Telecommunication Standardization Sector Study Group 15 Experts Group for ATM Video Coding (Rapporteur's Group on Part of Q.2/15)

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## INTERNATIONAL ORGANISATION FOR STANDARDISATION ORGANISATION INTERNATIONALE DE NORMALISATION ISO-IEC/JTC1/SC29/WG11 CODED REPRESENTATION OF PICTURE AND AUDIO INFORMATION

ISO-IEC/JTC1/SC29/WG11/MPEG92/342

Source:

PTT and BT Labs

Title:

Bit savings on the prediction weight code

Purpose: Proposal

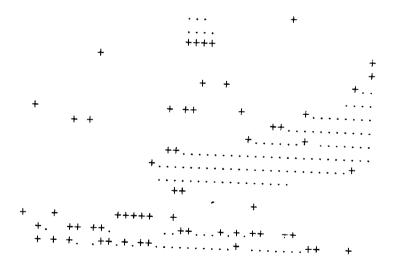
Compatible/spatial scalable systems use the so called spatio-temporal prediction to improve the image quality. In the current syntax given in TM4.2 this is signalled at every macroblock with a 2bits field (prediction\_weight\_code), in a compatible system with the current syntax 79200 bits/s.

In principle it is possible to define the prediction\_weight\_code in a similar way as quantizer\_scale, that is, coding the field only if it changes.

## 1. Simulations

In order to investigate the effectiveness of such a change, simulations have been carried out. The number of occurrences of each compatible prediction mode is given in tables 1, 2 and 3 for the table tennis, flower garden and calendar sequences. Each was coded with 1.15Mbit/s coding the lower layer and a further 2.85Mbit/s coding the upper layer.

An example of the raw data is given below for the table tennis sequence, where '.' indicates spatial prediction, '+' spatio-temporal prediction and ' temporal prediction.



## 2. Results

The statistical results are shown in tables 1, 2 and 3. Table 4 shows the zero order entropy for prediction weight codes and the bits/macroblock needed to code these weight codes if a VLC set of codes of length 1, 2 and 2 bits is used. Table 5 shows the first order entropy for prediction weight codes and the bits/macroblock needed to code these weight codes if a VLC set of codes of length 1, 2 and 2 bits is used, if the weights are only coded when they change.

Previous	Current Macroblock Compatible Type		
<del></del>	<u>Spatial</u>	Temporal	Spatio-temporal
Spatial	31175	2497	3291
Temporal	2611	8882	2378