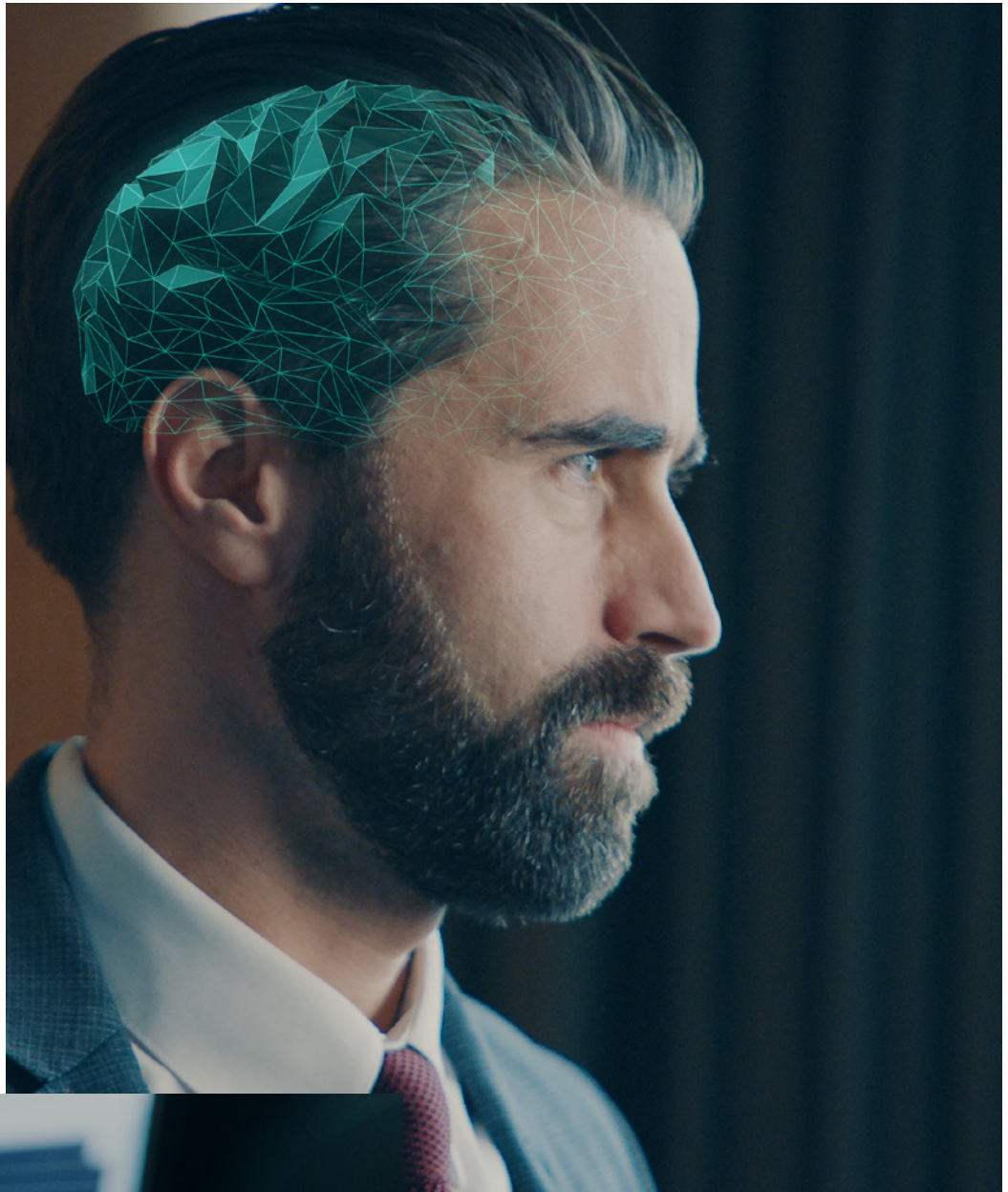


EPOS



EPOS BrainAdapt™  
FAQ

### **What is EPOS BrainAdapt™?**

EPOS BrainAdapt™ is a group of pioneering technologies that work together to improve cognitive performance by minimizing the energy it takes our brain to process sound.

At EPOS we apply world-leading research on how the brain processes sound and design our algorithms and acoustics with the specific aim to reduce the cognitive load on the brain, because when we reduce cognitive load we provide our brain with the best conditions to perform.

Learn more about EPOS BrainAdapt™ [here](#).

### **Why is it important to “support” the brain?**

Just as people can experience “visual fatigue” due to of poor lighting, glare or straining to see a screen - people can also suffer from “listening fatigue” caused by poor audio or straining to listen.

Poor audio quality and sound distractions make it harder for our brain to concentrate, this can result in cognitive overload and negatively impact our ability to work and perform at our best. Results of listening fatigue can include:

- Zoning out of virtual meetings and calls
- Missing or misunderstanding information
- Decrease in efficiency
- Poor memory recall

Example: In constant background noise the brain works overtime to listen. Poor voice transmission or background noise while people are in virtual calls increases the mental load as they need to use additional cognitive effort. This causes unnecessary brain fatigue. By providing the right audio processing in EPOS audio solutions we reduce the risk of increased cognitive load, so the wearer can focus on the task at hand.

### **What is it EPOS does to provide the best conditions for the brain?**

Simply put, we enhance the right sounds and reduce noise disturbances to provide as natural a soundscape as possible. This helps the brain more easily orient on the right sounds with less brain effort spent.

### **Why is EPOS BrainAdapt™ unique?**

Based on more than a decade of psychoacoustic research conducted through our sister company Oticon, EPOS has the knowledge on what fatigues the brain and how to measure the cognitive load on the brain.

Being able to measure the cognitive load on the brain is a unique technical capability and has provided EPOS with fundamental insights that have resulted in proven technologies that reduce listening effort and provide the brain with better conditions to perform. This results in many benefits, including reduced listening effort, improved mental capacity and memory recall, reduced stress and tiredness, and the ability to focus longer and achieve more.

### **Is EPOS BrainAdapt™ a technology feature?**

EPOS BrainAdapt™ is not a single technology feature or software, but rather EPOS research-based approach to how we design acoustics, algorithms and a multitude of technology features based on our understanding of how the brain processes sound. It's an assembly of different technology features that puts cognitive performance at the core of its design.

### **How does EPOS measure cognitive load on the brain?**

There are several methods we use to assess how hard our brain works to understand speech in different environments, including Pupillometry, SWIR testing (Sentence-final Word Identification and Recall), and EEG (Electroencephalography) just to name a few.

#### **Pupillometry**

Pupillometry is a well-recognized method that measures pupil dilation. The work on pupillometry and cognitive load began with the work of the Noble prize-winning researcher, Daniel Kahneman back in 1973. Today, a body of evidence has shown that pupil size reflects changes in mental effort. The more challenging the task, the larger the pupil. When we pay attention to sound, the muscles in our eyes contract and release based on how much listening effort we are investing. Using pupillometry researchers can measure the effort people exert to understand what is being said in a variety of real-world listening environments.

#### **SWIR Testing**

The SWIR (Sentence-final Word Identification and Recall) test measures a person's ability to understand and remember speech.

#### **EEG**

Within the field of cognitive hearing science, brain responses have been demonstrated to be modulated by auditory attention and have been widely used to assess the cognitive load. In a series of studies, electrophysiological (EEG) and in/around-Ear-EEG signals have been used to investigate changes in mental effort and cognitive load across a wide range of everyday listening conditions. Furthermore, it has been investigated whether audio solutions and their signal processing help listeners to reduce cognitive load, and consequently to better focus their attention on different listening environments. This work has demonstrated that electrophysiological (EEG) signals can be applied to identify a benefit of the signal processing on mental effort and cognitive load.

While EPOS designs technology features based on decades of clinical evidence through research-based findings, including Demant owned companies such as Oticon, we also invest heavily in our own evidence-based approach to documenting the benefits of using EPOS solutions.

### **Are the benefits of EPOS BrainAdapt™ technology documented?**

EPOS continually invests in research investigating the effects of EPOS technology on speech understanding, listening effort and memory recall and has published research (conducted in collaboration with researchers from Oticon in the Centre for Applied Audiology Research (CAAR) in Denmark) and findings proving the benefits of EPOS BrainAdapt™ technology.

Explore EPOS most recent research and whitepapers [here](#).

### **How does EPOS leverage the know-how and research from the Demant Group?**

EPOS is part of the Demant Group and as such builds on more than 115 years of experience of working with innovation and sound. Being part of the Demant Group allows EPOS to leverage R&D synergies from other companies within the Group, such as Oticon and the Eriksholm Research Centre, to use their research facilities, and share expertise through cross-functional projects.

### **What is the Eriksholm Research Centre and how does EPOS leverage this research?**

Located near Helsingør, Denmark, Oticon's Eriksholm Research Center is the world's largest research facility in hearing science. The multi-disciplinary experts identify and demonstrate new opportunities within psychoacoustics, audiology, signal processing and behavioral science. At the Eriksholm Research Centre, advanced and proven test methods are developed, which provides EPOS with a strong basis in documenting the benefits of using EPOS solutions. This lays the foundation for EPOS to further develop audiological concepts and ensures that the scientific insights are applied in solutions that empower people to unleash their full potential through sound excellence.

### **How is EPOS approach different from what competitors are doing?**

At EPOS, we start by understanding how the brain processes sound, and integrate technologies that improve cognitive performance. EPOS is also the only one conducting this type of in-depth scientific research evaluating the effects of EPOS audio technology on cognitive performance.

## About EPOS

EPOS designs, manufactures, and sells high-end audio and video solutions for business professionals around the world.

Building on decades of psychoacoustic research on how the brain perceives sound, EPOS designs audio and video solutions that provide the best conditions for the brain so you and the people you communicate with can achieve more with less brain energy spent.

Owned by the world-leading hearing healthcare and audio technology group, Demant, and with headquarters in Copenhagen, Denmark, EPOS builds on more than 115 years' audio expertise and operates in a global market with offices and partners in more than 60 countries.

Find more information at [eposaudio.com](https://eposaudio.com)