Abstracts

Further Considerations on Fabry-Perot Type Resonators

W. Culshaw. "Further Considerations on Fabry-Perot Type Resonators." 1962 Transactions on Microwave Theory and Techniques 10.5 (Sep. 1962 [T-MTT]): 331-339.

An integral equation valid for fabry-perot type resonators with reflectors of arbitrary curvature and spacing is derived, and equations for the planar, confocal, and spherical geometries are considered further. A numerical iteration method is used to solve the equations, and the properties of the various solutions for the different kernels are discussed. Results show that the confocal type has the lowest diffraction loss, and that the losses in the planar- and spherical-type geometries are identical, as are the normal mode field distributions over the reflectors, apart from a change in sign of the phase angle. Variational methods are applied to give results for the eigenvalues of the planar geometry with great facility, particularly for cases where the eigenvalues are closely spaced. Some potential uses and the respective merits of the resonators are briefly mentioned.

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