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VIAVI Solutions

Brochure

VIAVI
7200B
Configurable Automated Test Set

A complete software-defined radio automated test platform with options for production and depot-level and field testing of ground and airborne radio systems.

The VIAVI Solutions 7200B Configurable Automated Test Set provides software defined radio (SDR) manufacturers and users with the industry's premier synthetic instrument platform for production, depot-level and field test, while providing support for next generation radio systems.

Baseline standard features including 90 MHz instantaneous bandwidth, excellent phase noise performance across a 2.6 GHz range of operation coupled with impressive real-time processing power and state-of-the-art data transport mechanisms, make the 7200B platform truly unique. The 7200B is the result of applying decades of experience in developing test instrumentation for both military and commercial radio applications. The 7200B combines innovative design, VIAVI patented technologies and valued feedback from our customers to provide a versatile instrument to test current and future radio systems.



Features

- Flexible Configuration
  - Micro ATE configurations with built-in signal switching for total test automation
  - General purpose instrument configurations with high performance front panel oscilloscope and DMM connections
  - Multiple signal generation and measurement channels available
- Broadband Frequency Coverage
  - DC to 2.6 GHz
  - 90 MHz instantaneous bandwidth
- Software Defined Radio Ready
  - Powerful and expandable real-time baseband processing power
- Robust Packaging
  - MIL-PRF-28800F Class 3
  - Rack mount option
- Advanced Software Capabilities
  - State-of-the-art and highly intuitive touch-screen based user interface
  - Optional built-in test executive with breakthrough automatic test execution optimized for reduced test times



Figure 1. The 7200B takes the place of an entire suite of test equipment

Comprehensive "ATE-in-a-Box" Test Solution

The 7200B is a complete radio test system in a single package with built-in signal switching capabilities for fully automated testing. The 7200B provides the functionality of many traditional instruments in a dramatically reduced footprint, and for a fraction of the cost when compared to traditional "rack and stack" ATE systems. Standard instrumentation functions include:

- RF Signal Generator
- Power Meter
- RF Measurement Receiver
- Spectrum Analyzer
- Audio Generator
- Distortion Meter
- Audio Analyzer
- Frequency Counter
- SINAD Meter
- Frequency Reference
- Signal Switching Matrix

User Interface

With a 12.1 inch high resolution touch-screen based user interface, the 7200B provides the most advanced and user friendly operator interface in the industry. It's highly intuitive design is a result of extensive research and development focused on user experience, graphical design and content depiction, and modern user interface techniques applied to the unique needs of test instrumentation and its operating environments.



Figure 2. State-of-the-Art Touch-Screen User Interface

The modern and highly intuitive Graphical User Interface (GUI) provides access to all stimulus and measurement capabilities of the hardware and software. This functionality includes tester configuration, test automation programming, data analysis and archiving, calibration, system diagnostics and manual operations.

Optional Capabilities Expand Testing Flexibility

The 7200B provides additional test capabilities that go above and beyond conventional testing methods utilized by other test equipment solutions. Designed to test legacy analog, as well as today's digital and frequency hopping radios, the 7200B also provides unique features for tomorrow's technology.

Optional test capabilities include:

- 2 Channel 125 MHz Oscilloscope
- 6 1/2 Digital DMM
- Exclusive Frequency Hop Burst Power Meter
- Exclusive Real Time Record and Playback Capabilities
- Remote Power Supply Control

Frequency Hop Burst Power Meter

When added to the 7200B as a software option, the 7200B features the industry's only frequency hop power meter of a 90 MHz instantaneous bandwidth. This meter provides unique frequency hopping tests for analysis of burst power levels used in frequency hopping radios. The 7200B burst power meter allows the user to define frequency hop power pass / fail parameters, burst cycle time (burst frequency), and frequency hop bandwidth (up to 90 MHz). The 7200B will then analyze all bursts received and display the ratio

of valid hope to invalid hops. The analysis tool provides the ability to quickly analyze the performance of the radio's frequency hopping range and flatness of the hops over frequency.

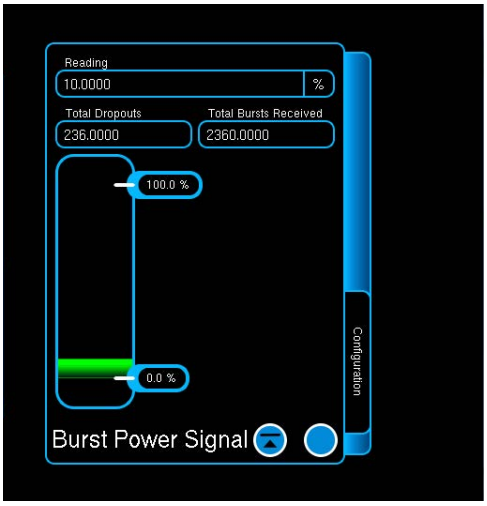


Figure 3. Burst Power Meter

Record and Playback Function for RF Waveforms Eliminates the Need for a "Golden Radio"

The 7200B features a powerful RF record and playback function for the recording of frequency hopping or specialized digital waveforms for playback at a later time. The record and playback features allows the user to capture known good RF waveforms (at high levels of RF) and playback the waveform as a separate RF IQ waveforms. This can include specialized waveforms that are secure, encrypted, frequency hopping (24 MHz maximum for 6 seconds), and complex digital waveforms. This function eliminates the need for a "Golden Radio" since the 7200B can playback a frequency hopped waveform to test receiver sensitivity.

Frequency hopping radios often have different sensitivity specifications for fixed channel and frequency hopping mode. The 7200B Record and Playback for RF Waveforms also eliminates the need for complex attenuator schemes by providing a verified, calibrated frequency hopping waveform to the radio for precise measurement of receiver sensitivity in the frequency hopping mode.

Additionally, the Record and Playback feature allows specialized waveforms to be recorded, and then packaged into the 7200B for user defined test processes, including:

- Proprietary Waveforms
- Specialized Digital Waveforms
- Impaired Waveforms to Determine Radio Performance in Degraded RF Conditions

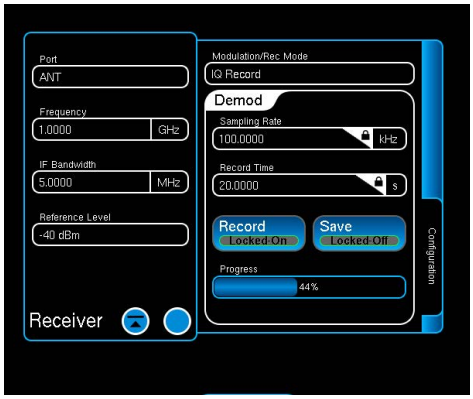


Figure 4. Exclusive Record and Playback Capability

Automatic Test Capabilities with Auto-Test III Development Environment and Programmable Switch Matrix

Production and depot-level testing on SDR devices typically involves multiple, lengthy test and alignment processes for both RF and non-RF tests. Many of these tests can be automated, when the right test equipment is utilized, but typically takes many individual instruments, control interfaces and complex switching matrixes. The 7200B is unmatched in its ability to automate complex radio tests and alignments. Developing customized automated test sequences that are resident on the 7200B is available with the exclusive Auto-Test III development environment. These "on-board" Python based scripts provide an integrated test solution that does not rely on an external computer for control of the unit. While the 7200B provides standard SCPI remote command interfaces for use over GPIB or Ethernet, the 7200B also provides for a unique ability to fully control itself and the radio system using on-board scripts. Non-RF test, such as radio "grounding fault" or even Ethernet / USB port test can also be defined and executed.

The 7200B also provides expanded test fixture capabilities that allow for full control of the radio and external devices. The 7200B provides full control of an external power supply via a simple Ethernet connection.

Power can then be routed out the front ZIFF connector output for use in powering up radios and other external devices. Voltages up to 40 V and current up to 19 A can be sources from the 7200B and the optional power supply.

In addition to power supply capabilities, the 7200B features a fully programmable front panel ZIFF interface with 168 pins that provide a wide variety of communication and control. These functions include:

- DMM
- Scope
- Ethernet TX / RX
- USB
- RS-232
- RS-422
- Open Collector I/O
- SV TTL In and Out
- 3.3 V TTL In and Out

In addition, the 7200B supports even more capabilities in the form of expandable I/O with multiple Ethernet and USB ports. These full function I/O controls provide the test engineer with the ability to test not only the radios RF and audio performance, but also its data functions and port operation for Ethernet, USB, and serial communications.

Ordering Information

Versions and Options

Order Number	Description
139380	7200B Configurable Automated Test System 2.6 GHz
140870	7200 i7 Upgrade Kit
Options	
139406	7200 2 Channel 125 MHz Oscilloscope
139407	7200 6 1/2 Digit DMM
139260	7200 Frequency Hop Burst Power Meter
139272	7200 Record and Playback Feature
139263	7200 Remote Power Supply Control
Auto-Tests and Alignments	
139264	7200 Auto-Test III Development Environment
Accessories	
86170	Case, Transit
67411	AC25014 Scope Probe Kit
86474	TPS ZIFF Mating Connector
87593	Adapter USB 2.0 to IEEE-488.2 GPIB
88574	7200 Rack Mount Kit
88770	750 W External Power Supply Transit Case
88863	750 W External Power Supply
88923	7200 Series DMM Probe Kit
88991	Cable Assembly - External DC Power (Req'd for 750 W External Power Supply for Pass Through to ZIFF)
89661	RJ45 5' Ethernet Cable
92554	Intelligent Cable for 7200B
112277	AC24011 10 Amp Current Shunt (0.01 Ohm)
140933	7200G SYS SFTWR, BLUE RAY SCRAPE DISK
Extended Warranties	
91436	7200 1 Year Extended Hardware Warranty + ANSI No-Cert Calibrations
91437	7200 1 Year Extended Hardware Warranty + Certified Calibrations
91438	7200 3 Year Extended Hardware Warranty + ANSI No-Cert Calibrations
91439	7200 3 Year Extended Hardware Warranty + Certified Calibrations

VIAVI Solutions

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