

RAIN RFID IC



*WITH
ON-CHIP
ANTENNA*

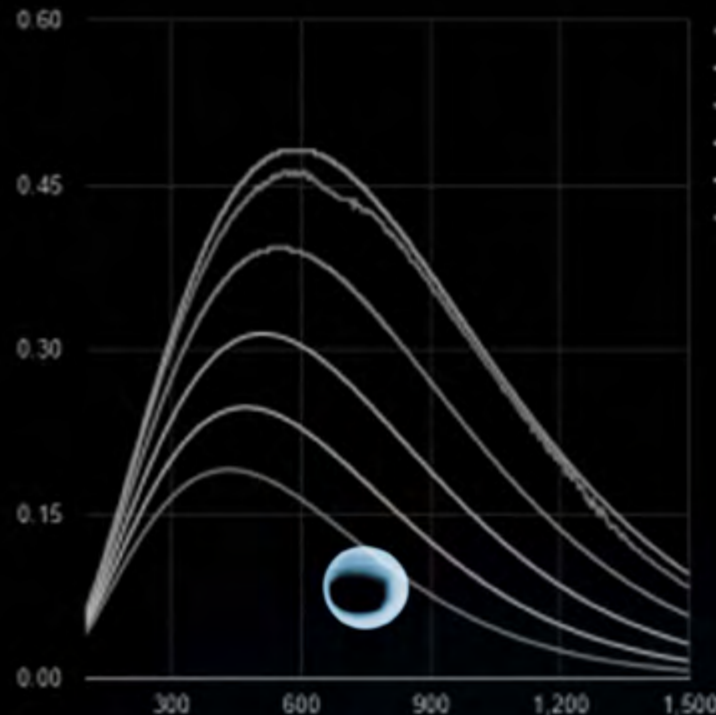
EM has pioneered the adoption of UHF RFID in retail, with the first mass deployments almost two decades ago, paving the way for the emergence of RAIN RFID; and continues to drive new applications with its em|echo family, combining RAIN RFID and NFC in a single RAINFC IC, enabling new consumer experience and product authentication functionalities on top of traditional use cases.

The em|echo product family brings together powerful RAIN RFID supply chain functionalities with seamless NFC consumer engagement and web authentication.



“em|aura-air unlocks great business potential for our products by enabling exciting new applications. The on-chip antenna concept extends the HID Global value proposition to customers with the most demanding integration constraints in their industrial and track-and-trace applications.”

Eric Suligoj,
Director Business
Development
and Logistics,
HID Global



Pierre Muller,
RFID Business
Unit Manager,
EM Microelectronic

“em|aura-air showcases the specialized True Ultra Low Power (TULP™) expertise and the highly optimized in-house semiconductor process available within the Swatch Group. We are proud to offer Swiss innovation to the global RFID market for over 30 years.”

Product features

- Standard RAIN RFID protocol (ISO/IEC 18000-63 & EPC Gen2v2.0.2) compliant.
- On-Chip antenna technology
- Reading distance
 - Up to 1 cm without booster antenna
 - Up to several meters with booster antenna
- Writing distance
 - Up to 0.5 cm without booster antenna
 - Up to several meters with booster antenna
- 2 kbit User Memory
- Extended EPC support up to 480-bits

EM Microelectronic, the ultra-low-power semiconductor company of the Swatch Group and an RFID industry pioneer for more than 30 years, has announced em|aura-air, a RAIN RFID IC with an on-chip antenna. The new IC enables RAIN RFID to penetrate applications where RFID tags could not be used because of their size.

When Size Matters

RAIN RFID technology is the pervasive technology for traceability and supply chain management. Electronic integration is an absolute must, and it becomes more and more challenging as items to identify get smaller. The physical size of RFID tags becomes the main limiting factor in this space.

The EM Solution

EM Microelectronic's tight control over its semiconductor process, combined with its unique RFID expertise and customization capability make the perfect cocktail to solve this challenge. Combining in the same process the antenna manufacturing on silicon and EM's state-of-the-art RAIN RFID chip, em|aura-air revolutionizes the RFID tag size, enabling the smallest and thinnest RAIN RFID tags in history. Ultra-small tag solutions are currently based on modules integrating antenna and chip in package, with a thickness range from 0.4 mm to 1.5 mm. By integrating antenna directly on wafer, the thickness is reduced by a factor of up to 10, down to a staggering 150 μm! The RFID chip can be read wirelessly up to 1 cm without an external antenna. The reading distance can be greatly extended to the same range as traditional tags by adding a booster antenna. Moreover, this secondary antenna does not require soldering onto the chip, dramatically facilitating the integration and lowering the overall cost. em|aura-air supports extended EPC length up to 480 bits typically required in manufacturing applications and comes with a large user memory that can store additional configuration information.