Z43 NEWSQUARTER

No. 28/2024

MEASUREMENTS

Testing for Compliance with Basic Restrictions

Module WPT V2.6
Approved Worldwide

After intensive discussions with ISED and FCC we made several improvements to our wireless power transfer (WPT) procedures and software, which are now fully compliant with all current global regulations of WPT systems, including the upcoming IEC/IEEE 63184 standard. Details are available on our website.

MEASUREMENTS

State-of-the-Art Compliance Laboratory

The promotional video of BNNSPEAG in New Delhi nicely illustrates how the latest DASY8^{3D} system can be effectively used to evaluate all aspects of the most complex mobile devices, including specific absorption rate (SAR), mmWave (induced and absorbed power density (IPD/APD)), and WPT, covering the frequency range from 3 kHz to 110 GHz.

PRESS

IT'IS Featured in Nature Spotlight on Switzerland

Springer Nature recently published its "Spotlight on Switzerland" with a feature on IT'IS! The article highlights the IT'IS journey in *in silico* evaluations from electromagnetics to our most advanced computational platforms – o²S²PARC and Sim4Life.

INTERNATIONAL PROJECTS

SEAWave Exposure Systems

All three IT'IS exposure systems for controlled *in vitro,* animal, and human studies are now in operation at the laboratories of our SEAWave partners. The systems were developed, manufactured, and validated for use in risk assessments of 5th generation (5G) mobile communication systems (27.5 GHz).

VIRTUAL POPULATION

Tissue Database V4.2

IT'IS has released the Tissue Properties Database V4.2! This release includes more verifications, an alternative fit for dielectric properties for frequencies above 1 MHz, and updated standard deviations for mass density.
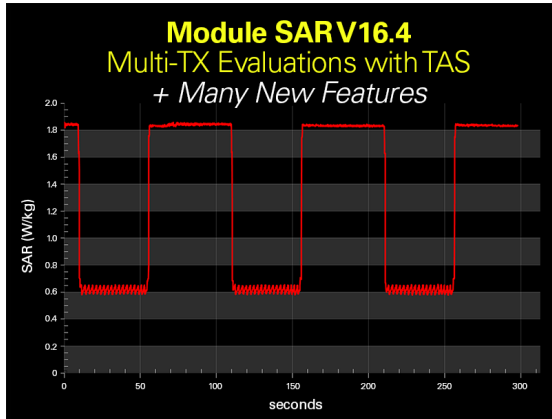
MEASUREMENTS

Module SAR V16.4 and cSAR3D V5.8 Releases

Recently released software updates for our two SAR assessment systems, DASY8/6 Module SAR V16.4 and cSAR3D V5.8, allow simplified and automated measurement via the latest power time-averaging algorithms.

Module SAR V16.4
Multi-TX Evaluations with TAS
+ Many New Features

SIM4LIFE

Sim4Life.lite Student Competition 2024

Calling all Bachelor's, Master's, and PhD students working in numerical modeling: We are thrilled to announce that the call for submissions to the Sim4Life.lite Student Competition 2024 is now open! This is your chance to showcase your skills and innovative ideas with the possibility to win some amazing prizes! Get started now!

ANNUAL REPORT

IT'IS Annual Report

The IT'IS Annual Report 2023 is available online, incl. a summary of the research efforts focused on devising the first solution for assessment of APD.
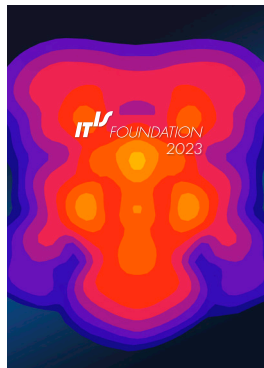
VIRTUAL POPULATION

IXI Head Models

We have released four new reference head models – two female and two male subjects from different age groups – with which we have achieved a breakthrough in automated head segmentation. Read more here.

Detailed AI Trainees
Now Auto-Segmentation in Minutes
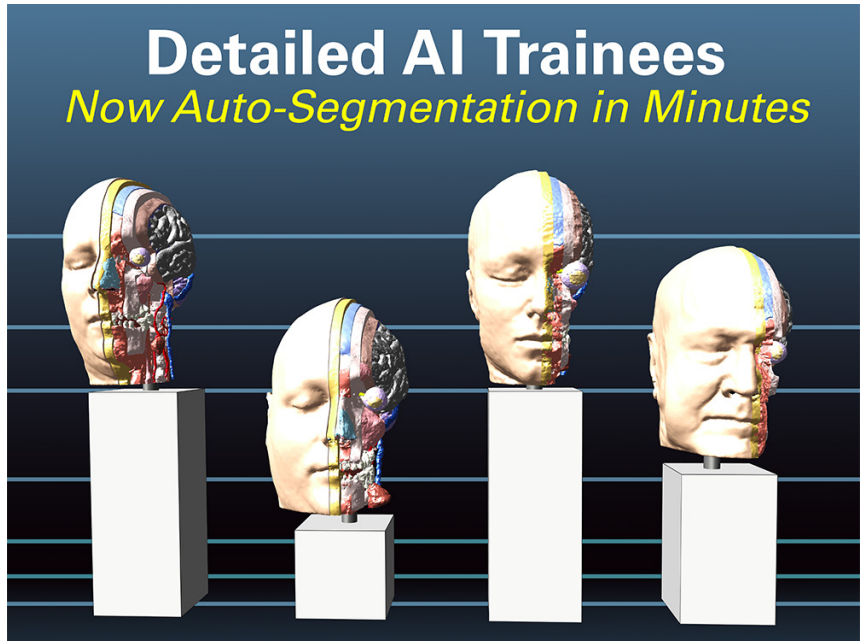
PUBLICATIONS

Universal Validation Approach for Complex Systems

Comprehensive and time efficient validation of test systems covering a multi-dimensional parameter space have never been possible before – which is why SAR array systems have not been accepted by regulators – until now. We solved this problem by proposing a novel approach to verification and validation based on advanced surrogate modeling methods. Read more about the scientific impact of this paper on our website.

EVENTS

50th Foundation Board Meeting

The IT'IS Foundation Board celebrated its 50th bi-annual meeting with current and former members. Among those in attendance, only Q. Balzano and Niels Kuster have participated in every meeting. The commemorative evening was filled with memorable stories, highlighting that back in 1999, no one could have anticipated the Foundation's current success.

RESEARCH

PUBLICATIONS

A Gaussian Process Based Approach for Validation of Multi-Variable Measurement Systems: Application to SAR Measurement Systems C. Bujard *et al.* 2024, IEEE Access, doi: 10.1109/access.2024.3393778 (online 25 April 2024)

Non-Invasive Stimulation of the Human Striatum Disrupts Reinforcement Learning of Motor Skills P. Vassiliadis *et al.* 2024, Nature Human Behaviour, doi: 10.1038/s41562-024-01901-z (online 29 May 2024)

A Novel CNN-Based Image Segmentation Pipeline for Individualized Feline Spinal Cord Stimulation Modeling A. Fasse *et al.* 2024, Journal of Neural Engineering, doi: 10.1088/1741-2552/ad4e6b (online 07 June 2024)

BlueRecording: A Pipeline for the Efficient Calculation of Extracellular Recordings in Large-Scale Neural Circuit Models J. J. Tharayil *et al.* 2024, submitted

The Implantable System that Restores Hemodynamic Stability After Spinal Cord Injury A. A. Phillips *et al.* 2024, submitted