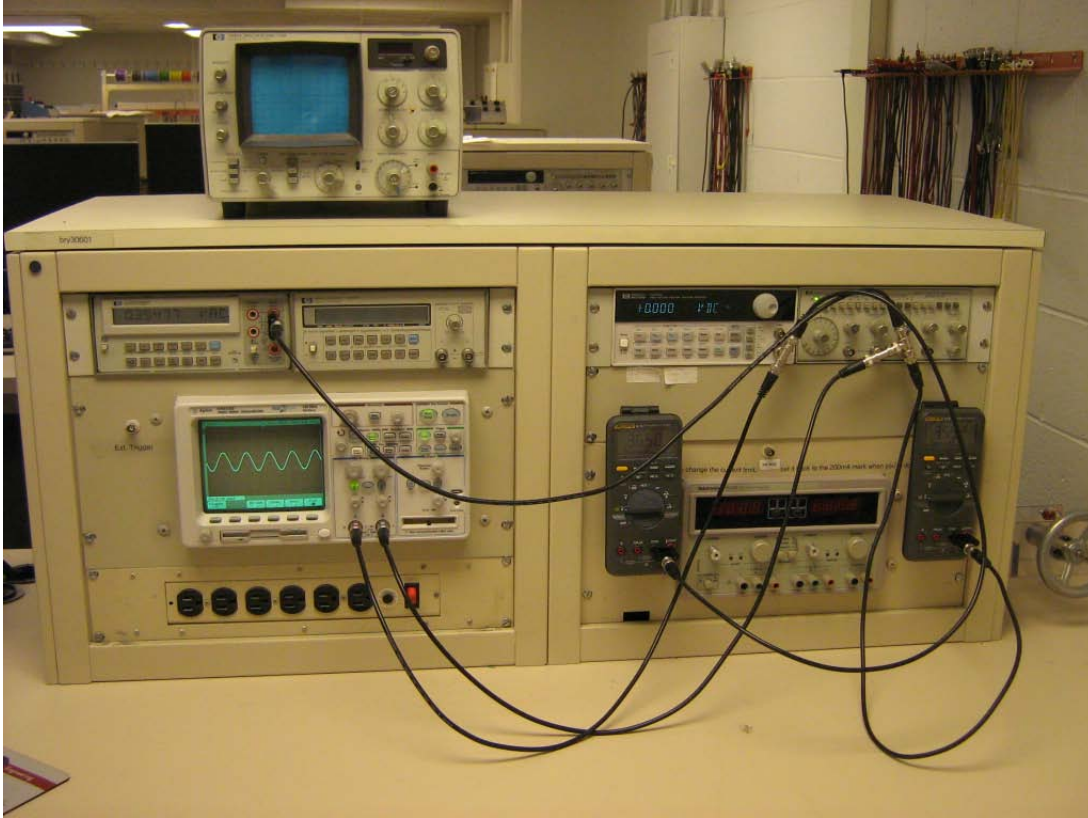


Bryan 3 Test Procedures

- [**Bryan 316 Test Procedure**](#)
- [**Bryan 306 Test Procedure**](#)

Bryan 306 Bench Test

1. 2 Function Generators, 3 DMMs Voltage (AC/DC), Scope Test



- a. Connect wires up as shown.
- b. HP 33120A
 - i. Sine (~)
 - ii. Freq: 1KHz
 - iii. Ampl: 1.000 VPP
 - iv. Offset: 0.
- c. HP 3312A
 - i. Range: 1K
 - ii. Frequency Knob: 1
 - iii. Offset blue button in, Offset Knob at 3 O'Clock
 - iv. Amplitude: 1, Amplitude Knob at 11 O'Clock
 - v. Sym blue button in
 - vi. Function = ~
 - vii. Modulation – AM,FM,SWP out
 - viii. Trigger Phase all the way to the left.

- d. Protek
 - i. Function=V
 - ii. Scale=20
 - iii. AC/DC Button In
- e. HP 3478A set to ~V with Term out
- f. Scope
 - i. Autoscale
 - ii. Quick Meas/ Clear Meas
 - iii. Frequency Test**
 - 1. Source 1/Select Frequency/Measure Frequency (About 1KHz +/- 100 Hz)
 - 2. Source 2/Select Frequency/Measure Frequency (About 1KHz +/- 100 Hz)
 - iv. Quick Meas/ Clear Meas
 - v. RMS Test**
 - 1. Source 1/Select RMS/Measure RMS (About 350 mV +/- 100 mV)
 - 2. Source 2/Select RMS/Measure RMS (About 350 mV +/- 100 mV)
 - 3. Both Proteks should show 0.350 mV +/- 0.1
 - 4. HP 3478A should show 0.350 VAC +/- 0.1
 - 5. Scope numbers should be the same as the meters

Notes: If the reading is off by a factor of 2, see the HP33120A section of [Lab How Tos.pdf](#). If the reading is off by factor of 10 look the probe is set at 10 not 1. (press signal button then set probe).

- vi. DC Test**
 - 1. HP3312A - Push out blue Offset Button – Adjust Offset until Channel 1 and 2 look the same on the scope. Bottom of unction line at zero
 - 2. HP 33120A – Offset: 500 mVDC or 0.5 VDC
 - 3. Proteks – AC/DC button out. Should read 0.500V +/- 0.1.
 - 4. HP 3478A set to =V. Should read 0.500V +/- 0.1.
 - 5. Source 1/Select Average/Measure Average (About 500 mV +/- 100 mV)
 - 6. Source 2/Select Average/Measure Average (About 500 mV +/- 100 mV)

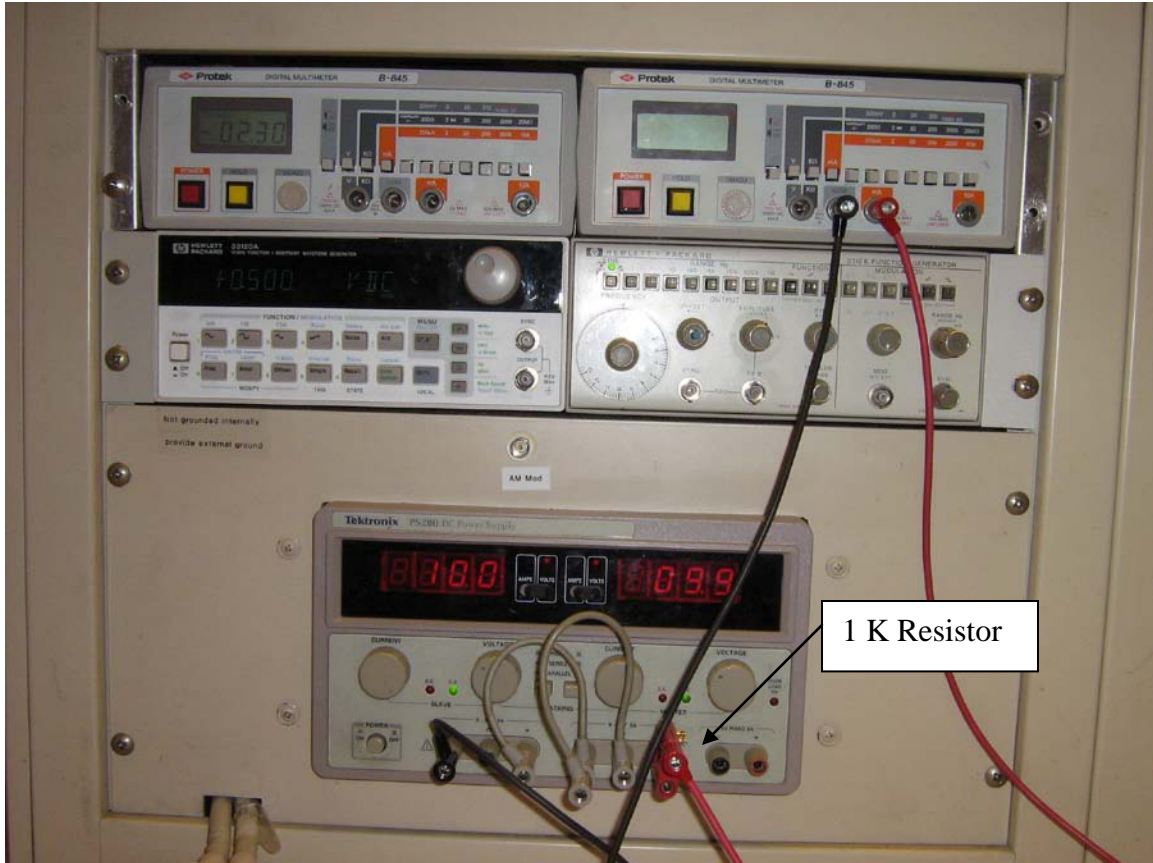
- g. Verify that the rise time on the Sync output of the Hp 33120A is < 50 ns.

2. Resistance Test



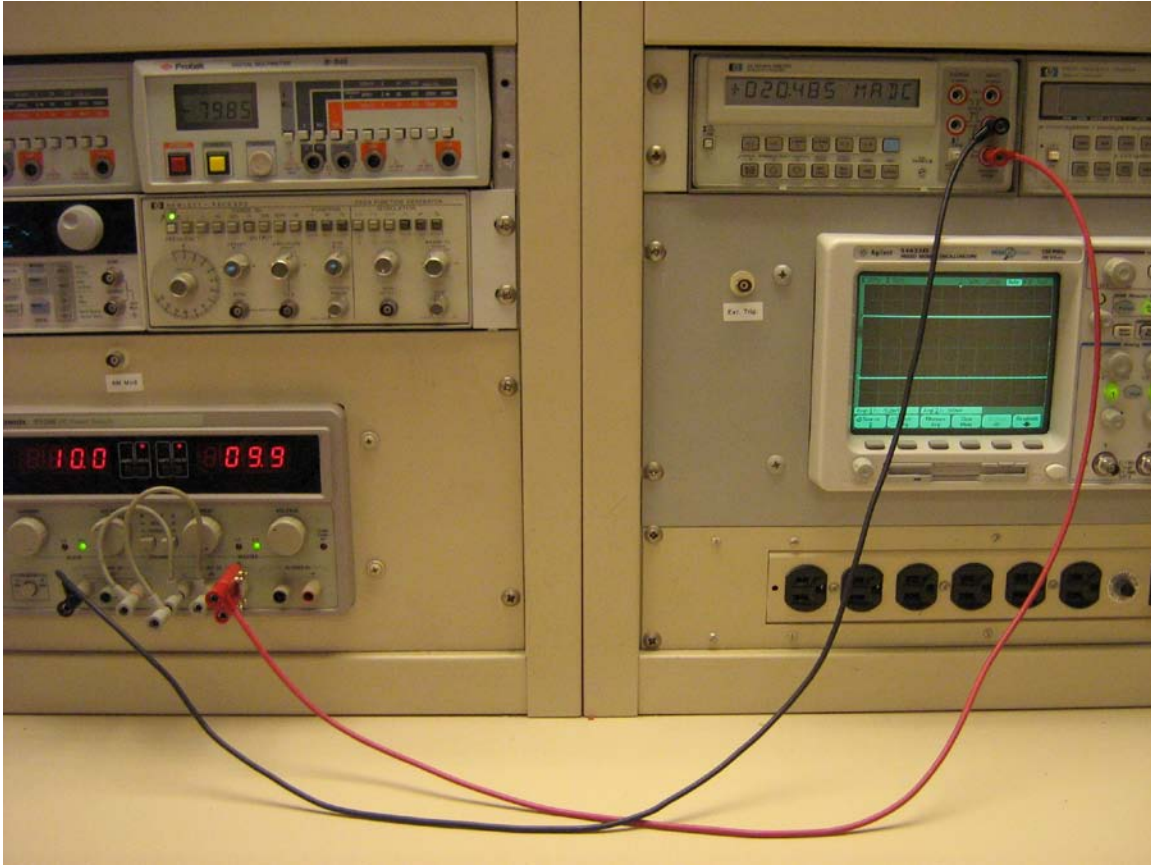
- a. Connect 1k resistor on dual banana as shown.
- b. Protek
 - i. Function: $k\Omega$
 - ii. Scale: 20
 - iii. Should read 1.000 ± 0.1
- c. HP 3478A
 - i. Function: 2 wire Ω
 - ii. Should read $1.000 \text{ k}\Omega \pm 0.1$

3. Current Meter Test



- a. Tek PS280 Power Supply – Connect as shown.
Voltage 5.0V
Center Buttons out (Indep mode)
Current knobs max to right.
When making connection use both connections on resistor
- b. Prottek
 - i. Function: mA
 - ii. Scale: 200
 - iii. AC/DC button out (DC)
 - iv. Should read 10.0 +/- 1
 - v. Move Red wire to 10A input
 - vi. Scale=10A (Press 10A button)
 - vii. Should read 0.01 +/- 0.005.

c. HP 3478A

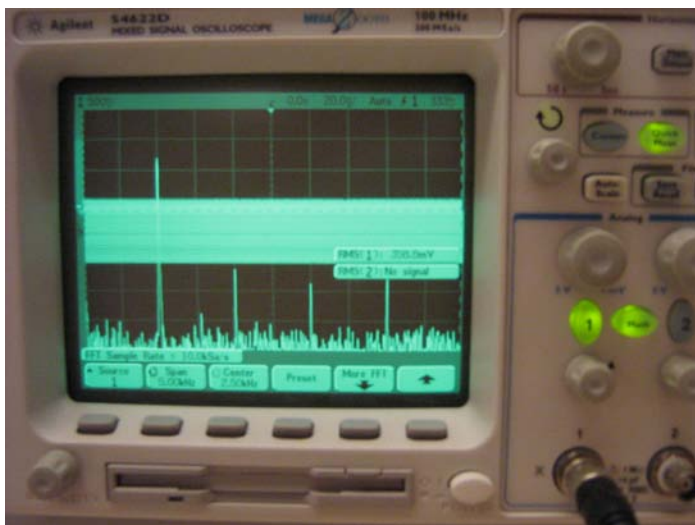


- i. Connect 1k resistor on dual banana as shown.
- ii. Function: A
- iii. Should read 10.0 MADC +/- 1

4. Spectrum Analyzer Test



- Set Sweep Mode to Reset and Frequency Toggle switch to STR and adjust Frequency Knob until display shows < 10 Hz.
- Connect Spectrum Analyzer to HP33120A Function Generator and to Channel 1 on the scope. Configure Function Generator for 1KHz, 1VP-P, 0V Offset, Sine Wave and Scope as shown below:



- Configure Spectrum analyzer as shown below. Make sure that the Adaptive Sweep is disabled (all the way to the left) and the Resolution

Bandwidth outer knob is all the way to the left. Other settings are Resolution Bandwidth=30 Hz, Frequency Span/Div=1Khz, Sweep Time/Div = 2Sec, Sweep Mode = Rep, Input Sensitivity = -10, DBv/Lin selected, Amplitude Ref Level= Normal, Amplitude Mode=10dB.



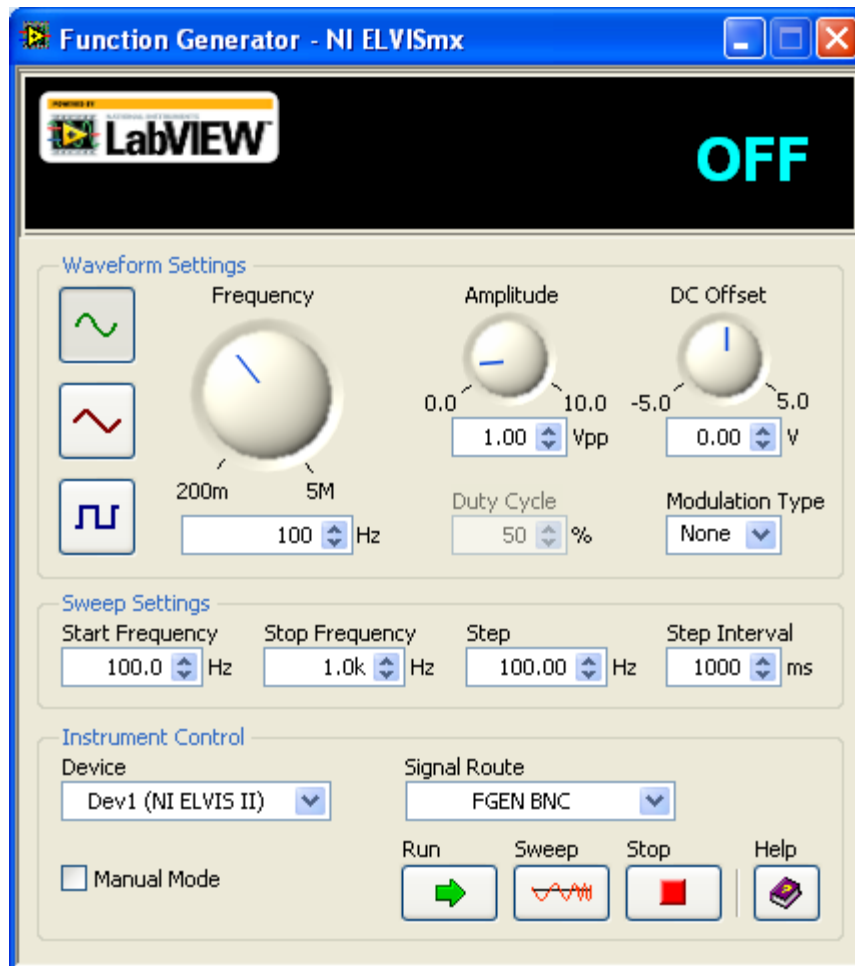
- d. You should see a peak at 1KHz. Harmonics should be at least 70 dB down.
5. Scope Capture – Refer to [ScopeCaptureHowTo.pdf](#) for details.
6. Set currents on DC Power Supply to 200 mA.

Bryan 316 Test Procedure

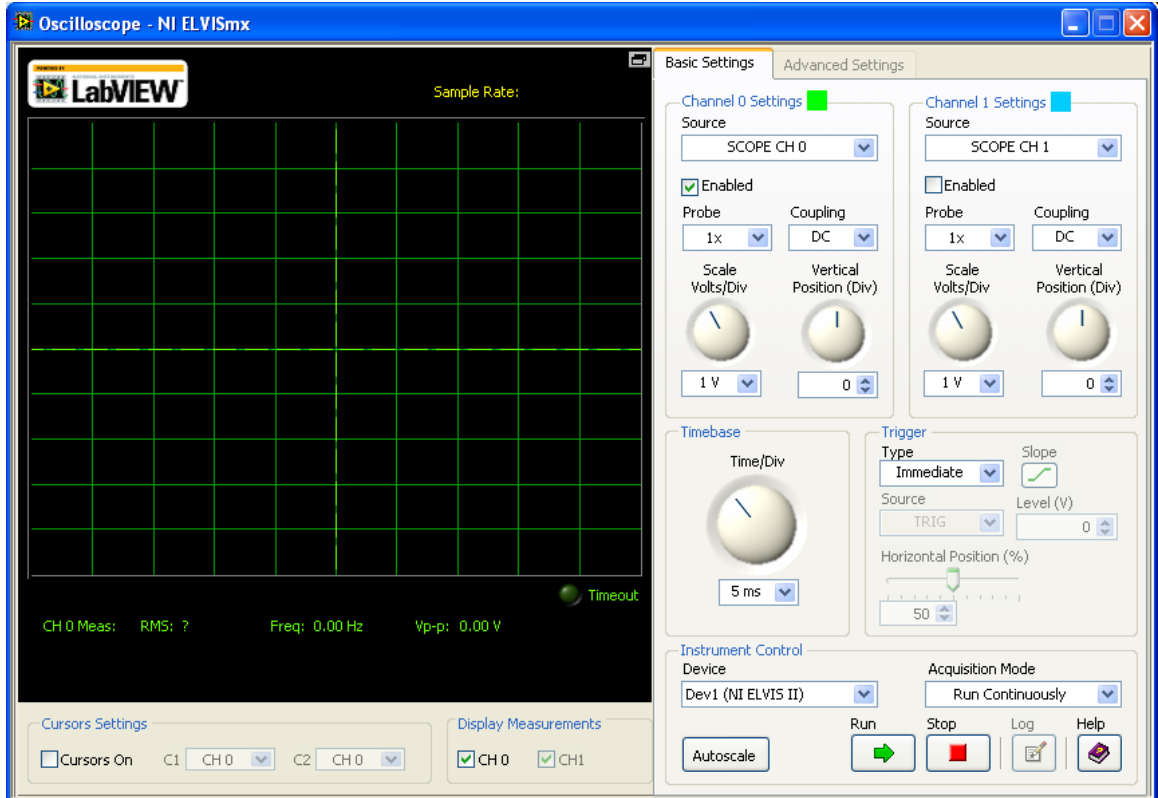
- 1) Connect the FGEN output of the ELVIS board to the SCOPE CH0, also on the ELVIS, with a BNC.
- 2) With ELVIS turned on, open NI ELVISmx Instrument Launcher, and from there launch FGEN and Scope.



- 3) On the Function Generator, make sure that Device is Dev1 (NI ELVIS II) (although it could possibly be a different device number), and set Signal Route to FGEN BNC.



- 4) On the Oscilloscope, check that the same device is selected, Acquisition Mode is continuous, and that SCOPE CH 0 is selected as one of the sources.



- 5) Run both instruments. Change the settings on the function generator (at least frequency, amplitude, DC offset, and waveform) and make sure those changes are reflected on the Oscilloscope. Also, change the Trigger Type on the scope to be Edge and check if that gives you a steady waveform displayed.
- 6) Disconnect the BNC from the SCOPE CH 0 on the board and connect it to CH 0 on the external scope (the NI box connected to the top of ELVIS).
- 7) Open NI-SCOPE Soft Front Panel.

- 8) With the function generator running, you should see the waveform on the Soft Front Panel. You may need to adjust the Volts/Division, Time/Division, and Trigger Type.

