

# Brand Protection of Fast Moving Consumer Goods

## NXP White Paper

**Everyday products—and brand owners—are, with the help of RFID, smartening up and protecting an important revenue stream.**

For as long as brands have been around, brand owners have sought ways to protect them. But bar coding and security printing, because they are easily copied, no longer insulate brand owners from losses linked to the introduction of counterfeit or grey market consumable products.

From desktop printers to single-serve coffee makers to vacuum cleaners, many household products rely on the use of consumable goods—and manufacturers rely on the sales of those consumables to make those products profitable. But for every printer cartridge, beverage concentrate pod or vacuum bag these brand owners sell, there are plenty of off-brand or counterfeit versions available to consumers. So how can you ensure the proper consumables are used? Through an advanced authentication system, powered by radio frequency identification.

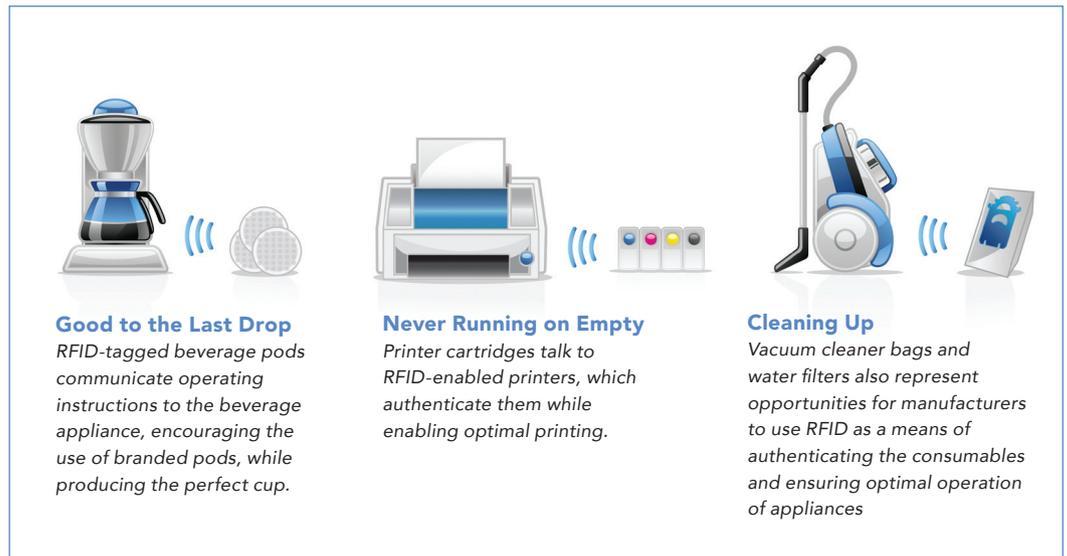
RFID, which has already proven to be a valuable tool for end-to-end tracking fast moving consumer goods in the supply chain through the use of low-cost passive RFID tags, is also a secure, multi-functional tool for authenticating consumables.

Unlike bar code or other print-based technologies, RFID not only protects a brand by serving as a means for tracking and authenticating consumables, it can also benefit consumers by helping ensure the safe and proper operation of products.

### **Smart Approach to Smart Products**

Take, for example, a desktop printer. Consumer electronics firms sell these machines, often with a thin margin, and rely on the sale of replacement ink cartridges as an important additional revenue stream. RFID technology built into these printers can ensure that only authentic cartridges, sold with embedded RFID tags, are used.





The RFID reader inside the printer collects the identification number encoded to the tag on the cartridge when it is inserted. If the cartridge does not contain a tag—because it is from a grey market, is counterfeit or is from a competing brand—the printer would not be able to provide the consumer with optimized printer operation, and it might, for example, not be able to alert the consumer when the cartridge is nearly empty, thereby helping to ensure that the consumer is never without sufficient supply.

RFID could also be used within home appliances designed for use with pods of concentrate beverages, as a means of authenticating those pods while also providing added value to consumers.

In this case, makers of these machines—who sometimes sell them at a loss, relying on the sale of the pods to provide profits—employ RFID in a similar fashion as the desktop printer scenario. An RFID reader embedded in the machine reads operating instructions embedded in the memory of the tag embedded in each pod. Because not every beverage requires the same mix of flavors, water and temperatures, this system ensures that each pod is transformed into an optimal beverage. This will bolster brand loyalty, since the beverages will taste best when only the branded pods are used. Consumers will be drawn to the assurance of optimal operation, while brand owners will have a powerful tool for fighting the use of grey market and counterfeit pods.

A third important element can also be incorporated into the practice of embedding RFID into consumer products is warranty protection. The microcontroller in each device logs the RFID tag identification numbers of each consumable product that is inserted into the machine. The device saves a record of each instance in which a non-RFID-tagged consumable is inserted. Consumers will be presented with a warranty policy that is voided if they use consumables from another manufacturer. This can be enforced through the use of the log inside the device that shows when consumables with tags are used.

Here, again, the consumer also stands to benefit from this practice. By logging the RFID tag numbers of all the consumables used in the machine, the manufacturer can also trace the consumables back through the supply chain. Doing so will allow it to isolate any problems

with consumables that may be causing machines to malfunction, and quickly address those problems. This also encourages safer consumer behavior, as counterfeit or off-brand consumables could pose health and safety risks.

### **Shopping for a Partner**

Embedding RFID technology into consumer goods and consumable products requires a systematic, comprehensive approach. It also demands expertise in RFID component design and a thorough grasp of RF engineering, to ensure that the wireless technology will neither suffer from nor cause interference from a product's existing design and operation.

NXP, a leader in RFID solutions, with an extensive portfolio of RFID chips and ample manufacturing capacity, is already a major provider of chips for RFID tags used in the supply chain. NXP is now offering, in conjunction with austriamicrosystems, a global designer and manufacturer of high-performance integrated circuits for UHF RFID readers, a range of reference solutions for product authentication in embedded consumer applications.

RFID-based authentication solutions from NXP and austriamicrosystems require little power and a low external code load, meaning it is easy to use a host controller or a low-end microcontroller in products already on the market. NXP's new i-Series RFID products – in addition to offering password protected features, privacy commands and anti-tampering functions – also offer high chip sensitivity which leads to high read reliability, even with very small tags. Furthermore, NXP provides assistance with reference or customized low cost embedded designs for EPC Gen 2 compliant UHF RFID reader and antenna systems with a cost effective reader bill of material, enabling applications that have previously been out of reach due to cost restraints.

Along with NXP's eco-system partner program and the NXP RFID Applications and System Center (ASC), brand owners can work with NXP as they consider the optimal methods for embedding RFID systems into consumer products—especially in cases where additional costs must be kept to a minimum or where existing product design affords very little physical space for additional parts. NXP provides assistance from concept to production compliance, insuring quick and trouble free implementations to maximize your ROI.

**For more information visit us at [www.nxp-rfid.com](http://www.nxp-rfid.com)**