Abstracts

An Adjustable Quasi-Optical Bandpass Filter--Part I: Theory and Design Formulas

A.A.M. Saleh. "An Adjustable Quasi-Optical Bandpass Filter--Part I: Theory and Design Formulas." 1974 Transactions on Microwave Theory and Techniques 22.7 (Jul. 1974 [T-MTT]): 728-734.

A quasi-optical bandpass filter suitable for millimeter and submillimeter wavelengths and in the far infrared region is described. It consists of three or more wire-grid polarizers with quarter-wave spacings. The filter has the advantage over conventional quasi-optical filters, e.g., Fabry-Perot filters, that its bandwidth and the shape of its frequency response are adjustable. This is achieved by changing the angular orientations of the wires of the different polarizers. The filter requires the input electric field to be linearly polarized in a direction perpendicular to the wires of the first grid. The theory of operation is presented and design formulas for the filter are given, under the assumption that ideal wire-grid polarizers are employed. The effects of using realistic grids on the performance of the filter are dealt within another paper.

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