

## LOCALIZING CHEMICAL AND BIOLOGICAL THREAT DETECTION

# The Risk Disk – A Platform For Forward Deployed Chemical Collection And Analysis

**Matthew Aernecke** 908 Devices **Peter Sullivan** 908 Devices **Lester Strauch** Advanced Design and Manufacturing, DEVCOM Chemical Biological Center

908 Devices has partnered with DEVCOM CBC to continue development and testing of a compact, lightweight (6-7 grams) sorbent cartridge (collector) that is designed to retain airborne chemicals it is exposed to for later analysis. The form factor of the collector enables it to be deployed downrange using a small or large UAS, stationary collector, or other sampling platform. After a sampling/exposure period as short as a few minutes, the sorbent disk is retrieved from the platform and placed into an MX908 handheld mass spectrometer for analysis using the device's aerosol module. If a threat is detected during the analysis of chemicals desorbed from the disk, an alarm / chemical ID is reported to the operator. Analysis of a single collector on the MX908 is complete within 1 minute. We have shown that, when sealed in a storage container, the disks are able to retain the chemicals they have been exposed to for up to one week prior to analysis on the MX908.

This capability represents an approach to remote chemical sensing at the tactical level. All core system components can, in principle, be forward deployed and the analysis completed by the operators themselves (i.e. lab analysis not required). It offers operators the opportunity to screen for chemical threats on site prior to action, reconnaissance, or routine surveillance. The platform also offers the possibility to 'leave then retrieve' the collector to covertly sample an area during a time period when operators may not be on site. The MX908 handheld detector has capability to detect the range of G-, V-, A- series CWAs and pharmaceutical based agents (PBAs). The collector approach further extends MX908's reach.