Venable analyzer Tips.

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The Venable analyzer can be used to perform the AC sweep requirements for the experiment.

## 1. Connecting the analyzer to the amplifier.

Use the Bode Box (injection transformer) model 200-002 . Connect the Oscillator BNC to the center OSC IN BNC of the Bode Box, other two will not be connected. Connect a 10X probe to Channel 1 + and a 10X probe to the Channel 2.

Connect the analyzer (red banana) to Vin of the amplifier circuit at the input capacitor (between the Pie filter and the Ri (47 ohm resistor) of the amplifier. Connect the brown banana to ground of the amplifier under test. The black banana is open.

Disconnect the Agilent function generator from the circuit.



## 2. Start Venable software

At start up you may see this screen.

The interface name is **GPIB1 for the Venable.** 

If when you try to collect data you receive a not found error, then check this screen. This screen can be accessed from the View tab then the Settings tab.



Click OK.

## 3. Click on Analyzer Control tab

In the Analyzer Control Menu. Set the start frequency for 10Hz or above Set the Stop frequency to 1 mega Hz or below Log sweep of 10 steps/decade or larger. Set the AC Vout voltage to 10 times larger than the peak value needed the maximum is 10Vpeak

Note: The transformer must be used to protect the Venable analyzer. The Voltage signal that will be sent to the amplifier circuits will be V/10 because the transformer is a 10:1 set down transformer. Therefore the maximum output of the analyzer to the amplifier input will be 1Vpeak. So this means that for some of the experiments setups we will not be able to test the amplifier designs at the specified required output voltage requirement. The frequency response test at the lower voltage will still be valid.

Set the AC Volts Out = 10 X desired input voltage. (Because of 10:1 transformer). Set the DC Volts Out =0 Input coupling AC Input type = main Integration time = medium Channel ratio CH2/CH1

## Under Servo control area, Servo On check box is unchecked

3215 Analyzer Control Menu		
Start Frequency:       10       ▲ Hz         Stop Frequency:       100 k       ▲ Hz            • Log Sweep        10       ▲ Start Frequency:            • Log Sweep        10       ▲ Frequency:            • Log Sweep        10       ▲ Frequency:            • Log Sweep        1       ▲ VA            • DC Volts Out:       0       ▲ VD	Run <u>S</u> weep	Stop <u>I</u> aking Data Frequency: 10 Hz CH1: 694.3 m Vrms CH2: 694.4 m Vrms
Input Coupling: AC  Input Type Ch. 1: Main Input Type Ch. 1: Main Integration Time: Medium Integration Cycles: 1 Delay Time: 0 Sec Communication with Analyzer: Sent: AMPLIT, 1; FREQUE, 10; GAINPH Received: 11, 00000E 1, 6, 94332E - 1, 6, 5 Sent: AMPLIT, 1; FREQUE, 10; GAINPH	Servo Control Servo Dn: Channel: CH 1 AC Volts In: 10 m AC Out Step Size: 10 Max AC Volts Out: 10 Vpk	Chann <u>e</u> l Ratio: CH2/CH1 Gain or Magnitude: 0.000663 dB Phase: -0.02896 deg Maximum Change Between Data Points - Gain or Magnitude: 10 dB Phase: 20 deg

Click Run Sweep.

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The Data set Properties screen may look a little different.

Data Set Properties	X
Data Set: 1	Close
Data gathered by the 3215 System	Visible Save Changes
12:49PM Monday, July 10, 2006	Phase Color Save as Default
	Gain Color Delete
	Output Node: 2
	Input Node: 1
	Scale Factor: 1
	Gain = 20 • log <sub>10</sub> ( <mark>Output</mark> • Scale Factor)

Now data set properties screen will come up. Output node = CH2 Input node = CH1 Scale Factor = 1 Click Close and the AC sweep will start.

4. Mark the graph Low frequency cutoff and High frequency cutoff.With the graph open select the data set that you want to mark( by clicking on the line graph).Select Add Slide bar window to mark the graph.

5. **Save the graph** as a JPEG to print and turn in. From the file menu save graph in JPEG format.