Abstracts

An Accurate Millimeter Wave Loss and Delay Measurement Set (1962 [MWSYM])

M.B. Chasek. "An Accurate Millimeter Wave Loss and Delay Measurement Set (1962 [MWSYM])." 1962 PGMTT National Symposium Program and Digest 62.1 (1962 [MWSYM]): 89-93.

A point-by-point millimeter wave loss and delay measurement system has been built which combines large dynamic range with high accuracy. Up to 80 db loss and 100 nanoseconds envelope delay can be measured in the 50-60 Gc/s range. The accuracy for 0-40 db loss measurements is ±0.05 db, while beyond that accuracy is progressively diminished to ±0.8 db at 80 db. Delay accuracy for low loss devices (0-20 db) is ±0.2 µsec over the entire 100 µsec range. High accuracy and large range are attained with a substitution heterodyne measurement scheme using rapid RF and IF comparison switching along with calibrated IF loss and delay standards. In addition, high gain, narrow band, IF amplification and differential null detection is employed. Both measurement functions are incorporated into one system with manual waveguide switching and preset IF programs to facilitate conversion from loss to delay.

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