

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

Doc. * 165
November, 1986

Source: F, S, UK, NL, FRG

Titel: Statistics of the RM2

The Reference Model no 2, as described in Doc * 141, was implemented by 5 European countries. The results were analysed by using specific statistics (single blocks, single GOB etc.). Due to the fact, that different arithmetic was applied, e.g. floating point or integer arithmetic for the DCT, various rounding procedures, dissimilar internal accuracy, the result of the comparison showed insignificant differences. The subjective evaluation of the simulation shows similar results. As a conclusion it can be stated, that the results, measured in the participating countries on the bases of a software implementation of the RM 2, are comparable.

The annexed statistic based on the measurement of the software implementation of FRG (Integer arithmetic with a accuracy of 16 bit).

Sequence : Miss Amerika

Item		Average of the whole sequence	The 15th en- coded picture
1) R.M.S. for luminance		2.87484	2.6101
2) SNR for luminance		38.98	39.798
3) Mean value of the step size		8.74	7.5
4) Mean value of the number of non-zero coefficients		2.63	2.44
5) Mean value of the number of zeroes before the last non- zero coefficient		10.18	10.15
6) Block type of Y	Intra	1	0
	Fixed	1118	1157
	Inter	149	270
	Fixed MC	146	63
	Inter MC	168	94
	Intra	C_R C_B C_{R+C_B}	1 0 1
7) Block type of C	Fixed	C_R C_B C_{R+C_B}	279 206 485
	Inter	C_R C_B C_{R+C_B}	114 189 303
	Fixed	C_R C_B C_{R+C_B}	290 168 458
	Inter	C_R C_B C_{R+C_B}	106 228 334
	Attr.	Y C_R C_B Total	2494 512 585 3591
			2407 502 624 3533
8) Number of bits	EOB words	1875	2094
	Motion Vectors	2514	1256
	Coeff.	Y C_R C_B Total	8536 1289 2111 11936
			9242 1115 2684 13041
	Total	19919	19924

Sequence : Checked Jacket

Item		Average of the whole sequence	The 15th encoded picture	
=====				
1) R.M.S. for luminance		3.62099	3.69962	
=====				
2) SNR for luminance		36.973	36.768	
=====				
3) Mean value of the step size		9.58	10.0	
=====				
4) Mean value of the number of non-zero coefficients		3.34	4.25	
=====				
5) Mean value of the number of zeroes before the last non-zero coefficient		14.63	17.63	
=====				
6) Block type of Y	Intra	3	2	
	Fixed	1123	1165	
	Inter	304	252	
	Fixed MC	45	55	
	Inter MC	107	110	
=====				
7) Block type of C	Intra	C_R	0	0
		C_B	0	0
		C_R+C_B	0	0
	Fixed	C_R	325	352
		C_B	346	366
		C_R+C_B	671	718
	Inter	C_R	70	44
		C_B	49	30
		C_R+C_B	119	74
	Attr.	Y	2446	2369
		C_R	466	440
		C_B	445	426
Total		3358	3235	
=====				
8) Number of bits	EOB words		1605	1314
	Motion Vectors		1219	1320
	Coeff.	Y	12638	13053
		C_R	441	370
		C_B	277	230
		Total	13356	13653
	Total		19539	19522
	=====			

Sequence : Split/Trevor

Item		Average of the whole sequence	The 15th encoded picture	
1) R.M.S. for luminance		4.0379	5.09245	
2) SNR for luminance		36.194	33.992	
3) Mean value of the step size		11.25	13.78	
4) Mean value of the number of non-zero coefficients		4.02	3.54	
5) Mean value of the number of zeroes before the last non-zero coefficient		11.2	10.15	
6) Block type of Y	Intra	86	23	
	Fixed	852	754	
	Inter	144	212	
	Fixed MC	119	218	
	Inter MC	381	377	
7) Block type of C	Intra	C_R	14	16
		C_B	13	8
		C_R+C_B	27	24
	Fixed	C_R	320	300
		C_B	319	322
		C_R+C_B	639	622
	Inter	C_R	61	80
		C_B	63	66
		C_R+C_B	124	146
	Attr.	Y	2796	3108
		C_R	464	492
		C_B	466	470
		Total	3727	4070
8) Number of bits	EOB words		2190	2346
	Motion Vectors		4096	4760
	Coeff.	Y	18337	16690
		C_R	691	1155
		C_B	724	829
Total		19753	18674	
Total		29768	29850	