



ISO/IEC JTC1/SC7  
Software & System Engineering  
Secretariat: CANADA (SCC)

## ISO/IEC JTC1/SC7 N2545

2001-10-10

<b>Document Type</b>	Letter Ballot Summary
<b>Title</b>	Letter Ballot Summary on Software Engineering - Functional Size Measurement - COSMIC - FFP Functional Size Measurement Method.
<b>Source</b>	JTC1/SC7 Secretariat
<b>Project</b>	07.29.04
<b>Status</b>	Draft
<b>References</b>	N2512
<b>Action ID</b>	FYI or ACT
<b>Due Date</b>	
<b>Mailing Date</b>	2001-10-10
<b>Distribution</b>	SC7_AG, P & O Members
<b>Medium</b>	Acrobat
<b>No. Of Pages</b>	12
<b>Note</b>	

ISO/IEC JTC1/SC7/N2545  
**LETTER BALLOT SUMMARY**

Project:	07.29.04	Ballot:	CD
Subject:	Letter Ballot Summary on Software Engineering - Functional Size Measurement - COSMIC - FFP Functional Size Measurement Method.	Closing date:	2001-10-03
Reference:	N2512	Circulated by:	JTC1/SC7 Secretariat
Circulation date:	2001-07-03		
Circulated to:	SC7_AG, P & O Members		

**TABLE OF VOTING AND COMENTS RECEIVED**

<b>“P” members</b>	<b>Approve</b>	<b>Disapprove</b>	<b>Abstain</b>	<b>Comments</b>	<b>Not voting</b>
Australia	X			X	
Belgium					X
Brazil					X
Canada	X				
China	X				
Czech Republic					X
Denmark			X		
Ethiopia					X
Finland					X
France			X		
Germany		X		X	
Hungary					X
Ireland					X
Israel					X
Italy	X				
Japan		X		X	
Korea	X				
Netherlands	X				
Norway	X				
Portugal	X				
Romania					X
Singapore					X
South Africa					X
Spain					X
Sweden			X		
Switzerland					X
UK	X			X	
Ukraine					X
USA		X		X	

**“O” and “L” members voting:**

	<b>Approve</b>	<b>Disapprove</b>	<b>Abstain</b>	<b>Comments</b>	<b>Not Voting</b>
Argentina					X
Austria	X			X	
Cuba					X
Estonia					X
Iceland					X
India					X
Indonesia					X
Iran					X
Mexico					X
New Zeland					X
Philippines					X
Poland					X
Russian Federation	X				
Slovakia					X
Turkey					X
Liaison:					X

**AUSTRALIA**

1	2	(3)	4	5	(6)	(7)
MB <sup>1</sup>	Clause No./ Subclause No./ Annex/Figure/Table (e.g. 3.1, Table 2)	Paragraph/ List item/ Note (e.g. Note 2)	Type of com- ment <sup>2</sup>	Comment (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
AS	General		Ge	It is recognised that a considerable amount of work has gone into transposing the original COSMIC FFP document into a format suitable for publication as an international standard. However, much more work still needs to be done to conform to ISO/IEC Directives and to correct grammatical errors throughout the document. Also, the transposition process has interfered with the flow of the document, making it difficult to isolate the mechanics of the method from the definitions and other supporting material.	Restructure and reword the document so that the reader can easily identify what needs to be done in order to comply with the requirements and recommendations of the standard and to ensure that it complies with the ISO directives for the formatting of standards.	
AS	Clause 5		GE	This clause does not contain any normative text.	either make text normative or move the clause to an informative annex.	
AS	Subclause 5.2		GE	The structure of this clause in relation to the rest of the document does not appear to follow ISO directives regarding structure of a standard. The document needs to be reviewed to ensure that it conforms to ISO directives for document layout and structure. Eg. Some of the subclauses do little more than repeat the definitions, and	Review ISO directives for structure and content. If the document contravenes these directives then we suggest removing clause 5.2, and incorporate merge necessary requirements with Clause 6.	

				appear to be redundant. eg. 5.2.1 and 5.2.2. Other subclauses provide additional information that could perhaps be incorporated elsewhere in the document. See AUS-G004 for an example.	
AS	Clause 6		GE	<p>This clause identifies the steps involved in the first part of the process. Section of these steps take the form of a discussion and guidelines, whereas they should take the form of requirements and recommendations.</p> <p>If structure does not conform to ISO directives then look at combining each subclause with the necessary information from subclause 5.2, and rewrite as requirements and recommendations.</p>	<p>Rewrite as follows:</p> <p>6.4 Identification of functional processes</p> <p>6.4.1 Within the software to be measured, all functional processes shall be identified.</p> <p>6.4.2 Each functional processes shall</p> <ul style="list-style-type: none"> <li>a) be derived from at least one identifiable Functional User Requirement,</li> <li>b) be triggered by an event,</li> <li>c) contain at least two data movements – an Entry and an Exit or Write,</li> <li>d) belong to one, and only one layer, and</li> <li>e) terminate when a point of asynchronous timing is reached.</li> </ul> <p>NOTE 1 A point of asynchronous timing is reached when, in a sequence of data movements, a given data movement is not synchronised with the one</p>

					preceding it. NOTE 2 A point of asynchronous timing is equivalent to a self induced wait state.	
AS	Subclause 7.2		GE	Parts are extensions to the definitions in clause 3. Subclause 7.2 is supposed to describe the process of identifying the BFC's, but this is only done in relation to the BFC Types. There are no provisions in subclauses 7.4 and 7.5.	Combine subclauses 7.2 and 7.3, and remove duplication of the definitions where possible. eg. 7.2 Identify and Classify the BFCs 7.2.1 Identifying the BFCs 7.2.1.1 Each functional process shall be partitioned into its component functional sub-processes. 7.2.1.2 Each functional sub-process shall involve: a) either an Entry, Exit, Read or Write, and b) the movement of a single data group. 7.2.2 An Entry sub-process shall: a) receive data attributes from outside the boundary, b) include the formatting and presentation necessary to accept the data from the user, c) edit and validate the received data, d) be unique within the	

					<p>functional process in which it is identified, and</p> <p>e) not involve another BFC Type.</p> <p>NOTE 1 An Entry is considered unique if it involves different processing or attributes to other Entries within the same functional process.</p> <p>NOTE 2 An Entry does not involve another BFC Type, so it cannot include validations against stored data – which would involve Read sub-processes.</p> <p>Add provisions to subclauses 7.4 and 7.5 – now 7.3 and 7.4.</p> <p>eg.</p> <p>7.3 BFC size</p> <p>A value of 1 Cfsu shall be assigned to each BFC identified.</p>	
AS	Clause 1.2		TH	<p>The last sentence refers to examples of the purpose for measurement in Annex A. There is only one paragraph in Annex A that discusses the purpose for measurement in relation to Functional Size Measurement – paragraph 9. Furthermore, there is nothing in clause 1 that refers to the purpose for measurement.</p>	<p>Find and appropriate place to reference Annex A, or remove it. If Annex A is to remain, remove the discussions about measuring different objects at different points in the lifecycle, and about scale – they have nothing to do with the purpose for measurement.</p>	
AS	Clause 3		TH	<p>Part 3 of the Directives specify the format</p>	<p>Reformat the definitions in</p>	

				for the presentation of the terms and definitions. These include informative references to documents from which existing definitions originate.	accordance with the Directives. eg. 3.1 base functional component BFC an elementary unit of the Functional User Requirements defined by an used by an FSM Method for measurement purposes [ISO/IEC 14143-1:1998, definition 3.1]	
AS	Clause 5		E	Format	Remove hanging paragraphs.	
AS	Clause 8		E	Format	Remove hanging paragraphs.	
AS	Clause 6.4		E	The last sentence refers to examples in Annex D. These are examples of identification of data groups, which are not discussed until subclause 6.5.	Move the reference to Annex D to subclause 6.5.	

**AUSTRIA**

Comments on ISO/ICE JTC1/SC7 N2512 (Sw-Eng. Functional Size Measurement - COSMIC .

<sup>2</sup> Editorial: p. 11, last but one paragraph, last sentence: This software model is instantiated using ??6??  
–what '6' ??

<sup>2</sup> Technical:

- p. 7, clause 5.2.1: the term 'user' is also introduced for 'engineered devices and other software'.
- It seems that this is in contrast to some other ISO standards, e.g. ISO 15288, ISO 14598 etc. The
- UML-standard uses the term 'actor' (e.g. in Use Case Diagrams).
- p. 7, clause 5.2.3, itemized list: in b, c, ... 'client layer' is used, but it does not appear in the glossary,
- does not seem to be defined anywhere. It seems that it is used as a synonym for 'lower layer', as
- used in the preable of clause 5.2.3

**GERMANY**

In addition to this CD, there exist three further PAS Functional Size Measurement Methods (FSM Methods) standard applications. Each of these four candidate FSM Methods describes a distinct and different method to determine the Functional Size of software. The very fact that four different methods can be used to establish distinct results indicates that there is no standard method. each of the suggested candidate FSM Methods, however, may have its benefits and should be preserved.

Appropriate change to change our vote to approval: Change the document to PDTR.

**JAPAN****JPN-G001**

Section Name

Entire Document

Comment

We Japan National Body would like to thank Editors for their hard work to create this document. However, we believe the quality of documentation is far away from what we can accept as CD. There are many redundant and unclear descriptions, and several descriptions that do not seem to be conform to ISO directives.

Recommended Change

Review entire the document along with comments we submit, and rewrite it. We rather propose to create a guide line document taking sections and paragraphs that describe usage of the method from the current document..

**JPN-TH002**

Section Name

1.3 Conformance

Comment

"...is defined as satisfying the purpose and outcomes of this software measurement method...".

This statement is hard to understand. What should satisfy the purpose and outcomes? It seems to be impossible to define how something satisfies the

purpose and outcomes. On the other hand, something satisfying normative close is the requirement of ISO standards.

This clause may give confusion to audiences.

Recommended Change

Remove it.

### **JPN-TH003**

Section Name

1.4 Limitations, 7.3.5 Local extensions,

Comment

To be conformant to 14143-1, "local extensions" should be "local customizations."

Recommended Change

Change them accordingly.

### **JPN-TH004**

Section Name

3 Terms and definitions,

Comment

Meaning of text in parentheses attaching to each term is unclear except for cases of "(-type)." because the usage of those parentheses is arbitrary. They give unnecessary confusion to audiences.

Recommended Change

They should be removed if unnecessary. They should be explained if necessary. Usage of parentheses must be consistent.

### **JPN-TH005**

Section Name

3.1 Base Functional Component (BFC)

Comment

Although BFC is a term which is defined by 14143-1, since it is an abstract name, it is not easy to understand for the users of the measurement method.

Recommended Change

Define "sub-process" which is the term of original COSMIC-FFP document instead of BFC. Then, describe "A sub-process is equivalent to a Base Functional Component (BFC) as defined in ISO/IEC 14143-1:1998." in the note of the definition.

### **JPN-TH006**

Section Name

3.5 Data group (-type)

Comment

There are two "(see definition)." This is not a good way of writing.

Recommended Change

They must be "(see 3.9)" and "(see 3.22)," respectively..

### **JPN-TH007**

Section Name

3.6 Data movement (-type) and related parts of entire document

**Comment**

The word "sub-process" or the phrase "functional sub-process" are used without definition.

**Recommended Change**

The word "sub-process" or the phrase "functional sub-process" are the same concept of BFC, but more familiar for audiences. Define these words and phrase. The following may help:

A functional sub-process is the synonym of BFC. The word "sub-process" is also used in this document for convenience sake to denote a "functional sub-process."

**JPN-TH008****Section Name**

3.8 Event (-type)

**Comment**

The explanation "see "Triggering event." is inadequate..

**Recommended Change**

At least it must be "see 3.26."

If they are the same, it should be " the same as the definition in 3.26." If not, the term should be defined clearly.

**JPN-TH009****Section Name**

3.10 Functional process (-type)

**Comment**

The functional process is defined as a "unique set of data movement." However, the word "unique" can not cover every occurrence of sets. For example, we believe two different sets of sub-processes;

Entry - Write - Read - Exit, and

Entry - Read - Write - Exit

should be regarded as two different functional processes because difference in an order of sub-processes means difference in functions In addition, some functional processes may have branching and merging sub-processes, for example,

Entry - Read + Write - Write - Read + Exit

|- Read - Write -----|

We don't believe the word "unique" implies the above.

**Recommended Change**

We believe the word "ordered set" is more adequate and in some cases this should be augmented by additional explanation.

**JPN-TH010****Section Name**

3.14 Layer, the last sentence of NOTE.

**Comment**

This sentence is hard to understand in this context.

**Recommended Change**

This sentence is not needed. Remove it. Or modify it as follows;

Software items in the same layer can also exchange data This type of data exchanging is usually called "peer-to-peer" data exchanging.

**JPN-TH011**

## Section Name

3.23 Quality (base)

## Comment

It is not clear what this description tries to define. Quantity, Quantity(base) or Base quantity.

This definition seems to be taken from another ISO document. It may do well in that document but it does not in here.

## Recommended Change

Rephrase the entire definition.

**JPN-TH012**

## Section Name

3.25 Scale (reference-value)

## Comment

It is not clear what this description tries to define. Scale, Scale(reference-value) or reference-value scale.

This definition seems to be taken from another ISO document. It may do well in that document but it does not in here..

## Recommended Change

Rephrase the entire definition

**JPN-TH013**

## Section Name

3.29 Value (of a quantity)

## Comment

It is not clear what this description tries to define. Value, Value(of a quantity) or value of a quantity.

This definition seems to be taken from another ISO document. It may do well in that document but it does not in here..

## Recommended Change

Rephrase the entire definition

**JPN-TH014**

## Section Name

Figure 1 COSMIC-FFP measurement process

## Comment

This figure is not fully structured.

There is no explanation about arrows. There seem to be two types of arrow, one is for data flow and the other for application of procedures. They should be clearly distinguished.

A note-like explanation under the figure starting with (1) is difficult to understand. This should be fully explained in the text part.

Figures are given in ISO standards documents to help audiences understand what are written in text. They should be treated like informative text like notes.

However, once given, they should be fully described.

## Recommended Change

Change it in accordance with the above comment.

**JPN-TH015**

## Section Name

5.2 Measurement method concepts

## Comment

This clause overlaps in many parts with clause 3, definitions. What makes concepts different from definitions?

## Recommended Change

To make things clear, duplicated definitions should be removed from clause 3 and leave it to clause 5.2.

If the above gives rise to some troubles, there must exist a description that fully explains the relationship between definitions and concepts. Or the purpose of this clause should be clearly stated. Or both.

**JPN-TH016**

## Section Name

5.2.1 Software users

## Comment

3.28 defines only "Users." If these two sections are the same, as it seems to be, the same wording should be taken.

## Recommended Change

Change the title to Users, if the comment is correct.

**JPN-TH017**

## Section Name

5.2.3 Layers, Note 1

## Comment

This note is a little bit misleading.

## Recommended Change

Change the second and third sentences as follows;;

The layered model defined here is to provide a functional view of the software. Other models could be used if they have the same purpose, fully or partly.

**JPN-TH018**

## Section Name

5. 3 Extracting functional users requirement

## Comment

This clause is not essential to COSMIC-FFP only to give supportive information. And ISO documents should be as slim as possible for readability and usability purpose.

## Recommended Change

Move this clause entirely to informative annex.

**JPN-TH019**

## Section Name

5.4 COSMIC-FFP Mapping phase

## Comment

This clause explains that COSMIC-FFP software model consist of the context model and the software model. This appears strange because it claims that the software model includes the software model.

Titles of Figure 4 and 5 are lengthy and misleading.

**Recommended Change**

The latter consists of processes that make up software and sub-processes that result in processes. They are usually called structure of software and structure of processes. Therefore, it is natural to call the latter model “the structure model.” The titles of Figure 4 and 5 should be changed to “The COSMIC-FFP context model” and “The COSMIC-FFP structure model,” respectively.

**JPN-TH020**

## Section Name

5.4.1 COSMIC-FFP context model, Figure 4

## Comment

This figure is not described fully.

The phrases “front-end” and “back end” are not self-descriptive.

**Recommended Change**

Put explanations about boxes and arrows, and relationship among them.

As the phrases “front-end” and “back end” only appear once, they can be replaced with phrases like “between I/O hardware and software” and “between storage hardware and software” and this makes things clearer.

**JPN-TH021**

## Section Name

5.4.1 COSMIC-FFP context model, the paragraph of the last but one

## Comment

This paragraph only gives additional information.

**Recommended Change**

Make it a Note.

**JPN-TH022**

## Section Name

5.4.1 COSMIC-FFP Context model  
the paragraph under b),Page 10

## Comment

The description overlap the definition of 3.13 FUR, and are inconsistent.

The definition of 3.13 describe "The Functional User Requirements represent the user practices and procedures that the software perform to fulfil the user's needs". While this paragraph has description in which the requirements to hardware are also contained in FUR.

**Recommended Change**

remove this paragraph.

**JPN-TH023**

## Section Name

5.4.2 COSMIC-FFP software model, the last paragraph on page 10  
7.2 identification of the BFC, text in third paragraph

## Comment

The words “data manipulation” is used without definition.

**Recommended Change**

Put definition of “data manipulation” in clause 3.

Generate a note in the definition section stating that the current version of COSMIC-FFP does not explicitly handle “data manipulation.”

After making necessary steps above, remove entire text in parentheses in third paragraph in 7.2.

**JPN-TH024**

Section Name

5.4.2 COSMIC-FFP software model, the first paragraph on page 11

Comment

There are four “move data” in this paragraph differing from the definition of 3.4, data attributes.

Recommended Change

Change them to “move data attributes.”

**JPN-TH025**

Section Name

5.5 Measurement phase, the second paragraph

Comment

The intention of this sentence is not understandable.

Recommended Change

Describe the relation between the number of BFC(s) and Functional size clearly.

**JPN-TH026**

Section Name

5.5 Measurement phase

Comment

The second paragraph, a), b) and c) are the heart of the COSMIC-FFP. These items must be placed in 3, definitions or 5.2, Measurement concept. Note that we have a comment on the structure concerning 3 and 5.2.

Recommended Change

Change them to “move data attributes.”

**JPN-TH027**

Section Name

5.5 Measurement phase, second paragraph

Comment

“Functional size” defined here is that for COSMIC-FFP. Although the phrase is led by “the”, this should be clearly stated.

Recommended Change

Change “the functional size of software” to “the functional size of software with COSMIC-FFP.”

**JPN-TH028**

Section Name

5.5 Measurement phase, c)

Comment

This item is hard to understand with this item without background. Those who know IFPUG FPA might understand what it is to say, but others do not.

Recommended Change

This item should be rephrased considering IFPUG FPA manual.

**JPN-TH029**

## Section Name

7.2 and 7.3

## Comment

There seem to be significant difference between 7.2 and 73. They should be merged or most of entire part of 7.2 goes to an annex..

## Recommended Change

Rephrase them accordingly.

**JPN-TH030**

## Section Name

7.3.1 identification of Exit(X), NOTE

## Comment

This NOTE state a “must” item, i.e. a rule.

## Recommended Change

Make it item e) following items directly the above.

**JPN-TH031**

## Section Name

7.5 Calculation of the Functional Size, Page 17

## Comment

This should be described as requirements for shall.

## Recommended Change

Change "This aggregation consists of:" to "This aggregation shall consists of:".

**JPN-TL032**

## Section Name

Introduction, the first paragraph

## Comment

This paragraph refers to cost or budget. Although a functional measurement can be used to estimate cost or budget, its primary purpose is to size software. From this point of view, this paragraph is misleading.

## Recommended Change

Remove it.

**JPN-TL033**

## Section Name

1.2 Field of application, a) , the 1st sentence

## Comment

"typically" is an ambiguous term.

## Recommended Change

Remove “typically”.

**JPN-TL034**

## Section Name

1.2 Field of application, a) ,the second sentence

## Comment

This sentence is not necessary.

## Recommended Change

This sentence should be placed in a note.

**JPN-TL035**

## Section Name

1.4 Limitations ,the last sentence

## Comment

The intention of this sentence is not understandable.

## Recommended Change

This sentence should be placed in a note, or removed.

**JPN-TL036**

## Section Name

3.4 and 3.10

## Comment

"(Synonym 'data elementary type')" in 3.4 and "(Synonym 'Transaction-type')" does not seem necessary and a reason why they are there is opaque. In addition, way of description is not consistent, having dash '-' in one and not in the other. We are not sure but the use of parentheses this way is not thought to be conformant to directives.

## Recommended Change

Remove them or put them in notes in each clause.

**JPN-TL037**

## Section Name

3.5 Data group (-type)

## Comment

There are two "(see definition)." This is not a good way of writing.

## Recommended Change

They must be "(see 3.9)" and "(see 3.22)" , respectively..

**JPN-TL038**

## Section Name

3.7 Entry (-type), 3.9 Exit (-type)

## Comment

A phrase "a movement of data attribute" is, in a sense, redundant and not conformant to the definition as with the "Data movement(-type) definition.

## Recommended Change

Change it to "a data movement."

**JPN-TL039**

## Section Name

3.26 Triggering event (-type), the third sentence.

## Comment

It is better for this sentence to place in a note.

## Recommended Change

This sentence should be placed in a note.

**JPN-TL040**

## Section Name

5.1 COSMIC-FFP measurement process, NOTE, Page 7.

## Comment

Since it is a general rule of IS, it is not necessary to state explicitly.

Recommended Change  
Remove this note.

**JPN-TL041**

Section Name

Figure 5, "Data manipulation type", Page 11.

Comment

There is no description about "Data manipulation type" in body at all.

Recommended Change

Define this term, or Add a certain explanation to the body in 5.4.2.

**JPN-TL042**

Section Name

5.4.2 COSMIC-FFP software model  
the sentence under Figure 6,Page 11

Comment

Since there is too little explanation of BFC, readers of this document can not understand that a data movement type [or a sub- process] is a BFC .

Recommended Change

Use a term "sub-process" which is the term of original COSMIC-FFP document instead of BFC.(see JPN-TH010)

**JPN-TL043**

Section Name

6.2, 6.3 and 6.4

Comment

There are paragraphs led by the word "when". These paragraphs are not significant to COSMIC-FFP and only give additional information.

Recommended Change

Make them notes or put them in an informative annex.

**JPN-TL044**

Section Name

6.5 Identification of data groups, second paragraph

Comment

This paragraph is not essential and only gives additional information.

Recommended Change

Make it a note..

**JPN-TL045**

Section Name

7.3.5 Local extensions, EXAMPLE, Page 17

Comment

Description is halfway.

Recommended Change

Carry the example described completely.

**JPN-TL046**

Section Name

Annex A

**Comment**

There is little useful information.

**Recommended Change**

Delete the whole Annex A, or at least delete the portion of the allegoric text, and Add more detailed description about handling of data convert software measurement and measurement scaling to software engineering processes.

**JPN-TL047****Section Name**

Annex B, EXAPMLE1 first sentence, Page 22

**Comment**

Although the term "level" is used, the term "layer" is used in the body.

**Recommended Change**

Change "level" to "layer".

**JPN-TL048****Section Name**

Annex C

**Comment**

This Annex describes the important matter which affects functional size value.

**Recommended Change**

Promote this annex from "informative" to "normative" .

**JPN-E049****Section Name**

b3.1 ,

**Comment**

"b" in front of 3.1 is unnecessary.

**Recommended Change**

Remove "b".

**JPN-E050****Section Name**

3.11 Functional size measurement(FSM)

**Comment**

The definition start with the word "the." It seems better to be the word "a."

**Recommended Change**

Up to native speakers..

**JPN-E051****Section Name**

3.12 Functional Size Measurement Method, line 2 of definition.

**Comment**

14143-Part1 is used.

**Recommended Change**

Change it to 14143-1.

**JPN-E052****Section Name**

## 3.22 Persistence ( of a data group)

## Comment

A problem with parentheses is already stated in JPN-TH005.

This definition start with "a quality...", but persistence is not a sort of "quality", rather it is a kind of characteristics or attributes.

Besides, definition of three types of persistence is ambiguous and far from being proper for definition.

## Recommended Change

Change it to characteristic or attribute. Rephrase the second sentence like; defined: transient, with which characteristic data exists only for ....

**JPN-E053**

## Section Name

## 3.24 Read (-type)

## Comment

The way of definition is not good..

## Recommended Change

Change it to the one as follows;

a sub-process that brings data from storage, within reach of the functional process to which it belongs. A Read refers to data attributes found in one data group.

**JPN-E054**

## Section Name

## 3.26 Triggering event (-type)

## Comment

The way of definition is not good.

## Recommended Change

The definition should start with "an event that occurs outside ....."

The second sentence should be placed in a note.

**JPN-E055**

## Section Name

## 3.30 Write (-type)

## Comment

The way of definition is not good..

## Recommended Change

Change it to the one as follows;

a sub-process that sends data lying inside the functional process to which it belongs to storage. A Write refers to data attributes found in one data group.

**JPN-E056**

## Section Name

## 4 Symbols and abbreviated terms, COSMIC

## Comment

As COSMIC does not something to do with technical explanation, this is not a proper place to state.

## Recommended Change

Move it to Introduction

**JPN-E057**

## Section Name

5 Overview of the COSMIC-FFP measurement method and other clauses

## Comment

The word "present" appears repeatedly in this document instead of the words "describe," "state" and so on. It seems that the word "present" is not common in ISO standards.

## Recommended Change

None

**JPN-E058**

## Section Name

5.5 Measurement phase, second paragraph

## Comment

This paragraph starts with “??” in our printed version. Please check that a correct character is used and presentation is conformant to ISO directives.

## Recommended Change

None.

**JPN-E059**

## Section Name

5.5 Measurement phase and other clauses

## Comment

The phrase “by convention” is used frequently in this document. We think most of the phrase is not needed and do not believe this phrase is not proper for an ISO standard.

## Recommended Change

Remove all “by convention”.

**JPN-E060**

## Section Name

5.5 Measurement phase, NOTE2, Page 12

## Comment

"General Principle 1" is the mistake of a reference place.

## Recommended Change

Change "General Principle 1" to "5.2.5 c)"

**JPN-E061**

## Section Name

6.1 Overview, text in parentheses in third paragraph

## Comment

“indicated in the activity’s title bar in Figure 7)” There are no such things like title bar in Figure 7.

## Recommended Change

Remove entire text in parentheses.

**JPN-E062**

## Section Name

7.2 Identification of the BFC, Line 2,Page 15

(Data movements - 3.30)

Comment

reference number is mistaken.

Recommended Change

Change "3.30" to "3.6".

### **JPN-E063**

Section Name

7.3.1, 7.3.2, 7.3.3 and 7.34

Comment

Abbreviated presentation E, X, R and W appear for the first time in these clauses. These should be explained in each definition of clause 3 or clause 4.

Recommended Change

Rephrase them accordingly.

### **JPN-E064**

Section Name

7.3.1 identification of Entry(E), second line from the bottom of this clause.

Comment

Item heading "d)" is missing..

Recommended Change

Add "d)" in front of the word "Within."

### **JPN-E065**

Section Name

7.5 Calculation of the Functional Size, expressions

Comment

Symbols of summation in expressions in a) and b) are not printed correctly in our printed version.

Recommended Change

Check that correct character set is used.

### **JPN-E066**

Section Name

8.1 Labeling

Comment

Each item is led by "??" in our printed version.

Recommended Change

Check that correct character set is used.

### **JPN-E067**

Section Name

Annex D, EXAMPLE1 second paragraph, Page 27

Comment

Reference "Figure 15" is mistaken.

Recommended Change

Change "Figure 15" to "Figure 17".

## UNITED KINGDOM

### UK-EH001

The definition of 3.10 should be re-worded as follows.

#### 3.10

**Functional Process (-type):** A functional process is an elementary component of a set of Functional User Requirements, comprising a unique, cohesive and independently executable set of Data Movements. It is triggered by one or more Event (-types), either directly, or indirectly via an 'actor'. It is complete when it has executed all that is required to be done in response to the Triggering event (-type).

Reasons for changes to the definition in the version of 29/5/01:

- remove the reference to '(Synonym 'Transaction-type')', as the latter term is nowhere used in the CD text
- the words in brackets '(Entry, Exit, Read, Write)' are superfluous
- the word 'implementing' is incorrect and means the definition is in conflict with ISO/IEC 14343-1; replace by 'independently executable' (FUR do not have to be implemented)
- Re-ordering the second sentence makes it more understandable

### UK-EH002

The definition of 3.26 should be re-worded as follows.

#### 3.26

**Triggering event (-type):** A triggering event occurs outside the boundary of the measured software and initiates one or more functional processes. In a set of Functional User Requirements, each event-type which triggers a functional process is indivisible for that set of FURs.

Reasons for changes to the definition in the version of 29/5/01:

- The sentence 'Clock and timing events can be triggering events.' is helpful, but is not part of the definition.
- The sentence 'Since each identified layer is separated by a boundary, triggering events can occur in one layer and initiate functional processes belonging to another layer' follows automatically from the first sentence of the definition, and is not the whole story, so it is best deleted
- The concept of 'indivisibility' of the Triggering Event introduced into the proposed new second sentence of the definition is important as a characteristic of a Triggering event and for being able to distinguish Functional Processes uniquely.

## UNITED STATES OF AMERICA

### General Comments:

USA-G001: The USNB commends the Project Editor, and the individuals who assisted him, on the publication of this draft.

USA-G002 (TH): The USNB objects in principle to the advancement of this document to CD stage at this time. This action contradicts the intent of SC7, as expressed by a resolution at the Madrid Plenary, that existing FSM Methods would be

standardized via the PAS process, before any new methods would be advanced to CD stage.

USA-G003 (TH): The evaluation of this document by National Bodies would be facilitated if a Suppliers Declaration of Conformance to 14143-1 were provided, as was done for the FSM Methods submitted via the Publicly Available Specification (PAS) process.

USA-G004 (E): The readability and understandability of this document would be enhanced by providing a detailed overview of the COSMIC method, identifying the inputs, outputs and expected outcomes of the method. It would also be enhanced by changing the order of several sections, as further described in the technical comments that follow.

USA-G005 (TH): It is not clear what version of the COSMIC-FFP method this document represents. The Introduction references Versions 1.0 and 2.1, is it one of these versions?

RS: Clarify.

#### **Technical Comments:**

USA-TH006: vi, Introduction, paragraph 5

C: The reference to “principles for the next generation of functional size measurement methods” is unnecessary, nor is it proven that the COSMIC-FFP method represents a new generation of such methods.

RS: Remove the reference.

USA-TH007: 1, 1.2, paragraph 1

C: The statement “The COSMIC-FFP measurement method is designed to be applicable to software from the following functional domains” is clearly incorrect. The Introduction states that COSMIC-FFP was specifically designed to be applicable to real-time systems only, but that subsequent tests found that it was also applicable to other functional domains as described in this section.

RS: The intent of this section appears to be to provide a statement of applicability to functional domains. For this purpose, it would be sufficient to reword the statement as, “The COSMIC-FFP measurement method is applicable to software from the following functional domains”.

USA-TL008: p.2, Normative references

C: The reference to ISO/IEC 14939 (which should in fact be 15939) is inappropriate, as this standard has not yet been published.

RS: Remove the reference to this document.

USA-TH009: 6, 5/5.1/5.2

C: The structure of this section is confusing, and makes it difficult to understand. It would be more logical to present the concepts first, then introduce the measurement method.

RS: Change the order of sections, inserting the current Section 5.2 before the current Section 5.1.

- USA-TL010: 7, 5.2.2, paragraph 1  
C: The description of Functional User Requirements (FURs) provided in this section is inconsistent with the definition of FURs in 14143-1, and also repeated in Section 3.13 of this document. Moreover, the description here is unnecessary since the term has been previously defined.  
RS: Remove this section.
- USA-TL011: p.10, 5.4.1, paragraph 4  
C: The concept that requirements are allocated to hardware and software is confusing. Does this mean, for example, that it is impossible to determine Functional Size from a requirements document, because such allocation has not yet been done? This would be inconsistent with the principles of FSM, which state that an FSM Method can be applied as soon as any FURs are present.  
RS: Clarify the intent of this paragraph, or remove it.
- USA-TL012: p.11, 5.4.2, third paragraph after Figure 6  
C: The text states that, “The software model is instantiated using 6”. The reference is unclear; does this refer to Figure 6, immediately above, or to Section 6, below?  
RS: Clarify.
- USA-TL013: p.11, 5.4.2, fourth paragraph after Figure 6  
C: The text refers to measuring “the functional size of software”. There may be many FSMs, each with its own techniques and values for measuring functional size of software.  
RS: Change the reference to “a functional size of software”.
- USA-TL014: p.13, 6.2 (1)  
C: The reference to functional service “packages” seems to imply that this term has been specifically introduced for this document. However, the examples provided indicate that these are intended to represent certain types of packaged software.  
RS: Change to “Functional service packaged software”.
- USA-TH015: p.14, 6.4(a)  
C: The guidelines for identifying functional processes in this item appear to be inconsistent with the criteria in 5.2.5. This item implies that a functional process always ends with a self-induced wait state, where 5.2.5 states that a process contains no more than one self-induced wait state (which *may* occur when it is completed). Moreover, the terminology introduced in this item is significantly different from that in 5.2.5.  
RS: Re-work this item to harmonize it with Section 5.2.5.
- USA-TL016: p.15, Figure 8  
C: There appears to be an error in the diagram. “COSMIC-FFP Software FUR Model” is shown as input to, and output from the process. It would appear that the output should be the functional size.  
RS: Correct the diagram.
- USA-TL017: 16, 7.3.2, Example

C: The example given is confusing. It appears that what is being counted are the distinct types of error and confirmation messages, but a casual reader might interpret this as counting the distinct error messages themselves. This does not appear to be the intent.

RS: Re-word the example, clarifying that the message types are being counted, not the individual messages themselves.

USA-TH018 p.20, Annex A

C: The concepts presented in this Annex appear to apply to FSM in general, rather than COSMIC-FFP in particular. Also, the Annex does not address examples of functional domains as implied by the reference to it in 1.2. These comments would be best suited for inclusion in a conceptual document such as 14143-1.

RS: Remove Annex A from this document, but consider it for possible inclusion in the next revision of 14143-1.

USA-TH019 p.26, Annex D

C: The concepts introduced in this Annex appear to be strongly related to physical implementation characteristics, which are not part of Functional Size. Also, it might be easier to understand the relevance of data persistence if examples of short and transient persistence were included.

RS: Revise the Annex to minimize dependence on physical characteristics, and to include additional examples.

### **Editorial Comments:**

USA-E020: p.3, 3.6, NOTE 3

C: The name of the method is mis-spelled (COMIC-FFP).

RS: Correct.

USA-E021: p.8, 5.2.4, paragraph 3

C: There are extraneous characters “??” at the beginning of the paragraph.

RS: Remove or replace with a bullet if that was the intent.

USA-E022: p.8, 5.2.5 (c)

C: This statement is confusing as written, it is not clear what the two required data movements are.

RS: Re-word as follows (assuming this is the correct interpretation): “Contains at least two data movements; an Entry, and either an Exit or a Write;”

USA-E023: p.8, 5.2.6 (a)

C: The expression “is materialized within” is unclear.

RS: Clarify. Does this mean, “implemented within”, “owned by”, or some other interpretation.

USA-E024: p.9, 5.3

C: The section heading refers to functional users requirements, however the correct terminology is functional user requirements.

RS: Correct.

- USA-E025: p.10, 5.4.2, paragraph 1  
C: The statement “The following general principles applies” is incorrect.  
RS: Re-word as, “The following general principles apply”.
- USA-E026: p.10, 5.4.2 (a)  
C: The phrase “useful output” assumes that we have some method for assessing the value of the output to the user. In fact, it would seem more appropriate to include all output.  
RS: Re-word as follows: “...is fed by input and produces output...”.
- USA-E027: p.12, 5.5, paragraph 2  
C: There are extraneous characters “??” at the beginning of the paragraph.  
RS: Remove or replace with a bullet if that was the intent.
- USA-E028: p.12, 5.5, paragraph 4  
C: The statement “characteristics...includes” is incorrect.  
RS: Re-word as, “characteristics...include”.
- USA-E029: p.18, 8.1  
C: There are extraneous characters “??” at the beginning of multiple paragraphs in this section.  
RS: Remove or replace with a bullet if that was the intent.
- USA-E030: p.22, Figure 11  
C: The box labeled “Application X” should be grayed. This is analogous to the gray boxes in figure 12.