

INCH-POUND

MIL-PRF-1/368F  
6 April, 1999  
SUPERSEDING  
MIL-E-1/368E  
28 November 1973

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, GAS SWITCHING  
TYPE 5865

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: TR, bandpass, frequency range 5,395 to 5,905 MHz, peak power rating 300 kw.

ABSOLUTE RATINGS:

Parameter:	Incident power	Ebb	Altitude
Unit:	kw	V dc	feet
Maximum:	300	- - -	10,000
Minimum:	4	-700	- - -

PHYSICAL CHARACTERISTICS: See figure 1.

TEST CONDITIONS:

Parameter:	tp1	pr	li	Incident power	$\sigma'$	F
Unit:	$\mu$ s	pps	$\mu$ A dc	kw	- - -	MHz
Tolerance:	$\pm 0.15$	- - -	- - -	$\pm 10\%$	Max	- - -
Test condition 1:	1.0	1,000	100	4	1.1:1	F3
Test condition 2:	1.0	1,000	100	70	1.1:1	F3

Frequency		
F	MHz	$\pm$ (percent)
1	5,395	0.1
2	5,450	0.1
3	5,650	5
4	5,825	0.1
5	5,905	0.1

GENERAL:

Qualification - Required.

MIL-PRF-1/368F

TABLE I. Testing and inspection.

Inspection	Method	Notes	Test	Conditions	Symbol	Limits Min	Limits Max	Units
<u>Qualification inspection</u>								
Degradation due to vibration	4021	---	---		---	---	---	---
Flat leakage power	4452	---	1		pf	---	50	mW
Spike leakage energy	4452	---	1		Ws	---	0.25	erg
<u>Conformance inspection, part 1</u>								
Low-level VSWR	4473	---	---	$\sigma' = 1.05$ max F1 F2 F3 $\pm 0.1$ percent F4 F5	$\sigma$ $\sigma$ $\sigma$ $\sigma$ $\sigma$	---	1.9 1.4 1.4 1.4 1.9	--- --- --- --- ---
Insertion loss	4416	---	---	F = F3; li = 0	Li	---	0.8	dB
Ignitor interaction	4421	---	---	li = 100 $\mu$ A dc	$\Delta$ Li	---	0.2	dB
Ignitor ignition time	4401	1	---	Ebb = -700 V dc R = 4.0 M $\Omega$ $\pm 1$ percent	t	---	5	sec
Ignitor voltage drop	4406	---	---	Ebb = -700 V dc R = 4.0 M $\Omega$ $\pm 1$ percent	Eid	200	400	V dc
Flat leakage power	4452	---	2		pf	---	50	mw
Spike leakage energy	4452	---	2		Ws	---	0.25	erg
Position of short	4494	2	2		Distance	0.070	0.100	Inch
Arc loss	4488	---	1		Loss	---	0.80	dB
Temperature cycling (nonoperating)	1027	---	---		---	---	---	---
<u>Conformance inspection, part 2</u>								
Dielectric material strain	4101	4	---		---	---	---	---
Recovery time	4471	---	2		t	---	10.0	$\mu$ s
<u>Conformance inspection, part 3</u>								
Life test	---	3	2	Group C; Ebb = -700 V dc; R = 4.0 M $\Omega$ $\pm 1$ percent	t	500	---	hrs

See footnotes at end of table.

## MIL-PRF-1/368F

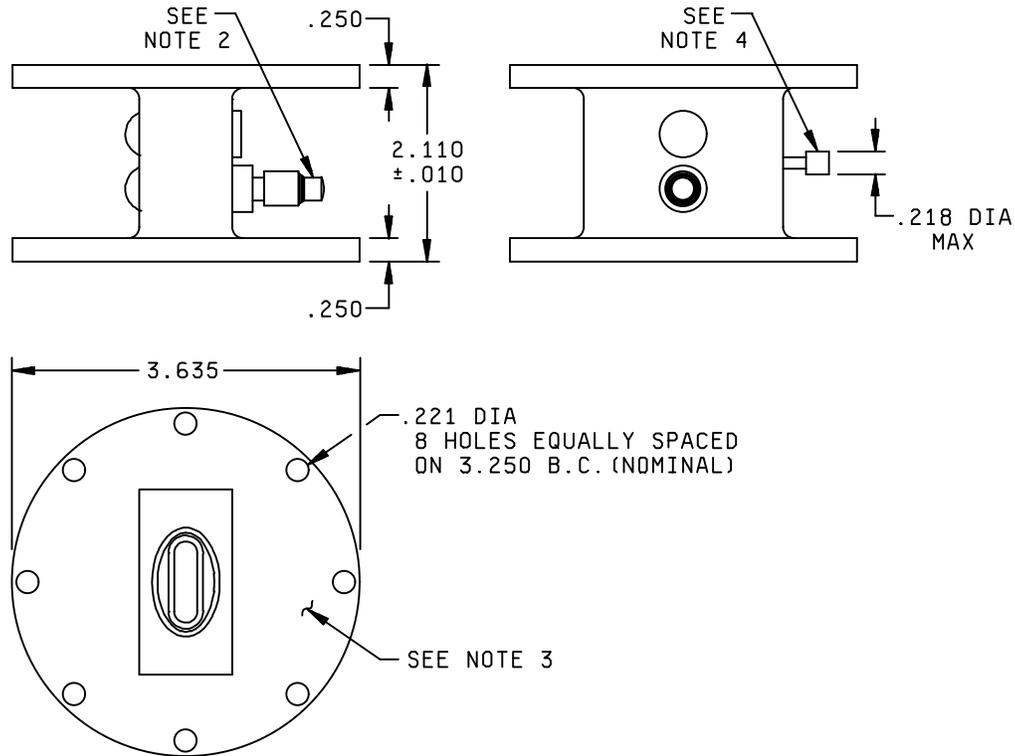
TABLE I. Testing and inspection - Continued.

Inspection	Method	Notes	Test	Conditions	Symbol	Limits Min	Limits Max	Units
<u>Conformance inspection, part 3</u> <u>-Continued</u>								
Life-test end points:	---							
Recovery time	4471	---	2		t	---	20	$\mu$ s
Flat leakage power	4452	---	2		pf	---	70	mw
Insertion loss	4416	---	---	F = F3; li = 0	Li	---	0.8	dB
Spike leakage energy	4452	---	2		Ws	---	0.3	erg
Temperature cycling life test	1027	---	---	Group C; 10 cycles	---	---	---	---

## NOTES:

1. This test to be performed at the conclusion of the holding period.
2. With a metal plate shorting the line the position of the voltage standing wave minimum shall be determined. The metal plate shall be replaced by the tube and the position of the voltage standing wave minimum of the flat portion of the pulse shall be measured.
3. The ignitor current shall not be adjusted during life test. Life-test end points shall be measured using a fixed voltage and resistor.
4. After this test, the following requirement shall be met: Recovery time (Method 4471).

MIL-PRF-1/368F



Inches	mm
.010	0 0.25
.218	0 5.54
.221	0 5.61
.250	0 6.35
2.110	53.59
3.250	82.55
3.625	92.08

NOTES:

1. Metric equivalents (to the nearest 0.01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.
2. Skirted miniature cap C1-3. Cap not to extend beyond edge of flange.
3. Nickel plating or Rhodium flash over silver plating optional. If nickel plating is required, it is recommended that it be used only when other platings cannot meet performance requirements. The surface, referenced in this note, shall meet and enable the Gas Switching tube to meet all interface and performance requirements.
4. Exhaust tube not to extend beyond edge of flange.
5. Unless otherwise specified, tolerance is ±.016 (0.41 mm).

FIGURE 1. Outline drawing of electron tube type 5865.

Custodians:

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

Preparing activity:

DLA - CC  
 (Project 5960-3460)

Review activities:

Navy - AS, CG, MC, OS, SH  
 Air Force - 99