

SunTests - Aurinkoenergian testausympäristön määrittely

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- 2 Report
- 3 Budget estimate

Objectives

The objectives in outline

- ① to make an inquiry on the testing procedures required to test solar thermal collectors in accordance with international standards
- ② to make an inquiry on the equipment required to test solar thermal collectors in accordance with international standards
- ③ to support solar collector research and development (R&D) in Jyväskylä and Mikkeli
- ④ to make a rough estimate for the costs of equipment in a R&D laboratory

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- The report was written in accordance with EN 12975
- Following the guidelines of the report enables to make official measurements

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Procedures

- The most suitable procedures are chosen and described
- The tests about reliability are described in chapters of their own
- The tests about thermal performance are described in chapters of their own

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Reliability tests

- Internal pressure test
- Exposure test
- Thermal shock test
- Impact resistance test



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Procedures

Efficiency tests

- Steady state efficiency test (to assess the collector's thermal performance)
- Incident angle modifier (IAM) (to assess thermal performance in different incident angles)



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Equipment

- Equipment is described in accordance with the standard
- The equipment needed in a given procedure is listed in the respective chapter
- All the equipment is listed in a table attached to the report

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Equipment

Major components

- Solar irradiance simulator
- Measuring devices
 - 1) radiation measurement
 - 2) temperature measurement
- Test installation

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Equipment	Cost (e)
Solar simulator	100000-300000
Measuring devices	10000-15000
Test installation	5000-15000

In addition...

- an approximately 5m by 5m room with at least 3m height is needed
- extra attention should be payed to air conditioning

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Thank you for your attention!

The laboratory can be used

- to test solar thermal collectors in accordance with the binding standards
- for purposes of research and development
- to test other solar applications
- to test various materials

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