**INTERNATIONAL ORGANISATION FOR STANDARDISATION**

**ORGANISATION INTERNATIONALE DE NORMALISATION**

**ISO/IEC JTC 1/SC 29/WG 11**

**CODING OF MOVING PICTURES AND AUDIO**

**ISO/IEC JTC 1/SC 29/WG 11 N17299**

**Gwangju, KR – January 2018**

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| **Source:** | **Leonardo Chiariglione** |
| **Title:** | **Terms of Reference** |
| **Status:** | ***Approved*** |

**Terms of Reference**

# Title

Coding of Moving Pictures and Audio

# Area of work

Development of international standards for compression, decompression, processing, and coded representation of moving pictures, audio, and their combination, in order to satisfy a wide variety of applications.

# Programme of work

* Serve as responsible body within ISO/IEC for recommending a set of standards consistent with the Area of Work;
* Cooperate with other standardisation bodies dealing with similar applications;
* Consider requirements for interworking with other applications such as telecommunications and broadcasting, with other image coding algorithms defined by other SC29 working groups and with other picture and audio coding algorithms defined by other standardisation bodies;
* Define methods for the subjective assessment of quality of audio, moving pictures and their combination for the purpose of the area of work;
* Assess characteristics of implementation technologies realising coding algorithms of audio, moving picture and their combination;
* Assess characteristics of digital storage and other delivery media target of the standards developed by WG11;
* Develop standards of coding of moving pictures, audio and their combination taking into account quality of coded media, effective implementation and constraints from delivery media;
* Propose standards for the coded representation of moving picture information;
* Propose standards for the coded representation of audio information;
* Propose standards for the coded representation of information consisting of moving pictures and audio in combination;
* Propose standards for protocols associated with coded representation of moving pictures, audio and their combination

# Projects

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| --- | --- | --- | --- |
| **ISO#** | **JTC1.29#** | **MPEG#** | **Title** |
| 11172 | 05.01 | 1 | Coding of moving pictures and associated audio at up to about 1.5 Mbit/s |
| 13818 | 05.02 | 2 | Generic coding of moving pictures and associated audio |
| 14496 | 13 | 4 | Coding of audio-visual objects |
| 15938 | 15 | 7 | Multimedia Content Description Interface |
| 21000 | 17 | 21 | Multimedia Framework |
| 23000 | 18 | A | Multimedia Application Formats |
| 23001 | 21 | B | MPEG Systems Technologies |
| 23002 | 22 | C | MPEG Video Technologies |
| 23003 | 23 | D | MPEG Audio Technologies |
| 23004 | 24 | E | MPEG Multimedia Middleware |
| 23005 | 27 | V | Media Context and Control |
| 23006 | 29 | M | Multimedia Service Platform Technologies |
| 23007 | 30 | U | MPEG Rich Media User Interface |
| 23008 | 32 | H | High Efficiency Coding and Media Delivery in Heterogeneous Environments |
| 23009 | 31 | DASH | Dynamic Adaptive Streaming over HTTP |
| 23090 |  | I | Coded representation of immersive media |
| 23091 |  | CICP | Coding-Independent Code-Points |
| 23092 |  | G | Genomic Information Representation |
| 23093 |  | IoMT | Internet of Media Things |
| 18039 |  | MAR | Mixed and Augmented Reality Reference Model |

# Secretariat

UNINFO (Italy)

# Structure

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| WG 11 |  | Convenor | Leonardo Chiariglione | IT |
|  | MPEG-Requirements | Chairman | Jörn Ostermann | DE |
|  | MPEG-Systems | Chairman | Young-Kwon Lim | KR |
|  | MPEG-Video | Chairman | Lu Yu | CN |
|  | MPEG-Audio | Chairman | Schuyler Quackenbush | US |
|  | MPEG-3DGC | Chairman | Marius Preda | FR |
|  | MPEG-Test | Chairman | Vittorio Baroncini | IT |
|  | MPEG-Communication | Chairman | Kyuheon Kim | KR |
|  | JCT on Video Coding | Chairman | Jens-Rainer Ohm | DE |
|  | Chairman | Gary Sullivan | US |
|  | Joint Video Experts Team (JVET) for Video Coding Standard Development | Chairman | Jens-Rainer Ohm | DE |
|  | Chairman | Gary Sullivan | US |

# Terms of Reference of Experts Groups

## MPEG-Requirements

**Name**: Requirements

**Title**: Requirements studies for MPEG standards.

**Area of work:** Studies with the purpose of making sure that requirements coming from the prospective applications and application areas of the generic coding algorithms developed by WG11 are taken in due consideration in all phases of the work.

**Programme of work**

* Collect and organise requirements, generic as well as specifically coming from the different application fields
* Identify the need of technologies not currently being considered by WG11 subgroups
* Produce a requirement definition document prior to specification phase
* Constantly update requirements definitions following arising needs coming from application areas
* Monitor the conformance of the specifications under development with the requirements
* Develop profiling solutions to address relevant classes of applications for MPEG standards
* Assist in the development of MPEG standards
* Liaise with other standard bodies in the field of requirements

## MPEG-Systems

**Name**: Systems

**Title**: Coded Representation of Delivery Protocols and Formats, of Presentation Information, and of Schemes for Declaring and Describing Multimedia Content Data Structures and Related Information

**Area of Work**

Development of international standards enabling the carriage and the storage of multimedia content and related information on specific delivery mechanisms, jointly with the respective standards bodies that develop these delivery mechanisms such as:

* Carriage on MPEG-2 Systems
* Carriage over RTP
* Carriage over HTTP
* Storage in ISO File Format

Development of international standards enabling the presentation of a combination of coded media such as text, images, graphics, audio, moving images and related information.

Development of international standards for schemes that declare and describe digital items, multimedia content data structures and related information, enabling creation, exchange, distribution, transaction, storage, search, retrieval, browsing and filtering of digital items and multimedia content.

**Programme of work:**

* Serve as responsible body within ISO/IEC for recommending a set of standards consistent with the area of work;
* Consider requirements for its areas of work;
* Develop architecture within the scope of work to satisfy these requirements;
* Develop standards within the scope of work;
* Cooperate with other standardisation bodies dealing with similar applications;
* Test and validate the effective, efficient and extensible operation of the developed standards;
* Verify the overall end-to-end operation e.g., with walkthroughs to ensure consistency;
* Perform explorations w.r.t. new technology trend areas within the scope of work

## MPEG-Video

**Name**: Video

**Title**: Coding of moving image information, evaluation of coding systems and content description schemes related to visual information, complexity and implementation feasibility analysis for visual information coding systems and content description schemes.

**Area of Work**

Development of international standards for coded representation of moving pictures, visual information and associated metadata. The evaluation of coding techniques and description schemes is performed based on their performance (both objectively and by formal subjective testing), efficiency with respect to software implementation, VLSI (programmable & dedicated) implementation and feasibility of systems architectures.

**Programme of Work**

* Serve as responsible body within ISO/IEC for recommending a set of standards consistent with the area of work;
* Cooperate with other standardisation bodies dealing with similar applications;
* Consider requirements for interworking with other moving picture coding algorithms defined by other working groups of SC 29 and other standardisation bodies;
* Define relevant input image material and output image devices;
* Develop and test efficient coding-decoding algorithms;
* Propose standards for the coded representation of moving image information and associated metadata.
* Develop methods for the subjective assessment of moving pictures bearing in mind the related activities of other standards making bodies, and cooperating with them
* Define and produce test source material;
* Organize subjective assessment tests for the quality of moving pictures
* Establish performance analysis criteria
* Carry out performance analysis by core experimentation procedures
* Establish complexity analysis criteria.
* Perform complexity analysis for representative sets of tools and algorithms.
* Solicit inputs from and engage in liaison with external bodies :-
* Perform explorations w.r.t. new technology trend areas within the scope of work

## MPEG-Audio

**Name**: Audio

**Title**: Coding of Audio Information

**Area of Work**

Development of international standards for coded representation of audio information.

**Programme of Work**

* Serve as responsible body within ISO/IEC for recommending a set of standards consistent with the area of work;
* Cooperate with other standardisation bodies dealing with similar applications;
* Consider requirements for interworking with other audio coding algorithms defined by other standardisation bodies;
* Define relevant input audio material;
* Develop efficient audio coding-decoding algorithms;
* Propose standards for the coded representation of audio information;
* Assess complexity of audio coding-decoding algorithms;
* Define, organize and conduct subjective assessment tests that assess the quality of audio coding-decoding algorithms;
* Solicit inputs from and engage in liaison with external bodies;
* Perform explorations of possible new technology within the scope of work;

## MPEG-3DGC

**Name**: 3D Graphics Coding

**Title**: Coding of 3D graphics primitives for static and animated objects, coding of data for 3D graphics environments and integration of them with natural audio and video information.

**Area of work**

Development of standards for 3D Graphics Coding

**Programme of work**

* Serve as responsible body within ISO/IEC for recommending a set of standards consistent with the area of work;
* Cooperate with other standardisation bodies dealing with similar applications;
* Consider requirements for inter-working with other 3D graphics coding approaches defined by other working groups of ISO and other standardisation bodies;
* Develop and test efficient coding-decoding algorithms;
* Propose standards for the coded representation of 3D graphics information and associated metadata;
* Define relevant input 3D graphics material;
* Define and produce test source material;
* Provide source code implementation for proposed standards;
* Establishment of performance analysis criteria;
* Performance analysis by core experimentation procedures;
* Establishment of complexity analysis criteria;
* Perform complexity analysis for representative sets of tools and algorithms;
* Solicit inputs from and engage in liaison with external bodies :
  + Technology trend information sources,
  + Other "standards bodies " and consensus forming bodies;
* Perform explorations with respect to new technology trend areas within the scope of work.

## MPEG-Test

**Name**: Test

**Title**: Evaluation of Audio-Visual Information Coding.

**Area of Work**

Development of methods for and the execution of subjective assessment tests of the quality of coded audio and moving pictures both individually and combined.

**Programme of work:**

* Serve as responsible body within ISO/IEC for recommending standard test procedures consistent with the area of work;
* Cooperate with other standardisation bodies dealing with similar subjective tests;
* Consider requirements for interworking with telecommunication and broadcasting tests procedure;
* Develop methods for the subjective assessment of audio bearing in mind the related activities of other standards making bodies;
* Develop methods for the subjective assessment of moving pictures bearing in mind the related activities of other standards making bodies;
* Develop methods for the subjective assessment of combined audio and moving pictures bearing in mind the related activities of other standards making bodies;
* Define and produce test source material;
* Execute subjective assessment tests for the quality of audio in cooperation with other standards making bodies;
* Execute subjective assessment tests for the quality of moving pictures in cooperation with other standards making bodies;
* Execute subjective assessment tests for the quality of combined audio and moving pictures in cooperation with other standards making bodies.

## MPEG-Communication

**Name**: Communication

**Title**: Communication of MPEG matters to the industry.

**Area of Work**

Communication of MPEG plans, activities and results to the industry and the standard user community.

**Programme of work:**

* Collaborate with MPEG subgroups in reviewing the general communication aspects of MPEG standards (e.g. Introduction, Scope, illustrative figures);
* Collaborate with MPEG subgroups in developing material that illustrates the motivations, the nature and the benefits from the adoption of MPEG standards;
* Collaborate with MPEG subgroups in producing description of MPEG standards activities;
* Identify and organise, in collaboration with MPEG subgroups, internal workshops and seminars designed to promote understanding of MPEG activities and standards;
* Identify opportunities for and coordinate the production of technical papers related to MPEG activities and standards for submission to journals and conferences.

## Joint Collaborative Team on Video Coding

See N11112

## Joint Video Experts Group (JVET)

See N17282