

Vidicon

LOW-POWER (0.6-WATT) DARK HEATER
ELECTROSTATIC FOCUS **MAGNETIC DEFLECTION**
SEPARATE GRID-No.5 CONNECTION

*For Compact, Lightweight, Transistorized TV Cameras in
 Industrial and Other Closed-Circuit TV Systems.
 Well Suited for Black-and-White or Color Pickup.*

GENERAL

Heater, for Unipotential CathodeVoltage (AC or DC) $6.3 \pm 10\%$ V

Current at 6.3 V 0.095 A

Direct Interelectrode Capacitance^a 5.0 pF

Target to all other electrodes

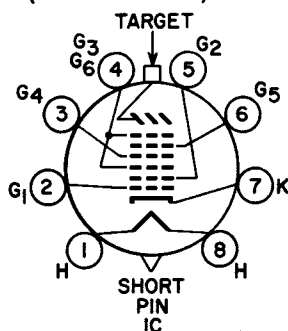
Spectral Response. See *Typical Spectral Sensitivity Characteristic***Photoconductive Layer.** 0.62 inMaximum useful diagonal of rectangle
image (4x3 aspect ratio)^b**Focusing Method.** Electrostatic**Deflection Method.** Magnetic**Overall Length** 6.25 ± 0.10 in**Greatest Diameter.** 1.125 ± 0.010 in**Operating Position** Any**Weight (Approx.)** 2.8 oz**Bulb** T8**Bulb Diameter.** 1.025 ± 0.003 in**Deflecting-Alignment Assembly.** Cleveland Electronics^c

No. VYA-300, or equivalent

Socket Cinch^d No. 133-98-11-015, or equivalent**Base** Small-Button Ditetra 8-Pin, (JEDEC No. E8-11)

TERMINAL DIAGRAM (Bottom View)

Pin 1-Heater
 Pin 2-Grid No.1
 Pin 3-Grid No.4
 Pin 4-Grid No.3 & No.6
 Pin 5-Grid No.2
 Pin 6-Grid No.5
 Pin 7-Cathode
 Pin 8-Heater
 Flange-Target
 Short Pin-Do Not Use



DIRECTION OF LIGHT:
INTO FACE END OF TUBE

8LN

ABSOLUTE MAXIMUM VALUES

For scanned area of $1/2 \times 3/8$ inch**Grid-No.6 & Grid-No.3 Voltage^e** 1350 V**Grid-No.5 Voltage^e** 1000 V**Grid-No.4 Voltage.** 400 V

← Indicates a change.



Grid-No.2 Voltage.	850	V
Grid-No.1 Voltage		
Negative bias value.	300	V
Positive bias value.	0	V
Peak Heater-Cathode Voltage		
Heater negative with respect to cathode.	125	V
Heater positive with respect to cathode.	10	V
Target Voltage	100	V
Dark Current	0.2	μA
Peak Target Current ^f	0.6	μA
Faceplate		
Illumination	5000 ^g	fc
Temperature.	71	°C

→ **TYPICAL OPERATION AND PERFORMANCE DATA**

For scanned area 1/2 x 3/8 inch and faceplate temperature of 30° to 35 °C

	Low Voltage Operation	Inter- mediate Voltage Operation	High- Voltage Operation	
Grid-No.6 (Decelerator) & Grid-No.3 Voltage	300	500	750	V
Grid-No.5 Voltage.	180	300	450	V
Grid-No.4 (Beam-Focus Electrode) Voltage.	{ 20 to 60	{ 50 to 100	{ 90 to 150	V
Grid-No.2 (Accelerator) Voltage	300	300	300	V
Grid-No.1 Voltage for Picture Cutoff ^h	{ -45 to -100	{ -45 to -100	{ -45 to -100	V
Typical Electrode Currents				
Grid No.6 & 3.	1.7	2.5	3	μA
Grid No.5.	0.05	0.2	0.3	μA
Grid No.4.	0.0015	0.006	0.008	μA
Grid No.2.	375	450	500	μA
Lag ^j				
Maximum value.	28	28	28	%
Typical value.	23	23	23	%
Visual Equivalent Signal-to-Noise Ratio (Approx.) ^k	300:1	300:1	300:1	
Average "Gamma" of Transfer Characteristic for Signal-Output Current between 0.02 μA and 0.2 μA	0.65	0.65	0.65	
Minimum Peak-to-Peak Blanking Voltage				
When applied to grid No.1.	75	75	75	V
When applied to cathode	20	20	20	V
Limiting Resolution at Center of Picture	600	700	800	TV Lines

→ Indicates a change.



Amplitude Response to a 400 TV Line Square-Wave Test Pattern

at Center of Picture.	17	25	33	%
Peak Deflecting-Coil Current				
Horizontal	95	110	125	mA
Vertical	10	12	14	mA
Field Strength of Adjustable				
Alignment Coil ^m	0 to 1	0 to 1	0 to 1	G

High-sensitivity operation—0.1 footcandle on faceplate

Faceplate Illumination (Highlight)	0.1	fc
Target Voltage ^{n,p}	30 to 60	V
Dark Current ^q	0.1	μA
Signal-Output Current ^r	0.1	μA

Average-sensitivity operation—1 footcandle on faceplate

Faceplate Illumination (Highlight)	1	fc
Target Voltage ^{n,p}	25 to 48	V
Dark Current ^q	0.035	μA
Signal-Output Current ^r		
Typical	0.265	μA
Minimum	0.25	μA

^a This capacitance, which effectively is the output impedance of the 8134, is increased when the tube is mounted in the deflecting-yoke assembly. The resistive component of the output impedance is in the order of 100 megohms.

^b Orientation of quality rectangle—Proper orientation is obtained when the horizontal scan is essentially parallel to the straight sides of the masked portions of the faceplate. The straight sides are parallel to the plane passing through the tube axis and short pin.

^c Made by Cleveland Electronics Inc., 1974 East 61st St., Cleveland, Ohio.

^d Made by Cinch Manufacturing Company, 1026 S. Homan Ave., Chicago 24, Illinois.

^e The maximum voltage difference between grids No. 6 & 3 and No. 5 should not exceed 750 volts.

^f Video amplifiers must be designed properly to handle peak target currents of this magnitude to avoid amplifier overload or picture distortion.

^g For condition where "white light" is uniformly diffused over entire tube face.

^h With no blanking voltage on grid No. 1.

^j 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 0.3 microampere and a dark current of 0.035 microampere.

^k Measured with high-gain, low-noise, cascode-input-type amplifier having bandwidth of 5 MHz and a peak signal-output current of 0.35 microampere. Because the noise in such a system is predominately of the high-frequency type, the visual equivalent signal-to-noise ratio is taken as the ratio of the highlight video-signal current to rms noise current, multiplied by a factor of 3.

^m The alignment coil should be located on the tube so that its center is at a distance of 4-15/16 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.

ⁿ Indicated range for each type of service serves only to illustrate the operating target-voltage range normally encountered.

^p The target voltage for each 8134 must be adjusted to that value which gives the desired operating signal current.

^q 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.

^r Defined as the component of the highlight target current after the dark-current component has been subtracted.



OPERATING CONSIDERATIONS

Resolution of the 8134 is about 600 TV lines per picture height when operated with a grid-No.6 & 3 voltage of 300 volts and a grid-No.5 voltage of 180 volts. A resolution capability of about 800 TV lines is obtained when the 8134 is operated with a grid-No.6 & 3 voltage of 750 volts and a grid-No.5 voltage of 450 volts.

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.

Do and Don'ts on Use of RCA-8134

Dos

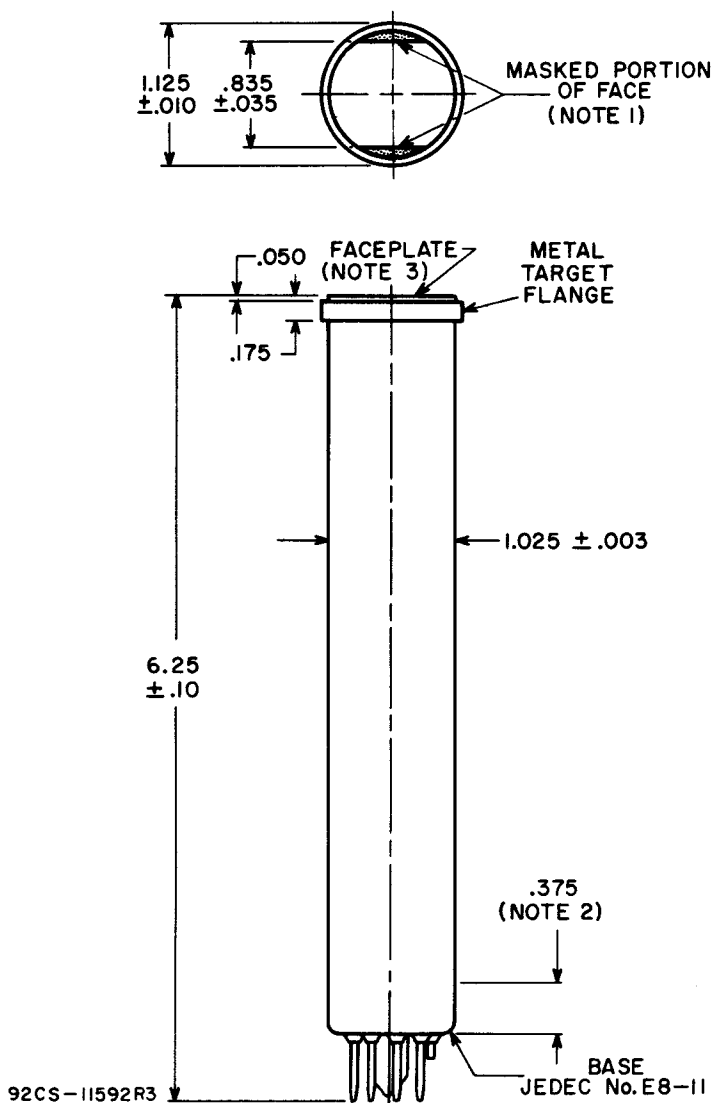
1. Adjust camera scanning to utilize maximum useful area of photoconductive layer.
2. Orient the vidicon so that horizontal scan is essentially parallel to the plane passing through tube axis and short index pin.
3. Align electron beam.
4. With lens capped, adjust target voltage for each individual vidicon to the highest value that will still give uniform background.
5. Match any visible raster pattern on photoconductive layer with new scan by reorienting the vidicon as required.
6. Use only sufficient beam current to bring out picture highlights.
7. Open lens iris or increase the scene illumination to obtain the "snappiest" picture without noticeable smear from moving objects. Target voltage should be reduced if light on the tube and/or resultant signal is excessive.
8. Always cap lens when transporting camera (see "Don'ts" 5).

Don'ts

1. Don't underscan the photoconductive layer.
2. Don't change camera size and centering controls once the scanned area of photoconductive layer has been properly positioned.
3. Don't rotate vidicon from its original operating position in deflecting yoke.
4. Don't turn beam of vidicon on without normal scanning or remove scanning before beam of vidicon is turned off.
5. DON'T ALLOW IMAGE OF THE SUN OR OTHER VERY INTENSE SOURCE OF ILLUMINATION TO BE FOCUSED ON PHOTOCONDUCTIVE LAYER AT ANY TIME.



DIMENSIONAL OUTLINE



DIMENSIONS IN INCHES

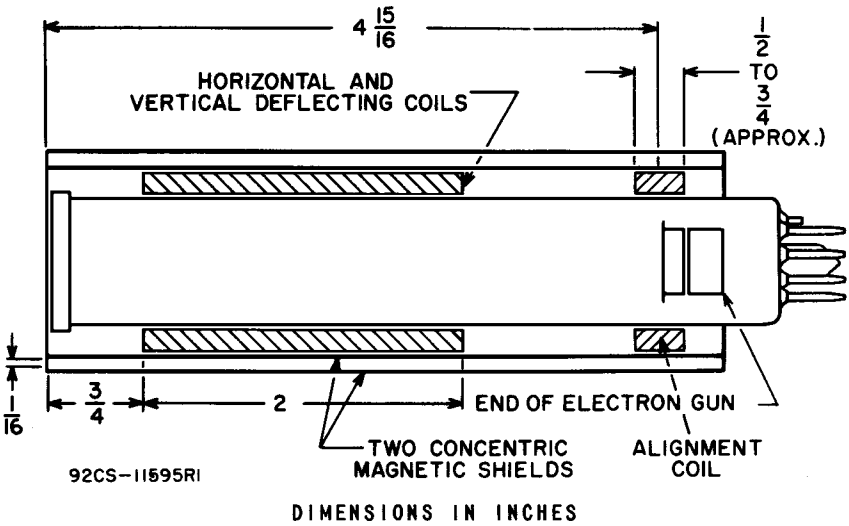
Note 1: Straight sides of masked portions are parallel to the plane passing through tube axis and short pin.

Note 2: Within this distance, diameter of bulb is 1.025 + 0.003-0.030 inches. Tube is acceptable regarding camber when it can be inserted into a 1-inch long cylinder gauge which has an inner diameter of 1.0280 + 0.0011-0.0000 inches. The gauge must pass along the tube length from the base to the metal target flange.

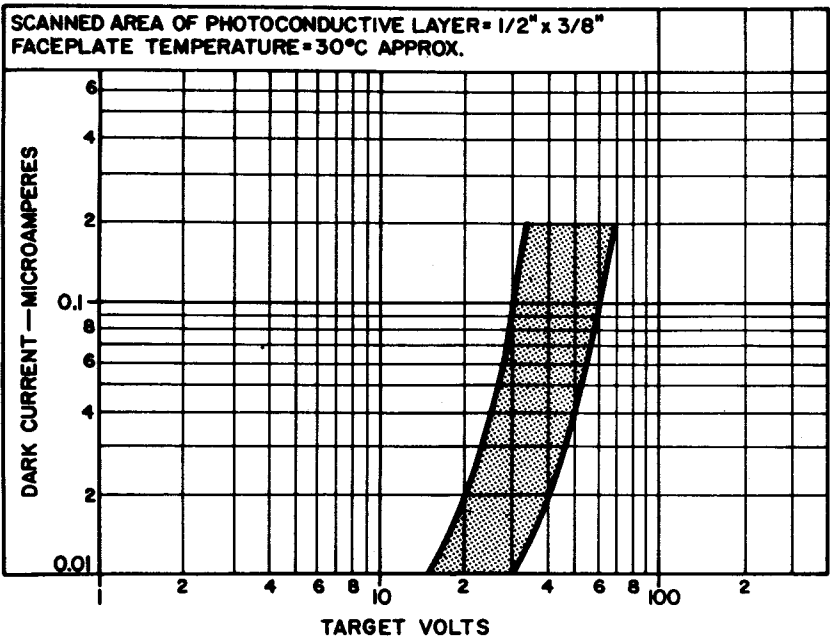
Note 3: Faceplate thickness is 0.094 $\pm$ 0.012 inches.



RECOMMENDED LOCATION OF DEFLECTING YOKE AND ALIGNMENT COIL
For optimum geometry and optimum output-signal uniformity



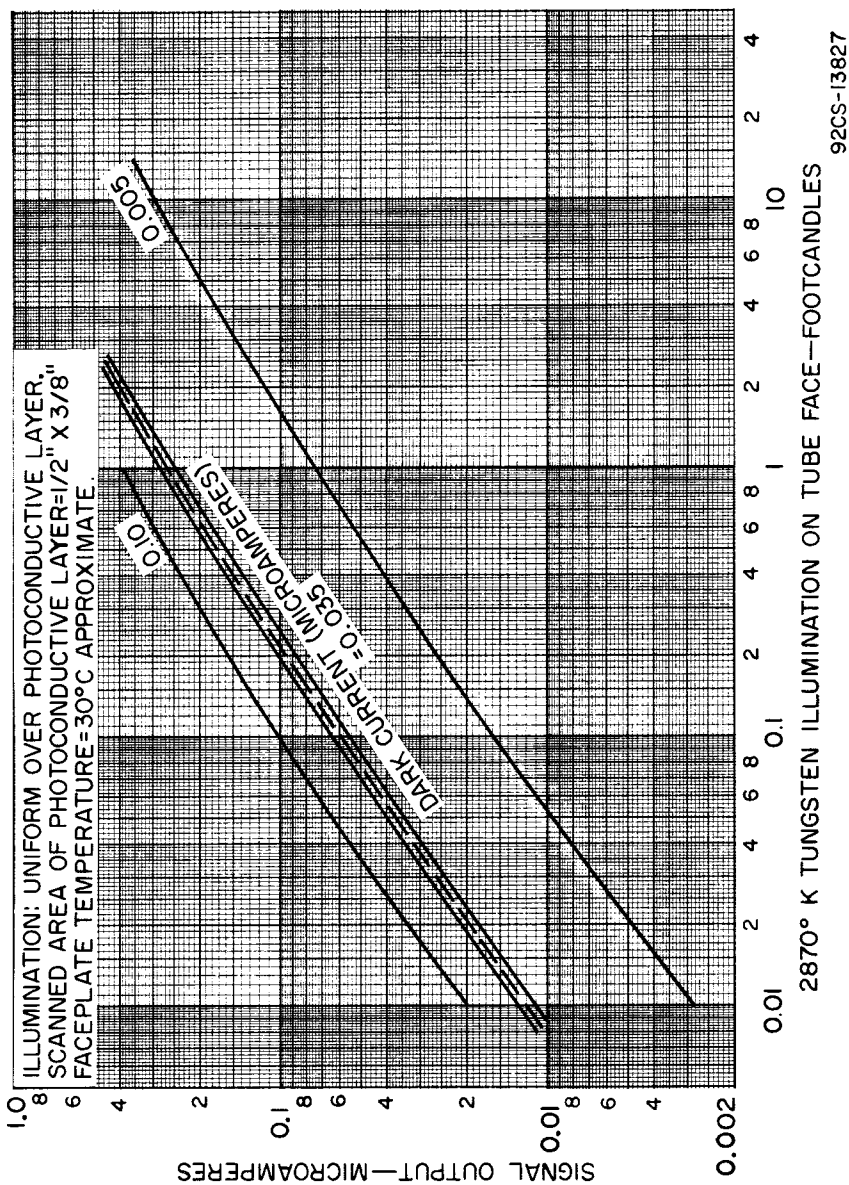
Range of Dark Current



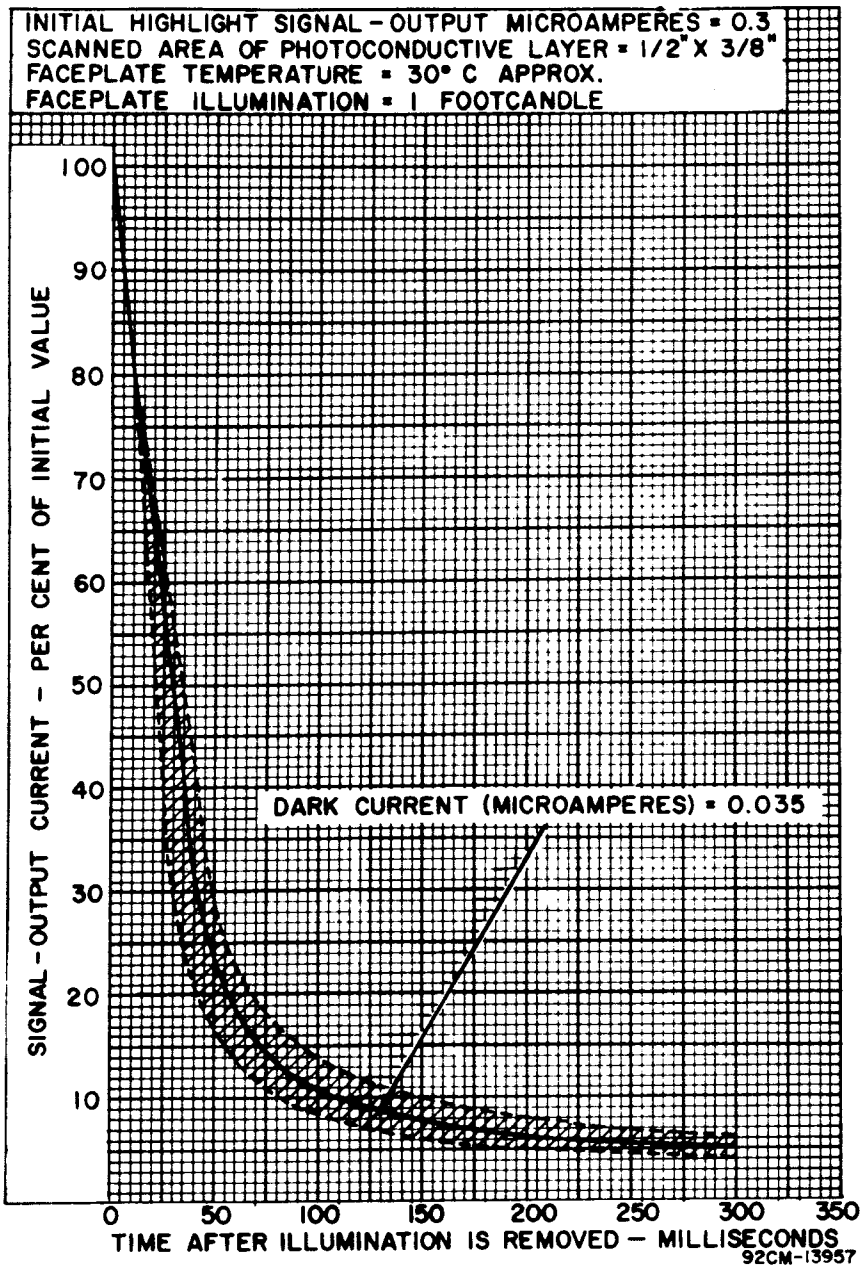
92LS-1467



Light Transfer Characteristics

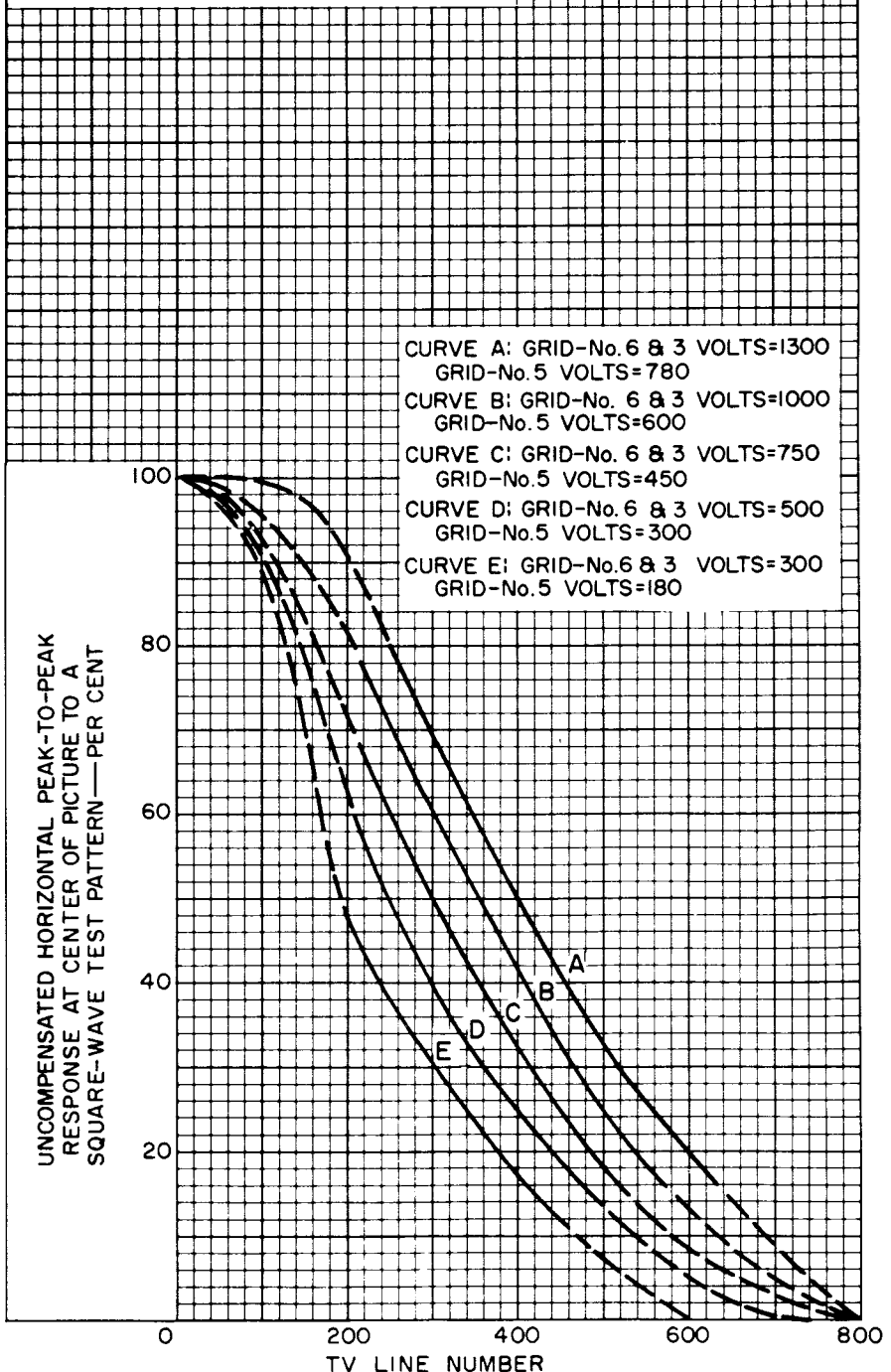


Typical Persistence Characteristic



Uncompensated Horizontal Square-Wave Response

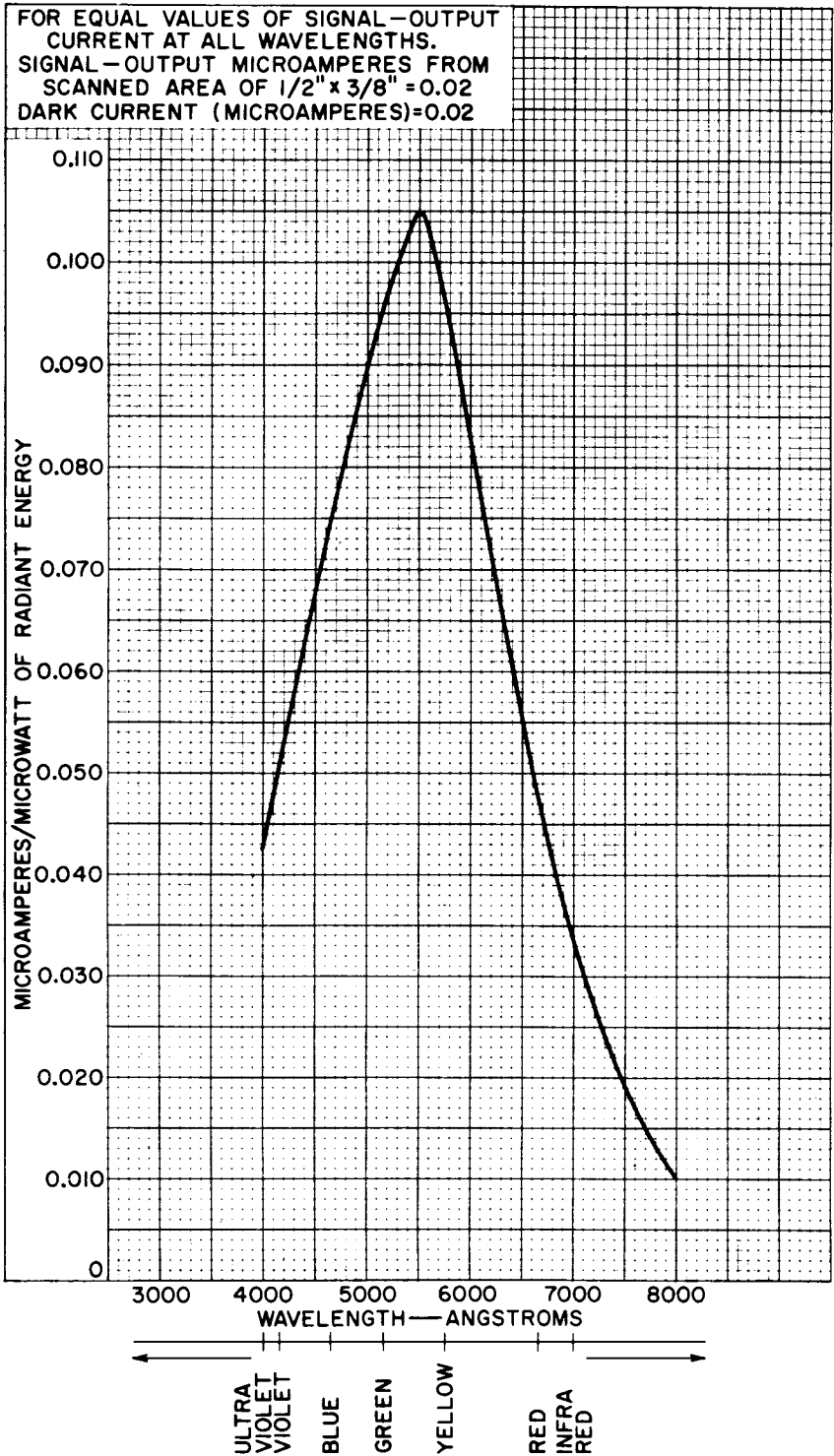
HIGHLIGHT TARGET MICROAMPERES=0.3
DARK CURRENT (MICROAMPERES)=0.02
TEST PATTERN: TRANSPARENT SQUARE-
WAVE RESOLUTION WEDGE.



92CM-13824



Typical Spectral Sensitivity Characteristic



92CM-11619

