



5819

5819 MULTIPLIER PHOTOTUBE

10-STAGE, HEAD-ON TYPE WITH
1-1/2" SEMI-TRANSPARENT CATHODE AND S-9 RESPONSE

DATA

General:

Spectral Response	S-9
Wave Length of Maximum Response	4800 ± 500 angstroms
Cathode, Semi-Transparent:	
Shape	Circular
Window Area	1.8 sq.in
Minimum Diameter of Window.	1.5 sq.in
Direct Interelectrode Capacitances:	
Anode to Dynode No.10	4.2 μuf
Anode to All Electrodes	6.5 μuf
Overall Length	5-5/8" ± 3/16" ←
Seated Length	4-7/8" ± 3/16" ←
Maximum Diameter.	2-1/4"
Bulb.	T-16
Mounting Position	Any
Base.	Medium-Shell Diheptal 14-Pin, Non-Hygroscopic

Basing Designation for BOTTOM VIEW. 14M₁ ←

Pin 1 - Dynode No.1		Pin 10 - Dynode No.10
Pin 2 - Dynode No.2		Pin 11 - Anode
Pin 3 - Dynode No.3		Pin 12 - No
Pin 4 - Dynode No.4		Pin 13 - Internal Con.
Pin 5 - Dynode No.5		Do Not Use
Pin 6 - Dynode No.6		Pin 14 - Cathode
Pin 7 - Dynode No.7		
Pin 8 - Dynode No.8		
Pin 9 - Dynode No.9		

Maximum Ratings, Absolute Values:

ANODE-SUPPLY VOLTAGE (DC or Peak AC) [□] . . .	1250 max.	volts
SUPPLY VOLTAGE BETWEEN DYNODE No.10 and ANODE (DC or Peak AC). . .	150 max.	volts
PEAK ANODE CURRENT.	7.5 max.	ma
AVERAGE ANODE CURRENT [○]	0.75 max.	ma
AMBIENT TEMPERATURE	75 max.	°C

Characteristics:

With 90 volts per dynode stage and
90 volts between dynode No.10 and anode

	<u>Min.</u>	<u>Av.</u>	<u>Max.</u>	
DC Anode Dark Current [#] •	-	-	0.05	μamp

□ Referred to cathode.

○ Averaged over any interval of 30 seconds maximum.

Dark current due to thermionic emission and ion feedback may be reduced by the use of refrigerants.

• For maximum signal-to-noise ratio, operation below 1000 volts is recommended.

← Indicates a change.

JULY 3, 1950

TUBE DEPARTMENT

TENTATIVE DATA

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY



MULTIPLIER PHOTOTUBE

	<u>Min.</u>	<u>Au.</u>	<u>Max.</u>	
→ Sensitivity:				
At 4800 Angstroms.	-	14900	-	$\mu\text{amp}/\mu\text{watt}$
Luminous:				
Cathode [§]	-	40	-	$\mu\text{amp}/\text{lumen}$
Anode: [▲]				
At 0 cps	10	24	-	amp/lumen
At 100 Mc.	-	21	-	amp/lumen
Current Amplification [■]	-	600000	-	
→ Equivalent Noise Input [*]	-	2×10^{-11}	-	lumen

→ Characteristics:

*With 75 volts per dynode stage and
50 volts between dynode No. 10 and anode*

Au.

Sensitivity:				
At 4800 Angstroms.		3720		$\mu\text{amp}/\mu\text{watt}$
Luminous:				
Cathode [§]		40		$\mu\text{amp}/\text{lumen}$
Anode, [▲] at 0 cps.		6		amp/lumen
Current Amplification [■]		150000		

▲ For conditions where a tungsten lamp operated at a filament color temperature of 2870°K is used as a light source. A light flux of 10 microlumens from a rectangular aperture approximately 0.8" long and 0.2" wide is projected normal to the center of the cathode. The load resistor has a value of 0.01 megohm. The applied voltages are as indicated.

■ Ratio of anode sensitivity to cathode sensitivity.

* Defined as the value where the rms output current is equal to the rms noise current determined under the following conditions: 90 volts per stage, 25°C tube temperature, ac-amplifier bandwidth of 1 cycle per second, tungsten light source at 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.

§ For conditions the same as shown under Anode Luminous Sensitivity except that the value of light flux is 0.01 lumen and that 90 volts are applied between cathode and all other electrodes connected together as an anode.

OPERATING NOTES

Performance of the 5819 is affected by magnetic fields. It will be observed with certain orientations of the 5819 that the earth's magnetic field is sufficient to cause a noticeable decrease in the response of the tube. Therefore, it may be desirable to provide magnetic shielding for the 5819, particularly when it is to be used in a strong magnetic field.

SPECTRAL-SENSITIVITY CHARACTERISTIC
of Phototube having S-9 Response
is shown at the front of this Section

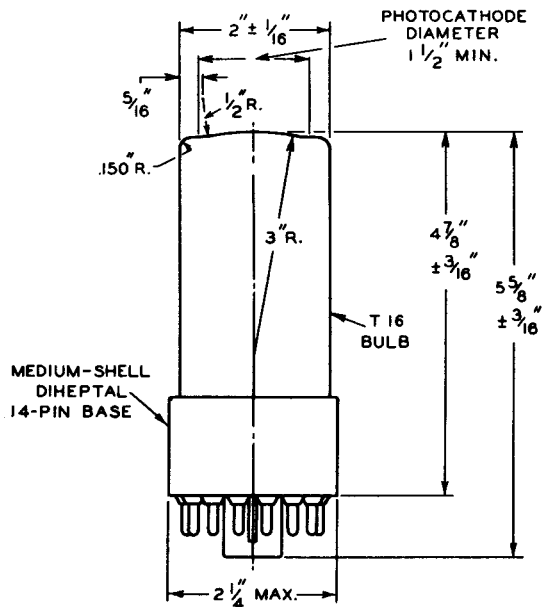
→ Indicates a change.



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MULTIPLIER PHOTOTUBE



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

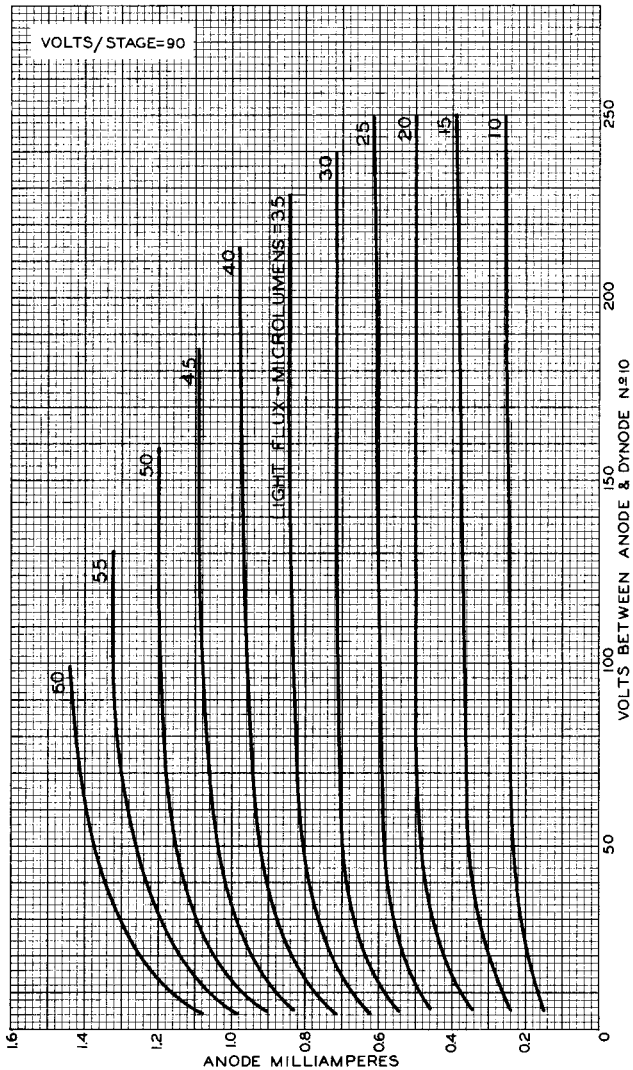
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AVERAGE ANODE CHARACTERISTICS



MAY 16, 1950

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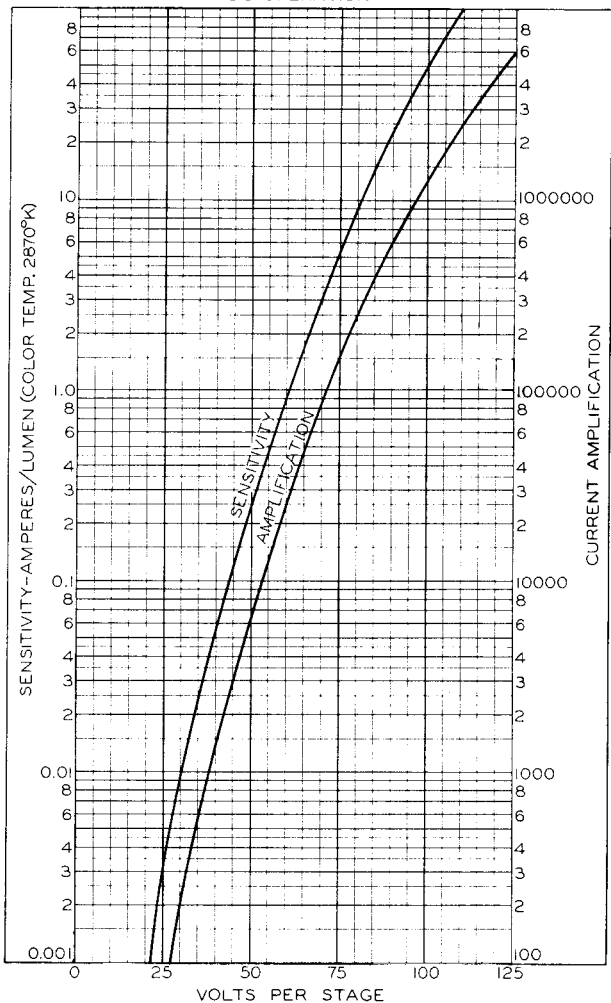
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AVERAGE CHARACTERISTICS
DC OPERATION



MAY 15, 1950

TUBE DEPARTMENT
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92CL - 7258R2