J27 An Evolution of Document Security: A Case Study of the United States Permanent Resident Card

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After attending this presentation, attendees will gain an understanding of the evolution of the United States Permanent Resident Card to include the advancement of its security features. Furthermore, this presentation will educate attendees on the significance behind the reform of these security features over the last half century.

This presentation will impact the forensic science community by cultivating awareness of how an identity document and its security features evolve as technology continues to advance. The opportunity for most laboratories to study these advancements may be infrequent; therefore, this presentation will provide visual examples and methodologies for examinations leveraging a wide array of tools.

The U.S. Permanent Resident Card, informally known as a "Green Card," designates the permanent resident status of a non-U.S. citizen authorized to live and work within the United States. It is known as a "Green Card" because of the green background printing used in previous designs. The Permanent Resident Card is commonly encountered as a means to obtain a myriad of benefits such as social services, driver's license or identification cards, school registration, and bank accounts.

There are multiple ways in which to acquire a U.S. Permanent Resident Card, and as a sought-after immigration benefit, the U.S. Permanent Resident Card has been subject to countless attempts at unlawful replications and alterations over the years. With readily available access to digital printing methods such as thermal, inkjet, and laser printers, document mills have proliferated around the world. As a result, the United States Government has constantly worked to reinforce the security of the Card to frustrate and deter those who would seek to gain the benefits of the Card through unlawful means. Nevertheless, each year, the Homeland Security Investigations Forensic Laboratory (HSI-FL) examines a multitude of counterfeit Permanent Resident Cards.

The HSI-FL has a library that is home to thousands of genuine standard travel and identity documents including, but not limited to, passports, birth certificates, social security cards, and permanent resident cards. Because of the vast number of counterfeit Permanent Resident Cards received at the HSI-FL each year, United States Citizenship and Immigration Service (USCIS), the issuer of the Permanent Resident Card, has continually solicited HSI-FL support by means of counterfeit deterrence evaluations and adversarial analysis in order to design a more secure document.

Older generations of the Permanent Resident Card were unsophisticated, making them more vulnerable to counterfeiting or alteration. The older cards simply contained a paper substrate with an attached photograph held within a laminated pouch. Newer versions of the card have incorporated an integrated photograph, holographic laminate, and an ultraviolet feature. As of May 2010, the Permanent Resident Card consists of a polycarbonate layer that is receptive to laser engraving. After the polycarbonate substrate has been fused by heat and pressure and the personalized data has been laser engraved, convincing alterations become difficult. The laser engraving becomes intertwined with the polymer of the card, making its removal unlikely, whereas in the older generations of the card, the paper substrate could more readily be separated and altered. Further, this newest version of the Permanent Resident Card contains a complex combination of Level 1 and Level 2 security features. (Note: A Level 1 security feature is one that can be observed without the use of instrumentation, whereas a Level 2 security feature requires the use of a simple tool). The Level 1 security features found within the Permanent Resident Card include an optically variable device, or hologram, optically variable ink, personalized data with tactility, and an optical memory stripe on the reverse side of the card. The Level 2 security features found within the Card include high resolution microprinting and an ultraviolet feature.

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