

INCH-POUND

MIL-PRF-1/1342C
22 July 1999
SUPERSEDING
MIL-E-1/1342B
6 December 1971

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY
TYPE 1EP1

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: Miniature, 1-inch (25.4 mm) tube, electrostatic deflection and focus.

DIMENSIONS AND PIN CONNECTIONS: See figure 1.

ABSOLUTE RATINGS:

Parameter:	Ef	Ec1	ec1	ed	Eb1	Eb2	Ehk	Rg1	Rd <u>1</u> /	Alt
Unit:	V	V dc	v	v	V dc	V dc	V dc	Meg	Meg	ft
Maximum:	6.9	0	2	500	1,200	1,750	+125	1.5	2.0	20,000
Minimum:	5.7	-200	---	---	---	500	-125	---	---	---
Test condition:	6.3	Vary	---	---	Focus	500	---	---	---	---

See footnotes at end of table I.

GENERAL:

Qualification - Not required.

MIL-PRF-1/1342C

TABLE I. Testing and inspection.

Inspection	Method	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Conformance inspection, part 1</u>							
Voltage breakdown (electrostatic types)	5201	<u>3/</u>	Eb2 = 1,750 V dc; Eb1 = 1,200 V dc; Ec1 = -200 V dc	---	---	---	---
Gas "cross"	5206	<u>2/</u>	Ec1 = 0; pattern size: 2 x 2 cm	---	---	---	---
Bulb, screen, and faceplate quality	5106	---		---	---	---	---
Grid-cutoff voltage	5241	---		Ec1	-7	-21	V dc
Spot position	5231	<u>4/</u>		---	---	2.5	mm
Grid No. 1 leakage current	5251	---		lc1	---	5	μA dc
Anode No. 2 leakage current	5251	---		lb2	---	15	μA dc
<u>Conformance inspection, part 2</u>							
Heater current	1301	---		If	540	660	mA
Base alignment (electrostatic type)	5101	---	3D4; midpoint between pins No. 9 and No. 10 at base	---	---	---	---
Angle between traces	5101	---		---	---	---	---
Light output	5221	---	EC1 = 0; pattern size: 2 x 2 cm; scan frequency = 60 x 2,940 Hz (49 lines)	---	4.5	---	fL
Focusing voltage at cutoff	5246	---	Pattern: spot	Ec3	---	150	V dc
Focusing voltage (zero bias)	5246	---	Pattern size: 2 x 2 cm; scan frequency: 60 x 2,940 Hz (49 lines)	Ec3	50	---	V dc
Deflection factor	5248	---	1D2	DF	105	155	V dc/in.
Deflection factor	5248	---	3D4	DF	120	175	V dc/in.
Heater-cathode leakage current	5251	---		lhk	---	30	μA dc
Line width A (electrostatic deflection)	5226	---	lk = 10 μA	Width	---	0.51	mm
Line width B (electrostatic deflection)	5226	---	lk = 10 μA; 0.8 cm from center	Width	---	0.53	mm
Base pin solder depth	1111	---		---	---	---	---
Permanence of marking	1105	---		---	---	---	---

See footnotes at end of table.

TABLE I. Testing and inspection - Continued.

Inspection	Method	Notes	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Conformance inspection, part 3</u>							
Life test	---	---	Group C; $E_{c1}/I_k = 6 \mu A$; $E_{b2} = 1,750 \text{ V dc}$; $t = 500 \text{ hours (minimum)}$	---	---	---	---
Life-test end points:	---						
Line width A	5226	---	$I_k = 10 \mu A$	Width	---	0.51	mm
Line width B	5226	---	$I_k = 10 \mu A$; 0.8 cm from center	Width	---	0.53	mm
Barometric pressure, reduced	1002	<u>5/</u>	$E_f = 6.3 \text{ V}$; $E_{c1} = -200 \text{ V dc}$; $E_{b1} = 1,200 \text{ V dc}$; $E_{b2} = 1,700 \text{ V dc}$; $ED1 = ED2 = ED3 = ED4 = 2,250 \text{ V dc}$; $E_{hk} = +125 \text{ V dc}$; $R_{g1} = 1.5 \text{ Meg}$; $R_d = 2.0 \text{ Meg}$	---	350	---	mmHg

1/ R_d is resistance of deflection plate current.

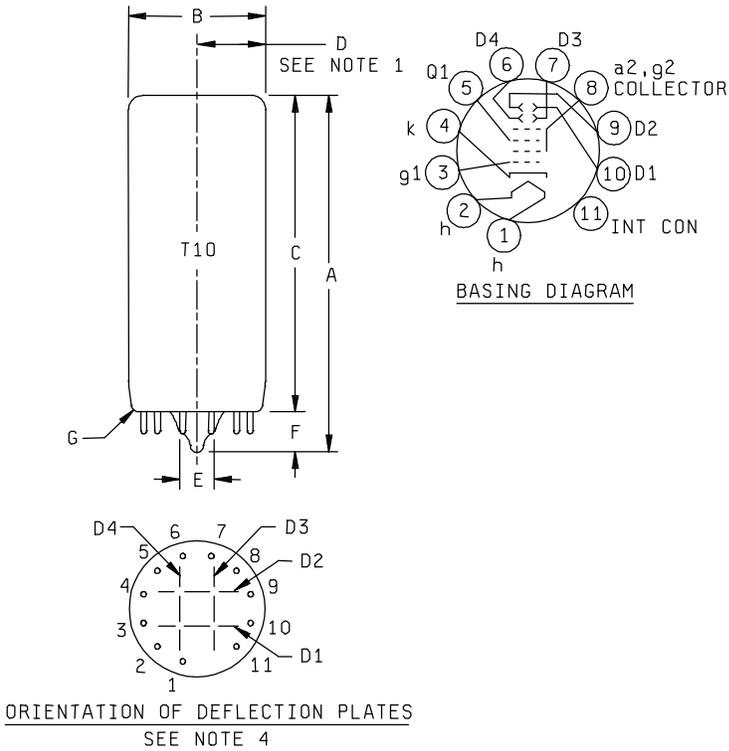
2/ This test to be performed at the conclusion of the holding period.

3/ Reject for continuous arcing.

4/ The true beam position shall fall within a circle of the indicated radius concentric with tube face.

5/ This test shall be performed during the initial production and once each succeeding 12-calendar months in which there is production. A regular double sampling plan shall be used, with the first sample of three tubes with an acceptance number of zero, and a second sample of three tubes with a combined acceptance number of one. In the event of failure, the test will be made as a part of conformance inspection, part 2, code level D, with an acceptance level of 6.5. The regular "12-calendar month" double sampling plan shall be reinstated after three consecutive samples have been accepted.

MIL-PRF-1/1342C



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 2				
A	---	4.060	---	103.12
Conformance inspection, part 3				
B	1.190 DIA	1.310 DIA	30.23 DIA	33.27 DIA
C	3.440	3.680	87.38	93.47
D	0.500 R	---	12.70 R	---
E	---	0.312 DIA	---	7.92 DIA
F	---	0.375	---	9.53
G	Base: E 11-22 2/ 3/			

NOTES:

1. Useful screen radius.
2. JEDEC designation.
3. Base pin alignment shall be gauged by means of a flat-plate gauge .25 inch (6.35 mm) thick, with 12 holes .0520 ± .0005 inch (1.30 ± .01 mm) diameter and on a circle 0.6870 ± .0005 inch (17.45 ± .01 mm) diameter and 1 hole .3750 inch (9.53 mm) diameter concentric with pin circle. Chordal distance between any two adjacent pin holes shall be .1778 ± .0005 inch (4.52 ± .01 mm). Gauging procedure 1, as specified in JEDEC publication JO-G2-2, shall apply.
4. Orientation of deflection plates is shown as viewed from underside of base.

FIGURE 1. Outline drawing of electron tube type 1EP1.

Custodians:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5960-3546-11)

Review activities:

Army - AR
Navy - AS, CG, MC, OS, SH
Air Force - 17