International Telegraph and Telephone
Consultative Committee
(CCITT)
Period 1989-1992

Doc. #399
Nov. 1988
Original: English

Question: XV/4 Specialists Group

STUDY GROUP XV - CONTRIBUTION

Source: AT&T, Bellcore, DIS, PictureTel

Title: Picture format for p x 64 kbps video telephony

It is proposed that three picture formats are included in the p x 64 kbps video telephony standard. The proposed formats are shown in Table 1:

	Luma Resolution	Chroma Resolution	Implementation
1/4 CIF	180 x 144	90 x 72	Required
4/9 CIF	240 x 192	120 x 96	Optional
Full CIF	360 x 288	180 x 144	Optional

Table 1: Proposed resolution options

For the following reasons, 4/9 CIF should be included along with full CIF as an optional resolution format.

1. A less expensive hardware implementation is possible for a codec implementing only 4/9 CIF and 1/4 CIF. This is attributable to the following:

    a. Reduced computational requirement due to the smaller total number of pixels to process.

    b. Reduced memory requirement for storage of the video frames.

2. Resolution of 4/9 CIF is sufficient for scenes comprising small groups of people, typical of conferencing applications.

3. Conversion between PAL or NTSC and 4/9 CIF can be done simply, without adding significant cost for the conversion hardware. Table 2 shows the conversion ratios for resolution conversion

between PAL or NTSC and each of the three proposed resolution formats. The conversion ratios from PAL video are very simple in all cases, resulting in very simple conversion hardware. Conversion to 4/9 CIF from NTSC video is of similar complexity to 1/4 CIF conversion, resulting in no additional burden to support 4/9 CIF.

	Conversion from NTSC	Conversion From PAL
1/4 CIF	3:5	1:2
4/9 CIF	4:5	2:3
Full CIF	6:5	1:1

Table 2: Resolution conversion ratios

4. 4/9 CIF is not a required format. Therefore, implementation of any additional conversion hardware is not required.