

February 14, 1959

LIGHT IMAGE INTENSIFIER TYPE WL-7257

The WL-7257 is a high vacuum tube designed to intensify light radiation by electronic means. This tube produces an image of reduced size having a brightness increase of 1000 times minimum for input color temperature of 2870°K, and 2500 times minimum for actinic blue input. Incoming radiation impinges on an input photosurface five inches in diameter, converting the light image to an electron image. The photocathode is deposited directly on the inner side of the polished bulb face and is capable of becoming an integral part of an external optical system. The electron image is focused and accelerated toward an aluminum backed P11 phosphor screen with a useful output diameter of one inch.

Electrical:

Gain with 30KV on Anode Screen: Δ	
Approximate Image Minification Gain	25
Light Quantum Gain:	
With 2870°K Tungsten Input	50
With Actinic Blue Input	100
Optical Minification Ratio	5:1
Input Resolution $\blacksquare$	75 line pairs/inch
Photocathode Illumination:	
Threshold for Imaging (approx)	10^{-7} ft.-C
Photocathode Spectral Response	See Page 2
Output Phosphor Spectral Response	See Page 3
Outer Phosphor Persistence	See Page 3

Mechanical:

Maximum Diameter	8-11/16"
Maximum Length	15-3/4"
Maximum Usable Photocathode Diameter	5"
Radius of Curvature of Input Screen ϕ	10-1/4"
Maximum Usable Output Screen Diameter	1"
Net Weight (approx)	6-1/8 Pounds
Shipping Weight (approx)	21 Pounds
Operating Position	Any

Maximum Ratings:

Absolute Maximum Values

Anode Screen to Photocathode Voltage	30 max.	Kilovolts
Peak Pulse Anode Screen Current	1 max.	Milliamperes

Typical Operating Conditions:

Photocathode and First Lens Element	Grounded
Anode Screen Voltage	20 to 30 Kilovolts
Fifth Lens Element	13.9% to 16.4% of Anode Voltage
Fourth Lens Element	40% of Fifth Lens Element Voltage
Third Lens Element	8% of Fifth Lens Element Voltage
Second Lens Element	3% of Fifth Lens Element Voltage
Approximate Anode Screen Current with	
10^{-9} foot candle input to tube	1 to 2 Microamperes

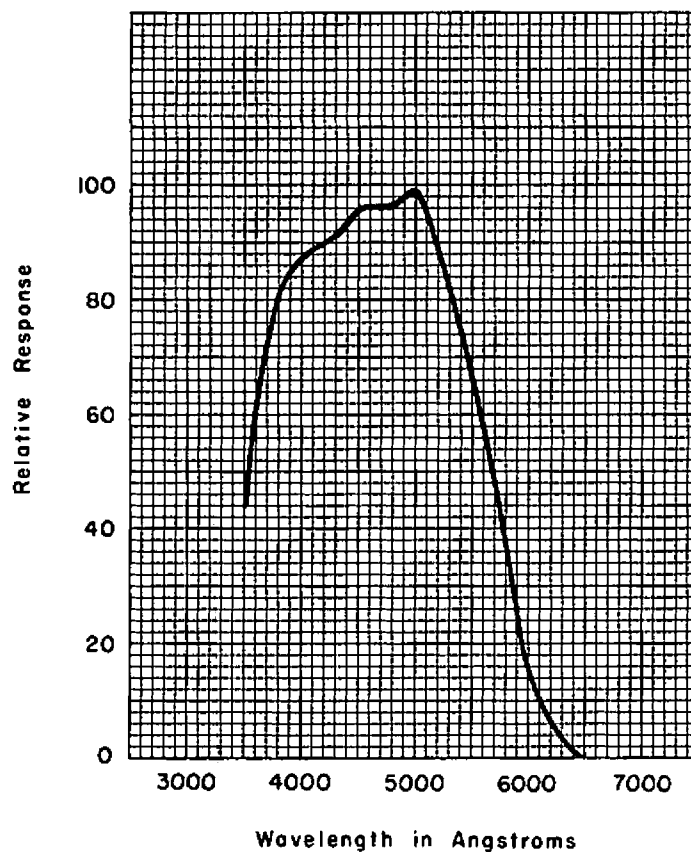
Δ With a fixed light-intensity input, the light-intensity output varies linearly with anode screen voltage from 0 to 30 kilovolts.

$\blacksquare$ The resolution measurements are made over the central area of the photocathode.

ϕ Thickness tolerance of faceplate is $\pm 0.025"$ over entire surface.

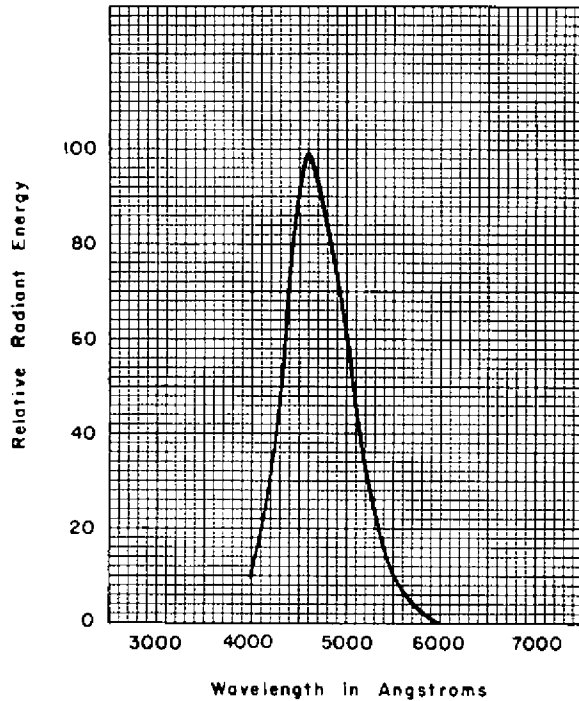
from JEDEC release #2293A, March 23, 1959

OXIDIZED CESIUM ANTIMONY PHOTOCATHODE
SPECTRAL SENSITIVITY CHARACTERISTIC



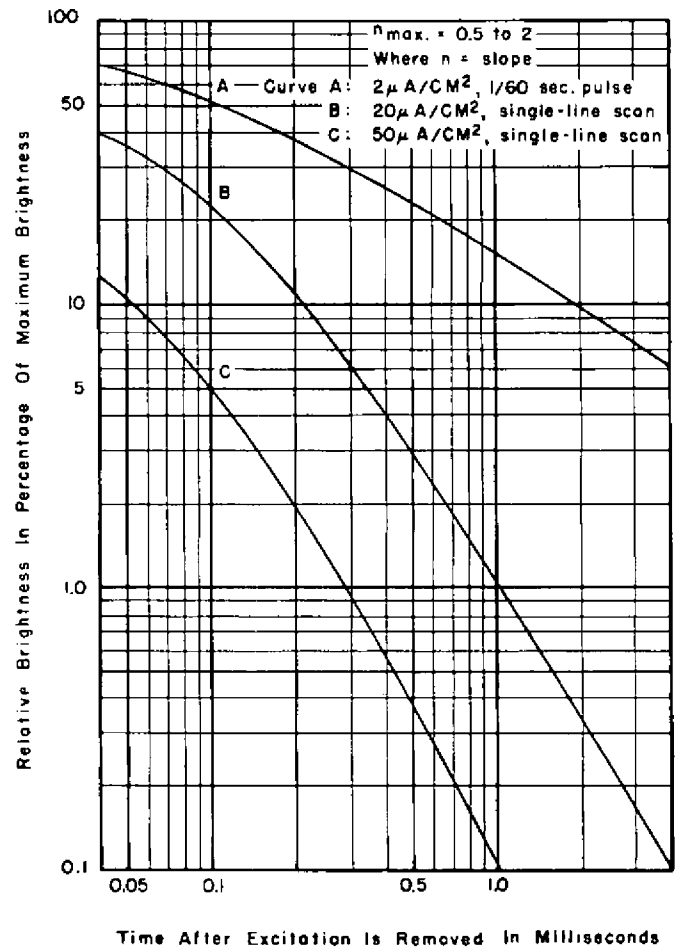
CE-A1431

P11 PHOSPHOR
SPECTRAL ENERGY EMISSION CHARACTERISTIC



CE-A1430

P11 PHOSPHOR PERSISTENCE CHARACTERISTIC



CE-A1430

