

Source : France, Sweden, Italy

Title : Classification technique.

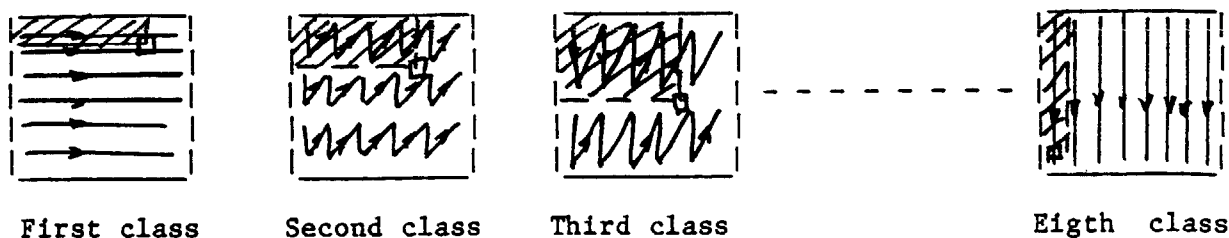
* Scanning classes

In order to determine the shortest way to reach the non zero coefficients in the transformed block, it is envisaged to use up to 8 scanning classes. This technique has to be combined with an "end of block" code (EOB) to indicate when the last non zero coefficient has been reached.

From a hardware point of view, it leads to store 8 arrays of 64 6 bits words which requires a 3072 bits memory. There is of course some extra hardware to compare the address of the last non zero coefficient according to each scanning.

* Zonal technique

When associating 8 scanning classes with 64 possible EOB, $8 \times 64 = 512$ zones can be defined : the beginning of a scanning before the last non zero coefficient is equivalent to a zone. Appropriate scanning classes and EOB may lead to rectangle zones (See Fig 1).



□ End of block

//// rectangle zone

Fig. 1

* Conclusion

Scanning techniques seem to include zonal techniques provided adequate scanings to be used. The hardware complexity is limited to a 3072 bits PROM and some comparisons. It allows a large flexibility during the field trials by changing the contain of the PROM.

From a hardware view point it is preferable to have fewer scanning classes than eight. Similarly eight classes seem to be more than necessary according to the simulation results at 384 kbit/s in Europe. But one has to take into consideration that more sophisticated classification strategies could be needed at 64 kbit/s. Therefore, it is suggested to still allow eight classes as the maximum.

The extra overhead due to the number of classes has to be compared to the gain when reducing the mean value of the number of zeroes between the non zero coefficients, and particularly to the reference model.