

INCH-POUND

MIL-PRF-1/1339F  
20 May 2014  
SUPERSEDING  
MIL-PRF-1/1339E  
17 March 2008

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY  
TYPE 5AMP1A

This specification is approved for use by all Departments  
and Agencies of the Department of Defense.

The requirements for acquiring the electron tube described herein  
shall consist of this document and the latest issue of MIL-PRF-1.

DESCRIPTION: Electrostatic deflection and focus.

See figure 1.

Mounting position: Any.

ABSOLUTE RATINGS:

Parameter:	Ef	Ec1	ed	Eb1	Eb2	Rg	Zd	Ehk
Unit:	V dc	V dc	v	V dc	V dc	Meg $\Omega$	Meg $\Omega$	V dc
Maximum:	6.9	0	1,320	1,650	6,600	1.5	1.0	$\pm 180$
Minimum:	5.7	-200	----	----	----	----	----	----
Test condition:	6.3	Adjust	----	Focus	2,500	----	----	----

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GENERAL:

Qualification - Required.

- I This specification sheet uses accept on zero defect sampling in accordance with MIL-PRF-1, table III.

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TABLE I. Testing and inspection.

Inspection	MIL-STD-1311 Method	Conditions	Symbol	Limits		Unit	
				Min	Max		
<u>Qualification</u>							
Vibration	5111		Width	----	1	mm	
Pressure (implosion)	1141		----	----	----	----	
Cathode illumination	5216		----	----	----	----	
Direct-interelectrode capacitance	1331	g1 to all	Cg1	----	5.5	pF	
		k to all	Ck	----	4.9	pF	
		D1 to D2	C1D2	----	3.9	pF	
		D3 to D4	C3D4	----	2.5	pF	
		D1 to all	CD1	----	7.9	pF	
		D2 to all	CD2	----	7.4	pF	
		D3 to all	CD3	----	5.5	pF	
		D4 to all	CD4	----	4.8	pF	
Deflection-factor uniformity	5248		----	----	1	%	
Neck and bulb alignment (electrostatic types)	5101		Dia	----	2.25	in.	
<u>Conformance inspection, part 1</u>							
Voltage breakdown	5201		----	----	----	----	
Voltage breakdown (electrostatic types)	5201		----	----	----	----	
Gas "cross" (electrostatic deflection)	5206	Light = 15 fL (51.4 cd/m <sup>2</sup> ) <u>1/</u>	----	----	----	----	
Screen and faceplate blemishes	5106		----	----	----	----	
Light output	5221	Eb = 2500 V	----	15	----	fL	
Modulation	5223	Light = 15 fL (51.4 cd/m <sup>2</sup> )	ΔEc	----	45	V dc	
Spot position (electrostatic deflection)	5231		----	----	16	mm	
Spot displacement (leakage)	5231		Displ	----	10	mm	
Grid-cutoff voltage	5241		Eco	-34	-56	V dc	
Grid No. 1 leakage current	5251		----	----	----	----	
Anode No. 2 leakage current	5251		----	----	----	----	
Pattern distortion	----	<u>2/</u>	----	----	----	----	
Centering of scan	----	Focused trace; Ec1 at 10 V drive <u>3/</u>	1D2	----	±2.00	----	in.
			3D4	----	±1.25	----	In.

See footnotes at end of table.

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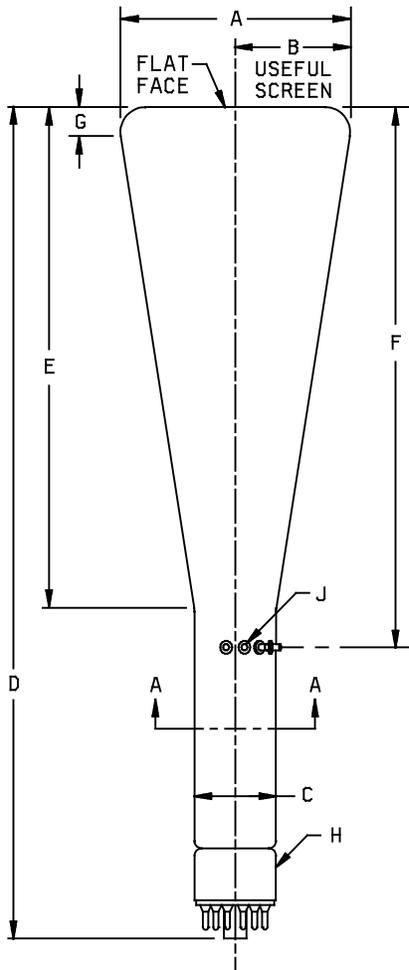
TABLE I. Testing and inspection - Continued.

Inspection	MIL-STD-1311 Method	Conditions	Symbol	Limits		Unit	
				Min	Max		
<u>Conformance inspection, part 2</u>							
Heater current	1301		If	540	660	mA	
Electrode current (anode No.1)	5201	Ec1 = 0	lb1	-15	15	μA dc	
Electrode current (anode No. 2)	5201	Light = 15 fL (51.4 cd/m <sup>2</sup> )	lb2	----	800	μA dc	
Electrode current (cathode)	5201	Light = 15 fL (51.4 cd/m <sup>2</sup> )	lk	----	1,000	μA dc	
Base alignment (electrostatic types)	5101	+1D2, pin No. 5	----	----	----	----	
Angle between traces	5101		----	89.2	90.8	Degrees	
Neck and base alignment (electrostatic types)	5101		----	----	----	----	
Stray light emission (conventional types)	5216	Eb2 = 6,600 V	----	----	----	----	
Line width "A" (electrostatic deflection)	5226	Light = 15 fL (51.4 cd/m <sup>2</sup> )	Width	----	0.8	mm	
Line width "B" (electrostatic deflection)	5226	Light = 15 fL (51.4 cd/m <sup>2</sup> )	Width	----	0.85	mm	
Focusing voltage at cutoff	5246		Eb1	----	300	V dc	
Focusing voltage (zero-bias)	5246		Eb1	0	----	V dc	
Deflection factor	5248	1D2	DF	40	50	V dc/in.	
		3D4	DF	20	25	V dc/in.	
Heater-cathode leakage current	5251		----	----	----	----	
<u>Conformance inspection, part 3</u>							
Life-test provisions	----	Group C Eb2 = 2,500 V Light = 15 fL (51.4 cd/m <sup>2</sup> )	t	500		hrs.	
Life-test end points	----	Same conditions as initial tests	Line width "A"	Width	----	0.80	mm
			Line width "B"	Width	----	0.85	mm
			Modulation	ΔEc	----	45	V dc

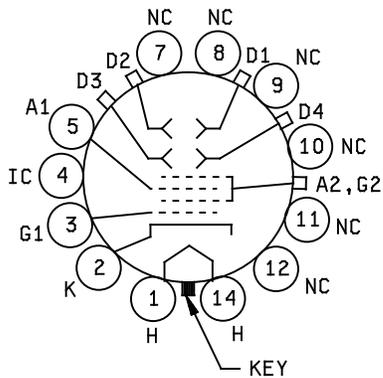
1/ This test to be performed at the conclusion of the holding period.

2/ All portions of a raster pattern, adjusted so its widest points just touch the sides of a 2.5 by 4.0-inch (63.5 by 101.6 mm) rectangle, will fall within the area bounded by the 2.5 by 4.0-inch (63.5 by 101.6 mm) rectangle and an inscribed 2.420 by 3.912-inch (61.47 by 99.36 mm) rectangle.

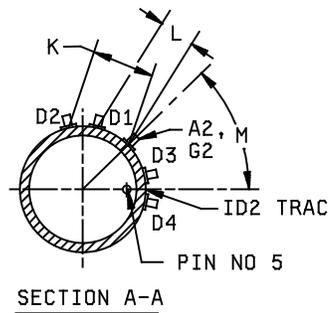
3/ The useful scan in the 1D2 and 3D4 directions is measured from the tube face center.



Ltr	Dimensions			
	Millimeters		Inches	
Conformance inspection, part 2				
	Min	Max	Min	Max
A	130.96	135.74	5.156	5.344
B	57.15	----	2.250	----
C	49.23	52.37	1.938	2.062
D	441.33	454.03	17.375	17.875
E	----	228.60	----	9.000
F	315.26	332.28	12.412	12.688
K	26.92	29.97	1.060	1.180
L	12.70	14.22	0.500	0.560
M	40°	50°	40°	50°
Conformance inspection, part 3 (periodic check)				
H	Base: B12-37 (EIA)			
J	Caps: J1-25 (EIA)			
Reference dimensions (see note)				
G	22.23		0.875	



14 U  
BOTTOM VIEW OF BASE



SECTION A-A

NOTE: Reference dimensions are for information only and are not required for inspection purposes.

FIGURE 1. Outline drawing of electron tube type 5AMP1A.

MIL-PRF-1/1339F

Referenced documents. In addition to MIL-PRF-1, this specification sheet references MIL-STD-1311.

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Custodians:  
Army - CR  
Navy - EC  
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Preparing activity:  
DLA - CC

(Project 5960-2014-004)

Review activities:  
Army - MI  
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