

TUESDAY, MAY 16, 1961

SESSION 3: FERRITES

9:00 AM - 12 NOON

CHAIRMAN: FRANK REGGIA

DIAMOND ORDNANCE FUZE LAB

WASHINGTON, D. C.

3.1 FIELD DISPLACEMENT DEVICES

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An electromagnet was placed on a field displacement isolator in place of the permanent magnet. Variations of attenuation with field for a variety of conditions are shown in the accompanying figures. Figure 1 shows variations with frequency as a parameter and Fig. 2 with position as a parameter.

With zero applied field, there is appreciable attenuation. This permits using the circuit to build an absorbing microwave switch. The field for "on" is not critical, and, of course, the "off" field is zero. This simplifies power supply requirements.

By reversing the field, as with all isolators, a step attenuator was built. This actually was made to give 1-2 db attenuation, with "positive" field, 20-30 db with zero field, and 50-60 db with the field reversed.

By utilizing the portion of the curve from zero to 300 oersteds, a regulator and a variable attenuator were built.

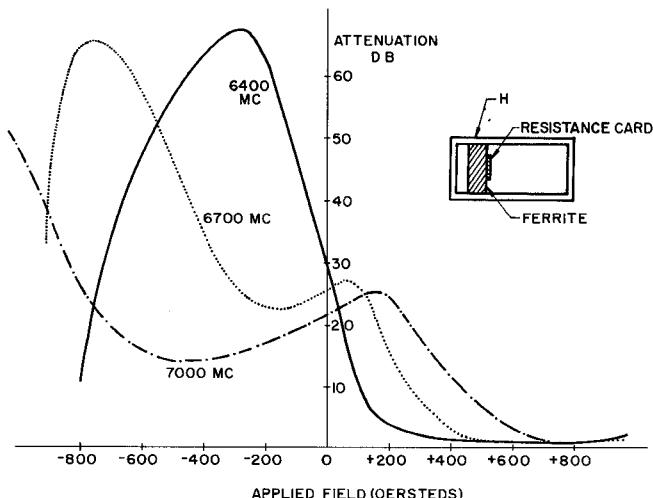


Figure 1 - Attenuation vs Applied Field for Various Frequencies.

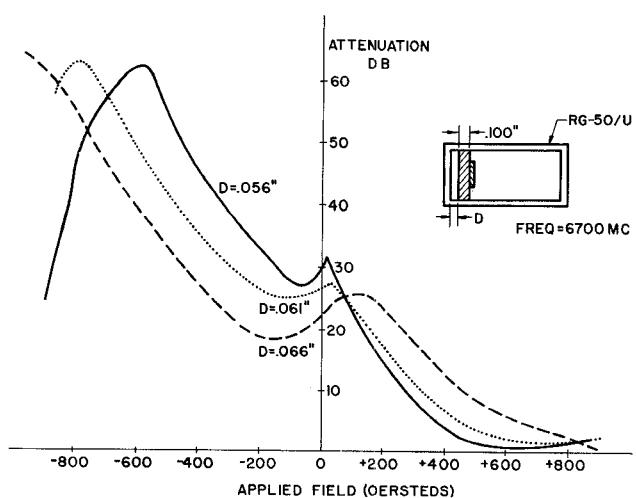


Figure 2 - Attenuation vs Applied Field for Various Ferrite Positions.