

# Photomultiplier Tube<sup>a</sup>

9-STAGE, SIDE-ON TYPE

S-4 RESPONSE

CONTROLLED SENSITIVITY ABOVE WAVELENGTH OF 5800Å

The 4473 is the same as the IP21 except for the following items:

## Characteristics Range Values:

With  $E = 1000$  volts

	Min.	Typ.	Max.	
Sensitivity:				
Luminous, at 0 cps <sup>b</sup> . . . . .	40	160	800	a/lm
"Red-to-White" Ratio . . . . .	7	-	-	%

<sup>a</sup> Alternate designation for Multiplier Phototube.

<sup>b</sup> Under the following conditions: The light source is a tungsten-filament lamp having a lime-glass envelope. It is operated at a color temperature of 2870° K and a light input of 10 microlumens is used.

## OPERATING CONSIDERATIONS

Sensitivity of the 4473 above the wavelength of 5800 angstroms is controlled. This control is important in applications where a high-level of sensitivity in the red region of the spectral-response characteristic is required. The degree of this controlled sensitivity in the red region is specified by a "red-to-white" ratio of anode currents. Anode current is measured first using a tungsten-lamp source, and then measured with a red filter interposed between the light source and phototube. The "red-to-white" ratio is greater than 7% for the 4473.

The anode current comprising the "white" portion of this ratio is measured with a light input of 10 microlumens. The light source is a tungsten-filament lamp having a lime-glass envelope. It is operated at a color temperature of 2870° K.

The anode current comprising the "red" portion of the ratio is measured under conditions identical with the "white" measurement except that the light input of 10 microlumens is transmitted through a red filter (Corning C.S. No. 2-112--manufactured by the Corning Glass Works, Corning, N.Y., or equivalent) which has the following characteristics: the transmittance of all wavelengths from 3000 to 5790 angstroms is less than 0.5%; the 37% transmittance point lies between 6030 and 6070 angstroms; the transmittance from 6400 to 7000 angstroms is greater than 80%; and the difference between the wavelengths where transmittance is 15% and 60% is not greater than 150 angstroms.

