

## APPLICATION NOTE

## NARCOTICS IDENTIFICATION USING HANDHELD RAMAN

- Category A technique by SWGDRUG
- Scan through packaging
- Configurable library management



Mobile techniques for fast and accurate identification of illegal drugs and narcotics are in demand by several agencies involved in removing controlled substances from circulation. Raman spectroscopy is considered a presumptive test under Category A by the Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG), and may be used towards obtaining sufficient probable cause to hold suspects. Street drugs are typically contaminated with degradation products, impurities, diluents and unreacted precursors. These contaminations often will have strong fluorescence interference and cannot be analyzed using previous generation 785 nm Raman-based systems. Handheld Raman using 1064 nm excitation reduces this interference.

### Chemical Analysis in the Field

The ease of use and low interference from fluorescence of the Rigaku CQL™ Narc-ID™ handheld 1064 nm Raman analyzer allows for a rapid response for common and emerging narcotic threats. The on-board library contains an extensive list of narcotics, precursor chemicals, cutting agents, pharmaceuticals, steroids, and more. Users benefit from a library that is built and validated directly on the device, rather than spectra purchased, and imported from third parties. Users have access to the latest cathinones, cannabinoids, fentanyls, opioids, tryptamines, amphetamines, nitazenes and more.

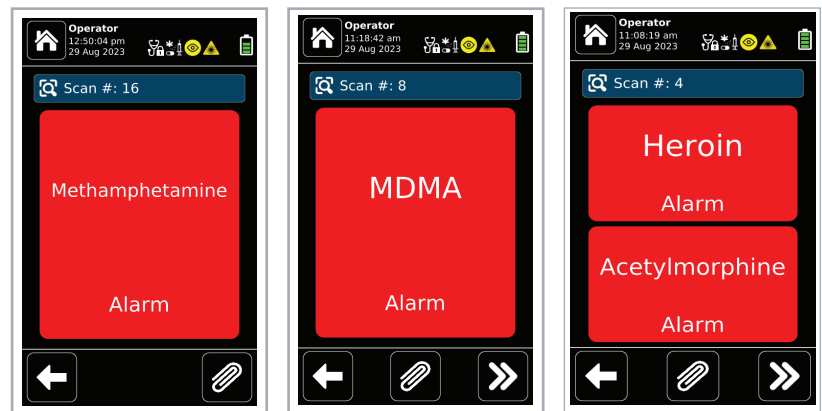
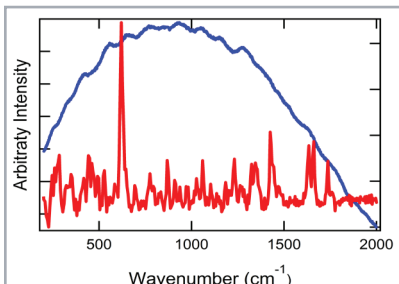


Figure 1. Examples of various results from the Rigaku CQL Narc-ID analyzer.

### Minimize Fluorescence Interference



Raman spectra of street heroin was easily collected using a Rigaku 1064 nm excitation compared to 785 nm Raman in Figure 2. When measured at 785 nm, the sample shows much more fluorescence, as can be seen by the broad curvature of the baseline. This fluorescence obscures the specific characteristic Raman peaks of the heroin. Other common street narcotics can also be quickly identified such as MDMA, xylazine and methamphetamine.

Figure 2. Raman spectra of street heroin collected at 1064 nm and 785 nm.

### Conclusion

The high specificity and mobility of the Rigaku CQL Narc-ID handheld 1064 nm Raman analyzer makes it ideal for the identification of narcotics, even impure street drugs. Its integrated digital camera is optimal for tracking samples and creating complete reports, simplifying analysis procedures.



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