EITEL-McCULLOUGH, INC.
SAN CARLOS, CALIFORNIA

TENTATIVE DATA

EM-1025

TRAVELING WAVE TUBE

4.0 to 12.0 Gc.

1 Watt Min.

40 db Gain

TENTATIVE DATA FOR EIMAC EM-1025 TRAVELING WAVE TUBE

The Eimac EM-1025 now offers performance over a frequency range that previously required **two or more** tubes to duplicate, providing 1 watt saturated power output from 4.0 to 12.0 gigacycles with 40 db gain! This tube is focused by light weight, periodic permanent magnets and utilizes proven ceramic and metal construction to insure reliable operation over a wide range of environments. The integral heat sink/mounting flange allows operation to + 85°C without additional cooling.

APPLICATIONS:

Wide bandwidth, high power output and high gain make the EM-1025 ideally suited for signal generators, power amplifier units or any application where these characteristics are required. In addition, the tube can be adapted to frequency-multiplier applications.

GENERAL CHARACTERISTICS

ELECTRICAL

Cathode: Unipotential, oxide coated	
Minimum Heating Time	60 seconds
Heater: Voltage	6.3 volts
Current	0.6 amperes
Noise Figure	25 to 34 decibels
Minimum Tangential Sensitivity (Broadband)	−50 dbm
Minimum Saturated Output Power	1 watt
Frequency Range	4.0 to 12.0 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	Passive Heat Sink
Maximum Overall Dimensions	See Outline Drawing
Net Weight (Including Magnets)	4.5 Pounds

MAXIMUM RATINGS

D-C BEAM VOLTAGE*	3000 VOLTS
D-C FOCUS ELECTRODE VOLTAGE:* NEGATIVE WITH RESPECT TO CATHODE	40 VOLTS
D-C CATHODE CURRENT	25 MILLIAMPERES

TYPICAL OPERATING CHARACTERISTICS

Frequency	4.0 to 12.0 gigacycles
Minimum Output Power	1.0 watt
Small Signal Gain	40 decibels
D-C Beam Voltage*	2900 volts
D-C Cathode Current	23 milliamperes
D-C Focus Electrode Voltage*	−30 volts
D-C Focus Electrode Current	0 milliamperes

*All voltages referred to cathode.

APPLICATION

Cooling: The EM-1025 is designed to be heat sink cooled by means of the mounting available and integral with the tube and PPM structure. Under environmental conditions normally encountered in military equipments, additional cooling will not be required.

Cathode: The heater voltage should be maintained within ± 5 per cent 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. The cathode potential should be maintained within ± 1% to insure proper operation.

Focus Electrode: The focus electrode power supply must be regulated within ± 2 per cent to minimize variations in performance.

Special Applications: For any additional information concerning this tube or its application, write to Microwave Product Manager, Eitel-McCullough, Inc., San Carlos, California.

ENVIRONMENTAL

The EM-1025 conforms generally with MIL-E-5272C, "Environmental Testing, Aeronautical and Associated Equipment, General Specification for," and MIL-E-5400, "Electronic Equipment, Aircraft, General Specification for," Class II.

Vibration: 10 g to 2000 cps (Curve A of Proc. XII, MIL-E-5272C)

Shock: 25 g, 11 ± 1 ms

Acceleration: Sustained, 25 g's

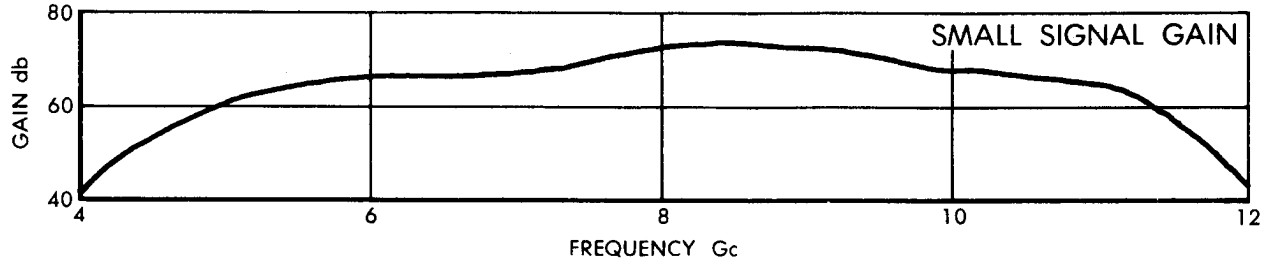
Temperature: −54°C to + 85°C

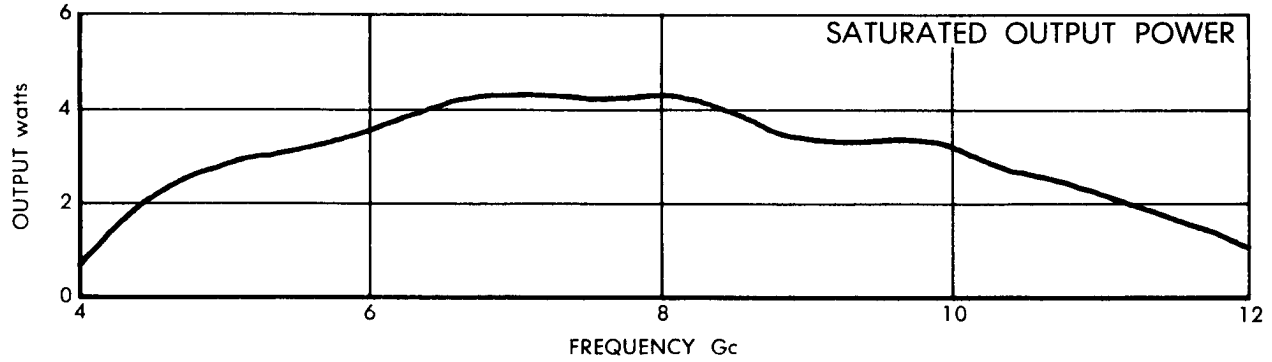
Altitude: 70,000 ft.

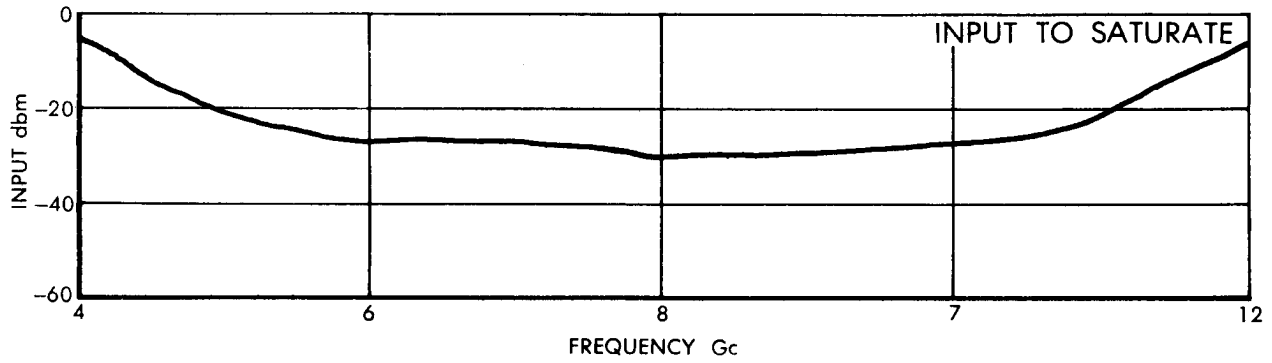
NOTE: This data should not be used for final equipment design.

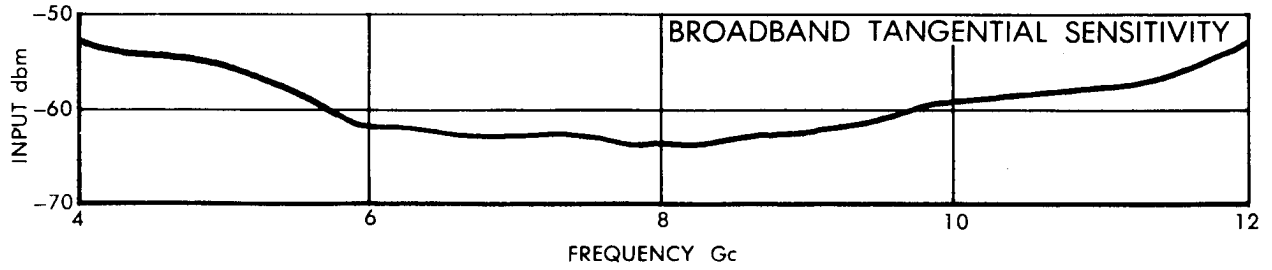
EM-1025 TYPICAL OPERATING CHARACTERISTICS

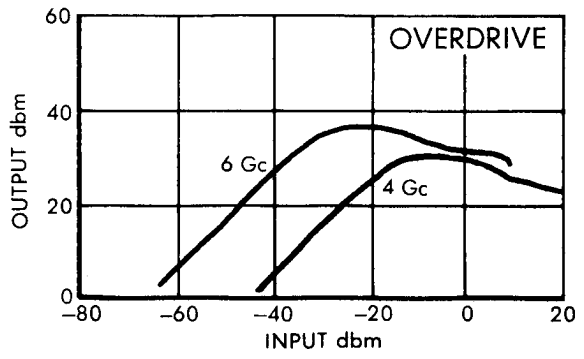
ANODE VOLTAGE 2900 Vdc
CATHODE CURRENT 23 mAdc
FOCUS VOLTAGE −30 Vdc
FILAMENT VOLTAGE 6.3 V

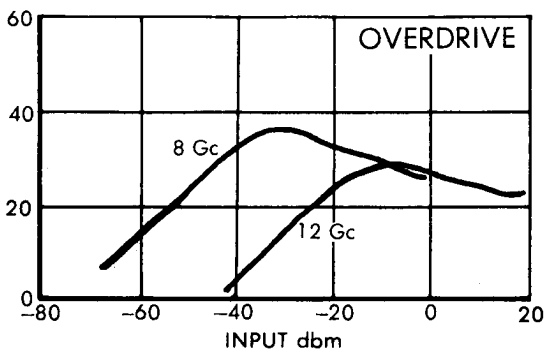












EM-1025

CONNECTIONS

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