

April 2020



VIAMI Solutions

OneExpert CATV 620

Extended Quick Start Guide v12.1

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Support Links

Viavi Customer Care:

For questions about warranty information, repair and calibration, Return Material Authorization (RMA) request, services quotation, order status.

T: 1-844 GO VIAVI (+1-844-468-4284)

E: NAM.CustomerCare@viavisolutions.com

<https://www.viavisolutions.com/en-us/services-and-support/support-center/customer-care>

Customer Care Portal Login

<https://www.viavisolutions.com/en-us/services-and-support/support-center/customer-care/customer-portal-login>

RMA Request Form:

<http://www.viavisolutions.com/en-us/services-and-support/return-material-authorization-rma-request>

Viavi Technical Support:

Will assist you in using/configuring products or address issues regarding product performance.

T: +1-844 GO VIAVI (+1-844-468-4284)

E: catvsupport@viavisolutions.com

For access to online technical and product support:

<http://support.viavisolutions.com>

Quick Tip Videos:

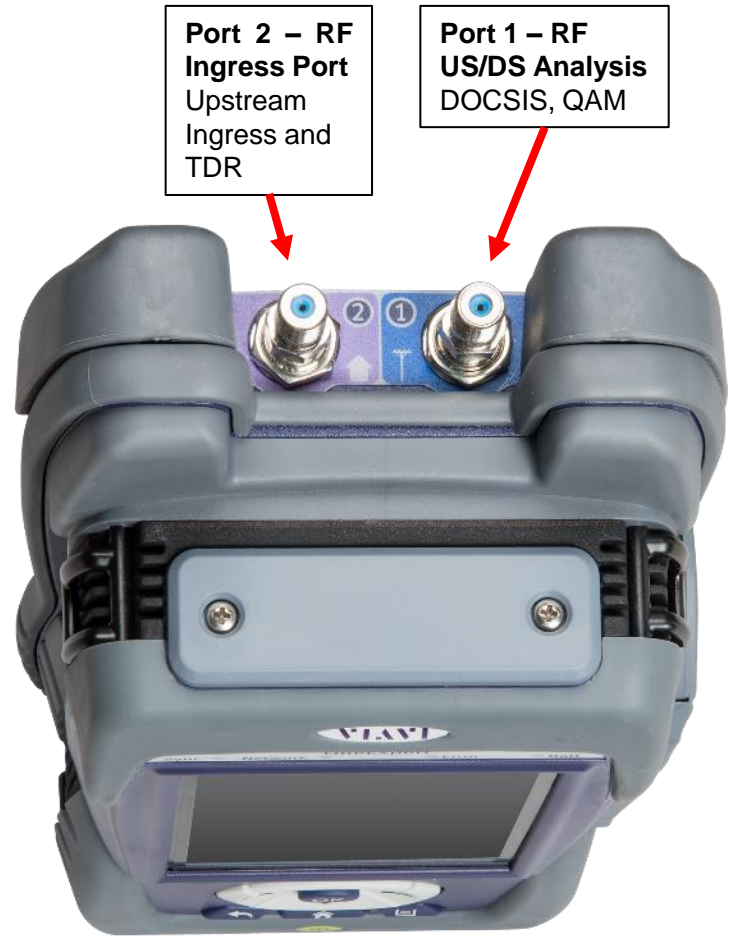
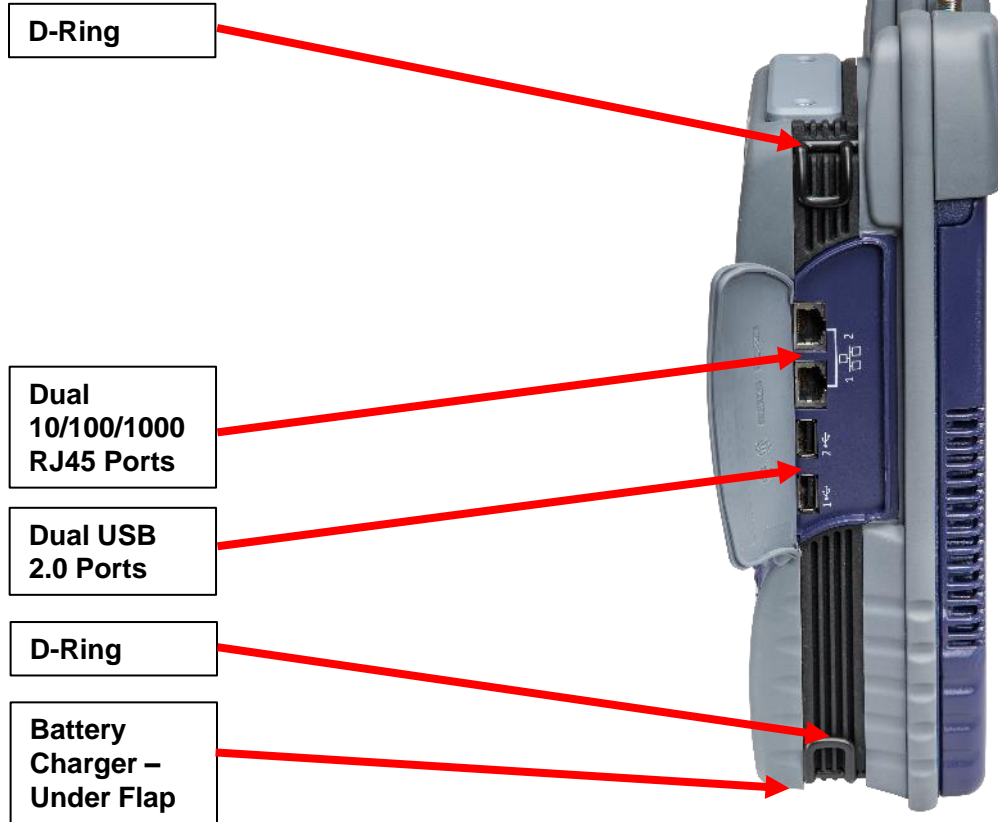
<https://www.viavisolutions.com/en-us/support/quick-references/quick-tip-videos>

Product Focused YouTube Channel:

[ViaviSolutions CIVT](#)

OneExpert CATV Overview

OneExpert CATV Interfaces



OneExpert CATV Controls



AC CHARGER PORT

- **SOLID GREEN** indicates that charging is complete.
- **SLOW FLASHING RED** indicates that the battery charge is critically low, and less than 10%
- **FAST FLASHING RED** indicates that the charging was suspended due to a fault and user intervention is necessary (for example, an incorrect charger is attached)
- **SOLID RED** indicates that the charging was suspended due to overheating
- **SOLID AMBER** indicates that the battery is charging



NETWORK INDICATOR and BATTERY LEDs

LCD Screen

SHORTCUT/SOFT KEYS

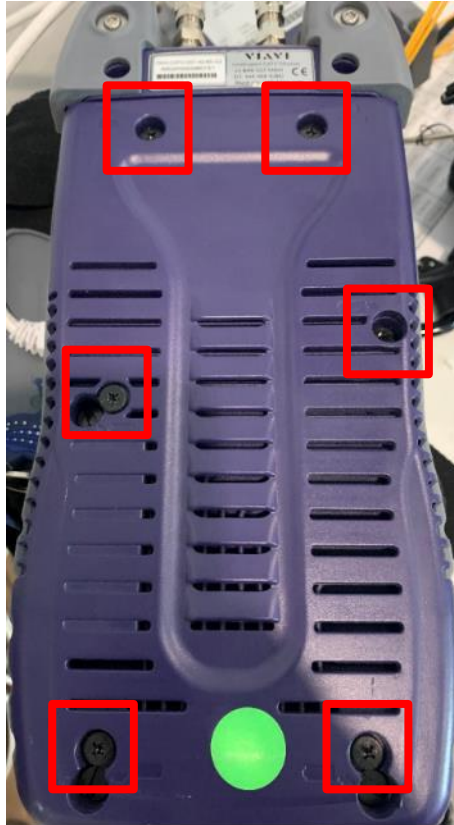
DIRECTIONAL Pad

BACK, HOME and UTILITY Buttons

POWER O/I Button

Battery Replacement

Removing and Replacing Battery



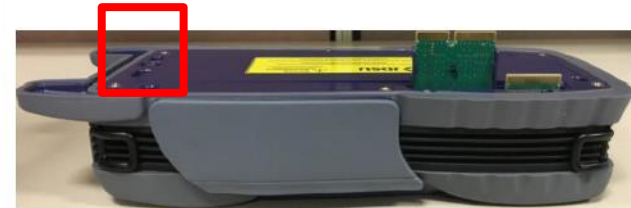
Remove OneExpert CATV cloth case and locate the 6 flat-head screws marked with the battery icon

Loosen each screw with a standard slotted screwdriver until they disengage from the MAINFRAME portion of the unit

Note that these 6 screws are designed to remain captive with the MODULE.

Removing the Module will expose a backplane connector that extends from the Mainframe. There is risk of damaging this backplane connector if the unit is pulled apart without exercising the proper caution.

A single screw hold the battery compartment lid in place



Removing and Replacing Battery



RF Barrel and Collar Replacement

OneExpert CATV RF Ports F-81 Adapter Barrel Style Connector



The ONX-CATV has two RF ports with field replaceable barrel style connectors. The ONX ships with two F- 81 splice style adapters rated to 3 GHz. These F-81 adapters are 1.2 in (307mm) long with a 0.5 in (132mm) distance between either end and the tightening nut. They are shipped installed into the RF ports to the recommended torque specification of 20 in-lbs. (1.6 ft-lbs.).

After some use these F-81 adapters may need to be replaced. When replacing these adapters, an F-81 adapter with similar dimensions and specifications is recommended.

Reason for RF Port Aluminum Collars and F-81 Considerations

Since early 2017 all ONX models are built with aluminum collars around the RF port F-81 barrel-connectors. These collars were added to provide additional mechanical protection from lateral forces which could break the F connector and/or the RF port on the ONX. These collars work by reinforcing the base of the connector and help distribute forces over a bigger area. The height of the collar accommodates the F-81 barrel-connector that was originally shipped with the ONX, but has some margin to accommodate other, similarly sized and rated, F-81 barrel-connectors.

It is important to ensure that ONX RF port F-81 barrel-connector replacements have enough length to pass through the aluminum collar and screw in far enough to close any gaps. Seating the connector properly into the ONX RF port prevents off-air signals from leaking around the F-81 barrel-connector. Also, the F-81 barrel-connector used should not be so long that when tightened it leaves a loose collar. The reinforcing strength provided by the collar requires the collar to be firmly held in place by the F-81 barrel-connector inserted into the ONX's RF ports. A loose collar will not properly strengthen the F-81 barrel-connector, making it more susceptible to breaking when stressed.



ONX-CATV's RF port aluminum collars



RF ports with collars between the F-81 barrel-connectors and ONX body

Replacing the F Connector



F-81 barrel-connectors come in many different forms based on their intended application. The ONX uses an F-81 splice style F connector, like the one shown here on the far-left. It is recommended that replacement F connectors be of similar length to minimize any negative impacts.



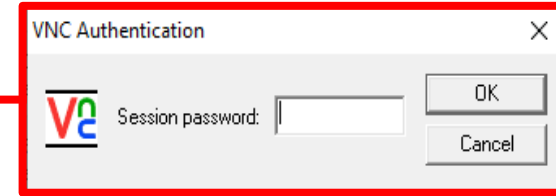
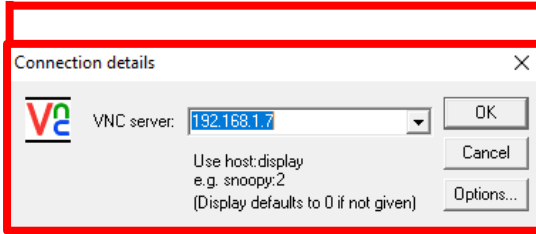
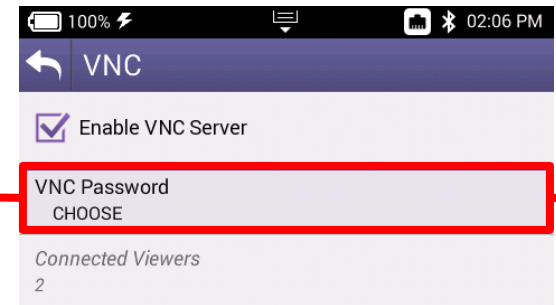
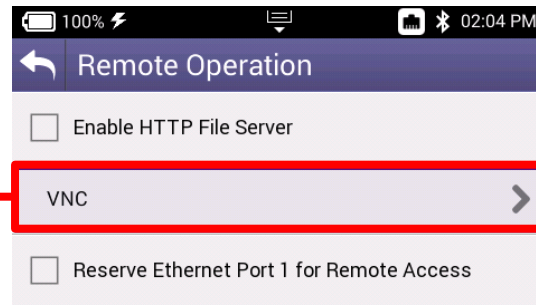
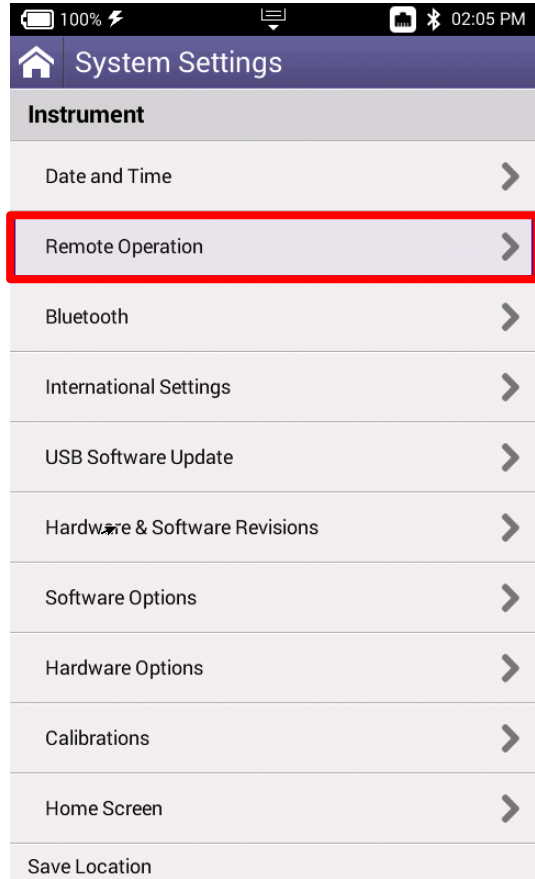
Start by removing the current F-81 adapter and collar (if present). If needed use a 7/16 wrench, turn the F connector counterclockwise until the adapter is completely out of the ONX RF port. Retain the collars if not replacing them with new ones.

Place the new F-81 adapter through the collar and screw the adapter into the ONX RF Port by turning clockwise. Make sure the collar is between the ONX and the F connector nut, as shown in the picture below. Tightening the F-81 adapter into the RF port to the torque specification of 20 in-lbs. (1.6 ft-lbs.) is recommended, which is about hand tight plus another quarter turn.

WARNING: Do NOT overtighten the F-81 adapter into the ONX's RF port, this can lead to permanently broken RF ports. Also, it is not recommended to use power tools when removing or replacing the F-81 adapters.

Remote Access

Remote Access

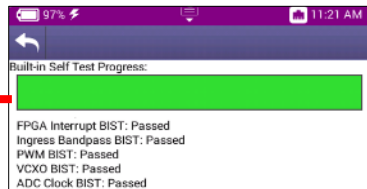
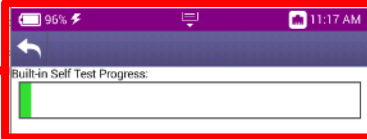
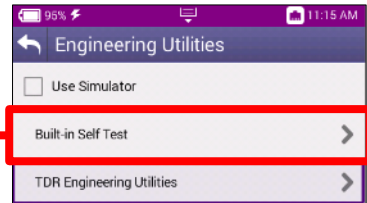
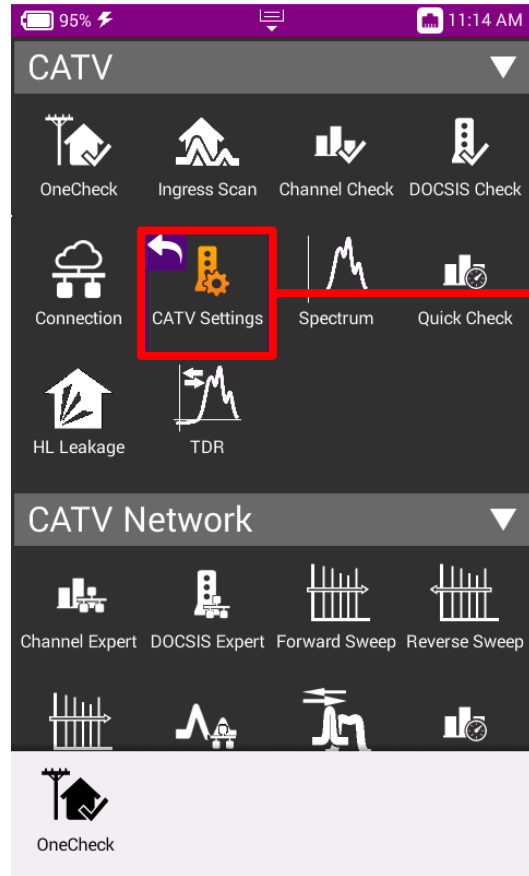


Engineering Mode

Engineering Mode



Hold UTILITY KEY simultaneously during POWER button press. Continue to hold UTILITY KEY until LEDs flash ORANGE, then release UTILITY KEY



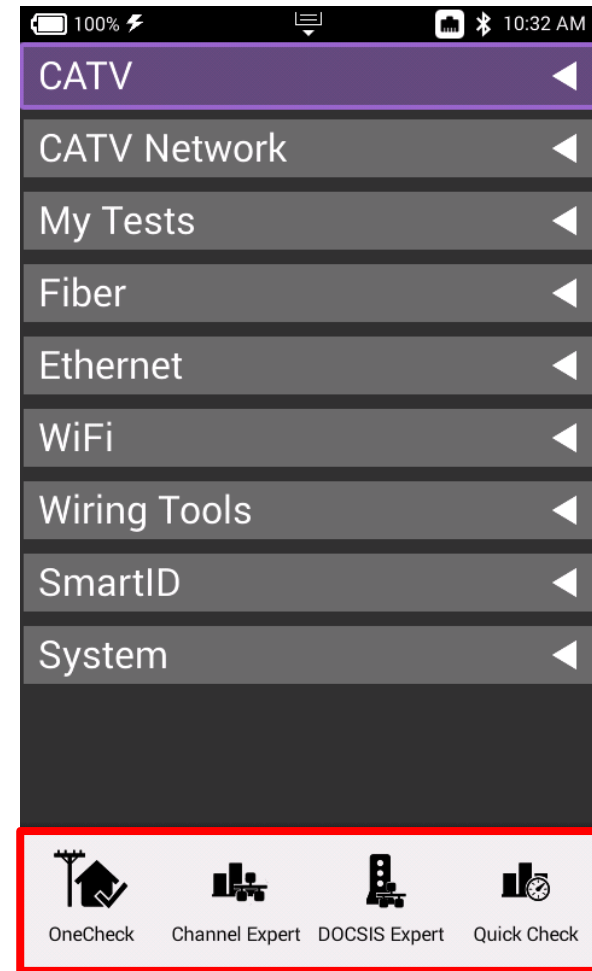
Home Screen

Home Screen



HOME is the default screen when OneExpert CATV is powered on

- It can be reached by selecting the **HOME** screen button above the On/Off Button
- Back Button from any test also returns the user to the **HOME** screen

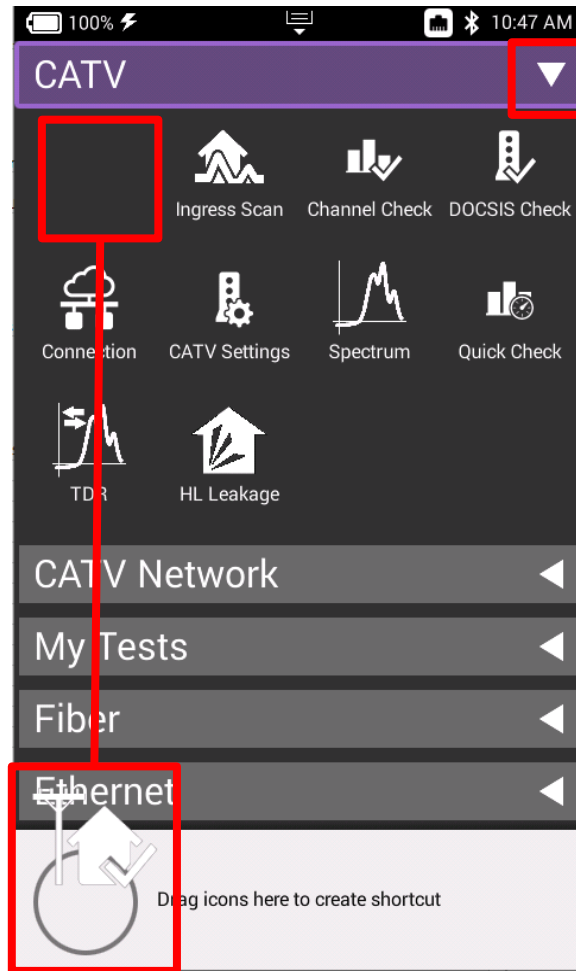


Home Screen

SHORTCUTS can be created by touching and holding a desired function icon and then dragging it to the bottom of the screen

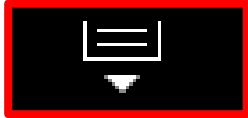
TEST FUNCTION ICONS can also be rearranged like a mobile device

Each **MENU** option is labeled and can be opened or collapsed by the triangle buttons to the right



Utility Menu

Utility Menu



SAVE REPORT – Saves the results to a report. Formats available: XML, PDF, or HTML

VIEW REPORTS – Views a saved report

SCREENSHOT – Takes a screen capture of the current screen

NETWORK – Enables or disables the Ethernet network functions

BLUETOOTH – Enables or disables Bluetooth

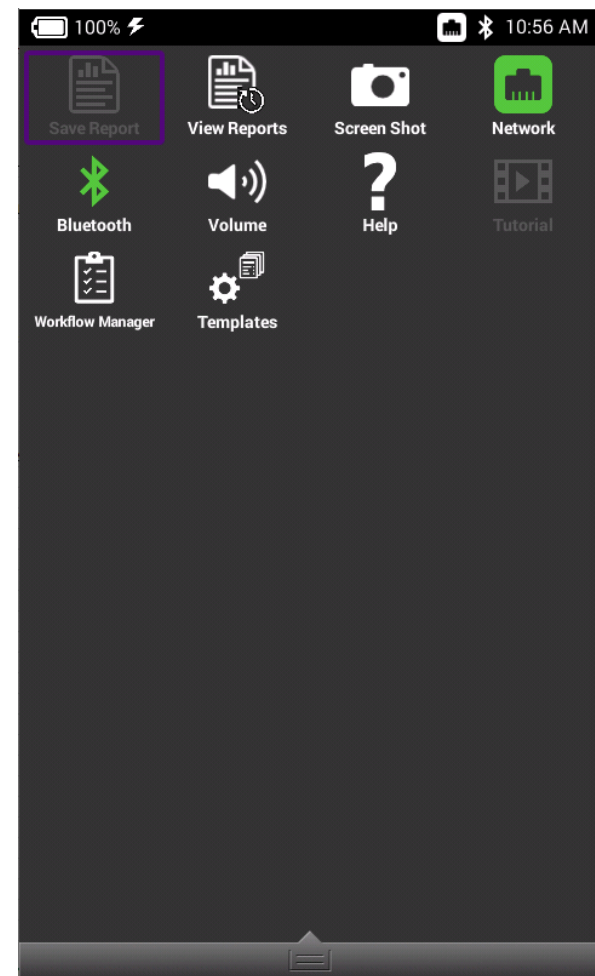
VOLUME – Control the device volume

HELP – Provides TAC phone numbers

TUTORIAL – Future enhancement to delivery video tutorials to the OneExpert CATV

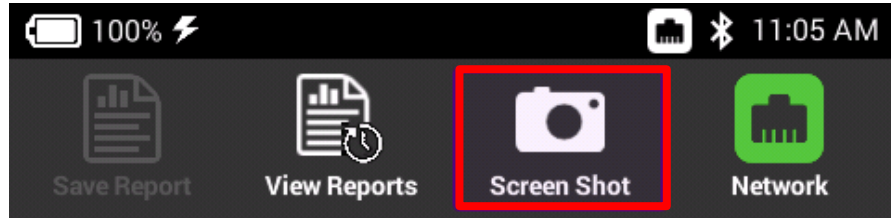
WORKFLOW MANAGER - Future enhancement

TEMPLATES – Use to switch between multiple templates and configurations

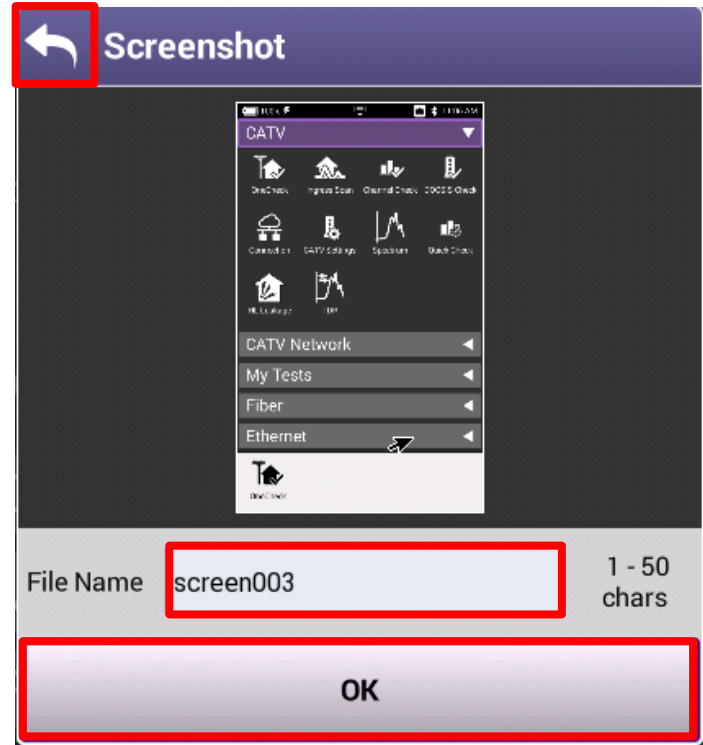


Utility Menu – Screenshot Creation

Select SCREENSHOT from the UTILITY menu, a prompt to save the screenshot will appear



A long push on UTILITY menu key will also automatically start a screen capture



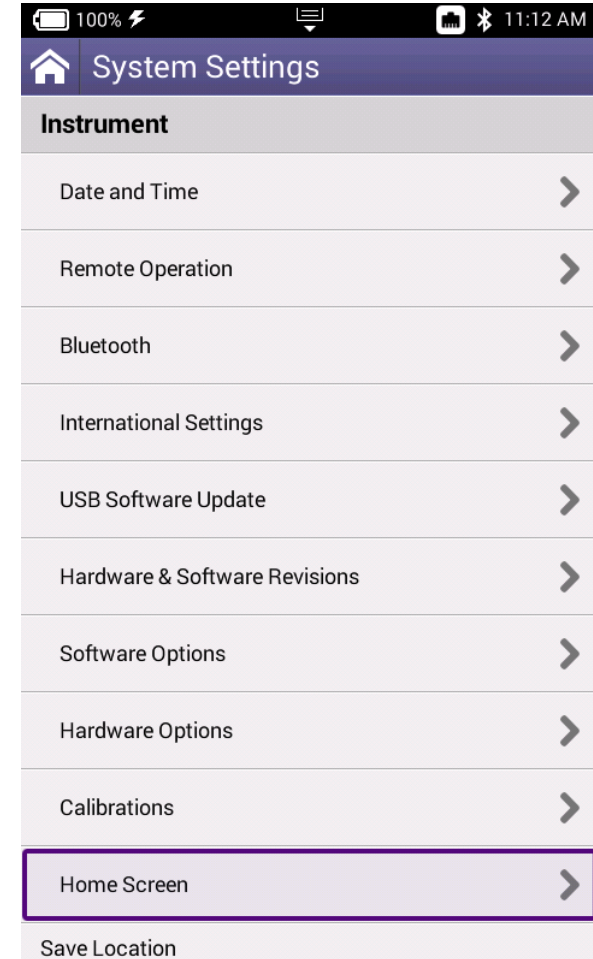
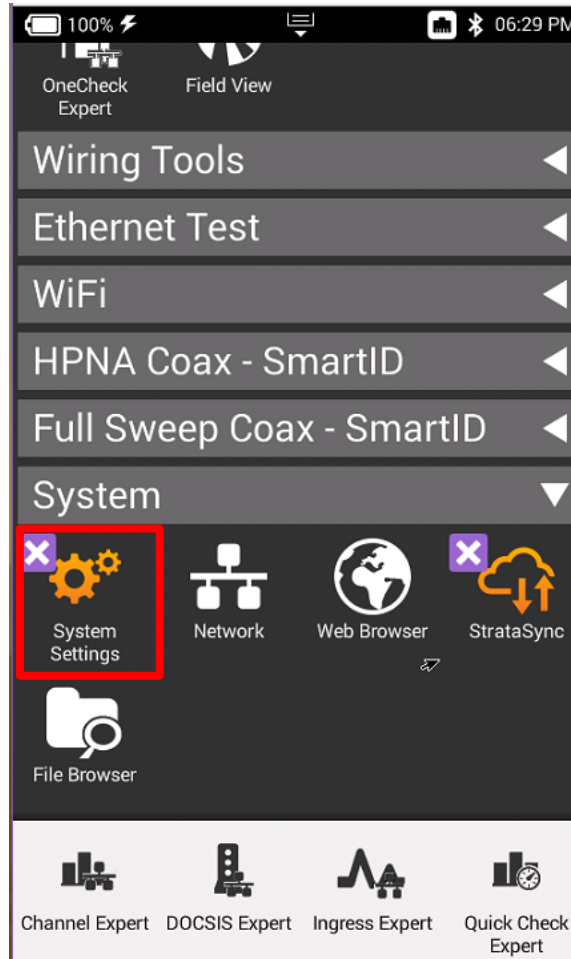
System Settings

System Settings

Navigate from the HOME Screen down to the bottom, using the D PAD or swiping with a finger

Select SYSTEM SETTINGS

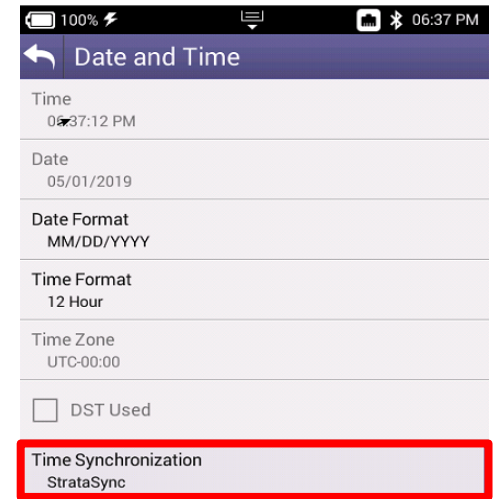
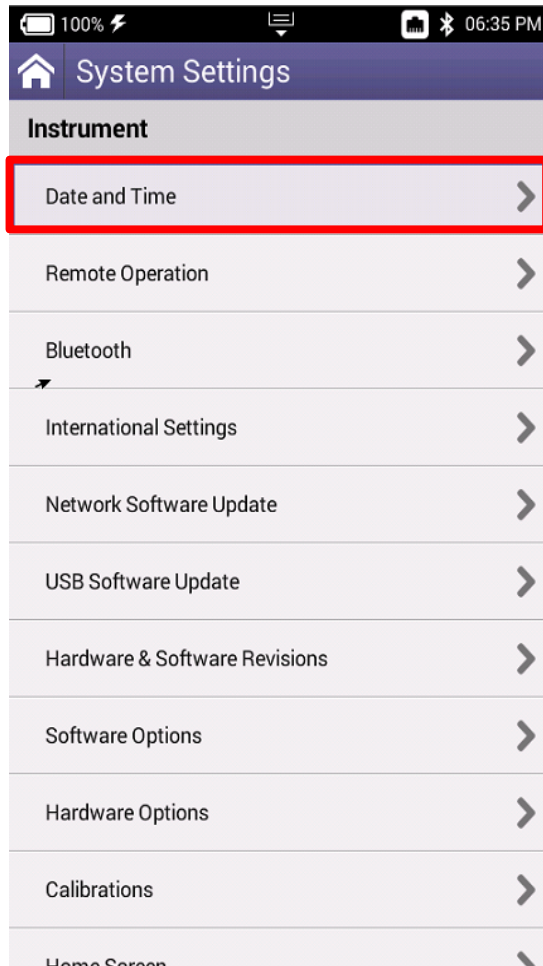
From SYSTEM SETTINGS, the user can set up the meter a variety of ways



Date and Time

Select DATE AND TIME and make sure that TIME SYNCHRONIZATION is set to STRATASYNC

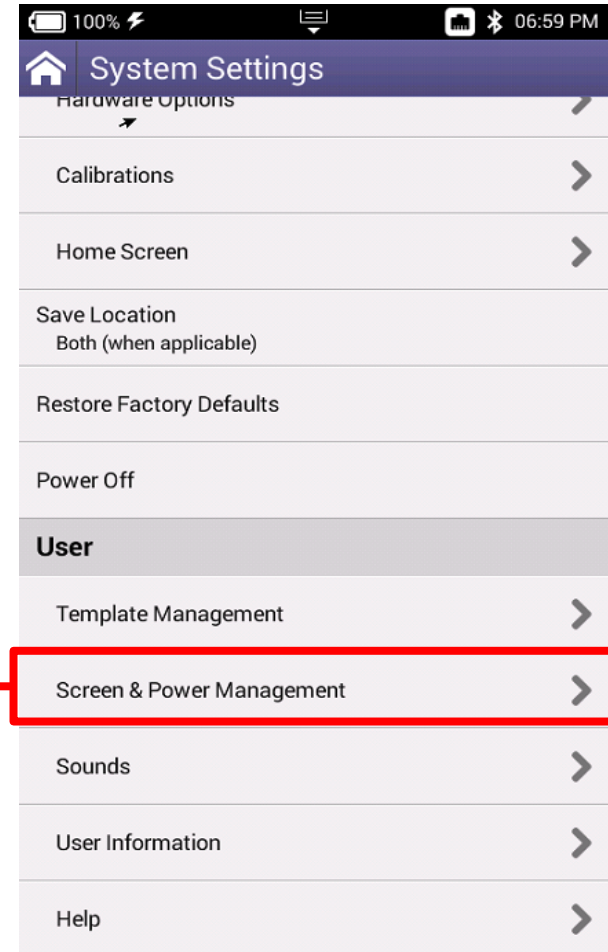
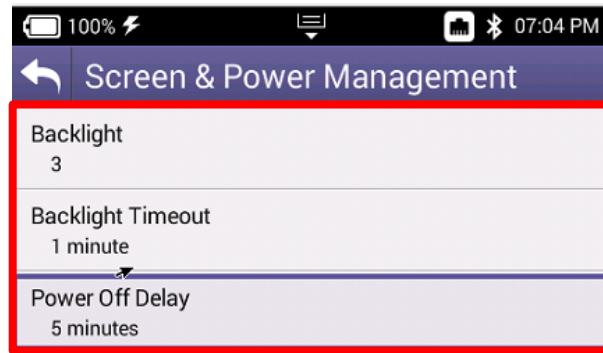
This is important because test data will be time stamped



Screen and Power Management

Select SCREEN AND POWER MANAGEMENT to better conserve the ONX battery life

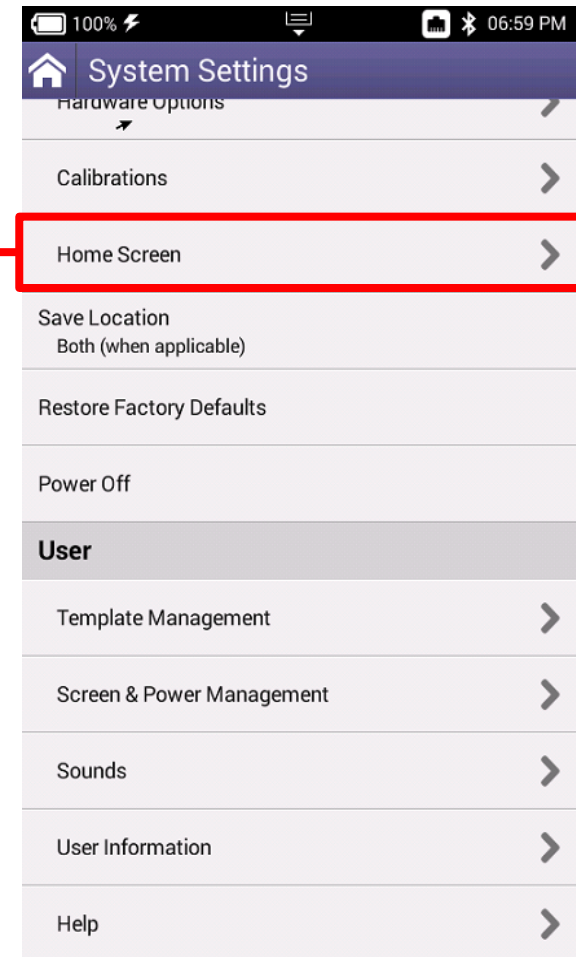
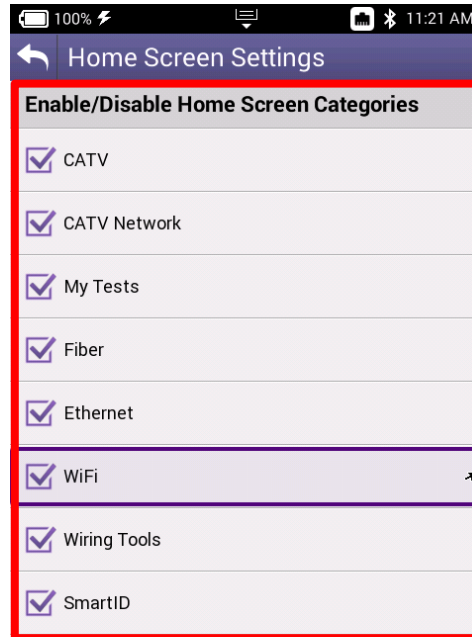
Recommended values are shown to the right. However, if POWER OFF DELAY needs to be set higher in order to accommodate technician's pace, select appropriate time



Customizing the Home Screen

Select HOME SCREEN to customize which measurement bundles are available on the HOME screen of the OneExpert CATV

Technicians are invited to customize as needed



Hardware and Software Revisions

Select HARDWARE & SOFTWARE REVISIONS to verify the most up to date FIRMWARE is installed

Additionally, OneExpert CATV Serial Number (listed as Unit ID) and CM MAC Addresses (used in provisioning of the onboard Cable Modem)

CM MAC 1	00:07:11:14:1B:CF
CM MAC 2	00:07:11:14:1B:D0
CM MAC 3	00:07:11:14:1B:D1
CM MAC 4	00:07:11:14:1B:D2
CM MAC 5	00:07:11:14:1B:D3
CPE MAC	00:07:11:10:B6:0F

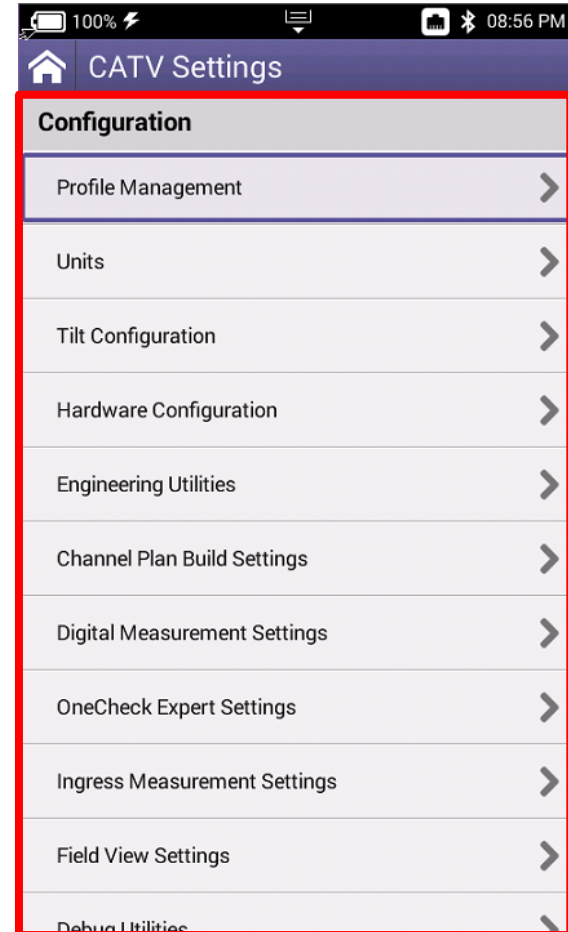
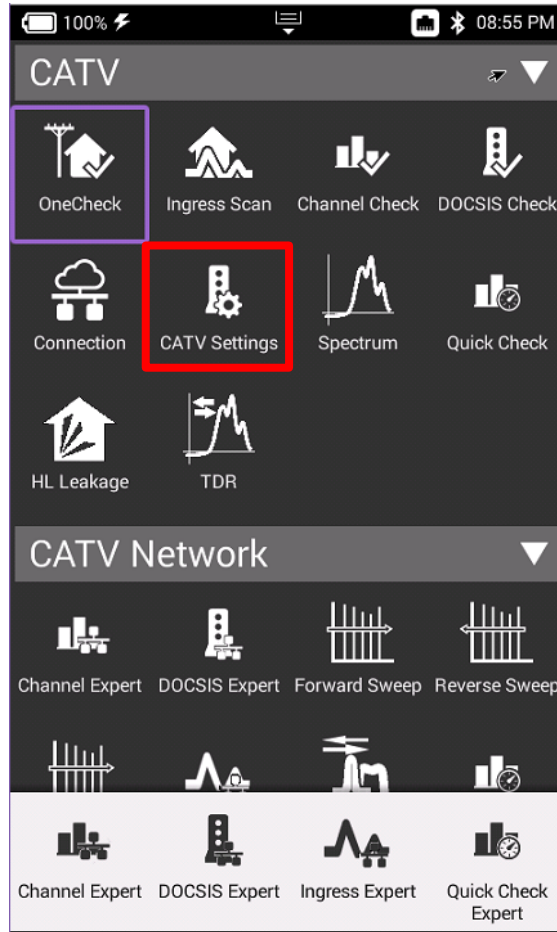
Hardware & Software Revisions	
Meter Model: ONX-620	
SW Bundle ONXCBL.3.20.10	
Base	4.30.10
Cable	3.20.10
DOCSIS Cable Modem 3390	1.6.607
OneExpert Cable	
Unit ID	RRQA0023450012
Assembly ID	22089324
MAC Address - Ethernet	00:07:11:10:09:EA
MAC Address - System	00:07:11:10:09:EB
MAC Address - Test 1	00:07:11:10:09:EC
MAC Address - Test 2	00:07:11:10:09:ED

CATV Settings

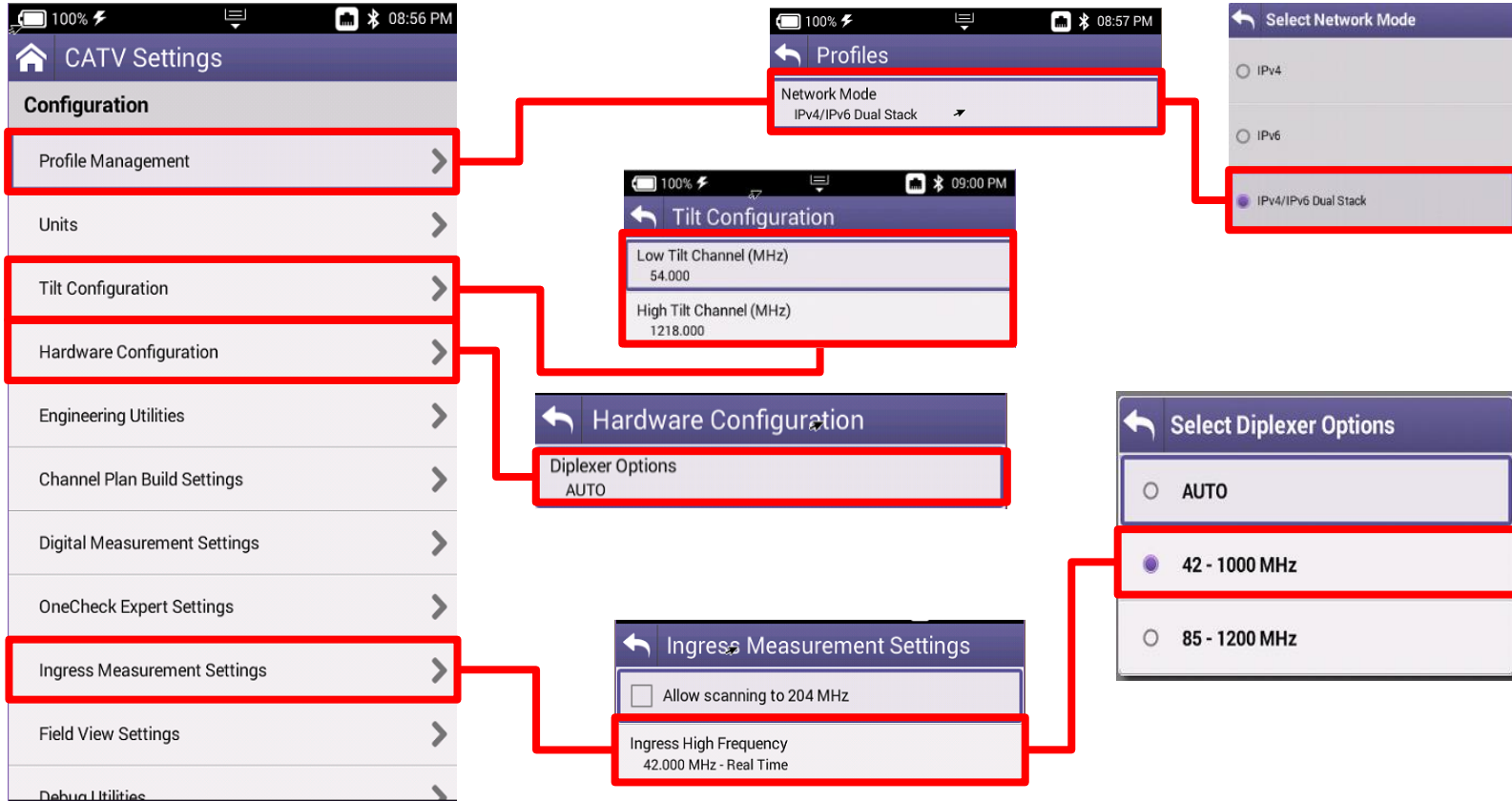
CATV Settings

Navigate from the HOME screen to CATV SETTINGS

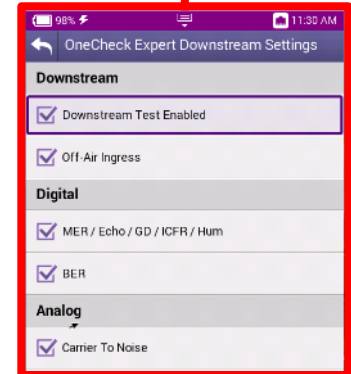
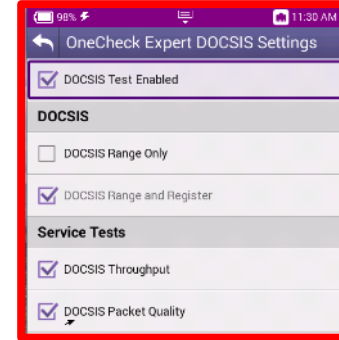
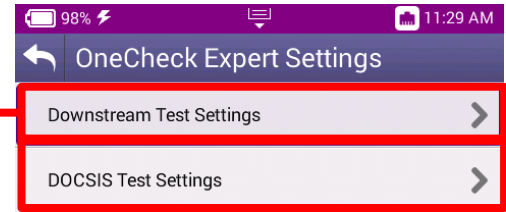
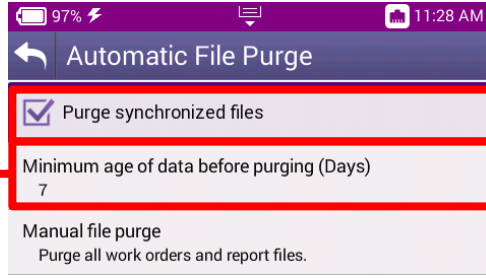
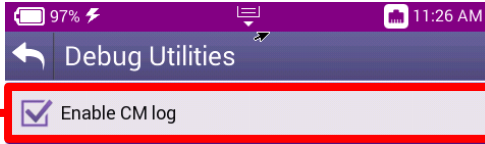
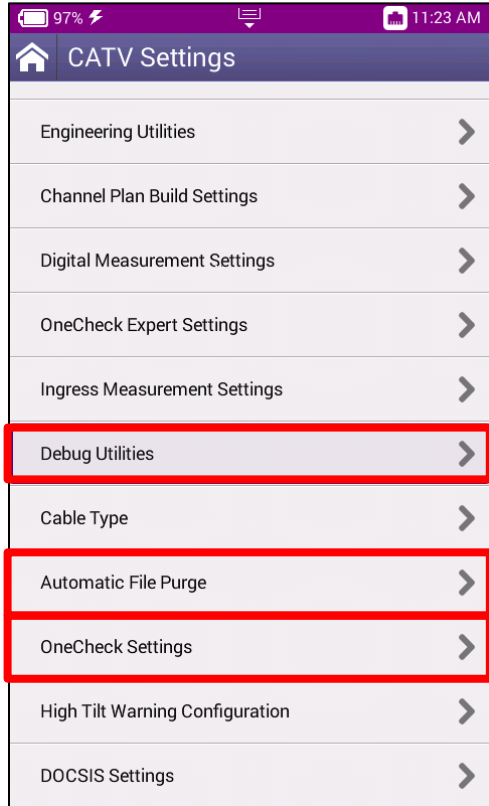
- IPv4 or IPv6
- Tilt
- Sweep
- Diplex
- Digital Measurement
- Channel Plan Build Settings



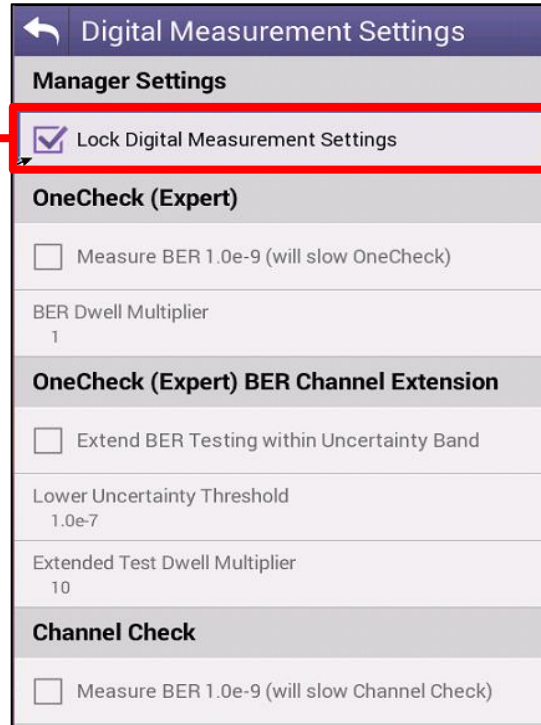
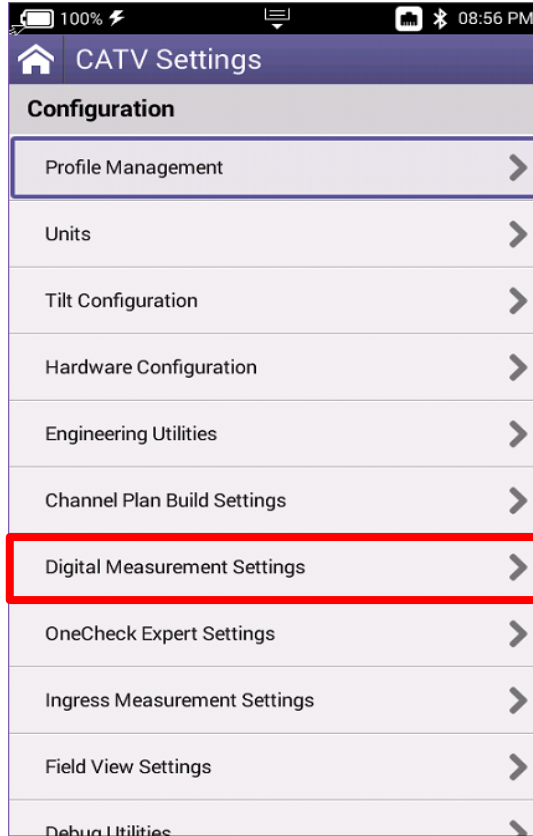
Advanced CATV Settings



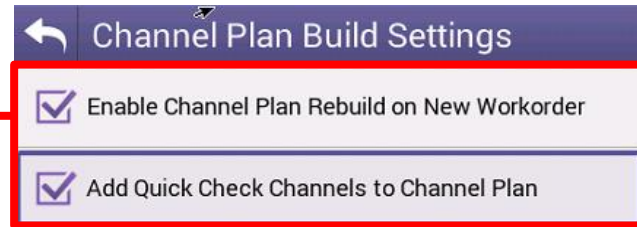
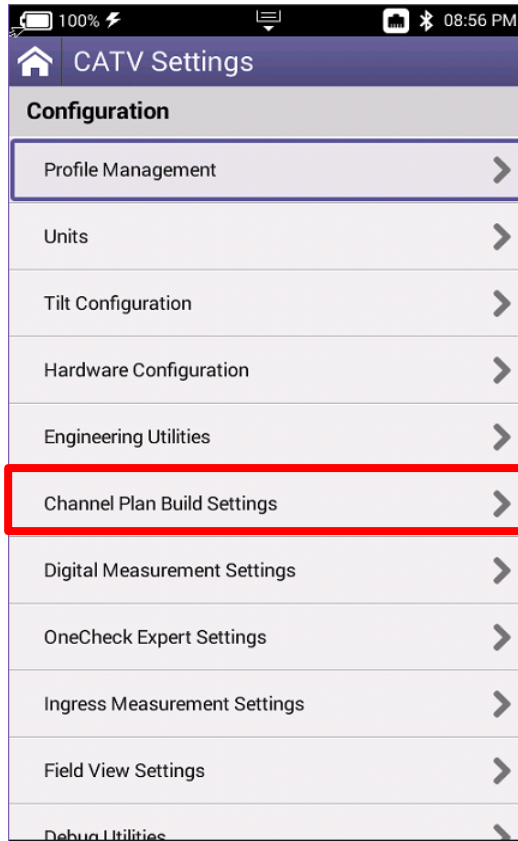
Advanced CATV Setting



Advanced CATV Settings



Advanced CATV Settings

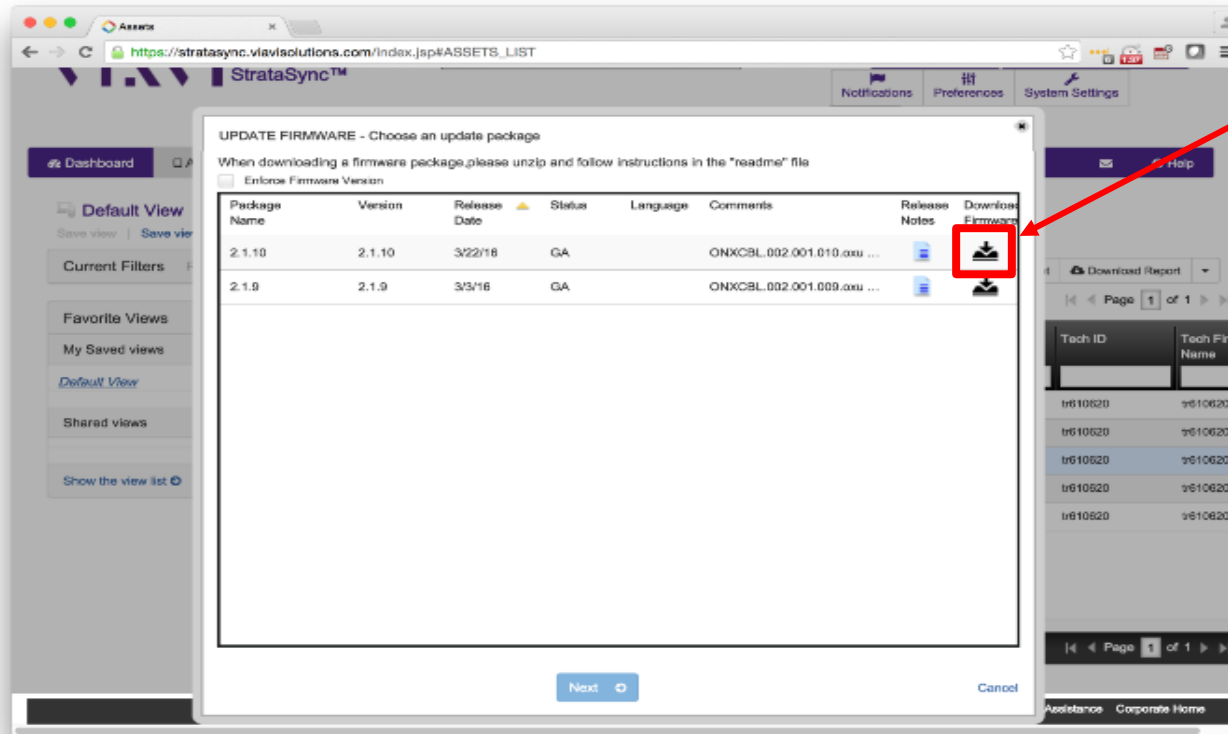


Software and Firmware Updates

Software and Firmware Upgrades

- Software (SW) and Firmware (FW) releases are the best way to ensure your VIAVI OneExpert is functioning at its best
- VIAVI delivers SW and FW easily via **StrataSync** and **USB Stick**
- All OneExpert units should be upgraded to the latest production software release – available through StrataSync (or your Viavi representative)
- New SW Version offer substantial operational improvements and enhancements over earlier software releases including the version that shipped with the units initially
- The software will be deployed to the units by the StrataSync Administrator, but each unit needs to be configured to connect with StrataSync
- Follow these steps to ensure your meter is configured correctly and you can connect to StrataSync to receive the latest updates.

USB Software Upgrade



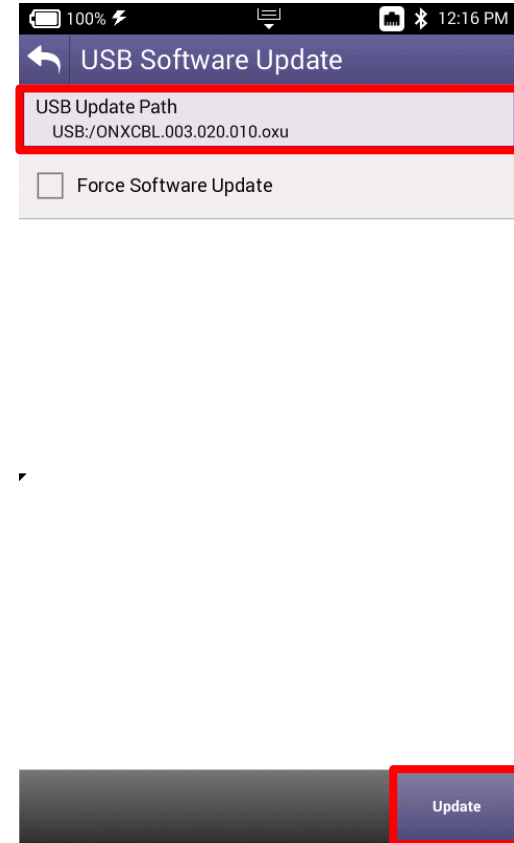
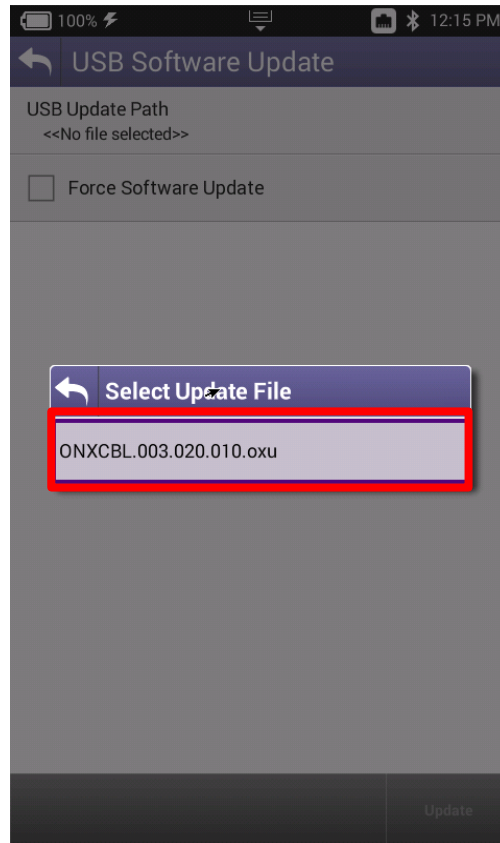
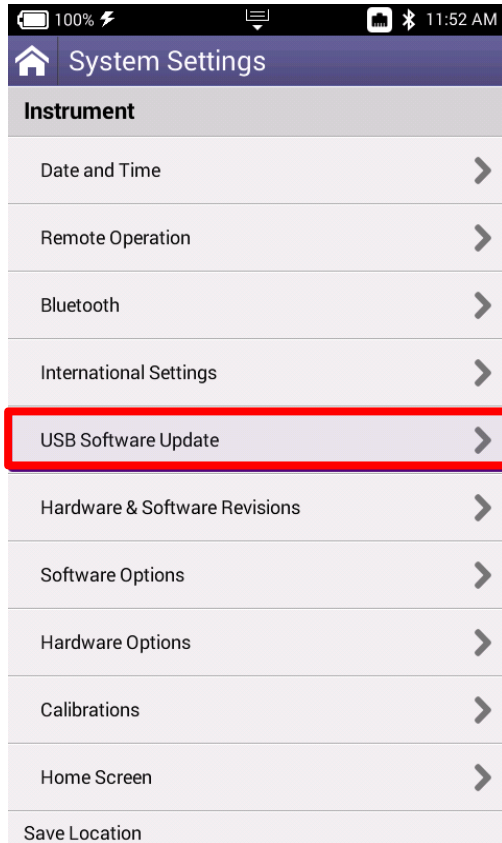
- Click here to download the newest firmware

- Copy the downloaded file ONXCBL.xxx.xxx.xxx.oxu to the root directory of a USB thumb drive.

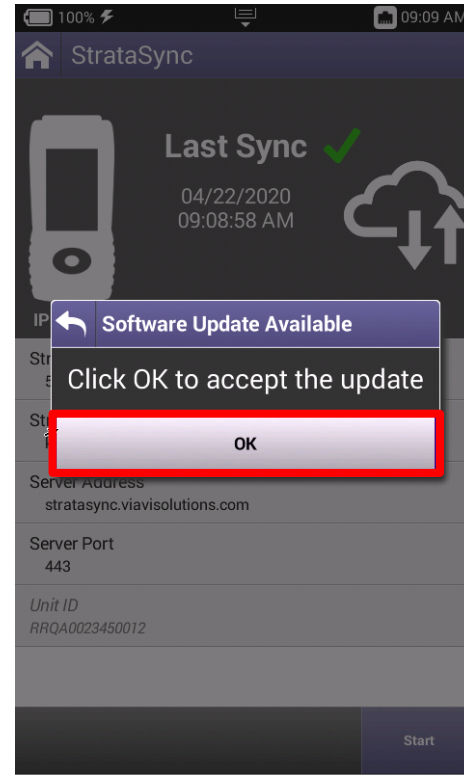
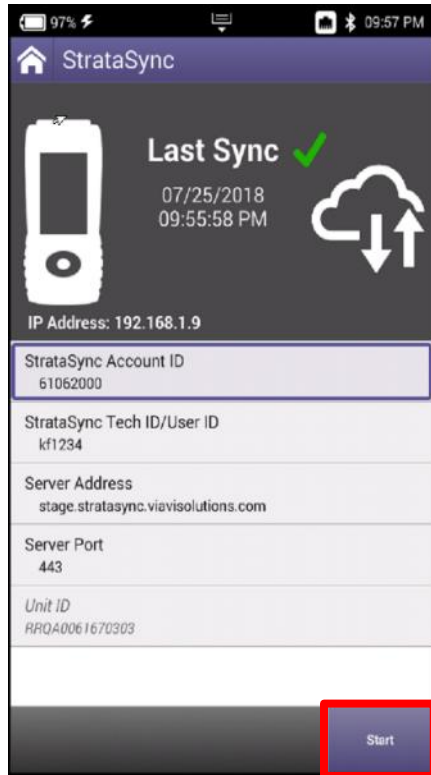
- Press Cancel once the download has completed and you have placed the file on the USB thumb drive.

Note: Firmware must be downloaded from StrataSync first

USB Software Upgrade



Ethernet Software Upgrade via StrataSync



Firmware Recovery Procedure

Place the update image on a USB drive in the root directory (not in any folder on the USB drive). Ensure that it is the only ONX update image on the drive.

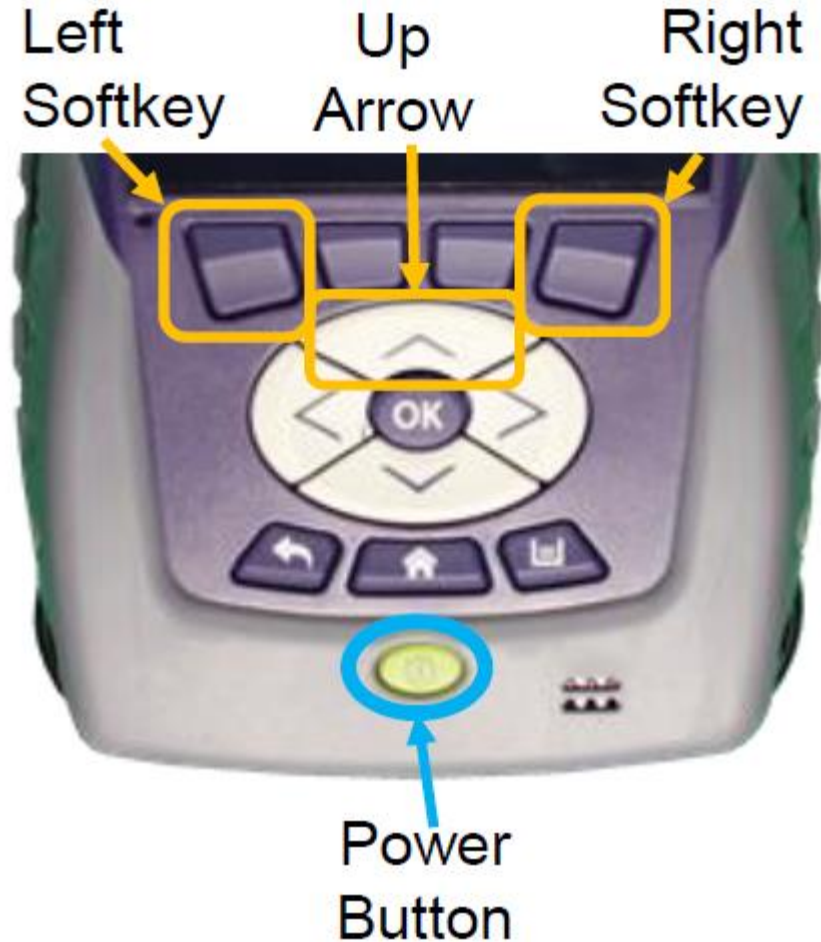
Download the latest ONX firmware via StrataSync to get the latest link from Viavi TAC

Power off the unit.(If the unit is frozen, press and hold the power key until the ONX powers off ~10-15 seconds)

Attach power charger to the ONX.
Plug the USB drive with the “.oxu” firmware file into one of the ONX USB ports.

Hold down the left softkey+ right softkey+ up arrow. (softkeys are the 4 buttons just below the display)

Press and release power key as normal while continuing to hold down on the left softkey+ right softkey+ up arrow until you see the software update screen appear (about 20-30 seconds).

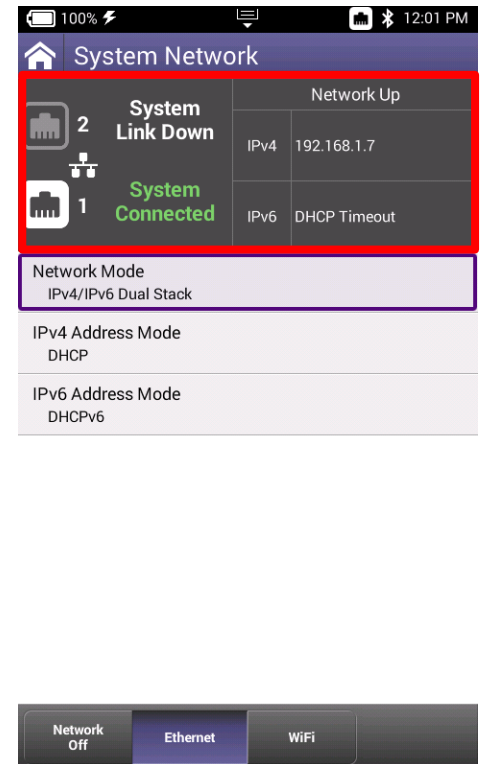
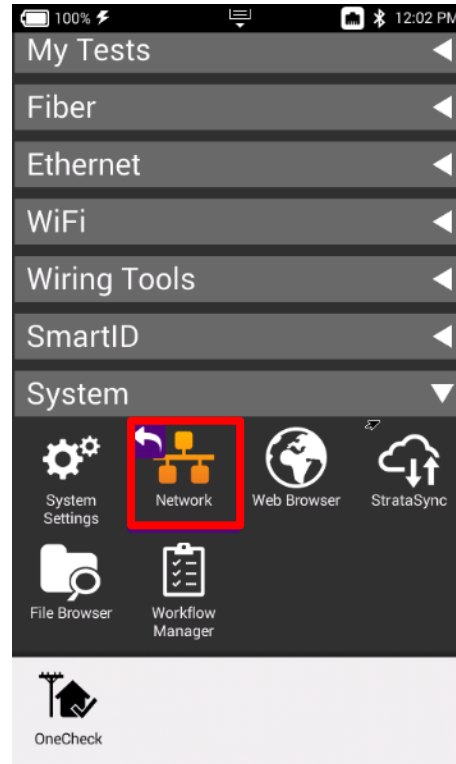


StrataSync Synchronization

StrataSync Synchronization - ETHERNET

Note - You can synchronize to StrataSync via RF or WiFi, but this is ONLY for sending test files, receiving configuration information like limit plans, etc. - not for SW/FW upgrades

Connect an Ethernet cable from an active internet connection (Cable Modem or router/gateway) to Port 1 on the ONX



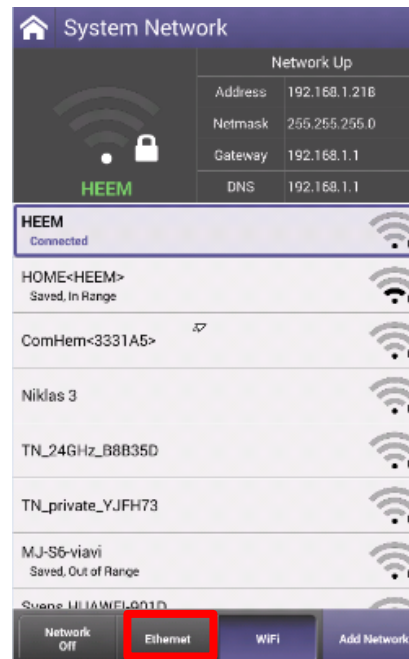
StrataSync Synchronization - WIFI

Note - **Sync via WiFi** is now supported. Use Network Settings app to configure and join a WiFi network prior to performing sync. You can synchronize to StrataSync via WiFi, but this is **ONLY** for sending test files, receiving configuration information like limit plans, etc.

Connect with WiFi from an active internet connection
(Cable Modem or router/gateway)

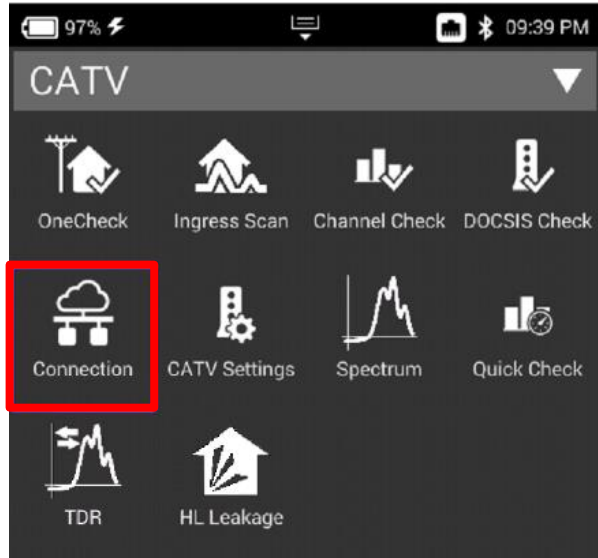


From the ONX home screen navigate to **SYSTEM NETWORK / WIFI** - Verify the ONX has a valid IP address

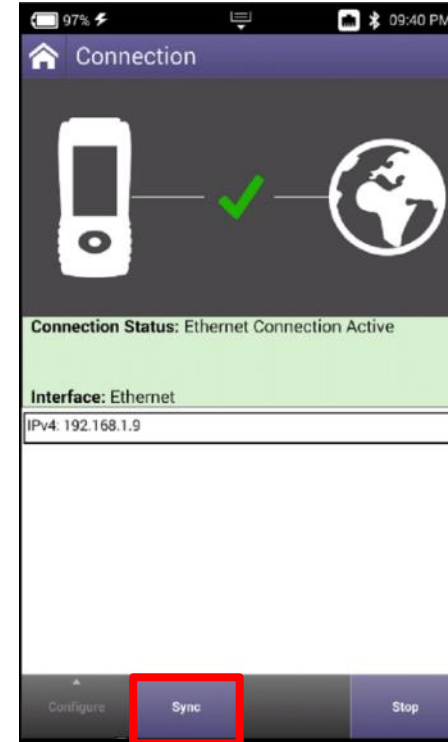


StrataSync Synchronization - RF

Make sure that CM MAC 1 is provisioned in the billing system
Select the CONNECTION APP from CATV



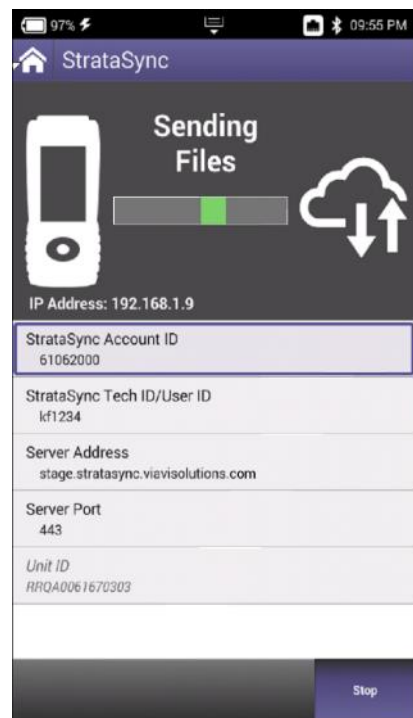
Once CONNECTION STATUS reports a GREN Check mark and
INTERFACE: RF; IP ADDRESS is shown



StrataSync Synchronization – ETHERNET, WIFI and RF



After IP Address verification, navigate to the **SYSTEM** Menu and select **STRATASYNC**



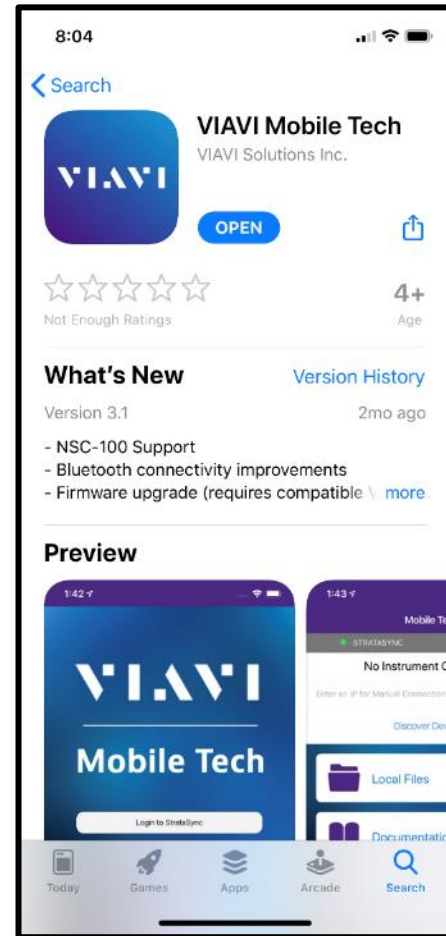
STRATASYNC ACCOUNT ID = xxxxxxxxx
SERVER ADDRESS = stratasync.jdsu.com
(stratasync.viavisolutions.com also works)
SERVER PORT = 443

Mobile Tech App

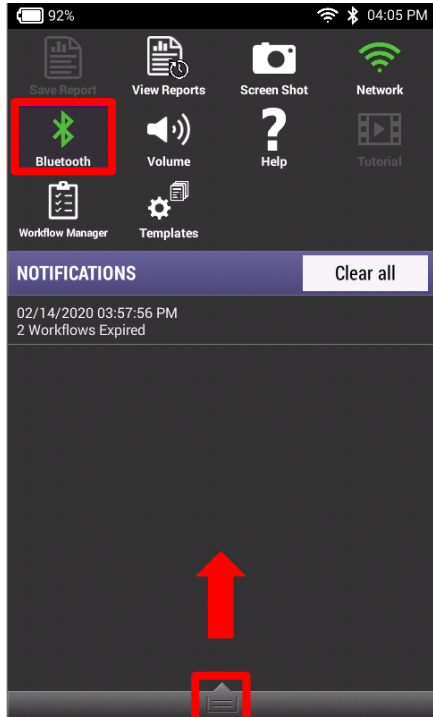
MOBILE TECH APP

Search for VIAVI and download VIAVI MOBILE TECH v3.1 app

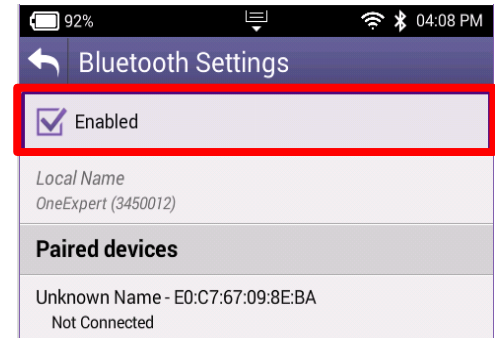
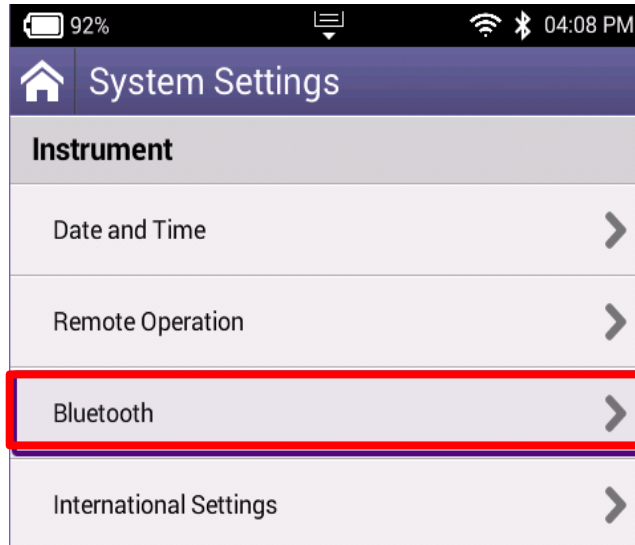
* Screenshots shown on iPhone, but MOBILE TECH APP on ANDROID is consistent



MOBILE TECH APP – Set Up

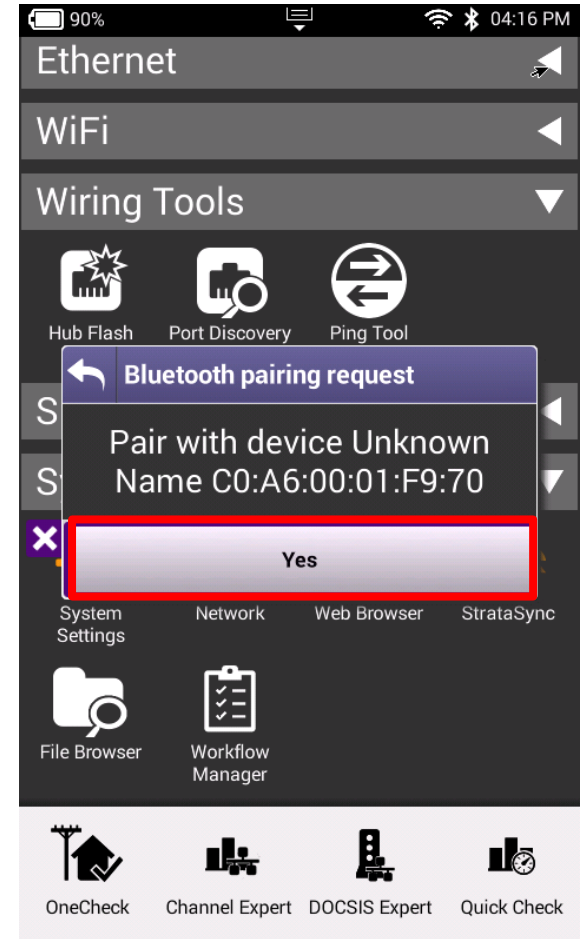
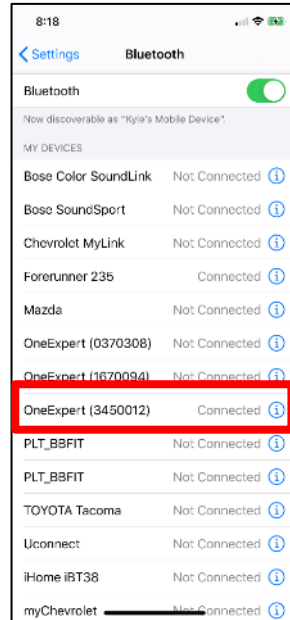
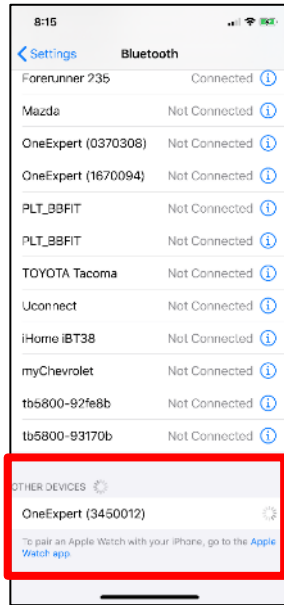


On ONX620 or 630, enable BLUETOOTH by going to SYSTEM SETTINGS->BLUETOOTH SETTINGS or by dragging down the TRAY and selecting BLUETOOTH and making sure it illuminates in GREEN



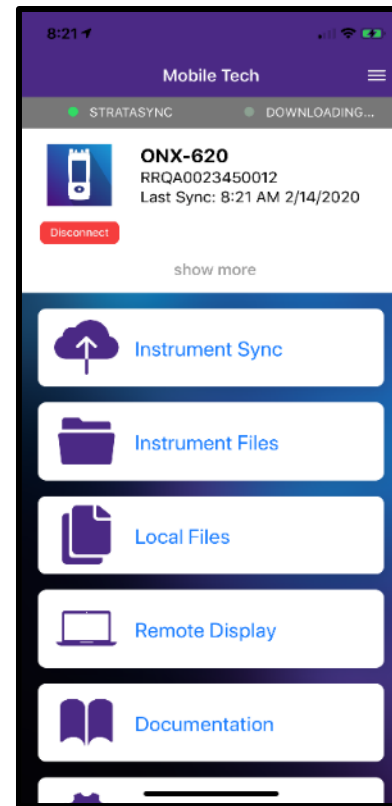
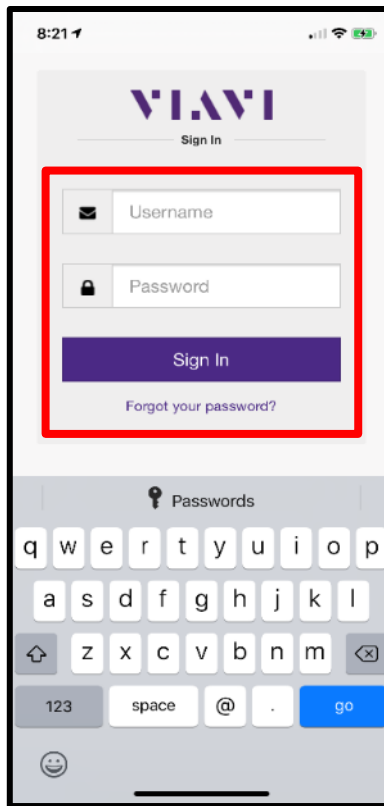
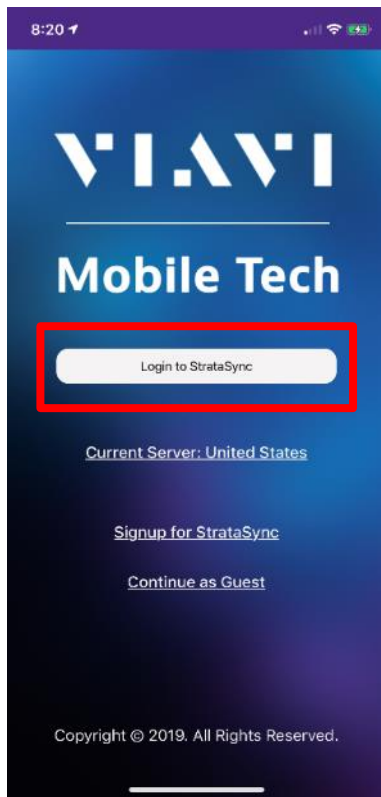
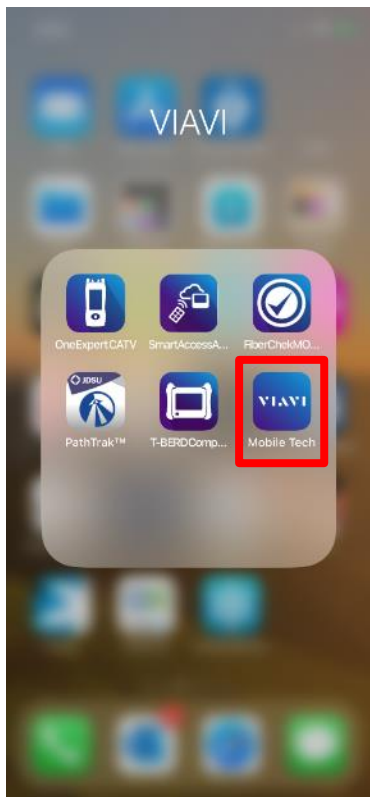
MOBILE TECH APP – Set Up

Select the appropriate OneExpert CATV serial number from the list of BLUETOOTH CONNECTIONS and pair
OneExpert CATV will flash a pairing request message, select YES

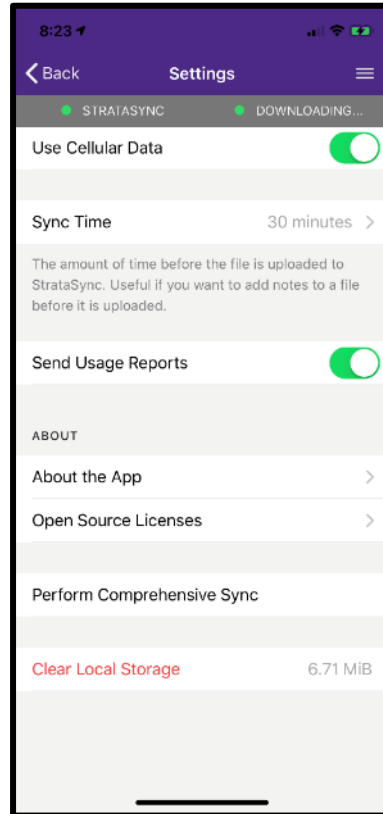
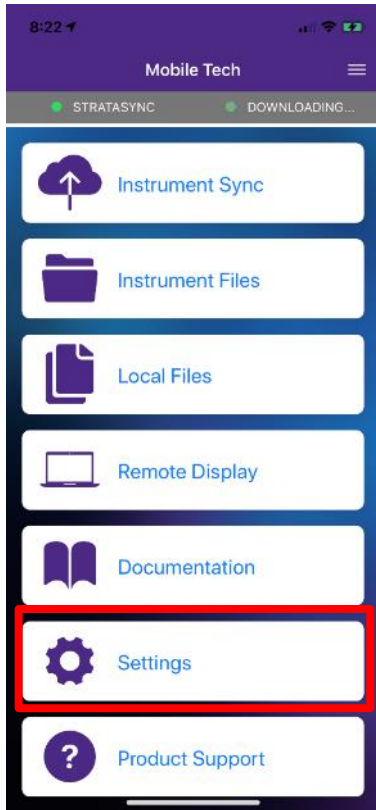


MOBILE TECH APP – Set Up

Login using USERNAME and PASSWORD
If user doesn't have login credentials – please reach out to local STRATASYNC ADMINISTRATOR



MOBILE TECH APP - Synchronization



Select the SETTINGS button and configure MOBILE TECH APP

- Choose how often user desires a SYNC
- Whether the SYNC will require WIFI or may use the LTE connection
- Whether or not to send usage reports
- Comprehensive SYNC (useful for uploading failure logs)
- Clear local Storage on user phone

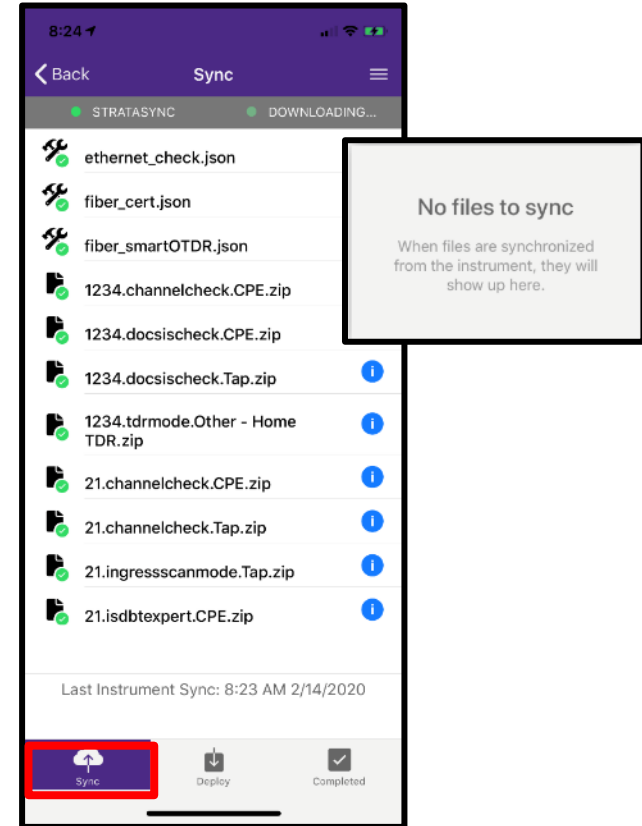
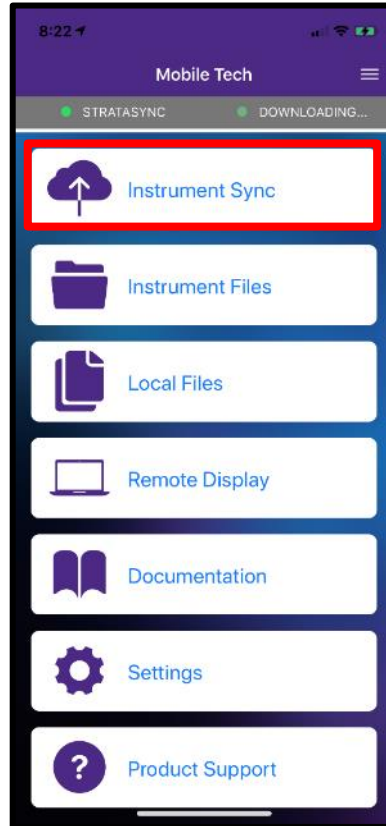
MOBILE TECH APP - Synchronization

By Selecting INSTRUMENT SYNC from the main menu, the USER can see all test data that has currently been saved to the ONX and is ready for sync

- **Note that only SAVED TEST DATA will migrate to MOBILE TECH APP for synchronization to STRATASYNC**

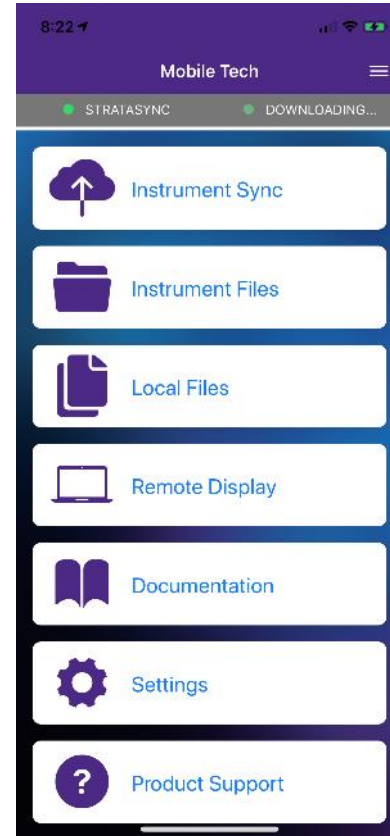
By selecting SYNC – the process will begin immediately

- The user can also rely on the timed sync setting – which allows the MOBILE TECH APP the ability to sync passively in the background are regular intervals



MOBILE TECH APP

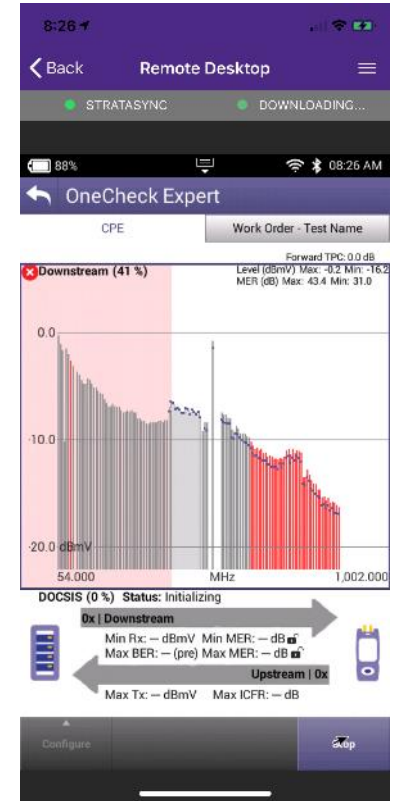
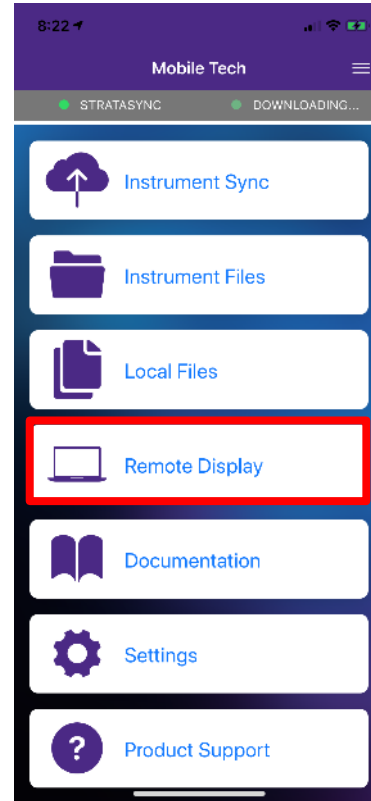
- Beyond streamlined sync to STRATASYNC, the MOBILE TECH APP also provides the following functionality:
 - View and manager files on the instrument
 - View and manage local files, including craftsmanship photos
 - Remote Display and Operation
 - IN-APP Support Documentation
 - LINK to VIAVI Technical Support
- Note – MOBILE TECH APP is interoperable with TB2000, TB4000, TB5800, One EXPERT CATV and a host of other VIAVI Solutions instruments



MOBILE TECH APP - Remote Display

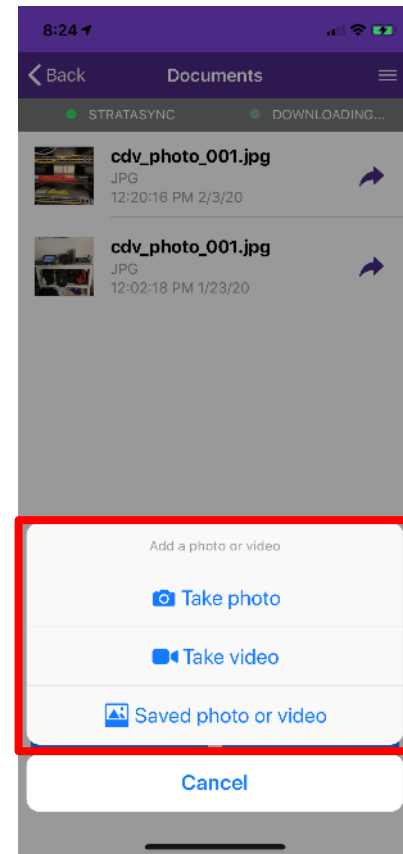
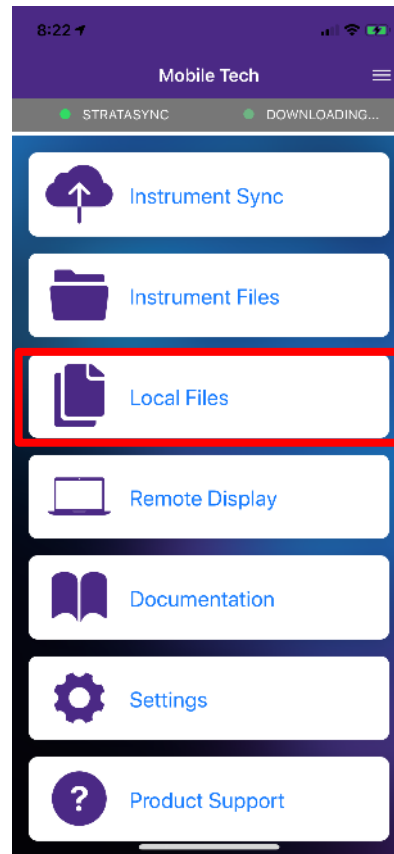
REMOTE DISPLAY allows the user to control the ONX, via BLUETOOTH, and conduct normal meter functions

*Requires SmartAccess Anywhere option

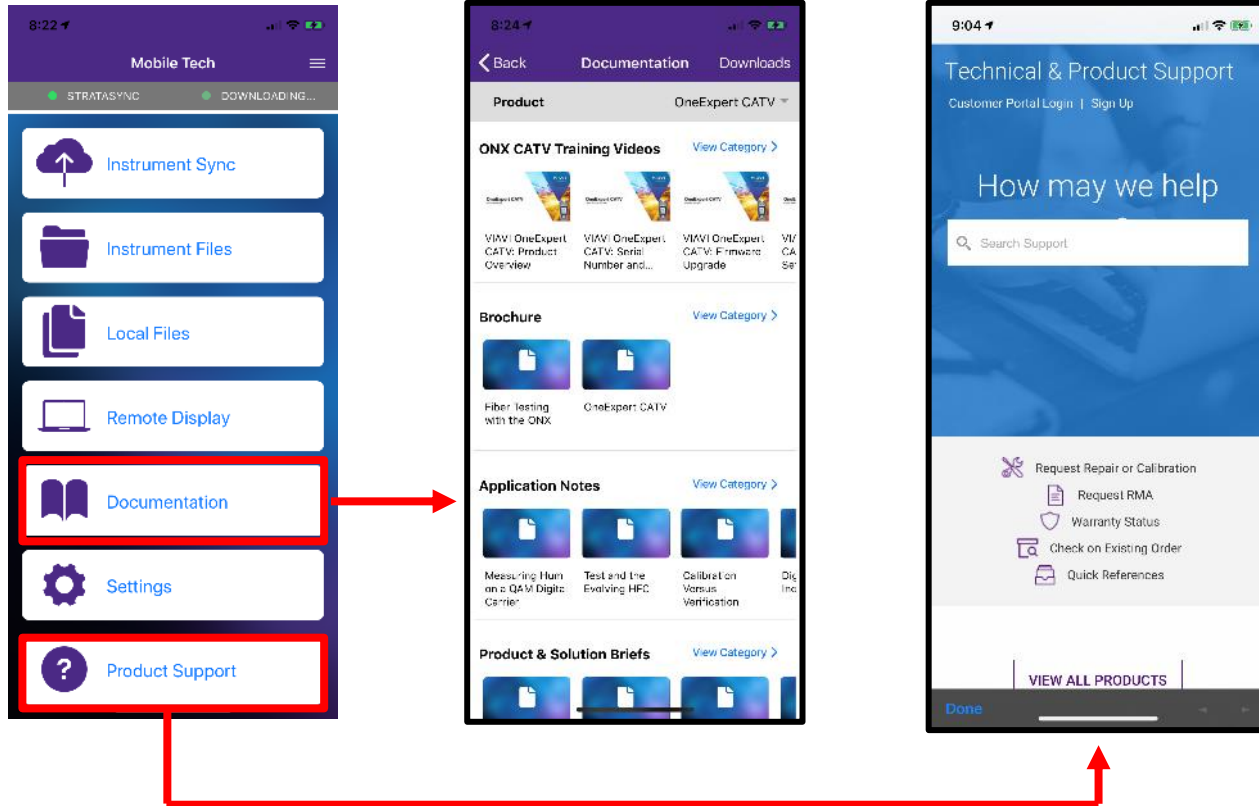


MOBILE TECH APP - LOCAL FILES

Allows users the ability to take photos or use photos from their mobile device and upload to StrataSync



MOBILE TECH APP - Product Support and Documentation

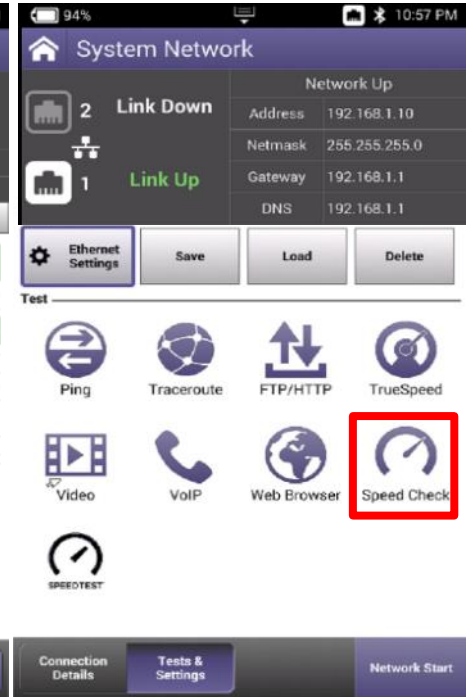
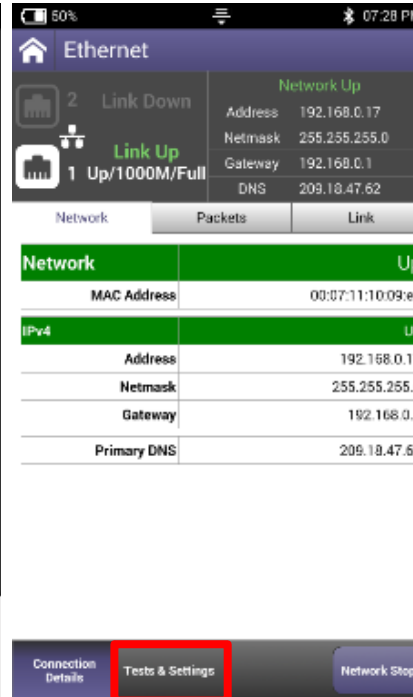
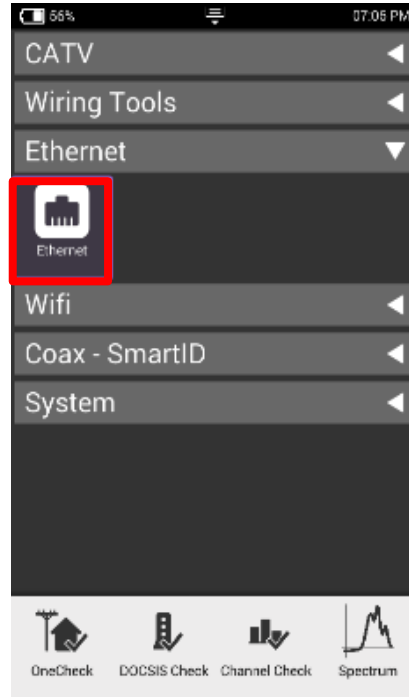


Ethernet Testing

Ethernet – Tests and Settings

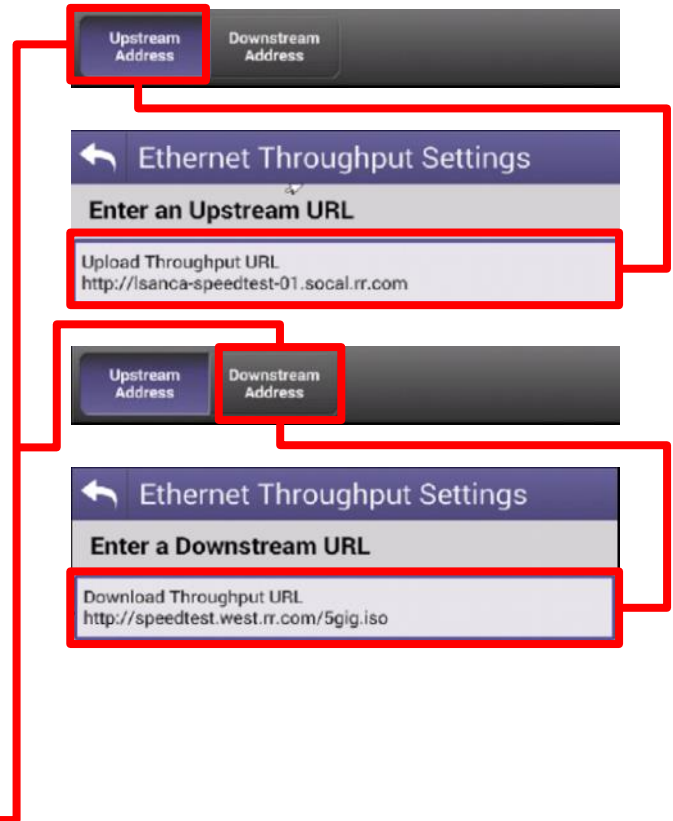
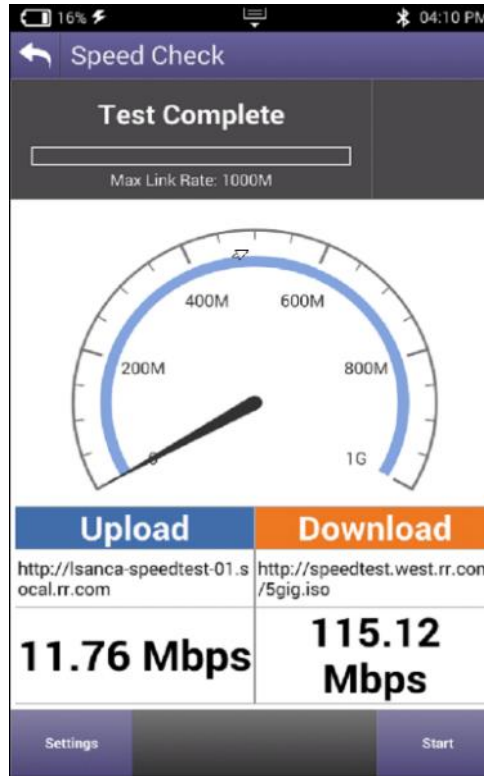
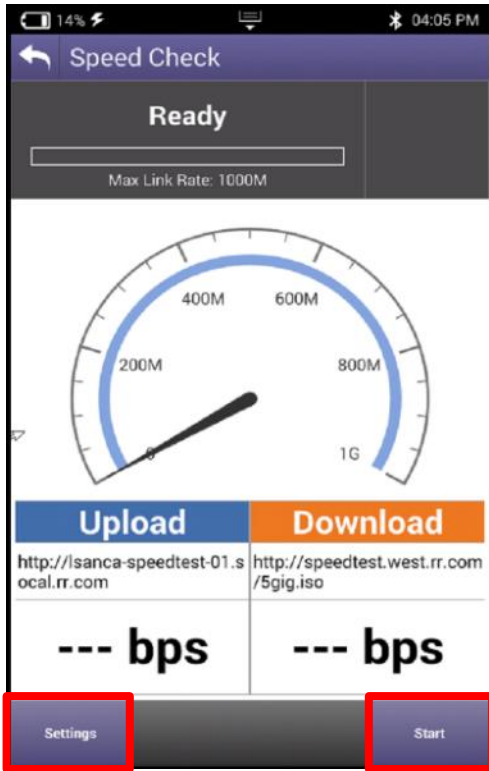


From HOME screen, select
ETHERNET
Once NETWORK UP is indicated
with green, select TEST AND
SETTINGS



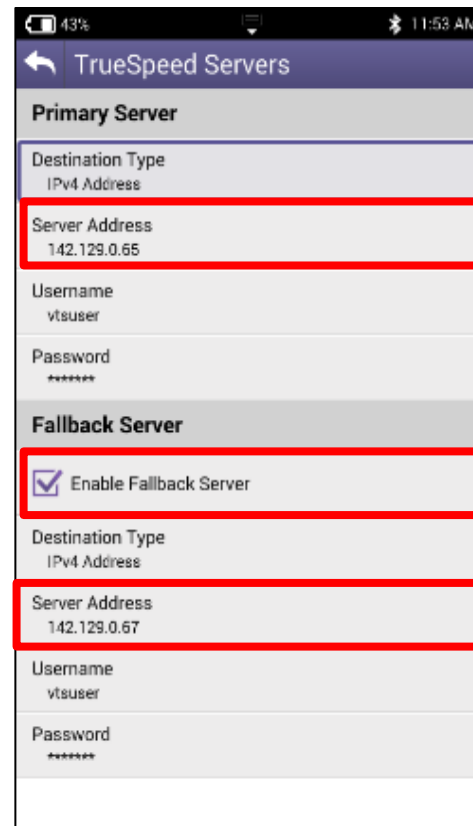
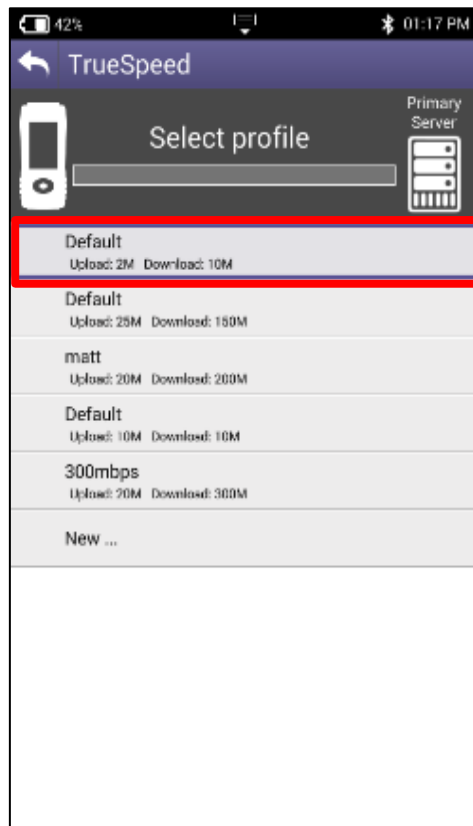
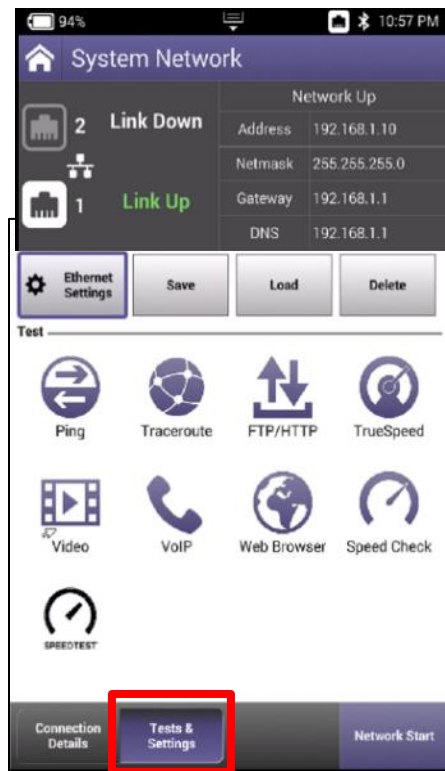
Ethernet – Speed Check

- CATV Ethernet's throughput IP Address/URL is configured in the mode under Settings.
- Default value are for both Downstream/Upstream the same:
<http://CATVSpeedTest.viavisolutions.com/bigfile.zip>
- If the upstream URL changes, the file name need to be the same: bigfile.zip



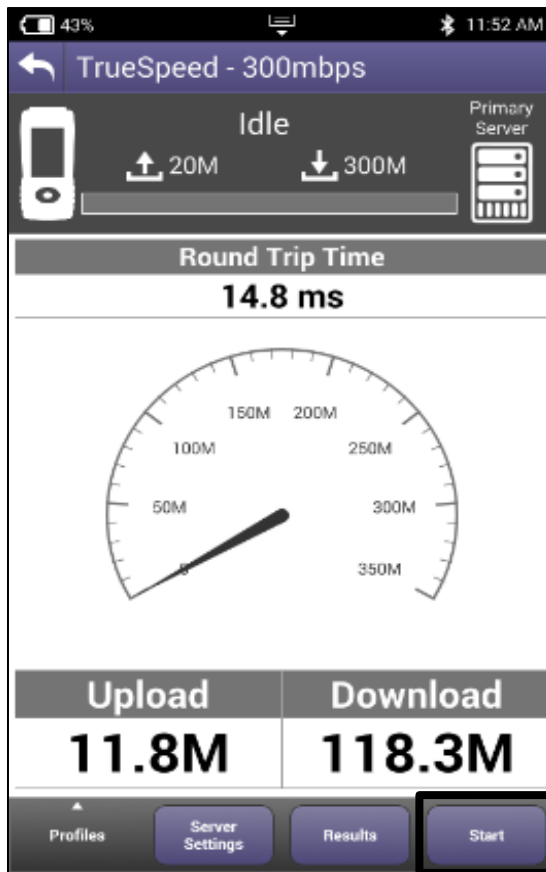
ETHERNET - TrueSpeed Setup

Select Profile or create a new one
The test will start automatically after Profile is selected
Stop Test and choose Server Settings on the bottom and enter the Server IP address and then resume. (Only applicable for first test setup)
Fallback Server is for second TrueSpeed VNF and can help alleviate queue



ETHERNET - TrueSpeed Results

After test completes, Results are displayed as either the Speedometer or a simple list



The screenshot shows the TrueSpeed app interface with a data table. At the top, it says "TrueSpeed - 300mbps". Below that, it shows "Idle" status with upload and download speeds of 20M and 300M respectively. A "Primary Server" icon is visible. The main display is a table with the following data:

	Upload	Download
Actual Rate	11.8M	118.3M
Ideal Rate	19.0M	284.8M
TCP Efficiency	100.00 %	100.00 %
Server	142.129.0.65:8180	
RTT	14.8 ms	
MSS	1460	

At the bottom, there are buttons for "Profiles", "Server Settings", "Results", and "Start".

Wiring Tools

WIRING TOOLS - Port Discovery

PORT DISCOVERY will allow the technician to verify capabilities of the ELECTRICAL ETHERNET port under test

Useful in determining if a customer's switch or router can handle higher speed ethernet services

Port 1 or Port 2 can conduct this test



Port Discovery

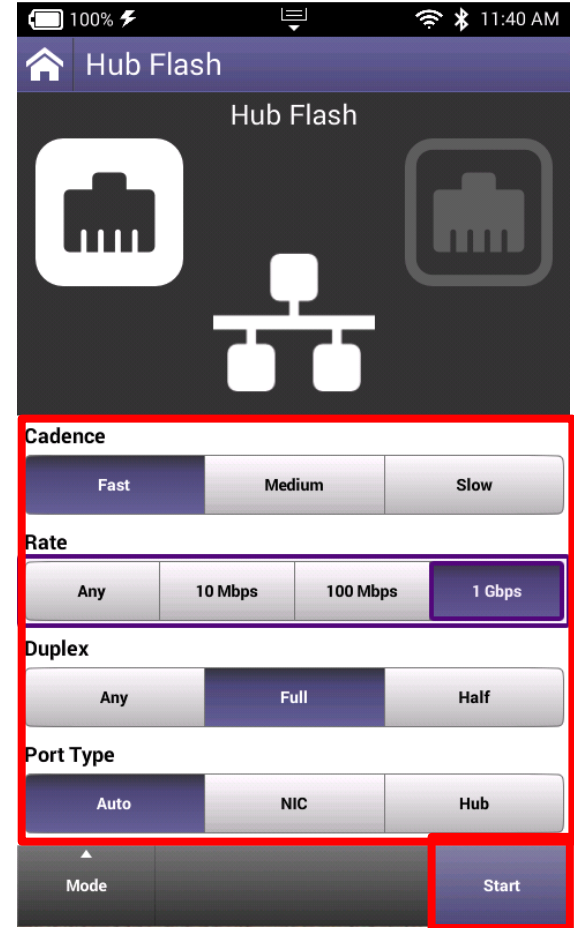
Port 1 Capability	Port 1 Link Up
1000 Mbps	1000 Mbps
FDX	FDX (MDI)
1000 Mbps HDX/FDX	In Use By Application
100 Mbps HDX/FDX	
10 Mbps HDX/FDX	

Pair	Skew	Polarity
1-2	0 ns	Normal
3-6	8 ns	Normal
4-5	0 ns	Normal
7-8	8 ns	Normal

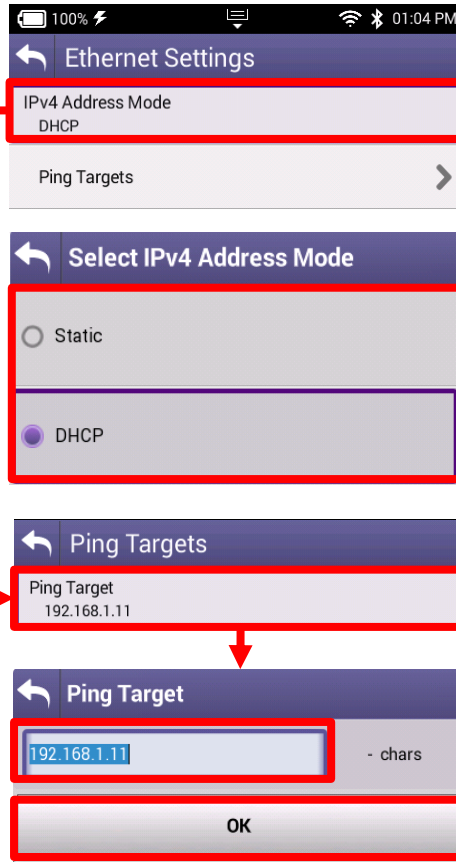
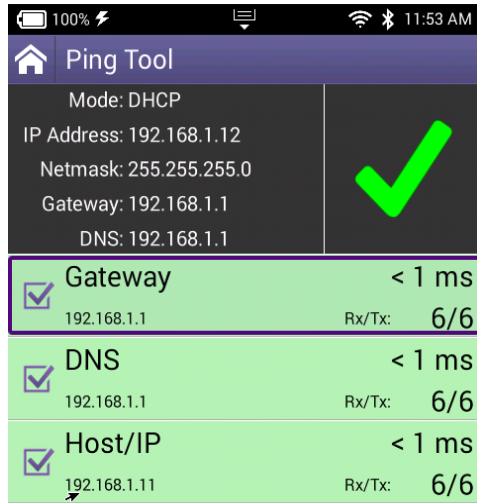
Mode Show Port 2

WIRING TOOLS - Hub Flash

HUB FLASH will allow the technician to “tone” out the ethernet on a far side router or switch using the cadence or speed of the port lights for identification
Additional characteristics can be set to identify ports exhibiting the correct throughput, Duplex config or type

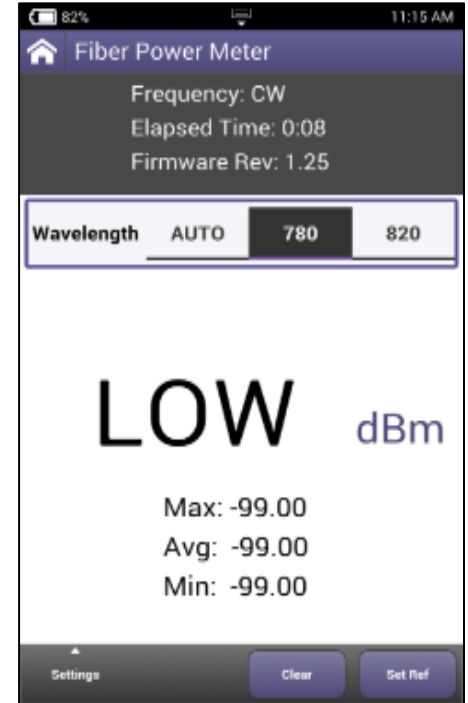


WIRING TOOLS - Ping Tool

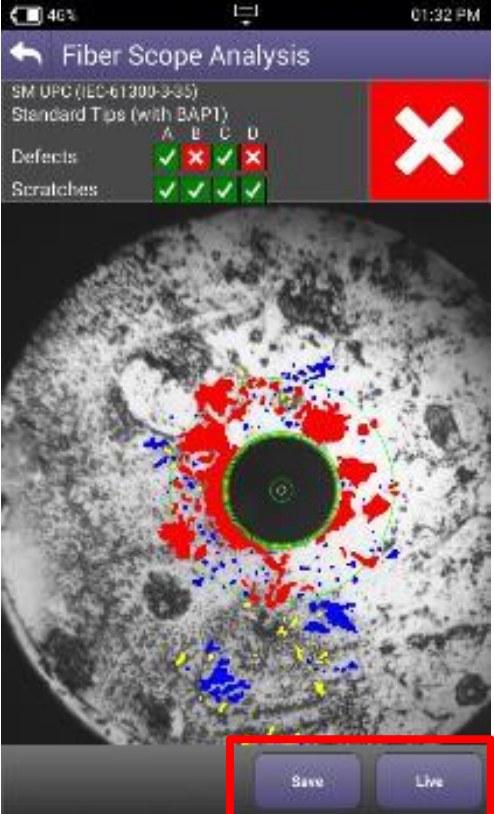
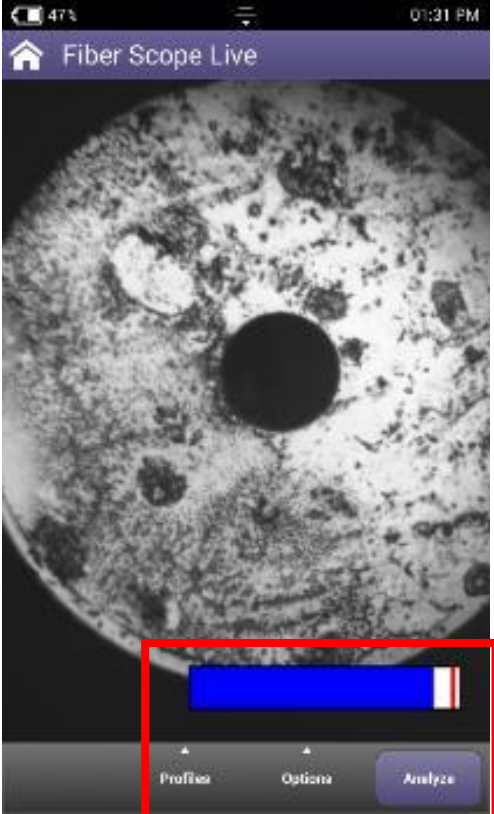
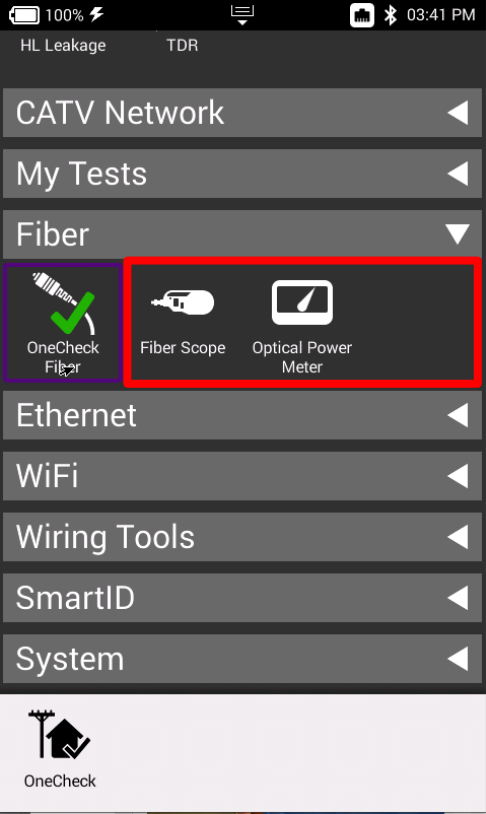


Fiber Optics

P5000i Fiber Microscope and MP-60/80 Optical Power Meter

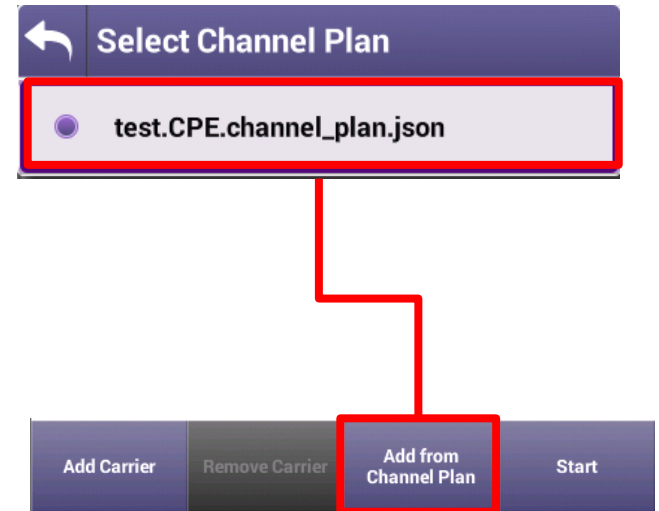
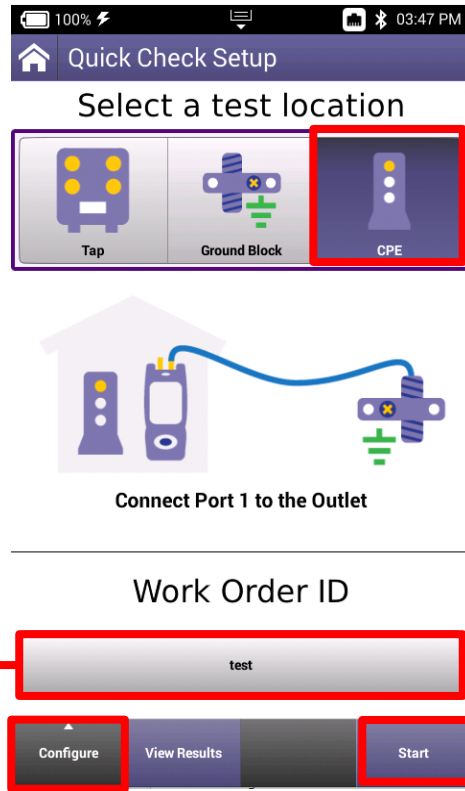
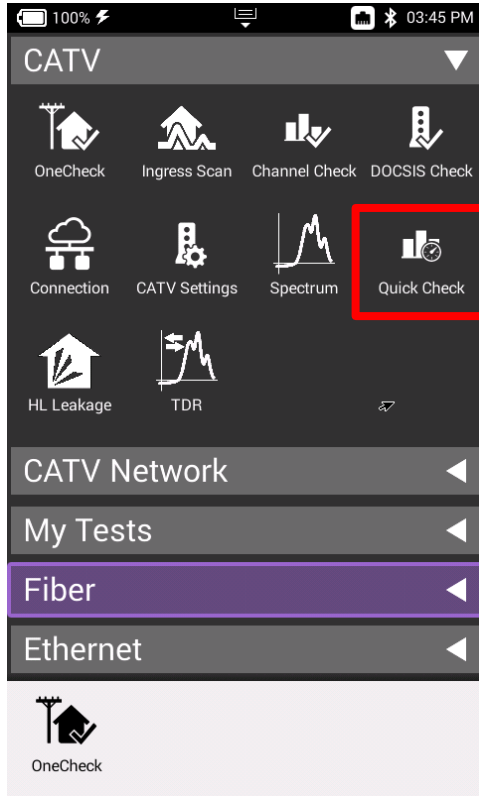


P5000i Probe Microscope



Quick Check

Quick Check



Quick Check

Channel Plan
test.CPE.channel_plan.json

Channels:

- CH 82 (579.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 83 (579.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 84 (585.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 85 (591.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 86 (597.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 87 (603.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 88 (609.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 89 (615.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s
- CH 90 (621.000 MHz)
Digital - 256QAM - 6.000 MHz - 5.361 Msym/s

Apply

Quick Check

Tap Ground Block CPE

3 861.000 MHz | -10.5 dBmV
2 481.000 MHz | Δ -7.9 dB

TOT: -3.9 dB

Freq (MHz)	Level (dBmV)
57.000	1.3
380.000	-2.6
861.000	-10.5

Save Display Stop

1.0 dB

2.0 dB

5.0 dB

10.0 dB

20.0 dB

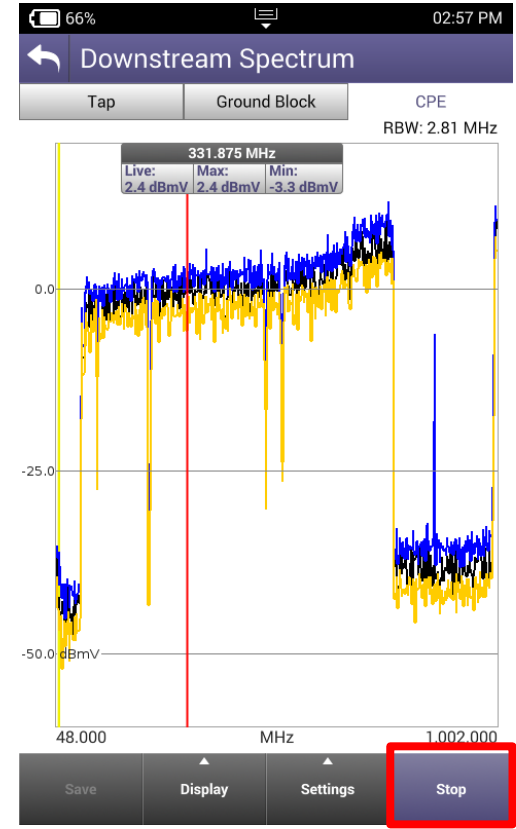
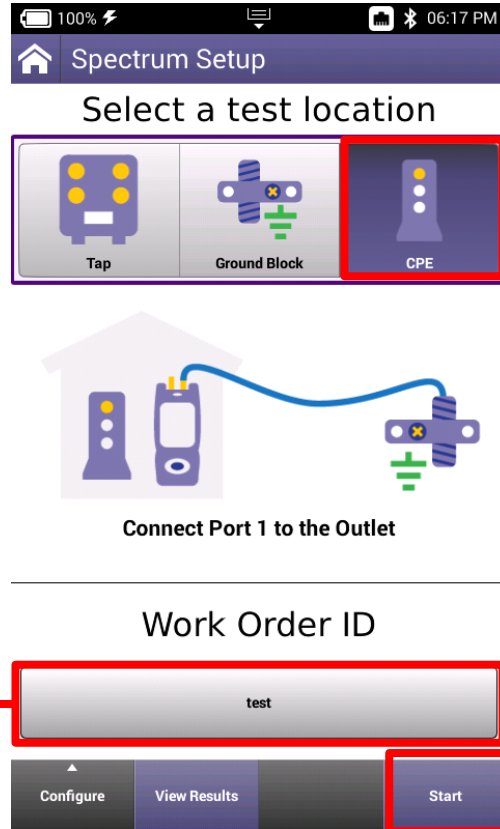
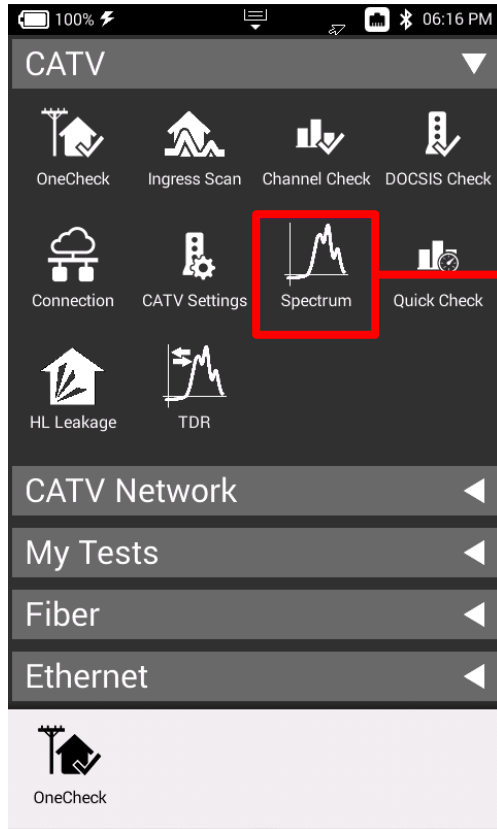
Reference Now

Auto Reference

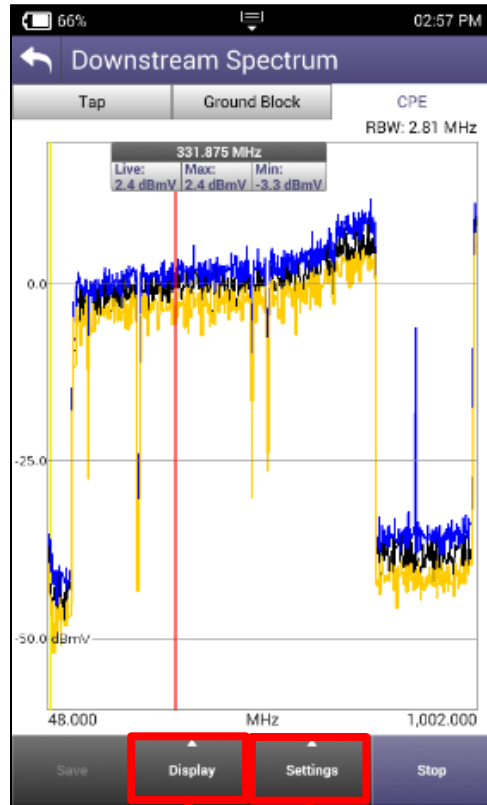
Δ Marker

Spectrum

Spectrum



Spectrum



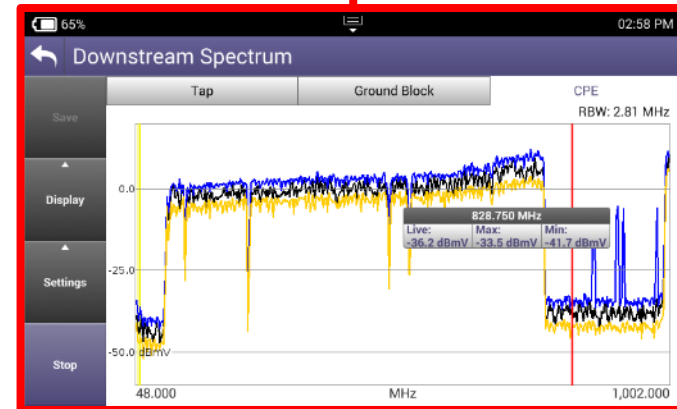
- Auto RBW
- RBW
2.81 MHz
- Auto AGC
- Re-AGC
- Reset Graph
- Set Diplexer

Rotate Screen
Portrait

dB/div

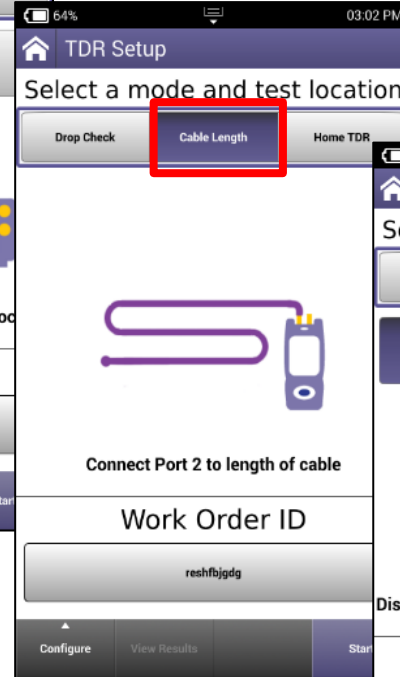
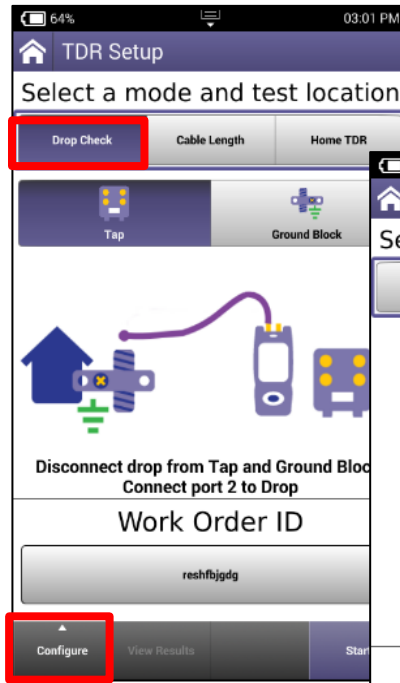
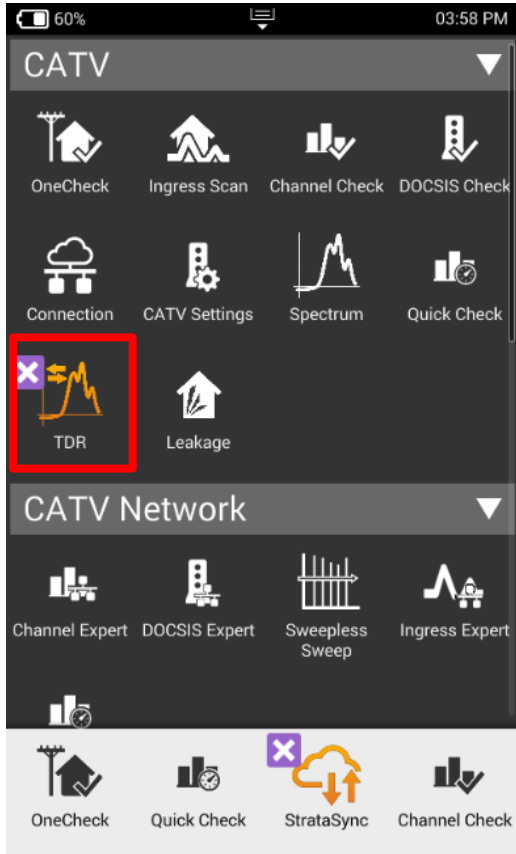
Span Start and Stop Frequency
Start: 48.000 MHz Stop: 1,002.000 MHz

- Live trace
- Max trace
- Min trace

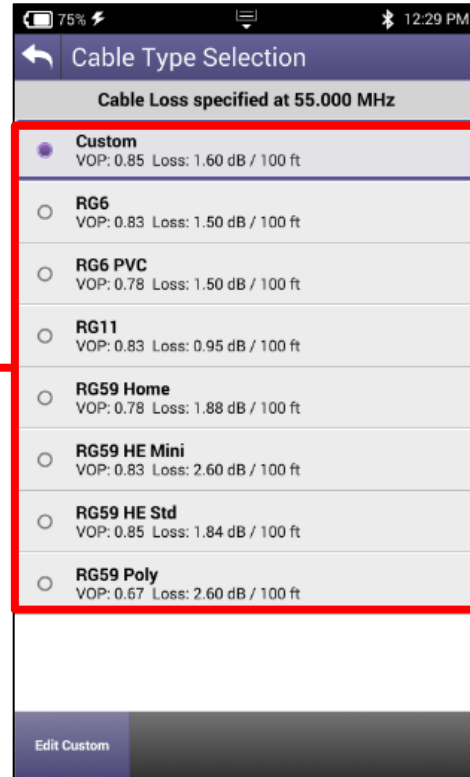
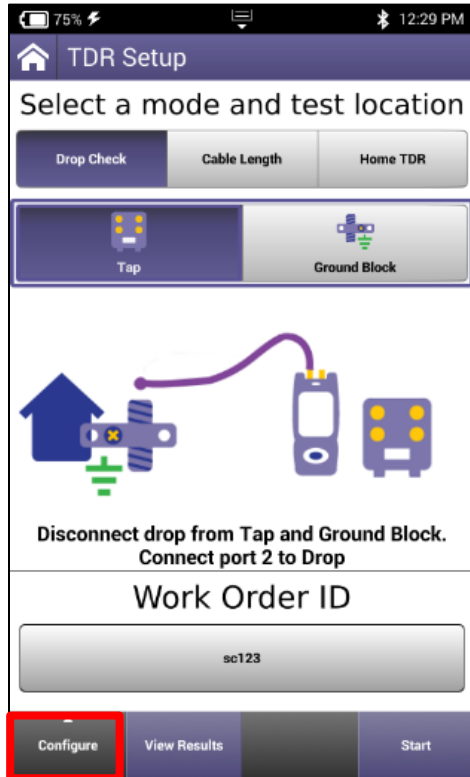


TDR

TDR



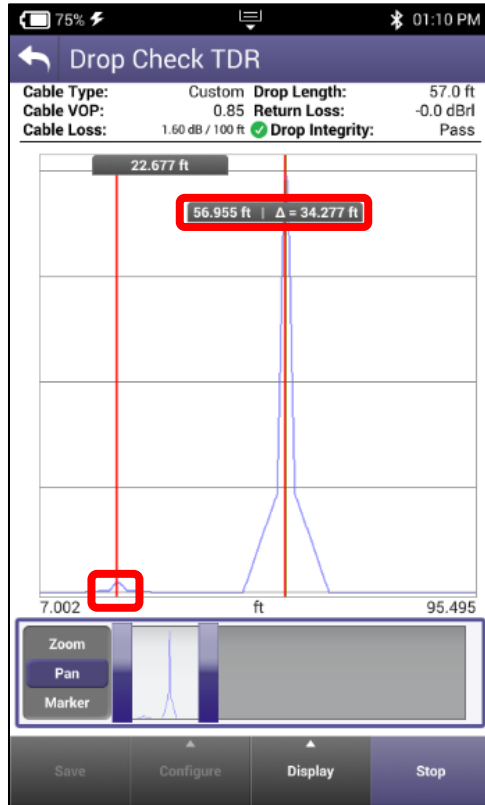
HOME TDR



A TDR measures reflections based on time. Therefore the correct Velocity of Propagation for the cable to be tested must be chosen first.

VoP is essential for accurate distance measurements

TDR – DROP CHECK and CABLE LENGTH



Splice

DROP CHECK and CABLE LENGTH tabs are identical tests. The DROP CHECK simply reminds the user to disconnect the other end of the drop.

Displayed is a 57' cable with a splice.

The splice is a small reflection at 22' while the open end of the cable is a larger reflection at 57'.

TDR - HOME TDR

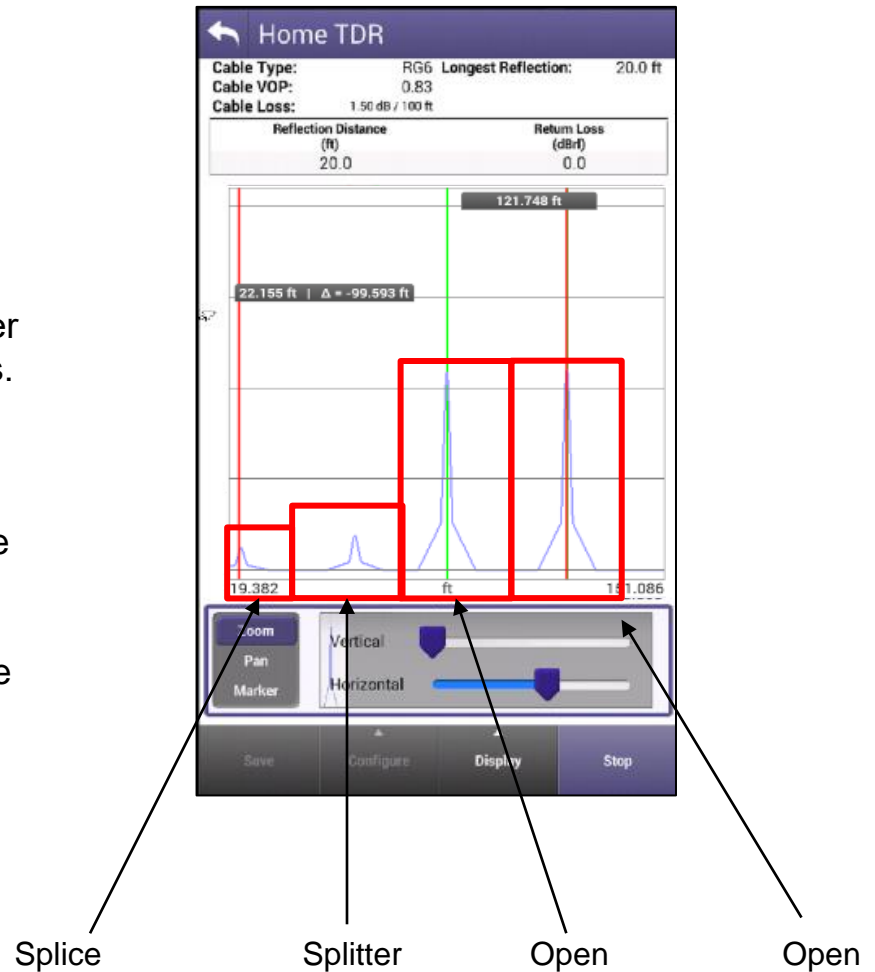
HOME TDR test is designed to display splices, splits and cable lengths.

Example to the left still shows the splice at 22' with a splitter at 57' and 2 cables connected to the splitter with open ends.

HOME TDR displays all 4 events.

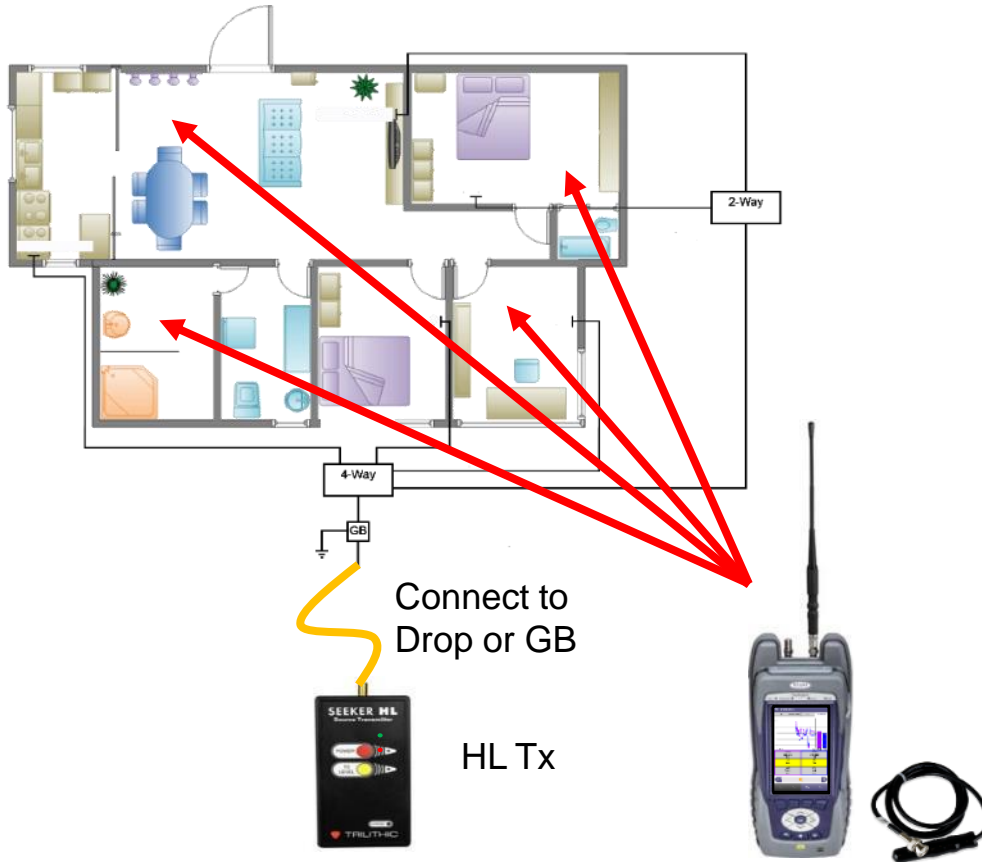
Markers can be added for relative distances under from the display button.

Horizontal Zoom and Pan functions are at the bottom of the display



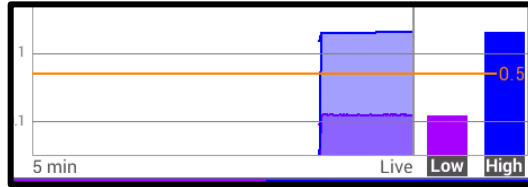
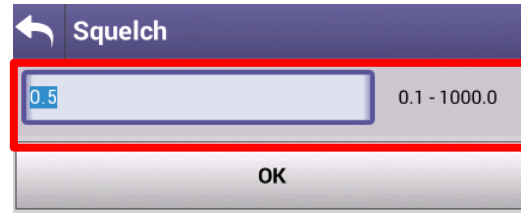
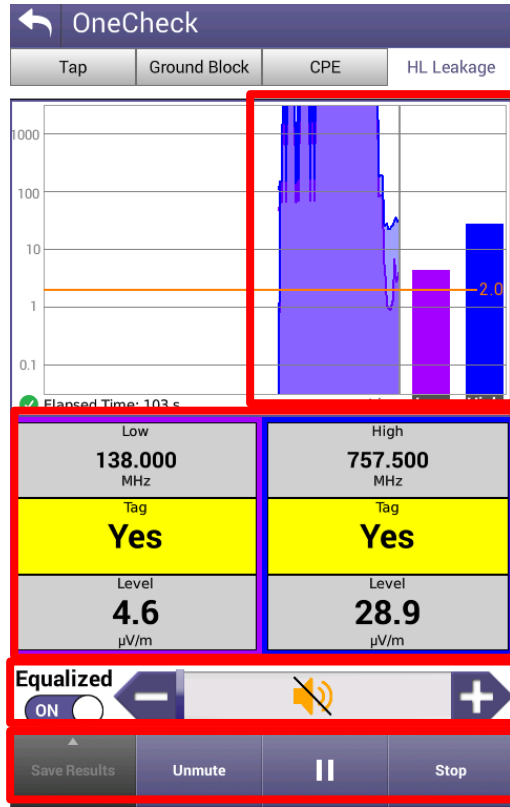
HL Leakage with Transmitter

HL Leakage with Transmitter



- Connect HL TRANSMITTER to GB or DROP and turn unit on.
- Proceed to attach ANTENNA to OneExpert CATV Port 1 and walk around the home or business
- Required Equipment Includes:
 - ONX-620 or ONX-630 with DOCSIS 3.1 hardware
 - HL Leakage software option must be present on the OneExpert CATV
 - HL Leakage Transmitter (60dBmv output [RED LIGHT] and 40dBmv output [GREEN LIGHT])
 - HL Leakage Antennas
 - 4a) Dual band rubber duck antenna
 - 4b) Near-Field Probe antenna
 - Used for detecting leaks when attached to OneExpert CATV
 - Tuned for 138MHz and 757.5MHz

HL Leakage with Transmitter



Leaks will be shown over time on the HL LEAKAGE display, while also emitting a siren that will signal proximity to leak

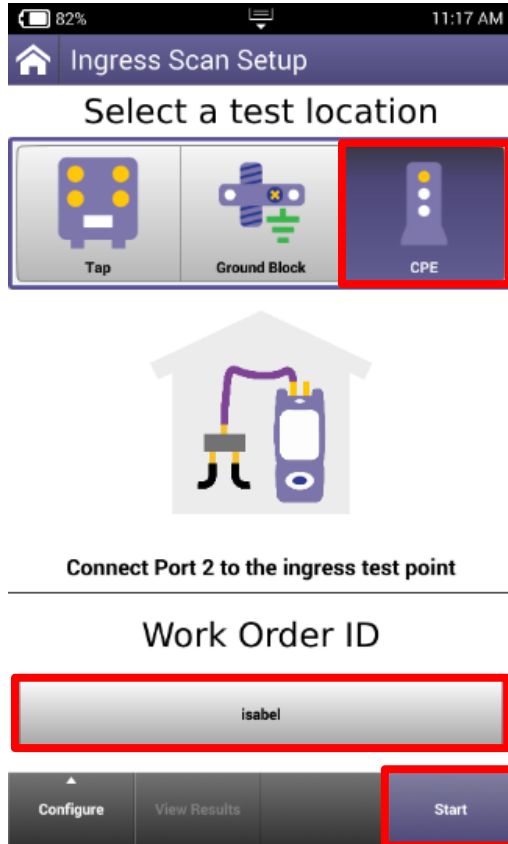
MUTE or UNMUTE and VOLUME controls as well as PAUSE and STOP/RETEST will be displayed across the bottom

Since HL Leakage is LIVE, select STOP before adjusting the SQUELCH limit

Test will run for 5 mins before restarting

Ingress Scan

Ingress Scan



82% 11:17 AM

Ingress Scan Setup

Select a test location

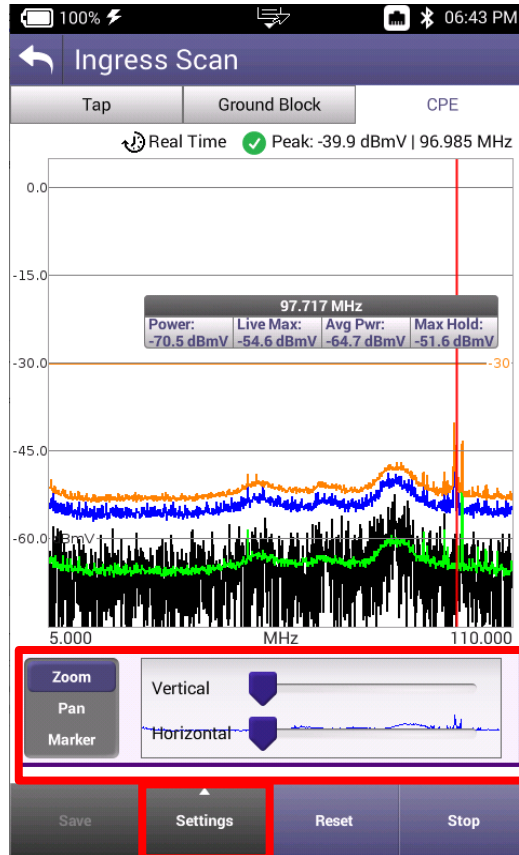
Tap Ground Block CPE

Connect Port 2 to the ingress test point

Work Order ID

isabel

Configure View Results Start



100% 06:43 PM

Ingress Scan

Tap Ground Block CPE

Real Time Peak: -39.9 dBmV | 96.985 MHz

Power:	Live Max:	Avg Pwr:	Max Hold:
-70.5 dBmV	-54.6 dBmV	-64.7 dBmV	-51.6 dBmV

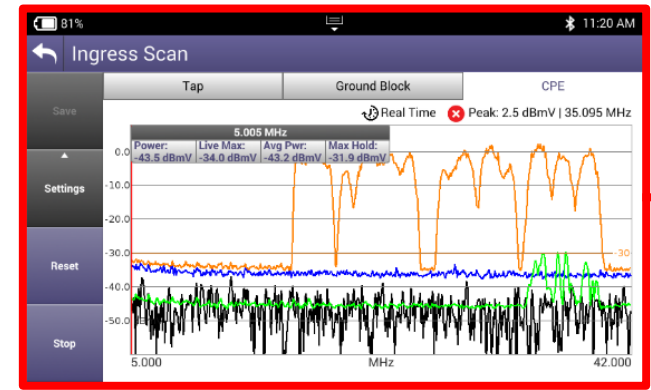
97.717 MHz

5.000 110.000 MHz

Zoom Pan Marker

Vertical Horizontal

Save Settings Reset Stop



81% 11:20 AM

Ingress Scan

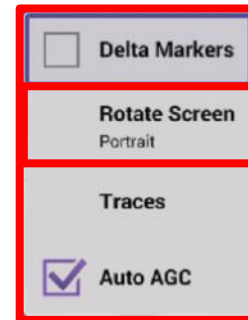
Tap Ground Block CPE

Real Time Peak: 2.5 dBmV | 35.095 MHz

Power:	Live Max:	Avg Pwr:	Max Hold:
-43.9 dBmV	-34.0 dBmV	-43.2 dBmV	-31.9 dBmV

5.000 42.000 MHz

Save Settings Reset Stop



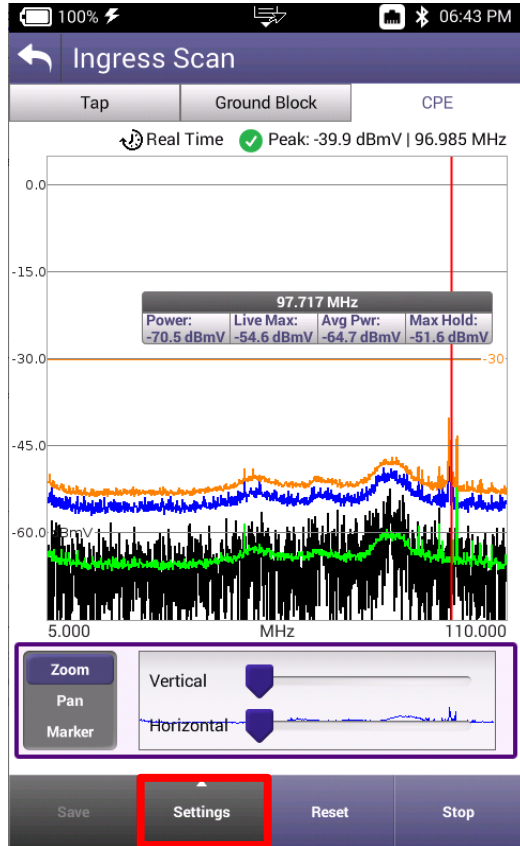
Delta Markers

Rotate Screen
Portrait

Traces

Auto AGC

Ingress Scan



Delta Markers

Rotate Screen
Portrait

Traces

Auto AGC

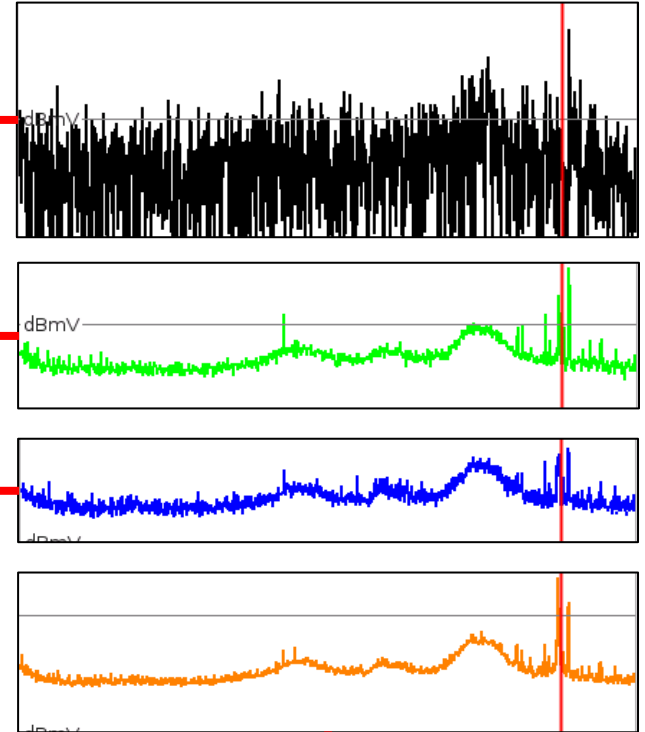
Display Selection

Power

Average Power

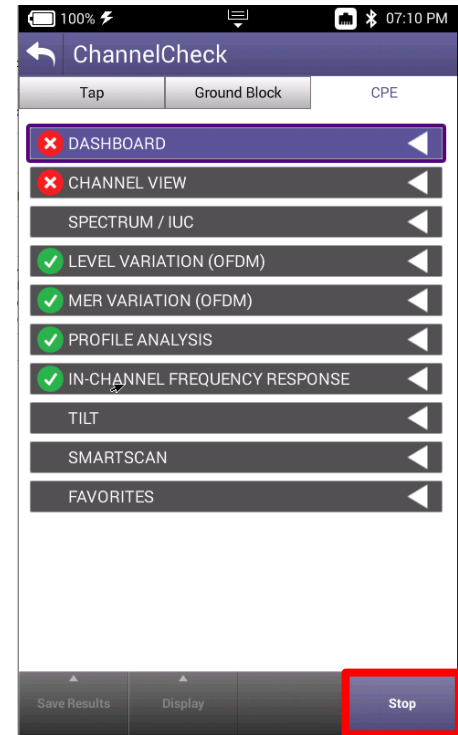
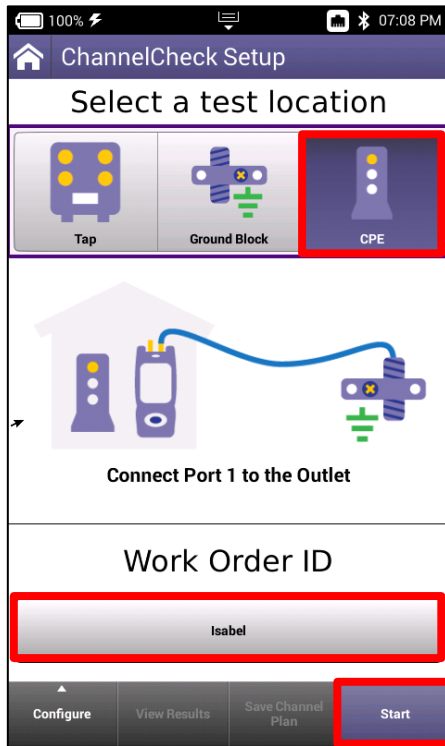
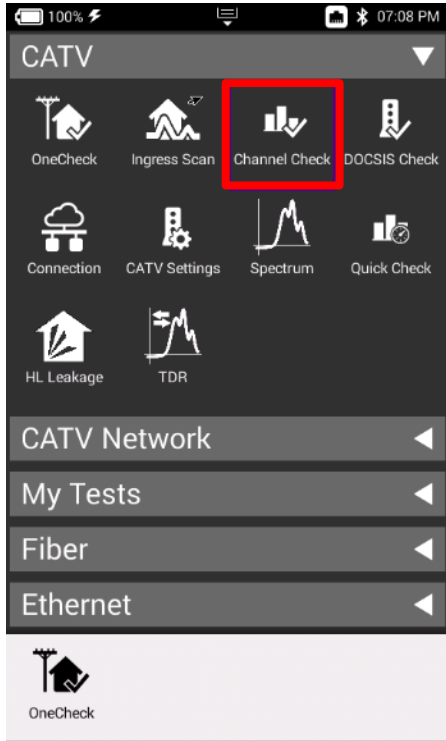
Live Max

Max Hold



Channel Check

Channel Check



Channel Check

Channel	Freq (MHz)	Level (dBmV)	MER (dB)
37	303.000	-4.6	42.5
38	309.000	-4.7	42.5
39	315.000	-4.6	42.6
40	321.000	-4.6	42.5
OFDM 1	380.000	-3.2	--
70	499.250	3.4	--
74	525.000	-2.9	45.8
75	531.000	-3.1	45.8
76	537.000	-3.2	45.6

DASHBOARD

Downstream (96 %) Level (dBmV) Max: 3.5 Min: -10.2
MER (dB) Max: 45.9 Min: 30.8

CHANNEL VIEW

Spectrum plot: 0.0, -5.0, -10.0 dBmV vs 54.000, 1,002.000 MHz

Channel list: CH 39, CH 40, CH OFDM 1, CH 70, CH 74, CH 75

372.000 MHz - 468.000 MHz | OFDM | BW 96.000 MHz
PLC 380.000 MHz | 1880 carriers | 50 kHz | CP 5.0 | RP 1.25

PLC Level -2.2 dBmV	PLC MER 41.8 dB	PLC CWE Corr 0.0	PLC CWE Uncorr 0.0
NCP CWE Corr 0.0	NCP CWE Uncorr 0.0	A CWE Corr 0.0	A CWE Uncorr 0.0
Level (Avg) -3.2 dBmV	Level (Max) -2.4 dBmV	Level (Min) -3.7 dBmV	ICFR 0.8 dB
MER (Avg) 41.0 dB	MER (Std Dev) 0.6 dB	MER PCTL (2) 39.9 dB	Echo -39.7 dBc

Channel | Freq (MHz) | Level (dBmV) | MER (dB)

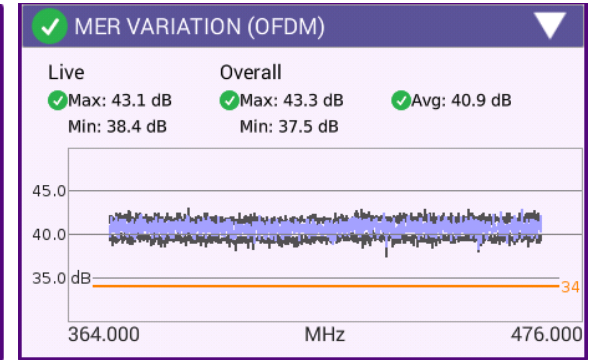
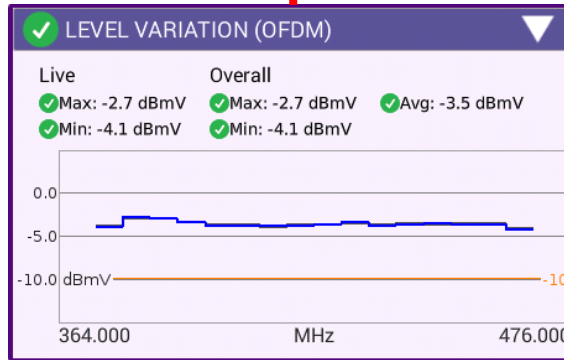
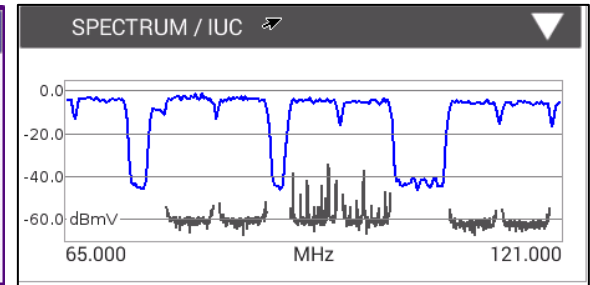
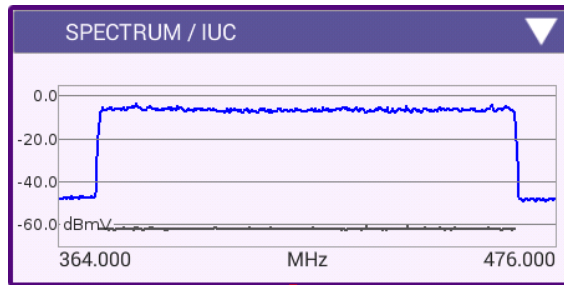
Channel Check

ChannelCheck

Tap Ground Block CPE

- DASHBOARD
- CHANNEL VIEW
- SPECTRUM / IUC
- LEVEL VARIATION (OFDM)
- MER VARIATION (OFDM)
- PROFILE ANALYSIS
- IN-CHANNEL FREQUENCY RESPONSE
- TILT
- SMARTSCAN
- FAVORITES

Save Results Display Stop



Channel Check

ChannelCheck

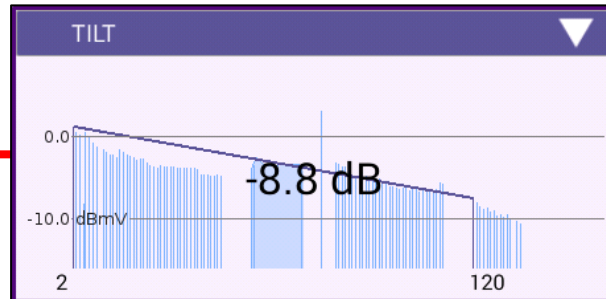
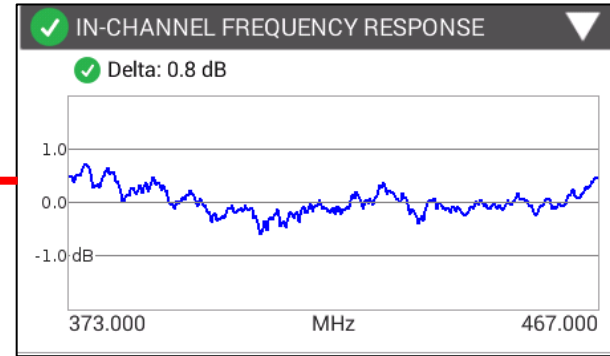
Tap Ground Block CPE

- DASHBOARD
- CHANNEL VIEW
- SPECTRUM / IUC
- LEVEL VARIATION (OFDM)
- MER VARIATION (OFDM)
- PROFILE ANALYSIS
- IN-CHANNEL FREQUENCY RESPONSE
- TILT
- SMARTSCAN
- FAVORITES

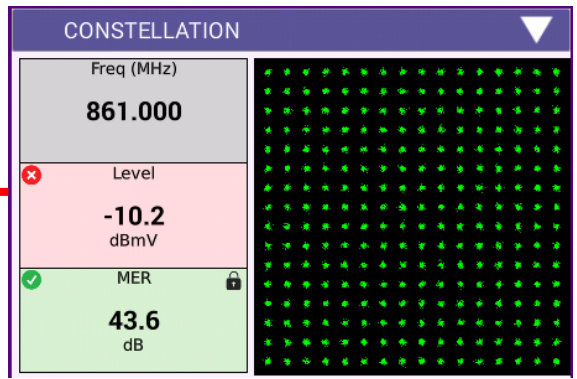
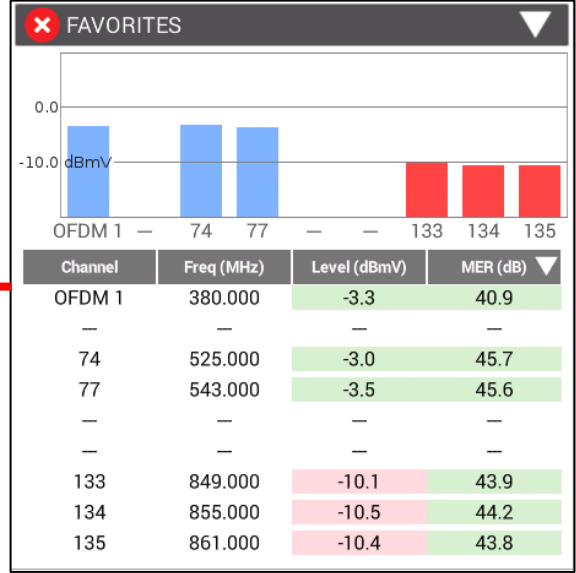
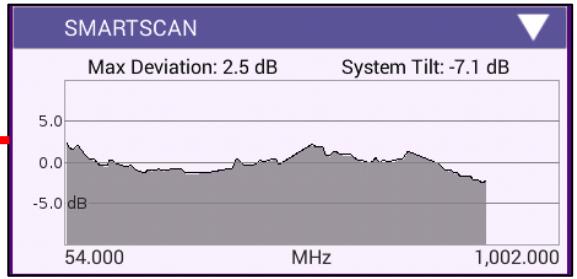
Save Results Display Stop

PROFILE ANALYSIS

PROFILE	LOCKED	CWE (Corr)	CWE (Uncorr)	Max Mod
PLC	YES	0.0	0.0	16QAM
NCP	YES	0.0	0.0	16QAM
A	YES	0.0	0.0	256QAM
B	YES	0.0	0.0	1024QAM
C	YES	1.0e+0	0.0	4096QAM

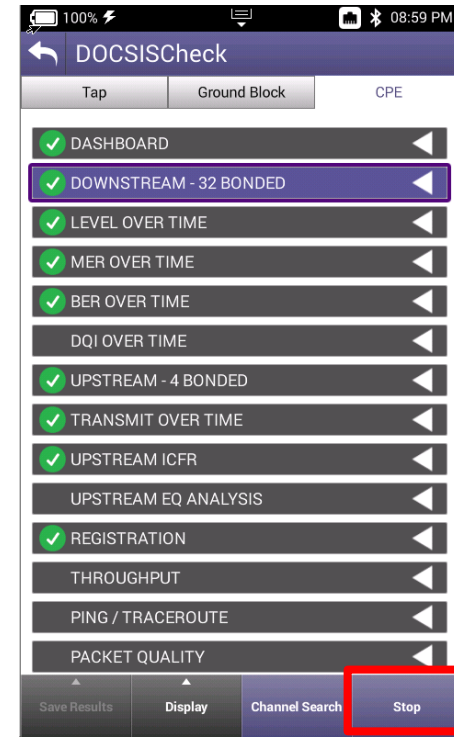
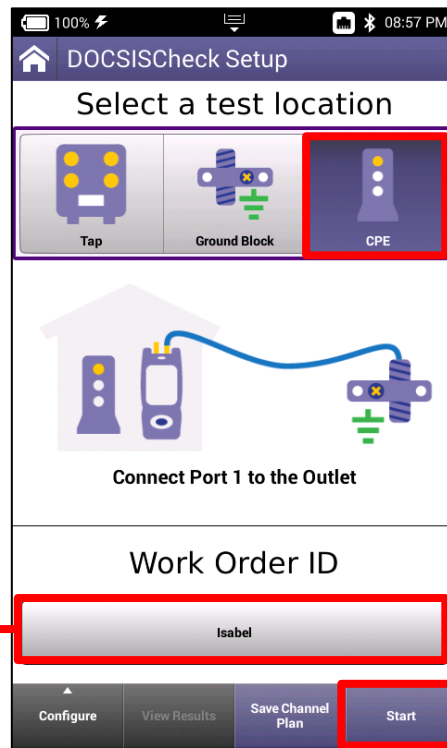
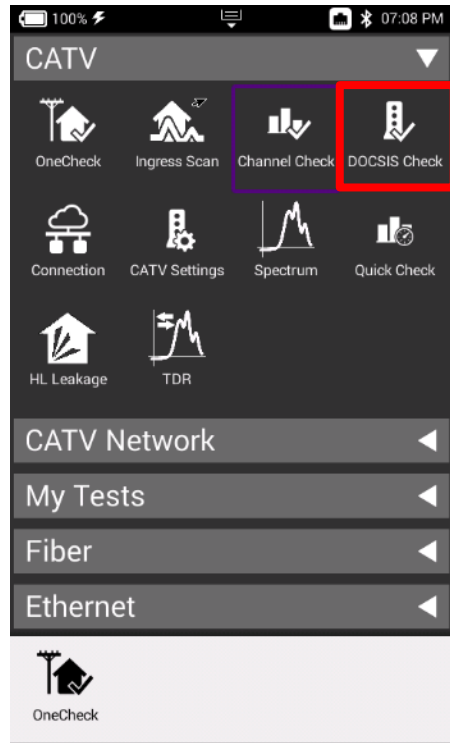


Channel Check



DOCSIS Check

DOCSIS Check



DOCSIS Check

DOCSISCheck

Tap Ground Block CPE

- ✓ DASHBOARD
- ✓ DOWNSTREAM - 32 BONDED
- ✓ LEVEL OVER TIME
- ✓ MER OVER TIME
- ✓ BER OVER TIME
- DQI OVER TIME
- ✓ UPSTREAM - 4 BONDED
- ✓ TRANSMIT OVER TIME
- ✓ UPSTREAM ICFR
- UPSTREAM EQ ANALYSIS
- ✓ REGISTRATION
- THROUGHPUT
- PING / TRACEROUTE
- PACKET QUALITY

Save Results Display Stop

Channel	Freq (MHz)	Level (dBmV)	MER (dB)
103	669.000	-6.1	44.3
104	675.000	-6.3	44.6
105	681.000	-6.2	44.6
106	687.000	-6.3	44.2
107	693.000	-6.0	44.6
108	699.000	-6.2	44.6
109	705.000	-6.0	44.5

✓ DASHBOARD

✓ DOCSIS (100 %) Status: Connected

32x (1x OFDM) | Downstream

Min Rx: -6.3 dBmV Min MER: 38.1 dB
Max BER: 1.0e-9 (pre) Max MER: 45.9 dB

Upstream | 4x

Max Tx: 44.8 dBmV Max ICFR: 1.4 dB

✓ DOWNSTREAM - 32 BONDED

Spectrum Plot: -5.0 to -15.0 dBmV, 54.000 to 750.000 MHz

Channel 107: 693.000 MHz, Annex B | 256 QAM | 5.361 Msym/s | 6.000 MHz

✓ Level	✓ MER	✓ BER	✓ BER
-6.0 dBmV	44.6 dB	1.0e-9 Pre	1.0e-9 Post
✓ Echo	✓ GD	✓ ICFR	DQI
-35.5 dBc	36 ns	0.7 dB	10.0

Channel Freq (MHz) Level (dBmV) MER (dB)

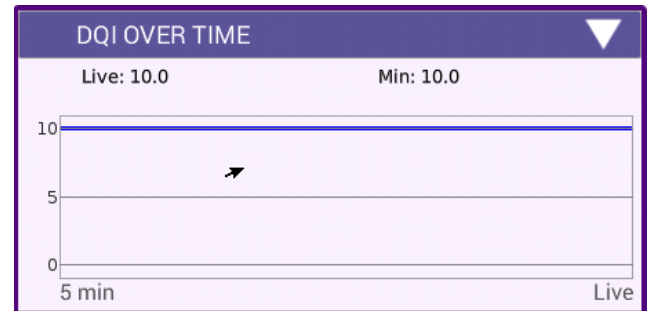
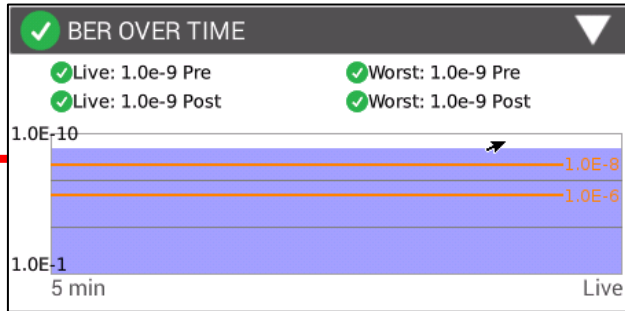
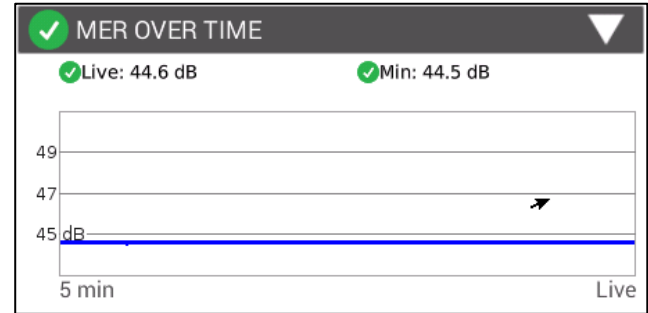
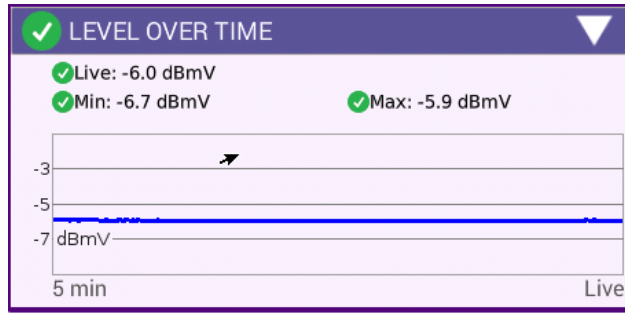
DOCSIS Check

DOCSISCheck

Tap Ground Block CPE

- ✓ DASHBOARD
- ✓ DOWNSTREAM - 32 BONDED
- ✓ LEVEL OVER TIME
- ✓ MER OVER TIME
- ✓ BER OVER TIME
- DQI OVER TIME
- ✓ UPSTREAM - 4 BONDED
- ✓ TRANSMIT OVER TIME
- ✓ UPSTREAM ICFR
- UPSTREAM EQ ANALYSIS
- ✓ REGISTRATION
- THROUGHPUT
- PING / TRACEROUTE
- PACKET QUALITY

Save Results Display Stop



DOCSIS Check

DOCSISCheck

Tap Ground Block CPE

- ✓ DASHBOARD
- ✓ DOWNSTREAM - 32 BONDED
- ✓ LEVEL OVER TIME
- ✓ MER OVER TIME
- ✓ BER OVER TIME
- ✓ DQI OVER TIME
- ✓ UPSTREAM - 4 BONDED
- ✓ TRANSMIT OVER TIME
- ✓ UPSTREAM ICFR
- UPSTREAM EQ ANALYSIS
- ✓ REGISTRATION
- THROUGHPUT
- PING / TRACEROUTE
- PACKET QUALITY

Save Results Display Stop

✓ UPSTREAM - 4 BONDED

49.8
43.1
36.5 dBmV

17.800 MHz
64 QAM | 6.400 MHz | ATDMA

✓ TX Level	41.5 dBmV	✓ ICFR	1.3 dB
------------	-----------	--------	--------

UCD	Freq (MHz)	Level (dBmV)	ICFR (dB)
9	17.800	41.5	1.3
10	24.200	42.8	1.2
11	30.600	43.5	1.3
12	37.000	44.8	1.1

✓ TRANSMIT OVER TIME

✓ Live: 42.8 dBmV
✓ Min: 42.8 dBmV
✓ Max: 43.3 dBmV

46
44
42 dBmV

5 min Live

✓ UPSTREAM ICFR

Reference bandwidth: Modem Default

46
44
42 dBmV

12.000 MHz 42.000

UPSTREAM EQ ANALYSIS

-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0 dBc

Channel:	EQ Tap:
Frequency: 17.800 MHz	Time: -1.37 μ s
TX Level: 41.5 dBmV	Level: -54.2 dBc
Bandwidth: 6.4 MHz	Distance: 558.1 ft
	VOP: 0.830

DOCSIS Check

The main menu of the DOCSISCheck app. It features a top bar with 'DOCSISCheck' and a back arrow. Below are three tabs: 'Tap', 'Ground Block', and 'CPE'. A list of menu items follows, each with a green checkmark and a right-pointing arrow. At the bottom are three buttons: 'Save Results', 'Display', and 'Stop'.

- Tap
- Ground Block
- CPE
- DASHBOARD
- DOWNSTREAM - 32 BONDED
- LEVEL OVER TIME
- MER OVER TIME
- BER OVER TIME
- DQI OVER TIME
- UPSTREAM - 4 BONDED
- TRANSMIT OVER TIME
- UPSTREAM ICFR
- UPSTREAM EQ ANALYSIS
- REGISTRATION
- THROUGHPUT
- PING / TRACEROUTE
- PACKET QUALITY

Save Results Display Stop

The REGISTRATION screen displays service plan details. It includes a status bar with a green checkmark and a dropdown arrow. The content is organized into sections: Service Plan, Cable Modem, CPE, and Servers.

REGISTRATION

Service Plan: -00:07:11:14:1B:CF

Config File: 7BEWGIyYABxvEUG88KIsDi@CILA4mV4eXC2hq4Y+bmTGm.ZJKTLYf9

Cable Modem

Provisioning Mode: IPv4 ONLY

IPv4 Address: 10.34.192.226

IPv4 Gateway Address: 10.34.192.1

IPv4 Subnet Mask: 255.255.224.0

IPv4 Config File: 7BEWGIyYABxvEUG88KIsDi@CILA4mV4eXC2hq4Y+bmTGm.ZJKTLYf9

CPE

IPv4 Address: 76.175.15.154

IPv4 Subnet Mask: 255.255.240.0

IPv4 Gateway Address: 76.175.0.1

Servers

IPv4 TFTP Server: 98.150.3.166

IPv4 DHCP Server: 142.254.177.41

IPv4 TOD Server: 98.150.3.166

The THROUGHPUT screen shows network performance metrics. It features a status bar with a green checkmark and a dropdown arrow. Below are URL fields and two speed gauges.

THROUGHPUT (100%)

Downstream URL: http://spt01mtpkca.mtpk.ca.charter.com/mtpkr2D2wh3reRuN0w.iso

Upstream URL: http://spt01mtpkca.mtpk.ca.charter.com/mtpkr2D2wh3reRuN0w.iso

1.19 Gbps
RTT: 19 ms

42.30 Mbps
RTT: 19 ms

Receive Send

Configure Start Throughput

The PING / TRACEROUTE screen displays a table of network delay metrics. It includes a status bar with a dropdown arrow and an 'Open Ping' button at the bottom.

PING / TRACEROUTE

	Current	Minimum	Average	Maximum
Delay (ms)	-	-	-	-
Destination				
Echoes Sent				-
Replies Returned				-
Replies Lost				-
Replies Lost %				-
Error				-

Open Ping

The PACKET QUALITY screen displays network quality metrics. It features a status bar with a green checkmark and a dropdown arrow. Below are several rows of data and two buttons.

PACKET QUALITY

Packet Loss: 299 Sent, 0.0 % Loss

Max Round Trip Delay: 26 ms

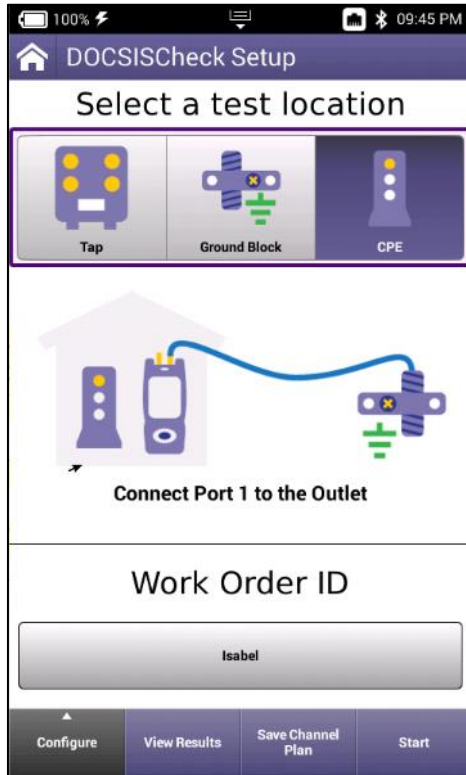
Max Jitter: 19 ms

Stop Packet Quality

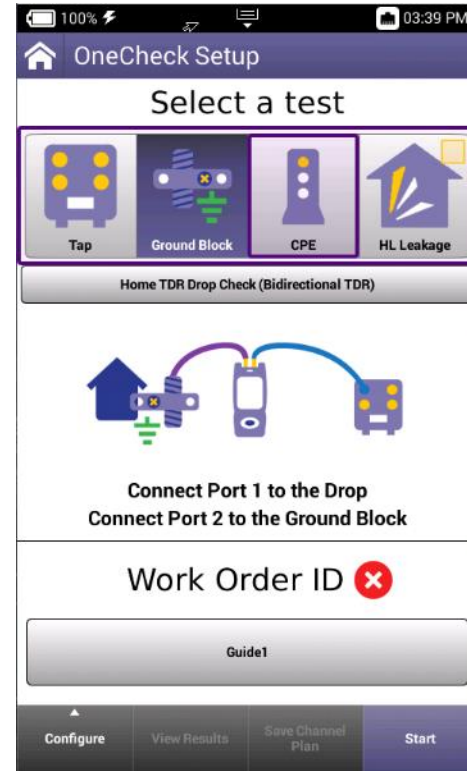
Start Pass Through Cable Modem

One Check

One Check

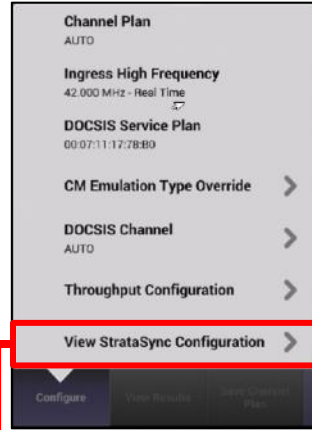
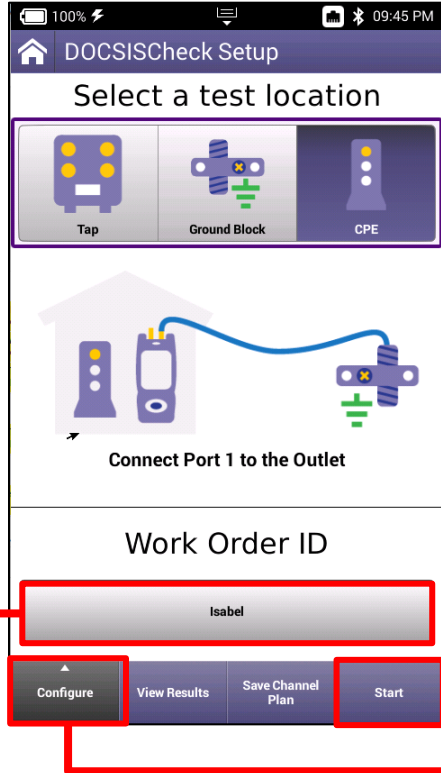


One Check without HL Leakage Requirement (Default)

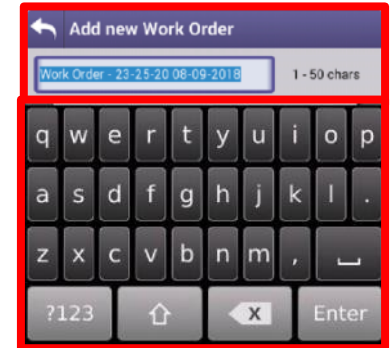
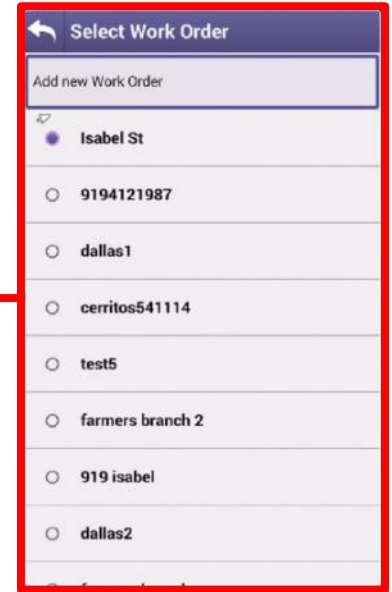


One Check with HL Leakage Requirement

One Check



User can verify that configurations are correct and up to date by selecting VIEW STRASync CONFIGURATION



One Check

OneCheck

Tap | Ground Block | CPE

Ingress (100%) Peak: -41.4 dBmV | 98.633 MHz

Downstream (100%) Level (dBmV) Max: 4.7 Min: -8.7
MER (dB) Max: 46.8 Min: 26.9

DOCSIS (100%) Status: Connected

32x (1x OFDM) | Downstream

Min Rx: -5.6 dBmV | Min MER: 38.3 dB
Max BER: 1.0e-9 (pre) | Max MER: 47.1 dB

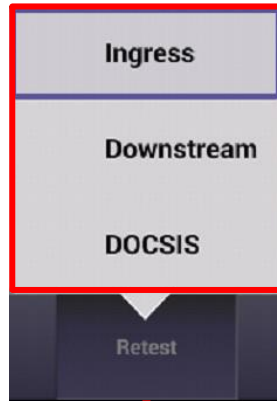
Upstream | 4x

Max Tx: 43.5 dBmV | Max ICFR: 1.3 dB

Session Expert

Tap | Ground Block | CPE

Save | Sync | Retest | Retest All



Connection

Connection Status: Ethernet Connection Active

Interface: Ethernet

IPv4: 192.168.1.7

Configure | Sync | Stop

StrataSync

Last Sync: 04/07/2020 07:23:55 PM

IP Address: 192.168.1.7

StrataSync Account ID: 63640362

StrataSync Tech ID/User ID: kf01

Server Address: stratasync.viavisolutions.com

Server Port: 443

Unit ID: RRQA0023450012

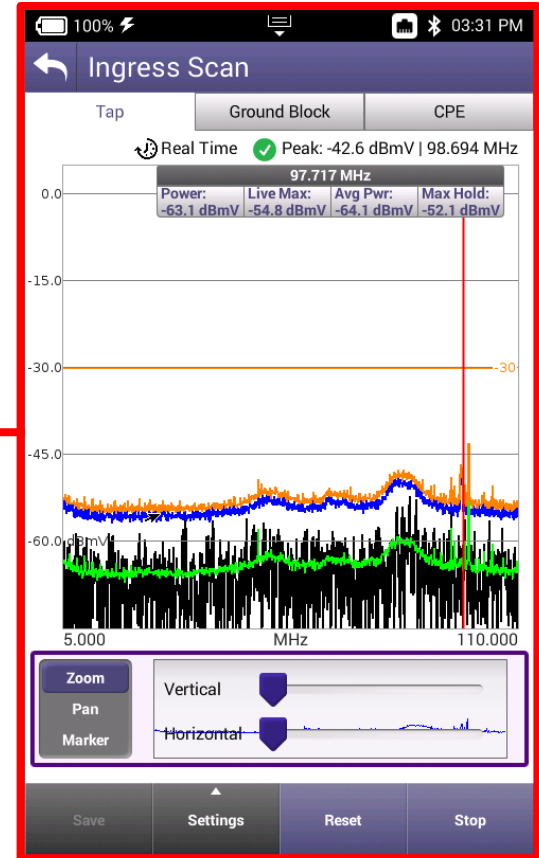
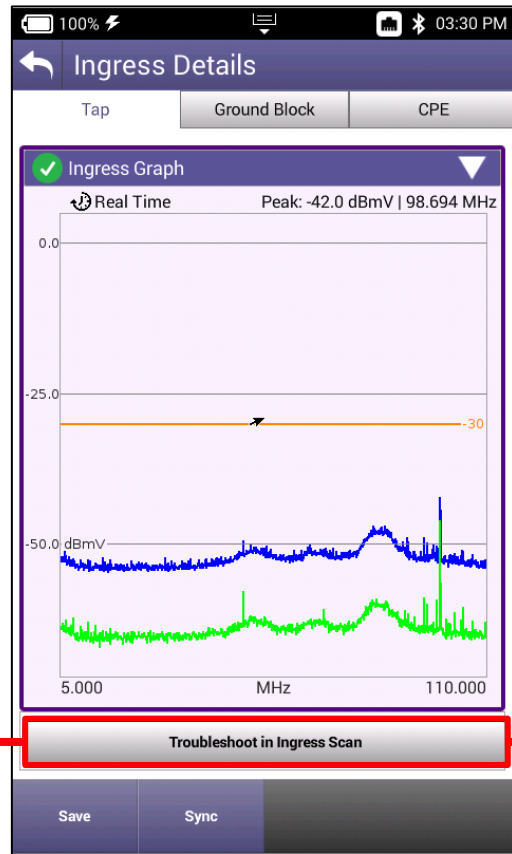
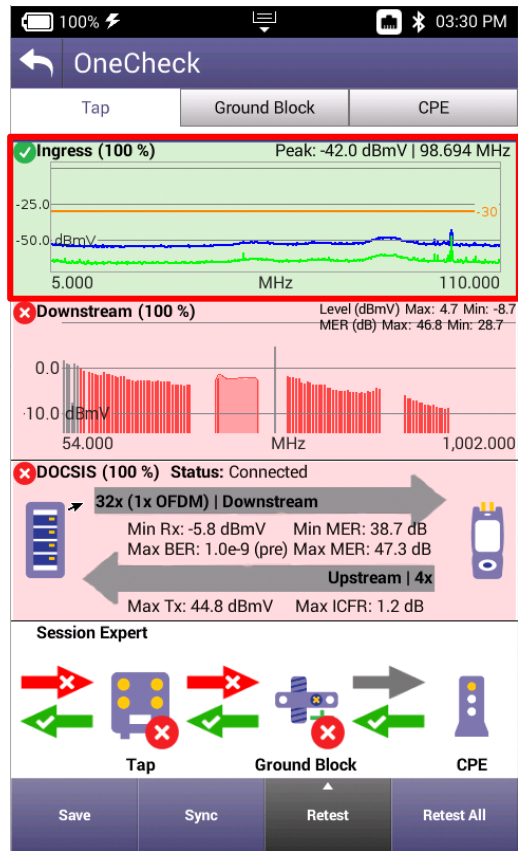
Start

Save File Name

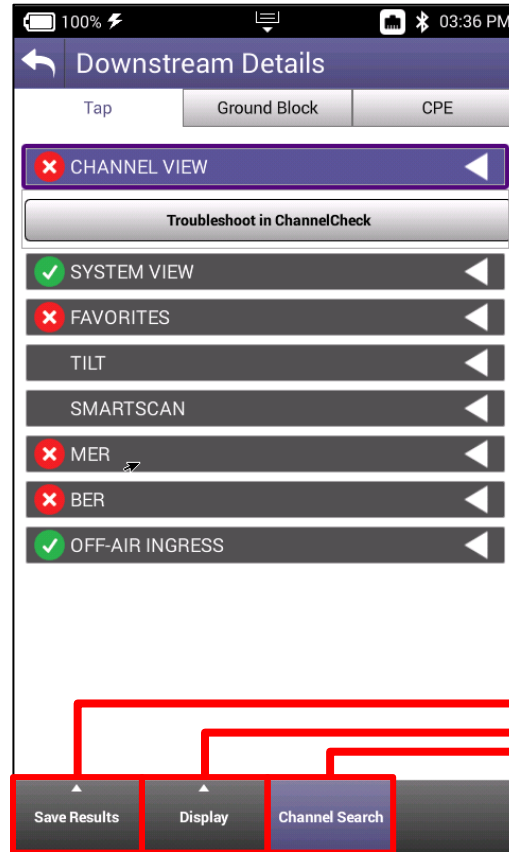
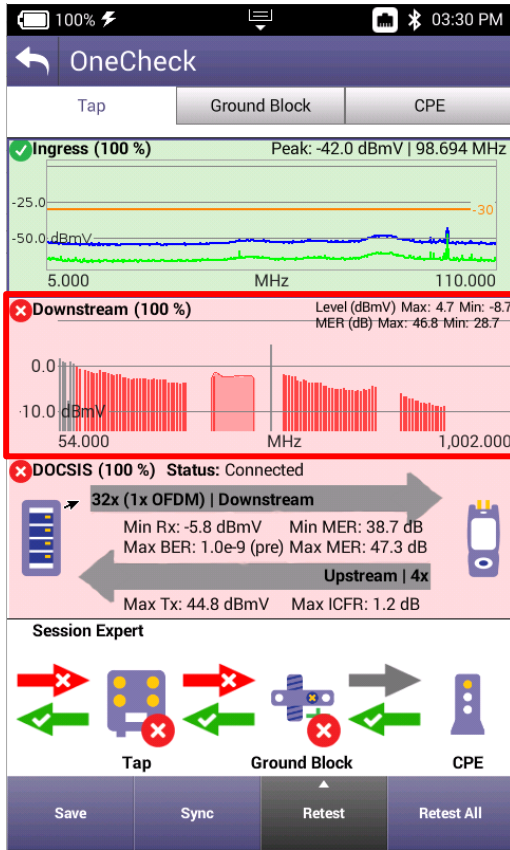
GB Fail | 1 - 50 chars

Save

One Check - Ingress



One Check - Downstream



Save

Sync

Search Channel

Search by Channel Number

Search by Channel Frequency

OK

1.0 dB

2.0 dB

5.0 dB

10.0 dB

20.0 dB

Auto Reference

Save Results

Display

Channel Search

One Check - Downstream

SYSTEM VIEW

Max	Max
13.4 dB	--- dB
dB Delta	Video Delta

FAVORITES

Channel	Freq (MHz)	Level (dBmV)	MER (dB)
OFDM 1	380.000	-2.1	41.9
74	525.000	-1.7	46.7
77	543.000	-2.1	46.5
133	849.000	-8.5	42.8
134	855.000	-8.7	43.3
135	861.000	-8.5	43.2

CHANNEL VIEW

861.000 MHz
Annex B | 256 QAM | 5.361 Msym/s | 6.000 MHz

Level	MER	BER Pre	BER Post
-8.5 dBmV	43.2 dB	1.0e-8	1.0e-8
Echo	GD	ICFR	Hum
-32.1 dBc	56 ns	0.8 dB	0.1 %

Channel	Freq (MHz)	Level (dBmV)	MER (dB)
131	837.000	-8.4	43.5
132	843.000	-8.5	43.8
133	849.000	-8.5	42.8
134	855.000	-8.7	43.3
135	861.000	-8.5	43.2

One Check - Downstream

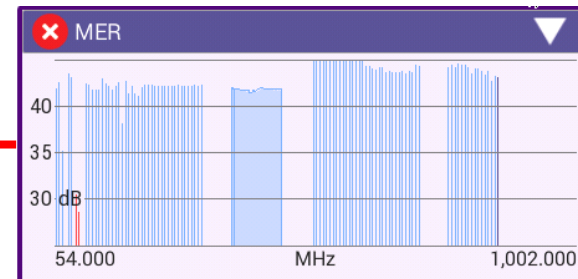
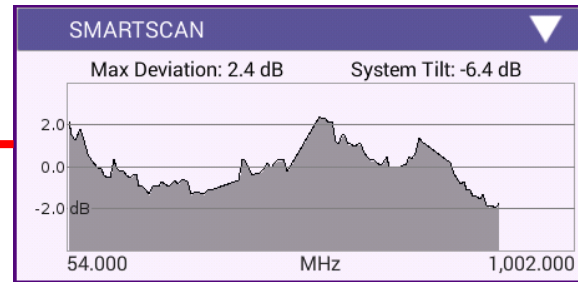
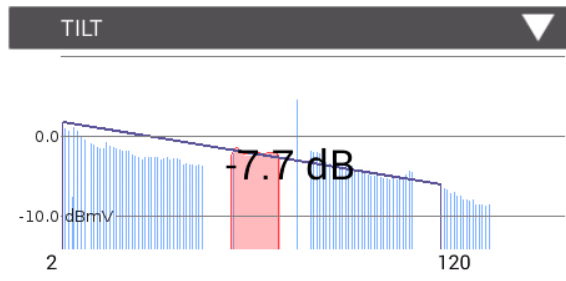
100% 03:36 PM

Downstream Details

Tap Ground Block CPE

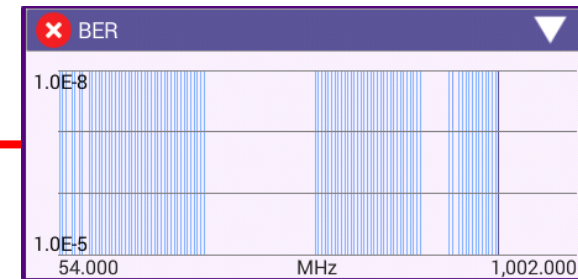
- CHANNEL VIEW
- SYSTEM VIEW
- FAVORITES
- TILT
- SMARTSCAN
- MER
- BER
- OFF-AIR INGRESS

Save Results Display Channel Search

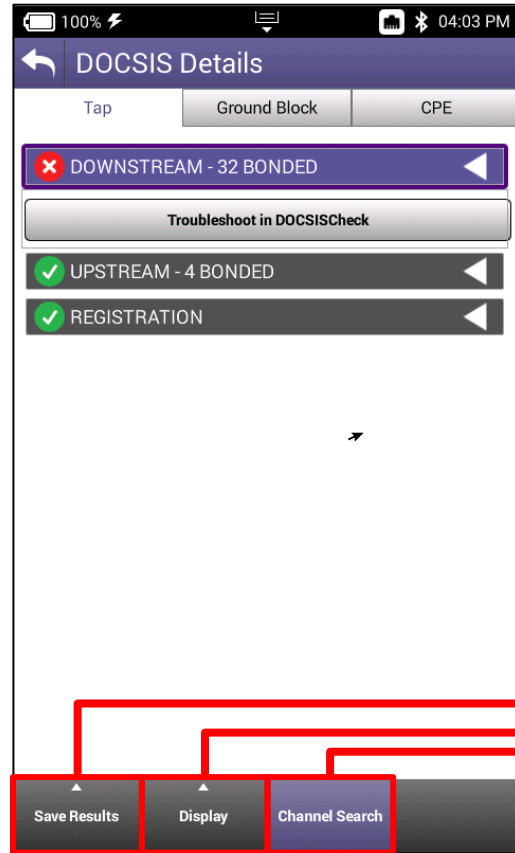
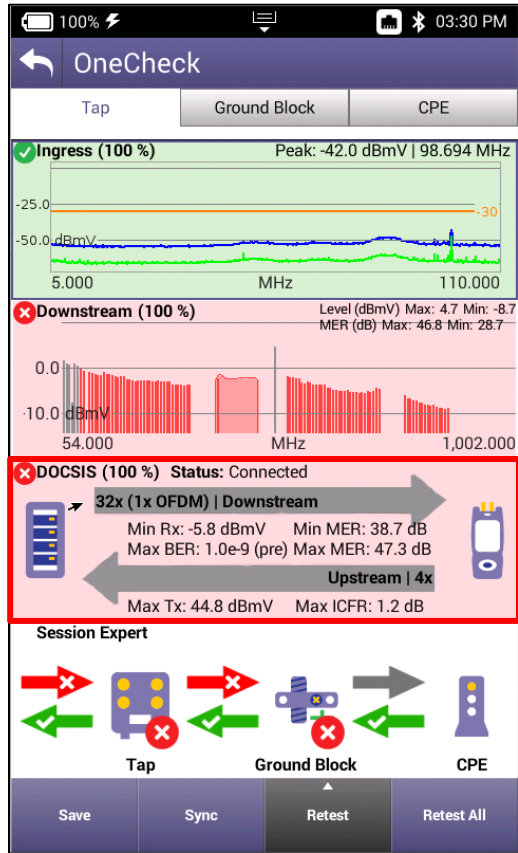


OFF-AIR INGRESS

Name	Peak (MHz)	Peak (dBmV)
Default Ingress Span	731.988	-47.4



One Check - Upstream



Save

Sync

Search Channel

Search by Channel Number

Search by Channel Frequency

OK

1.0 dB

2.0 dB

5.0 dB

10.0 dB

20.0 dB

Auto Reference

One Check - Upstream

100% 04:03 PM

DOCSIS Details

Tap Ground Block CPE

DOWNSTREAM - 32 BONDED

Troubleshoot in DOCSISCheck

UPSTREAM - 4 BONDED

REGISTRATION

THROUGHPUT

PACKET QUALITY

Save Results Display Channel Search

DOWNSTREAM - 32 BONDED

54.000 750.000 MHz

681.000 MHz

Annex B | 256 QAM | 5.361 Msym/s | 6.000 MHz

Level	MER	BER	BER
-5.7 dBmV	45.4 dB	1.0e-9 Pre	1.0e-9 Post
Echo	GD	ICFR	
-36.4 dBc	58 ns	0.6 dB	

Channel	Freq (MHz)	Level (dBmV)	MER (dB)
101	657.000	-5.5	44.3
102	663.000	-5.5	44.2
103	669.000	-5.6	44.3
104	675.000	-5.8	44.4
105	681.000	-5.7	45.4
106	687.000	-5.8	44.4
107	693.000	-5.3	44.1
108	699.000	-5.5	44.3
109	705.000	-5.2	44.1

UPSTREAM - 4 BONDED

35.5 dBmV 49.8

17.800 MHz

64 QAM | 6.400 MHz | Unknown

TX Level	ICFR
40.5 dBmV	1.0 dB

UCD	Freq (MHz)	Level (dBmV)	ICFR (dB)
9	17.800	40.5	1.0
10	24.200	42.0	1.2
11	30.600	43.3	1.2
12	37.000	44.8	1.2

REGISTRATION

Service Plan: Charter Field Ops vKF - 00:07:11:14:1B:CF

Config File: ?
BEWGlyYABxEUG88KIsDi@CLLA4INpMjuhwlFUJEDBYVVOzjkmFD_

Cable Modem

Provisioning Mode: IPV4 ONLY

IPv4 Address: 10.34.192.226

IPv4 Gateway Address: 10.34.192.1

IPv4 Subnet Mask: 255.255.224.0

IPv4 Config: BEWGlyYABxEUG88KIsDi@CLLA4INpMjuhwlFUJEDBYVVOzjkmFD_

CPE

IPv4 Address: 76.175.15.154

IPv4 Subnet Mask: 255.255.240.0

IPv4 Gateway Address: 76.175.0.1

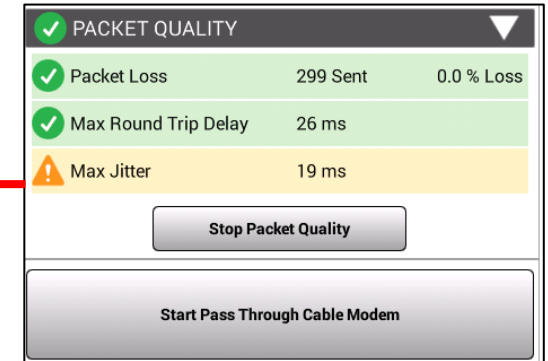
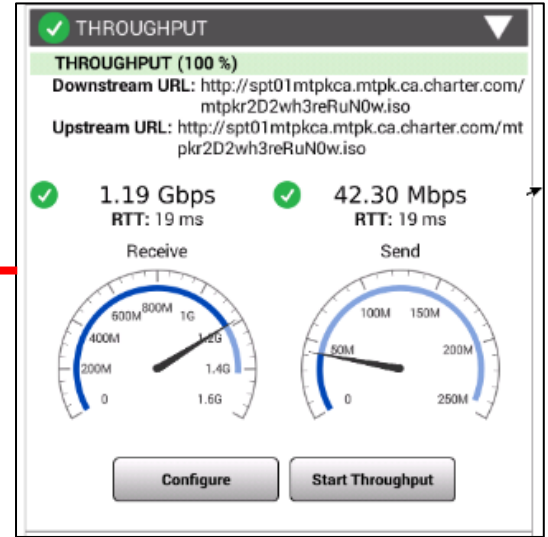
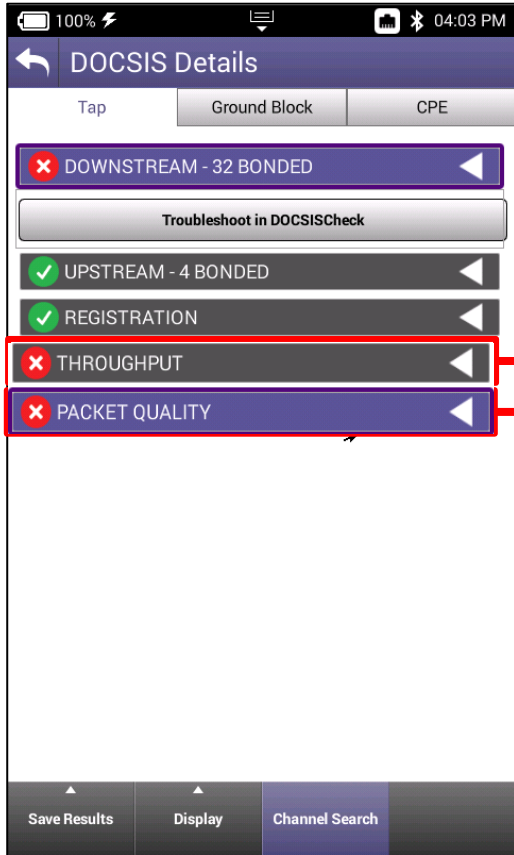
Servers

IPv4 TFTP Server: 98.150.3.105

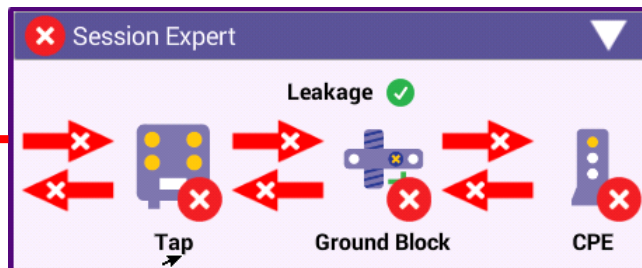
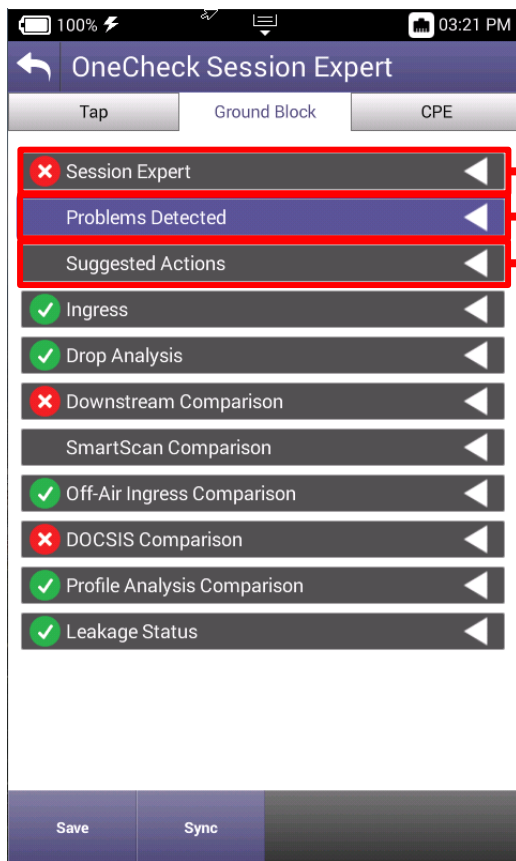
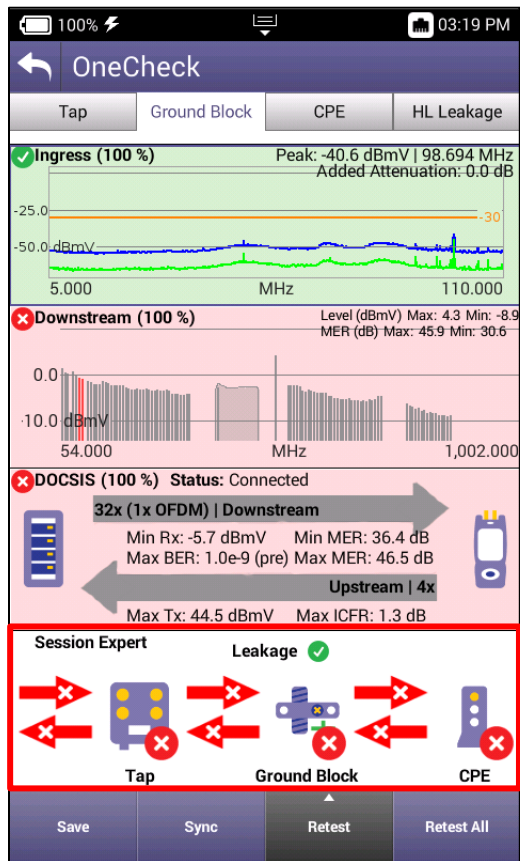
IPv4 DHCP Server: 142.254.177.41

IPv4 TOD Server: 98.150.3.105

One Check - Upstream



One Check – Session Expert



- ### Problems Detected
- Signal quality
 - Downstream throughput problem
 - Packet jitter problem
 - Upstream throughput problem
 - Non-unique home detected

Suggested Actions

▼ Network downstream issue detected. Refer to maintenance

A network downstream issue has been detected. Retest at tap and refer to maintenance if problem persists.

One Check – Session Expert

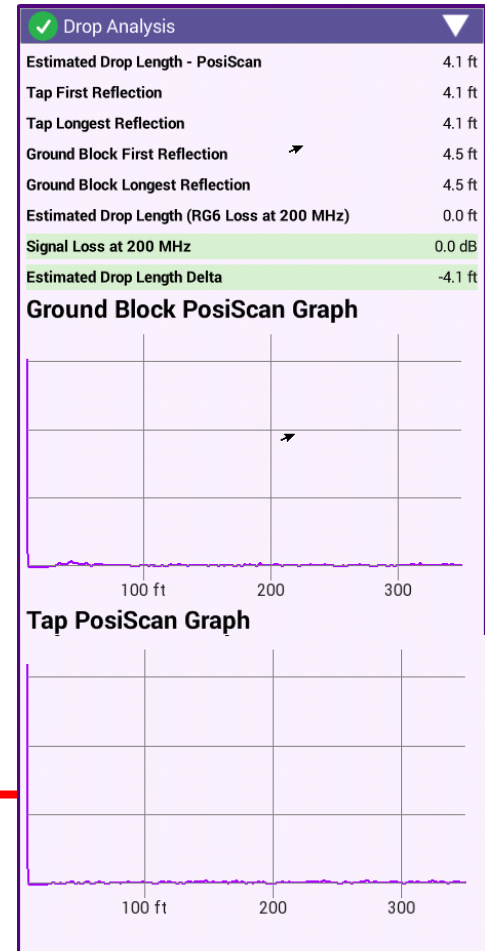
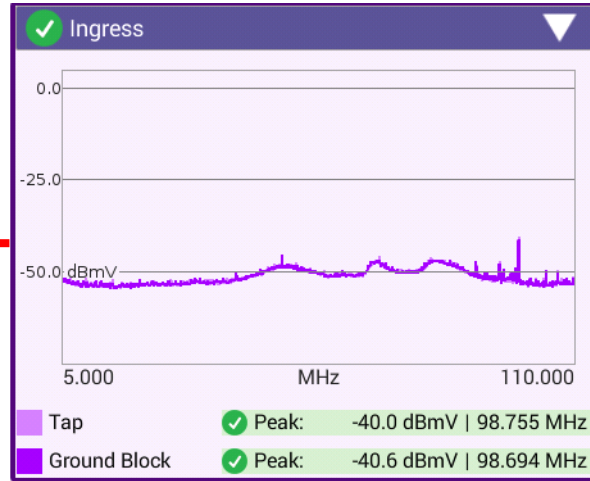
100% 03:21 PM

OneCheck Session Expert

Tap Ground Block CPE

- Session Expert
- Problems Detected
- Suggested Actions
- Ingress**
- Drop Analysis**
- Downstream Comparison
- SmartScan Comparison
- Off-Air Ingress Comparison
- DOCSIS Comparison
- Profile Analysis Comparison
- Leakage Status

Save Sync



One Check – Session Expert

100% 03:21 PM

OneCheck Session Expert

Tap Ground Block CPE

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Save Sync

Downstream Comparison

	Tap	GB	CPE
Downstream			
Min Analog Level (dBmV)	4.3	4.3	4.3
Max Analog Level (dBmV)	4.3	4.3	4.3
Min Digital Level (dBmV)	-8.9	-8.9	-8.9
Max Digital Level (dBmV)	1.5	1.5	1.4
Min MER(dB)	31.0	30.6	30.0
Max MER (dB)	46.0	45.9	45.6
Max BER (Pre)	1.0e-8	1.0e-8	1.0e-8
Max BER (Post)	1.0e-8	1.0e-8	1.0e-8
Max Echo (dBc)	0.0	0.0	0.0
Max Group Delay (ns)	1.8	1.8	1.7
Max ICFR (dB)	4.5	4.5	4.5
Min Hum (%)	0.1	0.1	0.1
Max Hum (%)	0.3	0.4	0.4
OFDM			
Min Level (dBmV)	-3.1	-3.1	-3.0
Max Level (dBmV)	-1.8	-1.7	-1.8
Min MER PCTL (dB)	37.3	37.2	37.3
Max Stddev MER (dB)	0.6	0.6	0.6
Max ICFR (dB)	0.8	0.8	0.8
Max Echo (dBc)	-43.9	-42.9	-43.3

SmartScan Comparison

	Tap	GB	CPE
System Tilt (dB)	-5.8	-6.1	-5.9
Max Deviation (dB)	2.5	2.5	2.5

Off-Air Ingress Comparison

	Tap	GB	CPE
Default Ingress Span (dBmV)	-44.8	-46.4	-43.6

One Check – Session Expert

OneCheck Session Expert

Tap Ground Block CPE

- Session Expert
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- Ingress
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- Off-Air Ingress Comparison
- DOCSIS Comparison**
- Profile Analysis Comparison
- Leakage Status**

Save Sync

Profile Analysis Comparison

	Tap	GB	CPE
Profile A	Pass	Pass	Pass
Profile B	—	—	—
Profile C	—	—	—
Profile NCP	Pass	Pass	Pass
Profile PLC	Pass	Pass	Pass

Leakage Status

Duration	26 s	100%
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DOCSIS Comparison

	Tap	GB	CPE
Status	Connected	Connected	Connected
Downstream			
Number Bonded	32	32	32
Min Level (dBmV)	-5.7	-5.7	-5.7
Max Level (dBmV)	-2.0	-2.0	-2.0
Min MER (dB)	44.7	44.5	44.5
Max MER (dB)	46.9	46.5	46.5
OFDM			
Min Level (dBmV)	-3.1	-3.0	-3.0
Max Level (dBmV)	-1.8	-1.8	-1.8
Min MER PCTL (dB)	37.2	37.3	37.1
Max Stddev MER (dB)	0.6	0.6	0.6
Max ICFR (dB)	0.9	0.8	0.8
Max Echo (dBc)	-43.2	-43.2	-43.2
Upstream			
Number Bonded	4	4	4
Max Tx Level (dBmV)	44.0	44.5	44.0
Max ICFR (dB)	1.3	1.3	1.3
Services			
DS Throughput (Mbps)	0.0	0.0	0.0
US Throughput (Mbps)	0.0	0.0	0.0
Packet Loss (%)	0.0%	0.0%	0.0%
Max Round Trip Delay (ms)	18	17	17
Max Jitter (ms)	10	10	10



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