App Note - 316

Application Note: How to generate a swept frequency signal generator for AnadigmDesigner2

Rev: 1.0.1

Date: 28th May 2019

TABLE OF CONTENTS

1 Purpose

The purpose of this document is to illustrate how to create a signal generator for use with AnadigmDesigner2 which produces a swept input frequency.

The document will describe a starting point, an excel spread sheet and contains an example.

No hardware is required, this a software input signal generator for AnadigmDesigner2.

.

2   The Software

2.1   AnadigmDesigner2 circuit

The example presented her is simple 3 band equalizer.
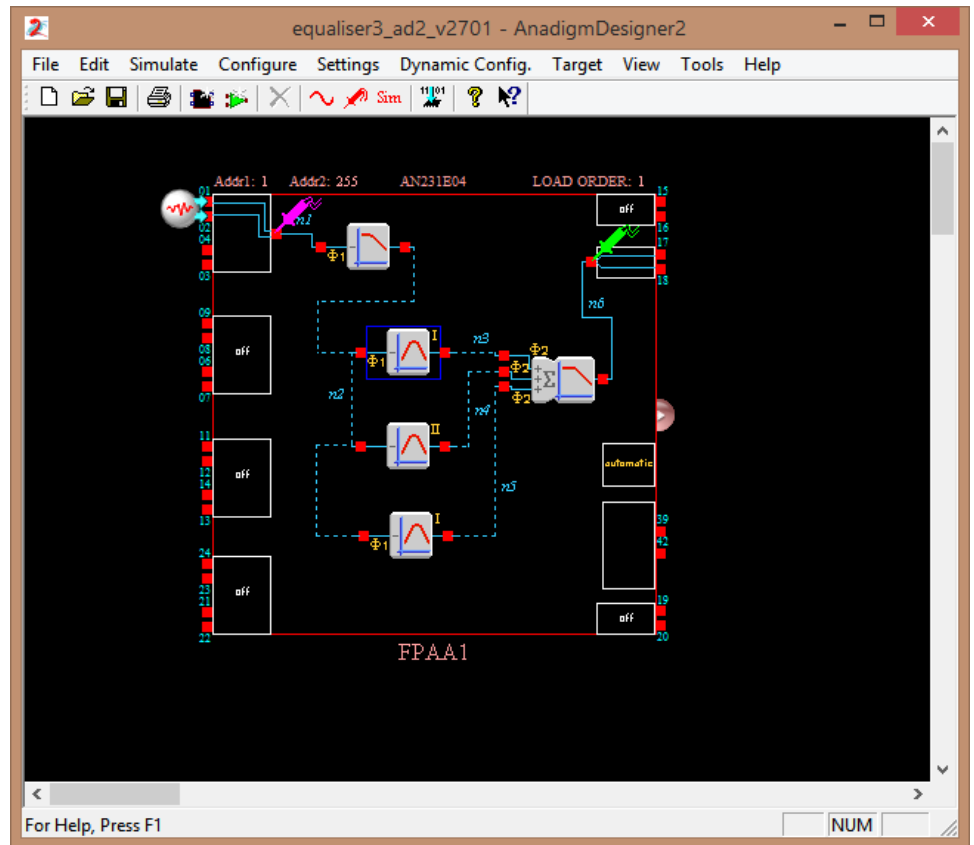

Fig1, Simple 3 Band Equalizer. Circuit file = Equaliser3.ad2

If the user double clicks the input signal source icon, the following Signal Generator Control, pop-up window can be seen.
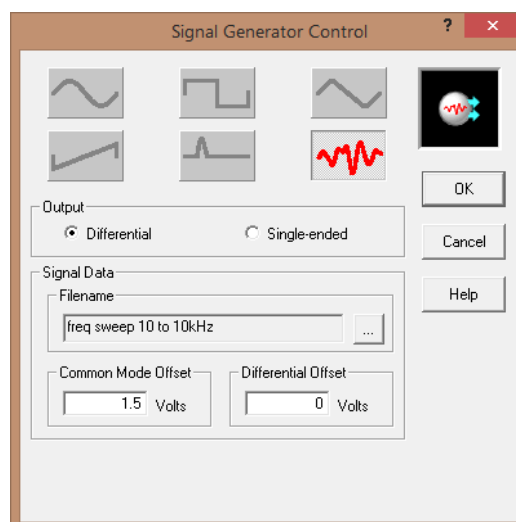

Fig 2, Signal Generator Control

Make sure the Signal source is set to "Data file" (the icon shown in red in the above diagram). Then click the File Name select button and point to the Excel (CSV) File which contains the signal source data.

For our example we use "freq sweep 10 to 10KHz.csv"

2.2   Creating the CSV File

To generate the file "freq sweep 10 to 10KHz.csv", we first built an excel spread sheet which calculates the frequency sweep, described in steps of time and voltage.

See file "AD2_SignalSource_FrequencySweep 4Feb15.xlsx".

The file can be used to customize the frequency sweep you require.

Enter you choice of

Signal Amplitude = ampl,

Start Sweep frequency = f_start,

Stop sweep frequency = f_stop,

and   Sweep Time (make sure N>=10, reduce sweep time if it is)

Then save Sheet2 as .CSV file.

The save document can be loaded into AnadigmDesigner2 signal generator as described above.

Thanks go to EDN for providing a starting point for the spreadsheet.   Found here
http://www.edn.com/electronics-news/4384064/Generate-a-Swept-Sine-Test-Signal

Anadigms Spreadsheet is based upon this. There appears to be lots of variables but as a user you only have to enter sweep time, f_start, f_stop and ampl.

2.3   Using the simulator

Having now opened the AnadigmDesigner2 circuit, attached the csv data file to the virtual signal generator control source all you need to do is start the simulation.

AnadigmDesigner2, Simulate Menu / Begin Simulation (F5) or Sim shortcut button. Sit back and wait for the result.

In our example the Simulation time is approx. ten minutes. If you have varied the sweep input file the simulation may be faster or (beware) may run for a very long time.

3.0   Attachments

This document has three attachments associated with it, if you only have this pdf, the attachments can be found here. https://www.anadigm.com/Apps/AN231015-U316.zip

- AD2_SignalSource_FrequencySweep 4Feb15.xlsx
- freq sweep 10 to 10kHz.csv
- Equaliser3.ad2