J10 Infrared Examination of Altered Ink Handwriting Using Hand-Held Digital Infrared Scope

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After attending this presentation, attendees will understand basic principles of infrared examination of altered ink handwriting, functions of a new hand-held digital scope, and applications of infrared capacities with the new device.

This presentation will impact the forensic science community by providing a new technical direction for the questioned document examination community on the topic of altered ink handwriting identification.

Traditional devices such as Thin-Layer Chromatography (TLC) and Gas Chromatography/Mass Spectroscopy (GCMS) have been used to examine altered ink handwriting, but they are lab-based instruments and related examinations should be considered to be destructive or semi- destructive. Quick Scan Infrared Spectrometer (QSIRS) can provide easy operation with quick data collection and does not require purge of moisture and CO2 prior to use, allowing easy and fast sample analysis. However, the equipment is very expensive.

A case involved with altered ink handwriting is introduced to illustrate the new device: Hand-Held Digital Infrared Scope. The device is inexpensive (approximately $1,200), portable (hand-held), laptop connection (USB 2.0 port), digital (image sensor 1/3" CMOS & 2.3 microns), three capture functions (still image, movie, and time lapse), two infrared wavelengths (850 nm & 760 nm), continuous magnification (40x ~ 140x), and digital measurement (on screen). The digital measurement components include: (1) multiple geometrical measurements (line, triangle, circle, arch, and rectangular), and (2) added on capabilities (labels, markers, time stamp, and drawing). It is suggested that this new device is able to introduce two new examination dimensions: portable infrared examination and digital measurement for the future.

Digital Measurement, Infrared Scope, Altered Ink Handwriting

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