INCH-POUND

MIL-PRF-1/964E
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SUPERSEDING
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PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, GAS SWITCHING
TYPE 6378

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, tunable, frequency range 8.49 to 9.6 GHz.

ABSOLUTE RATINGS:

Parameter:	po transmitter	Ebb (open circuit)	Du	Ii	Alt	TA
Unit:	kW	V dc	---	µA dc	ft	°C
Maximum:	30	---	0.001	200	10,000	+100
Minimum:	---	-500	---	100	---	-40

PHYSICAL CHARACTERISTICS:

Dimensions: See figure 1
Weight: 5 ounces (approximately).

TEST CONDITIONS:

Parameter:	Ebb	Ii	po	tp	Du	Ri
Unit:	V dc	µA dc	kW	µs	---	MΩ
Tolerance:	---	---	±10%	±10%	---	---
Test 1:	-500	---	---	---	---	1.25
Test 2:	---	100	---	---	---	1.25
Test 3:	-500	---	30	1.0	0.001	1.25
Test 4:	---	100	30	0.5	0.0005	1.25
Test 5:	---	100	10	0.5	0.0005	1.25

Test frequencies	
F1	8.490 GHz ±.01 %
F2	9.375 GHz ±.01 %
F3	9.600 GHz ±.01 %

See footnotes at end of table I.

GENERAL:

Qualification: Not required.

This specification sheet uses accept on zero defect sampling in accordance with MIL-PRF-1, table III.

TABLE I. Testing and inspection

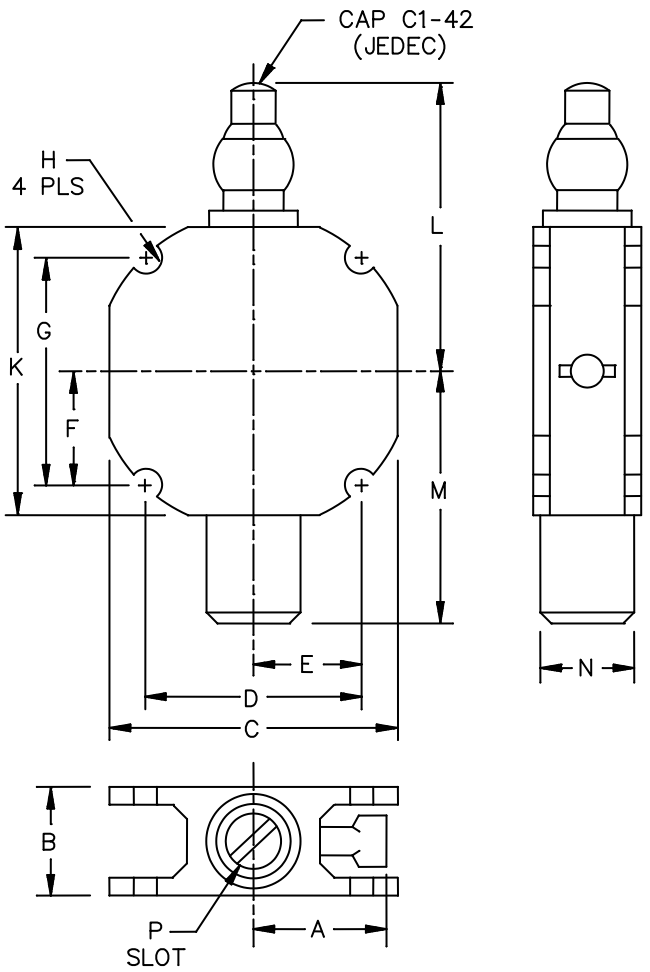
Inspection	Method MIL-STD-1311	Test	Conditions	Symbol	Limits		Unit
					Min	Max	
Conformance inspection, part 1							
Ignitor ignition time	4401	1		t	---	1.0	sec
Ignitor voltage drop	4406	2		Eid	200	400	V dc
Insertion loss (1) (integral cavity)	4416	---	F = F2	Li	---	1.5	dB
Ignitor interaction (insertion loss)	4421	2		ΔLi	---	0.2	dB
Tuning range	4426	---	F = F1 to F3	---	5	---	turns
Leakage power	4452	5	F = F2, T = 25°C	$\frac{Po}{Du}$	---	30	mW
Temperature cycling (nonoperating)	1027	---		---	---	---	---
Conformance inspection, part 2							
High-frequency vibration	1031	---	t = 15 minutes	---	---	---	---
Loaded Q	4461	---		QL	---	350	---
Vibration detuning	4016	---	F = F2, t = 12 hours	ΔF	---	±3	MHz
Ignitor oscillation (obsolescent)	4411	---		Li	---	60	μA dc
Insertion loss (2) (Integral cavity)	4416	---	F = F1 and F3	Li	---	1.5	dB
Temperature coefficient of frequency	4466	---	F = F1 1/	ΔF	---	-20	MHz
Recovery time	4471	4	F = F2	t	---	4.0	μs
Pressurizing	4002	---	45 lb_f/in^2	---	---	---	---

See footnotes at end of table.

TABLE I. Testing and inspection - Continued.

Inspection	Method MIL-STD-1311	Test	Conditions	Symbol	Limits		Unit
					Min	Max	
Conformance inspection, part 3							
Life test	4551	3	F = F2, group D	t	500	---	hrs
Life-test end points:	---						
Ignitor voltage drop	4406	2		Eid	---	450	V dc
Insertion loss (1)	4416	---	F = F2	Li	---	2.0	dB
Ignitor interaction	4421	2		Li	---	0.5	mW
Leakage power	4452	5	F = F2, T = 25°C	$\frac{Po}{Du}$	---	35	mW
Recovery time	4471	4	F = F2	t	---	8.0	µs
Temperature cycling	1027	---	Group D	---	10	---	cycles

1/ The frequency drift shall be measured with no adjustment of the tuning mechanism.



Ltr	Dimensions			
	Inches		Millimeters	
	Min	Max	Min	Max
Conformance inspection, part 1				
A	---	.750	---	19.05
B	.607	.617	15.42	15.67
L	---	1.625	---	41.28
Conformance inspection, part 2				
D	1.216	1.224	30.89	31.09
G	1.276	1.284	32.41	32.61
H	.085 R	.095 R	2.16 R	2.41 R
M	---	1.422	---	36.12
N	---	.530 DIA	---	13.46 DIA
Conformance inspection, part 2				
C	1.610	1.640	40.89	41.66
E	.608	.612	15.44	15.54
F	.638	.642	16.21	16.31
K	1.610	1.640	40.89	41.66
P	.031	.062	0.79	1.57

NOTE: Exhaust tube shall not extend beyond flange.

FIGURE 1. Outline drawing of electron tube type 6378.

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

Custodians:
Army - CR
Navy - EC
DLA - CC

Review activities:
Army - AR

Preparing activity:
DLA - CC

(Project 5960-2011-014)

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 https://assist.daps.dla.mil/.