



ATF-LS-QD8 Computer Generated Document Examinations	Published Online: March 2018
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PRINCIPLE:

To determine, if possible, whether or not a given computer and/or printer was used to make the questioned entries.

SPECIAL HANDLING:

1. Evidence containing body fluids that is received in the Document Section should be dried under a hood and then repackaged in a paper box or envelope. Items should be handled in order to prevent examiner exposure and preserve DNA, if requested by the submitter. Contents should be documented on the front of the packaging.
2. When handling a contaminated document, the examiner must have on a lab coat and rubber gloves. The evidence should be opened and examined only under biohazard safety hood. After examination the document should be heat sealed. The work area should be disinfected and the lab coat placed in a biohazard bag and sent to the laundry. The gloves must be placed in a properly labeled biohazard disposal after the examination is concluded.
3. Evidence submitted requesting a latent print examination should be placed in a plastic or mylar sheet protector covering the evidence. In this case, item and examiner identifying marks should be placed on the protective sheet.

SPECIMEN(S):

1. An item containing an unknown/questioned entry.
2. Sufficient standards from a suspect printer and suspect computer, if available

SUPPLIES REQUIRED:

Paper, photocopies of evidence or photocopied or photograph enlargements of evidence

APPARATUS REQUIRED:

Stereoscopic microscope, sufficient light sources, computer, printer

CALIBRATION REQUIREMENTS:

No special calibration beyond routine maintenance is required.

PROCEDURE:

1. The evidence is marked with the appropriate item number as it appears on the Laboratory transmittal sheet, the case number, and the examiner's initials or other mark. Items on the

transmittal sheet may be amended by adding "Q" and "K" identifiers. Such amendments should be notated on a copy of the transmittal placed in the case jacket and the contributor should be notified via phone or email. A tag is placed on the computer/printer, if submitted, containing the item number, case number and examiner's initial or other mark. Items on the transmittal sheet may be amended by adding "Q" and "K" identifiers. Such amendments should be notated on a copy of the transmittal placed in the case jacket and the contributor should be notified via phone or email. If available and removable, the ribbon is removed from the printer and an item number placed either on the cartridge or on a tag. Any standards taken from any suspect printers submitted must be documented in ink with the examiners name, the date, and the serial number of the printer.

2. For any printer(s) submitted to the laboratory, examine the print head and alignment on ink jet, dot matrix, and bubble jet printers.
3. Visual examination and measurements of the questioned entry(ies) are taken.
4. Using the appropriate apparatus, examine the documents for the characteristics listed for each of the different printing processes. These characteristics are intended to be used as a general guide for process identification.
 - 1) **Ink Jet**
 - a. Dot matrix type pattern.
 - b. Ink is blown onto paper and may show spatter around printing or a splash effect around dots. Orientation of spatter may indicate direction of print head.
 - c. There is no embossing on the paper.
 - d. High-end ink jet printers appear as continuous tone printers because each pixel or dot is composed of anywhere from zero to thirty-one 15-micron dots.
 - 2) **Dot Matrix**
 - a. The dot pattern is usually made from a 7, 9, 18, 24 or 27 pin printer with the 9 and 24 pin printers being the most common.
 - b. Dots are mechanically impressed into paper.
 - c. Color dot matrix printers may consist of a combination of black, cyan, magenta and yellow or a combination of red, green and blue.
 - d. Usually uses a fabric ribbon.
 - 3) **Thermal Matrix**
 - a. Dot matrix pattern is apparent.
 - b. There is no embossing on the paper.
 - c. Printing must be on thermal paper. Thermal paper turns black when a drop of acetone is placed on the paper.
 - 4) **Electrostatic Printing:** Electrostatic printing can be found in photocopies and laser-printed documents.
 - a. Dry Toner
 - Toner particles are seen clustered around printed areas and may be seen scattered on other areas of the paper.
 - Trashmarks/drum marks may be present.
 - b. Liquid Toner

- May give an appearance similar to lithographic printing.
 - Toner may appear on non-printed areas of the paper.
 - Trashmarks/drum marks may be present.
5. Examine the questioned entry(ies) using grids or plates to determine pitch in horizontal and vertical alignment.
 6. Examine the questioned entries for alignment defects and typeface defects.
 7. Examine the known standards using grids or plates to determine pitch in horizontal and vertical alignment.
 8. Examine the known standards for alignment defects and typeface defects.
 9. Using a stereoscopic microscope examine the questioned entries.
 10. Make a written note of any defects.
 11. Check for individual and class characteristics.
 12. Compare the questioned entry with any known standards assessing the similarities as well as dissimilarities.
 13. Make written notes on the photocopies and/or worksheet(s) of a representative sample of the significant characteristics of the evidence documenting the similarities and dissimilarities of each item.
 14. Formulate a conclusion based on all the evidence examined.
 15. A complete technical review is conducted by another qualified examiner and documented and initialed on Technical Case File Review Form.
 16. Record findings in written form and have results recorded on a formal laboratory report.
 17. The bases and reasons for the conclusion(s), opinion(s), or finding(s) should be included either on the examiner's worksheet or on photocopies and may be also included in the report.

DOCUMENTATION:

Work notes consisting of photocopies of a representative sample of the significant characteristics of the evidence on which the examiner marks similarities and/or dissimilarities together with the written observations of the examiner. Measurements from any test grids should be included.

A Questioned Document Worksheet will accompany each case and should include the equipment and/or procedures used, the identifying or eliminating features, and the results of analysis.

REFERENCES:

Questioned Document Database Reference for Computer Printers.

The Use of Image Analysis to Differentiate Laser Printers, Holt, Melanie, Specialist Project 2008

Various professional papers written on various aspects of computer printers.