

INCH-POUND

MIL-PRF-1/878G
27 March 2012
SUPERSEDING
MIL-PRF-1/878F
7 January 2000

PERFORMANCE SPECIFICATION SHEET

ELECTRON TUBE, POWER
TYPE 250TH *

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: Triode.

See figure 1.

Weight: 10 ounces nominal (283.5 grams).

Mounting position: Vertical.

ABSOLUTE RATINGS: C Telegraphy.

| Parameter: | F | E _f | E _b | E _c | I _b | I _c | P _p |
|------------------|-----|----------------|----------------|----------------|----------------|----------------|----------------|
| Unit: | MHz | V | kV dc | V dc | mA dc | mA dc | W |
| Maximum: | 40 | 5.25 | 3.0 | -210 | 330 | 75.0 | 250 |
| Minimum: | --- | 4.75 | --- | --- | --- | --- | --- |
| Test conditions: | --- | 5.0 V ac | 2.5 | Adjust | 100 | --- | --- |

See footnotes at end of table I.

GENERAL:

Qualification: Not required.

Holding period: (MIL-STD-1311): 1/

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

* Tube type 250TL has been deleted from this tube specification sheet. Use EIA Type 250TL.

MIL-PRF-1/878G

TABLE I. Testing and inspection.

| Inspection | Method MIL-STD-1311 | Conditions | Symbol | Limits | | Unit |
|---------------------------------------|------------------------|--|--------|--------|-------|-------|
| | | | | Min | Max | |
| <u>Conformance inspection, part 1</u> | | | | | | |
| Filament current | 1301 | | If | 9.7 | 11.2 | A ac |
| Total grid current | 1266 | | Ic | --- | -15 | μA dc |
| Electrode voltage (grid) | 1261 | | Ec | -27.0 | -39.0 | V dc |
| Primary grid emission | 1266 | Ef = 5.5 V ac; Ic = 175 mA dc; t = 15 | Isg | --- | -500 | μA dc |
| Peak emission | 1231 | eb = ec = 2,500 v | is | 5.0 | --- | a |
| <u>Conformance inspection, part 2</u> | | | | | | |
| Amplification factor | 1316 | | Mu | 31.0 | 41.0 | --- |
| Power oscillation | 1236 | Eb = 3,000 V dc; Ib = 300 mA dc; F = 8 MHz | Po | 540 | --- | W |
| Direct-interelectrode capacitance | 1331 | | { Cgp | 2.2 | 3.0 | pF |
| | | | { Cin | 3.7 | 5.1 | pF |
| | | | { Cout | --- | 0.6 | pF |

See footnotes at end of table.

TABLE I. Testing and inspection - Continued.

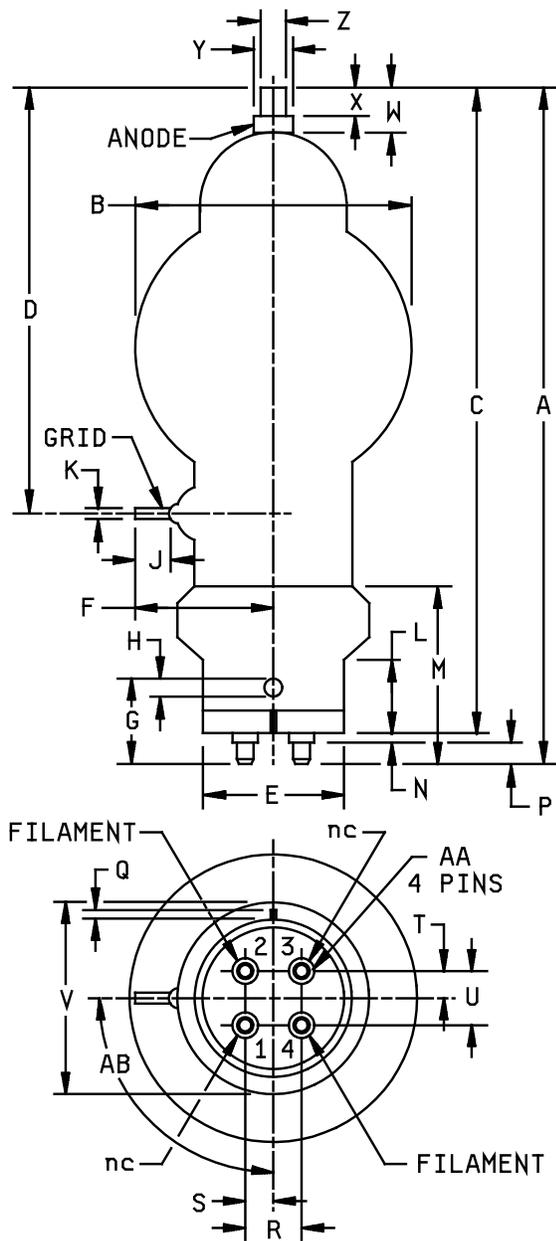
| Inspection | Method MIL-STD-1311 | Conditions | Symbol | Limits | | Unit |
|--|------------------------|---|--------|--------|-------|------------|
| | | | | Min | Max | |
| <u>Conformance inspection, part 3</u> | | | | | | |
| Life test | --- | Group C; power oscillation; t = 500 hours | --- | --- | --- | --- |
| Life-test end points: | --- | | | | | |
| Peak emission | 1231 | | is | 3.5 | --- | a |
| Primary grid emission | 1266 | | lsg | --- | -500 | μ A dc |
| Low-frequency vibration | 1031 | No voltages <u>2/</u> | --- | --- | --- | --- |
| Bump | 1036 | Angle = 20° <u>2/</u> | --- | --- | --- | --- |
| Low-frequency vibration and bump end points: | --- | | | | | |
| Total grid current | 1266 | | lc | --- | -15 | μ A dc |
| Electrode voltage (grid) | 1261 | | Ec | -27.0 | -39.0 | V dc |

1/ In addition to the 24-hour holding period, 10 percent of the tubes in any production lot shall be held for a period of 72 hours. If more than 2 percent of the tubes fail to meet the total grid current test, the tubes represented by this sample shall be subject to recall and all tubes shall be held for a period of 72 hours.

2/ This test shall be performed yearly, with sampling as follows:

n1 = 4 c1 = 0 where c2 represents the total failures for the
n2 = 4 c2 = 0; first and second samples combined.

In case of failure, the test shall become a conformance inspection, part 2 test for three successive successful submissions, at which time the test may revert to the yearly basis.



| Ltr | Dimensions | | | | Notes |
|--|------------|--------|-------------|--------|-------|
| | Inches | | Millimeters | | |
| | Min | Max | Min | Max | |
| Conformance inspection, part 2 | | | | | |
| A | 9.625 | 10.125 | 244.48 | 257.18 | |
| B | --- | 3.813 | --- | 96.85 | |
| D | 5.688 | 6.188 | 144.48 | 157.18 | |
| F | 1.563 | 1.938 | 39.70 | 49.23 | |
| J | .312 | --- | 7.92 | --- | |
| Conformance inspection (periodic check) part 3 | | | | | 1 |
| C | 9.375 | 9.875 | 238.13 | 250.83 | |
| E | --- | 1.867 | --- | 47.42 | |
| H | --- | .082 | --- | 2.08 | |
| K | .065 | .071 | 1.65 | 1.80 | |
| P | .250 | .320 | 6.35 | 8.13 | 2 |
| Q | --- | .109 | --- | 2.77 | |
| V | --- | 2.500 | --- | 63.50 | |
| X | .328 | --- | 8.33 | --- | |
| Z | .350 | .365 | 8.89 | 9.27 | |
| AA | .185 | .189 | 4.70 | 4.80 | |
| AB | 80° | | 100° | | |
| Reference dimensions | | | | | |
| G | 1.225 | | 31.12 | | 2 |
| L | 1.938 | | 49.23 | | |
| M | 2.719 | | 69.06 | | 2 |
| N | .031 | | 0.79 | | |
| R | .688 | | 17.48 | | |
| S | .344 | | 8.74 | | |
| T | .344 | | 8.74 | | |
| U | .688 | | 17.48 | | |
| W | .563 | | 14.30 | | |
| Y | .500 | | 12.70 | | |

NOTES: 1. This test shall be performed yearly, with sampling as follows:

$n_1 = 4$ $c_1 = 0$ where c_2 represents the total failures for the
 $n_2 = 4$ $c_2 = 0$; first and second samples combined.

In case of failure, the test shall become a conformance inspection, part 2 test for three successive successful submissions, at which time the test may revert to the yearly basis.

2. On finished tube, add .060 inch (1.52 mm) maximum for solder.

FIGURE 1. Outline drawing of electron tube type 250TH.

MIL-PRF-1/878G

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

The margins of this specification are marked with vertical lines to indicate where changes from the previous issue were made. 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 and relationship to the last previous issue.

Custodians:

Army - CR
Navy - EC
Air Force - 85
DLA - CC

Preparing activity:

DLA - CC
(Project 5960-2012-012)

Review activities:

Army - AR
Navy - AS, CG, MC, OS, SH
Air Force - 19, 99

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