



RFID Physical Security and Privacy in Retail

*Andrew Strauch
Vice President, Product Marketing and Management
MIKOH Corporation*

Retailers are increasingly convinced of RFID benefits through more efficient inventory management and reduced out-of-stock levels. However, privacy and security concerns are creating roadblocks to widespread adoption.

Consumers are aware of privacy risks associated with RFID. RFID tags on purchased products can be read surreptitiously to gather marketing data and learn shopping patterns. As a result, some vendors have developed tag designs that allow retailers to dramatically reduce the read distance of an RFID tag after purchase so that the tag is effectively untraceable and no longer presents a privacy risk. The modified tag can still be read from very short distances (up to a few inches) for identification purposes if the product is returned, but the tag is no longer suitable for use in an inventory management system or reverse supply chain since the modification is irreversible. The industry does have an option that solves these issues - MIKOH's Smart&Secure Retail Tag.

Unlike other RFID tags designed for use in retail applications, the Smart&Secure Retail Tag allows retailers to reduce the RFID read distance simply by unfolding the top layer of the tag, which decouples the tag's antenna from its RFID chip and thereby ensures consumer privacy. If the product is returned, the tag's read distance can easily be restored by folding the tag closed again, making it fully usable in an inventory management system or reverse supply chain.

In addition to the issues above, standard RFID tags are not physically secure and can readily be removed from an item without its RFID function being affected. An RFID system tracks tags and infers the presence of the tagged items. It therefore cannot detect tampering with or removal of a standard RFID tag. Criminals can remove standard tags and place them on counterfeit items or just leave them in an otherwise empty shipping container. The RFID readers will continue to read the tags and infer the presence of the original items.

MIKOH's Smart&Secure RFID tag technology addresses the physical security issue by incorporating tamper-indication that is linked to the RFID function of the tag.

Smart&Secure Retail Tags can be supplied in either of two security configurations. In the "basic" configuration, tampering or removal of a Smart&Secure tag causes damage to the tag's electronics that renders the tag inoperable. A more complex "tracking" configuration incorporates a dedicated tamper detection circuit that allows the tampered or removed tag to continue functioning, with the tampering detectable by an RFID reading device. Smart&Secure tags are designed to resist sophisticated tamper methods, including exposure to high or low temperatures, chemicals, or solvents and the use of mechanical devices such as razor blades.

Privacy and physical security are absolute requirements for future widespread introduction of RFID tagging. MIKOH's Smart&Secure Retail Tag provides RFID-based tamper-indication while also allowing consumers to protect their privacy, thereby enabling companies to take full advantage of the efficiency improvements and cost reductions available through RFID.

###