Abstracts

A Study of Measurements of Connector Repeatability Using Highly Reflecting Loads (Short Papers)

J.R. Juroshek. "A Study of Measurements of Connector Repeatability Using Highly Reflecting Loads (Short Papers)." 1987 Transactions on Microwave Theory and Techniques 35.4 (Apr. 1987 [T-MTT]): 457-460.

This paper investigates the repeatability of measurements of the reflection coefficient Gamma of highly reflecting devices with changes in the RF connector joint. The changes in the connector joint are due to disconnecting and reconnecting the connector pair. It is shown that many of the measurement discrepancies observed in practice can be explained with a simple connector model. The paper shows that the sensitivity of measuring RF connector changes can be increased by using highly reflecting loads. The changes in Gamma due to changes in resistance or reactance can be four times greater for highly reflecting devices (|Gamma| /spl ap/ 1) than for nonreflecting devices (|Gamma| /spl ap/ 0). Experiments on two devices with 14-mm connectors are described in order to compare them with theory. The basic principles described in this paper should be beneficial to connector designers who need to observe small changes in connector parameters and to the work of calibration standards designers, where small connector imperfections are a major part of their measurement uncertainty.

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