INCH-POUND

MIL-PRF-1/1394C(USAF)
26 July 1999
SUPERSEDING
MIL-E-1/1394B(USAF)
7 January 1977

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, NOISE SOURCE
TYPE 6357

This specification is approved for use by the Department of the Air Force and is available 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: X-band, gaseous discharge diode.

ABSOLUTE RATINGS:

Parameter:	If	TA	Tbulb
Unit:	mA dc	°C	°C
Maximum:	170	+85	+125
Minimum:	---	-54	----

PHYSICAL CHARACTERISTICS:

Cathode:	Filamentary type
Dimensions:	See outline drawing
Base:	See outline drawing
Mounting position:	Any

TEST CONDITIONS:

Parameter:	If	Ib
Unit:	A	mA dc
Value:	0	200

GENERAL:

Preproduction test: Required (see 10/).

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

TABLE I. Testing and inspection.

Inspection	Method	Conditions	Symbol	Limits Min	Limits Max	Unit
Conformance inspection, part 1						
Filament voltage	1261	If = 170 mA dc	Ef	---	20	V dc
Voltage drop	1337	2/	Etd	70	80	V dc
Excess noise	---	F = 9.0 ± 0.3 percent GHz 1/ 3/ 4/ 5/	NR-1	15.40	15.80	db
Match (1)	---	F = 9.0 ± 0.3 percent GHz Ib =0 4/ 6/	VSWR	---	1.1:1	---
Match (2)	---	F = 9.0 ± 0.3 percent GHz Ib = 250 mA dc 4/ 6/	VSWR	---	1.1:1	---
Conformance inspection, part 2						
Variable frequency vibration	1031	No voltages 9/	---	---	---	---
Conformance inspection, part 3						
Intermittent life test	---	Group D; cycle one minute on, 2 minutes off; preheat time 2 to 3 seconds 3/ 8/	---	2,500	---	Cycles
Life test end point:						
Excess noise ratio	---	F = 9.0 ± 0.3 percent GHz 1/ 3/ 4/ 5/	Nr-1	15.35	15.85	db

1/ The excess noise ratio (Nr-1) is defined in db as $Nr - 1 = 10 \log \frac{(Te - 1)}{290}$ where Te is the effective electron temperature.

2/ In the test circuit of figure 4 with a filament current of 170 mA dc, the tube shall operate within three tries.

3/ The tube shall be tested in total darkness.

4/ The tube shall be tested in a tube mount as specified in figure 3, or equivalent, terminated by a matching RG-52/U termination having a VSWR no greater than 1.01:1 such as a Hewlett-Packard X-914A, or equal. Excess noise ratio measurements tests shall be made using the circuit of the block diagram of figure 2. Excess noise ratio should be measured by comparison with an approved standard noise source.

5/ The frequency specified is that of the local oscillator.

6/ The frequency specified is that of a signal generator.

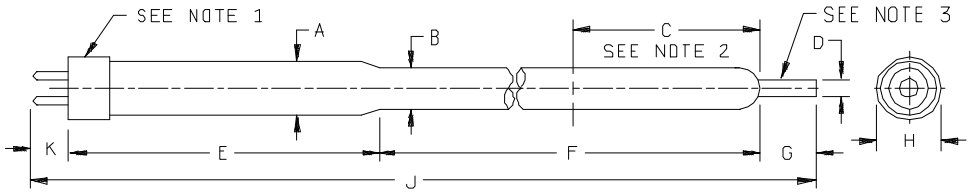
7/ Excess noise ratio shall be measured by comparison with an approved standard.

8/ The tube shall be tested at an ambient temperature of +85°C (185°F).

9/ Intermittent life test end points shall apply.

10/ First article sample inspection shall conform to the requirements of appendix F of MIL-PRF-1 and shall consist of performing all tests specified on this specification sheet. In addition, first article sample approval shall include satisfactory demonstration of tube-to-system compatibility. Invitation for bids should provide that the preparing activity reserves right to waive the requirements for first article samples as to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending acquisition.

11/ Unless otherwise specified, the acceptance level for all tests listed under conformance inspection, part 1, shall be 1.0 percent, inspection level II.



NOTES:
1. Miniature bi-pin base.
2. .380 inch (9.65 mm) maximum, no minimum dimension on diameter for this length of tube.
3. Brass contact.
4. Dimensions shown in inches.

Ltr	Dimensions			
	Inches		Millimeter	
	Min	Max	Min	Max
A	---	.579 DIA	---	14.71 DIA
B	.370 DIA	.380 DIA	9.40 DIA	9.65 DIA
C	1.450	1.550	36.83	39.37
D	.183 DIA	.193 DIA	4.65 DIA	4.90 DIA
E	---	2.750	---	69.85
F	8.625	---	219.08	---
G	---	.500	---	12.70
H	---	.563	---	14.29
J	11.938	12.250	203.21	311.15
K	.268	.348	6.81	8.84

FIGURE 1. Outline drawing for electron tube type 6357.

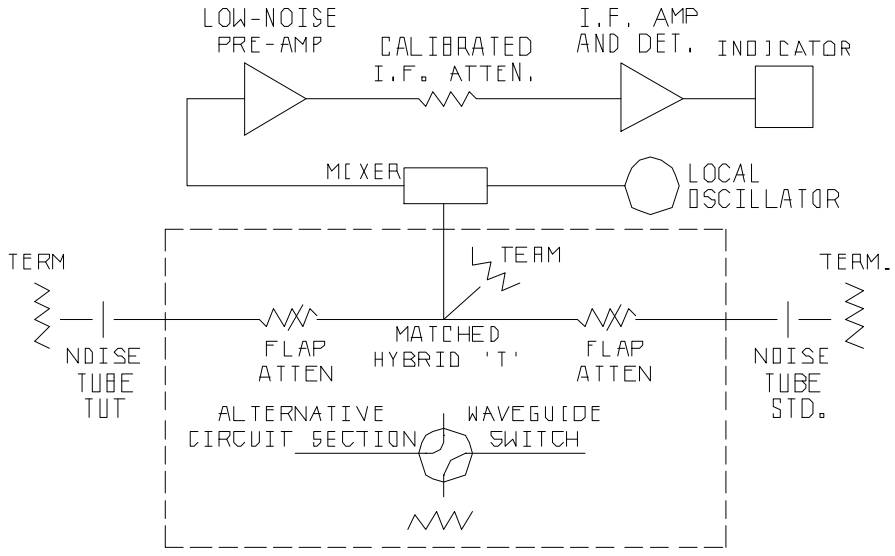


FIGURE 2. Test circuit for excess noise measurements.

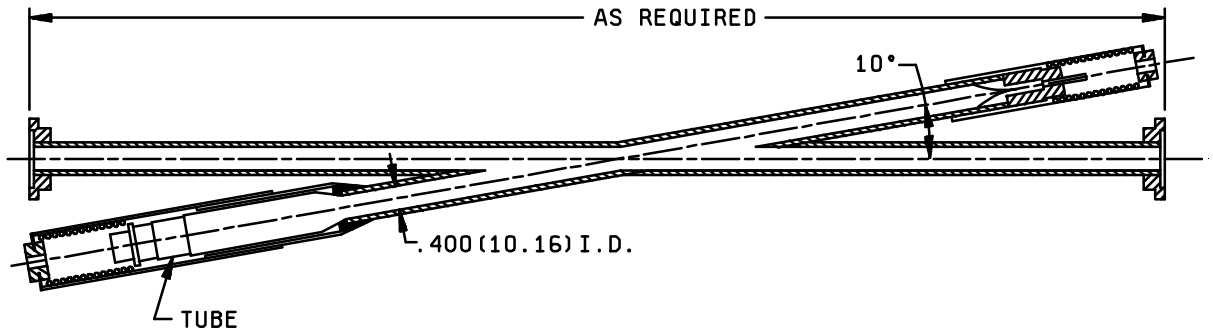


FIGURE 3. Waveguide mount assembly RG-52/U.

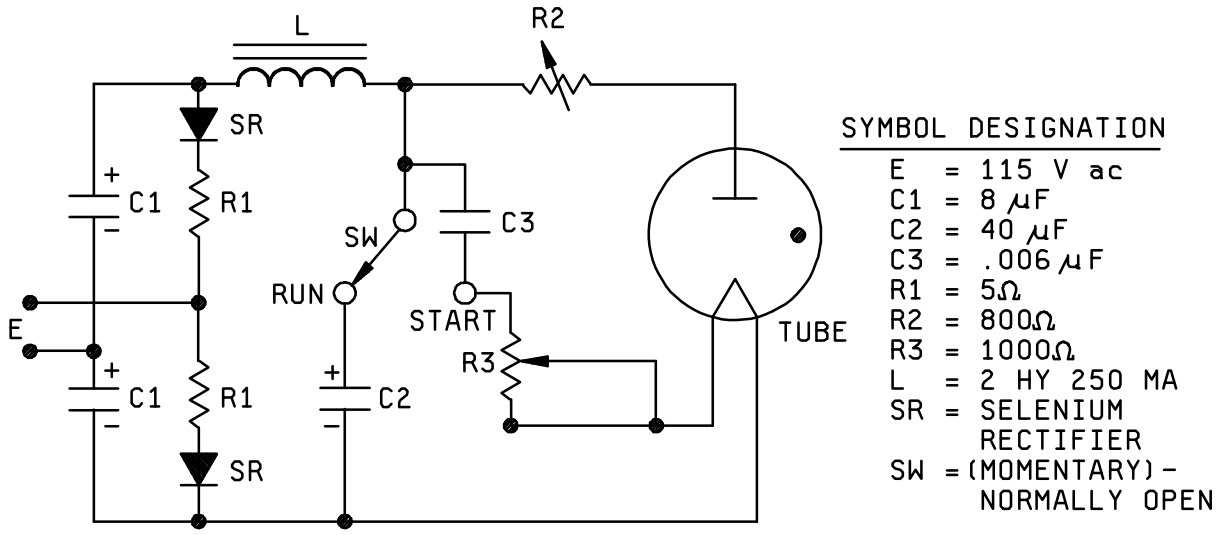


FIGURE 4. Starting and operating circuit.

Custodians:
Air Force - 11
DLA - CC

Review activities:
Air Force - 99

Preparing activity:
DLA - CC

(Project 5960-3549)