

RFID - Spyware on steroids?

Is RFID the next great technology, or a privacy nightmare? Listen to what corporations and customers have to say, and decide for yourself.

We all know about spyware...

- ✓ Generally, it pisses us off! But why?
- ✓ We don't enjoy being spied on.
- ✓ It steals what we consider our personal information.
- ✓ It can be used to aid in personal, targeted advertising. Which generally pisses us off as well.

The connection to RFID?

“Imagine a world where your every purchase is monitored and recorded in a database, and your every belonging is numbered. [...] What’s more, these items can be tracked remotely. [...] And you can also be tracked and monitored remotely through the things you wear, carry, and interact with every day.”

The SpyChips Threat - Albrecht & McIntyre

What is RFID? How does it work?

- ✓ It’s just an improved bar code...right?
- ✓ Radio Frequency Identification Device.
- ✓ Uses electromagnetic energy in the form of radio waves to communicate information at a distance.
- ✓ Works through walls... and purses, backpacks, and clothing too.

And one more thing!

- ✓ Each RFID contains the typical bar code information, along with a unique serial number.
- ✓ This means each bag of chips on the shelf has a different RFID number.
- ✓ Each RFID # is a 96 bit code.
- ✓ Yup: 2 to the 96th power.

ELECTRONIC PRODUCT CODE TYPE 1

01.0000A89.00016F.000169DC0

Header 8-bits	EPC Manager 28-bits	Object Class 24-bits	Serial Number 36-bits
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(SOURCE: DAVID BROCK, "WHITE PAPER: THE ELECTRONIC PRODUCT CODE," AUTOID CENTER, 2002 P.6.)

BITS	UNIQUE NUMBER	OBJECTS
23	6.0×10^6 per annum	Automobiles
29	5.6×10^8 in use	Computers
33	6.0×10^9 total	Humans
34	2.0×10^{10} per annum	Razor blades
54	1.3×10^{16} per annum	Grains of rice

This chart shows that thirty-three bits are all it would take to assign a unique number to six billion (6.0×10^9) human beings. (SOURCE: AUTO-ID CENTER WHITE PAPER: "THE ELECTRONIC PRODUCT CODE (EPC): A NAMING SCHEME FOR PHYSICAL OBJECTS" BY DAVID BROCK)

If you're trying to do the math:

- ✓ It's approximately "80 thousand trillion trillion objects."
- ✓ Enough to "number every item produced on the earth for the next thousand years."

U.K. Retailer goes on RFID Shopping Spree - Laurie Sullivan
The SpyChips Threat - Albrecht & McIntyre

RFID read ranges

- ✓ Currently, anywhere from centimeters up to 30 feet.
- ✓ An active tag (with a battery) can send a signal up to a mile or more.
- ✓ High powered active tags can communicate with low orbiting satellites.

RFID Pros

- ✓ Smart Shelves
- ✓ Better, faster inventory
- ✓ Smart shopping cart
- ✓ Faster checkout
- ✓ No more need for receipts

Did you catch that last one?

- ✓ No more receipts?
- ✓ So they track every purchase, of every unique article of clothing?
- ✓ And that UID is tied to our name?
- ✓ And RFID is NOT disabled when we leave the store?

So what's the big deal?

- ✓ My purchases are already tracked.
(Customer loyalty cards)
- ✓ Marketing, Marketing, Marketing!
- ✓ Amazon.com fiasco
- ✓ Could the same thing happen at Wal-Mart?

Other RFID scary stuff

- ✓ Uses within toll booths
- ✓ Secondary uses: speeding and personalized car bombs.
- ✓ Hacking secure cars
- ✓ Hacking Mobile SpeedPass.

Oh it gets worse...



- ✓ RFID tampons
- ✓ Kidnapping in Columbia
- ✓ Bars in the Spain
- ✓ Medical dangers
- ✓ The mark of the beast. (Literally)

How about some interviews?



- ✓ District Manager of Albertsons.
- ✓ General Manager of Wal-Mart.

I might ramble on some more...



- ✓ And feel free to speak up.
- ✓ Ask questions.
- ✓ Tell me what you think.