



# How to Fit Bluetooth-integrated Hearing Aids to Maximize Patient Satisfaction

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## Introduction

Fitting Bluetooth-integrated hearing aids is rapidly becoming the industry norm. Patients not only want the best audiological performance for improving speech understanding in noise while simultaneously reducing listening effort, but they also want technology that provides versatility and ease-of-use with their smartphones and tablets.

Simply providing Bluetooth technology, however, does not automatically equate with a successful fitting. It's incumbent on the hearing care professional (HCP) to ensure the patient understands the benefits and limitations of Bluetooth with respect to smartphone placement and changing environmental conditions while streaming. Integrating Bluetooth technology into hearing aids is still an evolving technology from a patient usability and experience perspective. Assessing the patient's streaming experience in an office with the smartphone placed on the table does not adequately evaluate real-world use scenarios where smartphone placement is typically in a pocket or bag. Research has shown that the location of the phone *does* make a difference, and that performance may vary from inside a building compared to being outside (Froehlich, 2019). Most importantly, research also has shown that there can be large differences in the quality among manufacturers. Confirming the patient has good usability at the initial fitting, not only is good clinical practice, but also promotes patient confidence and repeat business. The following workflow is recommended when fitting Bluetooth-integrated hearing aids to maximize patient satisfaction with varied smartphone placements and real-world listening environments. The protocol is suitable for use with all manufacturer's Bluetooth products.

## Hearing Aid Fitting Protocol

- Enter patient's audiogram
- Detect hearing aids using a Noahlink Wireless programmer
- Select appropriate Acoustical Parameters and Fitting Formula
- First Fit hearing aids
- Conduct OVP calibration for Signia products
- Proceed with the optimization of acoustic adjustments or program additions to complete the programming process
- Save fitting and disconnect from programmer

## Bluetooth Assessment Protocol

### Streaming Phone Calls – Assessing Quality & Clarity

- Install appropriate app from manufacturer to allow for enhanced user control, e.g. myControl App\* for Signia instruments
- Follow app instructions for pairing hearing aids to smartphone
- Follow app instructions for pairing hearing aids to the manufacturer's app
- Instruct patient on sending and receiving phone calls
- Exit the room and call patient
- Ask patient to evaluate signal quality, clarity, and comfort

\* Note – Hearing aids can be paired directly to the smartphone without downloading the app

- Place smartphone in a back pocket or simulate pocket placement by holding the smartphone against the body with a typical back-pocket orientation and the smartphone pointing downwards
  - Turn head to the left; assess
  - Turn head to the front; assess
  - Turn head to the right; assess
- Place smartphone in some other pocket (e.g. coat) or bag (e.g. backpack, pocketbook)
  - Turn head to the left; assess
  - Turn head to the front; assess
  - Turn head to the right; assess
- If smartphone positions and/or head orientation result in a less than favorable assessment, review how the body and other obstacles can limit transmission.
- Instruct patient to reposition smartphone for optimal signal strength, consistency, and quality.

		Head orientation		
		Head: L	Head: F	Head: R
Smart Phone position	Front (e.g. pocket)			
	Back (e.g. pocket)			
	Other (e.g. bag)			

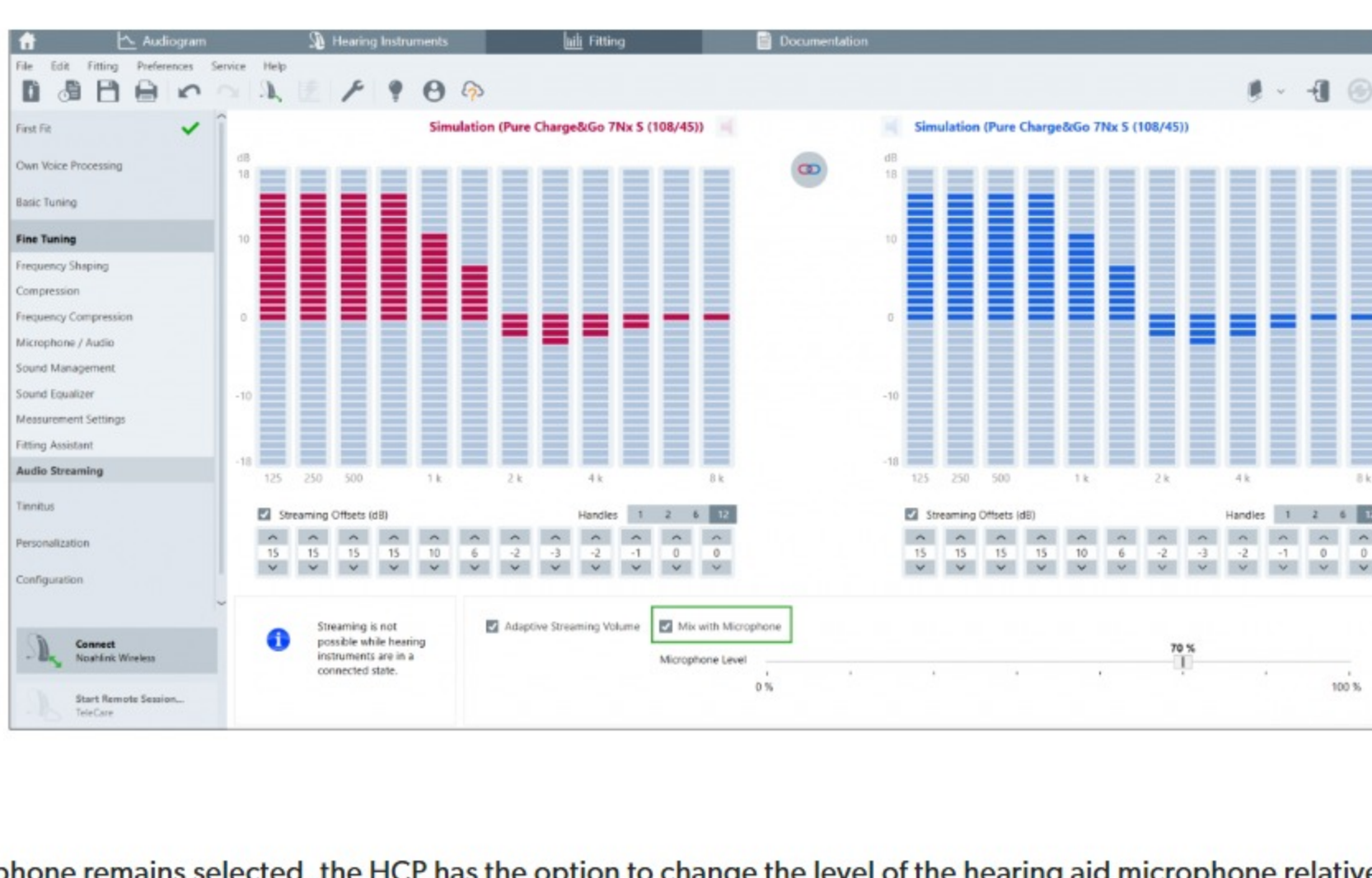
Figure 1. Bluetooth Streaming Assessment Chart

## Optional Adjustments for Signia Hearing Aids

Signia hearing instruments provide wireless streaming without compromising signal processing performance in all three form factors: receiver-in-the-canal (RIC), behind-the-ear (BTE), and custom. The perceived strength and quality of the Bluetooth streamed signal will be impacted by the patient's hearing loss but can be enhanced further using the Audio Streaming adjustments in the Connex fitting software. From this screen, the HCP can adjust the overall gain using one handle or multiple handles representing multiple frequency bands. The gain represented by the red and blue bars below is added to or subtracted from the streamed signal only and is applied to any program the patient is using while streaming.



The patient has the option to stream with the hearing aid microphones activated or deactivated. Default is Mix with Microphone. Deselect Mix with Microphone to deactivate the hearing aid microphone.



If Mix with Microphone remains selected, the HCP has the option to change the level of the hearing aid microphone relative to the streamed signal in the fitting software. The default is set to 70%. To increase the microphone level, move the slider to the right and to decrease the microphone level, move the slider to the left.



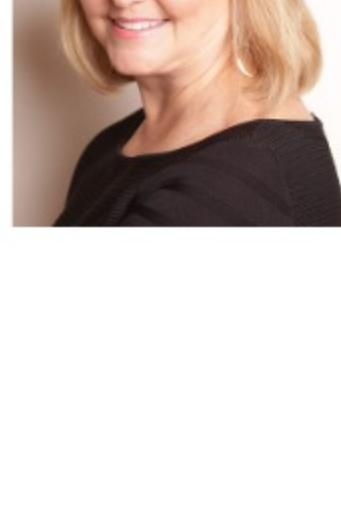
Finally, Adaptive Streaming Volume is a feature that automatically increases or decreases the volume of the streamed signal as background noise becomes louder or softer. Adaptive Streaming Volume defaults on.

## Conclusion

Today's hearing aid fitting and counseling session often extends beyond the traditional hearing aid fitting & counseling protocol. If the patient is seeking to improve communication and/or enhance acoustical experiences by wirelessly connecting to other devices, e.g. phone, tablet, television, it makes clinical sense to evaluate the application with the help of the HCP. First, using the patient's phone, sound quality and speech intelligibility of a streamed signal should be evaluated and adjusted accordingly. Then placement of the phone relative to the hearing aids should be checked to ensure realistic expectations in real-world scenarios. Exploring the benefits of Bluetooth technology and counseling regarding realistic expectations should be routinely provided prior to leaving the HCP's office. It is strongly recommended to conduct this assessment for all manufacturer's Bluetooth products both inside the HCP's office and outdoors to accurately evaluate real-world use scenarios and ensure patient satisfaction with their Bluetooth streaming experience.

## References

Froehlich M (2019). [Comparison of streamed audio signal quality: what matters in the real world.](#)



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Dr. Catherine Jons is a Clinical Education Specialist with Sivantos, Inc. She is responsible for training customers and staff on new developments in the areas of technology, products, and software. Catherine received her doctorate in Audiology from Central Michigan University, graduate degree from the University of Wisconsin, and undergraduate degree from the University of Minnesota. Catherine previously worked as a clinical audiologist at the University of Minnesota Medical Center, Walter Reed Army Medical Center, and Johns Hopkins Hospital where her efforts were concentrated in the area of amplification.



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