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

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SOURCE : NTT, KDD, NEC and FUJITSU

TITLE : REFERENCE MODEL SIMULATION

A reference model #3 described in Annex 2 to Document #181R and Document #183 has been implemented by four Japanese Laboratories. The subjective evaluation of the simulation has shown similar results. As a conclusion, it gives better performance compared to RM 2 and can be used for algorithm comparison purpose.

One of these results is shown in annex.

The following two criteria of determining the scanning class were also examined:

-Minimizing the number of zeros
-Minimizing the total bits for scanned coefficients including zero , non-zero before last non-zero and last non-zero coefficients

The experiment showed that both criteria resulted in the same scanning class with 96 - 99 % coincidence. It is concluded that the simple zero count criterion is good enough from the result.

Items			MA		CJ		SP-TR	
			15th	Average	15th	Average	15th	Average
1) R.M.S for luminance			2.4	2.5	3.4	3.3	4.2	3.5
2) SNR for luminance			40.5	40.0	37.6	37.6	35.7	37.2
3) Mean value of the step size			7.2	8.2	8.8	8.8	12.7	10.3
4) Mean value of the number of non-zero coefficients			2.4	2.5	3.6	3.0	3.6	3.9
5) Mean value of the number of zeroes before the last non-zero coefficient			7.1	6.3	9.1	8.1	6.2	6.3
6) Block type of Y	Intra		0	1	0	2	16	43
	Fixed(Inter/No MC/No coded)		1164	1119	1108	1082	764	858
	Inter(Inter/No MC/coded)		289	176	313	350	205	170
	Fixed MC(Inter/MC/No coded)		60	134	54	44	222	115
	Inter MC(Inter/MC/Coded)		71	155	109	107	377	398
	Filtered		207	275	183	193	492	414
7) Block type Of C	Intra		0	1	0	0	19	10
	Fixed(Inter/No coded)		439	470	670	640	605	646
	Inter(Inter/coded)		353	322	122	152	168	136
	Filtered		254	251	70	51	162	116
8) Number of bits	Attributes	Y	3565	3658	3616	3662	4486	4007
		Cr	869	898	723	725	765	743
		Cb	1120	1039	673	683	710	752
		Total	5554	5595	5012	5070	5961	5502
	Classification indexes		720	664	844	916	1196	1222
	EOB		2139	1962	1632	1830	2355	2272
	Motion Vectors		1048	2308	1304	1208	4792	4103
	Coefficients	Y	6217	5828	10699	9763	13431	15192
		Cr	1240	1321	428	457	1173	704
		Cb	2953	2205	219	292	806	747
		Total	10410	9354	11346	10512	15410	16643
	Total		19871	19883	20138	19535	29714	29742