



## QUASIOPTICAL SOURCE

### QS-900 (OV-81) SN 76-8

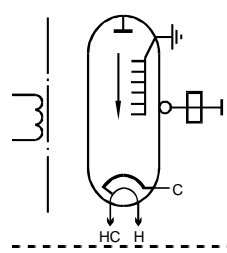
#### I. TECHNICAL DATA

|   |             |
|---|-------------|
| 1. OPERATION RANGE, GHz .....             | 706...879   |
| 2. CATHODE VOLTAGE (NEGATIVE), V .....    | 3200...6000 |
| 3. CATHODE CURRENT, mA .....              | See IV      |
| 4. MAGNETIC FIELD STRENGTH (min), Oe..... | 13000       |
| 5. HEATER VOLTAGE (alternative), V .....  | 6.3         |
| 6. HEATER CURRENT, A .....                | 1.26        |
| 7. OUTPUT POWER (max), mW .....           | 2           |
| 8. MINIMUM LIFETIME (warranted), h.....   | 500         |

#### II. OPERATING CONDITIONS

- 1. Water cooling system. Water consumption 1 - 1.5 liters/minute or pressure 30 PSI. Water temperature < +30 C.*
- 2. BWO tube electrical grounding.*
- 3. Gradual switching of the heater current.*
- 4. Use of standard turn on/ off procedures described in Section VIII.*

### III. SCHEME OF CONNECTION OF ELECTRODES



| Sign | Name of electrode | Color |
|------|-------------------|-------|
| HC   | heater+cathode    | green |
| H    | heater            | green |
| C    | cathode           | brown |

**Note:**  
 HC and C electrodes are not connected inside.  
 Body of OV tube must be connected to the ground.

### IV. NOMINAL PARAMETERS

|                          |           |
|--------------------------|-----------|
| 1. Cathode voltage, V    | 4000±50   |
| 2. Cathode current, mA   | 23        |
| 3. Heater current, A     | 1.26±0.01 |
| 4. Output frequency, GHz | 769±1     |

### V. CALIBRATION POLYNOMINAL

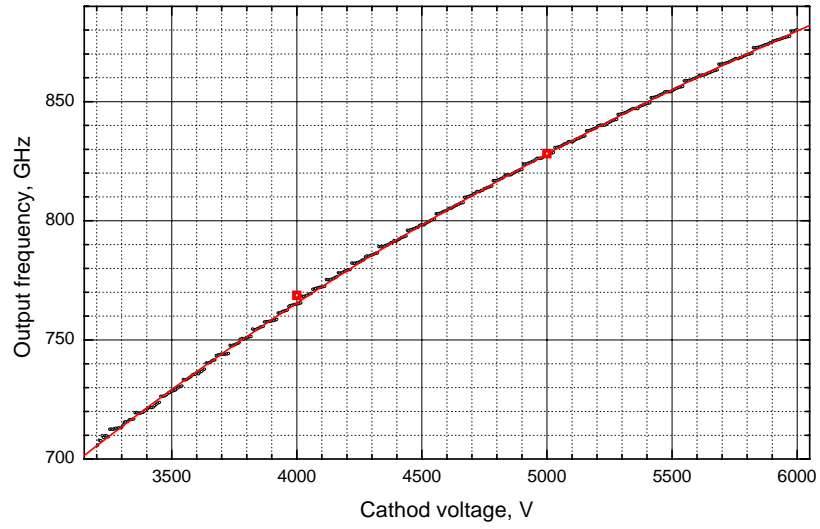
$$1) U(f) = (U_0 + U_1 f + U_2 f^2 + U_3 f^3)^2,$$

$$2) f(U) = f_0 + f_1 \sqrt{U} + f_2 U + f_3 U^{3/2}, \quad U \text{ in Volts, } f \text{ in GHz}$$

**Table of the polynomial parameters**

|  |  |
|--|--|
| <b><math>U_0 = -84,6701830200</math></b> | <b><math>f_0 = 200,9658543000</math></b> |
| <b><math>U_1 = 0,3994663731</math></b>   | <b><math>f_1 = 6,7478103520</math></b>   |
| <b><math>U_2 = -0,0004359238</math></b>  | <b><math>f_2 = 0,0720525243</math></b>   |
| <b><math>U_3 = 0,0000002175</math></b>   | <b><math>f_3 = -0,0005948214</math></b>  |

## VI. CALIBRATION CURVE



## VII. OUTPUT POWER PATTERN

