

Future of audio, 2014 onwards

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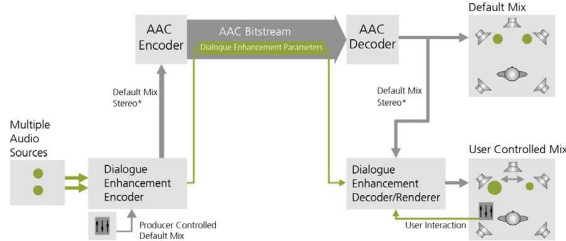
Ongoing developments

- Supplementary Audio
 - Dialogue enhancement / Advanced clean audio
- Dolby AC-4
- "3D Audio"
 - Object-based and channel based audio
 - Dolby Atmos, MPEG-H part 3, DTS UHD, Auro 3D



Dialogue enhancement

- Original idea by Lars Mossberg, Swedish Radio. Evolved Clean Audio
- Problem: Complaints from users that music or background sounds reduces speech intelligibility
- User selectable balance between dialogue and background sound
- Backwards compatible for older equipment
- Co-developed by Fraunhofer and Swedish Radio
- Proposal in DVB



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* Other channel configurations (mono or 5.1) are supported as well.

Dolby AC-4

- New audio codec
- Wide span of bit-rates
- Dialogue Enhancement
- Loudness and dynamic range management
- A/V sync
- "A-SPX" Advanced Spectral Extension (like SBR)
- Promising data compression efficiency
- ETSI TS 103 190 V1.1.2...

Object-based audio

- Formats with "lots of speakers"
- Dolby Atmos, MPEG-H part 3, DTS UHD
- In use today in gaming industry
- Sound objects can move in space and time
- Adapts to various listening environments
- Lots of audio objects/channels down to 5.1, 2 ch
- Much more complex audio mix with metadata absolutely necessary
- Will need new infrastructure, some interface standard. Very complex.
- Maybe restrictions to reverb processing?

MPEG-H 3D Audio (part 3)

- Object based and channel based
- 22.2 format
- Advanced downmix
- Listening tests soon

Dolby Atmos

- Mostly for cinema
- Object-based
- Height speakers
- Up to 128 audio elements in a mix
- Ambient sounds channel-based
- Dynamic "moving" audio elements object-based
- Metadata
- Up to 64 speakers
- Downmix for 5.1 and 7.1 set-ups

DTS UHD

- Targeted mostly for consumer delivery
- Object-based
- Creates a sound-field for several types of home cinema speaker lay-out as well as down to surround sound in headphones
- DTS and Barco developing open format for mixing desks, object-based and channel-based
- Working on a single-chip DSP decoder

Auro 3D (Barco)

- 11.1
- Channel based
- Height layer and Overhead layer
- Hidden data in 24 bit PCM signal
- For cinema
- Compatible with 5.1
- Can be delivered on BluRay discs (PCM audio)

Thank you