# Abstracts

## A New Form of High-Power Microwave Duplexer

*P.D. Lomer and R.M. O'Brien. "A New Form of High-Power Microwave Duplexer." 1958 Transactions on Microwave Theory and Techniques 6.3 (Jul. 1958 [T-MTT]): 264-267.*

A new form of microwave duplexer, capable of handling twice as much power as an equivalent balanced duplexer is described. It consists of a microwave bridge circuit and a power-sensitive half-wavelength phase shifter. A simple gas-discharge tube is used in the phase shifter, which changes the length in one arm of the bridge circuit by a half-wavelength for high-power and low-power microwave pulses, respectively. The performance of one form of phase-shift duplexer has been measured over a frequency range from 8500 mc to 10,000 mc. The vswr is less than 1:2 and the receiver isolation is greater than 30 db over most of the waveband. This is comparable to the performance of a balanced duplexer using the same components. The power handling capacity of the phase-shift duplexer is intrinsically twice as great as that of the balanced duplexer. For example, at a wavelength of 3 cm the phase-shift duplexer will operate unpressurized at a peak power level of 200 kw with a 2:1 safety factor on breakdown, whereas performance of a balanced duplexer at this power level is marginal.

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