

The Mixer

Specification Sheet

RF Bandwidth (Hz)

LO Bandwidth (Hz)

IF Bandwidth (Hz)

A mixer, like all other devices, can effectively operate only within a finite **bandwidth** (e.g., 2-5 GHz or 300-400 MHz).

RF Port Impedance (Γ , return loss, VSWR)

LO Port Impedance (Γ , return loss, VSWR)

IF Port Impedance (Γ , return loss, VSWR)

Generally, the input impedance of all mixer ports is **poor**. This is particularly true of the LO port. Often, the port impedance is specified in terms of **VSWR**.

Conversion Loss (dB)

Typically 3 to 10 dB.

1 dB Compression Point (dBm)

Typically 0 to 15 dBm.

3rd Order Intercept (dBm)

Typically 10 to 20 dB **greater** than the 1 dB Compression Point.

LO Isolation (dB)

RF Isolation (dB)

Isolation refers to the amount of LO or RF signal that directly "leaks" into the IF. In other words, isolation is a measure of the **first order** terms that appear in the IF output.

For example, if the LO input signal is at 13 dBm, and it appears in the IF output at -15 dBm, then we say that there is $13 - (-15) = 28$ dB of Local Oscillator **Isolation**.

Typically, isolation values range from 15 to 40 dB, depending on the mixer **design**.

