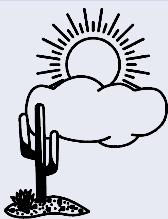
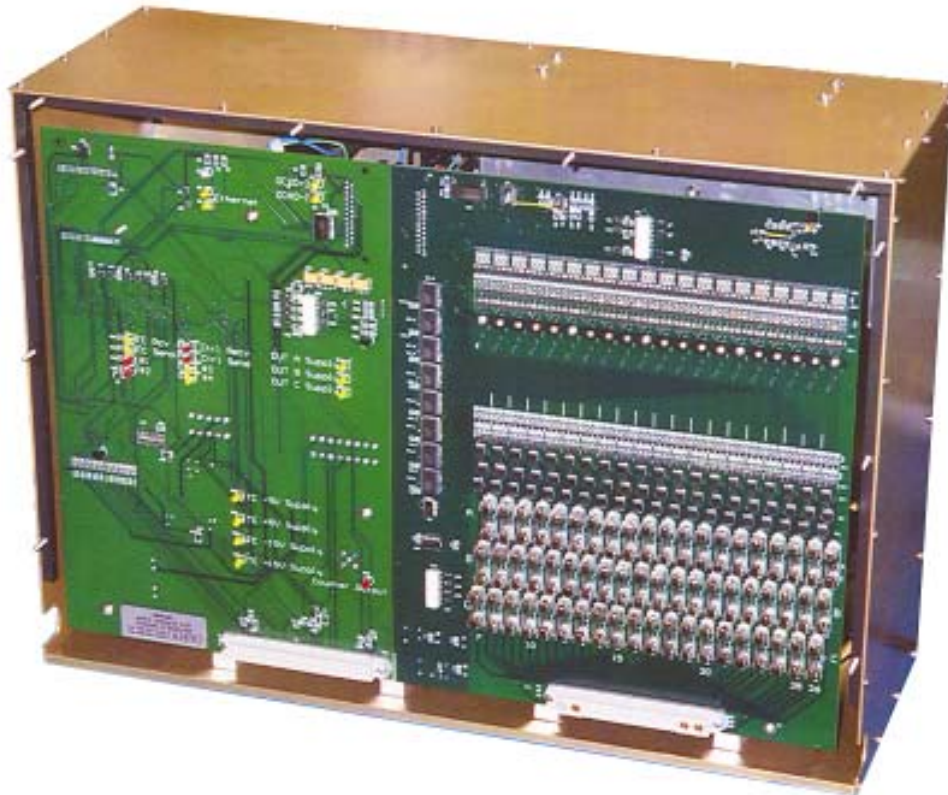


Model 2350B

OCXO, VCXO, TCXO Quartz Crystal Oscillator Aging Test System

Features:

- Can be configured from 20 to over 3000 oscillators.
- Frequency Measurements to well over 2.5GHz
- Optional high current operation and testing which permits testing OCXOs
- Optional measurements:
 - Supply current
 - Start-up characteristics
 - Short term stability
 - Pullability
- Electronic multiplexer of the DUT signals.
- Holds SMD DUTs in a rectangular array pallet
- Leaded parts are plugged into sockets
- Measurements and operation are very similar to the Model 2212 Temperature Test System
- Can use the Test Cards from the Model 2212 System



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System Features

The PRA Model 2350B Oscillator Temperature Test System is designed to measure various types of crystal oscillators. The system is ideally suited to measure OCXOs.

The test board fixtures and holds the parts to be tested. The test boards are intended to evolve for the various kinds of oscillators and products to be measured. The intention is the test boards provide the flexibility needed to permit longevity of this testing system configuration.

Each test board plugs into a control unit to control measurements. The control unit is controlled by a Ethernet connection to the controlling computer. The controller:

- User sets up measurement procedures.
- User connects the test board, indicates to the PC the board is loaded. The PC then reads the serial number and looks up the characteristics of the test board (multiplexing, DUT position names, typical supply limits, etc.)
- Test card is set up
 - serial number of the card is read
 - serial number of the DUTs are entered by the user
 - each oscillator position has the frequency read and validated
 - each oscillators test procedure will be user set.
- The measurement data (completed or partial) can be accessed at any time.
- Operating system Windows NT 2000 Professional or Windows XP Professional
- Programmed in MicroSoft™ C, MicroSoft™ Visual BASIC for Windows.

System Measurement software

- user defines a measurement sequence that the system will follow. There can be nearly unlimited points (limited to hard disk drive file restrictions).
- Each DUT has a test specification that tells what measurements to make and when to take the measurements and limit (Pass/Fail) information.
- Multiple types of DUTs can be mixed together in an aging group. Each DUT is only read as defined by that DUTs defined test sequence.
- The specification also sets the counter resolution, DUT supply turn on and any needed wait times.
- All test data is stored in ASCII text files.
- The types of measurements are determined by the Test Card capabilities and the measurement equipment on the system.

Voltage Monitor Function:

The control voltages to the DUT and the current are read with a high resolution DMM function built into the control box.

Control Box Multiplexing, DUT data and Frequency Measurements:

All control and DUT selection signals are sent to the chamber via the Ethernet connection.

DUT Selection:

DUT selection is performed by simple processors mounted on

the test boards. Position information is sent serially from the control box from the instructions received from Ethernet signals.

Counter:

The counter is a GPIB interfaced HP53132. The counter requires a precision 10MHz external standard, the accuracy of the counter is determined by the external standard and the waveform quality from the oscillator to the counters input. The multiplexer is capable of waveform integrity to 0.00001ppm (0.01ppb).

DUT Signal to the Counter:

The signal to the counter is by a coaxial cable and is terminated in 50ohm. The highest frequency from a test board is 50MHz. For higher frequency appropriate prescaling will be done on the test board.

The signal will be prescaled to always be less than 50MHz.

ITEMS SUPPLIED WITH THE SYSTEM:

- PRA Inc. will supply the following information. Most of this information will be supplied on CD-ROM. For example the manuals will be supplied in Adobe Acrobat® PDF file form.
- Operating and maintenance instructions.
 - Schematics and part lists to maintain the system.
 - All compiled operating programs. The programs do not require any encryption or security key.

This information will be updated as additional changes to the systems are made. When changes are made PRA will supply an update via CD-ROM or via e-mail.

The system includes MicroSoft EXCEL based aging analyses software. This software permits analyzing the aging characteristics and performing PASS/FAIL limits on the aging characteristics. The source code for this program is supplied so the end-user can modify as desired.

System Controlling PC

PRA Inc. supplies a PC from MPC in Nampa, Idaho. This will be a Windows XP Pro operating system. The PC includes a CD RW drive, two Ethernet ports (one for the system and one for the end-users network interface), Measurement Computing's GPIB card as well as standard PC features.

System DUT Power Supply

The DUTs are powered by commercially available power supplies. These supplies can be programmed by the control box or set to fixed levels. These are analog programmed power supplies with the control box providing the needed signal. These can be customer supplied power supplies.

System Setup Rack

PRA Inc. can supply a open rack to place the test cards on.

Test Cards (DUT Carriers)

The test boards plug into the Test Card interface unit. These test boards or cards have a microprocessor on each card, this performs multiplexing and other measurement control. These processors perform all the multiplexing of RF and DC signals.

- Test Card size for the Model 2212 System formation is 304mm x 457mm (12" x 18"). The Model 2350B system can accept larger cards, the largest size typically being 610mm x 355mm (24" x 14"). All Test Cards have the same interface signals.

- **OCXO DUTs**

The test boards can hold up to 60 OCXO. The total supply current per test board is 180 Amps maximum.

- **Simple oscillators**

The test board can hold up to 384 5x7mm oscillators

- **Crystal Oscillator DUTs (VCXOs also) (Optional)**

The control voltage function can be measured

- **Leaded DUTs** plug into sockets on the test board.

- **SMT DUTs** can be mounted in sockets

or placed in pockets with pogo pin contacts and a single cover board to hold the SMT parts in place.

- **DUT selection** is performed by a simple processor on each test board

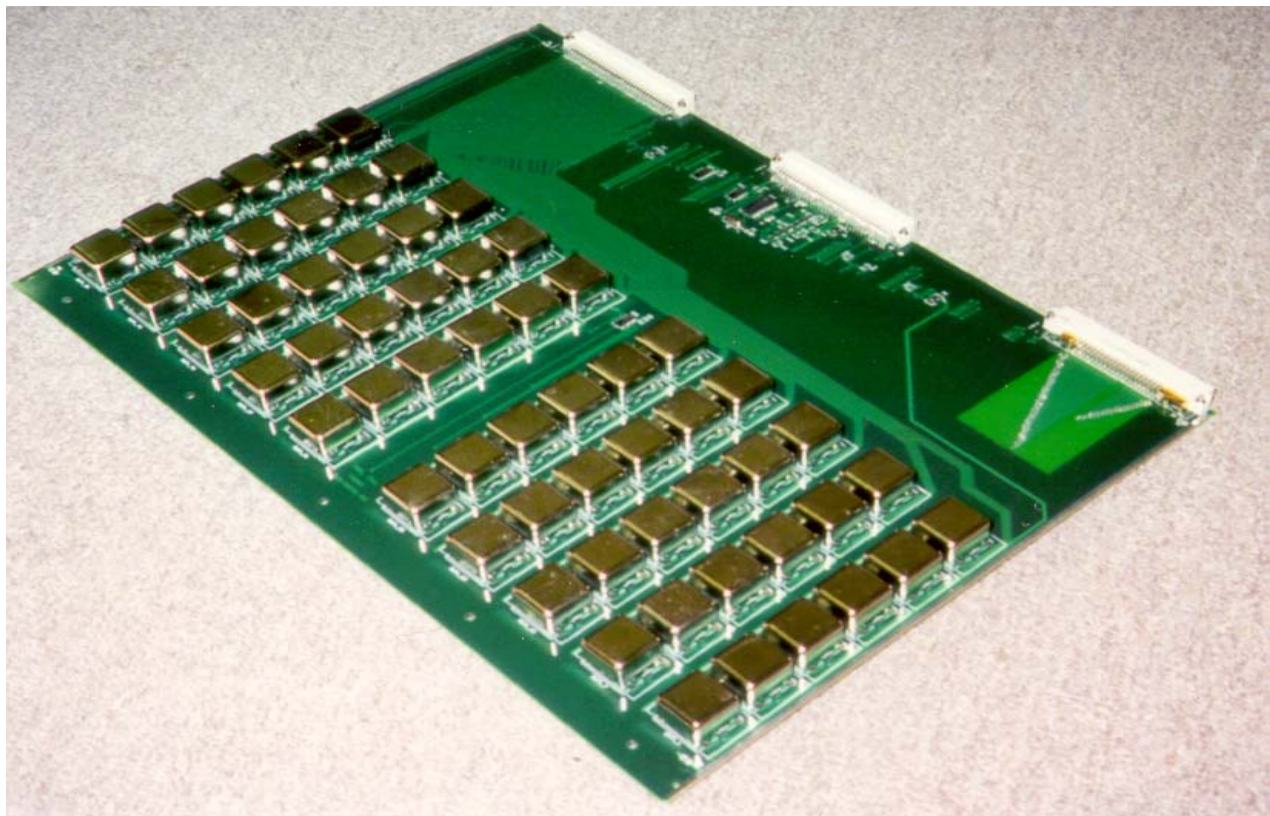
- **The selection processor** is accessed via a serial signal from the Test Card Interface Unit.

- System provides various power sources to the test board to power the DUTs and any measurement logic on the Test Card, all supplies are floating isolated supplies to minimize effects of the high currents on the board.

- **Connector:** DIN 41612 3 x 32 in chamber center for general testing. This would all that is needed for TCXO testing.

- **The connector:** DIN 41612 3 x 32 in chamber left for miscellaneous testing on the Model 2212 System is not used by the 2350B Aging System

- **Connector:** DIN 41612, located on the chamber right side, will power up to 60 OCXOs.



Test board for OCXOs. Contains 60 DUTs and permits testing the electronics