



QUASIOPTICAL SOURCE

QS2-1000

QS2-1000 consists of a QS2 BWO combined with a set of frequency multipliers. Operation of this BWO requires VR-3M high voltage power supply.

I. SPECIFICATIONS

1. FREQUENCY RANGE, GHz..... 100...1500
2. CATHODE VOLTAGE (NEGATIVE), V..... 500...2600
3. CATHODE CURRENT, mA 19
4. HEATER CURRENT, A..... 2.05
5. OUTPUT POWER, mW.....up to 25

II. CONTROL POINT PARAMETERS

Cathode current is varies with Cathode voltage and Heater current settings. The control point parameters are defined to prevent cathode damage due to excessive current

1. Cathode voltage, V	1500
2. Cathode current, mA	19
3. Heater current, A	2.05
4. Grid Voltage, V	200
5. Output frequency, GHz	145

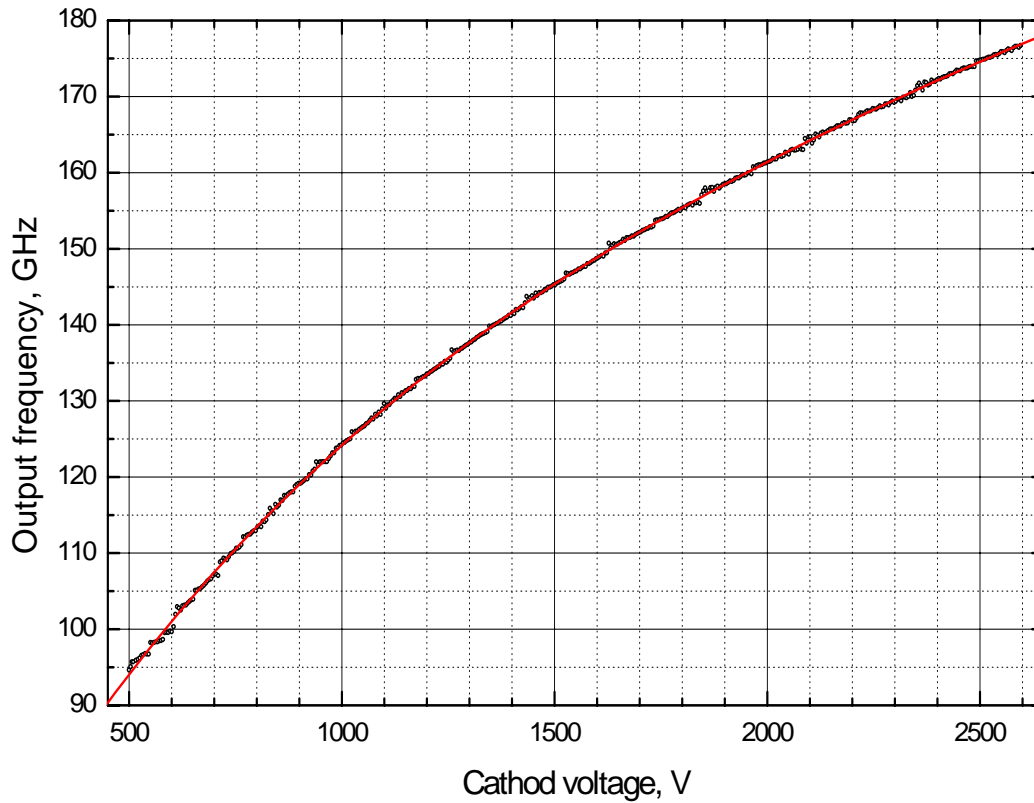
If cathode current at the control cathode voltage exceeds specified value, reduce the heater current to prevent cathode degradation. BWO can not be repaired if the cathode is damaged.

III. CALIBRATION POLYNOMINAL

$$U(f) = (U_0 + U_1 f + U_2 f^2 + U_3 f^3)^2,$$
$$2) f(U) = f_0 + f_1 \sqrt{U} + f_2 U + f_3 U^{3/2}, \quad U \text{ in Volts, } f \text{ in GHz}$$

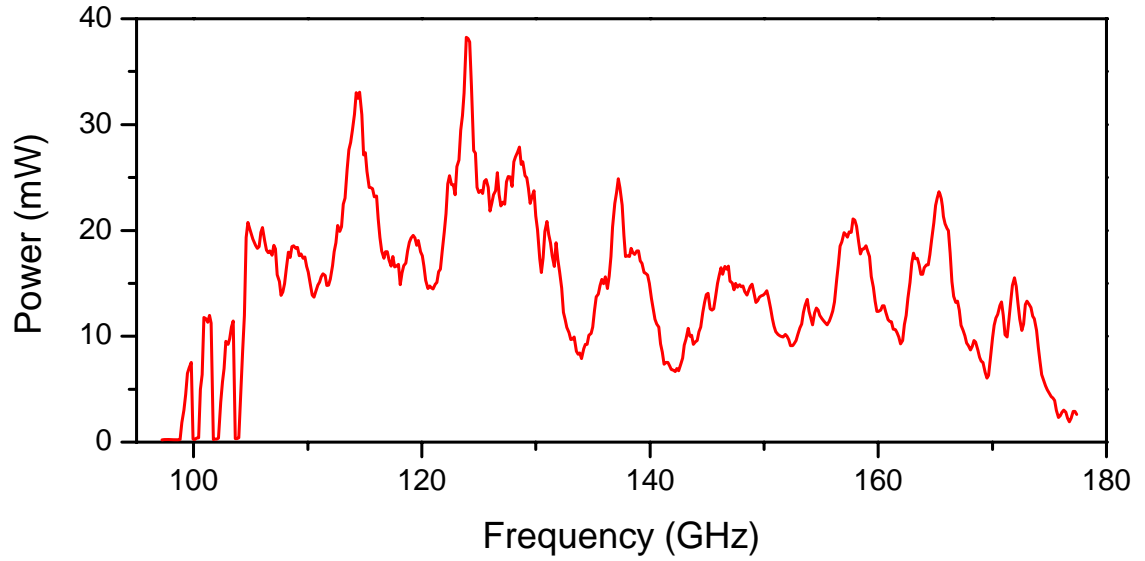
$U_0 = -5,9287153380$	$f_0 = 7,2964056290$
$U_1 = 0,3488242553$	$f_1 = 4,2487434310$
$U_2 = -0,0008957850$	$f_2 = -0,0163993812$
$U_3 = 0,0000042008$	$f_3 = -0,0000338324$

VI. CALIBRATION CURVE

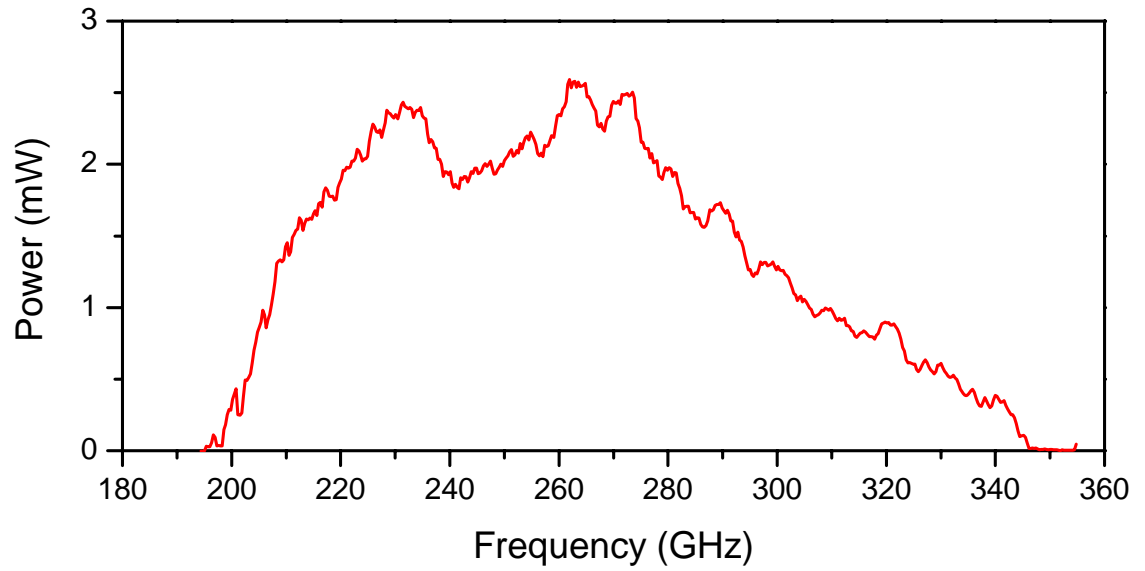


V. OUTPUT POWER PATTERN

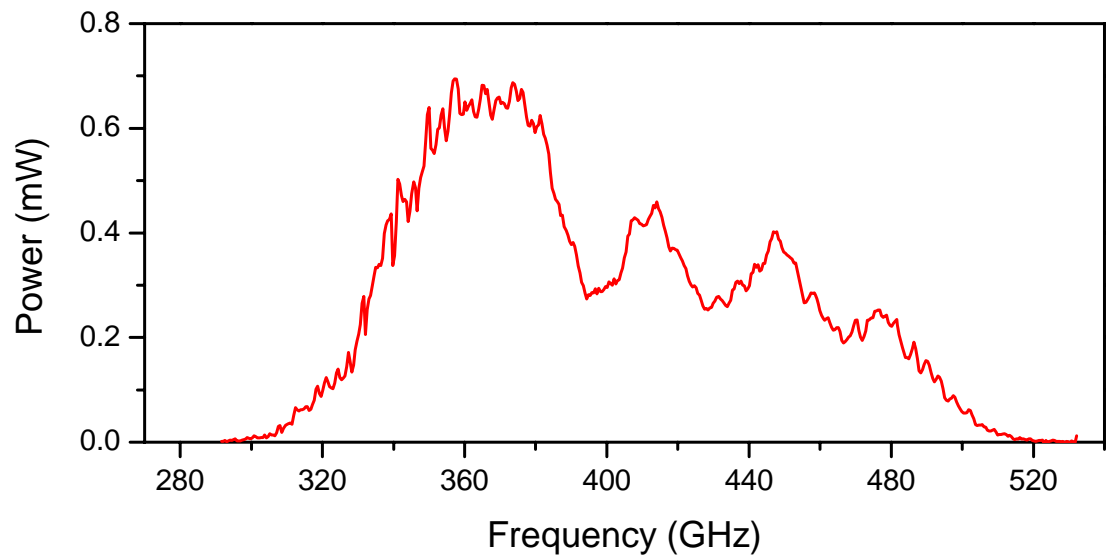
QS2 BWO without any frequency multipliers



QS2 BWO with a low frequency doubler



QS2 BWO with a low frequency tripler



QS2 BWO with a low frequency doubler and high frequency tripler

