Abstracts

A New High-Precision Method for the Measurement of the VSWR of Coaxial Connectors

A.E. Sanderson. "A New High-Precision Method for the Measurement of the VSWR of Coaxial Connectors." 1961 Transactions on Microwave Theory and Techniques 9.6 (Nov. 1961 [T-MTT]): 524-528.

A substitution method of measuring the very small reflections due to a pair of precision coaxial connectors has been developed. The connectors under test are mounted on a section of precision air line which serves as the impedance reference standard. The electrical length of this line, including connectors, is a multiple of one-half wavelength at the frequency of measurement. A slotted line and a termination, both having the same type connectors as those under test, are required. With the aid of an auxiliary slide-screw tuner, the slotted line and the termination are matched to each other. The output of the slotted line is then plotted by a graphic level recorder having an expanded-scale presentation and a mechanical linkage between the chart drive and the probe on the slotted line. The section of air line fitted with the connectors under test is then placed between the slotted line and the termination, and a second curve is recorded. The slotted line and termination errors still cancel each other, and any errors due to variations in probe coupling along the line also cancel out. The difference between the initial curve and the second curve represents the mismatch of the connectors under test with respect to the precision air line. With a recorder having a scale expansion of 2 per cent full scale, VSWR's as low as 1.001 are easily discernible.

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