

INCH-POUND

MIL-PRF-1/964E
w/AMENDMENT 1
20 September 2019
SUPERSEDING
MIL-PRF-1/964E
13 January 2012

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 MIL-PRF-1.

DESCRIPTION: TR, tunable, frequency range 8.49 to 9.6 GHz.

ABSOLUTE RATINGS:

Parameter:	po transmitter	Ebb (open circuit)	Du	li	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	li	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 ± 0.1 %
F2	9.375 GHz ± 0.1 %
F3	9.600 GHz ± 0.1 %

See footnotes at end of table I.

GENERAL:

Qualification: Required.

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

AMSC N/A

FSC 5960



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TABLE I. Testing and inspection

Inspection	Method MIL-STD-1311	Test	Conditions	Symbol	Limits		Unit	
					Min	Max		
<u>Conformance inspection, part 1</u>								
Ignitor ignition time	4401	1	F = F2	t	---	1.0	sec	
Ignitor voltage drop	4406	2		E _{id}	200	400	V dc	
Insertion loss (1) (integral cavity)	4416	---		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	---			---	---	---	---
<u>Conformance inspection, part 2</u>								
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/in ²	---	---	---	---	

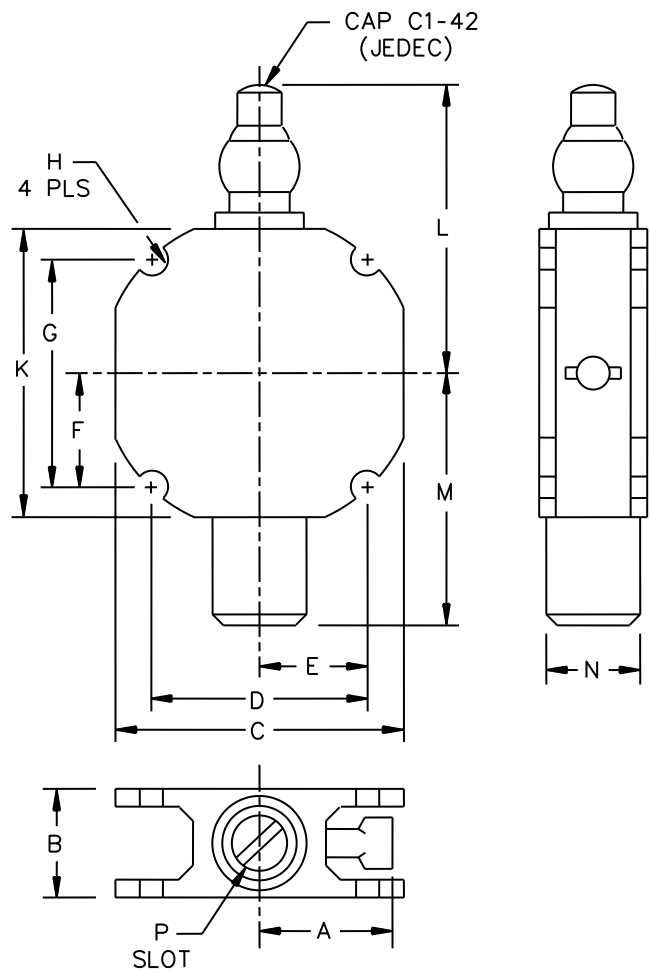
See footnotes at end of table.

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TABLE I. Testing and inspection - Continued.

Inspection	Method MIL-STD-1311	Test	Conditions	Symbol	Limits		Unit
					Min	Max	
<u>Conformance inspection, part 3</u>							
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.



NOTE: Exhaust tube shall not extend beyond flange.

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

FIGURE 1. Outline drawing of electron tube type 6378.

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

Amendment notations. The margins of this specification sheet are marked with vertical lines to indicate modifications generated by this amendment. 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.

Custodians:

Army - CR

Navy - EC

DLA - CC

Preparing activity:

DLA - CC

(Project 5960-2019-020)

Review activities:

Army - AR

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.dla.mil/>.