

Maximum power output available to the patient

A comparison of the Cochlear™ Baha® 7 Sound Processor and the Oticon Medical Ponto 5 SuperPower

The level of Maximum Power Output (MPO) plays an important role in a patient's ability to hear well, especially in noisy situations. This document discusses the MPO performance of the Cochlear™ Baha® 7 Sound Processor and the Oticon Medical Ponto 5 SuperPower Sound Processor when tested using conditions available to the patient and applicable in clinical practice.

Published MPO

The published Baha 7 Sound Processor data sheet¹ is based on the average MPO of a large sample of sound processors that have been tested using a configuration available for patient use (i.e. powered by manufacturer's recommended battery – 312). However, the MPO of the Ponto 5 SuperPower on the manufacturer's published data sheet² is only achievable using an external power supply with "Technical Settings" selected in the fitting software. This high level of MPO only appears within fitting software under these special circumstances – it is not accessible for patient fittings.³

Patient Accessible MPO: Baha 7 Sound Processor compared to Ponto 5 SuperPower Sound Processor

A comparison of the MPO of one new-in-box Baha 7 Sound Processor and one new-in-box Ponto 5 SuperPower Sound Processor in configurations available for patient use is expected to show both devices achieve a similar average MPO. This is based on the assumption that both devices are measured using the same test set-up: on a skull simulation (TU 1000), sound pressure level of 90 dB, set to full-on-gain, with all advanced signal processing features deactivated*, and powered by manufacture-recommended batteries (312 and 675P respectively). When measuring both devices in a configuration available for patient use, the Baha 7 Sound Processor is expected to an average MPO similar to that of the Ponto 5 SuperPower (based on comparable measurements^{3,4}).** (Fig 1, Fig 2).

The Baha 7 Sound Processor is expected to deliver an average MPO available to the patient that is similar to the Ponto 5 SuperPower^{3,4}

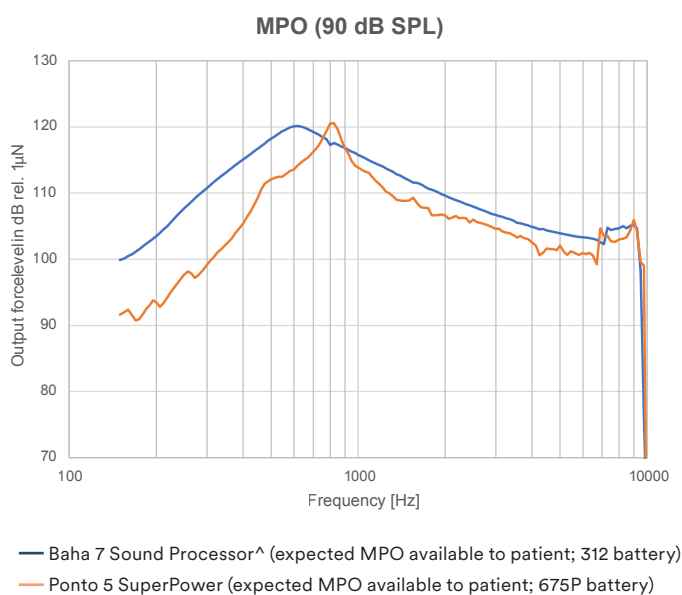


Figure 1. Expected MPO of a Baha 7 Sound Processor[^] and a Ponto 5 SuperPower in comparable configurations available to patients.^{3,4}

Frequency (Hz)	Ponto 5 SuperPower (output in dB rel. 1 µN)	Baha 7 Sound Processor [^] (output in dB rel. 1 µN)
500	112	118
1000	114	116
2000	107	110
4000	101	105
average [†]	108.5	112.3

Figure 2. Characteristic and comparable data on, MPO available in configurations available to patients.^{3,4}

* Setup using standard procedure found in IEC 60118-9:2019.

** When measuring individual devices, slight variations in output may occur due to variations between devices and test system.

[^] Baha 6 Max Sound Processor, using same technology as Baha 7 Sound Processor

MPO of Ponto 5 SuperPower Sound Processor on technical settings compared to user settings

In a first configuration, the Ponto 5 SuperPower was powered using 1.45 V battery pill (cannot be prescribed for patient use) connected to a DC power supply with “Technical Settings” (A0) selected in Genie Medical Software 2022. The resulting MPO curve was compared to the manufacturer’s published data sheet² (Fig 3). In a second configuration, the Ponto 5 SuperPower was powered by the recommended battery (675P) and set to full-on-gain with all advanced signal processing features deactivated*. The resulting MPO curve was also compared to the manufacturer’s published data sheet (Fig 3).

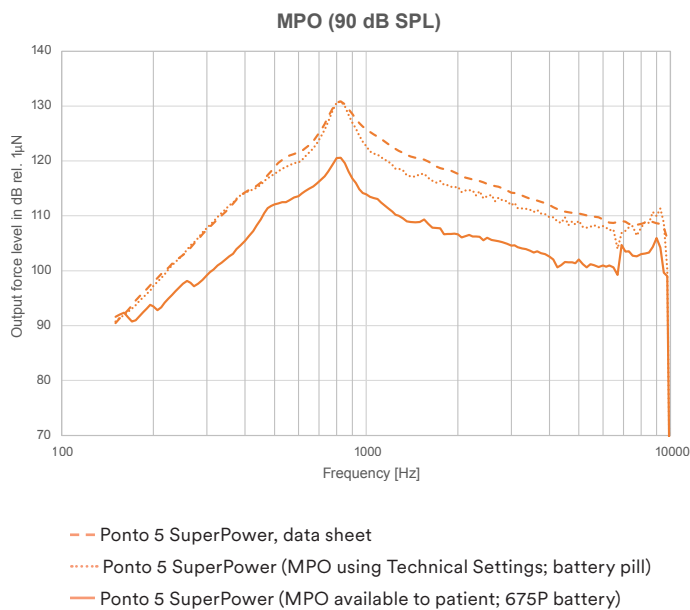


Figure 3. Published data sheet curve compared with the measured MPO of a Ponto 5 SuperPower in technical setting configuration and user setting configuration.³

* Setup using standard procedure found in IEC 60118-9:2019.

The measurements indicate that the MPO published in the Ponto 5 SuperPower data sheet can be replicated when a programming interface is used in combination with an external power supply. “Technical Settings” (A0) in Genie Medical Software 2022 needs to be selected. However, when set to full-on-gain with all advanced signal processing features deactivated* and the recommended battery for patient use is used, the average MPO available to the patient drops by approximately 10 dB, depending on the frequency.

The MPO published in the Ponto 5 SuperPower data sheet cannot be achieved in a patient fitting.

While Ponto 5 SuperPower is indicated for a fitting range of up to 65 dB HL, like-for-like testing shows that comparable MPO performance may be expected with a Baha 7 Sound Processor – as the MPO available to the patient is similar for both devices^{3,4}.

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4. Technical Report – Baha 7 Sound Processor Performance Characteristics. Cochlear Bone Anchored Solutions AB, Sweden, 2024; D2189191

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