all countries by the inventing Participant. The inventing Participant shall promptly identify and report to the Executive Committee any such information along with an indication whether and in which countries the inventing Participant intends to file patent applications.
 - 2) Information regarding inventions on which the inventing Participant intends to obtain a patent protection shall not be published or publicly disclosed by the Operating Agent or the other Participants until a patent has been filed, provided, however, that this restriction on publication or disclosure shall not extend beyond twelve months from the date of reporting of the invention. It shall be the responsibility of the inventing Participants to appropriately mark Task reports that disclose inventions that have not been appropriately protected by filing a patent application.
- (b) The inventing Participant shall license proprietary information arising from the Task for non-exclusive use as follows:

- 1) To participants in the Task:
 - a) On the most favourable terms and conditions for use by the Participants in their own country.
 - b) On favourable terms and conditions for the purpose of sub-licensing others for use in their own country.
- 2) Subject to sub-paragraph a.1 above, to each Participant in the Task for use in all countries, on reasonable terms and conditions.
- 3) To the government of any Agency Member country and nationals designated by it, for use in such country in order to meet its energy needs.
- 4) Royalties, if any, under licenses pursuant to this paragraph shall be the property of the inventing Participant.

9. Entry into Force, Term and Extension

This Annex shall enter into force on January 1, 2016 and shall remain in force for a period of three years until December 31, 2018. At the conclusion of that period, this Annex can be extended by at least two Participants, acting in the Executive Committee, for a period to be determined at that time, provided that in no event shall the Annex continue beyond the current term, or actual termination, of the Implementing Agreement.