

# Raflatac Releases RFID Tags With Built-In EAS

Optimized for retail applications, the EPC Gen 2 tags are designed to be read equally well from all directions—even on densely stacked garments—and have an electronic article surveillance function that can be switched on and off.

By Claire Swedberg

Dec. 17, 2007—[UPM Raflatac](#) is releasing a series of four EPC Gen 2 tags targeted to the retail market and made with the first ultrahigh-frequency (UHF) RFID chips with built-in electronic article surveillance (EAS) capabilities. The tags can be read by any EPC Gen 2 interrogator, and can have the EAS function turned on and off by the same interrogator. One of the tag models (the Web) is available now, while the other three (the Belt, the DogBone and the ShortDipole) are slated for release in January 2008.

All of the tag models are available with [NXP Semiconductors'](#) Ucode G2XL or Ucode G2XM ICs, both of which not only offer EAS capabilities but also have more memory than many other EPC Gen 2 chips (see [NXP Boosts EPC Gen 2 Tag Memory, Performance](#)), allowing retailers and manufacturers to store a greater amount of data on the tags. Both chips have 240 bits of memory available for encoding an Electronic Product Code (EPC), but the G2XM chip offers 512 bits of additional user-programmable memory.

While certain other EPC Gen 2 tags on the market are available with more memory and are made with EAS capabilities, the new Raflatac tags are the only models manufactured with a chip that combines a high level of user memory with an EAS function that can be turned off and turned on, according to Samuli Strömberg, UPM Raflatac's marketing VP. "The IC itself has an EAS bit that can be used in the retail environment," Strömberg says, and can be switched off at the point of sale.

According to Rainer Lutz, NXP Semiconductors' marketing manager, the new UPM Raflatac tags with G2XL or G2XM chips are optimized for fashion applications. "The tag antenna design is resolving two key issues of apparel applications," Lutz says. "The tags can be read equally well from all directions and also keep their performance if products are densely stacked. This is important for exact fashion inventory taking and EAS."

The EAS functionality enables the tag to set off an alarm when read by an RFID interrogator deployed at a store's exit, thereby protecting the retailer against theft. Unlike other UHF RFID chips with EAS capabilities, however, this chip's EAS function can be turned on or off. If the EAS bit is set to "1," Lutz says, the chip will trigger an alarm at the store doors where RFID readers are installed. If it is switched to "0," the EAS function turns off.

This on-off function could be useful in cases in which a store intended to keep the RFID tag functional after purchase, but needed to disable the tag's EAS feature. For instance, the tags could remain functional to facilitate the return of purchased items for a refund or exchange. While other EPC Gen 2 tag models offering an EAS feature enable deactivation, the function can not be turned back on.

With the new Raflatac tags, the EAS capability can be switched off only with the use of a password. Without the password, a potential thief would not be able to use an RFID reader in a cell phone, for example, to disable

the EAS function. At the point of sale, the POS reader can be fitted with a subscriber identity module (SIM) card that provides the password automatically as a tag is scanned, and the tag's EAS function is then switched off. The tag could also be provided without the password option, Lutz says.

However, Lutz adds, there are still some physical challenges in using the EAS function with an EPC Gen 2 reader. Because of the tags' greater read range, there is the potential of capturing EAS reads from products in the store located near the reader, inadvertently setting off the alarm. While high-frequency (HF) RFID tags frequently use EAS functions—in libraries, for instance—the read range is usually a matter of only 1 to 2 meters. With UHF, he notes, the read range is considerably more, "so specific measures need to be taken to constrain the read area."

EPCglobal's EAS Joint Requirements Group, which includes NXP and Checkpoint Systems, is working to define the requirements of EAS systems in retail using EPC technology, including ways to restrain an RF field.

Strömberg says there are several end users in the apparel industry intending to utilize the UPM Raflatag tags, but he declines to release their names. Other tag manufacturers have developed a hybrid system incorporating an RFID inlay and EAS inlay in one tag. These include Checkpoint, which released the Evolve tag in spring 2007 (see Checkpoint Combines EAS Tags With RFID), though the EAS function on that model can not be reactivated once it is turned off.

"We expect that the first high-volume applications will be found from apparel and footwear, electronics and media [including book retail] end users," Strömberg says.

RELATED\_ARTICLES "The use of additional user memory is normally based on added-value applications that come on top of the normal supply chain use of RFID," Strömberg states. Such added value might include adding an expiration date to the tag (in the case of fresh produce), or details regarding size and color (in the case of clothing). According to Lutz, there are already requests for that added memory from a variety of users, including electronics companies and airlines. In the case of airlines, companies use RFID tags on baggage and seek to encode details about the luggage's origins and destination directly onto the tag.

The new tags are priced around 10 cents, Strömberg says, though the cost varies from below that amount to above it, depending on the product, delivery format and volume. "The products with extra user memory are a little bit more expensive than the products with the EPC-only memory," he adds.

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