FlashCast®
Audio-via-IP: standardized, efficient, economic and capable

• Audio formats
• Error protection
• Error concealment
• Automatic jitter compensation
• Buffer Optimization
• EBU Tech 3326
• Latency
• Bit rate
FLASHCAST®
Audio-via-IP: standardized, open, efficient, economic and capable

FLASHCAST® refers to an algorithmic process that has been continually developed by MAYAH due to broadcasting related requirements. It is based on FLASHCAST® for ISDN which MAYAH designed in the late 90s. Through its early software audio codec Sennit, MAYAH was the first manufacturer on the market offering compatibility to multiple hardware codecs from other vendors. MAYAH products could detect other codecs automatically and support IP.

Today, the development of FLASHCAST® focuses entirely on modern IP technology and contains the following elements which are essential for audio-via-IP:
- Low latency en / decoding
- Package optimization
- Error concealment
- Error protection
- Adaptation of buffer and bit rate

Thanks to FLASHCAST® Plus, the full extent of the EBU Tech 3326 will be available, i.e. as a user you will benefit from the high interoperability as well as from the high quality and low latency of MAYAH products. The Plus version also contains additional audio formats implemented in MAYAH codecs.

Last but not least, FLASHCAST® Plus includes the connection setup for SIP protocol. So all mechanisms for using SIP servers are already integrated.

FLASHCAST® audio coding formats: quality, latency and bit rates

<table>
<thead>
<tr>
<th>Codec</th>
<th>Quality</th>
<th>Latency</th>
<th>Bit Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>G.711</td>
<td>very low</td>
<td>&lt; 2 ms</td>
<td>48, 56, 64, 96, 128 kBit/s</td>
</tr>
<tr>
<td>G.722</td>
<td>very low</td>
<td>&lt; 4 ms</td>
<td>48, 56, 64, 96, 128 kBit/s</td>
</tr>
<tr>
<td>MPEG 1/2 Layer 2</td>
<td>very low</td>
<td>&lt; 90 ms</td>
<td>64, 128, 256, 384 kBit/s</td>
</tr>
<tr>
<td>Linear Audio</td>
<td>very low</td>
<td>&lt; 100 ms</td>
<td>64, 128, 256, 384 kBit/s</td>
</tr>
<tr>
<td>MPEG 1/2 Layer 3</td>
<td>very low</td>
<td>&lt; 160 ms</td>
<td>64, 128, 160 kBit/s</td>
</tr>
<tr>
<td>MPEG 2/4 AAC</td>
<td>very low</td>
<td>&lt; 170 ms</td>
<td>64, 128, 256, 384 kBit/s</td>
</tr>
<tr>
<td>MPEG 2/4 AAC LD</td>
<td>very low</td>
<td>&lt; 195 ms</td>
<td>64, 128, 256, 384 kBit/s</td>
</tr>
<tr>
<td>EplX</td>
<td>very low</td>
<td>&lt; 150 ms</td>
<td>128, 256, 384, 576 kBit/s</td>
</tr>
<tr>
<td>MPEG 4 AAC HEv2</td>
<td>very low</td>
<td>&lt; 80 ms</td>
<td>64, 128, 256, 384 kBit/s</td>
</tr>
</tbody>
</table>

EBU TECH 3326

- Optional: EBU-Tech 3326 (EBU-Tech 3326)
- Recommended: EBU-Tech 3326 (EBU-Tech 3326)

Interoperability with FLASHCAST®

While preparing the EBU Tech 3326 a variety of tests were undertaken and MAYAH published the results of all connection tests between MAYAH codecs and those of other manufacturers, conducted during the last 12 months. The cooperation of the various manufacturers was very comprehensive and the current state is highly convincing. MAYAH is the most compatible audio codec in the world.

![Multidimensional audio-via-ip model for Audio-over-IP](image)

![FlashCast audio coding formats: quality, latency and bit rates](image)

![FlashCast® Plus](image)

![Additional Audio and Telecom Data](image)
FlashCast® Plus - Business Case

MAYAH offers FlashCast® technology also to interested companies that want to be quickly compatible to EBU Tech 3326, while profiting at the same time by the added value of FlashCast® technology. FlashCast® technology is available as pure object code, as well as in combination with hardware, depending on customer needs.

FlashCast® Plus - Products

FlashCast® Plus will shortly be integrated in MAYAH products. The first of these products benefiting from the new technology will be the Centauri III and the C11. Thanks to this efficient and compatible technology also SendIt4 will be the standard software for high-quality communication on the go.

For more information please contact: flashcast@mayah.com or call +49 (0)811 55170 and just ask for an appointment.

---

Mayah Flashcast® in the Audio over-IP signal processing chain

The FlashCast technology contains the complete signal chain, from sender to receiver

* FlashCast® Algorithm consists of all mentioned blocks: actually CELT audio coding, Error Concealment, Error Correction, Buffer Optimization, Automatic Jitter Compensation, Latency and Bitrate Optimization.

**proprietary development from Fraunhofer