VIAVI Solutions

Brochure

VIAVI

Seeker X Leakage System

Plant Integrity Solution for the Evolving HFC

Only the VIAVI Seeker X leakage solution has the agility and OFDM support to unlock full channel lineup flexibility including high-split architectures while providing superior sensitivity and speed to detect leaks that other systems miss. Through integration with VIAVI XPERTrak, these leaks can be correlated with subscriber impact and PNM data and fixed faster.

Seeker X Provides:

- **Agility** – With support for up to 4 concurrent monitoring frequencies including OFDM support, Seeker X affords operators complete flexibility in defining downstream channel lineups while providing true full-spectrum leakage detection.
- **Sensitivity and Speed** – The exclusive Seeker X tagging system enables a 6dB sensitivity gain vs competing systems with a faster acquisition time making drive out leakage more accurate. This speed and accuracy improve system integration into mapping systems and reduces time locating leaks during walk-out.
- **Highly Integrated** – By integrating with XPERTrak, VIAVI provides a complete tool for identifying, finding, and fixing plant performance issues by sending technicians to the right location
- **Compatibility** – The Seeker X system is compatible with the evolving DAA/RPHY distribution network as well as traditional HFC architectures. This enables a seamless DAA migration path while including continued access to best in class plant maintenance tools and FCC reporting. Backward compatibility with existing Seeker D and CT-4 tagging further smooths the transition to the new system.

Benefits

- Fully frequency-agile 130–1220MHz
- Support for 4 concurrent tags improves leakage detection capability and flexibility
- Exclusive new digital chirp tag provides superior sensitivity and less false leaks
- Innovative antennas provide frequency agility while preserving sensitivity
- D3.1/OFDM, high-split/OUDP, and DAA/R-PHY ready
- XPERTrak integration for faster remote issue localization and field find and fix

Seeker X Leakage Detector

- Frequency Agile from 130–1220MHz, easily adapts to existing channel lineups
- High split ready with OUDP detection for 204MHz upstreams
- Support for leakage detection with existing OFDM downstream carriers
- Leak detection on up to four concurrent frequencies for improved coverage and sensitivity
- Speed and sensitivity to detect leaks that other systems simply can't

CT-X – Channel Tagger

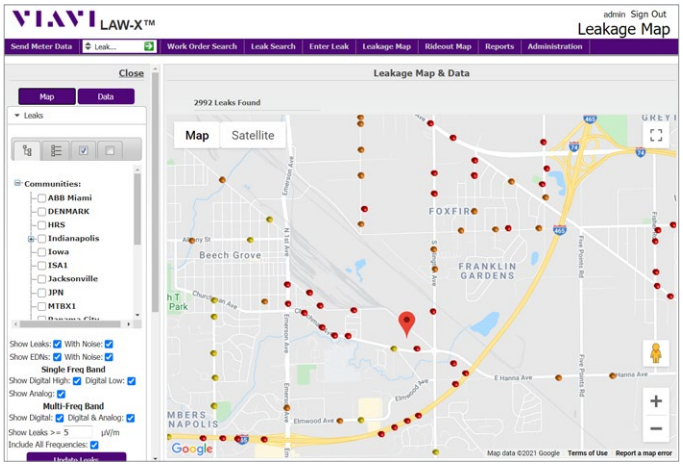
- Generates up to 4 tags in single 1RU unit
- Improved leakage sensitivity and false leak rejection with advanced Seeker X digital chirp tag – 1uV/m – 2000uV/m
- Web enabled for simplified administration

Seeker X Advanced Antenna Systems

- Diverse high gain antennas to support leakage detection in low, mid, or high bands providing sensitivity and frequency agility
- Drive out roof mount antennas with precision combining
- Directional antenna for fast leak identification
- Adjustable/frequency-agile dipole antenna for faster walkout use
- Near field probe for close-proximity cable, connector, and cabinet verification

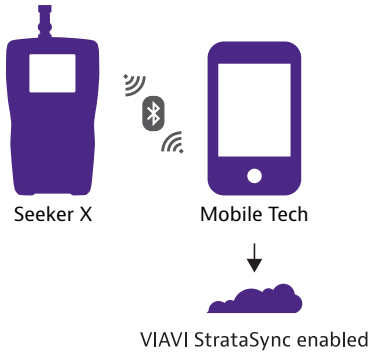
Advanced Leakage Analysis Software System

- Automated leakage analysis with the exclusive VIAVI correlation algorithm to minimize duplicate reporting of plant leaks
- Integration with XPERTrak provides correlation with plant leakage and active system PNM monitoring to improve fix location accuracy
- Real time reporting improves leakage fix correlation and reduces truck rolls



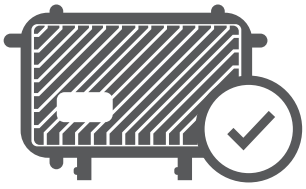
VIAVI Mobile Tech Integration

- Geotag leaks during walkout testing
- Simplify unit setup/config via StrataSync connectivity
- Prevent recording of temporary leaks created during maintenance activities



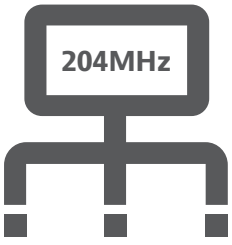
Virtual Tagging for DAA/Remote PHY Architectures

- DAA/Remote PHY nodes generate tags, no hub-based HW required
- Supported by all major DAA vendors



High-Split Ready

- OUDP burst detection for 204MHz networks
- Seamless integration with traditional downstream monitoring



Use Models – How MSO's use Seeker X to tighten up their networks

Field Antennas Seeker X Meter Mobile Tech App

WALKOUT

NON-INTRUSIVELY FIND AND FIX INGRESS AND PNM ISSUES IN THE FIELD FASTER

- Use on ingress runs, find shielding weaknesses faster in the field
- Use for fast localization of PNM—identified issues – loose connectors, etc
- Verify integrity of repairs, construction before closing ticket
- Quickly locate LTE Egress/Interference, frequently sources of LTE Ingress also

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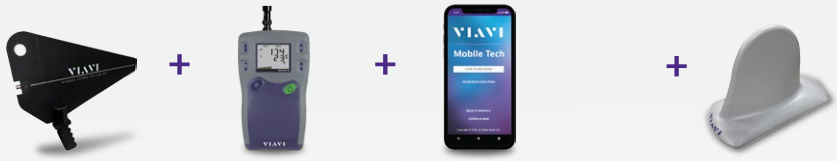
Vehicle Antennas & Mobile Mount



WALKOUT DRIVE

DETECT LEAKS WHILE TECH'S DRIVE TO JOBS, FIX THE BIG ONES IMMEDIATELY

- Opportunistically detect leaks while Techs drive between jobs
- Fix the worst ones immediately, minimize customer service impact
- Accelerate divide and conquer ingress localization process
- Ensure Seeker X is always charged and ready for field use

Centralized Server

WALKOUT DRIVE GPS

AUTO-DETECT AND REMOTELY PINPOINT LEAKS, MANAGE PROCESS USING CENTRALIZED SERVER

- Automatically collect geocoded leak data as Tech's drive, send to central server (LAW-X)
- Remotely analyze and pinpoint leaks with Quadrangulation algorithm
  - dispatch to fix, not find
- Prioritize leaks, auto-generate work orders, track leaks through closure
- Track KPI's, monitor process effectiveness and identify improvements

Fully Automated, Closed-Loop Leak Lifecycle Management

FULL LEAK LIFECYCLE AUTOMATION

VIAVI "QC to Close" process automates leak tracking across lifecycle enabling disciplined/consistent workflows

UPLOAD

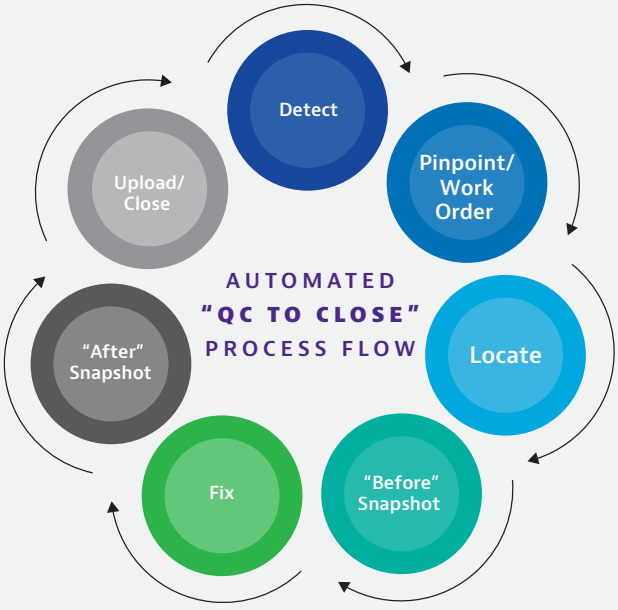
Automatically uploaded to server, leak automatically closed if criteria met

"AFTER" SNAPSHOT

Tech collects post-fix snapshot

FIX

Tech fixes root cause of leak



DETECT

Detect leaks, upload data to LAW-X server

PINPOINT

Server "Quadrangulates" leaks, creates work orders

LOCATE

Tech drives to leak, finds source with directional antennas

"BEFORE" SNAPSHOT

Tech collects pre-fix "snapshot" including GPS with single click on meter

Operators with disciplined leakage programs see highest ROI

10% 10% drop in customer calls

75% 75% codeword error reduction

50% 50% drop in low SNR nodes

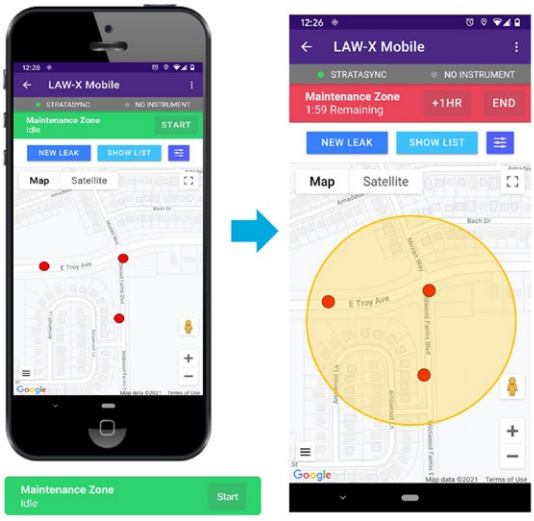
Automated/Closed Loop Leakage Benefits:

- Maximum ROI from leakage programs
- High confidence that closed leaks truly fixed
- Real-time system updates upon closure
- Resources utilized to fix leaks, not track them
- Automated process auditing / reliable data
- Trending of leakage effectiveness

Mobile Tech App Use Case – Prevent Recording of Temporary Leaks

PROBLEM: Plant maintenance including fixing leaks can temporarily create leaks

- Opening housings, replacing connectors, …
- If a truck with Seeker D/X drives by during maintenance event a leak will be logged
- Physical leak will go away when maintenance is complete but leak remains logged in database



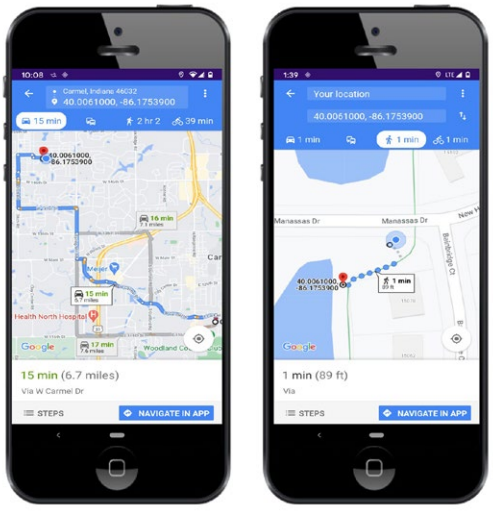
SOLUTION: Maintenance Zone Tool

- Set exclusion zone around Tech location while opening up the plant
- Definable radius around phone lat/long
- All detected leaks ignored while active
- Disable when complete (or it will time out)
- Usable by all Maintenance Techs, not just those working Leakage

Mobile Tech App Use Case – Find Leaks Faster in the Field

PROBLEM: Street address gets your truck close to a leak, but you still need to walk it out

- Is leak inside of a fenced yard?
- Are there obstructions between address and leak?
- Which direction do I head when leaving my truck?



SOLUTION: Google Maps in Mobile Tech App

- Get turn-by-turn driving directions to starting point
- See actual leak location on map – find best place to park given local obstacles (busy road, fences, etc)
- See your location relative to the leak as you walk it out

VIAVI Solutions

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