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STUDY GROUP XV - CONTRIBUTION

Source: AT&T, CLI, DIS, PictureTel

Title: Error correction for px64 kb/s video telephony

In this document a Reed-Solomon error correction technique is proposed for use in p x 64 kbps video telephony. Reed-Solomon error correction is desirable for use in video telephony for the following reasons.

1. Good performance for correcting random bit errors.

2. Good performance for correcting burst errors.

3. Not necessary to select between random error or burst error correction mode.

4. Transmission overhead is small.

5. Implementation is computationally simple.

Doc. #335 describes aspects of the performance and implementation of Reed-Solomon error correction.

Two variations of this error correction technique are proposed for use in p x 64 kbps video telephony. Both are Reed-Solomon codes using 8 bits per symbol. The first uses a block length of 255 octets, the second uses a truncated block length of 128 octets. The second approach introduces larger overhead in order to reduce delay. The important characteristics c the two approaches are summarized in Table 1. Both approaches provide correctability of 2 random bit errors per block or a single 9-bit burst error.

	Implementation 1	Implementation 2
Block length (bits)	2040	1024
Redundancy (%)	1.57	3.12
Delay at 384 kbps (ms)	5.31	2.67
Correctable random bits per block	2	2
Correctable burst length (bits)	9	9

Table 1: Performance of Reed-Solomon error correction