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**Information technology — Coding of  
audio-visual objects —**

**Part 27:  
3D Graphics conformance**

**AMENDMENT 4: Conformance for efficient  
representation of 3D meshes with multiple  
attributes**

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ISO/IEC 14496-27:2009/Amd.4:2012  
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*Technologie de l'information — Codage des objets audio-visuels —  
Partie 27: Conformité aux graphiques 3D*

*AMENDEMENT 4: Conformité pour une représentation efficace de  
mailles en 3D avec attributs multiples*

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## Foreword

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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.

Amendment 4 to ISO/IEC 14496-27:2009 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information Technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

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# Information technology — Coding of audio-visual objects —

## Part 27:

### 3D Graphics conformance

## AMENDMENT 4: Conformance for efficient representation of 3D meshes with multiple attributes

Before 4.2.4 "Animation bitstreams", add:

#### 4.2.3.4 Region-based representation of 3D meshes with multiple attributes

##### 4.2.3.4.1 Introduction

The **IndexedRegionSet (IRS)** node is based on the classic IndexedFaceSet (IFS) one but, thanks to its associated **Region** node, it allows to group the faces of an IFS into subsets, or *regions*, to represent more naturally and code more efficiently 3D meshes of which some vertices have multiple attributes (colors, normal vectors or texture coordinates). (standards.iteh.ai)

##### 4.2.3.4.2 Conformance points [ISO/IEC 14496-27:2009/Amd 4:2012](https://standards.iteh.ai/catalog/standards/sist/c24e9d7b-fc6e-4d17-bb35-14c2f3db3087/iso-iec-14496-27-2009-amd-4-2012)

##### 4.2.3.4.2.1 Covered functionalities <https://standards.iteh.ai/catalog/standards/sist/c24e9d7b-fc6e-4d17-bb35-14c2f3db3087/iso-iec-14496-27-2009-amd-4-2012>

The single conformance point for IRS covers the decoding of the BIFS-encoded IRS and Region nodes and their fields. The following Subclauses specify the normative tests for verifying conformance of IRS bitstreams and decoder. These normative tests make use of test data (bitstream test suites) provided as an electronic annex to this document.

##### 4.2.3.4.3 Bitstream conformance

##### 4.2.3.4.3.1 Conformance requirements

BIFS streams containing IRS and Region nodes shall comply with the specifications in 4.3.6.2 and 4.3.6.3 of ISO/IEC 14496-16:2011/Amd.1:2011.

##### 4.2.3.4.3.2 Measurement procedure

The syntax of BIFS streams containing IRS and Region nodes shall meet the requirements of 4.3.6.2 and 4.3.6.3 of ISO/IEC 14496-16: 2011/Amd.1:2011. The rendering functionality must be observed visually.

##### 4.2.3.4.3.3 Tolerance

There is no tolerance for bitstream syntax checking. The diagnosis is pass or fail.

##### 4.2.3.4.4 Terminal conformance

##### 4.2.3.4.4.1 Conformance requirements

A compliant decoder for IRS and Region nodes shall implement a decoding process equivalent to the one specified in ISO/IEC 14496-16:2011/Amd.1:2011.

4.2.3.4.4.2 Test bitstreams

Name	Description	Bitstream (.mp4)	Reference files (.{wrl,scr})
Barrel	Simple scene containing a single 3D object (a barrel) represented with a single IRS with 12 regions, with references to a texture coded with JPEG 2000.	barrel_region	barrel_region
Chair	Simple scene containing a single 3D object (a chair) represented with a single IRS with 220 regions, with references to a texture coded with JPEG 2000.	chair_region	chair_region
Earth	Simple scene containing a single 3D object (a geodesic sphere) represented with a single IRS with 46 regions, with references to a texture coded with JPEG 2000.	earth_region	earth_region

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