



6655

MULTIPLIER PHOTOTUBE

Characteristics Range Values for Equipment Design:

Under conditions with supply voltage (E) across voltage divider providing 1/6 of E between cathode and dynode No. 1; 1/12 of E for each succeeding dynode stage; and 1/12 of E between dynode No. 10 and anode

With E = 1000 volts (except as noted) and

Focusing Electrode* connected to Dynode No. 1 at socket

Min. Median Max.

Sensitivity:

Radiant, at

4400 angstroms . . - 20000 - $\mu\text{amp}/\mu\text{watt}$

Cathode radiant, at

4400 angstroms . . - 0.040 - $\mu\text{amp}/\mu\text{watt}$

Luminous: $\bullet$

At 0 cps 10 25 - amp/lumen

With dynode No. 10

as output elec-

trode** - 15 - amp/lumen

Cathode Luminous:

With tungsten

light source $\blacktriangle$. . 40 50 - $\mu\text{amp}/\text{lumen}$

With blue light

source $\oplus\blacklozenge$ 0.04 - - μamp

Current Amplification. - 500000 -

Equivalent Anode-Dark-

Current Input $\blacksquare$. . - 8.5×10^{-10} 2×10^{-9} lumen

Equivalent Noise Input $\star$ - 7×10^{-12} - lumen

Dark Current to Any

Electrode Except

Anode (At 25°C). . . - - 0.75 μamp

With E = 750 volts (except as noted) and

Focusing Electrode* connected to Dynode No. 1 at socket

Min. Median Max.

Sensitivity:

Radiant, at

4400 angstroms . . - 2000 - $\mu\text{amp}/\mu\text{watt}$

Cathode radiant, at

4400 angstroms . . - 0.040 - $\mu\text{amp}/\mu\text{watt}$

Luminous: $\bullet$

At 0 cps - 2.5 - amp/lumen

Cathode Luminous:

With tungsten

light source $\blacktriangle$. . 40 50 - $\mu\text{amp}/\text{lumen}$

With blue light

source $\oplus\blacklozenge$ 0.04 - - μamp

Current Amplification. - 50000 -

$\bullet$ For conditions where the light source is a tungsten-filament lamp operated at a color temperature of 2870°K. A light input of 10 microlumens is used. The load resistor has a value of 0.01 megohm.

*, **, $\blacktriangle$, $\oplus$, $\blacklozenge$, $\blacksquare$, $\star$: See next page.

$\rightarrow$ Indicates a change.



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- * In general, the focusing electrode is connected to dynode No.1 at the socket and operated at the same fixed potential as dynode No.1. However, in applications critical as to magnitude, uniformity, or speed of the response, the focusing electrode may be connected to the adjustable arm of a potentiometer between cathode and dynode No.1 in the voltage divider, and operated at an optimum potential within a range of 10 to 60 per cent of the dynode-No.1 potential.
- ** An output current of opposite polarity to that obtained at the anode may be provided by using dynode No.10 as the output electrode. With this arrangement, the load is connected in the dynode-No.10 circuit and the anode serves only as collector.
- ▲ For conditions the same as shown under (♣) except that the value of light flux is 0.01 lumen and 200 volts are applied between cathode and all other electrodes connected together as anode.
- ⊕ Under the following conditions: Light incident on the cathode is transmitted through a blue filter (Corning, Glass Code No.5113 polished to 1/2 stock thickness) from a tungsten-filament lamp operated at a color temperature of 2870°K. The value of light flux on the filter is 0.01 lumen. The load resistor has a value of 0.01 megohm, and 200 volts are applied between cathode and all other electrodes connected together as anode.
- ◆ For spectral characteristic of this source, see sheet SPECTRAL CHARACTERISTIC OF 2870°K LIGHT SOURCE AND SPECTRAL CHARACTERISTIC OF LIGHT FROM 2870°K SOURCE AFTER PASSING THROUGH INDICATED BLUE FILTER at front of this section.
- ⊗ Measured at a tube temperature of 25°C and with the supply voltage (E) adjusted to give a luminous sensitivity of 20 amperes per lumen. Dark current caused by thermionic emission and ion feedback may be reduced by the use of a refrigerant.
- For maximum signal-to-noise ratio, operation with a supply voltage (E) below 1000 volts is recommended.
- ★ Under the following conditions: Supply voltage (E) is 1000 volts, 25°C tube temperature, ac-amplifier bandwidth of 1 cycle per second, tungsten light source of 2870°K interrupted at a low audio frequency to produce incident radiation pulses alternating between zero and the value stated. The "on" period of the pulse is equal to the "off" period. The output current is measured through a filter which passes only the fundamental frequency of the pulses.

OPERATING CONSIDERATIONS

The *operating stability* of the 6655 is dependent on the magnitude of the anode current and its duration. When the 6655 is operated at high values of anode current, a drop in sensitivity (sometimes called fatigue) may be expected. The extent of the drop below the tabulated sensitivity values depends on the severity of the operating conditions. After a period of idleness, the 6655 usually recovers a substantial percentage of such loss in sensitivity.

The use of an average anode current well below the maximum rated value of 0.75 milliamperes is recommended when stability of operation is important. When maximum stability is required, the anode current should not exceed 100 microamperes.

Electrostatic and/or magnetic shielding of the 6655 may be necessary.

SPECTRAL-SENSITIVITY CHARACTERISTIC
of Phototube having S-II Response
is shown at the front of this Section

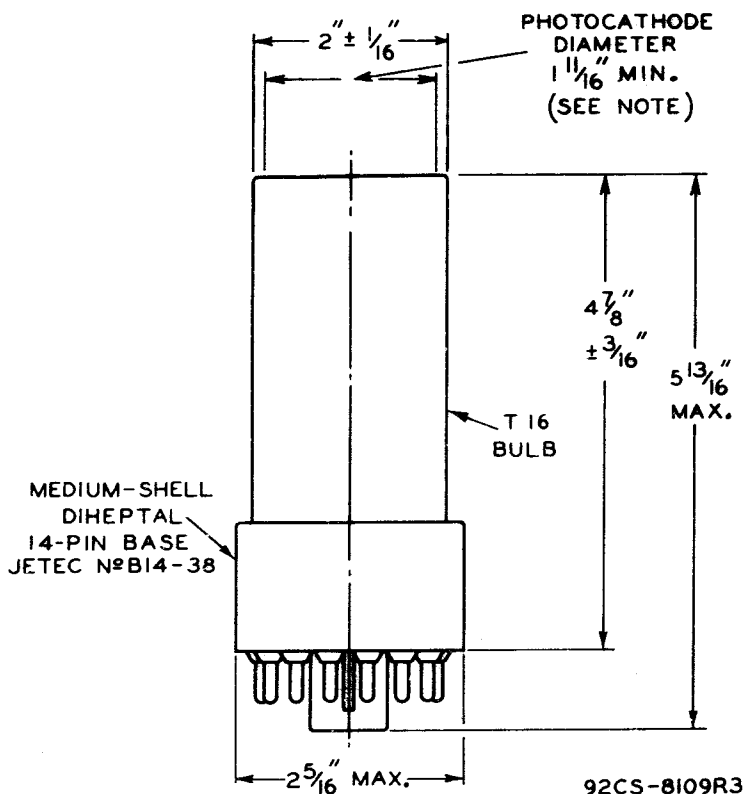
← Indicates a change.

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☐ OF BULB WILL NOT DEVIATE MORE THAN 2° IN ANY DIRECTION FROM THE PERPENDICULAR ERECTED AT THE CENTER OF BOTTOM OF THE BASE.

NOTE: WITHIN MINIMUM DIAMETER, DEVIATION FROM FLATNESS WILL NOT EXCEED 0.010" FROM PEAK TO VALLEY.