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Question: 4/XV (Specialists Group on Video Coding)

STUDY GROUP XV

SOURCE: United States of America

TITLE: Evaluation of Single "Intermediate" Approach versus Dual Approach for n x 384 kb/s Codecs

An item left for future study at the last meeting of the Specialists Group on Video Coding in Holmdel, N.J. was to decide whether it would be preferable to utilize a single "intermediate" approach or a dual approach in developing n x 384 kb/s codec Recommendations. This evaluation concludes that the dual approach is strongly favored. For clarity, it is specifically proposed that the codec receiver be responsible for accepting either of two bit streams, one coded from a 525 line source and the second from a 625 line source. A codec would interface with the video standard in the region in which it operates.

There are several important considerations that led to the selection of the dual approach:

1) Minimize Complexity of Codec Terminal Equipment

- o Eliminates the complexity in the codec transmitter due to standards conversion. This would consist of temporal prefiltering and vertical spacial filtering.
- o The complexity of the receiver can be reduced in some implementations by not requiring standards conversion. For example, lines not used in 525 transmission can be filled with blank lines at the top and bottom of the display whereas lines generated at the top and bottom of 625 line transmission may be deleted in the 525 line display.

2) Minimize processing delay due to temporal filtering inherent in standards conversion at the transmitter.

3) Minimizes Image Degradation

- o Guarantees no degradation due to standards converters intra-regional connections (two conversions would be required with an intermediate format)

- o Minimizes degradation to standards conversion with inter-regional connections (two conversions are required with an intermediate format, only one is required with the dual approach).

- o Removes the possibility of a coding efficiency compromise caused by an operation of the source coder for the output of a standards converter, i.e. the standards converter may introduce artifacts that would increase the source coding burden.

NOTE

It was also felt that the dual approach might make it easier to achieve agreements on coding paramaters.