

The Problem:

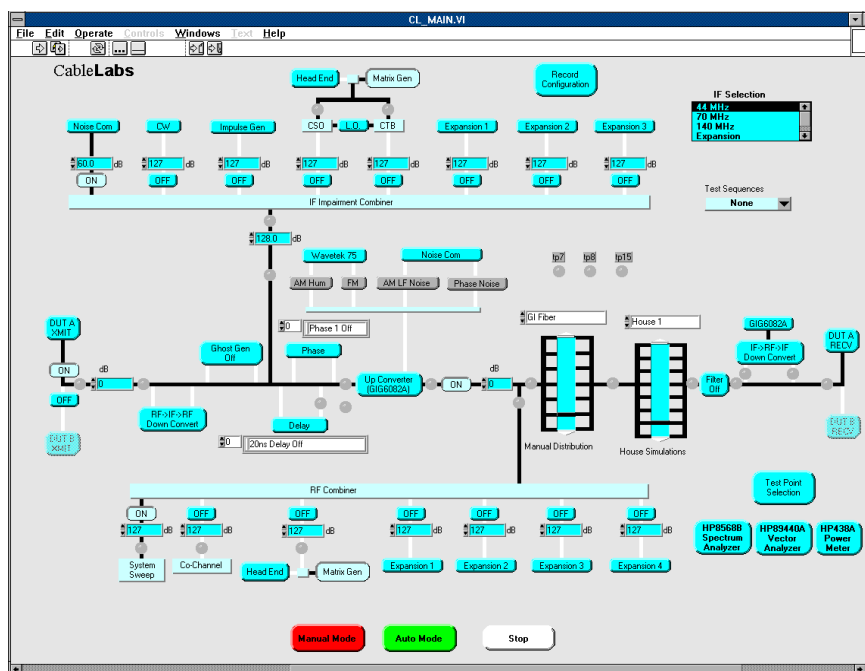
A research and development facility needs to thoroughly evaluate new cable television equipment made by various manufacturers. Their recommendations are used by cable television service providers when adding new equipment and services such as cable modems for Internet access. A test system has been built that models a complete cable television environment from the satellite to the home and provides for the addition of common impairments including IF noise, CSO, CTB, Co-Channel Interference, and even common house wiring problems. With several bays of equipment and dozens of relays and programmable attenuators to control, an operator needs an intuitive way to setup a test for each piece of new equipment.

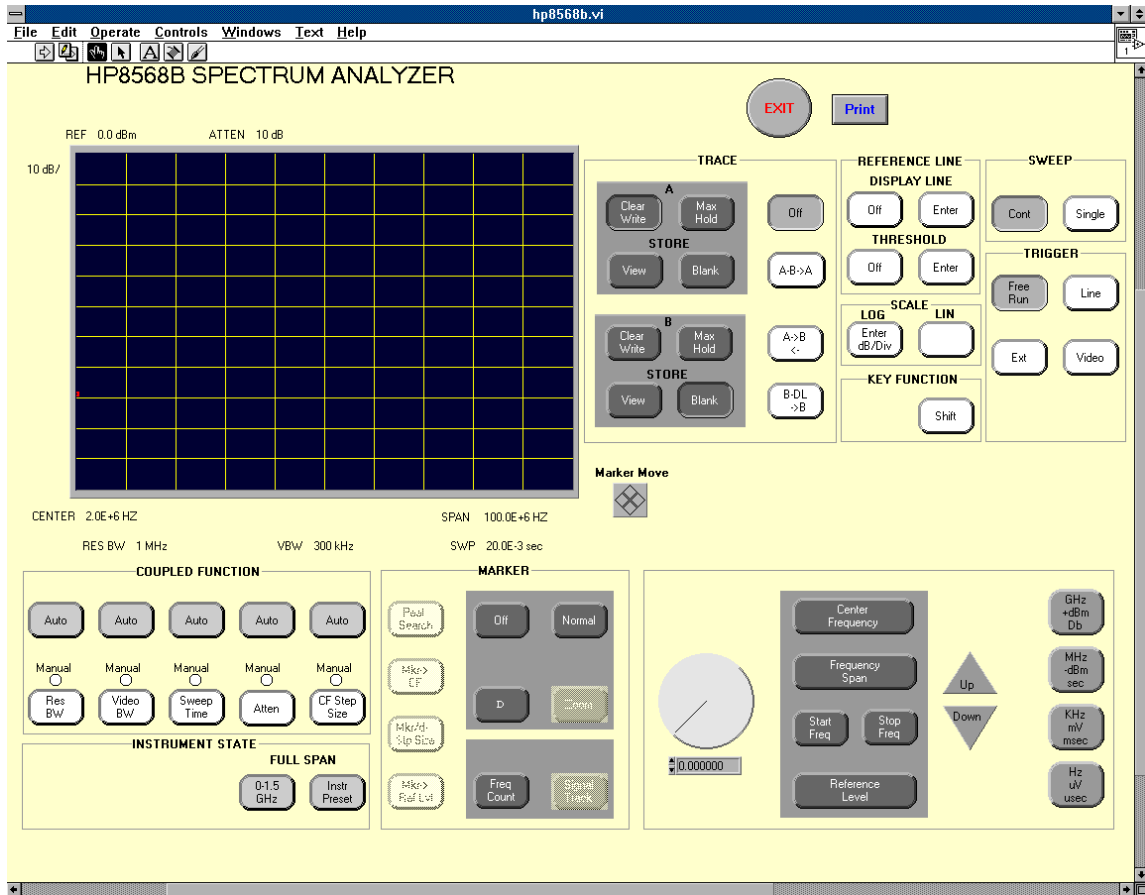
The Solution:

LabVIEW from National Instruments provided the ideal software development tools. The GPIB instruments that did not already have drivers in National's library were easier to develop for than in traditional programming languages. Each instrument could be represented in software with a user interface that mimicked as much as possible, the look and feel of the actual instrument. The operators, who were very familiar with manual control of the instruments, could easily transition to software control without having to learn a lot of arcane programming commands. The entire test system was represented on screen, graphically showing the signal paths. As an impairment was added, the color of the signal path would change. An observer could instantly tell the test setup at a glance. Provision was also made for automatic execution of test sequences. After configuring each instrument, the setups could be saved and used to repeat the tests at a later date.

The final program was to run on a Sun workstation and the portability of LabVIEW was important as it allowed development on PCs when the workstation was unavailable. Portability also means there is flexibility in choosing controllers if additional test systems are built.

A state of the art test system requires a software environment that is also state of the art. LabVIEW is such an environment.





Hardware Used:

Gigatronics 6082
 Hewlett-Packard 3497
 Hewlett-Packard 3784A
 Hewlett-Packard 438A
 Hewlett-Packard 8116A
 Hewlett-Packard 8568B
 Hewlett-Packard 8656B
 Hewlett-Packard 89440A
 Noise Com 710x
 Wavetek 75A

Software Used:

National Instruments LabVIEW