Visor2™

## Image-guided TMS navigation defined by you

Complete TMS neuronavigation system
for motor mapping of up to 8 EMG channels

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Visor2™ - Image guided TMS defined by you

The Visor2™ system provides industry-leading precision, reliability, and consistency for TMS sessions. Visor2 leverages meticulous digitization procedures to reliably create an easily navigable 3D head-space for targeting, functional mapping, and analysis. Real-time visualization of coil positioning and magnetic induction ensures maximized accuracy. Archived TMS session-information allows users to easily fine-tune, analyze and replicate any previous procedure with absolute confidence.
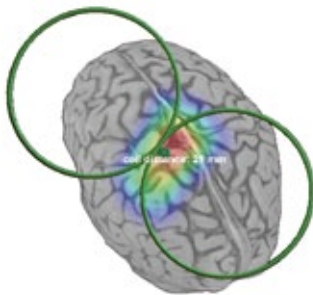
Intuitive TMS navigation

The Visor2 system allows you to position the coil accurately and efficiently over desired stimulation targets by indicating the distance to target, orientation of coil relative to desired orientation and the power magnitude of the stimuli. The induced electrical activation of brain tissue as produced by the magnetic stimulation is calculated in real-time and projected onto the 3D reconstruction of the brain from MR images. Targets for stimulation can be defined based on anatomical or functional knowledge, thanks to the integration of MRI and EEG source analysis results.

Trust what you see

TMS navigation combined with precise visualization of the hot spot and activated brain regions is now possible through high performance graphics and state-of-the-art technology. Its precision integrated with unique functionality allows you to work efficiently, irrelevant to the complexity of your project. Visor2 is the highly sophisticated neuronavigation system that will successfully guide you through each step of a TMS session.

Multifunctional and added value for every user

Visor2, the highly advanced neuronavigation system is intended for use by neurologists, clinical neurophysiologists, psychiatrists and neuroscientists. With its ease of use, flexibility and modularity the system is indispensible in:

Diagnostic applications

- Non-invasive pre-surgical mapping of the motor cortex
- Mapping of the motor cortex for diagnosis of psychiatric disorders
- Mapping of the motor hot spot and determination of the motor threshold for rTMS procedure

Research extensions

- Combined ERP-TMS recordings for detailed study of reactivity in cortical regions and non-motor cortical areas
- Combined EEG –TMS recordings for mapping of attention, language, visual and speech system, memory, cognitive development, plasticity and many more

- Visualization of fMRI and 3D inverse solutions
- Co-registration of 3D anatomical MRI with functional MRI, source analysis results and SPM data
- Integration with SmartMove™, the robotized TMS navigation system

Real-time EMG motor-mapping

Motor-mapping is a common procedure in TMS to determine the site and size of human brain reactivity. Motor threshold measurements are often used as a basis for TMS sessions. Motor-evoked Potentials (MEP) can be recorded for each stimulated site and are projected in real-time to the brain surface in order to create a map with corresponding EMG amplitudes. Visor2 allows you to record and analyze up to 8 different muscle sites simultaneously and create EMG amplitude maps of each recorded location.

Navigate with confidence

Accuracy is crucial for a neuronavigation system. It provides a solid basis for reliability and reproducibility of the stimulation procedure. With Visor2 you are able to validate your data at any time. Instead of depending only on a limited number of anatomical marks, the validation procedure includes a head shape based registration that allows you to check whether the head reference tool has moved during a stimulation session and helps to prevent errors when targeting brain areas.

Match the reality with 3D images.

Visor2 guides you through the brain regions with the ability to render high quality images. It visualizes MRI, freely rotating cutting planes, 3D regions, rendered compartments, curvilinear displays, EMG maps, head models and sensors. Additionally, it allows you to export the hotspot, stimulated sites and any other image markers to DICOM for further review and processing.
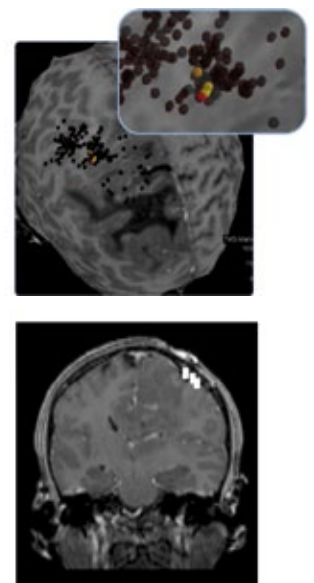
## Realistic 3D head models, just a few clicks away

Simplicity of use

With its easy-to-use workflows, the dedicated remote control and advanced 3D visualization, Visor2 allows you to switch fast and easy between views, tasks and stimulation targets. The complete segmentation procedure, including MRI import and image processing, is achieved in only 5 to 10 minutes.

Load your patient's MRI or use a standard MRI

Specify the fiducials (nasion, left and right ear)
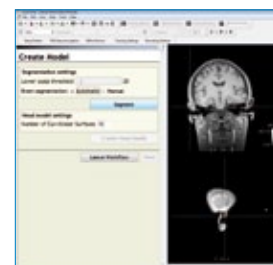
Process your images automatically to create scalp and brain maps

Features and benefits

TMS Navigation

- A straightforward workflow in Visor2 provides the basis for a productive TMS procedure
- Quick and accurate registration due to the head shape matching algorithm
- Automatic processing of imported MRI (DICOM, Analyze, Nifti) to obtain realistic models of the scalp and the brain
- Targets for coil positioning based on MRI, EMG or coordinates (e.g. in Talairach coordinate frame)
- Option to use individual MRI or a standard MRI
- Real-time visualization of induced electric field

- Accurate and fast positioning of a coil over desired stimulation target by indicating distance to target and orientation of coil relative to desired orientation
- Interactive placement of markers for back-tracing of positions (e.g. in Talairach coordinate frame)
- Accuracy check during the session and upon completion
- Compatible with all standard coils and a variety of custom coils
- Validation of correct coli/tool positioning
- Effortless switching between multiple coils during a TMS session

Review

- Export of the hotspot, stimulated sites and any other image markers to DICOM
- All parameters of a TMS stimulation session and EMG are stored so that they can be easily reproduced, reviewed and reported

See Visor2 Datasheet for a detailed list of features.

Online motor mapping of up to 8 EMG channels

- **Simultaneous TMS navigation and EMG acquisition**
- **Real-time wireless mapping of up to 6 EMG channels**
- **Recording of motor evoked potentials for each stimulated point**
- **Real-time projection of the peak amplitudes onto the brain**
- **Create corresponding EMG amplitude maps**
- **Simultaneous visualization of EMG and MRI**

See Visor2 Datasheet for a detailed list of features

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From now on the target of stimulation is defined by you

The leading edge Visor2 navigation system allows you to position a TMS coil effectively over preselected brain regions. Through highly advanced 3D images, yet easy to acquire, you are able to see the depth, location, and shape of the magnetic field in relation to the subject's brain in real-time. This is the new way of TMS targeting accompanied with high precision to ensure the highest level of health-care quality and patient safety.

Enhanced flexibility

Visor2, the neuronavigation system with integrated EMG, provides a complete set of highly sophisticated tools for TMS procedures in research and clinical environments. Due to its well thought-out interoperable software packages, available in two versions LT and XT, and the modular set up, the system allows you to extend functionality and reduces the need to invest in additional systems.

ANT Neuro was established in 1997, as a spin-off company of The University of Twente, Enschede. It now has offices located in Enschede, Netherlands; Berlin, Germany; and Madison, WI, USA.

ANT Neuro BV is a Dutch corporation specialized in the development, production, marketing and sales of medical and research applications. It develops software and equipment for the study of human brain signals, focusing on products with a high impact of innovation and technology. Our business is rooted in the application of sophisticated analysis tools to the study of brain functions using electroencephalography (EEG), magnetic resonance images (MRI), transcranial magnetic stimulation (TMS) and magnetoencephalography (MEG) technology.

Customer needs are central to our business. Studies are usually performed jointly with our customers, through a holistic approach factoring in their experience, knowledge and needs. Additionally, workshops are frequently being organized for customers to provide training and ensure efficient clinical performance, proper use of the system and better return on investment.

inspiring technology for the human brain

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CE 0124 Compliant with international standards for use in clinical environments. CE marked as a medical device in the EU, according to MDD 93/42/EEC, class IIa.

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