

Source : NL

Title : Performance of Macroblock based configuration at 64 kbit/s

1. Introduction

Because of the bad performance of RM4 on 64 kbit/s (see doc #242), the configuration described in doc #302 is evaluated in this paper for videophone applications.

2. Experiments

The results of the simulations are based on:

- * Claire 10 Hz
- * Miss America 10 Hz

3. Conclusions

The simulation and the statistics (annexed to this paper) show that:

- * The number of bits for the overhead (macro block attributes) is about 10 %.
- * The image quality is rather good in spite of annoying mosquito effects, which could be reduced by post codec filtering.
- * The macro block approach ensures the compatibility with the 384 kbit/s configuration.

STATISTICS REFERENCE MODEL :

DATE : 19 - 1 - 1988

SEQUENCE : MISS AMERICA 64 kbit/s

MODIFICATION : MACRO BLOCKS

ITEM		15th Picture	Mean whole seq.	
1. RMS for luminance		3.373	3.642	
2. SNR		37.569	36.903	
3. Mean value of step size		29.999	29.129	
4. Mean value of the number of non-zero coefficients		2.091	1.809	
5. Mean value of the number of zeroes before the last NZ-coefficient		2.498	2.219	
6. Block type of MACRO	FIXED	251	222	
	CODED MC	80	101	
	FIXED MC	23	31	
	CODED	42	40	
	INTRA	0	0	
7. Block type of Y	FIXED	1129	1005	
	CODED MC	160	161	
	FIXED MC	252	370	
	CODED	43	45	
	INTRA	0	1	
8. Block type of UV	FIXED	720	692	
	CODED	72	98	
	INTRA	0	0	
9. Number of bits	Macro attributes		629	673
	Classification indexes		406	416
	End of block		1464	1696
	Motion vectors		824	1064
	Coefficients	Y	2275	1845
		U	205	197
		V	224	421
		Total	2704	2464
Total		6027	6315	

STATISTICS REFERENCE MODEL :

DATE : 20 - 1 - 1988

SEQUENCE : CLAIRE 64 kbit/s

MODIFICATION : MACRO BLOCKS

ITEM		15th Picture	Mean whole seq.	
1. RMS for luminance		3.552	3.705	
2. SNR		37.121	36.756	
3. Mean value of step size		43.493	27.106	
4. Mean value of the number of non-zero coefficients		2.622	2.689	
5. Mean value of the number of zeroes before the last NZ-coefficient		4.996	4.349	
6. Block type of MACRO	FIXED	270	283	
	CODED MC	37	48	
	FIXED MC	0	2	
	CODED	89	60	
	INTRA	0	0	
7. Block type of Y	FIXED	1303	1280	
	CODED MC	106	128	
	FIXED MC	42	77	
	CODED	133	96	
	INTRA	0	1	
8. Block type of UV	FIXED	756	741	
	CODED	36	49	
	INTRA	0	0	
9. Number of bits	Macro attributes		611	575
	Classification indexes		478	452
	End of block		1512	1314
	Motion vectors		296	414
	Coefficients	Y	3273	3202
		U	136	247
		V	99	118
		Total	3508	3568
Total		6405	6325	

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