

SLOVENSKI STANDARD
SIST EN 61966-12-1:2011**01-julij-2011**

**Večpredstavnostni sistemi in oprema - Merjenje in urejanje barv - 12. del:
Metapodatki za ugotavljanje barvne lestvice (Gamut ID) (IEC 61966-12-1:2011)**

Multimedia systems and equipment - Colour measurement and management - Part 12:
Metadata for identification of colour gamut (Gamut ID) (IEC 61966-12-1:2011)

Multimediasysteme und -geräte - Farbmessung und Farbmanagement - Teil 12-1:
Metadaten für die Kennzeichnung des Farbumfangs (Gamut-ID) (IEC 61966-12-1:2011)

Systèmes et appareils multimédia - Mesure et gestion de la couleur - Partie 12-1:
Métadonnées d'identification de gamme de couleurs (Gamut ID) (CEI 61966-12-1:2011)

[https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-](https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011)

Ta slovenski standard je istoveten z: EN 61966-12-1:2011

ICS:

17.180.20	Barve in merjenje svetlobe	Colours and measurement of light
33.160.60	Večpredstavni (multimedijski) sistemi in oprema za telekonference	Multimedia systems and teleconferencing equipment

SIST EN 61966-12-1:2011**en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61966-12-1:2011](#)

<https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61966-12-1

March 2011

ICS 17.180.20; 33.160

English version

**Multimedia systems and equipment -
Colour measurement and management -
Part 12-1: Metadata for identification of colour gamut (Gamut ID)
(IEC 61966-12-1:2011)**

Systèmes et appareils multimédia -
 Mesure et gestion de la couleur -
 Partie 12-1: Métadonnées d'identification
 de gamme de couleurs (Gamut ID)
 (CEI 61966-12-1:2011)

Multimediasysteme und -geräte -
 Farbmessung und Farbmanagement -
 Teil 12-1: Metadaten für die
 Kennzeichnung des Farbumfangs
 (Gamut-ID)
 (IEC 61966-12-1:2011)

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This European Standard was approved by CENELEC on 2011-02-16. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 100/1757/FDIS, future edition 1 of IEC 61966-12-1, prepared by technical area 2, Colour measurement and management, of IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61966-12-1 on 2011-02-16.

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

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2011-11-16
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2014-02-16

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61966-12-1:2011 was approved by CENELEC as a European Standard without any modification. (standards.iteh.ai)

SIST EN 61966-12-1:2011

<https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011>

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-845	1987	International Electrotechnical Vocabulary (IEV) - Chapter 845: Lighting	-	-
IEC 61966-2-4	2006	Multimedia systems and equipment - Colour measurement and management - Part 2-4: Colour management - Extended-gamut YCC colour space for video applications - xvYCC	EN 61966-2-4	2006
ISO 15076-1	2005	Image technology colour management - Architecture, profile format and data structure - Part 1: Based on ICC.1:2004-10	-	-
ISO 22028-1	2004	Photography and graphic technology Extended colour encodings for digital image storage, manipulation and interchange - Part 1: Architecture and requirements	-	-
ITU-R BT.709-5	2002	Parameter values for the HDTV standards for production and international programme exchange	-	-
CIE 15	2004	Colorimetry	-	-
SMPTE 274M	2005	SMPTE Standard for Television - 1920 x 1080 Image Sample Structure, Digital Representation and Digital Timing Reference Sequences for Multiple Picture Rates	-	-

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 61966-12-1:2011](#)

<https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011>



IEC 61966-12-1

Edition 1.0 2011-01

INTERNATIONAL STANDARD



**Multimedia systems and equipment – 7 colour measurement and management –
Part 12-1: Metadata for identification of colour gamut (Gamut ID)**

STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61966-12-1:2011
<https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE



ICS 17.180.20; 33.160

ISBN 978-2-88912-309-4

CONTENTS

FOREWORD.....	4
INTRODUCTION	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions.....	8
4 Abbreviations	8
5 Overview	8
6 Header of Gamut ID metadata.....	9
7 Description of gamut geometry (full profile)	10
7.1 General.....	10
7.2 Gamut geometry	11
7.3 Header of description of gamut geometry.....	12
7.4 Gamut instances	14
7.5 Gamut hulls	16
7.6 Gamut component.....	17
7.6.1 General.....	17
7.6.2 Packing of face indices.....	17
7.7 Faces	18
7.7.1 General.....	18
7.7.2 Packing of vertex indices	19
7.8 Vertices	19
7.8.1 General.....	19
7.8.2 Packing of colour space coordinates for vertices	20
8 Description of gamut geometry (medium and simple profiles)	21
8.1 General.....	21
8.2 Medium profile.....	21
8.3 Simple profile	21
9 Description of colour reproduction	22
Annex A (informative) Size of Gamut ID metadata.....	25
Annex B (informative) Motivation and requirements.....	26
Annex C (informative) Use of profiles	32
Annex D (informative) Example of Gamut ID metadata in simple profile.....	34
Bibliography.....	38
Figure 1 – Logical structure of the description of gamut geometry (full profile)	11
Figure B.1 – Scope of Gamut ID – Generation and use of metadata are not specified.....	27
Figure B.2 – Example of a description of gamut geometry in CIEXYZ colour space consisting of a set of triangular faces.....	28
Figure B.3 – Example of a gamut with identified ridge due to colorant channels	30
Figure B.4 – Example of a non-convex gamut with two convex gamut hulls.....	31
Table 1 – Format of Gamut ID metadata	8
Table 2 – Header of Gamut ID metadata	9
Table 3 – Bit depth for encoding of a colour space coordinate.....	10

Table 4 – Description of gamut geometry	12
Table 5 – Header of description of gamut geometry	13
Table 6 – Gamut instances	14
Table 7 – i th Gamut instance	15
Table 8 – Gamut hulls	16
Table 9 – h th gamut hull	16
Table 10 – Definition of gamut components	17
Table 11 – c th gamut component	17
Table 12 – Example for packing of gamut components	18
Table 13 – Definition of faces	18
Table 14 – Example for packing of faces	19
Table 15 – Vertices	20
Table 16 – Packing of 10-bit colour space coordinates	20
Table 17 – Packing of 12-bit colour space coordinates	21
Table 18 – Description of gamut geometry (simple profile)	22
Table 19 – Header of description of gamut geometry (simple profile)	22
Table 20 – Definition of vertices (simple profile)	22
Table B.1 – Requirements and Gamut ID features	29
Table C.1 – Profiles for the description of gamut geometry	32
Table D.1 – Colour gamut for digital cinema	34
Table D.2 – Example for the header	34
Table D.3 – Example for the header of description of gamut geometry	35
Table D.4 – Example of definition of vertices	35

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MULTIMEDIA SYSTEMS AND EQUIPMENT –
COLOUR MEASUREMENT AND MANAGEMENT –**

Part 12-1: Metadata for identification of colour gamut (Gamut ID)

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61966-12-1 has been prepared by technical area 2: Colour measurement and management, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
100/1757/FDIS	100/1776/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61966 series, published under the general title *Multimedia systems and equipment – Colour measurement and management*, can be found on the IEC website.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this document may be issued at a later date.

IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 61966-12-1:2011](https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011>

INTRODUCTION

New technologies in capturing and displaying wide-gamut colour images enable a new market of wide-gamut video colour content creation. Recent video standards for wide gamut colour space encoding such as IEC 61966-2-4 (xvYCC) were established in order to be able to distribute content with a colour gamut that is extended with respect to classical colour gamuts such as defined by colorimetry standards ITU-R BT.601 (standard definition television) and ITU-R BT.709 (high definition television). With the increasing popularity of wide gamut and high dynamic range content and displays, the variety of colour gamuts of displays is expected to increase. This issue can be an obstacle for adopting wide-gamut video colour content in professional content creation since the compatibility of the content to the employed displays as well as the compatibility among different displays is not ensured. The term display includes here any video colour reproduction equipment, such as direct view displays and projectors. Thanks to improvements of technology, the variety of colour gamut and colour reproduction capacities of displays increases while the colour gamut and the colour encoding rules of existing colour space encoding standards are fixed.

To address this issue, the IEC standard Gamut ID (IEC 61966-12-1) specifies a colour gamut metadata scheme for video systems including information for colour reproduction. This metadata can amend a video content or a display. More specifically, improvements can be achieved if the wide-gamut colour content is created with the knowledge of the display colour gamut as well as if the colour reproduction in the display is done with the knowledge of the colour gamut of the pictorial content.

This standard enables video systems defining their own colour gamut. This standard defines necessary metadata that allows managing inhomogeneous video systems with different colour gamuts. This standard generalizes existing colour space encoding standards having a fixed colour gamut.

[SIST EN 61966-12-1:2011](https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011)

<https://standards.iteh.ai/catalog/standards/sist/fd6d712d-39f1-41c9-89d2-26939d752936/sist-en-61966-12-1-2011>

MULTIMEDIA SYSTEMS AND EQUIPMENT – COLOUR MEASUREMENT AND MANAGEMENT –

Part 12-1: Metadata for identification of colour gamut (Gamut ID)

1 Scope

This part of IEC 61966 defines the colour gamut metadata scheme for video systems and similar applications.

The metadata can be associated with wide gamut video colour content or to a piece of equipment to display the content.

When associated with content, the colour gamut metadata defines the gamut for which the content was created. It can be used by the display for controlled colour reproduction even if the display's colour gamut is different from that of the content.

When associated with a display, the colour gamut metadata defines the display colour gamut. It can be used during content creation to enable improved colour reproduction.

The colour gamut metadata may cover associated colour encoding information, which includes all information required for a controlled colour reproduction, when such information is not provided by the colour encoding specification.

The colour gamut metadata scheme provides scalable solutions. For example, more flexible solutions will be used for the professional use, while much simpler solutions will be used for consumer use with easier product implementation.

This part of IEC 61966 only defines the colour gamut metadata scheme. Vendor-specific solutions for creation and end-use of this metadata are allowed.

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.

IEC 60050(845):1987, *International electrotechnical vocabulary – Chapter 845: Lighting*

IEC 61966-2-4:2006, *Multimedia systems and equipment – Colour measurement and management – Part 2-4: Colour management – Extended-gamut YCC colour space for video applications – xvYCC*

ISO 15076-1:2005 *Image technology colour management – Architecture, profile format and data structure – Part 1: Based on ICC.1:2004-10*

ISO 22028-1:2004, *Photography and graphic technology – Extended colour encodings for digital image storage, manipulation and interchange – Part 1: Architecture and requirements*

ITU-R BT.709-5:2002, *Parameter values for the HDTV standards for production and international programme exchange*