% ***
% This Labview source code provides an implementation along with examples
% of a basic GFDM transmitter chain.
%
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GFDM basic experiments using LabView

1 DESCRIPTION

This experiment uses the software LabView to show some basic features of GFDM [1]. The configuration is limited to a fixed number of 32 active subcarriers, each one with 16 subsymbols pulse shaped with a raised cosine filter.

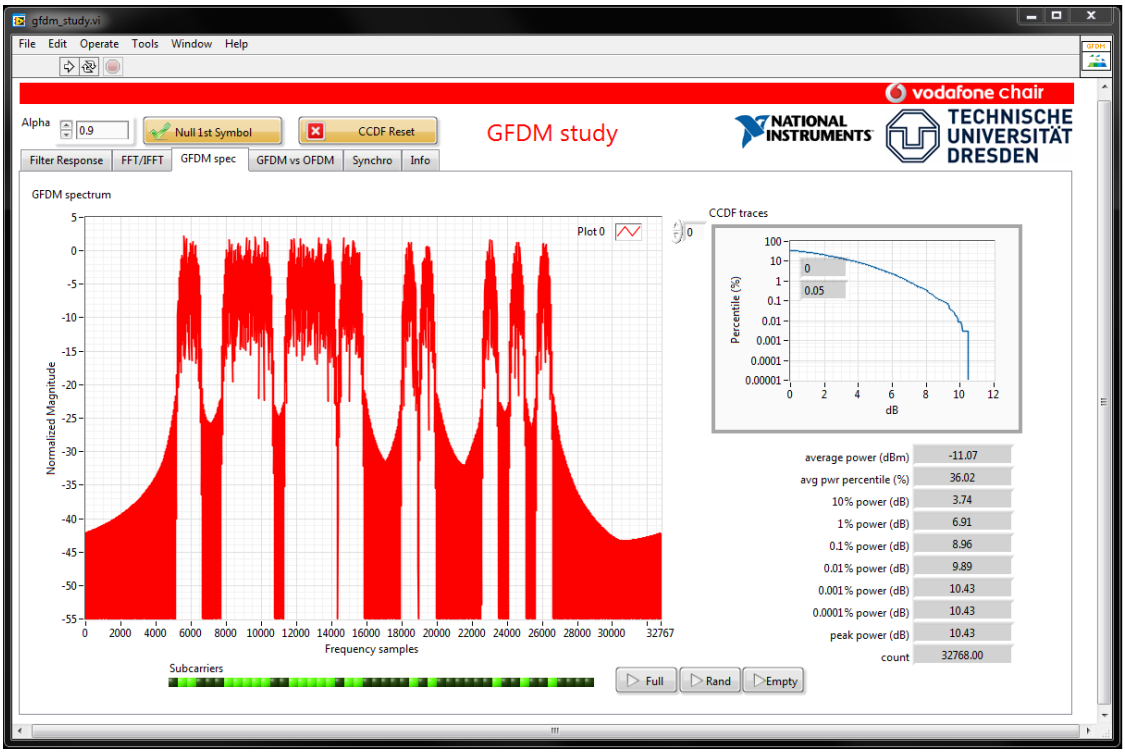
The attached file ‘gfdm_study.zip’ contains the source file’gfdm_study.vi’ (which requires the full version of LabView and special libraries) and also an executable file ‘gfdm_study.exe’ (which requires a free run time version of LabView, but does not allow access to the source code).

Details about LabView installation, full version or just the runtime, can be found at www.ni.com.

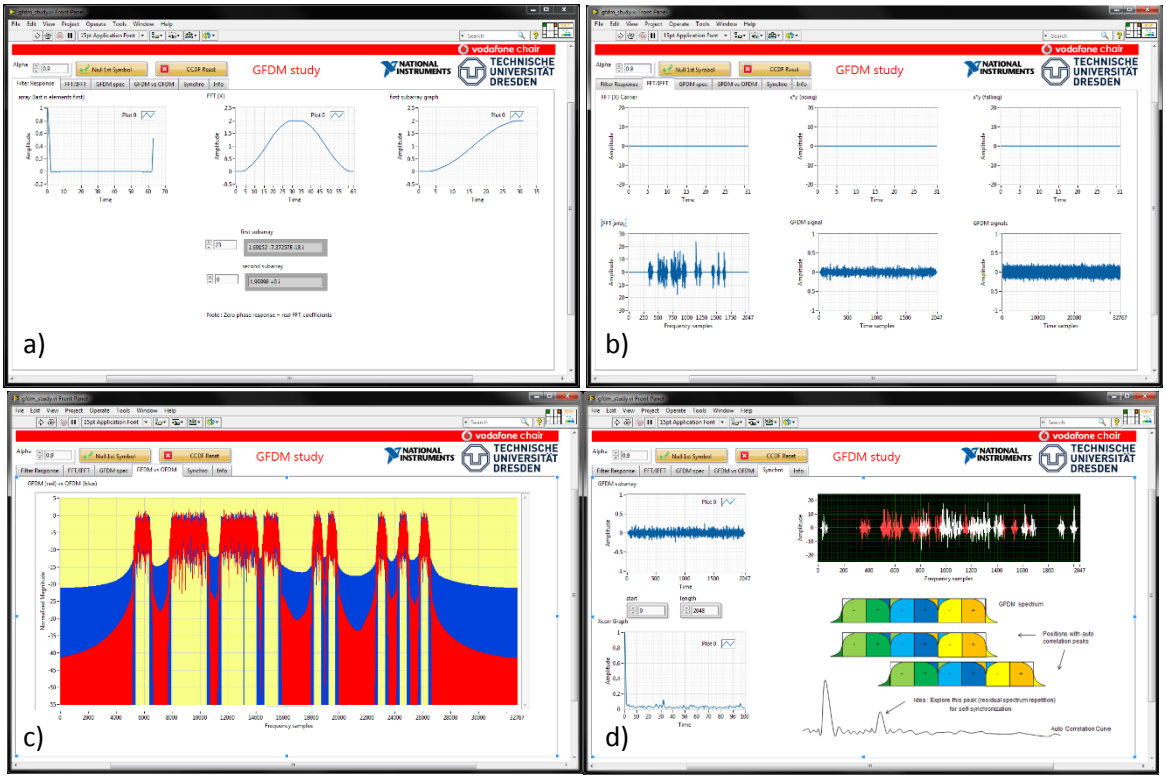
Go ahead and get started by pressing the button ‘run continuously’  , and stop it by pressing  .

The roll-off of the subcarrier filter can be set in the range 0 to 1. When the ‘Null 1st subsymbol’ is enabled the first GFDM subsymbol is set to zero.

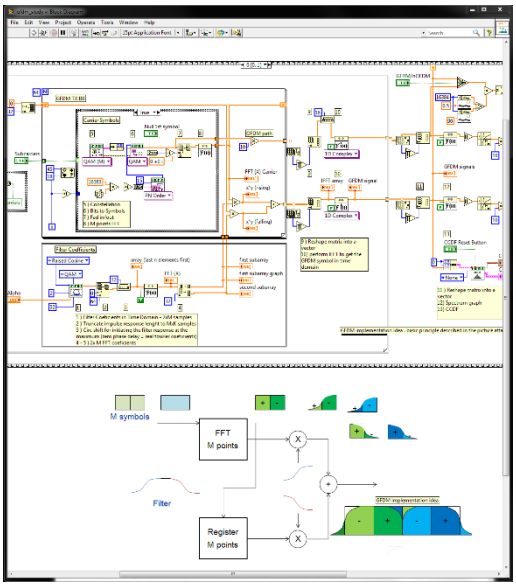
The experiment can be summarized in the figures bellow:



In the ‘GFDM spec’ tab, the allocated subcarriers of GFDM can be enabled/disabled, updating the exhibited spectrum and CCDF plots.



Other tabs exhibit a) filter construction, b) subcarrier construction, c) GFDM vs OFDM spectrum, d) GFDM cyclic autocorrelation in frequency



Screen shot of the 'Block Diagram' source file ('gfdm_study.vi')

[1] Gaspar et. al. "FPGA implementation of Generalized Frequency Division Multiplexing transmitter using NI LabVIEW and NI PXI platform", National Instruments, VIP 2013.