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Working Party XVI

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Specialists Group on Coding for Visual Telephony

SOURCE: DELTA INFORMATION SYSTEMS
TITLE: A TAPE CONTAINING A RANGE OF VIDEOPHONE SCENES

At the Stockholm meeting of the Specialists Group it was agreed that one of the key applications for mx 56/64 Kbit/s video coding "is the videophone which is characterized by head-and-shoulders pictures shown on a monitor that is typically smaller than 12 inches." In the process of preparing candidate video scenes for simulation activities by the Specialists Group Delta Information Systems (DIS) developed a range of potential videophone images which may be of general interest. The purpose of this contribution is to

1) describe alternative locations of videophone equipment in the office.
2) describe a video tape containing 9 brief scenes which cover a wide range of videophone locations and camera fields of view
3) stimulate thought to be sure that the mx 56/64 Kbit/s codec is designed for the most representative videophone scene(s).

OFFICE LAYOUT

It is expected that initially videophone facilities will be limited to top-echelon executives but, once their utility has been proven, they will rapidly proliferate to middle-level personnel and beyond. Therefore, it is wise to consider various

office sizes and arrangements. It is assumed that in most cases the camera and monitor will be co-located to form a single videophone terminal. Three potential office layouts are shown on Figure 1.

The layout shown on top is primarily applicable to a rather spacious executive office. There is plenty of room in front of the desk for a camera and mid-size monitor, either in a fixed location against a wall or on a movable pedestal. After selection of a camera position and desired view of the person in the picture and consideration of the office light level, a suitable lens can be selected. Normally this will be a fixed focal length lens though in a few exceptional cases a remotely controlled zoom lens may be justified.

The middle layout shows the camera videophone terminal located directly on the desk. This setup is inherently less flexible from the standpoint of field of view. This layout has the advantage of being rather universal,independent of the office layout. All offices have desks. The videophone terminal can be highly standardized and therefore produced in large quantity.

The bottom of Figure 1 shows a different but frequently found office arrangement. The desk is placed directly against the wall and a work table is located behind the office occupant. The videophone terminal is mounted on this table. When using the videophone the office occupant turns around exactly as if he was talking to a person sitting at his table. It is unlikely that anything but a fixed focal length lens will be used in this

setup.

An important parameter is the field of view covered by the camera. The requirements for this may differ rather widely for various applications, from a limited head and shoulders view of a person to coverage of the whole desk top. The customary descriptions of these views are "close-up" and "wide angle" but these designations are much too vague and can cover many different situations.

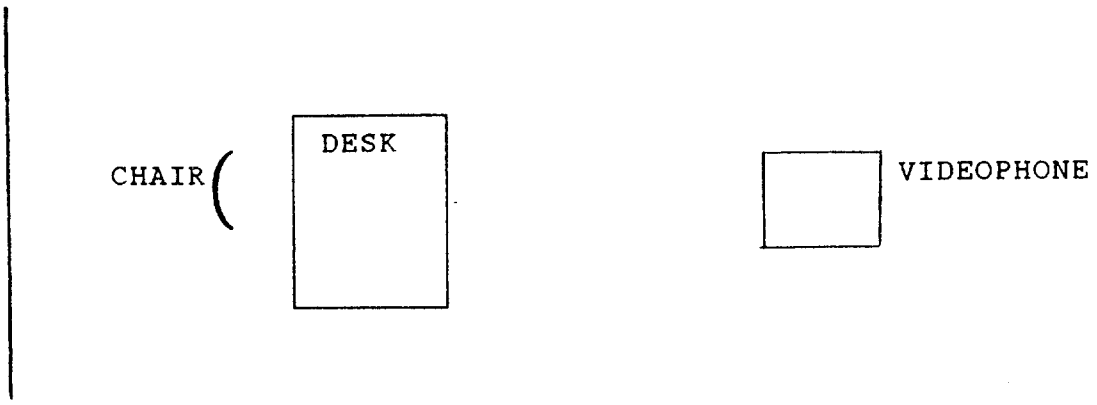
On the other hand, a firm numerical definition can be made by measuring the angles of the width and/or height of the field of view. This parameter, though technically excellent, is rather intangible and non-descriptive from a practical point of view and requires special measurements and calculations. Therefore, the practical parameter used here is to express the picture width in the number of shoulder widths of the person shown. Though this is an estimate rather than an exact measurement it defines the field of view in a straightforward manner directly related to the videophone application.

The Videophone Scenes Tape was prepared in a TV production studio under staged optimized conditions. A zoom lens could easily simulate any actual office environment. The height of the camera lens above the floor was 117 cm for scenes 1 to 4 and 7 to 9, putting it approximately at eye level of the person at the desk, while for scenes 5 and 6 it was lowered to 86 cm, putting it just 12 cm above the desk top.

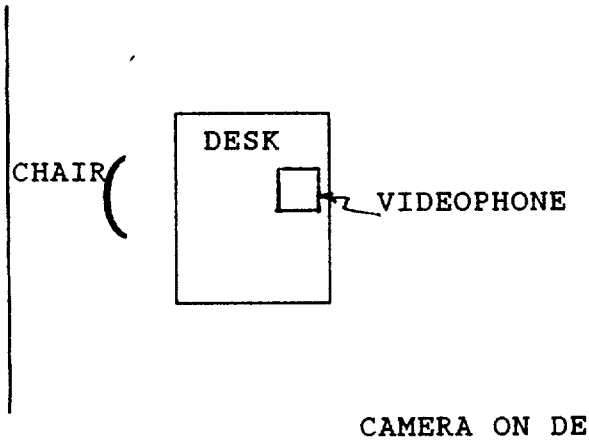
TAPE CONTENTS

The tape consists of 9 scenes, covering the three different layouts described above. Table 1 summarizes the key parameters for each scene. Different combinations of the field of view and type of action are provided. An additional parameter listed is the visibility of the desk top which can be important in the discussion of printed or written material.

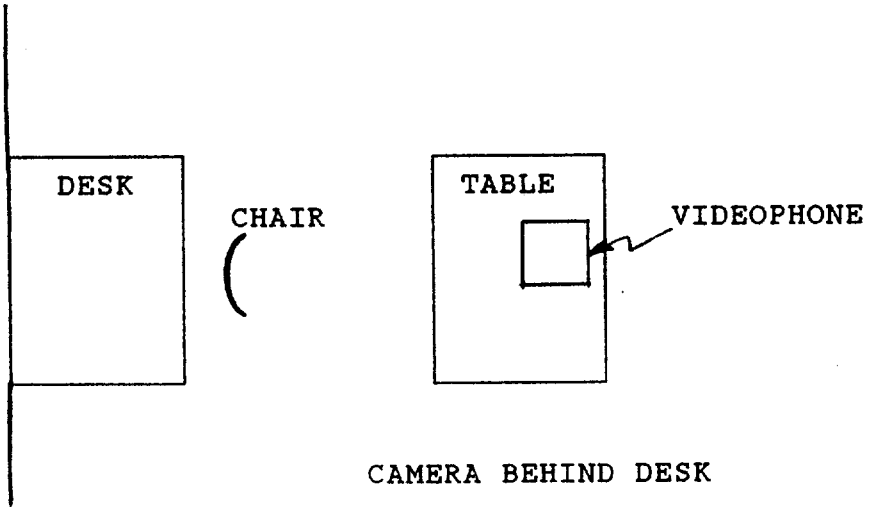
Excluding the color bars at the beginning, the total length of the tape is about 10 minutes. The lengths of each scene are variable but average about 1 minute.



CAMERA IN FRONT OF DESK



CAMERA ON DESK



CAMERA BEHIND DESK

FIGURE 1 VIDEOPHONE OFFICE LAYOUTS

SCENE NO.	CAMERA LOCATION	ACTION	FIELD OF VIEW (SHOULDER WIDTHS)	DESK TOP VISIBILITY
1	FRONT OF DESK	TELEPHONE CALL	5	MOST
2	FRONT OF DESK	EQUIPMENT DEMONSTRATION	3	LESS THAN HALF
3	FRONT OF DESK	TELEPHONE CALL	2	LITTLE
4	FRONT OF DESK	MAGAZINE ARTICLE DISCUSSION	1.2	NONE
5	ON DESK	EQUIPMENT DEMONSTRATION	1.5	NONE
6	ON DESK	SALES TALK	1	NONE
7	BEHIND DESK	EQUIPMENT DEMONSTRATION	4	ALL
8	BEHIND DESK	EQUIPMENT DEMONSTRATION	3	MOST
9	BEHIND DESK	EQUIPMENT DEMONSTRATION	1.3	ALMOST NONE

TABLE 1. VIDEOPHONE SCENES TAPE CONTENTS