

ABSTRACT

High quality video applications such as videoconferencing, digital storage media, television broadcasting, Internet streaming, and video communications have demanded a feature enhancement. The new features are developed to support a variety of applications where high quality video compression is required, including professional and semi-professional. Therefore, the Joint Video Team (JVT) to develop a new amendment is the extension of standardization, among others, adding five new profiles, two Supplemental Enhancement Information (SEI) messages, and two new extended gamut color space indicators to the standard video coding H.264/MPEG-4 AVC.

This thesis aims to compare the performance of the features in the new H.264 between two profiles and the difference with the main profile. Profile used is the High 4:4:4 and High 4:4:4 Predictive Profile Intra Profile as a new profile, as well as Main Profile as the main profile. Then the three profiles are encoded using JM 18.0 to get the .264 format and then transmitted in the W-LAN networks with NS-2.28. To get the video to be transmitted, then the JM 18.0 is used to decode the video transmission. The thesis is to simulate the three scenarios, namely Scenario 1 with the input video YUV format the same for all profiles, while scenario 2 and 3 differentiate it fits the profile. Parameters measured to assess the resulting video quality is PSNR, SSIM, MOS as PEVQ, bitrate, and the compression ratio and parameters of the arrival of the one-way data packet inter arrival jitter and jitter.

Adjustment of input video YUV format with sampling patterns each profile, proving that the feature enhancement to the High 4:4:4 Profile provides better performance than Main Profile, especially for High 4:4:4 Predictive Profile. The results of video encoded in scenario 3 is 44.298 dB for Predictive and 43.989 dB for Main, while the Intra with the highest value is 44.944 dB. Encoded smallest SSIM value is 0.9504 for Predictive under scenario 1 and the largest is 0.9907 for Intra in scenario 3. Bitrate value affects the compression ratio, the highest is the Predictive 306.18557 compared with Main 185.625 and Intra 46.845. The smallest value of decoded video PSNR Predictive and Main is 36.84 dB and 36.94 dB, while the greatest value is 27.79 dB Intra. Average MOS values over 3. Jitter gives the smallest value of one way of 2.27885 ms jitter and inter-arrival jitter Predictive smallest of 0.481898 ms for Intra.

Key words: High 4:4:4 Predictive Profile, High 4:4:4 Intra Profile, Main Profile, W-LAN, H.264/MPEG-4 AVC, PSNR, SSIM, MOS, Bitrate and Compression Ratio, Jitter