

INCH-POUND

MIL-PRF-1/1350F  
16 July 2004  
SUPERSEDING  
MIL-PRF-1/1350E  
8 July 1999

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, POWER  
TYPE 8295A

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: Pentode, external anode, ceramic-metal.

See figure 1.

Mounting position: Any.

Weight: 3 pounds (1.36 kg) nominal.

ABSOLUTE RATINGS:

Parameter:	F	E <sub>f</sub>	E <sub>b</sub>	E <sub>c1</sub>	E <sub>c2</sub>	E <sub>c3</sub>	I <sub>b</sub>
Unit:	MHz	V ac	V dc	V dc	V dc	V dc	mA dc
Class AB1 (rf or audio)							
Maximum:	30	6.3	3,000	---	600	100	800
Minimum:	---	5.7	---	---	---	---	---
Test conditions:	---	6.0	2,500	Adj	500	0	400

ABSOLUTE RATINGS:

Parameter:	I <sub>c1</sub>	P <sub>p</sub>	P <sub>g1</sub>	P <sub>g2</sub>	t <sub>k</sub>	Anode core and seal temp	Cooling
Unit:	mA dc	W	W	W	sec	°C	1/
Class AB1 (rf or audio)							
Maximum:	0	1,000	0	30	---	250	---
Minimum:	---	---	---	---	180	---	---
Test conditions:	---	---	---	---	300	---	2/

GENERAL:

Qualification: Required.

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TABLE I. Testing and inspection.

Inspection	Method MIL-STD- 1311	Notes	Conditions	Acceptance Level 6/	Symbol	Limits		Unit		
						Min	Max			
<u>Conformance inspection, part 1</u>										
Pulsing emission (sinusoid)	1231	---	pr = 10 (min); eb = ec2 = ec1 = 1,000 v	0.65	is	70	---	a		
Electrode voltage (grid)	1261	---		0.65	Ec1	-85.0	-115.0	V dc		
Total grid current	1266	5/		0.65	lc1	---	-50	μA dc		
Electrode current (screen)	1256	---		0.65	lc2	---	15	mA dc		
<u>Conformance inspection, part 2</u>										
Heater current	1301	---	g1 to g2 amplification; Ec1/lc2 = 60 mA dc; Eb = 0	---	If	7.7	8.7	A ac		
Direct-interelectrode capacitance (ground cathode connection)	1331	---		}	---	{	Cgp	---	0.12	pF
							Cin	36.0	44.0	pF
			Cout				16.5	20.5	pF	
Amplification factor	1316	---	---	---	Mu	3.0	3.8	---		
Low-frequency vibration	1031	---	No voltages applied	---	---	---	---	---		
Low-frequency vibration end-points:	---									
Electrode voltage (grid)	1261	---	}	---	Ec1	-85.0	-115.0	V dc		
Total grid current	1266	---							lc1	---
Current division (short pulse, method B)	1372	---	}	---	{	egk	---	0	v	
										ic2

See footnotes at end of table.

TABLE I. Testing and inspection - Continued.

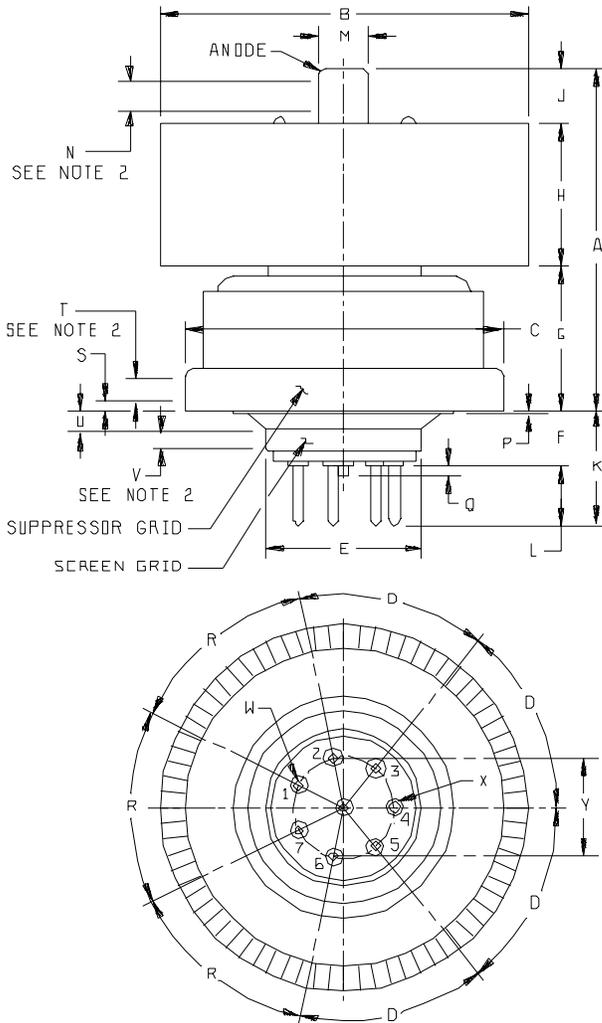
Inspection	Method MIL-STD- 1311	Notes	Conditions	Acceptance level 6/	Symbol	Limits		Unit
						Min	Max	
<u>Conformance inspection, part 3</u>								
Stability	---	3/	Eb = 3,000 V dc; Ec1/Ibo = 220 mA dc at t = 0; Read ΔIb at t = 180 sec	---	ΔIb t	---	22	mA dc
Linear amplifier power output and distortion	2204	3/	Class AB1 amplifier; Eb = 3,000 V dc; Ec1/Ibo = 220 mA dc; Eg1/Ib = 800 mA dc (1-tone); R <sub>l</sub> = 2,000 ± 100 ohms; R <sub>g</sub> = 1,000 ohms (max); anode tank Q = 10 to 15	---	Po 3rd IM 5th IM	1.350 -20 -30	--- --- ---	W dB dB
Life test	---	4/	Group C; linear amplifier Power output and distortion except, Eg1/Po = 1,400 W (min) (1-tone); t = 500 hours	---	---	---	---	---
Life-test end points:	2204	---						
Linear amplifier power output and distortion				---	Po 3rd IM 5th IM	1,250 -19 -29	--- --- ---	W dB dB

- 1/ With an anode dissipation of 1,000 watts and an incoming air temperature of 50°C at sea level, a minimum of 24 cfm of air shall be passed through the anode cooler. In all applications, an air-system socket, such as the EIMAC SK-184 or SK-184A, or equal, should be used. With an airflow of 24 cfm, the static pressure drop for the tube and socket is approximately 0.13 inch of water. Cooling air should be applied before or simultaneously with the application of electrode voltages, including the heater, and may be removed simultaneously with them. In cases where long life and consistent performance are factors, cooling in excess of minimum requirements is normally beneficial.
- 2/ During all electrical tests involving application of heater voltage, the use of an air-system socket is permissible, with forced-air cooling of 24 cfm maximum for air at 25°C at sea level. Correction may be made for higher altitude or temperature.
- 3/ The following tests, listed under conformance inspection, part 3, shall be performed every 3 months, with sample size and acceptance on zero defect criteria as follows:

$$n1 = 4 \quad c1 = 0$$

In case of a failure on a stability-test sample, the lot shall be reprocessed and a new sample submitted. the linear amplifier power output and distortion test shall be performed on the sample that is used for the stability test. In case of a failure of a linear amplifier power output and distortion test sample, this test shall become a conformance inspection, part 2, with an acceptance level of 6.5 (see 6/). After three consecutive successful submissions, the test may revert to the conformance inspection, part 3 test.

- 4/ This is a destructive test. All voltage and current meters shall be calibrated for ± 2 percent or better accuracy as installed in the equipment. Prior to the performance of the life test, the tube shall have met the requirements of the linear amplifier power output and distortion test.
- 5/ This test is to be the first test performed at the conclusion of the holding period.
- 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	3.458	3.832	87.83	97.33
C	3.485	3.515	88.52	89.28
E	1.615	1.630	41.02	41.40
F	.655	.719	16.64	18.26
K	1.056	1.219	26.82	30.96
M	.559	.573	14.20	14.55
W	.056	.062	1.42	1.57
X	.120	.127	3.05	3.23
Conformance inspection, part 3 (see note 1)				
B	3.968	4.032	100.79	102.41
G	1.395	1.645	35.43	41.78
H	1.468	1.532	37.29	38.91
J	.593	.657	15.06	16.69
L	.438	.562	11.13	14.27
N	.400	---	10.16	--
P	---	.125	---	3.18
T	.250	---	6.35	---
V	.220	---	5.59	---
Reference dimensions				
D	51°		51°	
Q	.125		3.18	
R	52°		52°	
S	.125		3.18	
U	.250		6.35	
Y	1.000		25.40	

PIN CONNECTIONS	
Pin No.	Element
1	k
2	g1
3	h
4	k
5	h
6	g1
7	k
Center pin	int con
Lower ring	g2
Upper ring	g3
Cap	a

NOTES:

- Dimensions shall be checked yearly. An accept on zero defect sampling plan shall be used, with sample of three tubes with an acceptance number of zero. In the event of failure, the test will be made as a part of conformance inspection, part 2, acceptance level of 6.5 (see 6/). The yearly sampling plan may be reinstated after three consecutive samples have been accepted.
- Contact surface shall be confined to this area.

FIGURE 1. Outline drawing of electron tube type 8295A.

NOTES

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

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.

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

Preparing activity:  
DLA - CC  
  
(Project 5960-3738)

Review activities:  
Army - CR4  
Navy - AS, CG, MC, OS  
Air Force - 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](http://www.dodssp.daps.mil).