

INTERNATIONAL TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

COM XV-NO 28

Period: 1985-1989
Questions: 4/XV

Date: April 1985

STUDY GROUP XV - CONTRIBUTION NO

SOURCE: United States of America
TITLE: An Analog Video Tape to Test Full Motion Video Codecs

An analog test tape has been produced for the National Communications System, an agency of the U.S. Government by Delta Information Systems, Inc. It consists of 49 samples of pictorial data that may be used in a teleconference either at present, or visualized to be used in the foreseeable future. The tape has a duration of about 31 minutes and each test sequence is followed by a 10 second interval for scoring by a group of observers.

It is possible that this test tape could prove useful in the test and evaluation of full motion video codecs by providing a degree of uniformity of input pictorial data. In this way tests performed by a range of experimenters, manufacturers, and users may be compared on a meaningful basis.

The purpose of this contribution is to advise the CCITT that copies of the tape are available from Delta Information Systems. A detailed description of the tape including procedures for ordering are attached. Both one inch and 3/4 inch formats are available, but it is recommended that the one inch format will be required for careful evaluation of alternative coding techniques.

AN ANALOG VIDEO TAPE TO BE USED
FOR TESTING MOTION VIDEO CODECS

The test tape, produced for the National Communications System by Delta Information Systems, Inc., is designed for the subjective evaluation of the performance capabilities of motion video codecs. It contains samples of pictorial material that may be used in a teleconference either at present, or visualized to be used in the foreseeable future. By deliberately going beyond present requirements, the test tape material stresses the performance limits of the codecs. To achieve its full potential, the high quality 1" version of the tape must be used but a 3/4" version is also available for general viewing purposes.

The test tape has a length of about 31 minutes. It consists of 49 sequences averaging about 28 seconds in length, each followed by a 10 second interval for scoring by a group of observers. Pictorial material of different types was obtained from a variety of sources and incorporated in the test tape in a random sequence. The mix of material is such that it is representative of any teleconference. Table 1 is a summary of the various types of information contained in the 49 test segments.

Eleven sequences are still graphics. They consist of slides, lettering, typed and printed matter in both black and white and color. Colors are chosen to provide the full range of luminance and chrominance contrast. Animated graphics use similar material but include camera zooming, pointers, computer animation and other limited motion. Ten such sequences are included.

The major portion of the test tape is devoted to people in different positions and all types of motion, both fast and slow. In addition, many sequences include camera panning and zooming. From one to six people are simultaneously in the picture. Both plain and patterned backgrounds are used. Sixteen sequences show people exclusively while nine more also contain graphics, such as maps, marker boards or viewgraphs.

Finally, there are three identical sequences showing people with little motion. They are used exclusively in conjunction with a bit error inserter to check the codec under conditions of transmission errors.

The largest portion of the tape originated in a local TV production facility where a simulated teleconference was set up. Various slides and computer generated material also were produced there. Scenes in an actual teleconference environment were taped at ATT Picturephone Meeting Service, ISACOMM and Satellite Business Systems facilities. A small amount of previously prepared material from the Defense Communications Agency, the Air Force Systems Command and the Navy Underwater System Center was added at the end of the tape. These scenes may easily be excluded when performing tests for non-military applications.

The tape may be ordered from the following address:

Delta Information Systems, Inc.
Horsham Business Center, Bldg. 3
300 Welsh Road
Horsham, PA 19044

Ordering information is provided below:

| <u>Part No.</u> | <u>Tape Format</u> | <u>Price</u> |
|-----------------|--------------------|--------------|
| VTTM-75 | 3/4 inch | \$120.00 |
| VTTM-100 | 1 inch | \$350.00 |

For additional information call (215) 657-5270.

TABLE 1

SUBJECTIVE EVALUATION TAPE SCENARIO

| Sequence No. | Still Graphics | | | Animated Graphics | | | Graphics with People | | | | People | | | Duration (Sec) | Remarks |
|--------------|----------------|----------|--------------|-------------------|--------------|--------------|----------------------|---------------|----------|-----------|--------|-------------|---------------|----------------|---------------------------|
| | Source | Material | Subj. Matter | Material | Subj. Matter | Subj. Matter | Subj. Matter | Camera Motion | Position | Number | Motion | Back-ground | Camera Motion | | |
| - | E | C | S | | | | | | | | | | | 20 | Color Bar Chart |
| - | E | C | S | | | | | | | | | | | 10 | Title |
| 1 | C | | | | | | | | D | 6 x 1 | A | B | X | 20 | |
| 2 | I | | | | | | | | D | 6 | A | P | - | 15 | |
| 3 | E | C | P | | | | | | | | | | | 20 | |
| 4 | S | | | | | | | | D | 3 + 3 | S | P | - | 30 | |
| 5 | C | | | | | | B | X, Z | U | 1 | L | | | 22 | |
| 6 | C | | | | | | M | X, Z | D | 1 | A | B | | 20 | |
| 7 | P | | | B, C | M, V | X, Y | | | | | | | | 27 | |
| 8 | E | | | C | Q | Q | | | | | | | | 23 | Computer Animation |
| 9 | C | | | | | | | | | | | | | 30 | |
| 10 | D | | | | | | V | - | U | 1 | A | B | - | 20 | |
| 11 | C | C | S | | | | | | | | | | | 20 | SMPTE |
| 12 | C | | | B | P | Z | | | | | | | | 14 | Aerial Photo |
| 13 | I | | | C | H | X | | | | | | | | 15 | |
| 14 | P | | | | | | | | D | 6 | S | P | - | 13 | |
| 15 | C | B | D, T | | | | | | | | | | | 20 | |
| 16 | D | C | P | | | | | | | | | | | 20 | |
| 17 | I | | | | | | | | | | | | | 30 | |
| 18 | E | C | P | | | | | | D | 2, 6 x 1 | A | P | X, Z | 44 | |
| 19 | S | | | | | | E | X, Z | U | 1 | S | | | 20 | |
| 20 | C | | | | | | | | D | 1 + 1 | S | P | - | 30 | |
| 21 | P | | | | | | | | D | 2 + 2 + 2 | S, A | P | - | 43 | Frequent Camera Switching |
| 22 | C | | | | | | M | X, Z | U, W | 1, 2 | L | | | 35 | |
| 23 | E | | | C | Q | Q | | | | | | | | 25 | Computer Animation |
| 24 | C | | | | | | | | U | 1 + 1 | A, L | P | - | 30 | Repeat of 11 |
| 25 | C | C | S | | | | | | | | | | | 20 | Monitor Cross-Check |

LEGEND TO TABLE 1

Source

A Air Force
C Center City Video-Studio
D DCA
E Center City Video-Electronic
I ISACOMM
N Navy
P PMS
S SBS

Animated Graphics

Material

B Black & White
C Color

Subject Matter

F Circuit Board
H Hand Drawing
M Map
P Printed Material
T Typed Page
V Viewgraph

Motion

X Pan & Tilt
Y Pointing
Z Zoom

Still Graphics

Material

B Black & White
C Color

Subject Matter

D Diagram
P Print Sample
S Slide
T Typed Page

Graphics with People

Subject Matter

B Marker Board
E Easel
M Map
V Viewgraph

Camera Motion

X Pan & Tilt
Z Zoom

Position

D Sit
U Stand
W Walk

Motion

A Average
L Lively
S Slow

People

Position

D Sit

U Stand

W Walk

Motion

A Average

L Lively

S Slow

Background

B Busy

P Plain

Camera Motion

X Pan & Tilt

Z Zoom

All Categories

Q Various