Why Buy EPCglobal-Certified Products?

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Apr. 20, 2009—After EPCglobal developed, prototyped and ratified the EPC Gen 2 specification several years ago, it established conformance and interoperability requirements.

Those requirements have now become the backbone of EPCglobal's hardware certification program. The standards organization applies the same model to software specifications. Each piece of software is prototyped before the ratification or development of conformance requirements. A test system is extensively evaluated by EPCglobal, MET Laboratories and participating vendors as part of the beta test program.

Why Certification Matters

Certification is important because it maximizes the interoperability of RFID systems. EPCglobal certification is offered for nearly all EPCglobal standards. The data, interfaces, communication protocols and handshaking procedures are tested to ensure the devices conform to specifications and interoperate accurately. To obtain EPCglobal certification, a hardware device or software application must pass *all* tests. If a product does not pass, yet is still deployed, it will not be interoperable with certified products, resulting in additional deployment and operating costs.

Certification protects the integrity of an EPC RFID system, and uses real EPC keys as part of the tests. An improper implementation of an EPC key on tags or interrogators, or in the software, will be flagged. Further EPC key validation is provided as part of EPCglobal's Electronic Product Code Information Services (EPCIS) Validation Portal (see How to Realize the Full Potential of EPCIS).

Certification also offers legal protection to vendors and buyers. EPCglobal's intellectual property (IP) policy ensures that all companies subscribing to the organization have open, neutral access to the technology and standards of the EPCglobal Network. The agreement guarantees that the technology remains non-proprietary for the benefit of the industry as a whole.

How to Verify that a Device Has Been Certified

A certified piece of hardware or software receives an EPCglobal Certification Mark (see Fig. 1) and a unique number: a GS1 GSRN key. Therefore, this certification is only valid for the particular product (model, version) tested. A list of certified devices is available on EPCglobal's Web site.

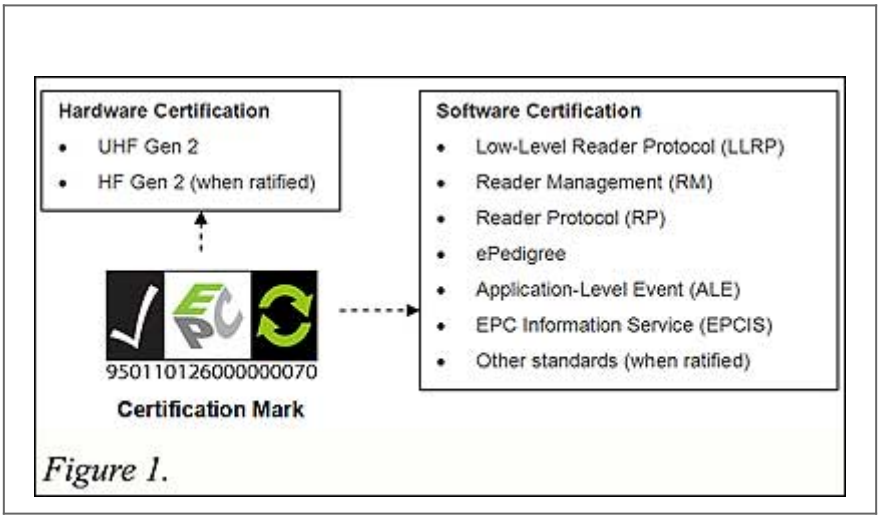

Figure 1.

Certification Benefits

Certified hardware and software is rigorously tested at MET Laboratories, or at another Approved Regional Test Center (ARTC). MET Labs and other ARTCs are accredited based on the ISO 17025 standard. Certification will offer users confidence

that the certified product conforms to the specifications and works accurately with other certified devices.

All hardware devices submitted for certification—tag ICs (microchips), inlays, readers, reader modules and printers—are tested for conformance to and interoperability with EPC Gen 2 standards. The test system is highly sophisticated, calibrated and automated. This eliminates human error and guarantees the repeatability of results. For software certification, all tests are conducted over the Internet and are automated. Test data and security certificates are provided to a vendor right before the test to ensure "fair play."
The consequences of tagging a product with a tag that only a few readers can interrogate can be detrimental to the entire process. RFID edge software that filters out good tags and does not report them can also have this effect. Both issues can be resolved during the certification process.

In addition, certification offers legal protection to both solution providers and end users regarding IP claims (per EPCglobal IP policy). No other standards organization in the world offers such a comprehensive certification program.

Risks of Buying Non-certified Products

It is not an easy process to get certified. The test cases are very demanding, and readers and tags are subjected to more than 300 conformance and interoperability tests. All tests have to pass in order to obtain certification. ***On average, 44 percent of all hardware devices fail on the first try, as do 98 percent of software tested.*** The majority of vendors fix their products to achieve certification, while the few that fail do not complete the process. For these vendors, certification takes a back seat to a product launch. So what is the end result? The product is non-interoperable, and is unstable when the RFID system is deployed, resulting in added deployment and operating costs.

Common issues discovered during the testing of hardware—and their likely consequences if not fixed—include Dense Reader Mask adherence, which can cause interrogators to interfere with each other and read tags they are not supposed to read; timing issues on tag ICs and readers, which may slow a tag's response to an interrogator command so that it is not read; a problem with the Select-Query-EPC Test Script, causing a tag to not be read; a tag using improper preambles, making the tag unreadable; and a monotonic rise of the interrogator's power-up envelope, which can cause a tag to not wake up properly and respond to reader commands.

Frequent problems discovered during software testing involve such things as EPC values encoded incorrectly, which may cause the user's RFID system to not recognize a tagged product (item, case or pallet); the mishandling of exception conditions as defined in software specifications, thereby causing the RFID software applications to crash; and invalid EPCglobal XML namespaces (as defined in ALE and EPCIS), which also cause the RFID applications to crash.

For RFID to succeed, end users must have confidence that the products they buy work correctly with implemented standards, and with each other. EPCglobal certification provides this assurance. As a result, users should ask their solution providers for the EPCglobal Certification Mark, and purchase certified products. All EPCglobal member solution providers support this certification program. They need user companies to recognize the value of certification, and to only buy certified products. This will accelerate the adoption of RFID. EPCglobal is unrivaled in the extensiveness of its certification program, and all participants in the industry should take advantage of it.

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