

Exceeding the Maximum: Aliasing and Folding

- Once the Sampling Rate is Set, There is a Limit on the Frequency that can be Detected:

$$\text{Maximum Frequency} = 2 \times \text{Sampling Rate}$$

Note: With quadrature detection, this limit is actually set for both positive and negative frequencies:

$$\text{Maximum} = + \text{Sampling Rate}$$

$$\text{Minimum} = - \text{Sampling Rate}$$

- If a Signal in the FID Exceeds the Frequency Limit, a Peak Appears in the Spectrum at the Wrong Frequency
- This “Aliased” or “Folded” Peak will be the Same Distance from the Edge of the Spectral Window as the True Frequency, but Inside the Spectral Window