CLARIFICATION OF [CENTER FREQUENCY – CHANNEL FREQUENCY] EXPRESSION AND CALCULATION OF CHANNEL FREQUENCY

Baseband frequency is an important variable for the FFT plot. It's basically the center frequency of the FFT plot. So, the whole point of doing this signal shifting is, it would be convenient if we have our radio station frequency centered at the FFT plot for clear observations.

We use ''Signal multiplication'' to shift the signal frequency by multiplying 2 signals point by point. (Center frequency - channel frequency) expression gives the amount of shift we will be doing to the original signal. Center frequency is our radio station so we cannot change this, but we can use channel frequency variable to adjust our frequency shifting. Why we use this (Center frequency - channel frequency) expression is, whenever you want to listen to a different radio station, the FFT plot will be shifted automatically to a correct position. So you don't need to shift your signal each time you want to tune to a different radio channel.

Channel frequency is the amount of shift you want for any sort of signal to displayed in the FFT plot. So, there's no theory behind calculating it, you can change the channel frequency to get different shifts. When you plot a signal, you can realize how much shift you would want and according to that, you may set your channel frequency variable.

DIFFERENCE BETWEEN USING FREQUENCY SLIDER FUNCTION AND SIGNAL MULTIPLICATION

Frequency adjustments through frequency slider function is basically changing the frequency from hardware point of view. Using signal multiplication to do an automatic frequency shifting is the software implementation. So that you won’t need to adjust the settings manually every time you test with different frequency values like in slider function.