

Vidicon

**LOW-POWER (0.6-WATT) HEATER
ELECTROSTATIC FOCUS**
**S-18 RESPONSE
MAGNETIC DEFLECTION**
For Transistorized, Low-Power, High-Performance TV Cameras
General:

Heater, for Unipotential Cathode:

 Voltage (AC or DC) $6.3 \pm 5\%$ volts
 Current at 6.3 volts. 0.095 amp

 Direct Interelectrode Capacitance:^a

Target to all other electrodes. 11 pf

Spectral Response S-18

 Wavelength of Maximum Response. $4500 + 500 - 300$ angstroms

Photoconductive Layer:

 Maximum useful diagonal of
 rectangular image (4×3
 aspect ratio) 1.0 inch

Orientation of quality rectangle—Proper orientation is obtained when the horizontal scan is essentially parallel to the straight side of the masked portions of the faceplate. The straight sides are parallel to the plane passing through the tube axis and short pin. The external masking is for orientation only and does not define the proper scanned area of the photoconductive layer. Final orientation should be such that the image fits inside of any internal mask of the mesh assembly.

Focusing Method Electrostatic

Deflection Method Magnetic

 Overall Length. $10.250" \pm 0.125"$

 Greatest Diameter $1.59" \pm 0.01"$

Operating Position. Any

Weight (Approx.). 11 oz

Bulb. T12

 Bulb Diameter $1.500" \pm 0.005"$

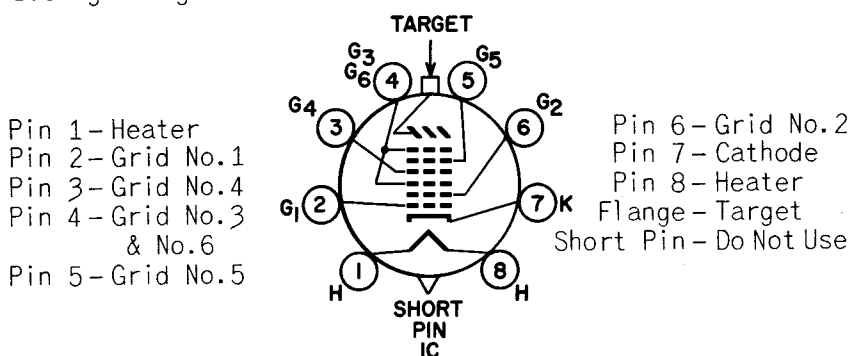
 Deflecting-Alignment Assembly^b. Cleveland Electronics^c

No. 15VYA-333, or equivalent

 Socket. Alden^d No. 208-SPEC, or equivalent

Base. Small-Button Super-Ditetra 8-Pin (JEDEC No. E8-78)

Basing Designation for BOTTOM VIEW. 8MD


 DIRECTION OF LIGHT:
 INTO FACE END OF TUBE


Maximum Ratings, Absolute-Maximum Values:*For Scanned Area of 0.6" x 0.8"*

Grid-No.6 & Grid-No.3 Voltage ^e	1500 max.	volts
Grid-No.5 Voltage ^e	1500 max.	volts
Grid-No.4 Voltage	500 max.	volts
Grid-No.2 Voltage	750 max.	volts
Grid-No.1 Voltage:		
Negative bias value	300 max.	volts
Positive bias value	0 max.	volts
Peak Heater-Cathode Voltage:		
Heater negative with respect to cathode.	125 max.	volts
Heater positive with respect to cathode.	10 max.	volts
Target Voltage.	125 max.	volts
Dark Current.	0.25 max.	μa
Peak Target Current ^f	0.6 max.	μa
Faceplate:		
Illumination.	1000 max.	fc
Temperature	71 max.	°C

Typical Operation and Performance Data:*For Scanned Area of 0.6" x 0.8"**Faceplate Temperature of 28° to 34° C*

Grid-No.6 (Decelerator) & Grid-No.3 Voltage ^e	1400	volts
Grid-No.5 Voltage ^e	700 to 840	volts
Grid-No.4 (Beam-Focus Electrode) Voltage.	230 to 260	volts
Grid-No.2 (Accelerator) Voltage	300	volts
Grid-No.1 Voltage for Picture Cutoff ^g	-45 to -100	volts
Lag: ^h		
Typical	25	%
Maximum	30	%
Average "Gamma" of Transfer Characteristic for Signal-Output Current between 0.02 μa and 0.6 μa.		
.	0.65	
Minimum Peak-to-Peak Blanking Voltage:		
When applied to grid No.1	75	volts
When applied to cathode	20	volts
Limiting Resolution:		
At center of picture—		
Minimum	1200	TV lines
Typical	1400	TV lines
At corners of picture—		
Typical	1000	TV lines
Amplitude Response to a 400 TV-Line Square-Wave Test Pattern at Center of Picture:		
Minimum	55	%
Typical	60	%



Alignment-Coil Field Strength ^j	0 to 2	gauss
Peak Deflecting-Coil Current for Specified Deflecting- Alignment Assembly:		
Horizontal	100	ma
Vertical	20	ma

Average-Sensitivity Operation

Faceplate Illumination (Highlight)	10	fc
Target Voltage ^{k,m}	20 to 60	volts
Dark Current ⁿ	0.02	μa
Signal-Output Current: ^p		
Typical	0.5	μa

Minimum-Lag Operation

Faceplate Illumination (Highlight)	50	fc
Target Voltage ^{k,m}	10 to 30	volts
Dark Current ⁿ	0.005	μa
Signal-Output Current: ^p		
Typical	0.5	μa

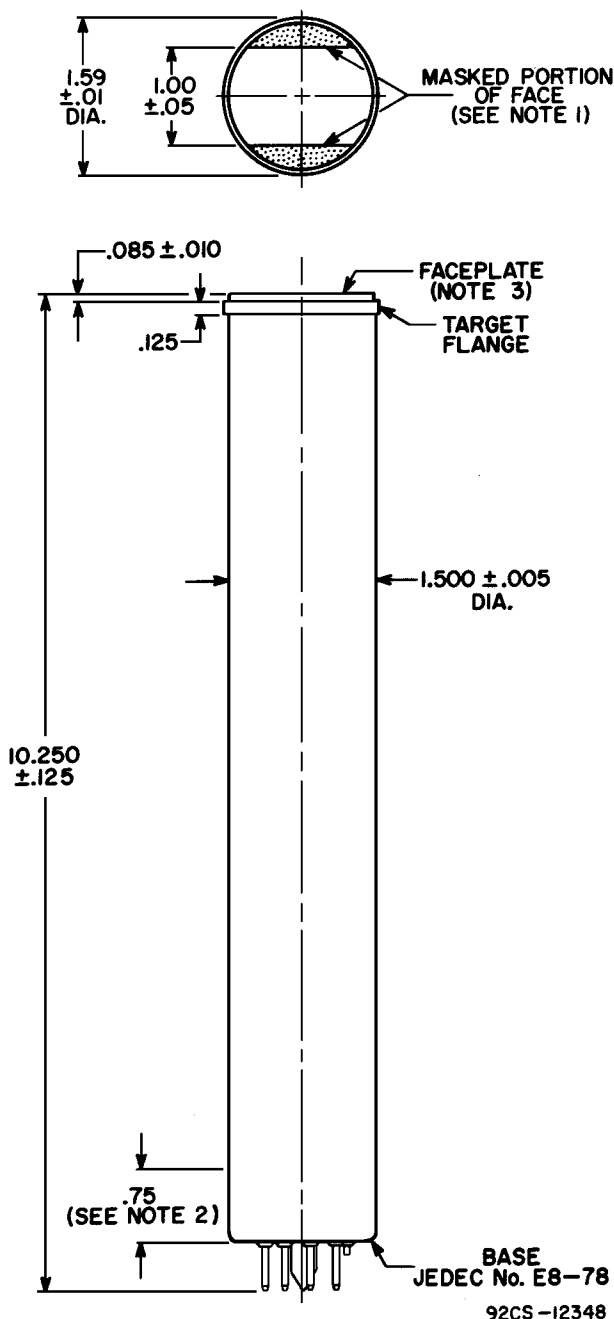
- ^a This capacitance, which effectively is the output impedance of the 8480, is increased when the tube is mounted in the deflecting-yoke assembly. The resistive component of the output impedance is in order of 100 megohms.
- ^b For minimum geometric distortion, the front of the deflecting yoke should be located in its proper axial position 3/4 inch from the face of the tube.
- ^c Cleveland Electronics Inc., 1974 East 61st St., Cleveland, Ohio
- ^d Alden Products Co., 9140 North Main St., Brockton 64, Massachusetts.
- ^e Grid-No.6 & 3 voltage must always be greater than grid-No.5 voltage. The maximum voltage difference between these electrodes, however, should not exceed 800 volts. The recommended ratio of grid-No.6 & 3 to grid-No.5 voltage is 1.67 to 2; best geometry being provided when the ratio is 1.67, and most uniform signal output when the ratio is 2. The operator should select the ratio within this range which provides the desired performance.
- ^f Video amplifiers must be designed to handle target currents of this magnitude to avoid amplifier overload or picture distortion.
- ^g With no blanking voltage on grid No.1.
- ^h Defined as the per cent of initial value of signal-output current 1/20 second after illumination is removed. Values shown are for initial signal-output current of 0.2 microampere and a dark current of 0.02 microampere.
- ^j The alignment coil should be located on the tube so its center is at a distance of 8-1/4 inches from the face of the tube, and be positioned so that its axis is coincident with the axis of the tube and the deflecting yoke.
- ^k Indicated range for each type of service serves only to illustrate the operating target-voltage range normally encountered.
- ^m The target voltage for each 8480 must be adjusted to that value which gives the desired operating dark current.
- ⁿ The deflecting circuits must provide extremely linear scanning for good black-level reproduction. Dark-current signal is proportional to the scanning velocity. Any change in scanning velocity produces a black-level error in direct proportion to the change in scanning velocity.
- ^p Defined as the component of the highlight target current after the dark-current component has been subtracted.

OPERATING CONSIDERATIONS

The *target connection* may be made by a suitable spring-finger contact bearing against the edge of the metal ring at the face end of the tube.



DIMENSIONAL OUTLINE



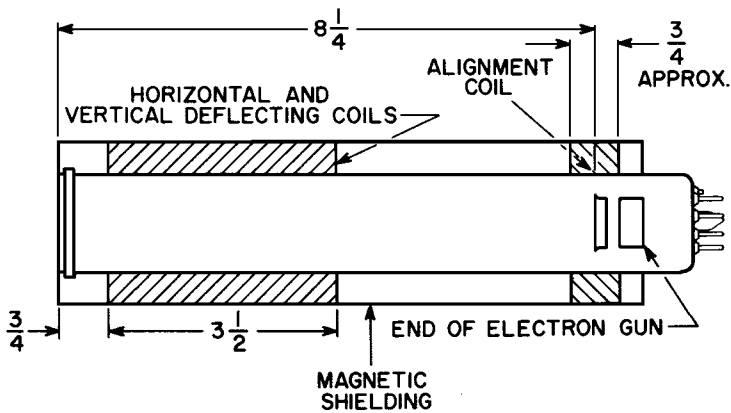
DIMENSIONS IN INCHES

Note 1: Straight sides of masked portions are parallel to the plane passing through tube axis and short index pin.

Note 2: Within this area the minimum bulb diameter dimension does not apply.

Note 3: Faceplate thickness is 0.135" $\pm$ 0.005".

COMPONENT LOCATIONS

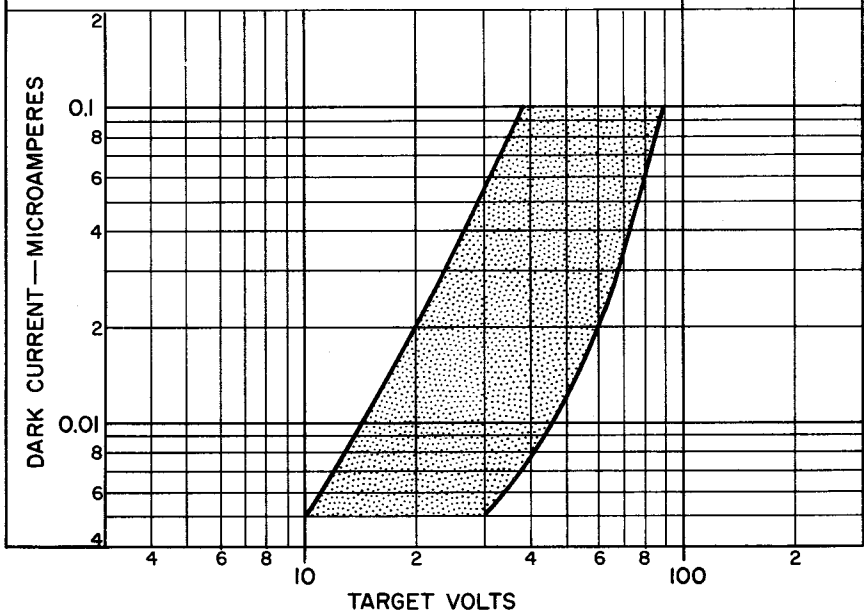


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DIMENSIONS IN INCHES

TYPICAL RANGE OF DARK CURRENT

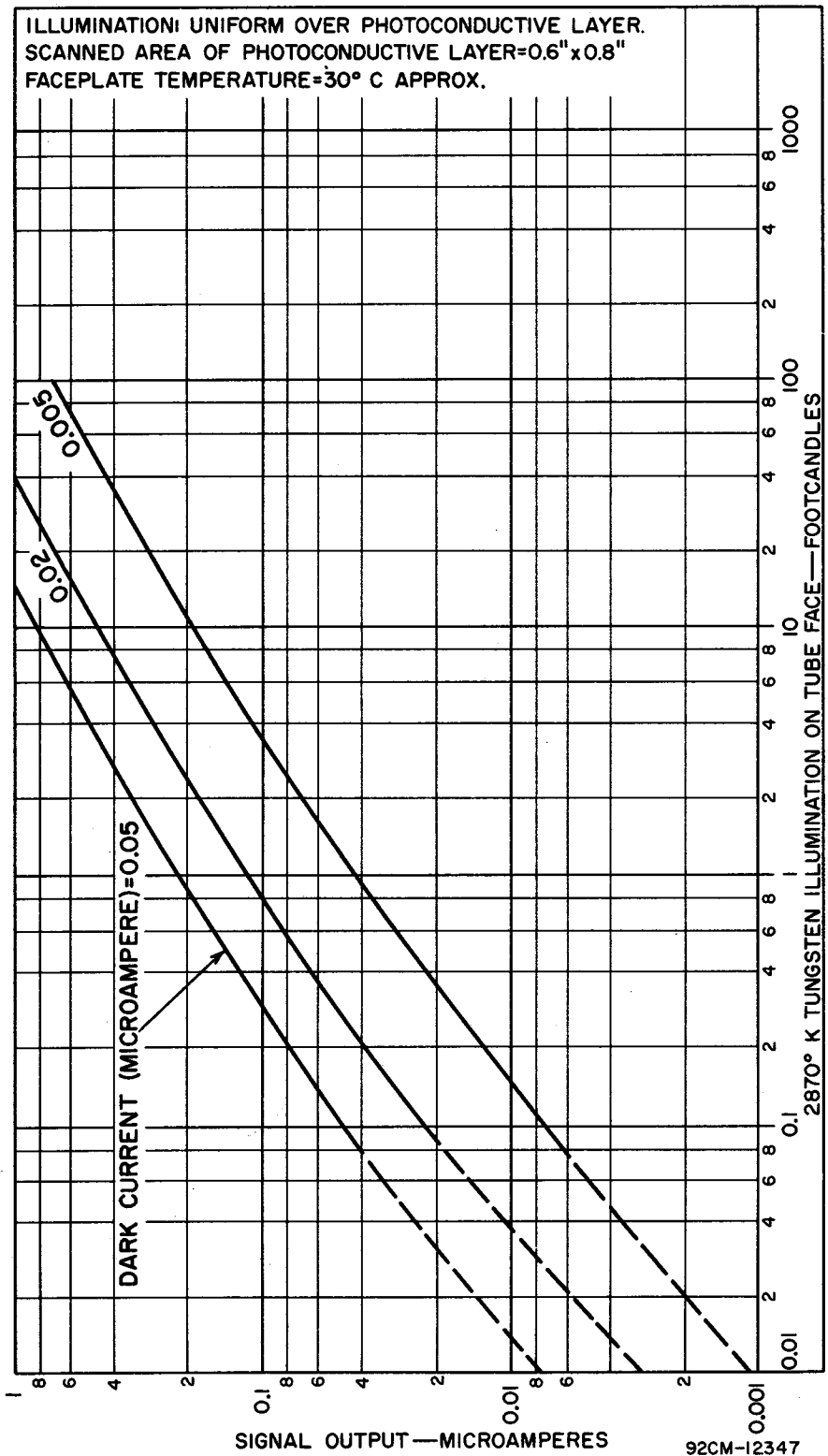
SCANNED AREA OF PHOTOCONDUCTIVE LAYER = $0.6'' \times 0.8''$
 FACEPLATE TEMPERATURE = 30°C APPROX.



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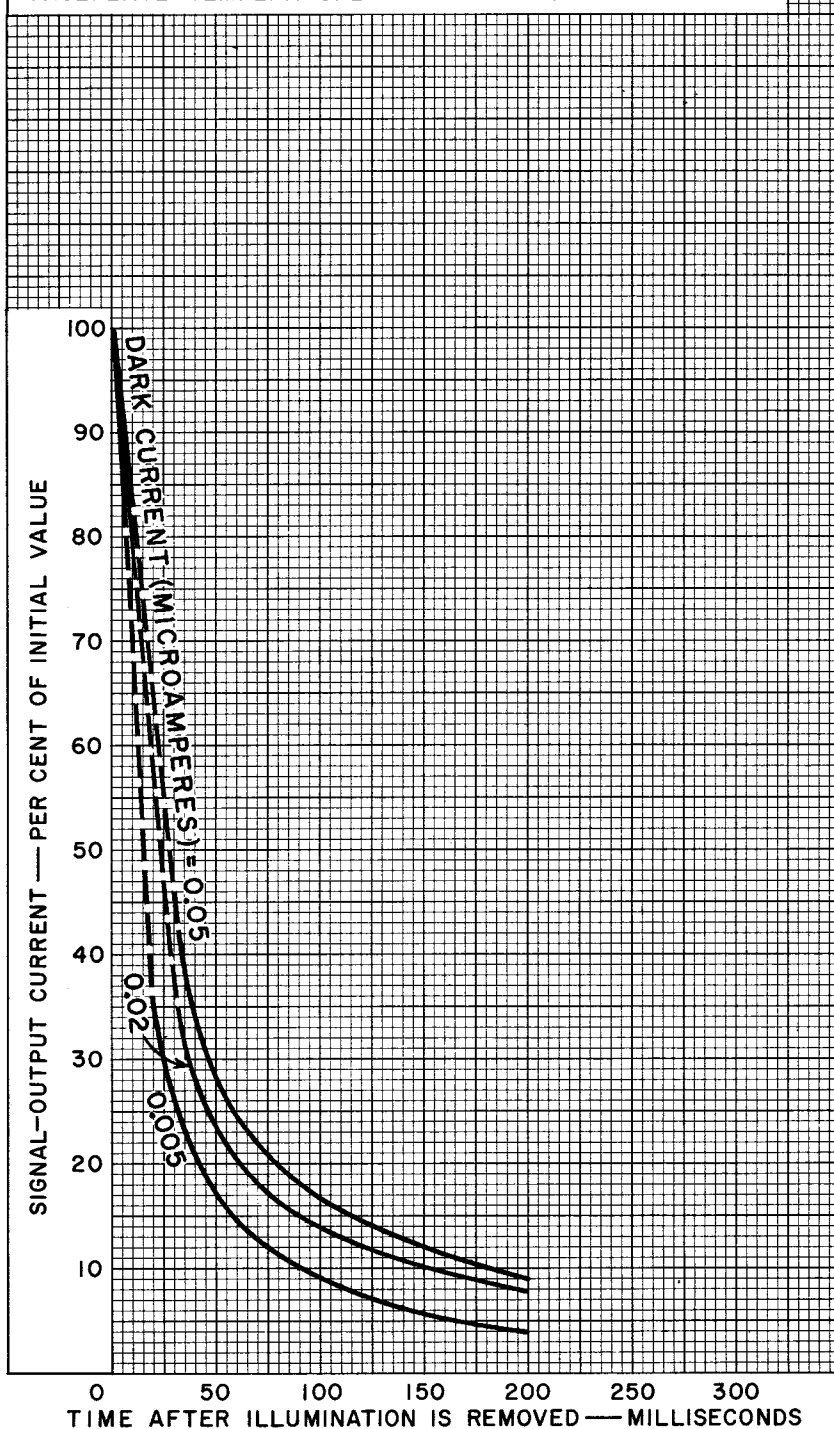


LIGHT TRANSFER CHARACTERISTICS



TYPICAL PERSISTENCE CHARACTERISTICS

INITIAL HIGHLIGHT SIGNAL-OUTPUT MICROAMPERES=0.2
 SCANNED AREA OF PHOTOCONDUCTIVE LAYER=0.6" X 0.8"
 FACEPLATE TEMPERATURE=30° C APPROX.

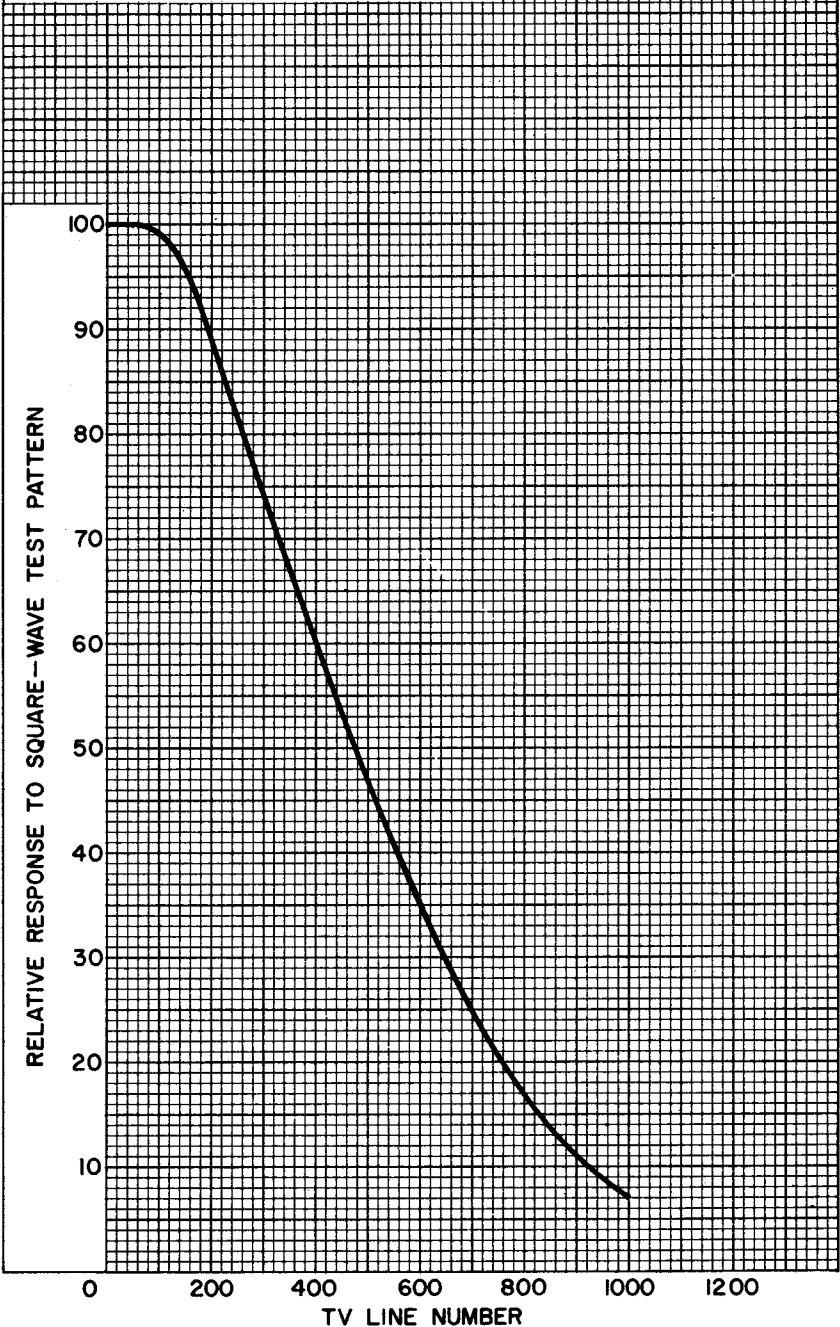


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UNCOMPENSATED HORIZONTAL RESPONSE TO A SQUARE-WAVE TEST PATTERN

HIGHLIGHT TARGET MICROAMPERES = 0.3
 DARK CURRENT (MICROAMPERES) = 0.02
 TEST PATTERN: TRANSPARENT SQUARE-
 WAVE RESOLUTION WEDGE.
 GRID—No. 6 & No. 3 VOLTS = 1400
 GRID—No. 5 VOLTS = 800
 GRID—No. 2 VOLTS = 300



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