

INCH-POUND

MIL-PRF-1/1222D
2 July 2004
SUPERSEDING
MIL-PRF-1/1222C
2 July 1999

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, CATHODE RAY
TYPE 12DP7C

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: Magnetic deflection and focus, round 12-inch, aluminized, gray spherical faceplate.

DIMENSIONS AND PIN CONNECTIONS: See figure 1.

ABSOLUTE RATINGS:

Parameter:	Ef	Ec1	Ec2	Eb	Ehk	Rg1	Alt
Unit:	V	V dc	V dc	V dc	V dc	Meg	ft
Maximum:	6.9	-200	770	13,200	+180	1/	60,000
Minimum:	5.7	0	---	4,000	-180	---	---
Test conditions:	6.3	2/ Adjust	250	4,000	---	---	---

See footnotes at end of table I.

GENERAL:

Qualification: Required.

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TABLE I. Testing and inspection.

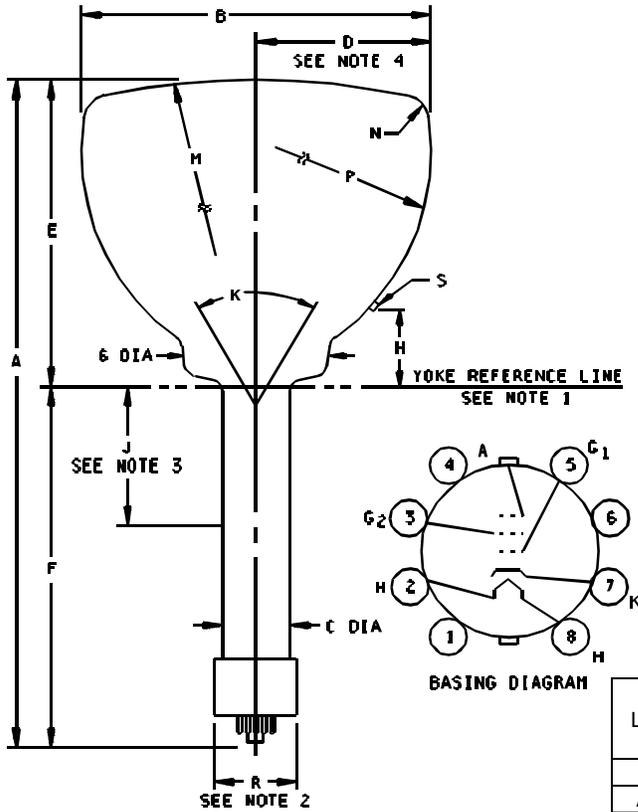
Inspection	Method MIL-STD-1311	Conditions	Acceptance Level 6/	Symbol	Limits		Unit
					Min	Max	
<u>Qualification</u>							
Pressure (implosion)	1141		---	---	---	---	---
Vibration	5111		---	Width	---	2.0	mm
<u>Conformation inspection, part 1</u>							
Voltage breakdown	5201		0.65	---	---	---	---
Voltage breakdown (magnetic types)	5201		0.65	---	---	---	---
Gas ratio	5206	<u>3/</u>	0.65	Gr	---	0.25	---
Neck straightness alignment	5101		0.65	---	---	---	---
Screen and faceplate blemishes	5106		0.65	---	---	---	---
Modulation	5223	$I_b = 200 \mu A$	0.65	ΔE_{c1}	---	38	V dc
Spot position (magnetic deflection)	5231		0.65	---	---	20	mm
Zero-bias anode current (magnetic deflection)	5236		0.65	---	---	---	---
Grid-cutoff voltage	5241		0.65	E_{c1}	-25	-70	V dc
Grid No. 1 leakage current	5251		0.65	---	---	---	---
Aperture alignment	---	<u>5/</u>	0.65	---	---	8	mm
<u>Conformance inspection, part 2</u>							
Secureness of base, cap or insert	1101		---	---	---	---	---
Heater current	1301		---	I_f	540	660	mA
Electrode current	5201	$E_{c1} = 0$	---	I_{c2}	---	50	μA dc
Side terminal and base Alignment	5101	Pin No. 5	---	---	---	---	---
Neck and bulb alignment (magnetic types)	5101		---	---	---	---	---
Face tilt	5101		---	---	---	---	---
Stray light emission (conventional types)	5216	$E_{b2} = 13,200$ V dc; $E_{c2} = 770$ V dc	---	---	---	---	---
Screen	5221		---	---	---	---	---
Screen brightness I	5221	<u>4/</u>	---	---	---	---	---

See footnotes at end of table.

TABLE I. Testing and inspection - Continued.

Inspection	Method MIL-STD-1311	Conditions	Acceptance Level 6/	Symbol	Limits		Unit
					Min	Max	
<u>Conformance inspection, part 2</u> - Continued							
Line width A (magnetic deflection)	5226	lb = 200 μ A dc	---	Width	---	0.50	mm
Line width C (magnetic deflection)	5226	lb = 200 μ A dc	---	Width	---	0.75	mm
Focusing ampere turns	5246	lb = 200 μ A dc; D = 4.125 inch	---	---	337	459	---
Heater-cathode leakage current	5251		---	---	---	---	---
Grid No. 2 leakage current	5251		---	---	---	---	---
Base pin solder depth	1111		---	---	---	---	---
<u>Conformance inspection, part 3</u>							
Life-test provisions	---	Group C; t = 500 hours (min); Eb2 = 13.200 V dc; Ec2 = 770 V dc; lb = 60 μ A dc	---	---	---	---	---
Life-test end points	---	Line width A: lb = 200 μ A dc Line width C: lb = 200 μ A dc Modulation: lb = 200 μ A dc	---	Width	---	0.50	mm
				Width	---	0.75	mm
				Δ Ec1	---	38	V dc
<u>Periodic-check tests</u>							
Direct-interelectrode capacitance	1331	k to all g1 to all g2 to all	---	Ck	---	10	pF
				Cg1	---	11	pF
				Cg2	---	12	pF
Cathode illumination	5216		---	---	---	---	---

- 1/ When Ec2 is greater than 330 V dc. Rg1 shall not exceed 0.5 Meg Ω . When Ec2 is less than 330 V dc. Rg1 shall not exceed 1.5 Meg Ω .
- 2/ When Ec2 is greater than 330 V dc or Ec1 is near zero, the effective resistance of the anode and grid No. 3 supply should be adequate to limit the anode and grid No. 3 input power to 6 watts. Peak grid No. 1 drive from cutoff should never exceed 65 volts.
- 3/ This test to be performed at the conclusion of the holding period.
- 4/ Screen brightness I shall be measured as specified in MIL-STD-1311 method 5221 except that no pulsing shall be used on the grid and the screen current shall be 26.7 μ A with an anode voltage of 9 kV. The steady-state output shall be 735 cb minimum.
- 5/ The distance between the center of the unfocused, undeflected spot at low intensity (Ec1 near cut-off) and the center of the image of the masking aperture observed at high intensity of the unfocused, undeflected spot shall not exceed the limit specified. Ec1 should not be held at zero for more than approximately 30 seconds to prevent damage to the screen.
- 6/ This specification sheet uses accept on zero defect sampling in accordance with MIL-PRF-1, table III.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 2				
A	19.250	20.000	488.90	508.00
B	11.813	12.187	300.05	309.55
C	1.313 DIA	1.437 DIA	33.35 DIA	36.50 DIA
D	5.000	---	127.00	---
E	10.313	10.687	261.95	271.45
F	8.937	9.312	227.00	236.52
G	3.063 DIA	3.187 DIA	77.80 DIA	80.98 DIA
H	1.625	2.125	41.25	53.98
Conformance inspection, part 3 (periodic check)				
R	BASE: B8-65 (EIA)			
S	Bulb contact: C1-5			
Reference dimensions (see note 5)				
J	4.125		104.78	
K	50°			
M	20.000 R		508.00 R	
N	1.000 R		25.40 R	
P	7.687 R		195.25 R	

NOTES:

1. Reference line is determined by the plane of the upper edge of the reference line gauge (JEDEC No. 112) when the gauge is resting on the cone.
2. Anode terminal aligns with pin No. 5 ± 10 degrees.
3. Recommended position for center of focusing field.
4. Useful screen radius.
5. Reference dimensions are for information only and are not required for inspection purposes.

FIGURE 1. Outline drawing of electron tube type 12DP7C.

NOTES

Referenced documents. In addition to MIL-PRF-1, this specification sheet references MIL-STD-1311 and JEDEC No. 112.

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the previous issue.

Custodians:

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

Preparing activity:
DLA - CC

(Project 5960-3723)

Review activities:

Army - AR
Navy - AS, CG, MC, OS, SH
Air Force - 19, 99

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.