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Grand Rounds by ReSound

Directionality Session 3

Valerie Kedem, Au.D.
Field Training Audiologist
GN ReSound

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Use the Q&A window

LEARNER OUTCOMES

- *After this course, participants will be able to describe Spatial Sense.*
- *After this course, participants will be able to discuss M&RIE benefits.*
- *After this course, participants will be able to compare/contrast directionality options available to providers and patients.*

ReSound Directional Options can be organized into 3 categories to according to their purpose



AUTOMATIC CONTROL FOR EASE OF USE

- All Access Directionality
- Binaural Directionality III
- Binaural Directionality II
- Binaural Directionality
- Natural Directionality II
- Soft Switching

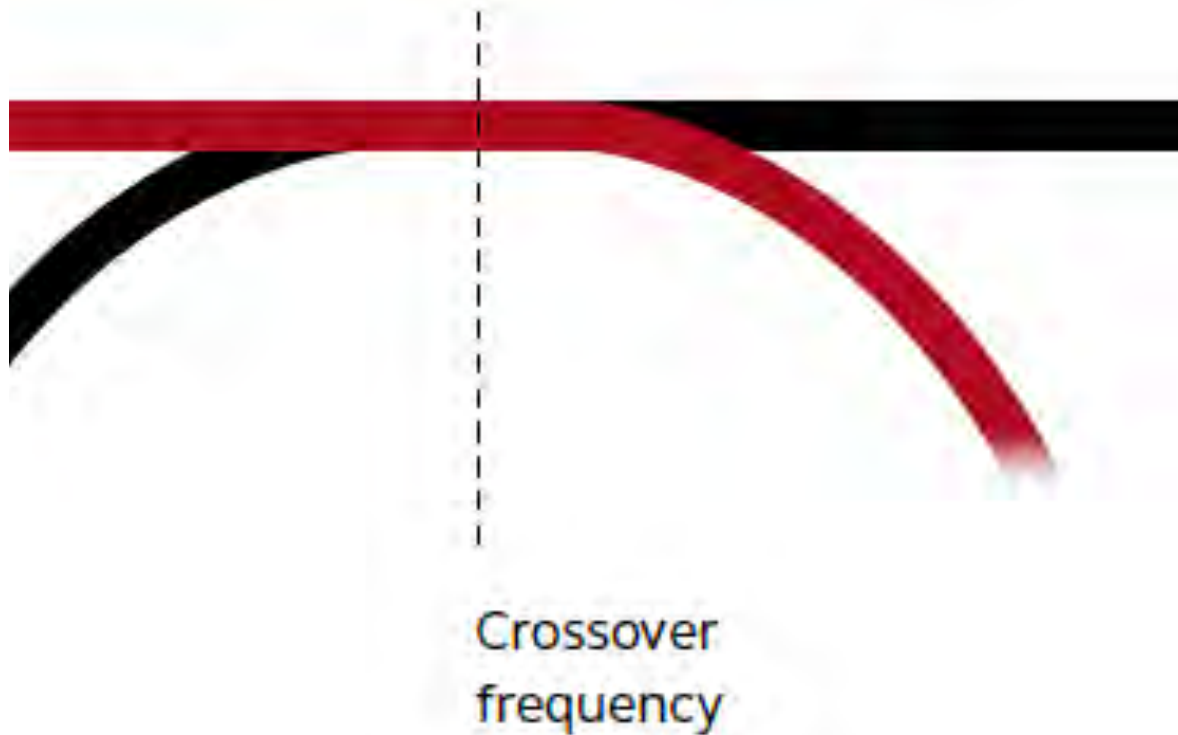
IMPROVED SNR

- Weighted binaural beamformer
- Ultra Focus
- Autoscope Adaptive Directionality
- Multiscope Adaptive Directionality
- Adaptive Directionality
- Fixed Directionality

SOUND QUALITY AND SPATIAL HEARING

- M&RIE
- Spatial Sense
- Directional Mix

Omni → ← Directional



Directional Mix

Role

Splits the sound into low and high frequencies, applying directional processing only to the high band.

Benefit

Improved sound quality compared to full band directionality and preserved low frequency interaural timing differences (ITD), for improved localization.

Soft-Switching

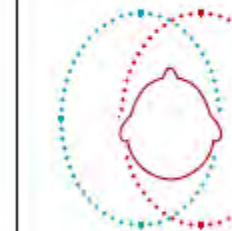
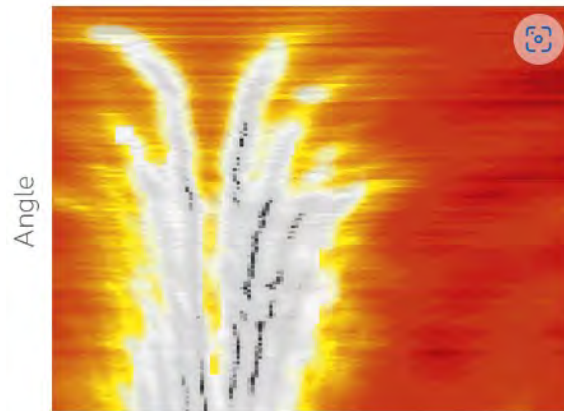
SOFT SWITCHING MICROPHONE MODES					
Signal in front	Speech	Speech	Speech	Noise	Noise
Signal behind	Quiet	Speech Babble	Noise	Noise	Speech
MICROPHONE RESPONSE	 Omni	 Directional	 Directional	 Omni	 Omni

Figure 3. Soft Switching follows a conventional approach for automatically controlling directional microphones.

Spatial Sense

Pinna Compensation or Pinna Restoration

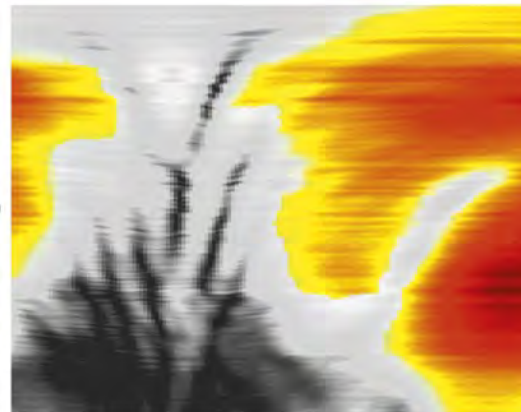


Frequency

BTE

without Spatial Sense

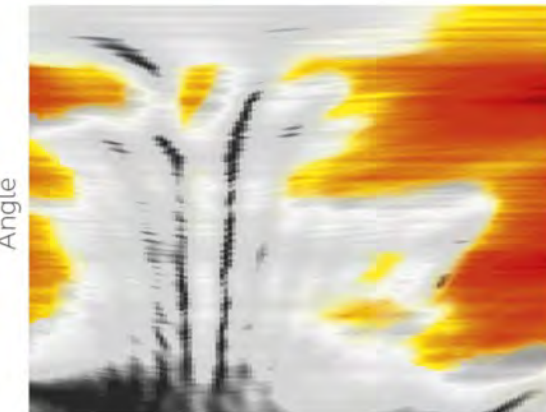
Many spatial cues are lost



Frequency

Unaided Ear

Attenuation pattern of the right, unaided ear



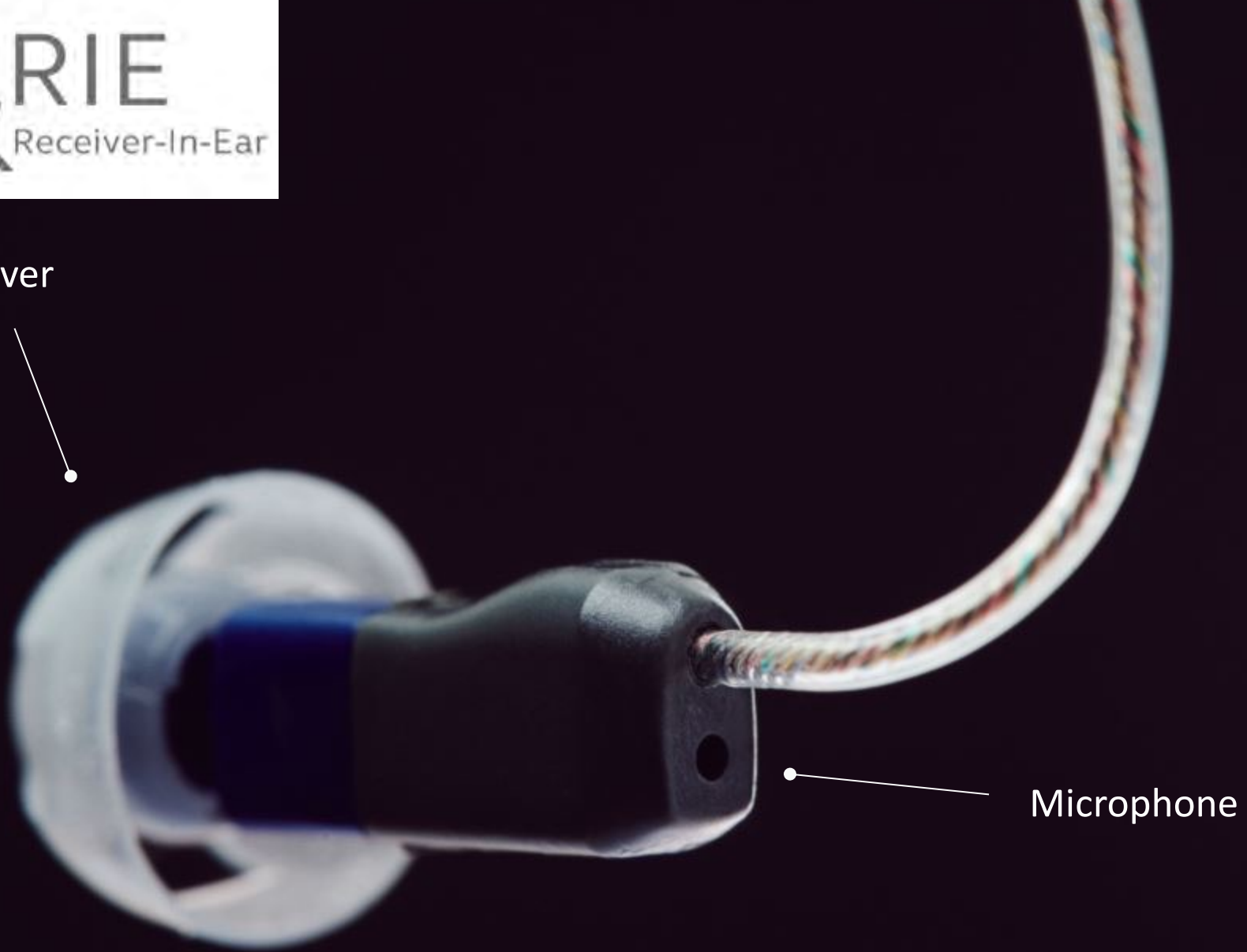
Frequency

BTE

with Spatial Sense

Attenuation pattern closely resembles that of the unaided ear

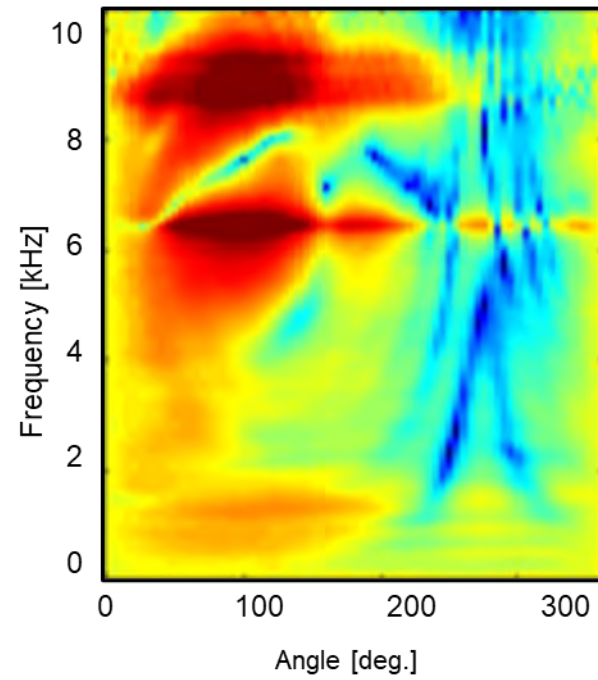
Receiver



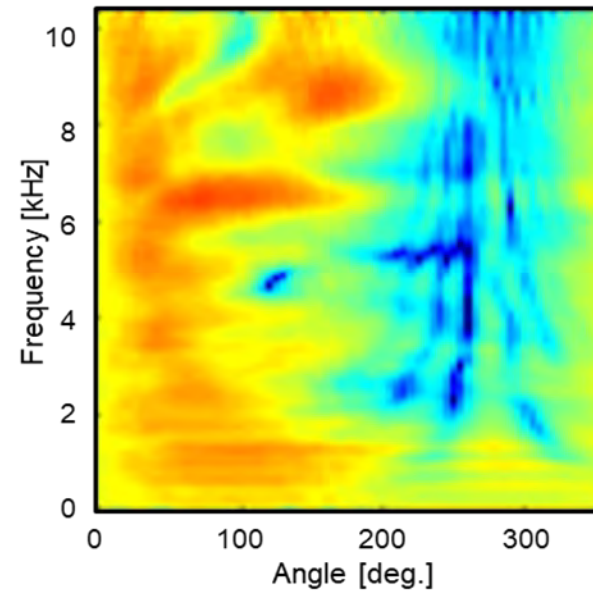
Microphone

M&RIE

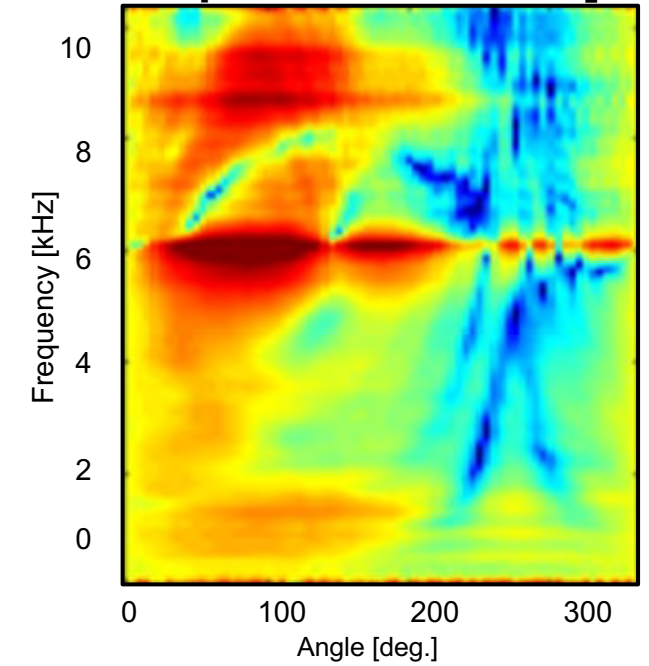
Open Ear

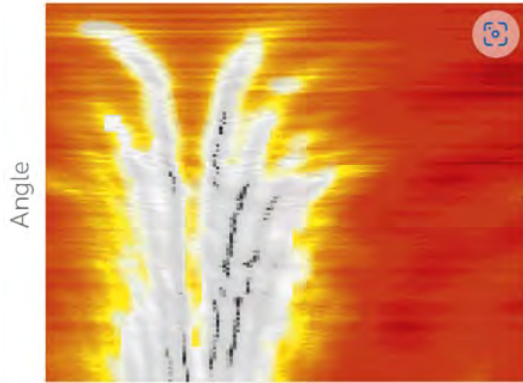


Pinna Restoration [PR]



Microphone in the ear [MIE]



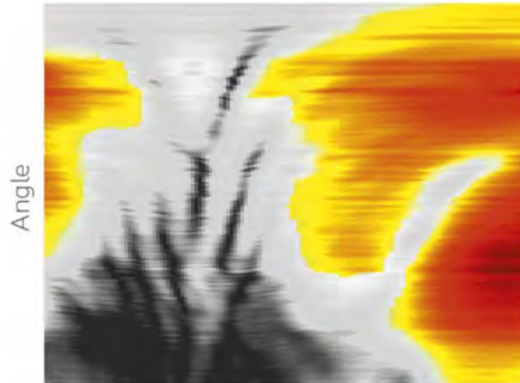


Frequency

BTE

without Spatial Sense

Many spatial cues are lost

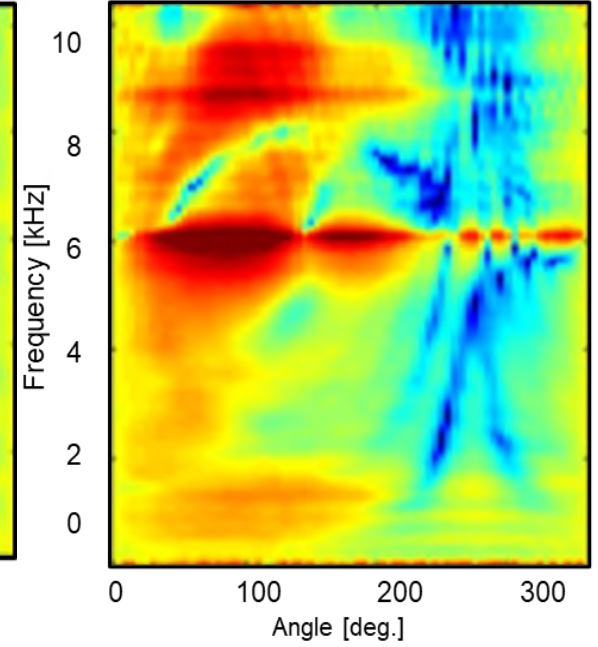
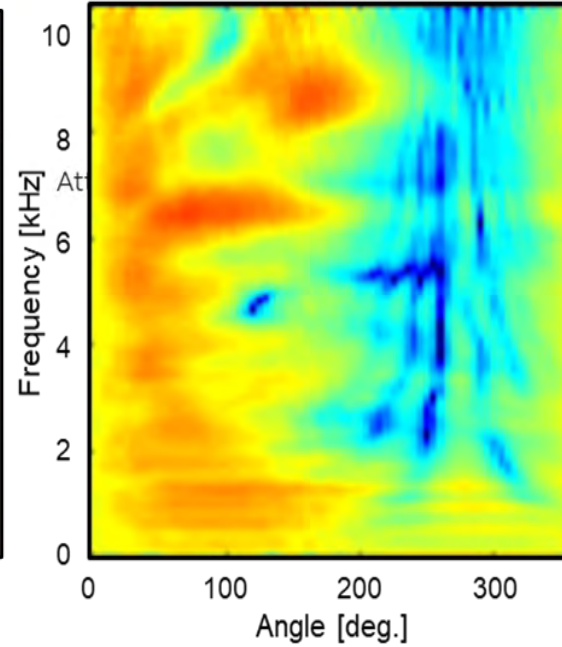
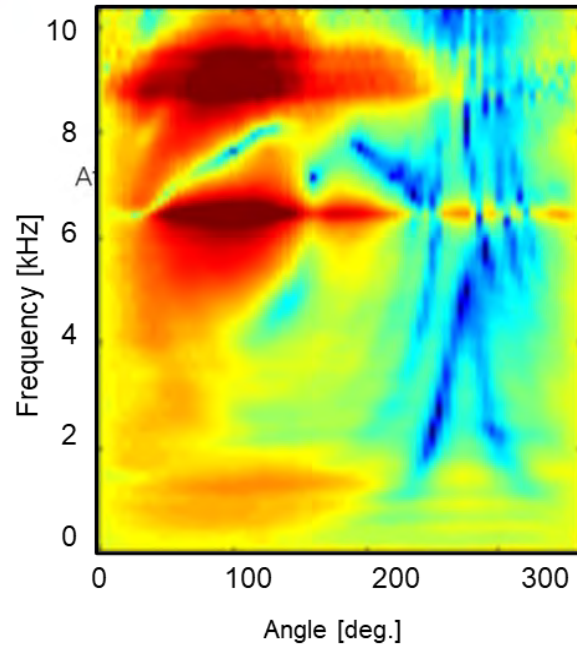


Open Ear



Pinna Restoration [PR]

Microphone in the ear [MIE]



Everything is better with M&RIE

Benefits confirmed by National Acoustic Laboratories (NAL)

ReSound GN

80%

Of listeners were better at localizing sound*

80%

Of listeners preferred M&RIE in background noise*

90%

Of listeners experienced less listening effort*

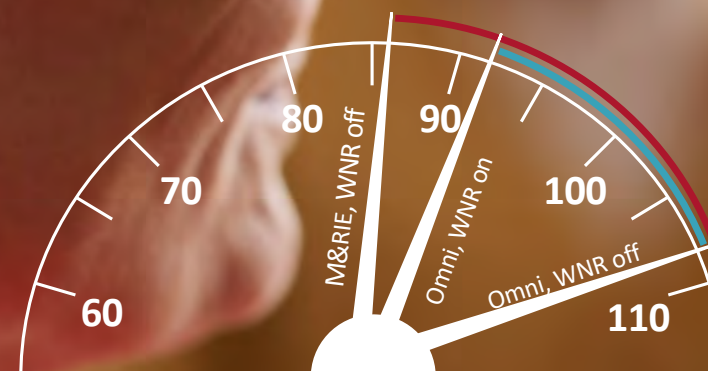
M&RIE reduces wind noise, naturally**

22dB

Natural wind noise reduction with M&RIE

16dB

Attenuation



Wind noise level [dBA]

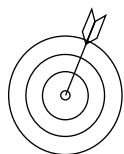
*National Acoustic Laboratories, Kitterick & Kwok (2023)

** Schumaker (2023); Newall et al. (2023)

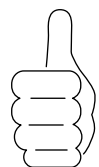
M&RIE Fitting Range and Considerations



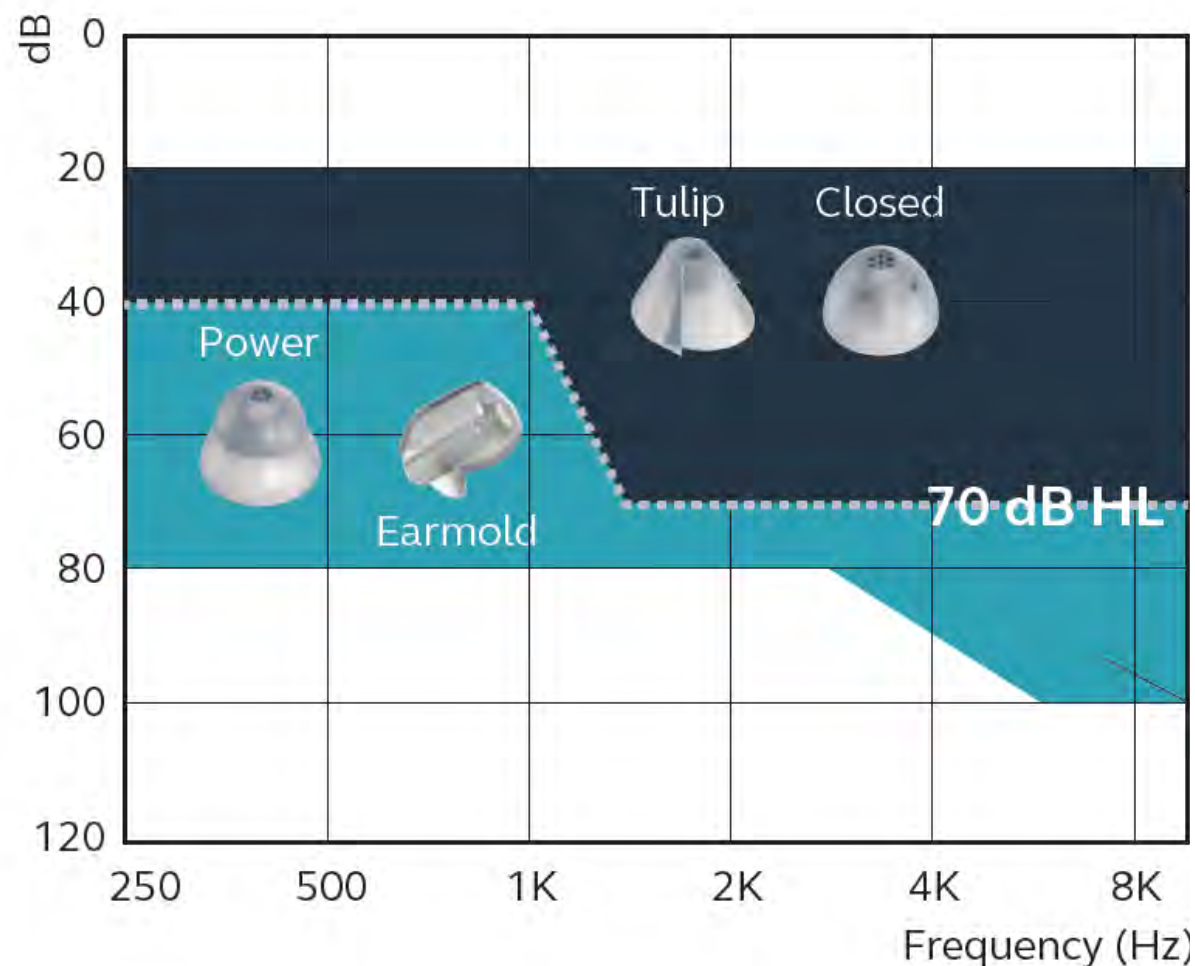
Best results are obtained with closed or tulip dome



Tulip and closed domes increase available stable gain by approximately 3 dB relative to the open dome



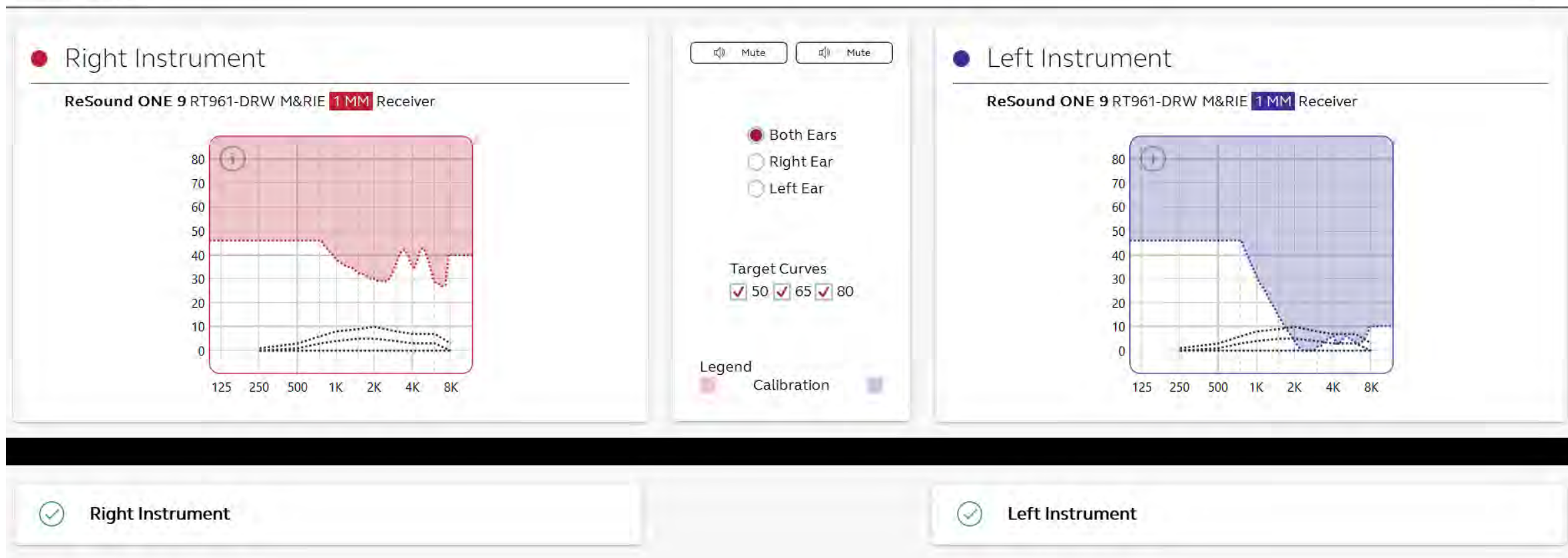
Power domes and earmolds are recommended



M&RIE Considerations

Successful M&RIE fittings: calibration curve will not go more than 10 dB into target curve

Calibration



CASE STUDIES



What To Try?

An experienced hearing aid patient is ready for new devices. During her consult, she mentions having difficulty locating where her dogs are in the back yard if she can't see them.



What To Try!

An experienced hearing aid patient is ready for new devices. During her consult, she mentions having difficulty locating where her dogs are in the back yard if she can't see them.

- Try a M&RIE receiver to collect patient's pinna cues for better localization and directionality.



What To Try?

Patient returns for a follow up reporting the closed domes are not comfortable. At first fit, all closed dome options were tried. She does not want a custom earmold.



What To Try!

Patient returns for a follow up reporting the closed domes are not comfortable. At first fit, all closed dome options were tried. She does not want a custom earmold.

- Replace M&RIE receiver with LP or MP receiver. In Smart Fit software, change directionality to Spatial Sense.





What To Try?

Patient is a long time ReSound user, however new to your practice. She mentioned that she prefers less automatic mic changes.



What To Try!

Patient is a long time ReSound user, however new to your practice. She mentioned that she prefers less automatic mic changes.

In Smart Fit Software:

Change Directionality to Soft-switching

What to try?

This patient reports that she is an avid sailor.
She is in the wind quite often.

What to try!

This patient reports that she is an avid sailor.
She is in the wind quite often.

- Try a M&RIE receiver. This will also help patients with complaints of hair noise.

What to Try?

Patient reports he is still struggling to hear the person right in front of him in a restaurant.

What to Try!

Patient reports he is still struggling to hear the person right in front of him in a restaurant.

**- In Smart Fit software:
Increase Directional Mix**

For further information please contact:

ReSound Customer Care at 1-800-248-4327

Additional resources:

Territory Sales Manager

Inside Sales Manager

Field Training Audiologist

Remote Training Audiologist