

SET EXPRESS | DIGITAL TV

Moderator: Alberto Botelho - Broadcasting Project Engineer - LM Telecom

Speakers:

REDE AMAZÔNICA: EXPERIENCE WITH IMPLEMENTING MPEG-H AUDIO ON THE AMAZON SAT CHANNEL

Gabriel Thomazini - *Audio Consultant - Fraunhofer IIS*

Grupo Rede Amazônica is the first broadcaster in Latin America to provide a 24/7 MPEG-H Audio service on the Amazon Sat channel using ISDB-Tb.

MPEG-H Audio has been included in the TV 2.5 standard, particularly due to its capabilities to deliver immersive sound and, even more important, its advanced personalization and accessibility options, which no other audio system can currently deliver.

Since the MPEG-H Audio system is designed to work over unmodified HD-SDI embedded audio channels, or IP, stations can begin implementing MPEG-H Audio features as they choose, without changing their internal plant or operating procedures. You will be presented to a working example of how MPEG-H is integrated into professional production and distribution facilities today..

HDR TV TRANSMISSIONS WITH DYNAMIC METADATA

José Filipe Ferraz Valente - *Video Standardization Engineer - Philips*

SBTVD includes HDR solutions with dynamic metadata in their TV2.5 and TV3.0 specifications. In this presentation we will elaborate on HDR using dynamic metadata. We start by briefly discussing what HDR is and its advantages for television transmissions compared to standard SDR transmissions in this presentation. Subsequently, we will explain the benefits of using dynamic metadata for HDR transmissions and how it can be used to get perfectly adapted pictures for a TV display by so-called display adaptation.

We furthermore explain that a dynamic metadata HDR system can operate with different base layers, such as SDR, HDR10 and HLG, and as such fulfill different type of technical and commercial requirements. This will be followed by showing how to use these different systems in a production chain and by an example of the Rock in Rio 2019 trial where SL-HDR1 and MPEG-H Audio were deployed. SL-HDR1 is the SDR base layer variant of the Advanced HDR by Technicolor dynamic metadata HDR system.

We continue by elaborating on the technical characteristics and performance parameters of an HDR system. We will use the SL-HDR1 and 2 parts of Advanced

HDR by Technicolor, which are publicly specified by ETSI, to discuss technical characteristics. The typical performance parameters checked during tests of HDR systems will also be taken along. We conclude with some typical high-level results.

THE MPEG V3C STANDARD (V-PPC, MIV) FOR IMMERSIVE VIDEO

Celine Guede - Architect in Research & Innovation - InterDigital

The Visual Volumetric Video-based Coding (V3C) standard defines a generic mechanism for coding volumetric video used in XR immersive videos.

The Moving Picture Experts Group (MPEG) has specified two applications that utilize V3C: Video-based Point Cloud Compression (V-PCC) – ISO/IEC 23090-5, and MPEG Immersive Video (MIV) – ISO/IEC 23090-12. V-PCC and MIV have been adopted at the end of 2021 for TV3.0 for fulfilling XR requirements by the SBTVD Forum.

This presentation provides an overview of the generic concepts of V-PCC and MIV technologies.

The presentation is related to demonstrations that we are presenting at our joint booth with Philips and Fraunhofer at the SET2022 show floor.



Alberto Botelho - Broadcasting Project Engineer - LM Telecom

Is a PhD student in electrical engineering (Mackenzie). Has degree in Electrical Engineering (UNIP), specialized in Engineering of Digital Television Systems (Inatel) and Engineering of Telecommunications Networks (Inatel), MBA in Project Management (FGV) and Master of Science in electrical engineering (Mackenzie). Worked on Rede TV! and currently works at LM Telecom as a broadcast project engineer, since 2002.



Gabriel Thomazini - Audio Consultant - Fraunhofer IIS

Gabriel Thomazini started his career as a recording engineer and went to different studios, working with artists from different genres. In the early 2000s he began designing audio systems and creating immersive content for planetariums. At the same time, he worked as an audio engineer in TV stations and since then he became increasingly involved in AV applications. He carried out projects in IP-based OB vans, studios, and control rooms, as well as the development of remote workflows and mixing for 3D audio formats. He has collaborated on extended reality initiatives, developing audio solutions for VR and AR applications. After more than 20 years in the broadcast area he joined the Fraunhofer IIS Institute in 2021, where he acts as an audio consultant for the development of the MPEG-H audio ecosystem in Brazil.



José Filipe Ferraz Valente - Video Standardization Engineer - Philips

Jose Filipe Ferraz Valente is Bachelor in Electronic Engineering. He already works in the Broadcast area for more than thirty years in different roles. Currently he is working as video standardization engineer for Philips and as such involved in the new TV2.5 and TV3.0 standards in Brazil by the SBTVD forum. Previously, at Globo | Globosat he was active in the implementation and projects of TV systems and participated in the elaboration and execution of major events such as the Olympics, World Cups and musical shows, such as Rock in Rio. During this period, Filipe also acted as coordinator in the area of live events production. Furthermore, he worked at Seal B&C-Convergint, a broadcast systems integrator company, as a Systems Engineer and at Oi, a Telecom company, as a Consultant Specialist.

**Celine Guede - Architect in Research & Innovation - InterDigital**

Celine Guede graduated in engineering in 1998 from Polytech Orleans School, France. The following year, she joined Technicolor as an R&D engineer, where she first specialized in real-time software development, and in 2013 she joined the Advanced Television Systems activities, where she dedicated her expertise to contributions to the ATSC 3.0 television transmission standards.

In late 2016, Celine joined the Point Cloud Compression project and made contributions to the emerging MPEG Point Cloud Compression standard called V-PCC (Video-Based Point Cloud Compression).

In 2019, she moved to InterDigital as an architect, where she contributed to finalizing the MPEG V-PCC standard. Since 2022, her work is dedicated to volumetric video transmission, and she is heavily involved in the dissemination of V-PCC and MIV (MPEG Immersive Video) developing a real-time codec for these technologies and preparing standard