

Roger verification guide

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Phonak Offset Protocol for Roger (02) receivers

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Description and background

This document describes how a Roger system can be verified with a hearing aid test box. The protocol is valid for the Roger Touchscreen Mic, Roger Pen, Roger EasyPen and Roger Clip-On Mic; however, should gain adjustments be recommended, these can only be made with Roger (02) receivers using the Roger Touchscreen Mic.

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. All measurements are done in **[Roger/DAI+Mic]** mode, but only one signal path is being tested at a time.

(Roger+)M65 means a measurement with 65 dB SPL input to the hearing aid microphone and the Roger microphone muted.

Roger(+M)65 means a measurement with 65 dB SPL input to the Roger microphone and the hearing aid microphone outside the test box.

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**.

After completing the Roger POP, all Roger microphones should be turned off and back on again in order to deactivate **Verification mode** and return them to standard operation.

Activating of Verification mode

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

Roger Touchscreen Mic: activated in the touchscreen menu by tapping **[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).

Roger Pen and Roger EasyPen: activated by turning it off, then on again. Press the **[Connect]** button 5 times in a row within 60 seconds after switching on.

The indicator light will flash orange to indicate **Verification mode** is active.

Roger Clip-On Mic: activated by turning it off, then on again and pressing the **[Connect]** button 5 times in a row within 60 seconds after switching on.

The indicator light will flash orange to indicate **Verification mode** is active.



Once the Roger POP is complete, switching the respective microphone off and on again will deactivate **Verification mode** and return the microphone to standard operation.

Preparing the hearing aid and receiver

Ensure the DAI contacts on the hearing aid are clean and attach a design-integrated Roger receiver or the 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 with a different value, reset the Roger receiver to the default setting with the Roger Touchscreen Mic. Tap **[Settings]**, **[Roger receiver settings]**, and **[Default setting]**.

Switch on the hearing aid and wait a full 60 seconds to allow the system to boot to full operation. Ensure the hearing aid is in the appropriate program for using Roger.

Phonak hearing aids must be in the **[Roger/DAI+Mic]** program for all measurements.



Connect the microphone and receivers

With the Roger receiver attached, the hearing aid powered on and the Roger microphone in **Verification mode**, the next step is to connect the Roger receiver to the microphone.

Even if previously connected, all receivers must be connected after the microphone is in **Verification mode**.

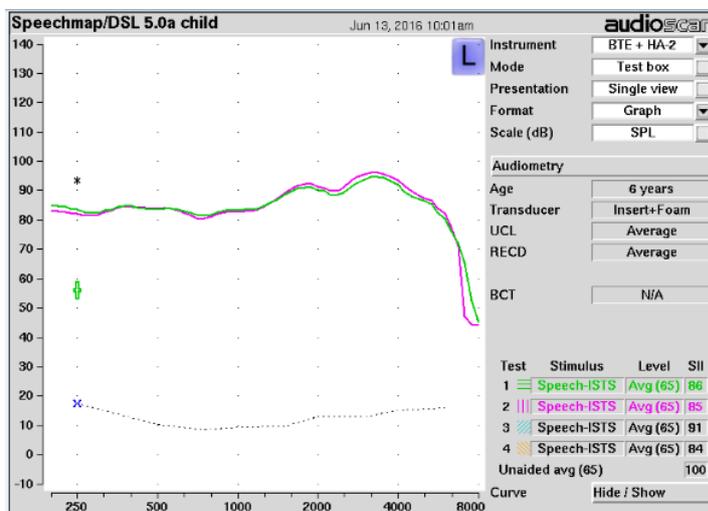


To connect, the receiver must be powered on and within 10cm/4inches of the transmitter. Tap [Connect] on the Roger Touchscreen Mic or press [Connect] on the Roger Pen, Roger EasyPen or Roger Clip-On Mic.

Then mute the Roger microphone. This can be done with the **[Mute]** button the Roger Touchscreen Mic or via the **[On/Off/Mute]** button on the Roger Pen, Roger EasyPen and Roger Clip-On Mic.

Measuring the responses

1. Attach the hearing aid to the 2cc coupler and place into the test box.
2. (Roger+)M65 - Run a frequency response curve with a 65dB SPL input using a broadband signal (speech-shaped, i.e. ISTS).
3. Record the response for 750 Hz, 1 kHz, and 2 kHz. Use the Roger advantage worksheet on page 4 and enter the data into the 2nd row.
4. Move the 2cc coupler together with the hearing aid out of the test box. If possible isolate the hearing aid microphone.
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. Roger(+M)65 – Run a second frequency response curve like before with the same broadband signal at 64 dB SPL.
7. Record the response for 750 Hz, 1 kHz, and 2 kHz. Use the Roger advantage worksheet on Page 4 and enter the data into the 1st row.



Test 1: (Roger+)M65 - hearing aid microphone in test box

Test 2: Roger(+M)65 - Roger microphone in test box

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 250 Hz, 1kHz, and 2kHz.

To calculate the offset using the Roger advantage worksheet at the bottom on 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. The Protocol is complete when the average offset is within ± 2 dB.

Adjusting receiver gain

If the offset is more than 2 dB difference in either direction, a correction in the Roger receiver gain is required and the Roger(+M)65 curve should be rechecked once corrected.

The Roger Touchscreen Mic is required to adjust the gain of Roger (02) receivers.

Place the powered receiver within 10dm/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.

Roger advantage worksheet

1. (Roger+)M65 means a measurement with 65 dB SPL input to the hearing aid microphone.
2. Roger(+M)65 means a measurement with 65 dB SPL input to the Roger microphone.

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

Real Ear Measures	@ 750 Hz	@ 1kHz	@ 2 kHz		
Roger(+M)65 curve (dB)					
Minus (Roger+)M65 curve (dB)	-	-	-		
Equals Roger Offset (dB)	=	=	=	Add the offset values in this row and divide by 3 →	average Offset =

AVERAGE OFFSET VALUES:

1. If your offset value is between ± 2 dB, you are done!

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!

2. 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 instrument at equal inputs.

3. 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