
**Information technology — Software
measurement — Functional size
measurement**

Part 2:
**Conformity evaluation of software size
measurement methods
to ISO/IEC 14143-1**

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*Technologies de l'information — Mesurage du logiciel — Mesurage de
la taille fonctionnelle*

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de logiciel à l'ISO/CEI 14143-1*

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 14143-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

This second edition cancels and replaces the first edition (ISO/IEC 14143-2:2002), of which it constitutes a minor revision.

ISO/IEC 14143 consists of the following parts, under the general title *Information technology — Software measurement — Functional size measurement*:

- *Part 1: Definition of concepts*
- *Part 2: Conformity evaluation of software size measurement methods to ISO/IEC 14143-1*
- *Part 3: Verification of functional size measurement methods* [Technical Report]
- *Part 4: Reference model* [Technical Report]
- *Part 5: Determination of functional domains for use with functional size measurement* [Technical Report]
- *Part 6: Guide for use of ISO/IEC 14143 series and related International Standards*

Introduction

Functional Size Measurement (FSM) is a technique used to measure the size of software by quantifying the Functional User Requirements of the software¹⁾. The first published method to embrace this concept was Function Point Analysis, developed by Allan Albrecht in the late 1970s. Since then, numerous extensions and variations of the original method have been developed. The end user may have many variants from which to choose, each with its own advantages in specific situations. ISO/IEC 14143-1 was developed to define the concepts of FSM and provides a basis against which the user can compare all variants. This part of ISO/IEC 14143 was developed to provide a process for checking whether a Candidate FSM Method conforms to the provisions of ISO/IEC 14143-1. The output from this process can assist prospective users of the Candidate FSM Method in judging whether it is appropriate to their needs.

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¹⁾ Refer to ISO/IEC 14143-1.

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Information technology — Software measurement — Functional size measurement

Part 2: Conformity evaluation of software size measurement methods to ISO/IEC 14143-1

1 Scope

This part of ISO/IEC 14143:

- a) establishes a framework for the conformity evaluation of a Candidate FSM Method against the provisions of ISO/IEC 14143-1;
- b) describes a process for conformity evaluation of whether a Candidate FSM Method meets the (type) requirements of ISO/IEC 14143-1 such that it is an actual FSM method, i.e. they are of the same type;
- c) describes the requirements for performing a conformity evaluation in order to ensure repeatability of the conformity evaluation process, as well as consistency of decisions on conformity and the final result;
- d) aims to ensure that the output from the conformity evaluation process is objective, impartial, consistent, repeatable, complete and auditable;
- e) provides informative guidelines for determining the competence of the conformity evaluation teams;
- f) provides an example checklist to assist in the conformity evaluation of a Candidate FSM Method; and
- g) provides an example template for the conformity evaluation report.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 14143-1, *Information technology — Software measurement — Functional size measurement — Part 1: Definition of concepts*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 14143-1 and the following apply.

3.1

Candidate FSM Method

documented software size measurement method submitted for conformity evaluation according to ISO/IEC 14143-1

**3.2
evaluation checklist**

list of questions, each of which is designed to check for conformity of a product, process or service to one or more provisions within a particular International Standard

NOTE In the case of this part of ISO/IEC 14143, the product being evaluated for conformance is the Candidate FSM Method and the provisions are those of ISO/IEC 14143-1.

**3.3
evaluation procedure**

series of tasks and steps that, when completed, enable the evaluation team to determine if the product, process or service being evaluated is conformant to a particular standard

**3.4
evaluation sponsor**

person or organization that requires the evaluation to be performed and provides financial or other resources to carry it out

**3.5
exclusive requirement**

mandatory requirement (deprecated)
requirement of a normative document that must necessarily be fulfilled in order to comply with that document

[ISO/IEC Guide 2:2004, definition 7.5.1]

**3.6
optional requirement**

requirement of a normative document that must be fulfilled in order to comply with a particular option permitted by that document

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NOTE An optional requirement may be either [ISO/IEC 14143-2:2011](https://standards.iteh.ai/catalog/standards/sist/16cc23f2-ae3-4076-a0b1-48a420a0343c/iso-iec-14143-2-2011)
a) one of two or more alternative requirements, or
b) an additional requirement that must be fulfilled only if applicable and may otherwise be disregarded.

[ISO/IEC Guide 2:2004, definition 7.5.2]

**3.7
owner**

person or organization that owns the copyright for the Candidate FSM Method

**3.8
provision**

expression in the content of a normative document, that takes the form of a statement, an instruction, a recommendation or a requirement

NOTE These types of provision are distinguished by the form of wording they employ; for example, instructions are expressed in the imperative mood, recommendations by the use of the auxiliary “should”, and requirements by the use of the auxiliary “shall”.

[ISO/IEC Guide 2:2004, definition 7.1]

**3.9
recommendation**

provision that conveys advice or guidance

[ISO/IEC Guide 2:2004, definition 7.4]

3.10 requirement

provision that conveys criteria to be fulfilled

[ISO/IEC Guide 2:2004, definition 7.5]

NOTE A requirement is denoted by the word “shall” and when used includes both the exclusive and applicable optional requirements.

4 Conformity evaluation

4.1 General

4.1.1 Conformity evaluations are conducted by a conformity evaluation team that has the competencies described in this part of ISO/IEC 14143. This part of ISO/IEC 14143 assumes familiarity with the concepts and definitions described in ISO/IEC 14143-1.

The conformity evaluation is performed by cross-referencing each component of a Candidate FSM Method against the corresponding provisions of ISO/IEC 14143-1. The components of the Candidate FSM Method are then evaluated for their conformity.

The output from the conformity evaluation includes a decision for each provision evaluated. Only the requirements (shalls) are considered when determining if the Candidate FSM Method conforms to ISO/IEC 14143-1. The recommendations (shoulds) of ISO/IEC 14143-1 may also be investigated to provide additional information to end users of the Candidate FSM Method.

The output from the conformity evaluation process is the conformity evaluation report. The report may be used to:

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- a) inform end users that a Candidate FSM Method conforms to ISO/IEC 14143-1 in accordance with this part of ISO/IEC 14143, and is therefore an FSM Method, and
 - b) assist end users in making informed judgements about which method best suits their needs.

4.1.2 This part of ISO/IEC 14143 may be used for first party (supplier), second party (user or purchaser) or third party (independent body), conformity evaluations.

NOTE The relationship between the owner, sponsor and evaluator depends on the type of evaluation that is performed, i.e. first, second or third party.

4.1.3 While conformance of a Candidate FSM Method to ISO/IEC 14143-1 may be claimed without referencing this part of ISO/IEC 14143, this part provides a conformity evaluation process that may be used to add credibility to such claims. This part places requirements upon a conformity evaluation procedure and is usable for first, second or third party claims of conformance. Its provisions are particularly suitable for those who require third party conformity evaluation. Customers desiring to use or acquire an FSM Method evaluated for conformance in accordance with this part, should explicitly cite this International Standard when requesting the evaluation.

4.1.4 Conformity evaluation should not be construed as guaranteeing that the FSM Method is free from non-conformities; it only signifies that evidence of non-conformance was not found during the conformity evaluation process.

4.1.5 A Candidate FSM Method shall be determined as conforming if it successfully completes a conformity evaluation procedure which satisfies the requirements of 4.5.

NOTE 1 Conformity of a Candidate FSM Method is based on evaluation against requirements of ISO/IEC 14143-1. This part of ISO/IEC 14143 defines a process that may be used in evaluating whether a Candidate FSM Method conforms to the requirements of ISO/IEC 14143-1.

NOTE 2 An International Standard on conformity evaluation or test methods, such as this one, does not imply any obligation to carry out any kind of test. It defines the process by which the evaluation, if required and referred to (for example in a regulation, or in contract documents), should be carried out.

4.2 Overview

4.2.1 The objective of a conformity evaluation shall be to determine if the Candidate FSM Method conforms to all the requirements of ISO/IEC 14143-1. Although the conformity evaluation procedure may also evaluate the implementation of the recommendations of ISO/IEC 14143-1, the results of this evaluation shall not contribute to the determination of conformity.

4.2.2 A conformity evaluation shall be valid only for the particular version of a Candidate FSM Method that was the subject of the conformity evaluation process. Each new version of a method, including a Local Customisation, is considered to be another Candidate FSM Method, and requires a separate conformity evaluation. If a conformity evaluation team can identify the similarities and/or differences between a Candidate FSM Method and a previously evaluated version of the same method, they may use the output report from a previous conformity evaluation as the basis for the new conformity evaluation. If any non-conformities have been reported for a previously evaluated version of the same Candidate FSM Method, then the conformity evaluation team shall consider such non-conformities during the current conformity evaluation process.

NOTE If the conformity evaluation team bases a conformity evaluation on a previous evaluation report, then they need to be aware of the risks involved as the two versions may have differences that have not been noted. The conformity evaluation team needs to ensure that the net effect of all changes is taken into account during the evaluation.

4.2.3 The conformity evaluation team shall verify that the Candidate FSM Method Documentation is complete, as defined in sub-clause 4.4.2.1, and correct for the version of the Candidate FSM Method being evaluated.

4.2.4 The conformity evaluation team should liaise with the evaluation sponsor during the conformity evaluation process.

4.2.5 If the owner can be contacted, then the conformity evaluation team shall:

- a) liaise with the owner during the conformity evaluation process;
- b) document the subject of the liaison with the owner, within the conformity evaluation report and where appropriate cross-reference the provision or evaluation activity to which it relates.

4.2.6 The evaluation team shall determine whether information received from the owner during the liaison would result in a different version of the method than that submitted for this conformity evaluation. In this case section 4.2.2 shall apply.

4.2.7 If the owner of the Candidate FSM Method can be contacted, then the owner shall be provided with the opportunity to respond to the findings of the conformity evaluation and to add comments to the conformity evaluation report before its publication.

4.2.8 If the owner of the Candidate FSM Method does not respond to the findings of the conformity evaluation report within a reasonable time period, then the conformity evaluation team may proceed with publication of the report. This time period should be agreed upon by the owner and the conformity evaluation team at the outset of the conformity evaluation process.

4.3 Evaluator characteristics

4.3.1 Evaluator organization

In cases of a third party conformity evaluation, the third party evaluator organization shall be competent for the functions which they have to perform.

4.3.2 Conformity evaluation team

The conformity evaluation team shall be responsible for ensuring that all activities in the conformity evaluation process are completed. These activities shall include, but are not limited to, the following:

- a) developing the conformity evaluation plan;
- b) developing or acquiring the conformity evaluation procedure;
- c) developing or acquiring the conformity evaluation checklist;
- d) performing the conformity evaluation procedure;
- e) producing the conformity evaluation report.

NOTE Confidence in the evaluation result is directly related to the competence of the conformity evaluation team. Annex A describes the characteristics of a competent conformity evaluation team, and the mechanisms that may be used to demonstrate the team's competence to perform conformity evaluation in accordance with the requirements of this part of ISO/IEC 14143.

4.4 Inputs to conformity evaluation

4.4.1 List of inputs

As a minimum, the inputs to the conformity evaluation process shall include the following:

- a) parts 1 and 2 of ISO/IEC 14143;
- b) Candidate FSM Method documentation;
- c) conformity evaluation plan;
- d) conformity evaluation procedure;
- e) conformity evaluation checklist.

4.4.2 Candidate FSM Method documentation

4.4.2.1 The Candidate FSM Method documentation shall include all materials necessary for the proper use of the Candidate FSM Method, in the same format and content that would be supplied to the users of the method. Where a Candidate FSM Method is embedded within a software tool and the processes used to measure software size are not explicit to the user, then in order to be evaluated, the Candidate FSM Method shall include documentation to describe these processes. If the owner is contactable then the evaluation team shall confirm that the Candidate FSM Method Documentation provided as input to the evaluation is correct and complete. If the owner cannot be contacted then the evaluation sponsor and the conformity evaluation team shall agree on the materials that will comprise the Candidate FSM Method documentation.

NOTE Such material may include manuals, guidelines, examples, case studies, and any other tools that are necessary for proper use of the method.

4.4.2.2 The Candidate FSM Method documentation shall be uniquely identifiable and should clearly state the:

- a) name and version number of the Candidate FSM Method that it describes,
- b) name(s) of author(s), if applicable,
- c) date of publication, and
- d) name and contact details of the publisher.

NOTE The process for evaluating the conformity of a Candidate FSM Method requires the unique identification of both the Candidate FSM Method and of the version being evaluated. This identification requires information that is not essential to the measurement of software size. Therefore, this part of ISO/IEC 14143 introduces exclusive requirements which are not present in ISO/IEC 14143-1, but which are deemed essential to the conformity evaluation process. That is, a Candidate FSM Method does not have to uniquely identify its documentation in order to be an FSM Method. However, in order for the conformity evaluation process to be auditable, the report must be able to uniquely identify the Candidate FSM Method documentation that was evaluated. This will only be possible if the Candidate FSM Method conforms to the requirements of this clause.

4.4.3 Conformity evaluation plan

The conformity evaluation team shall develop the conformity evaluation plan in consultation with the evaluation sponsor. At a minimum, it shall include the following:

- a) activities, schedule and resources required for the conformity evaluation process;
- b) list of inputs that uniquely identifies each of the inputs to the conformity evaluation process;
- c) names and contact details of the conformity evaluation team members;
- d) name and contact details of the evaluator organization, in the case of third party assessment;
- e) name(s) and contact details of the evaluation sponsor(s);
- f) roles and responsibilities of all persons involved in the conformity evaluation process;
- g) relationship of the conformity evaluation team members and the evaluator organization to any other parties involved.

4.4.4 Conformity evaluation procedure

The conformity evaluation team should develop the conformity evaluation procedure in consultation with the evaluation sponsor. The conformity evaluation procedure shall provide detailed descriptions of:

- a) each of the tasks and steps to be performed by the conformity evaluation team and the evaluation sponsor as part of the conformity evaluation procedure (refer Section 4.5);
- b) how the inputs are used within the conformity evaluation procedure to produce the conformity evaluation output.

4.4.5 Conformity evaluation checklist

4.4.5.1 The conformity evaluation team should develop the conformity evaluation checklist in consultation with the evaluation sponsor. They may use as a basis for their checklist, an existing checklist - such as the one provided in Annex B. The conformity evaluation checklist shall consist of a set of evaluation questions that can be used to evaluate the Candidate FSM Method against all the requirements of ISO/IEC 14143-1. The conformity evaluation checklist may also include a set of additional evaluation questions that can be used to evaluate the Candidate FSM Method against all the recommendations of ISO/IEC 14143-1. When determining the conformity of a Candidate FSM Method, the conformity evaluation team shall use only the responses to evaluation questions relating to the requirements of ISO/IEC 14143-1. The conformity evaluation team shall decide the appropriate structure and presentation of the conformity evaluation checklist.

NOTE Annex B contains an example of a conformity evaluation checklist that satisfies the requirements of this part of ISO/IEC 14143 by providing checks for the requirements of ISO/IEC 14143-1. It also exceeds these by providing checks for the recommendations of ISO/IEC 14143-1.

4.4.5.2 The conformity evaluation checklist shall be structured so that:

- a) it contains evaluation questions that correspond to each of the requirements of ISO/IEC 14143-1, against which the characteristics of the Candidate FSM Method are evaluated,