



VeEX CX310 Test Set Software User Guide

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VeEX CX310 Test Set Software



Product Information

The CX310 is a test set software that provides software updates for the CMD3.1B Engine Firmware. It is developed and manufactured by VeEX Inc., a company based in Fremont, CA, USA.

The software release notes provide information about the different software versions and their corresponding features and improvements. The latest software version available is 01.02.0005, released on June 22, 2022. The CMD3.1B Engine Firmware for this version is 0.9.26.060922.

Some notable features and improvements in the software versions include

- HiPv2 support
- Fiber Test added to the R-Server HipV2 Profile & CX310
- Support for 2 OFDM tests
- Updated TDR Drop Verification Trace Error messaging
- Added notification Beep when Trace is completed in the TDR Drop Verification Check
- Added Location name to the HIP Auto Test
- Auto-Diplexer Feature (Patent Pending) added to Cable Modem
- Improved QAM locking time in Single Channel
- Support for transmitting data via the U/S OFDMA in Cable Modem
- Updated 'zero' BER to be consistent in all measuring modes using Settings > More > EZ Remote

Product Usage Instructions

To install the software updates for CX310, please follow the instructions provided at the end of the user manual document.

Note that some features mentioned in the software release notes may require paid activation or license and may not be available in all products.

If you want to remotely control the CX310, you can use the EZ Remote feature.

To enable EZ Remote

1. Go to Settings > More
2. Enable EZ Remote and press Apply
3. Wait for the Registration process to succeed. If Registration fails, verify that you have internet access.
4. Instruct the remote user to open ezremote.veexinc.com on their web browser
5. Ask the remote user to enter the Session ID provided in the box

Once the above steps are completed, you should be able to access and remotely control the CX310 via the web browser.

If you encounter any issues or need further assistance, please contact VeEX Inc. at the following contact details

Address: 2827 Lakeview Court, Fremont, CA 94538, USA

Tel: 1.510.651.0500

Fax: 1.510.651.0505

Website: www.veexinc.com

CX310 - Test Set Software Updates

Installation instructions provided at the end of this document.

Software version 01.02.0005

Release Scope

General Availability

CMD3.1B Engine Firmware: 0.9.26.060922

New features and improvements

1. HIPv2
 - Ingress Test mode – Modified action message on the bottom of the screen
 - Fiber/EPON test – Updated screen to show the Speed Server being used to test on the top of the screen
2. Miscellaneous
 - R-Server Connect Screen – Removed the “443/SSL” setting.
 - OFDM Subcarrier Scan -Display has been updated, Set MER & Noise scan as the first-choice display
 - Tilt Mode – Improved measurement speed display
 - Single Channel mode – Incorporates new icon for QAM lock status
 - TDR Mode – Added “Feet / Meter” button to the right-side menu

- TDR Mode – Resolved the Trace distance display when switching between AFL and MFL modes
- Cable Modem – Resolved DHCP Registration “Option 60” issue
- Cable Modem – Modified Cable Modem code to support systems that block port 8080
- Channel Table – Modified Channel table to support “Secondary” DOCSIS Channel type
- Channel Table – Support channel tables generated from CX380C
- Test Results – Added message to prevent overwriting existing test result names
- Added V-Connect 2.0 support – Cell Phone pairing application
- TOA – Resolved timeout issue
- Save / Save & Upload – Modified R-Server “Check” function to perform a full check (Org Chart, Tech Info, Profiles, Software) and ask to apply Global Settings is applicable
- Save / Save & Upload – Added functionality to force download profiles or delta software with the ability to “skip” based on the R-Server setting

New features and improvements

1. HIPv2

- CX310 Fiber Test – Updated Fiber Tests
- R-Server – Added Hip AutoTest V2 Fiber Profile

2. Miscellaneous

- CX310 / R-Server - Added “Global Settings” feature.

New features and improvements

1. HIPv2

- Fiber Test - Added Fiber Test to the R-Server HipV2 Profile & CX310
- Updated R-Server and CX310 to support 2 OFDM tests
- Updated “TDR Drop Verification” Trace Error messaging
- Added notification “Beep” when Trace is completed in the “TDR Drop Verification” Check
- Added “Location” name to the “HIP Auto Test”.

2. Cable Modem

- Added Auto-Diplexer Feature (Patent Pending)

3. Single Channel

- Improved the QAM locking time
- Miscellaneous
- Added “Channel Tbl, Location & TP” to all Test Results
- Ingress – Updated the FP 1.2 GHz mode to Start at 108 MHz
- Ingress – Cleaned and Improved the Bottom Trace Bar area
- File Uploading Screen – Increased the detection field for selecting a file to upload
- VeCheck - Fixed Scan Display - VeCheck Scan will discover up to 1218 MHz, but the display show 999 MHz
- VeCheck Discover Scan – Create Channel Label for Discovered OFDM channels (O1 and O2)
- Updated Default Channel Tables (Annex A & B) to support 1.2 GHz plan
- Lowered the TOA button on the Main Menu screen
- R-Server - Added Asset Management control

New features and improvements

1. HIPv2

- Ingress mode – improved Return Path Ingress detection.

New features and improvements

1. HIPv2

- Ingress Check - Add second test for Ingress which will include the High Spectrum to 1.2 GHz
- Packet Loss Rate – Modify the Ping check at the beginning of VeTest to measure Packet Loss Rate
- Cable Modem Check – Add delay to the connection results to give settling time for the Upstream Transmit level
- **TDR Drop Verification Check – If both traces are within 4'**: the longest trace is displayed; if both traces have a difference > 4', the sum of both traces is displayed.
- Always start HIPv2 with blank Job ID and Account number
- Added "Jobs List" to the Test Results when uploading to the R-Server

2. Cable Modem

- Updated the Cable Modem's capability to transmit data via the U/S OFDMA

3. Single Channel

- Updated 'zero' BER to be consistent in all measuring modes using <1.00e-9 notation
- Enhanced the grading algorithm for VeGrade

4. TDR

- Modified the Automatic Trace marker in the TDR

5. Tilt

- Updated the measurement speed in the Tilt Mode

6. Miscellaneous

- Added a High Contrast mode for the Screen display
- Rearranged Ingress Menu choices
- Added Test Criteria (Min and Max Offsets) to the Channel Table. Supports individual Channel Pass/Fail criteria

New features and improvements

1. Resolved issue with Time Zones when syncing with the R-Server

New features and improvements

1. Cable Modem

- Add Pass Through mode
- Fixed issue with OFDMA Ranging

2. HIPv2

- Modify GUI to not allow user to input special characters in savings fields. ~ ` ! @ # \$ % ^ & * () { } [] | \ ' " : ; b.

- DOCSIS Primary Channel – Discover HIPv2 Cable Modem test
 - Show “Network” icon when connected to Cable Modem, WiFi or Bluetooth
 - Add messaging to alert user if Network connect is lost (Redo Test).
3. Single Channel
- Add VeGrade feature
4. Miscellaneous
- WiFi Check feature added
 - Fixed Pass/Fail when no Location is selected
 - **VeCheck - Create setting for VeCheck Scan length** : 550, 860, 1,000 & 1,200 MHz (Add to HIPv2 Profile setting)
 - Pressure Test Results should display “Tagged” signal in Blue & “Untagged” signal in Gray on saved results
 - Add beep to Pressure Test
 - Modify Ethernet Speed test server default to last Server selected
 - Modifications to TOA
 - Update firmware via Webpage
 - Fixed CM Link/US EQ & Response issue
 - Updated OFDM Subcarrier Scan Update rate

New features and improvements

1. HIP V2
- Added TDR Drop Verification test. Requires R-Server version 5.0.1 or later.
 - Added a “Back” button to the Save page to let the user go back to the Test Location page
 - Resolved issue with OFDM test results
 - Resolved issue with Cable Modem test results.
 - Removed requirement for Account # and Job ID to be populated when starting a HIPv2 test.
 - Added a message to prevent the user if they try to go to the Save page without running any tests.
 - Improvements for rare cases where the Channels Scan result is missing from the final saved file and the test is improperly declared a ‘PASS’.
2. Cable Modem
- Resolved intermittently connecting as a D3.0 when on a D3.1 system.
 - Added VoIP Check
3. OFDM
- Resolved issue with OFDM configured with 6 or more Profiles. Support up to 16 Profiles
4. VeCheck
- Modified the DOCSIS Detection.
 - Updated “Discover” scan for Annex A units.
5. Web Remote Access
- Resolved the links for the “Save” and “Home” buttons.
 - Added “Screen Capture” button.
 - Added “Diagnostic” button.
6. TDR

- Updated the VP% for all Coaxial Cables to 85%
7. Ethernet Tools
 - In IP Setup, the “DHCP Renewal” default setting is changed to “Enable”.
 8. Tech Mobile app
 - Updated to support Bluetooth connection and general improvements
 9. Adds Network Diagnostics tool for when a file upload to R-Server is unsuccessful. It provides the user a quick snapshot of network connectivity status. This feature is accessible by a new Details button added to Information and Warning messages.
 10. Resolved issue with saved test result files that become corrupted and cannot be uploaded to the R-Server
 11. Implements improved communication protocol with R-Server for File Uploads. Requires R-Server version 5.0.1 or later
 12. Added the CPE MAC Address to the Utility/About page.

New features and improvements

1. HIP V2

- Added the Tilt measurement to Channels Scan.
- Added the Redo button for each individual Location test, enabling the user to rerun a specific test if needed.
- Resolved the intermittent BER issue.
- Added the 'Upload & Delete' button.
- Added the ability to review a completed Location Test by tapping on the Location icon.
- Now displays a QAM channel that fails lock but has a signal level > -10 dBmV.

2. Cable Modem

- Added the DOCSIS Emulation Mode for D3.0 systems.
- **For the Ping test:** resolved an issue with Profiles.

3. Vecheck

- Added the Tilt measurement to Channel Scan
- Resolved the intermittent BER issue.
- Now displays a QAM channel that fails lock but has a signal level > -10 dBmV.

4. R-Server

- Files that have already been uploaded to the R-Server are now marked with an asterisk in the 'Upload' tab.

5. Initial Tech Mobile app integration

6. Limited the set to 32 characters in data entry fields.

New features and improvements

1. **Ingress:** New RP 110 MHz mode to support a wider 5 MHz to 110 MHz view, which includes the FM Band.
2. **HIP V2:** Incorporated the new RP 110 MHz mode for Ingress measurements.
3. Resolves issue with Date/Time synchronization with the R-Server, found in previous version 01.01.0007.
4. **VeCheck:** additional protection added against erroneous BER events.
5. **Cable Modem:** DRW Detection default setting is set to 'Disable'.
6. Fixed issue with Default settings when upgrading software via the R-Server.

New features and improvements

1. RF VeTest optimized by defaulting to 4 streams and accounting for the worst case scenario where all the IPs are in different domains.
2. **HIPv2 and HIP**: improves “Save & Upload” function.
3. **Ingress**: Max Hold is now automatically turned on for all Return Path modes.
4. **WiFi Wiz**: adds a shortcut button for direct access to R-Server.
5. Enables drop down selections for Channel Table, Location, and TP Compensation in VeCheck, Cable Modem, and Single Channel.
6. **HIPv2**: provides additional ways for a user to save a partially done HIP test. After a particular Location test is done, the result is automatically saved when the user presses the ‘Next’ key. Also, a ‘Partial Save’ button is now available to save a completed Location test.
7. **VeCheck**: Discover Mode now includes Analog channels.
8. Now supports Spanish language.
9. **Ethernet Tools V-Test**: performance improvements when connected to some D3.1 Cable Modems.

New features and improvements

1. Moved HIPv2 to Main Menu screen
2. HIPv2
 - Added Configurable Test Time setting to Ingress test
 - Added “No Signal Detection Check” to Channel Scan
 - Added Additional DOCSIS Primary settings/support to Cable Modem test
 - Resolved intermitting false BER measurements in Channel Scan
3. **TDR**: Enhanced Trace Display and User Interface (UI)
4. **Ingress**: Set VScale default to 5 dB per division
5. **Cable Mode**: Added Dual MAC Address Capability

New features and improvements

1. **Ingress**: Improve LTE detection
2. **Ingress**: Improved Return Path detection
3. **HIPv2**: Added Pressure Test
4. **HIPv2**: Added Pressure Test Histogram to Test Results

New features and improvements

1. **VeCheck**: modified shortcut button locations.
2. Enhanced HIPv2 Channel Scan “Pass/Fail” criteria for a “Discover” scan.
3. Resolves a Cable Modem IP Details issue.
4. Resolves a V-Connect issue when unregistering from R-Server.
5. Resolves an issue with R-Server download impacting some profiles.
6. **TOA**: resolves launching issue when using the Cable Modem connection.

7. **V-Perf:** now supports 8K and 10K rates.

New features and improvements

1. HIPv2
 - Adds “Discover” Channel Scan Type
 - Adds OFDM to the Channel Scan
2. Resolves 1G/10G VeTest “Re-Direction X-Loop issue.
3. Initial release for the Pressure Test.
4. Improves Analog Channel measurements.
5. Improves Digital MER measurements.
6. Resolves intermittent Cable Modem MAC Address issue when registering with R-Server.
7. Resolves Cable Modem IP Tools Web Browser launch issue.
8. Resolves intermittent Cable Modem lock failure.
9. Now supports the V-Connect app.
10. Now supports FX40 results upload to the R300 Server.
11. **Ethernet Tools:** resolves issue of going into Standby Mode when running a long term test.

New features and improvements

1. Resolved HIP Auto Test ‘Pass/Fail’ issue with R300 Server Advanced View
2. Resolved 1GE X-Loop issue.
3. Resolved “Pass/Fail” indication with HIP Test Results.
4. Now supports the R300 Server Delta SW upgrade process.

New features and improvements

1. Added HIPv2 Feature
2. Added V-Connect Feature
3. Add Pressure Test Feature
4. Added 1GE X-Loop Feature
5. Resolved “Name” Label in Single Channel Mode
6. Support more than 100 Channel Tables
7. Support URL or Domain Name in R-Server Connection
8. Resolved Global “Units” setting
9. Set Channel Table “Standard_Q256” as Default
10. Resolved Ingress mode “FM Band” issue
11. Updated Channel Table “HRC-Q256”

New features and improvements

1. Cable Modem
 - D3.1 OFDM Details now includes Total Codewords count.
 - Subcarrier Scan now highlights PLC subcarriers for easier identification.

- BPI+ Root modification for compatibility with some CMTS vendors currently not conforming to CableLabs standards.
2. **VeCheck**
 - Now supports tabular presentation
 - Now supports Channel Table creation based on a Discover Scan Mode.
 - Enhanced Analog channel measurements.
 3. **Tilt:** now supports Analog Channels
 4. **Ingress**
 - Now supports custom inputs for Start and Stop Frequency
 - Now supports an LTE Band selection
 5. **Single Channel:** enhanced Analog channel measurements.
 6. **TOA:** generalized to support additional customer accounts.
 7. Enhanced the Touch Screen Calibration process to prevent accidentally invoking the function. Now requires additional key sequences and user confirmation to initiate the process.
 8. Now supports USB to Ethernet OTG adapter for LAN Management port functions.
 9. EZ Remote support for remote control and connection through EZ Remote Server website. Refer to instructions at the end of the document.

References

Test Profiles and Test Results Backup Procedure

The test set's File Management system offers backup [To USB] and restore [From USB] functions. They can be found in the Utilities >Files >Saved, on the left side of the screen.

To enable the [To USB] and [From USB] functions, insert a FAT32 USB Memory stick into the micro USB-B port (or use a micro USB-B to USB-A OTG adapter for regular USB-A memory sticks). Wait for the USB memory to be recognized (the folder icon will change appearance with a green USB memory icon).

Select the desired test results, test profiles, screen capture and protocol capture files to be saved, using the individual check boxes. For a full backup, check the master box on the header and all files will be marked.

Tap the [To USB] button to initiate the file transfer procedure and wait for the progress bar to finish. Original files won't be deleted from the test set.

When all files have been copied to the memory stick, you may tap the folder icon and select "Remove USB Drive" to make sure all cached data is transferred to the USB drive, especially when transferring small files.

It is highly recommended to select all important test profiles and results, and make a backup copy to a USB drive, before upgrading the unit's software. The software upgrade process may clean up all the data stored in the test set. After the unit has been updated, use the [From USB] function to restore the data back to the test set.

Updating the Test Set Software (via micro-B USB memory stick or using the USB-A OTG adapter)

Make sure the test set can detect the memory stick, before starting this procedure.

- Copy the uncompressed firmware update package file to the root of the memory stick.
- Plug it into the test set's micro USB-B port or into the USB-A to micro-B USB OTG adapter.
- Turn the power OFF.
- Turn the test set ON, by pressing the SAVE + POWER buttons simultaneously, until a tone (beep) is heard and wait for the boot up process to finish.
- The firmware update process starts. This could take several minutes. The test set will reboot itself off at the end.
- An additional rootfs upgrade menu may be presented after the reboot. Tap on OK to proceed with the last part of the update process.

The test set must be connected to AC/DC charger at all times during the whole upgrade process. DO NOT turn it off at any time; the update process would take a few minutes.

To verify the software version number installed, turn the test set back on, open the Utilities section, select Settings, and open About.

Updating the Test Set Software via WiFi or LAN (Requires version 01.01.0014 or newer)

Make sure the test set is ON and connected to a wireless LAN or connected to a LAN (using the micro USB to RJ45 adapter cable).

PCs, Mac, tablets, and smartphones can be used to perform this task, as long as they provide access to the file system and allow you to select the install package file.

- Open the Web Browser and enter the IP address of the test set into the browser's address/search field (e.g., 10.0.20.1). The test set's IP address is displayed at the bottom-left corner of the screen,
- Once the test set's Web Remote Access page loads, select Upgrade from the menu on the left side of the screen.
- Tap or click on the Select File button and point it to the Software Image file.
- Tap or click on the Upload button to transfer the Software Image file to the test set.
- Once the file transfer is done, tap or click on Upgrade and let the test set go through the process, uninterrupted. This will take a few minutes.
- The test set will reboot itself during upgrading process. IP connection will be lost. Need to check status directly on the test set display
- An additional rootfs and also cable modem upgrade menu may be presented after the reboot. Tap on OK to proceed with the last part of the update process.

Connecting to the Test Set using EZ Remote

EZ Remote is an on-demand peer-to-peer remote control functionality that works over the internet through firewalls. The test set supports remote connectivity and remote control via the EZ Remote Server Website.

- Connect the CX310's management interface (WiFi or Ethernet via USB to Ethernet OTG adapter) and obtain an IP address. The IP address can be public or private and provide internet access.
- Go to Utilities > Settings > More > EZ Remote
- Enable EZ Remote and press Apply
- Wait for Registration process to succeed. If Registration fails, verify that you have internet access.
- Instruct Remote user to open ezremote.veexinc.com on their web browser and enter Session ID in the box
- The unit can now be accessed and remotely controlled via the web browser

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Some features listed in this document require software options that may require paid activation or license and may or may not be available in all products. VeEX Inc., reserves the right to change, without notice, product offerings or specifications.

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Documents / Resources

	<p>VeEX CX310 Test Set Software [pdf] User Guide</p> <p>CX310, CX310 Test Set Software, Test Set Software, Set Software, Software</p>
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References

- ezremote.veexinc.com
- [VeEX Inc. | The Verification EXperts](#)