

EASTMAN KODAK COMPANY

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# **"KODAFAX"**

**35mm Film Scanner/Transmitter and Receiver Station**  
featuring  
**Transbit™ Image Compression**

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# Scanner/Transmitter and Receiver Product Requirements

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# Scanner/Transmitter and Receiver Product Requirements

## 1. SCOPE AND INTENT

This document is intended to define the features, functions and performance specifications for the entire scanner/transmitter product. Also the portions of the product to be provided by EPD and those to be provided by the bidding party will be defined. The document will attempt to provide enough detail to support a meaningful bid.

## 2. GENERAL DESCRIPTION

The KodaFax scanner/transmitter consists of a 35mm continuous tone scanner, monitor, keyboard and transmitter in a rugged, portable case. 35mm color or B&W negatives or slides are digitized by the scanner, then displayed on the monitor for cropping, zooming or manipulating the contrast and exposure as desired. A short annotation may be entered via the keyboard to caption the image.

In order to keep the transmission times as short as possible the image is compressed using Kodak's proprietary TransBit™ image compression algorithm. This significantly reduces the amount of time required to send an image while causing little or no image degradation.

The KodaFax transmitter works over standard telephone lines to a digital receiver or an analog Wirephoto receiver. The transmitter also has interchangeable computer interfaces for interfacing with higher bandwidth transmission equipment, such as communications satellites.

The Receiver Station for reception of the compressed images from the Scanner/Transmitter consists of a high speed modem, compander board, digital storage unit, and a framestore for display. Also packaged with the Receiver at a minimum would be software for file conversion from compressed image format to the customers' preferred. The Receiver could be a Mac II computer configured with the EPD compander board, and framestore, a third party modem card and utilizing the hard disk for storage. Also the EPD Gen. II Digital Storage Device could be configured with the necessary boards and software and sold as a package.

# Scanner/Transmitter and Receiver Product Requirements

## 3. INPUT/OUTPUT REQUIREMENTS

### SCANNER/TRANSMITTER

#### INPUTS

- 35mm size color or B&W slides or negatives (mounted or unmounted)  
Other film sizes (TBD)
- TEL. Set USOC RJ-11C modular jack
- Power - detachable cord - 100-240VAC 50/60Hz  
12 Volt Power Input

#### OUTPUTS

- TEL. Line USOC RJ-11C modular jack
- Acoustic Phone Interface - Analog Transmission Only
- Interchangeable Computer Interfaces  
(SCSI, IEEE 488, Centronics, RS-232, etc. as determined by market needs)
- Composite Video Output
- RS-170A RGB Output
- Integral Color Monitor  
RGB input  
768 X 480 Resolution  
Small, compact 3.5" to 5" screen

### RECEIVER STATION

#### INPUTS

- TEL. Set USOC RJ-11C modular jack
- Power - detachable cord - 100-240VAC 50/60Hz
- Same Interchangeable Computer Interface as Scanner/Transmitter for direct connection to Scanner for local use.
- Keyboard input - For file identification and retrieval.

# Scanner/Transmitter and Receiver Product Requirements

## OUTPUTS

- TEL. Line USOC RJ-11C modular jack
- Acoustic Phone Interface - Analog Transmission Only?
- Interchangeable Computer Interfaces  
(SCSI, IEEE 488, Centronics, RS-232, etc. as determined by market needs)
- Composite Video Output?
- RS-170A RGB Output

# Scanner/Transmitter and Receiver Product Requirements

## OUTPUTS

- TEL. Line USOC RJ-11C modular jack
- Acoustic Phone Interface - Analog Transmission Only?
- Interchangeable Computer Interfaces  
(SCSI, IEEE 488, Centronics, RS-232, etc. as determined by market needs)
- Composite Video Output?
- RS-170A RGB Output

# Scanner/Transmitter and Receiver Product Requirements

## 4. MODES OF OPERATION

### ■ Auto Calibration

The Scanner/Transmitter will have an autocalibration mode like that used in the Digitized Pixel Transfer Stand. A slide or negative is inserted and the white balance button is depressed. The algorithm, by finding a peak white in the image automatically adjusts the color balance and contrast. This method will work with most typical scenes, when it may occasionally fail the user can manually adjust the color balance and contrast to give a pleasing reproduction.

### ■ Compose/Adjust

- Optical zoom, cro, fine tune color, contrast and exposure.

### ■ Transmit (Phone Line)

Supports following Analog Modes

AP/AM  
CCITT/AM  
CCITT/FM  
UPI/AM  
UPI/FM  
GOES/AM  
GMS/AM  
METEOSAT/AM  
Others

Supports following Digital Modes

Gen. II KSVX  
Transbit RGB

### ■ Digital link to Computer

- SCSI, IEEE 488 and others. Operation controlled by computer.

# Scanner/Transmitter and Receiver Product Requirements

## 5. USER INTERFACE/FEATURES

- ◆ Simple User Controls
  - Zoom and cropping
  - Gray level modification (color balance)
  - Gamma correction
  - Image enhancement
  - Alpha-numeric captioning
  - Compression on/off
  - Focus adjustment
- ◆ Standard 84 key keyboard for captioning images.
- ◆ Integral color monitor for previewing and manipulating images.
- ◆ Integral film holder accepts from one frame to a full roll.
- ◆ Horizontal and vertical adjustments for film positioning
- ◆ Compact, portable case (attache size)



# Scanner/Transmitter and Receiver Product Requirements

## 6. PERFORMANCE REQUIREMENTS

6.1 RESOLUTION - 2800 DPI at film

6.2 ZOOM RANGE - 6 to 1 Optical Zoom

6.3 GRAY LEVEL LIMITS -

6.4 GAMMA LIMITS

6.5 COMPRESSION TIME -

6.6 BITS/PIXEL/COLOR

Uncompressed - 8 bits

Compressed - Approximately 1.3 bits

6.7 MAX. # OF CHARACTERS IN CAPTION - 1024

6.8 TRANSMISSION TIME - TBD

# Scanner/Transmitter and Receiver Product Requirements

## 7. RELIABILITY

The following requirements are for the complete product.

### 7.1 USAGE RATE

The assumed yearly usage rate for a high volume user (90th percentile) is (TBD) with an acceptable return rate of 10 percent per year (Based on current product maximum return rate specification).

### 7.2 INFANT MORTALITY

The early life failure rate of the product shall be less than twice the MTBF.

### 7.3 MEAN TIME BETWEEN FAILURE

MTBF = (TBD) HRS.

### 7.4 MINIMUM ACCEPTABLE LIFE

Minimum acceptable life (until wear out begins) shall be five times the yearly usage rate of a high volume user.  $5 \times (\text{TBD}) = (\text{TBD}) \text{ HRS.}$

## 8. MAINTENANCE

- Maintenance periods and procedures \*\*TBD\*\*

# Scanner/Transmitter and Receiver Product Requirements

## 9. SYSTEM PARTIONING (See Diagram on Next Page)

9.1 COMPRESSION BOARD INTERFACE  
NUBUS card

9.2 FRAMESTORE (DIGITAL)  
768 X 512 X 8bits RGB

INTERFACE - NUBUS card

9.3 FRAMESTORE VIDEO (ANALOG)  
Composite Video Output  
RGB Video Output

INTERFACE  
Part of Framestore Digital Board