

Image Intensifier specification
18 millimetre micro-channel wafer
XR5tm Technology
XX2545AH



184-3948A1

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Description

The Image Intensifier Assembly, 18 millimetres micro-channel wafer, shall have a minimum useful photocathode and phosphor screen diameter of 17.5 millimetres (mm). The assembly shall employ a micro-channel electron multiplier plate with proximity focus on the input and output. The assembly shall include the high voltage multiplier and oscillator and shall be encapsulated within a hard surface insulating sleeve or boot and assembled in a hard plastic housing.

Phosphor : P22
Input window : Glass
Output window : Inverting fibre-optic

Construction

The assembly shall be fabricated in accordance with the applicable drawing.

Limiting values

	<u>Minimal</u>	<u>Maximal</u>	<u>Unit</u>
Continuous input Supply voltage	2.0	3.5	V
Reversed Polarity (60 sec)	-3.7	+3.7	V
Storage temperature (4 hours max.)	-56	+65	°C
Storage temperature long term	-35	+35	°C
Operating temperature (4 hours max.)	-52	+52	°C
Force on bearing surface		200	N

Operating conditions and characteristics

Operating Supply voltage : 2.7 V
Ambient temperature : 20 ± 1 °C

When the image intensifier is operated under the conditions mentioned above, unless otherwise specified, the characteristic values that follow are attainable:

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	Minimal	Typical	Maximal	UNIT
Cathode sensitivity at 2850K	700			µA/lm
Radiant sensitivity at 830nm	60			mA/W
Signal to noise ratio (Photocathode illuminance 108 µlx)	25			
Operational life T = 15000 hours (signal to noise ratio)	11			
Gain at 2.10 ⁻⁵ lx	10000	13000	16000	cd/m ² /lx
Gain at 2.10 ⁻⁶ fc	(31400)	(40800)	(50250)	fl/fc
Maximum Output Brightness	4	6	8	cd/m ²
Maximum Output Brightness	(1.2)	(1.7)	(2.3)	fl
Input current at 2.10 ⁻⁵ lx			26	mA
Limiting resolution at centre	64			lp/mm
M.T.F. at 2.5 lp/mm		94		%
at 7.5 lp/mm		85		%
at 15 lp/mm		70		%
at 25 lp/mm		50		%
at 30 lp/mm		40		%
E.B.I.		0.15	0.25	µlx
Burn-in	50			hours
Image inversion	179		181	°
Shear distortion			50	µm
Gross distortion			65	µm
Useful cathode diameter	17.5			mm
Output uniformity over Ø17.0 mm at 2850K		2:1	3:1	
Bright source protection 50 millilumens on an area of 1 mm ²	60			sec
Fixed Pattern Noise at 2mlx (mean luminance deviations)	-8		+8	%
Halo (illumination spot 0.2mm)			0.8	mm
Image alignment			0.3	mm
Mass		80	85	gram

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Shock:

The Image Intensifier tube shall comply with the performance specifications after being exposed to 6 shock impacts parallel to and 6 shock impacts perpendicular to the optical axis. Impacts shall be halve sine waves with a minimum peak amplitude of 500 g's and a duration of 2 ± 0.2 milliseconds.

Vibration:

The Image Intensifier tube shall comply with the performance specifications after being subjected to vibration conditions parallel to and perpendicular to the optical axis over a frequency range of 5 to 55 hertz (Hz), 2.54mm amplitude 10 cycles in each plane.

Spots:

Maximum number of dark spots will be according to the following table:

SPOTS DIAMETER IN MICROMETERS	ZONE 1 dia. 5.6mm	ZONE 2 dia. 5.6mm-14.7mm	ZONE 3 dia 14.7mm-17.5mm
> 380	0	0	0
300 – 380	0	0	0
230 – 300	0	0	0
150 – 230	0	1	1
75 – 150	0	2	2
< 75	Minimal	Minimal	Minimal

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