

MILITARY SPECIFICATION SHEET

ELECTRON TUBE, GAS SWITCHING

TYPE 6081

The complete requirements for procuring the electron tube described herein shall consist of this document and the latest issue of Specification MIL-E-1.

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

DESCRIPTION: ATR, fixed frequency, Fo = 5,640 MHz

ABSOLUTE RATINGS:

Parameter:	Transmitter po	Du	tp	Alt
Unit:	kw	---	μs	ft
Maximum:	---	0.001	1.0	10,000
Minimum:	10	---	---	---

PHYSICAL CHARACTERISTICS:

Dimensions: See figure 1  
 Mounting position: Any (See note 3)

TEST CONDITIONS:

Parameter:	po	prf	tp	σ'
Unit:	kw	pps	μs	---
Test 1:	20	1,000	1.0	---
Test 2:	70(min)	1,000	1.0	1.03(max)
Test 3:	300 ± 10	1,000	1.0	1.2(max)

Frequencies		
F	MHz	±
F1	5,640	---
F2	5,640	0.1%
F3	5,640	4%

GENERAL:

Qualification - Required

METHOD	REQUIREMENT OR TEST	NOTES	TEST	CONDITIONS	SYMBOL	LIMITS		UNIT
						MINIMUM	MAXIMUM	
	<u>Quality conformance inspection, part 1</u>	1	---					
4482	Tuning susceptance	---	---	F <sub>0</sub> - F <sub>2</sub>	B'Y <sub>0</sub>	-0.06	+0.06	---
4486	Firing time	2	1	F <sub>0</sub> - F <sub>3</sub>	t	---	10	sec
4488	Arc loss	4	---		L <sub>a</sub>	---	0.8	dB
1027	Temperature cycling (nonoperating)	5	---		---	1	---	Cycle
1027	Temperature cycling life test	---	---	Group D	---	10	---	Cycles
	<u>Quality conformance inspection, part 2</u>							
4484	Normalized conductance	---	---	F <sub>0</sub> - F <sub>2</sub>	G Y <sub>0</sub>	---	0.1	---
	<u>Quality conformance inspection, part 3</u>							
---	Life-test provisions	---	3	Group D, F <sub>0</sub> - F <sub>3</sub>	t	500	---	hrs
---	Life-test end points	---	---					
4488	Arc loss	---	1	F <sub>0</sub> - F <sub>3</sub>	L <sub>a</sub>	---	1.0	dB
4484	Normalized conductance	---	---	F <sub>0</sub> - F <sub>2</sub>	G Y <sub>0</sub>	---	0.1	---
	<u>Periodic-check tests</u>							
4021	Degradation due to vibration	---	---	No voltages	---	---	---	---
4461	Loaded Q	---	---	F <sub>0</sub> - F <sub>1</sub>	QL	---	7.0	---
4474	High-level VSWR	---	2	F <sub>0</sub> - F <sub>1</sub>	σ'	---	1.10	---

NOTES:

1. All tests listed under quality conformance inspection, part 1, shall have an AQL of 1.0 percent and an inspection level of II.
2. This test to be performed at the conclusion of the holding period.
3. The tube mount shall be designed to avoid interference from a toroidal mode over the operating range of the tube. For this purpose a shorting contact or capacitive shunt may be included in the mount centered in area "A" as shown on figure 1.
4. This test shall be performed at least 7 days after pumping and at least 24 hours after any previous discharge.
5. This test may be conducted during the holding period but not less than 24 hours before the arc-loss test.

**Custodians:**

Army - EL  
Navy - EC  
Air Force - 80

Preparing activity: Navy - EC

Agent: DSA - ES

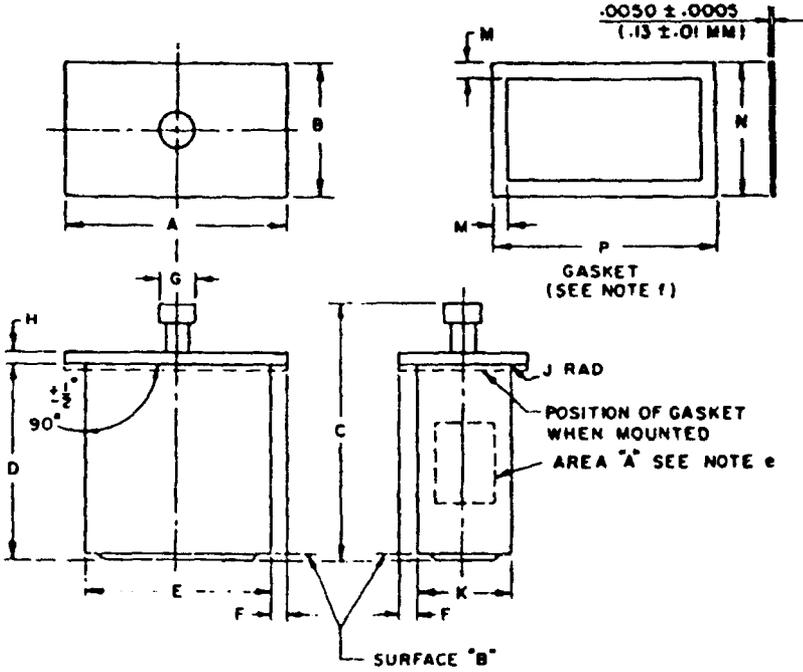
(Project 5960-2425-39)

**Review activities:**

Army - EL  
Navy -  
Air Force - 11, 17, 80  
DSA - ES

**User activities:**

Army - MU  
Navy - AS, OS, MC, CG, SH



Ltr	Dimensions in inches with metric equivalents (mm) in parentheses		Notes
	Minimum	Maximum	
Quality conformance inspection, part 1			1
A	2.395 (60.83)	2.405 (61.09)	
B	1.395 (35.43)	1.405 (35.69)	
D	2.074 (52.68)	2.102 (53.39)	
E	1.985 (50.42)	2.015 (51.18)	
F	.182 (4.62)		c
K	.985 (25.02)	1.015 (25.78)	
P	2.395 (60.83)	2.405 (61.09)	
Quality conformance inspection, part 2			
C		2.750 (69.85)	
G		.375 (9.53)	
H	.117 (2.97)	.133 (3.38)	
J	(all sides)	.040 (1.02)	
M	.145 (3.68)	.155 (3.94)	
N	1.395 (35.43)	1.405 (35.69)	

NOTES:

- The tubulation shall fall within a circle of .500 (12.70 mm) dia max located about the center of the flange.
- Silver plate 100 msi min. or equivalent.
- Applies at all edges of window face of tube at surface B.
- Centerlines of window shall coincide with corresponding centerlines of the body within .015 (.38 mm) measured in plane of window.
- Area A centrally located on barrel (see note 3).
- Gasket is soft temper nickel or copper. two supplied with tube but not mounted.

FIGURE 1. Outline drawing of electron tube type 6081.