

The service, provided by the WINMEC consortium, is designed to measure how an RFID system's electromagnetic radiation affects the operation of infusion pumps, pacemakers and other medical equipment.

By Beth Bacheldor

July 28, 2008—[WINMEC](#) (Wireless Internet for Mobile Enterprise Consortium), a research group based at [UCLA](#), is offering a testing service, WinRFID MedTest, for medical device manufacturers, hospitals and other organizations seeking to evaluate electromagnetic interference (EMI) from RFID systems on their medical equipment. Founded in the summer of 2002 by Rajit Gadh, the group's director and a professor in the Henry Samueli School of Engineering and Applied Science at UCLA, WINMEC is a university, industry and government collaboration focused on research and education of wireless and mobile technologies, including RFID (see [Group Studies RFID to Stop Digital Piracy](#)). The consortium launched its MedTest service in June.

The service is carried out using a variety of RFID hardware and WINMEC's WinRFID middleware for the setup, test, measurement, refinement and analysis of medical devices and RFID used within a hospital setting. Available now, the service can be tailored to meet the requirements of the customer, explains Gadh. For example, a medical device manufacturer may want to perform general comprehensive tests to see whether EMI from a variety of RFID systems—including passive and active RFID systems operating at different frequencies—will affect its infusion pumps.

"We can do the entire gamut of tests and let them know what we found, and then make recommendations based on our findings," Gadh says. In another example, a pacemaker manufacturer that plans to embed passive high-frequency (HF) tags on its products for an automated inventory application may want to test how those chips might affect the pacemakers. "After the tests, we can recommend the tags, or make design recommendations," Gadh says.

As part of the MedTest service, WINMEC offers a modular one-day seminar that will allow medical device and RFID vendors to better understand the issues related to using RFID and RF devices in a hospital setting, how RFID can be used in the health-care sector, how WinRFID middleware may be used for testing, and other topics related to the use of RFID in hospitals on patients, equipment, medical devices, assets, inventory and supplies. Costs for the MedTest service will vary. "If a company wants to do a test, we'll talk with that company, and will only charge for the time and materials. Some companies will only require a couple of weeks [to run the tests], some may require months of work," Gadh says.

By sheer coincidence, MedTest was launched just prior to the publication of two studies that looked closely at EMI on medical devices. One, a study on passive 868 MHz ultrahigh-frequency (UHF) RFID systems done by researchers at [Indiana University Purdue University Indianapolis \(IUPUI\)](#) and by RFID consulting and systems integration firm [BlueBean](#), did not discover any problems with EMI (see [New RFID Study Finds No Interference With Medical Devices](#)). The other, a study of both passive 868 MHz and active 125 kHz RFID systems conducted by researchers at the [University of Amsterdam's](#)

[Academic Medical Center](#) in the Netherlands, found incidents of EMI by RFID (see [Researchers Warn RFID May Disrupt Medical Equipment](#)).

WINMEC plans to publish its own studies about the effects that RFID RF signals have on medical equipment, based on general findings from the WinRFID MedTest services. Such studies need to be ongoing because there are so many variables with regards to RFID, RF systems and medical equipment, says Gadh. Medical device manufacturers continue to enhance their products and in some cases are building into the products shielding capability that protects the devices from EMI. And because RFID and RF systems can be implemented in a variety of different ways, EMI effects can change.

"I can show a scenario where interference will occur and I can show you a scenario where it won't," he says. "There are so many factors—distance, how much power, what kind of electronics does the pacemaker use, is there any shielding? These are part of the engineering solutions that need to be researched, investigated, and designed."

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