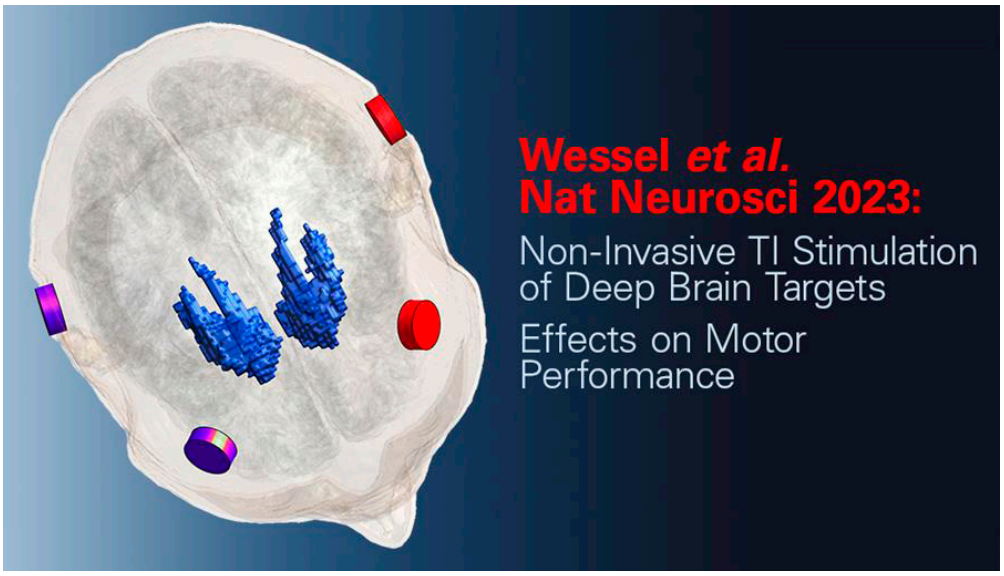
Z43 NEWSQUARTER
No.26/2023

PUBLICATIONS

Temporal Interference Stimulation: Effects on Motor and Memory Performance



IT'IS is proud to announce that our long-standing collaborative work with the consortia led by Prof. Hummel (EPFL) and Prof. Grossman (Imperial College) have resulted in the publication of two papers in the latest issue of Nature Neuroscience, where we demonstrate for the first time in human subjects the effectiveness of non-invasive temporal interference (TI) stimulation of deep brain regions. Entitled "Noninvasive Theta Burst Stimulation of The Human Striatum Enhances Striatal Activity and Motor Skill Learning" and "Non-Invasive Temporal Interference Electrical Stimulation of The Human Hippocampus", which report on TI stimulation-induced changes in motor and memory performance, respectively, these two publications represent an important step towards establishing TI stimulation as a promising and effective method with high therapeutic potential for non-invasive modulation of deep brain function. Subject-specific *in silico* modeling was crucial for optimizing the experimental conditions in terms of targeting and focality, as well as for correlating subject-specific exposure with individual responses.

MEASUREMENTS

Module WPT V2.2 and MAGPy V2.2 Compatible with Latest Regulations

SPEAG released DASY8/6 Module WPT V2.2 and MAGPy V2.2, just in time for the release of the new updated regulations ISED SPR-002 issue 2 and FCC KDB 680106 D01 v04. Compliance of wireless power transfer devices can now be determined without overestimation and without having to directly model the device-under-test through measurements. The systems are also compatible with the latest Final Draft International Standard (FDIS) IEC 63184. For further information, check our website.

WORKSHOPS

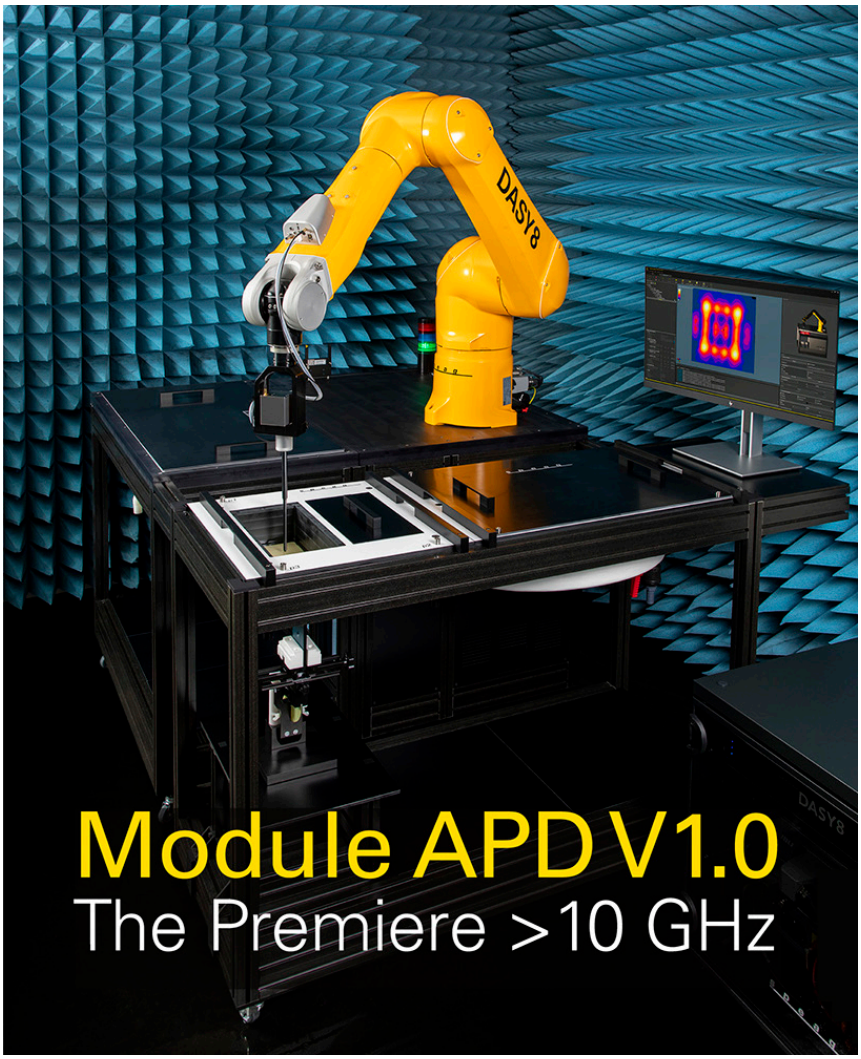
Successful Z43 – DYMSTEC Workshop Series

On October 20, 2023, DYMSTEC and Z43 partners convened for their annual hardware and software workshop – the first since the Covid-19 pandemic – hosted at the Gachon Convention Center in Sungnam-si, Gyeonggi-do, South Korea. It was a great opportunity to showcase Z43's cutting-edge solutions and to reconnect with our great partners, fostering enriching interactions with new industry specialists and paving the way for potential collaborations. A big thank you to the DYMSTEC team for organizing an interesting and engaging event!

MEASUREMENTS

DASY8 Module APD V1.0: Unlocking Absorbed Power Density for 5G NR FR2

SPEAG, striving to fulfill our commitment to stay ahead of standardization, is proud to announce the release of DASY8 Module APD V1.0, the world's first near-field absorbed power density test solution for 5G and 6G bands >10 GHz. DASY8 Module APD is compliant with current and all evolving regulations and enables thorough compliance testing while reducing test conservatism.
For more information and further details,please consult the DASY8 Module APD product page.



INTERNATIONAL PROJECTS

SENS-THERM Kick-Off Meeting

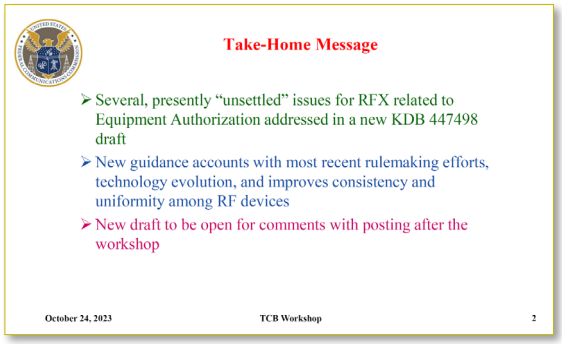
At the end of November, team members from Z43, Sensius B.V., Eindhoven University of Technology, and Erasmus MC met in Rotterdam to kick off the Eurostars project "SENS-THERM: Electromagnetic sensing, video control and metamodeling in thermotherapy of advanced head and neck (H&N) cancers". The aim of SENS-THERM is to develop hardware and software for personalized, quality-controlled thermotherapy planning and treatment administration in H&N cancers, based on electromagnetic fields. Thank you for a very productive meeting – now, let's get to work!

SENS-THERM
eurostars

MEASUREMENTS

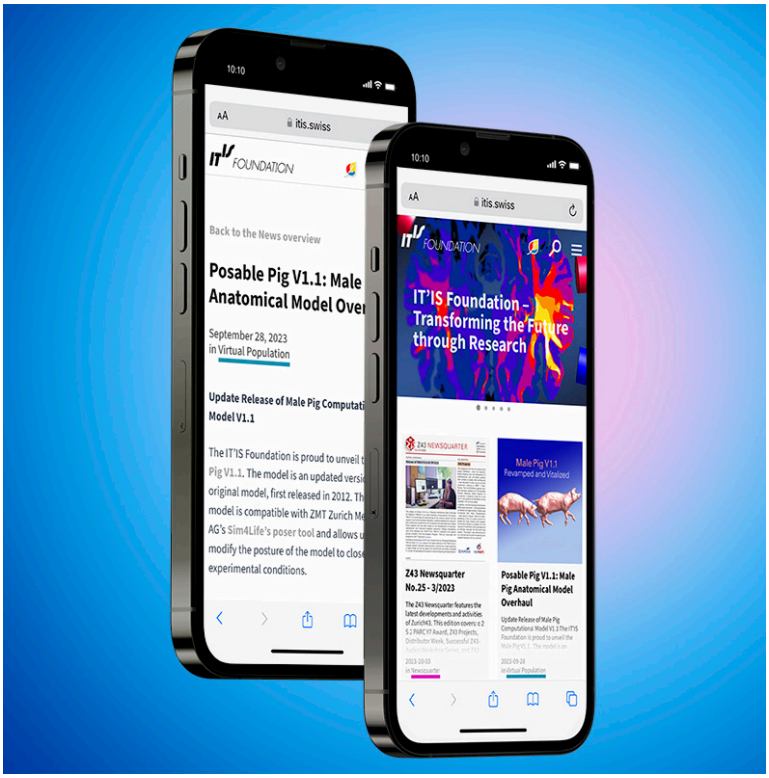
Latest Regulatory Guidance and Methods for Radiofrequency Exposure Assessment

The semi-annual Telecommunication Certification Body (TCB) Council Workshop and RF Exposure Seminar, held at the end of October in Baltimore MD, USA, concluded with several interesting and important presentations from regulators and other members of the TCB community. The good news is that our updated DASY8/6 Modules for specific absorption rate (SAR), absorbed power density (APD), incident power density at frequencies greater than 6 GHz (mmWave), and wireless power transfer (WPT) devices are already fully compliant with the latest proposed regulations. For further information, please contact us at info@speag.swiss.



CORPORATE

itis.swiss: Our All-New Mobile-Optimized Landing Page



In October, IT'IS relaunched their landing page, which comes with a fresh and contemporary look, an enhanced user experience, and is based on a fully responsive "mobile first" design that ensures optimal presentation across all device types. Check it out and let us know what you think at info@itis.swiss!

RESEARCH

PUBLICATIONS

Influence of Patient Head Definition on Induced E-Fields During MR Examination
T. Goren, *et al.* 2023, Magnetic Resonance in Medicine, Volume 91, Issue 2, p. 735–740, doi: https://doi.org/10.1002/mrm.29894 (online 17 October 2023)

Non-Invasive Temporal Interference Electrical Stimulation of the Human Hippocampus
I. R. Violante, *et al.* 2023, Nature Neuroscience, Volume 26, p. 1994–2004, doi: https://doi.org/10.1038/s41593-023-01456-8 (online 19 October 2023)

Noninvasive Theta Burst Stimulation of the Human Striatum Enhances Striatal Activity and Motor Skill Learning
M. J. Wessel, *et al.* 2023, Nature Neuroscience, Volume 26, p. 2005–2016, doi: https://doi.org/10.1038/s41593-023-01457-7 (online 19 October 2023)

Recommendations for the Safe Application of Temporal Interference Stimulation in the Human Brain
T. Newton, *et al.* 2023, submitted

Focal Control of Non-Invasive Deep Brain Stimulation Using Multipolar Temporal Interference
B. Botzanowski, *et al.* 2023, submitted

Evaluation of Complex Measurement Systems Using A Gaussian Process Interpolation Approach
C. Bujard, *et al.* 2023, submitted

CORPORATE

Celebration of 1000 DASY Robots Sold

Stäubli, SPEAG's robot supplier, organized a generous event to recognize our successful 30-year partnership and a major milestone: 1000 robots sold to SPEAG! This milestone symbolizes the strong partnership between Stäubli and SPEAG and our shared commitment to excellence in instrumentation.

RESEARCH FELLOWSHIPS

In Memoriam: Katja Poković

As we mark the second anniversary of Katja's passing, we honor the profound imprint she left on all of our endeavors. In tribute to Katja's spirit, we are pleased to announce the forthcoming release of the call for proposals for the Katja Poković Fellowships in February next year. This opportunity stands as a testament to Katja's enduring impact, inviting aspiring minds to contribute and carry forward her legacy of dedication and excellence. Stay tuned for details on how you can be a part of this meaningful journey. Find out more about the Katja Poković Research Fund here.