Abstracts

The Arc Loss of Multimegawatt Gas Discharge Duplexers (Nov. 1965 [T-MTT])

C.S. Ward, F.A. Jellison, N.J. Brown and L. Gould. "The Arc Loss of Multimegawatt Gas Discharge Duplexers (Nov. 1965 [T-MTT])." 1965 Transactions on Microwave Theory and Techniques 13.6 (Nov. 1965 [T-MTT]): 801-805.

The arc loss of a multimegawatt gas discharge switch is analyzed in the approximation that discharge skin depth is small compared to the discharge container dimensions. Experimental agreement with the results of this analysis is found in several respects: 1) arc loss varies linearly with iris height; 2) arc loss varies inversely with the one fourth root of average peak power; 3) calculated ratios of shunt to series arc loss agree with experimental loss measurements on gas filled TR and ATR duplexer windows. These results have been of particular value in predicting both the loss and power handling capability of extremely high power balanced TR and ATR duplexers from tests on simple shunt mounted discharge windows. It is shown that, for the same iris height, series windows are superior in power handling capability to shunt windows, with the result that a balanced ATR duplexer has two to four times the power handling capability of a balanced pre-TR duplexer.

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