BUREAU OF INDIAN STANDARDS

AGENDA

12th MEETING OF 'CODING AND PROCESSING OF AUDIO, PICTURE, MULTIMEDIA AND HYPERMEDIA INFORMATION' SECTIONAL COMMITTEE, LITD 23
(Virtual Meeting)

Date & Time	22nd April 2024, 11:00 – 13:00 hrs
Meeting link	https://bismanak.webex.com/bismanak/j.php?MTID=m4981efe068ea1121cd759aff2c890ee9
Meeting ID	2518 508 3256
Password	23@12

Chairperson: Shri Mahesh Kulkarni, Ex-Senior Director (Corporate R&D), CDAC

Member Secretary: Mr Priyanshu Sharma, Scientist-B, BIS

ITEM 0 WELCOME

0.1 Welcome by the Member Secretary
0.2 Opening remarks by the Chairperson

ITEM 1 FORMAL CONFIRMATION OF THE MINUTES OF THE LAST MEETING

1.1 The minutes of the last (11th) meeting of Coding & Processing of Audio, Picture, Multimedia & Hypermedia Information Sectional Committee, LITD 23, which was held on 13 November 2023 were circulated vide email dated 26 December 2023. No comments have been received.

THE COMMITTEE MAY CONSIDER & DISCUSS

ITEM 2 ISSUES ARISING OUT OF THE PREVIOUS MEETINGS

S. No.	Action Item	Action to be taken by	Status
1.	Drafting of white paper on various aspects and subdomain related to Picture, Audio and Video	Panel 1	Panel 1 formulated and had its 1st meeting recently
2.	Letter for co-options & revised nominations to be written	Member Secretary	Done
3.	Progression of documents under development	Member Secretary	Done
4.	Participation in the SC 29 Plenary meetings held in Feb 2024	Indian delegation	Done

ITEM 3 SCOPE & COMPOSITION OF SECTIONAL COMMITTEE

3.1 The Scope and composition of LITD 23 is given in **Annex-1**. The committee may review the scope & composition.

3.2 Based on the previous meetings, letters for co-option were written to the following institutes/organizations, given the importance & their relevance to the scope of the committee:

a) IIT Jodhpur – Fraunhofer were to provide contact details for domain expert. However, no details shared by Fraunhofer, hence letter was written to the Director by the Member Secretary. No response received.
b) IIT Delhi – To write another letter to the Director
c) Reliance Jio – LITD 23 Chairperson to provide contact details for domain expert. However, details awaited
d) IIT Bhilai – Another letter was written to the Director, no response received.

3.3 As decided in the last meeting, letters were again sent for reviewing the nominations to the following organizations given their regular non-participation in the committee related work. No response has been received. The committee may consider reviewing their membership in the committee:

- NXP
- Texas Instruments

HE COMMITTEE MAY REVIEW THE SCOPE & COMPOSITION

ITEM 4 UPDATE FROM PANEL UNDER LITD-23

Based on the discussions held during the last meeting, an adhoc group was formulated for "drafting and submission of white paper on various aspects and subdomains related to audio, picture and video".

LITD 23/Panel 1

Scope: Preparation of White Paper on various aspects and subdomain related to Audio, Picture and video

Composition:

SI. No.	Organization	Expert	Domain	Role of Expert
1.	AMD India Private Limited - Gurgaon	Mr. Mahesh Narain Shukla (P)	Video	Convenor
		Mr. Sumit Johar*(A) Mr. Vijay Kumar Bansal* (A) Mr. Pankaj Kumar Bansal*(A)		Member
2.	Dhirubhai Ambani Institute of Information and Communication Technology, Gandhinagar	Dr. Manish K Gupta (P)	Picture	Co-Convenor
3.	Dolby Technology India Private Limited, Mumbai	Mr. Rajesh Bhat	Audio	Member
4.	Fraunhofer Office India, Bengaluru	Mr. Sharadindoo Sadhu (P)	Audio	Member
5.	Indian Institute of Technology Gandhinagar, Gandhinagar	Dr. Shanmuganathan Raman (P)	Picture	Member
6.	Indian Institute of Technology Kanpur, Kanpur	Dr. Vipul Arora (P)	Audio	Member
7.	Ittiam Systems Private Limited, Bengaluru	Mr. Murali Babu Muthukrishnan (P) Mr. Shailesh Ramamurthy (A) Mr. Jay N. Shingala* (A)	Video , Audio	Member

***Domain experts recommended for co-option by the panel during its 1st meeting. The committee may consider and note**

The first meeting of Panel-1 of LITD 23 was held on 7th March 2024. The purpose of the meeting was to "Draw an Outline for white paper on Image and Video codecs, Based on Interest, Volunteers to be decided, Decide the frequency of meetings". The outline of the white paper was presented by the Mr. Mahesh Narain Shukla (Convenor).

Convenor requested Member Secretary to create Google Doc, and create future meeting invites.

The following were the volunteers for white paper:

- Dr. Manish K Gupta: Image codecs (if others are interested in contributing on Image codecs, can contact Dr. Manish K Gupta)
- Dr. Shanmuganathan Raman: HDR and VQ Assessment
- Mr. Rajesh Bhat : HDR
- Mr. Sumit Johar and Mr. Vijay Kumar Bansal: AV1 and VVC codec, Need for Compression, Color Spaces, Video codecs evolution
- Mr. Jay N. Shingala : Exact names to be shared later for video codecs and VQ metrics

ITEM 5 REVIEW OF PUBLISHED/UNDER DEVELOPMENT STANDARDS

5.1 Review of Published Standards

In accordance with BIS procedures, Indian Standards which are in existence for more than 3 years are to be reviewed for reaffirmation/revision/withdrawal. The committee may also review the following standard since it is due in 2024-25, the latest status along with International standard on which this is based is provided below:

SI No.	IS No.	Title	Review due on	Base Standard	Secretariat Remarks
1.	IS 14496-3 : 2019	Information technology Coding of audio-visual of objects Part 3: Audio First Revision	August 2024	ISO/IEC 14496-3:2019	No Change
2.	IS 14496-22 : 2019	Information technology - Coding of audio - Visual objects: Part 22 open font format	August 2024	ISO/IEC 14496-22:201	No Change
3.	IS 14496-14 : 2020	Information technology coding of audio-visual objects part 14 mp4 file format (first revision)	August 2024	ISO/IEC 14496-14:2020	No Change
4.	IS 14496-15 : 2019	Information technology coding of audio-visual objects part 15 carriage of network abstraction layer NAL unit structured video in the ISO base media file format first revision	November 2024	ISO/IEC 14496-15:2019	Under Development

5.2 Draft Indian Standards under development.

The following Indian standards have completed Wide circulation stage, no inputs have been received. The committee may decide:

SI No.	Doc. No.	Title	Secretariat Remarks
1.	LITD/23/24385 Revision in line with ISO/IEC 14496-12: 2022	Information Technology Coding of Audio-Visual Objects Part 12: ISO Base Media File Format	Revision of IS/ISO/IEC 14496-12: 2015 Document has completed WC stage, no comments were received. The committee may finalize the document for publication as an Indian Standard. Further document LITD/23/21435 was dropped since it was identical to ISO/IEC 14496-12: 2020
2.	LITD/23/24383 Revision in line with ISO/IEC 14496-10 : 2022	Information Technology - Coding of Audio-Visual Objects Part 10 Advanced Video Coding	Revision of IS/ISO/IEC 14496-10: 2014 Document has completed WC stage, no comments were received. The committee may finalize the document for publication as an Indian Standard. Further, document LITD/23/21432 was dropped since it was identical to ISO/IEC 14496-10: 2014

5.3 The following draft Indian Standards are under publication stage:

SI No.	Doc. No.	Title	Secretariat Remarks
1.	LITD/23/23681 (Identical To: ISO/IEC 7942-1: 1994)	Information technology - Computer graphics and image processing - Graphical Kernel System GKS Part 1: Functional description (First Revision)	First Revision of IS 12369: 1987
2.	LITD/23/23682 (Identical To: ISO/IEC 7942-2: 1997)	Information technology - Computer graphics and image processing - Graphical Kernel System GKS Part 2: NDC metafile	New Standard
3.	LITD/23/23683 (Identical To: ISO/IEC 7942-3: 1999)	Information technology - Computer graphics and image processing - Graphical Kernel System GKS Part 3: Audit trail	New Standard
4.	LITD/23/23684 (Identical To: ISO/IEC 7942-4: 1998)	Information technology - Computer graphics and image processing - Graphical Kernel System GKS Part 4: Picture part archive	New Standard

ITEM 6 FUTURE ROADMAP OF THE COMMITTEE

The international committees pertaining to LITD 23 have actively taken up the standardization work in the following emerging areas and it is felt that we should also actively pursue this work at an early stage:

SC 29 & SC 24 are working in the areas, not limited to the following:

- **JPEG DNA, JPEG AI, JPEG Pleno, JPEG Trust, JPEG 2000, JPEG XR**, etc. (jpeg.org)
- **AR/VR/MR** - The following standards related to AR/VR/MR have been published by SC 24:

S.No	ISO Number	Title	Scope
1	ISO/IEC 3721:2023	Information technology — Computer graphics, image processing and environmental data representation — **Information model for mixed and augmented reality content — Core objects and attributes**	This document specifies the information model for representing the mixed and augmented reality (MAR) scene/contents description, namely, information constructs for: a) representing the virtual reality scene graph and structure such that a comprehensive range of mixed and augmented reality contents can also be represented; b) representing physical objects in the mixed and augmented reality scene targeted for augmentation; c) representing physical objects as augmentation to other (virtual or physical) objects in the mixed and augmented reality scene; d) providing ways to spatially associate aforementioned physical objects with the corresponding target objects (virtual or physical) in the mixed and augmented reality scene; e) providing other necessary functionalities and abstractions that will support the dynamic MAR scene description such as event/data mapping, and dynamic augmentation behaviours; f) describing the association between these constructs and the MAR system which is responsible for taking and interpreting this information model and rendering/presenting it out through the MAR display device.
2	ISO/IEC TS 5147:2023	Information technology — Computer graphics, image processing and environmental data representation — **Guidelines for representation and visualization of smart cities**	This document specifies guidelines for the representation and visualization of smart cities. This document: a) describes the concepts of a smart city, smart city object and smart city data, b) describes categories of data associated with smart cities, c) provides guidance for representation of smart cities, d) describes guidance for visualization of smart cities, e) provides guidance in selecting the appropriate representation and visualization technique for different categories of smart city data using standards, and f) provides use cases for applying standards to the representation and visualization of smart cities.
3	ISO/IEC 21145:2023	Information technology Computer graphics, image processing and environmental data representation - **Style**	This document specifies: 1) Constructs for representing and specifying various augmentation and presentation styles. While augmentations can be in modalities other than the visual (e.g. aural, haptic), this work addresses the visual augmentation style only. 2) A model for how to associate the stylization constructs to the augmentation

		representation for mixed and augmented reality	objects. Specifically, the MAR behavior object in ISO/IEC 3721 is extended for this purpose. 3) Other miscellaneous functionalities and abstractions that support the stylization of augmentation objects.
4	ISO/IEC 23488:2022	Information technology- Computer graphics, image processing and environment data representation **Object/environmental representation for image-based rendering in virtual/mixed and augmented reality (VR/MAR)**	This document specifies an image-based representation model that represents target objects/environments using a set of images and optionally the underlying 3D model for accurate and efficient objects/environments representation at an arbitrary viewpoint. It is applicable to a wide range of graphic, virtual reality and mixed reality applications which require the method of representing a scene with various objects and environments. This document: — defines terms for image-based representation and 3D reconstruction techniques; — specifies the required elements for image-based representation; — specifies a method of representing the real world in the virtual space based on image-based representation; — specifies how visible image patches can be integrated with the underlying 3D model for more accurate and rich objects/environments representation from arbitrary viewpoints; — specifies how the proposed model allows multi-object representation; — provides an XML based specification of the proposed representation model and an actual implementation example (see Annex A).
5	ISO/IEC 18038:2020	Information technology- Computer graphics, image processing and environmental representation **Sensor representation in mixed and augmented reality**	This document defines the framework and information reference model for representing sensor-based 3D mixed-reality worlds. It defines concepts, an information model, architecture, system functions, and how to integrate 3D virtual worlds and physical sensors in order to provide mixed-reality applications with physical sensor interfaces. It defines an exchange format necessary for transferring and storing data between physical sensor-based mixed-reality applications. This document specifies the following functionalities: a) representation of physical sensors in a 3D scene; b) definition of physical sensors in a 3D scene; c) representation of functionalities of each physical sensor in a 3D scene; d) representation of physical properties of each physical sensor in a 3D scene; e) management of physical sensors in a 3D scene; f) interface with physical sensor information in a 3D scene. This document defines a reference model for physical sensor-based mixed-reality applications to represent and to exchange functions of physical sensors in 3D scenes. It does not define specific physical interfaces necessary for manipulating physical devices, but rather defines common functional interfaces that can be used interchangeably between applications. This document does not define how specific applications are implemented with specific physical sensor devices. It does not include computer generated sensor information using computer input/output devices such as a mouse or a keyboard. The sensors in this document represent physical sensor devices in the real world.
6	ISO/IEC 18039:2019	Information technology Computer graphics, image processing and	This document defines the scope and key concepts of mixed and augmented reality, the relevant terms and their definitions and a generalized system architecture that together serve as a reference model for mixed and augmented reality (MAR) applications, components, systems, services and specifications.

		environmental data representation **Mixed and augmented reality (MAR) reference model**	This architectural reference model establishes the set of required sub-modules and their minimum functions, the associated information content and the information models to be provided and/or supported by a compliant MAR system. The reference model is intended for use by current and future developers of MAR applications, components, systems, services or specifications to describe, compare, contrast and communicate their architectural design and implementation. The MAR reference model is designed to apply to MAR systems independent of specific algorithms, implementation methods, computational platforms, display systems and sensors or devices used. This document does not specify how a particular MAR application, component, system, service or specification is designed, developed or implemented. It does not specify the bindings of those designs and concepts to programming languages or the encoding of MAR information through any coding technique or interchange format. This document contains a list of representative system classes and use cases with respect to the reference model.
7	ISO/IEC 18040:2019	Information technology Computer graphics, image processing and environmental data representation **Live actor and entity representation in mixed and augmented reality (MAR)**	This document defines a reference model and base components for representing and controlling a single LAE or multiple LAEs in an MAR scene. It defines concepts, a reference model, system framework, functions and how to integrate a 2D/3D virtual world and LAEs, and their interfaces, in order to provide MAR applications with interfaces of LAEs. It also defines an exchange format necessary for transferring and storing LAE-related data between LAE-based MAR applications. This document specifies the following functionalities: a) definitions for an LAE in MAR; b) representation of an LAE; c) representation of properties of an LAE; d) sensing of an LAE in a physical world; e) integration of an LAE into a 2D/3D virtual scene; f) interaction between an LAE and objects in a 2D/3D virtual scene; g) transmission of information related to an LAE in an MAR scene. This document defines a reference model for LAE representation-based MAR applications to represent and to exchange data related to LAEs in a 2D/3D virtual scene in an MAR scene. It does not define specific physical interfaces necessary for manipulating LAEs, that is, it does not define how specific applications need to implement a specific LAE in an MAR scene, but rather defines common functional interfaces for representing LAEs that can be used interchangeably between MAR applications.
8	ISO/IEC 18520:2019	Information technology Computer graphics, image processing and environmental data representation **Benchmarking of vision-based spatial registration and tracking methods for mixed and**	This document identifies the reference framework for the benchmarking of vision-based spatial registration and tracking (vSRT) methods for mixed and augmented reality (MAR). The framework provides typical benchmarking processes, benchmark indicators and trial set elements that are necessary to successfully identify, define, design, select and apply benchmarking of vSRT methods for MAR. It also provides definitions for terms on benchmarking of vSRT methods for MAR. In addition, this document provides a conformance checklist as a tool to clarify how each benchmarking activity conforms to this document in a compact form by declaring which benchmarking processes and benchmark indicators are included and what types of trial sets are used in each benchmarking activity.

		augmented reality (MAR)	
9	ISO/IEC 19774-1:2019	Information technology Computer graphics, image processing and environmental data representation **Part 1: Humanoid animation (HAnim) architecture**	This document specifies a systematic system for representing humanoids in a network-enabled 3D graphics and multimedia environment. Conceptually, each humanoid is an articulated character that can be embedded in different representation systems and animated using the facilities provided by the representation system. This document specifies the abstract form and structure of humanoids. Further, this document specifies the semantics of humanoid animation as an abstract functional behaviour of time-based, interactive 3D, multimedia articulated characters. This document does not define physical shapes for such characters but does specify how such characters can be structured for animation. This document is intended for a wide variety of presentation systems and applications, providing wide latitude in interpretation and implementation of the functionality.
10	ISO/IEC 19774-2:2019	Information technology Computer graphics, image processing and environmental data representation **Part 2: Humanoid animation (HAnim) motion data animation**	This document specifies the method of motion capture animation using H-Anim humanoid models. Each humanoid model consists of an articulated character with specified joints and motion capture data. As specified in ISO/IEC 19774-1, each character consists of joints and segments in a hierarchical structure. This document includes the following: — Concepts of motion capture as related to humanoid animation, — Concepts of motion capture data definition, — Definition of motion parameters and motion-capture animation data for transferring or exchanging motion between different humanoid character models, — Mapping the structure of motion capture data to the structure of H-Anim objects, — HAnim motion capture animation using interpolators, — HAnim motion definition using H-Anim Motion objects, and — A method for generating and specifying an H-Anim motion capture animation. This document specifies a standard technique for exchanging humanoid animation using motion capture. It does not mandate using any specific run-time system to render the H-Anim characters or animations.</p>

The committee may deliberate and consider taking up the standardization work in the listed areas proactively.

ITEM 7 GUIDELINES FOR RESEARCH & DEVELOPMENT (R&D) PROJECTS FOR THE FORMULATION AND REVIEW OF STANDARDS INVITING POTENTIAL R&D PROJECTS FROM THE COMMITTEE MEMBERS

Bureau of Indian Standards (BIS) has issued Guidelines for Research & Development (R&D) Projects for the formulation and review of standards inviting potential R&D projects from the committee members.

Guidelines for Research and Development projects and the template for the Terms of Reference (ToR) were shared during the last meeting for the members' perusal.

The ToR on *Storing JPEG images in DNA-based Data Storage Systems (JPEG DNA Exploration)* was approved by the committee during the last meeting.

MEMBERS MAY PROPOSE POTENTIAL R&D PROJECTS PERTAINING TO STANDARDS

ITEM 8 PROGRAM OF WORK

8.1 The present program of work of LITD 23 is given in **Annex -2**

THE COMMITTEE MAY NOTE

ITEM 9 INTERNATIONAL ACTIVITES

9.1 LITD 23 is National Mirror Committee (NMC) to **ISO/IEC/JTC 1 SC 24 'Computer graphics, image processing and environmental data representation'** & **ISO/IEC/JTC 1 SC 29 'Coding of audio, picture, multimedia and hypermedia information'**. Scope of the committees is given in **Annex -3**.

THE COMMITTEE MAY NOTE

9.2 India is Participating member (P) of ISO/IEC JTC 1/SC 29 and as P-member has obligation to vote and send response on all the documents emanating from this subcommittee. India is currently observing member (O) of JTC1/ SC 24.

THE COMMITTEE MAY NOTE

9.3 Indian experts registered in various working groups of JTC 1/SC 29 are given in **Annex- 3**. Each Expert is expected to provide update (Major standards of WG, standards in which expert is contributing and brief of standard and their contribution in the standard) w.r.t their working group to the BIS Secretariat.

THE COMMITTEE MAY REVIEW

9.4 ISO/IEC JTC 1 SC 24 & SC 29 MEETINGS

9.4.1 Upcoming Plenary Meetings of ISO/IEC JTC 1/SC 29

The 45th plenary meeting of JTC 1/SC 29 is scheduled to be held during 20-21 July 2024 in Sapporo, Japan in **face-to-face mode with accommodation for remote participation**. The agenda for the meetings is yet to be published, the calling notice is attached in **Annex-4**. Members may consider participation in the meetings.

9.4.2 Debriefing from the last Plenary Meetings of ISO/IEC JTC 1/SC 29 held during 06-08 February 2024

Mr. D.Godwin Gananaraj (Head of delegation) and Prof. Manish K Gupta may provide an update from the meetings

9.4.3 JTC 1/SC 29 WG meetings:

The various SC 29/WG meetings are scheduled during 12 - 19 July 2024 Registration & participation of members in working group meetings has to be approved by the Committee and competent authority of BIS.

- WG 1 "JPEG Coding of digital representations of images" – 15 -19 July 2024
- WG 2 "MPEG Technical requirements" – 15 -19 July 2024
- WG 3 "MPEG Systems" – 15 -19 July 2024
- WG 4 "MPEG Video coding"– 15 -19 July 2024
- WG 5 "MPEG joint video experts team with ITU-T SG 16" – 12 -19 July 2024
- WG 6 "MPEG Audio coding" – 15 -19 July 2024
- WG 7 "MPEG 3D graphics and haptics coding" – 15 -19 July 2024
- WG 8 "MPEG Genomic coding" – 15 -19 July 2024
- AG 2 – 14 -19 July 2024
- AG 3 – 15 -19 July 2024
- AG 5 – 15 -19 July 2024

THE COMMITTEE MAY CONSIDER.

9.5 Standards of JTC 1/SC 29 & JTC 1/SC 24

9.5.1 A list of standards published by JTC 1/SC 29 is given in **Annex-5.**

9.5.2 A list of standards published by JTC 1/SC 24 is given in **Annex-6.**

THE COMMITTEE MAY EXAMINE AND IDENTIFY THE STANDARDS REQUIRED TO BE ADOPTED AS NATIONAL STANDARDS

9.6 DOCUMENTS DUE FOR VOTING

Following documents of JTC 1/SC 29 have been circulated for inputs of committee members, last date to provide inputs to JTC 1/SC 29 is mentioned below:

SI No.	Ref/No	Stage	Title	Due Date
1.	ISO/IEC DIS 14496-1 (Ed 5	DIS	Information technology — Coding of audio-visual objects — Part 1: Systems	23 April 2024
2.	ISO/IEC 23090-14:2023/DAmd 2	DIS	Information technology — Coded representation of immersive media — Part 14: Scene description — Amendment 2: Support for haptics, augmented reality, avatars, interactivity, MPEG-I audio, and lighting	23 April 2024
3.	ISO/IEC DIS 23093-5	DIS	Information technology — Internet of media things — Part 5: IoMT autonomous collaboration	23 April 2024
4.	ISO/IEC CD 23090-33	CD	Information technology — Coded representation of immersive media — Part 33: Conformance and reference software for haptics coding	24 April 2024
5.	ISO/IEC 23001-17:2024/CD Amd 2	CD	Information technology — MPEG systems technologies — Part 17: Carriage of uncompressed video and images in ISO base media file format — Amendment 2: Agnostically compressed media	25 April 2024
6.	ISO/IEC DIS 19566-10	DIS	Information technologies — JPEG systems — Part 10: Reference Software	26 April 2024
7.	ISO/IEC DTR 23002-9	DTR	Information technology — MPEG video technologies — Part 9: Film grain synthesis technology for video applications	1 May 2024
8.	ISO/IEC FDIS 18181-1 (Ed 2	FDIS	Information technology — JPEG XL image coding system — Part 1: Core coding system	2 May 2024
9.	ISO/IEC FDIS 21122-1 (Ed 3)	FDIS	Information technology — JPEG XS low-latency lightweight image coding system — Part 1: Core coding system	2 May 2024
10.	ISO/IEC 9281-1:1990	WDRL	Information technology — Picture coding methods — Part 1: Identification	7 May 2024
11.	ISO/IEC 9281-2:1990	WDRL	Information technology — Picture coding methods — Part 2: Procedure for registration	7 May 2024

12.	ISO/IEC 13522-4:1996	WDRL	Information technology — Coding of multimedia and hypermedia information — Part 4: MHEG registration procedure	7 May 2024
13.	ISO/IEC DIS 14496-12.2 (Ed 8)	DIS	Information technology — Coding of audio-visual objects — Part 12: ISO base media file format	24 May 2024
14.	ISO/IEC DTR 19566-9	DTR	Information technology — JPEG Systems — Part 9: JPEG extensions mechanisms to facilitate forwards and backwards compatibility	27 May 2024
15.	ISO/IEC 13818-2:2013 (Ed 3, vers 2)	SR	Information technology — Generic coding of moving pictures and associated audio information — Part 2: Video	3 June 2024
16.	ISO/IEC 13818-11:2004 (vers 4)	SR	Information technology — Generic coding of moving pictures and associated audio information — Part 11: IPMP on MPEG-2 systems	3 June 2024
17.	ISO/IEC 14492:2019 (Ed 2)	SR	Information technology — Lossy/lossless coding of bi-level images	3 June 2024
18.	ISO/IEC 14496-33:2019	SR	Information technology — Coding of audio-visual objects — Part 33: Internet video coding	3 June 2024
19.	ISO/IEC 15444-6:2013 (Ed 2, vers 2)	SR	Information technology — JPEG 2000 image coding system — Part 6: Compound image file format	3 June 2024
20.	ISO/IEC 15444-13:2008 (vers 3)	SR	Information technology — JPEG 2000 image coding system: An entry level JPEG 2000 encoder — Part 13:	3 June 2024
21.	ISO/IEC 15444-14:2013 (vers 2)	SR	Information technology — JPEG 2000 image coding system — Part 14: XML representation and reference	3 June 2024
22.	ISO/IEC 15938-5:2003 (vers 4)	SR	Information technology — Multimedia content description interface — Part 5: Multimedia description schemes	3 June 2024
23.	ISO/IEC 21000-3:2003 (vers 4)	SR	Information technology — Multimedia framework (MPEG-21) — Part 3: Digital Item Identification	3 June 2024
24.	ISO/IEC 21000-5:2004 (vers 4)	SR	Information technology — Multimedia framework (MPEG-21) — Part 5: Rights Expression Language	3 June 2024

25.	ISO/IEC 23000-7:2008 (vers 3)	SR	Information technology — Multimedia application format (MPEG-A) — Part 7: Open access application format	3 June 2024
26.	ISO/IEC 23000-9:2008 (vers 3)	SR	Information technology — Multimedia application format (MPEG-A) — Part 9: Digital Multimedia Broadcasting application format	3 June 2024
27.	ISO/IEC 23001-3:2008 (vers 3)	SR	Information technology — MPEG systems technologies — Part 3: XML IPMP messages	3 June 2024
28.	ISO/IEC 23001-14:2019	SR	Information technology — MPEG systems technologies — Part 14: Partial file format	3 June 2024
29.	ISO/IEC 23002-2:2008 (vers 3)	SR	Information technology — MPEG video technologies — Part 2: Fixed-point 8x8 inverse discrete cosine transform and discrete cosine transform	3 June 2024
30.	ISO/IEC 23005-5:2019 (Ed 4)	SR	Information technology — Media context and control — Part 5: Data formats for interaction devices	3 June 2024
31.	ISO/IEC FDIS 23090-15 (Ed 2)	FDIS	Information technology — Coded representation of immersive media — Part 15: Conformance testing for versatile video coding	4 June 2024

THE COMMITTEE MAY REVIEW AND PROVIDE INPUTS ON THE DOCUMENTS

ITEM 10 DATE AND PLACE FOR THE NEXT MEETING

ITEM 11 ANY OTHER BUSINESS

Annex 1

Scope: To prepare Indian Standards relating to:

a) Coded representation of audio, picture, multimedia and Hypermedia information and sets of compression and control functions for use with such information, and

b) Interfaces for information technology based applications relating to computer graphics and image processing

Committee Composition

S.No.	Organization	Member Name	9th 24/01/2023	10th 09/06/2023	11th 13/11/2023	Attendance in last 3 meetings
1.	IN PERSONAL CAPACITY	Shri Mahesh Kulkarni (Chairperson)	Y	Y	Y	3/3
2.	AMD India Private Limited - Gurgaon	Shri Mahesh Narain Shukla (P) Shri Vijay Kumar Bansal (A) Shri Pankaj Kumar Bansal(A)	N	N	Y	1/3
3.	Amazon India, Bengaluru	Dr. Malateshgouda (P)Karegoudar	-	-	Y	1/1
4.	Broadcast Engineering Consultants India Limited, New Delhi	Shri Khushwinder Singh Bhatia (P) Shri Avinash Khanna (A) Ms Pooja Srivas (A) Mr. Padarabinda Das (A)	Y	Y	N	2/3
5.	Centre for Development of Advanced Computing, Pune	Shri Vivek Khaneja (P)	N	N	Y	1/3

6.	Consumer Electronics and Appliances Manufacturers Association, Noida	Shri Mohit Verma (P) Shri Ravi Shankar Chaudhary (A) Shri Saurabh Kumar Singh (A)	N	N	Y	1/3
7.	DA-IICT Gandhinagar	Prof Manish K Gupta(P)	Y	Y	Y	3/3
8.	Directorate General Doordarshan, Prasar Bharti, New Delhi	Shri Rajesh Jain (P) Shri D.Godwin Gananaraj (A)	Y	Y	Y	3/3
9.	Dolby Technology India Private Limited, Mumbai	Shri Jayant Shah (P) Shri Rajesh Bhat (A) Shri Ashok Kumar Bhatnagar (A)	Y	Y	Y	3/3
10.	Fraunhofer Office India, Bengaluru	Ms. Anandi Iyer (P) Shri Sharadindoo Sadhu (A)	Y	N	Y	2/3
11.	Indian Institute of Information Technology, Allahabad	Mr. Mohammed Javed (P)	-	-	Y	1/1
12.	IIT Kanpur	Prof. Vipul Arora (P)	Y	N	Y	2/3
13.	Indian Institute of Technology Gandhinagar, Gandhinagar	Dr. Shanmuganathan Raman (P)	-	-	Y	1/1
14.	Instrive Softlabs Pvt Ltd	Shri Ashok (P) Smt Madhuvarshitt (A)	N	N	Y	1/3
15.	Ittiam Systems Private Limited, Bengaluru	Shri Murali Babu Muthukrishnan (P) Shri Shailesh Ramamurthy (A) Shri Jay N. Shingala (A) Shri Mukund Srinivasan (A) Shri Jeeva Raj (YP)	Y	Y	Y	3/3
16.	Ministry of Electronics and Information Technology, New Delhi	Smt Asha Nangia (P)	N	N	N	0/3 Communication received

						from MeitYregarding their
17.	NXP Semiconductors India Private Limited, Bengaluru	Dr. Mahesh Chandra (P)	N	N	N	0/3
18.	People Link Unified Communications Pvt Ltd	Shri Mayank Asher(P) Shri Asokan(A) Shri Abhishek Pratap Singh (A)	N	Y	Y	2/3
19.	Samsung Research and Development Institute India, Bangalore	Dr. Balvinder Singh(P) Shri Raj Narayana Gadde (A) Shri Anubhav Singh(A)	Y	Y	Y	3/3
20.	Texas Instruments (India) Private Limited, Bangalore	Shri Mihir Mody (P)	N	N	N	0/3