

RFID: The State of the Market

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Antiope Associates

Antiope Associates is a New Jersey LLC. We design RFID and similar specialized short range radio systems.

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The Situation in 2008

Broadly defined, the RFID market grew about 7 percent year over year from 2007 to 2008.

Development of large markets continues to lag 2 to 4 years behind projections.

The biggest event in the industry is (still) WalMart's backing away from its aggressive deployment schedule for RFID based on the EPCglobal standard.

Contactless smart cards are the bright spot in the RFID space.

RFID Market Segments

An arbitrary breakdown of the RFID marketplace with some typical applications:

- Airlines and Airport (baggage and cargo tracking)
- Automotive (tire pressure sensors and keyless entry)
- Livestock and Farming (animal tracking)
- Libraries and Document Archiving
- Financial (gas station payment key fobs)
- Security and Safety (wireless access control keys)
- Healthcare and Pharmaceuticals (controlled drug tracking)
- Land and Sea Logistics (cargo container and trailer tracking)
- Manufacturing (asset and tool tracking)
- Military (pallet and container tracking)
- Passenger Transport (bus tickets)
- Retail (inventory control, anticounterfeiting)

RFID Market Segments

Contactless smart cards are by far the volume leader in the RFID space (hundreds of millions sold per year). Price and profit margins are low in this business.

By value, the combined security (e.g., access control cards) and financial (wireless payment devices) markets are the largest. They are often grouped together because the underlying technologies have been quite similar.

Market Expectations

Several years ago, UHF RFID tags were supposed to usher in an era of efficient, low cost supply chain management. (And it must have been true, since all the market research firms agreed on it!)

The pot of gold at the end of the rainbow was automated checkout of a shopping cart full of groceries. If RFID could replace printed bar codes, the market would be enormous.

Market Expectations

No pot of gold yet.

The price of long range UHF tags will continue to be stuck around \$0.10 to \$0.15 for the foreseeable future. Volumes are not large enough to support the specialized manufacturing processes needed to make very cheap tags (less than \$0.05).

RFID is often sold on the proposition that it will save money in the supply chain. But before it can save money, it has to be adopted uniformly throughout an organization (or even a whole industry). This draws out the time needed to make a deployment decision to years.

Market Realities: North America

It will probably take at least another year for the market to absorb WalMart's change of plans and regroup. The market for UHF tags and readers will mostly move sideways during this time.

Contactless smart cards are a bright spot, recently driven by the switch to electronically readable passports in the US.

Livestock tags might also do well in the medium term, especially if encouraged by regulation.

Market Realities: Europe

Contactless smart cards, especially for bus tickets, are leading the way.

There is a favorable regulatory environment for UHF RFID. Readers may be allowed with up to 4 W output power. This may enable some new inventory control applications.

In retail, there seems to be no backing away from plans to deploy UHF RFID, although schedules remain uncertain.

Prospects for RFID Suppliers

There are opportunities in growing market segments. Right now these are mostly in contactless smart cards.

The logistics and supply chain management markets are still fragmented. The EPCglobal and LLRP standards haven't had the unifying effect that their backers had hoped for.

Long decision cycles in the customers with the biggest potential volumes will persist and make life very difficult for vendors, especially smaller ones.

The Future?

For long range applications (above 1 m) UHF tags using the EPCglobal standard are what we have that works. At short range (less than 10 cm) 13 MHz and 125 kHz inductive tags work well and are reasonably cost effective.

Breakthrough technologies (e.g., printed electronics) are still years away from market.