


WELCOME TO

## Exceptional Care for Non-conventional Patient Needs

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Options for audio include computer speaker or dial-in at 02 8518 1923 / Access Code: 2451 523 2327  
For technical questions or log-in information please contact Nicholas Bajan at 0448 664 111 or Nicholas\_Bajan@Starkey.com.au



Hear better. Live better.

WELCOME TO


## Exceptional Care for Non-conventional Patient Needs

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The webinar will start in..


# 5:00

Options for audio include computer speaker or dial-in at 02 8518 1923 / Access Code: 2451 523 2327



Hear better. Live better.

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## Exceptional Care for Non-conventional Patient Needs

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**Judy Grobstein, Au.D., MACAud**  
*Manager of Education and Audiology*

HOUSEKEEPING

If not using speakers and you haven't already, please call into the call center number 02 8518 1923 and enter access code 2451 523 2327


**Please be sure to keep microphones muted**

If you have any technical issues, please contact Nicholas Bajan at Nicholas\_Bajan@starkey.com.au or call him direct at 0448 664 111

If you have any questions, please type them in the chat box. You can view the chat box by clicking the chat bubble at the bottom of your screen

Participants Chat ...

WebEx Control Panel




ENDORSED SESSION

This Session is endorsed for ACAud, AudA and HAASA points

You must stay logged on for the full session

AudA members must complete a 10 questions quiz with a passing score of 70% as well as your CPD Reflections and Evaluations

ACAud, HAASA and NZAS members must complete the quiz to receive full points.




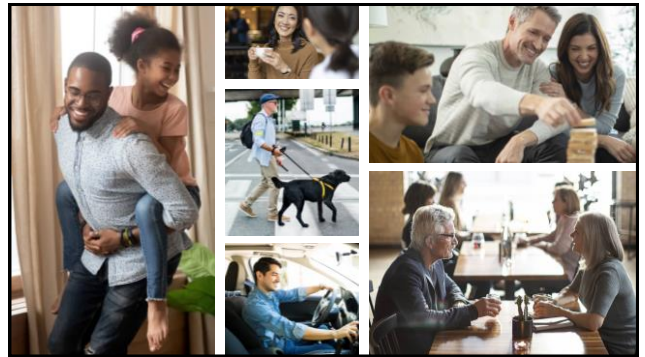
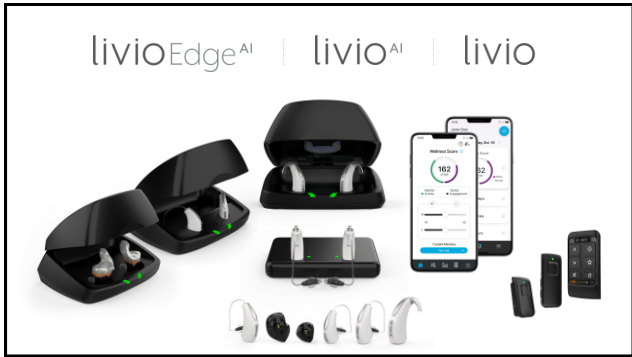
LEARNING OBJECTIVES

Identify which Starkey products allow for CROS/BiCROS compatibility and the different CROS configuration options available within the Inspire software


Describe what sound therapy stimulus options are available with Multiflex Tinnitus Pro and how to create a personalized tinnitus stimulus to meet unique individual needs

Navigate the dedicated Music Memory within the Inspire programming software







### Non-Conventional Patients



Single Sided Deafness



Tinnitus



Music Lover

### Chris Cros

Fit with Livio Edge AI RIC R

- Owns an Accounting Firm
- Work keeps him busy: meetings almost hourly and business lunches daily
- He has 3 children
- Loves to travel!




### Who is a CROS/BiCROS Patient?

**SSD (Single Sided Deafness) or UHL (Unilateral Hearing Loss)**

Defined as unaidable hearing in one ear ("bad ear") and normal hearing levels (20 dB or better) in the opposite ear ("good ear").

"Unaidable" is defined as profound sensorineural hearing loss, very poor word recognition, and/or marked intolerance for amplified sounds.






### How Are Patients Affected?

Spatialization/Localization errors

Understanding Speech in Noise

- SSD patients **need an additional 13 dB increase in signal-to-noise ratio (SNR)** to achieve speech recognition in noise performance similar to that of individuals with normal hearing

Fletcher, 1953; Shaw, Nizumani, & Hirsch, 1947; Taylor, 2010; Tillman, Kazten, & Honner, 1963; Valente, Valente, Enrietto, & Layton 2002

## CROS Candidacy

One of the following:

### Total Unilateral Hearing Loss (Single Sided Deafness)

- Congenital
- Acquired

Very poor WRS combined with hyperacusis or degraded WRS with binaural presentation on the affected side (No amplification benefit)

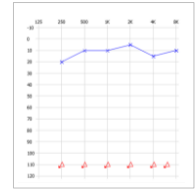


## Terminology

### CROS

Contralateral Routing of Signal

- One ear **unaidable** or with very poor WRS
- One **normal or better hearing** ear

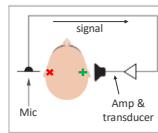


## Terminology

### CROS

Contralateral Routing of Signal

- One ear **unaidable** or with very poor WRS
- One **normal or better hearing** ear



X = poor ear  
+ = better ear

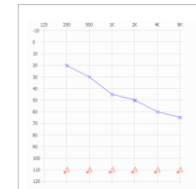


## Terminology

### BiCROS

Binaural Contralateral Routing of Signal

- One ear **unaidable** or with very poor WRS
- One **impaired** ear requiring amplification

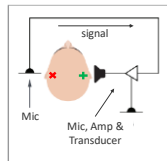


## Terminology

### BiCROS

Binaural Contralateral Routing of Signal

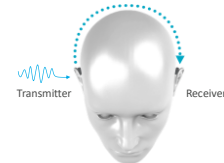
- One ear **unaidable** or with very poor WRS
- One **impaired** ear requiring amplification



X = poor ear  
+ = better ear



## Wireless CROS System



Consists of:

#### Transmitter

- Worn on the unaidable ear
- Microphone enabled for CROS and/or BiCROS

#### Receiver

- Worn on the normal or better ear
- Microphone enabled for BiCROS or Hearing Aid Only mode

**CROS Stream**  
Audio streamed from the Transmitter to the Receiver

**Starkey's First Wireless CROS System**  
Introduced on the Synergy platform in Muse standard products

### Wireless CROS System



**Standard products (with NFMI):**  
RIC 312, BTE 13, RIC R

**CROS System**  
Receiver and Transmitter — must be the same style

**NFMI**  
Utilizes NFMI of the Thrive Dual Radio technology

**Expected Battery Life\***  
RIC 312: 3-5 days  
BTE 13: 4-6 days  
RIC R: 14 hours  
\*All RIC battery life estimates based on 50 gain receivers



livioEdge<sup>AI</sup>  
2000 | 1600 | 1200

livio<sup>AI</sup>  
2400 | 2000 | 1600 | 1200 | 1000

### Wireless CROS System

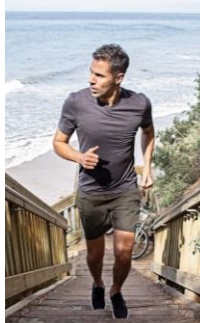
**Receiver**

**Sensor Technology**  
(available in Livio Edge AI/Livio AI only):


- Activity Tracking
- Fall Alerts
- Double Tap

**Universal Transmitter**


- Tier-Agnostic
- Must match Receiver style
- Independent directionality and noise control



### CROS Transmitter Receiver



CROS Non-functional



### Wireless Programming

**Wireless only**  
Can be programmed using either:





Proprietary 2.4 GHz Programmer      Universal 2.4 GHz NoahLink Programmer



### Pairing

Pairing automatically occurs when a Transmitter and Receiver are brought into the fitting



## Inspire and Transmitters

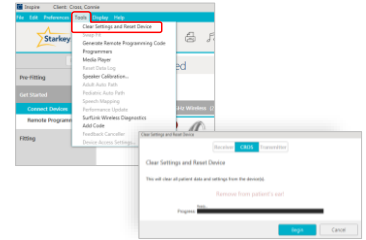
After initial pairing, Inspire does not need to communicate with the Transmitter



## Unpairing

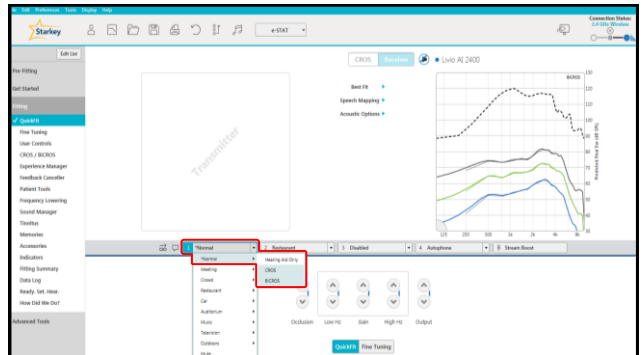
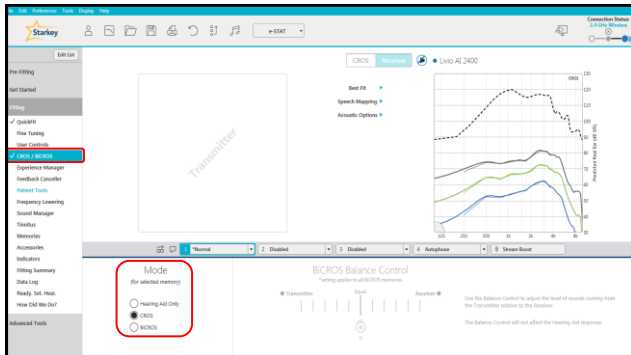
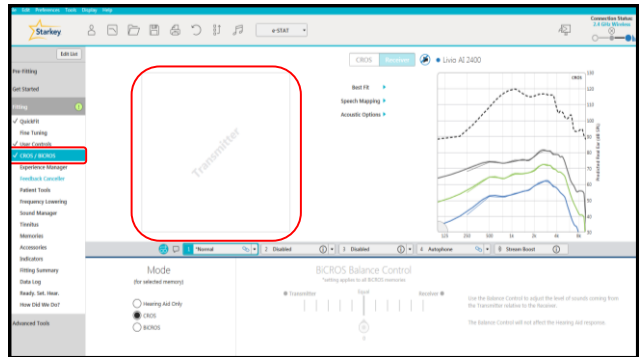
Receiver can be converted back to a traditional hearing aid

1. Select Tools
2. Select Clear Settings and Reset Device



## CROS Streaming

The CROS Stream (audio from Transmitter to Receiver) is **always ACTIVE** during fitting



## CROS Mode

### Transmitter ON / Receiver OFF

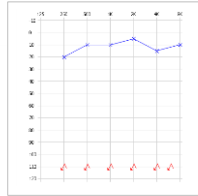
- DO want signals picked-up on the 'poor' side and sent to the 'good' side
- CROS patient: In a meeting with voice on the right side

Mode  
(for selected memory)

Hearing Aid Only

CROS

BiCROS



## BiCROS Mode

### Transmitter and Receiver both ON

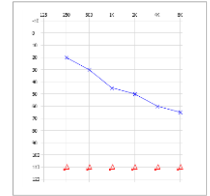
- DO want signals picked-up from both sides
- BiCROS patient: Meeting around a table with voices on both sides
- Can a CROS patient benefit from BiCROS mode?
  - Yes! By accessing independent directionality and noise control

Mode  
(for selected memory)

Hearing Aid Only

CROS

BiCROS



## Hearing Aid Only Mode

### Transmitter Microphone OFF

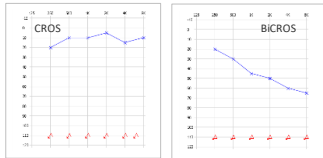
- DON'T want signals picked-up on the 'poor' side and sent to the 'good' side
- CROS/BiCROS patient: In the car with the 'poor' ear by the window or when in noisy situations

Mode  
(for selected memory)

Hearing Aid Only

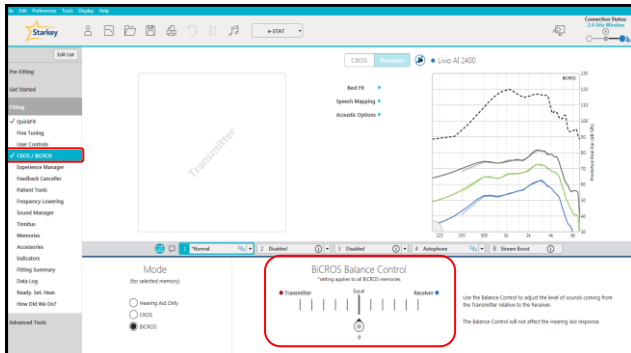
CROS

BiCROS



## Balance Control

Balance control adjusts the level of sounds coming from the Transmitter relative to the Receiver in BiCROS mode



## Telephone Use

Holding the telephone up to the Transmitter in any CROS or BiCROS memory will allow the transmitter to send the acoustic signal to the receiver.

Call streaming is available with compatible smartphones.



## Telephone Memories

Default Mode: Hearing Aid Only

Starkey  
Hear better. Live better.

## User Controls

- User controls are available for both the Receiver and Transmitter
- Double Tap is only available to the Livio Edge AI/Livio AI Receivers
- Ear to Ear functionality applies automatically

**REMINDER**  
Mute on the receiver mutes the entire system

## Balance Control as User Control

Starkey  
Hear better. Live better.

## CROS Verification

**Purpose:** To objectively measure the CROS system's ability to capture and transmit inputs from both sides according to best practices

- Measure the real-ear aided response (REAR) on the better ear side
- Measure the REAR on the poorer ear side
- The responses measured should agree for the same input level. The final adjustments should be validated by the user's perception of left-right balance

Comprehensive Quick Tip can be found on the Learning Hub

## Issue

Mr. Cros would like to hear better in his frequent meetings and business lunches.

Can a CROS patient use an accessory?

Compatible with all **Starkey 2.4 GHz accessories** and the **Thrive mobile app**

Accessories pair and stream to the **Receiver only**

**CROS and accessory/phone streaming will not be simultaneous**

### TV Mono Switch

**A** Power Supply Jack (microUSB)

**B** Toslink Jack

**C** Analog 3.5mm Jack

**D** Mono/Stereo Switch – must be switched to Mono

### Remote Control

**Right Ear Transmitter**

**Left Ear Receiver**

### CROS System and Thrive

**Smartphone**

**Apple iOS**  
Only the Receiver pairs to phone. Users will not see Transmitter listed in the phone's native controls/settings.

**Android**  
Both Receiver and Transmitter need to be paired to phone.

**Thrive App**

Home screen will appear as it does for a monaural fitting

"Find My Hearing Aid" will locate Receiver only

### CROS System & Thrive

**Balance Screen**  
Appears if the CROS system is programmed with **at least one BICROS memory**

Mute Transmitter

Balance Control

Swipe for other hearing aid controls


### Tina Ring

Fit with Livio Edge AI ITE R

- She has been suffering from tinnitus for many years
- Tinnitus worsens when she is stressed
- Looking for something that will provide her with relief



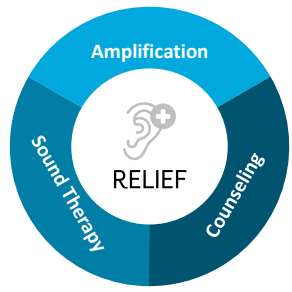
## Tinnitus in Australia



**One in Three people**  
suffer from tinnitus in Australia

**One in Six**  
experience constant tinnitus symptoms

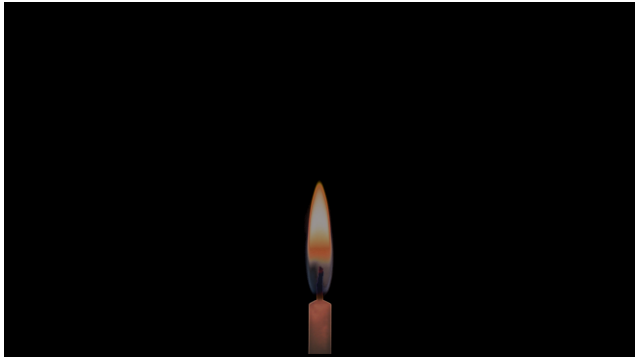
There is no cure,  
but it can be managed



**SOUND THERAPY**

“Involves the use of external noise in order to alter a patient’s perception of, or reaction to, tinnitus. Like other tinnitus treatments, sound therapies do not cure the condition, but they may significantly lower the perceived burden and intensity of tinnitus.”

— American Tinnitus Association —



## Multiflex Tinnitus Pro

**Personalized tinnitus stimulus improvements**

A new shaping algorithm and custom fit tool helps provide more personalized maskers for each patient’s unique needs




## Multiflex Tinnitus Pro

**Next generation feature for sound therapy tinnitus management**

Three stimulus options to effectively mask the user’s tinnitus:

- White Noise
- NEW** Audiogram-shaped
- NEW** Custom

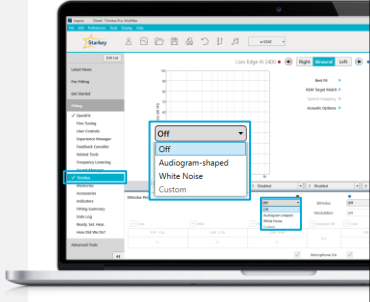
livioEdge<sup>AI</sup>  
2400



**AVAILABLE ON ALL STYLES**

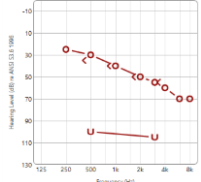

## Multiflex Tinnitus Pro

- Accessed on the Tinnitus screen in Inspire
- Use the dropdown menu to select the stimulus type
- All options offer a 10,000 Hz bandwidth with 16 bands of adjustability



### White Noise

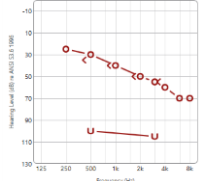
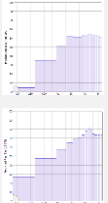
Signal level based on PTA and comprised of equal energy distribution across frequencies

### White Noise

Signal level based on PTA and comprised of equal energy distribution across frequencies

**NEW Audiogram-Shaped**  
Automatic shaping of the Multiflex Tinnitus stimulus based on the hearing loss

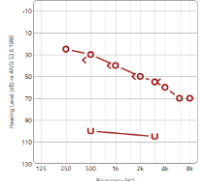
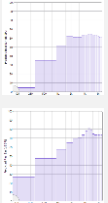



### White Noise

Signal level based on PTA and comprised of equal energy distribution across frequencies

**NEW Audiogram-Shaped**  
Automatic shaping of the Multiflex Tinnitus stimulus based on the hearing loss

**NEW Custom**  
Custom shaping of the Multiflex Tinnitus stimulus

## Custom

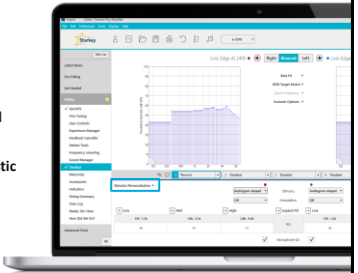
- Personalized shaping of the Multiflex Tinnitus stimulus
- Multiflex Tinnitus Pro Tool is a research-based approach to improving the efficiency of the masking signal
- Minimum Detection Levels (MDLs) and Minimum Masking Levels (MMLs) provide personalized shaping of the tinnitus stimulus

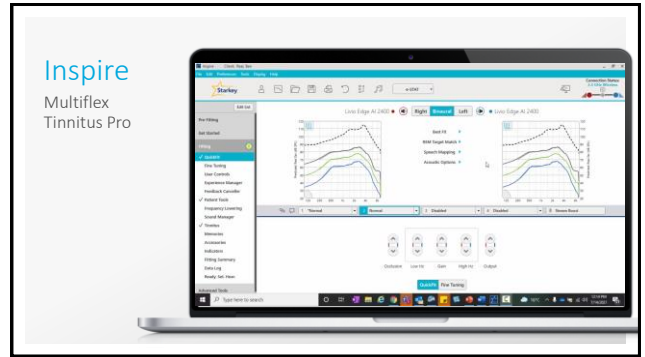


## Multiflex Tinnitus Pro Tool

To create a Custom tinnitus stimulus, go to the Tinnitus screen in Inspire and click on "Stimulus Personalization"

Make any necessary changes to acoustic options before running the tool (they cannot be changed during testing)





### Stimulus Activation

Stimulus will turn off when moving between frequency groups during the MDL and MML tests  
Ensure the stimulus button is blue when testing

Stimulus

**Stimulus OFF**

Pause

**Stimulus ON**

### Hearing Aid Microphones

Hearing aid microphones will automatically mute whenever the Multiflex Tinnitus is ON (stimulus button is blue) during MDL and MML testing

Pause the stimulus or click the speaker icon to unmute the hearing aids to talk to the user if necessary (e.g. to answer questions or provide instruction on the task)

Pause

Speaker Icon

### Canceling MDL or MML Testing

If testing is canceled during the MDL or MML tests, all measurements will be lost.

Stimulus Personalization

⚠ Are you sure you want to cancel? All measurements will be lost.

Yes No

### Modulation

Modulation remains available for all of the Multiflex Tinnitus stimulus options

Medium

Off  
Slow  
Medium  
Fast

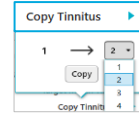
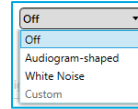
## Stimulus Modifications



- All stimuli may be modified (frequency shaping, intensity and modulation) on the Tinnitus screen in Inspire
- Target Match tinnitus will reset any of the stimulus options back to baseline

## Use in Other Memories

- Different tinnitus stimuli may be used in different memory environments
- Only 1 Custom stimulus may be created for each patient
- Use the 'Copy Tinnitus' button to copy any of the Multiflex Tinnitus stimulus options to another memory environment

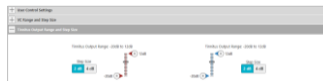


## Tinnitus Stimulus

### User Controls



### Output Range and Step Size

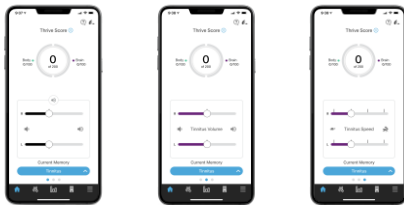


## Issue

- Mrs. Ring LOVES her new Edge hearing aids and the tinnitus stimulus is providing her with relief, but she still feels that when she is very stressed with work, she'd like some additional flexibility. She often has her phone out and wants to know if she can control the stimulus via her Thrive app.
- Also, are there any other sounds that she might be able to try, especially when she's sleeping?




## Thrive App



## Relax App

Relief sounds and education for patients who have tinnitus






### Henry Harmony

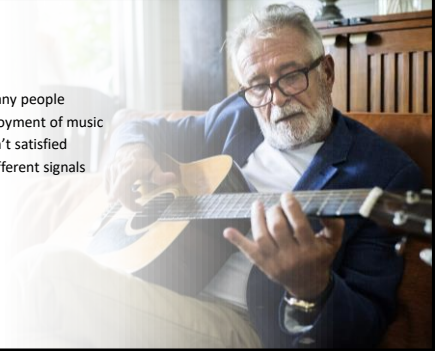
Fit with Livio AI 2000 RIC R

- Musician and cello teacher with active social life
- Attends concerts regularly
- Loves listening to music on his iPhone



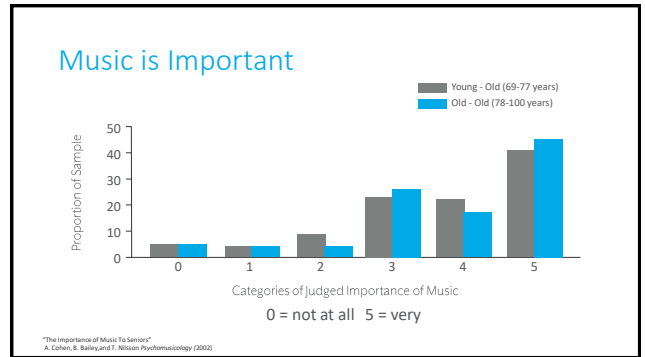
### We know...

Music is important to many people  
 Hearing loss impacts enjoyment of music  
 Hearing aid wearers aren't satisfied  
 Music and speech are different signals



“Music is the universal language of mankind.”

Henry Wadsworth Longfellow

### Impact of Hearing Loss

**50%**

Listened to music daily

**30%**

Reported hearing loss impacts the enjoyment of music

- Too Loud / Soft
- Melody Recognition
- Word Understanding
- Volume Changes

\*Enjoyment of Music by Elderly Hearing-impaired Listeners,\*  
M. B. Lewis, M. B. Madsen, L. B. Madsen and S. B. Toppo, JAMA Otolaryngology (2008)

Dedicated Music Memory


livioEdge<sup>AI</sup>

livio<sup>AI</sup>

2000 | 1600

livio

2400 | 2000 | 1600



### Dedicated Music Memory


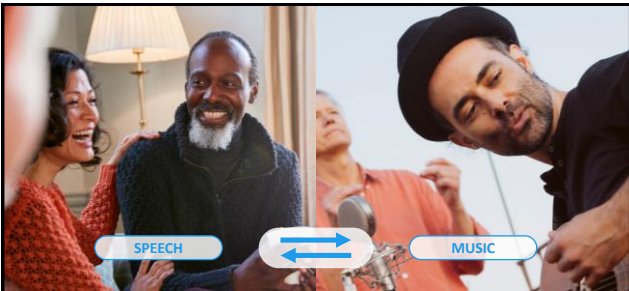
Twin Compressor Technology designed for Music

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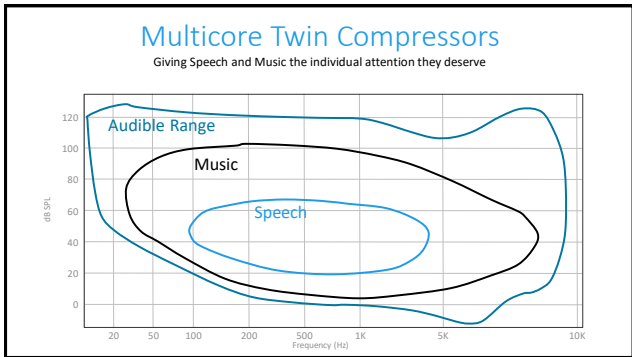
Unique music-centric fitting prescription

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Music based Inspire Controls

Twin Compressor Technology



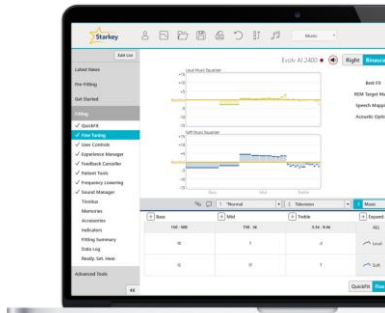
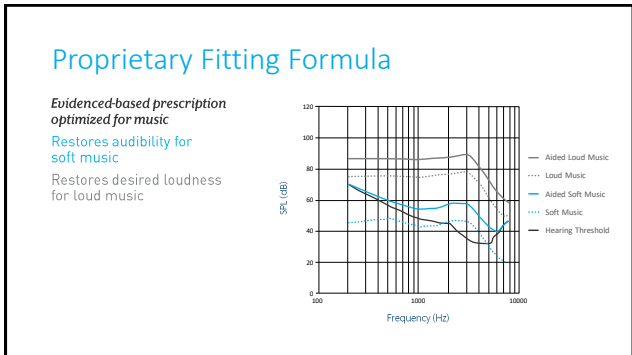
### Music Compression

10 kHz Bandwidth  
24 Channels

Loud Music Processed without Distortion

Compression Variables Optimized for Music

Linear Gain at High Inputs to Restore Loudness

### Inspire


Dedicated Music Memory



# 3 to 1

Music Memory preferred over \*Normal for acoustic music listening during clinical field trials

*Provides a more positive, personalized experience for listening to music*

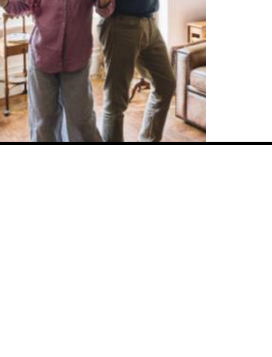


## Issue

Mr. Harmony likes to go out to dinner with his family but reports that he often finds that the background music in the restaurants is too loud.

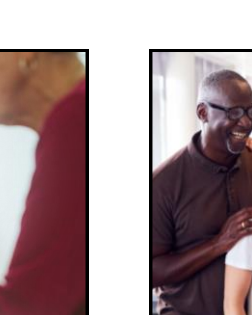

Is there something we can do in Inspire to help him?

Reduce the strength of the Music Adaptation feature in the Situational Sound Management section of the Sound Manager Screen



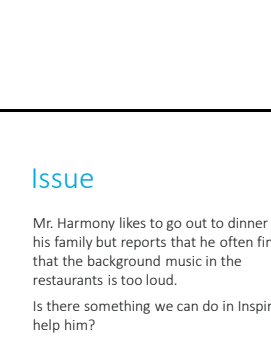
## Auto Music

Designed to optimize the sound quality of background music while prioritizing speech and maintaining comfort

## Issue

Mr. Harmony also wants to know if it is possible to optimize the sound quality of the music that he streams to his hearing aids from his iPhone?



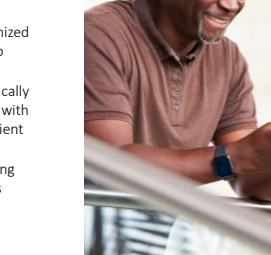
## Stream Boost

Improved Streaming Sound Quality with

Activates hearing aid settings optimized for high-quality streamed audio

Stream Boost settings are automatically applied whenever streaming starts with no interaction required by the patient

When streaming stops, the hearing aids return to previous settings



## Music Solutions

### Dedicated Music Memory

Memory built specifically for music listening

Fine tuned with input from professional musicians and conductors

Dedicated to bringing the enjoyment of music back to the patient

### Auto Music

Designed to optimize the sound quality of background music

While prioritizing speech

And maintaining comfort

### Stream Boost

Memory optimized for high-quality music when streaming from smart device



“The quickest way to ruin a customer experience in healthcare is to treat everyone the same. Patients don’t want to feel like just another number. They crave personalized service that helps them find the right solutions.”

*Hyken, S. Personalized Customer Experience Increases Revenue And Loyalty.*

livioEdge<sup>AI</sup> | livio<sup>AI</sup> | livio



### Resources

#### QuickTips



## We're Here to Support You

**Professional  
Audiology Support**

1800 024 985

**Contact your  
Product Specialist**



## Questions

**Judy Grobstein, AuD-FAAA, MACAud**  
Judy\_Grobstein@Starkey.com





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