

Immersive Voice and Audio Services (IVAS)

Redefining Mobile Communication

The Next-generation 3GPP Audio Codec Standard

IVAS is the evolution of EVS (Enhanced Voice Services), developed by 3GPP (Release 18) to meet the growing demand for immersive, high-quality audio in modern communication services. It supports everything from crystal-clear voice calls to full spatial audio experiences – within a single, carrier-grade framework.

New Experiences for Mobile Communication Services

Thanks to developments such as EVS the audio quality and robustness of mobile phone conversations have constantly evolved to the point where voices sound as good as if you were talking to someone in the same room. However, one detail was always missing: the natural acoustic environment around the caller: The natural sounds around you when calling from a forest, the acoustic spread of voices in a conference room or the goosebumps feeling you want to send through your phone at a concert. All of this is possible with IVAS.

Application Fields

Ad-hoc Conferencing

Turn any mobile device into an immersive conferencing tool. IVAS captures the realistic acoustic environment of a room – whether a meeting table or a living room – and delivers it spatially to remote participants. Individual voices can be extracted and spatially rendered, making it easier to distinguish speakers even in noisy environments.



Experience Sharing

Go beyond voice. IVAS enables users to capture and share immersive auditory scenes – from live events to natural environments – in real time. Whether on headphones or loudspeakers, the receiving side experiences the full spatial depth of the scene being shared.



Multi-party Conferencing

In standard multi-party calls, all voices blend into a flat, often confusing audio mix. IVAS changes this by transmitting individual voice streams that can be spatially positioned in a virtual scene – making it significantly easier to follow conversations and identify speakers naturally.



XR Communications

As extended reality becomes part of everyday work and collaboration, audio must keep up. IVAS is natively designed for XR environments, enabling spatially accurate voice and audio that matches the visual immersion of XR headsets – essential for next-generation telepresence and remote collaboration.

Other Verticals

IVAS extends its value beyond traditional communication:

- **Gaming & Education** – immersive, spatially aware audio for richer interactive experiences
- **Remote Assistance** – accurate reproduction of the remote environment supports industrial operations, medical guidance, and emergency handling where situational awareness is critical

Key Technical Highlights

Codec Features

Parameters	Details
Standards	3GPP Release 18
Bitrates	13.2 kbps – 512 kbps
In/Out Sampling Rate	16, 32, 48 kHz
Audio Bandwidth	NB (only mono), WB, SWB, FB
Input Formats	Mono, Stereo, Ambisonics, MASA, Object-based (ISM), Multi-channel
Output Formats	Binaural, Stereo, Loudspeaker/Soundbar
End-to-end latency	32 - 38 ms

Integrated Rendering

IVAS comes with an integrated renderer providing a complete end-to-end solution for immersive voice services out of the box:

- **Headphones** – binaural rendering with default head-related impulse responses (HRIR) and binaural room impulse responses (BRIR) sets and native head-tracking and scene tracking controls
- **Loudspeakers** – preset configurations up to 7.1 + 4, flexible custom loudspeaker layouts

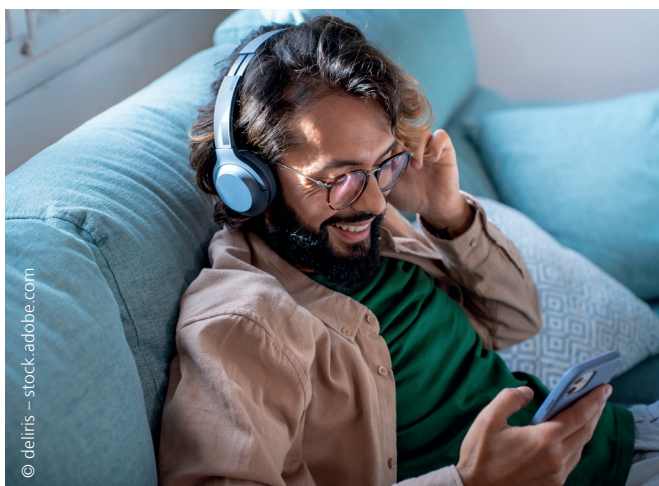
Mobile Network Ready

IVAS provides additional features which are essential for mobile networks:

- **Discontinuous Transmission (DTX)** – rate-efficient transmissions
- **Error Concealment** – combats effects of transmission errors and lost packets
- **Bitrate Switching** – switchable at any frame boundary to adapt to varying network conditions
- **Jitter Buffer Management (JBM)** – operates over networks with packet interarrival jitter; adjusts playout delay via time-scale-modified spatial signals
- **RTP Support** – payload format & SDP parameters for VoIP operation
- **EVS Backwards Interoperable** – seamless compatibility with EVS



For more information, visit the IVAS website:
iis.fraunhofer.de/ivas



Contact

Eleni Fotopoulou
Senior Technical Consultant (external)
IVAS Product Management
eleni.fotopoulou@iis-extern.fraunhofer.de

Fraunhofer IIS
Am Wolfsmantel 33,
91058 Erlangen, Germany
www.iis.fraunhofer.de