



# ELECTRON TUBE DIVISION

CLIFTON, NEW JERSEY

INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

**F-2510  
BACKWARD WAVE  
OSCILLATOR**

## TENTATIVE

### GENERAL

The F-2510 is a voltage-tunable, wide-band oscillator with a minimum output power of 25 milliwatts over its rated operating frequency range. This permanent magnet focused, highly stable device finds applications as a swept signal source in signal generators; master oscillator for frequency diversity transmitters; or typically as a local oscillator in radar or ECM receivers. The tube features a unifilar helix contained in a rugged envelope of simple mechanical design thus providing a highly reliable, compact unit. No cooling is required when the environment is below +60°C ambient temperature.

### ELECTRICAL

	TYPICAL	ABSOLUTE	UNITS		TYPICAL	ABSOLUTE	UNITS
Frequency	4.0 - 8.2	Note 1	Gcs	Helix Current	3.5	6.0 max.	Ma
Power Output	25 - 175	25 min.	mw	*Cathode Voltage (with respect to Helix)	-250 to -2400	-200 to -2500	Volts
Power Output Variation	8	10 max.	db	*Grid Voltage for no Oscillation (RF Cutoff) (with respect to Cathode)	-13	-30 max.	Volts
Fine Grain Variation, Note 2	+1.5	+2 max.	db/420 mc	*Collector Voltage (with respect to Helix)	+100	+150 max.	Volts
VSWR	2.5:1	3:1 max.	-	Capacitance, Cathode to all Electrodes	39	50 max.	μμfd.
Output Impedance	50	50	Ohms	Capacitance, Grid to all Electrodes	32	45 max.	μμfd.
Heater Voltage	6.3	6.0 min., 6.6 max.	Volts	Capacitance, Helix to all other Electrodes and Capsule	150	200 max.	μμfd.
Heater Current	.96	1.2 max.	Amps	Spurious Output below Signal	50	40 min.	db
Anode Voltage (with respect to Cathode)	150	250 max.	Volts				
Anode Current	0.3	1.0 max.	Ma				
Cathode Current	12	15 max.	Ma				
*Helix Voltage	Zero	Zero	Volts				

\*The above data shows tube operation with the helix at ground potential (Zero volts). If desired as an alternate, any one of the asterisked elements may be operated at ground potential provided the other electrode potentials are set at the appropriate relative levels.

NOTE 1 The F-2510 will operate over the frequency range of 3.96 to 8.282 Gcs with a 3 db reduction in the rated minimum output power.

NOTE 2 This value is determined by selecting the 420 mc region of the frequency range which has the greatest differences in power output. The difference between these power levels is divided by two and the plus or minus sign is affixed to denote the difference from an average power level.

### MECHANICAL

Package Length	9.90	9.95 max.	Inches	Output Cable Length			
Package Diameter	3.00	3.02 max.	Inches	(to end of Type			
Package Weight	9 lbs - 14 oz.	10 max.	Pounds	"N" Connector)	15		14 min./16 max. Inches
Power Cable Length (to end of Winchester PM6P Connector)	12	11 min./13 max.	Inches				

Additional information for specific applications can be obtained from the

Electron Tube Applications Section  
ITT Electron Tube Division  
Post Office Box 104  
Clifton, New Jersey

