

VIAMI LAW-X

Leakage Analysis Workshop

Overview

In today’s competitive broadband industry, maintaining network performance for return path services is critical for success. Minimizing labor costs to mitigate ingress and ensure system integrity can be a formidable challenge.

By automating the leakage management process, the VIAMI Seeker leakage management system and integrated LAW-X™ provide a unique way to minimize maintenance costs and maximize efficiency.

The integrated solution enables system operators to find and fix leaks quickly, minimize technicians’ time, quickly assess network leakage integrity, and gauge the effectiveness of leakage maintenance efforts.

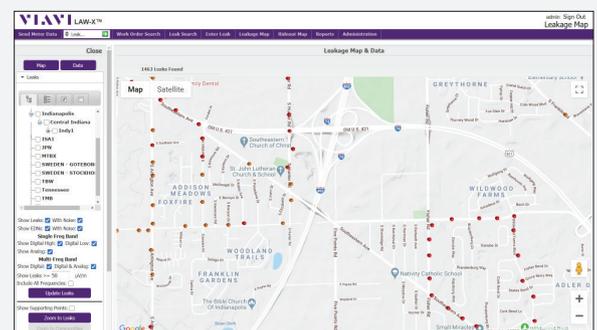
Automated Leakage Management

The system consists of LAW-X server, vehicle-mounted Seeker family leakage meters, GPS receivers, and mobile communications adapters (MCAs), which collect leakage location and level information without interrupting the driver’s routine.

Technicians can manually upload the data via USB connection or connect to a designated WiFi hotspot and the leakage location data is automatically uploaded to LAW-X. The server plots the data and marks the leakage source locations as push pins on a map—all automatically.

Key Features

- Automated data collection, leak mapping, and work order management for improved productivity and efficiency
- Continuously updated database and map for analysis and decision making
- Automated leak location and amplitude notation to find and prioritize leaks faster
- XPERTrak integration improves PNM system effectiveness and correlates detected leaks with QoE impact
- Process automation for improved network integrity and simpler governmental compliance



Then LAW-X automatically assigns and e-mails the repair work orders to the responsible technicians, they upload the pre- and post-repair snapshots, the server closes out the work orders, and the push pins disappear from the map (a patented algorithm automatically corrects logged leaks to reflect the FCC-prescribed equivalent 10-foot measurement).

The system is also scalable which enables operators to increase the level of automation as the deployment of field equipment reaches an appropriate coverage of the system geography.

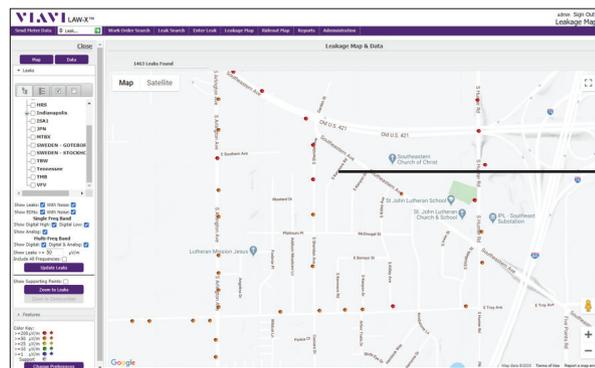
Web-Based Program Interface

A familiar, intuitive interface allows users to mouse-over leaks (displayed as push-pins) to display additional data. Clicking on the push-pin will display complete details for the selected leak.

Efficient data management is accomplished through the leak list, which is displayed in a sortable table format. From this displayed leak list, a leakage containment supervisor can select specific leaks and create work orders, while the plant manager can sort leaks by field strength and logistically assign work orders to repair technicians.

The hybrid aerial/map option simplifies the correlation of leak information to the physical address and GPS latitude/longitude, all through a familiar user interface. This helps technicians efficiently and quickly repair leaks.

After the technician indicates that the leak has been repaired, LAW-X closes out the work orders and removes the push-pins from the map. This automated process reduces the time to repair leaks and ultimately saves you money.



Versatile Map Interface

Leak	Work Order	Assigned Tech	Location	Leak at/C	Impedance (dB)	Alt. Press (PSI)	Latitude	Longitude	Installation Date	Repair Date
2328	2017		1208 N Indiana St, Mooresville, IN 46158-1041	36.4	600.000000	38.43006	-86.73768	10/03/2019	X	
2349			4248 S Fern Rd, Indianapolis, IN 46221-4619	40.2	600.000000	39.47000	-86.24761	10/03/2019	X	
2343			1242 S Fern Rd, Indianapolis, IN 46221-4208	39.0	600.000000	39.47000	-86.24761	10/03/2019	X	
2342			2115 S Hunter Rd, Indianapolis, IN 46219-9509	62.0	600.000000	39.74171	-86.08454	10/11/2019	X	
2343			2175 S Hunter Rd, Indianapolis, IN 46219-9508	81.2	600.000000	39.74072	-86.09152	10/11/2019	X	
2341			4491 S Raymond St, Indianapolis, IN 46203-3963	29.2	600.000000	39.72915	-86.05596	10/24/2019	X	
2345			6541 Southwestern Ave, Indianapolis, IN 46203-5833	67.4	600.000000	39.72933	-86.05346	10/11/2019	X	
2346			6216 S Raymond St, Indianapolis, IN 46203-3968	44.8	600.000000	39.72904	-86.05643	10/24/2019	X	
2342			5994 Arnett Dr, Indianapolis, IN 46217-2349	39.8	600.000000	39.68612	-86.06357	10/11/2019	X	
2348	2020	MRO21	3990 Chatterbox Run, Indianapolis, IN 46203	114.2	612.000000	39.71271	-86.06388	09/23/2019	X	
2344			2295 S Arlington Ave, Indianapolis, IN 46203-5714	61.1	600.000000	39.72068	-86.05359	10/12/2019	X	
2330			2782 S Arlington Ave, Indianapolis, IN 46203-5705	38.5	600.000000	39.72267	-86.06363	10/12/2019	X	
2336			2612 S Arlington Ave, Indianapolis, IN 46203-5702	295.6	600.000000	39.72382	-86.06361	10/12/2019	X	
2341			2288 S Arlington Ave, Indianapolis, IN 46203-5611	107.6	600.000000	39.71764	-86.06377	10/12/2019	X	
2347			5704 HAZEL Ln, Indianapolis, IN 46203	26.3	600.000000	39.71271	-86.06388	10/02/2019	X	
2321			801 Bethel Ave, Beach Grove, IN 46207-1341	58.6	600.000000	38.73018	-86.09228	10/16/2019	X	
2322			749 Bethel Ave, Beach Grove, IN 46207-1341	139.3	600.000000	38.72944	-86.09102	10/24/2019	X	
2324			811 Bethel St, Beach Grove, IN 46207-1321	124.4	600.000000	38.73333	-86.09156	10/11/2019	X	
2328			1130 Albany St, Beach Grove, IN 46207	77.2	600.000000	38.72246	-86.09496	10/24/2019	X	
2329			199 N 3rd Ave, Beach Grove, IN 46207-1309	41.3	600.000000	38.72333	-86.09495	10/16/2019	X	
2349			97 N 3rd Ave, Beach Grove, IN 46207-1325	28.8	600.000000	38.72322	-86.09479	10/02/2019	X	
2341			1025 Albany St, Beach Grove, IN 46207-1311	38.6	600.000000	38.72438	-86.09394	10/02/2019	X	

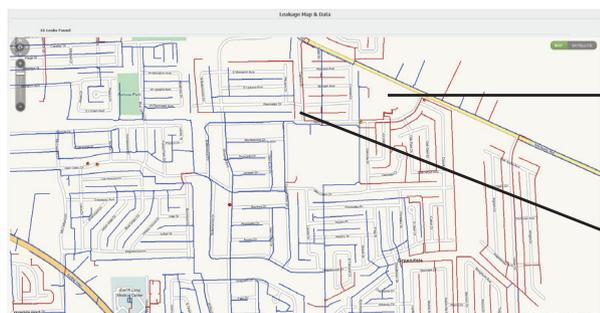
Sortable Leak List

Software Server and Support Options

VIAVI offers a variety of options for implementing LAW-X. Hosted LAW-X provides a complete, managed, comprehensive solution that allows you to focus on building business—not network infrastructure—saving you time and money in up-front costs and ongoing hardware support. With this option, your server will always be at the latest version with all bug fixes and security patches applied.

LAW-X can also be licensed to run on customer-provided physical or virtual servers. Under this model annual software maintenance and support contracts are available to enable access to software updates, live TAC support, and API for XPERTrak integration.

- Versatile map interface
- Sortable leak list
- Automatic or manual work order generation



Underground Plant Maps

Aerial Plant Maps

Custom Mapping Overlay

Import strand maps, aerial plant, underground plant, amplifiers, and pedestals

WiFi Access Requirements for LAW-X

A wireless access point communicating with the WiFi option of the vehicle-mounted Seeker MCA module must meet these specifications:

Standard	WiFi (802.11 a/b/g/n)
Security	WPA-PSK (TKIP), WEP (128-bit) or WPA2-PSK (AES)

Stand-Alone Server Software Requirements	
	Minimum Requirements
Microsoft Windows Server Software	Windows Server 2012 R2 or higher
Microsoft SQL Server Software	2012 Standard Edition or Higher
Processor	Recent Intel or AMD processor, 2 or more cores
Storage	500 GB (RAID Level 5 or 10)
Memory	8 GB
Ethernet Adapter	100 Mb or higher Ethernet Port with high speed Internet connection
Other Optional Components	Optical Drive, Video Adapter, Monitor, Keyboard and Mouse

A backup storage system is also recommended for prevention of data loss.

LAW-X Stand-Alone Server Software does not include Windows Server and SQL Server Software. This software is required for proper operation of the LAW-X Server Software and must be provided by the end-user.



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