

Drug Detection at the Border: How VipIR and MX908 Work Together to Elevate Customs & Border Screening

Introduction

As global trade and travel accelerate, customs and border protection agencies face unprecedented challenges. From narcotics and explosives to chemical warfare agents and precursor chemicals, the list of threats at ports of entry continues to grow. Identifying these threats quickly, confidently, and efficiently—without disrupting commerce—is a top priority.

To meet this mission, 908 Devices introduces VipIR™, a portable device which utilizes Smart Spectral Processing in combination with FTIR and Raman technologies for comprehensive identification of bulk chemicals. When paired with the MX908®, a proven device for trace-level threat detection, the two systems deliver a layered screening solution. This combination allows customs officers to triage with speed and identify with certainty—enabling targeted searches and confident identification.

The Threat Landscape: Increasing Volume, Complexity, and Pressure

Modern customs operations face mounting challenges driven by high volumes of vehicles, packages, and passengers moving through ports of entry each day. At the same time, traffickers continue to adapt, using increasingly complex concealment methods to hide both precursor chemicals and bulk drug materials. Adding to the difficulty, the chemical signatures of synthetic narcotics are constantly evolving, making detection even more complicated. As a result, effective interdiction now requires a layered, intelligence-driven approach that combines rapid screening and triage with advanced chemical analysis. This dual capability enables customs officials to quickly flag suspicious materials while also confirming their identity with high confidence—ensuring faster decisions, stronger enforcement, and safer borders.



MX908: Pinpointing Threats at Trace Levels

The MX908 is a handheld high-pressure mass spectrometer (HPMS) that excels at identifying:

- Trace residues (invisible/nanogram level) of narcotics, explosives, and chemical warfare agents (CWAs)
- Particulates on hands, surfaces, or packaging
- Priority threats in seconds, with confidence

Used at initial points of screening, the MX908 serves as a frontline tool for:

- Screening vehicles, luggage, or personnel for trace-level contamination
- Selecting high-risk samples or containers for further inspection
- Rapidly ruling out high risk threats
- Identifying heavily cut, user-level doses of narcotics, such as pills or powders

VipIR: Broadest Bulk Chemical Identification

While the MX908 targets high priority threats at trace and residue levels, the VipIR offers the broadest range of unknown chemical identification in a simple, field portable device.

- SmartID workflow - FTIR, Raman, and Smart Spectral Processing (SSP) to refine and confirm results
- Access to a massive library spanning narcotics, explosives, TICs, and consumer products
- Enhanced identification of precursors, diluents, and mixtures

Its **SmartID workflow** allows customs officers to:

- Confidently identify bulk powders, pills, liquids, and gels
- Eliminate the guesswork associated with using multiple detection technologies, requiring little training from users and allowing for easy standardization of protocols
- Safely analyze through transparent packaging using the Raman probe

Why Use Both? A Complementary, Confirmatory Approach

MX908

Detects threats at **trace levels**

Ideal for **screening people, vehicles, packaging**

Prioritizes **targets of interest**

VipIR

Identifies **bulk chemicals** and mixtures

Ideal for **substance analysis** after initial screening

Broadest chemical identification

Using both the MX908 and VipIR in tandem offers a complementary, confirmatory approach to chemical threat detection that enhances both speed and accuracy. The MX908 excels at detecting threats at trace levels, making it ideal for rapidly screening people, vehicles, and packages while prioritizing targets of interest for further inspection. Once a substance is flagged, VipIR provides in-depth identification of bulk chemicals and complex mixtures, offering the broadest chemical coverage available for confirmatory analysis. Together, these tools enable more targeted and efficient inspections, improve confidence in results by reducing false positives and unnecessary delays, and enhance the ability to detect both active threats and precursor materials—disrupting illicit activity earlier in the supply chain.

Use Case: Border Checkpoint

Initial Screening: An officer uses MX908 to swab and analyze a door handle from a vehicle. The MX908 identifies trace amounts of cocaine.

Secondary Inspection: The car is brought to a secondary inspection area where officers search the car for contraband. They uncover multiple bags of black powder in a hidden compartment.

Officers take a small sample and use VipIR's single sample approach to confirm that the powder is indeed cocaine. The black coloring is a masking agent that cartels have employed to defeat Raman technology which is prone to fluorescent interference. However, the SmartID workflow combines the power of FTIR and Raman to identify the broadest range of bulk substances in all matrices.

Reporting: With the touch of a button, the officer wirelessly transmits the results data to the 908 Devices' Team Leader app, ensuring the entire team is aware of the seizure and protecting valuable evidence. This data can be accessed from any location by customs agents to identify trends, and raise awareness of ongoing seizures.

Conclusion: The Power of Pairing

VipIR and MX908 represent a modern threat detection strategy for customs and border protection. By combining trace-level detection with bulk chemical ID, agencies can make faster, more informed decisions—protecting borders without sacrificing throughput.

