



## FCC Approval of Finite Element Method for Biomedical Transmitters Puts ANSYS Software in the Spotlight

### Ruling Allows HFSS to Be Used in Evaluating Implant RF Emissions and Specific Absorption Rate

PITTSBURGH, March 3, 2011 /PRNewswire/ -- For specific electromagnetic applications in the healthcare industry, HFSS™ software from [ANSYS](#) (Nasdaq: ANSS) can now provide proof that a biomedical device transmitter design meets Federal Communications Commission (FCC) standards -- a ruling that will enable medical device developers to cut development time and costs while meeting safety standards.

(Logo: <http://photos.prnewswire.com/prnh/20110127/MM38081LOGO> )

The FCC ruled in February that the finite element method (FEM) is a valid technique to simulate a medical device that must communicate with other similar devices. As a result, organizations in the medical equipment sector can use HFSS -- industry-leading FEM electromagnetic field simulation -- to validate their transmitter designs.

Today's sophisticated medical implants and other equipment often contain transmitters that communicate with other devices -- transferring physiological data to a doctor via wireless communication, for example, which can be used to monitor, diagnose or treat a patient's condition. The new FCC ruling applies to transmitters that are placed inside, on, or in close proximity to the human body. Developers of such medical devices must ensure that their equipment meets radio frequency (RF) emission safety standards. Additionally, manufacturers must comply with specific absorption rate (SAR) regulations, a measure of how the body absorbs energy when exposed to an RF electromagnetic field. HFSS software -- which employs FEM simulation to verify both SAR and RF emissions -- can also reduce development time and costs while increasing reliability and design optimization.

"The HFSS finite element solution is extremely valuable for designing antenna systems for implantable devices," said Mark Lanciault, principal electrical engineer, [Cambridge Consultants, Inc.](#) "Its use of an unstructured mesh is particularly well suited for modeling the complex curved surfaces within the human body, as seen in organs, tissues, and bones. Using HFSS allows us to optimize and verify performance of our implanted antenna designs in a representative environment. We will now be able to provide our customers accurate solutions specific to their device's location in the body."

"The medical device market is rapidly innovating to meet consumer demands and satisfy regulatory safety requirements," said Markus Kopp, product manager for electronics at ANSYS. "This FCC ruling allows researchers to innovate with HFSS, developing new approaches that they can get to market faster -- yet also maintain the FCC's high standards of technical compliance. Beyond that, the ultimate beneficiary is the public, who will have quicker access to life-enhancing medical devices."

ANSYS requested that the FCC grant a waiver to the Medical Device Radiocommunication Service rules to permit FEM environmental evaluation of medical implant or body-worn equipment. The ruling granting the waiver cited scientific literature stating that FEM is a sound engineering technique.

HFSS software, which incorporates industry-leading technology for 3-D full-wave electromagnetic field simulation, enables engineers to design, simulate and validate the behavior of complex high-performance RF, microwave and millimeter-wave devices in next-generation wireless devices, defense communication systems, biomedical devices, and consumer electronics.

#### About Cambridge Consultants, Inc.

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With a team of over 300 engineers, designers, scientists and consultants, in offices in Cambridge (UK) and Boston (USA), Cambridge Consultants offers solutions across a diverse range of industries including defence, medical technology, industrial and consumer products, transport, energy, cleantech and wireless communications.

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## **About ANSYS, Inc.**

ANSYS, Inc., founded in 1970, develops and globally markets engineering simulation software and technologies widely used by engineers, designers, researchers and students across a broad spectrum of industries and academia. The company focuses on the development of open and flexible solutions that enable users to analyze designs directly on the desktop, providing a common platform for fast, efficient and cost-conscious product development, from design concept to final-stage testing and validation. The company and its global network of channel partners provide sales, support and training for customers. Headquartered in Canonsburg, Pa., U.S.A., with more than 60 strategic sales locations throughout the world, ANSYS, Inc. and its subsidiaries employ more than 1,600 people and distribute ANSYS products through a network of channel partners in 40+ countries. Visit [www.ansys.com](http://www.ansys.com) for more information.

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