



MICROWAVE DEVICES: 416B

ELECTRICAL DATA

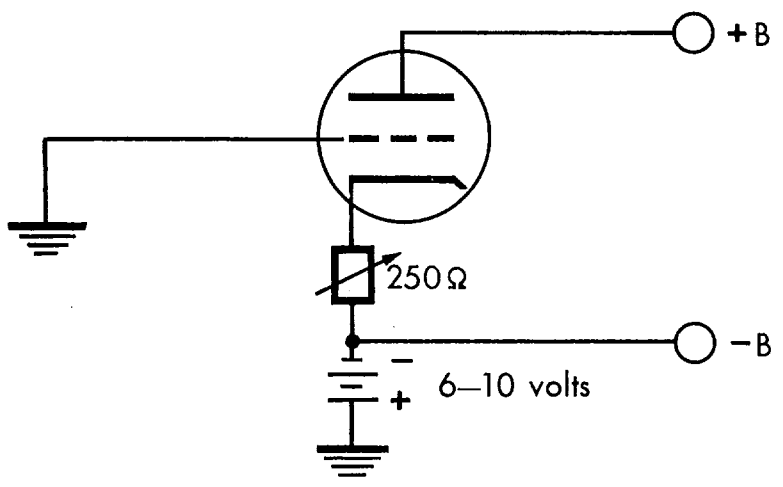
Heater Voltage	6.3	volts
Heater Current	1.18	amps
Amplification Factor	300	
Transconductance at Plate Current = 30 ma	50,000	μ mhos
Noise Figure at 500 Mc	below 6	db

TYPICAL OPERATION

Heater Voltage	6.1	volts	
Heater Current	1.15	amps	
Plate Voltage	200	volts	
Bias Circuit — see Diagram			
Frequency	4200	Mc	
Gain:	MIN	AVE	
High Level (500 mw Output)	3	6	db
Low Level (50 mw Output)	8	10	db
Band Width (3 dB down)		100	Mc

SPECIAL DATA

RECOMMENDED GRID BIAS



HEATER VOLTAGE

The bogie value of heater voltage is 6.3 volts. For optimum tube life, however, the heater voltage should be kept as close as possible to 6.1 volts and should not under any condition fall below 6.0 or exceed 6.6 volts.

TUBE TEMPERATURE

Sufficient conduction and convection cooling must be provided to limit the grid and plate temperatures under all operating conditions to:

Grid Terminal	max. 100° C
Anode Terminal	max. 150° C

When using the 416B in a closed cavity it is recommended that cooling air be admitted through the tube cavity to the anode terminal. Normal temperature ranges are:

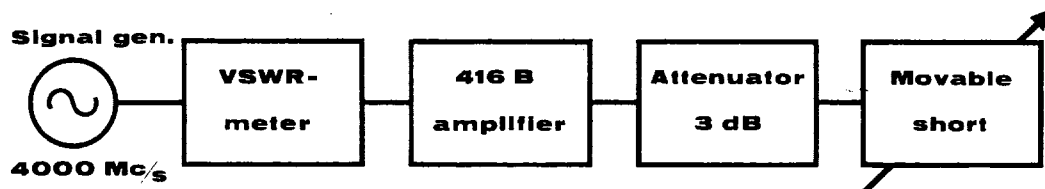
Tube Shell	55 ± 10° C
Grid Terminal	35 ± 10° C
Anode Terminal	85 ± 10° C

TESTING

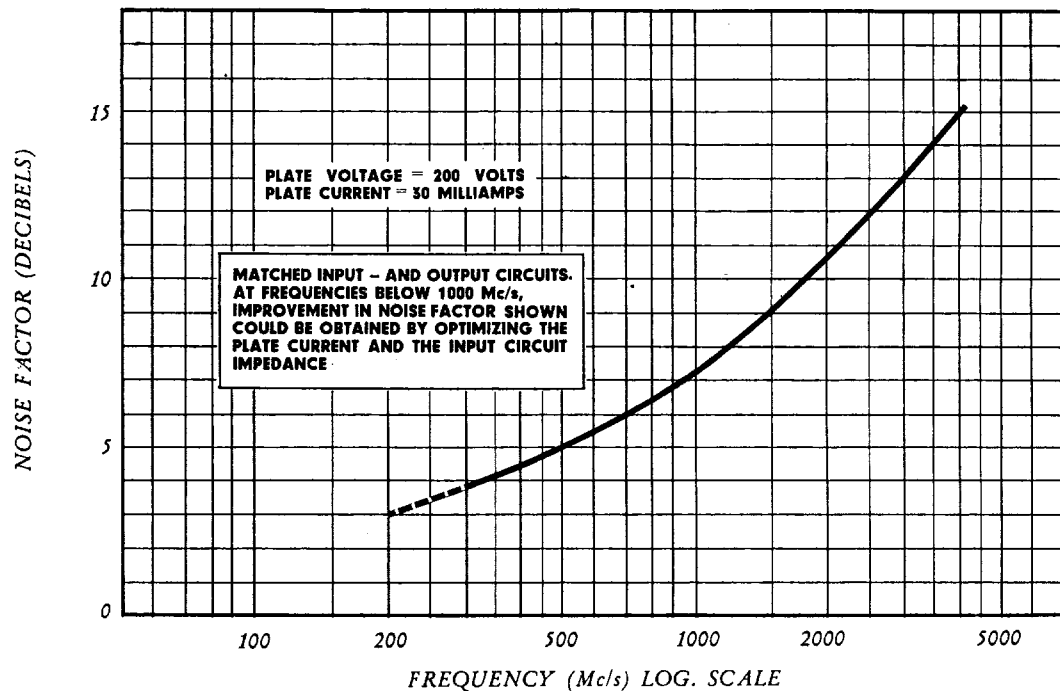
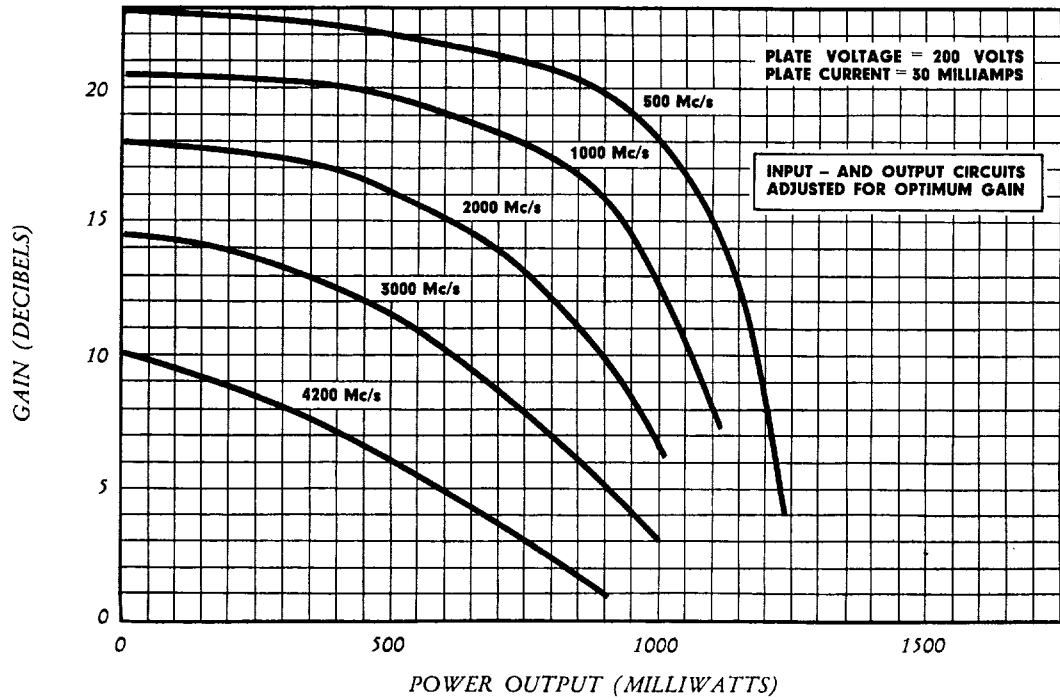
Owing to the fact that the 416B will start to oscillate at a plate current of 2 ma in test circuits, where high unbypassed resistances can not be used, it is strongly recommended that the tube be tested by inserting it into a properly designed cavity with forced air cooling.

INPUT IMPEDANCE

416B has an extremely high amplification factor. This means for example that the isolation is high between the input and output circuit which is an important feature when several RF-amplification stages are used in cascade. In the application shown the maximum input standing wave ratio was measured when the position of a movable short in the output line was varied through all phases. It was found that the maximum voltage standing wave ratio can be expected not to exceed 1.60.



AVERAGE CHARACTERISTICS



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