Abstracts

The Design and Manufacture of Dual-Mode Reciprocal Latching Ferrite Phase Shifters (Comments)

C.R. Boyd, Jr.. "The Design and Manufacture of Dual-Mode Reciprocal Latching Ferrite Phase Shifters (Comments)." 1974 Transactions on Microwave Theory and Techniques 22.6 (Jun. 1974 [T-MTT] (Special Issue on Microwave Control Devices for Array Antenna Systems)): 593-601.

The design principles for dual-mode reciprocal latching ferrite phase shifters are relatively well understood at present. Discussions of a few selected topics not previously studied are presented in this paper. A tradeoff analysis is carried out for X-band units to show the interrelation between phase-shifter weight and insertion loss. An interesting consequence of this analysis is the theoretical prediction of an optimum range of values for the saturation moment of the ferrite material. Switching energy in the presence of shorted-turn damping is also analyzed and related to the geometry and hysteresis loss of the ferrite material. Finally, a discussion of manufacturing considerations and unit cost at high rates of production is carried out. The major conclusion is that unit cost levels approaching $10.00 are possible for a production run sufficiently large to justify the substantial cost of engineering and tooling for high rates of manufacture.

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