

European Broadcasters Need for Advanced Video Codecs

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Europe wants better quality broadcasts

- European broadcasters already producing high quality content for overseas sales
- Requirement for artefact free pictures
- High quality DVDs and HD-DVDs
- By 2010 around 25% UK households will have large flat panel displays

Could services be launched today?

- Content available
- MPEG-2 Encoders & Set-top Boxes available

HOWEVER

- HD resolutions require around 20 Mbps
MPEG-2

This is Europe!

- Many countries with close boundaries
- Each with multi-channel SD broadcasts
- Broadcast spectrum is already crowded



Solution for efficiency

- Advanced video codecs (H.264, VC-1 ...)
- Efficient delivery on all platforms
 - DVB-S2 (54 Mbps per 36 MHz transponder)
 - DVB-C (VOD and delivery)
 - DVB-T (in countries where spectrum is available)
 - Broadband (live multicast or NRT download)

Prototype demonstration

- IBC 2004 in Amsterdam on DVB stand
- 2 channels of HDTV
 - One NRT encoded H.264 (Baseline Profile) at 8 Mbps
 - Second NRT encoded VC-1 (Windows Media) at 8 Mbps
- Multiplexed into a single DVB transport stream

H.264 and VC-1 delivery over DVB-S2

- Transmitted via Astra 19E using DVB-S2
- 54 Mbps capacity on single 36 MHz transponder
- Received using prototype demodulator (Conexant)
- Decoded live in software using fast PCs

H.264 and VC-1 Delivery over DVB-S2

- **World's First** DVB-S2 broadcast carrying HDTV
- **World's First** broadcast of HD encoded with VC-1
- **World's First** broadcast of H.264 and VC-1 in single DVB transport stream



Thank you

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EBU Technical Committee Statement



- The EBU Technical Committee recommends that EMISSION standards for HDTV should be based on progressive scanning: 720p/50 is currently the optimum solution, but 1080p/50 is an attractive option for the longer term.

EBU Technical Committee Statement



- Although there are strong technical arguments in favour of progressive scanning for emission, the EBU Technical Committee recognises that some broadcasters might wish to broadcast 1080i programme material. As consumer electronics equipment (e.g. set-top boxes and displays) will accept both 720p and 1080i formats, broadcasters will be able to select either of these formats – even on a programme-by-programme basis.

EBU Technical Committee Statement



- Taking into account that production and emission standards do not need to be identical, further EBU studies on PRODUCTION standards for HDTV in Europe are in progress. This work is not intended to result in a recommendation for a single standard for HDTV production.