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***Spectrum Analyzer Application (Manual – Catalog)***

***DSP Project 1***

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***Section I. Introduction to the Application***

One of the main methods to process the data digitally is the FFT algorithm and the Convolution

operation between two signals which are implemented in One of the devices used in real-life to

visualize the signal’s frequency contents which is called Spectrum analyzer. The spectrum

analyzer takes a digital Signal and performs all the necessary measurements to visualize the

different frequency components and the effect of windowing and averaging on such signal. In

addition to the Spectrum Analyzer, the application gives the user the option to do Discrete

convolution on signals as our computers can’t do the analog one because Computers save the

data in a discrete way, thus we implemented how the convolution between two signals occur

and provided an animation for this step. An important thing to be mentioned is that computers

usually perform DFT through FFT function in MATLAB which implements the Fast Fourier

Transform Algorithm which was implemented too in the project.

***Section II. Theory***