Abstracts

The Compensated Balun

G. Oltman. "The Compensated Balun." 1966 Transactions on Microwave Theory and Techniques 14.3 (Mar. 1966 [T-MTT]): 112-119.

The compensated balun, first described by Marchand and later reinvented by Roberts, is found to have much broader band-widths than realized by either author. This balun is analyzed here and the parameters which determine its bandwidths are discussed. Curves are presented which allow the design of a balun having any bandwidth. The practical considerations which preclude realization of infinite bandwidths are pointed out. Since the balun is one-quarter wavelength long at center frequency, the balun can be less than one-twentieth wavelength at its lowest operating frequency. Because impedance transformation is generally required with balanced-to-unbalanced line transformation, two techniques including impedance transformation are discused. The reactance slope of the compensated balun is controllable, which allows the balun to directly compensate for the reactance slope of some loads. An example of the compensation of a dipole antenna over a 17-percent bandwidth is discussed. Finally, experimental verification of the balun theory is presented, along with an application to an S-band impedance-transforming compensated balun.

❑ Return to main document.