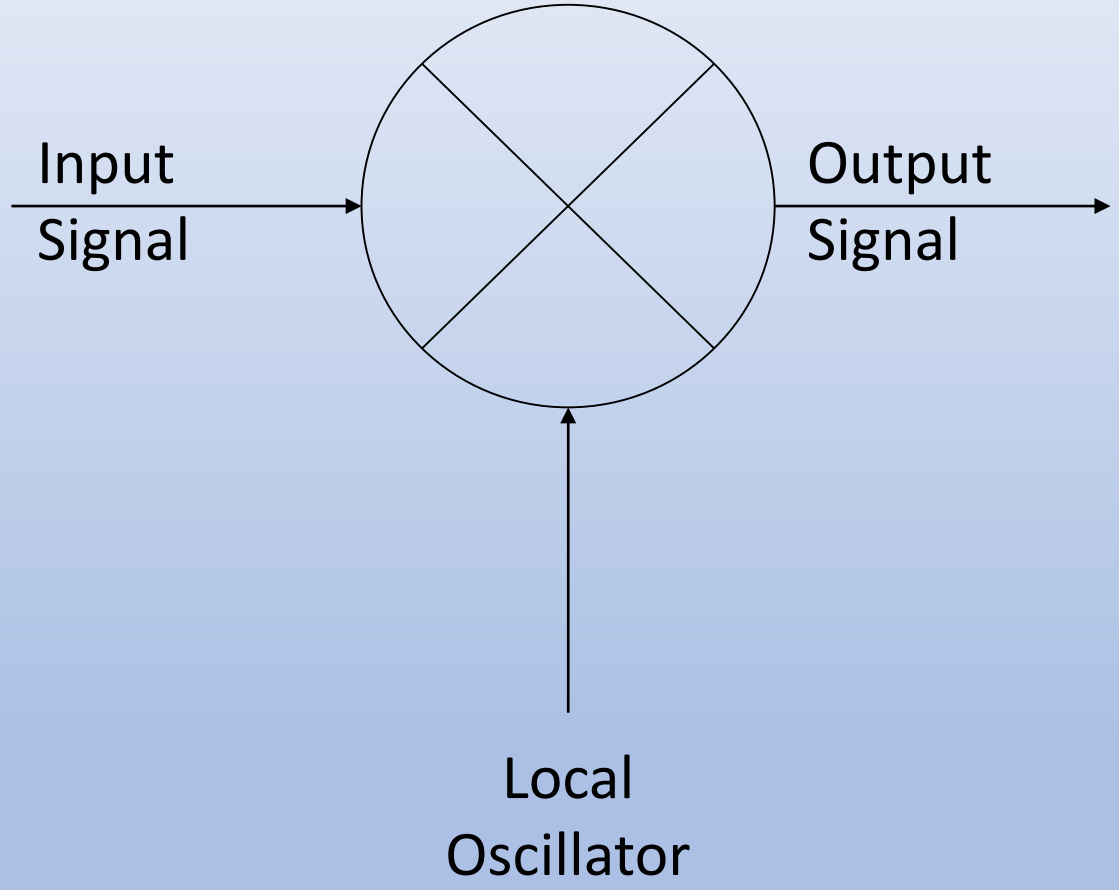
Frequency Mixing

An introduction to Heterodyning Signals

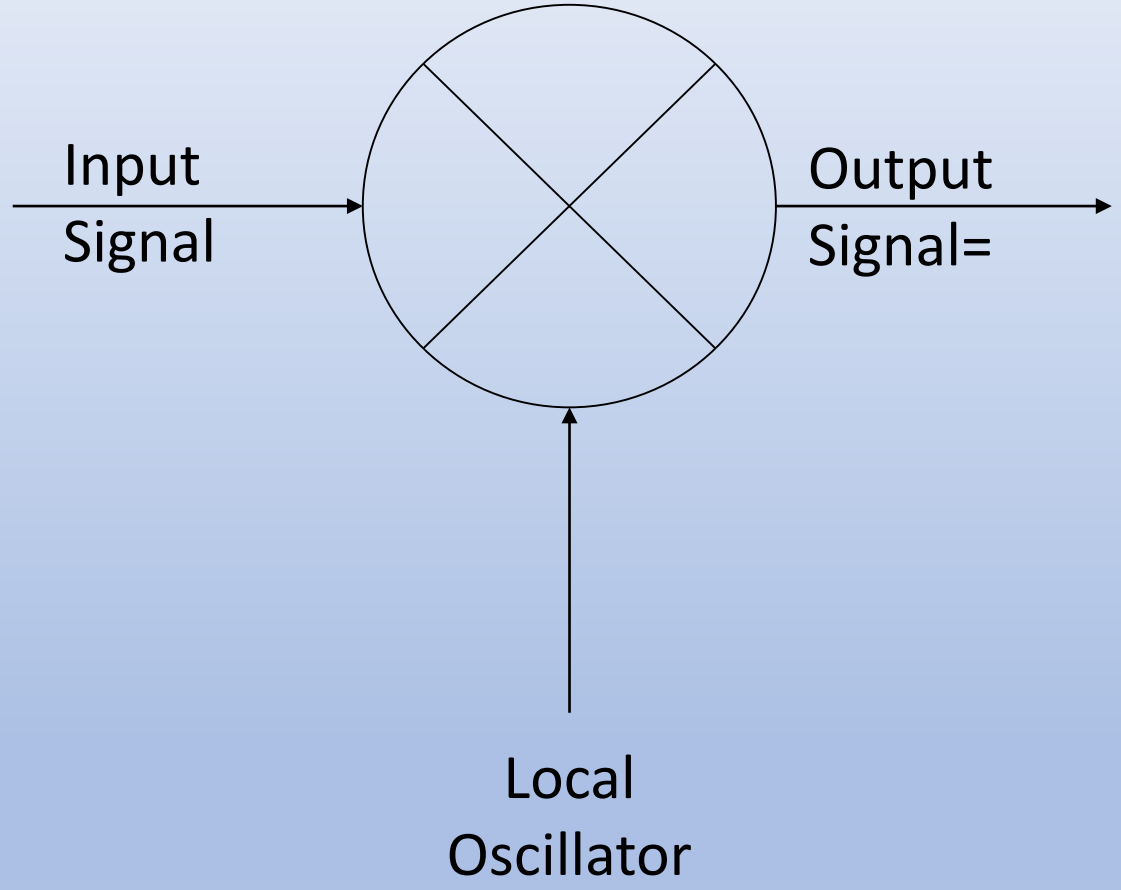
Heterodyning or Mixing

- Heterodyning creates new frequencies by combining or mixing two frequencies.
- The result is the original frequencies, the difference of the two frequencies and the sum of the two frequencies.
- The two frequencies are combined in a nonlinear signal-processing device usually called a mixer. In the 88D RADAR the “Mixer” is located in the “Antenna Mounted Electronics” box.
- A filter on the output of the mixer can be used to select which output to use in a circuit.

A simple mixer

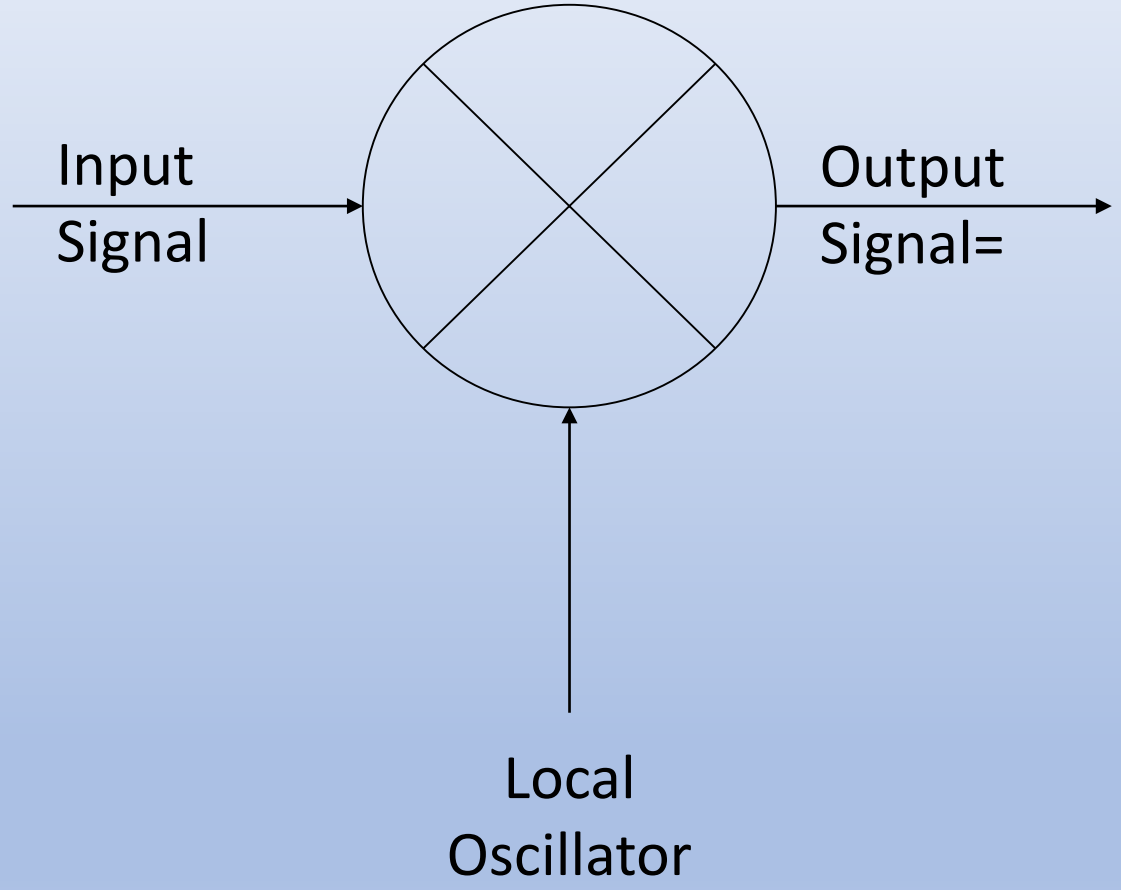


Mixer outputs are inputs plus the sum and difference



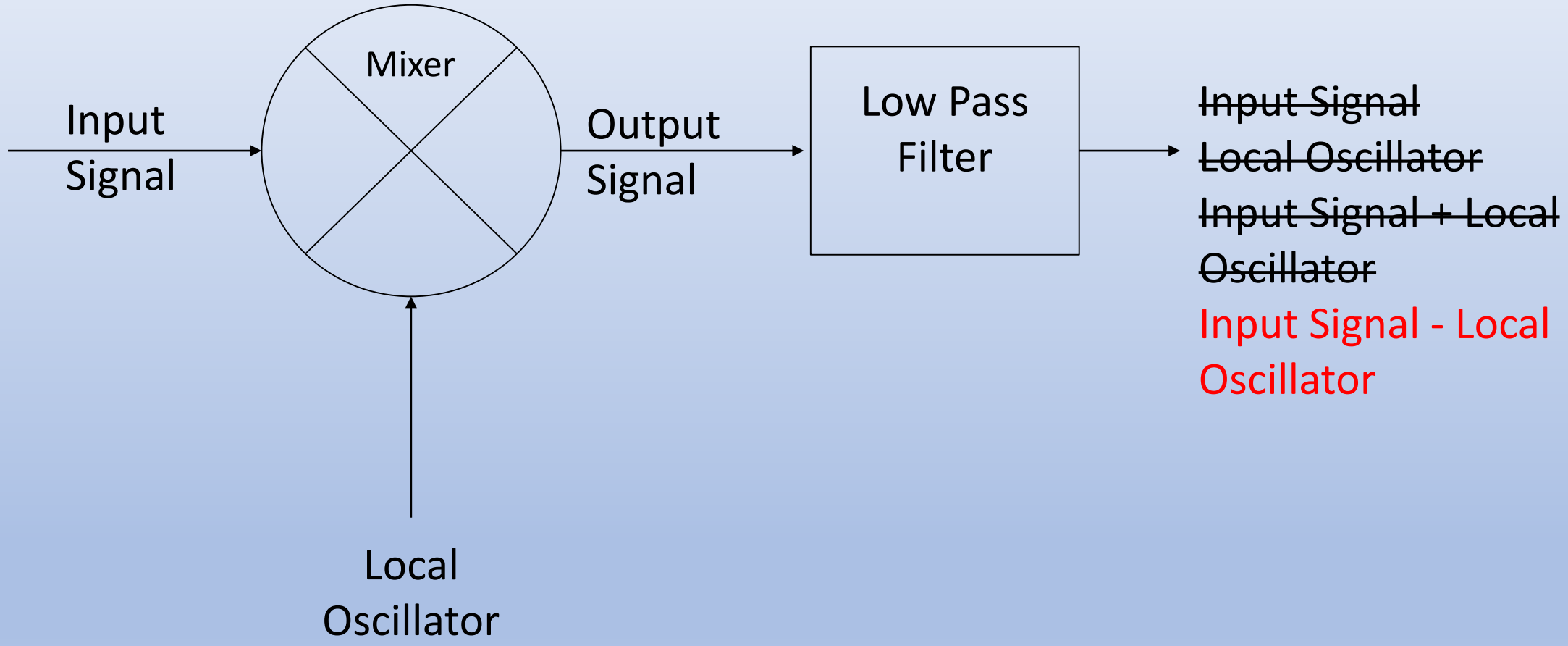
Input Signal
Local Oscillator
Input Signal + Local Oscillator
Input Signal - Local Oscillator

Mixer outputs are inputs plus the sum and difference



Input Signal
Local Oscillator
Input Signal + Local Oscillator
Input Signal - Local Oscillator

Add a low pass filter to only pass what is needed



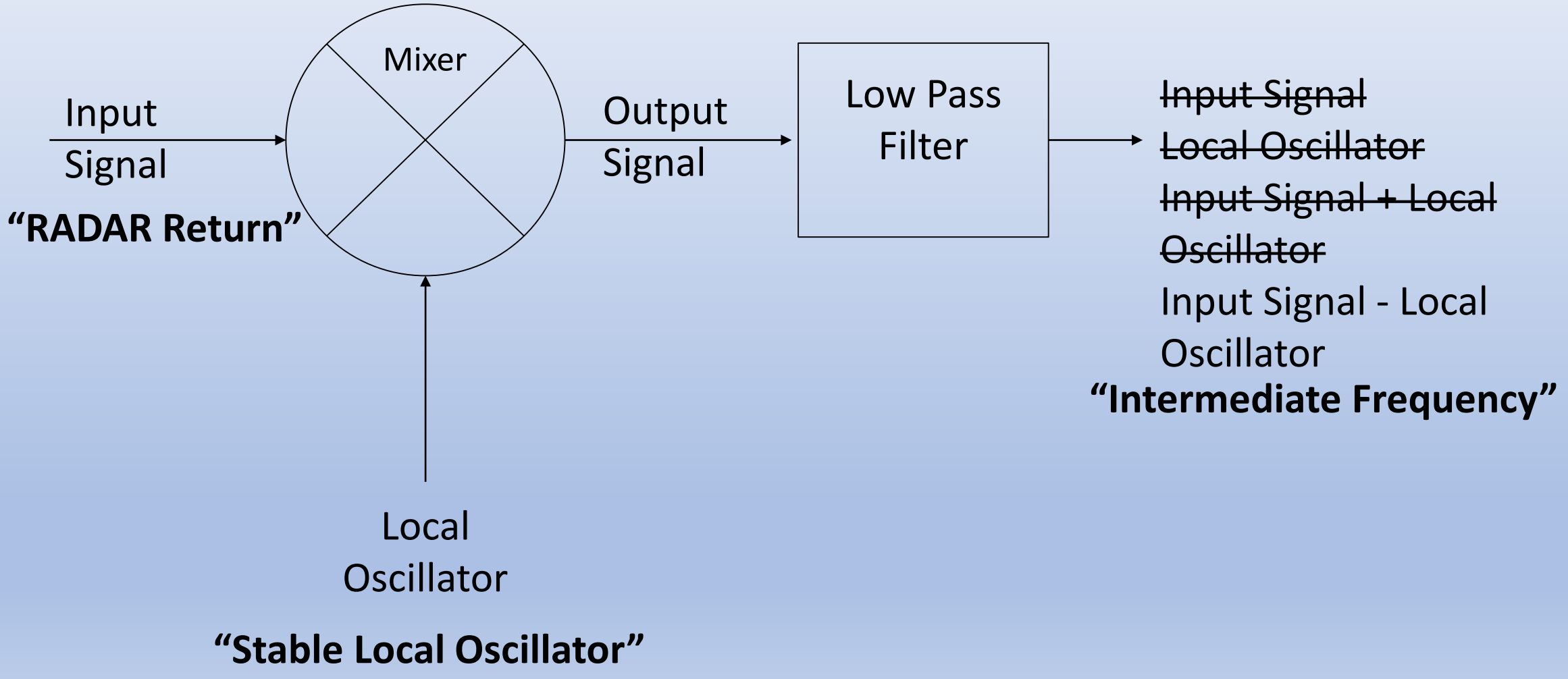
~~Input Signal~~

~~Local Oscillator~~

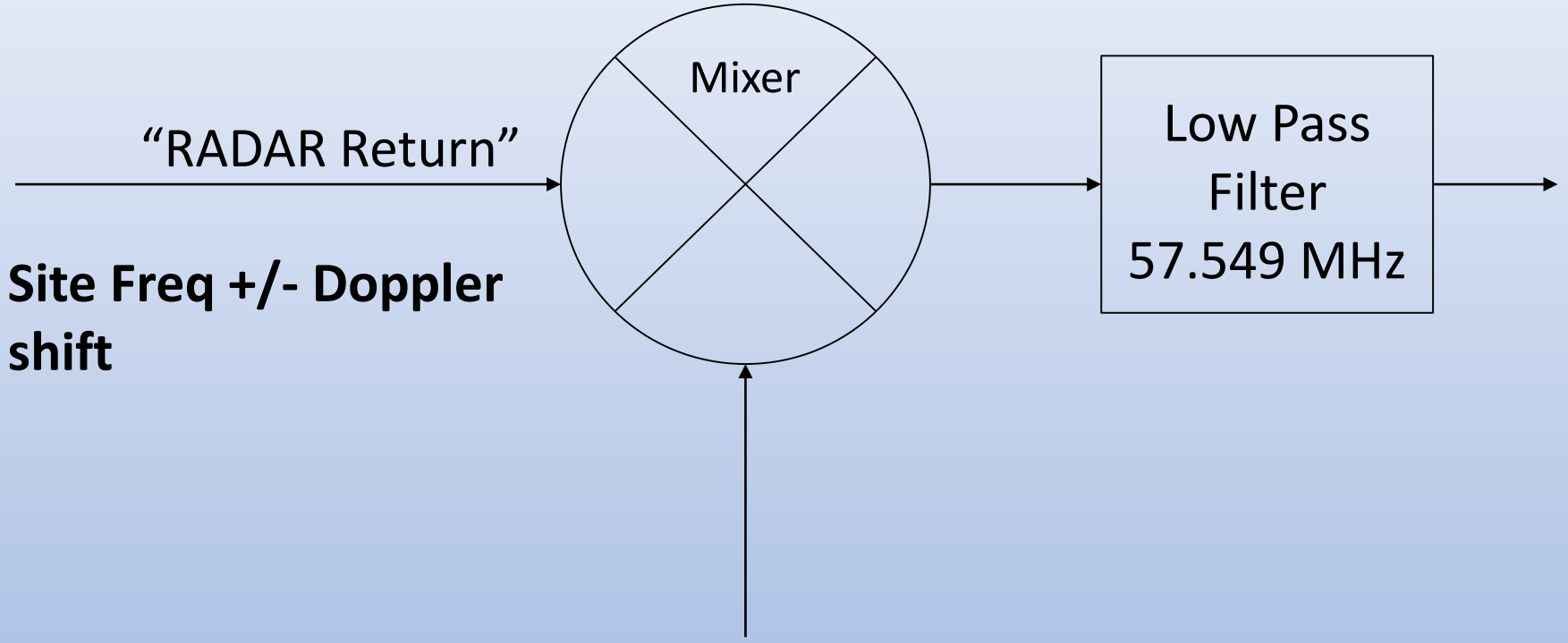
~~Input Signal + Local Oscillator~~

Input Signal - Local Oscillator

Add a few RADAR/radio terms to the drawing



Simplify and add acronyms



Creating site frequency by mixing STALO & COHO