



Standard Guide for Examination of Altered Documents¹

This standard is issued under the fixed designation E 2331; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This Guide provides procedures for examinations that should be used by forensic document examiners (E 444) for examinations involving altered documents.

1.2 These procedures are applicable whether the examination(s) are of questioned and known items, exclusively questioned items, or a single item.

1.3 These procedures include evaluation of the sufficiency of the material available for examination.

1.4 The particular methods employed in a given case will depend upon the nature of the material available for examination.

1.5 This Guide may not cover all aspects of unusual or uncommon examinations.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

E 444 Descriptions of Scope of Work Relating to Forensic Document Examiners

E 1422 Guide for Test Methods for Forensic Writing Ink Comparison

E 1732 Terminology Relating to Forensic Science

E 2195 Terminology Relating to Forensic Document Examination

E 2291 Guide for Indentation Examinations

3. Terminology

3.1 Definitions:

3.1.1 For definitions of terms in this guide, refer to Terminologies E 1732 and E 2195.

3.2 Definitions:

3.2.1 *alteration, n*—a modification made to a document by physical, chemical or mechanical means including, but not limited to, obliterations, additions, overwritings, or erasures.

3.2.2 *digital image, n*—an image that is stored in numerical form.³

3.2.3 *digital image processing, n*—any activity that transforms a digital image.

3.2.4 *electrostatic detection device (EDD), n*—an instrument that uses electrostatic charge as the mechanism to visualize paper fiber disturbances (for example, indentations, erasures, typewritten material/lift off).

3.2.5 *erasure, n*—the area where material has been removed from a document by chemical, abrasive, or other means.

3.2.6 *fluorescence, n*—a process by which radiant flux of certain wavelengths is absorbed and reradiated non-thermally at other, usually longer, wavelengths. **E 1422**

3.2.7 *infrared (IR), n*—referring to radiant flux having wavelengths longer than the wavelengths of light, usually wavelengths from about 760 nm to about 3 mm. **E 1422**

3.2.8 *infrared luminescence (IRL), n*—the emission of radiant energy during a transition from an excited electronic state of an atom, molecule, or ion to a lower electronic state (fluorescence or phosphorescence, or both), where the spectrum of the excitation source is in the ultraviolet (UV) or visible region of the electromagnetic spectrum, or both, and the spectrum of the emitted energy is in the far red or infrared (IR) region of the electromagnetic spectrum. **E 1422**

3.2.9 *side lighting, n*—illumination from a light source that is at a low angle of incidence, or even parallel, to the surface of the item. Syn., *oblique lighting*.

3.2.10 *transmitted light, n*—illumination that passes through a document.

3.2.11 *ultraviolet (UV), n*—referring to radiant flux having wavelengths shorter than the wavelengths of light, usually wavelengths from about 10 to 380 nm. **E 1422**

¹ This guide is under the jurisdiction of ASTM Committee E30 on Forensic Sciences and is the direct responsibility of Subcommittee E30.02 on Questioned Documents.

Current edition approved March 1, 2004. Published April 2004.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Scientific Working Group on Imaging Technologies (SWGIT) Definitions and Guidelines for the Use of Imaging Technologies in the Criminal Justice System, Forensic Science Communications, July 2001, Vol 3, Num. 3.