

## QUASI-OPTICAL DIPLEXERS

Adel A. M. Saleh  
Bell Laboratories  
Crawford Hill Laboratory  
Holmdel, New Jersey 07733

### ABSTRACT

Quasi-optical diplexers have low-loss and high power-handling capability at millimeter and submillimeter wavelengths. This paper reviews several types of quasi-optical diplexers. Theoretical as well as experimental results will be discussed. The topics which will be discussed include:

- I. The need for quasi-optical (q.o.) diplexers.
- II. Quasi-optical band-pass filters.
  - (a) The conventional Fabry-Perot filter.
  - (b) The adjustable q.o. filter.
- III. Diplexing using q.o. filter at inclined incidence and the associated walk-off loss.
- IV. Diplexing using q.o. filters at normal incidence (no walk-off loss).
- V. Diplexing using low-pass and high-pass filters.
- VI. Resonant-grid diplexers.
- VII. Polarization Independent Operation.