

March 2020



VIAVI Solutions

OneExpert CATV 630

Extended Quick Start Guide v 5.3

Table of Contents

- OneExpert CATV Overview
 - Battery Replacement
 - RF Barrel and Collar Replacement
 - Remote Access
 - Engineering Mode
 - Home Screen
 - Utility Menu
 - System Settings
 - CATV Settings
- Software and Firmware Upgrades
 - USB Firmware Upgrades
 - StrataSync Firmware Upgrade
 - Firmware Recovery
- Synchronization with StrataSync
 - Ethernet
 - WIFI
 - RF Sync
- Mobile Tech App
- Ethernet Testing
 - Speedcheck
 - TrueSpeed
- Wiring Tools
 - Port Discovery
 - Hub Flash
 - Ping Tool

Table of Contents

- Fiber Optics Tools
 - P5000i Inspection Scope
- MP60/80A USB Power MeterFiber Optics Tools
 - P5000i Inspection Scope
 - MP60/80A USB Power Meter
- CATV Measurements
 - Quick Check
 - Spectrum
 - TDR
 - HL Leakage Option and Transmitter
 - Ingress Scan
 - Channel Check
 - DOCSIS Check
 - One CHECK
- Channel EXPERT
- DOCSIS EXPERT
- Ingress EXPERT
- OneCheck EXPERT
- Return Signal Generator (RSG) w/ Loopback
- Field View with RSG
- Forward Sweep
- Return Sweep
- Sweepless Sweep
- Return Sweepless Sweep
- Sweep Errors

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

Table of Contents

- Fiber Optics Tools
 - P5000i Inspection Scope
 - MP60/80A USB Power Meter
- CATV Measurements
 - Quick Check
 - Spectrum
 - TDR
 - HL Leakage Option and Transmitter
 - Ingress Scan
 - Channel Check
 - DOCSIS Check
 - One CHECK

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:

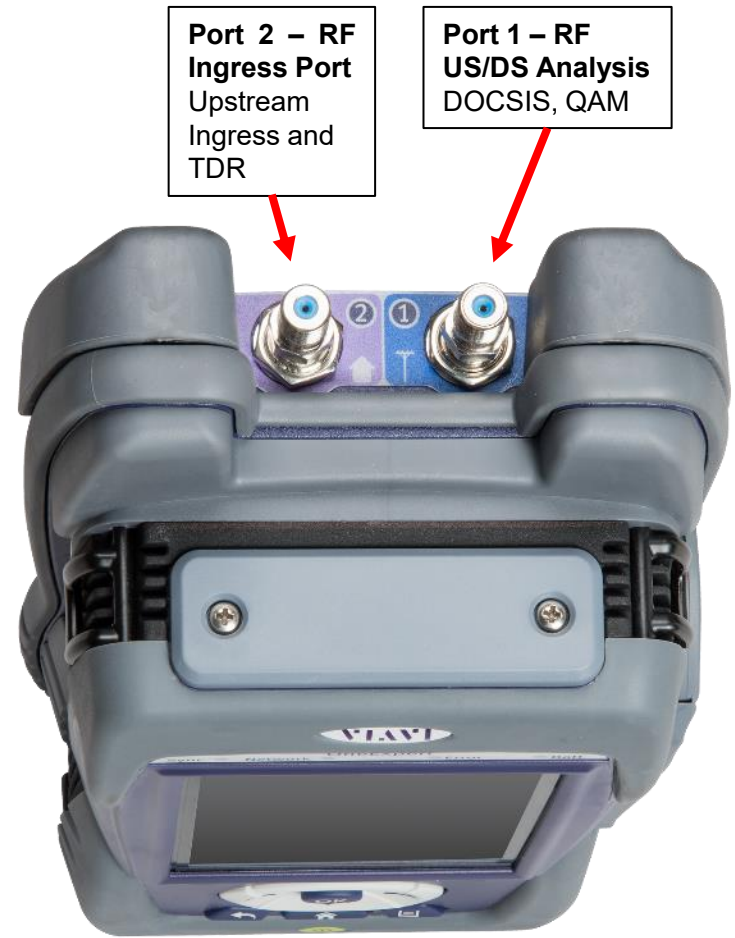
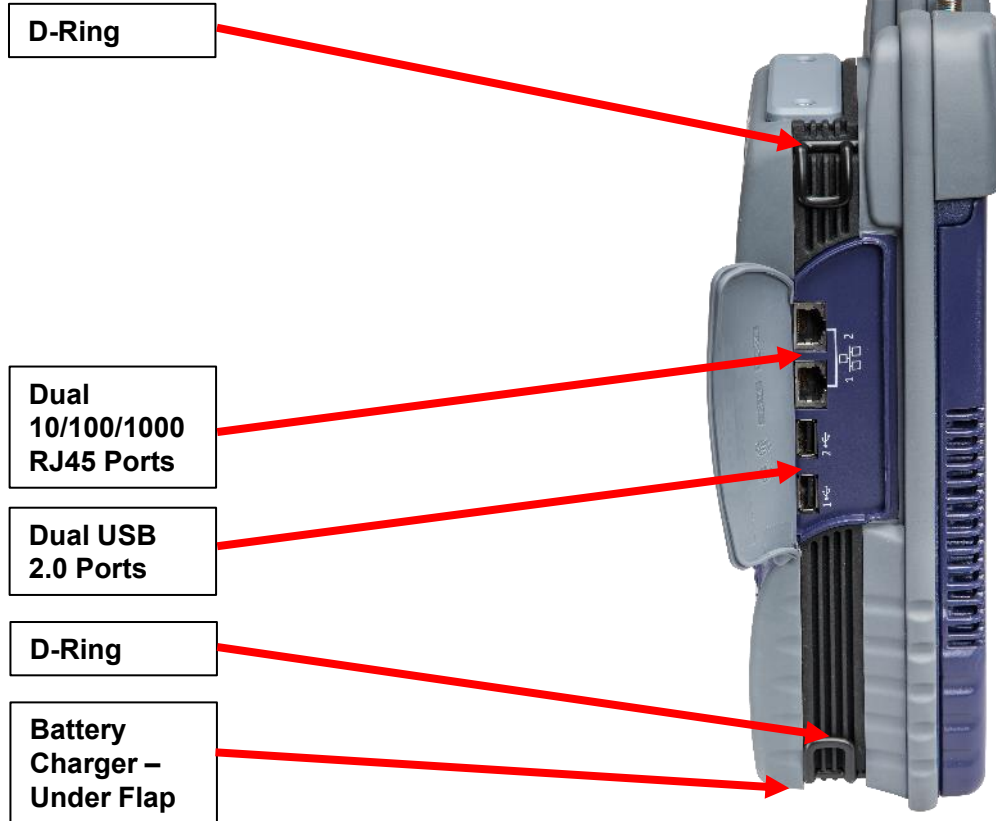
<https://www.viavisolutions.com/en-us/support/quick-references/quick-tip-videos>

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

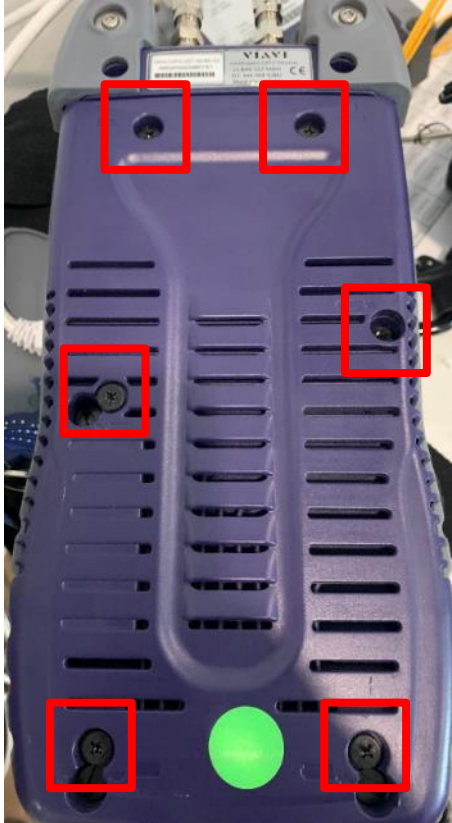
DIRECTIONAL Pad

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.

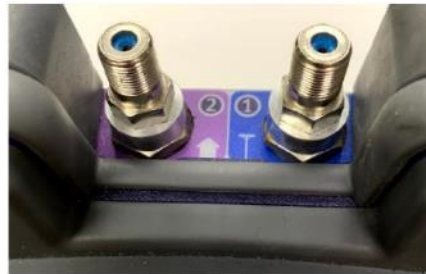
Reason for RF Port Aluminum Collars and F-81 Considerations

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.



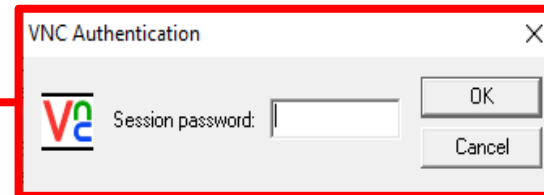
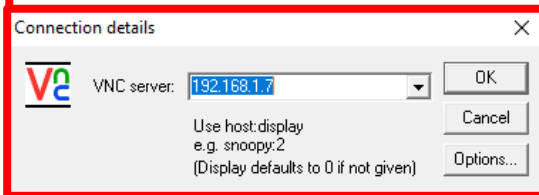
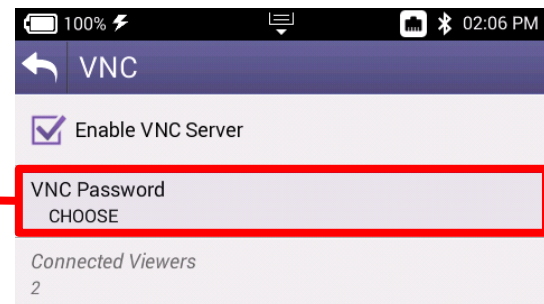
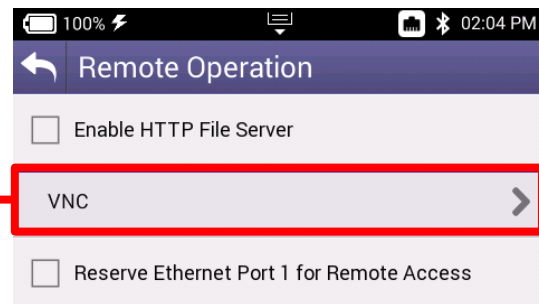
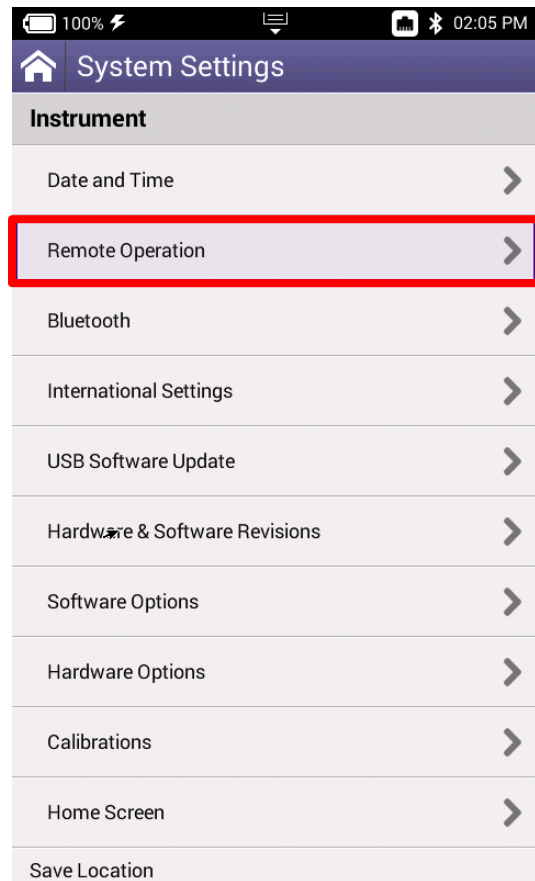
Start by removing the current F-81 adapter and collar (if present). If needed use a 7/16 wrench, turn the F connector counterclockwise until the adapter is completely out of the ONX RF port. Retain the collars if not replacing them with new ones.

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

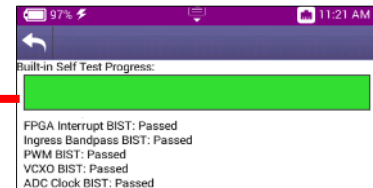
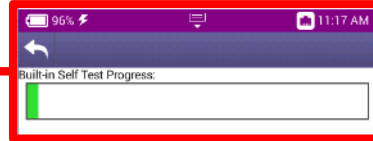
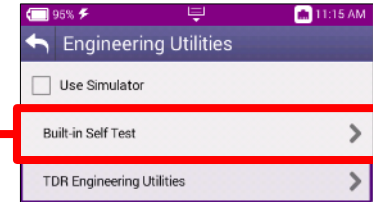
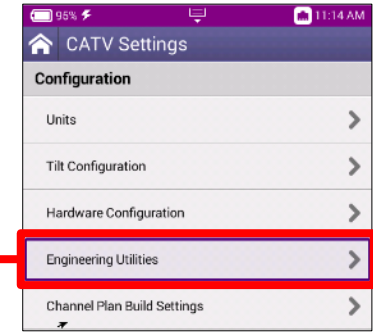
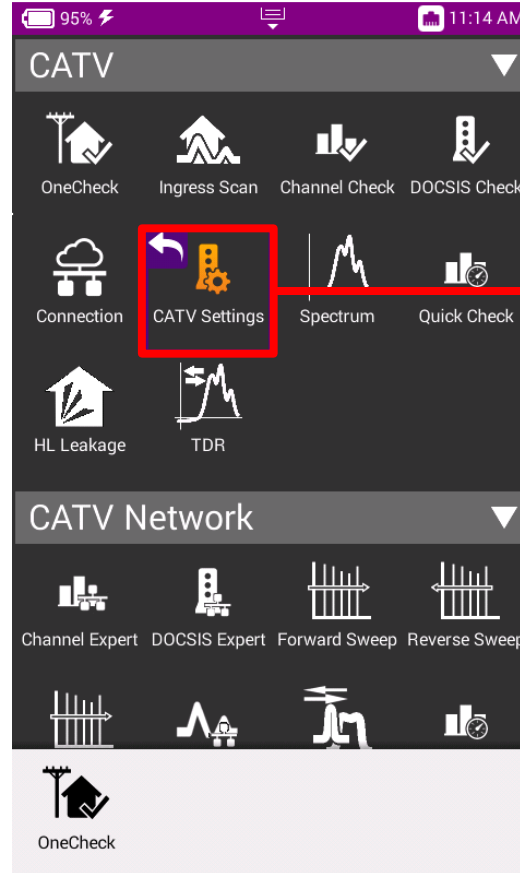


Engineering Mode

Engineering Mode



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



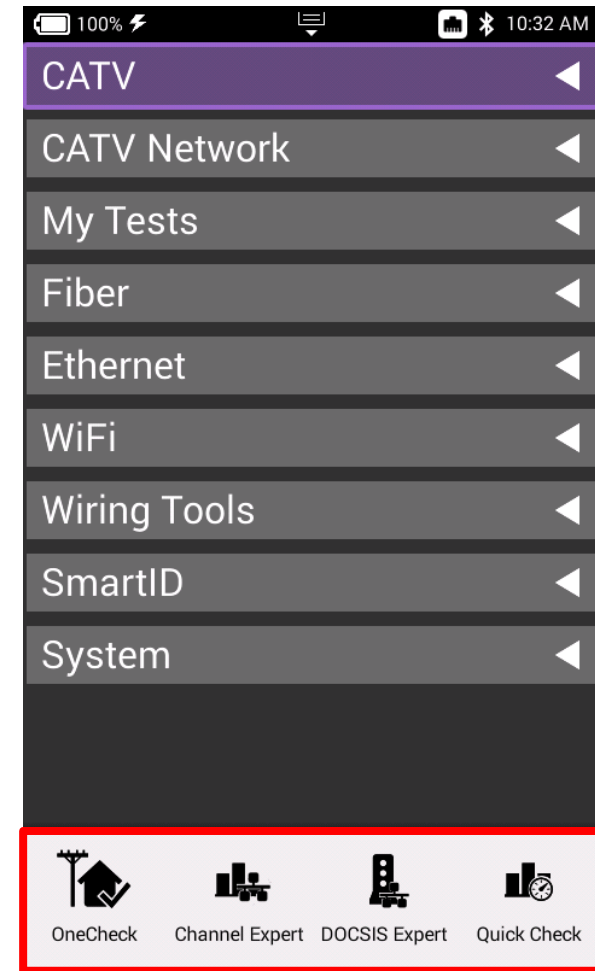
Home Screen

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

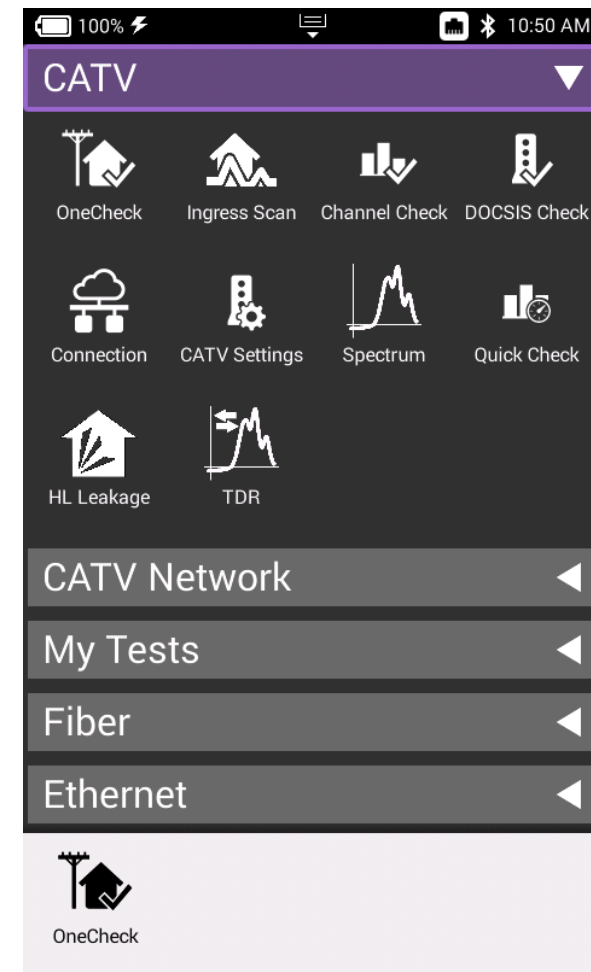
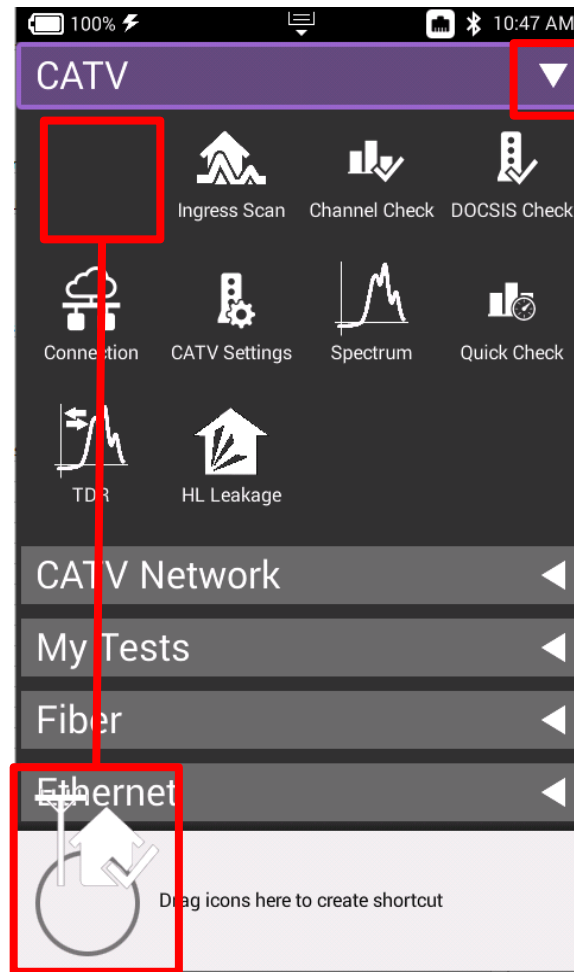


Home Screen

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

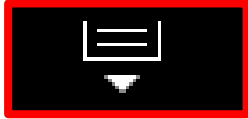
TEST FUNCTION ICONS can also be rearranged like a mobile device

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

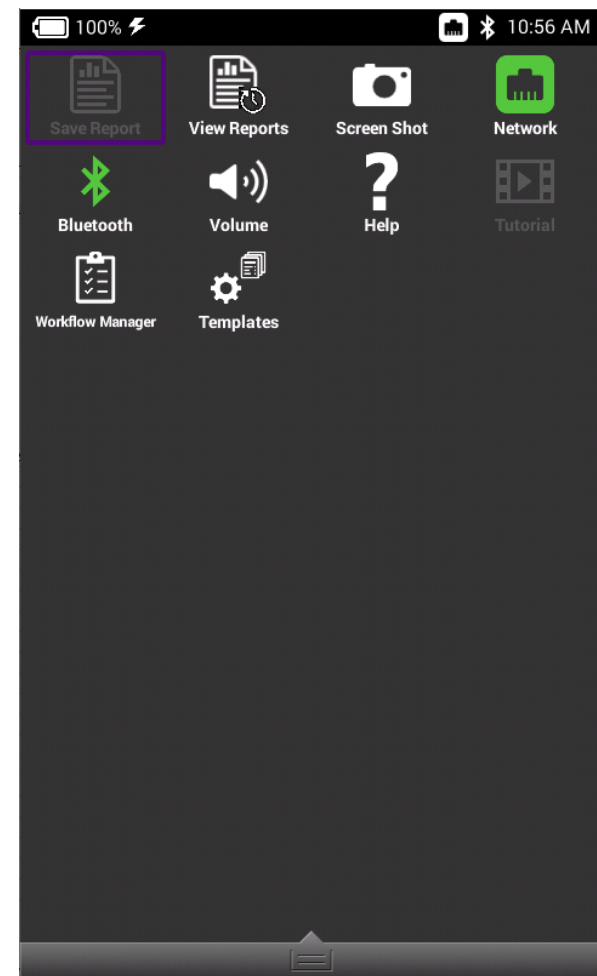
VOLUME – Control the device volume

HELP – Provides TAC phone numbers

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

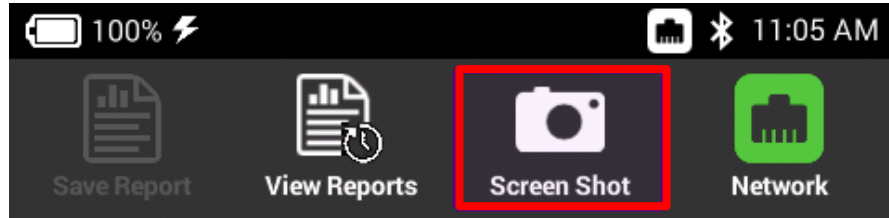
WORKFLOW MANAGER - Future enhancement

TEMPLATES – Use to switch between multiple templates and configurations

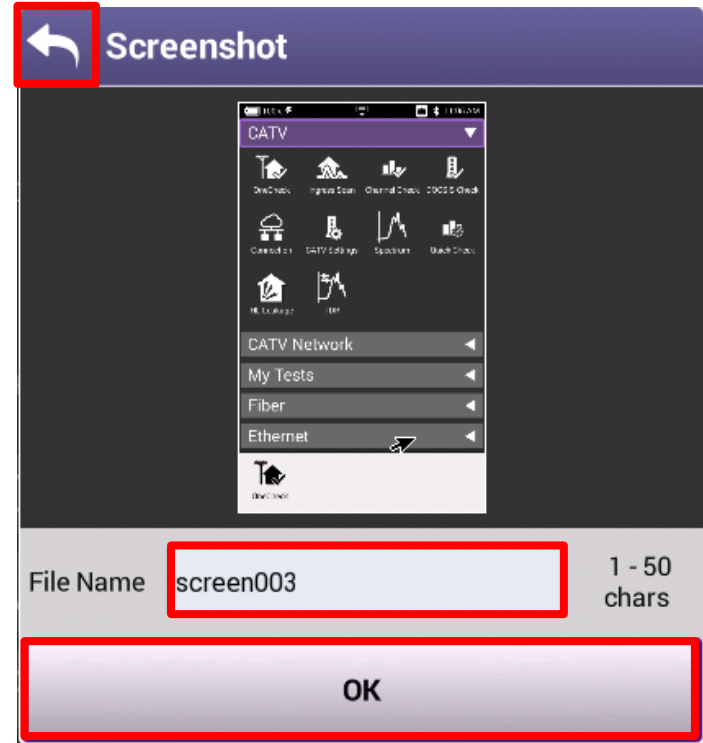


Utility Menu – Screenshot Creation

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



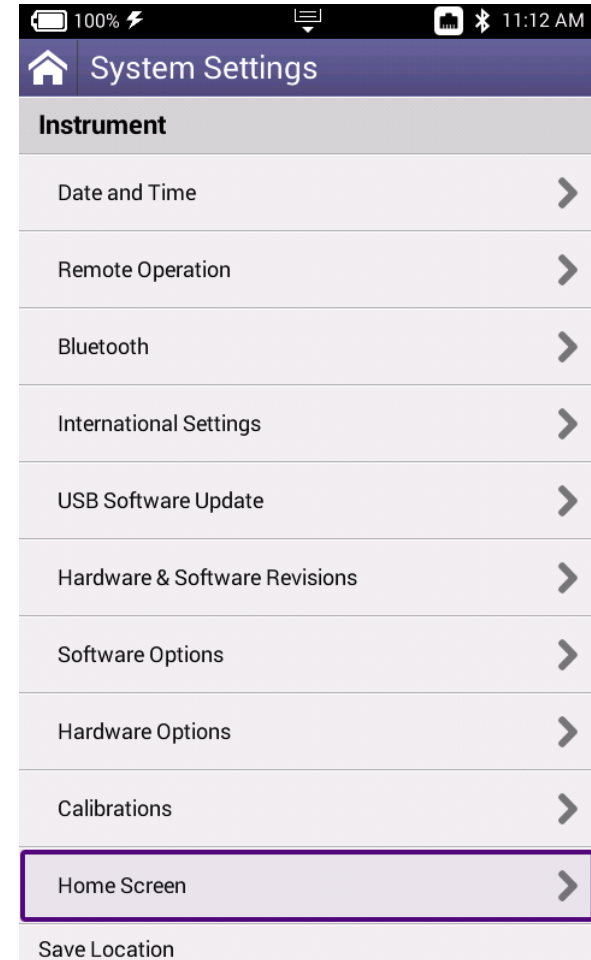
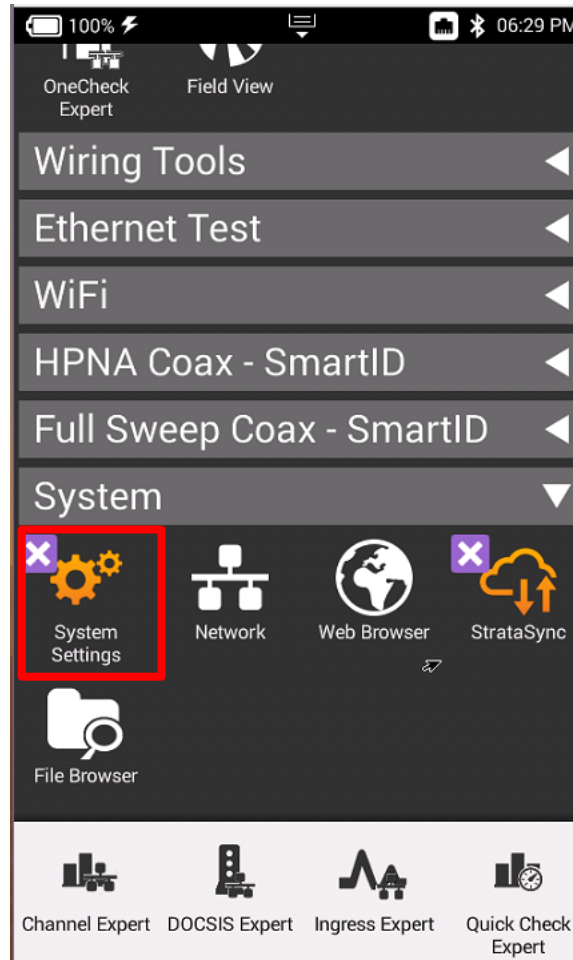
System Settings

System Settings

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

Select SYSTEM SETTINGS

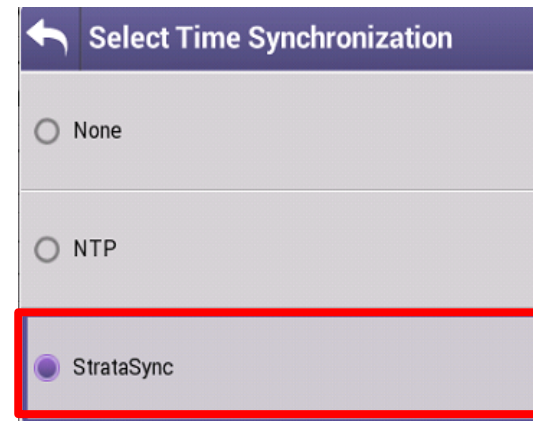
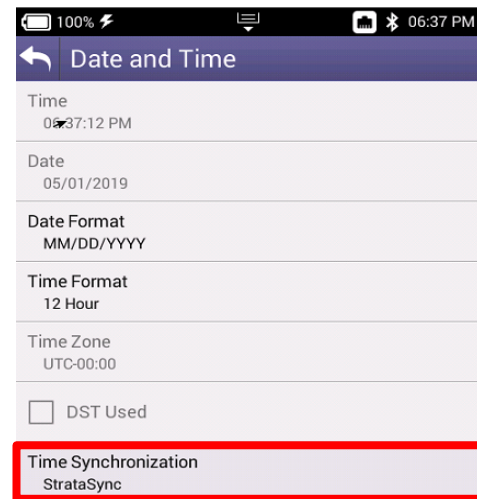
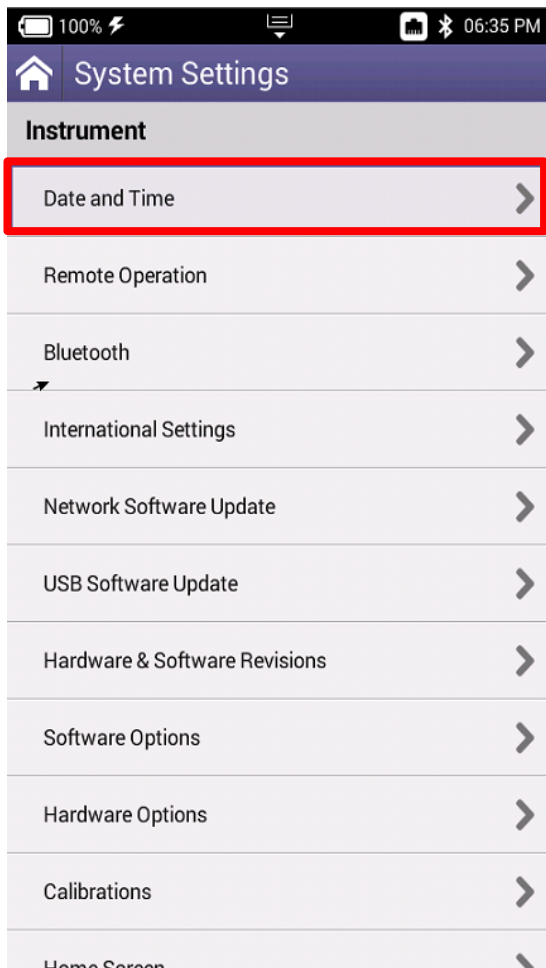
From SYSTEM SETTINGS, the user can set up the meter a variety of ways



Date and Time

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

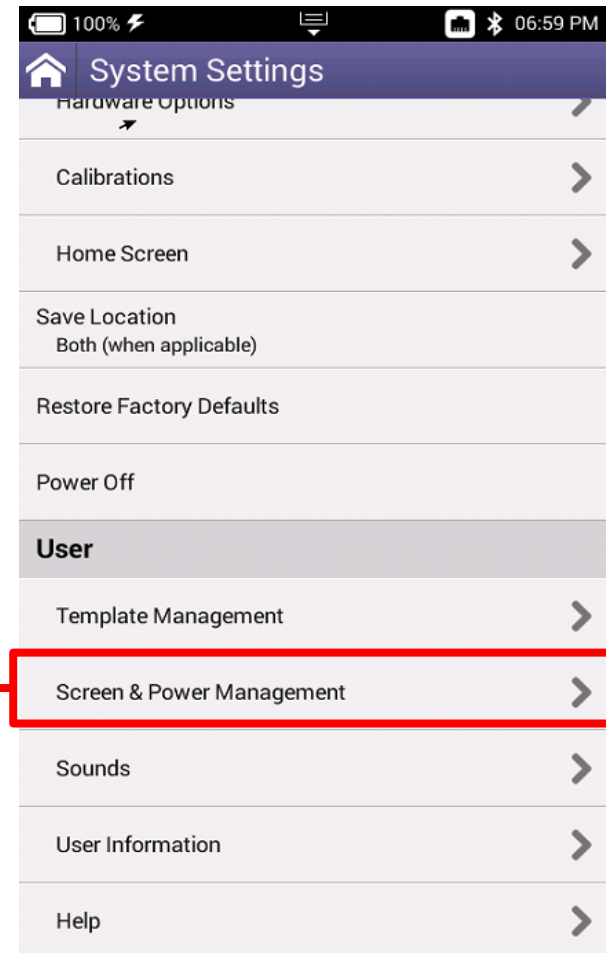
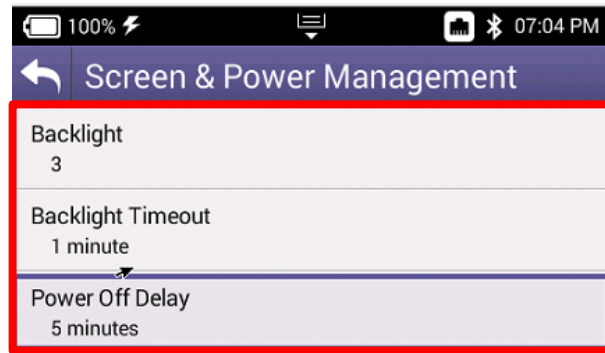
This is important because test data will be time stamped



Screen and Power Management

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

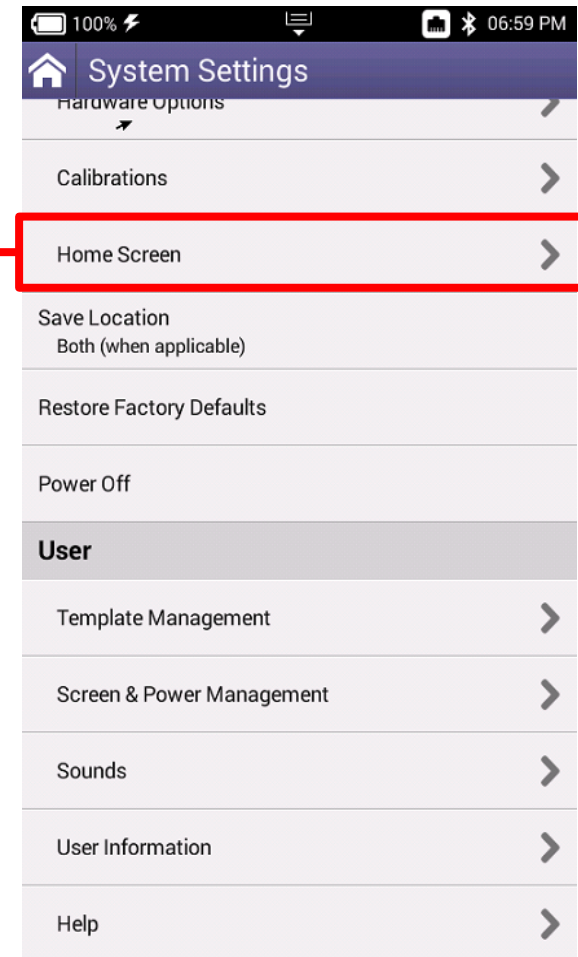
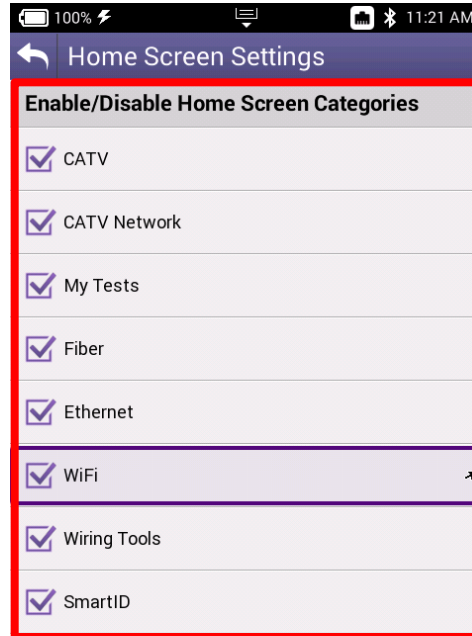
Recommended values are shown to the right. However, if POWER OFF DELAY needs to be set higher in order to accommodate technician's pace, select appropriate time



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

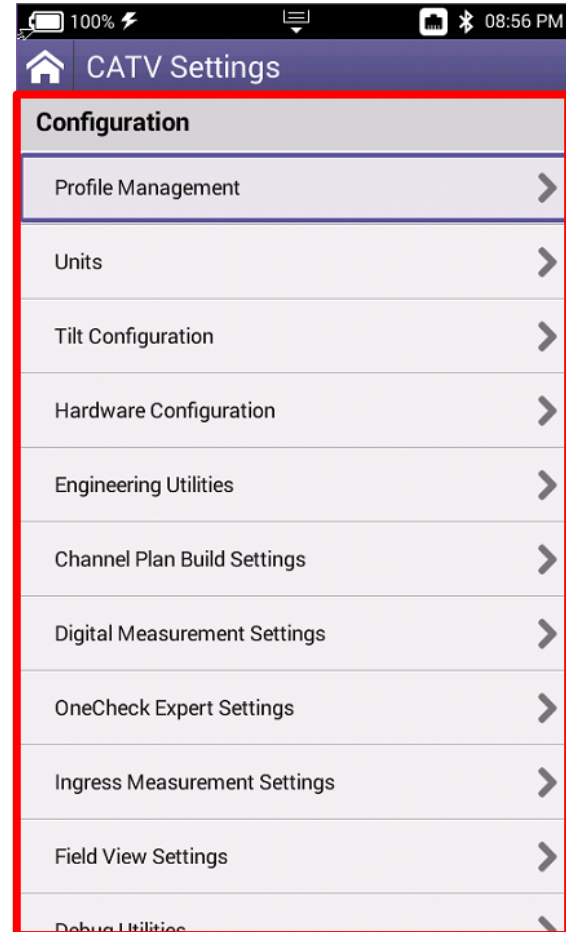
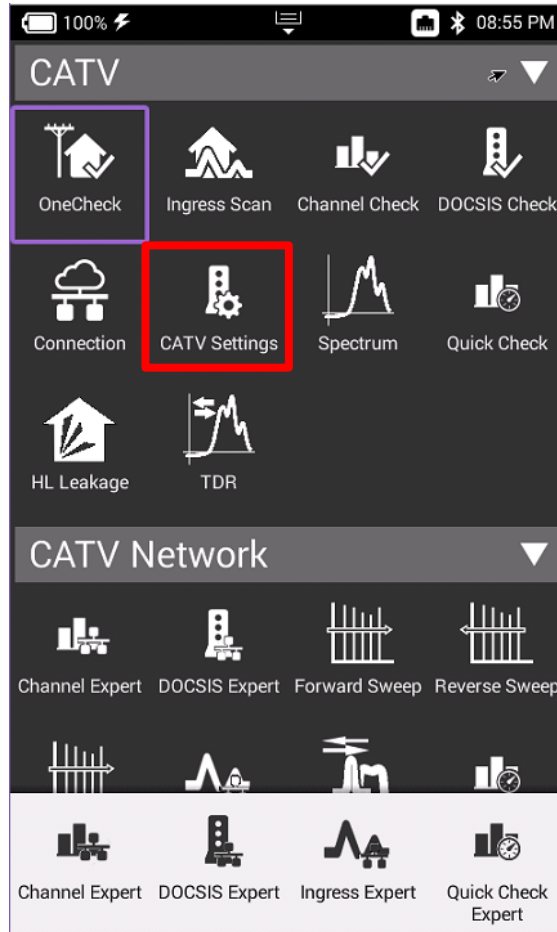
Hardware & Software Revisions	
Meter Model: ONX-620	
SW Bundle ONXCBL.3.20.10	
Base	4.30.10
Cable	3.20.10
DOCSIS Cable Modem 3390	1.6.607
OneExpert Cable	
Unit ID	RRQA0023450012
Assembly ID	22089324
MAC Address - Ethernet	00:07:11:10:09:EA
MAC Address - System	00:07:11:10:09:EB
MAC Address - Test 1	00:07:11:10:09:EC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

CATV Settings

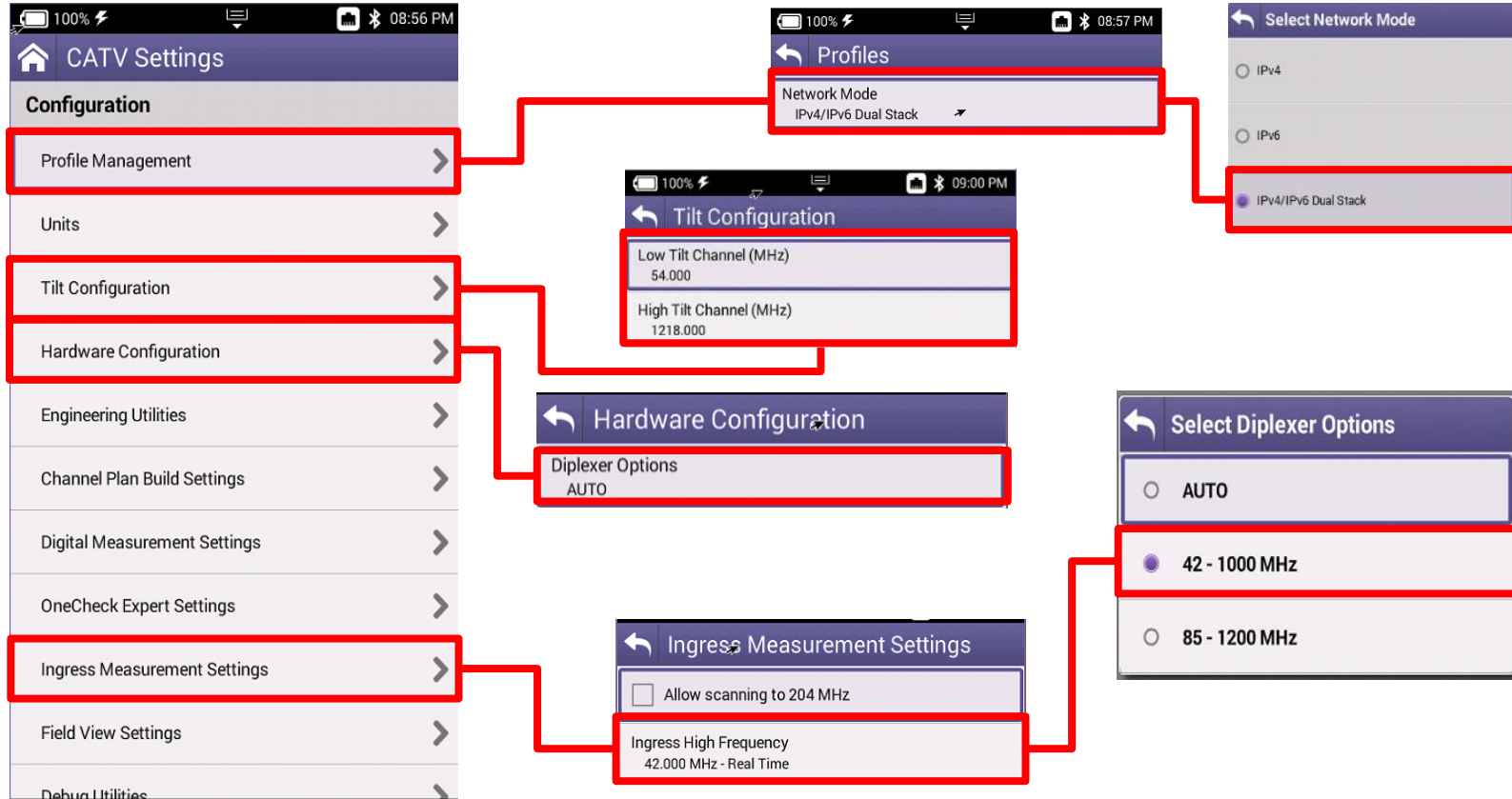
CATV Settings

Navigate from the HOME screen to CATV SETTINGS

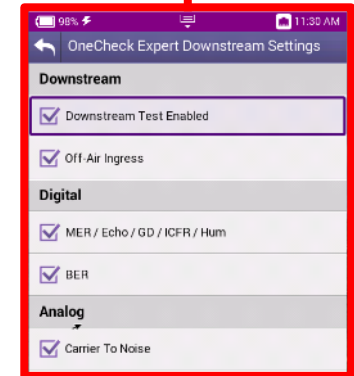
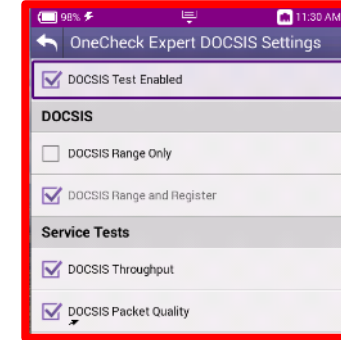
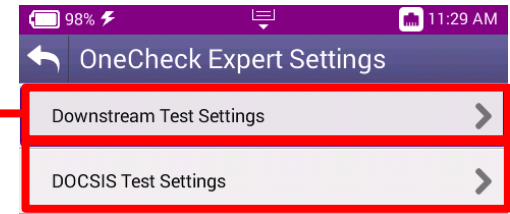
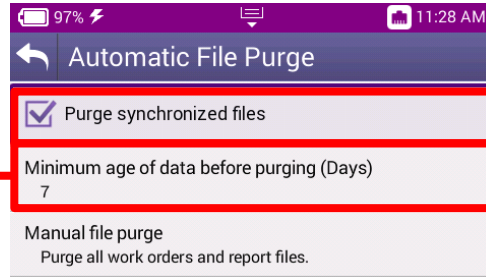
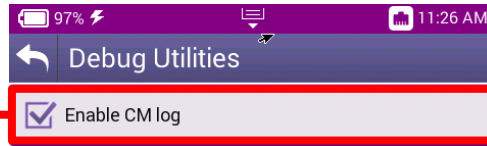
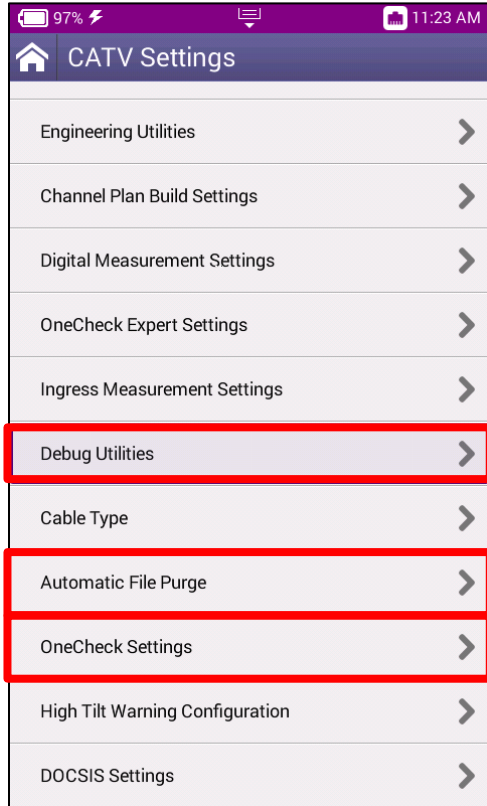
- IPv4 or IPv6
- Tilt
- Sweep
- Diplex
- Digital Measurement
- Channel Plan Build Settings



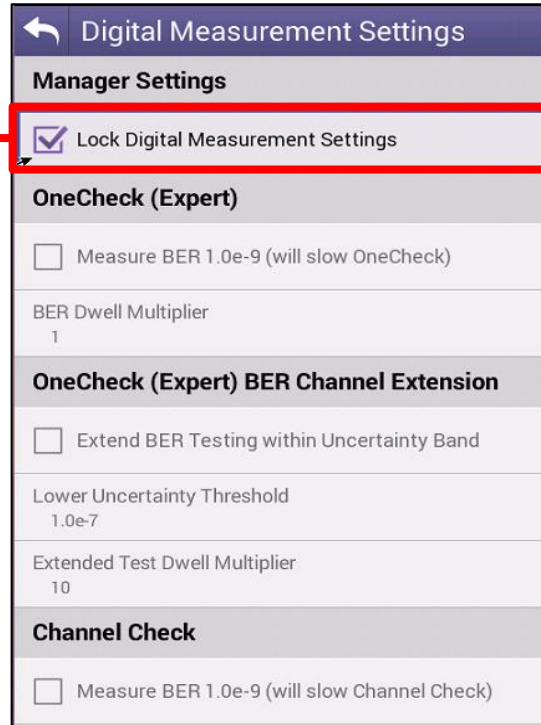
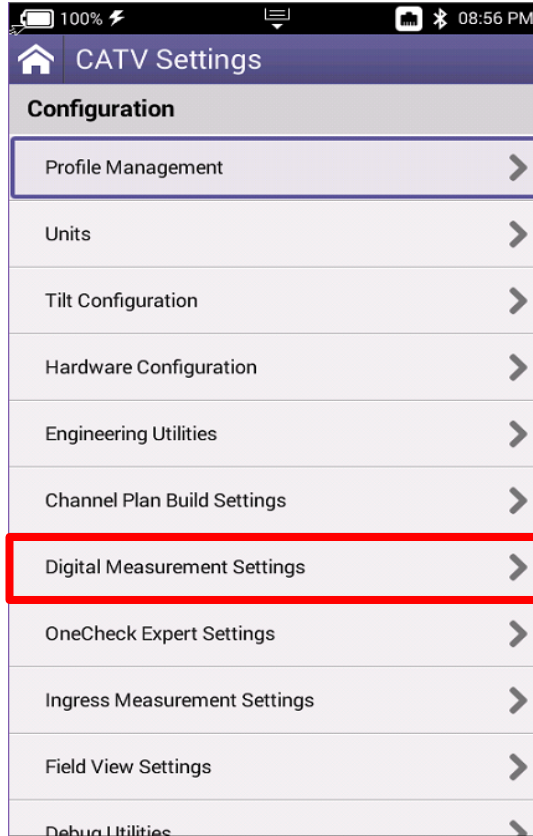
Advanced CATV Settings



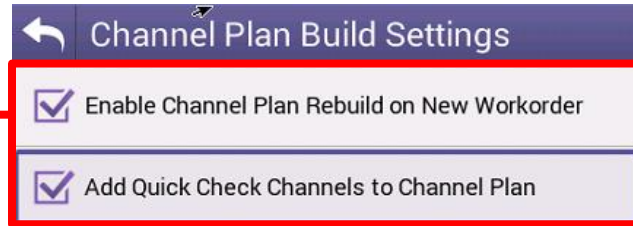
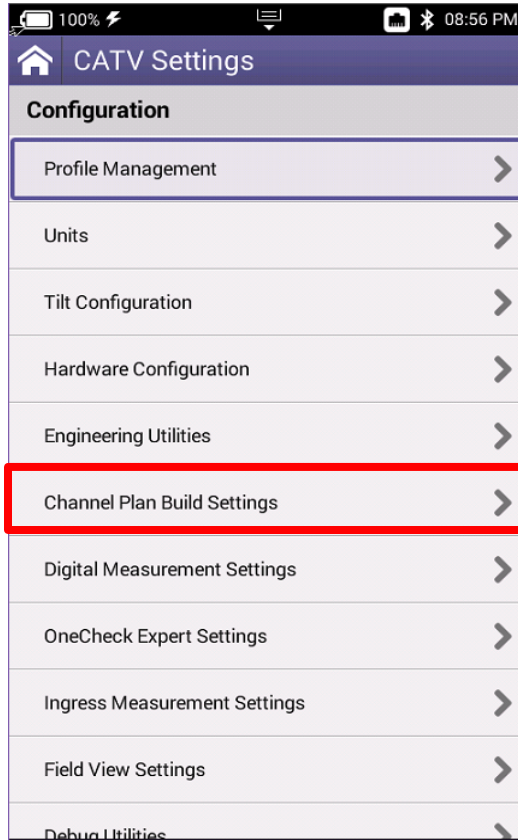
Advanced CATV Setting



Advanced CATV Settings



Advanced CATV Settings

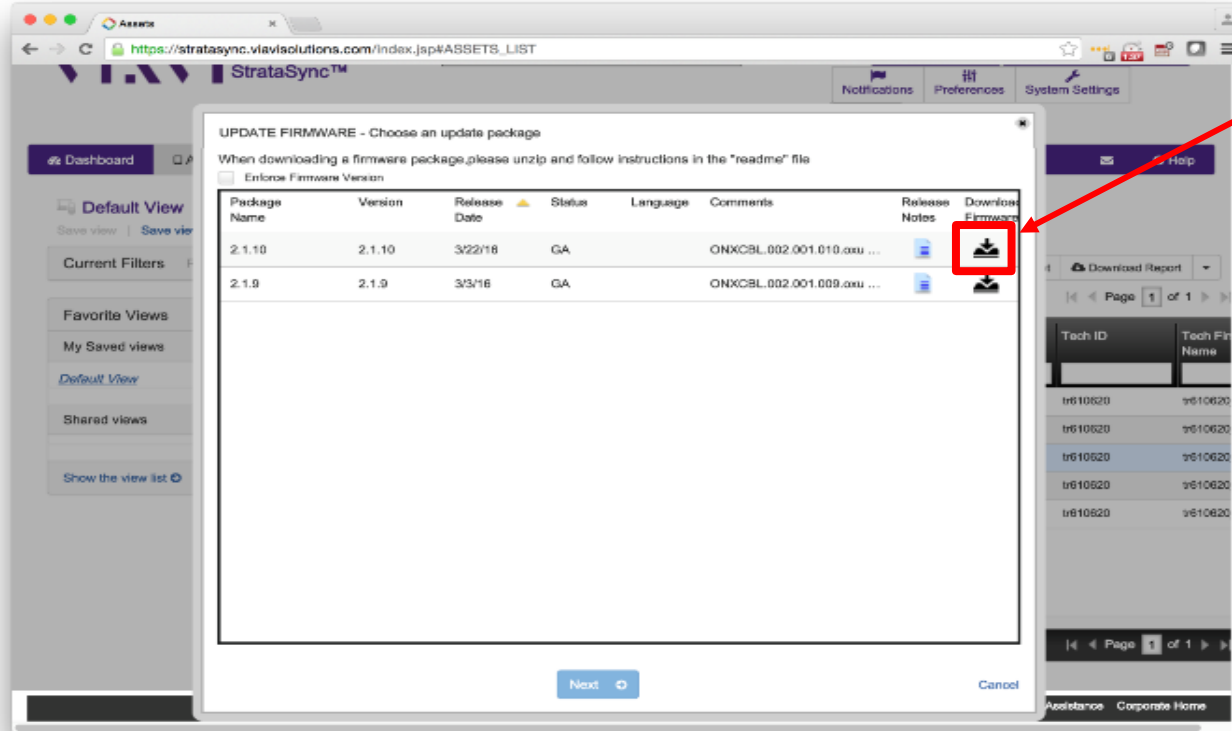


Software and Firmware Updates

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



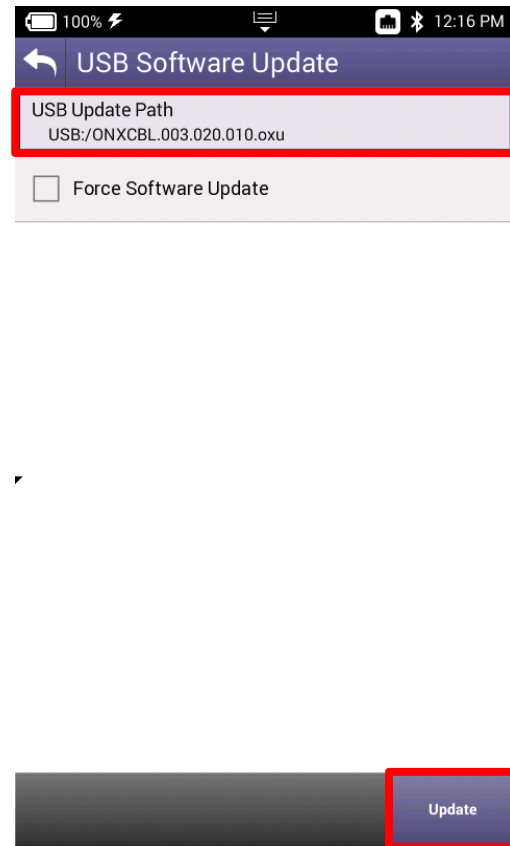
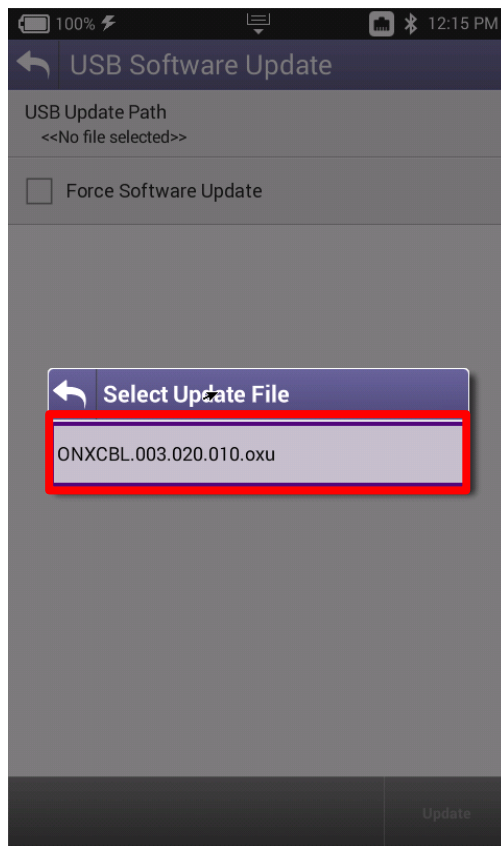
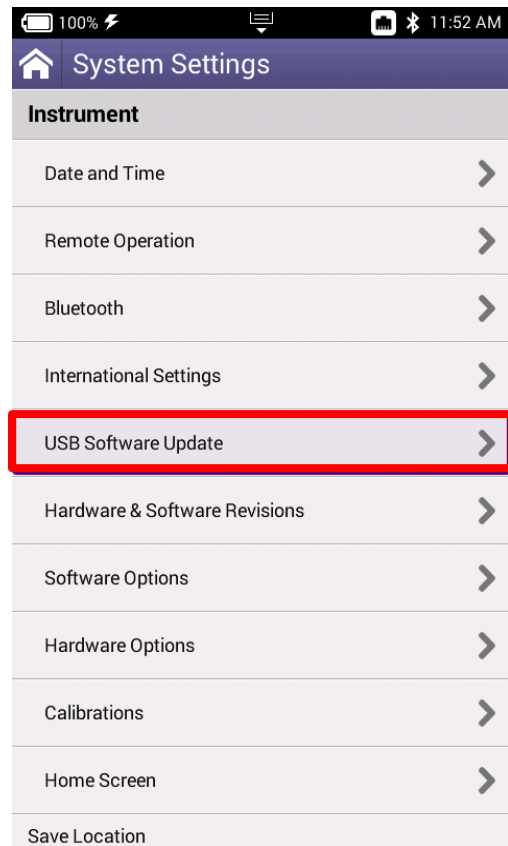
- Click here to download the newest firmware

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

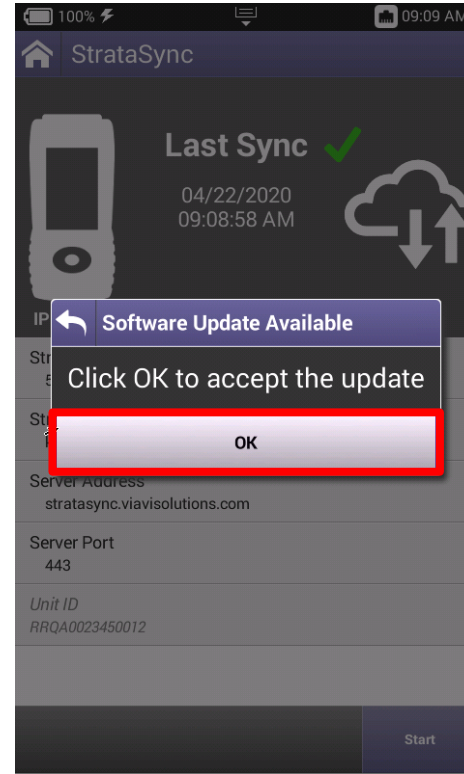
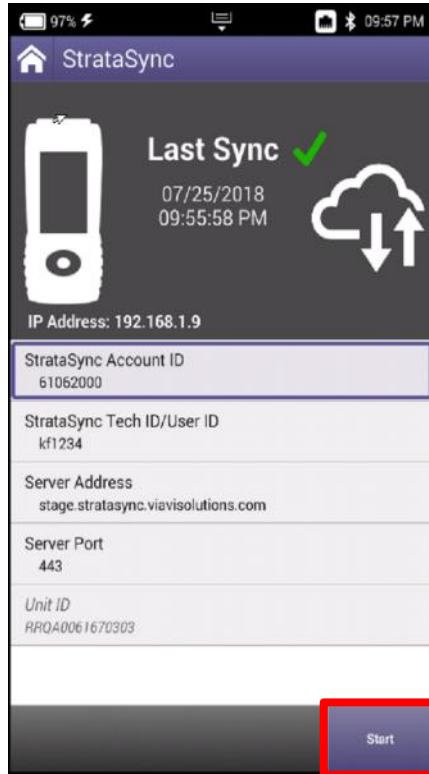
- Press Cancel once the download has completed and you have placed the file on the USB thumb drive.

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

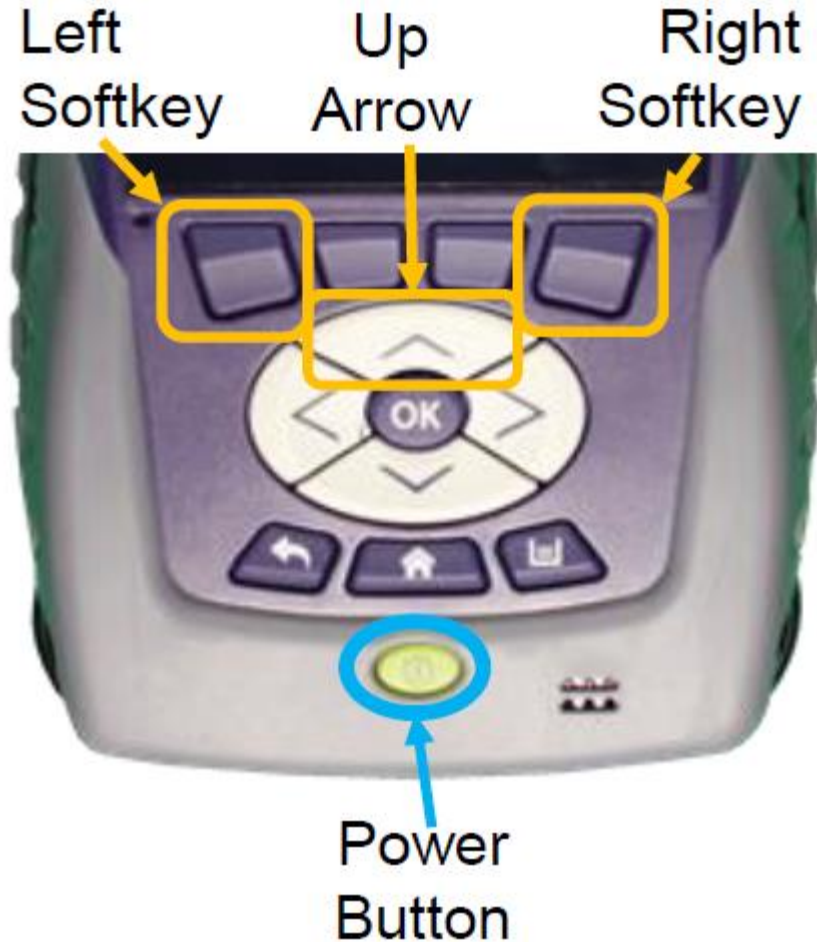
Power off the unit.(If the unit is frozen, press and hold the power key until the ONX powers off ~10-15 seconds)

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

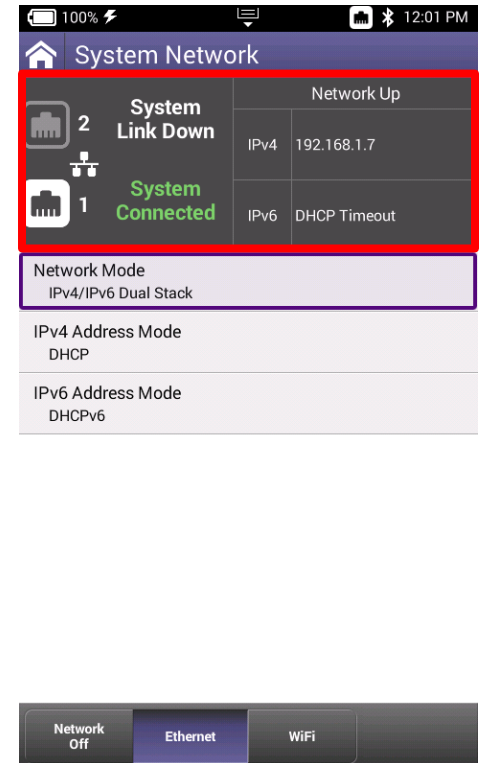
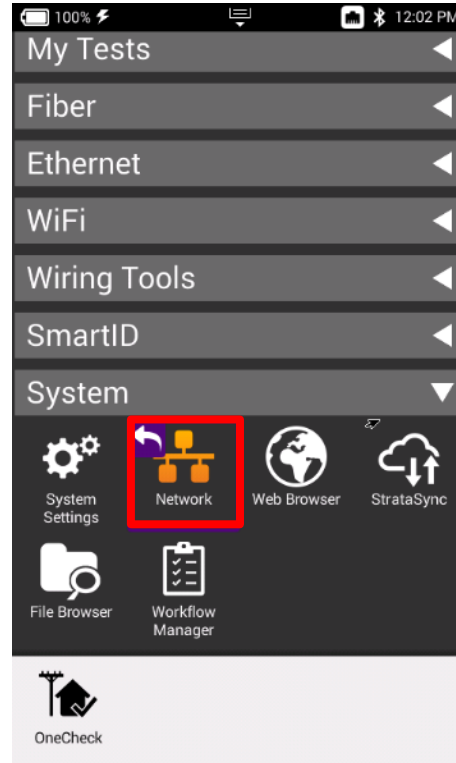


StrataSync Synchronization

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



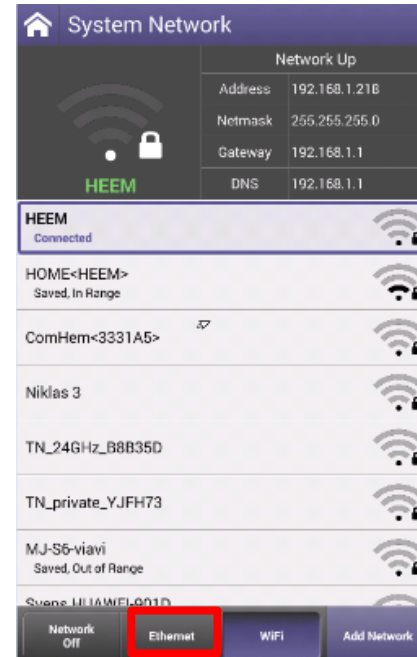
StrataSync Synchronization - WIFI

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)

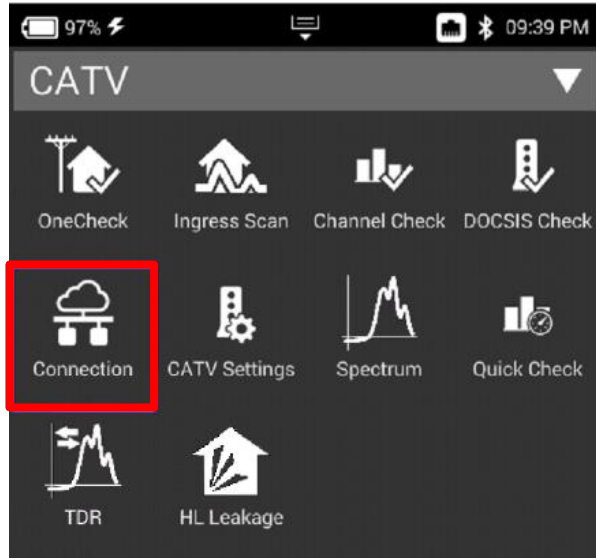


From the ONX home screen navigate to **SYSTEM NETWORK / WIFI** - Verify the ONX has a valid IP address

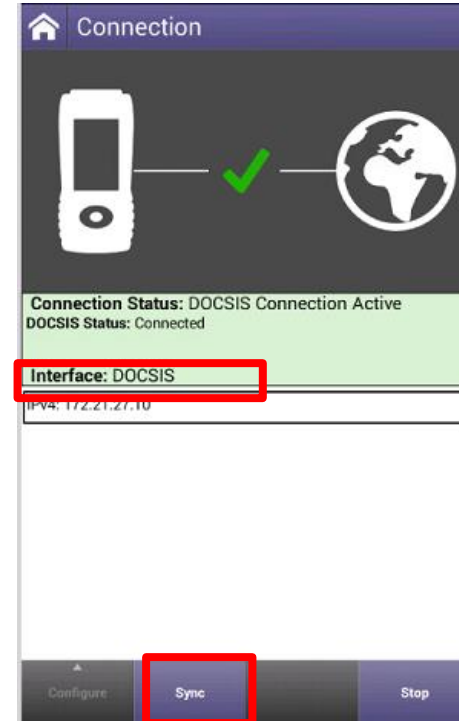


StrataSync Synchronization - RF

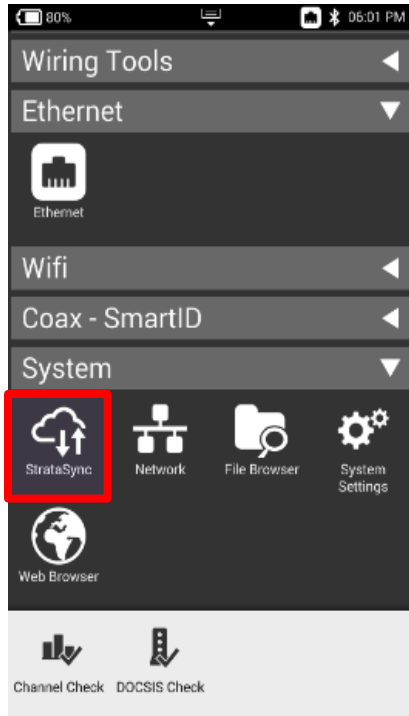
Make sure that CM MAC 1 is provisioned in the billing system
Select the CONNECTION APP from CATV



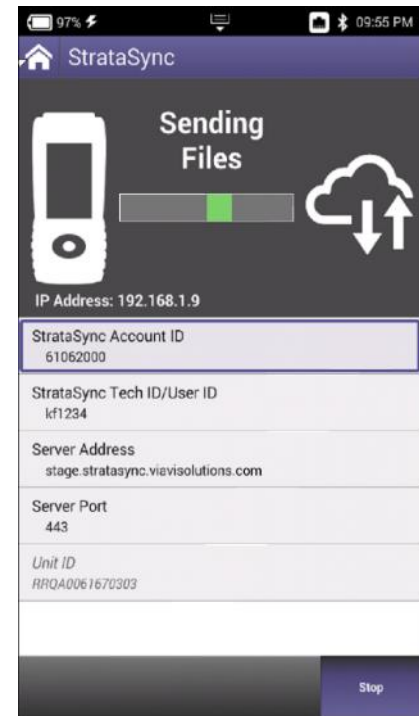
Once CONNECTION STATUS reports a GREN Check mark and
INTERFACE: RF; IP ADDRESS is shown



StrataSync Synchronization – ETHERNET, WIFI and RF



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



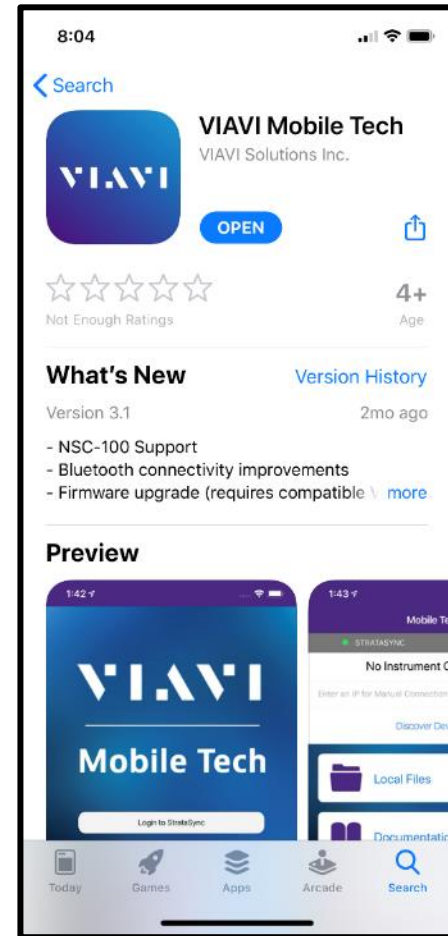
STRATASYNC ACCOUNT ID = xxxxxxxx
SERVER ADDRESS = stratasync.jdsu.com
(stratasync.viavisolutions.com also works)
SERVER PORT = 443

Mobile Tech App

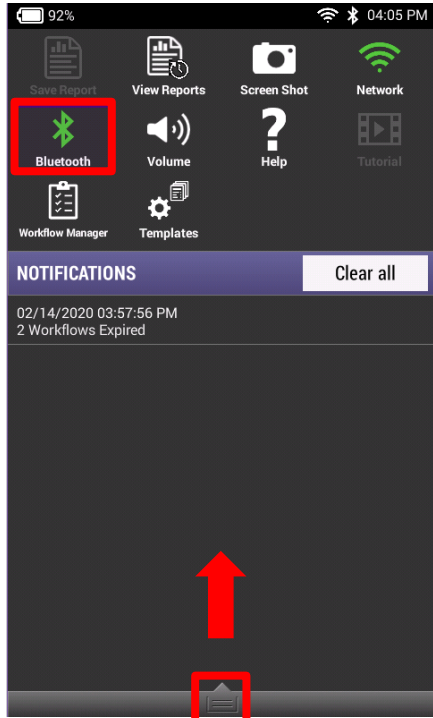
MOBILE TECH APP

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

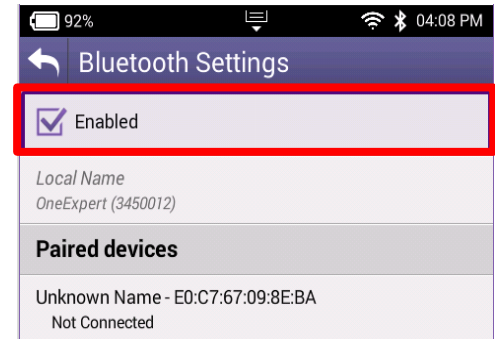
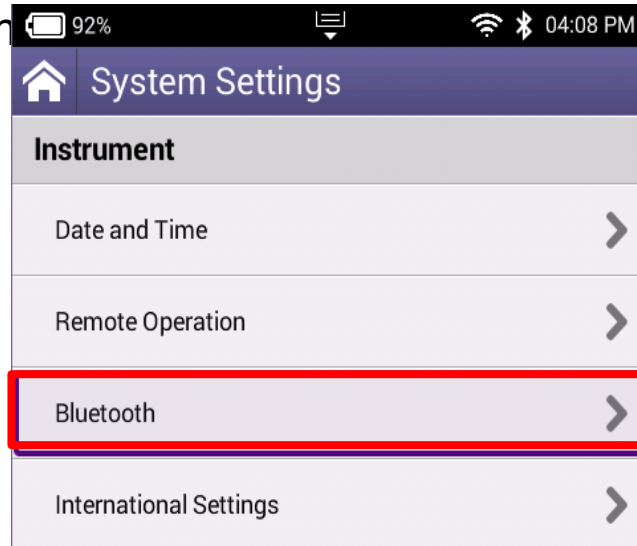
* Screenshots shown on iPhone, but MOBILE TECH APP on ANDROID is consistent



MOBILE TECH APP – Set Up



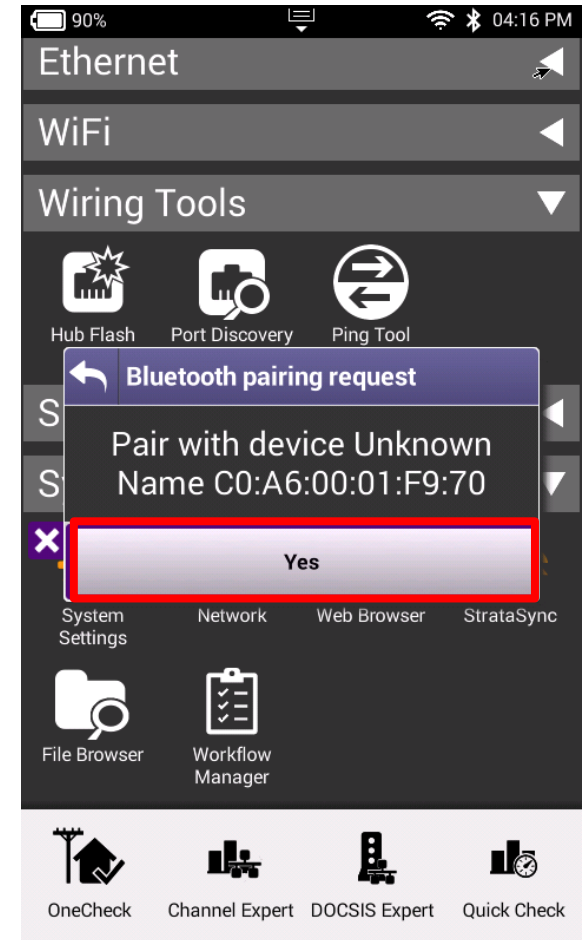
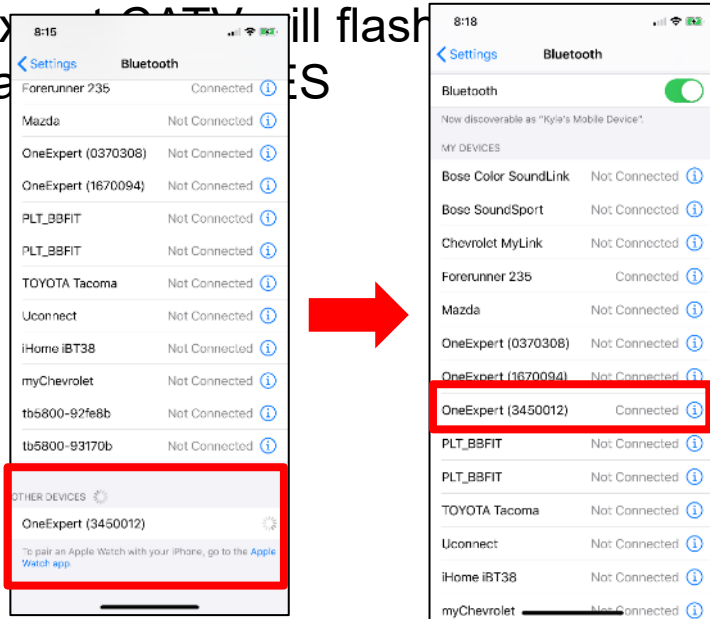
On ONX620 or 630, enable BLUETOOTH by going to SYSTEM SETTINGS->BLUETOOTH SETTINGS or by dragging down the TRAY and selecting BLUETOOTH and n



MOBILE TECH APP – Set Up

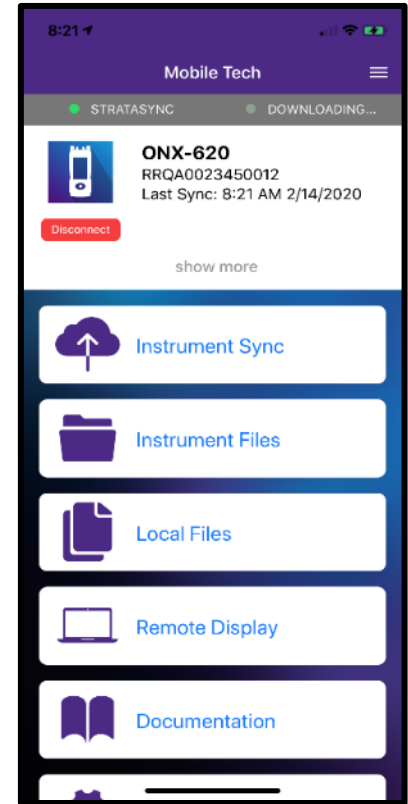
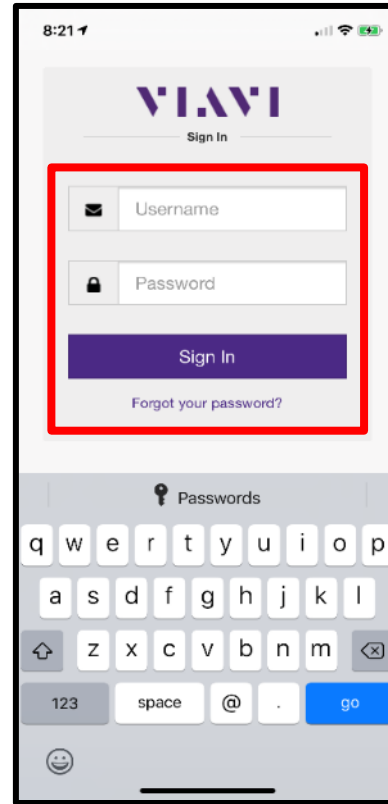
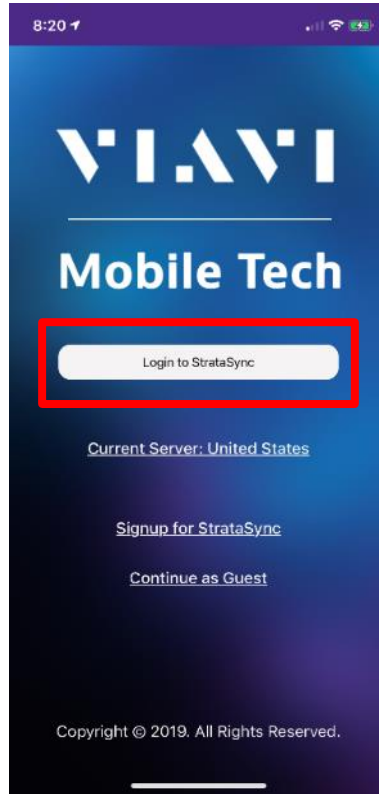
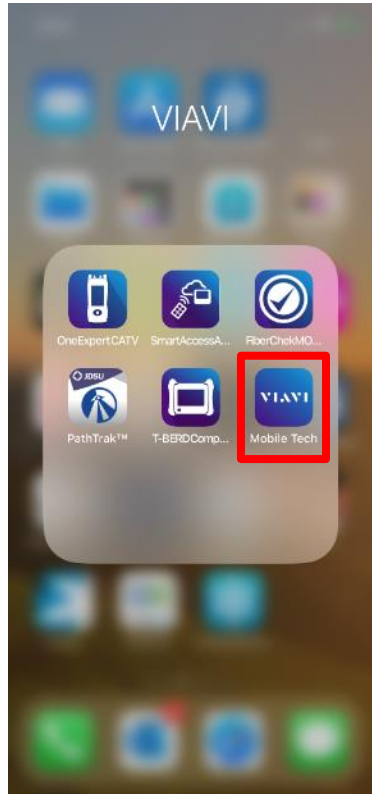
Select the appropriate OneExpert CATV serial number from the list of BLUETOOTH CONNECTIONS and pair

OneExpert CATV will flash request message

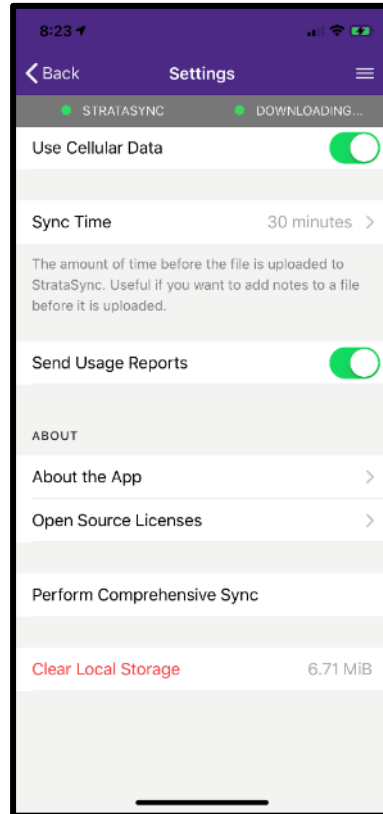
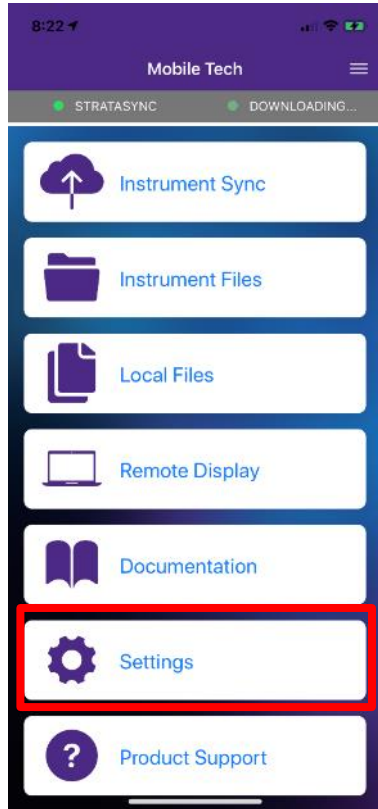


MOBILE TECH APP – Set Up

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

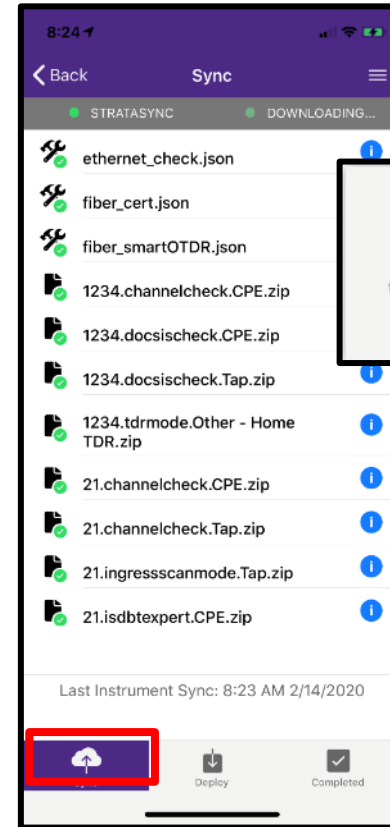
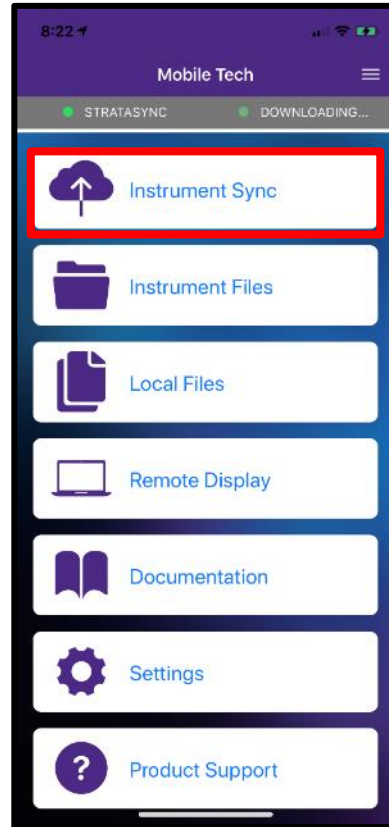
MOBILE TECH APP - Synchronization

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**

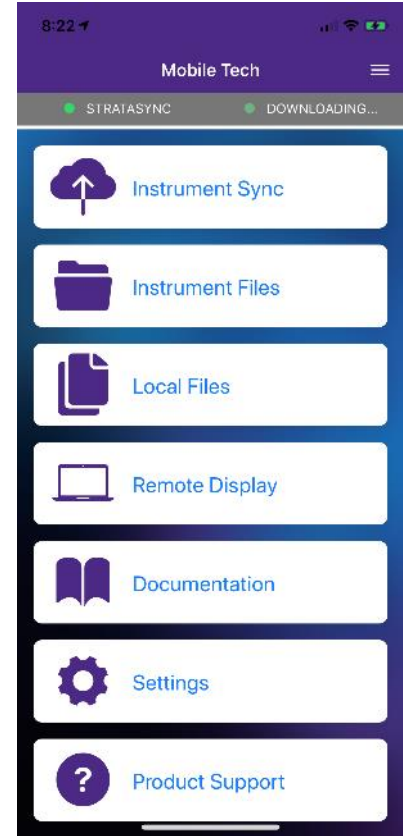
By selecting SYNC – the process will begin immediately

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



MOBILE TECH APP

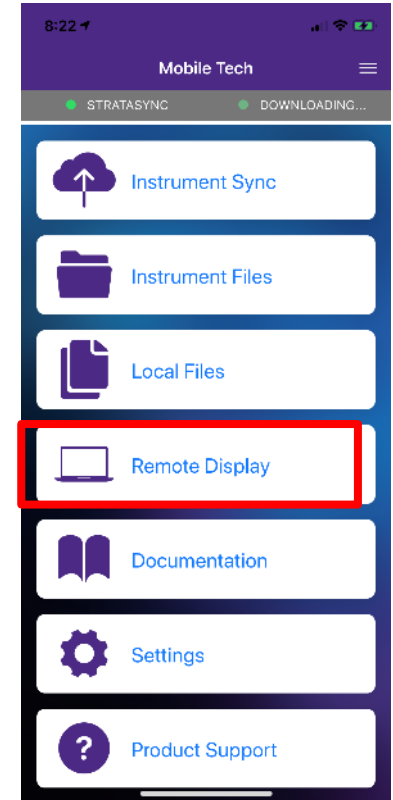
- Beyond streamlined sync to STRATASYNC, the MOBILE TECH APP also provides the following functionality:
 - View and manager files on the instrument
 - View and manage local files, including craftsmanship photos
 - Remote Display and Operation
 - IN-APP Support Documentation
 - LINK to VIAVI Technical 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

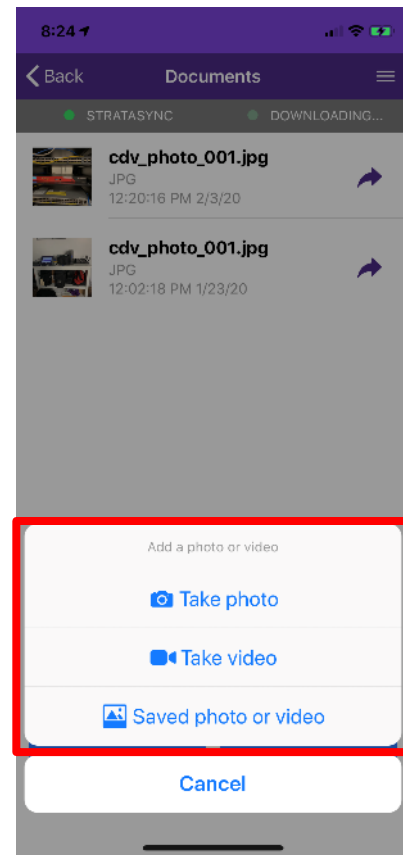
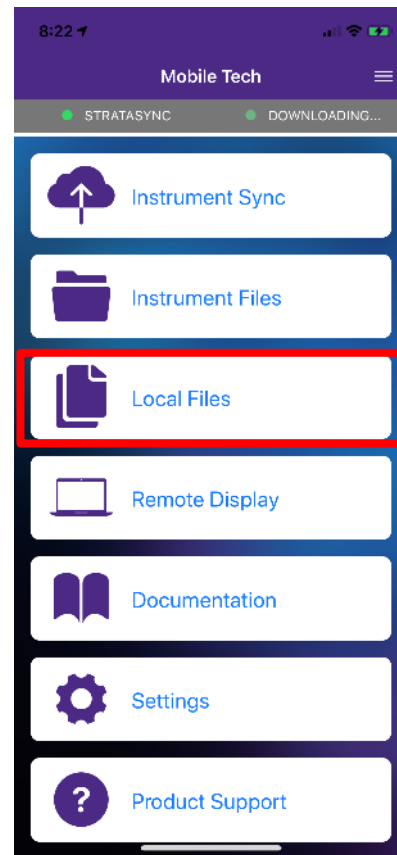
REMOTE DISPLAY allows the user to control the ONX, via BLUETOOTH, and conduct normal meter function.

* SmartAccess Anywhere Requires Purchase

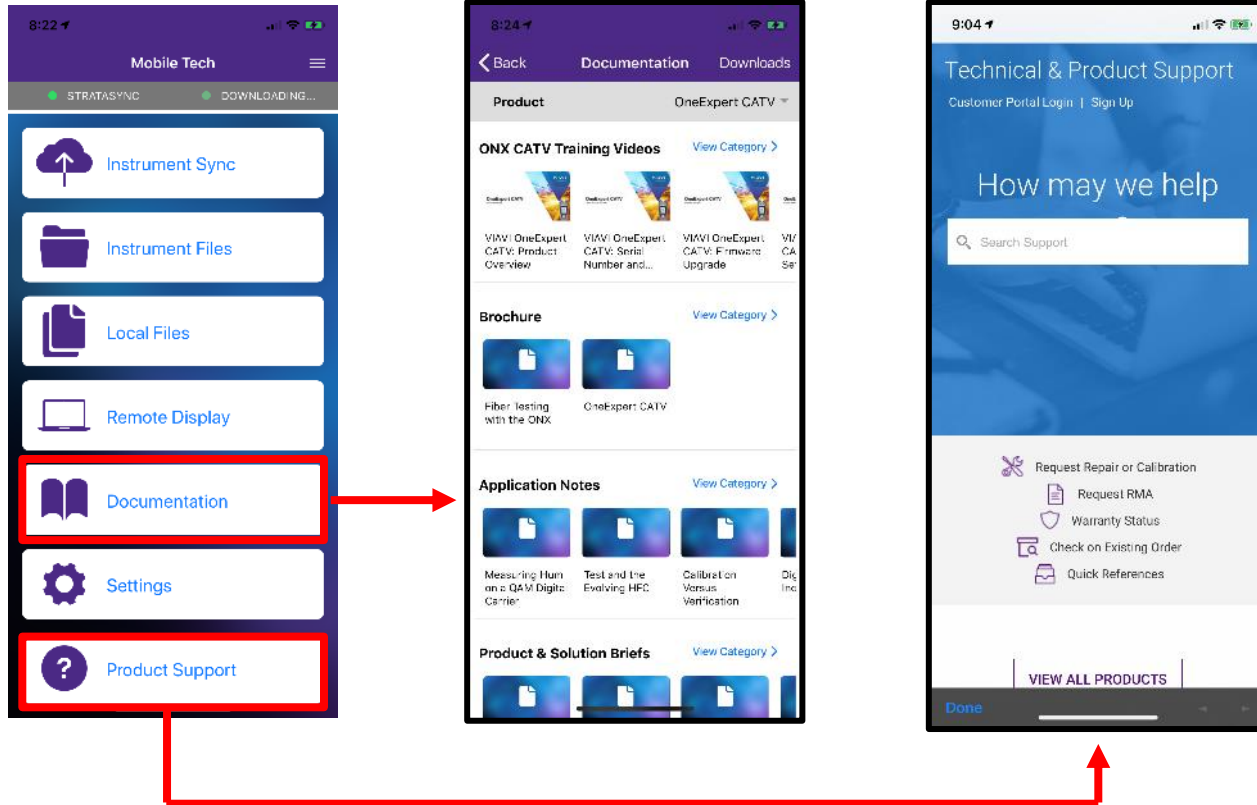


MOBILE TECH APP - LOCAL FILES

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



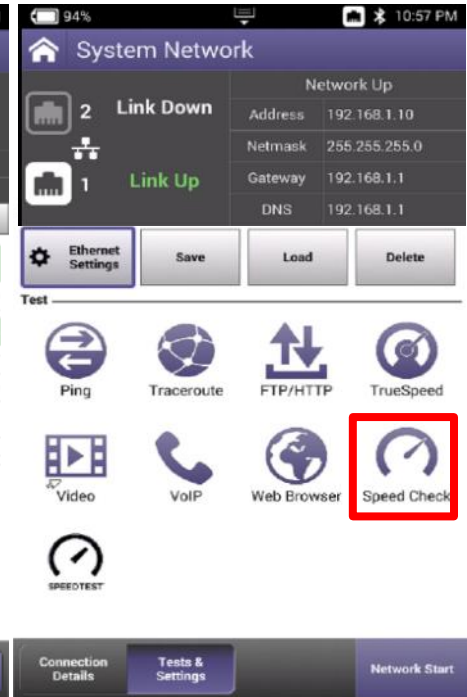
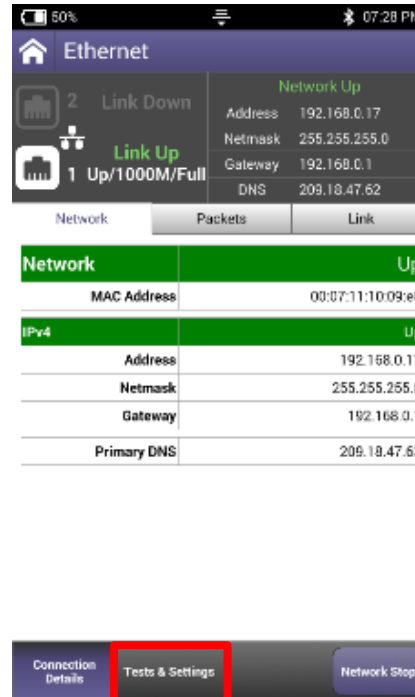
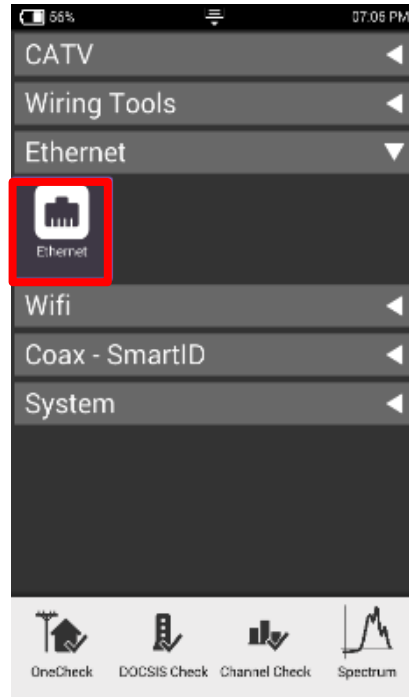
Ethernet Testing

Ethernet – Tests and Settings



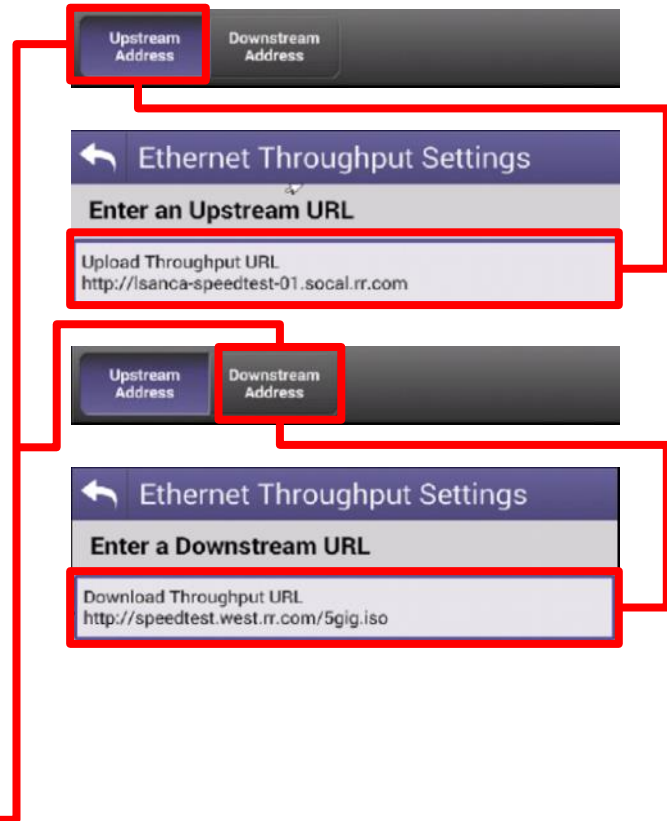
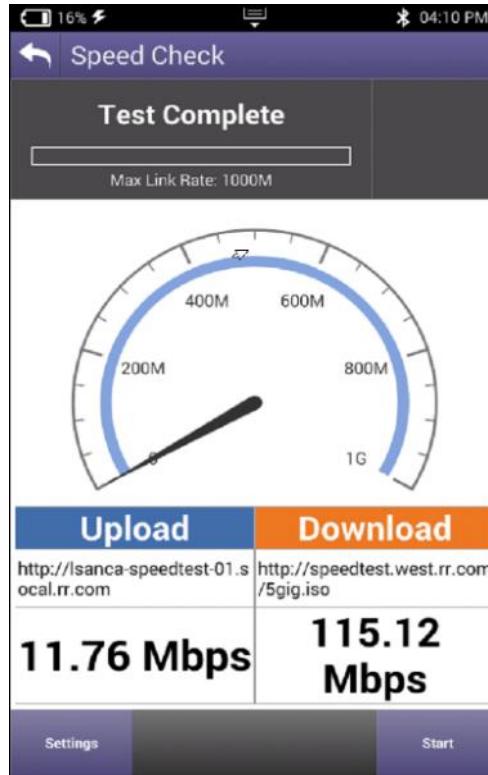
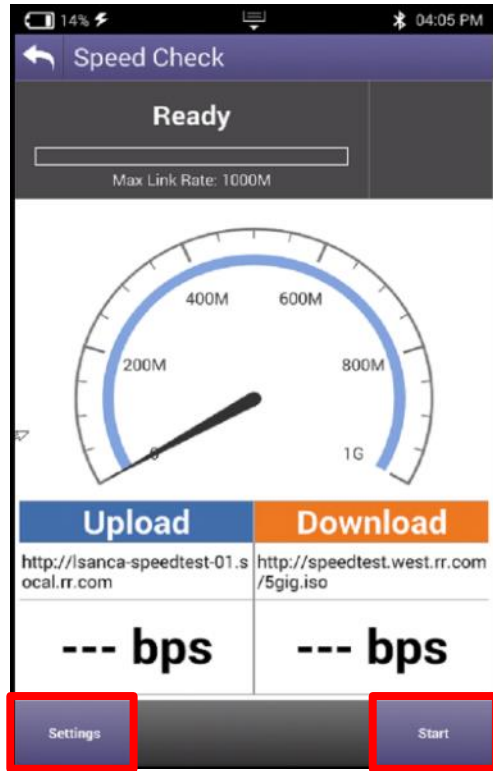
From HOME screen, select
ETHERNET

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



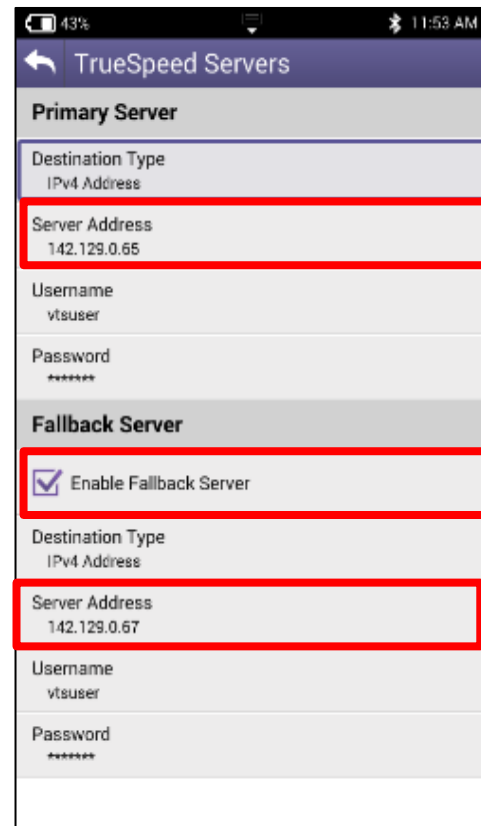
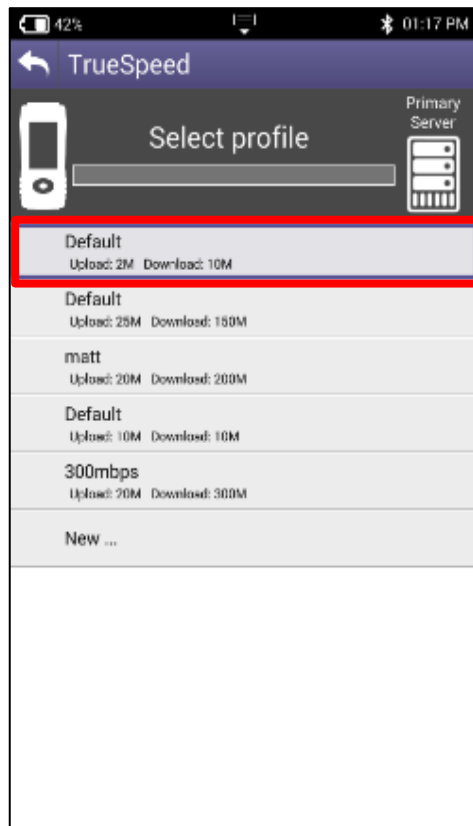
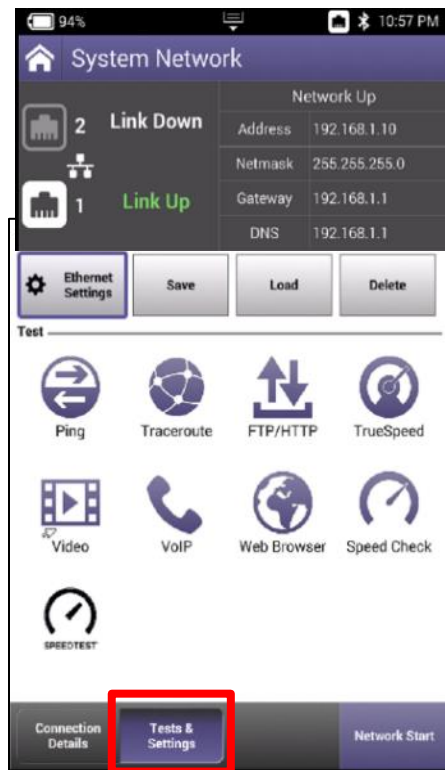
ETHERNET - TrueSpeed Setup

Select Profile or create a new one

The test will start automatically after Profile is selected

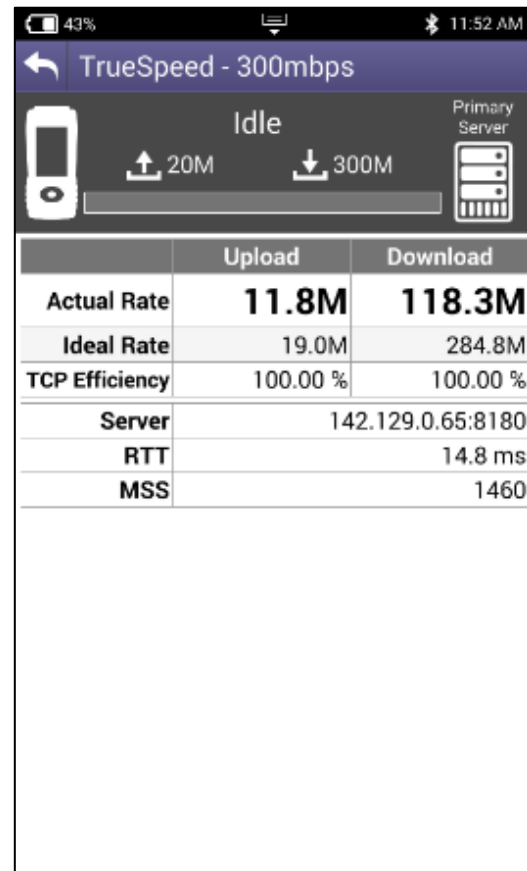
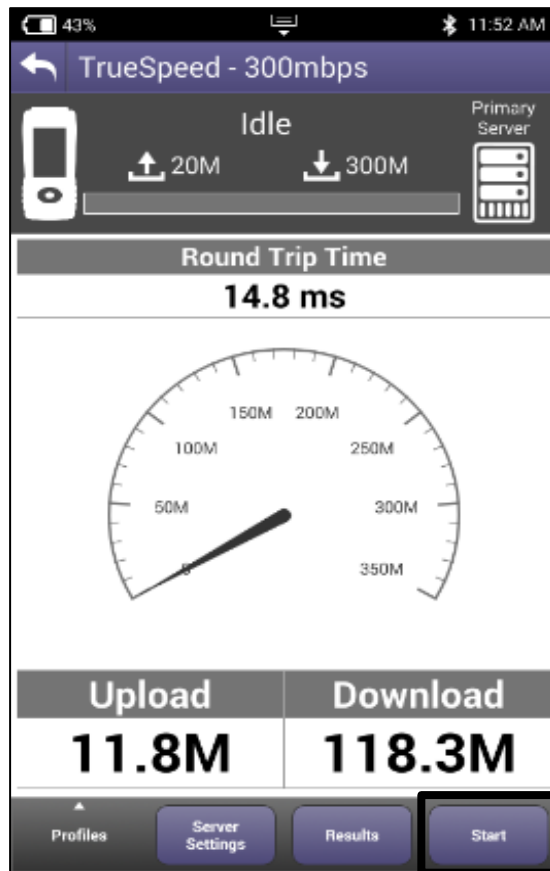
Stop Test and choose Server Settings on the bottom and enter the Server IP address and then resume. (Only applicable for first test setup)

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



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 speeds

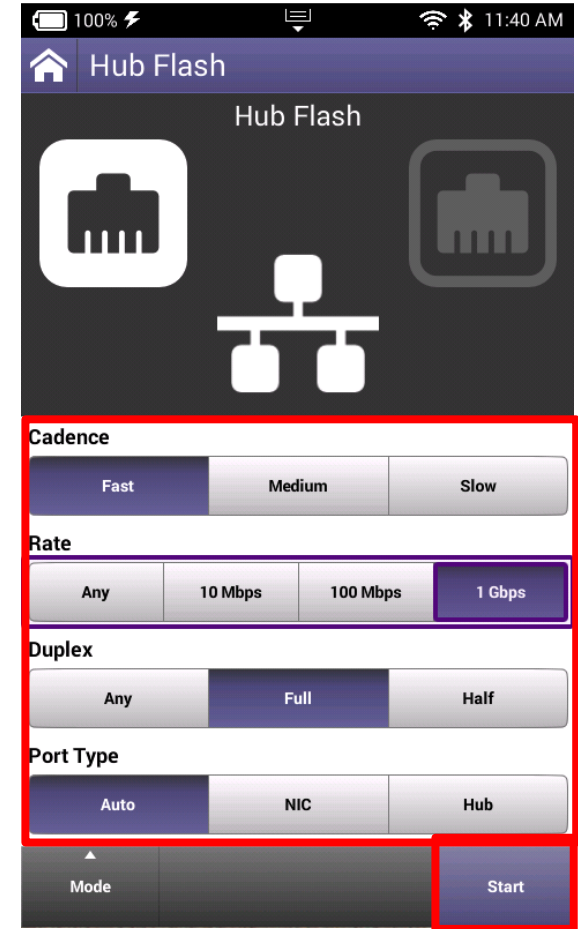
Port Discovery is test



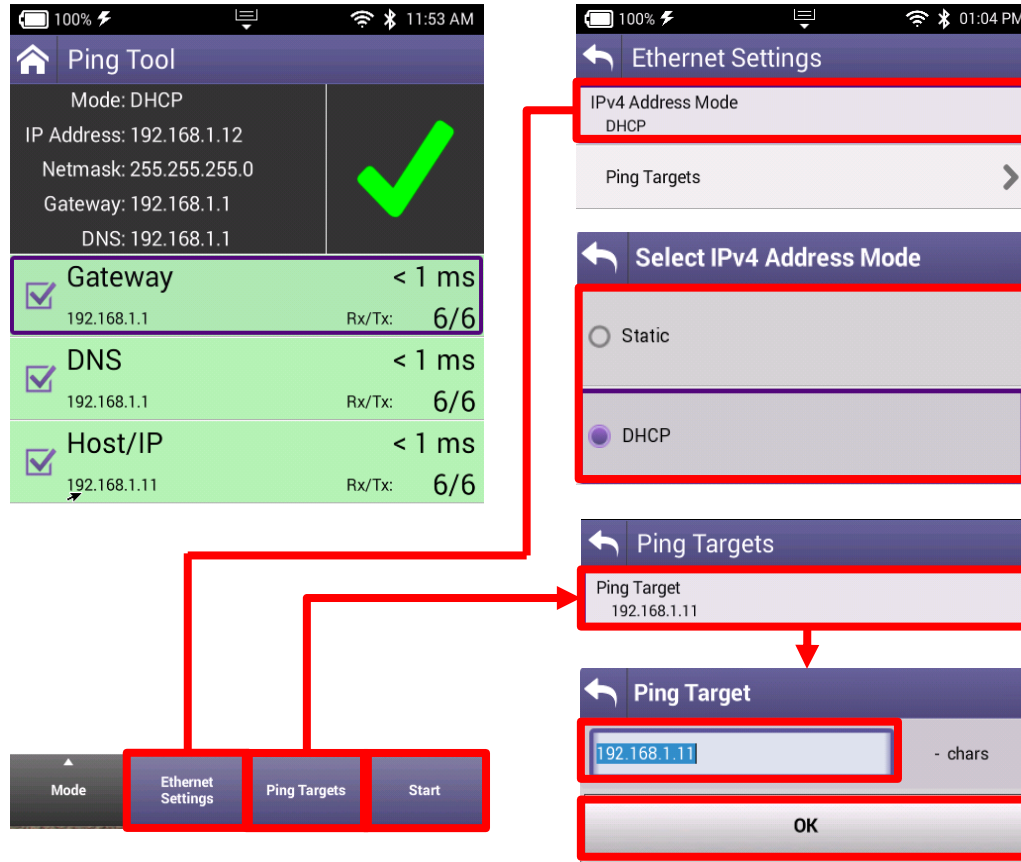
100% 11:33 AM		
Port Discovery		
Port 1 Capability	Port 1 Link Up	
1000 Mbps	1000 Mbps	
FDX	FDX (MDI)	
1000 Mbps HDX/FDX	In Use By Application	
100 Mbps HDX/FDX		
10 Mbps HDX/FDX		
Pair	Skew	Polarity
1-2	0 ns	Normal
3-6	8 ns	Normal
4-5	0 ns	Normal
7-8	8 ns	Normal
Mode	Show Port 2	

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

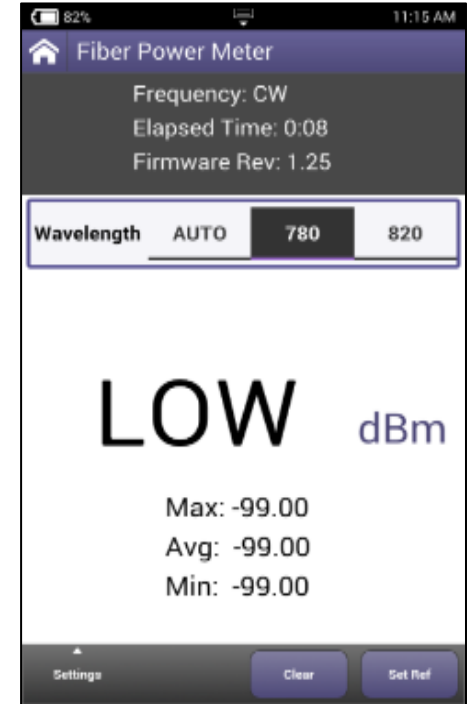


WIRING TOOLS - Ping Tool

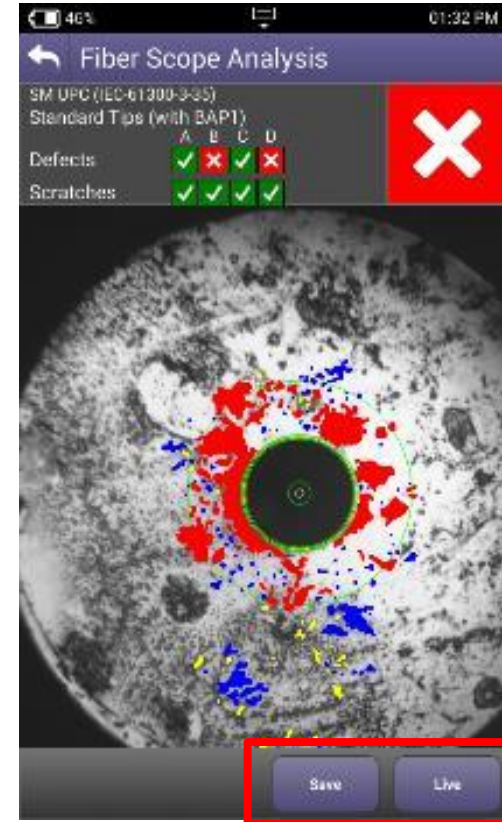
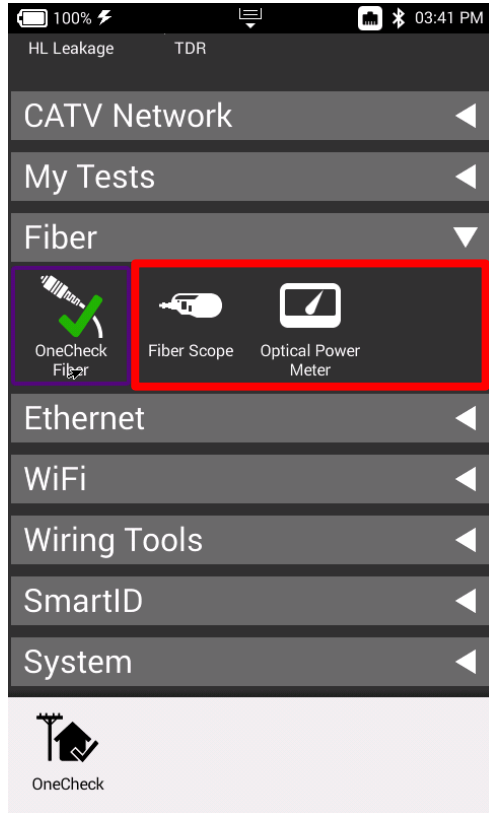


Fiber Optics

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

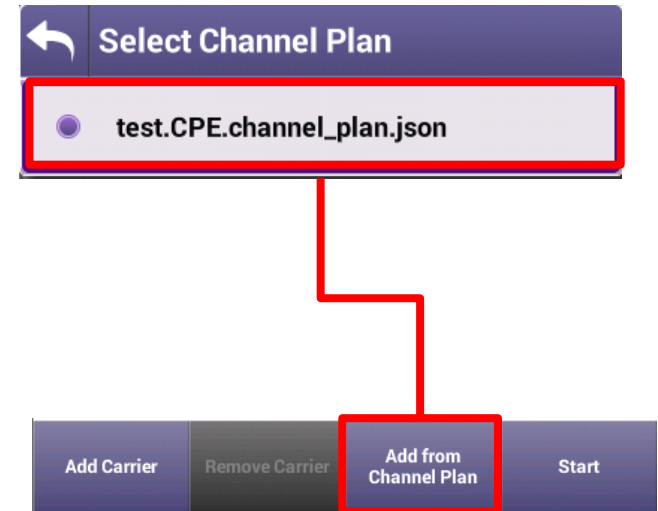
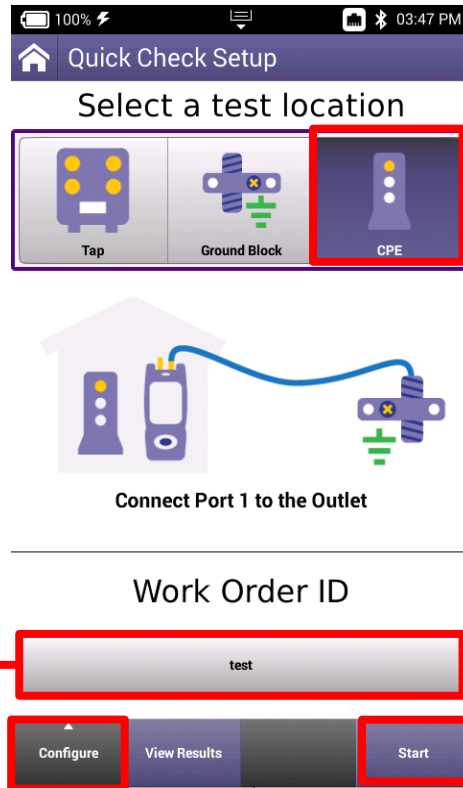
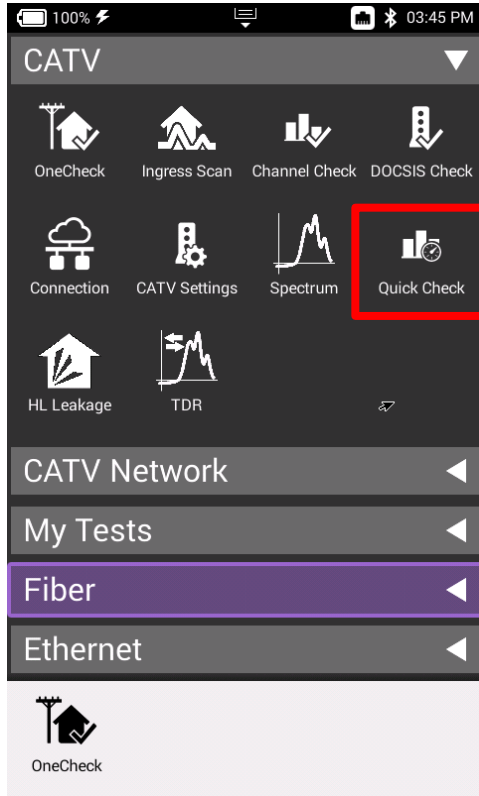


P5000i Probe Microscope



Quick Check

Quick Check



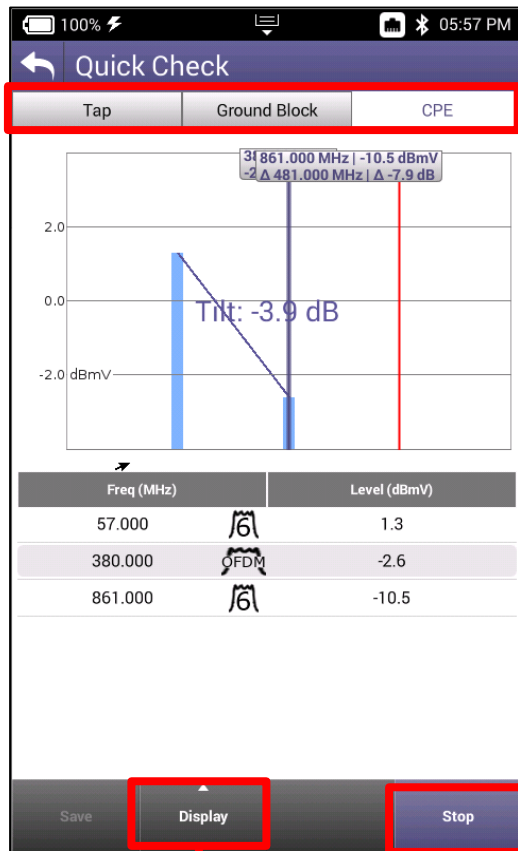
The screenshot shows a mobile application interface for adding a carrier from a channel plan. At the top, there's a status bar with icons for battery, signal, Wi-Fi, and time (03:55 PM). Below it is a purple header bar with a back arrow icon and the title "Add Carrier From Channel Plan". The main content area has a white background and contains the following elements:

- A section titled "Channel Plan" with the value "test.CPE.channel_plan.json".
- A section titled "Channels:" followed by a list of channels.

The list of channels includes:

- ☐ CH 82 (575.000 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

At the bottom left, there is a blue button labeled "Apply". A red rectangular box highlights the entire list of channels and the "Apply" button.



☐ 1.0 dB

☒ 2.0 dB

☐ 5.0 dB

☐ 10.0 dB

☐ 20.0 dB

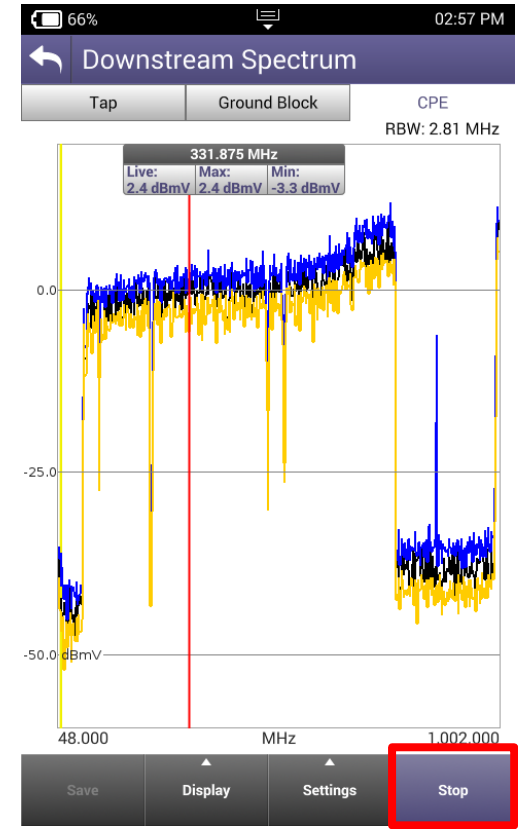
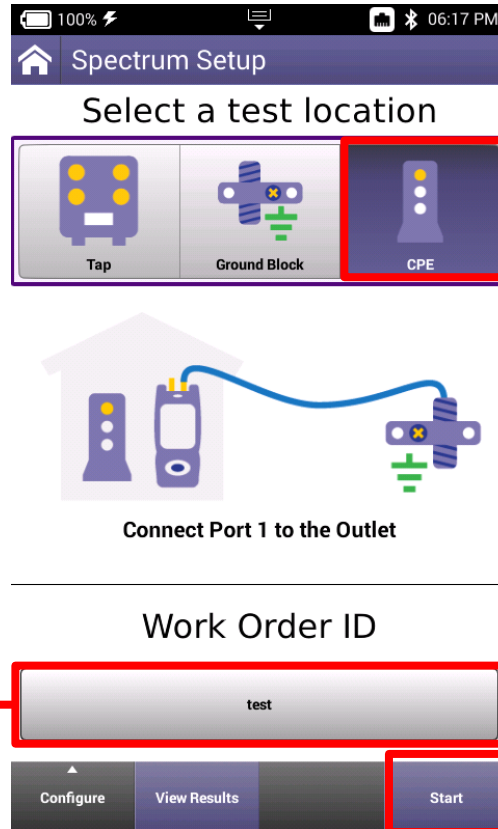
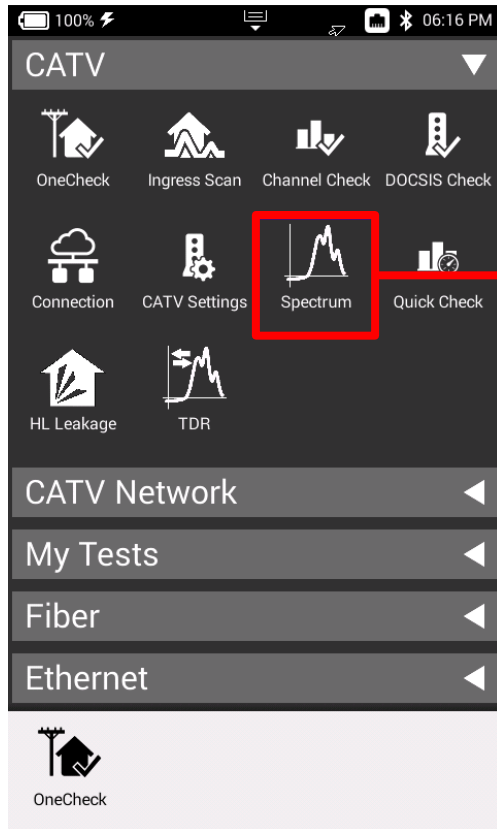
Reference Now

☒ Auto Reference

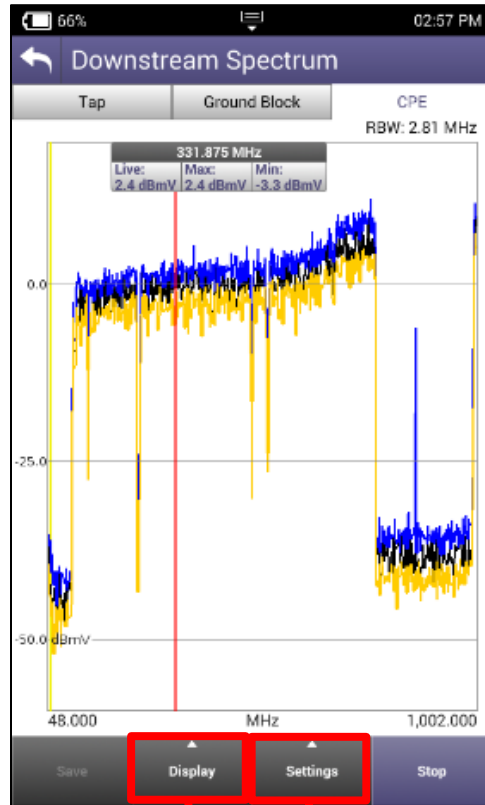
☒ Δ Marker

Spectrum

Spectrum



Spectrum



☒ Auto RBW

RBW
2.81 MHz

☒ Auto AGC

Re-AGC

Reset Graph

Set Diplexer

Rotate Screen

Portrait

dB/div

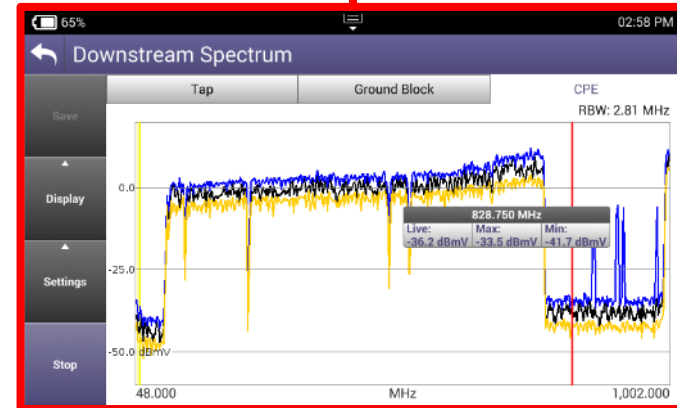
Span Start and Stop Frequency

Start: 48.000 MHz Stop: 1,002.000 MHz

☒ Live trace

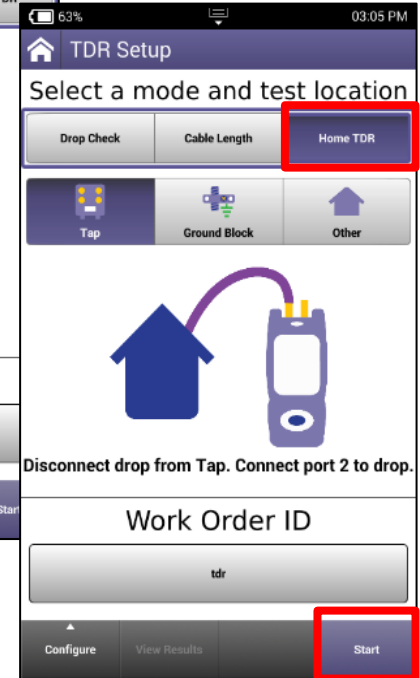
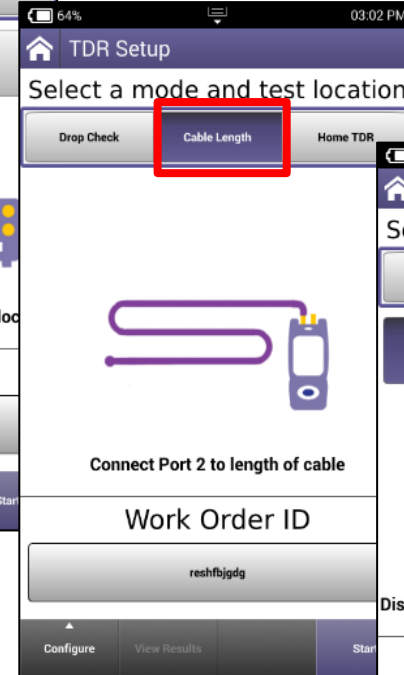
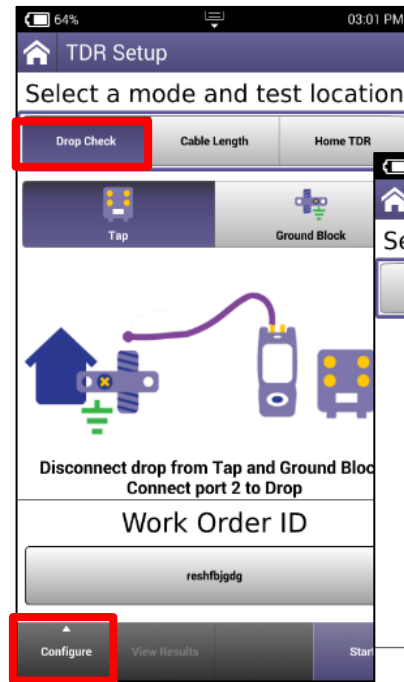
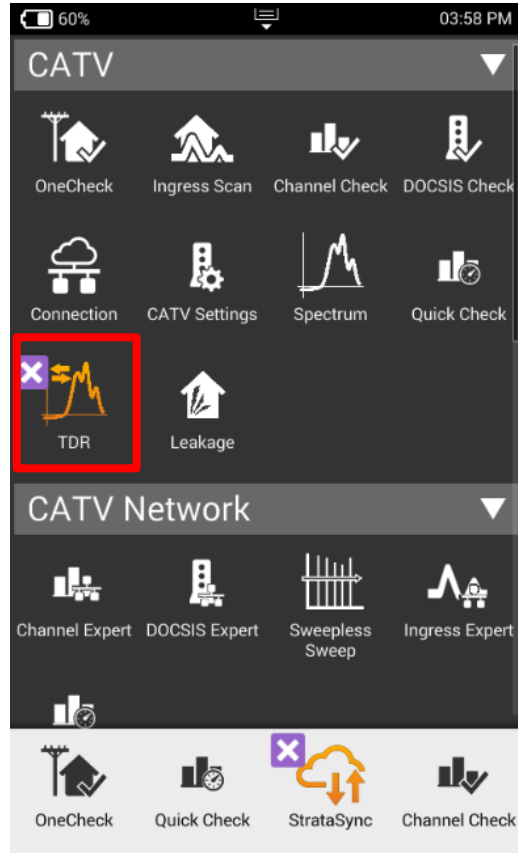
☒ Max trace

☒ Min trace

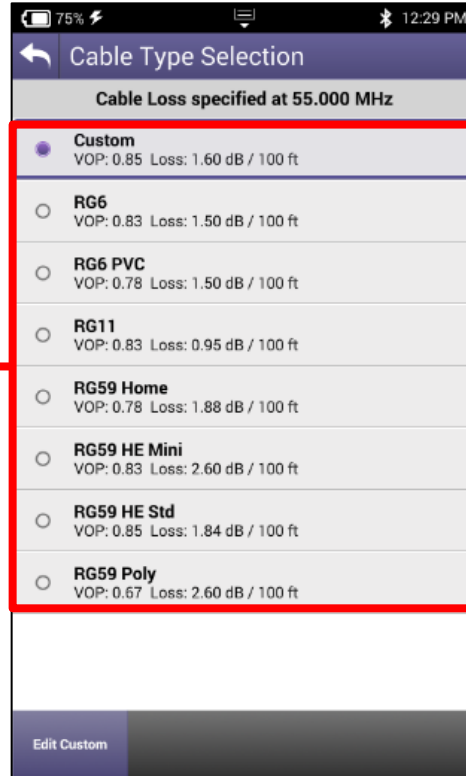
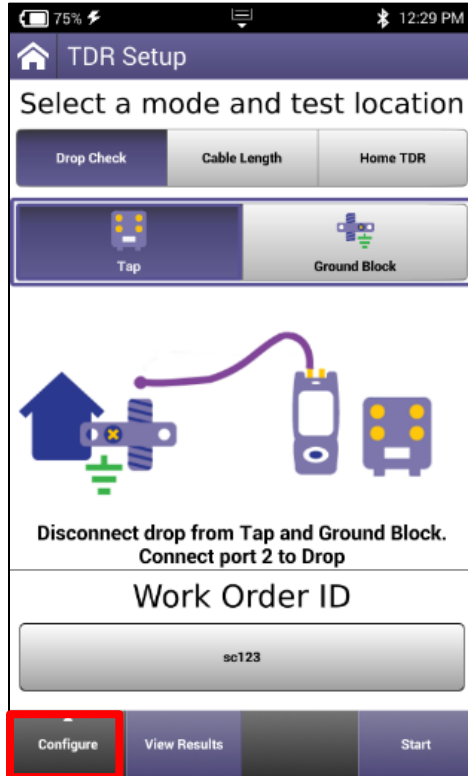


TDR

TDR



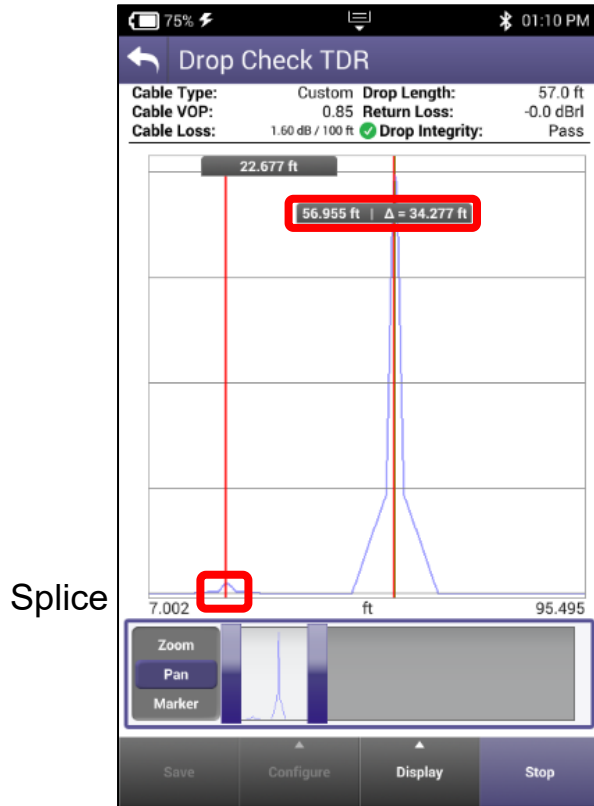
HOME TDR



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



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

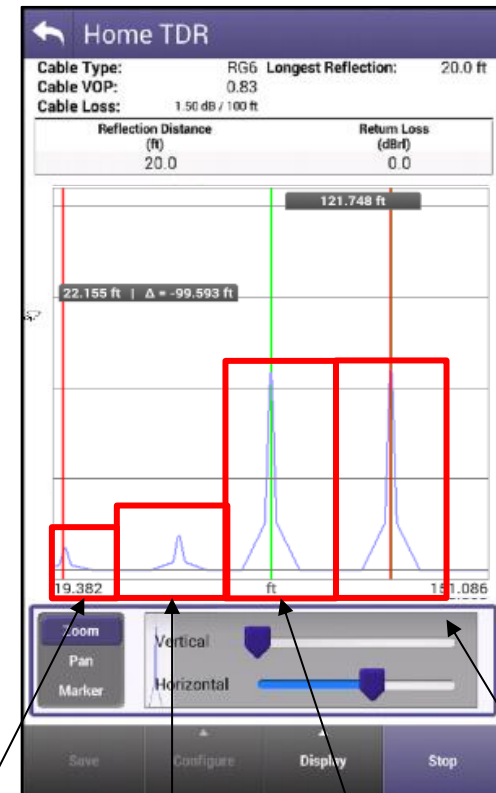
HOME TDR test is designed to display splices, splits and cable lengths.

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



Splice

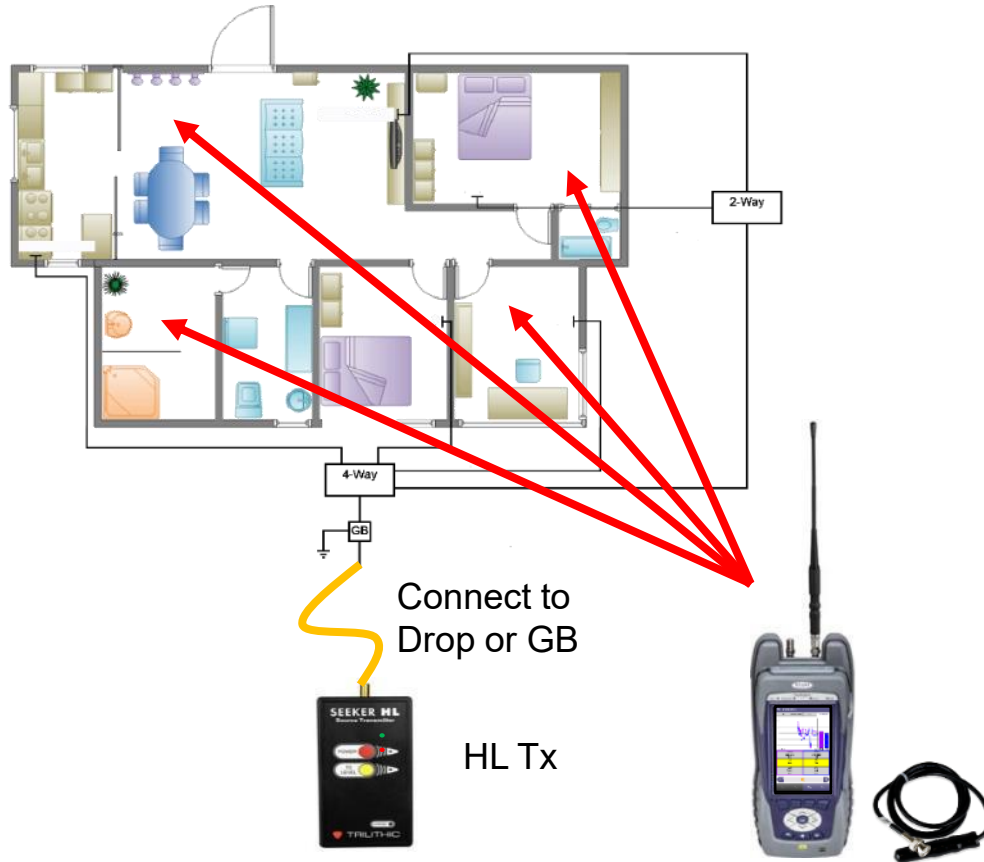
Splitter

Open

Open

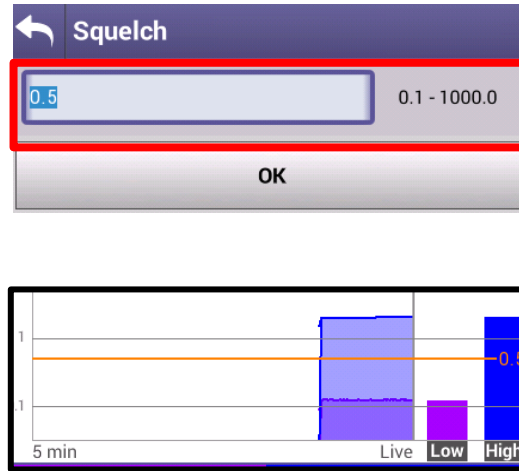
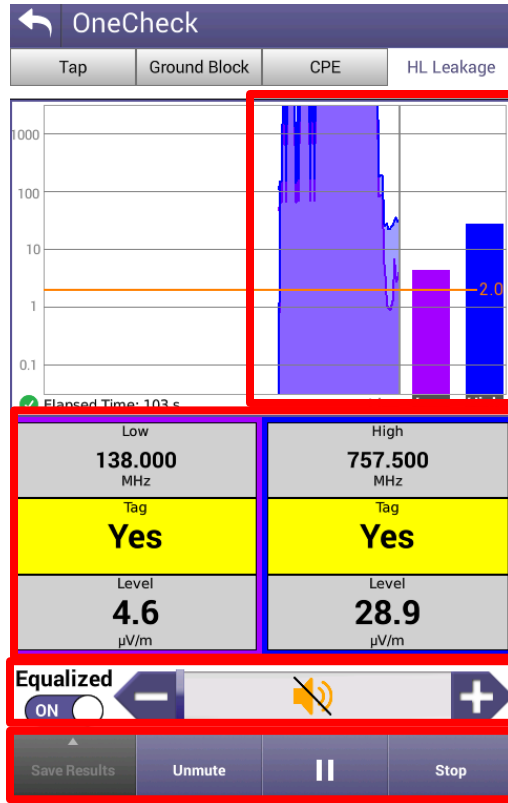
HL Leakage with Transmitter

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



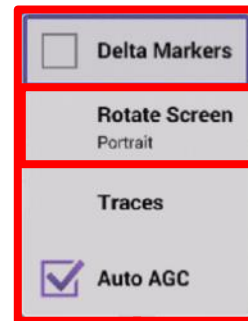
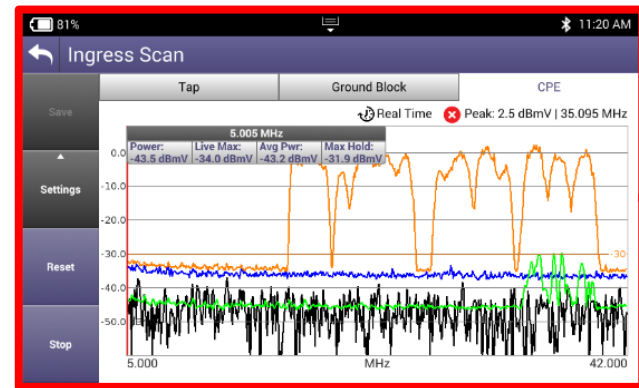
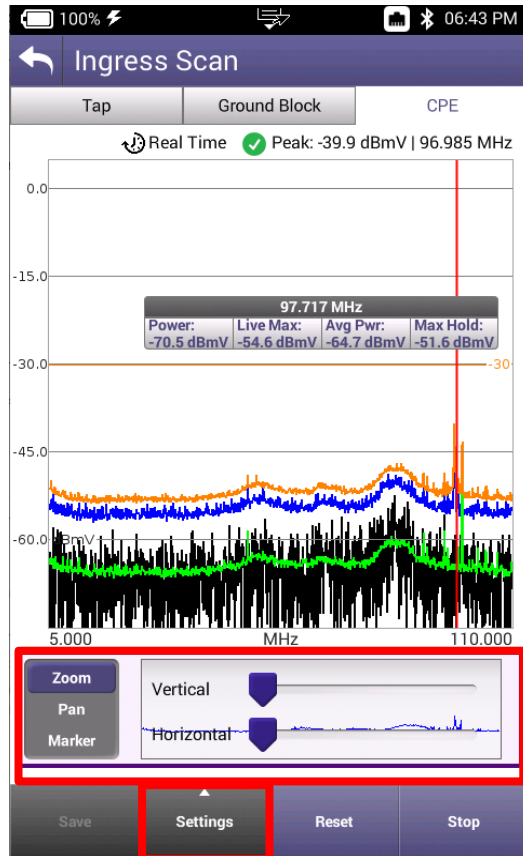
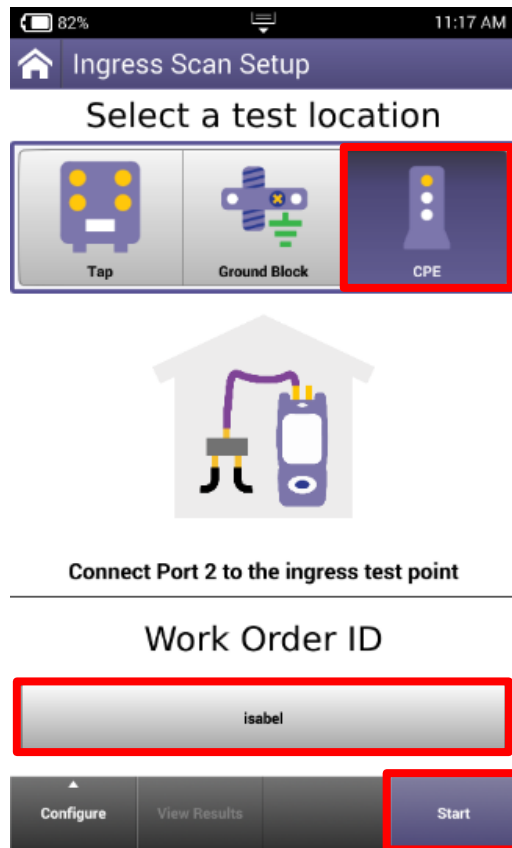
Leaks will be shown over time on the HL LEAKAGE display, while also emitting a siren that will signal proximity to leak

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

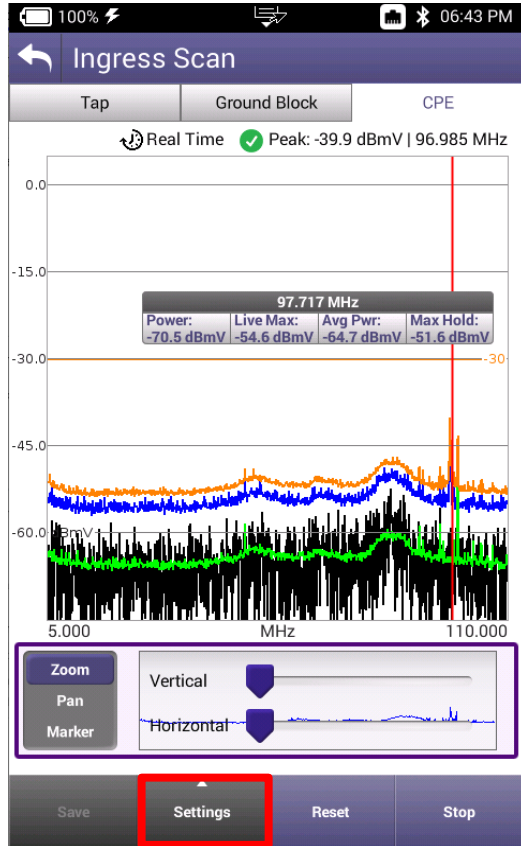
Since HL Leakage is LIVE, select STOP before adjusting the SQUELCH limit

Ingress Scan

Ingress Scan



Ingress Scan



☐ Delta Markers

Rotate Screen
Portrait

Traces

☒ Auto AGC

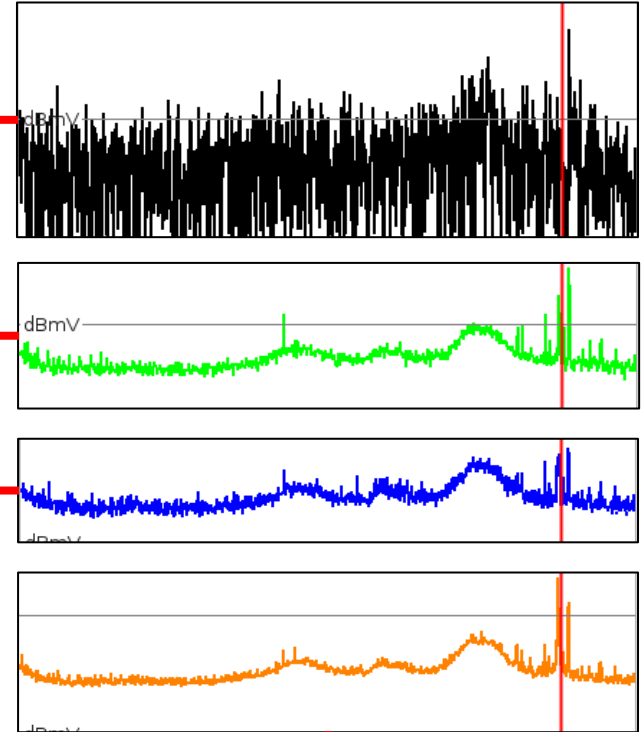
Display Selection

☒ Power

☒ Average Power

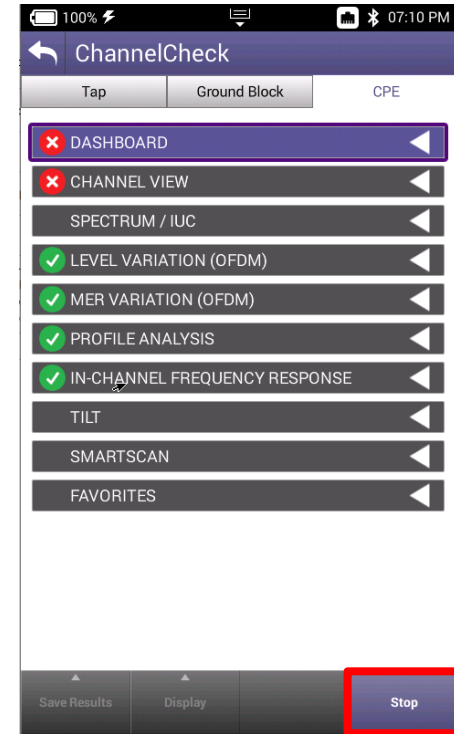
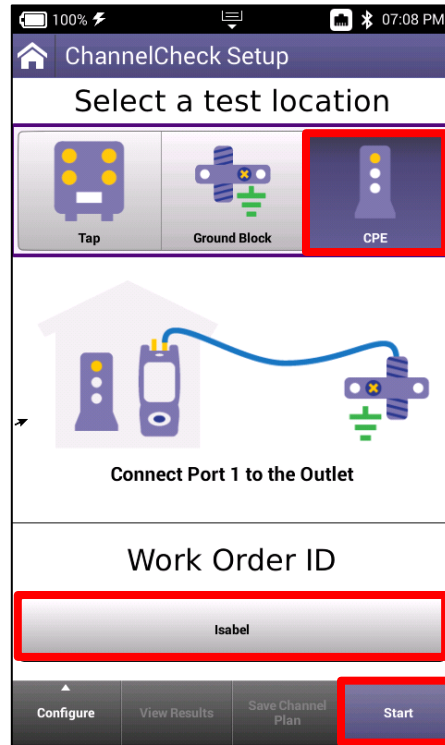
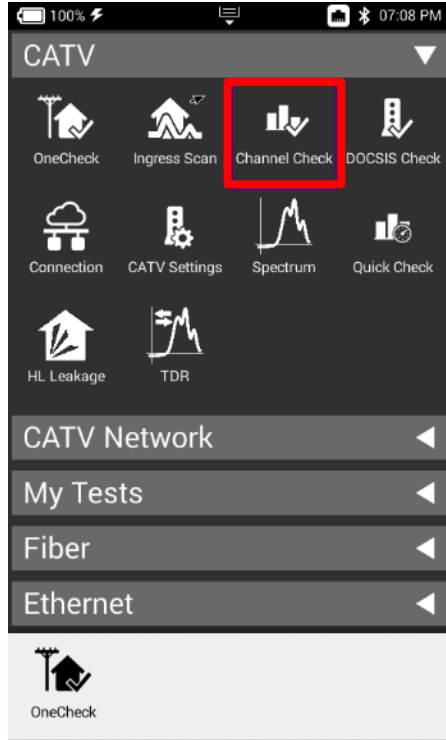
☒ Live Max

☒ Max Hold

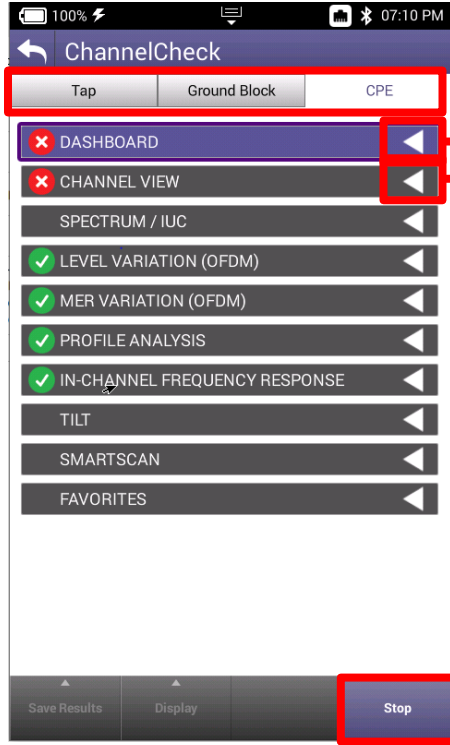


Channel Check

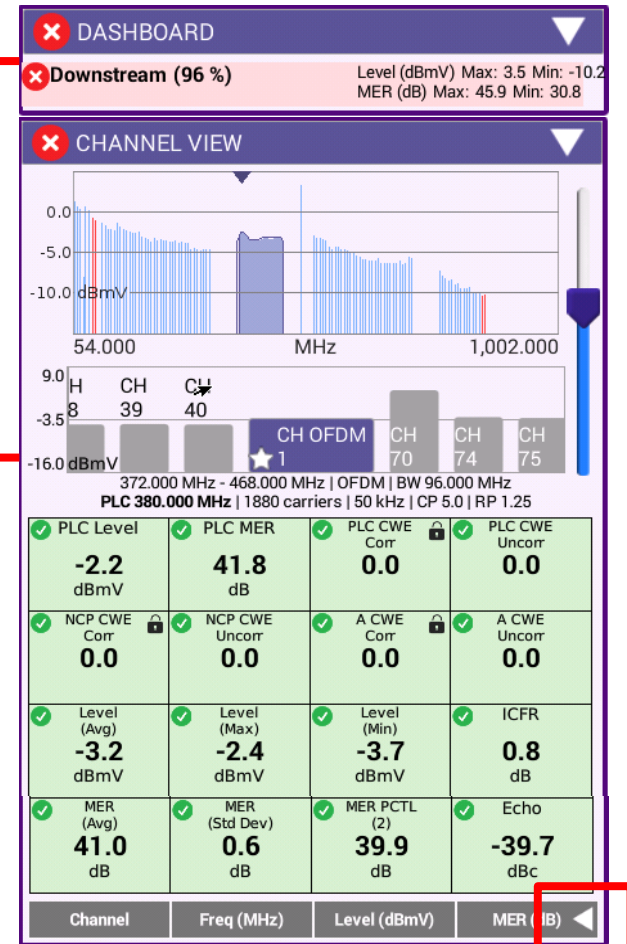
Channel Check



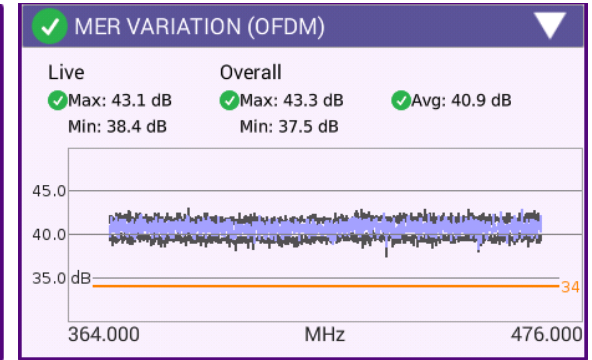
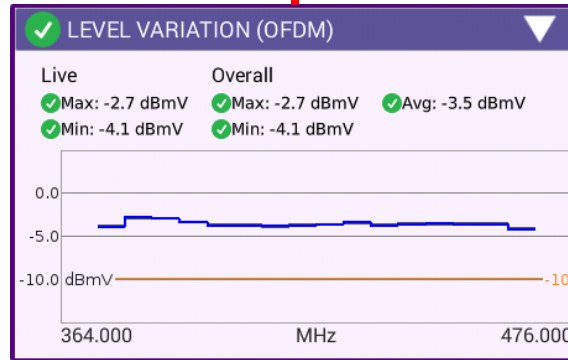
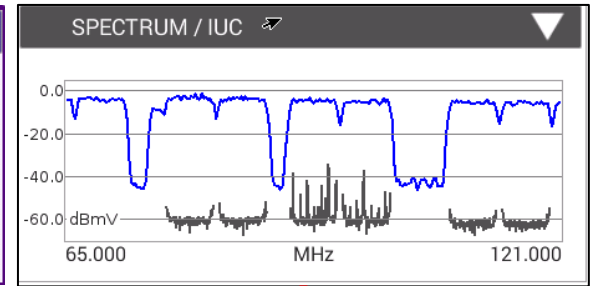
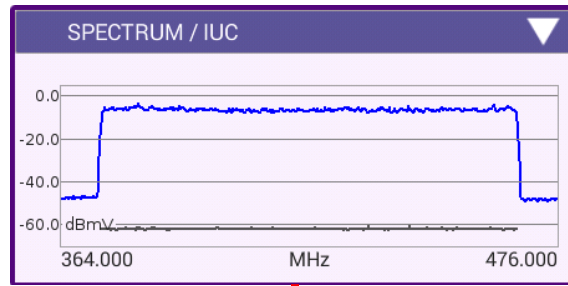
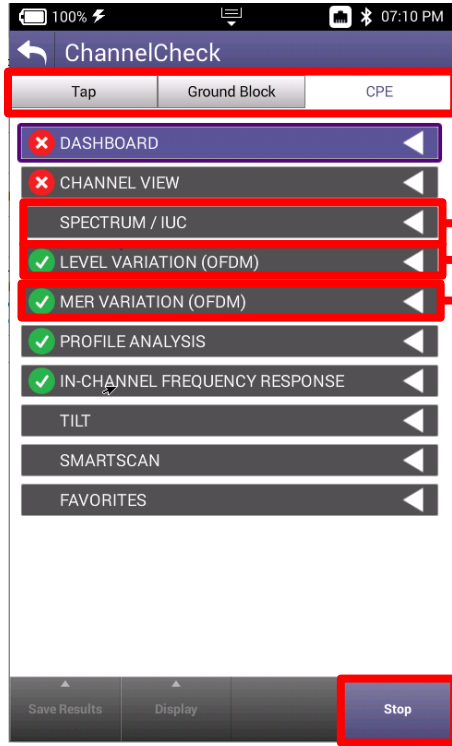
Channel Check



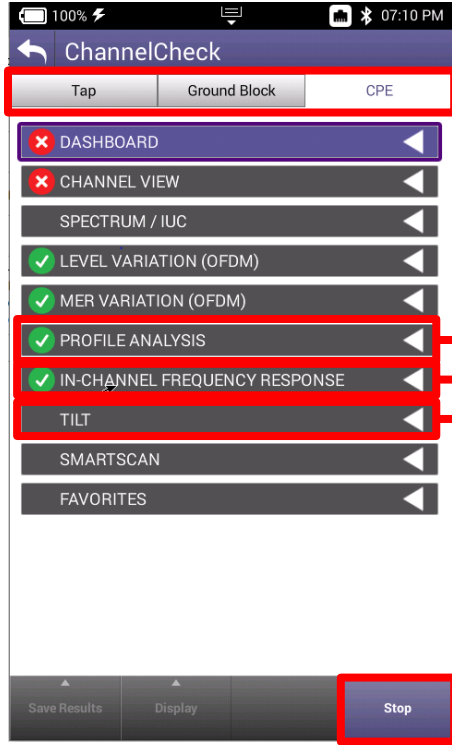
Channel	Freq (MHz)	Level (dBmV)	MER (dB)
37	303.000	-4.6	42.5
38	309.000	-4.7	42.5
39	315.000	-4.6	42.6
40	321.000	-4.6	42.5
OFDM 1	380.000	-3.2	—
70	499.250	3.4	—
74	525.000	-2.9	45.8
75	531.000	-3.1	45.8
76	537.000	-3.2	45.6



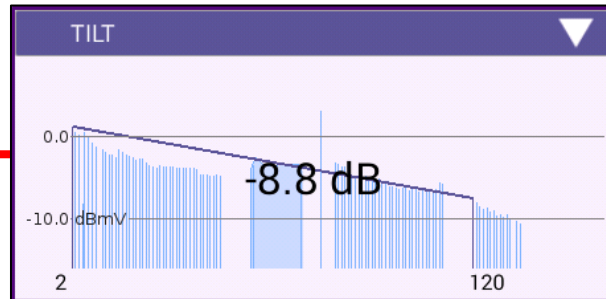
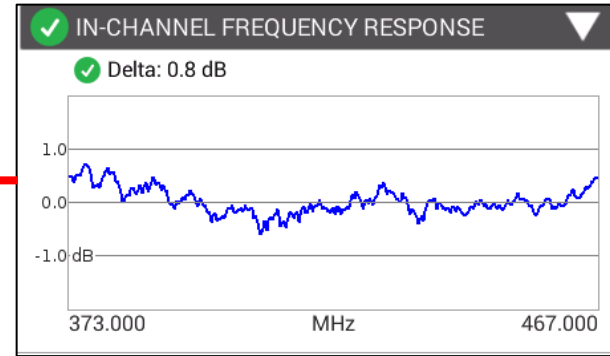
Channel Check



Channel Check



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

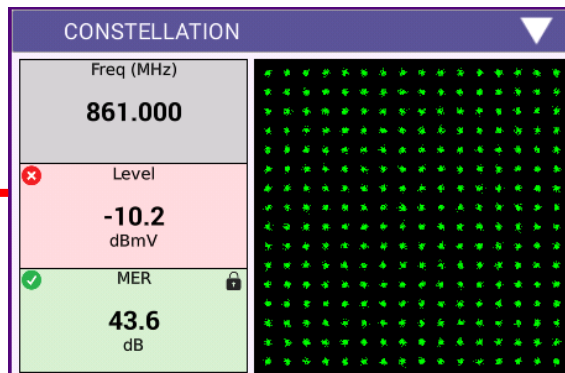
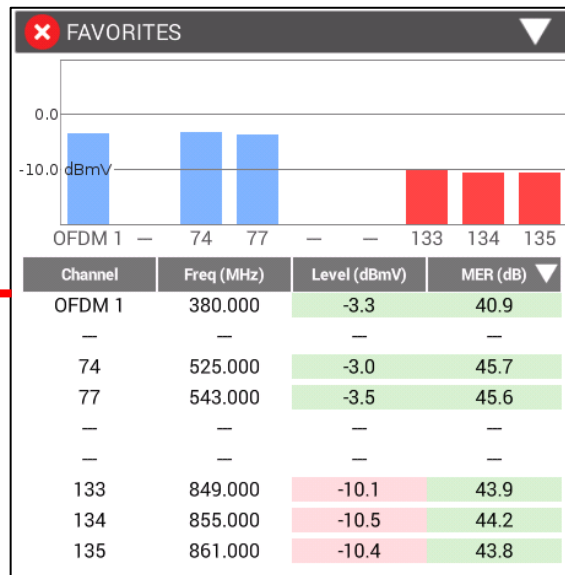
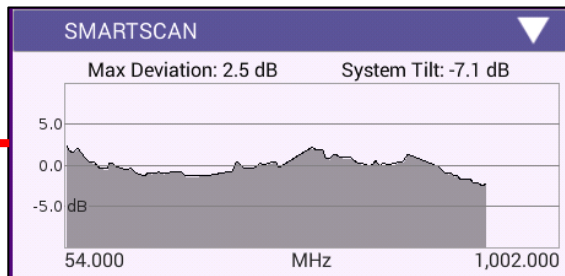
100% 07:10 PM

ChannelCheck

Tap Ground Block CPE

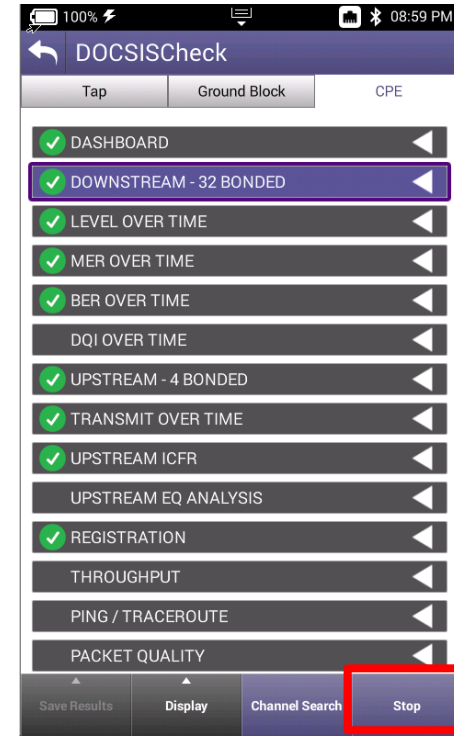
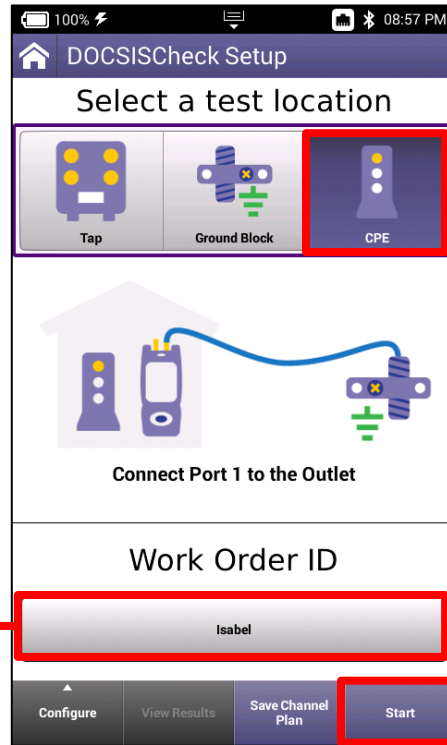
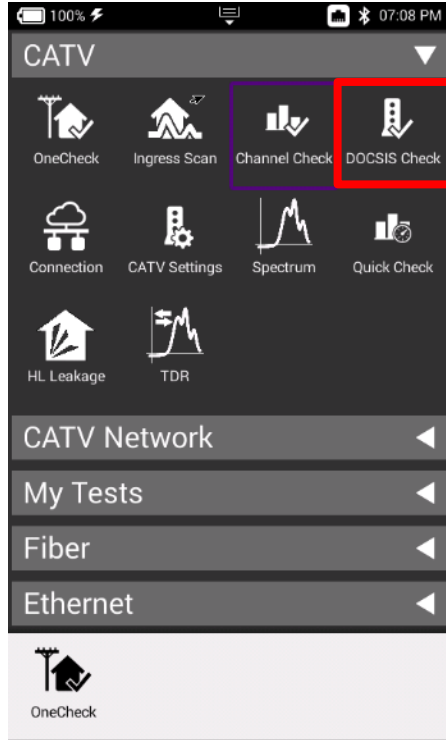
- DASHBOARD
- CHANNEL VIEW
- SPECTRUM / IUC
- LEVEL VARIATION (OFDM)
- MER VARIATION (OFDM)
- PROFILE ANALYSIS
- IN-CHANNEL FREQUENCY RESPONSE
- TILT
- SMARTSCAN
- FAVORITES
- CONSTELLATION

Save Results Display Stop

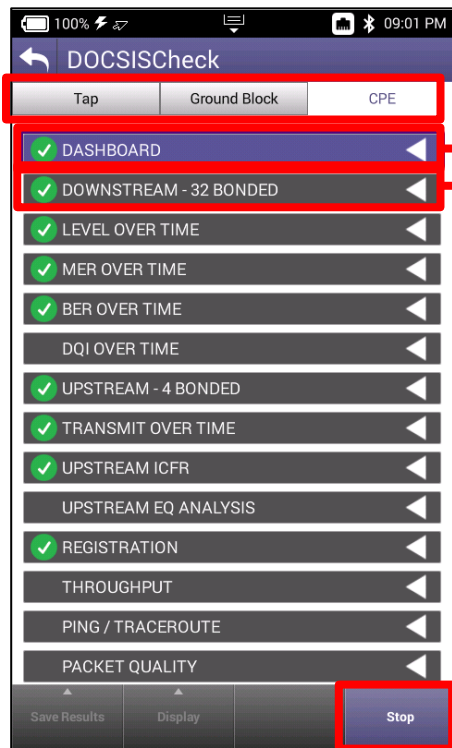


DOCSIS Check

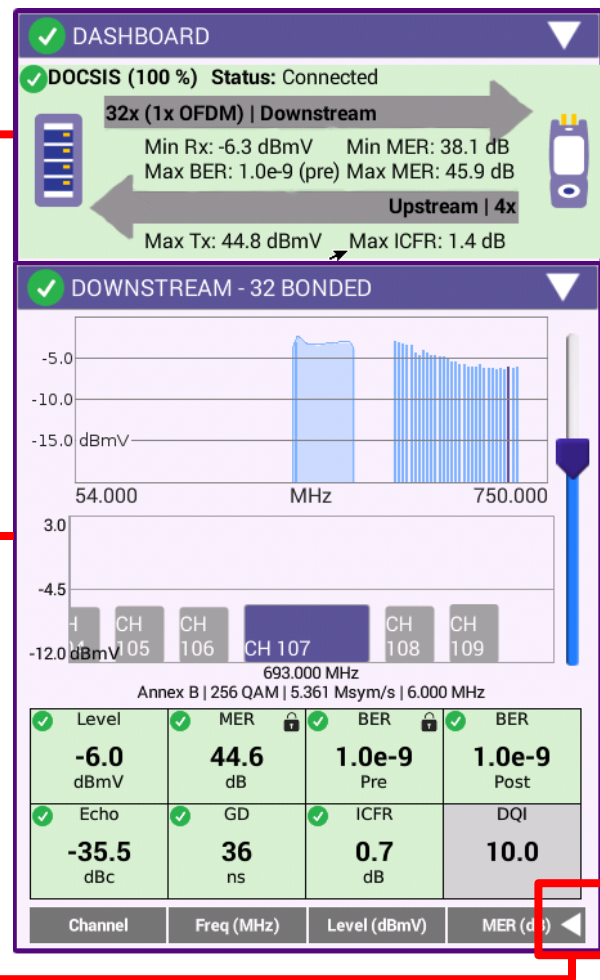
DOCSIS Check



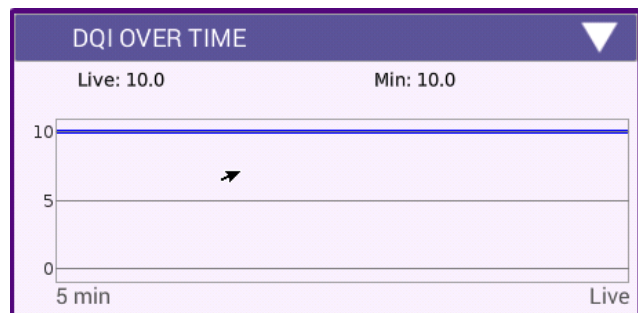
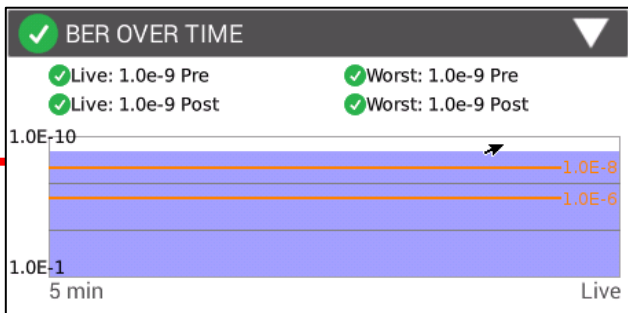
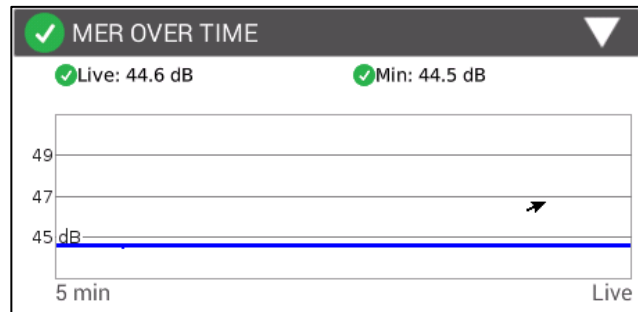
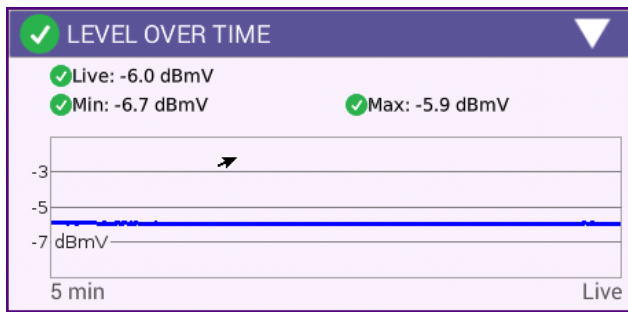
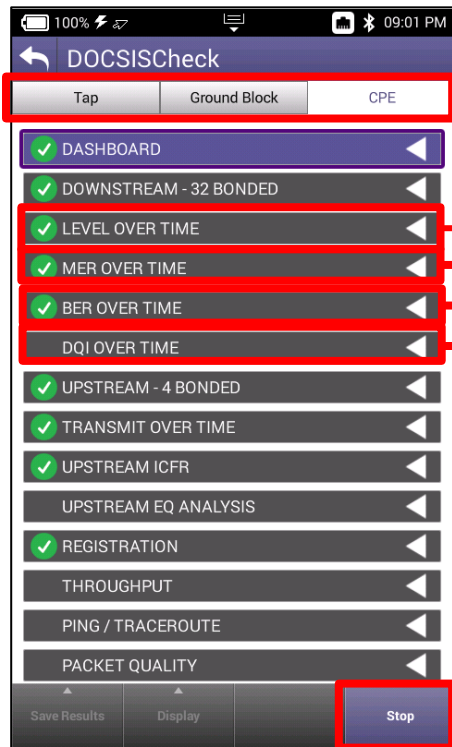
DOCSIS Check



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



DOCSIS Check



DOCSIS Check

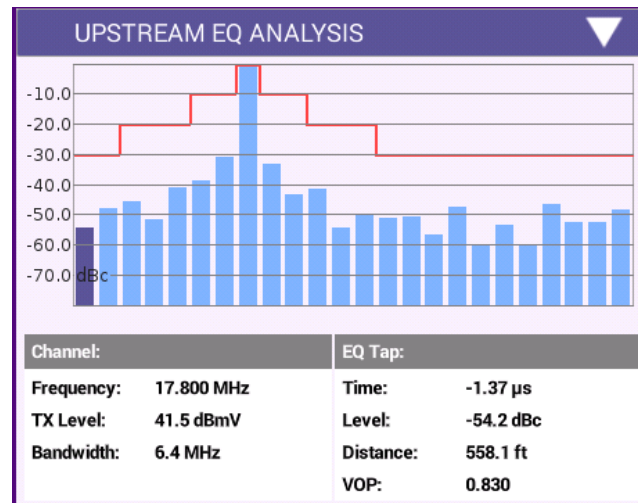
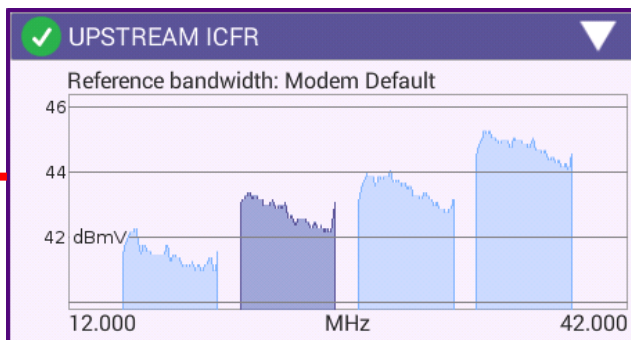
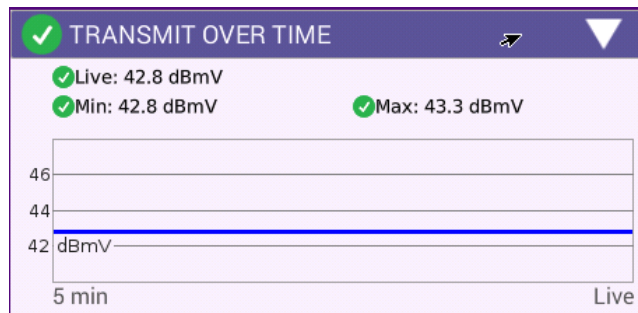
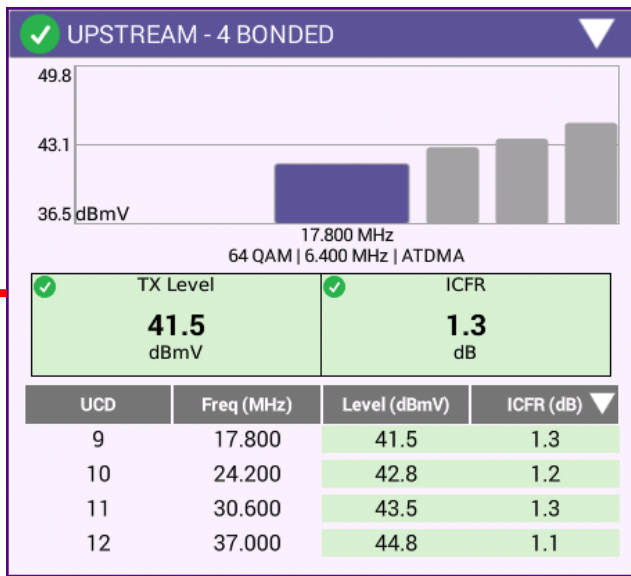
100% 09:01 PM

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

100% 09:01 PM

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

✓ REGISTRATION

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

Config File: 7BEWGiYABxYUG88KIsDi@CILA4mV4eXC2h4Y+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: 7BEWGiYABxYUG88KIsDi@CILA4mV4eXC2h4Y+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 98.150.3.106

IPv4 DHCP Server 142.254.1.77.41

IPv4 TDD Server 98.150.3.106

PING / TRACEROUTE

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

Open Ping

✓ THROUGHPUT

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

✓ PACKET QUALITY

Packet Loss 299 Sent 0.0 % Loss

Max Round Trip Delay 26 ms

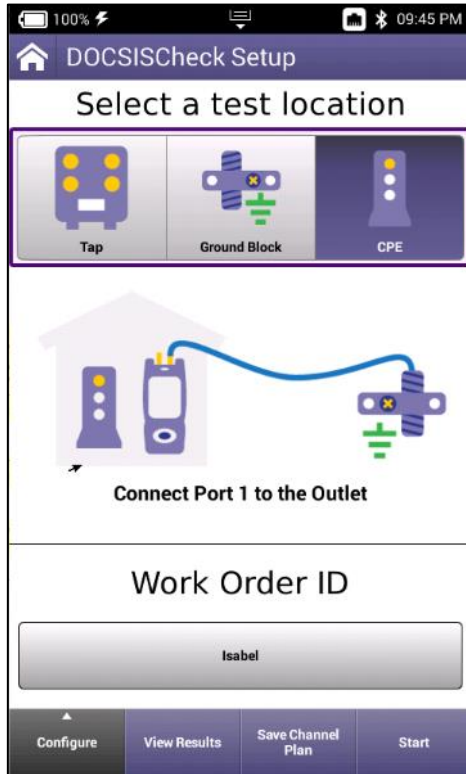
Max Jitter 19 ms

Stop Packet Quality

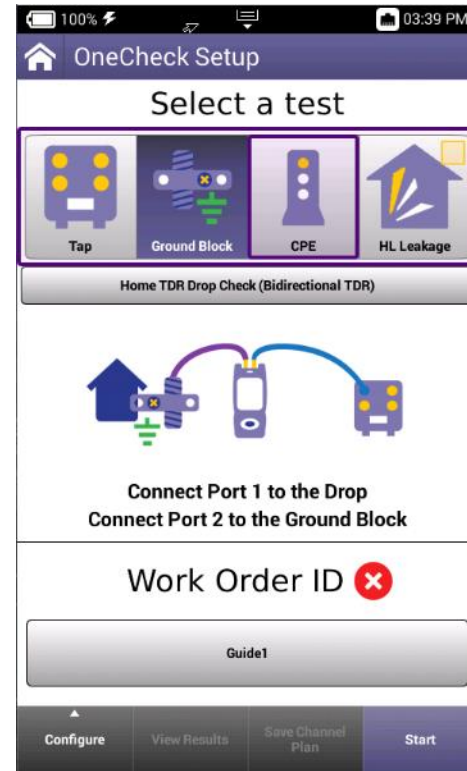
Start Pass Through Cable Modem

One Check

One Check

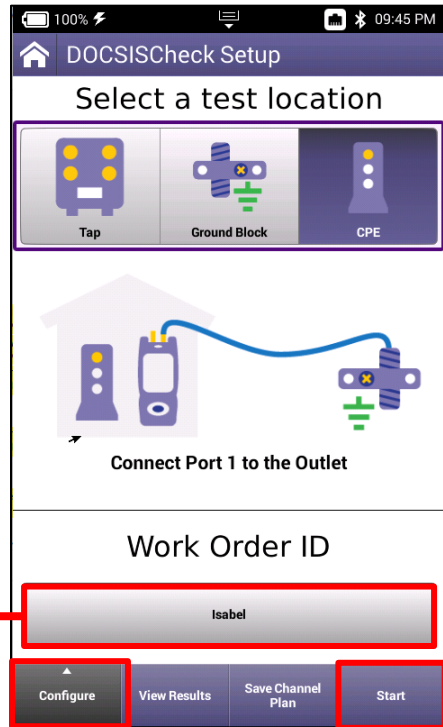


One Check without HL Leakage Requirement (Default)



One Check with HL Leakage Requirement

One Check



100% 09:45 PM

DOCSISCheck Setup

Select a test location

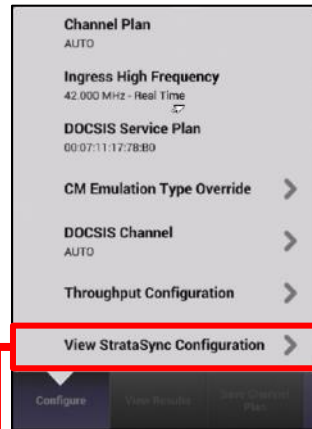
Tap Ground Block CPE

Connect Port 1 to the Outlet

Work Order ID

Isabel

Configure View Results Save Channel Plan Start



Channel Plan
AUTO

Ingress High Frequency
42.000 MHz - Real Time

DOCSIS Service Plan
00:07:11:17:78:80

CM Emulation Type Override >

DOCSIS Channel
AUTO >

Throughput Configuration >

View StrataSync Configuration >

Configure View Results Save Channel Plan



StrataSync Configuration

Limit Plan File Name
DNXG30 NTX Limit Plan

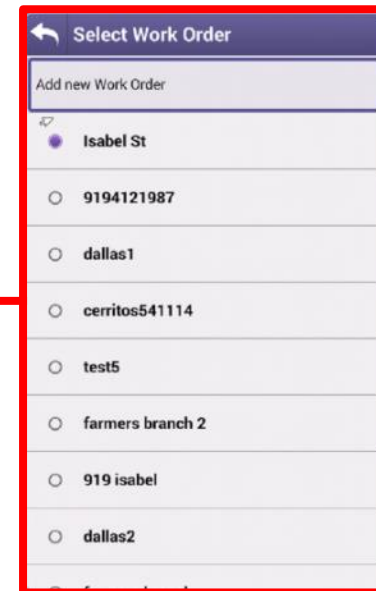
DOCSIS Service Plan File Name
default-docsisprofiles

Off Air Ingress Plan File Name
default-oatplans

Measurement Settings File Name
default-measurementsettings

Limit Plan Exclusion Zone File Name
default-exclusionzones

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



Select Work Order

Add new Work Order

Isabel St

9194121987

dallas1

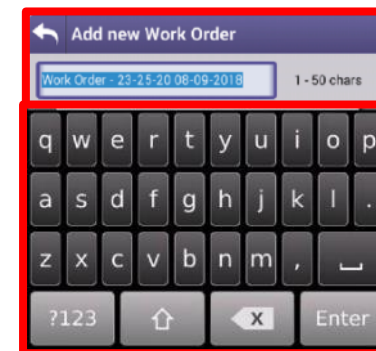
cerritos541114

test5

farmers branch 2

919 isabel

dallas2



Add new Work Order

Work Order - 23-25-20 08-09-2018 1 - 50 chars

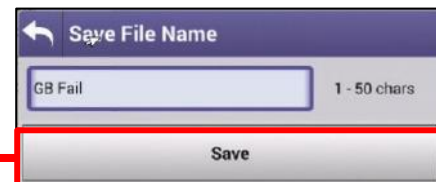
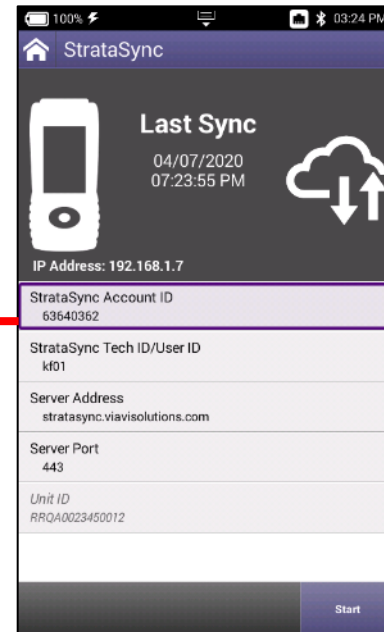
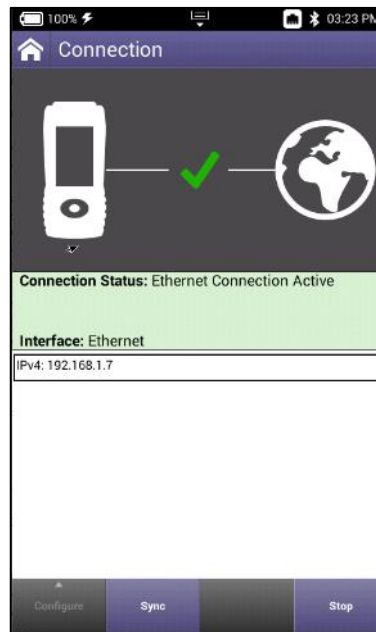
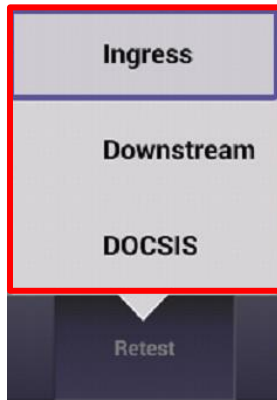
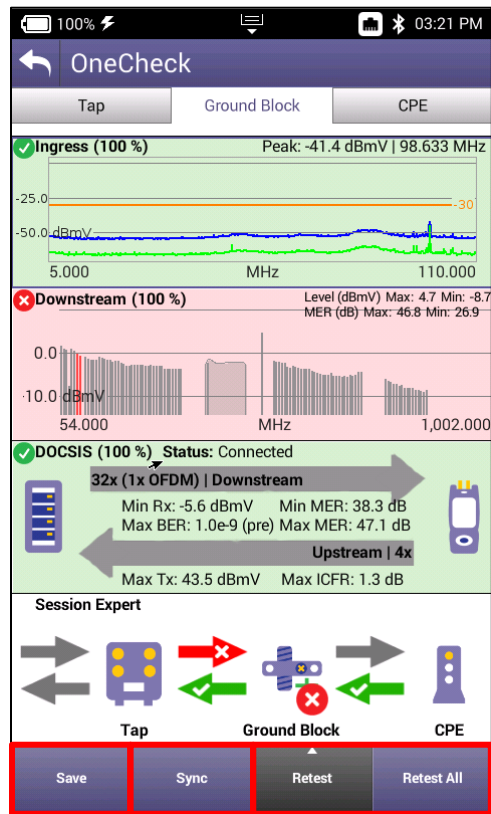
q w e r t y u i o p

a s d f g h j k l .

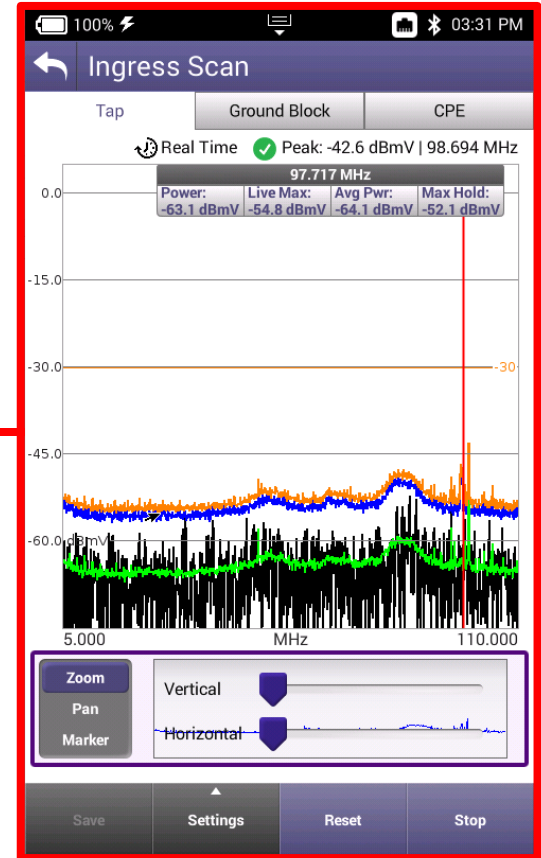
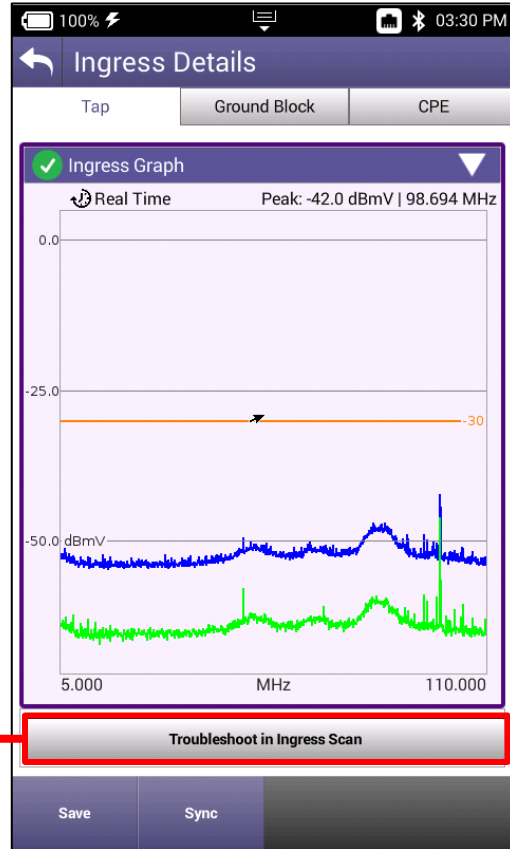
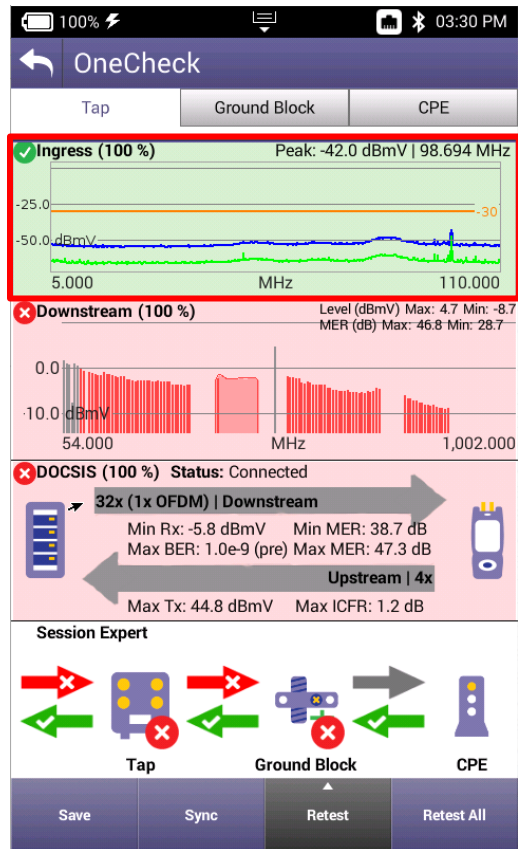
z x c v b n m , _

?123 ↑ ← Enter

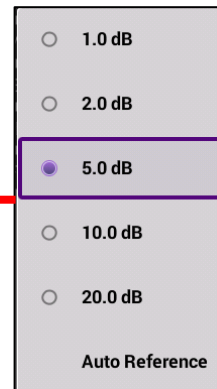
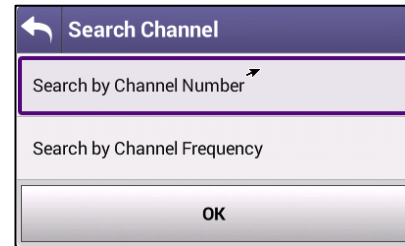
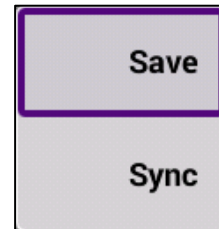
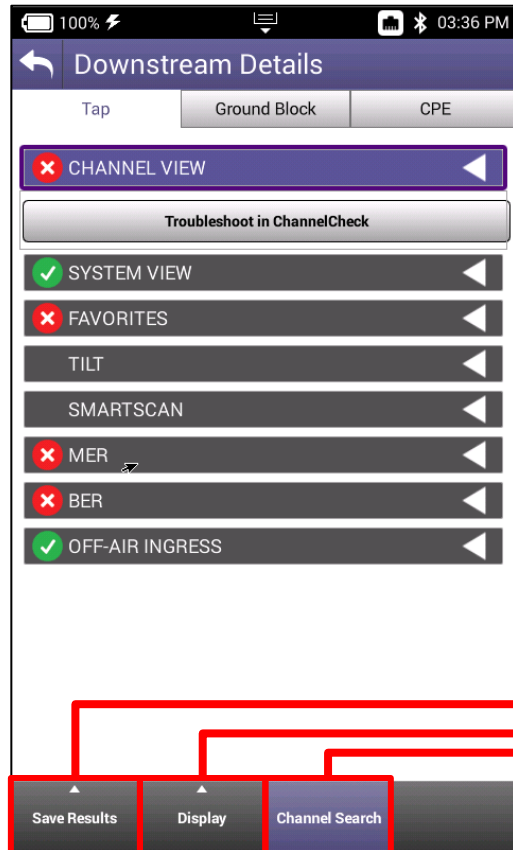
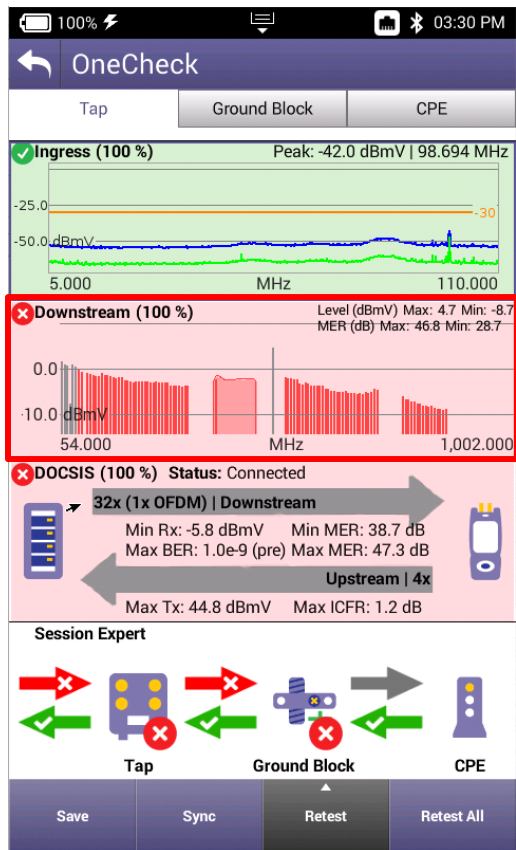
One Check



One Check - Ingress



One Check - Downstream



One Check - Downstream

100% 03:36 PM

Downstream Details

Tap Ground Block CPE

CHANNEL VIEW

Troubleshoot in ChannelCheck

SYSTEM VIEW

FAVORITES

TILT

SMARTSCAN

MER

BER

OFF-AIR INGRESS

Save Results Display Channel Search

SYSTEM VIEW

Max 13.4 dB dB Delta	Max --- dB 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

54.000 MHz 1,002.000

861.000 MHz

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

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

SYSTEM VIEW

FAVORITES

TILT

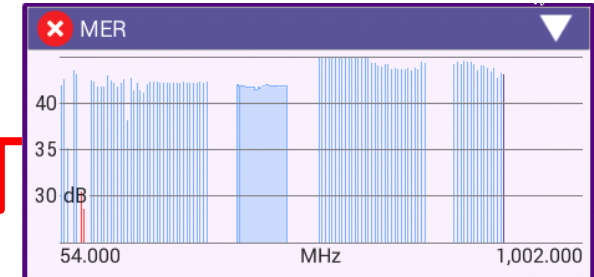
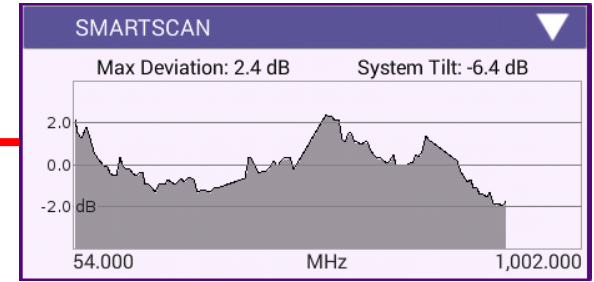
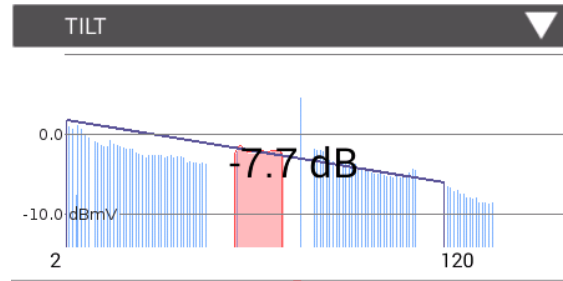
SMARTSCAN

MER

BER

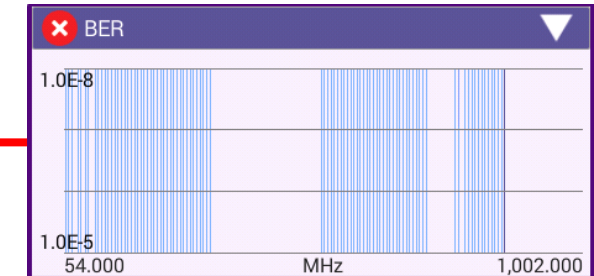
OFF-AIR INGRESS

Save Results Display Channel Search

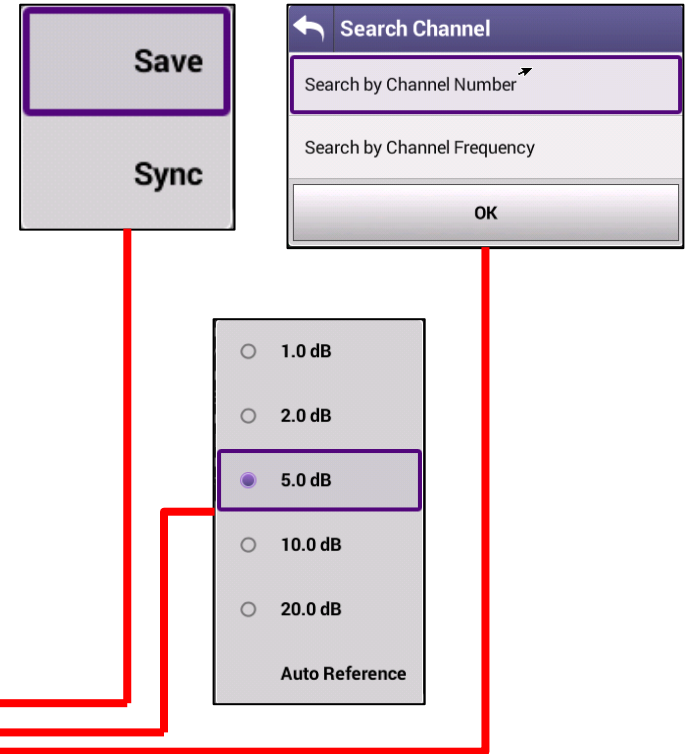
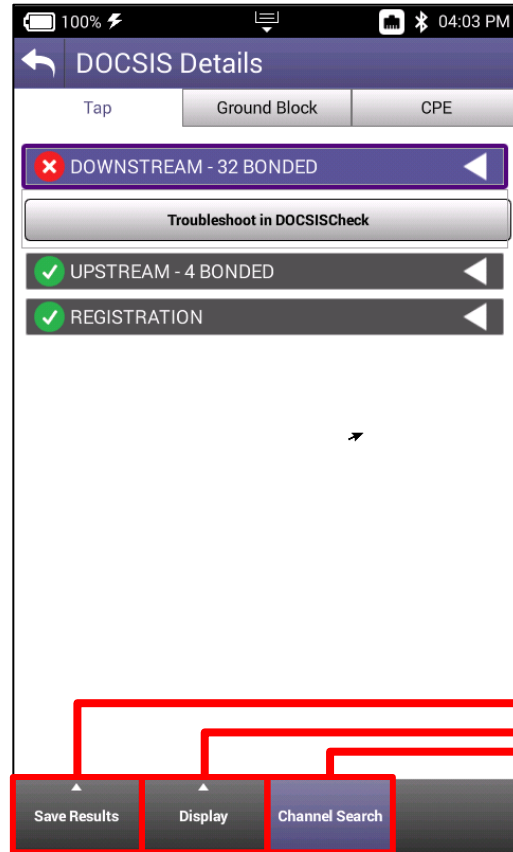
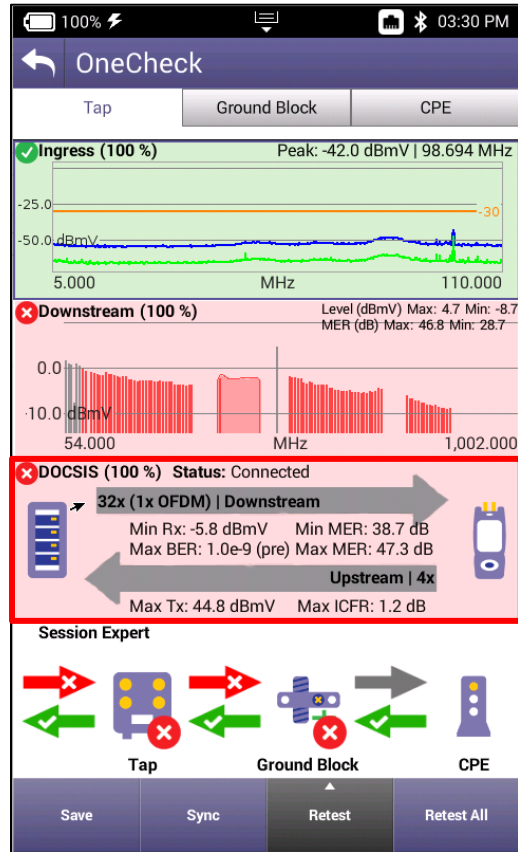


OFF-AIR INGRESS

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



One Check - Upstream



One Check - Upstream

100% 04:03 PM

DOCSIS Details

Tap Ground Block CPE

DOWNSTREAM - 32 BONDED

Troubleshoot in DOCSISCheck

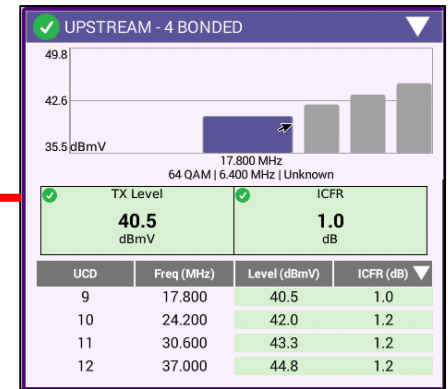
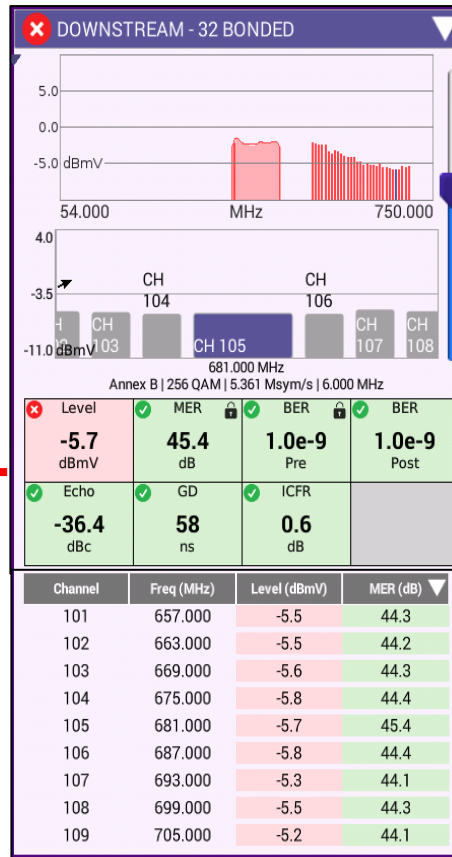
UPSTREAM - 4 BONDED

REGISTRATION

THROUGHPUT

PACKET QUALITY

Save Results Display Channel Search



REGISTRATION

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

Config File: ?
BEWGlyYABxEUG88KIsDi@CILA4INpMjuhwLfUIE0BYVVOzjkMF D__

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@CILA4INpMjuhwLfUIE0BYVVOzjkMF D__

CPE

IPv4 Address 76.175.15.154

IPv4 Subnet Mask 255.255.240.0

IPv4 Gateway Address 76.175.0.1

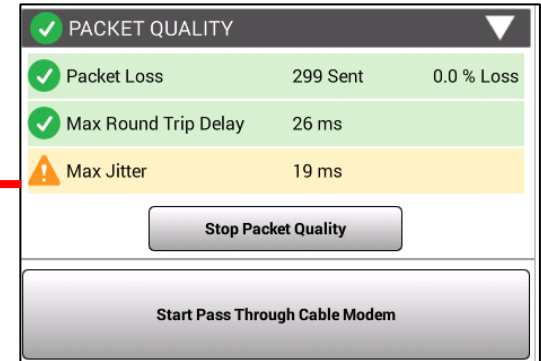
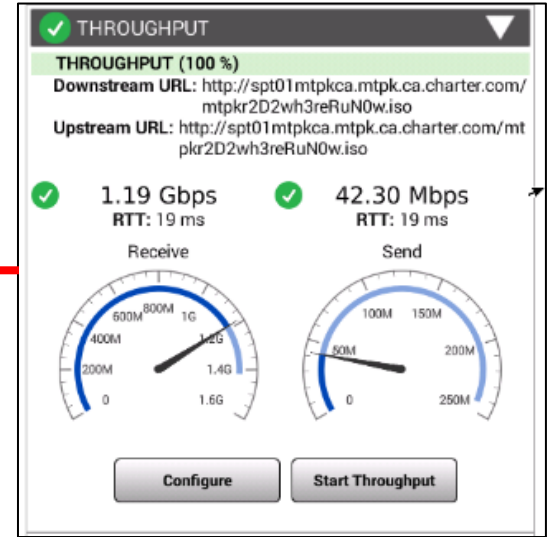
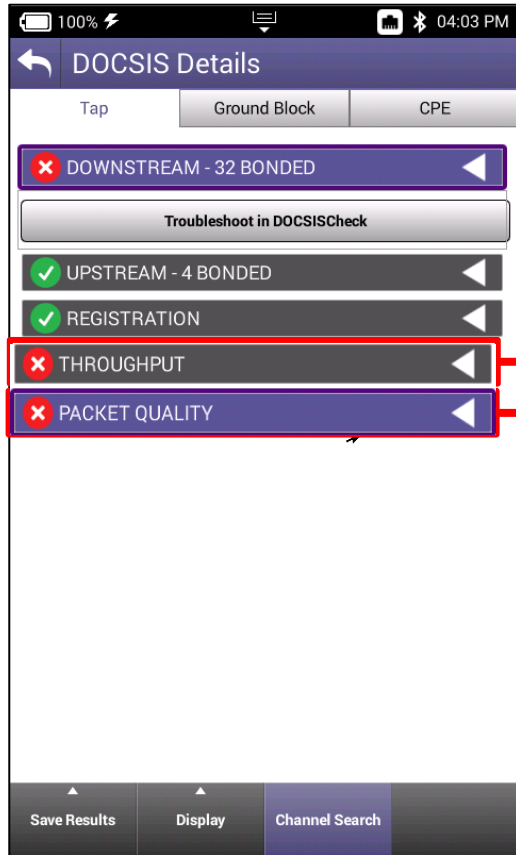
Servers

IPv4 TFTP Server 98.150.3.105

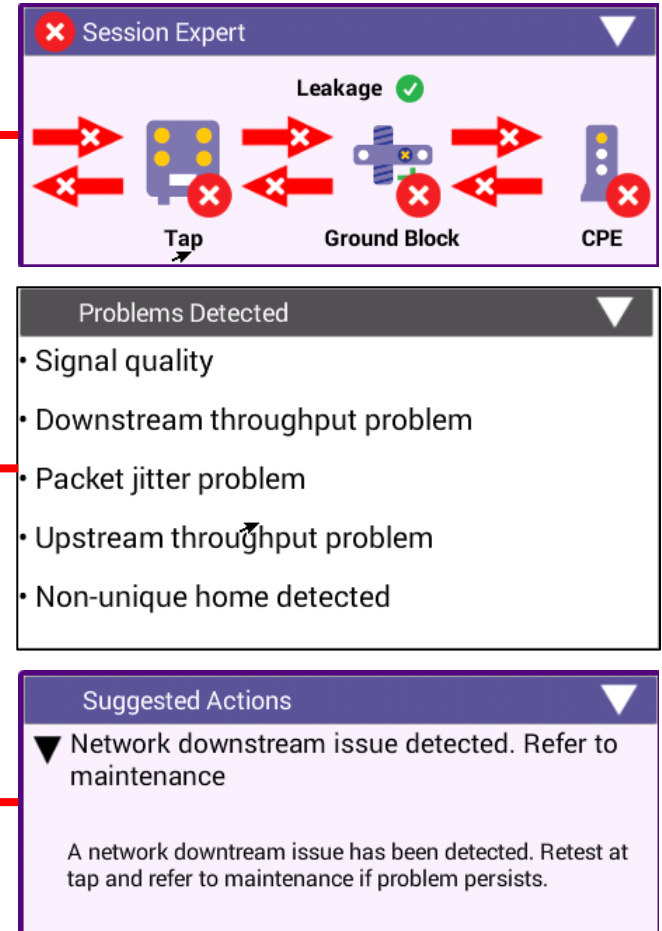
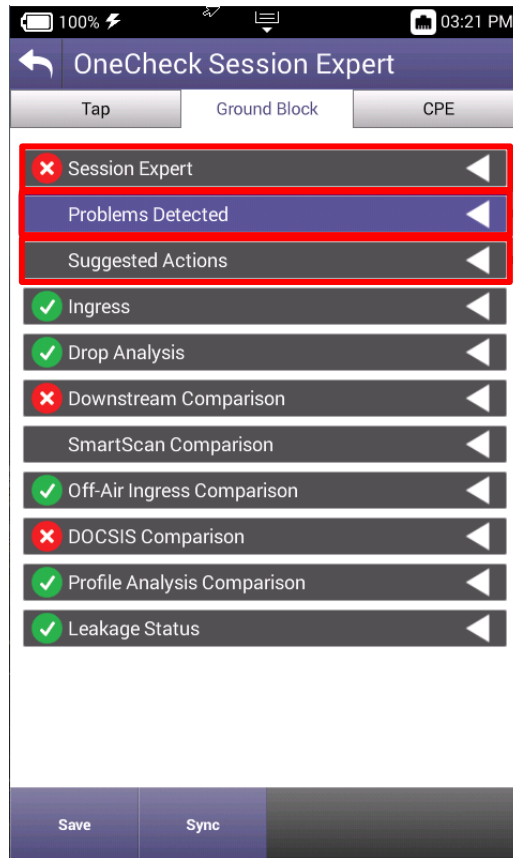
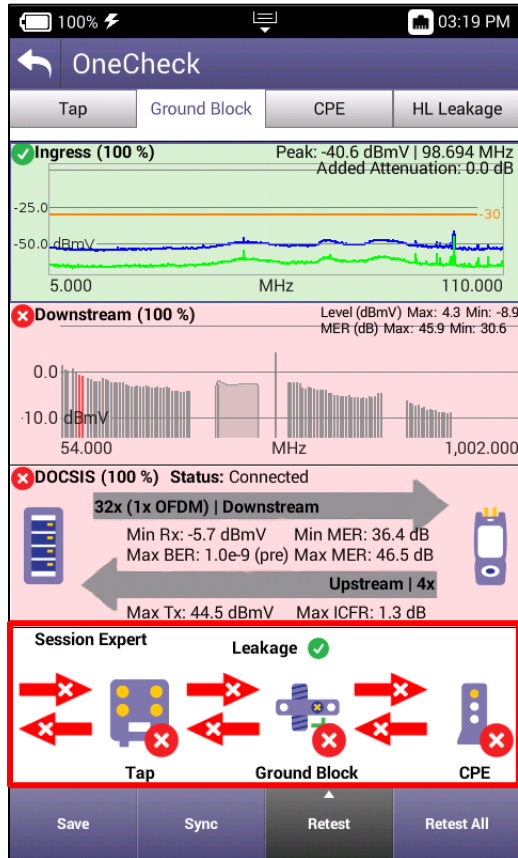
IPv4 DHCP Server 142.254.177.41

IPv4 TOD Server 98.150.3.105

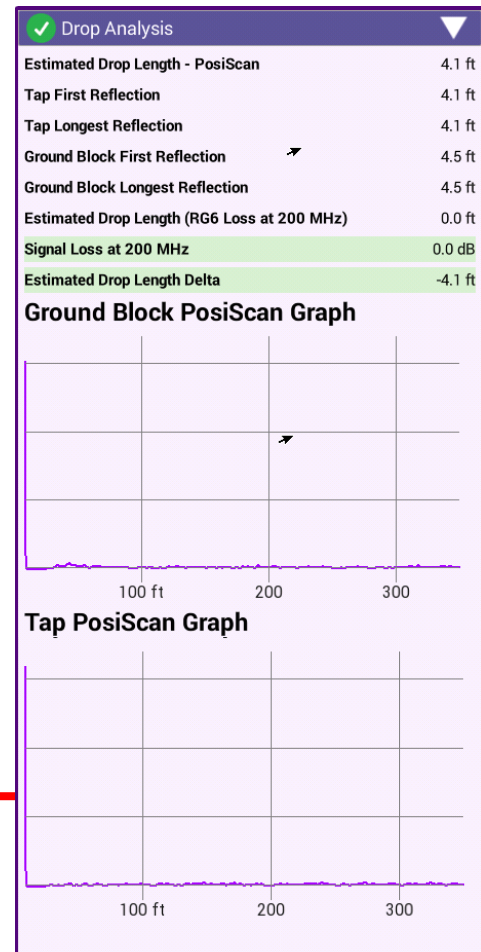
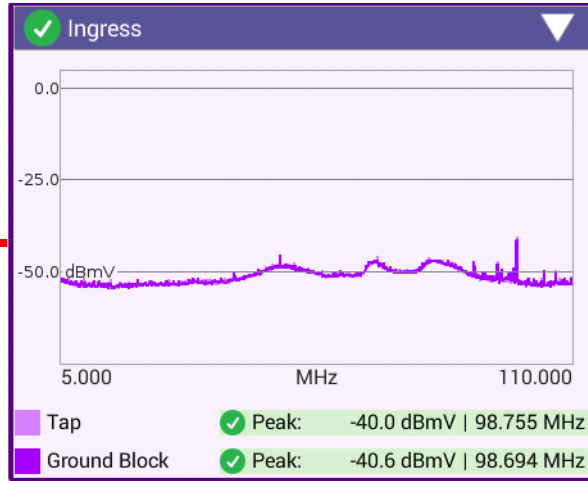
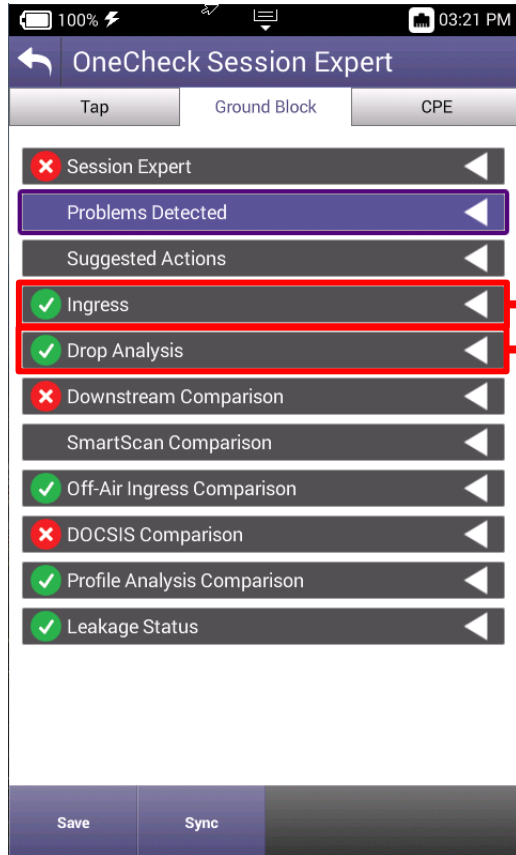
One Check - Upstream



One Check – Session Expert



One Check – Session Expert



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

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

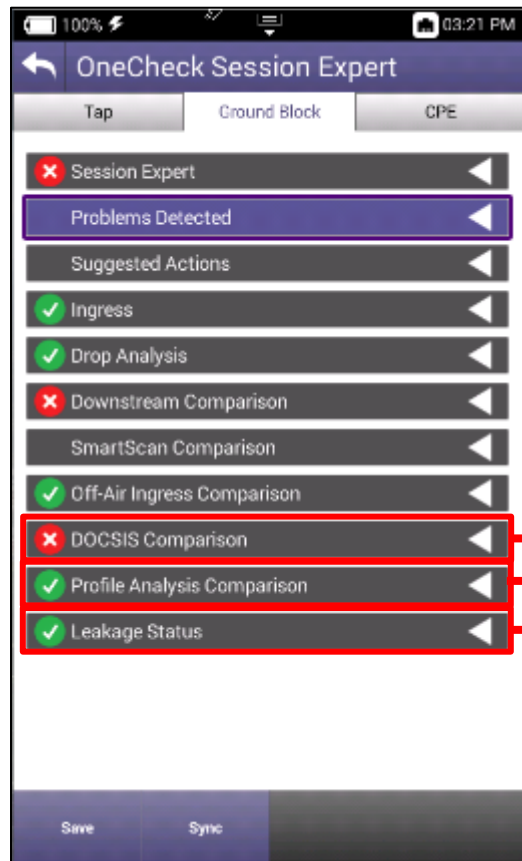
SmartScan Comparison

	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



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

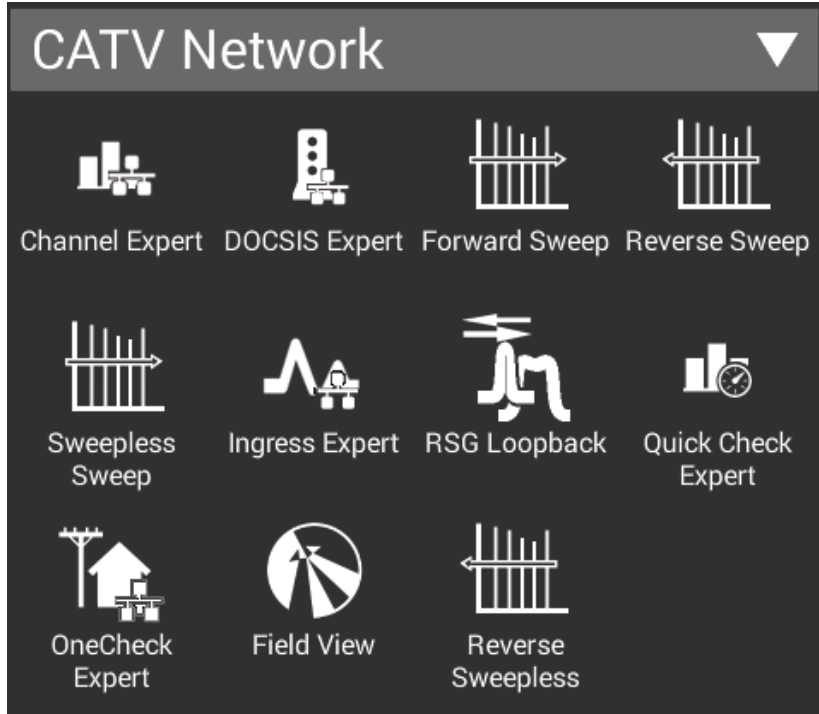
Duration	26 s	100%
----------	------	------

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	46.9
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	1.4
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

CATV Network Configurations

CATV Network



- CATV NETWORK offers 8 test functions
 - Channel Expert
 - DOCSIS Expert
 - Forward Sweep (Active)
 - Reverse Sweep (Active)
 - Sweepless Sweep (Downstream)
 - Ingress Expert
 - Return Signal Generator w/ Loopback
 - Quick Check Expert
 - OneCheck Expert
 - Field View (with Return Signal Generator)
 - Reverse Sweepless (Upstream)

Quick Check Expert

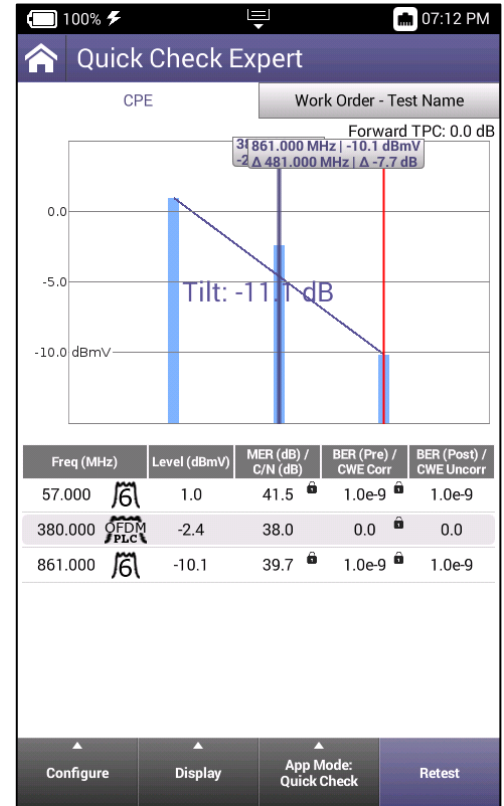
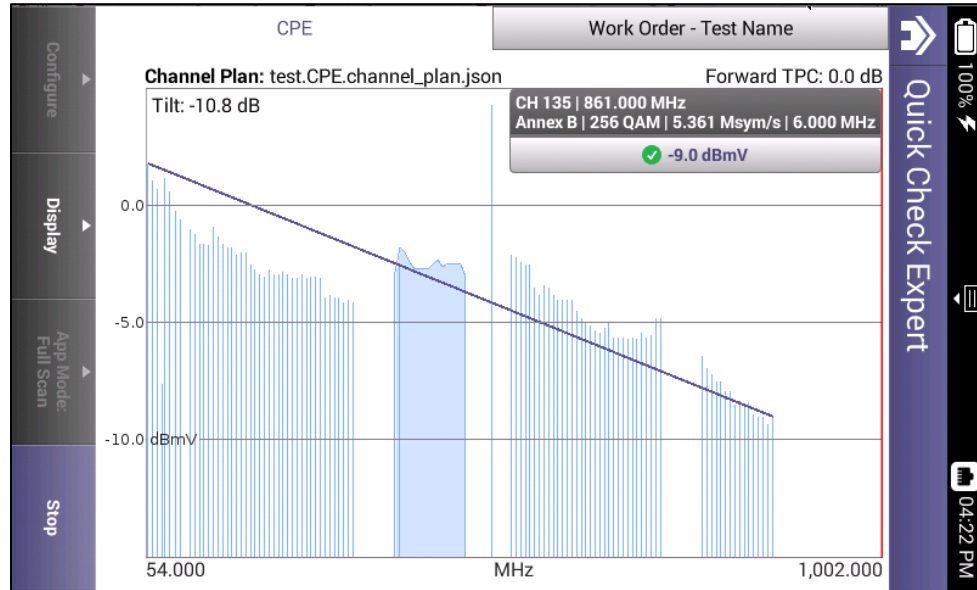
Quick Check Expert

QuickCheck Expert can be run in two modes

- Quick Check
- Full Scan

To populate the FULL SCAN, user must first save a channel plan in ChannelCheck before loading it in QuickCheck Expert

To populate the QuickCheck mode with channels, user must add them manually

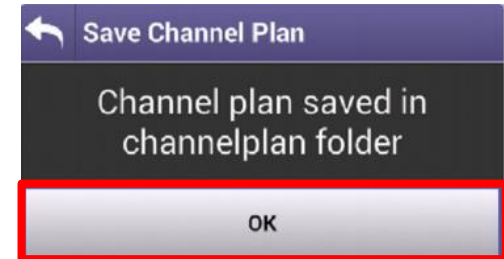
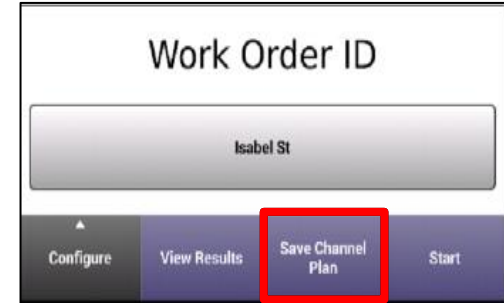
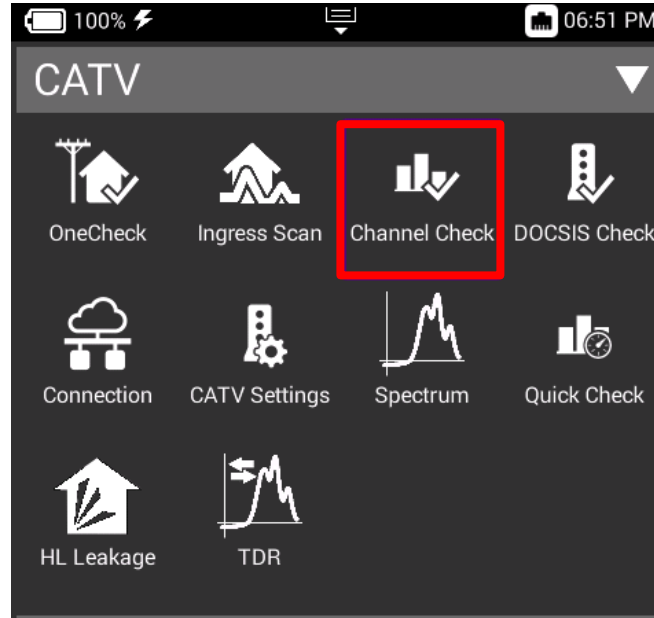


Quick Check Expert – Saving Channel Plans

To save a Channel Plan, run the CHANNELCHECK test under CATV

After test completes, use the BACK button to return to CHANNELCHECK SETUP

Select SAVE CHANNEL PLAN. A message will display indicating the Channel Plan has been saved. The Channel plan will be named after the WORK ORDER ID



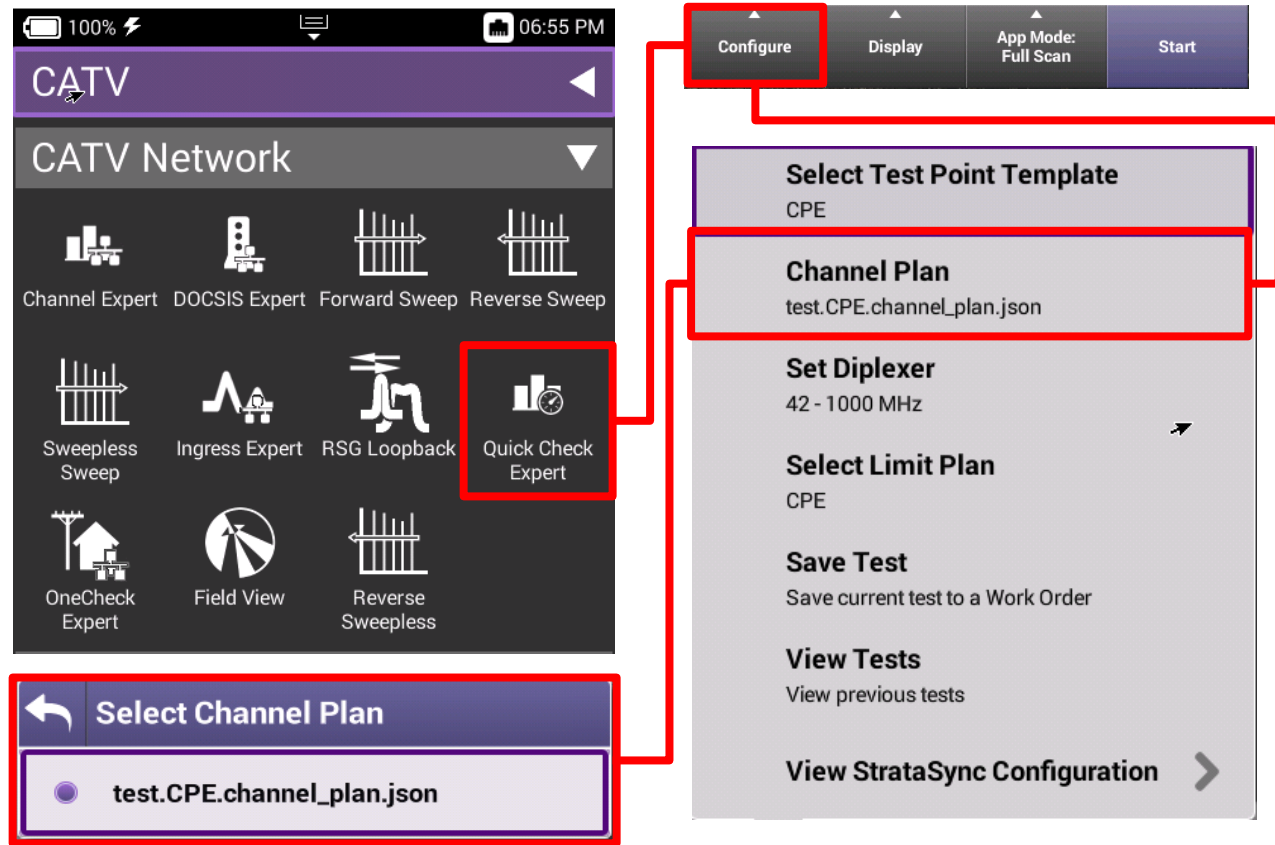
Quick Check Expert – Loading Channel Plans

Return to QUICKCHECK
EXPERT under CATV
NETWORK

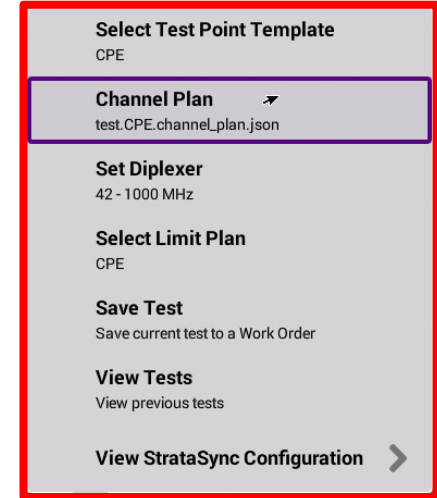
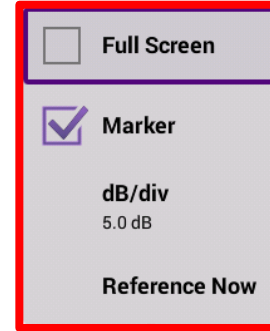
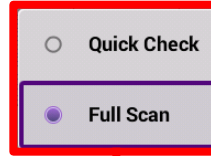
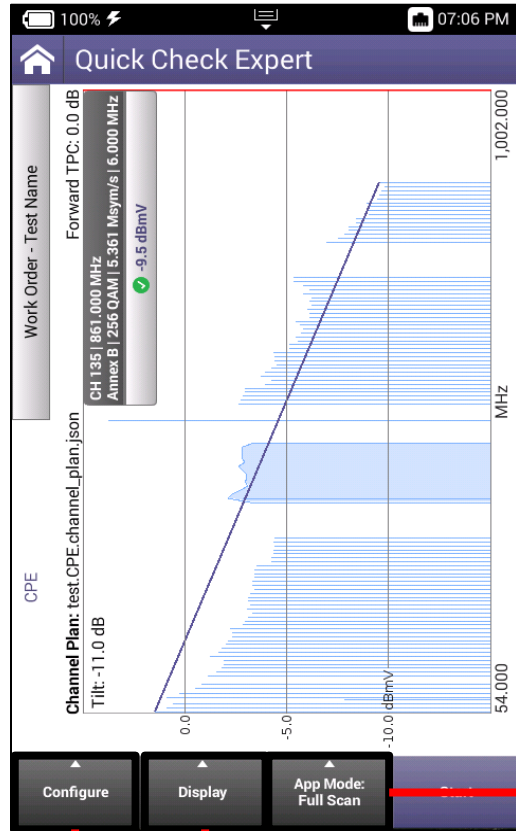
Test will automatically run,
STOP test and change APP
MODE to FULL SCAN

Select CONFIGURE and select
CHANNEL PLAN

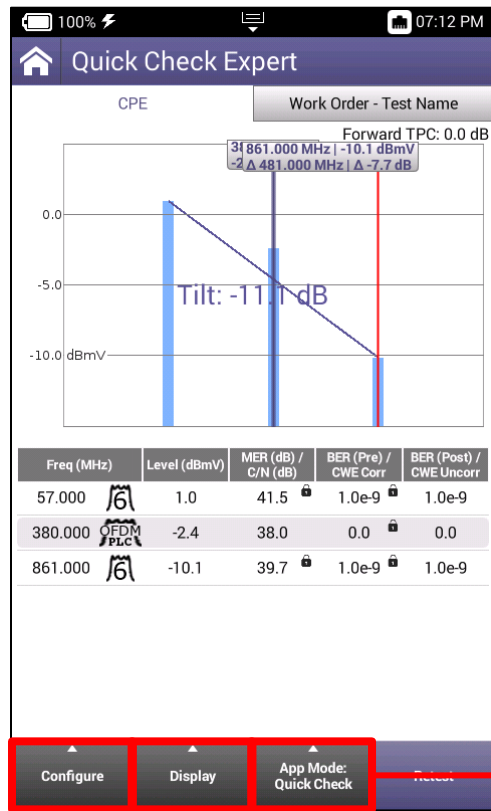
Select the appropriate saved
CHANNEL PLAN



Quick Check Expert – Full Scan Mode



Quick Check Expert – Quick Check Mode



☒ Quick Check

☐ Full Scan

☐ 1.0 dB

☐ 2.0 dB

☒ 5.0 dB

☐ 10.0 dB

☐ 20.0 dB

Reference Now

☒ Auto Reference

☒ Δ Marker

Select Test Point Template
CPE

Carrier Configuration >

Channel Plan
test.CPE.channel_plan.json

Set Diplexer
42 - 1000 MHz

☒ MER

☒ BER / OFDM CWE

☒ Carrier To Noise

Save Test
Save current test to a Work Order

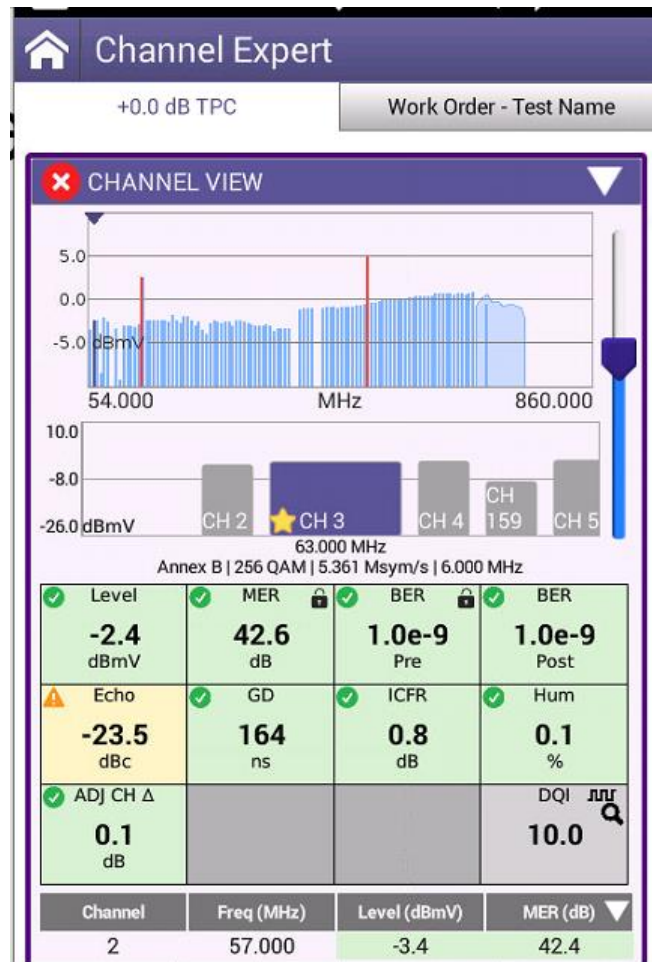
View Tests
View previous tests

View StrataSync Configuration >

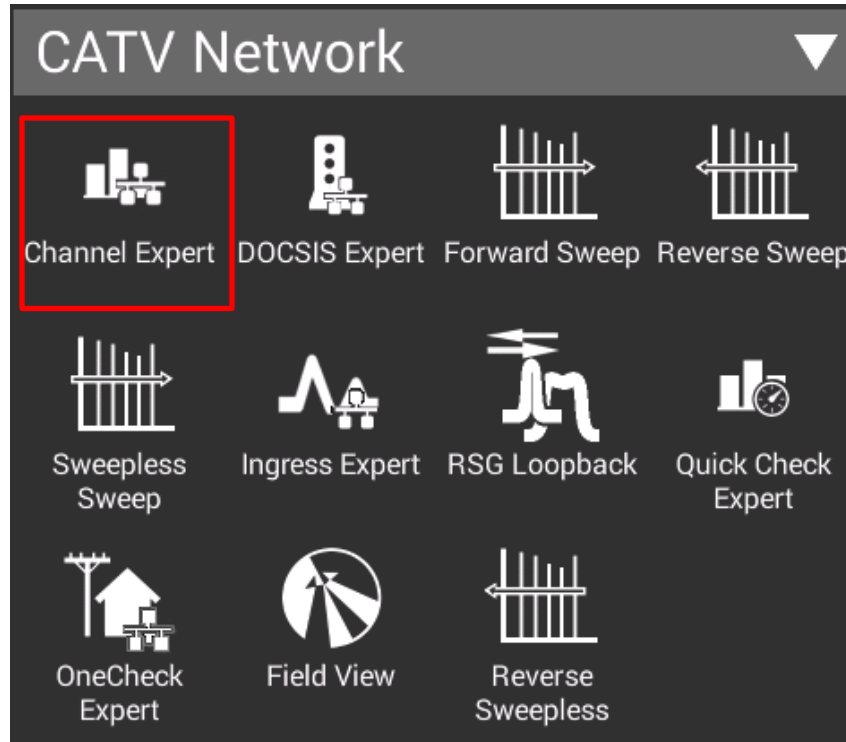
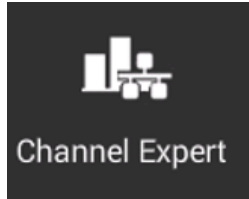
Channel Expert

Channel Expert Measurements

- Channel Scan no need for Channel plan
- Measures Video, QAM, OFDM
- Typical QAM Measurements include Level, MER, Pre and Post BER
- Measures Echo, GD, ICFR (This is an Adaptive Equalizer Test)
- Hum (Less than 1000 kHz)
- DQI (Digital Quality Index)
- Ingress Under Carrier
- ADJ Channel Delta

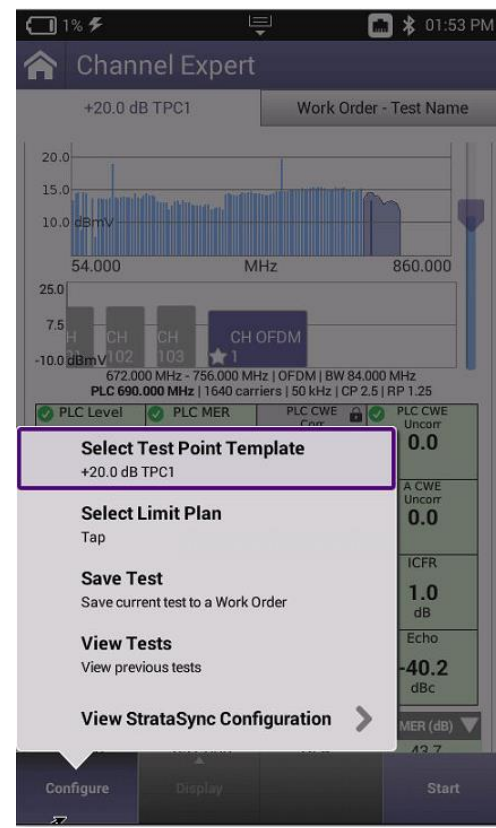
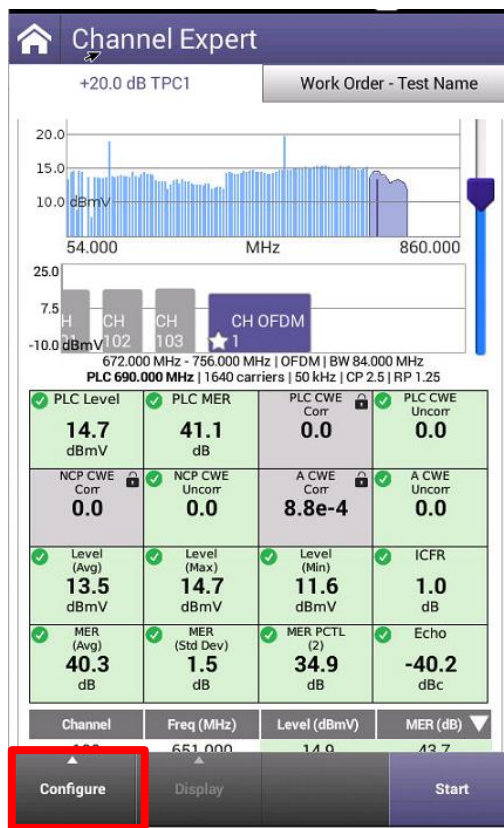
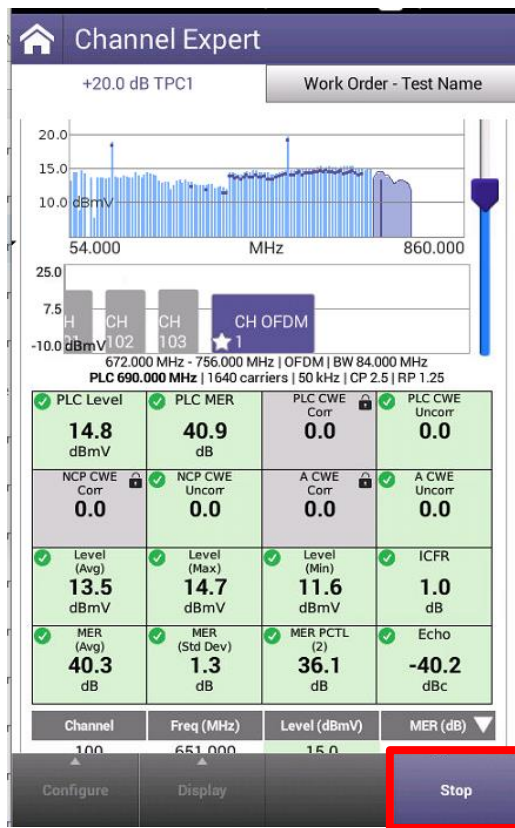


Channel Expert

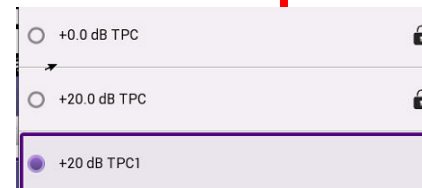
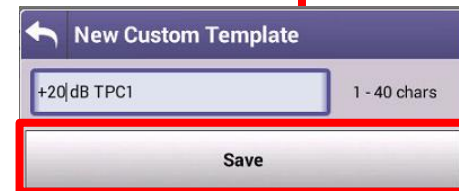
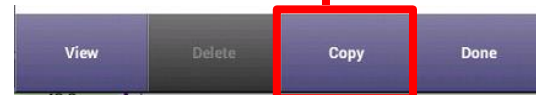
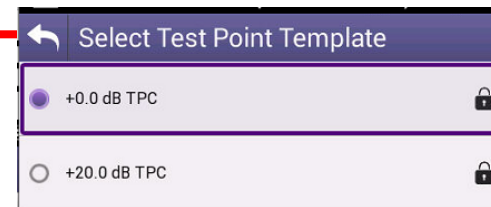
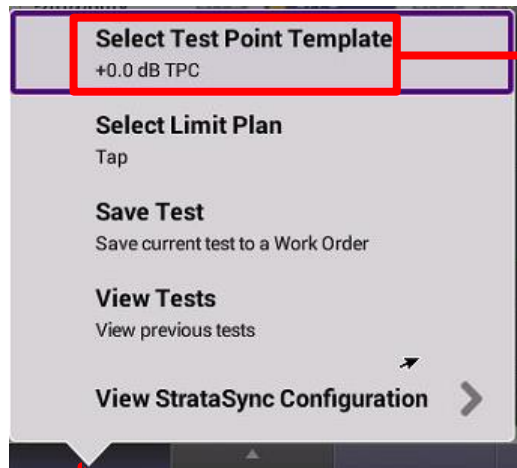
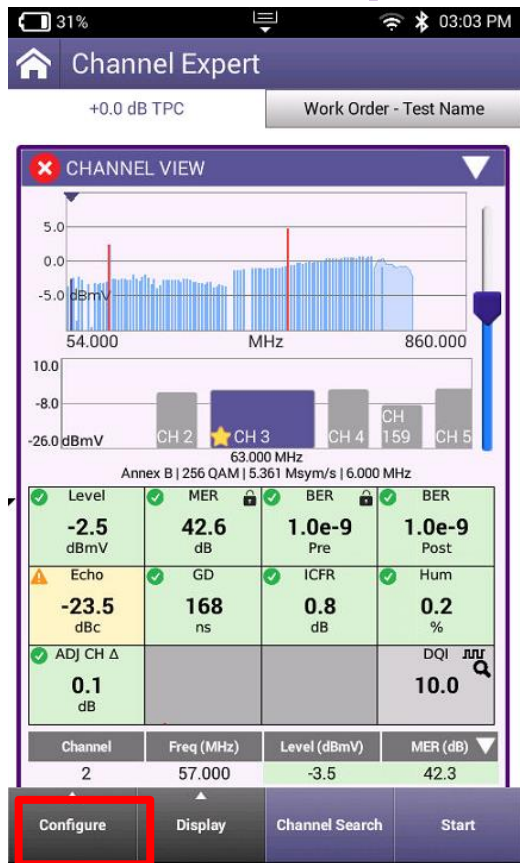


Channel Expert Configure

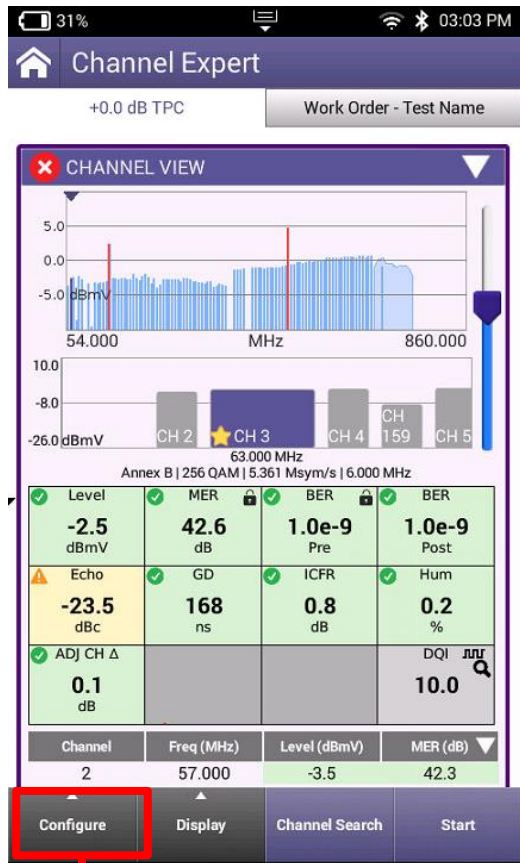
- All EXPERT test functions will feature a **CONFIGURE** button when the **STOP** function is pressed
- All new test functions are **LIVE** tests so to access **CONFIGURE**, test must be stopped first



Channel Expert Configure Test point



Channel Expert Configure



Select Test Point Template
+0.0 dB TPC

Select Limit Plan
Tap

Save Test
Save current test to a Work Order

View Tests
View previous tests

View StrataSync Configuration

Select Limit Plan

☒ Tap

☐ Ground Block

☐ CPE

View Test Results

Tests for Current Work Order:

H12345

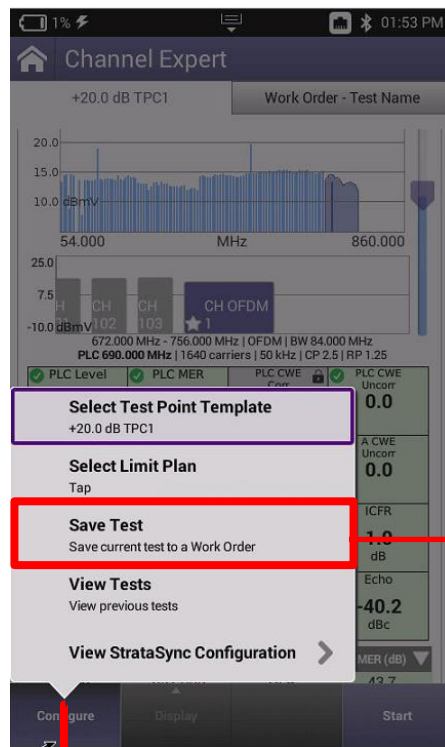
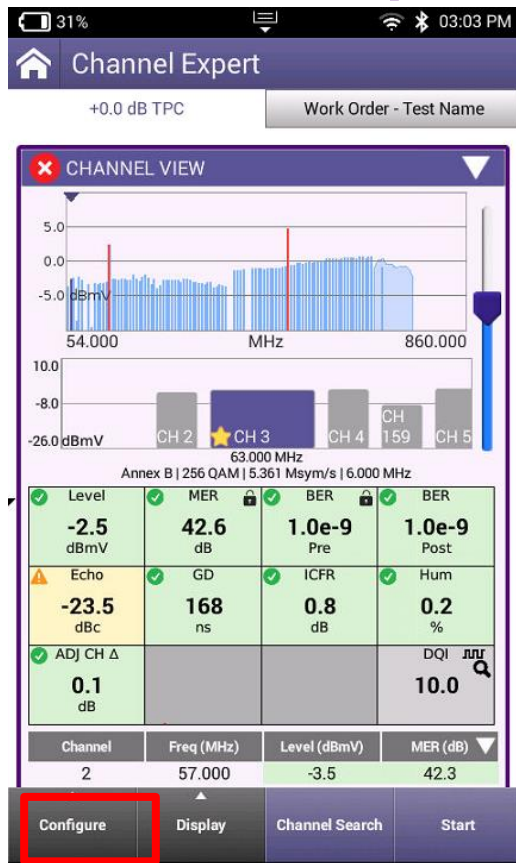
StrataSync Configuration

Test Point Templates File Name
default-testpoint-templates

Limit Plan File Name
Thome1

Limit Plan Exclusion Zone File Name
default-exclusionzones

Channel Expert Configure Save Test



Save Test

Save Test to Work Order

Test Name
Isabel 20191

Work Order ID
Guide1

Set Name to Current Date

Save

Test Name

Isabel 20191 1 - 50 chars

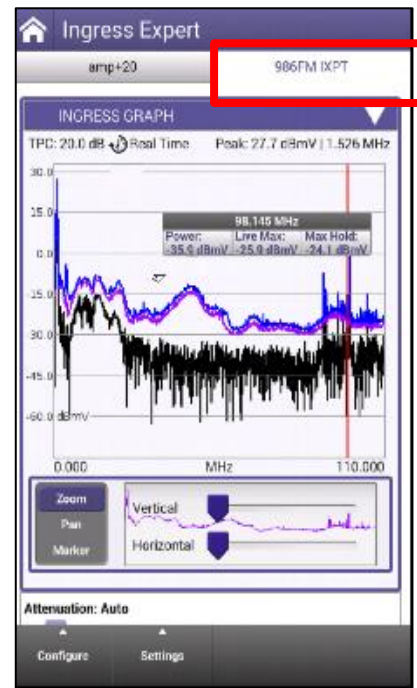
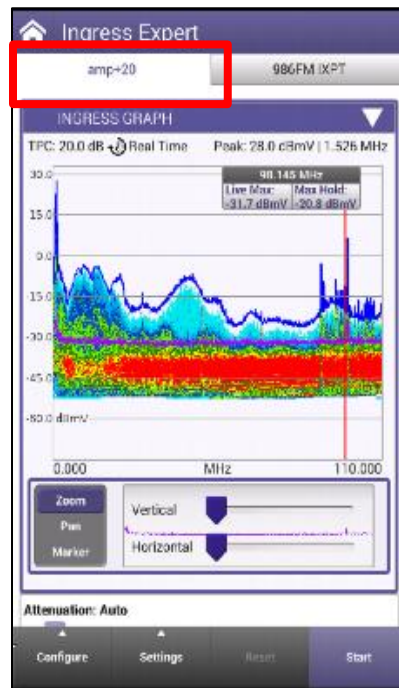
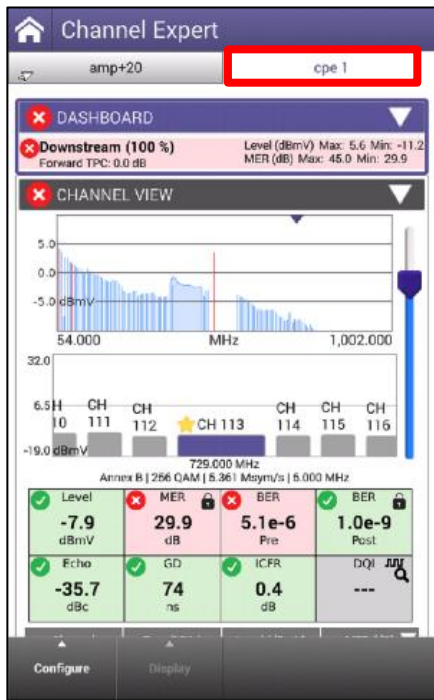
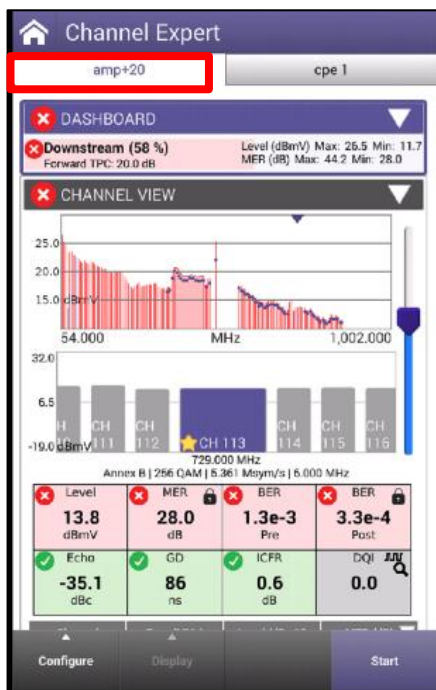
OK

Select Work Order

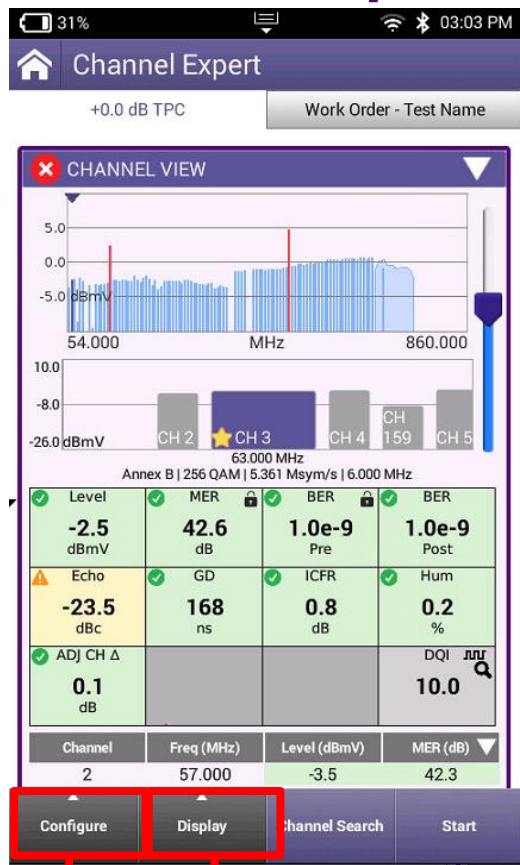
New Work Order ...

- ☒ Guide1
- ☐ T3
- ☐ T2
- ☐ T1
- ☐ test2
- ☐ Chaplin
- ☐ Charlie
- ☐ Isabel

Configure – View Test – Delta Tab



Channel Expert Configure



Select Test Point Template

+0.0 dB TPC

Select Limit Plan

Tap

Save Test

Save current test to a Work Order

View Tests

View previous tests

View StrataSync Configuration

1.0 dB

2.0 dB

5.0 dB

10.0 dB

20.0 dB

Auto Reference

Select Limit Plan

Tap

Ground Block

CPE

Save Test

Save Test to Work Order

Test Name

Work Order ID

Work Order - 16-49-00 08-05-2020

View Test Results

Tests for Current Work Order:

H12345

StrataSync Configuration

Test Point Templates File Name

default-testpoint-templates

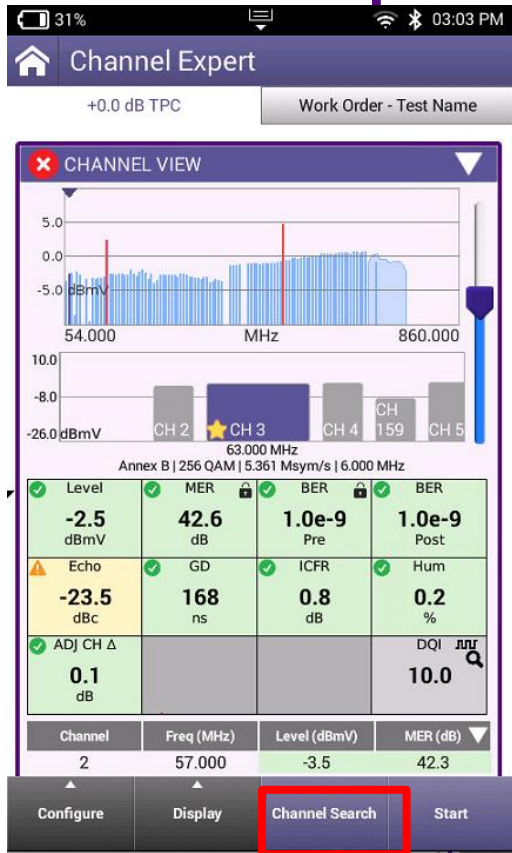
Limit Plan File Name

Thome1

Limit Plan Exclusion Zone File Name

default-exclusionzones

Channel Expert Configure



Search Channel

Search by Channel Number

Search by Channel Frequency

OK

Enter Channel Number

2

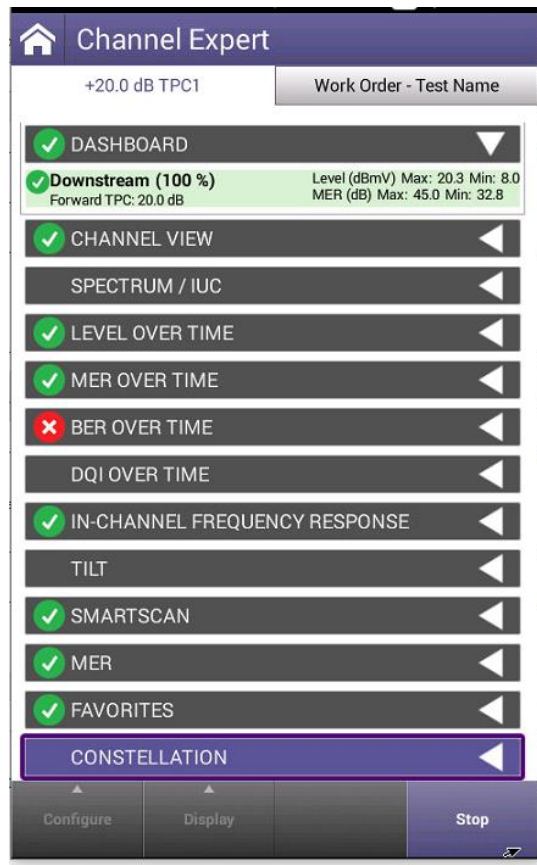
Find Channel

Enter Channel Frequency

57

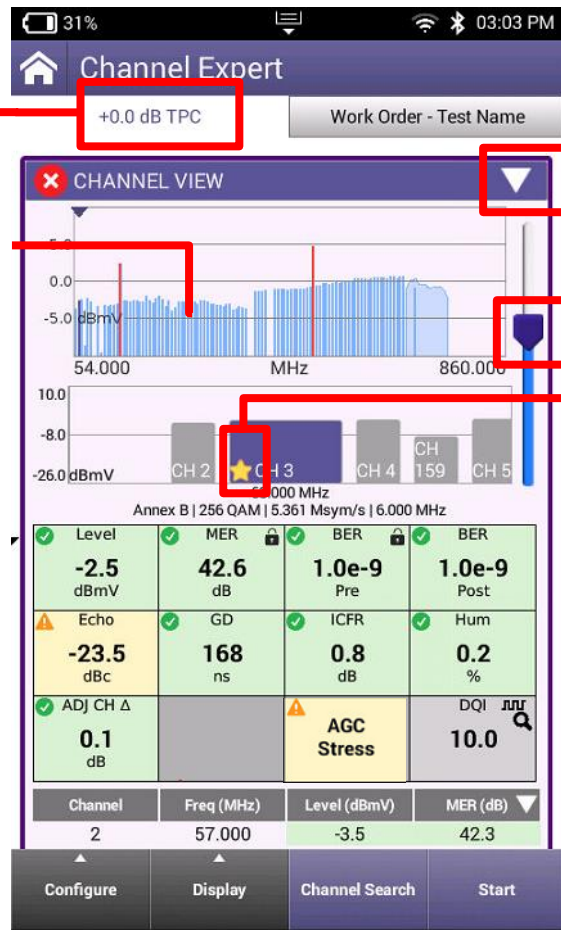
Find Channel

Channel Expert QAM



Test Point Compensation

Select Channel



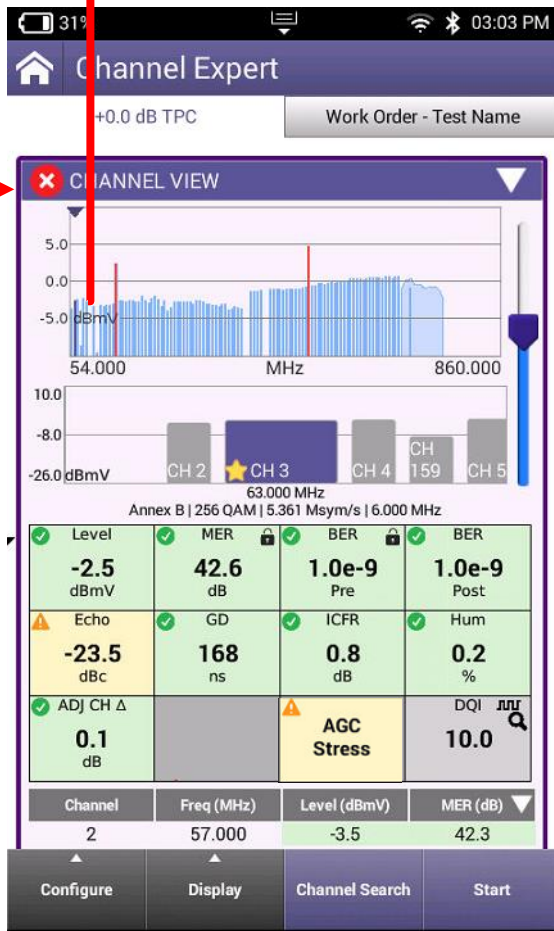
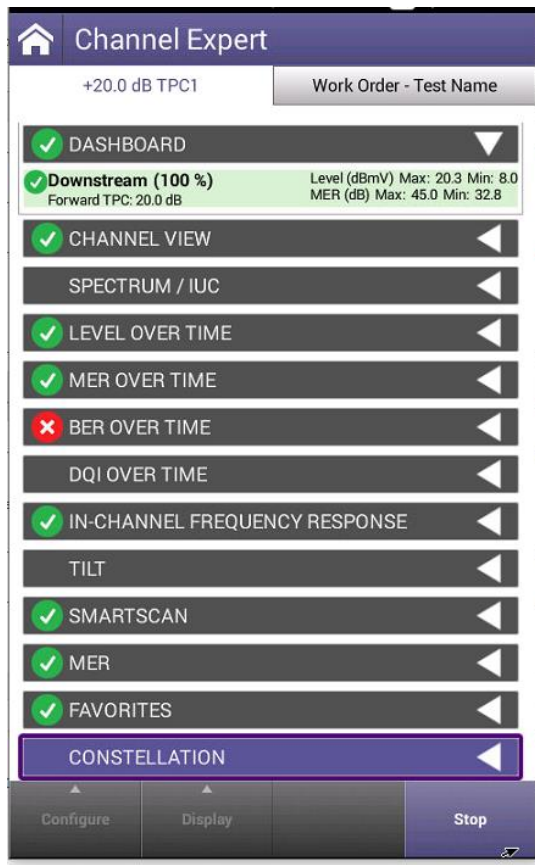
Open/close window

Reference

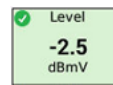
Press star to turn to gold color for marking as favorite channel

Slide left or right to change channel

Channel Expert QAM



Selected Channel

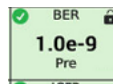


Channel RF power Level

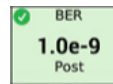


Modulation Error Ratio

Like Carrier to Noise Ratio
Composite Second Order and
Composite Third Order



Bit error rate that are
detected

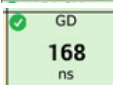


Bit error rated that pass
through

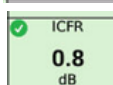
Adaptive Equalizer Measurements



Highest tap stress level of
reflection



Highest delay of a group
of signals

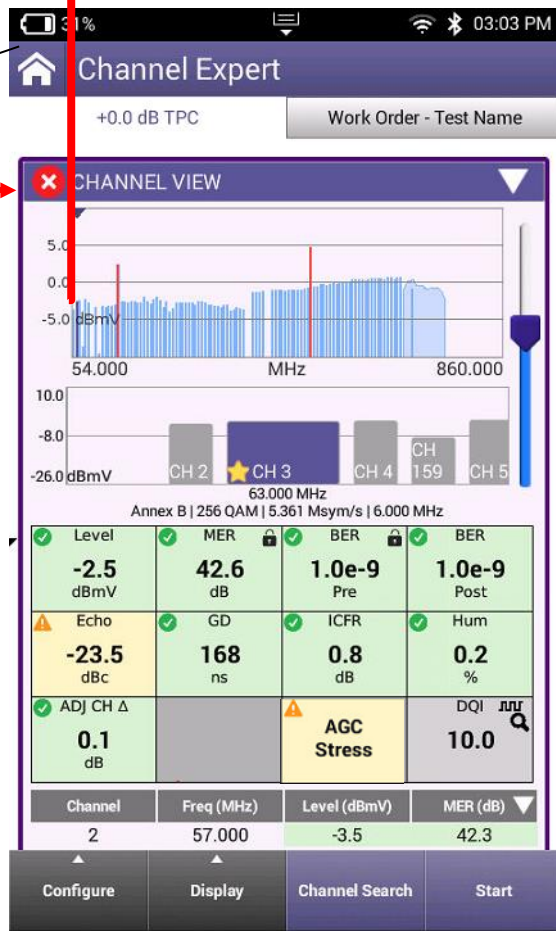
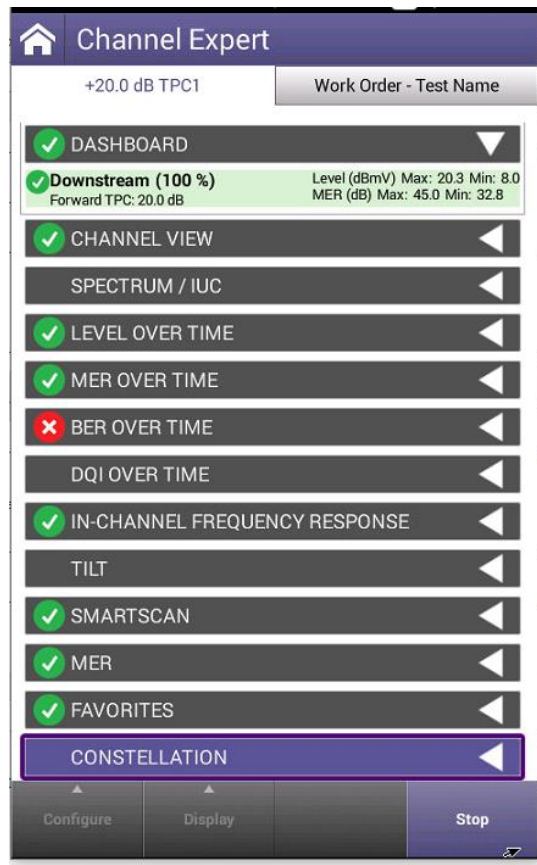


In Channel Peak to Valley
measurement of a QAM
carrier

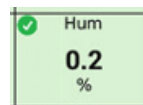
Colors represent the Limit set value



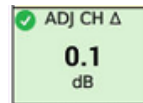
Channel Expert QAM



Selected Channel



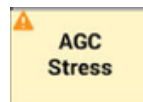
Hum is a signal impairment which causes the amplitude of a modulated carrier to vary



Adjacent Channel video is the delta of the RF carrier that is next to it.



Digital Quality Index is the value assigned to show how good the RF signal is performing

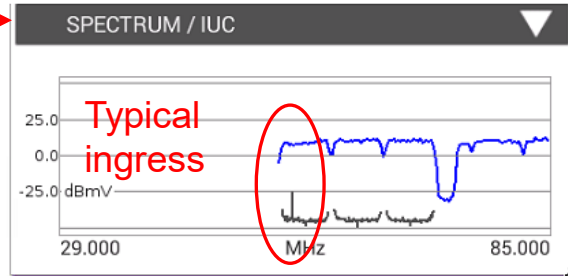
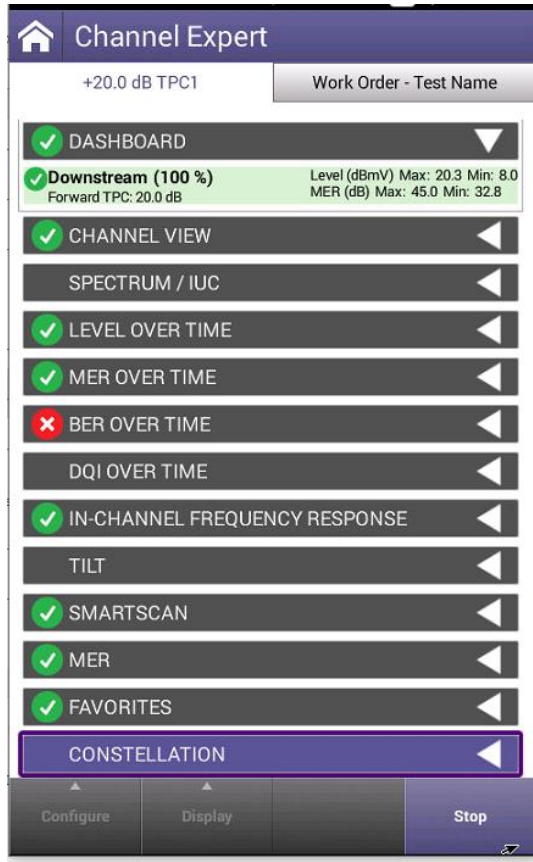


Automatic Gain Control level of the channel is not consistent and is varying in amplitude in milliseconds

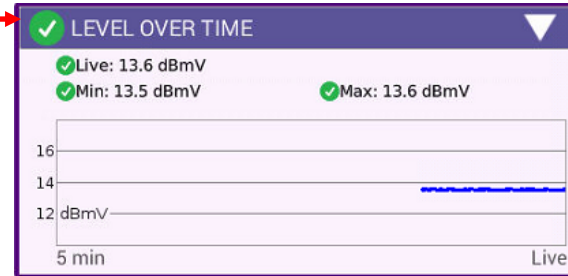
Colors represent the Limit set value



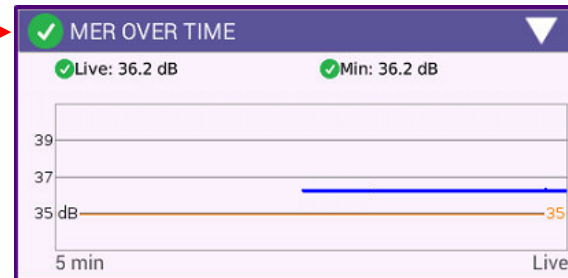
Channel Expert QAM



Spectrum/ICU
9 Channel Spectrum view of
Ingress under the carrier

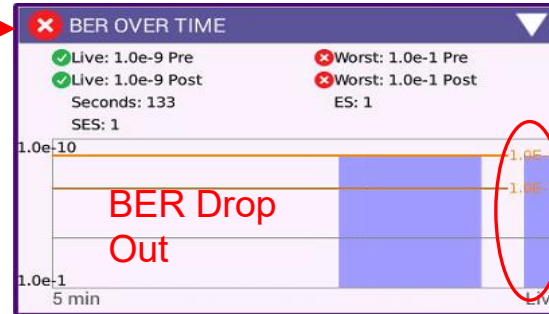
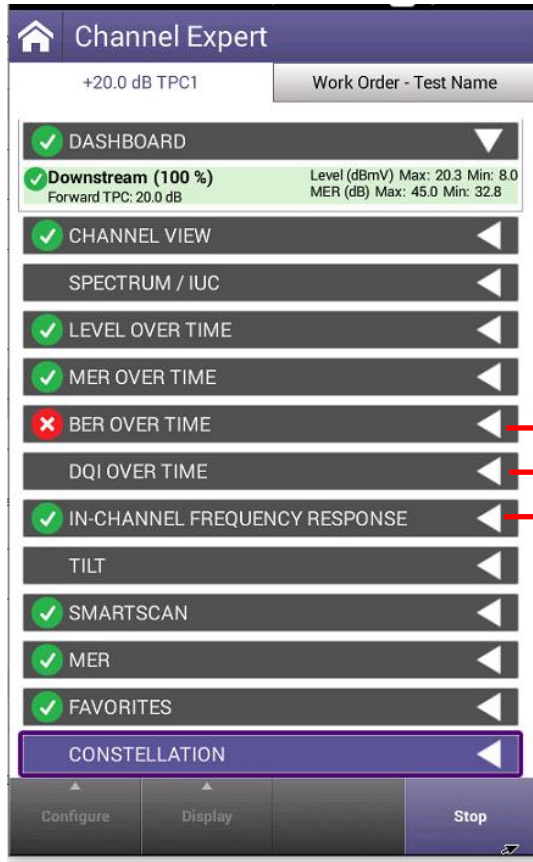


Measures the Level of
selected channel in a 5-minute
window

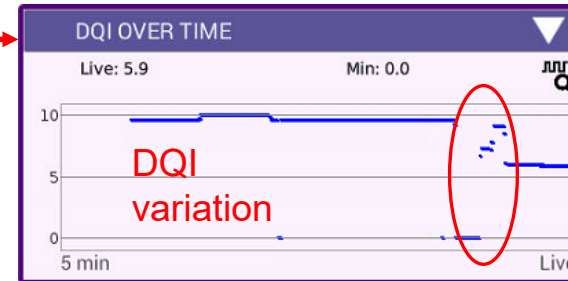


Measures the MER of
selected channel in a 5-
minute window

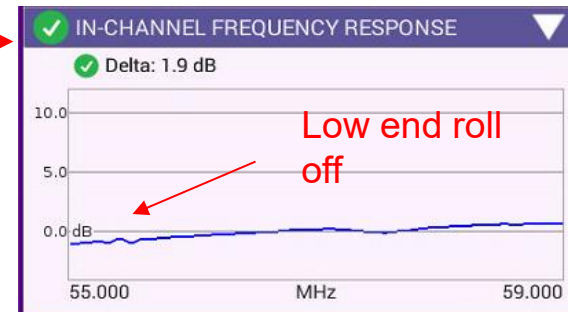
Channel Expert QAM



Measures the BER of selected channel in a 5-minute window

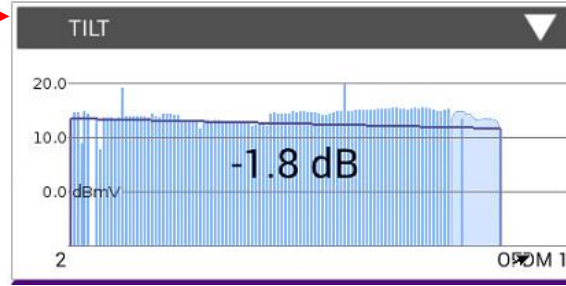
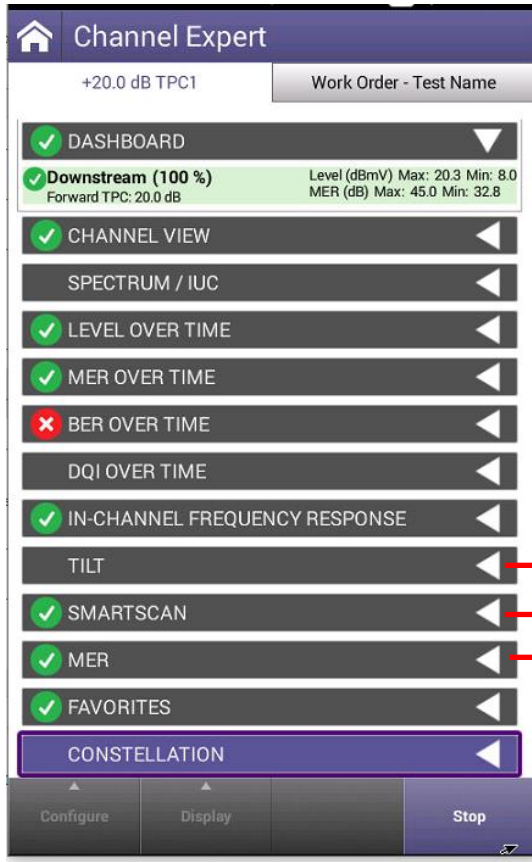


Measures the DQI of selected channel in a 5-minute window

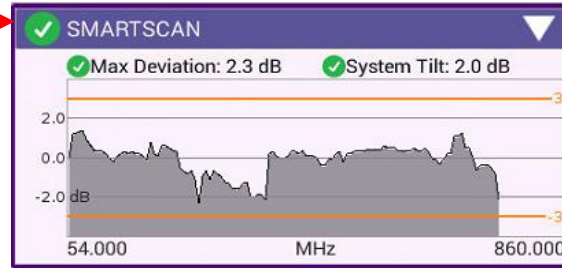


Measures the In-channel frequency response level of a QAM carrier

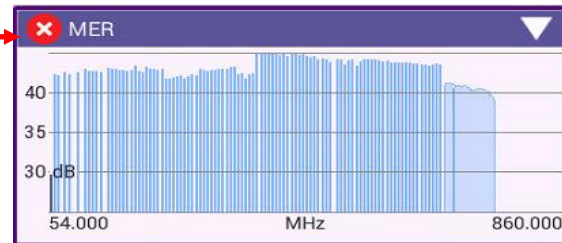
Channel Expert QAM



Tilt Measures the Difference in RF level or Delta between the lowest and highest channels

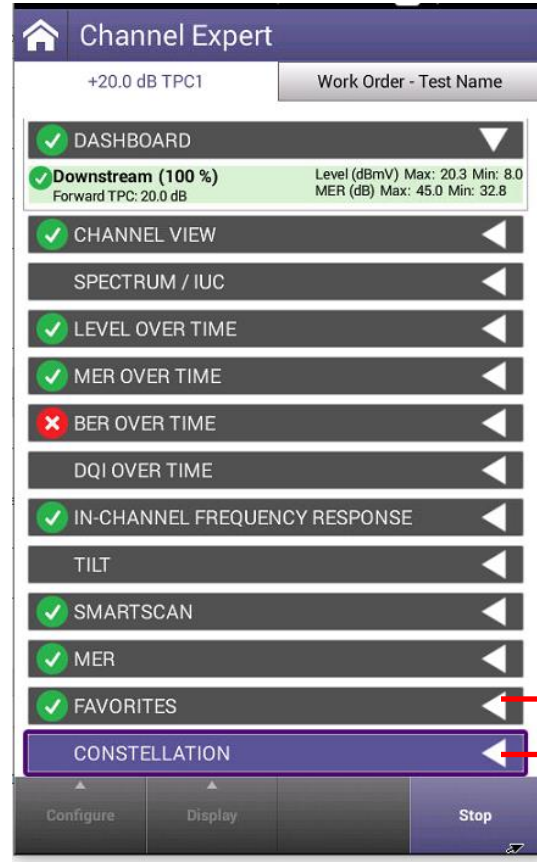


Smart scan removes the over all tilt to show typical deviation in a graph



MER shows the value of all the QAM channels in the system in a bar graph

Channel Expert QAM



The main menu of the Channel Expert QAM application. It features a sidebar with various measurement options, each with a status icon (green checkmark for active, red X for inactive). The 'FAVORITES' option is highlighted with a red arrow pointing to the 'FAVORITES' screen. The 'CONSTELLATION' option is also highlighted with a red arrow pointing to the 'CONSTELLATION' screen.

Channel Expert

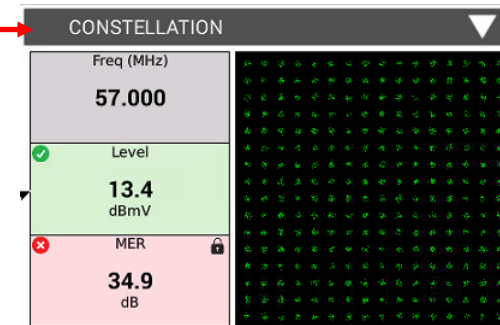
+20.0 dB TPC1 Work Order - Test Name

- ✓ DASHBOARD
- ✓ Downstream (100 %) Level (dBmV) Max: 20.3 Min: 8.0
Forward TPC: 20.0 dB MER (dB) Max: 45.0 Min: 32.8
- ✓ CHANNEL VIEW
- SPECTRUM / IUC
- ✓ LEVEL OVER TIME
- ✓ MER OVER TIME
- ✗ BER OVER TIME
- DQI OVER TIME
- ✓ IN-CHANNEL FREQUENCY RESPONSE
- TILT
- ✓ SMARTSCAN
- ✓ MER
- ✓ FAVORITES
- CONSTELLATION**

Configure Display Stop



Up to 15 favorite channel can be selected by pressing the white star in the channel view and turning it gold



See the Constellation of the selected channel

Channel Expert OFDM

Channel Expert

+20.0 dB TPC1 Work Order - Test Name

- DASHBOARD
- Downstream (100 %) Level (dBmV) Max: 15.3 Min: -3.7
Forward TPC: 20.0 dB MER (dB) Max: 45.7 Min: 26.5
- CHANNEL VIEW**
- SPECTRUM / IUC
- LEVEL VARIATION (OFDM)
- MER VARIATION (OFDM)
- PROFILE ANALYSIS
- IN-CHANNEL FREQUENCY RESPONSE
- TILT
- SMARTSCAN
- MER
- FAVORITES

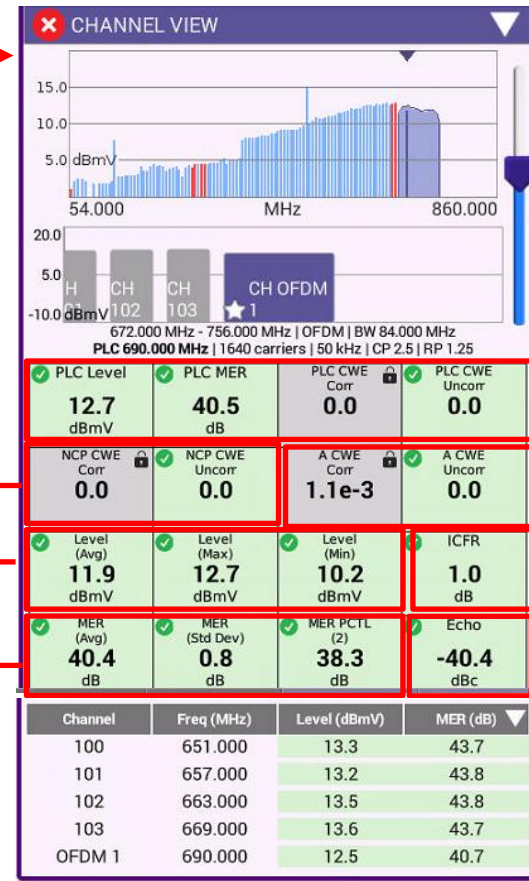
Configure Display Channel Search Stop

NCP Next Codeword Pointer
Tells the modem which codeword and present and in which profile

Level measurements of all the carriers based on 6 MHz

Average MER of all the QAM carriers.

MER Std Deviation
MER a 2%



PLC PHY Link Channel
Contains critical OFDM signal information

Codeword errors of profile A

ICFR- In Channel Frequency Response

Adaptive equalizer worst case stress tap

Level and MER of 4 adjacent SC-QAM and OFDM

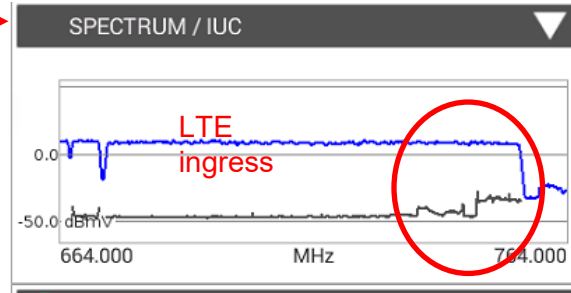
Channel Expert OFDM

Channel Expert

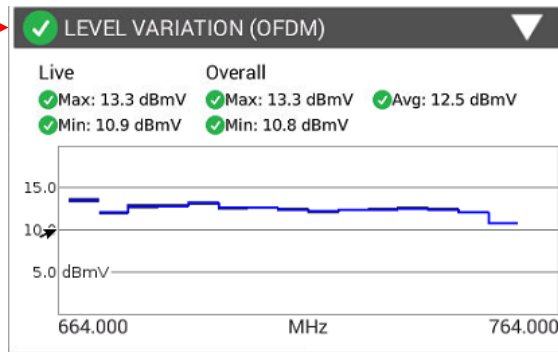
+20.0 dB TPC1 Work Order - Test Name

- DASHBOARD
- Downstream (100 %) Level (dBmV) Max: 15.3 Min: -3.7
Forward TPC: 20.0 dB MER (dB) Max: 45.7 Min: 26.5
- CHANNEL VIEW
- SPECTRUM / IUC
- LEVEL VARIATION (OFDM)
- MER VARIATION (OFDM)
- PROFILE ANALYSIS
- IN-CHANNEL FREQUENCY RESPONSE
- TILT
- SMARTSCAN
- MER
- FAVORITES

Configure Display Channel Search Stop

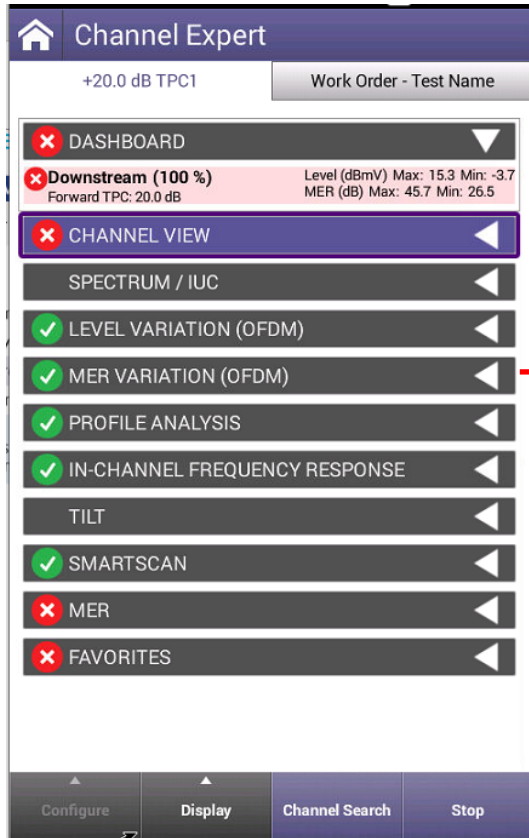


IUC Ingress under carrier

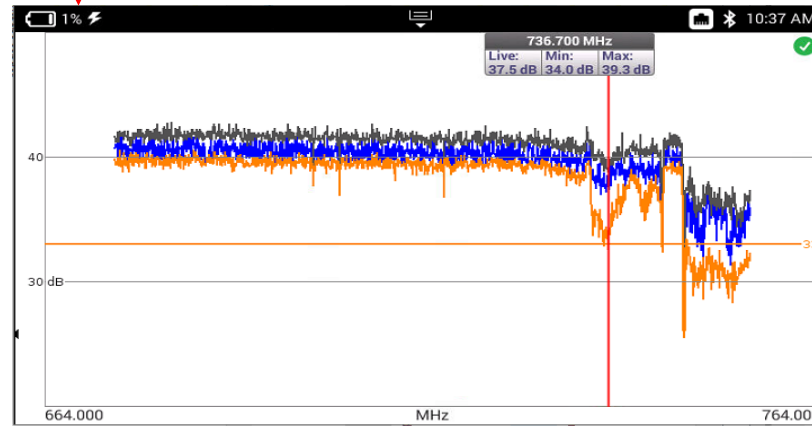
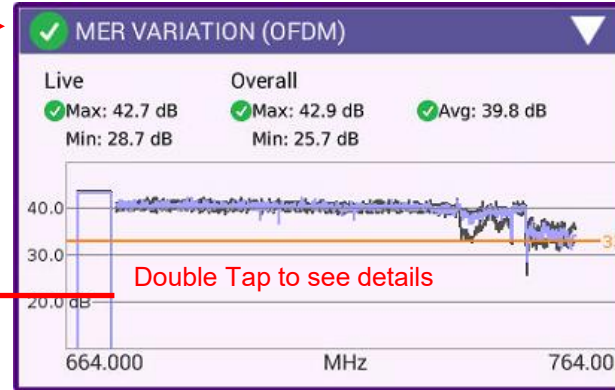


Level of OFDM
carries measures at
6 MHz spacing

Channel Expert OFDM



MER graph of OFDM



Can use marker to see exact frequencies of carriers and MER values

Channel Expert OFDM

Channel Expert

+20.0 dB TPC1 Work Order - Test Name

✗ DASHBOARD

✗ Downstream (100 %) Level (dBmV) Max: 15.3 Min: -3.7
Forward TPC: 20.0 dB MER (dB) Max: 45.7 Min: 26.5

✗ CHANNEL VIEW

SPECTRUM / IUC

✓ LEVEL VARIATION (OFDM)

✓ MER VARIATION (OFDM)

✓ PROFILE ANALYSIS

✓ IN-CHANNEL FREQUENCY RESPONSE

TILT

✓ SMARTSCAN

✗ MER

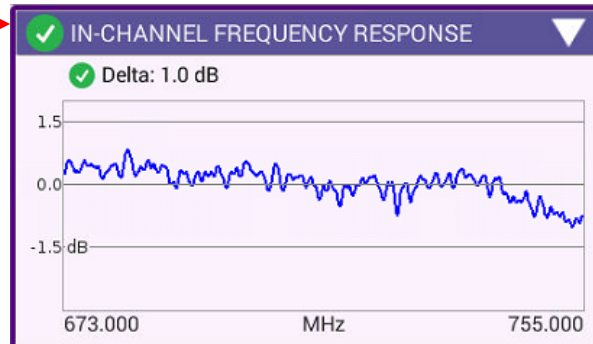
✗ FAVORITES

Configure Display Channel Search Stop

PROFILE	LOCKED	CWE (Corr)	CWE (Uncorr)	Max Mod
PLC	YES	0.0	0.0	16QAM
NCP	YES	0.0	0.0	16QAM
A	YES	3.9e-1	0.0	256QAM
B	YES	1.7e-1	0.0	1024QAM
C	YES	9.8e-1	0.0	2048QAM
D	YES	9.9e-1	3.4e-5	2048QAM

Profile View of Cable modem.

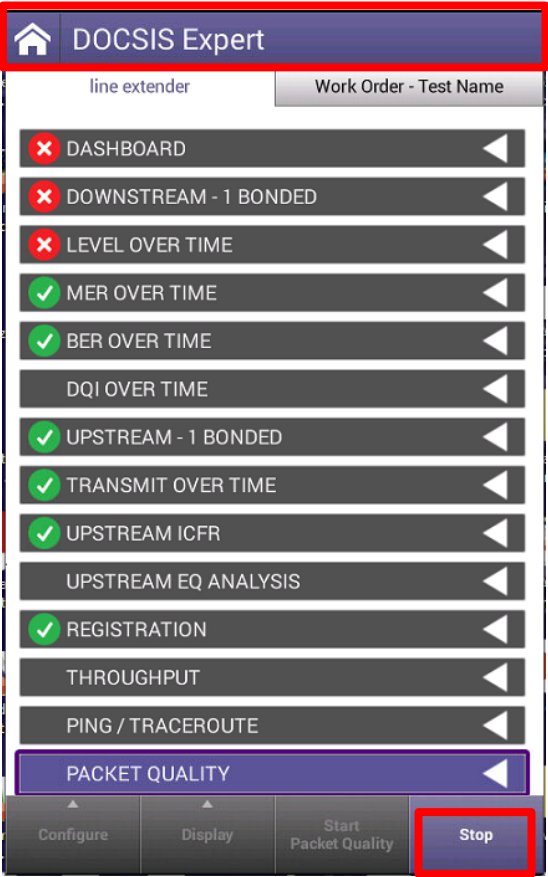
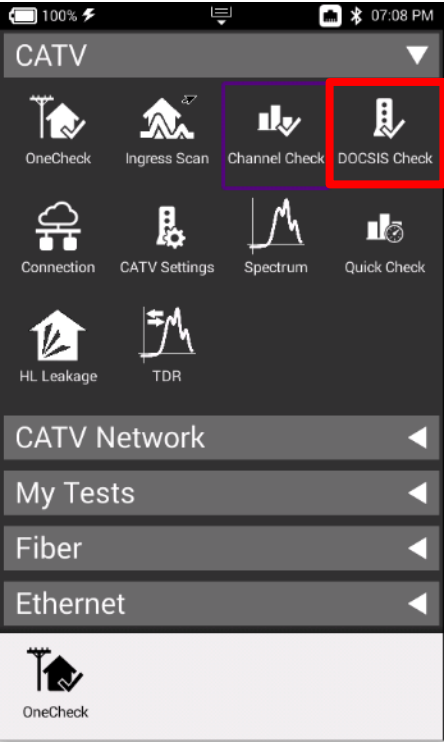
Helps determine how well the network is performing at this location



In channel Frequency Response across a OFDM band can help determine if a refecction or roll off is occurring

DOCSIS Expert

DOCSIS Check



DOCSIS Check

DOCSIS Expert

+0.0 dB TPC

Work Order - Test Name

DOWNSTREAM - 32 BONDED

LEVEL OVER TIME

MER OVER TIME

BER OVER TIME

DQI OVER TIME

UPSTREAM - 5 BONDED

TRANSMIT OVER TIME

UPSTREAM ICFR

UPSTREAM EQ ANALYSIS

REGISTRATION

THROUGHPUT

PING / TRACEROUTE

PACKET QUALITY

Configure

Display

Channel Search

Stop

Channel	Freq (MHz)	Level (dBmV)	MER (dB)
67	483.000	12.1	42.4
68	489.000	12.5	42.2
69	495.000	12.6	41.9
71	507.000	12.9	42.7
72	513.000	12.9	42.7
73	519.000	13.2	42.2
74	525.000	13.2	42.5
75	531.000	13.1	42.7
76	537.000	13.2	42.0

DOCSIS Expert

DASHBOARD

DOCSIS (100 %) Status: Connected

32x (1x OFDM) | Downstream

Forward TPC: 0.0 dB

Min Rx: 12.1 dBmV

Max BER: 1.0e-9 (pre)

Min MER: 35.9 dB

Max MER: 43.8 dB

Upstream | 5x

Max Tx: 46.8 dBmV

Max ICFR: 1.4 dB

+0.0 dB TPC

Work Order - Test Name

DOWNSTREAM - 32 BONDED

CH 69

CH 71

CH 72

CH 73

CH 74

CH 75

513.000 MHz

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

Level 13.0 dBmV	MER 42.7 dB	BER 1.0e-9 Pre	BER 1.0e-9 Post
Echo -42.4 dBc	GD 24 ns	ICFR 0.3 dB	DQI 10.0

Channel

Freq (MHz)

Level (dBmV)

MER (dB)

VIavi

© 2017 Viavi Solutions, Inc. | Viavi Confidential and Proprietary Information

149

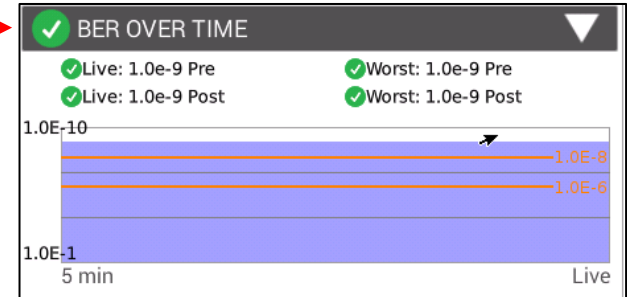
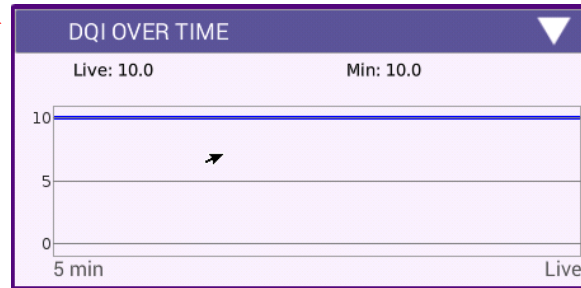
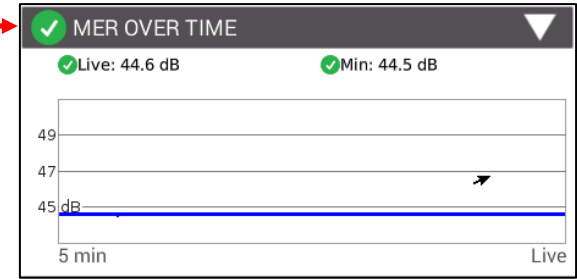
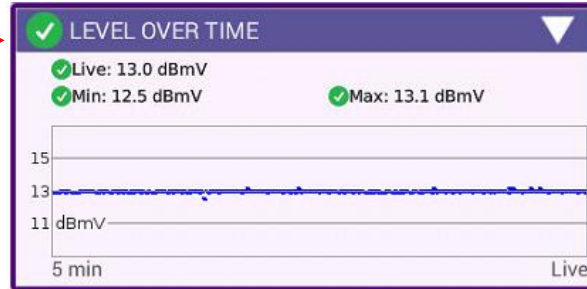
DOCSIS Expert

DOCSIS Expert

+0.0 dB TPC Work Order - Test Name

- ✓ DOWNSTREAM - 32 BONDED
- ✓ LEVEL OVER TIME
- ✓ MER OVER TIME
- ✓ BER OVER TIME
- ✓ DQI OVER TIME
- ✓ UPSTREAM - 5 BONDED
- ✓ TRANSMIT OVER TIME
- ✓ UPSTREAM ICFR
- UPSTREAM EQ ANALYSIS
- ✓ REGISTRATION
- THROUGHPUT
- PING / TRACEROUTE
- PACKET QUALITY

Configure Display Channel Search **Stop**



DOCSIS Expert

DOCSIS Expert

+0.0 dB TPC

Work Order - Test Name

✓ DOWNSTREAM - 32 BONDED

✓ LEVEL OVER TIME

✓ MER OVER TIME

✓ BER OVER TIME

DQI OVER TIME

✓ UPSTREAM - 5 BONDED

✓ TRANSMIT OVER TIME

✓ UPSTREAM ICFR

UPSTREAM EQ ANALYSIS

✓ REGISTRATION

THROUGHPUT

PING / TRACEROUTE

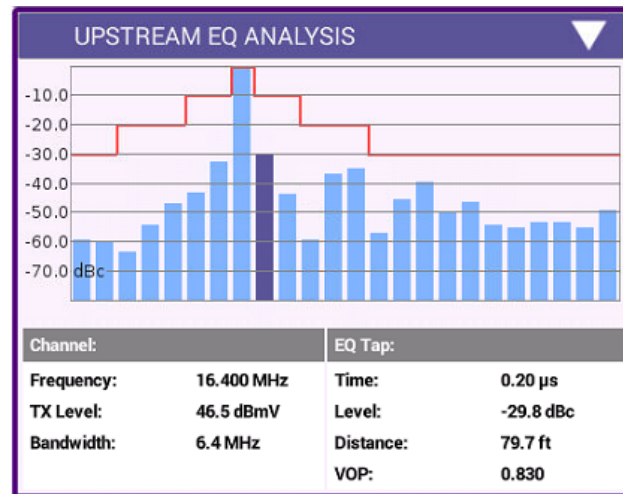
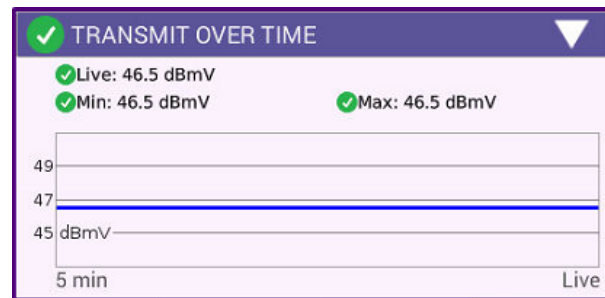
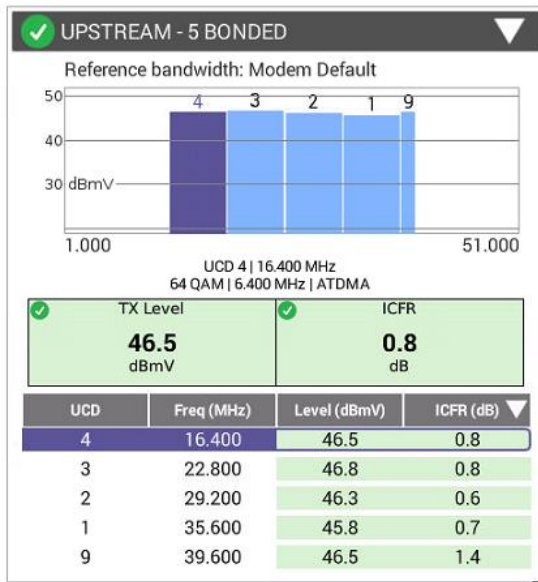
PACKET QUALITY

Configure

Display

Channel Search

Stop



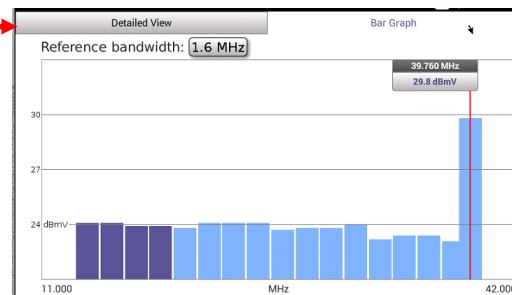
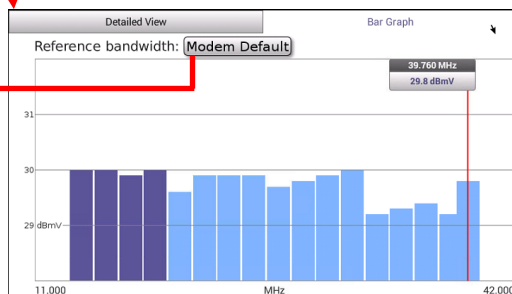
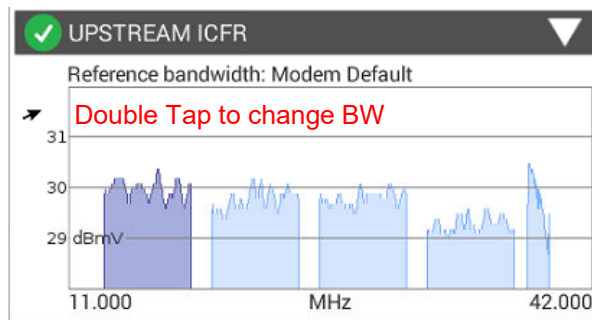
DOCSIS Expert

DOCSIS Expert

+0.0 dB TPC Work Order - Test Name

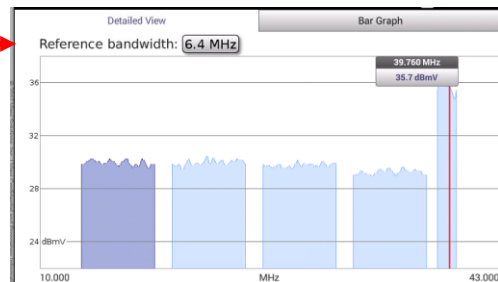
- ✓ DOWNSTREAM - 32 BONDED
- ✓ LEVEL OVER TIME
- ✓ MER OVER TIME
- ✓ BER OVER TIME
- DQI OVER TIME
- ✓ UPSTREAM - 5 BONDED
- ✓ TRANSMIT OVER TIME
- ✓ UPSTREAM ICFR
- UPSTREAM EQ ANALYSIS
- ✓ REGISTRATION
- THROUGHPUT
- PING / TRACEROUTE
- PACKET QUALITY

Configure Display Channel Search **Stop**



Select Reference Bandwidth

- ☐ 1.6 MHz
- ☐ 6.4 MHz
- ☒ Modem Default



DOCSIS Expert

DOCSIS Expert

+0.0 dB TPC

Work Order - Test Name

✓ DOWNSTREAM - 32 BONDED

✓ LEVEL OVER TIME

✓ MER OVER TIME

✓ BER OVER TIME

DQI OVER TIME

✓ UPSTREAM - 5 BONDED

✓ TRANSMIT OVER TIME

✓ UPSTREAM ICFR

UPSTREAM EQ ANALYSIS

✓ REGISTRATION

THROUGHPUT

PING / TRACEROUTE

PACKET QUALITY

Configure

Display

Channel Search

Stop

✓ REGISTRATION

Service Plan: 00:07:11:1F:8C:12

Config File: d11_walledgarden_v6.cm

Cable Modem

Provisioning Mode IPV6 ONLY

IPv6 Address 2001:558:40a2:207:11ff:fe1f:8c12/128

IPv6 Gateway Address fe80::201:5cff:feb2:3046

IPv6 Config File d11_walledgarden_v6.cm

CPE

IPv4 Address 98.226.73.212

IPv4 Subnet Mask 255.255.248.0

IPv4 Gateway Address 98.226.72.1

Servers

IPv6 TFTP Server fe80::201:5cff:feb2:3046

IPv6 DHCP Server fe80::201:5cff:feb2:3046

IPv6 TOD Server fe80::201:5cff:feb2:3046

	Current	Minimum	Average	Maximum
Delay (ms)	0	0	0	0
Destination	98.226.72.1			
Echoes Sent	10			
Replies Returned	0			
Replies Lost	10			
Replies Lost %	100.00%			
Error				

✓ THROUGHPUT

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

Receive

✓ 42.30 Mbps
RTT: 19 ms

Send

Configure

Start Throughput

✓ PACKET QUALITY

✓ Packet Loss 299 Sent 0.0 % Loss

✓ Max Round Trip Delay 26 ms

⚠ Max Jitter 19 ms

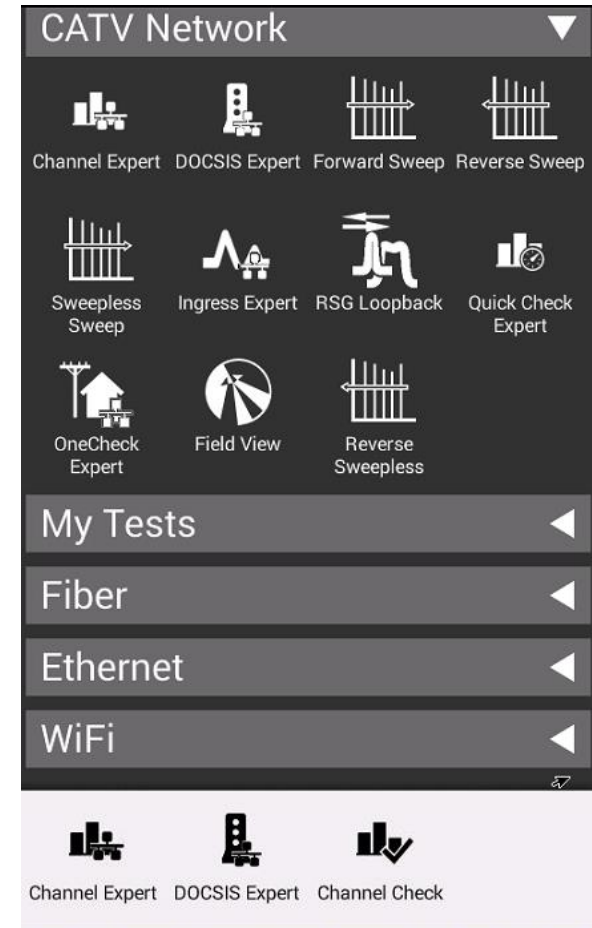
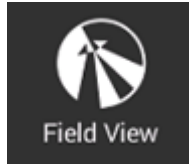
Stop Packet Quality

Start Pass Through Cable Modem

Return Signal Generator (RSG) w/ Loopback

Getting Started with RSG Loopback

- RFG Loopback mode will appear in the CATV Network section on the ONX home screen
- To enter the mode press, or select, the RFG Loopback icon



RSG Loopback

Return Signal Generator Loopback

Signal Transmit OFF MODE: Tx ONLY

Freq (MHz)	Level (dBmV)
------------	--------------

Configure Mode Start

Carrier Configuration
Configure a Carrier

Carrier Configuration

Signal Type
CW

Carriers:

Add Carrier Edit Carrier Remove Carrier Back

Select Signal Type

☒ CW

☐ QAM

Frequency

40

5.000 MHz - 85.000 MHz

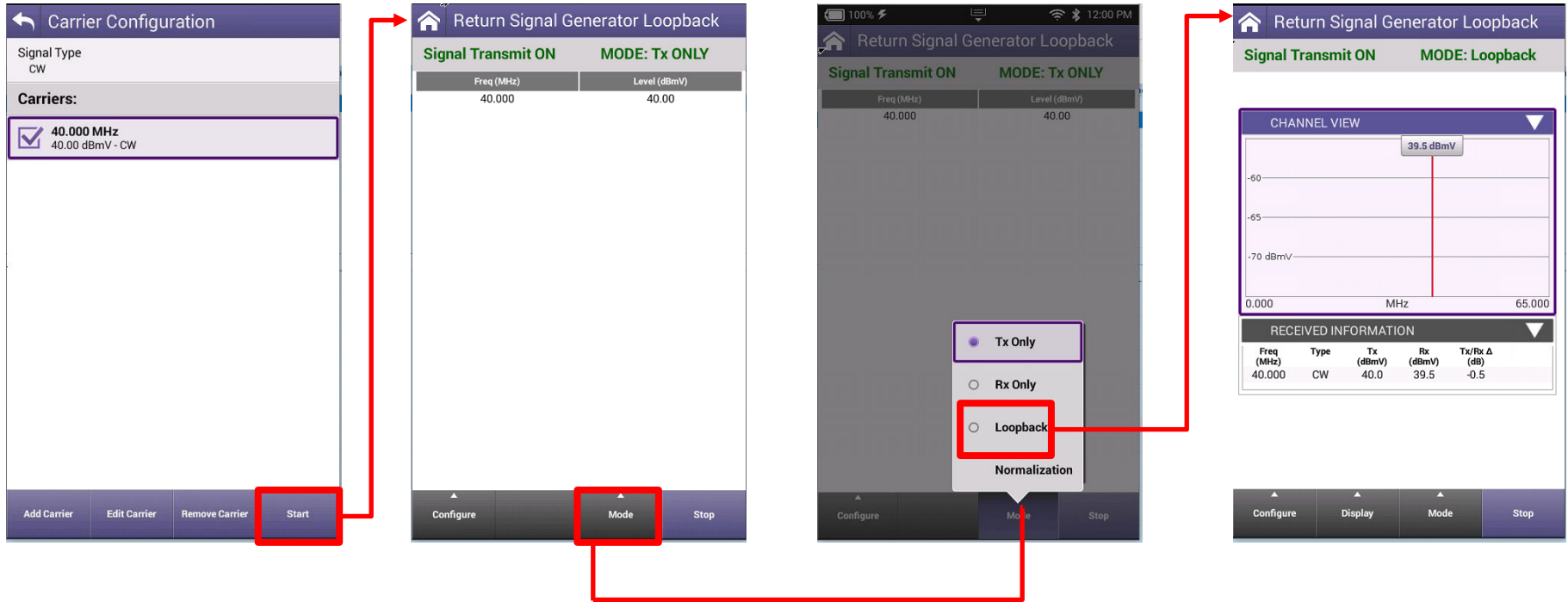
OK

Level

40.00 dBmV

OK

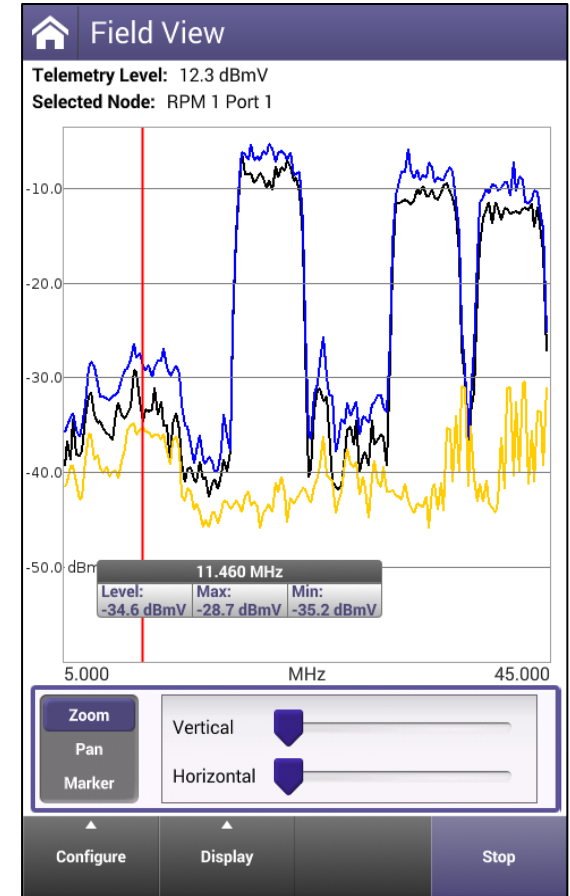
RSG Loopback



Field View with RSG

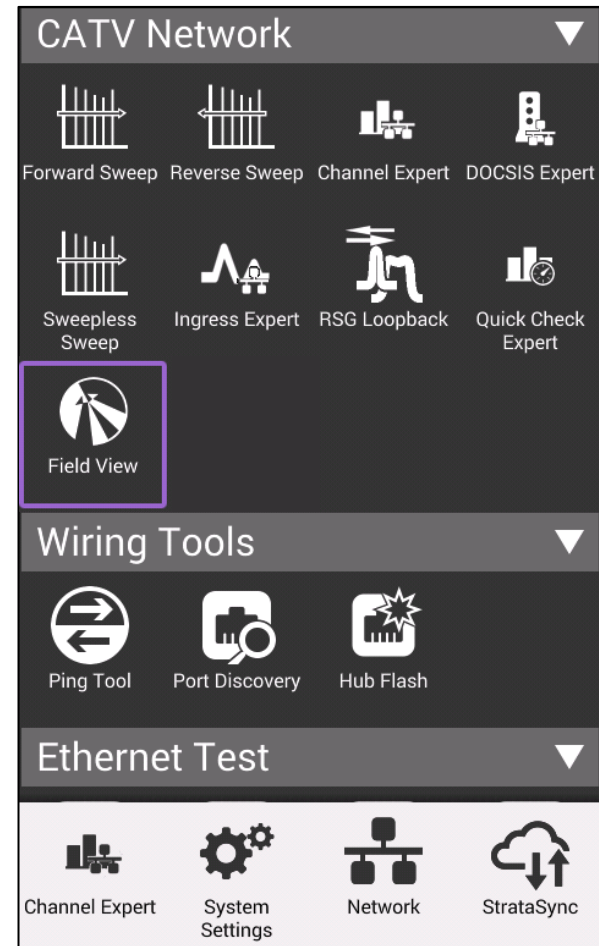
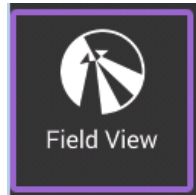
Ingress/Noise Mitigation Test Process

- Ingress/noise in the upstream path is very common and impacts subscriber services
- Ingress/noise can be constant, or intermittent
 - If ingress/noise is constant, and tech fixes an issue at a local test point, did that clean up the ingress/noise received in the headend, or is there still another issue at some other point in the network?
 - If ingress is intermittent, and spectrum is clean, tech doesn't know whether there is no ingress at this particular point, or the ingress isn't happening at this time
- Meter spectrum mode enables tech to test upstream spectrum only at their local test point



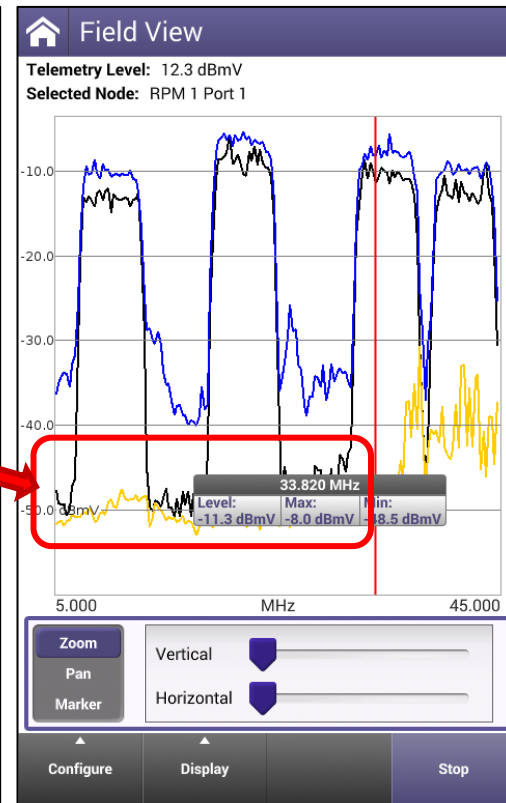
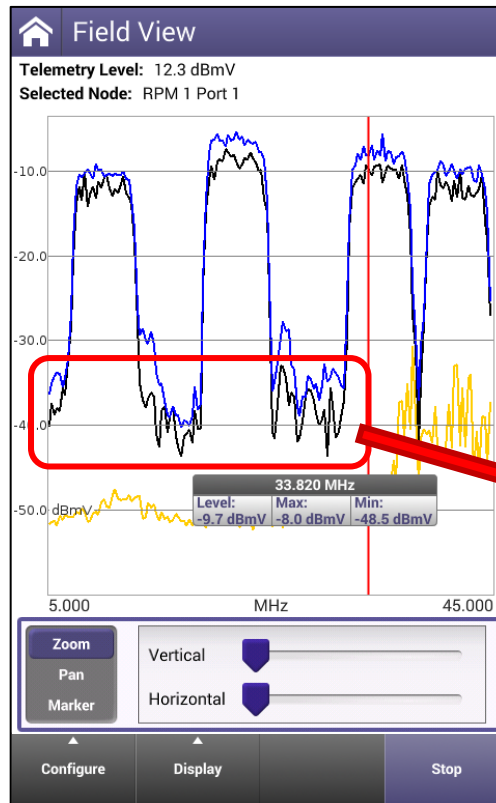
Getting Started with Field View

- If enabled on the ONX, Field View mode will appear in the CATV Network section on the ONX home screen
- To enter the mode press, or select, the Field View icon



Using Field View

- Field View is the remote view of the headend return path on an instrument located in the field
- Isolates the noise source
- Using the remote display of the headend the tech can quickly confirm if actions taken are improving the network or if additional work is needed
- When an interfering ingress source is removed, the noise present at the headend will drop out revealing a lower noise floor at the headend
- A lower system noise floor eases demodulation of upstream carriers for the CMTS and leads to a better quality of experience for subscribers

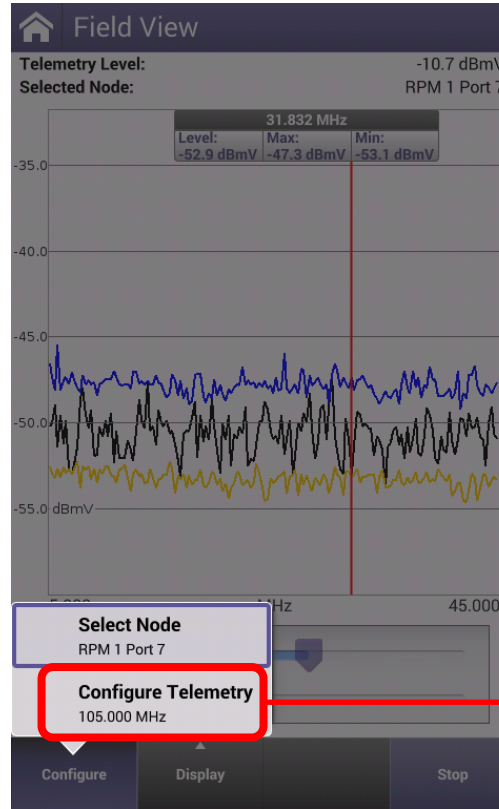


Left: Noise visible between the active upstream carriers

Right: Noise source cleaned up reveals a much lower system noise floor

Setting Field View Telemetry Receive Frequency

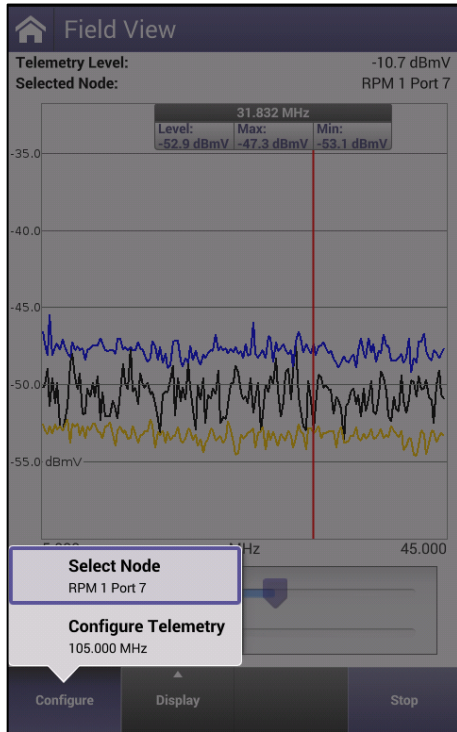
- An HSM connected to PathTrak at the headend is required for Field View
- The HSM sends a telemetry signal downstream for field devices, like the ONX or DSAM, providing visibility of the return spectrum remotely
- The telemetry receive frequency is entered on the ONX by pressing the Configure button then selecting “Configure Telemetry”
- This will bring up an entry box where the telemetry frequency can be entered



The 'Configure Telemetry' dialog box is shown, with a text input field containing '103.00'. To the right of the input field, the frequency range '42.00 MHz - 1,200.00 MHz' is displayed. Below the input field is an 'OK' button. A numeric keypad is visible at the bottom of the screen, with buttons for digits 1-9, 0, a decimal point, a backspace key (labeled 'X'), and an 'Enter' key.

Field View Node Selection and Information

- Users can select the desired node from the list of actively broadcasting nodes from the PathTrak system
- Users can also get details of the specific broadcasting nodes



All Nodes

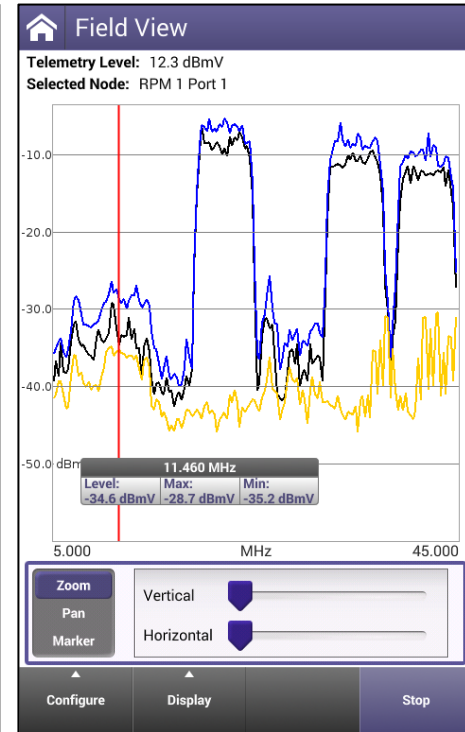
RPM 1 Port 2	Inactive
RPM 1 Port 3_renamed	Active
RPM 1 Port 4	Inactive
RPM 1 Port 5	Active
RPM 1 Port 6	Inactive
✓ RPM 1 Port 7	Active
RPM 1 Port 8	Inactive
RPM 2 Port 1	Inactive
RPM 2 Port 2	Inactive
RPM 2 Port 3	Inactive
RPM 2 Port 4	Inactive
RPM 2 Port 5	Inactive

Node Info Show Active Nodes Select Node

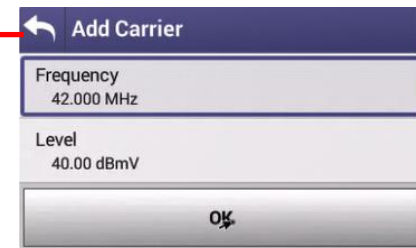
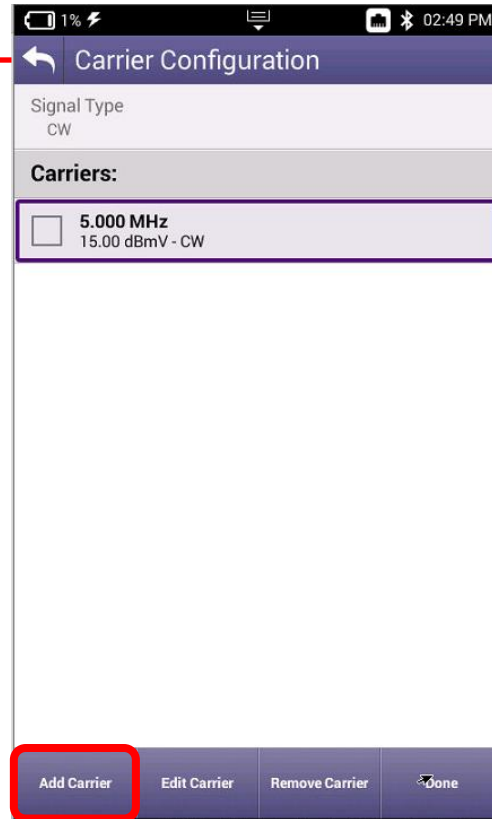
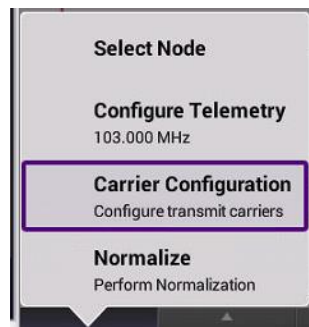
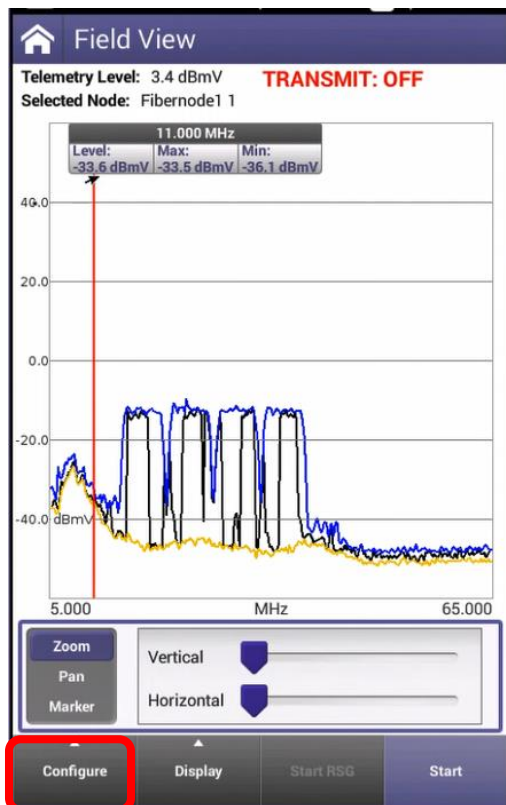
Node Information

Broadcasting

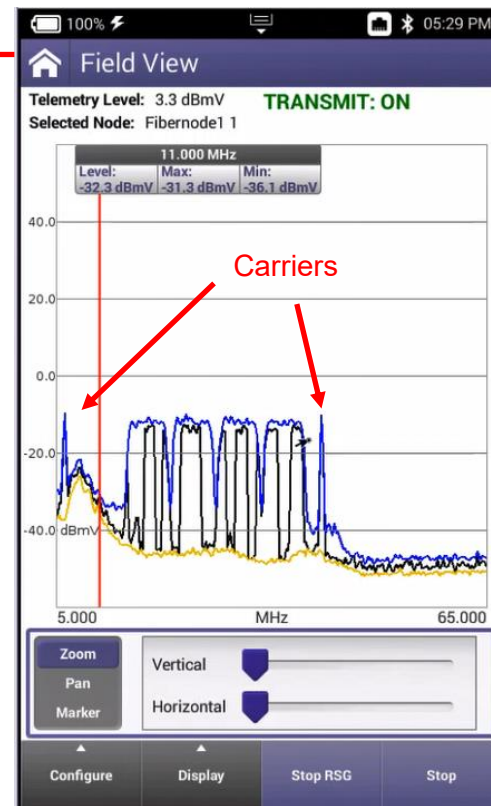
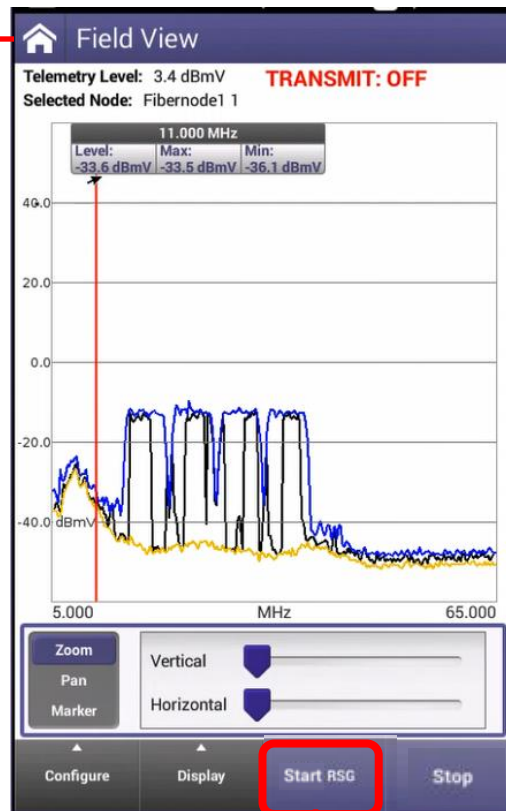
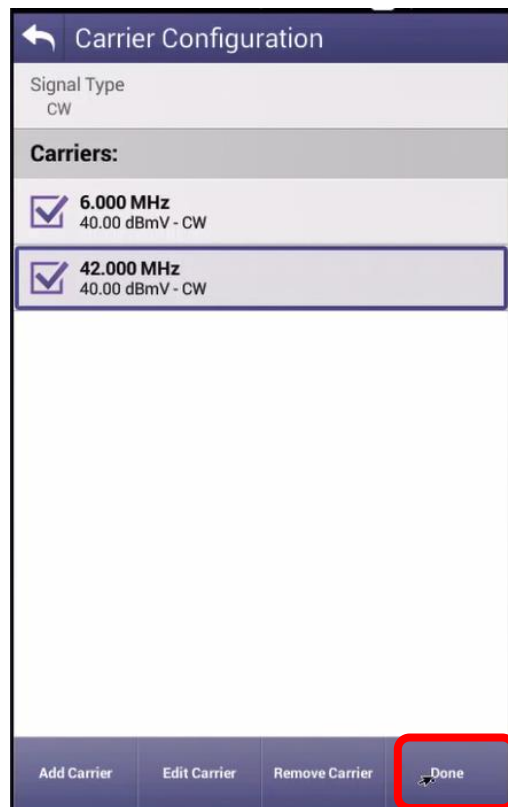
Name	RPM 1 Port 7
UID	332
Center Frequency	25.000 MHz
Span	40.000 MHz
Dwell	100 µs
Points	161
VBW	100 KHz
RBW	300 KHz



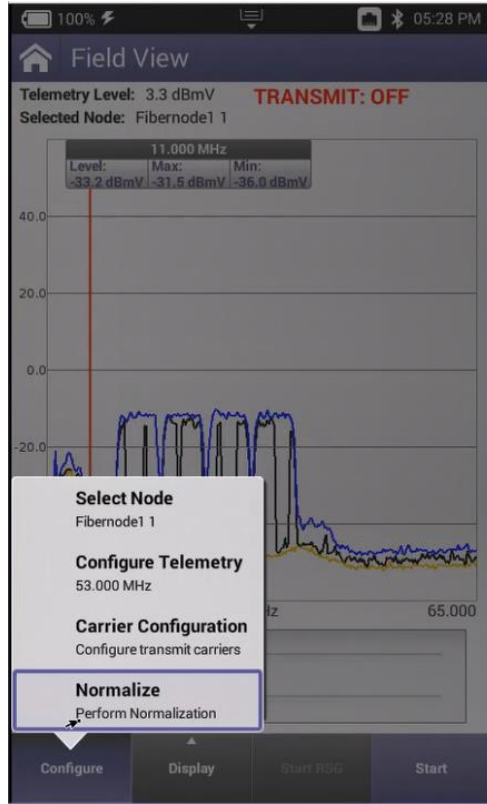
FieldView RSG Transmit Carriers



Field View RSG Transmit Carriers



Field View Normalization



The 'Normalization' screen features a purple header with a back arrow and the title 'Normalization'. The status section indicates:

Status:
Last Normalization Time:
January 02, 2019 02:37:24 PM

Below the status is a diagram of a purple handheld meter with a loop antenna. The text on the screen reads:

Normalization is required for accurate results.
Connect a short cable between port 1 and port 2 of the meter and press Start.

A 'Start' button is located at the bottom right of the screen.

The 'Normalization' screen features a purple header with a back arrow and the title 'Normalization'. The status section indicates:

Status: Completed Successfully
Last Normalization Time:
September 25, 2020 02:13:28 PM

A green checkmark icon is displayed to the left of the status text. Below the status is a diagram of a purple handheld meter with a loop antenna. The text on the screen reads:

Normalization is required for accurate results.
Connect a short cable between port 1 and port 2 of the meter and press Start.

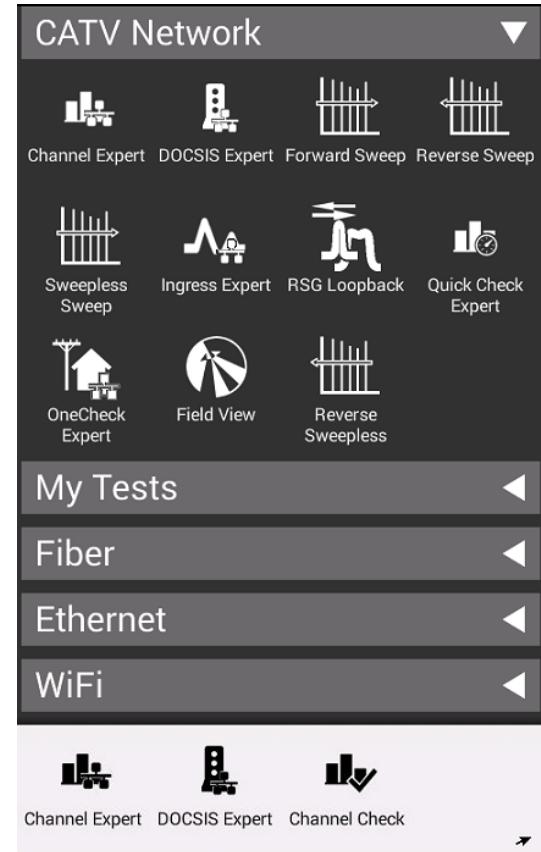
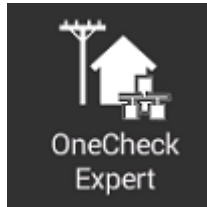
A 'Start' button with a checkmark icon is located at the bottom right of the screen.

OneCheck Expert

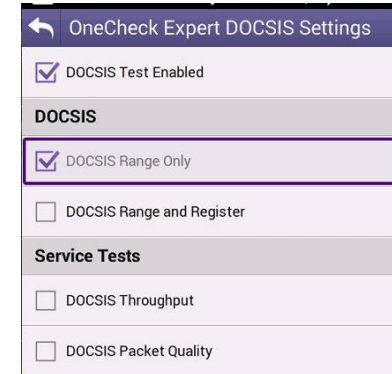
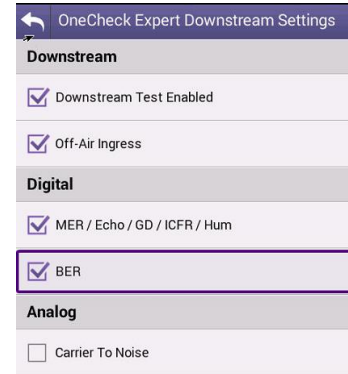
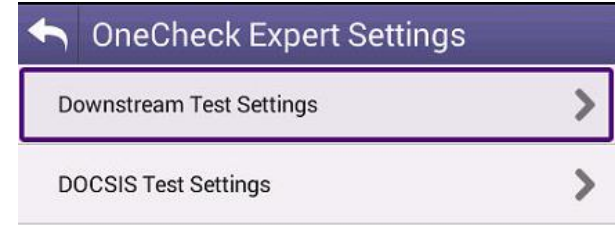
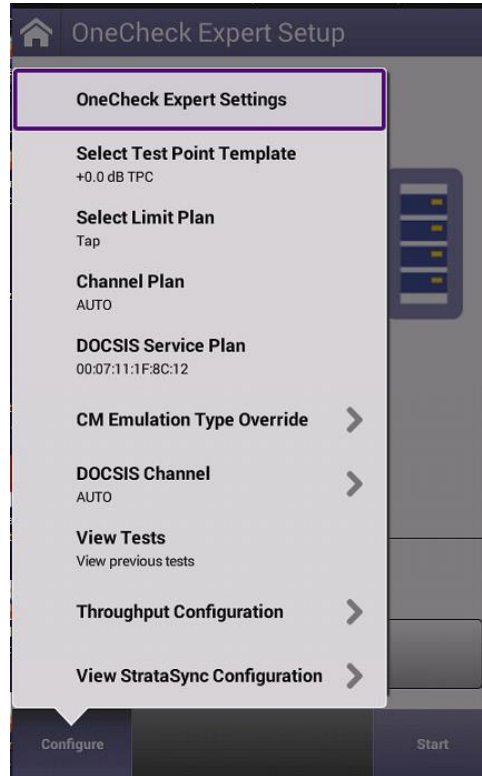
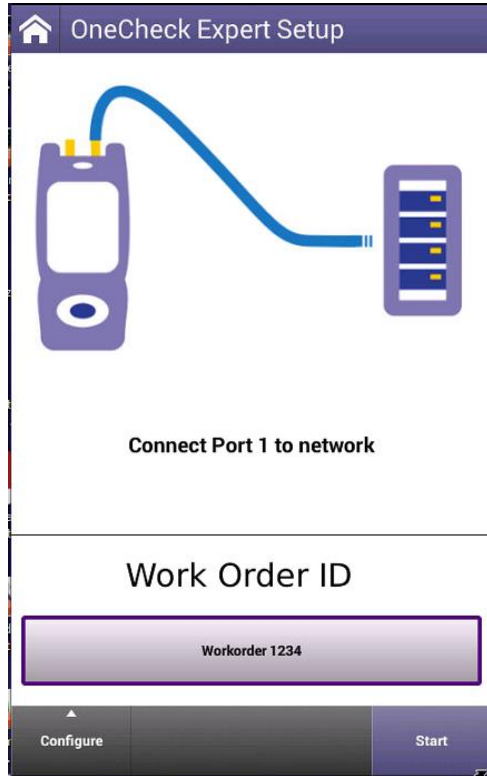
Getting Started with OneCheck Expert

OneCheck Expert mode will appear in the CATV Network section on the ONX home screen

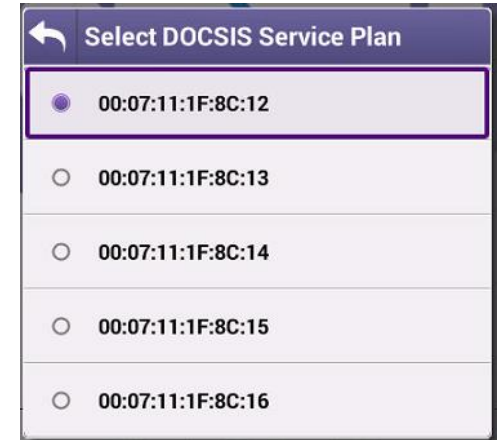
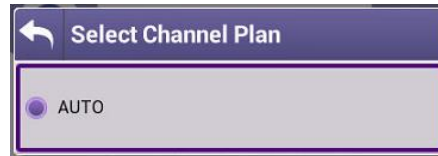
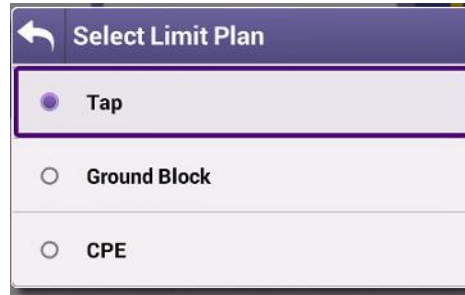
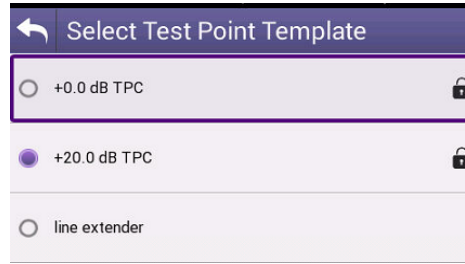
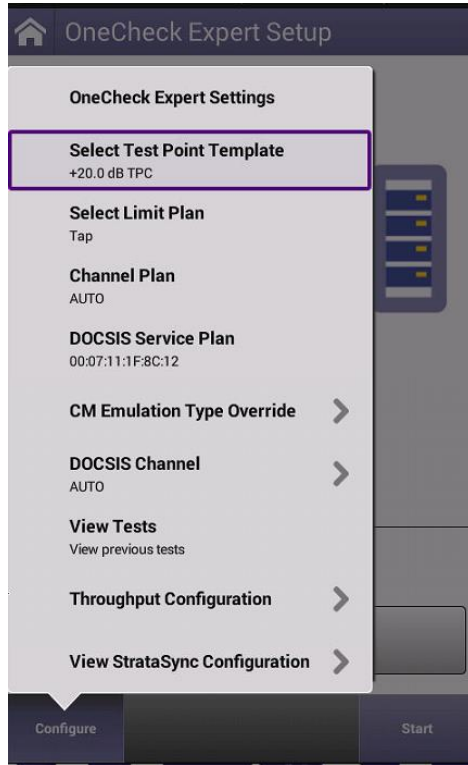
To enter the mode press, or select, the Field View icon



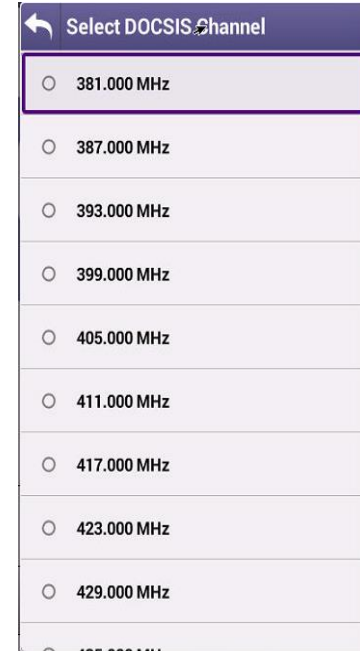
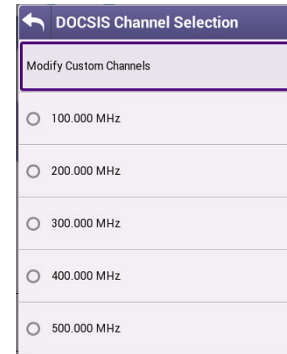
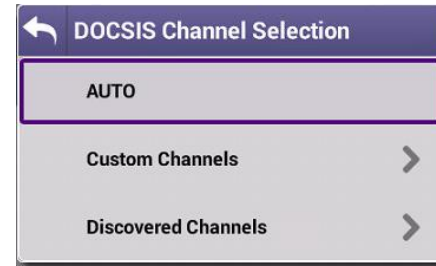
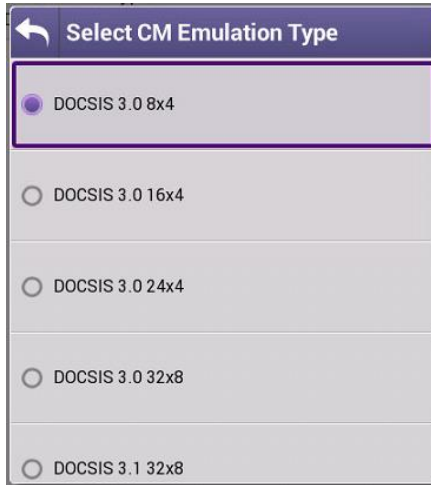
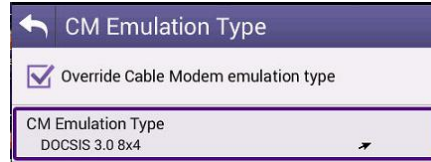
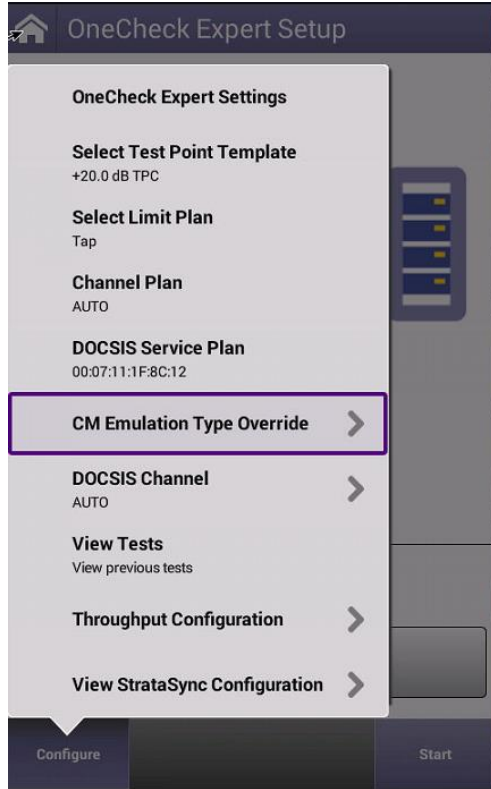
OneCheck Expert



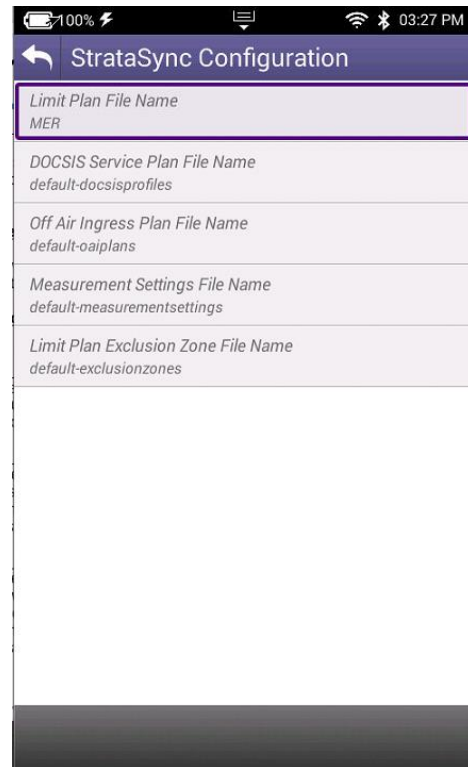
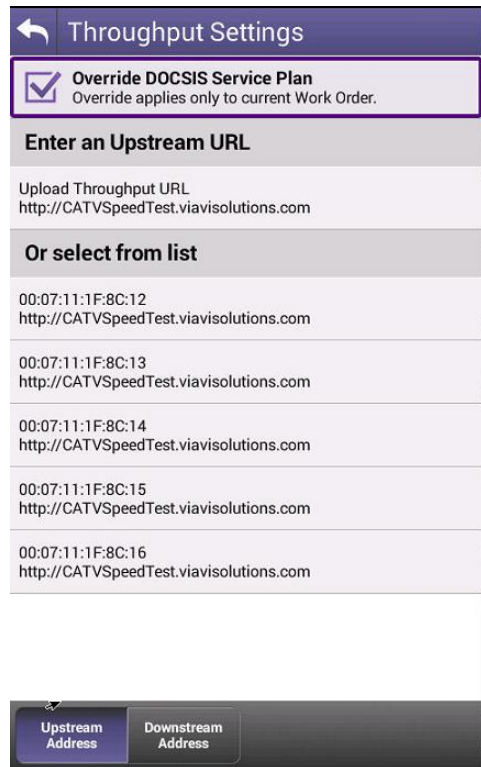
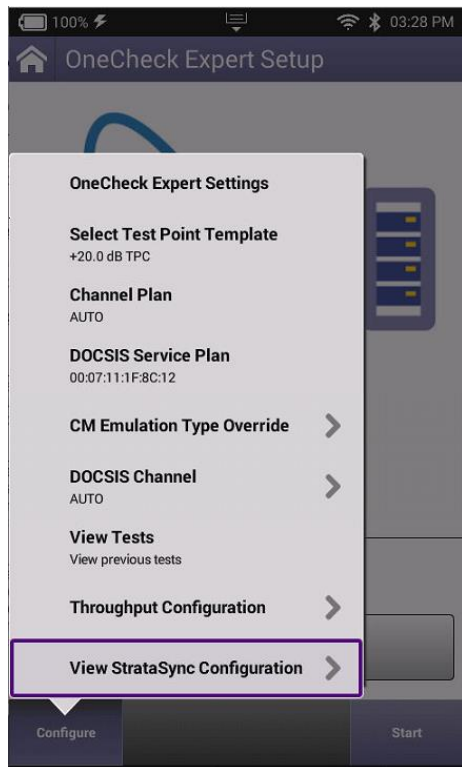
OneCheck Expert



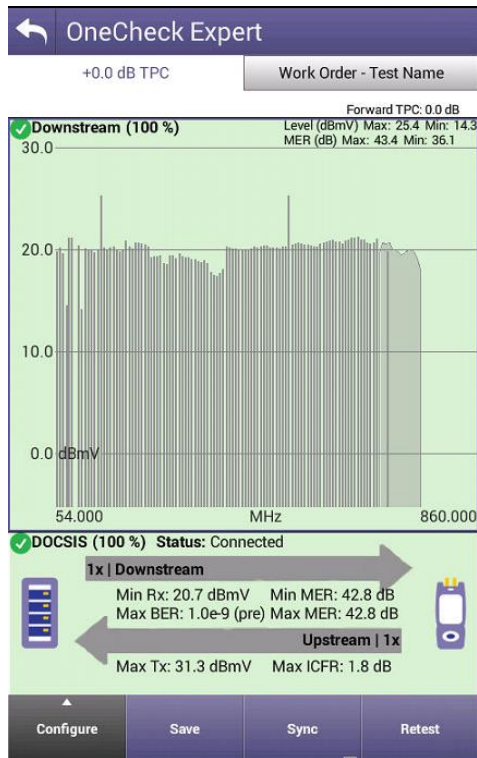
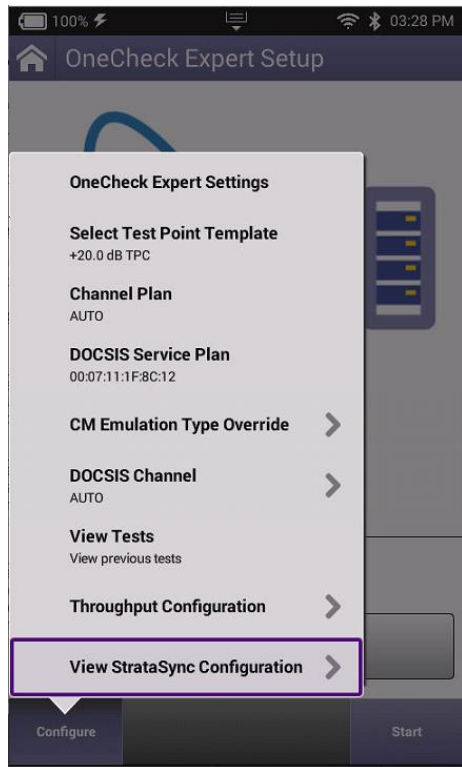
OneCheck Expert



OneCheck Expert



OneCheck Expert



The screen shows the 'Save Test' interface, where test results can be saved to a work order.

Save Test

Save Test to Work Order

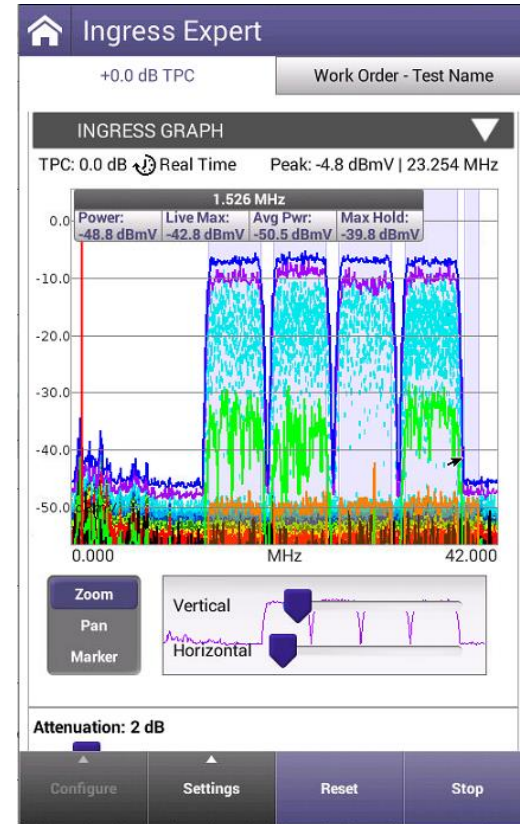
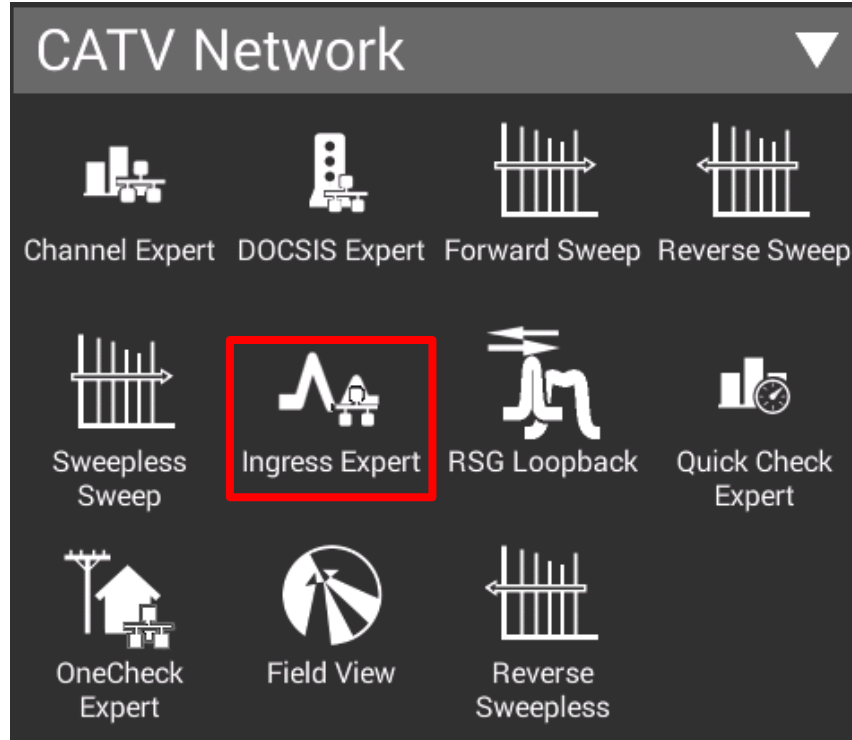
Test Name
save1

Work Order ID
Workorder 1234

Set Name to Current Date Save

Ingress Expert

Ingress Expert



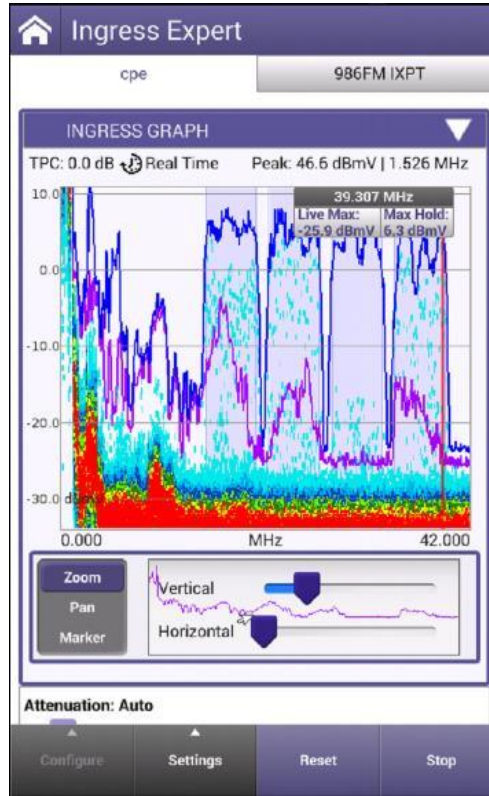
INGRESS EXPERT

INGRESS EXPERT is based on powerful OneExpert CATV HyperSpectrum technology (Real Time Spectrum Analyzer)

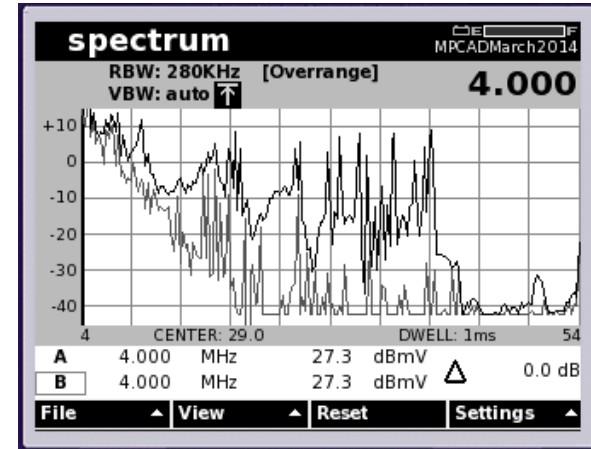
Innovative overlapping FFT (Fast Faurier transform) measures all transient interfering signals

INGRESS EXPERT is different from Swept Spectrum Analyzers (DSAM and Pathtrak) – its more accurate and has thousands of samples a second

Overlapping options provide additional detail

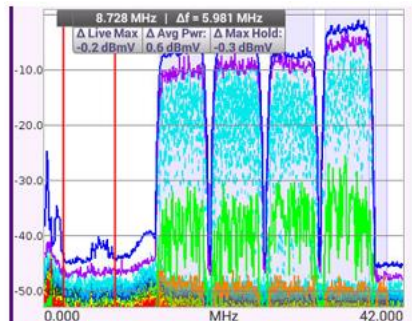
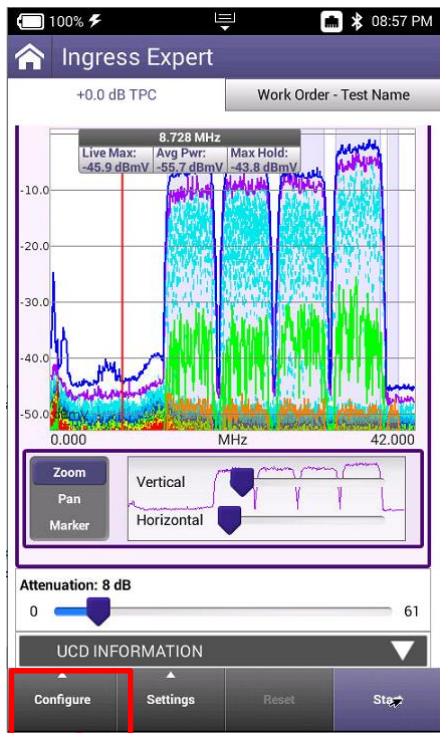


ONX630



DSAM6300

INGRESS EXPERT - CONFIGURE



☒ Delta Markers

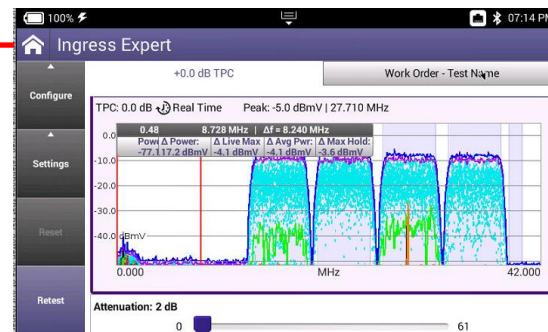
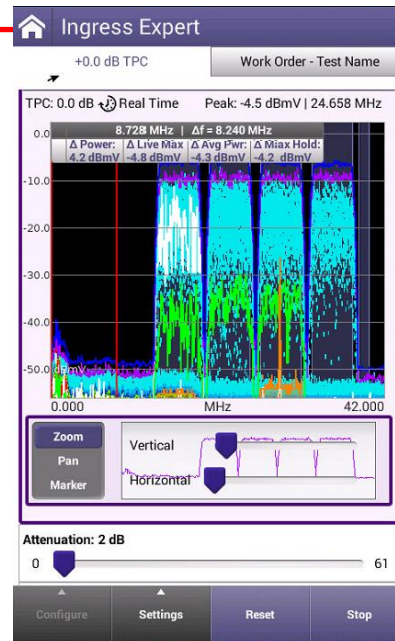
☐ Dark Mode

Rotate Screen

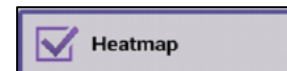
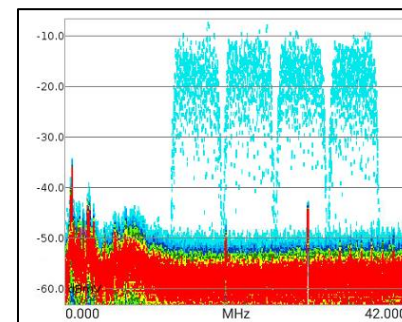
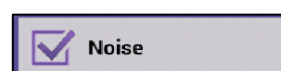
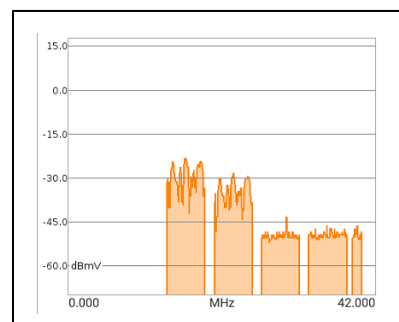
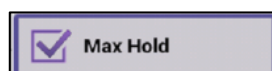
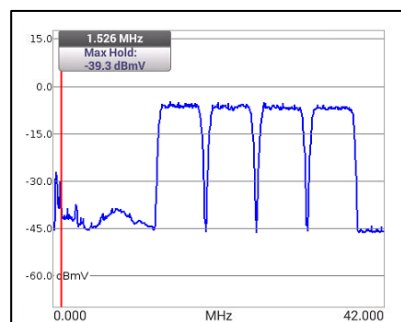
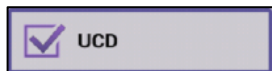
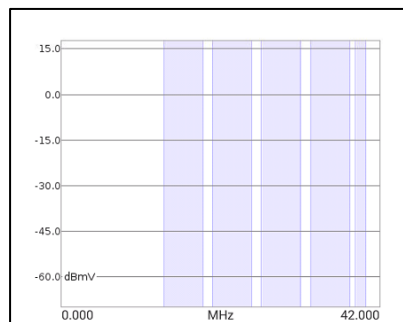
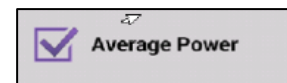
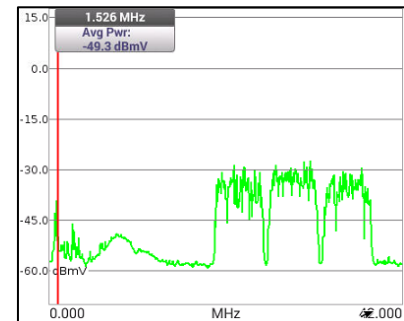
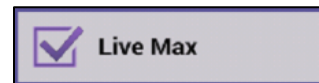
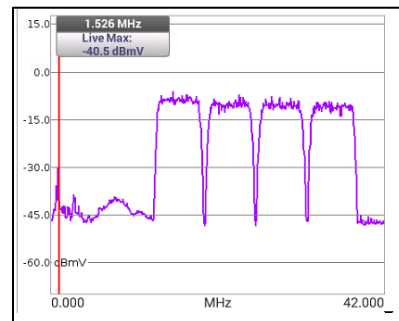
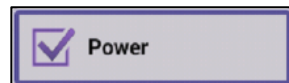
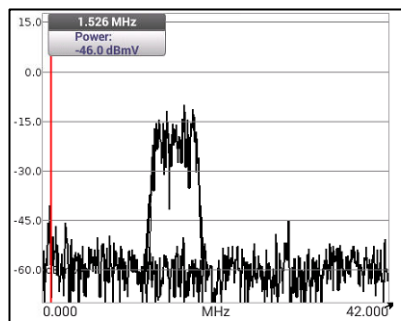
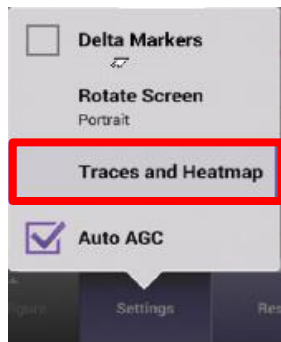
Portrait

Traces and Heatmap

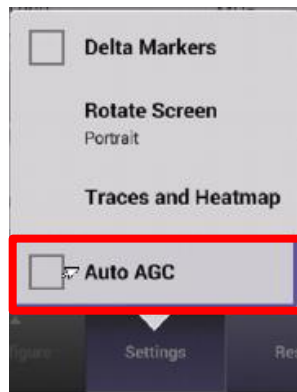
☐ Auto AGC



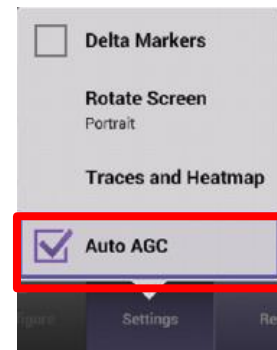
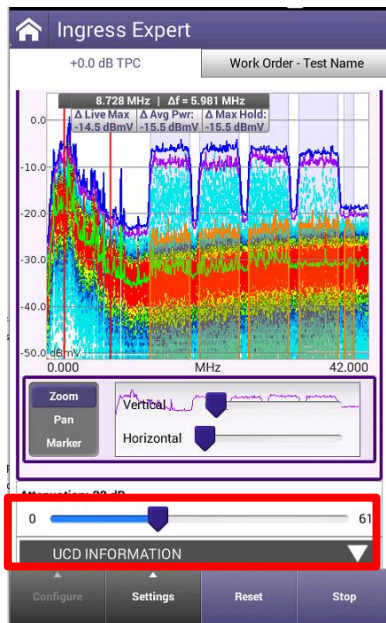
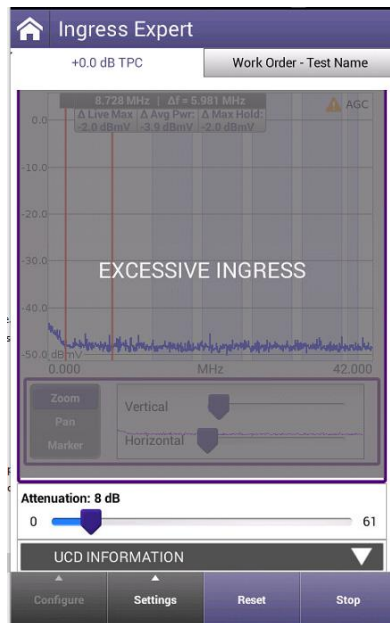
INGRESS EXPERT – HEATMAP OVERLAYS



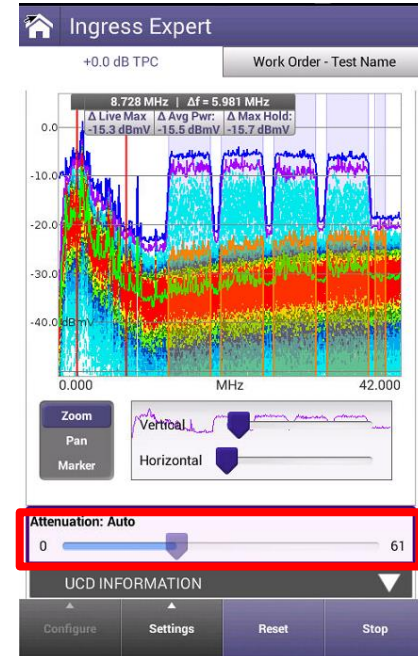
INGRESS EXPERT – AUTO-ACG



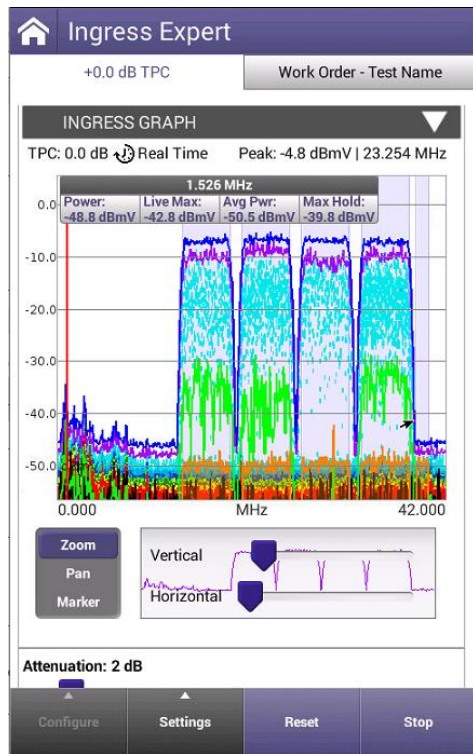
- DISABLING AUTO AGC requires the user manually attenuates the signal to prevent **OVERRANGE**
- NOTE: The spectrum Specification is 120 MHZ



- AUTO AGC will attempt keep spectrum view references, up to 60dB dynamic range
- NOTE: The Attenuation scale is disabled when AGC is checked



INGRESS EXPERT - CONFIGURE



Select Test Point Template

+0.0 dB TPC

Select High Frequency

42.000 MHz - Real Time

Select Heatmap Persistence

Low

Save Test

Save current test to a Work Order

View Tests

View previous tests

View StrataSync Configuration

View Test Results

Tests for Current Work Order:

Tap noise

+0.0 dB TPC

+20.0 dB TPC

line extender

Select Span High Frequency

42.000 MHz

Real Time

65.000 MHz

Real Time

85.000 MHz

Real Time

110.000 MHz

Real Time

Select Heatmap Persistence

Low

Medium

High

Save Test

Save Test to Work Order

Test Name

Tap noise

Work Order ID

Workorder 1234

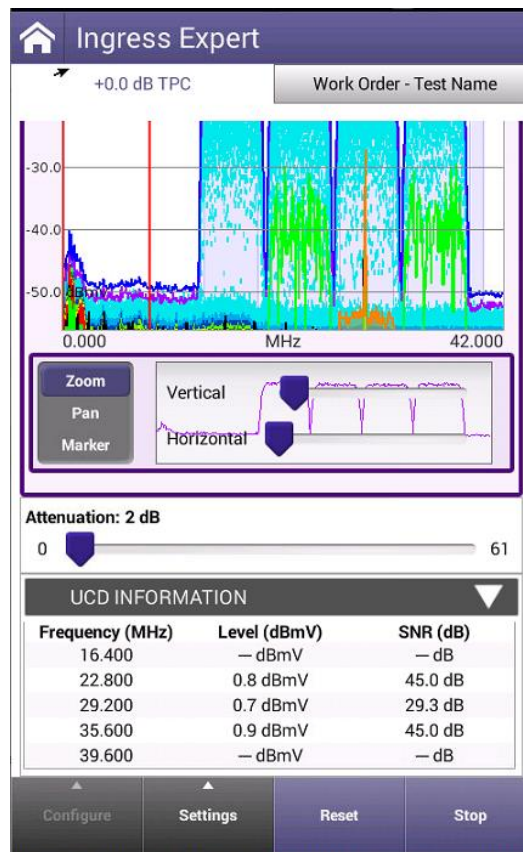
StrataSync Configuration

Test Point Templates File Name

default-testpoint-templates

INGRESS EXPERT – SNR and NOISE

- The NOISE setting will allow users to see the noise floor under the upstream carriers
- If the user performs a DOCSIS EXPERT test before INGRESS EXPERT, UCDs will match that of the network and give clear indication of the carriers width and location
- Additionally, UCDs will be demodulated with FREQUENCY, LEVEL and SNR calculated and displayed





Sweep & Plant Maintenance System ONX-630 & SCU-1800

SCU-1800

Advanced System Sweep

- **Fast — Sweep, align, and troubleshoot faster than ever**
- **Stealth Sweep™** with integrated Tilt/Align quickly validates amps and HFC networks faster than any other test
- Complete a downstream scan including MER/ BER in about 60 seconds
- **AutoChannel™** instantly identifies the channel lineup and eliminates guesswork
- **Powerful — Designed to find difficult problems**
- Combined DOCSIS 3.1 and sweep testing validates the complete HFC network
- **Ingress Expert** with Hyper Spectrum™ catches difficult return noise problems
- **Expert modes** with advanced parallel processing find hidden problems and root causes
- **Flexible — Ready for your changing network needs**
- The ONX-630's **dual diplexer** 42/85 or 65/204 with 1.2GHz supports next generation networks
- The ONX-630 is compatible with DSAM-6300 and SDA-55XX providing seamless transition
- Common sweep reporting for ONX-630 and DSAM ensures consistency via **StrataSync™**

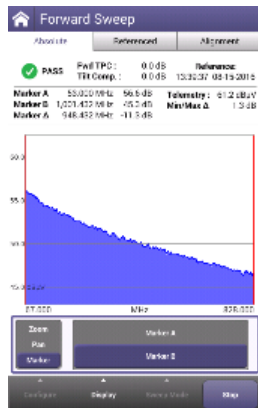
Next Generation Sweep Gear

OneExpert CATV ONX-630

- Field upgradable: Sweep + DOCSIS 3.1 module
- Reverse Sweep capable to 204MHz
→ compatible with SDA-5500/5510
- Extended Forward Sweep range to 1.2GHz with new SCU-1800



ONX-630



SCU-1800



Sweep Control Unit SCU-1800

- 1RU unit with Ethernet interface (web browser/remote)
- Compatible with DSAM-6300
- Forward TX to 1.2GHz with ONX
 - HW capable up to 1.8GHz
 - 50dB Spurious Free Range
 - Narrow Sweep Pulses – fit between carriers
- Sixteen switchable return sweep ports (sw optional)
- Flexible mode of operation
 - Forward Tx only (5500)
 - Forward + Single User Reverse (5500)
 - Multi-User Reverse (5510)

SCU-1800 Appearance



SCU-1800 Sweep Transmitter/Receiver

- The headend/hub rack-mounted SCU-1800 Sweep Control Unit provides non-interfering downstream sweep to 1.218 GHz and upstream sweep to 204 MHz on up to 16 ports.
- The sweep is remotely configurable via Ethernet and browser, and a sweep plan can be built from imported information from the **OneExpert ONX**
- Additionally, there is an auto-fill capability in which the sweep points are automatically injected in unoccupied spectrum areas.

SCU-1800 Field Unit Compatibility

SDA / DSAM sweep type

Forward Sweep

- 50 to 1000 MHz

Reverse Sweep

- 5 to 85 MHz
- Single User Reverse
- Multi User Optional

▪ ONX sweep type

Forward sweep

- 54 to 1218 MHz
- -20 to +20 dBmV input range

Reverse Sweep

- 5 to 204 MHz frequency Range
- -20 to +20 dBmV input level range

SCU - Forward Sweep

- Uses downstream plant and inserted carriers
- Up to 500 sweep points
- Future proof with 1800 MHz capable hardware
- SDA Protocol

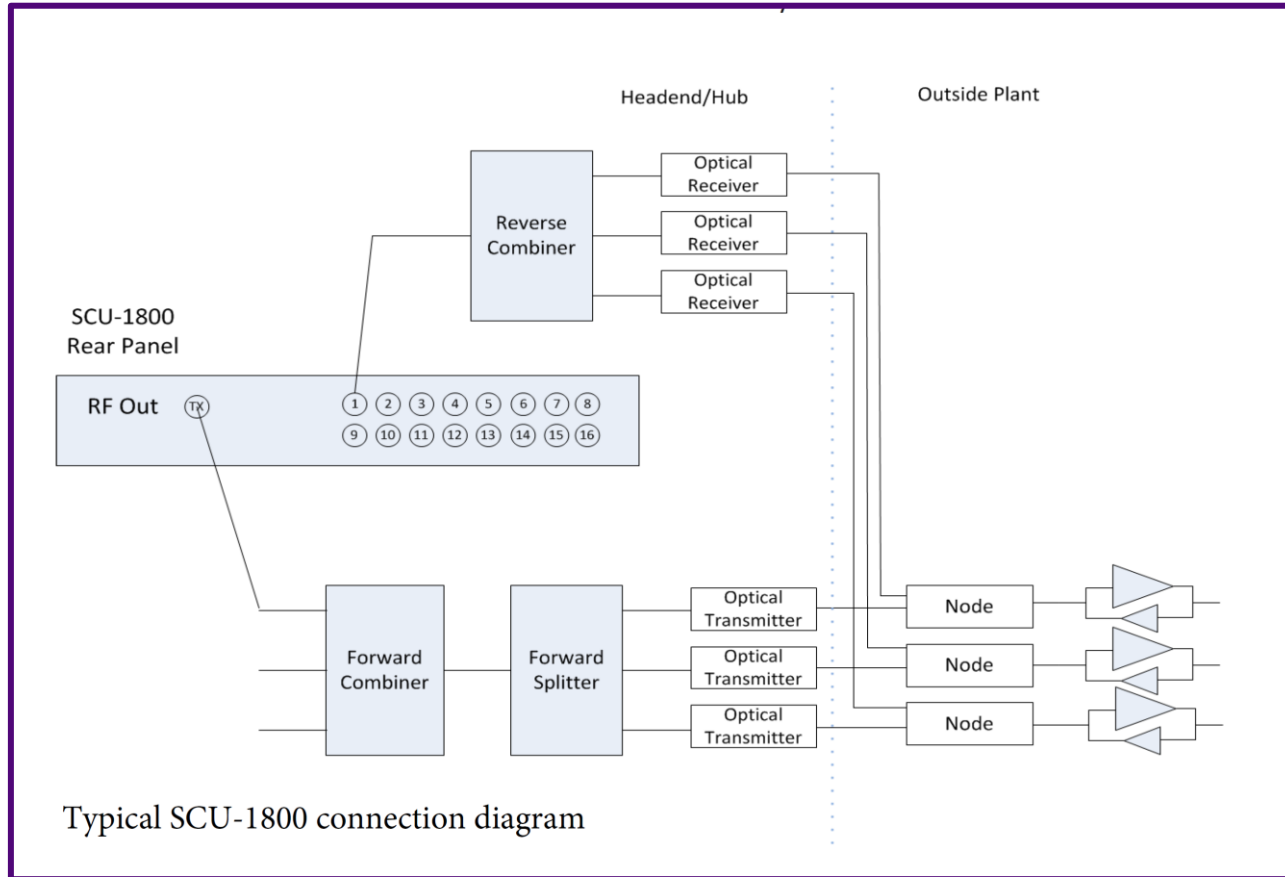
SCU - Reverse Sweep Inputs

- 16 isolated inputs
- Manual select standard
- Optional Auto input select

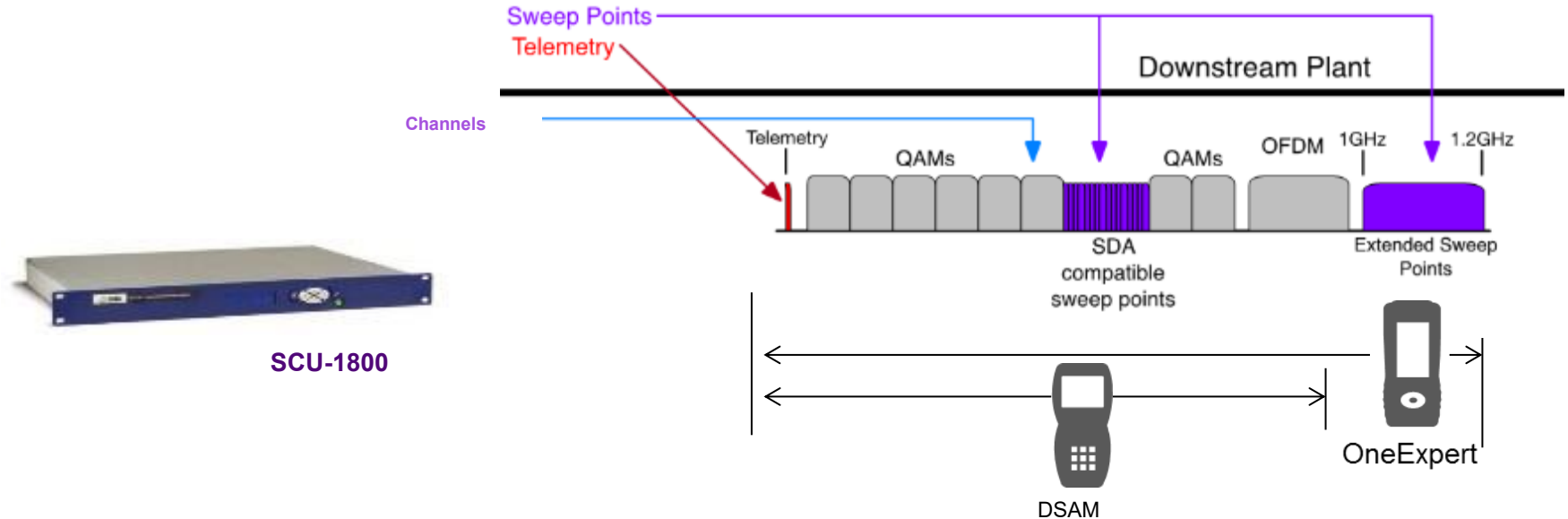
Frequency Range

- 5 to 204 MHz
- SDA Protocol

Typical SCU-1800 Connection diagram



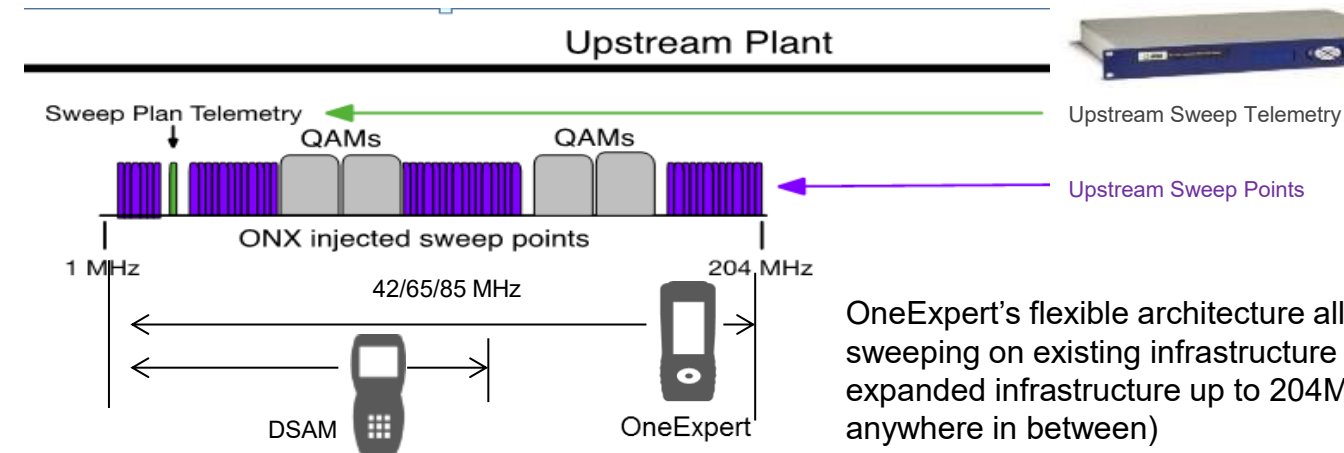
Sweep Beyond 1GHz



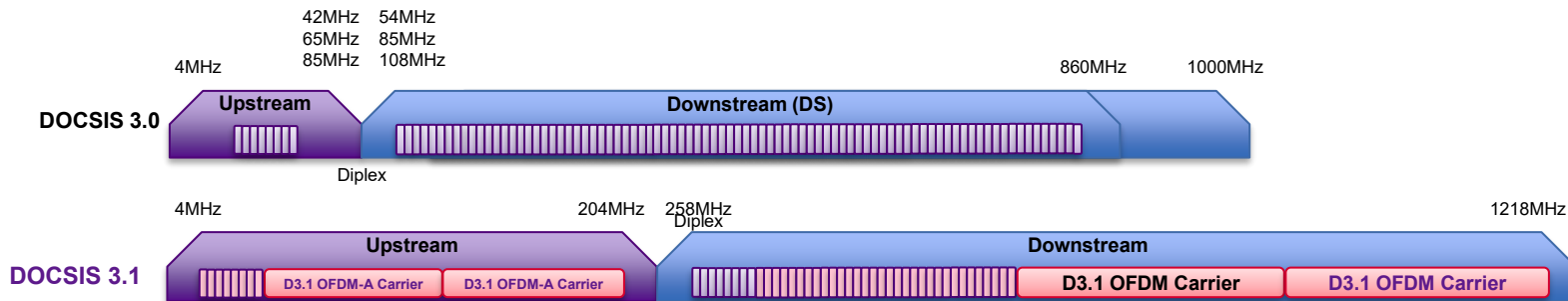
- ONX coupled with new Sweep Control unit can provide sweep to 1.2GHz and beyond
- DSAM units on same system are still compatible up to 1GHz.

(New) Reverse Sweep to 204 MHz

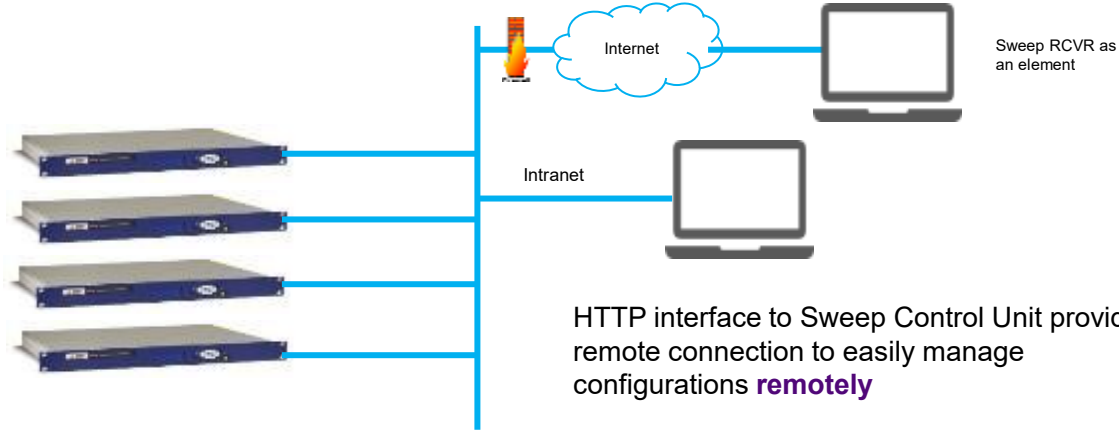
SCU-1800



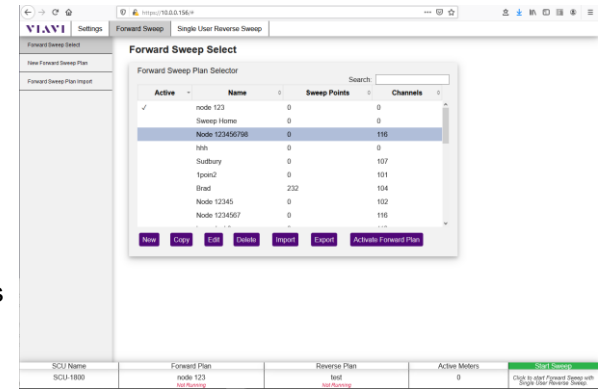
OneExpert's flexible architecture allows sweeping on existing infrastructure or expanded infrastructure up to 204MHz (or anywhere in between)



Configure Sweep Remotely



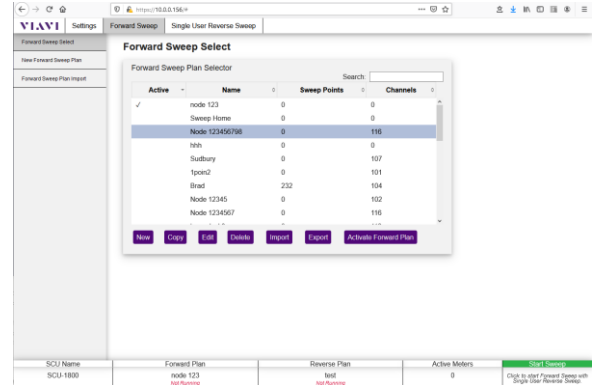
HTTP interface to Sweep Control Unit provides remote connection to easily manage configurations **remotely**



Configure Sweep Locally from a laptop

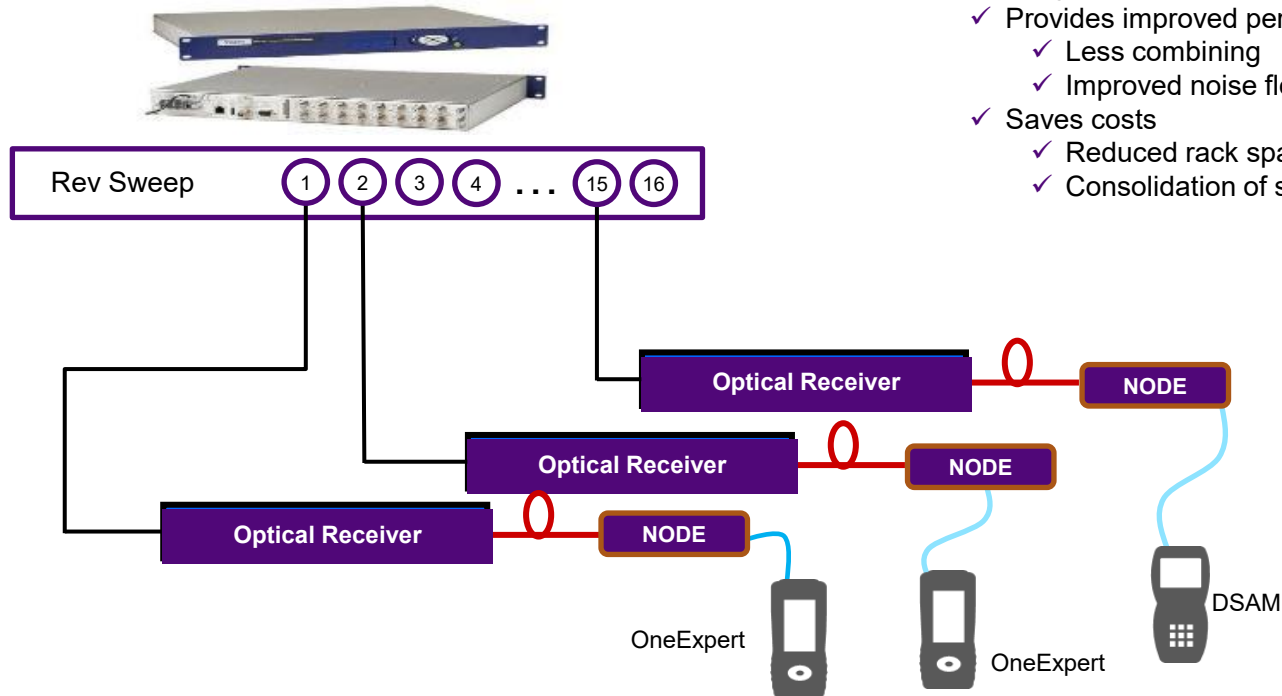


HTTP interface to Sweep Control Unit provides easy access to configurations **locally**



Multiple reverse sweep input ports

Reduces costs and improves performance



- ✓ Integrated 16 port capability (SW optional)
- ✓ Provides improved performance
 - ✓ Less combining
 - ✓ Improved noise floor
- ✓ Saves costs
 - ✓ Reduced rack space
 - ✓ Consolidation of sweep receivers

Sweep Specifications

- **Telemetry**

- Frequency Range: 42 to 1,218 MHz
- Frequency Resolution: 10 kHz
- Modulation FSK : ± 100 kHz deviation; 65 kbps
- Output Level: +20 to +50 dBmV, 1 dB resolution, 0.5dB accuracy typical, 1 dB accuracy over temp
- Spectral Purity: 50 dBc harmonics and spurious; recommend 1 MHz space from SC QAM edge

- **Sweep Pulse**

- Frequency Range: 42 to 1,218 MHz
- Bandwidth: <5 kHz @ 3dB BW; <50 kHz @ 50dB BW
- Frequency Resolution: 10 kHz
- Level : +20 to +50 dBmV, 1 dB resolution, 0.5dB accuracy typical, 1 dB accuracy over temp
- Spectral Purity: 50 dBc harmonics and spurious; recommend 1 MHz space from SC QAM edge

- **Forward Sweep**

- Telemetry frequency: Diplexer dependent 50-1,218MHz
- Forward sweep outputs: Up to 500 sweep points
- Supported Sweep Plan Active Carrier types (for reference and measurement by the field instrument) Analog (NTSC, PALB, PAL GH, PAL I, PAL DK,) Digital (6 or 8MHz), OFDM (24-192MHz),

- **Reverse Sweep**

- Frequency Range: 5 to 204 MHz
- Recommended input level: 0 dBmV
- Input range and accuracy: ± 20 dBmV allowable input range; ± 0.75 dB typical; ± 2 dB over temp
- Minimum Signal-to-Noise Ratio: 20 dB signal-to-noise ratio required on received reverse telemetry from field meters
- Reverse Sweep points injection: +20 to +50 dBmV
- Reverse Telemetry Level: +20 to +50 dBmV

SCU-1800 Settings

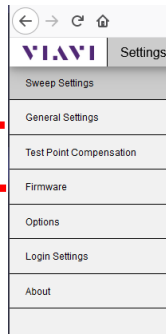
Test Point Compensation

Reverse Sweep Test Point Compensation

Port	TPC(dB)
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	0
15	0
16	0

☒ Apply TPC to Reverse Telemetry Level

Submit Query



Firmware

Firmware Package Version
5.0.391

Firmware Details

Firmware Upgrade

Browse... No file selected.

Upgrade Firmware

General Settings

Signal Level Units dBmV

Device Name SCU-1800

HTTPS Enabled ☒

Demo Mode Forward Sweep

Submit Query

Sweep Settings

Forward Telemetry Frequency (MHz) 51

Forward Telemetry Level (dBmV) 20

Forward Sweep Level (dBmV) 20

Reverse Telemetry Frequency (MHz) 10

Automatically start sweep at power on ☐

Submit Query

SCU-1800 Settings

Options

Current Options

Catalog Number	Option Name	Option Type	Expiration
SCU-1800-SW-FWD	SCU-1800 Forward Sweep	perm	
SCU-1800-SW-REV-SWP	SCU-1800 Reverse Sweep Single User	perm	
SCU-1800-SW-REV-16PORT	SCU-1800 Enable 16 port Reverse Sweep	perm	
SCU-1800-SW-REV-SWP-MU	SCU-1800 Reverse Sweep Multi User	perm	

Deploy Option File

No file selected.

Settings Forward Sweep Single User Reverse Sweep

Sweep Settings

Forward Telemetry Frequency (MHz)

Forward Telemetry Level (dBmV)

Forward Sweep Level (dBmV)

Reverse Telemetry Frequency (MHz)

Automatically start sweep at power on ☐

About

Model Number

SCU-1800

Serial Number

0143469

SCU Receiver Calibration Date

4/3/2020

SCU Transmitter Calibration Date

2020-04-03 17:45:02

Login Settings

New Username

New Password

Confirm Password

Edit Channel Plan

VIavi

Settings

Forward Sweep

Single User Reverse Sweep

Forward Sweep Select

Forward Sweep Plan Selector

Search: <input type="text"/>			
Active	Name	Sweep Points	Channels
✓	node 123	0	0
	Sweep Home	0	0
	Node 123456798	0	116
	hhh	0	0
	Sudbury	0	107
	1poin2	0	101
	Brad	232	104
	Node 12345	0	102
	Node 1234567	0	116

New

Copy

Edit

Delete

Import

Export

Activate Forward Plan

Forward Sweep Edit

Plan Name:

Node 123456798

Back

Sweep Points List

Search:

Type	Frequency (MHz)	Span (MHz)	Level (dBmV)	Info
Channel	57.000	6	9.99	DIGITAL
Channel	63.000	6	10.80	DIGITAL
Channel	69.000	6	11.13	DIGITAL
Channel	75.250	1.536	6.93	DIGITAL
Channel	79.000	6	13.96	DIGITAL
Channel	85.000	7	13.90	DIGITAL
Channel	99.000	6	14.20	DIGITAL
Channel	104.250	1.536	7.93	DIGITAL
Channel	111.000	6	13.84	DIGITAL

Point Count: 116

Delete Selection

☒ Use level from channel plan build

Define Active Carriers in system which will be used as sweep points

Note: These carriers are not generated by the SCU but will be measured by the field instrument

Add Individual Active Channels to be used as sweep points

Note: These are active carriers that are to be used as measured sweep points by the field instrument but were not included in the channel plan import

Channel Type: Center Frequency (MHz): Channel Bandwidth: Level (dBmV):

Add Channel

Define carriers to be injected by the SCU-1800

Note: These are pulsed sweep points generated by the SCU-1800 in unoccupied spectrum

Add Multiple Sweep Injection Points

Note: This function inserts a sweep point at the start frequency given and will inject a sweep point every XX MHz defined by the Sweep Carrier Spacing up to and including the Stop Frequency if the Stop Frequency lands on the spacing boundary. This function utilizes a 500kHz guard band spacing and will only insert sweep points where there is at least 500kHz available from any previously defined carrier or sweep point.

Valid Frequency Range:
42 - 1218 MHz

Valid Carrier Spacing Range:
1 - 8 MHz

Start Frequency (MHz):

Stop Frequency (MHz):

Sweep Carrier Spacing (MHz):

Add Points

Add Individual Sweep Injection Points

Note: These are pulsed sweep points injected by the SCU-1800. Recommended to have 500kHz available spacing for each point.

Center Frequency (MHz):

Add Point

New Channel Plan from ONX

VIavi Settings Forward Sweep Single User Reverse Sweep

Forward Sweep Select

New Forward Sweep Plan

Forward Sweep Plan Import

Forward Sweep Select

Forward Sweep Plan Selector

Search:

Active	Name	Sweep Points	Channels
✓	node 123	0	0
	Sweep Home	0	0
	Node 123456798	0	116
	hhh	0	0
	Sudbury	0	107
	1poin2	0	101
	Brad	232	104
	Node 12345	0	102
	Node 1234567	0	116

New Copy Edit Delete Import Export Activate Forward Plan

New Forward Sweep Plan

Step 1: Plan Name

Plan Name:

File Upload

← → ↑ This PC > Desktop Search Desktop

Organize New folder

File name: All Files (*.*)

New Forward Sweep Plan

Step 2: Import Channel Plan

Node 8888.Ground Block.channel_plan.json

New Channel Plan

VIavi | Settings | Forward Sweep | Single User Reverse Sweep

Forward Sweep Select

New Forward Sweep Plan

Forward Sweep Plan Import

Forward Sweep Select

Forward Sweep Plan Selector

Search:

Active	Name	Sweep Points	Channels
✓	node 123	0	0
	Sweep Home	0	0
	Node 123456798	0	116
	hhh	0	0
	Sudbury	0	107
	1pin2	0	101
	Brad	232	104
	Node 12345	0	102
	Node 1234567	0	116

New Copy Edit Delete Import Export Activate Forward Plan

New Forward Sweep Plan

Step 3: Add any additional sweep points.

Plan Name: Back

Sweep Points List

Search:

Type	Frequency (MHz)	Span (MHz)	Level (dBmV)	Info
Channel	57.000	6	9.99	DIGITAL
Channel	63.000	6	10.80	DIGITAL
Channel	69.000	6	11.13	DIGITAL
Channel	75.250	1.536	6.93	DIGITAL
Channel	79.000	6	13.96	DIGITAL
Channel	85.000	7	13.90	DIGITAL
Channel	99.000	6	14.20	DIGITAL
Channel	104.250	1.536	7.93	DIGITAL
Channel	111.000	6	13.84	DIGITAL

Point Count: 116 Delete Selection

☒ Use level from channel plan build

Define Active Carriers in system which will be used as sweep points

Note: These carriers are not generated by the SCU but will be measured by the field instrument

Add Individual Active Channels to be used as sweep points

Note: These are active carriers that are to be used as measured sweep points by the field instrument but were not included in the channel plan import

Channel Type: Center Frequency (MHz): Channel Bandwidth: Level (dBmV):

Add Channel

Add Individual Sweep Injection Points

Note: These are pulsed sweep points injected by the SCU-1800. Recommended to have 500kHz available spacing for each point.

Center Frequency (MHz)

Add Point

Define carriers to be injected by the SCU-1800

Note: These are pulsed sweep points generated by the SCU-1800 in unoccupied spectrum

Add Multiple Sweep Injection Points

Note: This function inserts a sweep point at the start frequency given and will inject a sweep point every XX MHz defined by the Sweep Carrier Spacing up to and including the Stop Frequency if the Stop Frequency lands on the spacing boundary. This function utilizes a 500kHz guard band spacing and will only insert sweep points where there is at least 500kHz available from any previously defined carrier or sweep point.

Valid Frequency Range:

42 - 1218 MHz

Valid Carrier Spacing Range:

1 - 8 MHz

Start Frequency (MHz)

Stop Frequency (MHz)

Sweep Carrier Spacing (MHz)

Add Points

Export and Import Channel Plan

VIavi Settings Forward Sweep Single User Reverse Sweep

Forward Sweep Select

Forward Sweep Plan Selector

Search:

Active	Name	Sweep Points	Channels
✓	node 123	0	0
	Sweep Home	0	0
	Node 123456798	0	116
	hhh	0	0
	Sudbury	0	107
	1point2	0	101
	Brad	232	104
	Node 12345	0	102
	Node 1234567	0	116

New Copy Edit Delete Import Export Activate Forward Plan

Save As

This PC > Documents

Search Documents

Organize New folder

Name Date modified Type

reflectortxt 5/14/2018 10:47 PM Text D

SDA Sweep Doc 10/30/2020 5:18 PM File fol

This PC

File name: SweepPlan-3.json

Save as type: Text Documents (*.txt)

Hide Folders Encoding: UTF-8 Save Cancel

Forward Sweep Plan Import

Browse... SweepPlan-3.json

Import Forward Plan

Browse... SweepPlan-3.json

Import Forward Plan

Reverse Channel Plan

VIavi Settings Forward Sweep Single User Reverse Sweep

Reverse Sweep Select

New Reverse Sweep Plan

Reverse Sweep Plan Import

Reverse Sweep Active Meters

Reverse Sweep Select

Reverse Sweep Plan Selector

Search:

Active	Name	Sweep Points
✓	test	43
	Sudbury Rtn Mid-Split	177

☒ Enable Reverse Sweep

New Reverse Sweep Plan

Step 1: Enter a name for the new reverse plan.

Plan Name:

Define carriers to be injected by the field meter

Note: These are pulsed sweep points generated by the field meter in unoccupied spectrum

Warning: SDA-5000 units may function incorrectly when the plan contains points below 5 MHz.

Add Multiple Sweep Injection Points

Note: This function inserts a sweep point at the start frequency given and will inject sweep points at the interval given.

Valid Frequency Range:

4 - 204 MHz

Start(MHz): Stop(MHz): Step Size(MHz):

New Reverse Sweep Plan

Step 2: Add any additional reverse sweep points.

Plan Name:

Sweep Points List

Search:

Type	Frequency (MHz)
Sweep Point	4.000
Sweep Point	5.000
Sweep Point	6.000
Sweep Point	7.000
Sweep Point	8.000
Sweep Point	9.000
Sweep Point	10.000
Sweep Point	11.000
Sweep Point	12.000
Sweep Point	13.000

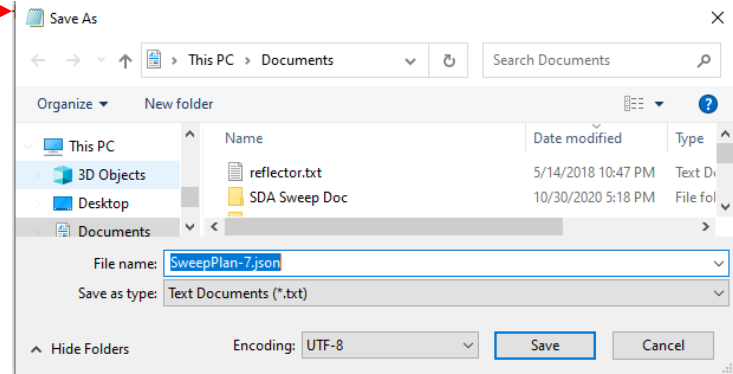
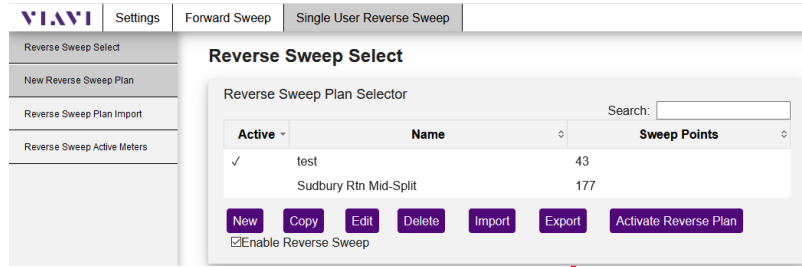
Point Count: 42

Add Individual Sweep Injection Points

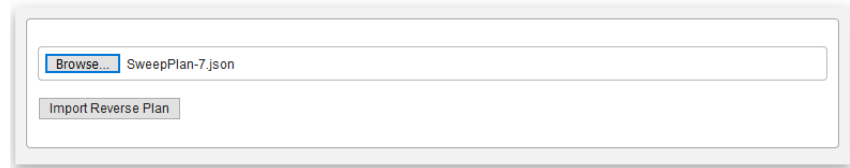
Note: These are pulsed sweep points injected by the field meter. Recommended to have 500kHz available spacing for each point.

Center(MHz):

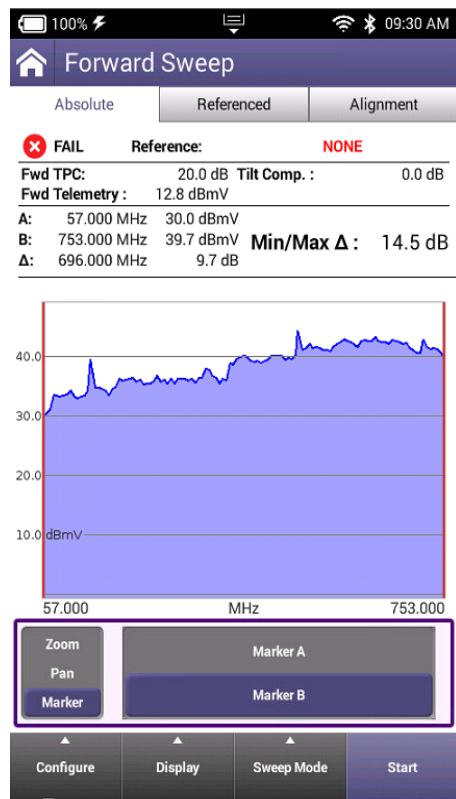
Export and Import Reverse Channel Plan



Reverse Sweep Plan Import



Forward Sweep



Sweep Config

Modify Sweep Configuration

Configure Test Point

+20.0 dB TPC1

Alignment Carrier Configuration

Add/Remove Carriers for Alignment

Choose Reference

Set reference sweep data

Save Test/Reference

Save current test to a Work Order

View Tests

View previous tests

Configure Sweep

Changes will restart test

SDA 5500 Telemetry Frequency
51.000 MHz

SDA 5510 Telemetry Frequency
52.000 MHz

Reverse Sweep User Mode
Single User

☒ Enable Sweep Limit

Digital carrier bandwidth
6.000 MHz

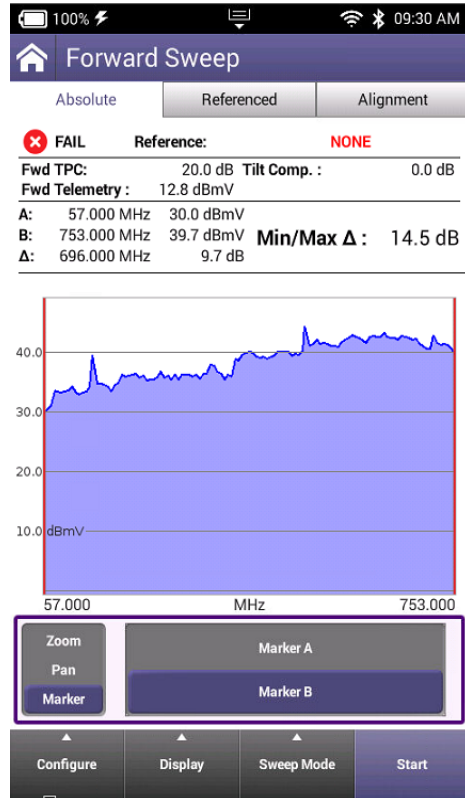
Sweep Limit
4.0 dB

Select Reverse Sweep User Mode

☒ Single User

☐ Multi User

Forward Sweep Test Point



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Select Test Point Template

☐ +0.0 dB TPC

☒ +20.0 dB TPC

View | Delete | Copy | Done

New Custom Template

+20.0 dB TPC 1 1 - 40 chars

Save

Configure Test Point Template

+20.0 dB TPC 1

Forward Test Point Compensation
20.0 dB

Reverse Test Point Compensation
20 dB

Reverse Sweep Injection
8.0 dBmV

Reverse Telemetry Level
20.0 dBmV

Forward Tilt Compensation
0.0 dB

Forward Low Tilt Frequency
5.000 MHz

Forward High Tilt Frequency
800.000 MHz

Reverse Port Mode
Single Port

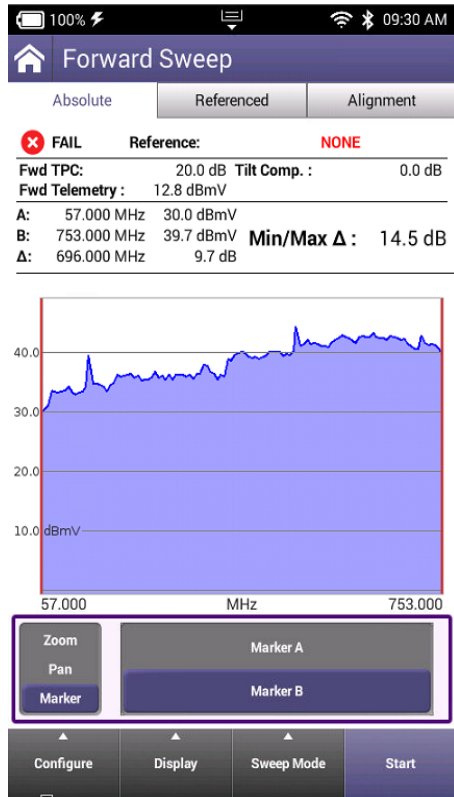
☐ High Power Environment

Select Reverse Port Mode

☒ Single Port

☐ Dual Port

Forward Sweep Alignment



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Alignment Carrier Configuration

Forward Sweep Reverse Sweep

57.000 MHz

747.000 MHz

Add Carrier Remove Carrier Load Defaults

Add Carrier

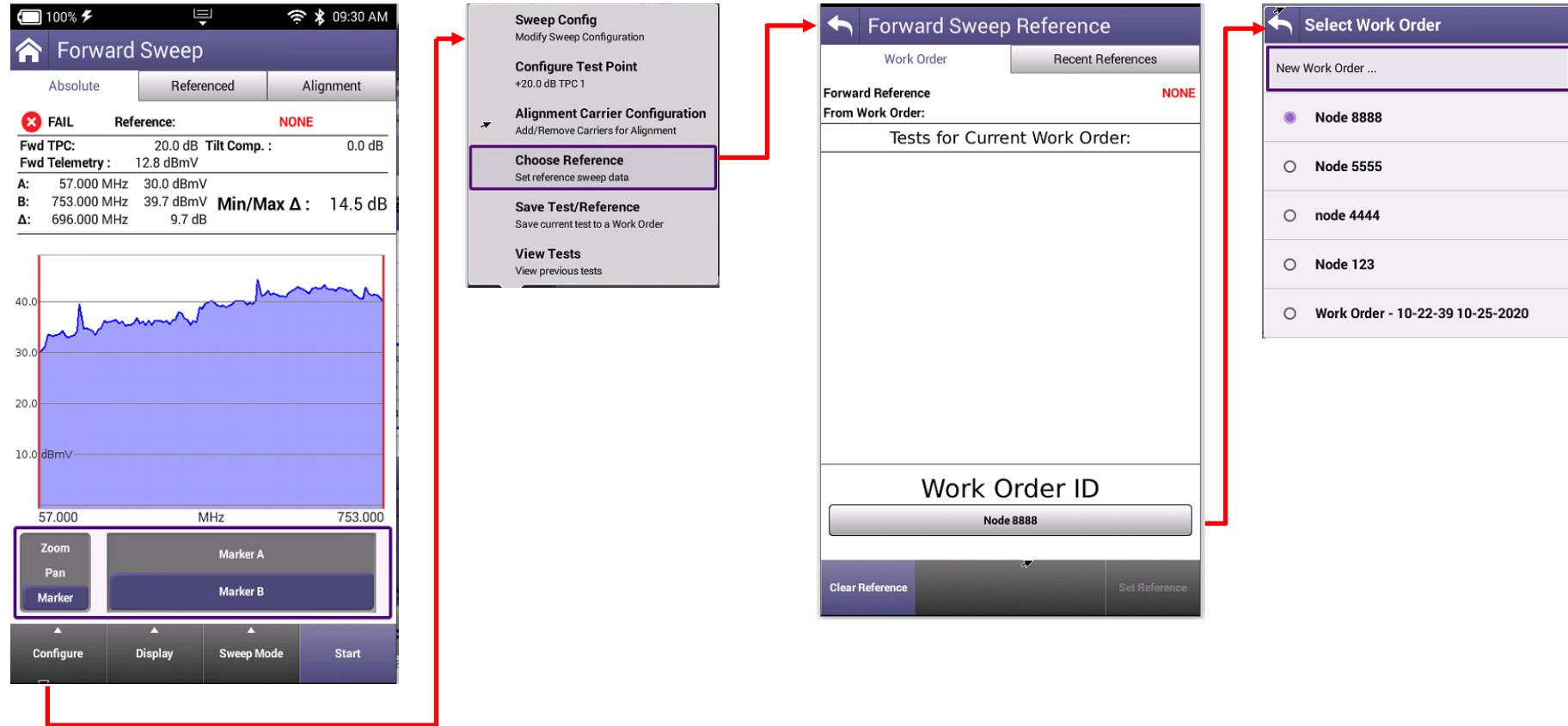
Carrier Frequency (MHz)
747.000

Frequency (MHz)

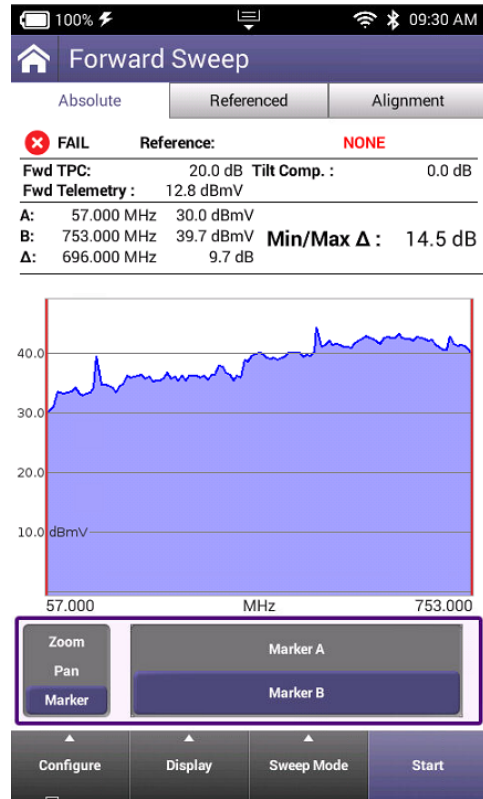
747.000 48.000 - 1002.000

OK

Forward Sweep Point Clear Reference



Forward Sweep Point Save Reference



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Save Forward Sweep Test

Save Test to Work Order

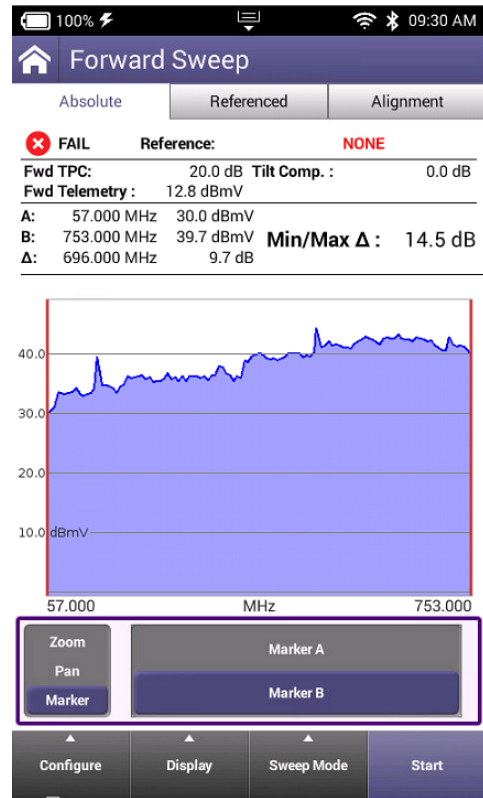
Test Name
Node 123 Port 2

Work Order ID
Node 8888

☒ Set as Reference

Set Name to Current Date | Save

Forward Sweep Review Test



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Forward Sweep Tests

Tests for Current Work Order:

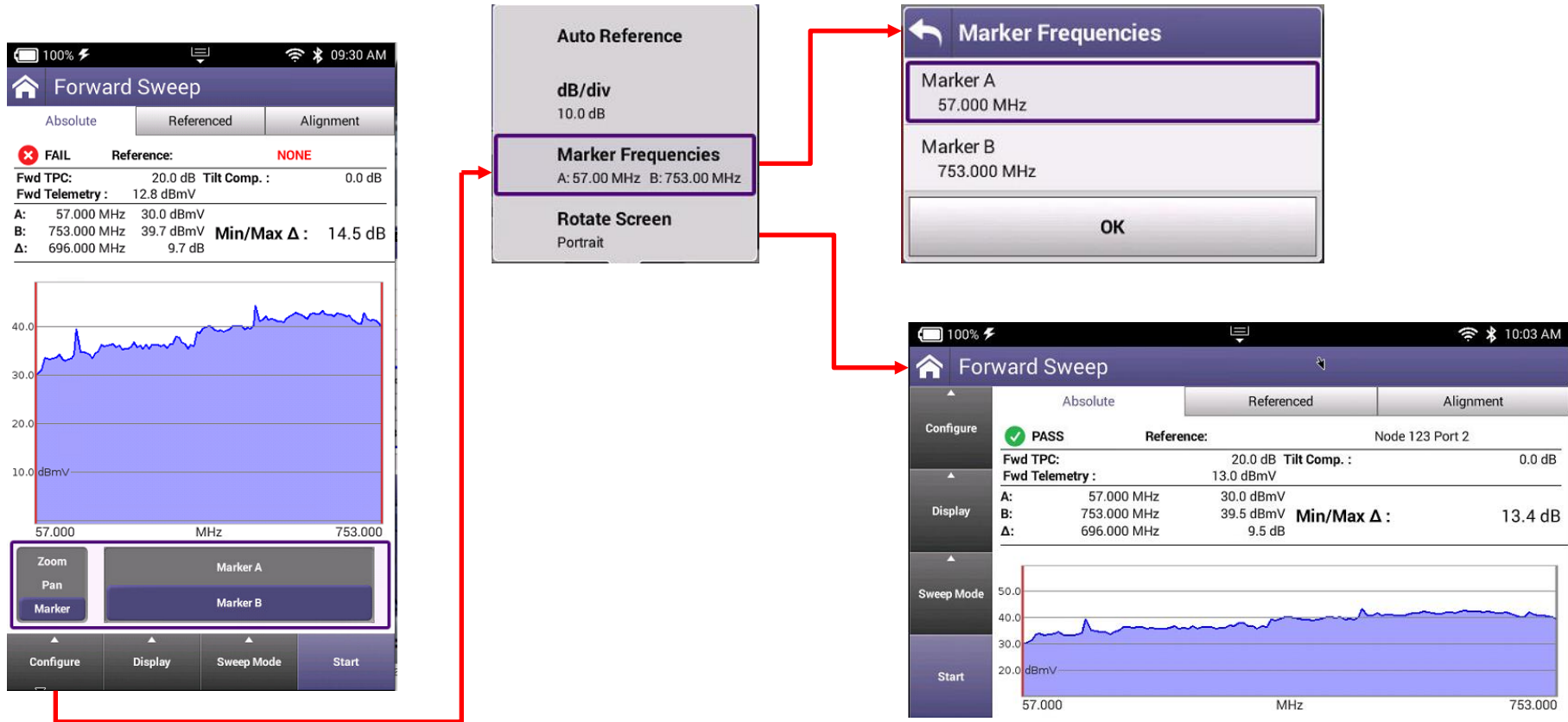
Node 123 Port 2

Work Order ID

Node 8888

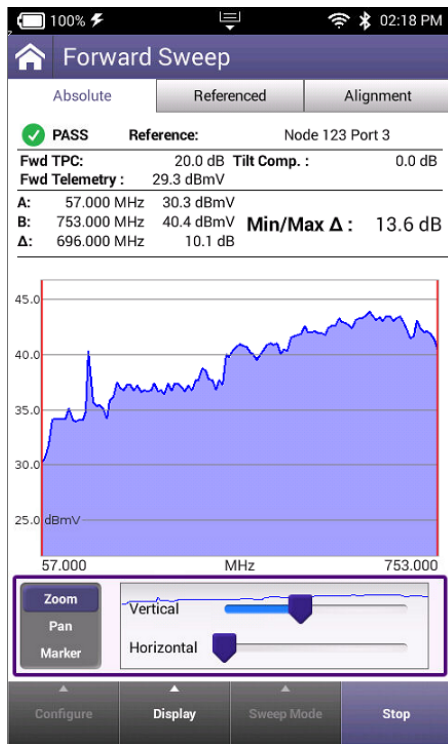
View Results

Forward Sweep Test Markers

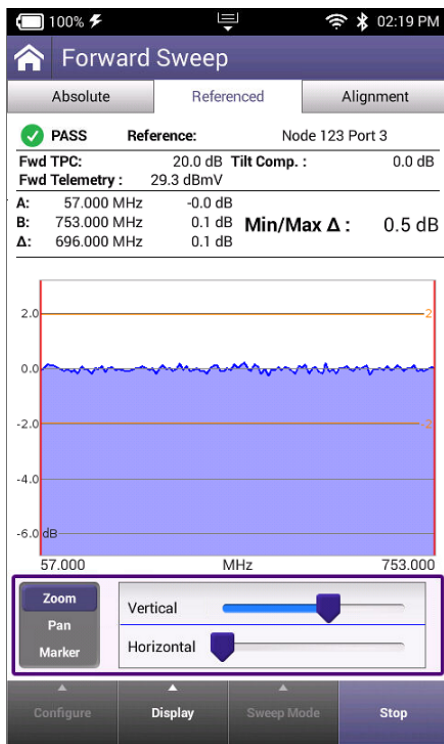


Forward Sweep Screens

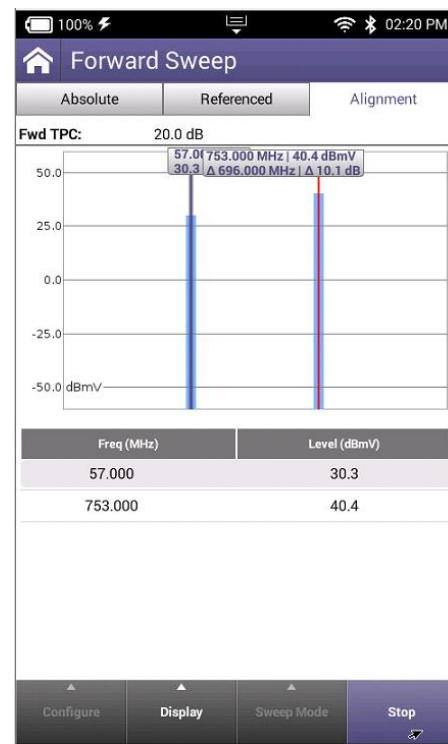
Absolute “Raw”



Referenced

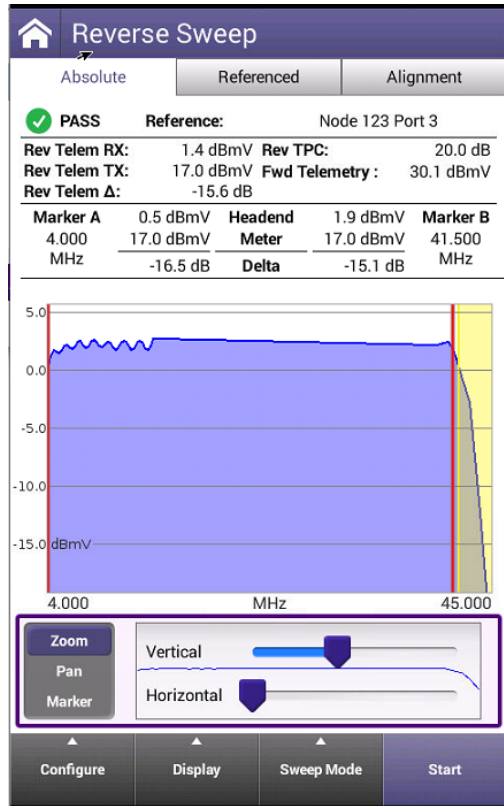


Alignment



Return Sweep

Reverse Sweep Configure



☐ Forward Sweep

☒ Reverse Sweep

☐ Reverse Sweepless Sweep

Configure Sweep

Changes will restart test

SDA 5500 Telemetry Frequency
51.000 MHz

SDA 5510 Telemetry Frequency
52.000 MHz

Reverse Sweep User Mode
Single User

☒ Enable Sweep Limit

Digital carrier bandwidth
6.000 MHz

Sweep Limit
4.0 dB

Select Reverse Sweep User Mode

☒ Single User

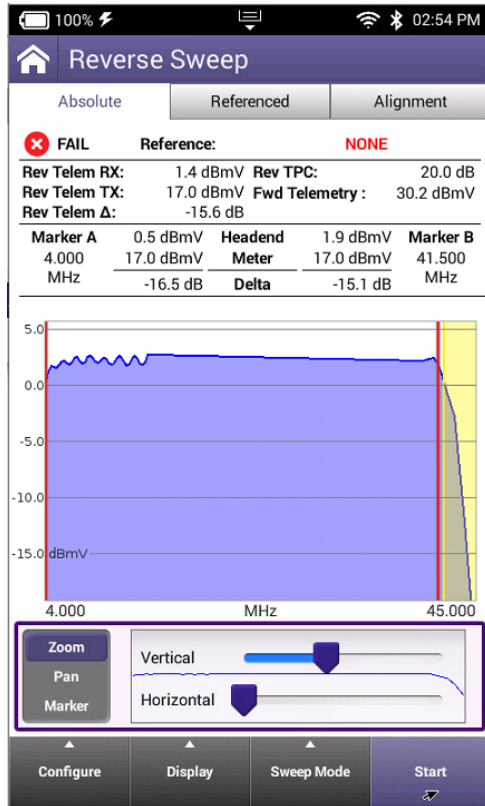
☐ Multi User

Select Digital carrier bandwidth

☒ 6.000 MHz

☐ 8.000 MHz

Reverse Sweep Configure Test Point



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Select Test Point Template

☐ +0.0 dB TPC

☒ +20.0 dB TPC

Buttons: View, Delete, Copy, Done

New Custom Template

+20.0 dB TPC 1 1 - 40 chars

Save

Configure Test Point Template

+20.0 dB TPC 1

Forward Test Point Compensation
20.0 dB

Reverse Test Point Compensation
20 dB

Reverse Sweep Injection
8.0 dBmV

Reverse Telemetry Level
20.0 dBmV

Forward Tilt Compensation
0.0 dB

Forward Low Tilt Frequency
5.000 MHz

Forward High Tilt Frequency
800.000 MHz

Reverse Port Mode
Single Port

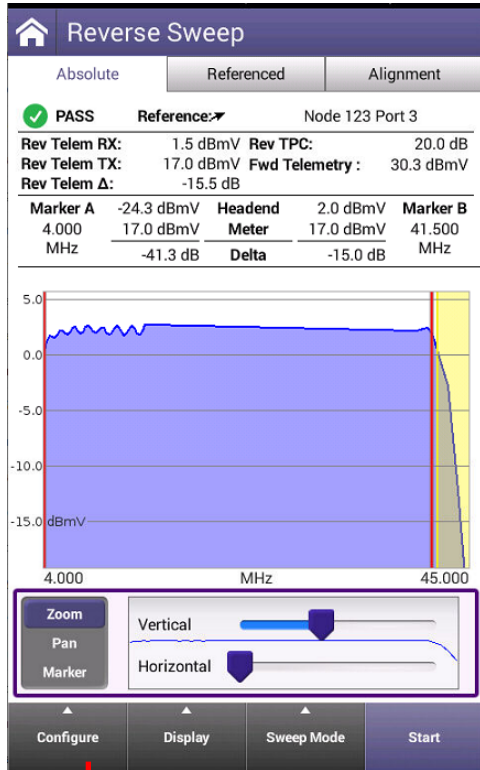
☐ High Power Environment

Select Reverse Port Mode

☒ Single Port

☐ Dual Port

Reverse Sweep Configure Test Point Injection



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Select Test Point Template

- ☐ +0.0 dB TPC
- ☐ +20.0 dB TPC
- ☒ +20.0 dB TPC 1

View / Edit Delete Copy Done

New Custom Template

+20.0 dB TPC 1 1 - 40 chars

Save

Configure Test Point Template

Forward Test Point Compensation
20.0 dB

Reverse Test Point Compensation
20 dB

Reverse Sweep Injection
17.0 dBmV

Reverse Telemetry Level
17.0 dBmV

Forward Tilt Compensation
0.0 dB

Forward Low Tilt Frequency
54.000 MHz

Forward High Tilt Frequency
860.000 MHz

Reverse Port Mode
Single Port

☐ High Power Environment

The sum of Reverse Test Point Compensation and Reverse Sweep Injection must be less than or equal to 53.0 dBmV for valid results.

Reverse Sweep Injection

17.0 dBmV

OK

Reverse Telemetry Level

17.0 dBmV

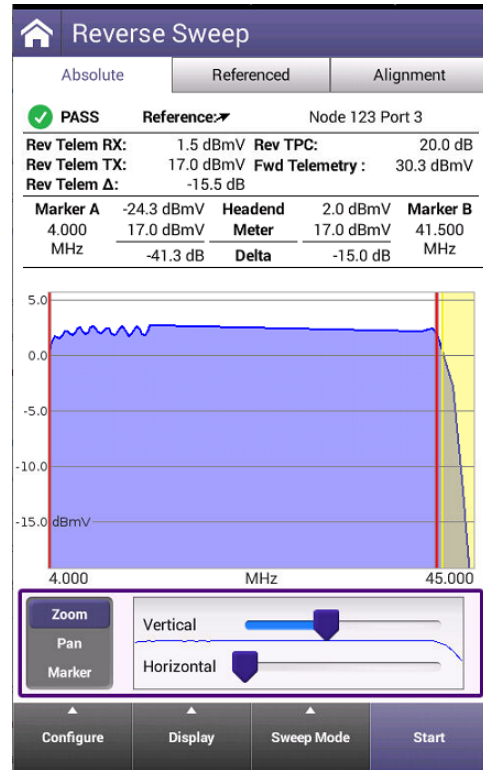
OK

Select Reverse Port Mode

☒ Single Port

☐ Dual Port

Reverse Sweep Alignment



Sweep Config
Modify Sweep Configuration

✗ **Configure Test Point**
+20.0 dB TPC 1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Alignment Carrier Configuration

Forward Sweep Reverse Sweep

5.000 MHz

14.000 MHz

41.500 MHz

Add Carrier Remove Carrier Load Defaults

Add Carrier

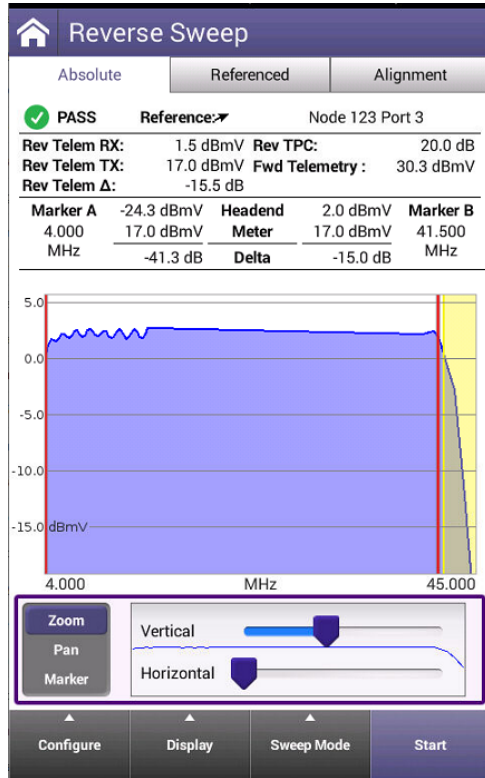
Carrier Frequency (MHz)
41.500

Frequency (MHz)

41.500 4.000 - 204.000

OK

Reverse Sweep Clear Or Choose Reference



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Reverse Sweep Reference

Work Order | Recent References

Reverse Reference: Node 123 Port 3
From Work Order: 5678

Tests for Current Work Order:

Node 123 Port 3

Work Order ID: 5678

Clear Reference | Set Reference

Reverse Sweep Reference

Work Order | Recent References

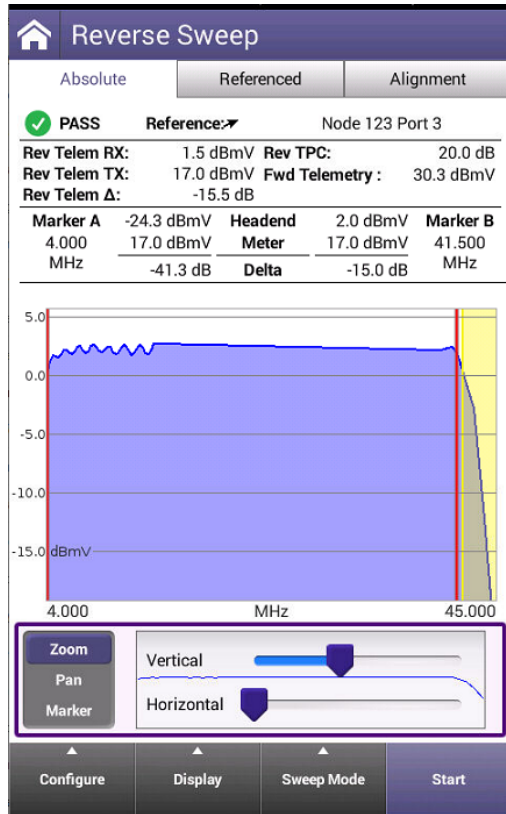
Reverse Reference: Node 123 Port 3
From Work Order: 5678

Recently Used References:

- Node 123 Port 3 5678
- Node 123 Port 2 Node 123
- node 123 por3 home8542
- node 123 por3 node 12345
- node 123 port1r node 12345
- node 123 rev node 123
- node333p1 node333
- node23noderet node23

Clear Reference | Set Reference

Reverse Sweep Save Reference



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Alignment Carrier Configuration
Add/Remove Carriers for Alignment

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Save Reverse Sweep Test

Save Test to Work Order

Test Name
Node 123 Port 3

Work Order ID
5678

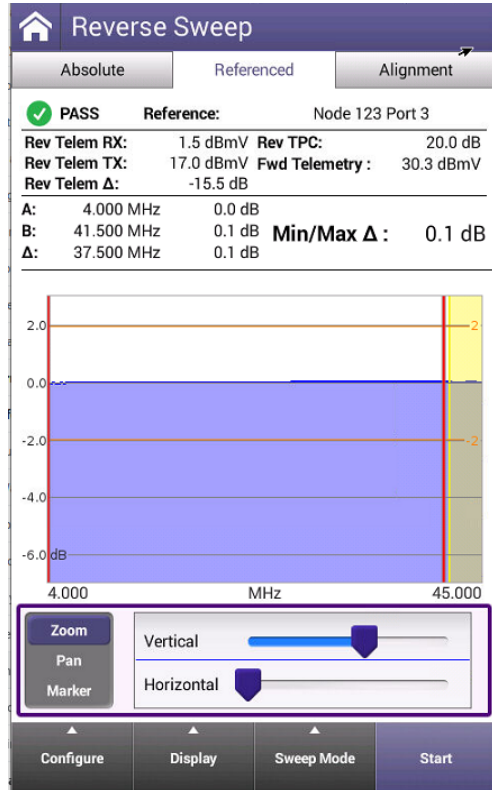
☒ Set as Reference

Reverse Sweep Tests

Tests for Current Work Order:

Node 123 Port 3

Reverse Sweep Display Settings



Auto Reference

dB/div
2.0 dB

Marker Frequencies
A: 4.00 MHz B: 41.50 MHz

Rotate Screen
Portrait

dB/div

☐ 1.0 dB

☒ 2.0 dB

☐ 5.0 dB

☐ 10.0 dB

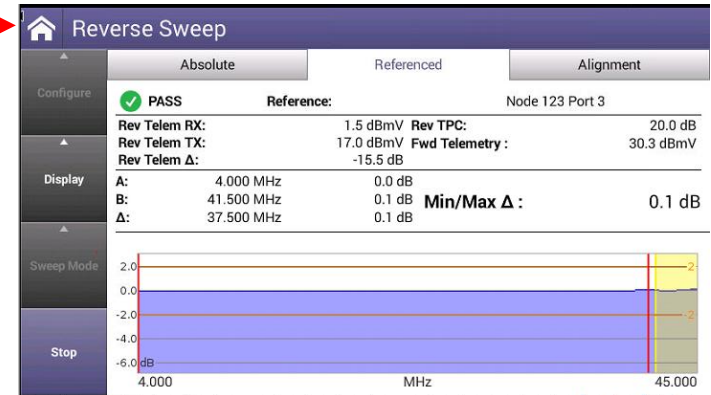
☐ 20.0 dB

Marker Frequencies

Marker A
4.000 MHz

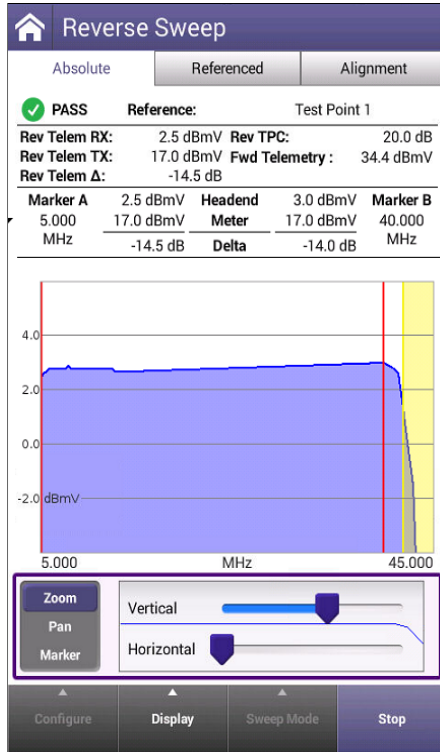
Marker B
41.500 MHz

OK

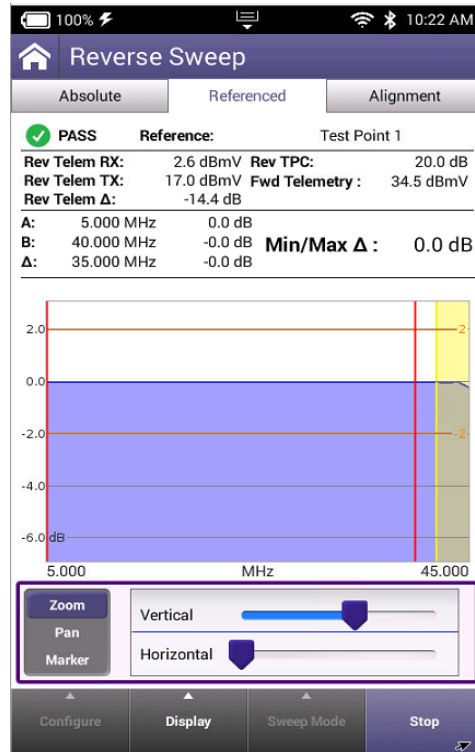


Reverse Sweep Screens

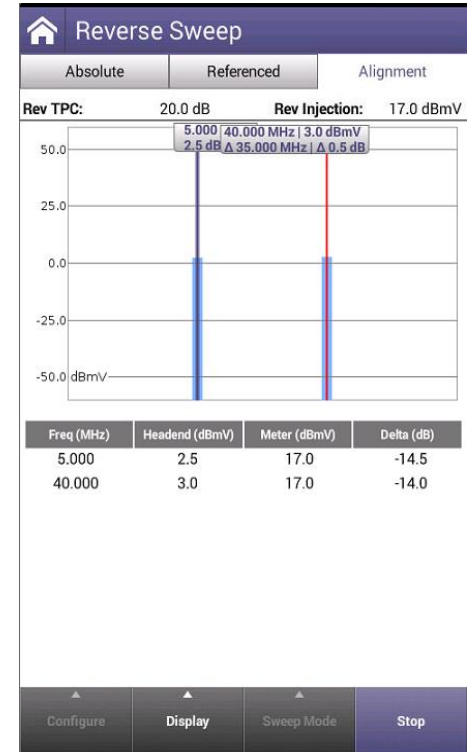
Absolute “Raw”



Referenced

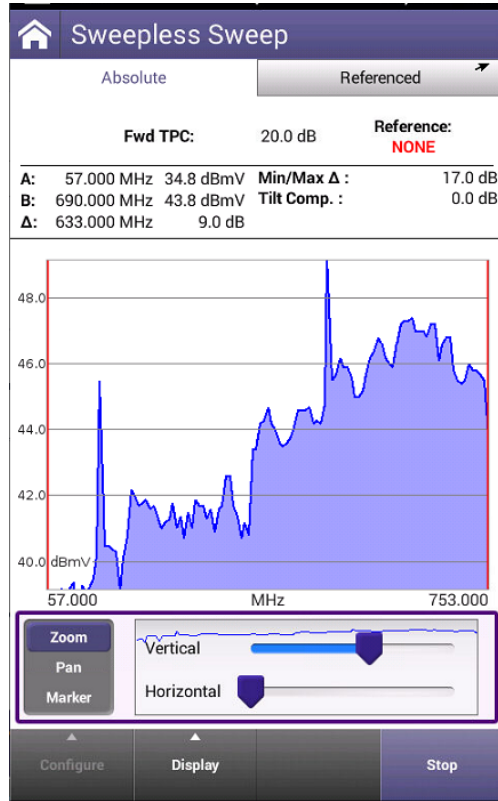


Alignment



Sweepless Sweep

Sweepless Sweep Configure



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

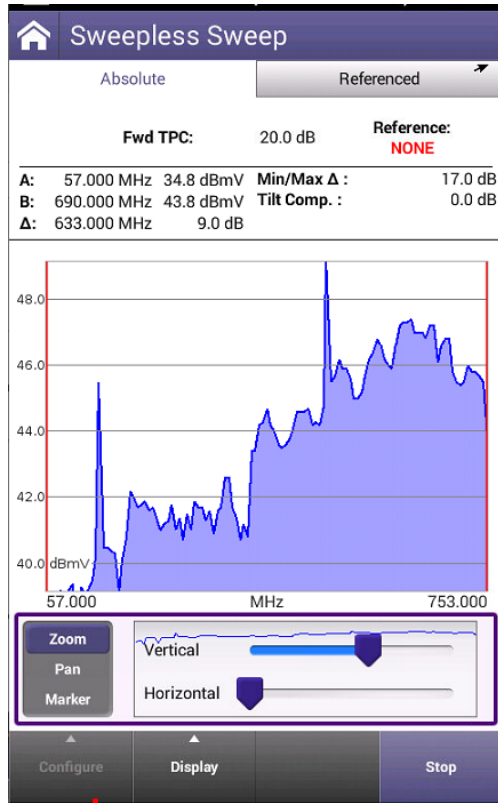
Configure Sweep

Changes will restart test

☒ Enable Sweep Limit

Sweep Limit
4.0 dB

Sweepless Sweep Configure



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Select Test Point Template

- ☐ +0.0 dB TPC
- ☐ +20.0 dB TPC
- ☒ +20.0 dB TPC 1

Configure Test Point Template
+20.0 dB TPC 1

Forward Test Point Compensation
20.0 dB

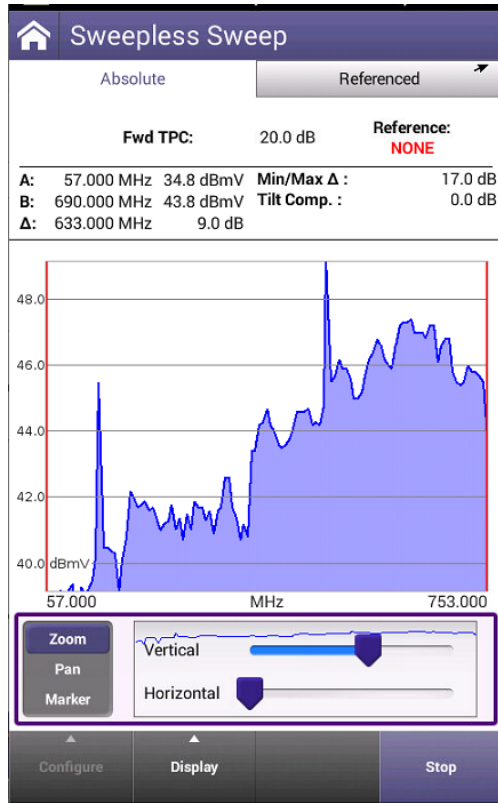
Forward Tilt Compensation
0.0 dB

Forward Low Tilt Frequency
54.000 MHz

Forward High Tilt Frequency
860.000 MHz

[View / Edit](#) [Delete](#) [Copy](#) [Done](#)

Sweepless Sweep Clear Reference



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Sweepless Sweep Reference
Work Order Recent References

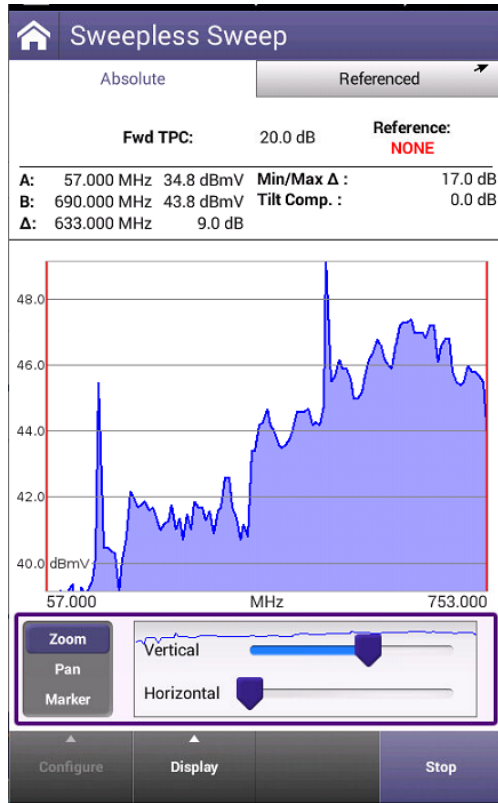
Reverse Reference **NONE**
From Work Order:

Tests for Current Work Order:

Work Order ID
44

Clear Reference Set Reference

Sweepless Sweep Save File or Reference



The screenshot shows the 'Sweep Config' menu. It contains the following options:

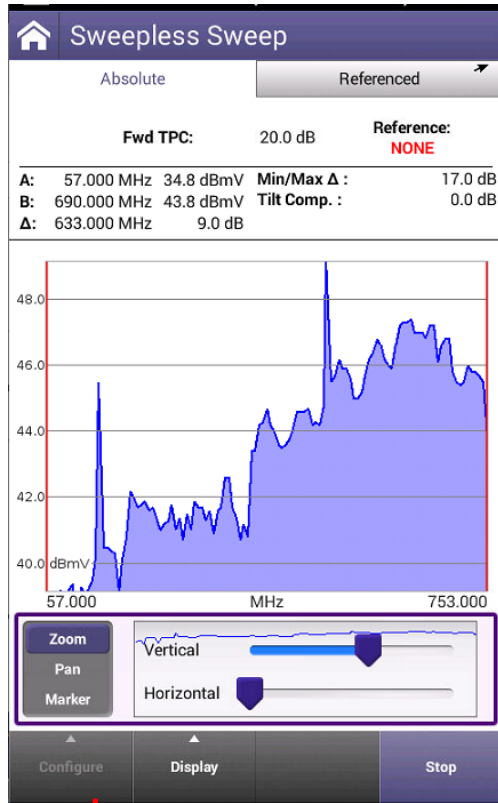
- Sweep Config**
Modify Sweep Configuration
- Configure Test Point**
+20.0 dB TPC 1
- Choose Reference**
Set reference sweep data
- Save Test/Reference**
Save current test to a Work Order
- View Tests**
View previous tests

The screenshot shows the 'Save Sweepless Sweep Test' dialog. It contains the following options:

- Save Test to Work Order**
- Test Name: node333refforward
- Work Order ID: 44
- ☒ Set as Reference

At the bottom, there are buttons for 'Set Name to Current Date' and 'Save'.

Sweepless Sweep Configure



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Sweepless Sweep Tests

Tests for Current Work Order:

Work Order ID

44

View Results

Sweepless Sweep Configure



Auto Reference

dB/div
2.0 dB

Marker Frequencies
A: 57.00 MHz B: 757.25 MHz

Rotate Screen
Portrait

← dB/div

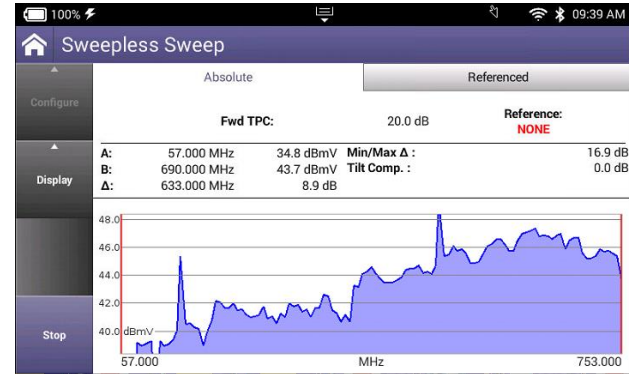
☒ 1.0 dB

☐ 2.0 dB

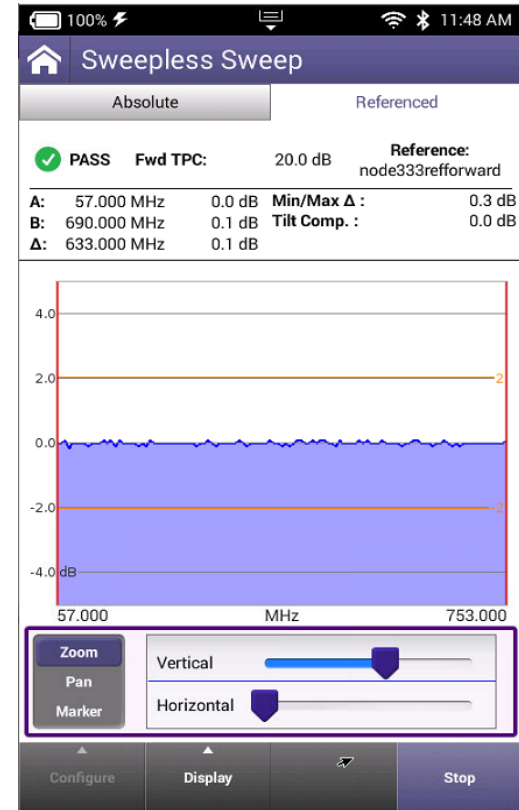
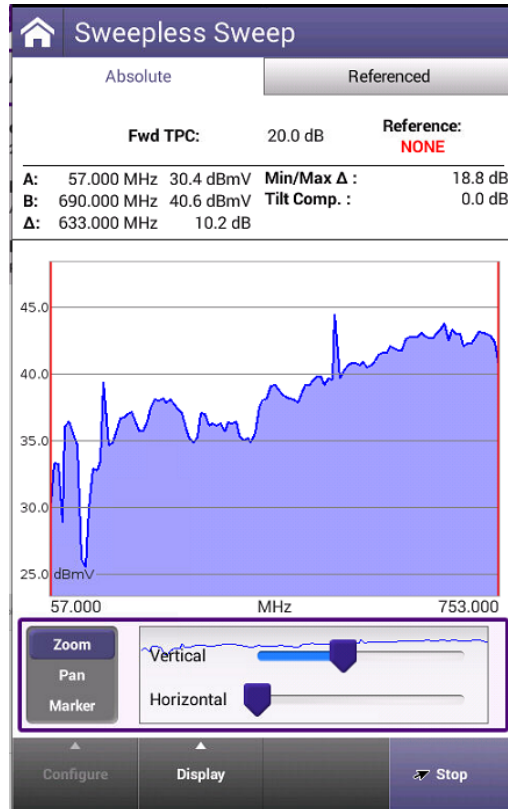
☐ 5.0 dB

☐ 10.0 dB

☐ 20.0 dB

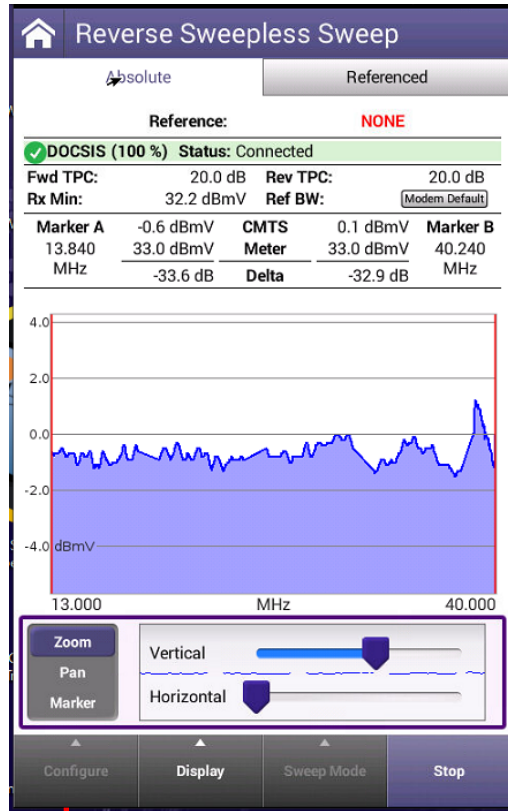


Sweepless Sweep Absolute and Referenced



Sweepless Return Sweep

Reverse Sweepless Sweep Configure and Test Point



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

DOCSIS Service Plan
00:07:11:1F:8C:12

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Select Test Point Template

- ☐ +0.0 dB TPC
- ☐ +20.0 dB TPC
- ☒ +20.0 dB TPC 1

View Delete Copy Done

Configure Sweep

Changes will restart test

☒ Enable Sweep Limit

Sweep Limit
4.0 dB

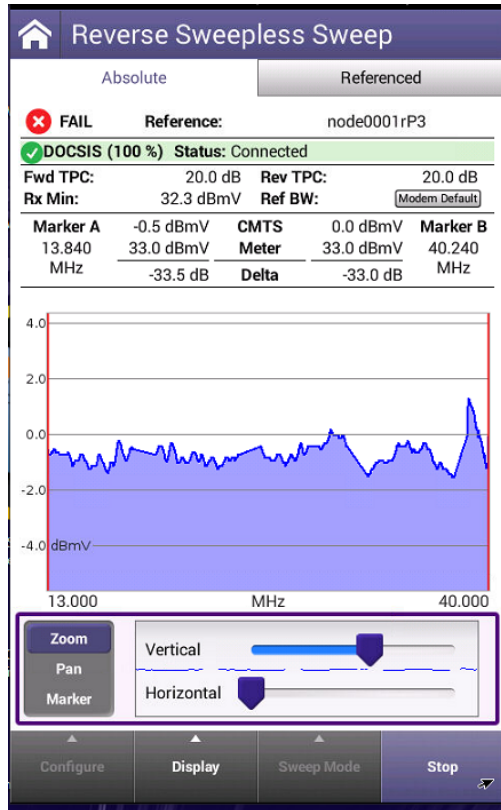
Configure Test Point Template

+20.0 dB TPC 1

Forward Test Point Compensation
20.0 dB

Reverse Test Point Compensation
20 dB

Reverse Sweepless Service plan Select



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

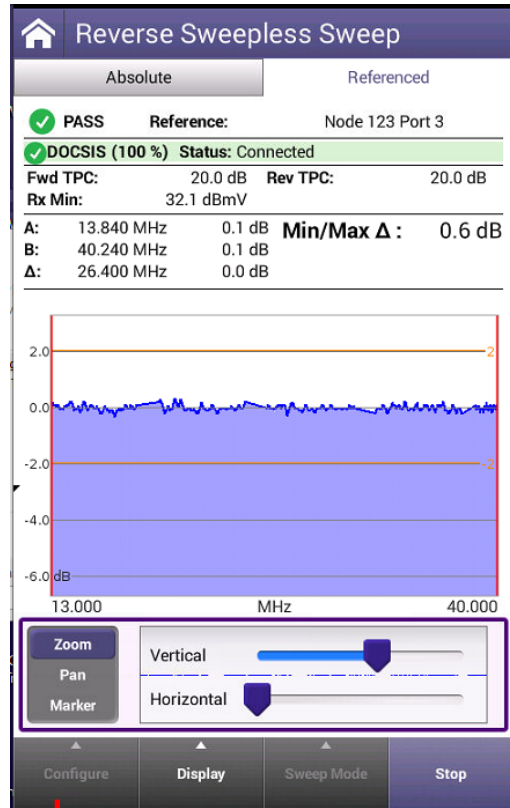
DOCSIS Service Plan
00:07:11:1F:8C:12

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Reverse Sweepless Sweep Reference



Sweep Config
Modify Sweep Configuration

Configure Test Point
+20.0 dB TPC 1

DOCSIS Service Plan
00:07:11:1F:8C:12

Choose Reference
Set reference sweep data

Save Test/Reference
Save current test to a Work Order

View Tests
View previous tests

Reverse Sweep Reference

Work Order | Recent References

Reverse Reference: NONE

From Work Order:

Tests for Current Work Order:

Work Order ID: 3434

Clear Reference | Set Reference

Save Reverse Sweep Test

Save Test to Work Order

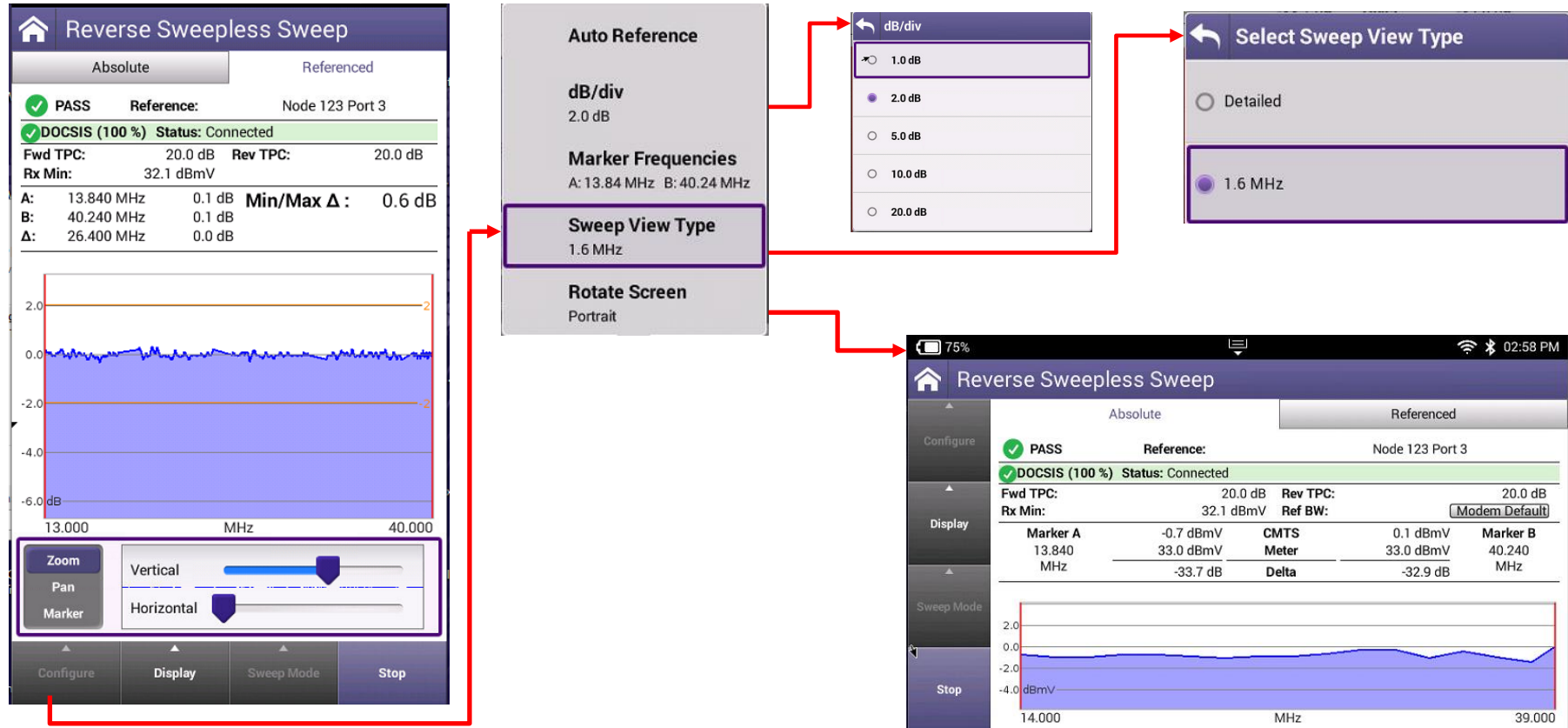
Test Name: Node 123 Port 3

Work Order ID: 3434

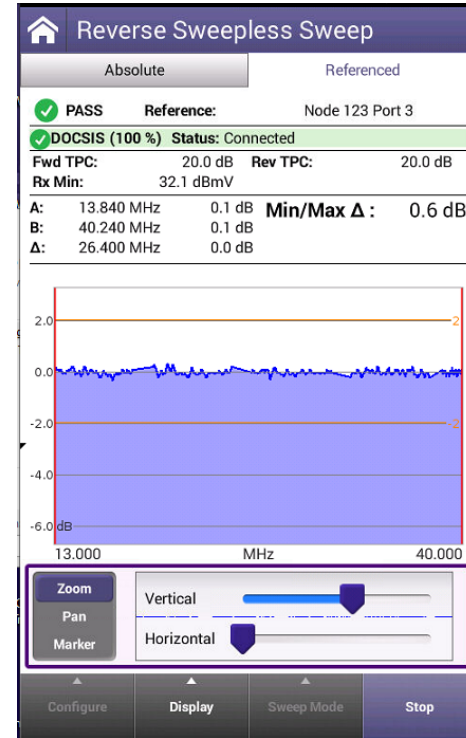
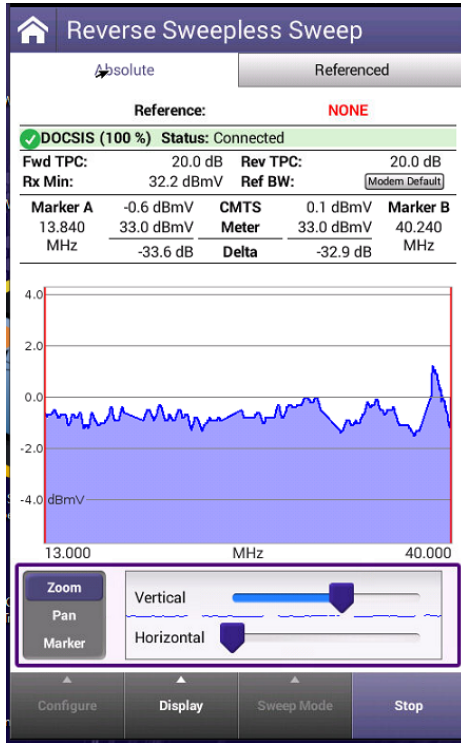
☒ Set as Reference

Set Name to Current Date | Save

Reverse Sweepless Sweep Type




Reverse Sweepless Sweep Absolute and Referenced

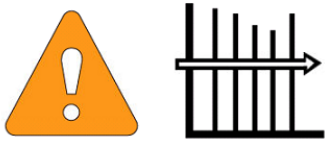


Typical Reverse Sweep Errors

Telemetry not found

 Sweep Error

Telemetry Not Found



Sweep was not able to obtain telemetry.
Check if telemetry frequency is configured correctly
If signal levels are high, configure your test point for High Power Environment

Stop

Retry

Forward Sweep | Single User Reverse Sweep

Sweep Settings

Forward Telemetry Frequency (MHz) 52

Forward Telemetry Level (dBmV) 20

Forward Sweep Level (dBmV) 20

Reverse Telemetry Frequency (MHz) 41.5

Automatically start sweep at power on ☐

Submit Query

Multi User Reverse Sweep

Sweep Settings


Forward Telemetry Frequency (MHz) 53

Forward Telemetry Level (dBmV) 20

Reverse Telemetry Frequency (MHz) 41.5

Automatically start sweep at power on ☐

Submit Query

 Configure Sweep

Changes will restart test

SDA 5500 Telemetry Frequency
52.000 MHz


SDA 5510 Telemetry Frequency
53.000 MHz

Reverse Sweep User Mode
Single User

☒ Enable Sweep Limit

Digital carrier bandwidth
6.000 MHz

Sweep Limit
3.0 dB

 Configure Sweep

Changes will restart test

SDA 5500 Telemetry Frequency
52.000 MHz

SDA 5510 Telemetry Frequency
53.000 MHz

Reverse Sweep User Mode
Multi User

☒ Enable Sweep Limit

Digital carrier bandwidth
6.000 MHz

Sweep Limit
3.0 dB

Invalid Telemetry

Invalid Telemetry

•3 possibilities

•#1. Using the multiple user frequency when sweeping the forward sweep single sweep or when sweeping forward. using multiple users frequency

Verify correct telemetry.

•#2. The input level is of telemetry exceed +25 dBmV into ONX

•#3. RF channel power into the ONX exceeds 20 dBmV.

Check the High Power Environment in the Test Point template

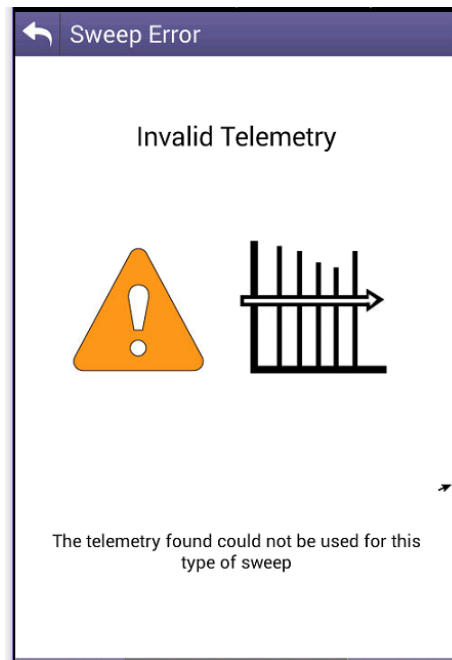


Figure 4: High Power setting

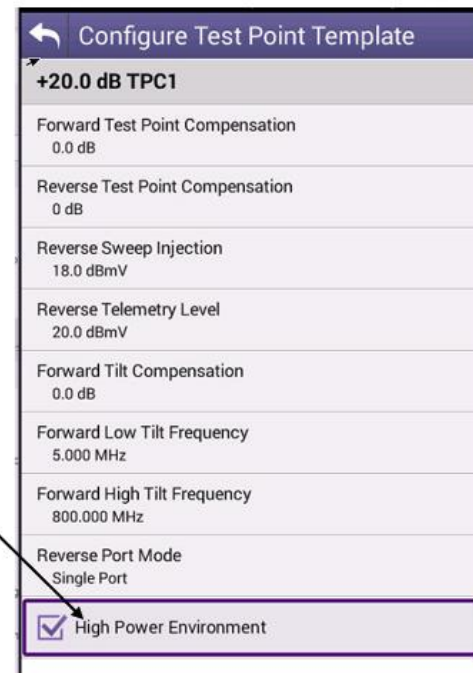
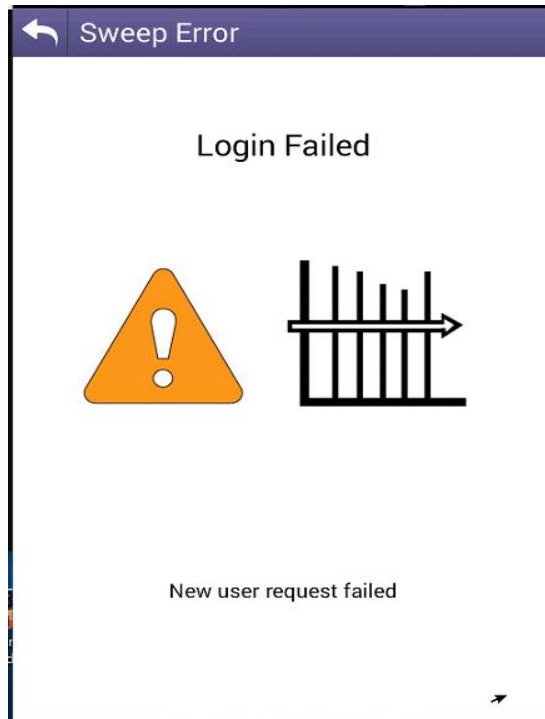


Figure 5: High Power setting

Login Failure

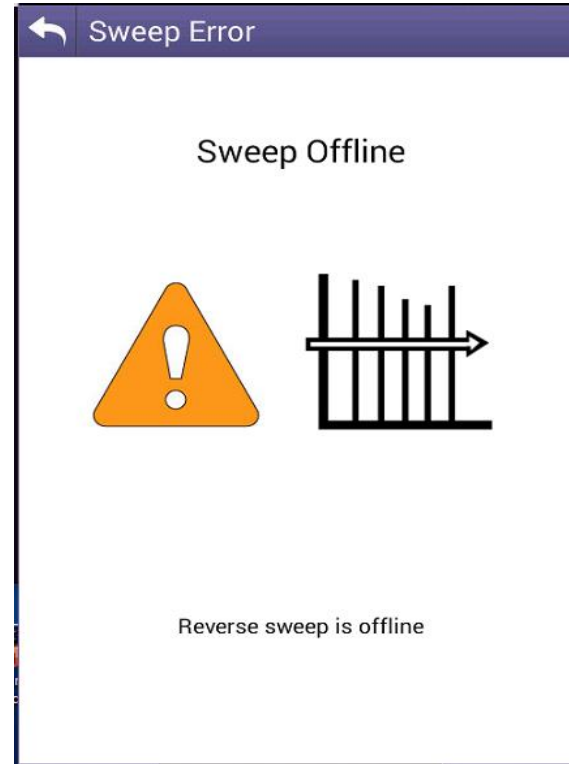
Return Sweep Error

- Login Failure
- Typically cause by the return Telemetry level is to low for the SCU-1800 to decode or not present at the SCU-1800
- Return Telemetry > 30 dB to the input of the SCU-1800
- Too much return RF power into the SCU-1800



Sweep Offline

- Sweep Offline
- Verify Reverse Sweep is check on SDA 5500 return sweep is on
- Too much return RF power. Verify out put on ONX is not too high.
- **Please Review SCU-1800 Getting Started Guide**





VIAVI Solutions