Abstracts

Conversion of TE/sub 11/° Mode by a Large Diameter Conical Junction (Correspondence)

K. Tomiyasu. "Conversion of TE/sub 11/° Mode by a Large Diameter Conical Junction (Correspondence)." 1969 Transactions on Microwave Theory and Techniques 17.5 (May 1969 [T-MTT]): 277-279.

If a TE/sub 11/° mode is incident on a large diameter conical junction, the first-order forward scattered modes required to match the curved phase front of the TE/sub 11/° mode are the TM/sub 11/° and TE/sub 12/° modes, and the second-order modes are the TM/sub 12/° and TE/sub 13/° modes. All of the higher order modes have transverse electric fields that are in phase quadrature with that of the TE/sub 11/° mode at the junction. A time-shared computer was employed to determine the relative amplitudes of the higher order modes required to match the TE/sub 11/°-mode curved phase front. It is assumed that 1) the change in cone angle is small, and 2) the cone diameter is much larger than the wavelength. After matching the curved phase front by the four higher order modes, the residual error was found to be negligible. Finally, the mode amplitudes are converted into mode power levels.

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