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| **Status** | **Contribution** |
| **Title** | **Proposal of MFC+Depth profile in AVC extension** |
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**Abstract**

This contribution proposes a MFC Depth High Profile in Annex I of AVC extension, which supports MFC high profile for the coding of stereoscopic texture views. The depth coding follows the same approach as defined for MVC+D in Annex I.

# Application

Two most commonly used data and compression formats for stereoscopic video coding are Frame-Compatible (FC) coding and Multiview Video Coding (MVC). For glasses free auto-stereoscopic display application, it is desirable to adopt Multiview Video plus Depth (MVD) format to enable depth-image-based rendering of additional viewpoints at the decoder side. Multiview video coding with depth information (MVC+D) is standardized in Annex I of AVC-based coding technology which specifies an MVC-compatible MVD coding format [1].

FC coding is widely used in satellite broadcast and cable services, where MVC finds limited deployment due to lack of playback devices (e.g., STBs) equipped with MVC decoders. In order to deliver the original picture resolution while maintaining backward compatibility, a spatial scalable extension of FC has been standardized. The Multi-resolution Frame Compatible Stereo coding (MFC) is part of Annex H of AVC-based coding technology [1].

Multi-view auto-stereoscopic 3D (AS3D) display technology has been improving over the years and has started showing promises in applications for home entertainment. When an HD panel was used in multi-view AS3D display, it has limited accommodation of the spatial resolution for each view. Lately, 4k and 8k panels have become common in AS3D displays. This significantly improves the spatial resolution of each view that can be accommodated and perceived. Apparently this calls for an input of higher quality from video compression prior to multi-view rendering. Therefore, it is desirable to define a new profile MFC Depth High in Annex I to support the MFC+D format which is backward compatible to MFC.

# Proposal of MFC High Profile to support MFC compatible extension including depth (MFC+D)

The MFC+D format is proposed to follow the same philosophy as MVC+D [1]. The texture view coding is compatible with MFC high profile and a new profile MFC Depth High (profile\_id 135) is to be introduced for coding of multiview depth map data in Annex I. The depth coding follows the same approach as already defined for MVC+D in Annex I. The required change in Annex I specification is adding the definition of MFC Depth High Profile. The draft specification text and the software can be found in JCT3V-H0080 [2].

The key difference between MFC Depth High Profile and Multiview Depth High Profile is highlighted here.

The sub-bitstream of stereoscopic texture bitstream as specified in clause I.8.5.5 shall obey all constraints of the MFC High profile specified in clause H.10.1.3 and all active MVC sequence parameter sets shall fulfill one of the following conditions:

– profile\_idc is equal to 134,

– profile\_idc is equal to 100,

– profile\_idc is equal to 77 or constraint\_set1\_flag is equal to 1.

An illustration of MFC+D data format is shown in Figure 1.



Figure 1 Illustration of MFC+D

# References

1. “ITU-T Rec H.264: Advanced video coding for generic audiovisual services”, February 2014.
2. L. Grimaldi, K. Schueuer, P. Yin, T. Lu, H. Ganapathy, T. Chen, W. Husak, "On MFC plus Depth: Specification and Reference Software ", JCT3V-H0080, Valencia, Spain, Mar. 2014