

The 5-Cent Challenge

RFID Journal Editor Mark Roberti is betting \$10,000 that end users will be able to buy simple, passive UHF RFID tags for a nickel in 2008.

By Mark Roberti

Aug. 30, 2004—[ARC Advisory Group](#), a research firm based in Dedham, Mass., recently released a study that said the price of passive UHF RFID tags won't fall to a nickel by 2008 (see [5-Cent Tag Unlikely in 4 Years](#)). It's a valuable study for end users assessing the cost of a phased RFID deployment because it provides an objective assessment based on the best information available today. That's why we featured it prominently in our newsletter.

But forecasts based on current trends are often inaccurate. Many unexpected things can happen in four years that could throw the numbers off. Smart executives need to consider the unknowable, the unpredictable, and consider strategies that incorporate hunches, as well as facts. My hunch is that end users will be able to buy 5-cent RFID tags in 2008. And I'm willing to bet on it.

Here's the bet. I say that end users will be able to buy passive UHF RFID tags for 5 cents in volumes of 1 million or more by the end of 2008, or sooner. I'm not talking about a finished RFID thermal transfer label. I'm talking about a functioning transponder. It could be embedded in packaging or have a printed antenna.

If someone takes my challenge by the end of this year and it turns out you can't buy 1 million tags for 5 cents apiece by the end of 2008, I will personally donate \$10,000 to that person's favorite charity. If I'm right, the challenger must donate \$10,000 to a charity I designate. Below, I explain why I'm willing to make such a bet. Anyone who is willing to take up the challenge must explain in *RFID Journal's* Guest Column section why he or she thinks I'm wrong.

The price of tags going forward will be based in large part on the volume of standardized tags consumed. It's likely that the market will move slowly toward adoption of EPC technology in 2005 and even 2006. But then, as the kinks are ironed out, system performance improves, and back-end systems are upgraded to handle RFID data, the number of EPC tags used on goods in the supply chain will ramp up quickly. By 2008, it is likely that industries as varied as airplane manufacturing, consumer product goods, consumer electronics, defense and pharmaceuticals will be consuming a total of more than 30 billion tags a year. That's the theoretical threshold that needs to be crossed before a 5-cent tag becomes a common reality.

I'm not saying the *average* cost of a passive UHF tag will be 5 cents in 2008. That would be hard to determine, just as it would be hard to determine the average price of a PC today. The market will need low-end RFID tags and high-end tags, just as there's a need for a \$500 eMachines PC and a \$35,000 Silicon Graphics Tezro workstation. End users planning phased deployments don't need to know the average price of a tag. They need to know what they'll pay for the tags they'll need.

I agree with ARC that the real bottleneck is not the cost or supply of RFID microchips. Big semiconductor manufacturers, such as Atmel, EM Microelectronics, Philips Semiconductors and Texas Instruments, have a

great deal of experience scaling up production, and they will be able to produce billions of low-cost UHF chips if that's what the market needs. The real issue, as ARC points out, is connecting the chip and antenna and creating an inlay in a cost effective way.

Call me crazy, but I have faith in market forces. There's obviously a huge need in the market for rapid low-cost assembly of tags, and I think entrepreneurs, research scientists, and R&D units at the big semiconductor companies will respond with innovations that will soon solve the problem of connecting millions of antennas to tiny microchips. I know some people don't share my optimism. But many of those same people pointed out to me two years ago that we didn't have RFID middleware, and software applications that could handle EPCs or large semiconductor companies committed to EPC technology. Today, we have all of those things.

The level of innovation in the market today is astounding compared with what it was two and a half years ago when I launched *RFID Journal*. Numerous companies are working on low-cost assembly technology. Others are figuring out ways to create low-cost antennas, either with conductive inks or other processes. And packaging companies are working on ways to integrate RFID into their production processes.

Four years is a long time in the technology world. A lot of innovation can occur and a great deal of adoption can take place. Over the past couple of years, I've seen how the RFID market has lured so many companies, so much talent and so much research money. It's good that companies have benchmark studies to guide their RFID deployment plans. They need to be prudent with their investments in new technology. But it's also important to be aware that technology and technology markets can evolve quickly—and to be ready if they do.

I'm confident that I'm right about there being 5-cent tags in 2008, but if I'm wrong, a worthwhile charity will be \$10,000 richer. And that will be my consolation.

Mark Roberti is the founder and editor of RFID Journal. If you would like to comment on this article, click on the link below.

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