



### B59 Beyond the Barcode: The Electronic Product Code and the Future of Product Identification

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Attendees will learn about the electronic product code (EPC), the object naming system (ONS), and how the coming tide of product identification technology, such as radio frequency identification (RFID), will affect their ability to identify products and track manufacturers.

This presentation will impact the forensic community and/or humanity by providing forensic scientists with an understanding of the coming systems of product identification, such as the EPC and the ONS, to better identify products that are submitted as evidence and track the product to its manufacturer or even its point of sale. Without an awareness of this information, crucial evidence to a case may be neglected or lost.

Just as the UPC code has transformed retail operations around the globe over the past twenty years by increasing productivity and efficiency within the supply chain, the EPC (electronic product code) could take supply chain dynamics to the next level. The EPC is a new product numbering standard under development by the Uniform Code Council (UCC) that can be used to identify a variety of items using radio frequency identification (RFID) technology. The 96-bit EPC code links to an online database, providing a secure way of sharing product-specific information along the supply chain. Like other RFID solutions, the EPC's ability to be read without a line-of-sight offers users significant savings to manufacturers and retailers.

The existing UPC code allows retailers to track products at the SKU (stock keeping unit) level by providing every product with a unique identifier. The UPC (and its International cousins, the EAN and JAN) is made up of two key components: a number which identifies the manufacturer of the product, and a number which identifies the product belonging to that manufacturer. Each time a new product is created, or an existing product is modified in any way (including changes in packaging), a new UPC code is assigned to the product. Since each product may go through several minor design/packaging changes over its life, a single product may end-up with several UPC codes that identify it to a retailer, even though the retailer may consider the product as a single SKU.

The EPC technology, in conjunction with the expanding production of RFID capable printers/encoders, has the potential to revolutionize the supply chain by providing more accurate information about product movement, stock rotation, inventory levels and other management information. It also would be a significant tool for product recalls and theft prevention.

A consortium of companies (including WalMart, Proctor and Gamble, and Sun) is currently supporting research into this new technology.

The EPC code is a new product numbering standard that goes way beyond identifying products. The EPC assigns a unique number to every single item that rolls off a manufacturing line—**that is, every single bottle of soda would have its own unique EPC number.** The EPC will allow every company in the supply chain, including retailers, to track products at the individual item level. This means every single item on a shelf could be traced back to when it was made and when it is sold. However, the structure of the EPC does not necessitate every retailer track items at this level. The EPC has been designed to allow it to replace the UPC and allow tracking at the SKU level if desired. Because of the enormous quantity of unique numbers required to track at the item level, the EPC utilizes a "96-bit numbering scheme."

The implications to forensic science are enormous—the ability to track products that appear as evidence back to their point of sale! It is critically important that forensic scientists become aware of this new technology, how it works, and what resources are available to keep tabs on this groundbreaking technology.

**Barcodes, Product Identification, Electronic Product Codes**