



Seeker Family Troubleshooting

Date 3/31/2021

Purpose of this document

Provide logical troubleshooting steps for various common issues encountered with the Seeker Family of products

Seeker D

Seeker MCA III

CT-4

Following the upload process through various tools

Quick reference of specific upload issues and how to resolve them

Seeker D Leakage Detection Troubleshooting



Tools to Follow the Upload / Data flow

Understanding the upload process and available tools is key to troubleshooting

- **MCA III Display**
 - Provides real time key information on MCA III activity
- **View Active Connections in LAW-X**
 - See real time connected devices while sending data to LAW-X
 - The record count cut short of expected is often a clue of potential issues
 - Multiple users can display at the same time if data from two Seekers is in same MCA III
 - User account in LAW-X needs to be created each Tech ID associated with uploading data
- **Uploader Log Report**
 - Who uploaded during a certain time frame or community
 - How many records were uploaded, and number of leaks generated per upload, as well as a link to see specific leaks from upload
- **Additional information under “Upload Date” link**
 - This link describes what each record’s role in the processing of leakage data
 - Can provide clues to certain issues
- **“Uploader Troubleshooting”** in the administration menu or Tools menu if you don’t have admin rights
 - Provides reasons that uploads failed
 - Examples: “User does not exist”, “Device not recognized”, “User is not a meter user”
- **View Leaks** if any associated with upload under “Total Leaks” link
- **Rideout page** shows ride out per Tech ID or Truck ID

Follow the Upload / Data flow

• MCA III activity

- MCA III upload timer elapses
- Connects to programmed AP

Seeker Setup

Upload Timer: 1 hours

Connection Method

Galaxy S6 1621

Hourly

MCA III
WIFI UPLOAD IN PROGRESS

View Active Connections live in LAW-X

MCA III
UPLOAD COMPLETE

• View Active connections

- See meter connection live
- Record count increases in progress

Active Connections

- Pause -

Monitoring Connections on Port 24026

2 Active Uploads Found

Tech Id	Truck Id	Record Count	Upload Start
MRD22	MRD21 TRK	136	04/24/2020 01:28:00 PM
MRD21	MRD21 TRK	203	04/24/2020 01:27:57 PM

• Uploader Log Report

- Who uploaded & when
- Record count
- Leaks associated w/upload

2 Uploads Found

Uploader Log Report

Export

Upload Date	Tech Id	Truck Id	Total Records	Total Leaks
<u>04/24/2020 01:28:00 PM</u>	MRD21	MRD21 TRK	203	<u>Waiting</u>
<u>04/24/2020 01:28:00 PM</u>	MRD22	MRD21 TRK	136	<u>0</u>

• LAW-X Rideout Map

- Available immediately

• LAW-X Leakage Map

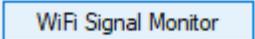
- Leaks on map following batch process
- EDN's on map immediately

Underlines Indicate more information is available specific to the upload

0 leaks show immediately if no leakage values in file

Waiting for batch process to run if leakage values present in file

Common MCA III Uploading Issues

MCA III Message	Explanation and Troubleshooting
 	<p>This message means there is something inhibiting the MCA III from connecting to the Wi-Fi access point</p> <ul style="list-style-type: none">• Verify Access Point settings in the MCA III<ul style="list-style-type: none">• SSID must be an exact match (case sensitive)• Security setting & ASCII Key or Password exact match• Access point must be on and in range• Wi-Fi antenna is connected and properly mounted• Run a Wi-Fi Signal Monitor to verify connectivity between the MCA III and access point.<ul style="list-style-type: none">• Press  in Access Point set-up within Seeker setup run the test in the screenshot to the right• Wi-Fi Quality should look like figure 1.<ul style="list-style-type: none">• Post = Passed• WAP = Associated• IP = Have IP• Signal level should be > -60, conditions vary



Common MCA III Uploading Issues

MCA III Message

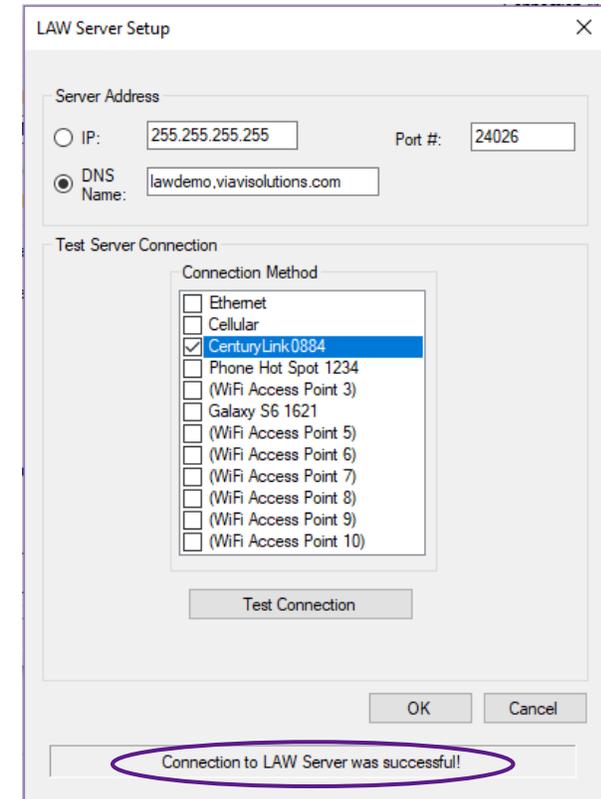
WIFI SOCKET
ERROR

UPLOAD ERROR
OCCURRED

Explanation and Troubleshooting

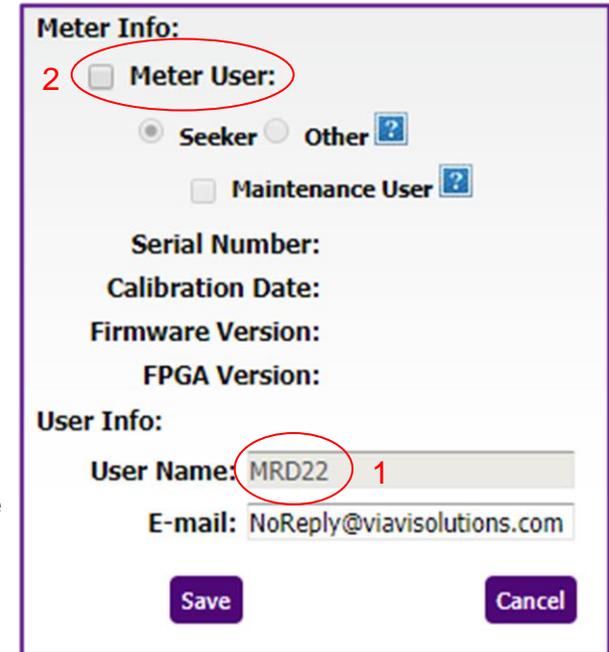
This message is typically after the MCA III successfully connects to the AP but can't access the LAW server

- Verify settings are correct in the LAW server setup on MCA III
 - Press **LAW Server Setup** in the MCA III settings within Seeker Setup
 - Make sure either IP or DNS Name is correct and selected
 - Your local admin should have this information
 - Port # is the listening port for the MCA III upload
 - Verify this port in "view active connections" in LAW-X under the "Administration" menu
- "Test Connection" to LAW-X server
 - Press **Test Connection** in LAW Server Setup within Seeker Setup
 - If connection to LAW Server was successful
 - Connection to AP was successful
 - The network path is open to the LAW-X server
- If "Test Connection" fails:
 - Verify that all settings are correct
 - Check with your local admin to verify the DNS Name and Port# is correct
 - Check with IT to verify the Port# is not blocked



Common MCA III Uploading Issues

MCA III Message	Explanation and Troubleshooting
 	<p>This message is received from the LAW-X software, stating that meter Tech ID MRD22 does not have an account in LAW-X properly setup to authenticate an upload</p> <ul style="list-style-type: none">• Log into LAW-X with an account that has administrative rights• Under “Administration/Uploader Troubleshooting” will provide the reason for the error. A common list of errors and solutions is below:<ul style="list-style-type: none">• “User does not exist” – create a user account to match Tech ID in meter 1• “User is not a meter user” – Check Meter User 2• “Device is not recognized” – Reset Meter ID (explanation next slide)• In the example to the right, Meter User is not checked which is causing this error.<ul style="list-style-type: none">• Simply check the meter user box and save• Retry the upload• Under “Administration/Manage Users”, search for user-name, in this case “MRD22”<ul style="list-style-type: none">• If “User Account” doesn’t match exactly what is programmed in the meter, create a new user that does.• Check “Meter User”<ul style="list-style-type: none">• This indicates an uploading device• LAW-X will authenticate uploads from this device



LAW-X/Administration/Manage Users

“Continued Next Slide”

Common MCA III Uploading Issues

MCA III Message	Explanation and Troubleshooting
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TECH NOT FOUND
MRD22

UPLOAD ERROR
OCCURRED

LAW-X Uploader Troubleshooting Page

- Any time an upload reaches LAW-X and fails, there is an entry made in the **“uploader troubleshooting”** log
 - Under the detail column inset screenshot below, you will find a list of common issues
- “Device is not recognized”** is the most complicated of the list
 - The major cause of this is two meters are programmed with the same Tech ID.
 - Two meter’s same Tech
 - This typically occurs when a meter is sent in for repair and replaced with another meter
- Solution to the above:**
 - When programming a second meter with the same Tech ID as a previous meter, **“reset meter ID”** for the user account that shares that Tech ID prior to docking the second meter
 - Upload or delete any data currently in the MCA III prior to docking second meter with same Tech ID (A second meter with a different Tech ID will not have this issue)
- In LAW-X under **“Administration/Manage Users”**, search for user-name, in this case **“MRD22”**
 - “Meter ID Reset”** located far right column of **“Manage Users”** page (shown on next slide)

Uploader Troubleshooting					
15 Issues Found					Delete All
ID	Type	Process	Date	Detail	
MRD22	Tech	WiFiService	4/24/2020 11:16:23 AM	User is not a Meter User.	X
jordan	Tech	WiFiService	4/17/2020 4:29:06 PM	Device is not recognized.	X
sberrey	Tech	WiFiService	3/19/2020 11:30:27 AM	User does not exist.	X

Common MCA III Uploading Issues

MCA III Message	Explanation and Troubleshooting
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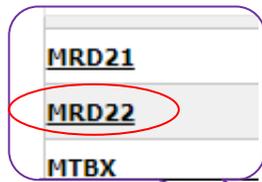
TECH NOT FOUND
MRD22

UPLOAD ERROR
OCCURRED

LAW-X Uploader Troubleshooting Page (Device is not recognized continued)

- Solution to the above:**
 - When programming a second meter with the same Tech ID as a previous meter, “**reset meter ID**” for the user account that shares the Tech ID prior to docking the second meter
 - This typically occurs when a meter is sent in for repair and replaced with another meter
 - Upload or delete any data currently in the MCA III prior to docking second meter with same Tech ID (A second meter with a different Tech ID will not have this issue)
- In LAW-X under “Administration/**Manage Users**”, search for user-name, in this case “MRD22”
 - “Meter ID Reset” located far right column of “Manage Users” page

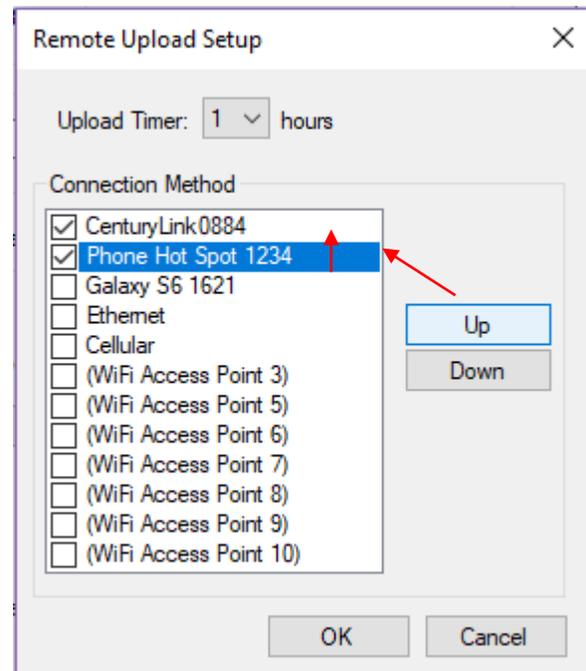
Solution →



43 Users Found	Search For User:	Paged View	Export															
MRD21	mark.darragh@viavisolutions.com	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Reset	Reset	X
MRD22	NoReply@viavisolutions.com	Yes	Yes	No	Reset	Reset	X											
MTBX	l.petrovits@normann-engineering.com	No	-	-	No	Yes	No	Reset	Reset	X								

Reset Meter ID

Common MCA III Uploading Issues

MCA III Message	Explanation and Troubleshooting
 <p>WIFI UPLOAD IN PROGRESS</p> <p>↓</p> <p>WIFI ASSOCIATION FAILED</p> <p>↓</p> <p>WIFI UPLOAD IN PROGRESS</p> <p>↓</p> <p>DATA UPLOAD COMPLETED</p>	<p>A timed data upload fails once, then uploads successful on the second try every time</p> <ul style="list-style-type: none">• Prioritize MCA III Wi-Fi Connection method<ul style="list-style-type: none">• Upload attempts happen in order of the list in the “Remote Upload Setup”<ul style="list-style-type: none">• Move most used hot spot to the top of the list <p>In this case, “Phone Hot Spot 1234” was second in the list and “CenturyLink0884” was not in range causing the upload to fail once, then retry and upload successful on the second attempt every time.</p> 

Common MCA III Uploading Issues

MCA III Message	Explanation and Troubleshooting
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EDN UPLOAD IN PROGRESS



UPLOAD COMPLETE



No Leak In LAW-X

Complete EDN setup instructions slide 26

Reason

EDN uploads to LAW and no EDN leak shows up on the map

- Look in LAW-X, "Uploader Log Report" for clues as to how this can happen

adm-dswank Sign Out
Uploader Log Report

Send Meter Data Leak... Work Order Search Leak Search Enter Leak Leakage Map Rideout Map Reports Administration

5/1/2020 1:35:00 AM; MI-8729; MI-91491-TVC

This upload included 1 EDN record and resulted in 0 leaks.

Traverse City Area: 1 record resided in this community resulting in 0 leaks.
1 leak did not meet the minimum required level of 500.

26 Uploads Found

Upload Date	Tech Id	Truck Id	Total Records	Total Leaks
05/01/2020 01:27:00 AM	MI-8729	MI-91491-TVC	194	0
05/01/2020 01:35:00 AM	MI-8729	MI-91491-TVC	1	0
05/01/2020 02:04:00 AM	MI-8729	MI-91491-TVC	200	0

Full View | Export

Click on link to see additional information

Look for uploads that contain 1 record since EDN's are always one record

Set this <= to the MCA III EDN setting

LAW-X, Community Definition:

EDN
Minimum EDN Level: 500 $\mu\text{V}/\text{m}$

Common MCA III Uploading Issues

MCA III Message



You take a QC Snapshot,
dock the meter,
nothing happens

Explanation and Troubleshooting

QC Snapshot Doesn't Trigger an Upload

- For QC Snapshots to trigger an upload immediately when docked, Seeker Setup and MCA III must be firmware/software versions below*
 - Seeker Setup: Version 4.12 or higher
 - MCA III: Version 5.05 or higher
- Make sure Wi-Fi access point is properly configured and in range of MCA III**
- Verify "Enable Snapshot Notifications" is turned on in the MCA III***
 - Without Snapshot Notifications enabled, the MCA III will not send up snapshot when docked
 - In Seeker Setup, MCA III settings, check "Enable Snapshot Notifications"
 - Prioritize connection method in the "Instant Notifications Setup"
 - Move most used AP to the top of the list

Common MCA III Uploading Issues

MCA III Message

Explanation and Troubleshooting

SNAPSHOT UPLOAD
IN PROGRESS



OUTSIDE
COMMUNITY

SEEKER MCA III
NO GPS FIX

QC Snapshot uploads, then MCA III displays, “OUTSIDE COMMUNITY”

- First thing to note is if “OUTSIDE COMMUNITY” displays on the MCA III, there are no communication issues between the MCA III through the access point to the LAW-X server.
 - “OUTSIDE COMMUNITY” is a message from LAW-X displayed on the MCA III after the snapshot is uploaded to the LAW-X server.
 - “OUTSIDE COMMUNITY” means that the snapshot is not located in any communities that are built in LAW-X for uploading purposes.
1. Make sure that the truck is parked inside the community boundaries when the meter is docked with snapshots
 2. When the meter is docked, make sure there is a satellite fix on the MCA III
 - If the MCA III is on when you return to the truck, there should be a good satellite fix and there should be no concern of docking the meter
 - If the MCA III is “off” when you return to the vehicle
 - Do not dock the meter until the GPS has time to acquire a satellite fix
 - Turn on the ignition and wait approximately one minute (time may vary) to give the MCA III and GPS unit time to power up and acquire the GPS location
 - Dock the meter, if you see “NO GPS FIX”, retake the snapshots and redock the meter
 3. Verify that the data cable from MCA III to Mobile mount is securely in place
 4. After the previous steps, if “NO GPS FIX” or “OUTSIDE COMMUNITY” persists, replace GPS unit

Complete MCA III Instructions on following slides:

- Firmware upgrade*
- Wi-Fi configuration**
- Snapshot configuration***

www.viavisolutions.com

Upgrade MCA III Firmware & Enable Snapshot Notifications

Obtain and install the latest Seeker Setup Software

- Version 4.12 (As of 3/13/2020)

Upgrade MCA III Firmware using Seeker Setup version 4.12 or higher

- MCA III firmware Version 5.05 (as of 6/4/2020)

Configure MCA III, Wi-Fi Communications

- Access point configuration
- Selecting upload method
- Prioritizing Access Point

Enable Snapshot Notifications on the MCA III

- Connect MCA III via Ethernet
- Select MCA III tab
- Enable Snapshot Notifications

Taking Pre-Fix and Post-Fix Snapshots

Upgrade MCA III Application Firmware

Connect to MCA III via Ethernet

1. Using the small button on the back of the MCA III, navigate to ethernet status and double click to obtain IP address



2. Get Setup will populate the fields currently programmed in the MCA III
3. Verify Application Firmware Version
4. Update Firmware
5. Select Firmware File
6. Open
7. Power cycle when upgrade is complete



VIAVI Seeker Setup v4.12

Model: SeekerMCA[MCA III] | Boot Version: 00.01 | App Version: 04.73 | GPS: None | WiFi: Yes | Cell: No | Records: 7/0

Seeker Model: X, D, **MCA III**, CT-4, D Lite, D Lite TX

Display Units: $\mu\text{V/m}$ $\text{dB}\mu\text{V}$ $\text{dB}\mu\text{V/m}$

Connection Method: IP: 192.168.0.31

Seeker MCA III Setup: Truck ID: MRD21 TRK

Instant Notifications: Enable EDN Notifications Enable Snapshot Notifications

Vehicle Timer: 1 hours

Vehicle Max Speed: 60 MPH

Buttons: Send Setup, Get Setup, Save Setup, Open Setup, Update Firmware, Test Device

Name	Status	Date modified	Type	Size
M3AP0473.s3	✓	3/9/2020 2:39 PM	S3 File	1,140 KB

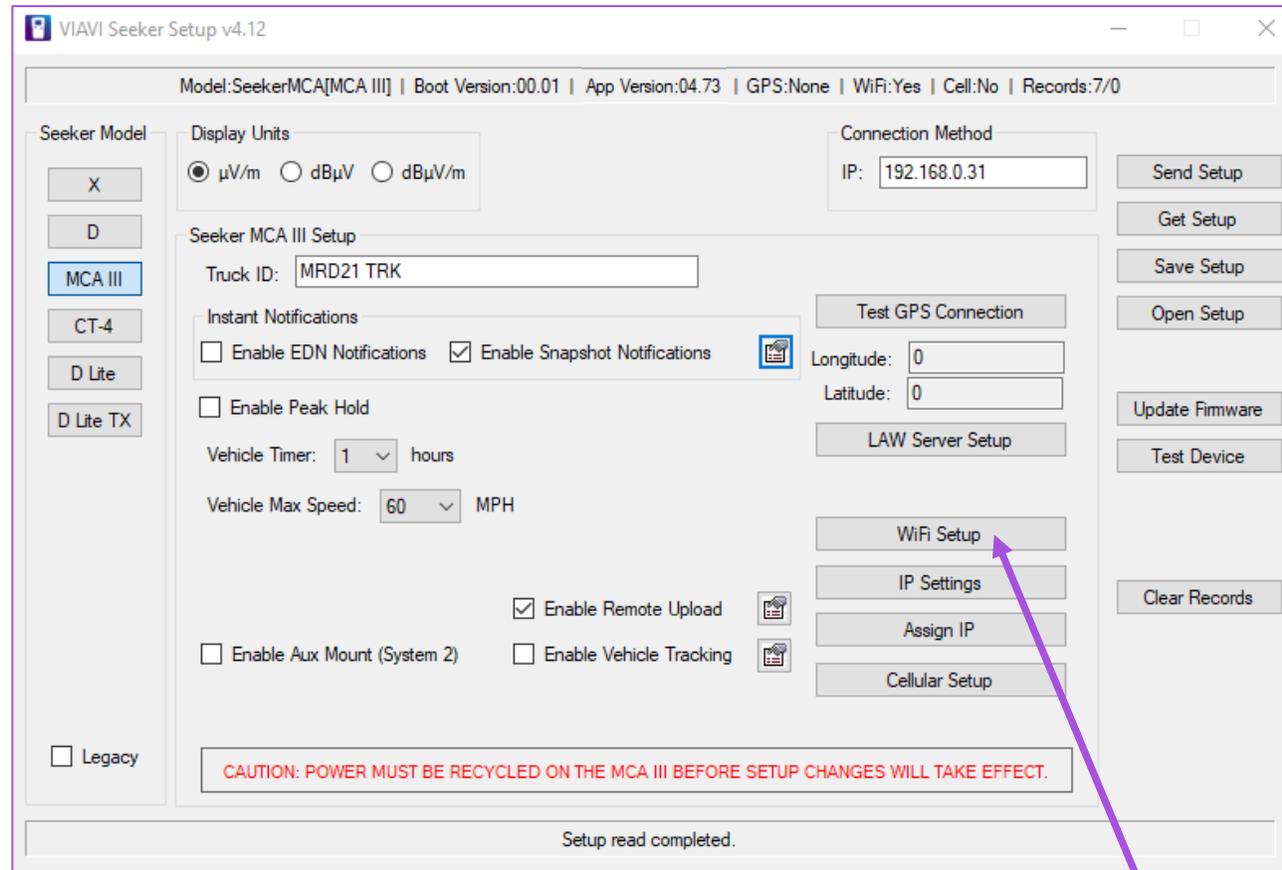
File name: M3AP0473.s3

Buttons: Open, Cancel

Seeker MCA III Wi-Fi Setup

Remote upload method must be setup for Snapshots to function

(If Access Point is pre-configured skip to slide 17)

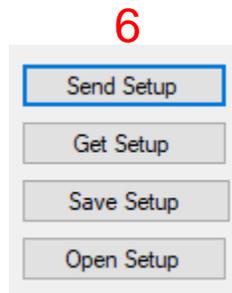


This assumes connection to MCA III via Ethernet, enter the Wi-Fi Setup screen

Seeker MCA III Wi-Fi Setup

Access Point Settings

1. Select AP to program
2. Enter SSID (exact match)
3. Select Security Method
4. Enter ASCII Key or Password
5. Press OK to return to main screen
6. On the main menu screen press “Send Setup”



WiFi Setup

Access Point

MCA/MCA II/MCA III

Access Point 1 Access Point 2 Access Point 3

MCA Access Points 1, 2, and 3 are fixed to Home Zones 1, 2, and 3, respectively.

MCA II/MCA III ONLY

Access Point 4 Access Point 5 Access Point 6 Access Point 7 Access Point 8 Access Point 9 Access Point 10

Access Point 1 Setup

SSID: Phone Hot Spot 1234

Home Access Point

Band

2.4GHz 5GHz

Use Ad Hoc

IP Settings

Use DHCP

Use IP Address:

IP:

Subnet:

Gateway:

DNS1:

DNS2:

Security

None WPA-PSK (TKIP)

WEP (128-bit) WPA2-PSK (AES)

ASCII Key:

WiFi Signal Monitor

MAC: Get WiFi MAC Address

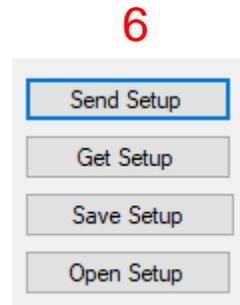
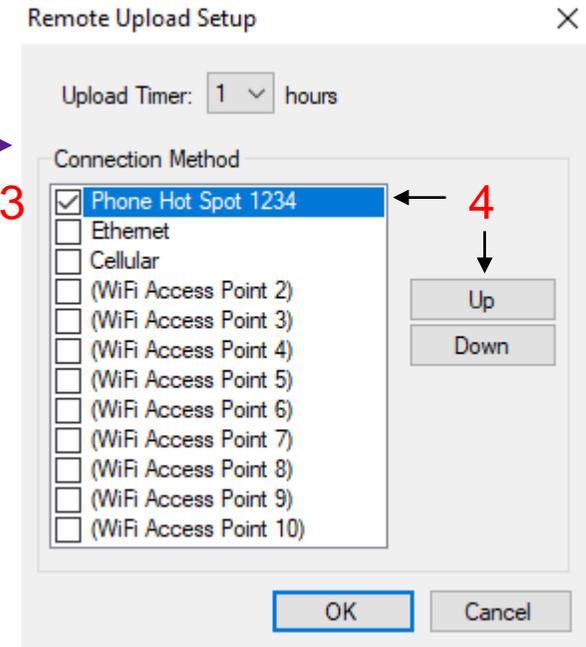
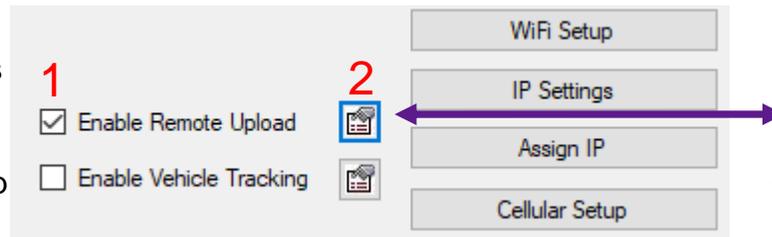
OK Cancel

Seeker MCA III Wi-Fi Setup

Setting Remote Upload Method

1. Enable Remote Upload
2. Select Icon
3. Select preconfigured access point
4. Move access point to the top of the list
5. Press OK to return to main screen
6. On the main menu screen press "Send Setup" to MCA III

From MCA III Main Screen



Seeker MCA III Enable Snapshot Notifications

These steps assume Wi-Fi access point is pre-configured

1. Enable Snapshot Notifications
2. Select ICON
3. Check Access point and move to top of list
4. Press OK to return to main screen
5. On main screen "Send Setup" to MCA III

VIAMI Seeker Setup v4.12

Model: SeekerMCA[MCA III] | Boot Version: 00.01 | App Version: 05.05 | GPS: Not

Seeker Model

- X
- D
- MCA III**
- CT-4
- D Lite
- D Lite TX

Display Units

$\mu\text{V}/\text{m}$ $\text{dB}\mu\text{V}$ $\text{dB}\mu\text{V}/\text{m}$

Seeker MCA III Setup

Truck ID: MRD21 TRK

Instant Notifications

Enable EDN Notifications Enable Snapshot Notifications

Enable Peak Hold

Vehicle Timer: 1 hours

Vehicle Max Speed: 60 MPH

Instant Notifications Setup

EDN Threshold: 100 $\mu\text{V}/\text{m}$

EDN Trigger: 50 %

Connection Method

- Phone Hot Spot 1234
- Galaxy S6 1621
- CenturyLink0884
- Ethernet
- Cellular
- (WiFi Access Point 3)
- (WiFi Access Point 5)
- (WiFi Access Point 6)
- (WiFi Access Point 7)
- (WiFi Access Point 8)
- (WiFi Access Point 9)
- (WiFi Access Point 10)

Up

Down

OK Cancel

Send Setup

Get Setup

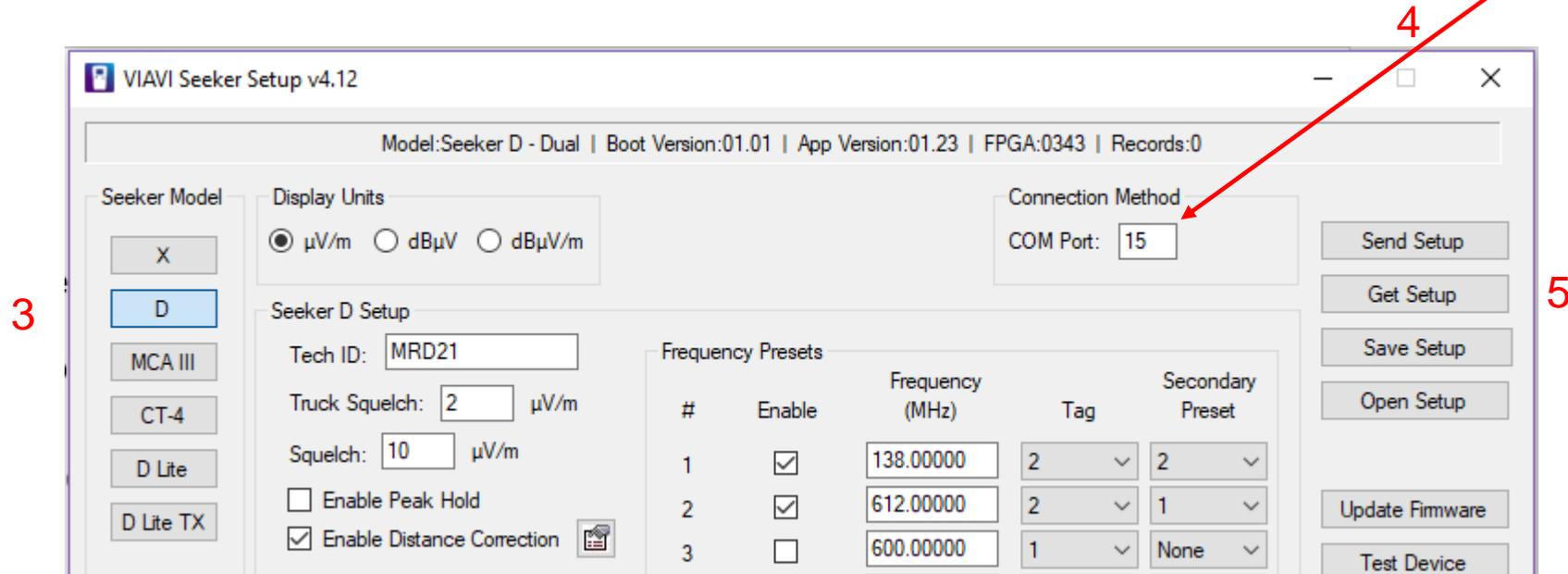
Save Setup

Open Setup

Snapshot Notifications will upload upon docking Seeker D to mobile mount

Seeker D Troubleshooting (USB Connection)

1. Connect Seeker D to PC via USB cable
2. Verify virtual USB port in Device Manager
3. Select Seeker D in Seeker Setup
4. Type in port number in Connection Method
5. Press “Get Setup” to populate current settings
6. Change desired settings and “Send Setup”



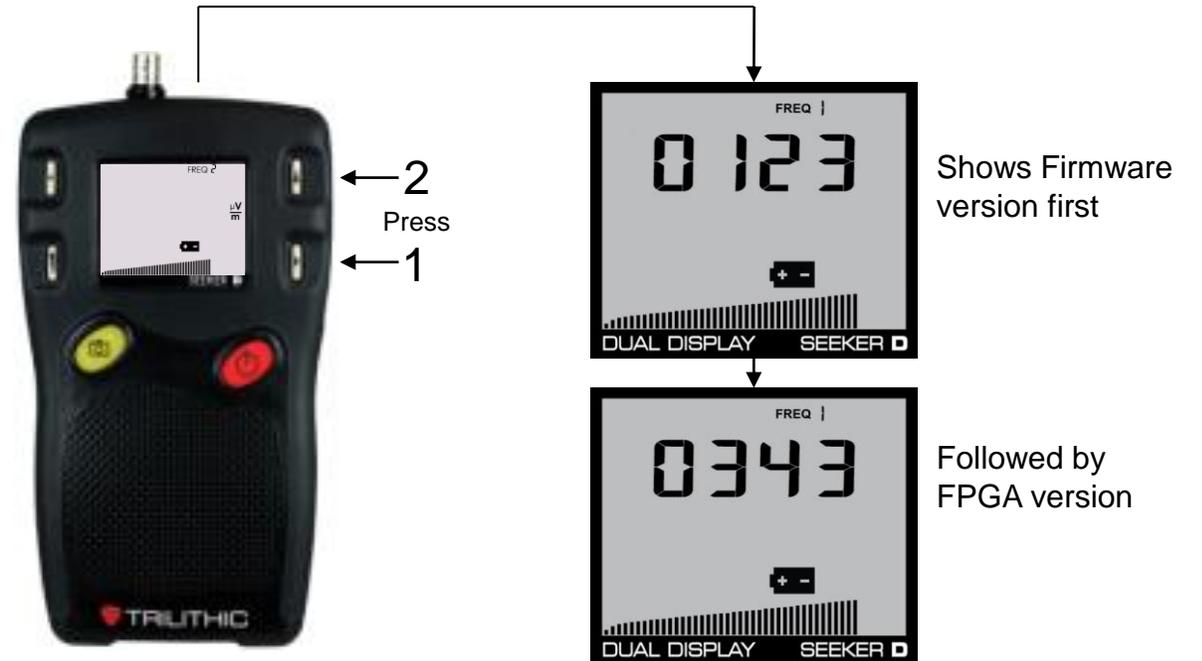
Seeker D Troubleshooting

(Firmware Version)

Good general practice for any electronic device is to make sure the firmware is updated to the latest release. Firmware is applied in most cases to provide improvements in the device and in some cases to eliminate known bugs to the system. The latest firmware can be obtained through the Viavi TAC department. There are shortcuts built into the Seeker D to provide the firmware version without connecting to Seeker Setup.

General Seeker D Settings

- How to check firmware version without Seeker Setup
 - Press the lower right button once to display the batter charge level
 - While the batter Icon is flashing press the upper right button to show firmware versions
 - This will first show the Application Firmware version
 - Think of this as the “User Interface software”
 - The FPGA Version displays second
 - This is basically the processing engine of the leakage meter



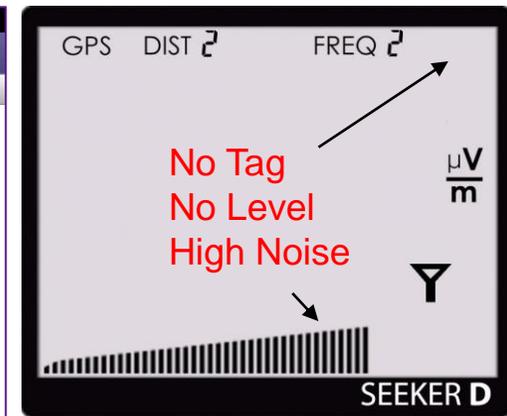
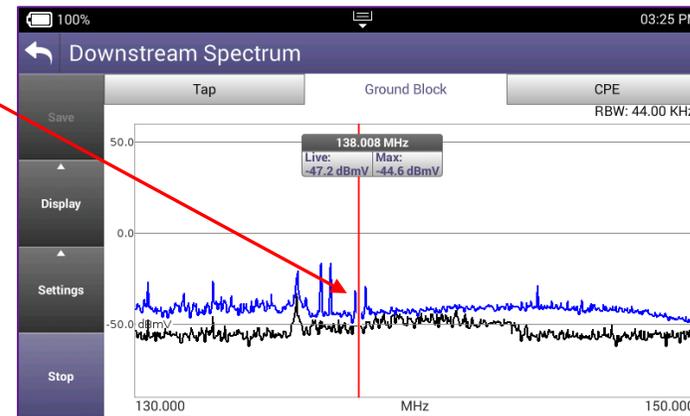
Seeker D Troubleshooting (Leakage Detection)

Rarely does a leakage detection issue happen the same In and out of the mobile mount. The reason for this is that there is a different RF path and different antennas that are used depending on if the meter is in the mobile mount or handheld. Determining when leakage detection issues occur will greatly help in the troubleshooting process of the leakage meter. There are different troubleshooting steps depending on if the leakage detection issues happen only in the mobile mount, out of the mobile mount, or is totally independent of these two scenarios. These three scenarios will be showcased on the next few slides.

No Leakage Detection in or out of MMT

The following two items could be used to resolve “no leak detection” issues

1. With an ONX meter, do a quick verification from any drop as described in the “CT-4 Quick Verification” slides to determine if a ticket for ISP to precisely measure CT-4 settings and adjust accordingly is in order
2. Also with an ONX or any spectrum analyzer, install a leakage antenna on the device and look for large sources of off-air signal at or close to the leakage frequency
 - This can manifest itself as no leakage level on the display, but very high noise bar at the bottom of the display as shown on the Seeker D screen shot to the right
 - A mismatch tag setting between Seeker D and CT-4 will also react this same way

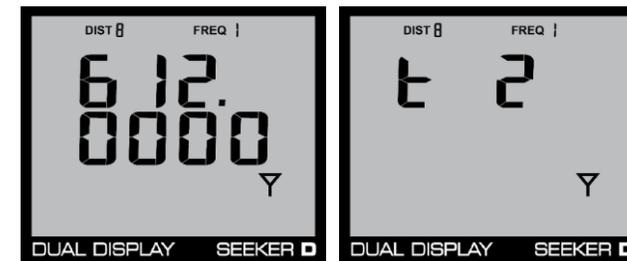
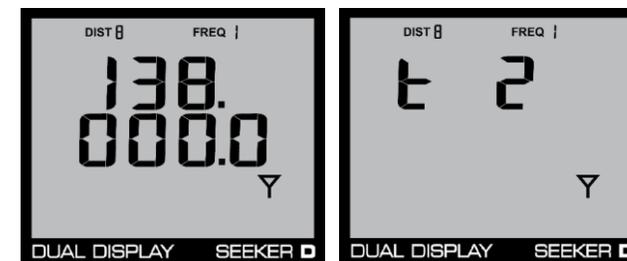


Off air signal causing high noise level

Seeker D Troubleshooting (Leakage Detection)

No Leakage Detection in or out of MMT (continued)

1. Verify that the meter is set to the proper frequency and tag settings programmed in the CT-4
 - On the Seeker D, press and release the upper right button to show programmed frequencies
 - The first frequency preset that displays is what the meter is set to for walk out, press the button a second time to toggle preset if needed
 - Install the proper antenna for that frequency
 - If only one frequency displays, the meter is not programmed for two frequencies
 - Connect to Seeker Setup and program Secondary Preset



Frequency MHz

TAG 2

Seeker D Troubleshooting

(Leakage Detection)

Leakage Detection issues primarily during drive out (mounted)

- Inspect all connections related to the external signal path
 - Device Connections include
 - Meter to MMT connection (1)
 - Mobile Mount to Diplexer connection (2)
 - Diplexer to high band and low band antennas (3)
 - Antennas wire crimp connection at the base of the magnetic mount
- Ensure the antenna connections are installed on the proper diplexer input
 - Swapping the High/Low connections from antennas will cause great loss of signal to the meter
- Make sure there are no loose, broken, or dirty connections
 - Loose or broken, send in for repair
 - Clean dirty connections and retry

Seeker D Mobile Mount antenna connection to the vehicle antennas.



Seeker D Troubleshooting

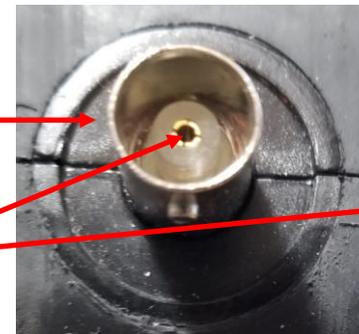
(Leakage Detection)

Leakage Detection issues primarily during walk out (unmounted)

I detect a leak while the meter is in the MMT, but not when I remove the meter to walk out a leak

1. Inspect the BNC connector on top of the meter for damage. If the BNC connector is loose at all, it needs to be sent in for repair.
2. Inspect the antennas BNC connector to make sure there is no damage
 - Rare, but the center pin can break off with intense vibration, if this happens, make sure it is not still in the female BNC connector on the meter. Replace antenna
3. Ensure that the meter is set to the desired walkout frequency and proper antenna is installed on the Seeker D
 - Details on following slide

Seeker D



Antenna



Seeker D Troubleshooting

(Leakage Detection)

Unmounted (Walk Out) continued

I detect a leak while the meter is in the MMT, but not when I remove the meter to walk out a leak

1. Make sure the proper antenna is installed
 - **138 MHz** = Dipole or Low band rubber duck
 - **612 MHz** = Yagi or High band rubber duck
2. When the meter is removed for the MMT or after a Frequency change the following will display indicating primary frequency
 - **Ant L** = Low Band
 - **Ant H** = High Band



Frequency MHz



Install Low Band Antenna



WFS-1 Dipole

or



Low Band Rubber Duck



Frequency MHz



Install High Band Antenna



AFS-7 Yagi

or



High Band Rubber Duck



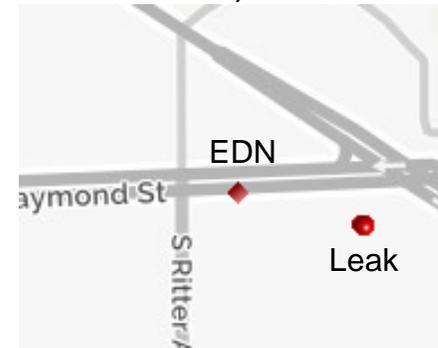
LAW & MCAIII EDN Configurations



Purpose

Steps to enable EDN's, Send EDN's, Receive Notifications

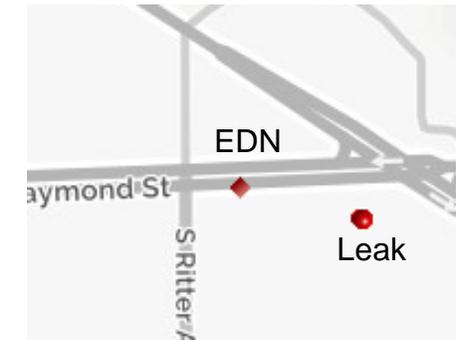
- Configure MCA III, Wi-Fi Communications
 - Access point configuration
 - Selecting upload method
 - Prioritize Access Point
- Configure MCA III, EDN (Early Detection Notifications)
 - Settings for EDN's ≥ 100 $\mu\text{V}/\text{m}$
 - Selecting upload method
 - Prioritizing Access Point
- Configure LAW settings for EDN's
 - Minimum EDN setting
 - This setting should be \leq MCA III EDN settings value
 - E-mail settings for immediate EDN notifications
 - E-mail settings for leak post processed notifications
 - Save community settings when done



EDN Overview

(Early Detection Notification)

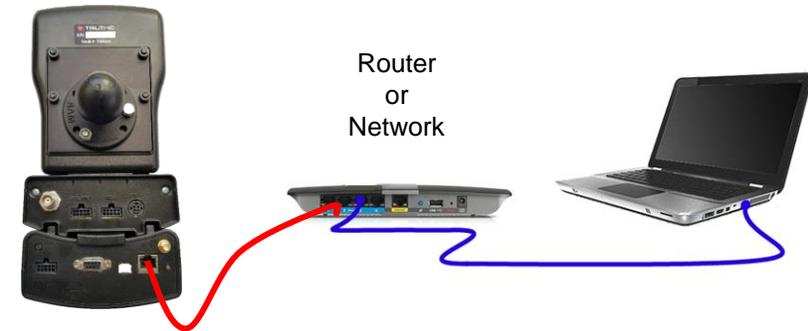
- MCA III, EDN (Early Detection Notifications)
 - If enabled in the MCA III, intended for high leakage values (100 $\mu\text{V}/\text{m}$) that need to be fixed within 24 hrs.
 - When EDN's are enabled our patented Quadrangulation algorithm is bypassed for leaks above the set level
 - All EDN's are peak level measured and placed on the street
 - No supporting point data used
 - Shows on map as a diamond icon
- LAW Community Setting
 - Minimum EDN Level
 - This is the final filter that determines the minimum EDN level that LAW will process, generate work orders and/or send EDN notifications via e-mail
 - Set Community Minimum EDN Level equal to or less than the setting programmed in the MCA III's. In this case 100 $\mu\text{V}/\text{m}$



Seeker MCA III Wi-Fi Setup

Connecting to the MCA III

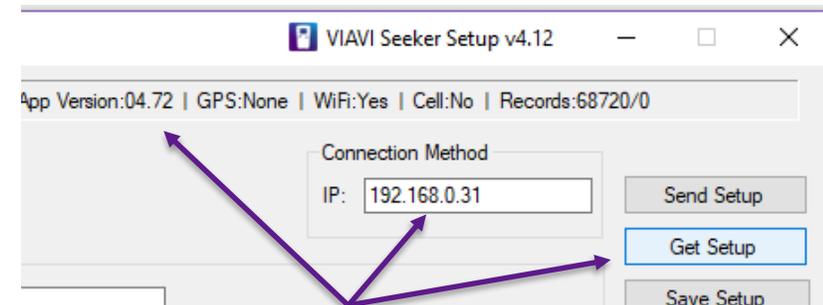
1. Connect the MCA III to the same network that your PC is connected via Ethernet.
 - Since the PC and MCA III are set to DHCP, they will automatically be assigned compatible IP addresses on the same network
2. When connected to Ethernet, the MCA III will display the “Ethernet link has changed” and will provide you with the IP address.
3. In Seeker Setup, type the IP address into the Connection Method and press “Get Setup”
4. If you are connected to the MCA III, the fields within Seeker Setup will populate with current settings, plus firmware and other info at the top of the screen will display



MCA III Display

ETHERNET LINK
HAS CHANGED

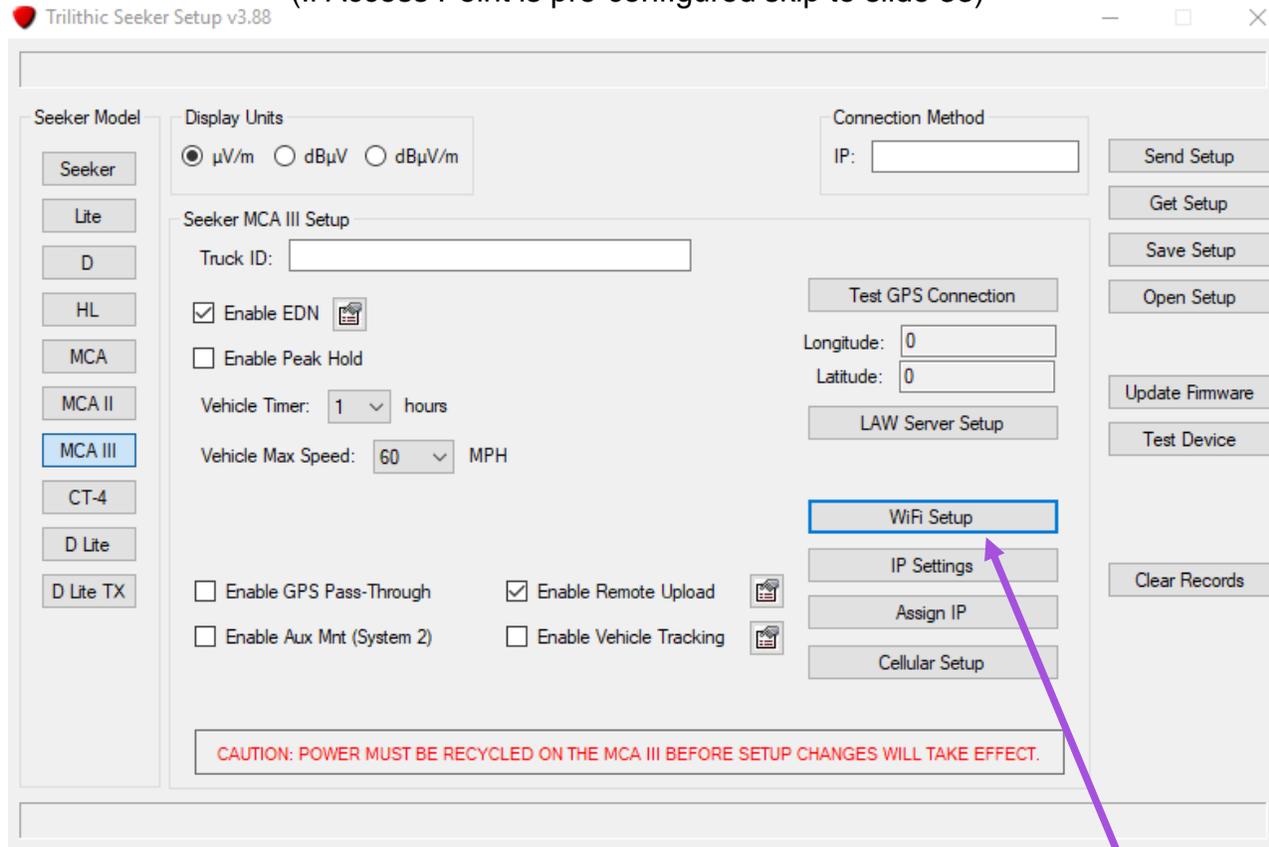
IP
192.168.0.31



Seeker MCA III Wi-Fi Setup

Remote upload method must be setup for EDN's to function

(If Access Point is pre-configured skip to slide 33)

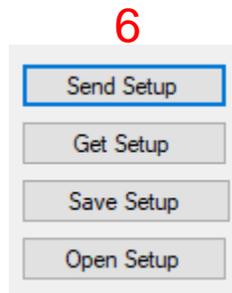


This assumes connection to MCA III via Ethernet, enter the Wi-Fi Setup screen

Seeker MCA III Wi-Fi Setup

Access Point Settings

1. Select AP to program
2. Enter SSID (exact match)
3. Select Security Method
4. Enter ASCII Key or Password
5. Press OK to return to main screen
6. On the main menu screen press "Send Setup"



WiFi Setup

Access Point

MCA/MCA II/MCA III

Access Point 1 Access Point 2 Access Point 3

MCA Access Points 1, 2, and 3 are fixed to Home Zones 1, 2, and 3, respectively.

MCA II/MCA III ONLY

Access Point 4 Access Point 5 Access Point 6 Access Point 7 Access Point 8 Access Point 9 Access Point 10

Access Point 1 Setup

SSID: Phone Hot Spot 1234

Home Access Point

Band

2.4GHz 5GHz

Use Ad Hoc

IP Settings

Use DHCP

Use IP Address:

IP:

Subnet:

Gateway:

DNS1:

DNS2:

Security

None WPA-PSK (TKIP)

WEP (128-bit) WPA2-PSK (AES)

ASCII Key:

WiFi Signal Monitor

MAC: Get WiFi MAC Address

OK Cancel

5

Seeker MCA III Wi-Fi Setup

Setting Remote Upload Method

1. Enable Remote Upload
2. Select Icon
3. Select preconfigured access point
4. Move access point to the top of the list
5. Press OK to return to main screen
6. On the main menu screen press "Send Setup" to MCA III

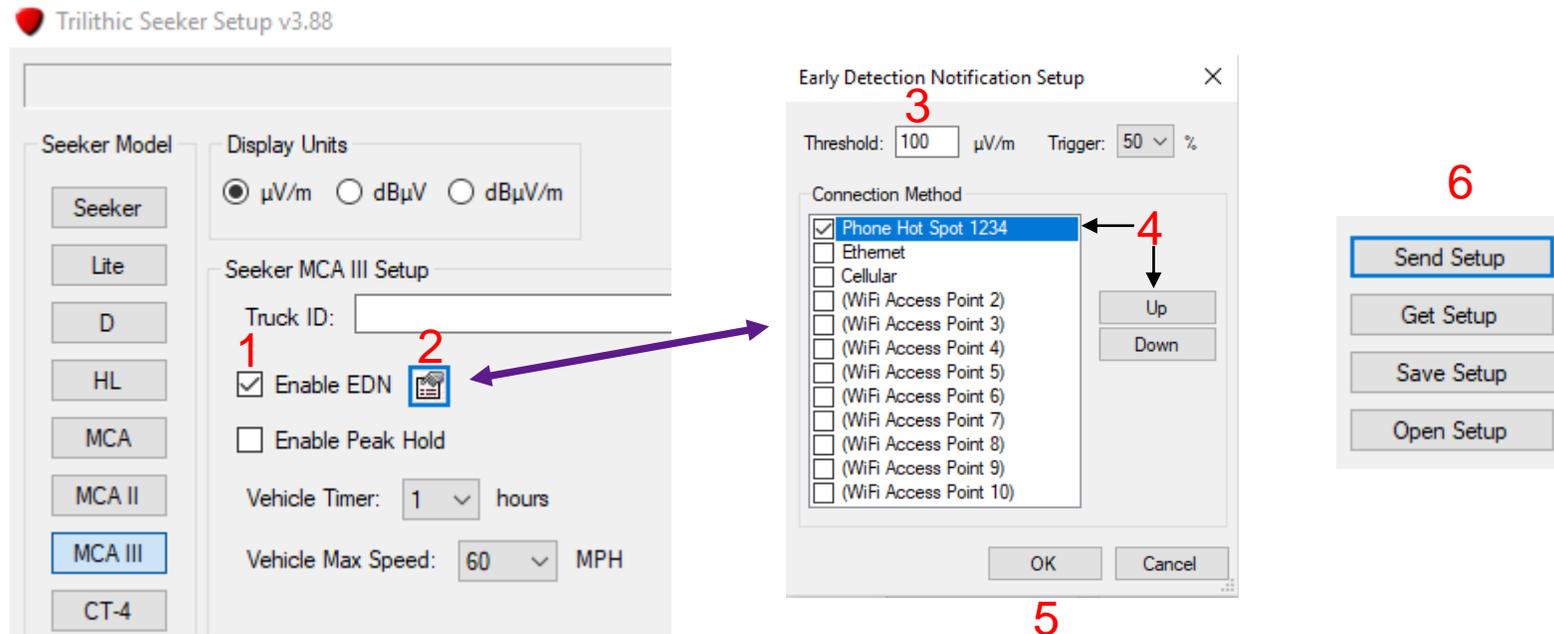
From MCA III Main Screen

The image shows two screenshots from the MCA III interface. The left screenshot is the main menu with buttons for WiFi Setup, IP Settings, Assign IP, and Cellular Setup. A red '1' is next to the 'Enable Remote Upload' checkbox, and a red '2' is next to a document icon. A purple arrow points from the icon to the 'Remote Upload Setup' dialog. The right screenshot is the 'Remote Upload Setup' dialog, which has an 'Upload Timer' set to 1 hour. Under 'Connection Method', 'Phone Hot Spot 1234' is selected with a red '4' and an arrow. Below the list are 'Up' and 'Down' buttons. At the bottom of the dialog are 'OK' and 'Cancel' buttons, with a red '5' next to 'OK'. Below the main menu screenshot is a vertical stack of buttons: 'Send Setup' (with a red '6' above it), 'Get Setup', 'Save Setup', and 'Open Setup'.

Seeker MCA III EDN Settings

These steps assume Wi-Fi access point is pre-configured

1. Enable EDN
2. Select ICON
3. Enter Threshold
4. Check Access point and move to top of list
5. Press OK to return to main screen
6. On main screen "Send Setup" to MCA III



Peak Leakage Level's => 100 uV/m sent to LAW real time

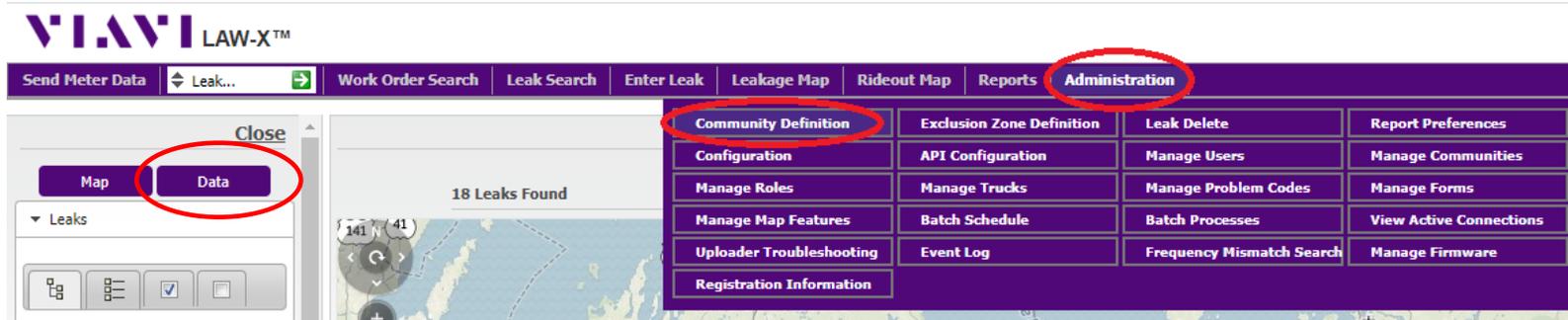
E-mail notifications sent immediately to the appropriate e-mail address in LAW-X

(Notification settings in LAW)

LAW EDN Configuration

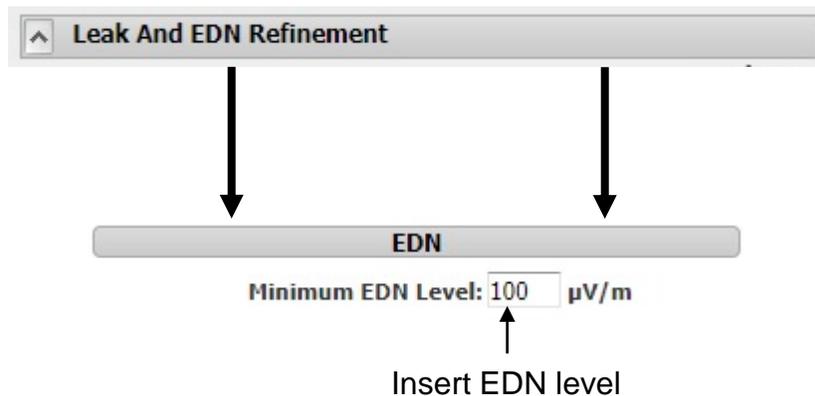
(Early Detection Notification)

Under **Administration / Community Definition**: Program EDN refinement and Auto Processing E-mail

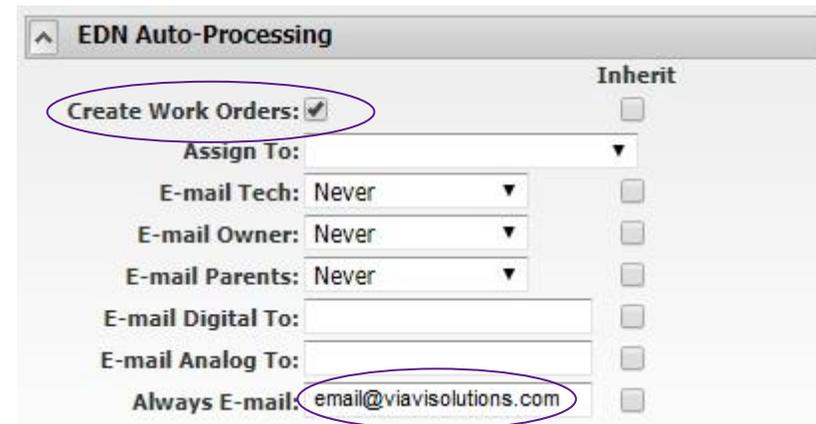


Below settings are located on the **Data Tab of Community Definition page**

EDN's sent up to LAW by the MCA III below the Minimum EDN Level will be discarded

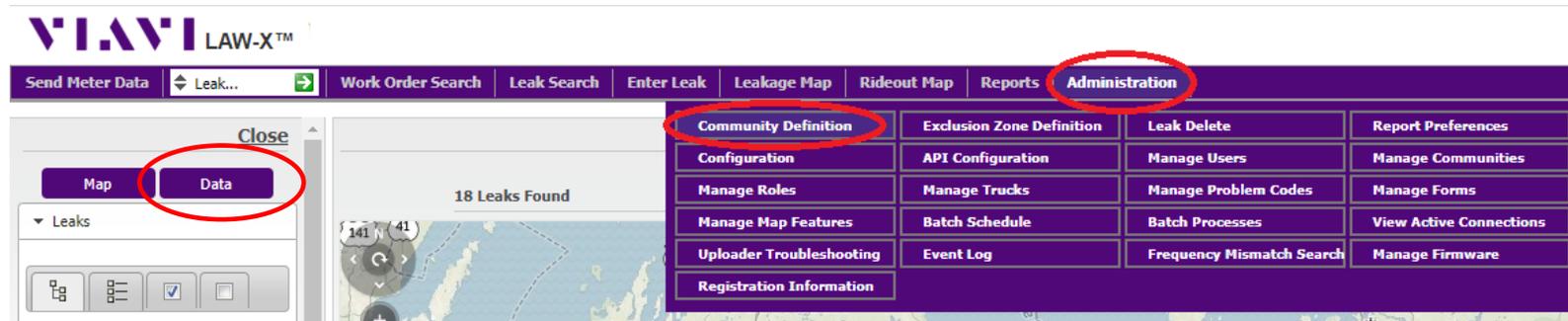


Insert E-Mail addresses for immediate EDN notifications



Post Processed leaks over 100 uV/m E-mail Notifications

Under **Administration / Community Definition**: Leak Auto Processing E-mail



Below settings are located on the Data Tab of Community Definition page

Send e-mail for all leaks ≥ 100 uV/m
post batch process

Leak Auto-Processing

Close Leaks: Inherit

For Levels ≥ 100 uV/m

E-mail: ROC-GLR@charter.com

Create Work Orders:

Work Order Type: By Top X Leak(s)

Assign To: admin

E-mail Tech: Never

E-mail Owner: Never

E-mail Parents: Never

E-mail Digital To:

E-mail Analog To:

Always E-mail: ROC-GLR@charter.com

To program many communities
at that same time, select Inherit
to send settings to all sub-
communities if checked

Be sure to save
community settings



CT-4 Quick Verify with ONX

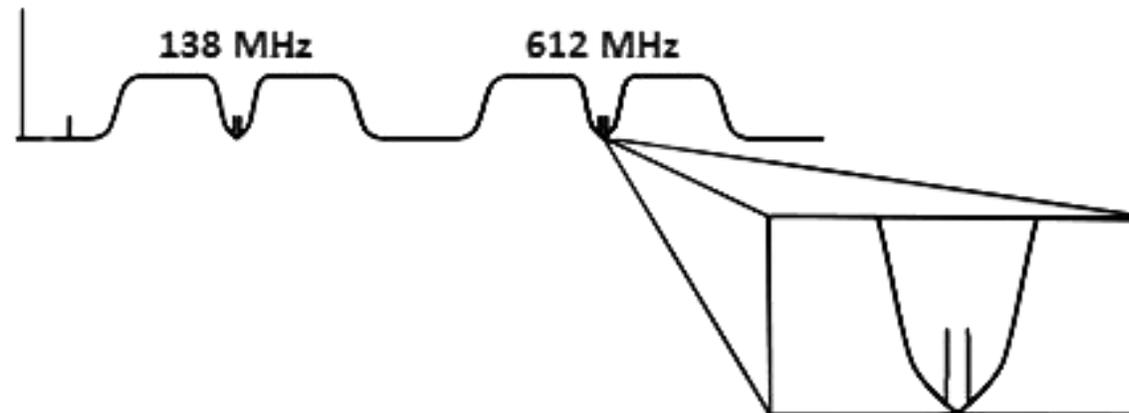


Purpose

Determine Estimated CT-4 Levels

Quick ballpark verification of CT-4 levels without going to the headend

- This procedure is not to be used to set or adjust the CT-4 levels
 - This procedure does not produce precise measurements of the Dual CW carriers
- This is to determine if a ticket needs to be entered to schedule ISP to adjust the CT-4 levels in the headend
 - Precise measurements done in the headend allows the ISP tech to setup a -30 dBc relationship between the Viavi dual CW's and the adjacent QAM carriers



Procedure

- Measure adjacent QAM Channels to 612 MHz and 138 MHz
 - Ch. 88 or 89, and 16 or 17 respectively
 - Log channel power levels for each
- Measure the peak value of the dual CW's combined
 - 612 MHz and 138 MHz
 - Log peak value of both frequencies

Proper Levels, no action required

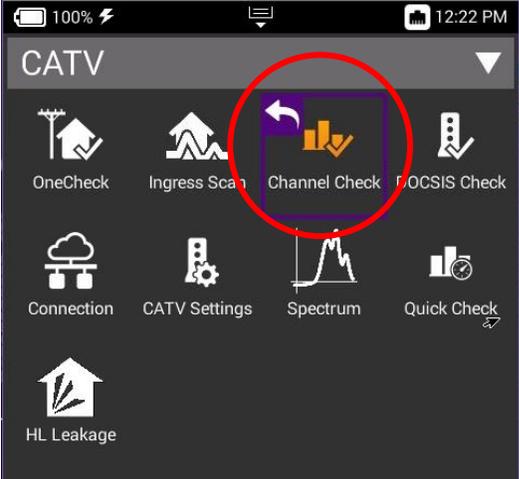
- Ch 88 or 89 power level -24 dBc to -25 dBc = acceptable level
- Ch 16 or 17 power level -24 dBc to -25 dBc = acceptable level

If any of the above is not true, schedule headend visit

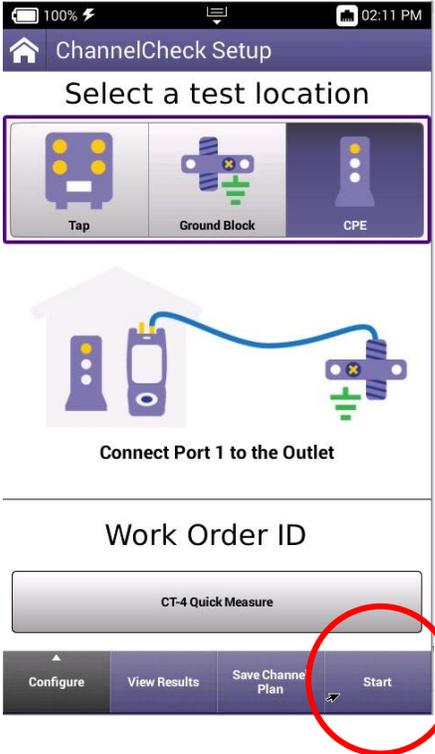
Graphical step by step process to follow

Procedure

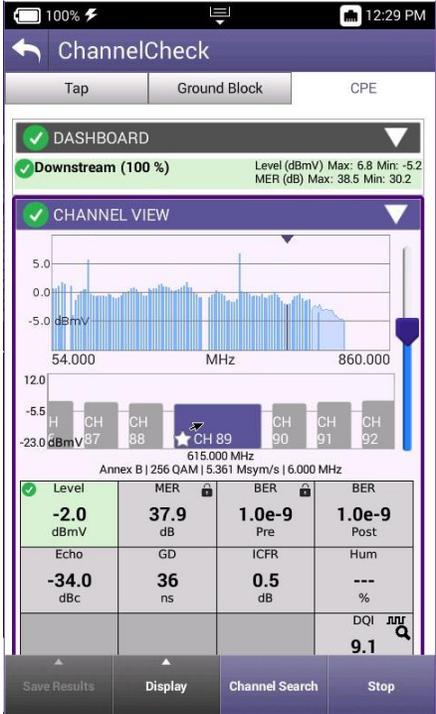
Connect signal to port 1 of the ONX



CATV Home Screen
select
“Channel Check”

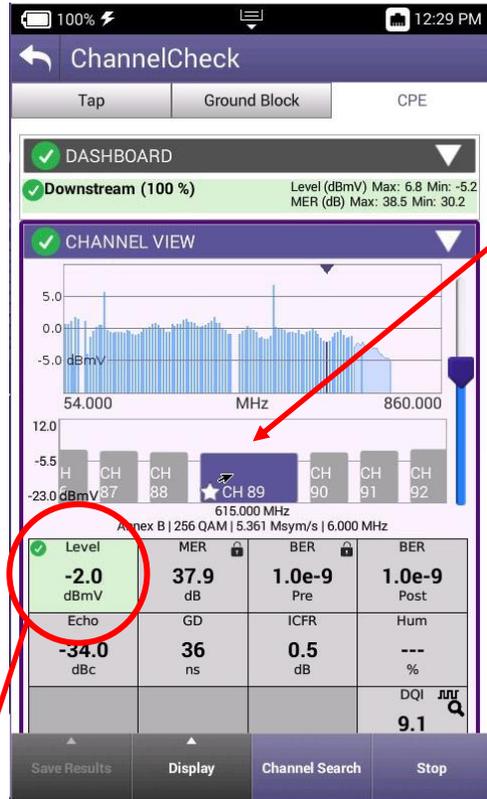


Channel Check Setup
select
“Start”

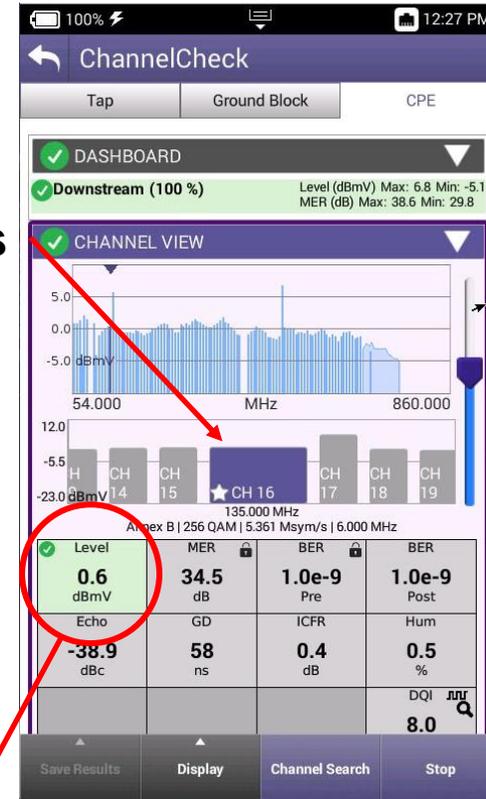


ONX builds channel plan
provides measurement for
all channels in the plan

Procedure



Select Channels
Ch 88 or Ch 89
and
Ch 16 or Ch 17
Log Levels



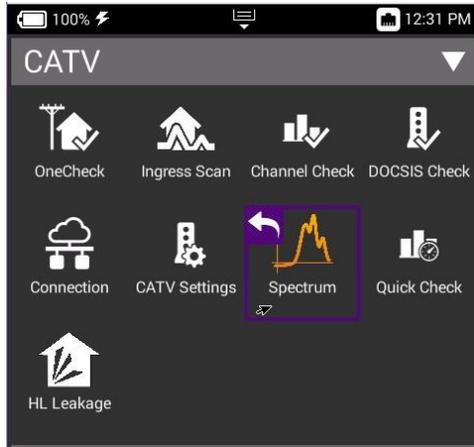
$$-2.0 \text{ dBmV} - 24 \text{ dBmV} = \underline{-26 \text{ dBmV}}$$

$$0.6 \text{ dBmV} - 24 \text{ dBmV} = \underline{-23.4 \text{ dBmV}}$$

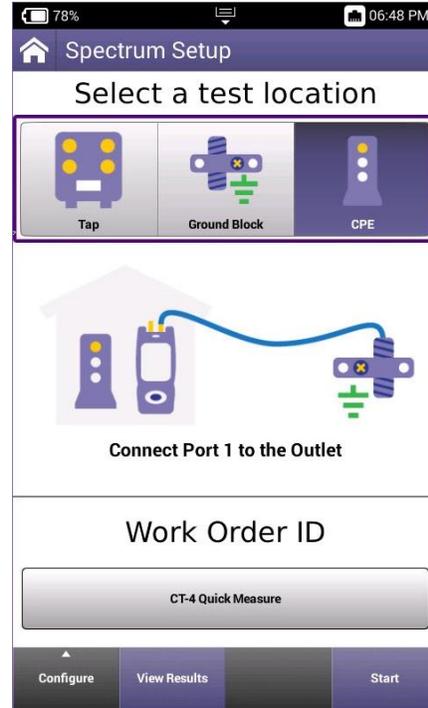
Approximate Target Levels

Downstream Spectrum Setup

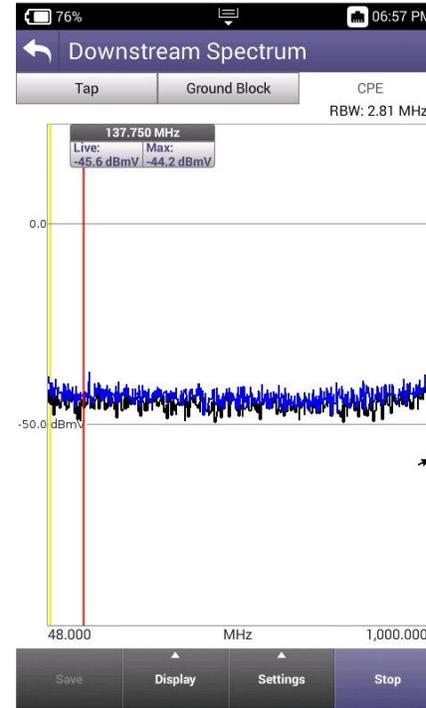
(612 MHz)



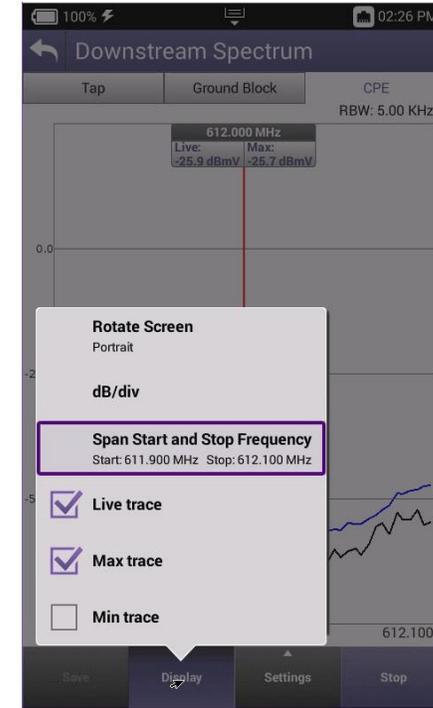
CATV Home Screen
select
“Spectrum”



Spectrum Setup
select
“Start”



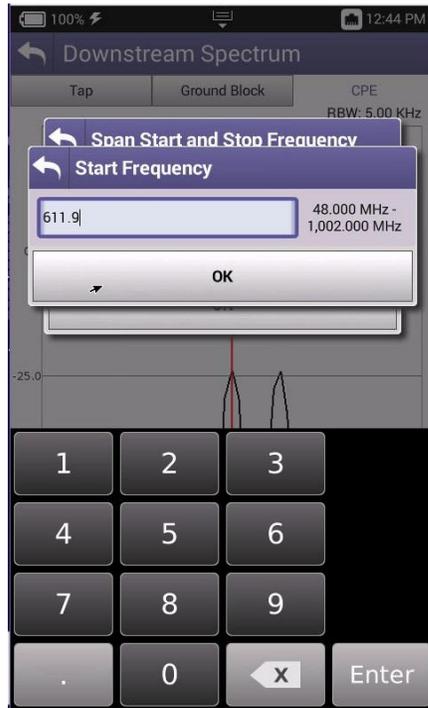
Spectrum
select
“Display”



Enter
Start and Stop
Frequencies

Downstream Spectrum Setup

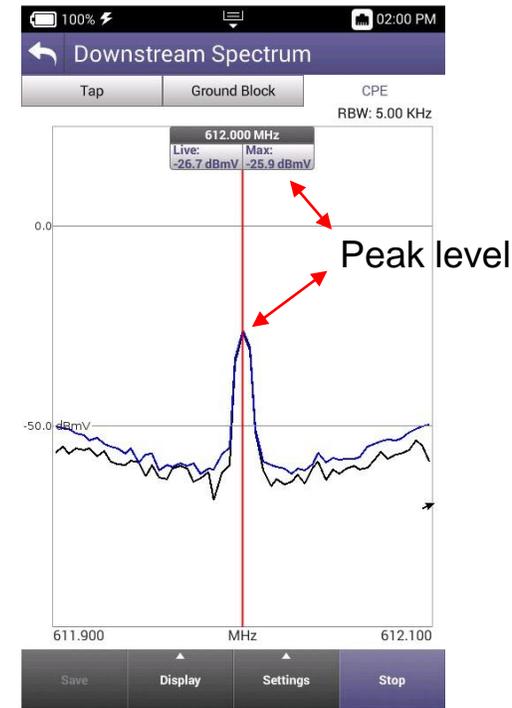
(612 MHz)



Enter Start Freq
611.9 MHz



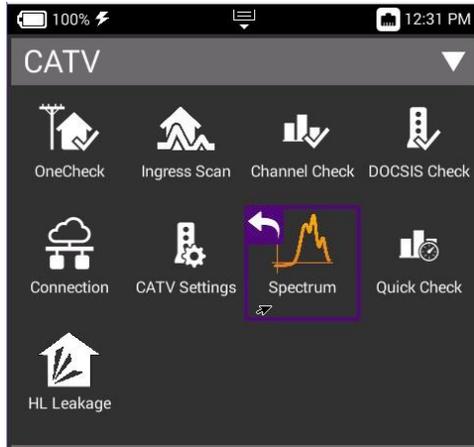
Enter Stop Freq
612.1 MHz



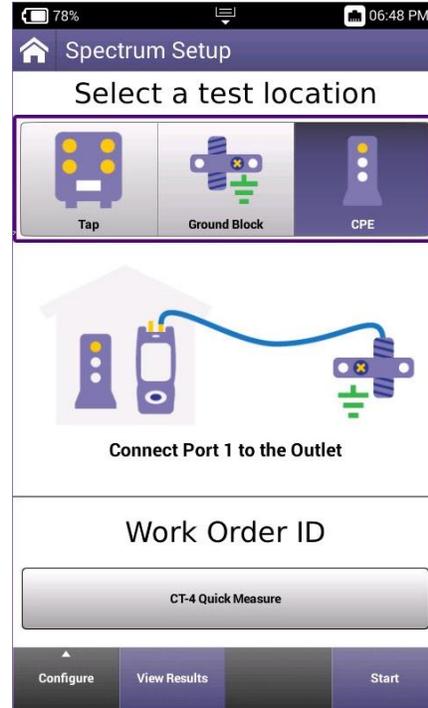
Move Marker
to
Peak Level

Downstream Spectrum Setup

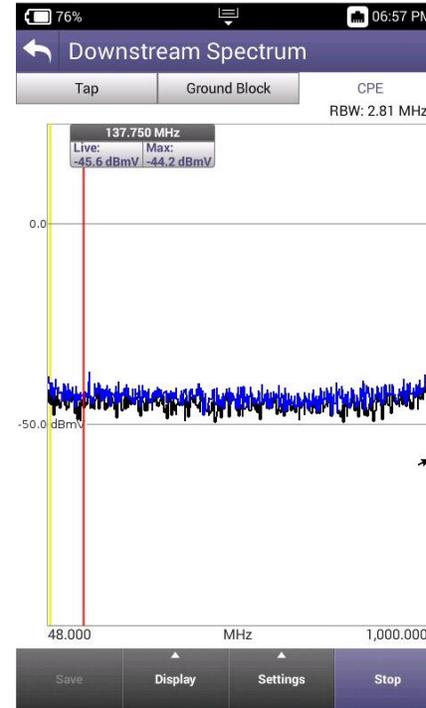
(138 MHz)



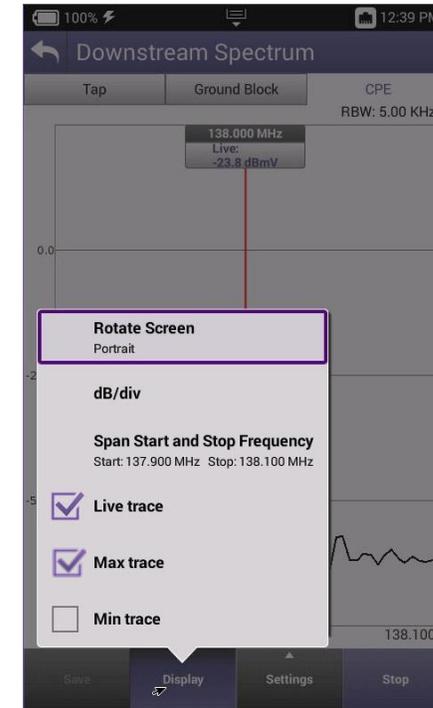
CATV Home Screen
select
“Spectrum”



Spectrum Setup
select
“Start”



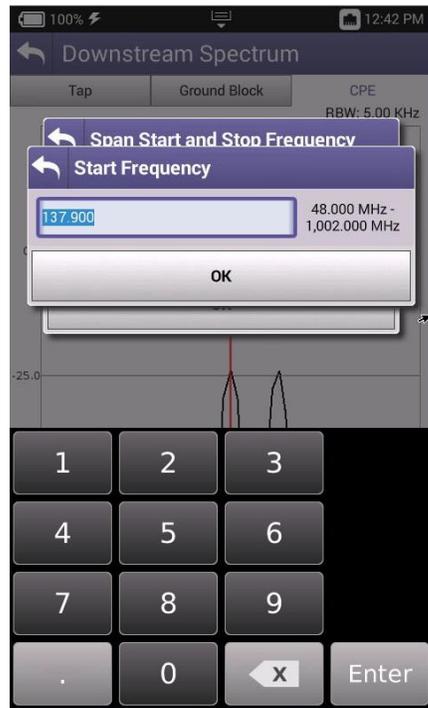
Spectrum
select
“Display”



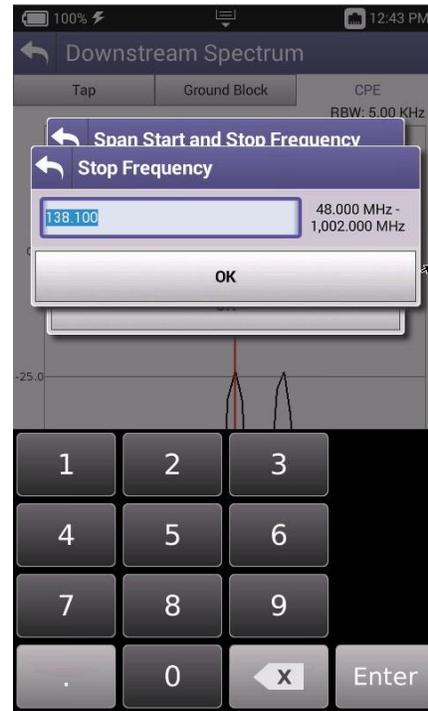
Enter
Start and Stop
Frequencies

Downstream Spectrum Setup

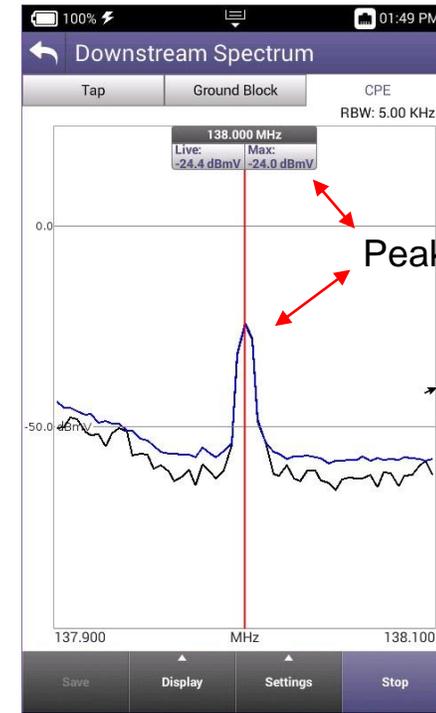
(138 MHz)



Enter Start Freq
137.9 MHz



Enter Stop Freq
138.1 MHz



Move Marker
to
Peak Level

Measurement Results

Target Levels from Slide 3

High Band Target Range

-2.0 dBmV - 24 dBmV = -26 dBmV

-2.0 dBmV - 25 dBmV = -27 dBmV



This looks good
No action required

Low Band Target Range

0.6 dBmV - 24 dBmV = -23.4 dBmV

0.6 dBmV - 25 dBmV = -24.4 dBmV



This looks good
No action required

Remember: These are ballpark measurements of the dual CW's
Readings within a couple tenths of these ranges would be acceptable

WILLIAMS