

Deembedding a device mounted between a pair of identical transitions requires the transition two-port parameters. These can be obtained using the through-line (TL) deembedding method requiring only through and uniform line deembedding standards. Other related deembedding methods introduce factors to scale a pair of eigenvectors to obtain the transition two-port parameters. In this paper, it is shown that these scaling factors are interdependent and provide a corrective reference plane adjustment. Moreover, the transition wave-transmission matrix can be factored into two wave-transmission matrices with one encapsulating the transition discontinuity and the other of a matched line to provide a corrective reference plane shift. This factorization permits incorporation of desired and corrective reference plane shifts, using data from a second matched line standard. With an emphasis on substrate-integrated waveguide, the proposed TL deembedding method is verified.