

CX700

Communications Service Monitor



CX700 COMMUNICATIONS SERVICE MONITOR

An automated radio communications test solution for commercial and military applications in production, depot-level, and field environments.

The CX700 Communications Service Monitor is a comprehensive and versatile automated test environment solution for radio system testing. It provides software defined radio (SDR) manufacturers and users with the next-generation of synthetic instrumentation for production, depot-level, and field test of current and future tactical radios.

This standard delivers high-performance instrumentation for the aerospace, defense, physics, semiconductor, and other high technology industries.

With its modular design, the CX700 delivers lab grade specifications in a flexible package. Baseline standard features include 100 MHz instantaneous bandwidth, superb phase noise performance from 9 kHz to 6 GHz, and the fastest industry-standard data transport mechanisms.

Key Features

- Frequency range from 9 kHz to 6 GHz
- 100 MHz instantaneous bandwidth
- Standard AM/FM/PM/SSB modulation and demodulation modes
- Power Meter, Spectrum Analyzer, Audio Generator, Distortion Meter, SINAD Meter, Audio Analyzer, Frequency Counter, and Frequency Reference
- Fully programmable 168-pin zero insertion force (ZIF) connector with DMM, scope, Ethernet, RX/TX, USB, RS-232, RS-422, GPIO, 5V and 3.3V TTL in/out
- Collapsible high resolution touch-screen display and keyboard/trackpad
- Multiple tab user interface, similar to an internet browser
- Intelligent color-coded meters for at-a-glance test verification
- MIL-PRF-28800F Class 3 packaging with rack mount option available
- VIAVI StrataSync™ integration offers asset, configuration, and test data management
- Remotely control the test set using Windows, Android, and iOS with Smart Access Anywhere



Figure 1. CX700 Communications Service Monitor

Test Interface Connectors

The CX700 front panel contains a comprehensive selection of input and output connectors to support a wide variety of devices.



Figure 2. CX700 Front Panel Connectors

1. ANT (Antenna) Input Connector
2. RF Output
3. Microphone/ACC Input Connector
4. Digital Multimeter Input Connectors
5. 2 Oscilloscope Input Connectors
6. 2 USB Ports 2.0
7. Ethernet Ports
8. UUT B Circular Connector
9. UUT A 168-pin ZIF Connector
10. 2 USB Ports 2.0
11. Power Button
12. Transmit/Receive In/Out Connector

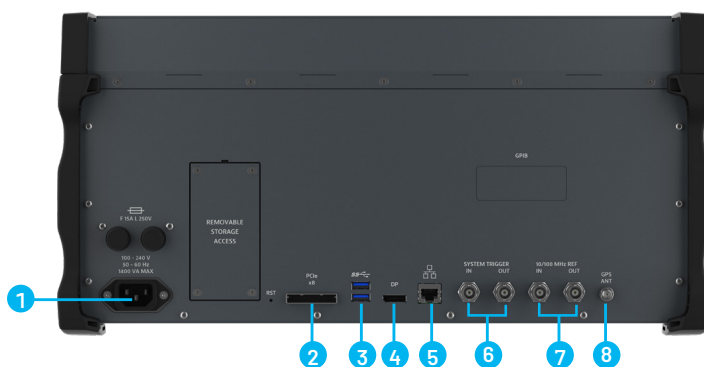


Figure 3. CX700 Back Panel Connectors

1. AC Power Port
2. PCIe Port
3. 2 USB Ports 2.0
4. DP Port
5. GbE Ethernet Port
6. System Trigger In/Out Ports
7. Reference In/Out Ports
8. GPS Antenna Port

CX700 Standard Functions

- RF, AF, and Modulation Generators
- RF Receiver
- Measurement Meters
 - RF Power and RF Error Meter
 - RF Counter
 - AM/FM/PM Meters
 - SSB Depth Meter
 - SINAD Meter
 - Signal to Noise Meter
 - Distortion Meter
 - AF Level Meter
 - AF Counter (Demod and Audio)
- Channel Analyzer
- Spectrum Analyzer
- Digital Multimeter (DMM)
- Oscilloscope
- Tone Encoding and Decoding
- Auto-Test Framework

Innovative User Interface

The CX700 features an industry-first multi-tab user interface allows you to instantly switch between test setups without having to reload settings. This user interface is similar to an internet browser with the ability to switch between test setups with a push of a button.

Ease of Test

The CX700 provides additional test capabilities that go above and beyond conventional testing methods offered by other test solutions. Designed to test legacy analog and digital hopping frequency radios, the CX700 provides a 2-channel 125 MHz oscilloscope, 6 ½ digital DMM, real-time record and playback, and frequency hop burst power meter capabilities.

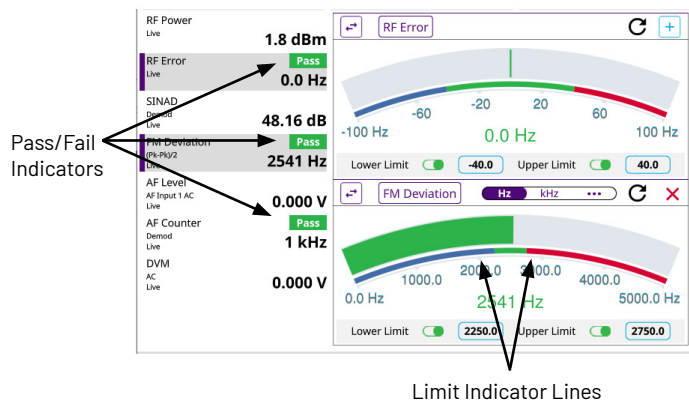


Figure 4. Easy-to-read Pass/Fail and Limit displays

The CX700 also features easy-to-read meters with pass/fail color coding for instant Go/NoGo testing. Meters are easy to configure, which allows you to set up unique pass/fail parameters for each radio type that you are testing. Meter backgrounds update to "Green" for good, "Red" for high, and "Blue" for low, providing an easy to see visual indicator as to whether the radio is within established test parameters. Meter and limit configurations can be saved and recalled which allows for instant recall of the test parameters, so semi-technical or non-technical individuals can simply key the radio and test.



Test Features

The RF record and playback function allows the user to capture RF waveforms and play back the waveform as a 32-bit IQ waveform (512 MSamples at max 100 MHz bandwidth). These can include specialized waveforms that are secure, encrypted, frequency hopping, and complex digital waveforms, thus eliminating the need for a “golden radio” for testing receiver sensitivity.

The frequency hope burst power meter provides analysis of burst power levels used in frequency hopping radios. The meter allows the user to define pass/fail parameters and bandwidth (up to 100 MHz).

Automated Testing

The CX700 uses the latest version of the VIAVI Auto Test and alignment framework. Auto-Test is a highly flexible and advanced test automation framework to support advanced automated testing and alignment. The VIAVI Auto-Test framework provides the CX700 with an open programming interface, modern programming language (Python), defined, well documented APIs, and an infrastructure that provides a clear presentation of the test script execution.

SCA Infrastructure

The CX700 introduces an industry unique Software Communications Architecture (SCA) infrastructure that allows customers to implement unprecedented radio testability for SCA based radios. Using the SCA framework for developing automated test scripts makes scripts less susceptible to obsolescence, allows scripts to be easily ported to test instruments with newer processors, and accept newer synthetic instrument components.

The SCA framework provides the capability to perform white box testing of SCA-compliant radios by injecting or recording signals within the signal processing chain “inside” the radio. With this capability, tests can go beyond black box testing, which is limited to the RF signal at the external interface of the radio. This unique ability results in a powerful tool to diagnose the source of deficiencies in the radio performance.

Integrated Ruggedized KVM

The CX700 is equipped with an integrated ruggedized touchscreen display that can be operated locally using touchscreen navigation techniques or the keyboard and trackpad. The effective use of screen space clearly conveys critical information and allows the operator to configure the screens to optimize workflow. Shortcuts are provided on the user interface (UI) to allow the operator to quickly navigate to the various screens and setting.



Test Modes

The CX700 is organized into common operating modes which are easily accessible from the Test Mode home screen. Each mode of operation contains appropriate sets of measurements that allow for focused testing based on the operator's needs.

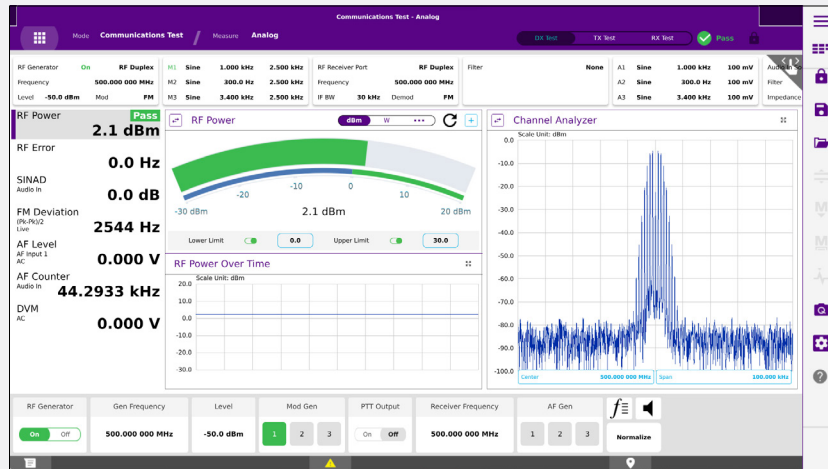


Figure 5. CX700 Test Mode User Interface

Transmitter Test Mode

Transmitter Test mode provides access to the CX700's RF Receiver, providing a rich display of pertinent meters and measurements. Transmitter measurements can be performed using either the T/R port or the RF Input port. The RF T/R port is suitable for direct connection to the UUT for performing high power measurements. The ANT connector is equipped with a preamplifier to provide additional sensitivity for performing low power level measurements such as over-the-air testing.

Receiver Test Mode

Receiver Test mode provides access to the CX700's RF Generator functions, providing a variety of RF and audio signals to stimulate the unit under test (UUT) to evaluate the UUT's receive performance.

Duplex Test Mode

Duplex Test mode supports full duplex capabilities, providing simultaneous access to CX700's RF Generator and RF Receiver functions to evaluate the transmit and receive performance of radios that support duplex operation.

Spectrum Analysis

Spectrum Analyzer mode provides access to the CX700's Spectrum Analyzer, providing a wide array of controls and settings to quickly and reliably detect and characterize RF signals over time.

Auto-Test Mode

Auto-Test Mode provides access to the CX700's Auto-Test function. Auto-Test is used to automatically test specific devices for functionality without having to manually set each frequency and/or level.

StrataSync

StrataSync is a hosted, cloud-based software application that provides asset configuration and test-data management from anywhere in the world. The CX700 lightens your workload by synchronizing your test results to the cloud and keeping your test set updated with the latest software. Easily save and access test results for both manual and automated tests.



Figure 6. StrataSync Dashboard

Smart Access Anywhere

The VIAVI Smart Access Anywhere application is a handy tool for remotely controlling the CX700. The SAA App enables remote operation from your PC or portable device, which allows you to operate the unit and transfer files from a remote location.

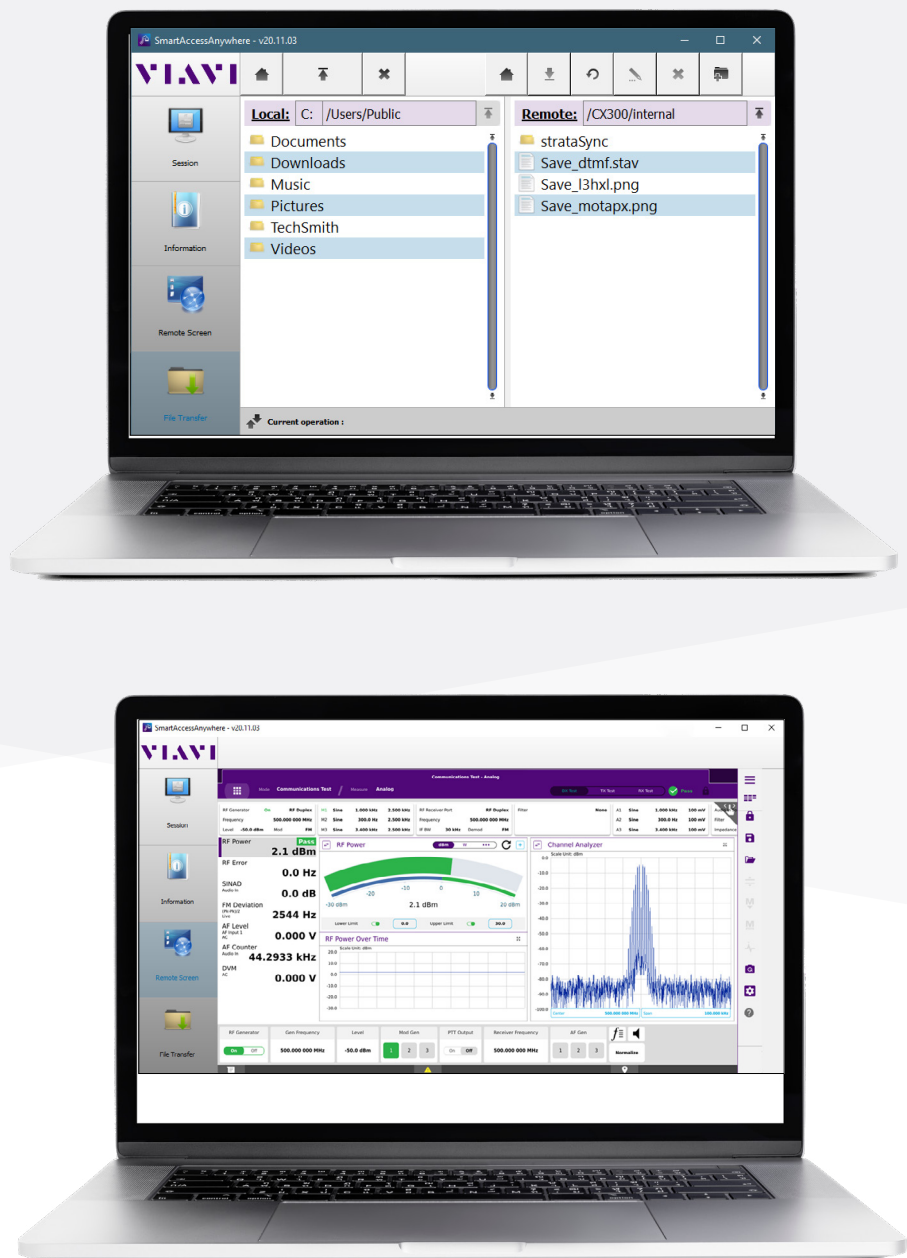


Figure 7. Smart Access Anywhere Remote Software

Ordering Information

Versions and Options

Order Number	Description
CX700	CX700 ComXpert Test System, 3 GHz, with DMM and Integrated Ruggedized Keyboard, Video, Trackpad
CX700-NOKVM	CX700 ComXpert Test System, 3 GHz, with DMM (Headless)
CX700-PS	CX700 ComXpert Test System, 3 GHz, with DMM, Power Supply Module, and Integrated Ruggedized Keyboard, Video, Trackpad
CX700-PS-NOKVM	CX700 ComXpert Test System, 3 GHz, with DMM and Power Supply Module (Headless)

Standard Accessories for All System Configurations

AC Power Cord – US

SIM/RIM Audio Interconnect Cables

Calibration Certificate with Test Data (ISO 9001), Radio Interface Module

Calibration Certificate with Test Data (ISO 9001), Synthetic Instrumentation Modules

Calibration Certificate with Test Data (ISO 9001), Chassis Timebase

Options

CX700-F6GHZ	6 GHz Range Extension
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Accessories

CX700-ACBL	RF Cable for AutoAlignment
CX700-ACC	Carrying Case, Protective, Lightweight
CX700-AHC	Hard Case, Protective
CX700-HRMK29	CX700 Rack Mount Kit; 29 inch depth; 28 inch rail
CX700-HRMK24	CX700 Rack Mount Kit; 24 inch depth; 23 inch rail
CX700-SBLU	Software Update, Blu-Ray Disc
CX700-SUSB	Software Update, USB Drive

Care Support Plans

BronzeCare (Includes Extended Warranty)

BRONZE-2	BronzeCare – First 2 Years
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SilverCare (Includes Extended Warranty and Calibration Plan)

SILVER-3	SilverCare – First 3 Years
SILVER-5	SilverCare – First 5 Years

VIAVI Care Support Plans

Increase your productivity for up to 5 years with optional VIAVI Care Support Plans:

- Maximize your time with on-demand training, priority technical application support and rapid service.
- Maintain your equipment for peak performance at a low, predictable cost.

Plan availability depends on product and region. Not all plans are available for each product or in every region.

To find out which VIAVI Care Support Plan options are available for this product in your region, contact your local representative or visit: viavisolutions.com/viavicareplan

Features

*5-year plans only

Plan	Objective	Technical Assistance	Factory Repair	Priority Service	Self-paced Training	5 Year Battery and Bag Coverage	Factory Calibration	Accessory Coverage	Express Loaner
 BronzeCare	Technician Efficiency	Premium	✓	✓	✓				
 SilverCare	Maintenance & Measurement Accuracy	Premium	✓	✓	✓	✓*	✓		
 MaxCare	High Availability	Premium	✓	✓	✓	✓*	✓	✓	✓



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