International Telegraph and Telephone
Consultative Committee
(CCITT)

Document N° 72
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Question 4/XV
Specialist group on coding
for visual telephony

TITLE : Examples of simulation with hybrid coding scheme (DCT)

SOURCE : France

The french simulation results, presented during the meeting in Ipswich, have been achieved according to the coding scheme depicted in document n° 36 "HYBRID CODING", and the following parameters have been used.

Picture format

COST sequence

Luminance : 312 X 288 Chrominance : 90 x 72
10 pictures/second (intermediate format subsampled 3 to 1).

Miss America

Luminance : 360 x 288 Chrominance : 180 x 144
15 pictures/second (intermediate format subsampled 2 to 1).

Checked Jacket

Luminance : 360 x 288 Chrominance : 180 x 144
10 pictures/second (intermediate format subsampled 3 to 1).

Bit-rate

304 kbit/s = 256 kbit/s (Y) + 24 kbit/s (U) + 24 kbit/s (V).

Transform

COST sequence 16 x 16 DCT for luminance
4 x 4 for chrominance

Miss America 16 x 16 DCT for both luminance and chrominance.

Checked Jacket 16 x 16 DCT for both luminance and chrominance.

Motion estimation

Motion estimation is done by full search block matching on luminance. The block size is 16 x 16. The maximum displacement is limited between - 8 and + 8. The movement resolution is 1 pel.

Predictor

Intra frame, inter frame with no motion compensation or inter frame with motion compensation.

Quantisation strategy

Energy adapted and zonal non linear quantisation.
Energy adapted scanning.

Variable length coding

Zonal variable length codes.

Transmission buffer

Buffer size : 25 kbits.

Standard conversion

* Frame repeat from to 10 Hz to 30 Hz for the COST sequence and the Checked Jacket sequence.

* Frame repeat from 15 Hz to 30 Hz for Miss America sequence.

Linear interpolation from 30 Hz to 50 Hz according to BT-NTT document n°55.

Preprocessing

Temporal noise reduction.

Postprocessing

Spatial noise reduction.

Frame structure

See french document n° 58 "A contribution to video multiplex coding".