Abstracts

Amplitude and Phase Modulators in Rectangular Waveguides for 5 to 7 Gc/s (Correspondence)

F. Reggia. "Amplitude and Phase Modulators in Rectangular Waveguides for 5 to 7 Gc/s (Correspondence)." 1966 Transactions on Microwave Theory and Techniques 14.3 (Mar. 1966 [T-MTT]): 154-157.

While investigating the electrical and magnetic properties of ferromagnetic materials, Reggia and Spencer discovered that it was possible to obtain very large reciprocal phase shifts with a longitudinally magnetized ferrite rod, centrally located in a standard rectangular waveguide. Since that time, many investigators have continued to study (both theoretically and experimentally) the properties of this phase modulator and have since been able to design and fabricate a number of different versions of the original model. Also during this time, continued investigations at Harry Diamond Laboratories, Washington, D. C., of the RF field distribution inside these magnetized ferrite rods have led to the discovery of a new type of amplitude modulator (or absorption modulator) with electrical characteristics particularly desirable in a microwave switch. This absorption modulator-switch has a geometrical configuration very similar to that of the reciprocal phase modulator. In fact, the same waveguide and solenoid assembly is often used today for both the phase modulator- and the amplitude modulator-switch.

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