Abstracts

Design of waveguide-to-orotron-resonator transition with modified Bethe theory

G. Faby and K. Schunemann. "Design of waveguide-to-orotron-resonator transition with modified Bethe theory." 1997 Transactions on Microwave Theory and Techniques 45.11 (Nov. 1997 [T-MTT]): 2043-2048.

The modified Bethe theory is applied to the waveguide-to-resonator transition, which is used for output coupling in an orotron oscillator designed for operation at 94 GHz. The finite thickness of the coupling hole between output waveguide and resonator is taken into account. The approach results in an equivalent circuit, which describes the reflection-type resonator, with respect to the output waveguide. Its equivalent circuit parameters are given in closed-form expressions. The calculated reflection coefficients are compared to experimental results. The assumed single-mode operation in the resonator is demonstrated by field-profile measurements.

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