

Concept Question 9-1: Why do we multiply a signal by a data window, instead of convolving it with the data window?

The purpose of a data window is to taper the ends of the signal segment to zero, so that the periodic extension of the windowed data segment has no abrupt changes when the ends of the segment are concatenated (adjoined), avoiding sidelobes in the spectrum.

Convolving the signal with a window would alter its spectrum (filter it), whereas we wish to depict its spectrum more clearly.