Abstracts

Model Studies of a Strongly Coupled Synchrotron RF System

A.E. Barrington, J. Dekleva and J.R. Rees. "Model Studies of a Strongly Coupled Synchrotron RF System." 1960 Transactions on Microwave Theory and Techniques 8.6 (Nov. 1960 [T-MTT]): 597-604.

The strongly coupled multicavity synchrotron system proposed for the 6-bev Cambridge Electron Accelerator operates at 475 Mc and, because of its large size, presents complex problems of assembly and tuning. To achieve a better understanding of the characteristics of the system, a scaled model operating at 9000 Mc was constructed. The work was undertaken in two stages; first a simple single-cavity ring was studied and later a more complicated double-cavity ring. An account is given of the design of cavities and waveguide links of variable electrical length, and instrumentation devised for various measurements is described. This is followed by experimental data which were in good agreement with theoretical predictions. Recommendations arising from the model study for the assembly and tuning of the 475-Mc system are put forward.

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