The Oscillator Specification Sheet

*Carrier Frequency*

Generally specified in Hertz (Hz).

*Carrier Power*

Generally specified in dBm for low-power oscillators, Watts for high-power oscillators.

Typical values for “small-signal” oscillators are 5 to 20 dBm (hey, the same values as for mixer LO drive power—what a coincidence!).

*Stability*

Specified in ppm over the temperature range of the device (e.g., −25° C to 85° C).

*Phase Noise*

Specified in dBc in a one Hz bandwidth at some specific frequency from the carrier.

*e.g., -80 dBc in a 1Hz bandwidth at 1 kHz from \( f_0 \)
**Frequency Pushing**

Expressed in units of \(\text{Hz/V}\) or \(\text{Hz/mV}\). Can be either a positive or a negative number.

**Frequency Pulling**

Specified as the maximum frequency shift from nominal frequency \(\omega_0\), due to some worst-case load (expressed in VSWR, return loss, etc.).

**Harmonics and Spurs**

Specified as the power of the largest spurious and/or harmonic signal, typically in terms dBc (e.g., \(< -50\text{ dBc}\)).

**Noise**

This is the thermal noise (as opposed to phase noise) at the output of the oscillator. It is specified in terms of its spectral power density, assumed to be constant value in Watts/Hz.