



J4 Laser Printer Identification: A Real Case Study

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Learning Overview: The goal of this presentation is to inform attendees of the possibilities of identification of a laser printer used for producing counterfeit banknotes, based on specific printer defects.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by showing that individual defects of laser printers can be used as tools for the identification of specific laser printers used to create counterfeit banknotes or documents.

Due to their widespread use and availability, laser printers are often used as tools to produce counterfeit documents and banknotes. Forensic document examiners are often faced with requests to determine if seized counterfeit documents or banknotes were produced with a seized laser printer. Identifying the possible source of printed documents or banknotes can be quite a difficult and demanding task for forensic examiners.

An actual case study is presented in which police investigators found a counterfeit banknote and, during the investigation, a laser printer was seized as the possible instrument for producing the counterfeit banknote. The objective of this examination was to determine if the counterfeit banknote was produced by the seized laser printer.

The examination was performed using non-destructive methods—video-spectral and stereomicroscopic analysis. After detailed examination of the counterfeit banknote, it was concluded that the counterfeit banknote was produced by a device (laser printer or photocopier) using Cyan, Magenta, Yellow, and Black (CMYK) colored dry toner. On the front side of the counterfeit banknote, in the lower left corner of the paper, the specific traces of CMYK toner particles were found. Those toner particles were in the form of several parallel lines and looked like the traces of a specific printer or photocopier defect marks.

The next step of the examination process was to take test samples from the seized laser printer. After detailed examination of those samples, identical marks were found, repeated in the same position and with the same distance on all samples. The fact that the distance between those marks was constant on all samples led to the presumption that they were the result of photosensitive drum defects. The photosensitive drum was taken out of the printer and, after detailed microscopic examination, the specific scratches on the drum surface were found. The defects on the drum surface were compared with the specific clusters of toner particles that were present on the counterfeit banknote, and their shape was identical. Based on those findings, it was possible to determine that the seized laser printer was used for producing the counterfeit banknote.

Laser Printer Identification, Drum Defects, Counterfeits