

QUESTIONED DOCUMENT EXAMINATION

Questioned document examination (QDE) is a forensic science discipline pertaining to documents that are potentially disputed in a court of law. The examination's primary purpose is to provide evidence about suspicious or questioned documents using a variety of scientific principles and methods. Document examination might include alterations, obliterations, paper analysis, forgery, origin, determining authenticity, or any other questions.



The use of low angle oblique light and photography is a simple method of analyzing indented writing. Our experts utilize the latest in forensic technology in the course of QDE. You can experiment with this process at home with a flashlight.

Indented Writing Analysis

Indented writing, or second page writing, is an imprint that may be left on the underlying pages when the top sheet of paper is written upon. This impression of the writing is influenced by pen pressure and thickness of the paper. Indented writing on subsequent pages may not be the same as what appears on the surface of the document. Experts are trained to uncover indented writings that may have been added after the fact, altered or missing from an original document. Indented writing is very useful as a form of connecting evidence.

The Process

Historically, indented writing was identified and deciphered by means of low angle oblique light and photography. More recently, an instrument known as an Electrostatic Detection Apparatus, or ESDA, is used to produce a visual image of the indented writing on trans-

parency film. If applicable, this procedure is non-destructive, and rather non-detectable.

Low Angle Light & Photography

We first apply oblique or low angled lighting to the furrows of indented writing. Photography is then used to preserve the shadowed indentation. A combination of multiple exposures while moving the light source fills in the available indentations with shadows and effectively uncovering the indented writing.

Electrostatic Detection Apparatus

ESDA works by creating an electrostatic image of indented writing, which is then visualized by the application of charge sensitive toners. This sensitive imaging process reacts to sites of microscopic damages to fibers at the surface of a document, which have been created by abrasive interactions with overlying surfaces during the act of handwriting.

Video Spectral Analysis for Questioned Documents

Another valued method used by forensic experts is called Video Spectral Analysis (or Comparator). Comprehensive digital imaging systems can provide the questioned document examiner with an extensive range of facilities for detecting irregularities on altered and counterfeit documents. Detection of alternations includes, but are not limited to:

- **Surface features**
- **Watermarks**
- **Alterations**
- **Use of different inks**
- **Embedded invisible information**
- **Latent images**
- **Ink stamps**
- **Tampering and photo-substitution**

Standards

The American Society for Testing and Materials, International (ASTM) publishes

standards for the many methods and procedures used by Forensic Document Examiners. E30.02 is the ASTM subcommittee for questioned documents. ASTM E444-09 provides guidance on the scope of work conducted by document examiners, and E2388 specifies minimum training requirements.

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Mark is a former FBI Special Agent and FBI Forensic Examiner, where he served as part of the FBI's ERT/RDT teams. Mr. Songer has instructed numerous law enforcement officers and civilian examiners in handwriting identification as well as the collection of writing samples. He also developed and implemented Forensic Science & Criminal Justice programs at several institutions of higher learning, including the University of California and La Sierra University.