



**VIAXI**

# **OneExpert ONX CATV 630**

**Extended Quick Start Guide v1**

August 2017



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**VI.VI**

## **ONX CATV - Overview**

# ONX Controls keys



Network Indicator **LEDs**

High Sensitivity **Touch Screen**

**Shortcut** Buttons

Short Cut Hard keys – **Functions** keys

**Navigation** Directional Buttons

Back, Home Screen, and Utility Buttons

**Power** On/Off Button

# ONX Interfaces



D-Ring



Dual 10/100/1000  
RJ45 Ports



Dual USB 2.0 Ports

Battery Charger Port (under flap)

**Port 2 – RF Ingress Port**  
Connect to  
upstream from house  
for Ingress Scan

**Port 1 – RF US/DS Analysis**  
DOCSIS,  
QAM



# Power LED - Systems Keys

## Bottom Panel

The right side panel contains the following ports:



The DC Power Input, located on the bottom of the instrument, is used to connect the AC adapter.

The Charge LED located next to the power input indicates that the adapter is connected.

- ✓ **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. The unit can continue to run, and no user intervention necessary.
- ✓ **Solid amber** indicates that the battery is charging.

## SYSTEM KEYS

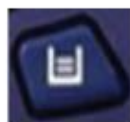
Under the Navigation arrow keys, there are three System keys:



**Back/Cancel**  
Go back to the previous menu



**Home**  
Return to the main/home screen



**Tray**  
Launch the Tray Menu

# LED's



**Error** – **Solid red** indicates error and alarm conditions. The type of error varies and depends on the application.

**Sync** – Reports the status of modem synchronization.

- ✓ **Blinking green** indicates that the modem is ranging.
- ✓ **Solid green** indicates that the modem has successfully ranged.

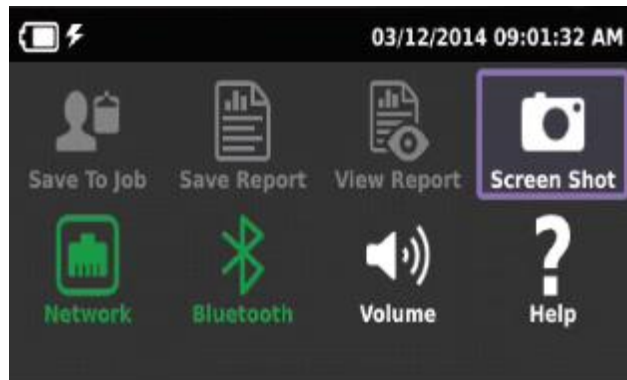
**Network** – Indicates the status of network connectivity.

- ✓ **Blinking green** indicates that the unit is acquiring an IP address.
- ✓ **Solid green** indicates that an IP address has been acquired.
- ✓ **Blinking amber** indicates a timeout – the unit was unable to acquire an IP address.
- ✓ If the LED is not illuminated, the network is not active – either the unit is not connected or it is logged off.

**Batt** – A multi-color LED that indicates the battery status.

- ✓ **Solid green** indicates that either the battery charge is higher than 30%, or that an external source is powering the unit.
- ✓ **Solid red** indicates that the battery charge is critically low, and less than 10%.
- ✓ **Solid amber** indicates that the battery is getting low, and the charge is between 10% and 30%.

# Tray Menu



## USING THE TRAY MENU

The tray menu allows access to commonly used functions. It can be accessed either by pressing the Tray system key or by swiping downward from the top of the LCD.

### Hint:

A long push on TRAY key will automatically start a screen capture. It is useful when a short Tray key push doesn't open the Tray menu (when for example a function key menu is open)

**SAVE TO JOB** – Saves the results to job ticket.

**SAVE TO REPORT** – Saves the results to a report. Formats

available: XML, PDF, or HTML.

**VIEW REPORT** – Views a saved report. Select View Report and

then select the saved report to view. If there are no saved reports, the text will be grayed out.

**SCREENSHOT** – Takes a screen capture of the current menu (the screen you were viewing when you launched the tray menu).

**NETWORK** – Enables or disables the home/Ethernet network.

**BLUETOOTH** – Enables or disables Bluetooth.

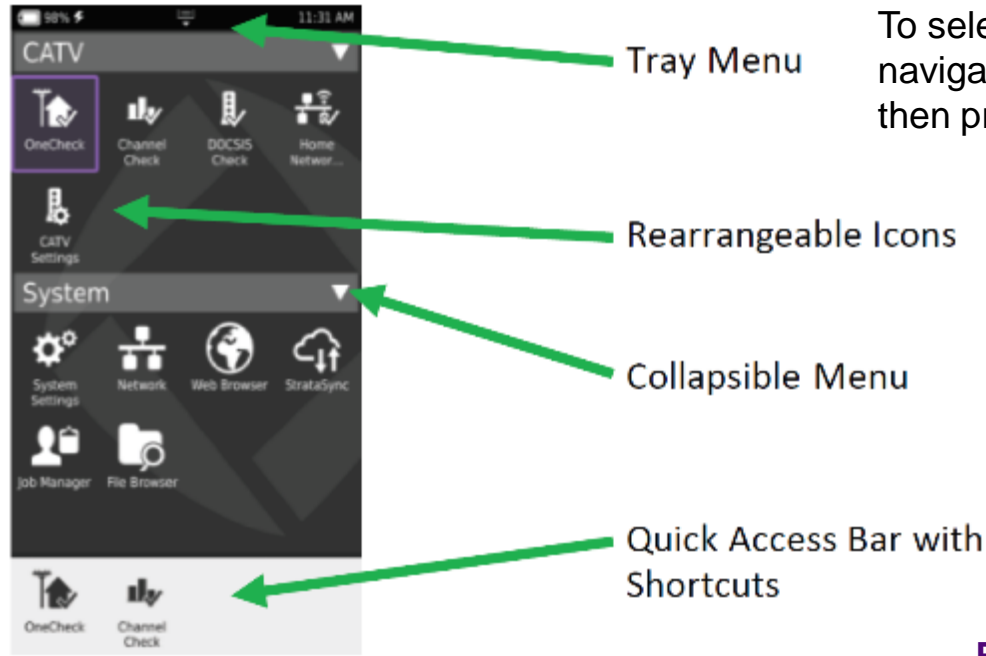
**VOLUME** – Control the device volume.

**HELP** – Provides TAC phone numbers.



# User interface

## NAVIGATING THE USER INTERFACE



## SHORTCUTS

- ✓ If you have a test or function that you use frequently you can make it a shortcut.
- ✓ Touch and hold the icon for the function and then drag it to the bottom of the screen to create a shortcut.
- ✓ You can create up to four shortcuts.
- ✓ To remove the shortcut, drag it off the shortcut bar.

## SELECTING A MENU

To select a menu, either touch the item or use the arrow navigation keys to highlight the desired menu item and then press the OK key.

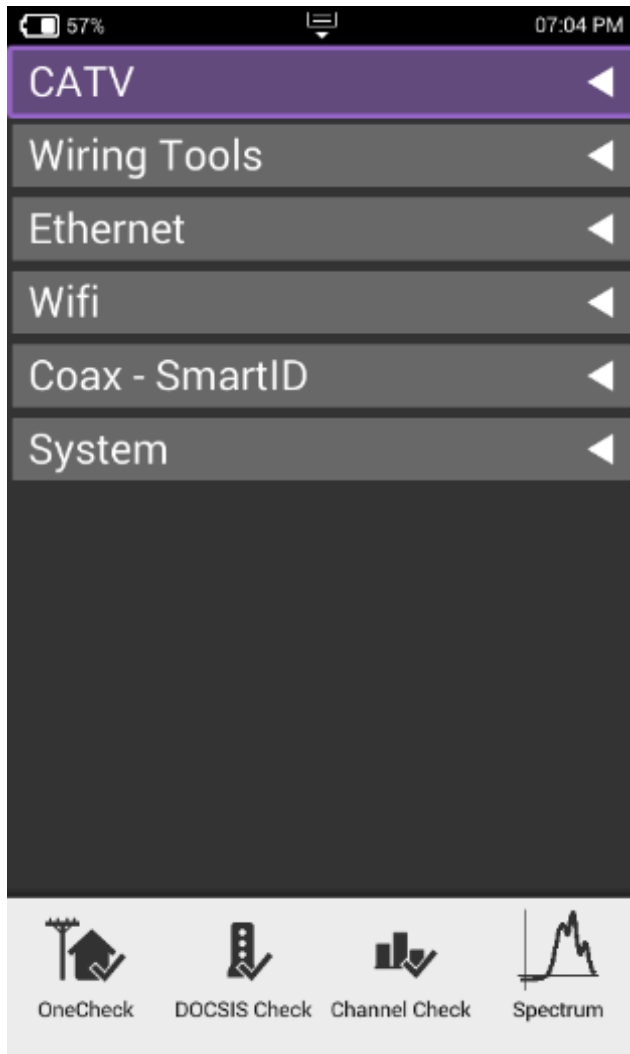
## COLLAPSIBLE MENUS

Each main item is a collapsible menu. Touch the triangle on the right (the triangle rotates from pointing left to pointing down) or use the arrow keys to highlight the menu item and then press the OK key.

## REARRANGING ICONS

- ✓ You can rearrange icons within a menu for tests or functions you use frequently.
- ✓ To rearrange icons inside a menu, touch and hold the icon and then drag it to the new location.

# Home Screen



- Home Screen** is default when ONX is turned on
- ✓ It can be reached by selecting the Home Screen button above the On/Off Button
  - ✓ Back Button also returns the user to the Home Screen

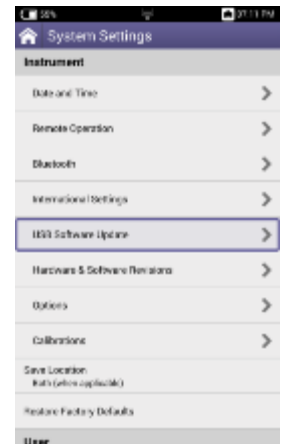
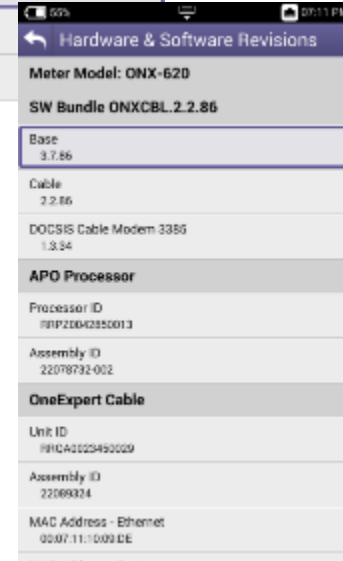
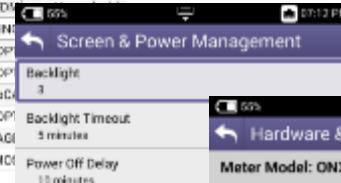
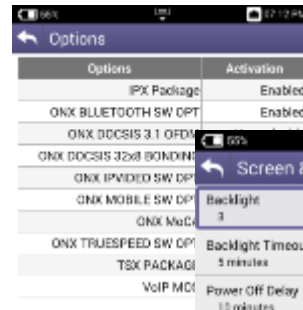
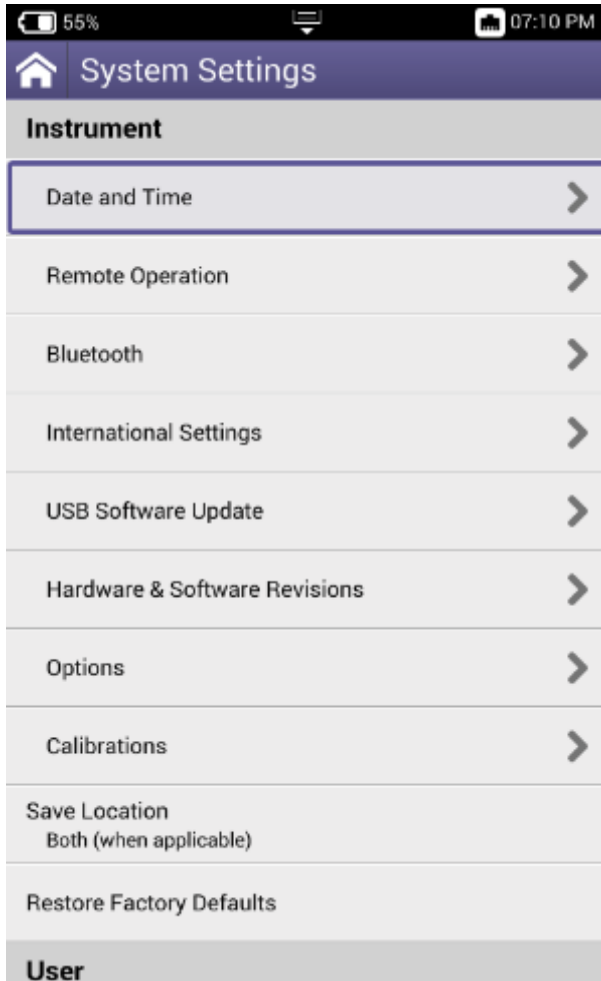
Each **Menu option** is labeled and can be opened or collapsed by the triangle buttons to the right

**Shortcuts** are located across the bottom and can be customized by selecting an icon and dragging it to the shortcut bar



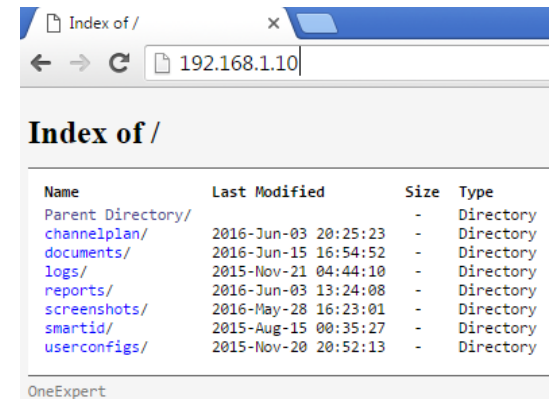
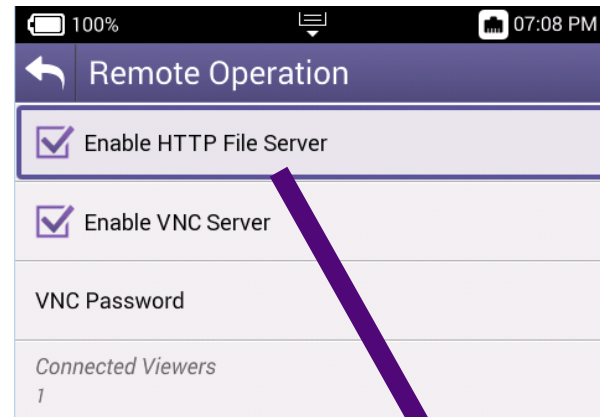
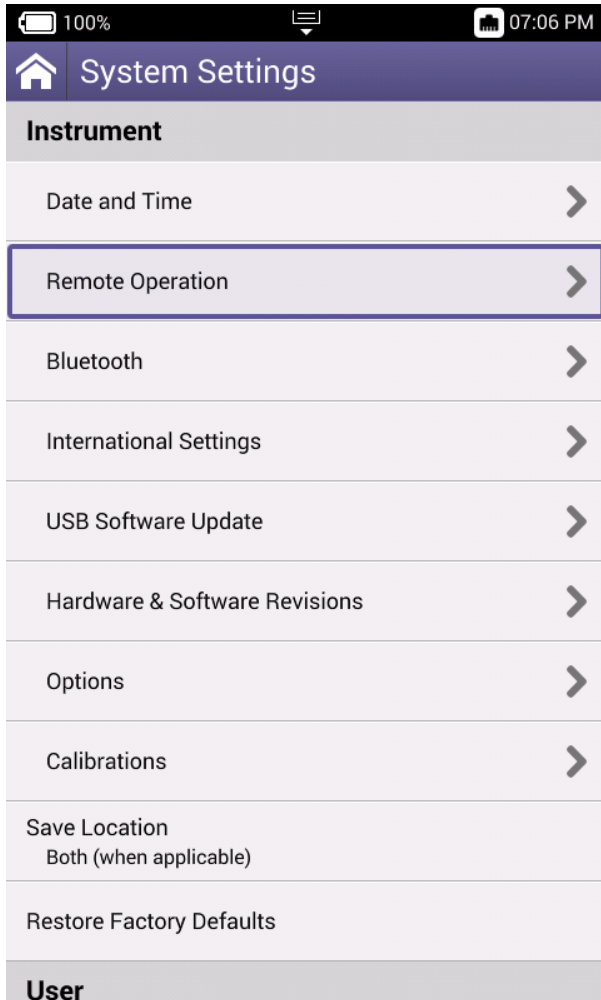
# System Settings

- ✓ **System Settings** menu offers the ability to
- ✓ turn on Remote Operation (via VNC Viewer),
- ✓ change power and screen settings,
- ✓ view Hardware and Software versions,
- ✓ view Options purchased with ONX 620 meter and
- ✓ complete USB Software updates

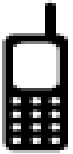


# System Settings – Remote Operation of ONX

- ✓ The ONX CATV support interoperability Via IP connection such as Tight VNC or VNC Viewer
- ✓ Under Systems Settings is **Remote Operation** allowing IP connection and control and also remote file browsing over HTTP



# OneExpert CATV – Mobile App



- **Remote Operations**

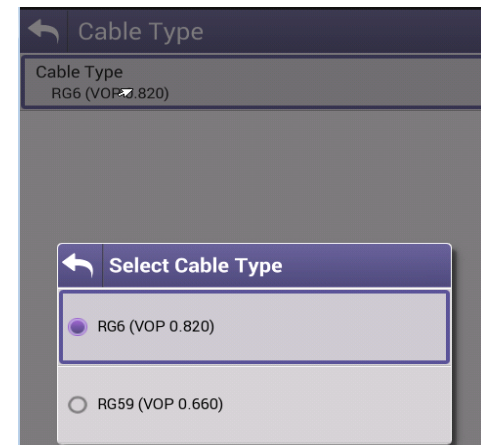
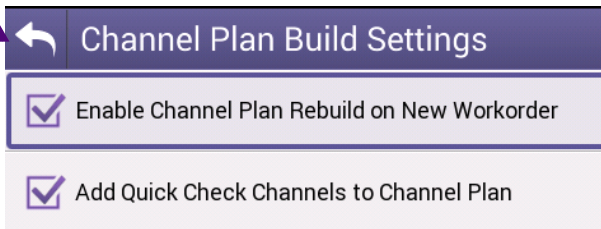
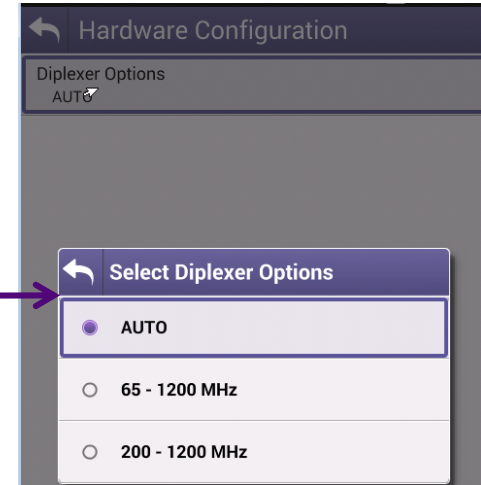
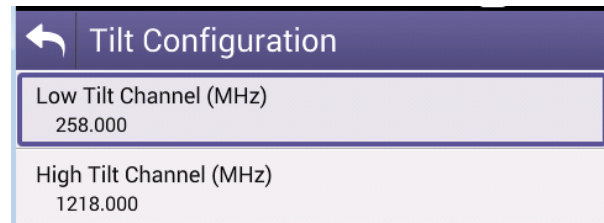
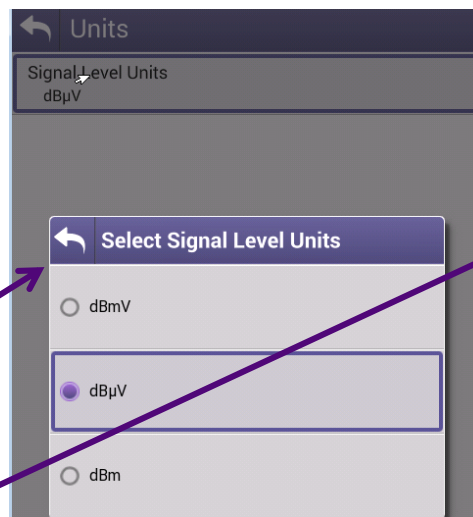
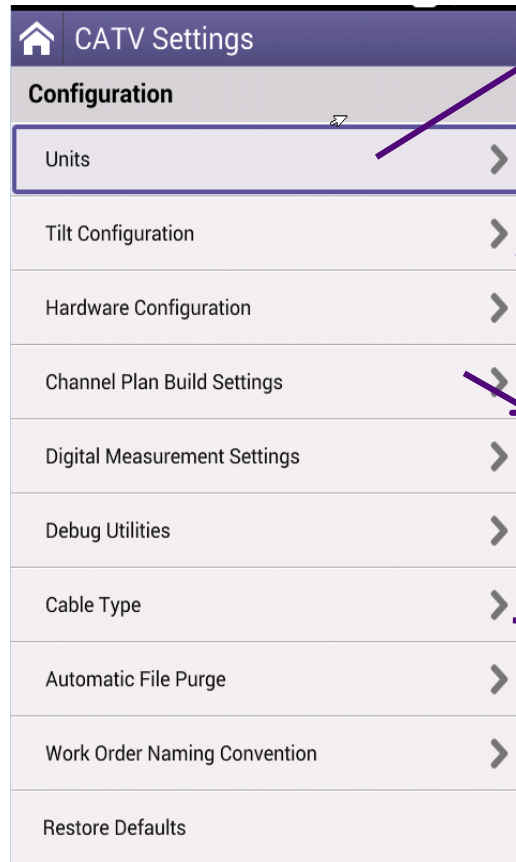
- All under one screen
- Troubleshoot faster & more efficiently
  - Fault & test point often at different locations
- Integrate with StrataSync

- **Technician Aids On App**

- Tutorials, videos, manuals
- Accessory guide



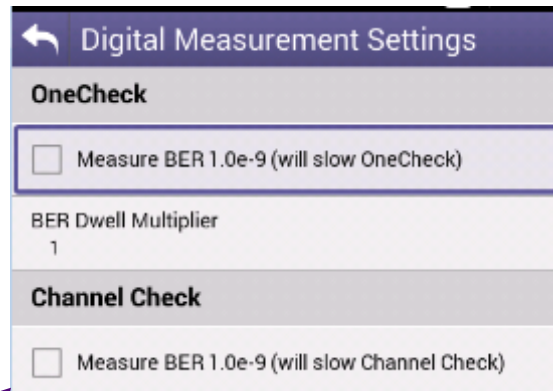
# CATV Settings



If the applicable setting is enabled, Quick Check CW channels are added to the channel plan build process. This should assist with discovery of any CW channels that are being missed or misidentified.

# CATV Settings

🏠 CATV Settings
<b>Configuration</b>
Units >
Tilt Configuration >
Hardware Configuration >
Channel Plan Build Settings >
<b>Digital Measurement Settings &gt;</b>
Debug Utilities >
Cable Type >
Automatic File Purge >
Work Order Naming Convention >
Restore Defaults



Digital Measurement Settings

**OneCheck**

Measure BER 1.0e-9 (will slow OneCheck)

BER Dwell Multiplier  
1

**Channel Check**

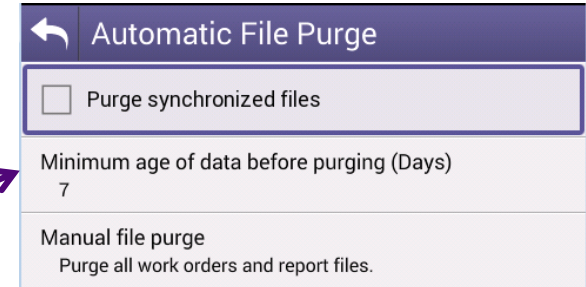
Measure BER 1.0e-9 (will slow Channel Check)

## OneCheck

- ✓ Measure BER 1.0e-9 setting can now be locked.
- ✓ BER dwell multiplier configuration has been added to make BER dwell time 1 - 10 times as long as normal.

## ChannelCheck

- ✓ Measure BER 1.0e-9 setting has been added to ChannelCheck.



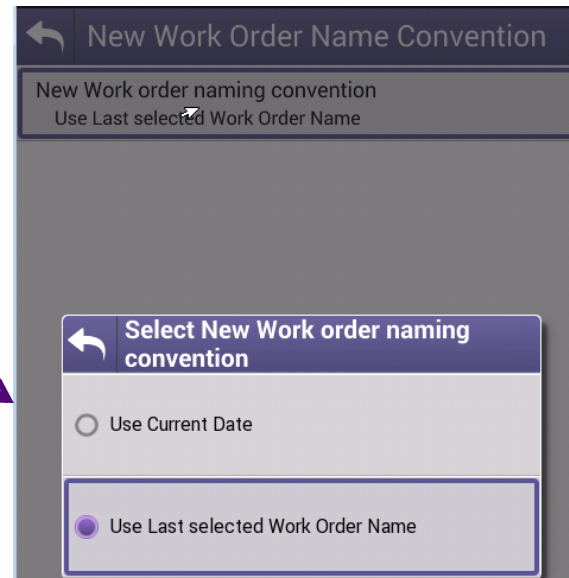
Automatic File Purge

Purge synchronized files

Minimum age of data before purging (Days)  
7

Manual file purge  
Purge all work orders and report files.

- ✓ StrataSync Workflow - **Auto-purge** functionality is now supported



New Work Order Name Convention

New Work order naming convention  
Use Last selected Work Order Name

**Select New Work order naming convention**

Use Current Date

Use Last selected Work Order Name

- ✓ **CATV Settings** now provides the option for default work order ID to be the last selected work order instead of "Work Order" with date/time stamp.

# ONX Calibration Certificate (StrataSync)

**Dashboard** | **Assets** | **Asset List** | Add a new asset

Asset class	Asset Type	Model	Unique ID	Actions
<input checked="" type="checkbox"/>	OneExpert CATV	ONX-630	RRQA0064760040	For 1 selected Check all Uncheck all View/Edit asset details View asset configuration

Asset List > Asset RRQA0064760040

ONX-630: S/N RRQA0064760040 **Save**

**Status**

Asset Status: Active

Firmware: 3.2.3  
Update Firmware

Enforced Firmware

HW Version: 22078732-002\_006

Add date: 1/18/17

ID: 211801

Calibration Date:

Last Sync Date: 1/24/17 17:40

Last Sync Status: OK

**Actions**

View Mainframe History  
View Configuration

**Most Recent Test Data**

1/24/17 17:40 Fail  
/cust/private/cable/sessions/session.Wor...  
1/24/17 17:40 None  
/cust/private/cable/sessions/session.Wor...  
1/24/17 17:40 None  
/cust/private/cable/sessions/session.Wor...  
1/24/17 17:40 None  
/cust/private/cable/sessions/session.Wor...  
1/24/17 17:40 Fail  
/cust/private/cable/sessions/session.Wor...  
View all tests of this device

**Sync History**

1/24/17 17:40  
Successful Sync. Downloaded [1 files, installing 20...  
1/24/17 17:33  
Successful Sync. Downloaded [1 files, totalling 20...  
1/24/17 17:29  
Successful Sync. Downloaded [1 files, totalling 20...  
1/24/17 17:29  
Successful Sync. Downloaded [1 files, totalling 20...  
1/24/17 17:25  
Successful Sync. Downloaded [1 files, totalling 20...  
View full Sync Log

**Documentation**

22090980ONX-CATV\_DoC\_21006\_signed.pdf  
22102698\_rev002\_China\_RoHS.pdf  
[calibration.pdf](#)  
22090980ONX-CATV\_DoCrev006\_signed.pdf  
22102698\_rev002\_China\_RoHS.pdf  
View more documents

**VIAVI** Certificate of Calibration

Model Number: ONX-CATV-031-S-6520-1212:OneExpert CATV-03.1 Sweep Ready  
Serial Number: RRQA0064760040  
PO Number: 066033230/00175  
Calibration Date: 12-02-2016

This certificate certifies that the material furnished, as listed above, has been manufactured and/or serviced to all applicable specifications.

Inspections and/or tests have been performed, as applicable, on both a variable and attribute basis. Equipment utilized for these tests has been calibrated in accordance with the requirements of SOMEC 17025:2005 and ISO 9001:2008. Test and/or inspection equipment used for calibration are traceable to standards set forth, maintained and established by the United States Department of Commerce, National Institute of Standards and Technology (NIST).

The VIAVI recommended calibration interval is one year unless otherwise specified.

VIAVI Solutions  
5806 Churchman Bypass  
Indianapolis, IN 46203



**VI.VI**

## **ONX CATV - SW Upgrade and Data Synchronization**

# ONX Software / Firmware Upgrades

- Software (SW) and Firmware (FW) releases are the best way to ensure your VIAVI OneExpert ONX is functioning at its best.
- VIAVI delivers SW and FW easily via **StrataSync** and **USB Stick**
- All ONX 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 Upgrade Process

UPDATE FIRMWARE - Choose an update package

When downloading a firmware package, please unzip and follow instructions in the "readme" file

Enforce Firmware Version

Package Name	Version	Release Date	Status	Language	Comments	Release Notes	Download Firmware
2.1.10	2.1.10	3/22/18	GA		ONXCBL.002.001.010.oxu ...		
2.1.9	2.1.9	3/3/16	GA		ONXCBL.002.001.009.oxu ...		

Next

1) Click here to download the newest firmware

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

3) 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

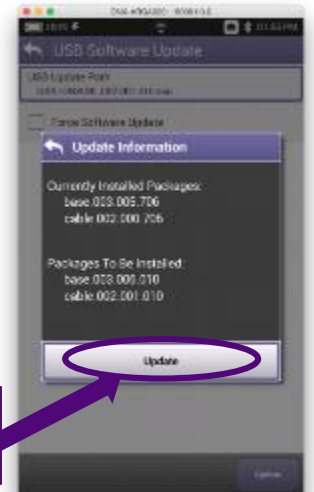
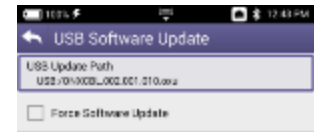
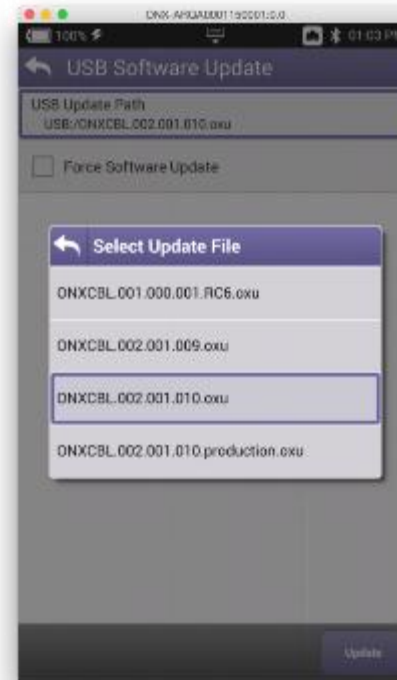
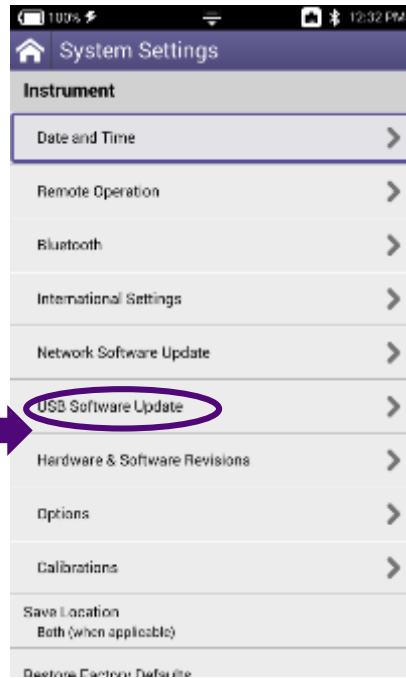
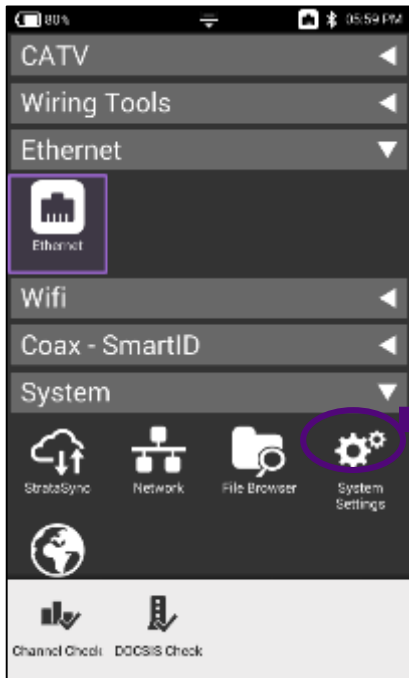
# USB Upgrade Process

- 1) Insert the thumb drive into either USB port on the side of the ONX. Then start System Settings

- 2) Select USB Software Update

- 3) At the popup, select the firmware image you wish to select for upgrade.

- 4) Press Update to start the upgrade



- 5) Press Update to confirm and start the upgrade. The meter will power off when the update is complete.

Note: Make sure you do not have an Ethernet cable plugged in when upgrading by USB

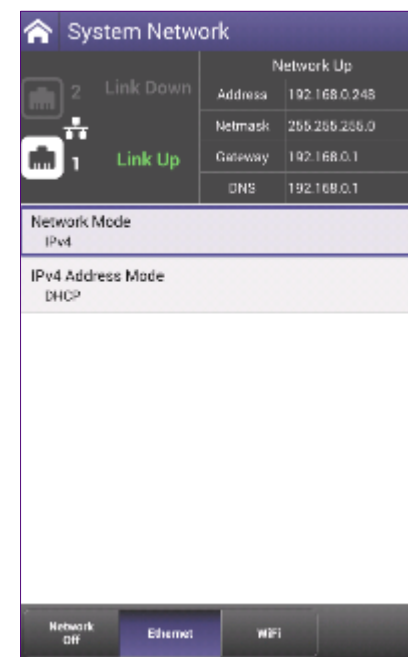
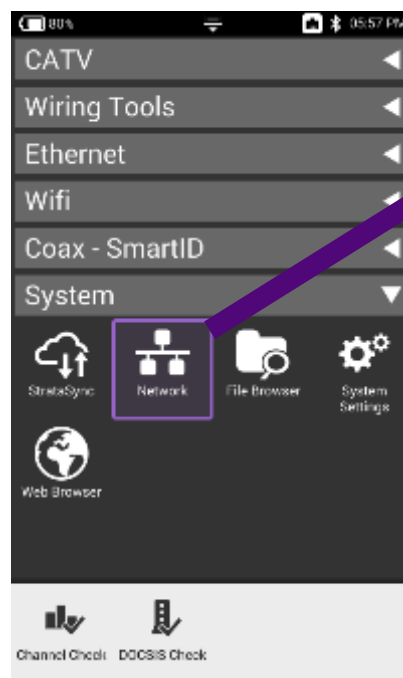
# StrataSync Synchronization

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

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



- 2) From the ONX home screen navigate to **System Menu** and select **Network** - Verify the ONX has a valid IP address\*

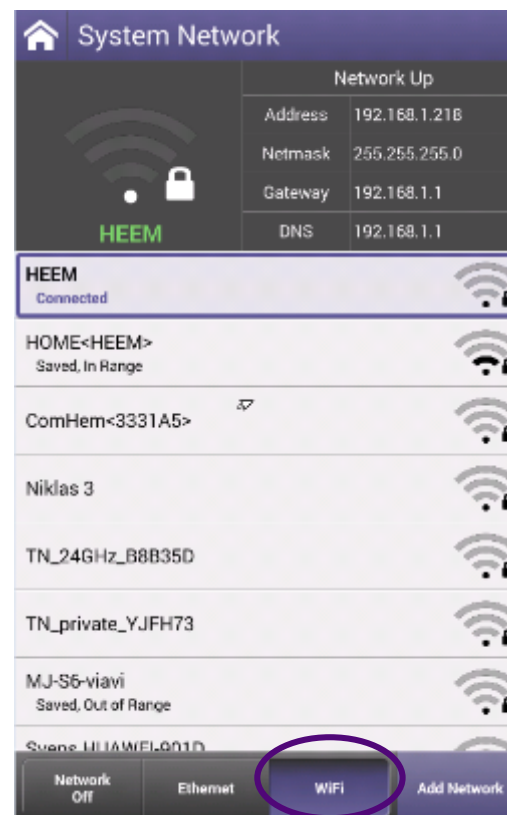


# StrataSync Synchronization

- 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.

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

2) From the ONX home screen navigate to **System Network / WiFi**- Verify the ONX has a valid IP address

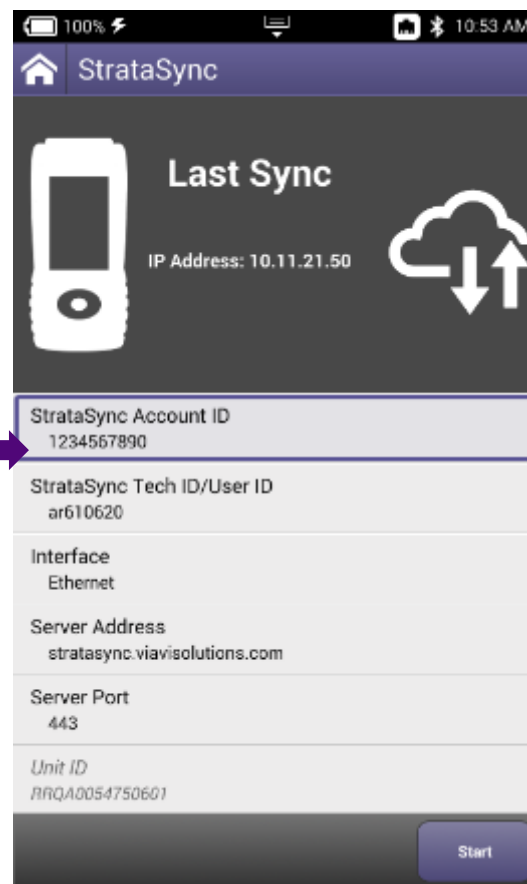


# StrataSync Synchronization

3) Back to the ONX Home Screen – navigate to the **System** Menu and select **StrataSync**



4) **StrataSync Account ID** = xxxxxxxxxx  
**Interface\*** = Ethernet  
**Server Address** = stratasync.jdsu.com  
(stratasync.viavisolutions.com also works)  
**Server Port** = 443

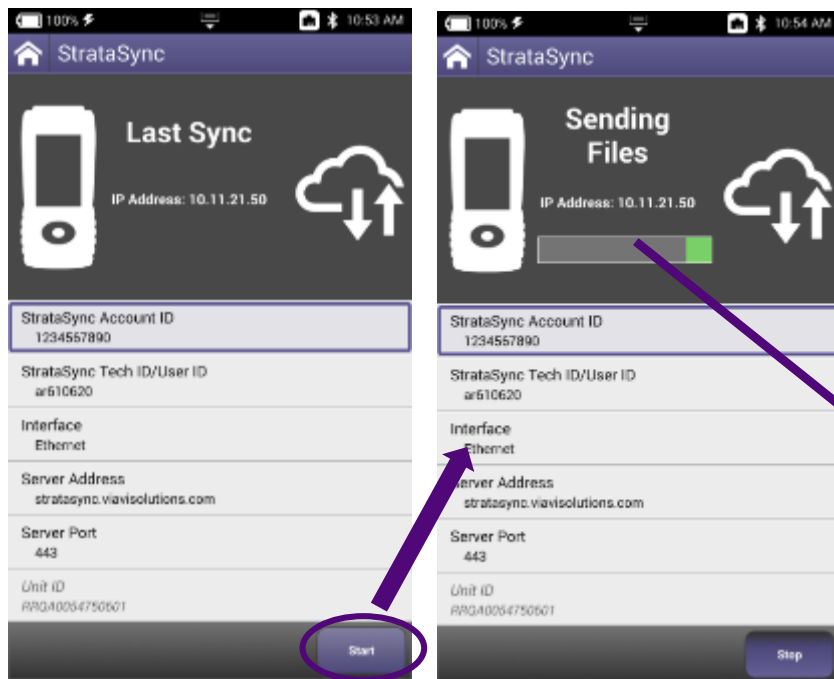


\*If the “Interface” is set to DOCSIS the firmware update will be skipped with no other warning.

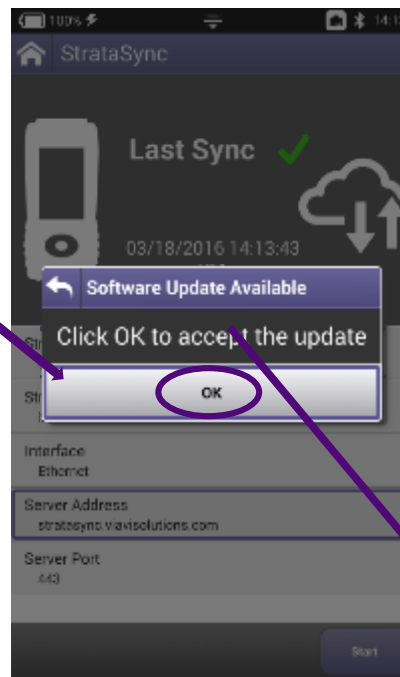
Also this “Interface” selection does not determine if the StrataSync communication is performed over the Ethernet or RF/DOCSIS. To Sync via RF Port 1 please use the “Connection” app in the CATV section at the top of the Home screen to establish a live connection with the CMTS prior to syncing to StataSync.

# Firmware Update Via StrataSync

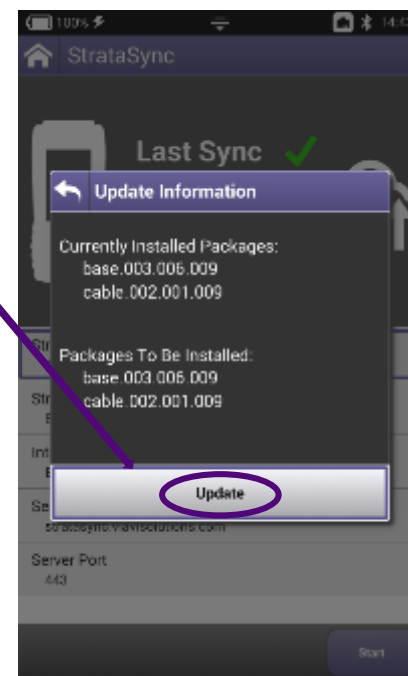
5) Select **Start**



6) ONX will connect to StrataSync and determine there is a “Software Update Available” - Select **OK**.



7) Software packages will be confirmed – Select **Update**



**NOTE:** SW update will proceed. The unit will Power off completely after completion. Update process will take 10-15 minutes based on the size of the update file and connection speed

The ONX will require that it is plugged into AC power or above 50% battery life prior to updating



# Troubleshooting the ONX FW/SW Upgrade Process

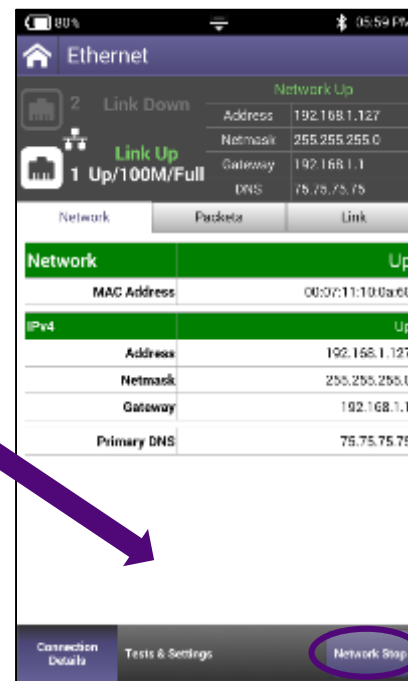
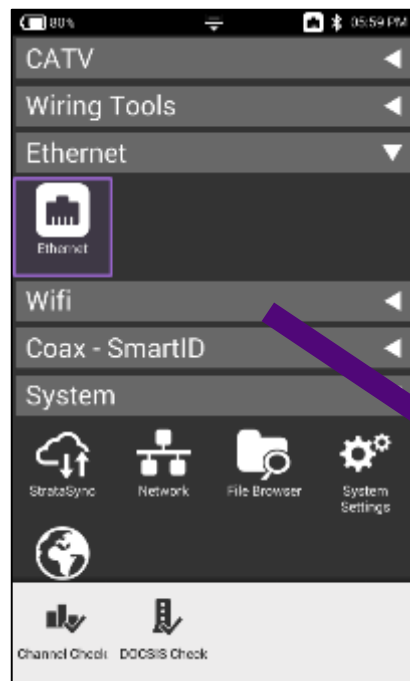
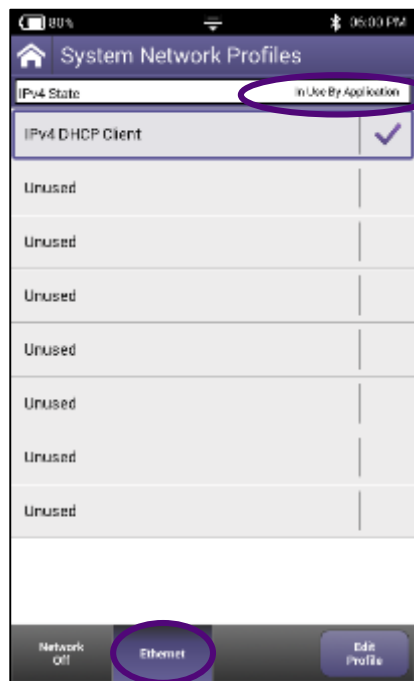
## ■ No IP address

1) Confirm the Ethernet port is turned on by selecting the **Ethernet** option at the bottom

2) If the IPv4 State = "In Use By Application" – From the Home Screen and navigate to the **Ethernet** menu – Select **Ethernet**

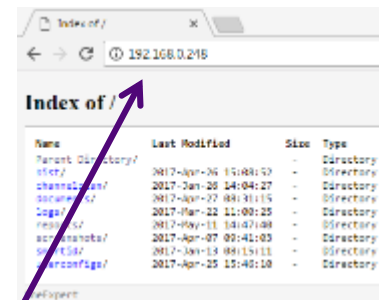
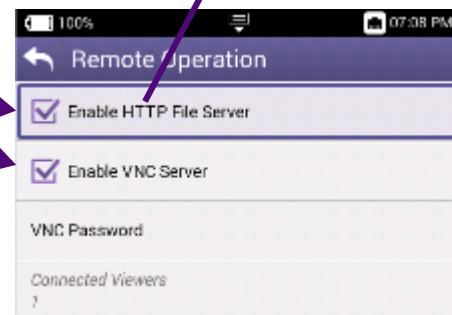
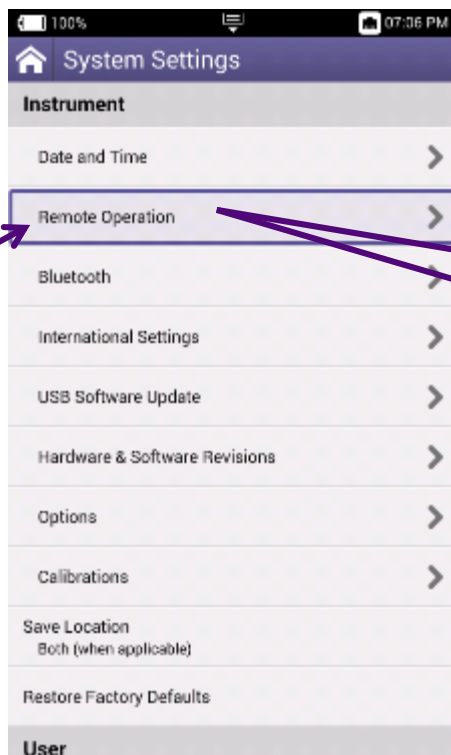
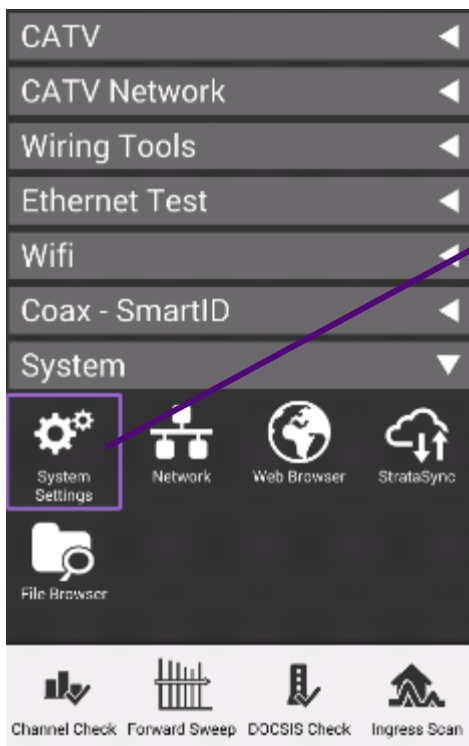
3) Select the **Network Stop** button at the bottom – This dis associates the Ethernet port with the Ethernet testing function

4) Press the **Back** button and Power Cycle the Meter



\*When the meter returns to the Home screen start from Step 1 at the beginning of this document

# System Settings – Remote Operation of ONX



**VI.VI**

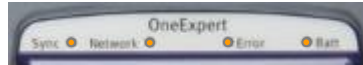
**ONX CATV - Engineering Mode**

# ONX Demo mode (Simulator Settings)

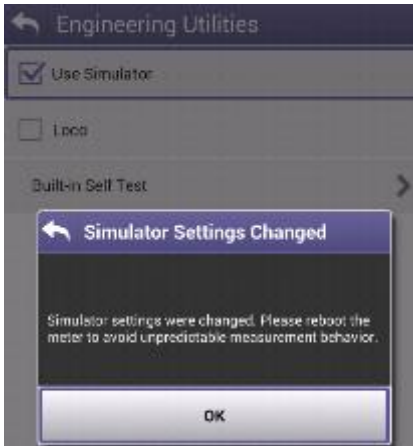


## Enable Demo mode:

1. The unit is switch off
2. Press and hold the Tray key
3. Press shortly the Power on key
4. Hold the Tray key until the for top led are orange (takes about 3sec)



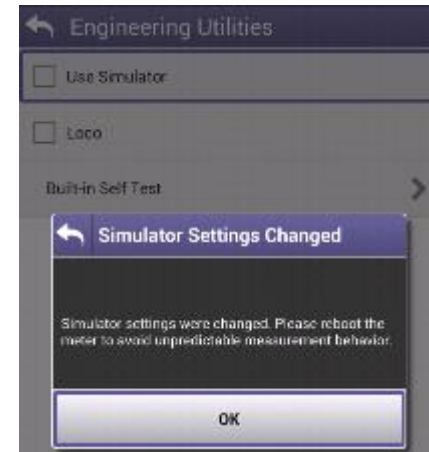
5. Release the Tray key
6. Go in CATV setting and select Engineering Utilities
7. Select "Use Simulator"
8. Reboot the unit



**IMPORT: NEVER  
UPGRADE A ONX  
CATV in Demo Mode !**

## Disable Demo mode:

1. The unit is switch off
2. Press and hold the Tray key
3. Press shortly the Power on key
4. Hold the Tray key until the for top led are orange (takes about 3sec)
5. Release the Tray key
6. Go in CATV setting and select Engineering Utilities
7. Unselect "Use Simulator"
8. Reboot the unit



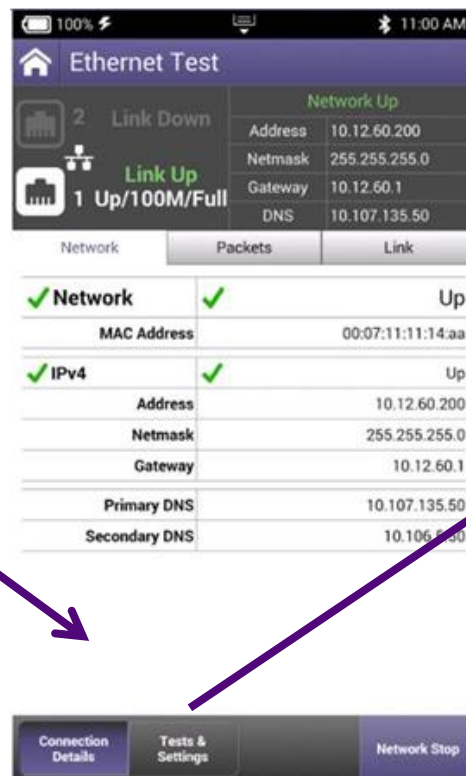
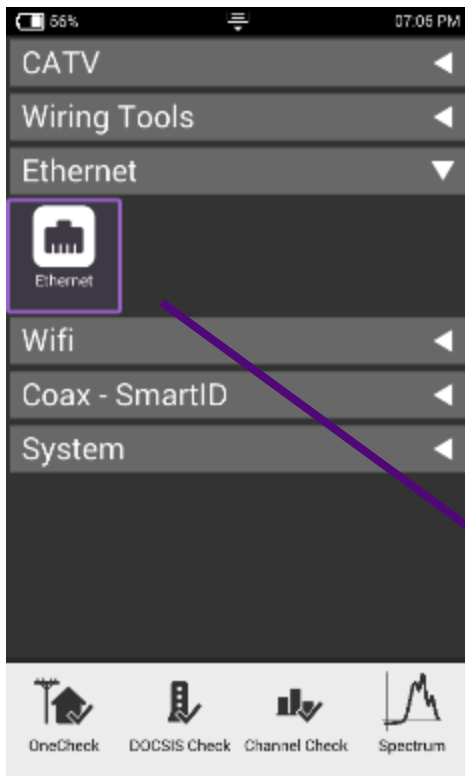


## **30 - ONX CATV - Ethernet Testing**

# Ethernet – Tests and Settings



From Home Screen, select Ethernet  
✓ Once Network Up is indicated with green, select Test and Settings



# Ethernet – Speed Check

The screenshots illustrate the process of configuring and running an Ethernet speed test. The first screenshot shows the 'Ethernet Test' menu with 'Speed Check' circled. The second screenshot shows the 'Ethernet Throughput Settings' screen with the URL 'http://CATVSpeedTest.viavisolutions.com/bigfile.zip' circled. The third screenshot shows the 'Speed Check' screen with a gauge and a table of results. The fourth screenshot shows the 'Start' button circled.

Download	Upload
URL: http://69.102.31.10/OMB.bin	URL: http://69.252.133.10/OMB.bin
<b>604.59 Mbps</b>	<b>41.44 Mbps</b>

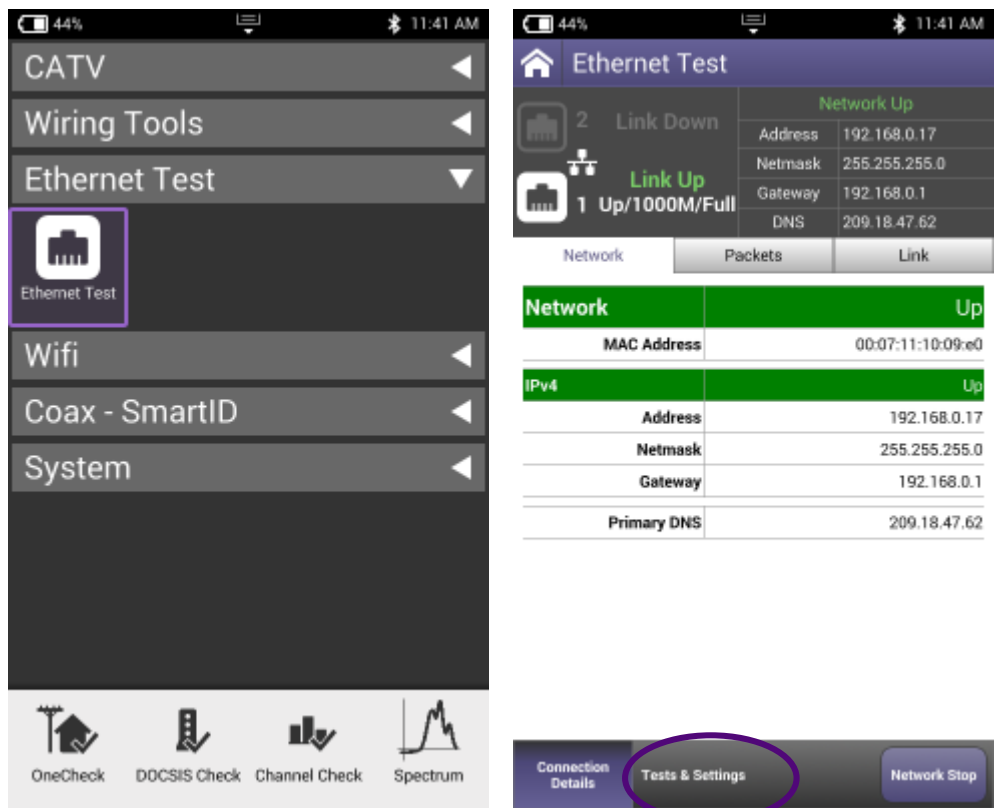
Download	Upload
URL: http://CATVSpeedTest.viavisolutions.com/bigfile.zip	URL: http://CATVSpeedTest.viavisolutions.com/bigfile.zip
<b>4.87 Mbps</b>	<b>648.84 kbps</b>

• 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 change, the file name need to be the same: bigfile.zip

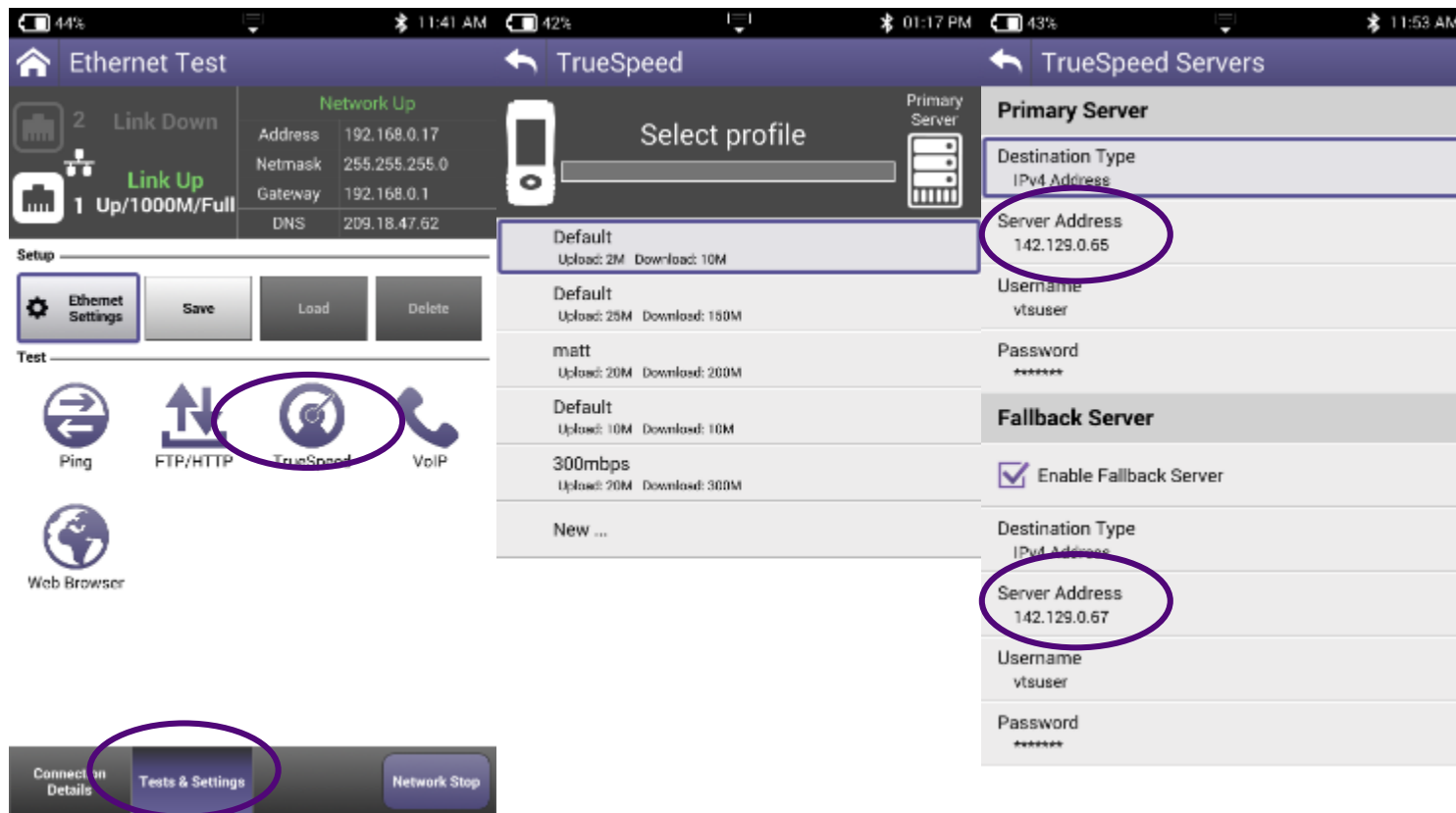


# TrueSpeed Setup

- TrueSpeed can be found under Tests and Settings and REQUIRES TrueSpeed VNF Server IP Address



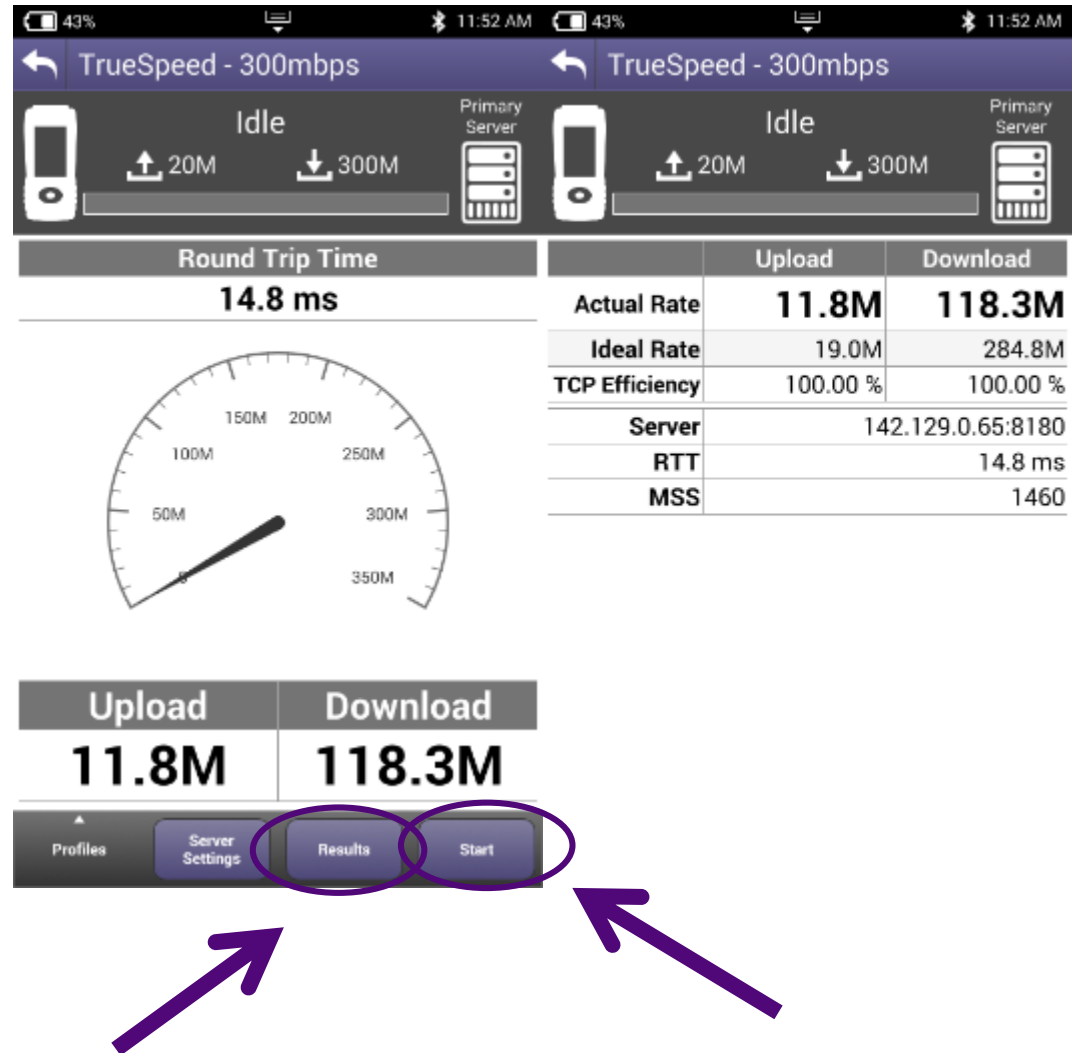
# TrueSpeed Setup



- 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

# TrueSpeed Results

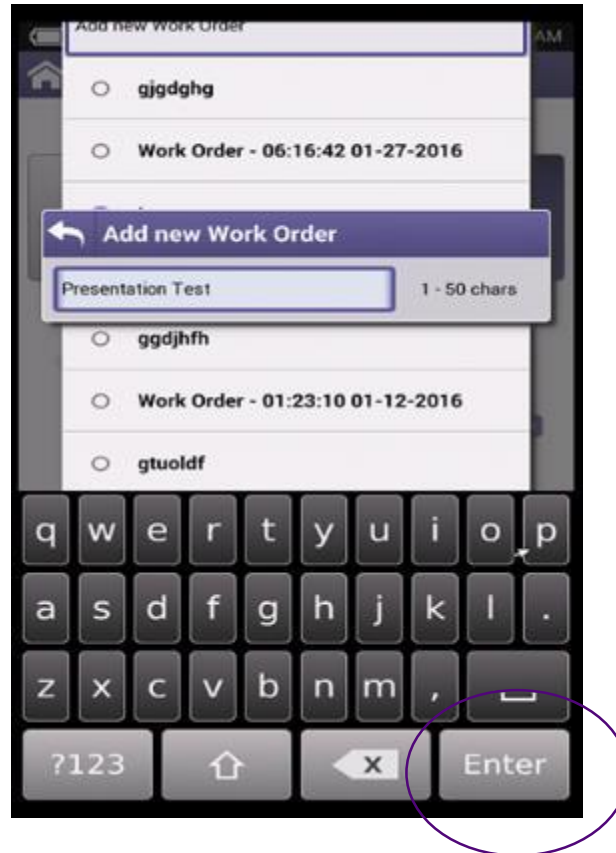
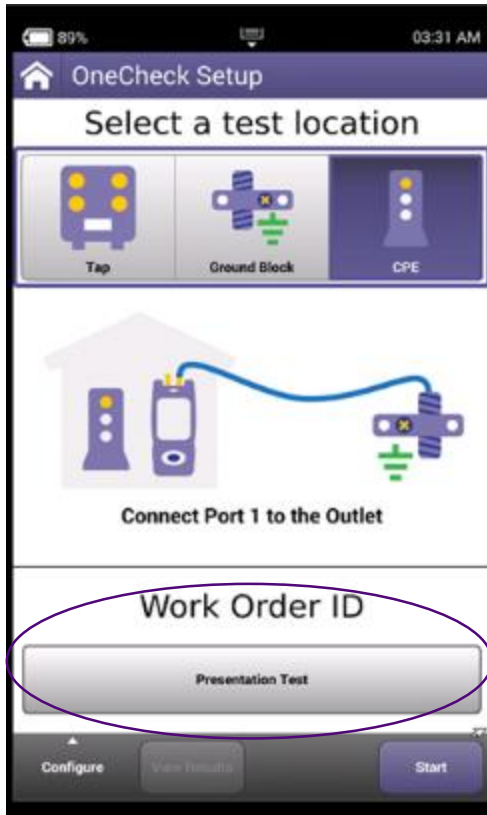
- After test completes, Results are displayed as either the Speedometer or an a simple list



**VI.VI**

**ONX CATV - Testing**

# Work Order ID Creation and Management



- ✓ Entering Work Order ID enables test correlation and faster Auto channel plan build functionality
- ✓ Entering a Work Order ID is optional
- ✓ If Work Order ID is not entered before a test is started in a new location (different channel plan area), the unit will display error below. Press Clear Session to ignore and run test.



Incompatible Channel Plan Detected

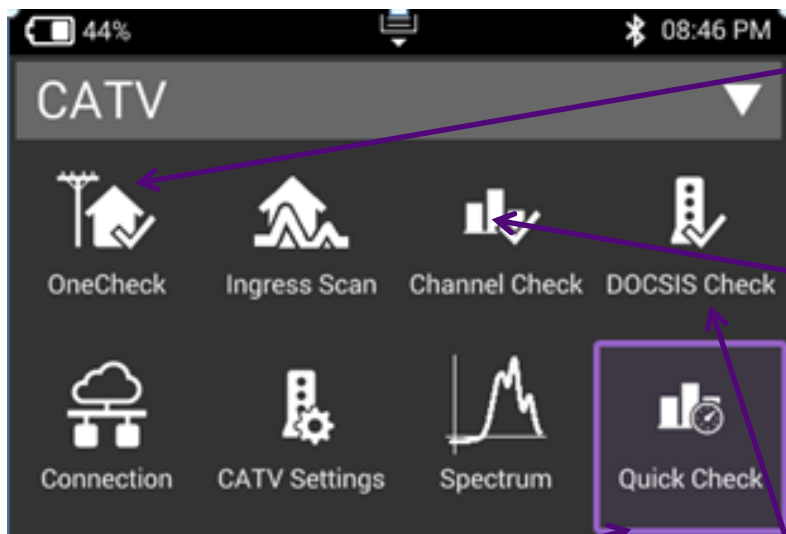


This Work Order ID already has a channel plan that is incompatible with the detected channel plan.

Choose Configure to return to the Setup page to create a new Work Order ID.



# CATV Testing on the OneExpert CATV



## OneCheck

- ✓ Comprehensive and automated testing of Ingress, Downstream & DOCSIS with Session Expert™ to help resolve problems

## ChannelCheck

- ✓ Real-time analysis and powerful troubleshooting of downstream carriers
- ✓ Analyze OFDM carriers including analysis of multiple DS profiles
- ✓ Use ChannelCheck to quickly check levels and signal performance

## DOCSIS Check

- ✓ Real-time analysis of DOCSIS services
- ✓ Only shows the DOCSIS carriers to allow you to focus on HSD services
- ✓ Troubleshoot and analyze Downstream and Upstream DOCSIS carriers including OFDM and channel bonding

## QuickCheck

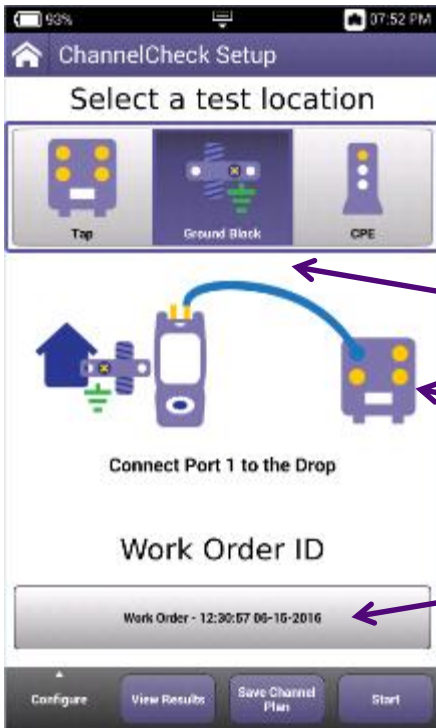
- ✓ Use QuickCheck to see a small number of manually added channels and quickly determine if signal is present

# Testing Workflow with the OneExpert CATV

## Test Flow

### Choose your test to run:

Each test asks for basic information prior to running



Choose current test location

Connect the meter properly

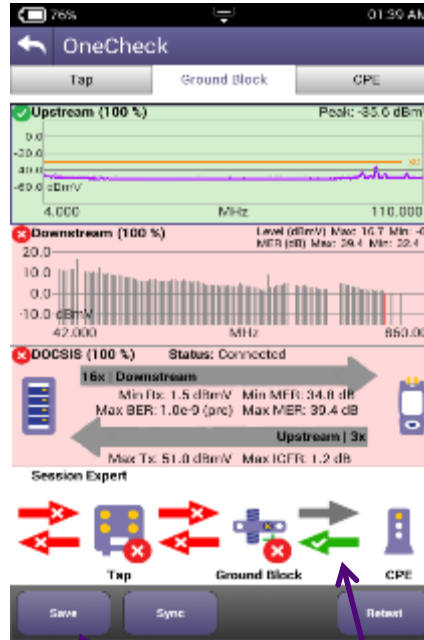
Input a unique Work order/job identifier for each household  
This is important since ONX uses test data at each location for data analysis (Default will be current date and time stamp)



## Test Results

### OneCheck

Provides dashboard with drill down results

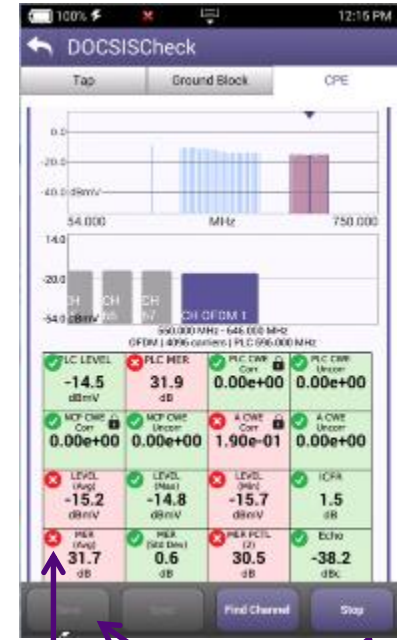


OneCheck will automatically save the last run test. Hit Save and give a new name if you want to capture a specific result prior to Retesting

Tap on a panel to drill down to detailed results

### ChannelCheck & DOCSIS Check

Provides live analysis



Hit Stop and then Save if you want to capture live data results

Based upon limit set downloaded into the ONX through StrataSync determines a Pass or Fail, at each test location Session Expert determines downstream or upstream issue.

**VI.VI**

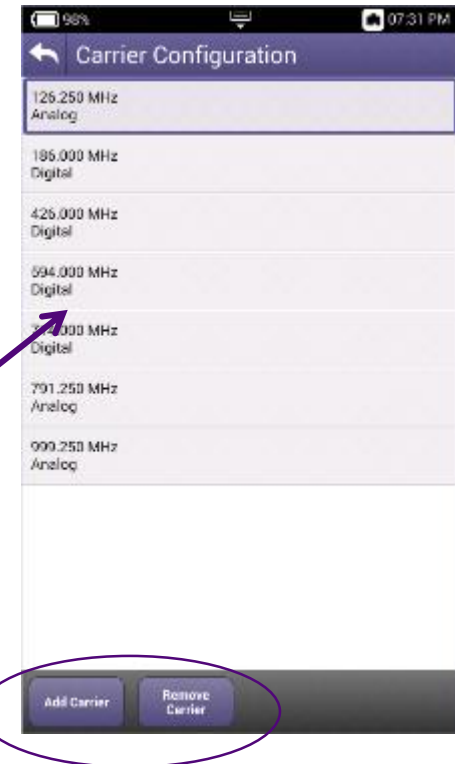
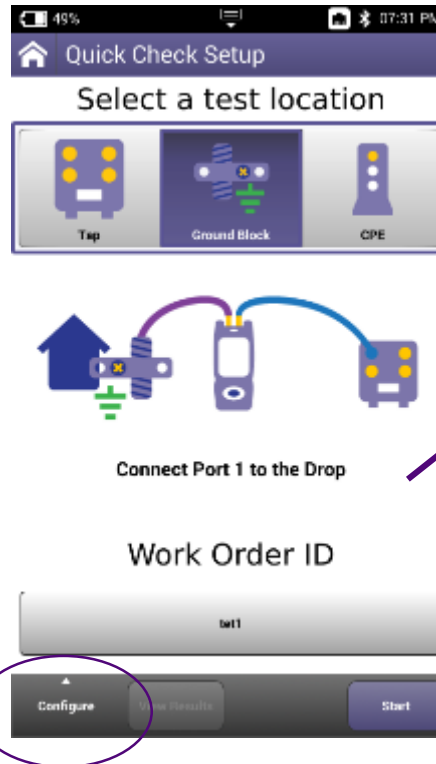
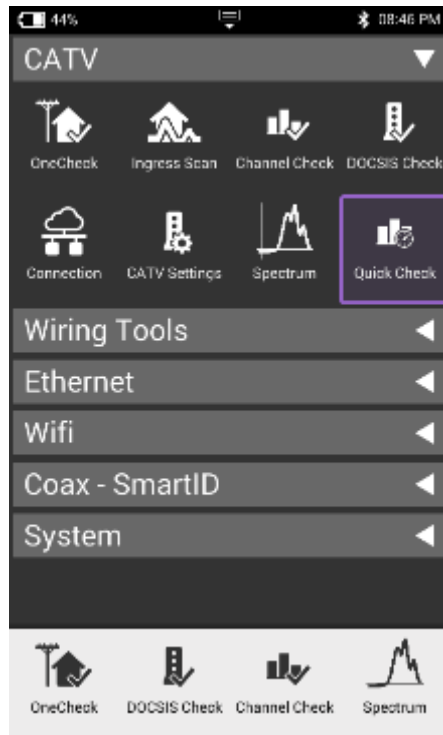
**ONX CATV – Quick Check**



# Quick Check Setup

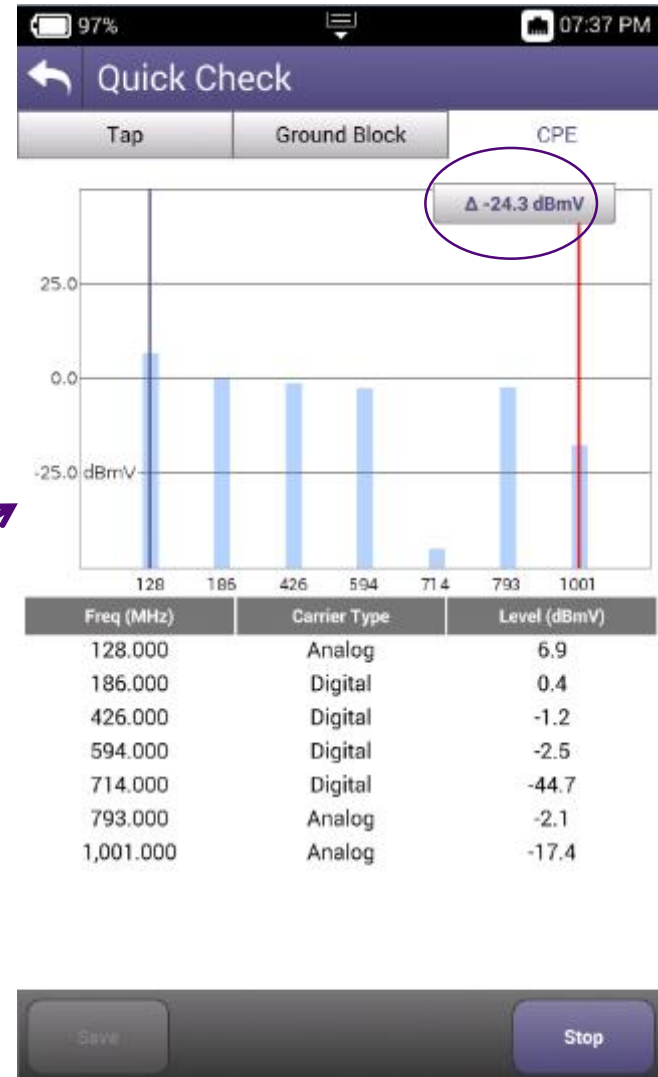
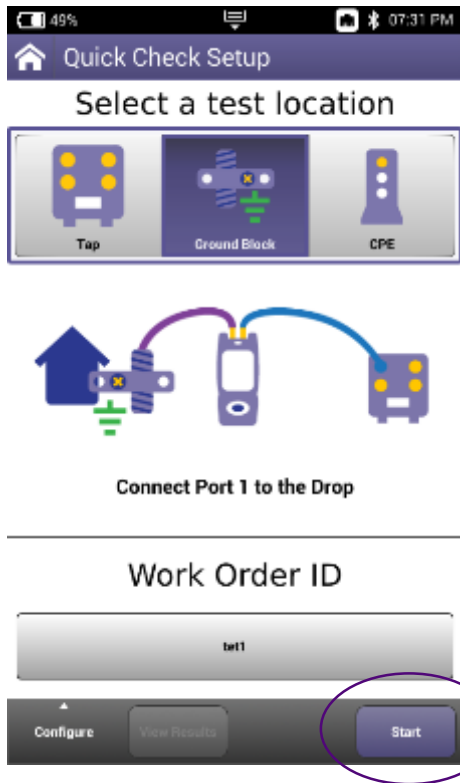
Use **QuickCheck** to see a small number of manually added channels and quickly determine if signal is present

- ✓ Enter Work Order ID and choose demarcation point and press Start
- ✓ Navigate the Results Screen (shown to the right) using touchscreen or Directional Buttons



- ✓ Add/remove frequency and type of carrier

# QuickCheck Results



**VI.VI**

**ONX CATV – Channel Expert**

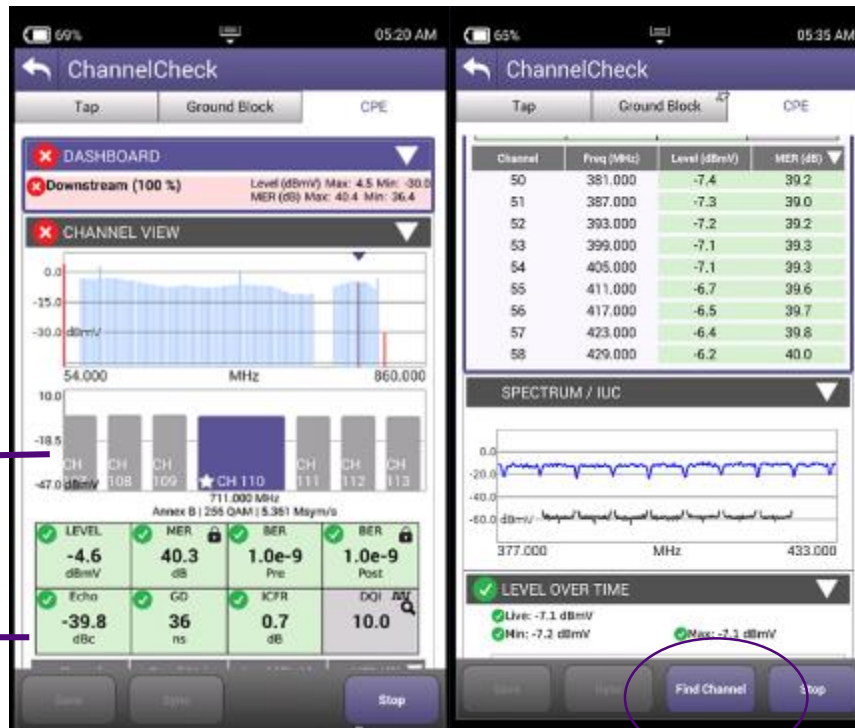
# Channel Expert Results

Dashboard  
Level, MER, Deviation

Full Scan

Adjacent channels  
and channel under  
test

Measurements



Adjacent channels  
table

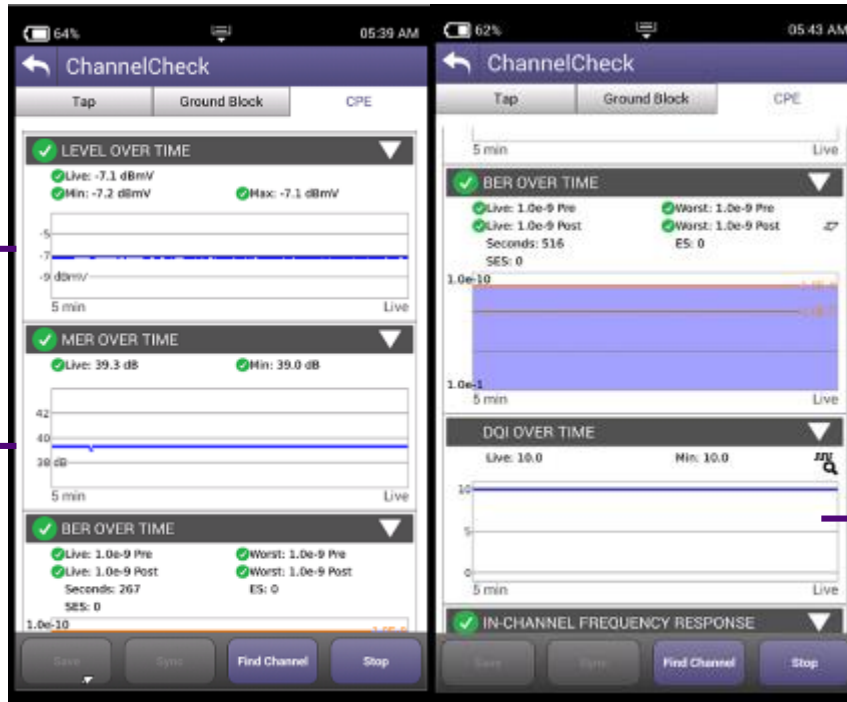
Live spectral data  
including Ingress  
under channel

Find channel

Note: Find Channel should be entered as "4" and not "04"

Note: All results are live updated every time channel under test is changed

# Channel Check Results



Level Over Time ←

MER Over Time ←

→ BER, Pre and Post, over Time

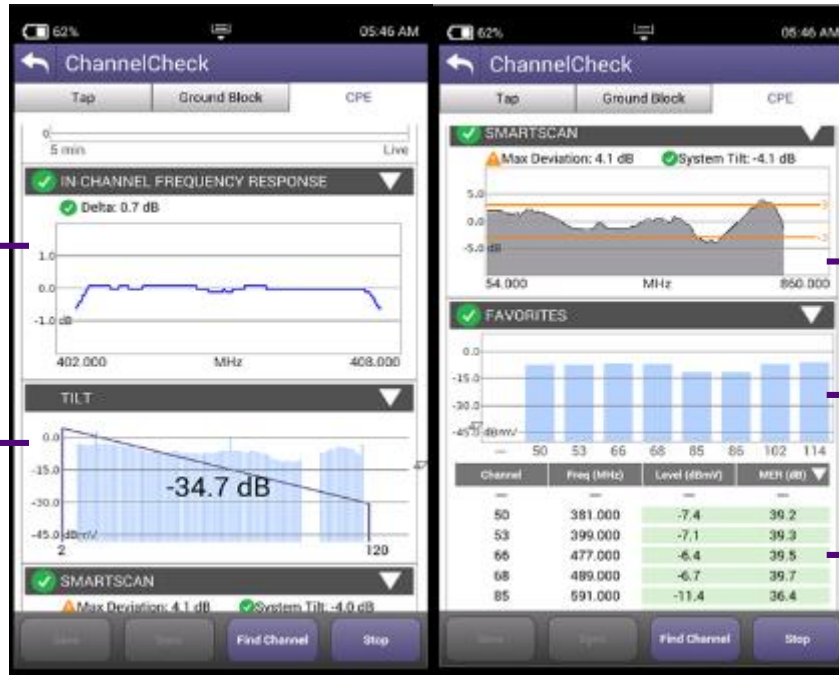
→ DQI Over Time

# Channel Expert Results

ICFR



Tilt



Smartscan



Graph View of Favorites



Table View of Favorites



# Channel Expert Results

Favorite selection in **Channel View**

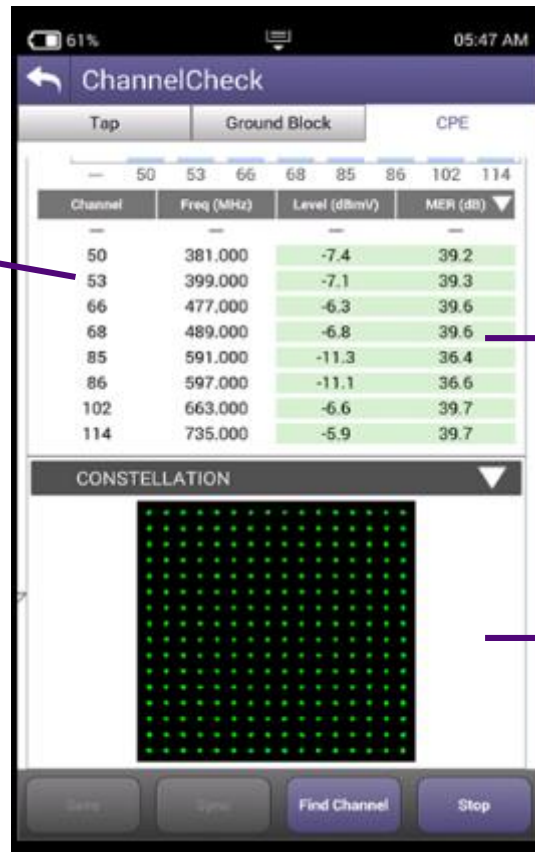
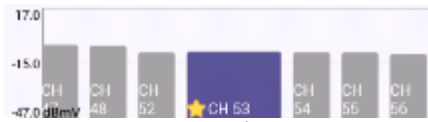
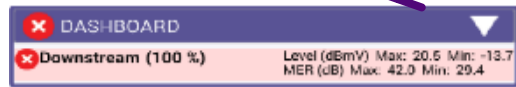


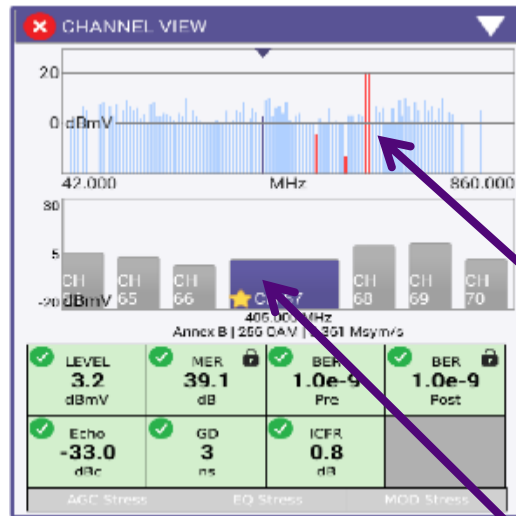
Table View of **Favorites**

**Constellation**

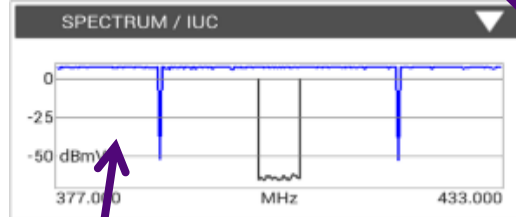
# Channel Expert Details



**Dashboard** shows progress and key metrics of best and worst carriers

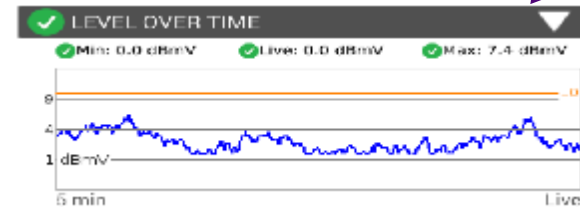


**Full Scan view** highlights problems in the lineup. Touch Screen capability allows quick access to troubled carriers

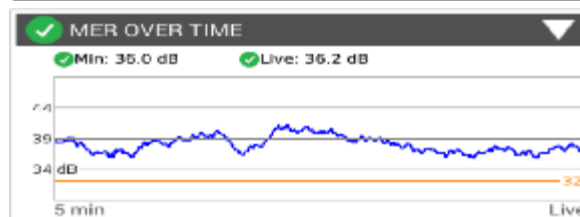


VIAVI Exclusive **Spectrum** view with embedded **Ingress Under the Carrier** trace

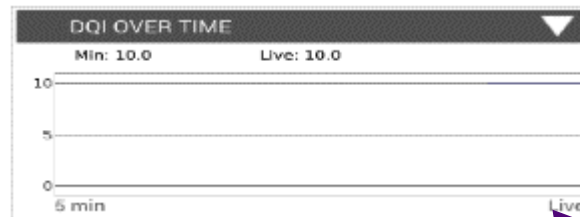
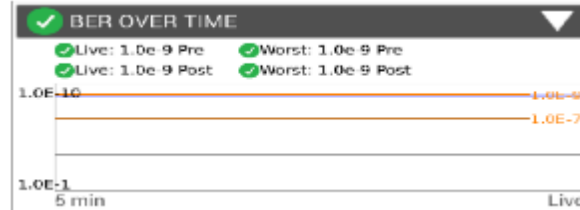
Familiar “swipe” navigation provides access to individual channel details



**Level over time** shows plant fluctuations



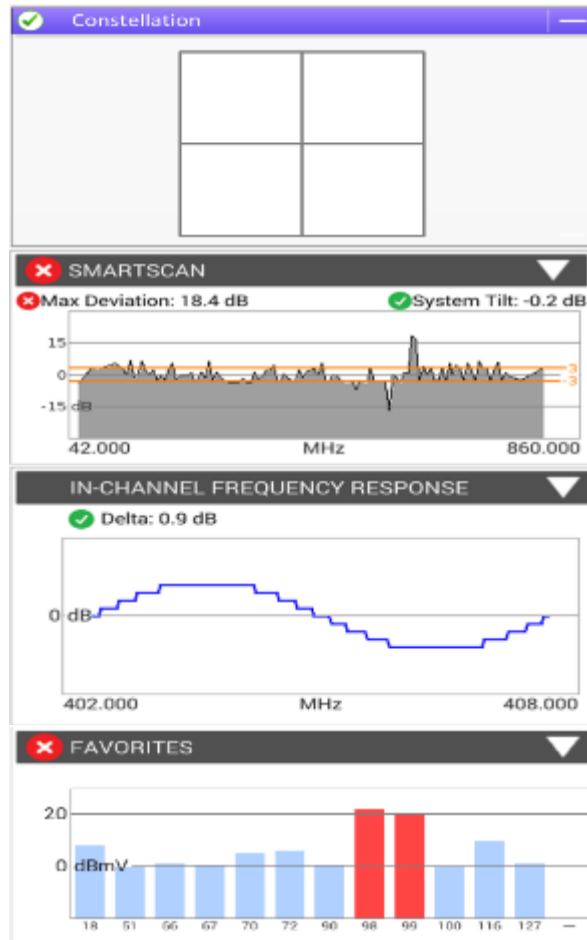
**MER & BER over time** identify traditional carrier performance issues



**DQI over time** identifies intermittent issues



# Channel Expert Details



BIT

← **Constellation** measurement helps identify noise problems and interferers

T

← **SmartScan** simplifies system analysis by taking out the effects of tilt and different carrier types at TAP, GB and CPE

T

← **ICFR** highlights roll-off and suck-out problems within a downstream carrier

BIT

← **Favorites view** provides technicians with a quick mini-scan of critical carriers

**VI.VI**

**ONX CATV – DOCSIS Expert**

# DOCSIS Expert Results

Dashboard

Downstream bonded DOCSIS Channels

Adjacent Channels and channel under test



Level Over Time

MER Over Time

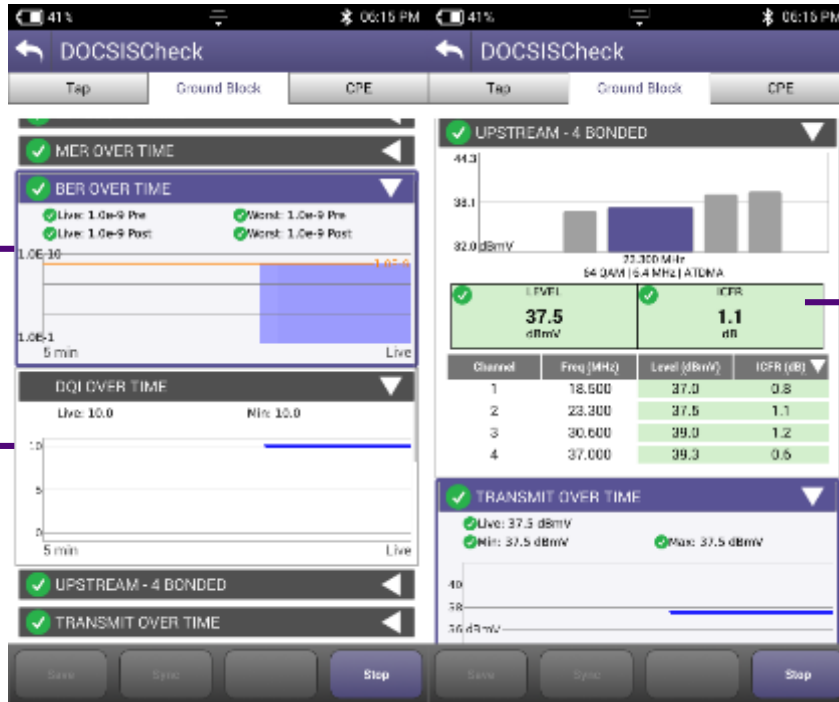
Note: All results are live updated every time channel under test is changed

# DOCSIS Expert Results

BER Over Time



DQI Over Time



Upstream bonded DOCSIS Carriers

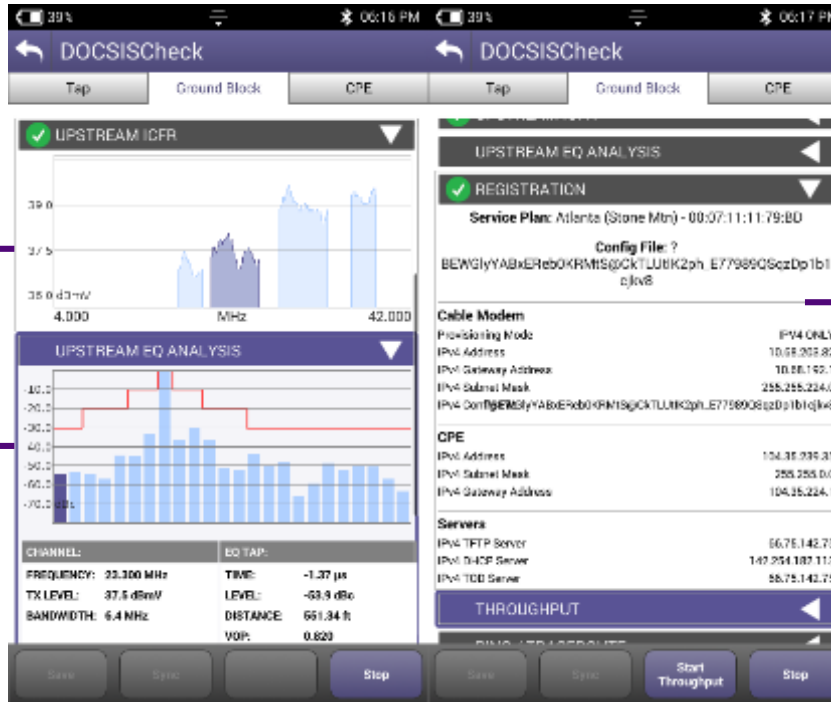


Transmit Over Time (based on Upstream carrier under test)



Note: All results are live updated every time channel under test is changed

# DOCSIS Expert Results



Upstream ICFR Across all Bonded Carriers

Upstream EQ Analysis with Footage to Impedance Mismatch

DOCSIS Registration and Config File Info @IP

- ✓ Cable Modem
- ✓ CPE
- ✓ Servers

Note: All results are live updated every time channel under test is changed

# DOCSIS Expert Results

**DOCSIS Throughput**  
Setup configuration  
via StrataSync

**Ping/Traceroute**  
Test over  
DOCSIS

The screenshot shows the DOCSISCheck application interface. At the top, there are tabs for 'Tap', 'Ground Block', and 'CPE'. The main content area is split into three vertical panels. The left panel shows 'THROUGHPUT (100 %)' with a 'Downstream URL: http://62.249.66.100/02a.tiff'. It features two gauges: 'Receive' at 210.36 Mbps and 'Send' at 16.86 Mbps. The middle panel is titled 'PING / TRACEROUTE' and contains a table with columns 'Current', 'Minimum', 'Average', and 'Maximum' for 'Delay (ms)'. The right panel is titled 'PACKET QUALITY' and contains a table with columns 'Sent' and 'Loss' for 'Packet Loss', 'Max Round Trip Delay', and 'Max Jitter'. Below these panels are buttons for 'Start Throughput', 'Start Packet Quality', and 'Start Pass Through Cable Modem'. At the bottom, there are buttons for 'Open Ping' and 'Start Packet Quality', both of which are circled in purple. A 'Test Console' window at the bottom left displays the following text:

```

Test Console
traceroute to google.com (74.125.239.130), 64 hops max, 52
byte packets
 1 10.11.36.1 (10.11.36.1) 2.678 ms 1.954 ms 8.754 ms
 2 10.11.34.2 (10.11.34.2) 1.069 ms 0.748 ms 0.737 ms
 3 10.251.5.138 (10.251.5.138) 3.961 ms 4.535 ms 2.788 ms
 4 10.251.5.18 (10.251.5.18) 75.526 ms 27.764 ms 38.394 ms
 5 10.251.5.17 (10.251.5.17) 31.731 ms 31.183 ms 33.595 ms
 6 10.10.64.4 (10.10.64.4) 32.054 ms 32.009 ms 31.680 ms
 7 10.10.64.1 (10.10.64.1) 32.123 ms 31.878 ms 32.113 ms
    
```

	Current	Minimum	Average	Maximum
Delay (ms)	134.98	153.43	98.00	320.21
Destination				
Echoes Sent				50
Replies Returned				48
Replies Lost				2
Replies Lost %				4.00%
Echoes Received				48
Message				OK

Packet Quality		
Packet Loss	1000 Sent	10.8 % Loss
Round Trip Delay	80 ms	
Jitter	12 ms	

**Packet Quality**

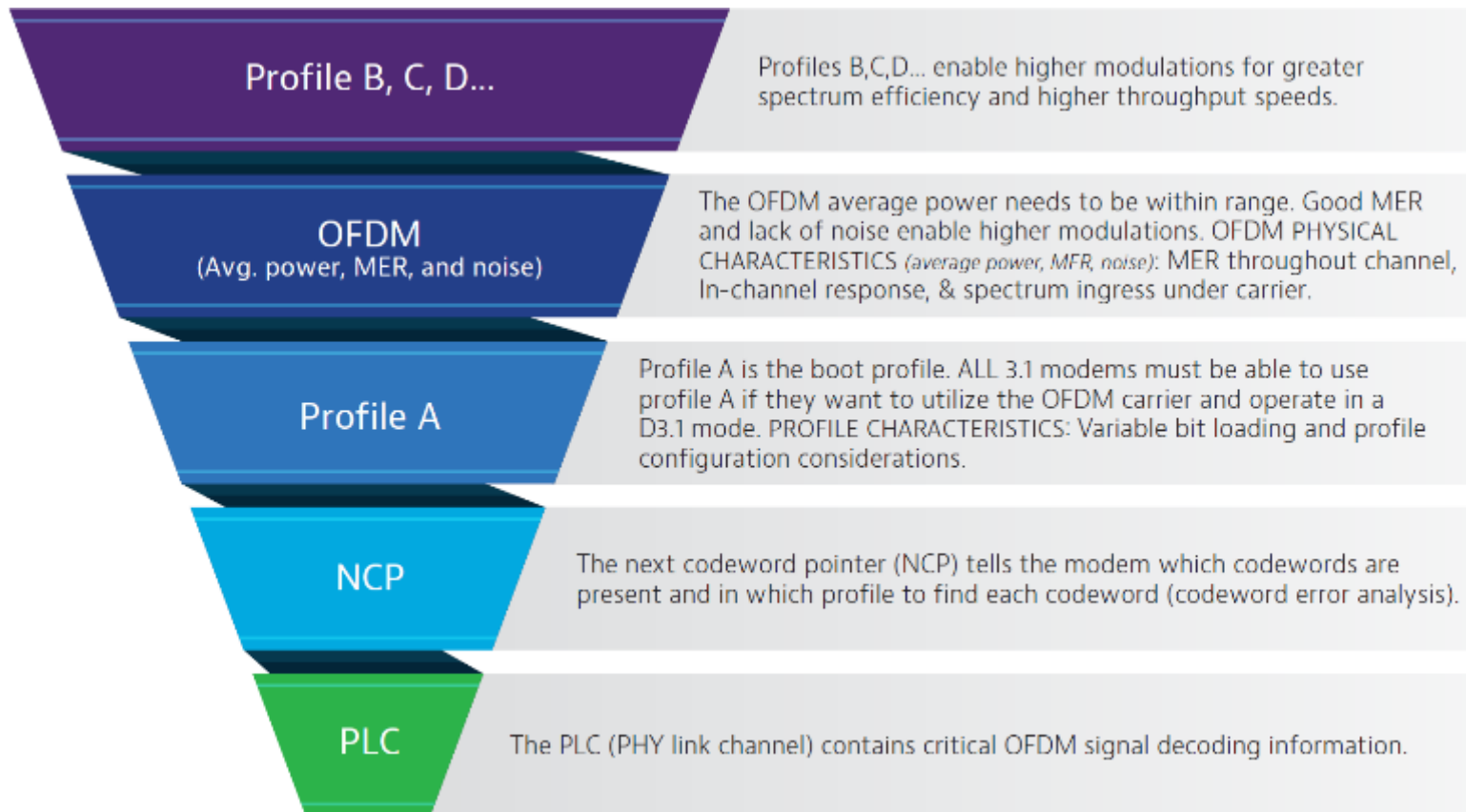
- ✓ Packet Loss
- ✓ Max Round Trip delay
- ✓ Max jitter

Note: Throughput and Packet Quality requires config in StrataSync, Refer to Administrator Settings section for details



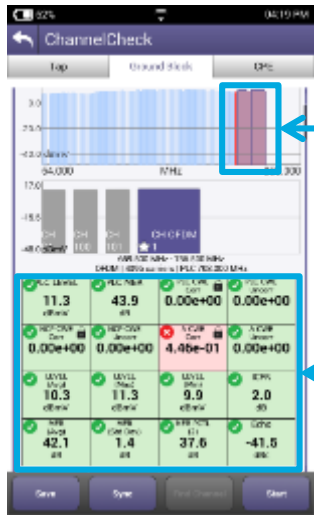
## ONX DOCSIS 3.1 Measurements

# Testing OFDM





# OneExpert CATV DOCSIS 3.1 measurements



Identify OFDM carrier in the lineup: Downstream scan measurement requires no learning curve, same as D3.0 scan, but shows OFDM signal

Overall OFDM carrier performance metrics including best and worst case; simple pass/fail indications



MER over entire OFDM channel provides insight into why higher tier profiles are failing

Analysis of different profiles available and which profiles can be supported at test location

In-Channel Response identifies roll-off and excessive ripple

Spectrum and noise identify portions of carrier where degradation may occur

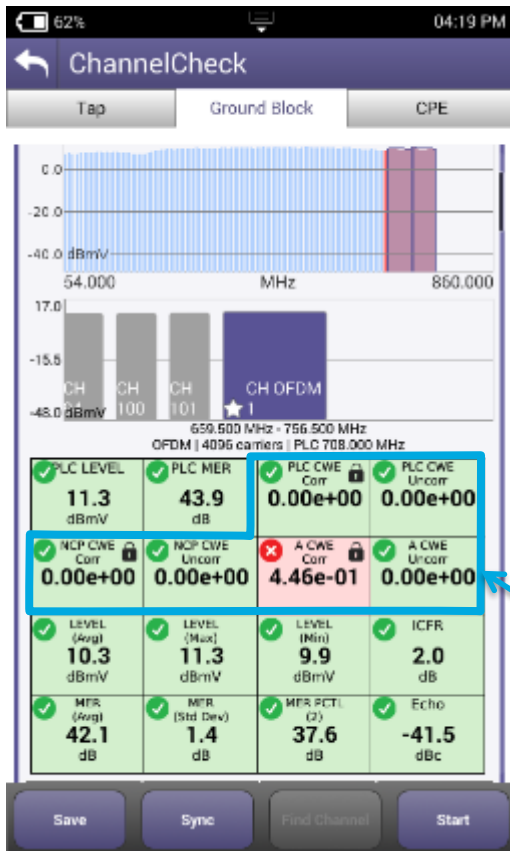
## OneExpert CATV with DOCSIS 3.1

- ✓ OFDM demodulation with D3.1 Profile Analysis
- ✓ Full DOCSIS service testing including 32 Bonded + D3.1 OFDM carrier
- ✓ Upstream DOCSIS 3.1 OFDM-A capable



# DOCSIS 3.1 Codeword Errors (CWE)

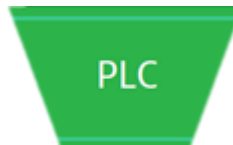
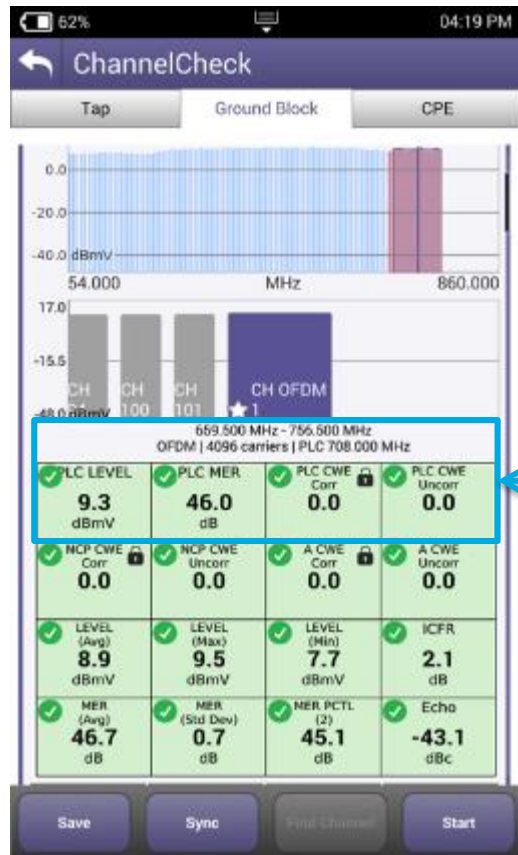
- ✓ **Codeword (CW):** a data bucket within a DOCSIS packet
- ✓ **CW Error (CWE):** a byte-level data packet corruption resulting from QAM symbol displacement across constellation decision boundaries
- ✓ Correctable vs. Uncorrectable determined by number of corrupted symbols relative to CMTS forward error correction level settings
- ✓ If you are having CWEs, you may be losing data
- ✓ **Uncorrectable CWEs** indicate dropped packets (think post-FEC BER)
- ✓ Retransmit is required for recovery
- ✓ There is no recovery from dropped packets for real-time apps like VoIP!
- ✓ **Correctable CWEs** are an early warning that the uncorrectable threshold may be near! (think pre-FEC BER)



## THINGS TO CHECK:

To make sure there are **no uncorrectable CWE**

# Testing PLC – PHY Link Channel



**PLC** contains CRITICAL OFDM signal decoding information



## THINGS TO CHECK:

**Level:** >-15 dBmV (6 MHz)

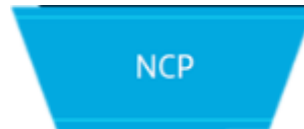
**MER:** >15 dB (min)

**Lock status:** locked

**Uncorrectable CWE:** none

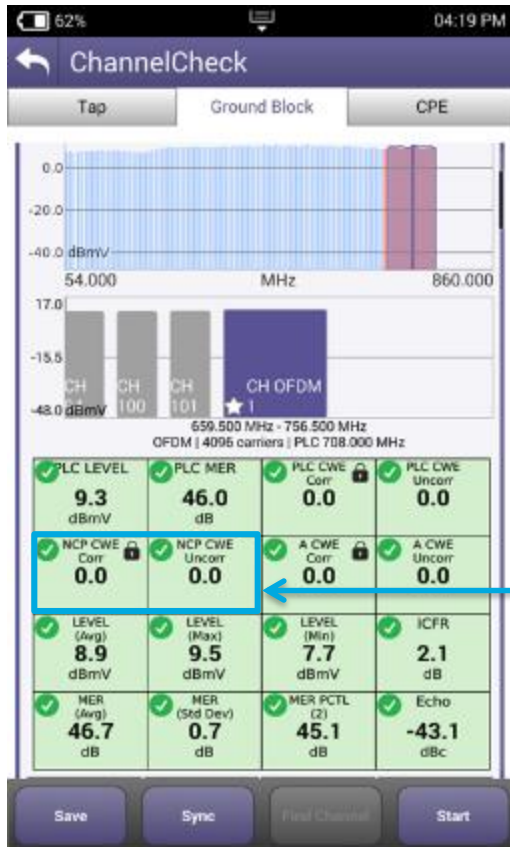
**Other info:** PLC center frequency

# Testing Next Codeword Pointer (NCP)



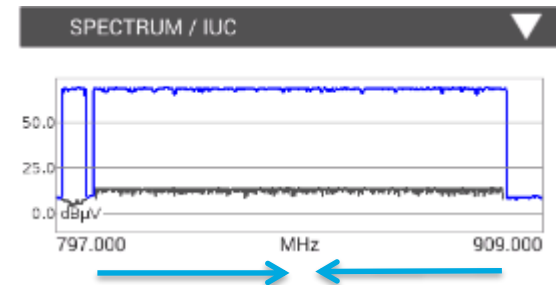
The **NCP** tells the modem which CW are present and in which profile to find each CW (CWE analysis), it is **CRITICAL** for proper data communication

- ✓ Don't disregard OFDM performance at high end or low end. Roll off of either could impair a CM's ability to correctly receive NCP or CWs.



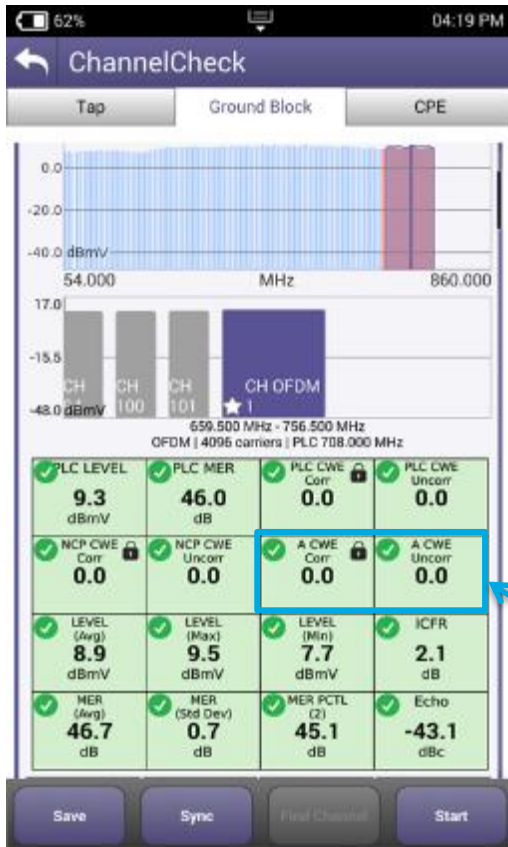
## THINGS TO CHECK:

**Lock status:** locked  
**Uncorrectable CWE:** none



Codewords start at LOW frequencies and populate UP  
 NCP's start at HIGH frequencies and populate down

# Testing Profile A



## Profile A

**Profile A** is boot profile; ALL 3.1 modems must be able to use profile A

- ✓ Profile A is key to D3.1 modem communication via an OFDM carrier. This is where command and control, range, and registration occurs.
- ✓ In practice, profile A may be assigned lower mixed modulations, like QAM 64/16, so every D3.1 modem can communicate. Lower modulation profiles can operate at lower MER/CNR and power levels.
- ✓ If profile A isn't locked or has uncorrectable CWE, a modem may roll back and use only SC QAMs in 3.0 mode.



## THINGS TO CHECK:

**Lock status:** locked

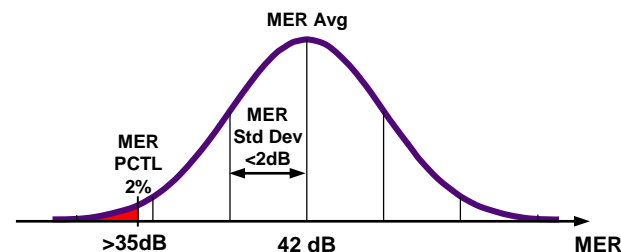
**Uncorrectable CWE:** none

# Physical Measurements (Level, MER)

## OFDM (Avg. power, MER, and noise)

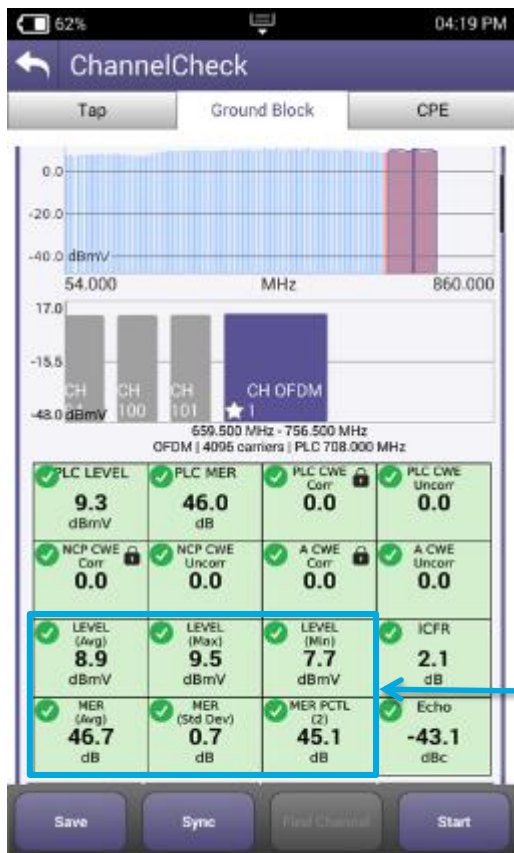
**OFDM** Avg power must be within range. Good MER and low noise enable higher modulations.

- ✓ **MER 2 percentile** shows how well 98% of the subcarriers are working and filters out underperforming ones that LDPC error correction will likely clear up.



### THINGS TO CHECK:

- Avg level, variable:** >-6 dBmV recommended
- Avg MER, variable:** >36 dB recommended
- MER at 2 percentile:** >35 dB recommended
- MER standard deviation:** <2 dB recommended



CM Minimum CNR/MER Performance in AWGN		
Channel Modulation	Up to 1 GHz CNR(dB)	Min P <sub>6AVG</sub> dBmV
4096	41.0	-6
2048	37.0	-9
1024	34.0	-12
512	30.5	-12
256	27.0	-15
128	24.0	-15
64	21.0	-15
16	15.0	-15

# Testing Higher Profiles

PROFILE	LOCKED	CWE (Corr)	CWE (Uncorr)
A	YES	3.36e-02	0.00e+00
B	YES	1.00e+00	0.00e+00
C	NO	---	---
NCP	YES	0.00e+00	0.00e+00
PLC	YES	0.00e+00	0.00e+00

Profile B, C, D...

Profiles B,C,D... enable higher modulations for greater efficiency



## THINGS TO CHECK:

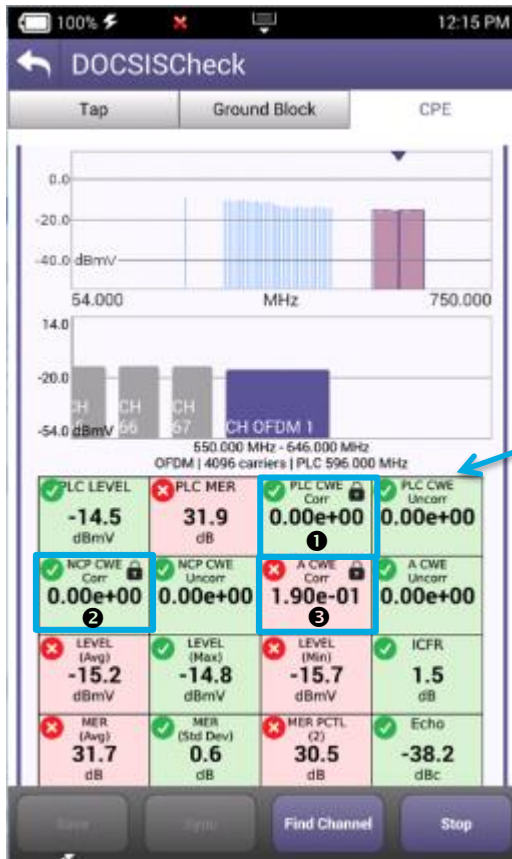
- Lock status:** locked
- Uncorrectable CWE:** none

- ✓ Higher profiles improve network efficiency. Optimally, more CM run on higher profiles for overall network efficiency and improved customer QoE.
- ✓ Profiles enable tiers of service, and allow best case service when consistent network constraints inhibit maximum performance
- ✓ Testing viability of all profiles provides quick assessment of network performance to any given test point (service outlet)
- ✓ Tech must be able to troubleshoot failing profiles and identify degradations
- ✓ Profile changes highlight drop or home wiring problems:

	TAP		Ground Block		Outlet/CPE	
	Profile Locked?	Uncorrectable CWE	Profile Locked?	Uncorrectable CWE	Profile Locked	Uncorrectable CWE
Profile A	YES	NO	YES	NO	YES	NO
Profile B	YES	NO	YES	NO	NO	YES
Profile C	YES	NO	YES	YES	NO	YES
Profile D	YES	NO	NO	YES	NO	YES

# OFDM Characterization

✓ Profiles and CWE analysis are important



Component	Tasks	Importance	CWE expectations and impact
PLC PHY Link Channel	Contains CRITICAL OFDM signal decoding information	Critical	Should have 0 Uncorrectable-CWE otherwise OFDM may not work
NCP Next CW Pointer	Tells modem which CW are present and in which profile to find each CW	Critical	Should have 0 U-CWE otherwise OFDM may not work
Profile A	Boot profile. ALL 3.1 modems must be able to use profile A	Critical	U-CWE will cause poor QOE and possibly make OFDM carrier unusable, forcing data to standard QAM carriers instead of OFDM
Profile B,C,D	Enable higher modulations for greater efficiency	High	U-CWE will affect bandwidth and overall QOE



## THINGS TO CHECK:

- 1 PLC is working well
- 2 NCP is working well
- 3 Profile A is working well with some correctable (in this case running 256 QAM)
- 4 Profile B (running 1024 QAM in this case) is on the edge: 100% correctable CWE but LDPC is correcting them all!
- 5 This makes sense, 1024 QAM level should be ≥12dBmV and MER > 34 dB

PROFILE	LOCKED	CWE (Corr)	CWE (Uncorr)
A	YES	9.20e-01	0.00e+00
B	YES	1.00e+00	0.00e+00
NCP	YES	0.00e+00	0.00e+00
PLC	YES	0.00e+00	0.00e+00

CM Minimum CNR/MER Performance in AWGN		
QAM Modulation	Up to 1 GHz CNR(dB)	Min P <sub>6AVG</sub> dBmV
4096	41.0	-6
2048	37.0	-9
1024	34.0	-12
512	30.5	-12
256	27.0	-15
128	24.0	-15
64	21.0	-15
16	15.0	-15



# DOCSIS 3.1 OFDM Carrier Level Measurements



Select OFDM carrier in scan

Look at OFDM carrier average level

Level approximates 6MHz QAM power, for example, all at 10dBmV

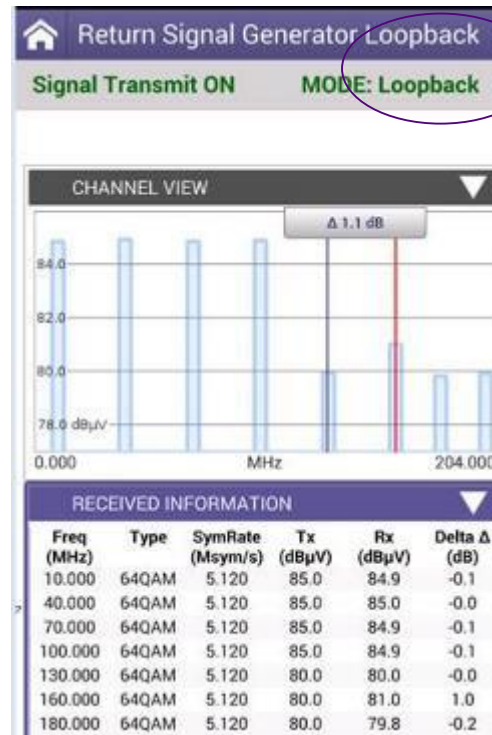
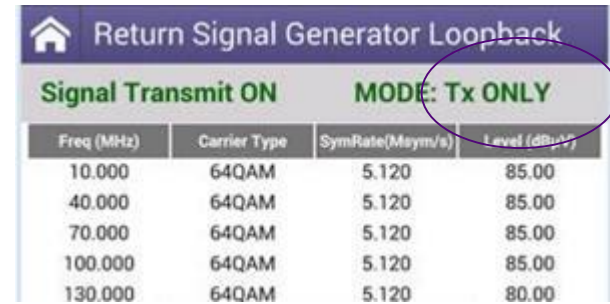


- Measure and reference OFDM carriers in comparison to power in a 6 MHz bandwidth (CableLabs® recommendation).
- With 8 MHz QAM in Europe → Set the OFDM level (ref. 6 MHz) **1.2 dB below the 8 MHz QAM 256** to maintain the same power/Hz.
- PLC carrier average power will be approximately 0.8dB higher than other carriers due to additional pilots and data patterns
- Total OFDM carrier (up to 192MHz) power is greatly different than average power in a 6 MHz bandwidth:
  - For a 96 MHz wide OFDM carrier, the total power will be 12.04 dB higher.
  - For a 192 MHz wide OFDM carrier, the total power will be 15.05 dB higher
- Do not use the total OFDM power to adjust CMTS output power: this would be like using total integrated power of 32 DOCSIS QAM carriers to set level.

**ONX CATV – RSG Loopback**  
**- Return Signal Generator**  
**- Loopback**

# Return Signal Generator with Loopback

- Generate up to **8 return band test signals** to test component or network gain/loss
- **Loopback** capability allows normalization and provides a table listing simultaneous, continuously updated measurements of carriers relative to stored reference
- Three modes
  - **TX only** mode (just like RSG mode)
  - **Loopback** Mode – TX and Receive
  - **RX only** mode – receive signals from other source – e.g. 2nd ONX



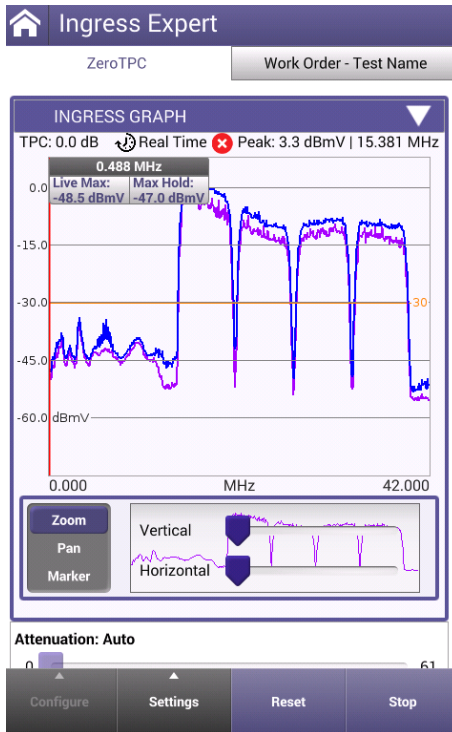
**VI.VI**

**ONX CATV – Ingress Expert**

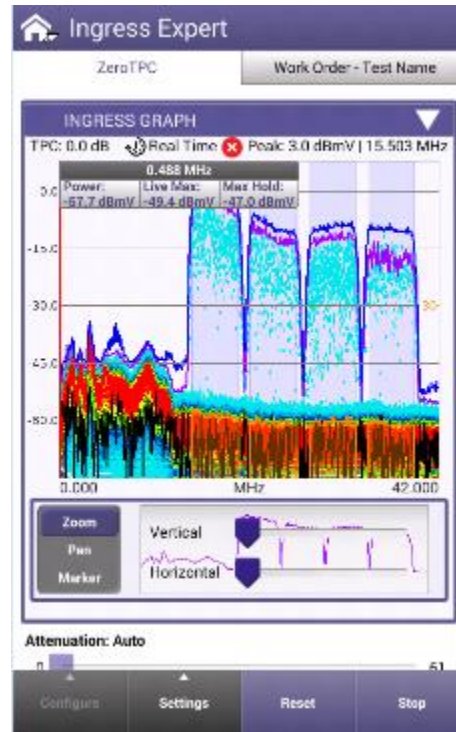
# Ingress Expert – Advanced Upstream Spectrum Testing

- Upstream ingress/noise issues – much time spent identifying, locating, and suppressing
- As upstream spectrum fills with carriers new test capabilities are needed
- **Ingress Expert** mode offers advanced ingress troubleshooting capabilities
  - Available on already powerful OneExpert CATV
  - Standard in NTX (Network Expert) and SWX (Sweep Expert) feature bundles
  - Optional in other bundles

# Ingress Expert Overview



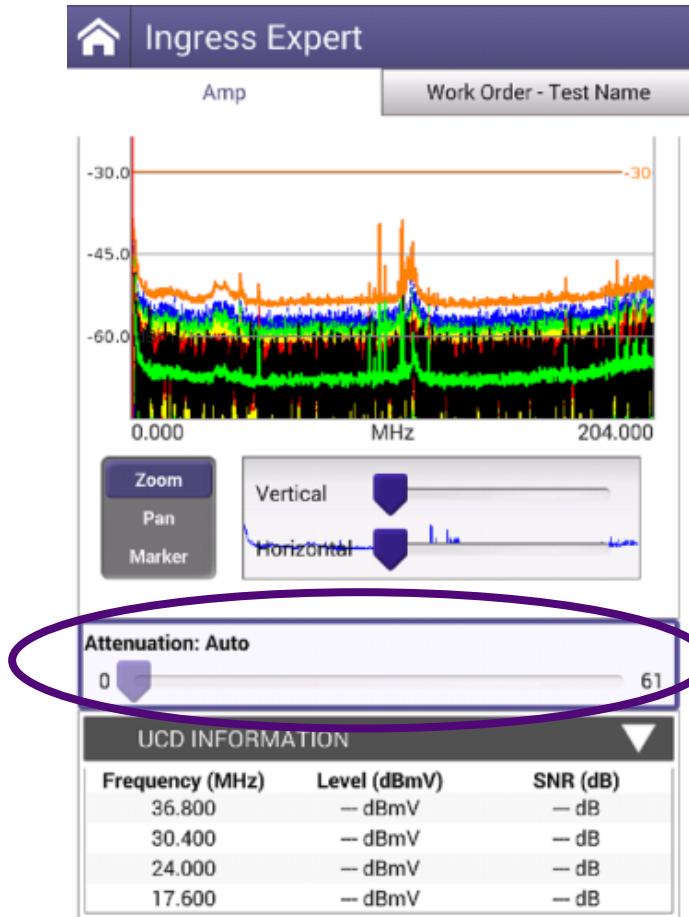
Live Upstream Carriers  
Normal Spectrum Analyzer  
type view



Use different traces to better  
visualize the upstream and  
noise below carriers

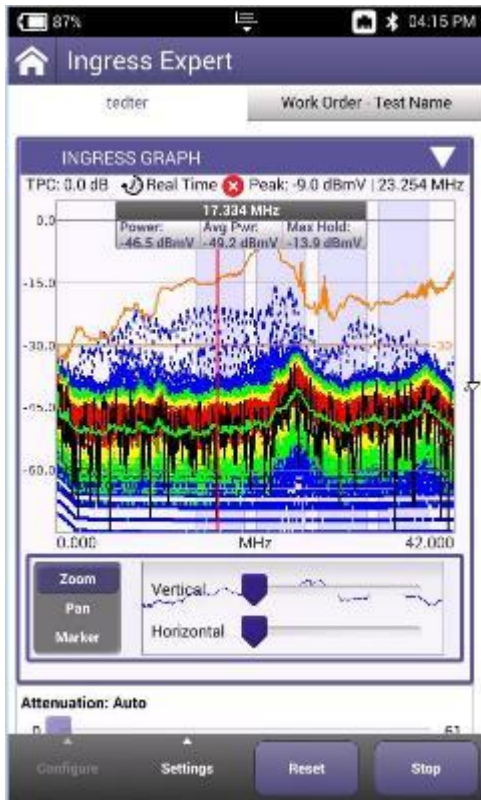
- ✓ **Ingress Expert** is based on powerful OneExpert CATV HyperSpectrum technology
  - ✓ Innovative overlapping FFT analysis means that no transient interfering signals will go undetected
- ✓ Unprecedented frequency coverage in a handheld gives techs full visibility of all upstream ingress noise
  - ✓ 0.5MHz up to a selectable 42, 65, 85, 110, or 204MHz
- ✓ Easily configurable, Ingress Expert allows techs to toggle persistence measurement and available traces for best visibility of ingress signals

# Ingress Expert Update



- Real-Time icon has been added to the UI to indicate when the RT Analyzer is 100% engaged.
- **Auto-AGC** is now selectable. If disabled, user can control port 2 attenuator setting.
- Traces now more closely align with VSE.
- **Upstream Channel Information** – average level and SNR values are now displayed based for each UCD based on the previous DOCSIS test performed.
- Noise under the carrier trace has been added to the graph.
- Dynamic range has been improved to meet desired 60 dB target.
- **Heatmap** colors have been updated

# Ingress Expert – Advanced Upstream spectrum testing



- Technicians spend much of their time trying to identify, locate, and suppress ingress issues on the plant
- As more of the upstream spectrum is filled with upstream carriers, traditional ingress mitigation processes are being re-written
- The Ingress Expert mode offers advanced ingress troubleshooting capabilities to help fight ingress
  - Included in ONX-CATV - **NTX (Network Expert)** package & **SWX (Sweep Expert)** package
  - Optional on other ONX-CATV packages



# Ingress Expert - Use Port 2 for Ingress measurement

- Two RF ports on top of unit
  - **Port 1** is for
    - All services testing like Video and DOCSIS tests
    - Downstream Spectrum
    - Bi-Directional Sweep
  - **Port 2** is for Upstream spectrum and Ingress troubleshooting
    - Overlapping FFTs allow for gapless ingress detection



# Ingress Expert - Configurable Traces and Frequency Span

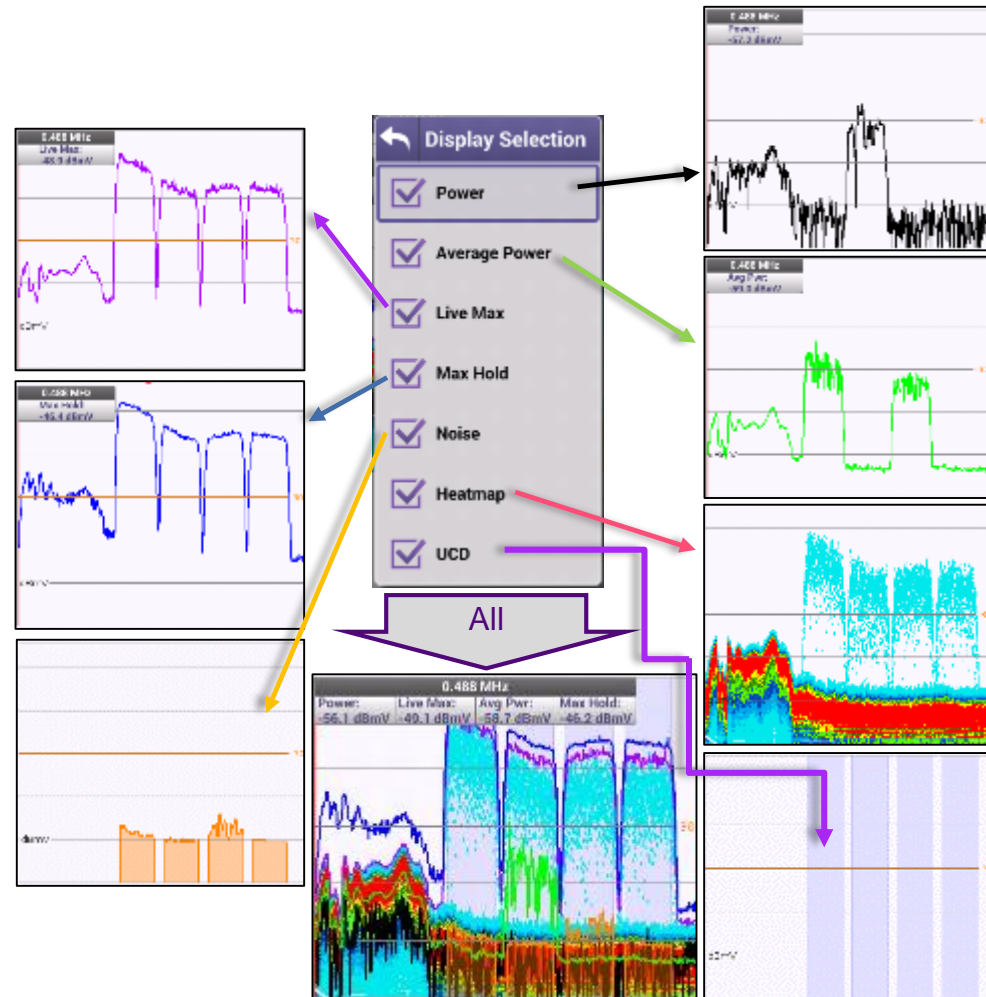
- Adjustable views allow users to select view that works best for troubleshooting situation
- Selectable upstream frequency range and heatmap persistence level

**Select Span High Frequency**

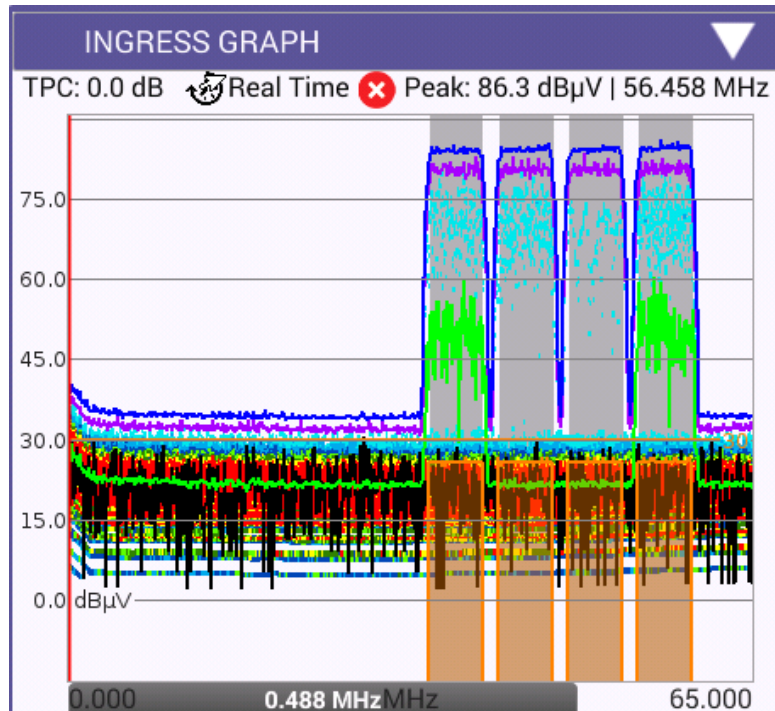
- 42.000 MHz  
Real Time
- 65.000 MHz  
Real Time
- 85.000 MHz  
Real Time
- 110.000 MHz  
Real Time
- 204.000 MHz

**Select Heatmap Persistence**

- Low
- Medium
- High



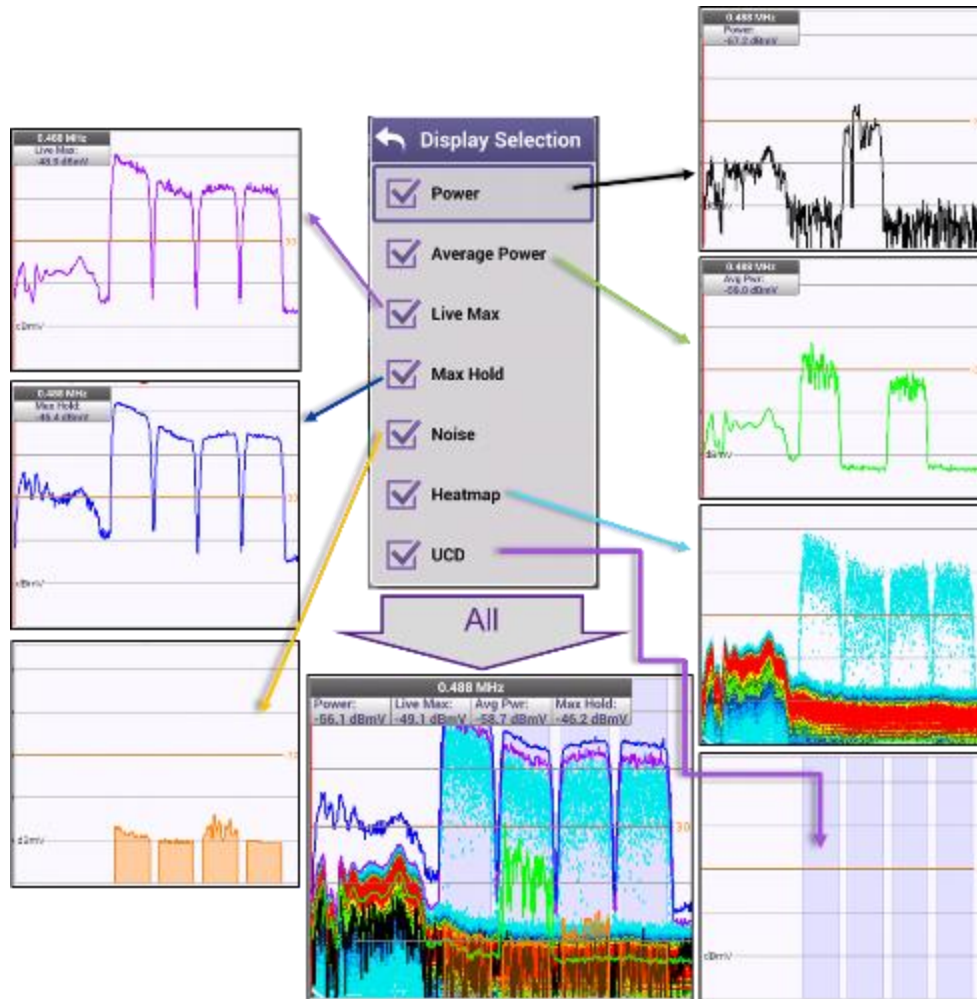
# Ingress Expert – Traces Definition



- **Ingress Expert** has several different traces that each highlight a different way of looking at the upstream noise & carrier information
  - **Power** – a single trace randomly selected from the several thousands taken each second by the Real Time Analyzer RTA
  - **Average Power** – the average power over the last second
  - **Live Max** – the highest power at each frequency over the last second
  - **Max hold** – the highest power at each frequency since the beginning of the test
  - **UCD** – the Upstream Channels Descriptors are acquired from the last DOCSIS test performed – highlights where upstream carriers should appear and helps the ONX perform additional measurements
  - **Noise** – signals within the highlighted UCD frequencies which occur less frequently but are higher than the average noise floor below the carriers

# Ingress Expert - Trace Definition

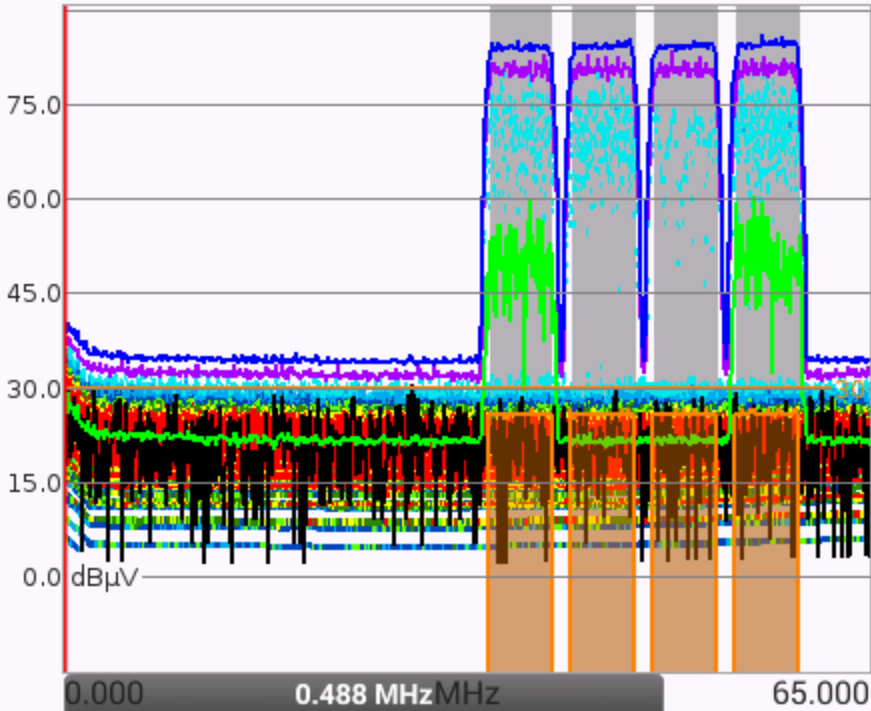
- Highest power at each frequency over the last second
- **Max power** over test period
- Signals within highlighted **UCD** frequencies, occurring less frequently but higher than the average **noise** floor below carriers



- A single trace randomly selected from several thousand taken each second by real-time analyzer
- **Average power** over the last second
- **Persistence** represented by color variation
- **Upstream Channel Descriptors** acquired from last DOCSIS test performed – Highlights where upstream carriers should appear and helps ONX perform additional measurements

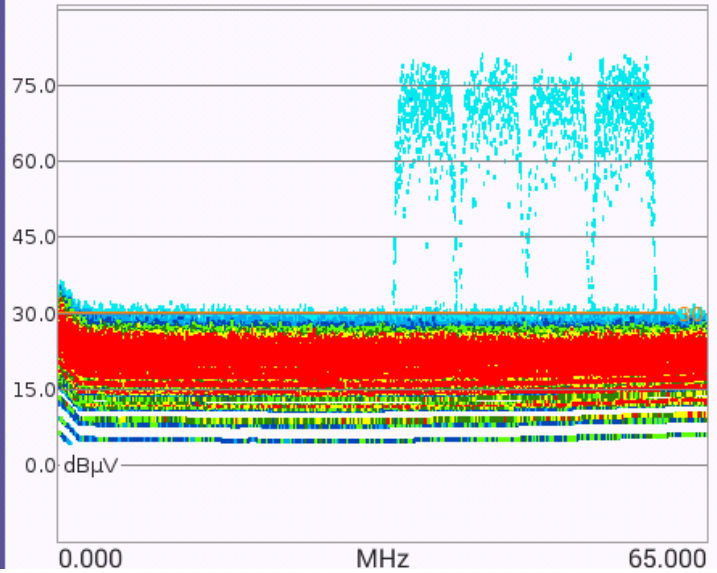
# INGRESS GRAPH

TPC: 0.0 dB Real Time Peak: 86.3 dB $\mu$ V | 56.458 MHz

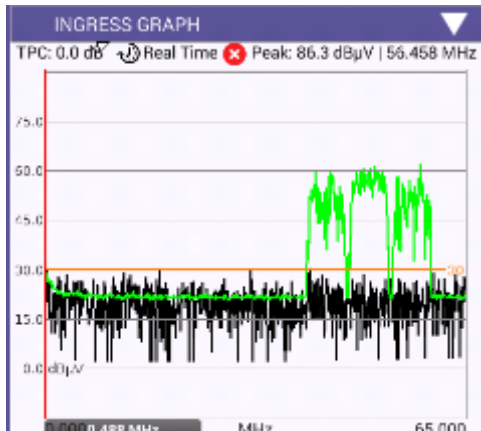


# INGRESS GRAPH

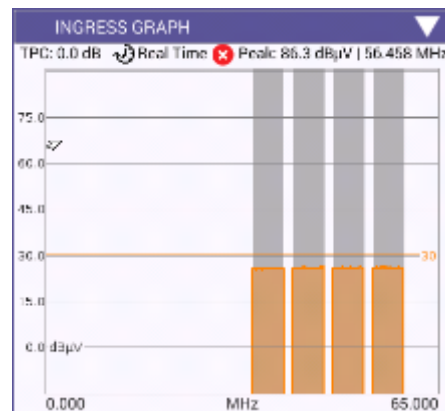
TPC: 0.0 dB Real Time Peak: 86.3 dB $\mu$ V | 56.458 MHz



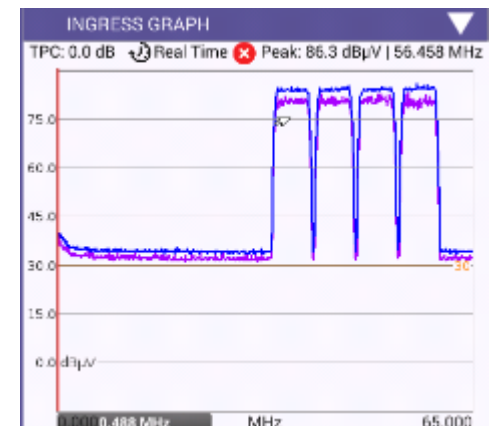
heatmap



Power & average power



UCD & Noise



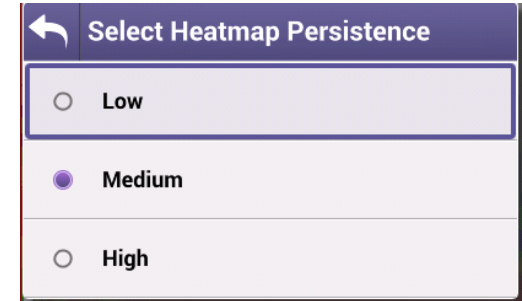
Live Max & Max hold

# Ingress Expert recommended settings

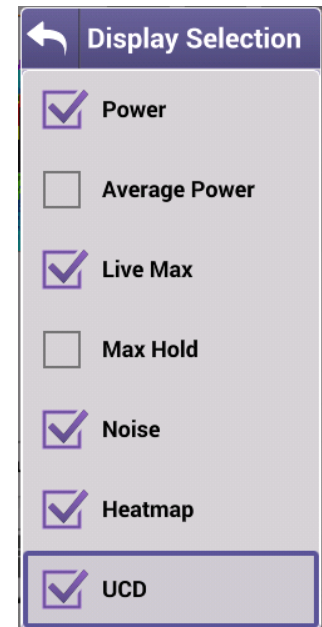
- Set frequency span to desired test span
  - 42 / 65 / 85 / 110 / 204\*



- For most scenarios **Heatmap Persistence** can be set at Medium



- Set traces based on preference after experience with mode
- Many users find that enabling the following traces is most effective for capturing noise in the numerous ways it appears:
  - Power,
  - Max Live,
  - Noise,
  - Heatmap, and
  - UCD

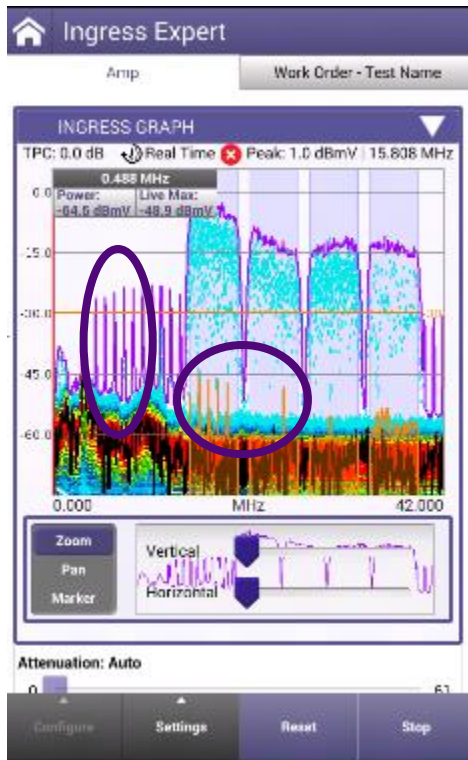


\*204 MHz is the only configuration which does not allow the ONX's Real Time Analyzer to be gapless

**VI.VI**

**ONX CATV – Ingress Expert**  
**- finding and troubleshooting Ingress issues**

# Find Intermittent Noise



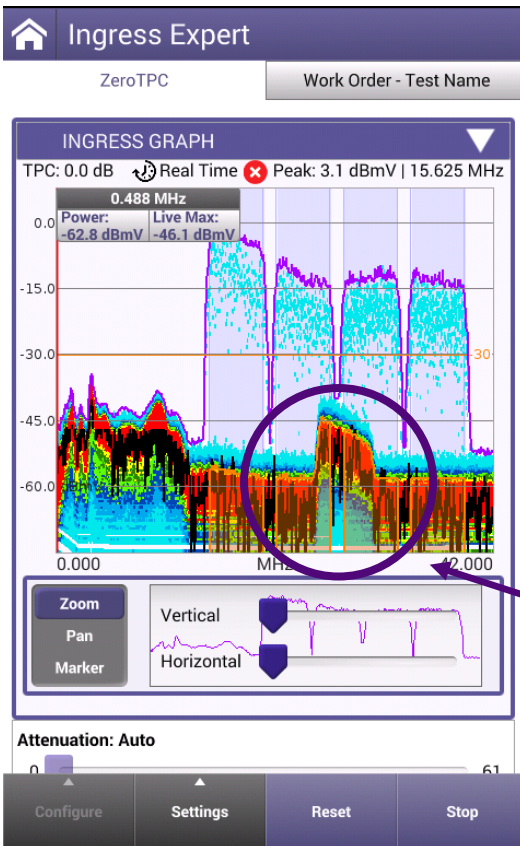
- One of technicians' toughest tasks is to find and fix impulse noise impairments
  - Fast transient noise is difficult to measure and identify
- **HyperSpectrum** easily catches these quick transient impulses, even when below active upstream carriers
  - The various traces make these impairments visible
  - The Noise trace shows reoccurring impulse ingress under active carriers

Traces show interference outside of active carriers  
Ingress Expert's Noise trace shows reoccurring ingress inside carriers

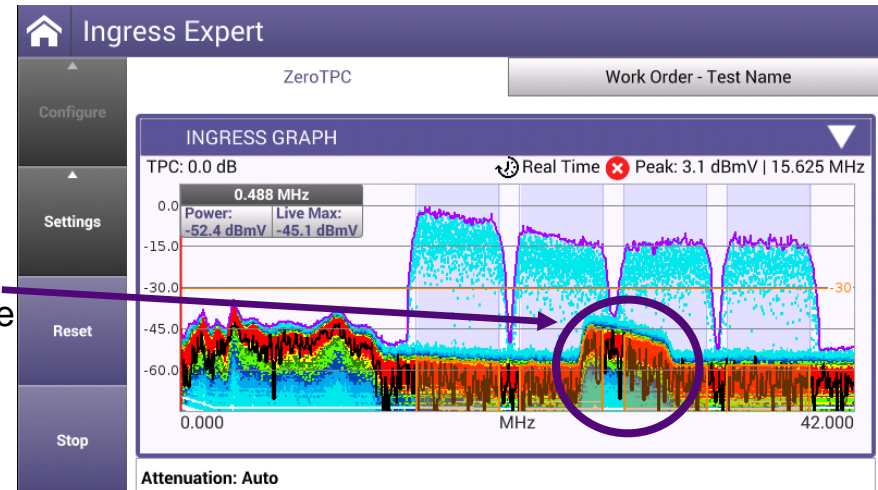


# Find Consistent Noise

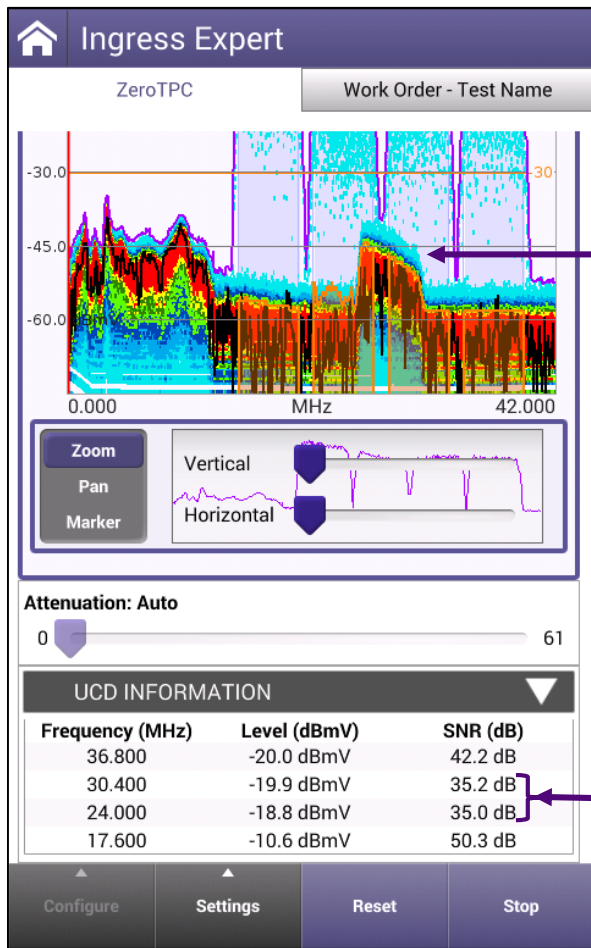
- Consistent ingress/noise sources have traditionally been easier to troubleshoot, however as vacant upstream spectrum becomes scarce finding and fixing noise under active QAM carriers is more important than ever.
- Ingress Expert mode's **persistence measurement** catches and displays noise even under active upstream carriers



**Ingress Expert**  
clearly shows elevated noise  
under active carriers



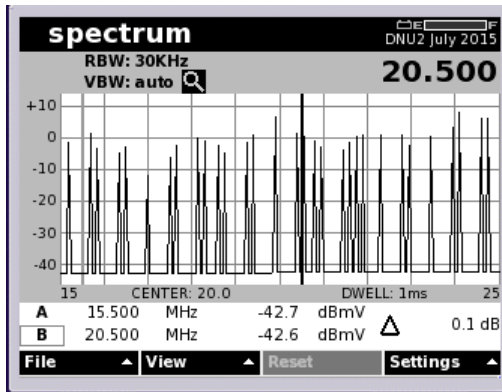
# UCD Table – Upstream Channel Descriptor



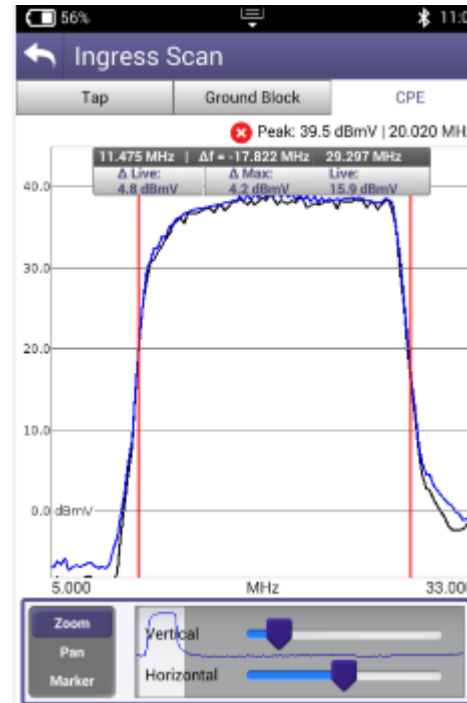
The impact of the noise floor can be clearly seen in the SNR calculated for the 24 and 30.4MHz carriers

- The ONX will populate the **UCD table** at the bottom of the Ingress expert mode based on its last successful DOCSIS range test performed.
- Knowing exactly where to anticipate the upstream carriers enables additional measurements to be displayed:
  - Carrier Frequency
  - Upstream carrier level
    - [as measured at test point]
  - **Signal to Noise Ratio (SNR)**
    - [as measured for level and noise at test point]

# Improved Impulse Noise Detection



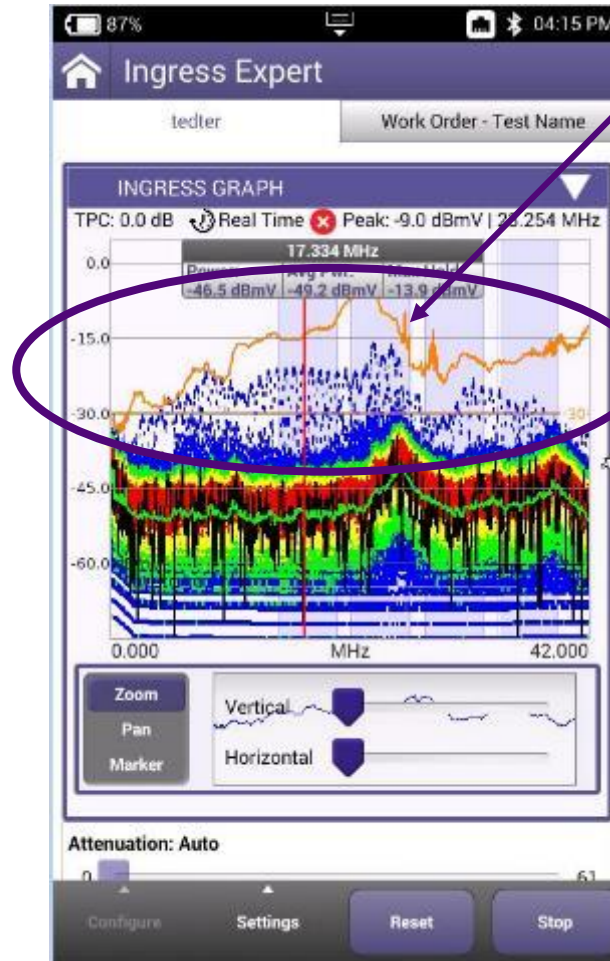
- DSAM scanning analyzer catches samples within its resolution bandwidth as it scans spectrum
- Max Hold is needed to capture complete noise “envelope” over time



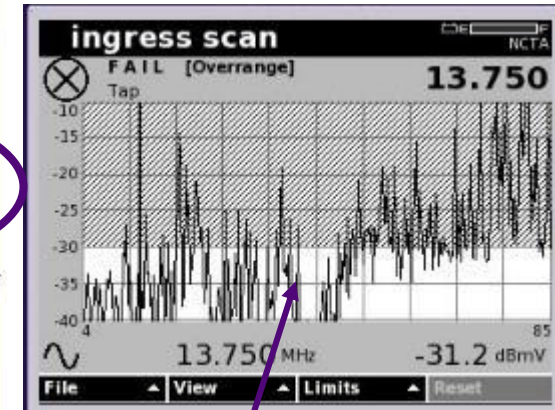
- **OneExpert FFT** captures the whole noise envelope at once
- No need to wait for multiple scans to see complete interference impact

# Application Note on Real Time Analyzer

- Problem:
  - DSAM users are accustomed to the “view” they get from a swept spectrum
  - ONX with Real Time analysis (like VSE) capture ENTIRE Spectrum.
  - The signatures look different
  - Perception from DSAM user is that DSAM catches it better
- Solution:
  - **Educate your technicians team on the technology and benefits**



ONX shows “smooth” Max Hold across whole spectrum



DSAM shows “spikey” Max Hold across whole spectrum

DSAM is actually missing some of the noise

**VIAYI**

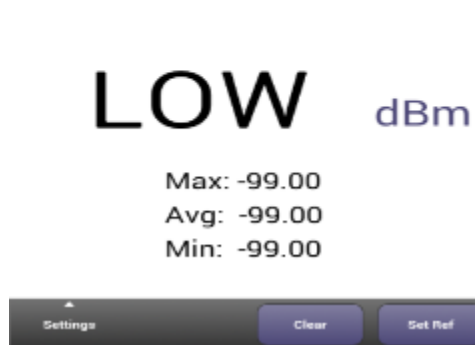
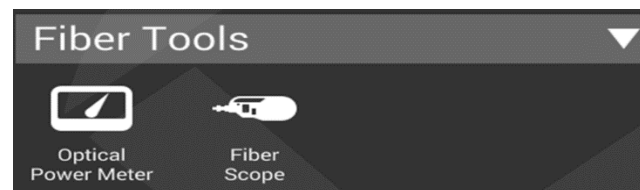
**ONX CATV - Fiber Testing**

- P5000i Probe Microscope
- MP60, MP80 power meters

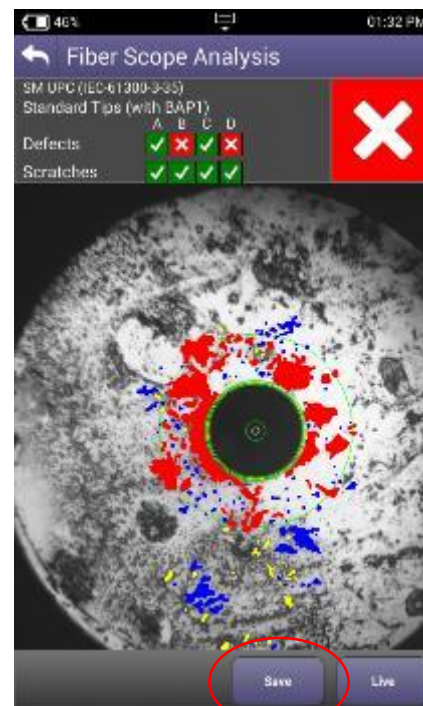
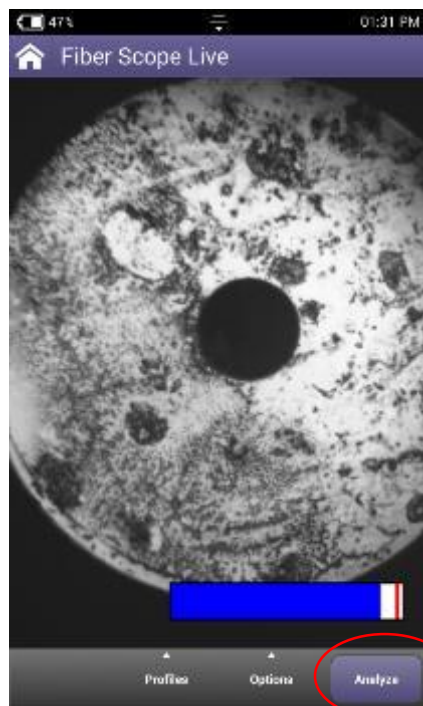
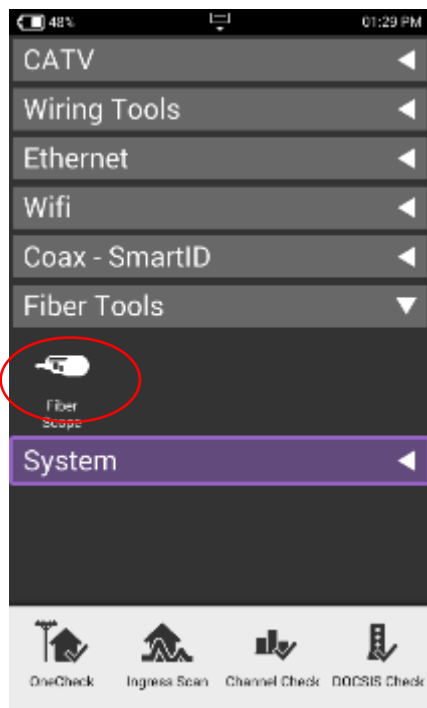
# OneExpert CATV

## Fiber Optic Testing made easier

- ✓ Fiber testing made easier
- ✓ Inspect before you connect
  - ✓ Fiber Inspection
    - ✓ **P5000i** Automatic fiber scope support
      - ✓ Auto Centering
      - ✓ Automated testing
      - ✓ Simple pass/fail
  - ✓ **Power Meter**
    - ✓ USB power meter support
    - ✓ **MP-60 & MP-80**



# Optical Accessories – P5000i Probe Microscope



When **P5000i Probe Microscope** is attached to ONX through USB, Fiber Tools menu automatically appears

- After plugging in patch cord or inserted probe into bulkhead, fiber end face will appear and can be focused or auto centered using controls on P5000i.
- Autotest can be conducted and results saved from results screen

**VI.VI**

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



# Introducing OneExpert CATV Sweep: ONX-630

- Maintenance technician focused OneExpert platform enables **sweeping** and **DOCSIS 3.1** test with **simplified** process, to **speed testing** and **documentation**
- **ONX-630** is used **for all DOCSIS 3.1 phases**
  - D3.1 Network **construction** → Sweep transmission performance analysis
  - D3.1 **Turn-Up** → Sweep + DOCSIS 3.1 physical and service test capability
  - D3.1 **Maintenance** → Sweep + D3.1 PHY and Service tests
- **Compatible with existing sweep control unit**
  - SDA-5510/5500: Reverse Sweep up to 204MHz
  - SDA-5500: Forward Sweep up to 1GHz
  - Offer smooth, seamless integration and transition to next generation
- **Documenting performance is simpler with StrataSync**, making detailed sweep results easily accessible via browser

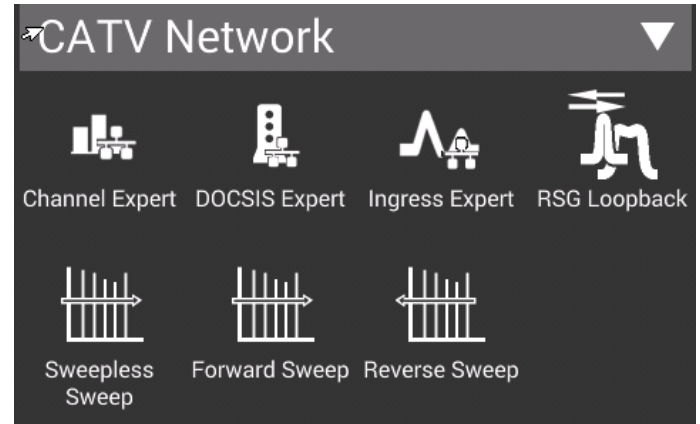


# Advanced System Sweep

- **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™**

# CATV Network Section

- ✓ **SWX & NTX software** packages reveal the CATV Network session, RF features designed for advanced services and maintenance use
- ✓ **NTX package** (ONX-620/630) includes:
  - ✓ Channel Expert
  - ✓ DOCSIS Expert
  - ✓ Ingress Expert
  - ✓ RSG / RSG Loopback (optional in 620)
  - ✓ Test Point Compensation (TPC)
  - ✓ Custom Limits
  - ✓ Sweepless Sweep
- ✓ **SWX package** (ONX-630 only) adds NTX plus:
  - ✓ Forward Sweep & Alignment
  - ✓ Reverse Sweep & Alignment
  - ✓ Associated with Headend Sweep Control Units (SDA55x0, SCU-1800)



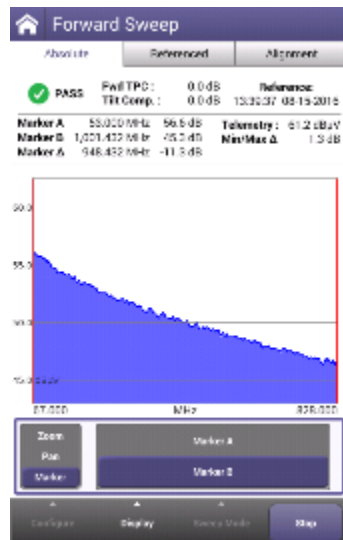
# Next Generation Sweep Gear

## 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

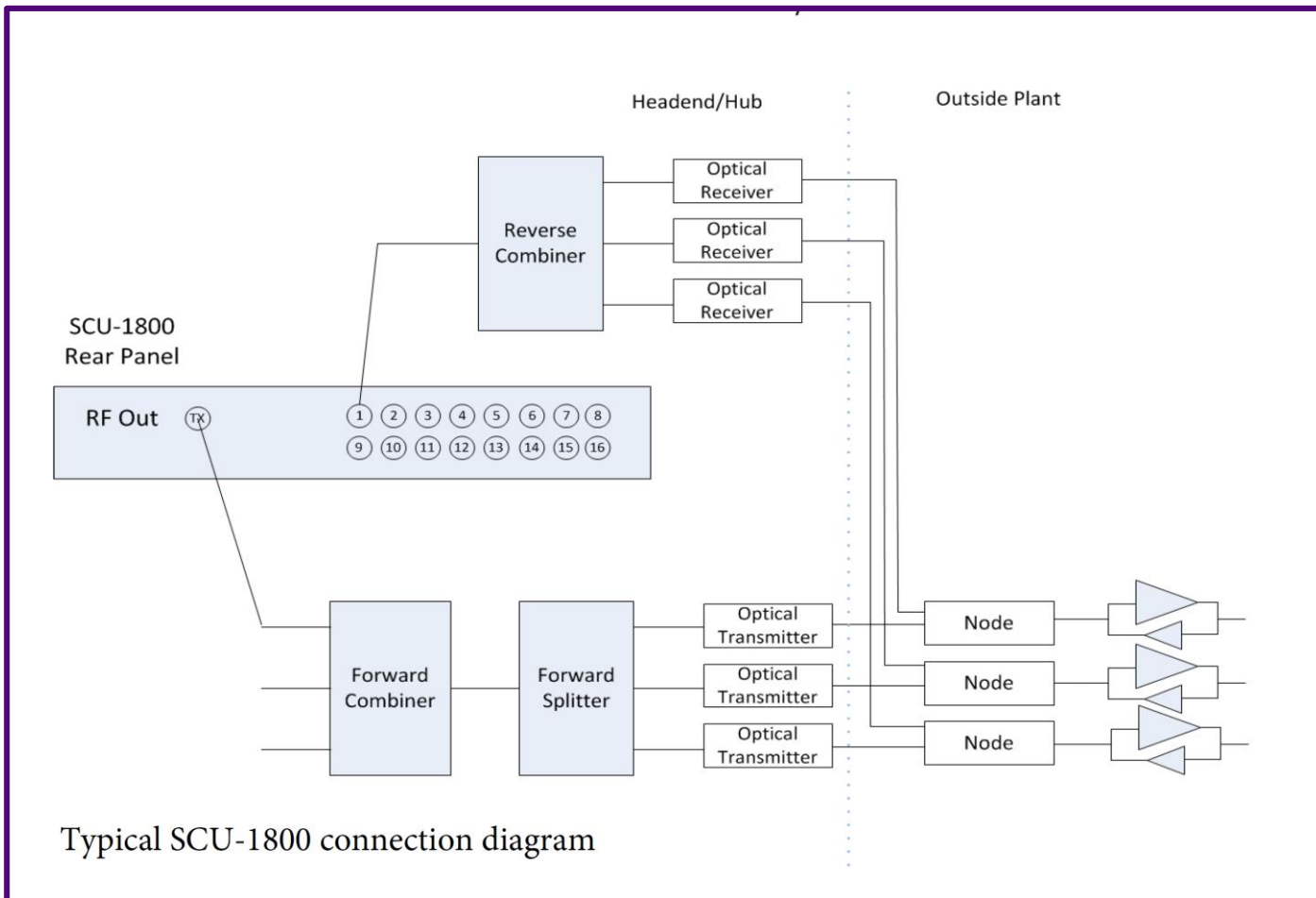
### ✓ Inputs

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

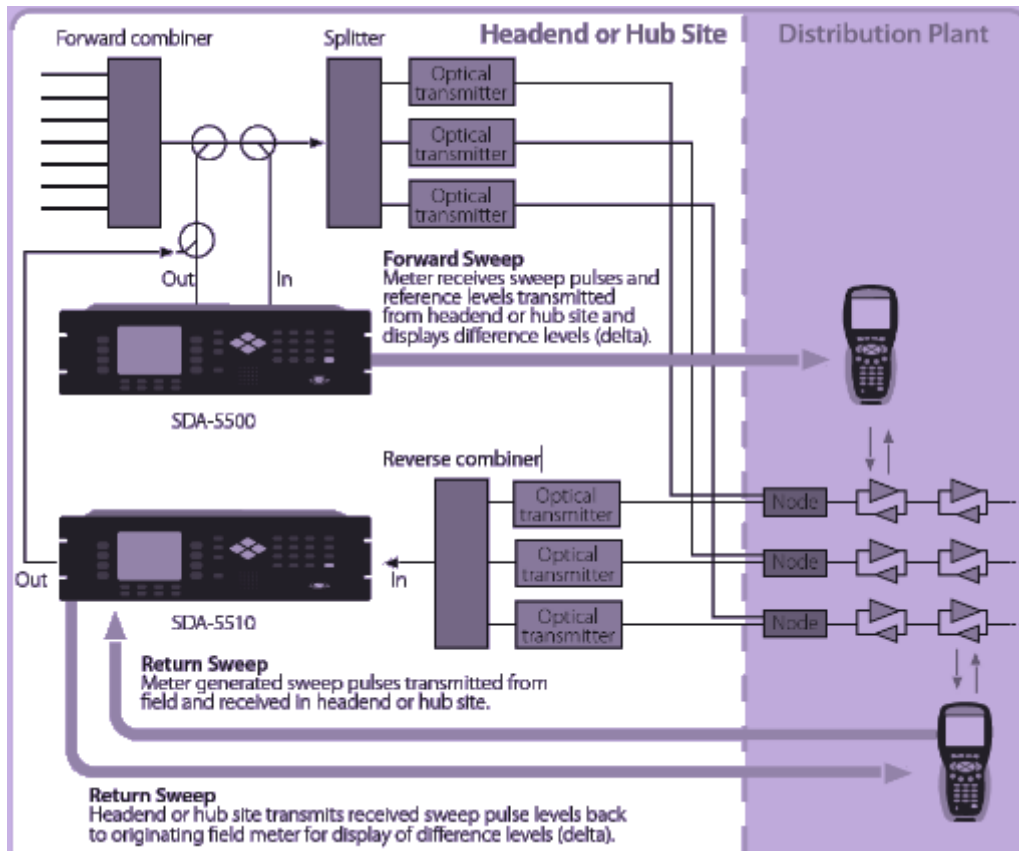
### ✓ Frequency Range

- ✓ 5 to 204 MHz
- ✓ SDA Protocol

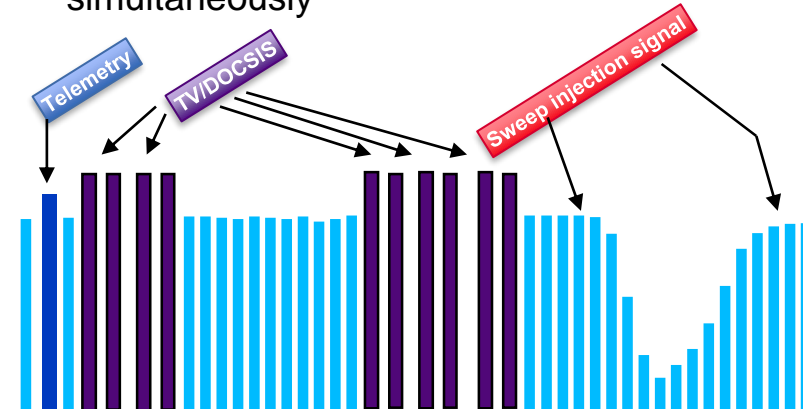
# Typical SCU-1800 Connection diagram



# For memo: Forward & Reverse Sweep with DSAM 6300

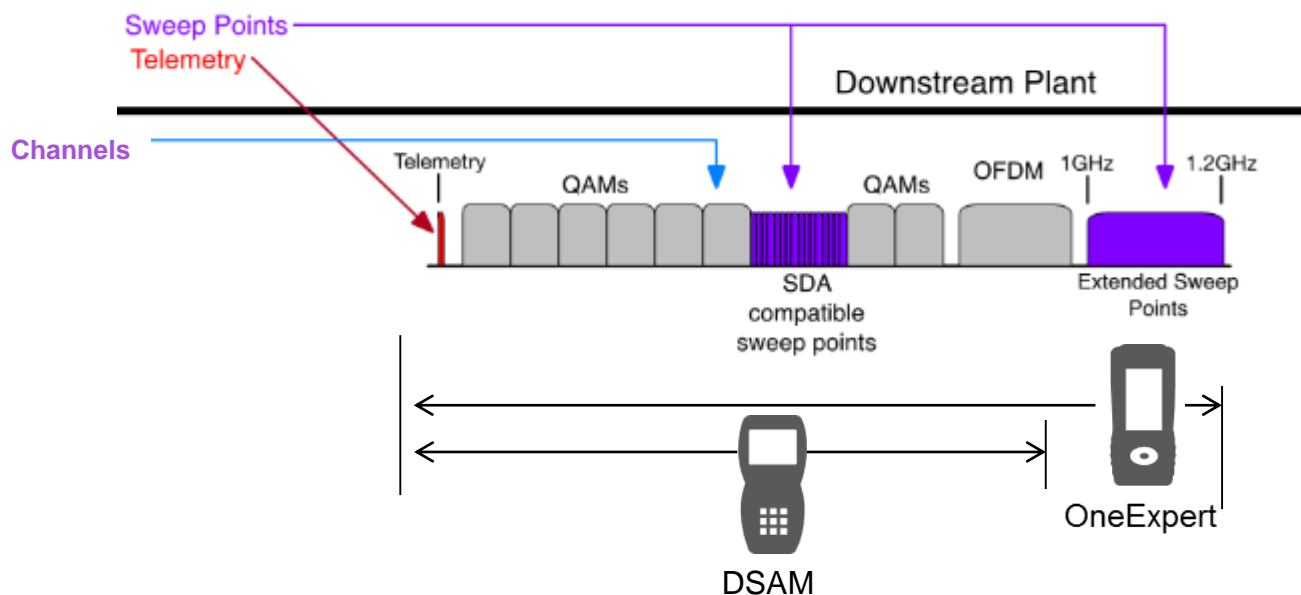


- Provides non-interfering forward and reverse sweep operation
- Continuously provides updating between the headend and field units
- Sweeps analog, digital and DOCSIS carriers
- Covers 4–1000MHz frequency band
- References active carriers with out degrading service quality
- Sweep the return path with up to 10 units simultaneously





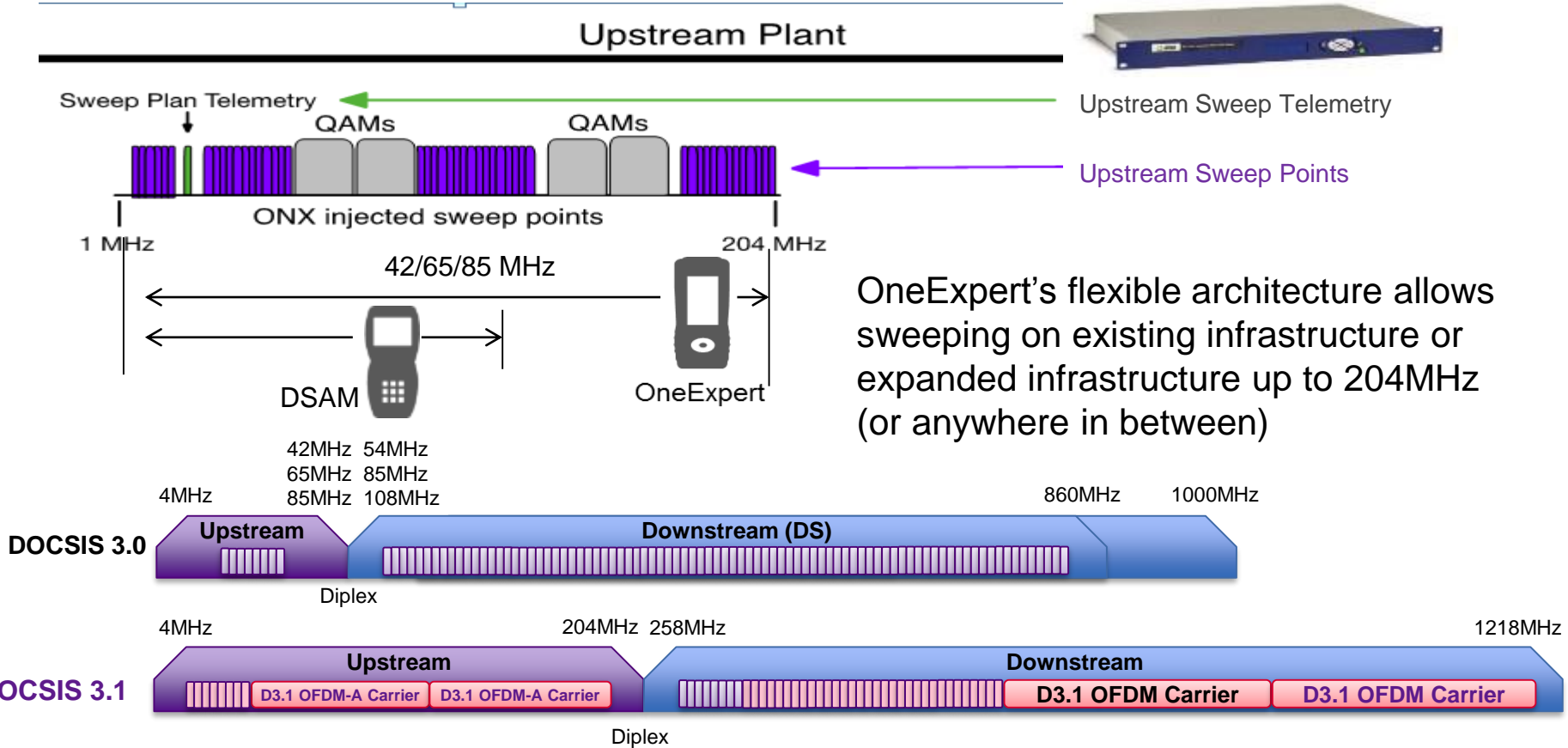
# Sweep Beyond 1GHz



- 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)

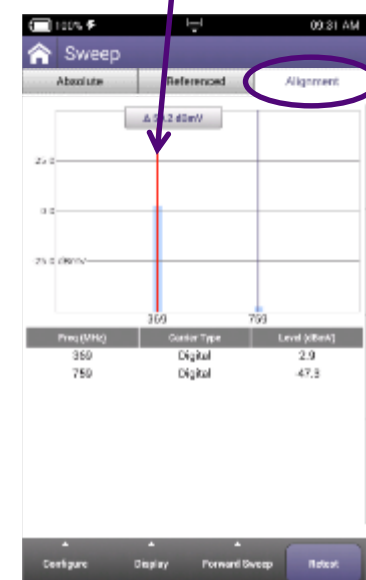
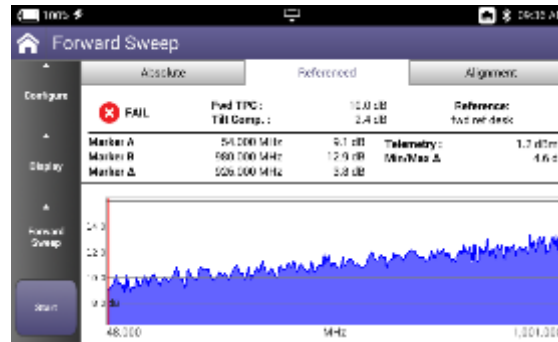
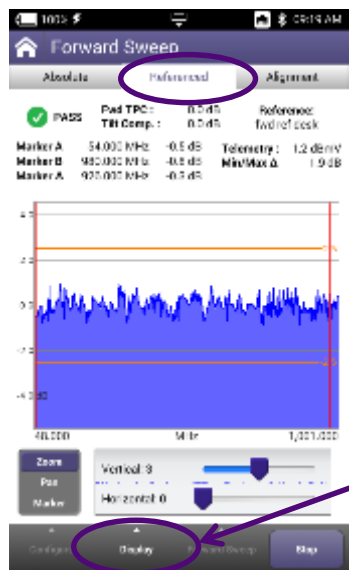
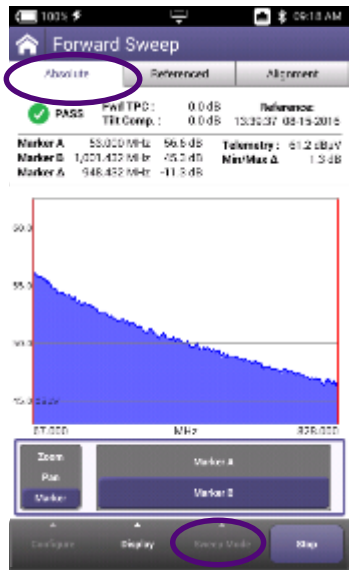
# Improved Forward Sweep Workflow

Consolidated sweep screens expedite the test process

View the raw/absolute unreferenced sweep to save as a reference

View the normalized referenced sweep to identify issues

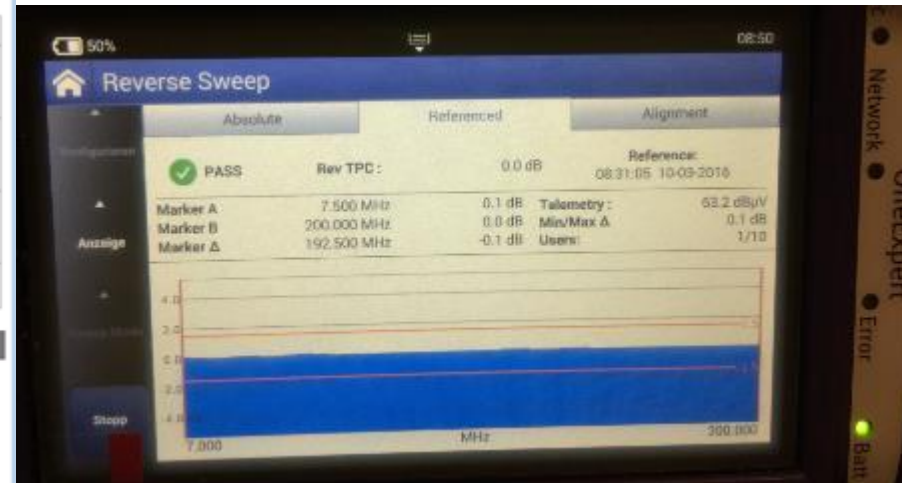
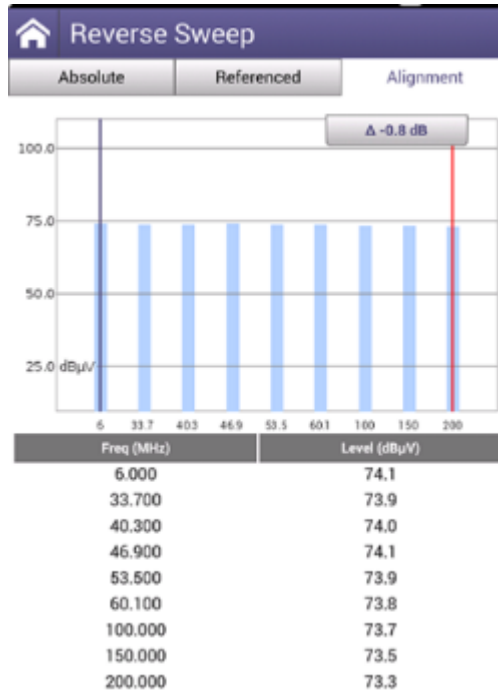
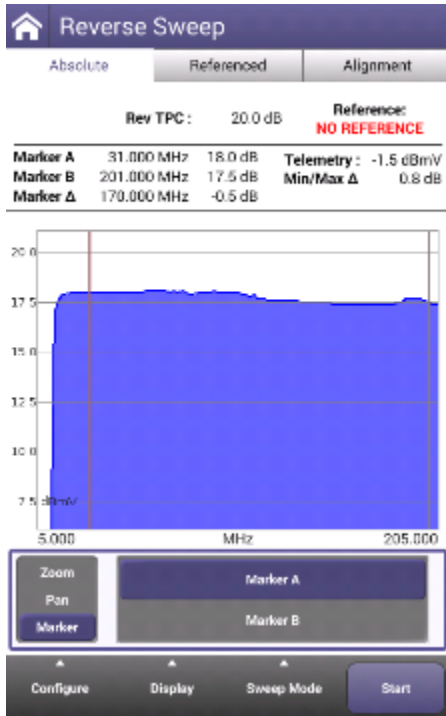
Pick tilt carriers for fast gain and alignment check. Sweep points or live carriers



Toggle between Portrait and Landscape mode

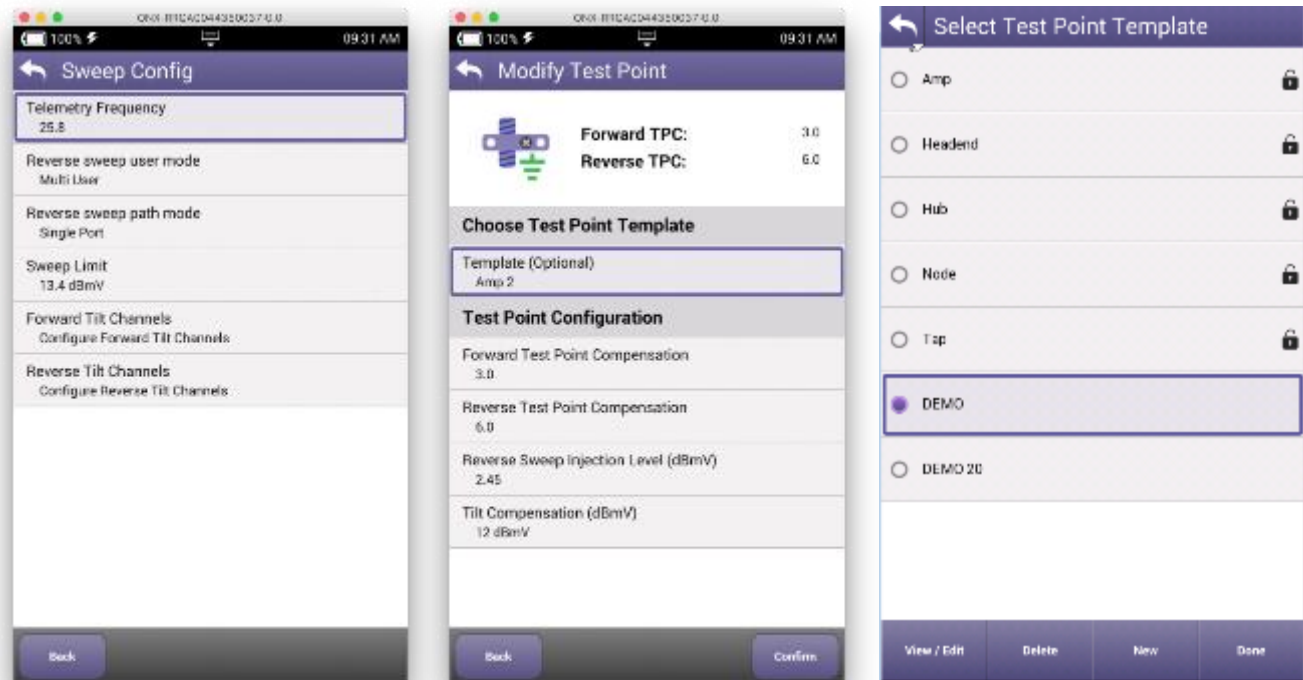
Easily change sweep modes Forward/Reverse

# Improved Reverse Sweep



# Simplified Templates for Test Point Locations

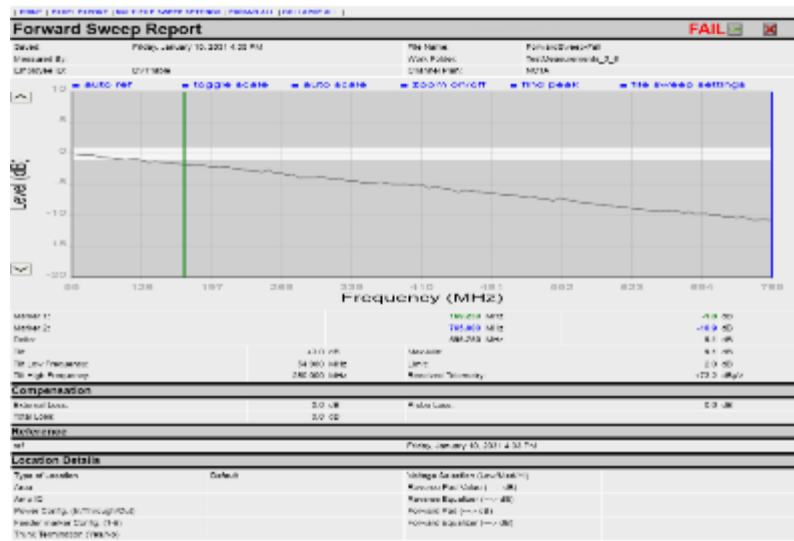
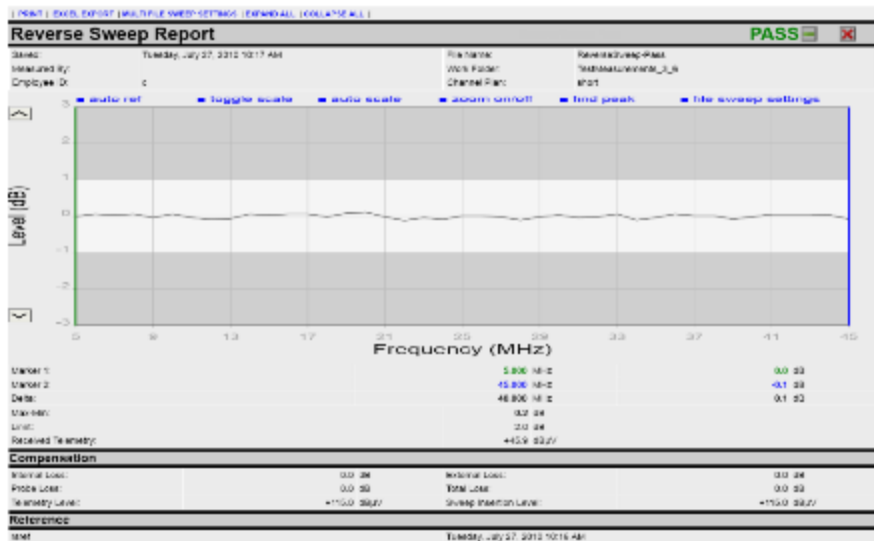
- Configure Test Points for loss and sweep settings
- Easily switch between Test Points at any test
- Multiple test point locations can be customized and stored



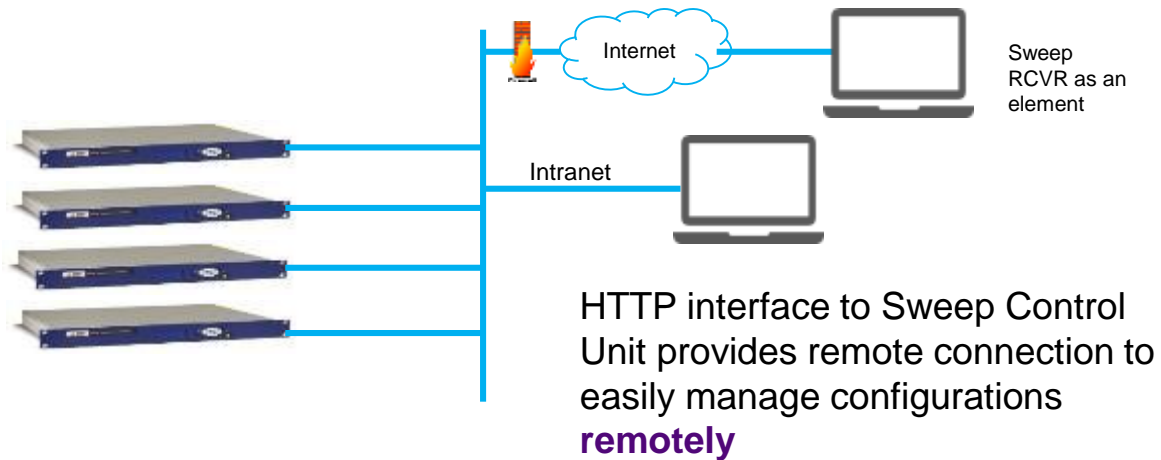
# Sweep Reporting – Same reports for ONX and DSAM

Utilize the same sweep reporting tool in **StrataSync** for DSAM and ONX

- Same flexibility
- Same capability
- Same user interface
- Mix and match reports done from DSAM and ONX for sweep reports
- StrataSync cloud management simplifies usage



# Configure Sweep Remotely

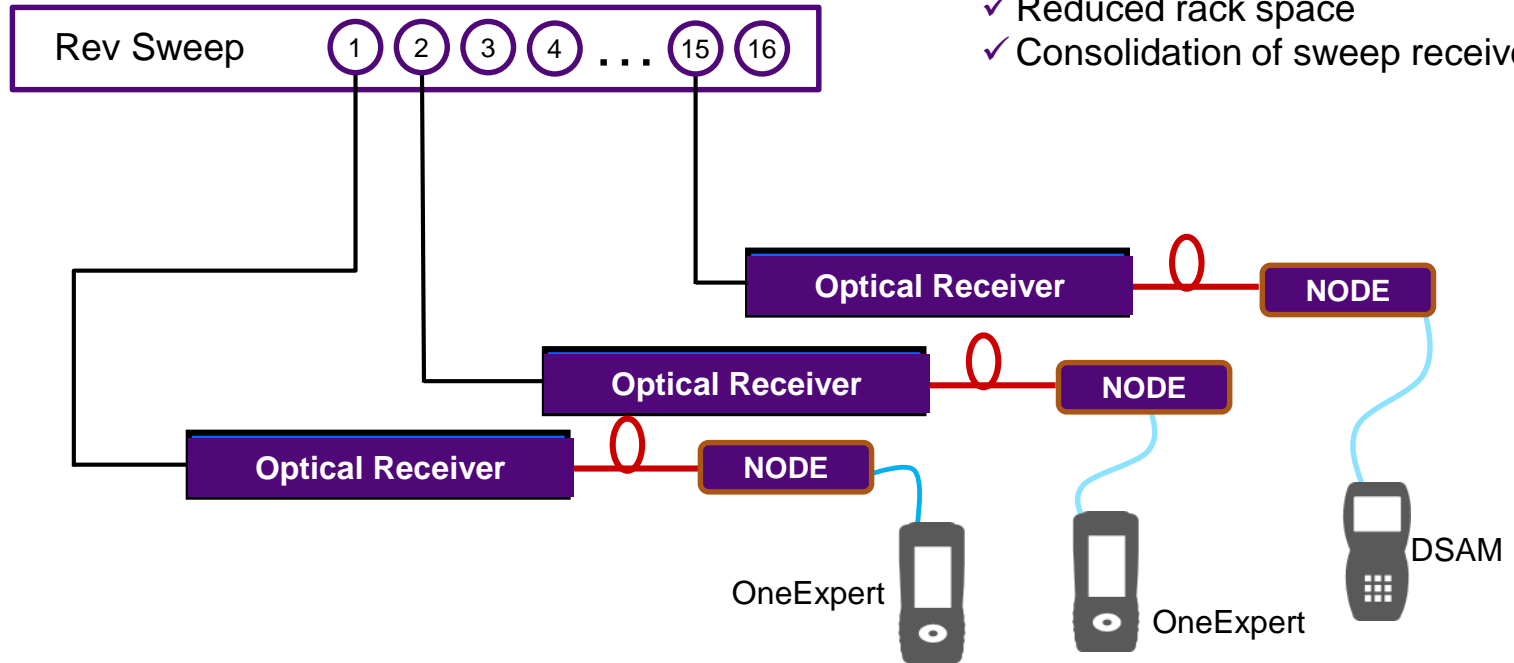


# Configure Sweep Locally from a laptop



# Multiple reverse sweep input ports

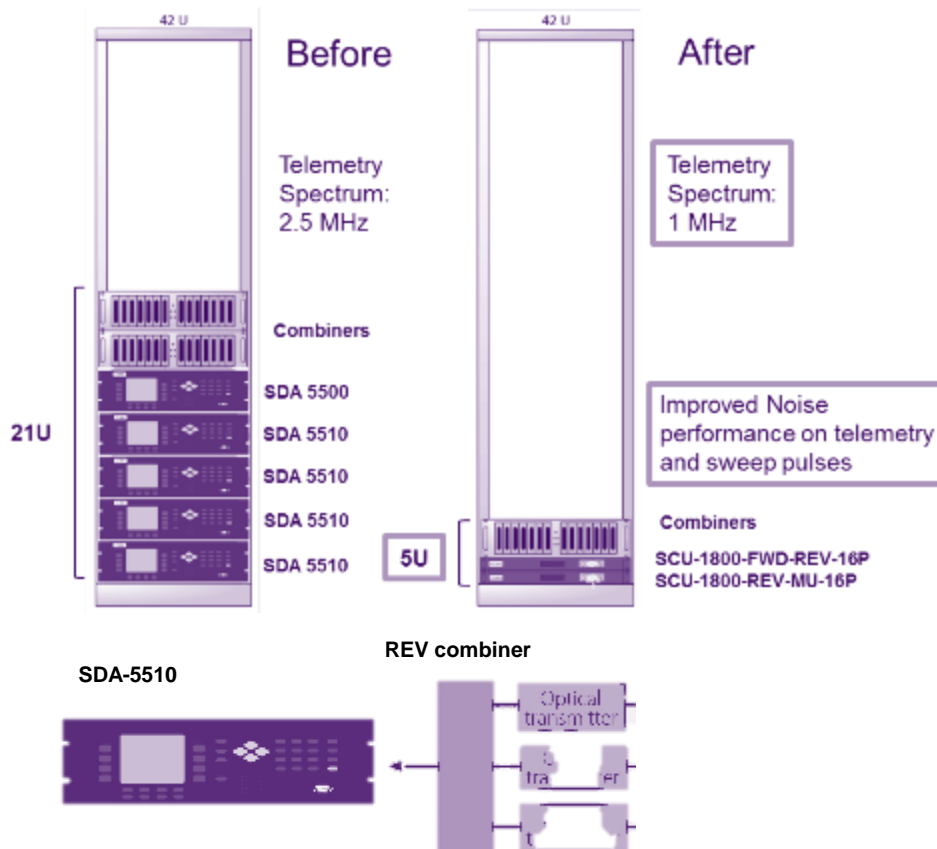
## Reduces costs and improves performance



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

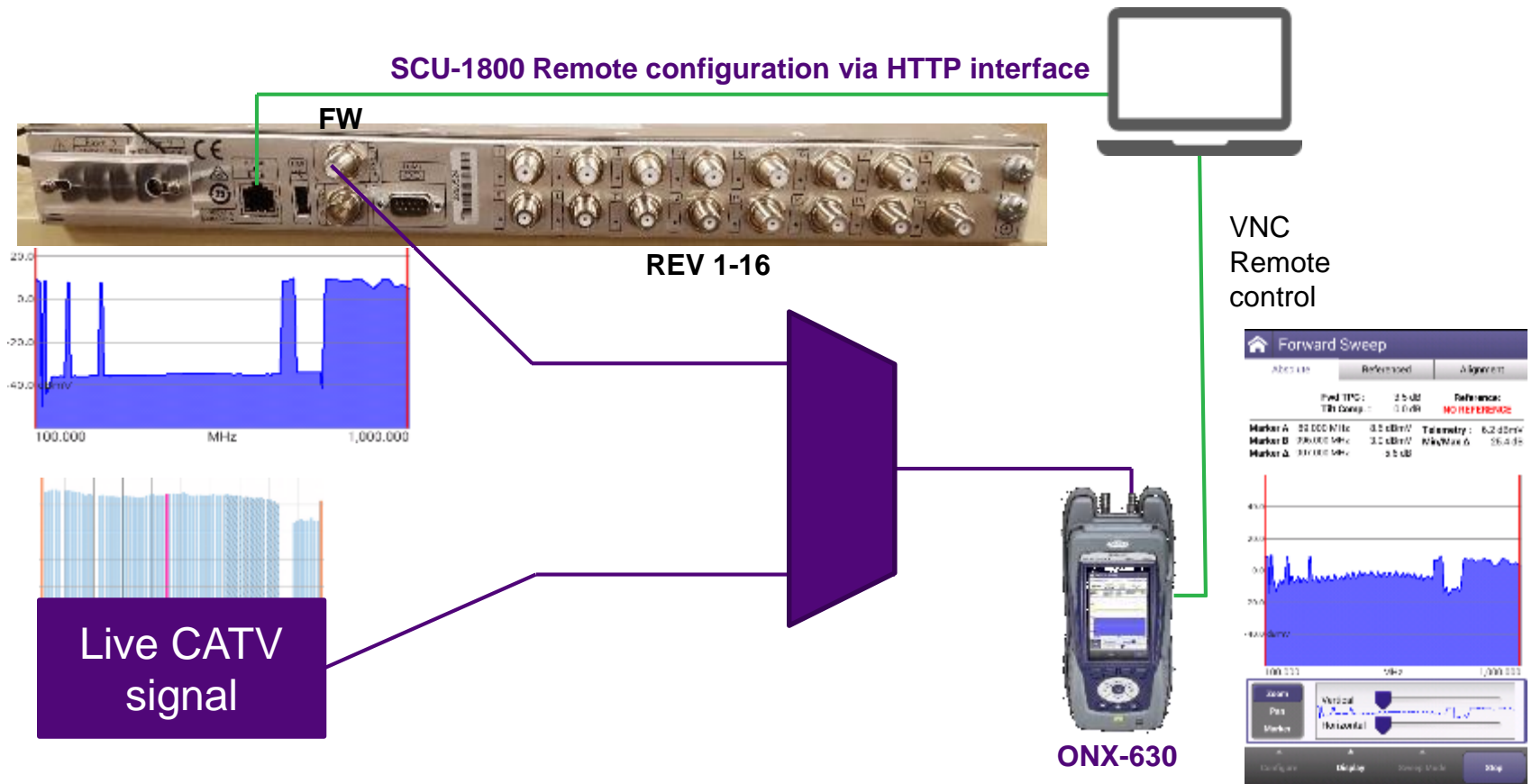


# SCU-1800 Benefits



- ✓ **Space conserving 1RU sweep control unit with 16 switchable return sweep ports**
  - ✓ Less combining required
  - ✓ Improved noise performance
- ✓ The headend/hub 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 **OneExpert CATV channel plan**
- ✓ Additionally, there is an **auto-fill** capability in which the **sweep points** are automatically injected in **unoccupied spectrum** areas.

# Live demo Forward Sweep



# Sweep Specifications

- **Telemetry**

- Frequency Range: 42 to 1,218 MHz
- Frequency Resolution: 10 kHz
- Modulation FSK : $\pm$ 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:  $\pm$  20 dBmV allowable input range;  $\pm$  0.75 dB typical;  $\pm$  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

## **ONX CATV – Sweep settings**

- Templates, settings for TPC**
- Method – Operations- Procedures**
- Examples**
- Forward Tilt compensation**

# Sweep settings examples:

Settings in ONX should match settings in Sweep Control Units

## SCU-1800 sweep settings

- ✓ **Forward Telemetry**
  - ✓ Frequency= 259 MHz
  - ✓ Level = 90 dB $\mu$ V (80-110)
- ✓ **Forward Sweep**
  - ✓ Level = 80 dB $\mu$ V (80-110)
- ✓ **Reverse Telemetry**
  - ✓ Frequency= 6 MHz



## Sweep Settings

Forward Telemetry Frequency (MHz)

Forward Telemetry Level (dB $\mu$ V)

Forward Sweep Level (dB $\mu$ V)

Reverse Telemetry Frequency (MHz)

Automatically start sweep at power on

## ✓ ONX sweep settings

- ✓ SDA5500 Telemetry = Forward Telemetry
  - ✓ Frequency= 259 MHz
- ✓ SDA5510 Telemetry = Forward Telemetry
  - ✓ Frequency= 259 MHz
- ✓ Reverse sweep User mode
  - ✓ Single user (SDA5500)
  - ✓ Multiple user (SDA5510)
- ✓ Sweep limits (0-20dB)



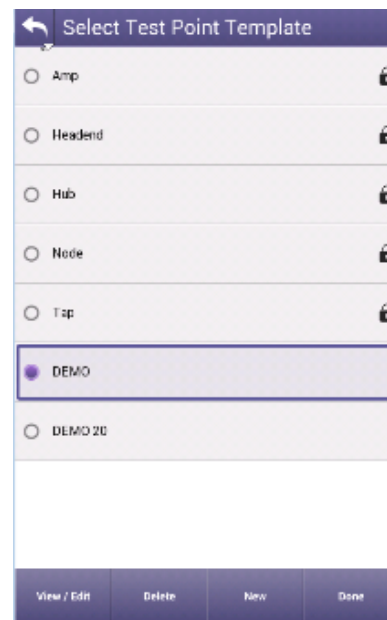
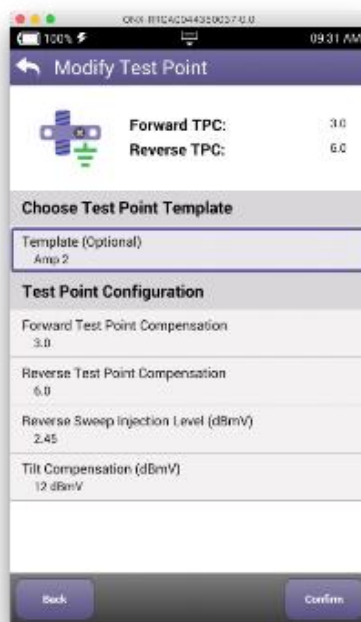
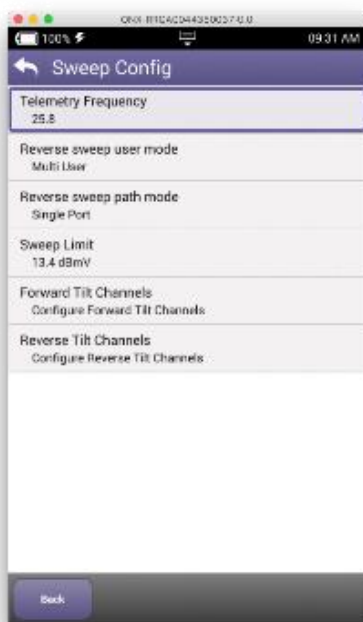
← Configure Sweep

**Changes will restart test**

SDA 5500 Telemetry Frequency	259.000 MHz
SDA 5510 Telemetry Frequency	115.000 MHz
Reverse Sweep User Mode	Single User
<input checked="" type="checkbox"/> Enable Sweep Limit	
Sweep Limit	2.0 dB

# ONX: Templates for Test Point Locations

- Configure Test Points for loss and sweep settings
- Easily switch between Test Points at any test
- Multiple test point locations can be customized and stored



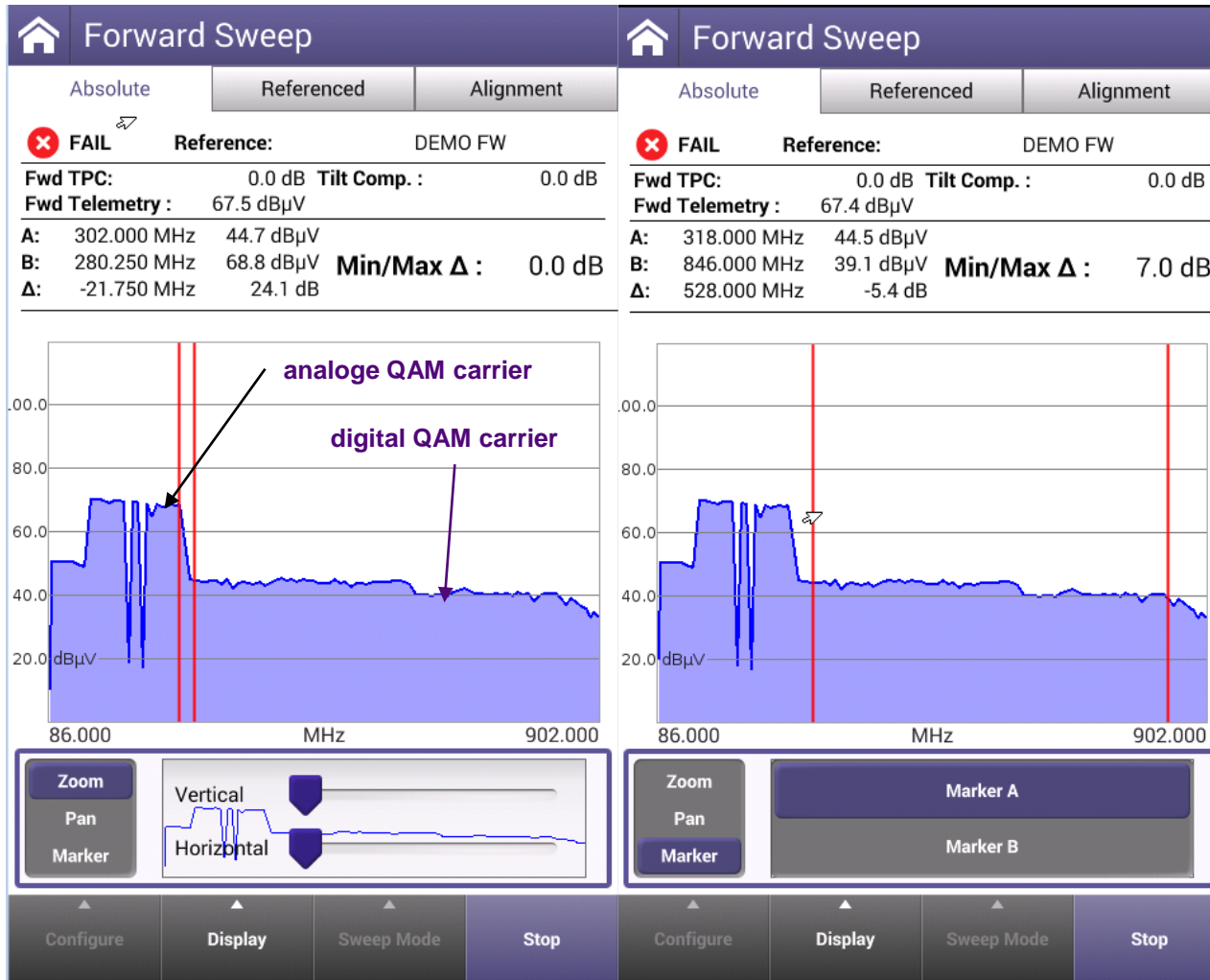
# ONX: Test Point Template settings

- **Forward TPC** Test Point Compensation (-100, +100 dB)
- **Reverse TPC** Test Point Compensation (-100, +100 dB)
- **Reverse Sweep injection** (68-113 dB $\mu$ V)
- **Reverse Telemetry Level** (68-113 dB $\mu$ V)
  
- **Forward Sweep Tilt Compensation** (-100, +100 dB)
- **Forward sweep Low Tilt Frequency**
- **Forward sweep High Tilt Frequency**
  
- **Reverse Port mode**
  - Single port (port 1 – ONX)
  - Dual port (port 1=FW, port 2=RV)

Configure Test Point Template	
<b>vasby</b>	
Forward Test Point Compensation	0.0 dB
Reverse Test Point Compensation	0 dB
Reverse Sweep Injection	80.0 dB $\mu$ V
Reverse Telemetry Level	80.0 dB $\mu$ V
Forward Tilt Compensation	0.0 dB
Forward Low Tilt Frequency	290.000 MHz
Forward High Tilt Frequency	786.000 MHz
Reverse Port Mode	Single Port

Select Test Point Template	
<input type="radio"/> Amp	
<input type="radio"/> Headend	
<input type="radio"/> Hub	
<input type="radio"/> Node	
<input type="radio"/> Tap	
<input checked="" type="radio"/> vasby	

# Forward Sweep Example





# Forward Sweep Example

Absolute sweep

Referenced sweep

Alignment

Forward Sweep

Absolute Referenced Alignment

**FAIL** Reference: DEMO FW

Fwd TPC: 0.0 dB Tilt Comp.: 0.0 dB  
 Fwd Telemetry: 67.4 dBμV

A: 318.000 MHz 44.5 dBμV  
 B: 846.000 MHz 39.0 dBμV  
 Δ: 528.000 MHz -5.5 dB

Min/Max Δ: 7.0 dB

86.000 MHz 902.000

Zoom Pan Marker

Marker A  
Marker B

Configure Display Sweep Mode Stop

Forward Sweep

Absolute Referenced Alignment

**PASS** Reference: DEMO FW SWEEP

Fwd TPC: 0.0 dB Tilt Comp.: 0.0 dB  
 Fwd Telemetry: 67.4 dBμV

A: 318.000 MHz 0.0 dB  
 B: 846.000 MHz 0.0 dB  
 Δ: 528.000 MHz 0.0 dB

Min/Max Δ: 0.2 dB

86.000 MHz 902.000

Zoom Pan Marker

Vertical  
Horizontal

Configure Display Sweep Mode Stop

Forward Sweep

Absolute Referenced Alignment

Fwd TPC: 0.0 dB

Freq (MHz)	Level (dBμV)
137.000	49.2
210.250	69.5
217.250	69.2
273.250	68.5
294.000	45.3
302.000	44.6
318.000	44.5
846.000	39.1

Configure Display Sweep Mode Stop

# Reverse Sweep Example

Absolute sweep

Referenced sweep

Alignment

Reverse Sweep

Absolute Referenced Alignment

**PASS** Reference: RV FW

Rev Telem RX: 53.6 dBμV Rev TPC: 0.0 dB  
 Rev Telem TX: 90.0 dBμV Fwd Telemetry: 65.8 dBμV  
 Rev Telem Δ: -36.4 dB Users: 1/10

Marker A	66.8 dBμV	Headend	64.8 dBμV	Marker B
19.000 MHz	100.0 dBμV	Meter	100.0 dBμV	63.000 MHz
	-33.2 dB	Delta	-35.2 dB	

Reverse Sweep

Absolute Referenced Alignment

**PASS** Reference: RV FW

Rev Telem RX: 53.6 dBμV Rev TPC: 0.0 dB  
 Rev Telem TX: 90.0 dBμV Fwd Telemetry: 65.8 dBμV  
 Rev Telem Δ: -36.4 dB Users: 1/10

A: 19.000 MHz -0.4 dB  
 B: 63.000 MHz -0.4 dB **Min/Max Δ: 0.3 dB**  
 Δ: 44.000 MHz 0.0 dB

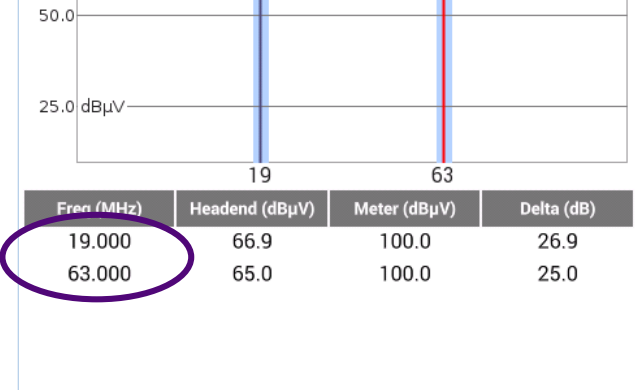
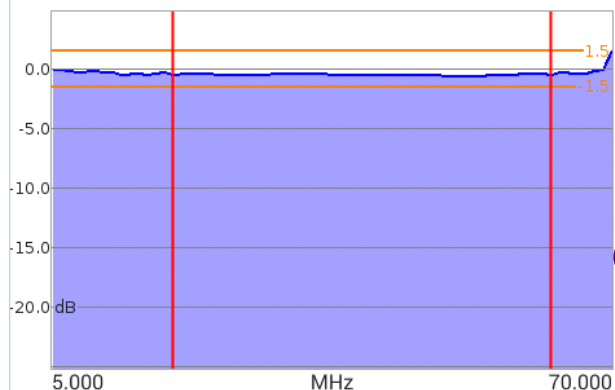
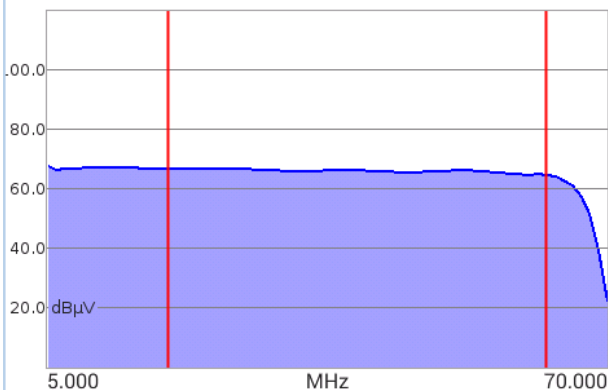
Reverse Sweep

Absolute Referenced Alignment

Rev TPC: 0.0 dB Rev Injection: 100.0 dBμV

Δ -1.9 dB

Freq (MHz)	Headend (dBμV)	Meter (dBμV)	Delta (dB)
19.000	66.9	100.0	26.9
63.000	65.0	100.0	25.0



Zoom Pan Marker

Marker A

Marker B

Zoom Pan Marker

Vertical

Horizontal

Configure Display Sweep Mode Stop

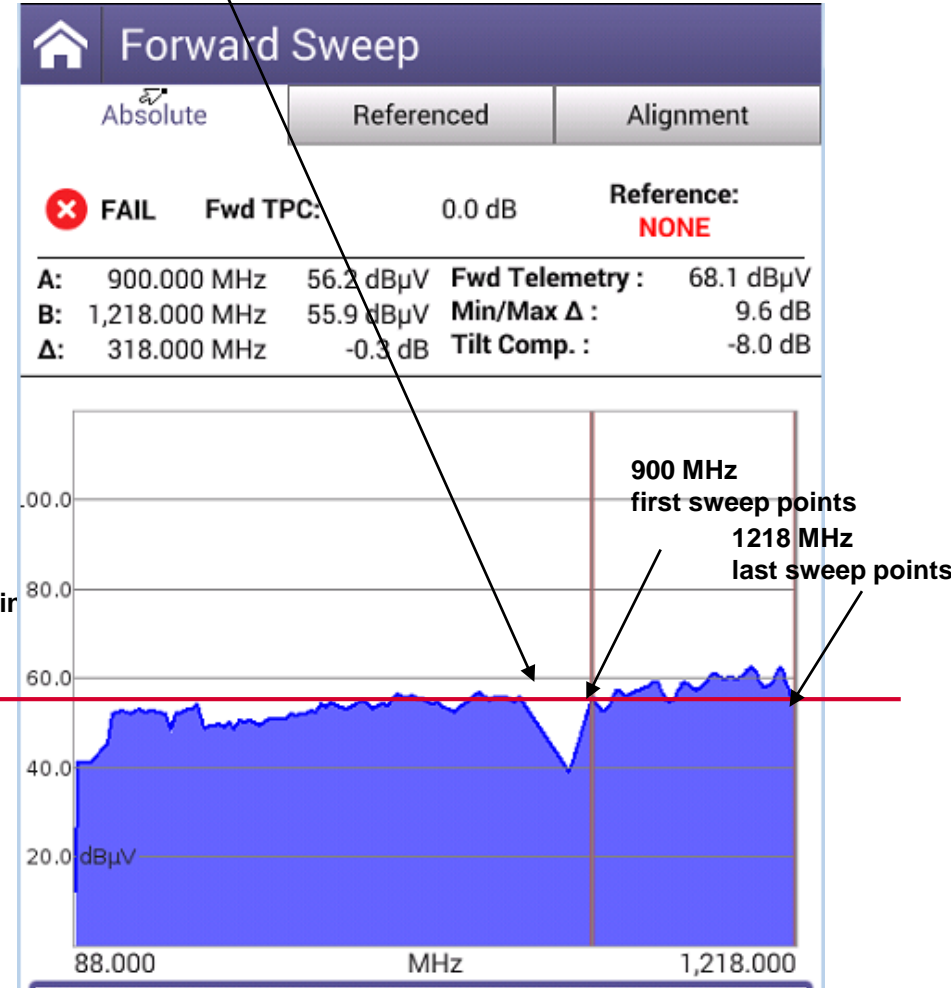
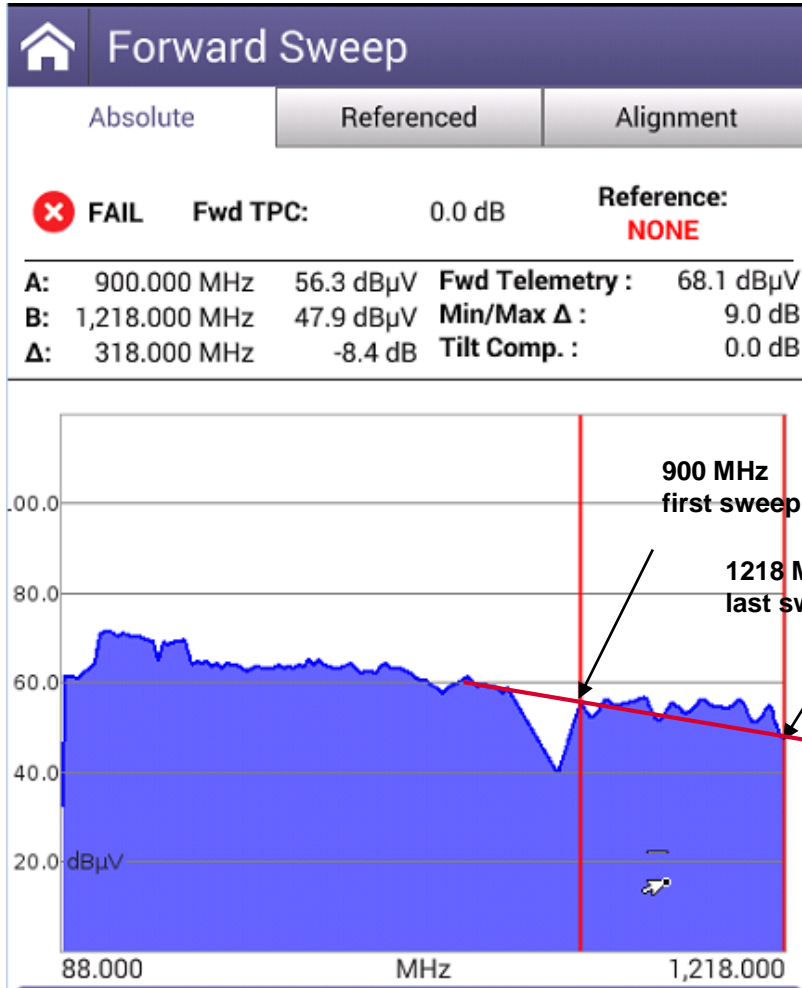
Configure Display Sweep Mode Stop

Configure Display Sweep Mode Stop

# Forward Tilt Compensation

Forward Tilt Compensation	-8.0 dB
Forward Low Tilt Frequency	900.000 MHz
Forward High Tilt Frequency	1,218.000 MHz

Apply sweep tilt compensation

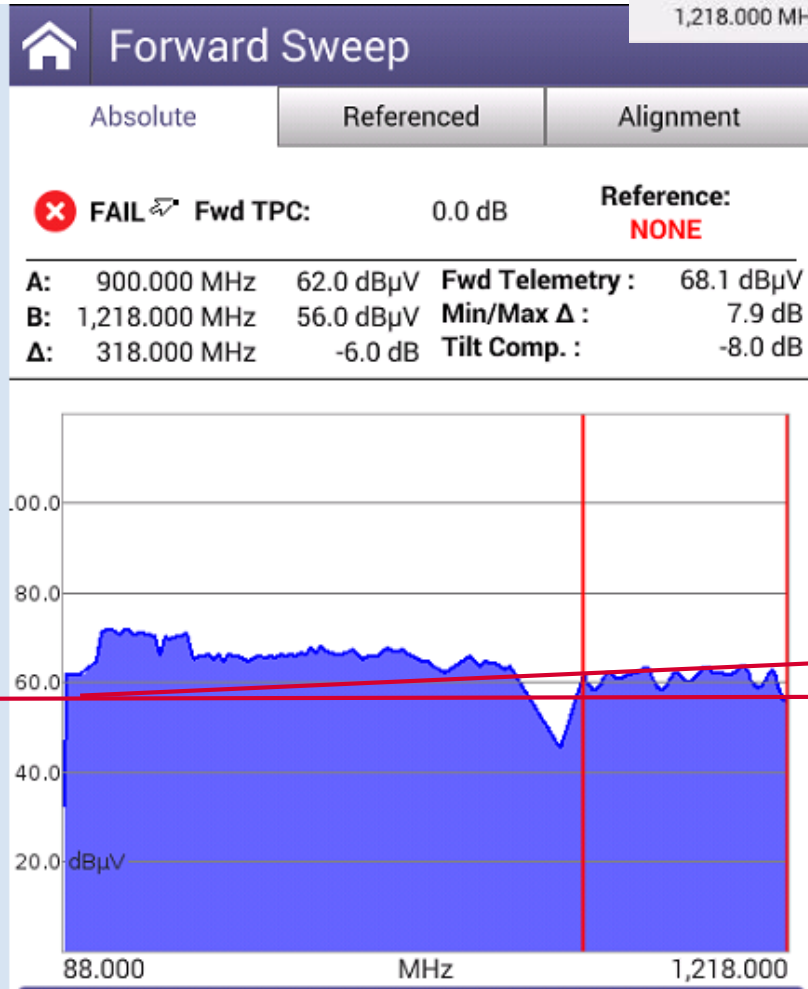
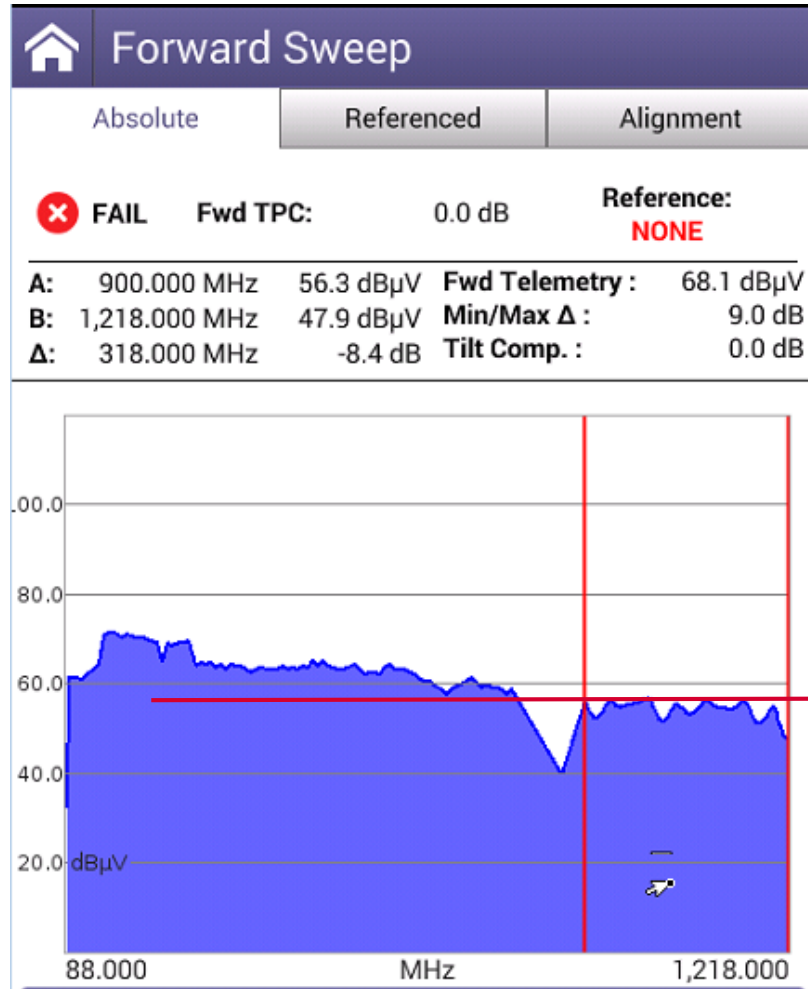


# Forward Tilt Compensation

Forward Tilt Compensation  
-8.0 dB

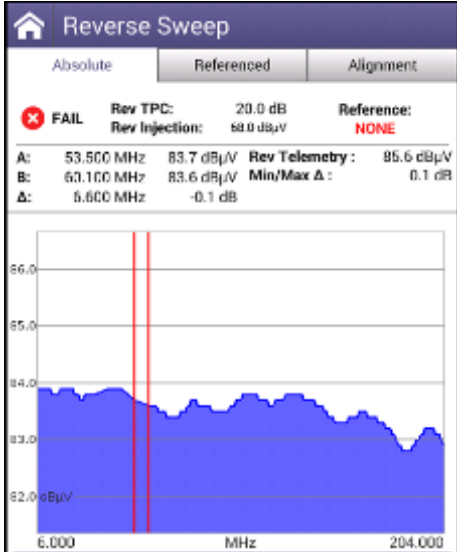
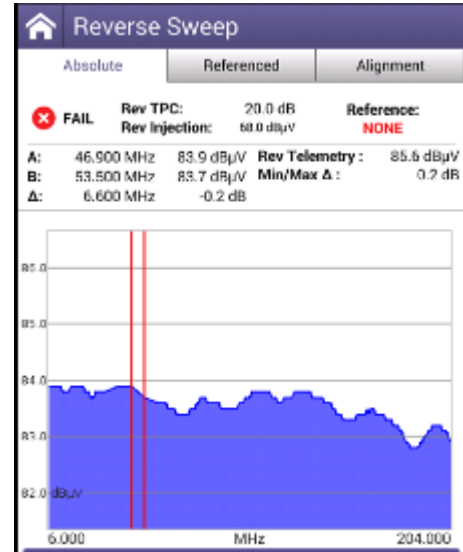
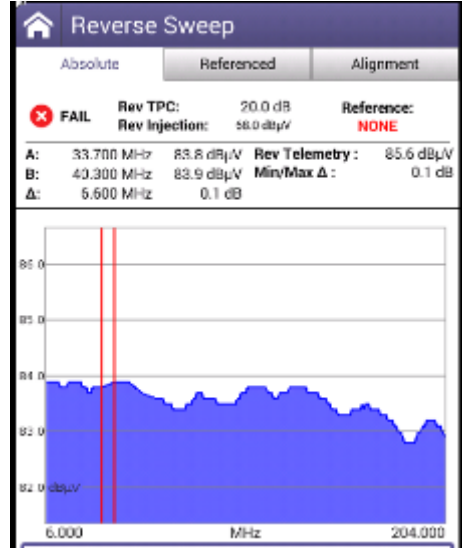
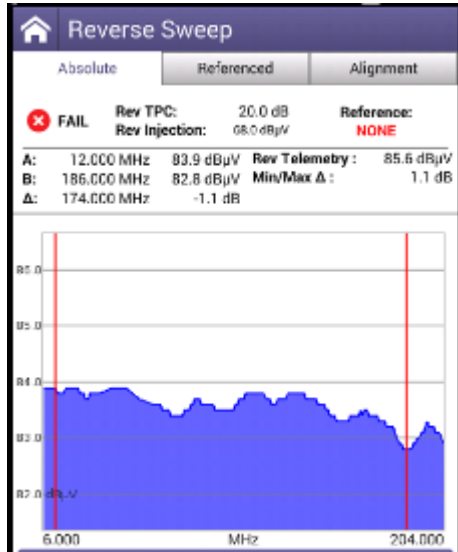
Forward Low Tilt Frequency  
90.000 MHz

Forward High Tilt Frequency  
1,218.000 MHz



# Reverse Sweep example

Reverse Test Point Compensation	20 dB
Reverse Sweep Injection	68.0 dBμV
Reverse Telemetry Level	80.0 dBμV



## **SCU-1800 – Sweep settings**

- forward sweep**
- new forward sweep plan (edit, build)**
- save channel plan with ONX**
- Examples**

# SCU-1800 Forward Sweep Configuration

SCU-1800 web access  
user: **scuadmin**  
password: **scuadmin**

Forward Sweep Select

New Forward Sweep Plan

Forward Sweep Plan Import

## Forward Sweep Select

Forward Sweep Plan Selector

Search:

Active ▾	Name ⇅	Sweep Points ⇅	Channels ⇅
✓	vasby1	161	84
	sweep in QAM2	18	0
	vasby1(copy)	161	84
	FW-260-1218-2	480	0
	sweep in QAM	497	0
	<b>FW-264-1218-6</b>	160	0

New Copy **Edit** Delete Import Export Activate Forward Plan

(new) Plan

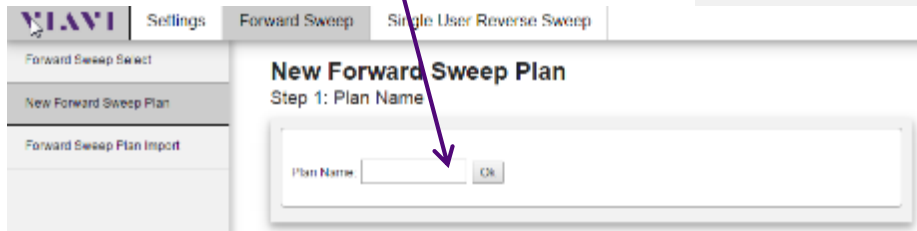
(edit) Plan

(import) Plan  
could be file from other SCU

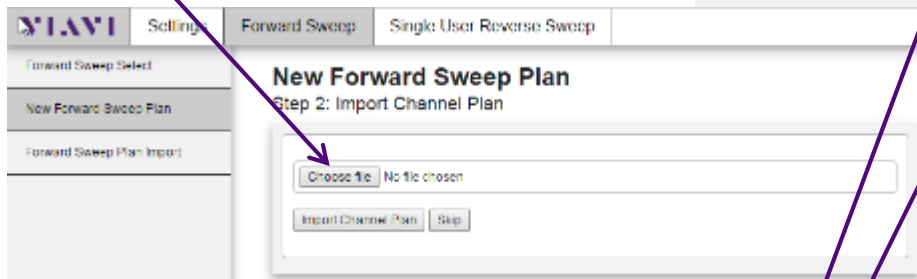
(export) Plan  
for sharing to other SCU

# New Forward Sweep Plan

## Step1: (new) Plan name

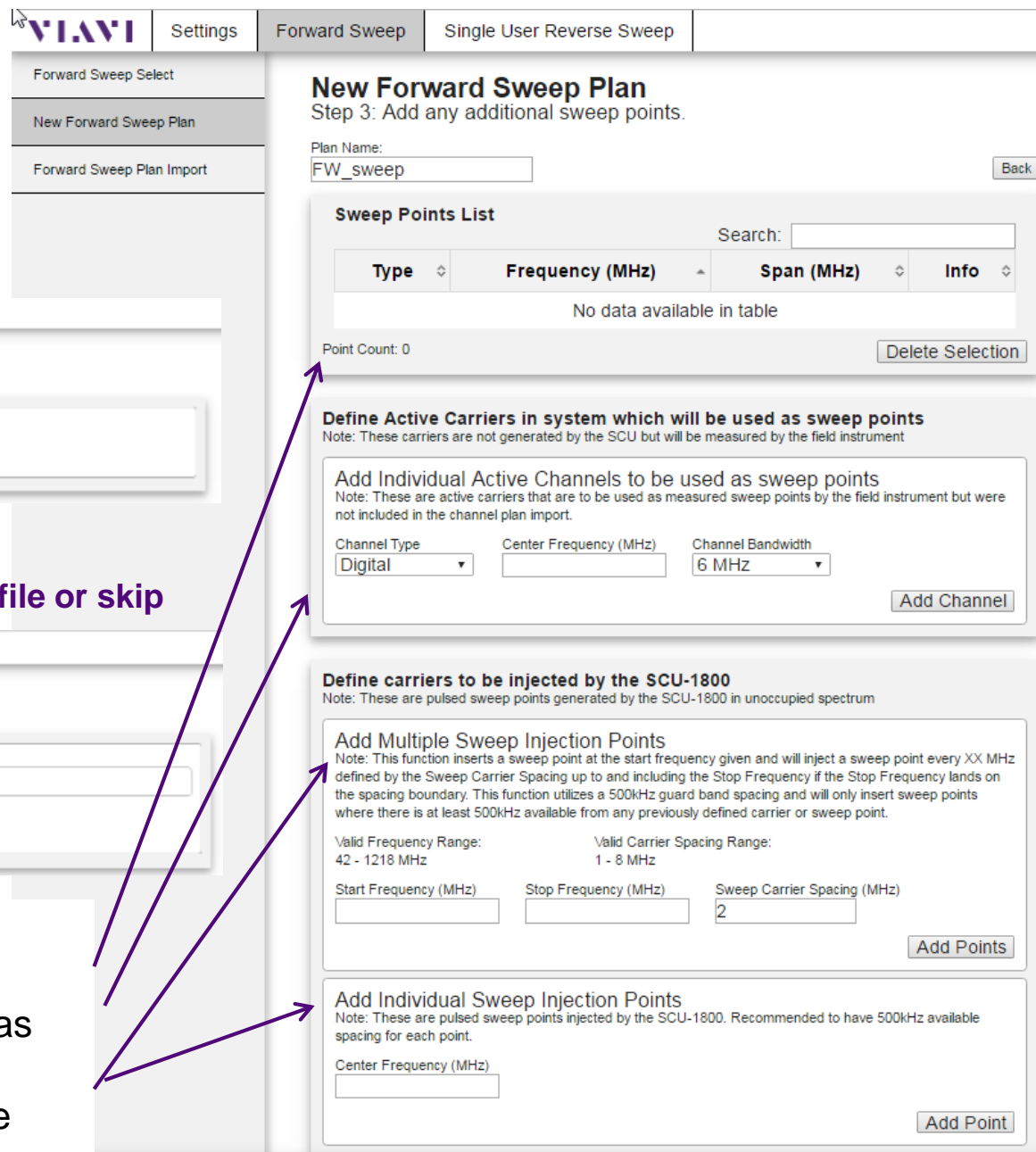


## Step2: import channel plan from file or skip



## Step3: new forward sweep plan

- ✓ Sweep point list
- ✓ Define active carriers to be used as sweep points
- ✓ Define sweep points carriers to be injected (Multiple or individual)





# Edit Forward Sweep Plan

The screenshot shows the VIavi software interface for editing a forward sweep plan. The 'Plan Name' is 'W-204-1218-6'. The 'Sweep Points List' table contains the following data:

Type	Frequency (MHz)	Span (MHz)	Info
Sweep Point	264.000		
Sweep Point	270.000		
Sweep Point	276.000		
Sweep Point	282.000		
Sweep Point	288.000		
Sweep Point	294.000		
Sweep Point	300.000		
Sweep Point	306.000		
Sweep Point	312.000		
Sweep Point	318.000		

The interface also shows a 'Point Count: 181' and a 'Delete Selection' button.

- **Sweep point** list
- Define sweep points carriers to be injected (Multiple or individual)

The screenshot shows the VIavi software interface for editing a forward sweep plan. The 'Plan Name' is 'vasby1'. The 'Sweep Points List' table contains the following data:

Type	Frequency (MHz)	Span (MHz)	Info
Channel	266.250	7	ANALOG
Channel	273.250	7	ANALOG
Channel	280.250	7	ANALOG
Channel	290.000	8	DIGITAL
Channel	298.000	8	DIGITAL
Channel	306.000	8	DIGITAL
Channel	314.000	8	DIGITAL
Channel	322.000	8	DIGITAL
Channel	330.000	8	DIGITAL
Channel	338.000	8	DIGITAL

The interface also shows a 'Point Count: 245' and a 'Delete Selection' button.

- **Sweep points** (channel) list
- Define active carriers to be used as sweep points

# Build Reverse Sweep Plan

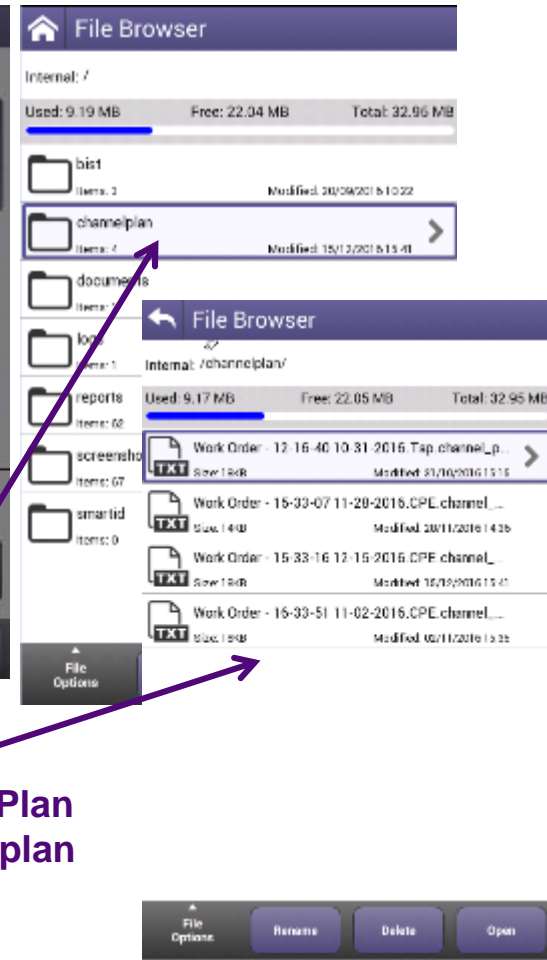
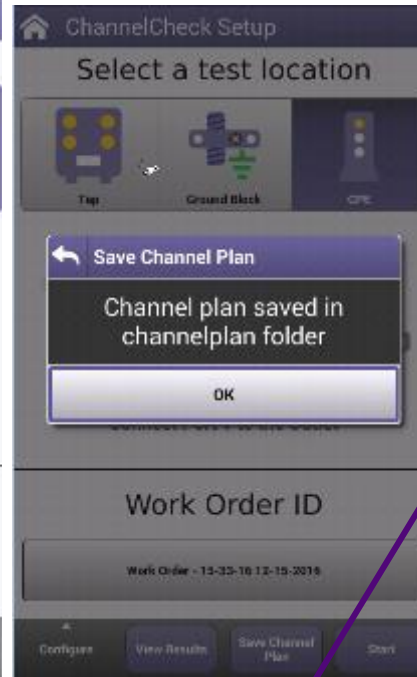
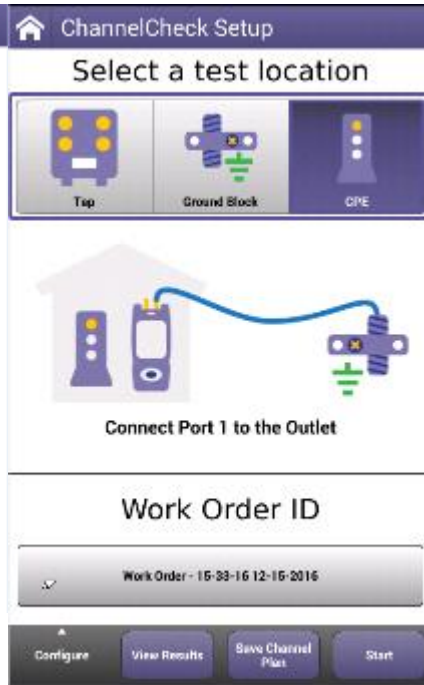
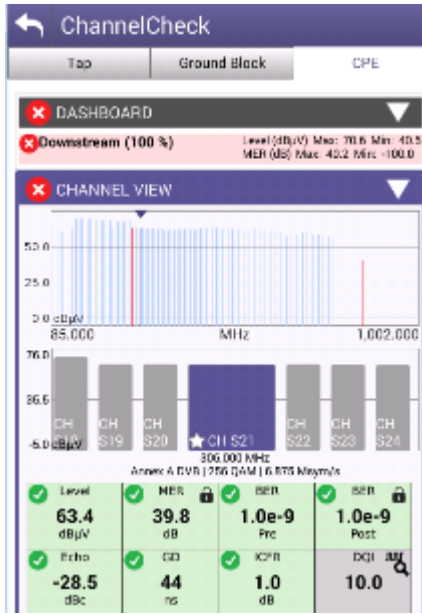
Active	Name	Sweep Points
<input checked="" type="checkbox"/>	rv_vasby	177
<input type="checkbox"/>	RV-4.204.2	101
<input type="checkbox"/>	rv_vasby(copy)	177

Type	Frequency (MHz)
Sweep Point	31,000
Sweep Point	32,000
Sweep Point	33,000
Sweep Point	33,700
Sweep Point	40,300
Sweep Point	46,900
Sweep Point	53,500
Sweep Point	60,100
Sweep Point	61,000
Sweep Point	62,000

- (new) Plan
- (edit) Plan
- (import) Plan  
(a saved file from other SCU)
- (export) Plan  
(for sharing to other SCU)

- Sweep point list
- Define sweep points carriers to be injected (Multiple or individual)

# Save Channel Plan with ONX CATV



✓ Step1: ChannelCheck

✓ Step2: Save Channel Plan

✓ Step3: Channel Plan saved in channel plan folder

✓ Step4: export channel plan to USB or StrataSync

✓ Step5: Retrieve channel plan and import file (json) into SCU-1800

**VI.VI**

**ONX CATV - StrataSync  
- Test Results**

# StrataSync – ONX CATV test result

onx50094

Save view | Save view as... | Customize view | Schedule Email

Download Report

Page 1 of 1

Actions For 0 selected record(s)

Asset Type	Asset Serial No	Asset Unique ID	Data Type	Data Format	Status	Creation Time	Filename	Full p filena
<input type="checkbox"/>		ARQA0001150094,				This week		
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	channelcheck	application/zip	None	06/13/2016 15:47	Work Order - 11:23:16 06... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	TESTDATA	application/zip	None	06/14/2016 14:59	session.Work Order - 13:... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	sessionexpert				1 session.Work Order - 12:... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	sessionexpert				9 session.Work Order - 13:... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	channelcheck					
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	channelcheck					
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	docsischeck					

FILTERS & VIEWS

**Test Report**

Test Report: **FAIL**

Test ID: 05442

Work Order: Work Order - 120027-06-15-2016

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**CPE**

**Downstream Channel Levels**

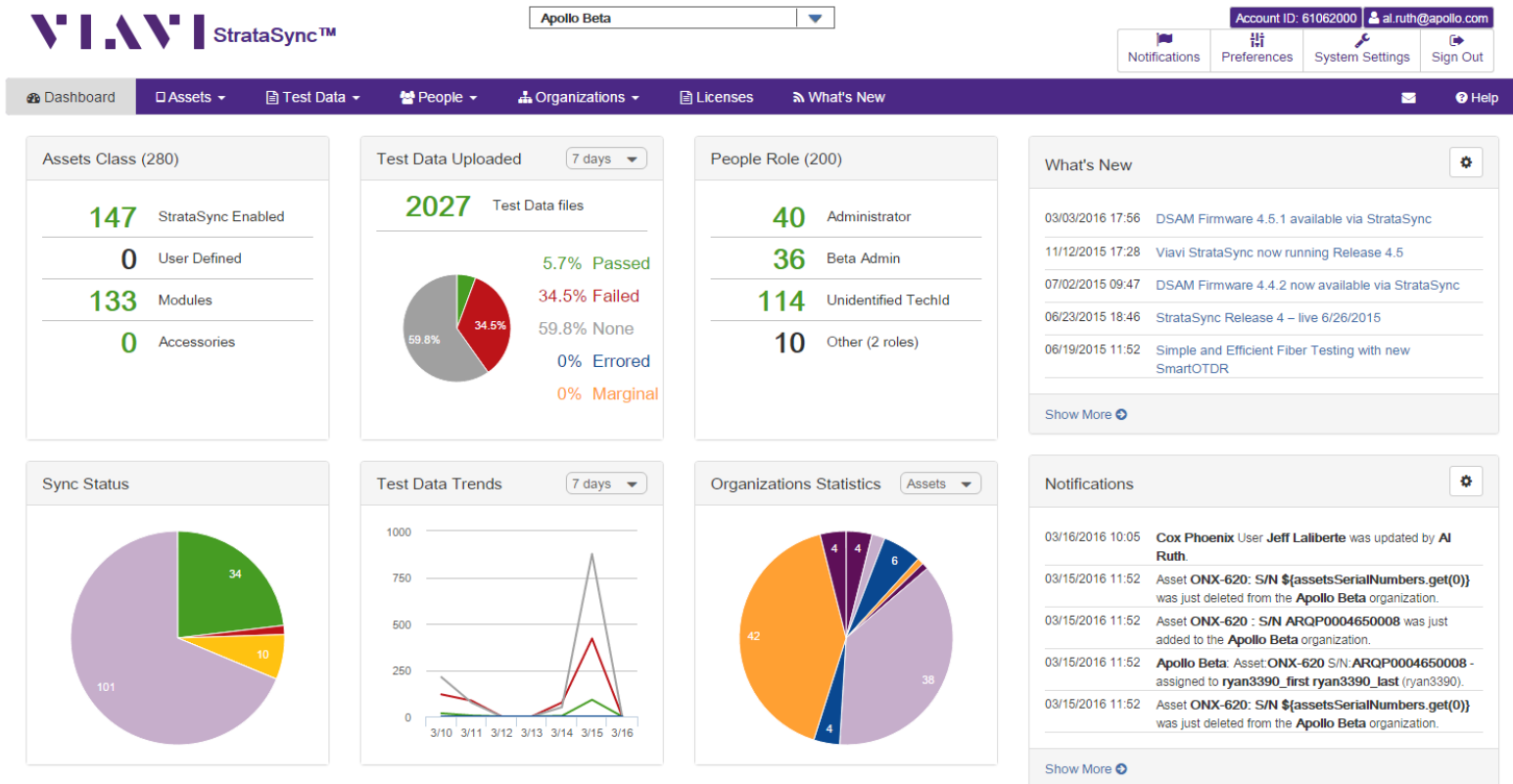
**Downstream TRF**

**Downstream Signal Scan**

Channel	Freq (MHz)	Level (dBmV)	MER (dB)	DCR (dB)	DCI (dB)	Code (dB)	Group Delay (ns)	KR (dB)	OS
12	120.000	0.5	23.3	-136.0	-136.0	-21.1	22	0.0	---
14	140.000	0.0	23.3	-136.0	-136.0	-23.9	20	1.0	---
15	154.000	2.0	23.5	-136.0	-136.0	-23.3	22	1.0	---
16	163.000	1.5	23.1	-136.0	-136.0	-23.1	20	1.0	---
17	170.000	0.5	23.2	-136.0	-136.0	-23.3	20	0.0	---
19	180.000	1.2	23.3	-136.0	-136.0	-21.7	24	0.0	---
20	194.000	1.0	23.3	-136.0	-136.0	-23.9	22	0.0	---
22	203.000	1.2	23.3	-136.0	-136.0	-23.3	22	0.0	---
23	210.000	0.2	23.7	-136.0	-136.0	-23.9	24	0.0	---
24	218.000	0.2	23.3	-136.0	-136.0	-23.1	20	0.0	---

# StrataSync – Cloud-Based Meter Management

- All high-level features for StrataSync are accessible from the main landing page
- Asset and Test Data information is displayed and details are available



# To access Configuration Templates

The screenshot displays the Viavi StrataSync™ dashboard interface. The top navigation bar includes the logo, the name 'Apollo Beta', and several menu items: Dashboard, Assets, Test Data, People, Organizations, Licenses, and What's New. The 'Assets' menu is highlighted with a red box, and its dropdown is open, showing options like 'Asset List', 'View Holding Bin', 'Add a new asset', 'Import Assets', 'Add/Edit asset type', 'Update Firmware', 'Manage Templates', and 'Manage Asset Options'. The 'Manage Templates' option is also highlighted with a red box. A secondary dropdown menu is visible, listing various asset types: CellAdvisor RFA, CellAdvisor SA, DSAM, FiberChek, HST, HST-3000, OneExpert CATV, OneExpert DSL, RANAdvisor, and SmartClass TPS. The 'OneExpert CATV' option is highlighted with a red box and a red number '3'. The dashboard also features several data visualization widgets: 'Assets Class' with counts (147, 0, 133, 0), 'Test Data Uploaded' for 2027 showing a pie chart with 5.7% Passed, 34.5% Failed, 59.8% None, 0% Errored, and 0% Marginal; 'People Role (200)' with counts for Administrator (40), Beta Admin (36), Unidentified TechId (114), and Other (10); 'Sync Status' with a pie chart (101, 34, 10); 'Organizations Statistics' with a pie chart (42, 4, 4, 6, 38, 4); and 'What's New' and 'Notifications' sections.

# Access or Create a New Limit Plan

- Limit Plans determine when a test result will end up being a Pass or Fail in relation to thresholds set
- In the Template screen, click on one of the selections in the “Global Archives” bubble on the left of the screen
- Users can create Limit Plans, DOCSIS Service Plans, Off Air Ingress Plans, and default Measurement Settings

The screenshot displays the Viavi StrataSync™ interface. At the top, the logo and 'Apollo Beta' version are visible. A navigation bar includes 'Dashboard', 'Assets', 'Test Data', 'People', 'Organizations', 'Licenses', and 'What's New'. The 'AI Test Group' is selected in a dropdown menu. A 'Notifications' button is also present.

The main content area is titled 'Manage Templates: OneExpert CATV change'. It features a 'Current Filters' section with a 'Remove all' button. Below this is the 'Global Archives' sidebar, where 'Limit Plan' is highlighted with a red box. Other options in the sidebar include 'DOCSIS Service Plan', 'Off-Air Ingress Plan', and 'Measurement Settings'.

An 'Actions' dropdown menu is set to 'For 0 selected record(s)'. The main table displays the following data:

	Name	Description	Asset Count	Organization	Full Org
<input type="checkbox"/>	Viavi Limits	Limits set for Indy	0	AI Test Group	Apollo B



# Limit Plan Window

VIIVI StrataSync™

AI Test Group

Apollo Beta

Account ID: 61062000 al.ruth@apollo.com

Notifications Preferences System Settings Sign Out

Dashboard Assets Test Data People Organizations Licenses What's New Help

Assets > Manage Templates > Global Archive

Global Archive: Limit Plan

Current Filters Remove all

Global Archives

- Limit Plan
- DOCSIS Service Plan
- Off-Air Ingress Plan
- Measurement Settings

Actions For 0 selected record(s)

+ New Limit Plan

Name	Path	Created On	Created By	Mod
<input type="checkbox"/>				
<input type="checkbox"/> 20151208_tom_test_plan.json	/cust/stratasync/config/limits/20151208_tom...	12/08/2015 17:37	tom.renken@apollo.com	
<input type="checkbox"/> 20160222_toms_test_limit_plan.json	/cust/stratasync/config/limits/20160222_toms...	02/22/2016 14:04	tom.renken@apollo.com	
<input type="checkbox"/> AI's Limit Plan.json	/cust/stratasync/config/limits/AI's Limit Plan.json	11/30/2015 15:25	al.ruth@apollo.com	
<input type="checkbox"/> CDC NGAN.json	/cust/stratasync/config/limits/CDC NGAN.json	02/12/2016 13:38	peter_hutnick@cable.comcas...	
<input type="checkbox"/> Central Division Limit Plan (Trial).json	/cust/stratasync/config/limits/Central Division...	09/23/2015 12:09	al.ruth@apollo.com	
<input type="checkbox"/> DKTV_test.json	/cust/stratasync/config/limits/DKTV_test.json	03/02/2016 09:19	matthias.jun@viavisolutions.c...	
<input type="checkbox"/> JJ_Test_Plan.json	/cust/stratasync/config/limits/JJ_Test_Plan.json	09/15/2015 09:12	joshua.johnson@jdsu.com	
<input type="checkbox"/> Jordan_Test.json	/cust/stratasync/config/limits/Jordan_Test.json	03/10/2016 16:53	jordan.gioco@jdsu.com	

- Choose from existing Limit Sets or select New Limit Plan

# Limit Plan Creation – Name New Limit Plan

- Enter Limit Plan name and Description and select Create

[Assets](#) > [Manage Templates](#) > [Global Archive](#) > [New](#)

### Create Limit Plan

Details Info

Name\*

Description

# Limit Plan Creation – Editing Limit Values/Types

- Set Limits for Tap, Ground Block or CPE
- The Type of limit is also selectable –
  - Error = Pass if results meet the limit requirements or Fail if results exceed limit
  - Warning = Pass but No Fail – rather the measurement is highlighted to bring attention to it if the result exceeds the limit
  - None = Test result is shown but no Pass or Fail criteria is applied to the result

Assets > Manage Templates > Global Archive > Edit Test1.json

**Limit Plan**

Tap      Ground Block      CPE

Limit Name	Value	Type
Minimum Video Level	5      dBmV	Error ▼
Maximum Video Level	35      dBmV	Error ▼
Minimum Delta V/A	10      dB	Error ▼
Maximum Delta V/A	17      dB	Error ▼
Maximum Adjacent Channel Delta	3      dB	Error ▼

Save      Cancel

# Limit Plan – Deploy Limits

- Limit Plans can be deployed to Meter or Copied to Templates
- Check the box of the limit plan to be deployed, right click or select Actions
  - Click “Deploy” or Copy to Template

Assets > Manage Templates > Global Archive

## Global Archive: Limit Plan

Current Filters Remove all

+ New Limit Plan

Actions For 1 selected record(s)

Page 1 of 1

### Global Archives

Limit Plan

DOCSIS Service Plan

Off-Air Ingress Plan

Measurement Settings

Name	Path	Created On	Created By	Mod
<input type="checkbox"/> test				
<input checked="" type="checkbox"/> Test1.json	/cust/stratasync/config/limits/Test1.json	02/19/2016 09:50	rich.russell@apollo.com	

- View
- Edit
- Rename
- Deploy**
- Copy To Template
- Delete

# Deployment – Meter Selection

- Check the boxes next to one or more OneExpert and then select Next in bottom right corner of the screen

Actions ▾ For 2 selected record(s) Page 1 of 1

<input type="checkbox"/>	Asset No	Unique ID	Serial No	Template <sup>2</sup>	Template status <sup>1</sup>	Tech First Name	Tech Last Name
<input checked="" type="checkbox"/>		ARQA0001150110	ARQA0001150110		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150014	ARQB0001150014		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150063	ARQB0001150063		None	Jeremy	H
<input checked="" type="checkbox"/>		ARQA0001150066	ARQA0001150066		None	Jeremy	H

Page Size 15 ▾

Next ▶

# Access or Create a New DOCSIS Service Plan

- In the Template screen, click on one of the selections in the “Global Archives” bubble on the left of the screen
- Select DOCSIS Service Plans

The screenshot displays the Viavi StrataSync™ user interface. At the top left is the Viavi logo and 'StrataSync™' text. To the right is a dropdown menu for 'AI Test Group' and the text 'Apollo Beta'. Further right is a 'Notifications' button. Below this is a dark purple navigation bar with links for 'Dashboard', 'Assets', 'Test Data', 'People', 'Organizations', 'Licenses', and 'What's New'. The main content area is titled 'Manage Templates: OneExpert CATV change'. On the left, there is a 'Global Archives' sidebar with a list of options: 'Limit Plan', 'DOCSIS Service Plan' (highlighted with a red box), 'Off-Air Ingress Plan', and 'Measurement Settings'. Above this sidebar is a 'Current Filters' section with a 'Remove all' button. To the right of the sidebar is an 'Actions' dropdown menu for '0 selected record(s)'. Below this is a table with the following columns: 'Name', 'Description', 'Asset Count', 'Organization', and 'Full Org'. The table contains one row with the following data: 'Viavi Limits', 'Limits set for Indy', '0', 'AI Test Group', and 'Apollo B'.

Name	Description	Asset Count	Organization	Full Org
<input type="checkbox"/> Viavi Limits	Limits set for Indy	0	AI Test Group	Apollo B

# DOCSIS Service Plan Window

- Choose from existing Limit Sets or select New Limit Plan

Assets > Manage Templates > Global Archive

## Global Archive: DOCSIS Service Plan

Current Filters Remove all

✕ Name test

### Global Archives

- Limit Plan
- DOCSIS Service Plan
- Off-Air Ingress Plan
- Measurement Settings

+ New DOCSIS Service Plan

Actions For 0 selected record(s)

Page 1 of 1

	Name	Path	Created On	Created By	Mod
<input type="checkbox"/>	test				
<input type="checkbox"/>	Test.oxs	/cust/private/userconfigs/cable/docsisprofile...	10/21/2015 13:54	vincent.zipparo@jdsu.com	
<input type="checkbox"/>	Test2.oxs	/cust/private/userconfigs/cable/docsisprofile...	11/19/2015 10:58	vincent.zipparo@jdsu.com	
<input type="checkbox"/>	test-upc austria.oxs	/cust/private/userconfigs/cable/docsisprofile...	01/21/2016 09:40	matthias.jun@viavisolutions.c...	
<input type="checkbox"/>	TestingVersionNumber.oxs	/cust/private/userconfigs/cable/docsisprofile...	01/22/2016 15:47	vincent.zipparo@jdsu.com	
<input type="checkbox"/>	test.oxs	/cust/private/userconfigs/cable/docsisprofile...	01/27/2016 04:09	shuo.pan@onxbeta.com	

# DOCSIS Service Plan – Name New DOCSIS Service Plan

- Enter DOCSIS Service Plan name and Description and select Create

Assets > Manage Templates > Global Archive > New

### Create DOCSIS Service Plan

Details Info

Name\*

Description



# DOCSIS Service Plan – Configuration

- Each of the ONX's 5 different Cable Modem MAC addresses can be configured independently
  - Label – This name will appear on the ONX under the Registration Information presented during a DOCSIS test to ensure the proper Service plan was selected
  - Downstream Throughput URL – Enter the IP/URL address and file name of the HTTP server and test file that the ONX will use to download and calculate downstream throughput speeds (Ex: <http://testurl.com/testfile.zip> or <http://12.34.56.78/testfile.zip>)
  - Upstream Throughput URL - Enter the IP/URL address of the HTTP server the ONX will use to send data to and calculate upload throughput speeds (Ex: <http://testurl.com> or <http://12.34.56.78>) typically is the same IP/URL as downstream
  - VoIPCheck Server – If a VoIPCheck reflection server is available this can be entered into the VoIPCheck Server field (Note: VoIPCheck is not yet implemented on ONX)

Assets > Manage Templates > Global Archive > Edit Test.oss

DOCSIS Service Plan				
CM MAC 1	CM MAC 2	CM MAC 3	CM MAC 4	CM MAC 5
<b>General Info</b>				
Enabled <input checked="" type="checkbox"/>				
Label		<input type="text" value="Max Speed Service Plan"/>		
Type		<input type="text" value="Modem"/>		
DOCSIS Emulation Type		<input type="text" value="DOCSIS 3.1 - 32x8"/>		
DOCSIS 3.0 Certificate Type		<input type="text" value="US"/>		
Downstream Throughput URL		<input type="text" value="http://CATVSpeedTest.viavisolutions.cc"/>		
Upstream Throughput URL		<input type="text" value="http://CATVSpeedTest.viavisolutions.cc"/>		
VoIPCheck Server		<input type="text" value="173.115.99.62:5121"/>		

# DOCSIS Service Plan – Configuration Cont.

- Data Limits can be set in the DOCSIS Service Plan to perform Pass/Fail, Warn, or None for each one of the Limits configured
  - Type, like in the Limit Plans, determine how the test result is presented on the ONX
- The VoIPCheck Limits are also configurable (Note: ONX does not currently perform VoIPCheck testing, these limits can be set for future use)

## Data Limits

Limit Name	Value		Type
Minimum Downstream Throughput	<input type="text" value="10"/>	Mbit/s	Error Min ▼
Minimum Upstream Throughput	<input type="text" value="10"/>	Mbit/s	Error Min ▼
Maximum Packet Loss Percentage	<input type="text" value="0.2"/>	%	
Packet Quality Maximum Delay	<input type="text" value="82"/>	ms	
Packet Quality Maximum Jitter	<input type="text" value="7"/>	ms	

## VoIPCheck Limits

Limit Name	Value		Type
Average Packet Loss	<input type="text" value="0.4"/>	%	Error Max ▼
Maximum Packet Loss	<input type="text" value="0.5"/>	%	Error Max ▼
Average Jitter	<input type="text" value="5"/>	ms	Error Max ▼
Maximum Jitter	<input type="text" value="7"/>	ms	Error Max ▼
Average Delay	<input type="text" value="40"/>	ms	Error Max ▼
Maximum Delay	<input type="text" value="82"/>	ms	Error Max ▼

Save

Cancel

# DOCSIS Service Plan – Deploy

- DOCSIS Service Plans can be deployed to Meter or Copied to Templates
- Check the box of the DOCSIS Service Plan to be deployed, right click or select Actions
  - Click “Deploy” or Copy to Template

Assets > Manage Templates > Global Archive

## Global Archive: DOCSIS Service Plan

Current Filters Remove all

Name test

**Global Archives**

- Limit Plan
- DOCSIS Service Plan
- Off-Air Ingress Plan
- Measurement Settings

+ New DOCSIS Service Plan

Page 1 of 1

Actions For 1 selected record(s)

Name	Path	Created On	Created By
<input type="checkbox"/> test			
<input checked="" type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	10/21/2015 13:54	vincent.zipparo@jdsu.com
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	11/19/2015 10:58	vincent.zipparo@jdsu.com
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	01/21/2016 09:40	matthias.jun@viavisolutions.c...
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	01/22/2016 15:47	vincent.zipparo@jdsu.com
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	01/27/2016 04:09	shuo.pan@onxbeta.com

Context menu for selected record:

- View
- Edit
- Rename
- Deploy**
- Copy To Template
- Delete

# Deployment – Meter Selection

- Check the boxes next to one or more OneExpert and then select Next in bottom right corner of the screen

Actions ▾ For 2 selected record(s) Page 1 of 1

<input type="checkbox"/>	Asset No	Unique ID	Serial No	Template <sup>2</sup>	Template status <sup>1</sup>	Tech First Name	Tech Last Name
<input checked="" type="checkbox"/>		ARQA0001150110	ARQA0001150110		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150014	ARQB0001150014		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150063	ARQB0001150063		None	Jeremy	H
<input checked="" type="checkbox"/>		ARQA0001150066	ARQA0001150066		None	Jeremy	H

Page Size 15 ▾

Next ▶

# Off-Air Ingress Plan Window

- Choose from existing Off-Air Ingress Plan or select New Off-Air Ingress Plan

Assets > Manage Templates > Global Archive

## Global Archive: DOCSIS Service Plan

Current Filters Remove all

✕ Name test

### Global Archives

[Limit Plan](#)

[DOCSIS Service Plan](#)

[Off-Air Ingress Plan](#)

[Measurement Settings](#)

Actions For 0 selected record(s)

+ New DOCSIS Service Plan

Page 1 of 1

	Name	Path	Created On	Created By	Mod
<input type="checkbox"/>	test				
<input type="checkbox"/>	Test.oxs	/cust/private/userconfigs/cable/docsisprofile...	10/21/2015 13:54	vincent.zipparo@jdsu.com	
<input type="checkbox"/>	Test2.oxs	/cust/private/userconfigs/cable/docsisprofile...	11/19/2015 10:58	vincent.zipparo@jdsu.com	
<input type="checkbox"/>	test-upc austria.oxs	/cust/private/userconfigs/cable/docsisprofile...	01/21/2016 09:40	matthias.jun@viavisolutions.c...	
<input type="checkbox"/>	TestingVersionNumber.oxs	/cust/private/userconfigs/cable/docsisprofile...	01/22/2016 15:47	vincent.zipparo@jdsu.com	
<input type="checkbox"/>	test.oxs	/cust/private/userconfigs/cable/docsisprofile...	01/27/2016 04:09	shuo.pan@onxbeta.com	

# Off-Air Ingress Plan – Configuration

- Off-Air Ingress Plans are used to designate which frequencies the ONX will measure during the OneCheck test for ingress interferers in the downstream frequency range
  - Find LTE or terrestrial broadcast interferers on the HFC network
  - If a QAM carrier is in the band the ONX uses its Ingress Under the Carrier feature to see the noise floor below a QAM channel, if the spectrum is vacant the ONX will look at the spectral response in the band(s) to see if the limit is exceeded
- Enter the Label, Start, Stop, Limit value, and Limit Type for each Ingress band desired
- Use the green + or red – to add or delete Off-Air Ingress bands

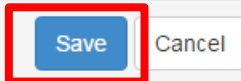
Assets > Manage Templates > Global Archive > Edit Test Off-Air Ingress Plan.oxs

## Off-Air Ingress Band

Label	Start Frequency		Stop Frequency		Limit		Limit Type
LTE Band C1	746	MHz	757	MHz	-20	dBmV	Error Max
LTE Band C2	776	MHz	787	MHz	-20	dBmV	Error Max
LTE Band B1	704	MHz	710	MHz	-20	dBmV	Error Max
LTE Band B2	734	MHz	740	MHz	-20	dBmV	Error Max



Press the SAVE button to save the Off-Air Ingress Plan configuration



# Off-Air Ingress Plan – Deploy

- Off-Air Ingress Plan can be deployed to Meter or Copied to Templates
- Check the box of the Off-Air Ingress Plan to be deployed, right click or select Actions
  - Click “Deploy” or Copy to Template

Assets > Manage Templates > Global Archive

## Global Archive: DOCSIS Service Plan

Current Filters Remove all

Name test

**Global Archives**

- Limit Plan
- DOCSIS Service Plan
- Off-Air Ingress Plan
- Measurement Settings

+ New DOCSIS Service Plan

Page 1 of 1

Actions For 1 selected record(s)

Name	Path	Created On	Created By	M
<input type="checkbox"/> test				
<input checked="" type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	10/21/2015 13:54	vincent.zipparo@jdsu.com	
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	11/19/2015 10:58	vincent.zipparo@jdsu.com	
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	01/21/2016 09:40	matthias.jun@viavisolutions.c...	
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	01/22/2016 15:47	vincent.zipparo@jdsu.com	
<input type="checkbox"/> test	/cust/private/userconfigs/cable/docsisprofile...	01/27/2016 04:09	shuo.pan@onxbeta.com	

Context menu for selected record:

- View
- Edit
- Rename
- Deploy**
- Copy To Template
- Delete

# Deployment – Meter Selection

- Check the boxes next to one or more OneExpert and then select Next in bottom right corner of the screen

Actions ▾ For 2 selected record(s) Page 1 of 1

<input type="checkbox"/>	Asset No	Unique ID	Serial No	Template <sup>2</sup>	Template status <sup>1</sup>	Tech First Name	Tech Last Name
<input checked="" type="checkbox"/>		ARQA0001150110	ARQA0001150110		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150014	ARQB0001150014		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150063	ARQB0001150063		None	Jeremy	H
<input checked="" type="checkbox"/>		ARQA0001150066	ARQA0001150066		None	Jeremy	H

Page Size 15 ▾

Next ▶



# Access or Create a New Measurement Settings

- Access or Create a New Measurement Settings

The screenshot displays the Viavi StrataSync™ web application interface. At the top left is the Viavi logo and 'StrataSync™' text. To the right, there is a dropdown menu for 'AI Test Group' and the text 'Apollo Beta'. Further right is a 'Notifications' button. Below these elements is a dark purple navigation bar with icons and labels for 'Dashboard', 'Assets', 'Test Data', 'People', 'Organizations', 'Licenses', and 'What's New'. The main content area is titled 'Manage Templates: OneExpert CATV' with a 'change' link. On the left, there is a sidebar with 'Current Filters' and 'Global Archives'. Under 'Global Archives', the 'Measurement Settings' option is highlighted with a red rectangle. The main area shows an 'Actions' dropdown for 0 selected records and a table with columns: Name, Description, Asset Count, Organization, and Full Org. The table contains one row: 'Viavi Limits' with description 'Limits set for Indy', '0' asset count, 'AI Test Group' organization, and 'Apollo B' full org.

VIIVI StrataSync™

AI Test Group

Apollo Beta

Notifications

Dashboard Assets Test Data People Organizations Licenses What's New

Manage Templates: OneExpert CATV [change](#)

Current Filters [Remove all](#)

Global Archives

- Limit Plan
- DOCSIS Service Plan
- Off-Air Ingress Plan
- Measurement Settings**

Actions For 0 selected record(s)

Name	Description	Asset Count	Organization	Full Org
<input type="checkbox"/> Viavi Limits	Limits set for Indy	0	AI Test Group	Apollo B

# Measurement Settings Window

- Choose from existing Measurement Settings or select New Measurement Settings

Assets > Manage Templates > Global Archive

## Global Archive: Measurement Settings

Current Filters Remove all

### Global Archives

- Limit Plan
- DOCSIS Service Plan
- Off-Air Ingress Plan
- Measurement Settings

[+ New Measurement Settings](#)

Actions For 0 selected record(s)

Page 1 of 1

	Name	Path	Created On	Created By	M
<input type="checkbox"/>					
<input type="checkbox"/>	No Docsis Service tests.oxs	/cust/private/userconfigs/cable/measurement...	09/14/2015 10:46	shaun.greene@apollo.com	
<input type="checkbox"/>	IncludeServiceTests.oxs	/cust/private/userconfigs/cable/measurement...	09/14/2015 11:29	shaun.greene@apollo.com	
<input type="checkbox"/>	All Disabled.oxs	/cust/private/userconfigs/cable/measurement...	09/22/2015 09:53	joshua.johnson@jdsu.com	
<input type="checkbox"/>	Comcast Trial Measurement Settings.oxs	/cust/private/userconfigs/cable/measurement...	09/23/2015 12:49	al.ruth@apollo.com	
<input type="checkbox"/>	upc cc1.oxs	/cust/private/userconfigs/cable/measurement...	10/21/2015 05:30	yvan.frosio@apollo.com	
<input type="checkbox"/>	Test Measurement Settings.oxs	/cust/private/userconfigs/cable/measurement...	11/18/2015 14:06	jeremy@onxbeta.com	
<input type="checkbox"/>	PDX.oxs	/cust/private/userconfigs/cable/measurement...	01/26/2016 13:15	josh_halfbrook@cable.comca...	
<input type="checkbox"/>	Seattle.oxs	/cust/private/userconfigs/cable/measurement...	01/26/2016 14:44	rich.russell@apollo.com	
<input type="checkbox"/>	Test1.oxs	/cust/private/userconfigs/cable/measurement...	02/19/2016 14:18	rich.russell@apollo.com	
<input type="checkbox"/>	DKTV_test.oxs	/cust/private/userconfigs/cable/measurement...	03/02/2016 08:57	matthias.jun@viavisolutions.c...	

# Measurement Settings – Name New Measurement Settings

- Enter Measurement Settings name and Description and select Create

Assets > Manage Templates > Global Archive > New

### Create Measurement Settings

Details Info

Name\*

Description

# Measurement Settings - Configuration

- Measurement Settings on the ONX currently determines if a DOCSIS test (range and registration) is performed and if DOCSIS Service tests (throughput & packet loss) is performed when a OneCheck test is ran
  - This applies to All OneCheck tests at all Locations (Tap, Ground Block, CPE)
- DOCSIS Test - If a OneCheck test should perform communications with the CMTS then the DOCSIS Test should be enabled – If disabled the OneCheck test will only run the Ingress and Downstream channel tests only
- DOCSIS Service Tests – If a OneCheck test should also perform IP service tests the DOCSIS Service Tests should be enabled – If disabled then the ONX will not perform IP service testing during a OneCheck test
  - Note: To enable DOCSIS Service Tests the DOCSIS Test must be enabled as well

[Assets](#) > [Manage Templates](#) > [Global Archive](#) > [Edit IncludeServiceTests.oxs](#)

### Measurement Settings

#### OneCheck Settings

DOCSIS Test	<input type="text" value="Enable"/>
DOCSIS Service Tests	<input type="text" value="Enable"/>

# Measurement Settings - Deploy

- Measurement Settings can be deployed to Meter or Copied to Templates
- Check the box of the Measurement Settings to be deployed, right click or select Actions
  - Click “Deploy” or Copy to Template

Assets > Manage Templates > Global Archive

## Global Archive: Measurement Settings

Current Filters Remove all

+ New Measurement Settings

Actions For 1 selected record(s)

Page 1 of 1

### Global Archives

- Limit Plan
- DOCSIS Service Plan
- Off-Air Ingress Plan
- Measurement Settings

	Name	Path	Created On	Created By	Mod
<input type="checkbox"/>	No Docsis Service tests.oxs	/cust/private/userconfigs/cable/measurement...	09/14/2015 10:46	shaun.greene@apollo.com	
<input checked="" type="checkbox"/>	IncludeServiceTests.oxs	/cust/private/userconfigs/cable/measurement...	09/14/2015 11:29	shaun.greene@apollo.com	
<input type="checkbox"/>	All Disa	/cust/private/userconfigs/cable/measurement...	09/22/2015 09:53	joshua.johnson@dsu.com	
<input type="checkbox"/>	Comcas	ings.oxs /cust/private/userconfigs/cable/measurement...	09/23/2015 12:49	al.ruth@apollo.com	
<input type="checkbox"/>	upc c1	/cust/private/userconfigs/cable/measurement...	10/21/2015 05:30	yvan.frosio@apollo.com	
<input type="checkbox"/>	Test Me	/cust/private/userconfigs/cable/measurement...	11/18/2015 14:06	jeremy@onxbeta.com	
<input type="checkbox"/>	PDX.oxs	/cust/private/userconfigs/cable/measurement...	01/26/2016 13:15	josh_halbrook@cable.comca...	
<input type="checkbox"/>	Seattle.oxs	/cust/private/userconfigs/cable/measurement...	01/26/2016 14:44	rich.russell@apollo.com	

- View
- Edit
- Rename
- Deploy
- Copy To Template
- Delete

# Deployment – Meter Selection

- Check the boxes next to one or more OneExpert and then select Next in bottom right corner of the screen

Actions ▾ For 2 selected record(s) Page 1 of 1

<input type="checkbox"/>	Asset No	Unique ID	Serial No	Template <sup>2</sup>	Template status <sup>1</sup>	Tech First Name	Tech Last Name
<input checked="" type="checkbox"/>		ARQA0001150110	ARQA0001150110		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150014	ARQB0001150014		None	Jeremy	H
<input type="checkbox"/>		ARQB0001150063	ARQB0001150063		None	Jeremy	H
<input checked="" type="checkbox"/>		ARQA0001150066	ARQA0001150066		None	Jeremy	H

Page Size 15 ▾

Next ▶

**VI.VI**

**ONX CATV - StrataSync  
- Test Results**

# StrataSync – ONX CATV test result

onx50094

Save view | Save view as... | Customize view | Schedule Email

Download Report

Page 1 of 1

Actions For 0 selected record(s)

Asset Type	Asset Serial No	Asset Unique ID	Data Type	Data Format	Status	Creation Time	Filename	Full p filena
<input type="checkbox"/>		ARQA0001150094,				This week		
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	channelcheck	application/zip	None	06/13/2016 15:47	Work Order - 11:23:16 06... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	TESTDATA	application/zip	None	06/14/2016 14:59	session.Work Order - 13:... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	sessionexpert				1 session.Work Order - 12:... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	sessionexpert				9 session.Work Order - 13:... /cust/p	
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	channelcheck					
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	channelcheck					
<input type="checkbox"/> OneExpert CATV	ARQA0001150094	ARQA0001150094	docsischeck					

FILTERS & VIEWS

**Test Report**

Test Report: **FAIL**

Test ID: 05442

Work Order: Work Order - 120027-06-15-2016

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**CPE**

**Downstream Channel Levels**

**Downstream SNR**

Channel	Freq (MHz)	Level (dBmV)	MER (dB)	DCR (dB)	DCI (dB)	Code (dB)	Group Delay (ns)	KR (dB)	OS
12	128.000	0.5	23.3	-13e-3	-13e-3	-21.1	22	0.0	---
14	140.000	0.0	23.3	-13e-3	-13e-3	-23.9	20	1.0	---
15	154.000	2.0	23.5	-13e-3	-13e-3	-23.3	22	1.0	---
16	162.000	1.5	23.1	-13e-3	-13e-3	-23.1	20	1.0	---
17	170.000	0.5	23.2	-13e-3	-13e-3	-23.3	20	0.0	---
19	180.000	1.2	23.3	-13e-3	-13e-3	-21.7	24	0.0	---
20	194.000	1.0	23.3	-13e-3	-13e-3	-23.9	22	0.0	---
22	203.000	1.2	23.3	-13e-3	-13e-3	-23.3	22	0.0	---
23	210.000	0.2	23.7	-13e-3	-13e-3	-23.9	24	0.0	---
24	218.000	0.2	23.3	-13e-3	-13e-3	-23.1	20	0.0	---





VI.VI