Phonak
Roger™ verification guide

Phonak Offset Protocol (POP) for Roger (02) receivers

Contents

Description and background

This document describes how a Roger system can be verified in a hearing aid test box. The protocol is valid for all Roger microphones.

Gain adjustments can be done using the Roger Touchscreen Mic or any Roger Select.

The protocol is based on the fact that the Roger advantage setting of the Roger receiver results in a transparent behavior below the Roger transmitter kneepoint, i.e. below 75 dB SPL, ensuring users receive appropriate benefit from the Roger system.

The verification steps below will be described using a Roger Touchscreen Mic, Roger Select and Roger Pen. Images shown are for the Verifit testbox. There may be slight variations depending on which Roger microphone is being used for verification.

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Preparing the Roger microphone and hearing aid for verification

A Roger system can only be verified when the microphone is in **Verification mode**. Some features, like automatic microphone modes of the transmitters, are deactivated in **Verification mode**.

Activation of **Verification mode** differs between Roger microphones.

Activating the Verification mode in the Roger Touchscreen Mic
Select **[Settings]**, **[Verification mode]**, and **[Activate]**.

When **Verification mode** has been activated an orange banner will be displayed below the status bar (see image on right).

Once the Roger POP is complete, switch the microphone off and on again to deactivate **Verification mode** and return to standard operation. Reconnect to the receivers once out of verification mode.

Preparing the hearing aid and receiver – Hearing aid with DAI

Ensure the sticker covering the DAI contacts has been removed. The contacts should be clean. Attach a design-integrated Roger receiver or the appropriate audio shoe and Roger X receiver.

By default all Roger receivers are programmed with the appropriate Roger advantage setting.

If the Roger receiver has been previously programmed via DAI with a different EasyGain value, reset the Roger receiver to the default setting with the Roger Touchscreen Mic. Tap **[Settings]**, **[Roger receiver settings]**, and **[Default setting].**

Preparing the hearing aid and receiver – Hearing aid with RogerDirect™

Install Roger via the Roger X and Roger Installer.

By default all Roger receivers are programmed with the appropriate Roger advantage setting.

When the EasyGain settings have been adjusted with a hearing aid with RogerDirect, the EasyGain settings are stored within the hearing aid and are still valid even if a new receiver is installed.

Switch on the hearing aid and wait a full 30 seconds to allow the system to boot to full operation.

Connect the microphone and receivers

With the Roger receiver attached/installed, the hearing aid powered on and the Roger Touchscreen Mic in **Verification mode**, the Roger receiver must then be connected to the microphone; even if previously connected.

For hearing aids with DAI, ensure the **[Roger/DAI + mic]** program is being used for all measurements.
For hearing aids with RogerDirect, turning the connected Roger microphone on will automatically put the hearing aid into the **[RogerDirect + mic]** program.

Confirm the hearing aid is in the correct Roger program via a listening check or via the LED on the hearing aids.

Measuring the responses – Roger Touchscreen Mic

1. Attach the hearing aid to the 2 cc coupler and place into the test box.

2. Run a frequency response curve with a 65dB SPL input using a broadband signal (speech- shaped, i.e. ISTS); Roger microphone is **muted.**

3. Record the response for 750 Hz, 1 kHz, and 2 kHz. Use the Roger advantage worksheet on page 5 and enter the data into the 2nd row.

4. Move the 2 cc coupler together with the hearing aid out of the test box. If possible isolate/cover the hearing aid microphones.

5. Confirm the Roger microphone is still powered on and then unmute it. Place it in the test box. As the transmitter is in Verification mode, the microphone is omni directional.

6. Run a second frequency response curve with the same broadband signal at 65 dB SPL.

7. Record the response for 750 Hz, 1 kHz, and 2 kHz. Use the Roger advantage worksheet on Page 5 and enter the data into the 1st row.
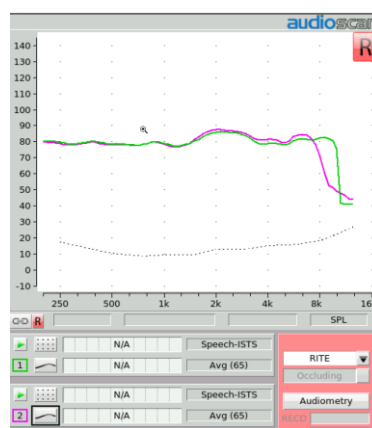
Test 1: Hearing aid in test box
Test 2: Roger microphone in test box

Important notes for verifying with Roger Touchscreen Mic and boom-mic

When positioning the boom-mic in the test box the following must be considered:

- The foam cover must be removed.

- Place the microphone with the open slots towards the speaker which is delivering the speech signal (remember, it is directional.

- The reference mic needs to be close to the boom-mic.

- **Use a 75 dB SPL input for the Roger curve.** This is to compensate for the sensitivity of the boom-mic and its proximity to the mouth.

NOTE: It is possible that the boom-mic curve will not be exactly the same shape in the low and high frequencies as the hearing aid curve. This is due to the proximity effect not being as strong when measuring a speech signal using a "flatter / larger" loudspeaker compared to speech coming from a human's mouth. The average offset may also be 3dB. Make sure you do a listening check before adjusting the offset.

Measuring the responses – Roger Pen and Roger Select

When completing the measurements with the Roger Pen or Roger Select, the order is slightly different. This is because these microphones cannot be muted while they are in verification mode.

1. Attach the hearing aid to the 2 cc coupler and place into the test box.

2. Run a frequency response curve with a 65 dB SPL input using a broadband signal (speech- shaped, i.e. ISTS); Roger microphone is **OFF.**

3. Record the response for 750 Hz, 1 kHz, and 2 kHz. Use the Roger advantage worksheet on page 5 and enter the data into the 2nd row.

4. Turn the Roger microphone on and put it into verification mode – see below for additional instructions.

5. Move the 2 cc coupler together with the hearing aid out of the test box. If possible isolate/cover the hearing aid microphones.

6. Place the Roger microphone in the test box.

7. Run a second frequency response curve with the same broadband signal at 65 dB SPL.

8. Record the response for 750 Hz, 1 kHz, and 2 kHz. Use the Roger advantage worksheet on Page 5 and enter the data into the 1st row.

Important notes for verifying with a Roger Select
To activate verification mode, switch the Roger Select on and **hold it close to the Roger receiver** (within 10 cm/ 4 inches).
Then place and hold fingers near the on/off button and near the micro-USB socket until the on/off indicator light starts to blink orange. This could take up to 5 seconds.

- Position the Roger Select in the test box as indicated.

- You will notice that only one area is lit up on the Select. This does not mean that the beam is facing a particular direction, the Roger Select is in omnidirectional mode.

- The Roger Select can be used to check for transparency and adjust the EasyGain settings.

Important notes for verifying with a Roger Pen
Roger Pen can be put into verification mode using the following steps:

- Turn the Roger Pen off and then on.

- Press the 'Connect' button 5 times in a row.

    - This needs to be done quickly, ie 5 quick presses.

    - Verification mode can only be activated during the 60 seconds after Roger Pen is switched on.

- The Roger Pen can be used to check for transparency, however it cannot be used to adjust EasyGain settings.
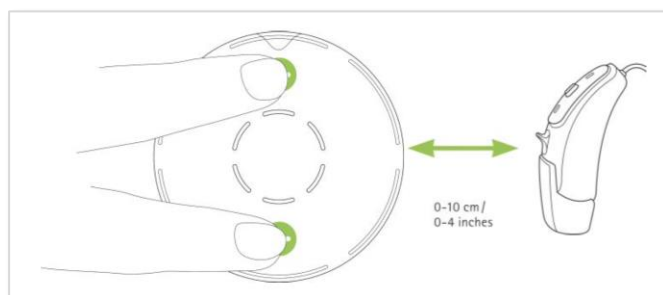
Checking transparency

Compare the two frequency response curves. They should be very close, within ± 2 dB. The offset is the average difference between the two curves at 750 Hz, 1kHz, and 2kHz.

To calculate the offset using the Roger advantage worksheet at the bottom of this page, subtract the 2nd row from the 1st row and enter the difference in the 3rd row then divide by 3. This total is the average offset. Verification is complete when the average offset is within ± 2 dB.

Roger advantage worksheet

All measurements must be done in the appropriate program for Roger (including the hearing-aid-only response).

Real Ear Measures	@750 Hz	@ 1 kHz	@ 2 kHz		
Roger curves (65dB)					
Hearing aid curve (65dB)	-	-	-		
Equals Roger Offset (dB)	=	=	=	Add the offset values in this row and divide by 3 →	average Offset =

Average offset values

- If your offset value is between $\pm$ 2 dB, no further action is required.

Your Roger response is transparent at equal inputs, so when you have a loud (Roger input) simultaneously with a softer input (conversational input through the hearing instrument mic), true Roger advantage will be achieved.

Adjusting receiver gain

If the offset is more than 2 dB difference in either direction, a correction in the Roger receiver gain / EasyGain level is required and the Roger curve should be rechecked once corrected.

- If your Roger offset is more than +2 dB you will need to reduce the Roger gain level in the receiver by the offset value. This will make it transparent with the hearing aid at equal inputs.
- If your Roger offset is less than -2 dB, you will need to increase the Roger gain level in the receiver by the offset value to make it transparent at equal inputs.

Adjusting the receiver gain can be done with the Roger Touchscreen Mic and the Roger Select
Each press on the + or – changes the EasyGain by 2dB.

For Roger Touchscreen mic, place the powered receiver (attached or installed) within 10cm/4inches of the Roger Touchscreen Mic. Tap [Settings] then [Roger receiver settings] on the Roger Touchscreen Menu. The transmitter will read the Roger receiver and then open the receiver settings menu. Tap [EasyGain level] and adjust as required.

For Roger Select, tap on the plus or minus as indicated in the image. Note: these are not buttons on the Select. They are 'touch sensitive' areas which change the EasyGain when touched with the finger.