The Directional Coupler Specification Sheet

Here are some typical parameters used to specify **technical** the performance of **directional couplers**!

Bandwidth (Hz)

A directional coupler, like all other devices, can effectively operate only within a **finite bandwidth**. Generally, bandwidth is defined as the frequency range where the **coupling** is that of the specified value, within some minimum deviation (e.g., 3 dB).

Port Impedance (Γ, return loss, VSWR, S_{11}, Z_{in})

A parameter that specifies the match of the input ports. Can (and will) be specified any number of ways.

Input power (Watts)

The maximum input power the coupler can handle before it will be **damaged**.

Coupling (dB)

See "The Directional Coupler" handout

Directivity (dB)

See "The Directional Coupler" handout

Isolation (dB)

See "The Directional Coupler" handout

Mainline Loss (dB)

See "The Directional Coupler" handout

Coupling Loss (dB)

See "The Directional Coupler" handout

Insertion Loss (dB)

See "The Directional Coupler" handout

Coupling Flatness (dB)

This parameter specifies how much the coupling varies over the bandwidth of the device. **Typically** this value is 1 to 2 dB or less.

Recall that many of these values are dependent! For example,

$$ML = CL + IL \ \text{(dB)} \quad \text{and} \quad I = C + D \ \text{(dB)}$$