

The new protocol is not going to deliver a huge performance boost—at least not right away.

By Mark Roberti

May 22, 2006—We just closed the May/June issue of RFID Journal Magazine and sent the pages to our printer. The issue has a lab test report on the first EPCglobal-certified RFID interrogators (readers) based on the second generation Electronic Product Code air-interface protocol standard. The RFID Alliance Lab, an independent test facility set up at Kansas University, did the testing. It found that the performance of Gen 2 interrogators was only slightly better than Gen 1 products.

I've been talking to end users who have been doing their own tests, and most say they are seeing a significant improvement. I'm not sure exactly why the lab's results are different. It could be that end users are expecting Gen 2 to be much better so they give more emphasis to positive results than negative results. It could be they are using tags and interrogators from the same company, in which case the vendor has tuned its interrogators to work well with its tags. The lab tested interrogators from Alien, AWID, Symbol and ThingMagic, with Gen 2 tags from five companies, including Texas Instruments and UPM Raflatac.



The fact that Gen 2 is not delivering a huge performance improvement right now is not a total surprise. I wrote a while back that people needed to have realistic expectations. It's going to take time for vendors to tweak their firmware to read all the different Gen 2 tags that will be on the market. And it will take time to achieve true interoperability. The lab found that the AWID interrogator couldn't read the UPM Raflatac tag. AWID has acknowledged some performance problems. AWID had stopped shipping its interrogators to investigate claims that some devices weren't certified by the Federal Communications Commission, but has now resumed shipping them (see [Resumes Product Shipments](#)). The company is working on a new version of the interrogator that addresses performance issues, which should be out soon.

My point in highlighting the results of the RFID Alliance Lab's test results is not to disparage Gen 2 technology or to suggest companies shouldn't invest in it. My concern is that expectations will get played up in the media and then when Gen 2 interrogators fail to read through nine-inch thick lead walls, there will be a rash of stories saying the technology doesn't work.

Gen 1 interrogators greatly improved over time. And I have no doubt the same will be true with Gen 2 interrogators. The fact that they are starting out ahead of where Gen 1 ended up is a good sign. In a year, Gen 2 interrogators will likely be outperforming the previous generation by a large margin.

People should also be realistic about getting benefits from some of the more sophisticated features in the Gen 2 protocol. According to Daniel Deavours, the research director of the RFID Alliance Lab, many

of the optional features that make the Gen 2 standard attractive and applicable to a wide variety of environments-including variable data rates and modulations-are not currently available to end users.

Even setting up and configuring Gen 2 interrogators can be a challenge for those who aren't experienced in RFID implementations. Some of the documentation that comes with the equipment is sparse, and the setup software isn't always intuitive. Vendors will, no doubt, make their products easier to use as they get feedback from end users.

I'm still very bullish on Gen 2. The protocol will deliver better performance than any other UHF protocol. And as Gen 2 products mature, end users will be able to benefit from some of the protocol's more enhanced features, such as sessions, dense-reader mode and the ability to change the "Q Value" and the data exchange rate depending on the application and environment. Bottom line: Gen 2 is going to be a big improvement on previous UHF protocols, but don't expect miracles right out of the box.

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