INCH-POUND

MIL-PRF-1/745H
12 July 1999
SUPERSEDING
MIL-E-1/745G
28 October 1969

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, KLYSTRON
TYPE 6BL6 *

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: Reflex, external cavity, pulse, and CW operation.

ABSOLUTE RATINGS:

Parameter:	Ef	Ec1	Ec2	Ec3	Er	Ik	Ehk	Pi	tk	Alt
Unit:	V	V dc	V dc	V dc	V dc	mA dc	V dc	W	sec	ft
Maximum	6.8	+1.0	350	350	-700	35	+45	12	---	10,000
Minimum	5.8	-500	---	---	-15	---	-45	---	120	---

PHYSICAL CHARACTERISTICS:

Dimensions:	See figure 1
Cathode:	Coated unipotential
Mounting position:	Any

TEST CONDITIONS:

Parameter:	Ef	Ec1	Ec2	Ec3	Er
Unit:	V	V dc	V dc	V dc	V dc
	6.3	0	300	300	Adj for max Po

See footnotes at end of table I.

GENERAL:

Qualification: Required.

* CAUTION: Tube not designed for applications where hysteresis may affect performance.

TABLE I. Testing and inspection.

Inspection	Method	Notes	Conditions	Acceptance level	Inspection level or code	Symbol	Limits		Unit
							Min	Max	
Conformance inspection, part 1									
Total reflector current	4229	3/	Er = -90 V dc	---	---	Ir	---	5	µA dc
Heater current	1301	---		---	---	If	600	750	mA
Heater-cathode leakage	1336	---	Ehk = ± 45 V dc	---	---	Ihk	0	75	µA dc
Power output (1)	---	4/							
Electrode current (cathode)	1256	---		---	---	Ik	15	30	mA dc
Reflector voltage	4213	---		---	---	Er	-30	-60	V dc
Total reflector current	4229	---		---	---	Ir	---	150	µA dc
Frequency	---	---		---	---	F	2,110	2,170	MHz
Power output	4250	---		---	---	Po	25	---	mW
Cathode emission	4214	5/	Ef = 5.7 V	---	---	ΔIk	---	15	%
Power output (2)	---	6/							
Electrode current (cathode)	1256	---		---	---	Ik	15	30	mA dc
Reflector voltage	4213	---		---	---	Er	-250	-330	V dc
Frequency	---	---		---	---	F	4,225	4,355	MHz
Power output	4250	---		---	---	Po	25	---	mW
Cathode emission	4214	5/	Ef = 5.7 V	---	---	ΔIk	---	15	%
Conformance inspection, part 2									
Secureness of base, base insert, or cap	1101	2/		6.5	S3	---	---	---	---
Low-frequency vibration	1031	---	No voltages	6.5	S3	---	---	---	---
Conformance inspection, part 3									
Life-test provisions	---	1/	Group C	---	---	t	500	---	hrs
Life-test end points:	---								
Power output (1)	4250	4/		---	---	Po	20	---	mW
Power output (2)	4250	6/	Ec2 = Ec3 = 300 V dc	---	---	Po	20	---	mW

See footnotes at top of next page.

TABLE I. Testing and inspection - Continued.

1/ Test tube with test cavity as specified on Drawing 166-JAN. Frequency approximately 3,000 MHz. Adjust Er for maximum Po at each life-test reading. Adjust matching network for maximum Po.

2/ Water-immersion test omitted. Torque shall be applied between upper disk (g3) and molded portion of base and shall be 20 inch-pounds.

3/ Static test; tube not oscillating.

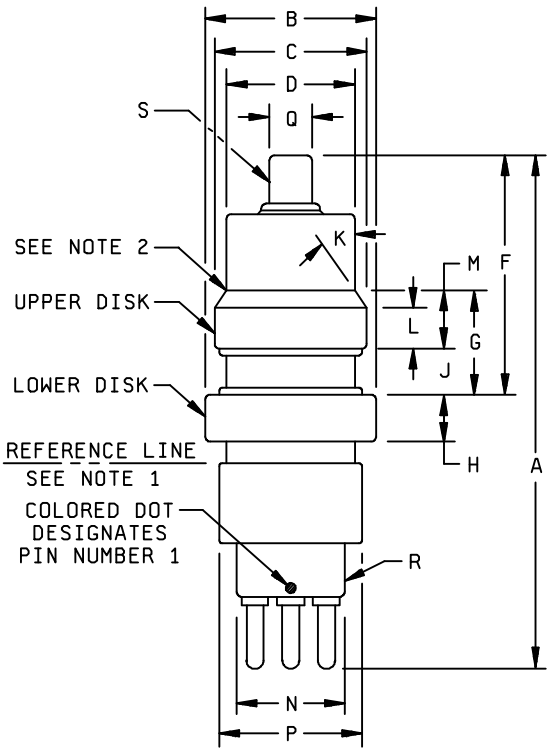
4/ Test tube with 2,140 MHz test cavity as specified on Drawing 166-JAN. Tube operated in N = 2 mode (2.75 cycles for complete transit). Adjust Er for maximum Po. Adjust matching network for maximum Po.

5/ Reduce Ef to 5.7 V while tube is oscillating. The percentage dropoff in cathode emission shall not exceed limit shown.

6/ Test tube with 4,290 MHz test cavity as specified on Drawing 166-JAN. Tube operated in N = 2 mode (2.75 cycles for complete transit). Adjust Er for maximum Po. Adjust matching network for maximum Po.

7/ Changes from previous issue. Revision letters are not used in this revision to identify changes with respect to the previous issue, due to the extensiveness of the changes.

Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 1				
A	2.969	3.219	75.41	81.76
B	.990	1.000	25.15	25.40
C	.880	.890	22.35	22.61
F	1.375	1.500	34.93	38.10
M	.303	.323	7.70	8.20
Conformance inspection, part 2				
G	.560	.610	14.22	15.49
H	.250	.312	6.35	7.92
J	.257	.287	6.53	7.29
Conformance inspection, part 3				
D	---	.750	---	19.05
K	25°	35°	25°	35°
N	.610	.656	15.49	16.66
P	.807	.822	20.50	20.88
Q	.245	.255	6.22	6.48
R	Base: A4-76			
S	Cap: C1-3			
Nominal dimensions				
L	.250		6.35	



Pin connections	
1	g1
2	h
3	k
4	h
Lower disk	g2
Upper disk	g3
Cap	r

NOTES:

1. For dimensions below reference line refer to base A4-76.

2. Space between glass and upper disk edge or backing ring shall be .030 inch (0.76 mm) maximum. Conformance inspection, part 2, shall apply.

3. Diameters B and C shall be concentric within .025 inch (0.63 mm) TIR and shall form circular cylinder within a range of .006 inch (0.15 mm). Allowable radius at ends of cylinder shall be .030 inch (0.76 mm) maximum. Conformance inspection, part 2, shall apply.

4. Tube shall be tested in concentricity gauge specified on drawing 199-JAN. Gauge readings on diameters shall be as follows:

Diameter	Eccentricity
D	.050 max
N	.060 max
P	.060 max
Q	.040 max

5. All concentricity measurements shall be conformance inspection, part 2.

6. Pin No. 1 shall be identified by an index mark (colored dot or other.)

FIGURE 1. Outline drawing of electron tube type 6BL6.

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

Review activities:
Army - CR4
Navy - AS, CG, MC, OS
Air Force - 19, 99

Preparing activity:
DLA - CC

Project (5960-3551-03)