CCITT SGXV
Working Party XV/1
Specialists Group on Coding
for Visual Telephony

Document #353
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SOURCE: Japan

TITLE : Contributions on mx64 kbit/s Coding Algorithms in Japan

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1. Introduction

In Japan, discussions related to mx64 kbit/s standardization study are taking place in Teleconference Working Group of the Telecommunications Technology Council, an advisory council of MPT. CCITT test picture data have already been distributed to 11 organizations which are participating the subcommittees and can give contributions (Fujitsu, GCT, Hitachi, KDD, Matsushita Com., Mitsubishi, NEC, NTT, Oki, Sony, Toshiba), and all have now implemented the RM5. In accordance with the guide lines of CCITT Specialists Group, study is now in progress to evaluate on mx64 kbit/s coding algorithms from a wide range of technical possibilities.

The contribution plans of each participating organization were requested, and replies have now been received. Table 1 shows the results. Some of them however commented that after September, these would be reconsidered depending on the progress made by the Specialists Group in the September Meeting.

Distribution of data in Teleconference subcommittees, the establishment of rules and the completion of RM5, etc., all take time. The progress results from these organizations could not therefore be discussed until after July, however some of the results are submitted to this Meeting in the form of contributions.

2. Outline of Contributions

The contributions submitted were mainly concerned with:

(1) Results of RM5 simulations and results obtained when parameters are modified,

(2) Improvements of RM5,

(3) Experiments on a system where some elements differ from those of RM5,

(4) Experiments on a system with different arrangement from RM5,

They can be outlined as follows:

Doc.#352: provides information on the recently completed "Blue Jacket" sequence together with some statistics.

Doc.#354: shows that for complicated sequences RM5 simulation with 4/9 CIF gives better results than the simulation with full CIF.

Doc.#355: proposes the improved motion compensation algorithm for RM5 and insists on the necessity of further study on the MC algorithm with the information on "pel-based MC" method.

Doc.#356: presents improvements on RM5 by an adaptive loop filter to conclude that it has potentiality worth further investigation and optimization.

Doc.#357: proposes the method to efficiently transmit coded/not-coded block pattern for reducing the amount of EOB codes.

Doc.#358: provides information on the new coding method to improve the picture quality of the first frame just after a scene change and the following several frames.

Doc.#359: presents a comparison between VQ and DCT using a common RM5 based configuration to conclude that they are comparable in performance and that more study is required to clarify whether the quantization scheme itself or the block size is influential.

Doc.#360: shows the possibility of the improvement on RM5 to conclude that further study is required on the current RM5.

Doc.#361: shows the possibility to improve subjective impression of coded images by means of detecting facial region and controlling to improve picture quality in the facial region and insists on the necessity of some means to send the control bits required by the method.

Doc.#362: reports a result of coding simulation using a vector quantization and some comments on the evaluation of the coding schemes.

Processed images will be displayed on a VTR for some contributions listed above.

Table 1 Contribution Plans in Japan

		Until Sept.	Until Dec.	After Dec.
1. Parameter changes in RM5	1.1 Bit rate change	○		○
	1.2 Frame rate change	○		○
	1.3 Change in no. of pels	○		
2. Improvements and additions to RM5	2.1 Motion compensation	○	○	
	2.2 Prediction system/intra-loop filter	○	○	○
	2.3 DCT, quantization	○	○	○
	2.4 Variable length coding		○	○
	2.5 Address system	○	○	○
	2.6 Use of segmentation			
	2.7 Scene change processing	○	○	○
3. System with some elements different from RM5	3.1 VQ instead of DCT	○	○	○
	3.2 Buffer control system	○	○	○
	3.3 Pre-processing			○
	3.4 Post processing		○	○
	3.5 Adoption of knowledge based coding	○	○	○
4. System with different arrangement from RM5	4.1 OT + MC			
	4.2 Pure VQ / MC + VQ	○	○	○
	4.3 Pyramidal coding			
	4.4 Sub-band VQ		○	○
	4.5 Knowledge based coding (Intelligent coding)			
5. Others				

○ : Items for which 2 or more organizations plan to submit contributions.