piX System

Generation of RF Implant Models in Minutes
for Demons trating MRI Safety

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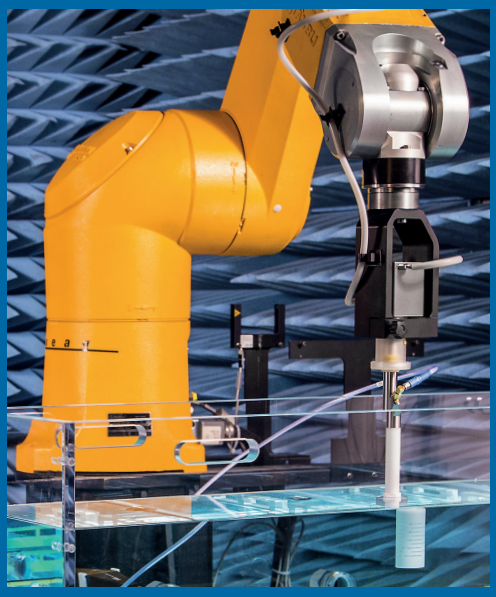
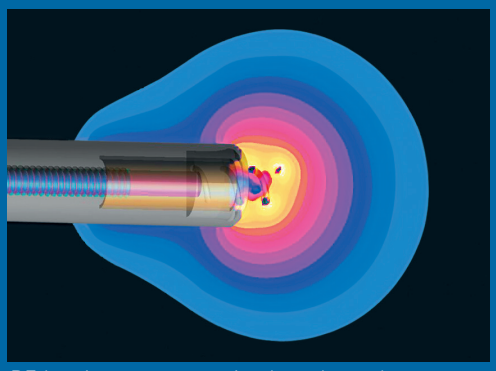
piX analyzer: source & data acquisition unit



Scanning in progress



RF-heating response at implant electrode

Application

Designed to assess patient safety during an MRI exam, the piX System allows modeling of RF response of implantable medical devices to MR exposure. The system is in compliance with the Tier 3 procedure of the IEC/ISO TS10974 guideline and can operate in the 28–150 MHz frequency range.

piX Specification

Excitor

Output power	18 dBm	Typical
Forward and reverse power meter	0.2 dB	Typical accuracy
Coupler directivity	30 dB	Minimum

Detector

Noise floor	–78 dBm	Typical
Dynamic range	> 60 dB	
Linearity	0.05 dB	Typical
Phase accuracy	0.4 °	Typical
Amplitude balance (I and Q)	0.1 dB	

piX Excitors and piX Probes

- Various excitors are optimized for different frequencies and media, generating a local uniform tangential excitation of less than 10 mm.
- TDS probes are used for isolated measurements, eliminating any cross-talk to the excitor and implant under test warranting full traceability and reproducibility.

The following piX Excitors and wideband probes are available:

- piXE51HPV1: for 51 MHz and high permittivity media
- piXE51LPV1: for 51 MHz and low permittivity media
- piXE64HPV1: for 64 MHz and high permittivity media
- piXE64LPV1: for 64 MHz and low permittivity media
- piXE128HPV1: for 128 MHz and high permittivity media
- piXE128LPV1: for 128 MHz and low permittivity media
- E1TDSz/MRI probe: for 10–6000 MHz (ISO17025 calibrated)

piX Phantom

- Optimized to evaluate elongated implants and active implants with one or more leads
- Various probe mounting locations allow for characterization of the implant at different positions
- Size: 1200x240x240mm
- Materials: the phantom is composed of transparent acrylic glass; the race track is composed of FR4

Compatibility

- Smooth integration with SPEAG's DASY52NEO measurement system
- piX transfer function integrated into ZMT's Sim4Life IMAnalytics multi-exposure Tier 3 evaluation tool

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