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A CONTRIBUTION TO VIDEO MULTIPLEX CODING

1 - THE ATTRIBUTE METHOD

The I series recommandations of CCITT introduces the concept of the attribute method (see Red Book I 130 and I 211). It is designed only to qualify the bearer services but it can be extended to qualify any transmission identifier or characteristic for a telecommunication service.

In the case of videoconference, it might be useful to introduce this concept in the video multiplex coding. Several classes of attributes may be identified, according to their rate of transmission : frame rate, line-of-blocks rate, block rate. Within this classification, a distinction can also be made between attributes depending or not on the coding algorithm. The examples given in the next paragraph will clarify this classification.

2 - BLOCK TRANSPORT ATTRIBUTES

This paragraph intends to define attributes transmitted at block-rate or line-of-blocks rate and related to the transmission and general coding decision for each block. They should comprehensively be independant of the coding method inside the block. Four attributes are necessary:

.../...

Attr. # 1 : Fixed block (0) / Non fixed (1)

Attr. # 2 : No Motion compensation (0) / Motion compensation (1 + 8 bit motion vector)

Attr. # 3 : Non transmitted block (0) / Transmitted (1)

Attr. # 4 : Intraframe coded block (0) / Interframe (1).

Here follow some examples with different cases :

0	:	Non moving block
1 0 0	:	Background block
1 0 1 0	:	Intraframe coded block
1 0 1 1	:	Interframe coded block
1 1+MV 0	:	Motion compensated block
1 1+MV 1	:	Motion compensated with coded residue.

3 - BLOCK PRESENTATION ATTRIBUTES

Those strongly depend on the coding algorithm. With the example of DCT, one could have :

- Class number (eg. 4 bits)
- Last coefficient address (eg. 5 to 8 bits)
- Quantiser number (eg. 3 bits)
- etc...

4 - FIELD ATTRIBUTES

The field subsampling attribute is the most obvious but others could be envisaged. Here follow some examples :

- Split-screen
- Buffer size
- Subsampling mode.

5 - CONCLUSION

A clear method of describing the parameters of coding in the video multiplex has been defined and can be used. A first approach is given for several types of attributes.