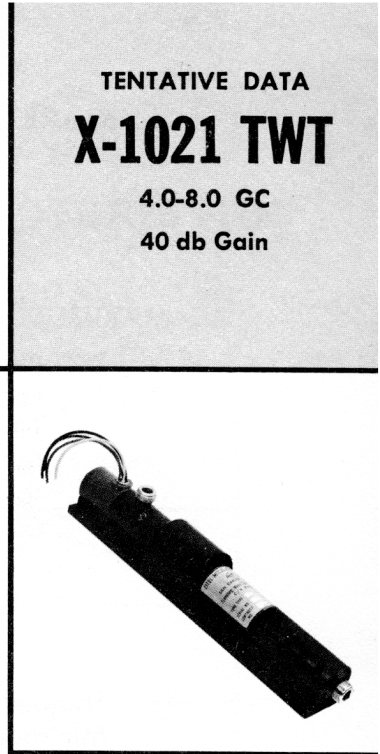


**EITEL-McCULLOUGH, INC.**  
SAN CARLOS, CALIFORNIA

TENTATIVE DATA  
**X-1021 TWT**  
4.0-8.0 GC  
40 db Gain

**TENTATIVE DATA FOR EIMAC X-1021 TRAVELING WAVE TUBE**

The Eimac X-1021 is a C-Band, ruggedized, light weight power amplifier traveling wave tube designed to operate under severe environmental extremes of shock, vibration, altitude and temperatures. The X-1021 utilizes ceramic and metal construction and is focused by a fully temperature-compensated periodic permanent magnet array. This tube will provide a minimum output power of 10 watts and 40 db gain over the frequency range of 4.0 to 8.0 Gc.



**APPLICATIONS**

The all ceramic-metal design coupled with a temperature compensated periodic permanent magnet array enables the X-1021 to perform under adverse environmental conditions while heat sink cooling provides an improved form factor for equipment design, making it an excellent choice for power amplification in augmentation or ECM systems in high performance aircraft, rocket or missile applications.

**GENERAL CHARACTERISTICS**

**ELECTRICAL**

Cathode. Unipotential, dispenser type . . . . .	
Minimum Heating Time . . . . .	120 seconds
Heater: Voltage . . . . .	6.3 volts
Current . . . . .	1.2 amperes
Noise Figure . . . . .	35 decibels
Minimum Saturated Output Power . . . . .	10 watts
Minimum Saturated Gain . . . . .	40 db
Frequency Range . . . . .	4.0 to 8.0 gigacycles
Input and Output Impedance . . . . .	50 ohms nominal

**MECHANICAL**

Operating Position . . . . .	Any
RF Input Coupling . . . . .	Type N Female Coaxial Fitting
RF Output Coupling . . . . .	Type N Female Coaxial Fitting
Focusing . . . . .	Periodic Permanent Magnet
Cooling . . . . .	Heat Sink and/or Forced Air
Maximum Overall Dimensions . . . . .	See Outline Drawing
Net Weight (Including Magnets) . . . . .	3.5 Pounds



## MAXIMUM RATINGS

D-C Beam Voltage*	2900 volts
D-C Focus Electrode Voltage*:	
Negative with respect to cathode	
(a) For CW Operation	40 volts
(b) For maximum current control	400 volts
D-C Cathode Current	90 milliamperes

## TYPICAL OPERATING CHARACTERISTICS

Frequency	4.0 to 8.0 gigacycles
Minimum Output Power	10 watts
Minimum Saturated Gain	40 decibels
D-C Beam Voltage*	2850 volts
D-C Cathode Current	80 milliamperes
D-C Focus Electrode Voltage*	-30 volts
D-C Focus Electrode Current	1.0 milliamperes

\*All voltages referred to cathode

## APPLICATION

**Cooling:** The X-1021 is designed to be cooled by means of conduction to the mounting flange integral with the tube and PPM structure, or by forced air directed across the collector. Adequate cooling is determined when the envelope temperature is maintained below 250°F by thermocouple measurements at monitoring point indicated.

**Cathode:** The heater voltage should be maintained within  $\pm 5$  percent of the rated value of 6.3 volts if variations in performance are to be minimized and best tube life obtained.

**HELIX:** The helix, collector and anode are internally connected to the tube body and are operated at the same potential. Therefore, it is often convenient to operate these elements at chassis potential, with the cathode and focus electrode at appropriate negative potentials.

**Focus Electrode:** The focus electrode power supply must be regulated within  $\pm 2$  percent to minimize variations in performance. This electrode may be used as a cathode current control electrode, within the limits of the maximum ratings listed above.

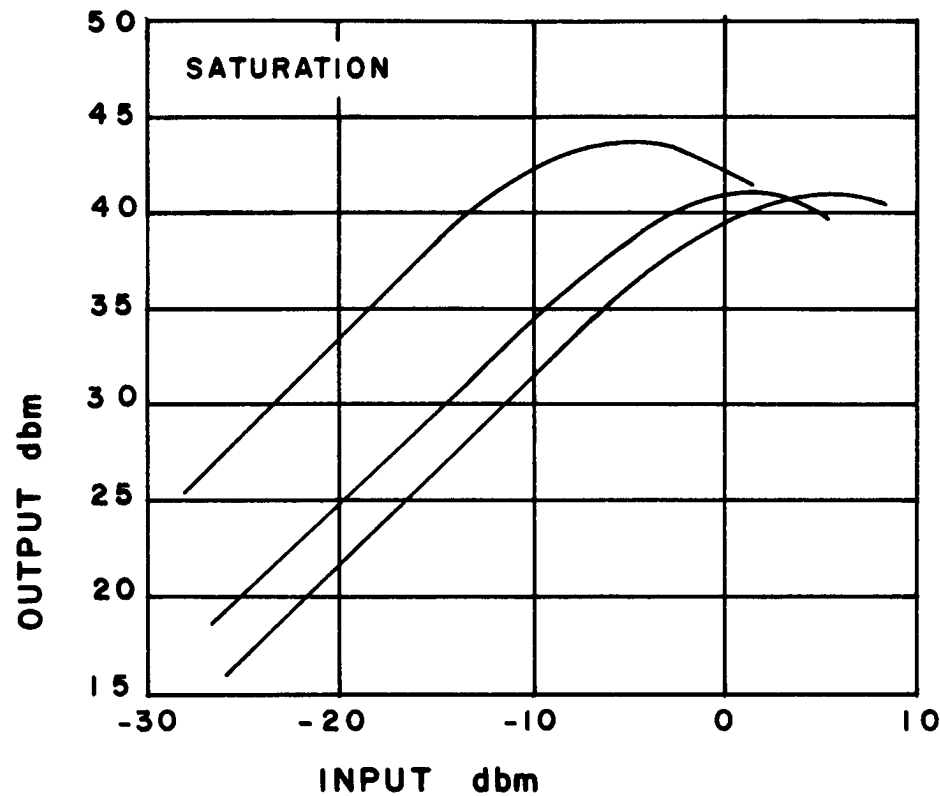
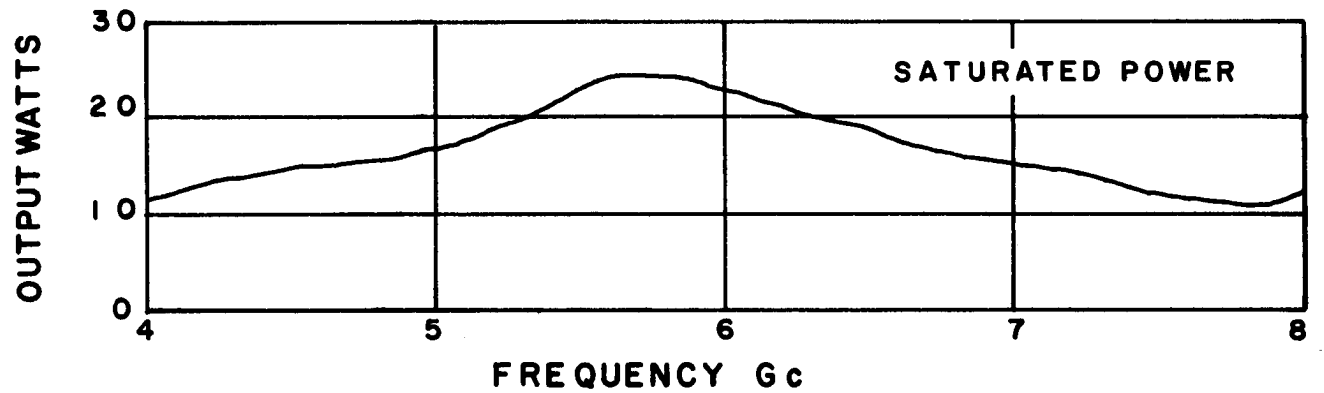
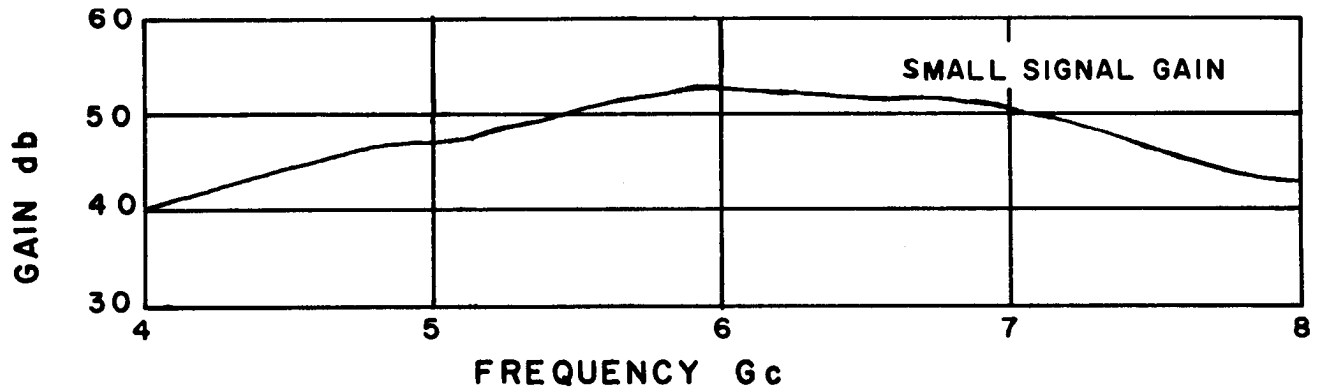
**Special Applications:** For any additional information concerning this tube or its application, write to Microwave Product Manager, Eitel-McCullough, Inc., San Carlos, California, Telephone LYtell 1-1451, Cable: EIMAC.



X-1021

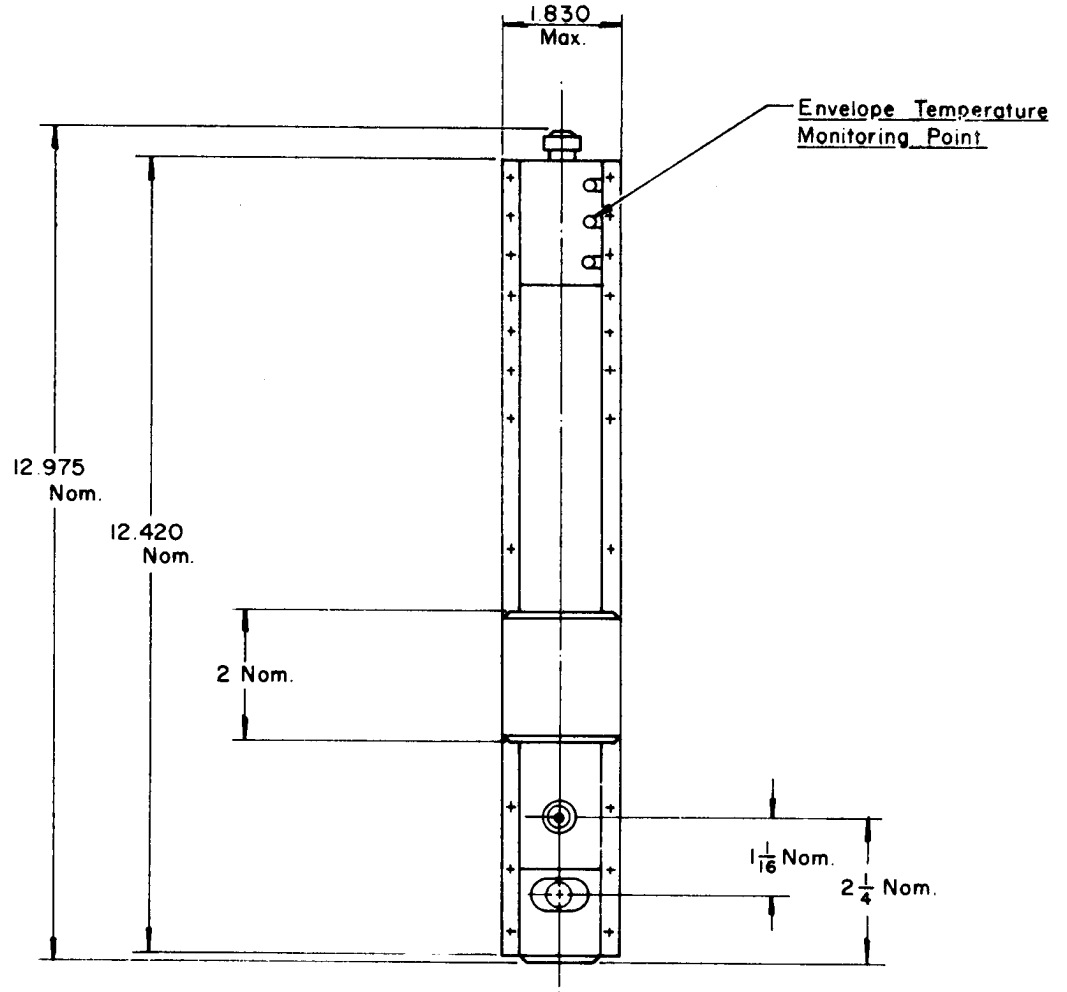
# EM 1021 TYPICAL OPERATING CHARACTERISTICS

HELIX VOLTAGE 2850 Vdc      FOCUS VOLTAGE -30 Vdc  
CATHODE CURRENT 80 mA dc      FILAMENT 6.3V





# X1021



### CONNECTIONS

- |                    |         |
|--------------------|---------|
| 1. HEATER          | -BROWN  |
| 2. CATHODE HEATER  | -YELLOW |
| 3. FOCUS ELECTRODE | -GREEN  |
| 4. BODY GROUND     | -BLACK  |

