

BINAURAL ON-EAR
SPEECHMAP®



PKB#5 REVA

Binaural On-ear Speechmap® for Verifit® 2 — Software 4.4

Binaural real ear measurements (REM) run simultaneously can provide several clinical advantages including verification time savings, the ability to verify paired/streaming features, and quick identification of hearing instrument issues.

However, for the full potential of simultaneous binaural REM to be realized, it is important to ensure that the input signal received at each hearing aid is equivalent and as requested so accurate conclusions can be made. Unfortunately, the non-uniform acoustics of real-world fitting rooms mean that there can be significant variability in the input signal received at each hearing aid from a single loudspeaker during simultaneous measurements. While reference microphones can be used to measure and adjust the sound source to deliver the requested input at the measurement point, in a non-symmetrical environment, it is impossible to equalize a single sound source at two different locations (i.e. either side of the patient's head). This sound field variability, if not properly accounted for, can lead to measurement variability and inaccurate conclusions.

Various techniques have been used in an attempt to address this issue. These approaches include averaging the difference between reference microphones, or allowing the clinician to select one reference microphone as the basis for sound field calibration for all binaural measurements. Both of these methods involve accepting an unknown level of error as the actual input signal received at each device may not be equivalent and may vary from the requested level. Results can vary and, depending on non-uniformity of the sound field, can be quite different from measurements taken sequentially with ear-specific sound field calibration.

With the 4.4 software update for the Verifit2, Audioscan has implemented a new method—Binaural Sound Field Assist (BSFA)—that delivers both measurement accuracy and time savings during simultaneous binaural REM.

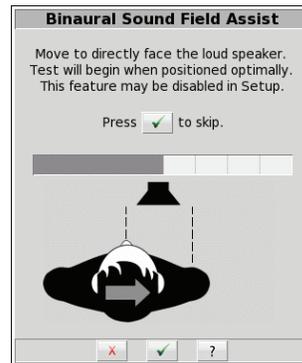
Binaural Sound Field Assist (BSFA)

When using BSFA, the system analyzes the acoustic space before the test begins and compares the input signal received at each reference microphone.

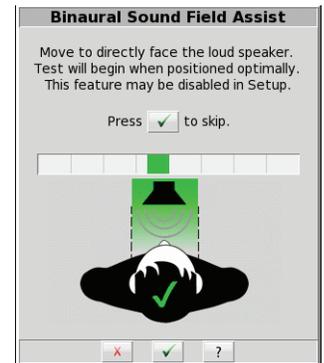
- If the signal level at each reference microphone is within 2dB across frequencies, the simultaneous binaural test will begin.
- If the signal level at each reference microphone is significantly different across frequencies (>2dB), the

system presents an interactive on-screen tool to guide repositioning of the patient until the sound field is equivalent between left and right ears.

BSFA will only appear when needed. Once the patient is positioned optimally, the requested REM will begin automatically.



1. Adjustment required



2. Ready to complete test

Simultaneous Binaural in On-ear Speechmap

The BSFA tool is on by default in 4.4 and later software. To run tests simultaneously, select the L-R Link button on the Speechmap screen.



Upon signal activation, tests will first loop binaurally based on the averaged calibration values for the two reference microphones and live measurement curves will be displayed for both the left and right ears. When the record button is selected to complete the measurement, the BSFA tool will be shown if an adjustment to patient's position is required.

Tips

- The BSFA tool will work best if patient-to-speaker distance is no greater than 60cm (2 ft.).
- As with all real ear measurements, environmental sound can affect the measurement. Please keep the room quiet during the positioning assist step.
- BSFA can be turned off in *Setup/Speechmap*. When the tool is deactivated, and the link button is selected in Speechmap, a simultaneous binaural test will still be attempted. If the sound field is unbalanced, then the system will seamlessly switch into a sequential binaural mode and run two passages consecutively (left ear then right ear) using an ear-specific sound field calibration adjustment to ensure measurement accuracy.

If you have more questions please contact us!

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