Analysis Windows

Here we look at how frequency estimates at the first peak of 𝑥[𝑛] = cos(2𝜋𝑓1𝑛) + cos (2𝜋(𝑓1 + ∆𝑓)𝑛) changes with respect to y different values of ∆𝑓 = [0.01, 0.03, 0.05, 0.08, 0.1, 0.15, 0.2]

**Rectangular window**

Chart, line chart

Description automatically generated

**Hamming window**Chart

Description automatically generated

**Blackman window**Chart

Description automatically generated

Results are also condensed into 1 plot for comparison:

Chart, line chart

Description automatically generated

Reproduce:

1. Run ***main.m***

Plots of **FFT(x)** with respect to **frequency samples** ‘**fk’** will be plotted:

* Figure 10-70: Rectangular window
* Figure 11-71: Hamming window
* Figure 12-72: Blackman window

1. Numerical values of frequency sample value at first peak were obtained by zooming in to first peak in each plot.
2. Figure 91-93: Rectangular/Hamming/Blackman plots for Frequency estimate at first peak with respect to deltaF.
3. Figure 99: Comparison plots