

Fig. 1. (a) Electric field configuration for the TE₁₀ mode. (b) Electric field configuration for the TE₀₁ mode.

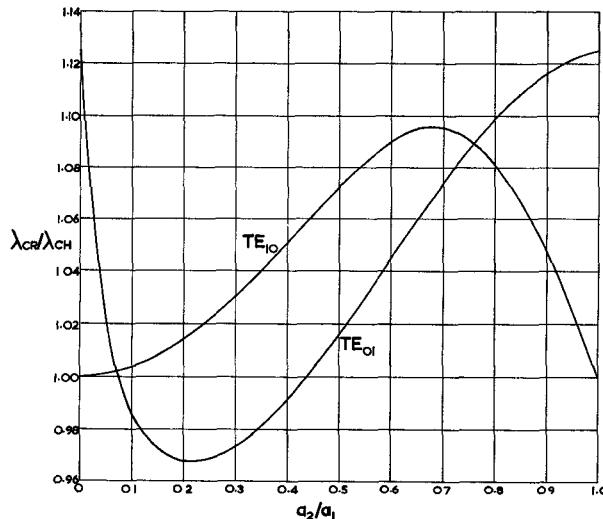


Fig. 2. Cutoff characteristics for the TE₁₀ and TE₀₁ modes in a channel waveguide having $b_1/a_1 = 0.444$ and $b_2/b_1 = 0.5$. λ_{CR} is the cutoff wavelength of a rectangular waveguide with broad dimension a_1 , and λ_{CH} is the cutoff wavelength of the channel waveguide.

Cohn's method approximates the fundamental mode. As a_2/a_1 is increased from 0 to 1, Cohn's method initially follows the TE₁₀ mode, then switches to the TE₀₁ mode as it becomes the dominant mode, and finally changes back to the TE₁₀ mode.

For practical applications the TE₀₁ mode is obviously unwanted because its power-handling capacity is very small; however, it

should be quite easy to ensure that only the TE₁₀ mode is excited, because the polarizations of the two modes are orthogonal.

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Corrections to "Fringing Capacitance in Strip-Line Coupler Design"

The author of the above¹ wishes to thank Charles Lamensdorf, of the Hazeltine Corp., Greenlawn, N. Y., for pointing out the following.

A pi (π) symbol is missing in the first equation for the parameter s/b . The equation should read

$$\frac{s}{b} = \frac{2}{\pi} \operatorname{arc \tanh} \left[\exp \frac{\pi \eta_0}{4\sqrt{\epsilon_r}} \left(\frac{1}{Z_2} - \frac{1}{Z_1} \right) \right].$$

While in the third equation given for s/b , the characteristic impedance (Z_0) should not appear under the radial sign. The equation should read

$$\frac{s}{b} = -\frac{1}{\pi} \ln \left[\tanh \left(\frac{\pi \eta_0}{4Z_0\sqrt{\epsilon_r}} \frac{k}{\sqrt{1-k^2}} \right) \right].$$

An additional correction is needed.

$W/b \geq 0.35$ rather than $W/b \rightarrow 0.35$.

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¹ J. Singletary, Jr., *IEEE Trans. on Microwave Theory and Techniques (Correspondence)*, vol. MTT-14, p. 398, August 1966.