

**ISO/IEC JTC 1/SC 24****Computer graphics, image processing and environmental data representation****Secretariat: BSI (United Kingdom)**

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**Committee URL:** <http://isotc.iso.org/livelink/livelink/open/jtc1sc24>

## Result of voting

### Ballot Information

<b>Ballot reference</b>	ARCC - 1
<b>Ballot type</b>	NWIP
<b>Ballot title</b>	Augmented reality continuum concepts and reference model - Part 1 - The reference model
<b>Opening date</b>	2012-09-04
<b>Closing date</b>	2012-11-12
<b>Note</b>	This proposal was discussed at the ISO/IEC plenary on 24 August 2012. At the plenary it was decided to submit the NWIP to a shortened ballot to enable members to consider the proposal.

### Member responses:

<b>Votes cast (10)</b>	Australia (SA) China (SAC) Egypt (EOS) France (AFNOR) Japan (JISC) Korea, Republic of (KATS) Portugal (IPQ) Russian Federation (GOST R) United Kingdom (BSI) United States (ANSI)
<b>Comments submitted (0)</b>	
<b>Votes not cast (0)</b>	

### Questions:

<b>Q.1</b>	"Do you accept the proposal in the attached NWI Proposal document as a sufficient definition of the new work item?"
<b>Q.2</b>	"Do you support the addition of the new work item to the programme of work of the joint technical committee?"
<b>Q.3</b>	"Do you commit yourself to participate in the development of this new work item?"
<b>Q.4</b>	"Are you able to offer a project editor who will dedicate his/her efforts to the advancement and maintenance of this project?"
<b>Q.5</b>	"Do you have a major contribution or a reference document ready for submittal?"
<b>Q.6</b>	"Will you have such a contribution in ninety days?"
<b>Q.7</b>	"Which standard development track is proposed?"

Votes by members	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7
<b>Australia (SA)</b>	Yes	Yes	No	No	No	No	Default Timeframe
<b>China (SAC)</b>	Yes	Yes	No	Yes	Yes	No	Default Timeframe
<b>Egypt (EOS)</b>	Yes	Yes	No	No	No	No	Default Timeframe
<b>France (AFNOR)</b>	Abstain	Abstain	Abstain	Abstain	Abstain	Abstain	Default Timeframe
<b>Japan (JISC)</b>	Yes	Yes	Yes	No	No	No	Default Timeframe
<b>Korea, Republic of (KATS)</b>	Yes	Yes	Yes	Yes	Yes	Yes	Default Timeframe
<b>Portugal (IPQ)</b>	Abstain	Abstain	Abstain	Abstain	Abstain	Abstain	Default Timeframe
<b>Russian Federation (GOST R)</b>	Abstain	Abstain	No	No	No	Abstain	Default Timeframe
<b>United Kingdom (BSI)</b>	Yes	Yes	Yes	No	No	No	Accelerated Timeframe
<b>United States (ANSI)</b>	Yes	Yes	Yes	No	No	No	Default Timeframe

Answers to Q.1: "Do you accept the proposal in the attached NWI Proposal document as a sufficient definition of the new work item?"

<b>7 x</b>	<b>Yes</b>	<b>Australia (SA)</b> <b>China (SAC)</b> <b>Egypt (EOS)</b> <b>Japan (JISC)</b> <b>Korea, Republic of (KATS)</b> <b>United Kingdom (BSI)</b> <b>United States (ANSI)</b>
<b>0 x</b>	<b>No</b>	
<b>3 x</b>	<b>Abstain</b>	<b>France (AFNOR)</b> <b>Portugal (IPQ)</b> <b>Russian Federation (GOST R)</b>

Answers to Q.2: "Do you support the addition of the new work item to the programme of work of the joint technical committee?"

<b>7 x</b>	<b>Yes</b>	<b>Australia (SA)</b> <b>China (SAC)</b> <b>Egypt (EOS)</b> <b>Japan (JISC)</b> <b>Korea, Republic of (KATS)</b> <b>United Kingdom (BSI)</b> <b>United States (ANSI)</b>
<b>0 x</b>	<b>No</b>	
<b>3 x</b>	<b>Abstain</b>	<b>France (AFNOR)</b> <b>Portugal (IPQ)</b> <b>Russian Federation (GOST R)</b>

Answers to Q.3: "Do you commit yourself to participate in the development of this new work item?"

<b>4 x</b>	<b>Yes</b>	<b>Japan (JISC) Korea, Republic of (KATS) United Kingdom (BSI) United States (ANSI)</b>
<b>4 x</b>	<b>No</b>	<b>Australia (SA) China (SAC) Egypt (EOS) Russian Federation (GOST R)</b>
<b>2 x</b>	<b>Abstain</b>	<b>France (AFNOR) Portugal (IPQ)</b>

Answers to Q.4: "Are you able to offer a project editor who will dedicate his/her efforts to the advancement and maintenance of this project?"

<b>2 x</b>	<b>Yes</b>	<b>China (SAC) Korea, Republic of (KATS)</b>
<b>6 x</b>	<b>No</b>	<b>Australia (SA) Egypt (EOS) Japan (JISC) Russian Federation (GOST R) United Kingdom (BSI) United States (ANSI)</b>
<b>2 x</b>	<b>Abstain</b>	<b>France (AFNOR) Portugal (IPQ)</b>

Answers to Q.5: "Do you have a major contribution or a reference document ready for submittal?"

<b>2 x</b>	<b>Yes</b>	<b>China (SAC) Korea, Republic of (KATS)</b>
<b>6 x</b>	<b>No</b>	<b>Australia (SA) Egypt (EOS) Japan (JISC) Russian Federation (GOST R) United Kingdom (BSI) United States (ANSI)</b>
<b>2 x</b>	<b>Abstain</b>	<b>France (AFNOR) Portugal (IPQ)</b>

Answers to Q.6: "Will you have such a contribution in ninety days?"

<b>1 x</b>	<b>Yes</b>	<b>Korea, Republic of (KATS)</b>
<b>6 x</b>	<b>No</b>	<b>Australia (SA) China (SAC) Egypt (EOS) Japan (JISC) United Kingdom (BSI) United States (ANSI)</b>
<b>3 x</b>	<b>Abstain</b>	<b>France (AFNOR) Portugal (IPQ) Russian Federation (GOST R)</b>

#### Answers to Q.7: "Which standard development track is proposed?"

<b>9 x</b>	<b>Default Timeframe</b>	<b>Australia (SA)</b> <b>China (SAC)</b> <b>Egypt (EOS)</b> <b>France (AFNOR)</b> <b>Japan (JISC)</b> <b>Korea, Republic of (KATS)</b> <b>Portugal (IPQ)</b> <b>Russian Federation (GOST R)</b> <b>United States (ANSI)</b>
<b>1 x</b>	<b>Accelerated Timeframe</b>	<b>United Kingdom (BSI)</b>
<b>0 x</b>	<b>Extended Timeframe</b>	

#### Comments from Voters

Member:	Comment:	Date:
<b>China</b> (SAC)	<i>Comment</i>	2012-11-09 06:55:21
Tangli LIU (liutl@cesi.ac.cn) (Project editor)		
<b>China</b> (SAC)	<i>Comment File</i>	2012-11-09 06:55:21
<a href="#">CommentFiles/ARCC_-_1_SAC.doc</a>		
<b>Korea, Republic of</b> (KATS)	<i>Comment</i>	2012-11-12 04:12:32
Korean NB, KATS nominates the following expert as a project leader; Name: Gerard J. Kim Email: <a href="mailto:gjkim@korea.ac.kr">gjkim@korea.ac.kr</a>		
<b>United Kingdom</b> (BSI)	<i>Comment</i>	2012-10-09 15:55:50
Richard Puk will participate in the work on behalf of the UK. ( <a href="mailto:Puk@igraphics.com">Puk@igraphics.com</a> )		
<b>United States</b> (ANSI)	<i>Comment</i>	2012-11-12 20:54:05
The scope is well defined and addresses the required content to develop standards and address technology within the augmented reality domain.  William Protzman DCS Corporation 571-227-6181 <a href="mailto:wprotzman@dcscorp.com">wprotzman@dcscorp.com</a>  Dr, Richard Puk Intelligraphics Inc. 760-753-9027 <a href="mailto:puk@igraphics.com">puk@igraphics.com</a>		

#### Comments from Commenters

Member:	Comment:	Date:
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## Annex 1

### Template for comments and secretariat observations

Date: 8/11/2012	Document: <b>24n3411</b>	Project: ARCC - 1
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MB/NC <sup>1</sup>	Line number	Clause/ Subclause	Paragraph/ Figure/ Table/	Type of comment <sup>2</sup>	Comments	Proposed change	Observations of the secretariat
CN			N3411 N3414 N3415	G	Principles for Developing Vocabulary of ARC	Standardization of terminologies is essential to all standardization activities. It is therefore necessary to formulate uniform principles for the terminology work. Suggested uniform principles a) help to organize terminology work in a practical and efficient manner; b) guarantee the consistency and coherence of terminologies both within Augmented Reality Continuum(ARC) and related fields; c) contribute to the harmonization of concept systems and terms in different languages; d) provide assistance to those involved in terminology management.  (see Annex 3)	
CN			N3411 N3414 N3415	G	Human factor should be considered in the ARC interaction cycle.  User Manipulate Feedback Devices  The sensor interface descriptions in the ARC	see Annex 2	

<sup>1</sup> **MB** = Member body / **NC** = National Committee (enter the ISO 3166 two-letter country code, e.g. CN for China; comments from the ISO/CS editing unit are identified by \*\*)

<sup>2</sup> **Type of comment:** **ge** = general **te** = technical **ed** = editorial

## **Annex 2**

### **China Comments on 3 NWIPs (N3411, N3414, N3415)**

This documented is the final version of China comments which has been drafted and checked by Xiaopeng Zhang, Zhong Zhou, Xilin Chen, Xiaohui Liang, Jing Chen, Jingxin Li and Tangli Liu.

#### **1. Principles for Developing Vocabulary of ARC** ( submitted and checked by Xiaomi An, Tangli Liu )

Standardization of terminologies is essential to all standardization activities. It is therefore necessary to formulate uniform principles for the terminology work.

Suggested uniform principles

- a) help to organize terminology work in a practical and efficient manner;
- b) guarantee the consistency and coherence of terminologies both within Augmented Reality Continuum(ARC) and related fields;
- c) contribute to the harmonization of concept systems and terms in different languages;
- d) provide assistance to those involved in terminology management.

(see Annex 1)

#### **2. Comments on the ARC RM (N 3411 AR-RM-nwip-draft v2)** ( submitted by Xilin Chen, revised by Zhong Zhou )

We have several comments on the ARC RM proposed in N 3411.

- 1) Human factor should be considered in the ARC interaction cycle

An ARC-RM is proposed in Fig. 2 of ISO/IEC JTC 1/SC 24 N 3412. However, a very important issue, human factor, is missed in the proposed model. As the subject is very important in ARC, human factor must be considered in the model. For this purpose, a physiological and psychological module will be an essential part in the RM. The revised RM (computational view) is shown as Fig. 1.

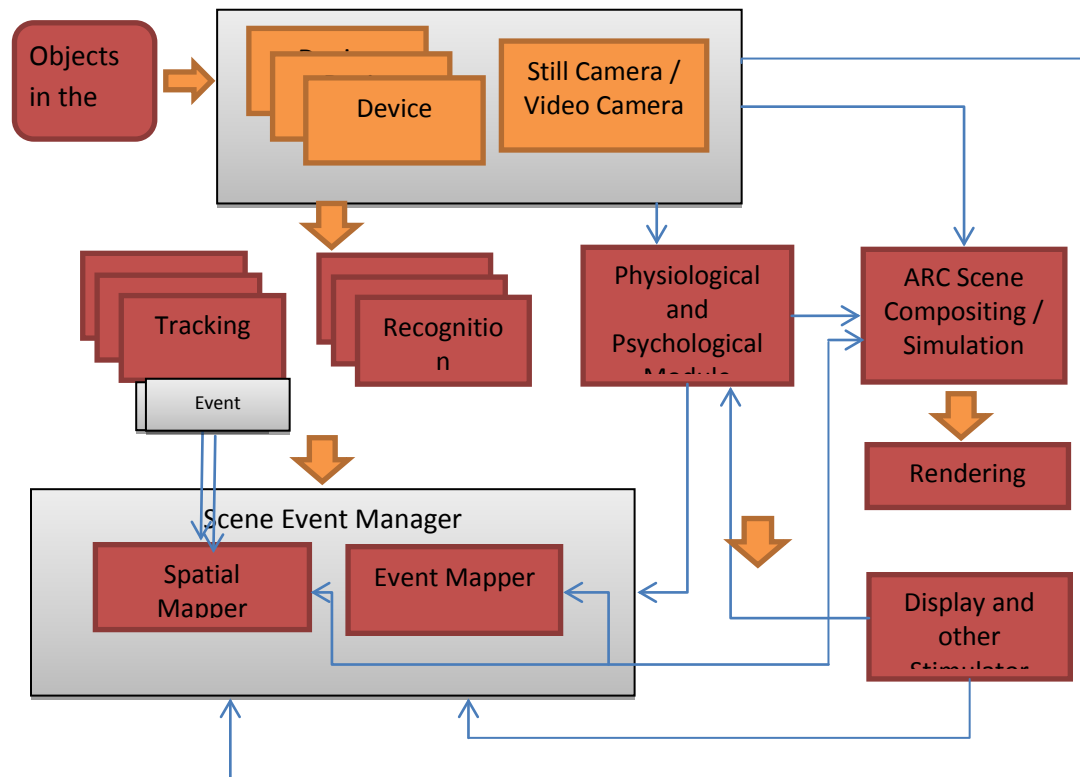
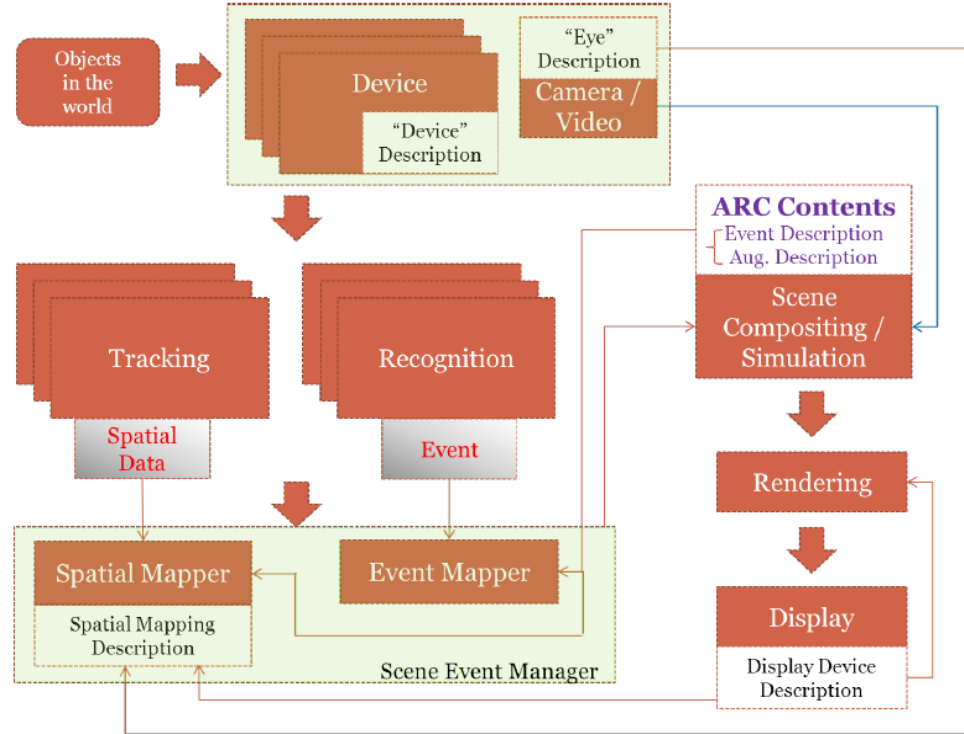


Fig.1 The revised ARC Reference System Model (Computational View)

As to the physiological and psychological module, various models can be connected with the module to calibrate multimodality stimulations (multimodal stimulus). This module will also include the models to improve the original signals from all kinds of input devices. For the above purposes, the same physiological and psychological computational models are encouraged to be added. This module will help to refine user experience.





## 2) User Manipulate Feedback Devices

Although the display module in ARC RM might be described to have output lines to the spatial mapper and rendering, it seems not to cover the feedback devices such as the haptic devices or the developing interactive tactile screens. The feedback devices need to detect all the user interactions to the display on the fly.

There might be two ways to be added to the RM. Firstly, introduce a new line from the display module to the “objects in the world”. Secondly, add a new module “feedback” between the display and the device modules.

## 3 The sensor interface descriptions in the ARC

(submitted by Xiaojing Liu, edited by Zhong Zhou)

According to the NWIPs, ARC is related to a lot of sensor categories. Since the technical framework may not be consistent in all kinds of ARC fields, we suggest the future standard only regulate a flexible data interface formats to get the support of possible sensor manufactures. On the meantime, ARC should be compatible to other universal sensor interfaces or web-based interfaces, such as IEEE 1451, OGC SWE and OPC UA etc.

## **Annex 3**

### **Principles for Developing Vocabulary of ARC**

(Xiaomi An, Tangli Liu   China, 2012-09-28)

## **Contents**

- 1 Introduction
- 2 Scope
- 3 Normative references
- 4 General principles
- 5 Principles for building terms and definitions
- 6 Principles for justification of comments for changes
- 7 Principles for building the bibliography
- 8 Example of Terms and definitions
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## 1. Introduction

Standardization of terminologies is essential to all standardization activities. It is therefore necessary to formulate uniform principles for the terminology work.

Suggested uniform principles

- a) help to organize terminology work in a practical and efficient manner;
- b) guarantee the consistency and coherence of terminologies both within Augmented Reality Continuum(ARC) and related fields;
- c) contribute to the harmonization of concept systems and terms in different languages;
- d) provide assistance to those involved in terminology management  
(ISO 10241-1:2011, ISO 10241-2:2012, ISO 704:2009)

This document is a synthesis of principles for developing and modifying vocabulary of ARC, based on the following key documents.

ISO 30300:2011(en) Information and documentation — Management systems for records — Fundamentals and vocabulary

Principles for Developing Vocabulary of Management Systems for Records ISO/TC46SC11WG8, v.3 Xiaomi An (China) and Judith Ellis (Australia), 2009-10-03

## 2. Scope

This document established uniform principles for use in the development of terms and definitions of ARC and justification of comments for changes.

## 3. Normative reference

- [1] ISO10241-1:2011 Terminological entries in standards -- Part 1: General requirements and examples of presentation
- [2] ISO10241-2:2012 Terminological entries in standards -- Part 2: Adoption of standardized terminological entries
- [3] ISO 704:2009 Terminology work - Principles and methods
- [4] ISO/IEC Directives Part1 Consolidated ISO Supplement – Procedures specific to ISO ANNEX SL, Appendix 3: 2012

## **4. General rules**

The rules on how to draft definitions are provided by ISO 704:2009. ISO 10241-1:2011.

The following is a summary of provisions in ISO 704:2009:

- Definitions shall be as concise as possible and as complex as necessary.
- Complex definitions shall contain only information that makes the concept unique; any additional descriptive information deemed necessary shall be included in a note.
- Definitions shall be drafted in a consistent manner bearing in mind the target audience's language register and knowledge level.
- A definition shall describe only one concept.
- A definition shall be neither too narrow nor too broad.
- A definition shall reflect the concept system describing the concept and its relations to other concepts in the concept system.
- Definitions shall be systemic.
- The characteristics selected in an intentional definition shall indicate the delimitation that distinguishes one concept from another or the connection between the concepts.

The following is a summary of provisions in ISO 10241-1:2011:

- Every effort shall be made to avoid use of a single term for multiple concepts and multiple terms for a single concept.
- Every effort shall be made to avoid contradictions occurring in terminological entries in closely related standards.
- Only the concepts relevant to the domain, subject or scope of the standard shall be defined.
- The form of a definition shall be such that it can replace the term in context.
- A definition shall not take the form of a requirement.
- A definition shall consist of a single phrase, which if possible shall reflect the position of the concept in the concept system. This requirement can best be met by using intentional definitions.
- The form of a definition shall be such that it can replace the term in context (i.e. principle of substitution).
- The principle of substitution shall be applicable in both directions.

## **5. Principles for building terms and definitions**

### **5.1. What to include principle**

- 5.1.1. Use only terms needed
- 5.1.2. Could use what's in ISO/IEC 19775 (or ISO related standards especially those developed by SC 24 ) and if that's still good use that; if word is outdated then revise definition; if word is missing add in.
- 5.1.3. Use ISO/IEC 19775 definition as basis and then build cross reference with other ISO sourced standards.
- 5.1.4. Terms should be applicable throughout the whole family, encompass terms of ISO/IEC JTC 1/SC 24 products. Or just language for this Standard (Fundamentals and or Requirements)
- 5.1.5. If a word might be useful put note to say refer to standard X, which needs a bibliography where such references could be cited.

## **5.2. What to exclude principle**

### **5.3. Deleting principle**

- 5.3.1. No longer used, obsolete, may be replaced or may be modified.
- 5.3.2. No frequently used in general.

### **5.4. Modifying principle**

- 5.4.1. If we don't like the definition we can change it. But justification must be supported by evidence and submitted for this to happen.

### **5.5. Selecting principle**

- 5.5.1. We can have preferred term with footnotes to explain the other uses including cross-culture differences.

### **5.6. Creating and adding principle**

- 5.6.1. New terms where there is common use or complexity needs to be explained.
- 5.6.2. Terms which come from new products, important and vital to RMSS.

### **5.7. Concept system principle**

- 5.7.1. Concepts and concept relations may be identified in accordance with ISO 704.
- 5.7.2. A concept system may be established for ARC on the basis of identified concepts and concept relations (ISO 10241; ISO 704).
- 5.7.3. Representations of concept systems through concept diagrams may be established in accordance with ISO 704 (ISO 10241; ISO 704).

## **5.8. Governance logistics principle**

- 5.8.1. WG 9 is responsible for setting up ad hoc groups to build (several) years review cycle for keeping the terminology up to date. All the ISO standards have to be reviewed at intervals of not more than (several) years. While developing the terms and definitions of RMSS, ISO/IEC 19775 series terms and definitions are needed to be reviewed as a whole for the start.
- 5.8.2. Continuous improvement of our products is needed by getting feedbacks from uses of the standard, by comparative studies of the changes of the uses through time.
- 5.8.3. ISO has a central place for vocabulary registry, ISO Online Browsing Platform(OBP) is a good source for checking compatibility of [ISO RMSS terms with other ISO terms [<http://www.iso.org/obp/ui/#home>].

## **6. Principles for justification of comments for changes**

### **6.1. Principle for consideration**

- 6.1.1. Due to more than one delegation have common opinions or arguments.
- 6.1.2. Even one delegation has the opinion but the change is for good, more advantages over the past use, it worth efforts to make the change.

### **6.2. Principle for acceptance**

- 6.2.1. The modified definition is clearer, and no much cost for change.
- 6.2.2. The modified definition is shorter with better understanding & without much cost for change.
- 6.2.3. The modification goes more accurate and no much cost for change.
- 6.2.4. The modification goes more in conformity with latest international best practice and ISO MSS development and no much cost for change

### **6.3. Principle for rejection**

- 6.3.1. Only one delegation has different opinion and the opinion may take expensive time and cost for change management.
- 6.3.2. The opinion is beyond the principles of building the vocabulary.

## **7. Principles for building the bibliography**

For references to ISO and IEC documents, the presentation rules specified in 6.2.2 shall be followed. For other referenced documents and information resources (printed, electronic or otherwise), the relevant rules set out in ISO 690 shall be followed.

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the

expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters as given in the source (see ISO 690).

EXAMPLE 1 ISO/IEC Directives and ISO Supplement. International Organization for Standardization, ©2004-2010 [viewed 2010-04-19]. Available from <<http://www.iso.org/directives>>

EXAMPLE 2 Statutes and directives. International Electrotechnical Commission, ©2004-2010 [viewed 2011-02-09]. Available from <[http://www.iec.ch/members\\_experts/refdocs/](http://www.iec.ch/members_experts/refdocs/)>

EXAMPLE 3 ISO 7000/IEC 60417 [online database], Graphical symbols for use on equipment [viewed 2010-06-14] Available from <<http://www.graphical-symbols.info/equipment>>

Referenced documents in the bibliography may be grouped under descriptive headings. Such headings shall not be numbered and shall not be listed in the table of contents.

[ISO/IEC Directives, Part 2 Rules for the structure and drafting of International Standards]

## **8. Example of Terms and definitions**

### **Rendering**

The collection of processes (downstream of segment storage in the graphic object pipeline) which convert the geometric specification of an object and its associated attribute values to the form in which it will be presented on the drawing surface. The term generally covers transformations, application of attribute values, and clipping, as well as processes specifically shown as locus, shape, and physical rendering. All processing concerned with rendering may involve varying degrees of approximation which may be device-dependent and generally will not be inquirable.

[ISO/IEC 9636-1:1991, 3.2.121]

The creation of a visible image of a page image or a document as part of the presentation process

[ISO/IEC 10180:1995, 3.104]

Action of transforming a scene description and its constituent audio-visual objects from a common representation space to a specific presentation device (i.e., speakers and a viewing window)



[ISO/IEC 14496-11:2005, 4.57]

Act whereby the information in a document is presented

[ISO 9241-151:2008, 3.21]

The conversion of the geometry, coloring, texturing, lighting, and other characteristics of a scene into a display image.

[ISO/IEC 2382-13:1996, 13.02.21]

## **9. Bibliography**

[1] ISO 15489-1: 2001, Information and documentation — Records management — Part 1: General.

[2] ISO 5127: 2001, Information and documentation — Vocabulary.

[3] ISO Guide 72: 2001, Guidelines for the justification and development of management systems standard.

[4] ISO/IEC 27000: 2009, Information technology — Security techniques — Information security management systems — Overview and vocabulary.

[5] ISO14050: 2009, Environmental management — Vocabulary.

[6] ISO 9000: 1999, Quality management systems — Fundamentals and vocabulary.

[7] ISO 9000: 2005, Quality management systems — Fundamentals and vocabulary, 3rd ed.

[8] GB/T 19100-2003 (China) Terminology work- Establishment of concept system