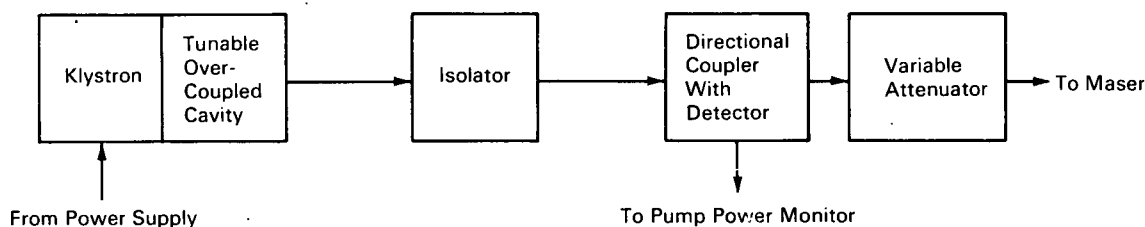


# NASA TECH BRIEF



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## Apparatus Makes Klystron Operating Frequency Adjustable from Remote Point



### The problem:

In a communications receiver using a pump klystron for a traveling-wave maser, it was required that the klystron operate at two different frequencies. In order to accomplish the frequency change, it had been necessary to change or adjust the klystron mechanically. This mechanical adjustment was difficult to make and required partial dismantling of the unit.

### The solution:

An apparatus incorporating a tunable overcoupled cavity with irises of appropriate size to accomplish frequency spread over the desired range and to maintain the Q of the klystron circuit at the optimum value. Proper frequency adjustment can be accomplished electrically from a remote point.

### How it's done:

The dc voltage for the klystron reflector is obtained from an external power supply. The tunable overcoupled cavity allows a wide bandwidth. The isolator provides constant load, and the directional

coupler enables monitoring of the output power to the variable attenuator. The latter sets the power applied to the maser. The klystron oscillation frequency depends on which direction (i.e., increasing or decreasing values) the reflector voltage is approached. The frequency is stable, however, for particular values of the reflector voltage.

### Note:

Inquiries concerning this development may be directed to:

Technology Utilization Officer  
 NASA Pasadena Office  
 4800 Oak Grove Drive  
 Pasadena, California 91103  
 Reference: B67-10514

### Patent status:

No patent action is contemplated by NASA.  
 Source: Robert C. Clauss  
 (NPO-09831)

Category 01