

UHD Roadmap

The release of the DPP's Technical Standards Supplement for the Delivery of Ultra High Definition (UHD) Programmes is not the end of the process, in fact it is just the start - the world of UHD will continue to evolve over the coming years. As standards bodies ratify key aspects and all parts of the production chain build out their capabilities, the DPP will continue to be at the forefront of discussions in a bid to streamline delivery options.

Below are a number of key topics, which we already know will be areas of ongoing discussion over the next few years, along with possible future additions to the delivery standard. We have also outlined the key questions, which we don't know the answers to just yet, but over time DPP Members will work together to define these answers.

If you are a DPP Member and want to get involved in these conversations, then please email

lisa.kelso@digitalproductionpartnership.co.uk

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Areas for ongoing discussion and possible future additions to the UHD delivery standard

- ▶ **Wide Colour Gamut (WCG)**
Is the data rate proposed sufficient for content with a wider range of colours? How will different colour-spaces interoperate?
- ▶ **High Dynamic Range (HDR)**
How will the varying standards settle down, including HLG and PQ? How will HDR and SDR co-exist at broadcast?
- ▶ **Codec and bitrates**
Do we need to further constrain the codec options to ensure interoperability? Will widespread adoption of h.265 lead to changes? Is LongGOP suitable for all use cases?

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- ▶ **High Frame Rate (HFR)**
How will we incorporate frame rates up to 100fps maybe even 150fps? What impact does that have on codec choice, timecode, bitrates?
- ▶ **QC Review**
What are the new challenges with regard to reviewing UHD content? What's the impact of HDR, WCG? What happens when we down-convert to HD, maybe even SD? What do automated tests need to include, and what do human reviewers need to look out for?
- ▶ **Timecodes**
How do timecodes work, especially for high frame rate content? Is there a better way to address the requirement?
- ▶ **Metadata changes**
What impact will any further amendments to the delivery standard have on the UHD metadata? Do we still require all of the mandatory fields? Is there any impact on the HD spec?
- ▶ **Live contribution**
What standards do we need for live contribution?
- ▶ **Object based audio**
Is there a consumer drive for more control of audio? How is audio recorded, mastered and delivered?
- ▶ **Relationship with other formats**
How will we interface delivery standards with mastering, archive and promotions, all of which will need to support UHD?