



SPEECH

2016-07-01 Feature in Brief

What is is

The SPEECH is the core of primax. This is the engine responsible for the automation of the Universal program, and it is clinically proven to reduce listening effort for the wearer throughout the day*. More than a single feature or innovation, SPEECH steers a conglomerate of algorithms and processes which work in concert to achieve the goal: less listening effort.

How it works

Listening effort is reduced by removing noise and highlighting speech. SPEECH capitalizes on existing binax and micon technology and combines them with primax innovations to achieve both effects, for a wide variety of listening environments. As a result, in the Universal program, SPEECH is able to focus on the loudest speech source while reducing the intensity of all other competing sounds. This is achieved by utilizing three strategies to improve the signal: based on signal type using noise reduction, based on signal direction using directionality, and based on signal loudness using amplification.

Improving the signal based on signal type

SPEECH can accurately identify and categorize the type of signals being picked up by the microphone. While speech signals are left untouched, all other signals categorized as noise are instantaneously reduced via features such as Speech and Noise Management, Directional Speech Enhancement, SoundSmoothing, and binaural eWindScreen.

Improving the signal based on direction

The primax 48-channel, automatic, adaptive, binaural directional microphone system operates based on the direction of the incoming signal, and ensures optimal speech intelligibility in noisy situations, reducing listening effort for the wearer. Directional features here include Narrow Directionality, Spatial SpeechFocus, and monaural directional microphones.

Improving the signal based on loudness

primax hearing aids are able to focus on the single loudest speech source, while ensuring that all other sound sources are not overly amplified. This completely new signal processing strategy behaves almost as another layer of noise reduction, except that it attenuates not only distracting noise, but also interfering speech sources. This adaptation is channel specific, and the transitions are smooth.

Availability

SPEECH is available in primax hearing aids in all three performance levels. While its working premise and principle is the same in all levels, it takes advantage of the more sophisticated tools available in the higher performance levels. As an example, narrow directionality is much more efficient in the 7px than in the 5px and 3px. As a result, SPEECH’s general effectiveness in reducing listening effort will also decrease as the performance level decreases.

* Study conducted at the University of Northern Colorado examined the effectiveness of the new features of primax by collecting and analyzing ongoing EEG data while subjects performed speech testing. For both primax features SPEECH and EchoShield, the objective brain behavior measures revealed a significant reduction in listening effort when the feature was activated (Littmann, Froehlich, & Beilin. Objective listening effort assessment: The benefit of primax. Sivantos Whitepaper, Jan. 2016).



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