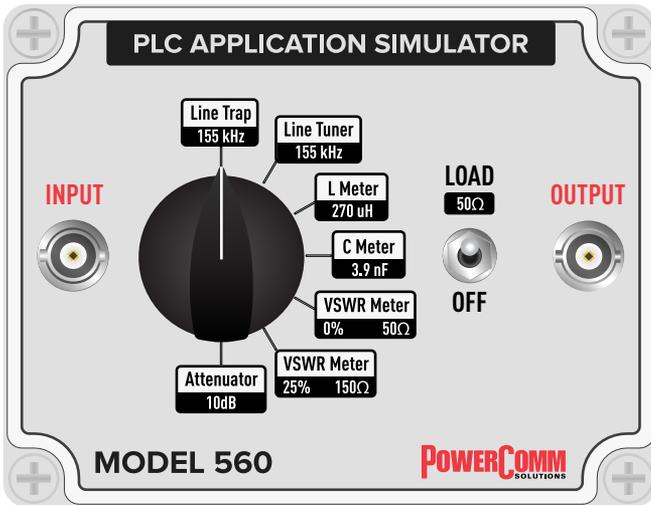


MODEL 560

PLC APPLICATION SIMULATOR

Instruction Manual



POWERCOMM

SOLUTIONS

15 Minneakoning Rd - Suite 311 | Flemington, NJ 08822
PH: (908) 806-7025 | FX: (908) 636-2262
www.powercommsolutions.com

Introduction

Modern instrumentation used in the field today can contain an array of software settings and hardware I/O providing great power and flexibility. Correctly setting up one of these instruments to perform a specific test is not only critical to ensure validity of measurements taken, but also to ensure that the measurements taken can be accurately compared to previous test results. The Model 560 was designed to aid the technician in this very challenge by providing a simple hardware interface for validating test instrumentation settings and connections.

While the Model 560 was designed with the PCA-4125 Power Communications Analyzer in mind, it can also be used to verify test setups using other types of single function test instrumentation including selective level meters, generators, VSWR meters and LCR meters.

In the interest of keeping our documentation correct and concise, the procedures included in this instruction manual will only cover use of the Model 560 with a PCA-4125 Power Communications Analyzer. Should additional procedures or information be needed for other types of instrumentation used in the field, please contact PowerComm Solutions support at (908) 806-7025.

Functions

The interface of the Model 560 is comprised of a seven position rotary switch used for selecting the test setup that is to be validated, BNC connectors for the input and output, and a 50 Ohm load toggle switch.

SWITCH POSITION	FUNCTION
Line Trap / 155Khz	Verify PCA-4125 Impedance Meter settings & connections for line trap testing
Line Tuner / 155 Khz	Verify PCA-4125 VSWR Meter settings & connections for line tuner testing
L Meter / 270 uH	Verify PCA-4125 Inductance Meter settings & connections
C Meter / 3.9 uF	Verify PCA-4125 Capacitance Meter settings & connections
VSWR Meter 0%	Verify PCA-4125 VSWR Meter settings & connections for reflected power measurements
VSWR Meter 25%	Verify PCA-4125 VSWR Meter settings & connections for reflected power measurements
Attenuator 10dB	Verify PCA-4125 Selective Level Meter settings & connections for generator output & signal level measurements

TABLE 1-1 SWITCH POSITION FUNCTIONS

Test Setup Verification Procedures

1 Line Trap Test

CONNECTIONS

1. BNC “Y” Adapter to PCA-4125 High Z Input.
2. 12” BNC lead from PCA-4125 LO output to left input of “Y” Adapter.
3. BNC to Binding Post Adapter to right input of “Y” Adapter.
4. BNC to Binding Post Adapter to input of Model 560.
5. Unscrew black & red binding post caps to expose connection.
6. Red trap lead from PCA-4125 red binding post to Model 560 red binding post.
7. Black trap lead from PCA-4125 black binding post to Model 560 black binding post.

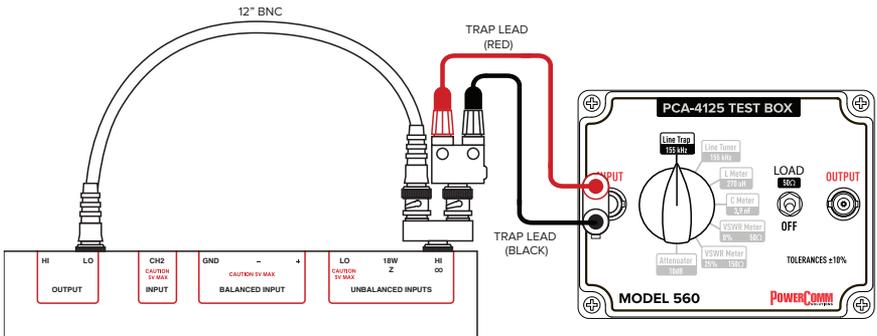


FIG 1-1 LINE TRAP TEST CONNECTIONS

PCA-4125 IMPEDANCE METER SWEEP

1. Press the IMP button to bring up the Impedance Meter home screen.
2. Press the SWEEP button to bring up the SWEEP OPTIONS screen.
3. Set the DISPLAY setting to GRAPH.
4. Set the SWEEP START value to 100 kHz.
5. Set the SWEEP END value to 200 kHz.
6. Set the SWEEP STEPS value to 101.
7. Set the SEARCH FOR PEAK setting to SINGLE.
8. Highlight START and press the ENTER button.

SWEEP RESULTS

Verify that the peak impedance is 155 KHz \pm 10% (140.5 kHz - 170.5 kHz) with an impedance of 5.5 - 7.5 kOhms as shown in Fig 1-2 below.

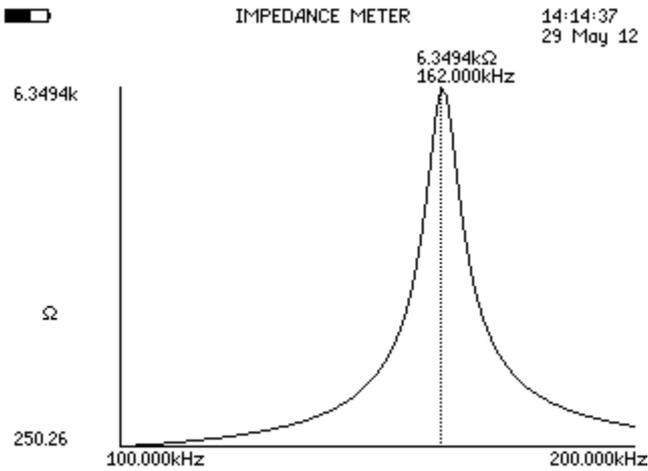


FIG 1-2 EXAMPLE LINE TRAP IMPEDANCE SWEEP SCREEN CAPTURE

2 Line Tuner Test

CONNECTIONS

1. BNC "Y" Adapter to PCA-4125 High Z Input.
2. 12" BNC lead from PCA-4125 LO output to left input of "Y" Adapter.
3. Any length BNC lead from right BNC "Y" Adapter to Model 560 input.

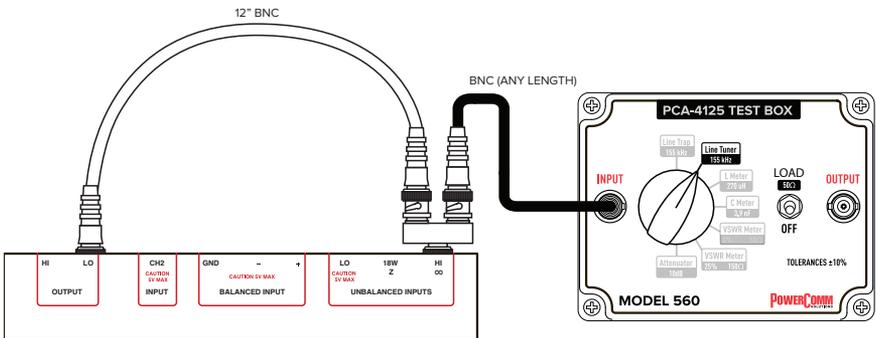


FIG 2-1 LINE TUNER TEST CONNECTIONS

PCA-4125 VSWR METER SWEEP

1. Press the VSWR button to bring up the VSWR Meter home screen.
2. Press the SWEEP button to bring up the SWEEP OPTIONS screen.
3. Set the DISPLAY setting to GRAPH.
4. Set the SWEEP START value to 100 KHz.
5. Set the SWEEP END value to 200 KHz.
6. Set the SWEEP STEPS value to 101.
7. Highlight START and press the ENTER button.

SWEEP RESULTS

The resulting sweep should resemble Fig 2-2 shown below. Press the left arrow button to bring up the marker and verify that the lowest point of the graph is $\pm 10\%$ of 155 KHz (140.5 kHz - 170.5 kHz).

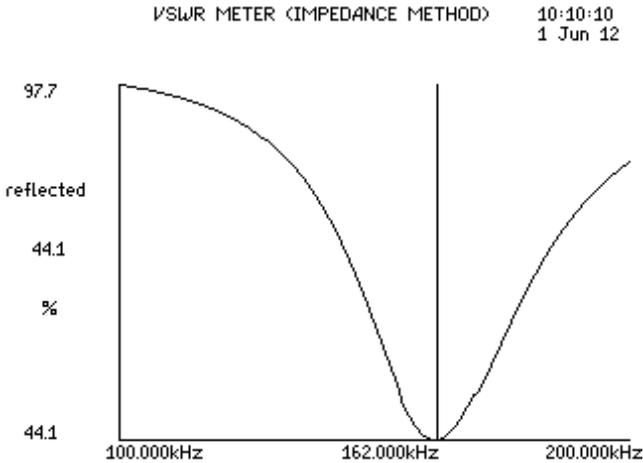


FIG 2-2 EXAMPLE LINE TUNER VSWR SWEEP SCREEN CAPTURE

3 Inductance Meter Test

CONNECTIONS

1. BNC "Y" Adapter to PCA-4125 LO Input.
1. 12" BNC lead from PCA-4125 LO output to left input of "Y" Adapter.
2. BNC to Binding Post Adapter to right input of "Y" Adapter.
3. BNC to Binding Post Adapter to input of Model 560.
4. Red lead from PCA-4125 Red Binding post to Model 560 Red Binding post.

- Black lead from PCA-4125 Black Binding post to Model 560 Black Binding Post.

NOTE: FOR MOST ACCURATE READINGS USE SHORTEST POSSIBLE RED & BLACK LEADS.

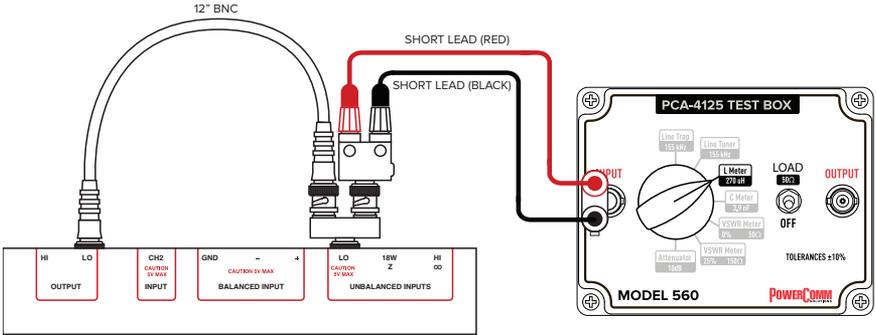


FIG 3-1 INDUCTANCE METER TEST CONNECTIONS

PCA-4125 Inductance Meter

- Press the APP button to bring up the Application Selection screen.
- Set the APPLICATION option to INDUCTANCE.
- Highlight INITIALIZE and press the ENTER button.
- Press the HOME/ESC button two times to bring up the Inductance Meter Home Screen.

Meter Results

Verify that the resulting Inductance Meter reading is within $\pm 10\%$ of 270 μH (243 μH -297 μH) as shown below in Fig 3-2.

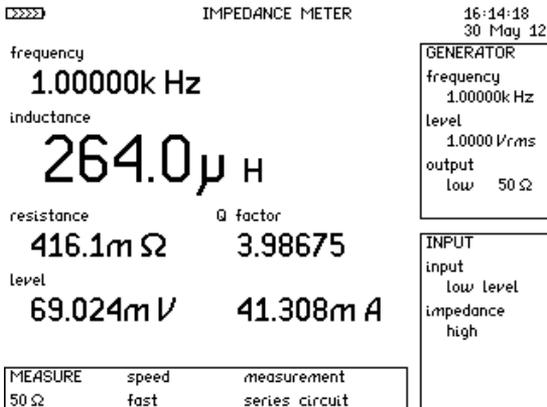


FIG 3-2 EXAMPLE INDUCTANCE METER READING SCREEN CAPTURE

NOTE: RETURN TO THE APPLICATION SELECTION SCREEN AND SET THE APPLICATION TO NORMAL WHEN INDUCTANCE METER TEST IS COMPLETE.

4 Capacitance Meter Test

CONNECTIONS

1. BNC “Y” Adapter to PCA-4125 LO Input.
2. 12” BNC lead from PCA-4125 LO output to left input of “Y” Adapter.
3. BNC to Binding Post Adapter to right input of “Y” Adapter.
4. BNC to Binding Post Adapter to input of Model 560.
5. Red lead from PCA-4125 Red Binding post to Model 560 Red Binding post.
6. Black lead from PCA-4125 Black Binding post to Model 560 Black Binding Post.

NOTE: FOR MOST ACCURATE READINGS USE SHORTEST POSSIBLE RED & BLACK LEADS.

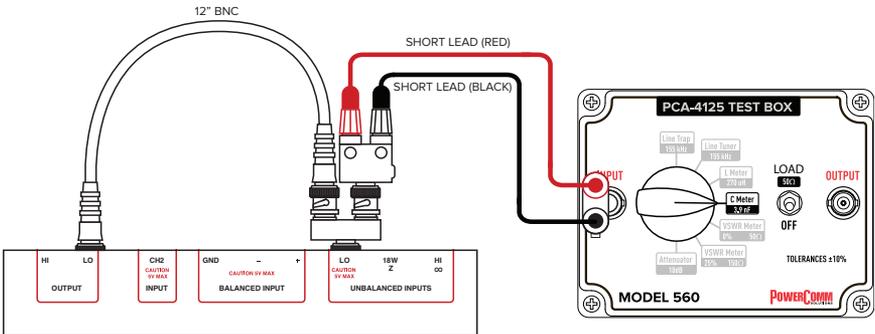


FIG 4-1 CAPACITANCE METER TEST CONNECTIONS

PCA-4125 Capacitance Meter

1. Press the APP button to bring up the Application Selection screen.
2. Set the APPLICATION option to CAPACITANCE
3. Highlight INITIALIZE and press the ENTER button
4. Press the HOME/ESC button two times to bring up the Capacitance Meter Home Screen.

Verify Results

Verify that the resulting Capacitance Meter reading is within $\pm 10\%$ of 3.9 nF (3.51 nF - 4.29 nF) as shown in Fig 4-2.

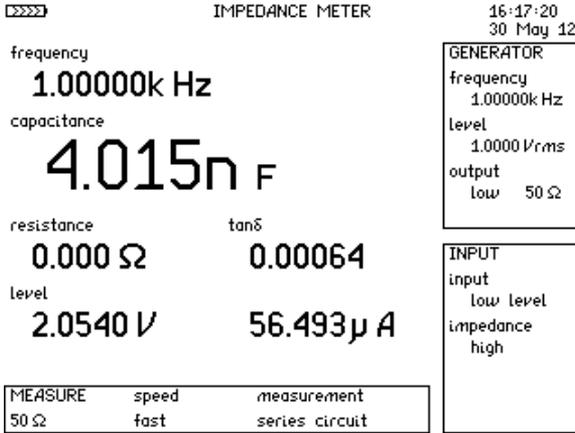


FIG 4-2 EXAMPLE CAPACITANCE METER READING SCREEN CAPTURE

NOTE: RETURN TO THE APPLICATION SELECTION SCREEN AND SET THE APPLICATION TO NORMAL WHEN CAPACITANCE METER TEST IS COMPLETE.

5 VSWR Meter / Reflected Power Test

CONNECTIONS

1. BNC "Y" Adapter to PCA-4125 HI Z input.
2. 12" BNC lead from PCA-4125 LO output to left input of "Y" Adapter.
3. Any length BNC lead from right input of "Y" adapter to Model 560 input.

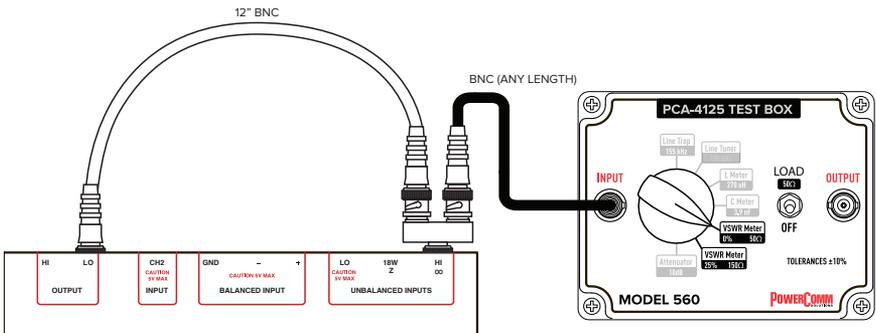


FIG 5-1 VSWR METER TEST CONNECTIONS

PCA-4125 VSWR Meter

1. Press the VSWR button to bring up the VSWR Meter home screen.

Results - 0% Switch Position

With the Model 560 switch position at VSWR Meter (0% 50 Ohm), the reflected power on the VSWR Meter home screen should read 0.0% ± 0.278% as shown in Fig 5-2 below.

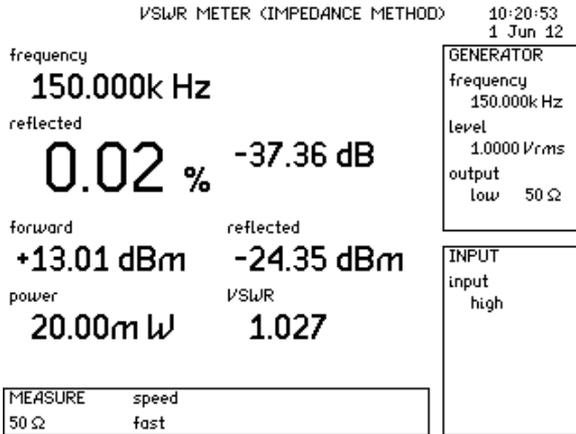


FIG 5-2 EXAMPLE VSWR METER READING SCREEN CAPTURE

Results - 25% Switch Position

With the Model 560 switch position at VSWR Meter (25% 150 Ohm), the reflected power on the VSWR Meter home screen should read 21.11% - 28.61% as shown in Fig 5-3 below.

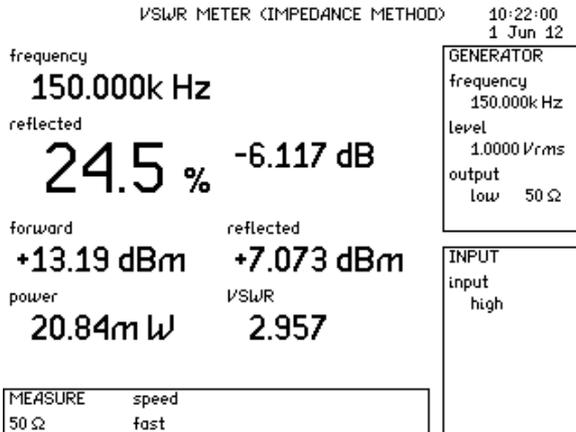


FIG 5-3 EXAMPLE VSWR METER READING SCREEN CAPTURE

6 Selective Level Meter / Signal Test

CONNECTIONS

1. Any length BNC lead from PCA-4125 LO output to Model 560 INPUT.
2. Any length BNC lead from PCA-4125 HI Z input to Model 560 OUTPUT.

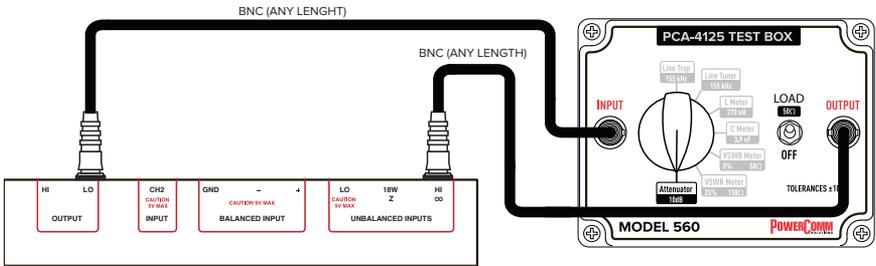


FIG 6-1 SELECTIVE LEVEL METER TEST CONNECTIONS

PCA-4125 Selective Level Meter

1. Press the SLM button to bring up the Selective Level Meter home screen.
2. Press the OUTPUT button to bring up the Generator Settings Screen.
3. Set LOW OUTPUT AMPLITUDE to 707 mVrms (10 db).
4. Set OUTPUT to low.
5. Press the ENTER button to return to the Selective Level Meter home screen.

Verify Results

Verify that the resulting Selective Level Meter reading is $0 \text{ dBm} \pm 1 \text{ dB}$ as shown in Fig 6-2.

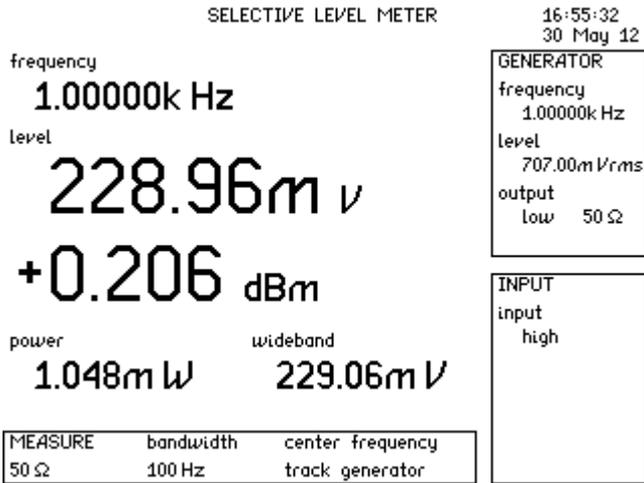


FIG 6-2 EXAMPLE SELECTIVE LEVEL METER READING SCREEN CAPTURE

7 Frequency Response Analyzer Test

CONNECTIONS

1. BNC "Y" Adapter to PCA-4125 HI Z input.
2. 12" BNC lead from PCA-4125 LO output to left input of "Y" Adapter.
3. Any length BNC lead from right input of "Y" adapter to Model 560 input.
4. Any length BNC lead from PCA-4125 CH2 Input to Output of Model 560.

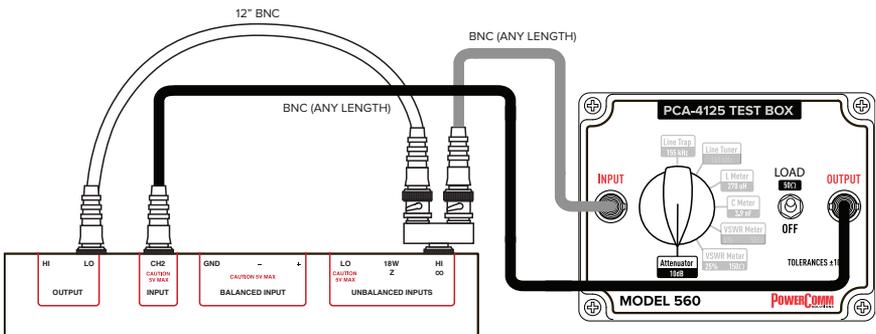


FIG 7-1 FREQUENCY RESPONSE ANALYZER TEST CONNECTIONS

PCA-4125 Frequency Response Analyzer

1. Press the FRA button to bring up the Frequency Response Analyzer home screen.
2. Press the OUTPUT button to bring up the Generator Settings Screen.
3. Set OUTPUT to low.
4. Press the ENTER button to return to the Frequency Response Analyzer home screen.

Verify Results

Verify that the resulting Frequency Response Analyzer reading is 10dbm \pm 1 dB as shown in Fig 7-2.

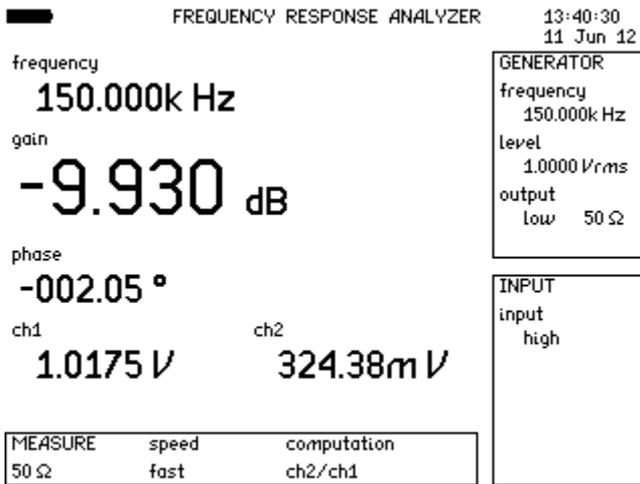


FIG 7-2 EXAMPLE FREQUENCY RESPONSE ANALYZER SCREEN CAPTURE

DISCLAIMER

PowerComm Solutions, LLC has made every effort to ensure that the information in this document is accurate and complete. However, PowerComm Solutions, LLC assumes no liability for any errors that may occur in this document, or for any damages that may occur from the use of this document or the equipment that it accompanies.

PowerComm Solutions, LLC reserves the right to make changes to this document or the product it describes at any time, without notice, and without a commitment to update the contents of this particular document.

Contact PowerComm Solutions, LLC to obtain information concerning the latest release of this document.

