

Docket No.: 2212665.00120US4

Filed on behalf of K/S HIMPP

By: Donald R. Steinberg, Reg. No. 37,241

Haixia Lin, Reg. No. 61,318

Christopher R. O'Brien, Reg. No. 63,208

Yung-Hoon Ha, Reg. No. 56,368

Wilmer Cutler Pickering Hale and Dorr LLP

60 State Street

Boston, Massachusetts 02109

Email: Don.Steinberg@wilmerhale.com

Haixia.Lin@wilmerhale.com

Christopher.O'Brien@wilmerhale.com

Yung-Hoon.Ha@wilmerhale.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

K/S HIMPP

Petitioner

v.

III Holdings 4 LLC

Patent Owner.

---

Case IPR2017-00496

Patent No. 8,761,421

---

**PETITIONER'S NOTICE OF APPEAL**

Director of the United States Patent and Trademark Office  
c/o Office of the General Counsel  
P.O. Box 1450  
Alexandria, VA 22314-5793

Pursuant to 35 U.S.C. §§ 141-44 and 319, and 37 C.F.R. § 90.2-90.3, notice is hereby given that Petitioner K/S HIMPP appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision entered June 28, 2018 (Paper 26) in IPR2017-00496 (Exhibit A) and all prior and interlocutory rulings related thereto or subsumed therein.

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Petitioner further indicates that the issues on appeal include, but are not limited to, whether the Patent Trial and Appeal Board erred in determining that Petitioner had not established by a preponderance of the evidence that claims 1-17 of U.S. Patent No. 8,761,421 are unpatentable under 35 U.S.C. § 103 over Topholm and Michael; and any finding or determination supporting or related to those issues, as well as all other issues decided adversely to Petitioner in any orders, decisions, rulings, and opinions.

Pursuant to 37 C.F.R. § 90.3, this Notice of Appeal is timely, having been duly filed within 63 days after the Final Written Decision.

A copy of this Notice of Appeal is being filed simultaneously with the Patent Trial and Appeal Board, the Clerk's Office for the United States Court of Appeals for the Federal Circuit, and the Patent Owner.

Respectfully submitted,

K/S HIMPP, Petitioner

/Donald R Steinberg/

Donald R. Steinberg  
Reg. No. 37,241  
Counsel for Petitioner

Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, Massachusetts 02109  
617-526-6453

**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §§ 90.2(a)(1) and 104.2(a), I hereby certify that, in addition to being filed electronically through the Patent Trial and Appeal Board's End to End (PTAB E2E), a true and correct original version of the foregoing PETITIONER'S NOTICE OF APPEAL is being filed by Express Mail (Express Mail Label EL 749915564 US) on this 28th day of August 2018, with the Director of the United States Patent and Trademark Office, at the following address:

Director of the United States Patent and Trademark Office  
c/o Office of the General Counsel  
P.O. Box 1450  
Alexandria, VA 22314-5793

Pursuant to 37 C.F.R. § 90.2(a)(2) and Federal Circuit Rule 15(a)(1), and Rule 52(a), (e), I hereby certify that a true and correct copy of the foregoing PETITIONER'S NOTICE OF APPEAL is being filed in the United States Court of Appeals for the Federal Circuit using the Court's CM/ECF filing system on this day, August 28, 2018, and the filing fee is being paid electronically using pay.gov.

I hereby certify that on August 28, 2018 I caused a true and correct copy of PETITIONER'S NOTICE OF APPEAL to be served via e-mail on the following attorneys of record:

Henry A. Petri, Jr., (Lead Counsel Reg. No. 33,063)  
[hpetri@polsinelli.com](mailto:hpetri@polsinelli.com)

James P. Murphy (Back-up Counsel Reg. No. 55,474)  
[jpmurphy@polsinelli.com](mailto:jpmurphy@polsinelli.com)

Margaux A. Savee (Back-up Counsel Reg. No. 62,940)  
[msavee@polsinelli.com](mailto:msavee@polsinelli.com)

Tim R. Seeley (Back-up Counsel Reg. No. 53,575)  
[tims@intven.com](mailto:tims@intven.com)

Russ Rigby (Back-up Counsel Reg. No. 50,267)  
[rrigby@intven.com](mailto:rrigby@intven.com)

Respectfully Submitted,

/Donald R Steinberg/  
Donald R. Steinberg  
Reg. No. 37,241

# **EXHIBIT A**

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

K/S HIMPP,  
Petitioner,

v.

III HOLDINGS 4, LLC,  
Patent Owner.

---

Case IPR2017-00496  
Patent 8,761,421 B2

---

Before JAMES T. MOORE, JASON J. CHUNG, and  
KIMBERLY McGRAW, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION  
*Inter Partes* Review  
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

## I. INTRODUCTION

### *A. Background*

K/S HIMPP<sup>1</sup> (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–17 of U.S. Patent No. 8,761,421 B2 (Ex. 1001, “the ’421 patent”) pursuant to 35 U.S.C. §§ 311–319. Paper 2 (“Pet.”). III Holdings 4, LLC (“Patent Owner”) filed a Preliminary Response to the Petition (“Prelim. Resp.”) Paper 8.

Pursuant to 35 U.S.C. § 314(a), we instituted *inter partes* review on the following ground, which ground represented the entirety of those requested by the Petitioner:

Ground	Claims	Prior Art
§ 103	1–17	Topholm <sup>2</sup> and Michael <sup>3</sup>

---

<sup>1</sup> In the Petition, Petitioner identifies K/S HIMPP (Kommandit/Selskabet Hearing Instrument Manufacturers Patent Partnership) and the following HIMPP members as real parties-in-interest: GN Resound A/S, IntriCon Corporation, Phonak (Sonova Holding AG), Sivantos GmbH (Sivantos Group), Starkey Laboratories, Inc., Widex A/S, and William Demant Holding A/S. Pet. 2. Petitioner later added affiliates of some HIMPP members and name changes. Paper 7, 2. The latest notice identifies K/S HIMPP and the following HIMPP members and affiliates as real parties-in-interest: GN Hearing A/S (formerly GN Resound A/S) and GN Store Nord A/S; IntriCon Corporation; Sivantos GmbH and Sivantos Inc.; Sonova Holding AG and Sonova AG (formerly Phonak AG); Starkey Laboratories, Inc. (aka Starkey Hearing Technologies); Widex A/S; and William Demant Holding A/S.

<sup>2</sup> U.S. Patent 4,947,432 (issued August 7, 1990) (Ex. 1004).

<sup>3</sup> U.S. Patent No. 8,379,871 B2 (issued February 19, 2013) (Ex. 1005).



Paper 9 (“Inst. Dec.”).<sup>4</sup>

After institution, Patent Owner filed a Patent Owner’s Response (Paper 13, “Resp.”). Petitioner filed a Reply to the Patent Owner’s Response (Paper 15, “Pet. Reply”).

An oral argument was held March 27, 2018. A transcript of the hearing is included in the record. Paper 25 (“Tr.”).

This Decision is a final written decision under 35 U.S.C. § 318(a) as to the patentability of the challenged claims. Based on the complete record, we determine Petitioner has not shown by a preponderance of the evidence that claims 1–17 of the ’421 patent are unpatentable.

#### *B. Related Proceedings*

Petitioner has filed numerous petitions requesting review of several patents of Patent Owner. While not necessarily related cases, we are aware of IPR2017-00367 (U.S. Patent 8,611,570); IPR2017-00414 (U.S. Patent 8,649,538); IPR2017-00466 (U.S. Patent 7,640,101); IPR2017-00563 (U.S. Patent 6,694,034); IPR2017-00564 (U.S. Patent 6,694,034); IPR2017-00781

---

<sup>4</sup> Petitioner also relies upon the declaration testimony of Dr. Robert E. Morley, Jr. (Ex. 1002). Both references appear to be prior art under 35 U.S.C. § 102(b). We find Dr. Morley, by virtue of his education and experience, qualified to testify to the subject matter of this proceeding. Ex. 1002 ¶¶ 2–14 and Exhibit A thereto. We are cognizant of Patent Owner’s suggestion that we give his testimony “little, if any, weight” because of the similarity of the testimony with Petitioner’s arguments and discrepancies between it and his deposition testimony. PO Resp. 34–36. We give Dr. Morley’s testimony appropriate contextual weight herein based upon the content of the testimony itself, and any contrary testimony in Exhibit 2006. We decline to assign generally no weight to his testimony, however.

IPR2017-00496  
Patent 8,761,421 B2

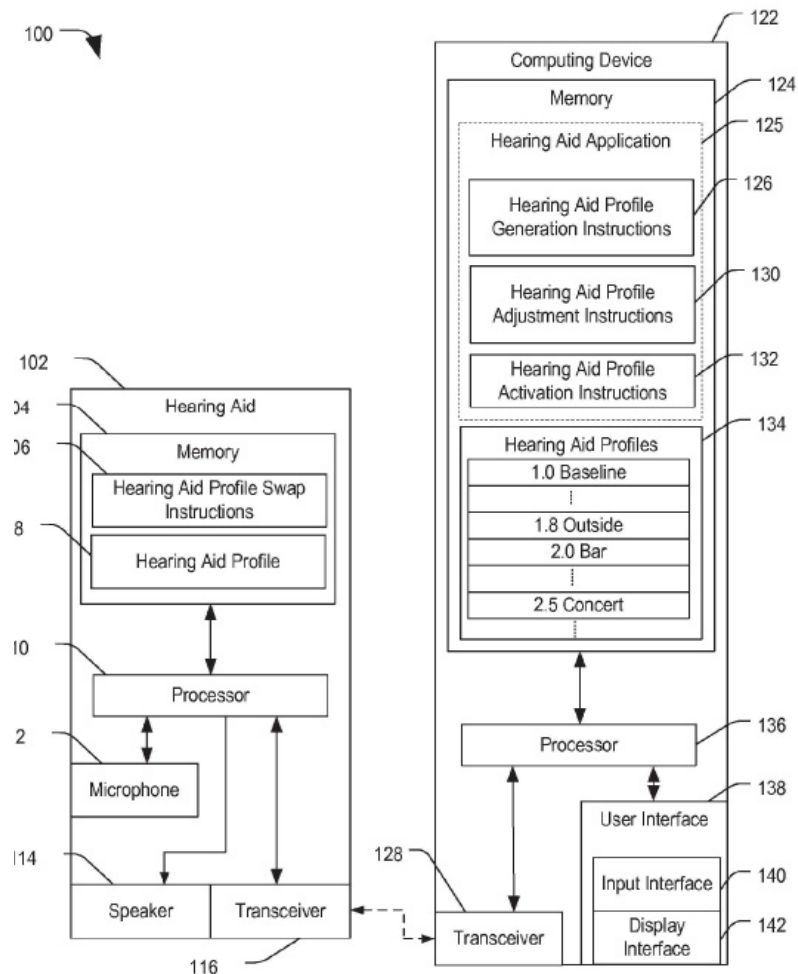
(U.S. Patent 8,654,999); IPR2017-00782 (U.S. Patent 8,654,999); and IPR2017-00783 (U.S. Patent 9,191,756).

*C. The '421 Patent*

The '421 patent is titled “Portable Electronic Device and Computer-Readable Medium for Remote Hearing Aid Profile Storage” and issued on June 24, 2014. Ex. 1001, (45), (54). The '421 patent was filed as Application 13/007,568 on January 14, 2011. *Id.* at (21), (22).

The '421 patent discloses a portable electronic device with a transceiver communicating with a hearing aid through a radio frequency communication channel and a memory storing a plurality of hearing aid profiles executable by a digital signal processor of the hearing aid to shape audio signals to compensate for a user's hearing deficiency. The portable electronic device further includes a circuit configured to receive a selection corresponding to a selected one of the plurality of hearing aid profiles and to provide the selected one to the hearing aid in response to receiving the selection. *Id.* at Abstract.

Figure 1 of the '421 patent is reproduced below.



**FIG. 1**

Figure 1 is a block diagram of an embodiment of the '421 patent. Ex. 1001, 1:46–49. Figure 1 illustrates the apparatus for storing hearing aid profiles of the instantly claimed invention.

The invention of the '421 patent relates to a hearing aid system that includes a computing device such as a cell phone, personal digital assistant or other computing system. The computing device is configured to communicate with a hearing aid through a wireless communication channel to allow a user to utilize the computing device to configure a desired hearing aid profile of the hearing aid. *Id.* at 1:66:2:5.

In addition to volume and tone, the user can configure various parameters of a sound-shaping algorithm (hearing aid profile) and provide the hearing aid profile to the hearing aid for use by a processor of the hearing aid to shape audio signals to produce modulated audio signals, which can be reproduced by a speaker of the hearing aid. The computing device can store a larger number of pre-configured hearing aid profiles. Additionally, the computing device can store instructions for selecting one of the hearing aid profiles for use, instructions for modifying one of the hearing aid profiles to produce a modified version for use, and instructions for generating new hearing aid profiles. *Id.* at 2:6–2:19.

According to the specification, a user can customize their listening experience by adjusting operation of the hearing aid using the computing device and without having to visit a hearing health professional. *Id.*

#### *D. Illustrative Claims*

The '421 patent has four independent claims: 1, 9, 13, and 16. All independent claims are directed generally to a device that communicates hearing aid profiles to first and second hearing aids based on the inputs received by a user. Ex. 1001, 8:34–11:19.

Claim 1 is illustrative, and reads as follows:

1. A portable electronic device comprising:

a transceiver configurable to communicate with a first hearing aid and a second hearing aid through a radio frequency (RF) communication channel while the first and second hearing aids are in operation;

a memory configured to store a plurality of hearing aid profiles executable by a digital signal processor of the hearing aid to shape audio signals to compensate for a user's hearing deficiency;

an input/output interface for receiving inputs and displaying information; and

a circuit configured to:

receive a user input indicating a selection of a first hearing aid profile and a second hearing aid profile from the plurality of hearing aid profiles;  
display settings related to the first and second hearing aid profiles on the input/output interface;  
receive a second user input to switch between adjusting the first and second hearing aid profiles jointly or individually;  
*receive a third user input to adjust at least one of the right and left hearing aid profiles; and*  
transmit the right and the left hearing aid profiles to the first and second hearing aids via the transceiver.

Ex. 1001, 8:34–57 (emphasis added).

## II. ANALYSIS

### A. Claim Construction

In an *inter partes* review, the Board presently interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation approach). Under that standard, and absent any special definitions, we give claim terms their ordinary and customary meaning, as they would be understood by one of ordinary skill in the art at the time of the invention in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Other than the limitations below, no other claim terms need explicit construction. *See, e.g., Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) (“[C]laim terms need only be construed ‘to the extent necessary to resolve the controversy.’” (Citation omitted)).

*i. “hearing aid profile”*

Claim 1 recites the limitation “hearing aid profile.” Ex. 1001, Claim 1. The specification of the ’421 patent describes the function of hearing aid profiles. More specifically:

Conventionally, hearing aids range from ear pieces configured to amplify sounds to more sophisticated hearing aid devices that are configurable by a hearing aid specialist. In an example, a hearing health professional takes measurements using calibrated and specialized equipment to assess an individual’s hearing capabilities in a variety of sound environments, and then programs the hearing aid profiles based on the calibrated measurements to enhance the performance of the hearing aid in a specific acoustic environment, such as in a crowd, outdoors, or a quiet room. High-end hearing aids may include between two and six different hearing aid profiles, often including a normal profile and a phone profile as two of the hearing aid profiles. However, even six profiles cannot cover *the large range of parameters and response characteristics needed to properly tune a hearing aid to the various acoustic environments to which a user may be exposed*, and such high-end hearing aids do not allow the user to adjust the hearing aid profile itself.

Ex. 1001, 1:25–42 (emphasis added).

In terms of the characteristics in a profile, the specification further informs us that:

As mentioned above, both hearing aid 102 and computing device 122 include memory devices to store hearing aid profiles. *As used herein, the term “hearing aid profile” refers to a collection of acoustic configuration settings for hearing aid 102, which are used by processor 110 within hearing aid 102 to shape acoustic signals.* Each of the hearing aid profiles includes one or more parameters configured according to the user’s hearing characteristics and designed to compensate for the user’s hearing loss or otherwise shape the sound received by one or more microphones 112 for a particular acoustic environment or situation. *In particular, the one or more parameters are configurable to customize the sound shaping and to adjust the response characteristics of hearing aid 102, so that signal processor 110 can apply a customized hearing aid profile to a sound-related signal to compensate for hearing deficiencies of the user, eliminate unwanted sounds or otherwise enhance the sound-related signals. Such parameters can include signal amplitude and gain characteristics, signal processing algorithms, frequency response characteristics, coefficients associated with one or more signal processing algorithms, or any combination thereof.* The signal amplitude and gain characteristics may be frequency specific, making it possible to amplify signal content at selected frequencies and to suppress the signal content at other frequencies. In some instances, processor 110 executes instructions stored in memory 104 to shape audio signals to compensate for the user’s hearing deficiencies, and the one or more parameters are configurable by replacing or modifying the instructions.

*Id.* 3:35–62 (emphases added).

Petitioner states that Patent Owner defined this term as “a collection of acoustic configuration settings for hearing aid 102, which are used by processor 110 within hearing aid 102 to shape acoustic signals. Each of the hearing aid profiles includes one or more parameters configured according to the user’s hearing characteristics and designed to compensate for the user’s hearing loss.” Pet. 12–13 (citing Ex. 1001, 3:37–43).

According to Petitioner, this construction is consistent with the plain and ordinary meaning of the term, relying upon the testimony of Dr. Morley. Pet. 12 (citing Ex. 1002 ¶ 45).

Patent Owner appears to agree with Petitioner's proposed construction. Resp. 9. In any event, Patent Owner does not challenge the construction. *Id.*

After reconsidering the meaning of the term "profile" from the Decision on Institution, we find that the actual language of the specification used in describing the term most accurately captures the meaning and broadest reasonable interpretation of the term "profile." Accordingly, we find the term profile to mean a "collection of acoustic configuration settings for a hearing aid, which are used by a processor to shape electrical signals related to sounds to compensate for the user's hearing loss."

Acoustic configuration settings are "configurable parameters that customize the sound shaping and adjust the response characteristics of a hearing aid." They include signal amplitude and gain characteristics, signal processing algorithms, frequency response characteristics, coefficients associated with one or more signal processing algorithms, or any combination thereof.

*ii "hearing aid schema"*

Patent Owner asserted that the Petition failed to provide a construction for "hearing aid schema" which Patent Owner deems necessary to determine if the prior art renders obvious claim 13. Prelim. Resp. 5.

According to Patent Owner in the Preliminary Response, the broadest reasonable interpretation of this term is a "pair of hearing aid profiles to be used in conjunction with each other to achieve the desired sound shaping results." *Id.* Patent Owner points us to the '421 patent specification's



description of “scheme[s].” *Id.* (citing Ex. 1001 at 7:42-44 (“Left ear profiles 436 and right ear profiles 438 may be grouped into left/right pairs to provide a relatively cohesive acoustic shaping scheme.”) and 8:9–3 (A “hearing aid profile scheme, which allows the user to select, edit, or generate a pair of hearing aid profiles to be used in conjunction with each other to achieve the desired sound shaping results.”))).

We found this interpretation to be a reasonable one, based upon the specification’s use of the term in conjunction with a pair of hearing aids. Inst. Dec. 8 (citing Ex. 1001, 8:12–14). We reaffirm that interpretation. We generally interpret the pair to be a matched pair for use with an individual with two ears, a left ear and a right ear. While undoubtedly other unusual pairing situations might exist, the intent of the language is clear to us on this record. *See also* Resp. 9 (stating that “Patent Owner’s expert agree[d] with Board’s construction”); Ex. 2001 ¶ 59.

*iii. Adjust*

As used in the claims with reference to a hearing aid profile, we find that “adjust,” “adjusted,” “adjusting,” or “adjustable” is “modifying a parameter.” Petitioner’s witness testified that that, in the context of the claims, “adjusting a hearing aid profile means to change some parameter associated with a hearing aid profile.” Ex. 2005, 10:4–15. “Adjust” depends on context. For example, changing a profile of a hearing aid can be “adjusting.” Ex. 1001, 2:16–17. A hearing aid profile can also be “adjusted.” *Id.* at 2:22–23. Adjusting a profile occurs by editing the profile’s settings. *Id.* at 4:14–16. Such alterations are stored in memory. *Id.* at 4:15–18. Accordingly, we find the term “adjust” to encompass a change,

edit, or alteration to something.

*B. Ground under 35 U.S.C. § 103 based on Topholm and Michael*

Petitioner contends that claims 1–17 are rendered obvious by Topholm (Ex. 1004) and Michael (Ex. 1005). Pet. 13–68. Petitioner also relies upon the Declaration of Dr. Morley for support. *See id.* (citing Ex. 1002).

Section 103(a) forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

*KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The ultimate determination of obviousness under § 103 is a question of law based on underlying factual findings. *In re Baxter Int’l, Inc.*, 678 F.3d 1357, 1361 (Fed. Cir. 2012) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1996)).

These underlying factual considerations consist of: (1) the “level of ordinary skill in the pertinent art,”<sup>5</sup> (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long felt but unsolved needs, failure of others, etc.”<sup>6</sup> *KSR*, 550 U.S. at 406 (quoting *Graham*, 383 U.S. at 17–18).

---

<sup>5</sup> Petitioner defines the level of ordinary skill in the art as someone with a B.S. degree in electrical or computer engineering, or the equivalent, and at least two years of experience in the design of audiological products. Pet. 7-8 (citing Ex. 1002, ¶ 32). Patent Owner does not challenge this level. PO Resp., *passim*. The references in the record tend to support a finding that this is the appropriate level.

<sup>6</sup> The record contains no persuasive evidence of secondary considerations.

*i. Overview of Topholm (Ex. 1004)*

Topholm teaches a programmable hearing aid which is universal yet said to be individually programmable. Ex. 1004, 2:26–33. It more specifically describes a programmable hearing aid with an amplifier and transmission section. The hearing aid's transmission characteristics can be controlled, with a control unit, with a transmitter for wireless transmission of control signals to the hearing aid and a receiver located therein for receiving and demodulating control signals. *Id.*, Abstract.

Topholm Figure 3, below, illustrates the hand held control unit.

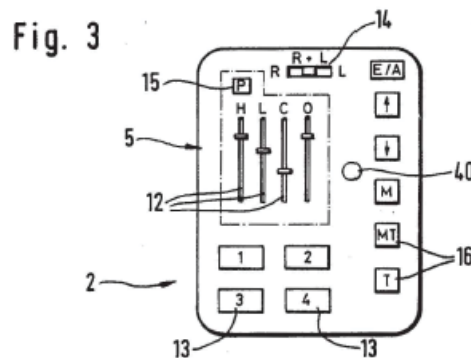


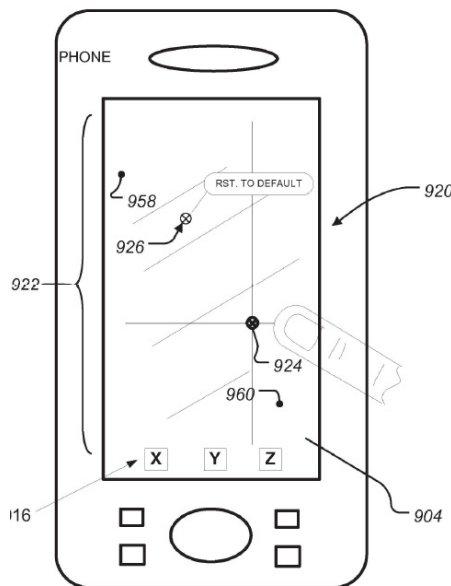
Figure 3 is a top view of a control unit

External control unit (1) contains initial memory (20) for some of the parameters which determine the transmission characteristics of the hearing aid, a control panel with entry keypad (5) for recalling such parameters from the memory (but, importantly for this decision, lacks a display of those recalled parameters), transmitter (4) which can be modulated with these parameters as control signals and digital control unit (3). The hearing aid contains a further control unit (8), which can be activated by the control signals after they have been demodulated, for control of the transmission section. *Id.*

*ii. Overview of Michael (Ex. 1005)*

Michael teaches generating a personalized hearing profile for an ear-level device which has a memory, microphone, speaker and processor. Communication is established between the ear-level device and a companion device, having a user interface. A frame of reference in the user interface is provided, where positions in the frame of reference are associated with sound profile data. Ex. 1005, Abstract.

Michael's companion device, embodied in a cellular telephone, is illustrated below.



**FIG. 6**

Figure 6 is a top view of a phone containing a personal sound screen image

The illustration above shows a “frame of reference” screen. A position on the “frame of reference” is determined in response to user interaction with the user interface, and certain sound profile data associated with the position. Ex. 1005, Abstract.

In operation, Figure 6 above is a personal sound screen. Ex. 1005, 7:44–46. It operates in the following manner:

Personal sound screen image 920 has a main region 922 containing a visual indicator 924 which can be moved around main region 922 by the user touching the visual indicator and dragging it to different position on main region 922. Initial position of visual indicator 924 on personal sound screen image 920 corresponds to the current sound profile program, discussed below. Visual indicator 924 includes a central portion and crosshairs, both of which move together as the user drags the visual indicator to different positions on main region 922. Touching or tapping on personal icon 918 also causes the sound profile program to render a frame of reference on the main region 922 of the touch screen 904. Note that location indicators or indices showing coordinates on the frame of reference are not visible on touch screen 904 in this example. *Positions on the frame of reference are mapped by a mapping table in software for example to corresponding locations in, for example, a table of hearing profiles located in the read-only memory 207 or read/write memory 208, or both.*

Ex. 1005, 7:44–66 (emphasis added).

*i. Claim 1*

*a. Parties' Contentions*

Relying on the testimony of Dr. Morley, Petitioner asserts that the combination of Topholm and Michael renders obvious the subject matter of claim 1. Petitioner asserts that using a remote device to adjust wirelessly left and right hearing aid profiles individually or jointly for dual hearing aid wearers, and wirelessly transmit new profiles to the hearing aid, was known in the prior art for at least 20 years before the filing of the application that issued as the '421 patent. Pet. 1.

Patent Owner, on the other hand, asserts that Petitioner has failed to establish that the combination of Topholm and Michael teaches or suggests

multiple claim elements. Resp. 10. More specifically, *inter alia*, for claims 1, 9, and 16, and their dependent claims, Patent Owner asserts that the cited art fails to teach adjusting the profiles. *Id.* (stating the cited art does not teach or suggest “a circuit configured to: . . . receiving a second user input to switch between adjusting the first and second hearing aid profile jointly or individually.”). For claim 13, Patent Owner asserts that the cited art fails to disclose adjusting any setting of a stored hearing aid profile. Resp. 33–34.<sup>7</sup>

*b. Analysis*

Upon review of Petitioner’s evidence and analysis, and taking into account Patent Owner’s arguments and evidence, we determine that Petitioner has not shown, by a preponderance of the evidence, that the subject matter of claim 1 is rendered obvious by the combination of Topholm and Michael.

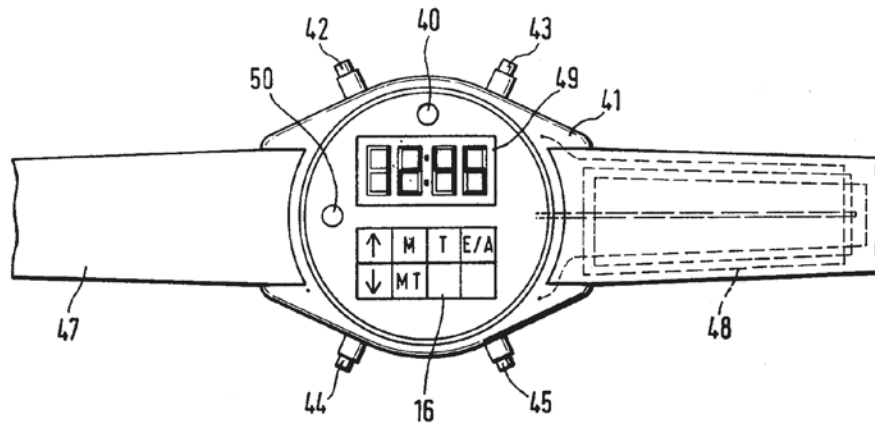
*1. A portable electronic device comprising:*

Petitioner argues that Topholm and Michael teaches a portable control device for the hearing aid. Pet. 15–18. We find that Topholm describes a portable external control unit such as a wristwatch or a hand held unit. Ex. 1004, 5:28-37; Fig. 3; and Fig. 6.

---

<sup>7</sup> Patent Owner relies upon the declaration testimony of Mr. Clyde Brown. Ex. 2001. We find Mr. Brown to be qualified to testify as to the subject matter of this proceeding by virtue of his extensive experience. Ex. 2002; Ex. 2001 ¶¶ 4–8.

Fig. 6



Topholm Fig. 6 is an embodiment of an external control unit.  
Ex. 1004; 2:57–58.

We also find that Michael describes a hearing aid control system that also uses a portable companion device such as a smartphone. Michael's system allows hearing aid wearers to use the portable device's graphical user interface to create, store, and adjust in real time, the different signal processing parameters of the hearing device. Ex. 1005, 6:36–39, 7:21–43; Fig. 6.

*a transceiver configurable to communicate with a first hearing aid and a second hearing aid through a radio frequency (RF) communication channel while the first and second hearing aids are in operation*

Petitioner urges that Topholm teaches a transmitter for the transmission of specific data, and determining the transmission's characteristics, by means of wireless transmission to the hearing aid. Pet. 18.

We find that Topholm describes using electromagnetic waves, including long-range electromagnetic waves, to communicate. Ex. 1004,

5:20–23. Petitioner asserts that Michael teaches a transceiver. Pet. 19–21. Dr. Morley testifies that Michael discloses a “receiver/transmitter” in a wireless companion device for communicating with an ear module 10 using a wireless radio link, such as Bluetooth, established through a wireless communication channel. Ex. 1002 ¶ 64 (citing Ex. 1005, 3:60–4:10, 6:36–55, Fig. 3). We find that Michael describes a transceiver. Ex. 1005, 3:60–4:10.

*a memory configured to store a plurality of hearing aid profiles executable by a digital signal processor of the hearing aid to shape audio signals to compensate for a user’s hearing deficiency*

Petitioner asserts that Topholm describes this element. Pet. 23. We find that Topholm Figure 4 describes an external control unit containing both memory (20) and volatile memory (19) for storing the various values which can be set by programming device (5) and entry keypad (2). Ex. 1004, 3:52-66.

We further find that Topholm stores acoustic parameters in the external control unit’s memory. *Id.* The data is transmitted from the external control unit to the appropriate hearing aid and these data are then used for controlling the audio processor with its various stages. *Id.* at 5:8–9.

Petitioner points to Michael for description of the digital signal processor of the hearing aid. Pet. 25. We find Michael describes a digital sound processor in Figure 2, reference numeral 52. Ex. 1005, Fig. 2 and 12:8–15.

*an input/output interface for receiving inputs and displaying information; and*



Petitioner asserts that both Topholm and Michael teaches this limitation. Pet. 26–27.

We find that Topholm describes a wristwatch housing with buttons for receiving inputs and a digital display for displaying the identification of the currently set program. Ex. 1004, 5:38–62, 6:4–6, 8:17–19, 8:31–32, Fig. 6.

We also find that Michael describes an input/output interface for receiving inputs and displaying information, as a graphical user interface for use with the touchscreen of a mobile phone. Ex. 1005, 7:32–39; *see also id.* at Figs. 3–6.

*a circuit configured to:*

*receive a user input indicating a selection of a first hearing aid profile and a second hearing aid profile from the plurality of hearing aid profiles;*

*display settings related to the first and second hearing aid profiles on the input/output interface;*

*receive a second user input to switch between adjusting the first and second hearing aid profiles jointly or individually;*

*receive a third user input to adjust at least one of the right and left hearing aid profiles;*

*and transmit the right and the left hearing aid profiles to the first and second hearing aids via the transceiver.*

Petitioner asserts that Topholm and Michael each teach this circuit. Pet. 27–29.

We focus our analysis on the “adjust” limitation, which we find to be dispositive in this case. Petitioner relies on Michael in its assertion. *Id.* at 32. The claim requires that the circuit *receive a third user input to adjust at least one of the right and left hearing aid profiles*. As stated *supra*, we understand the “right” and “left” profiles to be among “the plurality of

hearing aid profiles” stored in the memory of the portable device.<sup>8</sup> *See* Ex 1001, 6:58–64 (“[C]omputing device 122 for providing remote storage and adjustment of *hearing aid profiles 134, including right ear profiles 436 for use by right hearing aid 410 and left ear profiles 438 for use by left hearing aid 420.*”) (emphasis added)).

Petitioner asserts that Michael discloses a hearing aid control system that uses a portable “companion device,” such as a smartphone, that allows hearing aid wearers to use the portable device’s graphical user interface to create, store, and adjust in realtime, the different signal processing parameters of the hearing device. Pet. 17, *citing* Ex. 1005, Michael, 6:36–39, 7:21–43, Figs. 6, 11; and Ex. 1002, Morley Decl., ¶ 59.

More specifically, Petitioner asserts that Michael teaches that the user interacts with a touch screen interface to manipulate frequency emphasis, frequency shaping or boosting, gain, dynamic range compression, time constants, and/or noise reduction aggressiveness until the sounds heard at the hearing aid are acceptable to the hearing aid wearer. Pet. 17–18 (citing Ex. 1005, Michael, 8:32–51, 11:49–12:28; Ex. 1002, Morley Decl., ¶ 60).

Regarding the specific claim limitation of “adjust” Petitioner asserts that Michael teaches this limitation. Pet. 32. The limitation is said to be shown by with an input to the graphical display. Michael, it is urged, discloses a two-dimensional coordinate system as the preferred embodiment of the graphical user interface for adjusting acoustic parameters. *Id.*

---

<sup>8</sup> There is a lack of clear antecedent basis in the claim. Left and right are used for the first time with the article “the.” Petitioner assumes, and we agree, that the right and left may be held, for purposes of this proceeding, to correspond to the first and second hearing aids. Pet. 13, citing Ex. 1002, ¶ 47. Patent Owner does not challenge this interpretation. PO Resp, *passim*.

With this system, described for example with respect to Figure 10, Petitioner contends, the user is able to adjust a first acoustic parameter (e.g., dynamic range compression) when the user changes locations of the indicator along a row of the display horizontally), and the user is able to adjust a second acoustic parameter (e.g., frequency shaping in this example) when the user changes locations of the indicator along a column (vertically) of the display. *Id.* at 32 (citing Ex. 1005, Michael, 10:46–50).

Petitioner then concludes: “Accordingly, the user adjusts one of the hearing aid profiles.” *Id.* (citing Ex. 1002, Morley Decl., ¶ 84).

The problem we find with this position is that the Petitioner is reading claim elements into the description of these references. Patent Owner points out that the profiles are not being adjusted, but rather being selected from twenty-four previously stored profiles. Resp. 30–31. While the ear module operational profile changes, we observe that this is because it is using a different profile, which was just uploaded from the control unit. The act of moving the finger around on the screen to us perhaps *appears* to change the profile, when it is in fact moving through a set of preexisting profiles and uploading them to the hearing aid instead, changing operation of the hearing aid itself but not adjusting the profile itself. Michael states:

This permits the user to select a hearing profile by simply moving visual indicator 924 over main region 922 while listening to a sound stream broadcast by ear 35 module 10; the sound stream being heard by the user reflects the hearing profile corresponding to the current position of the visual indicator 924 in real-time.

Ex. 1005, 8:32–37.

Dr. Morley admitted during his cross examination that Michael actually replaced profiles.

Q But while the user is moving through those various paths, once that visual indicator reaches a new region, then the hearing profile for that region *replaces* the previous hearing profile, correct?

\* \* \*

THE WITNESS: When a new region in the display, as shown back in figure 10, when the finger enters that region, then the hearing aid profile for that region is transmitted to the hearing aid and it would replace or be written into the control of the hearing aid until the finger would move out of that region on the touch panel.

Ex. 2005, 50:19-51:10 (emphasis added).

The portion of Michael relied upon by Petitioner for supporting profile adjustment states:

FIG. 10 illustrates different combinations of output gain/dynamic range compression options versus frequency shaping patterns. Each of these combinations corresponds to a hearing profile stored in read/write memory 208. For example, combination number 992 combines the low frequency emphasis of frequency shaping pattern 1 of FIG. 10A with the first (low) output gain/dynamic range compression option. Combination number 993 combines the relatively high frequency emphasis of frequency shaping pattern 5 of FIG. 10E with the fourth (high) output gain/dynamic range compression option indicated by line 986 in FIG. 9. An example of a factory preset location, usable as a default profile, is combination number 994 which combines the frequency emphasis of frequency shaping pattern of FIG. 7D with the 6 dB (4:1) output gain (dynamic range compression option), indicated by line 985 in FIG. 9. The locations on the frame of reference can be associated with entries in a data structure that include respective combinations of a dynamic range compression function and a frequency shaping function. Changes in location along a row in FIG. 10 can be associated with changes in preset profiles related to dynamic range compression data and changes in location on a column can

associated with changes in preset profiles related to frequency shaping data. Other arrangements of the location mapping process can be implemented based on empirical data that shows beneficial perceptions of the changes in the modified sound, by the users as they interactively navigate the frame of reference using audio feedback to select a preferred hearing profile.

Ex. 1005, 10:27–55. Figure 10 is reproduced below:

Output Gain / Dynamic Range Compression Options

	1	2	3	4
1	<u>992</u>			
2		<u>994</u>		
3				
4				
5				<u>993</u>
6				

Frequency Shaping Patterns

Figure 10 is a graphical user interface illustrating a frame of reference containing 24 different combinations of frequency shaping patterns and output gain/dynamic range compression options. *Id.* at 3:24–27.

In summary, the cited portions of Michael relied upon by Petitioner and Dr. Morley fail to teach “receive a third user input to *adjust* at least one of the right and left hearing aid profiles” (emphasis added) as recited in claim 1. As explained above, the cited portions of Michael teach replacing one profile with another profile. Yet, the flaw in Petitioner’s (and Dr. Morley’s) theory is when one profile is replaced with another profile, it is no longer the *same* profile (i.e., “to *adjust* at least one of the right and left

hearing aid profiles”) being adjusted. Put another way, if the right hearing aid profile is selected, but is replaced by another hearing aid profile, then the right hearing aid “profile” is not “adjusted”; rather, *the* previous right hearing aid profile remains the same (i.e., fails to meet “to adjust” recited in claim 1) and is replaced with another hearing aid profile, adjusting the function of the hearing aid.

Accordingly, we are not persuaded by Petitioner that the cited portions of Michael teach “receive a third user input to *adjust* at least one of the right and left hearing aid profiles” (emphasis added) as recited in claim 1. And we are not persuaded by Petitioner that Topholm and Michael render the subject matter of claim 1 obvious.

We agree with Petitioner that Topholm or Michael describes altering the performance of a hearing aid by uploading profiles to a hearing aid. However, we find that Petitioner has not established that Topholm or Michael describe or render obvious alteration, editing, or change of a profile displayed on the portable unit for transmission to the hearing aid. We, thus, determine that the Petition fails to show, by a preponderance of the evidence, the claim element of “receive a third user input to adjust at least one of the right and left hearing aid profiles.”

*ii. Claims 2–8*

Claims 2–8 depend directly or indirectly from claim 1 and recite additional limitations. Ex. 1001, 8:58–9:15. However, as the Petition has not carried its burden of proof as to claim 1, it has also not carried its burden of proof as to claims 2–8.

We, thus, determine that the Petition has not demonstrated that claims 2–8 are rendered obvious by Topholm and Michael.

*iii. Claims 9–12*

Independent claim 9, directed to a device, recites limitations similar to those recited in claim 1. Ex. 1001, 9:15–56. Petitioner urges that the apparatus of Topholm and Michael meets those limitations for claim 9, in a similar manner as for claim 1. *See* Pet 44–53.

We are not persuaded by Petitioner’s contentions. Specifically, we are not persuaded regarding the claim element of “receive a third user input to adjust at least one of the right and left hearing aid profiles,” in a manner similar as for claim 1. Pet. 48.

Therefore, we determine that the Petition fails to demonstrate, by a preponderance of the evidence, that claim 9, and claims 10–12, which depend therefrom, are unpatentable over Topholm and Michael.

*iv. Claims 13–17*

Claim 13 recites:

13. A device comprising:

a display interface for displaying information to a user;

an input interface for receiving user input;

a transceiver configurable to communicate with a right and a left hearing aid through a radio frequency (RF) communication channel while the left and right hearing aids are in operation;

a memory configured to store a plurality of hearing aid profiles executable by a digital signal processor of the hearing aid to shape audio signals to compensate for a user's hearing deficiency, the memory further configured to store a plurality of instructions including graphical user interface instructions and hearing aid configuration instructions;

a processor coupled to the memory and to the transceiver, the processor configured to execute the graphical user interface instructions to:

produce a graphical user interface on the display interface;

receive a first user input corresponding to a user-selectable element of the graphical user interface to select a hearing aid schema



for adjusting a first hearing aid profile and a second hearing aid profile, the first hearing aid profile corresponding to the settings on the right hearing aid and the second hearing aid profile corresponding to the settings on the left hearing aid;

*receive a second user input corresponding to a user-selectable element of the graphical user interface to adjust at least one setting of the schema, wherein adjusting the at least one element of the schema adjust at least one setting of the first hearing aid profile and at least one setting of the second hearing aid profile;*

*receive a third user input corresponding to a user-selectable element of the graphical user interface to toggle between adjusting the at least one element of the schema and adjusting at least one setting of the first hearing aid profile without adjusting at least one setting of the second hearing aid profile; and*

*receive a fourth user input corresponding to a user-selectable element of the graphical user interface to cause the device to provide the first hearing aid profile to the right hearing aid and the second hearing aid profile to the left hearing aid.*

Ex. 1001, 9:57–10:33 (emphases added).

This claim is to a device similar to that of claims 1, 4, and 5. *See* Pet. 56. The device includes a display, input, transceiver, memory, and processor. The processor is “configured to” perform certain steps through the interface to create new profiles. Ex. 1001, Claim 13.

Petitioner urges that the apparatus of Topholm in combination with Michael meets all these limitations as set forth for claims 1 and 9 (and their dependent claims). Pet 53–68.

We are not persuaded Petitioner’s contentions. Specifically, Petitioner has not shown persuasively that the cited art teaches or suggests the claim element “receive a second user input corresponding to a user selectable element of the graphical user interface to adjust at least one setting of the schema, wherein adjusting the at least one element of the



schema adjust at least one setting of the first hearing aid profile and at least one setting of the second hearing aid profile.”

Petitioner asserts that a person of ordinary skill in the art would understand that when Topholm is combined with Michael’s disclosure of a graphical user interface and the ability for a user to adjust a profile, the resulting user interface would receive a second user input corresponding to a user selectable element of the graphical user interface to adjust at least one setting of the schema that would adjust a setting of the first hearing aid profile and a setting of the second hearing aid profile. Pet. 56–57 (citing Ex. 1002, Morley Decl., ¶ 135).

As with claim 1 for the reasons discussed above, we are not persuaded by the evidence of record that a profile (or schema for multiple hearing aids) is adjusted.

We therefore conclude that the Petition has failed to carry its burden of showing that independent claim 13, or claims 14–17 which depend therefrom, are unpatentable over Topholm and Michael.

### III. CONCLUSION

On this record, we determine that Petitioner fails to show, by a preponderance of the evidence, that claims 1–17 are unpatentable under 35 U.S.C. § 103 over Topholm and Michael.

This is a final written decision of the Board under 35 U.S.C. § 318(a). Parties to the proceeding seeking judicial review of this decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

#### IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–17 have not been shown to be *unpatentable*.

IPR2017-00496  
Patent 8,761,421 B2

PETITIONER:

Donald R. Steinberg

Haixia Lin

Christopher O'Brien

Yung-Hoon Ha

WILMER CUTLER PICKERING HALE AND DORR LLP

[don.steinberg@wilmerhale.com](mailto:don.steinberg@wilmerhale.com)

[haxia.lin@wilmerhale.com](mailto:haxia.lin@wilmerhale.com)

[christopher.obrien@wilmerhale.com](mailto:christopher.obrien@wilmerhale.com)

[sam.ha@wilmerhale.com](mailto:sam.ha@wilmerhale.com)

PATENT OWNER:

Henry A. Petri, Jr.

James P. Murphy

Margaux A. Savee

POLSINELLI PC

[hpetri@polsinelli.com](mailto:hpetri@polsinelli.com)

[jpmurphy@polsinelli.com](mailto:jpmurphy@polsinelli.com)

[msavee@polsinelli.com](mailto:msavee@polsinelli.com)

Tim R. Seeley

Russ Rigby

INTELLECTUAL VENTURES

[tims@intven.com](mailto:tims@intven.com)

[rrigby@intven.com](mailto:rrigby@intven.com)