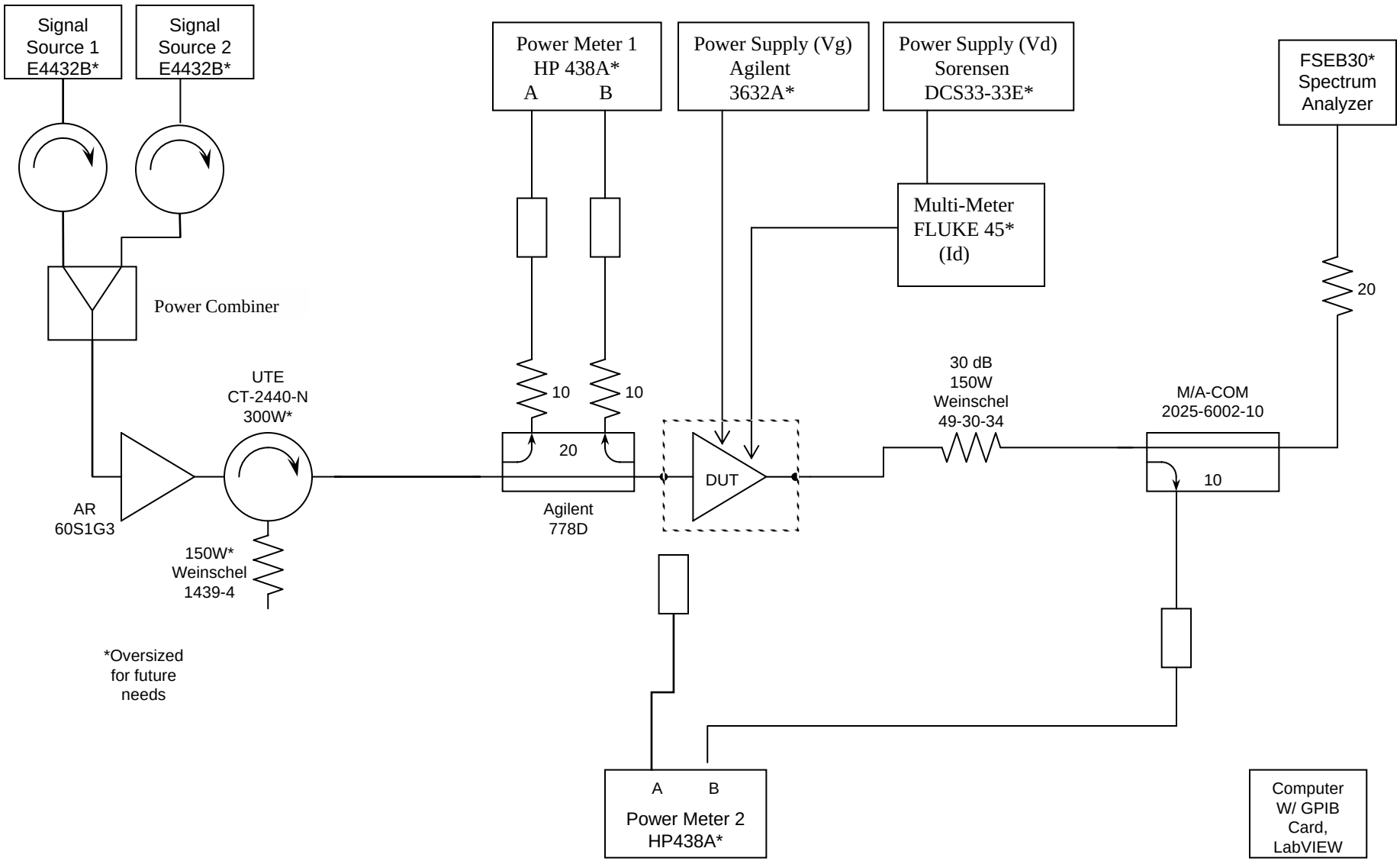
LDMOS RF Power Amplifier Automated Test System

- **This presentation provides a brief overview (excerpts) of an automated test system developed by R. A. Wood Associates**
- **Topics**
  - Test System Block Diagram
  - Main Test Panel
  - Calibration Panel
    - View Plots of Current Cal Data Panel
  - Configuration Panels
    - Various tests and parameters panels, test limits

LDMOS RF Power Amp Test System



***GPIB Controlled**

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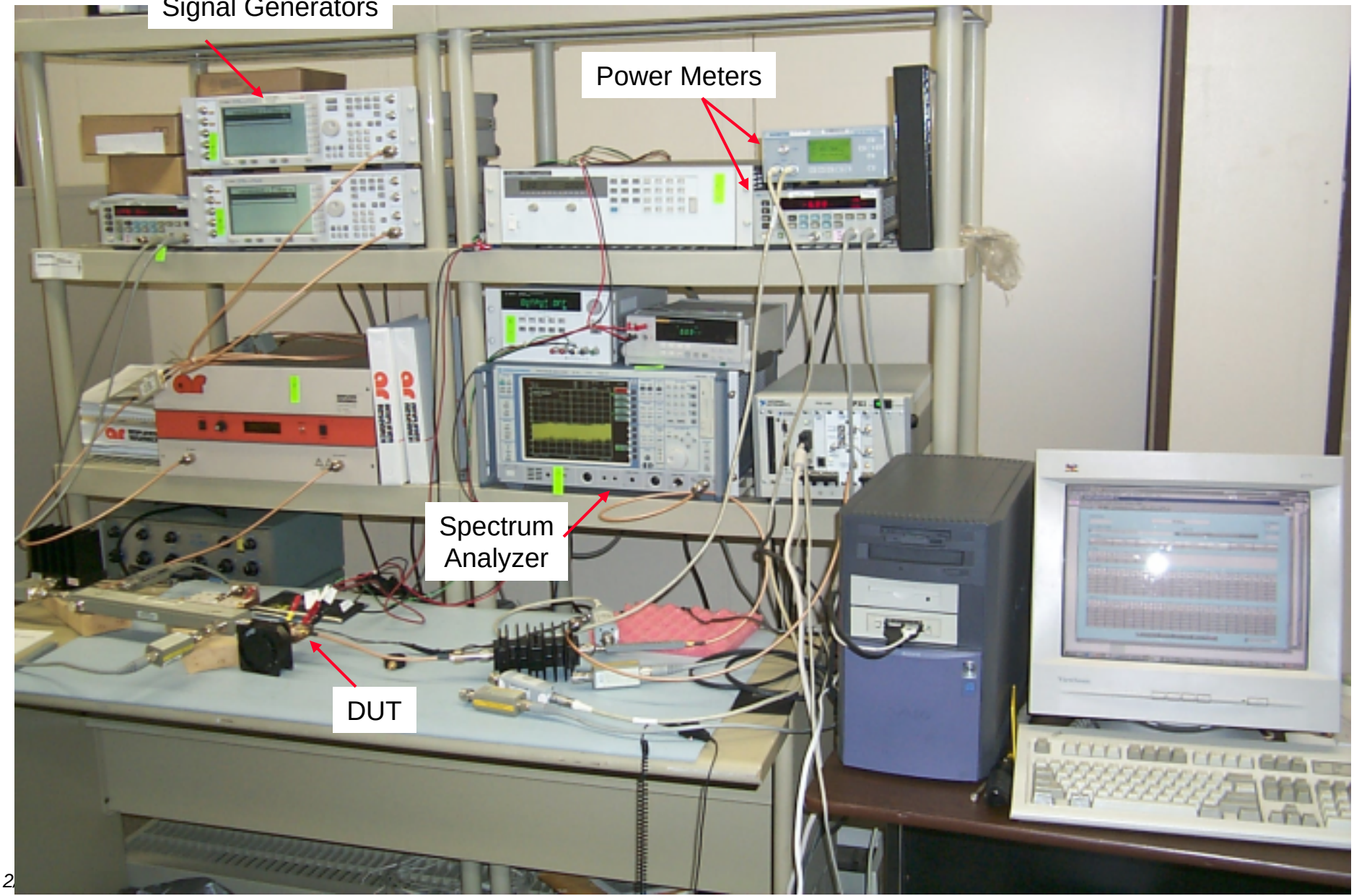
LDMOS Power Amplifier Test Setup
(during software development)



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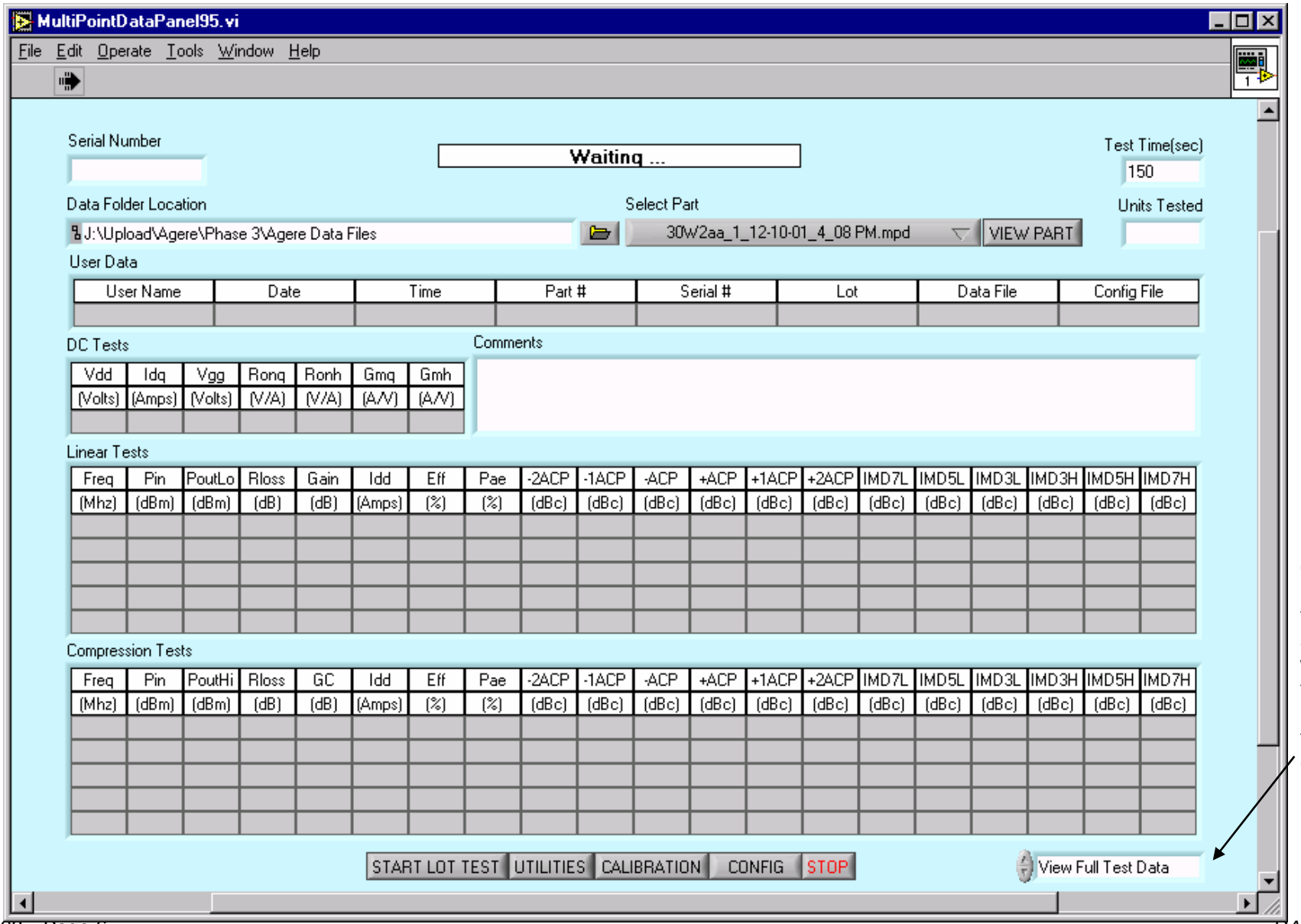
Main Test Panel Interface

- **2 Types of Main Test Panel Interfaces, selectable from a pull-down menu**
  - "**View Full Test Data**" Interface
    - Shows full-page test results for each part tested
    - Used primarily for Engineering tests
    - No Pass/Fail determination
    - Can also be used to view previous device measurements (administrator level)
  - "**View Summary Results**" Interface
    - Shows a line by line summary of each measurement in a text window
    - Pass/Fail determination is made for each test
    - Used primarily for Production tests
    - Shows history of each part in a Lot test (scrolling text window)
    - Yields and failure bins are also shown as the Lot test progresses

Administrator and Operator Levels

- **The program has two levels of operation: “Administrator” and “Operator”**
- **Operator Level:**
  - Primarily for running tests, for production personnel or technicians
  - Does not provide capability to set up test conditions
  - Calibration allowed
- **Administrator Level:**
  - Can be used for running tests or setting up test parameters and conditions
  - Configuration Panels allowed
  - Calibration allowed
  - Utilities Panel allowed
  - Capability to view previous part data allowed

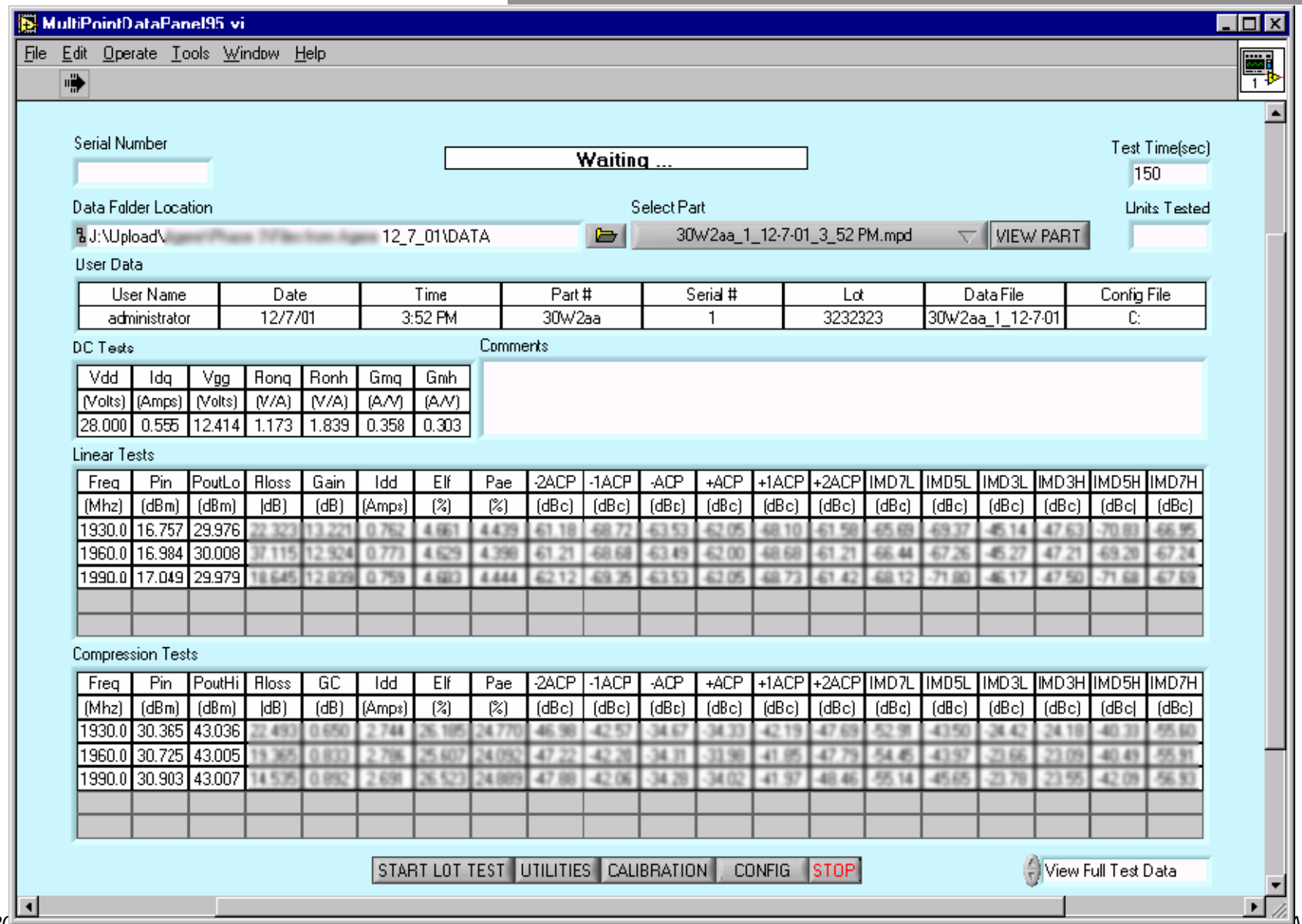
Main Test Panel >> View Full Test Data Display
(Administrator Level, before test start)



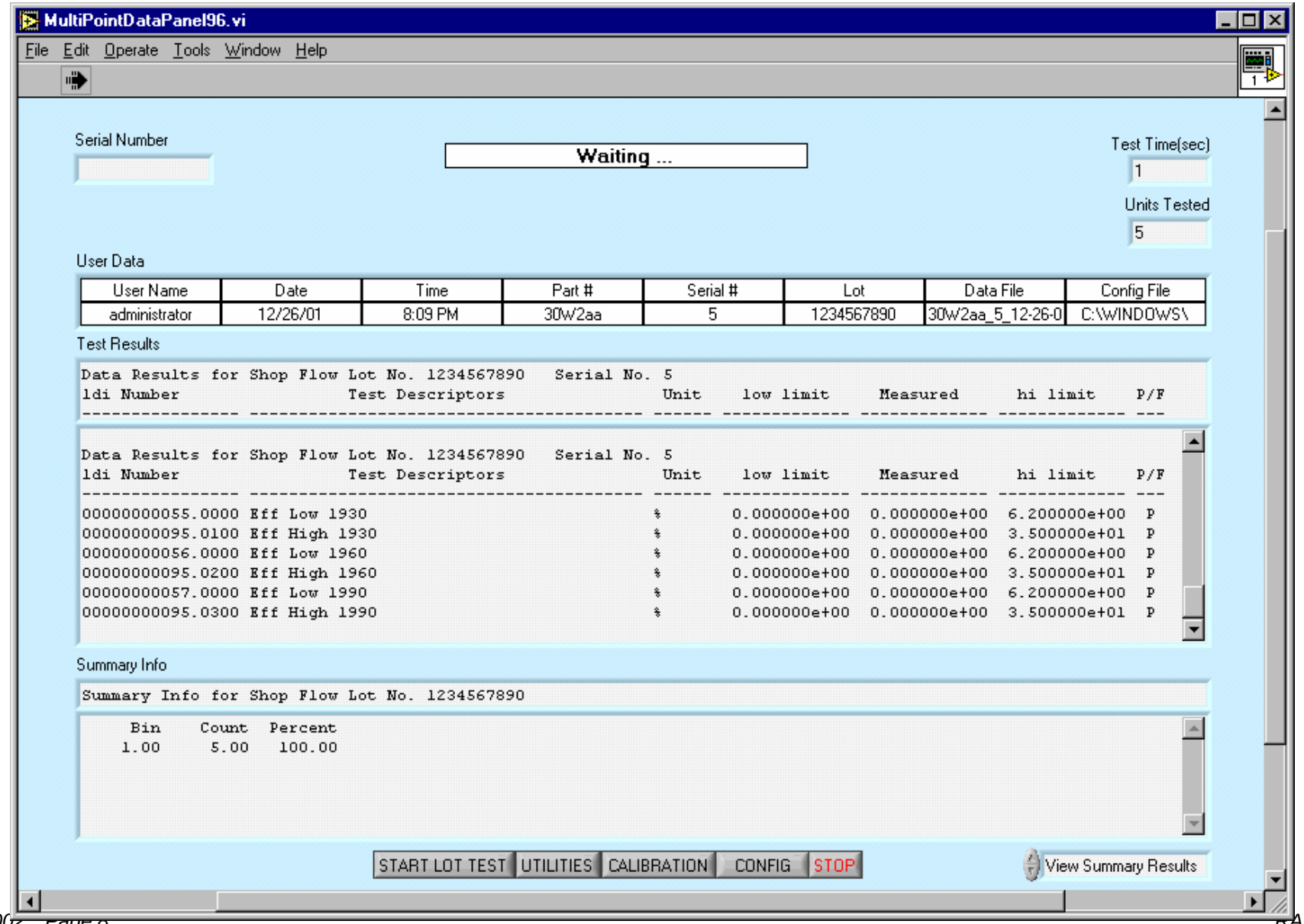
Pull-down menu to select which test panel to display

Main Test Panel >> View Full Test Data Display
(Administrator Level, after test)

Note: Some measured data blurred to protect customer info

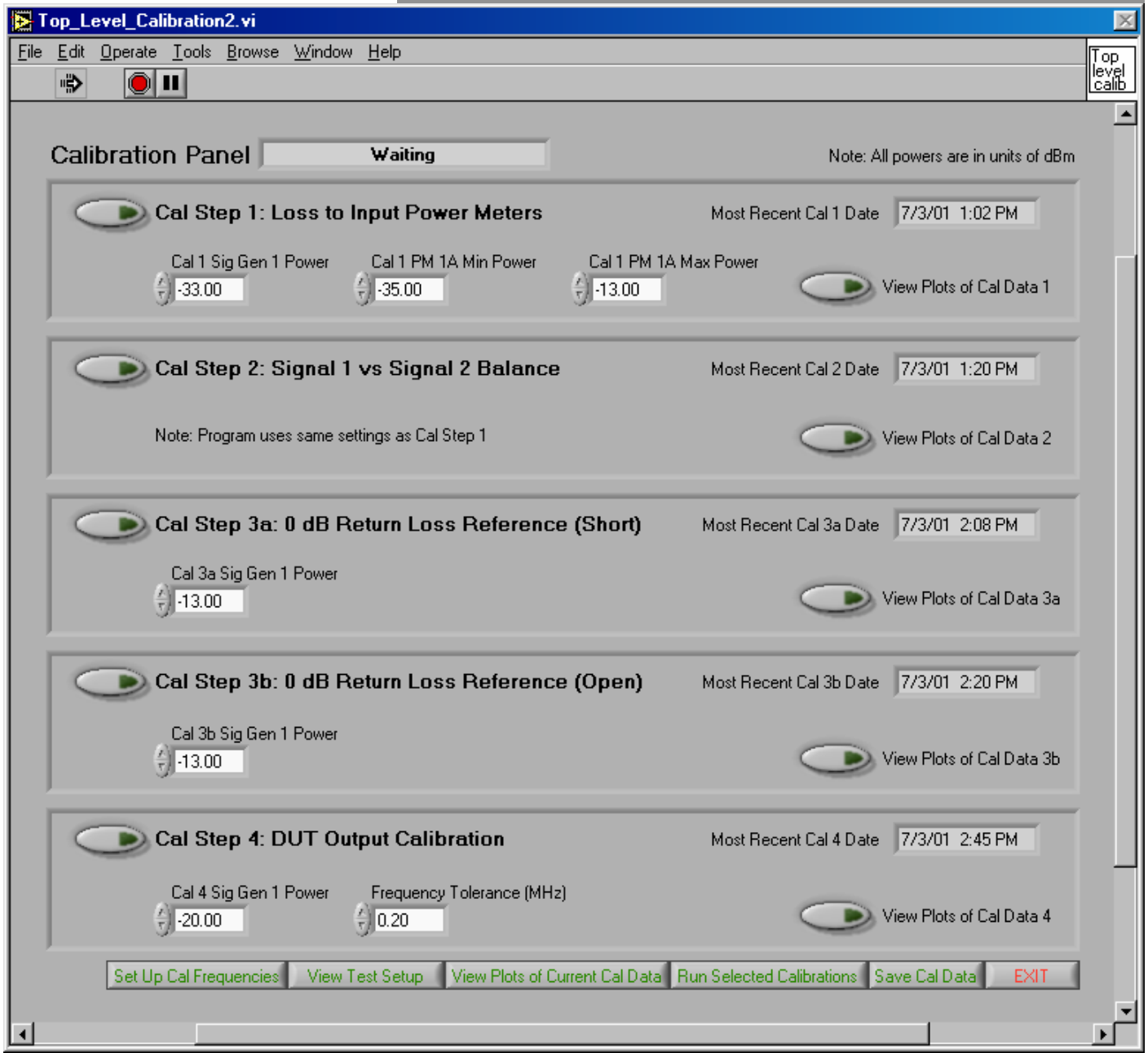


Main Test Panel >> View Summary Results Display
(Administrator Level, after test)

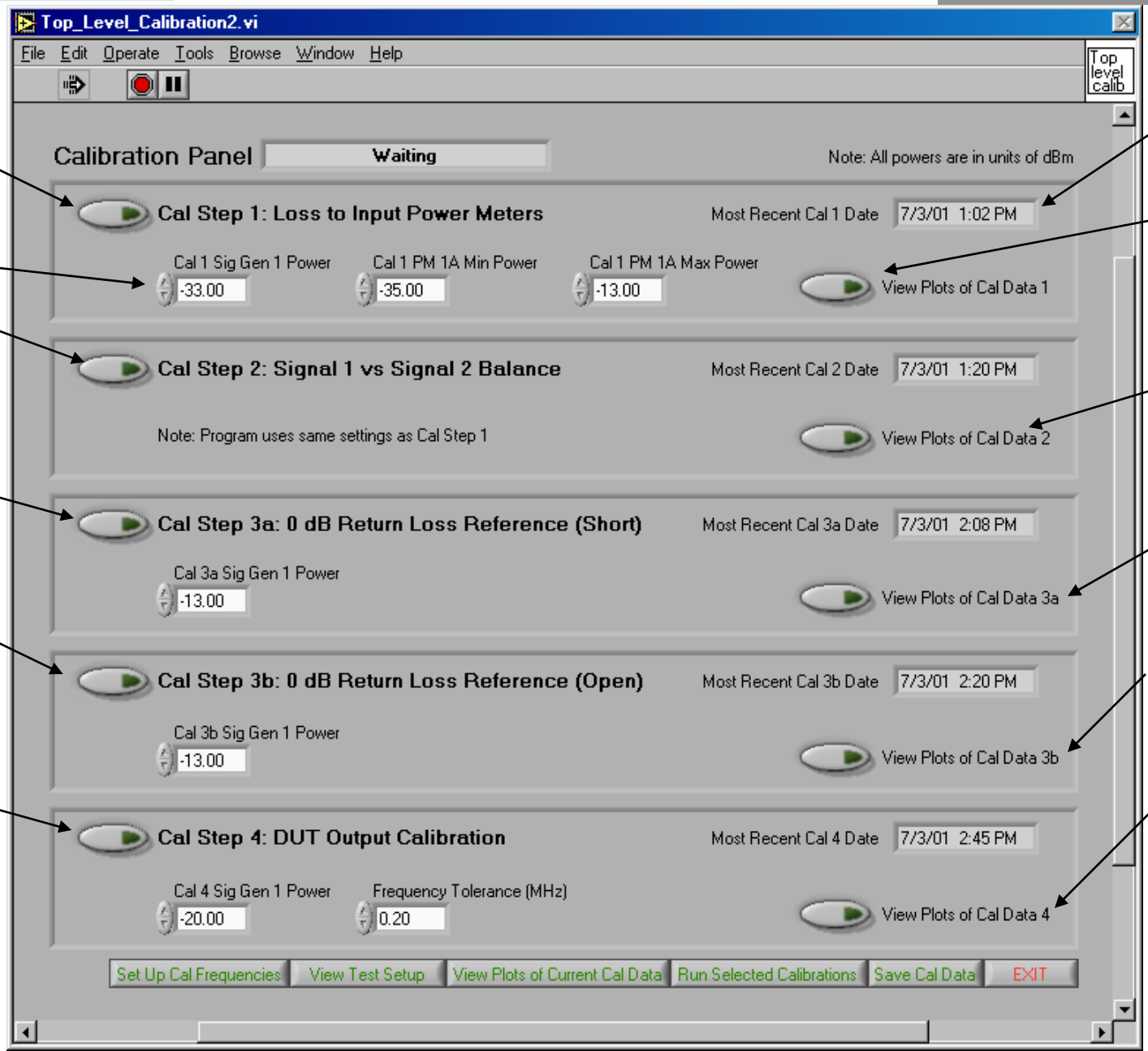


Main Test Panel >> Calibration Panel

- Calibration Panel is used to calibrate the test station losses
- All Cal Steps must be run
- Use default signal levels shown if possible
- During Calibration, the software provides prompts and tells the operator what to connect



Calibration Panel



Select Cal Step 1

Use default values for Cal

Select Cal Step 2

Select Cal Step 3a

Select Cal Step 3b

Select Cal Step 4

Most Recent Cal Date for current Cal Data

View Cal Data after Step 1

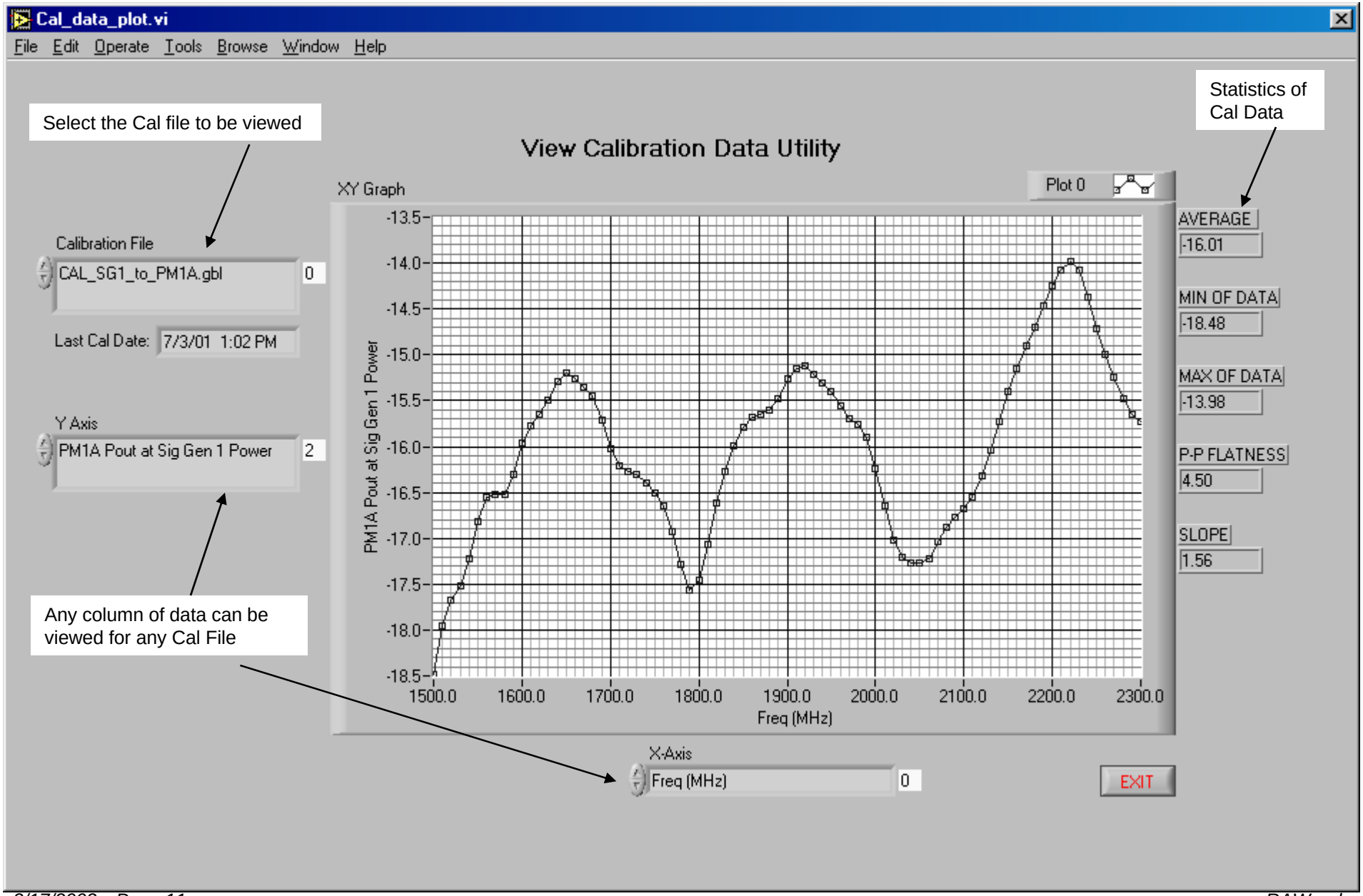
View Cal Data after Step 2

View Cal Data after Step 3a

View Cal Data after Step 3b

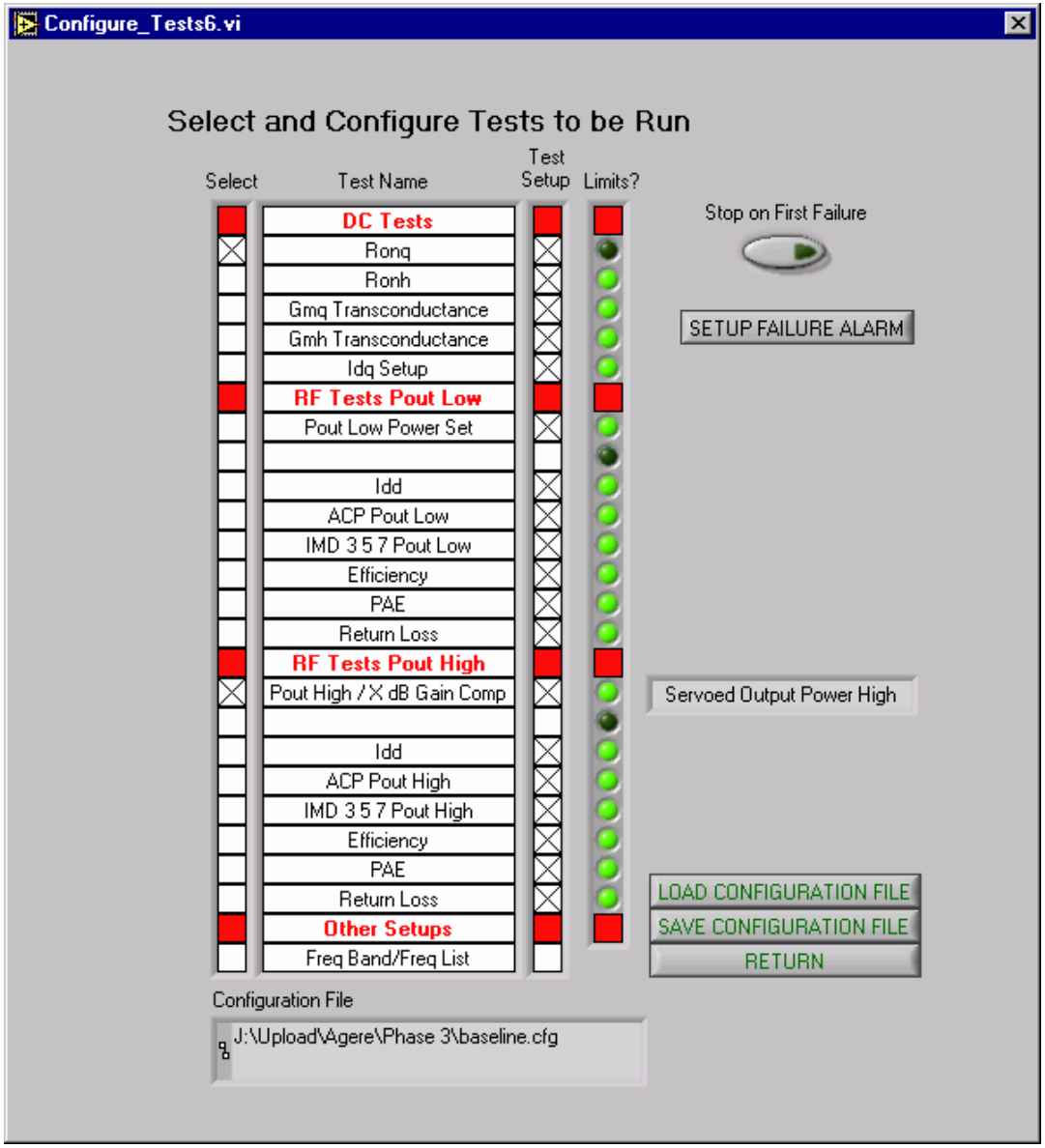
View Cal Data after Step 4

Calibration >> View Plots of Current Cal Data Panel

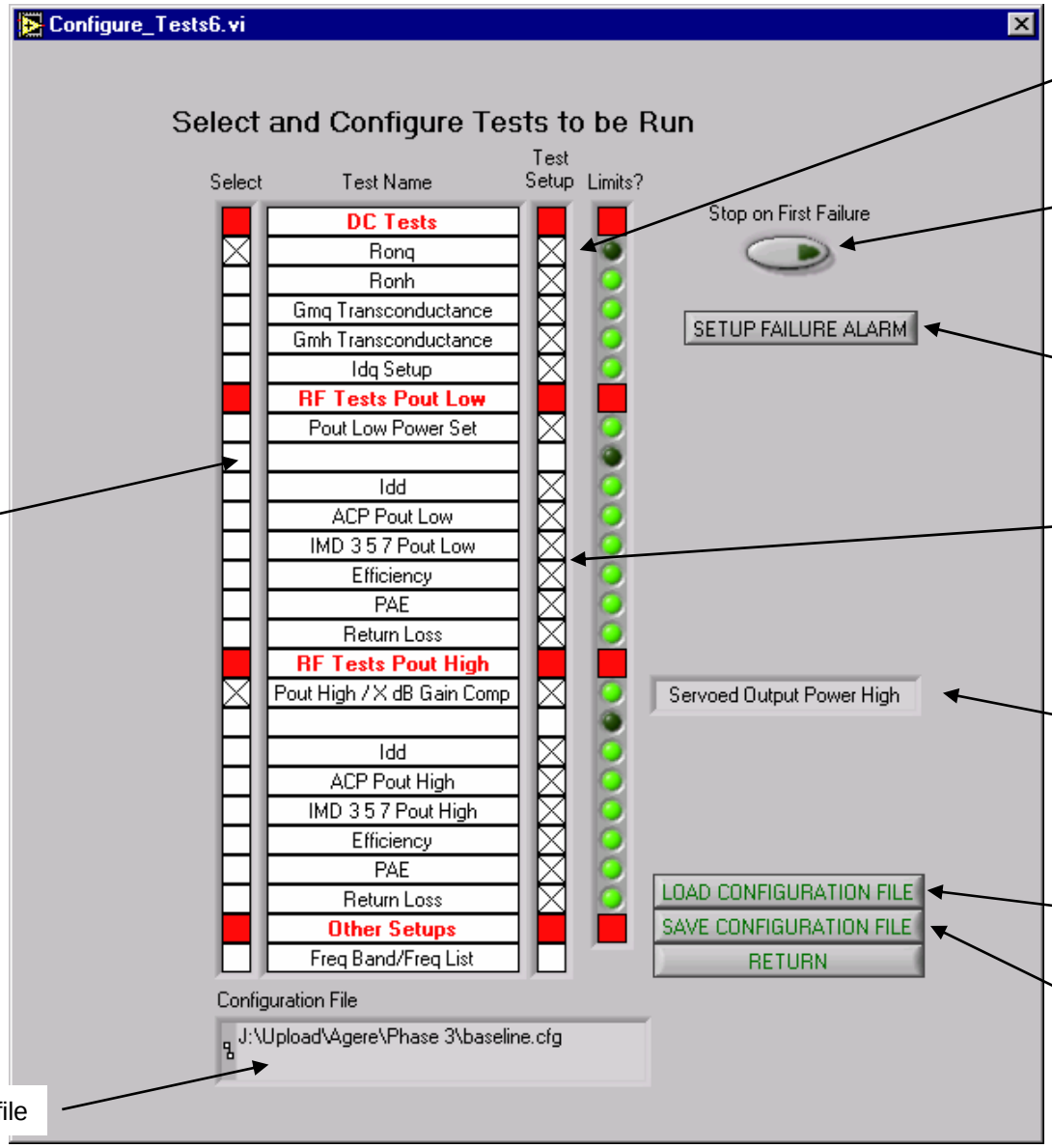


LDMOS RF Power Amp System Automated Measurements

- **The Configuration Panel allows tests to be selected and defines the test parameters**
- **RF Measurements are performed at low power and high power**
- **Currently available tests are shown**
- **All test information and parameters are stored in Configuration files**



Main Test Panel >> Configure Panel



These buttons show if the test has been configured

Stop tests after the first test fails or continue testing after failure

Configure the Failure Alarm

These buttons are used to select the tests to be run

These tests are already configured, or do not need to be configured

This indicates whether the Pout High Test is servoed for a certain power level, or for X dB of gain compression

Load a file with test configurations already defined

Save all test configurations to a file for loading later

Current configuration file

Example Configuration >> IMD 3 5 7 Low Test Setup