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Phonak Bluetooth
Q & A
Bluetooth Q & A

• What types of wireless signals are used by Phonak products?
  – Phonak Hi-BAN, Bluetooth, Roger, FM

• Important points to note about Bluetooth

• Bluetooth Troubleshooting

• Q & A

• Quiz
Phonak uses the following types of wireless signals:

- **Phonak’s proprietary ‘HiBAN’ (Hearing Instrument Body Area Network)**
  - This is used between 2 hearing aids, as well as between the hearing aids and the accessories (eg. ComPilot II, DECT II, iCube/iCube II)

- **Bluetooth**
  - The Phonak streamers (ie. iCom, ComPilot original, ComPilot II, ComPilot Air II, EasyCall II) can accept a Bluetooth signal and translate it into the Phonak HiBAN signal for the hearing aids to understand

- **Roger**
  - A digital wireless radio signal using the 2.4GHz frequency band, this is a replacement for older FM technology

- **FM**
  - An analog wireless radio signal using the 216MHz designated radio channel
Phonak’s Hearing Instrument Body Area Network (HiBAN)

10.6 MHz digital inductive link

+ Binaural real-audio link
+ Simpler protocol for data transfer
+ Bidirectional
+ Enables custom devices with wireless
+ Stable, resistant to interference (far below 2.4GHz ISM band)
- Shorter range
- Requires ‘hub’ for communication over longer distances
What is Bluetooth™?

- A proprietary open wireless technology standard for exchanging data (e.g. voice, music, video, etc.) over short distances between two paired devices.

- The technology uses short wavelength radio waves.

- Operates in the 2.4 – 2.483 GHz range.

- This is within the unlicensed Industrial, Scientific and Medical (ISM) 2.4 GHz short-range radio frequency band.

- Uses adaptive frequency hopping to avoid interference.
  - usually performs 1600 hops per second.
The difference between Bluetooth and other radio wave based transmissions

- So, if Bluetooth, radio, TV, FM, Roger systems, etc. all use radio waves, how are they different?

<table>
<thead>
<tr>
<th>Bluetooth</th>
<th>Radio, TV, WiFi, FM, Roger, etc.</th>
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<tr>
<td>▪ short distances</td>
<td>▪ longer distances</td>
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<tr>
<td>▪ one to one communication between paired devices</td>
<td>▪ one device can broadcast to many devices</td>
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What is Roger?

• Roger is a digital wireless radio system allowing for long range, low delay, and full audio broadcast to miniature low power receivers.
• It operates in the 2.4GHz band, utilizing adaptive frequency hopping to avoid electromagnetic interference, and has an audio bandwidth around 7,300Hz.
• The frequency hopping occurs 800 times per second.
• There are no channels to manage…It is like each and every Roger microphone has a unique address
Overview of the Phonak Wireless Communication Portfolio

- Phone: EasyCall
- DECT II: ComPilot II, ComPilot Air II
- TV and music: TeleLink II
- Conversation: Phonak Audéo V, Roger Clip-On Mic, RemoteMic, Roger Pen
- Control: RemoteControl App, PilotOne II
Why is Bluetooth important in my practice?

- This technology is no longer just for clients who fit this demographic...
Now, this technology is applicable to ALL demographics!
Let's take a look at what Phonak devices use Bluetooth

- Phonak Bluetooth Streamers
  - ComPilot/ComPilot II
  - ComPilot Air II
  - Easy Call

- Phonak Bluetooth Accessories
  - TVLink S/TVLink II
  - RemoteMic/RemoteMic v.2
  - RemoteControl App
So what exactly is happening to get the sound to the hearing aids?
Phonak ComPilot II

- The multi-purpose streamer
- Integrated instant demo using the “Hear The World” song
- **24 hours** of streaming time
- Supports two phones parallel, even if TVLink or RemoteMic is active
- Phonak RemoteControl App compatible
- “Directly call a preferred number” feature
Phonak ComPilot Air II

- A clip-on Bluetooth streamer
- Neckloop-free design
- Integrated instant demo using the “Hear The World” song
- Supports two phones in parallel, even if TVLink II or RemoteMic is active
- Phonak RemoteControl App compatible
It can be clipped on quickly when needed

- Clipping onto clothing is **simple and quick**
  - Distance to hearing aids: max. 40 cm

- Fast connection to the hearing aids

- Ensures no phone call is missed
ComPilot II and ComPilot Air II comparison

- 24 hours streaming time
- Directional microphones
- 3.5 mm and FM/Roger receivers inputs
- Home button

→ TV/movie & music oriented

OR

- No neck loop
- Around 4 hours streaming time
- Focus only on Bluetooth

→ Phone & TV/news oriented
Phonak EasyCall/EasyCall II

- The universal cell phone streamer
- Connects to ANY brand of phone
  - including non-smartphones, as long as the phone is Bluetooth enabled
- 2 Versions:
  - EasyCall II for Venture
  - EasyCall for Spice/Quest
Phonak TVLink II

• Supports digital audio input formats
  – Optical (“Toslink”)
  – Coaxial (“SPDIF”)
  – HDMI is NOT supported
• Almost every TV has either/or
• Input signal automatically selected
  1. Optical, 2. Coaxial, 3. Analog
• Fully backward compatible to current ComPilot and iCom
Phonak TVLink II description

- New housing design
- New exchangeable charging slot
- Dedicated pairing button
- Indicator lights for selected input
- On/Off button & Main indicator light
- Volume control
- Mini USB power input
- Audio inputs:
  - Digital optical
  - Digital coaxial
  - Analog
Phonak RemoteMic (v2.0)

- New default volume level 8 (previously 11)
- Ideal for a distant speaker over large distance up to 20 m (60 ft)
- Fully backward compatible to current ComPilot and iCom
Phonak RemoteControl App
How does it work?

- No direct fitting required
- Automatically gets information from the streamer

Pair of Phonak Venture hearing aids +

Phonak ComPilot II

or

Phonak ComPilot Air II
Its all about the features

- Bluetooth pairing
- Configuration of streamer
- Individual L/R volume control
- Speech in 360°
- Direct selection of available audio source
Grouping & Pairing & Connecting… Oh My!

- There are three terms that are frequently interchanged, however, need to be clearly defined
- **Grouping** occurs in the Phonak software. It is when an ComPilot is attached to hearing instruments to create a hearing system.
- **Pairing** is when a trusted relationship is established between two Bluetooth devices. The devices place each other on their “buddy list”
- **Connecting** is when two previously paired devices recognize each other and start talking.
Bluetooth Profiles: not all Bluetooth signals are created equal!

- Think of profiles as capabilities or features
- Both devices have to support the same profile for the Bluetooth transmission to work
- There are many different profiles available
Bluetooth Profiles

• So… depending on the data being transmitted, different profiles are necessary

• With regards to the iCom/ComPilot and other audio transmissions, the profiles important are to you include:
  – Headset Profile (HSP)
  – Hands-Free Profile (HFP)
  – Advanced Audio Distribution Profile (A2DP)
Bluetooth Profiles

Headset Profile (HSP)
- This is the most commonly used profile and allows cell phones to communicate with wireless headsets
- It only allows to ability to ring, adjust the volume, answer a call and hang up

Hands-Free Profile (HFP)
- This is commonly used to allow more hands free features
- The extra features that HFP allows are last number redial, call waiting and voice dialing

Advanced Audio Distribution Profile (A2DP)
- This profile is used to define how high quality mono and stereo audio information is streamed from one device to another (one way transmission)
- Examples include:
  - Music from a cell phone or music player
  - Audio from a television, stereo, or computer
Wireless Troubleshooting

- The streamer (ie. ComPilot, ComPilot II, ComPilot Air II)
- Bluetooth cell phone calls
- The TVLink
- The RemoteMic
Troubleshooting the streamer

• Conduct an audio check with the streamer to ensure proper HA and streamer function

• For ComPilot:
  – Press and hold the Connect (<>)) and the Main buttons together for ~2 seconds until audio light is purple
  – Should then hear a melody in the HAs confirming good transmission from ComPilot to the HAs

• For ComPilot II and ComPilot Air II:
  – Turn streamer off
  – Press and hold the Main button as you turn it back on
  – When audio light goes purple let go of the Main button
  – Should hear the “Hear the World” song in the HAs confirming good transmission from streamer to the HAs

• This will immediately rule out the HAs or the streamer as the source of the issue
If the audio check was unsuccessful…

• Ensure HA is not a “petite”, “mini”, or “NW”
• Ensure the neckloop is fully plugged in to the body of the ComPilot/ComPilot II and is being worn around the neck
• Ensure the ComPilot Air II is within 40cm of the hearing aids (at midline)
• Regroup the hearing aids and streamer

• If the audio check was successful *only in one ear*:
  – The wireless antenna in the other aid may be defective
  – The wires may be broken on that side of the neckloop
    • Change the neckloop on the ComPilot/ComPilot II and conduct the test again
  • The ComPilot Air II may be too far from that HA or there may be head shadow
    • Ensure it is being worn at midline, equidistant from each HA
Troubleshooting Bluetooth cell phone calls
The cell phone cannot find the streamer when searching for Bluetooth devices

• Ensure both phone and streamer are actually in Bluetooth pairing mode
• The streamer may initially appear as “Headset” on some phones (until the pin code is entered, then it will appear as “Phonak ____”)
• If you are in an area with many Bluetooth signals (eg. NOAHLink, iCube, your own cell phone, etc.), try moving to a room with less interference
• Turn off any other accessories the client has (eg. TVLink or RemoteMic)
The cell phone and streamer paired successfully, so why can’t I hear the phone ring in the hearing aids?

- Is the streamer charged and being worn correctly?
- Check that the phone says “Connected” to the streamer
  - Remember “pairing” and “connecting” are different
- Ensure that the streamer is the primary Bluetooth device for the phone (ie. ‘priority device’ or ‘primary’)
- Are the acoustic indicators turned off in the hearing aids?
I can hear the phone ring in the hearing aids, but when I answer the call, I can’t hear the caller’s voice in the hearing aids

- Make sure the client is wearing the streamer correctly
- Ensure the cell phone is not being worn in the back pocket, this can interfere with the Bluetooth transmission (“body shielding”)
- When a call comes in, it has to be answered using the streamer’s main button
- If the person answers the call on the cell phone itself, the phone will “disconnect” from the streamer and expect to be used as ‘normal’ (ie. As a handset)
- If this is a ComPilot II and an iPhone, complete the firmware upgrade available in Target 4.1 (from Target’s home screen go to “Tools” > “Firmware updates” > “Accessories”)
- When all else fails:
  - Delete the pairing from the phone and complete the pairing process again
The phone call is successful, but the person on the other end of the phone says they are having trouble hearing me

- Ensure the streamer is being worn correctly
  - Cannot be worn on the person’s back
  - Cannot be worn under clothing during a phone call
- Reduce the amount of background noise
- Try not to move around excessively during a call
  - The mics may be rubbing against clothing or other objects
  - The wearer may be turning their head away from the streamer’s mics
- If the wearer needs to be moving around or in background noise during calls, we suggest getting the MC1 external microphone to clip to their lapels (for use with ComPilot or ComPilot II)
Other Considerations

• Another issue is that the streamer may already be receiving from another device using the same Bluetooth profile (HFP/HSP)
• The streamer may consider another cell phone the ‘primary’ phone (first one to connect to streamer)
• The streamer cannot accept a call on the 2nd cell phone while on a call with the primary cell phone

And don’t forget…

• An intermittent Bluetooth signal may actually be a bad cell phone signal! Have the wearer check the number of reception bars on their phone if this happens
• The Phonak streamer is only half the equation – it may be the cell phone itself that is the issue (eg. Bluetooth antenna malfunction inside, known bug on their end, etc.)
  – Therefore, it is always worth investigating the cell phone’s function with the client’s cell phone provider
Unique cases/questions on cell phones you may encounter

- Flip phones
  - in order to send a call to the streamer, need to change “Answer call” option in phone settings to “any button/key”

- Smartwatches
  - These are an extension of the phone itself, the streamer still needs to be paired with the phone, RC App functions need to be accessed through the phone

- Easy Call I or ComPilot (original) and AB Naida CI
  - This is compatible and will stream binaurally with a Spice or Quest HA on the other ear

- Skype or similar applications
  - Uses the A2DP profile, therefore streamer mics not active and need to use additional computer mic

- iPhones require 2 pairings to use the RC App
  - one within the phone’s Bluetooth menu and one within the RC App
Troubleshooting Bluetooth TVLink connections
A point to remember about the TVLink and streamer

- Bluetooth is a one-to-one connection, it does not support broadcast streaming
- Therefore, two receiving devices (ie. two streamers) cannot be connected to one transmitting device (ie. TVLink) at the same time.
  - For example, partners each with their own streamer, would each need their own transmitter (ie. TVLink)
- In this case you could recommend one person use the TVLink and the other use a RemoteMic placed in front of the TV speaker/sound system
Completing an audio check between the TVLink and a streamer

- This applies to the TVLink S and the TVLink II
- Turn off the TVLink
- Press the TVLink power button and the volume minus (-) button at the same time until the status light starts to blink in different colors
- You should hear a test melody through the hearing aids
- This will immediately rule out any dysfunction with the link between:
  1) TVLink -> streamer
  2) Streamer -> hearing aids
- If the audio check is successful, then the connection between the TVLink and the TV needs troubleshooting
If the audio check was unsuccessful, re-pair the devices

• Putting the TVLink into pairing mode:
  – TVLink S – press and hold the power button it starts flashing blue
  – TVLink II – press the pairing button [ P ] on the back of the unit until power button starts flashing blue

• Putting the streamer into pairing mode:
  – ComPilot/ComPilot II – press and hold the volume up (+) and the Connect (<>) button down together until the audio light starts flashing blue
  – ComPilot Air II – from the off position, press and hold the volume up (+) button as you turn it on, release the (+) button when the audio light starts flashing blue

• When the pairing is successful, the TVLink’s flashing light will turn solid blue
The pairing was successful, but I can’t hear the TV through the hearing aids

- Ensure the streamer is being worn correctly
- Check that the client has not pressed the Main button on the streamer, thus pausing the signal
  - If it is paused, the streamer audio light will be flashing blue
- Ensure the TVLink is connected to the TV properly
  - The cables must be in the “Audio Out” ports, not the “Audio In” ports
- The streamer may currently be receiving a Bluetooth signal from another A2DP device (eg. iPod, music streaming)
  - Turn other devices off
The signal is intermittent

- Check that the cables are securely connected to the TV ports
- If the wearer uses the streamer with their Bluetooth cell phone, remember the cell phone takes priority:
  - If receiving a call, voicemail, text, or email on the phone this will be transmitted to the hearing aids and interrupt the TV stream
  - Have the client turn off the acoustic indicators on the phone for anything they do not wish to be alerted of
- If the client tells you the streaming stops after 5 mins consistently, check that the TV’s internal volume is set to a moderate level
ComPilot and RemoteMic
Troubleshooting RemoteMic

• Re-pair the devices
  – Turn off the RemoteMic
  – Hold the “+” button while turning RemoteMic on
  – Put streamer into pairing mode
  – Light on RemoteMic will go solid when pairing is successful

• Remember that it can take ~60 seconds of stimulus into the RemoteMic for the streamer to recognize it then switch to the appropriate streaming mode

• Ensure RemoteMic is worn within 6” of the mouth (or placed in front of audio speaker)
Q & A
Thank You!