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STUDY GROUP XV

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Title: Ones Density Restrictions as Related to n X 384 kb/s Video Codecs

It was noted at the Ipswich meeting of the Experts Group that "the next generation sub-primary rate codecs be designed assuming the usage of transparent transmission channels" and that measures to overcome one's density restrictions (referring largely to constraints that currently exist in North America) be dealt with as options.

It is important to report that networks in North America are currently in transition to networks that will allow for unrestricted digital transmission. It is not possible at this time to precisely predict when this transition will be complete. In view of this situation and in order to promote the broadest support possible for the n X 384 kb/s video codec standard, it is felt that it would be advantageous for the Experts Group to consider alternatives that allow operation on a restricted channel.

Just as has been accomplished with the wideband audio coding algorithm, G.72X, it may be possible to achieve an approach with the video coding algorithm that meets the ones density restriction without significantly affecting the video quality or the design complexity. This would ensure the greatest possible acceptance of the next generation standard.

If the issue of one's density is not considered along with other issues the Experts Group is addressing, an approach could be agreed upon that will cause the complexity of a retrofitted option to handle to one's density restrictions to be much greater than otherwise necessary.

It is significant to note that the North American restriction on ones' density, when it exists, places a more stringent requirement on sub-channels such as 64 and 384 kb/s sub-channels than it does on the full 1.5 Mb/s channel. A "1" in each 8 bit channel byte is required at 64 and 384 kb/s to ensure compliance with the 1.5 Mb/s requirement of no more than 15 consecutive zeros and an average ones density of at least 12.5%. This fact may preclude some methods now used at 1.5 Mb/s to meet the one's density requirement (e.g., scrambling) from being used on n X 384 kb/s codecs.