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This document presents the results of an IDCT mismatch experiment run at 320 and 768 Kbps. All of the results are based on the "Salesman" sequence. The coding performance is shown in Figure 1 as SNR versus the refresh period and mismatch error.

The mismatch error, MME, is defined in document #281, and consists of the mean squared error between the baseline IDCT and the IDCT used at the decoder. The decoder IDCT is identical to the baseline, except for the number of bits, N, used between the vertical and horizontal 1-D inverse transforms.

The upper set of curves in Figure 1 gives the results for 768 Kbps. These curves were also presented in document #281, except for the case where N=10. The lower set of curves gives the results of the 320 Kbps simulations.

The following conclusions can be drawn from Figure 1:

1. The relative loss in quality, as a function of MME, is greater for 768 Kbps than it is for 320 Kbps. For the case where N=12, there is a 1.4 dB loss for 768 Kbps, and only a 0.3 dB loss for 320 Kbps.

2. For a specified value of MME, the optimum refresh period is shorter for 768 Kbps than for 320 Kbps. When N=12 the optimum refresh period is around 4.5 seconds for 768 Kbps, versus 8 seconds for 320 Kbps.

3. The coding performance is more sensitive to the refresh period for 320 Kbps than it is for 768 Kbps. With a MME=0 and a refresh period of 2 seconds there is a 0.5 dB loss at 768 Kbps versus a 0.9 dB loss at 320 Kbps.

Based on the above conclusions it would seem that the standard could allow for the refresh period to be a function of rate, longer for low rates and shorter for high rates. However, this probably complicates things a bit too much. The refresh requirement presented in document #281 indirectly provides for rate dependent refresh. The refresh period is defined in terms of actual coded frames instead of absolute time. In a simple implementation the refresh period would be 61 divided by the frame rate. At very high channel rates, such as 1.536 or 1.920 Mbps, the codec will probably run at 30 frames per second, and therefore the refresh period will be 2 seconds. However, at 384 Kbps codecs will probably be operating at 15 frames per second, and have a 4

second refresh period. If the Nx384 algorithm is applied at 64 Kbps, the codec will probably have to operate at 10 frames per second or less. The refresh period would be greater than 6 seconds.

In addition, the proposal in document #281 relaxes the refresh requirement for the uncoded blocks, since these blocks do not contribute to the mismatch error. In theory, a fixed block never requires refresh. In pratice some refresh is required to handle transmission errors. By relaxing the refresh requirements for fixed blocks the refresh requirement is indirectly reduced when operating at low channel rates. This is due to the fact that a greater percentage of the blocks will be fixed at the lower channel rates than at the higher rates.

Based on the results presented in Figure 1, it seems that the refresh requirement could be relaxed to 120 frames, or 8 seconds at 15 frames per second, without very much loss in performance. For low MME cases there is actually an increase in performance.

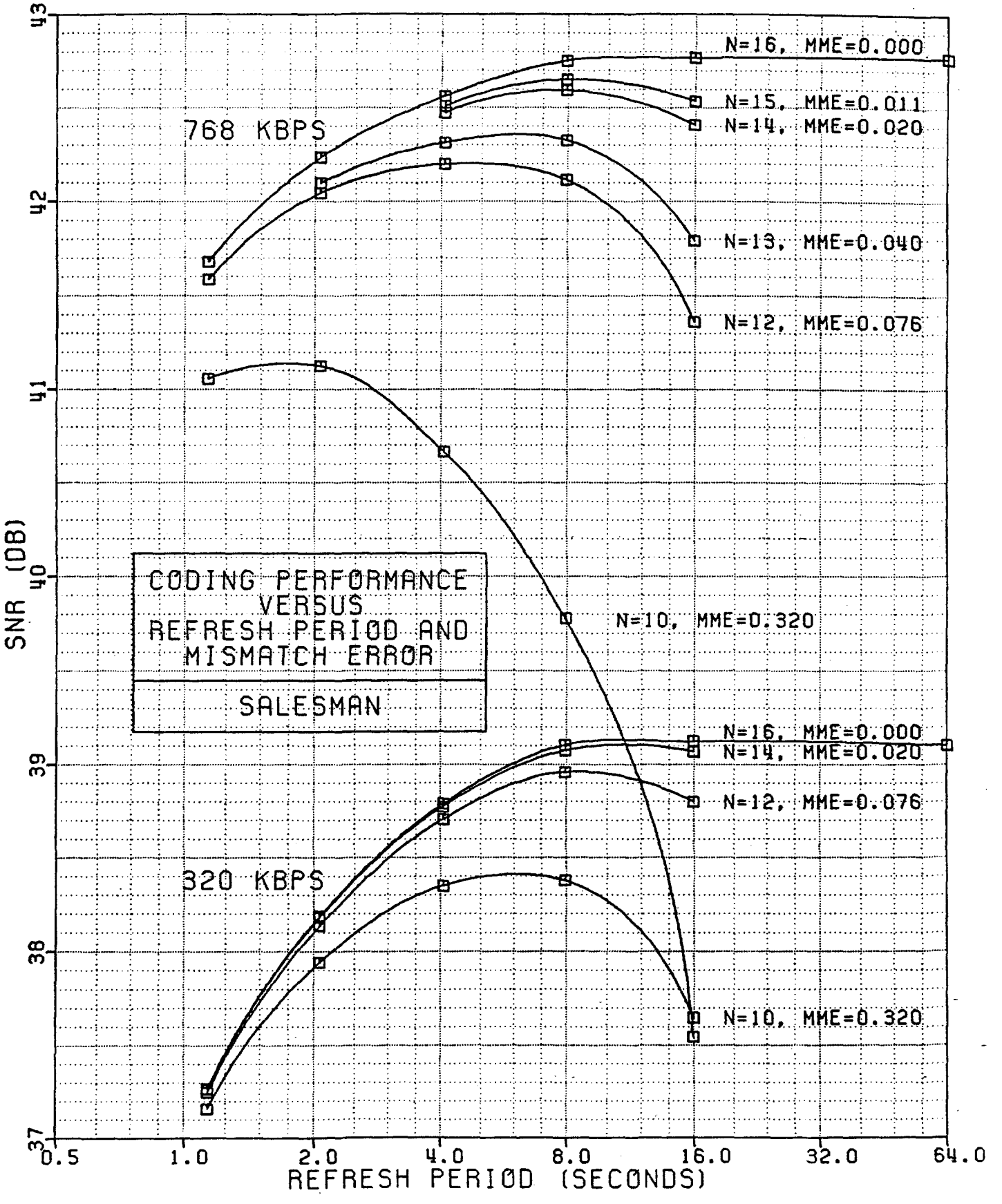

Figure 1. Coding Performance versus Refresh Period and MME