**BEAM POWER TUBE**

Useful at Frequencies up to 125 Mc

### GENERAL DATA

**Electrical:**
- **Heater, for Unipotential Cathode:**
  - Voltage: \( 6.3 \pm 0.6 \) ac or dc volts
  - Current: \( 0.9 \) amp
- **Transconductance (Approx.)**
  - for plate volts = 250,
  - grid-No. 2 volts = 250,
  - grid-No. 1 volts = -14
  - \( 6000 \) \( \mu \)hos
- **Mu-Factor, Grid No. 2 to** Grid No. 1 for plate volts = 250, grid-No. 2 volts = 250, and grid-No. 1 volts = -20, \( 8 \)
- **Direct Inter-electrode Capacitances:**
  - Grid No. 1 to plate\(^0\)
  - Grid No. 1 to cathode & grid No. 3, grid No. 2, and heater
  - Plate to cathode & grid No. 3, grid No. 2, and heater
  - \( 0.2 \) max.
  - 12
  - 7

**Mechanical:**
- **Mounting Position:** Any
- **Maximum Overall Length:** 5-3/4"
- **Seated Length:** 4-31/32" \pm 5/32"
- **Maximum Diameter:** 2-1/16"
- **Weight (Approx.):** 3 oz
- **Bulb:** ST-16
- **Cap.:** Small (JETEC No. C1-1)
- **Base:** Medium-Micanol-Shell Small 5-Pin (JETEC No. A5-11)
- **Basing Designation for BOTTOM VIEW:** 5AK

#### AF POWER AMPLIFIER & MODULATOR - Class ABi

Triode Connection—Grid No. 2 Connected to Plate

**Maximum Ratings, Absolute Values:**

<table>
<thead>
<tr>
<th></th>
<th>CCS</th>
<th>ICAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC PLATE VOLTAGE</td>
<td>400 max.</td>
<td>400 max. volts</td>
</tr>
<tr>
<td>MAX.-SIGNAL DC PLATE CURRENT*</td>
<td>125 max.</td>
<td>125 max. ma</td>
</tr>
<tr>
<td>MAX.-SIGNAL DC PLATE PLUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRID-No.2 INPUT*</td>
<td>50 max.</td>
<td>50 max. watts</td>
</tr>
<tr>
<td>PLATE DISSIPATION PLUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRID-No.2 INPUT*</td>
<td>25 max.</td>
<td>30 max. watts</td>
</tr>
</tbody>
</table>

\*With external shield JETEC No. 312.

\( \bullet \), \( \bullet \), \( \bullet \): See next page.

---

NOV. 5, 1954
## BEAM POWER TUBE

### Peak Heater-Cathode Voltage:
- Heater negative with respect to cathode: 135 max. volts
- Heater positive with respect to cathode: 135 max. volts

### Typical Operation:
- DC Plate Voltage: 400 volts
- DC Grid-No.1 (Control-Grid) Voltage: -45 volts
- Peak AF Grid-No.1-to-Grid-No.1 Voltage: 90 volts
- Zero-Signal DC Plate Current: 64 mA
- Max.-Signal DC Plate Current: 140 mA
- Effective Load Resistance (Plate to Plate): 3000 ohms
- Max.-Signal Driving Power (Approx.): 0 watts
- Max.-Signal Power Output (Approx.): 15 watts

### Maximum Circuit Values (CCS or ICAS):
- With fixed bias: 0.1 max. megohm
- With cathode bias: 0.5 max. megohm

### AF POWER AMPLIFIER & MODULATOR - Class AB1

### Maximum Ratings, Absolute Values:
- DC PLATE VOLTAGE: 600 max. volts
- DC GRID-No.2 (SCREEN) VOLTAGE: 300 max. volts
- MAX.-SIGNAL DC PLATE CURRENT*: 120 max. mA
- MAX.-SIGNAL DC PLATE INPUT*: 60 max. 90 max. watts
- MAX.-SIGNAL GRID-No.2 INPUT*: 3.5 max. 3.5 max. watts
- PLATE DISSIPATION*: 25 max. 30 max. watts
- PEAK HEATER-CATHODE VOLTAGE:
  - Heater negative with respect to cathode: 135 max. volts
  - Heater positive with respect to cathode: 135 max. volts

Subscript 1 indicates that grid-no.1 current does not flow during any part of the input cycle.

In class AB1 service, the normal design limitation is the requirement that grid-no.1 current should not flow. For this reason, the typical operating values shown for both CCS and ICAS conditions are the same.

The driver stage should be capable of supplying the No.1 grids of the class AB1 stage with the specified driving voltage at low distortion.

---

**Subscript**: Indicates a change.

---

*See next page*
<table>
<thead>
<tr>
<th>Typical Operation</th>
<th>CCS*</th>
<th>ICAS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Plate Voltage</td>
<td>400</td>
<td>750</td>
</tr>
<tr>
<td>DC Grid-No.2 Voltage**</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>DC Grid-No.1 (Control-Grid) Voltage:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>From fixed-bias source</td>
<td>-30</td>
<td>-35</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid-No.1 Voltage</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Zero-Signal DC Plate Current.</td>
<td>56</td>
<td>30</td>
</tr>
<tr>
<td>Max.-Signal DC Plate Current.</td>
<td>143</td>
<td>139</td>
</tr>
<tr>
<td>Zero-Signal DC Grid-No.2 Current.</td>
<td>2</td>
<td>0.5</td>
</tr>
<tr>
<td>Max.-Signal DC Grid-No.2 Current.</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Effective Load Resistance (Plate to plate)</td>
<td>6800</td>
<td>12000</td>
</tr>
<tr>
<td>Max.-Signal Driving Power (Approx.)</td>
<td>0</td>
<td>0*</td>
</tr>
<tr>
<td>Max.-Signal Power Output (Approx.)</td>
<td>36</td>
<td>72</td>
</tr>
<tr>
<td>Maximum Circuit Values (CCS or ICAS):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grid-No.1-Circuit Resistance:</td>
<td>0.1 max.</td>
<td></td>
</tr>
<tr>
<td>With fixed bias.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With cathode bias.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**AF POWER AMPLIFIER & MODULATOR - Class AB2**

### Maximum Ratings, Absolute Values:

<table>
<thead>
<tr>
<th>CCS*</th>
<th>ICAS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC PLATE VOLTAGE</td>
<td>600 max.</td>
</tr>
<tr>
<td>DC GRID-No.2 (SCREEN) VOLTAGE</td>
<td>300 max.</td>
</tr>
<tr>
<td>MAX.-SIGNAL DC PLATE CURRENT*</td>
<td>120 max.</td>
</tr>
<tr>
<td>MAX.-SIGNAL PLATE INPUT*</td>
<td>60 max.</td>
</tr>
<tr>
<td>MAX.-SIGNAL GRID-No.2 INPUT*</td>
<td>3.5 max.</td>
</tr>
<tr>
<td>PLATE DISSIPATION*</td>
<td>25 max.</td>
</tr>
<tr>
<td>PEAK HEATER-CATHODE VOLTAGE:</td>
<td></td>
</tr>
<tr>
<td>Heater negative with respect to cathode</td>
<td>135 max.</td>
</tr>
<tr>
<td>Heater positive with respect to cathode</td>
<td>135 max.</td>
</tr>
</tbody>
</table>

* Subscript 2 indicates that the grid-no.1 current flows during some part of the input cycle.
* Averaged over any audio-frequency cycle of sine-wave form.

** Indicates a change.
**BEAM POWER TUBE**

**Typical Operation:**

<table>
<thead>
<tr>
<th>DC Plate Voltage</th>
<th>400</th>
<th>500</th>
<th>600</th>
<th>750</th>
<th>volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Grid-No.2 Voltage</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>volts</td>
</tr>
<tr>
<td>DC Grid-No.1 (Control-Grid) Voltage:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From fixed-bias source</td>
<td>-28</td>
<td>-30</td>
<td>-32</td>
<td>-35</td>
<td>volts</td>
</tr>
<tr>
<td>Peak AF Grid-No.1-to-Grid-No.1 Voltage</td>
<td>80</td>
<td>86</td>
<td>90</td>
<td>96</td>
<td>volts</td>
</tr>
<tr>
<td>Zero-Signal DC Plate Current</td>
<td>72</td>
<td>60</td>
<td>48</td>
<td>30</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal DC Plate Current</td>
<td>240</td>
<td>240</td>
<td>200</td>
<td>240</td>
<td>ma</td>
</tr>
<tr>
<td>Zero-Signal DC Grid-No.2 Current</td>
<td>2</td>
<td>0.9</td>
<td>0.7</td>
<td>0.5</td>
<td>ma</td>
</tr>
<tr>
<td>Max.-Signal DC Grid-No.2 Current</td>
<td>20</td>
<td>20</td>
<td>18</td>
<td>20</td>
<td>ma</td>
</tr>
<tr>
<td>Effective Load Resistance (Plate to plate)</td>
<td>3700</td>
<td>4600</td>
<td>6900</td>
<td>7300</td>
<td>ohms</td>
</tr>
<tr>
<td>Max.-Signal Driving Power (Approx.)</td>
<td>0.2</td>
<td>0.2</td>
<td>0.1</td>
<td>0.2</td>
<td>watt</td>
</tr>
<tr>
<td>Max.-Signal Power Output (Approx.)</td>
<td>55</td>
<td>75</td>
<td>80</td>
<td>120</td>
<td>watts</td>
</tr>
</tbody>
</table>

**Maximum Circuit Values (CCS or ICAS):**

- **Grid-No.1 Circuit Resistance:**
  - With fixed bias: 3000 max. ohms
  - With cathode bias: Not recommended

**RF POWER AMPLIFIER-Class B Telephony**

Carrier conditions per tube for use with a max. modulation factor of 1.0

**Maximum Ratings, Absolute Values:**

<table>
<thead>
<tr>
<th>DC PLATE VOLTAGE</th>
<th>600 max.</th>
<th></th>
<th>ICAS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC GRID-No.2 (SCREEN) VOLTAGE</td>
<td>300 max.</td>
<td></td>
<td>750 max. volts</td>
</tr>
<tr>
<td>PLATE CURRENT</td>
<td>80 max.</td>
<td></td>
<td>300 max. volts</td>
</tr>
<tr>
<td>PLATE INPUT</td>
<td>37.5 max.</td>
<td></td>
<td>90 max. ma</td>
</tr>
<tr>
<td>GRID-No.2 INPUT</td>
<td>2.5 max.</td>
<td></td>
<td>45 max. watts</td>
</tr>
</tbody>
</table>

**Preferably obtained from a separate source, or from the plate-voltage supply with a voltage divider.**

**Driver stage should be capable of supplying the specified driving power at low distortion to the No.1 grids of the class A82 stage. The effective resistance per grid-No.1 circuit of the class A82 stage should be kept below 500 ohms and the effective impedance should not exceed 700 ohms at the highest response frequency.**

**With zero-impedance driver and perfect regulation, plate-circuit distortion does not exceed 2%. In practice, the regulation of the plate-voltage, grid-No.2 voltage, and grid-No.1 voltage should not be greater than 5%, 5%, and 3%, respectively.**

---

**Notes:**

- **See next page.**
- **Indicates a change.**

**NOV. 5, 1954**

**TUBE DIVISION**

**RADIO CORPORATION OF AMERICA, MARIENVILLE, NEW JERSEY**

**DATA 2**
AVERAGE PLATE CHARACTERISTICS

$E_f = 6.3$ VOLTS
GRID-NR2 VOLTS = 250
AVERAGE CHARACTERISTICS
TRIODE CONNECTION

$E_f = 6.3$ VOLTS
GRID NO. 2 CONNECTED TO PLATE.

GRID-NO. 1 ($I_{C1}$) MILLIAMPERES

PLATE ($I_b$) MILLIAMPERES

ELECTRON TUBE DIVISION

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
VALVE TYPE 807
PUSH-PULL CLASS "AB," AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT & PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 500 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -27 VOLTS
PLATE-TO-PLATE LOAD = 8,000 OHMS

A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)
SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)

PLATE CURRENT
SCREEN CURRENT
OUTPUT
HARMONIC DISTORTION (PERCENT)
3RD
2ND
CURVE No. 307-208
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT & PLATE CURRENT VERSUS A.F. INPUT VOLTAGE

PLATE VOLTAGE = 500 VOLTS
SCREEN VOLTAGE = 300 VOLTS
AUTONOMOUS RESISTOR = 270 OHMS
PLATE-TO-PLATE LOAD = 9,000 OHMS

HARMONIC DISTORTION (PERCENT)

SCREEN CURRENT (MILLIAMPERES) & POWER OUTPUT (WATTS)

A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)

PLATE CURRENT (MILLIAMPERES)

SCREEN CURRENT

PLATE CURRENT

OUTPUT

2ND

3RD
VALVE TYPE 807
PUSH-PULL CLASS ‘AB,’ AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 800 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -29.5 VOLTS
PLATE-TO-PLATE LOAD = 10,000 OHMS
VALVE TYPE 807
PUSH-PULL CLASS "AB," AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT & PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE
PLATE VOLTAGE = 600 VOLTS
SCREEN VOLTAGE = 300 VOLTS
AUTODRAG RESISTOR = 360 OHMS
PLATE-TO-PLATE LOAD = 4,000 OHMS
VALVE TYPE 807
PLATE CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 250 VOLTS
VALVE TYPE 807
PLATE CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 300 VOLTS

CONTROL GRID VOLTAGE = +25 VOLTS

PLATE CURRENT (MILLIAMPERES)

PLATE VOLTAGE (VOLTS)
VALVE TYPE 807
TRIODE CONNECTION
PLATE CURRENT VERSUS PLATE VOLTAGE

CONTROL GRID VOLTAGE = +15 VOLTS
VALVE TYPE 807
SCREEN CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 250 VOLTS

PLATE VOLTAGE (VOLTS)
SCREEN CURRENT (MILLIAMPERES)
CONTROL GRID VOLTAGE = +30 VOLTS
VALVE TYPE 807
SCREEN CURRENT VERSUS PLATE VOLTAGE
SCREEN VOLTAGE = 300 VOLTS
VALVE TYPE 807
PUSH-PULL CLASS "AB₂" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 400 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -25 VOLTS
PLATE-TO-PLATE LOAD = 3,200 OHMS

HARMONIC DISTORTION (PERCENT)

SCREEN CURRENT (MILLIAMPERES)

PLATE CURRENT (MILLIAMPERES)

GRID-TO-GRID (VOLTS R.M.S.)

A.F. INPUT VOLTAGE

POWER OUTPUT (WATTS)

3RD
7TH
5TH
2ND

CURVE No. 307-217
VALVE TYPE 807
PUSH-PULL CLASS "AB_2" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 500 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = 25 VOLTS
PLATE-TO-PLATE LOAD = 4,240 OHMS
VALVE TYPE 807
PUSH-PULL CLASS "AB₂" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 600 VOLTS
SCREEN VOLTAGE = 300 VOLTS
CONTROL GRID VOLTAGE = -30 VOLTS
PLATE-TO-PLATE LOAD = 6,400 OHMS
Valve Type 807
Triode Connection
Push-Pull Class "AB" Amplifier
Power Output, Distortion & Plate Current Versus A.F. Input Voltage
Plate Voltage = 400 Volts
Control Grid Voltage = -45 Volts
Plate-to-Plate Load = 3,000 Ohms
VALVE TYPE 807
TRIODE CONNECTION
CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE

PLATE VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = -20 VOLTS
PLATE CURRENT = 40 - 44 mA
PLATE LOAD = 5,000 OHMS
VALVE TYPE 807
TRIODE CONNECTION
CLASS 'A' AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE

PLATE VOLTAGE = 250 Volts
AUTOBIAS RESISTOR = 500 Ohms
PLATE CURRENT = 40-41 mA
PLATE LOAD = 6000 Ohms
VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE

PLATE VOLTAGE = 250 VOLTS
AUTOBIAS RESISTOR = 250 OHMS
PLATE CURRENT = 80-84 mA
PLATE-TO-PLATE LOAD = 5,000 OHMS

A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)

POWER OUTPUT (WATS)

HARMONIC DISTORTION (PERCENT)

0 1 2 3 4 5

0.1 0.2 0.3 0.4 0.5

0 0.5 1.0 1.5 2.0

2ND 3RD OUTPUT
VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE

PLATE VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = -20 VOLTS
PLATE CURRENT = 80 - 88 mA
PLATE-TO-PLATE LOAD = 5,000 OHMS

A.F. INPUT VOLTAGE  GRID-TO-GRID (VOLTS R.M.S.)

POWER OUTPUT (WATTS)

HARMONIC DISTORTION (PERCENT)

OUTPUT
2ND
3RD
VALVE TYPE 807
TRIODE CONNECTION
PUSH-PULL CLASS "A" AMPLIFIER
POWER OUTPUT & DISTORTION
VERSUS A.F. INPUT VOLTAGE

PLATE VOLTAGE = 325 VOLTS
AUTOBIAS RESISTOR = 375 OHMS
PLATE CURRENT = 80-84 mA
PLATE-TO-PLATE LOAD = 8,000 OHMS
VALVE TYPE 807
CLASS "A" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT & PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 250 VOLTS
SCREEN VOLTAGE = 250 VOLTS
CONTROL GRID VOLTAGE = -14 VOLTS
PLATE LOAD = 2,500 OHMS
VALVE TYPE 807
CLASS "A" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT & PLATE CURRENT VERSUS A.F. INPUT VOLTAGE

- PLATE VOLTAGE = 250 VOLTS
- SCREEN VOLTAGE = 250 VOLTS
- AUTOBIAS RESISTOR = 170 OHMS
- PLATE LOAD = 2,500 OHMS

SCREEN CURRENT (MILLIAMPERES), POWER OUTPUT (WATTS) & HARMONIC DISTORTION (PERCENT)

PLATE CURRENT (MILLIAMPERES)

A.F. INPUT VOLTAGE (VOLTS RMS)
VALVE TYPE 807
PUSH-PULL CLASS "AB" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT & PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 380 VOLTS
SCREEN VOLTAGE = 270 VOLTS
CONTROL GRID VOLTAGE = -22.5 VOLTS
PLATE-TO-PLATE LOAD = 6,800 OHMS

A.F. INPUT VOLTAGE GRID-TO-GRID (VOLTS R.M.S.)

PLATE CURRENT
SCREEN CURRENT
OUTPUT
3RD
2ND

HARMONIC DISTORTION (PERCENT)

POWER OUTPUT (WATTS)

SCREEN CURRENT (MILLIAMPERES)
PLATE CURRENT (MILLIAMPERES)

0 5 10 15 20 25 30 35
0 5 10 15 20 25 30 35
0 2 4 6 8 10 12 14 16 18 20
0 2 4 6 8 10 12 14 16 18 20

CURVE No. 307-339
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT
& PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 360 VOLTS
SCREEN VOLTAGE = 270 VOLTS
AUTOBIAS RESISTOR = 250 OHMS
PLATE TO PLATE LOAD = 9,000 OHMS
VALVE TYPE 807
PUSH-PULL CLASS "AB1" AMPLIFIER
POWER OUTPUT, DISTORTION, SCREEN CURRENT & PLATE CURRENT VERSUS
A.F. INPUT VOLTAGE

PLATE VOLTAGE = 360 VOLTS
SCREEN VOLTAGE = 270 VOLTS
CONTROL GRID VOLTAGE = -22.5 VOLTS
PLATE TO PLATE LOAD = 3,800 OHMS
MILITARY SPECIFICATION SHEET

ELECTRON TUBES. TRANSMITTING

TYPES 807 AND 1625

The complete requirements for procuring the electron tubes described herein shall consist of this document and the latest issue of MIL-E-1.

This specification is mandatory for use by all Departments and Agencies of the Department of Defense.

DESCRIPTION:
Amplifier, beam power. F1 = 60 MHz, F2 = 125 MHz

Outline --- 16-2 (EIA)
Base
807 --- A5-11 (low-loss phenolic)
1625 --- A7-13 (low-loss phenolic)
Cap
--- C1-1
Envelop
--- ST16
Cathode
--- Coated unipotential

Base connections:

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Element</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>807</td>
<td>h</td>
<td>g2</td>
<td>g1</td>
<td>k</td>
<td>g3</td>
<td>h</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1625</td>
<td>h</td>
<td>nc</td>
<td>g2</td>
<td>g1</td>
<td>nc</td>
<td>k</td>
<td>g3</td>
<td>h</td>
</tr>
</tbody>
</table>

(Note 2)

ABSOLUTE-MAXIMUM RATINGS:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>E1</th>
<th>E2</th>
<th>Ec1</th>
<th>Ec2</th>
<th>I1b</th>
<th>Ic1</th>
<th>Ic2</th>
<th>Pp2</th>
<th>Pp</th>
<th>P1</th>
<th>E1k</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit:</td>
<td>V</td>
<td>Vdc</td>
<td>Vdc</td>
<td>Vdc</td>
<td>mA</td>
<td>mA</td>
<td>mA</td>
<td>W</td>
<td>W</td>
<td>W</td>
<td>V</td>
</tr>
<tr>
<td>Type 807</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class B AF:</td>
<td>6.3 x 10^7</td>
<td>600</td>
<td>---</td>
<td>300</td>
<td>120</td>
<td>---</td>
<td>3.5</td>
<td>25</td>
<td>60</td>
<td>135</td>
<td>---</td>
</tr>
<tr>
<td>Class B RF:</td>
<td>6.3 x 10^7</td>
<td>600</td>
<td>---</td>
<td>300</td>
<td>80</td>
<td>---</td>
<td>2.5</td>
<td>25</td>
<td>37.5</td>
<td>135</td>
<td>---</td>
</tr>
<tr>
<td>Class C Teleph:</td>
<td>6.3 x 10^7</td>
<td>100</td>
<td>-200</td>
<td>5</td>
<td>3.5</td>
<td>25</td>
<td>60</td>
<td>135</td>
<td>---</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>Class C Teleph:</td>
<td>6.3 x 10^7</td>
<td>600</td>
<td>-200</td>
<td>5</td>
<td>3.5</td>
<td>25</td>
<td>60</td>
<td>135</td>
<td>---</td>
<td>10,000</td>
<td></td>
</tr>
</tbody>
</table>

TEST CONDITIONS:

Type 807

Class B AF: 6.3 x 10^7 | 600 | --- | 300 | 120 | --- | 3.5 | 25 | 60 | 135 | --- | 10,000
Class B RF: 6.3 x 10^7 | 600 | --- | 300 | 80  | --- | 2.5 | 25 | 37.5 | 135 | --- | 10,000
Class C Teleph: 6.3 x 10^7 | 100 | -200 | 5 | 3.5 | 25 | 60 | 135 | --- | 10,000
Class C Teleph: 6.3 x 10^7 | 600 | -200 | 5 | 3.5 | 25 | 60 | 135 | --- | 10,000

TEST CONDITIONS:

Type 1625

Class B AF: 12.6 x 10^7 | 600 | --- | 300 | 120 | --- | 3.5 | 25 | 60 | 135 | --- | 10,000
Class B RF: 12.6 x 10^7 | 600 | --- | 300 | 80  | --- | 2.5 | 25 | 37.5 | 135 | --- | 10,000
Class C Teleph: 12.6 x 10^7 | 100 | -200 | 5 | 3.5 | 25 | 60 | 135 | --- | 10,000
Class C Teleph: 12.6 x 10^7 | 600 | -200 | 5 | 3.5 | 25 | 60 | 135 | --- | 10,000

GENERAL:

Qualification - Required
1/ See note 1

C denotes changes

807, 1625

Page 1 of 3

FSC 5960
<table>
<thead>
<tr>
<th>METHOD</th>
<th>REQUIREMENT OR TEST</th>
<th>CONDITIONS</th>
<th>AQI (PERCENT DEFECTIVE)</th>
<th>INSPECTION LEVEL OR CODE</th>
<th>SYMBOL</th>
<th>LIMITS</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Qualification inspection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1236</td>
<td>Power oscillation (2)</td>
<td>Power oscillation (1); F = 60 MHz</td>
<td>---</td>
<td>---</td>
<td>Po</td>
<td>28</td>
<td>W</td>
</tr>
<tr>
<td></td>
<td>Quality conformance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inspection, part 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1231</td>
<td>Emission</td>
<td>Eb = Ec1 = Ec2 = 50 Vdc (see note 3)</td>
<td>0.65</td>
<td>II</td>
<td>Is</td>
<td>300</td>
<td>mAdc</td>
</tr>
<tr>
<td>1236</td>
<td>Power oscillation (1)</td>
<td>Ec2 = 200 Vdc; Rg = 10,000 ohms; Ic1 = 6 mAdc; Ib = 100 mAdc; F = 15 MHz</td>
<td>0.65</td>
<td>II</td>
<td>Po</td>
<td>33</td>
<td>W</td>
</tr>
<tr>
<td>1256</td>
<td>Electrode current (1) (anode)</td>
<td></td>
<td>0.65</td>
<td>II</td>
<td>Ib</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>1266</td>
<td>Total grid current</td>
<td>See note 3</td>
<td>0.65</td>
<td>II</td>
<td>Ic</td>
<td>---</td>
<td>-4.0</td>
</tr>
<tr>
<td>1201</td>
<td>Short and discontinuity detection</td>
<td></td>
<td>0.4</td>
<td>II</td>
<td></td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality conformance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>inspection, part 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1031</td>
<td>Low frequency vibration</td>
<td>Eb = 250 Vdc; Ec2 = 100 Vdc; Ec1 = -10 Vdc; Rp = 2,000 ohms</td>
<td>---</td>
<td>---</td>
<td>Fp</td>
<td>500</td>
<td>mVac</td>
</tr>
<tr>
<td>1036</td>
<td>Bump</td>
<td>Hammer angle = 20°</td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1301</td>
<td>Heater current</td>
<td></td>
<td>---</td>
<td>---</td>
<td>U</td>
<td>810</td>
<td>990</td>
</tr>
<tr>
<td>Type 807</td>
<td></td>
<td></td>
<td>---</td>
<td>---</td>
<td>U</td>
<td>405</td>
<td>493</td>
</tr>
<tr>
<td>Type 1625</td>
<td></td>
<td></td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1336</td>
<td>Heater-cathode leakage</td>
<td></td>
<td>---</td>
<td>---</td>
<td>Ihk</td>
<td>100</td>
<td>uAdc</td>
</tr>
<tr>
<td>1256</td>
<td>Electrode current (2) (anode)</td>
<td>Ec1 = -100 Vdc</td>
<td>---</td>
<td>---</td>
<td>Ib</td>
<td>0.5</td>
<td>mAdc</td>
</tr>
<tr>
<td>1256</td>
<td>Electrode current (screen)</td>
<td></td>
<td>---</td>
<td>---</td>
<td>Ic2</td>
<td>4.0</td>
<td>mAdc</td>
</tr>
<tr>
<td>1266</td>
<td>Primary grid emission</td>
<td></td>
<td>---</td>
<td>---</td>
<td>Ic2</td>
<td>-750</td>
<td>uAdc</td>
</tr>
<tr>
<td>Type 807</td>
<td></td>
<td></td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1306</td>
<td>Transconductance</td>
<td></td>
<td>---</td>
<td>---</td>
<td>Sm</td>
<td>5.100</td>
<td>6.900</td>
</tr>
<tr>
<td>Type 1625</td>
<td></td>
<td></td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1236</td>
<td>Internal insulation</td>
<td></td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1331</td>
<td>Direct-interelectrode capacitance</td>
<td></td>
<td>---</td>
<td>---</td>
<td>C</td>
<td>0.2</td>
<td>pF</td>
</tr>
<tr>
<td>Shield No. 312</td>
<td>Without shield</td>
<td></td>
<td>---</td>
<td>---</td>
<td>C</td>
<td>10.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Without shield</td>
<td></td>
<td></td>
<td>---</td>
<td>---</td>
<td></td>
<td>5.3</td>
<td>8.7</td>
</tr>
<tr>
<td>1216</td>
<td>Base material insulating quality</td>
<td></td>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>METER</td>
<td>DESCRIPTION</td>
<td>COND. 1</td>
<td>COND. 2</td>
<td>COND. 3</td>
<td>COND. 4</td>
<td>COND. 5</td>
<td>COND. 6</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>2</td>
<td>Quality conformance inspection, part 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-Continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5101</td>
<td>Security of base, cap. or insert</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5105</td>
<td>Permanence of marking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quality conformance inspection, part 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Life-test provisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group B: Ekh - 135 V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Life-test end points (500 hours)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total grid current and Power oscillation (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTES**

1. Tube type 5933 has been deleted from this tube specification sheet. For replacement purposes use tube type 5933WA. MIL-E-1 652.

2. The base forming plate lead and the cathode lead shall be individually passed through the glass stem of the tube and shall be electrically connected together only at the base pin.

3. This test to be performed at the conclusion of the holding period.

4. A protective resistor of 15,000 ohms shall be placed in series with the primary emission current meter. Grid No. 2 short power shall be calculated as 2.46 times the product of the rectified current and rectified voltage. Test duration shall be sufficient to obtain a stabilized negative grid value.

**Custodians:**
- Army - EL
- Navy - EC
- Air Force - 80

**Prepar ing activity:** Navy - EC
**Agent:** DSA - ES
 проект 5960-2425-52

**Review activities:**
- Army - EL
- Navy - Air Force - 11, 80
- DSA - ES

**User activities:**
- Army - MU, WC
- Navy - AS, OS, MC, CG, SH
- Air Force - 19