

C.C.I.T.T.

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Study Group XV

Working Party on Visual Telephony

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SOURCE: UNITED STATES

TITLE:

The purpose of this Submission is to outline a plan for the standardization of video codecs for visual telephony to complete Parts 3 of Recommendations H.120 and H.130.

At the present time there are two fundamentally different types of compression algorithms employed in video codecs - transform coding and productive coding. Examples of both of these algorithms are now operationed in 1.544 countries and are being considered by the CCITT to complete Parts 3 of Recommendations H.120 and H.130. Based upon informed comparative tests and tests of the marketplace it is not clear that one of these basic algorithms is clearly superior to the other when considering the issues listed below.

- Picture quality at 1,544 mbps
- complexity
- error sensitivity
- picture quality at rates less than 1,544 mbps
- maturity of the algorithm; potentiality for further improvements and enhancements
- tandem operations
- availability for open manufacture at zero or minimal royalty charges

It is therefore proposed to develop two CCITT standards to complete Parts 3 of Recommendations H.120 and H.130. One standard would be based upon transform coding and the other an productive coding.

Further guidelines for the development of both of these standards are listed below.

1. The standards should focus upon interoperability and not on these features which are unnecessary for compatibility.
2. Where possible the standards should include features and modes of operation which may not be operationed today but may be practical as technology continues to advance. For example, the productive coding standard should include background production and motion compensation as options.
3. The standards should have a basic mode of operation for those users who would be satisfied by reduced picture quality while stressing low cost. Additional modes of operation would be added on an optional basis to achieve improved picture quality at higher cost. During a pre-message phase the transmitter and receiver would handshake to determine the highest level of mutual operation.
4. If possible the predictive coding standard would be written to be compatible with the existing CCITT standard operating at 2.048 mbps. This could be done by (1) imposing the complete burden on the new 1.544 standard (2) modifying the 2.048 mbps standard (3) some combinations thereof.
5. The frame structure part up the two new 1.544 mbps standards -- prediction and transform -- should be as similar as possible. If possible the following functions should be similar.
 - scrambling
 - FEC
 - multiplexed data
 - audio
 - ~~resolution~~