Abstracts

The Comparison Reflectometer

D.L. Hollway. "The Comparison Reflectometer." 1967 Transactions on Microwave Theory and Techniques 15.4 (Apr. 1967 [T-MTT]): 250-259.

The comparison reflectometer is an instrument designed to locate and measure the characteristics of reflections in waveguide and transmission-line systems: it is particularly suitable for measuring small reflections in precise microwave measuring instruments up to one meter in length. It consists of a reflectometer in which the returning waves are combined with an accurately known reference wave and a measure of the total reflection coefficient is recorded automatically on punched paper tape at a number of preset frequencies covering a particular waveband. From sets of readings taken without, and with, the test component connected, a computer calculates and plots the distribution of reflections as a function of distance and prints out their magnitudes and phases. The reflection coefficients of individual discontinuities are also plotted by the computer as a function of frequency on Smith charts. Under suitable conditions point reflections may be Iocated in X-band waveguide within a few tenths of a millimeter and measured with an accuracy of ±3 percent in magnitude and ± 5° in phase angle. The method compensates for imperfections in the reflectometer and so reduces the background level of spurious reflections to less than 0.00006.

❑ Return to main document.