

7.6 - Coupled-Line Directional Couplers

Reading Assignment: pp. 337-348

Q: *The Quadrature Hybrid is a 3dB coupler. How do we build couplers with **less coupling**, say 10dB, 20dB, or 30 dB?*

A: Directional couplers are typically built using **coupled lines**.

HO: COUPLED LINE COUPLERS

Q: *How can we **design** a coupled line couplers so that is an **ideal directional coupler** with a **specific coupling value**?*

A: **HO: ANALYSIS AND DESIGN OF COUPLED-LINE COUPLERS**

Q: *Like all devices with quarter-wavelength sections, a coupled line coupler would seem to be **inherently narrow band**. Is there some way to **increase coupler bandwidth**?*

A: **Yes!** We can add more coupled-line sections, just like with **multi-section** matching transformers.

HO: MULTI-SECTION COUPLED LINE COUPLERS

Q: *How do we **design** these **multi-section couplers**?*

A: All the requisite design examples were provided in the last handout, and there are two good design examples on pages 345 and 348 of your textbook!