TestStand and LabVIEW Automate Analog Transmitter PCB Functional Test

CHALLENGE

Replace existing function test system that tests printed circuit boards (PCBs). The existing system is inflexible, prone to maintenance, and difficult to support in offshore factories.

SOLUTION

Create a database-driven, modular automated test system that:

- Prompts the operator to scan the barcode
- Parses the barcode to identify the part number, revision, and other information
- Loads test sequences and test limits from a configuration database
- Manages and performs the numerous tests
- Acquires data
- Checks pass/fail criteria
- Reports results to a results database
- Provides easy hardware and software change over from one part number to another
- Provides robust connectivity and reduced maintenance.

CUSTOMER

Our customer provides optical transport solutions for cable operators. Using these innovative solutions, cable operators are able to build out future-proof networks to accommodate the cable subscriber services of today and tomorrow.

KEY PRODUCTS USED

- National Instruments (NI) TestStand
- NI LabVIEW
- NI-OEM DAQ Module
- Agilent Network Analyzer E5062A
- Custom Fixturing

Fig 1. Wireless board (top) contacts fixture probes. Extremely short cables connect signals to the custom interface board (bottom). The NI USB-6225 OEM module is in the middle and plugs directly into the custom interface board. NI's OEM design with header connectors makes this direct wireless connection possible, and maintains excellent signal integrity for test.

BENEFITS

Test time for transmitter PCBs decreased from more than nine minutes to less than three minutes per board, providing a significant throughput increase while increasing test coverage and accuracy of measurement. In addition to modular software, the test fixture is designed so that the bed-of-nails is interchangeable and identifiable, allowing the customer to test other PCBs in the product family utilizing the same test system.

Solution Sources Programming is a global test and measurement provider specializing in designing and implementing turnkey test solutions tailored to customers' needs throughout the product life cycle.

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