CCITT SGXV

Working Party XV/1
Specialists Group on Coding for Visual Telephony

DOCUMENT #492
Oslo
March 1989

TITLE: A Signal Generator to Test P x 64 kbit/s Video Decoders

SOURCE: Delta Information Systems, Inc (DIS); USA

VERSION: March 2. 1989

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A SIGNAL GENERATOR TO TEST P x 64 Kbit/s VIDEO DECODERS
MODEL VT - 64

1.0 OVERVIEW

Study Group XV of the CCITT has formed a "Specialists Group on Coding for Visual Telephony" for the purpose of developing a Recommendation for a video codec operating at P x 64 Kbit/s. Several countries participating in the Specialists Group activity are developing Flexible Hardware Prototype equipment as part of this standardization effort. Delta Information Systems has agreed to develop a signal generator to test the P x 64 Kbit/s video decoder to assist in the development of the Flexible Hardware. The purpose of this document is to specify the technical characteristics of the tester.

2.0 ELECTRICAL CHARACTERISTICS

- GENERAL SIGNAL CHARACTERISTIC

In accordance with Study Group XV Flexible Hardware specification, to be finalized at the Oslo meeting, March 1989.

- POWER SOURCE

95 to 250 VAC, 50 - 60 Hz

- OUTPUT SIGNALS

Basic signal which emulates the 64 Kbit/s video encoder output:

- o HDB3 Code at the primary rate of 2048 Kbit/s ± 50PPM, ± 2.37 V, 75 ohms, or B8ZS Code at the primary rate of 1544 Kbit/s ± 50 PPM, ±3.0 V, 100 ohms unbalanced, (either rate is switchable).

- o Sync signals to assist in system analysis
  - * ISDN Multiframe sync
  - * PSC Sync
  - * Video Period Sync
  - * Bit Clock
  - * NRZ Data

- SIGNAL STRUCTURE

  - o Continuous test pattern or real-life image available at power up
  - o QCIF Format
  - o Video Period
    - * 398 Pictures
    - * 83 Service Channel Multiframes
    - * 13.28 seconds
  - o Picture Rate 29.9699 pictures/second (meets 29.97 ± 50 ppm spec.)
  - o Temporal Subsampling 3:1 (Nominally 10 pictures coded per second)
  - o Test Pattern Content - see Figure 1
    - * 11 equal gray bars
    - * 18 different colors
    - * 2 edges moving 2 pels each coded picture, one intra coded, and one inter coded with motion compensation
    - * gray bars reversing twice each video period, with 50 % duty cycle, using inter coding
    - * a uniform ramp of gray values
    - * one macro block having a detailed pattern
  - o Real-life Image Content
    - * 13.28 second of "Claire".
  - o In order to avoid a discontinuity in Temporal Reference (TR), TR will not repeat with indicated period, but will be incremented by 3 for each coded picture.

- SIGNAL STORAGE MEDIUM

  - o PROM: TYPE 27512 (64K x 8)
  - o Signal stored in 8 PROMs
  - o All signal elements except Temporal Reference are stored in PROMs and can be modified by changing PROMs.

3.0 MECHANICAL CONFIGURATION - see Figure 2

- APPROXIMATE SIZE

HEIGHT:	5 1/4 inches (13 cm)
WIDTH:	13 3/4 inches (35 cm)
DEPTH:	9 1/2 inches (24 cm)

PK

APPROMIXMATE WEIGHT: 10 pounds (4.5 kg)

- FRONT PANEL CONTROLS
  Power switch
  Primary Rate Select switch
  Test/Real pattern switch

- CONNECTORS

VIDEO:	BNC UNBALANCED
	IS4903 BALANCED
ISDN MULTIFRAME SYNC:	BNC
PSC SYNC:	BNC
VIDEO PERIOD SYNC:	BNC
BIT CLOCK:	BNC
NRZ DATA:	BNC
POWER:	PLUG Receptacle IEC 32/CEE-22

4.0 DOCUMENTATION

A technical manual will be delivered with each tester. The manual will include the following elements:

- Operating instructions
- Technical description
- Electrical schematic diagram

5.0 WARRANTY

90 days: parts and labor

6.0 SHIPPING

F.O.B., Horsham, PA

7.0 DELIVERY

June 1989, except PROM's containing real-life signal may not be delivered until August 1989.

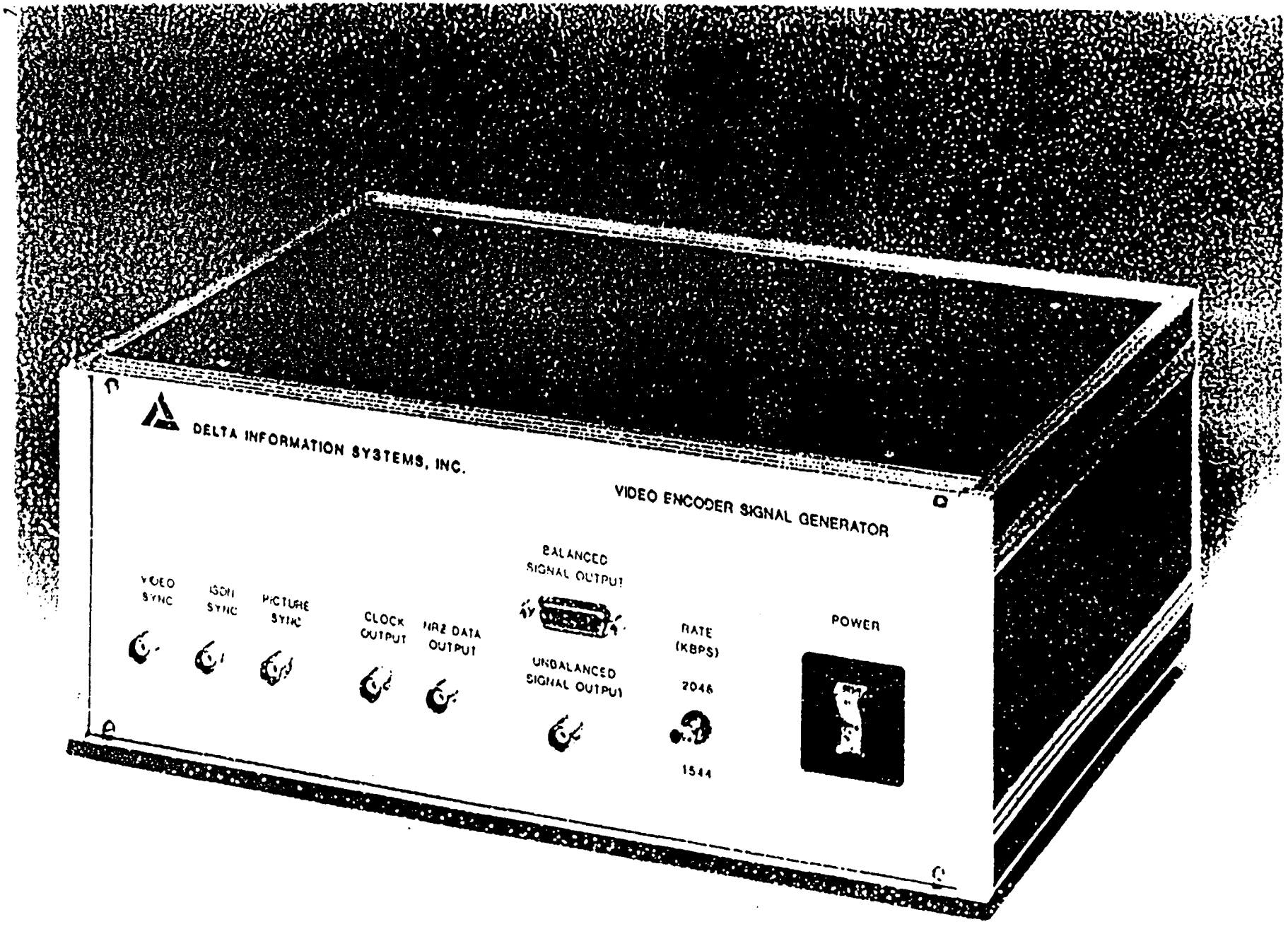
DELTA INFORMATION SYSTEMS, INC.
VIDEO ENCODER SIGNAL GENERATOR
VIDEO SYNC
LINE SYNC
PICTURE SYNC
CLOCK OUTPUT
NRZ DATA OUTPUT
BALANCED SIGNAL OUTPUT
UNBALANCED SIGNAL OUTPUT
RATE (KBPS)
2048
1544
POWER

FIGURE 2

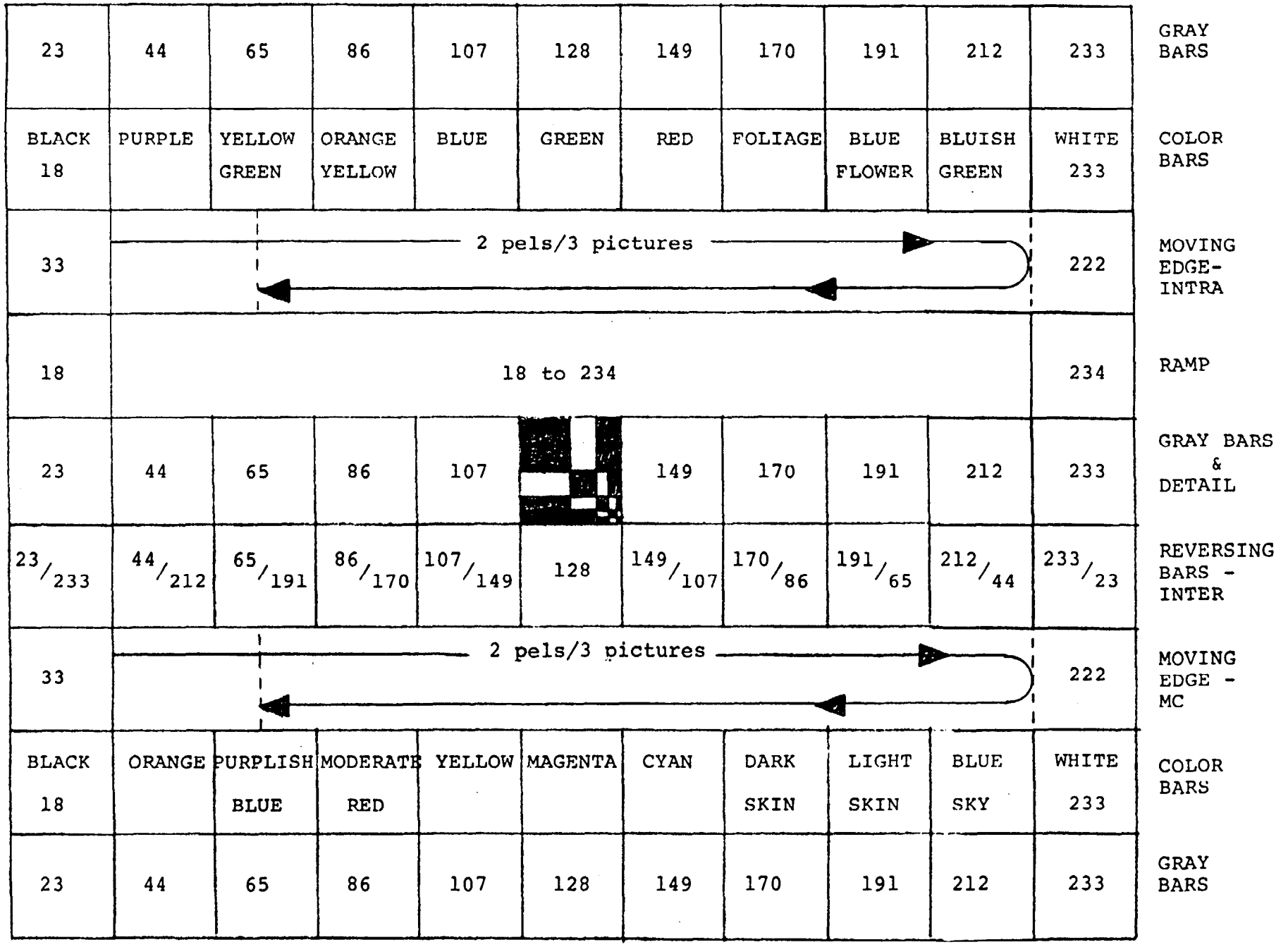

FIGURE 1 TEST PATTERN