

MTX150 Multi Service - System Software Updates

This software is compatible with MTX150 and MTX150 **10G Ready** test sets which can be identified by their serial number prefixes, starting with:

- a. **TYB** – MTX150 10G version with Bantam T1/E1 connectors (with or without optional Datacom).
- b. **TYC** – MTX150 10G version with RJ48 E1/T1 connector (with or without optional Datacom).
- c. **TYJ** – MTX150 10G version with Dual Bantam connectors, with two Rx and one Tx ports (no datacom option available).
- d. **TEB** – MTX150 2.5G version with Bantam or RJ48 T1/E1 connector (with or without optional Datacom).

Software update instructions are provided at the end of this document.

Software version 02.01.0005

Jul 14, 2022

Release Scope:

Maintenance Release. General availability.

General features and improvements:

1. General improvements and bug fixes.

New Transport features and improvements:

2. Improved USA GUI Mode (Bantam units)
 - Improved STS1, DS3 and DS1 Auto-Monitor features, with new map/mux active channel search algorithm, a Next function to continue the search, a faster Live version (no test pattern search), new direct STS1-VT1.5 and DS3-DS1 channel selection tables.
 - Improved the Auto-Config function in the Manual Setup menu, to allow users to configure to the Line interface (STS1 or DS3) and, if DS1s are found in the payload structure, it now allows users to enter the desired channel and run a separate auto-config for the selected DS1 channel.
 - More complete test pattern search list for DS1, including all 2ⁿ-1 sequences.
3. Improved test pattern alignment with DS1 framing.

New Ethernet features and improvements:

4. Added Line Rate to V-PERF test feature.
5. General improvements and bug fixes.

Known issues or limitations:

- a. Datacom selection may not be displayed when test patterns not supported by the datacom test application are set prior to entering Datacom mode (e.g., when QRSS is selected). Change the test pattern in the current configuration before changing to the Datacom mode.

Software version 02.01.0003

Jan 7, 2022

Release Scope:

Maintenance Release. General availability.

General features and improvements:

1. General improvements and bug fixes.

New Transport features and improvements:

2. Fixed an issue with SDH/PDH temporarily losing frame sync (LOF) after performing STM1o/STS3 Jitter measurements.

New Ethernet features and improvements:

3. Added Line Rate to V-PERF test feature.
4. General improvements and bug fixes.

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.01.0002

Sep 27, 2021

Release Scope:

Maintenance Release. General availability.

General features and improvements:

1. Improved IPv6 handling by core OS

New Transport features and improvements:

2. Improved internal clocking.

New Ethernet features and improvements:

3. Fixed an issue with MAC that could have affected certain loopback mode scenarios.

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.01.0000

Sep 10, 2021

Release Scope:

Formal Release. General availability.

General features and improvements:

1. Updated OTDR client version 01.00.4969

New Transport features and improvements:

2. New C37.94 Jitter and Wander measurement functionality [9352].

New Ethernet features and improvements:

3. Added Packet Capture feature with standard PCAP format

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.00.0008

Jul 24, 2021

Release Scope:

Formal Release. General availability.

General features and improvements:

1. New in-band R-Server connectivity. When testing Ethernet links that provide routable connection, the test set is now capable of using the same link under test to connect to R-Server, to upload results or download profiles on the spot. Available for the MTX150 **10G Ready** hardware only.
2. Added direct WiFi and Bluetooth radio controls. Similar to the way airplane mode works in cellphones, users can completely disable these RF interfaces when working in secured or restricted areas. The individual Radios' Enable/Disable buttons can be found in the Bluetooth/WiFi menu: >Bluetooth >Setup/Info and >WiFi Wiz >Connect >Setup screens.

New Transport features and improvements:

3. Added STM1o/OC3 Jitter and Wander measurement features, including Wander measurements, Jitter measurement, Jitter Generation, Jitter Transfer Function and Maximum Jitter Tolerance [9419]
4. Added support for RS422A/V.11 Full-duplex (4-wire) Asynchronous datacom interface in terminal mode. Supports data

rates from 50 bit/s to 128 kbit/s. This mode should also be compatible with RS485A full-duplex (4-wire) interfaces in terminal point-to-point mode (no bus or high-impedance modes supported) [10391]

Note: Since no standard connector or pinout is defined for RS422A, use the information below to build the appropriate adapter cable for your application.

MTX150 Datacom Connector \ Signal Pin→	RxD- (A)	RxD+ (B)	TxD+ (B)	TxD- (A)	Adapter P/N
DVI-V female (on the test set)	19	20	21	22	
DB15 male (with VeEX X.21/V.11 DTE cable)	4	11	9	2	F02-00-020G
DB37 male (with VeEX RS449/V.11 DTE cable)	6	24	22	4	F02-00-016G

For RJ45, we recommend using the DB15 cable with a commercial DB15-to-RJ45 modular adapter kit, wired to match the custom pinout of target data communication equipment.

5. Improved External Clock reference sensitivity for SDH applications.

New Ethernet features and improvements:

6. Improved Test Profiles selection menu, to support more than 26 saved profiles.
7. Fixed a MAC Source issue in the Ethernet applications. The incorrect MAC Source was being applied to the test frames.
8. New (official release) of advanced SyncE test features, supporting the following license bundles for MTX150 10G hardware:

Z33-00-068 1GE/10GE SyncE Bundle

- 499-05-559 1GE SyncE ESMC/SSM Message Support (requires SyncE option)
- 499-05-576 1GE SyncE Master and Slave Emulation
- 499-05-593 10GE SyncE Master and Slave Emulation (requires 499-05-554)
- 499-05-594 10GE SyncE ESMC/SSM Message Support (requires 499-05-593)

Z33-00-069 1GE/10GE SyncE Wander Measurement and Analysis Bundle

- 499-05-869 SyncE Wander Measurement
- 499-05-196 Wander TIE logging and export for MTIE and TDEV Post Analysis (includes PC software)

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.00.0006

Feb 09, 2021

Release Scope:

Maintenance Release. General availability.

General features and improvements:

1. Minor WiFi GUI update to make it more intuitive and improve ease of use. The test set now automatically establishes an IP session when connecting to an access point (AP). If needed, users can still go back to Layer 2 by pressing the Release IP and Get IP buttons (they replace Connect NET and Disconnect NET).

New Transport features and improvements:

2. Added Jitter and Wander options support for new MTX150 10G hardware.
3. Added C37.94 test feature to the new MTX150 10G hardware version. [9357].

New Ethernet features and improvements:

4. General improvements.

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.00.0003

Oct 21, 2020

Release Scope:

Major Release. General availability.

General features and improvements:

1. Adds support for the improved second generation **MTX150 10G** hardware, now supporting test interfaces up to 10 Gbps (10GE, STM64, and OC192). The new 10G-capable hardware can be identified by the **10G Ready** label on the connector panel or by their serial number prefixes:
 - a. **TYB** – MTX150 10G version with Bantam T1/E1 connectors (with or without optional Datacom).
 - b. **TYC** – MTX150 10G version with RJ48 E1/T1 connector (with or without optional Datacom).
 - c. **TYJ** – MTX150 10G version with Dual Bantam connectors, with two Rx and one Tx ports (no datacom option available).
 - d. **TEB** – MTX150 2.5G version with Bantam or RJ48 T1/E1 connector (with or without optional Datacom).

The new MTX150 10G hardware can also be identified by its larger high-capacity Li-Ion battery pack back-cover (compared to the flat Li-Po used in the 2,5G version). The new 10G-capable version uses 15 Vdc charger (instead of 12 Vdc).

Note: Starting November 2020, all new MTX150 shipped will be 10G-capable. Software options (licenses) are required to enable 10GE, STM64 and OC192 features. 10G options will not be available for earlier version (no “10G Ready” label)

2. New boot ROM version 1.4.0
3. This software version is backwards compatible with the original MTX150 2.5G hardware.

New Transport features and improvements:

4. New 10G STM64 and OC192 testing options for 2nd generation MTX150 10G hardware.
5. Added support for Dual T1/DS1 monitor capability for the new dual bantam version.

New Ethernet features and improvements:

6. New 10GE testing option available with 2nd Generation MTX150 10G hardware.

Known issues or limitations:

- a. 2nd generation MTX150 with 10G hardware no longer supports the OTU1 testing option. The feature will continue to be supported by existing MTX150 2.5G.
- b. C37.94 features are not yet available for the 2nd Generation MTX150 with 10G hardware (it is planned and will be released in following releases). First generation MTX150 2.5G continues to support C37.94 as usual.
- c. Jitter measurement/generation and Wander features for STM1/OC3 interfaces are not yet available for the 2nd generation MTX150 hardware.
- d. Although the Software Upgrade option is shown in the Web Remote Access menu, when using EZ-Remote cloud service to connect to remote test sets over the internet, the firmware Upload function will be disabled This is to prevent any software corruption that unreliable Internet connections may cause.

Software version 01.00.0031

Jul 17, 2020

Release Scope:

Maintenance Release. General availability.

General features and improvements:

1. Added Remote Reboot function to the Web Remote Access browser client page. (Not recommended if the local connection is via WiFi).
2. Updated boot ROM version.
3. Fixed an issue with the WiFi AP mode, which in certain cases may have prevented Web Access to the screenshots file list.

New Transport features and improvements:

4. General ISDN PRI improvements.
5. Fixed an issue with the HP2+LP filter in STM1/OC3 Jitter Measurement & Generation function presenting values above threshold.
6. Fixed an issue with the User-defined test pattern not having the binary entry field.

New Ethernet features and improvements:

7. General 1GE stability improvements for optical port.

Known issues or limitations:

- a. ISDN PRI: When users switch between two active ISDN calls, one call stays on-hold in the background and its B channel gets temporarily filled with test pattern traffic to prevent the absence of data, creating a white-noise-like sound, which some users may find unpleasant. To prevent the noise in the background call, users can go the BERT setup screen, select the User Pattern and set the test pattern to All 1s 1111 1111 (u-Law/T1) or 1101 0101 (A-Law/E1) Quiet/Silence codes. Alternatively, users may choose the 3-in-24 test pattern to send a high-pitch tone instead.

Software version 01.00.0027

Feb 28, 2020

Release Scope:

Formal Release. General availability.

General features and improvements:

1. Added new software options to clearly differentiate MTX150 units with RJ48 or Bantam primary interfaces (E1/T1) and set the appropriate default values for each. Users can send a request to [Customer Care](#) to get the license key to enable this option, indicating the test set(s) full Serial Number and its E1/T1 connector type. Users can check the current status of these options in the last page of >Utilities >Settings >About >Software Options menu, to make sure the one that matches the E1/T1 connector is marked as Enabled.

New Transport features and improvements:

2. Added support for the simplified USA GUI (user interface) mode for legacy SONET/DSn test modes. Users can choose this alternative user interface by going to >Utilities >Settings >Global >General Settings >User interface = USA. The Advanced Mode within the USA GUI mode still allows access for more complex applications, configurations, and functions.
3. Added VF Tasks (Voice Frequency) functionality. Allows E1/T1 voice channel access, talk/listen, tone injection/measurement and ABCD signaling bits generation/monitoring. Access to the channels Talk/Listen requires VeEX's 2.5mm TRS headset (Z99-99-020G Over-the-Head Headset).
4. Added DS1 Loopback commands functionality, supporting In-Band CSU, NIU FAC1/FAC2, ESF FDL, HDSL Short, HDSL Long and User definable loop up/down codes.
5. Added DS1 CSU/NIU Emulation functionality.
6. Added DS1 ESF FDL & SSM QL (Clock Quality) codeword generation and monitoring functionality.
7. Improved Jitter Measurement functions and added selection for GR-449 and G.824 Masks to the DS1/T1 and DS3/T3 Maximum Jitter Tolerance (MJT) tests. Use the Advanced Mode to access the Jitter & Wander features.
8. Improved overall ISDN PRI functionality and stability.

New Ethernet features and improvements:

9. Nothing significant to report.

Known issues or limitations:

- a. As ISDN PRI, DS1 Loops and Voice Frequency (VF) features continue to be enhanced, users may experience new or odd behaviors under certain condition.

Software version 01.00.0020

Mar 29, 2019

Release Scope:

Formal Release. General availability.

General features and improvements:

1. Added SCPI command line interface support.

New Transport features and improvements:

2. Added Simplified USA GUI mode for legacy SONET/DSn test applications. To activate, go to >Utilities >Settings >Global >User Interface = 'USA'. The 'International' selection will continue to provide all detailed configuration settings, which are also available in USA mode under the 'Advanced' menu.
3. Added Datacom flow control options. Allow users to activate automatic response to CTS or DSR control signals, when in DTE mode. BER test sets normally generate a constant bit rate (CBR) using a continuous test pattern, but this new mode allows the network (DCE) side to control the flow to test legacy interface converter cards in circuit emulation or pseudo wire networks.
4. Added Round Trip Delay (RTD) and Service Disruption/Protection Switching (SDT/APS) measurements to G.703 64k Codirectional interface.
5. Added APS/SDT test feature to IEEE C37.94
6. Improved C37.94 Round Trip Delay (RTD) calibration and accuracy. User must still recalibrate before performing measurements after the data rate (N) is changed.

New Ethernet features and improvements:

7. Added Ping Test function to the Auto Script profile feature.
8. Added Web Browser (in-band) client access from the test ports' IP features. Users can now verify Internet and web access for the 10M to 1GE links under test.

Known issues or limitations:

- a. No new significant issues to report.

Software version 01.00.0017

Feb 3, 2019

Release Scope:

Formal Release. General availability.

New features and improvements:

1. Added VoIP Test features
2. Improved ISDN PRI stability
3. Improved E1/T1 VF Tasks feature with the addition of bi-directional CAS monitor in dual-port mode (RX1 and RX2) [4926]
4. Improved PDH/DSn Wander Measurement stability.
5. Resolved an issue with STM0/1 and STS1/3 Electrical testing option license not being present.
6. Resolved an issue with the User Test Pattern editor field.
7. Resolved an issue with C37.94 Round Trip Delay (RTD) result files not showing in the File Manager.
8. General Ethernet test applications improvements.
9. General Fibre Channel application improvements.

Known issues or limitations:

- a. No new significant issues to report.

Software version 01.00.0011

Nov 19, 2018

Release Scope:

Minor Release. General availability.

New features and improvements:

1. Added improved compatibility with SFP+ transceivers (new units shipped). Note, the MTX150 is still an SFP platform supporting optical modules below 1GE, 4GFC and 2.7G OTU1
2. Improved EZ Remote

Known issues or limitations:

- a. No new significant issues to report.

Software version 01.00.0010

Sep 7, 2018

Release Scope:

Major Release. General availability.

Platform features and improvements:

1. New Software Upgrade via Wi-Fi or LAN connection. After this update, the test set will be able to receive future software upgrades via Web Remote control using WiFi Access Point mode, WLAN or LAN (requires Ethernet adapter) as well as the existing procedure with USB memory sticks (via OTG adapter), for extra convenience. This software upgrade function is available via Web Remote interface (connecting to the test set using a standard web browser).
2. Added support for EZ Remote (on-demand peer-to-peer remote control functionality across networks/internet). This version allows the test set to register to a cloud based EZ Remote server, so users can pass the Session ID information to peers for remote control, help, support, collaboration or training purposes. The LAN or WLAN to which the test set is connected to must offer Internet access.
3. Updated the help contents with the latest user manual.

New Transport features and improvements:

4. Added IEEE C37.94 Test Mode. Includes BERT, Round Trip Delay and Received Data view functions. (Requires special SFP modules)
5. Added ISDN PRI test functionality to E1 and T1.
6. Added recovered clock Wander Measurements for DS1, E1, E3, DS3 and STM1/OC3
7. Added independent TX and RX configuration for OTN, SDH/SONET and PDH/DSn. Users now have the choice to Couple (TX=RX) or Uncouple (TX≠RX) the port settings.
8. Added SDT/APS Measurements to PDH/DSn (E4, E3, E2, E1, T3, T1) and electrical SDH/SONET (STM1e, STM0e, STS3, STS1) interfaces.
9. Added E1 and T1 VF Channel Access, with Tone frequency, level, CAS/ABCD monitoring and generation, and voice insertion (requires headset)
10. Added Jitter Generation, Measurements, Maximum Jitter Tolerance (MJT) and Jitter Transfer Function (JTF) for DS1, E1, E3, DS3 and STM1/OC3
11. Added Datacom Control Signals monitor and generation.
12. Added Datacom Round Trip Delay (RTD) measurement.

New Packet features and improvements:

13. Improved V-SAM user interface to reflect the same look-and-feel and behavior as its RXT-6200/6000e, RXT-3000 and TX320SM counterparts.

Known issues or limitations:

- a. No new significant issues to report.

Software version 01.00.0004

Apr 19, 2018

Release Scope:

Minor Release. General availability.

New features and improvements:

1. Added independent TX and RX settings to OTN, SDH, SONET, PDH and DS_n configurations, for Mux/Demux testing applications.
2. Improved touch screen calibration sequence, to avoid being accidentally triggered. Added better graphical guidance on how to proceed.
3. Updated the software options information and structure in the About menu, to better reflect what was ordered.

Known issues or limitations:

- a. No new significant issues to report.

Software version 01.00.0001

Apr 11, 2018

Release Scope:

Initial Release. General availability.

New features and improvements:

1. The new MTX150 field installation, verification and troubleshooting handheld test set offers the following multi-service test features:
 - a. **Ethernet:** 10/100/1000BASE-T, 100BASE-FX, 1000BASE-X and SyncE, with BERT, Throughput, RFC2544, V-SAM/Y.1564, Loopback, IPv4 & 6, Layer 4+, SyncE Wander and Net Wiz test features (among others).
 - b. **Fibre Channel:** 4G, 2G and 1G, with Throughput, BERT, RFC2544 and Loopback test features (among others).
 - c. **OTN:** OTU1 with internal Bulk (PRBS), SDH/SONET and PDH/DS_n test payload mapping/multiplexing. Testing capabilities include BERT/Errors/Alarms, Performance Evaluations, Overhead Generation & Monitor, SDT, TCMi, Payload Labels, Trace Identifiers, among others.
 - d. **SDH:** STM-16, STM-4, STM-1, STM-0 optical and STM-1, STM-0 Electrical with internal PDH/DS_n test payload mapping/multiplexing. Offers Terminal, Payload Through and Line Through modes. Testing capabilities include BERT/Errors/Alarms, Performance Evaluations, Overhead Generation & Monitor, Pointers, RTD, SDT, APS bytes, Tributary Scan, TCM, Payload Labels, Trace Identifiers, among others.
 - e. **SONET:** OC-48, OC-12, OC-3, OC-1, STS-3 and STS-1 with internal DS_n/PDH test payload mapping/multiplexing. Offers Terminal, Payload Through and Line Through modes. Testing capabilities include BERT/Errors/Alarms, Performance Evaluations, Overhead Generation & Monitor, Pointers, RTD, SDT, APS bytes, Tributary Scan, TCM, Payload Labels, Trace Identifiers, among others.
 - f. **PDH/DS_n:** E4, E3, E2, E1, T3 and T1 with internal test payload multiplexing, down to Nx64k and Nx56k. Testing capabilities include BERT/Errors/Alarms, Performance Evaluations, RTD, Pulse Mask, VF Channel Access, among others.
 - g. **G.703 64k Codirectional** data link. Balanced interface with BERT. Refer to (a).
 - h. **Datacom:** RS232A, RS232S/V.24, RS449, V.35 and X.21. DTE, DCE and Monitor modes.
2. Wi-Fi transceiver built-in (optional).
3. Wi-Fi InSSIDer 2.4 GHz band channel scan and graphical channel distribution map.
4. WiFi Wiz, NetWiz and IP Tools LAN and WLAN troubleshooting tools.
5. Automatic IP connection when the Management Port is set to DHCP or STATIC modes.
6. Bluetooth® transceiver built-in (optional).
7. USB 2.0 OTG (on-the-go) with micro-B USB connector. Host and Client (Device) modes supported.

8. Support for external micro-B USB OTG to regular USB-A adapter (included). Allows access to external USB-A 2.0 devices, such as Fiber Scopes, OTDR, OPM, Memory Sticks, etc.
9. Support for external micro micro-B USB OTG to Ethernet adapter (sold separately).
10. OTDR Viewer for stored SOR files and full control of the OPX-BOXe via Bluetooth® or USB OTG.
11. Supports USB OTG Fiber Scope with Auto Focus Detection and Analysis options.
12. Supports Connector Inspection Application auto-launch upon detecting that a VIS-500 Fiber Scope has been plugged in.
13. Supports external Optical Power Meter through USB OTG port (sold separately).
14. Familiar VeEX applications GUI sharing standard and optional tools with other VeEX platforms.
15. New bootup splash screens (Quick Guides) to help new users get started.
16. Web-based Remote Access and Remote Control (no PC software or tablet app installation required).
17. Remote Control via ReVeal RXTS (Windows) and VNC (Win/Linux/Mac/iOS/Android) clients.
18. Support for EZ Remote (on-demand peer-to-peer remote control functionality across networks/internet). This initial trial version allows the test set to register to an EZ Remote server, so users can pass the Session ID information to peers for remote control, help, support, collaboration, or training purposes. The LAN or WLAN the test set is connected to must offer Internet access.
19. Built-in web browser functionality.
20. Always-visible S/N watermark added to the system status bar for traceability purposes (identifying test sets during customer support communications and in the event pictures of reported units are posted in the gray or black market).

Known issues or limitations:

- a. To access the G.703 64K Codirectional and Datacom interface testing, tap on the RJ48/BNC or Bantam/BNC (electrical interfaces) button and select the SDH/PDH (Electrical) Test mode.

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 will not 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

To download the latest software version available, go to <https://www.veexinc.com/support/software> and enter the first four characters of the test set's serial number (e.g., TEBC) and use the links to download the software packages and Release Notes to the PC. Unzip the file to obtain the Software Image file (e.g., [mtx150-veex-arm.tar.gz](#)).

The test set must always be connected to AC/DC charger 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](#). You may also use the Web Remote Access to get the information.

Using a micro-B USB memory stick or USB-A Memory Stick with an OTG adapter

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

- Turn the test set's power OFF.
- Copy the Software Image 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.
- Option A: For a clean install (reset all settings and clear internal storage), 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.
- Option B: To preserve some existing settings and data, turn the test set ON, by pressing the [POWER+HOME](#) 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.
- Additional ROOTFS and/or CPLD upgrade menu(s) may be presented after the first reboot. Tap on [OK](#) to proceed with those upgrades as the last part of the update process.
- Reboot the test set.

Updating the Test Set Software via WiFi or LAN (Requires version 01.00.0008 or newer)

Make sure the test set is ON and connected to a wireless LAN, set as an access point (AP), or connected to a LAN (using the USB-RJ45 adapter cable).

The Access point function is useful in places where no local area networks (wired or wireless) are available or accessible and/or USB memory sticks are not allowed. To enable the AP function, go to **>Utilities >Tools >WiFi Wiz**, select the **AP Mode** tab, edit the settings if required, and press **Enable**.

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.
- Additional ROOTFS and/or CPLD upgrade menu(s) may be presented after the reboot. Tap on **OK** to proceed with those upgrades as the last part of the update process.
- Reboot the test set.

*Note: Although the Software Upgrade option is shown in the Web Remote Access menu, when using EZ-Remote cloud service to connect to remote test sets over the internet, the firmware **Upload** function may be disabled. This is to prevent any software corruption that unreliable Internet connections may cause.*

ReVeal RXTS (PC software)

Offers Remote Access, download screen capture, results, profiles, and wander files, create reports, etc. Download it from <https://www.veexinc.com/products/mtx150> page.

ReVeal Wander Analysis (PC software)

Wander and absolute phase analysis and reporting. MTIE and TDEV analysis and standard pass/fail masks.

Download it from <https://www.veexinc.com/products/mtx150> page.

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