Figure 5. Frame by frame average PSNR comparison for HRMIR, Optimal Intra and RS-MDC, PLR is 10%, 1/4-pixel accuracy motion estimation. (a) Foreman CIF 30fps, 1.48 Mbps. (b) Bus CIF 30fps, 1.92 Mbps.

advantage over RS-MDC, whereas when the GOP is 30, HRMIR outperforms RS-MDC significantly. In Fig.7, we fix the GOP length as 30, PLR is set to 5% and 10%. It is interesting to see that when the PLR is 10% the superiority of HRMIR over RS-MDC is larger than the case that when PLR is 5%. This phenomenon is because with long GOP and high packet loss rate, only providing redundant information cannot protect the video quality properly. Furthermore, for both the Foreman and Bus sequences, the HRMIR provides much higher PSNR than Optimal Intra in all the simulation environments. Let us take the Bus sequence for example, when PLR is 5% and GOP is 30, PSNR of HRMIR is about 4dB higher than Optimal Intra with bitrate 2Mbps. Note that in both Fig.6 and Fig.7,